TOWN OF RAYMOND

Planning Board Agenda
September 14, 2023
7 p.m. - Raymond High School
Media Center - 45 Harriman Hill

Public Announcement

*If this meeting is canceled or postponed for any reason the information can be found on our website, posted at Town Hall, Facebook Notification, and RCTV. **

1. Pledge of Allegiance

2. Public Hearing-

Application #2021-018 White Rock Place: A Site Plan Application has been submitted by Joseph Coronati of Jones and Beach Engineers, Inc. on behalf of Tuck Realty Corp. The applicant is proposing 156 market rate apartments of three 4 story buildings on slabs with elevators, mix of 1- and 2-bedroom units with an open space preserved, recreation trails and parking. Access will be from Main Street. The property identified as Raymond Tax Map 23 Lots 25 & 29 located at 109A & C Main Street, Raymond NH, 03077 and is within Zone B & D, allowed under the Sewer Overlay District.

Application # 2023-006 Floral Ave. LLA: A LOT LINE application is being submitted by Jason Franklin of Franklin Associates, LLC. on behalf of Michael Fahey of Interpro Investments, LLC.. The intent of this application is to consolidate lots 57(1,995sf) & 58(1,596 sf), then take 4,047 sf from lot 59 and add it to lot 57, making lot 57 (7,624 sf) and lot 59 (17,796 sf) for the purpose of replacing the septic system for the new lot 57. The parcels are Map 28-1/Lots 57, 58, & 59, Zone A and located at 14A, 14B, & 14 Floral Ave. in Raymond NH.

Application # 2023-007 Meindl Road Subdivision: A SUBDIVISION application is being submitted by Jospeh Falzone and Beals Associates PLLC on behalf of Frances and Raymond Scanlon. The intent of this application is to subdivide a 10 +/- acre lot on Meindl Road into 3 individual lots. The parcel is Map 41/Lot 47, Zone B and located on Meindl Road in Raymond NH.

3. Public Comment

4. Approval of Minutes

- **08/24/2023**

5. Other Business

- Staff Updates-
- Board Member Updates
- Any other business brought before the board-

* Note: If you require personal assistance for audio, visual or other special aid, please contact the Selectmen's Office at least 72 hours prior to the meeting. If this meeting is postponed for any reason, it will be held at a time TBD.

TOWN OF RAYMOND

Planning Board Agenda
September 14, 2023
7 p.m. - Raymond High School
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6. **Adjournment (NO LATER THAN 10:00 P.M.)**

Planning Board 2023 Submittal and Meeting Dates

Submittal Deadline for Completed Application & Materials	Planning Board Meeting Dates (1st & 3rd Thursdays of the Month)
August 03, 2023	September 07, 2023 **2022-009** Jewett Warehouse
Added Meeting	September 14, 2023 **2021-018** White Rock Site Plan **2023-006** Floral Ave **2023-007** Meindl Road Subdivision(3 lot)
August 17, 2023	September 21, 2023 **TAFT WAY**- 674:41 process
Added Meeting	September 28, 2023 **WORK SESSION 6-9 pm**
September 07, 2023	October 05, 2023 **2022-015** White Rock LLA
Added Meeting	October 12, 2023 **WORK SESSION 6-9 pm (ROOM 109)**
September 21, 2023	October 19, 2023 **2022-010** Onyx Excavation Rehearing
Added Meeting	October 26, 2023 **WORK SESSION 6-9 pm**
October 05, 2023	November 02, 2023 **2022-008** Onyx Warehouse
Added Meeting	November 9, 2023 **WORK SESSION 6-9 pm**
October 19, 2023	November 16, 2023 **WORK SESSION 6-9 pm**
Added Meeting	November 30, 2023 **WORK SESSION 6-9 pm**
November 02, 2023	December 07, 2023 **WORK SESSION 6-9 PM**
Added Meeting	December 14, 2023
November 16, 2023	December 21, 2023

* Note: If you require personal assistance for audio, visual or other special aid, please contact the Selectmen's Office at least 72 hours prior to the meeting. If this meeting is postponed for any reason, it will be held at a time TBD.

White Rock Place Site Plan
0.0/+./6

ROCKINGHAM
PLANNING
COMMISSION
theRPC.org

156 Water Street | Exeter, NH 03833
603-778-0885 | www.therpc.org

Memo To: Town of Raymond Community Development Department
From: Madeleine DiIonno, Regional Planner, Rockingham Planning Commission
Date: February 14, 2023
Subject: Review of Site Plan Application 2021-018; 109 A & C Main Street, "White Rock Place" (Tax Map 23 Lots 24, 25 & 29)

Rockingham Planning Commission has reviewed a site plan and lot line adjustment application submitted by Jones & Beach Engineers on behalf of Tuck Realty Corp for the construction of a 156-unit apartment complex with associated utilities, parking areas, stormwater management two points of access; one main driveway and an emergency access road. The subject property is identified as Tax Map 23 Lot 25 located in Zone D (Industrial).

Tax Map 23 Lot 25 was originally included in Raymond's Sewer Overlay District, in which, multi-family residential development was a permitted use *(Article 14: Allowed Uses Table, Raymond Zoning Ordinance 2020).* The Sewer Overlay District was removed from the Zoning Ordinance by town vote in March 2021; however, the provisions of the Sewer Overlay District are still applicable to this application.

RSA 676:12, VI states applications that have been submitted and noticed for Design Review are protected from subsequent regulatory changes provided that a formal application is filed within 12 months of the end of the design review process. Application 2021-018 came before the Planning Board for Design Review on November 5, 2020, and a formal application was filed November 4, 2021. Therefore, the application is legally vested.

My specific comments are as follows:

General Comments:

It appears the following Permits are required for this application: 1) NHDES Alteration of Terrain Permit and 2) Town of Raymond Driveway Permit. It's recommended each required permit be received prior to or as a condition of approval; and receipt of each permit be acknowledged in a note on the Cover Sheet of the final plans.

The following waivers have been requested from the Raymond Site Plan and Subdivision Regulations:

1. Site Plan regulation 6.06 – Parking Standards
2. Site Plan regulation 3.03.03 – Licensed Landscape Architect (*Note 5b on Sheet C3 should be revised to reflect the accurate section).
3. Subdivision Regulation 5.6.D.1 (Road Design Standards) – Maximum Road Grade (for emergency access road only)
4. Subdivision Regulation ROW Design Matrix – Minimum Pavement Width (for emergency access road only.

It is recommended that a petition for the above waivers be submitted in writing using the town's Waiver Request Form in accordance with Section 7.08 of the Raymond Site Plan Regulations and Section 1.4.d of the Raymond Subdivision Regulations. In the event the Planning Board grants one or more of the waivers, it is recommended that notes acknowledging such relief be provided on the cover sheet of the final plans.

Zoning Matters:

1. It is recommended that the applicant provide a written Unified Development Plan in accordance with the provisions of the Sewer Overlay District (Section 5.3.2 of the ***2020*** Raymond Zoning Ordinance). See full text on page 4.

2. Sheets C2 and C3 show front and side building setbacks of 30 feet. Article 15.2.7 states "any residential structure proposed for location within a Commercial (C.1 and C.2) or Industrial zone (D) requires a minimum setback of one hundred feet (100') from property lines, or, in the alternative, fifty feet (50') inclusive of a minimum of twenty feet (20') of dense vegetative buffer and a fence of a type..." It is recommended the plans be revised accordingly.

3. A special permit is required for impacts to Zone G land (in this case, 128,000 square feet of steep slope disturbance). It is recommended the applicant seek input from the Raymond Conservation Commission on such impacts in accordance with Article 4.9.6.2.2 of the Zoning Ordinance.

Site Plan Submission Requirements:

1. It is recommended that a Community Impact Analysis be prepared in accordance with SPR 4.02.03. The Community Impact Analysis shall describe the proposed use and include a description of how the proposed activity, both during and following construction, will impact traffic, parking and circulation, storm drainage, utilities, schools, noise, the Town's fiscal condition and other Community services.

2. It is recommended that a traffic impact analysis be prepared in accordance with SPR 5.03.13.

3. It is recommended that architectural concept drawings be submitted for proposed buildings in accordance SPR 5.03.14.f. Said plans shall consist of plan and exterior elevation views or proposed improvements, with external mechanical components of the building (i.e., heating, ventilation, and air conditioning). Plans shall be conceptual only, but of sufficient detail to determine compliance with Town Regulations.

Road Design, Access, and Parking:

1. The width of the proposed access road is 22 feet where a width of 25 feet is required (SPR 6.02.01.a). The plans should be revised accordingly. It is understood that a waiver has been requested from this requirement for the emergency access road only.

2. According to the Right of Way Design Matrix in the Raymond Subdivision Regulations, sidewalks are required on private streets serving 20 units or more. The plans should be revised accordingly.

3. The grade of the proposed emergency access road is 9%. It is understood that a waiver has been requested from section 5.6.D.1 of the Raymond Subdivision Regulations, which states grades of streets shall not exceed 8%. It is recommended that the applicant consult with the Raymond Fire and Police Departments as to the adequacy of both roadways for emergency access.

4. Note 3 on Sheet P1 states "as built plans will be submitted to the town prior to acceptance of the roadway." Are one or both proposed access roads intended to be dedicated as public streets? If so, it is recommended that Note 3 on sheet P1 be revised to clarify this intent. Additionally, it is

recommended that a note be added to the final plans acknowledging that all maintenance of the future streets is the responsibility of the applicant until such time as it may be accepted as a Class V public way by the Town of Raymond in accordance with RSA 674:40.

5. The minimum parking requirements for a residential / multi-family development is 3 spaces per unit (SPR 6.06), which would require 468 spaces for the proposed development. A total of 281 spaces are currently proposed. It is understood that the applicant is requesting a waiver from this requirement. SPR 6.06.03 states that the Planning Board has the prerogative to adjust these (parking) requirements and such decision will be based on the expected number of trips generated by the activity at its peak hour. It is recommended that the applicant provide such information and any other supporting documentation to justify the reduced parking count.

   SPR 6.06.04.i states when a waiver is requested for relief from the number of parking spaces required by the Raymond Site Plan Review Regulations, the applicant must present a plan showing the ability to install the full number of spaces in the future if the need arises. It is recommended the applicant provide such information.

Water / Stormwater:

1. SPR 6.05.02 states that connection to the municipal water system requires a letter from the Raymond Water Department indicating acceptance of the proposed design and agreement to furnish the requested service(s).

   It is my understanding that the proposed development has been submitted to the town's consulting engineer, Underwood Engineers, for evaluation of impacts to the town's water distribution system.

2. Inspection and maintenance responsibilities for the stormwater management and erosion control measures should be noted on the final plans in accordance with 6.11.07 of the Raymond Site Plan Regulations.

Fire Protection

1. It is recommended that the applicant meet with the Fire Department to review the proposed protection activities, such as fire alarms, sprinkler systems, fire hydrants, dry hydrants, emergency access and cisterns in accordance with Section 6.09 of the Raymond Site Plan Regulations.

Landscaping and Screening

1. It is understood that the applicant is seeking a waiver from section Site Plan regulation 3.03.03 which requires landscape plans be developed by a licensed landscape architect.

2. It is recommended that a note be added to the landscape plan stating the owner and tenant of the property shall be jointly responsible for the maintenance of all required plant material and continued compliance with the Raymond Site Plan Regulations (SPR 6.10.07).

5.3.2. UNIFIED DEVELOPMENT: All development within this SOD must take place in accordance with a Unified Development Plan approved by the Planning Board. For purposes of this Ordinance, a Unified Development Plan shall be defined as an overall plan that identifies in a conceptual nature how the lot or lots contained in the plan will be developed in a manner consistent with the intent of this Ordinance and how the plan will allow and encourage the development of other lots within the SOD zoning district, in a manner consistent with the intent of the Ordinance.

5.3.2.1. The Unified Development Plan must describe and illustrate, in written and graphic format, and shall specify the intended locations and types of proposed uses, the layout of proposed vehicle and pedestrian access and circulation systems, provision of transit facilities and water and sewer facilities, and areas designated to meet requirements for open space, parking, on site amenities, utilities and landscaping. It shall include statements or conceptual plans describing how signage and lighting will be designed in a unified and integrated manner within the district. In addition, the Unified Development Plan shall indicate how the proposed uses will relate to the surrounding properties both within and outside of the district.

5.3.2.2. The submittal of written concept statement(s) in lieu of a Unified Development Plan shall not be accepted. In determining whether to approve a Unified Development Plan, the Planning Board will consider the following criteria:

5.3.2.2.1. Compatibility of the plan with the goals and objectives set forth in the Town's Master Plan;

5.3.2.2.2. Compatibility of the plan with the permitted uses in the Sewer Overlay District.

5.3.2.2.3. Approval of the Unified Development Plan must occur prior to the consideration of individual site development plans for one or several contiguous lots within the SOD. All site development plans must be reviewed and approved in accordance with this Ordinance and the Planning Board's Site Plan, Subdivision and Earth Excavation Regulations prior to the issuance of any building permits within the district.

5.3.3. AMENDMENT TO UNIFIED DEVELOPMENT PLAN: Any Unified Development Plan may be changed or amended by an applicant and such changes may occur concurrently with, or prior to the submittal of individual site development plans. To the extent that the approved Unified Development Plan addresses lots within the SOD which are not owned by the applicant, then such approved plan shall be binding only on the applicant and the owners of such other lots may seek changes to the Unified Development Plan consistent with their own development project.

5.3.4. SPECIAL PROVISIONS: All new development, change of use, subdivision, site review or development requiring a building permit must be connected to both town water and town sewer services. Notwithstanding the above, application for new development may be made prior to the availability of town water and sewer, provided that the proposed use is permitted as a matter of right in the underlying districts or provided that relief is obtained from the Zoning Board of Adjustment, and provided that the applicant proposes development subject to a condition of approval that the property shall be connected to town water and sewer when it becomes available within one hundred (100) feet of the property line.

Developments with Regional Impact
Project Name:
Application No.:
Tax Map & Lot:

The Rockingham Planning Commission has developed this guidance document to aid our communities in evaluating whether or not a development should be determined to have regional impact. The document summarizes the statutory process that must be followed under New Hampshire state law and suggest a number of triggering factors that should be considered for making this determination. Bear in mind that the criteria suggested here are our recommendations: they have no regulatory force.

Statutory Authority: refer to RSA 36:54-58 – The purpose of this statute is to establish the framework to be followed by a community that is reviewing a development proposal with **potential impacts beyond its municipal boundaries**.

*Findings of **YES** on one or more of the items below indicates the possible need for a local land use board to make a determination that the development proposal results in regional impacts.*

NOTE: THIS IS ON A REGIONAL BASIS NOT A LOCAL BASIS

1. **School Impacts:** Does the development create significant new student population affecting a regional school district?____Yes____No

2. **Traffic Generation:** Will the project generate traffic that will create an impact on surrounding municipalities?______Yes_____No

3. **Road Networks:** Does the development provide the opportunity to create a more efficient road network for the regional area or potentially affect regional travel patterns?___Yes____No

4. **Building Size:** Is the proposed building greater than 50,000 square feet and located within 2,500 feet of a municipal line?____Yes____No

5. **Visual Impacts:** Will the development create visual impacts to neighboring municipalities such as light pollution, glare, or structures visible from neighboring municipalities?____Yes____No

6. **Pollution:** Does the development propose the operation of a facility or business which would generate excessive amount of air pollution, wastewater discharge, noise, or hazardous waste transport?
___ Yes___ No

7. **Water Supply Impacts:** Will the development require a major impact wetland permit from NH DES?
___ Yes____No

Will impacts to known aquifers occur?____Yes____No

Does the project involve permitting for a large groundwater withdrawal?____Yes____No

Will the development cause negative impacts to another community's municipal water supply?
____Yes ____No

8. **Conservation Lands:** Does the development abut existing conservation lands, greenway or existing farmland such that coordination between municipalities could lead to the creation or preservation of greenways or wildlife habitat areas or prevent fragmentation of forests, farms or other conservation lands?
____Yes___ No

9. **Economic Impacts:** Does the development propose the creation of business or industry that would significantly impact regional economic development?____Yes____No

10. **Emergency Response:** Does the proposal create a significant increased demand for emergency services response (including mutual aid) from abutting communities?____Yes____No

11. **Historic or Cultural Resources:** Does the proposed development have negative impacts on historic or cultural resources that may have significance regionally?____Yes____No

12. **Other:** Does the development create other regional impacts not listed in items 1 – 11 above?
___ Yes ___No

Describe: ____

____

updated 8/30/23

A T & T COMPANY
1010 PINE, 9E-L-01
ST. LOUIS, MO 63101

A T &T COMPANY
754 PEACHTREE STREET
ATLANTA, GA 30308

ARTHUR, LINDA & JOHN
91 MAIN STREET
RAYMOND, NH 03077

BERGERON, MICHAEL B
MAUREEN R BERGERON
100 MAIN STREET
RAYMOND, NH 03077

BREWITT, JOHN J.,JR. & ER
110 MAIN STREET
RAYMOND, NH 03077

*BRUHMULLER, DANIEL
123 MAIN STREET
RAYMOND, NH 03077

BUCKUS, JILLIAN
109 MAIN STREET
RAYMOND, NH 03077

COLE-CALNAN, NANCY
6 ORCHARD STREET
RAYMOND, NH 03077

CONNOLLY, SEAN M.
3 MOULTON STREET
RAYMOND, NH 03077

FROST, WAYNE G. & IRENE
7 MOULTON STREET
RAYMOND, NH 03077

GARNHAM, DENNIS
JANET BUTLER
95 MAIN STREET
RAYMOND, NH 03077

GILES, ERIN B. & BRIAN D.
1 MOULTON STREET
RAYMOND, NH 03077

JOHNSON, CARLYLE R.
MARICELA JOHNSON
9 MOULTON STREET
RAYMOND, NH 03077

KING, WILLIAM C
JANICE L KING
101 MAIN STREET
RAYMOND, NH 03077

*KITTREDGE, OCEANNE SARAH
ADAM KITTREDGE
126 MAIN STREET
RAYMOND, NH 03077

LACASSE, ALISON F. W. & R
INEZ WELCH
103 MAIN STREET
RAYMOND, NH 03077

LURIE, AUDREY J.
111 MAIN STREET
RAYMOND, NH 03077

MCCARTHY, TONA & CYNTHIA
CINDY A. TOWNSEND
112 MAIN STREET
RAYMOND, NH 03077

MERKEL EMPIRE , LLC
17 PINEWOOD DRIVE
STRATHAM, NH 03885

METRO PCS
12920 SE 38TH Street
Bellevue, WA 98006

MICHAELS, KEITH J.
11 ORCHARD STREET
RAYMOND, NH 03077

MOULTON, EDWARD W
2 OLD FREMONT ROAD
RAYMOND, NH 03077

MOULTON, EDWARD W
JEAN MOULTON
2 OLD FREMONT ROAD
RAYMOND, NH 03077

ONYX RAYMOND LLC.
200 RESERVOIR STREET
SUITE 306
NEEDHAM, MA 02494

PERREAULT, JOHN W
116 MAIN STREET
RAYMOND, NH 03077

POWER, JOHN W
5 MOULTON STREET
RAYMOND, NH 03077

PRATT, KEVIN M.
KERRY J. PRATT
11 SMITH POND ROAD
RAYMOND, NH 03077

~~RAYMOND, TOWN OF~~
~~4 EPPING STREET~~
~~RAYMOND, NH 03077~~

RICE, CHARLES F.JR. REVOC
CHARLES F. RICE, JR. / TR
97 MAIN STREET
RAYMOND, NH 03077

RUELAS, JEREMY S & SUSANN
114 MAIN STREET
RAYMOND, NH 03077

* Added

updated 8/30/23

SPOFFORD, LISA REVOCABLE
LISA M. DESISTO / TRUSTEE
38 W. BROADWAY
DERRY, NH 03038

SPRINT COMMUNICATIONS
C/O PROPERTY TAX DEPARTME
P.O. BOX 85022
BELLEVUE, WA 98015-8522

SPRINT COMMUNICATIONS CO.
ATTN: PROPERTY TAX DEPART
PO BOX 85022
BELLEVUE, WA 98015-8522

SPRINT SPECTRUM LP
C/O PROPERTY TAX DEPARTME
P O BOX 85022
BELLEVUE, WA 98015-8522

*STATE OF NEW HAMPSHIRE
JOHN O. MORTON BLDG.
P.O. BOX 483
CONCORD, NH 03301

TUCK REALTY CORPORATION
P.O. BOX 190
EXETER, NH 03833

VERIZON
P.O. BOX 2549
ADDISON, TX 75001

WATT, DANIEL E
102 MAIN STREET
RAYMOND, NH 03077

WELCH, PAUL W & TERI L
109 MAIN STREET
RAYMOND, NH 03077

WELCH, WAYNE F
CATHLEEN M WELCH
109 A MAIN STREET
RAYMOND, NH 03077

WELCH,JOSEPH & JOHN & ARD
BETSY PATTERSON & ROBIN P
49 RAYMOND ROAD, ROUTE 156
NOTTINGHAM, NH 03290

*ZABEK, THEODORE R.
SARAH J. ZABEK & THOMAS Z
30 KESSLER FARM ROAD
APT. 543
NASHUA, NH 03063

Jones & Beach

Gove Environmental

* NHDOT

* ADDED

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 17, 2023

Raymond Planning Board
Attn. Diana Luszcz, Chair
4 Epping Street
Raymond, NH 03077

Re: Resubmission Letter
White Rock Place
109A Main Street, Raymond, NH
Tax Map 23, Lot 25
JBE Project No. 20564

Dear Ms. Luszcz,

On behalf of our client, Tuck Realty Corp., Jones & Beach Engineers, Inc., respectfully resubmits plans and attachments for the above-referenced project. We have obtained notarized letters of authorization from the sellers of the properties and therefore we are now ready to move forward with this application.

The following items are provided in support of this Letter:

1. Original Site Plan Application for Reference.
2. Letters of Authorization.
3. Current Deeds.
4. Traffic Impact Study.
5. Unified Development Plan.
6. Fiscal Impact Study.
7. Drainage Analysis.
8. Waiver Request Letters.
9. Previous Response Letters for Reference.
10. State Permits.
11. Draft Conservation Easement Deed.
12. Six (6) Full Size Plan Sets (Including Architectural Plans).
13. Ten (10) Half Size Plan Sets (Including Architectural Plans).

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz

Daniel Meditz, EIT
Project Engineer

cc: Michael Garrepy, Tuck Realty Corp. (via email)
Kevin Baum, Esquire, Hoefle Pheonix Gormley & Roberts (via email)

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

November 4, 2021

Raymond Planning Board
Attn. Jonathan Wood, Chair
4 Epping Street
Raymond, NH 03077

**RE: Site Plan Application & Lot Line Adjustment
White Rock Place
109A&C Main Street, Raymond, NH
Tax Map 23, Lots 25 & 29
JBE Project No. 20564**

Dear Mr. Wood,

Jones & Beach Engineers, Inc. respectfully submits a Site Plan Application for the above-referenced parcel on behalf of our client, Tuck Realty Corp. The intent of this application is to follow up with design plans in order to advance our design review that we had months ago in the process. We have secured a better access point for the development, although still challenging. It's a wider entrance point and has adequate space for the grading that will be necessary. The application includes some lot line adjustments with Map 23, Lot 29, Wayne Welch's property. We will be utilizing part of his land for access, while providing him additional land, including White Rock behind his house along with the access Right of Way to his house.

The proposal still consists of 156 market rate apartments split up into three buildings all 4 stories built on a slab with elevators. There will be a mix of 1 and 2 bedroom units with a large amount of open space preserved. Each unit will have dedicated parking spaces and we are currently looking at 84 1-bedroom units and 72 2-bedroom units. We are requesting a waiver from the parking requirements since we have so many 1 bedroom units and have nearly 300 parking spaces. The main driving access will be from Main Street and we are proposing recreation trail access to the downtown via the rail trail.

For the utilities, we are proposing Town water to the buildings for domestic and fire protection. The septic systems will be located around the site and will all have Septi-Tech pre-treatment systems installed. These systems breakdown the septic waste prior to going to the leachfields similar to a mini-wastewater treatment plant. They do require maintenance and are made and serviced by a company in southern Maine. The State requires we sign a service agreement prior to approving these advanced treatment systems. We would like to discuss the drainage and access design for this property in greater detail with the TRC and have a site walk to review these prior to final design.

The following items are provided in support of this Application:

1. Site Plan & Lot Line Adjustment Application.
2. Waiver Requests.
3. Letters of Authorization.
4. Current Deeds.
5. Check for application fees.
6. Abutters List & Mailing Labels (3 sets).
7. Tax Map
8. 11" x 17" Architectural Plan.
9. Six (6) Full Size Plan Sets.
10. Ten (10) Half Size Plan Sets.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Michael Garrepy, Tuck Realty Corp. (application and plans via email)
Ross Tsantoulis, DuBois & King (application and plans via email & U.S. Mail)

Map # 23 Lot # 25 & 29

Site Plan Review Application

Town of Raymond, NH

Project Name: White Rock Place

Location: 109C Main Street, Raymond, NH

Project Description: To propose a multi-family residential site plan on Tax Map 23, Lot 25 and perform some lot line adjustments.

Zone: D & B Industrial & Residential/Agricultural New Industrial/Commercial Square Footage: ________ or Number of Residential Units: 156

Applicant/Agent Information:

Name: Turner Porter

Phone: 603-944-7530 Fax: ________

Company: Tuck Realty Corp.

Address: 149 Epping Road, Suite 2A, Exeter, NH 03833

By signing this application, you are agreeing to all rules and regulations of the Town of Raymond, and are agreeing to allow agents of the Town of Raymond to conduct inspections of your property during normal business hours to ensure compliance with all Raymond Zoning and Site Plan Review Regulations while your application is under consideration and during any construction and operational phases after approval is granted.

Signed*: ________ Date: 11/1/21

*Requires notarized letter of permission

Owner Information:

Name: Wayne & Cathleen Welch; Joseph, John, Ardell & Inez Welch, Betsy Patterson & Robin Proulx

Phone: ________ Fax: ________

Company: ________

Address: 109A Main Street, Raymond, NH 03077 - Wayne & Cathleen Welch; 49 Raymond Road, Route 156, Nottingham, NH 03290 - Welch, Patterson & Proulx

Signed: ________ Date: 11/1/21

Designers of Record: (Provide Name & License Number for each)

Engineer: Michael Kerivan, Jones & Beach Engineers, Inc. - #9846

Surveyor: David Collier, Jones & Beach Engineers, Inc. - #892

Soil Scientist: ________

Landscape Architect: ________

Fire Protection Engineer: ________

Other(s): ________

FEES: See attached Fee Schedule

For Office Use Only:

Date Application Received: ________ Total Fees Collected w/Application: ________

Abutters List Received: ________ Plans & Checklist Received: ________

Appendix II

Site Plan Review Fees

Sample Chart Using 180 sf per space	
1	$ 514.80
2	$ 579.60
3	$ 644.40
4	$ 709.20
5	$ 774.00
6	$ 838.80
7	$ 903.60
8	$ 968.40
9	$ 1,183.20
10	$ 1,248.00
11	$ 1,312.80
12	$ 1,377.60
13	$ 1,442.40
14	$ 1,657.20
15	$ 1,722.00
16	$ 1,786.80
17	$ 1,851.60
18	$ 1,916.40
19	$ 2,131.20
20	$ 2,196.00
21	$ 2,260.80
22	$ 2,325.60
23	$ 2,390.40

Base Rate: $ 300.00 - $300.00

(Includes staff wages with a 23 % roll-up rate)

Variable Costs (per newly created space): $ 0.36

	Units - SF
POV Spaces:	180 x285=51,300
Handicap Accessible Spaces:	320 x9=2,880
Tractor Trailer	600

54,180 x .36 = 19,504.80

# Spaces	Formula for Calculation of Fees
1 - 8	$ 0.36 per sf + (1.5 x $ 300 base rate)
9 - 13	$ 0.36 per sf + (2.0 x $ 300 base rate)
14 - 18	$ 0.36 per sf + (2.5 x $ 300 base rate)
19 - 23	$ 0.36 per sf + (3.0 x $ 300 base rate)
24 - 50	$ 0.36 per sf + (3.5 x $ 300 base rate)
51 - 75	$ 0.36 per sf + (4.0 x $ 300 base rate)
76 - 100	$ 0.36 per sf + (4.5 x $ 300 base rate)
101 - 150	$ 0.36 per sf + (5.0 x $ 300 base rate)
151 - 200	$ 0.36 per sf + (5.5 x $ 300 base rate)

19,504.80 + (5.5 x $300)= $21,154.80

ABUTTERS FEE: $10.00 PER NOTICE x 47 = $470.00

Escrow Deposits for Legal/Engineering/Other Peer Review Expenses [1] ***Minimum Fee (Discretion of the Technical Review Committee):***	**$ 1,250.00**
Disturbed Area [2] ***- Up to 5 Acres:***	**$ 2,500.00**
Up to 10 Acres	**$ 3,250.00**
Up to 15 Acres:	**$ 4,000.00**
Up to 20 Acres:	**$ 4,500.00**
Over 20 Acres, but less than 30 acres:	**$ 5,000.00**
Over 30 Acres - To be determined by Town Engineer/Legal Counsel	**TBD**

[1] ***Once a balance is reduced to 50% of the original deposit, the applicant shall replenish it to 100%.***

[2] ***Disturbed area is defined as: That portion of the site that is altered due to construction of streets, roadways, parking areas, utilities, buildings or other physical improvements, including earth excavation, removal or altercation.***

TOTAL = $21,624.80

Site Plan Review Checklist

TOWN OF RAYMOND, NH

PROJECT NAME White Rock Place

MAP# 23 **LOT #** 25 & 29 **APPLICATION DATE** 11/4/21 **APPLICATION #**

A copy of all plans and technical reports must be sent to the Town engineer. Proof of submittal must be provided to the Community Development Department at the time of application. If proof of transmittal is not provided, the application may be delayed until the following month's Planning Board meeting. Address is: ***Dubois & King, 18 Constitution Dr., Bedford NH 03110, ATTN: Jeff Adler.***

SUBMITTED YES	SUBMITTED NO			WAIVED YES	WAIVED NO
x		1.	Name of project; names and addresses of owners of record; Tax map and lot number.		
x		2.	Name, license number and seal of surveyor or other persons, north arrow, scale and date of plan; signature block.		
x		3.	Vicinity sketch and zoning district(s).		
x		4.	Abutters and uses of abutting land within 200 feet of the site.		
x		5.	Shape, size, height, location and use of existing and proposed structures located on the site and within 200 feet of the site.		
x		6.	Boundary lines, dimensions and bearings; lots area in acres And square feet and total disturbed area in square feet.		
x		7.	Location, name and widths of any existing and proposed roads on the property and within 200 feet of the site		
x		8.	Location of existing and proposed sidewalks and driveways, with indication of travel for both pedestrian and vehicular traffic.		
x		9.	Access to the site, sight distance at access point(s), curb cuts and any proposed changes to existing streets; copy of driveway permit.		
x		10.	Location and number of parking spaces; loading spaces.		
x		11.	Location, type and nature of all existing and proposed Landscaping and screening.		
x		12.	Location, type and nature of all existing and proposed exterior lighting.		
x		13.	Natural features (streams, ponds, wetlands, etc.)		
x		14.	Waste/dumpster locations and snow storage areas		

Site Plan Review Checklist

TOWN OF RAYMOND, NH

SUBMITTED YES	SUBMITTED NO			WAIVED YES	WAIVED NO
x	___	15.	Existing and proposed grades and contours, including base Flood elevation where appropriate.	___	___
x	___	16.	Size and location of all existing and proposed water mains, sewers, culverts, and distances to the existing fire hydrants, cisterns and/ or fire ponds.	___	___
___	___	17.	Copy of certification from septic designer as to sufficiency of system.	___	___
x	___	18.	Location and type of proposed waste water disposal system; Outline of 4,000 sq. ft. area; test pits; record of percolation tests.	___	___
x	___	19.	Existing and proposed Storm water drainage system.	___	___
x	___	20.	Location of existing and proposed on-site well (showing required radius on the property.)	___	___
___	___	21.	Soil survey data (see: requirements for soils and wetlands data)	___	___
___	___	22.	Location of any existing or proposed easements, deed restrictions, covenants.	___	___
OTHER:					
___	___	1.	Any federal, state or local permits.	___	___
___	___	2.	Building elevations and design	___	___
___	___	3.	Sign location and design	___	___
___	___	4.	Copies of any proposed or existing easements, deed restrictions, covenants, and street deeds.	___	___
___	___	5.	Such additional studies as may be required.	___	___
x	___	6.	Six (6) full-size copies of all plans and ten (10) copies of all plans in 11 X 17 format, and digital copy of plans. *	___	___
x	___	7.	Three (3) copies of all studies*	___	___

FEES

YES	NO	
x	___	1. Application Fees
x	___	2. Abutters Notice Fees ***(to include three (3) labels per abutter)***
x	___	3. Engineering and Legal Review Escrow
x	___	4. Site Review-Administrative Fee

Map # 23 Lot # 25 & 29

Application for Lot Line Adjustment

Town of Raymond, NH

Project Name: White Rock Place

Location: 109C Main Street, Raymond, NH

Project Description: To adjust some lot lines between Tax Map 23, Lots 25 & 29

Zone: D & B industrial & Residential/Agriculture Total Number of Lots: 2

Applicant/Agent Information:

Name: Turner Porter

Phone: 603-944-7530 Fax:

Company: Tuck Realty Corp.

Address: 149 Epping Road, Suite 2A, Exeter, NH 03833

By signing this application, you are agreeing to all rules and regulations of the Town of Raymond, and are agreeing to allow agents of the Town of Raymond to conduct inspections of your property during normal business hours to ensure compliance with all Raymond Zoning and Subdivision Regulations while your application is under consideration and during any construction and operational phases after approval is granted.

Signed*: Date: 11/1/21

*Requires notarized letter of permission

Owner Information:

Name: Wayne & Cathleen Welch
Joseph, John, Ardell & Inez Welch, Betsy Patterson & Robin Proulx

Phone: Fax:

Company:

Address: 109A Main Street, Raymond, NH 03077 - Wayne & Cathleen Welch
49 Raymond Road, Route 156, Nottingham, NH 03290 - Welch, Patterson & Proulx

Signed: Date: 11/1/21

Designers of Record: (Provide Name & License Number for each)

Engineer: Michael Kerivan, Jones & Beach Engineers, Inc - #9846

Surveyor: David Collier, Jones & Beach Engineers, Inc. - #892

Soil Scientist:

Landscape Architect:

Fire Protection Engineer:

Other(s):

FEES: $75.00 Application Fee - $75.00

For Office Use Only:

Date Application Received: Total Fees Collected w/Application:

Abutters List Received: Plans & Checklist Received:

Map # 23 Lot # 25 & 29

Applicant Name White Rock Place Date 11/4/21

Lot Line Adjustment Checklist

Town of Raymond, NH

The items on this page are considered to be the minimum requirements for a lot line adjustment or technical subdivision, where no new lots are being created. The Planning Board reserves the right, however, to request additional information if, in its judgment, the data are necessary in order to make an informed decision.

SUBMITTED	WAIVED	
☒	☐	1. Name of subdivision; name and address of subdivider
☒	☐	2. Name, license number and seal of surveyor or other persons preparing the plan
☒	☐	3. Names and addresses of all abutters and all holders of conservation, preservation, or agricultural preservation easements (on the plat or on separate sheet)
☒	☐	4. North arrow, scale, and date of plan
☒	☐	5. Signature block for Planning Board endorsement
☒	☐	6. Locus plan, showing zoning designations
☒	☐	7. Boundary survey and location of permanent markers
☒	☐	8. Location of property lines, lot areas in square feet and acres; lots numbered according to Town tax map system
☒	☐	9. Location and amount of frontage on public right-of-way; names, classification of abutting streets
☒	☐	10. Location of building setback lines
☒	☐	11. Location of existing buildings and other structures
☒	☐	12. Location of existing driveways
☒	☐	13. Location and description of any existing or proposed easements or public dedication

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number:

Regulation, Article & Section from which a waiver is being sought:

Site Plan Regulation Section 6.10.04 - Licensed Landscape Architect

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

We are requesting a waiver from having a Licensed Landscape Architect draft and stamp the plan as we have hired LM Land Design, Lise McNaughton from Brentwood, NH to do the planting design work. Lise is more than qualified to provide landscape plans as you can see by the variety of plantings selected.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number:

Regulation, Article & Section from which a waiver is being sought:

6.06.01 - Parking Spaces

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting 294 parking spaces which is 1.88 spaces per unit when 3 spaces per unit is required. We are asking for this waiver to be granted a providing 3 spaces per unit is excessive for apartments. There are overlapping use of parking spaces when you have this many units. People are coming and going and we have 84 1 bedroom units which some of them will certainly be occupied by one person, with one vehicle.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Letter of Authorization

Tuck Realty Corp., 149 Epping Road, Suite 2A, Exeter, NH, developer of property located in Raymond, NH, known as Tax Map 23, Lot 25, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously-mentioned property. The parcel is located on 109C Main Street in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Witness	Tuck Realty Corp	10/21/20 Date

159

1559 263
~~1198 463~~

Stamps 1.10

Know all Men by these Presents

E. Hammond
U. S. Rev. Stamps $1.10

THAT I, Abbie J. Lamprey, of Manchester, in the County of Hillsborough and the State of New Hampshire,

in consideration of One Dollar and other valuable considerations

to me paid by Ai S. Welch, of Raymond, in the County of Rockingham and the State of New Hampshire,

the receipt whereof I do hereby acknowledge, have given, granted, bargained, sold and conveyed and do for my self and my heirs, by these presents, give, grant, bargain, sell and convey unto the said Ai S. Welch, his

heirs and assigns, forever.

The following described parcels of land situate in said Raymond and bounded and described as follows:

(1) Beginning at a stake and stones on the west side of the Highway leading from Raymond Village to Fremont and nearby opposite the stable belonging to Bert L. Davis, and running Southerly by said highway five hundred and sixty-eight (568) feet to a large stone in the fence by land known as the Moulton pasture now owned by the heirs of said Plummer B. Corson; thence Northwesterly and northerly by said Moulton pasture land to an iron pipe driven in the ground by land of Kate C. Butterfield; thence easterly by said Butterfield land fifty-one (51) feet to the bound begun at.

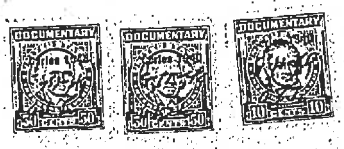
(2) Beginning at a point on the south side of the highway leading from Raymond Village to Fremont at the end of a stone wall; thence running Southwesterly by land formerly of T. L. Brown to other land formerly of said Brown; thence running westerly by said other Brown land and by land of D. A. Gregg and Ralph H. Sanborn, to a stone monument by land of the heirs of Plummer B. Corson; thence Northerly by said Corson land, land of F. W. Falconer and land belonging to the Town of Raymond, to land of Bert L. Davis; thence south about thirty-five degrees East in an irregular line by land of said Davis land of Harris B. Ladd, land of John W. Prescott, by land of Nettie (Moulton) Francis, land of Kate (Butterfield) Davis, land of Eva L. Rollins, by the Moulton Cemetery, (so-called) by Main Street and by land of Grace Messer to the highway above mentioned; thence South-

~~1498 464~~ 1559 264

erly by said highway to the bound begun at, estimated to contain about one hundred and forty (140) acres.

Being a portion of the same premises conveyed to me by Roger B. Maloon, et als by deed dated February 7, 1949, to be recorded in Rockingham Records.

This conveyance is subject to the 1949 taxes which the grantee agrees to assume and pay.



To have and to hold the aforesaid premises, with all the privileges and appurtenances thereto belonging, to the said grantee, his heirs and assigns, to their use and behoof forever. And I do covenant with the said grantee his heirs and assigns, that I am lawfully seized in fee of the afore-described premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said grantee in manner aforesaid: and that I and my heirs will warrant and defend the same premises to the said grantee, his heirs and assigns, forever, against the lawful claims and demands of all persons

And I, Howard L. Lamprey, husband of the said grantor,

in consideration aforesaid, do hereby relinquish my right by the courtesy in the before mentioned premises.

And we, and each of us, hereby release our several rights of Homestead in said premises, under and by virtue of any law of this State.

In Witness Whereof we have hereunto set our hand and seals this day of in the year of our Lord, one thousand nine hundred and forty-nine.

Signed, sealed and delivered in presence of us:

Robert E. Eccleston

Abbie J. Lamprey

Howard L. Lamprey

State of New Hampshire

ROCKINGHAM, ss. July 7th 1949. Then the above named Abbie J. Lamprey and Howard L. Lamprey personally appearing, acknowledged the above instrument to be their free act and deed, before me—

Robert E. Eccleston
~~Justice of the Peace~~

ROBERT E. ECCLESTON NOTARY PUBLIC RAYMOND N.H.

My Commission Expires Jan. 23, 1953

Received and recorded Feb. 5, 12:05 P.M., 1951.
Rec'd & re-recorded Sept. 9, 9:30 A.M., 1960.

KNOW ALL MEN BY THESE PRESENTS, That I, Josephine Welch, of Deerfield Road, Raymond, County of Rockingham and State of New Hampshire,

for consideration paid, grant to Wayne F. Welch and Cathleen M. Welch, of Main Street, Raymond, in said County and State, as joint tenants with rights of survivorship,

with ~~warranty covenants~~ a certain tract or parcel of land located in Raymond, County of Rockingham and State of New Hampshire, more particularly bounded and described as follows:

Beginning at an iron rod set in the westerly line of Main Street at the southeast corner of the premises herein conveyed and the northeast corner of land now or formerly of Bishop;

Thence N 80° 31' 30" W along land of said Bishop a distance of 189.87 feet to a point;

Thence S 17° 08' 00" W continuing along land of said Bishop, a distance of 175.31 feet to an iron rod;

Thence S 71° 27' 00" W along a right of way to other land of the grantor, a distance of 109.03 feet to an iron rod;

Thence S 57° 57' 40" W continuing along said right of way, a distance of 140.24 feet to an iron rod;

Thence S 38° 13' 20" W continuing further along said right of way, a distance of 130.87 feet to an iron rod;

Thence N 63° 16' 10" W along other land of the grantor, a distance of 691.51 feet to a point;

Thence N 14° 41' 20" E along other land of the grantor, a distance of 340.20 feet to an iron rod;

Thence N 72° 55' 10" E continuing along other land of the grantor, a distance of 955.14 feet to an iron rod;

Thence S 4° 00' 40" E along land of Neal F. Welch, a distance of 163.97 feet to an iron rod;

Thence S 40° 40' 00" E continuing along land of said Neal F. Welch, a distance of 196.00 feet to an iron rod;

Thence S 20° 00' 00" E continuing further along land of Neal F. Welch, a distance of 156.00 feet to a granite bound in the westerly line of said Main Street;

Thence S 14° 37' 20" W a distance of 66.52 feet to a granite bound set in the westerly line of said Main Street;

Thence S 17° 11' 50" W continuing along the westerly line of said Main Street a distance of 51.61 feet to the point of beginning.

Meaning and intending to describe a parcel of land containing 14.82 acres, more or less, as shown on plan of lot to be conveyed by Josephine F. Welch to Wayne Welch, dated August 22, 1983, to be recorded herewith.

Meaning and intending to convey a portion of the premises conveyed to Ai S. Welch by deed of Abbie J. Lamprey, dated July 7, 1949, and recorded in Rockingham County Registry of Deeds, Volume 1559, Page 263.

Title of the grantor was derived through the Estate of Ai S. Welch, see Rockingham County Probate Records, Docket No. 52197.

B2481 P1743

STATE OF NEW HAMPSHIRE
TAX ON TRANSFER OF REAL PROPERTY
STATE TAX COMMISSION
MAR-7'84
RS. 10665
113519
20.00

I, Josephine Welch, single, , ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~ release to said grantees all rights of homestead and other interests therein.

Witness, my hand ~~xxxxxxx~~ this 31st day of December , 19 83.

Witness

Josephine Welch L.S.
Josephine Welch

L.S.

L.S.

State of New Hampshire

ROCKINGHAM, ss.: December 31, A. D. 19 83.

Personally appeared Josephine Welch known to me, or satisfactorily proven, to be the person whose name is subscribed to the foregoing instrument and acknowledged that she executed the same for the purposes therein contained.

Before me,

Justice of the Peace — Notary Public

0 foot Abutters List Report
Raymond, NH
November 01, 2021

Subject Properties:

Parcel Number: 023-000-025-000
CAMA Number: 023-000-025-000-000
Property Address: MAIN STREET
Mailing Address: WELCH,JOSEPH & JOHN & ARDELL & INEZ BETSY PATTERSON & ROBIN PROULX
49 RAYMOND ROAD, ROUTE 156
NOTTINGHAM, NH 03290

Parcel Number: 023-000-029-000
CAMA Number: 023-000-029-000-000
Property Address: 109A MAIN STREET
Mailing Address: WELCH, WAYNE F CATHLEEN M WELCH
109 A MAIN STREET
RAYMOND, NH 03077

Abutters:

Parcel Number: 022-000-045-000
CAMA Number: 022-000-045-000-000
Property Address: INDUSTRIAL DRIVE
Mailing Address: WEST RIVER ROAD, L.L.C
P.O. BOX 2750
SEABROOK, NH 03874

Parcel Number: 023-000-014-000
CAMA Number: 023-000-014-000-000
Property Address: MAIN STREET
Mailing Address: RAYMOND, TOWN OF
4 EPPING STREET
RAYMOND, NH 03077

Parcel Number: 023-000-019-000
CAMA Number: 023-000-019-000-000
Property Address: 123 MAIN STREET
Mailing Address: BRUHMULLER, DANIEL
123 MAIN STREET
RAYMOND, NH 03077

Parcel Number: 023-000-020-000
CAMA Number: 023-000-020-000-000
Property Address: MAIN STREET
Mailing Address: STATE OF NEW HAMPSHIRE
JOHN O. MORTON BLDG. P.O. BOX 483
CONCORD, NH 03301

Parcel Number: 023-000-022-000
CAMA Number: 023-000-022-000-000
Property Address: BATCHELDER ROAD
Mailing Address: ZABEK, THEODORE N
P O BOX 2504
SALEM, NH 03079

Parcel Number: 023-000-023-000
CAMA Number: 023-000-023-000-000
Property Address: INDUSTRIAL DRIVE
Mailing Address: WELCH, JOAN E
15 NOTTINGHAM ROAD
RAYMOND, NH 03077

Parcel Number: 023-000-024-000
CAMA Number: 023-000-024-000-000
Property Address: ROUTE 101
Mailing Address: WELCH, JOAN E
15 NOTTINGHAM ROAD
RAYMOND, NH 03077

Parcel Number: 023-000-026-000
CAMA Number: 023-000-026-000-000
Property Address: 111 MAIN STREET
Mailing Address: LURIE, AUDREY J.
111 MAIN STREET
RAYMOND, NH 03077

0 foot Abutters List Report

Raymond, NH
November 01, 2021

Parcel Number: 023-000-027-000 CAMA Number: 023-000-027-000-000 Property Address: 109 MAIN STREET	Mailing Address:	BUCKUS, BRETT M. & JILLIAN M. 109 MAIN STREET RAYMOND, NH 03077
Parcel Number: 023-000-028-000 CAMA Number: 023-000-028-000-000 Property Address: 109 B MAIN STREET	Mailing Address:	WELCH, PAUL W & TERI L 109 MAIN STREET RAYMOND, NH 03077
Parcel Number: 023-000-030-000 CAMA Number: 023-000-030-000-000 Property Address: 105 MAIN STREET	Mailing Address:	MERKEL EMPIRE , LLC 17 PINEWOOD DRIVE STRATHAM, NH 03885
Parcel Number: 023-000-035-000 CAMA Number: 023-000-035-000-000 Property Address: 110 MAIN STREET	Mailing Address:	BREWITT, JOHN J.,JR. & ERIN Y. 110 MAIN STREET RAYMOND, NH 03077
Parcel Number: 023-000-036-000 CAMA Number: 023-000-036-000-000 Property Address: 112 MAIN STREET	Mailing Address:	MCCARTHY, TONA & CYNTHIA P CINDY A. TOWNSEND 112 MAIN STREET RAYMOND, NH 03077
Parcel Number: 023-000-037-000 CAMA Number: 023-000-037-000-000 Property Address: 114 MAIN STREET	Mailing Address:	RUELAS, JEREMY S & SUSANNA L 114 MAIN STREET RAYMOND, NH 03077
Parcel Number: 023-000-038-000 CAMA Number: 023-000-038-000-000 Property Address: 116 MAIN STREET	Mailing Address:	PERREAULT, JOHN W 116 MAIN STREET RAYMOND, NH 03077
Parcel Number: 023-000-039-000 CAMA Number: 023-000-039-000-000 Property Address: 126 MAIN STREET	Mailing Address:	KITTREDGE, OCEANNE SARAH ADAM KITTREDGE 126 MAIN STREET RAYMOND, NH 03077
Parcel Number: 028-003-001-000 CAMA Number: 028-003-001-000-000 Property Address: 103 MAIN STREET	Mailing Address:	LACASSE, ALISON F. W. & RANDALL A INEZ WELCH 103 MAIN STREET RAYMOND, NH 03077
Parcel Number: 028-003-002-000 CAMA Number: 028-003-002-000-000 Property Address: 101 MAIN STREET	Mailing Address:	KING, WILLIAM C JANICE L KING 101 MAIN STREET RAYMOND, NH 03077
Parcel Number: 028-003-003-000 CAMA Number: 028-003-003-000-000 Property Address: 99 MAIN STREET	Mailing Address:	PRATT, KEVIN M. KERRY J. PRATT 11 SMITH POND ROAD RAYMOND, NH 03077
Parcel Number: 028-003-005-000 CAMA Number: 028-003-005-000-000 Property Address: 97 MAIN STREET	Mailing Address:	RICE, CHARLES F.JR. REVOCABLE TRUST CHARLES F. RICE, JR. / TRUSTEE 97 MAIN STREET RAYMOND, NH 03077

0 foot Abutters List Report
Raymond, NH
November 01, 2021

Parcel Number:	028-003-006-000	Mailing Address:	GARNHAM, DENNIS JANET BUTLER
CAMA Number:	028-003-006-000-000		95 MAIN STREET
Property Address:	95 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-007-000	Mailing Address:	JOHNSON, CARLYLE R. MARICELA JOHNSON
CAMA Number:	028-003-007-000-000		9 MOULTON STREET
Property Address:	9 MOULTON STREET		RAYMOND, NH 03077
Parcel Number:	028-003-007-001	Mailing Address:	ARTHUR, LINDA & JOHN
CAMA Number:	028-003-007-001-000		91 MAIN STREET
Property Address:	91 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-011-000	Mailing Address:	FROST, WAYNE G. & IRENE
CAMA Number:	028-003-011-000-000		7 MOULTON STREET
Property Address:	7 MOULTON STREET		RAYMOND, NH 03077
Parcel Number:	028-003-012-000	Mailing Address:	POWER, JOHN W
CAMA Number:	028-003-012-000-000		5 MOULTON STREET
Property Address:	5 MOULTON STREET		RAYMOND, NH 03077
Parcel Number:	028-003-013-000	Mailing Address:	CONNOLLY, SEAN M.
CAMA Number:	028-003-013-000-000		3 MOULTON STREET
Property Address:	3 MOULTON STREET		RAYMOND, NH 03077
Parcel Number:	028-003-014-000	Mailing Address:	GILES, ERIN B. & BRIAN D.
CAMA Number:	028-003-014-000-000		1 MOULTON STREET
Property Address:	1 MOULTON STREET		RAYMOND, NH 03077
Parcel Number:	028-003-015-000	Mailing Address:	COLE-CALNAN, NANCY
CAMA Number:	028-003-015-000-000		6 ORCHARD STREET
Property Address:	6 ORCHARD STREET		RAYMOND, NH 03077
Parcel Number:	028-003-016-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-016-000-000		4 EPPING STREET
Property Address:	ORCHARD STREET		RAYMOND, NH 03077
Parcel Number:	028-003-017-000	Mailing Address:	MICHAELS, KEITH J.
CAMA Number:	028-003-017-000-000		11 ORCHARD STREET
Property Address:	11 ORCHARD STREET		RAYMOND, NH 03077
Parcel Number:	028-003-115-000	Mailing Address:	BERGERON, MICHAEL B MAUREEN R BERGERON
CAMA Number:	028-003-115-000-000		100 MAIN STREET
Property Address:	100 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-116-000	Mailing Address:	WATT, DANIEL E
CAMA Number:	028-003-116-000-000		102 MAIN STREET
Property Address:	102 MAIN STREET		RAYMOND, NH 03077

0 foot Abutters List Report

Raymond, NH
November 01, 2021

Parcel Number:	028-003-117-000	Mailing Address:	MOULTON, EDWARD W JEAN MOULTON
CAMA Number:	028-003-117-000-000		106 MAIN STREET
Property Address:	106 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-120-001	Mailing Address:	HARD ROCK DEVELOPMENT, LLC
CAMA Number:	028-003-120-001-000		84 EXETER ROAD
Property Address:	INDUSTRIAL DRIVE		SOUTH HAMPTON, NH 03827
Parcel Number:	028-004-007-000	Mailing Address:	MOULTON, EDWARD W
CAMA Number:	028-004-007-000-000		106 MAIN STREET
Property Address:	108 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-004-007-000	Mailing Address:	VERIZON
CAMA Number:	028-004-007-002-000		P.O. BOX 2549
Property Address:	108 MAIN STREET		ADDISON, TX 75001
Parcel Number:	028-004-007-000	Mailing Address:	A T &T COMPANY
CAMA Number:	028-004-007-003-000		1010 PINE, 9E-L-01
Property Address:	108 MAIN STREET		ST. LOUIS, MO 63101
Parcel Number:	028-004-007-000	Mailing Address:	METRO PCS
CAMA Number:	028-004-007-004-000		285 BILLERICA ROAD THIRD FLOOR
Property Address:	108 MAIN STREET		CHELMSFORD, MA 01824
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT COMMUNICATIONS C/O
CAMA Number:	028-004-007-005-000		PROPERTY TAX DEPARTMENT
Property Address:	108 MAIN STREET		P.O. BOX 12913
			SHAWNEE MISSION, KS 66282
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT SPECTRUM LP ATTN:
CAMA Number:	028-004-07S-000-000		PROPERTY TAX DEPARTMENT
Property Address:	TOWN WIDE		PO BOX 12913
			SHAWNEE MISSION, KS 66282
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT SPECTRUM LP C/O PROPERTY
CAMA Number:	028-004-07T-000-000		TAX DEPARTMENT
Property Address:	108 MAIN STREET		P O BOX 8430
			KANSAS CITY, MO 64114-8430
Parcel Number:	028-004-007-000	Mailing Address:	A T & T COMPANY
CAMA Number:	028-004-07U-000-000		1010 PINE, 9E-L-01
Property Address:	TOWN WIDE		ST. LOUIS, MO 63101

JONES & BEACH ENGINEERS, ATTN. JOSEPH CORONATI, PO BOX 219, STRATHAM, NH 03885

TUCK REALTY CORP., 149 EPPING RD, SUITE 2A, EXETER, NH 03833

NHDOT, 7 HAZEN DR, CONCORD, NH 03302

A T & T COMPANY
1010 PINE, 9E-L-01
ST. LOUIS, MO 63101

A T &T COMPANY
1010 PINE, 9E-L-01
ST. LOUIS, MO 63101

ARTHUR, LINDA & JOHN
91 MAIN STREET
RAYMOND, NH 03077

BERGERON, MICHAEL B
MAUREEN R BERGERON
100 MAIN STREET
RAYMOND, NH 03077

BREWITT, JOHN J.,JR. & ER
110 MAIN STREET
RAYMOND, NH 03077

BRUHMULLER, DANIEL
123 MAIN STREET
RAYMOND, NH 03077

BUCKUS, BRETT M. & JILLIA
109 MAIN STREET
RAYMOND, NH 03077

COLE-CALNAN, NANCY
6 ORCHARD STREET
RAYMOND, NH 03077

CONNOLLY, SEAN M.
3 MOULTON STREET
RAYMOND, NH 03077

FROST, WAYNE G. & IRENE
7 MOULTON STREET
RAYMOND, NH 03077

GARNHAM, DENNIS
JANET BUTLER
95 MAIN STREET
RAYMOND, NH 03077

GILES, ERIN B. & BRIAN D.
1 MOULTON STREET
RAYMOND, NH 03077

HARD ROCK DEVELOPMENT, LL
84 EXETER ROAD
SOUTH HAMPTON, NH 03827

JOHNSON, CARLYLE R.
MARICELA JOHNSON
9 MOULTON STREET
RAYMOND, NH 03077

KING, WILLIAM C
JANICE L KING
101 MAIN STREET
RAYMOND, NH 03077

KITTREDGE, OCEANNE SARAH
ADAM KITTREDGE
126 MAIN STREET
RAYMOND, NH 03077

LACASSE, ALISON F. W. & R
INEZ WELCH
103 MAIN STREET
RAYMOND, NH 03077

LURIE, AUDREY J.
111 MAIN STREET
RAYMOND, NH 03077

MCCARTHY, TONA & CYNTHIA
CINDY A. TOWNSEND
112 MAIN STREET
RAYMOND, NH 03077

MERKEL EMPIRE , LLC
17 PINEWOOD DRIVE
STRATHAM, NH 03885

METRO PCS
285 BILLERICA ROAD
THIRD FLOOR
CHELMSFORD, MA 01824

MICHAELS, KEITH J.
11 ORCHARD STREET
RAYMOND, NH 03077

MOULTON, EDWARD W
JEAN MOULTON
106 MAIN STREET
RAYMOND, NH 03077

MOULTON, EDWARD W
106 MAIN STREET
RAYMOND, NH 03077

PERREAULT, JOHN W
116 MAIN STREET
RAYMOND, NH 03077

POWER, JOHN W
5 MOULTON STREET
RAYMOND, NH 03077

PRATT, KEVIN M.
KERRY J. PRATT
11 SMITH POND ROAD
RAYMOND, NH 03077

RAYMOND, TOWN OF
4 EPPING STREET
RAYMOND, NH 03077

RAYMOND, TOWN OF
4 EPPING STREET
RAYMOND, NH 03077

RICE, CHARLES F.JR. REVOC
CHARLES F. RICE, JR. / TR
97 MAIN STREET
RAYMOND, NH 03077

RUELAS, JEREMY S & SUSANN
114 MAIN STREET
RAYMOND, NH 03077

WEST RIVER ROAD, L.L.C
P.O. BOX 2750
SEABROOK, NH 03874

SPRINT COMMUNICATIONS
C/O PROPERTY TAX DEPARTME
P.O. BOX 12913
SHAWNEE MISSION, KS 66282

ZABEK, THEODORE N
P O BOX 2504
SALEM, NH 03079

SPRINT SPECTRUM LP
C/O PROPERTY TAX DEPARTME
P O BOX 8430
KANSAS CITY, MO 64114-8430

JONES & BEACH ENGINERS
ATTN. JOSEPH CORONATI
PO BOX 219
STRATHAM, NH 03885

SPRINT SPECTRUM LP
ATTN: PROPERTY TAX DEPART
PO BOX 12913
SHAWNEE MISSION, KS 66282

TUCK REALTY CORP
149 EPPING RD, STE 2A
EXETER, NH 03833

STATE OF NEW HAMPSHIRE
JOHN O. MORTON BLDG.
P.O. BOX 483
CONCORD, NH 03301

NHDOT
7 HAZEN DR
CONCORD, NH 03302

VERIZON
P.O. BOX 2549
ADDISON, TX 75001

WATT, DANIEL E
102 MAIN STREET
RAYMOND, NH 03077

WELCH, JOAN E
15 NOTTINGHAM ROAD
RAYMOND, NH 03077

WELCH, JOAN E
15 NOTTINGHAM ROAD
RAYMOND, NH 03077

WELCH, PAUL W & TERI L
109 MAIN STREET
RAYMOND, NH 03077

Raymond, NH

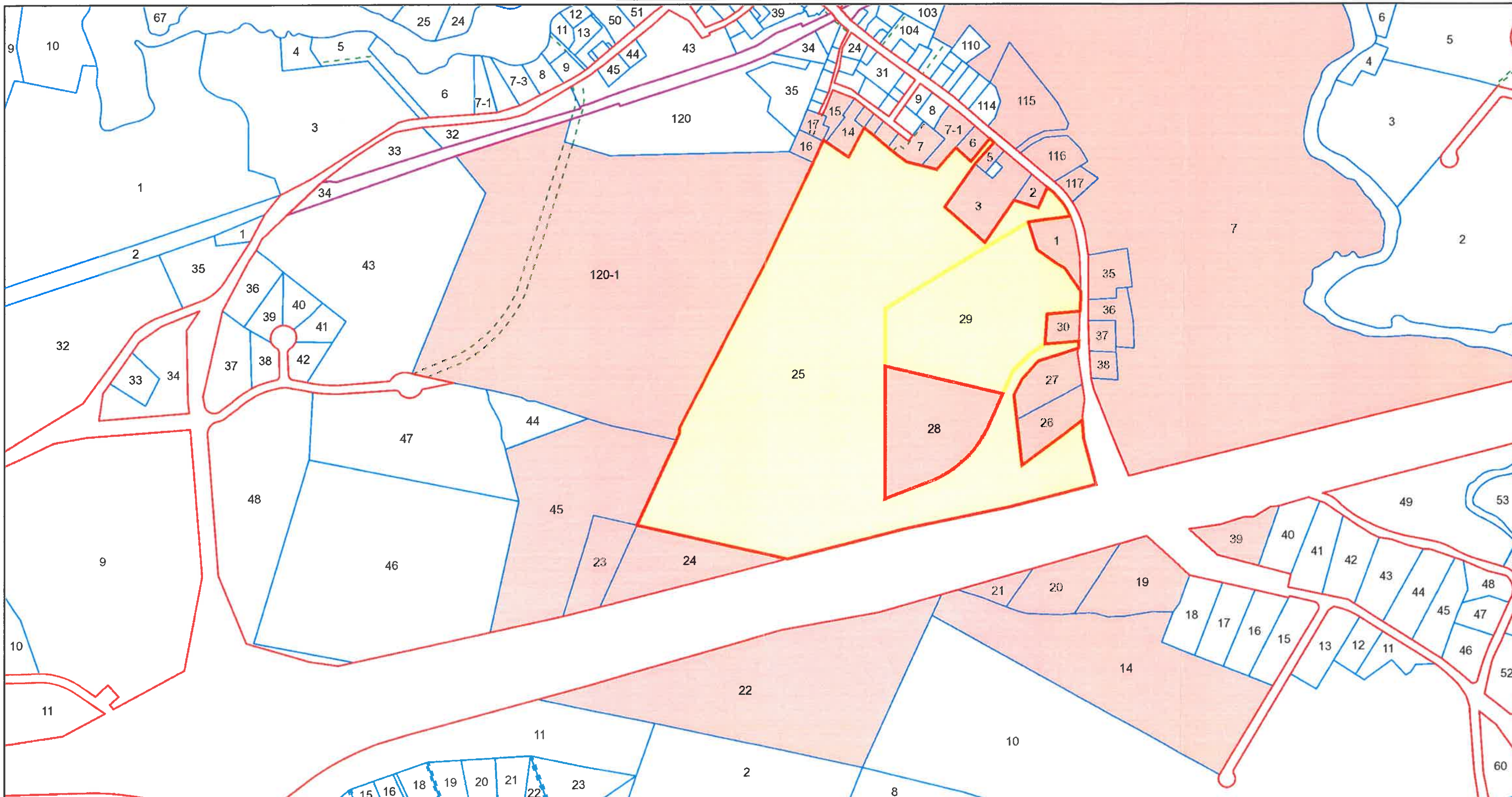
1 inch = 550 Feet

0 550 1101 1652

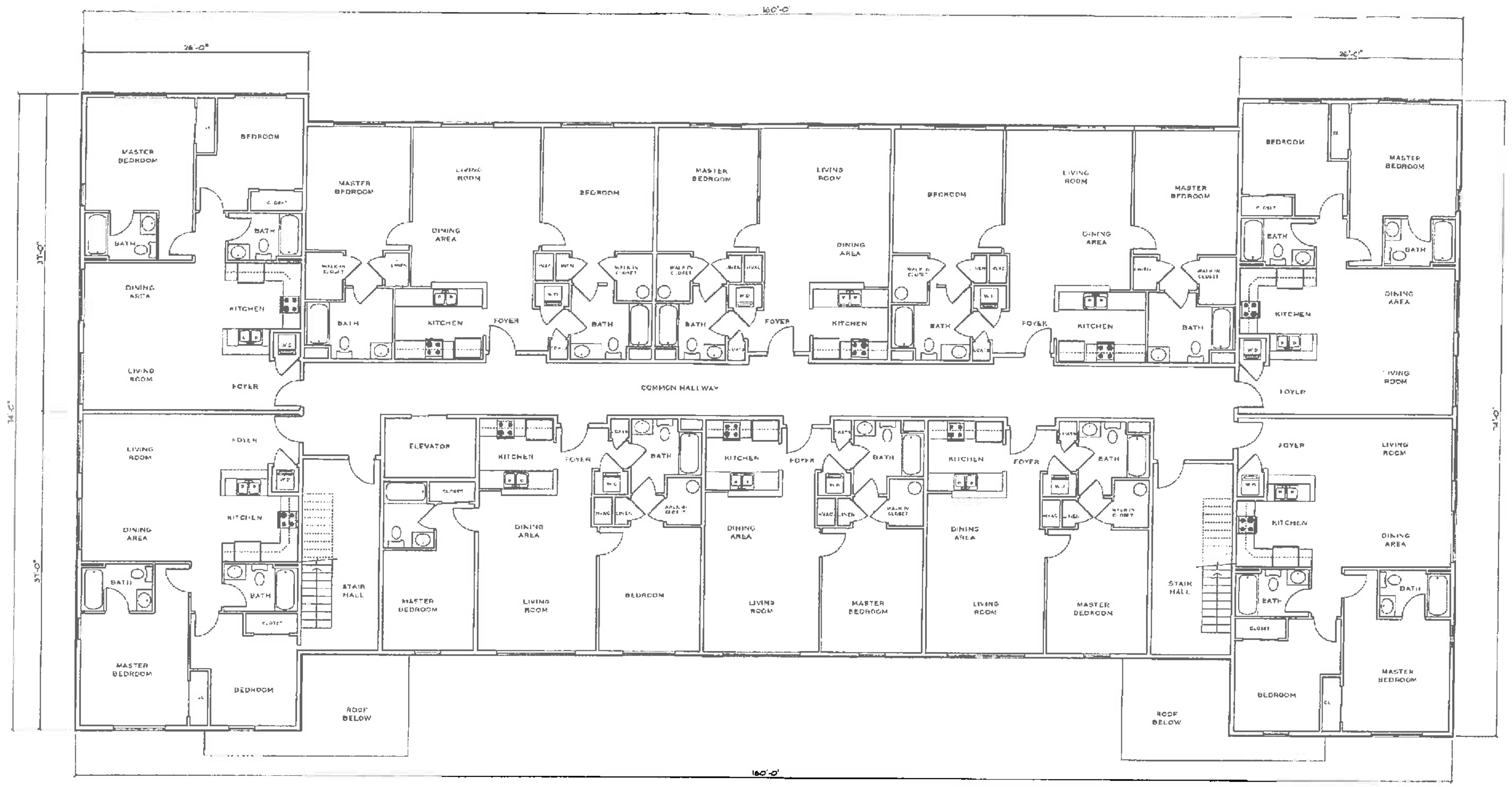
November 1, 2021

CAI Technologies

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.



SECOND FLOOR PLAN

Letter of Authorization

I, Joseph Welch, 49 Raymond Road, Route 156, Nottingham, NH 03290, owner of property located in Raymond, NH, known as Tax Map 23, Lot 25, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, as well as Garrepy Planning Consultants, LLC and Hoefle, Phoenix, Gormley and Roberts to act on my behalf concerning the previously mentioned property. The parcel is located on 109C Main Street in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Witness | Joseph Welch | Date July 27, 2023

Personally, appeared the above-named Joseph Welch, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Elizabeth Warrington
Notary Public/Justice of the Peace

My commission expires Dec 18, 2024

Elizabeth A Warrington
Notary Public, State of New Hampshire
My Commission Expires Dec 18, 2024

Letter of Authorization

I, Ai Welch, 28 Main Street, Raymond, NH 03077, owner of property located in Raymond, NH, known as Tax Map 23, Lot 25, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, as well as Garrepy Planning Consultants, LLC and Hoefle, Phoenix, Gormley and Roberts to act on my behalf concerning the previously mentioned property. The parcel is located on 109C Main Street in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Witness　　　　Ai Welch　　　　8/2/23
Date

Personally, appeared the above-named Ai Welch, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Notary Public/Justice of the Peace

My commission expires 12/18/2026

STEPHEN F. CURRAN
COMMONWEALTH OF MASSACHUSETTS
NOTARY PUBLIC

Letter of Authorization

I, Henry A. Peterson Jr., with a legal address of 84 Main Street and a mailing address of PO Box 376, Raymond, NH 03077, owner of property located in Raymond, NH, known as Tax Map 23, Lot 25, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, as well as Garrepy Planning Consultants, LLC and Hoefle, Phoenix, Gormley and Roberts to act on my behalf concerning the previously mentioned property. The parcel is located on 109C Main Street in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

K. Valen
Witness

Henry A Peterson Jr.
Henry A. Peterson Jr.

07/12/2023
Date

Personally, appeared the above-named Henry A. Peterson Jr., known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Marlene A. Beaudet
Notary Public/~~Justice of the Peace~~

My commission expires JAN 23, 2024

MARLENA A. BEAUDET
STATE OF NEW HAMPSHIRE
MY COMMISSION EXPIRES JAN. 23 2024
NOTARY PUBLIC

Letter of Authorization

I, Alison Robin Proulx, 99 Deerfield Road, Nottingham, NH 03290, owner of property located in Raymond, NH, known as Tax Map 23, Lot 25, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, as well as Garrepy Planning Consultants, LLC and Hoefle, Phoenix, Gormley and Roberts to act on my behalf concerning the previously mentioned property. The parcel is located on 109C Main Street in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

George Wallace — Alison Robin Proulx — 7/19/23

Witness — Alison Robin Proulx — Date

Personally, appeared the above-named Alison Robin Proulx, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Elizabeth Warrington

Notary Public/Justice of the Peace

My commission expires ________________

Elizabeth A Warrington
Notary Public, State of New Hampshire
My Commission Expires Dec 18, 2024

Letter of Authorization

I, Inez Welch, 49 Raymond Road, Route 156, Nottingham, NH 03290, owner of property located in Raymond, NH, known as Tax Map 23, Lot 25, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, as well as Garrepy Planning Consultants, LLC and Hoefle, Phoenix, Gormley and Roberts to act on my behalf concerning the previously mentioned property. The parcel is located on 109C Main Street in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Misty Greenwood ______ Inez Welch ______ 4/17/2023 ______
Witness Inez Welch Date

Personally, appeared the above-named Inez Welch, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

Misty Greenwood ______
Notary Public/Justice of the Peace

My commission expires 6/6/23

MISTY L GREENWOOD
MY COMMISSION EXPIRES JUNE 6, 2023
NOTARY PUBLIC
NEW HAMPSHIRE

Letter of Authorization

Turner Porter, Tuck Realty Corp., 149 Epping Road, Suite 2A, Exeter, NH, developer of property located in Raymond, NH, known as Tax Map 23, Lot 25, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, as well as Garrepy Planning Consultants, LLC and Hoefle, Phoenix, Gormley and Roberts to act on my behalf concerning the previously mentioned property. The parcel is located on 109C Main Street in Raymond, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

____
Witness

____
Turner Porter
Tuck Realty Corp.

12/15/22
Date

Personally, appeared the above-named Turner Porter, known to me or satisfactorily proven to be the person whose signature appears on this letter of authorization and acknowledged that the facts contained in the letter of authorization are true based upon their knowledge, information, and belief. Before me,

____
Notary Public/Justice of the Peace

My commission expires 12/21/2023

VASHU PATEL
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01PA6334587
Qualified in Kings County
Commission Expires 12/21/2023

159

3545
110

1559 263
~~1198 463~~

Know all Men by these Presents

THAT I, Abbie J. Lamprey, of Manchester, in the County of Hillsborough and the State of New Hampshire,

in consideration of One Dollar and other valuable considerations to me paid by Ai S. Welch, of Raymond, in the County of Rockingham and the State of New Hampshire,

the receipt whereof I do hereby acknowledge, have given, granted, bargained, sold and conveyed and do for my self and my heirs, by these presents, give, grant, bargain, sell and convey unto the said Ai S. Welch, his heirs and assigns, forever.

The following described parcels of land situate in said Raymond and bounded and described as follows:

(1) Beginning at a stake and stones on the west side of the Highway leading from Raymond Village to Fremont and nearby opposite the stable belonging to Bert L. Davis, and running Southerly by said highway five hundred and sixty-eight (568) feet to a large stone in the fence by land known as the Moulton pasture now owned by the heirs of said Plummer B. Corson; thence Northwesterly and northerly by said Moulton pasture land to an iron pipe driven in the ground by land of Kate C. Butterfield; thence easterly by said Butterfield land fifty-one (51) feet to the bound begun at.

(2) Beginning at a point on the south side of the highway leading from Raymond Village to Fremont at the end of a stone wall; thence running Southwesterly by land formerly of T. L. Brown to other land formerly of said Brown; thence running westerly by said other Brown land and by land of D. A. Gregg and Ralph H. Sanborn, to a stone monument by land of the heirs of Plummer B. Corson; thence Northerly by said Corson land, land of F. W. Falconer and land belonging to the Town of Raymond, to land of Bert L. Davis; thence south about thirty-five degrees East in an irregular line by land of said Davis land of Harris B. Ladd, land of John W. Prescott, by land of Nettie (Moulton) Francis, land of Kate (Butterfield) Davis, land of Eva L. Rollins, by the Moulton Cemetery, (so-called) by Main Street and by land of Grace Messer to the highway above mentioned; thence South-

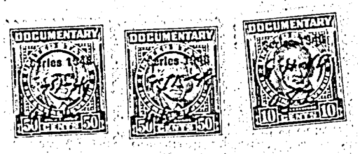
Deed.
S. Hammond
U.S. Rev Stamps $1.10

~~1498 464~~ 1559 264

erly by said highway to the bound begun at, estimated to contain about one hundred and forty (140) acres.

Being a portion of the same premises conveyed to me by Roger B. Maloon, et als by deed dated February 7, 1949, to be recorded in Rockingham Records.

This conveyance is subject to the 1949 taxes which the grantee agrees to assume and pay.



To have and to hold the aforesaid premises, with all the privileges and appurtenances thereto belonging, to the said grantee, his heirs and assigns, to their use and behoof forever. And I do covenant with the said grantee his heirs and assigns; that I am lawfully seized in fee of the afore-described premises; that they are free of all incumbrances;

1559 265
~~1198 465~~

that I have good right to sell and convey the same to the said grantee in manner aforesaid: and that I and my heirs will warrant and defend the same premises to the said grantee, his heirs and assigns, forever, against the lawful claims and demands of all persons

And I, Howard L. Lamprey, husband of the said grantor,

in consideration aforesaid, do hereby relinquish my right by the courtesy ~~xxxxxx~~ in the before mentioned premises.

And we, and each of us, hereby release our several rights of Homestead in said premises, under and by virtue of any law of this State.

In Witness Whereof we have hereunto set our hands and seals this day of in the year of our Lord, one thousand nine hundred and forty-nine.

Signed, sealed and delivered in presence of us:

Robt E. Eccleston Abbie J. Lamprey

Howard L. Lamprey

State of New Hampshire

ROCKINGHAM, ss. July 7th 1949. Then the above named Abbie J. Lamprey and Howard L. Lamprey personally appearing, acknowledged the above instrument to be their free act and deed, before me —

Robt E. Eccleston
~~Justice of the Peace~~

ROBERT E. ECCLESTON NOTARY PUBLIC RAYMOND, N.H.

My commission expires Jan. 25, 1950

Received and recorded Feb.5, 12:05 P.M., 1951.
Rec'd & re-recorded Sept. 9, 9:30 A.M., 1960.

B2481 P1742

06816

MAR 7 10 41 AM '84

KNOW ALL MEN BY THESE PRESENTS, That I, Josephine Welch, of Deerfield Road, Raymond, County of Rockingham and State of New Hampshire,

for consideration paid, grant *to* Wayne F. Welch and Cathleen M. Welch, of Main Street, Raymond, in said County and State, as joint tenants with rights of survivorship,

with **warranty covenants** a certain tract or parcel of land located in Raymond, County of Rockingham and State of New Hampshire, more particularly bounded and described as follows:

Beginning at an iron rod set in the westerly line of Main Street at the southeast corner of the premises herein conveyed and the northeast corner of land now or formerly of Bishop;

Thence N 80° 31' 30" W along land of said Bishop a distance of 189.87 feet to a point;

Thence S 17° 08' 00" W continuing along land of said Bishop, a distance of 175.31 feet to an iron rod;

Thence S 71° 27' 00" W along a right of way to other land of the grantor, a distance of 109.03 feet to an iron rod;

Thence S 57° 57' 40" W continuing along said right of way, a distance of 140.24 feet to an iron rod;

Thence S 38° 13' 20" W continuing further along said right of way, a distance of 130.87 feet to an iron rod;

Thence N 63° 16' 10" W along other land of the grantor, a distance of 691.51 feet to a point;

Thence N 14° 41' 20" E along other land of the grantor, a distance of 340.20 feet to an iron rod;

Thence N 72° 55' 10" E continuing along other land of the grantor, a distance of 955.14 feet to an iron rod;

Thence S 4° 00' 40" E along land of Neal F. Welch, a distance of 163.97 feet to an iron rod;

Thence S 40° 40' 00" E continuing along land of said Neal F. Welch, a distance of 196.00 feet to an iron rod;

Thence S 20° 00' 00" E continuing further along land of Neal F. Welch, a distance of 156.00 feet to a granite bound in the westerly line of said Main Street;

Thence S 14° 37' 20" W a distance of 66.52 feet to a granite bound set in the westerly line of said Main Street;

Thence S 17° 11' 50" W continuing along the westerly line of said Main Street a distance of 51.61 feet to the point of beginning.

Meaning and intending to describe a parcel of land containing 14.82 acres, more or less, as shown on plan of lot to be conveyed by Josephine F. Welch to Wayne Welch, dated August 22, 1983, to be recorded herewith.

Meaning and intending to convey a portion of the premises conveyed to Ai S. Welch by deed of Abbie J. Lamprey, dated July 7, 1949, and recorded in Rockingham County Registry of Deeds, Volume 1559, Page 263.

Title of the grantor was derived through the Estate of Ai S. Welch, see Rockingham County Probate Records, Docket No. 52197.

B2481 P1743

STATE OF NEW HAMPSHIRE
TAX ON TRANSFER OF REAL PROPERTY
STATE TAX COMMISSION
MAR-7'84
P.B. 10665
113519
20.00

I, Josephine Welch, single, , ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxx~~ *release to said grantees all rights of homestead and other interests therein.*

Witness, my *hand* ~~xxxxxxxx~~ *this* 31st *day of* December , 19 83.

Witness

Josephine Welch L.S.
Josephine Welch

L.S.

L.S.

State of New Hampshire

ROCKINGHAM, *ss.:* December 31, A. D. 19 83.

Personally appeared Josephine Welch *known to me, or satisfactorily proven, to be the person whose name* is *subscribed to the foregoing instrument and acknowledged that* she *executed the same for the purposes therein contained.*

Before me,

Justice of the Peace — Notary Public

ROCKINGHAM COUNTY REGISTRY OF DEEDS
MAY 31 10 03 AM '90
20344

KNOW ALL MEN BY THESE PRESENTS, That I, Josephine F. Welch, single person, PO Box 36, Raymond, County of Rockinham, State of New Hampshire

*for consideration paid, grant*s *to* Paul W. Welch and Teri L. Welch, PO Box 36, Raymond, County of Rockingham, State of New Hampshire, as joint tenants with rights of survivorship,

with ~~warranty covenants~~ a certain tract or parcel of land located in Raymond, County of Rockingham, State of New Hampshire, more particularly bounded and described as follows:

Beginning at an iron rod locating the northwest corner of the premises herein conveyed and the southern most corner of land, now or formerly of Wayne F. Welch, said iron rod also being located in the northwesterly line of a right of way;

Thence, S 38° 13' 35" W along the northwest line of the aforementioned right of way a distance of 229.37 feet, to an iron rod;

Thence continuing along said right of way in a westerly direction by a curve to the right, with a radius of 550 feet, a distance of 436.77 feet, more or less, to an iron rod set in the northwesterly line of the aforereferenced right of way;

Thence S 83° 43' 25" W continuing along the aforereferenced right of way a distance of 296.92 feet, more or less, to an iron rod set in the northwesterly line of the aforereferenced right of way, said iron rod locating the southwest corner of the premises herein conveyed;

Thence N 14° 41' 20" E along other land now or formerly of grantor a distance of 754.76 feet to a point;

Thence S 63° 16' 15" E along land now or formerly of Wayne F. Welch a distance of 691.51 feet to the point of beginning.

Containing 7.69 acres, more or less, meaning and intending to describe the parcel designated as Map 6, Lot 49-5 as shown on Plan entitled Lot to be Conveyed by Josephine F. Welch to Paul W. & Teri L. Welch, recorded in Rockingham County Registry of Deeds, Plan # D 18625.

Meaning and intending to convey a portion of the premises conveyed to Al S. Welch by deed of Abbie J. Lamprey, dated July 7, 1949, and recorded in Rockingham County Registry of Deeds, Volume 1559, Page 263.

The consideration for this conveyance is such that minimum State of New Hampshire transfer tax stamps are required.

I, Josephine F. Welch , ~~husband~~xxxxxx~~wife~~ *of said grantor, release to said grantee* s *all rights of homestead and other interests therein.*

Signed this 21st *day of* May , 19 90

Josephine F. Welch L.S.
Josephine F. Welch

______________________ L.S.

______________________ L.S.

State of New Hampshire

Rockingham *ss.:* *A. D. 19* 90

Personally appeared Josephine F. Welch

known to me, or satisfactorily proven, to be the person whose name subscribed to the foregoing instrument and acknowledged that s*he executed the same for the purposes therein contained.*

Before me, Faye Ann Hammond
Justice of the Peace — ~~Notary Public~~

B2839 P0771

"Attestation of Consideration and Tax Stamp Page"

Paul W. Welch and Teri L. Welch (Buyer's Name) and

Josephine F. Welch (Seller's Name)

agree and affirm that the full price or consideration paid for the real estate transferred by this deed is $ -0- . The tax due upon this transfer is calculated at $______ per $100 or any part thereof, for an amount due of $______ (computed to the nearest whole dollar).

Seller/s Signature/s	Buyer/s Signature/s
Josephine F. Welch	Paul W. Welch
	Teri L Welch

State of New Hampshire, Rockingham County, ss

The foregoing instrument was acknowledged before me this 5/31/90 (date) by Paul W. Welch, Teri L. Welch, Josephine F. Welch

My commission expires: Faye Ann Hammond ~~Notary Public~~ Justice of the Peace

FAYE ANN HAMMOND
JUSTICE OF THE PEACE
MY COMMISSION EXPIRES 3-8-94

The tax stamps required by RSA 78-B have been attached below by buyer and seller.

This is a Non Contractual transfer.

E # 22039063 09/09/2022 01:43:01 PM
Book 6437 Page 2569 Page 1 of 2
Register of Deeds, Rockingham County

Cathy Ann Stacey

LCHIP	ROA630410	25.00
TRANSFER TAX	RO118246	878.00
RECORDING		14.00
SURCHARGE		2.00

After recording mail to:

Tuck Realty Corporation
P.O. Box 190
Exeter, NH 03833

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, that I, **Joan E. Welch,** (an unremarried widow), of 15 Nottingham Road, Raymond, Rockingham County, State of New Hampshire 03077,

FOR CONSIDERATION PAID hereby grants to **Tuck Realty Corporation**, a New Hampshire Corporation, with a mailing address of P.O. Box 190, Exeter, Rockingham County, State of New Hampshire 03833, with **WARRANTY COVENANTS**:

A certain tract or parcel of land situated in Raymond, County of Rockingham, State of New Hampshire, being the 7.8+ acre portion of the Gregg lot shown on a plan entitled "Two Remaining Portions of the Gregg Lot (1346-496 less Route 101)", by David R. Noyes, Scale 1' = 100'+, dated June 1, 1984 and recorded in the Rockingham County Registry of Deeds as Plan No. D-13046, which parcel is more particularly bounded and described as follows:

Beginning at a point located on the northerly sideline of Route 101-Raymond By-Pass and on the easterly side of land now or formerly of Frederick Welch; thence North 31 3/4° East, 569.00+ feet to a granite bound and stones found; thence

1. Turning and running South 63 3/4° East, 271.00+ feet to a point; thence

2. South 62° East, 880.00+ feet along a barbed wire fence to a point; thence

3. North 90° West, 84.00+ along said Route 101 to a concrete bound; thence

4. North 88 1/2° West, 750.00+ feet along said Route 101 to a concrete bound; thence

5. North 86 1/2° West, 488.00+ feet along said Route 101 to the point of beginning.

Together with a 30' right-of-way as shown on a plan entitled "Centerline of 30' Right-of-Way across land of Josephine Welch" by David R. Noyes. Scale 1' = 100', dated August 23, 1982 and recorded in the Rockingham Registry of Deeds as Plan No. D-11967.

This parcel is not a homestead property of the Grantor.

Meaning and intending to convey the same premises conveyed to Frederick S. Welch and Joan E. Welch by virtue of a Quitclaim Deed of Barbara L. Wilson dated July 2, 1987 and recorded in the Rockingham County Registry of Deeds at Book 2690, Page 1117 on July 6, 1987. Frederick S. Welch passed away March 1, 1990, see notice of probate recorded at the Rockingham County Registry of Deeds at Book 2865, Page 2694; Rockingham County Probate Court Docket # 61625, leaving Joan S. Welch the surviving joint tenant.

The preparer of this deed makes no representation as to the status of the title to the property described herein. This deed was prepared from the information furnished and a title search was neither requested nor performed.

Signed on this 9th day of September 2022

Joan E Welch

Joan E. Welch

STATE OF ~~Roc~~ New Hampshire
COUNTY OF Rockingham

On this 9th day of September, 2022, personally appeared the above-named **Joan E. Welch** known to me or satisfactorily proven through proof of identification of a Driver's License, to be the individual who executed the foregoing instrument, and swore to and acknowledged the same to be her voluntary act and deed.

Before me,

Janelle MacEwen

Notary Public / Justice of the Peace
My commission expires:

Janelle K MacEwen
Notary Public
State of New Hampshire
Commission Expires Aug 26, 2025

Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

Ref: 9643

August 16, 2023

Ms. Christina McCarthy
Raymond Community Development
Town of Raymond
4 Epping Street
Raymond, NH 03077

Re: Response to Engineering Review Services Comments
White Rock Place Multifamily Residential Development – 109 Main Street
Raymond, New Hampshire

Dear Ms. McCarthy

Vanasse & Associates, Inc. (VAI) is providing responses to the comments that were raised in the July 28, 2023 *Engineering Review Services* letter prepared by DuBois & King, Inc. (D&K) concerning their review of the May 3, 2023 *Traffic Impact Study* (the "May 2023 TIS") and the June 9, 2023 *Response to Engineering Review Services Comments* that were prepared by VAI in support of the proposed multifamily residential development to be known as White Rock Place and located at 109 Main Street in Raymond, New Hampshire (hereafter referred to as the "Project"). Listed below are the comments that were identified by D&K in the subject letter followed by our response on behalf of the Project proponent.

Comment 1: *With the updated Table 5, our comment would be whether the engineer considered any mitigation measures to improve overall traffic operations, especially at the Freetown Road at Main Street intersection, where the LOS for 2024 is predicted to go from LOS E and LOS D to LOS F and LOS E with the addition of the project. Understanding that the modeling may have some limitations when the delays get very high, due to the reduction in LOS to E and F, combined with the extremely high delays report for the Main Street EB LT approach, it is recommended that potential mitigation as it relates to traffic operations be considered. While understanding that there may be modeling limitations, a Synchro reported increase of 3-4 minutes of delay for this approach during the weekday morning peak hour is significant. The fact that it is showing as this high should at least be considered as a potential concern at this intersection for the Main Street EB LT approach.*

Response: As identified in the May 2023 TIS, the Project is predicted to add 32 vehicle trips to the Freetown Road/Main Street intersection during the weekday morning peak-hour and 35 vehicle trips during the weekday evening peak-hour, with vehicle queues on the Main Street approach to the intersection predicted to increase by between one (1) and three (3) vehicles as a result of the Project. A preliminary review of the warrants specified in the *Manual on Uniform Traffic Control Devices* (MUTCD)[1] for the installation of a traffic control signal at the Freetown Road/Main Street intersection indicates that the intersection does not appear to meet the necessary criteria for the installation of a traffic

[1]*Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

signal. In an effort to improve the traffic operations at the intersection, consideration should be given realigning the Main Street approach to Freetown Road to intersect Freetown Road at a perpendicular angle and that the left and right-turn lanes be extended along Main Street to increase the vehicle queue storage for left-turn movements.

Comment 2: *We recommend that the response for Comment 7 [of VAI's June 2023 response letter] be incorporated into the Report.*

Response: The May 2023 TIS has been updated to incorporate the information that was provided in VAI's June 9, 2023 responses letter and the response noted above.

We trust that this information is responsive to the comments that were identified in the July 28, 2023 letter prepared by D&K. If you should have any questions or would like to discuss our responses in more detail, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

Professional Engineer in CT, MA, ME, NH, RI, and VA

JSD/dcl

MEMORANDUM

TO: Tuck Realty Corporation
c/o Mr. Turner Porter
PO Box 190
Exeter, NH 03833

FROM: Mr. Jeffrey S. Dirk, P.E.*, PTOE, FITE JSD
Managing Partner *and*
Mr. Daniel C. LaCivita
Transportation Engineer
Vanasse & Associates, Inc.
35 New England Business Center Drive
Suite 140
Andover, MA 01810-1066
(978) 269-6830
jdirk@rdva.com
**Professional Engineer in CT, MA, ME, NH, RI and VA*

DATE: May 3, 2023
Updated August 17, 2023

RE: 9643

SUBJECT: Updated Traffic Impact Study
White Rock Place Multifamily Residential Development – 109 Main Street
Raymond, New Hampshire

Vanasse & Associates, Inc. (VAI) has conducted a Traffic Impact Study (TIS) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a multifamily residential development to be known as White Rock Place and located at 109 Main Street in Raymond, New Hampshire (hereafter referred to as the "Project"). This study has been completed in accordance with the New Hampshire Department of Transportation (NHDOT) guidelines for the preparation of TISs as defined in the Driveway Permit Policy, and evaluates the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; and identifies and analyzes existing traffic conditions and future traffic conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineer (ITE),[1] the Project is expected to generate approximately 708 vehicle trips on an average weekday (two-way, 24-hour volume), with approximately 57 vehicle trips expected during the weekday morning peak-hour and 61 vehicle trips expected during the weekday evening peak-hour;

2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), acknowledging that specific movements at the study area intersection are currently operating at or over capacity (i.e., level-of-service (LOS) "E" or "F") and the with the majority of the movements at the study area intersections shown to continue operate at LOS D or better, where and LOS of "D" or better is generally defined as "acceptable" traffic operations;

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[1] *Trip Generation*, 11th Edition; Institute of Transportation Engineers; Washington, DC; 2021.

3. Exiting movements from the Project site driveway to Main Street are predicted to operate at LOS B or better with negligible vehicle queuing predicted, with all movements along Main Street approaching the driveway shown to operate at LOS A, also with negligible vehicle queuing; and

4. Lines of sight at the intersection of Main Street at the Project site driveway were found to exceed the recommended minimum distance for the intersection to operate in a safe manner based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations defined herein.

The following details our assessment of the Project.

PROJECT DESCRIPTION

As proposed, the Project will entail the construction of a 156±-unit multifamily residential development to be known as White Rock Place and located at 109 Main Street in Raymond, New Hampshire. The Project site encompasses approximately 67.1± acres of land that is bounded by areas of open and wooded space and residential properties to the north; NH Route 101 to the south; Main Street, residential properties and areas of open and wooded space to the east; and areas of open and wooded space to the west. The Project site currently contains areas of open and wooded space. Figure 1 depicts the Project site in relation to the existing roadway network.

Access to the Project site will be provided by way of a full-access driveway that will intersect the west side of Main Street approximately 40 feet south of the driveway to 103 Main Street, with secondary access for emergency vehicles only to be provided by way of a paved drive that will intersect the west side of Main Street between 95 Main Street and 97 Main Street. On-site parking will be provided for 256 vehicles to accommodate residents and visitors.

STUDY METHODOLOGY

This study was prepared in consultation with the Town of Raymond and NHDOT; was performed in accordance with the NHDOT guidelines for the preparation of TISs as defined in the Driveway Permit Policy and the standards of the Traffic Engineering and Transportation Planning Professions for the preparation of such reports; and was conducted in three distinct stages.

The first stage of the study involved an assessment of existing conditions in the study area and included an inventory of roadway geometrics, pedestrian and bicycle facilities, and public transportation services; observations of traffic flow; and the collection of daily and peak-period traffic counts.

In the second stage of the study, future conditions on the transportation system were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future demands on the transportation system that are expected due to growth independent of the Project. In accordance with NHDOT guidelines for the preparation of TISs, four future conditions were evaluated: 1) 2024 No-Build conditions *without* the Project; 2) 2024 Opening-Year Build conditions *with* the Project; 3) 2034 No-Build conditions *without* the Project; and 4) 2034 Build conditions (ten-year projection from opening-year) *with* the Project. The analyses conducted in stage two of the study identify existing or projected future roadway capacity and traffic safety issues.

Traffic Impact Assessment - White Rock Place - Raymond, New Hampshire

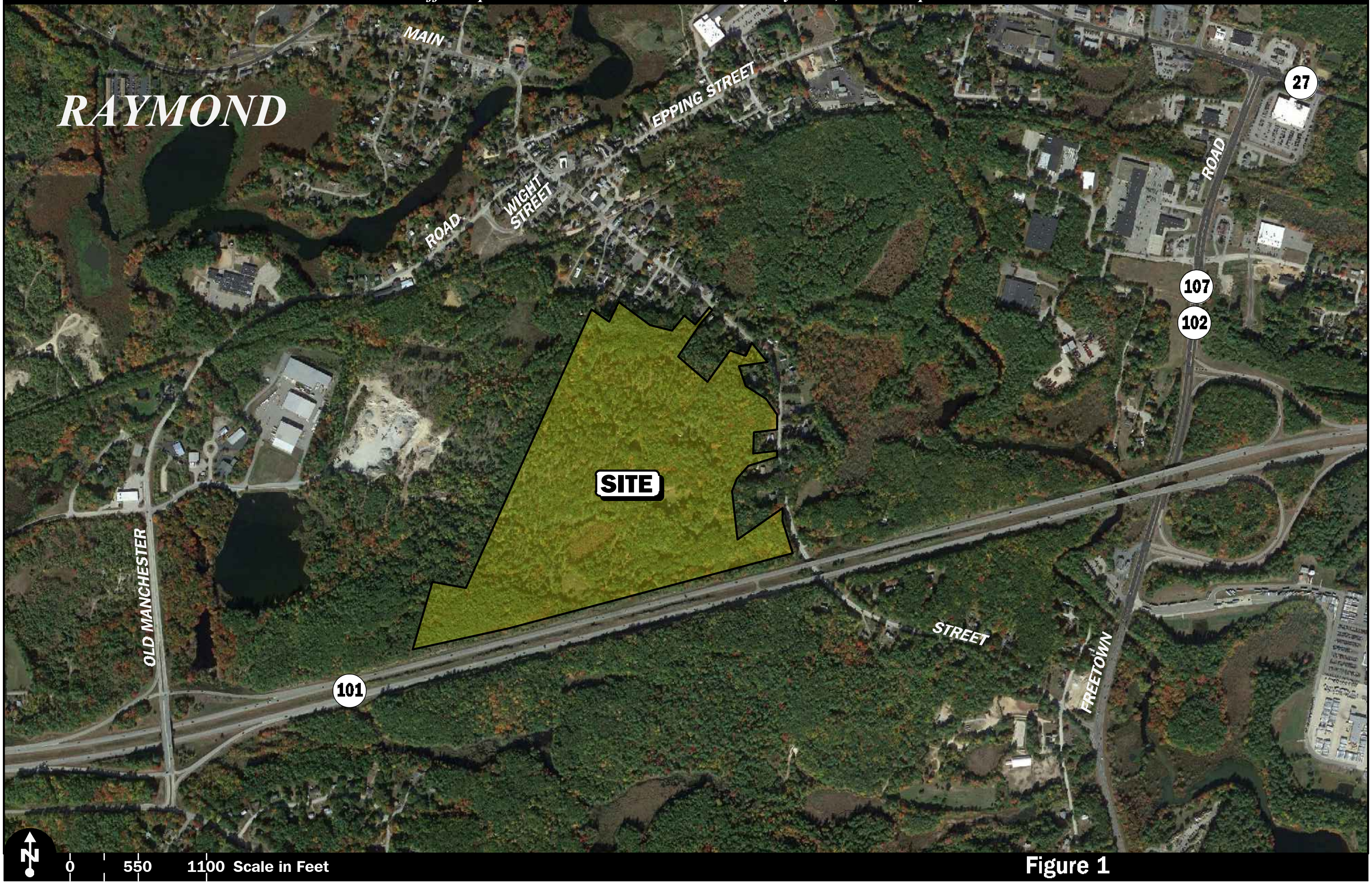

Figure 1

Site Location Map

Vanasse & Associates inc

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The third stage of the study presents and evaluates measures to address roadway and intersection capacity issues and safety concerns, if any, identified in stages one and two of the study.

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in February and March 2023. The field investigation consisted of an inventory of existing roadway geometrics; pedestrian and bicycle facilities; public transportation services; traffic volumes; and operating characteristics; as well as posted speed limits and land use information within the study area. The study area that was assessed for the Project consisted of Main Street and the following specific intersections through which Project-related traffic will travel: Main Street at Epping Street and Old Manchester Road; Freetown Road (NH Routes 102 and 107) at Main Street; and Main Street at Wight Street.

The following describes the study area roadway and intersections.

Roadway

Main Street

- Two-lane, Tier 5, Class V local roadway under Town jurisdiction;
- Traverses the study area in a general northwest-southeast direction;
- Provides two 11- to 12-foot-wide travel lanes separated by a double yellow centerline with 1-foot-wide marked shoulders provided in the vicinity of the Project site;
- A sidewalk is not provided within the study area;
- Illumination is provided intermittently by way of streetlights mounted on wood poles;
- The posted speed limit in the vicinity of the Project site is 30 miles per hour (mph);
- Land use within the study area consists of the Project site, residential properties and areas of open and wooded space.

Intersections

Table 1 and Figure 2 summarize the existing lane use, traffic control, and pedestrian and bicycle accommodations at the study area intersection as observed in February 2023.

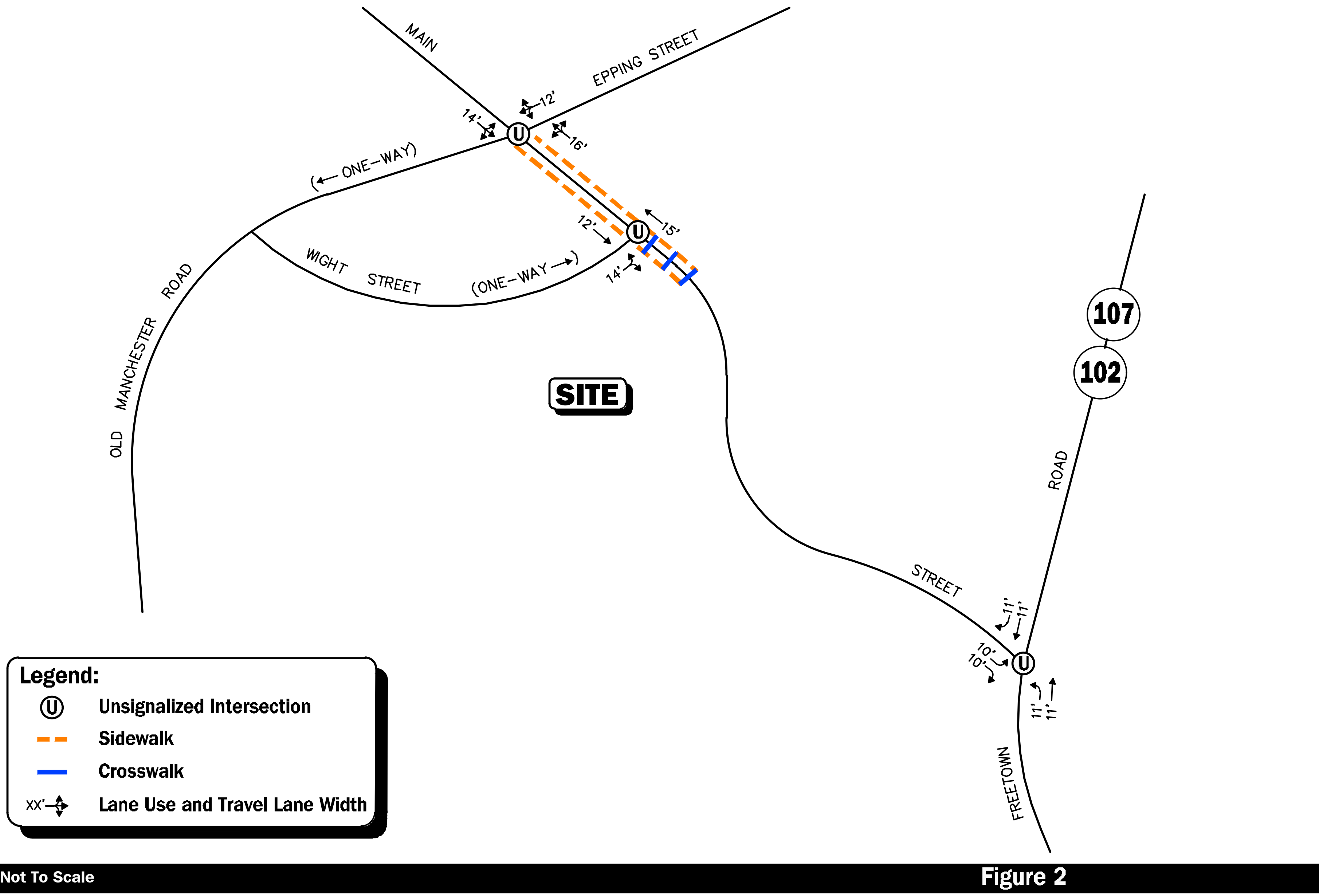


Figure 2

Existing Intersection Lane Use, Travel Lane Width, and Pedestrian Facilities

Vanasse & Associates inc

Table 1
STUDY AREA INTERSECTION DESCRIPTION

Intersection	Traffic Control Type[a]	No. of Travel Lanes Provided	Shoulder Provided? (Yes/No/Width)	Pedestrian Accommodations? (Yes/No/Description)	Bicycle Accommodations? (Yes/No/Description)
Main St./ Epping St./Old Manchester Rd.	S	1 general-purpose travel lane provided on all approaches; on-street parking is provided along the east side of Epping St. and the north side of Main St. east of Epping St.	Yes; 1 foot on the west side of Epping St. and Old Manchester Rd. and 4 feet on the south side of Main St.	Yes; sidewalks are provided along both sides of Main St. east of Epping St. for approximately 400 feet	No
Freetown Rd./ Main St.	S	1 left-turn lane and 1 through lane provided on Freetown Rd. northbound approach; 1 through lane and 1 right-turn lane provided on Freetown Rd. southbound approach; 1 left-turn lane and 1 right-turn lane provided on Main St. approach	Yes; 7 to 8 feet on Freetown Rd. and 2 feet on Main St.	No	Yes; shared-traveled-way[b] along Freetown Rd.
Main St./ Wight St.	S	1 general-purpose travel lane provided on all approaches; Wight St. is one-way northbound (toward Main St.); on-street parking is provided along the north side of Main St. at and to the east of Wight St. and along the east side of Wight St.	No	Yes; sidewalks are provided along both sides of Main St. south of the intersection	No

[a]S = STOP-sign control.
[b]Combined shoulder and travel lane width equal to or exceed 14 feet.

Existing Traffic Volumes

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts, turning movement counts (TMCs) and vehicle classification counts were completed in February and March 2023 while public schools were in regular session. The ATR counts were conducted on Main Street in the vicinity of the Project site on March 7th through 8th, 2023 (Tuesday through Wednesday, inclusive), in order to record weekday traffic conditions over an extended period, with weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak-period TMCs performed at the study area intersections (exclusive of the Main Street/Wight Street intersection) on March 7th, 2023 (Tuesday). These time periods were selected for analysis purposes as they are representative of the peak-traffic-volume hours for both the Project and the adjacent roadway network.

Weekday morning and evening peak-period TMCs were conducted at the intersection of Old Manchester Road and Wight Street on February 8th, 2023 (Wednesday) and were used develop the traffic volumes at the Wight Street/Main Street intersection. The volume of traffic that was observed to be traveling along Wight Street toward Main Street from the TMC data was distributed at the Main Street/Wight Street intersection based on a review of existing traffic patterns at the Main Street/Epping Street/Old Manchester Road intersection. Through volumes along Main Street were balanced between the Main Street/ Wight Street and the Main Street/Epping Street/Old Manchester Road intersections.

Traffic Volume Adjustments

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, 2019 peak-hour and average daily traffic count data were reviewed for NHDOT continuous count station No. 02071090, which is located on NH Route 101 at the Raymond town line in Candia. Based on a review of this data, it was determined that traffic volumes for the months of February and March are approximately 37.0 and 31.0 percent below peak-month (August) conditions, respectively. As such, the February and March traffic volumes were adjusted upward by 37.0 percent and 31.0 percent, respectively, in order to be representative of peak-month conditions in accordance with NHDOT standards.

In order to account for the impact on the traffic volumes and trip patterns resulting from the COVID-19 pandemic, traffic volume data collected at NHDOT Continuous Count Station 02071090 in March 2023 was compared to data collected at the same count station in March 2019. Based on this pre- and post-COVID-19 traffic-volume comparison, it was determined that the March 2023 traffic volumes are approximately 5.3 percent below the conditions that existed prior to the COVID-19 pandemic. As such, the March traffic counts that were collected as a part of this assessment were adjusted upward by an additional 5.3 percent to be representative of conditions that existed prior to the COVID-19 pandemic. The February traffic counts were adjusted upward by the same amount to be consistent with the March volumes.

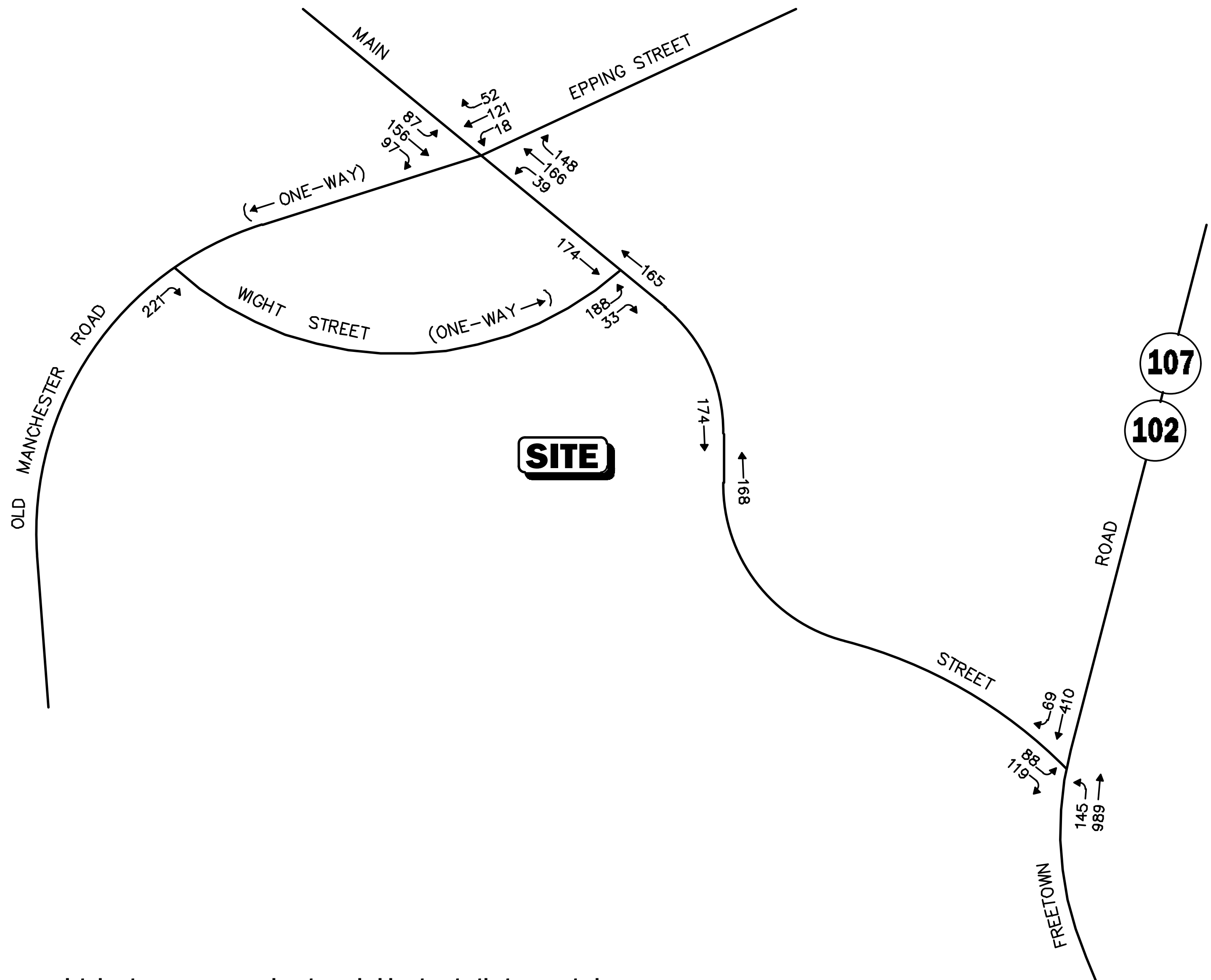
The 2023 Existing peak-month peak-hour traffic volumes are summarized in Table 2, with the weekday morning and evening peak-month peak-hour traffic volumes graphically depicted on Figures 3 and 4, respectively. Note that the peak-hour traffic volumes that are presented in Table 2 were obtained from the aforementioned figures.

Table 2
2023 EXISTING TRAFFIC VOLUMES

Location/Peak Hour	AWT[a]	VPH[b]	K Factor[c]	Directional Distribution[d]
Main Street, near the Project Site:	3,510	--	--	--
Weekday Morning (7:00 – 8:00 AM)	--	342	9.7	50.9% SB
Weekday Evening (4:00 – 5:00 PM)	--	340	9.7	53.2% SB

[a]Average weekday traffic in vehicles per day.
[b]Vehicles per hour.
[c]Percent of daily traffic occurring during the peak hour.
[d]Percent traveling in peak direction.
SB = southbound.

As can be seen in Table 2, Main Street in the vicinity of the Project site was found to accommodate approximately 3,510 vehicles on an average weekday (two-way, 24-hour volume), with approximately 342 vehicles per hour (vph) during the weekday morning peak-hour and 340 vph during the weekday evening peak-hour.



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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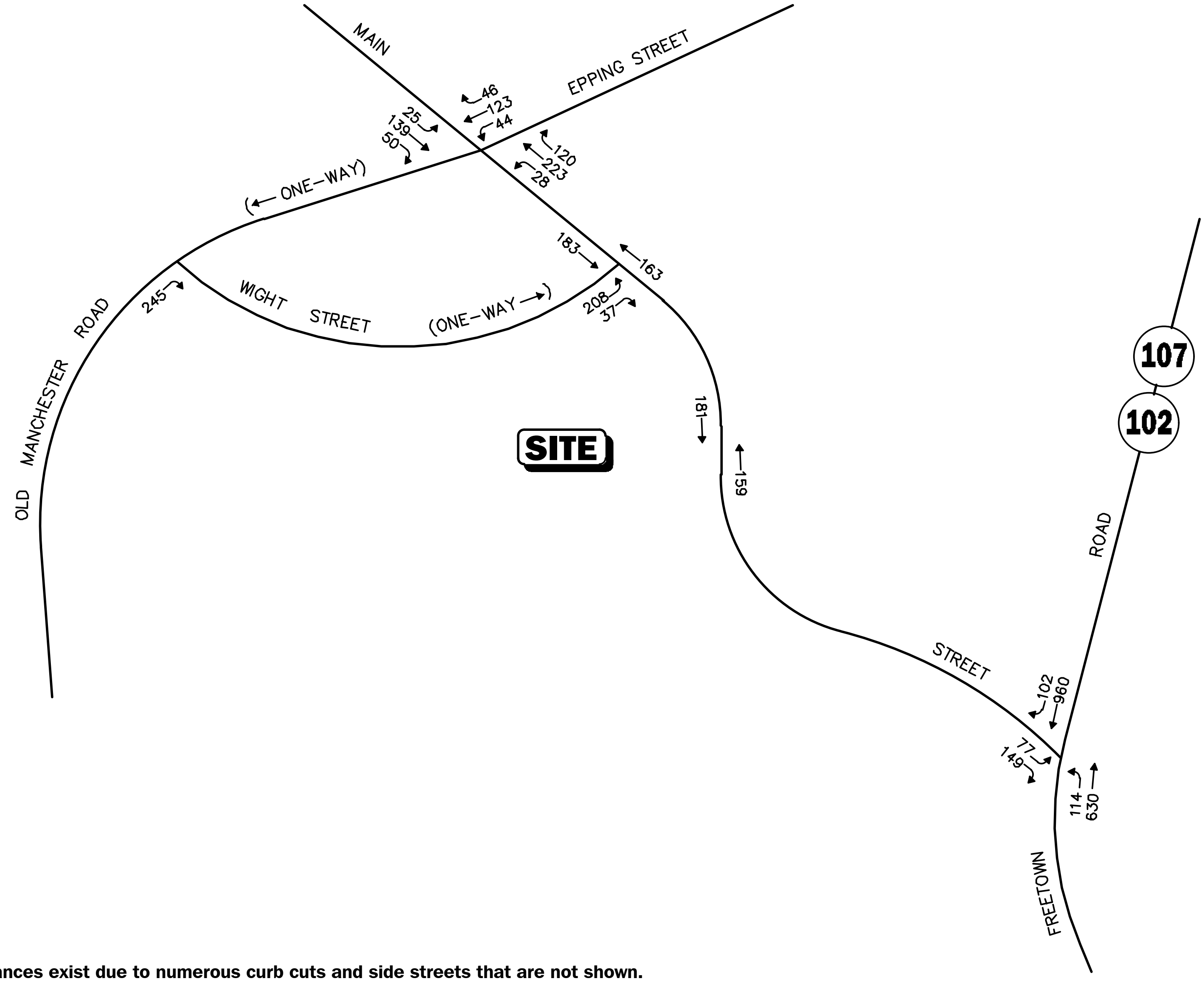
Figure 3

2023 Existing Peak-Month Weekday Morning Peak-Hour Traffic Volumes

Vanasse & Associates inc



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 4

2023 Existing Peak-Month Weekday Evening Peak-Hour Traffic Volumes

Vanasse & Associates inc

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Pedestrian and Bicycle Facilities

As detailed on Figure 2, sidewalks are provided along both sides of Main Street to the southeast of Epping Street for approximately 400 feet, with three (3) marked crosswalks provided for crossing Main Street between Church Street and Depot Street. Formal bicycle facilities are not provided within the study area; however, Freetown Road generally provides sufficient width to accommodate bicycle travel in a shared traveled-way configuration (i.e., bicyclists and motor vehicles sharing the traveled-way).[2]

Spot Speed Measurements

Vehicle travel speed measurements were performed on Main Street in the vicinity of the Project site in conjunction with the ATR counts, the results of which are summarized in Table 3.

Table 3
VEHICLE TRAVEL SPEED MEASUREMENTS

	Main Street	
	Northbound	Southbound
Mean Travel Speed (mph)	29	23
85th Percentile Speed (mph)	32	28
Posted Speed Limit (mph)	30	30

mph = miles per hour.

As can be seen in Table 3, the mean vehicle travel speed along Main Street in the vicinity of the Project site was found to be 29 mph in the northbound direction and 23 mph southbound. The measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be 32 mph in the northbound direction and 28 mph southbound, which is two (2) mph above and below the posted speed limit (30 mph) in the vicinity of the Project site. The 85th percentile speed is used as the basis of engineering design and in the evaluation of sight distances and is often used in establishing posted speed limits.

Public Transportation Services

Public transportation services are not currently provided within the Town of Raymond.

Motor Vehicle Crash Data

Motor vehicle crash data for the study area intersections has been requested from the Raymond Police Department in order to examine motor vehicle crash trends occurring within the study area. The data will be summarized in a supplement to this TIS once the data is received.

[2] A minimum combined travel lane and paved shoulder width of 14 feet is required to support bicycle travel in a shared traveled-way condition.

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the years 2024 and 2034, which reflects the anticipated opening-year of the Project and a ten-year planning horizon from opening-year, respectively, consistent with NHDOT TIS guidelines. The future condition traffic-volume projections incorporate identified specific development projects by others, as well as general background traffic growth as a result of development external to the study area and presently unforeseen projects. Anticipated Project-generated traffic volumes superimposed upon the 2024 and 2034 No-Build traffic volumes reflect the Build conditions with the Project.

Future Traffic Growth

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Raymond Department of Community Development and Planning was contacted in order to determine if there were any projects planned within the study that would have an impact on future traffic volumes along the study roadways and at the study area intersections. Based on this consultation, the following developments were identified for inclusion in this assessment:

- ***Proposed Warehouse Building, Industrial Drive, Raymond, New Hampshire.*** This project entails the construction of a 550,025± sf warehouse building to be located off of Industrial Drive to the west of the Project site. Traffic volumes associated with this project were obtained from the traffic study prepared for the development[3] and were incorporated into the future conditions traffic volumes.

- ***Proposed Warehouse Development, Old Manchester Road and Scribner Road, Raymond, New Hampshire.*** This project entails the construction of two warehouse buildings totaling 300,000± sf to be located in the southwest quadrant of the Old Manchester/Scribner Road intersection to the west of the Project site. Traffic volumes associated with this project were estimated using trip-generation statistics published by the Institute of Transportation Engineers (ITE)[4] and were assigned onto the study area roadway network based on existing traffic patterns.

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[3]*Response to Planning Board Comments*; Proposed Warehouse/Distribution Facility, Raymond, New Hampshire; VAI; March 24, 2023.

[4]Institute of Transportation Engineers, op. cit. 1.

- ***Proposed Mega-X Fueling Facility, Old Manchester Road, Raymond, New Hampshire.*** This project entails the construction of a 6,500± sf convenience store (containing a 1,200± sf coffee shop with a drive-through window) with accompanying 18-pump vehicle fueling facility to be located within the southwest quadrant of Old Manchester Road/Scribner Road intersection to the west of the Project site. Traffic volumes associated with this project were obtained from the traffic study prepared for the development[5] and were incorporated into the future conditions traffic volumes.

- ***Proposed Multifamily Residential Development, 65 and 101 Batchelder Road, Raymond, New Hampshire.*** This project entails the construction of 300± single-family homes to be located between Batchelder Road, Mark Lane and Wendover Lane to the south of the Project site. Traffic volumes associated with this project were estimated using trip-generation statistics published by the ITE and were assigned onto the study area roadway network based on existing traffic patterns.

- ***Proposed Commercial Development, Silver Fox Lane, Raymond, New Hampshire.*** This project entails the construction of a commercial development to be located off of Silver Fox Lane to the northeast of the Project site, which includes a Starbucks restaurant, Domino's restaurant, self-storage facility, medical office space and general retail space. Traffic volumes associated with this project were obtained from the traffic study prepared for the development[6] and were incorporated into the future conditions traffic volumes.

No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate (discussion follows).

General Background Traffic Growth

Traffic-volume data compiled by NHDOT from permanent count stations located in Raymond were reviewed in order to determine general traffic growth trends in the area. This data indicates that traffic volumes have fluctuated over the 10-year period between 2009 and 2019, with the average traffic growth rate found to be 0.70 percent. As such, in order to provide a prudent planning condition, a 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

The Town of Raymond and NHDOT were contacted in order to determine if there were any planned roadway improvement projects expected to be completed within the study area. Based on these discussions, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

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[5] *Traffic Impact and Access Study*; Proposed MEGA-X Convenience Store (With Gas); Old Manchester Road; Raymond, New Hampshire; Tetra Tech; August 28, 2019.

[6] *Traffic Impact and Access Study*; Proposed Commercial Subdivision, Essex Commons, Raymond, New Hampshire; Stephen G. Pernaw & Company, Inc.; November 11, 2021.

No-Build Traffic Volumes

The 2024 and 2034 No-Build peak-month peak-hour traffic volumes were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to the 2023 Existing peak-month peak-hour traffic volumes and then adding the peak-hour traffic volumes associated with the identified specific development projects by others. The resulting 2024 No-Build weekday morning and evening peak-month peak-hour traffic volumes are shown on Figures 5 and 6, with the corresponding 2034 No-Build peak-month peak-hour traffic volumes shown on Figures 7 and 8.

Project-Generated Traffic

Design year (2024 and 2034) Build traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of a 156±-unit multifamily residential development. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the ITE[7] for a similar land use as that proposed were used. ITE Land Use Code (LUC) 221, *Multifamily Housing (Mid-Rise)*, was used to develop the traffic characteristics of the Project, the results of which are summarized in Table 4.

Table 4
TRIP-GENERATION SUMMARY

Time Period	Vehicle Trips[a]		
	Entering	Exiting	Total
Average Weekday:	354	354	708
Weekday Morning Peak-Hour:	13	44	57
Weekday Evening Peak-Hour:	37	24	61

[a]Based on ITE LUC 221, *Multifamily Housing – (Mid-Rise)* (156 units).

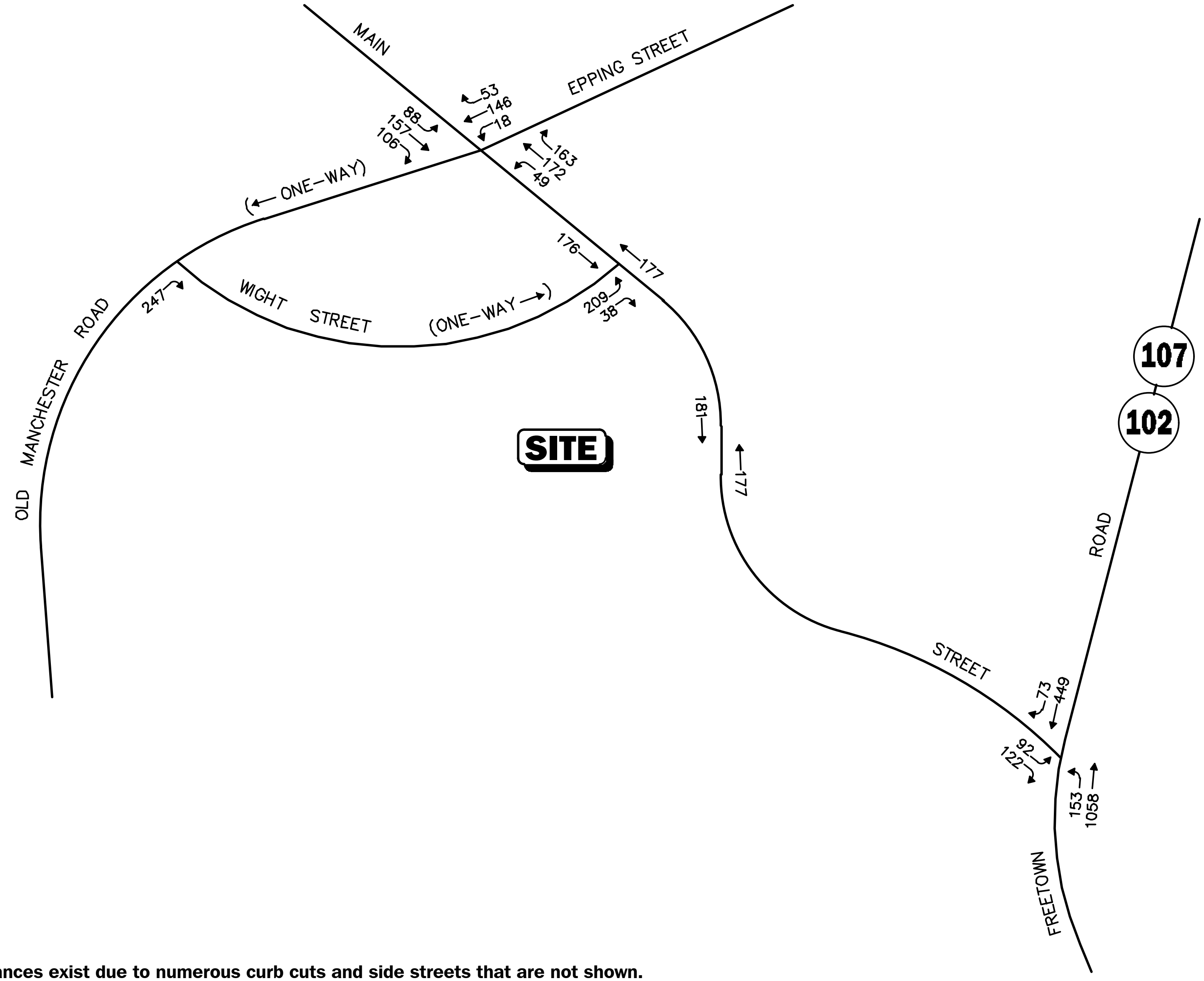
Project-Generated Traffic-Volume Summary

As can be seen in Table 4, using the aforementioned methodology, the Project is expected to generate approximately 708 vehicle trips on an average weekday (two-way, 24-hour volume), with approximately 57 vehicle trips (13 vehicles entering and 44 exiting) expected during the weekday morning peak-hour and 61 vehicle trips (37 vehicles entering and 24 exiting) expected during the weekday evening peak-hour.

Trip Distribution and Assignment

The directional distribution of generated trips to and from the Project site was determined based on a review of U.S. Census Journey-to-Work data for residents of the Town of Raymond and then refined based on a review of existing traffic patterns within the study area. The general trip distribution for the Project is

[7]Institute of Transportation Engineers, op. cit. 1



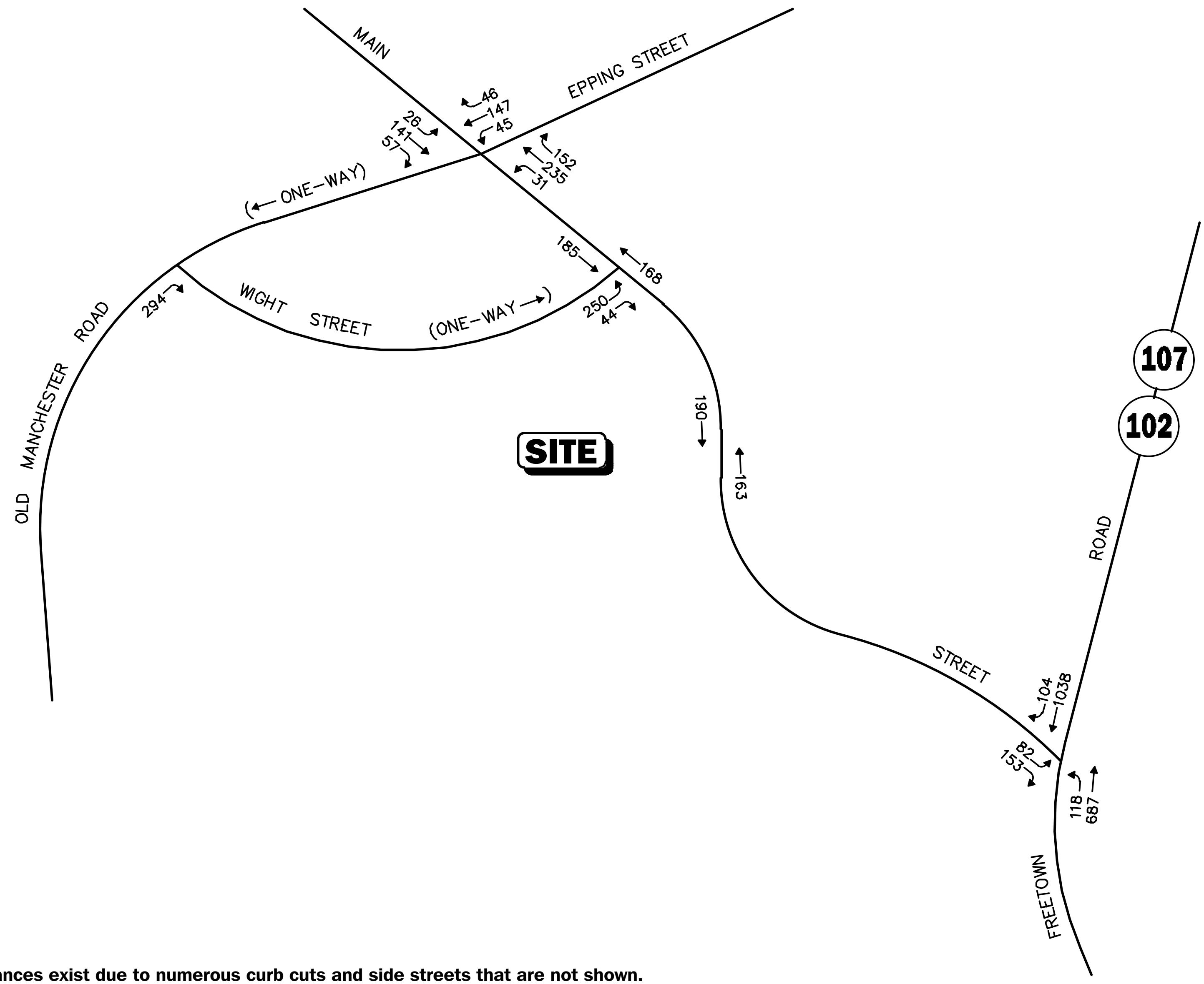
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Vanasse & Associates inc

Figure 5

2024 No-Build Peak-Month Weekday Morning Peak-Hour Traffic Volumes



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 6

2024 No-Build Peak-Month Weekday Evening Peak-Hour Traffic Volumes

Vanasse & Associates inc

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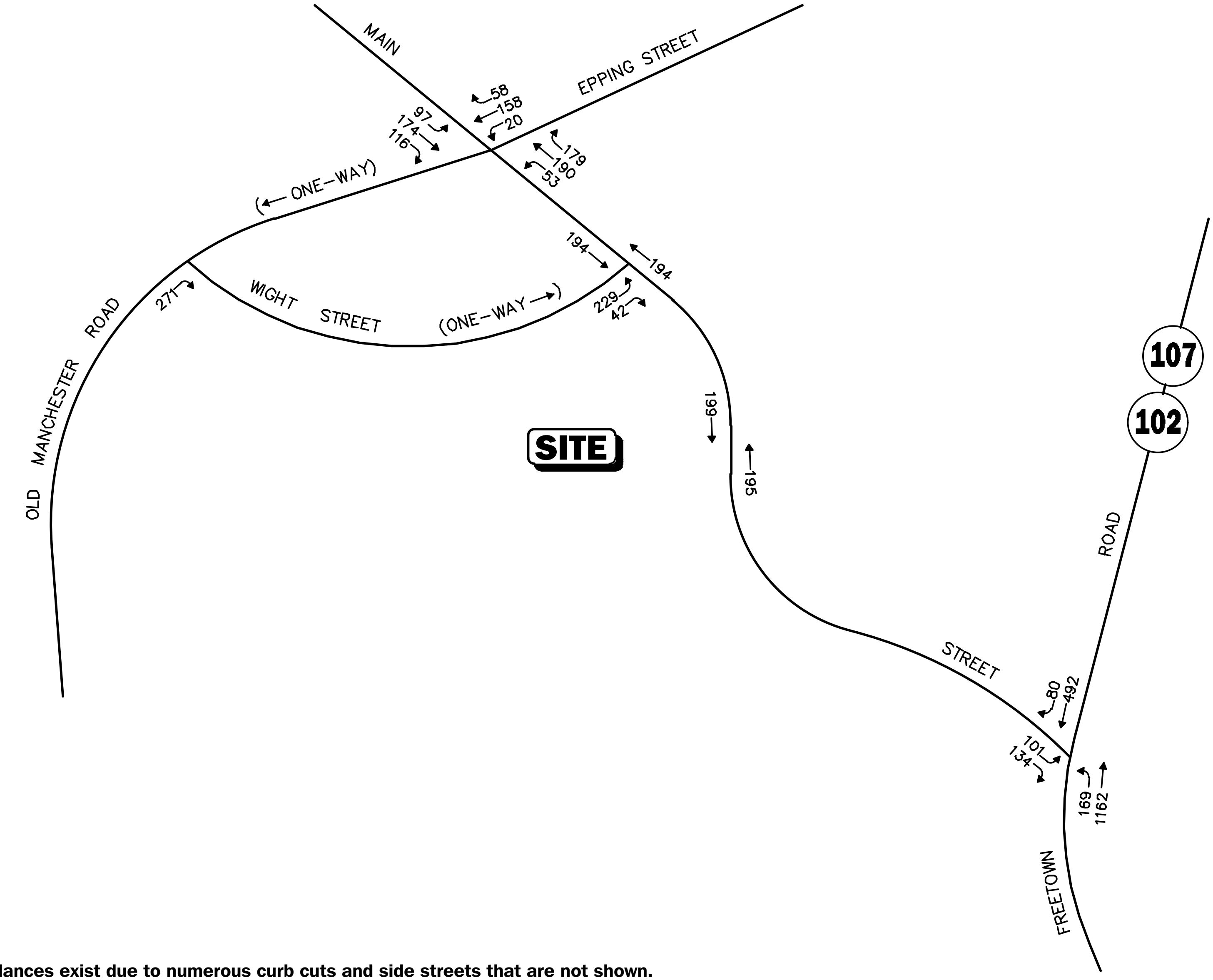


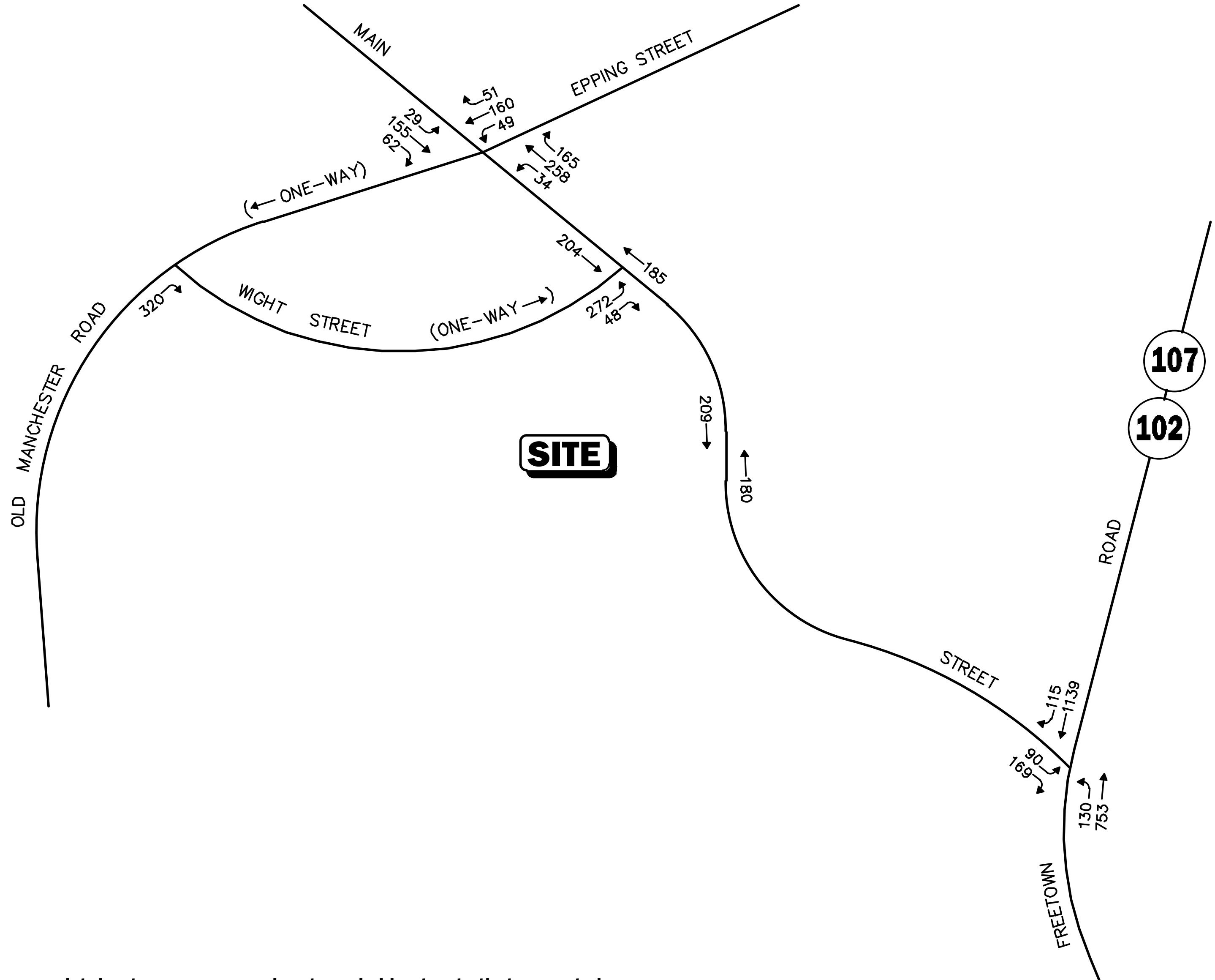
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 7

2034 No-Build Peak-Month Weekday Morning Peak-Hour Traffic Volumes

Vanasse & Associates inc



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 8

2034 No-Build Peak-Month Weekday Evening Peak-Hour Traffic Volumes

Vanasse & Associates inc

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graphically depicted on Figure 9, with the additional traffic expected to be generated by the Project assigned onto the study area roadway network as shown on Figures 10 and 11.

Build Traffic Volumes

The 2024 Opening-Year Build and 2034 Build condition traffic volumes were developed by adding the peak-hour Project-generated traffic to the corresponding 2024 and 2034 No-Build peak-month peak-hour traffic volumes. The resulting 2024 Opening-Year Build condition weekday morning and evening peak-month peak-hour traffic volumes are graphically depicted on Figures 12 and 13, with the corresponding 2034 Build condition peak-month peak-hour traffic volumes depicted on Figures 14 and 15.

TRAFFIC OPERATIONS ANALYSIS

In order to assess the potential impact of the Project on the roadway network, a detailed traffic operations analysis (motorist delays, vehicle queuing, and level of service) was performed at the study area intersections. Capacity analyses provide an indication of how well transportation facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

In brief, six levels of service are defined for each type of facility. They are given letter designations ranging from A to F, with LOS "A" representing the best operating conditions and LOS "F" representing congested or constrained operations. An LOS of "E" is representative of a transportation facility that is operating at its design capacity with an LOS of "D" generally defined as the limit of "acceptable" traffic operations. Since the level of service of a traffic facility is a function of the flows placed upon it, such a facility may operate at a wide range of levels of service depending on the time of day, day of week, or period of the year. The Synchro® 11 intersection capacity analysis software, which is based on the analysis methodologies and procedures presented in the HCM 6th Edition[8] for unsignalized intersections was used to complete the level-of-service and vehicle queue analyses.

Analysis Results

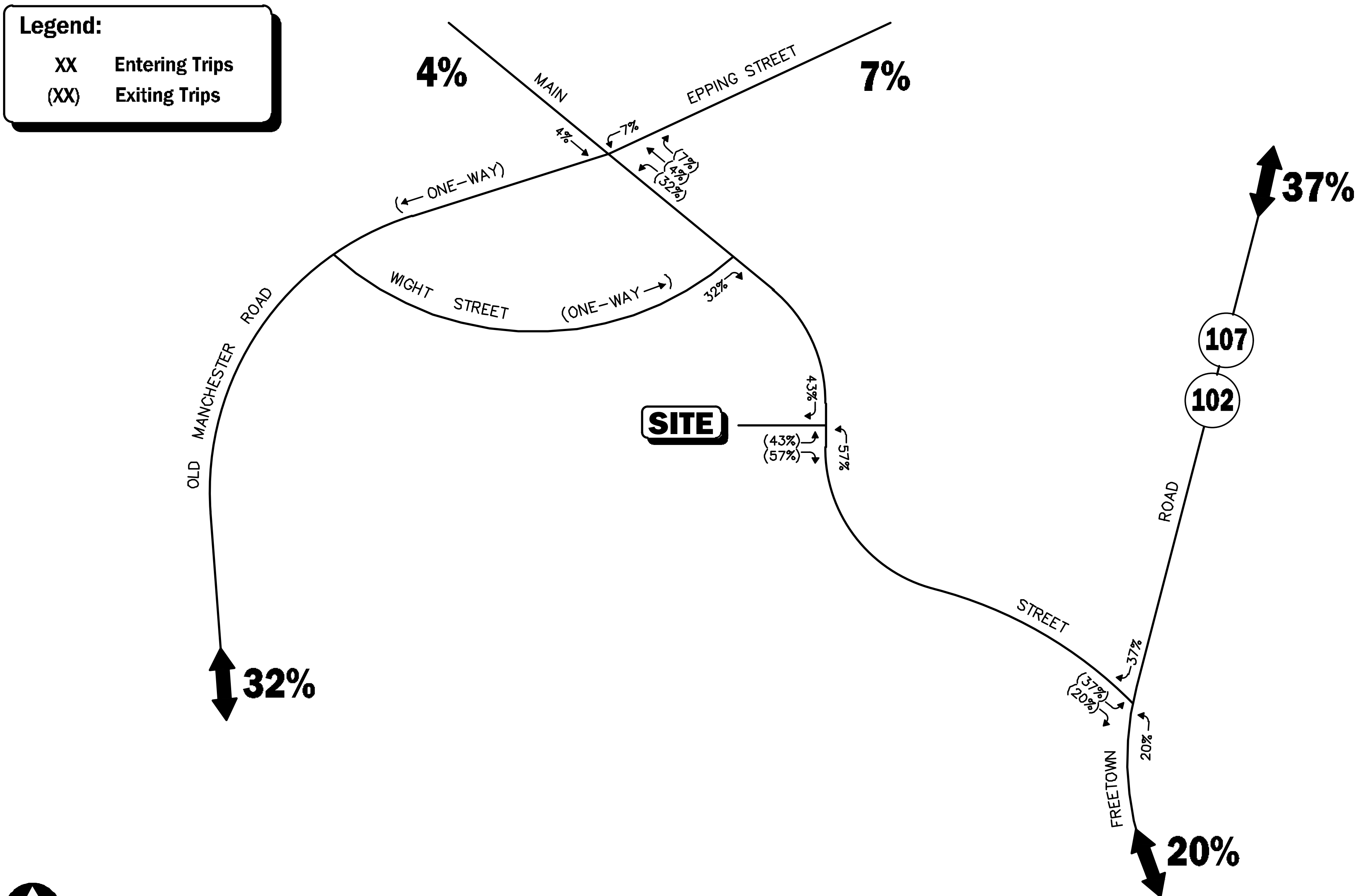
Level-of-service and vehicle queue analyses were conducted for 2023 Existing, 2024 and 2034 No-Build, and 2024 Opening-Year Build and 2034 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized in Table 5, with the detailed analysis results presented in the Appendix.

The following is a summary of the level-of-service and vehicle queue analyses for the intersections within the study area. For context, we note that an LOS of "D" or better is generally defined as "acceptable" operating conditions.

Main Street at Epping Street and Old Manchester Road

Under 2024 Opening-Year and 2034 Build peak-month conditions, no change in level of service is predicted to occur over 2024 or 2034 No-Build conditions, with Project-related impacts generally defined as a predicted increase in average motorist delay of up to 76.3 seconds that resulted in an increase in vehicle queuing of up to two (2) vehicles. Independent of the Project, the Epping Street approach is currently or is predicted to operate at or over capacity (i.e., LOS "E" or "F") during both peak hours, with overall

[8]*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2016.



Not To Scale

Figure 9

Trip Distribution Map

Vanasse & Associates inc

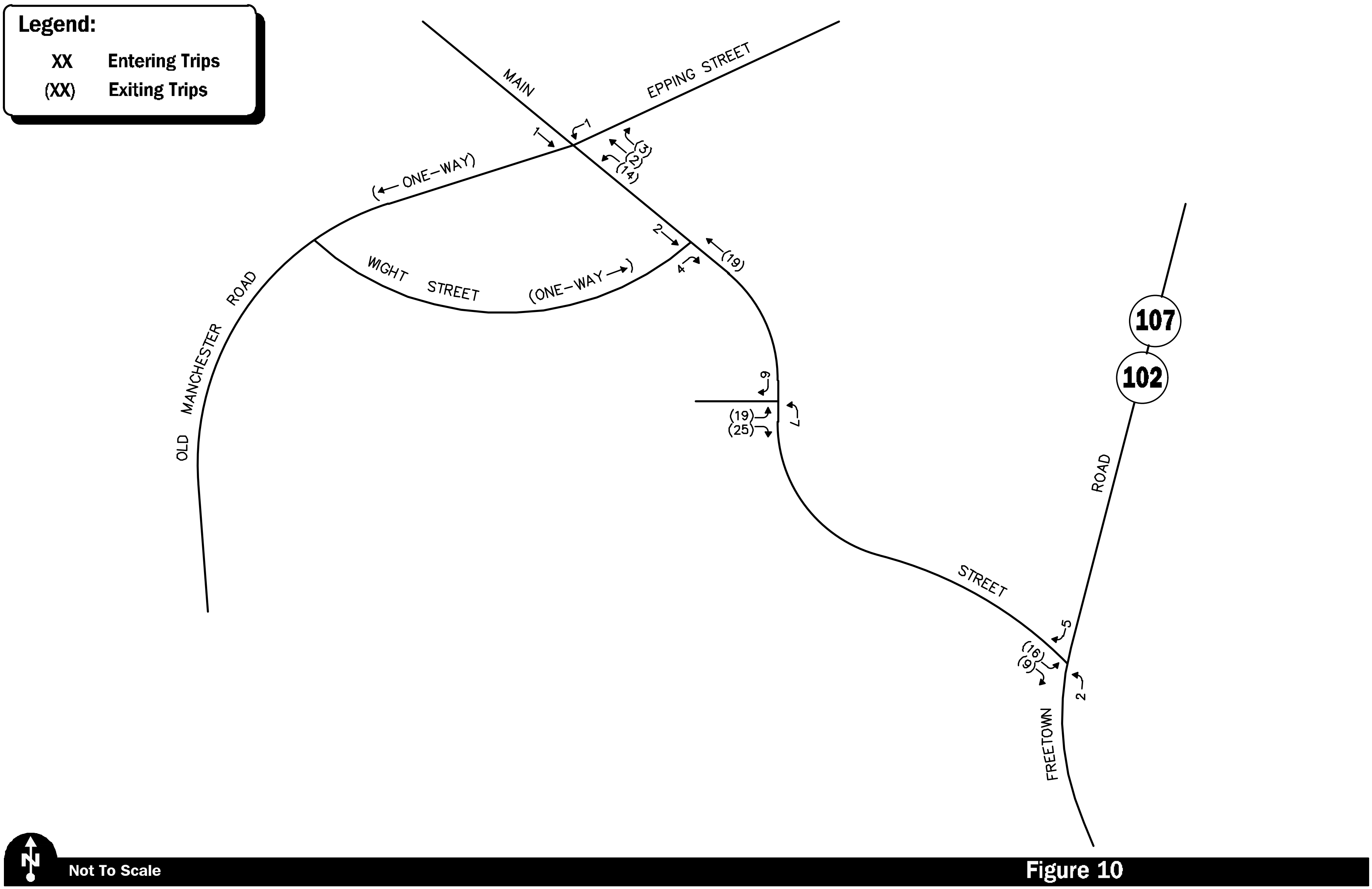


Figure 10

Project-Generated Weekday Morning Peak-Hour Traffic Volumes

Vanasse & Associates inc

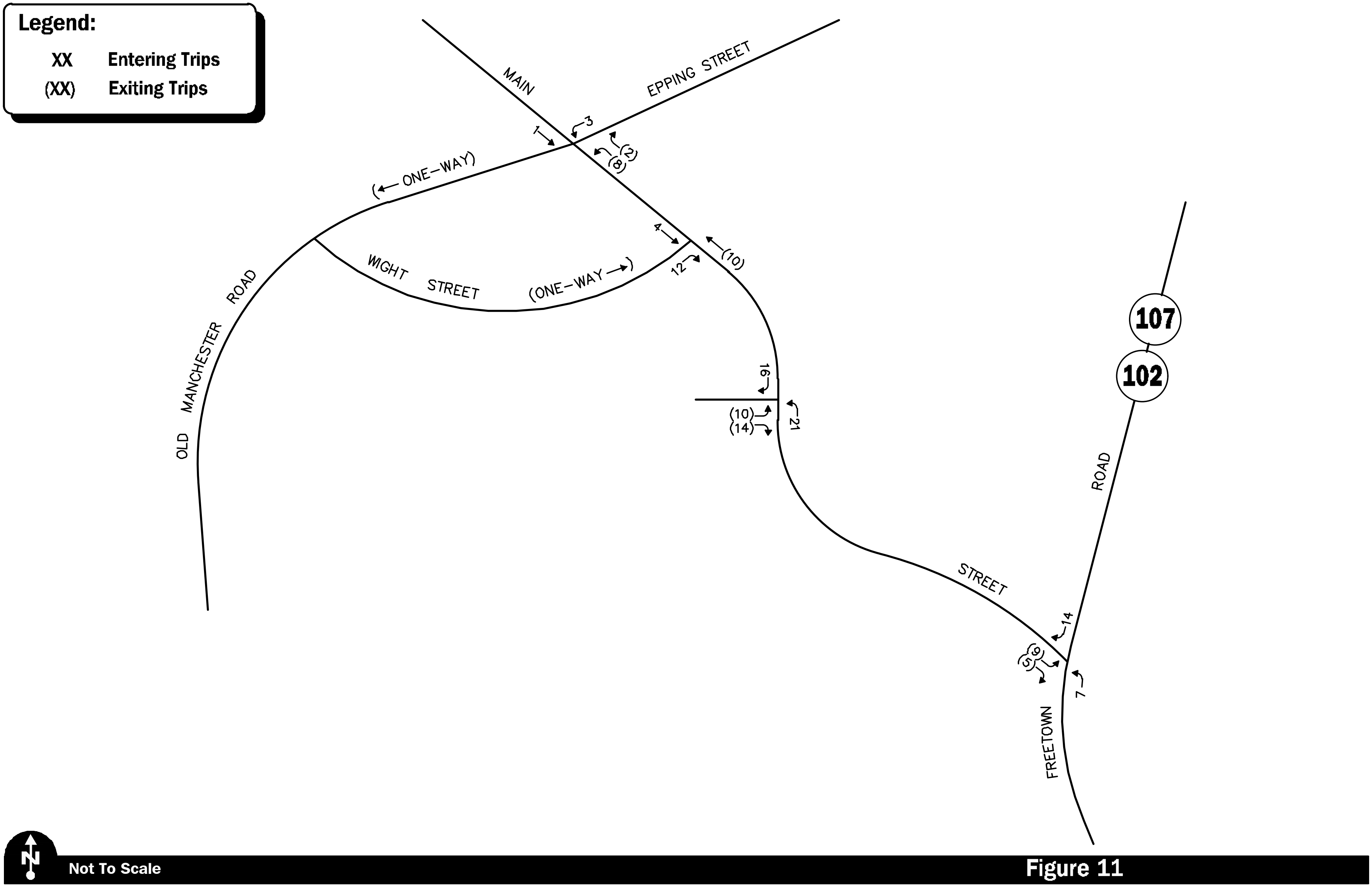
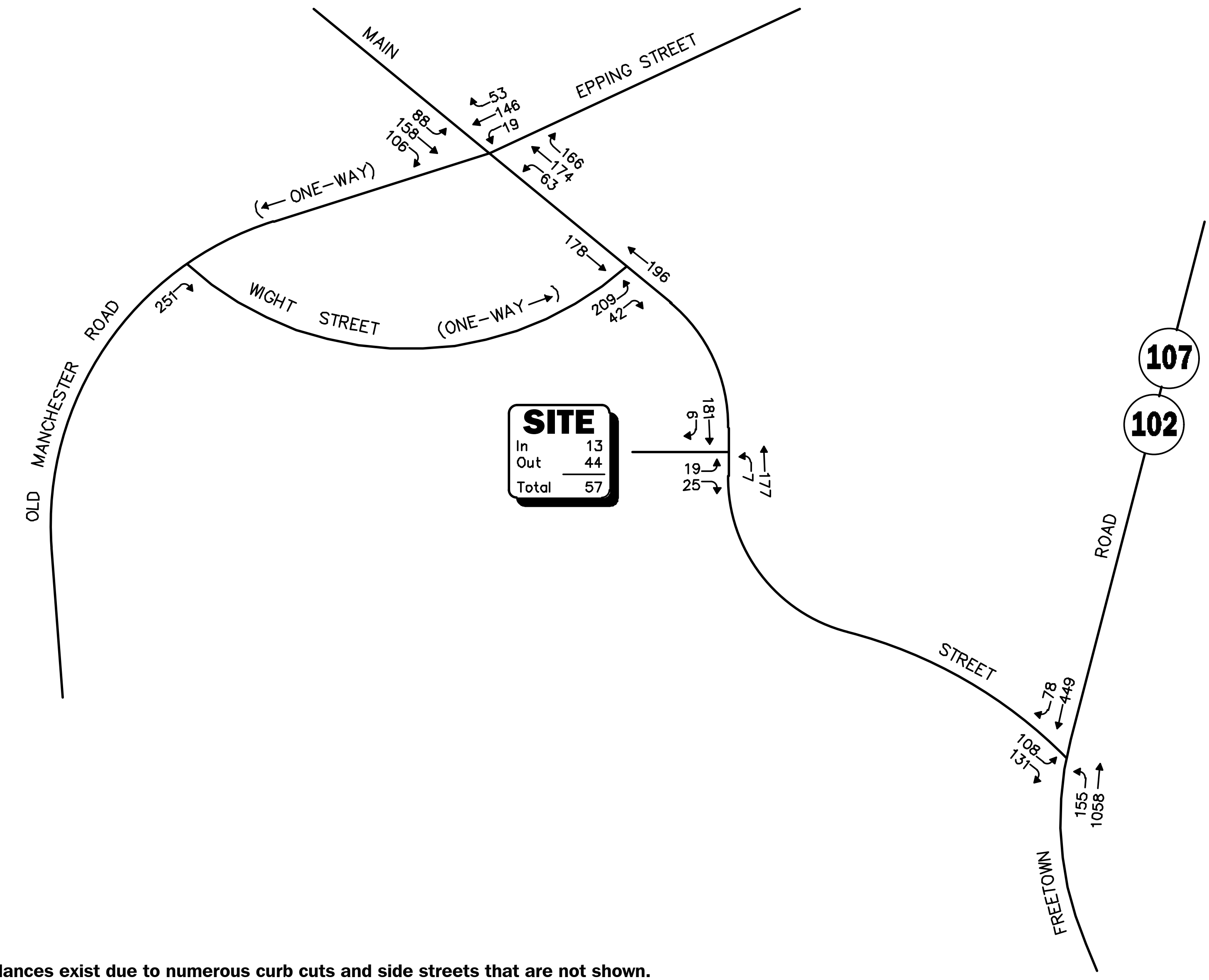


Figure 11

Project-Generated Weekday Evening Peak-Hour Traffic Volumes

Vanasse & Associates inc



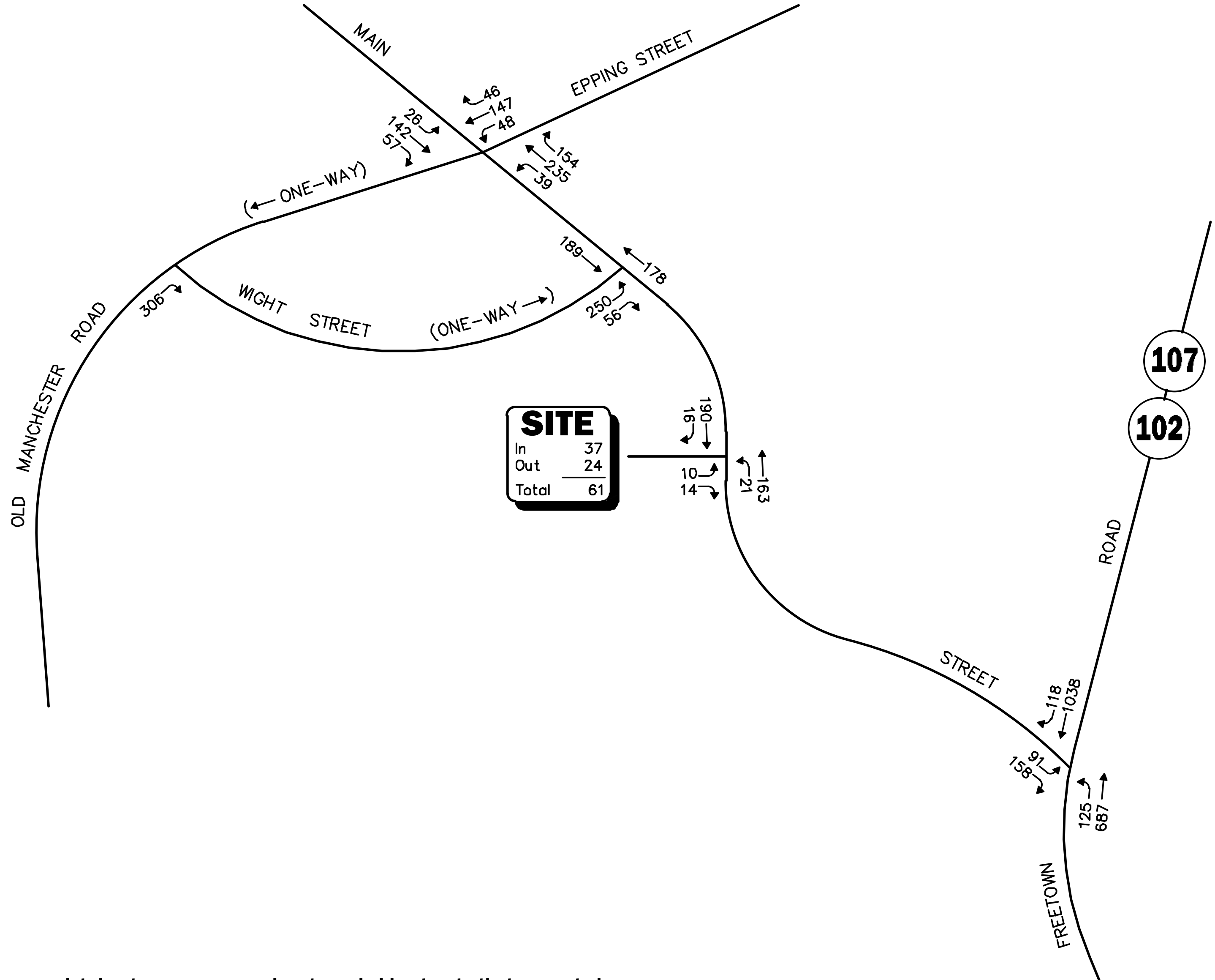
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 12

2024 Build Peak-Month Weekday Morning Peak-Hour Traffic Volumes

Vanasse & Associates inc



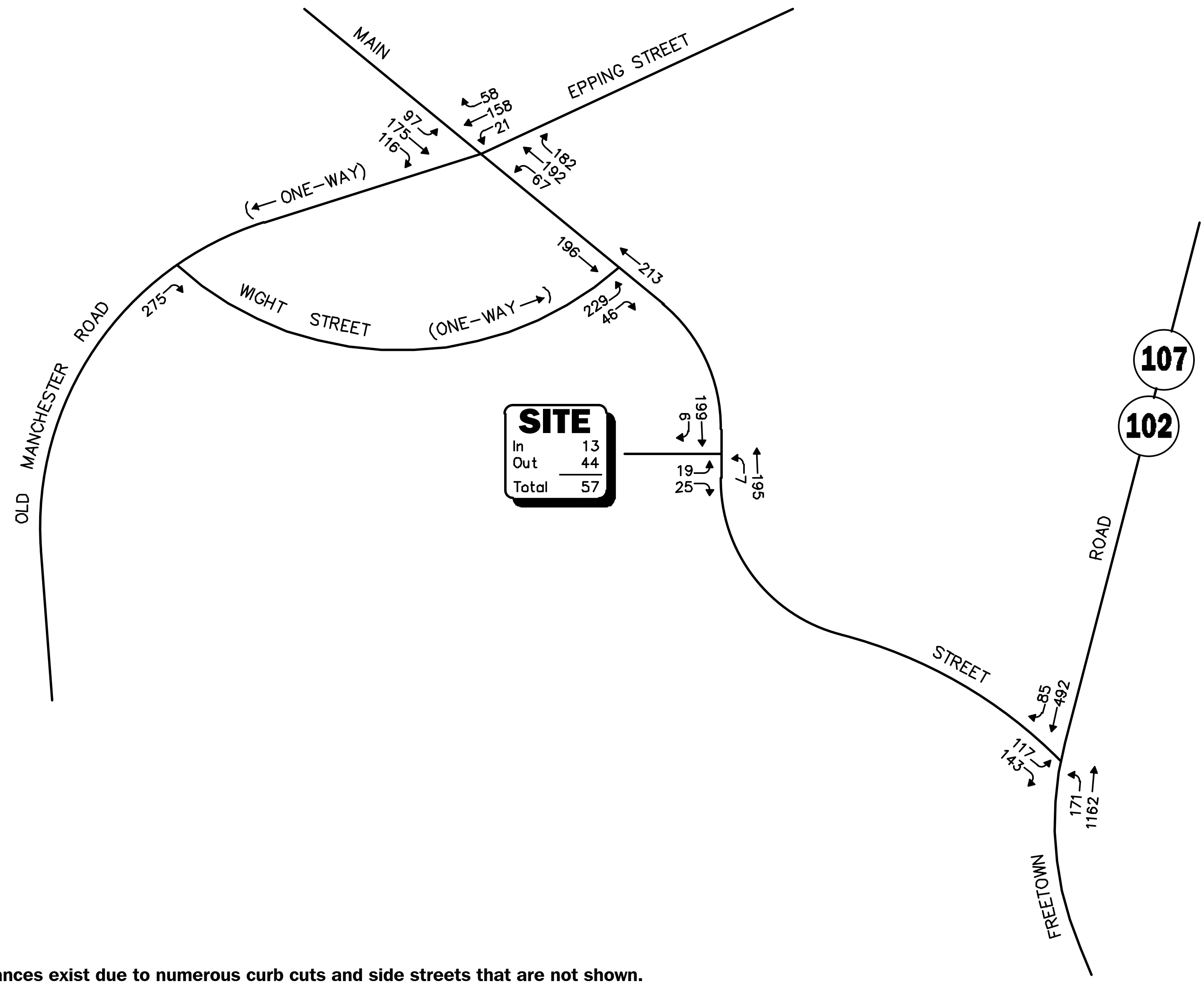
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 13

**2024 Build
Peak-Month
Weekday Evening
Peak-Hour Traffic Volumes**

Vanasse & Associates inc



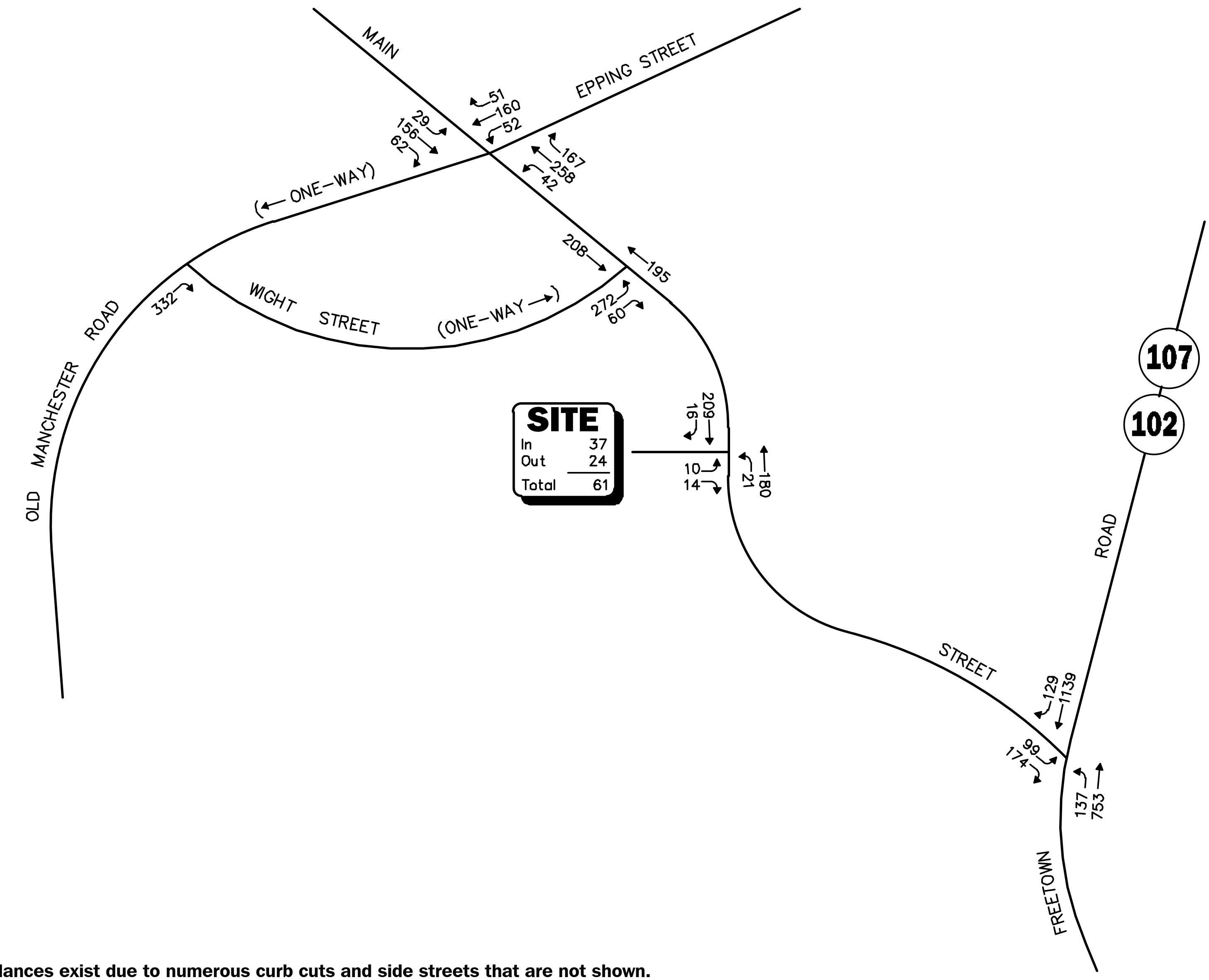
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 14

2034 Build Peak-Month Weekday Morning Peak-Hour Traffic Volumes

Vanasse & Associates inc



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 15

Vanasse & Associates inc

2034 Build
Peak-Month
Weekday Evening
Peak-Hour Traffic Volumes

intersection operating conditions shown to be over capacity during the weekday morning peak-hour under 2023 Existing conditions.

Freetown Road at Main Street

Under 2024 Opening-Year Build peak-month conditions, the addition of Project-related traffic was shown to result in an increase in overall average motorist delay of 16.1 seconds during the weekday morning peak-hour and 8.4 seconds during the weekday evening peak-hour that caused a change in level of service from LOS E to LOS F and from LOS D to LOS E, respectively. Independent of the Project, left-turn movements from Main Street are currently operating over capacity during both peak hours and right-turn movements are predicted to operate at capacity during the weekday evening peak-hour. Project-related impacts on these movements were reported as follows:

- ***Main Street Eastbound Left-Turn:*** *weekday morning peak-hour* - increase in average motorist delay of 181.8 seconds that resulted in an increase in vehicle queuing of up to two (2) vehicles; *weekday evening peak-hour* - increase in average motorist delay of 135.9 seconds that resulted in an increase in vehicle queuing up to one (1) vehicle.
- ***Main Street Eastbound Right-***Turn: *weekday morning peak-hour* - increase in average motorist delay of 0.2 seconds with no (0) increase in vehicle queuing; *weekday evening peak-hour* - increase in average motorist delay of 1.7 seconds with no (0) increase in vehicle queuing.

Under 2034 Build peak-month conditions, right-turn movements from Main Street were shown to experience an increase in average motorist delay of 0.2 seconds that resulted in a change in level of service from LOS B to LOS C. Similar to 2024 No-Build conditions and independent of the Project, left-turn movements from Main Street are predicted to operate over capacity under 2034 No-Build peak-month conditions during both peak hours and right-turn movements are predicted to operate over capacity during the weekday evening peak-hour. Project-related impacts on these movements were reported as follows:

- ***Main Street Eastbound Left-Turn:*** *weekday morning peak-hour* - increase in average motorist delay of 260.8 seconds that resulted in an increase in vehicle queuing of up to three (3) vehicles; *weekday evening peak-hour* - increase in average motorist delay of 234.7 seconds that resulted in an increase in vehicle queuing up to one (1) vehicle.
- ***Main Street Eastbound Right-Turn:*** *weekday morning peak-hour* - increase in average motorist delay of 0.2 seconds with no (0) increase in vehicle queuing; *weekday evening peak-hour* - increase in average motorist delay of 4.0 seconds with an increase in vehicle queuing of up to one (1) vehicle.

The discrepancy between the magnitude of the delay increases for those movements that were identified to be operating at or over capacity and the reported vehicle queue increases illustrates the limitations of the analysis model to produce meaningful delay values for over saturated conditions.

Main Street at Wight Street

Under 2024 Opening-Year and 2034 Build peak-month conditions, no change in level of service is predicted to occur over 2024 or 2034 No-Build conditions, with Project-related impacts generally defined as a predicted increase in average motorist delay of up to 2.9 seconds that resulted in an increase in vehicle queuing of up to one (1) vehicle. All movements at the intersection are predicted to operate at LOS D or better with the addition of Project-related traffic under all analysis conditions.

Table 5
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2023 Existing				2024 No-Build				2024 Opening-Year Build				2034 No-Build				2034 Build			
Unsignalized Intersection/Peak Hour/Movement	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95^{th}	Demand	Delay	LOS	Queue 95^{th}	Demand	Delay	LOS	Queue 95^{th}	Demand	Delay	LOS	Queue 95^{th}	Demand	Delay	LOS	Queue 95^{th}
Main Street at Epping Street and Old Manchester Road																				
Weekday Morning:																				
Main Street EB LT/TH/RT	340	2.2	A	1	351	2.1	A	1	352	2.1	A	1	387	2.2	A	1	388	2.2	A	1
Main Street WB LT/TH/RT	353	0.9	A	0	384	1.0	A	0	403	1.3	A	0	422	1.0	A	0	441	1.2	A	0
Epping Street SB LT/TH/RT	191	197.4	F	19	217	345.6	F	28	218	407.0	F	30	236	541.3	F	37	237	617.6	F	39
Overall	--	**64.5**	**F**	--	--	**117.3**	**F**	--	--	**136.0**	**F**	--	--	**181.8**	**F**	--	--	**204.4**	**F**	--
Weekday Evening:																				
Main Street EB LT/TH/RT	214	1.0	A	0	224	1.0	A	0	225	1.0	A	0	246	1.0	A	0	247	1.0	A	0
Main Street WB LT/TH/RT	371	0.6	A	0	418	0.6	A	0	428	0.7	A	0	457	0.6	A	0	467	0.7	A	0
Epping Street SB LT/TH/RT	213	26.0	D	4	238	36.6	E	6	240	41.0	E	7	260	58.9	F	9	263	68.4	F	10
Overall	--	**7.8**	**A**	--	--	**10.9**	**B**	--	--	**12.1**	**B**	--	--	**17.2**	**C**	--	--	**19.8**	**C**	--
Freetown Road at Main Street																				
Weekday Morning:																				
Main Street EB LT	88	544.0	F	10	92	833.1	F	12	108	1,014.9	F	14	101	1,476.8	F	14	117	1,737.6	F	17
Main Street EB RT	119	13.0	B	1	122	13.7	B	1	131	13.9	B	1	134	14.9	B	2	143	15.1	C	2
Freetown Road NB LT	145	9.3	A	1	153	9.6	A	1	155	9.6	A	1	169	10.0	B	1	171	10.0	B	1
Freetown Road NB TH	989	0.0	A	0	1,058	0.0	A	0	1,057	0.0	A	0	1,162	0.0	A	0	1,162	0.0	A	0
Freetown Road SB TH	410	0.0	A	0	449	0.0	A	0	449	0.0	A	0	492	0.0	A	0	492	0.0	A	0
Freetown Road SB RT	69	0.0	A	0	73	0.0	A	0	78	0.0	A	0	80	0.0	A	0	85	0.0	A	0
Overall	--	**28.0**	**D**	--	--	**41.1**	**E**	--	--	**57.2**	**F**	--	--	**71.7**	**F**	--	--	**95.8**	**F**	--
Weekday Evening:																				
Main Street EB LT	77	362.7	F	8	82	614.9	F	10	91	750.8	F	11	90	1,137.3	F	12	99	1,372.0	F	13
Main Street EB RT	149	31.5	D	3	153	40.0	E	4	158	41.7	E	4	169	65.6	F	6	174	69.6	F	7
Freetown Road NB LT	114	11.9	B	1	118	12.7	B	1	125	12.9	B	1	130	14.0	B	1	137	14.3	B	1
Freetown Road NB TH	630	0.0	A	0	687	0.0	A	0	687	0.0	A	0	753	0.0	A	0	753	0.0	A	0
Freetown Road SB TH	960	0.0	A	0	1,038	0.0	A	0	1,038	0.0	A	0	1,139	0.0	A	0	1,139	0.0	A	0
Freetown Road SB RT	102	0.0	A	0	104	0.0	A	0	118	0.0	A	0	115	0.0	A	0	129	0.0	A	0
Overall	--	**17.7**	**C**	--	--	**28.2**	**D**	--	--	**36.6**	**E**	--	--	**51.0**	**F**	--	--	**65.4**	**F**	--
Main Street at the Project Site Driveway																				
Weekday Morning:																				
Project Site Driveway EB LT/TH	--	--	--	--	--	--	--	--	44	10.6	B	0	--	--	--	--	44	10.8	B	0
Main Street NB LT/RT	--	--	--	--	--	--	--	--	184	0.3	A	0	--	--	--	--	202	0.2	A	0
Main Street SB TH/RT	--	--	--	--	--	--	--	--	187	0.0	A	0	--	--	--	--	205	0.0	A	0
Overall	--	--	--	--	--	--	--	--	--	**1.2**	**A**	--	--	--	--	--	--	**1.1**	**A**	--
Weekday Evening:																				
Project Site Driveway EB LT/TH	--	--	--	--	--	--	--	--	24	10.7	B	0	--	--	--	--	24	11.0	B	0
Main Street NB LT/RT	--	--	--	--	--	--	--	--	184	0.9	A	0	--	--	--	--	201	0.8	A	0
Main Street SB TH/RT	--	--	--	--	--	--	--	--	206	0.0	A	0	--	--	--	--	225	0.0	A	0
Overall	--	--	--	--	--	--	--	--	--	**1.0**	**A**	--	--	--	--	--	--	**0.9**	**A**	--
Main Street at Wight Street																				
Weekday Morning:																				
Wight Street EB LT/RT	221	15.6	C	3	247	17.2	C	3	251	18.1	C	4	271	20.4	C	5	275	21.8	C	5
Main Street NB LT/TH	165	0.0	A	0	177	0.0	A	0	196	0.0	A	0	194	0.0	A	0	213	0.0	A	0
Main Street SB TH/RT	174	0.0	A	0	176	0.0	A	0	178	0.0	A	0	194	0.0	A	0	196	0.0	A	0
Overall	--	**6.8**	**A**	--	--	**7.8**	**A**	--	--	**8.0**	**A**	--	--	**9.2**	**A**	--	--	**9.7**	**A**	--
Weekday Evening:																				
Wight Street EB LT/RT	245	17.2	C	3	294	20.8	C	5	306	22.5	C	5	320	26.9	D	7	332	29.8	D	8
Main Street NB LT/TH	163	0.0	A	0	168	0.0	A	0	178	0.0	A	0	185	0.0	A	0	195	0.0	A	0
Main Street SB TH/RT	183	0.0	A	0	185	0.0	A	0	189	0.0	A	0	204	0.0	A	0	208	0.0	A	0
Overall	--	**7.6**	**A**	--	--	**10.1**	**B**	--	--	**10.9**	**B**	--	--	**12.9**	**B**	--	--	**14.3**	**B**	--

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level of service.
[d]Queue length in vehicles.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

SIGHT DISTANCE ASSESSMENT

Sight distance measurements were performed at the intersection of Main Street at the Project site driveway in accordance with American Association of State Highway and Transportation Officials (AASHTO)[9] requirements. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 6 presents the measured SSD and ISD at the subject intersection.

Table 6
SIGHT DISTANCE MEASUREMENTS[a]

	Feet		
Intersection/Sight Distance Measurement	Required Minimum (SSD)	Desirable (ISD)[b]	Measured
Main Street at the Project Site Driveway			
Stopping Sight Distance:			
Main Street approaching from the north	250	--	292
Main Street approaching from the south	250	--	412
Intersection Sight Distance:			
Looking to the north from the Project site driveway	250	335	256
Looking to the south from the Project site driveway	250	390	420

[a]Recommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018; and based on an approach speed of 35 mph along Main Street.
[b]Values shown are the intersection sight distance for a vehicle turning right or left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

As can be seen in Table 6, the available lines of sight to and from the Project site driveway intersection with Main Street were found to exceed the recommended minimum sight distance to function in a safe manner (SSD) based on a 35 mph approach speed along Main Street, which is above both the measured 85th percentile vehicle travel speed (32/28 mph) and the posted speed limit (30 mph) in the vicinity of the Project site.

[9]*A Policy on Geometric Design of Highway and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

SUMMARY

VAI has completed a detailed assessment of the potential impacts on the transportation infrastructure associated with the proposed construction of a multifamily residential development to be known as White Rock Place and located at 109 Main Street in Raymond, New Hampshire. This study has been completed in accordance with NHDOT standards for the preparation of a TIS and includes an evaluation of the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the ITE,[10] the Project is expected to generate approximately 708 vehicle trips on an average weekday (two-way, 24-hour volume), with approximately 57 vehicle trips expected during the weekday morning peak-hour and 61 vehicle trips expected during the weekday evening peak-hour;

2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), acknowledging that specific movements at the study area intersection are currently operating at or over capacity (i.e., LOS "E" or "F") and the with the majority of the movements at the study area intersections shown to continue operate at a level-of-service (LOS) D or better, where and LOS of "D" or better is generally defined as "acceptable" traffic operations;

3. Exiting movements from the Project site driveway to Main Street are predicted to operate at LOS B or better with negligible vehicle queuing predicted, with all movements along Main Street approaching the driveway shown to operate at LOS A, also with negligible vehicle queuing; and

4. Lines of sight at the intersection of Main Street at the Project site driveway were found to exceed the recommended minimum distance for the intersection to operate in a safe manner based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with the implementation of the recommendations that follow.

RECOMMENDATIONS

Project Access

Access to the Project site will be provided by way of a full-access driveway that will intersect the west side of Main Street approximately 40 feet south of the driveway to 103 Main Street, with secondary access for emergency vehicles only to be provided by way of a paved drive that will intersect the west side of Main Street between 95 Main Street and 97 Main Street. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation, many of which are reflected on the Site Plan:

- The Project site driveway should be a minimum of 24 feet in width and designed to accommodate the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.

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[10]Institute of Transportation Engineers, op. cit. 1.

- The emergency vehicle access road will be a minimum of 20 feet in width and paved, and constructed to support travel by the largest anticipated responding emergency vehicle under all weather conditions. A gate will be provided to restrict use of the roadway by non-emergency vehicles.

- Where perpendicular parking is proposed, the drive aisle behind the parking should be a minimum of 23 feet in order to facilitate parking maneuvers.

- Vehicles exiting the Project site to Main Street should be placed under STOP-sign control with a marked STOP-line provided.

- All signs and pavement markings to be installed as a part of the Project will conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).[11]

- Americans with Disabilities Act (ADA) compliant wheelchair ramps should be provided at all pedestrian crossings to be constructed or modified in conjunction with the Project.

- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas will be designed and maintained so as not to restrict lines of sight.

- Snow accumulation (windrows) within sight triangle areas of the Project site driveway will be promptly removed where such accumulations would impede sight lines.

<u>Off-Site</u>

Main Street at Epping Street and Old Manchester Road

The addition of Project-related traffic to the Main Street/Epping Street/Old Manchester Road intersection was not shown to result in a change in level-of-service for any movement over No-Build conditions. Vehicle queues at the intersection were shown to increase by up to two (2) vehicles as a result of the addition of Project-related traffic. That being said, and independent of the Project, left-turn movements from Epping Street are currently or are predicted to operate over capacity (i.e., LOS "F"). Acknowledging these conditions and given the limited impact of the Project at the intersection, no improvements are necessary to address the incremental impact of the Project.

Freetown Road at Main Street

The addition of Project-related traffic to the Freetown Road/Main Street intersection was shown to result in an increase in average motorist delay of 0.2 seconds that resulted in a change in level-of-service from LOS B to LOS C during the weekday morning peak-hour for right-turn movements from Main Street, with vehicle queues at the intersection shown to increase by up to three (3) vehicles. That being said, and independent of the Project, it was noted that all movements from the Main Street approach are currently or are predicted to operate at or over capacity (i.e., LOS "E" or "F"). A preliminary review of the warrants specified in the MUTCD[12] for the installation of a traffic control signal at the Freetown Road/Main Street intersection indicates that the intersection does not appear to meet the necessary criteria for the installation of a traffic signal. In an effort to improve the traffic operations at the intersection, consideration should be given realigning the Main Street approach to Freetown Road to intersect Freetown Road at a perpendicular

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[11]*Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.
[12]Ibid.

angle and that the left and right-turn lanes be extended along Main Street to increase the vehicle queue storage for left-turn movements.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

cc: File

ATTACHMENTS

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNT DATA
TURNING MOVEMENT COUNT DATA
SEASONAL ADJUSTMENT DATA
COVID ADJUSTMENT DATA
VEHICLE TRAVEL SPEED DATA
GENERAL BACKGROUND TRAFFIC GROWTH
BACKGROUND DEVELOPMENT NETWORKS
TRIP-GENERATION CALCULATIONS
TRIP-DISTRIBUTION DATA
CAPACITY ANALYSIS WORKSHEETS

PROJECT SITE PLAN

APPROVED - RAYMOND, NH PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 3/20/23

REV.	DATE	REVISION	BY
12	3/19/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM
8	8/2/22	ADDED DRAINAGE	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: SITE PLAN

Project: WHITE ROCK PLACE 109 A, B & C MAIN STREET, RAYMOND, NH 03077

Owner of Record:

LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833	LOT 28: PAUL W & TERI L WELCH 109 MAIN STREET, RAYMOND, NH 03077 BK 2839 PG 770
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263	LOT 29: WAYNE & CATHLEEN WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
C15
SHEET 18 OF 52
JBE PROJECT NO. 20564

AUTOMATIC TRAFFIC RECORDER COUNT DATA

Location : Main Street 96430001
Location : at #110 Main Street
City/State: Raymond, NH

3/7/2023	EB		Hour Totals		WB		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	20			1	10				
12:15	0	21			0	20				
12:30	1	16			2	16				
12:45	1	14	3	71	0	19	3	65	6	136
1:00	0	17			2	20				
1:15	2	12			1	12				
1:30	0	23			0	16				
1:45	2	22	4	74	0	27	3	75	7	149
2:00	1	13			1	23				
2:15	0	24			0	25				
2:30	1	18			0	22				
2:45	1	27	3	82	1	20	2	90	5	172
3:00	1	25			1	38				
3:15	0	29			1	28				
3:30	0	26			1	32				
3:45	4	18	5	98	1	39	4	137	9	235
4:00	3	26			0	28				
4:15	6	32			0	38				
4:30	10	31			1	23				
4:45	9	26	28	115	1	42	2	131	30	246
5:00	8	25			0	22				
5:15	7	27			6	32				
5:30	17	25			6	30				
5:45	17	18	49	95	7	32	19	116	68	211
6:00	19	12			5	15				
6:15	19	22			6	19				
6:30	22	14			15	20				
6:45	22	15	82	63	14	19	40	73	122	136
7:00	29	8			19	18				
7:15	30	5			32	14				
7:30	33	10			39	11				
7:45	34	11	126	34	32	9	122	52	248	86
8:00	22	13			17	10				
8:15	22	8			13	14				
8:30	22	8			25	4				
8:45	30	7	96	36	19	7	74	35	170	71
9:00	17	6			17	4				
9:15	11	8			11	5				
9:30	18	5			18	3				
9:45	23	3	69	22	19	7	65	19	134	41
10:00	17	1			14	3				
10:15	15	4			28	2				
10:30	11	3			16	1				
10:45	12	1	55	9	17	0	75	6	130	15
11:00	10	0			14	4				
11:15	15	4			10	2				
11:30	15	1			11	2				
11:45	16	0	56	5	22	3	57	11	113	16
Total	576	704			466	810			1042	1514
Percent	45.0%	55.0%			36.5%	63.5%			40.8%	59.2%

Accurate Counts
978-664-2565

Location : Main Street 96430001
Location : at #110 Main Street
City/State: Raymond, NH

3/8/2023	EB		Hour Totals		WB		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	0	20			1	20				
12:15	1	14			1	9				
12:30	0	28			2	11				
12:45	1	12	2	74	1	22	5	62	7	136
1:00	1	16			2	17				
1:15	0	12			1	18				
1:30	0	18			2	19				
1:45	1	15	2	61	3	24	8	78	10	139
2:00	2	11			4	21				
2:15	1	24			3	21				
2:30	0	37			1	31				
2:45	2	28	5	100	1	41	9	114	14	214
3:00	1	24			2	22				
3:15	0	21			1	26				
3:30	2	33			1	29				
3:45	2	21	5	99	0	30	4	107	9	206
4:00	3	18			2	33				
4:15	3	21			0	30				
4:30	8	27			2	38				
4:45	11	19	25	85	0	30	4	131	29	216
5:00	8	22			2	31				
5:15	9	20			4	38				
5:30	14	28			4	39				
5:45	11	28	42	98	7	32	17	140	59	238
6:00	21	14			1	28				
6:15	16	17			3	18				
6:30	28	16			17	17				
6:45	29	9	94	56	25	16	46	79	140	135
7:00	29	15			24	19				
7:15	26	10			18	11				
7:30	33	11			29	9				
7:45	28	7	116	43	25	11	96	50	212	93
8:00	22	8			14	9				
8:15	14	12			20	11				
8:30	25	7			23	14				
8:45	17	6	78	33	17	6	74	40	152	73
9:00	16	5			13	6				
9:15	17	6			15	5				
9:30	12	6			4	8				
9:45	15	1	60	18	18	3	50	22	110	40
10:00	2	8			14	4				
10:15	20	0			13	1				
10:30	16	5			17	1				
10:45	14	3	52	16	19	1	63	7	115	23
11:00	17	3			19	2				
11:15	20	0			18	2				
11:30	13	0			18	3				
11:45	22	0	72	3	21	3	76	10	148	13
Total	553	686			452	840			1005	1526
Percent	44.6%	55.4%			35.0%	65.0%			39.7%	60.3%
Grand Total	1129	1390			918	1650			2047	3040
Percent	44.8%	55.2%			35.7%	64.3%			40.2%	59.8%
ADT		ADT: 2,544		AADT: 2,544						

Accurate Counts
978-664-2565

Location : Main Street 96430001
Location : at #110 Main Street
City/State: Raymond, NH

3/6/2023	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	3	3	2	5	*	*	*	*	*	*	*	*	2	4
1:00	*	*	4	3	2	8	*	*	*	*	*	*	*	*	3	6
2:00	*	*	3	2	5	9	*	*	*	*	*	*	*	*	4	6
3:00	*	*	5	4	5	4	*	*	*	*	*	*	*	*	5	4
4:00	*	*	28	2	25	4	*	*	*	*	*	*	*	*	26	3
5:00	*	*	49	19	42	17	*	*	*	*	*	*	*	*	46	18
6:00	*	*	82	40	94	46	*	*	*	*	*	*	*	*	88	43
7:00	*	*	126	122	116	96	*	*	*	*	*	*	*	*	121	109
8:00	*	*	96	74	78	74	*	*	*	*	*	*	*	*	87	74
9:00	*	*	69	65	60	50	*	*	*	*	*	*	*	*	64	58
10:00	*	*	55	75	52	63	*	*	*	*	*	*	*	*	54	69
11:00	*	*	56	57	72	76	*	*	*	*	*	*	*	*	64	66
12:00 PM	*	*	71	65	74	62	*	*	*	*	*	*	*	*	72	64
1:00	*	*	74	75	61	78	*	*	*	*	*	*	*	*	68	76
2:00	*	*	82	90	100	114	*	*	*	*	*	*	*	*	91	102
3:00	*	*	98	137	99	107	*	*	*	*	*	*	*	*	98	122
4:00	*	*	115	131	85	131	*	*	*	*	*	*	*	*	100	131
5:00	*	*	95	116	98	140	*	*	*	*	*	*	*	*	96	128
6:00	*	*	63	73	56	79	*	*	*	*	*	*	*	*	60	76
7:00	*	*	34	52	43	50	*	*	*	*	*	*	*	*	38	51
8:00	*	*	36	35	33	40	*	*	*	*	*	*	*	*	34	38
9:00	*	*	22	19	18	22	*	*	*	*	*	*	*	*	20	20
10:00	*	*	9	6	16	7	*	*	*	*	*	*	*	*	12	6
11:00	*	*	5	11	3	2	*	*	*	*	*	*	*	*	4	6
Total	0	0	1280	1276	1239	1284	0	0	0	0	0	0	0	0	1257	1280
Day	0		2556		2523		0		0		0		0		2537	
AM Peak			7:00	7:00	7:00	7:00									7:00	7:00
Volume			126	122	116	96									121	109
PM Peak			4:00	3:00	2:00	5:00									4:00	4:00
Volume			115	137	100	140									100	131
Comb Total	0		2556		2523		0		0		0		0		2537	
ADT	ADT: 2,544		AADT: 2,544													

TURNING MOVEMENT COUNT DATA

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 1

Groups Printed- Cars - Trucks

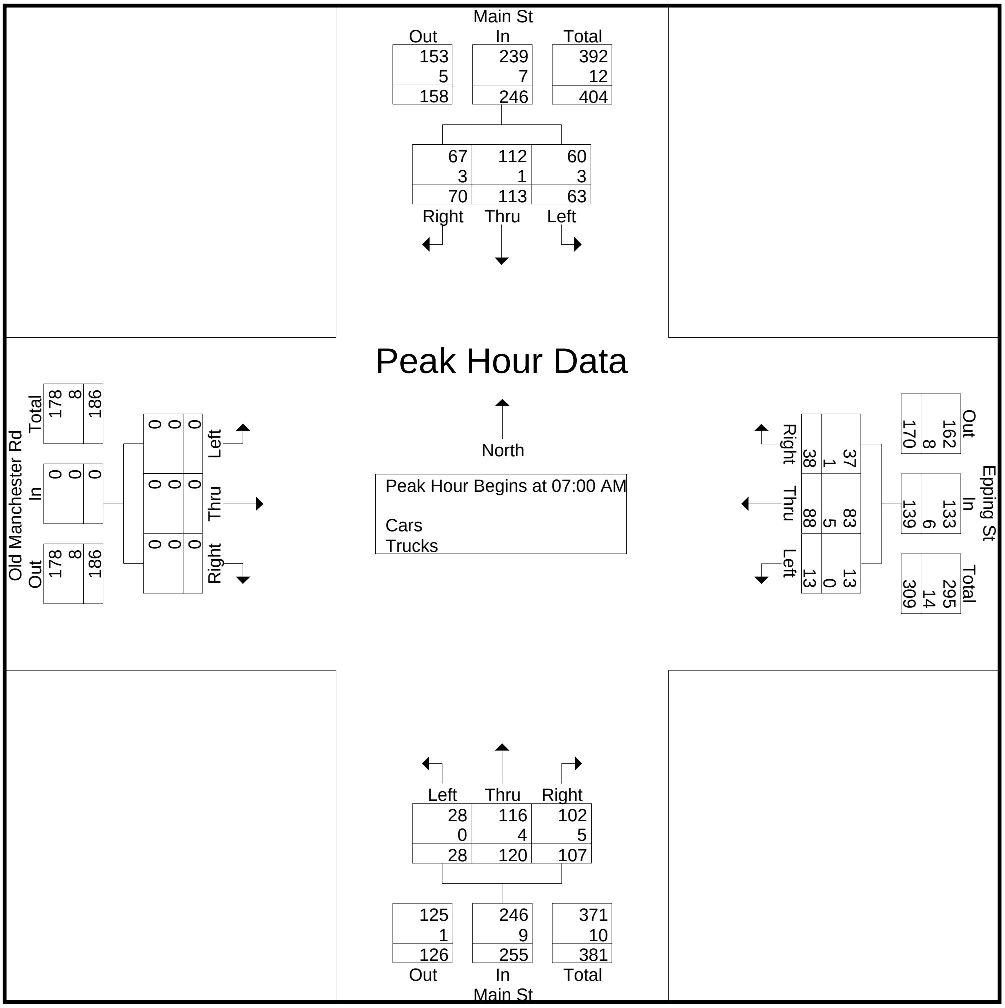
	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	8	27	18	2	7	2	4	28	13	0	0	0	109
07:15 AM	16	31	23	1	11	7	13	44	22	0	0	0	168
07:30 AM	27	29	14	4	25	9	2	27	36	0	0	0	173
07:45 AM	12	26	15	6	45	20	9	21	36	0	0	0	190
Total	63	113	70	13	88	38	28	120	107	0	0	0	640
08:00 AM	5	21	14	5	13	2	13	11	12	0	0	0	96
08:15 AM	4	20	20	5	21	3	6	11	9	0	0	0	99
08:30 AM	3	18	21	7	20	5	9	39	20	0	0	0	142
08:45 AM	5	26	22	3	12	2	8	25	22	0	0	0	125
Total	17	85	77	20	66	12	36	86	63	0	0	0	462
Grand Total	80	198	147	33	154	50	64	206	170	0	0	0	1102
Apprch %	18.8	46.6	34.6	13.9	65	21.1	14.5	46.8	38.6	0	0	0	
Total %	7.3	18	13.3	3	14	4.5	5.8	18.7	15.4	0	0	0	
Cars	76	191	140	33	145	48	63	192	162	0	0	0	1050
% Cars	95	96.5	95.2	100	94.2	96	98.4	93.2	95.3	0	0	0	95.3
Trucks	4	7	7	0	9	2	1	14	8	0	0	0	52
% Trucks	5	3.5	4.8	0	5.8	4	1.6	6.8	4.7	0	0	0	4.7

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	8	27	18	53	2	7	2	11	4	28	13	45	0	0	0	0	109
07:15 AM	16	**31**	**23**	**70**	1	11	7	19	**13**	**44**	22	**79**	0	0	0	0	168
07:30 AM	**27**	29	14	70	4	25	9	38	2	27	**36**	65	0	0	0	0	173
07:45 AM	12	26	15	53	**6**	**45**	**20**	**71**	9	21	36	66	0	0	0	0	**190**
Total Volume	63	113	70	246	13	88	38	139	28	120	107	255	0	0	0	0	640
% App. Total	25.6	45.9	28.5		9.4	63.3	27.3		11	47.1	42		0	0	0		
PHF	.583	.911	.761	.879	.542	.489	.475	.489	.538	.682	.743	.807	.000	.000	.000	.000	.842
Cars	60	112	67	239	13	83	37	133	28	116	102	246	0	0	0	0	618
% Cars	95.2	99.1	95.7	97.2	100	94.3	97.4	95.7	100	96.7	95.3	96.5	0	0	0	0	96.6
Trucks	3	1	3	7	0	5	1	6	0	4	5	9	0	0	0	0	22
% Trucks	4.8	0.9	4.3	2.8	0	5.7	2.6	4.3	0	3.3	4.7	3.5	0	0	0	0	3.4

Accurate Counts

978-664-2565

N/S Street	: Main Street	File Name	: 96430001
E/W Street	: Epping St / Old Manchester Rd	Site Code	: 96430001
City/State	: Raymond, NH	Start Date	: 3/7/2023
Weather	: Cloudy	Page No	: 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

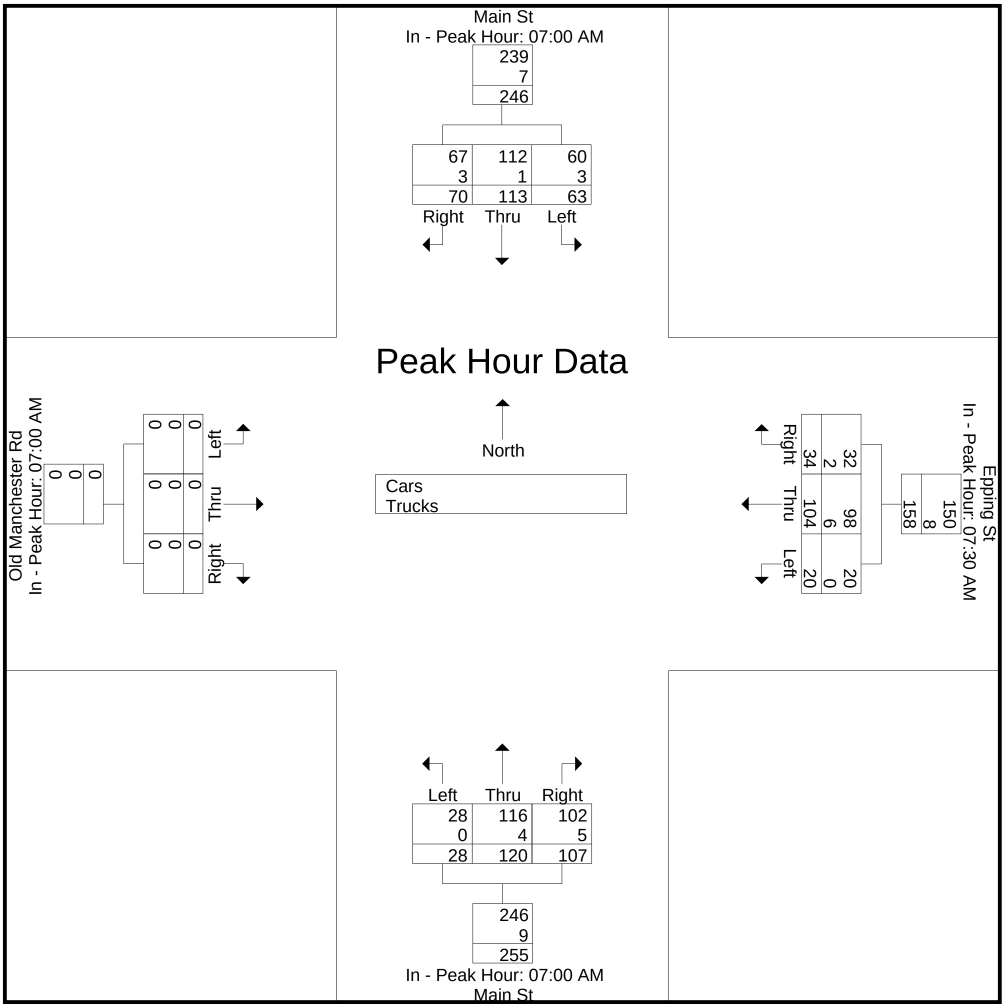
	07:00 AM				07:30 AM				07:00 AM				07:00 AM			
+0 mins.	8	27	18	53	4	25	9	38	4	28	13	45	0	0	0	0
+15 mins.	16	**31**	**23**	**70**	**6**	**45**	**20**	**71**	**13**	**44**	22	**79**	0	0	0	0
+30 mins.	**27**	29	14	70	5	13	2	20	2	27	**36**	65	0	0	0	0
+45 mins.	12	26	15	53	5	21	3	29	9	21	36	66	0	0	0	0
Total Volume	63	113	70	246	20	104	34	158	28	120	107	255	0	0	0	0
% App. Total	25.6	45.9	28.5		12.7	65.8	21.5		11	47.1	42		0	0	0	
PHF	.583	.911	.761	.879	.833	.578	.425	.556	.538	.682	.743	.807	.000	.000	.000	.000
Cars	60	112	67	239	20	98	32	150	28	116	102	246	0	0	0	0
% Cars	95.2	99.1	95.7	97.2	100	94.2	94.1	94.9	100	96.7	95.3	96.5	0	0	0	0
Trucks	3	1	3	7	0	6	2	8	0	4	5	9	0	0	0	0
% Trucks	4.8	0.9	4.3	2.8	0	5.8	5.9	5.1	0	3.3	4.7	3.5	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 4

Groups Printed- Cars

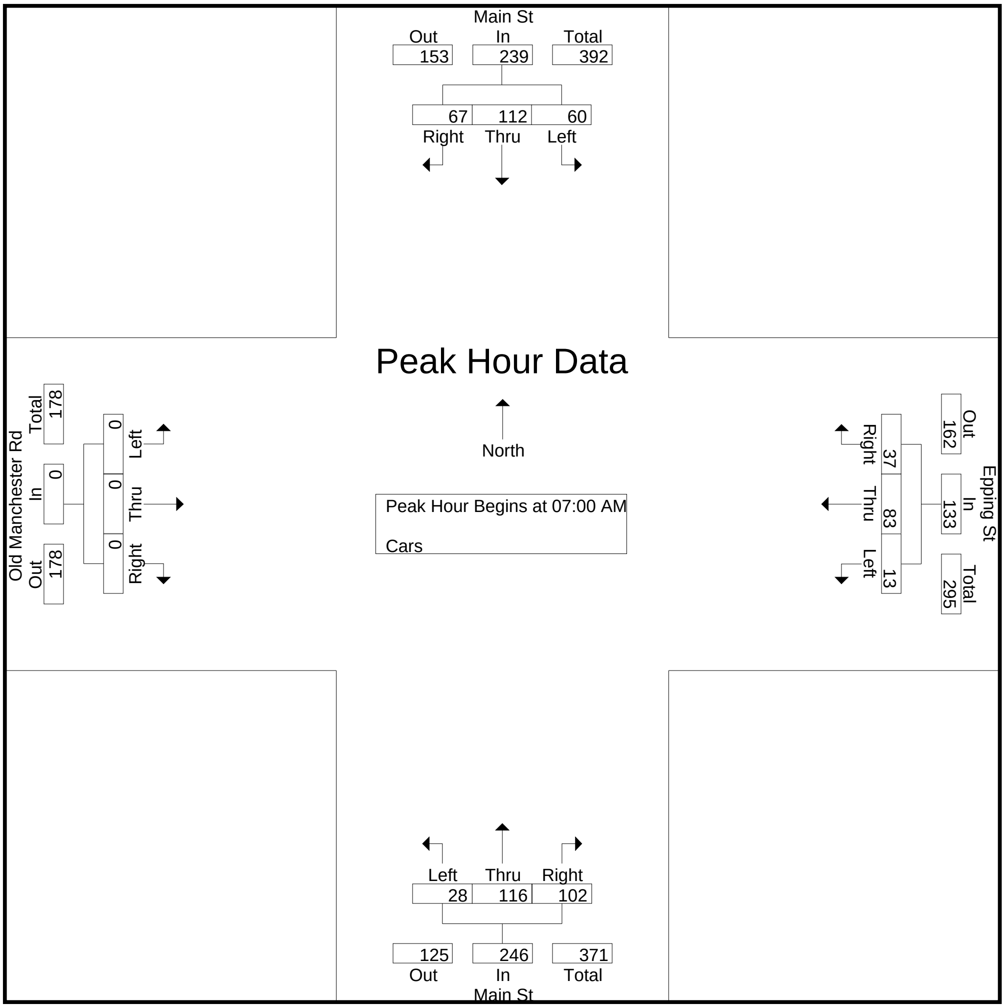
	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	8	26	15	2	6	2	4	27	12	0	0	0	102
07:15 AM	16	31	23	1	11	7	13	42	21	0	0	0	165
07:30 AM	24	29	14	4	25	9	2	27	34	0	0	0	168
07:45 AM	12	26	15	6	41	19	9	20	35	0	0	0	183
Total	60	112	67	13	83	37	28	116	102	0	0	0	618
08:00 AM	5	20	14	5	13	2	12	9	11	0	0	0	91
08:15 AM	4	18	18	5	19	2	6	10	9	0	0	0	91
08:30 AM	3	18	20	7	19	5	9	35	20	0	0	0	136
08:45 AM	4	23	21	3	11	2	8	22	20	0	0	0	114
Total	16	79	73	20	62	11	35	76	60	0	0	0	432
Grand Total	76	191	140	33	145	48	63	192	162	0	0	0	1050
Apprch %	18.7	46.9	34.4	14.6	64.2	21.2	15.1	46	38.8	0	0	0	
Total %	7.2	18.2	13.3	3.1	13.8	4.6	6	18.3	15.4	0	0	0	

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	8	26	15	49	2	6	2	10	4	27	12	43	0	0	0	0	102
07:15 AM	16	**31**	**23**	**70**	1	11	7	19	**13**	**42**	21	**76**	0	0	0	0	165
07:30 AM	**24**	29	14	67	4	25	9	38	2	27	34	63	0	0	0	0	168
07:45 AM	12	26	15	53	**6**	**41**	**19**	**66**	9	20	**35**	64	0	0	0	0	**183**
Total Volume	60	112	67	239	13	83	37	133	28	116	102	246	0	0	0	0	618
% App. Total	25.1	46.9	28		9.8	62.4	27.8		11.4	47.2	41.5		0	0	0		
PHF	.625	.903	.728	.854	.542	.506	.487	.504	.538	.690	.729	.809	.000	.000	.000	.000	.844

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 5



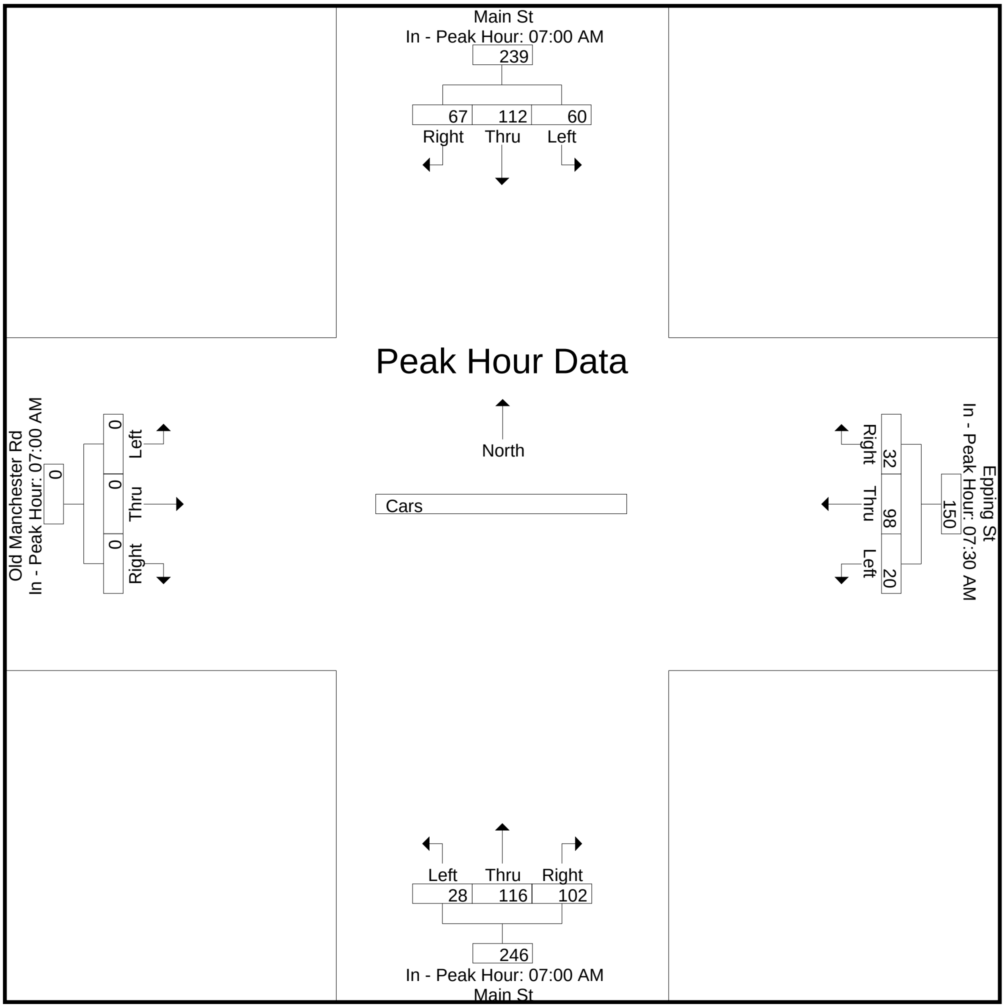
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:30 AM				07:00 AM				07:00 AM			
+0 mins.	8	26	15	49	4	25	9	38	4	27	12	43	0	0	0	0
+15 mins.	16	**31**	**23**	**70**	**6**	**41**	**19**	**66**	**13**	**42**	21	**76**	0	0	0	0
+30 mins.	**24**	29	14	67	5	13	2	20	2	27	34	63	0	0	0	0
+45 mins.	12	26	15	53	5	19	2	26	9	20	**35**	64	0	0	0	0
Total Volume	60	112	67	239	20	98	32	150	28	116	102	246	0	0	0	0
% App. Total	25.1	46.9	28		13.3	65.3	21.3		11.4	47.2	41.5		0	0	0	
PHF	.625	.903	.728	.854	.833	.598	.421	.568	.538	.690	.729	.809	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 6



Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023

Groups Printed- Trucks

	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	1	3	0	1	0	0	1	1	0	0	0	7
07:15 AM	0	0	0	0	0	0	0	2	1	0	0	0	3
07:30 AM	3	0	0	0	0	0	0	0	2	0	0	0	5
07:45 AM	0	0	0	0	4	1	0	1	1	0	0	0	7
Total	3	1	3	0	5	1	0	4	5	0	0	0	22
08:00 AM	0	1	0	0	0	0	1	2	1	0	0	0	5
08:15 AM	0	2	2	0	2	1	0	1	0	0	0	0	8
08:30 AM	0	0	1	0	1	0	0	4	0	0	0	0	6
08:45 AM	1	3	1	0	1	0	0	3	2	0	0	0	11
Total	1	6	4	0	4	1	1	10	3	0	0	0	30
Grand Total	4	7	7	0	9	2	1	14	8	0	0	0	52
Apprch %	22.2	38.9	38.9	0	81.8	18.2	4.3	60.9	34.8	0	0	0	
Total %	7.7	13.5	13.5	0	17.3	3.8	1.9	26.9	15.4	0	0	0	

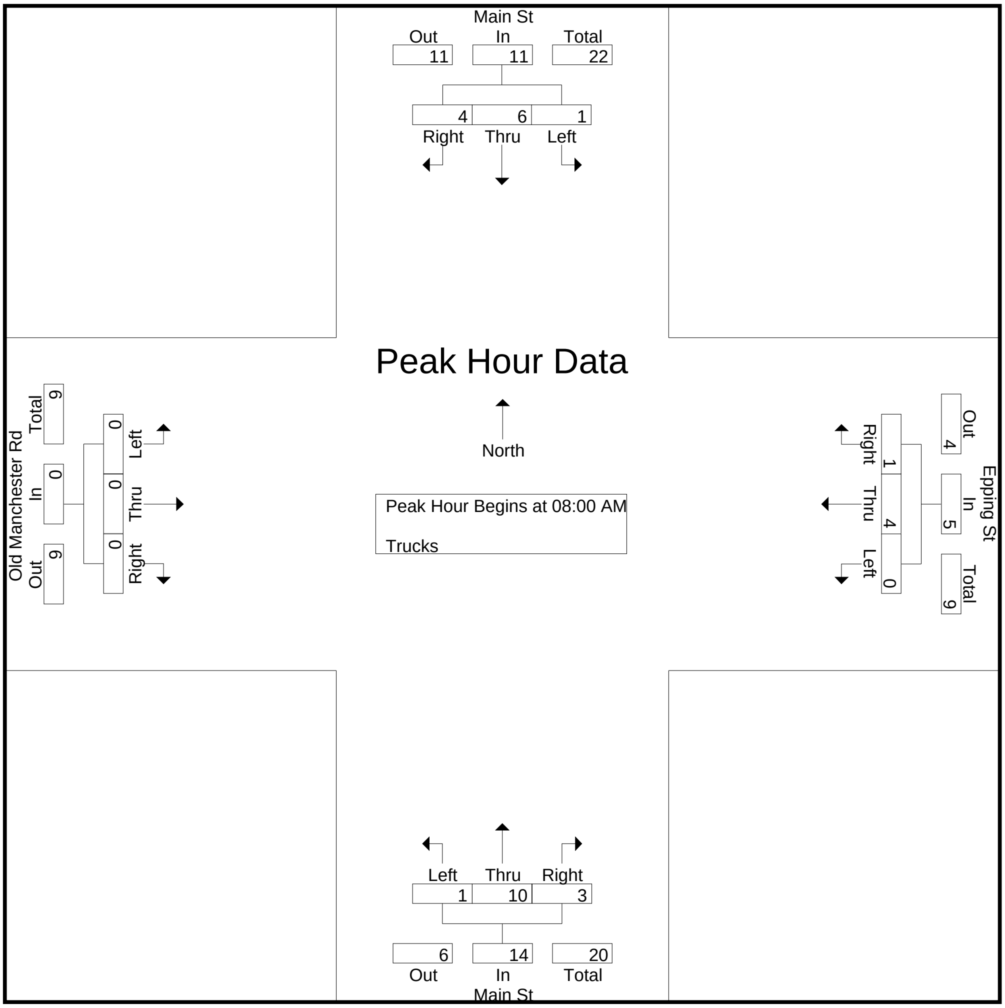
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	1	0	1	0	0	0	0	**1**	2	1	4	0	0	0	0	5
08:15 AM	0	2	**2**	4	0	**2**	**1**	**3**	0	1	0	1	0	0	0	0	8
08:30 AM	0	0	1	1	0	1	0	1	0	**4**	0	4	0	0	0	0	6
08:45 AM	**1**	**3**	1	**5**	0	1	0	1	0	3	**2**	**5**	0	0	0	0	**11**
Total Volume	1	6	4	11	0	4	1	5	1	10	3	14	0	0	0	0	30
% App. Total	9.1	54.5	36.4		0	80	20		7.1	71.4	21.4		0	0	0		
PHF	.250	.500	.500	.550	.000	.500	.250	.417	.250	.625	.375	.700	.000	.000	.000	.000	.682

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 8



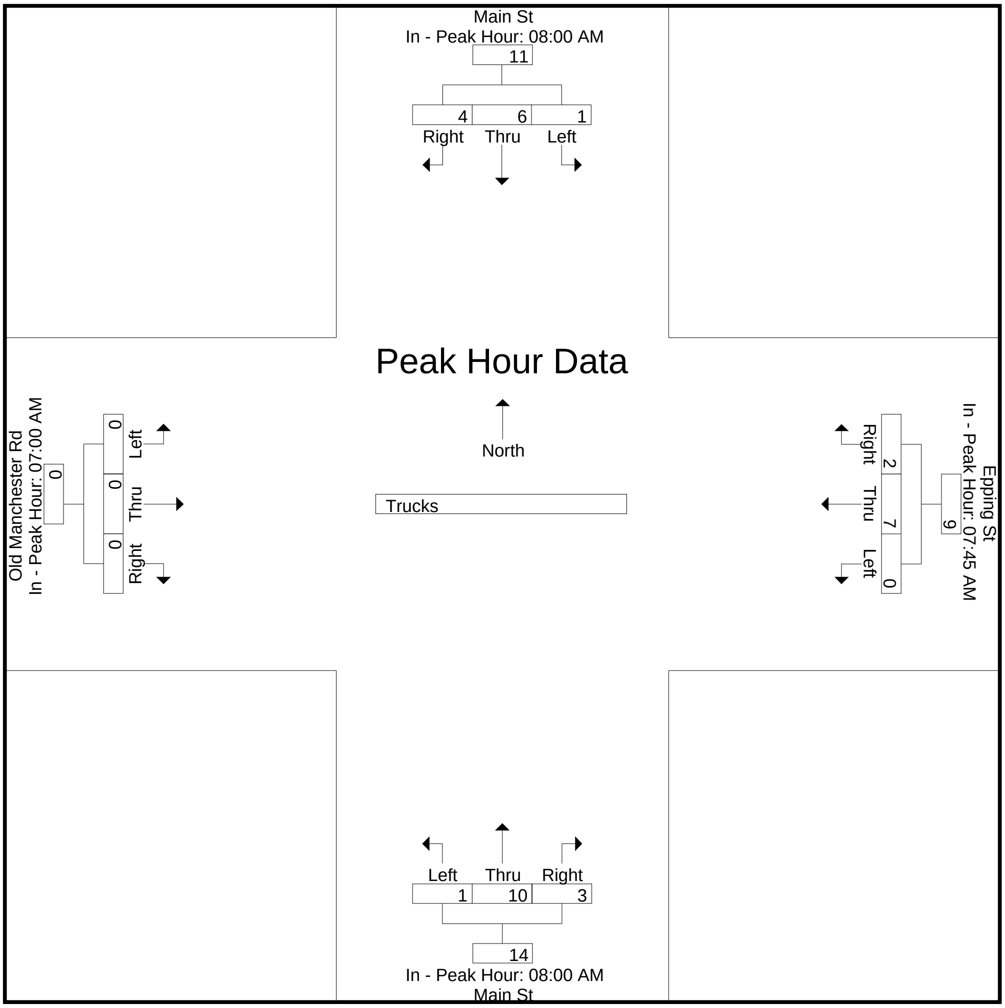
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:45 AM				08:00 AM				07:00 AM			
+0 mins.	0	1	0	1	0	**4**	**1**	**5**	**1**	2	1	4	0	0	0	0
+15 mins.	0	2	**2**	4	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	1	1	0	2	1	3	0	**4**	0	4	0	0	0	0
+45 mins.	**1**	**3**	1	**5**	0	1	0	1	0	3	**2**	**5**	0	0	0	0
Total Volume	1	6	4	11	0	7	2	9	1	10	3	14	0	0	0	0
% App. Total	9.1	54.5	36.4		0	77.8	22.2		7.1	71.4	21.4		0	0	0	
PHF	.250	.500	.500	.550	.000	.438	.500	.450	.250	.625	.375	.700	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 10

Groups Printed- Bikes Peds

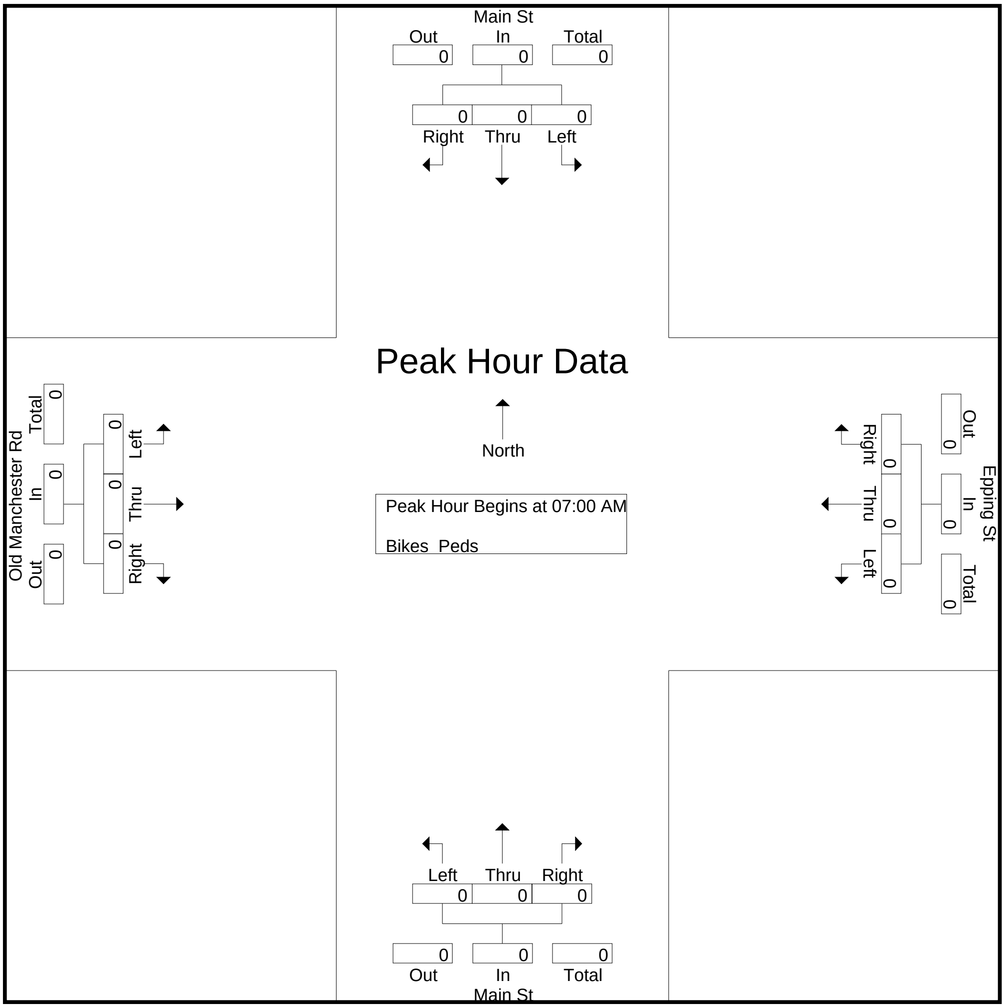
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 11



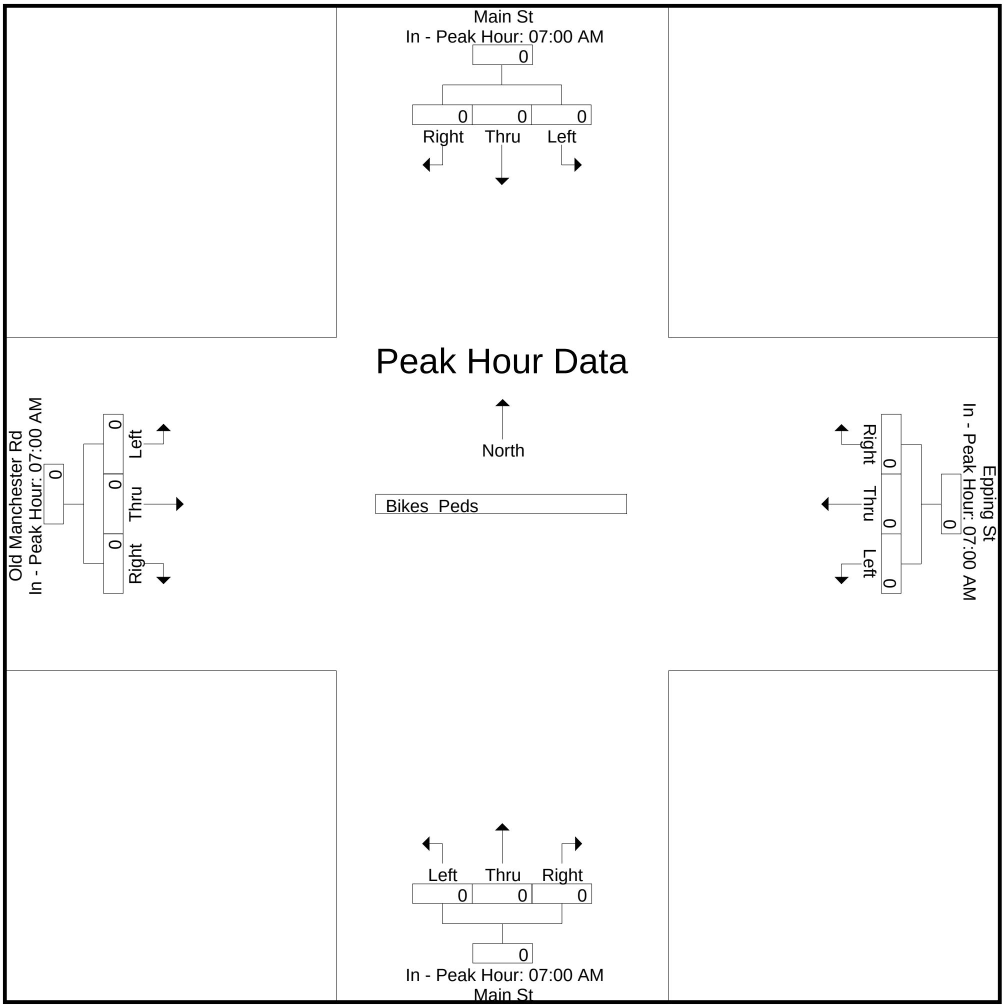
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 1

Groups Printed- Cars - Trucks

	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	7	21	13	11	25	10	4	38	33	0	0	0	162
04:15 PM	4	33	7	5	22	14	8	44	18	0	0	0	155
04:30 PM	2	29	10	6	20	6	3	37	20	0	0	0	133
04:45 PM	5	18	6	10	22	3	5	43	16	0	0	0	128
Total	18	101	36	32	89	33	20	162	87	0	0	0	578
05:00 PM	6	18	9	3	21	10	6	31	17	0	0	0	121
05:15 PM	6	19	10	6	20	10	3	36	13	0	0	0	123
05:30 PM	7	22	6	6	21	7	13	29	11	0	0	0	122
05:45 PM	7	10	10	8	10	5	7	47	14	0	0	0	118
Total	26	69	35	23	72	32	29	143	55	0	0	0	484
Grand Total	44	170	71	55	161	65	49	305	142	0	0	0	1062
Apprch %	15.4	59.6	24.9	19.6	57.3	23.1	9.9	61.5	28.6	0	0	0	
Total %	4.1	16	6.7	5.2	15.2	6.1	4.6	28.7	13.4	0	0	0	
Cars	43	170	71	55	161	65	49	302	142	0	0	0	1058
% Cars	97.7	100	100	100	100	100	100	99	100	0	0	0	99.6
Trucks	1	0	0	0	0	0	0	3	0	0	0	0	4
% Trucks	2.3	0	0	0	0	0	0	1	0	0	0	0	0.4

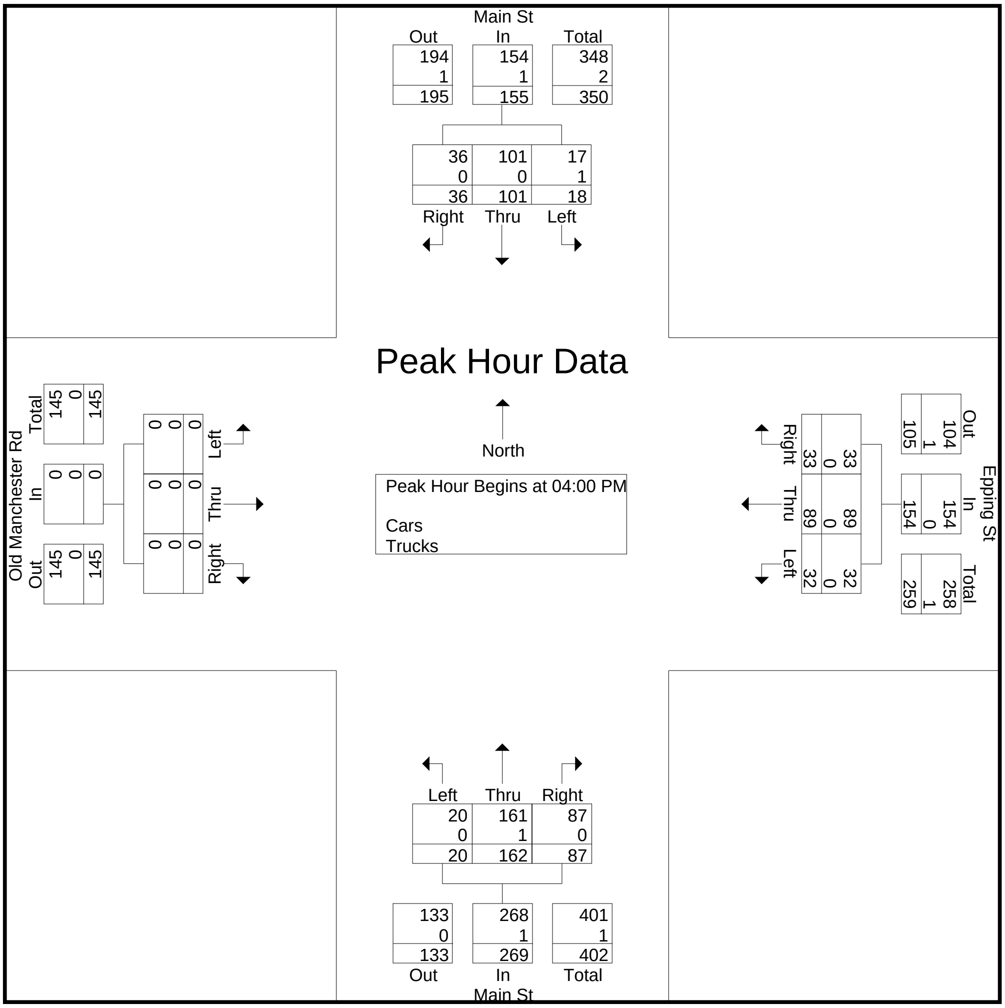
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**7**	21	**13**	41	**11**	**25**	10	**46**	4	38	**33**	**75**	0	0	0	0	**162**
04:15 PM	4	**33**	7	**44**	5	22	**14**	41	**8**	**44**	18	70	0	0	0	0	155
04:30 PM	2	29	10	41	6	20	6	32	3	37	20	60	0	0	0	0	133
04:45 PM	5	18	6	29	10	22	3	35	5	43	16	64	0	0	0	0	128
Total Volume	18	101	36	155	32	89	33	154	20	162	87	269	0	0	0	0	578
% App. Total	11.6	65.2	23.2		20.8	57.8	21.4		7.4	60.2	32.3		0	0	0		
PHF	.643	.765	.692	.881	.727	.890	.589	.837	.625	.920	.659	.897	.000	.000	.000	.000	.892
Cars	17	101	36	154	32	89	33	154	20	161	87	268	0	0	0	0	576
% Cars	94.4	100	100	99.4	100	100	100	100	100	99.4	100	99.6	0	0	0	0	99.7
Trucks	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% Trucks	5.6	0	0	0.6	0	0	0	0	0	0.6	0	0.4	0	0	0	0	0.3

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

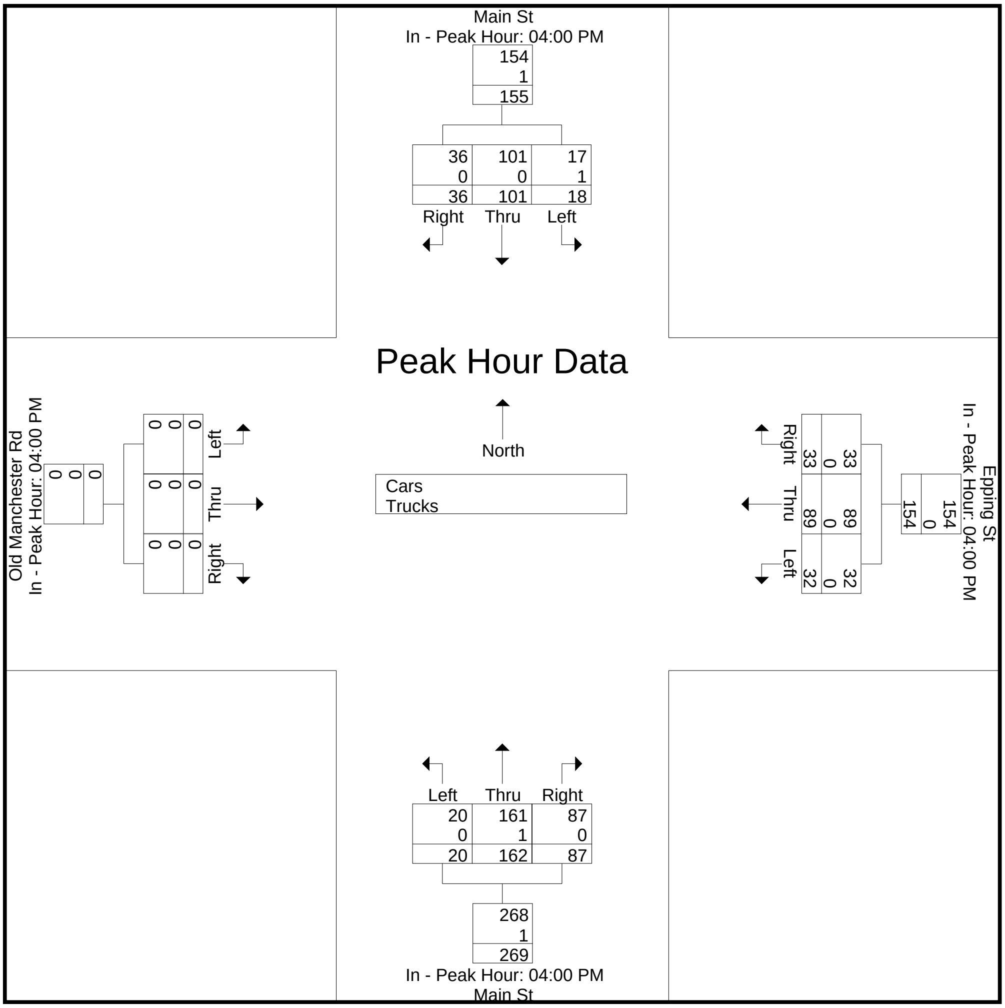
	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**7**	21	**13**	41	**11**	**25**	10	**46**	4	38	**33**	**75**	0	0	0	0
+15 mins.	4	**33**	7	**44**	5	22	**14**	41	**8**	**44**	18	70	0	0	0	0
+30 mins.	2	29	10	41	6	20	6	32	3	37	20	60	0	0	0	0
+45 mins.	5	18	6	29	10	22	3	35	5	43	16	64	0	0	0	0
Total Volume	18	101	36	155	32	89	33	154	20	162	87	269	0	0	0	0
% App. Total	11.6	65.2	23.2		20.8	57.8	21.4		7.4	60.2	32.3		0	0	0	
PHF	.643	.765	.692	.881	.727	.890	.589	.837	.625	.920	.659	.897	.000	.000	.000	.000
Cars	17	101	36	154	32	89	33	154	20	161	87	268	0	0	0	0
% Cars	94.4	100	100	99.4	100	100	100	100	100	99.4	100	99.6	0	0	0	0
Trucks	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0
% Trucks	5.6	0	0	0.6	0	0	0	0	0	0.6	0	0.4	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 4

Groups Printed- Cars

	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	6	21	13	11	25	10	4	37	33	0	0	0	160
04:15 PM	4	33	7	5	22	14	8	44	18	0	0	0	155
04:30 PM	2	29	10	6	20	6	3	37	20	0	0	0	133
04:45 PM	5	18	6	10	22	3	5	43	16	0	0	0	128
Total	17	101	36	32	89	33	20	161	87	0	0	0	576
05:00 PM	6	18	9	3	21	10	6	29	17	0	0	0	119
05:15 PM	6	19	10	6	20	10	3	36	13	0	0	0	123
05:30 PM	7	22	6	6	21	7	13	29	11	0	0	0	122
05:45 PM	7	10	10	8	10	5	7	47	14	0	0	0	118
Total	26	69	35	23	72	32	29	141	55	0	0	0	482
Grand Total	43	170	71	55	161	65	49	302	142	0	0	0	1058
Apprch %	15.1	59.9	25	19.6	57.3	23.1	9.9	61.3	28.8	0	0	0	
Total %	4.1	16.1	6.7	5.2	15.2	6.1	4.6	28.5	13.4	0	0	0	

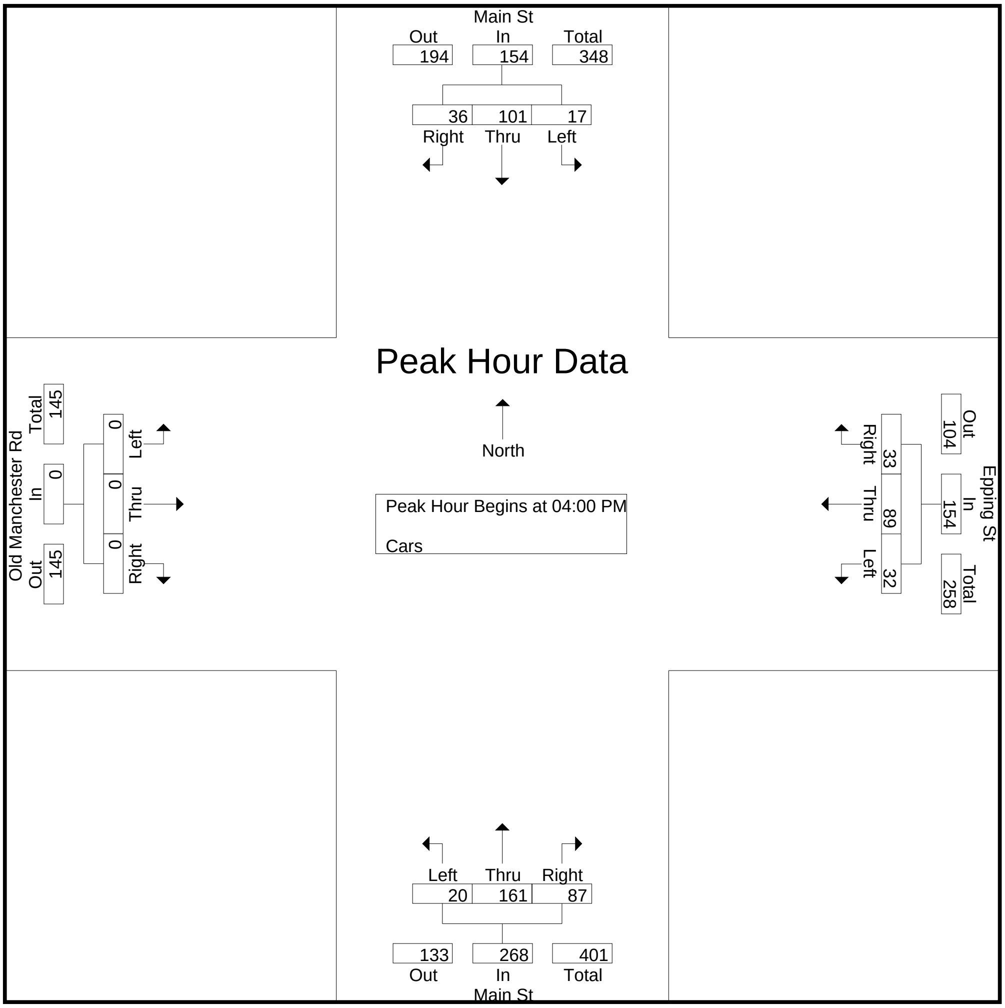
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**6**	21	**13**	40	**11**	**25**	10	**46**	4	37	**33**	**74**	0	0	0	0	**160**
04:15 PM	4	**33**	7	**44**	5	22	**14**	41	**8**	**44**	18	70	0	0	0	0	155
04:30 PM	2	29	10	41	6	20	6	32	3	37	20	60	0	0	0	0	133
04:45 PM	5	18	6	29	10	22	3	35	5	43	16	64	0	0	0	0	128
Total Volume	17	101	36	154	32	89	33	154	20	161	87	268	0	0	0	0	576
% App. Total	11	65.6	23.4		20.8	57.8	21.4		7.5	60.1	32.5		0	0	0		
PHF	.708	.765	.692	.875	.727	.890	.589	.837	.625	.915	.659	.905	.000	.000	.000	.000	.900

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

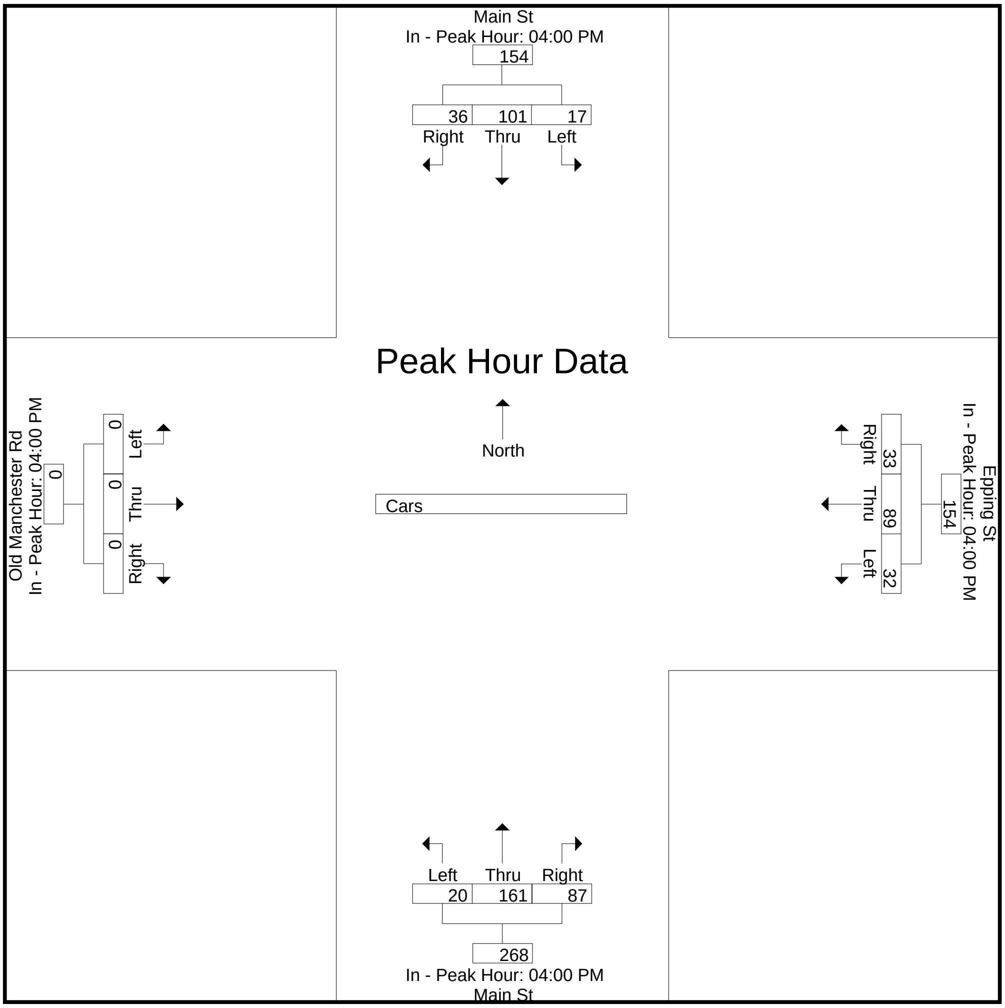
	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	**6**	21	**13**	40	**11**	**25**	10	**46**	4	37	**33**	**74**	0	0	0	0
+15 mins.	4	**33**	7	**44**	5	22	**14**	41	**8**	**44**	18	70	0	0	0	0
+30 mins.	2	29	10	41	6	20	6	32	3	37	20	60	0	0	0	0
+45 mins.	5	18	6	29	10	22	3	35	5	43	16	64	0	0	0	0
Total Volume	17	101	36	154	32	89	33	154	20	161	87	268	0	0	0	0
% App. Total	11	65.6	23.4		20.8	57.8	21.4		7.5	60.1	32.5		0	0	0	
PHF	.708	.765	.692	.875	.727	.890	.589	.837	.625	.915	.659	.905	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 6



Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 7

Groups Printed- Trucks

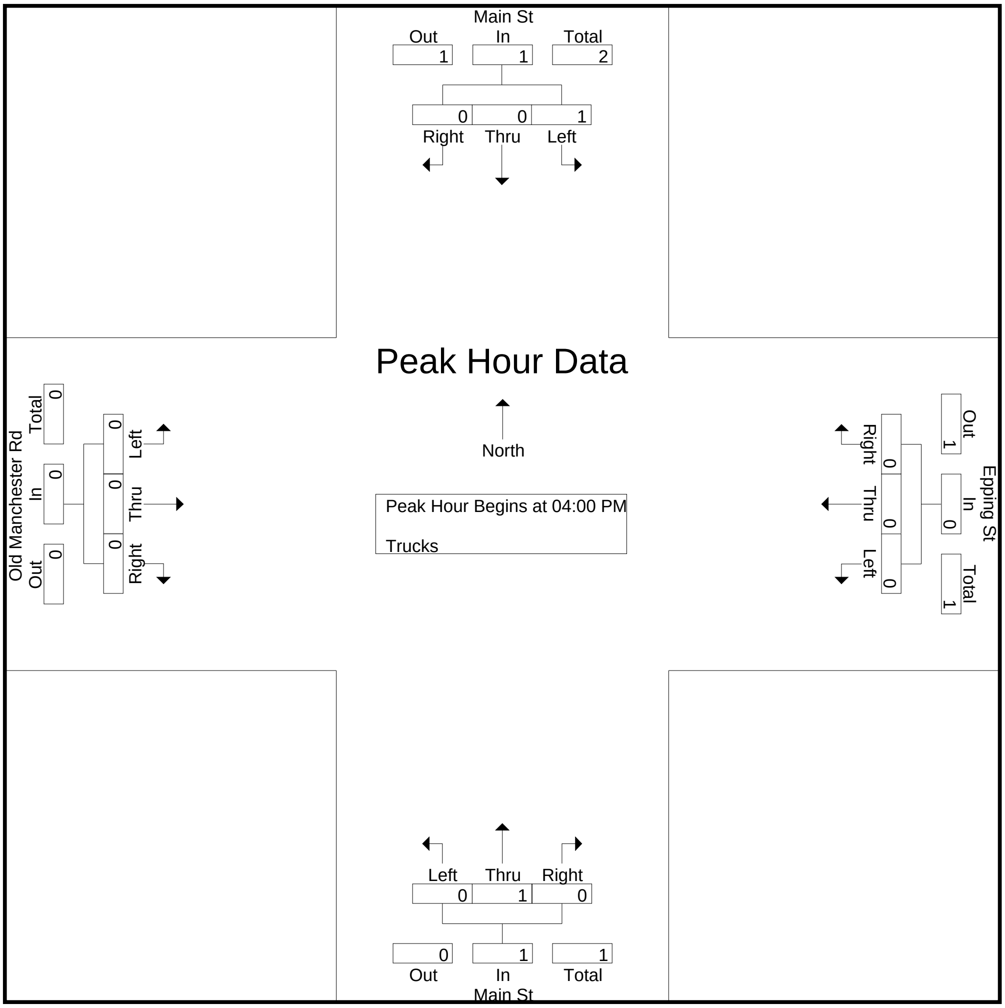
	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	1	0	0	0	0	0	0	1	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	1	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2	0	0	0	0	2
Grand Total	1	0	0	0	0	0	0	3	0	0	0	0	4
Apprch %	100	0	0	0	0	0	0	100	0	0	0	0	
Total %	25	0	0	0	0	0	0	75	0	0	0	0	

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	0	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**2**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% App. Total	100	0	0		0	0	0		0	100	0		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 8



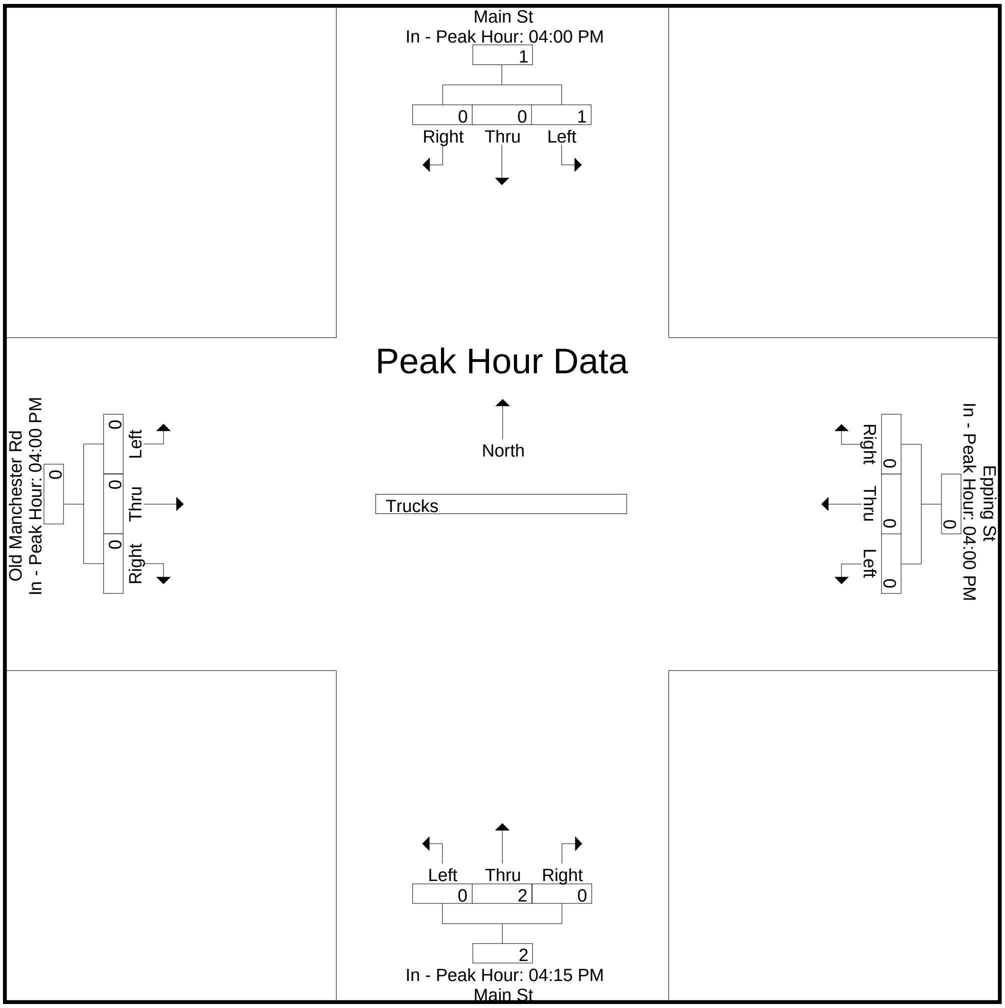
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:15 PM				04:00 PM			
+0 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	2	0	2	0	0	0	0
% App. Total	100	0	0		0	0	0		0	100	0		0	0	0	
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023

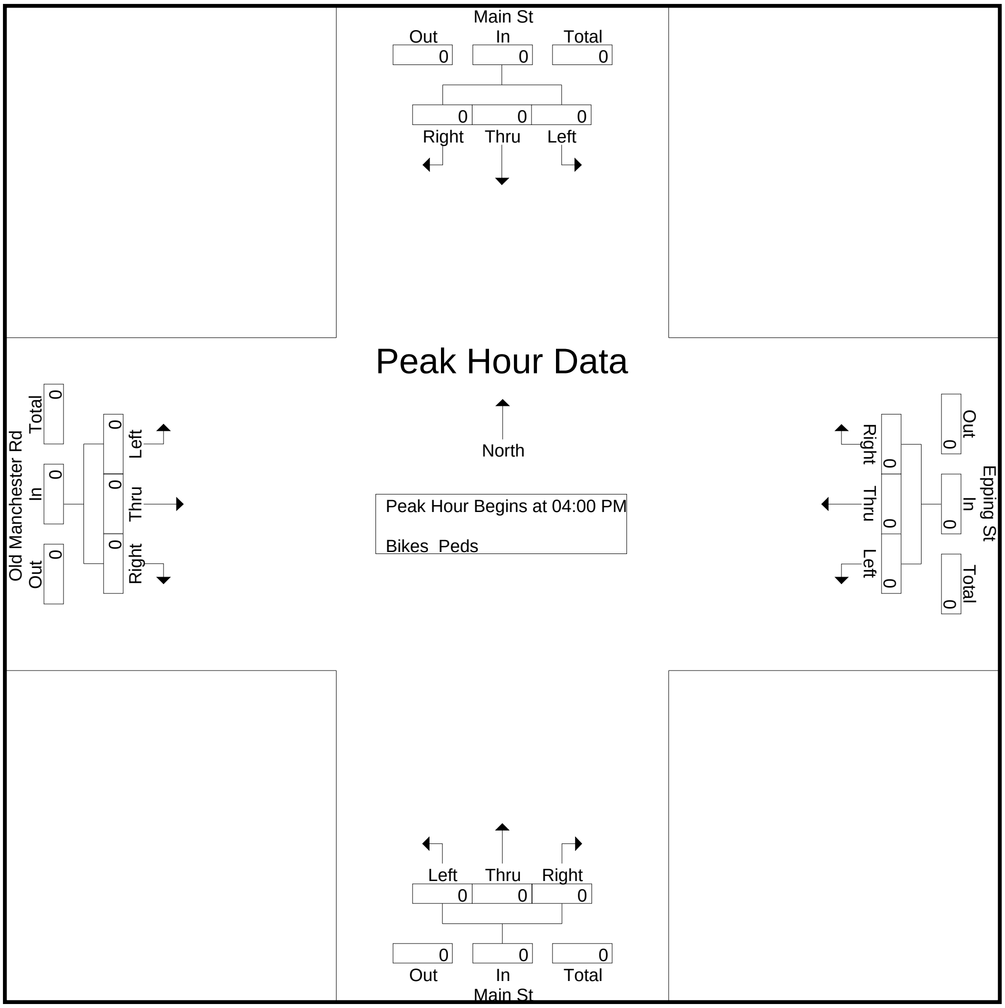
Groups Printed- Bikes Peds

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	0	0	

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 11



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

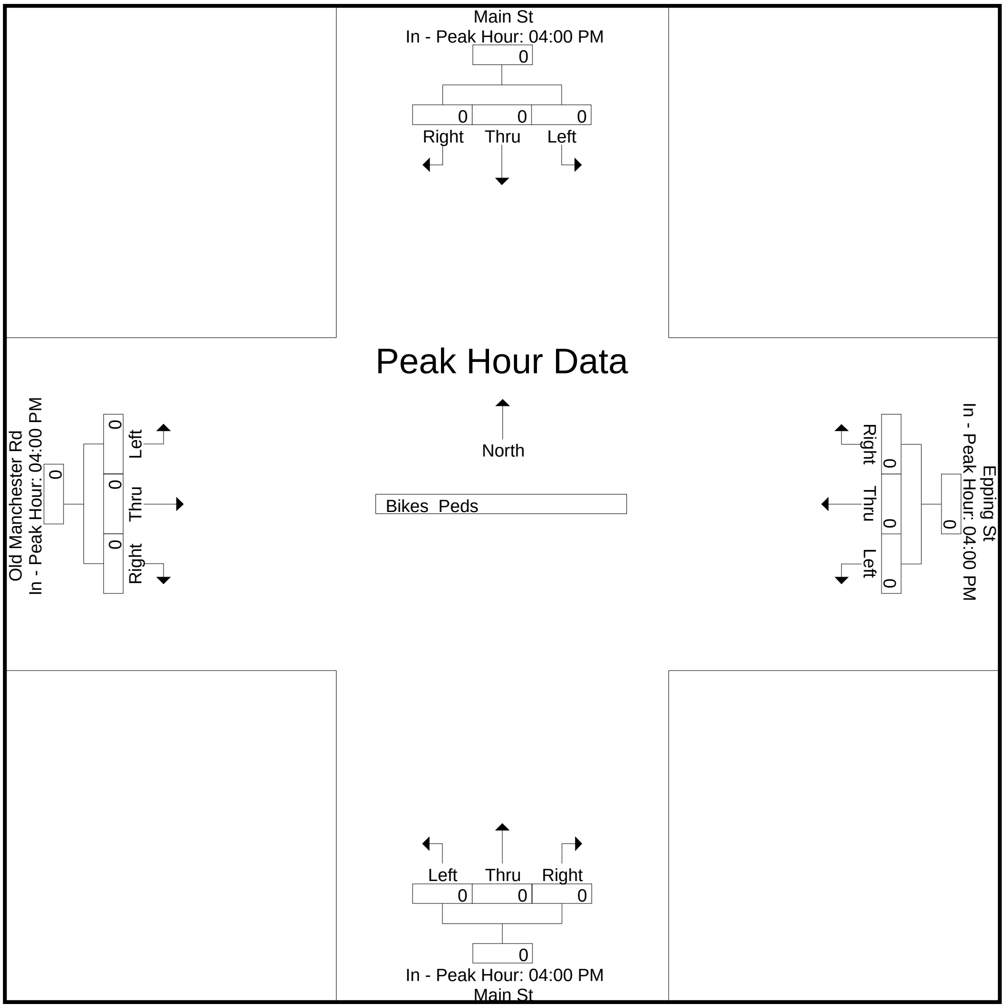
	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430001
Site Code : 96430001
Start Date : 3/7/2023
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023

Groups Printed- Cars - Trucks

	Freetown Rd From North		Freetown Rd From South		Main St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	54	10	13	200	13	16	306
07:15 AM	84	11	27	160	11	23	316
07:30 AM	77	10	36	207	21	22	373
07:45 AM	82	19	29	150	19	25	324
Total	297	50	105	717	64	86	1319
08:00 AM	61	10	14	145	9	15	254
08:15 AM	68	12	16	113	12	19	240
08:30 AM	71	9	16	120	16	22	254
08:45 AM	78	13	18	89	20	19	237
Total	278	44	64	467	57	75	985
Grand Total	575	94	169	1184	121	161	2304
Apprch %	85.9	14.1	12.5	87.5	42.9	57.1	
Total %	25	4.1	7.3	51.4	5.3	7	
Cars	545	91	166	1163	121	157	2243
% Cars	94.8	96.8	98.2	98.2	100	97.5	97.4
Trucks	30	3	3	21	0	4	61
% Trucks	5.2	3.2	1.8	1.8	0	2.5	2.6

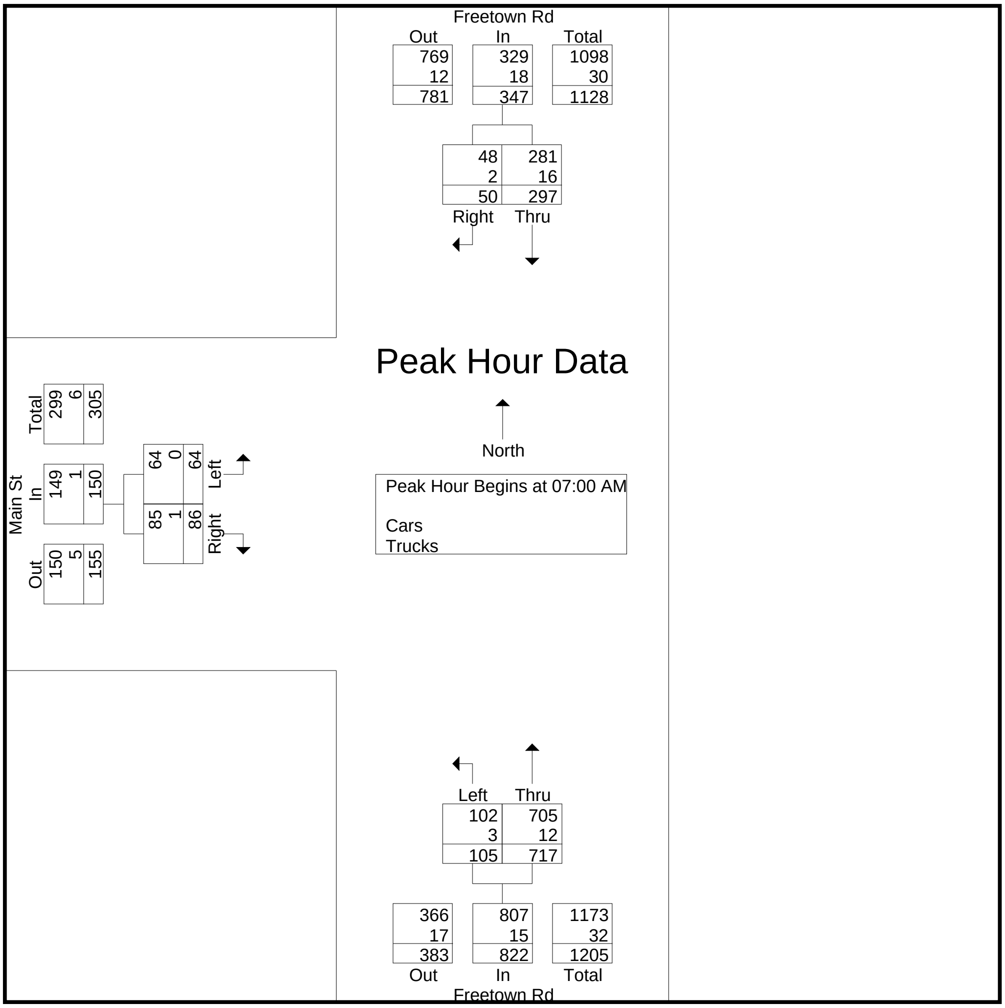
	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	54	10	64	13	200	213	13	16	29	306
07:15 AM	**84**	11	95	27	160	187	11	23	34	316
07:30 AM	77	10	87	**36**	**207**	**243**	**21**	22	43	**373**
07:45 AM	82	**19**	**101**	29	150	179	19	**25**	**44**	324
Total Volume	297	50	347	105	717	822	64	86	150	1319
% App. Total	85.6	14.4		12.8	87.2		42.7	57.3		
PHF	.884	.658	.859	.729	.866	.846	.762	.860	.852	.884
Cars	281	48	329	102	705	807	64	85	149	1285
% Cars	94.6	96.0	94.8	97.1	98.3	98.2	100	98.8	99.3	97.4
Trucks	16	2	18	3	12	15	0	1	1	34
% Trucks	5.4	4.0	5.2	2.9	1.7	1.8	0	1.2	0.7	2.6

Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 2



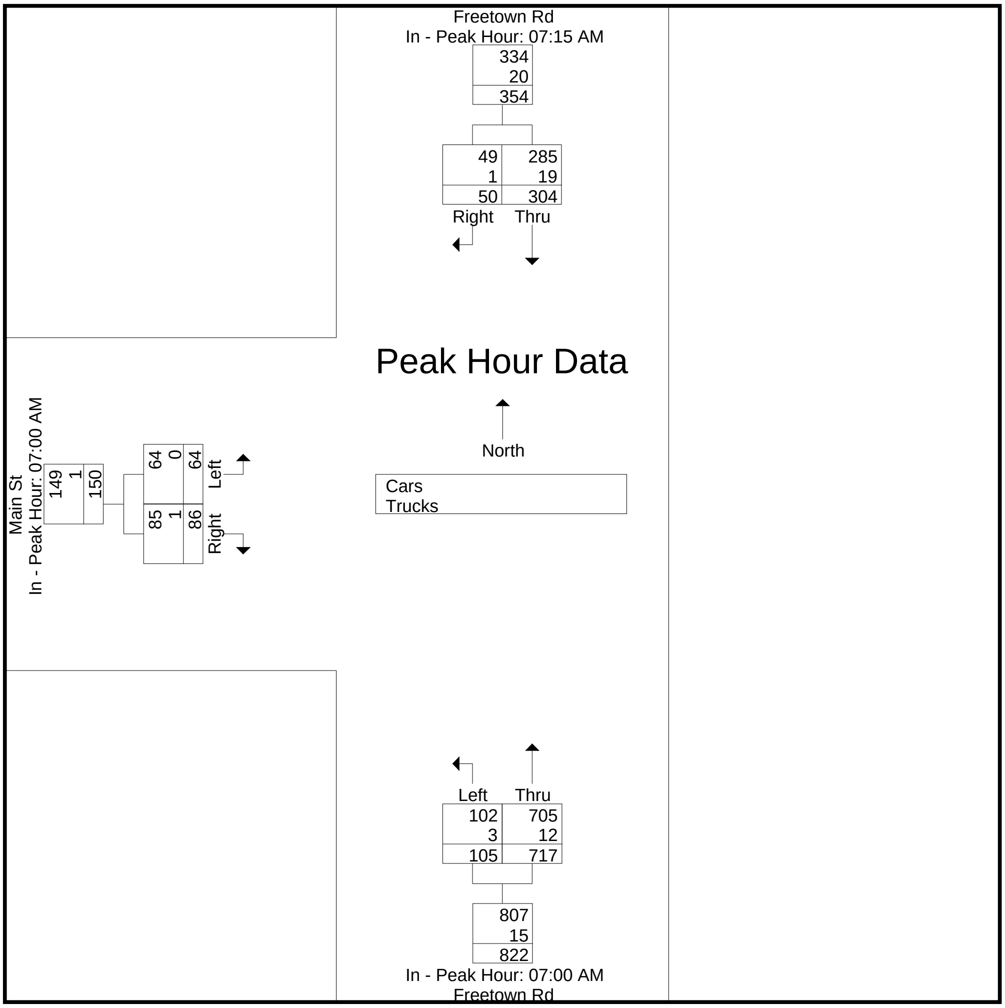
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:00 AM			07:00 AM		
+0 mins.	**84**	11	95	13	200	213	13	16	29
+15 mins.	77	10	87	27	160	187	11	23	34
+30 mins.	82	**19**	**101**	**36**	**207**	**243**	**21**	22	43
+45 mins.	61	10	71	29	150	179	19	**25**	**44**
Total Volume	304	50	354	105	717	822	64	86	150
% App. Total	85.9	14.1		12.8	87.2		42.7	57.3	
PHF	.905	.658	.876	.729	.866	.846	.762	.860	.852
Cars	285	49	334	102	705	807	64	85	149
% Cars	93.8	98	94.4	97.1	98.3	98.2	100	98.8	99.3
Trucks	19	1	20	3	12	15	0	1	1
% Trucks	6.2	2	5.6	2.9	1.7	1.8	0	1.2	0.7

Accurate Counts

978-664-2565

N/S Street : Freetown Road		File Name	: 96430002
E/W Street : Main Street		Site Code	: 96430002
City/State : Raymond, NH		Start Date	: 3/7/2023
Weather : Cloudy		Page No	: 3



N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 4

Groups Printed- Cars

	Freetown Rd From North		Freetown Rd From South		Main St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	53	8	12	197	13	15	298
07:15 AM	77	11	26	157	11	23	305
07:30 AM	75	10	36	203	21	22	367
07:45 AM	76	19	28	148	19	25	315
Total	281	48	102	705	64	85	1285
08:00 AM	57	9	14	140	9	14	243
08:15 AM	67	12	16	109	12	18	234
08:30 AM	65	9	16	120	16	22	248
08:45 AM	75	13	18	89	20	18	233
Total	264	43	64	458	57	72	958
Grand Total	545	91	166	1163	121	157	2243
Apprch %	85.7	14.3	12.5	87.5	43.5	56.5	
Total %	24.3	4.1	7.4	51.9	5.4	7	

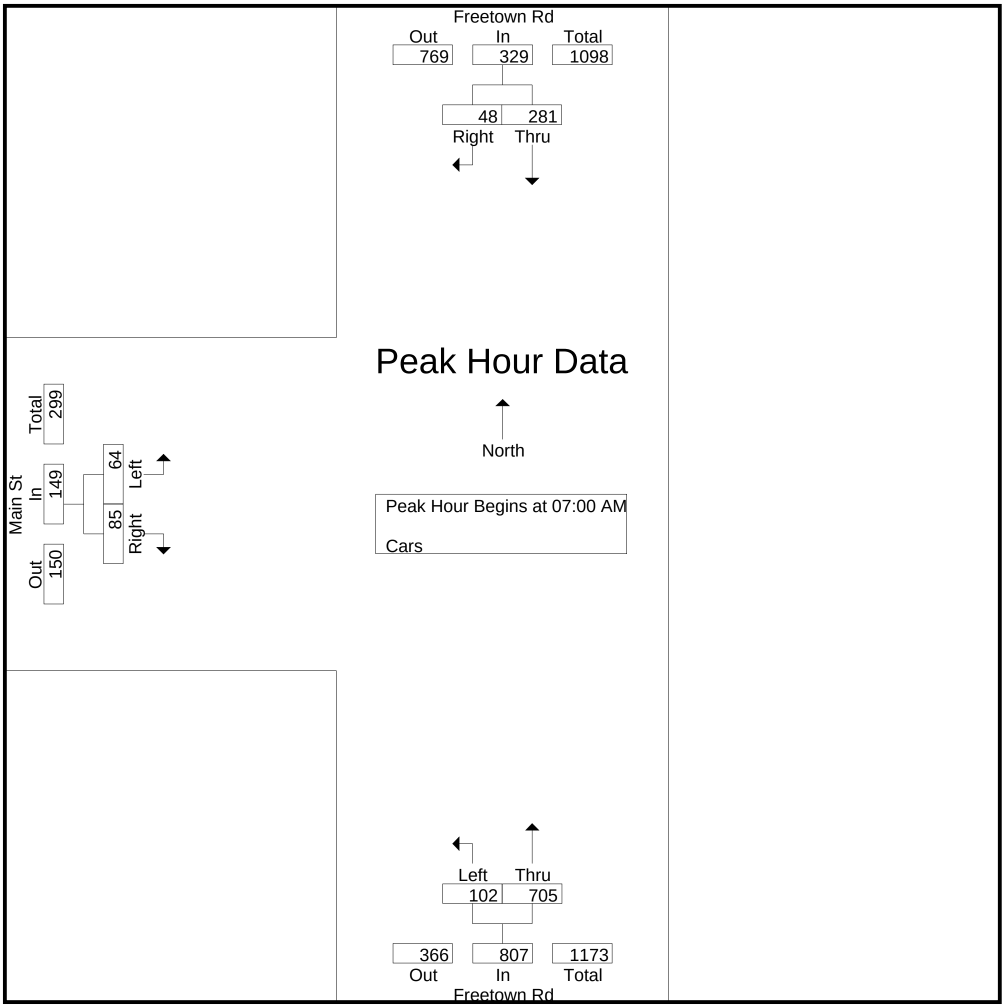
	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	53	8	61	12	197	209	13	15	28	298
07:15 AM	**77**	11	88	26	157	183	11	23	34	305
07:30 AM	75	10	85	**36**	**203**	**239**	**21**	22	43	**367**
07:45 AM	76	**19**	**95**	28	148	176	19	**25**	**44**	315
Total Volume	281	48	329	102	705	807	64	85	149	1285
% App. Total	85.4	14.6		12.6	87.4		43	57		
PHF	.912	.632	.866	.708	.868	.844	.762	.850	.847	.875

Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 5

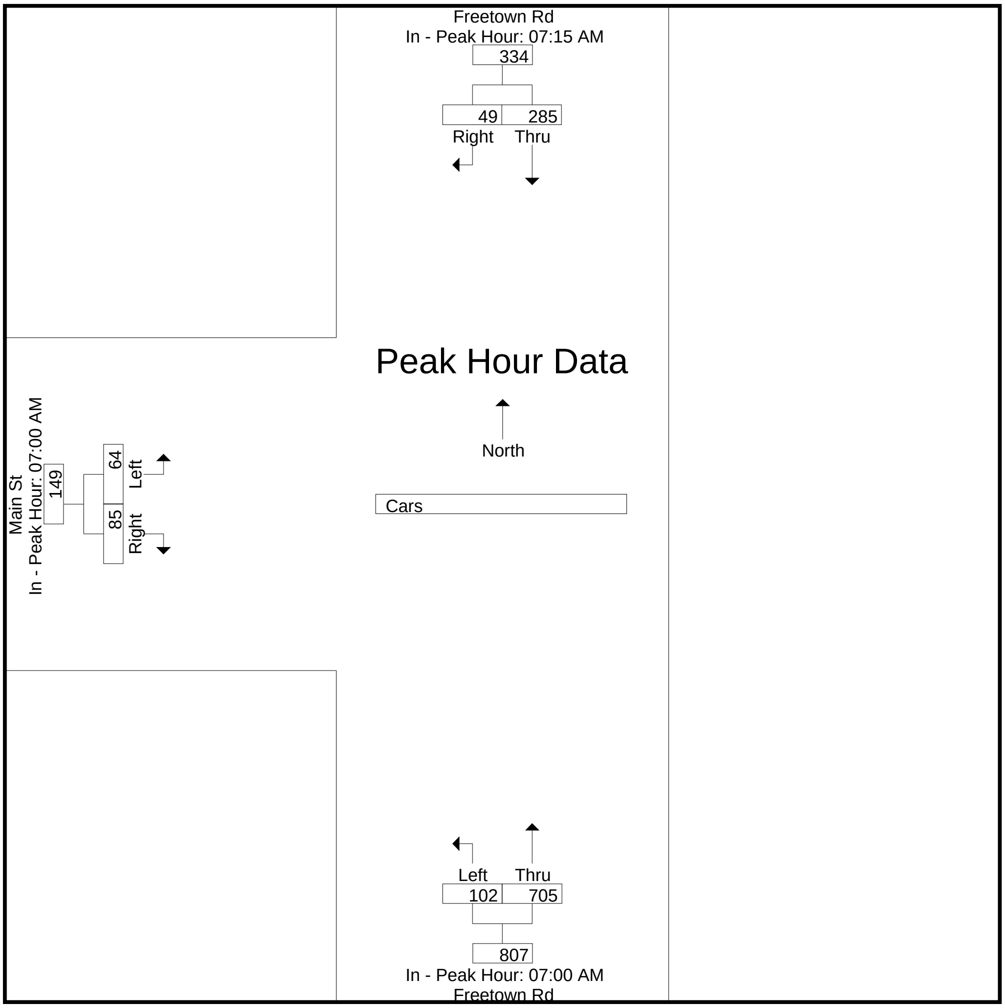


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:00 AM			07:00 AM		
+0 mins.	**77**	11	88	12	197	209	13	15	28
+15 mins.	75	10	85	26	157	183	11	23	34
+30 mins.	76	**19**	**95**	**36**	**203**	**239**	**21**	22	43
+45 mins.	57	9	66	28	148	176	19	**25**	**44**
Total Volume	285	49	334	102	705	807	64	85	149
% App. Total	85.3	14.7		12.6	87.4		43	57	
PHF	.925	.645	.879	.708	.868	.844	.762	.850	.847

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023



Accurate Counts
978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 7

Groups Printed- Trucks

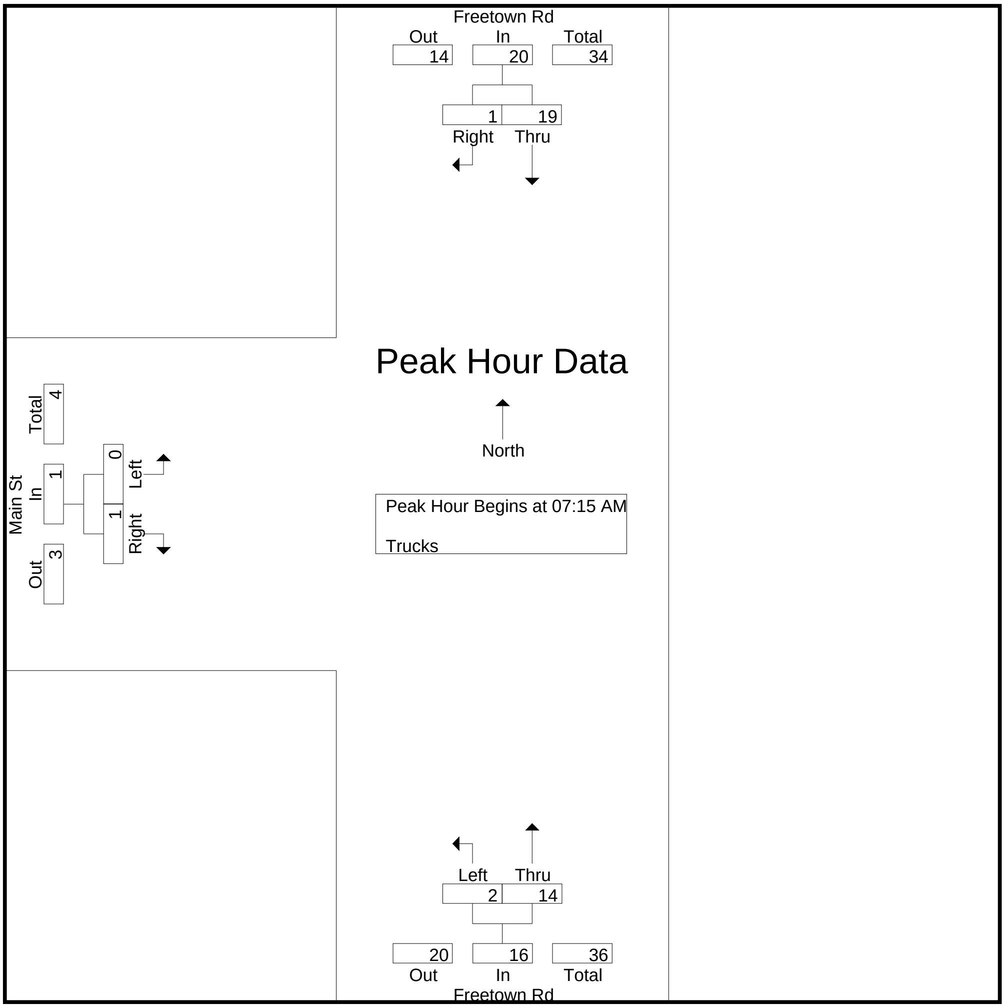
	Freetown Rd From North		Freetown Rd From South		Main St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	1	2	1	3	0	1	8
07:15 AM	7	0	1	3	0	0	11
07:30 AM	2	0	0	4	0	0	6
07:45 AM	6	0	1	2	0	0	9
Total	16	2	3	12	0	1	34
08:00 AM	4	1	0	5	0	1	11
08:15 AM	1	0	0	4	0	1	6
08:30 AM	6	0	0	0	0	0	6
08:45 AM	3	0	0	0	0	1	4
Total	14	1	0	9	0	3	27
Grand Total	30	3	3	21	0	4	61
Apprch %	90.9	9.1	12.5	87.5	0	100	
Total %	49.2	4.9	4.9	34.4	0	6.6	

	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	**7**	0	**7**	**1**	3	4	0	0	0	**11**
07:30 AM	2	0	2	0	4	4	0	0	0	6
07:45 AM	6	0	6	1	2	3	0	0	0	9
08:00 AM	4	**1**	5	0	**5**	**5**	0	**1**	**1**	11
Total Volume	19	1	20	2	14	16	0	1	1	37
% App. Total	95	5		12.5	87.5		0	100		
PHF	.679	.250	.714	.500	.700	.800	.000	.250	.250	.841

Accurate Counts

978-664-2565

N/S Street	: Freetown Road	File Name	: 96430002
E/W Street	: Main Street	Site Code	: 96430002
City/State	: Raymond, NH	Start Date	: 3/7/2023
Weather	: Cloudy	Page No	: 8

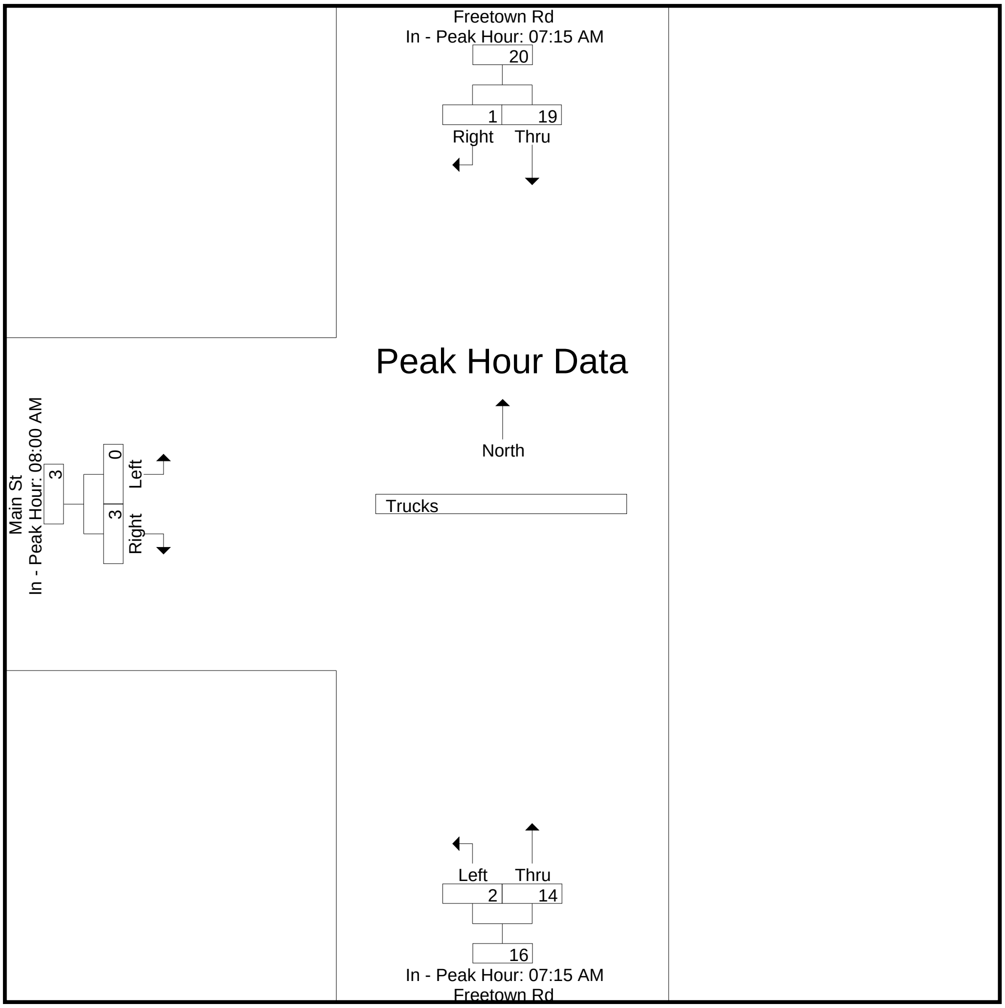


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			08:00 AM		
+0 mins.	**7**	0	**7**	**1**	3	4	0	**1**	**1**
+15 mins.	2	0	2	0	4	4	0	1	1
+30 mins.	6	0	6	1	2	3	0	0	0
+45 mins.	4	**1**	5	0	**5**	**5**	0	1	1
Total Volume	19	1	20	2	14	16	0	3	3
% App. Total	95	5		12.5	87.5		0	100	
PHF	.679	.250	.714	.500	.700	.800	.000	.750	.750

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023



Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 10

Groups Printed- Bikes Peds

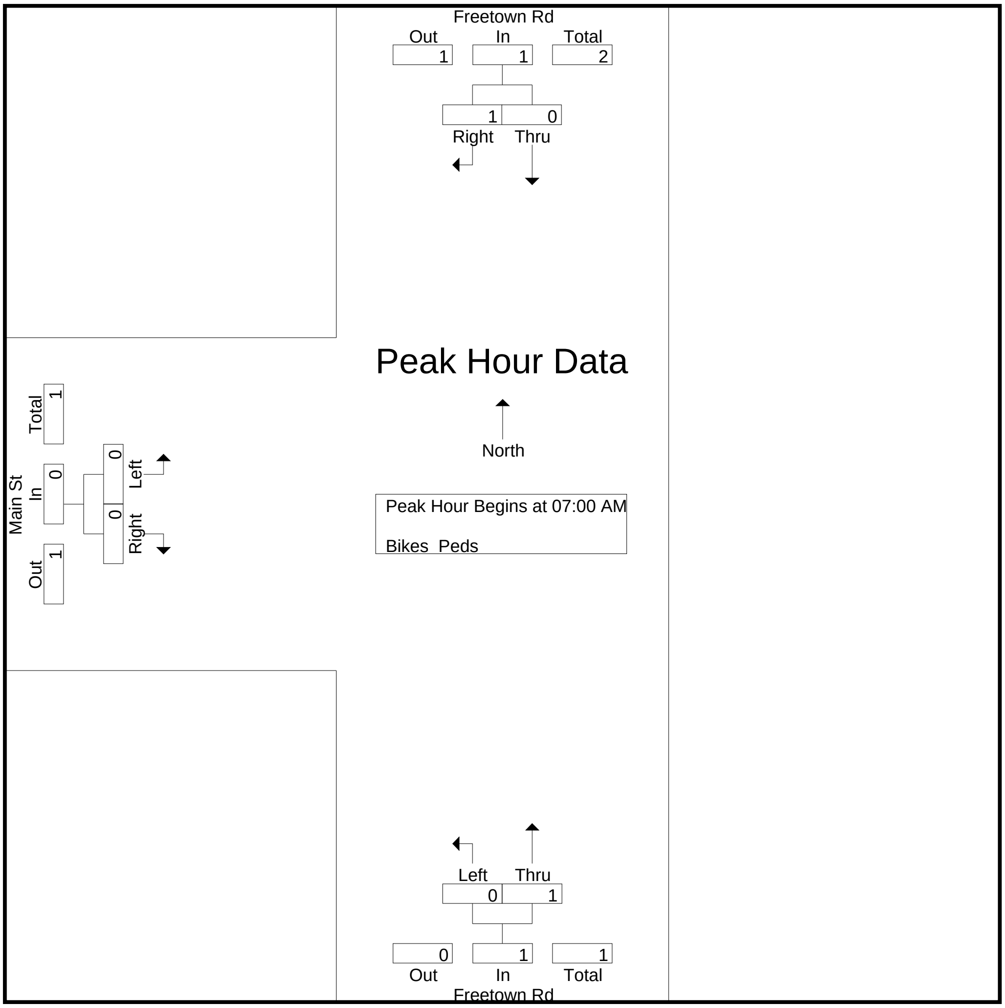
	Freetown Rd From North			Freetown Rd From South			Main St From West					
Start Time	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	1	0	0	0	0	0	1	1
07:45 AM	0	1	0	0	0	0	0	0	0	0	1	1
Total	0	1	0	0	1	0	0	0	0	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	0	1	0	0	0	0	0	2	2
Apprch %	0	100		0	100		0	0				
Total %	0	50		0	50		0	0		0	100	

	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	**1**	**1**	0	0	0	**1**
07:45 AM	0	**1**	**1**	0	0	0	0	0	0	1
Total Volume	0	1	1	0	1	1	0	0	0	2
% App. Total	0	100		0	100		0	0		
PHF	.000	.250	.250	.000	.250	.250	.000	.000	.000	.500

Accurate Counts
978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 11



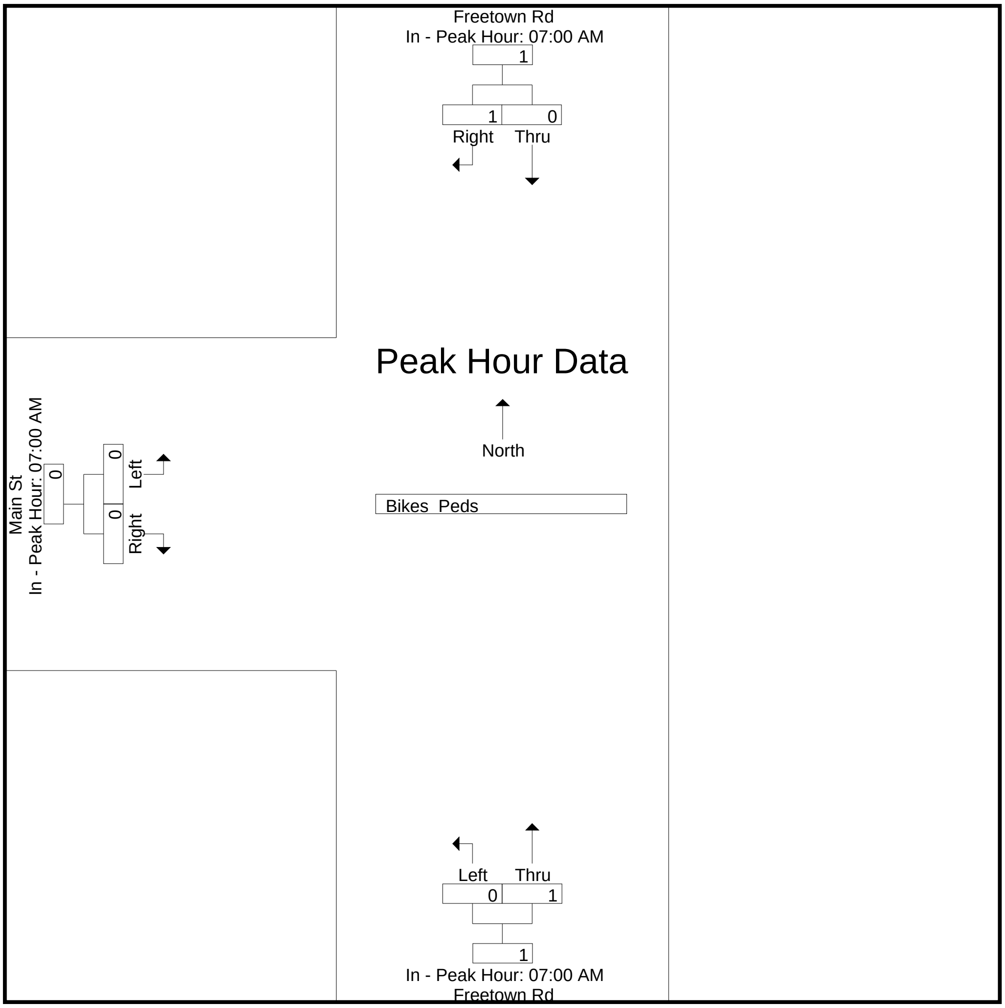
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	**1**	**1**	0	0	0
+45 mins.	0	**1**	**1**	0	0	0	0	0	0
Total Volume	0	1	1	0	1	1	0	0	0
% App. Total	0	100		0	100		0	0	
PHF	.000	.250	.250	.000	.250	.250	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 1

Groups Printed- Cars - Trucks

	Freetown Rd From North		Freetown Rd From South		Main St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	175	20	20	100	9	28	352
04:15 PM	181	20	24	115	21	22	383
04:30 PM	179	9	19	118	13	33	371
04:45 PM	161	25	20	124	13	25	368
Total	696	74	83	457	56	108	1474
05:00 PM	167	14	16	110	11	25	343
05:15 PM	157	10	20	102	11	19	319
05:30 PM	168	18	22	88	10	22	328
05:45 PM	157	15	25	95	6	17	315
Total	649	57	83	395	38	83	1305
Grand Total	1345	131	166	852	94	191	2779
Apprch %	91.1	8.9	16.3	83.7	33	67	
Total %	48.4	4.7	6	30.7	3.4	6.9	
Cars	1342	131	166	845	94	191	2769
% Cars	99.8	100	100	99.2	100	100	99.6
Trucks	3	0	0	7	0	0	10
% Trucks	0.2	0	0	0.8	0	0	0.4

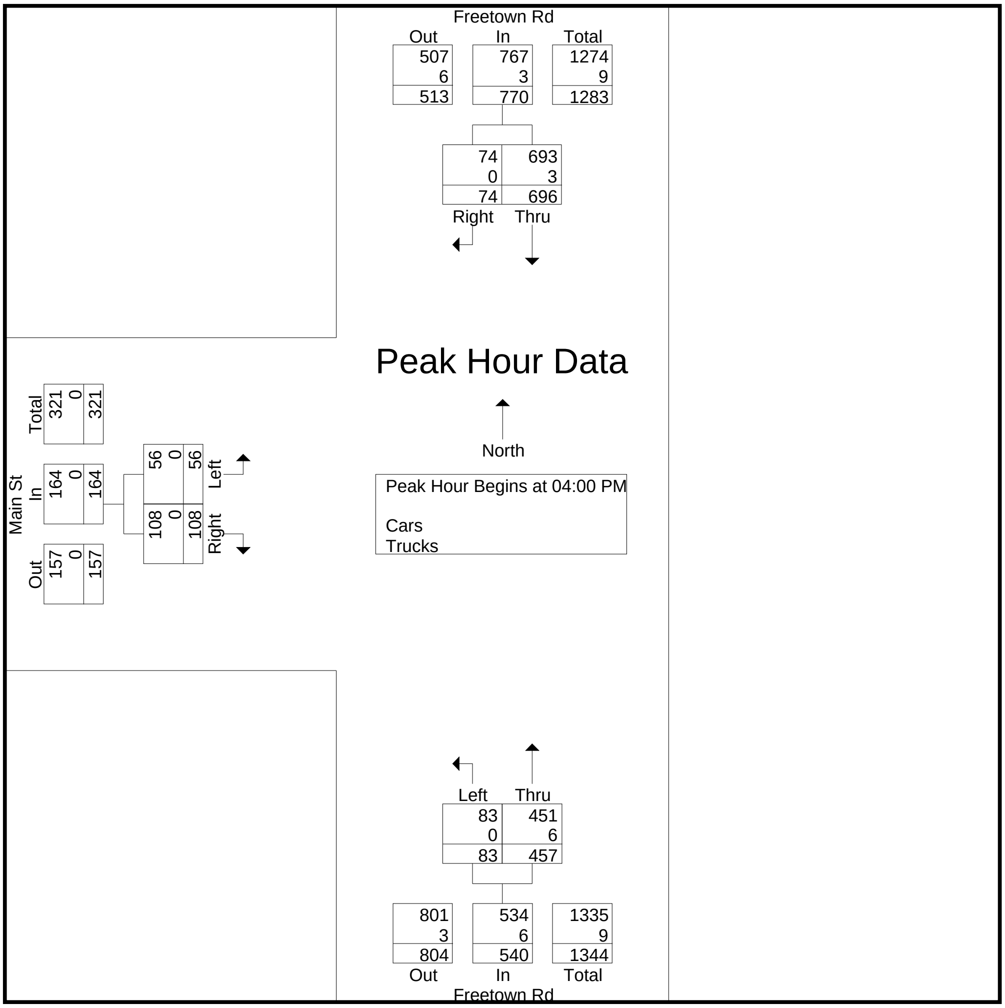
	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	175	20	195	20	100	120	9	28	37	352
04:15 PM	**181**	20	**201**	**24**	115	139	**21**	22	43	**383**
04:30 PM	179	9	188	19	118	137	13	**33**	**46**	371
04:45 PM	161	**25**	186	20	**124**	**144**	13	25	38	368
Total Volume	696	74	770	83	457	540	56	108	164	1474
% App. Total	90.4	9.6		15.4	84.6		34.1	65.9		
PHF	.961	.740	.958	.865	.921	.938	.667	.818	.891	.962
Cars	693	74	767	83	451	534	56	108	164	1465
% Cars	99.6	100	99.6	100	98.7	98.9	100	100	100	99.4
Trucks	3	0	3	0	6	6	0	0	0	9
% Trucks	0.4	0	0.4	0	1.3	1.1	0	0	0	0.6

Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

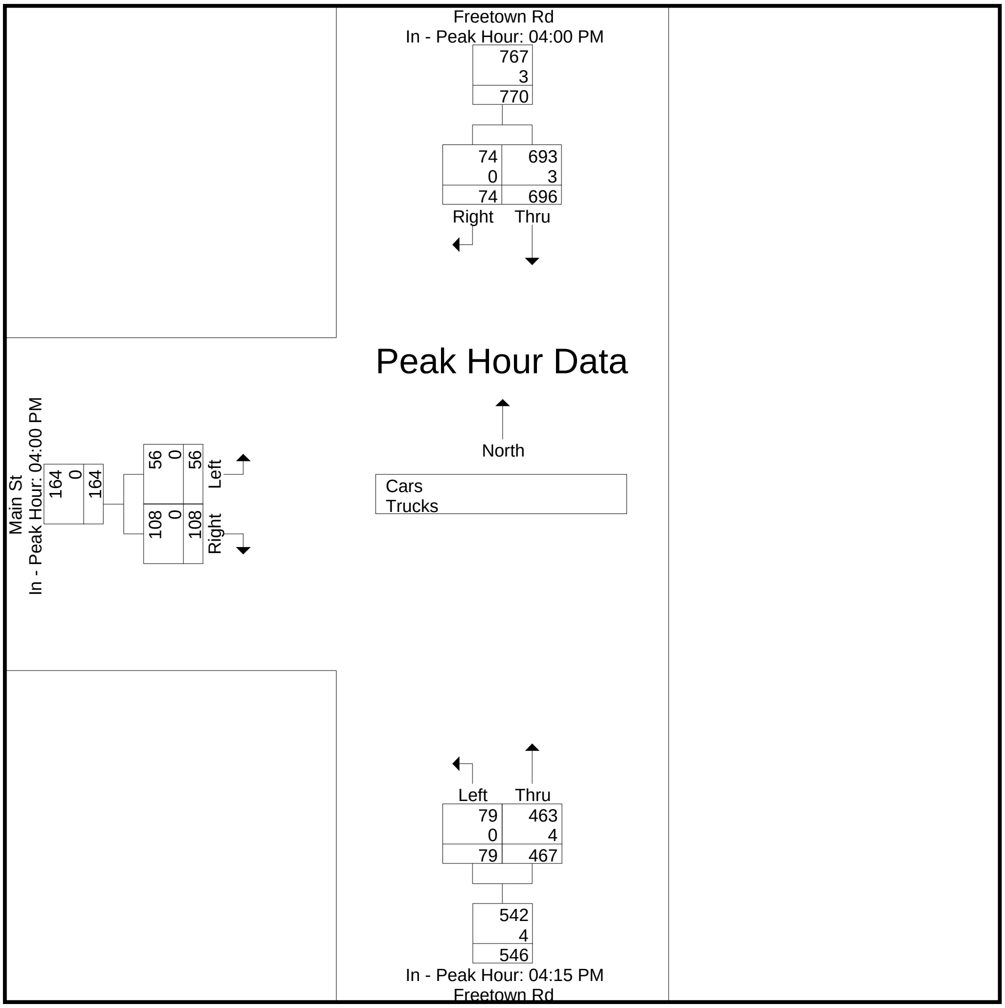
	04:00 PM			04:15 PM			04:00 PM		
+0 mins.	175	20	195	**24**	115	139	9	28	37
+15 mins.	**181**	20	**201**	19	118	137	**21**	22	43
+30 mins.	179	9	188	20	**124**	**144**	13	**33**	**46**
+45 mins.	161	**25**	186	16	110	126	13	25	38
Total Volume	696	74	770	79	467	546	56	108	164
% App. Total	90.4	9.6		14.5	85.5		34.1	65.9	
PHF	.961	.740	.958	.823	.942	.948	.667	.818	.891
Cars	693	74	767	79	463	542	56	108	164
% Cars	99.6	100	99.6	100	99.1	99.3	100	100	100
Trucks	3	0	3	0	4	4	0	0	0
% Trucks	0.4	0	0.4	0	0.9	0.7	0	0	0

Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023

Groups Printed- Cars

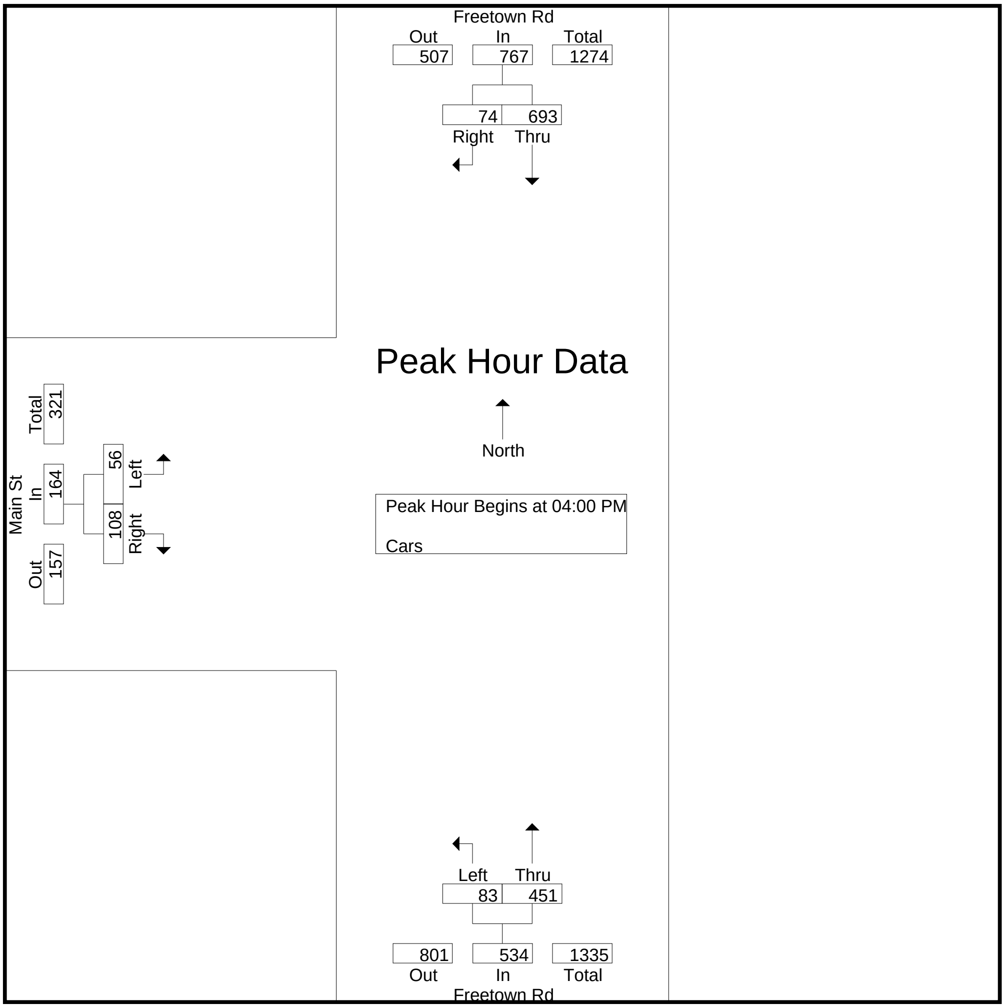
	Freetown Rd From North		Freetown Rd From South		Main St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	174	20	20	98	9	28	349
04:15 PM	181	20	24	114	21	22	382
04:30 PM	178	9	19	116	13	33	368
04:45 PM	160	25	20	123	13	25	366
Total	693	74	83	451	56	108	1465
05:00 PM	167	14	16	110	11	25	343
05:15 PM	157	10	20	101	11	19	318
05:30 PM	168	18	22	88	10	22	328
05:45 PM	157	15	25	95	6	17	315
Total	649	57	83	394	38	83	1304
Grand Total	1342	131	166	845	94	191	2769
Apprch %	91.1	8.9	16.4	83.6	33	67	
Total %	48.5	4.7	6	30.5	3.4	6.9	

	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	174	20	194	20	98	118	9	28	37	349
04:15 PM	**181**	20	**201**	**24**	114	138	**21**	22	43	**382**
04:30 PM	178	9	187	19	116	135	13	**33**	**46**	368
04:45 PM	160	**25**	185	20	**123**	**143**	13	25	38	366
Total Volume	693	74	767	83	451	534	56	108	164	1465
% App. Total	90.4	9.6		15.5	84.5		34.1	65.9		
PHF	.957	.740	.954	.865	.917	.934	.667	.818	.891	.959

Accurate Counts

978-664-2565

N/S Street : Freetown Road	File Name : 96430002
E/W Street : Main Street	Site Code : 96430002
City/State : Raymond, NH	Start Date : 3/7/2023
Weather : Cloudy	Page No : 5



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

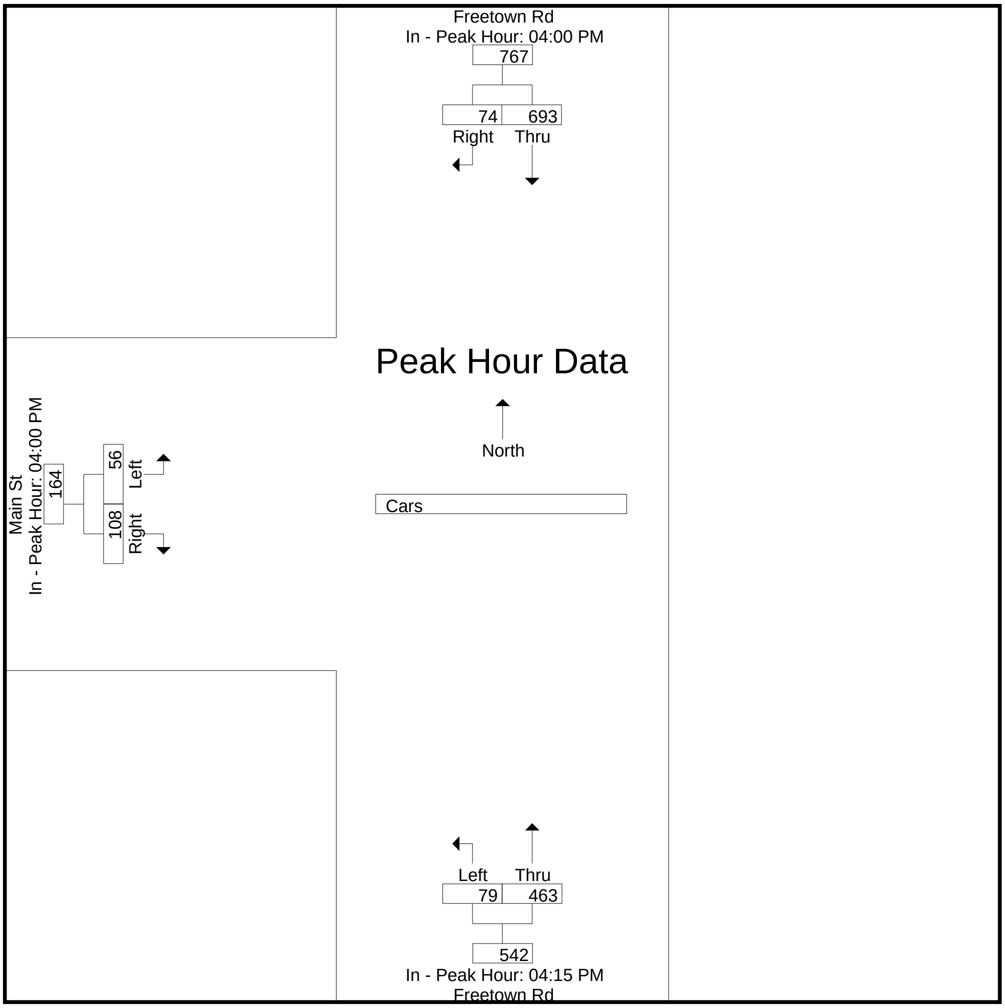
Peak Hour for Each Approach Begins at:

	04:00 PM			04:15 PM			04:00 PM		
+0 mins.	174	20	194	**24**	114	138	9	28	37
+15 mins.	**181**	20	**201**	19	116	135	**21**	22	43
+30 mins.	178	9	187	20	**123**	**143**	13	**33**	**46**
+45 mins.	160	**25**	185	16	110	126	13	25	38
Total Volume	693	74	767	79	463	542	56	108	164
% App. Total	90.4	9.6		14.6	85.4		34.1	65.9	
PHF	.957	.740	.954	.823	.941	.948	.667	.818	.891

Accurate Counts
978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 7

Groups Printed- Trucks

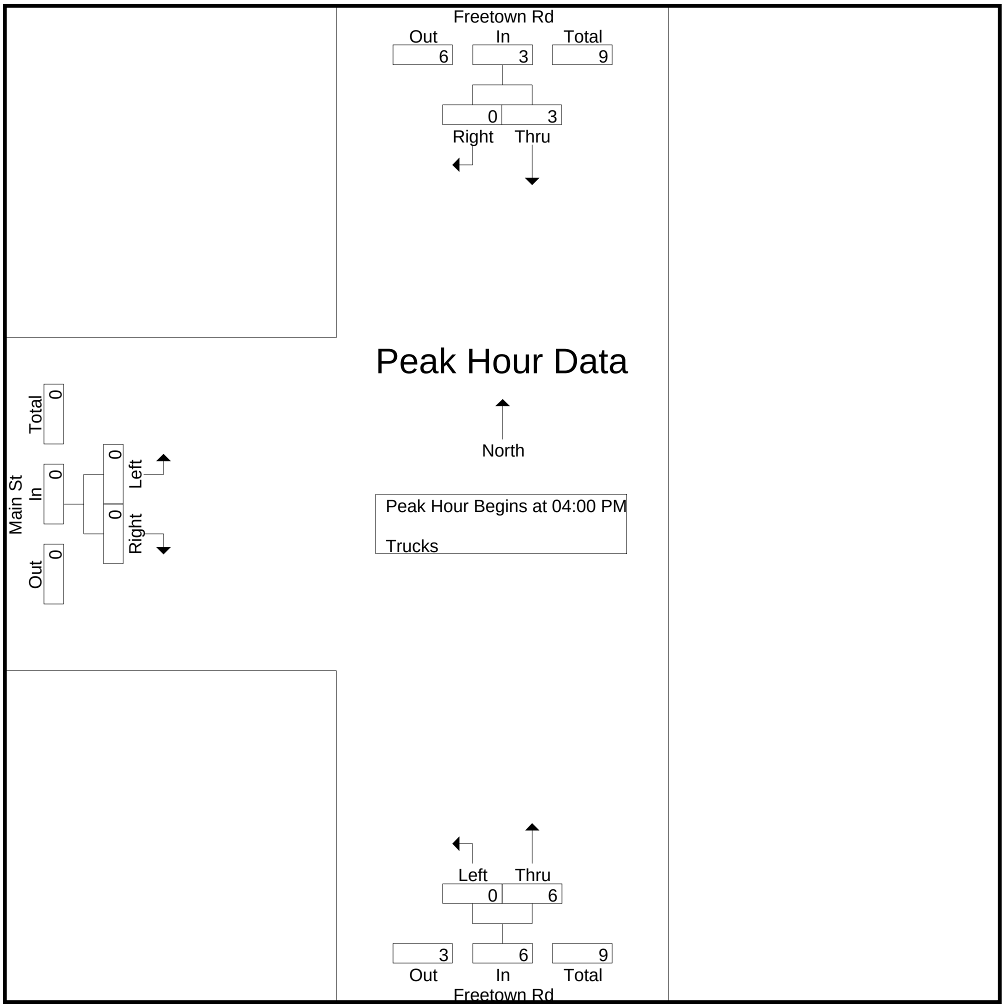
	Freetown Rd From North		Freetown Rd From South		Main St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	1	0	0	2	0	0	3
04:15 PM	0	0	0	1	0	0	1
04:30 PM	1	0	0	2	0	0	3
04:45 PM	1	0	0	1	0	0	2
Total	3	0	0	6	0	0	9
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	1	0	0	1
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	1
Grand Total	3	0	0	7	0	0	10
Apprch %	100	0	0	100	0	0	
Total %	30	0	0	70	0	0	

	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**1**	0	**1**	0	**2**	**2**	0	0	0	**3**
04:15 PM	0	0	0	0	1	1	0	0	0	1
04:30 PM	1	0	1	0	2	2	0	0	0	3
04:45 PM	1	0	1	0	1	1	0	0	0	2
Total Volume	3	0	3	0	6	6	0	0	0	9
% App. Total	100	0		0	100		0	0		
PHF	.750	.000	.750	.000	.750	.750	.000	.000	.000	.750

Accurate Counts
978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 8



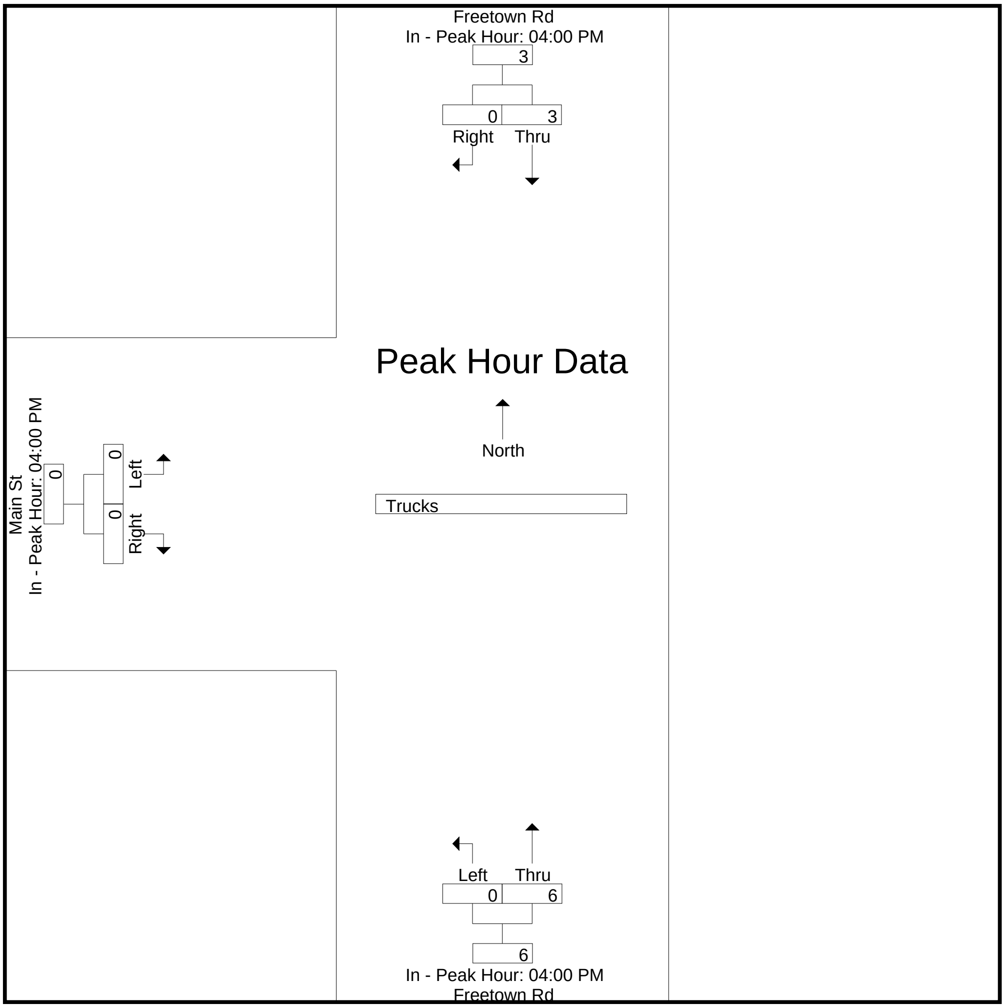
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	**1**	0	**1**	0	**2**	**2**	0	0	0
+15 mins.	0	0	0	0	1	1	0	0	0
+30 mins.	1	0	1	0	2	2	0	0	0
+45 mins.	1	0	1	0	1	1	0	0	0
Total Volume	3	0	3	0	6	6	0	0	0
% App. Total	100	0		0	100		0	0	
PHF	.750	.000	.750	.000	.750	.750	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023
Page No : 9



N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023

Groups Printed- Bikes Peds

	Freetown Rd From North			Freetown Rd From South			Main St From West					
Start Time	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

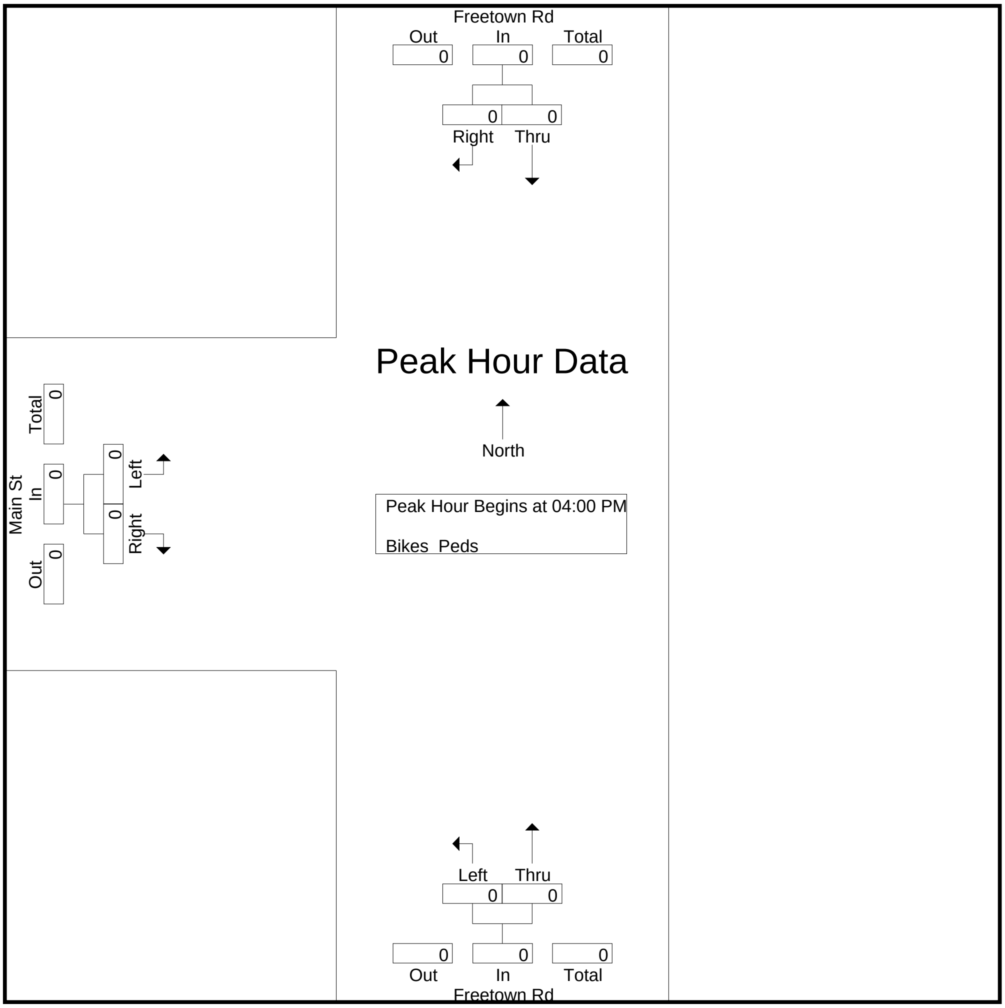
	Freetown Rd From North			Freetown Rd From South			Main St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Freetown Road
E/W Street : Main Street
City/State : Raymond, NH
Weather : Cloudy

File Name : 96430002
Site Code : 96430002
Start Date : 3/7/2023

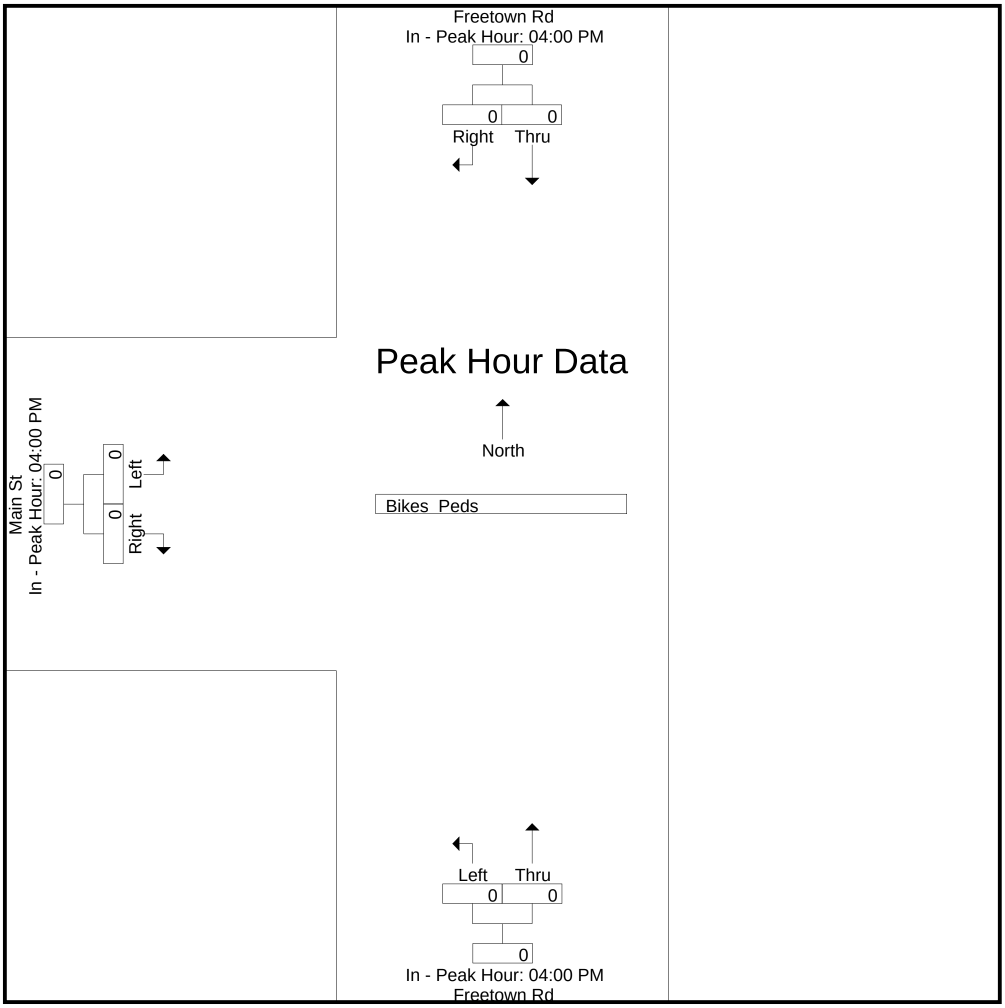


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Freetown Road	File Name : 96430002
E/W Street : Main Street	Site Code : 96430002
City/State : Raymond, NH	Start Date : 3/7/2023
Weather : Cloudy	Page No : 12



Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 1

Groups Printed- Cars - Trucks

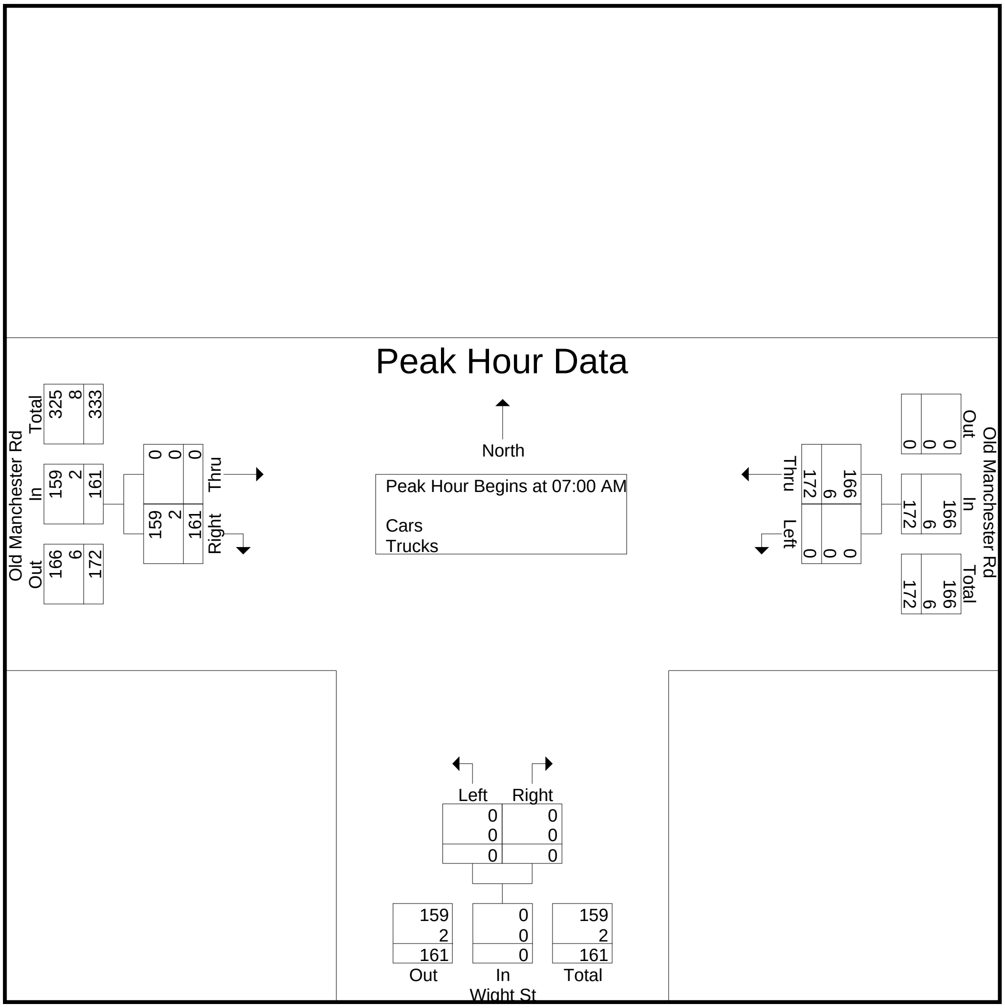
	Old Manchester Rd From East		**Wight St From South**		**Old Manchester Rd From West**		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	0	31	0	0	0	36	67
07:15 AM	0	38	0	0	0	56	94
07:30 AM	0	44	0	0	0	33	77
07:45 AM	0	59	0	0	0	36	95
Total	0	172	0	0	0	161	333
08:00 AM	2	40	0	0	0	16	58
08:15 AM	0	45	0	0	0	22	67
08:30 AM	1	46	0	0	0	51	98
08:45 AM	1	39	0	0	0	35	75
Total	4	170	0	0	0	124	298
Grand Total	4	342	0	0	0	285	631
Apprch %	1.2	98.8	0	0	0	100	
Total %	0.6	54.2	0	0	0	45.2	
Cars	4	331	0	0	0	276	611
% Cars	100	96.8	0	0	0	96.8	96.8
Trucks	0	11	0	0	0	9	20
% Trucks	0	3.2	0	0	0	3.2	3.2

	Old Manchester Rd From East			**Wight St From South**			**Old Manchester Rd From West**			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	31	31	0	0	0	0	36	36	67
07:15 AM	0	38	38	0	0	0	0	**56**	**56**	94
07:30 AM	0	44	44	0	0	0	0	33	33	77
07:45 AM	0	**59**	**59**	0	0	0	0	36	36	**95**
Total Volume	0	172	172	0	0	0	0	161	161	333
% App. Total	0	100		0	0		0	100		
PHF	.000	.729	.729	.000	.000	.000	.000	.719	.719	.876
Cars	0	166	166	0	0	0	0	159	159	325
% Cars	0	96.5	96.5	0	0	0	0	98.8	98.8	97.6
Trucks	0	6	6	0	0	0	0	2	2	8
% Trucks	0	3.5	3.5	0	0	0	0	1.2	1.2	2.4

Accurate Counts

978-664-2565

N/S Street : Wight Street	File Name : 94190001
E/W Street : Old Manchester Road	Site Code : 94190001
City/State : Raymond, NH	Start Date : 2/8/2023
Weather : Clear	Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

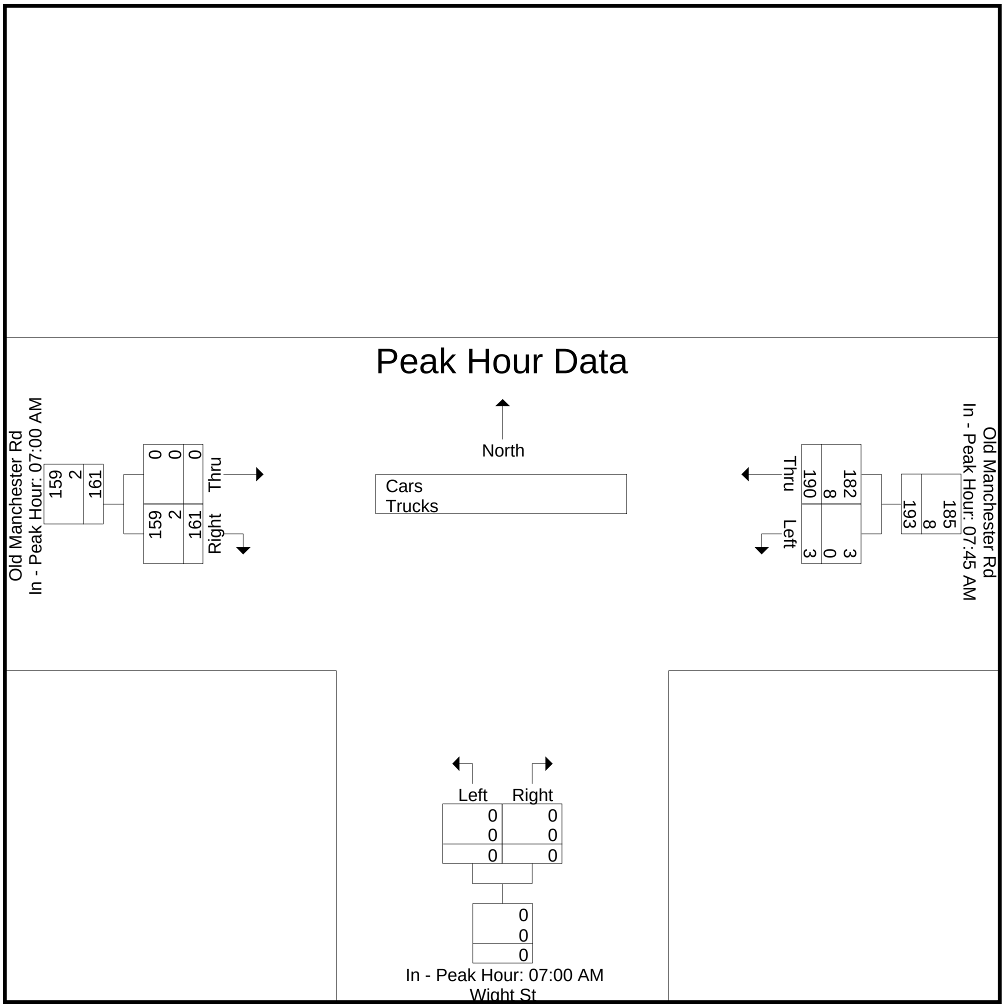
	07:45 AM			07:00 AM			07:00 AM		
+0 mins.	0	**59**	**59**	0	0	0	0	36	36
+15 mins.	**2**	40	42	0	0	0	0	**56**	**56**
+30 mins.	0	45	45	0	0	0	0	33	33
+45 mins.	1	46	47	0	0	0	0	36	36
Total Volume	3	190	193	0	0	0	0	161	161
% App. Total	1.6	98.4		0	0		0	100	
PHF	.375	.805	.818	.000	.000	.000	.000	.719	.719
Cars	3	182	185	0	0	0	0	159	159
% Cars	100	95.8	95.9	0	0	0	0	98.8	98.8
Trucks	0	8	8	0	0	0	0	2	2
% Trucks	0	4.2	4.1	0	0	0	0	1.2	1.2

Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 4

Groups Printed- Cars

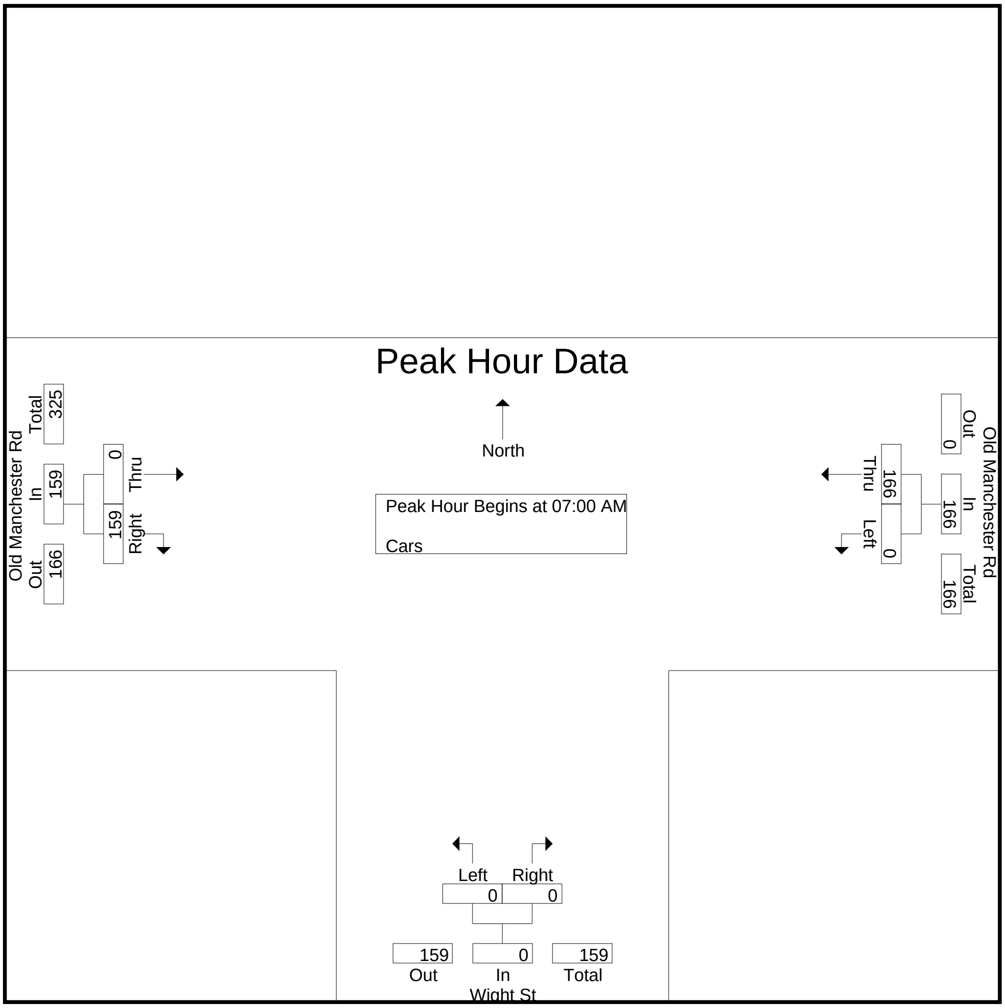
	Old Manchester Rd From East		**Wight St From South**		**Old Manchester Rd From West**		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	0	29	0	0	0	36	65
07:15 AM	0	37	0	0	0	56	93
07:30 AM	0	44	0	0	0	31	75
07:45 AM	0	56	0	0	0	36	92
Total	0	166	0	0	0	159	325
08:00 AM	2	39	0	0	0	16	57
08:15 AM	0	41	0	0	0	22	63
08:30 AM	1	46	0	0	0	44	91
08:45 AM	1	39	0	0	0	35	75
Total	4	165	0	0	0	117	286
Grand Total	4	331	0	0	0	276	611
Apprch %	1.2	98.8	0	0	0	100	
Total %	0.7	54.2	0	0	0	45.2	

	Old Manchester Rd From East			**Wight St From South**			**Old Manchester Rd From West**			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	29	29	0	0	0	0	36	36	65
07:15 AM	0	37	37	0	0	0	0	**56**	**56**	**93**
07:30 AM	0	44	44	0	0	0	0	31	31	75
07:45 AM	0	**56**	**56**	0	0	0	0	36	36	92
Total Volume	0	166	166	0	0	0	0	159	159	325
% App. Total	0	100		0	0		0	100		
PHF	.000	.741	.741	.000	.000	.000	.000	.710	.710	.874

Accurate Counts
978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 5



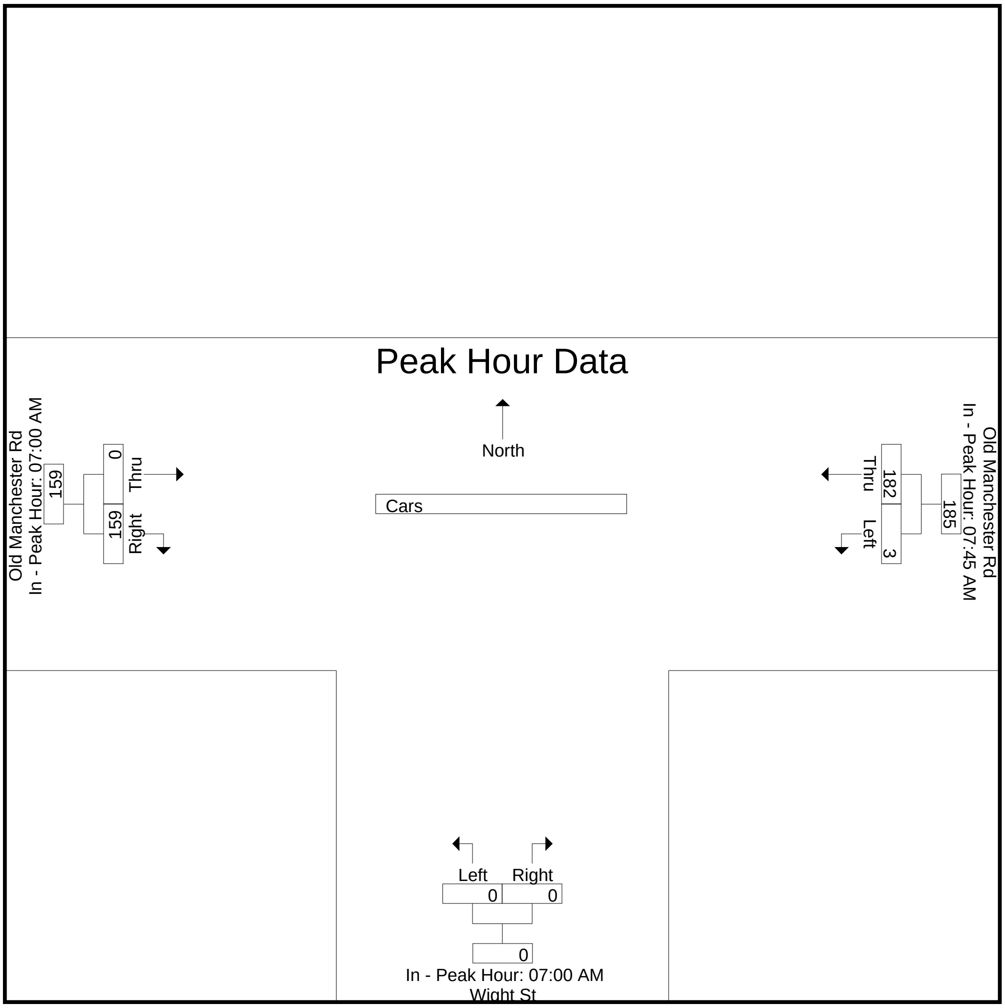
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:00 AM			07:00 AM		
+0 mins.	0	**56**	**56**	0	0	0	0	36	36
+15 mins.	**2**	39	41	0	0	0	0	**56**	**56**
+30 mins.	0	41	41	0	0	0	0	31	31
+45 mins.	1	46	47	0	0	0	0	36	36
Total Volume	3	182	185	0	0	0	0	159	159
% App. Total	1.6	98.4		0	0		0	100	
PHF	.375	.813	.826	.000	.000	.000	.000	.710	.710

Accurate Counts
978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023

Groups Printed- Trucks

	Old Manchester Rd From East		**Wight St From South**		**Old Manchester Rd From West**		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	0	2	0	0	0	0	2
07:15 AM	0	1	0	0	0	0	1
07:30 AM	0	0	0	0	0	2	2
07:45 AM	0	3	0	0	0	0	3
Total	0	6	0	0	0	2	8
08:00 AM	0	1	0	0	0	0	1
08:15 AM	0	4	0	0	0	0	4
08:30 AM	0	0	0	0	0	7	7
08:45 AM	0	0	0	0	0	0	0
Total	0	5	0	0	0	7	12
Grand Total	0	11	0	0	0	9	20
Apprch %	0	100	0	0	0	100	
Total %	0	55	0	0	0	45	

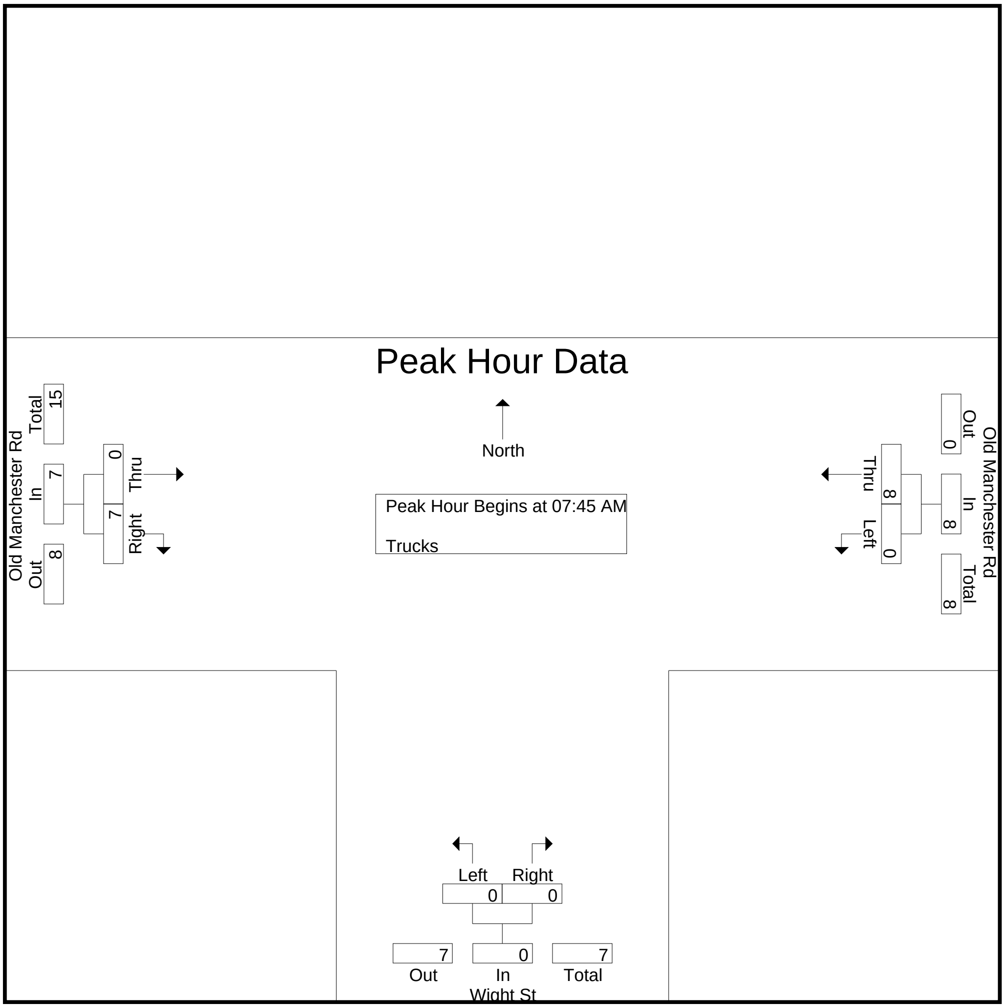
	Old Manchester Rd From East			**Wight St From South**			**Old Manchester Rd From West**			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	3	3	0	0	0	0	0	0	3
08:00 AM	0	1	1	0	0	0	0	0	0	1
08:15 AM	0	**4**	**4**	0	0	0	0	0	0	4
08:30 AM	0	0	0	0	0	0	0	**7**	**7**	**7**
Total Volume	0	8	8	0	0	0	0	7	7	15
% App. Total	0	100		0	0		0	100		
PHF	.000	.500	.500	.000	.000	.000	.000	.250	.250	.536

Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023



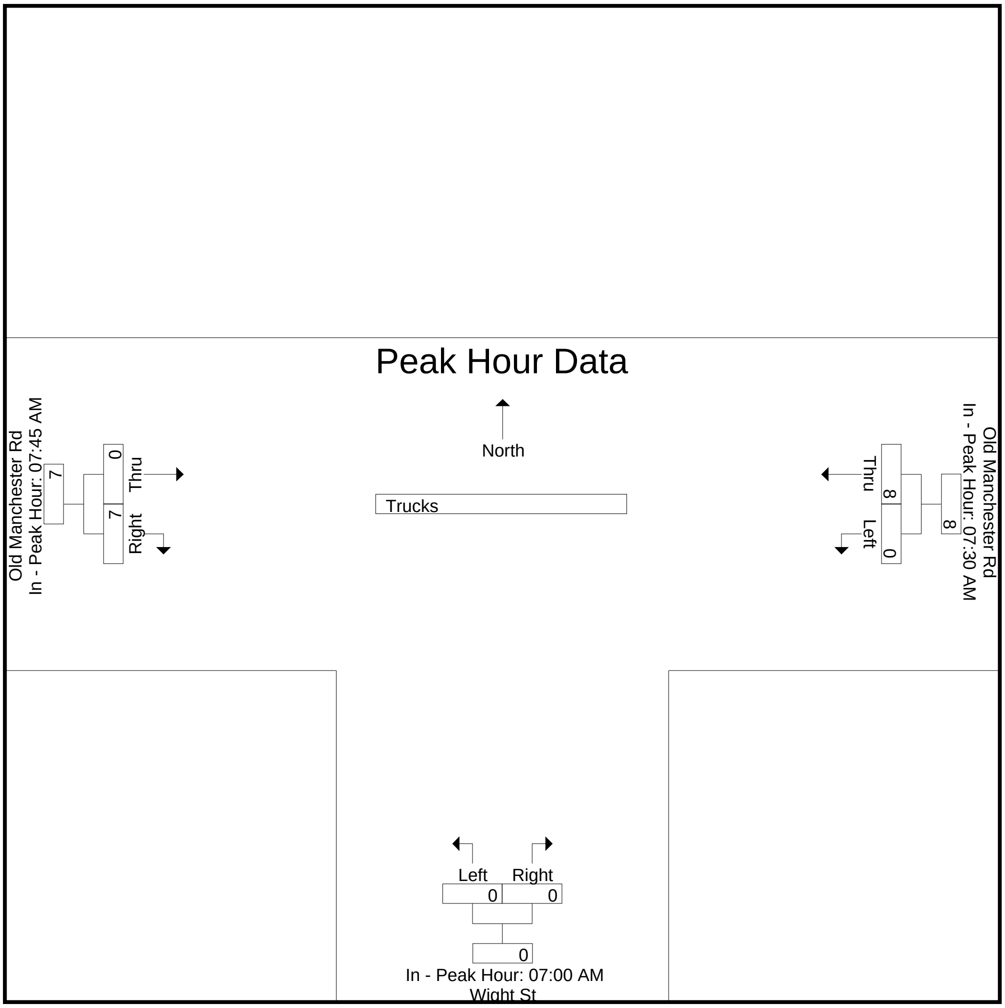
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:45 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	3	3	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	0	0	0
+45 mins.	0	**4**	**4**	0	0	0	0	**7**	**7**
Total Volume	0	8	8	0	0	0	0	7	7
% App. Total	0	100		0	0		0	100	
PHF	.000	.500	.500	.000	.000	.000	.000	.250	.250

Accurate Counts
978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 9



Accurate Counts
978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023

Groups Printed- Bikes Peds

	Old Manchester Rd From East			Wight St From South			Old Manchester Rd From West					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	1	0	0	0	0	0	0	1	0	1
Total	0	0	1	0	0	0	0	0	0	1	0	1
Grand Total	0	0	1	0	0	0	0	0	0	1	0	1
Apprch %	0	0		0	0		0	0				
Total %										100	0	

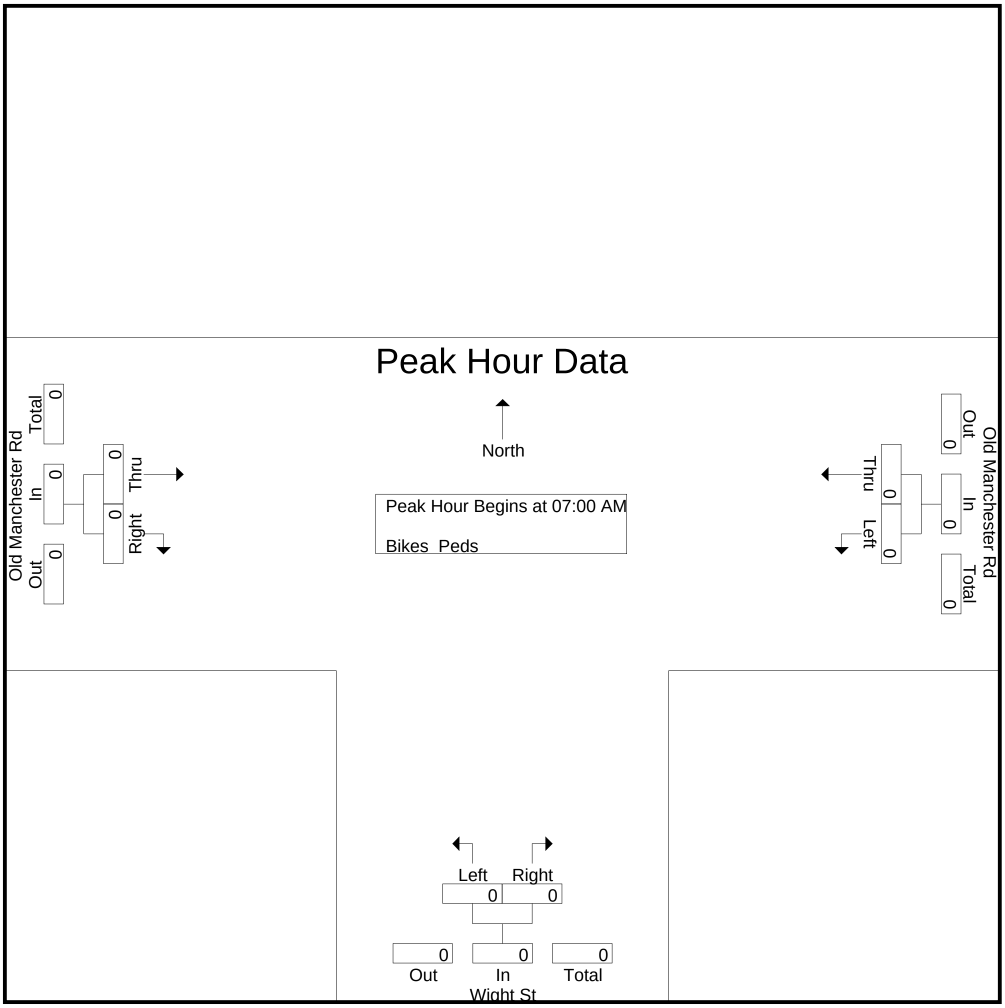
	Old Manchester Rd From East			Wight St From South			Old Manchester Rd From West			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 11

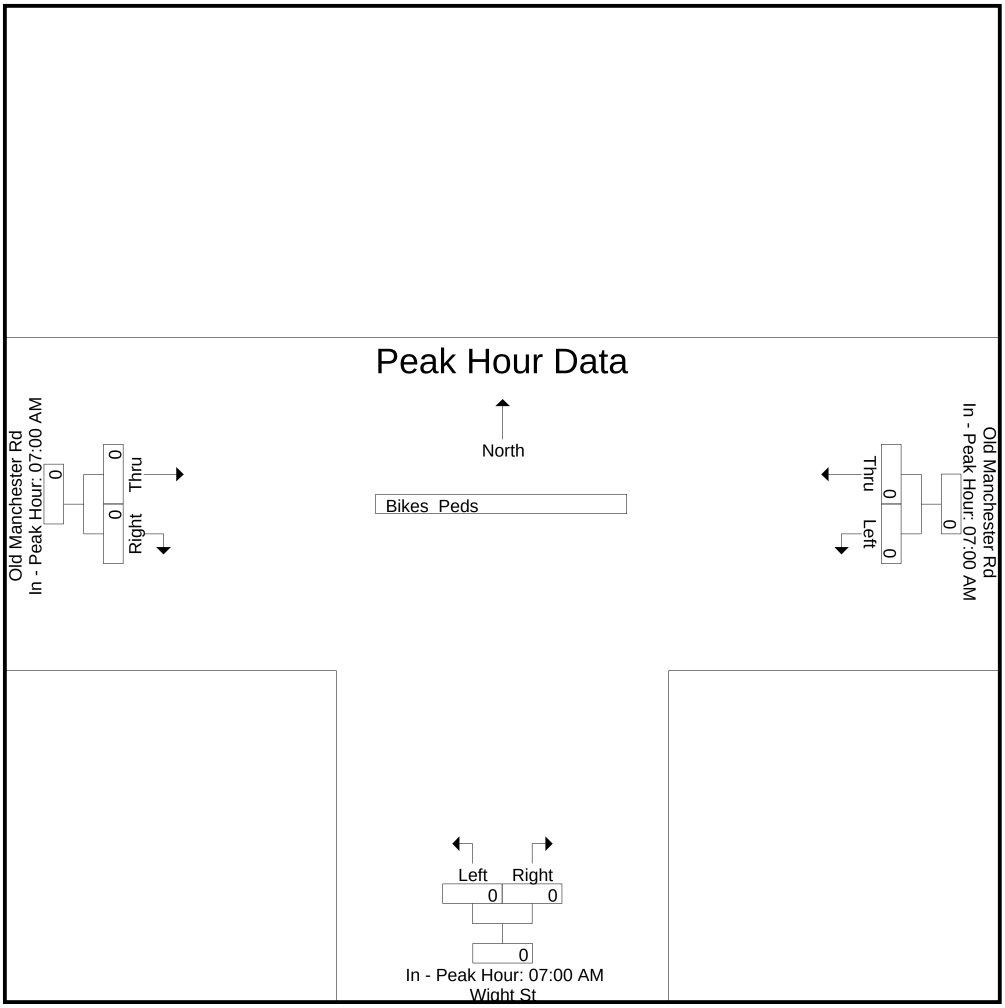


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 12



Accurate Counts
978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

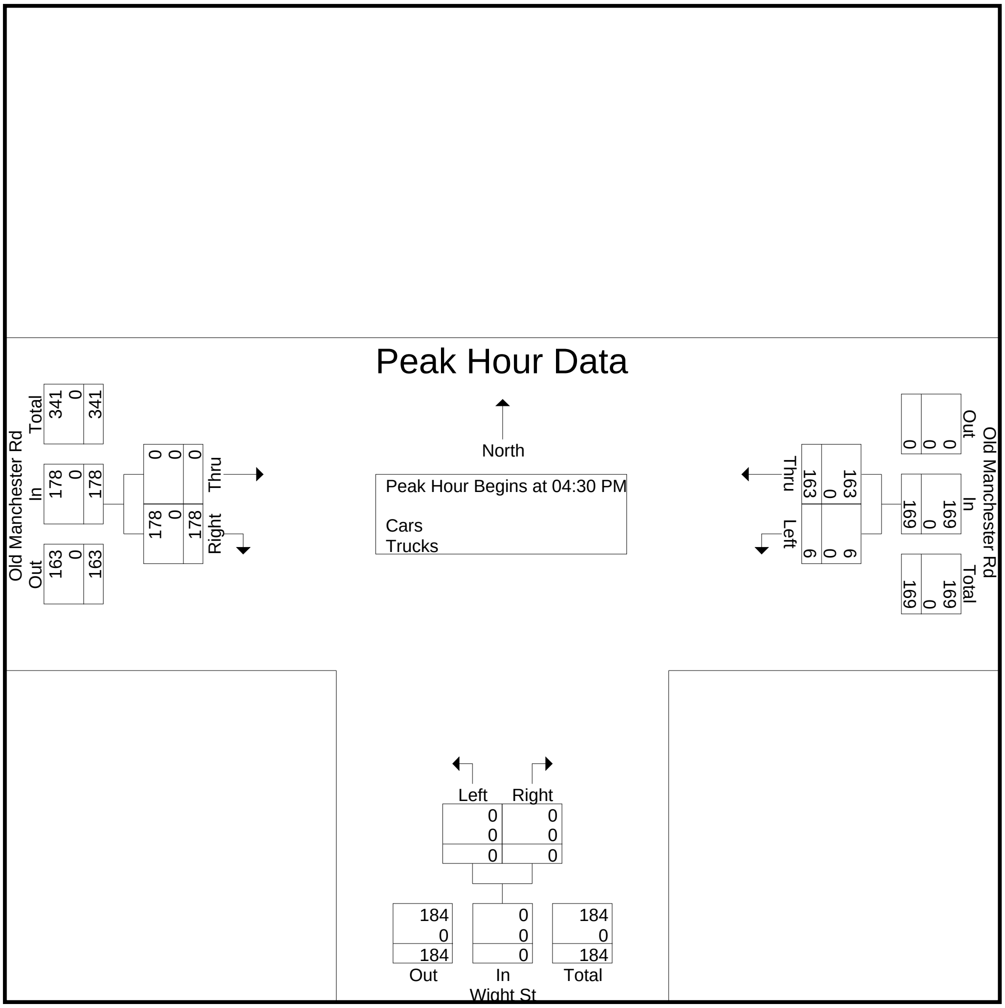
File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 1

Groups Printed- Cars - Trucks

	Old Manchester Rd From East		**Wight St From South**		**Old Manchester Rd From West**		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
04:00 PM	3	40	0	0	0	35	78
04:15 PM	2	30	0	0	0	41	73
04:30 PM	2	55	0	0	0	40	97
04:45 PM	0	31	0	0	0	49	80
Total	7	156	0	0	0	165	328
05:00 PM	2	39	0	0	0	51	92
05:15 PM	2	38	0	0	0	38	78
05:30 PM	2	33	0	0	0	39	74
05:45 PM	6	37	0	0	0	42	85
Total	12	147	0	0	0	170	329
Grand Total	19	303	0	0	0	335	657
Apprch %	5.9	94.1	0	0	0	100	
Total %	2.9	46.1	0	0	0	51	
Cars	19	302	0	0	0	333	654
% Cars	100	99.7	0	0	0	99.4	99.5
Trucks	0	1	0	0	0	2	3
% Trucks	0	0.3	0	0	0	0.6	0.5

	Old Manchester Rd From East			**Wight St From South**			**Old Manchester Rd From West**			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	**2**	**55**	**57**	0	0	0	0	40	40	**97**
04:45 PM	0	31	31	0	0	0	0	49	49	80
05:00 PM	2	39	41	0	0	0	0	**51**	**51**	92
05:15 PM	2	38	40	0	0	0	0	38	38	78
Total Volume	6	163	169	0	0	0	0	178	178	347
% App. Total	3.6	96.4		0	0		0	100		
PHF	.750	.741	.741	.000	.000	.000	.000	.873	.873	.894
Cars	6	163	169	0	0	0	0	178	178	347
% Cars	100	100	100	0	0	0	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0

N/S Street	: Wight Street	File Name	: 94190001
E/W Street	: Old Manchester Road	Site Code	: 94190001
City/State	: Raymond, NH	Start Date	: 2/8/2023
Weather	: Clear	Page No	: 2

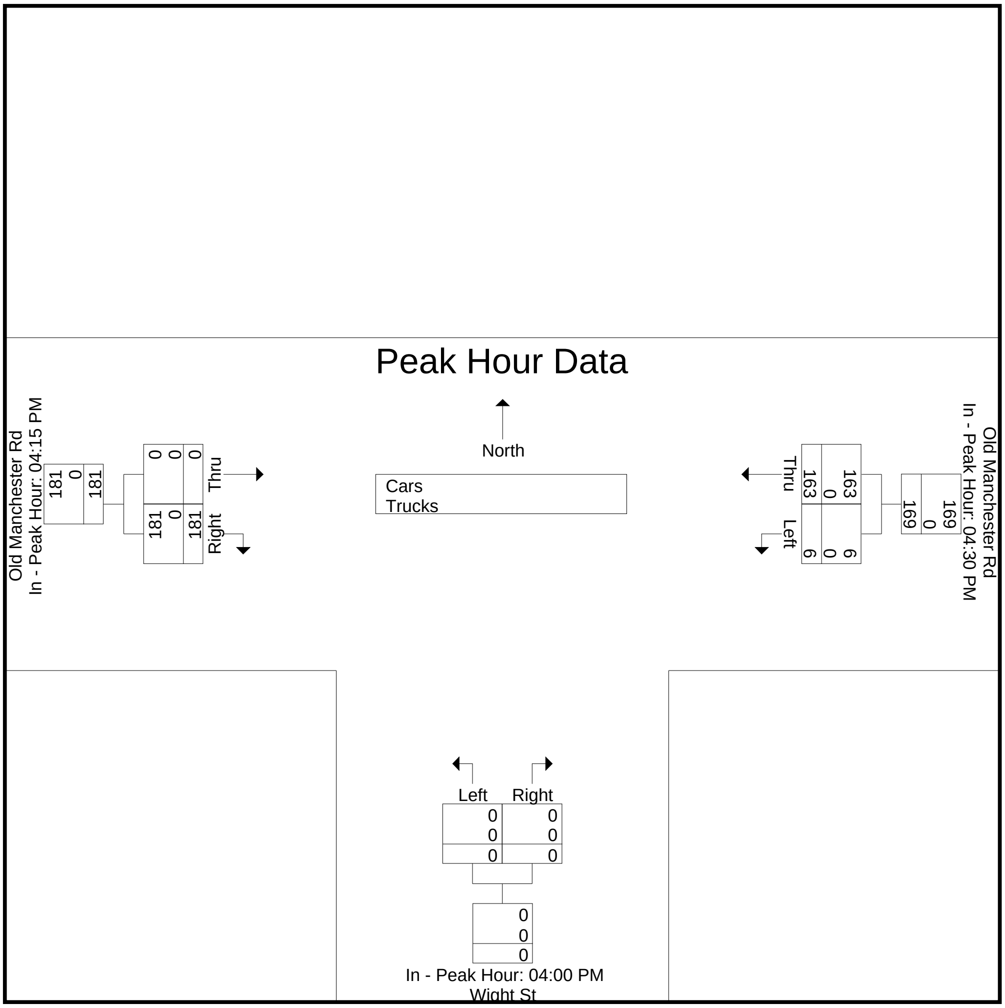


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			04:15 PM		
+0 mins.	**2**	**55**	**57**	0	0	0	0	41	41
+15 mins.	0	31	31	0	0	0	0	40	40
+30 mins.	2	39	41	0	0	0	0	49	49
+45 mins.	2	38	40	0	0	0	0	**51**	**51**
Total Volume	6	163	169	0	0	0	0	181	181
% App. Total	3.6	96.4		0	0		0	100	
PHF	.750	.741	.741	.000	.000	.000	.000	.887	.887
Cars	6	163	169	0	0	0	0	181	181
% Cars	100	100	100	0	0	0	0	100	100
Trucks	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 4

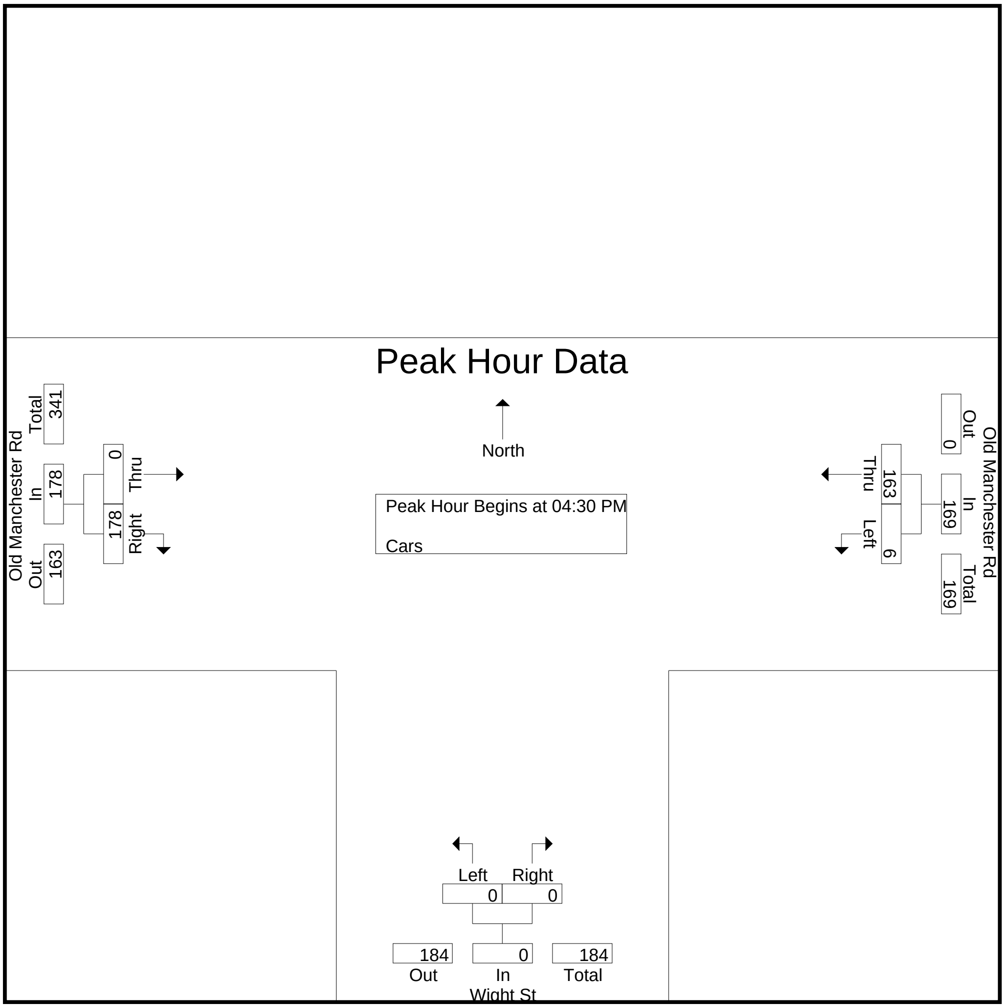
Groups Printed- Cars

	Old Manchester Rd From East		Wight St From South		Old Manchester Rd From West		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
04:00 PM	3	39	0	0	0	33	75
04:15 PM	2	30	0	0	0	41	73
04:30 PM	2	55	0	0	0	40	97
04:45 PM	0	31	0	0	0	49	80
Total	7	155	0	0	0	163	325
05:00 PM	2	39	0	0	0	51	92
05:15 PM	2	38	0	0	0	38	78
05:30 PM	2	33	0	0	0	39	74
05:45 PM	6	37	0	0	0	42	85
Total	12	147	0	0	0	170	329
Grand Total	19	302	0	0	0	333	654
Apprch %	5.9	94.1	0	0	0	100	
Total %	2.9	46.2	0	0	0	50.9	

	Old Manchester Rd From East			Wight St From South			Old Manchester Rd From West			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	**2**	**55**	**57**	0	0	0	0	40	40	**97**
04:45 PM	0	31	31	0	0	0	0	49	49	80
05:00 PM	2	39	41	0	0	0	0	**51**	**51**	92
05:15 PM	2	38	40	0	0	0	0	38	38	78
Total Volume	6	163	169	0	0	0	0	178	178	347
% App. Total	3.6	96.4		0	0		0	100		
PHF	.750	.741	.741	.000	.000	.000	.000	.873	.873	.894

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023



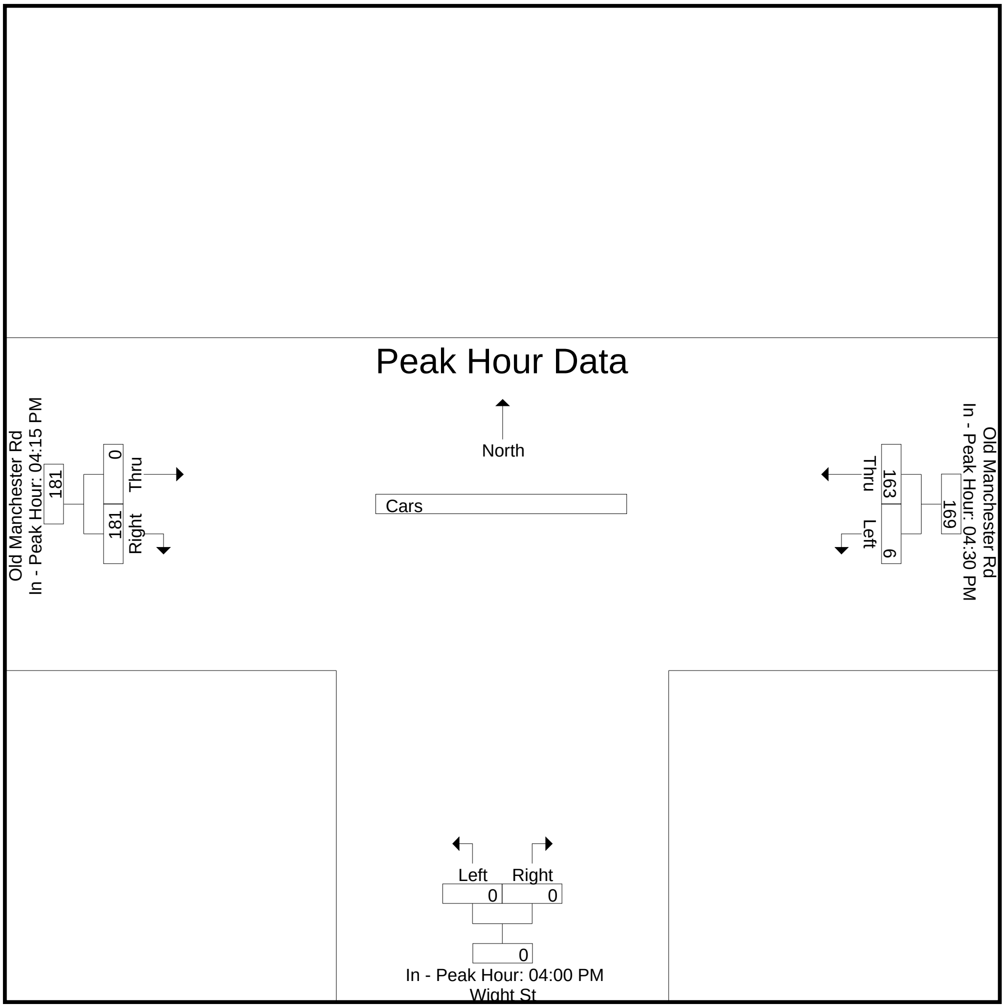
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			04:15 PM		
+0 mins.	**2**	**55**	**57**	0	0	0	0	41	41
+15 mins.	0	31	31	0	0	0	0	40	40
+30 mins.	2	39	41	0	0	0	0	49	49
+45 mins.	2	38	40	0	0	0	0	**51**	**51**
Total Volume	6	163	169	0	0	0	0	181	181
% App. Total	3.6	96.4		0	0		0	100	
PHF	.750	.741	.741	.000	.000	.000	.000	.887	.887

Accurate Counts
978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 7

Groups Printed- Trucks

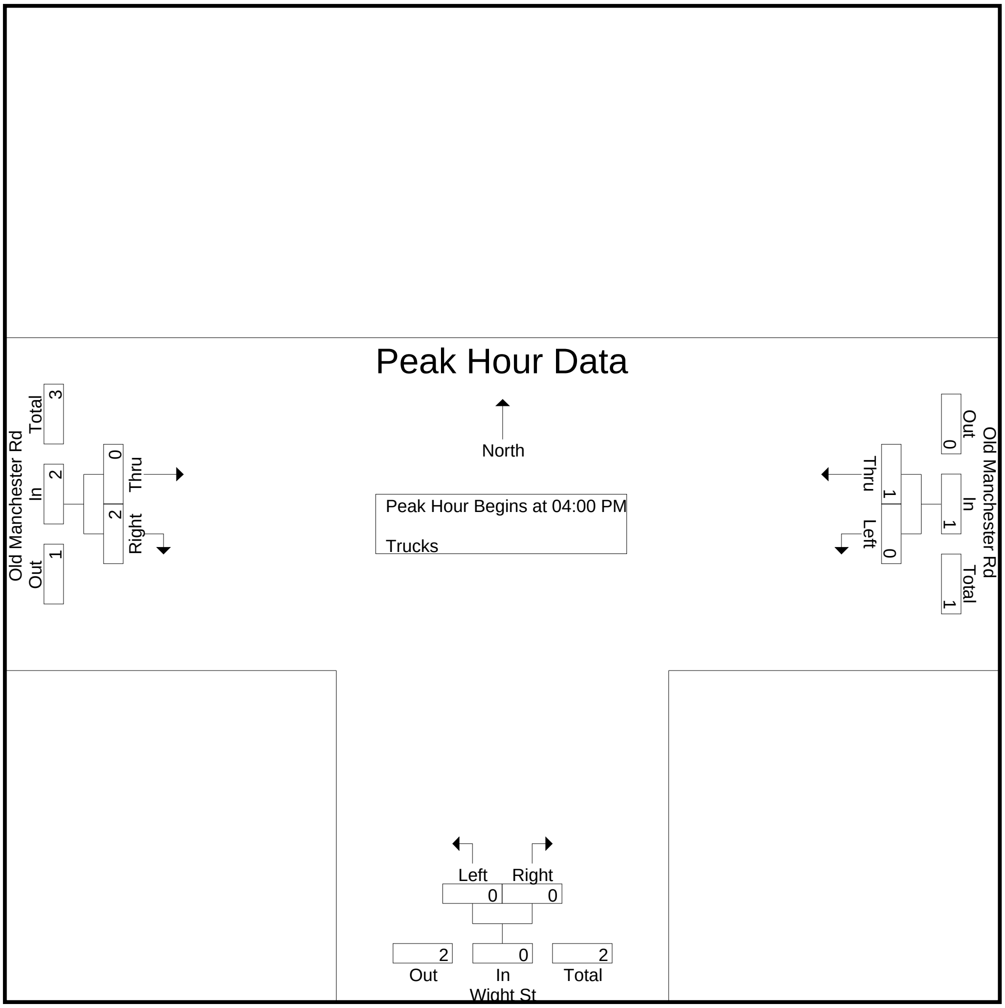
	Old Manchester Rd From East		Wight St From South		Old Manchester Rd From West		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
04:00 PM	0	1	0	0	0	2	3
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	1	0	0	0	2	3
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	1	0	0	0	2	3
Apprch %	0	100	0	0	0	100	
Total %	0	33.3	0	0	0	66.7	

	Old Manchester Rd From East			Wight St From South			Old Manchester Rd From West			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	**1**	**1**	0	0	0	0	**2**	**2**	**3**
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	2	2	3
% App. Total	0	100		0	0		0	100		
PHF	.000	.250	.250	.000	.000	.000	.000	.250	.250	.250

Accurate Counts
978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 8

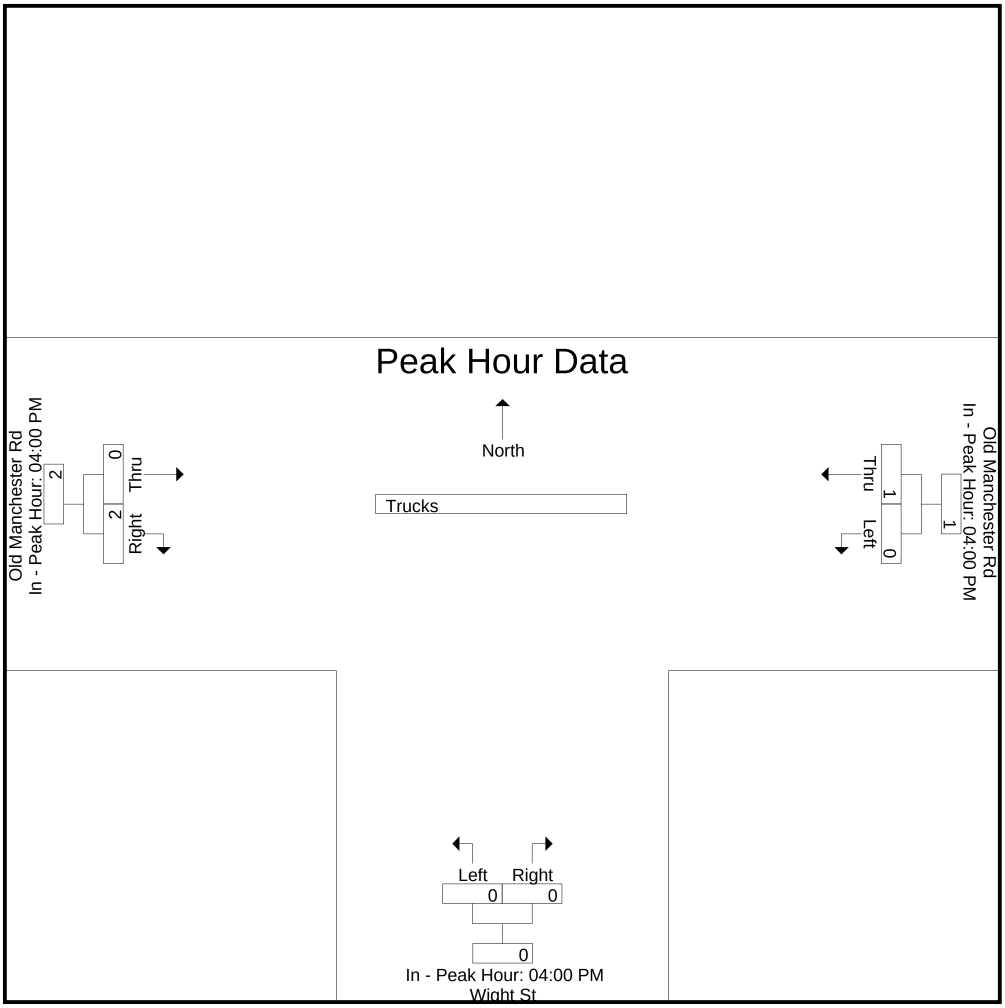


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	**1**	**1**	0	0	0	0	**2**	**2**
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	2	2
% App. Total	0	100		0	0		0	100	
PHF	.000	.250	.250	.000	.000	.000	.000	.250	.250

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023

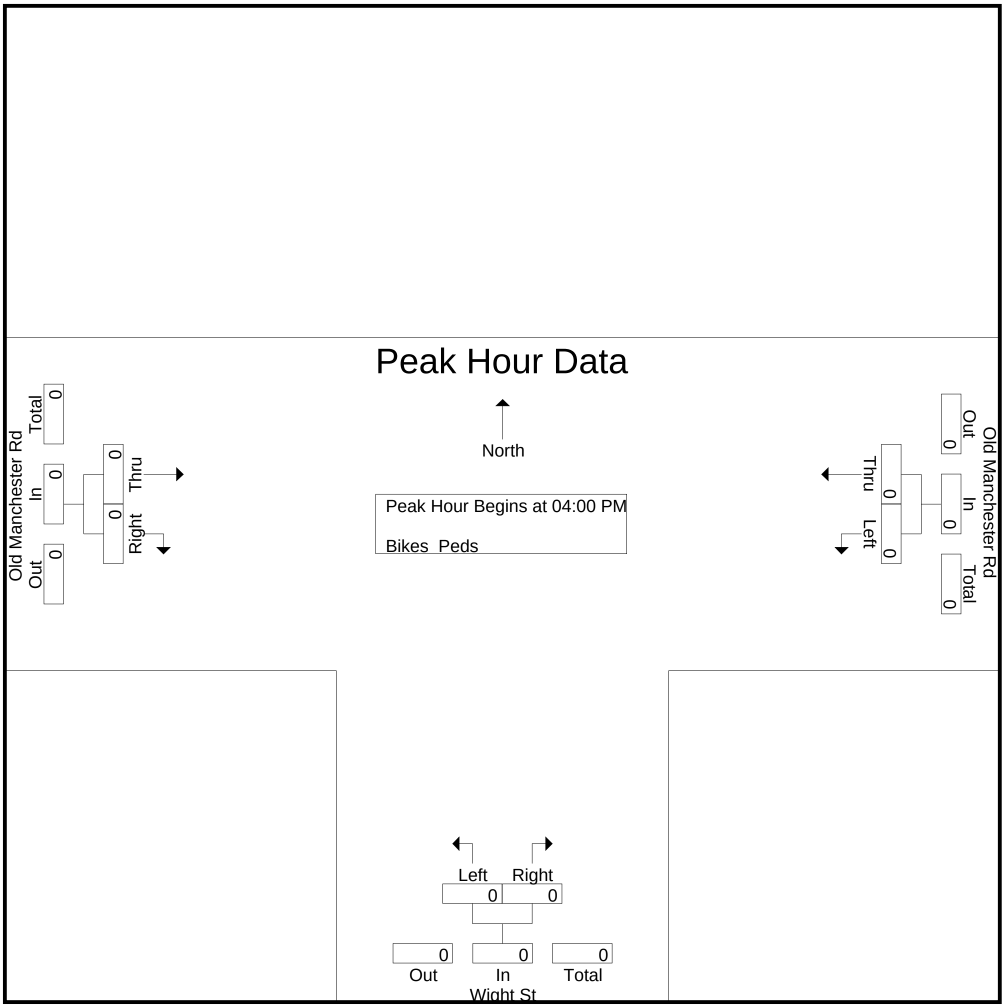
Groups Printed- Bikes Peds

	Old Manchester Rd From East			Wight St From South			Old Manchester Rd From West					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

	Old Manchester Rd From East			Wight St From South			Old Manchester Rd From West			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 11

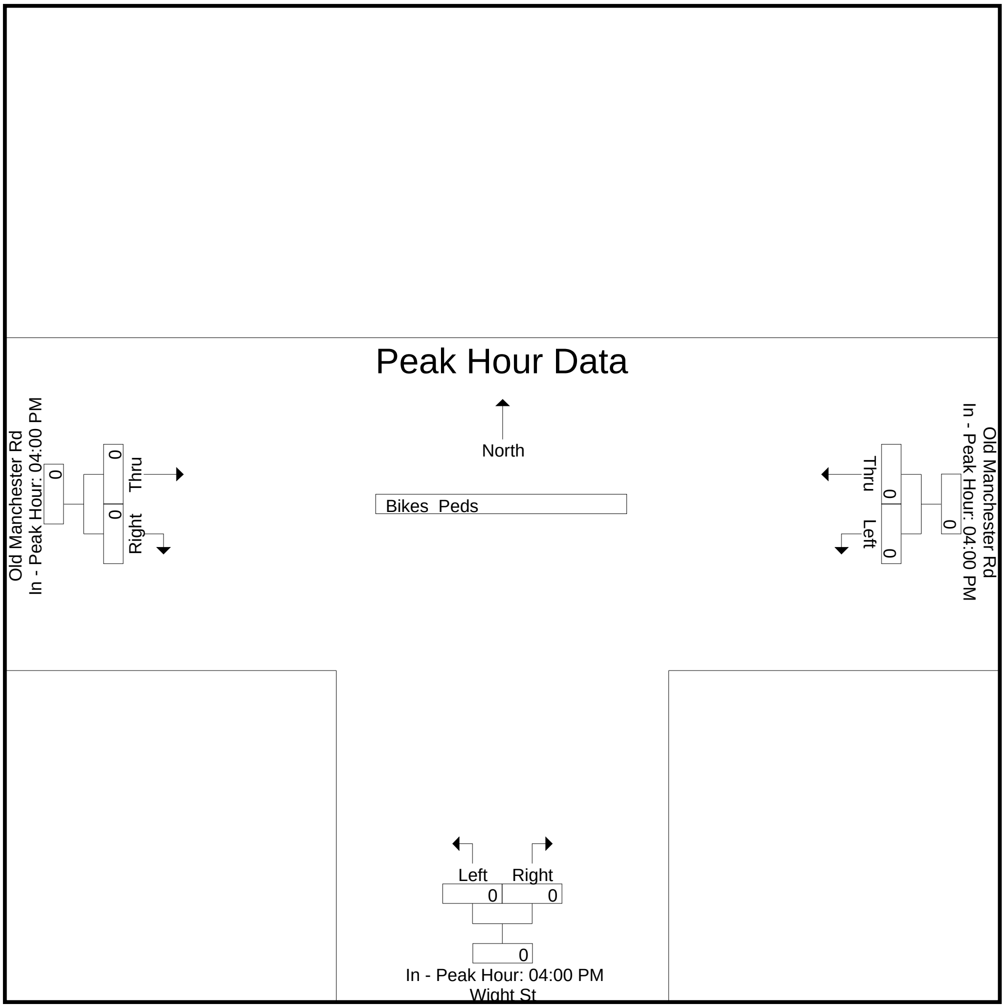


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Wight Street
E/W Street : Old Manchester Road
City/State : Raymond, NH
Weather : Clear

File Name : 94190001
Site Code : 94190001
Start Date : 2/8/2023
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 1

Groups Printed- Cars - Trucks

	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	9	27	19	1	6	4	6	33	10	0	0	0	115
07:15 AM	14	31	31	1	4	2	4	51	23	0	0	0	161
07:30 AM	18	19	17	6	21	15	5	14	31	0	0	0	146
07:45 AM	11	25	19	6	30	11	9	19	34	0	0	0	164
Total	52	102	86	14	61	32	24	117	98	0	0	0	586
08:00 AM	5	20	18	3	15	3	9	17	7	0	0	0	97
08:15 AM	6	30	16	4	20	3	9	19	13	0	0	0	120
08:30 AM	5	17	19	4	15	2	13	40	25	0	0	0	140
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	67	53	11	50	8	31	76	45	0	0	0	357
Grand Total	68	169	139	25	111	40	55	193	143	0	0	0	943
Apprch %	18.1	44.9	37	14.2	63.1	22.7	14.1	49.4	36.6	0	0	0	
Total %	7.2	17.9	14.7	2.7	11.8	4.2	5.8	20.5	15.2	0	0	0	
Cars	66	164	131	24	107	40	55	181	140	0	0	0	908
% Cars	97.1	97	94.2	96	96.4	100	100	93.8	97.9	0	0	0	96.3
Trucks	2	5	8	1	4	0	0	12	3	0	0	0	35
% Trucks	2.9	3	5.8	4	3.6	0	0	6.2	2.1	0	0	0	3.7

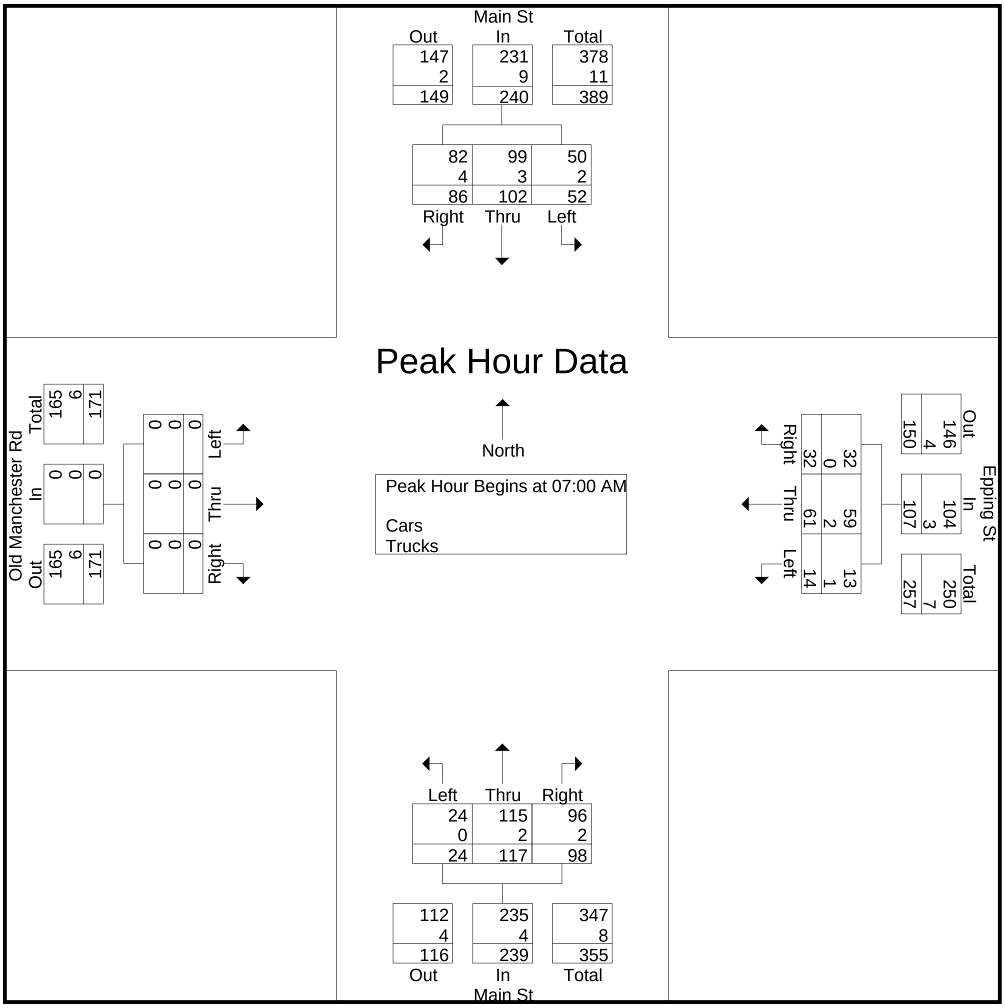
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	9	27	19	55	1	6	4	11	6	33	10	49	0	0	0	0	115
07:15 AM	14	**31**	**31**	**76**	1	4	2	7	4	**51**	23	**78**	0	0	0	0	161
07:30 AM	**18**	19	17	54	**6**	21	**15**	42	5	14	31	50	0	0	0	0	146
07:45 AM	11	25	19	55	6	**30**	11	**47**	**9**	19	**34**	62	0	0	0	0	**164**
Total Volume	52	102	86	240	14	61	32	107	24	117	98	239	0	0	0	0	586
% App. Total	21.7	42.5	35.8		13.1	57	29.9		10	49	41		0	0	0		
PHF	.722	.823	.694	.789	.583	.508	.533	.569	.667	.574	.721	.766	.000	.000	.000	.000	.893
Cars	50	99	82	231	13	59	32	104	24	115	96	235	0	0	0	0	570
% Cars	96.2	97.1	95.3	96.3	92.9	96.7	100	97.2	100	98.3	98.0	98.3	0	0	0	0	97.3
Trucks	2	3	4	9	1	2	0	3	0	2	2	4	0	0	0	0	16
% Trucks	3.8	2.9	4.7	3.8	7.1	3.3	0	2.8	0	1.7	2.0	1.7	0	0	0	0	2.7

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

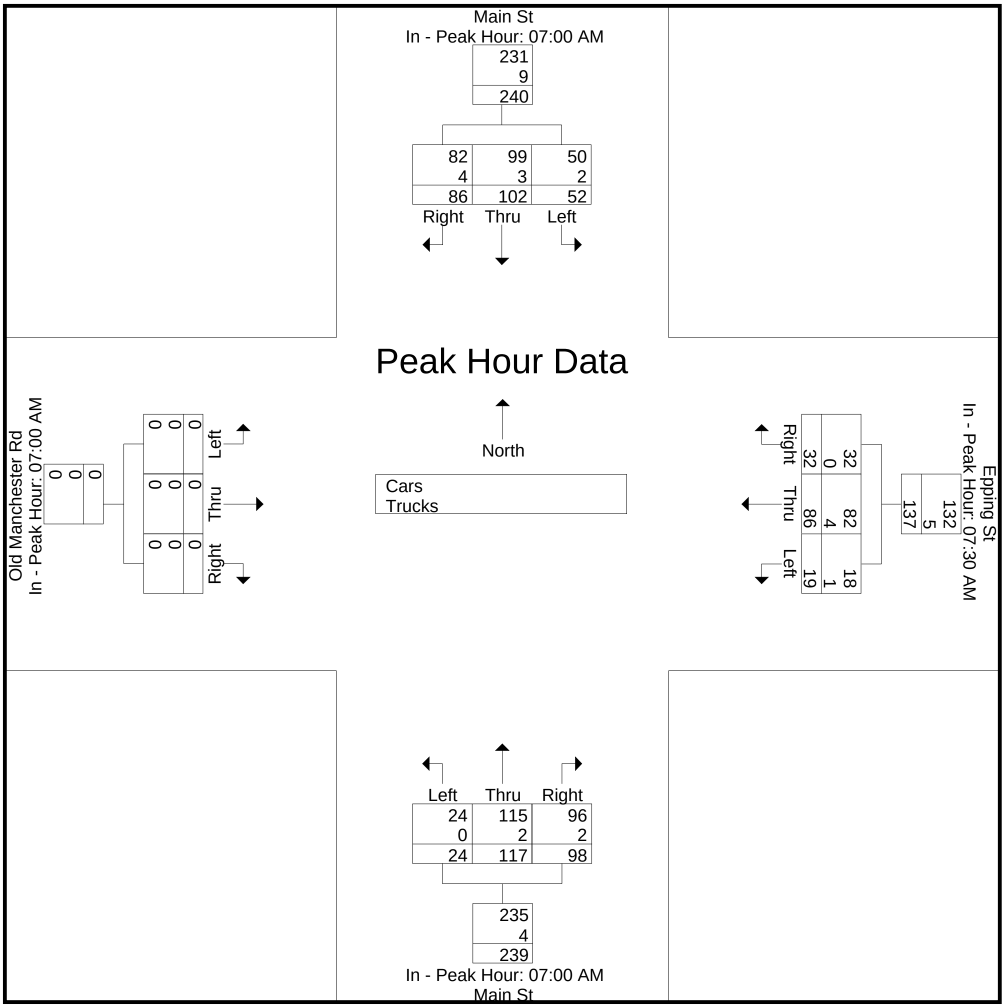
	07:00 AM				07:30 AM				07:00 AM				07:00 AM			
+0 mins.	9	27	19	55	**6**	21	**15**	42	6	33	10	49	0	0	0	0
+15 mins.	14	**31**	**31**	**76**	6	**30**	11	**47**	4	**51**	23	**78**	0	0	0	0
+30 mins.	**18**	19	17	54	3	15	3	21	5	14	31	50	0	0	0	0
+45 mins.	11	25	19	55	4	20	3	27	**9**	19	**34**	62	0	0	0	0
Total Volume	52	102	86	240	19	86	32	137	24	117	98	239	0	0	0	0
% App. Total	21.7	42.5	35.8		13.9	62.8	23.4		10	49	41		0	0	0	
PHF	.722	.823	.694	.789	.792	.717	.533	.729	.667	.574	.721	.766	.000	.000	.000	.000
Cars	50	99	82	231	18	82	32	132	24	115	96	235	0	0	0	0
% Cars	96.2	97.1	95.3	96.2	94.7	95.3	100	96.4	100	98.3	98	98.3	0	0	0	0
Trucks	2	3	4	9	1	4	0	5	0	2	2	4	0	0	0	0
% Trucks	3.8	2.9	4.7	3.8	5.3	4.7	0	3.6	0	1.7	2	1.7	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 4

Groups Printed- Cars

	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	9	26	17	1	6	4	6	32	10	0	0	0	111
07:15 AM	14	31	30	1	4	2	4	50	23	0	0	0	159
07:30 AM	16	18	16	5	21	15	5	14	29	0	0	0	139
07:45 AM	11	24	19	6	28	11	9	19	34	0	0	0	161
Total	50	99	82	13	59	32	24	115	96	0	0	0	570
08:00 AM	5	20	16	3	15	3	9	15	7	0	0	0	93
08:15 AM	6	28	14	4	18	3	9	17	13	0	0	0	112
08:30 AM	5	17	19	4	15	2	13	34	24	0	0	0	133
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	65	49	11	48	8	31	66	44	0	0	0	338
Grand Total	66	164	131	24	107	40	55	181	140	0	0	0	908
Apprch %	18.3	45.4	36.3	14	62.6	23.4	14.6	48.1	37.2	0	0	0	
Total %	7.3	18.1	14.4	2.6	11.8	4.4	6.1	19.9	15.4	0	0	0	

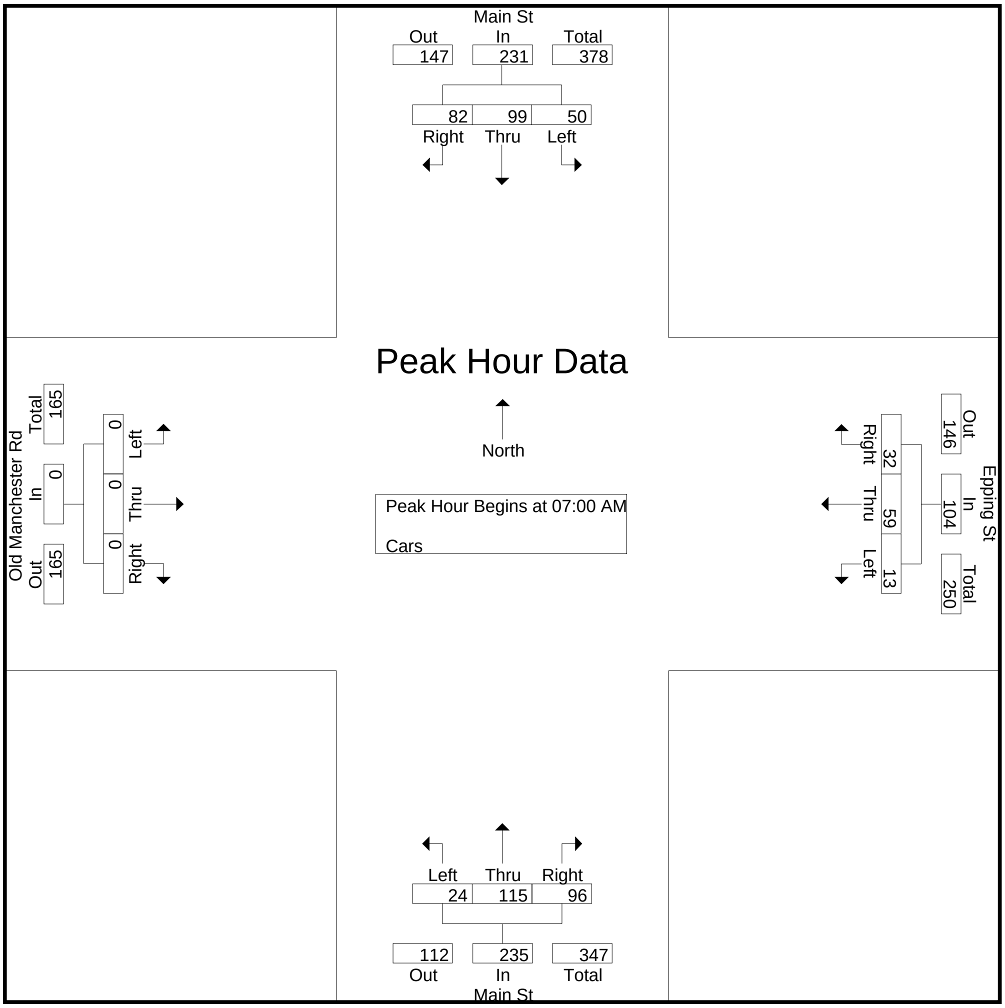
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	9	26	17	52	1	6	4	11	6	32	10	48	0	0	0	0	111
07:15 AM	14	**31**	**30**	**75**	1	4	2	7	4	**50**	23	**77**	0	0	0	0	159
07:30 AM	**16**	18	16	50	5	21	**15**	41	5	14	29	48	0	0	0	0	139
07:45 AM	11	24	19	54	**6**	**28**	11	**45**	**9**	19	**34**	62	0	0	0	0	**161**
Total Volume	50	99	82	231	13	59	32	104	24	115	96	235	0	0	0	0	570
% App. Total	21.6	42.9	35.5		12.5	56.7	30.8		10.2	48.9	40.9		0	0	0		
PHF	.781	.798	.683	.770	.542	.527	.533	.578	.667	.575	.706	.763	.000	.000	.000	.000	.885

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023



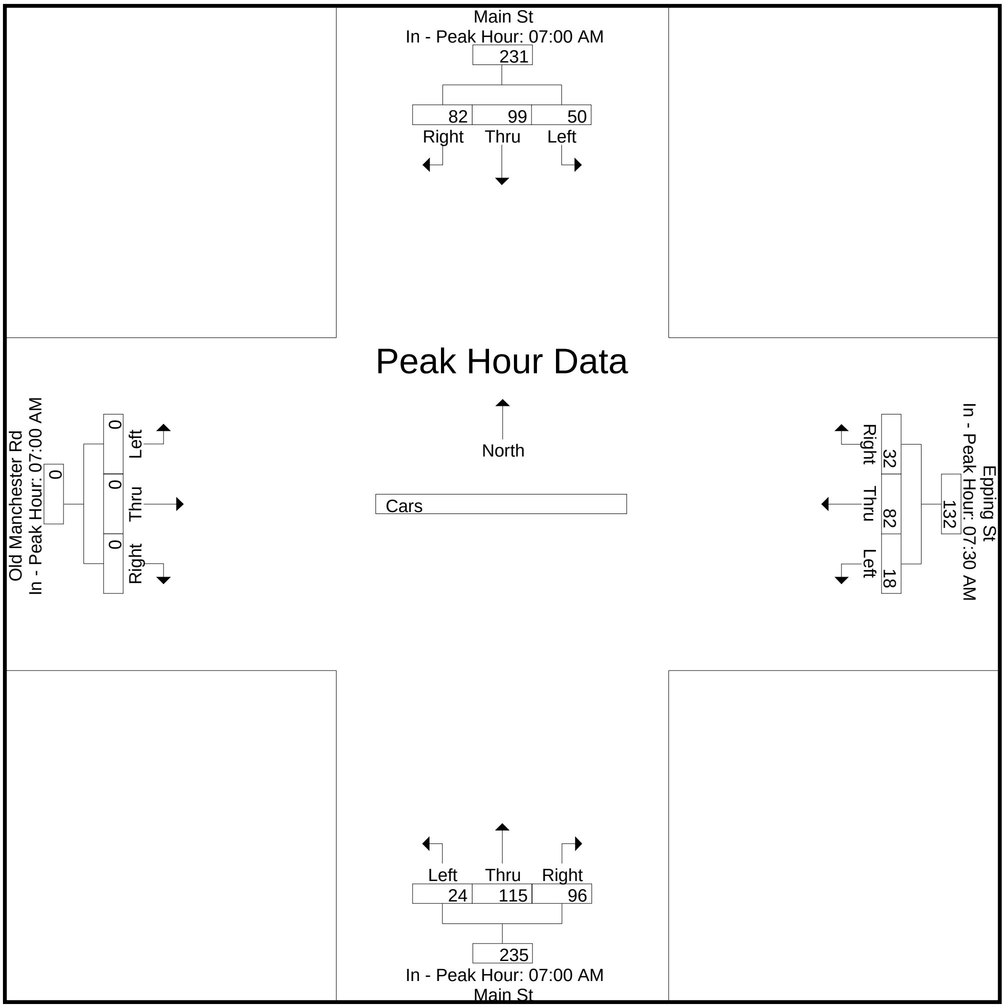
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:30 AM				07:00 AM				07:00 AM			
+0 mins.	9	26	17	52	5	21	**15**	41	6	32	10	48	0	0	0	0
+15 mins.	14	**31**	**30**	**75**	**6**	**28**	11	**45**	4	**50**	23	**77**	0	0	0	0
+30 mins.	**16**	18	16	50	3	15	3	21	5	14	29	48	0	0	0	0
+45 mins.	11	24	19	54	4	18	3	25	**9**	19	**34**	62	0	0	0	0
Total Volume	50	99	82	231	18	82	32	132	24	115	96	235	0	0	0	0
% App. Total	21.6	42.9	35.5		13.6	62.1	24.2		10.2	48.9	40.9		0	0	0	
PHF	.781	.798	.683	.770	.750	.732	.533	.733	.667	.575	.706	.763	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 6



Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 7

Groups Printed- Trucks

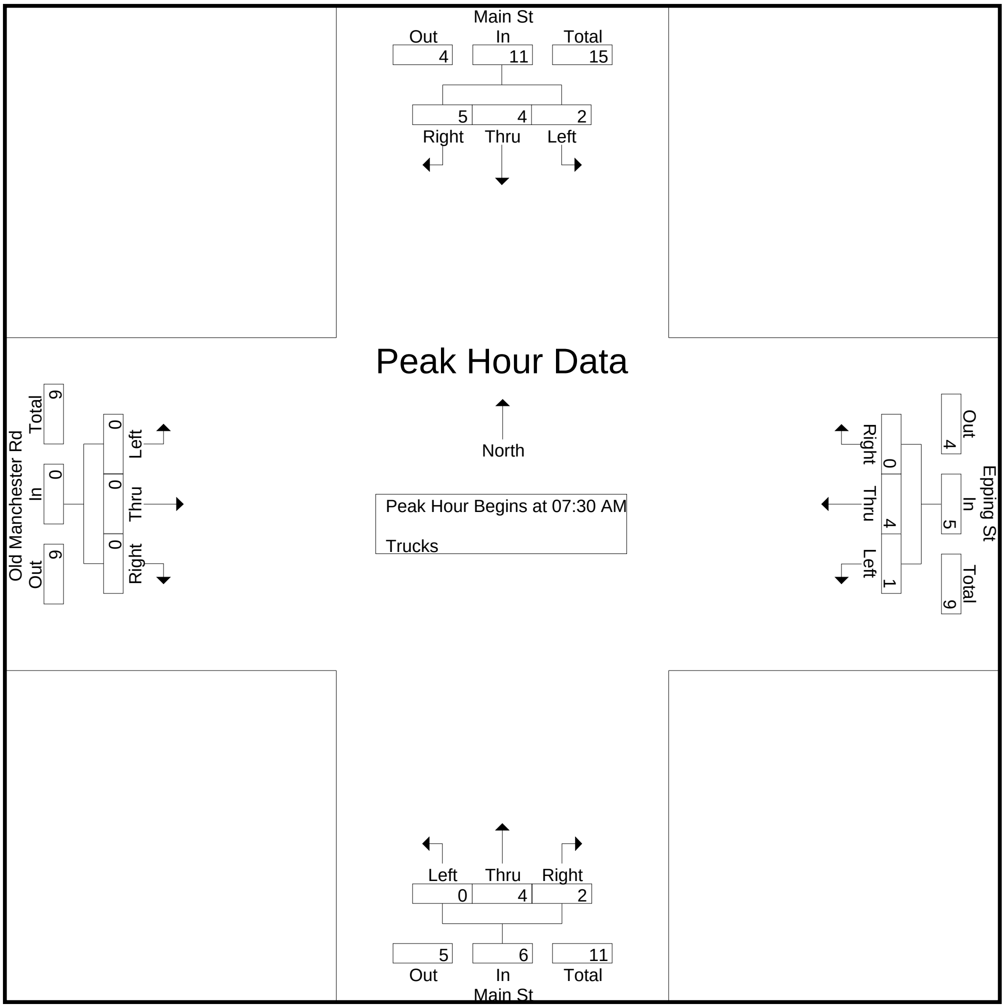
	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	1	2	0	0	0	0	1	0	0	0	0	4
07:15 AM	0	0	1	0	0	0	0	1	0	0	0	0	2
07:30 AM	2	1	1	1	0	0	0	0	2	0	0	0	7
07:45 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
Total	2	3	4	1	2	0	0	2	2	0	0	0	16
08:00 AM	0	0	2	0	0	0	0	2	0	0	0	0	4
08:15 AM	0	2	2	0	2	0	0	2	0	0	0	0	8
08:30 AM	0	0	0	0	0	0	0	6	1	0	0	0	7
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	4	0	2	0	0	10	1	0	0	0	19
Grand Total	2	5	8	1	4	0	0	12	3	0	0	0	35
Apprch %	13.3	33.3	53.3	20	80	0	0	80	20	0	0	0	
Total %	5.7	14.3	22.9	2.9	11.4	0	0	34.3	8.6	0	0	0	

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**2**	1	1	**4**	**1**	0	0	1	0	0	**2**	**2**	0	0	0	0	7
07:45 AM	0	1	0	1	0	**2**	0	**2**	0	0	0	0	0	0	0	0	3
08:00 AM	0	0	**2**	2	0	0	0	0	0	**2**	0	2	0	0	0	0	4
08:15 AM	0	**2**	2	4	0	2	0	2	0	2	0	2	0	0	0	0	**8**
Total Volume	2	4	5	11	1	4	0	5	0	4	2	6	0	0	0	0	22
% App. Total	18.2	36.4	45.5		20	80	0		0	66.7	33.3		0	0	0		
PHF	.250	.500	.625	.688	.250	.500	.000	.625	.000	.500	.250	.750	.000	.000	.000	.000	.688

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 8



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

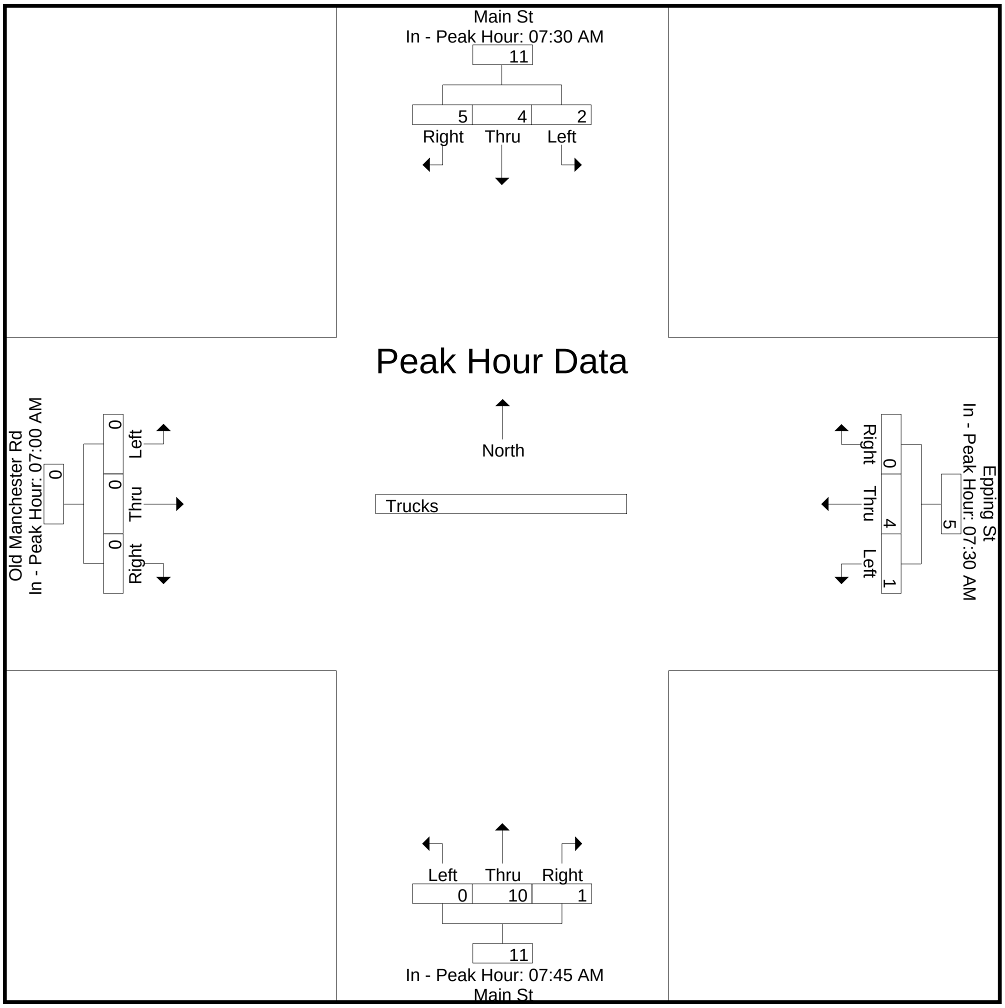
	07:30 AM				07:30 AM				07:45 AM				07:00 AM			
+0 mins.	**2**	1	1	**4**	**1**	0	0	1	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	1	0	**2**	0	**2**	0	2	0	2	0	0	0	0
+30 mins.	0	0	**2**	2	0	0	0	0	0	2	0	2	0	0	0	0
+45 mins.	0	**2**	2	4	0	2	0	2	0	**6**	**1**	**7**	0	0	0	0
Total Volume	2	4	5	11	1	4	0	5	0	10	1	11	0	0	0	0
% App. Total	18.2	36.4	45.5		20	80	0		0	90.9	9.1		0	0	0	
PHF	.250	.500	.625	.688	.250	.500	.000	.625	.000	.417	.250	.393	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 10

Groups Printed- Bikes Peds

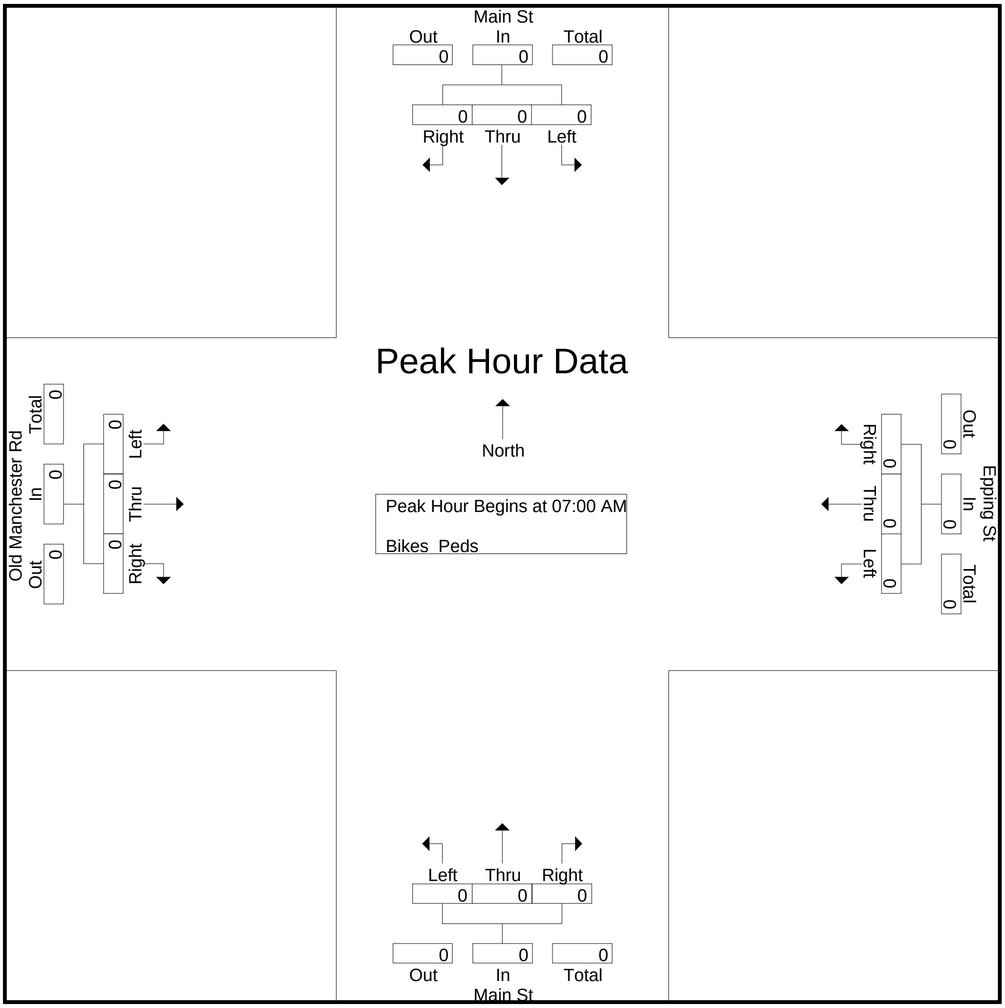
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	3
Grand Total	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	3
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 11

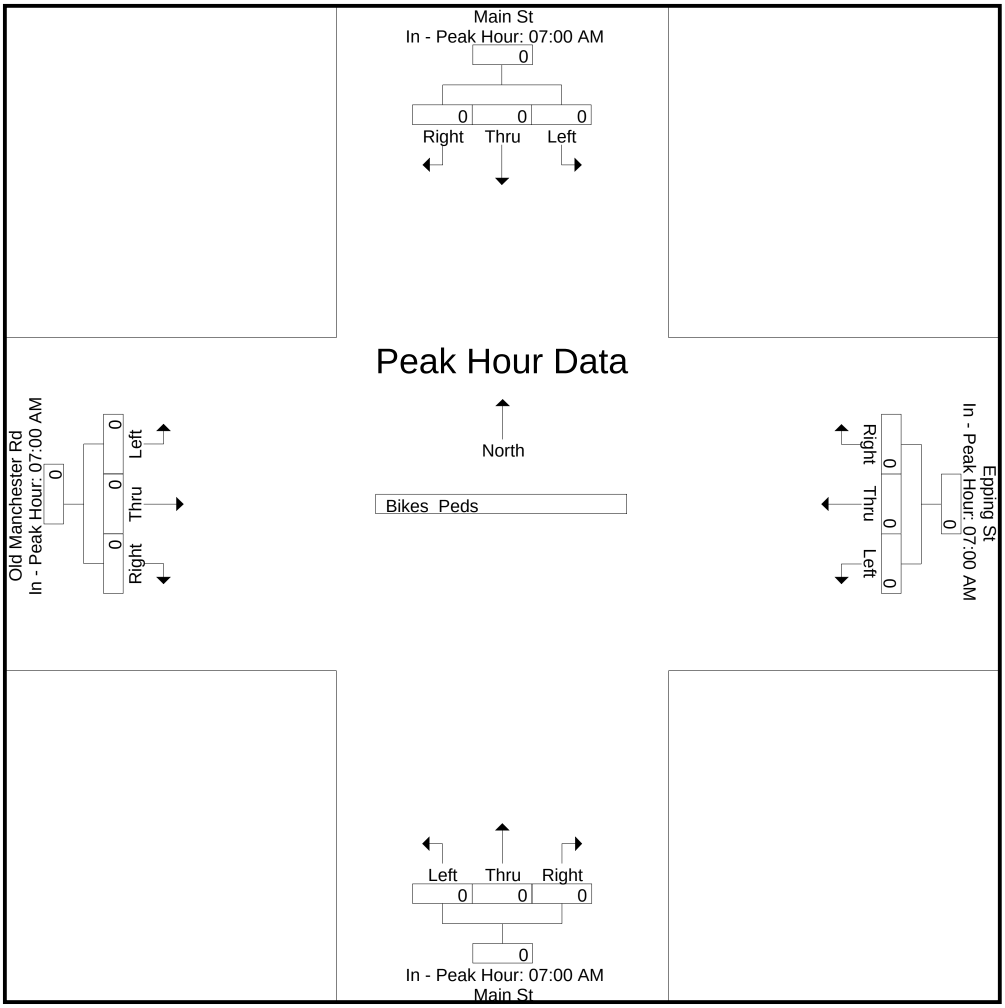


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 1

Groups Printed- Cars - Trucks

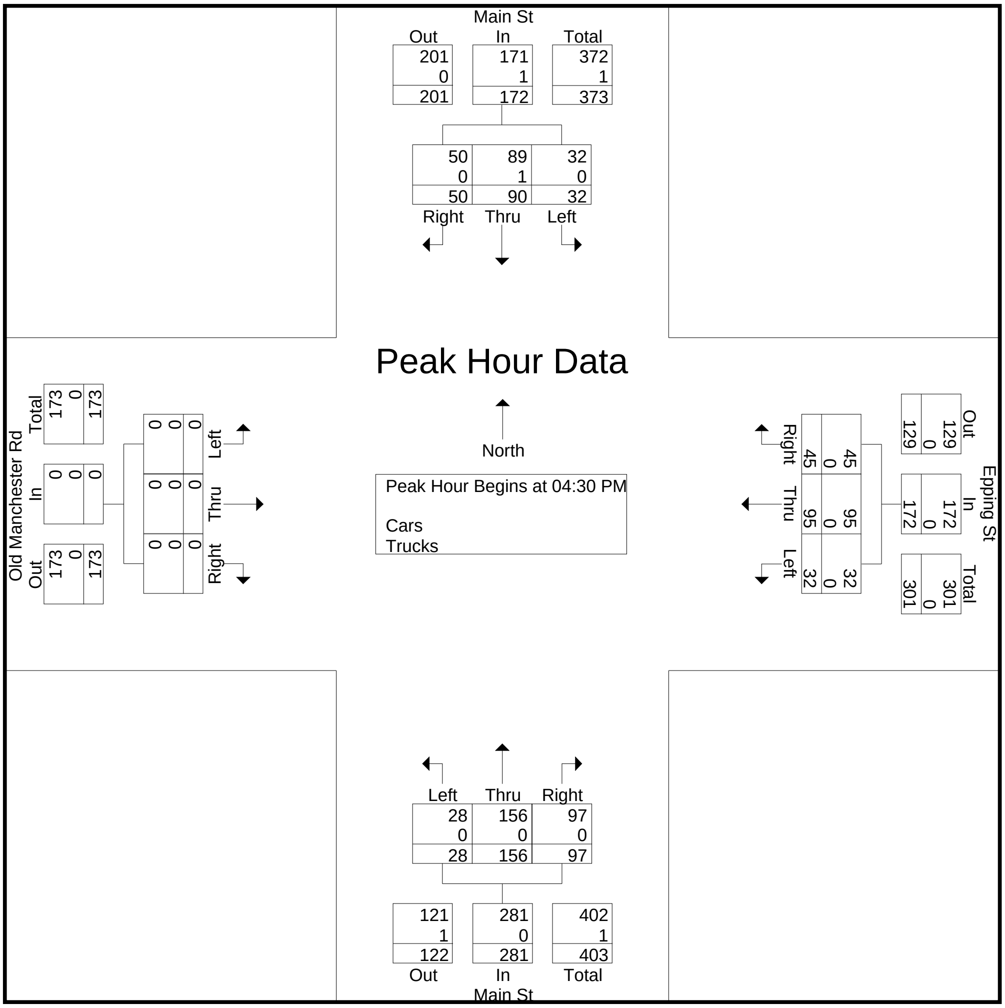
	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	3	17	12	5	24	6	9	33	16	0	0	0	125
04:15 PM	4	19	11	4	16	5	3	31	20	0	0	0	113
04:30 PM	8	33	21	5	35	8	4	38	25	0	0	0	177
04:45 PM	12	17	8	13	16	15	5	45	29	0	0	0	160
Total	27	86	52	27	91	34	21	147	90	0	0	0	575
05:00 PM	8	18	9	8	23	14	9	36	24	0	0	0	149
05:15 PM	4	22	12	6	21	8	10	37	19	0	0	0	139
05:30 PM	6	19	10	14	19	14	5	30	23	0	0	0	140
05:45 PM	4	17	10	10	23	10	8	46	18	0	0	0	146
Total	22	76	41	38	86	46	32	149	84	0	0	0	574
Grand Total	49	162	93	65	177	80	53	296	174	0	0	0	1149
Apprch %	16.1	53.3	30.6	20.2	55	24.8	10.1	56.6	33.3	0	0	0	
Total %	4.3	14.1	8.1	5.7	15.4	7	4.6	25.8	15.1	0	0	0	
Cars	49	161	92	65	176	80	53	293	174	0	0	0	1143
% Cars	100	99.4	98.9	100	99.4	100	100	99	100	0	0	0	99.5
Trucks	0	1	1	0	1	0	0	3	0	0	0	0	6
% Trucks	0	0.6	1.1	0	0.6	0	0	1	0	0	0	0	0.5

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	8	**33**	**21**	**62**	5	**35**	8	**48**	4	38	25	67	0	0	0	0	**177**
04:45 PM	**12**	17	8	37	**13**	16	**15**	44	5	**45**	**29**	**79**	0	0	0	0	160
05:00 PM	8	18	9	35	8	23	14	45	9	36	24	69	0	0	0	0	149
05:15 PM	4	22	12	38	6	21	8	35	**10**	37	19	66	0	0	0	0	139
Total Volume	32	90	50	172	32	95	45	172	28	156	97	281	0	0	0	0	625
% App. Total	18.6	52.3	29.1		18.6	55.2	26.2		10	55.5	34.5		0	0	0		
PHF	.667	.682	.595	.694	.615	.679	.750	.896	.700	.867	.836	.889	.000	.000	.000	.000	.883
Cars	32	89	50	171	32	95	45	172	28	156	97	281	0	0	0	0	624
% Cars	100	98.9	100	99.4	100	100	100	100	100	100	100	100	0	0	0	0	99.8
Trucks	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	1.1	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0.2

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

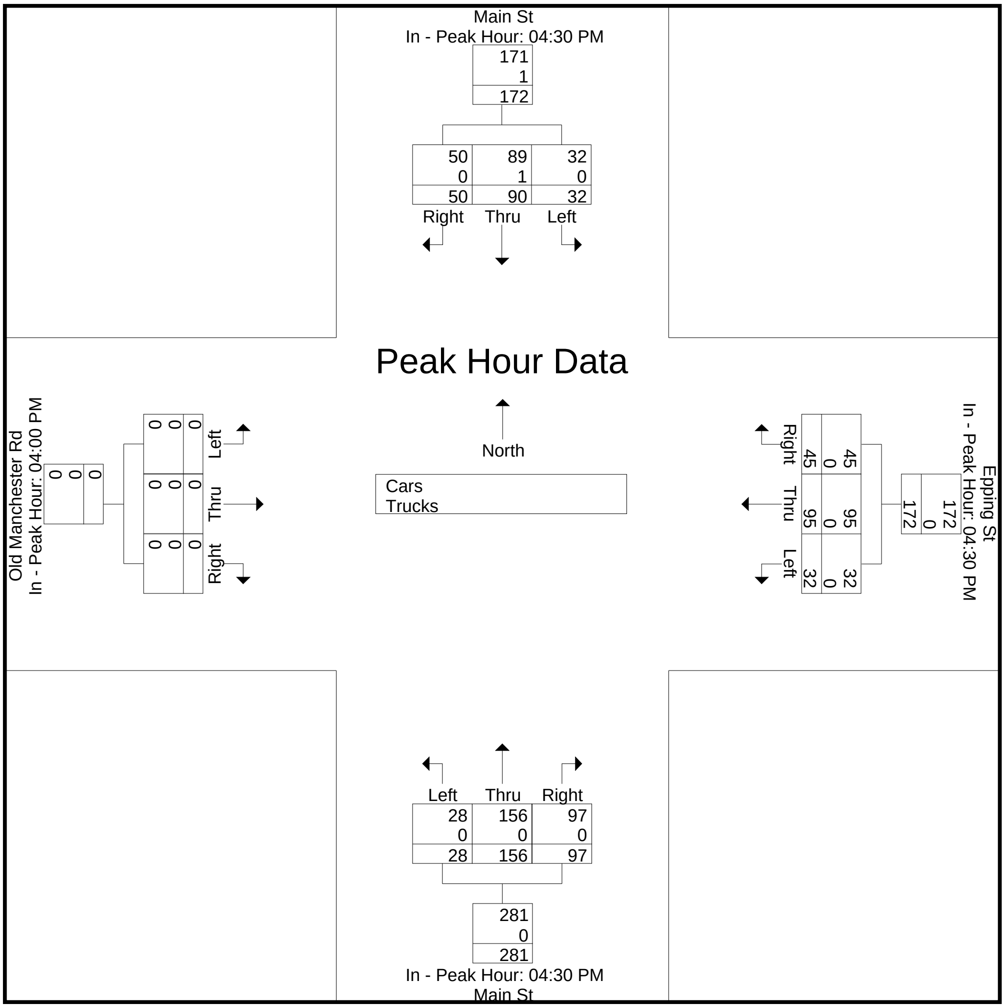
	04:30 PM				04:30 PM				04:30 PM				04:00 PM			
+0 mins.	8	**33**	**21**	**62**	5	**35**	8	**48**	4	38	25	67	0	0	0	0
+15 mins.	**12**	17	8	37	**13**	16	**15**	44	5	**45**	**29**	**79**	0	0	0	0
+30 mins.	8	18	9	35	8	23	14	45	9	36	24	69	0	0	0	0
+45 mins.	4	22	12	38	6	21	8	35	**10**	37	19	66	0	0	0	0
Total Volume	32	90	50	172	32	95	45	172	28	156	97	281	0	0	0	0
% App. Total	18.6	52.3	29.1		18.6	55.2	26.2		10	55.5	34.5		0	0	0	
PHF	.667	.682	.595	.694	.615	.679	.750	.896	.700	.867	.836	.889	.000	.000	.000	.000
Cars	32	89	50	171	32	95	45	172	28	156	97	281	0	0	0	0
% Cars	100	98.9	100	99.4	100	100	100	100	100	100	100	100	0	0	0	0
Trucks	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	1.1	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 4

Groups Printed- Cars

	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	3	17	11	5	23	6	9	31	16	0	0	0	121
04:15 PM	4	19	11	4	16	5	3	31	20	0	0	0	113
04:30 PM	8	32	21	5	35	8	4	38	25	0	0	0	176
04:45 PM	12	17	8	13	16	15	5	45	29	0	0	0	160
Total	27	85	51	27	90	34	21	145	90	0	0	0	570
05:00 PM	8	18	9	8	23	14	9	36	24	0	0	0	149
05:15 PM	4	22	12	6	21	8	10	37	19	0	0	0	139
05:30 PM	6	19	10	14	19	14	5	30	23	0	0	0	140
05:45 PM	4	17	10	10	23	10	8	45	18	0	0	0	145
Total	22	76	41	38	86	46	32	148	84	0	0	0	573
Grand Total	49	161	92	65	176	80	53	293	174	0	0	0	1143
Apprch %	16.2	53.3	30.5	20.2	54.8	24.9	10.2	56.3	33.5	0	0	0	
Total %	4.3	14.1	8	5.7	15.4	7	4.6	25.6	15.2	0	0	0	

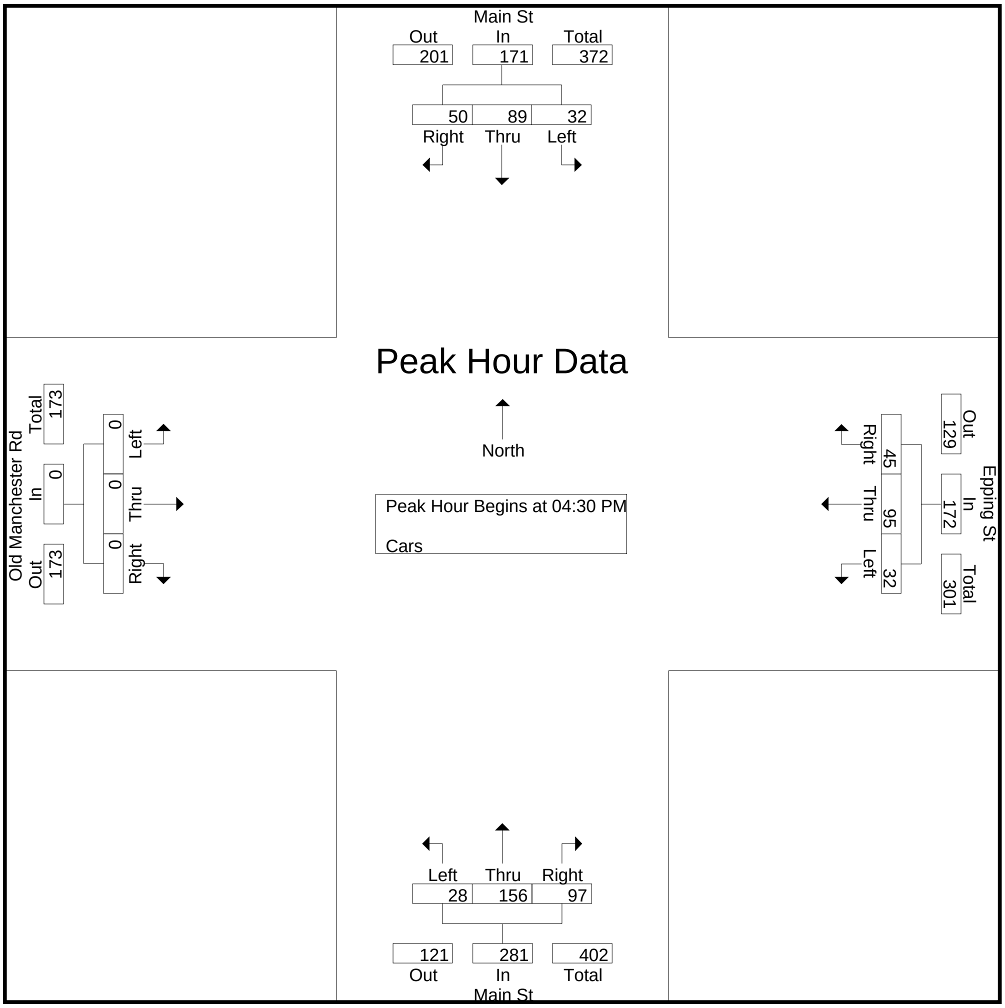
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	8	**32**	**21**	**61**	5	**35**	8	**48**	4	38	25	67	0	0	0	0	**176**
04:45 PM	**12**	17	8	37	**13**	16	**15**	44	5	**45**	**29**	**79**	0	0	0	0	160
05:00 PM	8	18	9	35	8	23	14	45	9	36	24	69	0	0	0	0	149
05:15 PM	4	22	12	38	6	21	8	35	**10**	37	19	66	0	0	0	0	139
Total Volume	32	89	50	171	32	95	45	172	28	156	97	281	0	0	0	0	624
% App. Total	18.7	52	29.2		18.6	55.2	26.2		10	55.5	34.5		0	0	0		
PHF	.667	.695	.595	.701	.615	.679	.750	.896	.700	.867	.836	.889	.000	.000	.000	.000	.886

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 5



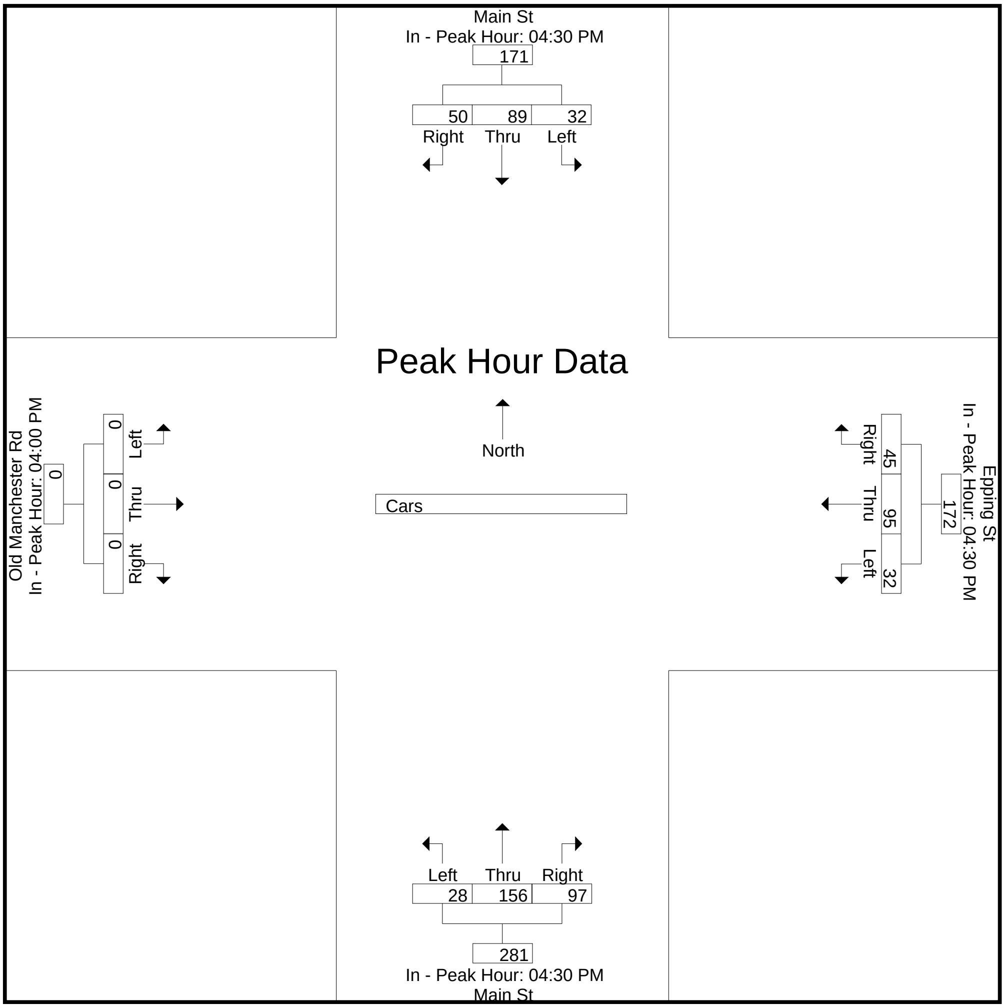
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:00 PM			
+0 mins.	8	**32**	**21**	**61**	5	**35**	8	**48**	4	38	25	67	0	0	0	0
+15 mins.	**12**	17	8	37	**13**	16	**15**	44	5	**45**	**29**	**79**	0	0	0	0
+30 mins.	8	18	9	35	8	23	14	45	9	36	24	69	0	0	0	0
+45 mins.	4	22	12	38	6	21	8	35	**10**	37	19	66	0	0	0	0
Total Volume	32	89	50	171	32	95	45	172	28	156	97	281	0	0	0	0
% App. Total	18.7	52	29.2		18.6	55.2	26.2		10	55.5	34.5		0	0	0	
PHF	.667	.695	.595	.701	.615	.679	.750	.896	.700	.867	.836	.889	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 6



Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 7

Groups Printed- Trucks

	Main St From North			Epping St From East			Main St From South			Old Manchester Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	0	0	1	0	1	0	0	2	0	0	0	0	4
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	1	0	0	2	0	0	0	0	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	0	0	0	1
Grand Total	0	1	1	0	1	0	0	3	0	0	0	0	6
Apprch %	0	50	50	0	100	0	0	100	0	0	0	0	
Total %	0	16.7	16.7	0	16.7	0	0	50	0	0	0	0	

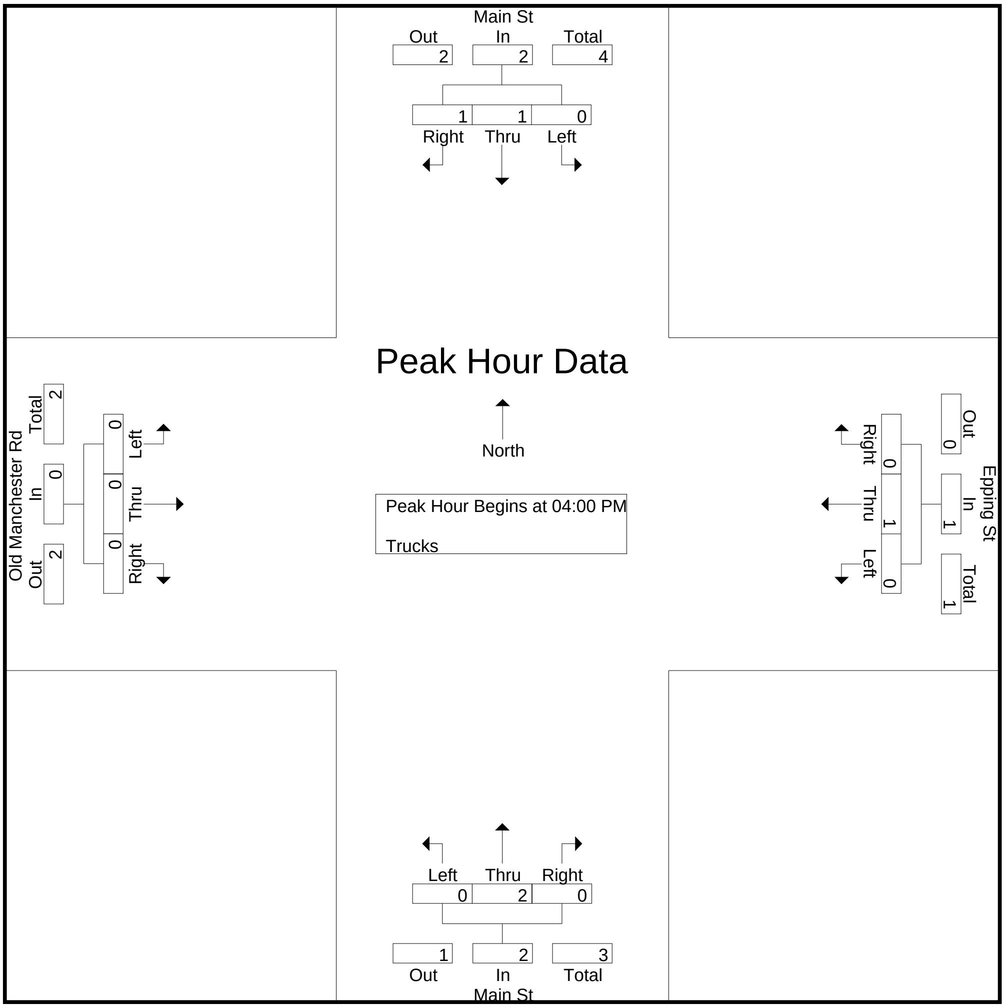
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	**1**	**1**	0	**1**	0	**1**	0	**2**	0	**2**	0	0	0	0	**4**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	2	0	1	0	1	0	2	0	2	0	0	0	0	5
% App. Total	0	50	50		0	100	0		0	100	0		0	0	0		
PHF	.000	.250	.250	.500	.000	.250	.000	.250	.000	.250	.000	.250	.000	.000	.000	.000	.313

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 8



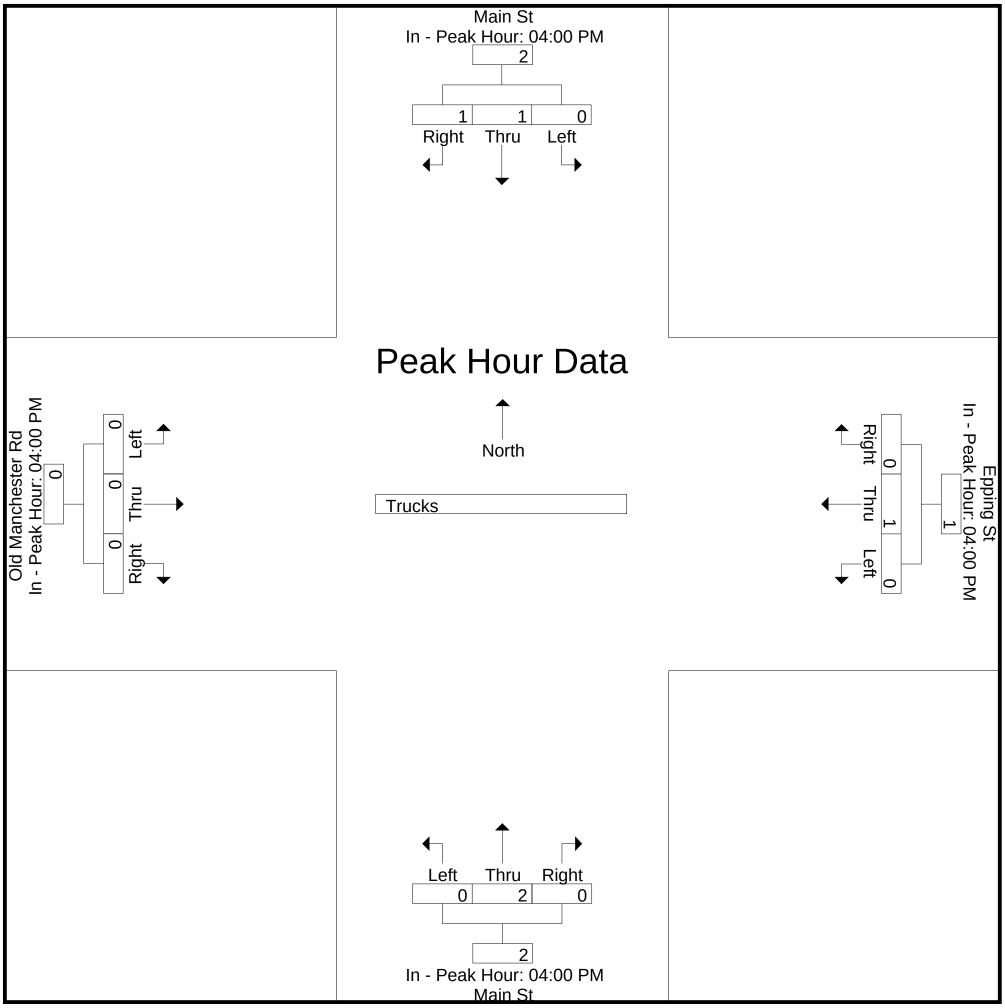
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	**1**	**1**	0	**1**	0	**1**	0	**2**	0	**2**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	2	0	1	0	1	0	2	0	2	0	0	0	0
% App. Total	0	50	50		0	100	0		0	100	0		0	0	0	
PHF	.000	.250	.250	.500	.000	.250	.000	.250	.000	.250	.000	.250	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023

Groups Printed- Bikes Peds

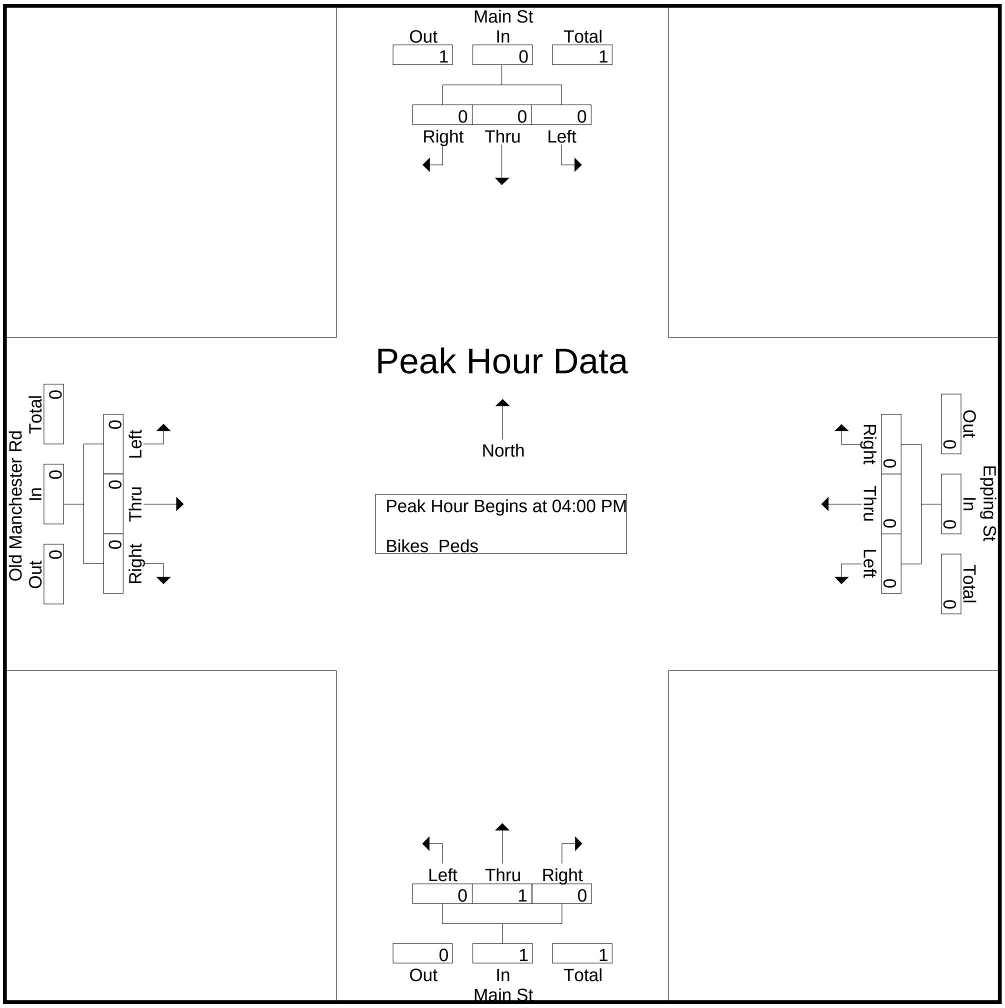
	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
04:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	3	1	4
05:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
05:15 PM	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	7	0	7
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	8	0	0	0	0	0	0	0	0	9	0	9
Grand Total	0	0	0	1	0	0	0	11	0	1	0	0	0	0	0	0	12	1	13
Apprch %	0	0	0		0	0	0		0	100	0		0	0	0				
Total %	0	0	0		0	0	0		0	100	0		0	0	0		92.3	7.7	

	Main St From North				Epping St From East				Main St From South				Old Manchester Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 11



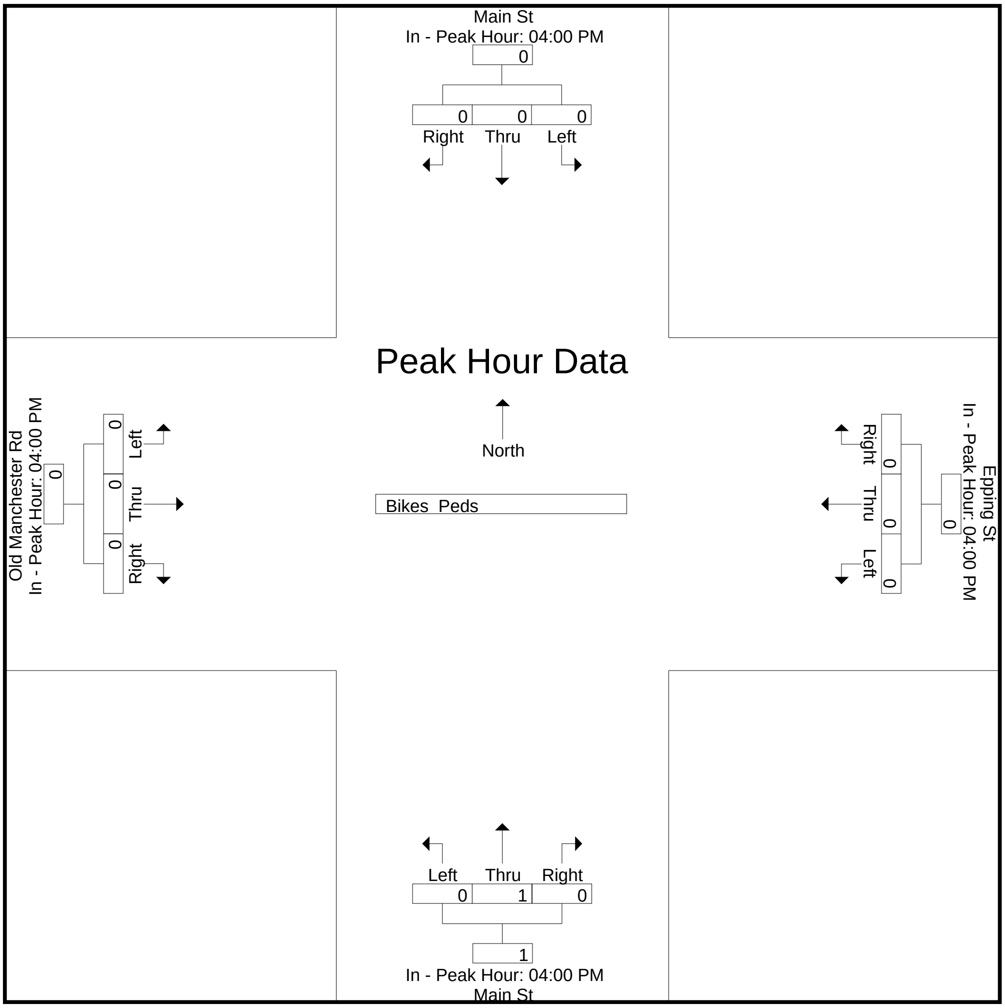
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : Epping St / Old Manchester Rd
City/State : Raymond, NH
Weather : Clear

File Name : 94190002
Site Code : 94190002
Start Date : 2/8/2023
Page No : 12



SEASONAL ADJUSTMENT DATA

Year 2019 Monthly Data

Town: Candia
Station: 02071090
Location: NH 101 at Raymond TL (Exit 3-4)
Group: 3

Month	ADT	Adjustment to Average	Adjustment to Peak
January	36,493	1.21	1.43
February	38,272	1.15	1.37
March	39,851	1.11	1.31
April	42,655	1.03	1.23
May	46,412	0.95	1.13
June	49,295	0.89	1.06
July	51,629	0.85	1.01
August	52,308	0.84	1.00
September	47,294	0.93	1.11
October	45,996	0.96	1.14
November	41,476	1.06	1.26
December	36,831	1.20	1.42

AADT: 44,064
Peak Month: 52,308

COVID ADJUSTMENT DATA

COVID ADJUSTMENT

2019 Average Count Data – Sta. 02071090

March ADT: 39,851

2023 Average Count Data – Sta. 02071090

August ADT: 37,859

COVID Adjustment

$$1 - \frac{39{,}851}{37{,}859} = -0.0526$$

5.3% below Pre-COVID conditions

New Hampshire DOT
02071090: Monthly Hourly Volume for March 2019

Location ID:	**02071090**	**Seasonal Factor Group:**	**03**
County:	**ROCKINGHAM**	**Daily Factor Group:**	
Functional Class	**2**	**Axle Factor Group:**	**E**
Location:	**NH 101 Crossover**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1	196	122	143	236	474	1186	2469	3349	2658	2148	2264	2282	2498	2704	3174	3686	4328	4171	2718	1633	1185	943	779	449	45795	Accepted
2	290	196	142	136	267	392	758	1130	1325	1559	1939	2033	2118	2049	2089	2206	2124	2014	1482	1086	1037	755	543	343	28013	Accepted
3	247	143	99	75	194	247	490	821	1118	1614	1934	2320	2605	2626	2553	2471	2531	2336	1708	1233	750	466	251	163	28995	Accepted
4	139	115	91	126	361	660	1330	1918	1712	1549	1386	1289	1372	1506	1789	2234	2658	2857	1620	940	711	575	351	250	27539	Accepted
5	163	131	128	237	534	1395	3076	4207	3444	2185	1972	1920	1993	2048	2414	3431	3894	3993	2178	1290	990	776	406	282	43087	Accepted
6	217	101	143	217	503	1335	2965	4077	3307	2238	1917	1992	1896	2086	2548	3299	4116	3956	2165	1388	1001	851	537	323	43178	Accepted
7	208	121	141	222	494	1319	2968	4117	3327	2271	1959	2079	2109	2153	2737	3445	4255	4101	2400	1403	1128	871	525	355	44708	Accepted
8	232	140	144	251	474	1231	2667	3925	3079	2240	2096	2284	2491	2614	3278	4000	4640	4454	2798	1628	1227	945	706	433	47977	Accepted
9	274	182	146	156	303	493	857	1411	1695	2188	2580	2836	2959	2874	3085	3148	3097	3132	2115	1524	1228	1019	738	449	38489	Accepted
10	285	201	58	56	194	254	384	655	845	1018	1072	1126	1220	1324	1451	1548	1482	1467	1200	833	634	413	291	175	18186	Accepted
11	142	88	112	202	557	1233	2655	3915	3310	2244	1837	1926	1978	1968	2415	3193	3973	3958	2050	1307	933	736	376	286	41394	Accepted
12	177	115	107	236	526	1280	2771	4127	3362	2270	2036	2000	1985	2062	2538	3329	3935	3981	2287	1289	961	761	449	291	42875	Accepted
13	187	116	123	242	501	1326	2781	4098	3380	2136	1941	2085	2054	2148	2581	3375	4217	4178	2272	1271	980	936	508	310	43746	Accepted
14	182	121	161	250	486	1334	2864	4147	3364	2297	2068	2117	2199	2269	2779	3470	4151	4111	2317	1432	1072	781	563	341	44876	Accepted
15	202	160	153	255	475	1221	2587	3743	3095	2218	2090	2181	2324	2637	3187	3899	4498	4239	2621	1663	1218	971	692	497	46826	Accepted
16	318	172	145	138	275	399	793	1385	1776	2067	2585	2753	2777	2681	2912	2839	2804	2542	1838	1486	1309	955	727	464	36140	Accepted
17	275	136	107	94	198	231	449	816	1018	1525	2147	2468	2800	2577	2740	2670	2612	2406	1856	1419	923	609	437	247	30760	Accepted
18	160	91	129	209	552	1331	2889	4058	3312	2249	1991	1925	1975	2011	2422	3119	3886	3923	2075	1266	880	618	371	278	41720	Accepted
19	186	111	118	264	505	1337	2926	4172	3447	2731	2015	1994	2025	2090	2455	3276	3965	4022	2394	1297	1112	770	441	288	43941	Accepted
20	169	137	138	201	470	1252	2670	4268	3424	2382	2033	2062	2059	2163	2609	3498	4062	4244	2462	1403	1118	849	530	287	44490	Accepted
21	206	140	142	222	489	1263	2744	3938	3549	2345	2134	2070	2153	2186	2636	3376	4016	4221	2383	1464	1148	797	544	322	44488	Accepted
22	226	145	131	211	444	1135	2483	3605	3092	2191	1955	2126	2233	2441	2875	3689	4256	4202	2598	1598	1144	1000	594	428	44802	Accepted
23	305	188	144	128	245	425	879	1289	1717	2053	2334	2629	2750	2740	2713	2815	2809	2495	1957	1517	1212	1007	766	509	35626	Accepted
24	290	162	111	91	197	277	543	863	1196	1800	2297	2941	3063	2921	2943	3079	3016	2640	2017	1436	1024	584	380	229	34100	Accepted
25	158	92	96	191	543	1257	2780	4182	3390	2201	1998	1870	1980	1995	2336	3218	3804	3940	2325	1271	925	678	417	280	41927	Accepted
26	179	125	129	217	482	1248	2772	4283	3557	2260	1977	1970	1984	2025	2524	3255	3993	4054	2385	1327	1044	765	447	301	43303	Accepted
27	179	121	144	185	463	1252	2824	4260	3482	2330	1996	2013	2006	2114	2609	3284	4088	4249	2428	1479	1178	879	500	318	44381	Accepted
28	205	123	122	220	495	1308	2772	4154	3639	2412	2106	2138	2201	2282	2734	3473	4197	4302	2502	1592	1142	917	575	321	45932	Accepted
29	227	132	127	215	472	1212	2635	3911	3205	2459	2097	2293	2463	2551	3099	3826	4615	4139	2642	1728	1179	966	839	501	47533	Accepted
30	295	175	149	159	285	403	788	1503	1799	2215	2633	2953	2992	2924	3173	3196	3131	2914	2135	1717	1218	1259	829	502	39347	Accepted
31	297	231	111	87	192	218	423	929	1153	1791	2415	2641	2861	2763	2756	2784	2482	2151	1741	1210	875	514	304	269	31198	Accepted
																									39850.71	**March 2019 ADT**

New Hampshire DOT
02071090: Monthly Hourly Volume for March 2023

Location ID: 02071090
County: ROCKINGHAM
Functional Class 2
Location: NH 101 Crossover

Seasonal Factor Group:
Daily Factor Group:
Axle Factor Group:
Growth Factor Group:

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1	115	120	143	174	562	1289	2386	3414	2788	2341	2221	2247	2150	2297	2863	3362	3736	3409	1856	1258	1009	659	411	277	41087	Accepted
2	153	142	170	208	594	1277	2278	3089	2603	1976	1930	1989	1992	2144	2631	3206	3453	3213	1838	1184	962	699	505	323	38559	Accepted
3	214	145	125	230	603	1177	2230	2798	2508	2123	2190	2440	2457	2763	3122	3656	3792	3435	2130	1363	1128	766	592	368	42355	Accepted
4	152	127	127	102	181	200	335	320	341	344	307	430	494	561	710	840	1009	994	766	567	439	445	312	223	10326	Accepted
5	117	112	78	82	214	292	562	829	1153	1617	2097	2528	2534	2525	2589	2599	2494	2209	1756	1230	801	533	310	173	29434	Accepted
6																										
7																										
8																										
9																										
10																										
11																										
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27																										
28																										
29																										
30																										
31																										

37858.75 March 2023 ADT

VEHICLE TRAVEL SPEED DATA

Accurate Counts
978-664-2565

Location : Main Street 96430001
Location : at #110 Main Street
City/State: Raymond, NH
Direction: EB

3/7/2023 Time	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	> 12 - 15 MPH	> 15 - 18 MPH	> 18 - 21 MPH	> 21 - 24 MPH	> 24 - 27 MPH	> 27 - 30 MPH	> 30 - 33 MPH	> 33 - 36 MPH	> 36 - 39 MPH	> 39 MPH	Total
12:00 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3
1:00	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4
2:00	0	0	0	0	0	0	2	0	0	1	0	0	0	0	3
3:00	0	0	0	0	2	1	0	0	0	1	0	1	0	0	5
4:00	0	0	0	0	3	9	7	4	3	2	0	0	0	0	28
5:00	0	0	0	0	2	9	14	11	8	2	1	1	1	0	49
6:00	0	0	0	0	1	9	22	15	16	8	8	3	0	0	82
7:00	0	0	0	0	6	12	17	28	32	24	5	2	0	0	126
8:00	0	0	0	0	6	13	19	20	22	12	3	1	0	0	96
9:00	0	0	0	1	4	12	18	12	14	8	0	0	0	0	69
10:00	0	0	1	1	4	4	14	16	7	4	4	0	0	0	55
11:00	0	0	0	0	4	9	14	9	11	6	2	1	0	0	56
12:00 PM	0	0	0	1	6	12	14	15	13	7	2	1	0	0	71
1:00	0	0	0	0	5	8	13	18	16	8	4	1	0	1	74
2:00	0	0	0	0	4	14	15	13	23	9	3	0	0	1	82
3:00	0	0	0	2	3	12	18	12	26	20	2	3	0	0	98
4:00	0	0	0	2	6	14	17	27	23	19	5	2	0	0	115
5:00	0	0	0	1	6	16	24	15	19	8	5	0	0	1	95
6:00	0	0	0	0	1	8	14	19	11	5	5	0	0	0	63
7:00	0	0	0	0	2	5	4	8	7	7	1	0	0	0	34
8:00	0	0	1	0	4	10	8	8	4	1	0	0	0	0	36
9:00	0	0	0	0	1	5	8	2	3	1	2	0	0	0	22
10:00	0	0	0	0	2	0	3	3	1	0	0	0	0	0	9
11:00	0	0	0	1	0	1	1	0	2	0	0	0	0	0	5
Total	0	0	2	9	72	183	270	257	262	153	52	16	1	3	1280

Percentile	15th	50th	85th	95th
Speed	17	22	28	30
Mean Speed (Average)	22.6			
10 MPH Pace Speed	17-26			
Number in Pace	847			
Percent in Pace	66.2%			
Number > 24 MPH	487			
Percent > 24 MPH	38.0%			

Location : Main Street
Location : at #110 Main Street
City/State: Raymond, NH
Direction: EB

96430001

3/8/2023 Time	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	> 12 - 15 MPH	> 15 - 18 MPH	> 18 - 21 MPH	> 21 - 24 MPH	> 24 - 27 MPH	> 27 - 30 MPH	> 30 - 33 MPH	> 33 - 36 MPH	> 36 - 39 MPH	> 39 MPH	Total
12:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
1:00	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
2:00	0	0	0	0	0	1	4	0	0	0	0	0	0	0	5
3:00	0	0	0	0	1	2	1	0	0	0	0	1	0	0	5
4:00	0	0	0	0	2	7	4	6	3	3	0	0	0	0	25
5:00	0	0	0	1	3	4	13	7	9	3	2	0	0	0	42
6:00	0	0	0	0	1	16	21	16	12	18	6	1	2	1	94
7:00	0	0	4	3	2	15	21	17	23	14	10	5	2	0	116
8:00	0	0	0	0	0	9	15	19	26	6	2	0	0	1	78
9:00	0	0	0	1	0	7	15	13	14	6	2	1	1	0	60
10:00	0	0	0	0	1	9	7	12	12	9	2	0	0	0	52
11:00	0	0	0	1	5	8	17	14	15	5	6	0	1	0	72
12:00 PM	0	0	0	1	2	12	21	11	12	8	6	0	1	0	74
1:00	0	0	0	0	6	8	13	14	14	4	1	1	0	0	61
2:00	0	0	3	0	6	5	38	21	12	10	4	0	1	0	100
3:00	0	0	2	1	5	11	20	14	22	13	7	2	1	1	99
4:00	0	0	0	0	6	11	19	12	15	13	6	3	0	0	85
5:00	0	0	1	0	7	14	18	23	24	7	3	1	0	0	98
6:00	0	0	0	2	6	9	14	11	5	8	1	0	0	0	56
7:00	0	0	0	1	3	10	8	13	5	2	1	0	0	0	43
8:00	0	0	0	2	5	7	7	6	5	1	0	0	0	0	33
9:00	0	0	0	0	2	4	3	4	3	1	0	0	1	0	18
10:00	0	0	0	1	1	5	2	4	2	0	1	0	0	0	16
11:00	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3
Total	0	0	10	14	64	174	285	238	235	131	60	15	10	3	1239
			Percentile	15th	50th	85th	95th								
			Speed	17	22	28	31								
			Mean Speed (Average)	22.5											
			10 MPH Pace Speed	17-26											
			Number in Pace	814											
			Percent in Pace	65.7%											
			Number > 24 MPH	454											
			Percent > 24 MPH	36.6%											
Grand Total	0	0	12	23	136	357	555	495	497	284	112	31	11	6	2519
Stats			Percentile	15th	50th	85th	95th								
			Speed	17	22	28	31								
			Mean Speed (Average)	22.6											
			10 MPH Pace Speed	17-26											
			Number in Pace	1661											
			Percent in Pace	65.9%											
			Number > 24 MPH	941											
			Percent > 24 MPH	37.4%											

Location : Main Street — 96430001
Location : at #110 Main Street
City/State: Raymond, NH
Direction: WB

3/7/2023 Time	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	> 12 - 15 MPH	> 15 - 18 MPH	> 18 - 21 MPH	> 21 - 24 MPH	> 24 - 27 MPH	> 27 - 30 MPH	> 30 - 33 MPH	> 33 - 36 MPH	> 36 - 39 MPH	> 39 MPH	Total
12:00 AM	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3
1:00	0	0	0	0	0	0	0	0	2	0	1	0	0	0	3
2:00	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
3:00	0	0	0	0	0	0	1	0	2	1	0	0	0	0	4
4:00	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
5:00	0	0	0	0	0	1	0	4	3	3	6	1	1	0	19
6:00	0	0	0	0	1	0	0	4	8	13	7	5	0	2	40
7:00	0	0	1	1	7	3	6	12	32	23	18	11	7	1	122
8:00	0	0	0	0	1	2	6	7	23	20	8	3	3	1	74
9:00	0	0	0	0	0	0	1	14	21	14	7	3	4	1	65
10:00	0	0	1	0	1	1	6	26	16	10	9	3	2	0	75
11:00	0	0	0	0	0	1	6	10	12	12	7	4	4	1	57
12:00 PM	0	0	0	0	0	3	2	10	21	16	11	2	0	0	65
1:00	0	0	0	0	0	2	9	13	18	12	8	6	2	5	75
2:00	0	0	0	0	6	5	6	13	17	20	8	11	2	2	90
3:00	0	0	0	0	0	2	5	20	38	37	16	9	7	3	137
4:00	0	0	0	1	2	2	4	25	38	24	21	8	1	5	131
5:00	0	0	0	1	1	2	6	19	31	25	18	7	6	0	116
6:00	0	0	0	0	0	0	2	13	25	17	10	2	2	2	73
7:00	0	0	0	0	0	3	4	3	19	9	6	5	3	0	52
8:00	0	0	0	0	0	0	1	5	11	8	7	2	0	1	35
9:00	0	0	0	0	1	0	2	6	2	5	1	0	2	0	19
10:00	0	0	0	0	0	0	1	1	2	1	0	0	0	1	6
11:00	0	0	0	0	0	1	0	2	3	1	3	0	0	1	11
Total	0	0	2	3	20	28	68	207	345	275	173	83	46	26	1276

Percentile	15th	50th	85th	95th
Speed	22	27	32	36
Mean Speed (Average)	29.3			
10 MPH Pace Speed	21-30			
Number in Pace	881			
Percent in Pace	69.0%			
Number > 24 MPH	948			
Percent > 24 MPH	74.3%			

Location : Main Street
Location : at #110 Main Street
City/State: Raymond, NH
Direction: WB

96430001

3/8/2023 Time	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	> 12 - 15 MPH	> 15 - 18 MPH	> 18 - 21 MPH	> 21 - 24 MPH	> 24 - 27 MPH	> 27 - 30 MPH	> 30 - 33 MPH	> 33 - 36 MPH	> 36 - 39 MPH	> 39 MPH	Total
12:00 AM	0	0	0	0	0	0	0	1	1	1	1	1	0	0	5
1:00	0	0	0	0	0	0	0	3	1	1	1	1	1	0	8
2:00	0	0	0	0	0	0	1	2	4	1	1	0	0	0	9
3:00	0	0	0	0	0	0	0	0	2	0	2	0	0	0	4
4:00	0	0	0	0	0	0	0	0	1	2	0	0	1	0	4
5:00	0	0	0	0	0	0	2	3	5	6	1	0	0	0	17
6:00	0	0	0	2	2	0	1	4	12	9	10	2	1	3	46
7:00	0	0	0	2	4	1	5	12	23	27	13	3	6	0	96
8:00	0	0	0	0	3	0	5	4	18	16	18	4	4	2	74
9:00	0	0	0	0	1	0	3	8	13	10	10	1	2	2	50
10:00	0	0	1	0	1	0	3	11	20	12	8	3	2	2	63
11:00	0	0	0	0	0	0	3	13	20	12	14	7	6	1	76
12:00 PM	0	0	0	1	0	1	5	9	17	13	8	4	2	2	62
1:00	0	0	1	0	2	0	9	11	18	16	15	5	1	0	78
2:00	0	0	0	1	2	2	4	16	39	25	15	6	2	2	114
3:00	0	0	0	1	1	2	3	21	27	24	14	9	1	4	107
4:00	0	0	0	0	0	3	6	24	29	34	14	11	7	3	131
5:00	0	0	1	3	0	8	9	21	35	34	17	9	2	1	140
6:00	0	0	0	0	2	1	6	14	21	19	9	4	2	1	79
7:00	0	0	0	0	0	0	5	6	20	11	4	1	0	3	50
8:00	0	0	0	0	0	3	0	6	17	5	7	0	1	1	40
9:00	0	0	0	0	0	0	1	5	4	6	3	2	0	1	22
10:00	0	0	0	0	0	0	0	0	3	2	2	0	0	0	7
11:00	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
Total	0	0	3	10	18	21	71	195	350	286	188	73	41	28	1284
			Percentile	15th	50th	85th	95th								
			Speed	22	27	32	36								
			Mean Speed (Average)	29.4											
			10 MPH Pace Speed	22-31											
			Number in Pace	892											
			Percent in Pace	69.5%											
			Number > 24 MPH	966											
			Percent > 24 MPH	75.2%											
Grand Total	0	0	5	13	38	49	139	402	695	561	361	156	87	54	2560
Stats			Percentile	15th	50th	85th	95th								
			Speed	22	27	32	36								
			Mean Speed (Average)	29.3											
			10 MPH Pace Speed	21-30											
			Number in Pace	1771											
			Percent in Pace	69.2%											
			Number > 24 MPH	1914											
			Percent > 24 MPH	74.8%											

Location : Main Street 96430001
Location : at #110 Main Street
City/State: Raymond, NH
Direction: Combined

3/7/2023 Time	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	> 12 - 15 MPH	> 15 - 18 MPH	> 18 - 21 MPH	> 21 - 24 MPH	> 24 - 27 MPH	> 27 - 30 MPH	> 30 - 33 MPH	> 33 - 36 MPH	> 36 - 39 MPH	> 39 MPH	Total
12:00 AM	0	0	0	0	0	0	2	0	1	2	0	1	0	0	6
1:00	0	0	0	0	0	0	2	2	2	0	1	0	0	0	7
2:00	0	0	0	0	0	0	2	0	0	2	1	0	0	0	5
3:00	0	0	0	0	2	1	1	0	2	2	0	1	0	0	9
4:00	0	0	0	0	3	9	7	4	4	3	0	0	0	0	30
5:00	0	0	0	0	2	10	14	15	11	5	7	2	2	0	68
6:00	0	0	0	0	2	9	22	19	24	21	15	8	0	2	122
7:00	0	0	1	1	13	15	23	40	64	47	23	13	7	1	248
8:00	0	0	0	0	7	15	25	27	45	32	11	4	3	1	170
9:00	0	0	0	1	4	12	19	26	35	22	7	3	4	1	134
10:00	0	0	2	1	5	5	20	42	23	14	13	3	2	0	130
11:00	0	0	0	0	4	10	20	19	23	18	9	5	4	1	113
12:00 PM	0	0	0	1	6	15	16	25	34	23	13	3	0	0	136
1:00	0	0	0	0	5	10	22	31	34	20	12	7	2	6	149
2:00	0	0	0	0	10	19	21	26	40	29	11	11	2	3	172
3:00	0	0	0	2	3	14	23	32	64	57	18	12	7	3	235
4:00	0	0	0	3	8	16	21	52	61	43	26	10	1	5	246
5:00	0	0	0	2	7	18	30	34	50	33	23	7	6	1	211
6:00	0	0	0	0	1	8	16	32	36	22	15	2	2	2	136
7:00	0	0	0	0	2	8	8	11	26	16	7	5	3	0	86
8:00	0	0	1	0	4	10	9	13	15	9	7	2	0	1	71
9:00	0	0	0	0	2	5	10	8	5	6	3	0	2	0	41
10:00	0	0	0	0	2	0	4	4	3	1	0	0	0	1	15
11:00	0	0	0	1	0	2	1	2	5	1	3	0	0	1	16
Total	0	0	4	12	92	211	338	464	607	428	225	99	47	29	2556

Percentile	15th	50th	85th	95th
Speed	18	25	30	34
Mean Speed (Average)	25.9			
10 MPH Pace Speed	20-29			
Number in Pace	1609			
Percent in Pace	62.9%			
Number > 24 MPH	1435			
Percent > 24 MPH	56.1%			

Accurate Counts
978-664-2565

Location : Main Street 96430001
Location : at #110 Main Street
City/State: Raymond, NH
Direction: Combined

3/8/2023 Time	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	> 12 - 15 MPH	> 15 - 18 MPH	> 18 - 21 MPH	> 21 - 24 MPH	> 24 - 27 MPH	> 27 - 30 MPH	> 30 - 33 MPH	> 33 - 36 MPH	> 36 - 39 MPH	> 39 MPH	Total
12:00 AM	0	0	0	0	0	0	2	1	1	1	1	1	0	0	7
1:00	0	0	0	0	0	0	1	3	2	1	1	1	1	0	10
2:00	0	0	0	0	0	1	5	2	4	1	1	0	0	0	14
3:00	0	0	0	0	1	2	1	0	2	0	2	1	0	0	9
4:00	0	0	0	0	2	7	4	6	4	5	0	0	1	0	29
5:00	0	0	0	1	3	4	15	10	14	9	3	0	0	0	59
6:00	0	0	0	2	3	16	22	20	24	27	16	3	3	4	140
7:00	0	0	4	5	6	16	26	29	46	41	23	8	8	0	212
8:00	0	0	0	0	3	9	20	23	44	22	20	4	4	3	152
9:00	0	0	0	1	1	7	18	21	27	16	12	2	3	2	110
10:00	0	0	1	0	2	9	10	23	32	21	10	3	2	2	115
11:00	0	0	0	1	5	8	20	27	35	17	20	7	7	1	148
12:00 PM	0	0	0	2	2	13	26	20	29	21	14	4	3	2	136
1:00	0	0	1	0	8	8	22	25	32	20	16	6	1	0	139
2:00	0	0	3	1	8	7	42	37	51	35	19	6	3	2	214
3:00	0	0	2	2	6	13	23	35	49	37	21	11	2	5	206
4:00	0	0	0	0	6	14	25	36	44	47	20	14	7	3	216
5:00	0	0	2	3	7	22	27	44	59	41	20	10	2	1	238
6:00	0	0	0	2	8	10	20	25	26	27	10	4	2	1	135
7:00	0	0	0	1	3	10	13	19	25	13	5	1	0	3	93
8:00	0	0	0	2	5	10	7	12	22	6	7	0	1	1	73
9:00	0	0	0	0	2	4	4	9	7	7	3	2	1	1	40
10:00	0	0	0	1	1	5	2	4	5	2	3	0	0	0	23
11:00	0	0	0	0	0	0	1	2	1	0	1	0	0	0	5
Total	0	0	13	24	82	195	356	433	585	417	248	88	51	31	2523

Percentile	15th	50th	85th	95th
Speed	19	25	30	34
Mean Speed (Average)	26.0			
10 MPH Pace Speed	20-29			
Number in Pace	1552			
Percent in Pace	61.5%			
Number > 24 MPH	1420			
Percent > 24 MPH	56.3%			

	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	> 12 - 15 MPH	> 15 - 18 MPH	> 18 - 21 MPH	> 21 - 24 MPH	> 24 - 27 MPH	> 27 - 30 MPH	> 30 - 33 MPH	> 33 - 36 MPH	> 36 - 39 MPH	> 39 MPH	Total
Grand Total	0	0	17	36	174	406	694	897	1192	845	473	187	98	60	5079

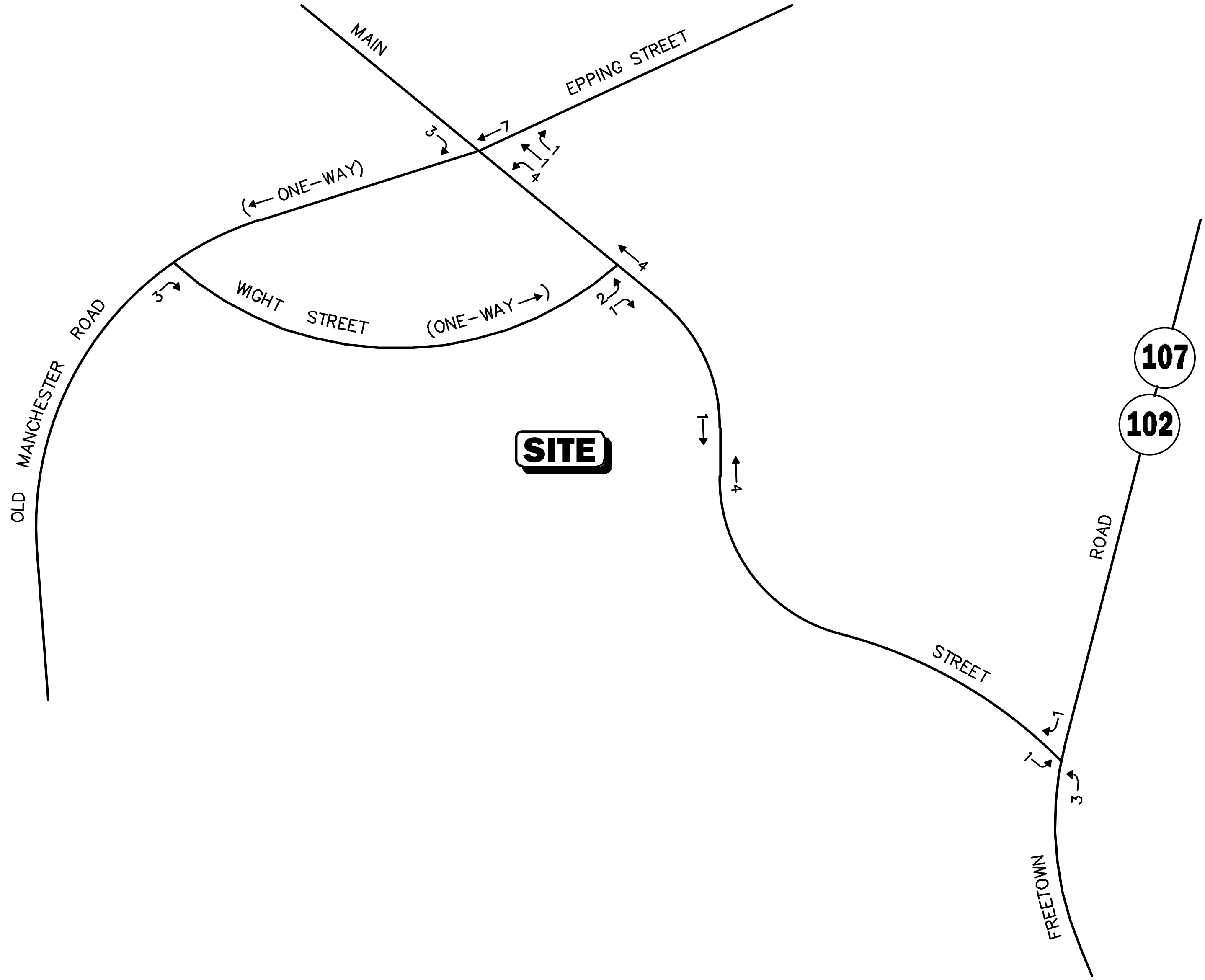
Stats					
	Percentile	15th	50th	85th	95th
	Speed	19	25	30	34
	Mean Speed (Average)	26.0			
	10 MPH Pace Speed	20-29			
	Number in Pace	3160			
	Percent in Pace	62.2%			
	Number > 24 MPH	2855			
	Percent > 24 MPH	56.2%			

GENERAL BACKGROUND TRAFFIC GROWTH

General Background Traffic Growth - Daily Traffic Volumes

CITY/TOWN	ROUTE/STREET	LOCATION	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Growth
Raymond	NH Route 101	Exit 4 EB Off-Ramp							1,200	1,224	1,248	1,267	1,282	**1.67%**
Raymond	NH Route 101	Exit 4 WB Off-Ramp							1,100	1,122	1,144	1,014	1,026	**-1.55%**
Raymond	NH Route 101	Exit 4 EB On-Ramp							1,300	1,326	1,353	1,186	1,200	**-1.78%**
Raymond	NH Route 101	Exit 4 WB On-Ramp							1,300	1,326	1,353	1,456	1,473	**3.20%**
Raymond	Scribner Road	east of Gile Road					1,600	1,635	1,684	1,661	1,694	1,725	1,533	**-0.58%**
Raymond	Old Manchester Road	west of Wight Street							2,900	2,958	3,017	3,061	3,098	**1.67%**
Raymond	Main Street	over Lamprey River					3,500	3,577	3,684	3,687	3,761	3,836	3,432	**-0.21%**
Raymond	NH route 101	between exits 4 and 5							41,000	41,820	42,656	43,951	44,478	**2.06%**
Raymond	Langford Road	over Lamprey River					1,100	1,124	1,158	1,359	1,386	1,414	1,192	**1.81%**
														0.70%

BACKGROUND DEVELOPMENT NETWORKS



Not To Scale

Figure A-1

Vanasse & Associates inc

Proposed Warehouse Building
Industrial Drive
Weekday Morning
Peak-Hour Traffic Volumes

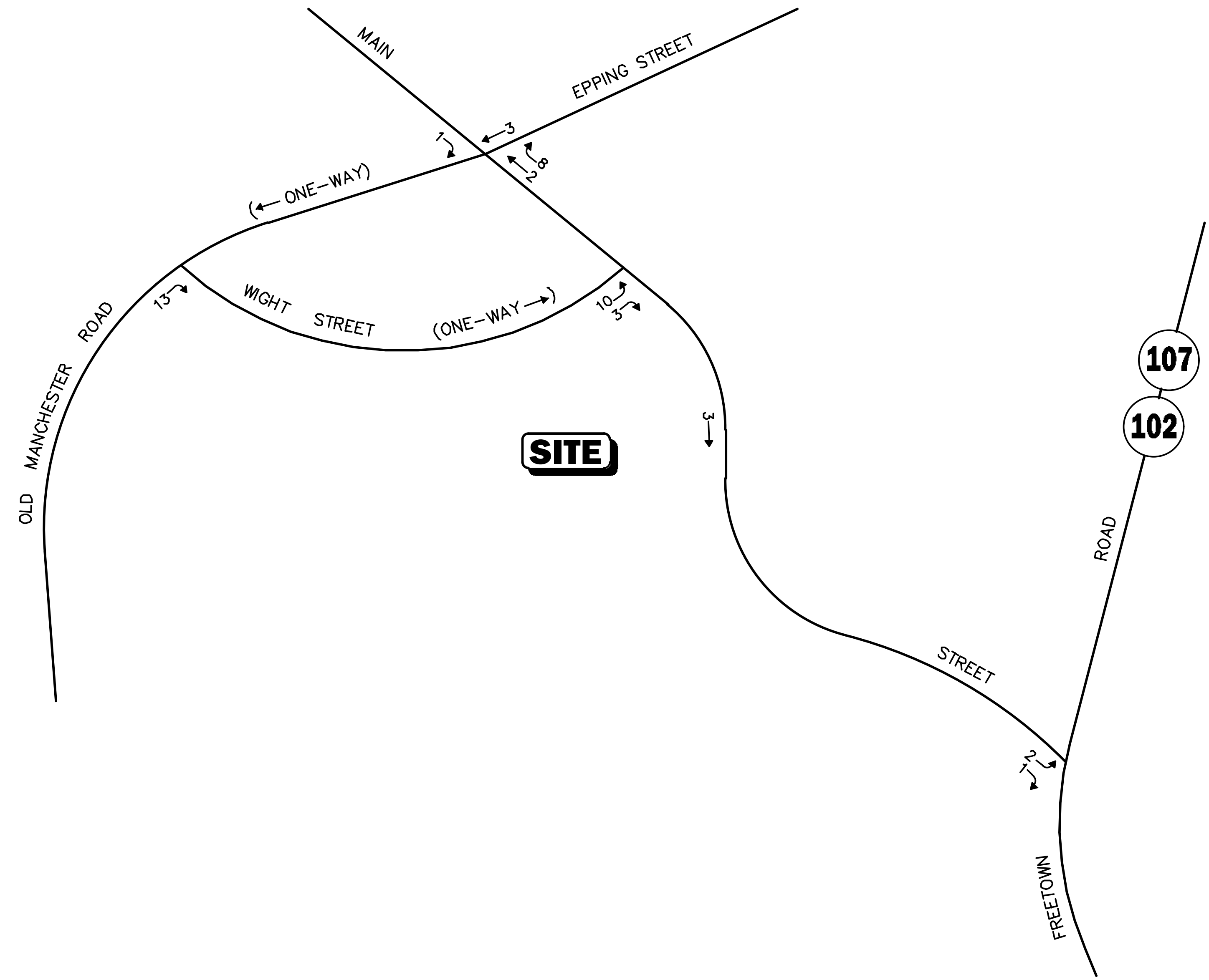


Figure A-2

Proposed Warehouse Building
Industrial Drive
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

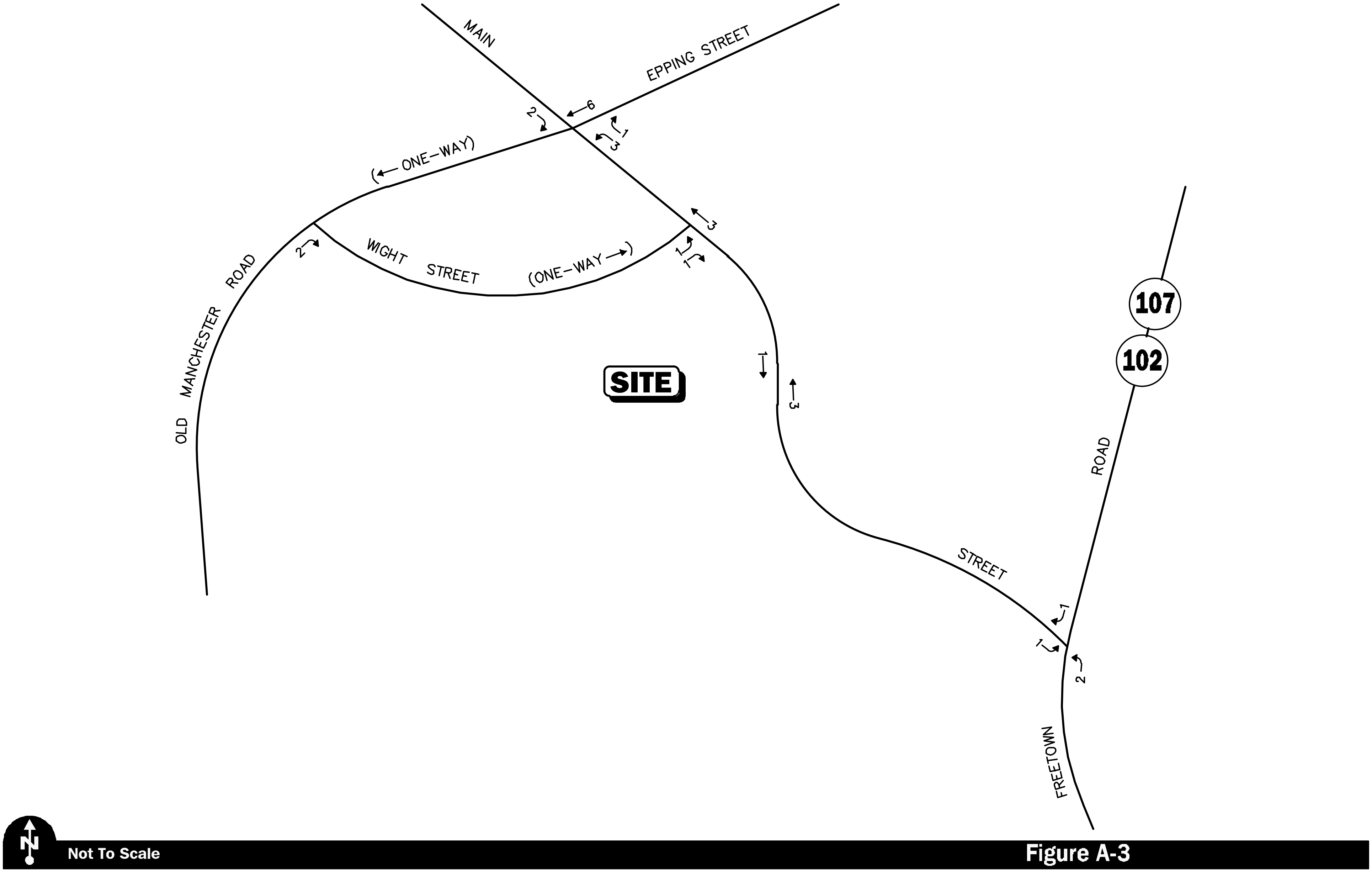
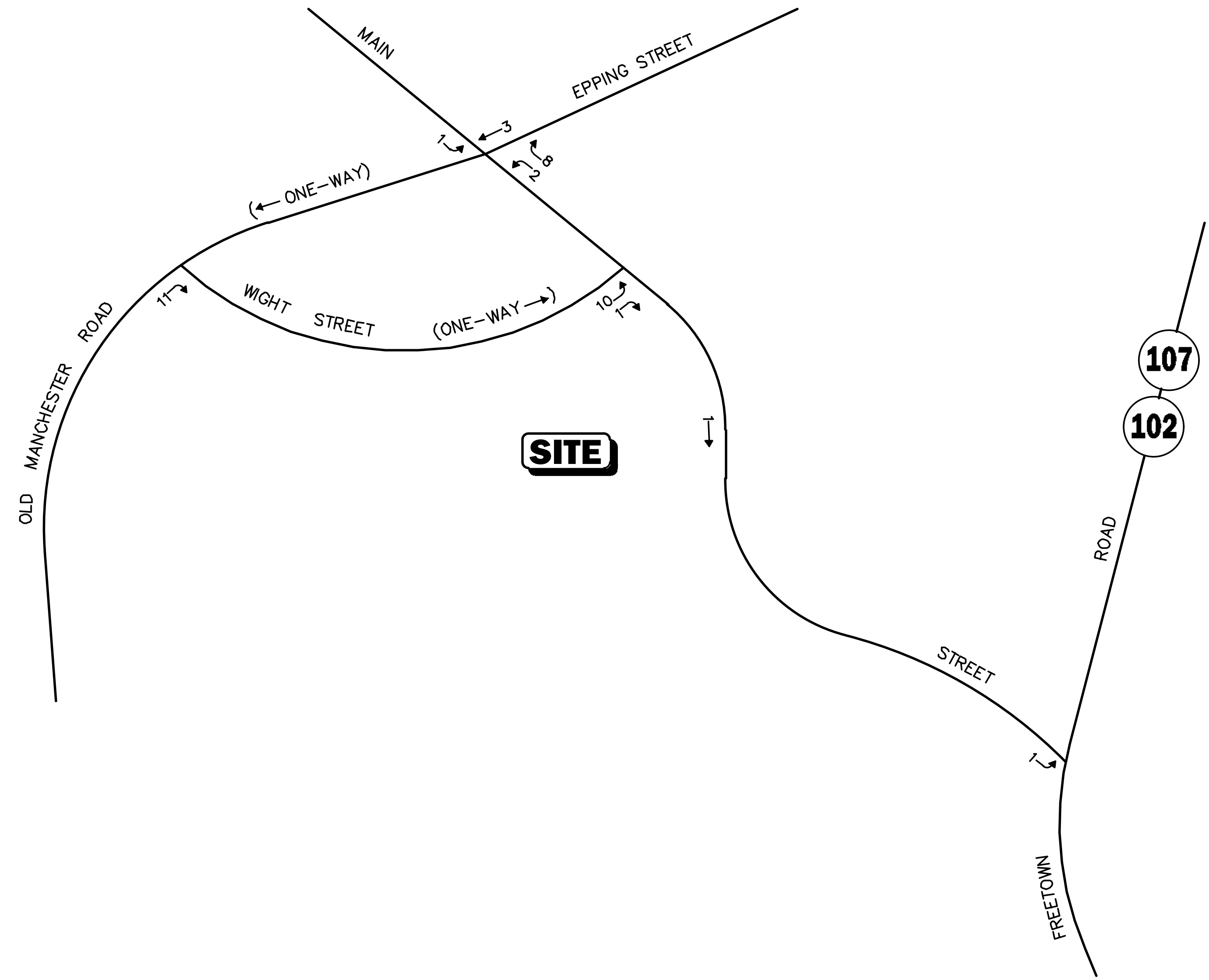


Figure A-3

Proposed Warehouse Development
Scribner Road
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc



Not To Scale

Figure A-4

Vanasse & Associates inc

Proposed Warehouse Development
Scribner Road
Weekday Evening
Peak-Hour Traffic Volumes

R:\9643\9643NT3.dwg, 8/16/2023 10:09:04 AM, DWG To PDF.pc3

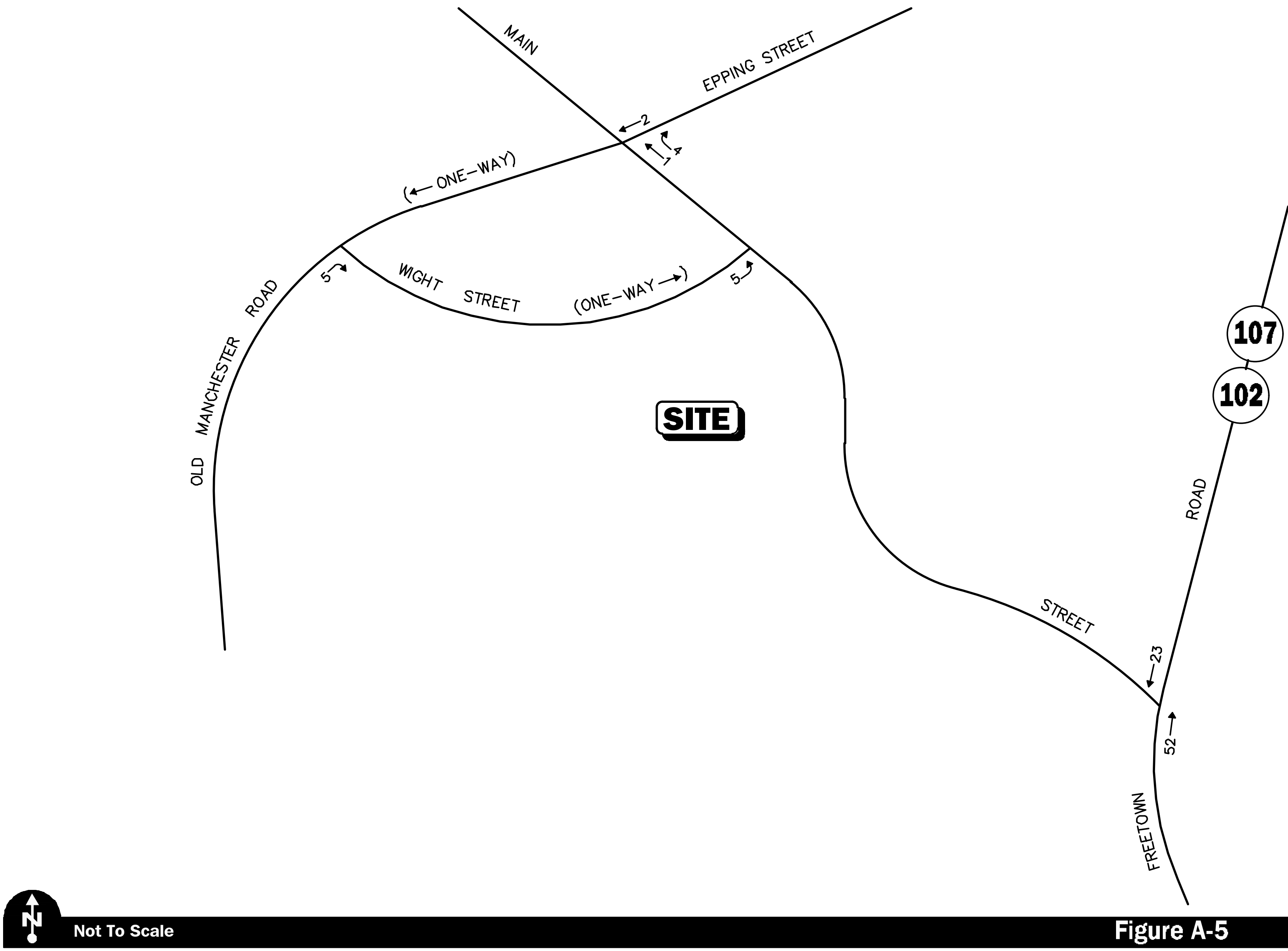
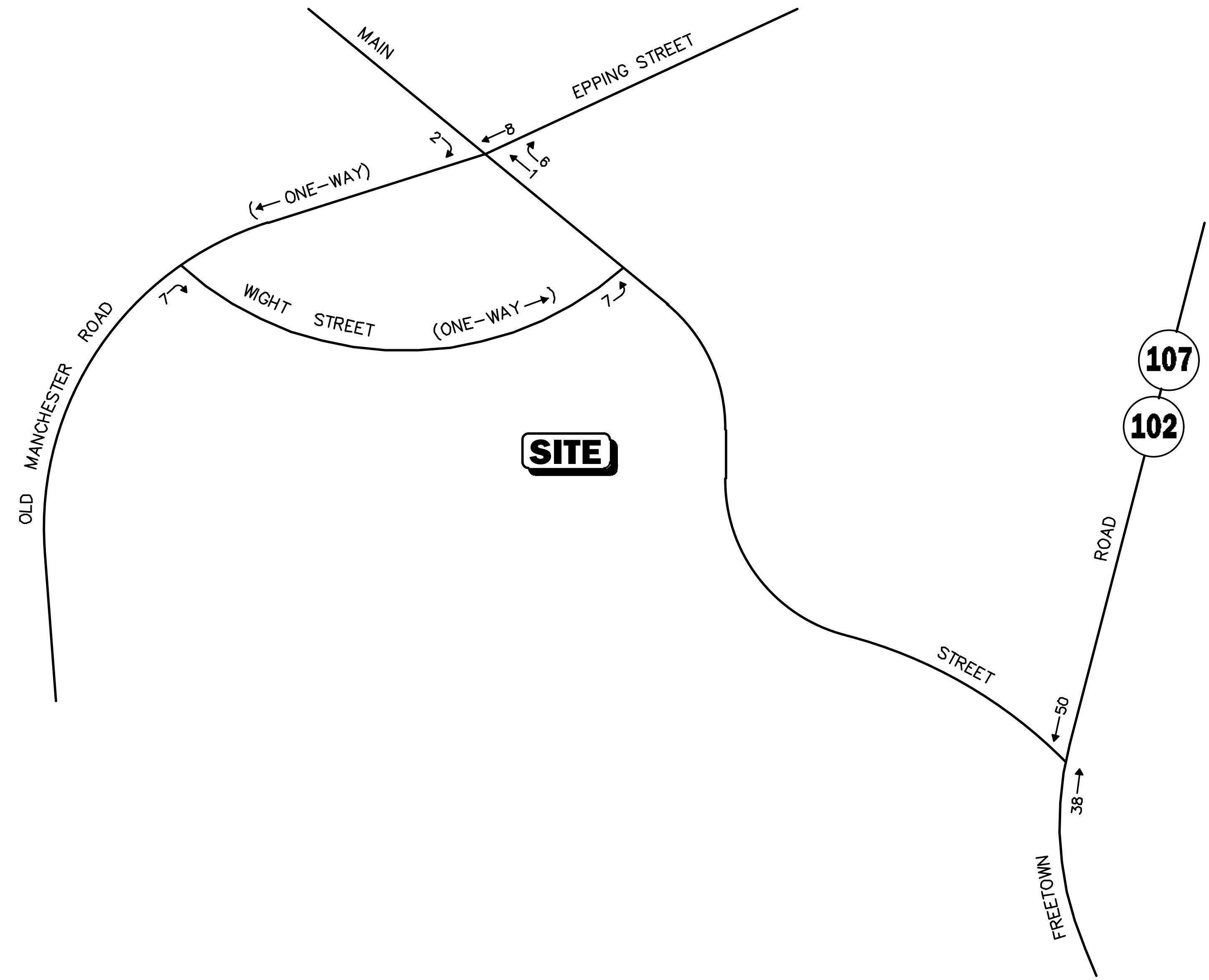


Figure A-5

Proposed Residential Development
Batchelder Road
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc



Not To Scale

Figure A-6

Vanasse & Associates inc

Proposed Residential Development
Batchelder Road
Weekday Evening
Peak-Hour Traffic Volumes

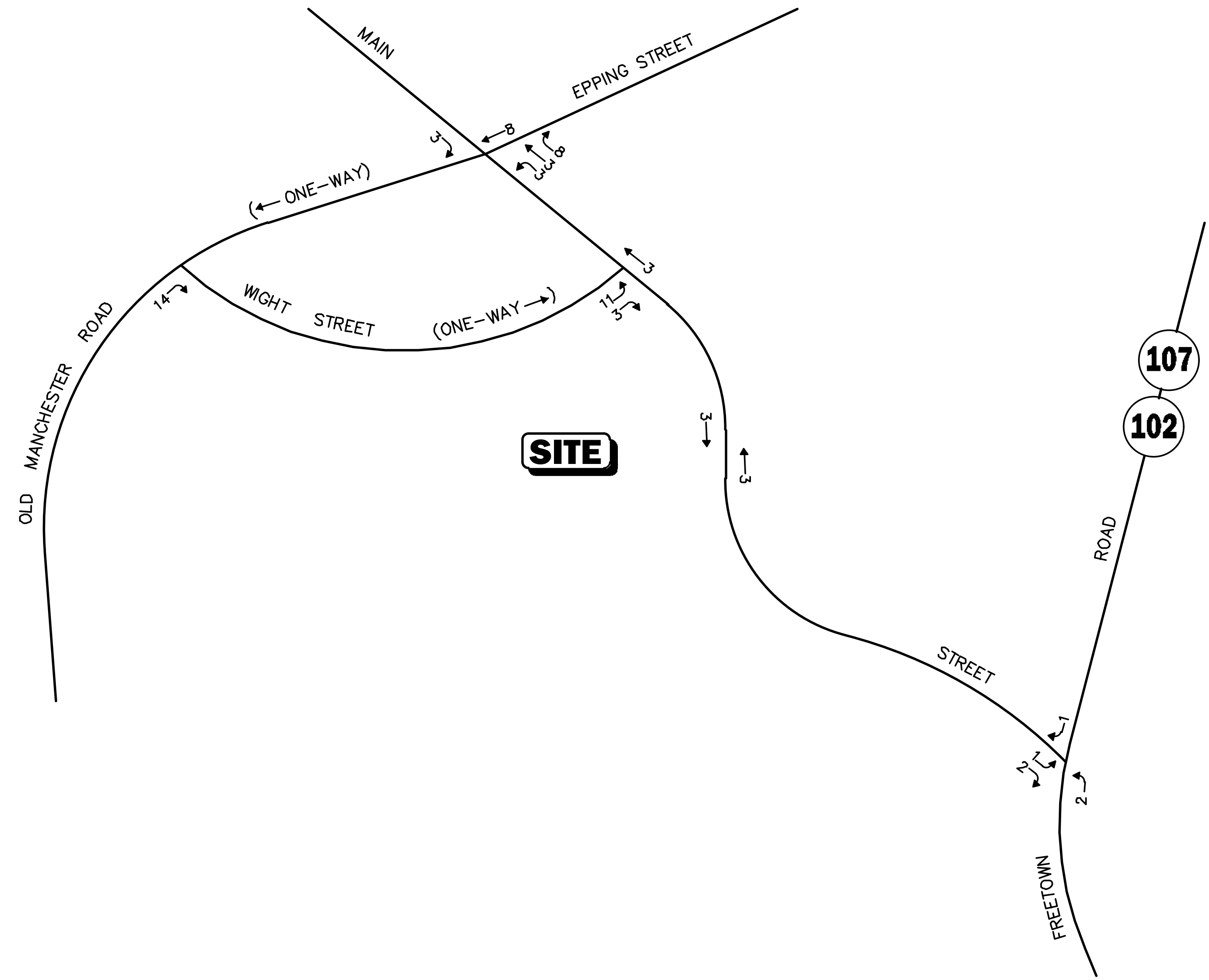


Figure A-7

Proposed Mega - X Fueling Facility
Old Manchester Road
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

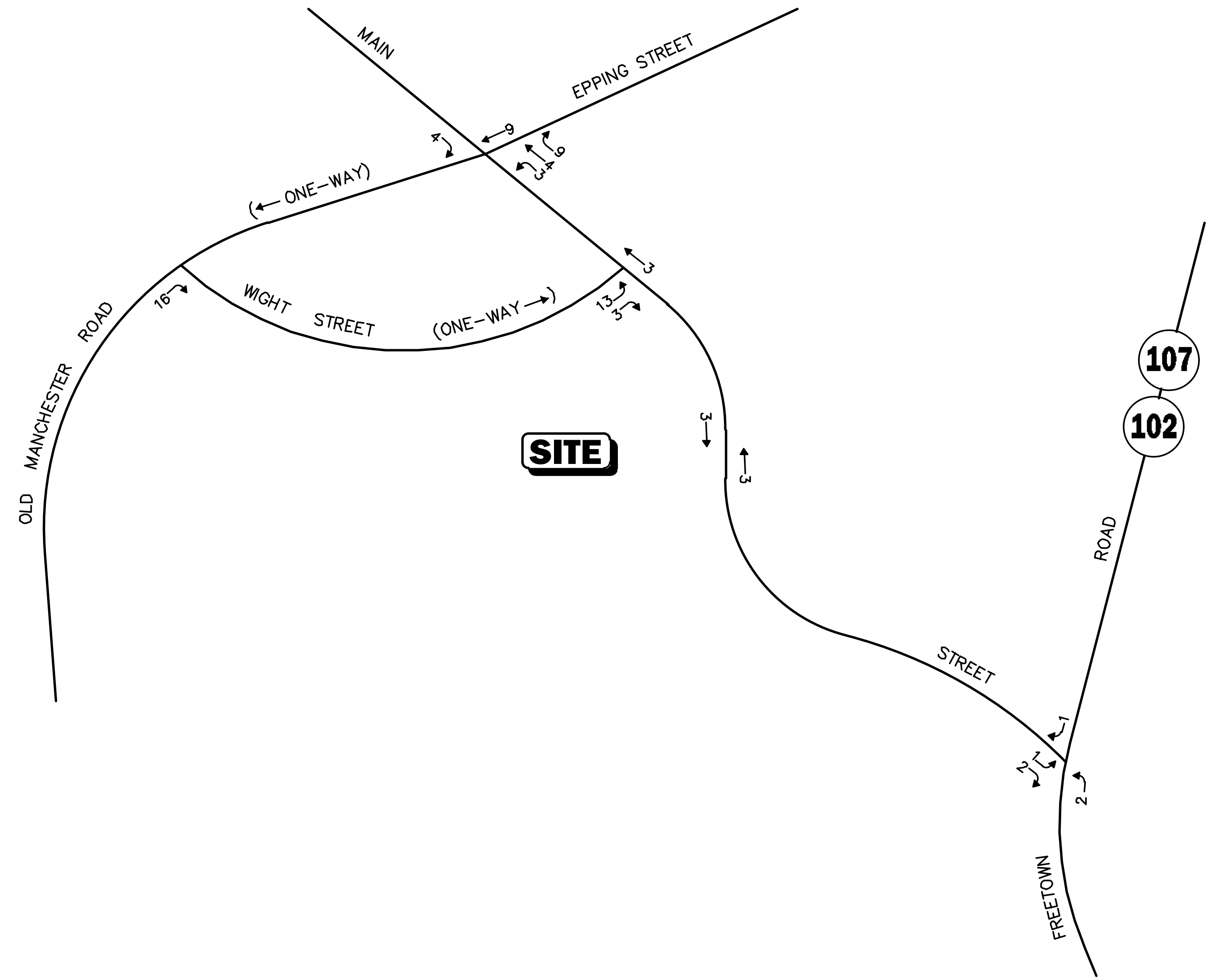
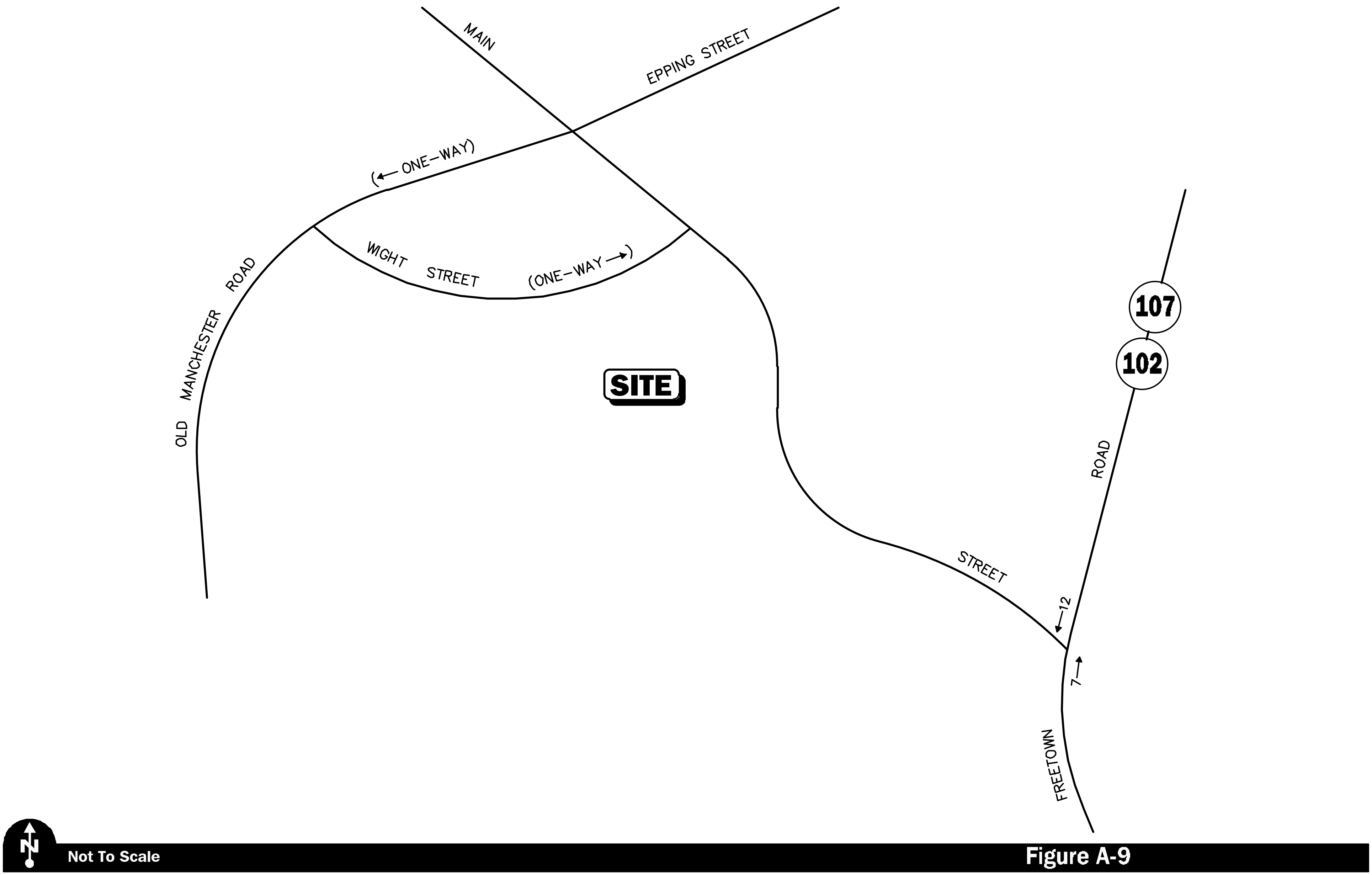


Figure A-8

Proposed Mega - X Fueling Facility
Old Manchester Road
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc



Not To Scale

Figure A-9

Vanasse & Associates inc

Proposed Commercial Development
Silver Fox Lane
Weekday Morning
Peak-Hour Traffic Volumes

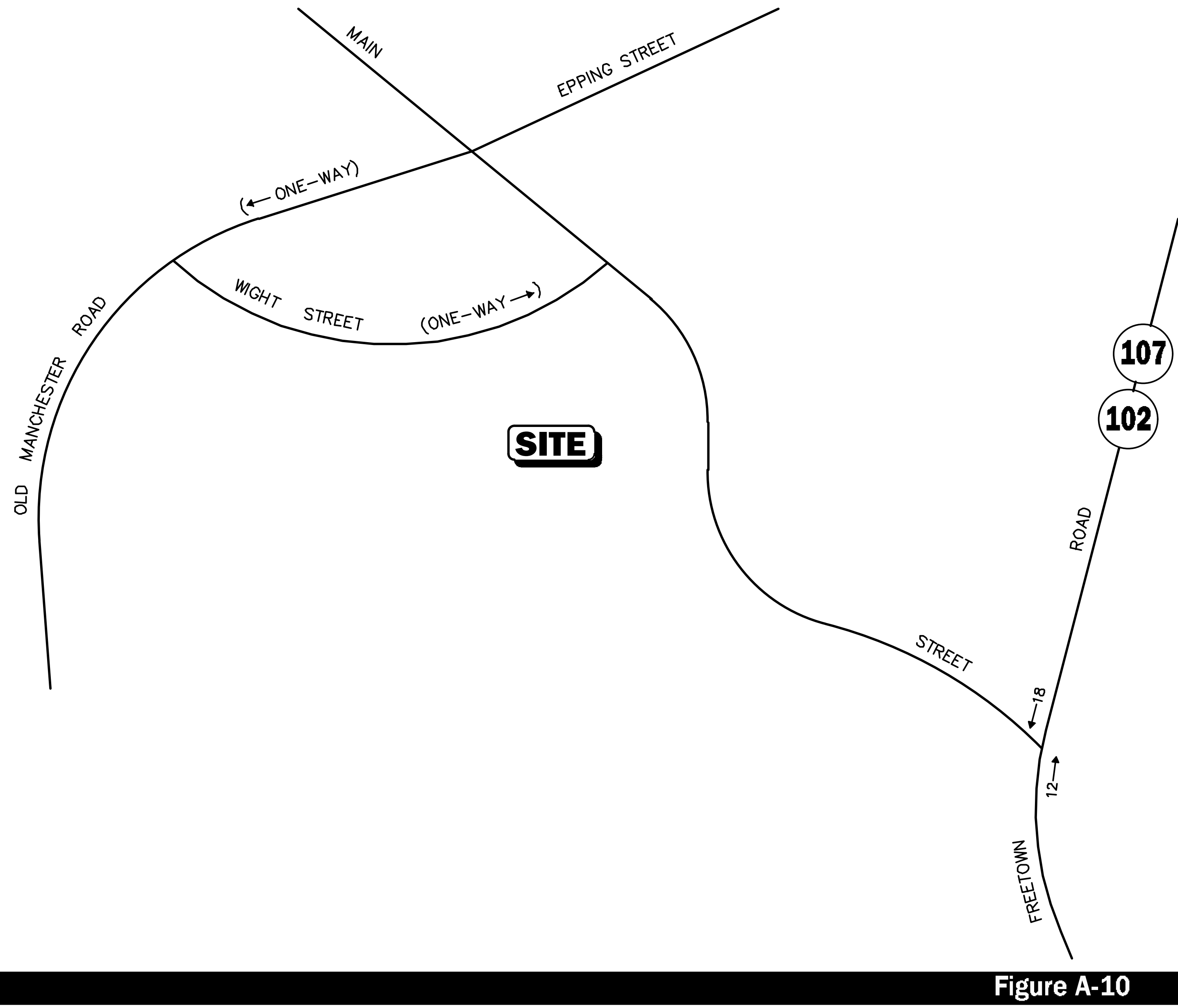


Figure A-10

Proposed Commercial Development
Silver Fox Lane
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

TRIP-GENERATION CALCUALTIONS

ITETripGen Web-based App

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ite — A Community of Transportation Professionals

ITETripGen Web-based App

- Graph Look Up
- How to Use *ITETripGen*
- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Graph Look Up

Query | Filter

DATA SOURCE: Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE: 221

LAND USE GROUP: (200-299) Residential

LAND USE : 221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY: Not Close to Rail Transit

SETTING/LOCATION: General Urban/Suburban

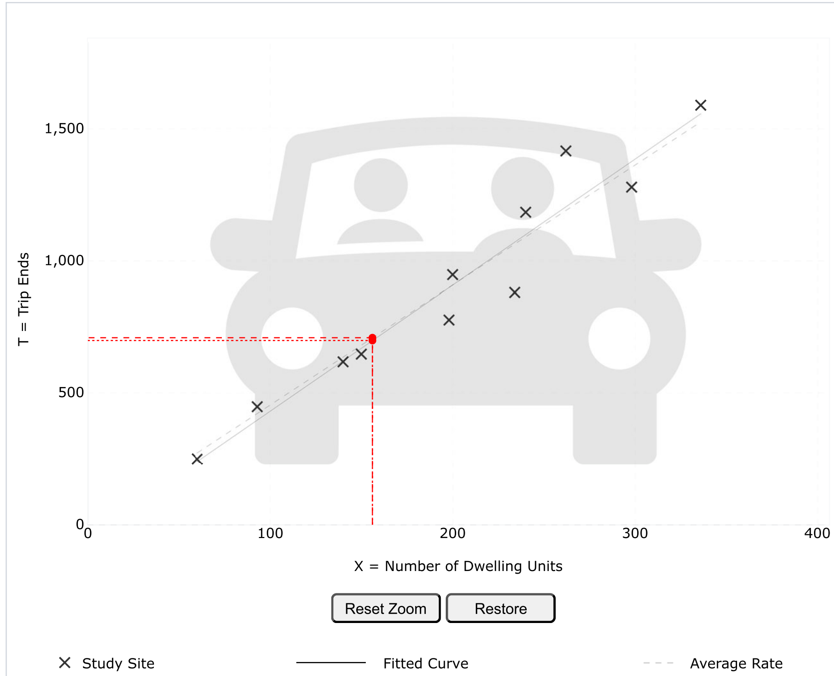
INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Weekday

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 156 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
11

Avg. Num. of Dwelling Units:
201

Average Rate:
4.54

Range of Rates:
3.76 - 5.40

Standard Deviation:
0.51

Fitted Curve Equation:
T = 4.77(X) - 46.46

R^2:
0.93

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 708 (Total), 354 (Entry), 354 (Exit)
Fitted Curve: 698 (Total), 349 (Entry), 349 (Exit)

Add-ons to do more

Try OTISS Pro

Graph Look Up

- Graph Look Up
- How to Use *ITETripGen*
- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE :
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

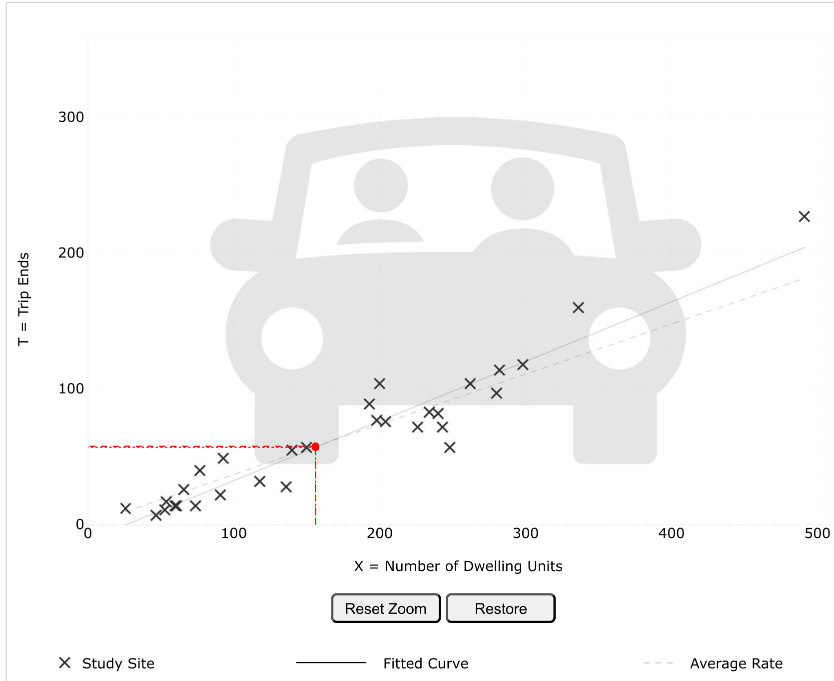
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
156 | Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
30

Avg. Num. of Dwelling Units:
173

Average Rate:
0.37

Range of Rates:
0.15 - 0.53

Standard Deviation:
0.09

Fitted Curve Equation:
T = 0.44(X) - 11.61

R^2:
0.91

Directional Distribution:
23% entering, 77% exiting

Calculated Trip Ends:
Average Rate: 58 (Total), 13 (Entry), 45 (Exit)
Fitted Curve: 57 (Total), 13 (Entry), 44 (Exit)

- Add-ons to do more
- Try OTISS Pro

ITETripGen Web-based App

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ITETripGen Web-based App

- Graph Look Up
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- TGM Desk Reference
- TGM Appendices
- Support Documents
- Add Users
- Comments

Graph Look Up

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE :
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

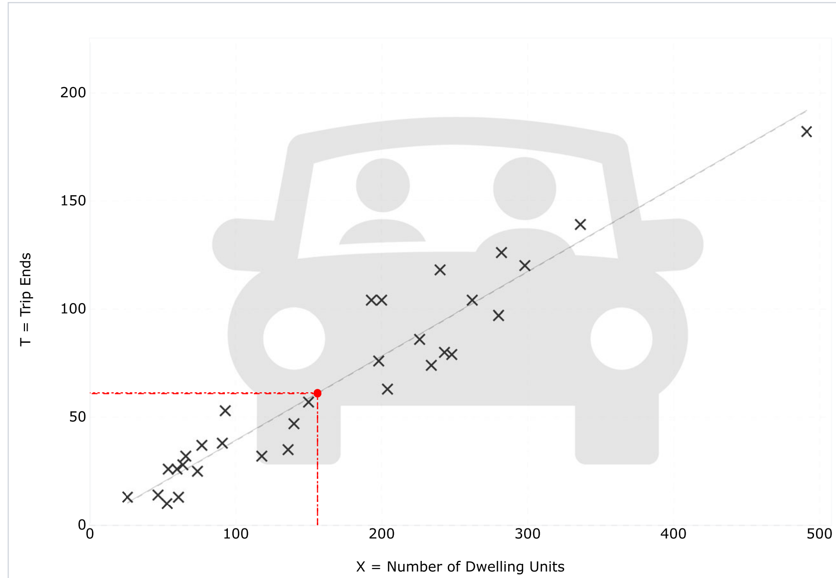
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
156 | Calculate

Data Plot and Equation



Reset Zoom | Restore

× Study Site — Fitted Curve - - - Average Rate

Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
31

Avg. Num. of Dwelling Units:
169

Average Rate:
0.39

Range of Rates:
0.19 - 0.57

Standard Deviation:
0.08

Fitted Curve Equation:
T = 0.39(X) + 0.34

R^2:
0.91

Directional Distribution:
61% entering, 39% exiting

Calculated Trip Ends:
Average Rate: 61 (Total), 37 (Entry), 24 (Exit)
Fitted Curve: 61 (Total), 37 (Entry), 24 (Exit)

Add-ons to do more

Try OTISS Pro

TRIP-DISTRIBUTION DATA

White Rock Place
Raymond, New Hampshire

Residence	Workplace	Number	Main Street (West)		Epping Street (North)		Old Manchester Road (South)		Freetown Road (North)		Freetown Road (South)	
Raymond town	Raymond town	694	10%	69	40%	278		0	40%	278	10%	69
Raymond town	Manchester city	524		0		0	100%	524		0		0
Raymond town	Epping town	311		0		0		0	100%	311		0
Raymond town	Exeter town	303		0		0		0	100%	303		0
Raymond town	Portsmouth city	299		0		0		0	100%	299		0
Raymond town	Londonderry town	200		0		0		0		0	100%	200
Raymond town	Nashua city	139		0		0	100%	139		0		0
Raymond town	Hampton town	111		0		0		0	100%	111		0
Raymond town	Salem town	110		0		0		0		0	100%	110
Raymond town	Concord city	108		0		0	100%	108		0		0
Raymond town	Bedford town	105		0		0	100%	105		0		0
Raymond town	Merrimack town	98		0		0	100%	98		0		0
Raymond town	Boston city	96		0		0	50%	48		0	50%	48
Raymond town	Hooksett town	94		0		0	100%	94		0		0
Raymond town	Fremont town	89		0		0		0		0	100%	89
Raymond town	Plaistow town	88		0		0		0		0	100%	88
Raymond town	Seabrook town	85		0		0		0	100%	85		0
Raymond town	Kingston town	77		0		0		0		0	100%	77
Raymond town	Derry town	74		0		0		0		0	100%	74
Raymond town	Candia town	72	100%	72		0		0		0		0
Raymond town	Auburn town	69		0		0	100%	69		0		0
Raymond town	Hudson town	65		0		0	50%	33	50%	33		0
Raymond town	Brentwood town	50		0		0		0	50%	25	50%	25
		3,861		141		278		1,218		1,444		780
				3.7%		7.2%		31.5%		37.4%		20.2%
		SAY		**4%**		**7%**		**32%**		**37%**		**20%**

CAPACITY ANALYSIS WORKSHEETS

Main Street at Epping Street and Old Manchester Road
Freetown Road at Main Street
Main Street at the Project Site Driveway

Main Street at Epping Street and Old Manchester Road

Intersection	
Int Delay, s/veh	64.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	156	97	39	166	148	0	0	0	18	121	52
Future Vol, veh/h	87	156	97	39	166	148	0	0	0	18	121	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	81	81	81	92	92	92	49	49	49
Heavy Vehicles, %	5	1	4	0	3	5	2	2	2	0	6	3
Mvmt Flow	99	177	110	48	205	183	0	0	0	37	247	106

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	388	0	0	287	0	0	999	914	232	823	878	297
Stage 1	-	-	-	-	-	-	430	430	-	393	393	-
Stage 2	-	-	-	-	-	-	569	484	-	430	485	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.56	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4.054	3.327
Pot Cap-1 Maneuver	1154	-	-	1287	-	-	222	273	807	295	282	740
Stage 1	-	-	-	-	-	-	603	583	-	636	599	-
Stage 2	-	-	-	-	-	-	507	552	-	607	545	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1154	-	-	1287	-	-	-	233	807	262	~ 240	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	233	-	262	~ 240	-
Stage 1	-	-	-	-	-	-	540	522	-	570	570	-
Stage 2	-	-	-	-	-	-	234	525	-	544	488	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.9	0	197.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1154	-	-	1287	-	-	297
HCM Lane V/C Ratio	-	0.086	-	-	0.037	-	-	1.312
HCM Control Delay (s)	0	8.4	0	-	7.9	0	-	197.4
HCM Lane LOS	A	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.3	-	-	0.1	-	-	19.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	139	50	28	223	120	0	0	0	44	123	46
Future Vol, veh/h	25	139	50	28	223	120	0	0	0	44	123	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	92	92	92	84	84	84
Heavy Vehicles, %	6	0	0	0	1	0	2	2	2	0	0	0
Mvmt Flow	28	158	57	31	248	133	0	0	0	52	146	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	381	0	0	215	0	0	720	686	187	620	648	315
Stage 1	-	-	-	-	-	-	243	243	-	377	377	-
Stage 2	-	-	-	-	-	-	477	443	-	243	271	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1156	-	-	1367	-	-	343	370	855	403	392	730
Stage 1	-	-	-	-	-	-	761	705	-	649	619	-
Stage 2	-	-	-	-	-	-	569	576	-	765	689	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1156	-	-	1367	-	-	211	349	855	386	370	730
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	349	-	386	370	-
Stage 1	-	-	-	-	-	-	740	685	-	631	601	-
Stage 2	-	-	-	-	-	-	387	559	-	744	670	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.6	0	26
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1156	-	-	1367	-	-	418
HCM Lane V/C Ratio	-	0.025	-	-	0.023	-	-	0.607
HCM Control Delay (s)	0	8.2	0	-	7.7	0	-	26
HCM Lane LOS	A	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	3.9

Intersection	
Int Delay, s/veh	117.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	157	106	49	172	163	0	0	0	18	146	53
Future Vol, veh/h	88	157	106	49	172	163	0	0	0	18	146	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	81	81	81	92	92	92	49	49	49
Heavy Vehicles, %	5	1	4	0	3	5	2	2	2	0	6	3
Mvmt Flow	100	178	120	60	212	201	0	0	0	37	298	108

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	413	0	0	298	0	0	1074	971	238	871	931	313
Stage 1	-	-	-	-	-	-	438	438	-	433	433	-
Stage 2	-	-	-	-	-	-	636	533	-	438	498	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.56	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4.054	3.327
Pot Cap-1 Maneuver	1130	-	-	1275	-	-	198	253	801	274	~ 263	725
Stage 1	-	-	-	-	-	-	597	579	-	605	575	-
Stage 2	-	-	-	-	-	-	466	525	-	601	538	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1130	-	-	1275	-	-	-	212	801	239	~ 220	725
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	212	-	239	~ 220	-
Stage 1	-	-	-	-	-	-	533	516	-	540	539	-
Stage 2	-	-	-	-	-	-	166	492	-	536	480	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	1	0	$ 345.6
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1130	-	-	1275	-	-	267
HCM Lane V/C Ratio	-	0.088	-	-	0.047	-	-	1.659
HCM Control Delay (s)	0	8.5	0	-	8	0	-	$ 345.6
HCM Lane LOS	A	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.3	-	-	0.1	-	-	27.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	141	57	31	235	152	0	0	0	45	147	46
Future Vol, veh/h	26	141	57	31	235	152	0	0	0	45	147	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	92	92	92	84	84	84
Heavy Vehicles, %	6	0	0	0	1	0	2	2	2	0	0	0
Mvmt Flow	30	160	65	34	261	169	0	0	0	54	175	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	430	0	0	225	0	0	782	751	193	667	699	346
Stage 1	-	-	-	-	-	-	253	253	-	414	414	-
Stage 2	-	-	-	-	-	-	529	498	-	253	285	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1108	-	-	1356	-	-	312	340	849	375	366	702
Stage 1	-	-	-	-	-	-	751	698	-	620	597	-
Stage 2	-	-	-	-	-	-	533	544	-	756	679	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1108	-	-	1356	-	-	164	318	849	357	343	702
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	318	-	357	343	-
Stage 1	-	-	-	-	-	-	728	676	-	601	577	-
Stage 2	-	-	-	-	-	-	331	526	-	733	658	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.6	0	36.6
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1108	-	-	1356	-	-	384
HCM Lane V/C Ratio	-	0.027	-	-	0.025	-	-	0.738
HCM Control Delay (s)	0	8.3	0	-	7.7	0	-	36.6
HCM Lane LOS	A	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	5.8

Intersection	
Int Delay, s/veh	181.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	174	116	53	190	179	0	0	0	20	158	58
Future Vol, veh/h	97	174	116	53	190	179	0	0	0	20	158	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	81	81	81	92	92	92	49	49	49
Heavy Vehicles, %	5	1	4	0	3	5	2	2	2	0	6	3
Mvmt Flow	110	198	132	65	235	221	0	0	0	41	322	118

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	456	0	0	330	0	0	1180	1070	264	960	1026	346
Stage 1	-	-	-	-	-	-	484	484	-	476	476	-
Stage 2	-	-	-	-	-	-	696	586	-	484	550	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.56	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4.054	3.327
Pot Cap-1 Maneuver	1089	-	-	1241	-	-	167	221	775	238	~ 231	695
Stage 1	-	-	-	-	-	-	564	552	-	574	550	-
Stage 2	-	-	-	-	-	-	432	497	-	568	509	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1089	-	-	1241	-	-	-	179	775	203	~ 187	695
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	179	-	203	~ 187	-
Stage 1	-	-	-	-	-	-	493	482	-	502	510	-
Stage 2	-	-	-	-	-	-	122	461	-	496	445	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	1	0	$ 541.3
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1089	-	-	1241	-	-	230
HCM Lane V/C Ratio	-	0.101	-	-	0.053	-	-	2.094
HCM Control Delay (s)	0	8.7	0	-	8.1	0	-	$ 541.3
HCM Lane LOS	A	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.3	-	-	0.2	-	-	36.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	17.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	155	62	34	258	165	0	0	0	49	160	51
Future Vol, veh/h	29	155	62	34	258	165	0	0	0	49	160	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	92	92	92	84	84	84
Heavy Vehicles, %	6	0	0	0	1	0	2	2	2	0	0	0
Mvmt Flow	33	176	70	38	287	183	0	0	0	58	190	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	470	0	0	246	0	0	857	823	211	732	767	379
Stage 1	-	-	-	-	-	-	277	277	-	455	455	-
Stage 2	-	-	-	-	-	-	580	546	-	277	312	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1071	-	-	1332	-	-	277	309	829	339	335	672
Stage 1	-	-	-	-	-	-	729	681	-	589	572	-
Stage 2	-	-	-	-	-	-	500	518	-	734	661	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1071	-	-	1332	-	-	122	286	829	320	310	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	122	286	-	320	310	-
Stage 1	-	-	-	-	-	-	703	656	-	568	549	-
Stage 2	-	-	-	-	-	-	285	497	-	708	637	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.6	0	58.9
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1071	-	-	1332	-	-	349
HCM Lane V/C Ratio	-	0.031	-	-	0.028	-	-	0.887
HCM Control Delay (s)	0	8.5	0	-	7.8	0	-	58.9
HCM Lane LOS	A	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	8.6

Intersection	
Int Delay, s/veh	136

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	158	106	63	174	166	0	0	0	19	146	53
Future Vol, veh/h	88	158	106	63	174	166	0	0	0	19	146	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	81	81	81	92	92	92	49	49	49
Heavy Vehicles, %	5	1	4	0	3	5	2	2	2	0	6	3
Mvmt Flow	100	180	120	78	215	205	0	0	0	39	298	108

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	420	0	0	300	0	0	1117	1016	240	914	974	318
Stage 1	-	-	-	-	-	-	440	440	-	474	474	-
Stage 2	-	-	-	-	-	-	677	576	-	440	500	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.56	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4.054	3.327
Pot Cap-1 Maneuver	1123	-	-	1273	-	-	185	238	799	256	~ 248	720
Stage 1	-	-	-	-	-	-	596	578	-	575	551	-
Stage 2	-	-	-	-	-	-	443	502	-	600	537	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1123	-	-	1273	-	-	-	195	799	220	~ 203	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	195	-	220	~ 203	-
Stage 1	-	-	-	-	-	-	531	515	-	512	506	-
Stage 2	-	-	-	-	-	-	142	461	-	535	478	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	1.3	0	$ 407
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1123	-	-	1273	-	-	248
HCM Lane V/C Ratio	-	0.089	-	-	0.061	-	-	1.794
HCM Control Delay (s)	0	8.5	0	-	8	0	-	$ 407
HCM Lane LOS	A	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.3	-	-	0.2	-	-	30.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	12.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	142	57	39	235	154	0	0	0	48	147	46
Future Vol, veh/h	26	142	57	39	235	154	0	0	0	48	147	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	92	92	92	84	84	84
Heavy Vehicles, %	6	0	0	0	1	0	2	2	2	0	0	0
Mvmt Flow	30	161	65	43	261	171	0	0	0	57	175	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	432	0	0	226	0	0	802	772	194	687	719	347
Stage 1	-	-	-	-	-	-	254	254	-	433	433	-
Stage 2	-	-	-	-	-	-	548	518	-	254	286	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1107	-	-	1354	-	-	302	330	847	364	357	701
Stage 1	-	-	-	-	-	-	750	697	-	605	585	-
Stage 2	-	-	-	-	-	-	521	533	-	755	679	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1107	-	-	1354	-	-	154	306	847	344	331	701
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	306	-	344	331	-
Stage 1	-	-	-	-	-	-	727	675	-	586	560	-
Stage 2	-	-	-	-	-	-	316	510	-	732	658	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.7	0	41
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1107	-	-	1354	-	-	371
HCM Lane V/C Ratio	-	0.027	-	-	0.032	-	-	0.773
HCM Control Delay (s)	0	8.3	0	-	7.7	0	-	41
HCM Lane LOS	A	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	6.4

Intersection	
Int Delay, s/veh	204.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	97	175	116	67	192	182	0	0	0	21	158	58
Future Vol, veh/h	97	175	116	67	192	182	0	0	0	21	158	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	81	81	81	92	92	92	49	49	49
Heavy Vehicles, %	5	1	4	0	3	5	2	2	2	0	6	3
Mvmt Flow	110	199	132	83	237	225	0	0	0	43	322	118

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	462	0	0	331	0	0	1221	1113	265	1001	1067	350
Stage 1	-	-	-	-	-	-	485	485	-	516	516	-
Stage 2	-	-	-	-	-	-	736	628	-	485	551	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.56	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.56	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4.054	3.327
Pot Cap-1 Maneuver	1084	-	-	1240	-	-	157	208	774	223	~ 218	691
Stage 1	-	-	-	-	-	-	563	552	-	546	528	-
Stage 2	-	-	-	-	-	-	411	476	-	567	509	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1084	-	-	1240	-	-	-	165	774	187	~ 173	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	165	-	187	~ 173	-
Stage 1	-	-	-	-	-	-	491	482	-	477	479	-
Stage 2	-	-	-	-	-	-	101	432	-	495	444	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	1.2	0	$ 617.6
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1084	-	-	1240	-	-	214
HCM Lane V/C Ratio	-	0.102	-	-	0.067	-	-	2.26
HCM Control Delay (s)	0	8.7	0	-	8.1	0	-	$ 617.6
HCM Lane LOS	A	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.3	-	-	0.2	-	-	38.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	19.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	156	62	42	258	167	0	0	0	52	160	51
Future Vol, veh/h	29	156	62	42	258	167	0	0	0	52	160	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	92	92	92	84	84	84
Heavy Vehicles, %	6	0	0	0	1	0	2	2	2	0	0	0
Mvmt Flow	33	177	70	47	287	186	0	0	0	62	190	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	473	0	0	247	0	0	878	845	212	752	787	380
Stage 1	-	-	-	-	-	-	278	278	-	474	474	-
Stage 2	-	-	-	-	-	-	600	567	-	278	313	-
Critical Hdwy	4.16	-	-	4.1	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.254	-	-	2.2	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1068	-	-	1331	-	-	268	300	828	329	326	671
Stage 1	-	-	-	-	-	-	728	680	-	575	561	-
Stage 2	-	-	-	-	-	-	488	507	-	733	661	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1068	-	-	1331	-	-	113	275	828	308	299	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	275	-	308	299	-
Stage 1	-	-	-	-	-	-	702	656	-	554	534	-
Stage 2	-	-	-	-	-	-	272	482	-	707	637	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.7	0	68.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1068	-	-	1331	-	-	337
HCM Lane V/C Ratio	-	0.031	-	-	0.035	-	-	0.929
HCM Control Delay (s)	0	8.5	0	-	7.8	0	-	68.4
HCM Lane LOS	A	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	-	0.1	-	-	0.1	-	-	9.4

Freetown Road at Main Street

Intersection	
Int Delay, s/veh	28

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	88	119	145	989	410	69
Future Vol, veh/h	88	119	145	989	410	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	86	86
Heavy Vehicles, %	0	1	3	2	5	4
Mvmt Flow	104	140	171	1164	477	80

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1983	477	557	0	-	0
Stage 1	477	-	-	-	-	-
Stage 2	1506	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	~ 68	590	1009	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	205	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 57	590	1009	-	-	-
Mov Cap-2 Maneuver	~ 57	-	-	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	205	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	238.7	1.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1009	-	57	590	-	-
HCM Lane V/C Ratio	0.169	-	1.816	0.237	-	-
HCM Control Delay (s)	9.3	-	$ 544	13	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.6	-	9.8	0.9	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	17.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	77	149	114	630	960	102
Future Vol, veh/h	77	149	114	630	960	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	94	94	96	96
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	87	167	121	670	1000	106

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1912	1000	1106	0	-	0
Stage 1	1000	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 76	298	639	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 62	298	639	-	-	-
Mov Cap-2 Maneuver	~ 62	-	-	-	-	-
Stage 1	291	-	-	-	-	-
Stage 2	395	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	144.3	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	639	-	62	298	-	-
HCM Lane V/C Ratio	0.19	-	1.395	0.562	-	-
HCM Control Delay (s)	11.9	-	$ 362.7	31.5	-	-
HCM Lane LOS	B	-	F	D	-	-
HCM 95th %tile Q(veh)	0.7	-	7.4	3.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	41.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	92	122	153	1058	449	73
Future Vol, veh/h	92	122	153	1058	449	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	86	86
Heavy Vehicles, %	0	1	3	2	5	4
Mvmt Flow	108	144	180	1245	522	85

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2127	522	607	0	-	0
Stage 1	522	-	-	-	-	-
Stage 2	1605	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	~ 55	557	966	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 45	557	966	-	-	-
Mov Cap-2 Maneuver	~ 45	-	-	-	-	-
Stage 1	488	-	-	-	-	-
Stage 2	183	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 366	1.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	966	-	45	557	-	-
HCM Lane V/C Ratio	0.186	-	2.405	0.258	-	-
HCM Control Delay (s)	9.6	-	$ 833.1	13.7	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.7	-	11.4	1	-	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	28.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	153	118	687	1038	104
Future Vol, veh/h	82	153	118	687	1038	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	94	94	96	96
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	92	172	126	731	1081	108

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2064	1081	1189	0	-	0
Stage 1	1081	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 61	267	594	-	-	-
Stage 1	328	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 48	267	594	-	-	-
Mov Cap-2 Maneuver	~ 48	-	-	-	-	-
Stage 1	258	-	-	-	-	-
Stage 2	366	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	240.6	1.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	594	-	48	267	-	-
HCM Lane V/C Ratio	0.211	-	1.919	0.644	-	-
HCM Control Delay (s)	12.7	-	$ 614.9	40	-	-
HCM Lane LOS	B	-	F	E	-	-
HCM 95th %tile Q(veh)	0.8	-	9.3	4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	71.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	101	134	169	1162	492	80
Future Vol, veh/h	101	134	169	1162	492	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	86	86
Heavy Vehicles, %	0	1	3	2	5	4
Mvmt Flow	119	158	199	1367	572	93

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2337	572	665	0	-	0
Stage 1	572	-	-	-	-	-
Stage 2	1765	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	~ 41	522	919	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 32	522	919	-	-	-
Mov Cap-2 Maneuver	~ 32	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	152	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 643.2	1.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	919	-	32	522	-	-
HCM Lane V/C Ratio	0.216	-	3.713	0.302	-	-
HCM Control Delay (s)	10	$	1476.8	14.9	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.8	-	14	1.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	51					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	169	130	753	1139	115
Future Vol, veh/h	90	169	130	753	1139	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	94	94	96	96
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	101	190	138	801	1186	120

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2263	1186	1306	0	-	0
Stage 1	1186	-	-	-	-	-
Stage 2	1077	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 46	232	537	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 34	232	537	-	-	-
Mov Cap-2 Maneuver	~ 34	-	-	-	-	-
Stage 1	218	-	-	-	-	-
Stage 2	330	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 438	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	537	-	34	232	-	-
HCM Lane V/C Ratio	0.258	-	2.974	0.818	-	-
HCM Control Delay (s)	14		$ 1137.3	65.6	-	-
HCM Lane LOS	B	-	F	F	-	-
HCM 95th %tile Q(veh)	1	-	11.6	6.2	-	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	57.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	108	131	155	1058	449	78
Future Vol, veh/h	108	131	155	1058	449	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	86	86
Heavy Vehicles, %	0	1	3	2	5	4
Mvmt Flow	127	154	182	1245	522	91

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2131	522	613	0	-	0
Stage 1	522	-	-	-	-	-
Stage 2	1609	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	~ 55	557	961	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 45	557	961	-	-	-
Mov Cap-2 Maneuver	~ 45	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	182	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 466.2	1.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	961	-	45	557	-	-
HCM Lane V/C Ratio	0.19	-	2.824	0.277	-	-
HCM Control Delay (s)	9.6	$	1014.9	13.9	-	-
HCM Lane LOS	A	-	F	B	-	-
HCM 95th %tile Q(veh)	0.7	-	13.7	1.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	36.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	158	125	687	1038	118
Future Vol, veh/h	91	158	125	687	1038	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	94	94	96	96
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	102	178	133	731	1081	123

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2078	1081	1204	0	-	0
Stage 1	1081	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 60	267	587	-	-	-
Stage 1	328	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 46	267	587	-	-	-
Mov Cap-2 Maneuver	~ 46	-	-	-	-	-
Stage 1	254	-	-	-	-	-
Stage 2	360	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 300.8	2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	587	-	46	267	-	-
HCM Lane V/C Ratio	0.227	-	2.223	0.665	-	-
HCM Control Delay (s)	12.9	-	$ 750.8	41.7	-	-
HCM Lane LOS	B	-	F	E	-	-
HCM 95th %tile Q(veh)	0.9	-	10.6	4.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	95.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	117	143	171	1162	492	85
Future Vol, veh/h	117	143	171	1162	492	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	86	86
Heavy Vehicles, %	0	1	3	2	5	4
Mvmt Flow	138	168	201	1367	572	99

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2341	572	671	0	-	0
Stage 1	572	-	-	-	-	-
Stage 2	1769	-	-	-	-	-
Critical Hdwy	6.4	6.21	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.309	2.227	-	-	-
Pot Cap-1 Maneuver	~ 41	522	915	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 32	522	915	-	-	-
Mov Cap-2 Maneuver	~ 32	-	-	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	152	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 790.2	1.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	915	-	32	522	-	-
HCM Lane V/C Ratio	0.22	-	4.301	0.322	-	-
HCM Control Delay (s)	10		$ 1737.6	15.1	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.8	-	16.4	1.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	65.4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	99	174	137	753	1139	129
Future Vol, veh/h	99	174	137	753	1139	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	120	0	150	-	-	120
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	94	94	96	96
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	111	196	146	801	1186	134

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2279	1186	1320	0	-	0
Stage 1	1186	-	-	-	-	-
Stage 2	1093	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 44	232	530	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 32	232	530	-	-	-
Mov Cap-2 Maneuver	~ 32	-	-	-	-	-
Stage 1	212	-	-	-	-	-
Stage 2	324	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 541.9	2.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	530	-	32	232	-	-
HCM Lane V/C Ratio	0.275	-	3.476	0.843	-	-
HCM Control Delay (s)	14.3	-	$ 1372	69.6	-	-
HCM Lane LOS	B	-	F	F	-	-
HCM 95th %tile Q(veh)	1.1	-	13.1	6.6	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Main Street at the Project Site Driveway

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	25	7	177	181	6
Future Vol, veh/h	19	25	7	177	181	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	78	93	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	28	8	227	195	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	442	199	202	0	-	0
Stage 1	199	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	573	842	1370	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	569	842	1370	-	-	-
Mov Cap-2 Maneuver	569	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	797	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1370	-	697	-	-
HCM Lane V/C Ratio	0.006	-	0.07	-	-
HCM Control Delay (s)	7.6	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	14	21	163	190	16
Future Vol, veh/h	10	14	21	163	190	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	78	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	16	23	181	244	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	480	253	262	0	-	0
Stage 1	253	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	545	786	1302	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	534	786	1302	-	-	-
Mov Cap-2 Maneuver	534	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1302	-	657	-	-
HCM Lane V/C Ratio	0.018	-	0.041	-	-
HCM Control Delay (s)	7.8	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	25	7	195	199	6
Future Vol, veh/h	19	25	7	195	199	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	78	93	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	28	8	250	214	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	484	218	221	0	-	0
Stage 1	218	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	542	822	1348	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	538	822	1348	-	-	-
Mov Cap-2 Maneuver	538	-	-	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	779	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1348	-	669	-	-
HCM Lane V/C Ratio	0.006	-	0.073	-	-
HCM Control Delay (s)	7.7	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.9					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	10	14	21	180	209	16
Future Vol, veh/h	10	14	21	180	209	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	78	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	16	23	200	268	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	523	277	286	0	-	0
Stage 1	277	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	514	762	1276	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	504	762	1276	-	-	-
Mov Cap-2 Maneuver	504	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	795	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1276	-	628	-	-
HCM Lane V/C Ratio	0.018	-	0.042	-	-
HCM Control Delay (s)	7.9	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Main Street at Wight Street

Intersection						
Int Delay, s/veh	6.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	188	33	0	165	174	0
Future Vol, veh/h	188	33	0	165	174	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	81	81	93	93
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	258	45	0	204	187	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	391	187	-	0	-	0
Stage 1	187	-	-	-	-	-
Stage 2	204	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	613	855	0	-	-	0
Stage 1	845	-	0	-	-	0
Stage 2	830	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	613	855	-	-	-	-
Mov Cap-2 Maneuver	613	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	830	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	640	-
HCM Lane V/C Ratio	-	0.473	-
HCM Control Delay (s)	-	15.6	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	2.5	-

Intersection						
Int Delay, s/veh	7.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	208	37	0	163	183	0
Future Vol, veh/h	208	37	0	163	183	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	90	90	78	78
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	281	50	0	181	235	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	416	235	-	0	-	0
Stage 1	235	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	597	809	0	-	-	0
Stage 1	809	-	0	-	-	0
Stage 2	855	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	597	809	-	-	-	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	622	-
HCM Lane V/C Ratio	-	0.532	-
HCM Control Delay (s)	-	17.2	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	3.1	-

Intersection						
Int Delay, s/veh	7.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	209	38	0	177	176	0
Future Vol, veh/h	209	38	0	177	176	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	81	81	93	93
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	286	52	0	219	189	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	408	189	-	0	-	0
Stage 1	189	-	-	-	-	-
Stage 2	219	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	599	853	0	-	-	0
Stage 1	843	-	0	-	-	0
Stage 2	817	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	599	853	-	-	-	-
Mov Cap-2 Maneuver	599	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	817	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	628	-
HCM Lane V/C Ratio	-	0.539	-
HCM Control Delay (s)	-	17.2	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	3.2	-

Intersection						
Int Delay, s/veh	10.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	250	44	0	168	185	0
Future Vol, veh/h	250	44	0	168	185	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	90	90	78	78
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	338	59	0	187	237	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	424	237	-	0	-	0
Stage 1	237	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	591	807	0	-	-	0
Stage 1	807	-	0	-	-	0
Stage 2	850	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	591	807	-	-	-	-
Mov Cap-2 Maneuver	591	-	-	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	850	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	616	-
HCM Lane V/C Ratio	-	0.645	-
HCM Control Delay (s)	-	20.8	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	4.7	-

Intersection	
Int Delay, s/veh	9.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	229	42	0	194	194	0
Future Vol, veh/h	229	42	0	194	194	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	81	81	93	93
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	314	58	0	240	209	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	449	209	-	0	-	0
Stage 1	209	-	-	-	-	-
Stage 2	240	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	568	831	0	-	-	0
Stage 1	826	-	0	-	-	0
Stage 2	800	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	568	831	-	-	-	-
Mov Cap-2 Maneuver	568	-	-	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	800	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	597	-
HCM Lane V/C Ratio	-	0.622	-
HCM Control Delay (s)	-	20.4	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	4.3	-

Intersection	
Int Delay, s/veh	12.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	272	48	0	185	204	0
Future Vol, veh/h	272	48	0	185	204	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	90	90	78	78
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	368	65	0	206	262	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	468	262	-	0	-	0
Stage 1	262	-	-	-	-	-
Stage 2	206	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	557	782	0	-	-	0
Stage 1	786	-	0	-	-	0
Stage 2	833	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	557	782	-	-	-	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	833	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	582	-
HCM Lane V/C Ratio	-	0.743	-
HCM Control Delay (s)	-	26.9	-
HCM Lane LOS	-	D	-
HCM 95th %tile Q(veh)	-	6.4	-

Intersection						
Int Delay, s/veh	8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	209	42	0	196	178	0
Future Vol, veh/h	209	42	0	196	178	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	81	81	93	93
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	286	58	0	242	191	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	433	191	-	0	-	0
Stage 1	191	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	580	851	0	-	-	0
Stage 1	841	-	0	-	-	0
Stage 2	798	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	580	851	-	-	-	-
Mov Cap-2 Maneuver	580	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	798	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	613	-
HCM Lane V/C Ratio	-	0.561	-
HCM Control Delay (s)	-	18.1	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	3.5	-

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	250	56	0	178	189	0
Future Vol, veh/h	250	56	0	178	189	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	90	90	78	78
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	338	76	0	198	242	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	440	242	-	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	198	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	578	802	0	-	-	0
Stage 1	803	-	0	-	-	0
Stage 2	840	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	578	802	-	-	-	-
Mov Cap-2 Maneuver	578	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	840	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	609	-
HCM Lane V/C Ratio	-	0.679	-
HCM Control Delay (s)	-	22.5	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	5.2	-

Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	229	46	0	213	196	0
Future Vol, veh/h	229	46	0	213	196	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	73	73	81	81	93	93
Heavy Vehicles, %	2	2	0	0	0	0
Mvmt Flow	314	63	0	263	211	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	474	211	-	0	-	0
Stage 1	211	-	-	-	-	-
Stage 2	263	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	549	829	0	-	-	0
Stage 1	824	-	0	-	-	0
Stage 2	781	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	549	829	-	-	-	-
Mov Cap-2 Maneuver	549	-	-	-	-	-
Stage 1	824	-	-	-	-	-
Stage 2	781	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	582	-
HCM Lane V/C Ratio	-	0.647	-
HCM Control Delay (s)	-	21.8	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	4.7	-

Intersection						
Int Delay, s/veh	14.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	272	60	0	195	208	0
Future Vol, veh/h	272	60	0	195	208	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	90	90	78	78
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	368	81	0	217	267	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	484	267	-	0	-	0
Stage 1	267	-	-	-	-	-
Stage 2	217	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	545	777	0	-	-	0
Stage 1	782	-	0	-	-	0
Stage 2	824	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	545	777	-	-	-	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	824	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	576	-
HCM Lane V/C Ratio	-	0.779	-
HCM Control Delay (s)	-	29.8	-
HCM Lane LOS	-	D	-
HCM 95th %tile Q(veh)	-	7.3	-

Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

Ref: 9643

May 26, 2023

Tuck Realty Corporation
c/o Mr. Turner Porter
PO Box 190
Exeter, NH 03833

Re: Parking Demand Assessment
White Rock Place Multifamily Residential Development – 109 Main Street
Raymond, Massachusetts

Mr. Porter:

Vanasse & Associates, Inc. (VAI) has completed a parking demand assessment in order to determine the adequacy of the proposed parking supply associated with the construction of a 156±-unit multifamily residential development to be known as White Rock Place and located at 109 Main Street in Raymond, New Hampshire (hereafter referred to as the "Project"). This assessment reviews parking demand data obtained for multifamily residential communities located in a similar setting to the Project and parking demand data published by the Institute of Transportation Engineers (ITE)[1] for multifamily residential communities. The following details our assessment of the anticipated parking demand for the Project.

Parking Demand Observations

Parking demand observations were obtained from four (4) multifamily residential communities located in Massachusetts and New Hampshire, which included parking occupancy data collected at each community on a weekday between 4:00 and 6:00 AM, or between 5:00 and 8:00 AM. These time periods represent the peak parking demand periods for a residential community.[2] Table 1 summarizes the parking demand observations for each community along with the parking occupancy and corresponding parking ratio.

As can be seen in Table 1, the peak-parking demands at the four (4) multifamily residential communities were found to range from 1.23 parking spaces per unit to 1.49 parking spaces per unit, or an average peak parking demand of 1.34 parking spaces per unit. The average peak occupancy rate was found to be approximately 77 percent of the available parking spaces.

[1] *Parking Generation,* 5th Edition; Institute of Transportation Engineers; Washington, D.C.; January 2019.
[2] The peak-parking demand for a residential community generally occurs on a weekday after 10:00 PM and before 6:00 AM.

Table 1
MULTIFAMILY PARKING DEMAND OBSERVATIONS

Time	*Domain Foxborough, Foxborough, MA* No. of Occupied Spaces	Occupancy[a]	Parking Demand Ratio[b]	*Hanover at Andover, Andover, MA* No. of Occupied Spaces	Occupancy[c]	Parking Demand Ratio[d]	*Hanover Tuscan Village, Salem, NH* No. of Occupied Spaces[e]	Occupancy[f]	Parking Demand Ratio[g]	*Bell Westford, Westford, MA* No. of Occupied Spaces[h]	Occupancy[i]	Parking Demand Ratio[j]
4:00 AM	298	76.4%	1.27	282	78.3%	1.23	--	--	--	--	--	--
4:30	296	75.9%	1.26	281	78.1%	1.23	--	--	--	--	--	--
5:00	295	75.6%	1.26	280	77.8%	1.22	350	77.6%	1.35	548	75.8%	1.49
5:30	286	73.3%	1.22	277	76.9%	1.21	340	75.4%	1.31	543	75.1%	1.48
6:00	282	72.3%	1.21	273	75.8%	1.19	333	73.8%	1.28	532	73.6%	1.45
6:30	--	--	--	--	--	--	327	72.5%	1.26	517	71.5%	1.41
7:00	--	--	--	--	--	--	307	68.1%	1.18	501	69.3%	1.37
7:30	--	--	--	--	--	--	292	64.7%	1.12	473	65.4%	1.29
8:00	--	--	--	--	--	--	283	62.7%	1.09	435	60.2%	1.19

[a] The available parking supply consists of 390 parking spaces.
[b] Based on 234 occupied units at the time of the parking demand observations.
[c] The available parking supply consists of 360 parking spaces
[d] Based on 229 occupied units at the time of the parking demand observations.
[e] Assumes full occupancy of the 41 individual garages located throughout the property.
[f] The available parking supply consists of 451 parking spaces, including the 41 garage spaces.
[g] Based on approximately 260 occupied units at the time of the parking demand observations.
[h] Assumes full occupancy of the 90 individual garages located throughout the property
[i] The available parking supply consists of 723 parking spaces, including the 90 garage spaces.
[j] Based on approximately 367 occupied units at the time of the parking demand observations.

ITE Parking Demand Data

Table 2 summarizes the ITE peak parking demand data that is derived from parking demand observations performed at multifamily residential communities situated in a general urban/suburban setting.

Table 2
ITE PEAK PARKING DEMAND DATA

	Peak Parking Demand per Dwelling Unit	
Land Use Code/Time Period	**Average Rate**	**85th Percentile**
Multifamily Housing (Mid-Rise)[a]		
Weekday	1.31	1.47
Saturday	1.22	1.33

[a]ITE Land Use Code 221, *Multifamily Housing (Mid-Rise)*.

As can be seen in Table 2, the ITE parking demand data for a multifamily residential community indicates that the average peak parking demand on a weekday is 1.31 parking spaces per unit, with an observed 85th percentile peak parking demand[3] of 1.47 parking spaces per unit. On a Saturday, the average observed peak parking demand was observed to be 1.22 parking spaces per unit, with the observed 85th percentile peak parking demand found to be 1.33 parking spaces per unit. Given that the weekday peak parking demands are higher than those on a Saturday, the weekday data is used for design purposes.

The ITE data for a multifamily residential community is generally consistent with the parking demand observations that were obtained for the four (4) residential communities, with an average peak parking demand of 1.31 to 1.34 parking spaces per unit, and a design value (typically the 85th percentile peak parking demand) of between 1.47 and 1.49 parking spaces per unit. The ITE parking demand data is provided in the Appendix.

Parking Demand Comparison

On-site parking will be provided for 281 vehicles, or a parking ratio of 1.8 parking spaces per dwelling unit,[4] which is greater than the parking ratios at the observed multifamily residential communities and those located in a similar setting as documented by the ITE.

Based on a review of parking demand observations obtained for multifamily residential communities in similar settings and those documented by the ITE, the proposed parking supply should be sufficient to support the needs of the Project.

[3]The 85th percentile peak parking demand is defined as the parking demand at which 85 percent of the observed peak parking demands fall below and 15 percent are above.
[4]156± residential units are proposed.

If you should have any questions regarding the anticipated parking demand for the Project, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Managing partner

Professional Engineer in CT, MA, ME, NH, RI and VA

JSD/dcl

ATTACHMENTS

Project Site Plan
ITE Parking Demand Data

Project Site Plan

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE - MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
3/20/2023

12	3/19/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM
8	8/2/22	ADDED DRAINAGE	DJM
REV.	DATE	REVISION	BY

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SITE PLAN	
Project:	WHITE ROCK PLACE 109 A, B & C MAIN STREET, RAYMOND, NH 03077	
Owner of Record:	LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833 LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263	LOT 28: PAUL W & TERI L WELCH 109 MAIN STREET, RAYMOND, NH 03077 BK 2839 PG 770 LOT 29: WAYNE & CATHLEEN WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
C15
SHEET 18 OF 52
JBE PROJECT NO. 20564

ITE Parking Demand Data

Graph Look Up

Query Filter

DATA SOURCE:
Parking Generation Manual, 5th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE:
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
All Sites

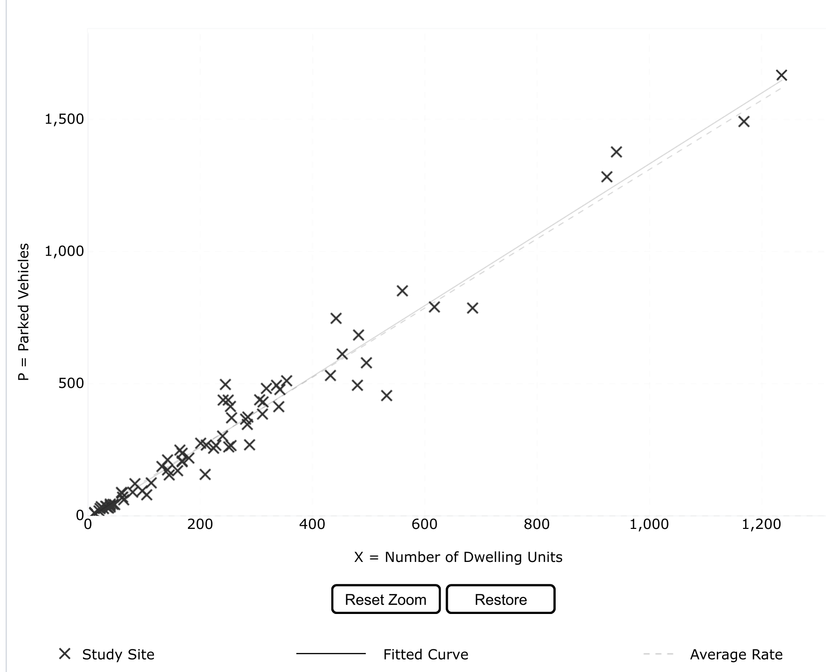
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday (Monday - Friday)

SETTING/LOCATION:
General Urban/Suburban (no nearby rail transi

ENTER IV VALUE TO CALCULATE PARKING DEMAND:
Calculate

Data Plot and Equation



Reset Zoom Restore

Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and P values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) (221) Click for more details

Independent Variable:
Dwelling Units

Time Period:
Weekday (Monday - Friday)

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Peak Period of Parking Demand:
10:00 p.m. - 5:00 a.m.

Number of Studies:
73

Avg. Num. of Dwelling Units:
261

Average Rate:
1.31

Range of Rates:
0.75 - 2.03

33rd / 85th Percentile:
1.13 / 1.47

95% Confidence Interval:
1.26 - 1.36

Standard Deviation:
0.22

Coefficient of Variation:
17%

Fitted Curve Equation:
P = 1.34(X) - 8.73

R^2:
0.97

ITEParkGen **Web-based App**

Help | Jeffrey Dirk | Sign out

ITEParkGen Web-based App

- Graph Look Up
- Technical Support
- Add Users
- Comments

Graph Look Up

Query | Filter

DATA SOURCE: Parking Generation Manual, 5th Ed

SEARCH BY LAND USE CODE: 221

LAND USE GROUP: (200-299) Residential

LAND USE: 221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY: All Sites

INDEPENDENT VARIABLE (IV): Dwelling Units

TIME PERIOD: Saturday

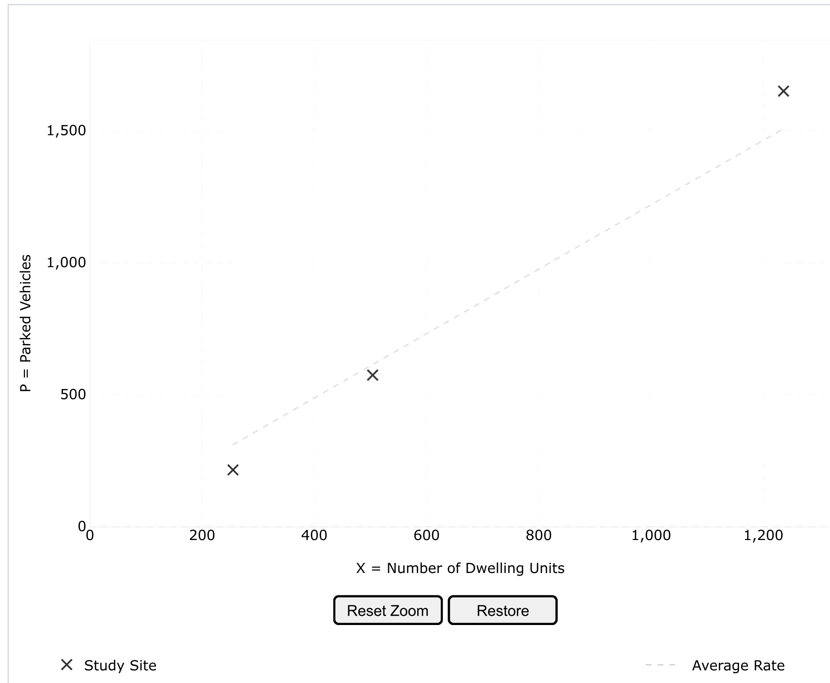
SETTING/LOCATION: General Urban/Suburban (no nearby rail transi

ENTER IV VALUE TO CALCULATE PARKING DEMAND:

Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and P values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) (221) Click for more details

Independent Variable:
Dwelling Units

Time Period:
Saturday

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Peak Period of Parking Demand:
11:00 p.m. - 7:00 a.m.

Number of Studies:
3

Avg. Num. of Dwelling Units:
665

Average Rate:
1.22

Range of Rates:
0.84 - 1.33

33rd / 85th Percentile:
0.94 / 1.33

95% Confidence Interval:
***

Standard Deviation:
0.20

Coefficient of Variation:
16%

Fitted Curve Equation:
***

R^2:
***

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

March 20, 2023

Raymond Planning Board
Attn. Brad Reed, Chair
4 Epping Street
Raymond, NH 03077

Re: Response Letter
White Rock Place
109A, B, C, & D Main Street, Raymond, NH
Tax Map 23, Lots 24, 25, 28 & 29
JBE Project No. 20564

Dear Mr. Reed,

On behalf of our client, Tuck Realty Corporation, Jones and Beach Engineers, Inc., respectfully submits a Unified Development Plan for the proposed development on the above-referenced parcels. The intent of this project is to adjust the lot lines between the four subject parcels and construct a 156-Unit apartment complex consisting of (72) 2-Bedroom Units and (84) 1-Bedroom Units.

The proposed development will take place entirely on what will be Lot 25 after the proposed lot line adjustment, which consists of parts of what is currently lots 25 and 29. Tax Map 23, Lots 24 and 25 are vested into the Sewer Overlay District because this project first went to design review in 2020, before the sewer overlay district was removed. Therefore, this development will require a written unified development plan in accordance with the 2020 Raymond Zoning Ordinance.

<u>SECTION 5.3 Sewer Overlay District (03/2006), Raymond Zoning Ordinance 2020</u>

5.3.2. *UNIFIED DEVELOPMENT: All development within this SOD must take place in accordance with a Unified Development Plan approved by the Planning Board. For purposes of this Ordinance, a Unified Development Plan shall be defined as an overall plan that identifies in a conceptual nature how the lot or lots contained in the plan will be developed in a manner consistent with the intent of this Ordinance and how the plan will allow and encourage the development of other lots within the SOD zoning district, in a manner consistent with the intent of the Ordinance.*

5.3.2.1. *The Unified Development Plan must describe and illustrate, in written and graphic format, and shall specify the intended locations* *and types of proposed uses, the layout of proposed vehicle and pedestrian access and circulation systems, provision of transit facilities and water and sewer facilities, and areas designated to meet requirements for open space, parking, on site amenities, utilities and landscaping. It shall include statements or conceptual plans describing how signage and lighting will be designed in a unified and integrated manner within the district. In addition, the Unified Development Plan shall indicate how the proposed uses will relate to the surrounding properties both within and outside of the district.*

5.3.2.2. The submittal of written concept statement(s) in lieu of a Unified Development Plan shall not be accepted. In determining whether to approve a Unified Development Plan, the Planning Board will consider the following criteria:

5.3.2.2.1. Compatibility of the plan with the goals and objectives set forth in the Town's Master Plan;

5.3.2.2.2. Compatibility of the plan with the permitted uses in the Sewer Overlay District.

5.3.2.2.3. Approval of the Unified Development Plan must occur prior to the consideration of individual site development plans for one or several contiguous lots within the SOD. All site development plans must be reviewed and approved in accordance with this Ordinance and the Planning Board's Site Plan, Subdivision and Earth Excavation Regulations prior to the issuance of any building permits within the district.

5.3.3. AMENDMENT TO UNIFIED DEVELOPMENT PLAN: Any Unified Development Plan may be changed or amended by an applicant and such changes may occur concurrently with, or prior to the submittal of individual site development plans. To the extent that the approved Unified Development Plan addresses lots within the SOD which are not owned by the applicant, then such approved plan shall be binding only on the applicant and the owners of such other lots may seek changes to the Unified Development Plan consistent with their own development project.

5.3.4. SPECIAL PROVISIONS: All new development, change of use, subdivision, site review or development requiring a building permit must be connected to both town water and town sewer services. Notwithstanding the above, application for new development may be made prior to the availability of town water and sewer, provided that the proposed use is permitted as a matter of right in the underlying districts or provided that relief is obtained from the Zoning Board of Adjustment, and provided that the applicant proposes development subject to a condition of approval that the property shall be connected to town water and sewer when it becomes available within *one hundred (100) feet of the property line.*

RESPONSES

5.3.2. *UNIFIED DEVELOPMENT: All development within this SOD must take place in accordance with a Unified Development Plan approved by the Planning Board. For purposes of this Ordinance, a Unified Development Plan shall be defined as an overall plan that identifies in a conceptual nature how the lot or lots contained in the plan will be developed in a manner consistent with the intent of this Ordinance and how the plan will allow and encourage the development of other lots within the SOD zoning district, in a manner consistent with the intent of the Ordinance.*

Per the 2020 Zoning Ordinance, the stated intent of the Sewer Overlay District (SOD) is to "encourage a mixture of land uses as part of a unified development that could not otherwise occur in the underlying zones," in order to "foster economic development of primarily commercial and industrial development while allowing a limited amount of multi-family residential". The proposed multi-family development is located in the industrial zone and is surrounded primarily by single-family and industrial uses, with downtown nearby. The addition of this multi-family development will foster economic growth within the Town of Raymond by bringing more people to the town center who will utilize local businesses within downtown Raymond and other parts of town. This is in line with the intent of the SOD because it will foster economic development in town.

With regards to allowing or encouraging the development of other lots within the SOD zoning district, we are subdividing the subject lot in a way that will potentially enable a future commercial, industrial, or residential development. Any future development on the subdivided parcel will meet the goals of the SOD zoning district because it will foster economic growth within the Town and mix uses between commercial, industrial, and residential. Although future development on the subdivided parcel will no longer be subject to the stipulations of the SOD zoning district, Lot 24 was part of the SOD zoning district and would in the future be developed in a way that meets the general intent of the SOD.

5.3.4.1. *The Unified Development Plan must describe and illustrate, in written and graphic format, and shall specify the intended locations and types of proposed uses, the layout of proposed vehicle and pedestrian access and circulation systems, provision of transit facilities and water and sewer facilities, and areas designated to meet requirements for open space, parking, on site amenities, utilities and landscaping. It shall include statements or conceptual plans describing how signage and lighting will be designed in a unified and integrated manner within the district. In addition, the Unified Development Plan shall indicate how the proposed uses will relate to the surrounding properties both within and outside of the* *district.*

Please refer to the plan set for the majority of this information in graphic format. The proposed use is multi-family residential and the 156 units in three buildings will take place on the north end of the subject parcel. Two points of egress are proposed, being the main access drive (White's Rock Lane) and an emergency access driveway. White's Rock Lane is designed primarily for vehicular traffic, but pedestrians may utilize the emergency access drive as a walking path to downtown when it is not being used by emergency vehicles. The emergency access drive is located within a convenient walking distance of downtown and this development will enable both vehicular and pedestrian use of downtown Raymond.

Originally, we were planning to service this development using Town water. However, Underwood Engineers' report says that Town water is not available in sufficient quantity. Therefore, we will need to draw water from an on-site well for drinking water and fire suppression. The well will be surrounded by an undeveloped 200' radius as required by the State. The Town of Raymond does not have a sanitary sewer system at this time, so we will need to use on-site septic systems for wastewater. These septic systems have been designed and are sized in accordance with Env-Wq 1000 rules as put forth by the State of New Hampshire. The locations and design of the well and septic system are shown on the plan set. See the utility plans and effluent disposal design plans for more information.

More than 23 acres of land are being put into open space with this development. We are balancing multi-family residential development that will promote economic growth within the Town of Raymond and conservation.

We are seeking a waiver from the parking requirements. With 156 units proposed, 468 parking spaces would be required based on the Town's requirement for 3 parking spaces per dwelling unit. This requirement is based on a larger number of bedrooms per unit than are being provided with this development. A large number of these units will be 1-bedroom and 3 parking spaces are excessive for a 1-bedroom apartment. Based on empirical observations we believe that 1.8 parking spaces per unit would be more appropriate for the given mixture of 1-bedroom and 2-bedroom apartments. Therefore, we are providing 281 parking spaces at this time. As shown on Sheet EX-1 of the plan set, the ability exists to install the full number of parking spaces required by the Site Plan Review Regulations should the need arise, but we do not believe that this will be necessary.

Landscaping is provided as shown on Sheet L1-L2 in order to enhance the aesthetics of the development and provide screening to abutters. The majority of screening will take place in the form of natural wooded buffers, but failing this, landscaping is provided in areas where there is proposed development that is close to a property that is not part of the application.

Lighting is designed so that the parking lot and entrance to the apartment complex can be well-lit for safety, without lighting trespass into the proposed buildings or on to adjacent properties. See sheets L3-L4. Signage is proposed as necessary as shown on the site plans for safe passage of traffic.

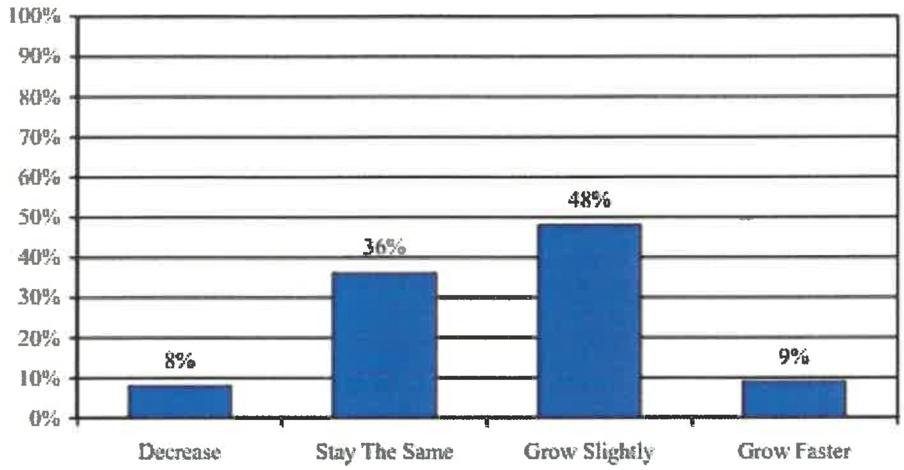
The proposed development will be shielded from adjacent single-family uses through the use of landscaping and naturally existing wooded buffers. We are proposing a subdivision of the subject parcel and the parcel created to the south can be used in the future for a commercial, industrial, or residential development. Any future development of the created parcel will require Planning Board review and will not be subject to the stipulations of the Sewer Overlay District based on the current (2023) zoning ordinance.

5.3.4.1.1. Compatibility of the plan with the goals and objectives set forth in the Town's Master Plan;

The Economic Development section of the 2009 Master Plan states that the majority (57%) of residents of Raymond who were surveyed by the University of New Hampshire would like to see the population of Raymond grow.

Economic Development Related Questions

Question 2: *In the next five years, would you like to see the population of Raymond... 1. Decrease, 2. Stay the same, 3. Grow Slightly, or 4. Grow faster?*



Bringing more housing to the Town of Raymond is in line with the intent of the Town's master plan. Doing so will support local businesses and promote economic development within the Town. Additionally, we are putting more than 23 acres of land into open space, which is another issue of focus within the 2009 Master Plan. This development balances the needs of economic development and conservation by bringing more residents to the Town of Raymond while also placing permanent restrictions on the parts of the subject parcel that do not need to be developed in order to facilitate the construction of 156 apartments.

5.3.2.1.1. Compatibility of the plan with the permitted uses in the Sewer Overlay District.

Multi-family residential is an allowed use within the Sewer Overlay District. Per Note #4 on Sheet C14 of the project plan set, the proposed number of units is allowed by the Town's density regulations. 16 units per acre are allowed based on 25% of non-Zone G land. 5.1

units per acre are provided, but the lot had to be made larger than what is required by density requirements due to the State's lot loading rules for sewage flow.

5.3.2.1.1. *Approval of the Unified Development Plan must occur prior to the consideration of individual site development plans for one or several contiguous lots within the SOD. All site development plans must be reviewed and approved in accordance with this Ordinance and the Planning Board's Site Plan, Subdivision and Earth Excavation Regulations prior to the issuance of any building permits within the district.*

Redundantly, this Unified Development Plan is being submitted for review and approval at this time prior to conditional approval by the Town of Raymond Planning Board.

5.3.2. *AMENDMENT TO UNIFIED DEVELOPMENT PLAN: Any Unified Development Plan may be changed or amended by an applicant and such changes may occur concurrently with, or prior to the submittal of individual site development plans. To the extent that the approved Unified Development Plan addresses lots within the SOD which are not owned by the applicant, then such approved plan shall be binding only on the applicant and the owners of such other lots may seek changes to the Unified Development Plan consistent with their own development project.*

The SOD has been repealed and this Unified Development Plan is only necessary because the subject parcel is vested into the SOD per the 2020 zoning ordinance. Regardless, if the SOD is reinstated in the future and an amendment to the site plan is proposed, we understand that the Unified Development Plan will need to be updated at such time.

5.3.2. *SPECIAL PROVISIONS: All new development, change of use, subdivision, site review or development requiring a building permit must be connected to both town water and town sewer services. Notwithstanding the above, application for new development may be made prior to the availability of town water and sewer, provided that the proposed use is permitted as a matter of right in the underlying districts or provided that relief is obtained from the Zoning Board of Adjustment, and provided that the applicant proposes development subject to a condition of approval that the property shall be connected to town water and sewer when it becomes available within one hundred (100) feet of the property line.*

The proposed use is allowed without the necessity for Zoning relief. Town sewer does not exist for this development, and Underwood Engineers that Town water is not available to support this development. Therefore, we are proposing to install a well for drinking water

and fire suppression and to construct septic systems for wastewater disposal as designed in accordance with the Env-Wq 1000 regulations. We understand that based on the wording of this requirement that if Town sewer or water becomes available in sufficient quantity in the future, this development will be required to tie in. We are comfortable with this as a condition of approval.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz

Daniel Meditz, EIT
Project Engineer

cc: Michael Garrepy, Tuck Realty Corp. (via email)
Madeleine Dilonno, Rockingham Planning Commission (via email)
Jeff Adler, Dubois and King (via email)

FISCAL IMPACT ANALYSIS

White Rock Apartments
109 Main Street

Prepared For:
Tuck Realty Group

FOUGERE
PLANNING + DEVELOPMENT
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FISCAL IMPACT ANALYSIS

White Rock Place
109 Main Street, Raymond NH

April 20, 2023

I. Introduction

Fougere Planning and Development has been engaged by Tuck Realty Corp to undertake this Fiscal Impact Analysis to outline the potential financial ramifications to the Town of Raymond from a proposal to construct a 156 unit apartment community located on a 97.4 acre Main Street property. As detailed in Table One, the proposed residential development will consist of a mix of one and two bedroom unit types; 53.8% of the units will be one bedrooms.

Table One

Unit Type	#
One Bed	84
Two Bed	72
Total Units	156

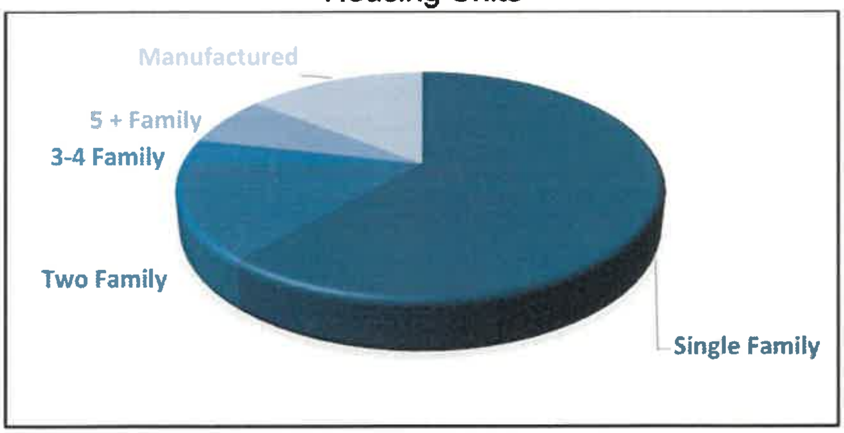
This fiscal analysis reviews potential municipal service demands and revenues from this proposed new land use. The apartment use will be a private business with all driveways and site features maintained by the owner, along with trash disposal. The proposed residential community will be fully sprinkled and adhere to all current building codes.

II. Local Trends

Census figures report that from 2010 to 2020 Raymond's population increased from 10,138 to 10,684, showing a 5.3% growth rate over the 10 year period. Estimates from the Office of Strategic Initiatives (OSI) note a 2021 population estimate of 10,903.

A majority of Raymond's housing stock consists of single family homes, with data from OSI reporting 2,831 single family homes out of a total housing stock of 4,604 units as detailed in Figure One.

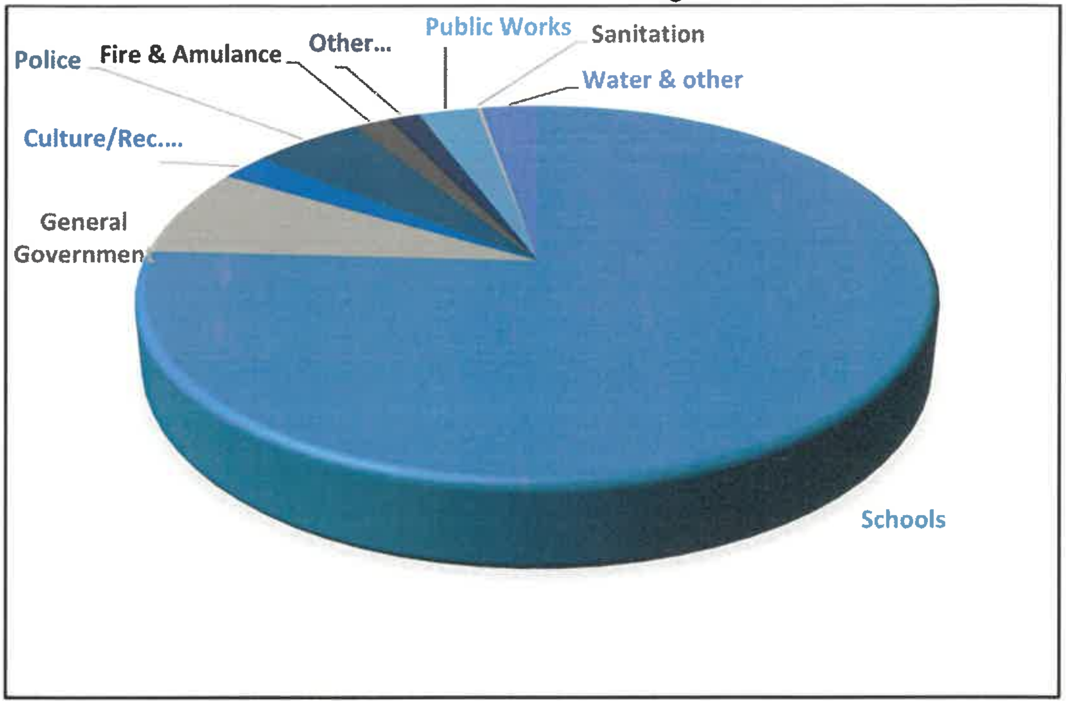
Figure One
Housing Units



Municipal Budgets

The 2023 Town Budget totaled $9,401,529, with the public safety budgets being some the largest, the school budget totals $29,550,732 as outlined in Figure Two. The school department, as well as police and fire departments will realize the most direct measurable impact on services as a result of changes in land use. As such, we will be focus our analysis on schools & emergency services as those departments will realize the most direct increase in service demands from the proposed development.

Figure Two
Town & School Budgets



III. Fiscal Methodology Approach

There are a number of methodologies that are used to estimate fiscal impacts of proposed development projects. The Per Capita Multiplier Method is the most often used analysis to determine municipal cost allocation. This method is the classic "average" costing method for projecting the impact of population growth on local spending patterns and is used to establish the costs of existing services for a new development. The basic premise of this method is that current revenue/cost ratios per person and per unit is a potential indicator of future revenue/cost impacts occasioned by growth. New capital expenditures required for provision of services to a development are not added to current costs; instead, the present debt service for previous improvements is included to represent ongoing capital projects. The advantage of this approach is its simplicity of implementation and its wide acceptance by both consultants and local officials. The downside of this approach is that the methodology calculates the "average" cost as being the expected cost, which is often not the same as the marginal increase in costs. Thus, costs of a development may be exaggerated, significantly in some instances. For example, if one student is added to a school system, limited marginal cost impacts will occur; however, based on an "average" cost to educate one student the cost would be treated as $18,000/year which includes such costs as existing debt, building maintenance, administrative and other factors, all of which will be minimally impacted by the addition of one student. The "true cost" could be significantly less, especially in those communities with declining enrollment.

The Marginal Cost Approach is a more realistic methodology that can be used to estimate and measure developmental impacts based on actual costs that occur in the community. At this time, a "level of service" exists in Raymond to serve the community. This existing service level, for the most part, addresses the needs of the community through existing tax collections. As new development occurs, pressures are placed on some departments to address increased demands, while other departments see negligible, if any impacts. In reviewing the potentially impacted town departments specifically, a truer picture of anticipated cost impacts can be determined. Unless specific cost impacts are noted by Town staff, an average costing approach will be used in this Report.

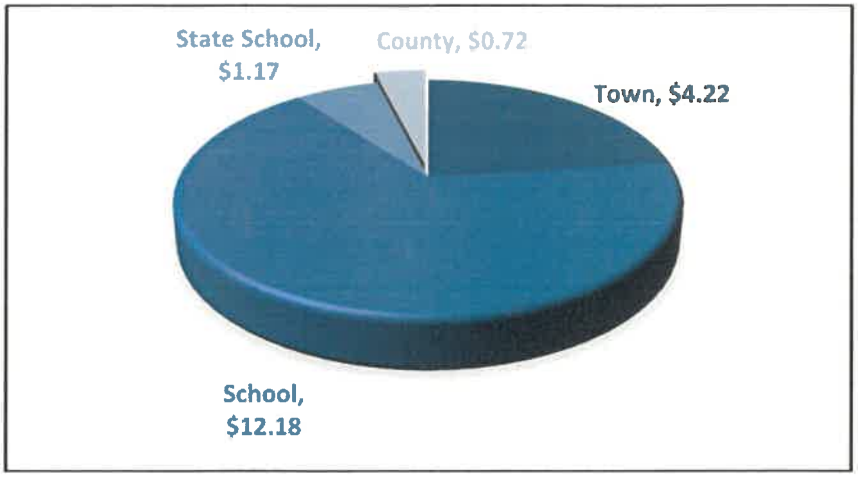
Any required off-site road improvements will be addressed during the approval process. Solid waste generated by this project will be removed by a private hauler. Any construction related or operating utility expenses will be offset through user fees. All on-site improvements will be private and all maintenance expenses will be paid for by the owner. This report does not intend to infer that no costs will be incurred as a result of this project. Measurable service demand increases will be felt by a few community departments, most notably schools and emergency services. Other town agencies including highway/streets & sanitation costs, will see no measurable impacts.

IV. Local Revenues From Development

1. Property Taxes

Local property taxes provide the bulk of municipal revenues for New Hampshire communities. The 2022 Tax Rate for Raymond is $18.29, for this analysis we will use a local tax rate of $17.57, excluding the County portion of the Rate. Figure Three outlines the breakdown of the tax rate.

Figure Three
2022 Tax Rate



Based upon the local and regional rental market & assessments, cost of construction and estimated rents, Table Two outlines the anticipated property assessment and tax revenue that may be generated by the proposed new apartment community. Based upon the estimated project assessment of $14,800,000 as outlined in Table Two, $260,387 is property taxes will be generated.

Table Two
Anticipated Assessment and Property Tax Revenue

Est. Assessment[1]	Property Taxes
$14,820,000	$260,387

2) Miscellaneous Yearly Revenues

Another major revenue source for the community is from motor vehicle registration fees. In fiscal year ending 2022 the Town of Raymond received a total of $2,330,917[2] from this revenue source. Table Three outlines the projected car registration revenue stream from the additional housing units.

[1] Estimated per unit assessment of $95,000; review of Raymond apartment assessments as well as the local market.
[2] 2022 Town Report.

Table Three
Motor Vehicle[3] Permit Fees

210 vehicles @ $15,000/ avg. value	$3,150,000
$3,150 x $12/	$37,800

3) Total Project Revenues

The construction of 156 apartment units is estimated to generate $298,187 in annual revenue from both property tax and automotive permit fees as detailed in Table Four.

Table Four
Projected Gross Revenue

Estimated Property Tax Revenue	$260,387
Estimated Automotive Permit Fees	$37,800
Total Estimated Project Revenue	**+$298,187**

V. Municipal Service Costs

Given the nature of the proposed development project, as will be seen by the analysis below, few significant impacts will be felt by Town Departments. Any required off site road improvements will be addressed during the Planning Board approval process. All of the proposed new driveways will be private and all maintenance expense will be paid for by property owner. All trash will be privately disposed of. This is not to infer that no cost impacts will occur as a result of this project. Measurable impacts will certainly be felt by a few municipal departments, most notably the schools as well as the Police and Fire Departments.

Department Impacts

1. Police and Fire Departments

The Police and Fire Departments are projected to realize an increase in demand for services. For fiscal year 2023, the Police Department budget was $2,101,273

[3] One bedroom; one vehicle; two bedrooms 1.75 vehicles.

and the Fire Department budget[4] was $646,989. To assess the degree of impact this project would have on these departments, three larger Raymond apartment complexes were reviewed totaling 192 units. Emergency call data was obtained from these facilities and averaged to determine the annual numbers of calls. These ratios were then totaled to derive a total average call volume per unit which was then used to generate projected yearly emergency calls for each Department. Table Five outlines the findings from this research.

Table Five
Average Calls: Police-Fire-Ambulance

	Town	Units	Avg. Police Calls Per Year	Avg. Fire Calls Per Year	Avg. EMS Calls Per Year
Apartments					
Canterbury	Raymond	78	39	50	11
Branch River	Raymond	48	6	39	8
Sunview	Raymond	66	30	19	17
Total Average	Total	192	75	108	36
	Avg. Call Per Unit		0.39	0.563	0.188
	Proposed Apt.	156	61	88	29
	Other Communities[5]	2,962	0.036	0.046	0.056

It should be highlighted that the average call per unit in Raymond for fire and ems emergencies are much greater than seen in many other New Hampshire communities, even when taking into consideration the age of the properties. This will be discussed further below.

[4] Includes ambulance

[5] Complete call data in Appendix

Police Department

Based upon the call data outlined in Table Five, the Police Department is projected to realize an increase in call volume of 61 calls annually (1.17/week). To put the call volume into perspective, the Department received 24,888 Calls for Service in 2021 (478 per week). To fully gage the impact of the development on the Police Department, we shared our call data findings with Police Chief Michael Labell. The Chief believed the noted estimated calls were reasonable and did not see any issues with the proposed community. The Department is presently down 2 positions and is actively searching to fill new officers. The Department's budget was increased this year to provide increased competitive pay for police officers, which should help with recruiting efforts. The average cost of a police officer, with benefits, is $85,000 - $100,000 annually. The Chief noted that good management is essential to address apartment site issues quickly and reduce conflicts between neighbors.

By using the proportional demand methodology to assess impact on the Department, a cost impact can be assigned. The 2022 Police Budget was $2,050,053 and reported Police calls totaled[6] 19,910. Dividing calls into the budget arrives at a cost per call of $106 or a total of $6,500 as outlined in Table Six. To be conservative, we will carry a fiscal cost of $13,000 in this analysis. The Chief thought this was a fair outline of potential costs.

Table Six
Estimated Police Costs

2022 Police Budget	$2,101,273
2021 Calls	19,910
Projected Annual Calls	61
Cost Per Call	$2,101,273/19,910 = $106
Estimated Cost	61 Calls x $103 = $6,500

[6] Calls discounted by 20% to account for minor Service calls.

Fire Department

For the Fire Department 118 total calls are projected of which 29 are EMS calls[7]. In 2022 the Department responded to a total of 806 calls. We discussed the proposed project with Deputy Chief Grant. The Deputy noted that at this year's Town Meeting, voters approved adding two full time positions this year with an estimated total cost (retirement & benefits) of $260,000. The Deputy Chief noted that this extra staffing will provide more reliable coverage throughout the week. The Deputy noted that the existing apartment complexes do generate a lot of calls and he believes one of the issues is the age of these complexes. Some are heated with gas furnaces, which have created issues for the Department. The Deputy noted that a fire protection engineer is working with the applicant on recommend building protections, including water supply and sprinkler details. We discussed with the Deputy that based on our database of calls to other New Hampshire communities fire departments, that the volume of calls being experience in Raymond are extraordinarily high. The Deputy noted that it is very hard to predict the future and time will tell if the calls will be less. In speaking with the Deputy relative to account for this projects impact to the Department, it was agreed that accounting for ½ salary of a fire fighter, **$65,000**, would be an appropriate figure to report.

Age of structures can influence the impacts of a land use for the fire department. But is should be noted that the proposed multi-family buildings will be fully compliant with current building codes including sprinkler and alarm systems. Reviewing our database of over 2,600 apartments units in New Hampshire, as detailed in the Appendix, indicates that the proposed apartment use is estimated to generate a total of 16 total calls annually. This database includes new properties, as well as properties constructed in 1967 and 1970. Although the higher estimate calls are noted in this Report, it is our opinion that the fire department calls generated by the proposed apartment community will be <u>far less</u> than noted in Table Five.

[7] Private Ambulance Company serves the community, the Fire Department supports these calls.

2. Other Departments

Building

Building Department costs were not included in this analysis because they are not permanent yearly impacts and will be more than offset by permit fees which are estimated to exceed $36,816. In addition there will be plumbing, electric and mechanical permit fees.

Given this proposed new land use, no other measurable impacts are anticipated on any other town department; to be conservative we have carried $15,600 in expenses[8] for potential miscellaneous budget costs on other departments.

3. School Department

As noted previously, the proposed residential community will consist of a mix of one and two bedroom unit types; 53.8% of the units will be one bedrooms generating few school age children (SAC). Table Seven details the unit breakdown.

Table Seven

Unit Type	#
One Bed	84
Two Bed	72
Total Units	156

Enrollment Trends

Overall enrollment has declined 17.53 % since 2015 as detailed in Table Eight and Figure Three. In 2020 school grades were re-aligned, with pre-K being separated and the fourth grade moving to the middle school.

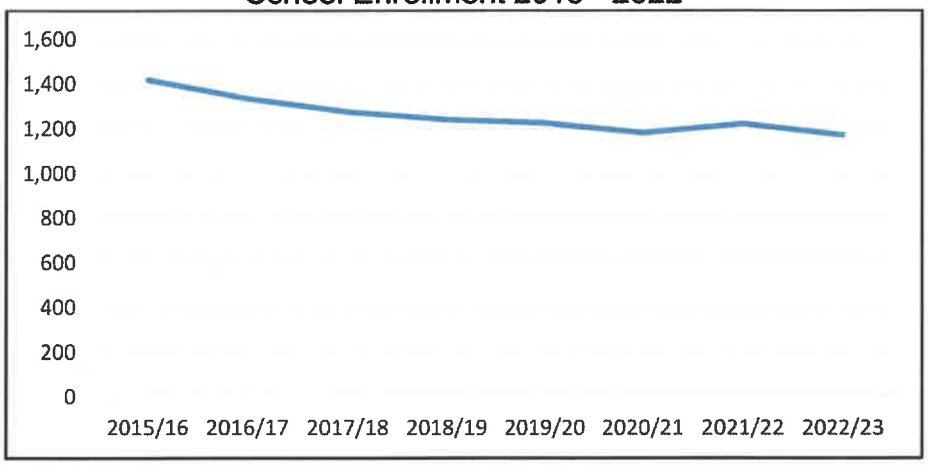
[8] Estimated $100 per unit to offset potential other departments such as Recreation.

Table Eight
Grade Enrollment Profile: 2015 - 2022

	2015/16	2016/17	2017/18	2018/19	2019/20
Elementary PK - 4	568	515	502	494	508
Middle School 5 - 8	411	401	401	380	373
High School 9 -12	441	420	373	368	345
Total Enrollment	**1,420**	**1,336**	**1,276**	**1,242**	**1,226**

	2020/21	2021/22	2022/23
PK	38	48	45
Elementary K - 3	354	375	364
Middle School 4 - 8	439	441	416
High School 9 -12	351	359	346
Total Enrollment	**1,182**	**1,223**	**1,171**

Figure Three
School Enrollment 2015 - 2022



Estimated School Age Children

To gain an understanding of potential cost implications of the enrollment increases estimated for the proposed apartment complex, the anticipated number of school children (School Age Children/SAC) that may be generated by the proposed development was analyzed. The proposed residential development program will have a mix of one and two bedroom units. One bedroom units generate few SAC and will make up 53.8% of all unit types outlined above.

Based upon SAC data obtained from three larger Raymond apartment complexes totaling 156 units, a two bedroom SAC ratio of .304 was calculated[9] (42 SAC / 138 two bedroom units). The proposed project will have 72 two bedroom units and multiplying these units by .304 (72 x .304), results in an

[9] NHHFA 2012 Enrollment Study, Appendix noted a per unit ratio for two bedroom rental at .25 for structures with five or more units.

estimated 22 school children potentially residing within the planned residential community as detailed in Table Nine.

Table Nine
Estimated School Age Children

	# Units	One Beds	Two Beds	SAC	SAC/Two Beds
Sunview	48	0	48	19	0.396
Branch River	48	14	34	10	0.294
Canterbury	78	22	56	13	0.232
	174	36	138	42	**0.304**
Proposed	**156**	84	72	**22 (21.9)**	

To gain insight into the state of the Raymond school system and how the proposed project may generate service issues, we met with Superintendent Terry Leatherman. At this time there are no capacity issues in the school system and he does not believe costs impact would occur with the addition of the estimated 22 school children; which he believed was a reliable figure. Bussing should also not be an issue. The Superintendent did note that special education enrollment may be a factor and potential costs should be accounted for. Based on recent costs, SPED expenses average $24,284 per student; the population of SPED students equates to approximately 22.9% of the total student enrollment. Applying this percentage to the projected number of students, suggest 5 students may need SPED services. Taking into account State Educational aid of $2,079 per SPED student, special educational costs are estimated to total $113,662 (5 students x $24,284 = $124,122 – State SPED Aid of $10,460)

It should also be noted the Town of Raymond receives Adequacy Aid[10] from the State, which in for FY2023 is estimated to total $5,318,975. At this time Base Adequacy per student aid equals $3,866, which would generate **$85,052** in additional revenue based upon 22 new students. Other qualified State Aid that may be generated includes: Free and Reduced Lunch payments of $1,973 per student, English learners $756 and Third grade reading $756. These monies will assist to offset future costs to educate the estimated new student population.

[10] NH Dept. of Education, FY20203 Estimated, dated Sept. 1, 2022.

FISCAL SUMMARY

Table Ten
Fiscal Summary

Estimated Gross Revenue	$298,187
Estimated Municipal Expenses	
Police	$13,000
Fire	$65,000
Misl.	$15,600
Schools	$113,662
Total Estimated Expenses	$207,262
Net Positive Fiscal Impact	**+$90,925**

Based upon the findings in this Report the proposed residential community, it is estimated to produce a **yearly** positive fiscal impact to the Town of Raymond of $90,925. Key findings supporting this conclusion include:

- The proposed project will include private roads along with private trash disposal.

- Town Emergency Departments will are adequately staffed to address any incidents that may occur on the site.

- Adequate capacity exists within the school system to accommodate the estimated number of new school children; State Educational Aid may generate $85,052 in new revenues to the community.

- Additional positive economic activity will occur in the local economy, with short term benefits of construction jobs and long term benefits of new employment opportunities which will support local businesses including restaurants which contributes to local tax revenue in the community.

Appendix

Emergency Call Data to New Hampshire Apartment Complex

Year Built	Project	Town	Units	Avg. Fire Call Per Year	Avg. Call Per Unit	Projected Calls
2020	Gilbert Crossing	Merrimack	96	1	0.010	
2020	Halstead	Merrimack	176	8	0.045	
2001	Bowers Landing Apts.	Merrimack	104	2.33	0.022	
1998	Heritage on the Merrimack	Bedford	216	3.00	0.014	
1997	Hampshire Green	Bedford	204	9.00	0.044	
2000	Kensington	Bedford	100	2.00	0.020	
1985	Bay Ridge Apts.	Nashua	412	31.67	0.077	
1970	Royal Crest Apts.	Nashua	902	65.67	0.073	
1986	Boulder Park Apts.	Nashua	482	6.33	0.013	
1967	Tara Meadows	Somersworth	270	6.00	0.022	
	Totals		**2,962**	**135**	**0.046**	
	Proposed Apt.		**156**			**7**

Year Built	Project	Town	Units	Avg. EMS Call Per Year	Avg. Call Per Unit	Projected Calls
2020	Gilbert Crossing	Merrimack	96	20	0.208	
2020	Halstead	Merrimack	176	3	0.017	
2001	Bowers Landing	Merrimack	104	6.67	0.064	
1998	Heritage on the Merrimack	Bedford	216	15.33	0.071	
1997	Hampshire Green	Bedford	204	16.00	0.078	
2000	Kensington	Bedford	100	7.00	0.070	
1985	Bay Ridge	Nashua	412	23.67	0.057	
1970	Royal Crest	Nashua	902	46.67	0.052	
1986	Boulder Park	Nashua	482	13.33	0.028	
1967	**Totals**		**2,692**	**152**	**0.056**	
	Proposed		**156**			**9**

DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

109A, B, C, & D Main Street
Raymond, NH 03077
Tax Map 23, Lots 24, 25, 28 & 29

Prepared for:

Tuck Realty Corporation
PO Box 190
Exeter, NH 03833

STATE OF NEW HAMPSHIRE
MICHAEL
J.
KERIVAN
No. 9846
LICENSED
PROFESSIONAL ENGINEER
3/20/2023

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
November 22, 2022
REVISED December 21, 2022
REVISED February 10, 2023
REVISED March 20, 2023
JBE Project No. 20564

EXECUTIVE SUMMARY

Tuck Realty Corporation proposes to perform a lot line adjustment between the three subject parcels and then construct a 156-unit apartment complex with two points of access; one main driveway as well as an emergency access road. The proposed development will take place on what will be Raymond Tax Map 23, Lot 25, post-Lot Line Adjustment. This proposed development will additionally involve the construction of new utilities, a paved parking area, and a stormwater management system. The subject parcels are primarily wooded and vacant except for with the exception of some cleared area for single-family uses.

A drainage analysis of the portion of the subject parcel that is to be developed as well as the contributing watershed area was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. A summary of the existing and proposed conditions peak rates of runoff in units of cubic feet per second (cfs) is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	0.76	0.72	4.86	4.53	9.02	8.58	13.67	12.55
Analysis Point #2	0.96	0.69	6.24	4.17	12.56	8.89	19.47	14.70
Analysis Point #3	0.59	0.57	3.71	3.30	7.35	6.77	11.34	10.11

The project site is located in the Industrial (D) and Residential/Agricultural (B) Zoning Districts. Per Town of Raymond Site Plan Review Regulations Section 6.11.01, flood protection structures were evaluated for the 100-year storm as well and a 100-year analysis is included with this report, but a reduction in peak flows is not required for the 100-year storm. The study area includes the portions of the site that are slated for development as well as upstream contributing watershed areas. It was determined that the existing topography of the study area is such that surface runoff drains toward three distinct areas, represented for modelling purposes as Analysis Points 1, 2, &3. The addition of the proposed impervious road and parking surfaces as well as the proposed apartment buildings results an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the result being a potential increase in peak rates of runoff from the site toward the three analysis points. However, due to the implementation of a stormwater management systems, the proposed development results in a decrease in the peak flow rate to all three Analysis Points during all analyzed storm events.

The proposed site development consists of the aforementioned apartment complex with associated access roads, parking area, utilities, grading, and drainage features. The same three Analysis Points were used in the Pre- and Post-Development Analysis. Runoff from all of the developed areas of the subject parcels and incidentally some of the undeveloped areas will be treated and detained through the use of several different practices including a permeable paver apron, a bioretention system, an underground Stormtech detention chamber system, a proprietary Focal Point biofiltration system, and a wet pond. Runoff from the most of the remainder of the site will maintain its existing flow pattern.

The use of Best Management Practices per the NHDES Stormwater Manual have been applied to the design of this drainage system and will be observed during all stages of construction. All land disturbed during construction will be stabilized within thirty days of groundbreaking and abutting property owners will suffer minimal adversity resultant of this development.

TABLE OF CONTENTS

1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the study area, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were conducted using data for the 2 Year – 24 Hour (3.04"), 10 Year – 24 Hour (4.60"), 25 Year – 24 Hour (5.83"), 50 Year – 24 Hour (6.98"), and 100 Year – 24 Hour (8.36") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC).

The post-construction peak rates of runoff will be reduced from the existing condition, thereby minimizing any potential for a negative impact on abutting properties or erosion of wetland systems. This is accomplished through systems designed for treatment of stormwater runoff and attenuation of peak flows resulting from storm events.

2.0 EXISTING CONDITIONS ANALYSIS

The subject parcels consist primarily of woodland with some cleared area for existing single-family houses. The subject parcels are very heavily sloped and consist of several hills. The existing topography is such that runoff drains toward three distinct analysis points in the existing condition, with the peaks of these hills defining the dividing lines between subcatchments. Additionally, there are existing low points and channels which require separate subcatchments for the runoff that flows toward them before reaching the analysis point. Ultimately, three analysis points and eight subcatchments were defined.

Analysis Point 1 is defined by a catch basin off the side of Main Street. The low point of Main Street is slightly below the grade of this catch basin, so some of the runoff from the slope of the hill is directed toward Analysis Point 1 and some of it is directed toward the low point. Water that reaches the low point infiltrates in the existing condition, but on larger storm events, the low point fills up and runoff enters the catch basin. The subcatchment draining directly toward the low point, the low point itself being modelled as Pond 1P, is modelled as Subcatchment 1S. The subcatchment that represents the portion of the hill that drains directly toward the catch basin represented as Analysis Point 1 is modelled as Subcatchment 8S. There is also an uphill depression that is modelled as Pond 2P. The land draining toward this depression is represented as Subcatchment 2S. When Pond 2P fills up, it floods over a berm and down the slope of the hill, through Subcatchment 8S via Reach 3R and toward Analysis Point 1.

Analysis Point 2 is defined as another section of the frontage of Main Street. The runoff directed toward Analysis Point 2 is modelled as Subcatchment 3S.

Finally, Analysis Point 3 is defined as a wetland system just off the subject parcel on an abutting property. Subcatchments 4S-76 drain toward here. Subcatchment 6S drains directly toward Analysis Point 3. Reach 2R is included in the Tc path for 6S because it is internal to the subcatchment. Subcatchments 4S drains toward AP3 through Reach 4R through subcatchment 6S, while Subcatchment 5S drains toward a depression (3P) which overflows down a hill and toward a channel (2R) that ultimately outlets toward AP3.

Existing soil types were determined through a Site-Specific Soil Survey conducted by a Certified Soil Scientist. These soils are categorized into Hydrologic Soil Groups (HSG) B and C. The upland areas were determined to be entirely HSG B and the wetland areas were determined to be entirely HSG C. Infiltration rates for each respective soil type were determined using published data from "Ksat Values for New Hampshire Soils," sponsored by the Society of Soil Scientists of Northern New England SSSNNE Special Publication No. 5. The lowest published Ksat value within the provided range for each soil type was divided by a factor of safety of two in accordance with Env-Wq 1504.14(c)(3), and the end result was used as the infiltration rate used for design.

3.0 PROPOSED CONDITIONS ANALYSIS

The proposed construction divides the site into 40 Subcatchments, all ultimately draining toward the three analysis points as previously defined. The site will be graded such that runoff from all on-site impervious areas will be treated and detained post-construction. Runoff will be directed toward treatment and detention practices through the use of overland flow as well as closed drainage systems. Each treatment and detention practice, catch basin, drain manhole, and cross culvert is modelled in HydroCAD as a separate pond with a separate subcatchment draining toward each structure as applicable. Peak rates of runoff will be reduced toward the three analysis points during all analyzed storm events post-construction, and runoff will be treated to Town and AOT standards.

Treatment and detention devices as well as catch basins, dry wells, culverts, and drain manholes were represented as ponds in the analysis. The benches along the side slopes of the entry roads were modelled as channel reaches in order to analyze the extent to which they fill up with water during storms and whether they overflow or the runoff continues along the longitudinal slopes of the benches themselves. The benches will be stabilized with rip rap for erosion control.

4.0 CONCLUSION

This proposed site development located at 109A, B, &C Main Street in Raymond, NH will have minimal adverse effect on abutting infrastructures, properties, and wetlands by way of stormwater runoff or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of an engineered stormwater management system for the proposed development as well as curbing, site grading, slope benching, rip rap, erosion control blankets, a stabilized construction entrance, and fiber berms in lieu of silt fence. The use of Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and their application will be enforced throughout the construction process.

A site specific, terrain alteration permit (RSA 485:A-17) <u>is</u> required for this site plan as the area of disturbance exceeds 100,000 S.F.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

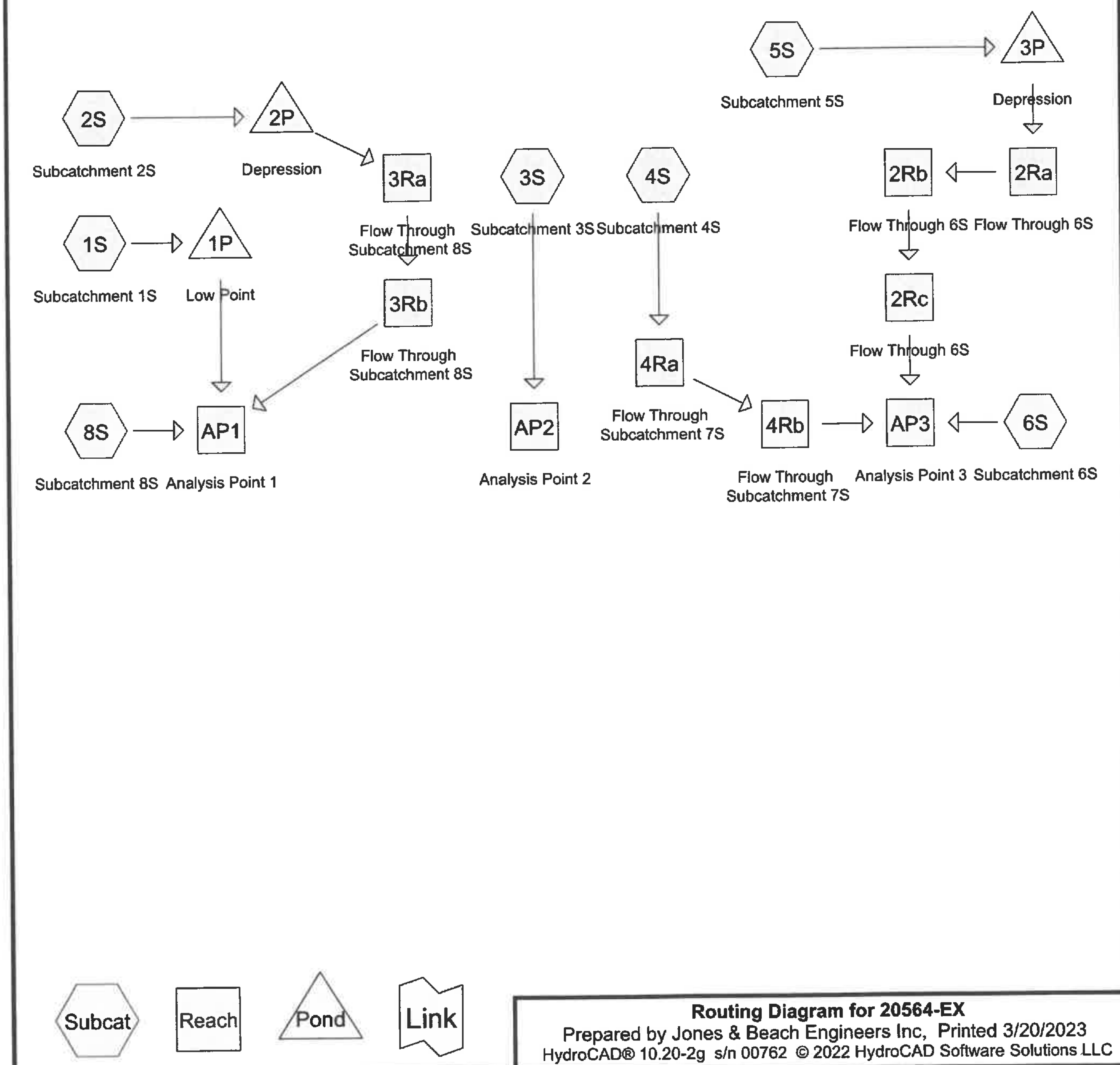
Daniel Meditz

Daniel Meditz, E.I.T
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Complete 25 YEAR
Complete 50 YEAR
Complete 100 YEAR



Routing Diagram for 20564-EX
Prepared by Jones & Beach Engineers Inc, Printed 3/20/2023
HydroCAD® 10.20-2g s/n 00762 © 2022 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.947	61	>75% Grass cover, Good, HSG B (3S, 8S)
0.251	85	Gravel roads, HSG B (8S)
0.504	98	Paved parking, HSG B (1S, 3S, 8S)
0.244	98	Roofs, HSG B (3S, 8S)
29.954	55	Woods, Good, HSG B (1S, 2S, 3S, 4S, 5S, 6S, 8S)
1.013	70	Woods, Good, HSG C (3S, 4S)
32.913	**57**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
31.900	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 8S
1.013	HSG C	3S, 4S
0.000	HSG D	
0.000	Other	
32.913		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=110,362 sf 1.77% Impervious Runoff Depth>0.23"
Flow Length=667' Tc=29.5 min CN=56 Runoff=0.17 cfs 0.048 af

Subcatchment2S: Subcatchment2S Runoff Area=27,810 sf 0.00% Impervious Runoff Depth>0.20"
Flow Length=380' Tc=32.2 min CN=55 Runoff=0.03 cfs 0.011 af

Subcatchment3S: Subcatchment3S Runoff Area=636,817 sf 1.44% Impervious Runoff Depth>0.23"
Flow Length=998' Tc=32.0 min CN=56 Runoff=0.96 cfs 0.277 af

Subcatchment4S: Subcatchment4S Runoff Area=223,276 sf 0.00% Impervious Runoff Depth>0.26"
Flow Length=688' Tc=27.1 min CN=57 Runoff=0.44 cfs 0.109 af

Subcatchment5S: Subcatchment5S Runoff Area=17,061 sf 0.00% Impervious Runoff Depth>0.20"
Flow Length=100' Tc=16.9 min CN=55 Runoff=0.03 cfs 0.007 af

Subcatchment6S: Subcatchment6S Runoff Area=122,925 sf 0.00% Impervious Runoff Depth>0.20"
Flow Length=332' Tc=15.3 min CN=55 Runoff=0.19 cfs 0.048 af

Subcatchment8S: Subcatchment8S Runoff Area=295,459 sf 7.26% Impervious Runoff Depth>0.31"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=0.76 cfs 0.176 af

Reach 2Ra: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=50.0' S=0.1800 '/' Capacity=169.82 cfs Outflow=0.00 cfs 0.000 af

Reach 2Rb: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=62.0' S=0.4194 '/' Capacity=2,470.25 cfs Outflow=0.00 cfs 0.000 af

Reach 2Rc: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=120.0' S=0.0167 '/' Capacity=68.83 cfs Outflow=0.00 cfs 0.000 af

Reach 3Ra: Flow Through Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=131.0' S=0.1069 '/' Capacity=201.91 cfs Outflow=0.00 cfs 0.000 af

Reach 3Rb: Flow Through Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=175.0' S=0.2286 '/' Capacity=573.66 cfs Outflow=0.00 cfs 0.000 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.20' Max Vel=0.38 fps Inflow=0.44 cfs 0.109 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=0.44 cfs 0.109 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.10' Max Vel=0.33 fps Inflow=0.44 cfs 0.109 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=0.44 cfs 0.108 af

Reach AP1: Analysis Point 1 Inflow=0.76 cfs 0.188 af
Outflow=0.76 cfs 0.188 af

Reach AP2: Analysis Point 2 Inflow=0.96 cfs 0.277 af
Outflow=0.96 cfs 0.277 af

Reach AP3: Analysis Point 3 Inflow=0.59 cfs 0.156 af
Outflow=0.59 cfs 0.156 af

Pond 1P: Low Point Peak Elev=199.31' Storage=1,041 cf Inflow=0.17 cfs 0.048 af
Discarded=0.01 cfs 0.013 af Primary=0.04 cfs 0.012 af Outflow=0.05 cfs 0.024 af

Pond 2P: Depression Peak Elev=256.31' Storage=468 cf Inflow=0.03 cfs 0.011 af
Outflow=0.00 cfs 0.000 af

Pond 3P: Depression Peak Elev=258.28' Storage=290 cf Inflow=0.03 cfs 0.007 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 32.913 ac Runoff Volume = 0.676 af Average Runoff Depth = 0.25"
97.73% Pervious = 32.166 ac 2.27% Impervious = 0.748 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=110,362 sf 1.77% Impervious Runoff Depth>0.83"
Flow Length=667' Tc=29.5 min CN=56 Runoff=1.12 cfs 0.176 af

Subcatchment2S: Subcatchment2S Runoff Area=27,810 sf 0.00% Impervious Runoff Depth>0.78"
Flow Length=380' Tc=32.2 min CN=55 Runoff=0.25 cfs 0.041 af

Subcatchment3S: Subcatchment3S Runoff Area=636,817 sf 1.44% Impervious Runoff Depth>0.83"
Flow Length=998' Tc=32.0 min CN=56 Runoff=6.24 cfs 1.015 af

Subcatchment4S: Subcatchment4S Runoff Area=223,276 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=688' Tc=27.1 min CN=57 Runoff=2.58 cfs 0.380 af

Subcatchment5S: Subcatchment5S Runoff Area=17,061 sf 0.00% Impervious Runoff Depth>0.78"
Flow Length=100' Tc=16.9 min CN=55 Runoff=0.19 cfs 0.026 af

Subcatchment6S: Subcatchment6S Runoff Area=122,925 sf 0.00% Impervious Runoff Depth>0.78"
Flow Length=332' Tc=15.3 min CN=55 Runoff=1.43 cfs 0.184 af

Subcatchment8S: Subcatchment8S Runoff Area=295,459 sf 7.26% Impervious Runoff Depth>1.00"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=3.65 cfs 0.567 af

Reach 2Ra: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=50.0' S=0.1800 '/' Capacity=169.82 cfs Outflow=0.00 cfs 0.000 af

Reach 2Rb: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=62.0' S=0.4194 '/' Capacity=2,470.25 cfs Outflow=0.00 cfs 0.000 af

Reach 2Rc: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=120.0' S=0.0167 '/' Capacity=68.83 cfs Outflow=0.00 cfs 0.000 af

Reach 3Ra: Flow Through Avg. Flow Depth=0.05' Max Vel=0.14 fps Inflow=0.14 cfs 0.029 af
n=0.400 L=131.0' S=0.1069 '/' Capacity=201.91 cfs Outflow=0.09 cfs 0.028 af

Reach 3Rb: Flow Through Avg. Flow Depth=0.03' Max Vel=0.14 fps Inflow=0.09 cfs 0.028 af
n=0.400 L=175.0' S=0.2286 '/' Capacity=573.66 cfs Outflow=0.07 cfs 0.028 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.46' Max Vel=0.65 fps Inflow=2.58 cfs 0.380 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=2.58 cfs 0.380 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.23' Max Vel=0.57 fps Inflow=2.58 cfs 0.380 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=2.56 cfs 0.379 af

Reach AP1: Analysis Point 1 Inflow=4.86 cfs 0.733 af
Outflow=4.86 cfs 0.733 af

Reach AP2: Analysis Point 2 Inflow=6.24 cfs 1.015 af
Outflow=6.24 cfs 1.015 af

Reach AP3: Analysis Point 3 Inflow=3.71 cfs 0.564 af
Outflow=3.71 cfs 0.564 af

Pond 1P: Low Point Peak Elev=199.31' Storage=1,044 cf Inflow=1.12 cfs 0.176 af
Discarded=0.01 cfs 0.014 af Primary=1.22 cfs 0.138 af Outflow=1.23 cfs 0.152 af

Pond 2P: Depression Peak Elev=256.36' Storage=569 cf Inflow=0.25 cfs 0.041 af
Outflow=0.14 cfs 0.029 af

Pond 3P: Depression Peak Elev=258.78' Storage=1,114 cf Inflow=0.19 cfs 0.026 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 32.913 ac Runoff Volume = 2.391 af Average Runoff Depth = 0.87"
97.73% Pervious = 32.166 ac 2.27% Impervious = 0.748 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 1.12 cfs @ 12.51 hrs, Volume= 0.176 af, Depth> 0.83"
Routed to Pond 1P : Low Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
1,957	98	Paved parking, HSG B
108,405	55	Woods, Good, HSG B
110,362	56	Weighted Average
108,405		98.23% Pervious Area
1,957		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.8	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	163	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	129	0.1090	1.65		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	101	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	174	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.5	667	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 0.25 cfs @ 12.56 hrs, Volume= 0.041 af, Depth> 0.78"
Routed to Pond 2P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
27,810	55	Woods, Good, HSG B
27,810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.1	61	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	27	0.0740	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	104	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	88	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.2	380	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 6.24 cfs @ 12.55 hrs, Volume= 1.015 af, Depth> 0.83"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
568,855	55	Woods, Good, HSG B
18,326	70	Woods, Good, HSG C
4,531	98	Roofs, HSG B
40,469	61	>75% Grass cover, Good, HSG B
4,636	98	Paved parking, HSG B
636,817	56	Weighted Average
627,650		98.56% Pervious Area
9,167		1.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	132	0.2400	2.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	100	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	102	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	8	0.1540	1.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.2	168	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.0	998	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 2.58 cfs @ 12.46 hrs, Volume= 0.380 af, Depth> 0.89"
Routed to Reach 4Ra : Flow Through Subcatchment 7S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
197,469	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
223,276	57	Weighted Average
223,276		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	23	0.1090	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
10.1	52	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.4	20	0.2000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	5	0.0320	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	56	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	22	0.0910	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	42	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1210	1.74		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	58	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	89	0.1120	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	32	0.0940	1.53		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
27.1	688	Total			

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 0.19 cfs @ 12.30 hrs, Volume= 0.026 af, Depth> 0.78"
Routed to Pond 3P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
17,061	55	Woods, Good, HSG B
17,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0710	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
11.2	65	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
16.9	100	Total			

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 1.43 cfs @ 12.27 hrs, Volume= 0.184 af, Depth> 0.78"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
122,925	55	Woods, Good, HSG B
122,925		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	67	0.1270	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	20	0.3000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.5	13	0.0800	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	12	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	27	0.1480	1.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	73	0.4380	3.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	120	0.0167	0.86	68.89	**Trap/Vee/Rect Channel Flow,** Bot.W=8.00' D=4.00' Z= 3.0 '/' Top.W=32.00' n= 0.400
15.3	332	Total			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 3.65 cfs @ 12.56 hrs, Volume= 0.567 af, Depth> 1.00"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
798	61	>75% Grass cover, Good, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
262,259	55	Woods, Good, HSG B
295,459	59	Weighted Average
274,010		92.74% Pervious Area
21,449		7.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Reach 2Ra: Flow Through 6S

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year 24-Hour event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2Rb : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 4.00' Flow Area= 64.0 sf, Capacity= 169.82 cfs

4.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 28.00'
Length= 50.0' Slope= 0.1800 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

Summary for Reach 2Rb: Flow Through 6S

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year 24-Hour event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2Rc : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 4.00' Flow Area= 432.0 sf, Capacity= 2,470.25 cfs

100.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 2.0 '/' Top Width= 116.00'
Length= 62.0' Slope= 0.4194 '/'
Inlet Invert= 250.00', Outlet Invert= 224.00'

Summary for Reach 2Rc: Flow Through 6S

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year 24-Hour event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 68.83 cfs

8.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 120.0' Slope= 0.0167 '/'
Inlet Invert= 224.00', Outlet Invert= 222.00'

‡

Summary for Reach 3Ra: Flow Through Subcatchment 8S

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 0.54" for 10-Year 24-Hour event
Inflow = 0.14 cfs @ 13.07 hrs, Volume= 0.029 af
Outflow = 0.09 cfs @ 13.46 hrs, Volume= 0.028 af, Atten= 37%, Lag= 23.0 min
Routed to Reach 3Rb : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.14 fps, Min. Travel Time= 16.0 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 22.1 min

Peak Storage= 82 cf @ 13.46 hrs
Average Depth at Peak Storage= 0.05' , Surface Width= 17.01'
Bank-Full Depth= 2.00' Flow Area= 137.3 sf, Capacity= 201.91 cfs

103.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 131.0' Slope= 0.1069 '/'
Inlet Invert= 256.00', Outlet Invert= 242.00'

‡

Summary for Reach 3Rb: Flow Through Subcatchment 8S

[61] Hint: Exceeded Reach 3Ra outlet invert by 0.03' @ 13.90 hrs

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 0.53" for 10-Year 24-Hour event
Inflow = 0.09 cfs @ 13.46 hrs, Volume= 0.028 af
Outflow = 0.07 cfs @ 13.91 hrs, Volume= 0.028 af, Atten= 14%, Lag= 27.0 min
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.14 fps, Min. Travel Time= 20.4 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 26.5 min

Peak Storage= 89 cf @ 13.91 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 24.48'
Bank-Full Depth= 2.00' Flow Area= 266.7 sf, Capacity= 573.66 cfs

200.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 175.0' Slope= 0.2286 '/'
Inlet Invert= 242.00', Outlet Invert= 202.00'

‡

Summary for Reach 4Ra: Flow Through Subcatchment 7S

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 0.89" for 10-Year 24-Hour event
Inflow = 2.58 cfs @ 12.46 hrs, Volume= 0.380 af
Outflow = 2.58 cfs @ 12.47 hrs, Volume= 0.380 af, Atten= 0%, Lag= 0.7 min
Routed to Reach 4Rb : Flow Through Subcatchment 7S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.65 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 2.0 min

Peak Storage= 158 cf @ 12.47 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 12.93'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

‡

Summary for Reach 4Rb: Flow Through Subcatchment 7S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.23' @ 12.50 hrs

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 0.89" for 10-Year 24-Hour event
Inflow = 2.58 cfs @ 12.47 hrs, Volume= 0.380 af
Outflow = 2.56 cfs @ 12.50 hrs, Volume= 0.379 af, Atten= 0%, Lag= 1.6 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.57 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.29 fps, Avg. Travel Time= 4.1 min

Peak Storage= 322 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.23' , Surface Width= 29.51'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.955 ac, 5.40% Impervious, Inflow Depth > 0.88" for 10-Year 24-Hour event
Inflow = 4.86 cfs @ 12.57 hrs, Volume= 0.733 af
Outflow = 4.86 cfs @ 12.57 hrs, Volume= 0.733 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14.619 ac, 1.44% Impervious, Inflow Depth > 0.83" for 10-Year 24-Hour event
Inflow = 6.24 cfs @ 12.55 hrs, Volume= 1.015 af
Outflow = 6.24 cfs @ 12.55 hrs, Volume= 1.015 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.339 ac, 0.00% Impervious, Inflow Depth > 0.81" for 10-Year 24-Hour event
Inflow = 3.71 cfs @ 12.45 hrs, Volume= 0.564 af
Outflow = 3.71 cfs @ 12.45 hrs, Volume= 0.564 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Pond 1P: Low Point

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 2.534 ac, 1.77% Impervious, Inflow Depth > 0.83" for 10-Year 24-Hour event
Inflow = 1.12 cfs @ 12.51 hrs, Volume= 0.176 af
Outflow = 1.23 cfs @ 12.57 hrs, Volume= 0.152 af, Atten= 0%, Lag= 3.8 min
Discarded = 0.01 cfs @ 12.55 hrs, Volume= 0.014 af
Primary = 1.22 cfs @ 12.57 hrs, Volume= 0.138 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.31' @ 12.55 hrs Surf.Area= 1,663 sf Storage= 1,044 cf

Plug-Flow detention time= 88.3 min calculated for 0.152 af (86% of inflow)
Center-of-Mass det. time= 28.3 min (941.6 - 913.3)

Volume	Invert	Avail.Storage	Storage Description
#1	198.50'	1,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.50	994	0	0
199.00	1,324	580	580
199.30	1,663	448	1,028
199.31	1,663	17	1,044

Device	Routing	Invert	Outlet Devices
#0	Primary	199.31'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	198.50'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	199.30'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.01 cfs @ 12.55 hrs HW=199.31' (Free Discharge)
└─**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.05 cfs @ 12.57 hrs HW=199.31' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Depression

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 0.78" for 10-Year 24-Hour event
Inflow = 0.25 cfs @ 12.56 hrs, Volume= 0.041 af
Outflow = 0.14 cfs @ 13.07 hrs, Volume= 0.029 af, Atten= 45%, Lag= 30.8 min
Primary = 0.14 cfs @ 13.07 hrs, Volume= 0.029 af
Routed to Reach 3Ra : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 256.36' @ 13.05 hrs Surf.Area= 2,263 sf Storage= 569 cf

Plug-Flow detention time= 183.4 min calculated for 0.029 af (69% of inflow)
Center-of-Mass det. time= 74.4 min (993.8 - 919.3)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	882	0	0
256.35	2,263	550	550
256.85	2,263	1,132	1,682

Device	Routing	Invert	Outlet Devices
#1	Primary	256.35'	**70.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.13 cfs @ 13.07 hrs HW=256.36' TW=256.03' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 0.22 fps)

Summary for Pond 3P: Depression

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 0.78" for 10-Year 24-Hour event
Inflow = 0.19 cfs @ 12.30 hrs, Volume= 0.026 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 2Ra : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 258.78' @ 24.00 hrs Surf.Area= 2,082 sf Storage= 1,114 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	258.00'	1,652 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
258.00	871	121.0	0	0	871
259.00	2,526	233.0	1,627	1,627	4,031
259.01	2,526	233.0	25	1,652	4,033

Device	Routing	Invert	Outlet Devices
#1	Primary	259.00'	**14.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=258.00' TW=259.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=110,362 sf 1.77% Impervious Runoff Depth>1.48"
Flow Length=667' Tc=29.5 min CN=56 Runoff=2.26 cfs 0.313 af

Subcatchment2S: Subcatchment2S Runoff Area=27,810 sf 0.00% Impervious Runoff Depth>1.41"
Flow Length=380' Tc=32.2 min CN=55 Runoff=0.51 cfs 0.075 af

Subcatchment3S: Subcatchment3S Runoff Area=636,817 sf 1.44% Impervious Runoff Depth>1.48"
Flow Length=998' Tc=32.0 min CN=56 Runoff=12.56 cfs 1.807 af

Subcatchment4S: Subcatchment4S Runoff Area=223,276 sf 0.00% Impervious Runoff Depth>1.56"
Flow Length=688' Tc=27.1 min CN=57 Runoff=5.05 cfs 0.667 af

Subcatchment5S: Subcatchment5S Runoff Area=17,061 sf 0.00% Impervious Runoff Depth>1.41"
Flow Length=100' Tc=16.9 min CN=55 Runoff=0.41 cfs 0.046 af

Subcatchment6S: Subcatchment6S Runoff Area=122,925 sf 0.00% Impervious Runoff Depth>1.42"
Flow Length=332' Tc=15.3 min CN=55 Runoff=3.04 cfs 0.333 af

Subcatchment8S: Subcatchment8S Runoff Area=295,459 sf 7.26% Impervious Runoff Depth>1.71"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=6.79 cfs 0.969 af

Reach 2Ra: Flow Through 6S Avg. Flow Depth=0.03' Max Vel=0.18 fps Inflow=0.04 cfs 0.008 af
n=0.400 L=50.0' S=0.1800 '/' Capacity=169.82 cfs Outflow=0.02 cfs 0.008 af

Reach 2Rb: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.28 fps Inflow=0.02 cfs 0.008 af
n=0.400 L=62.0' S=0.4194 '/' Capacity=2,470.25 cfs Outflow=0.02 cfs 0.008 af

Reach 2Rc: Flow Through 6S Avg. Flow Depth=0.04' Max Vel=0.06 fps Inflow=0.02 cfs 0.008 af
n=0.400 L=120.0' S=0.0167 '/' Capacity=68.83 cfs Outflow=0.02 cfs 0.007 af

Reach 3Ra: Flow Through Avg. Flow Depth=0.11' Max Vel=0.21 fps Inflow=0.52 cfs 0.062 af
n=0.400 L=131.0' S=0.1069 '/' Capacity=201.91 cfs Outflow=0.36 cfs 0.061 af

Reach 3Rb: Flow Through Avg. Flow Depth=0.06' Max Vel=0.21 fps Inflow=0.36 cfs 0.061 af
n=0.400 L=175.0' S=0.2286 '/' Capacity=573.66 cfs Outflow=0.29 cfs 0.061 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.63' Max Vel=0.80 fps Inflow=5.05 cfs 0.667 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=5.05 cfs 0.667 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.31' Max Vel=0.70 fps Inflow=5.05 cfs 0.667 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=5.04 cfs 0.665 af

Reach AP1: Analysis Point 1 Inflow=9.02 cfs 1.305 af
Outflow=9.02 cfs 1.305 af

Reach AP2: Analysis Point 2 Inflow=12.56 cfs 1.807 af
Outflow=12.56 cfs 1.807 af

Reach AP3: Analysis Point 3 Inflow=7.35 cfs 1.006 af
Outflow=7.35 cfs 1.006 af

Pond 1P: Low Point Peak Elev=199.31' Storage=1,044 cf Inflow=2.26 cfs 0.313 af
Discarded=0.01 cfs 0.014 af Primary=2.23 cfs 0.275 af Outflow=2.25 cfs 0.289 af

Pond 2P: Depression Peak Elev=256.37' Storage=599 cf Inflow=0.51 cfs 0.075 af
Outflow=0.52 cfs 0.062 af

Pond 3P: Depression Peak Elev=259.03' Storage=1,652 cf Inflow=0.41 cfs 0.046 af
Outflow=0.04 cfs 0.008 af

Total Runoff Area = 32.913 ac Runoff Volume = 4.210 af Average Runoff Depth = 1.53"
97.73% Pervious = 32.166 ac 2.27% Impervious = 0.748 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 2.26 cfs @ 12.47 hrs, Volume= 0.313 af, Depth> 1.48"
Routed to Pond 1P : Low Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
1,957	98	Paved parking, HSG B
108,405	55	Woods, Good, HSG B
110,362	56	Weighted Average
108,405		98.23% Pervious Area
1,957		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.8	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	163	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	129	0.1090	1.65		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	101	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	174	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.5	667	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 0.51 cfs @ 12.52 hrs, Volume= 0.075 af, Depth> 1.41"
Routed to Pond 2P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
27,810	55	Woods, Good, HSG B
27,810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.1	61	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	27	0.0740	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	104	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	88	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.2	380	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 12.56 cfs @ 12.51 hrs, Volume= 1.807 af, Depth> 1.48"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
568,855	55	Woods, Good, HSG B
18,326	70	Woods, Good, HSG C
4,531	98	Roofs, HSG B
40,469	61	>75% Grass cover, Good, HSG B
4,636	98	Paved parking, HSG B
636,817	56	Weighted Average
627,650		98.56% Pervious Area
9,167		1.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	132	0.2400	2.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	100	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	102	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	8	0.1540	1.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.2	168	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.0	998	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 5.05 cfs @ 12.43 hrs, Volume= 0.667 af, Depth> 1.56"
Routed to Reach 4Ra : Flow Through Subcatchment 7S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
197,469	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
223,276	57	Weighted Average
223,276		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	23	0.1090	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
10.1	52	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.4	20	0.2000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	5	0.0320	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	56	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	22	0.0910	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	42	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1210	1.74		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	58	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	89	0.1120	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	32	0.0940	1.53		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
27.1	688	Total			

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 0.41 cfs @ 12.27 hrs, Volume= 0.046 af, Depth> 1.41"
Routed to Pond 3P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
17,061	55	Woods, Good, HSG B
17,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0710	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
11.2	65	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
16.9	100	Total			

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 3.04 cfs @ 12.24 hrs, Volume= 0.333 af, Depth> 1.42"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
122,925	55	Woods, Good, HSG B
122,925		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	67	0.1270	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	20	0.3000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.5	13	0.0800	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	12	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	27	0.1480	1.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	73	0.4380	3.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	120	0.0167	0.86	68.89	**Trap/Vee/Rect Channel Flow,** Bot.W=8.00' D=4.00' Z= 3.0 '/' Top.W=32.00' n= 0.400
15.3	332	Total			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 6.79 cfs @ 12.52 hrs, Volume= 0.969 af, Depth> 1.71"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
798	61	>75% Grass cover, Good, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
262,259	55	Woods, Good, HSG B
295,459	59	Weighted Average
274,010		92.74% Pervious Area
21,449		7.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Reach 2Ra: Flow Through 6S

[80] Warning: Exceeded Pond 3P by 0.02' @ 18.10 hrs (0.14 cfs 0.022 af)

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 0.25" for 25-Year 24-Hour event
Inflow = 0.04 cfs @ 17.85 hrs, Volume= 0.008 af
Outflow = 0.02 cfs @ 18.09 hrs, Volume= 0.008 af, Atten= 53%, Lag= 14.5 min
Routed to Reach 2Rb : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.18 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.18 fps, Avg. Travel Time= 4.6 min

Peak Storage= 6 cf @ 18.09 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 4.17'
Bank-Full Depth= 4.00' Flow Area= 64.0 sf, Capacity= 169.82 cfs

4.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 28.00'
Length= 50.0' Slope= 0.1800 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

Summary for Reach 2Rb: Flow Through 6S

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 0.25" for 25-Year 24-Hour event
Inflow = 0.02 cfs @ 18.09 hrs, Volume= 0.008 af
Outflow = 0.02 cfs @ 18.17 hrs, Volume= 0.008 af, Atten= 2%, Lag= 4.6 min
Routed to Reach 2Rc : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.28 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 3.7 min

Peak Storage= 5 cf @ 18.17 hrs
Average Depth at Peak Storage= 0.00' , Surface Width= 100.00'
Bank-Full Depth= 4.00' Flow Area= 432.0 sf, Capacity= 2,470.25 cfs

100.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 2.0 '/' Top Width= 116.00'
Length= 62.0' Slope= 0.4194 '/'
Inlet Invert= 250.00', Outlet Invert= 224.00'

‡

Summary for Reach 2Rc: Flow Through 6S

[62] Hint: Exceeded Reach 2Rb OUTLET depth by 0.04' @ 19.70 hrs

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 0.25" for 25-Year 24-Hour event
Inflow = 0.02 cfs @ 18.17 hrs, Volume= 0.008 af
Outflow = 0.02 cfs @ 19.69 hrs, Volume= 0.007 af, Atten= 14%, Lag= 91.2 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.06 fps, Min. Travel Time= 36.0 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 36.0 min

Peak Storage= 38 cf @ 19.69 hrs
Average Depth at Peak Storage= 0.04' , Surface Width= 8.23'
Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 68.83 cfs

8.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 120.0' Slope= 0.0167 '/'
Inlet Invert= 224.00', Outlet Invert= 222.00'

‡

Summary for Reach 3Ra: Flow Through Subcatchment 8S

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 1.17" for 25-Year 24-Hour event
Inflow = 0.52 cfs @ 12.61 hrs, Volume= 0.062 af
Outflow = 0.36 cfs @ 12.83 hrs, Volume= 0.061 af, Atten= 30%, Lag= 13.1 min
Routed to Reach 3Rb : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.21 fps, Min. Travel Time= 10.3 min
Avg. Velocity = 0.12 fps, Avg. Travel Time= 18.5 min

Peak Storage= 225 cf @ 12.83 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 23.89'
Bank-Full Depth= 2.00' Flow Area= 137.3 sf, Capacity= 201.91 cfs

103.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 131.0' Slope= 0.1069 '/'
Inlet Invert= 256.00', Outlet Invert= 242.00'

‡

Summary for Reach 3Rb: Flow Through Subcatchment 8S

[61] Hint: Exceeded Reach 3Ra outlet invert by 0.06' @ 13.05 hrs

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 1.16" for 25-Year 24-Hour event
Inflow = 0.36 cfs @ 12.83 hrs, Volume= 0.061 af
Outflow = 0.29 cfs @ 13.07 hrs, Volume= 0.061 af, Atten= 21%, Lag= 14.3 min
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.21 fps, Min. Travel Time= 14.0 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 23.1 min

Peak Storage= 243 cf @ 13.07 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 34.66'
Bank-Full Depth= 2.00' Flow Area= 266.7 sf, Capacity= 573.66 cfs

200.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 175.0' Slope= 0.2286 '/'
Inlet Invert= 242.00', Outlet Invert= 202.00'

‡

Summary for Reach 4Ra: Flow Through Subcatchment 7S

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 1.56" for 25-Year 24-Hour event
Inflow = 5.05 cfs @ 12.43 hrs, Volume= 0.667 af
Outflow = 5.05 cfs @ 12.44 hrs, Volume= 0.667 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 4Rb : Flow Through Subcatchment 7S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.80 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 1.8 min

Peak Storage= 252 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.63' , Surface Width= 15.10'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

Summary for Reach 4Rb: Flow Through Subcatchment 7S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.31' @ 12.45 hrs

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 1.56" for 25-Year 24-Hour event
Inflow = 5.05 cfs @ 12.44 hrs, Volume= 0.667 af
Outflow = 5.04 cfs @ 12.46 hrs, Volume= 0.665 af, Atten= 0%, Lag= 1.2 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.70 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 3.6 min

Peak Storage= 514 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.31' , Surface Width= 34.50'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.955 ac, 5.40% Impervious, Inflow Depth > 1.57" for 25-Year 24-Hour event
Inflow = 9.02 cfs @ 12.52 hrs, Volume= 1.305 af
Outflow = 9.02 cfs @ 12.52 hrs, Volume= 1.305 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14.619 ac, 1.44% Impervious, Inflow Depth > 1.48" for 25-Year 24-Hour event
Inflow = 12.56 cfs @ 12.51 hrs, Volume= 1.807 af
Outflow = 12.56 cfs @ 12.51 hrs, Volume= 1.807 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.339 ac, 0.00% Impervious, Inflow Depth > 1.45" for 25-Year 24-Hour event
Inflow = 7.35 cfs @ 12.40 hrs, Volume= 1.006 af
Outflow = 7.35 cfs @ 12.40 hrs, Volume= 1.006 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Pond 1P: Low Point

Inflow Area = 2.534 ac, 1.77% Impervious, Inflow Depth > 1.48" for 25-Year 24-Hour event
Inflow = 2.26 cfs @ 12.47 hrs, Volume= 0.313 af
Outflow = 2.25 cfs @ 12.50 hrs, Volume= 0.289 af, Atten= 0%, Lag= 1.6 min
Discarded = 0.01 cfs @ 12.30 hrs, Volume= 0.014 af
Primary = 2.23 cfs @ 12.50 hrs, Volume= 0.275 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.31' @ 12.30 hrs Surf.Area= 1,663 sf Storage= 1,044 cf

Plug-Flow detention time= 51.6 min calculated for 0.289 af (92% of inflow)
Center-of-Mass det. time= 14.7 min (907.9 - 893.2)

Volume	Invert	Avail.Storage	Storage Description
#1	198.50'	1,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.50	994	0	0
199.00	1,324	580	580
199.30	1,663	448	1,028
199.31	1,663	17	1,044

Device	Routing	Invert	Outlet Devices
#0	Primary	199.31'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	198.50'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	199.30'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00
Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31
3.30 3.31 3.32

Discarded OutFlow Max=0.01 cfs @ 12.30 hrs HW=199.31' (Free Discharge)
└─**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.05 cfs @ 12.50 hrs HW=199.31' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Depression

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 1.41" for 25-Year 24-Hour event
Inflow = 0.51 cfs @ 12.52 hrs, Volume= 0.075 af
Outflow = 0.52 cfs @ 12.61 hrs, Volume= 0.062 af, Atten= 0%, Lag= 5.8 min
Primary = 0.52 cfs @ 12.61 hrs, Volume= 0.062 af
Routed to Reach 3Ra : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 256.37' @ 12.61 hrs Surf.Area= 2,263 sf Storage= 599 cf

Plug-Flow detention time= 104.8 min calculated for 0.062 af (83% of inflow)
Center-of-Mass det. time= 34.1 min (932.3 - 898.2)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	882	0	0
256.35	2,263	550	550
256.85	2,263	1,132	1,682

Device	Routing	Invert	Outlet Devices
#1	Primary	256.35'	**70.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.51 cfs @ 12.61 hrs HW=256.37' TW=256.07' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.51 cfs @ 0.34 fps)

Summary for Pond 3P: Depression

[93] Warning: Storage range exceeded by 0.02'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=61)

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 1.41" for 25-Year 24-Hour event
Inflow = 0.41 cfs @ 12.27 hrs, Volume= 0.046 af
Outflow = 0.04 cfs @ 17.85 hrs, Volume= 0.008 af, Atten= 89%, Lag= 334.9 min
Primary = 0.04 cfs @ 17.85 hrs, Volume= 0.008 af
Routed to Reach 2Ra : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 259.03' @ 18.04 hrs Surf.Area= 2,526 sf Storage= 1,652 cf

Plug-Flow detention time= 502.7 min calculated for 0.008 af (18% of inflow)
Center-of-Mass det. time= 345.6 min (1,232.4 - 886.8)

Volume	Invert	Avail.Storage	Storage Description
#1	258.00'	1,652 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
258.00	871	121.0	0	0	871
259.00	2,526	233.0	1,627	1,627	4,031
259.01	2,526	233.0	25	1,652	4,033

Device	Routing	Invert	Outlet Devices
#1	Primary	259.00'	**14.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.04 cfs @ 17.85 hrs HW=259.02' TW=259.02' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 0.04 cfs @ 0.16 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=110,362 sf 1.77% Impervious Runoff Depth>2.19"
Flow Length=667' Tc=29.5 min CN=56 Runoff=3.50 cfs 0.462 af

Subcatchment2S: Subcatchment2S Runoff Area=27,810 sf 0.00% Impervious Runoff Depth>2.09"
Flow Length=380' Tc=32.2 min CN=55 Runoff=0.80 cfs 0.111 af

Subcatchment3S: Subcatchment3S Runoff Area=636,817 sf 1.44% Impervious Runoff Depth>2.19"
Flow Length=998' Tc=32.0 min CN=56 Runoff=19.47 cfs 2.664 af

Subcatchment4S: Subcatchment4S Runoff Area=223,276 sf 0.00% Impervious Runoff Depth>2.28"
Flow Length=688' Tc=27.1 min CN=57 Runoff=7.74 cfs 0.976 af

Subcatchment5S: Subcatchment5S Runoff Area=17,061 sf 0.00% Impervious Runoff Depth>2.10"
Flow Length=100' Tc=16.9 min CN=55 Runoff=0.65 cfs 0.069 af

Subcatchment6S: Subcatchment6S Runoff Area=122,925 sf 0.00% Impervious Runoff Depth>2.10"
Flow Length=332' Tc=15.3 min CN=55 Runoff=4.81 cfs 0.495 af

Subcatchment8S: Subcatchment8S Runoff Area=295,459 sf 7.26% Impervious Runoff Depth>2.47"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=10.13 cfs 1.397 af

Reach 2Ra: Flow Through 6S Avg. Flow Depth=0.08' Max Vel=0.28 fps Inflow=0.12 cfs 0.031 af
n=0.400 L=50.0' S=0.1800 '/' Capacity=169.82 cfs Outflow=0.09 cfs 0.031 af

Reach 2Rb: Flow Through 6S Avg. Flow Depth=0.00' Max Vel=0.28 fps Inflow=0.09 cfs 0.031 af
n=0.400 L=62.0' S=0.4194 '/' Capacity=2,470.25 cfs Outflow=0.09 cfs 0.031 af

Reach 2Rc: Flow Through 6S Avg. Flow Depth=0.09' Max Vel=0.10 fps Inflow=0.09 cfs 0.031 af
n=0.400 L=120.0' S=0.0167 '/' Capacity=68.83 cfs Outflow=0.08 cfs 0.030 af

Reach 3Ra: Flow Through Avg. Flow Depth=0.15' Max Vel=0.26 fps Inflow=0.81 cfs 0.099 af
n=0.400 L=131.0' S=0.1069 '/' Capacity=201.91 cfs Outflow=0.70 cfs 0.098 af

Reach 3Rb: Flow Through Avg. Flow Depth=0.08' Max Vel=0.26 fps Inflow=0.70 cfs 0.098 af
n=0.400 L=175.0' S=0.2286 '/' Capacity=573.66 cfs Outflow=0.59 cfs 0.097 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.76' Max Vel=0.91 fps Inflow=7.74 cfs 0.976 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=7.73 cfs 0.975 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.38' Max Vel=0.79 fps Inflow=7.73 cfs 0.975 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=7.71 cfs 0.974 af

Reach AP1: Analysis Point 1 Inflow=13.67 cfs 1.916 af
Outflow=13.67 cfs 1.916 af

Reach AP2: Analysis Point 2 Inflow=19.47 cfs 2.664 af
Outflow=19.47 cfs 2.664 af

Reach AP3: Analysis Point 3 Inflow=11.34 cfs 1.498 af
Outflow=11.34 cfs 1.498 af

Pond 1P: Low Point Peak Elev=199.31' Storage=1,044 cf Inflow=3.50 cfs 0.462 af
Discarded=0.01 cfs 0.015 af Primary=3.47 cfs 0.423 af Outflow=3.49 cfs 0.438 af

Pond 2P: Depression Peak Elev=256.38' Storage=615 cf Inflow=0.80 cfs 0.111 af
Outflow=0.81 cfs 0.099 af

Pond 3P: Depression Peak Elev=259.08' Storage=1,652 cf Inflow=0.65 cfs 0.069 af
Outflow=0.12 cfs 0.031 af

Total Runoff Area = 32.913 ac Runoff Volume = 6.172 af Average Runoff Depth = 2.25"
97.73% Pervious = 32.166 ac 2.27% Impervious = 0.748 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 3.50 cfs @ 12.45 hrs, Volume= 0.462 af, Depth> 2.19"
Routed to Pond 1P : Low Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
1,957	98	Paved parking, HSG B
108,405	55	Woods, Good, HSG B
110,362	56	Weighted Average
108,405		98.23% Pervious Area
1,957		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.8	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	163	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	129	0.1090	1.65		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	101	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	174	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.5	667	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 0.80 cfs @ 12.49 hrs, Volume= 0.111 af, Depth> 2.09"
Routed to Pond 2P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
27,810	55	Woods, Good, HSG B
27,810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.1	61	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	27	0.0740	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	104	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	88	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.2	380	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 19.47 cfs @ 12.49 hrs, Volume= 2.664 af, Depth> 2.19"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
568,855	55	Woods, Good, HSG B
18,326	70	Woods, Good, HSG C
4,531	98	Roofs, HSG B
40,469	61	>75% Grass cover, Good, HSG B
4,636	98	Paved parking, HSG B
636,817	56	Weighted Average
627,650		98.56% Pervious Area
9,167		1.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	132	0.2400	2.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	100	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	102	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	8	0.1540	1.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.2	168	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.0	998	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 7.74 cfs @ 12.41 hrs, Volume= 0.976 af, Depth> 2.28"
Routed to Reach 4Ra : Flow Through Subcatchment 7S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
197,469	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
223,276	57	Weighted Average
223,276		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	23	0.1090	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
10.1	52	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.4	20	0.2000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	5	0.0320	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	56	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	22	0.0910	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	42	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1210	1.74		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	58	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	89	0.1120	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	32	0.0940	1.53		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
27.1	688	Total			

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 0.65 cfs @ 12.26 hrs, Volume= 0.069 af, Depth> 2.10"
Routed to Pond 3P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
17,061	55	Woods, Good, HSG B
17,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0710	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
11.2	65	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
16.9	100	Total			

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 4.81 cfs @ 12.23 hrs, Volume= 0.495 af, Depth> 2.10"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
122,925	55	Woods, Good, HSG B
122,925		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	67	0.1270	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	20	0.3000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.5	13	0.0800	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	12	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	27	0.1480	1.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	73	0.4380	3.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	120	0.0167	0.86	68.89	**Trap/Vee/Rect Channel Flow,** Bot.W=8.00' D=4.00' Z= 3.0 '/' Top.W=32.00' n= 0.400
15.3	332	Total			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 10.13 cfs @ 12.51 hrs, Volume= 1.397 af, Depth> 2.47"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
798	61	>75% Grass cover, Good, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
262,259	55	Woods, Good, HSG B
295,459	59	Weighted Average
274,010		92.74% Pervious Area
21,449		7.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Reach 2Ra: Flow Through 6S

[80] Warning: Exceeded Pond 3P by 0.02' @ 18.80 hrs (0.20 cfs 0.032 af)

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 0.94" for 50-Year 24-Hour event
Inflow = 0.12 cfs @ 13.55 hrs, Volume= 0.031 af
Outflow = 0.09 cfs @ 13.68 hrs, Volume= 0.031 af, Atten= 22%, Lag= 7.9 min
Routed to Reach 2Rb : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.28 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 0.20 fps, Avg. Travel Time= 4.1 min

Peak Storage= 17 cf @ 13.68 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 4.47'
Bank-Full Depth= 4.00' Flow Area= 64.0 sf, Capacity= 169.82 cfs

4.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 28.00'
Length= 50.0' Slope= 0.1800 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

Summary for Reach 2Rb: Flow Through 6S

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 0.94" for 50-Year 24-Hour event
Inflow = 0.09 cfs @ 13.68 hrs, Volume= 0.031 af
Outflow = 0.09 cfs @ 13.82 hrs, Volume= 0.031 af, Atten= 3%, Lag= 8.2 min
Routed to Reach 2Rc : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.28 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 3.7 min

Peak Storage= 20 cf @ 13.82 hrs
Average Depth at Peak Storage= 0.00' , Surface Width= 100.01'
Bank-Full Depth= 4.00' Flow Area= 432.0 sf, Capacity= 2,470.25 cfs

100.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 2.0 '/' Top Width= 116.00'
Length= 62.0' Slope= 0.4194 '/'
Inlet Invert= 250.00', Outlet Invert= 224.00'

Summary for Reach 2Rc: Flow Through 6S

[62] Hint: Exceeded Reach 2Rb OUTLET depth by 0.09' @ 14.35 hrs

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 0.93" for 50-Year 24-Hour event
Inflow = 0.09 cfs @ 13.82 hrs, Volume= 0.031 af
Outflow = 0.08 cfs @ 14.35 hrs, Volume= 0.030 af, Atten= 16%, Lag= 31.8 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.10 fps, Min. Travel Time= 20.4 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 28.3 min

Peak Storage= 93 cf @ 14.35 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 8.56'
Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 68.83 cfs

8.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 120.0' Slope= 0.0167 '/'
Inlet Invert= 224.00', Outlet Invert= 222.00'

‡

Summary for Reach 3Ra: Flow Through Subcatchment 8S

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 1.85" for 50-Year 24-Hour event
Inflow = 0.81 cfs @ 12.51 hrs, Volume= 0.099 af
Outflow = 0.70 cfs @ 12.68 hrs, Volume= 0.098 af, Atten= 14%, Lag= 10.1 min
Routed to Reach 3Rb : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.26 fps, Min. Travel Time= 8.5 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 16.7 min

Peak Storage= 354 cf @ 12.68 hrs
Average Depth at Peak Storage= 0.15' , Surface Width= 27.81'
Bank-Full Depth= 2.00' Flow Area= 137.3 sf, Capacity= 201.91 cfs

103.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 131.0' Slope= 0.1069 '/'
Inlet Invert= 256.00', Outlet Invert= 242.00'

‡

Summary for Reach 3Rb: Flow Through Subcatchment 8S

[61] Hint: Exceeded Reach 3Ra outlet invert by 0.08' @ 12.85 hrs

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 1.84" for 50-Year 24-Hour event
Inflow = 0.70 cfs @ 12.68 hrs, Volume= 0.098 af
Outflow = 0.59 cfs @ 12.87 hrs, Volume= 0.097 af, Atten= 15%, Lag= 11.1 min
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.26 fps, Min. Travel Time= 11.2 min
Avg. Velocity = 0.14 fps, Avg. Travel Time= 20.6 min

Peak Storage= 399 cf @ 12.87 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 40.84'
Bank-Full Depth= 2.00' Flow Area= 266.7 sf, Capacity= 573.66 cfs

200.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 175.0' Slope= 0.2286 '/'
Inlet Invert= 242.00', Outlet Invert= 202.00'

‡

Summary for Reach 4Ra: Flow Through Subcatchment 7S

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 2.28" for 50-Year 24-Hour event
Inflow = 7.74 cfs @ 12.41 hrs, Volume= 0.976 af
Outflow = 7.73 cfs @ 12.42 hrs, Volume= 0.975 af, Atten= 0%, Lag= 0.5 min
Routed to Reach 4Rb : Flow Through Subcatchment 7S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.91 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.41 fps, Avg. Travel Time= 1.6 min

Peak Storage= 339 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.76' , Surface Width= 16.67'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

‡

Summary for Reach 4Rb: Flow Through Subcatchment 7S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.38' @ 12.45 hrs

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 2.28" for 50-Year 24-Hour event
Inflow = 7.73 cfs @ 12.42 hrs, Volume= 0.975 af
Outflow = 7.71 cfs @ 12.44 hrs, Volume= 0.974 af, Atten= 0%, Lag= 1.1 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.79 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 3.3 min

Peak Storage= 690 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.38' , Surface Width= 38.07'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.955 ac, 5.40% Impervious, Inflow Depth > 2.31" for 50-Year 24-Hour event
Inflow = 13.67 cfs @ 12.51 hrs, Volume= 1.916 af
Outflow = 13.67 cfs @ 12.51 hrs, Volume= 1.916 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14.619 ac, 1.44% Impervious, Inflow Depth > 2.19" for 50-Year 24-Hour event
Inflow = 19.47 cfs @ 12.49 hrs, Volume= 2.664 af
Outflow = 19.47 cfs @ 12.49 hrs, Volume= 2.664 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.339 ac, 0.00% Impervious, Inflow Depth > 2.16" for 50-Year 24-Hour event
Inflow = 11.34 cfs @ 12.38 hrs, Volume= 1.498 af
Outflow = 11.34 cfs @ 12.38 hrs, Volume= 1.498 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Pond 1P: Low Point

Inflow Area = 2.534 ac, 1.77% Impervious, Inflow Depth > 2.19" for 50-Year 24-Hour event
Inflow = 3.50 cfs @ 12.45 hrs, Volume= 0.462 af
Outflow = 3.49 cfs @ 12.48 hrs, Volume= 0.438 af, Atten= 0%, Lag= 1.5 min
Discarded = 0.01 cfs @ 12.20 hrs, Volume= 0.015 af
Primary = 3.47 cfs @ 12.48 hrs, Volume= 0.423 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.31' @ 12.20 hrs Surf.Area= 1,663 sf Storage= 1,044 cf

Plug-Flow detention time= 36.7 min calculated for 0.438 af (95% of inflow)
Center-of-Mass det. time= 10.1 min (891.1 - 881.0)

Volume	Invert	Avail.Storage	Storage Description
#1	198.50'	1,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.50	994	0	0
199.00	1,324	580	580
199.30	1,663	448	1,028
199.31	1,663	17	1,044

Device	Routing	Invert	Outlet Devices
#0	Primary	199.31'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	198.50'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	199.30'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00
Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31
3.30 3.31 3.32

Discarded OutFlow Max=0.01 cfs @ 12.20 hrs HW=199.31' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.05 cfs @ 12.48 hrs HW=199.31' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir**(Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Depression

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 2.09" for 50-Year 24-Hour event
Inflow = 0.80 cfs @ 12.49 hrs, Volume= 0.111 af
Outflow = 0.81 cfs @ 12.51 hrs, Volume= 0.099 af, Atten= 0%, Lag= 1.0 min
Primary = 0.81 cfs @ 12.51 hrs, Volume= 0.099 af
Routed to Reach 3Ra : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 256.38' @ 12.51 hrs Surf.Area= 2,263 sf Storage= 615 cf

Plug-Flow detention time= 73.5 min calculated for 0.098 af (88% of inflow)
Center-of-Mass det. time= 21.6 min (907.2 - 885.6)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,682 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	882	0	0
256.35	2,263	550	550
256.85	2,263	1,132	1,682

Device	Routing	Invert	Outlet Devices
#1	Primary	256.35'	**70.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.80 cfs @ 12.51 hrs HW=256.38' TW=256.12' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir**(Weir Controls 0.80 cfs @ 0.40 fps)

Summary for Pond 3P: Depression

[93] Warning: Storage range exceeded by 0.07'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=102)

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 2.10" for 50-Year 24-Hour event
Inflow = 0.65 cfs @ 12.26 hrs, Volume= 0.069 af
Outflow = 0.12 cfs @ 13.55 hrs, Volume= 0.031 af, Atten= 82%, Lag= 77.6 min
Primary = 0.12 cfs @ 13.55 hrs, Volume= 0.031 af
Routed to Reach 2Ra : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 259.08' @ 13.65 hrs Surf.Area= 2,526 sf Storage= 1,652 cf

Plug-Flow detention time= 289.1 min calculated for 0.031 af (45% of inflow)
Center-of-Mass det. time= 155.0 min (1,028.9 - 874.0)

Volume	Invert	Avail.Storage	Storage Description
#1	258.00'	1,652 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
258.00	871	121.0	0	0	871
259.00	2,526	233.0	1,627	1,627	4,031
259.01	2,526	233.0	25	1,652	4,033

Device	Routing	Invert	Outlet Devices
#1	Primary	259.00'	**14.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.12 cfs @ 13.55 hrs HW=259.05' TW=259.05' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.18 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Subcatchment1S Runoff Area=110,362 sf 1.77% Impervious Runoff Depth>3.12"
Flow Length=667' Tc=29.5 min CN=56 Runoff=5.15 cfs 0.660 af

Subcatchment2S: Subcatchment2S Runoff Area=27,810 sf 0.00% Impervious Runoff Depth>3.01"
Flow Length=380' Tc=32.2 min CN=55 Runoff=1.20 cfs 0.160 af

Subcatchment3S: Subcatchment3S Runoff Area=636,817 sf 1.44% Impervious Runoff Depth>3.12"
Flow Length=998' Tc=32.0 min CN=56 Runoff=28.63 cfs 3.803 af

Subcatchment4S: Subcatchment4S Runoff Area=223,276 sf 0.00% Impervious Runoff Depth>3.24"
Flow Length=688' Tc=27.1 min CN=57 Runoff=11.27 cfs 1.384 af

Subcatchment5S: Subcatchment5S Runoff Area=17,061 sf 0.00% Impervious Runoff Depth>3.02"
Flow Length=100' Tc=16.9 min CN=55 Runoff=0.96 cfs 0.099 af

Subcatchment6S: Subcatchment6S Runoff Area=122,925 sf 0.00% Impervious Runoff Depth>3.02"
Flow Length=332' Tc=15.3 min CN=55 Runoff=7.21 cfs 0.711 af

Subcatchment8S: Subcatchment8S Runoff Area=295,459 sf 7.26% Impervious Runoff Depth>3.46"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=14.49 cfs 1.957 af

Reach 2Ra: Flow Through 6S Avg. Flow Depth=0.22' Max Vel=0.52 fps Inflow=0.70 cfs 0.061 af
n=0.400 L=50.0' S=0.1800 '/' Capacity=169.82 cfs Outflow=0.54 cfs 0.061 af

Reach 2Rb: Flow Through 6S Avg. Flow Depth=0.01' Max Vel=0.28 fps Inflow=0.54 cfs 0.061 af
n=0.400 L=62.0' S=0.4194 '/' Capacity=2,470.25 cfs Outflow=0.40 cfs 0.060 af

Reach 2Rc: Flow Through 6S Avg. Flow Depth=0.20' Max Vel=0.16 fps Inflow=0.40 cfs 0.060 af
n=0.400 L=120.0' S=0.0167 '/' Capacity=68.83 cfs Outflow=0.27 cfs 0.059 af

Reach 3Ra: Flow Through Avg. Flow Depth=0.18' Max Vel=0.30 fps Inflow=1.19 cfs 0.147 af
n=0.400 L=131.0' S=0.1069 '/' Capacity=201.91 cfs Outflow=1.12 cfs 0.146 af

Reach 3Rb: Flow Through Avg. Flow Depth=0.11' Max Vel=0.31 fps Inflow=1.12 cfs 0.146 af
n=0.400 L=175.0' S=0.2286 '/' Capacity=573.66 cfs Outflow=1.01 cfs 0.145 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.91' Max Vel=1.02 fps Inflow=11.27 cfs 1.384 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=11.27 cfs 1.383 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.46' Max Vel=0.89 fps Inflow=11.27 cfs 1.383 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=11.25 cfs 1.381 af

Reach AP1: Analysis Point 1 Inflow=20.10 cfs 2.722 af
Outflow=20.10 cfs 2.722 af

Reach AP2: Analysis Point 2 Inflow=28.63 cfs 3.803 af
Outflow=28.63 cfs 3.803 af

Reach AP3: Analysis Point 3 Inflow=16.65 cfs 2.152 af
Outflow=16.65 cfs 2.152 af

Pond 1P: Low Point Peak Elev=199.31' Storage=1,044 cf Inflow=5.15 cfs 0.660 af
Discarded=0.01 cfs 0.015 af Primary=5.12 cfs 0.620 af Outflow=5.13 cfs 0.635 af

Pond 2P: Depression Peak Elev=256.39' Storage=634 cf Inflow=1.20 cfs 0.160 af
Outflow=1.19 cfs 0.147 af

Pond 3P: Depression Peak Elev=259.22' Storage=1,652 cf Inflow=0.96 cfs 0.099 af
Outflow=0.70 cfs 0.061 af

Total Runoff Area = 32.913 ac Runoff Volume = 8.773 af Average Runoff Depth = 3.20"
97.73% Pervious = 32.166 ac 2.27% Impervious = 0.748 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 5.15 cfs @ 12.44 hrs, Volume= 0.660 af, Depth> 3.12"
Routed to Pond 1P : Low Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
1,957	98	Paved parking, HSG B
108,405	55	Woods, Good, HSG B
110,362	56	Weighted Average
108,405		98.23% Pervious Area
1,957		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.8	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	163	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	129	0.1090	1.65		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	101	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	174	0.3300	2.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.5	667	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 1.20 cfs @ 12.48 hrs, Volume= 0.160 af, Depth> 3.01"
Routed to Pond 2P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
27,810	55	Woods, Good, HSG B
27,810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.1	61	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	27	0.0740	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	104	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	88	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.2	380	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 28.63 cfs @ 12.47 hrs, Volume= 3.803 af, Depth> 3.12"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
568,855	55	Woods, Good, HSG B
18,326	70	Woods, Good, HSG C
4,531	98	Roofs, HSG B
40,469	61	>75% Grass cover, Good, HSG B
4,636	98	Paved parking, HSG B
636,817	56	Weighted Average
627,650		98.56% Pervious Area
9,167		1.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	55	0.0730	1.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	132	0.2400	2.45		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	100	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	102	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	8	0.1540	1.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.2	168	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	64	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
32.0	998	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 11.27 cfs @ 12.40 hrs, Volume= 1.384 af, Depth> 3.24"
Routed to Reach 4Ra : Flow Through Subcatchment 7S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
197,469	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
223,276	57	Weighted Average
223,276		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	23	0.1090	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
10.1	52	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.4	20	0.2000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	5	0.0320	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	56	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	22	0.0910	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	42	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1210	1.74		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	58	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	89	0.1120	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	32	0.0940	1.53		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
27.1	688	Total			

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 0.96 cfs @ 12.25 hrs, Volume= 0.099 af, Depth> 3.02"
Routed to Pond 3P : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
17,061	55	Woods, Good, HSG B
17,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	35	0.0710	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
11.2	65	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
16.9	100	Total			

Summary for Subcatchment 6S: Subcatchment 6S

Runoff = 7.21 cfs @ 12.22 hrs, Volume= 0.711 af, Depth> 3.02"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
122,925	55	Woods, Good, HSG B
122,925		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	67	0.1270	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	20	0.3000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.5	13	0.0800	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	12	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	27	0.1480	1.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	73	0.4380	3.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	120	0.0167	0.86	68.89	**Trap/Vee/Rect Channel Flow,** Bot.W=8.00' D=4.00' Z= 3.0 '/' Top.W=32.00' n= 0.400
15.3	332	Total			

Summary for Subcatchment 8S: Subcatchment 8S

Runoff = 14.49 cfs @ 12.50 hrs, Volume= 1.957 af, Depth> 3.46"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
798	61	>75% Grass cover, Good, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
262,259	55	Woods, Good, HSG B
295,459	59	Weighted Average
274,010		92.74% Pervious Area
21,449		7.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Reach 2Ra: Flow Through 6S

[80] Warning: Exceeded Pond 3P by 0.09' @ 13.40 hrs (1.05 cfs 0.164 af)

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 1.86" for 100-Year 24-Hour event
Inflow = 0.70 cfs @ 12.56 hrs, Volume= 0.061 af
Outflow = 0.54 cfs @ 12.61 hrs, Volume= 0.061 af, Atten= 23%, Lag= 3.1 min
Routed to Reach 2Rb : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.52 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 3.6 min

Peak Storage= 52 cf @ 12.61 hrs
Average Depth at Peak Storage= 0.22' , Surface Width= 5.33'
Bank-Full Depth= 4.00' Flow Area= 64.0 sf, Capacity= 169.82 cfs

4.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 28.00'
Length= 50.0' Slope= 0.1800 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

Summary for Reach 2Rb: Flow Through 6S

[61] Hint: Exceeded Reach 2Ra outlet invert by 0.01' @ 12.70 hrs

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 1.86" for 100-Year 24-Hour event
Inflow = 0.54 cfs @ 12.61 hrs, Volume= 0.061 af
Outflow = 0.40 cfs @ 12.68 hrs, Volume= 0.060 af, Atten= 26%, Lag= 4.0 min
Routed to Reach 2Rc : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.28 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 3.7 min

Peak Storage= 88 cf @ 12.68 hrs
Average Depth at Peak Storage= 0.01' , Surface Width= 100.06'
Bank-Full Depth= 4.00' Flow Area= 432.0 sf, Capacity= 2,470.25 cfs

100.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 2.0 '/' Top Width= 116.00'
Length= 62.0' Slope= 0.4194 '/'
Inlet Invert= 250.00', Outlet Invert= 224.00'

Summary for Reach 2Rc: Flow Through 6S

[62] Hint: Exceeded Reach 2Rb OUTLET depth by 0.19' @ 12.90 hrs

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 1.85" for 100-Year 24-Hour event
Inflow = 0.40 cfs @ 12.68 hrs, Volume= 0.060 af
Outflow = 0.27 cfs @ 12.89 hrs, Volume= 0.059 af, Atten= 32%, Lag= 12.8 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.16 fps, Min. Travel Time= 12.8 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 23.3 min

Peak Storage= 207 cf @ 12.89 hrs
Average Depth at Peak Storage= 0.20' , Surface Width= 9.20'
Bank-Full Depth= 4.00' Flow Area= 80.0 sf, Capacity= 68.83 cfs

8.00' x 4.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 3.0 '/' Top Width= 32.00'
Length= 120.0' Slope= 0.0167 '/'
Inlet Invert= 224.00', Outlet Invert= 222.00'

‡

Summary for Reach 3Ra: Flow Through Subcatchment 8S

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 2.77" for 100-Year 24-Hour event
Inflow = 1.19 cfs @ 12.49 hrs, Volume= 0.147 af
Outflow = 1.12 cfs @ 12.60 hrs, Volume= 0.146 af, Atten= 6%, Lag= 6.6 min
Routed to Reach 3Rb : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.30 fps, Min. Travel Time= 7.3 min
Avg. Velocity = 0.14 fps, Avg. Travel Time= 15.1 min

Peak Storage= 493 cf @ 12.60 hrs
Average Depth at Peak Storage= 0.18' , Surface Width= 31.05'
Bank-Full Depth= 2.00' Flow Area= 137.3 sf, Capacity= 201.91 cfs

103.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 131.0' Slope= 0.1069 '/'
Inlet Invert= 256.00', Outlet Invert= 242.00'

‡

Summary for Reach 3Rb: Flow Through Subcatchment 8S

[61] Hint: Exceeded Reach 3Ra outlet invert by 0.11' @ 12.75 hrs

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 2.75" for 100-Year 24-Hour event
Inflow = 1.12 cfs @ 12.60 hrs, Volume= 0.146 af
Outflow = 1.01 cfs @ 12.75 hrs, Volume= 0.145 af, Atten= 10%, Lag= 8.8 min
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.31 fps, Min. Travel Time= 9.5 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 18.6 min

Peak Storage= 576 cf @ 12.75 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 46.17'
Bank-Full Depth= 2.00' Flow Area= 266.7 sf, Capacity= 573.66 cfs

200.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 175.0' Slope= 0.2286 '/'
Inlet Invert= 242.00', Outlet Invert= 202.00'

‡

Summary for Reach 4Ra: Flow Through Subcatchment 7S

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 3.24" for 100-Year 24-Hour event
Inflow = 11.27 cfs @ 12.40 hrs, Volume= 1.384 af
Outflow = 11.27 cfs @ 12.41 hrs, Volume= 1.383 af, Atten= 0%, Lag= 0.5 min
Routed to Reach 4Rb : Flow Through Subcatchment 7S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.02 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 1.5 min

Peak Storage= 440 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.91' , Surface Width= 18.18'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

‡

Summary for Reach 4Rb: Flow Through Subcatchment 7S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.45' @ 12.40 hrs

Inflow Area = 5.126 ac, 0.00% Impervious, Inflow Depth > 3.24" for 100-Year 24-Hour event
Inflow = 11.27 cfs @ 12.41 hrs, Volume= 1.383 af
Outflow = 11.25 cfs @ 12.42 hrs, Volume= 1.381 af, Atten= 0%, Lag= 0.9 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.89 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.39 fps, Avg. Travel Time= 3.1 min

Peak Storage= 896 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 41.54'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.955 ac, 5.40% Impervious, Inflow Depth > 3.28" for 100-Year 24-Hour event
Inflow = 20.10 cfs @ 12.50 hrs, Volume= 2.722 af
Outflow = 20.10 cfs @ 12.50 hrs, Volume= 2.722 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 14.619 ac, 1.44% Impervious, Inflow Depth > 3.12" for 100-Year 24-Hour event
Inflow = 28.63 cfs @ 12.47 hrs, Volume= 3.803 af
Outflow = 28.63 cfs @ 12.47 hrs, Volume= 3.803 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.339 ac, 0.00% Impervious, Inflow Depth > 3.10" for 100-Year 24-Hour event
Inflow = 16.65 cfs @ 12.36 hrs, Volume= 2.152 af
Outflow = 16.65 cfs @ 12.36 hrs, Volume= 2.152 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Pond 1P: Low Point

Inflow Area = 2.534 ac, 1.77% Impervious, Inflow Depth > 3.12" for 100-Year 24-Hour event
Inflow = 5.15 cfs @ 12.44 hrs, Volume= 0.660 af
Outflow = 5.13 cfs @ 12.46 hrs, Volume= 0.635 af, Atten= 0%, Lag= 1.5 min
Discarded = 0.01 cfs @ 12.00 hrs, Volume= 0.015 af
Primary = 5.12 cfs @ 12.46 hrs, Volume= 0.620 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.31' @ 12.00 hrs Surf.Area= 1,663 sf Storage= 1,044 cf

Plug-Flow detention time= 27.2 min calculated for 0.635 af (96% of inflow)
Center-of-Mass det. time= 7.8 min (878.2 - 870.3)

Volume	Invert	Avail.Storage	Storage Description
#1	198.50'	1,044 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.50	994	0	0
199.00	1,324	580	580
199.30	1,663	448	1,028
199.31	1,663	17	1,044

Device	Routing	Invert	Outlet Devices
#0	Primary	199.31'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	198.50'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	199.30'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00
Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31
3.30 3.31 3.32

Discarded OutFlow Max=0.01 cfs @ 12.00 hrs HW=199.31' (Free Discharge)
└—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.05 cfs @ 12.46 hrs HW=199.31' TW=0.00' (Dynamic Tailwater)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Depression

Inflow Area = 0.638 ac, 0.00% Impervious, Inflow Depth > 3.01" for 100-Year 24-Hour event
Inflow = 1.20 cfs @ 12.48 hrs, Volume= 0.160 af
Outflow = 1.19 cfs @ 12.49 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.8 min
Primary = 1.19 cfs @ 12.49 hrs, Volume= 0.147 af
Routed to Reach 3Ra : Flow Through Subcatchment 8S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 256.39' @ 12.49 hrs Surf.Area= 2,263 sf Storage= 634 cf

Plug-Flow detention time= 53.6 min calculated for 0.147 af (92% of inflow)
Center-of-Mass det. time= 15.1 min (889.8 - 874.7)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	882	0	0
256.35	2,263	550	550
256.85	2,263	1,132	1,682

Device	Routing	Invert	Outlet Devices
#1	Primary	256.35'	**70.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.19 cfs @ 12.49 hrs HW=256.39' TW=256.17' (Dynamic Tailwater)
└—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.19 cfs @ 0.46 fps)

Summary for Pond 3P: Depression

[93] Warning: Storage range exceeded by 0.21'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=112)

Inflow Area = 0.392 ac, 0.00% Impervious, Inflow Depth > 3.02" for 100-Year 24-Hour event
Inflow = 0.96 cfs @ 12.25 hrs, Volume= 0.099 af
Outflow = 0.70 cfs @ 12.56 hrs, Volume= 0.061 af, Atten= 27%, Lag= 18.5 min
Primary = 0.70 cfs @ 12.56 hrs, Volume= 0.061 af
Routed to Reach 2Ra : Flow Through 6S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 259.22' @ 12.61 hrs Surf.Area= 2,526 sf Storage= 1,652 cf

Plug-Flow detention time= 196.5 min calculated for 0.061 af (61% of inflow)
Center-of-Mass det. time= 82.5 min (945.4 - 862.9)

Volume	Invert	Avail.Storage	Storage Description
#1	258.00'	1,652 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
258.00	871	121.0	0	0	871
259.00	2,526	233.0	1,627	1,627	4,031
259.01	2,526	233.0	25	1,652	4,033

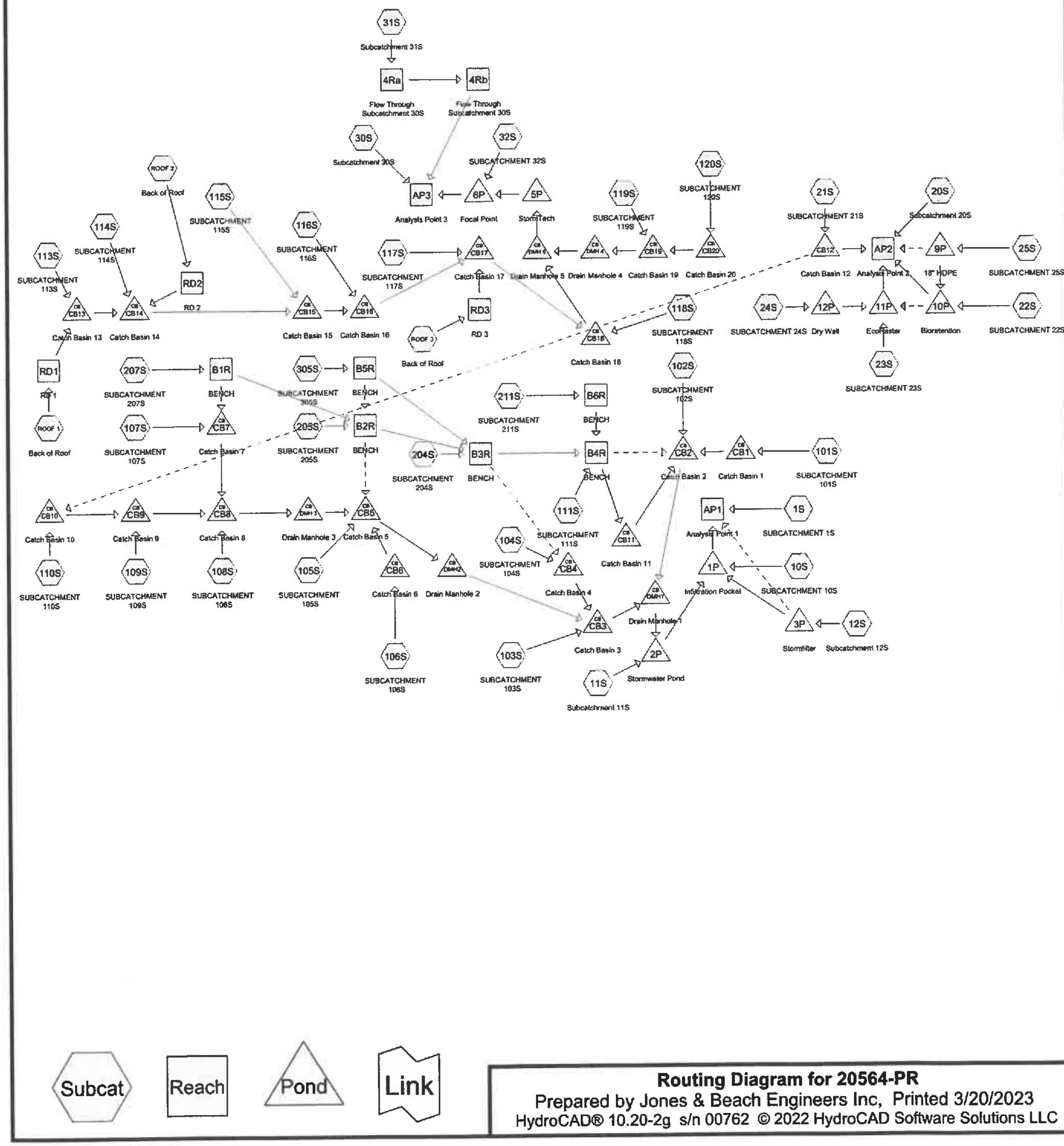
Device	Routing	Invert	Outlet Devices
#1	Primary	259.00'	**14.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.69 cfs @ 12.56 hrs HW=259.17' TW=259.17' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.69 cfs @ 0.29 fps)

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Complete 25 YEAR
Complete 50 YEAR
Complete 100 YEAR



Routing Diagram for 20564-PR

Prepared by Jones & Beach Engineers Inc, Printed 3/20/2023

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.710	61	>75% Grass cover, Good, HSG B (1S, 10S, 11S, 12S, 20S, 21S, 22S, 23S, 24S, 25S, 30S, 31S, 32S, 101S, 102S, 103S, 104S, 105S, 106S, 107S, 108S, 109S, 110S, 111S, 114S, 115S, 116S, 117S, 118S, 119S, 120S, 204S, 205S, 207S, 211S, 305S)
0.251	85	Gravel roads, HSG B (1S)
3.831	98	Paved parking, HSG B (1S, 10S, 12S, 22S, 23S, 25S, 101S, 102S, 103S, 104S, 105S, 106S, 107S, 108S, 109S, 110S, 113S, 114S, 115S, 116S, 117S, 118S, 119S, 120S)
1.200	98	Roofs, HSG B (1S, 20S, 21S, 23S, 24S, 114S, 115S, 116S, 117S, 118S, 119S, 120S, ROOF 1, ROOF 2, ROOF 3)
19.907	55	Woods, Good, HSG B (1S, 10S, 12S, 20S, 21S, 22S, 24S, 25S, 30S, 31S, 110S, 204S, 205S, 207S, 211S, 305S)
1.013	70	Woods, Good, HSG C (20S, 21S, 31S)
32.913	**63**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
31.899	HSG B	1S, 10S, 11S, 12S, 20S, 21S, 22S, 23S, 24S, 25S, 30S, 31S, 32S, 101S, 102S, 103S, 104S, 105S, 106S, 107S, 108S, 109S, 110S, 111S, 113S, 114S, 115S, 116S, 117S, 118S, 119S, 120S, 204S, 205S, 207S, 211S, 305S, ROOF 1, ROOF 2, ROOF 3
1.013	HSG C	20S, 21S, 31S
0.000	HSG D	
0.000	Other	
32.913		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SUBCATCHMENT1S Runoff Area=279,376 sf 7.68% Impervious Runoff Depth>0.31"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=0.72 cfs 0.167 af

Subcatchment10S: SUBCATCHMENT10S Runoff Area=3,917 sf 19.30% Impervious Runoff Depth>0.56"
Flow Length=79' Tc=9.6 min CN=66 Runoff=0.04 cfs 0.004 af

Subcatchment11S: Subcatchment11S Runoff Area=21,833 sf 0.00% Impervious Runoff Depth>0.38"
Flow Length=137' Tc=6.7 min CN=61 Runoff=0.12 cfs 0.016 af

Subcatchment12S: Subcatchment12S Runoff Area=22,767 sf 23.93% Impervious Runoff Depth>0.60"
Flow Length=642' Tc=19.9 min CN=67 Runoff=0.20 cfs 0.026 af

Subcatchment20S: Subcatchment20S Runoff Area=207,863 sf 0.54% Impervious Runoff Depth>0.26"
Flow Length=341' Tc=25.2 min CN=57 Runoff=0.42 cfs 0.102 af

Subcatchment21S: SUBCATCHMENT21S Runoff Area=154,653 sf 0.53% Impervious Runoff Depth>0.23"
Flow Length=358' Tc=24.0 min CN=56 Runoff=0.26 cfs 0.068 af

Subcatchment22S: SUBCATCHMENT22S Runoff Area=83,939 sf 9.07% Impervious Runoff Depth>0.41"
Flow Length=348' Tc=17.4 min CN=62 Runoff=0.42 cfs 0.066 af

Subcatchment23S: SUBCATCHMENT23S Runoff Area=11,755 sf 64.56% Impervious Runoff Depth>1.62"
Flow Length=39' Slope=0.0200 '/' Tc=6.0 min CN=85 Runoff=0.50 cfs 0.036 af

Subcatchment24S: SUBCATCHMENT24S Runoff Area=24,222 sf 0.91% Impervious Runoff Depth>0.29"
Flow Length=204' Tc=12.8 min CN=58 Runoff=0.07 cfs 0.013 af

Subcatchment25S: SUBCATCHMENT25S Runoff Area=64,195 sf 11.59% Impervious Runoff Depth>0.45"
Flow Length=368' Tc=16.5 min CN=63 Runoff=0.38 cfs 0.055 af

Subcatchment30S: Subcatchment30S Runoff Area=73,162 sf 0.00% Impervious Runoff Depth>0.23"
Flow Length=299' Tc=14.2 min CN=56 Runoff=0.14 cfs 0.032 af

Subcatchment31S: Subcatchment31S Runoff Area=159,045 sf 0.00% Impervious Runoff Depth>0.28"
Flow Length=593' Tc=22.7 min CN=58 Runoff=0.40 cfs 0.086 af

Subcatchment32S: SUBCATCHMENT32S Runoff Area=6,935 sf 0.00% Impervious Runoff Depth>0.38"
Flow Length=83' Tc=8.0 min CN=61 Runoff=0.04 cfs 0.005 af

Subcatchment101S: SUBCATCHMENT101S Runoff Area=3,062 sf 63.65% Impervious Runoff Depth>1.62"
Flow Length=149' Tc=6.0 min CN=85 Runoff=0.13 cfs 0.009 af

Subcatchment102S: SUBCATCHMENT Runoff Area=10,426 sf 20.31% Impervious Runoff Depth>0.69"
Flow Length=202' Tc=6.0 min CN=69 Runoff=0.16 cfs 0.014 af

Subcatchment103S: SUBCATCHMENT Runoff Area=10,615 sf 20.41% Impervious Runoff Depth>0.69"
Flow Length=210' Tc=6.0 min CN=69 Runoff=0.17 cfs 0.014 af

Subcatchment104S: SUBCATCHMENT104S Runoff Area=8,563 sf 24.45% Impervious Runoff Depth>0.74"
Flow Length=192' Tc=6.0 min CN=70 Runoff=0.15 cfs 0.012 af

Subcatchment105S: SUBCATCHMENT105S Runoff Area=7,685 sf 24.66% Impervious Runoff Depth>0.74"
Flow Length=198' Tc=6.0 min CN=70 Runoff=0.13 cfs 0.011 af

Subcatchment106S: SUBCATCHMENT106S Runoff Area=8,480 sf 24.96% Impervious Runoff Depth>0.74"
Flow Length=150' Tc=6.0 min CN=70 Runoff=0.15 cfs 0.012 af

Subcatchment107S: SUBCATCHMENT107S Runoff Area=9,158 sf 22.21% Impervious Runoff Depth>0.69"
Flow Length=200' Tc=6.0 min CN=69 Runoff=0.14 cfs 0.012 af

Subcatchment108S: SUBCATCHMENT108S Runoff Area=5,109 sf 41.03% Impervious Runoff Depth>1.04"
Flow Length=108' Tc=6.0 min CN=76 Runoff=0.14 cfs 0.010 af

Subcatchment109S: SUBCATCHMENT109S Runoff Area=4,591 sf 85.25% Impervious Runoff Depth>2.29"
Flow Length=322' Tc=6.0 min CN=93 Runoff=0.27 cfs 0.020 af

Subcatchment110S: SUBCATCHMENT110S Runoff Area=8,954 sf 45.07% Impervious Runoff Depth>1.04"
Flow Length=193' Tc=10.4 min CN=76 Runoff=0.20 cfs 0.018 af

Subcatchment111S: SUBCATCHMENT111S Runoff Area=10,066 sf 0.00% Impervious Runoff Depth>0.38"
Flow Length=37' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.06 cfs 0.007 af

Subcatchment113S: SUBCATCHMENT Runoff Area=4,154 sf 100.00% Impervious Runoff Depth>2.81"
Flow Length=144' Slope=0.0330 '/' Tc=6.0 min CN=98 Runoff=0.27 cfs 0.022 af

Subcatchment114S: SUBCATCHMENT Runoff Area=21,297 sf 83.97% Impervious Runoff Depth>2.20"
Flow Length=251' Tc=9.0 min CN=92 Runoff=1.10 cfs 0.089 af

Subcatchment115S: SUBCATCHMENT Runoff Area=15,683 sf 94.57% Impervious Runoff Depth>2.59"
Flow Length=264' Tc=6.0 min CN=96 Runoff=1.00 cfs 0.078 af

Subcatchment116S: SUBCATCHMENT Runoff Area=23,505 sf 89.38% Impervious Runoff Depth>2.39"
Flow Length=38' Tc=6.0 min CN=94 Runoff=1.42 cfs 0.107 af

Subcatchment117S: SUBCATCHMENT Runoff Area=22,327 sf 61.68% Impervious Runoff Depth>1.55"
Flow Length=172' Tc=14.1 min CN=84 Runoff=0.72 cfs 0.066 af

Subcatchment118S: SUBCATCHMENT Runoff Area=22,171 sf 84.69% Impervious Runoff Depth>2.20"
Flow Length=120' Slope=0.0500 '/' Tc=6.0 min CN=92 Runoff=1.26 cfs 0.093 af

Subcatchment119S: SUBCATCHMENT Runoff Area=13,601 sf 92.54% Impervious Runoff Depth>2.49"
Flow Length=218' Tc=6.0 min CN=95 Runoff=0.84 cfs 0.065 af

Subcatchment120S: SUBCATCHMENT Runoff Area=19,113 sf 89.12% Impervious Runoff Depth>2.39"
Flow Length=124' Tc=6.0 min CN=94 Runoff=1.15 cfs 0.087 af

Subcatchment204S: SUBCATCHMENT204S Runoff Area=19,442 sf 0.00% Impervious Runoff Depth>0.26"
Flow Length=379' Tc=23.2 min CN=57 Runoff=0.04 cfs 0.010 af

Subcatchment205S: SUBCATCHMENT205S Runoff Area=4,627 sf 0.00% Impervious Runoff Depth>0.38"
Flow Length=92' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.03 cfs 0.003 af

Subcatchment207S: SUBCATCHMENT207S Runoff Area=15,002 sf 0.00% Impervious Runoff Depth>0.28"
Flow Length=329' Tc=22.8 min CN=58 Runoff=0.04 cfs 0.008 af

Subcatchment211S: SUBCATCHMENT211S Runoff Area=28,592 sf 0.00% Impervious Runoff Depth>0.23"
Flow Length=328' Tc=19.3 min CN=56 Runoff=0.05 cfs 0.013 af

Subcatchment305S: SUBCATCHMENT305S Runoff Area=1,541 sf 0.00% Impervious Runoff Depth>0.21"
Flow Length=46' Tc=6.0 min CN=55 Runoff=0.00 cfs 0.001 af

SubcatchmentROOF 1: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

SubcatchmentROOF 2: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

SubcatchmentROOF 3: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.19' Max Vel=0.37 fps Inflow=0.40 cfs 0.086 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=0.40 cfs 0.086 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.10' Max Vel=0.32 fps Inflow=0.40 cfs 0.086 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=0.40 cfs 0.086 af

Reach AP1: Analysis Point 1 Inflow=0.72 cfs 0.179 af
Outflow=0.72 cfs 0.179 af

Reach AP2: Analysis Point 2 Inflow=0.69 cfs 0.169 af
Outflow=0.69 cfs 0.169 af

Reach AP3: Analysis Point 3 Inflow=0.57 cfs 0.190 af
Outflow=0.57 cfs 0.190 af

Reach B1R: BENCH Avg. Flow Depth=0.14' Max Vel=0.47 fps Inflow=0.04 cfs 0.008 af
n=0.150 L=173.0' S=0.0809 '/' Capacity=6.92 cfs Outflow=0.04 cfs 0.008 af Overflow=0.00 cfs 0.000 af

Reach B2R: BENCH Avg. Flow Depth=0.14' Max Vel=0.57 fps Inflow=0.05 cfs 0.011 af
n=0.150 L=116.0' S=0.1207 '/' Capacity=8.45 cfs Outflow=0.05 cfs 0.011 af Overflow=0.00 cfs 0.000 af

Reach B3R: BENCH Avg. Flow Depth=0.18' Max Vel=0.66 fps Inflow=0.09 cfs 0.022 af
n=0.150 L=103.0' S=0.1165 '/' Capacity=8.30 cfs Outflow=0.09 cfs 0.021 af Overflow=0.00 cfs 0.000 af

Reach B4R: BENCH Avg. Flow Depth=0.26' Max Vel=0.58 fps Inflow=0.16 cfs 0.041 af
n=0.150 L=232.0' S=0.0560 '/' Capacity=5.76 cfs Outflow=0.15 cfs 0.041 af Overflow=0.00 cfs 0.000 af

Reach B5R: BENCH Avg. Flow Depth=0.05' Max Vel=0.25 fps Inflow=0.00 cfs 0.001 af
n=0.150 L=12.0' S=0.0833 '/' Capacity=7.02 cfs Outflow=0.00 cfs 0.001 af Overflow=0.00 cfs 0.000 af

Reach B6R: BENCH Avg. Flow Depth=0.17' Max Vel=0.43 fps Inflow=0.05 cfs 0.013 af
n=0.150 L=165.0' S=0.0545 '/' Capacity=5.68 cfs Outflow=0.05 cfs 0.012 af

Reach RD1: RD 1 Avg. Flow Depth=0.20' Max Vel=5.51 fps Inflow=0.49 cfs 0.040 af
8.0" Round Pipe n=0.013 L=264.0' S=0.0417 '/' Capacity=2.47 cfs Outflow=0.49 cfs 0.040 af

Reach RD2: RD 2 Avg. Flow Depth=0.19' Max Vel=5.84 fps Inflow=0.49 cfs 0.040 af
8.0" Round Pipe n=0.013 L=110.0' S=0.0491 '/' Capacity=2.68 cfs Outflow=0.49 cfs 0.040 af

Reach RD3: RD 3 Avg. Flow Depth=0.24' Max Vel=4.23 fps Inflow=0.49 cfs 0.040 af
8.0" Round Pipe n=0.013 L=100.0' S=0.0200 '/' Capacity=1.71 cfs Outflow=0.49 cfs 0.040 af

Pond 1P: Infiltration Pocket Peak Elev=198.81' Storage=618 cf Inflow=0.32 cfs 0.120 af
Discarded=0.10 cfs 0.093 af Primary=0.03 cfs 0.013 af Outflow=0.13 cfs 0.105 af

Pond 2P: Stormwater Pond Peak Elev=199.89' Storage=15,676 cf Inflow=1.73 cfs 0.189 af
Primary=0.10 cfs 0.091 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.091 af

Pond 3P: Stormfilter Peak Elev=198.81' Storage=64 cf Inflow=0.20 cfs 0.026 af
Primary=0.23 cfs 0.025 af Secondary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.025 af

Pond 5P: StormTech Peak Elev=261.64' Storage=0.660 af Inflow=8.99 cfs 0.727 af
Outflow=0.10 cfs 0.067 af

Pond 6P: Focal Point Peak Elev=253.76' Storage=1 cf Inflow=0.10 cfs 0.072 af
Outflow=0.10 cfs 0.072 af

Pond 9P: 18" HDPE Peak Elev=201.51' Storage=37 cf Inflow=0.38 cfs 0.055 af
Primary=0.38 cfs 0.055 af Secondary=0.00 cfs 0.000 af Outflow=0.38 cfs 0.055 af

Pond 10P: Bioretention Peak Elev=198.18' Storage=645 cf Inflow=0.80 cfs 0.121 af
Discarded=0.52 cfs 0.120 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.52 cfs 0.120 af

Pond 11P: EcoRaster Peak Elev=195.35' Storage=308 cf Inflow=0.50 cfs 0.036 af
Discarded=0.18 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.036 af

Pond 12P: Dry Well Peak Elev=197.88' Storage=321 cf Inflow=0.07 cfs 0.013 af
Discarded=0.01 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.006 af

Pond CB1: Catch Basin 1 Peak Elev=200.87' Inflow=0.13 cfs 0.009 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.13 cfs 0.009 af

Pond CB10: Catch Basin 10 Peak Elev=252.37' Inflow=0.20 cfs 0.018 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.20 cfs 0.018 af

Pond CB11: Catch Basin 11 Peak Elev=208.20' Inflow=0.15 cfs 0.041 af
15.0" Round Culvert n=0.013 L=57.0' S=0.1316 '/' Outflow=0.15 cfs 0.041 af

Pond CB12: Catch Basin 12 Peak Elev=263.03' Storage=1 cf Inflow=0.26 cfs 0.068 af
Primary=0.26 cfs 0.068 af Secondary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.068 af

Pond CB13: Catch Basin 13 Peak Elev=264.67' Inflow=0.76 cfs 0.062 af
18.0" Round Culvert n=0.013 L=73.0' S=0.0110 '/' Outflow=0.76 cfs 0.062 af

Pond CB14: Catch Basin 14 Peak Elev=264.25' Inflow=2.32 cfs 0.191 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0059 '/' Outflow=2.32 cfs 0.191 af

Pond CB15: Catch Basin 15 Peak Elev=263.85' Inflow=3.31 cfs 0.269 af
18.0" Round Culvert n=0.013 L=156.0' S=0.0051 '/' Outflow=3.31 cfs 0.269 af

Pond CB16: Catch Basin 16 Peak Elev=262.95' Inflow=4.72 cfs 0.376 af
24.0" Round Culvert n=0.013 L=124.0' S=0.0048 '/' Outflow=4.72 cfs 0.376 af

Pond CB17: Catch Basin 17 Peak Elev=262.57' Inflow=5.75 cfs 0.482 af
24.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/' Outflow=5.75 cfs 0.482 af

Pond CB18: Catch Basin 18 Peak Elev=262.31' Inflow=7.00 cfs 0.575 af
24.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=7.00 cfs 0.575 af

Pond CB19: Catch Basin 19 Peak Elev=262.31' Inflow=2.00 cfs 0.152 af
24.0" Round Culvert n=0.013 L=151.0' S=0.0053 '/' Outflow=2.00 cfs 0.152 af

Pond CB2: Catch Basin 2 Peak Elev=200.81' Inflow=0.31 cfs 0.064 af
15.0" Round Culvert n=0.013 L=84.0' S=0.0048 '/' Outflow=0.31 cfs 0.064 af

Pond CB20: Catch Basin 20 Peak Elev=262.54' Inflow=1.15 cfs 0.087 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0057 '/' Outflow=1.15 cfs 0.087 af

Pond CB3: Catch Basin 3 Peak Elev=208.83' Inflow=1.32 cfs 0.109 af
15.0" Round Culvert n=0.013 L=65.0' S=0.1262 '/' Outflow=1.32 cfs 0.109 af

Pond CB4: Catch Basin 4 Peak Elev=208.84' Inflow=0.15 cfs 0.012 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.15 cfs 0.012 af

Pond CB5: Catch Basin 5 Peak Elev=224.84' Inflow=1.00 cfs 0.083 af
15.0" Round Culvert n=0.013 L=82.0' S=0.0817 '/' Outflow=1.00 cfs 0.083 af

Pond CB6: Catch Basin 6 Peak Elev=224.86' Inflow=0.15 cfs 0.012 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.15 cfs 0.012 af

Pond CB7: Catch Basin 7 Peak Elev=239.17' Inflow=0.14 cfs 0.012 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.14 cfs 0.012 af

Pond CB8: Catch Basin 8 Peak Elev=239.10' Inflow=0.73 cfs 0.060 af
15.0" Round Culvert n=0.013 L=63.0' S=0.0889 '/' Outflow=0.73 cfs 0.060 af

Pond CB9: Catch Basin 9 Peak Elev=252.25' Inflow=0.45 cfs 0.038 af
15.0" Round Culvert n=0.013 L=163.0' S=0.0804 '/' Outflow=0.45 cfs 0.038 af

Pond DMH 3: Drain Manhole 3 Peak Elev=233.45' Inflow=0.73 cfs 0.060 af
15.0" Round Culvert n=0.013 L=104.0' S=0.0827 '/' Outflow=0.73 cfs 0.060 af

Pond DMH 4: Drain Manhole 4 Peak Elev=262.00' Inflow=2.00 cfs 0.152 af
24.0" Round Culvert n=0.013 L=9.0' S=0.0111 '/' Outflow=2.00 cfs 0.152 af

Pond DMH 5: Drain Manhole 5 Peak Elev=261.95' Inflow=8.99 cfs 0.727 af
24.0" Round Culvert n=0.013 L=14.0' S=0.0143 '/' Outflow=8.99 cfs 0.727 af

Pond DMH1: Drain Manhole 1 Peak Elev=200.65' Inflow=1.62 cfs 0.173 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0067 '/' Outflow=1.62 cfs 0.173 af

Pond DMH2: Drain Manhole 2 Peak Elev=218.04' Inflow=1.00 cfs 0.083 af
15.0" Round Culvert n=0.013 L=84.0' S=0.1095 '/' Outflow=1.00 cfs 0.083 af

Total Runoff Area = 32.913 ac Runoff Volume = 1.578 af Average Runoff Depth = 0.58"
84.71% Pervious = 27.881 ac 15.29% Impervious = 5.031 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SUBCATCHMENT1S Runoff Area=279,376 sf 7.68% Impervious Runoff Depth>1.00"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=3.45 cfs 0.536 af

Subcatchment10S: SUBCATCHMENT10S Runoff Area=3,917 sf 19.30% Impervious Runoff Depth>1.46"
Flow Length=79' Tc=9.6 min CN=66 Runoff=0.13 cfs 0.011 af

Subcatchment11S: Subcatchment11S Runoff Area=21,833 sf 0.00% Impervious Runoff Depth>1.13"
Flow Length=137' Tc=6.7 min CN=61 Runoff=0.57 cfs 0.047 af

Subcatchment12S: Subcatchment12S Runoff Area=22,767 sf 23.93% Impervious Runoff Depth>1.52"
Flow Length=642' Tc=19.9 min CN=67 Runoff=0.60 cfs 0.066 af

Subcatchment20S: Subcatchment20S Runoff Area=207,863 sf 0.54% Impervious Runoff Depth>0.89"
Flow Length=341' Tc=25.2 min CN=57 Runoff=2.47 cfs 0.354 af

Subcatchment21S: SUBCATCHMENT21S Runoff Area=154,653 sf 0.53% Impervious Runoff Depth>0.84"
Flow Length=358' Tc=24.0 min CN=56 Runoff=1.70 cfs 0.247 af

Subcatchment22S: SUBCATCHMENT22S Runoff Area=83,939 sf 9.07% Impervious Runoff Depth>1.19"
Flow Length=348' Tc=17.4 min CN=62 Runoff=1.71 cfs 0.191 af

Subcatchment23S: SUBCATCHMENT23S Runoff Area=11,755 sf 64.56% Impervious Runoff Depth>3.00"
Flow Length=39' Slope=0.0200 '/' Tc=6.0 min CN=85 Runoff=0.92 cfs 0.067 af

Subcatchment24S: SUBCATCHMENT24S Runoff Area=24,222 sf 0.91% Impervious Runoff Depth>0.95"
Flow Length=204' Tc=12.8 min CN=58 Runoff=0.40 cfs 0.044 af

Subcatchment25S: SUBCATCHMENT25S Runoff Area=64,195 sf 11.59% Impervious Runoff Depth>1.26"
Flow Length=368' Tc=16.5 min CN=63 Runoff=1.43 cfs 0.154 af

Subcatchment30S: Subcatchment30S Runoff Area=73,162 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=299' Tc=14.2 min CN=56 Runoff=0.97 cfs 0.117 af

Subcatchment31S: Subcatchment31S Runoff Area=159,045 sf 0.00% Impervious Runoff Depth>0.95"
Flow Length=593' Tc=22.7 min CN=58 Runoff=2.14 cfs 0.289 af

Subcatchment32S: SUBCATCHMENT32S Runoff Area=6,935 sf 0.00% Impervious Runoff Depth>1.13"
Flow Length=83' Tc=8.0 min CN=61 Runoff=0.17 cfs 0.015 af

Subcatchment101S: SUBCATCHMENT101S Runoff Area=3,062 sf 63.65% Impervious Runoff Depth>3.00"
Flow Length=149' Tc=6.0 min CN=85 Runoff=0.24 cfs 0.018 af

Subcatchment102S: SUBCATCHMENT Runoff Area=10,426 sf 20.31% Impervious Runoff Depth>1.67"
Flow Length=202' Tc=6.0 min CN=69 Runoff=0.45 cfs 0.033 af

Subcatchment103S: SUBCATCHMENT Runoff Area=10,615 sf 20.41% Impervious Runoff Depth>1.67"
Flow Length=210' Tc=6.0 min CN=69 Runoff=0.45 cfs 0.034 af

Subcatchment104S: SUBCATCHMENT104S Runoff Area=8,563 sf 24.45% Impervious Runoff Depth>1.74"
Flow Length=192' Tc=6.0 min CN=70 Runoff=0.38 cfs 0.029 af

Subcatchment105S: SUBCATCHMENT105S Runoff Area=7,685 sf 24.66% Impervious Runoff Depth>1.74"
Flow Length=198' Tc=6.0 min CN=70 Runoff=0.35 cfs 0.026 af

Subcatchment106S: SUBCATCHMENT106S Runoff Area=8,480 sf 24.96% Impervious Runoff Depth>1.74"
Flow Length=150' Tc=6.0 min CN=70 Runoff=0.38 cfs 0.028 af

Subcatchment107S: SUBCATCHMENT107S Runoff Area=9,158 sf 22.21% Impervious Runoff Depth>1.67"
Flow Length=200' Tc=6.0 min CN=69 Runoff=0.39 cfs 0.029 af

Subcatchment108S: SUBCATCHMENT108S Runoff Area=5,109 sf 41.03% Impervious Runoff Depth>2.21"
Flow Length=108' Tc=6.0 min CN=76 Runoff=0.30 cfs 0.022 af

Subcatchment109S: SUBCATCHMENT109S Runoff Area=4,591 sf 85.25% Impervious Runoff Depth>3.80"
Flow Length=322' Tc=6.0 min CN=93 Runoff=0.43 cfs 0.033 af

Subcatchment110S: SUBCATCHMENT110S Runoff Area=8,954 sf 45.07% Impervious Runoff Depth>2.21"
Flow Length=193' Tc=10.4 min CN=76 Runoff=0.45 cfs 0.038 af

Subcatchment111S: SUBCATCHMENT111S Runoff Area=10,066 sf 0.00% Impervious Runoff Depth>1.13"
Flow Length=37' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.27 cfs 0.022 af

Subcatchment113S: SUBCATCHMENT Runoff Area=4,154 sf 100.00% Impervious Runoff Depth>4.36"
Flow Length=144' Slope=0.0330 '/' Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

Subcatchment114S: SUBCATCHMENT Runoff Area=21,297 sf 83.97% Impervious Runoff Depth>3.69"
Flow Length=251' Tc=9.0 min CN=92 Runoff=1.80 cfs 0.151 af

Subcatchment115S: SUBCATCHMENT Runoff Area=15,683 sf 94.57% Impervious Runoff Depth>4.13"
Flow Length=264' Tc=6.0 min CN=96 Runoff=1.55 cfs 0.124 af

Subcatchment116S: SUBCATCHMENT Runoff Area=23,505 sf 89.38% Impervious Runoff Depth>3.91"
Flow Length=38' Tc=6.0 min CN=94 Runoff=2.26 cfs 0.176 af

Subcatchment117S: SUBCATCHMENT Runoff Area=22,327 sf 61.68% Impervious Runoff Depth>2.90"
Flow Length=172' Tc=14.1 min CN=84 Runoff=1.34 cfs 0.124 af

Subcatchment118S: SUBCATCHMENT Runoff Area=22,171 sf 84.69% Impervious Runoff Depth>3.70"
Flow Length=120' Slope=0.0500 '/' Tc=6.0 min CN=92 Runoff=2.06 cfs 0.157 af

Subcatchment119S: SUBCATCHMENT Runoff Area=13,601 sf 92.54% Impervious Runoff Depth>4.02"
Flow Length=218' Tc=6.0 min CN=95 Runoff=1.33 cfs 0.105 af

Subcatchment120S: SUBCATCHMENT Runoff Area=19,113 sf 89.12% Impervious Runoff Depth>3.91"
Flow Length=124' Tc=6.0 min CN=94 Runoff=1.84 cfs 0.143 af

Subcatchment204S: SUBCATCHMENT204S Runoff Area=19,442 sf 0.00% Impervious Runoff Depth>0.89"
Flow Length=379' Tc=23.2 min CN=57 Runoff=0.24 cfs 0.033 af

Subcatchment205S: SUBCATCHMENT205S Runoff Area=4,627 sf 0.00% Impervious Runoff Depth>1.13"
Flow Length=92' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.12 cfs 0.010 af

Subcatchment207S: SUBCATCHMENT207S Runoff Area=15,002 sf 0.00% Impervious Runoff Depth>0.95"
Flow Length=329' Tc=22.8 min CN=58 Runoff=0.20 cfs 0.027 af

Subcatchment211S: SUBCATCHMENT211S Runoff Area=28,592 sf 0.00% Impervious Runoff Depth>0.84"
Flow Length=328' Tc=19.3 min CN=56 Runoff=0.34 cfs 0.046 af

Subcatchment305S: SUBCATCHMENT305S Runoff Area=1,541 sf 0.00% Impervious Runoff Depth>0.79"
Flow Length=46' Tc=6.0 min CN=55 Runoff=0.02 cfs 0.002 af

SubcatchmentROOF 1: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.062 af

SubcatchmentROOF 2: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.062 af

SubcatchmentROOF 3: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.062 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.42' Max Vel=0.62 fps Inflow=2.14 cfs 0.289 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=2.14 cfs 0.288 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.21' Max Vel=0.53 fps Inflow=2.14 cfs 0.288 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=2.13 cfs 0.288 af

Reach AP1: Analysis Point 1 Inflow=4.53 cfs 0.857 af
Outflow=4.53 cfs 0.857 af

Reach AP2: Analysis Point 2 Inflow=4.17 cfs 0.602 af
Outflow=4.17 cfs 0.602 af

Reach AP3: Analysis Point 3 Inflow=3.30 cfs 0.923 af
Outflow=3.30 cfs 0.923 af

Reach B1R: BENCH Avg. Flow Depth=0.26' Max Vel=0.71 fps Inflow=0.20 cfs 0.027 af
n=0.150 L=173.0' S=0.0809 '/' Capacity=6.92 cfs Outflow=0.20 cfs 0.027 af Overflow=0.00 cfs 0.000 af

Reach B2R: BENCH Avg. Flow Depth=0.27' Max Vel=0.87 fps Inflow=0.25 cfs 0.037 af
n=0.150 L=116.0' S=0.1207 '/' Capacity=8.45 cfs Outflow=0.25 cfs 0.037 af Overflow=0.00 cfs 0.000 af

Reach B3R: BENCH Avg. Flow Depth=0.35' Max Vel=1.02 fps Inflow=0.50 cfs 0.073 af
n=0.150 L=103.0' S=0.1165 '/' Capacity=8.30 cfs Outflow=0.49 cfs 0.073 af Overflow=0.00 cfs 0.000 af

Reach B4R: BENCH Avg. Flow Depth=0.50' Max Vel=0.91 fps Inflow=0.94 cfs 0.140 af
n=0.150 L=232.0' S=0.0560 '/' Capacity=5.76 cfs Outflow=0.92 cfs 0.139 af Overflow=0.00 cfs 0.000 af

Reach B5R: BENCH Avg. Flow Depth=0.12' Max Vel=0.42 fps Inflow=0.02 cfs 0.002 af
n=0.150 L=12.0' S=0.0833 '/' Capacity=7.02 cfs Outflow=0.02 cfs 0.002 af Overflow=0.00 cfs 0.000 af

Reach B6R: BENCH Avg. Flow Depth=0.34' Max Vel=0.70 fps Inflow=0.34 cfs 0.046 af
n=0.150 L=165.0' S=0.0545 '/' Capacity=5.68 cfs Outflow=0.33 cfs 0.046 af

Reach RD1: RD 1 Avg. Flow Depth=0.25' Max Vel=6.19 fps Inflow=0.75 cfs 0.062 af
8.0" Round Pipe n=0.013 L=264.0' S=0.0417 '/' Capacity=2.47 cfs Outflow=0.75 cfs 0.062 af

Reach RD2: RD 2 Avg. Flow Depth=0.24' Max Vel=6.57 fps Inflow=0.75 cfs 0.062 af
8.0" Round Pipe n=0.013 L=110.0' S=0.0491 '/' Capacity=2.68 cfs Outflow=0.75 cfs 0.062 af

Reach RD3: RD 3 Avg. Flow Depth=0.31' Max Vel=4.73 fps Inflow=0.75 cfs 0.062 af
8.0" Round Pipe n=0.013 L=100.0' S=0.0200 '/' Capacity=1.71 cfs Outflow=0.75 cfs 0.062 af

Pond 1P: Infiltration Pocket Peak Elev=198.81' Storage=619 cf Inflow=1.19 cfs 0.432 af
Discarded=0.10 cfs 0.098 af Primary=1.08 cfs 0.320 af Outflow=1.17 cfs 0.418 af

Pond 2P: Stormwater Pond Peak Elev=200.44' Storage=19,214 cf Inflow=4.63 cfs 0.476 af
Primary=0.91 cfs 0.357 af Secondary=0.00 cfs 0.000 af Outflow=0.91 cfs 0.357 af

Pond 3P: Stormfilter Peak Elev=198.83' Storage=69 cf Inflow=0.60 cfs 0.066 af
Primary=0.68 cfs 0.065 af Secondary=0.00 cfs 0.000 af Outflow=0.68 cfs 0.065 af

Pond 5P: StormTech Peak Elev=262.20' Storage=0.829 af Inflow=14.43 cfs 1.199 af
Outflow=0.77 cfs 0.503 af

Pond 6P: Focal Point Peak Elev=253.94' Storage=23 cf Inflow=0.79 cfs 0.518 af
Outflow=0.79 cfs 0.518 af

Pond 9P: 18" HDPE Peak Elev=201.83' Storage=79 cf Inflow=1.43 cfs 0.154 af
Primary=1.43 cfs 0.154 af Secondary=0.00 cfs 0.000 af Outflow=1.43 cfs 0.154 af

Pond 10P: Bioretention Peak Elev=200.30' Storage=2,228 cf Inflow=3.14 cfs 0.345 af
Discarded=1.96 cfs 0.344 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=1.96 cfs 0.344 af

Pond 11P: EcoRaster Peak Elev=195.85' Storage=864 cf Inflow=0.92 cfs 0.094 af
Discarded=0.36 cfs 0.094 af Primary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.094 af

Pond 12P: Dry Well Peak Elev=199.31' Storage=359 cf Inflow=0.40 cfs 0.044 af
Discarded=0.01 cfs 0.010 af Primary=0.53 cfs 0.026 af Outflow=0.54 cfs 0.036 af

Pond CB1: Catch Basin 1 Peak Elev=201.39' Inflow=0.24 cfs 0.018 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.24 cfs 0.018 af

Pond CB10: Catch Basin 10 Peak Elev=252.53' Inflow=0.45 cfs 0.038 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.45 cfs 0.038 af

Pond CB11: Catch Basin 11 Peak Elev=208.51' Inflow=0.92 cfs 0.139 af
15.0" Round Culvert n=0.013 L=57.0' S=0.1316 '/' Outflow=0.92 cfs 0.139 af

Pond CB12: Catch Basin 12 Peak Elev=263.10' Storage=5 cf Inflow=1.70 cfs 0.247 af
Primary=1.70 cfs 0.247 af Secondary=0.00 cfs 0.000 af Outflow=1.70 cfs 0.247 af

Pond CB13: Catch Basin 13 Peak Elev=265.61' Inflow=1.17 cfs 0.097 af
18.0" Round Culvert n=0.013 L=73.0' S=0.0110 '/' Outflow=1.17 cfs 0.097 af

Pond CB14: Catch Basin 14 Peak Elev=265.58' Inflow=3.67 cfs 0.309 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0059 '/' Outflow=3.67 cfs 0.309 af

Pond CB15: Catch Basin 15 Peak Elev=265.28' Inflow=5.21 cfs 0.433 af
18.0" Round Culvert n=0.013 L=156.0' S=0.0051 '/' Outflow=5.21 cfs 0.433 af

Pond CB16: Catch Basin 16 Peak Elev=264.64' Inflow=7.46 cfs 0.609 af
24.0" Round Culvert n=0.013 L=124.0' S=0.0048 '/' Outflow=7.46 cfs 0.609 af

Pond CB17: Catch Basin 17 Peak Elev=264.25' Inflow=9.24 cfs 0.794 af
24.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/' Outflow=9.24 cfs 0.794 af

Pond CB18: Catch Basin 18 Peak Elev=263.65' Inflow=11.28 cfs 0.951 af
24.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=11.28 cfs 0.951 af

Pond CB19: Catch Basin 19 Peak Elev=262.98' Inflow=3.17 cfs 0.248 af
24.0" Round Culvert n=0.013 L=151.0' S=0.0053 '/' Outflow=3.17 cfs 0.248 af

Pond CB2: Catch Basin 2 Peak Elev=201.38' Inflow=1.15 cfs 0.190 af
15.0" Round Culvert n=0.013 L=84.0' S=0.0048 '/' Outflow=1.15 cfs 0.190 af

Pond CB20: Catch Basin 20 Peak Elev=263.06' Inflow=1.84 cfs 0.143 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0057 '/' Outflow=1.84 cfs 0.143 af

Pond CB3: Catch Basin 3 Peak Elev=209.27' Inflow=3.09 cfs 0.238 af
15.0" Round Culvert n=0.013 L=65.0' S=0.1262 '/' Outflow=3.09 cfs 0.238 af

Pond CB4: Catch Basin 4 Peak Elev=209.28' Inflow=0.38 cfs 0.029 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.38 cfs 0.029 af

Pond CB5: Catch Basin 5 Peak Elev=225.16' Inflow=2.25 cfs 0.176 af
15.0" Round Culvert n=0.013 L=82.0' S=0.0817 '/' Outflow=2.25 cfs 0.176 af

Pond CB6: Catch Basin 6 Peak Elev=225.19' Inflow=0.38 cfs 0.028 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.38 cfs 0.028 af

Pond CB7: Catch Basin 7 Peak Elev=239.37' Inflow=0.39 cfs 0.029 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.39 cfs 0.029 af

Pond CB8: Catch Basin 8 Peak Elev=239.30' Inflow=1.53 cfs 0.122 af
15.0" Round Culvert n=0.013 L=63.0' S=0.0889 '/' Outflow=1.53 cfs 0.122 af

Pond CB9: Catch Basin 9 Peak Elev=252.39' Inflow=0.84 cfs 0.071 af
15.0" Round Culvert n=0.013 L=163.0' S=0.0804 '/' Outflow=0.84 cfs 0.071 af

Pond DMH 3: Drain Manhole 3 Peak Elev=233.68' Inflow=1.53 cfs 0.122 af
15.0" Round Culvert n=0.013 L=104.0' S=0.0827 '/' Outflow=1.53 cfs 0.122 af

Pond DMH 4: Drain Manhole 4 Peak Elev=262.83' Inflow=3.17 cfs 0.248 af
24.0" Round Culvert n=0.013 L=9.0' S=0.0111 '/' Outflow=3.17 cfs 0.247 af

Pond DMH 5: Drain Manhole 5 Peak Elev=262.76' Inflow=14.43 cfs 1.199 af
24.0" Round Culvert n=0.013 L=14.0' S=0.0143 '/' Outflow=14.43 cfs 1.199 af

Pond DMH1: Drain Manhole 1 Peak Elev=201.28' Inflow=4.06 cfs 0.429 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0067 '/' Outflow=4.06 cfs 0.429 af

Pond DMH2: Drain Manhole 2 Peak Elev=218.36' Inflow=2.25 cfs 0.176 af
15.0" Round Culvert n=0.013 L=84.0' S=0.1095 '/' Outflow=2.25 cfs 0.176 af

Total Runoff Area = 32.913 ac Runoff Volume = 3.770 af Average Runoff Depth = 1.37"
84.71% Pervious = 27.881 ac 15.29% Impervious = 5.031 ac

Summary for Subcatchment 1S: SUBCATCHMENT 1S

Runoff = 3.45 cfs @ 12.56 hrs, Volume= 0.536 af, Depth> 1.00"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
246,176	55	Woods, Good, HSG B
798	61	>75% Grass cover, Good, HSG B
279,376	59	Weighted Average
257,927		92.32% Pervious Area
21,449		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Subcatchment 10S: SUBCATCHMENT 10S

Runoff = 0.13 cfs @ 12.15 hrs, Volume= 0.011 af, Depth> 1.46"
Routed to Pond 1P : Infiltration Pocket

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
756	98	Paved parking, HSG B
1,961	61	>75% Grass cover, Good, HSG B
1,200	55	Woods, Good, HSG B
3,917	66	Weighted Average
3,161		80.70% Pervious Area
756		19.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	38	0.2630	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.0	33	0.0910	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	8	0.0400	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.6	79	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 0.57 cfs @ 12.11 hrs, Volume= 0.047 af, Depth> 1.13"
Routed to Pond 2P : Stormwater Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
21,833	61	>75% Grass cover, Good, HSG B
21,833		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	50	0.5000	0.52		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
5.0	50	0.0290	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	37	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	137	Total			

Summary for Subcatchment 12S: Subcatchment 12S

Runoff = 0.60 cfs @ 12.30 hrs, Volume= 0.066 af, Depth> 1.52"
Routed to Pond 3P : Stormfilter

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
5,448	98	Paved parking, HSG B
10,621	55	Woods, Good, HSG B
6,698	61	>75% Grass cover, Good, HSG B
22,767	67	Weighted Average
17,319		76.07% Pervious Area
5,448		23.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	66	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	34	0.2350	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.7	101	0.2180	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	88	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	157	0.1910	2.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	196	0.1730	2.08		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.9	642	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 2.47 cfs @ 12.43 hrs, Volume= 0.354 af, Depth> 0.89"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
1,115	98	Roofs, HSG B
27,727	61	>75% Grass cover, Good, HSG B
166,599	55	Woods, Good, HSG B
12,422	70	Woods, Good, HSG C
207,863	57	Weighted Average
206,748		99.46% Pervious Area
1,115		0.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	10	0.5000	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
19.6	90	0.0220	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	78	0.0256	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	62	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	71	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.2	341	Total			

Summary for Subcatchment 21S: SUBCATCHMENT 21S

Runoff = 1.70 cfs @ 12.42 hrs, Volume= 0.247 af, Depth> 0.84"
Routed to Pond CB12 : Catch Basin 12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
9,648	61	>75% Grass cover, Good, HSG B
819	98	Roofs, HSG B
138,282	55	Woods, Good, HSG B
5,904	70	Woods, Good, HSG C
154,653	56	Weighted Average
153,834		99.47% Pervious Area
819		0.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	53	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.0	358	Total			

Summary for Subcatchment 22S: SUBCATCHMENT 22S

Runoff = 1.71 cfs @ 12.27 hrs, Volume= 0.191 af, Depth> 1.19"
Routed to Pond 10P : Bioretention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
7,612	98	Paved parking, HSG B
39,991	61	>75% Grass cover, Good, HSG B
36,336	55	Woods, Good, HSG B
83,939	62	Weighted Average
76,327		90.93% Pervious Area
7,612		9.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	37	0.1620	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	43	0.3720	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.1	20	0.0310	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.8	44	0.0310	0.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	51	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	83	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	70	0.0229	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.4	348	Total			

Summary for Subcatchment 23S: SUBCATCHMENT 23S

Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.067 af, Depth> 3.00"
Routed to Pond 11P : EcoRaster

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
6,467	98	Paved parking, HSG B
1,122	98	Roofs, HSG B
4,166	61	>75% Grass cover, Good, HSG B
11,755	85	Weighted Average
4,166		35.44% Pervious Area
7,589		64.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	39	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
4.7	39	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 24S: SUBCATCHMENT 24S

Runoff = 0.40 cfs @ 12.21 hrs, Volume= 0.044 af, Depth> 0.95"
Routed to Pond 12P : Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
15,170	55	Woods, Good, HSG B
8,831	61	>75% Grass cover, Good, HSG B
221	98	Roofs, HSG B
24,222	58	Weighted Average
24,001		99.09% Pervious Area
221		0.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	70	0.1190	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.3	30	0.2110	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	8	0.2110	2.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	35	0.0570	1.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	61	0.0197	0.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	204	Total			

Summary for Subcatchment 25S: SUBCATCHMENT 25S

Runoff = 1.43 cfs @ 12.26 hrs, Volume= 0.154 af, Depth> 1.26"
Routed to Pond 9P : 18" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
23,000	55	Woods, Good, HSG B
33,757	61	>75% Grass cover, Good, HSG B
7,438	98	Paved parking, HSG B
64,195	63	Weighted Average
56,757		88.41% Pervious Area
7,438		11.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	30	0.0330	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.9	23	0.1740	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.0	25	0.4800	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.7	22	0.1820	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	46	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	222	0.0880	2.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.5	368	Total			

Summary for Subcatchment 30S: Subcatchment 30S

Runoff = 0.97 cfs @ 12.25 hrs, Volume= 0.117 af, Depth> 0.84"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
6,678	61	>75% Grass cover, Good, HSG B
66,484	55	Woods, Good, HSG B
73,162	56	Weighted Average
73,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	36	0.0830	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
6.9	64	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	16	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	40	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	67	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.3420	2.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	299	Total			

Summary for Subcatchment 31S: Subcatchment 31S

Runoff = 2.14 cfs @ 12.38 hrs, Volume= 0.289 af, Depth> 0.95"
Routed to Reach 4Ra : Flow Through Subcatchment 30S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
17,872	61	>75% Grass cover, Good, HSG B
115,366	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
159,045	58	Weighted Average
159,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	83	0.0540	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	17	0.3460	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	168	0.3460	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	16	0.1250	1.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	53	0.0090	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
22.7	593	Total			

Summary for Subcatchment 32S: SUBCATCHMENT 32S

Runoff = 0.17 cfs @ 12.13 hrs, Volume= 0.015 af, Depth> 1.13"
Routed to Pond 6P : Focal Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
6,935	61	>75% Grass cover, Good, HSG B
6,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.0	27	0.0310	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	12	0.3300	0.33		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
8.0	83	Total			

Summary for Subcatchment 101S: SUBCATCHMENT 101S

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 3.00"
Routed to Pond CB1 : Catch Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
1,949	98	Paved parking, HSG B
1,113	61	>75% Grass cover, Good, HSG B
3,062	85	Weighted Average
1,113		36.35% Pervious Area
1,949		63.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	12	0.5000	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.2	14	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	74	0.0800	2.19		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	49	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	149	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 102S: SUBCATCHMENT 102S

Runoff = 0.45 cfs @ 12.10 hrs, Volume= 0.033 af, Depth> 1.67"
Routed to Pond CB2 : Catch Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
8,309	61	>75% Grass cover, Good, HSG B
10,426	69	Weighted Average
8,309		79.69% Pervious Area
2,117		20.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	41	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.5	19	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	102	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.5	202	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 103S: SUBCATCHMENT 103S

Runoff = 0.45 cfs @ 12.10 hrs, Volume= 0.034 af, Depth> 1.67"
Routed to Pond CB3 : Catch Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
2,166	98	Paved parking, HSG B
8,449	61	>75% Grass cover, Good, HSG B
10,615	69	Weighted Average
8,449		79.59% Pervious Area
2,166		20.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	39	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.7	21	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	110	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.6	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 104S: SUBCATCHMENT 104S

Runoff = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af, Depth> 1.74"
Routed to Pond CB4 : Catch Basin 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
2,094	98	Paved parking, HSG B
6,469	61	>75% Grass cover, Good, HSG B
8,563	70	Weighted Average
6,469		75.55% Pervious Area
2,094		24.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.8	23	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	37	0.0800	1.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	92	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	192	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 105S: SUBCATCHMENT 105S

Runoff = 0.35 cfs @ 12.10 hrs, Volume= 0.026 af, Depth> 1.74"
Routed to Pond CB5 : Catch Basin 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
1,895	98	Paved parking, HSG B
5,790	61	>75% Grass cover, Good, HSG B
7,685	70	Weighted Average
5,790		75.34% Pervious Area
1,895		24.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.1	28	0.0800	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	32	0.0800	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	98	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	198	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 106S: SUBCATCHMENT 106S

Runoff = 0.38 cfs @ 12.10 hrs, Volume= 0.028 af, Depth> 1.74"
Routed to Pond CB6 : Catch Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
6,363	61	>75% Grass cover, Good, HSG B
8,480	70	Weighted Average
6,363		75.04% Pervious Area
2,117		24.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	25	0.5000	0.45		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.0	11	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	64	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	50	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	150	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 107S: SUBCATCHMENT 107S

Runoff = 0.39 cfs @ 12.10 hrs, Volume= 0.029 af, Depth> 1.67"
Routed to Pond CB7 : Catch Basin 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
2,034	98	Paved parking, HSG B
7,124	61	>75% Grass cover, Good, HSG B
9,158	69	Weighted Average
7,124		77.79% Pervious Area
2,034		22.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.4	17	0.0800	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	43	0.0800	1.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	100	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	200	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 108S: SUBCATCHMENT 108S

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 2.21"
Routed to Pond CB8 : Catch Basin 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
2,096	98	Paved parking, HSG B
3,013	61	>75% Grass cover, Good, HSG B
5,109	76	Weighted Average
3,013		58.97% Pervious Area
2,096		41.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	15	0.5000	0.41		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.6	20	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	65	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.0	8	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.7	108	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 109S: SUBCATCHMENT 109S

Runoff = 0.43 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 3.80"
Routed to Pond CB9 : Catch Basin 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
3,914	98	Paved parking, HSG B
677	61	>75% Grass cover, Good, HSG B
4,591	93	Weighted Average
677		14.75% Pervious Area
3,914		85.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	35	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	65	0.0380	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	47	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	35	0.0570	4.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	140	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.8	322	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 110S: SUBCATCHMENT 110S

Runoff = 0.45 cfs @ 12.15 hrs, Volume= 0.038 af, Depth> 2.21"
Routed to Pond CB10 : Catch Basin 10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
4,036	98	Paved parking, HSG B
3,001	61	>75% Grass cover, Good, HSG B
1,917	55	Woods, Good, HSG B
8,954	76	Weighted Average
4,918		54.93% Pervious Area
4,036		45.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	40	0.1500	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.3	60	0.2500	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	15	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	23	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	14	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	41	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.4	193	Total			

Summary for Subcatchment 111S: SUBCATCHMENT 111S

Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.022 af, Depth> 1.13"
Routed to Reach B4R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
10,066	61	>75% Grass cover, Good, HSG B
10,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	37	0.5000	0.49		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.3	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 113S: SUBCATCHMENT 113S

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 4.36"
Routed to Pond CB13 : Catch Basin 13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
4,154	98	Paved parking, HSG B
4,154		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0330	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	44	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	144	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 114S: SUBCATCHMENT 114S

Runoff = 1.80 cfs @ 12.12 hrs, Volume= 0.151 af, Depth> 3.69"
Routed to Pond CB14 : Catch Basin 14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
3,467	98	Roofs, HSG B
3,413	61	>75% Grass cover, Good, HSG B
14,417	98	Paved parking, HSG B
21,297	92	Weighted Average
3,413		16.03% Pervious Area
17,884		83.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	25	0.0360	1.28		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	133	0.0360	3.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	18	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.0	251	Total			

Summary for Subcatchment 115S: SUBCATCHMENT 115S

Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.124 af, Depth> 4.13"
Routed to Pond CB15 : Catch Basin 15

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
3,294	98	Roofs, HSG B
11,537	98	Paved parking, HSG B
852	61	>75% Grass cover, Good, HSG B
15,683	96	Weighted Average
852		5.43% Pervious Area
14,831		94.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.1	10	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	50	0.0500	1.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	164	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	264	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 116S: SUBCATCHMENT 116S

Runoff = 2.26 cfs @ 12.09 hrs, Volume= 0.176 af, Depth> 3.91"
Routed to Pond CB16 : Catch Basin 16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
3,185	98	Roofs, HSG B
17,824	98	Paved parking, HSG B
2,496	61	>75% Grass cover, Good, HSG B
23,505	94	Weighted Average
2,496		10.62% Pervious Area
21,009		89.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	22	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	16	0.0200	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.0	38	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 117S: SUBCATCHMENT 117S

Runoff = 1.34 cfs @ 12.20 hrs, Volume= 0.124 af, Depth> 2.90"
Routed to Pond CB17 : Catch Basin 17

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
323	98	Roofs, HSG B
13,448	98	Paved parking, HSG B
8,556	61	>75% Grass cover, Good, HSG B
22,327	84	Weighted Average
8,556		38.32% Pervious Area
13,771		61.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	62	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0100	0.56		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.1	25	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.2	8	0.0110	0.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	72	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.1	172	Total			

Summary for Subcatchment 118S: SUBCATCHMENT 118S

Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.157 af, Depth> 3.70"
Routed to Pond CB18 : Catch Basin 18

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
4,495	98	Roofs, HSG B
14,282	98	Paved parking, HSG B
3,394	61	>75% Grass cover, Good, HSG B
22,171	92	Weighted Average
3,394		15.31% Pervious Area
18,777		84.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	60	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	40	0.0500	1.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	20	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.1	120	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 119S: SUBCATCHMENT 119S

Runoff = 1.33 cfs @ 12.09 hrs, Volume= 0.105 af, Depth> 4.02"
Routed to Pond CB19 : Catch Basin 19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
3,314	98	Roofs, HSG B
9,272	98	Paved parking, HSG B
1,015	61	>75% Grass cover, Good, HSG B
13,601	95	Weighted Average
1,015		7.46% Pervious Area
12,586		92.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.8	14	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	46	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.7	118	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.0	218	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 120S: SUBCATCHMENT 120S

Runoff = 1.84 cfs @ 12.09 hrs, Volume= 0.143 af, Depth> 3.91"
Routed to Pond CB20 : Catch Basin 20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
2,604	98	Roofs, HSG B
14,430	98	Paved parking, HSG B
2,079	61	>75% Grass cover, Good, HSG B
19,113	94	Weighted Average
2,079		10.88% Pervious Area
17,034		89.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	42	0.0570	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0200	0.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.8	53	0.0200	1.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	24	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	124	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: SUBCATCHMENT 204S

Runoff = 0.24 cfs @ 12.40 hrs, Volume= 0.033 af, Depth> 0.89"
Routed to Reach B3R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
13,879	55	Woods, Good, HSG B
5,563	61	>75% Grass cover, Good, HSG B
19,442	57	Weighted Average
19,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	100	0.0227	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0292	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	77	0.2340	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	72	0.1390	1.86		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	32	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.2	379	Total			

Summary for Subcatchment 205S: SUBCATCHMENT 205S

Runoff = 0.12 cfs @ 12.11 hrs, Volume= 0.010 af, Depth> 1.13"
Routed to Reach B2R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
4,339	61	>75% Grass cover, Good, HSG B
288	55	Woods, Good, HSG B
4,627	61	Weighted Average
4,627		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	22	0.5000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	70	0.5000	0.56		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.9	92	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: SUBCATCHMENT 207S

Runoff = 0.20 cfs @ 12.38 hrs, Volume= 0.027 af, Depth> 0.95"
Routed to Reach B1R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
6,840	61	>75% Grass cover, Good, HSG B
8,162	55	Woods, Good, HSG B
15,002	58	Weighted Average
15,002		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	56	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	66	0.0610	1.23		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	57	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	329	Total			

Summary for Subcatchment 211S: SUBCATCHMENT 211S

Runoff = 0.34 cfs @ 12.34 hrs, Volume= 0.046 af, Depth> 0.84"
Routed to Reach B6R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
6,380	61	>75% Grass cover, Good, HSG B
22,212	55	Woods, Good, HSG B
28,592	56	Weighted Average
28,592		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	83	0.0361	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	17	0.2140	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	11	0.2140	2.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1820	2.13		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	45	0.1780	2.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	34	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	45	0.0440	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	28	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.3	328	Total			

Summary for Subcatchment 305S: SUBCATCHMENT 305S

Runoff = 0.02 cfs @ 12.12 hrs, Volume= 0.002 af, Depth> 0.79"
Routed to Reach B5R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
86	61	>75% Grass cover, Good, HSG B
1,455	55	Woods, Good, HSG B
1,541	55	Weighted Average
1,541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	6	0.2000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.2	46	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment ROOF 1: Back of Roof

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 4.36"
Routed to Reach RD1 : RD 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 2: Back of Roof

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 4.36"
Routed to Reach RD2 : RD 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 3: Back of Roof

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 4.36"
Routed to Reach RD3 : RD 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year 24-Hour Rainfall=4.60"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach 4Ra: Flow Through Subcatchment 30S

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 0.95" for 10-Year 24-Hour event
Inflow = 2.14 cfs @ 12.38 hrs, Volume= 0.289 af
Outflow = 2.14 cfs @ 12.40 hrs, Volume= 0.288 af, Atten= 0%, Lag= 0.9 min
Routed to Reach 4Rb : Flow Through Subcatchment 30S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.62 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.30 fps, Avg. Travel Time= 2.2 min

Peak Storage= 139 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 12.39'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

‡

Summary for Reach 4Rb: Flow Through Subcatchment 30S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.21' @ 12.40 hrs

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 0.95" for 10-Year 24-Hour event
Inflow = 2.14 cfs @ 12.40 hrs, Volume= 0.288 af
Outflow = 2.13 cfs @ 12.42 hrs, Volume= 0.288 af, Atten= 0%, Lag= 1.6 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.53 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.26 fps, Avg. Travel Time= 4.5 min

Peak Storage= 283 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 28.28'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11.107 ac, 10.76% Impervious, Inflow Depth > 0.93" for 10-Year 24-Hour event
Inflow = 4.53 cfs @ 12.56 hrs, Volume= 0.857 af
Outflow = 4.53 cfs @ 12.56 hrs, Volume= 0.857 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 12.549 ac, 4.54% Impervious, Inflow Depth > 0.58" for 10-Year 24-Hour event
Inflow = 4.17 cfs @ 12.43 hrs, Volume= 0.602 af
Outflow = 4.17 cfs @ 12.43 hrs, Volume= 0.602 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.257 ac, 35.29% Impervious, Inflow Depth > 1.20" for 10-Year 24-Hour event
Inflow = 3.30 cfs @ 12.43 hrs, Volume= 0.923 af
Outflow = 3.30 cfs @ 12.43 hrs, Volume= 0.923 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach B1R: BENCH

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth > 0.95" for 10-Year 24-Hour event
Inflow = 0.20 cfs @ 12.38 hrs, Volume= 0.027 af
Outflow = 0.20 cfs @ 12.45 hrs, Volume= 0.027 af, Atten= 2%, Lag= 3.7 min
Routed to Reach B2R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB7 : Catch Basin 7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.71 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.39 fps, Avg. Travel Time= 7.3 min

Peak Storage= 48 cf @ 12.45 hrs
Average Depth at Peak Storage= 0.26' , Surface Width= 2.11'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 6.92 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 173.0' Slope= 0.0809 '/'
Inlet Invert= 278.00', Outlet Invert= 264.00'

‡

Summary for Reach B2R: BENCH

[62] Hint: Exceeded Reach B1R OUTLET depth by 0.08' @ 12.10 hrs

Inflow Area = 0.451 ac, 0.00% Impervious, Inflow Depth > 0.99" for 10-Year 24-Hour event
Inflow = 0.25 cfs @ 12.41 hrs, Volume= 0.037 af
Outflow = 0.25 cfs @ 12.43 hrs, Volume= 0.037 af, Atten= 1%, Lag= 1.7 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.87 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 3.9 min

Peak Storage= 33 cf @ 12.43 hrs
Average Depth at Peak Storage= 0.27' , Surface Width= 2.13'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.45 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 116.0' Slope= 0.1207 '/'
Inlet Invert= 264.00', Outlet Invert= 250.00'

‡

Summary for Reach B3R: BENCH

[62] Hint: Exceeded Reach B2R OUTLET depth by 0.08' @ 12.45 hrs

Inflow Area = 0.932 ac, 0.00% Impervious, Inflow Depth > 0.93" for 10-Year 24-Hour event
Inflow = 0.50 cfs @ 12.41 hrs, Volume= 0.073 af
Outflow = 0.49 cfs @ 12.44 hrs, Volume= 0.073 af, Atten= 0%, Lag= 1.4 min
Routed to Reach B4R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB4 : Catch Basin 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.02 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 3.0 min

Peak Storage= 50 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 2.78'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.30 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 103.0' Slope= 0.1165 '/'
Inlet Invert= 250.00', Outlet Invert= 238.00'

‡

Summary for Reach B4R: BENCH

[62] Hint: Exceeded Reach B3R OUTLET depth by 0.16' @ 12.50 hrs

Inflow Area = 1.820 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-Year 24-Hour event
Inflow = 0.94 cfs @ 12.40 hrs, Volume= 0.140 af
Outflow = 0.92 cfs @ 12.46 hrs, Volume= 0.139 af, Atten= 2%, Lag= 3.4 min
Routed to Pond CB11 : Catch Basin 11
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.91 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 7.5 min

Peak Storage= 234 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.50' , Surface Width= 4.02'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.76 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 232.0' Slope= 0.0560 '/'
Inlet Invert= 238.00', Outlet Invert= 225.00'

‡

Summary for Reach B5R: BENCH

Inflow Area = 0.035 ac, 0.00% Impervious, Inflow Depth > 0.79" for 10-Year 24-Hour event
Inflow = 0.02 cfs @ 12.12 hrs, Volume= 0.002 af
Outflow = 0.02 cfs @ 12.12 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.4 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach B2R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.42 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 0.9 min

Peak Storage= 1 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 0.95'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 7.02 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 12.0' Slope= 0.0833 '/'
Inlet Invert= 274.00', Outlet Invert= 273.00'

‡

Summary for Reach B6R: BENCH

Inflow Area = 0.656 ac, 0.00% Impervious, Inflow Depth > 0.84" for 10-Year 24-Hour event
Inflow = 0.34 cfs @ 12.34 hrs, Volume= 0.046 af
Outflow = 0.33 cfs @ 12.40 hrs, Volume= 0.046 af, Atten= 3%, Lag= 3.8 min
Routed to Reach B4R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.70 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.39 fps, Avg. Travel Time= 7.1 min

Peak Storage= 78 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.34' , Surface Width= 2.75'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.68 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 165.0' Slope= 0.0545 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

‡

Summary for Reach RD1: RD 1

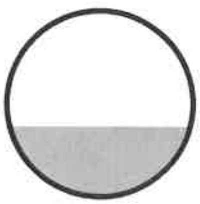
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year 24-Hour event
Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af
Outflow = 0.75 cfs @ 12.10 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.6 min
Routed to Pond CB13 : Catch Basin 13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 6.19 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.08 fps, Avg. Travel Time= 2.1 min

Peak Storage= 32 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.25' , Surface Width= 0.65'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.47 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 264.0' Slope= 0.0417 '/'
Inlet Invert= 276.00', Outlet Invert= 265.00'



Summary for Reach RD2: RD 2

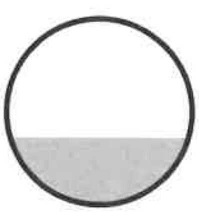
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year 24-Hour event
Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af
Outflow = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.3 min
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 6.57 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.21 fps, Avg. Travel Time= 0.8 min

Peak Storage= 13 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.24' , Surface Width= 0.64'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.68 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 110.0' Slope= 0.0491 '/'
Inlet Invert= 269.00', Outlet Invert= 263.60'



Summary for Reach RD3: RD 3

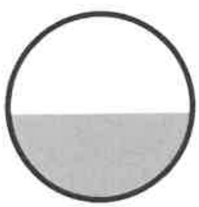
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year 24-Hour event
Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af
Outflow = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.3 min
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 4.73 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 1.0 min

Peak Storage= 16 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.31' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.71 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 100.0' Slope= 0.0200 '/'
Inlet Invert= 268.00', Outlet Invert= 266.00'



Summary for Pond 1P: Infiltration Pocket

[80] Warning: Exceeded Pond 3P by 0.93' @ 11.20 hrs (0.00 cfs 0.000 af)

Inflow Area = 4.693 ac, 14.98% Impervious, Inflow Depth > 1.11" for 10-Year 24-Hour event
Inflow = 1.19 cfs @ 12.60 hrs, Volume= 0.432 af
Outflow = 1.17 cfs @ 12.59 hrs, Volume= 0.418 af, Atten= 2%, Lag= 0.0 min
Discarded = 0.10 cfs @ 12.30 hrs, Volume= 0.098 af
Primary = 1.08 cfs @ 12.59 hrs, Volume= 0.320 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 198.81' @ 12.30 hrs Surf.Area= 393 sf Storage= 619 cf

Plug-Flow detention time= 24.2 min calculated for 0.417 af (97% of inflow)
Center-of-Mass det. time= 8.7 min (956.6 - 947.9)

Volume	Invert	Avail.Storage	Storage Description
#1	195.84'	619 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.84	43	0.0	0	0
195.85	43	40.0	0	0
195.99	43	40.0	2	3
196.00	43	100.0	0	3
197.00	197	100.0	120	123
198.00	263	100.0	230	353
198.80	393	100.0	262	615
198.81	393	100.0	4	619

Device	Routing	Invert	Outlet Devices
#0	Primary	198.81'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	195.84'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	198.80'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.10 cfs @ 12.30 hrs HW=198.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.05 cfs @ 12.59 hrs HW=198.81' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir**(Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Stormwater Pond

Inflow Area = 4.080 ac, 13.74% Impervious, Inflow Depth > 1.40" for 10-Year 24-Hour event
Inflow = 4.63 cfs @ 12.11 hrs, Volume= 0.476 af
Outflow = 0.91 cfs @ 13.01 hrs, Volume= 0.357 af, Atten= 80%, Lag= 54.4 min
Primary = 0.91 cfs @ 13.01 hrs, Volume= 0.357 af
Routed to Pond 1P : Infiltration Pocket
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : Infiltration Pocket

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Starting Elev= 199.00' Surf.Area= 4,795 sf Storage= 10,800 cf
Peak Elev= 200.44' @ 13.01 hrs Surf.Area= 6,735 sf Storage= 19,214 cf (8,415 cf above start)

Plug-Flow detention time= 500.4 min calculated for 0.109 af (23% of inflow)
Center-of-Mass det. time= 101.4 min (963.9 - 862.6)

Volume	Invert	Avail.Storage	Storage Description
#1	196.00'	37,985 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
196.00	2,494	0	0
197.00	3,194	2,844	2,844
198.00	3,961	3,578	6,422
199.00	4,795	4,378	10,800
199.49	5,237	2,458	13,257
199.50	5,818	55	13,313
200.00	6,296	3,029	16,341
201.00	7,292	6,794	23,135
202.00	8,346	7,819	30,954
202.80	9,005	6,940	37,895
202.81	9,005	90	37,985

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	**12.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 199.00' / 198.80' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	199.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	199.85'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	201.70'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	201.80'	**6.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.91 cfs @ 13.01 hrs HW=200.44' TW=198.81' (Dynamic Tailwater)
1=Culvert (Passes 0.91 cfs of 2.90 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.12 cfs @ 5.61 fps)
3=Orifice/Grate (Orifice Controls 0.79 cfs @ 2.62 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=199.00' TW=195.84' (Dynamic Tailwater)
5=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Summary for Pond 3P: Stormfilter

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=24)

Inflow Area = 0.523 ac, 23.93% Impervious, Inflow Depth > 1.52" for 10-Year 24-Hour event
Inflow = 0.60 cfs @ 12.30 hrs, Volume= 0.066 af
Outflow = 0.68 cfs @ 12.31 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.7 min
Primary = 0.68 cfs @ 12.31 hrs, Volume= 0.065 af
Routed to Pond 1P : Infiltration Pocket
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 198.83' @ 12.30 hrs Surf.Area= 227 sf Storage= 69 cf

Plug-Flow detention time= 15.7 min calculated for 0.065 af (98% of inflow)
Center-of-Mass det. time= 3.5 min (874.0 - 870.5)

Volume	Invert	Avail.Storage	Storage Description
#1	195.00'	7 cf	**1.00'W x 2.00'L x 3.40'H Prismatoid**
#2	191.75'	13 cf	**1.00'W x 2.00'L x 6.65'H Prismatoid**
#3	198.40'	97 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		117 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.40	4	0	0
199.00	310	94	94
199.01	310	3	97

Device	Routing	Invert	Outlet Devices
#1	Primary	196.10'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 196.10' / 196.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	199.00'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.64 cfs @ 12.31 hrs HW=198.83' TW=198.81' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.64 cfs @ 0.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=191.75' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 5P: StormTech

Inflow Area = 3.767 ac, 86.71% Impervious, Inflow Depth > 3.82" for 10-Year 24-Hour event
Inflow = 14.43 cfs @ 12.10 hrs, Volume= 1.199 af
Outflow = 0.77 cfs @ 14.41 hrs, Volume= 0.503 af, Atten= 95%, Lag= 138.9 min
Primary = 0.77 cfs @ 14.41 hrs, Volume= 0.503 af
Routed to Pond 6P : Focal Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 262.20' @ 14.41 hrs Surf.Area= 0.393 ac Storage= 0.829 af

Plug-Flow detention time= 369.4 min calculated for 0.503 af (42% of inflow)
Center-of-Mass det. time= 237.6 min (1,014.0 - 776.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	259.25'	0.540 af	**58.58'W x 292.50'L x 5.50'H Field A** 2.164 af Overall - 0.813 af Embedded = 1.350 af x 40.0% Voids
#2A	260.00'	0.813 af	**ADS_StormTech MC-3500 d +Cap**x 320 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 320 Chambers in 8 Rows Cap Storage= 14.9 cf x 2 x 8 rows = 238.4 cf
		1.353 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	259.25'	**15.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 259.25' / 258.20' S= 0.0328 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	259.25'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	261.50'	**6.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	263.70'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.77 cfs @ 14.41 hrs HW=262.20' TW=253.94' (Dynamic Tailwater)
1=Culvert (Passes 0.77 cfs of 7.11 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.04 cfs @ 8.21 fps)
3=Orifice/Grate (Orifice Controls 0.72 cfs @ 3.14 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 6P: Focal Point

Inflow Area = 3.926 ac, 83.20% Impervious, Inflow Depth > 1.58" for 10-Year 24-Hour event
Inflow = 0.79 cfs @ 14.34 hrs, Volume= 0.518 af
Outflow = 0.79 cfs @ 14.38 hrs, Volume= 0.518 af, Atten= 0%, Lag= 2.2 min
Primary = 0.79 cfs @ 14.38 hrs, Volume= 0.518 af
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 253.94' @ 14.38 hrs Surf.Area= 620 sf Storage= 23 cf

Plug-Flow detention time= 0.3 min calculated for 0.518 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (1,010.3 - 1,010.0)

Volume	Invert	Avail.Storage	Storage Description
#1	253.75'	279 cf	**20.00'W x 31.00'L x 2.25'H Focal Point** 1,395 cf Overall x 20.0% Voids
#2	256.00'	1,965 cf	**Surface Bowl (Prismatic)**Listed below (Recalc)
		2,244 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	620	0	0
258.00	1,345	1,965	1,965

Device	Routing	Invert	Outlet Devices
#1	Primary	252.75'	**15.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 252.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 3	253.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#3	Device 1	253.25'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	257.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.79 cfs @ 14.38 hrs HW=253.94' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.79 cfs of 3.53 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 0.79 cfs @ 3.14 fps)
  │ └─**2=Exfiltration** (Passes 0.79 cfs of 1.44 cfs potential flow)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 9P: 18" HDPE

Inflow Area = 1.474 ac, 11.59% Impervious, Inflow Depth > 1.26" for 10-Year 24-Hour event
Inflow = 1.43 cfs @ 12.26 hrs, Volume= 0.154 af
Outflow = 1.43 cfs @ 12.27 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.6 min
Primary = 1.43 cfs @ 12.27 hrs, Volume= 0.154 af
Routed to Pond 10P : Bioretention
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 201.83' @ 12.27 hrs Surf.Area= 153 sf Storage= 79 cf

Plug-Flow detention time= 2.7 min calculated for 0.154 af (100% of inflow)
Center-of-Mass det. time= 1.3 min (880.7 - 879.5)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	37	0	0
202.00	177	107	107
202.50	258	109	216
202.51	258	3	218

Device	Routing	Invert	Outlet Devices
#1	Primary	201.20'	**18.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500

			Inlet / Outlet Invert= 201.20' / 201.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	202.50'	**36.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.41 cfs @ 12.27 hrs HW=201.83' TW=199.92' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.41 cfs @ 2.97 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 10P: Bioretention

Inflow Area = 3.401 ac, 10.16% Impervious, Inflow Depth > 1.22" for 10-Year 24-Hour event
Inflow = 3.14 cfs @ 12.27 hrs, Volume= 0.345 af
Outflow = 1.96 cfs @ 12.55 hrs, Volume= 0.344 af, Atten= 37%, Lag= 17.0 min
Discarded = 1.96 cfs @ 12.55 hrs, Volume= 0.344 af
Primary = 0.00 cfs @ 12.55 hrs, Volume= 0.000 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 200.30' @ 12.55 hrs Surf.Area= 2,550 sf Storage= 2,228 cf

Plug-Flow detention time= 17.5 min calculated for 0.344 af (100% of inflow)
Center-of-Mass det. time= 14.8 min (896.9 - 882.1)

Volume	Invert	Avail.Storage	Storage Description
#1	197.49'	10,895 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
197.49	2,341	224.0	0.0	0	0	2,341
197.50	2,341	224.0	40.0	9	9	2,343
198.49	2,341	224.0	40.0	927	936	2,565
198.50	2,341	224.0	15.0	4	940	2,567
199.99	2,341	224.0	15.0	523	1,463	2,901
200.00	2,341	224.0	100.0	23	1,487	2,903
200.99	3,056	251.0	100.0	2,664	4,150	3,951
201.00	3,826	265.0	100.0	34	4,185	4,525
202.00	4,646	284.0	100.0	4,229	8,414	5,400
202.50	5,079	293.0	100.0	2,430	10,844	5,837
202.51	5,079	293.0	100.0	51	10,895	5,840

Device	Routing	Invert	Outlet Devices
#1	Primary	200.10'	**10.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.10' / 199.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	200.30'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	201.10'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	201.50'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Discarded	197.49'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 197.41' Phase-In= 0.10'

Discarded OutFlow Max=1.96 cfs @ 12.55 hrs HW=200.30' (Free Discharge)
└─**5=Exfiltration** (Controls 1.96 cfs)

Primary OutFlow Max=0.00 cfs @ 12.55 hrs HW=200.30' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 0.11 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.19 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=197.49' TW=195.07' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 11P: EcoRaster

Inflow Area = 0.826 ac, 21.71% Impervious, Inflow Depth > 1.36" for 10-Year 24-Hour event
Inflow = 0.92 cfs @ 12.09 hrs, Volume= 0.094 af
Outflow = 0.36 cfs @ 12.58 hrs, Volume= 0.094 af, Atten= 61%, Lag= 29.1 min
Discarded = 0.36 cfs @ 12.58 hrs, Volume= 0.094 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 195.85' @ 12.58 hrs Surf.Area= 3,707 sf Storage= 864 cf

Plug-Flow detention time= 21.7 min calculated for 0.094 af (100% of inflow)
Center-of-Mass det. time= 21.4 min (850.1 - 828.7)

Volume	Invert	Avail.Storage	Storage Description
#1	195.07'	2,256 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.07	3,707	0.0	0	0
195.08	3,707	30.0	11	11
196.08	3,707	30.0	1,112	1,123
196.09	3,707	15.0	6	1,129
196.33	3,707	15.0	133	1,262
196.34	3,707	5.0	2	1,264
197.33	3,707	5.0	183	1,448
197.34	3,707	30.0	11	1,459
197.99	3,707	30.0	723	2,182
198.00	3,707	100.0	37	2,219
198.01	3,707	100.0	37	2,256

Device	Routing	Invert	Outlet Devices
#1	Primary	198.00'	**100.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	195.07'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.83' Phase-In= 0.01'

Discarded OutFlow Max=0.36 cfs @ 12.58 hrs HW=195.84' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.36 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=195.07' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 12P: Dry Well

[93] Warning: Storage range exceeded by 0.10'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=48)

Inflow Area = 0.556 ac, 0.91% Impervious, Inflow Depth > 0.95" for 10-Year 24-Hour event
Inflow = 0.40 cfs @ 12.21 hrs, Volume= 0.044 af
Outflow = 0.54 cfs @ 12.35 hrs, Volume= 0.036 af, Atten= 0%, Lag= 8.4 min
Discarded = 0.01 cfs @ 12.35 hrs, Volume= 0.010 af
Primary = 0.53 cfs @ 12.35 hrs, Volume= 0.026 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.31' @ 12.35 hrs Surf.Area= 287 sf Storage= 359 cf

Plug-Flow detention time= 116.1 min calculated for 0.036 af (81% of inflow)
Center-of-Mass det. time= 37.6 min (930.9 - 893.3)

Volume	Invert	Avail.Storage	Storage Description
#1	194.25'	318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 815 cf Overall - 21 cf Embedded = 794 cf x 40.0% Voids
#2	195.08'	21 cf	**3.00'D x 3.00'H Vertical Cone/Cylinder** Inside #1
#3	198.08'	2 cf	**1.67'D x 0.92'H Vertical Cone/Cylinder**
#4	198.79'	18 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		359 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.25	220	0	0
195.06	220	178	178
195.07	211	2	180
198.08	211	635	815

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.79	9	0	0
199.20	74	17	17
199.21	74	1	18

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.25'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.25' Phase-In= 0.01'
#2	Primary	199.20'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.01 cfs @ 12.35 hrs HW=199.31' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.51 cfs @ 12.35 hrs HW=199.31' TW=195.73' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.51 cfs @ 0.93 fps)

Summary for Pond CB1: Catch Basin 1

Inflow Area = 0.070 ac, 63.65% Impervious, Inflow Depth > 3.00" for 10-Year 24-Hour event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 201.39' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 200.60' / 200.50' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.24 cfs @ 12.09 hrs HW=201.35' TW=201.34' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.24 cfs @ 0.45 fps)

Summary for Pond CB10: Catch Basin 10

Inflow Area = 0.206 ac, 45.07% Impervious, Inflow Depth > 2.21" for 10-Year 24-Hour event
Inflow = 0.45 cfs @ 12.15 hrs, Volume= 0.038 af
Outflow = 0.45 cfs @ 12.15 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.45 cfs @ 12.15 hrs, Volume= 0.038 af
Routed to Pond CB9 : Catch Basin 9

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.53' @ 12.13 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	252.10'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.10' / 252.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.15 hrs HW=252.52' TW=252.37' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.45 cfs @ 1.85 fps)

Summary for Pond CB11: Catch Basin 11

Inflow Area = 1.820 ac, 0.00% Impervious, Inflow Depth > 0.92" for 10-Year 24-Hour event
Inflow = 0.92 cfs @ 12.46 hrs, Volume= 0.139 af
Outflow = 0.92 cfs @ 12.46 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Primary = 0.92 cfs @ 12.46 hrs, Volume= 0.139 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 208.51' @ 12.46 hrs
Flood Elev= 221.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.00'	**15.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.00' / 200.50' S= 0.1316 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.91 cfs @ 12.46 hrs HW=208.51' TW=201.11' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.91 cfs @ 1.93 fps)

Summary for Pond CB12: Catch Basin 12

Inflow Area = 3.550 ac, 0.53% Impervious, Inflow Depth > 0.84" for 10-Year 24-Hour event
Inflow = 1.70 cfs @ 12.42 hrs, Volume= 0.247 af
Outflow = 1.70 cfs @ 12.42 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min
Primary = 1.70 cfs @ 12.42 hrs, Volume= 0.247 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB10 : Catch Basin 10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 263.10' @ 12.42 hrs Surf.Area= 49 sf Storage= 5 cf

Plug-Flow detention time= 0.1 min calculated for 0.247 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (909.3 - 909.3)

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	74 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	43	0	0
264.00	103	73	73
264.01	103	1	74

Device	Routing	Invert	Outlet Devices
#0	Secondary	264.01'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	259.70'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 259.70' / 259.00' S= 0.0140 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Device 1	263.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	264.00'	**8.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.70 cfs @ 12.42 hrs HW=263.10' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.70 cfs of 9.85 cfs potential flow)
  └─**2=Orifice/Grate** (Weir Controls 1.70 cfs @ 1.04 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=263.00' TW=252.10' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond CB13: Catch Basin 13

[62] Hint: Exceeded Reach RD1 OUTLET depth by 0.36' @ 12.10 hrs

Inflow Area = 0.266 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year 24-Hour event
Inflow = 1.17 cfs @ 12.09 hrs, Volume= 0.097 af
Outflow = 1.17 cfs @ 12.09 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min
Primary = 1.17 cfs @ 12.09 hrs, Volume= 0.097 af
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 265.61' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	264.20'	**18.0" Round Culvert** L= 73.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 264.20' / 263.40' S= 0.0110 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.38 cfs @ 12.09 hrs HW=265.51' TW=265.45' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.38 cfs @ 1.12 fps)

Summary for Pond CB14: Catch Basin 14

[62] Hint: Exceeded Reach RD2 OUTLET depth by 1.74' @ 12.10 hrs

Inflow Area = 0.925 ac, 91.53% Impervious, Inflow Depth > 4.01" for 10-Year 24-Hour event
Inflow = 3.67 cfs @ 12.10 hrs, Volume= 0.309 af
Outflow = 3.67 cfs @ 12.10 hrs, Volume= 0.309 af, Atten= 0%, Lag= 0.0 min
Primary = 3.67 cfs @ 12.10 hrs, Volume= 0.309 af
Routed to Pond CB15 : Catch Basin 15

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 265.58' @ 12.10 hrs
Flood Elev= 270.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	**18.0" Round Culvert** L= 68.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.30' / 262.90' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.67 cfs @ 12.10 hrs HW=265.49' TW=265.19' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.67 cfs @ 2.08 fps)

Summary for Pond CB15: Catch Basin 15

Inflow Area = 1.285 ac, 92.38% Impervious, Inflow Depth > 4.04" for 10-Year 24-Hour event
Inflow = 5.21 cfs @ 12.10 hrs, Volume= 0.433 af
Outflow = 5.21 cfs @ 12.10 hrs, Volume= 0.433 af, Atten= 0%, Lag= 0.0 min
Primary = 5.21 cfs @ 12.10 hrs, Volume= 0.433 af
Routed to Pond CB16 : Catch Basin 16

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 265.28' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	262.80'	**18.0" Round Culvert** L= 156.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 262.80' / 262.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.20 cfs @ 12.10 hrs HW=265.27' TW=264.63' (Dynamic Tailwater)
1=Culvert (Outlet Controls 5.20 cfs @ 2.94 fps)

Summary for Pond CB16: Catch Basin 16

Inflow Area = 1.824 ac, 91.49% Impervious, Inflow Depth > 4.00" for 10-Year 24-Hour event
Inflow = 7.46 cfs @ 12.10 hrs, Volume= 0.609 af
Outflow = 7.46 cfs @ 12.10 hrs, Volume= 0.609 af, Atten= 0%, Lag= 0.0 min
Primary = 7.46 cfs @ 12.10 hrs, Volume= 0.609 af
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 264.64' @ 12.10 hrs
Flood Elev= 270.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**24.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.50' / 260.90' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.38 cfs @ 12.10 hrs HW=264.58' TW=264.19' (Dynamic Tailwater)
1=Culvert (Inlet Controls 7.38 cfs @ 2.35 fps)

Summary for Pond CB17: Catch Basin 17

Inflow Area = 2.507 ac, 85.98% Impervious, Inflow Depth > 3.80" for 10-Year 24-Hour event
Inflow = 9.24 cfs @ 12.10 hrs, Volume= 0.794 af
Outflow = 9.24 cfs @ 12.10 hrs, Volume= 0.794 af, Atten= 0%, Lag= 0.0 min
Primary = 9.24 cfs @ 12.10 hrs, Volume= 0.794 af
Routed to Pond CB18 : Catch Basin 18

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 264.25' @ 12.10 hrs
Flood Elev= 269.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.80'	**24.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.80' / 260.50' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.22 cfs @ 12.10 hrs HW=264.24' TW=263.64' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 9.22 cfs @ 2.94 fps)

Summary for Pond CB18: Catch Basin 18

Inflow Area = 3.016 ac, 85.76% Impervious, Inflow Depth > 3.78" for 10-Year 24-Hour event
Inflow = 11.28 cfs @ 12.10 hrs, Volume= 0.951 af
Outflow = 11.28 cfs @ 12.10 hrs, Volume= 0.951 af, Atten= 0%, Lag= 0.0 min
Primary = 11.28 cfs @ 12.10 hrs, Volume= 0.951 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 263.65' @ 12.10 hrs
Flood Elev= 268.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.40'	**24.0" Round Culvert** L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.40' / 260.30' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.24 cfs @ 12.10 hrs HW=263.63' TW=262.75' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 11.24 cfs @ 3.58 fps)

Summary for Pond CB19: Catch Basin 19

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 3.96" for 10-Year 24-Hour event
Inflow = 3.17 cfs @ 12.09 hrs, Volume= 0.248 af
Outflow = 3.17 cfs @ 12.09 hrs, Volume= 0.248 af, Atten= 0%, Lag= 0.0 min
Primary = 3.17 cfs @ 12.09 hrs, Volume= 0.248 af
Routed to Pond DMH 4 : Drain Manhole 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 262.98' @ 12.09 hrs
Flood Elev= 266.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.40'	**24.0" Round Culvert** L= 151.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.40' / 260.60' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.12 cfs @ 12.09 hrs HW=262.91' TW=262.75' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 3.12 cfs @ 1.70 fps)

Summary for Pond CB2: Catch Basin 2

Inflow Area =	2.129 ac,	4.38% Impervious, Inflow Depth >	1.07"	for 10-Year 24-Hour event
Inflow =	1.15 cfs @	12.41 hrs, Volume=	0.190 af	
Outflow =	1.15 cfs @	12.41 hrs, Volume=	0.190 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.15 cfs @	12.41 hrs, Volume=	0.190 af	

Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 201.38' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.40'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 200.40' / 200.00' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.14 cfs @ 12.41 hrs HW=201.14' TW=200.83' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.14 cfs @ 2.19 fps)

Summary for Pond CB20: Catch Basin 20

Inflow Area =	0.439 ac,	89.12% Impervious, Inflow Depth >	3.91"	for 10-Year 24-Hour event
Inflow =	1.84 cfs @	12.09 hrs, Volume=	0.143 af	
Outflow =	1.84 cfs @	12.09 hrs, Volume=	0.143 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.84 cfs @	12.09 hrs, Volume=	0.143 af	

Routed to Pond CB19 : Catch Basin 19

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 263.06' @ 12.09 hrs
Flood Elev= 265.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.90'	**24.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.90' / 261.50' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.82 cfs @ 12.09 hrs HW=263.01' TW=262.91' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.82 cfs @ 1.47 fps)

Summary for Pond CB3: Catch Basin 3

Inflow Area = 1.450 ac, 32.23% Impervious, Inflow Depth > 1.97" for 10-Year 24-Hour event
Inflow = 3.09 cfs @ 12.10 hrs, Volume= 0.238 af
Outflow = 3.09 cfs @ 12.10 hrs, Volume= 0.238 af, Atten= 0%, Lag= 0.0 min
Primary = 3.09 cfs @ 12.10 hrs, Volume= 0.238 af
Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 209.27' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.20'	**15.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.20' / 200.00' S= 0.1262 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.08 cfs @ 12.10 hrs HW=209.26' TW=201.28' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.08 cfs @ 2.77 fps)

Summary for Pond CB4: Catch Basin 4

Inflow Area = 0.197 ac, 24.45% Impervious, Inflow Depth > 1.74" for 10-Year 24-Hour event
Inflow = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af
Outflow = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.10 hrs, Volume= 0.029 af
Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 209.28' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.40'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.40' / 208.30' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.38 cfs @ 12.10 hrs HW=209.27' TW=209.26' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.38 cfs @ 0.59 fps)

Summary for Pond CB5: Catch Basin 5

Inflow Area = 1.010 ac, 36.59% Impervious, Inflow Depth > 2.09" for 10-Year 24-Hour event
Inflow = 2.25 cfs @ 12.10 hrs, Volume= 0.176 af
Outflow = 2.25 cfs @ 12.10 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min
Primary = 2.25 cfs @ 12.10 hrs, Volume= 0.176 af
Routed to Pond DMH2 : Drain Manhole 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 225.16' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.30'	**15.0" Round Culvert** L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.30' / 217.60' S= 0.0817 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.24 cfs @ 12.10 hrs HW=225.16' TW=218.36' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.24 cfs @ 2.49 fps)

Summary for Pond CB6: Catch Basin 6

Inflow Area = 0.195 ac, 24.96% Impervious, Inflow Depth > 1.74" for 10-Year 24-Hour event
Inflow = 0.38 cfs @ 12.10 hrs, Volume= 0.028 af
Outflow = 0.38 cfs @ 12.10 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.10 hrs, Volume= 0.028 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 225.19' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.50'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.50' / 224.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.38 cfs @ 12.10 hrs HW=225.18' TW=225.16' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.38 cfs @ 0.80 fps)

Summary for Pond CB7: Catch Basin 7

Inflow Area = 0.210 ac, 22.21% Impervious, Inflow Depth > 1.67" for 10-Year 24-Hour event
Inflow = 0.39 cfs @ 12.10 hrs, Volume= 0.029 af
Outflow = 0.39 cfs @ 12.10 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.39 cfs @ 12.10 hrs, Volume= 0.029 af
Routed to Pond CB8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.37' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.90'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.90' / 238.80' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.39 cfs @ 12.10 hrs HW=239.37' TW=239.30' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.39 cfs @ 1.36 fps)

Summary for Pond CB8: Catch Basin 8

Inflow Area = 0.638 ac, 43.43% Impervious, Inflow Depth > 2.29" for 10-Year 24-Hour event
Inflow = 1.53 cfs @ 12.10 hrs, Volume= 0.122 af
Outflow = 1.53 cfs @ 12.10 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.10 hrs, Volume= 0.122 af
Routed to Pond DMH 3 : Drain Manhole 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.30' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.70'	**15.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.70' / 233.10' S= 0.0889 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.51 cfs @ 12.10 hrs HW=239.29' TW=233.68' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.51 cfs @ 2.63 fps)

Summary for Pond CB9: Catch Basin 9

Inflow Area = 0.311 ac, 58.69% Impervious, Inflow Depth > 2.75" for 10-Year 24-Hour event
Inflow = 0.84 cfs @ 12.11 hrs, Volume= 0.071 af
Outflow = 0.84 cfs @ 12.11 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.11 hrs, Volume= 0.071 af
Routed to Pond cb8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.39' @ 12.11 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.90'	**15.0" Round Culvert** L= 163.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 251.90' / 238.80' S= 0.0804 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.83 cfs @ 12.11 hrs HW=252.39' TW=239.29' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.83 cfs @ 1.87 fps)

Summary for Pond DMH 3: Drain Manhole 3

Inflow Area = 0.638 ac, 43.43% Impervious, Inflow Depth > 2.29" for 10-Year 24-Hour event
Inflow = 1.53 cfs @ 12.10 hrs, Volume= 0.122 af
Outflow = 1.53 cfs @ 12.10 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.10 hrs, Volume= 0.122 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 233.68' @ 12.10 hrs
Flood Elev= 237.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**15.0" Round Culvert** L= 104.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 233.00' / 224.40' S= 0.0827 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.51 cfs @ 12.10 hrs HW=233.68' TW=225.16' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.51 cfs @ 2.22 fps)

Summary for Pond DMH 4: Drain Manhole 4

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=57)

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 3.96" for 10-Year 24-Hour event
Inflow = 3.17 cfs @ 12.09 hrs, Volume= 0.248 af
Outflow = 3.17 cfs @ 12.09 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min
Primary = 3.17 cfs @ 12.09 hrs, Volume= 0.247 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 262.83' @ 12.10 hrs
Flood Elev= 268.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.50'	**24.0" Round Culvert** L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.50' / 260.40' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.09 cfs @ 12.09 hrs HW=262.75' TW=262.68' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.09 cfs @ 0.98 fps)

Summary for Pond DMH 5: Drain Manhole 5

[80] Warning: Exceeded Pond DMH 4 by 1.39' @ 19.50 hrs (6.27 cfs 1.147 af)

Inflow Area = 3.767 ac, 86.71% Impervious, Inflow Depth > 3.82" for 10-Year 24-Hour event
Inflow = 14.43 cfs @ 12.10 hrs, Volume= 1.199 af
Outflow = 14.43 cfs @ 12.10 hrs, Volume= 1.199 af, Atten= 0%, Lag= 0.0 min
Primary = 14.43 cfs @ 12.10 hrs, Volume= 1.199 af
Routed to Pond 5P : StormTech

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 262.76' @ 12.10 hrs
Flood Elev= 268.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.30'	**24.0" Round Culvert** L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.30' / 260.10' S= 0.0143 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.29 cfs @ 12.10 hrs HW=262.73' TW=261.10' (Dynamic Tailwater)
1=Culvert (Inlet Controls 14.29 cfs @ 4.55 fps)

Summary for Pond DMH1: Drain Manhole 1

Inflow Area = 3.579 ac, 15.66% Impervious, Inflow Depth > 1.44" for 10-Year 24-Hour event
Inflow = 4.06 cfs @ 12.11 hrs, Volume= 0.429 af
Outflow = 4.06 cfs @ 12.11 hrs, Volume= 0.429 af, Atten= 0%, Lag= 0.0 min
Primary = 4.06 cfs @ 12.11 hrs, Volume= 0.429 af
Routed to Pond 2P : Stormwater Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 201.28' @ 12.11 hrs
Flood Elev= 211.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	199.90'	**15.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 199.90' / 199.70' S= 0.0067 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.02 cfs @ 12.11 hrs HW=201.27' TW=199.67' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.02 cfs @ 3.27 fps)

Summary for Pond DMH2: Drain Manhole 2

Inflow Area = 1.010 ac, 36.59% Impervious, Inflow Depth > 2.09" for 10-Year 24-Hour event
Inflow = 2.25 cfs @ 12.10 hrs, Volume= 0.176 af
Outflow = 2.25 cfs @ 12.10 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min
Primary = 2.25 cfs @ 12.10 hrs, Volume= 0.176 af
Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 218.36' @ 12.10 hrs
Flood Elev= 223.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	217.50'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 217.50' / 208.30' S= 0.1095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.24 cfs @ 12.10 hrs HW=218.36' TW=209.26' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.24 cfs @ 2.49 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SUBCATCHMENT1S Runoff Area=279,376 sf 7.68% Impervious Runoff Depth>1.71"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=6.42 cfs 0.916 af

Subcatchment10S: SUBCATCHMENT10S Runoff Area=3,917 sf 19.30% Impervious Runoff Depth>2.31"
Flow Length=79' Tc=9.6 min CN=66 Runoff=0.21 cfs 0.017 af

Subcatchment11S: Subcatchment11S Runoff Area=21,833 sf 0.00% Impervious Runoff Depth>1.89"
Flow Length=137' Tc=6.7 min CN=61 Runoff=1.02 cfs 0.079 af

Subcatchment12S: Subcatchment12S Runoff Area=22,767 sf 23.93% Impervious Runoff Depth>2.39"
Flow Length=642' Tc=19.9 min CN=67 Runoff=0.97 cfs 0.104 af

Subcatchment20S: Subcatchment20S Runoff Area=207,863 sf 0.54% Impervious Runoff Depth>1.56"
Flow Length=341' Tc=25.2 min CN=57 Runoff=4.85 cfs 0.621 af

Subcatchment21S: SUBCATCHMENT21S Runoff Area=154,653 sf 0.53% Impervious Runoff Depth>1.49"
Flow Length=358' Tc=24.0 min CN=56 Runoff=3.45 cfs 0.440 af

Subcatchment22S: SUBCATCHMENT22S Runoff Area=83,939 sf 9.07% Impervious Runoff Depth>1.97"
Flow Length=348' Tc=17.4 min CN=62 Runoff=3.01 cfs 0.316 af

Subcatchment23S: SUBCATCHMENT23S Runoff Area=11,755 sf 64.56% Impervious Runoff Depth>4.14"
Flow Length=39' Slope=0.0200 '/' Tc=6.0 min CN=85 Runoff=1.26 cfs 0.093 af

Subcatchment24S: SUBCATCHMENT24S Runoff Area=24,222 sf 0.91% Impervious Runoff Depth>1.65"
Flow Length=204' Tc=12.8 min CN=58 Runoff=0.78 cfs 0.076 af

Subcatchment25S: SUBCATCHMENT25S Runoff Area=64,195 sf 11.59% Impervious Runoff Depth>2.05"
Flow Length=368' Tc=16.5 min CN=63 Runoff=2.47 cfs 0.252 af

Subcatchment30S: Subcatchment30S Runoff Area=73,162 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=299' Tc=14.2 min CN=56 Runoff=2.00 cfs 0.209 af

Subcatchment31S: Subcatchment31S Runoff Area=159,045 sf 0.00% Impervious Runoff Depth>1.64"
Flow Length=593' Tc=22.7 min CN=58 Runoff=4.12 cfs 0.500 af

Subcatchment32S: SUBCATCHMENT32S Runoff Area=6,935 sf 0.00% Impervious Runoff Depth>1.89"
Flow Length=83' Tc=8.0 min CN=61 Runoff=0.31 cfs 0.025 af

Subcatchment101S: SUBCATCHMENT101S Runoff Area=3,062 sf 63.65% Impervious Runoff Depth>4.14"
Flow Length=149' Tc=6.0 min CN=85 Runoff=0.33 cfs 0.024 af

Subcatchment102S: SUBCATCHMENT Runoff Area=10,426 sf 20.31% Impervious Runoff Depth>2.58"
Flow Length=202' Tc=6.0 min CN=69 Runoff=0.70 cfs 0.051 af

Subcatchment103S: SUBCATCHMENT Runoff Area=10,615 sf 20.41% Impervious Runoff Depth>2.58"
Flow Length=210' Tc=6.0 min CN=69 Runoff=0.72 cfs 0.052 af

Subcatchment104S: SUBCATCHMENT104S Runoff Area=8,563 sf 24.45% Impervious Runoff Depth>2.67"
Flow Length=192' Tc=6.0 min CN=70 Runoff=0.60 cfs 0.044 af

Subcatchment105S: SUBCATCHMENT105S Runoff Area=7,685 sf 24.66% Impervious Runoff Depth>2.67"
Flow Length=198' Tc=6.0 min CN=70 Runoff=0.54 cfs 0.039 af

Subcatchment106S: SUBCATCHMENT106S Runoff Area=8,480 sf 24.96% Impervious Runoff Depth>2.67"
Flow Length=150' Tc=6.0 min CN=70 Runoff=0.59 cfs 0.043 af

Subcatchment107S: SUBCATCHMENT107S Runoff Area=9,158 sf 22.21% Impervious Runoff Depth>2.58"
Flow Length=200' Tc=6.0 min CN=69 Runoff=0.62 cfs 0.045 af

Subcatchment108S: SUBCATCHMENT108S Runoff Area=5,109 sf 41.03% Impervious Runoff Depth>3.23"
Flow Length=108' Tc=6.0 min CN=76 Runoff=0.44 cfs 0.032 af

Subcatchment109S: SUBCATCHMENT109S Runoff Area=4,591 sf 85.25% Impervious Runoff Depth>5.01"
Flow Length=322' Tc=6.0 min CN=93 Runoff=0.56 cfs 0.044 af

Subcatchment110S: SUBCATCHMENT110S Runoff Area=8,954 sf 45.07% Impervious Runoff Depth>3.23"
Flow Length=193' Tc=10.4 min CN=76 Runoff=0.67 cfs 0.055 af

Subcatchment111S: SUBCATCHMENT111S Runoff Area=10,066 sf 0.00% Impervious Runoff Depth>1.89"
Flow Length=37' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.48 cfs 0.036 af

Subcatchment113S: SUBCATCHMENT Runoff Area=4,154 sf 100.00% Impervious Runoff Depth>5.59"
Flow Length=144' Slope=0.0330 '/' Tc=6.0 min CN=98 Runoff=0.53 cfs 0.044 af

Subcatchment114S: SUBCATCHMENT Runoff Area=21,297 sf 83.97% Impervious Runoff Depth>4.90"
Flow Length=251' Tc=9.0 min CN=92 Runoff=2.35 cfs 0.200 af

Subcatchment115S: SUBCATCHMENT Runoff Area=15,683 sf 94.57% Impervious Runoff Depth>5.35"
Flow Length=264' Tc=6.0 min CN=96 Runoff=1.98 cfs 0.161 af

Subcatchment116S: SUBCATCHMENT Runoff Area=23,505 sf 89.38% Impervious Runoff Depth>5.12"
Flow Length=38' Tc=6.0 min CN=94 Runoff=2.92 cfs 0.230 af

Subcatchment117S: SUBCATCHMENT Runoff Area=22,327 sf 61.68% Impervious Runoff Depth>4.03"
Flow Length=172' Tc=14.1 min CN=84 Runoff=1.85 cfs 0.172 af

Subcatchment118S: SUBCATCHMENT Runoff Area=22,171 sf 84.69% Impervious Runoff Depth>4.90"
Flow Length=120' Slope=0.0500 '/' Tc=6.0 min CN=92 Runoff=2.68 cfs 0.208 af

Subcatchment119S: SUBCATCHMENT Runoff Area=13,601 sf 92.54% Impervious Runoff Depth>5.24"
Flow Length=218' Tc=6.0 min CN=95 Runoff=1.71 cfs 0.136 af

Subcatchment120S: SUBCATCHMENT Runoff Area=19,113 sf 89.12% Impervious Runoff Depth>5.12"
Flow Length=124' Tc=6.0 min CN=94 Runoff=2.37 cfs 0.187 af

Subcatchment204S: SUBCATCHMENT204S Runoff Area=19,442 sf 0.00% Impervious Runoff Depth>1.56"
Flow Length=379' Tc=23.2 min CN=57 Runoff=0.47 cfs 0.058 af

Subcatchment205S: SUBCATCHMENT205S Runoff Area=4,627 sf 0.00% Impervious Runoff Depth>1.89"
Flow Length=92' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.22 cfs 0.017 af

Subcatchment207S: SUBCATCHMENT207S Runoff Area=15,002 sf 0.00% Impervious Runoff Depth>1.64"
Flow Length=329' Tc=22.8 min CN=58 Runoff=0.39 cfs 0.047 af

Subcatchment211S: SUBCATCHMENT211S Runoff Area=28,592 sf 0.00% Impervious Runoff Depth>1.49"
Flow Length=328' Tc=19.3 min CN=56 Runoff=0.70 cfs 0.081 af

Subcatchment305S: SUBCATCHMENT305S Runoff Area=1,541 sf 0.00% Impervious Runoff Depth>1.42"
Flow Length=46' Tc=6.0 min CN=55 Runoff=0.05 cfs 0.004 af

SubcatchmentROOF 1: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>5.59"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.079 af

SubcatchmentROOF 2: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>5.59"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.079 af

SubcatchmentROOF 3: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>5.59"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.079 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.57' Max Vel=0.75 fps Inflow=4.12 cfs 0.500 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=4.12 cfs 0.499 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.29' Max Vel=0.65 fps Inflow=4.12 cfs 0.499 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=4.09 cfs 0.498 af

Reach AP1: Analysis Point 1 Inflow=8.58 cfs 1.546 af
Outflow=8.58 cfs 1.546 af

Reach AP2: Analysis Point 2 Inflow=8.89 cfs 1.093 af
Outflow=8.89 cfs 1.093 af

Reach AP3: Analysis Point 3 Inflow=6.77 cfs 1.589 af
Outflow=6.77 cfs 1.589 af

Reach B1R: BENCH Avg. Flow Depth=0.34' Max Vel=0.84 fps Inflow=0.39 cfs 0.047 af
n=0.150 L=173.0' S=0.0809 '/' Capacity=6.92 cfs Outflow=0.38 cfs 0.047 af Overflow=0.00 cfs 0.000 af

Reach B2R: BENCH Avg. Flow Depth=0.34' Max Vel=1.03 fps Inflow=0.47 cfs 0.064 af
n=0.150 L=116.0' S=0.1207 '/' Capacity=8.45 cfs Outflow=0.47 cfs 0.064 af Overflow=0.00 cfs 0.000 af

Reach B3R: BENCH Avg. Flow Depth=0.44' Max Vel=1.21 fps Inflow=0.96 cfs 0.126 af
n=0.150 L=103.0' S=0.1165 '/' Capacity=8.30 cfs Outflow=0.96 cfs 0.126 af Overflow=0.00 cfs 0.000 af

Reach B4R: BENCH Avg. Flow Depth=0.65' Max Vel=1.08 fps Inflow=1.84 cfs 0.243 af
n=0.150 L=232.0' S=0.0560 '/' Capacity=5.76 cfs Outflow=1.81 cfs 0.243 af Overflow=0.00 cfs 0.000 af

Reach B5R: BENCH Avg. Flow Depth=0.16' Max Vel=0.51 fps Inflow=0.05 cfs 0.004 af
n=0.150 L=12.0' S=0.0833 '/' Capacity=7.02 cfs Outflow=0.05 cfs 0.004 af Overflow=0.00 cfs 0.000 af

Reach B6R: BENCH Avg. Flow Depth=0.45' Max Vel=0.84 fps Inflow=0.70 cfs 0.081 af
n=0.150 L=165.0' S=0.0545 '/' Capacity=5.68 cfs Outflow=0.68 cfs 0.081 af

Reach RD1: RD 1 Avg. Flow Depth=0.29' Max Vel=6.61 fps Inflow=0.95 cfs 0.079 af
8.0" Round Pipe n=0.013 L=264.0' S=0.0417 '/' Capacity=2.47 cfs Outflow=0.95 cfs 0.079 af

Reach RD2: RD 2 Avg. Flow Depth=0.27' Max Vel=7.01 fps Inflow=0.95 cfs 0.079 af
8.0" Round Pipe n=0.013 L=110.0' S=0.0491 '/' Capacity=2.68 cfs Outflow=0.95 cfs 0.079 af

Reach RD3: RD 3 Avg. Flow Depth=0.36' Max Vel=5.02 fps Inflow=0.95 cfs 0.079 af
8.0" Round Pipe n=0.013 L=100.0' S=0.0200 '/' Capacity=1.71 cfs Outflow=0.95 cfs 0.079 af

Pond 1P: Infiltration Pocket Peak Elev=198.81' Storage=619 cf Inflow=2.35 cfs 0.745 af
Discarded=0.10 cfs 0.101 af Primary=2.22 cfs 0.629 af Outflow=2.31 cfs 0.730 af

Pond 2P: Stormwater Pond Peak Elev=201.10' Storage=23,890 cf Inflow=7.55 cfs 0.752 af
Primary=1.58 cfs 0.625 af Secondary=0.00 cfs 0.000 af Outflow=1.58 cfs 0.625 af

Pond 3P: Stormfilter Peak Elev=198.86' Storage=76 cf Inflow=0.97 cfs 0.104 af
Primary=1.06 cfs 0.103 af Secondary=0.00 cfs 0.000 af Outflow=1.06 cfs 0.103 af

Pond 5P: StormTech Peak Elev=262.96' Storage=1.039 af Inflow=18.70 cfs 1.576 af
Outflow=1.26 cfs 0.857 af

Pond 6P: Focal Point Peak Elev=254.66' Storage=113 cf Inflow=1.29 cfs 0.882 af
Outflow=1.29 cfs 0.882 af

Pond 9P: 18" HDPE Peak Elev=202.06' Storage=117 cf Inflow=2.47 cfs 0.252 af
Primary=2.47 cfs 0.251 af Secondary=0.00 cfs 0.000 af Outflow=2.47 cfs 0.251 af

Pond 10P: Bioretention Peak Elev=201.06' Storage=4,398 cf Inflow=5.48 cfs 0.567 af
Discarded=2.51 cfs 0.533 af Primary=0.67 cfs 0.032 af Secondary=0.00 cfs 0.000 af Outflow=3.18 cfs 0.565 af

Pond 11P: EcoRaster Peak Elev=197.32' Storage=1,446 cf Inflow=1.75 cfs 0.151 af
Discarded=0.89 cfs 0.151 af Primary=0.00 cfs 0.000 af Outflow=0.89 cfs 0.151 af

Pond 12P: Dry Well Peak Elev=199.37' Storage=359 cf Inflow=0.78 cfs 0.076 af
Discarded=0.01 cfs 0.010 af Primary=0.98 cfs 0.058 af Outflow=0.99 cfs 0.068 af

Pond CB1: Catch Basin 1 Peak Elev=202.65' Inflow=0.33 cfs 0.024 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.33 cfs 0.024 af

Pond CB10: Catch Basin 10 Peak Elev=252.63' Inflow=0.67 cfs 0.055 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.67 cfs 0.055 af

Pond CB11: Catch Basin 11 Peak Elev=208.75' Inflow=1.81 cfs 0.243 af
15.0" Round Culvert n=0.013 L=57.0' S=0.1316 '/' Outflow=1.81 cfs 0.243 af

Pond CB12: Catch Basin 12 Peak Elev=263.16' Storage=8 cf Inflow=3.45 cfs 0.440 af
Primary=3.45 cfs 0.440 af Secondary=0.00 cfs 0.000 af Outflow=3.45 cfs 0.440 af

Pond CB13: Catch Basin 13 Peak Elev=268.86' Inflow=1.48 cfs 0.124 af
18.0" Round Culvert n=0.013 L=73.0' S=0.0110 '/' Outflow=1.48 cfs 0.124 af

Pond CB14: Catch Basin 14 Peak Elev=268.81' Inflow=4.73 cfs 0.402 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0059 '/' Outflow=4.73 cfs 0.402 af

Pond CB15: Catch Basin 15 Peak Elev=268.32' Inflow=6.69 cfs 0.563 af
18.0" Round Culvert n=0.013 L=156.0' S=0.0051 '/' Outflow=6.69 cfs 0.563 af

Pond CB16: Catch Basin 16 Peak Elev=267.26' Inflow=9.59 cfs 0.794 af
24.0" Round Culvert n=0.013 L=124.0' S=0.0048 '/' Outflow=9.59 cfs 0.794 af

Pond CB17: Catch Basin 17 Peak Elev=266.62' Inflow=11.98 cfs 1.045 af
24.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/' Outflow=11.98 cfs 1.045 af

Pond CB18: Catch Basin 18 Peak Elev=265.61' Inflow=14.65 cfs 1.253 af
24.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=14.65 cfs 1.253 af

Pond CB19: Catch Basin 19 Peak Elev=264.34' Inflow=4.08 cfs 0.324 af
24.0" Round Culvert n=0.013 L=151.0' S=0.0053 '/' Outflow=4.08 cfs 0.324 af

Pond CB2: Catch Basin 2 Peak Elev=202.65' Inflow=2.18 cfs 0.318 af
15.0" Round Culvert n=0.013 L=84.0' S=0.0048 '/' Outflow=2.18 cfs 0.318 af

Pond CB20: Catch Basin 20 Peak Elev=264.38' Inflow=2.37 cfs 0.187 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0057 '/' Outflow=2.37 cfs 0.187 af

Pond CB3: Catch Basin 3 Peak Elev=209.82' Inflow=4.66 cfs 0.355 af
15.0" Round Culvert n=0.013 L=65.0' S=0.1262 '/' Outflow=4.66 cfs 0.355 af

Pond CB4: Catch Basin 4 Peak Elev=209.84' Inflow=0.60 cfs 0.044 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.60 cfs 0.044 af

Pond CB5: Catch Basin 5 Peak Elev=225.43' Inflow=3.35 cfs 0.259 af
15.0" Round Culvert n=0.013 L=82.0' S=0.0817 '/' Outflow=3.35 cfs 0.259 af

Pond CB6: Catch Basin 6 Peak Elev=225.46' Inflow=0.59 cfs 0.043 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.59 cfs 0.043 af

Pond CB7: Catch Basin 7 Peak Elev=239.52' Inflow=0.62 cfs 0.045 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.62 cfs 0.045 af

Pond CB8: Catch Basin 8 Peak Elev=239.44' Inflow=2.22 cfs 0.176 af
15.0" Round Culvert n=0.013 L=63.0' S=0.0889 '/' Outflow=2.22 cfs 0.176 af

Pond CB9: Catch Basin 9 Peak Elev=252.49' Inflow=1.17 cfs 0.099 af
15.0" Round Culvert n=0.013 L=163.0' S=0.0804 '/' Outflow=1.17 cfs 0.099 af

Pond DMH 3: Drain Manhole 3 Peak Elev=233.85' Inflow=2.22 cfs 0.176 af
15.0" Round Culvert n=0.013 L=104.0' S=0.0827 '/' Outflow=2.22 cfs 0.176 af

Pond DMH 4: Drain Manhole 4 Peak Elev=264.23' Inflow=4.08 cfs 0.324 af
24.0" Round Culvert n=0.013 L=9.0' S=0.0111 '/' Outflow=4.08 cfs 0.324 af

Pond DMH 5: Drain Manhole 5 Peak Elev=264.11' Inflow=18.70 cfs 1.576 af
24.0" Round Culvert n=0.013 L=14.0' S=0.0143 '/' Outflow=18.70 cfs 1.576 af

Pond DMH1: Drain Manhole 1 Peak Elev=202.49' Inflow=6.53 cfs 0.673 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0067 '/' Outflow=6.53 cfs 0.673 af

Pond DMH2: Drain Manhole 2 Peak Elev=218.63' Inflow=3.35 cfs 0.259 af
15.0" Round Culvert n=0.013 L=84.0' S=0.1095 '/' Outflow=3.35 cfs 0.259 af

Total Runoff Area = 32.913 ac Runoff Volume = 5.899 af Average Runoff Depth = 2.15"
84.71% Pervious = 27.881 ac 15.29% Impervious = 5.031 ac

Summary for Subcatchment 1S: SUBCATCHMENT 1S

Runoff = 6.42 cfs @ 12.52 hrs, Volume= 0.916 af, Depth> 1.71"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
246,176	55	Woods, Good, HSG B
798	61	>75% Grass cover, Good, HSG B
279,376	59	Weighted Average
257,927		92.32% Pervious Area
21,449		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Subcatchment 10S: SUBCATCHMENT 10S

Runoff = 0.21 cfs @ 12.15 hrs, Volume= 0.017 af, Depth> 2.31"
Routed to Pond 1P : Infiltration Pocket

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
756	98	Paved parking, HSG B
1,961	61	>75% Grass cover, Good, HSG B
1,200	55	Woods, Good, HSG B
3,917	66	Weighted Average
3,161		80.70% Pervious Area
756		19.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	38	0.2630	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.0	33	0.0910	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	8	0.0400	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.6	79	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 1.02 cfs @ 12.11 hrs, Volume= 0.079 af, Depth> 1.89"
Routed to Pond 2P : Stormwater Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
21,833	61	>75% Grass cover, Good, HSG B
21,833		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	50	0.5000	0.52		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
5.0	50	0.0290	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	37	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	137	Total			

Summary for Subcatchment 12S: Subcatchment 12S

Runoff = 0.97 cfs @ 12.29 hrs, Volume= 0.104 af, Depth> 2.39"
Routed to Pond 3P : Stormfilter

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
5,448	98	Paved parking, HSG B
10,621	55	Woods, Good, HSG B
6,698	61	>75% Grass cover, Good, HSG B
22,767	67	Weighted Average
17,319		76.07% Pervious Area
5,448		23.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	66	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	34	0.2350	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.7	101	0.2180	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	88	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	157	0.1910	2.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	196	0.1730	2.08		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.9	642	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 4.85 cfs @ 12.40 hrs, Volume= 0.621 af, Depth> 1.56"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
1,115	98	Roofs, HSG B
27,727	61	>75% Grass cover, Good, HSG B
166,599	55	Woods, Good, HSG B
12,422	70	Woods, Good, HSG C
207,863	57	Weighted Average
206,748		99.46% Pervious Area
1,115		0.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	10	0.5000	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
19.6	90	0.0220	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	78	0.0256	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	62	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	71	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.2	341	Total			

Summary for Subcatchment 21S: SUBCATCHMENT 21S

Runoff = 3.45 cfs @ 12.38 hrs, Volume= 0.440 af, Depth> 1.49"
Routed to Pond CB12 : Catch Basin 12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
9,648	61	>75% Grass cover, Good, HSG B
819	98	Roofs, HSG B
138,282	55	Woods, Good, HSG B
5,904	70	Woods, Good, HSG C
154,653	56	Weighted Average
153,834		99.47% Pervious Area
819		0.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	53	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.0	358	Total			

Summary for Subcatchment 22S: SUBCATCHMENT 22S

Runoff = 3.01 cfs @ 12.26 hrs, Volume= 0.316 af, Depth> 1.97"
Routed to Pond 10P : Bioretention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
7,612	98	Paved parking, HSG B
39,991	61	>75% Grass cover, Good, HSG B
36,336	55	Woods, Good, HSG B
83,939	62	Weighted Average
76,327		90.93% Pervious Area
7,612		9.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	37	0.1620	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	43	0.3720	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.1	20	0.0310	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.8	44	0.0310	0.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	51	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	83	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	70	0.0229	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.4	348	Total			

Summary for Subcatchment 23S: SUBCATCHMENT 23S

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 4.14"
Routed to Pond 11P : EcoRaster

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
6,467	98	Paved parking, HSG B
1,122	98	Roofs, HSG B
4,166	61	>75% Grass cover, Good, HSG B
11,755	85	Weighted Average
4,166		35.44% Pervious Area
7,589		64.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	39	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
4.7	39	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 24S: SUBCATCHMENT 24S

Runoff = 0.78 cfs @ 12.20 hrs, Volume= 0.076 af, Depth> 1.65"
Routed to Pond 12P : Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
15,170	55	Woods, Good, HSG B
8,831	61	>75% Grass cover, Good, HSG B
221	98	Roofs, HSG B
24,222	58	Weighted Average
24,001		99.09% Pervious Area
221		0.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	70	0.1190	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.3	30	0.2110	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	8	0.2110	2.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	35	0.0570	1.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	61	0.0197	0.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	204	Total			

Summary for Subcatchment 25S: SUBCATCHMENT 25S

Runoff = 2.47 cfs @ 12.25 hrs, Volume= 0.252 af, Depth> 2.05"
Routed to Pond 9P : 18" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
23,000	55	Woods, Good, HSG B
33,757	61	>75% Grass cover, Good, HSG B
7,438	98	Paved parking, HSG B
64,195	63	Weighted Average
56,757		88.41% Pervious Area
7,438		11.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	30	0.0330	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.9	23	0.1740	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.0	25	0.4800	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.7	22	0.1820	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	46	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	222	0.0880	2.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.5	368	Total			

Summary for Subcatchment 30S: Subcatchment 30S

Runoff = 2.00 cfs @ 12.22 hrs, Volume= 0.209 af, Depth> 1.49"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
6,678	61	>75% Grass cover, Good, HSG B
66,484	55	Woods, Good, HSG B
73,162	56	Weighted Average
73,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	36	0.0830	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
6.9	64	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	16	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	40	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	67	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.3420	2.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	299	Total			

Summary for Subcatchment 31S: Subcatchment 31S

Runoff = 4.12 cfs @ 12.35 hrs, Volume= 0.500 af, Depth> 1.64"
Routed to Reach 4Ra : Flow Through Subcatchment 30S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
17,872	61	>75% Grass cover, Good, HSG B
115,366	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
159,045	58	Weighted Average
159,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	83	0.0540	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	17	0.3460	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	168	0.3460	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	16	0.1250	1.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	53	0.0090	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
22.7	593	Total			

Summary for Subcatchment 32S: SUBCATCHMENT 32S

Runoff = 0.31 cfs @ 12.12 hrs, Volume= 0.025 af, Depth> 1.89"
Routed to Pond 6P : Focal Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
6,935	61	>75% Grass cover, Good, HSG B
6,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.0	27	0.0310	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	12	0.3300	0.33		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
8.0	83	Total			

Summary for Subcatchment 101S: SUBCATCHMENT 101S

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 4.14"
Routed to Pond CB1 : Catch Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
1,949	98	Paved parking, HSG B
1,113	61	>75% Grass cover, Good, HSG B
3,062	85	Weighted Average
1,113		36.35% Pervious Area
1,949		63.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	12	0.5000	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.2	14	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	74	0.0800	2.19		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	49	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	149	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 102S: SUBCATCHMENT 102S

Runoff = 0.70 cfs @ 12.10 hrs, Volume= 0.051 af, Depth> 2.58"
Routed to Pond CB2 : Catch Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
8,309	61	>75% Grass cover, Good, HSG B
10,426	69	Weighted Average
8,309		79.69% Pervious Area
2,117		20.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	41	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.5	19	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	102	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.5	202	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 103S: SUBCATCHMENT 103S

Runoff = 0.72 cfs @ 12.10 hrs, Volume= 0.052 af, Depth> 2.58"
Routed to Pond CB3 : Catch Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
2,166	98	Paved parking, HSG B
8,449	61	>75% Grass cover, Good, HSG B
10,615	69	Weighted Average
8,449		79.59% Pervious Area
2,166		20.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	39	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.7	21	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	110	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.6	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 104S: SUBCATCHMENT 104S

Runoff = 0.60 cfs @ 12.10 hrs, Volume= 0.044 af, Depth> 2.67"
Routed to Pond CB4 : Catch Basin 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
2,094	98	Paved parking, HSG B
6,469	61	>75% Grass cover, Good, HSG B
8,563	70	Weighted Average
6,469		75.55% Pervious Area
2,094		24.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.8	23	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	37	0.0800	1.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	92	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	192	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 105S: SUBCATCHMENT 105S

Runoff = 0.54 cfs @ 12.10 hrs, Volume= 0.039 af, Depth> 2.67"
Routed to Pond CB5 : Catch Basin 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
1,895	98	Paved parking, HSG B
5,790	61	>75% Grass cover, Good, HSG B
7,685	70	Weighted Average
5,790		75.34% Pervious Area
1,895		24.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.1	28	0.0800	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	32	0.0800	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	98	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	198	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 106S: SUBCATCHMENT 106S

Runoff = 0.59 cfs @ 12.10 hrs, Volume= 0.043 af, Depth> 2.67"
Routed to Pond CB6 : Catch Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
6,363	61	>75% Grass cover, Good, HSG B
8,480	70	Weighted Average
6,363		75.04% Pervious Area
2,117		24.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	25	0.5000	0.45		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.0	11	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	64	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	50	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	150	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 107S: SUBCATCHMENT 107S

Runoff = 0.62 cfs @ 12.10 hrs, Volume= 0.045 af, Depth> 2.58"
Routed to Pond CB7 : Catch Basin 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
2,034	98	Paved parking, HSG B
7,124	61	>75% Grass cover, Good, HSG B
9,158	69	Weighted Average
7,124		77.79% Pervious Area
2,034		22.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.4	17	0.0800	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	43	0.0800	1.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	100	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	200	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 108S: SUBCATCHMENT 108S

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.032 af, Depth> 3.23"
Routed to Pond CB8 : Catch Basin 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
2,096	98	Paved parking, HSG B
3,013	61	>75% Grass cover, Good, HSG B
5,109	76	Weighted Average
3,013		58.97% Pervious Area
2,096		41.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	15	0.5000	0.41		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.6	20	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	65	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.0	8	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.7	108	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 109S: SUBCATCHMENT 109S

Runoff = 0.56 cfs @ 12.09 hrs, Volume= 0.044 af, Depth> 5.01"
Routed to Pond CB9 : Catch Basin 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
3,914	98	Paved parking, HSG B
677	61	>75% Grass cover, Good, HSG B
4,591	93	Weighted Average
677		14.75% Pervious Area
3,914		85.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	35	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	65	0.0380	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	47	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	35	0.0570	4.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	140	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.8	322	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 110S: SUBCATCHMENT 110S

Runoff = 0.67 cfs @ 12.15 hrs, Volume= 0.055 af, Depth> 3.23"
Routed to Pond CB10 : Catch Basin 10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
4,036	98	Paved parking, HSG B
3,001	61	>75% Grass cover, Good, HSG B
1,917	55	Woods, Good, HSG B
8,954	76	Weighted Average
4,918		54.93% Pervious Area
4,036		45.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	40	0.1500	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.3	60	0.2500	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	15	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	23	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	14	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	41	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.4	193	Total			

Summary for Subcatchment 111S: SUBCATCHMENT 111S

Runoff = 0.48 cfs @ 12.10 hrs, Volume= 0.036 af, Depth> 1.89"
Routed to Reach B4R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
10,066	61	>75% Grass cover, Good, HSG B
10,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	37	0.5000	0.49		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.3	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 113S: SUBCATCHMENT 113S

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.044 af, Depth> 5.59"
Routed to Pond CB13 : Catch Basin 13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
4,154	98	Paved parking, HSG B
4,154		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0330	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	44	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	144	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 114S: SUBCATCHMENT 114S

Runoff = 2.35 cfs @ 12.12 hrs, Volume= 0.200 af, Depth> 4.90"
Routed to Pond CB14 : Catch Basin 14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
3,467	98	Roofs, HSG B
3,413	61	>75% Grass cover, Good, HSG B
14,417	98	Paved parking, HSG B
21,297	92	Weighted Average
3,413		16.03% Pervious Area
17,884		83.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	25	0.0360	1.28		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	133	0.0360	3.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	18	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.0	251	Total			

Summary for Subcatchment 115S: SUBCATCHMENT 115S

Runoff = 1.98 cfs @ 12.09 hrs, Volume= 0.161 af, Depth> 5.35"
Routed to Pond CB15 : Catch Basin 15

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
3,294	98	Roofs, HSG B
11,537	98	Paved parking, HSG B
852	61	>75% Grass cover, Good, HSG B
15,683	96	Weighted Average
852		5.43% Pervious Area
14,831		94.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.1	10	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	50	0.0500	1.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	164	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	264	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 116S: SUBCATCHMENT 116S

Runoff = 2.92 cfs @ 12.09 hrs, Volume= 0.230 af, Depth> 5.12"
Routed to Pond CB16 : Catch Basin 16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
3,185	98	Roofs, HSG B
17,824	98	Paved parking, HSG B
2,496	61	>75% Grass cover, Good, HSG B
23,505	94	Weighted Average
2,496		10.62% Pervious Area
21,009		89.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	22	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	16	0.0200	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.0	38	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 117S: SUBCATCHMENT 117S

Runoff = 1.85 cfs @ 12.19 hrs, Volume= 0.172 af, Depth> 4.03"
Routed to Pond CB17 : Catch Basin 17

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
323	98	Roofs, HSG B
13,448	98	Paved parking, HSG B
8,556	61	>75% Grass cover, Good, HSG B
22,327	84	Weighted Average
8,556		38.32% Pervious Area
13,771		61.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	62	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0100	0.56		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.1	25	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.2	8	0.0110	0.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	72	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.1	172	Total			

Summary for Subcatchment 118S: SUBCATCHMENT 118S

Runoff = 2.68 cfs @ 12.09 hrs, Volume= 0.208 af, Depth> 4.90"
Routed to Pond CB18 : Catch Basin 18

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
4,495	98	Roofs, HSG B
14,282	98	Paved parking, HSG B
3,394	61	>75% Grass cover, Good, HSG B
22,171	92	Weighted Average
3,394		15.31% Pervious Area
18,777		84.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	60	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	40	0.0500	1.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	20	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.1	120	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 119S: SUBCATCHMENT 119S

Runoff = 1.71 cfs @ 12.09 hrs, Volume= 0.136 af, Depth> 5.24"
Routed to Pond CB19 : Catch Basin 19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
3,314	98	Roofs, HSG B
9,272	98	Paved parking, HSG B
1,015	61	>75% Grass cover, Good, HSG B
13,601	95	Weighted Average
1,015		7.46% Pervious Area
12,586		92.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.8	14	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	46	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.7	118	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.0	218	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 120S: SUBCATCHMENT 120S

Runoff = 2.37 cfs @ 12.09 hrs, Volume= 0.187 af, Depth> 5.12"
Routed to Pond CB20 : Catch Basin 20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
2,604	98	Roofs, HSG B
14,430	98	Paved parking, HSG B
2,079	61	>75% Grass cover, Good, HSG B
19,113	94	Weighted Average
2,079		10.88% Pervious Area
17,034		89.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	42	0.0570	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0200	0.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.8	53	0.0200	1.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	24	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	124	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: SUBCATCHMENT 204S

Runoff = 0.47 cfs @ 12.36 hrs, Volume= 0.058 af, Depth> 1.56"
Routed to Reach B3R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
13,879	55	Woods, Good, HSG B
5,563	61	>75% Grass cover, Good, HSG B
19,442	57	Weighted Average
19,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	100	0.0227	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0292	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	77	0.2340	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	72	0.1390	1.86		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	32	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.2	379	Total			

Summary for Subcatchment 205S: SUBCATCHMENT 205S

Runoff = 0.22 cfs @ 12.10 hrs, Volume= 0.017 af, Depth> 1.89"
Routed to Reach B2R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
4,339	61	>75% Grass cover, Good, HSG B
288	55	Woods, Good, HSG B
4,627	61	Weighted Average
4,627		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	22	0.5000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	70	0.5000	0.56		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.9	92	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: SUBCATCHMENT 207S

Runoff = 0.39 cfs @ 12.35 hrs, Volume= 0.047 af, Depth> 1.64"
Routed to Reach B1R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
6,840	61	>75% Grass cover, Good, HSG B
8,162	55	Woods, Good, HSG B
15,002	58	Weighted Average
15,002		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	56	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	66	0.0610	1.23		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	57	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	329	Total			

Summary for Subcatchment 211S: SUBCATCHMENT 211S

Runoff = 0.70 cfs @ 12.31 hrs, Volume= 0.081 af, Depth> 1.49"
Routed to Reach B6R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
6,380	61	>75% Grass cover, Good, HSG B
22,212	55	Woods, Good, HSG B
28,592	56	Weighted Average
28,592		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	83	0.0361	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	17	0.2140	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	11	0.2140	2.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1820	2.13		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	45	0.1780	2.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	34	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	45	0.0440	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	28	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.3	328	Total			

Summary for Subcatchment 305S: SUBCATCHMENT 305S

Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af, Depth> 1.42"
Routed to Reach B5R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
86	61	>75% Grass cover, Good, HSG B
1,455	55	Woods, Good, HSG B
1,541	55	Weighted Average
1,541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	6	0.2000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.2	46	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment ROOF 1: Back of Roof

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af, Depth> 5.59"
Routed to Reach RD1 : RD 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 2: Back of Roof

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af, Depth> 5.59"
Routed to Reach RD2 : RD 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 3: Back of Roof

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af, Depth> 5.59"
Routed to Reach RD3 : RD 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year 24-Hour Rainfall=5.83"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach 4Ra: Flow Through Subcatchment 30S

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 1.64" for 25-Year 24-Hour event
Inflow = 4.12 cfs @ 12.35 hrs, Volume= 0.500 af
Outflow = 4.12 cfs @ 12.36 hrs, Volume= 0.499 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 4Rb : Flow Through Subcatchment 30S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.75 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.34 fps, Avg. Travel Time= 2.0 min

Peak Storage= 219 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.57' , Surface Width= 14.41'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

‡

Summary for Reach 4Rb: Flow Through Subcatchment 30S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.29' @ 12.40 hrs

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 1.64" for 25-Year 24-Hour event
Inflow = 4.12 cfs @ 12.36 hrs, Volume= 0.499 af
Outflow = 4.09 cfs @ 12.39 hrs, Volume= 0.498 af, Atten= 1%, Lag= 1.4 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.65 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 0.30 fps, Avg. Travel Time= 4.0 min

Peak Storage= 445 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 32.88'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11.107 ac, 10.76% Impervious, Inflow Depth > 1.67" for 25-Year 24-Hour event
Inflow = 8.58 cfs @ 12.51 hrs, Volume= 1.546 af
Outflow = 8.58 cfs @ 12.51 hrs, Volume= 1.546 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 12.549 ac, 4.54% Impervious, Inflow Depth > 1.05" for 25-Year 24-Hour event
Inflow = 8.89 cfs @ 12.40 hrs, Volume= 1.093 af
Outflow = 8.89 cfs @ 12.40 hrs, Volume= 1.093 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.257 ac, 35.29% Impervious, Inflow Depth > 2.06" for 25-Year 24-Hour event
Inflow = 6.77 cfs @ 12.36 hrs, Volume= 1.589 af
Outflow = 6.77 cfs @ 12.36 hrs, Volume= 1.589 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach B1R: BENCH

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth > 1.64" for 25-Year 24-Hour event
Inflow = 0.39 cfs @ 12.35 hrs, Volume= 0.047 af
Outflow = 0.38 cfs @ 12.40 hrs, Volume= 0.047 af, Atten= 2%, Lag= 3.0 min
Routed to Reach B2R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB7 : Catch Basin 7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.84 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 6.6 min

Peak Storage= 79 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.34' , Surface Width= 2.69'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 6.92 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 173.0' Slope= 0.0809 '/'
Inlet Invert= 278.00', Outlet Invert= 264.00'

‡

Summary for Reach B2R: BENCH

[62] Hint: Exceeded Reach B1R OUTLET depth by 0.07' @ 12.10 hrs

Inflow Area = 0.451 ac, 0.00% Impervious, Inflow Depth > 1.70" for 25-Year 24-Hour event
Inflow = 0.47 cfs @ 12.37 hrs, Volume= 0.064 af
Outflow = 0.47 cfs @ 12.40 hrs, Volume= 0.064 af, Atten= 1%, Lag= 1.6 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.03 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 3.6 min

Peak Storage= 53 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.34' , Surface Width= 2.71'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.45 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 116.0' Slope= 0.1207 '/'
Inlet Invert= 264.00', Outlet Invert= 250.00'

‡

Summary for Reach B3R: BENCH

[62] Hint: Exceeded Reach B2R OUTLET depth by 0.11' @ 12.40 hrs

Inflow Area =	0.932 ac,	0.00% Impervious,	Inflow Depth > 1.62"	for 25-Year 24-Hour event
Inflow =	0.96 cfs @	12.38 hrs, Volume=	0.126 af	
Outflow =	0.96 cfs @	12.40 hrs, Volume=	0.126 af, Atten= 0%, Lag= 1.2 min	
Routed to Reach B4R : BENCH				
Overflow =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	
Routed to Pond CB4 : Catch Basin 4				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.21 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.63 fps, Avg. Travel Time= 2.7 min

Peak Storage= 82 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.44' , Surface Width= 3.56'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.30 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 103.0' Slope= 0.1165 '/'
Inlet Invert= 250.00', Outlet Invert= 238.00'

‡

Summary for Reach B4R: BENCH

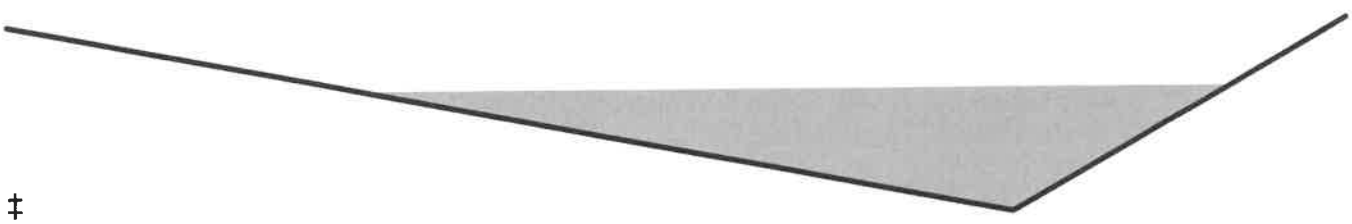
[62] Hint: Exceeded Reach B3R OUTLET depth by 0.20' @ 12.45 hrs

Inflow Area = 1.820 ac, 0.00% Impervious, Inflow Depth > 1.61" for 25-Year 24-Hour event
Inflow = 1.84 cfs @ 12.36 hrs, Volume= 0.243 af
Outflow = 1.81 cfs @ 12.41 hrs, Volume= 0.243 af, Atten= 2%, Lag= 2.8 min
Routed to Pond CB11 : Catch Basin 11
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.08 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 6.9 min

Peak Storage= 389 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.65' , Surface Width= 5.18'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.76 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 232.0' Slope= 0.0560 '/'
Inlet Invert= 238.00', Outlet Invert= 225.00'



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Summary for Reach B5R: BENCH

Inflow Area = 0.035 ac, 0.00% Impervious, Inflow Depth > 1.42" for 25-Year 24-Hour event
Inflow = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af
Outflow = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.3 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach B2R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.51 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 0.8 min

Peak Storage= 1 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.16' , Surface Width= 1.26'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 7.02 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 12.0' Slope= 0.0833 '/'
Inlet Invert= 274.00', Outlet Invert= 273.00'

Summary for Reach B6R: BENCH

Inflow Area = 0.656 ac, 0.00% Impervious, Inflow Depth > 1.49" for 25-Year 24-Hour event
Inflow = 0.70 cfs @ 12.31 hrs, Volume= 0.081 af
Outflow = 0.68 cfs @ 12.35 hrs, Volume= 0.081 af, Atten= 2%, Lag= 2.9 min
Routed to Reach B4R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.84 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 6.3 min

Peak Storage= 134 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.45' , Surface Width= 3.61'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.68 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 165.0' Slope= 0.0545 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

Summary for Reach RD1: RD 1

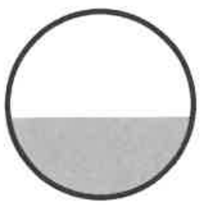
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 5.59" for 25-Year 24-Hour event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af
Outflow = 0.95 cfs @ 12.10 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.6 min
Routed to Pond CB13 : Catch Basin 13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 6.61 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.25 fps, Avg. Travel Time= 2.0 min

Peak Storage= 38 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.47 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 264.0' Slope= 0.0417 '/'
Inlet Invert= 276.00', Outlet Invert= 265.00'



Summary for Reach RD2: RD 2

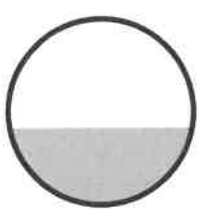
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 5.59" for 25-Year 24-Hour event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.2 min
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 7.01 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.38 fps, Avg. Travel Time= 0.8 min

Peak Storage= 15 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.27' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.68 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 110.0' Slope= 0.0491 '/'
Inlet Invert= 269.00', Outlet Invert= 263.60'



Summary for Reach RD3: RD 3

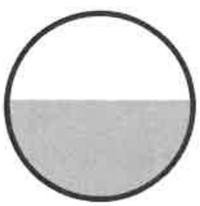
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 5.59" for 25-Year 24-Hour event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.3 min
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 5.02 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.74 fps, Avg. Travel Time= 1.0 min

Peak Storage= 19 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.36' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.71 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 100.0' Slope= 0.0200 '/'
Inlet Invert= 268.00', Outlet Invert= 266.00'



Summary for Pond 1P: Infiltration Pocket

[80] Warning: Exceeded Pond 3P by 0.98' @ 10.35 hrs (0.00 cfs 0.000 af)

Inflow Area = 4.693 ac, 14.98% Impervious, Inflow Depth > 1.90" for 25-Year 24-Hour event
Inflow = 2.35 cfs @ 12.36 hrs, Volume= 0.745 af
Outflow = 2.31 cfs @ 12.41 hrs, Volume= 0.730 af, Atten= 2%, Lag= 2.8 min
Discarded = 0.10 cfs @ 12.15 hrs, Volume= 0.101 af
Primary = 2.22 cfs @ 12.41 hrs, Volume= 0.629 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 198.81' @ 12.15 hrs Surf.Area= 393 sf Storage= 619 cf

Plug-Flow detention time= 15.1 min calculated for 0.730 af (98% of inflow)
Center-of-Mass det. time= 5.5 min (931.2 - 925.8)

Volume	Invert	Avail.Storage	Storage Description
#1	195.84'	619 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.84	43	0.0	0	0
195.85	43	40.0	0	0
195.99	43	40.0	2	3
196.00	43	100.0	0	3
197.00	197	100.0	120	123
198.00	263	100.0	230	353
198.80	393	100.0	262	615
198.81	393	100.0	4	619

Device	Routing	Invert	Outlet Devices
#0	Primary	198.81'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	195.84'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	198.80'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.10 cfs @ 12.15 hrs HW=198.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.05 cfs @ 12.41 hrs HW=198.81' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir**(Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Stormwater Pond

Inflow Area = 4.080 ac, 13.74% Impervious, Inflow Depth > 2.21" for 25-Year 24-Hour event
Inflow = 7.55 cfs @ 12.11 hrs, Volume= 0.752 af
Outflow = 1.58 cfs @ 12.92 hrs, Volume= 0.625 af, Atten= 79%, Lag= 48.6 min
Primary = 1.58 cfs @ 12.92 hrs, Volume= 0.625 af
Routed to Pond 1P : Infiltration Pocket
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : Infiltration Pocket

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Starting Elev= 199.00' Surf.Area= 4,795 sf Storage= 10,800 cf
Peak Elev= 201.10' @ 12.92 hrs Surf.Area= 7,400 sf Storage= 23,890 cf (13,091 cf above start)

Plug-Flow detention time= 314.3 min calculated for 0.376 af (50% of inflow)
Center-of-Mass det. time= 87.9 min (938.7 - 850.8)

Volume	Invert	Avail.Storage	Storage Description
#1	196.00'	37,985 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
196.00	2,494	0	0
197.00	3,194	2,844	2,844
198.00	3,961	3,578	6,422
199.00	4,795	4,378	10,800
199.49	5,237	2,458	13,257
199.50	5,818	55	13,313
200.00	6,296	3,029	16,341
201.00	7,292	6,794	23,135
202.00	8,346	7,819	30,954
202.80	9,005	6,940	37,895
202.81	9,005	90	37,985

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	**12.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 199.00' / 198.80' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	199.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	199.85'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	201.70'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	201.80'	**6.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=1.58 cfs @ 12.92 hrs HW=201.10' TW=198.81' (Dynamic Tailwater)
1=Culvert (Passes 1.58 cfs of 3.78 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.15 cfs @ 6.84 fps)
3=Orifice/Grate (Orifice Controls 1.43 cfs @ 4.67 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=199.00' TW=195.84' (Dynamic Tailwater)
5=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Summary for Pond 3P: Stormfilter

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.523 ac, 23.93% Impervious, Inflow Depth > 2.39" for 25-Year 24-Hour event
Inflow = 0.97 cfs @ 12.29 hrs, Volume= 0.104 af
Outflow = 1.06 cfs @ 12.26 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.26 hrs, Volume= 0.103 af
Routed to Pond 1P : Infiltration Pocket
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 198.86' @ 12.26 hrs Surf.Area= 243 sf Storage= 76 cf

Plug-Flow detention time= 10.3 min calculated for 0.102 af (98% of inflow)
Center-of-Mass det. time= 2.3 min (859.4 - 857.1)

Volume	Invert	Avail.Storage	Storage Description
#1	195.00'	7 cf	**1.00'W x 2.00'L x 3.40'H Prismatoid**
#2	191.75'	13 cf	**1.00'W x 2.00'L x 6.65'H Prismatoid**
#3	198.40'	97 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		117 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.40	4	0	0
199.00	310	94	94
199.01	310	3	97

Device	Routing	Invert	Outlet Devices
#1	Primary	196.10'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 196.10' / 196.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	199.00'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.02 cfs @ 12.26 hrs HW=198.86' TW=198.81' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.02 cfs @ 0.83 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=191.75' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: StormTech

Inflow Area = 3.767 ac, 86.71% Impervious, Inflow Depth > 5.02" for 25-Year 24-Hour event
Inflow = 18.70 cfs @ 12.10 hrs, Volume= 1.576 af
Outflow = 1.26 cfs @ 13.72 hrs, Volume= 0.857 af, Atten= 93%, Lag= 97.3 min
Primary = 1.26 cfs @ 13.72 hrs, Volume= 0.857 af
Routed to Pond 6P : Focal Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 262.96' @ 13.72 hrs Surf.Area= 0.393 ac Storage= 1.039 af

Plug-Flow detention time= 351.8 min calculated for 0.857 af (54% of inflow)
Center-of-Mass det. time= 238.3 min (1,008.7 - 770.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	259.25'	0.540 af	**58.58'W x 292.50'L x 5.50'H Field A** 2.164 af Overall - 0.813 af Embedded = 1.350 af x 40.0% Voids
#2A	260.00'	0.813 af	**ADS_StormTech MC-3500 d +Cap**x 320 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 320 Chambers in 8 Rows Cap Storage= 14.9 cf x 2 x 8 rows = 238.4 cf
		1.353 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	259.25'	**15.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 259.25' / 258.20' S= 0.0328 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	259.25'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	261.50'	**6.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	263.70'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.26 cfs @ 13.72 hrs HW=262.96' TW=254.66' (Dynamic Tailwater)
1=**Culvert** (Passes 1.26 cfs of 8.20 cfs potential flow)
2=**Orifice/Grate** (Orifice Controls 0.05 cfs @ 9.23 fps)
3=**Orifice/Grate** (Orifice Controls 1.21 cfs @ 5.26 fps)
4=**Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 6P: Focal Point

Inflow Area = 3.926 ac, 83.20% Impervious, Inflow Depth > 2.70" for 25-Year 24-Hour event
Inflow = 1.29 cfs @ 13.60 hrs, Volume= 0.882 af
Outflow = 1.29 cfs @ 13.66 hrs, Volume= 0.882 af, Atten= 0%, Lag= 3.7 min
Primary = 1.29 cfs @ 13.66 hrs, Volume= 0.882 af
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 254.66' @ 13.66 hrs Surf.Area= 620 sf Storage= 113 cf

Plug-Flow detention time= 0.9 min calculated for 0.882 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (1,005.4 - 1,004.6)

Volume	Invert	Avail.Storage	Storage Description
#1	253.75'	279 cf	**20.00'W x 31.00'L x 2.25'H Focal Point** 1,395 cf Overall x 20.0% Voids
#2	256.00'	1,965 cf	**Surface Bowl (Prismatic)**Listed below (Recalc)
		2,244 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	620	0	0
258.00	1,345	1,965	1,965

Device	Routing	Invert	Outlet Devices
#1	Primary	252.75'	**15.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 252.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 3	253.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#3	Device 1	253.25'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	257.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.29 cfs @ 13.66 hrs HW=254.66' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.29 cfs of 5.29 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 1.29 cfs @ 5.18 fps)
  │ └─**2=Exfiltration** (Passes 1.29 cfs of 1.44 cfs potential flow)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 9P: 18" HDPE

Inflow Area = 1.474 ac, 11.59% Impervious, Inflow Depth > 2.05" for 25-Year 24-Hour event
Inflow = 2.47 cfs @ 12.25 hrs, Volume= 0.252 af
Outflow = 2.47 cfs @ 12.26 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.6 min
Primary = 2.47 cfs @ 12.26 hrs, Volume= 0.251 af
Routed to Pond 10P : Bioretention
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 202.06' @ 12.26 hrs Surf.Area= 186 sf Storage= 117 cf

Plug-Flow detention time= 2.0 min calculated for 0.251 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (865.3 - 864.3)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	37	0	0
202.00	177	107	107
202.50	258	109	216
202.51	258	3	218

Device	Routing	Invert	Outlet Devices
#1	Primary	201.20'	**18.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500

			Inlet / Outlet Invert= 201.20' / 201.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	202.50'	**36.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=2.45 cfs @ 12.26 hrs HW=202.06' TW=200.53' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 2.45 cfs @ 3.40 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 10P: Bioretention

Inflow Area = 3.401 ac, 10.16% Impervious, Inflow Depth > 2.00" for 25-Year 24-Hour event
Inflow = 5.48 cfs @ 12.26 hrs, Volume= 0.567 af
Outflow = 3.18 cfs @ 12.55 hrs, Volume= 0.565 af, Atten= 42%, Lag= 17.6 min
Discarded = 2.51 cfs @ 12.55 hrs, Volume= 0.533 af
Primary = 0.67 cfs @ 12.55 hrs, Volume= 0.032 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 201.06' @ 12.55 hrs Surf.Area= 3,869 sf Storage= 4,398 cf

Plug-Flow detention time= 19.5 min calculated for 0.564 af (99% of inflow)
Center-of-Mass det. time= 17.2 min (883.7 - 866.5)

Volume	Invert	Avail.Storage	Storage Description
#1	197.49'	10,895 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
197.49	2,341	224.0	0.0	0	0	2,341
197.50	2,341	224.0	40.0	9	9	2,343
198.49	2,341	224.0	40.0	927	936	2,565
198.50	2,341	224.0	15.0	4	940	2,567
199.99	2,341	224.0	15.0	523	1,463	2,901
200.00	2,341	224.0	100.0	23	1,487	2,903
200.99	3,056	251.0	100.0	2,664	4,150	3,951
201.00	3,826	265.0	100.0	34	4,185	4,525
202.00	4,646	284.0	100.0	4,229	8,414	5,400
202.50	5,079	293.0	100.0	2,430	10,844	5,837
202.51	5,079	293.0	100.0	51	10,895	5,840

Device	Routing	Invert	Outlet Devices
#1	Primary	200.10'	**10.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.10' / 199.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	200.30'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	201.10'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	201.50'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Discarded	197.49'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 197.41' Phase-In= 0.10'

Discarded OutFlow Max=2.51 cfs @ 12.55 hrs HW=201.06' (Free Discharge)
└─**5=Exfiltration** (Controls 2.51 cfs)

Primary OutFlow Max=0.67 cfs @ 12.55 hrs HW=201.06' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.67 cfs of 1.60 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.67 cfs @ 3.42 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=197.49' TW=195.07' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 11P: EcoRaster

Inflow Area = 0.826 ac, 21.71% Impervious, Inflow Depth > 2.20" for 25-Year 24-Hour event
Inflow = 1.75 cfs @ 12.19 hrs, Volume= 0.151 af
Outflow = 0.89 cfs @ 12.42 hrs, Volume= 0.151 af, Atten= 49%, Lag= 13.8 min
Discarded = 0.89 cfs @ 12.42 hrs, Volume= 0.151 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 197.32' @ 12.42 hrs Surf.Area= 3,707 sf Storage= 1,446 cf

Plug-Flow detention time= 24.6 min calculated for 0.151 af (100% of inflow)
Center-of-Mass det. time= 24.3 min (849.4 - 825.1)

Volume	Invert	Avail.Storage	Storage Description
#1	195.07'	2,256 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.07	3,707	0.0	0	0
195.08	3,707	30.0	11	11
196.08	3,707	30.0	1,112	1,123
196.09	3,707	15.0	6	1,129
196.33	3,707	15.0	133	1,262
196.34	3,707	5.0	2	1,264
197.33	3,707	5.0	183	1,448
197.34	3,707	30.0	11	1,459
197.99	3,707	30.0	723	2,182
198.00	3,707	100.0	37	2,219
198.01	3,707	100.0	37	2,256

Device	Routing	Invert	Outlet Devices
#1	Primary	198.00'	**100.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	195.07'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.83' Phase-In= 0.01'

Discarded OutFlow Max=0.88 cfs @ 12.42 hrs HW=197.30' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.88 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=195.07' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 12P: Dry Well

[93] Warning: Storage range exceeded by 0.16'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=75)

Inflow Area = 0.556 ac, 0.91% Impervious, Inflow Depth > 1.65" for 25-Year 24-Hour event
Inflow = 0.78 cfs @ 12.20 hrs, Volume= 0.076 af
Outflow = 0.99 cfs @ 12.20 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 12.20 hrs, Volume= 0.010 af
Primary = 0.98 cfs @ 12.20 hrs, Volume= 0.058 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.37' @ 12.20 hrs Surf.Area= 287 sf Storage= 359 cf

Plug-Flow detention time= 69.9 min calculated for 0.068 af (89% of inflow)
Center-of-Mass det. time= 18.9 min (893.6 - 874.7)

Volume	Invert	Avail.Storage	Storage Description
#1	194.25'	318 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 815 cf Overall - 21 cf Embedded = 794 cf x 40.0% Voids
#2	195.08'	21 cf	**3.00'D x 3.00'H Vertical Cone/Cylinder**Inside #1
#3	198.08'	2 cf	**1.67'D x 0.92'H Vertical Cone/Cylinder**
#4	198.79'	18 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)
		359 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.25	220	0	0
195.06	220	178	178
195.07	211	2	180
198.08	211	635	815

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.79	9	0	0
199.20	74	17	17
199.21	74	1	18

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.25'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.25' Phase-In= 0.01'
#2	Primary	199.20'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.01 cfs @ 12.20 hrs HW=199.37' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.98 cfs @ 12.20 hrs HW=199.37' TW=196.04' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir**(Weir Controls 0.98 cfs @ 1.16 fps)

Summary for Pond CB1: Catch Basin 1

Inflow Area = 0.070 ac, 63.65% Impervious, Inflow Depth > 4.14" for 25-Year 24-Hour event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 0.024 af
Outflow = 0.33 cfs @ 12.09 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.09 hrs, Volume= 0.024 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 202.65' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 200.60' / 200.50' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.32 cfs @ 12.09 hrs HW=202.52' TW=202.51' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.32 cfs @ 0.26 fps)

Summary for Pond CB10: Catch Basin 10

Inflow Area = 0.206 ac, 45.07% Impervious, Inflow Depth > 3.23" for 25-Year 24-Hour event
Inflow = 0.67 cfs @ 12.15 hrs, Volume= 0.055 af
Outflow = 0.67 cfs @ 12.15 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.15 hrs, Volume= 0.055 af
Routed to Pond CB9 : Catch Basin 9

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.63' @ 12.13 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	252.10'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.10' / 252.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 12.15 hrs HW=252.63' TW=252.47' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.67 cfs @ 1.99 fps)

Summary for Pond CB11: Catch Basin 11

Inflow Area = 1.820 ac, 0.00% Impervious, Inflow Depth > 1.60" for 25-Year 24-Hour event
Inflow = 1.81 cfs @ 12.41 hrs, Volume= 0.243 af
Outflow = 1.81 cfs @ 12.41 hrs, Volume= 0.243 af, Atten= 0%, Lag= 0.0 min
Primary = 1.81 cfs @ 12.41 hrs, Volume= 0.243 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 208.75' @ 12.41 hrs
Flood Elev= 221.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.00'	**15.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.00' / 200.50' S= 0.1316 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.80 cfs @ 12.41 hrs HW=208.75' TW=201.75' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.80 cfs @ 2.33 fps)

Summary for Pond CB12: Catch Basin 12

Inflow Area = 3.550 ac, 0.53% Impervious, Inflow Depth > 1.49" for 25-Year 24-Hour event
Inflow = 3.45 cfs @ 12.38 hrs, Volume= 0.440 af
Outflow = 3.45 cfs @ 12.38 hrs, Volume= 0.440 af, Atten= 0%, Lag= 0.0 min
Primary = 3.45 cfs @ 12.38 hrs, Volume= 0.440 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB10 : Catch Basin 10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 263.16' @ 12.38 hrs Surf.Area= 53 sf Storage= 8 cf

Plug-Flow detention time= 0.1 min calculated for 0.440 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (889.1 - 889.0)

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	74 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	43	0	0
264.00	103	73	73
264.01	103	1	74

Device	Routing	Invert	Outlet Devices
#0	Secondary	264.01'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	259.70'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 259.70' / 259.00' S= 0.0140 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Device 1	263.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	264.00'	**8.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=3.43 cfs @ 12.38 hrs HW=263.16' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 3.43 cfs of 9.95 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 3.43 cfs @ 1.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=263.00' TW=252.10' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB13: Catch Basin 13

[62] Hint: Exceeded Reach RD1 OUTLET depth by 3.57' @ 12.10 hrs

Inflow Area = 0.266 ac,100.00% Impervious, Inflow Depth > 5.59" for 25-Year 24-Hour event
Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.124 af
Outflow = 1.48 cfs @ 12.09 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.09 hrs, Volume= 0.124 af
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.86' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	264.20'	**18.0" Round Culvert** L= 73.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 264.20' / 263.40' S= 0.0110 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.45 cfs @ 12.09 hrs HW=268.59' TW=268.55' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.45 cfs @ 0.82 fps)

Summary for Pond CB14: Catch Basin 14

[62] Hint: Exceeded Reach RD2 OUTLET depth by 4.94' @ 12.10 hrs

Inflow Area = 0.925 ac, 91.53% Impervious, Inflow Depth > 5.22" for 25-Year 24-Hour event
Inflow = 4.73 cfs @ 12.10 hrs, Volume= 0.402 af
Outflow = 4.73 cfs @ 12.10 hrs, Volume= 0.402 af, Atten= 0%, Lag= 0.0 min
Primary = 4.73 cfs @ 12.10 hrs, Volume= 0.402 af
Routed to Pond CB15 : Catch Basin 15

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.81' @ 12.10 hrs
Flood Elev= 270.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	**18.0" Round Culvert** L= 68.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.30' / 262.90' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.68 cfs @ 12.10 hrs HW=268.66' TW=268.18' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.68 cfs @ 2.65 fps)

Summary for Pond CB15: Catch Basin 15

Inflow Area = 1.285 ac, 92.38% Impervious, Inflow Depth > 5.26" for 25-Year 24-Hour event
Inflow = 6.69 cfs @ 12.10 hrs, Volume= 0.563 af
Outflow = 6.69 cfs @ 12.10 hrs, Volume= 0.563 af, Atten= 0%, Lag= 0.0 min
Primary = 6.69 cfs @ 12.10 hrs, Volume= 0.563 af
Routed to Pond CB16 : Catch Basin 16

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.32' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	262.80'	**18.0" Round Culvert** L= 156.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 262.80' / 262.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.68 cfs @ 12.10 hrs HW=268.29' TW=267.24' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 6.68 cfs @ 3.78 fps)

Summary for Pond CB16: Catch Basin 16

Inflow Area = 1.824 ac, 91.49% Impervious, Inflow Depth > 5.22" for 25-Year 24-Hour event
Inflow = 9.59 cfs @ 12.10 hrs, Volume= 0.794 af
Outflow = 9.59 cfs @ 12.10 hrs, Volume= 0.794 af, Atten= 0%, Lag= 0.0 min
Primary = 9.59 cfs @ 12.10 hrs, Volume= 0.794 af
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 267.26' @ 12.10 hrs
Flood Elev= 270.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**24.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.50' / 260.90' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.49 cfs @ 12.10 hrs HW=267.13' TW=266.50' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 9.49 cfs @ 3.02 fps)

Summary for Pond CB17: Catch Basin 17

[62] Hint: Exceeded Reach RD3 OUTLET depth by 0.26' @ 12.10 hrs

Inflow Area = 2.507 ac, 85.98% Impervious, Inflow Depth > 5.00" for 25-Year 24-Hour event
Inflow = 11.98 cfs @ 12.10 hrs, Volume= 1.045 af
Outflow = 11.98 cfs @ 12.10 hrs, Volume= 1.045 af, Atten= 0%, Lag= 0.0 min
Primary = 11.98 cfs @ 12.10 hrs, Volume= 1.045 af
Routed to Pond CB18 : Catch Basin 18

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 266.62' @ 12.10 hrs
Flood Elev= 269.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.80'	**24.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.80' / 260.50' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.96 cfs @ 12.10 hrs HW=266.60' TW=265.60' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 11.96 cfs @ 3.81 fps)

Summary for Pond CB18: Catch Basin 18

Inflow Area = 3.016 ac, 85.76% Impervious, Inflow Depth > 4.98" for 25-Year 24-Hour event
Inflow = 14.65 cfs @ 12.10 hrs, Volume= 1.253 af
Outflow = 14.65 cfs @ 12.10 hrs, Volume= 1.253 af, Atten= 0%, Lag= 0.0 min
Primary = 14.65 cfs @ 12.10 hrs, Volume= 1.253 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 265.61' @ 12.10 hrs
Flood Elev= 268.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.40'	**24.0" Round Culvert** L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.40' / 260.30' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.59 cfs @ 12.10 hrs HW=265.57' TW=264.08' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 14.59 cfs @ 4.64 fps)

Summary for Pond CB19: Catch Basin 19

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 5.17" for 25-Year 24-Hour event
Inflow = 4.08 cfs @ 12.09 hrs, Volume= 0.324 af
Outflow = 4.08 cfs @ 12.09 hrs, Volume= 0.324 af, Atten= 0%, Lag= 0.0 min
Primary = 4.08 cfs @ 12.09 hrs, Volume= 0.324 af
Routed to Pond DMH 4 : Drain Manhole 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 264.34' @ 12.10 hrs
Flood Elev= 266.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.40'	**24.0" Round Culvert** L= 151.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.40' / 260.60' S= 0.0053 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.97 cfs @ 12.09 hrs HW=264.14' TW=264.03' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.97 cfs @ 1.26 fps)

Summary for Pond CB2: Catch Basin 2

Inflow Area = 2.129 ac, 4.38% Impervious, Inflow Depth > 1.79" for 25-Year 24-Hour event
Inflow = 2.18 cfs @ 12.37 hrs, Volume= 0.318 af
Outflow = 2.18 cfs @ 12.37 hrs, Volume= 0.318 af, Atten= 0%, Lag= 0.0 min
Primary = 2.18 cfs @ 12.37 hrs, Volume= 0.318 af
Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 202.65' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.40'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 200.40' / 200.00' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.17 cfs @ 12.37 hrs HW=201.76' TW=201.54' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 2.17 cfs @ 2.03 fps)

Summary for Pond CB20: Catch Basin 20

Inflow Area = 0.439 ac, 89.12% Impervious, Inflow Depth > 5.12" for 25-Year 24-Hour event
Inflow = 2.37 cfs @ 12.09 hrs, Volume= 0.187 af
Outflow = 2.37 cfs @ 12.09 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min
Primary = 2.37 cfs @ 12.09 hrs, Volume= 0.187 af
Routed to Pond CB19 : Catch Basin 19

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 264.38' @ 12.10 hrs
Flood Elev= 265.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.90'	**24.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.90' / 261.50' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.37 cfs @ 12.09 hrs HW=264.18' TW=264.14' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.37 cfs @ 0.76 fps)

Summary for Pond CB3: Catch Basin 3

Inflow Area = 1.450 ac, 32.23% Impervious, Inflow Depth > 2.94" for 25-Year 24-Hour event
Inflow = 4.66 cfs @ 12.10 hrs, Volume= 0.355 af
Outflow = 4.66 cfs @ 12.10 hrs, Volume= 0.355 af, Atten= 0%, Lag= 0.0 min
Primary = 4.66 cfs @ 12.10 hrs, Volume= 0.355 af
Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 209.82' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.20'	**15.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.20' / 200.00' S= 0.1262 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.65 cfs @ 12.10 hrs HW=209.82' TW=202.47' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.65 cfs @ 3.79 fps)

Summary for Pond CB4: Catch Basin 4

Inflow Area = 0.197 ac, 24.45% Impervious, Inflow Depth > 2.67" for 25-Year 24-Hour event
Inflow = 0.60 cfs @ 12.10 hrs, Volume= 0.044 af
Outflow = 0.60 cfs @ 12.10 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.10 hrs, Volume= 0.044 af
Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 209.84' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.40'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.40' / 208.30' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.59 cfs @ 12.10 hrs HW=209.82' TW=209.80' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.59 cfs @ 0.48 fps)

Summary for Pond CB5: Catch Basin 5

Inflow Area = 1.010 ac, 36.59% Impervious, Inflow Depth > 3.07" for 25-Year 24-Hour event
Inflow = 3.35 cfs @ 12.10 hrs, Volume= 0.259 af
Outflow = 3.35 cfs @ 12.10 hrs, Volume= 0.259 af, Atten= 0%, Lag= 0.0 min
Primary = 3.35 cfs @ 12.10 hrs, Volume= 0.259 af
Routed to Pond DMH2 : Drain Manhole 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 225.43' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.30'	**15.0" Round Culvert** L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.30' / 217.60' S= 0.0817 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.35 cfs @ 12.10 hrs HW=225.43' TW=218.63' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 3.35 cfs @ 2.86 fps)

Summary for Pond CB6: Catch Basin 6

Inflow Area = 0.195 ac, 24.96% Impervious, Inflow Depth > 2.67" for 25-Year 24-Hour event
Inflow = 0.59 cfs @ 12.10 hrs, Volume= 0.043 af
Outflow = 0.59 cfs @ 12.10 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.10 hrs, Volume= 0.043 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 225.46' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.50'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.50' / 224.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.59 cfs @ 12.10 hrs HW=225.45' TW=225.42' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.59 cfs @ 0.59 fps)

Summary for Pond CB7: Catch Basin 7

Inflow Area = 0.210 ac, 22.21% Impervious, Inflow Depth > 2.58" for 25-Year 24-Hour event
Inflow = 0.62 cfs @ 12.10 hrs, Volume= 0.045 af
Outflow = 0.62 cfs @ 12.10 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.10 hrs, Volume= 0.045 af
Routed to Pond CB8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.52' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.90'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.90' / 238.80' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.61 cfs @ 12.10 hrs HW=239.52' TW=239.43' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.61 cfs @ 1.48 fps)

Summary for Pond CB8: Catch Basin 8

Inflow Area = 0.638 ac, 43.43% Impervious, Inflow Depth > 3.31" for 25-Year 24-Hour event
Inflow = 2.22 cfs @ 12.10 hrs, Volume= 0.176 af
Outflow = 2.22 cfs @ 12.10 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min
Primary = 2.22 cfs @ 12.10 hrs, Volume= 0.176 af
Routed to Pond DMH 3 : Drain Manhole 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.44' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.70'	**15.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.70' / 233.10' S= 0.0889 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.20 cfs @ 12.10 hrs HW=239.44' TW=233.85' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.20 cfs @ 2.92 fps)

Summary for Pond CB9: Catch Basin 9

Inflow Area = 0.311 ac, 58.69% Impervious, Inflow Depth > 3.83" for 25-Year 24-Hour event
Inflow = 1.17 cfs @ 12.11 hrs, Volume= 0.099 af
Outflow = 1.17 cfs @ 12.11 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.17 cfs @ 12.11 hrs, Volume= 0.099 af
Routed to Pond cb8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.49' @ 12.11 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.90'	**15.0" Round Culvert** L= 163.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 251.90' / 238.80' S= 0.0804 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.15 cfs @ 12.11 hrs HW=252.48' TW=239.43' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.15 cfs @ 2.05 fps)

Summary for Pond DMH 3: Drain Manhole 3

Inflow Area = 0.638 ac, 43.43% Impervious, Inflow Depth > 3.31" for 25-Year 24-Hour event
Inflow = 2.22 cfs @ 12.10 hrs, Volume= 0.176 af
Outflow = 2.22 cfs @ 12.10 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min
Primary = 2.22 cfs @ 12.10 hrs, Volume= 0.176 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 233.85' @ 12.10 hrs
Flood Elev= 237.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**15.0" Round Culvert** L= 104.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 233.00' / 224.40' S= 0.0827 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.20 cfs @ 12.10 hrs HW=233.85' TW=225.43' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.20 cfs @ 2.48 fps)

Summary for Pond DMH 4: Drain Manhole 4

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=61)

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 5.17" for 25-Year 24-Hour event
Inflow = 4.08 cfs @ 12.09 hrs, Volume= 0.324 af
Outflow = 4.08 cfs @ 12.09 hrs, Volume= 0.324 af, Atten= 0%, Lag= 0.0 min
Primary = 4.08 cfs @ 12.09 hrs, Volume= 0.324 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 264.23' @ 12.10 hrs
Flood Elev= 268.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.50'	**24.0" Round Culvert** L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.50' / 260.40' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.97 cfs @ 12.09 hrs HW=264.03' TW=263.92' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.97 cfs @ 1.26 fps)

Summary for Pond DMH 5: Drain Manhole 5

[80] Warning: Exceeded Pond DMH 4 by 1.65' @ 19.65 hrs (8.32 cfs 1.349 af)

Inflow Area = 3.767 ac, 86.71% Impervious, Inflow Depth > 5.02" for 25-Year 24-Hour event
Inflow = 18.70 cfs @ 12.10 hrs, Volume= 1.576 af
Outflow = 18.70 cfs @ 12.10 hrs, Volume= 1.576 af, Atten= 0%, Lag= 0.0 min
Primary = 18.70 cfs @ 12.10 hrs, Volume= 1.576 af
Routed to Pond 5P : StormTech

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 264.11' @ 12.11 hrs
Flood Elev= 268.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.30'	**24.0" Round Culvert** L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.30' / 260.10' S= 0.0143 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=18.52 cfs @ 12.10 hrs HW=264.04' TW=261.64' (Dynamic Tailwater)
1=Culvert (Inlet Controls 18.52 cfs @ 5.89 fps)

Summary for Pond DMH1: Drain Manhole 1

Inflow Area = 3.579 ac, 15.66% Impervious, Inflow Depth > 2.26" for 25-Year 24-Hour event
Inflow = 6.53 cfs @ 12.11 hrs, Volume= 0.673 af
Outflow = 6.53 cfs @ 12.11 hrs, Volume= 0.673 af, Atten= 0%, Lag= 0.0 min
Primary = 6.53 cfs @ 12.11 hrs, Volume= 0.673 af
Routed to Pond 2P : Stormwater Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 202.49' @ 12.11 hrs
Flood Elev= 211.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	199.90'	**15.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 199.90' / 199.70' S= 0.0067 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.45 cfs @ 12.11 hrs HW=202.44' TW=200.11' (Dynamic Tailwater)
1=Culvert (Inlet Controls 6.45 cfs @ 5.26 fps)

Summary for Pond DMH2: Drain Manhole 2

Inflow Area = 1.010 ac, 36.59% Impervious, Inflow Depth > 3.07" for 25-Year 24-Hour event
Inflow = 3.35 cfs @ 12.10 hrs, Volume= 0.259 af
Outflow = 3.35 cfs @ 12.10 hrs, Volume= 0.259 af, Atten= 0%, Lag= 0.0 min
Primary = 3.35 cfs @ 12.10 hrs, Volume= 0.259 af
Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 218.63' @ 12.10 hrs
Flood Elev= 223.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	217.50'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 217.50' / 208.30' S= 0.1095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.35 cfs @ 12.10 hrs HW=218.63' TW=209.82' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 3.35 cfs @ 2.86 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SUBCATCHMENT1S Runoff Area=279,376 sf 7.68% Impervious Runoff Depth>2.47"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=9.58 cfs 1.321 af

Subcatchment10S: SUBCATCHMENT10S Runoff Area=3,917 sf 19.30% Impervious Runoff Depth>3.18"
Flow Length=79' Tc=9.6 min CN=66 Runoff=0.29 cfs 0.024 af

Subcatchment11S: Subcatchment11S Runoff Area=21,833 sf 0.00% Impervious Runoff Depth>2.68"
Flow Length=137' Tc=6.7 min CN=61 Runoff=1.48 cfs 0.112 af

Subcatchment12S: Subcatchment12S Runoff Area=22,767 sf 23.93% Impervious Runoff Depth>3.28"
Flow Length=642' Tc=19.9 min CN=67 Runoff=1.35 cfs 0.143 af

Subcatchment20S: Subcatchment20S Runoff Area=207,863 sf 0.54% Impervious Runoff Depth>2.29"
Flow Length=341' Tc=25.2 min CN=57 Runoff=7.42 cfs 0.909 af

Subcatchment21S: SUBCATCHMENT21S Runoff Area=154,653 sf 0.53% Impervious Runoff Depth>2.19"
Flow Length=358' Tc=24.0 min CN=56 Runoff=5.36 cfs 0.648 af

Subcatchment22S: SUBCATCHMENT22S Runoff Area=83,939 sf 9.07% Impervious Runoff Depth>2.78"
Flow Length=348' Tc=17.4 min CN=62 Runoff=4.36 cfs 0.446 af

Subcatchment23S: SUBCATCHMENT23S Runoff Area=11,755 sf 64.56% Impervious Runoff Depth>5.23"
Flow Length=39' Slope=0.0200 '/' Tc=6.0 min CN=85 Runoff=1.57 cfs 0.118 af

Subcatchment24S: SUBCATCHMENT24S Runoff Area=24,222 sf 0.91% Impervious Runoff Depth>2.39"
Flow Length=204' Tc=12.8 min CN=58 Runoff=1.18 cfs 0.111 af

Subcatchment25S: SUBCATCHMENT25S Runoff Area=64,195 sf 11.59% Impervious Runoff Depth>2.88"
Flow Length=368' Tc=16.5 min CN=63 Runoff=3.54 cfs 0.353 af

Subcatchment30S: Subcatchment30S Runoff Area=73,162 sf 0.00% Impervious Runoff Depth>2.20"
Flow Length=299' Tc=14.2 min CN=56 Runoff=3.12 cfs 0.308 af

Subcatchment31S: Subcatchment31S Runoff Area=159,045 sf 0.00% Impervious Runoff Depth>2.38"
Flow Length=593' Tc=22.7 min CN=58 Runoff=6.23 cfs 0.725 af

Subcatchment32S: SUBCATCHMENT32S Runoff Area=6,935 sf 0.00% Impervious Runoff Depth>2.68"
Flow Length=83' Tc=8.0 min CN=61 Runoff=0.45 cfs 0.036 af

Subcatchment101S: SUBCATCHMENT101S Runoff Area=3,062 sf 63.65% Impervious Runoff Depth>5.23"
Flow Length=149' Tc=6.0 min CN=85 Runoff=0.41 cfs 0.031 af

Subcatchment102S: SUBCATCHMENT Runoff Area=10,426 sf 20.31% Impervious Runoff Depth>3.49"
Flow Length=202' Tc=6.0 min CN=69 Runoff=0.96 cfs 0.070 af

Subcatchment103S: SUBCATCHMENT Runoff Area=10,615 sf 20.41% Impervious Runoff Depth>3.49"
Flow Length=210' Tc=6.0 min CN=69 Runoff=0.98 cfs 0.071 af

Subcatchment104S: SUBCATCHMENT104S Runoff Area=8,563 sf 24.45% Impervious Runoff Depth>3.60"
Flow Length=192' Tc=6.0 min CN=70 Runoff=0.81 cfs 0.059 af

Subcatchment105S: SUBCATCHMENT105S Runoff Area=7,685 sf 24.66% Impervious Runoff Depth>3.60"
Flow Length=198' Tc=6.0 min CN=70 Runoff=0.73 cfs 0.053 af

Subcatchment106S: SUBCATCHMENT106S Runoff Area=8,480 sf 24.96% Impervious Runoff Depth>3.60"
Flow Length=150' Tc=6.0 min CN=70 Runoff=0.81 cfs 0.058 af

Subcatchment107S: SUBCATCHMENT107S Runoff Area=9,158 sf 22.21% Impervious Runoff Depth>3.49"
Flow Length=200' Tc=6.0 min CN=69 Runoff=0.84 cfs 0.061 af

Subcatchment108S: SUBCATCHMENT108S Runoff Area=5,109 sf 41.03% Impervious Runoff Depth>4.24"
Flow Length=108' Tc=6.0 min CN=76 Runoff=0.57 cfs 0.041 af

Subcatchment109S: SUBCATCHMENT109S Runoff Area=4,591 sf 85.25% Impervious Runoff Depth>6.15"
Flow Length=322' Tc=6.0 min CN=93 Runoff=0.68 cfs 0.054 af

Subcatchment110S: SUBCATCHMENT110S Runoff Area=8,954 sf 45.07% Impervious Runoff Depth>4.23"
Flow Length=193' Tc=10.4 min CN=76 Runoff=0.87 cfs 0.072 af

Subcatchment111S: SUBCATCHMENT111S Runoff Area=10,066 sf 0.00% Impervious Runoff Depth>2.68"
Flow Length=37' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.70 cfs 0.052 af

Subcatchment113S: SUBCATCHMENT Runoff Area=4,154 sf 100.00% Impervious Runoff Depth>6.74"
Flow Length=144' Slope=0.0330 '/' Tc=6.0 min CN=98 Runoff=0.64 cfs 0.054 af

Subcatchment114S: SUBCATCHMENT Runoff Area=21,297 sf 83.97% Impervious Runoff Depth>6.03"
Flow Length=251' Tc=9.0 min CN=92 Runoff=2.87 cfs 0.246 af

Subcatchment115S: SUBCATCHMENT Runoff Area=15,683 sf 94.57% Impervious Runoff Depth>6.50"
Flow Length=264' Tc=6.0 min CN=96 Runoff=2.39 cfs 0.195 af

Subcatchment116S: SUBCATCHMENT Runoff Area=23,505 sf 89.38% Impervious Runoff Depth>6.26"
Flow Length=38' Tc=6.0 min CN=94 Runoff=3.53 cfs 0.282 af

Subcatchment117S: SUBCATCHMENT Runoff Area=22,327 sf 61.68% Impervious Runoff Depth>5.11"
Flow Length=172' Tc=14.1 min CN=84 Runoff=2.32 cfs 0.218 af

Subcatchment118S: SUBCATCHMENT Runoff Area=22,171 sf 84.69% Impervious Runoff Depth>6.03"
Flow Length=120' Slope=0.0500 '/' Tc=6.0 min CN=92 Runoff=3.27 cfs 0.256 af

Subcatchment119S: SUBCATCHMENT Runoff Area=13,601 sf 92.54% Impervious Runoff Depth>6.38"
Flow Length=218' Tc=6.0 min CN=95 Runoff=2.06 cfs 0.166 af

Subcatchment120S: SUBCATCHMENT Runoff Area=19,113 sf 89.12% Impervious Runoff Depth>6.26"
Flow Length=124' Tc=6.0 min CN=94 Runoff=2.87 cfs 0.229 af

Subcatchment204S: SUBCATCHMENT204S Runoff Area=19,442 sf 0.00% Impervious Runoff Depth>2.29"
Flow Length=379' Tc=23.2 min CN=57 Runoff=0.72 cfs 0.085 af

Subcatchment205S: SUBCATCHMENT205S Runoff Area=4,627 sf 0.00% Impervious Runoff Depth>2.68"
Flow Length=92' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.32 cfs 0.024 af

Subcatchment207S: SUBCATCHMENT207S Runoff Area=15,002 sf 0.00% Impervious Runoff Depth>2.38"
Flow Length=329' Tc=22.8 min CN=58 Runoff=0.59 cfs 0.068 af

Subcatchment211S: SUBCATCHMENT211S Runoff Area=28,592 sf 0.00% Impervious Runoff Depth>2.19"
Flow Length=328' Tc=19.3 min CN=56 Runoff=1.08 cfs 0.120 af

Subcatchment305S: SUBCATCHMENT305S Runoff Area=1,541 sf 0.00% Impervious Runoff Depth>2.11"
Flow Length=46' Tc=6.0 min CN=55 Runoff=0.08 cfs 0.006 af

SubcatchmentROOF 1: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>6.74"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.096 af

SubcatchmentROOF 2: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>6.74"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.096 af

SubcatchmentROOF 3: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>6.74"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.096 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.69' Max Vel=0.85 fps Inflow=6.23 cfs 0.725 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=6.23 cfs 0.724 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.35' Max Vel=0.74 fps Inflow=6.23 cfs 0.724 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=6.21 cfs 0.723 af

Reach AP1: Analysis Point 1 Inflow=12.55 cfs 2.269 af
Outflow=12.55 cfs 2.269 af

Reach AP2: Analysis Point 2 Inflow=14.70 cfs 1.664 af
Outflow=14.70 cfs 1.664 af

Reach AP3: Analysis Point 3 Inflow=10.11 cfs 2.249 af
Outflow=10.11 cfs 2.249 af

Reach B1R: BENCH Avg. Flow Depth=0.39' Max Vel=0.93 fps Inflow=0.59 cfs 0.068 af
n=0.150 L=173.0' S=0.0809 '/' Capacity=6.92 cfs Outflow=0.58 cfs 0.068 af Overflow=0.00 cfs 0.000 af

Reach B2R: BENCH Avg. Flow Depth=0.39' Max Vel=1.13 fps Inflow=0.71 cfs 0.092 af
n=0.150 L=116.0' S=0.1207 '/' Capacity=8.45 cfs Outflow=0.71 cfs 0.092 af Overflow=0.00 cfs 0.000 af

Reach B3R: BENCH Avg. Flow Depth=0.52' Max Vel=1.34 fps Inflow=1.46 cfs 0.183 af
n=0.150 L=103.0' S=0.1165 '/' Capacity=8.30 cfs Outflow=1.46 cfs 0.183 af Overflow=0.00 cfs 0.000 af

Reach B4R: BENCH Avg. Flow Depth=0.76' Max Vel=1.20 fps Inflow=2.81 cfs 0.354 af
n=0.150 L=232.0' S=0.0560 '/' Capacity=5.76 cfs Outflow=2.77 cfs 0.354 af Overflow=0.00 cfs 0.000 af

Reach B5R: BENCH Avg. Flow Depth=0.19' Max Vel=0.57 fps Inflow=0.08 cfs 0.006 af
n=0.150 L=12.0' S=0.0833 '/' Capacity=7.02 cfs Outflow=0.08 cfs 0.006 af Overflow=0.00 cfs 0.000 af

Reach B6R: BENCH Avg. Flow Depth=0.53' Max Vel=0.93 fps Inflow=1.08 cfs 0.120 af
n=0.150 L=165.0' S=0.0545 '/' Capacity=5.68 cfs Outflow=1.06 cfs 0.120 af

Reach RD1: RD 1 Avg. Flow Depth=0.32' Max Vel=6.93 fps Inflow=1.14 cfs 0.096 af
8.0" Round Pipe n=0.013 L=264.0' S=0.0417 '/' Capacity=2.47 cfs Outflow=1.14 cfs 0.096 af

Reach RD2: RD 2 Avg. Flow Depth=0.30' Max Vel=7.35 fps Inflow=1.14 cfs 0.096 af
8.0" Round Pipe n=0.013 L=110.0' S=0.0491 '/' Capacity=2.68 cfs Outflow=1.14 cfs 0.096 af

Reach RD3: RD 3 Avg. Flow Depth=0.40' Max Vel=5.24 fps Inflow=1.14 cfs 0.096 af
8.0" Round Pipe n=0.013 L=100.0' S=0.0200 '/' Capacity=1.71 cfs Outflow=1.14 cfs 0.096 af

Pond 1P: Infiltration Pocket Peak Elev=198.81' Storage=619 cf Inflow=3.42 cfs 1.068 af
Discarded=0.10 cfs 0.105 af Primary=3.30 cfs 0.949 af Outflow=3.40 cfs 1.054 af

Pond 2P: Stormwater Pond Peak Elev=201.76' Storage=28,992 cf Inflow=10.55 cfs 1.036 af
Primary=2.84 cfs 0.903 af Secondary=0.00 cfs 0.000 af Outflow=2.84 cfs 0.903 af

Pond 3P: Stormfilter Peak Elev=198.89' Storage=84 cf Inflow=1.35 cfs 0.143 af
Primary=1.35 cfs 0.141 af Secondary=0.00 cfs 0.000 af Outflow=1.35 cfs 0.141 af

Pond 5P: StormTech Peak Elev=263.95' Storage=1.227 af Inflow=22.68 cfs 1.932 af
Outflow=2.35 cfs 1.183 af

Pond 6P: Focal Point Peak Elev=256.77' Storage=864 cf Inflow=2.41 cfs 1.219 af
Outflow=2.18 cfs 1.218 af

Pond 9P: 18" HDPE Peak Elev=202.26' Storage=158 cf Inflow=3.54 cfs 0.353 af
Primary=3.54 cfs 0.353 af Secondary=0.00 cfs 0.000 af Outflow=3.54 cfs 0.353 af

Pond 10P: Bioretention Peak Elev=201.49' Storage=6,174 cf Inflow=7.90 cfs 0.798 af
Discarded=2.82 cfs 0.688 af Primary=2.06 cfs 0.107 af Secondary=0.00 cfs 0.000 af Outflow=4.87 cfs 0.795 af

Pond 11P: EcoRaster Peak Elev=197.91' Storage=2,097 cf Inflow=2.60 cfs 0.210 af
Discarded=1.10 cfs 0.210 af Primary=0.00 cfs 0.000 af Outflow=1.10 cfs 0.210 af

Pond 12P: Dry Well Peak Elev=199.41' Storage=359 cf Inflow=1.18 cfs 0.111 af
Discarded=0.01 cfs 0.010 af Primary=1.34 cfs 0.093 af Outflow=1.35 cfs 0.102 af

Pond CB1: Catch Basin 1 Peak Elev=204.73' Inflow=0.41 cfs 0.031 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.41 cfs 0.031 af

Pond CB10: Catch Basin 10 Peak Elev=252.73' Inflow=0.87 cfs 0.072 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.87 cfs 0.072 af

Pond CB11: Catch Basin 11 Peak Elev=208.98' Inflow=2.77 cfs 0.354 af
15.0" Round Culvert n=0.013 L=57.0' S=0.1316 '/' Outflow=2.77 cfs 0.354 af

Pond CB12: Catch Basin 12 Peak Elev=263.22' Storage=11 cf Inflow=5.36 cfs 0.648 af
Primary=5.36 cfs 0.648 af Secondary=0.00 cfs 0.000 af Outflow=5.36 cfs 0.648 af

Pond CB13: Catch Basin 13 Peak Elev=272.76' Inflow=1.78 cfs 0.149 af
18.0" Round Culvert n=0.013 L=73.0' S=0.0110 '/' Outflow=1.78 cfs 0.149 af

Pond CB14: Catch Basin 14 Peak Elev=272.70' Inflow=5.71 cfs 0.490 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0059 '/' Outflow=5.71 cfs 0.490 af

Pond CB15: Catch Basin 15 Peak Elev=271.97' Inflow=8.07 cfs 0.685 af
18.0" Round Culvert n=0.013 L=156.0' S=0.0051 '/' Outflow=8.07 cfs 0.685 af

Pond CB16: Catch Basin 16 Peak Elev=270.43' Inflow=11.58 cfs 0.967 af
24.0" Round Culvert n=0.013 L=124.0' S=0.0048 '/' Outflow=11.58 cfs 0.967 af

Pond CB17: Catch Basin 17 Peak Elev=269.50' Inflow=14.54 cfs 1.281 af
24.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/' Outflow=14.54 cfs 1.281 af

Pond CB18: Catch Basin 18 Peak Elev=268.01' Inflow=17.78 cfs 1.537 af
24.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=17.78 cfs 1.537 af

Pond CB19: Catch Basin 19 Peak Elev=266.13' Inflow=4.92 cfs 0.395 af
24.0" Round Culvert n=0.013 L=151.0' S=0.0053 '/' Outflow=4.92 cfs 0.395 af

Pond CB2: Catch Basin 2 Peak Elev=204.72' Inflow=3.28 cfs 0.454 af
15.0" Round Culvert n=0.013 L=84.0' S=0.0048 '/' Outflow=3.28 cfs 0.454 af

Pond CB20: Catch Basin 20 Peak Elev=266.19' Inflow=2.87 cfs 0.229 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0057 '/' Outflow=2.87 cfs 0.229 af

Pond CB3: Catch Basin 3 Peak Elev=210.59' Inflow=6.21 cfs 0.470 af
15.0" Round Culvert n=0.013 L=65.0' S=0.1262 '/' Outflow=6.21 cfs 0.470 af

Pond CB4: Catch Basin 4 Peak Elev=210.63' Inflow=0.81 cfs 0.059 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.81 cfs 0.059 af

Pond CB5: Catch Basin 5 Peak Elev=225.82' Inflow=4.42 cfs 0.340 af
15.0" Round Culvert n=0.013 L=82.0' S=0.0817 '/' Outflow=4.42 cfs 0.340 af

Pond CB6: Catch Basin 6 Peak Elev=225.85' Inflow=0.81 cfs 0.058 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.81 cfs 0.058 af

Pond CB7: Catch Basin 7 Peak Elev=239.66' Inflow=0.84 cfs 0.061 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.84 cfs 0.061 af

Pond CB8: Catch Basin 8 Peak Elev=239.57' Inflow=2.88 cfs 0.229 af
15.0" Round Culvert n=0.013 L=63.0' S=0.0889 '/' Outflow=2.88 cfs 0.229 af

Pond CB9: Catch Basin 9 Peak Elev=252.57' Inflow=1.49 cfs 0.126 af
15.0" Round Culvert n=0.013 L=163.0' S=0.0804 '/' Outflow=1.49 cfs 0.126 af

Pond DMH 3: Drain Manhole 3 Peak Elev=234.01' Inflow=2.88 cfs 0.229 af
15.0" Round Culvert n=0.013 L=104.0' S=0.0827 '/' Outflow=2.88 cfs 0.229 af

Pond DMH 4: Drain Manhole 4 Peak Elev=265.97' Inflow=4.92 cfs 0.395 af
24.0" Round Culvert n=0.013 L=9.0' S=0.0111 '/' Outflow=4.92 cfs 0.395 af

Pond DMH 5: Drain Manhole 5 Peak Elev=265.80' Inflow=22.68 cfs 1.932 af
24.0" Round Culvert n=0.013 L=14.0' S=0.0143 '/' Outflow=22.68 cfs 1.932 af

Pond DMH1: Drain Manhole 1 Peak Elev=204.33' Inflow=9.07 cfs 0.924 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0067 '/' Outflow=9.07 cfs 0.924 af

Pond DMH2: Drain Manhole 2 Peak Elev=219.02' Inflow=4.42 cfs 0.340 af
15.0" Round Culvert n=0.013 L=84.0' S=0.1095 '/' Outflow=4.42 cfs 0.340 af

Total Runoff Area = 32.913 ac Runoff Volume = 8.109 af Average Runoff Depth = 2.96"
84.71% Pervious = 27.881 ac 15.29% Impervious = 5.031 ac

Summary for Subcatchment 1S: SUBCATCHMENT 1S

Runoff = 9.58 cfs @ 12.51 hrs, Volume= 1.321 af, Depth> 2.47"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
246,176	55	Woods, Good, HSG B
798	61	>75% Grass cover, Good, HSG B
279,376	59	Weighted Average
257,927		92.32% Pervious Area
21,449		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Subcatchment 10S: SUBCATCHMENT 10S

Runoff = 0.29 cfs @ 12.14 hrs, Volume= 0.024 af, Depth> 3.18"
Routed to Pond 1P : Infiltration Pocket

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
756	98	Paved parking, HSG B
1,961	61	>75% Grass cover, Good, HSG B
1,200	55	Woods, Good, HSG B
3,917	66	Weighted Average
3,161		80.70% Pervious Area
756		19.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	38	0.2630	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.0	33	0.0910	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	8	0.0400	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.6	79	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 1.48 cfs @ 12.11 hrs, Volume= 0.112 af, Depth> 2.68"
Routed to Pond 2P : Stormwater Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
21,833	61	>75% Grass cover, Good, HSG B
21,833		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	50	0.5000	0.52		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
5.0	50	0.0290	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	37	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	137	Total			

Summary for Subcatchment 12S: Subcatchment 12S

Runoff = 1.35 cfs @ 12.28 hrs, Volume= 0.143 af, Depth> 3.28"
Routed to Pond 3P : Stormfilter

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
5,448	98	Paved parking, HSG B
10,621	55	Woods, Good, HSG B
6,698	61	>75% Grass cover, Good, HSG B
22,767	67	Weighted Average
17,319		76.07% Pervious Area
5,448		23.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	66	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	34	0.2350	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.7	101	0.2180	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	88	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	157	0.1910	2.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	196	0.1730	2.08		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.9	642	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 7.42 cfs @ 12.38 hrs, Volume= 0.909 af, Depth> 2.29"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
1,115	98	Roofs, HSG B
27,727	61	>75% Grass cover, Good, HSG B
166,599	55	Woods, Good, HSG B
12,422	70	Woods, Good, HSG C
207,863	57	Weighted Average
206,748		99.46% Pervious Area
1,115		0.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	10	0.5000	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
19.6	90	0.0220	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	78	0.0256	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	62	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	71	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.2	341	Total			

Summary for Subcatchment 21S: SUBCATCHMENT 21S

Runoff = 5.36 cfs @ 12.37 hrs, Volume= 0.648 af, Depth> 2.19"
Routed to Pond CB12 : Catch Basin 12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
9,648	61	>75% Grass cover, Good, HSG B
819	98	Roofs, HSG B
138,282	55	Woods, Good, HSG B
5,904	70	Woods, Good, HSG C
154,653	56	Weighted Average
153,834		99.47% Pervious Area
819		0.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	53	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.0	358	Total			

Summary for Subcatchment 22S: SUBCATCHMENT 22S

Runoff = 4.36 cfs @ 12.25 hrs, Volume= 0.446 af, Depth> 2.78"
Routed to Pond 10P : Bioretention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
7,612	98	Paved parking, HSG B
39,991	61	>75% Grass cover, Good, HSG B
36,336	55	Woods, Good, HSG B
83,939	62	Weighted Average
76,327		90.93% Pervious Area
7,612		9.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	37	0.1620	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	43	0.3720	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.1	20	0.0310	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.8	44	0.0310	0.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	51	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	83	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	70	0.0229	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.4	348	Total			

Summary for Subcatchment 23S: SUBCATCHMENT 23S

Runoff = 1.57 cfs @ 12.09 hrs, Volume= 0.118 af, Depth> 5.23"
Routed to Pond 11P : EcoRaster

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
6,467	98	Paved parking, HSG B
1,122	98	Roofs, HSG B
4,166	61	>75% Grass cover, Good, HSG B
11,755	85	Weighted Average
4,166		35.44% Pervious Area
7,589		64.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	39	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
4.7	39	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 24S: SUBCATCHMENT 24S

Runoff = 1.18 cfs @ 12.19 hrs, Volume= 0.111 af, Depth> 2.39"
Routed to Pond 12P : Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
15,170	55	Woods, Good, HSG B
8,831	61	>75% Grass cover, Good, HSG B
221	98	Roofs, HSG B
24,222	58	Weighted Average
24,001		99.09% Pervious Area
221		0.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	70	0.1190	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.3	30	0.2110	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	8	0.2110	2.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	35	0.0570	1.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	61	0.0197	0.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	204	Total			

Summary for Subcatchment 25S: SUBCATCHMENT 25S

Runoff = 3.54 cfs @ 12.24 hrs, Volume= 0.353 af, Depth> 2.88"
Routed to Pond 9P : 18" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
23,000	55	Woods, Good, HSG B
33,757	61	>75% Grass cover, Good, HSG B
7,438	98	Paved parking, HSG B
64,195	63	Weighted Average
56,757		88.41% Pervious Area
7,438		11.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	30	0.0330	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.9	23	0.1740	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.0	25	0.4800	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.7	22	0.1820	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	46	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	222	0.0880	2.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.5	368	Total			

Summary for Subcatchment 30S: Subcatchment 30S

Runoff = 3.12 cfs @ 12.21 hrs, Volume= 0.308 af, Depth> 2.20"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
6,678	61	>75% Grass cover, Good, HSG B
66,484	55	Woods, Good, HSG B
73,162	56	Weighted Average
73,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	36	0.0830	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
6.9	64	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	16	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	40	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	67	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.3420	2.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	299	Total			

Summary for Subcatchment 31S: Subcatchment 31S

Runoff = 6.23 cfs @ 12.34 hrs, Volume= 0.725 af, Depth> 2.38"
Routed to Reach 4Ra : Flow Through Subcatchment 30S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
17,872	61	>75% Grass cover, Good, HSG B
115,366	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
159,045	58	Weighted Average
159,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	83	0.0540	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	17	0.3460	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	168	0.3460	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	16	0.1250	1.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	53	0.0090	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
22.7	593	Total			

Summary for Subcatchment 32S: SUBCATCHMENT 32S

Runoff = 0.45 cfs @ 12.12 hrs, Volume= 0.036 af, Depth> 2.68"
Routed to Pond 6P : Focal Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
6,935	61	>75% Grass cover, Good, HSG B
6,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.0	27	0.0310	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	12	0.3300	0.33		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
8.0	83	Total			

Summary for Subcatchment 101S: SUBCATCHMENT 101S

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.031 af, Depth> 5.23"
Routed to Pond CB1 : Catch Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
1,949	98	Paved parking, HSG B
1,113	61	>75% Grass cover, Good, HSG B
3,062	85	Weighted Average
1,113		36.35% Pervious Area
1,949		63.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	12	0.5000	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.2	14	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	74	0.0800	2.19		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	49	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	149	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 102S: SUBCATCHMENT 102S

Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 3.49"
Routed to Pond CB2 : Catch Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
8,309	61	>75% Grass cover, Good, HSG B
10,426	69	Weighted Average
8,309		79.69% Pervious Area
2,117		20.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	41	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.5	19	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	102	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.5	202	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 103S: SUBCATCHMENT 103S

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.071 af, Depth> 3.49"
Routed to Pond CB3 : Catch Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
2,166	98	Paved parking, HSG B
8,449	61	>75% Grass cover, Good, HSG B
10,615	69	Weighted Average
8,449		79.59% Pervious Area
2,166		20.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	39	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.7	21	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	110	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.6	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 104S: SUBCATCHMENT 104S

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.059 af, Depth> 3.60"
Routed to Pond CB4 : Catch Basin 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
2,094	98	Paved parking, HSG B
6,469	61	>75% Grass cover, Good, HSG B
8,563	70	Weighted Average
6,469		75.55% Pervious Area
2,094		24.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.8	23	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	37	0.0800	1.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	92	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	192	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 105S: SUBCATCHMENT 105S

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.053 af, Depth> 3.60"
Routed to Pond CB5 : Catch Basin 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
1,895	98	Paved parking, HSG B
5,790	61	>75% Grass cover, Good, HSG B
7,685	70	Weighted Average
5,790		75.34% Pervious Area
1,895		24.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.1	28	0.0800	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	32	0.0800	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	98	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	198	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 106S: SUBCATCHMENT 106S

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.058 af, Depth> 3.60"
Routed to Pond CB6 : Catch Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
6,363	61	>75% Grass cover, Good, HSG B
8,480	70	Weighted Average
6,363		75.04% Pervious Area
2,117		24.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	25	0.5000	0.45		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.0	11	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	64	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	50	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	150	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 107S: SUBCATCHMENT 107S

Runoff = 0.84 cfs @ 12.09 hrs, Volume= 0.061 af, Depth> 3.49"
Routed to Pond CB7 : Catch Basin 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
2,034	98	Paved parking, HSG B
7,124	61	>75% Grass cover, Good, HSG B
9,158	69	Weighted Average
7,124		77.79% Pervious Area
2,034		22.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.4	17	0.0800	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	43	0.0800	1.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	100	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	200	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 108S: SUBCATCHMENT 108S

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 4.24"
Routed to Pond CB8 : Catch Basin 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
2,096	98	Paved parking, HSG B
3,013	61	>75% Grass cover, Good, HSG B
5,109	76	Weighted Average
3,013		58.97% Pervious Area
2,096		41.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	15	0.5000	0.41		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.6	20	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	65	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.0	8	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.7	108	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 109S: SUBCATCHMENT 109S

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 0.054 af, Depth> 6.15"
Routed to Pond CB9 : Catch Basin 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
3,914	98	Paved parking, HSG B
677	61	>75% Grass cover, Good, HSG B
4,591	93	Weighted Average
677		14.75% Pervious Area
3,914		85.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	35	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	65	0.0380	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	47	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	35	0.0570	4.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	140	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.8	322	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 110S: SUBCATCHMENT 110S

Runoff = 0.87 cfs @ 12.15 hrs, Volume= 0.072 af, Depth> 4.23"
Routed to Pond CB10 : Catch Basin 10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
4,036	98	Paved parking, HSG B
3,001	61	>75% Grass cover, Good, HSG B
1,917	55	Woods, Good, HSG B
8,954	76	Weighted Average
4,918		54.93% Pervious Area
4,036		45.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	40	0.1500	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.3	60	0.2500	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	15	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	23	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	14	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	41	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.4	193	Total			

Summary for Subcatchment 111S: SUBCATCHMENT 111S

Runoff = 0.70 cfs @ 12.10 hrs, Volume= 0.052 af, Depth> 2.68"
Routed to Reach B4R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
10,066	61	>75% Grass cover, Good, HSG B
10,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	37	0.5000	0.49		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.3	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 113S: SUBCATCHMENT 113S

Runoff = 0.64 cfs @ 12.09 hrs, Volume= 0.054 af, Depth> 6.74"
Routed to Pond CB13 : Catch Basin 13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
4,154	98	Paved parking, HSG B
4,154		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0330	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	44	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	144	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 114S: SUBCATCHMENT 114S

Runoff = 2.87 cfs @ 12.12 hrs, Volume= 0.246 af, Depth> 6.03"
Routed to Pond CB14 : Catch Basin 14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
3,467	98	Roofs, HSG B
3,413	61	>75% Grass cover, Good, HSG B
14,417	98	Paved parking, HSG B
21,297	92	Weighted Average
3,413		16.03% Pervious Area
17,884		83.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	25	0.0360	1.28		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	133	0.0360	3.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	18	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.0	251	Total			

Summary for Subcatchment 115S: SUBCATCHMENT 115S

Runoff = 2.39 cfs @ 12.09 hrs, Volume= 0.195 af, Depth> 6.50"
Routed to Pond CB15 : Catch Basin 15

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
3,294	98	Roofs, HSG B
11,537	98	Paved parking, HSG B
852	61	>75% Grass cover, Good, HSG B
15,683	96	Weighted Average
852		5.43% Pervious Area
14,831		94.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.1	10	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	50	0.0500	1.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	164	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	264	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 116S: SUBCATCHMENT 116S

Runoff = 3.53 cfs @ 12.09 hrs, Volume= 0.282 af, Depth> 6.26"
Routed to Pond CB16 : Catch Basin 16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
3,185	98	Roofs, HSG B
17,824	98	Paved parking, HSG B
2,496	61	>75% Grass cover, Good, HSG B
23,505	94	Weighted Average
2,496		10.62% Pervious Area
21,009		89.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	22	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	16	0.0200	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.0	38	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 117S: SUBCATCHMENT 117S

Runoff = 2.32 cfs @ 12.19 hrs, Volume= 0.218 af, Depth> 5.11"
Routed to Pond CB17 : Catch Basin 17

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
323	98	Roofs, HSG B
13,448	98	Paved parking, HSG B
8,556	61	>75% Grass cover, Good, HSG B
22,327	84	Weighted Average
8,556		38.32% Pervious Area
13,771		61.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	62	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0100	0.56		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.1	25	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.2	8	0.0110	0.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	72	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.1	172	Total			

Summary for Subcatchment 118S: SUBCATCHMENT 118S

Runoff = 3.27 cfs @ 12.09 hrs, Volume= 0.256 af, Depth> 6.03"
Routed to Pond CB18 : Catch Basin 18

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
4,495	98	Roofs, HSG B
14,282	98	Paved parking, HSG B
3,394	61	>75% Grass cover, Good, HSG B
22,171	92	Weighted Average
3,394		15.31% Pervious Area
18,777		84.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	60	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	40	0.0500	1.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	20	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.1	120	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 119S: SUBCATCHMENT 119S

Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.166 af, Depth> 6.38"
Routed to Pond CB19 : Catch Basin 19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
3,314	98	Roofs, HSG B
9,272	98	Paved parking, HSG B
1,015	61	>75% Grass cover, Good, HSG B
13,601	95	Weighted Average
1,015		7.46% Pervious Area
12,586		92.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.8	14	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	46	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.7	118	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.0	218	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 120S: SUBCATCHMENT 120S

Runoff = 2.87 cfs @ 12.09 hrs, Volume= 0.229 af, Depth> 6.26"
Routed to Pond CB20 : Catch Basin 20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
2,604	98	Roofs, HSG B
14,430	98	Paved parking, HSG B
2,079	61	>75% Grass cover, Good, HSG B
19,113	94	Weighted Average
2,079		10.88% Pervious Area
17,034		89.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	42	0.0570	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0200	0.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.8	53	0.0200	1.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	24	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	124	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: SUBCATCHMENT 204S

Runoff = 0.72 cfs @ 12.35 hrs, Volume= 0.085 af, Depth> 2.29"
Routed to Reach B3R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
13,879	55	Woods, Good, HSG B
5,563	61	>75% Grass cover, Good, HSG B
19,442	57	Weighted Average
19,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	100	0.0227	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0292	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	77	0.2340	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	72	0.1390	1.86		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	32	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.2	379	Total			

Summary for Subcatchment 205S: SUBCATCHMENT 205S

Runoff = 0.32 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 2.68"
Routed to Reach B2R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
4,339	61	>75% Grass cover, Good, HSG B
288	55	Woods, Good, HSG B
4,627	61	Weighted Average
4,627		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	22	0.5000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	70	0.5000	0.56		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.9	92	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: SUBCATCHMENT 207S

Runoff = 0.59 cfs @ 12.34 hrs, Volume= 0.068 af, Depth> 2.38"
Routed to Reach B1R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
6,840	61	>75% Grass cover, Good, HSG B
8,162	55	Woods, Good, HSG B
15,002	58	Weighted Average
15,002		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	56	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	66	0.0610	1.23		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	57	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	329	Total			

Summary for Subcatchment 211S: SUBCATCHMENT 211S

Runoff = 1.08 cfs @ 12.29 hrs, Volume= 0.120 af, Depth> 2.19"
Routed to Reach B6R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
6,380	61	>75% Grass cover, Good, HSG B
22,212	55	Woods, Good, HSG B
28,592	56	Weighted Average
28,592		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	83	0.0361	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	17	0.2140	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	11	0.2140	2.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1820	2.13		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	45	0.1780	2.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	34	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	45	0.0440	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	28	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.3	328	Total			

Summary for Subcatchment 305S: SUBCATCHMENT 305S

Runoff = 0.08 cfs @ 12.10 hrs, Volume= 0.006 af, Depth> 2.11"
Routed to Reach B5R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
86	61	>75% Grass cover, Good, HSG B
1,455	55	Woods, Good, HSG B
1,541	55	Weighted Average
1,541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	6	0.2000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.2	46	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment ROOF 1: Back of Roof

Runoff = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af, Depth> 6.74"
Routed to Reach RD1 : RD 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 2: Back of Roof

Runoff = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af, Depth> 6.74"
Routed to Reach RD2 : RD 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 3: Back of Roof

Runoff = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af, Depth> 6.74"
Routed to Reach RD3 : RD 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year 24-Hour Rainfall=6.98"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach 4Ra: Flow Through Subcatchment 30S

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 2.38" for 50-Year 24-Hour event
Inflow = 6.23 cfs @ 12.34 hrs, Volume= 0.725 af
Outflow = 6.23 cfs @ 12.35 hrs, Volume= 0.724 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 4Rb : Flow Through Subcatchment 30S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.85 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 1.8 min

Peak Storage= 291 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.69' , Surface Width= 15.85'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

‡

Summary for Reach 4Rb: Flow Through Subcatchment 30S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.35' @ 12.35 hrs

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 2.38" for 50-Year 24-Hour event
Inflow = 6.23 cfs @ 12.35 hrs, Volume= 0.724 af
Outflow = 6.21 cfs @ 12.37 hrs, Volume= 0.723 af, Atten= 0%, Lag= 1.1 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.74 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 3.7 min

Peak Storage= 594 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 36.21'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11.107 ac, 10.76% Impervious, Inflow Depth > 2.45" for 50-Year 24-Hour event
Inflow = 12.55 cfs @ 12.49 hrs, Volume= 2.269 af
Outflow = 12.55 cfs @ 12.49 hrs, Volume= 2.269 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 12.549 ac, 4.54% Impervious, Inflow Depth > 1.59" for 50-Year 24-Hour event
Inflow = 14.70 cfs @ 12.38 hrs, Volume= 1.664 af
Outflow = 14.70 cfs @ 12.38 hrs, Volume= 1.664 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.257 ac, 35.29% Impervious, Inflow Depth > 2.92" for 50-Year 24-Hour event
Inflow = 10.11 cfs @ 12.33 hrs, Volume= 2.249 af
Outflow = 10.11 cfs @ 12.33 hrs, Volume= 2.249 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach B1R: BENCH

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth > 2.38" for 50-Year 24-Hour event
Inflow = 0.59 cfs @ 12.34 hrs, Volume= 0.068 af
Outflow = 0.58 cfs @ 12.39 hrs, Volume= 0.068 af, Atten= 2%, Lag= 2.6 min
Routed to Reach B2R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB7 : Catch Basin 7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.93 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 6.2 min

Peak Storage= 107 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.39' , Surface Width= 3.15'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 6.92 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 173.0' Slope= 0.0809 '/'
Inlet Invert= 278.00', Outlet Invert= 264.00'

‡

Summary for Reach B2R: BENCH

[62] Hint: Exceeded Reach B1R OUTLET depth by 0.07' @ 12.10 hrs

Inflow Area = 0.451 ac, 0.00% Impervious, Inflow Depth > 2.45" for 50-Year 24-Hour event
Inflow = 0.71 cfs @ 12.36 hrs, Volume= 0.092 af
Outflow = 0.71 cfs @ 12.38 hrs, Volume= 0.092 af, Atten= 0%, Lag= 1.3 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.13 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 3.4 min

Peak Storage= 72 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.39' , Surface Width= 3.15'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.45 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 116.0' Slope= 0.1207 '/'
Inlet Invert= 264.00', Outlet Invert= 250.00'

‡

Summary for Reach B3R: BENCH

[62] Hint: Exceeded Reach B2R OUTLET depth by 0.13' @ 12.35 hrs

Inflow Area = 0.932 ac, 0.00% Impervious, Inflow Depth > 2.36" for 50-Year 24-Hour event
Inflow = 1.46 cfs @ 12.36 hrs, Volume= 0.183 af
Outflow = 1.46 cfs @ 12.38 hrs, Volume= 0.183 af, Atten= 0%, Lag= 1.0 min
Routed to Reach B4R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB4 : Catch Basin 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.34 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.67 fps, Avg. Travel Time= 2.5 min

Peak Storage= 112 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.52' , Surface Width= 4.16'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.30 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 103.0' Slope= 0.1165 '/'
Inlet Invert= 250.00', Outlet Invert= 238.00'

‡

Summary for Reach B4R: BENCH

[62] Hint: Exceeded Reach B3R OUTLET depth by 0.24' @ 12.40 hrs

Inflow Area = 1.820 ac, 0.00% Impervious, Inflow Depth > 2.34" for 50-Year 24-Hour event
Inflow = 2.81 cfs @ 12.34 hrs, Volume= 0.354 af
Outflow = 2.77 cfs @ 12.38 hrs, Volume= 0.354 af, Atten= 1%, Lag= 2.5 min
Routed to Pond CB11 : Catch Basin 11
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.20 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 6.4 min

Peak Storage= 536 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.76' , Surface Width= 6.08'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.76 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 232.0' Slope= 0.0560 '/'
Inlet Invert= 238.00', Outlet Invert= 225.00'

‡

Summary for Reach B5R: BENCH

Inflow Area = 0.035 ac, 0.00% Impervious, Inflow Depth > 2.11" for 50-Year 24-Hour event
Inflow = 0.08 cfs @ 12.10 hrs, Volume= 0.006 af
Outflow = 0.08 cfs @ 12.11 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.3 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach B2R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.57 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 0.8 min

Peak Storage= 2 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.19' , Surface Width= 1.50'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 7.02 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 12.0' Slope= 0.0833 '/'
Inlet Invert= 274.00', Outlet Invert= 273.00'

‡

Summary for Reach B6R: BENCH

Inflow Area = 0.656 ac, 0.00% Impervious, Inflow Depth > 2.19" for 50-Year 24-Hour event
Inflow = 1.08 cfs @ 12.29 hrs, Volume= 0.120 af
Outflow = 1.06 cfs @ 12.33 hrs, Volume= 0.120 af, Atten= 2%, Lag= 2.5 min
Routed to Reach B4R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.93 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 5.9 min

Peak Storage= 187 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.53' , Surface Width= 4.26'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.68 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 165.0' Slope= 0.0545 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

‡

Summary for Reach RD1: RD 1

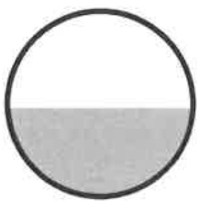
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 6.74" for 50-Year 24-Hour event
Inflow = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af
Outflow = 1.14 cfs @ 12.10 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.5 min
Routed to Pond CB13 : Catch Basin 13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 6.93 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.38 fps, Avg. Travel Time= 1.8 min

Peak Storage= 43 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.47 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 264.0' Slope= 0.0417 '/'
Inlet Invert= 276.00', Outlet Invert= 265.00'



Summary for Reach RD2: RD 2

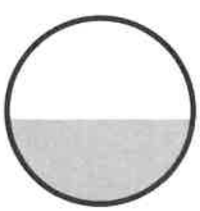
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 6.74" for 50-Year 24-Hour event
Inflow = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af
Outflow = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.2 min
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 7.35 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 0.7 min

Peak Storage= 17 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.30' , Surface Width= 0.66'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.68 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 110.0' Slope= 0.0491 '/'
Inlet Invert= 269.00', Outlet Invert= 263.60'



Summary for Reach RD3: RD 3

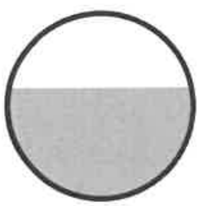
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 6.74" for 50-Year 24-Hour event
Inflow = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af
Outflow = 1.14 cfs @ 12.09 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.3 min
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 5.24 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.84 fps, Avg. Travel Time= 0.9 min

Peak Storage= 22 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 0.65'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.71 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 100.0' Slope= 0.0200 '/'
Inlet Invert= 268.00', Outlet Invert= 266.00'



Summary for Pond 1P: Infiltration Pocket

[80] Warning: Exceeded Pond 3P by 1.04' @ 9.65 hrs (0.00 cfs 0.000 af)

Inflow Area = 4.693 ac, 14.98% Impervious, Inflow Depth > 2.73" for 50-Year 24-Hour event
Inflow = 3.42 cfs @ 12.71 hrs, Volume= 1.068 af
Outflow = 3.40 cfs @ 12.73 hrs, Volume= 1.054 af, Atten= 1%, Lag= 1.6 min
Discarded = 0.10 cfs @ 11.95 hrs, Volume= 0.105 af
Primary = 3.30 cfs @ 12.73 hrs, Volume= 0.949 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 198.81' @ 11.95 hrs Surf.Area= 393 sf Storage= 619 cf

Plug-Flow detention time= 11.2 min calculated for 1.051 af (98% of inflow)
Center-of-Mass det. time= 4.4 min (924.4 - 920.0)

Volume	Invert	Avail.Storage	Storage Description
#1	195.84'	619 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.84	43	0.0	0	0
195.85	43	40.0	0	0
195.99	43	40.0	2	3
196.00	43	100.0	0	3
197.00	197	100.0	120	123
198.00	263	100.0	230	353
198.80	393	100.0	262	615
198.81	393	100.0	4	619

Device	Routing	Invert	Outlet Devices
#0	Primary	198.81'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	195.84'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	198.80'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.10 cfs @ 11.95 hrs HW=198.81' (Free Discharge)
└─**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.05 cfs @ 12.73 hrs HW=198.81' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir**(Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Stormwater Pond

Inflow Area = 4.080 ac, 13.74% Impervious, Inflow Depth > 3.05" for 50-Year 24-Hour event
Inflow = 10.55 cfs @ 12.11 hrs, Volume= 1.036 af
Outflow = 2.84 cfs @ 12.74 hrs, Volume= 0.903 af, Atten= 73%, Lag= 38.1 min
Primary = 2.84 cfs @ 12.74 hrs, Volume= 0.903 af
Routed to Pond 1P : Infiltration Pocket
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : Infiltration Pocket

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Starting Elev= 199.00' Surf.Area= 4,795 sf Storage= 10,800 cf
Peak Elev= 201.76' @ 12.74 hrs Surf.Area= 8,094 sf Storage= 28,992 cf (18,193 cf above start)

Plug-Flow detention time= 264.9 min calculated for 0.655 af (63% of inflow)
Center-of-Mass det. time= 90.4 min (933.0 - 842.6)

Volume	Invert	Avail.Storage	Storage Description
#1	196.00'	37,985 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
196.00	2,494	0	0
197.00	3,194	2,844	2,844
198.00	3,961	3,578	6,422
199.00	4,795	4,378	10,800
199.49	5,237	2,458	13,257
199.50	5,818	55	13,313
200.00	6,296	3,029	16,341
201.00	7,292	6,794	23,135
202.00	8,346	7,819	30,954
202.80	9,005	6,940	37,895
202.81	9,005	90	37,985

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	**12.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 199.00' / 198.80' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	199.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	199.85'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	201.70'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	201.80'	**6.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=2.83 cfs @ 12.74 hrs HW=201.76' TW=198.81' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.83 cfs of 4.49 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 7.88 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 1.87 cfs @ 6.09 fps)
  └─**4=Orifice/Grate** (Weir Controls 0.79 cfs @ 0.81 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=199.00' TW=195.84' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 3P: Stormfilter

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.523 ac, 23.93% Impervious, Inflow Depth > 3.28" for 50-Year 24-Hour event
Inflow = 1.35 cfs @ 12.28 hrs, Volume= 0.143 af
Outflow = 1.35 cfs @ 12.30 hrs, Volume= 0.141 af, Atten= 0%, Lag= 0.8 min
Primary = 1.35 cfs @ 12.30 hrs, Volume= 0.141 af
  Routed to Pond 1P : Infiltration Pocket
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 198.89' @ 12.30 hrs Surf.Area= 260 sf Storage= 84 cf

Plug-Flow detention time= 7.8 min calculated for 0.141 af (99% of inflow)
Center-of-Mass det. time= 1.8 min (849.8 - 848.0)

Volume	Invert	Avail.Storage	Storage Description
#1	195.00'	7 cf	**1.00'W x 2.00'L x 3.40'H Prismatoid**
#2	191.75'	13 cf	**1.00'W x 2.00'L x 6.65'H Prismatoid**
#3	198.40'	97 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		117 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.40	4	0	0
199.00	310	94	94
199.01	310	3	97

Device	Routing	Invert	Outlet Devices
#1	Primary	196.10'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 196.10' / 196.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	199.00'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.35 cfs @ 12.30 hrs HW=198.89' TW=198.81' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.35 cfs @ 1.10 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=191.75' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 5P: StormTech

Inflow Area =	3.767 ac, 86.71% Impervious,	Inflow Depth > 6.15"	for 50-Year 24-Hour event	
Inflow =	22.68 cfs @	12.10 hrs, Volume=	1.932 af	
Outflow =	2.35 cfs @	12.93 hrs, Volume=	1.183 af,	Atten= 90%, Lag= 50.1 min
Primary =	2.35 cfs @	12.93 hrs, Volume=	1.183 af	

Routed to Pond 6P : Focal Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 263.95' @ 12.93 hrs Surf.Area= 0.393 ac Storage= 1.227 af

Plug-Flow detention time= 339.2 min calculated for 1.180 af (61% of inflow)
Center-of-Mass det. time= 235.2 min (1,001.3 - 766.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	259.25'	0.540 af	**58.58'W x 292.50'L x 5.50'H Field A** 2.164 af Overall - 0.813 af Embedded = 1.350 af x 40.0% Voids
#2A	260.00'	0.813 af	**ADS_StormTech MC-3500 d +Cap**x 320 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 320 Chambers in 8 Rows Cap Storage= 14.9 cf x 2 x 8 rows = 238.4 cf
		1.353 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	259.25'	**15.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 259.25' / 258.20' S= 0.0328 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	259.25'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	261.50'	**6.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	263.70'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.35 cfs @ 12.93 hrs HW=263.95' TW=256.51' (Dynamic Tailwater)
1=**Culvert** (Passes 2.35 cfs of 9.41 cfs potential flow)
2=**Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.39 fps)
3=**Orifice/Grate** (Orifice Controls 1.64 cfs @ 7.10 fps)
4=**Orifice/Grate** (Orifice Controls 0.65 cfs @ 1.59 fps)

Summary for Pond 6P: Focal Point

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=15)

Inflow Area = 3.926 ac, 83.20% Impervious, Inflow Depth > 3.72" for 50-Year 24-Hour event
Inflow = 2.41 cfs @ 12.92 hrs, Volume= 1.219 af
Outflow = 2.18 cfs @ 13.31 hrs, Volume= 1.218 af, Atten= 10%, Lag= 23.2 min
Primary = 2.18 cfs @ 13.31 hrs, Volume= 1.218 af
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 256.77' @ 13.31 hrs Surf.Area= 1,519 sf Storage= 864 cf

Plug-Flow detention time= 2.4 min calculated for 1.218 af (100% of inflow)
Center-of-Mass det. time= 2.4 min (999.3 - 996.9)

Volume	Invert	Avail.Storage	Storage Description
#1	253.75'	279 cf	**20.00'W x 31.00'L x 2.25'H Focal Point** 1,395 cf Overall x 20.0% Voids
#2	256.00'	1,965 cf	**Surface Bowl (Prismatic)**Listed below (Recalc)
		2,244 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	620	0	0
258.00	1,345	1,965	1,965

Device	Routing	Invert	Outlet Devices
#1	Primary	252.75'	**15.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 252.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 3	253.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#3	Device 1	253.25'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	257.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.18 cfs @ 13.31 hrs HW=256.77' TW=0.00' (Dynamic Tailwater)
└─1=**Culvert** (Passes 2.18 cfs of 8.59 cfs potential flow)
  ├─3=**Orifice/Grate** (Orifice Controls 2.18 cfs @ 8.70 fps)
  │ └─2=**Exfiltration** (Passes 2.18 cfs of 3.52 cfs potential flow)
  └─4=**Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 9P: 18" HDPE

Inflow Area = 1.474 ac, 11.59% Impervious, Inflow Depth > 2.88" for 50-Year 24-Hour event
Inflow = 3.54 cfs @ 12.24 hrs, Volume= 0.353 af
Outflow = 3.54 cfs @ 12.25 hrs, Volume= 0.353 af, Atten= 0%, Lag= 0.7 min
Primary = 3.54 cfs @ 12.25 hrs, Volume= 0.353 af
Routed to Pond 10P : Bioretention
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 202.26' @ 12.25 hrs Surf.Area= 219 sf Storage= 158 cf

Plug-Flow detention time= 1.7 min calculated for 0.352 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (855.2 - 854.2)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	37	0	0
202.00	177	107	107
202.50	258	109	216
202.51	258	3	218

Device	Routing	Invert	Outlet Devices
#1	Primary	201.20'	**18.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500

			Inlet / Outlet Invert= 201.20' / 201.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	202.50'	**36.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=3.53 cfs @ 12.25 hrs HW=202.26' TW=201.04' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 3.53 cfs @ 3.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=201.00' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 10P: Bioretention

Inflow Area = 3.401 ac, 10.16% Impervious, Inflow Depth > 2.82" for 50-Year 24-Hour event
Inflow = 7.90 cfs @ 12.25 hrs, Volume= 0.798 af
Outflow = 4.87 cfs @ 12.51 hrs, Volume= 0.795 af, Atten= 38%, Lag= 15.6 min
Discarded = 2.82 cfs @ 12.51 hrs, Volume= 0.688 af
Primary = 2.06 cfs @ 12.51 hrs, Volume= 0.107 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 201.49' @ 12.51 hrs Surf.Area= 4,222 sf Storage= 6,174 cf

Plug-Flow detention time= 19.6 min calculated for 0.793 af (99% of inflow)
Center-of-Mass det. time= 17.1 min (873.4 - 856.3)

Volume	Invert	Avail.Storage	Storage Description
#1	197.49'	10,895 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
197.49	2,341	224.0	0.0	0	0	2,341
197.50	2,341	224.0	40.0	9	9	2,343
198.49	2,341	224.0	40.0	927	936	2,565
198.50	2,341	224.0	15.0	4	940	2,567
199.99	2,341	224.0	15.0	523	1,463	2,901
200.00	2,341	224.0	100.0	23	1,487	2,903
200.99	3,056	251.0	100.0	2,664	4,150	3,951
201.00	3,826	265.0	100.0	34	4,185	4,525
202.00	4,646	284.0	100.0	4,229	8,414	5,400
202.50	5,079	293.0	100.0	2,430	10,844	5,837
202.51	5,079	293.0	100.0	51	10,895	5,840

Device	Routing	Invert	Outlet Devices
#1	Primary	200.10'	**10.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.10' / 199.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	200.30'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	201.10'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	201.50'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Discarded	197.49'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 197.41' Phase-In= 0.10'

Discarded OutFlow Max=2.82 cfs @ 12.51 hrs HW=201.49' (Free Discharge)
└─**5=Exfiltration** (Controls 2.82 cfs)

Primary OutFlow Max=2.05 cfs @ 12.51 hrs HW=201.49' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.05 cfs @ 3.76 fps)
  ├─**2=Orifice/Grate** (Passes < 0.92 cfs potential flow)
  └─**3=Orifice/Grate** (Passes < 12.85 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=197.49' TW=195.07' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 11P: EcoRaster

Inflow Area = 0.826 ac, 21.71% Impervious, Inflow Depth > 3.05" for 50-Year 24-Hour event
Inflow = 2.60 cfs @ 12.14 hrs, Volume= 0.210 af
Outflow = 1.10 cfs @ 12.45 hrs, Volume= 0.210 af, Atten= 58%, Lag= 18.4 min
Discarded = 1.10 cfs @ 12.45 hrs, Volume= 0.210 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 197.91' @ 12.45 hrs Surf.Area= 3,707 sf Storage= 2,097 cf

Plug-Flow detention time= 25.5 min calculated for 0.210 af (100% of inflow)
Center-of-Mass det. time= 25.2 min (846.6 - 821.3)

Volume	Invert	Avail.Storage	Storage Description
#1	195.07'	2,256 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.07	3,707	0.0	0	0
195.08	3,707	30.0	11	11
196.08	3,707	30.0	1,112	1,123
196.09	3,707	15.0	6	1,129
196.33	3,707	15.0	133	1,262
196.34	3,707	5.0	2	1,264
197.33	3,707	5.0	183	1,448
197.34	3,707	30.0	11	1,459
197.99	3,707	30.0	723	2,182
198.00	3,707	100.0	37	2,219
198.01	3,707	100.0	37	2,256

Device	Routing	Invert	Outlet Devices
#1	Primary	198.00'	**100.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	195.07'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.83' Phase-In= 0.01'

Discarded OutFlow Max=1.10 cfs @ 12.45 hrs HW=197.91' (Free Discharge)
└─**2=Exfiltration** (Controls 1.10 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=195.07' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 12P: Dry Well

[93] Warning: Storage range exceeded by 0.20'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=105)

Inflow Area = 0.556 ac, 0.91% Impervious, Inflow Depth > 2.39" for 50-Year 24-Hour event
Inflow = 1.18 cfs @ 12.19 hrs, Volume= 0.111 af
Outflow = 1.35 cfs @ 12.16 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 12.16 hrs, Volume= 0.010 af
Primary = 1.34 cfs @ 12.16 hrs, Volume= 0.093 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.41' @ 12.16 hrs Surf.Area= 287 sf Storage= 359 cf

Plug-Flow detention time= 50.1 min calculated for 0.102 af (93% of inflow)
Center-of-Mass det. time= 12.7 min (875.8 - 863.1)

Volume	Invert	Avail.Storage	Storage Description
#1	194.25'	318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 815 cf Overall - 21 cf Embedded = 794 cf x 40.0% Voids
#2	195.08'	21 cf	**3.00'D x 3.00'H Vertical Cone/Cylinder** Inside #1
#3	198.08'	2 cf	**1.67'D x 0.92'H Vertical Cone/Cylinder**
#4	198.79'	18 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		359 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.25	220	0	0
195.06	220	178	178
195.07	211	2	180
198.08	211	635	815

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.79	9	0	0
199.20	74	17	17
199.21	74	1	18

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.25'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.25' Phase-In= 0.01'
#2	Primary	199.20'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.01 cfs @ 12.16 hrs HW=199.40' (Free Discharge)
└─**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.28 cfs @ 12.16 hrs HW=199.40' TW=197.24' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1.28 cfs @ 1.26 fps)

Summary for Pond CB1: Catch Basin 1

[58] Hint: Peaked 0.83' above defined flood level

Inflow Area = 0.070 ac, 63.65% Impervious, Inflow Depth > 5.23" for 50-Year 24-Hour event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 0.031 af
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.09 hrs, Volume= 0.031 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 204.73' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 200.60' / 200.50' S= 0.0053 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=204.42' TW=204.41' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.40 cfs @ 0.33 fps)

Summary for Pond CB10: Catch Basin 10

Inflow Area =	0.206 ac, 45.07% Impervious,	Inflow Depth > 4.23"	for 50-Year 24-Hour event
Inflow =	0.87 cfs @ 12.15 hrs, Volume=	0.072 af	
Outflow =	0.87 cfs @ 12.15 hrs, Volume=	0.072 af, Atten= 0%, Lag= 0.0 min	
Primary =	0.87 cfs @ 12.15 hrs, Volume=	0.072 af	

Routed to Pond CB9 : Catch Basin 9

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.73' @ 12.13 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	252.10'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.10' / 252.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.87 cfs @ 12.15 hrs HW=252.72' TW=252.55' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.87 cfs @ 2.09 fps)

Summary for Pond CB11: Catch Basin 11

Inflow Area =	1.820 ac, 0.00% Impervious,	Inflow Depth > 2.33"	for 50-Year 24-Hour event
Inflow =	2.77 cfs @ 12.38 hrs, Volume=	0.354 af	
Outflow =	2.77 cfs @ 12.38 hrs, Volume=	0.354 af, Atten= 0%, Lag= 0.0 min	
Primary =	2.77 cfs @ 12.38 hrs, Volume=	0.354 af	

Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 208.98' @ 12.38 hrs
Flood Elev= 221.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.00'	**15.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.00' / 200.50' S= 0.1316 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.75 cfs @ 12.38 hrs HW=208.98' TW=203.37' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.75 cfs @ 2.66 fps)

Summary for Pond CB12: Catch Basin 12

Inflow Area = 3.550 ac, 0.53% Impervious, Inflow Depth > 2.19" for 50-Year 24-Hour event
Inflow = 5.36 cfs @ 12.37 hrs, Volume= 0.648 af
Outflow = 5.36 cfs @ 12.37 hrs, Volume= 0.648 af, Atten= 0%, Lag= 0.0 min
Primary = 5.36 cfs @ 12.37 hrs, Volume= 0.648 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB10 : Catch Basin 10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 263.22' @ 12.37 hrs Surf.Area= 56 sf Storage= 11 cf

Plug-Flow detention time= 0.1 min calculated for 0.648 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (876.8 - 876.8)

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	74 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	43	0	0
264.00	103	73	73
264.01	103	1	74

Device	Routing	Invert	Outlet Devices
#0	Secondary	264.01'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	259.70'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 259.70' / 259.00' S= 0.0140 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Device 1	263.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	264.00'	**8.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=5.33 cfs @ 12.37 hrs HW=263.22' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 5.33 cfs of 10.05 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 5.33 cfs @ 1.53 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=263.00' TW=252.10' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond CB13: Catch Basin 13

[58] Hint: Peaked 2.06' above defined flood level
[62] Hint: Exceeded Reach RD1 OUTLET depth by 7.45' @ 12.10 hrs

Inflow Area = 0.266 ac,100.00% Impervious, Inflow Depth > 6.74" for 50-Year 24-Hour event
Inflow = 1.78 cfs @ 12.09 hrs, Volume= 0.149 af
Outflow = 1.78 cfs @ 12.09 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
Primary = 1.78 cfs @ 12.09 hrs, Volume= 0.149 af
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 272.76' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	264.20'	**18.0" Round Culvert** L= 73.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 264.20' / 263.40' S= 0.0110 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.74 cfs @ 12.09 hrs HW=272.37' TW=272.30' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.74 cfs @ 0.99 fps)

Summary for Pond CB14: Catch Basin 14

[58] Hint: Peaked 2.70' above defined flood level
[63] Warning: Exceeded Reach RD2 INLET depth by 3.39' @ 12.10 hrs

Inflow Area = 0.925 ac, 91.53% Impervious, Inflow Depth > 6.36" for 50-Year 24-Hour event
Inflow = 5.71 cfs @ 12.10 hrs, Volume= 0.490 af
Outflow = 5.71 cfs @ 12.10 hrs, Volume= 0.490 af, Atten= 0%, Lag= 0.0 min
Primary = 5.71 cfs @ 12.10 hrs, Volume= 0.490 af
Routed to Pond CB15 : Catch Basin 15

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 272.70' @ 12.10 hrs
Flood Elev= 270.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	**18.0" Round Culvert** L= 68.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.30' / 262.90' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.66 cfs @ 12.10 hrs HW=272.48' TW=271.77' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 5.66 cfs @ 3.20 fps)

Summary for Pond CB15: Catch Basin 15

[58] Hint: Peaked 1.27' above defined flood level

Inflow Area = 1.285 ac, 92.38% Impervious, Inflow Depth > 6.40" for 50-Year 24-Hour event
Inflow = 8.07 cfs @ 12.10 hrs, Volume= 0.685 af
Outflow = 8.07 cfs @ 12.10 hrs, Volume= 0.685 af, Atten= 0%, Lag= 0.0 min
Primary = 8.07 cfs @ 12.10 hrs, Volume= 0.685 af
Routed to Pond CB16 : Catch Basin 16

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 271.97' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	262.80'	**18.0" Round Culvert** L= 156.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 262.80' / 262.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.05 cfs @ 12.10 hrs HW=271.92' TW=270.39' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 8.05 cfs @ 4.56 fps)

Summary for Pond CB16: Catch Basin 16

[58] Hint: Peaked 0.13' above defined flood level

Inflow Area = 1.824 ac, 91.49% Impervious, Inflow Depth > 6.36" for 50-Year 24-Hour event
Inflow = 11.58 cfs @ 12.10 hrs, Volume= 0.967 af
Outflow = 11.58 cfs @ 12.10 hrs, Volume= 0.967 af, Atten= 0%, Lag= 0.0 min
Primary = 11.58 cfs @ 12.10 hrs, Volume= 0.967 af
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 270.43' @ 12.10 hrs
Flood Elev= 270.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**24.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.50' / 260.90' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.45 cfs @ 12.10 hrs HW=270.24' TW=269.32' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 11.45 cfs @ 3.64 fps)

Summary for Pond CB17: Catch Basin 17

[58] Hint: Peaked 0.50' above defined flood level
[63] Warning: Exceeded Reach RD3 INLET depth by 1.10' @ 12.10 hrs

Inflow Area = 2.507 ac, 85.98% Impervious, Inflow Depth > 6.13" for 50-Year 24-Hour event
Inflow = 14.54 cfs @ 12.10 hrs, Volume= 1.281 af
Outflow = 14.54 cfs @ 12.10 hrs, Volume= 1.281 af, Atten= 0%, Lag= 0.0 min
Primary = 14.54 cfs @ 12.10 hrs, Volume= 1.281 af
Routed to Pond CB18 : Catch Basin 18

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 269.50' @ 12.10 hrs
Flood Elev= 269.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.80'	**24.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.80' / 260.50' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.52 cfs @ 12.10 hrs HW=269.47' TW=267.99' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 14.52 cfs @ 4.62 fps)

Summary for Pond CB18: Catch Basin 18

Inflow Area = 3.016 ac, 85.76% Impervious, Inflow Depth > 6.11" for 50-Year 24-Hour event
Inflow = 17.78 cfs @ 12.10 hrs, Volume= 1.537 af
Outflow = 17.78 cfs @ 12.10 hrs, Volume= 1.537 af, Atten= 0%, Lag= 0.0 min
Primary = 17.78 cfs @ 12.10 hrs, Volume= 1.537 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.01' @ 12.10 hrs
Flood Elev= 268.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.40'	**24.0" Round Culvert** L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.40' / 260.30' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.71 cfs @ 12.10 hrs HW=267.96' TW=265.76' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 17.71 cfs @ 5.64 fps)

Summary for Pond CB19: Catch Basin 19

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 6.31" for 50-Year 24-Hour event
Inflow = 4.92 cfs @ 12.09 hrs, Volume= 0.395 af
Outflow = 4.92 cfs @ 12.09 hrs, Volume= 0.395 af, Atten= 0%, Lag= 0.0 min
Primary = 4.92 cfs @ 12.09 hrs, Volume= 0.395 af
Routed to Pond DMH 4 : Drain Manhole 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 266.13' @ 12.10 hrs
Flood Elev= 266.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.40'	**24.0" Round Culvert** L= 151.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.40' / 260.60' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.79 cfs @ 12.09 hrs HW=265.86' TW=265.69' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.79 cfs @ 1.53 fps)

Summary for Pond CB2: Catch Basin 2

[58] Hint: Peaked 0.82' above defined flood level

Inflow Area = 2.129 ac, 4.38% Impervious, Inflow Depth > 2.56" for 50-Year 24-Hour event
Inflow = 3.28 cfs @ 12.35 hrs, Volume= 0.454 af
Outflow = 3.28 cfs @ 12.35 hrs, Volume= 0.454 af, Atten= 0%, Lag= 0.0 min
Primary = 3.28 cfs @ 12.35 hrs, Volume= 0.454 af
Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 204.72' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.40'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 200.40' / 200.00' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.28 cfs @ 12.35 hrs HW=203.44' TW=202.95' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.28 cfs @ 2.67 fps)

Summary for Pond CB20: Catch Basin 20

[58] Hint: Peaked 0.69' above defined flood level

Inflow Area = 0.439 ac, 89.12% Impervious, Inflow Depth > 6.26" for 50-Year 24-Hour event
Inflow = 2.87 cfs @ 12.09 hrs, Volume= 0.229 af
Outflow = 2.87 cfs @ 12.09 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min
Primary = 2.87 cfs @ 12.09 hrs, Volume= 0.229 af
Routed to Pond CB19 : Catch Basin 19

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 266.19' @ 12.10 hrs
Flood Elev= 265.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.90'	**24.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.90' / 261.50' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.79 cfs @ 12.09 hrs HW=265.91' TW=265.86' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.79 cfs @ 0.89 fps)

Summary for Pond CB3: Catch Basin 3

Inflow Area = 1.450 ac, 32.23% Impervious, Inflow Depth > 3.89" for 50-Year 24-Hour event
Inflow = 6.21 cfs @ 12.10 hrs, Volume= 0.470 af
Outflow = 6.21 cfs @ 12.10 hrs, Volume= 0.470 af, Atten= 0%, Lag= 0.0 min
Primary = 6.21 cfs @ 12.10 hrs, Volume= 0.470 af
Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 210.59' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.20'	**15.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.20' / 200.00' S= 0.1262 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.17 cfs @ 12.10 hrs HW=210.57' TW=204.24' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 6.17 cfs @ 5.03 fps)

Summary for Pond CB4: Catch Basin 4

Inflow Area = 0.197 ac, 24.45% Impervious, Inflow Depth > 3.60" for 50-Year 24-Hour event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.059 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.059 af
Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 210.63' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.40'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.40' / 208.30' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.80 cfs @ 12.09 hrs HW=210.57' TW=210.54' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.80 cfs @ 0.65 fps)

Summary for Pond CB5: Catch Basin 5

Inflow Area = 1.010 ac, 36.59% Impervious, Inflow Depth > 4.05" for 50-Year 24-Hour event
Inflow = 4.42 cfs @ 12.10 hrs, Volume= 0.340 af
Outflow = 4.42 cfs @ 12.10 hrs, Volume= 0.340 af, Atten= 0%, Lag= 0.0 min
Primary = 4.42 cfs @ 12.10 hrs, Volume= 0.340 af
Routed to Pond DMH2 : Drain Manhole 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 225.82' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.30'	**15.0" Round Culvert** L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.30' / 217.60' S= 0.0817 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.41 cfs @ 12.10 hrs HW=225.82' TW=219.02' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.41 cfs @ 3.59 fps)

Summary for Pond CB6: Catch Basin 6

Inflow Area = 0.195 ac, 24.96% Impervious, Inflow Depth > 3.60" for 50-Year 24-Hour event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.058 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 225.85' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.50'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.50' / 224.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.80 cfs @ 12.09 hrs HW=225.82' TW=225.79' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.80 cfs @ 0.65 fps)

Summary for Pond CB7: Catch Basin 7

Inflow Area = 0.210 ac, 22.21% Impervious, Inflow Depth > 3.49" for 50-Year 24-Hour event
Inflow = 0.84 cfs @ 12.09 hrs, Volume= 0.061 af
Outflow = 0.84 cfs @ 12.09 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.09 hrs, Volume= 0.061 af
Routed to Pond CB8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.66' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.90'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.90' / 238.80' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.83 cfs @ 12.09 hrs HW=239.65' TW=239.56' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.83 cfs @ 1.56 fps)

Summary for Pond CB8: Catch Basin 8

Inflow Area = 0.638 ac, 43.43% Impervious, Inflow Depth > 4.31" for 50-Year 24-Hour event
Inflow = 2.88 cfs @ 12.10 hrs, Volume= 0.229 af
Outflow = 2.88 cfs @ 12.10 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min
Primary = 2.88 cfs @ 12.10 hrs, Volume= 0.229 af
Routed to Pond DMH 3 : Drain Manhole 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.57' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.70'	**15.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.70' / 233.10' S= 0.0889 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.87 cfs @ 12.10 hrs HW=239.56' TW=234.01' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.87 cfs @ 3.17 fps)

Summary for Pond CB9: Catch Basin 9

Inflow Area = 0.311 ac, 58.69% Impervious, Inflow Depth > 4.88" for 50-Year 24-Hour event
Inflow = 1.49 cfs @ 12.11 hrs, Volume= 0.126 af
Outflow = 1.49 cfs @ 12.11 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.11 hrs, Volume= 0.126 af
Routed to Pond cb8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.57' @ 12.11 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.90'	**15.0" Round Culvert** L= 163.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 251.90' / 238.80' S= 0.0804 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.45 cfs @ 12.11 hrs HW=252.56' TW=239.55' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.45 cfs @ 2.19 fps)

Summary for Pond DMH 3: Drain Manhole 3

Inflow Area = 0.638 ac, 43.43% Impervious, Inflow Depth > 4.31" for 50-Year 24-Hour event
Inflow = 2.88 cfs @ 12.10 hrs, Volume= 0.229 af
Outflow = 2.88 cfs @ 12.10 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min
Primary = 2.88 cfs @ 12.10 hrs, Volume= 0.229 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 234.01' @ 12.10 hrs
Flood Elev= 237.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**15.0" Round Culvert** L= 104.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 233.00' / 224.40' S= 0.0827 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.87 cfs @ 12.10 hrs HW=234.01' TW=225.81' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.87 cfs @ 2.70 fps)

Summary for Pond DMH 4: Drain Manhole 4

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=54)

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 6.31" for 50-Year 24-Hour event
Inflow = 4.92 cfs @ 12.09 hrs, Volume= 0.395 af
Outflow = 4.92 cfs @ 12.09 hrs, Volume= 0.395 af, Atten= 0%, Lag= 0.0 min
Primary = 4.92 cfs @ 12.09 hrs, Volume= 0.395 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 265.97' @ 12.10 hrs
Flood Elev= 268.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.50'	**24.0" Round Culvert** L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.50' / 260.40' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.79 cfs @ 12.09 hrs HW=265.69' TW=265.53' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.79 cfs @ 1.53 fps)

Summary for Pond DMH 5: Drain Manhole 5

[80] Warning: Exceeded Pond DMH 4 by 1.89' @ 19.95 hrs (10.29 cfs 1.465 af)

Inflow Area = 3.767 ac, 86.71% Impervious, Inflow Depth > 6.15" for 50-Year 24-Hour event
Inflow = 22.68 cfs @ 12.10 hrs, Volume= 1.932 af
Outflow = 22.68 cfs @ 12.10 hrs, Volume= 1.932 af, Atten= 0%, Lag= 0.0 min
Primary = 22.68 cfs @ 12.10 hrs, Volume= 1.932 af
Routed to Pond 5P : StormTech

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 265.80' @ 12.10 hrs
Flood Elev= 268.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.30'	**24.0" Round Culvert** L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.30' / 260.10' S= 0.0143 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=22.45 cfs @ 12.10 hrs HW=265.70' TW=262.17' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 22.45 cfs @ 7.15 fps)

Summary for Pond DMH1: Drain Manhole 1

Inflow Area = 3.579 ac, 15.66% Impervious, Inflow Depth > 3.10" for 50-Year 24-Hour event
Inflow = 9.07 cfs @ 12.11 hrs, Volume= 0.924 af
Outflow = 9.07 cfs @ 12.11 hrs, Volume= 0.924 af, Atten= 0%, Lag= 0.0 min
Primary = 9.07 cfs @ 12.11 hrs, Volume= 0.924 af
Routed to Pond 2P : Stormwater Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 204.33' @ 12.11 hrs
Flood Elev= 211.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	199.90'	**15.0" Round Culvert**

L= 30.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 199.90' / 199.70' S= 0.0067 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.96 cfs @ 12.11 hrs HW=204.25' TW=200.56' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 8.96 cfs @ 7.30 fps)

Summary for Pond DMH2: Drain Manhole 2

Inflow Area =	1.010 ac, 36.59% Impervious, Inflow Depth > 4.05"	for 50-Year 24-Hour event
Inflow =	4.42 cfs @ 12.10 hrs, Volume=	0.340 af
Outflow =	4.42 cfs @ 12.10 hrs, Volume=	0.340 af, Atten= 0%, Lag= 0.0 min
Primary =	4.42 cfs @ 12.10 hrs, Volume=	0.340 af

Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 219.02' @ 12.10 hrs
Flood Elev= 223.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	217.50'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 217.50' / 208.30' S= 0.1095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.41 cfs @ 12.10 hrs HW=219.02' TW=210.59' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.41 cfs @ 3.59 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 9
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: SUBCATCHMENT1S Runoff Area=279,376 sf 7.68% Impervious Runoff Depth>3.46"
Flow Length=1,018' Tc=34.1 min CN=59 Runoff=13.71 cfs 1.851 af

Subcatchment10S: SUBCATCHMENT10S Runoff Area=3,917 sf 19.30% Impervious Runoff Depth>4.30"
Flow Length=79' Tc=9.6 min CN=66 Runoff=0.40 cfs 0.032 af

Subcatchment11S: Subcatchment11S Runoff Area=21,833 sf 0.00% Impervious Runoff Depth>3.72"
Flow Length=137' Tc=6.7 min CN=61 Runoff=2.09 cfs 0.155 af

Subcatchment12S: Subcatchment12S Runoff Area=22,767 sf 23.93% Impervious Runoff Depth>4.40"
Flow Length=642' Tc=19.9 min CN=67 Runoff=1.82 cfs 0.192 af

Subcatchment20S: Subcatchment20S Runoff Area=207,863 sf 0.54% Impervious Runoff Depth>3.24"
Flow Length=341' Tc=25.2 min CN=57 Runoff=10.84 cfs 1.289 af

Subcatchment21S: SUBCATCHMENT21S Runoff Area=154,653 sf 0.53% Impervious Runoff Depth>3.13"
Flow Length=358' Tc=24.0 min CN=56 Runoff=7.89 cfs 0.926 af

Subcatchment22S: SUBCATCHMENT22S Runoff Area=83,939 sf 9.07% Impervious Runoff Depth>3.82"
Flow Length=348' Tc=17.4 min CN=62 Runoff=6.10 cfs 0.614 af

Subcatchment23S: SUBCATCHMENT23S Runoff Area=11,755 sf 64.56% Impervious Runoff Depth>6.56"
Flow Length=39' Slope=0.0200 '/' Tc=6.0 min CN=85 Runoff=1.95 cfs 0.147 af

Subcatchment24S: SUBCATCHMENT24S Runoff Area=24,222 sf 0.91% Impervious Runoff Depth>3.37"
Flow Length=204' Tc=12.8 min CN=58 Runoff=1.71 cfs 0.156 af

Subcatchment25S: SUBCATCHMENT25S Runoff Area=64,195 sf 11.59% Impervious Runoff Depth>3.94"
Flow Length=368' Tc=16.5 min CN=63 Runoff=4.91 cfs 0.484 af

Subcatchment30S: Subcatchment30S Runoff Area=73,162 sf 0.00% Impervious Runoff Depth>3.14"
Flow Length=299' Tc=14.2 min CN=56 Runoff=4.61 cfs 0.439 af

Subcatchment31S: Subcatchment31S Runoff Area=159,045 sf 0.00% Impervious Runoff Depth>3.36"
Flow Length=593' Tc=22.7 min CN=58 Runoff=8.99 cfs 1.022 af

Subcatchment32S: SUBCATCHMENT32S Runoff Area=6,935 sf 0.00% Impervious Runoff Depth>3.72"
Flow Length=83' Tc=8.0 min CN=61 Runoff=0.63 cfs 0.049 af

Subcatchment101S: SUBCATCHMENT101S Runoff Area=3,062 sf 63.65% Impervious Runoff Depth>6.56"
Flow Length=149' Tc=6.0 min CN=85 Runoff=0.51 cfs 0.038 af

Subcatchment102S: SUBCATCHMENT Runoff Area=10,426 sf 20.31% Impervious Runoff Depth>4.65"
Flow Length=202' Tc=6.0 min CN=69 Runoff=1.28 cfs 0.093 af

Subcatchment103S: SUBCATCHMENT Runoff Area=10,615 sf 20.41% Impervious Runoff Depth>4.65"
Flow Length=210' Tc=6.0 min CN=69 Runoff=1.30 cfs 0.094 af

Subcatchment104S: SUBCATCHMENT104S Runoff Area=8,563 sf 24.45% Impervious Runoff Depth>4.77"
Flow Length=192' Tc=6.0 min CN=70 Runoff=1.08 cfs 0.078 af

Subcatchment105S: SUBCATCHMENT105S Runoff Area=7,685 sf 24.66% Impervious Runoff Depth>4.77"
Flow Length=198' Tc=6.0 min CN=70 Runoff=0.97 cfs 0.070 af

Subcatchment106S: SUBCATCHMENT106S Runoff Area=8,480 sf 24.96% Impervious Runoff Depth>4.77"
Flow Length=150' Tc=6.0 min CN=70 Runoff=1.07 cfs 0.077 af

Subcatchment107S: SUBCATCHMENT107S Runoff Area=9,158 sf 22.21% Impervious Runoff Depth>4.65"
Flow Length=200' Tc=6.0 min CN=69 Runoff=1.13 cfs 0.082 af

Subcatchment108S: SUBCATCHMENT108S Runoff Area=5,109 sf 41.03% Impervious Runoff Depth>5.48"
Flow Length=108' Tc=6.0 min CN=76 Runoff=0.73 cfs 0.054 af

Subcatchment109S: SUBCATCHMENT109S Runoff Area=4,591 sf 85.25% Impervious Runoff Depth>7.52"
Flow Length=322' Tc=6.0 min CN=93 Runoff=0.83 cfs 0.066 af

Subcatchment110S: SUBCATCHMENT110S Runoff Area=8,954 sf 45.07% Impervious Runoff Depth>5.48"
Flow Length=193' Tc=10.4 min CN=76 Runoff=1.12 cfs 0.094 af

Subcatchment111S: SUBCATCHMENT111S Runoff Area=10,066 sf 0.00% Impervious Runoff Depth>3.72"
Flow Length=37' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.98 cfs 0.072 af

Subcatchment113S: SUBCATCHMENT Runoff Area=4,154 sf 100.00% Impervious Runoff Depth>8.12"
Flow Length=144' Slope=0.0330 '/' Tc=6.0 min CN=98 Runoff=0.76 cfs 0.064 af

Subcatchment114S: SUBCATCHMENT Runoff Area=21,297 sf 83.97% Impervious Runoff Depth>7.39"
Flow Length=251' Tc=9.0 min CN=92 Runoff=3.47 cfs 0.301 af

Subcatchment115S: SUBCATCHMENT Runoff Area=15,683 sf 94.57% Impervious Runoff Depth>7.88"
Flow Length=264' Tc=6.0 min CN=96 Runoff=2.87 cfs 0.236 af

Subcatchment116S: SUBCATCHMENT Runoff Area=23,505 sf 89.38% Impervious Runoff Depth>7.64"
Flow Length=38' Tc=6.0 min CN=94 Runoff=4.25 cfs 0.343 af

Subcatchment117S: SUBCATCHMENT Runoff Area=22,327 sf 61.68% Impervious Runoff Depth>6.43"
Flow Length=172' Tc=14.1 min CN=84 Runoff=2.89 cfs 0.275 af

Subcatchment118S: SUBCATCHMENT Runoff Area=22,171 sf 84.69% Impervious Runoff Depth>7.40"
Flow Length=120' Slope=0.0500 '/' Tc=6.0 min CN=92 Runoff=3.96 cfs 0.314 af

Subcatchment119S: SUBCATCHMENT Runoff Area=13,601 sf 92.54% Impervious Runoff Depth>7.76"
Flow Length=218' Tc=6.0 min CN=95 Runoff=2.48 cfs 0.202 af

Subcatchment120S: SUBCATCHMENT Runoff Area=19,113 sf 89.12% Impervious Runoff Depth>7.64"
Flow Length=124' Tc=6.0 min CN=94 Runoff=3.46 cfs 0.279 af

Subcatchment204S: SUBCATCHMENT204S Runoff Area=19,442 sf 0.00% Impervious Runoff Depth>3.24"
Flow Length=379' Tc=23.2 min CN=57 Runoff=1.05 cfs 0.121 af

Subcatchment205S: SUBCATCHMENT205S Runoff Area=4,627 sf 0.00% Impervious Runoff Depth>3.72"
Flow Length=92' Slope=0.5000 '/' Tc=6.0 min CN=61 Runoff=0.45 cfs 0.033 af

Subcatchment207S: SUBCATCHMENT207S Runoff Area=15,002 sf 0.00% Impervious Runoff Depth>3.36"
Flow Length=329' Tc=22.8 min CN=58 Runoff=0.85 cfs 0.096 af

Subcatchment211S: SUBCATCHMENT211S Runoff Area=28,592 sf 0.00% Impervious Runoff Depth>3.13"
Flow Length=328' Tc=19.3 min CN=56 Runoff=1.59 cfs 0.171 af

Subcatchment305S: SUBCATCHMENT305S Runoff Area=1,541 sf 0.00% Impervious Runoff Depth>3.03"
Flow Length=46' Tc=6.0 min CN=55 Runoff=0.12 cfs 0.009 af

SubcatchmentROOF 1: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>8.12"
Tc=6.0 min CN=98 Runoff=1.36 cfs 0.115 af

SubcatchmentROOF 2: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>8.12"
Tc=6.0 min CN=98 Runoff=1.36 cfs 0.115 af

SubcatchmentROOF 3: Back of Roof Runoff Area=7,416 sf 100.00% Impervious Runoff Depth>8.12"
Tc=6.0 min CN=98 Runoff=1.36 cfs 0.115 af

Reach 4Ra: Flow Through Avg. Flow Depth=0.82' Max Vel=0.96 fps Inflow=8.99 cfs 1.022 af
n=0.400 L=40.0' S=0.1500 '/' Capacity=62.15 cfs Outflow=8.99 cfs 1.021 af

Reach 4Rb: Flow Through Avg. Flow Depth=0.41' Max Vel=0.83 fps Inflow=8.99 cfs 1.021 af
n=0.400 L=71.0' S=0.2817 '/' Capacity=276.81 cfs Outflow=8.98 cfs 1.020 af

Reach AP1: Analysis Point 1 Inflow=21.96 cfs 3.211 af
Outflow=21.96 cfs 3.211 af

Reach AP2: Analysis Point 2 Inflow=24.97 cfs 2.466 af
Outflow=24.97 cfs 2.466 af

Reach AP3: Analysis Point 3 Inflow=19.22 cfs 3.095 af
Outflow=19.22 cfs 3.095 af

Reach B1R: BENCH Avg. Flow Depth=0.45' Max Vel=1.02 fps Inflow=0.85 cfs 0.096 af
n=0.150 L=173.0' S=0.0809 '/' Capacity=6.92 cfs Outflow=0.84 cfs 0.096 af Overflow=0.00 cfs 0.000 af

Reach B2R: BENCH Avg. Flow Depth=0.45' Max Vel=1.24 fps Inflow=1.02 cfs 0.129 af
n=0.150 L=116.0' S=0.1207 '/' Capacity=8.45 cfs Outflow=1.02 cfs 0.129 af Overflow=0.00 cfs 0.000 af

Reach B3R: BENCH Avg. Flow Depth=0.60' Max Vel=1.47 fps Inflow=2.12 cfs 0.258 af
n=0.150 L=103.0' S=0.1165 '/' Capacity=8.30 cfs Outflow=2.11 cfs 0.258 af Overflow=0.00 cfs 0.000 af

Reach B4R: BENCH Avg. Flow Depth=0.88' Max Vel=1.32 fps Inflow=4.08 cfs 0.501 af
n=0.150 L=232.0' S=0.0560 '/' Capacity=5.76 cfs Outflow=4.04 cfs 0.500 af Overflow=0.00 cfs 0.000 af

Reach B5R: BENCH Avg. Flow Depth=0.22' Max Vel=0.63 fps Inflow=0.12 cfs 0.009 af
n=0.150 L=12.0' S=0.0833 '/' Capacity=7.02 cfs Outflow=0.12 cfs 0.009 af Overflow=0.00 cfs 0.000 af

Reach B6R: BENCH Avg. Flow Depth=0.62' Max Vel=1.03 fps Inflow=1.59 cfs 0.171 af
n=0.150 L=165.0' S=0.0545 '/' Capacity=5.68 cfs Outflow=1.57 cfs 0.171 af

Reach RD1: RD 1 Avg. Flow Depth=0.35' Max Vel=7.24 fps Inflow=1.36 cfs 0.115 af
8.0" Round Pipe n=0.013 L=264.0' S=0.0417 '/' Capacity=2.47 cfs Outflow=1.37 cfs 0.115 af

Reach RD2: RD 2 Avg. Flow Depth=0.34' Max Vel=7.70 fps Inflow=1.36 cfs 0.115 af
8.0" Round Pipe n=0.013 L=110.0' S=0.0491 '/' Capacity=2.68 cfs Outflow=1.37 cfs 0.115 af

Reach RD3: RD 3 Avg. Flow Depth=0.45' Max Vel=5.44 fps Inflow=1.36 cfs 0.115 af
8.0" Round Pipe n=0.013 L=100.0' S=0.0200 '/' Capacity=1.71 cfs Outflow=1.37 cfs 0.115 af

Pond 1P: Infiltration Pocket Peak Elev=198.81' Storage=619 cf Inflow=8.39 cfs 1.485 af
Discarded=0.10 cfs 0.110 af Primary=8.26 cfs 1.360 af Outflow=8.35 cfs 1.470 af

Pond 2P: Stormwater Pond Peak Elev=202.07' Storage=31,568 cf Inflow=14.36 cfs 1.401 af
Primary=4.79 cfs 1.202 af Secondary=2.08 cfs 0.060 af Outflow=6.86 cfs 1.262 af

Pond 3P: Stormfilter Peak Elev=198.96' Storage=103 cf Inflow=1.82 cfs 0.192 af
Primary=1.82 cfs 0.190 af Secondary=0.00 cfs 0.000 af Outflow=1.82 cfs 0.190 af

Pond 5P: StormTech Peak Elev=264.73' Storage=1.350 af Inflow=27.43 cfs 2.360 af
Outflow=7.53 cfs 1.587 af

Pond 6P: Focal Point Peak Elev=257.49' Storage=1,608 cf Inflow=7.76 cfs 1.637 af
Outflow=7.73 cfs 1.636 af

Pond 9P: 18" HDPE Peak Elev=202.50' Storage=216 cf Inflow=4.91 cfs 0.484 af
Primary=4.91 cfs 0.483 af Secondary=0.00 cfs 0.000 af Outflow=4.91 cfs 0.483 af

Pond 10P: Bioretention Peak Elev=201.84' Storage=7,689 cf Inflow=11.01 cfs 1.097 af
Discarded=3.07 cfs 0.861 af Primary=2.44 cfs 0.162 af Secondary=3.10 cfs 0.069 af Outflow=8.60 cfs 1.093 af

Pond 11P: EcoRaster Peak Elev=198.06' Storage=2,256 cf Inflow=4.78 cfs 0.354 af
Discarded=1.15 cfs 0.265 af Primary=3.96 cfs 0.089 af Outflow=5.12 cfs 0.354 af

Pond 12P: Dry Well Peak Elev=199.44' Storage=359 cf Inflow=1.71 cfs 0.156 af
Discarded=0.01 cfs 0.010 af Primary=1.69 cfs 0.137 af Outflow=1.70 cfs 0.148 af

Pond CB1: Catch Basin 1 Peak Elev=208.89' Inflow=0.51 cfs 0.038 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=0.51 cfs 0.038 af

Pond CB10: Catch Basin 10 Peak Elev=252.83' Inflow=1.12 cfs 0.094 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.12 cfs 0.094 af

Pond CB11: Catch Basin 11 Peak Elev=209.37' Inflow=4.04 cfs 0.500 af
15.0" Round Culvert n=0.013 L=57.0' S=0.1316 '/' Outflow=4.04 cfs 0.500 af

Pond CB12: Catch Basin 12 Peak Elev=263.28' Storage=15 cf Inflow=7.89 cfs 0.926 af
Primary=7.89 cfs 0.926 af Secondary=0.00 cfs 0.000 af Outflow=7.89 cfs 0.926 af

Pond CB13: Catch Basin 13 Peak Elev=278.33' Inflow=2.13 cfs 0.180 af
18.0" Round Culvert n=0.013 L=73.0' S=0.0110 '/' Outflow=2.13 cfs 0.180 af

Pond CB14: Catch Basin 14 Peak Elev=278.23' Inflow=6.89 cfs 0.596 af
18.0" Round Culvert n=0.013 L=68.0' S=0.0059 '/' Outflow=6.89 cfs 0.596 af

Pond CB15: Catch Basin 15 Peak Elev=277.18' Inflow=9.72 cfs 0.832 af
18.0" Round Culvert n=0.013 L=156.0' S=0.0051 '/' Outflow=9.72 cfs 0.832 af

Pond CB16: Catch Basin 16 Peak Elev=274.95' Inflow=13.95 cfs 1.175 af
24.0" Round Culvert n=0.013 L=124.0' S=0.0048 '/' Outflow=13.95 cfs 1.175 af

Pond CB17: Catch Basin 17 Peak Elev=273.59' Inflow=17.61 cfs 1.565 af
24.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/' Outflow=17.61 cfs 1.565 af

Pond CB18: Catch Basin 18 Peak Elev=271.41' Inflow=21.53 cfs 1.879 af
24.0" Round Culvert n=0.013 L=11.0' S=0.0091 '/' Outflow=21.53 cfs 1.879 af

Pond CB19: Catch Basin 19 Peak Elev=268.65' Inflow=5.93 cfs 0.481 af
24.0" Round Culvert n=0.013 L=151.0' S=0.0053 '/' Outflow=5.93 cfs 0.481 af

Pond CB2: Catch Basin 2 Peak Elev=208.88' Inflow=4.72 cfs 0.631 af
15.0" Round Culvert n=0.013 L=84.0' S=0.0048 '/' Outflow=4.72 cfs 0.631 af

Pond CB20: Catch Basin 20 Peak Elev=268.73' Inflow=3.46 cfs 0.279 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0057 '/' Outflow=3.46 cfs 0.279 af

Pond CB3: Catch Basin 3 Peak Elev=211.85' Inflow=8.11 cfs 0.615 af
15.0" Round Culvert n=0.013 L=65.0' S=0.1262 '/' Outflow=8.11 cfs 0.615 af

Pond CB4: Catch Basin 4 Peak Elev=211.90' Inflow=1.08 cfs 0.078 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.08 cfs 0.078 af

Pond CB5: Catch Basin 5 Peak Elev=226.43' Inflow=5.73 cfs 0.442 af
15.0" Round Culvert n=0.013 L=82.0' S=0.0817 '/' Outflow=5.73 cfs 0.442 af

Pond CB6: Catch Basin 6 Peak Elev=226.49' Inflow=1.07 cfs 0.077 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.07 cfs 0.077 af

Pond CB7: Catch Basin 7 Peak Elev=239.82' Inflow=1.13 cfs 0.082 af
15.0" Round Culvert n=0.013 L=19.0' S=0.0053 '/' Outflow=1.13 cfs 0.082 af

Pond CB8: Catch Basin 8 Peak Elev=239.72' Inflow=3.70 cfs 0.295 af
15.0" Round Culvert n=0.013 L=63.0' S=0.0889 '/' Outflow=3.70 cfs 0.295 af

Pond CB9: Catch Basin 9 Peak Elev=252.67' Inflow=1.87 cfs 0.160 af
15.0" Round Culvert n=0.013 L=163.0' S=0.0804 '/' Outflow=1.87 cfs 0.160 af

Pond DMH 3: Drain Manhole 3 Peak Elev=234.25' Inflow=3.70 cfs 0.295 af
15.0" Round Culvert n=0.013 L=104.0' S=0.0827 '/' Outflow=3.70 cfs 0.295 af

Pond DMH 4: Drain Manhole 4 Peak Elev=268.41' Inflow=5.93 cfs 0.481 af
24.0" Round Culvert n=0.013 L=9.0' S=0.0111 '/' Outflow=5.93 cfs 0.481 af

Pond DMH 5: Drain Manhole 5 Peak Elev=268.17' Inflow=27.43 cfs 2.360 af
24.0" Round Culvert n=0.013 L=14.0' S=0.0143 '/' Outflow=27.43 cfs 2.360 af

Pond DMH1: Drain Manhole 1 Peak Elev=208.05' Inflow=12.28 cfs 1.246 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0067 '/' Outflow=12.28 cfs 1.246 af

Pond DMH2: Drain Manhole 2 Peak Elev=219.63' Inflow=5.73 cfs 0.442 af
15.0" Round Culvert n=0.013 L=84.0' S=0.1095 '/' Outflow=5.73 cfs 0.442 af

Total Runoff Area = 32.913 ac Runoff Volume = 10.964 af Average Runoff Depth = 4.00"
84.71% Pervious = 27.881 ac 15.29% Impervious = 5.031 ac

Summary for Subcatchment 1S: SUBCATCHMENT 1S

Runoff = 13.71 cfs @ 12.50 hrs, Volume= 1.851 af, Depth> 3.46"
Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
15,363	98	Paved parking, HSG B
6,086	98	Roofs, HSG B
10,953	85	Gravel roads, HSG B
246,176	55	Woods, Good, HSG B
798	61	>75% Grass cover, Good, HSG B
279,376	59	Weighted Average
257,927		92.32% Pervious Area
21,449		7.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	46	0.0125	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
4.9	36	0.1110	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.4	24	0.0390	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	27	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	26	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	61	0.2290	2.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	24	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.3	127	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	45	0.3110	2.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	48	0.2080	2.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	80	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	86	0.1860	2.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	102	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	230	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
34.1	1,018	Total			

Summary for Subcatchment 10S: SUBCATCHMENT 10S

Runoff = 0.40 cfs @ 12.14 hrs, Volume= 0.032 af, Depth> 4.30"
Routed to Pond 1P : Infiltration Pocket

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
756	98	Paved parking, HSG B
1,961	61	>75% Grass cover, Good, HSG B
1,200	55	Woods, Good, HSG B
3,917	66	Weighted Average
3,161		80.70% Pervious Area
756		19.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	38	0.2630	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.0	33	0.0910	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	8	0.0400	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.6	79	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 2.09 cfs @ 12.10 hrs, Volume= 0.155 af, Depth> 3.72"
Routed to Pond 2P : Stormwater Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
21,833	61	>75% Grass cover, Good, HSG B
21,833		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	50	0.5000	0.52		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
5.0	50	0.0290	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	37	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.7	137	Total			

Summary for Subcatchment 12S: Subcatchment 12S

Runoff = 1.82 cfs @ 12.28 hrs, Volume= 0.192 af, Depth> 4.40"
Routed to Pond 3P : Stormfilter

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
5,448	98	Paved parking, HSG B
10,621	55	Woods, Good, HSG B
6,698	61	>75% Grass cover, Good, HSG B
22,767	67	Weighted Average
17,319		76.07% Pervious Area
5,448		23.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	66	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	34	0.2350	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.7	101	0.2180	2.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	88	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	157	0.1910	2.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	196	0.1730	2.08		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.9	642	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 10.84 cfs @ 12.37 hrs, Volume= 1.289 af, Depth> 3.24"
Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
1,115	98	Roofs, HSG B
27,727	61	>75% Grass cover, Good, HSG B
166,599	55	Woods, Good, HSG B
12,422	70	Woods, Good, HSG C
207,863	57	Weighted Average
206,748		99.46% Pervious Area
1,115		0.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	10	0.5000	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
19.6	90	0.0220	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	78	0.0256	0.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	62	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	71	0.0140	0.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.2	341	Total			

Summary for Subcatchment 21S: SUBCATCHMENT 21S

Runoff = 7.89 cfs @ 12.36 hrs, Volume= 0.926 af, Depth> 3.13"
Routed to Pond CB12 : Catch Basin 12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
9,648	61	>75% Grass cover, Good, HSG B
819	98	Roofs, HSG B
138,282	55	Woods, Good, HSG B
5,904	70	Woods, Good, HSG C
154,653	56	Weighted Average
153,834		99.47% Pervious Area
819		0.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	37	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
9.0	29	0.0160	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.2	20	0.1000	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.4	14	0.0430	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.5	32	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	41	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	132	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	53	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.0	358	Total			

Summary for Subcatchment 22S: SUBCATCHMENT 22S

Runoff = 6.10 cfs @ 12.25 hrs, Volume= 0.614 af, Depth> 3.82"
Routed to Pond 10P : Bioretention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
7,612	98	Paved parking, HSG B
39,991	61	>75% Grass cover, Good, HSG B
36,336	55	Woods, Good, HSG B
83,939	62	Weighted Average
76,327		90.93% Pervious Area
7,612		9.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	37	0.1620	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.5	43	0.3720	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.1	20	0.0310	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.8	44	0.0310	0.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	51	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	83	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	70	0.0229	0.76		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.4	348	Total			

Summary for Subcatchment 23S: SUBCATCHMENT 23S

Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.147 af, Depth> 6.56"
Routed to Pond 11P : EcoRaster

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
6,467	98	Paved parking, HSG B
1,122	98	Roofs, HSG B
4,166	61	>75% Grass cover, Good, HSG B
11,755	85	Weighted Average
4,166		35.44% Pervious Area
7,589		64.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	39	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
4.7	39	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 24S: SUBCATCHMENT 24S

Runoff = 1.71 cfs @ 12.19 hrs, Volume= 0.156 af, Depth> 3.37"
Routed to Pond 12P : Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
15,170	55	Woods, Good, HSG B
8,831	61	>75% Grass cover, Good, HSG B
221	98	Roofs, HSG B
24,222	58	Weighted Average
24,001		99.09% Pervious Area
221		0.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	70	0.1190	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
3.3	30	0.2110	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	8	0.2110	2.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	35	0.0570	1.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	61	0.0197	0.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	204	Total			

Summary for Subcatchment 25S: SUBCATCHMENT 25S

Runoff = 4.91 cfs @ 12.23 hrs, Volume= 0.484 af, Depth> 3.94"
Routed to Pond 9P : 18" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
23,000	55	Woods, Good, HSG B
33,757	61	>75% Grass cover, Good, HSG B
7,438	98	Paved parking, HSG B
64,195	63	Weighted Average
56,757		88.41% Pervious Area
7,438		11.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	30	0.0330	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.9	23	0.1740	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.0	25	0.4800	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.7	22	0.1820	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	46	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.8	222	0.0880	2.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.5	368	Total			

Summary for Subcatchment 30S: Subcatchment 30S

Runoff = 4.61 cfs @ 12.21 hrs, Volume= 0.439 af, Depth> 3.14"
Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
6,678	61	>75% Grass cover, Good, HSG B
66,484	55	Woods, Good, HSG B
73,162	56	Weighted Average
73,162		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	36	0.0830	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
6.9	64	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	16	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	40	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	67	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.3420	2.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.2	299	Total			

Summary for Subcatchment 31S: Subcatchment 31S

Runoff = 8.99 cfs @ 12.33 hrs, Volume= 1.022 af, Depth> 3.36"
Routed to Reach 4Ra : Flow Through Subcatchment 30S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
17,872	61	>75% Grass cover, Good, HSG B
115,366	55	Woods, Good, HSG B
25,807	70	Woods, Good, HSG C
159,045	58	Weighted Average
159,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	83	0.0540	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.7	17	0.3460	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.0	168	0.3460	2.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	16	0.1250	1.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	53	0.0090	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	256	0.0136	0.84	282.32	**Trap/Vee/Rect Channel Flow,** Bot.W=44.00' D=4.00' Z= 10.0 '/' Top.W=124.00' n= 0.400 Sheet flow: Woods+light brush
22.7	593	Total			

Summary for Subcatchment 32S: SUBCATCHMENT 32S

Runoff = 0.63 cfs @ 12.12 hrs, Volume= 0.049 af, Depth> 3.72"
Routed to Pond 6P : Focal Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
6,935	61	>75% Grass cover, Good, HSG B
6,935		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	44	0.0310	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.0	27	0.0310	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	12	0.3300	0.33		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
8.0	83	Total			

Summary for Subcatchment 101S: SUBCATCHMENT 101S

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.038 af, Depth> 6.56"
Routed to Pond CB1 : Catch Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
1,949	98	Paved parking, HSG B
1,113	61	>75% Grass cover, Good, HSG B
3,062	85	Weighted Average
1,113		36.35% Pervious Area
1,949		63.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	12	0.5000	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.2	14	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.6	74	0.0800	2.19		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	49	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	149	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 102S: SUBCATCHMENT 102S

Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 4.65"
Routed to Pond CB2 : Catch Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
8,309	61	>75% Grass cover, Good, HSG B
10,426	69	Weighted Average
8,309		79.69% Pervious Area
2,117		20.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	41	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.5	19	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	102	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.5	202	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 103S: SUBCATCHMENT 103S

Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 4.65"
Routed to Pond CB3 : Catch Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
2,166	98	Paved parking, HSG B
8,449	61	>75% Grass cover, Good, HSG B
10,615	69	Weighted Average
8,449		79.59% Pervious Area
2,166		20.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	39	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.7	21	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	40	0.0800	1.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	110	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.6	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 104S: SUBCATCHMENT 104S

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.078 af, Depth> 4.77"
Routed to Pond CB4 : Catch Basin 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
2,094	98	Paved parking, HSG B
6,469	61	>75% Grass cover, Good, HSG B
8,563	70	Weighted Average
6,469		75.55% Pervious Area
2,094		24.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.8	23	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	37	0.0800	1.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	92	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.7	192	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 105S: SUBCATCHMENT 105S

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 4.77"
Routed to Pond CB5 : Catch Basin 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
1,895	98	Paved parking, HSG B
5,790	61	>75% Grass cover, Good, HSG B
7,685	70	Weighted Average
5,790		75.34% Pervious Area
1,895		24.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.1	28	0.0800	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	32	0.0800	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	98	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	198	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 106S: SUBCATCHMENT 106S

Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 4.77"
Routed to Pond CB6 : Catch Basin 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
2,117	98	Paved parking, HSG B
6,363	61	>75% Grass cover, Good, HSG B
8,480	70	Weighted Average
6,363		75.04% Pervious Area
2,117		24.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	25	0.5000	0.45		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.0	11	0.0800	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	64	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	50	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.5	150	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 107S: SUBCATCHMENT 107S

Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.082 af, Depth> 4.65"
Routed to Pond CB7 : Catch Basin 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
2,034	98	Paved parking, HSG B
7,124	61	>75% Grass cover, Good, HSG B
9,158	69	Weighted Average
7,124		77.79% Pervious Area
2,034		22.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.4	17	0.0800	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	43	0.0800	1.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.3	100	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	200	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 108S: SUBCATCHMENT 108S

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.054 af, Depth> 5.48"
Routed to Pond CB8 : Catch Basin 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
2,096	98	Paved parking, HSG B
3,013	61	>75% Grass cover, Good, HSG B
5,109	76	Weighted Average
3,013		58.97% Pervious Area
2,096		41.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	15	0.5000	0.41		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.6	20	0.0800	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	65	0.0800	2.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.0	8	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.7	108	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 109S: SUBCATCHMENT 109S

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 7.52"
Routed to Pond CB9 : Catch Basin 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
3,914	98	Paved parking, HSG B
677	61	>75% Grass cover, Good, HSG B
4,591	93	Weighted Average
677		14.75% Pervious Area
3,914		85.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	35	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	65	0.0380	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	47	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	35	0.0570	4.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	140	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.8	322	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 110S: SUBCATCHMENT 110S

Runoff = 1.12 cfs @ 12.15 hrs, Volume= 0.094 af, Depth> 5.48"
Routed to Pond CB10 : Catch Basin 10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
4,036	98	Paved parking, HSG B
3,001	61	>75% Grass cover, Good, HSG B
1,917	55	Woods, Good, HSG B
8,954	76	Weighted Average
4,918		54.93% Pervious Area
4,036		45.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	40	0.1500	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
5.3	60	0.2500	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	15	0.2500	2.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	23	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	14	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	41	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.4	193	Total			

Summary for Subcatchment 111S: SUBCATCHMENT 111S

Runoff = 0.98 cfs @ 12.10 hrs, Volume= 0.072 af, Depth> 3.72"
Routed to Reach B4R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
10,066	61	>75% Grass cover, Good, HSG B
10,066		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	37	0.5000	0.49		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
1.3	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 113S: SUBCATCHMENT 113S

Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.064 af, Depth> 8.12"
Routed to Pond CB13 : Catch Basin 13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
4,154	98	Paved parking, HSG B
4,154		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0330	1.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.2	44	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	144	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 114S: SUBCATCHMENT 114S

Runoff = 3.47 cfs @ 12.12 hrs, Volume= 0.301 af, Depth> 7.39"
Routed to Pond CB14 : Catch Basin 14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
3,467	98	Roofs, HSG B
3,413	61	>75% Grass cover, Good, HSG B
14,417	98	Paved parking, HSG B
21,297	92	Weighted Average
3,413		16.03% Pervious Area
17,884		83.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	25	0.0360	1.28		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	133	0.0360	3.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	18	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.0	251	Total			

Summary for Subcatchment 115S: SUBCATCHMENT 115S

Runoff = 2.87 cfs @ 12.09 hrs, Volume= 0.236 af, Depth> 7.88"
Routed to Pond CB15 : Catch Basin 15

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
3,294	98	Roofs, HSG B
11,537	98	Paved parking, HSG B
852	61	>75% Grass cover, Good, HSG B
15,683	96	Weighted Average
852		5.43% Pervious Area
14,831		94.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.1	10	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.5	50	0.0500	1.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	164	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.0	264	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 116S: SUBCATCHMENT 116S

Runoff = 4.25 cfs @ 12.09 hrs, Volume= 0.343 af, Depth> 7.64"
Routed to Pond CB16 : Catch Basin 16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
3,185	98	Roofs, HSG B
17,824	98	Paved parking, HSG B
2,496	61	>75% Grass cover, Good, HSG B
23,505	94	Weighted Average
2,496		10.62% Pervious Area
21,009		89.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	22	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.3	16	0.0200	0.93		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.0	38	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 117S: SUBCATCHMENT 117S

Runoff = 2.89 cfs @ 12.19 hrs, Volume= 0.275 af, Depth> 6.43"
Routed to Pond CB17 : Catch Basin 17

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
323	98	Roofs, HSG B
13,448	98	Paved parking, HSG B
8,556	61	>75% Grass cover, Good, HSG B
22,327	84	Weighted Average
8,556		38.32% Pervious Area
13,771		61.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	62	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0100	0.56		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
4.1	25	0.0120	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.2	8	0.0110	0.63		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.6	72	0.0110	2.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.1	172	Total			

Summary for Subcatchment 118S: SUBCATCHMENT 118S

Runoff = 3.96 cfs @ 12.09 hrs, Volume= 0.314 af, Depth> 7.40"
Routed to Pond CB18 : Catch Basin 18

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
4,495	98	Roofs, HSG B
14,282	98	Paved parking, HSG B
3,394	61	>75% Grass cover, Good, HSG B
22,171	92	Weighted Average
3,394		15.31% Pervious Area
18,777		84.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	60	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.4	40	0.0500	1.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	20	0.0500	4.54		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.1	120	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 119S: SUBCATCHMENT 119S

Runoff = 2.48 cfs @ 12.09 hrs, Volume= 0.202 af, Depth> 7.76"
Routed to Pond CB19 : Catch Basin 19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
3,314	98	Roofs, HSG B
9,272	98	Paved parking, HSG B
1,015	61	>75% Grass cover, Good, HSG B
13,601	95	Weighted Average
1,015		7.46% Pervious Area
12,586		92.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
2.8	14	0.0100	0.08		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.7	46	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.7	118	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.0	218	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 120S: SUBCATCHMENT 120S

Runoff = 3.46 cfs @ 12.09 hrs, Volume= 0.279 af, Depth> 7.64"
Routed to Pond CB20 : Catch Basin 20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
2,604	98	Roofs, HSG B
14,430	98	Paved parking, HSG B
2,079	61	>75% Grass cover, Good, HSG B
19,113	94	Weighted Average
2,079		10.88% Pervious Area
17,034		89.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	42	0.0570	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
0.1	5	0.0200	0.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.8	53	0.0200	1.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.02"
0.1	24	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	124	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 204S: SUBCATCHMENT 204S

Runoff = 1.05 cfs @ 12.34 hrs, Volume= 0.121 af, Depth> 3.24"
Routed to Reach B3R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
13,879	55	Woods, Good, HSG B
5,563	61	>75% Grass cover, Good, HSG B
19,442	57	Weighted Average
19,442		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	100	0.0227	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0292	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	77	0.2340	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	56	0.1790	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	72	0.1390	1.86		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	32	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
23.2	379	Total			

Summary for Subcatchment 205S: SUBCATCHMENT 205S

Runoff = 0.45 cfs @ 12.10 hrs, Volume= 0.033 af, Depth> 3.72"
Routed to Reach B2R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
4,339	61	>75% Grass cover, Good, HSG B
288	55	Woods, Good, HSG B
4,627	61	Weighted Average
4,627		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	22	0.5000	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	70	0.5000	0.56		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
3.9	92	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 207S: SUBCATCHMENT 207S

Runoff = 0.85 cfs @ 12.33 hrs, Volume= 0.096 af, Depth> 3.36"
Routed to Reach B1R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
6,840	61	>75% Grass cover, Good, HSG B
8,162	55	Woods, Good, HSG B
15,002	58	Weighted Average
15,002		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0250	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.2	10	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	56	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	66	0.0610	1.23		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	57	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	40	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.8	329	Total			

Summary for Subcatchment 211S: SUBCATCHMENT 211S

Runoff = 1.59 cfs @ 12.28 hrs, Volume= 0.171 af, Depth> 3.13"
Routed to Reach B6R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
6,380	61	>75% Grass cover, Good, HSG B
22,212	55	Woods, Good, HSG B
28,592	56	Weighted Average
28,592		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	83	0.0361	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
2.1	17	0.2140	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
0.1	11	0.2140	2.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	33	0.1820	2.13		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	45	0.1780	2.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	34	0.2350	2.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	45	0.0440	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	32	0.0630	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	28	0.5000	4.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.3	328	Total			

Summary for Subcatchment 305S: SUBCATCHMENT 305S

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af, Depth> 3.03"
Routed to Reach B5R : BENCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
86	61	>75% Grass cover, Good, HSG B
1,455	55	Woods, Good, HSG B
1,541	55	Weighted Average
1,541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	6	0.2000	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.02"
1.3	40	0.5000	0.50		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.02"
2.2	46	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment ROOF 1: Back of Roof

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.115 af, Depth> 8.12"
Routed to Reach RD1 : RD 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 2: Back of Roof

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.115 af, Depth> 8.12"
Routed to Reach RD2 : RD 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment ROOF 3: Back of Roof

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.115 af, Depth> 8.12"
Routed to Reach RD3 : RD 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year 24-Hour Rainfall=8.36"

Area (sf)	CN	Description
7,416	98	Roofs, HSG B
7,416		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach 4Ra: Flow Through Subcatchment 30S

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 3.36" for 100-Year 24-Hour event
Inflow = 8.99 cfs @ 12.33 hrs, Volume= 1.022 af
Outflow = 8.99 cfs @ 12.34 hrs, Volume= 1.021 af, Atten= 0%, Lag= 0.5 min
Routed to Reach 4Rb : Flow Through Subcatchment 30S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.96 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.40 fps, Avg. Travel Time= 1.7 min

Peak Storage= 376 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.82' , Surface Width= 17.26'
Bank-Full Depth= 2.00' Flow Area= 36.0 sf, Capacity= 62.15 cfs

27.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 40.0' Slope= 0.1500 '/'
Inlet Invert= 252.00', Outlet Invert= 246.00'

‡

Summary for Reach 4Rb: Flow Through Subcatchment 30S

[61] Hint: Exceeded Reach 4Ra outlet invert by 0.41' @ 12.35 hrs

Inflow Area = 3.651 ac, 0.00% Impervious, Inflow Depth > 3.36" for 100-Year 24-Hour event
Inflow = 8.99 cfs @ 12.34 hrs, Volume= 1.021 af
Outflow = 8.98 cfs @ 12.36 hrs, Volume= 1.020 af, Atten= 0%, Lag= 1.1 min
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.83 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 3.4 min

Peak Storage= 766 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.41' , Surface Width= 39.42'
Bank-Full Depth= 2.00' Flow Area= 116.0 sf, Capacity= 276.81 cfs

87.00' x 2.00' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 71.0' Slope= 0.2817 '/'
Inlet Invert= 246.00', Outlet Invert= 226.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11.107 ac, 10.76% Impervious, Inflow Depth > 3.47" for 100-Year 24-Hour event
Inflow = 21.96 cfs @ 12.49 hrs, Volume= 3.211 af
Outflow = 21.96 cfs @ 12.49 hrs, Volume= 3.211 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 12.549 ac, 4.54% Impervious, Inflow Depth > 2.36" for 100-Year 24-Hour event
Inflow = 24.97 cfs @ 12.39 hrs, Volume= 2.466 af
Outflow = 24.97 cfs @ 12.39 hrs, Volume= 2.466 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.257 ac, 35.29% Impervious, Inflow Depth > 4.01" for 100-Year 24-Hour event
Inflow = 19.22 cfs @ 12.42 hrs, Volume= 3.095 af
Outflow = 19.22 cfs @ 12.42 hrs, Volume= 3.095 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Summary for Reach B1R: BENCH

Inflow Area = 0.344 ac, 0.00% Impervious, Inflow Depth > 3.36" for 100-Year 24-Hour event
Inflow = 0.85 cfs @ 12.33 hrs, Volume= 0.096 af
Outflow = 0.84 cfs @ 12.37 hrs, Volume= 0.096 af, Atten= 1%, Lag= 2.3 min
Routed to Reach B2R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB7 : Catch Basin 7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.02 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 5.8 min

Peak Storage= 142 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.45' , Surface Width= 3.62'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 6.92 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 173.0' Slope= 0.0809 '/'
Inlet Invert= 278.00', Outlet Invert= 264.00'

‡

Summary for Reach B2R: BENCH

[62] Hint: Exceeded Reach B1R OUTLET depth by 0.08' @ 12.10 hrs

Inflow Area = 0.451 ac, 0.00% Impervious, Inflow Depth > 3.44" for 100-Year 24-Hour event
Inflow = 1.02 cfs @ 12.35 hrs, Volume= 0.129 af
Outflow = 1.02 cfs @ 12.37 hrs, Volume= 0.129 af, Atten= 0%, Lag= 1.2 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.24 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 3.2 min

Peak Storage= 95 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.45' , Surface Width= 3.62'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.45 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 116.0' Slope= 0.1207 '/'
Inlet Invert= 264.00', Outlet Invert= 250.00'

‡

Summary for Reach B3R: BENCH

[62] Hint: Exceeded Reach B2R OUTLET depth by 0.15' @ 12.35 hrs

Inflow Area = 0.932 ac, 0.00% Impervious, Inflow Depth > 3.33" for 100-Year 24-Hour event
Inflow = 2.12 cfs @ 12.35 hrs, Volume= 0.258 af
Outflow = 2.11 cfs @ 12.36 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.9 min
Routed to Reach B4R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB4 : Catch Basin 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.47 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.72 fps, Avg. Travel Time= 2.4 min

Peak Storage= 148 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.60' , Surface Width= 4.79'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 8.30 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 103.0' Slope= 0.1165 '/'
Inlet Invert= 250.00', Outlet Invert= 238.00'

‡

Summary for Reach B4R: BENCH

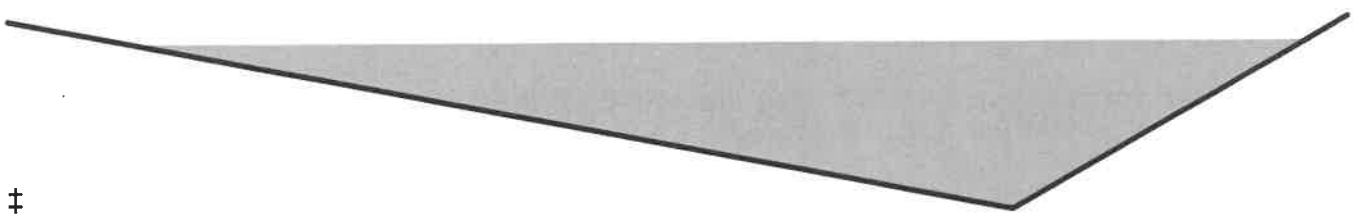
[62] Hint: Exceeded Reach B3R OUTLET depth by 0.28' @ 12.35 hrs

Inflow Area = 1.820 ac, 0.00% Impervious, Inflow Depth > 3.30" for 100-Year 24-Hour event
Inflow = 4.08 cfs @ 12.33 hrs, Volume= 0.501 af
Outflow = 4.04 cfs @ 12.37 hrs, Volume= 0.500 af, Atten= 1%, Lag= 2.2 min
Routed to Pond CB11 : Catch Basin 11
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.32 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 6.0 min

Peak Storage= 711 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.88' , Surface Width= 7.00'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.76 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 232.0' Slope= 0.0560 '/'
Inlet Invert= 238.00', Outlet Invert= 225.00'



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Summary for Reach B5R: BENCH

Inflow Area = 0.035 ac, 0.00% Impervious, Inflow Depth > 3.03" for 100-Year 24-Hour event
Inflow = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af
Outflow = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.2 min
Routed to Reach B3R : BENCH
Overflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach B2R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 0.63 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 0.7 min

Peak Storage= 2 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.22' , Surface Width= 1.74'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 7.02 cfs
Any excess flow will be diverted to the secondary overflow

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 12.0' Slope= 0.0833 '/'
Inlet Invert= 274.00', Outlet Invert= 273.00'

‡

Summary for Reach B6R: BENCH

Inflow Area = 0.656 ac, 0.00% Impervious, Inflow Depth > 3.13" for 100-Year 24-Hour event
Inflow = 1.59 cfs @ 12.28 hrs, Volume= 0.171 af
Outflow = 1.57 cfs @ 12.32 hrs, Volume= 0.171 af, Atten= 1%, Lag= 2.2 min
Routed to Reach B4R : BENCH

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 1.03 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 5.5 min

Peak Storage= 252 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.62' , Surface Width= 4.94'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 5.68 cfs

0.00' x 1.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 6.0 2.0 '/' Top Width= 8.00'
Length= 165.0' Slope= 0.0545 '/'
Inlet Invert= 259.00', Outlet Invert= 250.00'

‡

Summary for Reach RD1: RD 1

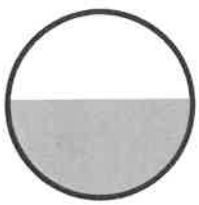
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 8.12" for 100-Year 24-Hour event
Inflow = 1.36 cfs @ 12.09 hrs, Volume= 0.115 af
Outflow = 1.37 cfs @ 12.10 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.5 min
Routed to Pond CB13 : Catch Basin 13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 7.24 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 1.7 min

Peak Storage= 50 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.47 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 264.0' Slope= 0.0417 '/'
Inlet Invert= 276.00', Outlet Invert= 265.00'



Summary for Reach RD2: RD 2

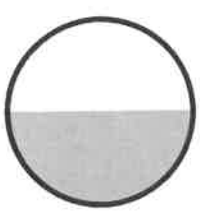
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 8.12" for 100-Year 24-Hour event
Inflow = 1.36 cfs @ 12.09 hrs, Volume= 0.115 af
Outflow = 1.37 cfs @ 12.09 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.2 min
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 7.70 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 0.7 min

Peak Storage= 20 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.34' , Surface Width= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.68 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 110.0' Slope= 0.0491 '/'
Inlet Invert= 269.00', Outlet Invert= 263.60'



Summary for Reach RD3: RD 3

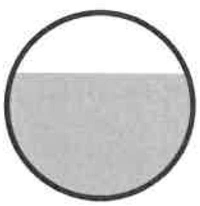
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.170 ac,100.00% Impervious, Inflow Depth > 8.12" for 100-Year 24-Hour event
Inflow = 1.36 cfs @ 12.09 hrs, Volume= 0.115 af
Outflow = 1.37 cfs @ 12.09 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.3 min
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Max. Velocity= 5.44 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.94 fps, Avg. Travel Time= 0.9 min

Peak Storage= 25 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.45' , Surface Width= 0.62'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.71 cfs

8.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 100.0' Slope= 0.0200 '/'
Inlet Invert= 268.00', Outlet Invert= 266.00'



Summary for Pond 1P: Infiltration Pocket

[80] Warning: Exceeded Pond 3P by 1.03' @ 8.95 hrs (0.00 cfs 0.000 af)

Inflow Area = 4.693 ac, 14.98% Impervious, Inflow Depth > 3.80" for 100-Year 24-Hour event
Inflow = 8.39 cfs @ 12.45 hrs, Volume= 1.485 af
Outflow = 8.35 cfs @ 12.48 hrs, Volume= 1.470 af, Atten= 0%, Lag= 1.5 min
Discarded = 0.10 cfs @ 11.70 hrs, Volume= 0.110 af
Primary = 8.26 cfs @ 12.48 hrs, Volume= 1.360 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 198.81' @ 11.70 hrs Surf.Area= 393 sf Storage= 619 cf

Plug-Flow detention time= 8.8 min calculated for 1.467 af (99% of inflow)
Center-of-Mass det. time= 3.7 min (904.6 - 901.0)

Volume	Invert	Avail.Storage	Storage Description
#1	195.84'	619 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.84	43	0.0	0	0
195.85	43	40.0	0	0
195.99	43	40.0	2	3
196.00	43	100.0	0	3
197.00	197	100.0	120	123
198.00	263	100.0	230	353
198.80	393	100.0	262	615
198.81	393	100.0	4	619

Device	Routing	Invert	Outlet Devices
#0	Primary	198.81'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	195.84'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 195.83' Phase-In= 0.01'
#2	Primary	198.80'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.10 cfs @ 11.70 hrs HW=198.81' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.05 cfs @ 12.48 hrs HW=198.81' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.27 fps)

Summary for Pond 2P: Stormwater Pond

Inflow Area = 4.080 ac, 13.74% Impervious, Inflow Depth > 4.12" for 100-Year 24-Hour event
Inflow = 14.36 cfs @ 12.11 hrs, Volume= 1.401 af
Outflow = 6.86 cfs @ 12.49 hrs, Volume= 1.262 af, Atten= 52%, Lag= 23.0 min
Primary = 4.79 cfs @ 12.49 hrs, Volume= 1.202 af
Routed to Pond 1P : Infiltration Pocket
Secondary = 2.08 cfs @ 12.49 hrs, Volume= 0.060 af
Routed to Pond 1P : Infiltration Pocket

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Starting Elev= 199.00' Surf.Area= 4,795 sf Storage= 10,800 cf
Peak Elev= 202.07' @ 12.49 hrs Surf.Area= 8,406 sf Storage= 31,568 cf (20,768 cf above start)

Plug-Flow detention time= 212.8 min calculated for 1.012 af (72% of inflow)
Center-of-Mass det. time= 76.8 min (911.7 - 834.9)

Volume	Invert	Avail.Storage	Storage Description
#1	196.00'	37,985 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
196.00	2,494	0	0
197.00	3,194	2,844	2,844
198.00	3,961	3,578	6,422
199.00	4,795	4,378	10,800
199.49	5,237	2,458	13,257
199.50	5,818	55	13,313
200.00	6,296	3,029	16,341
201.00	7,292	6,794	23,135
202.00	8,346	7,819	30,954
202.80	9,005	6,940	37,895
202.81	9,005	90	37,985

Device	Routing	Invert	Outlet Devices
#1	Primary	199.00'	**12.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 199.00' / 198.80' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	199.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	199.85'	**7.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	201.70'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	201.80'	**6.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=4.79 cfs @ 12.49 hrs HW=202.07' TW=198.81' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.79 cfs @ 6.10 fps)
2=Orifice/Grate (Passes < 0.18 cfs potential flow)
3=Orifice/Grate (Passes < 2.04 cfs potential flow)
4=Orifice/Grate (Passes < 11.86 cfs potential flow)

Secondary OutFlow Max=2.06 cfs @ 12.49 hrs HW=202.07' TW=198.81' (Dynamic Tailwater)
5=Broad-Crested Rectangular Weir (Weir Controls 2.06 cfs @ 1.26 fps)

Summary for Pond 3P: Stormfilter

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)

Inflow Area = 0.523 ac, 23.93% Impervious, Inflow Depth > 4.40" for 100-Year 24-Hour event
Inflow = 1.82 cfs @ 12.28 hrs, Volume= 0.192 af
Outflow = 1.82 cfs @ 12.29 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.9 min
Primary = 1.82 cfs @ 12.29 hrs, Volume= 0.190 af
Routed to Pond 1P : Infiltration Pocket
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 198.96' @ 12.29 hrs Surf.Area= 295 sf Storage= 103 cf

Plug-Flow detention time= 6.0 min calculated for 0.190 af (99% of inflow)
Center-of-Mass det. time= 1.6 min (841.1 - 839.6)

Volume	Invert	Avail.Storage	Storage Description
#1	195.00'	7 cf	**1.00'W x 2.00'L x 3.40'H Prismatoid**
#2	191.75'	13 cf	**1.00'W x 2.00'L x 6.65'H Prismatoid**
#3	198.40'	97 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		117 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.40	4	0	0
199.00	310	94	94
199.01	310	3	97

Device	Routing	Invert	Outlet Devices
#1	Primary	196.10'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 196.10' / 196.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	199.00'	**20.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.81 cfs @ 12.29 hrs HW=198.96' TW=198.81' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.81 cfs @ 1.48 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=191.75' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: StormTech

Inflow Area = 3.767 ac, 86.71% Impervious, Inflow Depth > 7.52" for 100-Year 24-Hour event
Inflow = 27.43 cfs @ 12.10 hrs, Volume= 2.360 af
Outflow = 7.53 cfs @ 12.48 hrs, Volume= 1.587 af, Atten= 73%, Lag= 23.1 min
Primary = 7.53 cfs @ 12.48 hrs, Volume= 1.587 af
Routed to Pond 6P : Focal Point

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 264.73' @ 12.48 hrs Surf.Area= 0.393 ac Storage= 1.350 af

Plug-Flow detention time= 292.3 min calculated for 1.584 af (67% of inflow)
Center-of-Mass det. time= 196.0 min (958.0 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	259.25'	0.540 af	**58.58'W x 292.50'L x 5.50'H Field A** 2.164 af Overall - 0.813 af Embedded = 1.350 af x 40.0% Voids
#2A	260.00'	0.813 af	**ADS_StormTech MC-3500 d +Cap**x 320 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 320 Chambers in 8 Rows Cap Storage= 14.9 cf x 2 x 8 rows = 238.4 cf
		1.353 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	259.25'	**15.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 259.25' / 258.20' S= 0.0328 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	259.25'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	261.50'	**6.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	263.70'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.50 cfs @ 12.48 hrs HW=264.73' TW=257.49' (Dynamic Tailwater)
└─**1=Culvert** (Passes 7.50 cfs of 10.27 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.22 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 1.91 cfs @ 8.28 fps)
  └─**4=Orifice/Grate** (Orifice Controls 5.53 cfs @ 3.32 fps)

Summary for Pond 6P: Focal Point

Inflow Area = 3.926 ac, 83.20% Impervious, Inflow Depth > 5.00" for 100-Year 24-Hour event
Inflow = 7.76 cfs @ 12.47 hrs, Volume= 1.637 af
Outflow = 7.73 cfs @ 12.50 hrs, Volume= 1.636 af, Atten= 0%, Lag= 1.4 min
Primary = 7.73 cfs @ 12.50 hrs, Volume= 1.636 af
Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 257.49' @ 12.50 hrs Surf.Area= 1,781 sf Storage= 1,608 cf

Plug-Flow detention time= 3.3 min calculated for 1.633 af (100% of inflow)
Center-of-Mass det. time= 3.2 min (957.8 - 954.5)

Volume	Invert	Avail.Storage	Storage Description
#1	253.75'	279 cf	**20.00'W x 31.00'L x 2.25'H Focal Point** 1,395 cf Overall x 20.0% Voids
#2	256.00'	1,965 cf	**Surface Bowl (Prismatic)**Listed below (Recalc)
		2,244 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	620	0	0
258.00	1,345	1,965	1,965

Device	Routing	Invert	Outlet Devices
#1	Primary	252.75'	**15.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 252.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 3	253.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#3	Device 1	253.25'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	257.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.72 cfs @ 12.50 hrs HW=257.49' TW=0.00' (Dynamic Tailwater)
└1=**Culvert** (Passes 7.72 cfs of 9.47 cfs potential flow)
  ├3=**Orifice/Grate** (Orifice Controls 2.40 cfs @ 9.62 fps)
  │ └2=**Exfiltration** (Passes 2.40 cfs of 4.12 cfs potential flow)
  └4=**Orifice/Grate** (Weir Controls 5.32 cfs @ 2.29 fps)

Summary for Pond 9P: 18" HDPE

Inflow Area = 1.474 ac, 11.59% Impervious, Inflow Depth > 3.94" for 100-Year 24-Hour event
Inflow = 4.91 cfs @ 12.23 hrs, Volume= 0.484 af
Outflow = 4.91 cfs @ 12.25 hrs, Volume= 0.483 af, Atten= 0%, Lag= 0.8 min
Primary = 4.91 cfs @ 12.25 hrs, Volume= 0.483 af
  Routed to Pond 10P : Bioretention
Secondary = 0.00 cfs @ 12.25 hrs, Volume= 0.000 af
  Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 202.50' @ 12.25 hrs Surf.Area= 258 sf Storage= 216 cf

Plug-Flow detention time= 1.5 min calculated for 0.483 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (846.0 - 845.1)

Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
201.00	37	0	0
202.00	177	107	107
202.50	258	109	216
202.51	258	3	218

Device	Routing	Invert	Outlet Devices
#1	Primary	201.20'	**18.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500

			Inlet / Outlet Invert= 201.20' / 201.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	202.50'	**36.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=4.90 cfs @ 12.25 hrs HW=202.50' TW=201.50' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 4.90 cfs @ 4.04 fps)

Secondary OutFlow Max=0.00 cfs @ 12.25 hrs HW=202.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir**(Weir Controls 0.00 cfs @ 0.03 fps)

Summary for Pond 10P: Bioretention

Inflow Area = 3.401 ac, 10.16% Impervious, Inflow Depth > 3.87" for 100-Year 24-Hour event
Inflow = 11.01 cfs @ 12.25 hrs, Volume= 1.097 af
Outflow = 8.60 cfs @ 12.40 hrs, Volume= 1.093 af, Atten= 22%, Lag= 9.4 min
Discarded = 3.07 cfs @ 12.40 hrs, Volume= 0.861 af
Primary = 2.44 cfs @ 12.40 hrs, Volume= 0.162 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 3.10 cfs @ 12.40 hrs, Volume= 0.069 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 201.84' @ 12.40 hrs Surf.Area= 4,511 sf Storage= 7,689 cf

Plug-Flow detention time= 18.7 min calculated for 1.090 af (99% of inflow)
Center-of-Mass det. time= 16.1 min (863.2 - 847.1)

Volume	Invert	Avail.Storage	Storage Description
#1	197.49'	10,895 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
197.49	2,341	224.0	0.0	0	0	2,341
197.50	2,341	224.0	40.0	9	9	2,343
198.49	2,341	224.0	40.0	927	936	2,565
198.50	2,341	224.0	15.0	4	940	2,567
199.99	2,341	224.0	15.0	523	1,463	2,901
200.00	2,341	224.0	100.0	23	1,487	2,903
200.99	3,056	251.0	100.0	2,664	4,150	3,951
201.00	3,826	265.0	100.0	34	4,185	4,525
202.00	4,646	284.0	100.0	4,229	8,414	5,400
202.50	5,079	293.0	100.0	2,430	10,844	5,837
202.51	5,079	293.0	100.0	51	10,895	5,840

Device	Routing	Invert	Outlet Devices
#1	Primary	200.10'	**10.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.10' / 199.80' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Device 1	200.30'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	201.10'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	201.50'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#5	Discarded	197.49'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 197.41' Phase-In= 0.10'

Discarded OutFlow Max=3.06 cfs @ 12.40 hrs HW=201.84' (Free Discharge)
└─**5=Exfiltration** (Controls 3.06 cfs)

Primary OutFlow Max=2.43 cfs @ 12.40 hrs HW=201.84' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.43 cfs @ 4.46 fps)
  ├─**2=Orifice/Grate** (Passes < 1.07 cfs potential flow)
  └─**3=Orifice/Grate** (Passes < 33.30 cfs potential flow)

Secondary OutFlow Max=3.08 cfs @ 12.40 hrs HW=201.84' TW=198.06' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir**(Weir Controls 3.08 cfs @ 1.51 fps)

Summary for Pond 11P: EcoRaster

[93] Warning: Storage range exceeded by 0.05'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.826 ac, 21.71% Impervious, Inflow Depth > 5.15" for 100-Year 24-Hour event
Inflow = 4.78 cfs @ 12.38 hrs, Volume= 0.354 af
Outflow = 5.12 cfs @ 12.40 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.8 min
Discarded = 1.15 cfs @ 12.40 hrs, Volume= 0.265 af
Primary = 3.96 cfs @ 12.40 hrs, Volume= 0.089 af
Routed to Reach AP2 : Analysis Point 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 198.06' @ 12.40 hrs Surf.Area= 3,707 sf Storage= 2,256 cf

Plug-Flow detention time= 20.1 min calculated for 0.353 af (100% of inflow)
Center-of-Mass det. time= 19.9 min (823.3 - 803.5)

Volume	Invert	Avail.Storage	Storage Description
#1	195.07'	2,256 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.07	3,707	0.0	0	0
195.08	3,707	30.0	11	11
196.08	3,707	30.0	1,112	1,123
196.09	3,707	15.0	6	1,129
196.33	3,707	15.0	133	1,262
196.34	3,707	5.0	2	1,264
197.33	3,707	5.0	183	1,448
197.34	3,707	30.0	11	1,459
197.99	3,707	30.0	723	2,182
198.00	3,707	100.0	37	2,219
198.01	3,707	100.0	37	2,256

Device	Routing	Invert	Outlet Devices
#1	Primary	198.00'	**100.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	195.07'	**1.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.83' Phase-In= 0.01'

Discarded OutFlow Max=1.15 cfs @ 12.40 hrs HW=198.06' (Free Discharge)
└─**2=Exfiltration** (Controls 1.15 cfs)

Primary OutFlow Max=3.89 cfs @ 12.40 hrs HW=198.06' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir**(Weir Controls 3.89 cfs @ 0.65 fps)

Summary for Pond 12P: Dry Well

[93] Warning: Storage range exceeded by 0.23'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=110)

Inflow Area = 0.556 ac, 0.91% Impervious, Inflow Depth > 3.37" for 100-Year 24-Hour event
Inflow = 1.71 cfs @ 12.19 hrs, Volume= 0.156 af
Outflow = 1.70 cfs @ 12.18 hrs, Volume= 0.148 af, Atten= 1%, Lag= 0.0 min
Discarded = 0.01 cfs @ 12.18 hrs, Volume= 0.010 af
Primary = 1.69 cfs @ 12.18 hrs, Volume= 0.137 af
Routed to Pond 11P : EcoRaster

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 199.44' @ 12.18 hrs Surf.Area= 287 sf Storage= 359 cf

Plug-Flow detention time= 37.3 min calculated for 0.148 af (95% of inflow)
Center-of-Mass det. time= 9.4 min (862.3 - 852.9)

Volume	Invert	Avail.Storage	Storage Description
#1	194.25'	318 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 815 cf Overall - 21 cf Embedded = 794 cf x 40.0% Voids
#2	195.08'	21 cf	**3.00'D x 3.00'H Vertical Cone/Cylinder** Inside #1
#3	198.08'	2 cf	**1.67'D x 0.92'H Vertical Cone/Cylinder**
#4	198.79'	18 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		359 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.25	220	0	0
195.06	220	178	178
195.07	211	2	180
198.08	211	635	815

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.79	9	0	0
199.20	74	17	17
199.21	74	1	18

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.25'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.25' Phase-In= 0.01'
#2	Primary	199.20'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.01 cfs @ 12.18 hrs HW=199.44' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.67 cfs @ 12.18 hrs HW=199.44' TW=198.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir**(Weir Controls 1.67 cfs @ 1.39 fps)

Summary for Pond CB1: Catch Basin 1

[58] Hint: Peaked 4.99' above defined flood level

Inflow Area = 0.070 ac, 63.65% Impervious, Inflow Depth > 6.56" for 100-Year 24-Hour event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 0.038 af
Outflow = 0.51 cfs @ 12.09 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.09 hrs, Volume= 0.038 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 208.89' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.60'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 200.60' / 200.50' S= 0.0053 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.50 cfs @ 12.09 hrs HW=208.23' TW=208.22' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.50 cfs @ 0.40 fps)

Summary for Pond CB10: Catch Basin 10

Inflow Area = 0.206 ac, 45.07% Impervious, Inflow Depth > 5.48" for 100-Year 24-Hour event
Inflow = 1.12 cfs @ 12.15 hrs, Volume= 0.094 af
Outflow = 1.12 cfs @ 12.15 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min
Primary = 1.12 cfs @ 12.15 hrs, Volume= 0.094 af
Routed to Pond CB9 : Catch Basin 9

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.83' @ 12.13 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	252.10'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.10' / 252.00' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.12 cfs @ 12.15 hrs HW=252.82' TW=252.65' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.12 cfs @ 2.18 fps)

Summary for Pond CB11: Catch Basin 11

Inflow Area = 1.820 ac, 0.00% Impervious, Inflow Depth > 3.30" for 100-Year 24-Hour event
Inflow = 4.04 cfs @ 12.37 hrs, Volume= 0.500 af
Outflow = 4.04 cfs @ 12.37 hrs, Volume= 0.500 af, Atten= 0%, Lag= 0.0 min
Primary = 4.04 cfs @ 12.37 hrs, Volume= 0.500 af
Routed to Pond CB2 : Catch Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 209.37' @ 12.37 hrs
Flood Elev= 221.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.00'	**15.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.00' / 200.50' S= 0.1316 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.02 cfs @ 12.37 hrs HW=209.37' TW=205.87' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.02 cfs @ 3.27 fps)

Summary for Pond CB12: Catch Basin 12

Inflow Area = 3.550 ac, 0.53% Impervious, Inflow Depth > 3.13" for 100-Year 24-Hour event
Inflow = 7.89 cfs @ 12.36 hrs, Volume= 0.926 af
Outflow = 7.89 cfs @ 12.36 hrs, Volume= 0.926 af, Atten= 0%, Lag= 0.0 min
Primary = 7.89 cfs @ 12.36 hrs, Volume= 0.926 af
Routed to Reach AP2 : Analysis Point 2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond CB10 : Catch Basin 10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 263.28' @ 12.36 hrs Surf.Area= 60 sf Storage= 15 cf

Plug-Flow detention time= 0.1 min calculated for 0.924 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (866.1 - 866.1)

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	74 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	43	0	0
264.00	103	73	73
264.01	103	1	74

Device	Routing	Invert	Outlet Devices
#0	Secondary	264.01'	**Automatic Storage Overflow** (Discharged without head)
#1	Primary	259.70'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 259.70' / 259.00' S= 0.0140 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Device 1	263.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	264.00'	**8.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=7.88 cfs @ 12.36 hrs HW=263.28' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 7.88 cfs of 10.16 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 7.88 cfs @ 1.74 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=263.00' TW=252.10' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond CB13: Catch Basin 13

[58] Hint: Peaked 7.63' above defined flood level
[63] Warning: Exceeded Reach RD1 INLET depth by 1.98' @ 12.10 hrs

Inflow Area = 0.266 ac,100.00% Impervious, Inflow Depth > 8.11" for 100-Year 24-Hour event
Inflow = 2.13 cfs @ 12.09 hrs, Volume= 0.180 af
Outflow = 2.13 cfs @ 12.09 hrs, Volume= 0.180 af, Atten= 0%, Lag= 0.0 min
Primary = 2.13 cfs @ 12.09 hrs, Volume= 0.180 af
Routed to Pond CB14 : Catch Basin 14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 278.33' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	264.20'	**18.0" Round Culvert** L= 73.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 264.20' / 263.40' S= 0.0110 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.09 cfs @ 12.09 hrs HW=277.75' TW=277.65' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.09 cfs @ 1.18 fps)

Summary for Pond CB14: Catch Basin 14

[58] Hint: Peaked 8.23' above defined flood level
[63] Warning: Exceeded Reach RD2 INLET depth by 8.89' @ 12.10 hrs

Inflow Area = 0.925 ac, 91.53% Impervious, Inflow Depth > 7.73" for 100-Year 24-Hour event
Inflow = 6.89 cfs @ 12.10 hrs, Volume= 0.596 af
Outflow = 6.89 cfs @ 12.10 hrs, Volume= 0.596 af, Atten= 0%, Lag= 0.0 min
Primary = 6.89 cfs @ 12.10 hrs, Volume= 0.596 af
Routed to Pond CB15 : Catch Basin 15

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 278.23' @ 12.10 hrs
Flood Elev= 270.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	263.30'	**18.0" Round Culvert** L= 68.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.30' / 262.90' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.82 cfs @ 12.10 hrs HW=277.92' TW=276.89' (Dynamic Tailwater)
1=Culvert (Inlet Controls 6.82 cfs @ 3.86 fps)

Summary for Pond CB15: Catch Basin 15

[58] Hint: Peaked 6.48' above defined flood level

Inflow Area = 1.285 ac, 92.38% Impervious, Inflow Depth > 7.77" for 100-Year 24-Hour event
Inflow = 9.72 cfs @ 12.10 hrs, Volume= 0.832 af
Outflow = 9.72 cfs @ 12.10 hrs, Volume= 0.832 af, Atten= 0%, Lag= 0.0 min
Primary = 9.72 cfs @ 12.10 hrs, Volume= 0.832 af
Routed to Pond CB16 : Catch Basin 16

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 277.18' @ 12.10 hrs
Flood Elev= 270.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	262.80'	**18.0" Round Culvert** L= 156.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 262.80' / 262.00' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.70 cfs @ 12.10 hrs HW=277.10' TW=274.88' (Dynamic Tailwater)
1=Culvert (Outlet Controls 9.70 cfs @ 5.49 fps)

Summary for Pond CB16: Catch Basin 16

[58] Hint: Peaked 4.65' above defined flood level

Inflow Area = 1.824 ac, 91.49% Impervious, Inflow Depth > 7.73" for 100-Year 24-Hour event
Inflow = 13.95 cfs @ 12.10 hrs, Volume= 1.175 af
Outflow = 13.95 cfs @ 12.10 hrs, Volume= 1.175 af, Atten= 0%, Lag= 0.0 min
Primary = 13.95 cfs @ 12.10 hrs, Volume= 1.175 af
Routed to Pond CB17 : Catch Basin 17

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 274.95' @ 12.10 hrs
Flood Elev= 270.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.50'	**24.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.50' / 260.90' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=13.79 cfs @ 12.10 hrs HW=274.66' TW=273.33' (Dynamic Tailwater)
1=Culvert (Inlet Controls 13.79 cfs @ 4.39 fps)

Summary for Pond CB17: Catch Basin 17

[58] Hint: Peaked 4.59' above defined flood level
[63] Warning: Exceeded Reach RD3 INLET depth by 5.14' @ 12.10 hrs

Inflow Area = 2.507 ac, 85.98% Impervious, Inflow Depth > 7.49" for 100-Year 24-Hour event
Inflow = 17.61 cfs @ 12.10 hrs, Volume= 1.565 af
Outflow = 17.61 cfs @ 12.10 hrs, Volume= 1.565 af, Atten= 0%, Lag= 0.0 min
Primary = 17.61 cfs @ 12.10 hrs, Volume= 1.565 af
Routed to Pond CB18 : Catch Basin 18

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 273.59' @ 12.10 hrs
Flood Elev= 269.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.80'	**24.0" Round Culvert** L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.80' / 260.50' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.57 cfs @ 12.10 hrs HW=273.55' TW=271.38' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 17.57 cfs @ 5.59 fps)

Summary for Pond CB18: Catch Basin 18

[58] Hint: Peaked 2.71' above defined flood level

Inflow Area = 3.016 ac, 85.76% Impervious, Inflow Depth > 7.47" for 100-Year 24-Hour event
Inflow = 21.53 cfs @ 12.10 hrs, Volume= 1.879 af
Outflow = 21.53 cfs @ 12.10 hrs, Volume= 1.879 af, Atten= 0%, Lag= 0.0 min
Primary = 21.53 cfs @ 12.10 hrs, Volume= 1.879 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 271.41' @ 12.10 hrs
Flood Elev= 268.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.40'	**24.0" Round Culvert** L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.40' / 260.30' S= 0.0091 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=21.44 cfs @ 12.10 hrs HW=271.33' TW=268.11' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 21.44 cfs @ 6.82 fps)

Summary for Pond CB19: Catch Basin 19

[58] Hint: Peaked 2.35' above defined flood level

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 7.69" for 100-Year 24-Hour event
Inflow = 5.93 cfs @ 12.09 hrs, Volume= 0.481 af
Outflow = 5.93 cfs @ 12.09 hrs, Volume= 0.481 af, Atten= 0%, Lag= 0.0 min
Primary = 5.93 cfs @ 12.09 hrs, Volume= 0.481 af
Routed to Pond DMH 4 : Drain Manhole 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.65' @ 12.10 hrs
Flood Elev= 266.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.40'	**24.0" Round Culvert** L= 151.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.40' / 260.60' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.78 cfs @ 12.09 hrs HW=268.25' TW=268.02' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 5.78 cfs @ 1.84 fps)

Summary for Pond CB2: Catch Basin 2

[58] Hint: Peaked 4.98' above defined flood level

Inflow Area = 2.129 ac, 4.38% Impervious, Inflow Depth > 3.56" for 100-Year 24-Hour event
Inflow = 4.72 cfs @ 12.34 hrs, Volume= 0.631 af
Outflow = 4.72 cfs @ 12.34 hrs, Volume= 0.631 af, Atten= 0%, Lag= 0.0 min
Primary = 4.72 cfs @ 12.34 hrs, Volume= 0.631 af
Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 208.88' @ 12.11 hrs
Flood Elev= 203.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	200.40'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 200.40' / 200.00' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.71 cfs @ 12.34 hrs HW=206.04' TW=205.02' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 4.71 cfs @ 3.83 fps)

Summary for Pond CB20: Catch Basin 20

[58] Hint: Peaked 3.23' above defined flood level

Inflow Area = 0.439 ac, 89.12% Impervious, Inflow Depth > 7.64" for 100-Year 24-Hour event
Inflow = 3.46 cfs @ 12.09 hrs, Volume= 0.279 af
Outflow = 3.46 cfs @ 12.09 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
Primary = 3.46 cfs @ 12.09 hrs, Volume= 0.279 af
Routed to Pond CB19 : Catch Basin 19

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.73' @ 12.10 hrs
Flood Elev= 265.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	261.90'	**24.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 261.90' / 261.50' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.37 cfs @ 12.09 hrs HW=268.34' TW=268.26' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.37 cfs @ 1.07 fps)

Summary for Pond CB3: Catch Basin 3

Inflow Area = 1.450 ac, 32.23% Impervious, Inflow Depth > 5.09" for 100-Year 24-Hour event
Inflow = 8.11 cfs @ 12.10 hrs, Volume= 0.615 af
Outflow = 8.11 cfs @ 12.10 hrs, Volume= 0.615 af, Atten= 0%, Lag= 0.0 min
Primary = 8.11 cfs @ 12.10 hrs, Volume= 0.615 af
Routed to Pond DMH1 : Drain Manhole 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 211.85' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.20'	**15.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.20' / 200.00' S= 0.1262 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.04 cfs @ 12.10 hrs HW=211.79' TW=207.83' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 8.04 cfs @ 6.55 fps)

Summary for Pond CB4: Catch Basin 4

Inflow Area = 0.197 ac, 24.45% Impervious, Inflow Depth > 4.77" for 100-Year 24-Hour event
Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.078 af
Outflow = 1.08 cfs @ 12.09 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 12.09 hrs, Volume= 0.078 af
Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 211.90' @ 12.10 hrs
Flood Elev= 216.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.40'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 208.40' / 208.30' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.06 cfs @ 12.09 hrs HW=211.80' TW=211.74' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.06 cfs @ 0.86 fps)

Summary for Pond CB5: Catch Basin 5

Inflow Area = 1.010 ac, 36.59% Impervious, Inflow Depth > 5.26" for 100-Year 24-Hour event
Inflow = 5.73 cfs @ 12.10 hrs, Volume= 0.442 af
Outflow = 5.73 cfs @ 12.10 hrs, Volume= 0.442 af, Atten= 0%, Lag= 0.0 min
Primary = 5.73 cfs @ 12.10 hrs, Volume= 0.442 af
Routed to Pond DMH2 : Drain Manhole 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 226.43' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.30'	**15.0" Round Culvert** L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.30' / 217.60' S= 0.0817 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.70 cfs @ 12.10 hrs HW=226.42' TW=219.62' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 5.70 cfs @ 4.65 fps)

Summary for Pond CB6: Catch Basin 6

Inflow Area = 0.195 ac, 24.96% Impervious, Inflow Depth > 4.77" for 100-Year 24-Hour event
Inflow = 1.07 cfs @ 12.09 hrs, Volume= 0.077 af
Outflow = 1.07 cfs @ 12.09 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 12.09 hrs, Volume= 0.077 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 226.49' @ 12.10 hrs
Flood Elev= 229.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.50'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.50' / 224.40' S= 0.0053 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.05 cfs @ 12.09 hrs HW=226.43' TW=226.38' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.05 cfs @ 0.85 fps)

Summary for Pond CB7: Catch Basin 7

Inflow Area =	0.210 ac, 22.21% Impervious, Inflow Depth > 4.65"	for 100-Year 24-Hour event		
Inflow =	1.13 cfs @	12.09 hrs, Volume=	0.082 af	
Outflow =	1.13 cfs @	12.09 hrs, Volume=	0.082 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.13 cfs @	12.09 hrs, Volume=	0.082 af	

Routed to Pond CB8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.82' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.90'	**15.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.90' / 238.80' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.11 cfs @ 12.09 hrs HW=239.80' TW=239.71' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.11 cfs @ 1.63 fps)

Summary for Pond CB8: Catch Basin 8

Inflow Area =	0.638 ac, 43.43% Impervious, Inflow Depth > 5.54"	for 100-Year 24-Hour event		
Inflow =	3.70 cfs @	12.10 hrs, Volume=	0.295 af	
Outflow =	3.70 cfs @	12.10 hrs, Volume=	0.295 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.70 cfs @	12.10 hrs, Volume=	0.295 af	

Routed to Pond DMH 3 : Drain Manhole 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 239.72' @ 12.10 hrs
Flood Elev= 242.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	238.70'	**15.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.70' / 233.10' S= 0.0889 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.69 cfs @ 12.10 hrs HW=239.72' TW=234.25' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.69 cfs @ 3.44 fps)

Summary for Pond CB9: Catch Basin 9

Inflow Area = 0.311 ac, 58.69% Impervious, Inflow Depth > 6.17" for 100-Year 24-Hour event
Inflow = 1.87 cfs @ 12.11 hrs, Volume= 0.160 af
Outflow = 1.87 cfs @ 12.11 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.11 hrs, Volume= 0.160 af
Routed to Pond cb8 : Catch Basin 8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 252.67' @ 12.11 hrs
Flood Elev= 256.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.90'	**15.0" Round Culvert** L= 163.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 251.90' / 238.80' S= 0.0804 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.83 cfs @ 12.11 hrs HW=252.66' TW=239.70' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.83 cfs @ 2.34 fps)

Summary for Pond DMH 3: Drain Manhole 3

Inflow Area = 0.638 ac, 43.43% Impervious, Inflow Depth > 5.54" for 100-Year 24-Hour event
Inflow = 3.70 cfs @ 12.10 hrs, Volume= 0.295 af
Outflow = 3.70 cfs @ 12.10 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.0 min
Primary = 3.70 cfs @ 12.10 hrs, Volume= 0.295 af
Routed to Pond CB5 : Catch Basin 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 234.25' @ 12.10 hrs
Flood Elev= 237.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**15.0" Round Culvert** L= 104.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 233.00' / 224.40' S= 0.0827 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.69 cfs @ 12.10 hrs HW=234.25' TW=226.42' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.69 cfs @ 3.01 fps)

Summary for Pond DMH 4: Drain Manhole 4

[58] Hint: Peaked 0.01' above defined flood level
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=34)

Inflow Area = 0.751 ac, 90.54% Impervious, Inflow Depth > 7.69" for 100-Year 24-Hour event
Inflow = 5.93 cfs @ 12.09 hrs, Volume= 0.481 af
Outflow = 5.93 cfs @ 12.09 hrs, Volume= 0.481 af, Atten= 0%, Lag= 0.0 min
Primary = 5.93 cfs @ 12.09 hrs, Volume= 0.481 af
Routed to Pond DMH 5 : Drain Manhole 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.41' @ 12.10 hrs
Flood Elev= 268.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.50'	**24.0" Round Culvert** L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.50' / 260.40' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.78 cfs @ 12.09 hrs HW=268.02' TW=267.79' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 5.78 cfs @ 1.84 fps)

Summary for Pond DMH 5: Drain Manhole 5

[80] Warning: Exceeded Pond DMH 4 by 0.02' @ 23.35 hrs (1.51 cfs 0.091 af)

Inflow Area = 3.767 ac, 86.71% Impervious, Inflow Depth > 7.52" for 100-Year 24-Hour event
Inflow = 27.43 cfs @ 12.10 hrs, Volume= 2.360 af
Outflow = 27.43 cfs @ 12.10 hrs, Volume= 2.360 af, Atten= 0%, Lag= 0.0 min
Primary = 27.43 cfs @ 12.10 hrs, Volume= 2.360 af
Routed to Pond 5P : StormTech

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 268.17' @ 12.10 hrs
Flood Elev= 268.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	260.30'	**24.0" Round Culvert** L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 260.30' / 260.10' S= 0.0143 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=27.15 cfs @ 12.10 hrs HW=268.03' TW=262.86' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 27.15 cfs @ 8.64 fps)

Summary for Pond DMH1: Drain Manhole 1

Inflow Area = 3.579 ac, 15.66% Impervious, Inflow Depth > 4.18" for 100-Year 24-Hour event
Inflow = 12.28 cfs @ 12.11 hrs, Volume= 1.246 af
Outflow = 12.28 cfs @ 12.11 hrs, Volume= 1.246 af, Atten= 0%, Lag= 0.0 min
Primary = 12.28 cfs @ 12.11 hrs, Volume= 1.246 af
Routed to Pond 2P : Stormwater Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9

Peak Elev= 208.05' @ 12.11 hrs
Flood Elev= 211.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	199.90'	**15.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 199.90' / 199.70' S= 0.0067 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=12.14 cfs @ 12.11 hrs HW=207.88' TW=201.11' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 12.14 cfs @ 9.89 fps)

Summary for Pond DMH2: Drain Manhole 2

Inflow Area = 1.010 ac, 36.59% Impervious, Inflow Depth > 5.26" for 100-Year 24-Hour event
Inflow = 5.73 cfs @ 12.10 hrs, Volume= 0.442 af
Outflow = 5.73 cfs @ 12.10 hrs, Volume= 0.442 af, Atten= 0%, Lag= 0.0 min
Primary = 5.73 cfs @ 12.10 hrs, Volume= 0.442 af
Routed to Pond CB3 : Catch Basin 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 9
Peak Elev= 219.63' @ 12.10 hrs
Flood Elev= 223.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	217.50'	**15.0" Round Culvert** L= 84.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 217.50' / 208.30' S= 0.1095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.70 cfs @ 12.10 hrs HW=219.62' TW=211.82' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 5.70 cfs @ 4.65 fps)

APPENDIX III

Extreme Precipitation Estimates

About this Project | **Data & Products** | Daily Monitoring | Documentation

Select Product

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Points
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

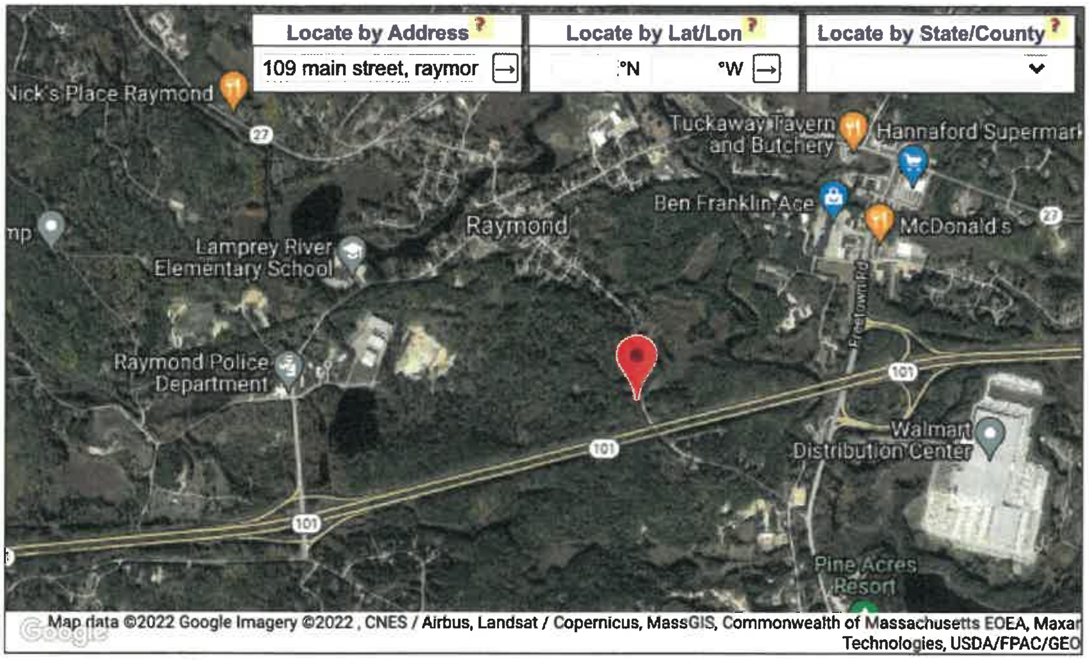
Select Location

Double-click the map to place a marker, or enter address or latitude/longitude.

Locate by Address: 109 main street, raymor

Locate by Lat/Lon: °N °W

Locate by State/County



Select Options

Smoothing	Delivery
Yes	Popup

Submit

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This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC) — Cornell University

Natural Resources Conservation Service (NRCS)

Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	71.177 degrees West
Latitude	43.029 degrees North
Elevation	0 feet
Date/Time	Wed, 27 Apr 2022 16:47:06 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.03	**1yr**	0.71	0.98	1.20	1.54	1.97	2.54	2.74	**1yr**	2.25	2.64	3.05	3.74	4.34	**1yr**
2yr	0.32	0.49	0.61	0.81	1.02	1.29	**2yr**	0.88	1.17	1.50	1.89	2.39	3.04	3.38	**2yr**	2.69	3.25	3.76	4.46	5.09	**2yr**
5yr	0.38	0.58	0.73	0.98	1.26	1.61	**5yr**	1.09	1.46	1.88	2.39	3.03	3.85	4.33	**5yr**	3.40	4.16	4.78	5.66	6.40	**5yr**
10yr	0.42	0.66	0.83	1.13	1.48	1.91	**10yr**	1.27	1.73	2.24	2.85	3.63	4.60	5.22	**10yr**	4.07	5.02	5.73	6.79	7.62	**10yr**
25yr	0.49	0.78	1.00	1.37	1.82	2.38	**25yr**	1.57	2.16	2.81	3.60	4.59	5.83	6.69	**25yr**	5.16	6.44	7.30	8.64	9.59	**25yr**
50yr	0.56	0.89	1.14	1.60	2.15	2.83	**50yr**	1.85	2.55	3.34	4.31	5.50	6.98	8.09	**50yr**	6.18	7.78	8.77	10.37	11.44	**50yr**
100yr	0.63	1.01	1.31	1.85	2.53	3.36	**100yr**	2.18	3.02	3.99	5.15	6.59	8.36	9.77	**100yr**	7.40	9.40	10.53	12.46	13.64	**100yr**
200yr	0.71	1.16	1.51	2.16	2.98	3.99	**200yr**	2.57	3.58	4.75	6.15	7.88	10.01	11.81	**200yr**	8.86	11.36	12.66	14.98	16.27	**200yr**
500yr	0.85	1.39	1.82	2.64	3.71	5.01	**500yr**	3.20	4.48	5.99	7.79	10.00	12.72	15.19	**500yr**	11.26	14.60	16.14	19.13	20.58	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.35	0.43	0.58	0.71	0.88	**1yr**	0.62	0.86	1.01	1.30	1.56	2.12	2.53	**1yr**	1.87	2.43	2.83	3.45	3.84	**1yr**
2yr	0.31	0.48	0.59	0.80	0.99	1.18	**2yr**	0.86	1.15	1.34	1.78	2.28	2.94	3.23	**2yr**	2.60	3.11	3.62	4.27	4.88	**2yr**
5yr	0.35	0.55	0.68	0.93	1.18	1.40	**5yr**	1.02	1.37	1.59	2.08	2.67	3.48	3.86	**5yr**	3.08	3.71	4.28	5.29	5.80	**5yr**
10yr	0.39	0.60	0.75	1.04	1.35	1.60	**10yr**	1.16	1.57	1.80	2.35	3.00	3.94	4.40	**10yr**	3.49	4.23	4.85	6.15	6.53	**10yr**
25yr	0.45	0.69	0.85	1.22	1.61	1.90	**25yr**	1.39	1.86	2.11	2.73	3.50	4.61	5.20	**25yr**	4.08	5.00	5.74	7.50	8.28	**25yr**
50yr	0.50	0.76	0.95	1.36	1.83	2.17	**50yr**	1.58	2.12	2.38	3.07	3.94	5.18	5.87	**50yr**	4.59	5.65	6.48	8.72	9.51	**50yr**
100yr	0.56	0.85	1.06	1.54	2.11	2.47	**100yr**	1.82	2.42	2.69	3.44	4.42	5.81	6.63	**100yr**	5.14	6.37	7.34	10.14	10.91	**100yr**
200yr	0.63	0.94	1.20	1.73	2.41	2.82	**200yr**	2.08	2.75	3.02	3.85	4.97	6.49	8.74	**200yr**	5.74	8.40	8.32	11.82	12.52	**200yr**
500yr	0.73	1.09	1.41	2.04	2.90	3.36	**500yr**	2.51	3.29	3.55	4.48	5.81	7.47	10.58	**500yr**	6.61	10.18	9.79	14.48	14.99	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.45	0.54	0.73	0.90	1.08	**1yr**	0.78	1.05	1.24	1.66	2.10	2.78	3.13	**1yr**	2.46	3.01	3.45	4.05	4.80	**1yr**
2yr	0.33	0.51	0.63	0.85	1.05	1.25	**2yr**	0.91	1.23	1.44	1.90	2.42	3.21	3.56	**2yr**	2.84	3.43	3.96	4.67	5.38	**2yr**
5yr	0.41	0.63	0.78	1.06	1.35	1.60	**5yr**	1.17	1.56	1.84	2.41	3.07	4.23	4.86	**5yr**	3.74	4.67	5.32	6.07	7.07	**5yr**
10yr	0.48	0.74	0.92	1.28	1.66	1.95	**10yr**	1.43	1.91	2.23	2.90	3.68	5.27	6.17	**10yr**	4.66	5.94	6.68	7.49	8.81	**10yr**
25yr	0.61	0.92	1.15	1.64	2.16	2.53	**25yr**	1.86	2.48	2.88	3.72	4.68	7.05	8.52	**25yr**	6.24	8.19	9.04	9.92	10.96	**25yr**
50yr	0.72	1.09	1.36	1.95	2.63	3.08	**50yr**	2.27	3.02	3.50	4.50	5.63	8.80	10.91	**50yr**	7.79	10.49	11.38	12.27	13.45	**50yr**
100yr	0.86	1.29	1.62	2.34	3.21	3.76	**100yr**	2.77	3.67	4.25	5.44	6.77	10.98	13.94	**100yr**	9.72	13.40	14.32	15.20	16.53	**100yr**
200yr	1.02	1.53	1.94	2.80	3.91	4.59	**200yr**	3.38	4.48	5.18	6.59	8.14	13.76	15.52	**200yr**	12.18	14.92	18.04	18.82	20.36	**200yr**
500yr	1.29	1.91	2.46	3.58	5.08	5.97	**500yr**	4.39	5.83	6.72	8.49	10.41	18.55	20.98	**500yr**	16.42	20.17	24.49	25.00	26.85	**500yr**

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Northeast Regional Climate Center

APPENDIX IV

Test Pit Logs

GOVE ENVIRONMENTAL SERVICES, INC.

Test Pit Log
109 Main Street, Raymond
Logged by: Luke Hurley, CSS 095, 2/24/22

Test Pit #1:
0-8 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
8-20 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
20-32 INCHES, 2.5Y 4/3, FINE SANDY LOAM , GRANULAR, FRIABLE
32-64 INCHES, 2.5Y 4/3, SAND/GRVEL, MASSIVE, FIRM IN PLACE, REDOX 15%
ESHWT: 32 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #2:
0-8 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
8-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-36 INCHES, 2.5Y 4/3, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #3:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-18 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
18-40 INCHES, 2.5Y 5/3, SAND, GRANULAR, FRIABLE
40-60 INCHES, 2.5Y 5/4, SAND, GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #4:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-20 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
20-40 INCHES, 2.5Y 5/4, FINE SANDY LOAM, GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #5:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-12 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-20 INCHES, 10YR3/6, FINE SANDY LOAM , GRANULAR FRIABLE
20-40 INCHES, 2.5Y 4/6, SAND/GRAVEL, SINGLE GRAIN, LOOSE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #6: DONE AT STATOIN 6+00
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-28 INCHES, 10YR4/6, FINE SANDY LOAM , GRANULAR, FRIABLE
28-50 INCHES, 2.5Y4/4, FINE SAND , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 50 INCHES OBSERVED WATER: N/A

Test Pit #7:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-10 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
10-30 INCHES, 10Y4/4, FINE SAND , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #8:
0-2 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
2-12 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-24 INCHES, 10Y4/4, FINE SAND , GRANULAR, FRIABLE
24-50 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE, REDOX 15%
ESHWT: 24 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #9:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-12 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
12-30 INCHES, 2.5Y5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
30-60 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE
ESHWT: N/A REFUSAL: 60 INCHES OBSERVED WATER: N/A

Test Pit #10:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-24 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
24-40 INCHES, 2.5Y5/3, FINE SANDY LOAM , GRANULAR, FRIABLE, REDOX 15%
40-60 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE, REDOX 15%
ESHWT: 24 REFUSAL: 60 INCHES OBSERVED WATER: N/A

Test Pit #11:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-14 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
14-56 INCHES, 2.5Y4/4, SAND/GRAVEL, MASSIVE, FIRM IN PLACE
ESHWT: N/A REFUSAL: 54 INCHES OBSERVED WATER: N/A

Test Pit #12:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-18 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
18-40 INCHES, 2.5Y5/4, SAND/GRAVEL, MASSIVE, FIRM IN PLACE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #13:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-36 INCHES, 10YR5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #14:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-14 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
14-36 INCHES, 10YR5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #15:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-16 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-24 INCHES, 2.5Y5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
24-50 INCHES, 2.5Y4/4, SAND, MASIVE, FIRM IN PLACE
50-62 INCHES, 2.5Y5/3, SAND/GRAVEL, MASIVE, FIRM IN PLACE
ESHWT: 50 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #16:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-15 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: 15 INCHES REFUSAL: N/A OBSERVED WATER: 15 INCHES

Test Pit #17:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-20 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
20-42 INCHES, 2.5Y5/3, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 42 INCHES OBSERVED WATER: N/A

Test Pit #18:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-12 INCHES, 10YR 4/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-24 INCHES, 10YR4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
24-52 INCHES, 2.5Y5/3, SAND, GRNAULAR, FIRM IN PLACE
ESHWT: N/A REFUSAL: 52 INCHES OBSERVED WATER: N/A

TEST PIT DATA

Project – 109C Main Street, Raymond, NH
Client - Tuck Realty
GES Project No. 2020234
MM/DD/YY Staff 10-20-2022 JPG Observed by Paul Ayer, Raymond Code Enforcement

Test Pit No. 19
ESHWT: 50"
Termination @ 65"
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–9"	10YR 3/2	LS	GR	FR	NONE , Ap
9–50"	10YR 5/6	LS	GR	FR	NONE, Bw
50–65"	2.5Y5/4	LS	OM	FR	10%, C

Test Pit No. 20
ESHWT: 43"
Termination @ 65"
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–17"	10YR 3/2	LS	GR	FR	NONE , Ap
17–43"	10YR 5/6	LS	GR	FR	NONE, Bw
43–65"	2.5Y5/4	LS	PL	FR	20%, C

Test Pit No. 21
ESHWT: 46"
Termination @ 72"
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–7"	10YR 3/2	FLS	GR	FR	NONE , Ap
7–46"	10YR 5/6	FSL	GR	FR	NONE, Bw
46–72"	2.5Y5/4	FSL	OM	FR	20%, C

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA

Project 109C Main Street, Raymond, NH
Client Tuck
GES Project No. 2020234
MM/DD/YY Staff 03-16-2023 James Gove, CSS#004

Test Pit No.	**22**	Soils Series:	Hinckley
ESHWT::	57"	Landscape:	Flat
Termination @	108"	Slope:	A
Refusal:	None	Parent Material:	Outwash
Obs. Water:	None	Ksat (above ESHWT):	20"/hr

Horizon	Color (Munsell)	Texture	Structure-Consistence-Redox
A 0-10"	10YR3/2	fine sandy loam	granular-friable-none
Bw 10-27"	10YR5/6	gravelly loamy sand	granular-friable-none
B/C 27-57"	10YR4/4	gravelly loamy sand	massive-friable-none
C 57-108"	10YR5/8	very fine sand	massive-friable-7.5YR5/8 -2.5Y5/3

Hydrologic Soil Group of this Hinckley soil test pit is A.

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz
www.gesinc.biz

APPENDIX V

Site Specific Soil Map

SITE-SPECIFIC SOIL SURVEY REPORT
For
Tuck Realty
Main Street, Raymond

1. MAPPING STANDARDS
   Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 5.0, December 2017. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

   Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5.
   Scale of soil map:
   Approximately 1" equals
   Contours:
   Intervals of 2 feet

2. DATE SOIL MAP PRODUCED
   Date(s) of on-site field work: 11/2/22
   Date(s) of test pits: 10/20/22
   Test pits recorded by: Jim Gove, GES Inc.

3. GEOGRAPHIC LOCATION AND SIZE OF SITE
   City or town where soil mapping was conducted: Raymond
   Location: Main Street
   Size of area: approximately 45 acres
   Was the map for the entire lot? yes
   If no, where was the mapping conducted on the parcel:
   The parcel is a heavily wooded and rolling site. Steep rocky slopes are common and the topography rises sharply from Main Street to the middle of the site and down again towards the rear. Several wetlands are present on site.

4. PURPOSE OF THE SOIL MAP
   Was the map prepared to meet the requirement of Alteration of Terrain? Yes
   If no, what was the purpose of the map?
   Who was the map prepared for? Jones and Beach Engineers, Inc.

5. SOIL IDENTIFICATION LEGEND

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
42	Canton	221	B
89	Chatfield	228	B
444	Newfields	321	B
657/P	Ridgebury Very Stony	528	C

SLOPE PHASE:
0-8% B 8-15% C 15-25% D 25%+ E

6. SOIL MAP UNIT DESCRIPTIONS

42 Canton 221 B

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Slope ranges from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. These soils arew found throughout the parcel in the hoigher reaches. They are dominated by sandy loam over sandy material. No ESHWT was encountered with in 40" and no significant ledge was encountered.

Typical profile is

0–8"	10YR 3/2	FSL	GR	FR
8–20"	10YR 5/6	FSL	GR	FR
20–45"	2.5Y5/4	LS	OM	FR

No ESHWT, No Ledge

89 Chatfield 228 B

The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. Slope ranges from 0 to 70 percent. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. Thes soils are found througough on the high areas as well as side slopes. These soils are dominated by sandy loam material on top of sandy material and or shallow to deep ledge between 20-40".

Typical Profile is

0–10"	10YR 3/2	FSL	GR	FR
10-28"	10YR 4/4	FSL	GR	FR
28-42"	2.5Y5/4	LS	GR	FR

Ledge at 42", No ESHWT

444 Newfields 321 B

The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. Slope ranges from 0 through 25 percent. These soils are found along the lower side slopes and low areas throughout the site. They are dominated by fine sandy loam over loamy sand and sand. ESHWT is between 15-40 and no significant ledge was encountered.

Typical profile is

0–10"	10YR 3/2	FSL	GR	FR
10-18"	10YR 4/3	FSL	GR	FR
18-24"	2.5Y5/4	LS	GR	FR
24-18"	2.5Y5/3	FSL	GR	FR

657/P Ridgebury Very Stony 528 C

The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum

7. RESPONSIBLE SOIL SCIENTIST

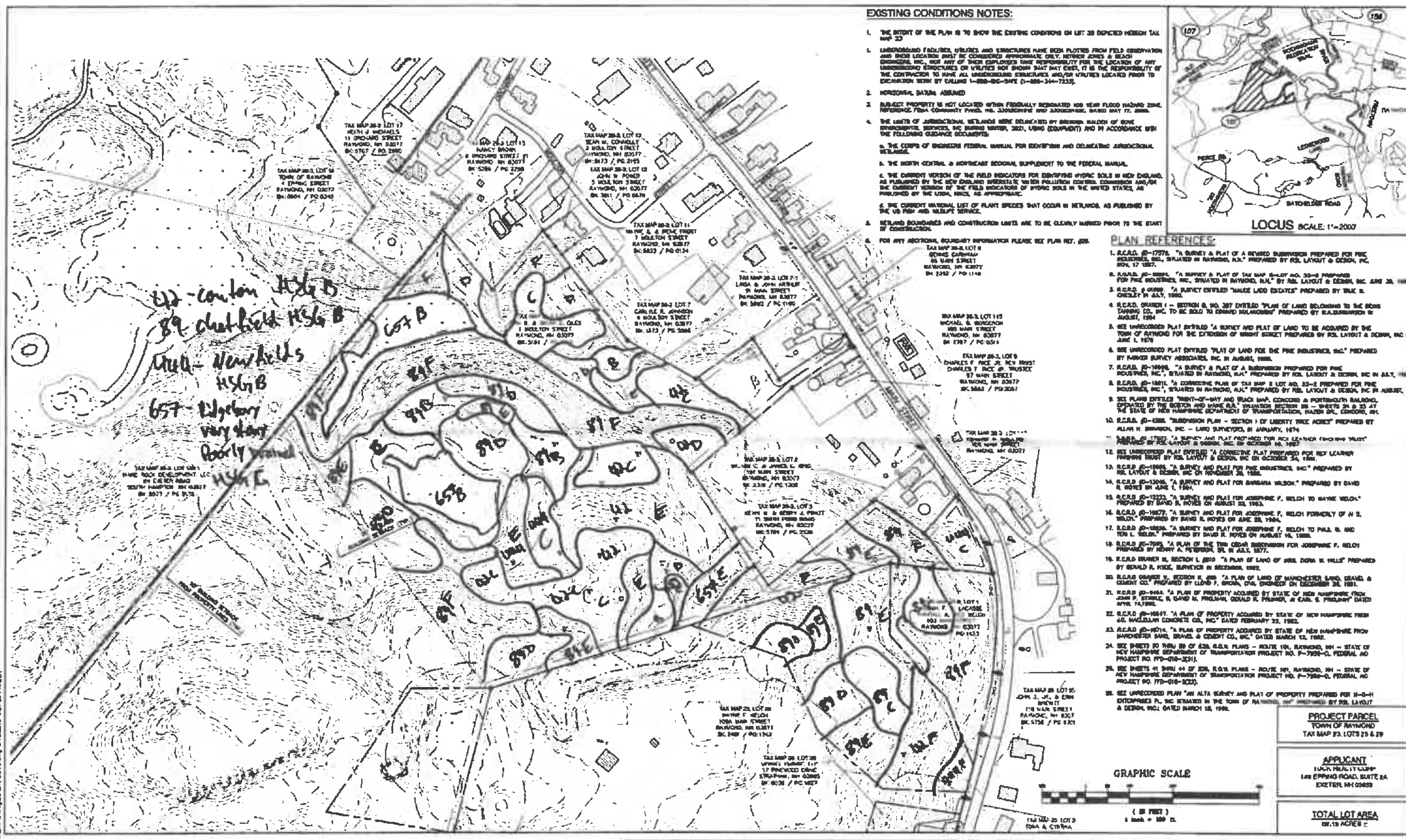
Name: Luke Hurley

Certified Soil Scientist Number: 095

8. OTHER DISTINGUISHING FEATURES OF SITE

Is the site in a natural condition? Yes

If no, what is the nature of the disturbance?



EXISTING CONDITIONS NOTES:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 25 & 29

APPLICANT
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No. 20684	
Drawing Name: 20684-PLAN.dwg			

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
7	11/04/21	UPDATED DESIGN	AJS
6	09/21/21	GRADED DRIVEWAY	DJM
5	06/08/21	REVISED CONCEPT	DJM
4	03/01/21	REVISED DRIVEWAY, LAND TRANSFER EXHIBITS	DJM
3	02/16/21	NEW SUBDIVISION CONCEPT	DJM

Designed and Produced in NH

Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING CONDITIONS PLAN
Project: WHITE ROCK PLACE
109 A & C MAIN STREET, RAYMOND, NH 03077
Owner of Record:

DRAWING No.
C1
SHEET 3 OF 23
JBE PROJECT NO. 20684

APPENDIX VI

NRCS Soil Map

Soil Map—Rockingham County, New Hampshire

Map Scale: 1:8,840 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 100, 200, 400, 600

Feet: 0, 400, 800, 1600, 2400

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 21, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 8, 2011—May 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12A	Hinckley loamy sand, 0 to 3 percent slopes	3.0	1.1%
12B	Hinckley loamy sand, 3 to 8 percent slopes	30.6	11.1%
97	Freetown and Natchaug mucky peats, ponded, 0 to 2 percent slopes	12.4	4.5%
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	34.1	12.4%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	111.6	40.5%
140D	Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, rocky	61.9	22.5%
295	Freetown mucky peat, 0 to 2 percent slopes	6.8	2.5%
395	Swansea mucky peat, 0 to 2 percent slopes	5.3	1.9%
495	Natchaug mucky peat, 0 to 2 percent slopes	5.4	2.0%
547B	Walpole very fine sandy loam, 3 to 8 percent slopes, very stony	4.5	1.6%
Totals for Area of Interest		**275.7**	**100.0%**

APPENDIX VII

Rip Rap Calculations

RIP RAP CALCULATIONS
White Rock Place
109A&C Main Street
Raymond, NH 03077

Jones & Beach Engineers, Inc.
P.O. Box 219
Stratham, NH 03885
16-Nov-22

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.*
Aprons are sized for the 25-Year storm event.

TAILWATER < HALF THE D_o

$L_a = (1.8 \times Q) / D_0^{3/2} + (7 \times D_o)$

$W = L_a + (3 \times D_o)$ or defined channel width

$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
12" HDPE (Pond 5P)	0.28	1.26	1.25	10.4	14	0.08
10" HDPE (Pond 10P)	0.38	0.67	0.83	7.4	10	0.04
12" HDPE (Pond 6P)	0.36	1.29	1.25	10.4	14	0.06
15" HDPE (Pond CB12)	0.59	3.45	1.25	13.2	17	0.14

TAILWATER > HALF THE D_o

$L_a = (3.0 \times Q) / D_0^{3/2} + (7 \times D_o)$

$W = (0.4 \times L_a) + (3 \times D_o)$ or defined channel width

$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
				#DIV/0!	#DIV/0!	#DIV/0!

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.25	Feet	3	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		5		6
85%		4		5
50%		3		5
15%		1		2

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.5	Feet	6	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		9		12
85%		8		11
50%		6		9
15%		2		3

APPENDIX VIII

Stormwater Operations and Maintenance Manual

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

White Rock Place
109A&C Main Street
Raymond, NH 03077
Tax Map 23, Lots 24, 25, & 29

Prepared for:
Tuck Realty Corporation
PO Box 190
Exeter, NH 03833
ATTN: Michael Garrepy
mgarrepy@gmail.com
(603) 944-7530

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
November 22, 2022
REVISED December 12, 2022
REVISED March 20, 2023
JBE Project No. 20564

JONES&BEACH
ENGINEERS INC.

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. Tuck Realty Corporation., future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. Tuck Realty Corporation, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. All record keeping required by this manual shall be maintained by the responsible party(ies) and be made available to NHDES upon request.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

   a. Pavement
   b. Sediment Forebay
   c. Wet Pond
   d. Bioretention System
   e. ADS Stormtech System
   f. ACF Focal Point
   g. Permeable Pavers
   h. Catch Basins & Dry Well
   i. Drain Manholes
   j. Culverts
   k. Rip Rap Outlet Protection
   l. Contech StormFilter
   m. Vegetation and landscaping

2. Maintenance of permanent measures shall follow the following schedule:

   a. Normal winter roadway maintenance including plowing and snow removal. Road and parking lot sweeping at the end of every winter, preferably at the start of the spring rain season. Snow removal shall be performed by Sno-Pro certified personnel to keep road salt from contaminating the river or groundwater.

   b. Cleaning Criteria for all Sedimentation Forebays: Sediment should be removed from the sedimentation chamber (forebay) when it accumulates to a depth of more than 12 inches (30 cm) or 10 percent of the pretreatment volume. The sedimentation forebay should be cleaned of vegetation if persistent standing water and wetland vegetation becomes dominant. The cleaning interval is once every year. A dry sedimentation forebay is the optimal condition while in practice this condition is rarely achieved. The sedimentation chamber, forebay, and treatment cell outlet devices should be cleaned when drawdown

times exceed 60 to 72 hours. Materials can be removed with heavy construction equipment; however this equipment should not track on the wetland surface. Revegetate disturbed areas as necessary. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

c. Wet Ponds should require little maintenance, but should be inspected frequently during the first year of operation, and annually thereafter. Every five years, the services of a professional engineer should be retained to perform a thorough inspection of all the aspects of the pond and its infrastructure. Any debris and sediment accumulations should be removed from the outlet structure(s) and emergency spillway(s) and disposed of properly. Inspect outlet structure for deterioration and or clogging. Wet Pond berms should be mowed at least once annually so as to prevent the establishment of woody vegetation – trees should *never* be allowed to grow on a Wet Pond berm, as they may destabilize the structure and increase the potential for failure. Areas showing signs of erosion or thin or dying vegetation should be repaired immediately by whatever means necessary, *with the exception of fertilizer.* Rodent burrows are to be repaired immediately and the suspect animals apprehended with non-lethal traps if the problem persists.

The wet pond should remain full to the elevation of the lowest outlet in the pond.

d. Bioretention Systems:

- Visually inspect monthly and repair erosion. Use small stones to stabilize erosion along drainage paths.
- Check the pH once a year if grass is not surviving. Apply an alkaline product, such as limestone, if needed.
- Re-seed any bare areas by hand as needed.
- Immediately after the completion of cell construction, water grass for 14 consecutive days unless there is sufficient natural rainfall.
- Once a month (more frequently in the summer), residents are encouraged to visually inspect vegetation for disease or pest problems and treat as required.
- During times of extended drought, look for physical features of stress. Water in the early morning as needed.
- Weed regularly, if needed.
- After rainstorms, inspect the cell and make sure that drainage paths are clear and that ponding water dissipates over 4-6 hours. (Water may pond for longer times during the winter and early spring.)
- Twice annually, inspect the outlet control structures to ensure that they are not clogged and correct any clogging found as needed.

KEEP IN MIND, THE BIORETENTION CELL IS NOT A POND. IT SHOULD NOT PROVIDE A BREEDING GROUND FOR MOSQUITOES. MOSQUITOES NEED AT LEAST FOUR (4) DAYS OF STANDING WATER TO DEVELOP AS LARVA.

e. **ADS Stormtech System:**

- Removal of debris from inlet and outlet structures.
- Removal of accumulated sediment.
- Inspection and repair of outlet structures and appurtenances.
- Inspection of infiltration components at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Inspection of pretreatment measures at least twice annually, and removal of accumulated sediment as warranted by inspection, but no less than once annually.
- If an infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration trench.
- Camera inspections of the system should be done on an annual basis.
- See also attachment from ADS.

f. ACF Focal Point: See attachment from ACF

g. Permeable Pavers:

A short stretch of the emergency access road is constructed from EcoRaster permeable pavers and the remainder is constructed from gravel. The following recommendations will help assure that the pavers are maintained to preserve its hydrologic effectiveness.

Winter maintenance:

- Sanding for winter traction is prohibited. Deicing is permitted ($NaCl$, $MgCl_2$, or equivalent). Reduced salt application is possible and can be a cost savings for winter maintenance. Nontoxic, organic deicers, applied either as blended, magnesium chloride-based liquid products or as pretreated salt, are preferable.
- Plowing is allowed, blade should be set approximately 1" above the paver surface. Ice and light snow accumulation are generally not as problematic as for standard asphalt. Snow will accumulate during heavier storms and should be plowed. (more than usual, about an inch).

Routine maintenance:

- Seal coating is absolutely forbidden. Surface seal coating is not reversible.
- The paver surface should be vacuumed 2 or 3 times per year, and at any additional times sediment is spilled, eroded, or tracked onto the surface.
- Planted areas adjacent to permeable pavers should be well maintained to prevent soil washout onto the pavers. If any bare spots or eroded areas are

observed within the planted areas, they should be replanted and/or stabilized at once.

- Immediately clean any soil deposited on pavers. Superficial dirt does not necessarily clog the paver voids. However, dirt that is ground in repeatedly by tires can lead to clogging. Therefore, trucks or other heavy vehicles should be prevented from tracking or spilling dirt onto the pavers.
- Do not allow construction staging, soil/mulch storage, etc. on unprotected paver surface. Contractor to lay down tarps, plywood or removable item and take care not to track material onto unprotected pavers.
- Repairs: Potholes or other surface blemishes shall be replaced in kind. Any required repair of drainage structures should be done promptly to ensure continued proper functioning of the system.
- Written and verbal communication to the future owner should make clear the pavement's special purpose and special maintenance requirements such as those listed here.

h. **Annual inspection** of catch basins to determine if they need to be cleaned. Catch basin is to be cleaned if the depth of deposits is greater than one-half the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-half depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in the catch basin, then it should be cleaned on a weekly basis. The Catch basin can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed. Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

i. **Annual inspection** of drain manholes to determine if they need to be cleaned. Manholes should be cleaned of any material upon inspection. Manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

j. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

k. Rock riprap should be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a

stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

l. Contech StormFilter: See attachment from Contech.

m. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying. The site shall remain in a stabilized condition at all times. A site is considered stable if one of the following has occurred.

   b.a. A minimum of 85% vegetative cover has been established;
   b.b. A minimum of 3 inches of non-erosive material such as stone or riprap has been installed; or
   b.c. Erosion control blankets have been installed in accordance with Env-Wq 1506.03.

n. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
T#: (603) 772-4746
Email: jcoronati@jonesandbeach.com

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

Tuck Realty Corporation

By: Print Name

Signature

Title

Email Address

Phone Number

Date

Commitment to maintenance requirements

This signature page shall be provided to NHDES upon the change of Ownership, Transfer or Assignment. Contact information is to remain updated and the responsibility of the applicable party responsible for this Operation and Maintenance Manual.

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

____

Property Owner or future assigns

____

By: Print Name

____

Signature

____

Title

____

Email Address

____

Phone Number

____

Date

Annual Operations and Maintenance Report

Tuck Realty Corporation, future owners and assigns, are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. Tuck Realty Corporation, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. All record keeping required by this manual shall be maintained by the responsible party(ies) and be made available to NHDES upon request.

Tuck Realty Corporation, future owners and assigns, are responsible for submitting a report to the Planning Department or their designated agent by September 1 every two years, with the first report due within two years of receipt of an Occupancy Permit. The report shall be signed and stamped by a qualified professional engineer that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their report and include detail regarding when the infrastructure shall be repaired and functioning as approved.

If no report is filed by September 1 in the year the report is due, the Select Board or their designated agent shall have site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.

Construction Activity	**Date of Inspection**	**Who Inspected**	**Findings of Inspector**
Pavement			
Sediment Forebays			
Wet Pond			

Bioretention System			
ADS Stormtech			
ACF Focal Point			
Permeable Pavers			
Catch Basins & Dry Well			
Drain Manholes			

Culverts			
Rip-Rap Outlet Protection			
Contech StormFilter			
Vegetation and Landscaping			
Other:			

Comments:

Deicing Log

Date Applied	Type of Deicing Material	Amount Applied

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Background:

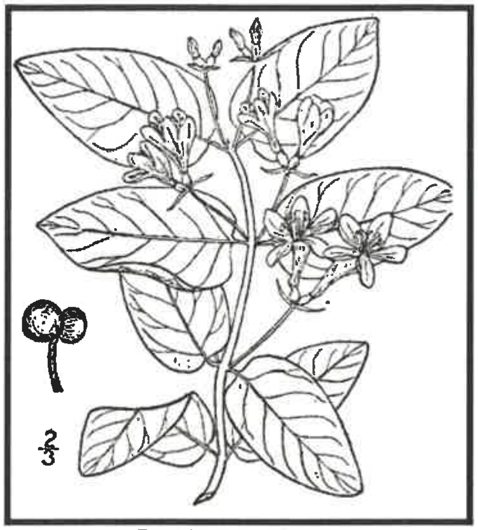
Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

UNIVERSITY *of* NEW HAMPSHIRE
COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.* Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

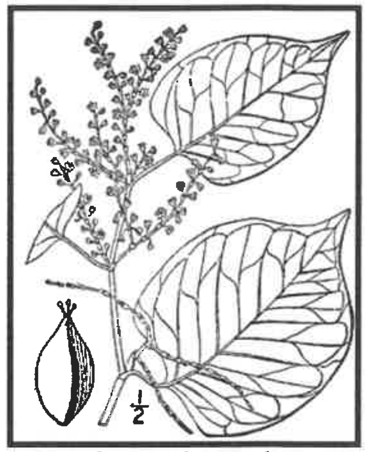
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.* Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple *(Acer platanoides)* European barberry *(Berberis vulgaris)* Japanese barberry *(Berberis thunbergii)* autumn olive *(Elaeagnus umbellata)* burning bush *(Euonymus alatus)* Morrow's honeysuckle *(Lonicera morrowii)* Tatarian honeysuckle *(Lonicera tatarica)* showy bush honeysuckle *(Lonicera x bella)* common buckthorn *(Rhamnus cathartica)* glossy buckthorn *(Frangula alnus)*	**Fruit and Seeds**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Use as firewood. ▪ Make a brush pile. ▪ Chip. ▪ Burn. **After fruit/seed is ripe** Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip once all fruit has dropped from branches. ▪ Leave resulting chips on site and monitor.
oriental bittersweet *(Celastrus orbiculatus)* multiflora rose *(Rosa multiflora)*	**Fruits, Seeds, Plant Fragments**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Make a brush pile. ▪ Burn. **After fruit/seed is ripe** Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds**	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed *(Phragmites australis)* Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

NOTES:

1. THE INTENT OF THIS PLAN IS TO GUIDE ONGOING INSPECTIONS AND MAINTENANCE OF THE SITE POST-CONSTRUCTION. THIS PLAN IS NOT FOR CONSTRUCTION.
2. SEE SHEET 2 OF 2 AS WELL.

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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12	3/19/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM
8	8/2/22	ADDED DRAINAGE	DJM

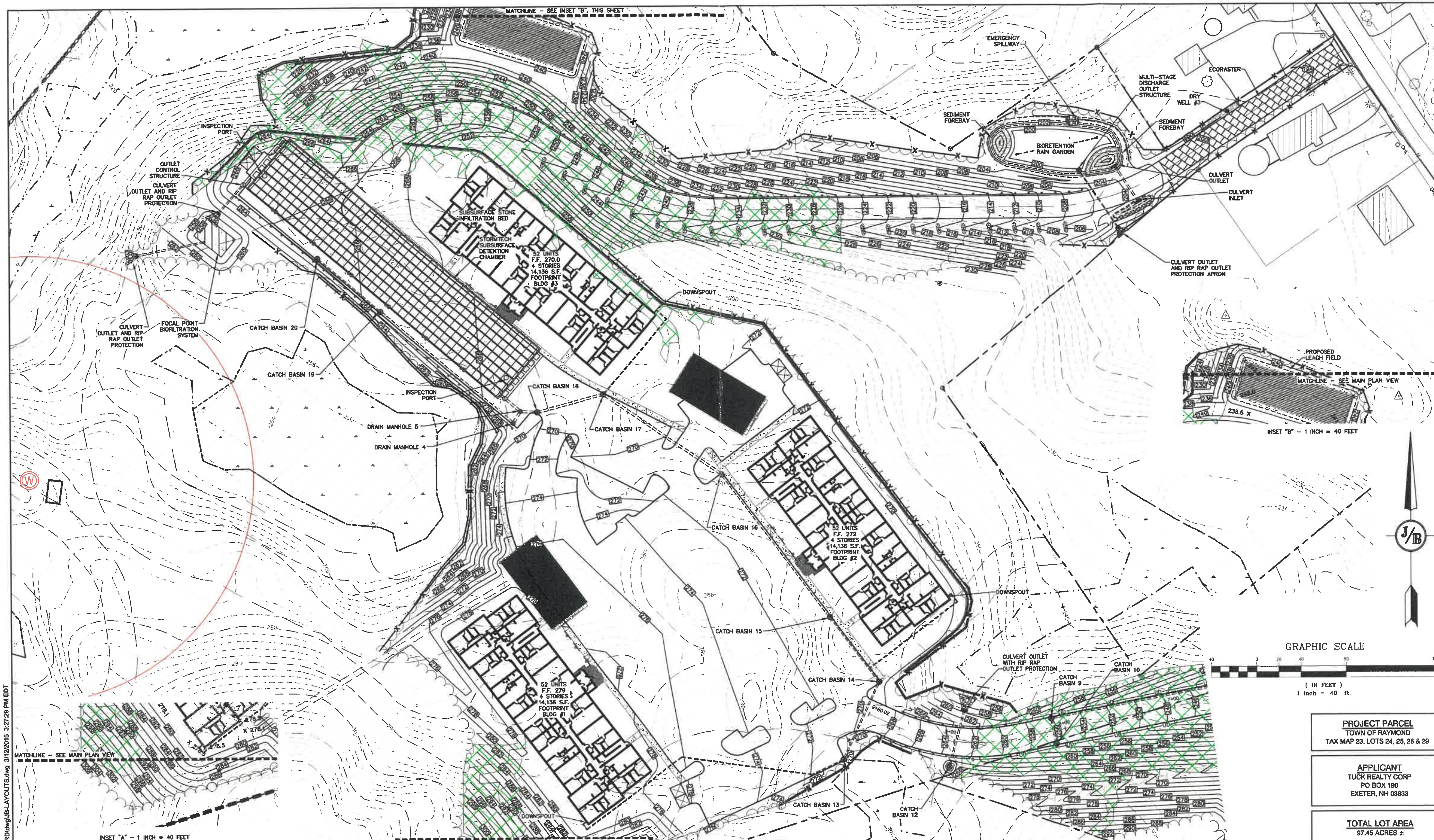
Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: OPERATIONS AND MAINTENANCE PLAN

Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077

Owner of Record:
LOT 24: TUCK REALTY CORP
PO BOX 190, EXETER, NH 03833
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH
49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263
LOT 28: PAUL W & TERI L WELCH
109 MAIN STREET, RAYMOND, NH 03077 BK 2539 PG 770
LOT 29: WAYNE & CATHLEEN WELCH
109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
OM1
SHEET 1 OF 2
JBE PROJECT NO. 20564



PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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603-772-4746 FAX: 603-772-0227
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Plan Name: **OPERATIONS AND MAINTENANCE PLAN**

Project: WHITE ROCK PLACE 109 A, B & C MAIN STREET, RAYMOND, NH 03077

Owner of Record: LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833; LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 48 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1569 PG 263; LOT 28: PAUL W & TERI L WELCH 109 MAIN STREET, RAYMOND, NH 03077 BK 2639 PG 770; LOT 29: WAYNE & CATHLEEN WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1743

DRAWING No.
OM2
SHEET 2 OF 2
JBE PROJECT NO. 20564

APPENDIX IX

Pre- and Post-Construction Watershed Plans

LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	X
REACH	X
POND	X
TC PATH	
WETLANDS	
SSSM SOILS	
FLOW ARROW	

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9846
LICENSED
PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/20/23	REVISED PER TRC, TOWN ENGINEER, AND AOT COMMENTS	DJM
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8	11/22/22	ISSUED FOR REVIEW	DJM
7	11/14/21	UPDATED DESIGN	AJB

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING WATERSHED PLAN

Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077

Owner of Record:
LOT 24: TUCK REALTY CORP
PO BOX 190, EXETER, NH 03833
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH
49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263
LOT 28: PAUL W. & TERI L. WELCH
109 MAIN STREET, RAYMOND, NH 03077 BK 2839 PG 770
LOT 29: WAYNE F. & CATHLEEN M. WELCH
109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
W1
SHEET 1 OF 8
JBE PROJECT NO. 20564

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Designed and Produced in NH

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85 Portsmouth Ave.
PO Box 219
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603-772-4746
FAX: 603-772-0227
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Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077

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DRAWING No.

W2

SHEET 2 OF 8
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN No. 9846
LICENSED PROFESSIONAL ENGINEER

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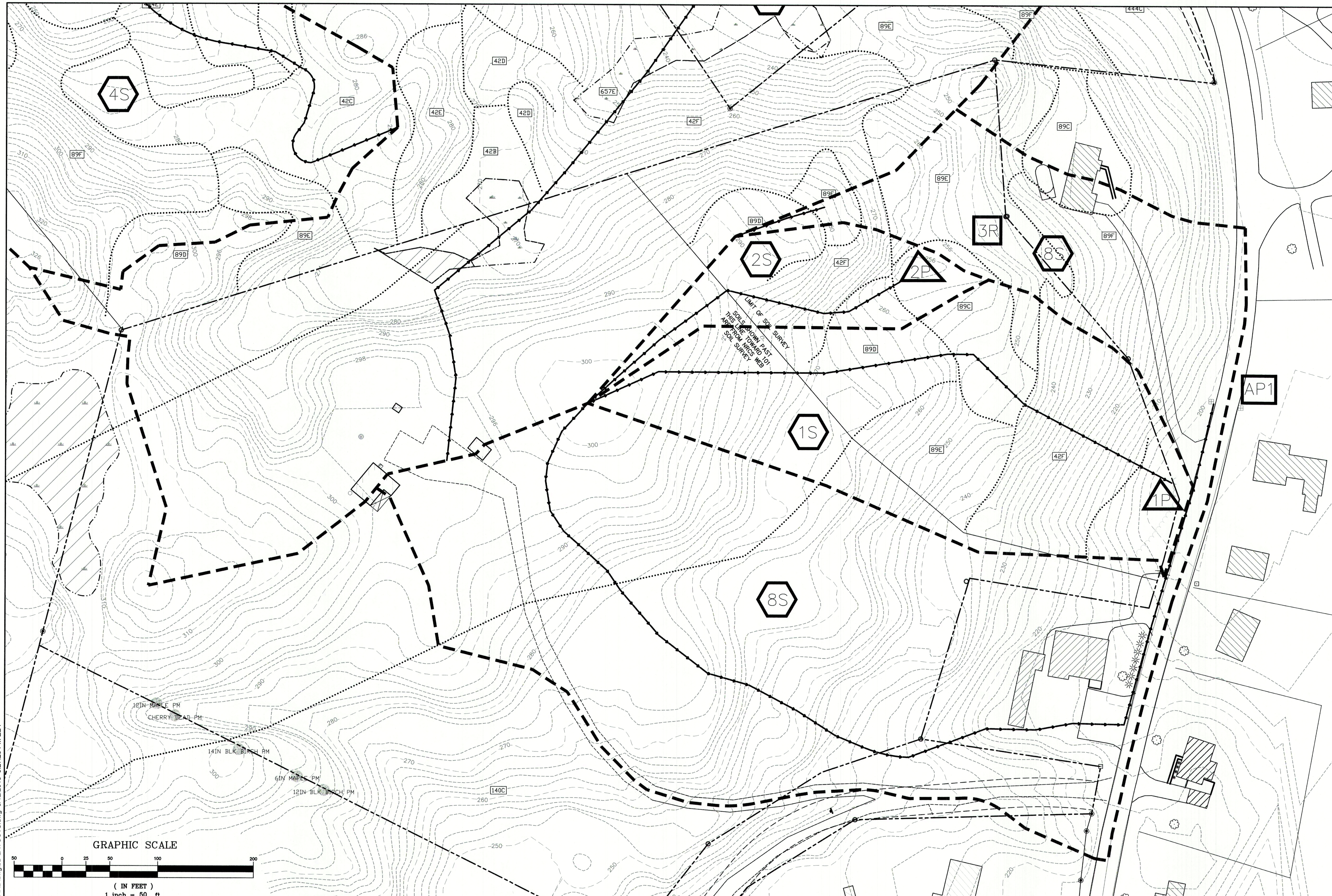
DRAWING No.
W3
SHEET 3 OF 8
JBE PROJECT NO. 20564



LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	X
REACH	X
POND	X
TC PATH	
WETLANDS	
SSSM SOILS	
FLOW ARROW	

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE - MICHAEL J. KERIVAN No. 9846 - LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
11	3/20/23	REVISED PER TRC, TOWN ENGINEER, AND AOT COMMENTS	DJM
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8	11/22/22	ISSUED FOR REVIEW	DJM
7	11/14/21	UPDATED DESIGN	AJB

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **EXISTING WATERSHED PLAN**

Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077

Owner of Record:
LOT 24: TUCK REALTY CORP
PO BOX 190, EXETER, NH 03833
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH
49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263
LOT 28: PAUL W. & TERI L. WELCH
109 MAIN STREET, RAYMOND, NH 03077 BK 2839 PG 770
LOT 29: WAYNE F. & CATHLEEN M. WELCH
109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
W4
SHEET 4 OF 8
JBE PROJECT NO. 20564

LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	
REACH	
POND	
TC PATH	
WETLANDS	
SSSM SOILS	
FLOW ARROW	

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

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Plan Name: **PROPOSED WATERSHED PLAN**

Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077

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DRAWING No.
W5
SHEET 5 OF 8
JBE PROJECT NO. 20564

LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	X
REACH	X
POND	X
TC PATH	
WETLANDS	
SSSM SOILS	
FLOW ARROW	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
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Plan Name: EXISTING WATERSHED PLAN

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DRAWING No.
W6
SHEET 6 OF 8
JBE PROJECT NO. 20564

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	X
REACH	X
POND	X
TC PATH	
WETLANDS	
SSSM SOILS	
FLOW ARROW	

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
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109 A, B & C MAIN STREET, RAYMOND, NH 03077

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DRAWING No.
W7
SHEET 7 OF 8
JBE PROJECT NO. 20564

LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT
- REACH
- POND
- TC PATH
- WETLANDS
- SSSM SOILS
- FLOW ARROW

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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DRAWING No.
W8
SHEET 8 OF 8
JBE PROJECT NO. 20564

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Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Site Plan Regulations Section 6.03.03(c) - Licensed Landscape Architect Requirement

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting a waiver from the requirement to hire a Licensed Landscape Architect to draft and stamp the landscape plan as we have hired Lise McNaughton of LM Land Design from Brentwood, NH to do the planting design work. Lise is more than qualified to provide landscape plans as you can see from the variety of plantings selected. A sufficient variety of plantings has been selected for this proposed development.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

We meet the intent of this regulation by hiring Lise McNaughton, who is an experienced landscape designer but not a landscape architect. Lise is more than qualified to provide landscape plans as you can see from the variety of plantings selected.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Site Plan Regulations Section 6.06.01 - Parking Requirements

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting 281 parking spaces which is 1.80 spaces per unit, where 3 spaces per unit are required. We are asking for this waiver to be granted as providing 3 spaces per unit is excessive for apartments. There are overlapping use of parking spaces when you have this many units. People are coming and going and we will have 84 1-bedroom units. Some of these will certainly be occupied by one person with one vehicle. Based on empirical observations, 1.80 spaces per unit is plenty for this combination of 1- and 2-bedroom units.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

This provides sufficient off-street parking for the proposed use based on empirical observations. The intent of the parking standards is to prevent parking public rights of way, and the proposed parking layout provides enough parking. Having less parking will also help us to minimize disturbance to the extent possible. This is particularly important on a sloping site such as this one, where steep slope areas are protected under Zone G. Therefore, this helps us also meet the intent and purpose of the Zoning Ordinance by minimizing disturbance in Zone G land.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Subdivision Regulations 5.6.D.1 - Maximum Road Grade

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting to permit a graveled emergency access road with a maximum slope of 9.0% where a maximum slope of 8.0% is allowed. As the name of it suggests, this road will only be used for emergencies and the primary route of ingress and egress will be via a 25' wide paved private road with a maximum slope of 8.0%. The first 200' approximately of the emergency access road will need to be constructed at a slope of no greater than 2% in order for grading to remain on the subject parcel. Beyond this there is more land area to work with and the proposed road begins to climb a steep hill. The end of this road needs to meet the site approximately at elevation 266.2, and should not be at a steep slope when it does so. Therefore there needs to be a transition of grade when the emergency access road ends and meets the site. The road therefore must retain a slope of 9.0%. The road is 967 feet long and cannot be made any longer while still keeping with existing topography to the extent practicable. This is not detrimental to public safety because there is not likely to be oncoming traffic along this road - It will be used infrequently by emergency vehicles going up the hill, and then these vehicles may either go back down this road or utilize the main driveway to return to Main Street. The curves in the road are enough to provide adequate sight distance as well. Additionally, guardrail will be utilized along the low side, and there will be a ditch to prevent stormwater run-on along the high side of the road. This is not injurious to other adjacent property because the road will be screened by both landscaping and natural woods, and all runoff from the road will be treated and detained so that post-construction peak flows are below the existing conditions. We request that this waiver be granted because it is unavoidable for the emergency access road to have a steep slope and because appropriate steps are being taken to ensure that the road is safe for emergency vehicles.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

The intent of this regulation is to ensure safety along proposed roadways. For the reasons stated above, the road grade being slightly higher than the maximum requirement will not compromise this intent, and the road cannot reasonably be made any less steep. Additionally, if the road is steeper it can be made shorter, which results in a lower volume of stormwater runoff. Another purpose of the site plan regulations is to lessen stormwater runoff from development sites. For these reasons, the proposed waiver does not have the effect of nullifying the intent and purpose of the site plan regulations, and road grade not a matter of zoning.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Subdivision Regulations - ROW Design Matrix - Sidewalk Requirement

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

Per the right of way design matrix within the Subdivision Regulations, sidewalks are required for all private roads that serve 20 units or more. This is a 156-unit development with a private access drive, so this project meets the threshold for technically requiring a sidewalk. However, we believe that it would be inadvisable to place a sidewalk along White Rock Drive for several reasons. The road climbs 70' in elevation at an 8% slope. A sidewalk at this slope would be unsafe during the winter and would not be compliant with ADA regulations. Additionally, there is barely enough room on the subject parcel to grade side slopes for the roadway itself. A sidewalk would only encumber more land with grading and also cause additional stormwater runoff.

As an alternative to a sidewalk, the emergency access road can be used by bicyclists and pedestrians to access Main Street and downtown Raymond by foot or bicycle. Pedestrian ingress and egress from the site will still be possible without a sidewalk.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

While a traditional sidewalk would be inadvisable along White Rock Drive, the emergency access road can be utilized by pedestrians as an alternative path to Main Street. This substantially meets the objective of the sidewalk requirement by providing pedestrian access to downtown on a road that is almost never going to be used by motor vehicles.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

February 14, 2023

Raymond Planning Board
Attn. Brad Reed, Chair
4 Epping Street
Raymond, NH 03077

Re: Response Letter
White Rock Place
109A,B,C,&D Main Street, Raymond, NH
Tax Map 23, Lots 24, 25, 28 & 29
JBE Project No. 20564

Dear Mr. Reed,

We received comments from Jeffery Adler with Dubois & King, Inc. dated January 11, 2023. Original review comments are italicized, and we offer the following responses below in bold. Please also note the changes in plan sheet numbering.

Waiver Requests:

1. *We understand that the Applicant is requesting a waiver from Town of Raymond, Site Plan Regulations Section 6.06.01 Parking Requirements, and is proposing to provide 281 parking spaces instead of the calculated 468 spaces required. We recommend that the Applicant provide supporting documentation to justify the reduced number of parking spaces.*
   Response: A waiver request letter is included with this resubmission.

2. *We understand that the Applicant is requesting a waiver from having a Licensed Landscape Architect draft and stamp the Landscape Plan. However, in accordance with the Site Plan Review Regulations Section 6.10.06 the Planning Board may require the applicant to engage the services of a Licensed Landscape Architect to prepare any landscaping plan presented.*
   Response: A waiver request is included with this resubmission.

3. *We understand that the Applicant is requesting a waiver from Town of Raymond, Subdivision Regulations, Section 5.6.D.1, regarding the geometric design standard for the emergency access road.*
   Response: A waiver request is included with this resubmission.

4. *We understand that the Applicant is requesting a waiver from Town of Raymond, Subdivision Regulations, Right of Way Design Matrix regarding the minimum width for the emergency access road.*
Response: A waiver request is included with this resubmission.

Traffic Impact Analysis:

1. *We recommend that the Applicant provide a Traffic Impact Analysis for the proposed industrial development, in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.03.13.*
Response: A traffic impact analysis will be submitted next month. The data collection has been completed and we are awaiting the report from Vanasse & Associates.

Existing Conditions Plans. (OVREX, C1 and C2; Now C1-C12):

1. *We recommend that the Applicant indicate the location of site, tax map and lot number, current name and address of the owner of record for Lot 24, in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.02.*
Response: Lot 24 is part of this project, so the owner information is included in the owner of record block.

2. *A graphic scale of 1" = 20' up to 1" = 50' is recommended in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.03.*
Response: Existing conditions plans are now shown at 1"=40' scale.

3. *We recommend that the Applicant indicate the boundary lines of the areas included in the site, including distance and bearing of the lines, dimensions and lot area, in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.04.*
Response: Bearings and distances as well as total areas of all lots involved with the application are included on the plan.

4. *Locations and widths of adjacent streets, buildings and drives within 200 feet of the site boundaries are not shown in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.06.*
Response: The locations and widths of the adjacent streets, buildings, and drives within 200 feet of the site boundaries have been added to the plans.

5. *The shape, height and size of the existing buildings on the site and within 200 feet of the site boundaries are not shown in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.07.*
   Response: The size and heights of existing buildings on site and within 200 feet of the site boundaries have been added to the existing conditions plans and additionally the shape of each building is shown.

6. *The use of the abutting buildings is not identified in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.09.*
   Response: Each building on abutting lots is now labelled with its use (residential, commercial, etc.).

7. *We recommend that the Applicant revise the plans to show the size, location and elevation of all existing public and private utilities onsite and off-site with which connection is planned in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.10.*
   Response: The sizes and locations of all public and private utilities with which connection is planned, as well as information as to whether they are above ground or underground, have been added on the plans.

8. *We recommend that the Applicant revise the plans and identify all soil types and approximate soil boundaries in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.11.*
   Response: The plans have been revised to show all soil types and approximate soil boundaries. There was only a field soil survey performed on the front section of the lot where the development is proposed, so soils for the remainder of the lots were filled in via NRCS Web Soil Survey.

9. *We recommend that the Applicant submit copies of existing covenants, easements, right-of-ways in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.12.*
   Response: A copy of the deeded 30' right of way (to be extinguished) is included with this submission.

10. *The location of all building setbacks (Lot 24 & 29) are not shown in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.13.*
    Response: All building setbacks are now shown on the plans.

Lot Line Adjustments Plans. (Sheets A1 to A2, Now Subdivision Plans):

1. *In accordance with Section 5.02.04, Site Plan Review Regulations, all boundary lines shall indicate the bearings and distance.*
   Response: Bearings and distances have been added to the plan.

<u>Site Layout Plans. (Sheets OVRS, C3 and C4; Now C13-C15):</u>

1. *In Site Notes, note 5B is not referring to the right Section in the Site Plan Review Regulations.*
   Response: Note 5B has been revised to reference Section 3.03.03(c).

2. *We recommend that the Applicant revise the plan to provide a minimum 25' wide paved travel way for White Rock Drive in accordance with Town of Raymond, Site Plan Review Regulations, Section 6.02.01.a.*
   Response: White Rock Drive has been increased to 25' wide.

3. *In accordance with the Right of Way Design Matrix, sidewalks are required for roads serving 20 units or more. We recommend revising the plans accordingly.*
   Response: It would be inadvisable to place a sidewalk along White Rock Drive for a number of reasons. As an alternative, the proposed emergency access road will rarely be used by vehicles and therefore can be used as an access path for pedestrians and bicycle riders to directly access Main Street and provide a walkable path to downtown. A waiver request letter from the sidewalk requirement is included with this resubmission.

4. *We recommend adding the size and height of the proposed buildings in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.03.02.*
   Response: The size and height of the proposed buildings has been added to the site plans. Architectural plans are also being provided.

5. *In accordance with Section 5.03.03, indication of travel for streets and drives, and inside radii of all curves shall be provided on the plans. Additionally, we recommend providing a minimum 5' radius for the curbed islands in the parking lot.*
   Response: Arrows to indicate travel direction along the drives and any curve radii that were missing have been added to the plans. Radii on the curbed islands have been increased to 5' minimum where possible, with one exception as it is not feasible to provide a 5' radius on the island between Buildings #2 and #3.

6. *The minimum parking requirement for a residential / multi-family is 3 spaces per unit for a total of 468 spaces. The Applicant is proposing 281 space and requesting a waiver from Town of Raymond.*
   Response: As stated above, a waiver request letter is included with this resubmission.

7. *We recommend that each building is numbered in future submissions for ease of reference.*
   Response: Each building is now numbered.

8. *The emergency access drive shows a width of 16' in lieu of the required 20'. The Applicant is requesting a waiver from Town of Raymond.*
   Response: As stated above, a waiver request letter is included with this resubmission.

9. *The labels for the proposed parking spaces located between the center island and emergency access road appear to be incorrect.*
   Response: The parking space labels have been corrected.

10. *We recommend that the Applicant meet with the Fire Department to review the protection activities, in accordance with Town of Raymond, Site Plan Review Regulations, Section 6.09.01.*
    Response: This can be discussed at the upcoming Technical Review Committee meeting.

Grading and Drainage Plans. (Sheets OVRG, C5 to C6; Now C16-C18):

1. *It appears that the proposed grading on the south side of White Rock Drive will direct a large volume of stormwater runoff over the proposed access road. We recommend that the Applicant revise the plan to provide means for sufficient stormwater peak flow attenuation and treatment. Also, the proposed benches which divert some of the stormwater should be stabilized with riprap to prevent severe erosion of these slopes during major storm events.*
   Response: Underdrains are proposed within cut sections adjacent to White Rock Drive. All road runoff as well as runoff from the bottom of the side slopes is caught into a closed drainage system which is routed into the proposed wet pond. This wet pond attenuates and treats stormwater and as a result, the post-construction peak rate of runoff is below that of the existing condition in the 2-, 10-, 25-, and 50-Year storms. As shown on the Benched/Terraced Slope Detail, the benches will be lined with rip rap.

2. *The north side of the proposed White Rock Drive (Sta 6 to Sta 8+50) has proposed grades that are 2H:1V adjacent to the road. We recommend that the Applicant revise the plan and provide guardrail to protect motorists from the steep embankment.*
   Response: Guardrail is proposed on the north side of White Rock Drive adjacent to the 2H:1V embankment within the cut section.

3. *We recommend that the Applicant revise the plans to provide more information regarding the proposed retaining walls (dimensions, top and bottom elevations, etc.).*
   Response: Additional top and bottom elevations have been added to the grading and drainage plans. Additionally, the length of each wall was already provided on the site plans and the width of each wall has been added to the site plans as well. We have provided a detail for the proposed retaining walls within the detail sheets.

4. *We recommend that the Applicant revise the proposed grading behind the building on the south side to provide stormwater conveyance away from the building.*
   Response: Additional spotgrades have been added behind Building #1 to clarify the design intent.

5. *On White Rock Drive, it appears that there are multiple conflicts regarding the proposed grading, rim elevations and pipe/culvert cover. We recommend that the Applicant revise the plan and address these issues.*
   Response: All stormwater pipes and culverts will be buried at least 2' below proposed grade. We have checked to confirm that the proposed rim elevations match proposed grade at their respective locations.

6. *We recommend that the Applicant indicate the proposed door locations and provide spot elevations at the proposed building, ADA parking spaces, proposed 5' concrete sidewalk (to confirm that the proposed pedestrian walkways have ADA-compliant slope) and where slope is less than 2%.*
   Response: Spot elevations are provided at door locations and the ADA parking spaces and along the proposed concrete sidewalk to confirm ADA-compliant slope. Additionally, spotgrades are provided wherever the slope is less than 2%.

7. *We recommend that the Applicant indicate where proposed roof drainage will be located, and how it will tie into the proposed stormwater management system.*
   Response: As shown on the grading and drainage plans, the proposed roof drains from Building #1 and #3 will tie into subsurface stone infiltration basins. Each subsurface stone infiltration basin will have an associated cleanout and a perforated underdrain and are intended to infiltrate roof runoff. Roof runoff from Building #2, on the other hand, will be allowed to flow directly toward the analysis point as treatment is not required for residential roofs per NHDES regulations and additional detention is not required in order to cause a decrease in runoff toward each analysis point.

Utility Plans. (Sheets C7 to C8; Now C19-C20):

1. *We recommend that the Applicant meet with the Fire Department to review the proposed protection activities, in accordance with Town of Raymond Zoning Ordinance Section 6.09.01.*
   Response: This can be discussed at the upcoming Technical Review Committee meeting.

2. *We recommend that the Applicant revise the plans to show the size, location and elevation of all existing public and private utilities (water, electric) onsite and off-site (Main Street) with which connection is planned in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.10.*
   Response: The sizes and locations of all public and private utilities with which connection is planned, as well as information as to whether they are above ground or underground, have been added on the plans.

3. *It appears in multiple locations that the proposed water and underground electrical lines are very close or in conflict with the drainage system.*
   Response: The proposed water and underground electric lines have been modified to minimize conflicts with each other and with the proposed drainage system. The profile sheets have been revised to show the elevations of water and drainage lines at all water/drainage crossings. Where any utilities or drainage lines horizontally cross each other in, the utility lines can be vertically bent to avoid direct conflicts.

4. *The proposed septic system and proposed underground propane tanks appear conceptual in nature with no details provided.*
   Response: The proposed septic systems are not being designed at this time. The appropriate sizes as calculated per the Env-Wq 1000 rules and proposed location of each leach field and associated septic tanks are shown on the utility plans, assuming that pre-treatment is provided for size reduction. The dimensions of the propane tanks shown match typical dimensions of 1,000 gallon propane tanks and these are at least 10 feet from the buildings, as required.

Plan and Profile Plans. (Sheets P1 to P2; Now P1-P4):

1. *We recommend that the Applicant revise the plan to show rim and invert elevation for catch basins and drain manhole, and length, size and slope for the proposed pipes. Additionally, we recommend that the submitted plans should have a scale of maximum 1" =40' (horizontal) and 1" =4' (vertical)*
   Response: The rim and invert elevations at catch basins and drain manholes are listed on the grading plans for consistency, as the same information is shown on the grading plans for catch basins and drain manholes that are not shown in the profile. The profile shows the station of each drainage structure and graphically depicts them along the road. To avoid duplication of text, the rims and inverts are not copied on to the profile sheets. The plan and profile sheets now have a scale of 1" = 40'H & 1" = 4'V.

Landscape Plans. (Sheets L1 to L2):

1. *We recommend that the Applicant add a note that states "All planting areas intended to be mowed or maintained shall receive a minimum of four inches of compacted loam free of sod, clay and stones over one inch in diameter" as specified in Town of Raymond, Site Plan Review Regulations 6.10.04.*
   Response: Note #20 on Sheet L1 states "All planting areas intended to be mowed or maintained shall receive a minimum of four inches of loam free of sod, clay and stones over one inch in diameter". However, it is our opinion that the loam should not be compacted.

2. *It appears there are multiple conflicts between the proposed trees and the underground utilities. (i.e., underground drainage pipes, underground propane tanks, proposed stormtech). We recommend that the Applicant revise the locations accordingly.*
   Response: The locations of the trees and underground utilities have been revised on the plans to avoid conflicts.

Lighting Plans. (Sheets L3 to L4):

1. *The light fixture at the beginning of the entrance drive appears to exceed the maximum 0.2 foot-candle requirement at the property line in accordance with of the Town of Raymond Outdoor Lighting Standards. Also, adjacent to residential property, no direct light source will be visible at the property line at ground level or above*
   Response: This issue has been corrected on the lighting plans.

Soil Erosion and Sediment Control Plans:

1. *We recommend that the Applicant submit separate plans for Soil Erosion and Sediment Control in accordance with Town of Raymond. Site Plan Review Regulations, Section 5.03.14.d.*
   Response: Sheets E1 and E2 show details of erosion and sediment control BMPs, and the implementation of these BMPs are shown on the grading plans. Therefore, these function as erosion and sediment control plans. This is what we have done in the past.

Detail Plans. (Sheets D1 to D7):

1. *We recommend that the Applicant provide details for all proposed ponds.*
   Response: Standard details for each type of pond that is used are included in the detail sheets.

Drainage Analysis Report and Existing Watershed Plan. (Sheets W1):

1. *We recommend that the Applicant submit plans with a graphic scale of 1" = 20' up to 1" = 50' for a better visualization in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.03.*
   Response: Watershed plans are now provided at 1" = 40' scale.

2. *We recommend that the Applicant annotate all existing contours and change the line type for the existing subcatchments for a better visualization and review. Additionally, we recommend to check and revise the labels on the plan to match the drainage report.*
   Response: While it would be cumbersome to label *all* existing contours, they have been labelled at appropriate increments. The linetype of the watershed lines has been modified for better visualization. The watershed labels on the plans have been checked and revised as necessary to match the drainage report.

3. *On the existing watershed plan it is unclear how the runoff is flowing from wet channel 1R and the depression 3P (6P in the drainage report) to Analysis Point 3 and from depression 2P to low point 1P towards Analysis Point 1*
   Response: When depression 3P fills up, the overflow will crest over a berm and flow downhill toward Channel 2R. Channel 2R represents a channel which discharges directly into Analysis Point 3; representing the wetland on the west side of the site. This is simply due to the topography of the hill adjacent to 3P.

   It is evident that runoff from depression 2P does not flow toward low point 1P. Instead, when the depression fills up and overflows, the water runs down the slope of the hill adjacent to Main Street and directly toward the catch basin.

4. *We recommend that the Applicant submit a complete summary for the 25-year storm.*
   Response: A complete summary for the 25-year storm has been added to the revised drainage report.

Drainage Analysis Report and Proposed Watershed Plan. (Sheets W2):

1. *We recommend Applicant submit plans with a graphic scale of 1" = 20' up to 1" = 50' for a better visualization in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.03.*
   Response: Watershed plans are now provided at 1" = 40' scale.

2. *We recommend that the Applicant annotate all existing contours and change the line type for the proposed subcatchments for a better visualization and review. Additionally, we recommend checking and revising the labels on the plan to match the drainage report.*
   Response: While it would be cumbersome to label *all* existing contours, they have been labelled at appropriate increments. The linetype of the watershed lines has been modified for better visualization. The watershed labels on the plans have been checked and revised as necessary to match the drainage report.

3. *We recommend that the Applicant submit a complete summary for the 25-year storm.*
   Response: A complete summary for the 25-year storm has been added to the drainage report.

4. *We recommend that the Applicant revise the drainage report for the post developed watershed. In multiple locations, the storm peak elevation exceeds the flood elevations for the 50-year storm.*
   Response: In order to model the extent of any flooding, additional storage has been modelled above the flood elevation on any device that is shown to overflow. This represents temporary puddling in the proposed roadway above the rim of each device and it should be noted that these areas flood in the existing condition as they are at existing low points. The devices for which this occurs include both dry wells and the Jellyfish treatment device. Any overflow above the ponding area provided over the Jellyfish and dry well #1 is routed directly toward Analysis Point #1, and any overflow above the ponding area provided over dry well #2 is routed to the Eco-Raster. Due to the existing topography and water tables, puddling in these areas is unavoidable during large storm events, but we have revised the post-developed drainage analysis in order to better model the extent of flooding and to ensure that the peak flow in the proposed condition is below that of the existing condition toward all analysis points.

The following items are provided in support of this Letter:

1. Six (6) Full Size Plan Sets.
2. Ten (10) Half Size Plan Sets.
3. One (1) Architectural Floor Plan Set.
4. One (1) Revised Drainage Report.
5. Recorded Copy of 30' Deeded Right of Way.
6. Waiver Request Letters.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz

Daniel Meditz, E.I.T.
Project Engineer

cc: Michael Garrepy, Tuck Realty Corp. (via email)
Jeffery Adler, DuBois & King (via email & U.S. Mail)

BK2690 P1117

SG 18.4

QUITCLAIM DEED

43764

BARBARA L. WILSON, of 41 Loring Road, Weston, Massachusetts, for consideration paid, grants to FREDERICK S. WELCH and JOAN E. WELCH, as joint tenants with the rights of survivorship, both of 15 Nottingham Road, Raymond, New Hampshire, all of my right, title and interest in and to the following described parcel:

A certain tract or parcel of land situated in Raymond, County of Rockingham, State of New Hampshire, being the 7.8± acre portion of the Gregg lot shown on a plan entitled "Two Remaining Portions of the Gregg Lot (1346-496 less Route 101)", by David R. Noyes, Scale 1' = 100'±, dated June 1, 1984 and recorded in the Rockingham County Registry of Deeds as Plan No. D-13046, which parcel is more particularly bounded and described as follows:

Beginning at a point located on the northerly sideline of Route 101-Raymond By-Pass and on the easterly side of land now or formerly of Frederick Welch; thence North 31 3/4° East, 569.00± feet to a granite bound and stones found; thence

1. Turning and running South 63 3/4° East, 271.00± feet to a point; thence

2. South 62° East, 880.00± feet along a barbed wire fence to a point; thence

3. North 90° West, 84.00± feet along said Route 101 to a concrete bound; thence

4. North 88 1/2° West, 750.00± feet along said Route 101 to a concrete bound; thence

5. North 86 1/2° West, 488.00± feet along said Route 101 to the point of beginning.

Together with a 30' right-of-way as shown on a plan entitled "Centerline of 30' Right-of-Way across land of Josephine Welch" by David R. Noyes, Scale 1' = 100', dated August 23, 1982 and recorded in the Rockingham County Registry of Deeds as Plan No. D-11967.

Meaning and intending to convey a portion of the premises conveyed to Thomas McGall by deed of Abbe J. Lamprey, dated August 26, 1949 and recorded in the Rockingham County Registry of Deeds at Book 1369, Page 496, which parcel was made a separate and distinct lot by the construction of the new Route 101-Raymond By-Pass through the premises. Barbara L. Wilson inherited the same premises under the will of Ruth M. McGall who died on December 13, 1981. See Rockingham County Probate No. 49219. Ruth M. McGall inherited the property from Thomas J. McGall who died January 27, 1963. See Rockingham County Probate No. 46020. Also meaning and intending to convey the right-of-way conveyed by Josephine Welch to Barbara L. Wilson.

This is not homestead property of the Grantor.

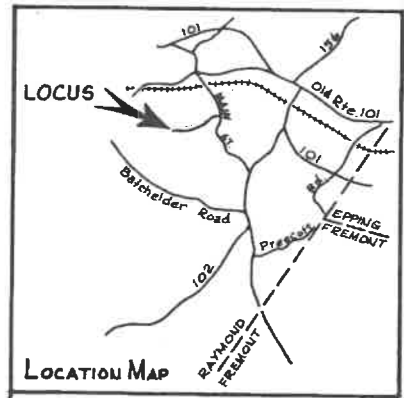
Dated this 2 day of July, 1987.

Barbara L. Wilson
Barbara L. Wilson

STATE OF NEW HAMPSHIRE
COUNTY OF

The foregoing instrument was acknowledged before me this 2nd day of July, 1987 by Barbara L. Wilson.

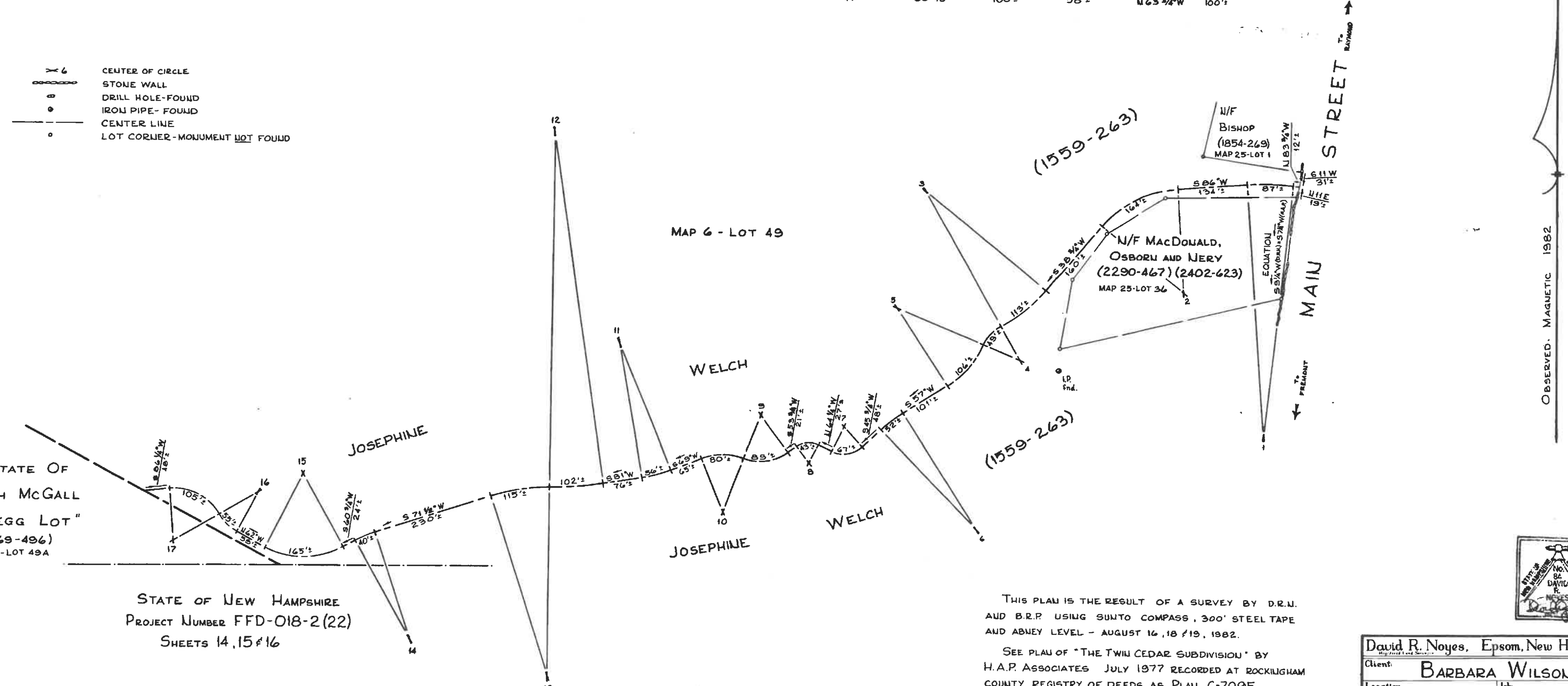
~~Notary Public~~/Justice of the Peace



Curve Data

Curve	Central Angle	Radius	Tangent	Chord Tie	
1	10° 15′	485′±	43′±	N 89°W	86′±
2	47° 00′	200′±	87′±	S 62½°W	160′±
3	21° 30′	300′±	57′±	S 50°W	111′±
4	37° 15′	75′±	25′±	S 42°W	48′±
5	33° 45′	180′±	55′±	S 40¼°W	104′±
6	11° 15′	265′±	26′±	S 51½°W	52′±
7	70° 15′	55′±	39′±	S 80¾°W	63′±
8	62° 15′	40′±	24′±	S 84¾°W	41′±

Curve	Central Angle	Radius	Tangent	Chord Tie	
9	57° 00′	90′±	49′±	S 82°W	86′±
10	41° 45′	110′±	42′±	S 89¾°W	78′±
11	12° 15′	265′±	28′±	S 75°W	56′±
12	8° 30′	685′±	51′±	S 85¼°W	102′±
13	18° 00′	365′±	58′±	S 80½°W	114′±
14	10° 45′	215′±	20′±	S 66¼°W	40′±
15	59° 15′	160′±	87′±	S 89½°W	153′±
16	28° 30′	110′±	28′±	N 47¾°W	54′±
17	60° 15′	100′±	58′±	N 63¾°W	100′±



This plan is the result of a survey by D.R.N. and B.R.P. using Sunto compass, 300′ steel tape and Abney level – August 16, 18 & 19, 1982.

See plan of "The Twin Cedar Subdivision" by H.A.P. Associates July 1977 recorded at Rockingham County Registry of Deeds as Plan C-7095

See plan of "Gregg Lot" by D.R. Noyes, Dwg. No. 7901 but note portion recently taken by State of New Hampshire – not yet recorded.

David R. Noyes, Epsom, New Hampshire	
Client: Barbara Wilson	
Location: Raymond, N.H.	Job: R.O.W. Layout
Title: Centerline of 30′ Right-of-Way Across Land of Josephine Welch	
Scale: 1″ = 100′	7901-Dr.8 8-23-82
Dwg. No. 7901-C	

B.R.P.

D-11967

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Site Plan Regulations Section 6.03.03(c) - Licensed Landscape Architect Requirement

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting a waiver from the requirement to hire a Licensed Landscape Architect to draft and stamp the landscape plan as we have hired Lise McNaughton of LM Land Design from Brentwood, NH to do the planting design work. Lise is more than qualified to provide landscape plans as you can see from the variety of plantings selected. A sufficient variety of plantings has been selected for this proposed development.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

We meet the intent of this regulation by hiring Lise McNaughton, who is an experienced landscape designer but not a landscape architect. Lise is more than qualified to provide landscape plans as you can see from the variety of plantings selected.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Site Plan Regulations Section 6.06.01 - Parking Requirements

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting 281 parking spaces which is 1.80 spaces per unit, where 3 spaces per unit are required. We are asking for this waiver to be granted as providing 3 spaces per unit is excessive for apartments. There are overlapping use of parking spaces when you have this many units. People are coming and going and we will have 84 1-bedroom units. Some of these will certainly be occupied by one person with one vehicle. Based on empirical observations, 1.80 spaces per unit is plenty for this combination of 1- and 2-bedroom units.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

This provides sufficient off-street parking for the proposed use based on empirical observations. The intent of the parking standards is to prevent parking public rights of way, and the proposed parking layout provides enough parking. Having less parking will also help us to minimize disturbance to the extent possible. This is particularly important on a sloping site such as this one, where steep slope areas are protected under Zone G. Therefore, this helps us also meet the intent and purpose of the Zoning Ordinance by minimizing disturbance in Zone G land.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Subdivision Regulations 5.6.D.1 - Maximum Road Grade

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting to permit a graveled emergency access road with a maximum slope of 9.0% where a maximum slope of 8.0% is allowed. As the name of it suggests, this road will only be used for emergencies and the primary route of ingress and egress will be via a 25' wide paved private road with a maximum slope of 8.0%. The first 200' approximately of the emergency access road will need to be constructed at a slope of no greater than 2% in order for grading to remain on the subject parcel. Beyond this there is more land area to work with and the proposed road begins to climb a steep hill. The end of this road needs to meet the site approximately at elevation 266.2, and should not be at a steep slope when it does so. Therefore there needs to be a transition of grade when the emergency access road ends and meets the site. The road therefore must retain a slope of 9.0%. The road is 967 feet long and cannot be made any longer while still keeping with existing topography to the extent practicable. This is not detrimental to public safety because there is not likely to be oncoming traffic along this road - It will be used infrequently by emergency vehicles going up the hill, and then these vehicles may either go back down this road or utilize the main driveway to return to Main Street. The curves in the road are enough to provide adequate sight distance as well. Additionally, guardrail will be utilized along the low side, and there will be a ditch to prevent stormwater run-on along the high side of the road. This is not injurious to other adjacent property because the road will be screened by both landscaping and natural woods, and all runoff from the road will be treated and detained so that post-construction peak flows are below the existing conditions. We request that this waiver be granted because it is unavoidable for the emergency access road to have a steep slope and because appropriate steps are being taken to ensure that the road is safe for emergency vehicles.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

The intent of this regulation is to ensure safety along proposed roadways. For the reasons stated above, the road grade being slightly higher than the maximum requirement will not compromise this intent, and the road cannot reasonably be made any less steep. Additionally, if the road is steeper it can be made shorter, which results in a lower volume of stormwater runoff. Another purpose of the site plan regulations is to lessen stormwater runoff from development sites. For these reasons, the proposed waiver does not have the effect of nullifying the intent and purpose of the site plan regulations, and road grade not a matter of zoning.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Subdivision Regulations - Right of Way Design Matrix - Minimum Road Width (for emergency access road only)

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

We are requesting to permit a graveled emergency access road with a width of 16' where 20' is required for a private road. The road needs to be this width in order for the road itself as well as associated grading to fit within the narrow corridor between two abutting properties, Tax Map 28-3, Lots 5&6. This is not detrimental to public safety, health, or welfare because due to the unique use of the proposed road. It will be used infrequently and most traffic will be one way. Emergency vehicles accessing the site will use this road, and then they can either return to Main Street using this road or utilize Main Street. It will be made clear through signage at both ends of the road that the road is for "Authorized Vehicles Only". There is guardrail and a ditch on the low and high side of the road, respectively. The main access driveway to the site is designed in accordance with all regulations, while this emergency access way can only be 16' wide for the reasons that were stated. Emergency vehicles will be able to safely utilize this access road despite it not meeting the required road width because they will not be subject to oncoming traffic.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

The intent of this regulation is to ensure safety along proposed roadways. Because this is intended to be primarily a one-way road and it will only be used by emergency vehicles in rare situations, a reduction in width will not compromise this intent, and the road cannot reasonably be made any lwider. Additionally, with a narrower road and therefore less impervious surface, there is a lower volume of stormwater runoff. Another purpose of the site plan regulations is to lessen stormwater runoff from development sites. For these reasons, the proposed waiver does not have the effect of nullifying the intent and purpose of the site plan regulations, and road width is not a matter of zoning.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

Raymond NH Planning Board Waiver Request Form

Applicable to Site Plan Review and Subdivision Regulations

Project Name & Application Number: White Rock Place

Regulation, Article & Section from which a waiver is being sought:

Subdivision Regulations - ROW Design Matrix - Sidewalk Requirement

Where the Planning Board finds that unnecessary hardship may result from strict compliance with these regulations with respect to a particular tract of land, the Board may modify or waive these regulations so that substantial justice may be done and the public interest is secured, provided that:

Please respond to the criteria below:

a. Explain how the granting of the waiver will not be detrimental to public safety, health, or welfare or injurious to other adjacent property;

Per the right of way design matrix within the Subdivision Regulations, sidewalks are required for all private roads that serve 20 units or more. This is a 156-unit development with a private access drive, so this project meets the threshold for technically requiring a sidewalk. However, we believe that it would be inadvisable to place a sidewalk along White Rock Drive for several reasons. The road climbs 70' in elevation at an 8% slope. A sidewalk at this slope would be unsafe during the winter and would not be compliant with ADA regulations. Additionally, there is barely enough room on the subject parcel to grade side slopes for the roadway itself. A sidewalk would only encumber more land with grading and also cause additional stormwater runoff.

As an alternative to a sidewalk, the emergency access road can be used by bicyclists and pedestrians to access Main Street and downtown Raymond by foot or bicycle. Pedestrian ingress and egress from the site will still be possible without a sidewalk.

b. Explain how granting this waiver shall not have the effect of nullifying the intent and purpose of these regulations, the Zoning Ordinance, Master Plan or Official Zoning Map;

While a traditional sidewalk would be inadvisable along White Rock Drive, the emergency access road can be utilized by pedestrians as an alternative path to Main Street. This substantially meets the objective of the sidewalk requirement by providing pedestrian access to downtown on a road that is almost never going to be used by motor vehicles.

In granting waivers, the Planning Board may require such conditions as will, in the Board's judgment, secure substantially the objectives of the standards or requirements of these regulations.

A petition for waiver shall be submitted by the applicant at the time when the application is filed for consideration by the Planning Board. All petitions shall be made in writing using the Town's Waiver Request Form. The petition shall state fully the grounds for the waiver and all of the facts relied upon by the petitioner.

Any granted waivers must be noted on the final approved plan.

100 feet Abutters List Report

Raymond, NH
February 08, 2023

Subject Properties:

Parcel Number:	023-000-024-000	Mailing Address:	TUCK REALTY CORPORATION
CAMA Number:	023-000-024-000-000		P.O. BOX 190
Property Address:	ROUTE 101		EXETER, NH 03833
Parcel Number:	023-000-025-000	Mailing Address:	WELCH,JOSEPH & JOHN & ARDELL &
CAMA Number:	023-000-025-000-000		INEZ BETSY PATTERSON & ROBIN
Property Address:	MAIN STREET		PROULX
			49 RAYMOND ROAD, ROUTE 156
			NOTTINGHAM, NH 03290
Parcel Number:	023-000-028-000	Mailing Address:	WELCH, PAUL W & TERI L
CAMA Number:	023-000-028-000-000		109 MAIN STREET
Property Address:	109 B MAIN STREET		RAYMOND, NH 03077
Parcel Number:	023-000-029-000	Mailing Address:	WELCH, WAYNE F CATHLEEN M WELCH
CAMA Number:	023-000-029-000-000		109 A MAIN STREET
Property Address:	109A MAIN STREET		RAYMOND, NH 03077

Abutters:

Parcel Number:	022-000-045-000	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	022-000-045-000-000		200 RESERVOIR STREET SUITE 306
Property Address:	INDUSTRIAL DRIVE		NEEDHAM, MA 02494
Parcel Number:	023-000-026-000	Mailing Address:	LURIE, AUDREY J.
CAMA Number:	023-000-026-000-000		111 MAIN STREET
Property Address:	111 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	023-000-027-000	Mailing Address:	BUCKUS, BRETT M. & JILLIAN M.
CAMA Number:	023-000-027-000-000		109 MAIN STREET
Property Address:	109 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	023-000-030-000	Mailing Address:	MERKEL EMPIRE , LLC
CAMA Number:	023-000-030-000-000		17 PINEWOOD DRIVE
Property Address:	105 MAIN STREET		STRATHAM, NH 03885
Parcel Number:	023-000-035-000	Mailing Address:	BREWITT, JOHN J.,JR. & ERIN Y.
CAMA Number:	023-000-035-000-000		110 MAIN STREET
Property Address:	110 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	023-000-036-000	Mailing Address:	MCCARTHY, TONA & CYNTHIA P CINDY
CAMA Number:	023-000-036-000-000		A. TOWNSEND
Property Address:	112 MAIN STREET		112 MAIN STREET
			RAYMOND, NH 03077

100 feet Abutters List Report

Raymond, NH
February 08, 2023

Parcel Number:	023-000-037-000	Mailing Address:	RUELAS, JEREMY S & SUSANNA L
CAMA Number:	023-000-037-000-000		114 MAIN STREET
Property Address:	114 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	023-000-038-000	Mailing Address:	PERREAULT, JOHN W
CAMA Number:	023-000-038-000-000		116 MAIN STREET
Property Address:	116 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-001-000	Mailing Address:	LACASSE, ALISON F. W. & RANDALL A
CAMA Number:	028-003-001-000-000		INEZ WELCH
Property Address:	103 MAIN STREET		103 MAIN STREET
			RAYMOND, NH 03077
Parcel Number:	028-003-002-000	Mailing Address:	KING, WILLIAM C JANICE L KING
CAMA Number:	028-003-002-000-000		101 MAIN STREET
Property Address:	101 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-003-000	Mailing Address:	PRATT, KEVIN M. KERRY J. PRATT
CAMA Number:	028-003-003-000-000		11 SMITH POND ROAD
Property Address:	99 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-005-000	Mailing Address:	RICE, CHARLES F.JR. REVOCABLE
CAMA Number:	028-003-005-000-000		TRUST CHARLES F. RICE, JR. /
Property Address:	97 MAIN STREET		TRUSTEE
			97 MAIN STREET
			RAYMOND, NH 03077
Parcel Number:	028-003-006-000	Mailing Address:	GARNHAM, DENNIS JANET BUTLER
CAMA Number:	028-003-006-000-000		95 MAIN STREET
Property Address:	95 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-007-000	Mailing Address:	JOHNSON, CARLYLE R. MARICELA
CAMA Number:	028-003-007-000-000		JOHNSON
Property Address:	9 MOULTON STREET		9 MOULTON STREET
			RAYMOND, NH 03077
Parcel Number:	028-003-007-001	Mailing Address:	ARTHUR, LINDA & JOHN
CAMA Number:	028-003-007-001-000		91 MAIN STREET
Property Address:	91 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-011-000	Mailing Address:	FROST, WAYNE G. & IRENE
CAMA Number:	028-003-011-000-000		7 MOULTON STREET
Property Address:	7 MOULTON STREET		RAYMOND, NH 03077
Parcel Number:	028-003-012-000	Mailing Address:	POWER, JOHN W
CAMA Number:	028-003-012-000-000		5 MOULTON STREET
Property Address:	5 MOULTON STREET		RAYMOND, NH 03077
Parcel Number:	028-003-013-000	Mailing Address:	CONNOLLY, SEAN M.
CAMA Number:	028-003-013-000-000		3 MOULTON STREET
Property Address:	3 MOULTON STREET		RAYMOND, NH 03077

100 feet Abutters List Report
Raymond, NH
February 08, 2023

Parcel Number: 028-003-014-000 CAMA Number: 028-003-014-000-000 Property Address: 1 MOULTON STREET	Mailing Address: GILES, ERIN B. & BRIAN D. 1 MOULTON STREET RAYMOND, NH 03077
Parcel Number: 028-003-015-000 CAMA Number: 028-003-015-000-000 Property Address: 6 ORCHARD STREET	Mailing Address: COLE-CALNAN, NANCY 6 ORCHARD STREET RAYMOND, NH 03077
Parcel Number: 028-003-016-000 CAMA Number: 028-003-016-000-000 Property Address: ORCHARD STREET	Mailing Address: RAYMOND, TOWN OF 4 EPPING STREET RAYMOND, NH 03077
Parcel Number: 028-003-017-000 CAMA Number: 028-003-017-000-000 Property Address: 11 ORCHARD STREET	Mailing Address: MICHAELS, KEITH J. 11 ORCHARD STREET RAYMOND, NH 03077
Parcel Number: 028-003-114-000 CAMA Number: 028-003-114-000-000 Property Address: 98 MAIN STREET	Mailing Address: SPOFFORD, LISA REVOCABLE TRUST LISA M. DESISTO / TRUSTEE 38 W. BROADWAY DERRY, NH 03038
Parcel Number: 028-003-115-000 CAMA Number: 028-003-115-000-000 Property Address: 100 MAIN STREET	Mailing Address: BERGERON, MICHAEL B MAUREEN R BERGERON 100 MAIN STREET RAYMOND, NH 03077
Parcel Number: 028-003-116-000 CAMA Number: 028-003-116-000-000 Property Address: 102 MAIN STREET	Mailing Address: WATT, DANIEL E 102 MAIN STREET RAYMOND, NH 03077
Parcel Number: 028-003-117-000 CAMA Number: 028-003-117-000-000 Property Address: 106 MAIN STREET	Mailing Address: MOULTON, EDWARD W JEAN MOULTON 106 MAIN STREET RAYMOND, NH 03077
Parcel Number: 028-003-120-001 CAMA Number: 028-003-120-001-000 Property Address: INDUSTRIAL DRIVE	Mailing Address: ONYX RAYMOND LLC. 200 RESERVOIR STREET SUITE 306 NEEDHAM, MA 02494
Parcel Number: 028-004-007-000 CAMA Number: 028-004-007-000-000 Property Address: 108 MAIN STREET	Mailing Address: MOULTON, EDWARD W 106 MAIN STREET RAYMOND, NH 03077
Parcel Number: 028-004-007-000 CAMA Number: 028-004-007-002-000 Property Address: 108 MAIN STREET	Mailing Address: VERIZON P.O. BOX 2549 ADDISON, TX 75001
Parcel Number: 028-004-007-000 CAMA Number: 028-004-007-003-000 Property Address: 108 MAIN STREET	Mailing Address: A T &T COMPANY 1010 PINE, 9E-L-01 ST. LOUIS, MO 63101

100 feet Abutters List Report

Raymond, NH
February 08, 2023

Parcel Number:	028-004-007-000	Mailing Address:	METRO PCS
CAMA Number:	028-004-007-004-000		285 BILLERICA ROAD THIRD FLOOR
Property Address:	108 MAIN STREET		CHELMSFORD, MA 01824
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT COMMUNICATIONS C/O
CAMA Number:	028-004-007-005-000		PROPERTY TAX DEPARTMENT
Property Address:	108 MAIN STREET		P.O. BOX 85022
			BELLEVUE, WA 98015-8522
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT COMMUNICATIONS CO. L.P.
CAMA Number:	028-004-07S-000-000		ATTN: PROPERTY TAX DEPARTMENT
Property Address:	TOWN WIDE		PO BOX 85022
			BELLEVUE, WA 98015-8522
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT SPECTRUM LP C/O PROPERTY
CAMA Number:	028-004-07T-000-000		TAX DEPARTMENT
Property Address:	108 MAIN STREET		P O BOX 85022
			BELLEVUE, WA 98015-8522
Parcel Number:	028-004-007-000	Mailing Address:	A T & T COMPANY
CAMA Number:	028-004-07U-000-000		1010 PINE, 9E-L-01
Property Address:	TOWN WIDE		ST. LOUIS, MO 63101

JONES & BEACH ENGINEERS, INC., ATTN. JOSEPH CORONATI, DAVID COLLIER & MICHAEL KERIVAN, PO BOX 219, STRATHAM, NH 03885

GOVE ENVIRONMENTAL SERVICES, 8 CONTINENTIAL DRIVE, UNIT H, EXETER, NH 03833

A T & T COMPANY
1010 PINE, 9E-L-01
ST. LOUIS, MO 63101

A T &T COMPANY
1010 PINE, 9E-L-01
ST. LOUIS, MO 63101

ARTHUR, LINDA & JOHN
91 MAIN STREET
RAYMOND, NH 03077

BERGERON, MICHAEL B
MAUREEN R BERGERON
100 MAIN STREET
RAYMOND, NH 03077

BREWITT, JOHN J.,JR. & ER
110 MAIN STREET
RAYMOND, NH 03077

BUCKUS, BRETT M. & JILLIA
109 MAIN STREET
RAYMOND, NH 03077

COLE-CALNAN, NANCY
6 ORCHARD STREET
RAYMOND, NH 03077

CONNOLLY, SEAN M.
3 MOULTON STREET
RAYMOND, NH 03077

FROST, WAYNE G. & IRENE
7 MOULTON STREET
RAYMOND, NH 03077

GARNHAM, DENNIS
JANET BUTLER
95 MAIN STREET
RAYMOND, NH 03077

GILES, ERIN B. & BRIAN D.
1 MOULTON STREET
RAYMOND, NH 03077

JOHNSON, CARLYLE R.
MARICELA JOHNSON
9 MOULTON STREET
RAYMOND, NH 03077

KING, WILLIAM C
JANICE L KING
101 MAIN STREET
RAYMOND, NH 03077

LACASSE, ALISON F. W. & R
INEZ WELCH
103 MAIN STREET
RAYMOND, NH 03077

LURIE, AUDREY J.
111 MAIN STREET
RAYMOND, NH 03077

MCCARTHY, TONA & CYNTHIA
CINDY A. TOWNSEND
112 MAIN STREET
RAYMOND, NH 03077

MERKEL EMPIRE , LLC
17 PINEWOOD DRIVE
STRATHAM, NH 03885

METRO PCS
285 BILLERICA ROAD
THIRD FLOOR
CHELMSFORD, MA 01824

MICHAELS, KEITH J.
11 ORCHARD STREET
RAYMOND, NH 03077

MOULTON, EDWARD W
106 MAIN STREET
RAYMOND, NH 03077

MOULTON, EDWARD W
JEAN MOULTON
106 MAIN STREET
RAYMOND, NH 03077

ONYX RAYMOND LLC.
200 RESERVOIR STREET
SUITE 306
NEEDHAM, MA 02494

PERREAULT, JOHN W
116 MAIN STREET
RAYMOND, NH 03077

POWER, JOHN W
5 MOULTON STREET
RAYMOND, NH 03077

PRATT, KEVIN M.
KERRY J. PRATT
11 SMITH POND ROAD
RAYMOND, NH 03077

RAYMOND, TOWN OF
4 EPPING STREET
RAYMOND, NH 03077

RICE, CHARLES F.JR. REVOC
CHARLES F. RICE, JR. / TR
97 MAIN STREET
RAYMOND, NH 03077

RUELAS, JEREMY S & SUSANN
114 MAIN STREET
RAYMOND, NH 03077

SPOFFORD, LISA REVOCABLE
LISA M. DESISTO / TRUSTEE
38 W. BROADWAY
DERRY, NH 03038

SPRINT COMMUNICATIONS
C/O PROPERTY TAX DEPARTME
P.O. BOX 85022
BELLEVUE, WA 98015-8522

SPRINT COMMUNICATIONS CO.
ATTN: PROPERTY TAX DEPART
PO BOX 85022
BELLEVUE, WA 98015-8522

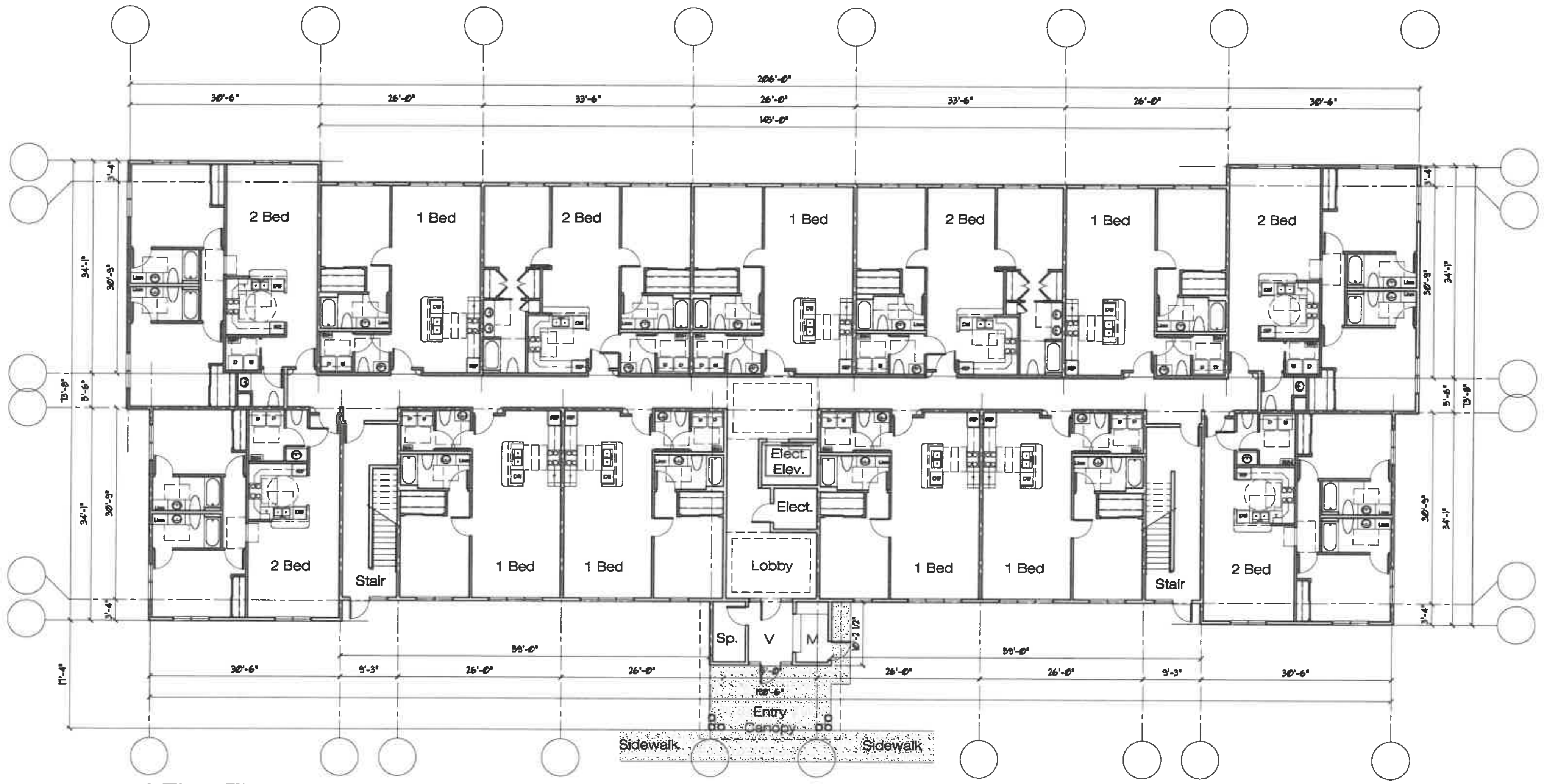
JONES & BEACH ENGINEERS, INC.
ATTN. JOSEPH CORONATI, DAVID COLLIER & MICHAEL KERIVAN
PO BOX 219
STRATHAM, NH 03885

SPRINT SPECTRUM LP
C/O PROPERTY TAX DEPARTME
P O BOX 85022
BELLEVUE, WA 98015-8522

GOVE ENVIRONMENTAL SERVICES
8 CONTINENTIAL DRIVE, UNIT H
EXETER, NH 03833

VERIZON
P.O. BOX 2549
ADDISON, TX 75001

WATT, DANIEL E
102 MAIN STREET
RAYMOND, NH 03077

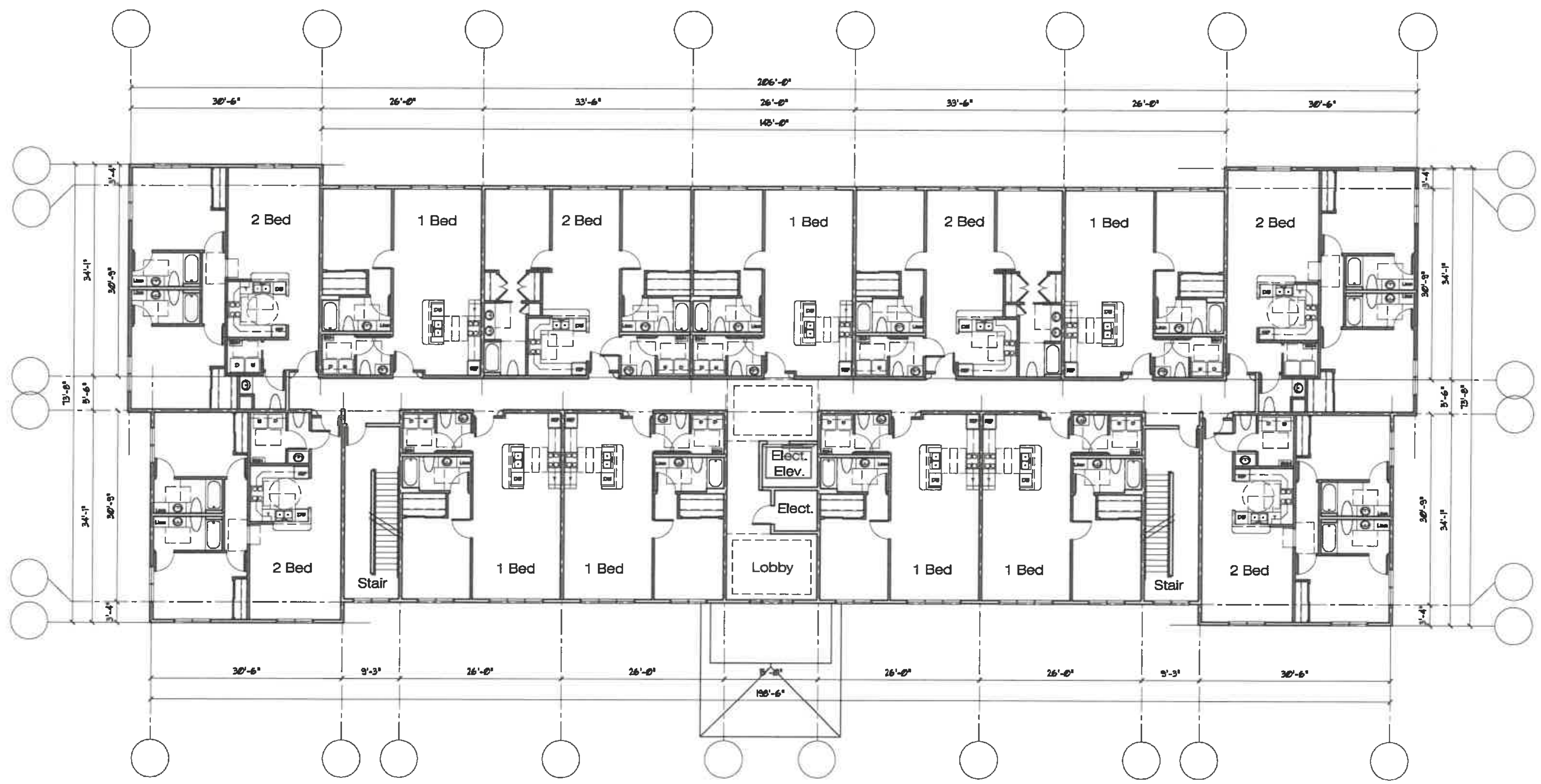


1 First Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Barrington, NH
February 13, 2023

THA ARCHITECTS, LLC
ARCHITECTURE ▪ PLANNING ▪ CONSULTING ▪ INTERIOR DESIGN
89 WILLOWBROOK AVENUE ▪ STRATHAM, NH 03885
Tel: (603) 770-2491 Fax: (603) ▪WWW.THAARC.COM



1 Second Floor Plan

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Barrington, NH
February 13, 2023

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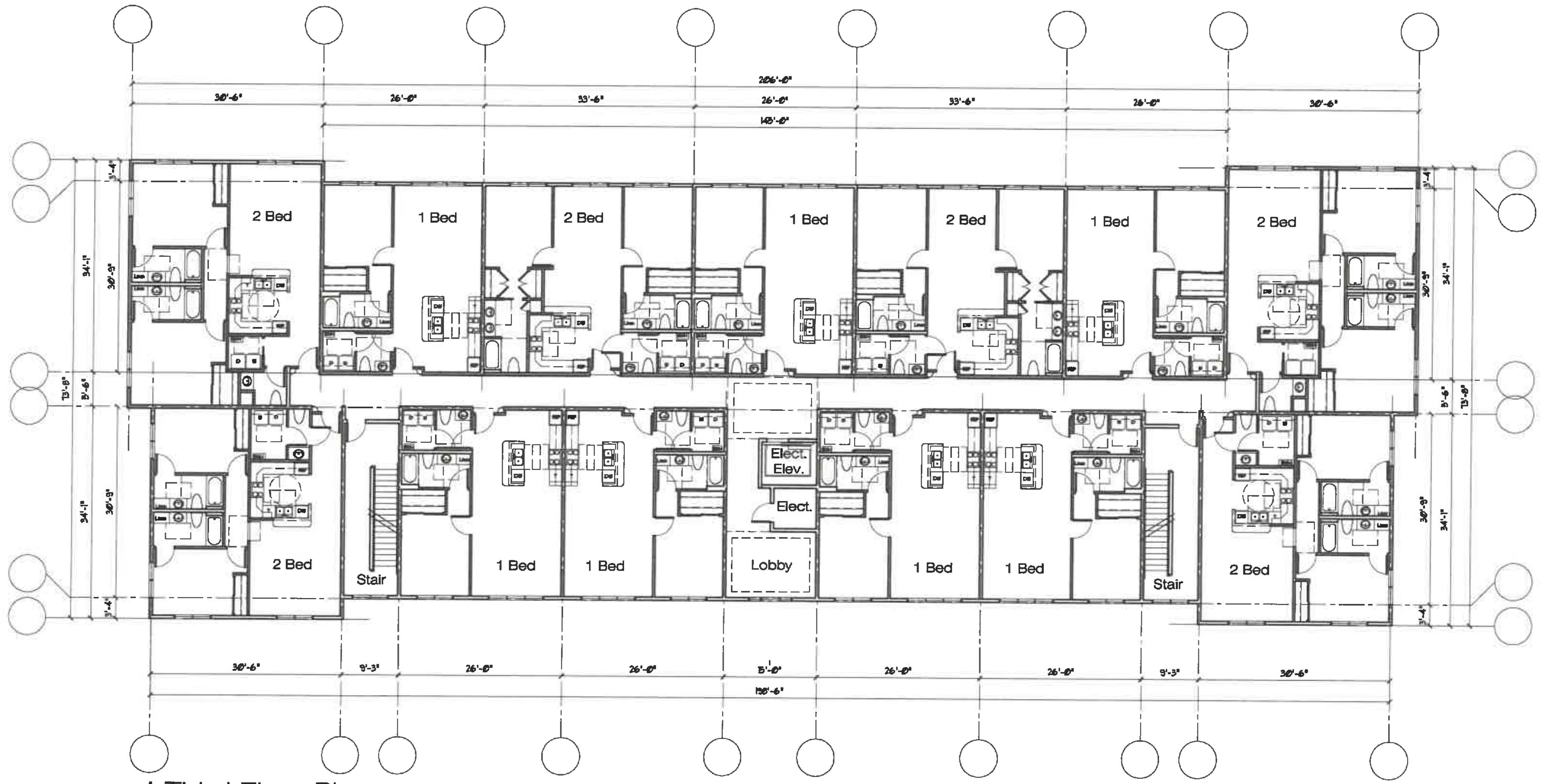
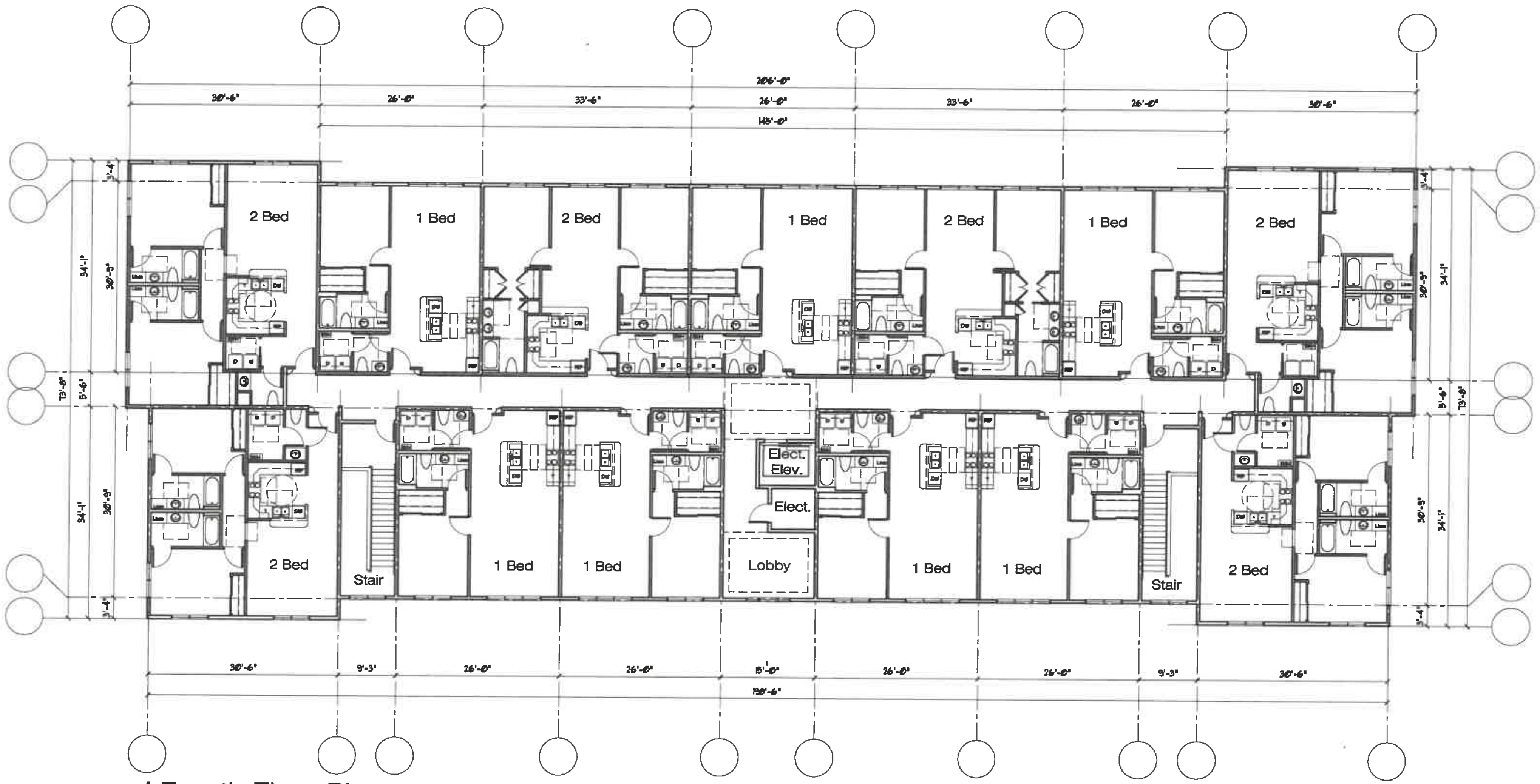


1 Third Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Barrington, NH
February 13, 2023

THA ARCHITECTS, LLC
ARCHITECTURE • PLANNING • CONSULTING • INTERIOR DESIGN
89 WILLOWBROOK AVENUE • STRATHAM, NH 03885
Tel: (603) 770-2491 • Fax: (603) •WWW.THAARC.COM



1 Fourth Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Barrington, NH
February 13, 2023

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Tel: (603) 770-2491▪ Fax: (603) ▪WWW.THAARC.COM

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

March 20, 2023

Raymond Planning Board
Attn. Brad Reed, Chair
4 Epping Street
Raymond, NH 03077

Re: Response Letter
White Rock Place
109A, B, C, & D Main Street, Raymond, NH
Tax Map 23, Lots 24, 25, 28 & 29
JBE Project No. 20564

Dear Mr. Reed,

We received comments from Madeleine Dilonno, Regional Planner, Rockingham Planning Commission, dated February 14, 2023, and from Jeff Adler, Dubois & King, dated March 10, 2023. Original review comments are italicized, and we offer the following responses below in bold.

Rockingham Planning Commission Comments:

General Comments:

It appears the following Permits are required for this application: 1) NHDES Alteration of Terrain Permit and 2) Town of Raymond Driveway Permit. It's recommended each required permit be received prior to or as a condition of approval; and receipt of each permit be acknowledged in a note on the Cover Sheet of the final plans.
Response: The NHDES Alteration of Terrain Permit is pending. Town of Raymond driveway permit will be obtained prior to construction. The necessary state permits are listed on Note #6 on Sheet C14 and will be updated with the permit number and date once received.

The following waivers have been requested from the Raymond Site Plan and Subdivision Regulations:

1. *Site Plan regulation 6.06 – Parking Standards*
2. *Site Plan regulation 3.03.03 – Licensed Landscape Architect (*Note 5b on Sheet C3 should be revised to reflect the accurate section).*
3. *Subdivision Regulation 5.6.D.1 (Road Design Standards) – Maximum*

Road Grade (for emergency access road only)

4. *Subdivision Regulation ROW Design Matrix – Minimum Pavement Width (for emergency access road only.*

It is recommended that a petition for the above waivers be submitted in writing using the town's Waiver Request Form in accordance with Section 7.08 of the Raymond Site Plan Regulations and Section 1.4.d of the Raymond Subdivision Regulations. In the event the Planning Board grants one or more of the waivers, it is recommended that notes acknowledging such relief be provided on the cover sheet of the final plans.

Response: Waiver request letters were provided to the Town on February 14th. We retract the waiver request for Maximum Pavement Width as the emergency access road is now proposed to be 20' wide as required. Note 5b was previously updated to reference the correct Section for the licensed landscape architect waiver, which is 3.03.03(c).

Zoning Matters:

1. *It is recommended that the applicant provide a written Unified Development Plan in accordance with the provisions of the Sewer Overlay District (Section 5.3.2 of the* ***2020*** *Raymond Zoning Ordinance). See full text on page 4.*

   Response: A unified development plan is included with this resubmission.

2. *Sheets C2 and C3 show front and side building setbacks of 30 feet. Article 15.2.7 states "any residential structure proposed for location within a Commercial (C.1 and C.2) or Industrial zone*

   (D) requires a minimum setback of one hundred feet (100') from property lines, or, in the alternative, fifty feet (50') inclusive of a minimum of twenty feet (20') of dense vegetative buffer and a fence of a type..." It is recommended the plans be revised accordingly.

   Response: The correct setbacks have been added to the plans. Buildings 2 and 3 maintain at least a 100' setback, while Building 1 encroaches into the 100' setback but maintains at least a 50' setback. Therefore, a fence and dense vegetative buffer have been added as necessary.

3. *A special permit is required for impacts to Zone G land (in this case, 128,000 square feet of steep slope disturbance). It is recommended the applicant seek input from the Raymond Conservation Commission on such impacts in accordance with Article 4.9.6.2.2 of the Zoning Ordinance.*

   Response: We are impacting 86,000 SF of steep slopes, not 128,000 SF, as noted on Note #11 of Sheet C14. The areas of steep slope being disturbed are hatched on the grading plans. This project is scheduled to be on the April 12th conservation commission meeting.

Site Plan Submission Requirements:

1. *It is recommended that a Community Impact Analysis be prepared in accordance with SPR 4.02.03. The Community Impact Analysis shall describe the proposed use and include a description of how the proposed activity, both during and following construction, will impact traffic, parking and circulation, storm drainage, utilities, schools, noise, the Town's fiscal condition and other Community services.*
   Response: The Community Impact Analysis is being prepared and will be submitted once it is ready.

2. *It is recommended that a traffic impact analysis be prepared in accordance with SPR 5.03.13.*
   Response: A Traffic Impact Analysis is being prepared and will be submitted once it is ready.

3. *It is recommended that architectural concept drawings be submitted for proposed buildings in accordance SPR 5.03.14.f. Said plans shall consist of plan and exterior elevation views or proposed improvements, with external mechanical components of the building (i.e., heating, ventilation, and air conditioning). Plans shall be conceptual only, but of sufficient detail to determine compliance with Town Regulations.*
   Response: Floor plans were provided with the 2/14 submission, and with this submission, we are additionally providing elevations.

Road Design, Access, and Parking:

1. *The width of the proposed access road is 22 feet where a width of 25 feet is required (SPR 6.02.01.a). The plans should be revised accordingly. It is understood that a waiver has been requested from this requirement for the emergency access road only.*
   Response: The width of the access road was previously changed to 25 feet as of the 2/14 submission.

2. *According to the Right of Way Design Matrix in the Raymond Subdivision Regulations, sidewalks are required on private streets serving 20 units or more. The plans should be revised accordingly.*
   Response: We are requesting a waiver from the requirement to have sidewalks. The waiver request letter was submitted on 2/14.

3. *The grade of the proposed emergency access road is 9%. It is understood that a waiver has been requested from section 5.6.D.1 of the Raymond Subdivision Regulations, which states grades of streets shall not exceed 8%. It is recommended that the applicant consult with the Raymond Fire and Police Departments as to the adequacy of both roadways for emergency access.*
Response: The Raymond Fire and Police Chiefs were both present at the TAC meeting. The Police Chief had no comment, but the Fire Chief had some input which we addressed. He requested that we make the emergency access road 20' wide and paved, which we did. He also requested that we have one hydrant per building and we have modified the plans for this.

4. *Note 3 on Sheet P1 states "as built plans will be submitted to the town prior to acceptance of the roadway." Are one or both proposed access roads intended to be dedicated as public streets? If so, it is recommended that Note 3 on sheet P1 be revised to clarify this intent. Additionally, it is recommended that a note be added to the final plans acknowledging that all maintenance of the future streets is the responsibility of the applicant until such time as it may be accepted as a Class V public way by the Town of Raymond in accordance with RSA 674:40.*
Response: This is a standard note but it has been removed from Sheet P1 as it is not applicable to this project.

5. *The minimum parking requirements for a residential / multi-family development is 3 spaces per unit (SPR 6.06), which would require 468 spaces for the proposed development. A total of 281 spaces are currently proposed. It is understood that the applicant is requesting a waiver from this requirement. SPR 6.06.03 states that the Planning Board has the prerogative to adjust these (parking) requirements and such decision will be based on the expected number of trips generated by the activity at its peak hour. It is recommended that the applicant provide such information and any other supporting documentation to justify the reduced parking count.*
Response: A Traffic Impact Analysis including the peak hour number of trips anticipated is being prepared and will be submitted once it is ready.

   SPR 6.06.04.i states when a waiver is requested for relief from the number of parking spaces required by the Raymond Site Plan Review Regulations, the applicant must present a plan showing the ability to install the full number of spaces in the future if the need arises. It is recommended the applicant provide such information.
   Response: An exhibit (Sheet EX-1) has been added to the plan set showing the ability to install the full number of required parking spaces in the future should the need arise.

Water / Stormwater:

1. *SPR 6.05.02 states that connection to the municipal water system requires a letter from the Raymond Water Department indicating acceptance of the proposed design and agreement to furnish the requested service(s).*

   It is my understanding that the proposed development has been submitted to the town's consulting engineer, Underwood Engineers, for evaluation of impacts to the town's water distribution system.

   Response: Underwood Engineers has indicated that Town water is not available. Therefore, we are now proposing a well as shown on the utility plans.

2. *Inspection and maintenance responsibilities for the stormwater management and erosion control measures should be noted on the final plans in accordance with 6.11.07 of the Raymond Site Plan Regulations.*
   Response: A revised Stormwater Operations and Maintenance Manual is included with this resubmission.

Fire Protection

1. *It is recommended that the applicant meet with the Fire Department to review the proposed protection activities, such as fire alarms, sprinkler systems, fire hydrants, dry hydrants, emergency access and cisterns in accordance with Section 6.09 of the Raymond Site Plan Regulations.*
   Response: The Raymond Fire Department was present at the TAC meeting and we have addressed their comments. See response to Note #3 under "Road Design, Access, and Parking," above.

Landscaping and Screening

1. *It is understood that the applicant is seeking a waiver from section Site Plan regulation 3.03.03 which requires landscape plans be developed by a licensed landscape architect.*
   Response: No response necessary.

2. *It is recommended that a note be added to the landscape plan stating the owner and tenant of the property shall be jointly responsible for the maintenance of all required plant material and continued compliance with the Raymond Site Plan Regulations (SPR 6.10.07).*
   Response: See Note #21 on Sheet L1.

5.3.2. *UNIFIED DEVELOPMENT: All development within this SOD must take place in accordance with a Unified Development Plan approved by the Planning Board. For purposes of this Ordinance, a Unified Development Plan shall be defined as an overall plan that identifies in a conceptual nature how the lot or lots contained in the plan will be developed in a manner consistent with the intent of this Ordinance and how the plan will allow and encourage the development of other lots within the SOD zoning district, in a manner consistent with the intent of the Ordinance.*

5.3.2.1. *The Unified Development Plan must describe and illustrate, in written and graphic format, and shall specify the intended locations and types of proposed uses, the layout of proposed vehicle and pedestrian access and circulation systems, provision of transit facilities and water and sewer facilities, and areas designated to meet requirements for open space, parking, on site amenities, utilities and landscaping. It shall include statements or conceptual plans describing how signage and lighting will be designed in a unified and integrated manner within the district. In addition, the Unified Development Plan shall indicate how the proposed uses will relate to the surrounding properties both within and outside of the district.*

5.3.2.2. *The submittal of written concept statement(s) in lieu of a Unified Development Plan shall not be accepted. In determining whether to approve a Unified Development Plan, the Planning Board will consider the following criteria:*

5.3.2.2.1. *Compatibility of the plan with the goals and objectives set forth in the Town's Master Plan;*

5.3.2.2.2. *Compatibility of the plan with the permitted uses in the Sewer Overlay District.*

5.3.2.2.3. *Approval of the Unified Development Plan must occur prior to the consideration of individual site development plans for one or several contiguous lots within the SOD. All site development plans must be reviewed and approved in accordance with this Ordinance and the Planning Board's Site Plan, Subdivision and Earth Excavation Regulations prior to the issuance of any building permits within the district.*

5.3.3. *AMENDMENT TO UNIFIED DEVELOPMENT PLAN: Any Unified Development Plan may be changed or amended by an applicant and such changes may occur concurrently with, or prior to the submittal of individual site development plans. To the extent that the approved Unified Development Plan addresses lots within the SOD which are not owned by the applicant, then such approved plan shall be binding* *only on the applicant and the owners of such other lots may seek changes to the Unified Development Plan consistent with their own development project.*

5.3.4. *SPECIAL PROVISIONS: All new development, change of use, subdivision, site review or development requiring a building permit must be connected to both town water and town sewer services. Notwithstanding the above, application for new development may be made prior to the availability of town water and sewer, provided that the proposed use is permitted as a matter of right in the underlying districts or provided that relief is obtained from the Zoning Board of Adjustment, and provided that the applicant proposes development subject to a condition of approval that the property shall be connected to town water and sewer when it becomes available within one hundred (100) feet of the property line.*

Dubois & King Inc.

Traffic Impact Analysis

1. *We understand that the Applicant will submit a Traffic Impact Analysis for the proposed industrial development, in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.03.13.*
   Response: The Traffic Impact Analysis is being prepared and we will submit it once it is ready.

Existing Conditions Plans.

1. *Repeat Comment. We understand that the Applicant included the owner information in the title block and we recommend that the Applicant indicate on the existing conditions plan the location of site, tax map and lot number, current name and address of the owner of record for Lot 24, in accordance with Town of Raymond, Site Plan Review Regulations, Section 5.02.02.*
   Response: The location and tax map and lot number of Lot 24 is shown on Sheet C1. The current name and address of the owner of record of Lot 24 (Tuck Realty Corp) is listed in the title block, which is on all sheets of the plan set.

Site Layout Plans. (Sheets C13, C14 & C15)

1. *In accordance with the Right of Way Design Matrix, sidewalks are required for roads serving 20 units or more. We understand that a waiver request from the sidewalk requirement was submitted.*
   Response: No response necessary.

2. *The minimum parking requirement for a residential / multi-family is 3 spaces per unit for a total of 468 spaces. The Applicant is proposing 281 space and requesting a waiver from Town of Raymond.*
   We understand that a waiver request from the parking requirements was submitted. However, in accordance with Town of Raymond, Site Plan Regulations, Article 6.06.04.i, in instances where a waiver is requested for relief from the number of parking spaces required by the Town of Raymond Site Plan Review Regulations, the Applicant must present a plan showing the ability to install the full number of spaces in the future, if the need arises. Additionally, we recommend that the Applicant also prepare a provisional drainage plan and report, to check if the proposed detention ponds will retain the additional runoff, taking into consideration that the impervious area for the parking lot will increase by a significant amount.
   Response: An exhibit plan (Sheet EX-1) is included at the end of the plan set showing the parking layout necessary to bring the parking count up to the required number should the need arise. The additional parking area is graded out with a retaining wall. The additional parking would require new stormwater infrastructure which we are showing conceptually at this time. We can submit a full provisional drainage report (which is not a Town requirement) at a later time if requested, but we would seek input on the layout before we go to that level of design.

3. *The emergency access drive shows a width of 16' in lieu of the required 20'. The Applicant is requesting a waiver from Town of Raymond.*
   Response: The emergency access drive is now proposed to be 20' in width and we hereby retract the waiver request.

4. *The site plans submitted by the Applicant show two new front entries with sidewalk for each building, instead of the side entries. Based on the fact that 4 out of 6 proposed entries have stairs, we recommend that the Applicant indicate if these areas are ADA accessible.*
   Response: We label on the site plan which entrances are ADA accessible. At least one ADA accessible entrance is provided per building.

Grading and Drainage Plans. (Sheets C16, C17 & C18):

1. *It appears that there are multiple conflicts regarding the proposed contours. We recommend that the Applicant will check and revise all proposed contours labels and proposed contours closing with existing contours on both sides of White Rock Road.*
   Response: The contours on White Rock Road have been reviewed and any necessary revisions have been made.

2. *Repeat Comment. The north side of the proposed White Rock Drive (Sta 6 to Sta 8+50) has proposed grades that are 2H:1V adjacent to the road. We recommend that the Applicant revise the plan and provide guardrail to protect motorists from the steep embankment.*
   Response: Guardrail is provided along fill sections of the roadway as shown on the site plan. We are unsure why this comment was repeated.

3. *We recommend that the Applicant revise the proposed spot elevation for the south side entrance at Building #1.*
   Response: The proposed spot elevation for the south side entrance at building #1 has been revised to match the proposed grade at this location.

4. *It appears that the cover over the pipes at CB #1 & 2 is less than 2'. We recommend that the Applicant revise the plan to maintain a minimum of 2' of cover.*
   Response: The inverts have been revised for a minimum of 2' of cover over the pipe between CB #1 & 2.

Utility Plans. (Sheets C19 & C20)

1. *It appears that the water main line is very close or in direct conflict with the drainage system. (CB #9 at Sta. 8+00). We recommend that the Applicant reviews and revises the plan.*
   Response: The water main along the access road has been removed as the apartment complex is now proposed to be serviced by a well with all associated piping proposed within the site itself.

2. *The proposed septic system and proposed underground propane tanks appear conceptual in nature with no details provided. We understand that the proposed septic systems will be designed in the future and the appropriate sizes will follow the Env-Wq 1000 rules.*
   Response: The septic systems have been designed and the designs are included on Sheets S1-S6 of the plan set.

Landscape Plans. (Sheet L2)

1. *Repeat Comment. On plan L2, it appears that at the site where White Rock Road ends and the parking lot begins there are some conflicts between the proposed trees and utility lines (drainage pipe and underground propane tanks). We recommend that the Applicant revise the locations accordingly.*
   Response: We have checked for conflicts between proposed trees and utility lines and revised as necessary.

Detail Plans. (Sheets D1 to D7)

1. *Repeat Comment. We recommend that the Applicant provide details for all proposed ponds or a standard detail with an additional table showing elevations for the proposed ponds (bottom, top), ground, and inlet and outlet pipes. Additionally, we recommend showing the size, length and slope for the proposed pipes.*
   Revised: Practice-specific elevations have been added to the cross-section details for the wet pond, bioretention system, stormtech, focal point, and dry well. The size, length, and slope of the proposed pipes are shown on the grading plans.

Drainage Analysis Report and Existing Watershed Plan. (Sheets W1, W2 & W3)

1. *Repeat Comment. On the existing watershed plan it is unclear how the runoff is flowing from depression 2P direct to analysis point AP1 and from Wet Channel 1R straight to analysis point AP3 (from drainage report routing diagram). We recommend reviewing and revising the drainage report.*
   Response: Reaches 3Ra and 3Rb have been added to the existing drainage analysis to show how runoff gets from 2P to AP1. Per AOT's comment, 1R has been eliminated and is instead included within the Tc path for 4S, with Reaches 4Ra and 4Rb showing how the runoff gets to AP3 from Subcatchment 4S.

Drainage Analysis Report and Proposed Watershed Plan. (Sheets W4, W5 & W6)

1. *On the proposed watershed plan, it is unclear how the runoff is flowing from Wet Channel 1R straight to analysis point AP3 (from drainage report routing diagram). We recommend reviewing and revising the drainage report.*
   Response: Per AOT's comment, 1R has been eliminated and is instead included within the Tc path for 4S, with Reaches 4Ra and 4Rb showing how the runoff gets to AP3 from Subcatchment 31S.

2. *We recommend that the Applicant explain the 100 in/hr exfiltration for Pond 6P. This appears to be an error.*
   Response: The focal point is a proprietary stormwater filtration system which features a high-flow 100 in/hr filter media above the underdrain, per ACF.

3. *We recommend checking and revising the multi stage discharge outlet structure (MSDOS) #2 to be consistent between the drainage report and plans and details.*
   Response: The details and drainage report are consistent with the revised design.

4. *We recommend checking and revising CB #9 regarding the pipe size to be consistent between the drainage report and plans.*
   Response: The pipe size in HydroCAD for CB #9 has been revised to 15" to match the plans.

5. *From the drainage report, the surface area for pond 11P is 2,964 SF. We recommend that the Applicant provide two test pits for proposed Infiltration Pond 11P, in accordance with New Hampshire Stormwater Manual, Volume 2, Chapter 2, Table 2-2.*
   Response: A second test pit was performed in the footprint of the infiltration area. Test pit logs are included with this resubmission.

The following items are provided in support of this Letter:

1. Six (6) Full Size Plan Sets.
2. Ten (10) Half Size Plan Sets.
3. Special Permit Application.
4. One (1) Revised Drainage Analysis.
5. One (1) Revised Stormwater Operations and Maintenance Manual.
6. Test Pit Logs.
7. One (1) Architectural Building Plan Set.
8. Unified Development Plan.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz

Daniel Meditz, EIT
Project Engineer

cc: Michael Garrepy, Tuck Realty Corp. (via email)
Madeleine Dilonno, Rockingham Planning Commission (via email)
Jeff Adler, Dubois and King (via email)

Application for Special Permit

Town of Raymond, NH

Site Information

Property Address: 109 A, B, C & D Main Street

Map #: 23 Lot #: 24, 25, 28 & 29

Property Owner Information

Name: Lot 24 - Tuck Realty Corp., PO Box 190, Exeter, NH 03833 Phone:

Address: Lot 25 - Joseph, John, Ardell & Inez Welch, 49 Raymond Rd., Nottingham, NH 03290
Lot 28 - Paul & Teri Welch, 109 Main St., Raymond, NH 03077

Address: Lot 29 - Wayne & Cathleen Welch, 109A Main St., Raymond, NH 03077

Applicant/Agent Information

Name: Turner Porter, Tuck Realty Corp. Phone: 603-944-7530

Address: PO Box 190, Exeter, NH 03833

Address:

Project Description

The intent of this project is to subdivide the lot into one residential lot containing 156-unit apartment complex and one industrial lot. We have 86,000 S.F. of steep slope impact in Zone G and therefore are requesting a Special Permit. This site is situated such that the impacts are unavoidable. We are also putting 23 acres into open space that will not be developed in the future.

Applicant Signature* (see page 2): Daniel Meditz **Date:** 3/20/23

Submission Checklist

- ***COMPLETED & SIGNED APPLICATION.** If the applicant is NOT the property owner, a notarized letter of permission from the property owner is required to be submitted with this application.

- **LIST OF ABUTTERS.** The list of abutters must include the following information:
  - Name of property owner(s)
  - Address of property owner(s)
  - Name of abutting property owner(s)
  - Address of abutting property owner(s)
  - Tax Map and Lot Numbers for all properties listed
  - Name and Address of any agents authorized by the applicant to represent them and whose professional seal appears on a plat submitted to the Planning Board (i.e. land surveyors, wetland scientists, engineers, etc.)

  (For more information, please refer to NH Revised Statues Annotated 672:3 for a definition of the term "abutter," and RSA 676:4 for legal notice requirements).

- **APPLICATION FEE.** The application fee to the Planning Board for a Special Permit is as follows:
  - $100.00 base application fee, plus;
  - $10.00 per abutter (including the applicant, property owner(s), and any agents authorized to represent the property owner(s))
  - **When writing a check, this amount must be kept separate from the Escrow Account (see below).** Please make checks payable to the Town of Raymond.

- **ESCROW ACCOUNT.** This is a separate account established by the applicant to cover the cost of any additional legal notification, engineering review, legal review, document recording or outside copying incurred by the Town. Any unused funds will be returned to the applicant.
  - $250.00 – Minimum amount required to establish Escrow Account.
  - **When writing a check, this amount must be kept separate from the Application Fee (see above).** Please make checks payable to the Town of Raymond.

- **PLANS.**
  - One (1) 24" x 36" copy of the plan, plus ten (10) 11" x 17" copies shall be provided.

    -OR-

  - If the original plan is smaller than 24" x 36" in size, then one (1) copy of the original plan, plus ten (10) 11" x 17" copies of the plan shall be provided.

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

White Rock Place
109A&C Main Street
Raymond, NH 03077
Tax Map 23, Lots 24, 25, & 29

Prepared for:
Tuck Realty Corporation
PO Box 190
Exeter, NH 03833
ATTN: Michael Garrepy
mgarrepy@gmail.com
(603) 944-7530

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746

November 22, 2022
REVISED December 12, 2022
REVISED March 20, 2023
JBE Project No. 20564

JONES&BEACH
ENGINEERS INC.

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. Tuck Realty Corporation., future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. Tuck Realty Corporation, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. All record keeping required by this manual shall be maintained by the responsible party(ies) and be made available to NHDES upon request.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

    a. Pavement
    b. Sediment Forebay
    c. Wet Pond
    d. Bioretention System
    e. ADS Stormtech System
    f. ACF Focal Point
    g. Permeable Pavers
    h. Catch Basins & Dry Well
    i. Drain Manholes
    j. Culverts
    k. Rip Rap Outlet Protection
    l. Contech StormFilter
    m. Vegetation and landscaping

2. Maintenance of permanent measures shall follow the following schedule:

    a. Normal winter roadway maintenance including plowing and snow removal. Road and parking lot sweeping at the end of every winter, preferably at the start of the spring rain season. Snow removal shall be performed by Sno-Pro certified personnel to keep road salt from contaminating the river or groundwater.

    b. Cleaning Criteria for all Sedimentation Forebays: Sediment should be removed from the sedimentation chamber (forebay) when it accumulates to a depth of more than 12 inches (30 cm) or 10 percent of the pretreatment volume. The sedimentation forebay should be cleaned of vegetation if persistent standing water and wetland vegetation becomes dominant. The cleaning interval is once every year. A dry sedimentation forebay is the optimal condition while in practice this condition is rarely achieved. The sedimentation chamber, forebay, and treatment cell outlet devices should be cleaned when drawdown

times exceed 60 to 72 hours. Materials can be removed with heavy construction equipment; however this equipment should not track on the wetland surface. Revegetate disturbed areas as necessary. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

c. Wet Ponds should require little maintenance, but should be inspected frequently during the first year of operation, and annually thereafter. Every five years, the services of a professional engineer should be retained to perform a thorough inspection of all the aspects of the pond and its infrastructure. Any debris and sediment accumulations should be removed from the outlet structure(s) and emergency spillway(s) and disposed of properly. Inspect outlet structure for deterioration and or clogging. Wet Pond berms should be mowed at least once annually so as to prevent the establishment of woody vegetation – trees should *never* be allowed to grow on a Wet Pond berm, as they may destabilize the structure and increase the potential for failure. Areas showing signs of erosion or thin or dying vegetation should be repaired immediately by whatever means necessary, *with the exception of fertilizer.* Rodent burrows are to be repaired immediately and the suspect animals apprehended with non-lethal traps if the problem persists.

The wet pond should remain full to the elevation of the lowest outlet in the pond.

d. Bioretention Systems:

- Visually inspect monthly and repair erosion. Use small stones to stabilize erosion along drainage paths.
- Check the pH once a year if grass is not surviving. Apply an alkaline product, such as limestone, if needed.
- Re-seed any bare areas by hand as needed.
- Immediately after the completion of cell construction, water grass for 14 consecutive days unless there is sufficient natural rainfall.
- Once a month (more frequently in the summer), residents are encouraged to visually inspect vegetation for disease or pest problems and treat as required.
- During times of extended drought, look for physical features of stress. Water in the early morning as needed.
- Weed regularly, if needed.
- After rainstorms, inspect the cell and make sure that drainage paths are clear and that ponding water dissipates over 4-6 hours. (Water may pond for longer times during the winter and early spring.)
- Twice annually, inspect the outlet control structures to ensure that they are not clogged and correct any clogging found as needed.

KEEP IN MIND, THE BIORETENTION CELL IS NOT A POND. IT SHOULD NOT PROVIDE A BREEDING GROUND FOR MOSQUITOES. MOSQUITOES NEED AT LEAST FOUR (4) DAYS OF STANDING WATER TO DEVELOP AS LARVA.

e. **ADS Stormtech System:**

- Removal of debris from inlet and outlet structures.
- Removal of accumulated sediment.
- Inspection and repair of outlet structures and appurtenances.
- Inspection of infiltration components at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Inspection of pretreatment measures at least twice annually, and removal of accumulated sediment as warranted by inspection, but no less than once annually.
- If an infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration trench.
- Camera inspections of the system should be done on an annual basis.
- See also attachment from ADS.

f. ACF Focal Point: See attachment from ACF

g. Permeable Pavers:

A short stretch of the emergency access road is constructed from EcoRaster permeable pavers and the remainder is constructed from gravel. The following recommendations will help assure that the pavers are maintained to preserve its hydrologic effectiveness.

Winter maintenance:

- Sanding for winter traction is prohibited. Deicing is permitted (NaCl, $MgCl_2$, or equivalent). Reduced salt application is possible and can be a cost savings for winter maintenance. Nontoxic, organic deicers, applied either as blended, magnesium chloride-based liquid products or as pretreated salt, are preferable.
- Plowing is allowed, blade should be set approximately 1" above the paver surface. Ice and light snow accumulation are generally not as problematic as for standard asphalt. Snow will accumulate during heavier storms and should be plowed. (more than usual, about an inch).

Routine maintenance:

- Seal coating is absolutely forbidden. Surface seal coating is not reversible.
- The paver surface should be vacuumed 2 or 3 times per year, and at any additional times sediment is spilled, eroded, or tracked onto the surface.
- Planted areas adjacent to permeable pavers should be well maintained to prevent soil washout onto the pavers. If any bare spots or eroded areas are

observed within the planted areas, they should be replanted and/or stabilized at once.

- Immediately clean any soil deposited on pavers. Superficial dirt does not necessarily clog the paver voids. However, dirt that is ground in repeatedly by tires can lead to clogging. Therefore, trucks or other heavy vehicles should be prevented from tracking or spilling dirt onto the pavers.
- Do not allow construction staging, soil/mulch storage, etc. on unprotected paver surface. Contractor to lay down tarps, plywood or removable item and take care not to track material onto unprotected pavers.
- Repairs: Potholes or other surface blemishes shall be replaced in kind. Any required repair of drainage structures should be done promptly to ensure continued proper functioning of the system.
- Written and verbal communication to the future owner should make clear the pavement's special purpose and special maintenance requirements such as those listed here.

h. **Annual inspection** of catch basins to determine if they need to be cleaned. Catch basin is to be cleaned if the depth of deposits is greater than one-half the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-half depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in the catch basin, then it should be cleaned on a weekly basis. The Catch basin can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed. Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

i. **Annual inspection** of drain manholes to determine if they need to be cleaned. Manholes should be cleaned of any material upon inspection. Manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

j. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

k. Rock riprap should be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a

stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

l. Contech StormFilter: See attachment from Contech.

m. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying. The site shall remain in a stabilized condition at all times. A site is considered stable if one of the following has occurred.

   b.a. A minimum of 85% vegetative cover has been established;
   b.b. A minimum of 3 inches of non-erosive material such as stone or riprap has been installed; or
   b.c. Erosion control blankets have been installed in accordance with Env-Wq 1506.03.

n. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
T#: (603) 772-4746
Email: jcoronati@jonesandbeach.com

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

____

Tuck Realty Corporation

____

By: Print Name

____

Signature

____

Title

____

Email Address

____

Phone Number

____

Date

Commitment to maintenance requirements

This signature page shall be provided to NHDES upon the change of Ownership, Transfer or Assignment. Contact information is to remain updated and the responsibility of the applicable party responsible for this Operation and Maintenance Manual.

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

____
Property Owner or future assigns

____
By: Print Name

____
Signature

____
Title

____
Email Address

____
Phone Number

____
Date

Annual Operations and Maintenance Report

Tuck Realty Corporation, future owners and assigns, are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. Tuck Realty Corporation, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. All record keeping required by this manual shall be maintained by the responsible party(ies) and be made available to NHDES upon request.

Tuck Realty Corporation, future owners and assigns, are responsible for submitting a report to the Planning Department or their designated agent by September 1 every two years, with the first report due within two years of receipt of an Occupancy Permit. The report shall be signed and stamped by a qualified professional engineer that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their report and include detail regarding when the infrastructure shall be repaired and functioning as approved.

If no report is filed by September 1 in the year the report is due, the Select Board or their designated agent shall have site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.

Construction Activity	Date of Inspection	Who Inspected	Findings of Inspector
Pavement			
Sediment Forebays			
Wet Pond			

Bioretention System			
ADS Stormtech			
ACF Focal Point			
Permeable Pavers			
Catch Basins & Dry Well			
Drain Manholes			

Culverts			
Rip-Rap Outlet Protection			
Contech StormFilter			
Vegetation and Landscaping			
Other:			

Comments:

Deicing Log

Date Applied	Type of Deicing Material	Amount Applied

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Background:

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

UNIVERSITY *of* NEW HAMPSHIRE
COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.

Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.* Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

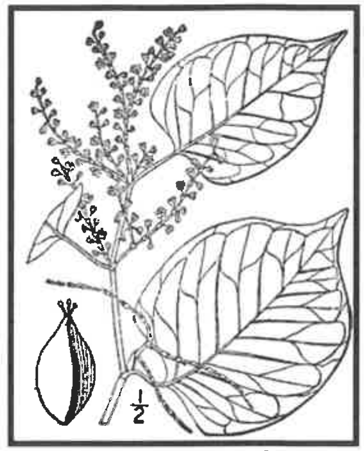
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.* Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple *(Acer platanoides)* European barberry *(Berberis vulgaris)* Japanese barberry *(Berberis thunbergii)* autumn olive *(Elaeagnus umbellata)* burning bush *(Euonymus alatus)* Morrow's honeysuckle *(Lonicera morrowii)* Tatarian honeysuckle *(Lonicera tatarica)* showy bush honeysuckle *(Lonicera x bella)* common buckthorn *(Rhamnus cathartica)* glossy buckthorn *(Frangula alnus)*	**Fruit and Seeds**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Use as firewood. ▪ Make a brush pile. ▪ Chip. ▪ Burn. **After fruit/seed is ripe** Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip once all fruit has dropped from branches. ▪ Leave resulting chips on site and monitor.
oriental bittersweet *(Celastrus orbiculatus)* multiflora rose *(Rosa multiflora)*	**Fruits, Seeds, Plant Fragments**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Make a brush pile. ▪ Burn. **After fruit/seed is ripe** Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds**	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

NOTES:

1. THE INTENT OF THIS PLAN IS TO GUIDE ONGOING INSPECTIONS AND MAINTENANCE OF THE SITE POST-CONSTRUCTION. THIS PLAN IS NOT FOR CONSTRUCTION.
2. SEE SHEET 2 OF 2 AS WELL.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

REV.	DATE	REVISION	BY
12	3/19/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM
8	8/2/22	ADDED DRAINAGE	DJM

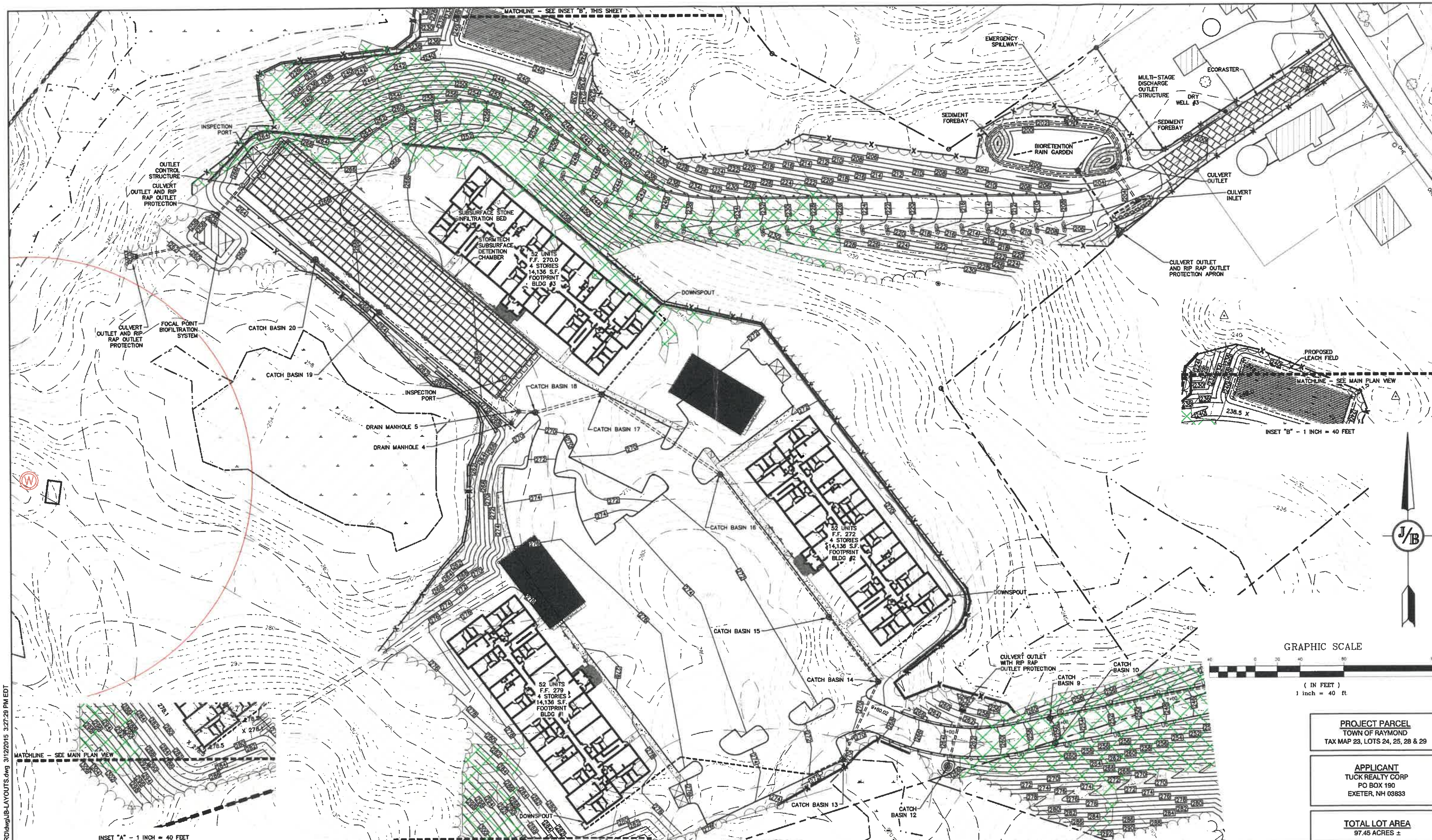
Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: OPERATIONS AND MAINTENANCE PLAN

Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077

Owner of Record:
LOT 24: TUCK REALTY CORP
PO BOX 190, EXETER, NH 03833
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH
48 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1558 PG 263
LOT 28: PAUL W & TERI L WELCH
109 MAIN STREET, RAYMOND, NH 03077 BK 2839 PG 770
LOT 29: WAYNE & CATHLEEN WELCH
109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1743

DRAWING No.
OM1
SHEET 1 OF 2
JBE PROJECT NO. 20564



PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

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LOT 29: WAYNE & CATHLEEN WELCH
109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
OM2
SHEET 2 OF 2
JBE PROJECT NO. 20564

GOVE ENVIRONMENTAL SERVICES, INC.

Test Pit Log
109 Main Street, Raymond
Logged by: Luke Hurley, CSS 095, 2/24/22

Test Pit #1:
0-8 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
8-20 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
20-32 INCHES, 2.5Y 4/3, FINE SANDY LOAM , GRANULAR, FRIABLE
32-64 INCHES, 2.5Y 4/3, SAND/GRVEL, MASSIVE, FIRM IN PLACE, REDOX 15%
ESHWT: 32 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #2:
0-8 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
8-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-36 INCHES, 2.5Y 4/3, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #3:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-18 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
18-40 INCHES, 2.5Y 5/3, SAND, GRANULAR, FRIABLE
40-60 INCHES, 2.5Y 5/4, SAND, GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #4:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-20 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
20-40 INCHES, 2.5Y 5/4, FINE SANDY LOAM, GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #5:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-12 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-20 INCHES, 10YR3/6, FINE SANDY LOAM , GRANULAR FRIABLE
20-40 INCHES, 2.5Y 4/6, SAND/GRAVEL, SINGLE GRAIN, LOOSE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #6: DONE AT STATOIN 6+00
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-28 INCHES, 10YR4/6, FINE SANDY LOAM , GRANULAR, FRIABLE
28-50 INCHES, 2.5Y4/4, FINE SAND , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 50 INCHES OBSERVED WATER: N/A

Test Pit #7:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-10 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
10-30 INCHES, 10Y4/4, FINE SAND , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #8:
0-2 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
2-12 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-24 INCHES, 10Y4/4, FINE SAND , GRANULAR, FRIABLE
24-50 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE, REDOX 15%
ESHWT: 24 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #9:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-12 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
12-30 INCHES, 2.5Y5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
30-60 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE
ESHWT: N/A REFUSAL: 60 INCHES OBSERVED WATER: N/A

Test Pit #10:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-24 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
24-40 INCHES, 2.5Y5/3, FINE SANDY LOAM , GRANULAR, FRIABLE, REDOX 15%
40-60 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE, REDOX 15%
ESHWT: 24 REFUSAL: 60 INCHES OBSERVED WATER: N/A

Test Pit #11:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-14 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
14-56 INCHES, 2.5Y4/4, SAND/GRAVEL, MASSIVE, FIRM IN PLACE
ESHWT: N/A REFUSAL: 54 INCHES OBSERVED WATER: N/A

Test Pit #12:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-18 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
18-40 INCHES, 2.5Y5/4, SAND/GRAVEL, MASSIVE, FIRM IN PLACE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #13:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-36 INCHES, 10YR5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #14:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-14 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
14-36 INCHES, 10YR5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #15:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-16 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-24 INCHES, 2.5Y5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
24-50 INCHES, 2.5Y4/4, SAND, MASIVE, FIRM IN PLACE
50-62 INCHES, 2.5Y5/3, SAND/GRAVEL, MASIVE, FIRM IN PLACE
ESHWT: 50 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #16:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-15 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: 15 INCHES REFUSAL: N/A OBSERVED WATER: 15 INCHES

Test Pit #17:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-20 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
20-42 INCHES, 2.5Y5/3, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 42 INCHES OBSERVED WATER: N/A

Test Pit #18:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-12 INCHES, 10YR 4/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-24 INCHES, 10YR4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
24-52 INCHES, 2.5Y5/3, SAND, GRNAULAR, FIRM IN PLACE
ESHWT: N/A REFUSAL: 52 INCHES OBSERVED WATER: N/A

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA

Project – 109C Main Street, Raymond, NH
Client - Tuck Realty
GES Project No. 2020234
MM/DD/YY Staff 10-20-2022 JPG Observed by Paul Ayer, Raymond Code Enforcement

Test Pit No. 19
ESHWT: 50”
Termination @ 65”
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–9”	10YR 3/2	LS	GR	FR	NONE , Ap
9–50”	10YR 5/6	LS	GR	FR	NONE, Bw
50–65”	2.5Y5/4	LS	OM	FR	10%, C

Test Pit No. 20
ESHWT: 43”
Termination @ 65”
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–17”	10YR 3/2	LS	GR	FR	NONE , Ap
17–43”	10YR 5/6	LS	GR	FR	NONE, Bw
43–65”	2.5Y5/4	LS	PL	FR	20%, C

Test Pit No. 21
ESHWT: 46”
Termination @ 72”
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–7”	10YR 3/2	FLS	GR	FR	NONE , Ap
7–46”	10YR 5/6	FSL	GR	FR	NONE, Bw
46–72”	2.5Y5/4	FSL	OM	FR	20%, C

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz
www.gesinc.biz

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA

Project 109C Main Street, Raymond, NH
Client Tuck
GES Project No. 2020234
MM/DD/YY Staff 03-16-2023 James Gove, CSS#004

Test Pit No.	**22**	Soils Series:	Hinckley
ESHWT::	57"	Landscape:	Flat
Termination @	108"	Slope:	A
Refusal:	None	Parent Material:	Outwash
Obs. Water:	None	Ksat (above ESHWT):	20"/hr

Horizon	Color (Munsell)	Texture	Structure-Consistence-Redox
A 0-10"	10YR3/2	fine sandy loam	granular-friable-none
Bw 10-27"	10YR5/6	gravelly loamy sand	granular-friable-none
B/C 27-57"	10YR4/4	gravelly loamy sand	massive-friable-none
C 57-108"	10YR5/8	very fine sand	massive-friable-7.5YR5/8 -2.5Y5/3

Hydrologic Soil Group of this Hinckley soil test pit is A.

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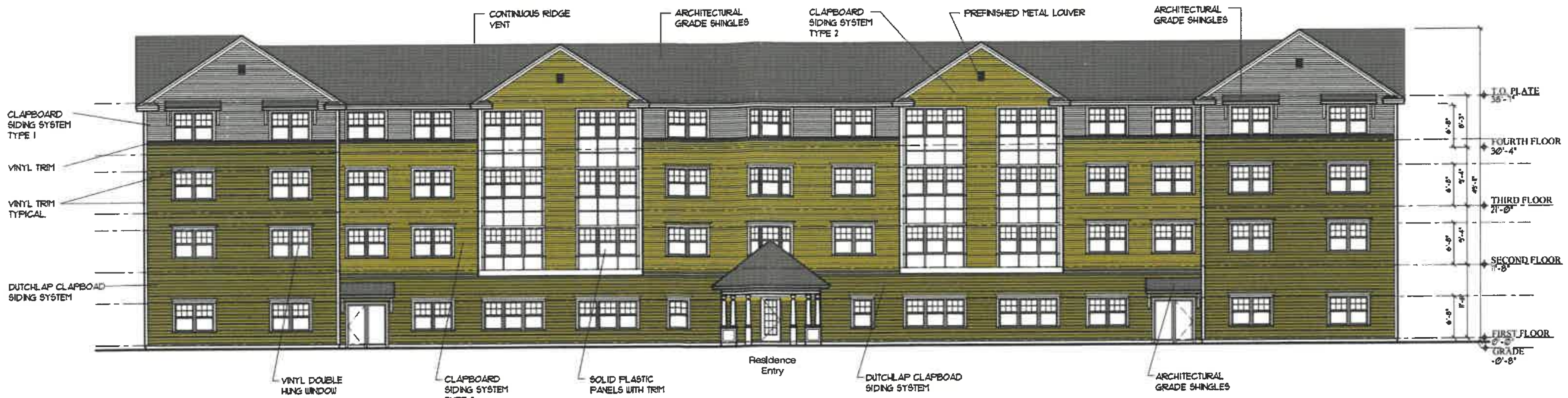
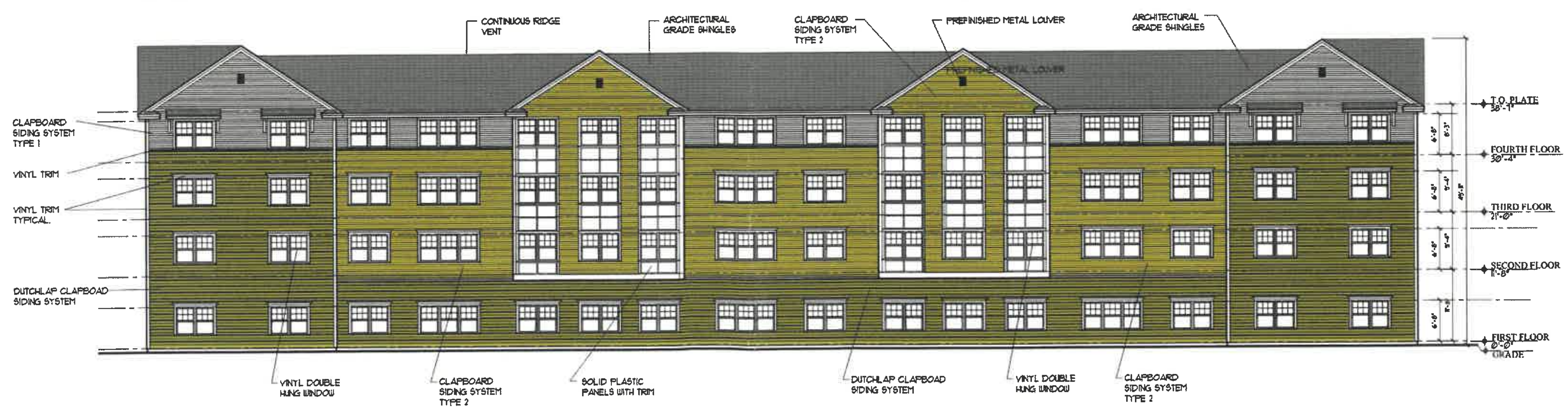


1 Front Elevation
3/32"=1'-0"

2 Right Elevation
3/32"=1'-0"

3 Left Elevation
3/32"=1'-0"

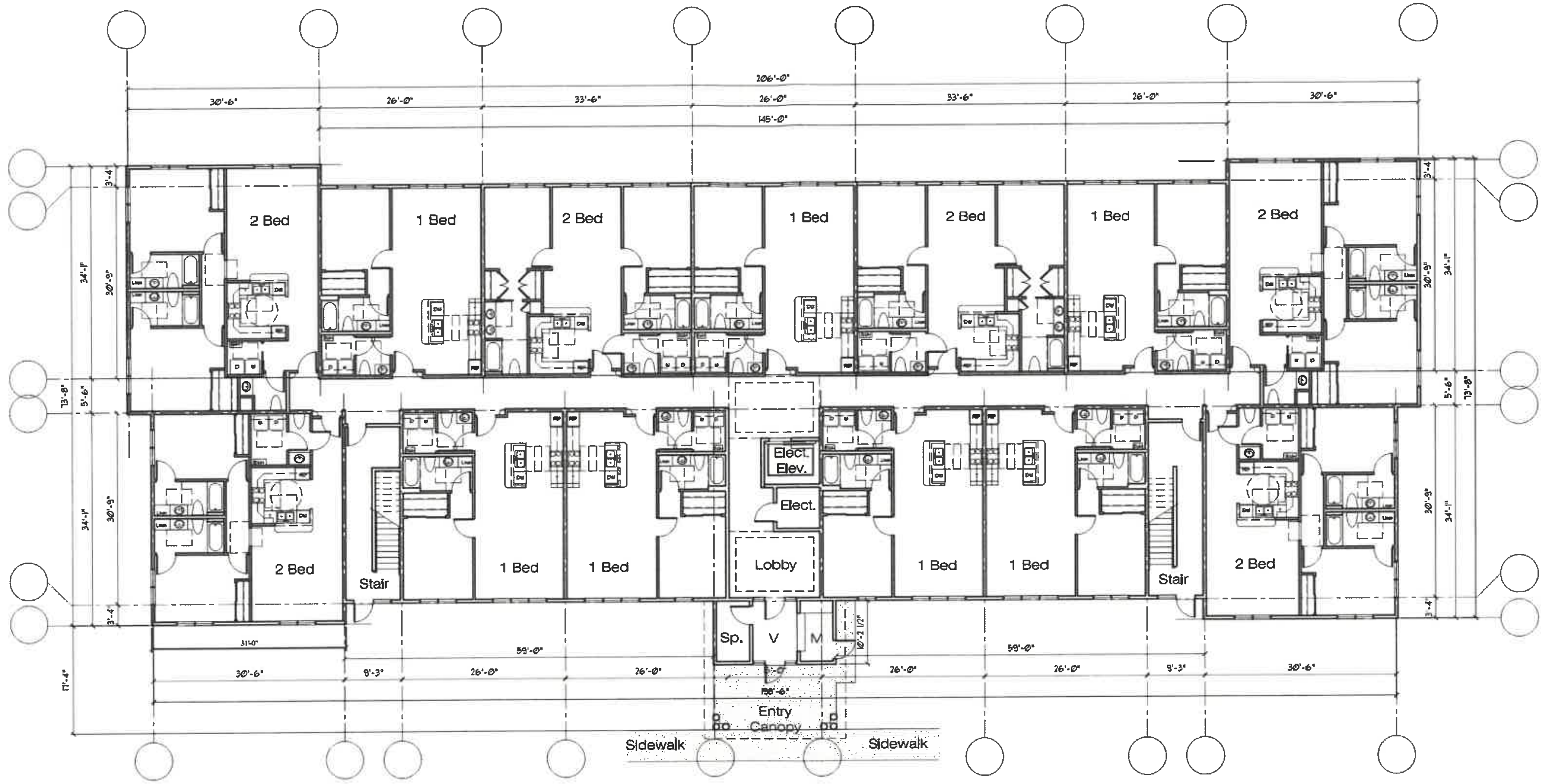


Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

LICENSED ARCHITECT THOMAS HOUSE No. 2380 STATE OF NEW HAMPSHIRE

THA ARCHITECTS, LLC
ARCHITECTURE • PLANNING • CONSULTING • INTERIOR DESIGN
89 WILLOWBROOK AVENUE • STRATHAM, NH 03885
Tel: (603) 770-2491 Fax: (603)
WWW.THAARC.COM



1 First Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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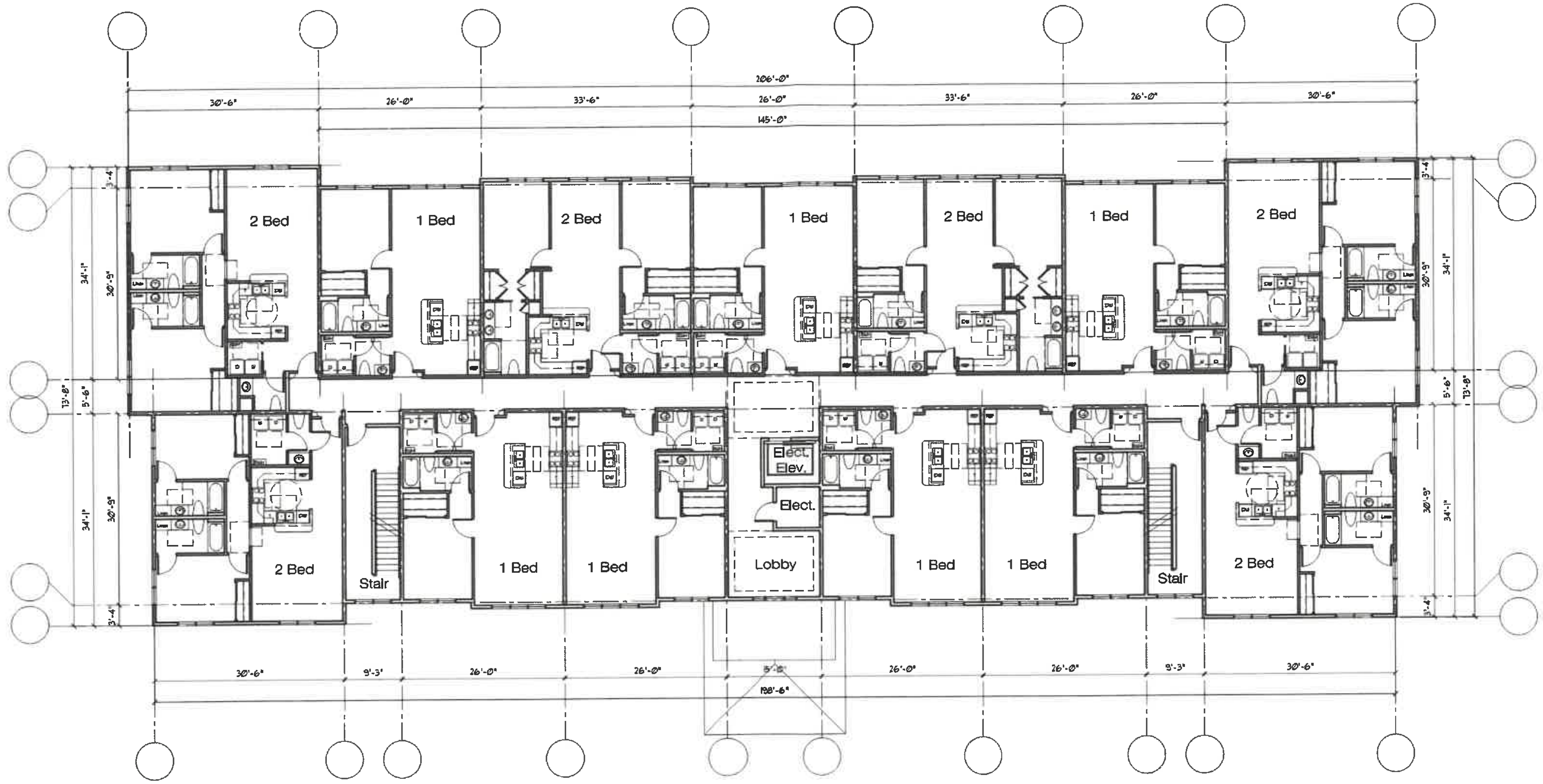

1 Second Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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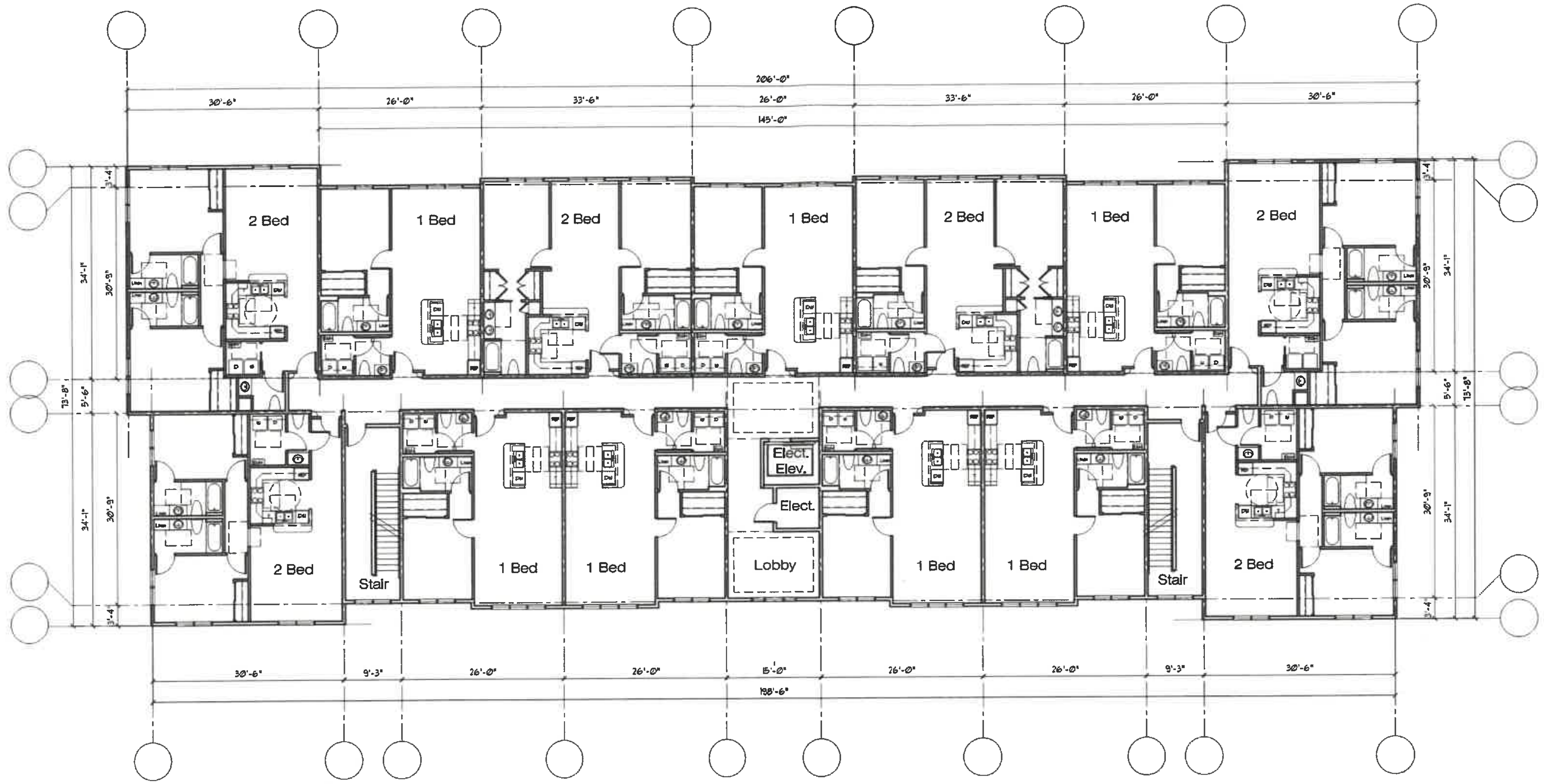

1 Third Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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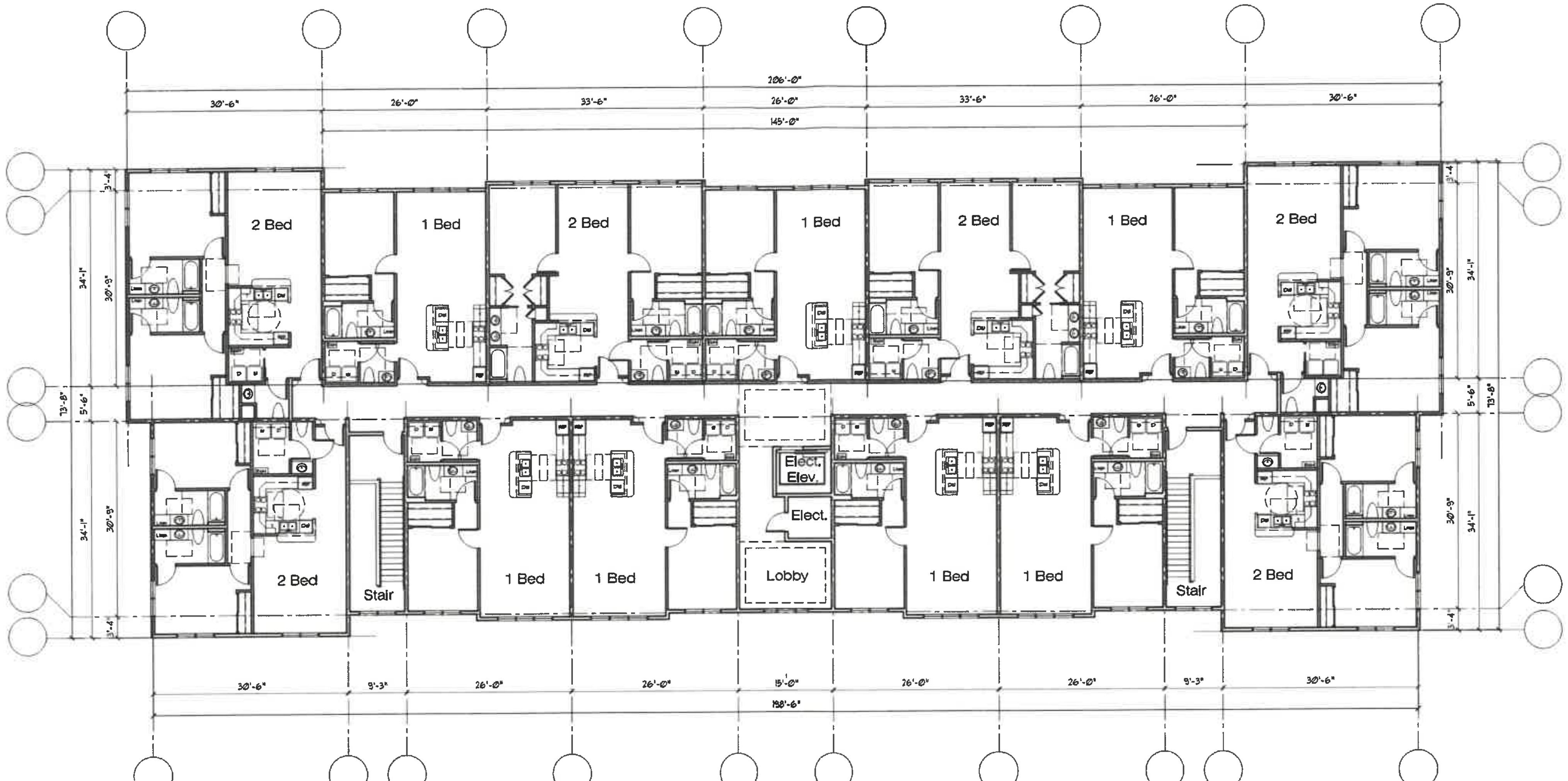

1 Fourth Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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March 20, 2023

Raymond Planning Board
Attn. Brad Reed, Chair
4 Epping Street
Raymond, NH 03077

Re: Response Letter
White Rock Place
109A, B, C, & D Main Street, Raymond, NH
Tax Map 23, Lots 24, 25, 28 & 29
JBE Project No. 20564

Dear Mr. Reed,

On behalf of our client, Tuck Realty Corporation, Jones and Beach Engineers, Inc., respectfully submits a Unified Development Plan for the proposed development on the above-referenced parcels. The intent of this project is to adjust the lot lines between the four subject parcels and construct a 156-Unit apartment complex consisting of (72) 2-Bedroom Units and (84) 1-Bedroom Units.

The proposed development will take place entirely on what will be Lot 25 after the proposed lot line adjustment, which consists of parts of what is currently lots 25 and 29. Tax Map 23, Lots 24 and 25 are vested into the Sewer Overlay District because this project first went to design review in 2020, before the sewer overlay district was removed. Therefore, this development will require a written unified development plan in accordance with the 2020 Raymond Zoning Ordinance.

SECTION 5.3 Sewer Overlay District (03/2006), Raymond Zoning Ordinance 2020

5.3.2. *UNIFIED DEVELOPMENT: All development within this SOD must take place in accordance with a Unified Development Plan approved by the Planning Board. For purposes of this Ordinance, a Unified Development Plan shall be defined as an overall plan that identifies in a conceptual nature how the lot or lots contained in the plan will be developed in a manner consistent with the intent of this Ordinance and how the plan will allow and encourage the development of other lots within the SOD zoning district, in a manner consistent with the intent of the Ordinance.*

5.3.2.1. *The Unified Development Plan must describe and illustrate, in written and graphic format, and shall specify the intended locations* *and types of proposed uses, the layout of proposed vehicle and pedestrian access and circulation systems, provision of transit facilities and water and sewer facilities, and areas designated to meet requirements for open space, parking, on site amenities, utilities and landscaping. It shall include statements or conceptual plans describing how signage and lighting will be designed in a unified and integrated manner within the district. In addition, the Unified Development Plan shall indicate how the proposed uses will relate to the surrounding properties both within and outside of the district.*

5.3.2.2. *The submittal of written concept statement(s) in lieu of a Unified Development Plan shall not be accepted. In determining whether to approve a Unified Development Plan, the Planning Board will consider the following criteria:*

5.3.2.2.1. *Compatibility of the plan with the goals and objectives set forth in the Town's Master Plan;*

5.3.2.2.2. *Compatibility of the plan with the permitted uses in the Sewer Overlay District.*

5.3.2.2.3. *Approval of the Unified Development Plan must occur prior to the consideration of individual site development plans for one or several contiguous lots within the SOD. All site development plans must be reviewed and approved in accordance with this Ordinance and the Planning Board's Site Plan, Subdivision and Earth Excavation Regulations prior to the issuance of any building permits within the district.*

5.3.3. *AMENDMENT TO UNIFIED DEVELOPMENT PLAN: Any Unified Development Plan may be changed or amended by an applicant and such changes may occur concurrently with, or prior to the submittal of individual site development plans. To the extent that the approved Unified Development Plan addresses lots within the SOD which are not owned by the applicant, then such approved plan shall be binding only on the applicant and the owners of such other lots may seek changes to the Unified Development Plan consistent with their own development project.*

5.3.4. *SPECIAL PROVISIONS: All new development, change of use, subdivision, site review or development requiring a building permit must be connected to both town water and town sewer services. Notwithstanding the above, application for new development may be made prior to the availability of town water and sewer, provided that the proposed use is permitted as a matter of right in the underlying districts or provided that relief is obtained from the Zoning Board of Adjustment, and provided that the applicant proposes development subject to a condition of approval that the property shall be connected to town water and sewer when it becomes available within* *one hundred (100) feet of the property line.*

RESPONSES

5.3.2. *UNIFIED DEVELOPMENT: All development within this SOD must take place in accordance with a Unified Development Plan approved by the Planning Board. For purposes of this Ordinance, a Unified Development Plan shall be defined as an overall plan that identifies in a conceptual nature how the lot or lots contained in the plan will be developed in a manner consistent with the intent of this Ordinance and how the plan will allow and encourage the development of other lots within the SOD zoning district, in a manner consistent with the intent of the Ordinance.*

Per the 2020 Zoning Ordinance, the stated intent of the Sewer Overlay District (SOD) is to "encourage a mixture of land uses as part of a unified development that could not otherwise occur in the underlying zones," in order to "foster economic development of primarily commercial and industrial development while allowing a limited amount of multi-family residential". The proposed multi-family development is located in the industrial zone and is surrounded primarily by single-family and industrial uses, with downtown nearby. The addition of this multi-family development will foster economic growth within the Town of Raymond by bringing more people to the town center who will utilize local businesses within downtown Raymond and other parts of town. This is in line with the intent of the SOD because it will foster economic development in town.

With regards to allowing or encouraging the development of other lots within the SOD zoning district, we are subdividing the subject lot in a way that will potentially enable a future commercial, industrial, or residential development. Any future development on the subdivided parcel will meet the goals of the SOD zoning district because it will foster economic growth within the Town and mix uses between commercial, industrial, and residential. Although future development on the subdivided parcel will no longer be subject to the stipulations of the SOD zoning district, Lot 24 was part of the SOD zoning district and would in the future be developed in a way that meets the general intent of the SOD.

5.3.4.1. *The Unified Development Plan must describe and illustrate, in written and graphic format, and shall specify the intended locations and types of proposed uses, the layout of proposed vehicle and pedestrian access and circulation systems, provision of transit facilities and water and sewer facilities, and areas designated to meet requirements for open space, parking, on site amenities, utilities and landscaping. It shall include statements or conceptual plans describing how signage and lighting will be designed in a unified and integrated manner within the district. In addition, the Unified Development Plan shall indicate how the proposed uses will relate to the surrounding properties both within and outside of the* *district.*

Please refer to the plan set for the majority of this information in graphic format. The proposed use is multi-family residential and the 156 units in three buildings will take place on the north end of the subject parcel. Two points of egress are proposed, being the main access drive (White's Rock Lane) and an emergency access driveway. White's Rock Lane is designed primarily for vehicular traffic, but pedestrians may utilize the emergency access drive as a walking path to downtown when it is not being used by emergency vehicles. The emergency access drive is located within a convenient walking distance of downtown and this development will enable both vehicular and pedestrian use of downtown Raymond.

Originally, we were planning to service this development using Town water. However, Underwood Engineers' report says that Town water is not available in sufficient quantity. Therefore, we will need to draw water from an on-site well for drinking water and fire suppression. The well will be surrounded by an undeveloped 200' radius as required by the State. The Town of Raymond does not have a sanitary sewer system at this time, so we will need to use on-site septic systems for wastewater. These septic systems have been designed and are sized in accordance with Env-Wq 1000 rules as put forth by the State of New Hampshire. The locations and design of the well and septic system are shown on the plan set. See the utility plans and effluent disposal design plans for more information.

More than 23 acres of land are being put into open space with this development. We are balancing multi-family residential development that will promote economic growth within the Town of Raymond and conservation.

We are seeking a waiver from the parking requirements. With 156 units proposed, 468 parking spaces would be required based on the Town's requirement for 3 parking spaces per dwelling unit. This requirement is based on a larger number of bedrooms per unit than are being provided with this development. A large number of these units will be 1-bedroom and 3 parking spaces are excessive for a 1-bedroom apartment. Based on empirical observations we believe that 1.8 parking spaces per unit would be more appropriate for the given mixture of 1-bedroom and 2-bedroom apartments. Therefore, we are providing 281 parking spaces at this time. As shown on Sheet EX-1 of the plan set, the ability exists to install the full number of parking spaces required by the Site Plan Review Regulations should the need arise, but we do not believe that this will be necessary.

Landscaping is provided as shown on Sheet L1-L2 in order to enhance the aesthetics of the development and provide screening to abutters. The majority of screening will take place in the form of natural wooded buffers, but failing this, landscaping is provided in areas where there is proposed development that is close to a property that is not part of the application.

Lighting is designed so that the parking lot and entrance to the apartment complex can be well-lit for safety, without lighting trespass into the proposed buildings or on to adjacent properties. See sheets L3-L4. Signage is proposed as necessary as shown on the site plans for safe passage of traffic.

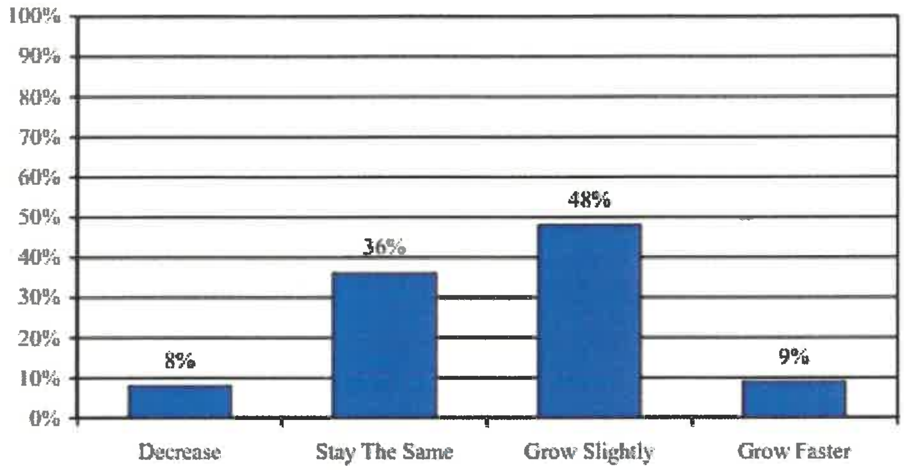
The proposed development will be shielded from adjacent single-family uses through the use of landscaping and naturally existing wooded buffers. We are proposing a subdivision of the subject parcel and the parcel created to the south can be used in the future for a commercial, industrial, or residential development. Any future development of the created parcel will require Planning Board review and will not be subject to the stipulations of the Sewer Overlay District based on the current (2023) zoning ordinance.

5.3.4.1.1. Compatibility of the plan with the goals and objectives set forth in the Town's Master Plan;

The Economic Development section of the 2009 Master Plan states that the majority (57%) of residents of Raymond who were surveyed by the University of New Hampshire would like to see the population of Raymond grow.

Economic Development Related Questions

Question 2: *In the next five years, would you like to see the population of Raymond... 1. Decrease, 2. Stay the same, 3. Grow Slightly, or 4. Grow faster?*



Bringing more housing to the Town of Raymond is in line with the intent of the Town's master plan. Doing so will support local businesses and promote economic development within the Town. Additionally, we are putting more than 23 acres of land into open space, which is another issue of focus within the 2009 Master Plan. This development balances the needs of economic development and conservation by bringing more residents to the Town of Raymond while also placing permanent restrictions on the parts of the subject parcel that do not need to be developed in order to facilitate the construction of 156 apartments.

5.3.2.1.1. Compatibility of the plan with the permitted uses in the Sewer Overlay District.

Multi-family residential is an allowed use within the Sewer Overlay District. Per Note #4 on Sheet C14 of the project plan set, the proposed number of units is allowed by the Town's density regulations. 16 units per acre are allowed based on 25% of non-Zone G land. 5.1

units per acre are provided, but the lot had to be made larger than what is required by density requirements due to the State's lot loading rules for sewage flow.

5.3.2.1.1. *Approval of the Unified Development Plan must occur prior to the consideration of individual site development plans for one or several contiguous lots within the SOD. All site development plans must be reviewed and approved in accordance with this Ordinance and the Planning Board's Site Plan, Subdivision and Earth Excavation Regulations prior to the issuance of any building permits within the district.*

Redundantly, this Unified Development Plan is being submitted for review and approval at this time prior to conditional approval by the Town of Raymond Planning Board.

5.3.2. *AMENDMENT TO UNIFIED DEVELOPMENT PLAN: Any Unified Development Plan may be changed or amended by an applicant and such changes may occur concurrently with, or prior to the submittal of individual site development plans. To the extent that the approved Unified Development Plan addresses lots within the SOD which are not owned by the applicant, then such approved plan shall be binding only on the applicant and the owners of such other lots may seek changes to the Unified Development Plan consistent with their own development project.*

The SOD has been repealed and this Unified Development Plan is only necessary because the subject parcel is vested into the SOD per the 2020 zoning ordinance. Regardless, if the SOD is reinstated in the future and an amendment to the site plan is proposed, we understand that the Unified Development Plan will need to be updated at such time.

5.3.2. *SPECIAL PROVISIONS: All new development, change of use, subdivision, site review or development requiring a building permit must be connected to both town water and town sewer services. Notwithstanding the above, application for new development may be made prior to the availability of town water and sewer, provided that the proposed use is permitted as a matter of right in the underlying districts or provided that relief is obtained from the Zoning Board of Adjustment, and provided that the applicant proposes development subject to a condition of approval that the property shall be connected to town water and sewer when it becomes available within one hundred (100) feet of the property line.*

The proposed use is allowed without the necessity for Zoning relief. Town sewer does not exist for this development, and Underwood Engineers that Town water is not available to support this development. Therefore, we are proposing to install a well for drinking water

and fire suppression and to construct septic systems for wastewater disposal as designed in accordance with the Env-Wq 1000 regulations. We understand that based on the wording of this requirement that if Town sewer or water becomes available in sufficient quantity in the future, this development will be required to tie in. We are comfortable with this as a condition of approval.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz

Daniel Meditz, EIT
Project Engineer

cc: Michael Garrepy, Tuck Realty Corp. (via email)
Madeleine Dilonno, Rockingham Planning Commission (via email)
Jeff Adler, Dubois and King (via email)

JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

May 5, 2023

Raymond Planning Board
Attn. Diana Luszcz, Chair
4 Epping Street
Raymond, NH 03077

Re: Response Letter 3
White Rock Place
109A, B, C, & D Main Street, Raymond, NH
Tax Map 23, Lots 24, 25, 28 & 29
JBE Project No. 20564

Dear Ms. Luszcz,

We received comments from Jeffery Adler of Dubois & King, Inc. dated April 3, 2023. Original review comments are italicized, and we offer the following responses below in bold.

DuBois & King Comments:

Existing Conditions Plans:

1. *On sheet C-1, it appears that Lot 24 is labeled as Lot 28. We recommend that the Applicant make the appropriate changes.*
   RESPONSE: We have corrected this typo on Sheet C1.

Grading and Drainage Plans. (Sheets C16, C17 & C18):

2. *Repeat Comment. It appears that there are multiple labeling conflicts regarding the proposed contours (i.e contours 248 and 250 southwest of White Rock Drive, contours 230 and 240 on the east side of White Rock Drive). We recommend that the Applicant will check and revise all proposed contours labels and proposed contours closing with existing contours on both sides of White Rock Road.*
   RESPONSE: All proposed contours have been checked and revised if necessary.

3. *Repeat Comment. The north side of the proposed White Rock Drive (Sta 6+00 to Sta 8+50) has proposed grades that are 2H:1V adjacent to the road. The Applicant is proposing a guardrail from approximate Sta 9+40 to Sta 8+40. We recommend that the Applicant revise the plan and extend the proposed guardrail to Sta 6+00 to protect motorists from the steep embankment.*
RESPONSE: The proposed guardrail on the north side has been extended to Sta. 6+00.

Detail Plans. (Sheets D1 to D7):

4. *On sheet D-2, in the wet pond detail, it appears that the label for pond berm elevation references the wrong elevation (elevation D instead of elevation E). We recommend reviewing and revising the detail.*
RESPONSE: The wet pond detail on Sheet D2 has been revised so that the pond berm references elevation E instead of elevation D.

The following items are provided in support of this Letter:

1. Six (6) Full Size Plan Sets.
2. Ten (10) Half Size Plan Sets.
3. Fiscal Impact Analysis.
4. Traffic Report.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Michael Garrepy, Tuck Realty Corp. (via email)
Jeffery Adler, DuBois & King (via email & U.S. Mail)

Please mail the completed form and required material to:

New Hampshire Division of Historical Resources
State Historic Preservation Office
Attention: Review & Compliance
19 Pillsbury Street, Concord, NH 03301-3570

DEC 27 2022

DHR Use Only	
R&C #	14493
Log In Date	12/13/22
Response Date	___/___/___
Sent Date	___/___/___

RECEIVED DEC 13 2022

Request for Project Review by the New Hampshire Division of Historical Resources

☒ This is a new submittal
☐ This is additional information relating to DHR Review & Compliance (R&C) #:

GENERAL PROJECT INFORMATION

Project Title White Rock Place

Project Location 109A, B & C Main Street

City/Town Raymond Tax Map NH Lot # 24, 25, 28 & 29

NH State Plane - Feet Geographic Coordinates: Easting 1114074 Northing 193563
(See RPR Instructions and R&C FAQs for guidance.)

Lead Federal Agency and Contact *(if applicable)* EPA
(Agency providing funds, licenses, or permits)
Permit Type and Permit or Job Reference # pending

State Agency and Contact *(if applicable)* N/A

Permit Type and Permit or Job Reference #

APPLICANT INFORMATION

Applicant Name Tuck Realty Corporation

Mailing Address 149 Epping Road Phone Number 6037786894

City Exeter State NH Zip 03833 Email turnerporterjr@gmail.com

CONTACT PERSON TO RECEIVE RESPONSE

Name/Company Daniel Meditz

Mailing Address PO Box 219 Phone Number 6037724746

City Stratham State NH Zip 03885 Email dmeditz@jonesandbeach.com

This form is updated periodically. Please download the current form at www.nh.gov/nhdhr/review. *Please refer to the Request for Project Review Instructions for direction on completing this form.* Submit one copy of this project review form for each project for which review is requested. Please include a self-addressed stamped envelope. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, additional information will be needed to complete the Section 106 review. All items and supporting documentation submitted with a review request, including photographs and publications, will be retained by the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process and the DHR's role in it, please visit our website at: www.nh.gov/nhdhr/review or contact the R&C Specialist at marika.s.labash@dncr.nh.gov or 603.271.3558.

PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION

Project Boundaries and Description

- ☒ Attach the Project Mapping ***using EMMIT or relevant portion of a 7.5' USGS Map.*** *(See RPR Instructions and R&C FAQs for guidance.)*
- ☒ Attach a detailed narrative description of the proposed project.
- ☒ Attach a site plan. The site plan should include the project boundaries and areas of proposed excavation.
- ☒ Attach photos of the project area (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) *(Informative photo captions are requested.)*
- ☒ A DHR records search must be conducted to identify properties within or adjacent to the project area. Provide records search results via EMMIT or in **Table 1**. *(Blank table forms are available on the DHR website.)* Please note, using EMMIT Guest View for an RPR records search does not provide the necessary information needed for DHR review.
  EMMIT or in-house records search conducted on 12/09/2022.

Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the project area? ☒ Yes ☐ No
If no, skip to Archaeology section. If yes, submit all of the following information:

Approximate age(s): 15-162

- ☒ Photographs of ***each*** resource or streetscape located within the project area, with captions, along with a mapped photo key. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)
- ☐ If the project involves rehabilitation, demolition, additions, or alterations to existing buildings or structures, provide additional photographs showing detailed project work locations. (i.e. Detail photo of windows if window replacement is proposed.)

Archaeology

Does the proposed undertaking involve ground-disturbing activity? ☒ Yes ☐ No
If yes, submit all of the following information:

- ☒ Description of current and previous land use and disturbances.
- ☒ Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.

DHR Comment/Finding Recommendation *This Space for Division of Historical Resources Use Only*

☐ Insufficient information to initiate review. ☑ Additional information is needed in order to complete review.

☐ No Potential to cause Effects ☐ No Historic Properties Affected ☐ No Adverse Effect ☐ Adverse Effect

Comments: PROJECT AREA CONSIDERED ARCHAEOLOGICALLY SENSITIVE DUE TO PRESENCE OF PREVIOUSLY IDENTIFIED SITES ADJACENT TO OR WITHIN. SURVEY NECESSARY BEFORE INFORMED COMMENT CAN BE MADE.

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.

Authorized Signature: David Trubey Date: 12·20·22

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

To: Brenden Walden, Gove Environmental Services, Inc.
8 Continental Drive Bldg 2 Unit H
Exeter, NH 03833

From: NHB Review, NH Natural Heritage Bureau
Date: 1/10/2023 (valid until 01/10/2024)
Re: Review by NH Natural Heritage Bureau
Permits: NHDES - Alteration of Terrain Permit, NHDES - Wetland Standard Dredge & Fill - Minor, USACE - General Permit

NHB ID: **NHB23-0047** Town: Raymond Location: 109A Main St
Description: This is a renewal to NHB21-1931. The applicant is proposing a residential development on the subject property.
cc: NHFG Review

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB: No comments at this time.**
F&G: Please refer to NHFG consultation requirements below. Please also include a clear aerial showing property bounds and limits of disturbance and submit a vernal pool survey conducted during April-May and describe all wetland impacts.

Vertebrate species	State[1]	Federal	Notes
Blanding's Turtle (*Emydoidea blandingii*)	E	--	Contact the NH Fish & Game Dept (see below).
Northern Black Racer (*Coluber constrictor constrictor*)	T	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle (*Clemmys guttata*)	T	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (*Glyptemys insculpta*)	SC	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

For all animal reviews, refer to 'IMPORTANT: NHFG Consultation' section below.

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

Disclaimer: A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

IMPORTANT: NHFG Consultation

If this NHB Datacheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

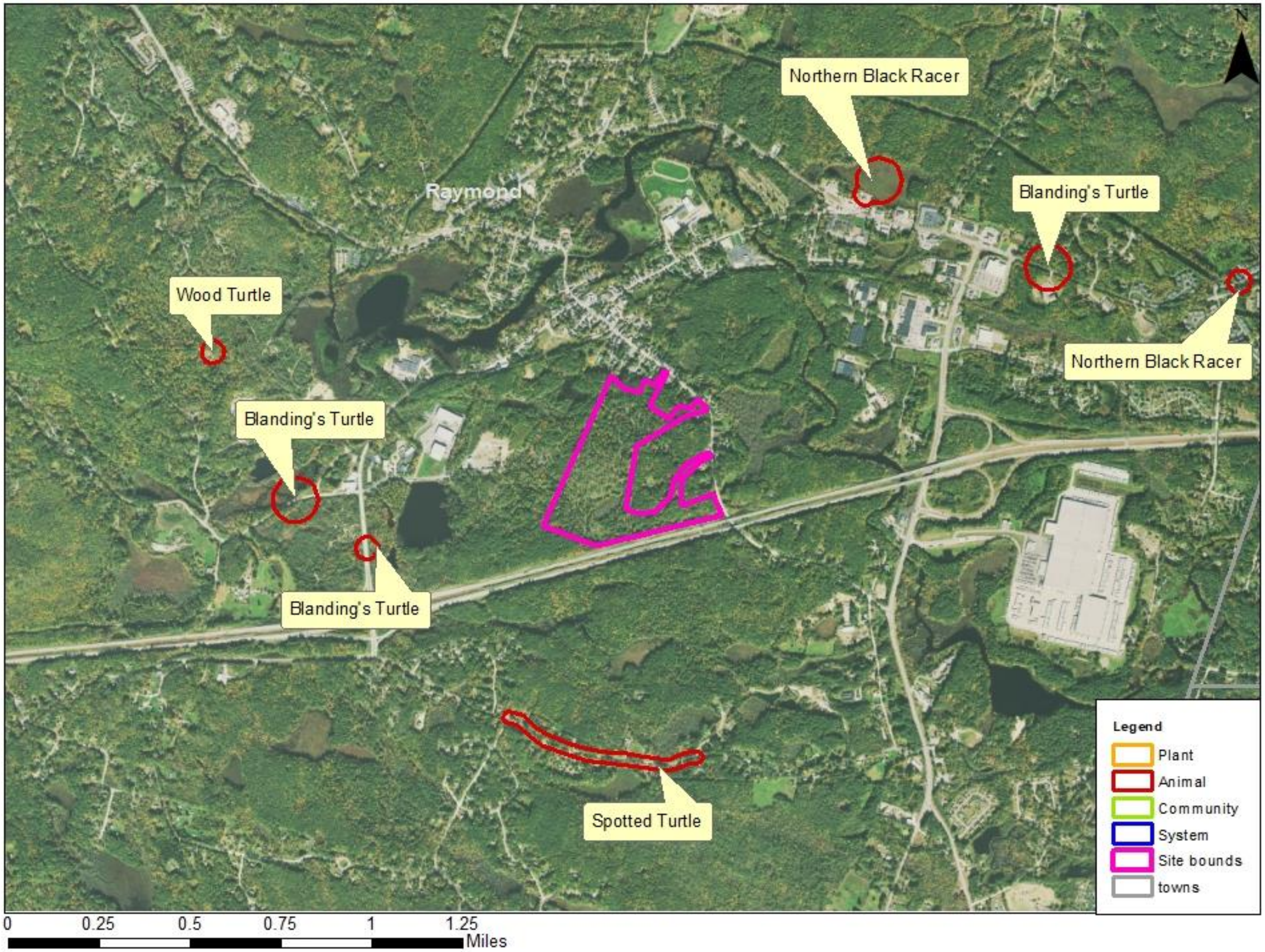
If this NHB Datacheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://wildlife.state.nh.us/wildlife/environmental-review.html. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and **must include the NHB Datacheck results letter number and "Fis 1004 consultation request" in the subject line.**

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule)*, coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email: Kim Tuttle *kim.tuttle@wildlife.nh.gov* with a copy to NHFGreview@wildlife.nh.gov, and include the NHB Datacheck results letter number and "review request" in the email subject line.

Contact NH Fish & Game at (603) 271-0467 with questions.

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB23-0047



New Hampshire Natural Heritage Bureau - Animal Record

Blanding's Turtle (*Emydoidea blandingii*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Apparently secure but with cause for concern
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2017: Area 14399: 1 adult observed, sex unknown.
General Area: 2017: Area 14399: Roadside. Forest on either side of road.
General Comments: --
Management Comments: --

Location

Survey Site Name: Rattlesnake Hill, east of
Managed By:

County: Rockingham
Town(s): Raymond
Size: 1.9 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2017: Area 14399: Old Manchester Road, Raymond, between the Safety Complex and the Exit 4 ramp. Right by the Route 101 sign.

Dates documented

First reported: 2017-05-31 Last reported: 2017-05-31

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Blanding's Turtle (*Emydoidea blandingii*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Apparently secure but with cause for concern
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2009: Area 12321: 1 female observed.
General Area: 2009: Area 12321: Roadside.
General Comments: --
Management Comments: --

Location

Survey Site Name: Bunker Pond
Managed By:

County: Rockingham
Town(s): Raymond
Size: 7.7 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2009: Area 12321: Crossing Route 27 east of Hannaford in Raymond.

Dates documented

First reported: 2009-08-04
Last reported: 2009-08-04

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

Blanding's Turtle (*Emydoidea blandingii*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Apparently secure but with cause for concern
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2008: Area 11564: 1 adult male seen.
General Area: --
General Comments: --
Management Comments: --

Location

Survey Site Name: Rattlesnake Hill, east of
Managed By:

County: Rockingham
Town(s): Raymond
Size: 7.7 acres   Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2008: Area 11564: Exit 4 off Route 101. Approx 1/4 mile down Scribner Road, where Lamprey comes close to road.

Dates documented

First reported: 2008-05-20   Last reported: 2008-05-20

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

Northern Black Racer (*Coluber constrictor constrictor*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2020: Area 14937: 1 adult observed, sex unknown. 2012: Area 12799M: 1 adult observed. 2010: Area 12799M: 1 adult observed. 1993: Area 11938M: 2 observed. 1992: Area 11940: 1 observed. 1991: Area 11938M: 6 eggs found and collected. 2 hatched and released at original location on 8/23.

General Area: 2020: Area 14937: Uncultivated grass meadow near wet area. Some woody brush and small pine trees nearby. 2010: Area 12799M: Mixed forest. 1993: Area 11938M: Old sawmill site behind town shed. 1992: Area 11940: Swamp. 1991: Area 11938M: Sunny, sandy conditions adjacent to swamp. Under old plywood.

General Comments: --

Management Comments: --

Location

Survey Site Name: Flint Hill, south of
Managed By:

County: Rockingham
Town(s): Raymond
Size: 10.8 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2020: Area 14937: [Back land at 61 Harriman Hill Road, Raymond.] 2010: Area 12799M: 8 Sherwood Drive, Raymond. 1992: Area 11940: Swamp behind Raymond town shed. 1991: Area 11938M: Old sawmill site behind Raymond town shed [Rte. 27/107 in Raymond across from intersection with Epping St.]

Dates documented

First reported: 1991-06-26 Last reported: 2020-05-10

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Spotted Turtle (*Clemmys guttata*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Fair quality, condition and/or landscape context ('C' on a scale of A-D).
Comments on Rank: --

Detailed Description: 2007: Area 11749: 1 adult female seen, about 5".
General Area: --
General Comments: --
Management Comments: --

Location

Survey Site Name: Batchelder Road, Raymond
Managed By:

County: Rockingham
Town(s): Raymond
Size: 11.4 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2007: Area 11749: Batchelder Road, unknown exact location.

Dates documented

First reported: 2007-07-22 Last reported: 2007-07-22

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Wood Turtle (*Glyptemys insculpta*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Rare or uncommon
State:	Special Concern	State:	Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2021: Area 14704: 1 adult observed, sex unknown.
General Area: 2021: Area 14704: Sports field complex surrounded by forest and wetlands.
General Comments: --
Management Comments: --

Location

Survey Site Name: Lamprey River, Raymond
Managed By:

County: Rockingham
Town(s): Raymond
Size: 1.9 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2021: Area 14704: Riverside Park, Raymond.

Dates documented

First reported: 2021-05-23
Last reported: 2021-05-23

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

August 2, 2023

Mr. Michael Garrepy
Tuck Realty Corporation
P.O. Box 190
Exeter, NH 03833
(sent via email to: mgarrepy@gmail.com)

Re: White Rock Place **Permit: AoT-2436**
109A, B & C Main Street - Raymond
Tax Map 23 Lot 24, 25, 28 & 29

Dear Applicant:

Based upon the plans and application, approved on August 2, 2023, we are hereby issuing RSA 485-A:17 Alteration of Terrain Permit AoT-2436. The permit is subject to the following conditions:

PROJECT SPECIFIC CONDITIONS:

1. The plans titled *White Rock Place,* by Jones & Beach Engineers, Inc., last revision date August 2, 2023, are a part of this approval. The project must be constructed as shown on the approved plans.

2. **This permit expires on August 2, 2028.** No earth moving activities shall occur on the project after this expiration date unless the permit has been extended by the Department. If requesting an extension, the request must be received by the department before the permit expires. The Amendment Request form is available at: https://www.des.nh.gov/land/land-development.

3. In accordance with Env-Wq 1503.21 (c)(1), a written notice signed by the permit holder and a qualified engineer shall be submitted to DES stating that the project was completed in accordance with the approved plans and specifications. If deviations were made, the permit holder shall review the requirements in Env-Wq 1503.21(c)(2).

4. Pursuant to Env-Wq 1504.18, the Permittee shall comply with wildlife protection notes that are incorporated into the project plans, and, if applicable, all recommendations by the New Hampshire Fish and Game Department related to state or federally listed threatened or endangered species that are incorporated into the project plans.

5. Groundwater Monitoring of private wells must be performed prior to, throughout the duration of, and following completion of blasting pursuant to the Groundwater Monitoring Plan prepared by Jones & Beach Engineers, Inc., dated May 2, 2023, latest revision dated June 9, 2023.

6. This project includes underground detention, and infiltration and filtering systems. **A letter signed by a qualified engineer must be provided to DES** stating that the individual observed any underground detention, infiltration, or filtering systems prior to backfilling, and whether, in his or her professional opinion, the system(s) conform to the approved plans and specifications.

Representative photographs of the system prior to being backfilled must be submitted with the letter.

7. The project is to be phased as shown on the plans. Each phase shall be stabilized pursuant to Env-Wq 1505.04 before disturbance of subsequent phases.

8. The permittee shall employ the services of an Environmental Monitor (EM) for the purposes of providing independent professional environmental inspections of the project. The permittee shall receive prior approval of the EM by the Department. The EM shall inspect the project at a minimum frequency of once per week and following rainfall events of 0.5-inch or greater in a 24-hour period. The inspections shall be for the purposes of determining compliance with the permit. The Monitor shall submit a written report, stamped by a qualified engineer or a Certified Professional in Erosion and Sediment Control to the Department within 24 hours of the inspections. The reports shall describe, at a minimum, whether the project is being constructed in accordance with the approved sequence, shall identify any deviation from the conditions of this permit and the approved plans, and identify any other noted deficiencies. Reports shall be submitted to michael.j.schlosser@des.nh.gov.

GENERAL CONDITIONS:

1. Activities shall not cause or contribute to any violations of the surface water quality standards established in Administrative Rule Env-Wq 1700.

2. You must submit revised plans for permit amendment prior to any changes in construction details or sequences. You must notify the Department in writing within ten days of a change in ownership.

3. You must notify the Department in writing prior to the start of construction and upon completion of construction. Forms can be submitted electronically at: https://www.des.nh.gov/land/land-development. Paper forms are available at that same web page.

4. **All stormwater practices shall be inspected and maintained in accordance with Env-Wq 1507.07 and the project Inspection and Maintenance (I&M) Manual.** All record keeping required by the I&M Manual shall be maintained by the identified responsible party and be made available to the department upon request. Photographs of the site and BMPs must accompany the I&M submittals.

5. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits that may be required (e.g., from US EPA, US Army Corps of Engineers, etc.). Projects disturbing over 1 acre may require a federal stormwater permit from EPA. Information regarding this permitting process can be obtained at: https://www.epa.gov/npdes/2022-construction-general-permit-cgp.

6. If applicable, no activity shall occur in wetland areas until a Wetlands Permit is obtained from the Department. Issuance of this permit does not obligate the Department to approve a Wetlands Permit for this project.

7. This project has been screened for potential impact to known occurrences of protected species and exemplary natural communities in the immediate area. Since many areas have never been

surveyed, or have not been surveyed in detail, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species. This permit does not authorize in any way the take of threatened or endangered species, as defined by RSA 212-A:2, or of any protected species or exemplary natural communities, as defined in RSA 217-A:3.

Sincerely,

Michael Schlosser, PE
Alteration of Terrain Bureau

ec: Raymond Planning Board (cmccarthy@raymondnh.gov)
Joe Coronati, Jones & Beach Engineers, Inc.
Kevin Newton, NHFG

CONSERVATION EASEMENT DEED

TUCK REALTY CORP., a New Hampshire corporation having a mailing address of PO Box 190, Town of Exeter, County of Rockingham, State of New Hampshire 03833, (hereinafter referred to as the "Grantor," which word where the context requires includes the plural and shall, unless the context clearly indicates otherwise, include the Grantor's executors, administrators, legal representatives, devisees, heirs, successors and assigns), for consideration paid, with WARRANTY covenants, grants in perpetuity to the TOWN OF RAYMOND, New Hampshire , a municipal corporation, situated in the County of Rockingham, State of New Hampshire, acting through its Conservation Commission, with a mailing address of 4 Epping Street, Raymond, New Hampshire 03077 (hereinafter referred to as the "Grantee" which shall, unless the context clearly indicates otherwise, include the Grantee's successors and assigns), a conservation easement for the purposes set forth herein (the "Easement") within that portion of the property of Grantor located at 109A, B & C Main Street, Raymond, New Hampshire, further identified as Town of Raymond Tax Map 23, Lots 24, 25, 28 and 29 (the "Property") set forth below:

That certain area identified as "Open Space on Tax Map 23, Lot 25, 1,031387 S.F., 23.7 Acres" (herein referred to as the "Easement Area") on a plan entitled "[Easement Plan/Overview Site Plan], White Rock Place, 109A, B, C Main Street, Raymond, NH 03077" dated [t/b/d] prepared by Jones & Beach Engineers, Inc. and recorded in the Rockingham County Registry of Deeds as Plan # [t/b/d] (the "Plan").

1. PURPOSES

The Easement hereby granted is pursuant to NH RSA 477:45-47, exclusively for the following conservation purposes:

A. The protection of rare and endangered species of wildlife and their associated habitat established for conservation purposes, with the intent to maintain, in perpetuity, natural vegetation, soils, hydrology and habitat for New Hampshire threatened, endangered and wildlife species of special concern.

B. The protection of the natural habitat generally with a focus on wildlife habitat management. For the purposes of this Easement, "wildlife habitat management" shall include, but not be limited to, alteration of vegetation and soil and the placement of structures to provide habitat for a wide range of wildlife species with focus and priority for the habitat needs and benefit to State listed wildlife species.

C. The protection and conservation of open spaces, particularly the conservation of the productive forest land of which the Easement Area consists and of the wildlife habitat thereon.

D. The scenic enjoyment of the general public viewing the Easement Area and its undeveloped road frontage.

E. The preservation of the quality of ground water and surface water resources on and under the Easement Area, particularly the wetlands located therein.

All of these purposes are consistent and in accordance with the U.S. Internal Revenue Code, Section 170(h).

Easement hereby granted with respect to the Easement Area is as follows:

2. USE LIMITATIONS (Subject to the reserved rights specified in Section 3 below)

A. The Easement Area shall be maintained in perpetuity as open space in its natural state without there being conducted thereon any residential, industrial or commercial activities, except for wildlife habitat management. More specifically, this open space is intended for the sole use and enjoyment of the Members of the White Rock Place Homeowners Association ("Association Members").

B. The Easement Area shall not be subdivided.

C. No structure or improvement, including, but not limited to, a dwelling, any portion of a septic system, tennis court, swimming pool, dock, aircraft landing strip, tower or mobile home, shall be constructed, placed, or introduced onto the Property. However, ancillary structures and improvements including, but not limited to, a road, dam, fence, bridge or culvert may be constructed, placed, or introduced onto the Easement Area only as necessary in the accomplishment of the conservation, habitat management, or noncommercial outdoor recreational uses of the Easement Area and provided that they are not detrimental to the purposes of this Easement.

D. Existing trails can be maintained in their natural states (not expanded upon or improved) within the Easement Area and must be and remain as depicted on site plan sheets, with the exception of modifications or closures as recommended by NHFG Nongame program. These trails shall be for passive recreation only for Association Members (i.e., no ATV or snowmobile activity).

E. No outdoor advertising structures such as signs and billboards shall be displayed on the Easement Area except as desirable or necessary in the accomplishment of the agricultural, forestry, conservation, or noncommercial outdoor recreational uses of the Easement Area, and provided such signs are not detrimental to the purposes of this Easement. No sign shall exceed in size that which is permitted by the zoning ordinance and no sign shall be artificially illuminated.

F. There shall be no mining, quarrying, excavation, or removal of rocks, minerals, gravel, sand, topsoil, or other similar materials on the Easement Area. No rocks, minerals, gravel, sand, topsoil, or other similar materials shall be removed from the Easement Area.

G. There shall be no dumping, injection, burning, or burial of man-made materials or materials then known to be environmentally hazardous.

H. The Easement Area shall in no way be used to satisfy density or other requirements of any applicable zoning ordinance or land use regulation with respect to the development of other property.

I. The Easement Area boundaries shall be marked with placards at no less than 75' apart (adjust if needed based on site conditions). Placards should serve as a reminder of protected area(s) with restrictions.

J. No rights-of-way or easements of ingress or egress of a third party shall be created or developed into, on, over, or across the Easement Area, except those of record as of the execution date of this Easement.

K. The Easement Area shall not be posted against and Grantor shall keep access to and use of existing paths on the Easement Area available for the use of Association Members; provided that the Easement Area may be posted against use by non- Association Members.

L. The Easement Area shall not be posted against, and the Grantor shall keep access to and use of the Easement Area open to Association Members for non-motorized, non-commercial, outdoor recreational and outdoor educational purposes, such as, but not limited to hiking, wildlife observation, and cross-country skiing, but not for camping, subject to Grantor's reserved rights.

M. During the development of the anticipated subdivision on and around the Easement Area and upon its completion and into perpetuity, neither the Grantor nor the Grantee, shall cut nor remove timber from the Easement Area, except in accordance with good forestry practices limited to removal of dead trees to address safety concerns or diseased trees under the advisement of a professional forester or for habitat management for rare wildlife species. Timber harvest for habitat management shall be coordinated with the New Hampshire Fish and Game Nongame and Endangered Wildlife Program or the agency than recognized by the State of New Hampshire as having responsibility for identification and/or conservation of such species.

N. Wetland buffer setbacks shall be observed according to local buffer requirements and wildlife habitat management activities shall not occur within wetland buffer setbacks.

O. There shall be no use of chemical herbicides or pesticides, except for wildlife habitat management and then only in coordination with the New Hampshire Fish and Game Nongame and Endangered Wildlife Program or the agency than recognized by the State of New Hampshire as having responsibility for identification and/or conservation of such species. Herbicides or pesticides are absolutely prohibited within wetlands or wetland buffer setbacks.

3. <u>RESERVED RIGHTS</u>

A. Grantor reserves the right to post portions of the Easement Area against access to forest land during timber harvesting operations or establishment of forest areas.

B. Grantor must notify Grantee in writing at least thirty (30) days before the exercise of any reserved right.

4. <u>NOTIFICATION OF TRANSFER, TAXES, MAINTENANCE</u>

A. The Grantor agrees to notify the Grantee in writing at least 30 days before the transfer of title to the Easement Area.

B. The Grantee shall be under no obligation to maintain the Easement Area or pay any taxes or assessments thereon.

5. <u>BENEFITS, BURDENS, AND ACCESS</u>

A. The burden of the Easement conveyed hereby shall run with the Property and shall be enforceable against all future owners and tenants in perpetuity; the benefits of this Easement shall not be appurtenant to any particular parcel of land but shall be in gross and assignable or transferable only to the State of New Hampshire, the U.S. Government, or any subdivision of either of them, consistent with Section 170(c)(1) of the U.S. Internal Revenue Code of 1986, as amended, or to any qualified organization within the meaning of Section 170(h)(3) of said Code, which organization has among its purposes the conservation and preservation of land and water areas and agrees to and is capable of monitoring and enforcing the conservation purposes of this Easement. Any such assignee or transferee shall have like power of assignment or transfer.

B. Upon reasonable notice to the Grantor, the Grantee shall have reasonable access to the Easement Area and all of its parts for such inspection as is necessary to determine compliance with and to enforce this Easement and exercise the rights conveyed hereby and fulfill the responsibilities and carry out the duties assumed by the acceptance of this Easement.

C. The State of New Hampshire Fish and Game Department Nongame and Endangered Wildlife Program and its agents shall have access to property and the right of enforcement against violations of the conditions set forth within this Easement consistent with the provisions of Section Six of this Easement and the rights of the Grantee pursuant to Section Six.

D. This Easement shall in no way be interpreted to permit physical access by the public to or across the Easement Area or the Property for any purpose.

6. <u>BREACH OF EASEMENT</u>

A. When a breach of this Easement, or conduct by anyone inconsistent with this Easement, comes to the attention of the Grantee, it shall notify the Grantor in writing of such breach or conduct, delivered in hand or by certified mail, return receipt requested.

B. The Grantee shall, within thirty (30) days after receipt of such notice or after otherwise learning of such breach or conduct, undertake those actions, including restoration, which are reasonably calculated to cure swiftly said breach, or to terminate said conduct, and to repair any damage. The Grantee shall promptly notify the Grantor of its actions taken under this section.

C. If the Grantee fails to take such proper action under the preceding section, the Grantor shall, as appropriate to the purposes of this deed, undertake any actions that are reasonably necessary to cure such breach or to repair any damage in the Grantee's name or to terminate such conduct. The cost thereof, including the Grantor's expenses, court costs, and legal fees, shall be paid by the Grantee, provided that the Grantee is directly or primarily responsible for the breach.

D. Nothing contained in this Easement shall be construed to entitle the Grantor to bring any action against the Grantee for any injury to or change in the Property resulting from causes beyond the Grantee's control, including, but not limited to, unauthorized actions by third parties, natural disasters such as fire, flood, storm, disease, infestation and earth movement, or from any prudent action taken by the Grantee under emergency conditions to prevent, abate, or mitigate significant injury to the Easement Area resulting from such causes.

E. The Grantee and the Grantor reserve the right, separately or collectively, to pursue all legal remedies against any third party responsible for any actions detrimental to the conservation purposes of this Easement.

7. NOTICES

All notices, requests and other communications, required to be given under this Easement shall be in writing, except as otherwise provided herein, and shall be delivered in hand or sent by certified mail, postage prepaid, return receipt requested to the appropriate address set forth above or at such other address as the Grantor or the Grantee may hereafter designate by notice given in accordance herewith. Notice shall be deemed to have been given when so delivered or so mailed.

8. SEVERABILITY

If any provision of this Easement, or the application thereof to any person or circumstance, is found to be invalid by a court of competent jurisdiction, by confirmation of an arbitration award or otherwise, the remainder of the provisions of this Easement or the application of such provision to persons or circumstances other than those to which it is found to be invalid, as the case may be, shall not be affected thereby.

9. CONDEMNATION/EXTINGUISHMENT

A. Whenever all or part of the Easement Area is taken in exercise of eminent domain by public, corporate, or other authority so as to abrogate in whole or in part the Easement conveyed hereby, the Grantor and the Grantee shall thereupon act jointly to recover the full damages resulting from such taking with all incidental or direct damages and expenses incurred by them thereby to be paid out of the damages recovered.

B. The balance of the land damages recovered (including, for purposes of this subsection, proceeds from any lawful sale of the Easement Area unencumbered by the restrictions hereunder in lieu of condemnation) shall be divided between the Grantor and the Grantee in proportion to the fair market value of their respective interests in the Easement Area on the date of execution of this Easement. For this purpose and that of any other judicial extinguishment of this Easement, in whole or in part, the Grantee's interest shall be the amount by which the fair market value of the Easement Area immediately prior to the execution of this Easement is reduced by the use limitations imposed hereby. The value of the Grantee's interest shall be determined by an appraisal prepared by a qualified appraiser within one year of the date of this Easement, and submitted to the Grantee.

C. The Grantee shall use its share of the proceeds in a manner consistent with and in furtherance of one or more of the conservation purposes set forth herein.

10. ADDITIONAL EASEMENT

Should the Grantor determine that the expressed purposes of this Easement could better be effectuated by the conveyance of an additional easement, the Grantor may execute an additional instrument to that effect, provided that the conservation purposes of this Easement are not diminished thereby and that a public agency or qualified organization described in Section 5.A., above, accepts and records the additional easement.

11. ARBITRATION OF DISPUTES

A. Any dispute arising under this Easement shall be submitted to arbitration in accordance with New Hampshire RSA 542.

B. The Grantor and the Grantee shall each choose an arbitrator within 30 days of written notice from either party. The arbitrators so chosen shall in turn choose a third arbitrator within 30 days of the selection of the second arbitrator.

C. The arbitrators so chosen shall forthwith set as early a hearing date as is practicable which they may postpone only for good cause shown.

D. A decision by two of the three arbitrators, made as soon as practicable after submission of the dispute, shall be binding upon the parties and shall be enforceable as part of this Easement.

12. SEPARATE PARCEL

A. The Property shall in no way be used to satisfy the density, frontage, or setback requirements of any applicable zoning ordinance or subdivision regulation with respect to the development of any other property.

B. The Grantee, by accepting and recording this Easement, agrees to be bound by and to observe and enforce the provisions hereof and assumes the rights and responsibilities herein granted to and incumbent upon the Grantee, all in the furtherance of the conservation purposes for which this Easement is delivered.

IN WITNESS WHEREOF, I (We) have hereunto set my (our) hand(s) this _____ day of ______________, 2023.

TUCK REALTY CORP.

By: ________________________________
________________, duly authorized

The State of New Hampshire

County of Rockingham

Personally appeared ____, duly authorized ________________ of Tuck Realty Corp., on behalf of said corporation and this _____ day of ________,

2023 and acknowledged the foregoing to be his/her/their voluntary act and deed.

Before me, ____

Justice of the Peace/Notary Public

My commission expires: ______________________________

ACCEPTED: [t/b/d]

By: ____

Title: ____
Duly Authorized

Date: ____________________________

The State of New Hampshire
County of ______________

Personally appeared ____
Print Name & Title
of the [t/b/d], this _____ day of _______________, 2022 and acknowledged the foregoing on behalf of the [t/b/d].

Before me, ____

Justice of the Peace/Notary Public

My commission expires: _____________________________

THIS IS A NON-CONTRACTUAL CONVEYANCE PURSUANT TO NEW HAMPSHIRE RSA 78-B:2 AND IS EXEMPT FROM THE NEW HAMPSHIRE REAL ESTATE TRANSFER TAX.

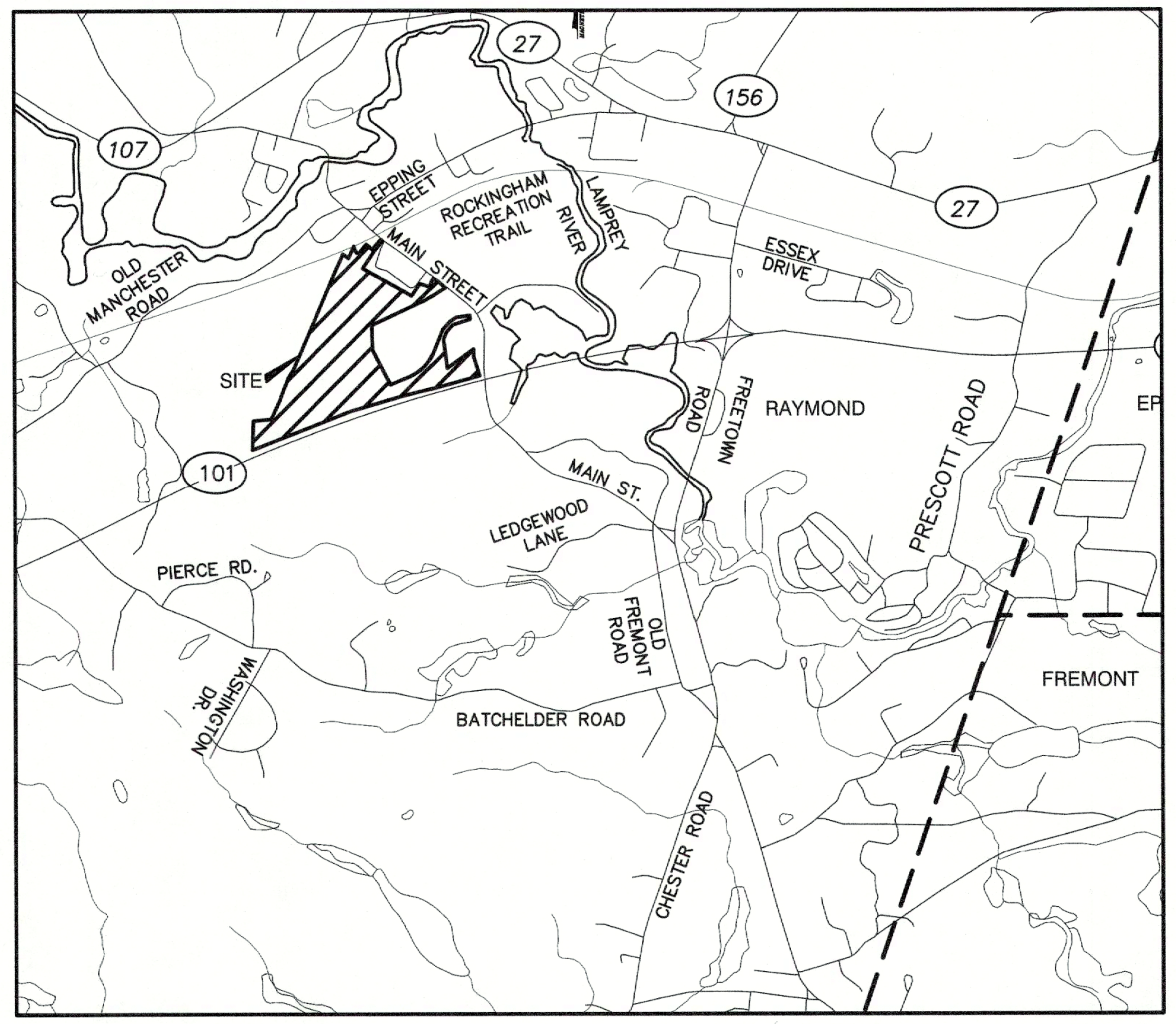
"WHITE ROCK PLACE"
MULTI-FAMILY RESIDENTIAL SITE PLAN & SUBDIVISION
TAX MAP 23, LOT 25
109A MAIN STREET & RTE 101, RAYMOND, NH 03077

811
Know what's below
811 before you dig

GENERAL LEGEND

EXISTING | PROPOSED | DESCRIPTION

PROPERTY LINES
SETBACK LINES
CENTERLINE
FRESHWATER WETLANDS LINE
TIDAL WETLANDS LINE
STREAM CHANNEL
TREE LINE
STONEWALL
BARBED WIRE
FENCE
STOCKADE FENCE
SOIL BOUNDARY
AQUIFER PROTECTION LINE
FLOOD PLAIN LINE
ZONELINE
EASEMENT
MAJOR CONTOUR
MINOR CONTOUR
EDGE OF PAVEMENT
VERTICAL GRANITE CURB
SLOPE GRANITE CURB
CAPE COD BERM
POURED CONCRETE CURB
SILT FENCE
DRAINAGE LINE
SEWER LINE
SEWER FORCE MAIN
GAS LINE
WATER LINE
WATER SERVICE
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
GUARDRAIL
UNDERDRAIN
FIRE PROTECTION LINE
THRUST BLOCK
IRON PIPE/IRON ROD
DRILL HOLE
IRON ROD/DRILL HOLE
STONE/GRANITE BOUND
SPOT GRADE
PAVEMENT SPOT GRADE
CURB SPOT GRADE
BENCHMARK (TBM)
DOUBLE POST SIGN
SINGLE POST SIGN
WELL
TEST PIT
FAILED TEST PIT
MONITORING WELL
PERC TEST
PHOTO LOCATION
TREES AND BUSHES
UTILITY POLE
LIGHT POLES
DRAIN MANHOLE
SEWER MANHOLE
HYDRANT
WATER GATE
WATER SHUT OFF
REDUCER
SINGLE GRATE CATCH BASIN
DOUBLE GRATE CATCH BASIN
TRANSFORMER
CULVERT W/WINGWALLS
CULVERT W/FLARED END SECTION
CULVERT W/STRAIGHT HEADWALL
STONE CHECK DAM
DRAINAGE FLOW DIRECTION
4K SEPTIC AREA
WETLAND IMPACT
VEGETATED FILTER STRIP
RIPRAP
OPEN WATER
FRESHWATER WETLANDS
TIDAL WETLANDS
STABILIZED CONSTRUCTION ENTRANCE
CONCRETE
GRAVEL
SNOW STORAGE
RETAINING WALL



LOCUS MAP
SCALE 1" = 2000'

SHEET INDEX

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

CIVIL ENGINEER / SURVEYOR
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JOSEPH CORONATI
EMAIL: JCORONATI@JONESANDBEACH.COM

WETLAND AND SOIL CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DR BUILDING 2 UNIT H
EXETER, NH 03833-7526
(603) 778-0644
CONTACT: JAMES GOVE
EMAIL: JGOVE@GESINC.BIZ

LIGHTING CONSULTANT
CHARRON, INC.
PO BOX 4550
MANCHESTER, NH 03108
(603) 624-4827
CONTACT: DANIEL HEBERT
EMAIL: DHEBERT@CHARRONINC.COM

LANDSCAPE DESIGNER
LM LAND DESIGN
11 SOUTH ROAD
BRENTWOOD, NH 03833
(603) 770-7728
CONTACT: LISE MCNAUGHTON
EMAIL: LMLANDDESIGN@GMAIL.COM

WATER
RAYMOND WATER DEPARTMENT
4 EPPING STREET
RAYMOND, NH 03077
(603) 895-4657

ELECTRIC
EVERSOURCE
74 OLD DOVER ROAD
ROCHESTER, NH 03867
(603) 332-4227

CABLE/TELEPHONE
FAIRPOINT COMMUNICATIONS
5 FLORAL AVE
RAYMOND, NH 03077

PLEASE TAKE NOTE OF NEW HAMPSHIRE FISH AND GAME CONDITIONS AND FLYERS ON SHEET WL1

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9846
LICENSED
PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

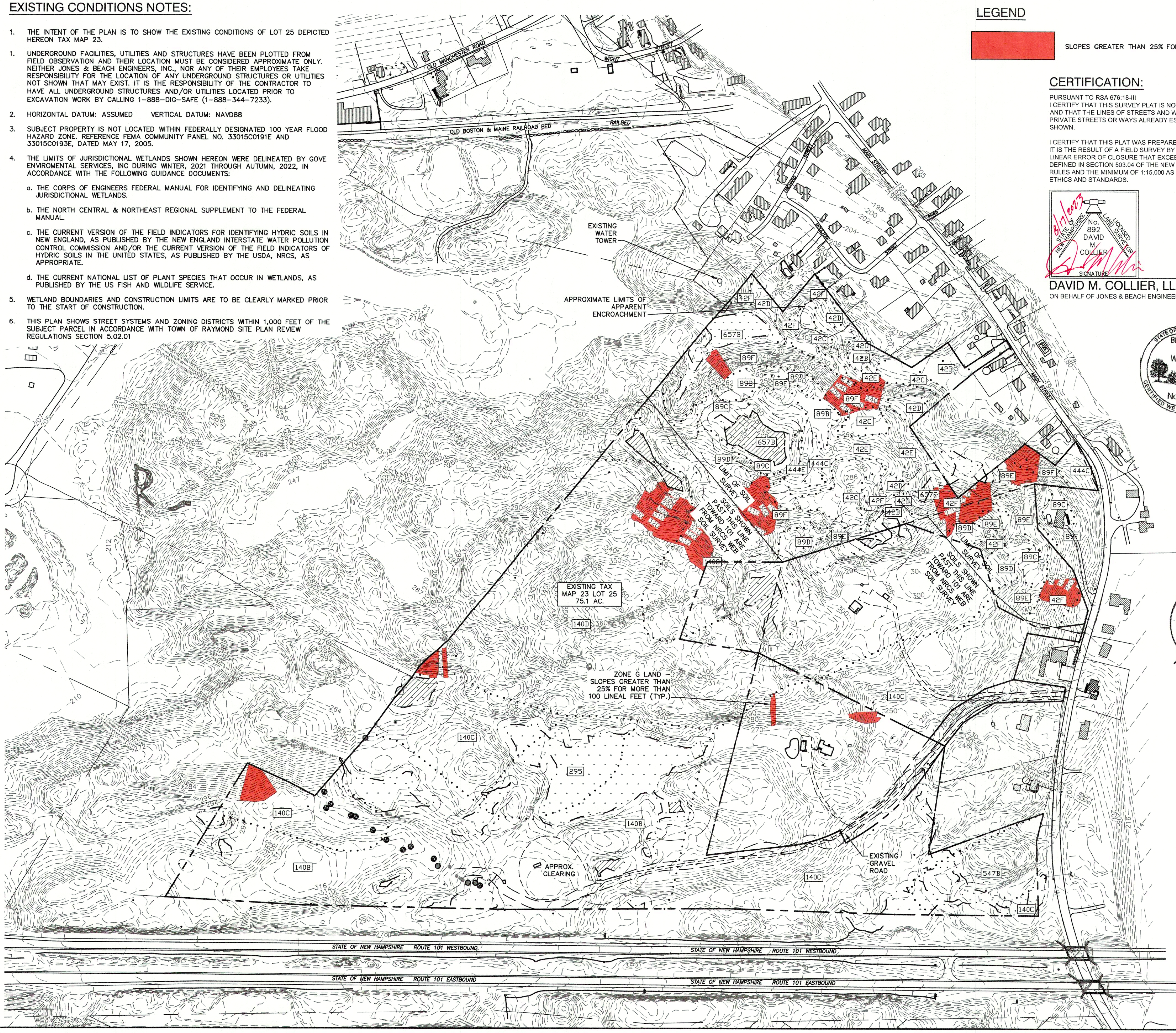
Plan Name:	COVER SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
CS
SHEET 1 OF 61
JBE PROJECT NO. 20564

WHITE ROCK PLACE, RAYMOND, NH
JBE # 20564 REVISION 16, 7/28/23

EXISTING CONDITIONS NOTES:

1. THE INTENT OF THE PLAN IS TO SHOW THE EXISTING CONDITIONS OF LOT 25 DEPICTED HEREON TAX MAP 23.
1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233).
2. HORIZONTAL DATUM: ASSUMED VERTICAL DATUM: NAVD88
3. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0191E AND 33015C0193E, DATED MAY 17, 2005.
4. THE LIMITS OF JURISDICTIONAL WETLANDS SHOWN HEREON WERE DELINEATED BY GOVE ENVIROMENTAL SERVICES, INC DURING WINTER, 2021 THROUGH AUTUMN, 2022, IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
   a. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
   b. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
   c. THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
   d. THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
5. WETLAND BOUNDARIES AND CONSTRUCTION LIMITS ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
6. THIS PLAN SHOWS STREET SYSTEMS AND ZONING DISTRICTS WITHIN 1,000 FEET OF THE SUBJECT PARCEL IN ACCORDANCE WITH TOWN OF RAYMOND SITE PLAN REVIEW REGULATIONS SECTION 5.02.01



LEGEND

SLOPES GREATER THAN 25% FOR 100 OR MORE LINEAL FEET (ZONE G LAND)

CERTIFICATION:

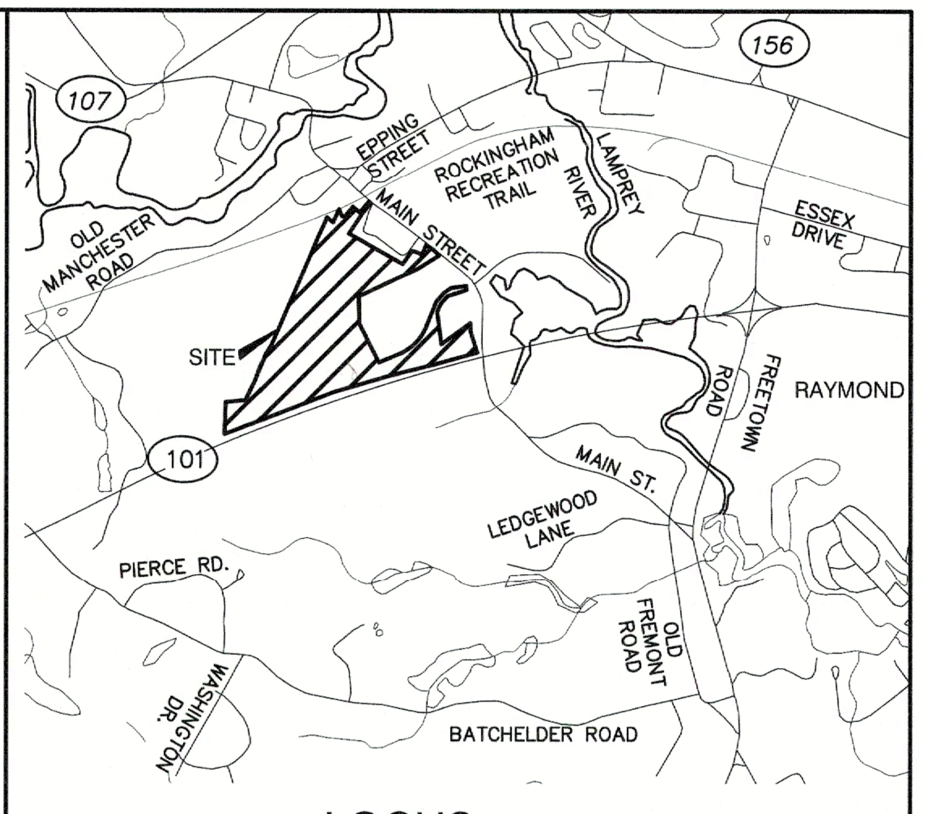
PURSUANT TO RSA 676:18-III
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.



LOCUS SCALE: 1"=2000'

PLAN REFERENCES

1. "PLAN OF LAND OF MRS. DORA W. HILLS, RAYMOND, N.H," BY R. HYDE, SURVEYOR, DATED 12/10/1962.
2. "A PLAN OF THE TWIN CEDAR SUBDIVISION IN RAYMOND, NH," BY H.A.P. ASSOCIATES, DATED JULY, 1977, RCRD PLAN #C-7095.
3. "CENTERLINE OF 30' RIGHT-OF-WAY ACROSS LAND OF JOSEPHINE WELCH" BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 23 1982, RCRD PLAN #D-11967.
4. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO WAYNE WELCH," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED OCTOBER 13, 1983, RCRD PLAN #D-12232.
5. "TWO REMAINING PORTIONS OF THE GREGG LOT (1346-496 LESS ROUTE 101)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 1, 1984, RCRD PLAN #D-13046.
6. "LAND OF JOSEPHINE F. WELCH FORMERLY OF AL S. WELCH (REMAINDER OF 1559-263 & 1198-463)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 20, 1984, RCRD PLAN #D-16672.
7. "A SURVEY AND PLAT OF A PROPERTY PREPARED FOR REX LEATHER FINISHING TRUST SITUATED IN THE TOWN OF RAYMOND N.H.," PREPARED BY RSL LAYOUT & DESIGN INC., DATED OCTOBER 16, 2987, RCRD PLAN #D-17207.
8. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO PAUL W. & TERI L. WELCH A PART OF (VOL. 1559-PG. 263)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 16, 1988, RCRD PLAN #D-18625.
9. "SUBDIVISION PLAN," BY CORNERSTONE SURVEY ASSOCIATES, INC., DATED MAY 2004, RCRD PLAN #D-32014.
10. "A SURVEY AND PLAN OF A BOUNDARY LINE AGREEMENT BETWEEN RICHARD A. & RITA C. GIRARD AND MICHAEL E. & NANCY L. BROWN AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-33603.
11. "A SURVEY AND PLAT OF A LOT LINE ADJUSTMENT & ACCESS EASEMENT PLAN BETWEEN RICHARD A. & RITA C. GIRARD AND TOWN OF RAYMOND, N.H. AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-34073.
12. "LOT LINE ADJUSTMENT," BY CORNERSTONE SURVEY ASSOCIATES INC., DATED SEPTEMBER, 2006, RCRD #D-34431.
13. "SUBDIVISION PLAN OF LAND, TAX MAP 28-3, LOT 120, OLD MANCHESTER ROAD & INDUSTRIAL DRIVE, RAYMOND, NH," BY ERIC C. MITCHELL & ASSOCIATES, INC., DATED JULY 3, 2007, RCRD #D-37834.

SOIL NOTE:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED NOVEMBER 2, 2022, AND WAS PREPARED BY LUKE HURLEY, CSS # 095, GOVE ENVIRONMENTAL SERVICES, INC.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
42	CANTON	221	B
89	CHATFIELD	228	B
444	NEWFIELDS	321	B
657/P	RIDGEBURY VERY STONY	528	C

SEE ABUTTER LABELS ON DETAILED EXISTING CONDITIONS PLANS.

SLOPE PHASE:
0-8% B 8-15% C 15-25% D 25%+ E

0-8%	B	8-15%	C	15-25%	D
25%+	E				

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
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Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: OVERVIEW EXISTING CONDITIONS PLAN

Project: WHITE ROCK PLACE
109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077

Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH
49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C1
SHEET 2 OF 61
JBE PROJECT NO. 20564

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9648 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

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85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C2
SHEET 3 OF 61
JBE PROJECT NO. 20564

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C3
SHEET 4 OF 61
JBE PROJECT NO. 20564

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CERTIFICATION:

PURSUANT TO RSA 676:18-III
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

8/17/2023

DAVID M. COLLIER, LLS 892 DATE: 8/17/2023
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CAD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

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14	6/1/23	REVISED PER TRC COMMENTS	DJM

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C4
SHEET 5 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023

SIGNATURE 8/17/2023
DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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Plan Name:	EXISTING CONDITIONS PLAN
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Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C5
SHEET 6 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023

SIGNATURE 8/17/2023
DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C6

JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE
No. 892
DAVID M. COLLIER
LICENSED LAND SURVEYOR
8/17/2023

SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9846
LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
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Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C7
SHEET 8 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

PURSUANT TO RSA 676:18-III
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE
8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C8
SHEET 9 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

PURSUANT TO RSA 676:18-III
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
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15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C9
SHEET 10 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

PURSUANT TO RSA 676:18-III
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

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STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 892 DAVID M. COLLIER

8/17/2023

SIGNATURE 8/17/2023

DAVID M. COLLIER, LLS 892 DATE:

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

8/17/2023

REV.	DATE	REVISION	BY
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

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Civil Engineering Services
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PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

C10

SHEET 11 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
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15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C11
SHEET 12 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

PURSUANT TO RSA 676:18-III
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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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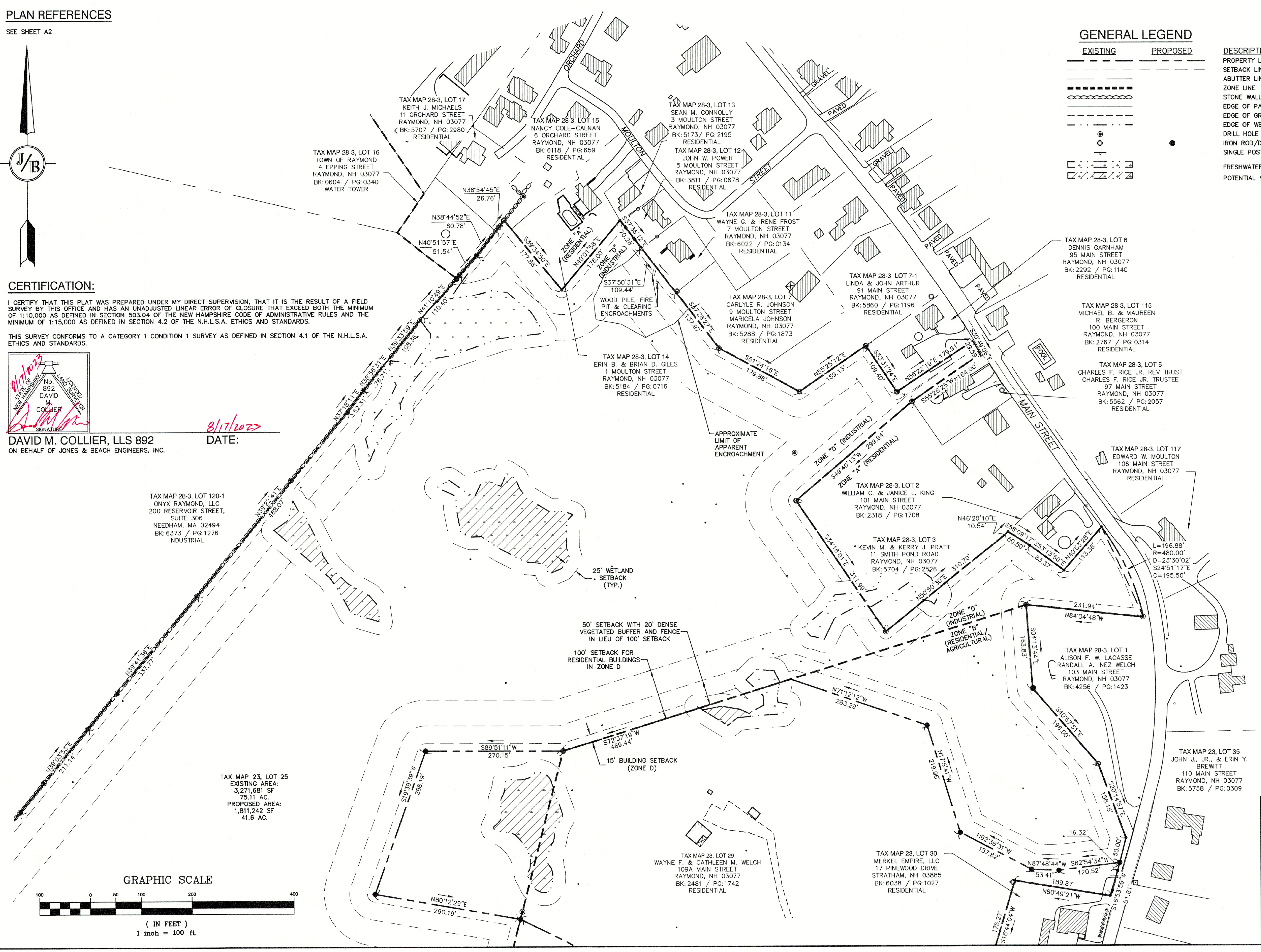
Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C12
SHEET 13 OF 61
JBE PROJECT NO. 20564

PLAN REFERENCES

SEE SHEET A2



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THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

8/17/2023

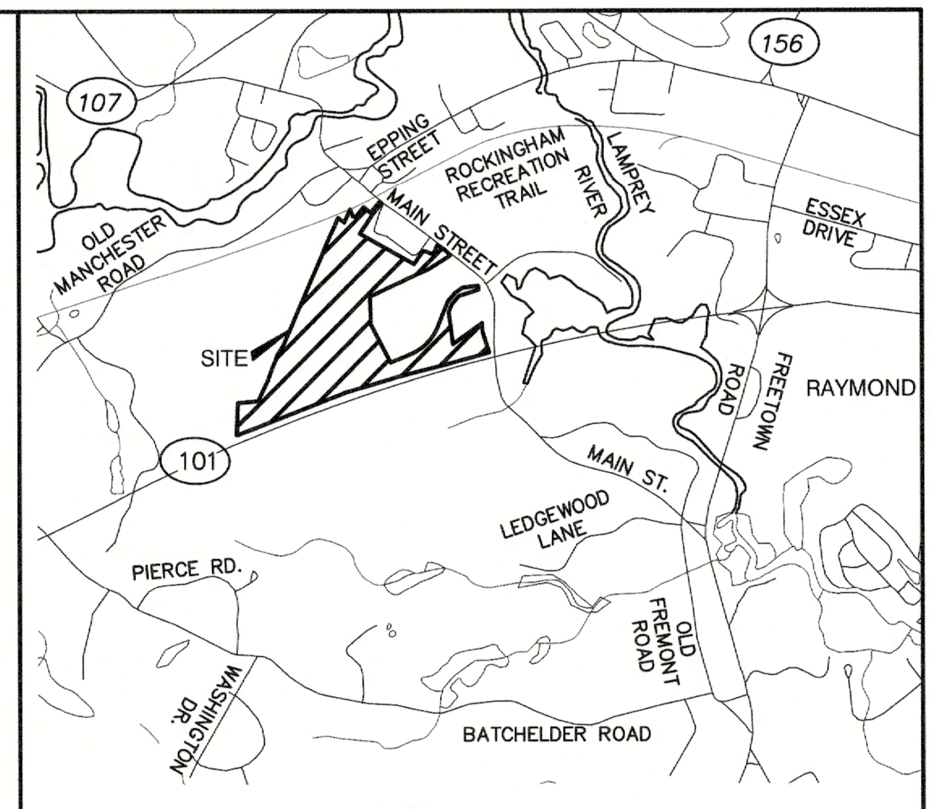
SIGNATURE

DAVID M. COLLIER, LLS 892 DATE: 8/17/2023

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		ABUTTER LINE
		ZONE LINE
		STONE WALL
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EDGE OF WETLAND
		DRILL HOLE
		IRON ROD/DRILL HOLE
		SINGLE POST SIGN
		FRESHWATER WETLAND
		POTENTIAL VERNAL POOL



LOCUS SCALE: 1"=2000'

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE SEPARATELY LOT LINE ADJUSTMENT BETWEEN TAX MAP 23, LOTS 25, 28, & 29 AND CONSOLIDATION OF LOTS 24 & 25, AND TO SUBDIVIDE LOT 25 INTO TWO LOTS.
2. ZONING DISTRICT: D (INDUSTRIAL)
   LOT AREA MINIMUM = 21,780 SF (0.5 ACRES)
   LOT FRONTAGE MINIMUM = 50'
   BUILDING SETBACKS (MINIMUM):
   - FRONT SETBACK = 15'
   - SIDE SETBACK = 15'
   - REAR SETBACK = 15'
   - WETLAND SETBACK = 25' (PER RAYMOND ZONE "G")

   MAX. BUILDING HEIGHT = 30' OR ACTUAL BUILDING SETBACK FROM PROPERTY LINE, WHICHEVER IS GREATER

   ZONING DISTRICT: B (RESIDENTIAL/AGRICULTURAL)
   LOT AREA MINIMUM = 87,120 SF (2 ACRES)
   LOT FRONTAGE MINIMUM = 200'
   BUILDING SETBACKS (MINIMUM):
   - FRONT SETBACK = 30'
   - SIDE SETBACK = 30'
   - REAR SETBACK = 30'
   - WETLAND SETBACK = 25' (PER RAYMOND ZONE "G")

   MAX BUILDING HEIGHT = 30' OR ACTUAL BUILDING SETBACK FROM PROPERTY LINE, WHICHEVER IS GREATER.
3. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
4. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0191E AND 33015C0193E, DATED MAY 17, 2005.
5. GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY. IRON RODS WITH SURVEY CAPS TO BE SET AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED. ALL MONUMENTS SET ARE 5/8" IRON RODS WITH ALUMINUM CAPS MARKED "JONES & BEACH ENGINEERS BOUNDARY, DO NOT DISTURB, STRATHAM, N.H." AS SHOWN.
6. WETLANDS SHOWN NORTH OF THE "LIMIT OF SURVEY" LINE HEREON WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC., DURING AUTUMN 2020, AND LOCATED BY THIS OFFICE.
7. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
8. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
9. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF RAYMOND TAX RECORDS AND ARE SUBJECT TO CHANGE.
10. RESEARCH WAS PERFORMED AT THE TOWN OF RAYMOND ASSESSORS OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
11. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
12. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SUBDIVISION PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
A1
SHEET 14 OF 61
JBE PROJECT NO. 20564

PLAN REFERENCES

1. "PLAN OF LAND OF MRS. DORA W. HILLS, RAYMOND, N.H," BY R. HYDE, SURVEYOR, DATED 12/10/1962.
2. "A PLAN OF THE TWIN CEDAR SUBDIVISION IN RAYMOND, NH," BY H.A.P. ASSOCIATES, DATED JULY, 1977, RCRD PLAN #C-7095.
3. "CENTERLINE OF 30' RIGHT-OF-WAY ACROSS LAND OF JOSEPHINE WELCH" BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 23 1982, RCRD PLAN #D-11967.
4. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO WAYNE WELCH," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED OCTOBER 13, 1983, RCRD PLAN #D-12232.
5. "TWO REMAINING PORTIONS OF THE GREGG LOT (1346-496 LESS ROUTE 101)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 1, 1984, RCRD PLAN #D-13046.
6. "LAND OF JOSEPHINE F. WELCH FORMERLY OF AL S. WELCH (REMAINDER OF 1559-263 & 1198-463)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 20, 1984, RCRD PLAN #D-16672.
7. "A SURVEY AND PLAT OF A PROPERTY PREPARED FOR REX LEATHER FINISHING TRUST SITUATED IN THE TOWN OF RAYMOND N.H.," PREPARED BY RSL LAYOUT & DESIGN INC., DATED OCTOBER 16, 2987, RCRD PLAN #D-17207.
8. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO PAUL W. & TERI L. WELCH A PART OF (VOL. 1559-PG. 263)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 16, 1988, RCRD PLAN #D-18625.
9. "SUBDIVISION PLAN," BY CORNERSTONE SURVEY ASSOCIATES, INC., DATED MAY 2004, RCRD PLAN #D-32014.
10. "A SURVEY AND PLAN OF A BOUNDARY LINE AGREEMENT BETWEEN RICHARD A. & RITA C. GIRARD AND MICHAEL E. & NANCY L. BROWN AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-33603.
11. "A SURVEY AND PLAT OF A LOT LINE ADJUSTMENT & ACCESS EASEMENT PLAN BETWEEN RICHARD A. & RITA C. GIRARD AND TOWN OF RAYMOND, N.H. AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-34073.
12. "LOT LINE ADJUSTMENT," BY CORNERSTONE SURVEY ASSOCIATES INC., DATED SEPTEMBER, 2006, RCRD #D-34431.
13. "SUBDIVISION PLAN OF LAND, TAX MAP 28-3, LOT 120, OLD MANCHESTER ROAD & INDUSTRIAL DRIVE, RAYMOND, NH," BY ERIC C. MITCHELL & ASSOCIATES, INC., DATED JULY 3, 2007, RCRD #D-37834.

TAX MAP 23, LOT 25
EXISTING AREA:
3,271,681 SF
75.11 AC.
PROPOSED AREA:
1,811,242 SF
41.6 AC.

ABUTTERS NOT SHOWN:

TAX MAP 23, LOT 14
TOWN OF RAYMOND
4 EPPING STREET
RAYMOND, NH 03077
BK: 2879 / PG: 1477
VACANT

TAX MAP 23, LOT 14
DANIEL BRUHMULLER
123 MAIN STREET
RAYMOND, NH 03077
BK: 3226 / PG: 2018
VACANT

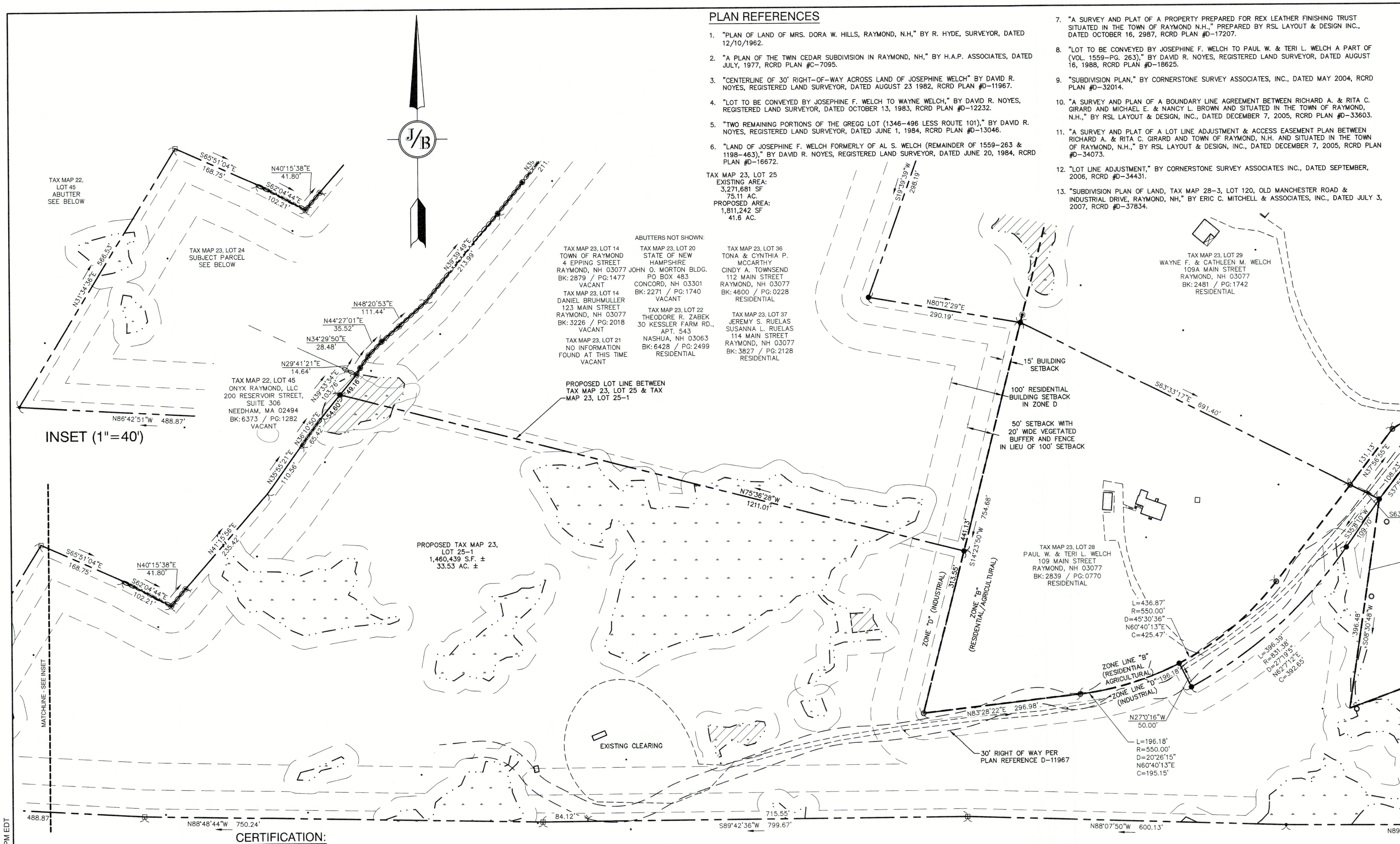
TAX MAP 23, LOT 21
NO INFORMATION FOUND AT THIS TIME
VACANT

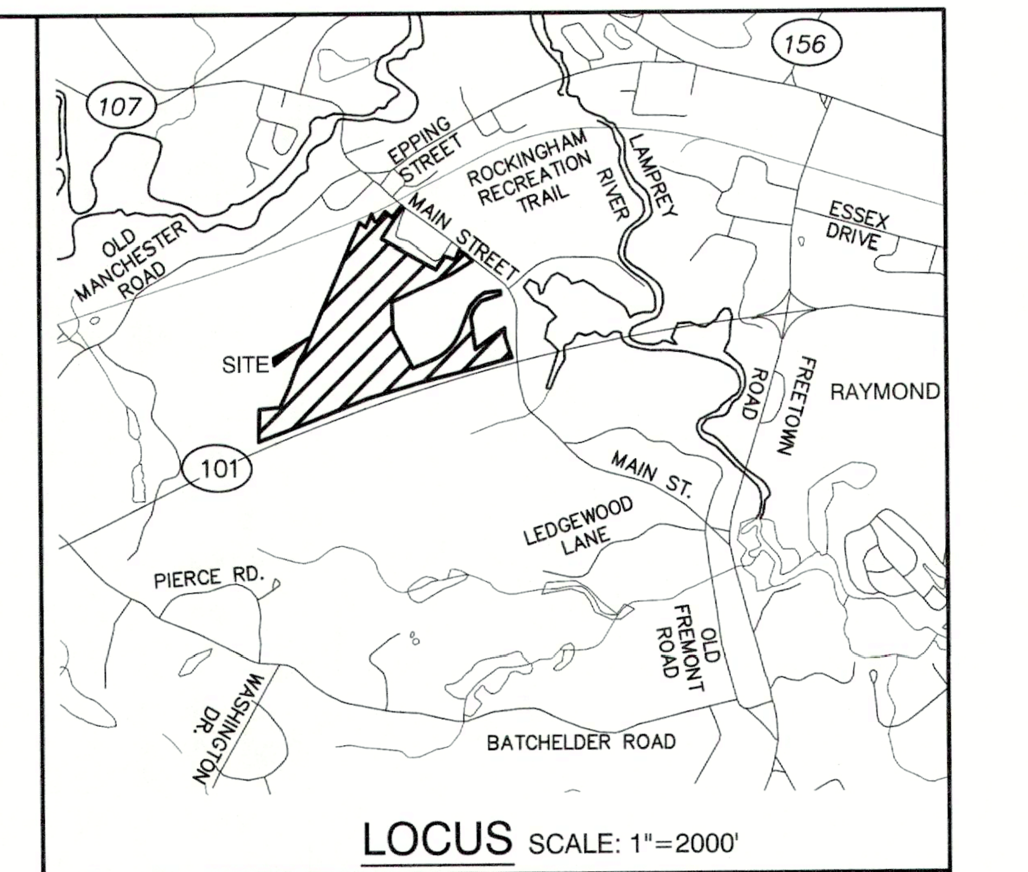
TAX MAP 23, LOT 20
STATE OF NEW HAMPSHIRE
JOHN O. MORTON BLDG.
PO BOX 483
CONCORD, NH 03301
BK: 2271 / PG: 1740
VACANT

TAX MAP 23, LOT 22
THEODORE R. ZABEK
30 KESSLER FARM RD., APT. 543
NASHUA, NH 03063
BK: 6428 / PG: 2499
RESIDENTIAL

TAX MAP 23, LOT 36
TONA & CYNTHIA P. MCCARTHY
CINDY A. TOWNSEND
112 MAIN STREET
RAYMOND, NH 03077
BK: 4600 / PG: 0228
RESIDENTIAL

TAX MAP 23, LOT 37
JEREMY S. RUELAS
SUSANNA L. RUELAS
114 MAIN STREET
RAYMOND, NH 03077
BK: 3827 / PG: 2128
RESIDENTIAL





GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023
DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SUBDIVISION PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
A2
SHEET 15 OF 61
JBE PROJECT NO. 20564

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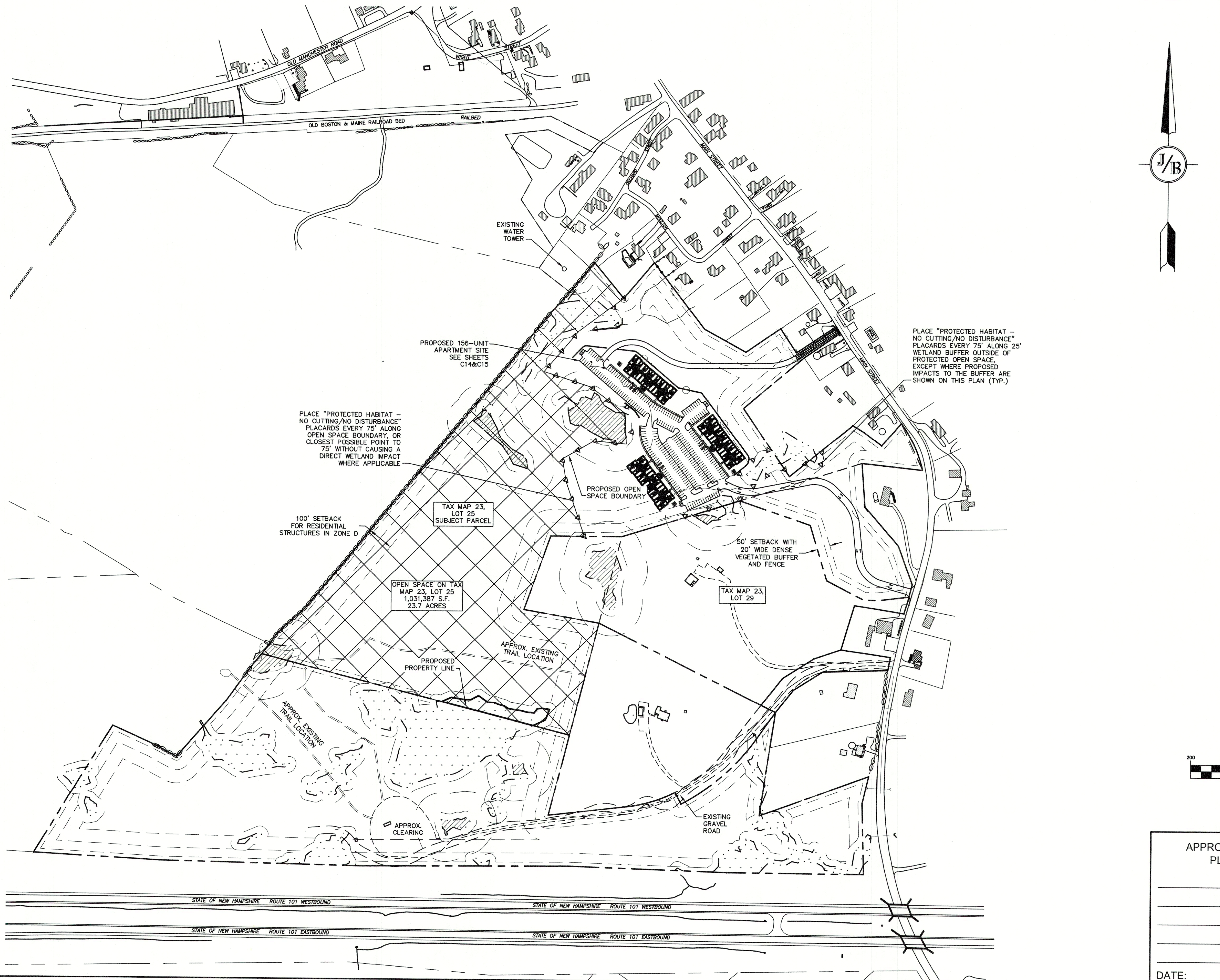

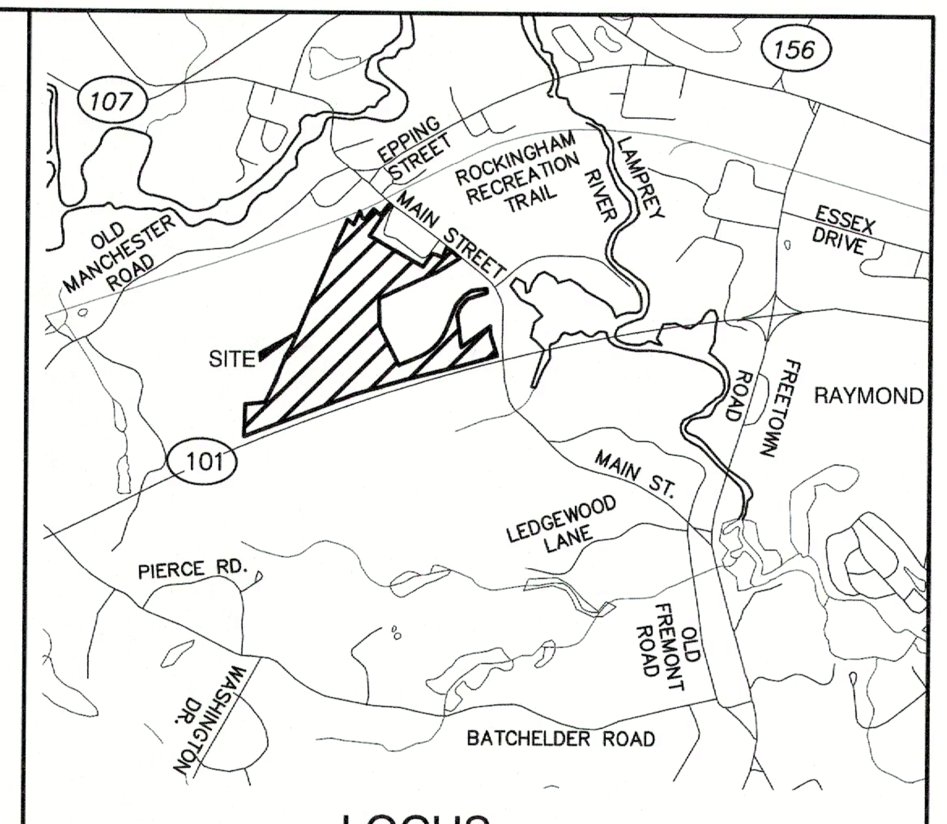

LOCUS SCALE: 1"=2000'

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

APPROVED - RAYMOND, NH PLANNING BOARD
DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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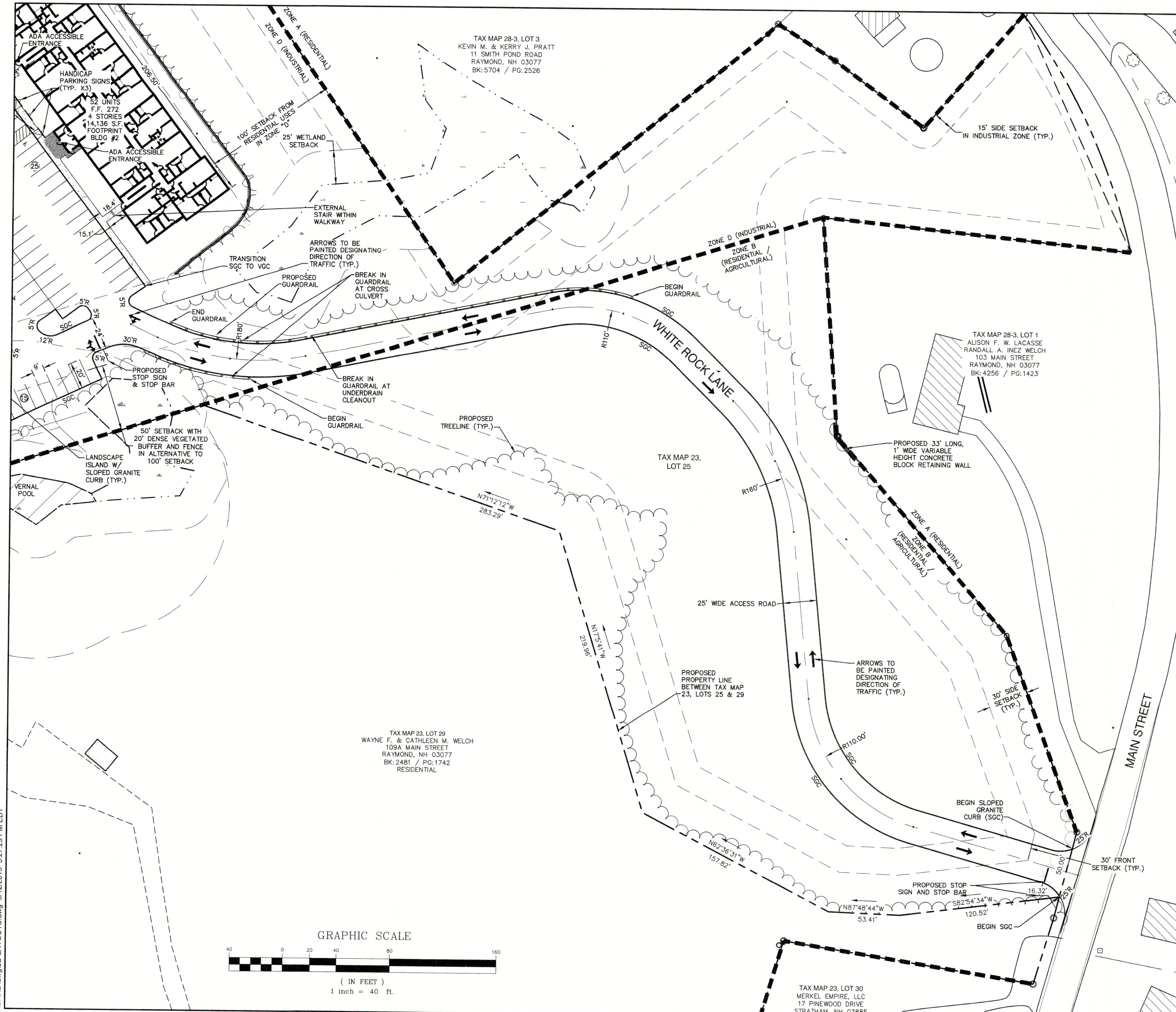
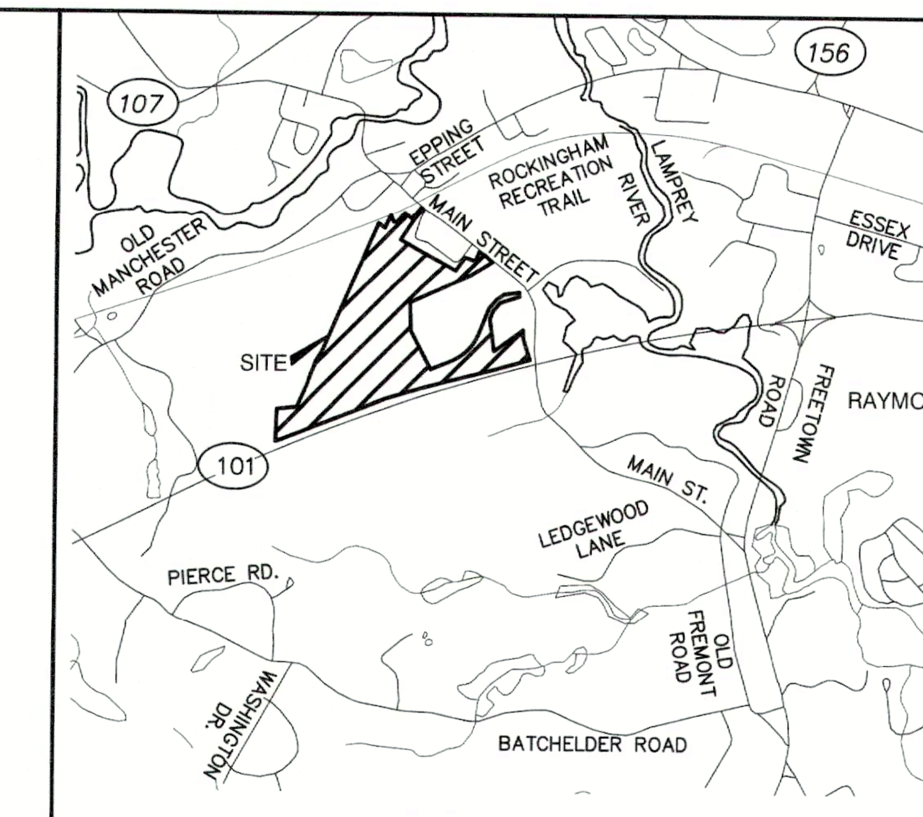
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW SITE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C13
SHEET 16 OF 61
JBE PROJECT NO. 20564





LOCUS SCALE: 1"=2000'

SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO SUBDIVIDE THE TAX MAP 23, LOT 25 INTO ONE RESIDENTIAL LOT CONTAINING A 156-UNIT APARTMENT COMPLEX AND ONE INDUSTRIAL LOT.

2. ZONING DISTRICT: D (INDUSTRIAL)
   LOT AREA MINIMUM = 21,780 SF
   LOT FRONTAGE MINIMUM = 50'
   BUILDING SETBACKS (MINIMUM):
   - FRONT SETBACK = 15'
   - SIDE SETBACK = 15'
   - REAR SETBACK = 15'
   - WETLAND SETBACK = 25' (PER RAYMOND ZONE "G")

   MAX. BUILDING HEIGHT = 30' OR ACTUAL BUILDING SETBACK FROM PROPERTY LINE, WHICHEVER IS GREATER

3. PARKING CALCULATIONS:
   RESIDENTIAL/MULTI-FAMILY: 3 SPACES PER UNIT REQUIRED
   156 UNITS: 468 SPACES REQUIRED
   281 SPACES PROVIDED (1.80 SPACES PER UNIT)

4. DENSITY CALCULATIONS:
   16 UNITS/ACRE ALLOWED FOR LOTS IN SEWER OVERLAY DISTRICT BASED ON 25% OF NON-ZONE G LAND; LOT 25 IS VESTED INTO SEWER OVERLAY DISTRICT BASED ON 2020 ZONING ORDINANCE.
   A. AREA OF LOT 25 THAT WAS PART OF LOT 25 ORIGINALLY = 1,661,113 S.F. (38.13 AC.)
   B. PORTION OF AREA A THAT CONSISTS OF WETLANDS = 97,142 S.F.
   C. PORTION OF AREA A THAT CONSISTS OF SLOPES >25% FOR 100 FEET OR GREATER = 120,024 S.F.
   D. PORTION OF AREA A THAT IS NOT ZONE G LAND (A-B-C) = 1,443,947 S.F. (33.15 AC.)

   156 UNITS / 30.69 AC. = 4.7 UNITS PER ACRE PROVIDED.
   LOT AREA PROVIDED IS MINIMUM ALLOWED BASED ON LOT LOADING PER ENV-WQ 1000

5. WITH APPROVAL OF THIS PLAN BY THE PLANNING BOARD, THE FOLLOWING WAIVERS ARE REQUESTED:
   A) "SITE PLAN REVIEW REGULATIONS" SECTION 6.06.01 – PARKING REQUIREMENTS
   B) "SITE PLAN REVIEW REGULATIONS" SECTION 3.03.03(C) – LICENSED LANDSCAPE ARCHITECT
   C) "SUBDIVISION REGULATIONS" SECTION 5.6.D.1 – MAXIMUM ROAD GRADE (FOR EMERGENCY ACCESS ROAD ONLY)
   D) SUBDIVISION REGULATIONS ROW DESIGN MATRIX – MINIMUM PAVEMENT WIDTH (FOR EMERGENCY ACCESS ROAD ONLY)
   E) SUBDIVISION REGULATIONS ROW DESIGN MATRIX – SIDEWALK REQUIREMENT

6. NHDES ALTERATION OF TERRAIN PERMIT #AOT-2436, DATED 8/2/2023.
   NHDES GROUNDWATER DISCHARGE PERMIT # , DATED .
   NHDES STATE SUBDIVISION PERMIT # , DATED .
   NHDES SEPTIC APPROVAL # , DATED .
   NHDES SEPTIC APPROVAL # , DATED .
   NHDES SEPTIC APPROVAL # , DATED .

7. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ONSITE OR OFFSITE TO ENSURE SAFETY AND OBEY THE LAW.

8. ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.

9. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0191E AND 33015C0193E, DATED MAY 17, 2005.

10. WITH THE APPROVAL OF THE RAYMOND, NH PLANNING BOARD, A SPECIAL PERMIT IS REQUESTED FOR IMPACTS WITHIN ZONE G.

11. ZONE G IMPACT CALCULATIONS:
    STEEP SLOPE DISTURBANCE AREA = 41,000 SF
    WETLAND DISTURBANCE AREA = 0 SF
    TOTAL STEEP SLOPE AREA ON LOT 25 = 144,268 SF
    TOTAL WETLAND AREA ON LOT 25 = 84,998 SF
    TOTAL ZONE G LAND ON LOT 25 = 229,266 SF
    TOTAL IMPACT TO ZONE G LAND = 41,000 SF = 17.9%

12. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.

13. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.

14. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.

15. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED.

16. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND NHDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.

17. ALL PARKING STALLS SHALL BE SEPARATED USING 4" WIDE SOLID STRIPES. STRIPING SHALL HAVE TWO COATS OF PAINT, ALKYD BASIN SYNTHETIC RESIN, FEDERAL SPECIFICATION TTP-115 TYPE 1, IN A COLOR OF WHITE.

18. ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.

19. ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.

20. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.

21. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.

22. IMPERVIOUS AREA = 182,000 SF

23. AREA OF DISTURBANCE = 437,000 SF

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9846
LICENSED
PROFESSIONAL ENGINEER
8/17/2023

18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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REV.	DATE	REVISION	BY

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SITE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C14
SHEET 17 OF 61
JBE PROJECT NO. 20564

APPROVED - RAYMOND, NH PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9648 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
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Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SITE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C15
SHEET 18 OF 61
JBE PROJECT NO. 20564

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PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
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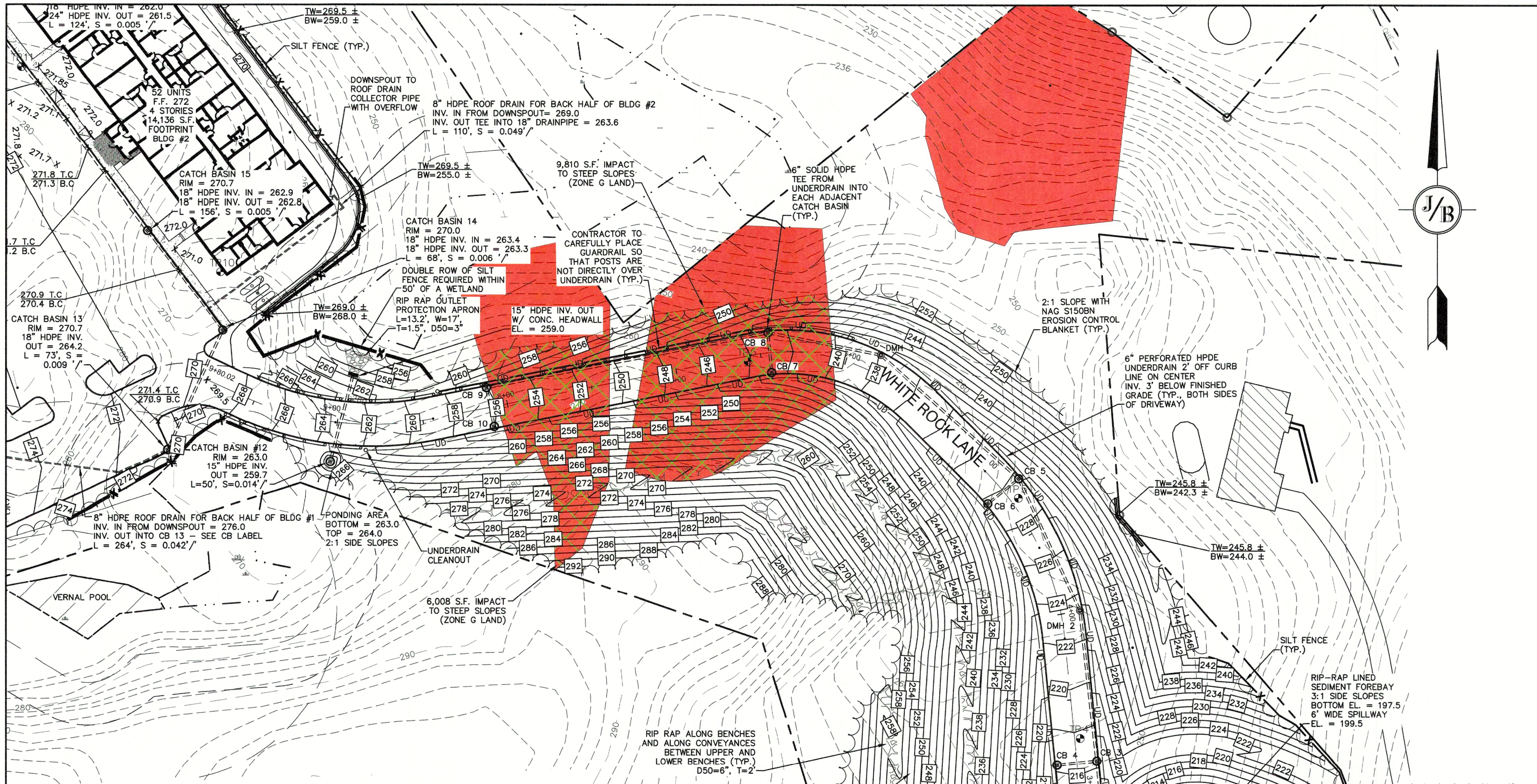
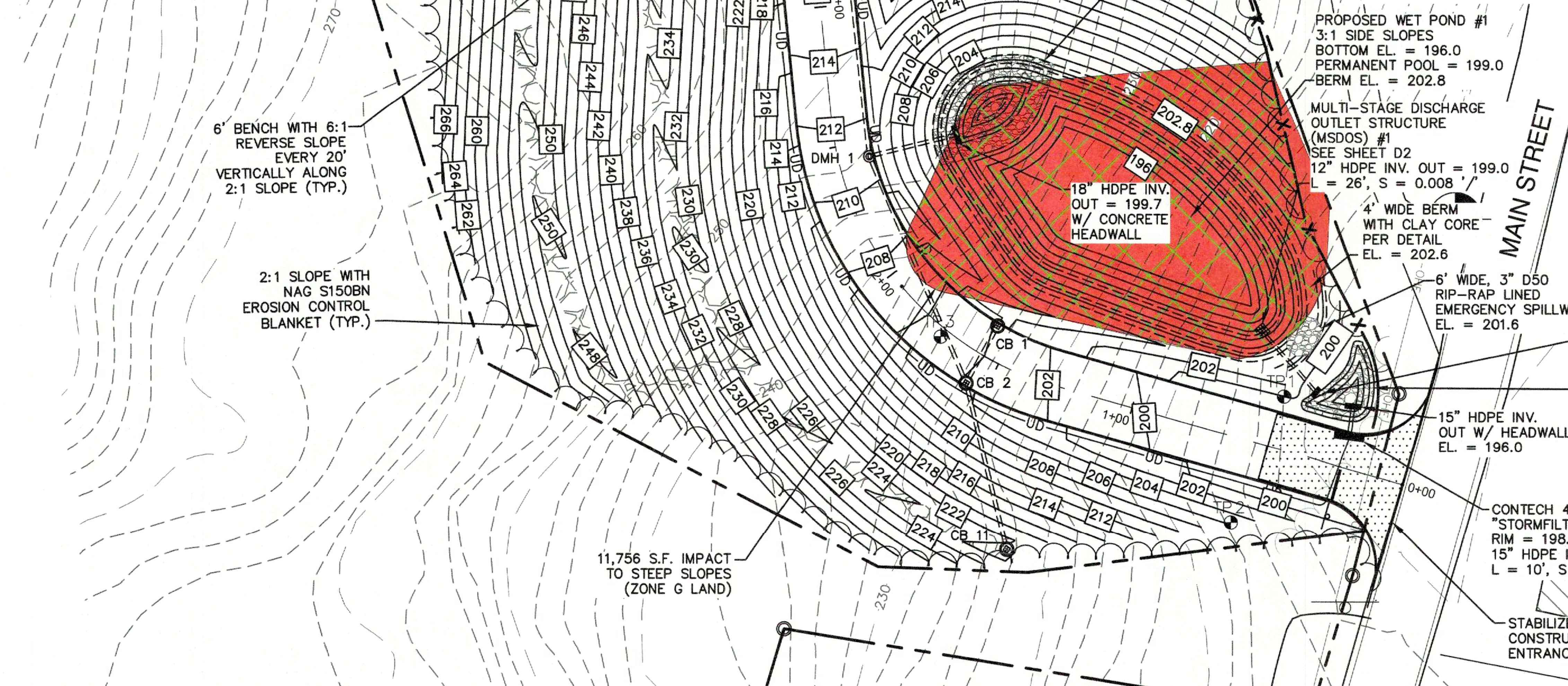
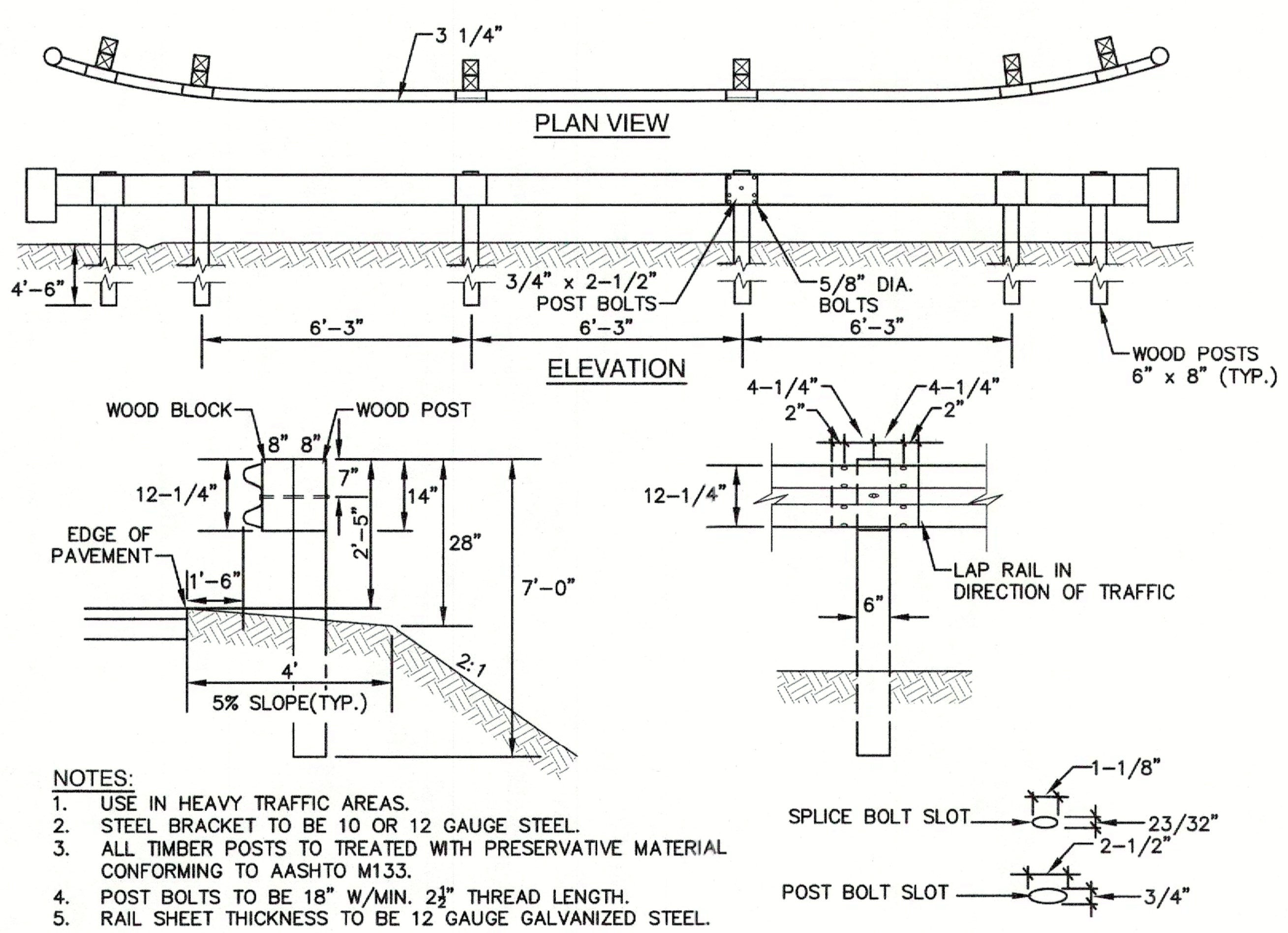
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW GRADING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C16
SHEET 19 OF 61
JBE PROJECT NO. 20564



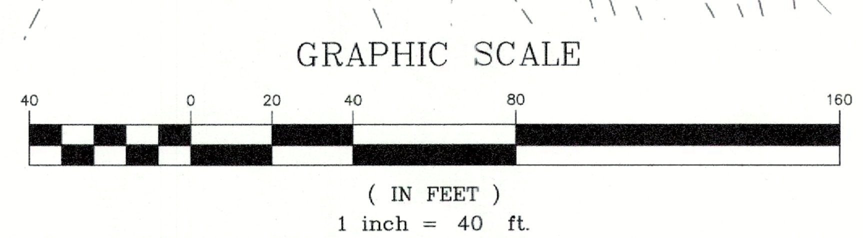




NOTES:
1. USE IN HEAVY TRAFFIC AREAS.
2. STEEL BRACKET TO BE 10 OR 12 GAUGE STEEL.
3. ALL TIMBER POSTS TO TREATED WITH PRESERVATIVE MATERIAL CONFORMING TO AASHTO M133.
4. POST BOLTS TO BE 18" W/MIN. 2½" THREAD LENGTH.
5. RAIL SHEET THICKNESS TO BE 12 GAUGE GALVANIZED STEEL.

GUARD RAIL (STEEL)

NOT TO SCALE



DRAINAGE STRUCTURE SCHEDULE

CATCH BASIN 1
RIM = 203.9
6" HDPE UNDERDRAIN INV. IN = 201.4
15" HDPE INV. OUT = 200.6 (CB 2)
L = 19', S = 0.005'/'

CATCH BASIN 2
RIM = 203.9
6" HDPE UNDERDRAIN INV. IN = 201.4
15" HDPE INV. IN = 200.5 (X2, CB 1&11)
15" HDPE INV. OUT = 200.4 (DMH 1)
L = 84', S = 0.005 '/'

DRAIN MANHOLE 1
RIM = 211.0
15" HDPE INV. IN = 206.7 (CB 3)
15" HDPE INV. IN = 200.0 (CB 2)
15" HDPE INV. OUT = 199.9 (OUTFALL)
L = 30', S = 0.007 '/'

CATCH BASIN 3
RIM = 216.4
6" HDPE UNDERDRAIN INV. IN = 213.9
15" HDPE INV. IN = 212.2 (X2, CB 4 & DMH 2)
15" HDPE INV. OUT = 212.1 (DMH 1)
L = 65', S = 0.083 '/'

CATCH BASIN 4
RIM = 216.4
6" HDPE UNDERDRAIN INV. IN = 213.9
15" HDPE INV. OUT = 212.3 (CB 3)
L = 19', S = 0.005 '/'

DRAIN MANHOLE 2
RIM = 223.3
15" HDPE INV. IN = 217.6 (CB 5)
15" HDPE INV. OUT = 217.5 (CB 3)
L = 84', S = 0.06 '/'

CATCH BASIN 5
RIM = 229.7
6" HDPE UNDERDRAIN INV. IN = 227.2
15" HDPE INV. IN = 225.6 (X2, CB 6 & DMH 3)
15" HDPE INV. OUT = 225.5 (DMH 2)
L = 82', S = 0.096 '/'

CATCH BASIN 6
RIM = 229.7
6" HDPE UNDERDRAIN INV. IN = 227.2
15" HDPE INV. OUT = 225.7 (CB 5)
L = 19', S = 0.005 '/'

DRAIN MANHOLE 3
RIM = 237.9
15" HDPE INV. IN = 233.1 (CB 8)
15" HDPE INV. OUT = 233.0 (CB 5)
L = 104', S = 0.07 '/'

CATCH BASIN 7
RIM = 242.8
6" HDPE UNDERDRAIN INV. IN = 240.3
12" HDPE INV. OUT = 238.9 (CB 8)
L = 19', S = 0.005 '/'

CATCH BASIN 8
RIM = 242.8
6" HDPE UNDERDRAIN INV. IN = 240.3
15" HDPE INV. IN = 238.8 (X2, CB 7&9)
15" HDPE INV. OUT = 238.7 (DMH 3)
L = 63', S = 0.09 '/'

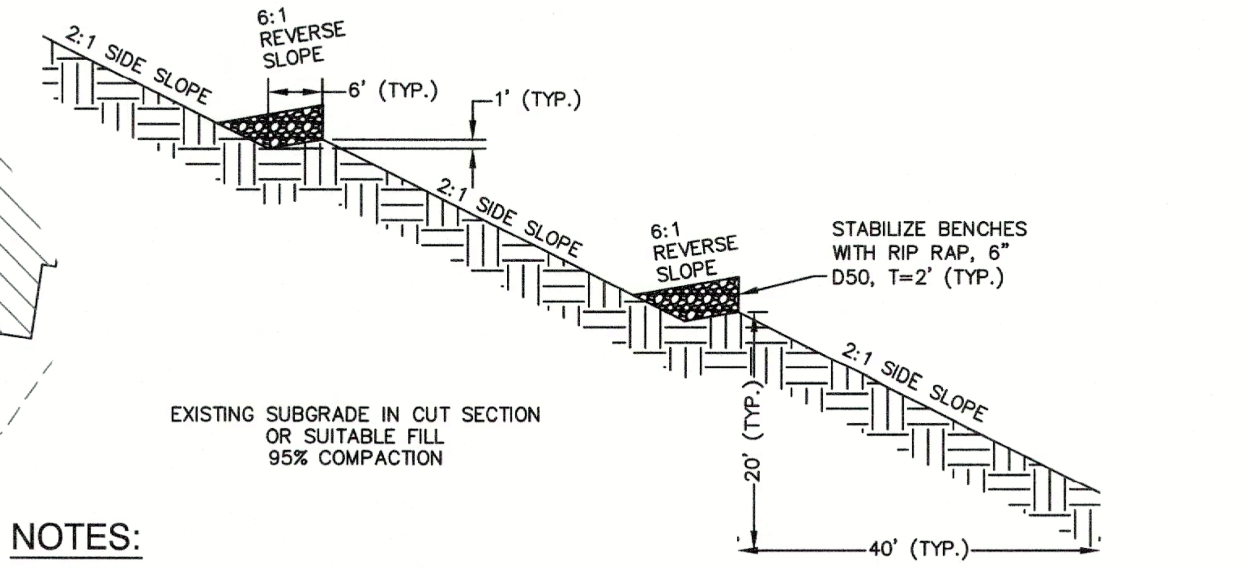
CATCH BASIN 9
RIM = 256.1
6" HDPE UNDERDRAIN INV. IN = 253.6
15" HDPE INV. IN = 252.0 (CB 10)
15" HDPE INV. OUT = 251.9 (CB 8)
L = 163', S = 0.08 '/'

CATCH BASIN 10
RIM = 256.1
6" HDPE UNDERDRAIN INV. IN = 253.6
15" HDPE INV. OUT = 252.1 (CB 9)
L = 19', S = 0.005 '/'

CATCH BASIN 11
RIM = 221.0
15" HDPE INV. OUT = 208.0 (CB 2)
L = 57', S = 0.132 '/'

GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
6. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
8. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S150BN EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
9. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL NOT HAVE SUMPS.
10. ALL DRAINAGE STRUCTURES AND STORMWATER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
11. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
12. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
13. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
14. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
15. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
16. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
17. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
18. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
19. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
20. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
21. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
22. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
23. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
24. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
25. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
26. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
27. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.



NOTES:
1. STABILIZE BENCHED SLOPE, FROM ROAD EMBANKMENT TO EXISTING GRADE, WITH NAG S150BN EROSION CONTROL BLANKET. FACE OF GRADED SLOPE MUST BE PROTECTED FROM SURFACE RUNOFF UNTIL STABILIZED. ALSO STABILIZE BENCHES WITH RIP RAP AS DIRECTED.
2. ALL GRADED AND DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE ADEQUATELY STABILIZED.
3. TERRACES AND SLOPES SHALL BE INSPECTED PERIODICALLY FOR ANY SIGN OF RILL OR GULLY EROSION, AND IF SUCH CONDITIONS ARE NOTED, THE AREA SHALL BE IMMEDIATELY INVESTIGATED AND REPAIRED AS NEEDED.
4. STABILIZE SLOPE AS SOON AS POSSIBLE AFTER COMPLETION OF GRADING.

BENCHED/TERRACED SLOPE DETAIL

NOT TO SCALE

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN No. 9846
LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	GRADING AND DRAINAGE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C17
SHEET 20 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL KERIVAN
No. 9845
LICENSED

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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Plan Name:	GRADING AND DRAINAGE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C18
SHEET 21 OF 61
JBE PROJECT NO. 20564

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EROSION AND SEDIMENT CONTROL NOTES:

1. SEE ALSO EROSION AND SEDIMENT CONTROL DETAILS AND CONSTRUCTION SEQUENCE ON SHEETS E1–E2.
2. TO THE EXTENT PRACTICABLE, THE SPOILS FROM THE EXCAVATION OF WHITE ROCK DRIVE AND THE SECTIONS OF THE APARTMENT SITE THAT ARE IN CUT SHALL BE USED AS FILL MATERIAL BENEATH THE EMERGENCY ACCESS ROAD AND THE SECTIONS OF THE SITE THAT ARE IN FILL. ACCOUNTING FOR SELECT FILLS UNDERNEATH THE ROADS, SIDEWALK, PARKING LOT AND OTHER AREAS, THIS PROJECT PROPOSES A NET EXPORT OF 77,000 CY OF MATERIAL.
3. ALL STORMWATER PONDS SHALL BE USED AS TEMPORARY SEDIMENT TRAPS DURING CONSTRUCTION UNTIL RETROFIT INTO THEIR PERMANENT SHAPES. HOWEVER, THIS DOES NOT PRECLUDE ADDITIONAL EROSION AND SEDIMENT CONTROLS THAT MAY BE NECESSARY.

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EROSION AND SEDIMENT CONTROL PLAN

Project: WHITE ROCK PLACE, 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077

Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH, 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No. C19

SHEET 22 OF 61

JBE PROJECT NO. 20564

Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/23

REV.	DATE	REVISION	BY
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15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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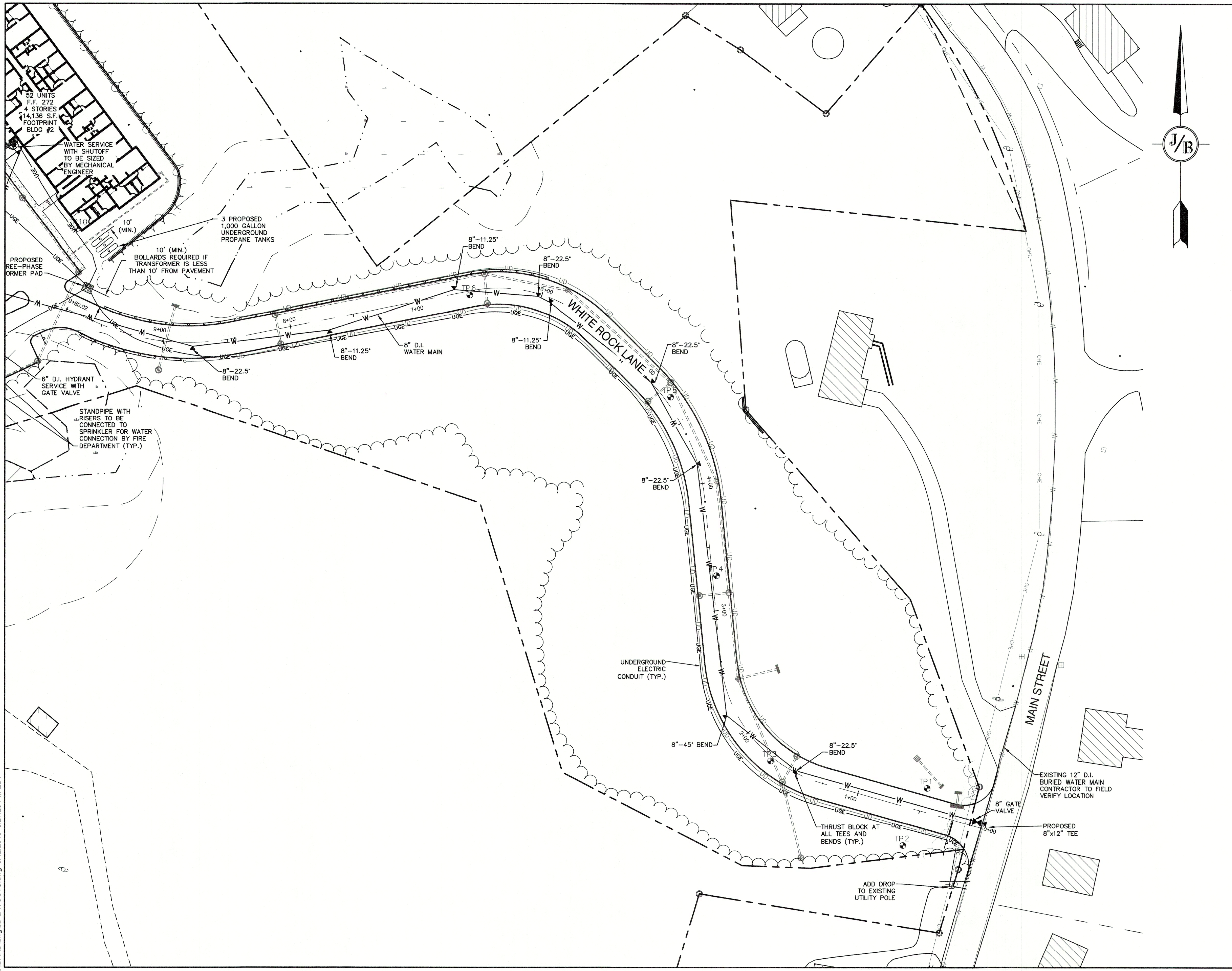
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EROSION AND SEDIMENT CONTROL PLAN

Project: WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077

Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C20
SHEET 23 OF 61
JBE PROJECT NO. 20564



UTILITY NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDING TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
9. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
10. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA, CLEAR OPENING. THE WORD "SEWER" OR DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
11. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
12. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
13. SEPTIC FLOW CALCULATIONS:
    72 2-BEDROOM UNITS @ 150 GPD/BEDROOM = 21,600 GPD
    84 1-BEDROOM UNITS @ 225 GPD/UNIT = 18,900 GPD
    13,500 GPD PER BUILDING
    TOTAL FLOW = 40,500 GPD
14. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
15. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
16. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
17. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
18. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
19. IF THE BUILDING IS REQUIRED TO HAVE A SPRINKLER SYSTEM, A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR, OWNER, ARCHITECT AND THE LOCAL FIRE DEPARTMENT PRIOR TO THE INSTALLATION.
20. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND FIRE HYDRANTS.
21. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
22. THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
23. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
24. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
25. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
26. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES.
27. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END AT RIGHT OF WAY AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
28. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
29. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9848
LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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15	7/10/23	ADDED PHASING PLAN	DJM
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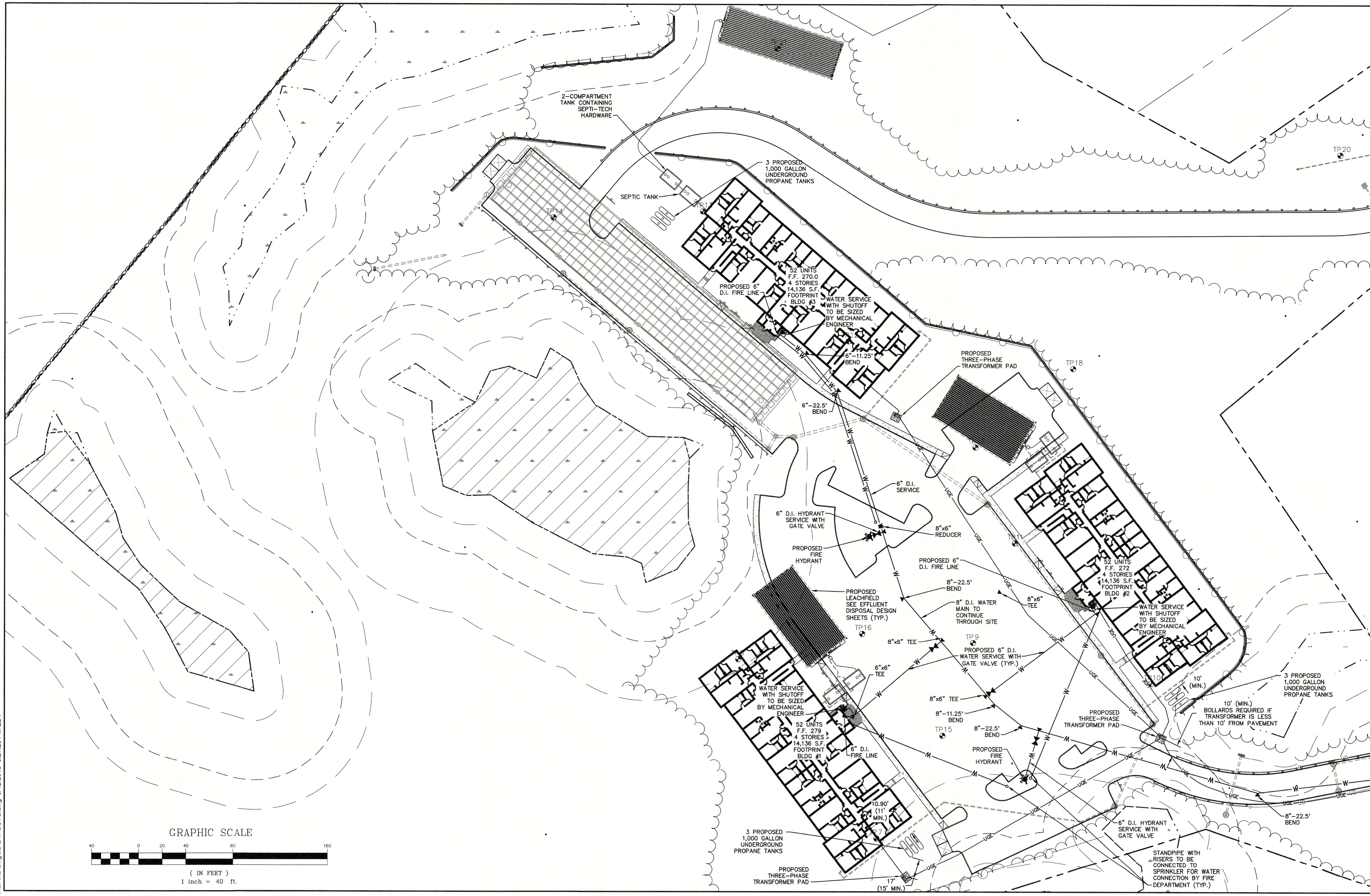
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	UTILITY PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C19
SHEET 24 OF 61
JBE PROJECT NO. 20564



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PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9046 LICENSED PROFESSIONAL ENGINEER
8/7/2023

REV.	DATE	REVISION	BY
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Plan Name:	UTILITY PLAN
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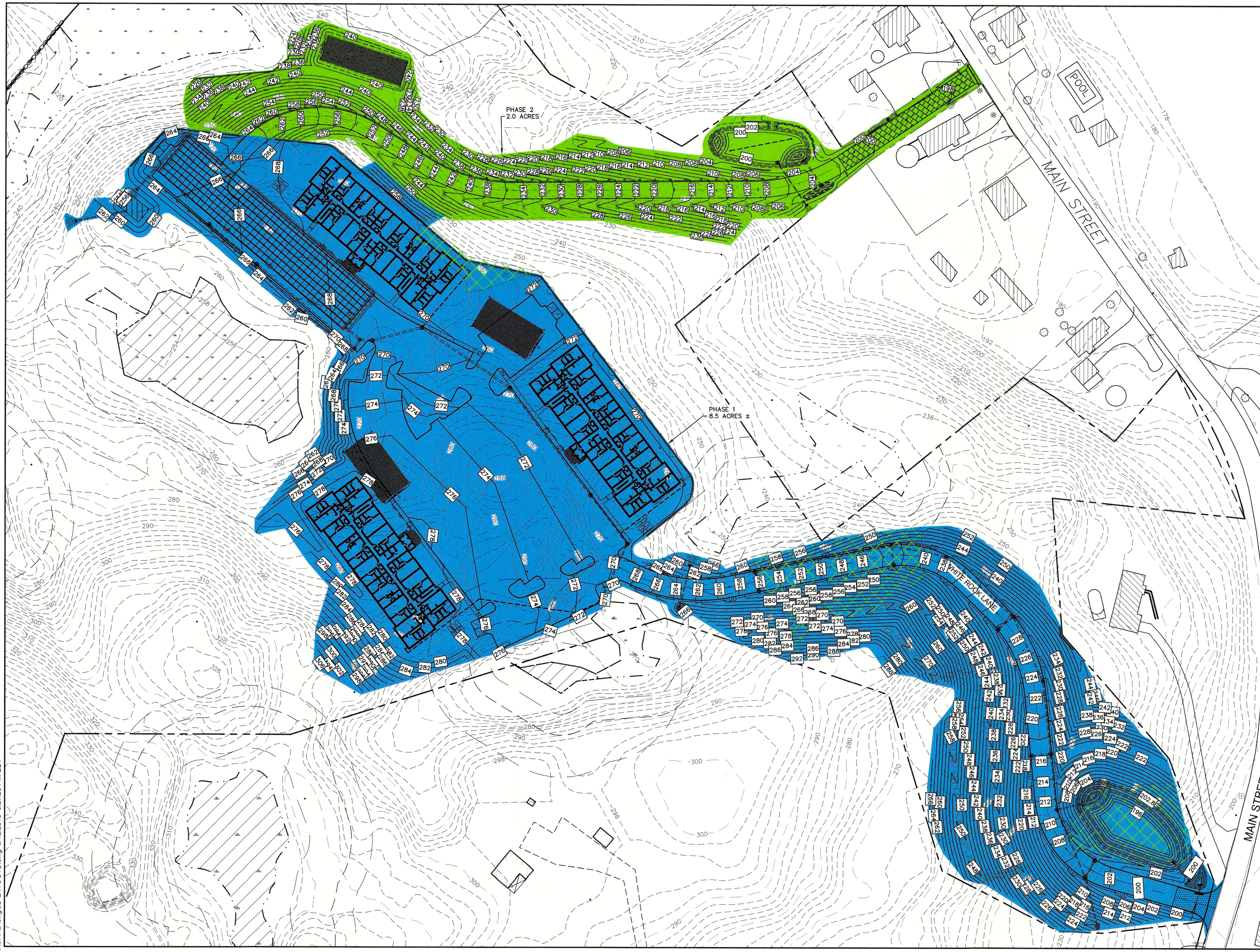
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C22
SHEET 25 OF 61
JBE PROJECT NO. 20564



NOTES:

1. PHASE 1 SHALL BE COMPLETED AND STABILIZED BEFORE BEGINNING PHASE 2. TO THE EXTENT PRACTICABLE, THE SUITABLE SPOILS FROM PHASE 1 SHALL BE USED AS FILL MATERIAL FOR PHASE 2.
2. AN ENVIRONMENTAL MONITOR SHALL BE EMPLOYED DURING CONSTRUCTION PER THE PROVISIONS OF ENV-WQ 1505.03(d–e). ALSO SEE NOTES ON SHEET E1 DESCRIBING THE DUTIES OF THE MONITOR. SEE ALSO EROSION AND SEDIMENT CONTROL PLANS.

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
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75.11 ACRES

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER

8/17/2023

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Plan Name:	PHASING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

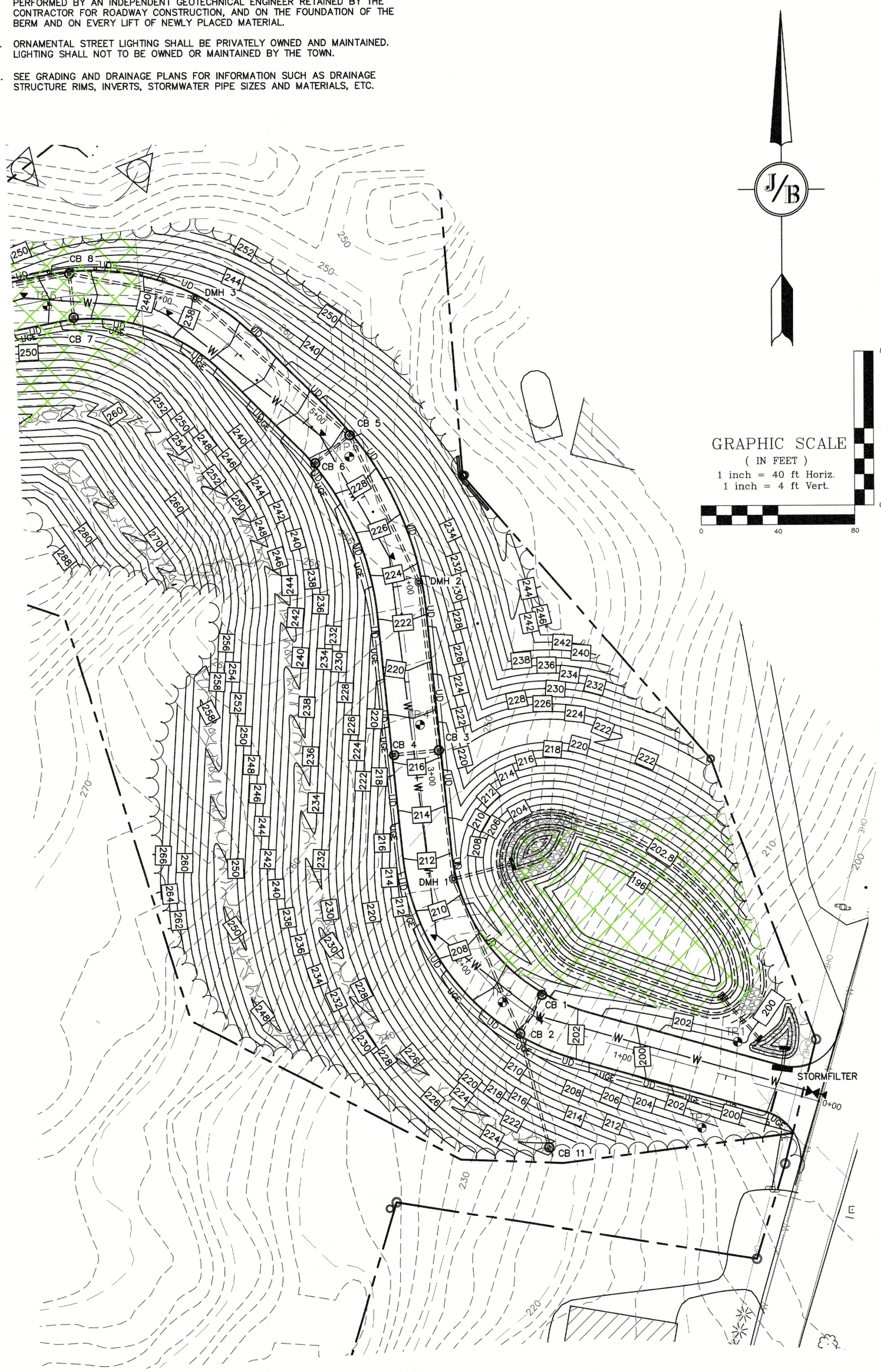
DRAWING No.

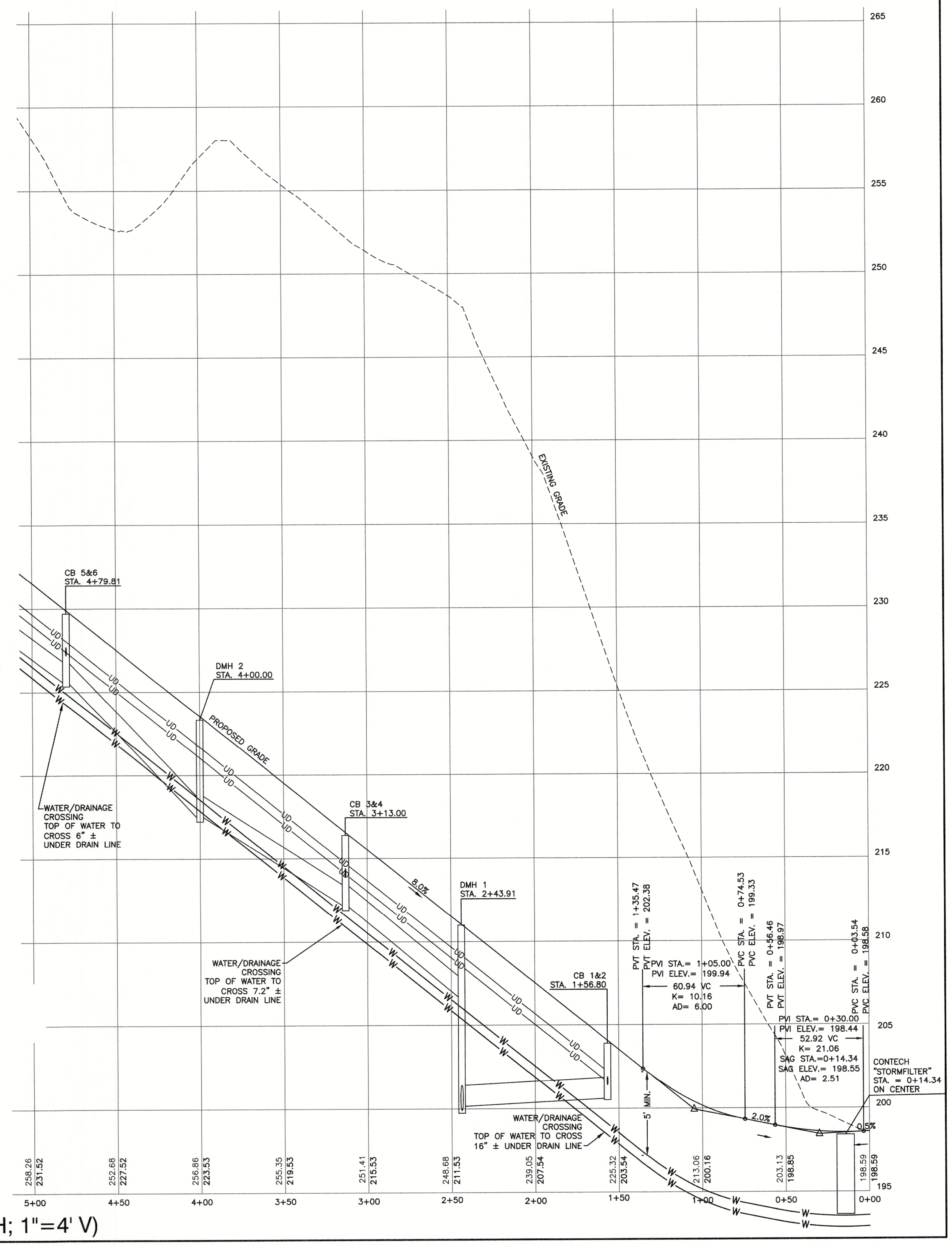
PH1

SHEET 26 OF 61
JBE PROJECT NO. 20564

NOTES:

1. THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT HTTP://CFPUB1.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
   A. FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
   A. ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
2. ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
3. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
4. CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV, TELEPHONE, AND FIRE ALARM PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
5. THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
6. SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
7. ALL DISTURBED AREAS NOT STABILIZED BY OCTOBER 15TH SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
8. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
9. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
10. ROADWAY INTERSECTIONS WITH SLOPE GRANITE CURB SHALL EXTEND AROUND RADIUS WITH 6' STRAIGHT PIECE ALONG TANGENT.
11. RETAINING WALLS SHALL BE DESIGNED AND STAMPED BY A STRUCTURAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER PRIOR TO INSTALLATION.
12. 6" PERFORATED ADS-N12 UNDER DRAIN IS TO BE PLACED BENEATH ROAD SHOULDERS AS SHOWN. CONTRACTOR TO ADJUST LOCATION IN THE FIELD ONLY WITH PRIOR APPROVAL OF PROJECT ENGINEER AND PUBLIC WORKS DEPARTMENT.
13. ALL PAVED OR GRAVELED AREAS INTENDED FOR VEHICULAR TRAFFIC TO BE CONSTRUCTED WITH MAXIMUM 8% SLOPE UNLESS OTHERWISE SPECIFIED, SUBJECT TO WAIVER FROM THE PLANNING BOARD.
14. DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT FENCING WILL BE INSPECTED DURING AND AFTER STORM EVENTS IN EXCESS OF 0.25" TO ENSURE THAT THE FENCE STILL HAS INTEGRITY AND IS NOT ALLOWING SEDIMENT TO PASS. SEDIMENT BUILD UP IN SWALES WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SUMPS BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS. FOLLOWING MAJOR STORM EVENTS, THE STAGE DISCHARGE OUTLET STRUCTURES ARE TO BE INSPECTED AND ANY DEBRIS REMOVED FROM THE ORIFICE, TRASH RACK AND EMERGENCY SPILLWAY. INFREQUENTLY, SEDIMENT MAY ALSO HAVE TO BE REMOVED FROM THE SUMP OF THE STRUCTURE.
15. ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
16. DETENTION PONDS REQUIRE TIMELY MAINTENANCE AND SHOULD BE INSPECTED AFTER EVERY MAJOR STORM EVENT, AS WELL AS FREQUENTLY DURING THE FIRST YEAR OF OPERATION, AND ANNUALLY THEREAFTER. EVERY FIVE YEARS, THE SERVICES OF A PROFESSIONAL ENGINEER SHOULD BE RETAINED TO PERFORM A THOROUGH INSPECTION OF THE DETENTION POND AND ITS INFRASTRUCTURE. ANY DEBRIS AND SEDIMENT ACCUMULATIONS SHOULD BE REMOVED FROM THE OUTLET STRUCTURE(S) AND EMERGENCY SPILLWAY(S) AND DISPOSED OF PROPERLY. DETENTION POND BERMS SHOULD BE MOWED AT LEAST ONCE ANNUALLY SO AS TO PREVENT THE ESTABLISHMENT OF WOODY VEGETATION. TREES SHOULD NEVER BE ALLOWED TO GROW ON A DETENTION POND BERM, AS THEY MAY DESTABILIZE THE STRUCTURE AND INCREASE THE POTENTIAL FOR FAILURE. AREAS SHOWING SIGNS OF EROSION OR THIN OR DYING VEGETATION SHOULD BE REPAIRED IMMEDIATELY BY WHATEVER MEANS NECESSARY, WITH THE EXCEPTION OF FERTILIZER. RODENT BURROWS SHOULD BE REPAIRED IMMEDIATELY AND THE ANIMALS SHOULD BE TRAPPED AND RELOCATED IF THE PROBLEM PERSISTS.
17. THE DETENTION PONDS ARE TO BE CONSTRUCTED PRIMARILY THROUGH EXCAVATION. IN THOSE AREAS WHERE THE BERMS MUST BE CONSTRUCTED BY THE PLACEMENT OF FILL, THE ENTIRE EMBANKMENT AREA OF THE DETENTION PONDS SHALL BE EXCAVATED TO PROPOSED GRADE, STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 95% AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. IN THE EVENT THE FOUNDATION MATERIAL EXPOSED DOES NOT ALLOW THE SPECIFIED COMPACTION, AN ADDITIONAL ONE FOOT (1') OF EXCAVATION AND THE PLACEMENT OF A ONE FOOT (1') THICK, TWELVE FOOT (12') WIDE PAD OF THE MATERIAL DESCRIBED IN THE NOTE BELOW, COMPACTED TO 95% OF ASTM D-1557 MAY BE NECESSARY. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3%, AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED WITHIN FOR ANY REASON.
18. DETENTION PONDS SHALL HAVE BERMS WITH CLAY CORES. SEE DETAIL SHEETS FOR POND AND POND BERM SPECIFICATIONS.
19. ROAD SIDE SLOPES MUST BE BENCHED AS SHOWN ON THIS PLAN. THERE SHALL BE A 6' WIDE BENCH WITH A MAXIMUM REVERSE SLOPE OF 6:1 EVERY 20' VERTICALLY ALONG THE 2:1 SLOPE. SEE DETAIL ON SHEET C3.
20. COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION, AND ON THE FOUNDATION OF THE BERM AND ON EVERY LIFT OF NEWLY PLACED MATERIAL.
21. ORNAMENTAL STREET LIGHTING SHALL BE PRIVATELY OWNED AND MAINTAINED. LIGHTING SHALL NOT TO BE OWNED OR MAINTAINED BY THE TOWN.
22. SEE GRADING AND DRAINAGE PLANS FOR INFORMATION SUCH AS DRAINAGE STRUCTURE RIMS, INVERTS, STORMWATER PIPE SIZES AND MATERIALS, ETC.





MAIN DRIVEWAY PLAN AND PROFILE STA. 0+00 - 5+00 (1"=40' H; 1"=4' V)

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
P1
SHEET 26 OF 61
JBE PROJECT NO. 20564

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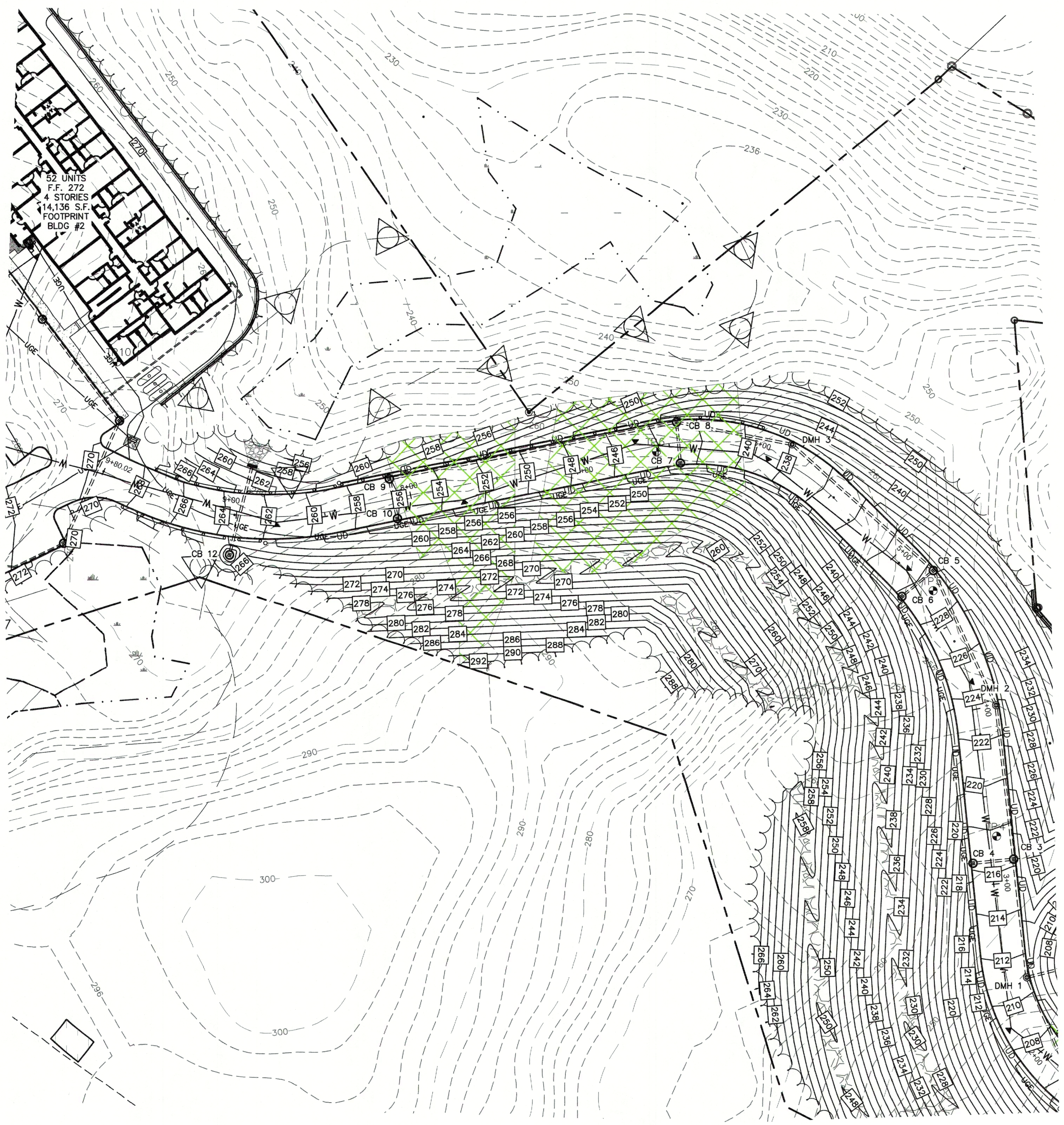
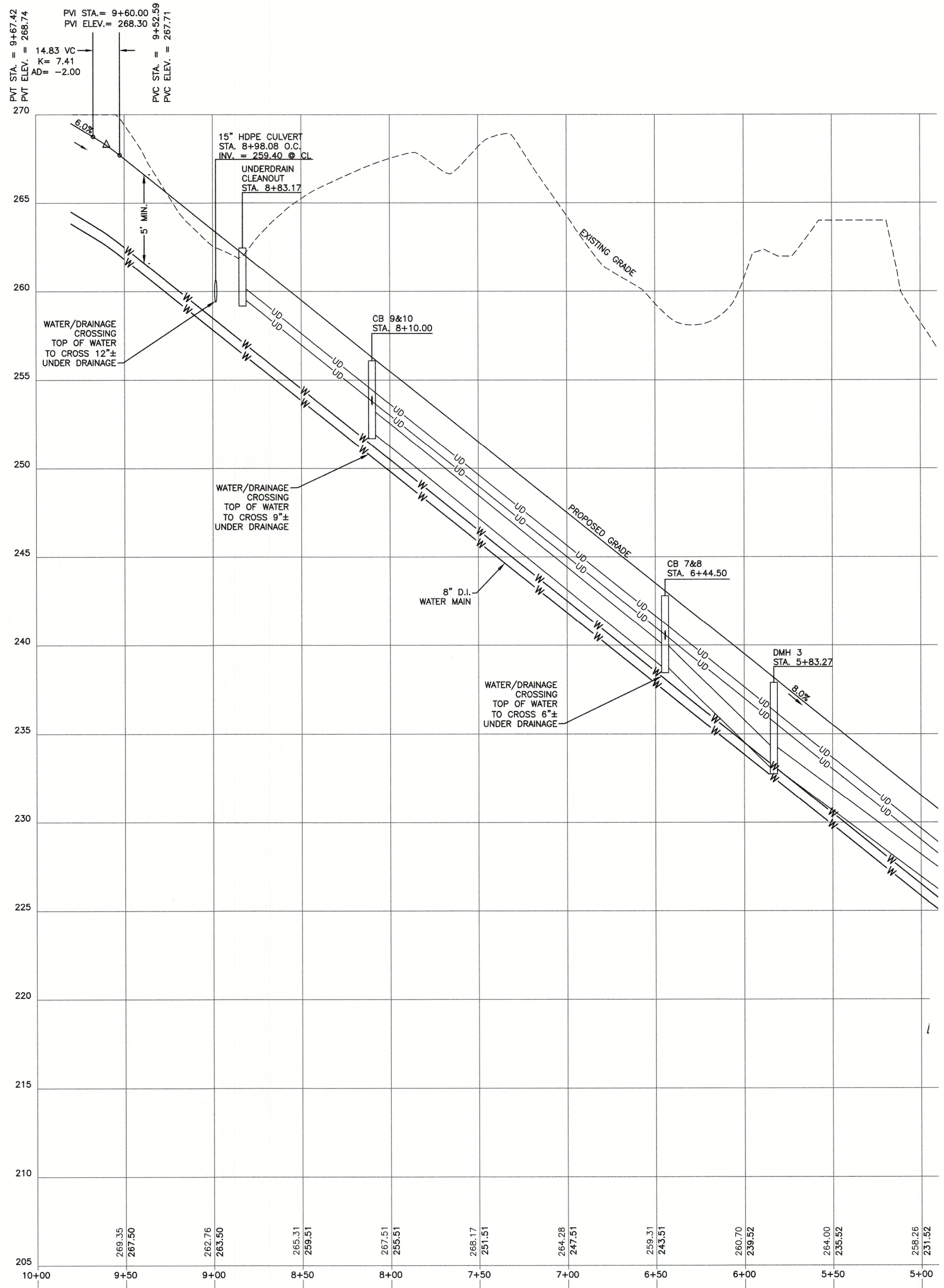
NOTES:

1. SEE NOTES ON SHEET P1, AS THEY APPLY TO THIS SHEET AS WELL.





MAIN DRIVEWAY PLAN AND PROFILE STA. 5+00 - 9+80.02 (1"=40' H; 1"=4' V)

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Design: JAC	Drawn: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9648 LICENSED PROFESSIONAL ENGINEER

8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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603-772-4746
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Plan Name:	PLAN AND PROFILE
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

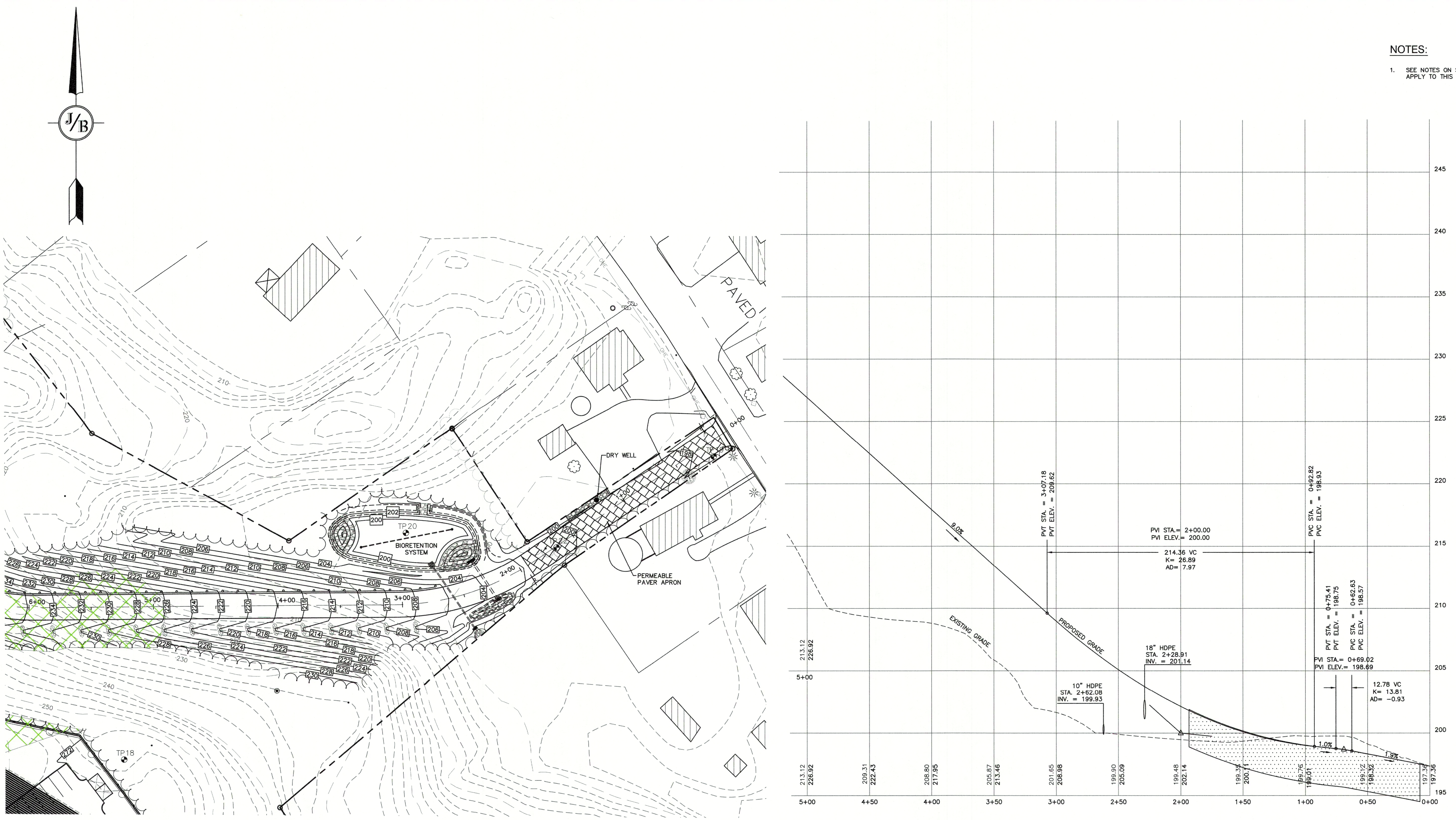
DRAWING No.

P2

SHEET 27 OF 61
JBE PROJECT NO. 20564

NOTES:

1. SEE NOTES ON SHEET P1, AS THEY APPLY TO THIS SHEET AS WELL.



EMERGENCY ACCESS ROAD PLAN AND PROFILE STA. 0+00 - 5+00 (1"=40' H; 1"=4' V)

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
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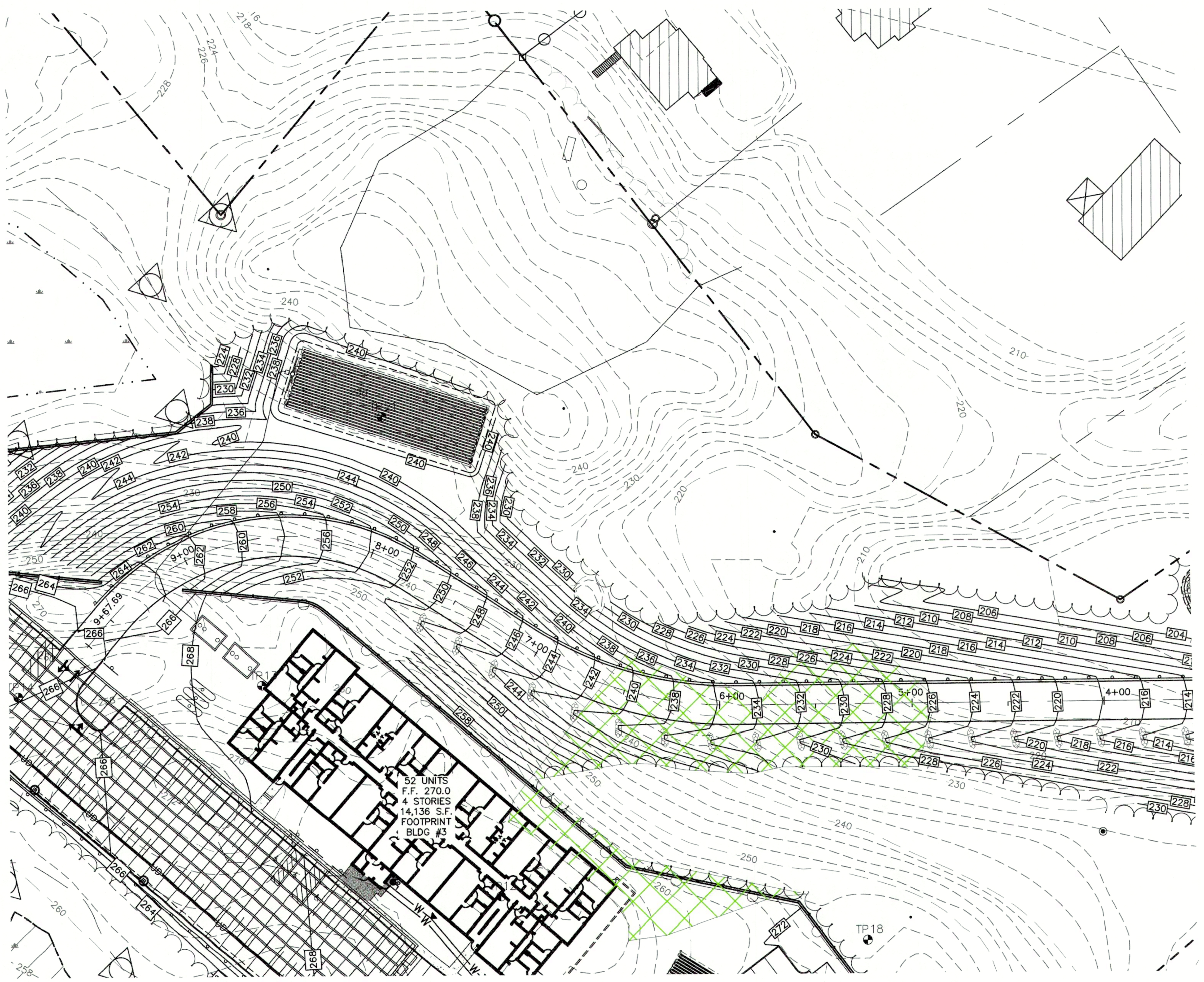
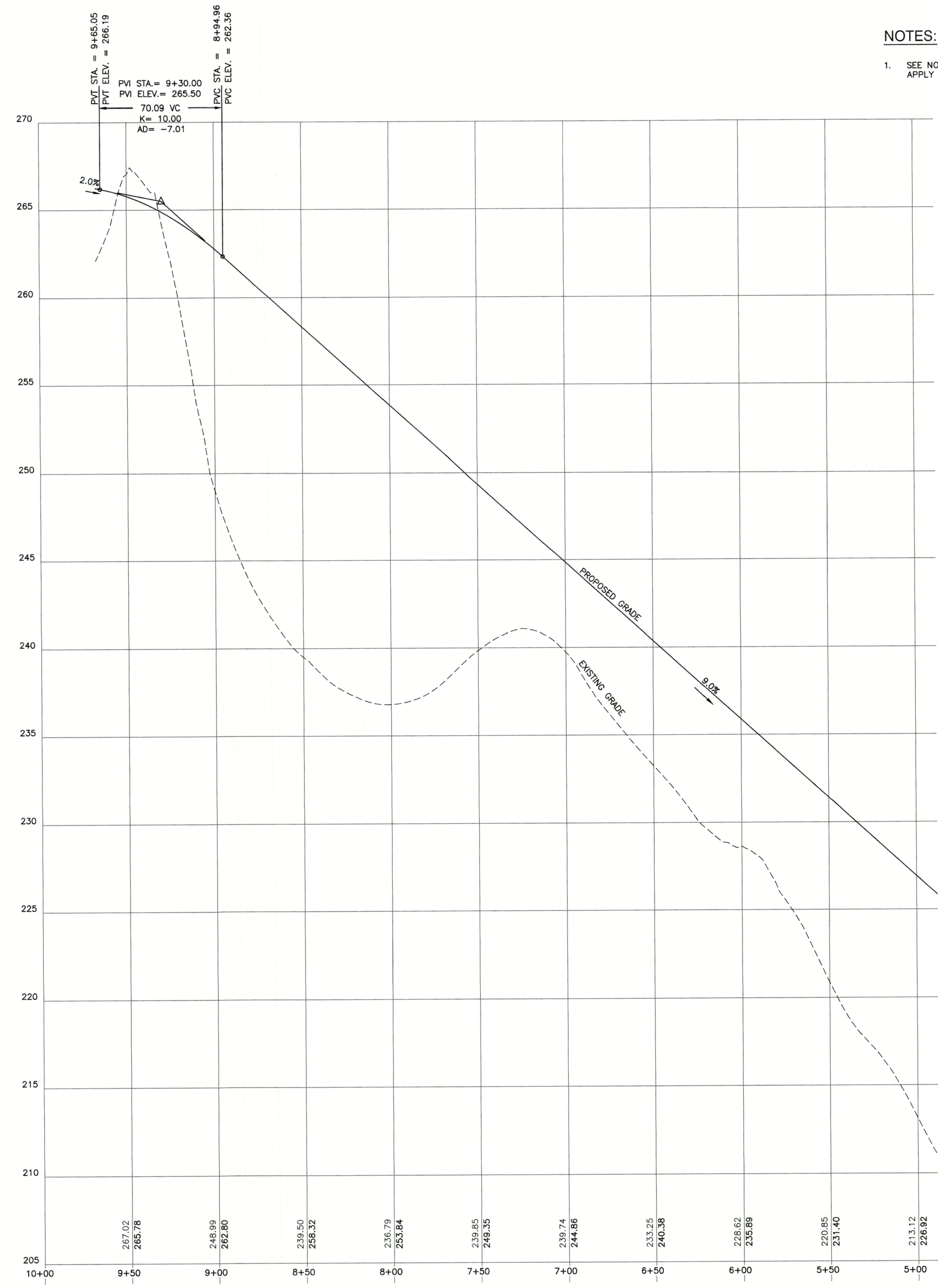
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
P3
SHEET 28 OF 61
JBE PROJECT NO.20564

NOTES:

1. SEE NOTES ON SHEET P1, AS THEY APPLY TO THIS SHEET AS WELL.





GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.

EMERGENCY ACCESS ROAD PLAN AND PROFILE STA. 5+00 - 9+67.69 (1"=40' H; 1"=4' V)

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
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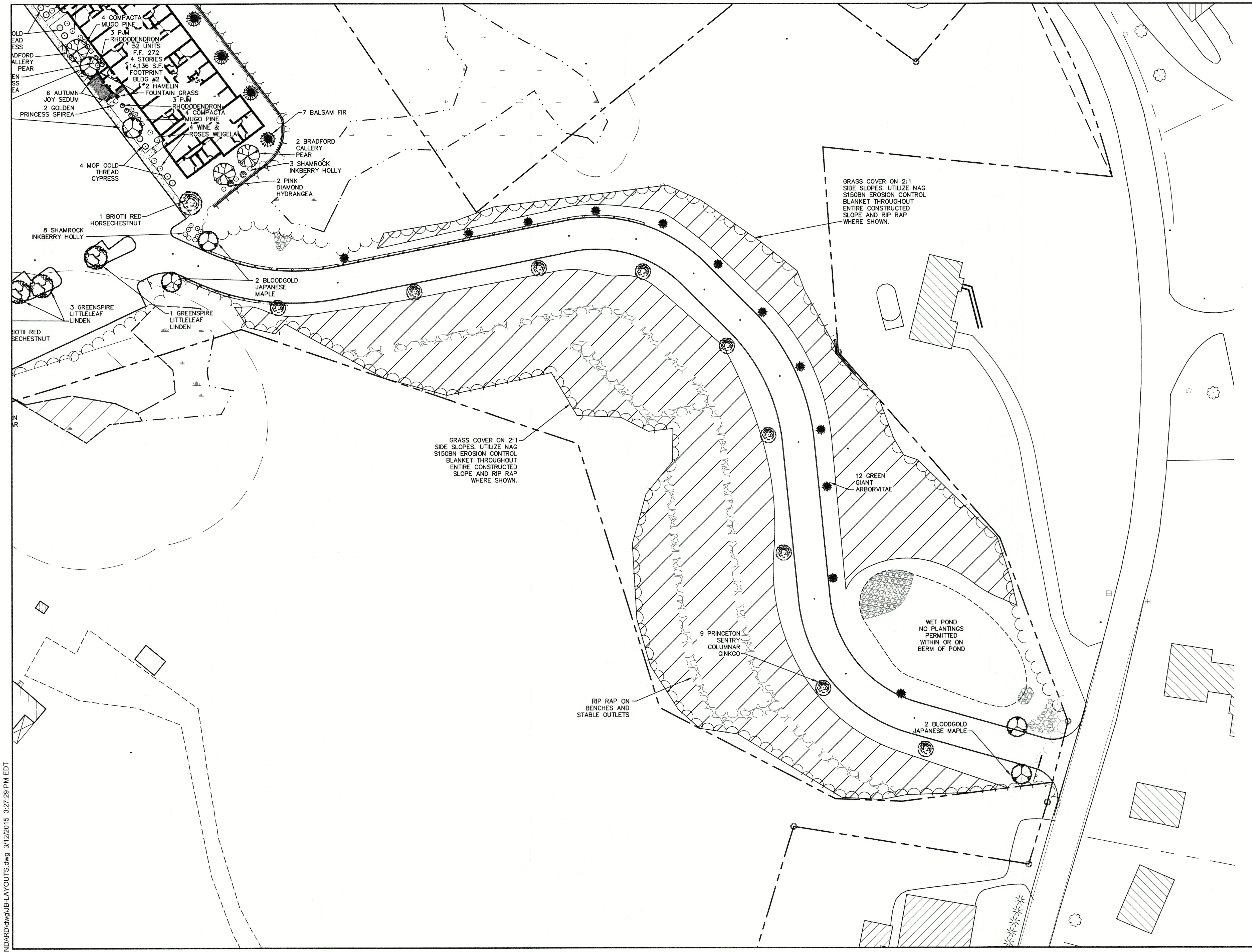
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

P4

SHEET 29 OF 61
JBE PROJECT NO.20564



LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED THE LANDSCAPE DESIGNER.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE DESIGNER. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING FOR CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. ALL WORK AND PLANTS SHALL BE DONE, INSTALLED AND DETAILED IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
9. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
10. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION, EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS SPECIFIED.
11. ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS WITH EDGE STRIPS TO SEPARATE TURF GRASS AREAS.
12. THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC. FROM ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE. GRASS SEED OR PINE BARK MULCH SHALL BE APPLIED AS DEPICTED ON PLANS.
13. FINISHED GRADES IN LANDSCAPED ISLANDS SHALL BE INSTALLED SO THAT THEY ARE 1" HIGHER THAN THE TOP OF THE SURROUNDING CURB.
14. ALL LANDSCAPING SHALL MEET THE TOWN STANDARDS AND REGULATIONS.
15. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE DRIPLINE OF THE TREE. THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
16. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO 'WEEDBLOCK' BY EASY GARDENER OR DEWITT WEED BARRIER.
17. ALL LANDSCAPED AREAS SHALL HAVE SELECT MATERIALS REMOVED TO A DEPTH OF AT LEAST 9" BELOW FINISH GRADE. THE RESULTING VOID IS TO BE FILLED WITH A MINIMUM OF 9" HIGH-QUALITY SCREENED LOAM AMENDED WITH 3" OF AGED ORGANIC COMPOST.
18. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.
19. FOCAL POINT STORMWATER TREATMENT AREA TO BE PLANTED WITH PERENNIAL GRASSES, CONEFLOWERS, DAYLILIES, BUTTERFLY MILKWEED, BEE BALM, BLUE FLAG IRIS, AND JOE PYE WEED. PLANT IN RANDOM GROUPINGS OF 10-12 PLANTS APPROXIMATELY 3 FEET ON CENTER.
20. ALL PLANTING AREAS INTENDED TO BE MOWED OR MAINTAINED SHALL RECEIVE A MINIMUM OF FOUR INCHES OF LOAM FREE OF SOD, CLAY AND STONES OVER ONE INCH IN DIAMETER.
21. THE OWNER AND TENANT OF THE PROPERTY SHALL BE JOINTLY RESPONSIBLE FOR THE MAINTENANCE OF ALL REQUIRED PLANT MATERIAL AND CONTINUED COMPLIANCE WITH THE RAYMOND SITE PLAN REVIEW REGULATIONS.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20	
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Drawing Name: 20564-PLAN.dwg			

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STATE OF NEW HAMPSHIRE MICHAEL J. KERWAN No. 8848 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
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Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
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603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LANDSCAPE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
L1
SHEET 30 OF 61
JBE PROJECT NO. 20564

Plants			
Quantity	Botanical Name	Common Name	Size
17	Abies balsamea	BALSAM FIR	8-10 Ft. Ht.
7	Acer palmatum 'Bloodgood'	BLOODGOOD JAPANESE MAPLE	15 Gallon
41	Acer rubrum 'October Glory'	OCTOBER GLORY RED MAPLE	3" Caliper
6	Aesculus x carnea 'Briotii'	BRIOTII RED HORSECHESTNUT	2.5" Caliper
21	Ginkgo bibola 'Princeton Sentry'	PRINCETON SENTRY COLUMNAR GINKGO	3" Caliper
18	Juniperus virginiana	EASTERN RED CEDAR	7-8 Ft. Ht.
17	Pyrus calleryana 'Bradford'	BRADFORD CALLERY PEAR	2.5" Caliper
22	Thuja plicata 'Green Giant'	GREEN GIANT ARBORVITAE	7-8 Ft. Ht.
10	Tilia cordata 'Greenspire'	GREENSPIRE LITTLELEAF LINDEN	3" Caliper
24	Chamaecyparis pisifera 'Mop'	MOP GOLD THREAD CYPRESS	5 Gallon
12	Hydrangea paniculata 'Pink Diamond'	PINK DIAMOND HYDRANGEA	7 Gallon
18	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
24	Pinus mugo 'Compacta'	COMPACTA MUGO PINE	5 Gallon
18	Rhododendron 'PJM'	PJM RHODODENDRON	5 Gallon
12	Spiraea japonica 'Golden Princess'	GOLDEN PRINCESS SPIREA	3 Gallon
24	Weigela florida 'Alexandra'	WINE & ROSES WEIGELA	5 Gallon
6	Pennisetum alopecuroides 'Hamelin'	HAMELIN FOUNTAIN GRASS	1 Gallon
18	Sedum 'Autumn Joy'	AUTUMN JOY SEDUM	1 Gallon

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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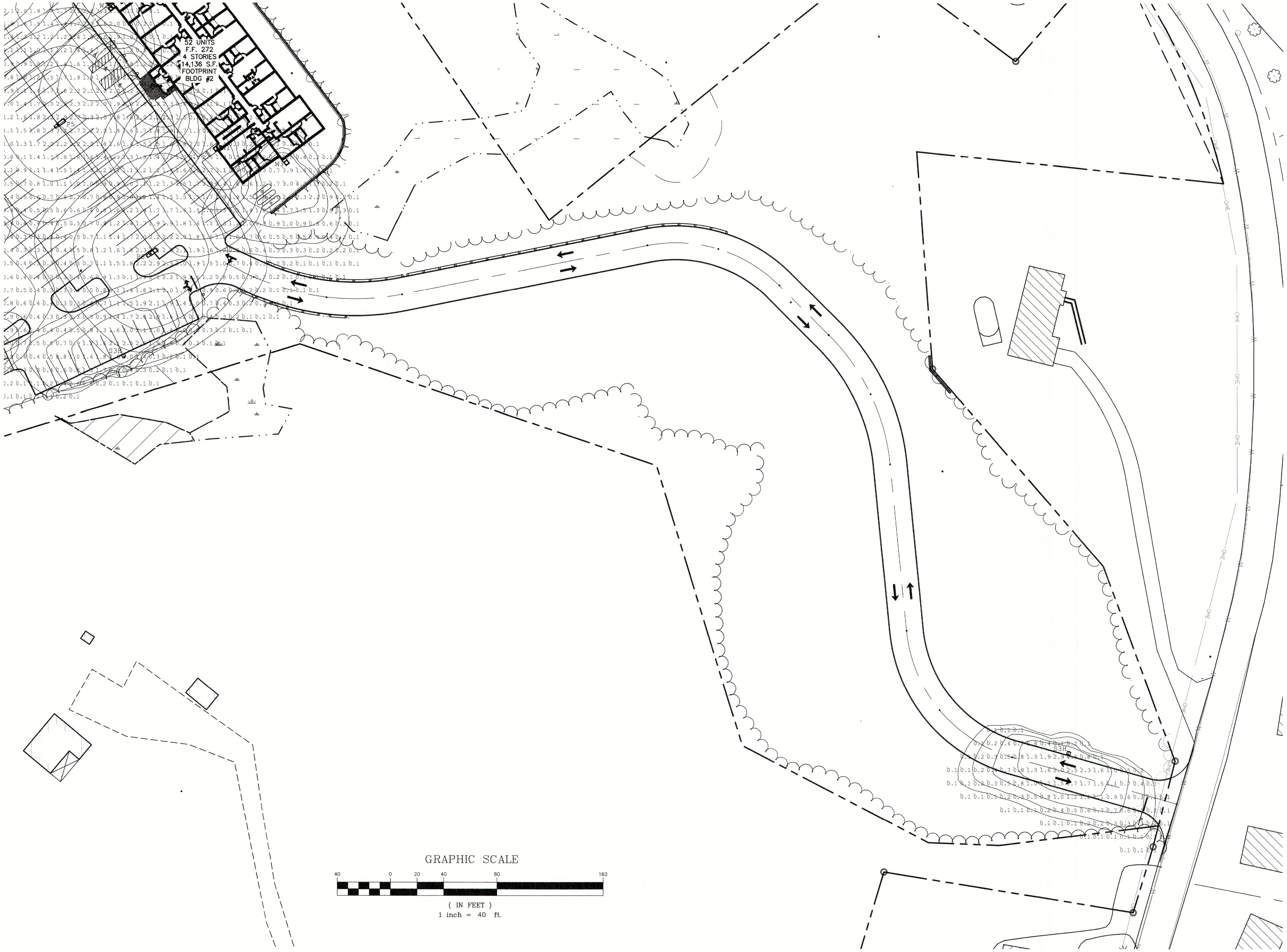
STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/23

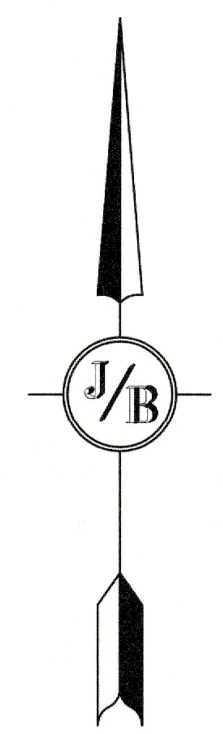
REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LANDSCAPE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
L2
SHEET 31 OF 61
JBE PROJECT NO. 20564





LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
2. CONTRACTOR SHALL INSTALL PROPOSED LIGHT POLES ACCORDING TO TOWN REGULATIONS.
3. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
4. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
5. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDLES.
6. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
7. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
8. NL INDICATES THAT THIS LUMINAIRE SHALL BE ON A NIGHT LIGHT CIRCUIT. FL INDICATES THAT THIS LUMINAIRE SHALL BE A FLOOD LIGHT FIXTURE. MOUNTING BRACKET FOR THIS FL FIXTURE SHALL BE MOUNTED 25' ABOVE BOTTOM OF POLE BASE FOR ALL LIGHT POLES CLOSEST TO STOREFRONT. THESE DESIGNATIONS INDICATE WHAT PHASE LIGHTS ARE WIRED TO (TYP).
9. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION DANIEL HEBERT. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY OR ONE OF THEIR SUPPLIERS, OR AN EQUAL LIGHTING DESIGN SHALL BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9646
LICENSED
PROFESSIONAL ENGINEER
8/17/2023

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E-MAIL: JBE@JONESANDBEACH.COM

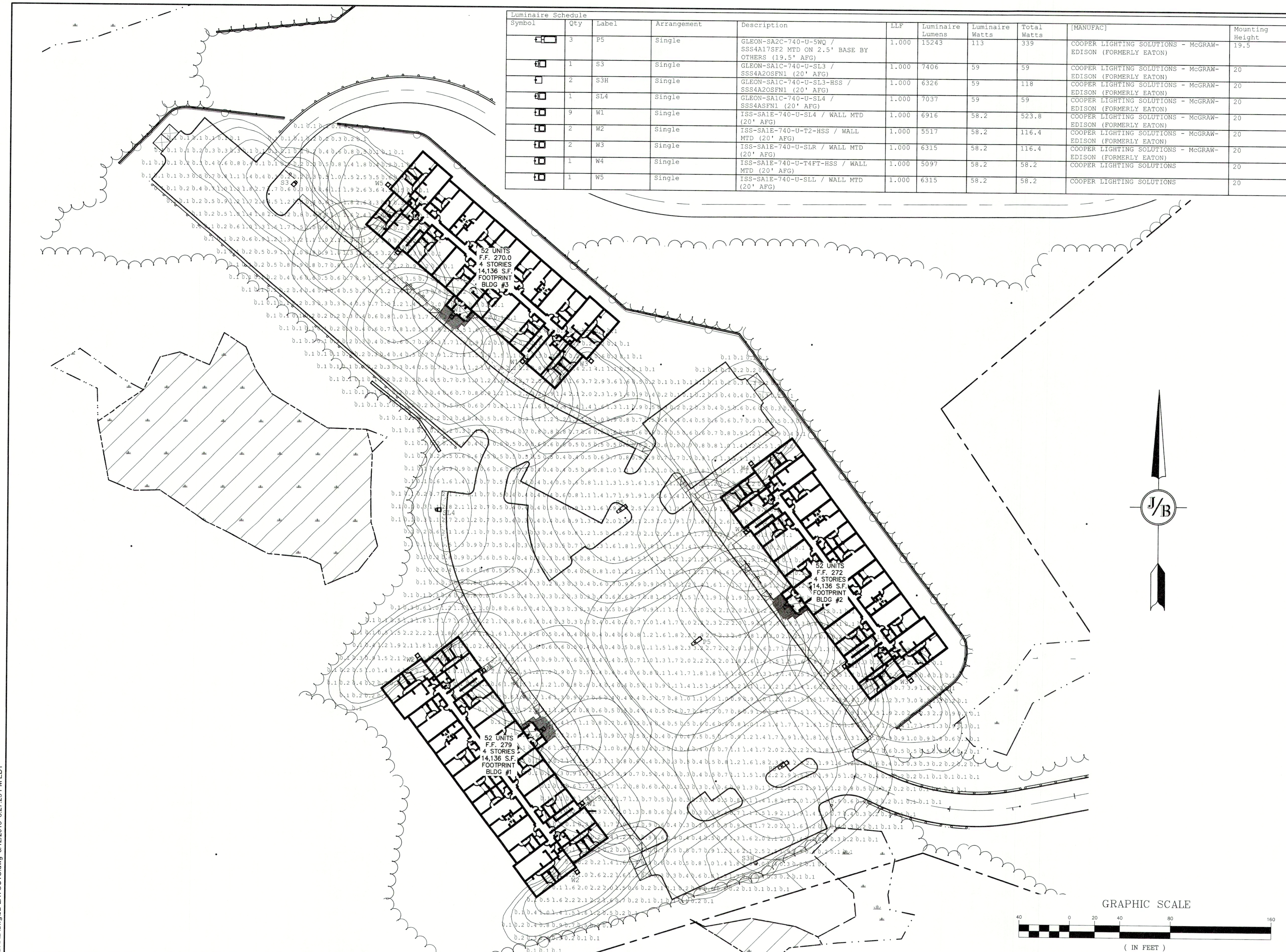
Plan Name:	LIGHTING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
L3

JBE PROJECT NO. 20564

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts	[MANUFAC]	Mounting Height
	3	P5	Single	GLEON-SA2C-740-U-5WQ / SSS4A17SF2 MTD ON 2.5' BASE BY OTHERS (19.5' AFG)	1.000	15243	113	339	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	19.5
	1	S3	Single	GLEON-SA1C-740-U-SL3 / SSS4A20SFN1 (20' AFG)	1.000	7406	59	59	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	2	S3H	Single	GLEON-SA1C-740-U-SL3-HSS / SSS4A20SFN1 (20' AFG)	1.000	6326	59	118	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	1	SL4	Single	GLEON-SA1C-740-U-SL4 / SSS4ASFN1 (20' AFG)	1.000	7037	59	59	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	9	W1	Single	ISS-SA1E-740-U-SL4 / WALL MTD (20' AFG)	1.000	6916	58.2	523.8	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	2	W2	Single	ISS-SA1E-740-U-T2-HSS / WALL MTD (20' AFG)	1.000	5517	58.2	116.4	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	2	W3	Single	ISS-SA1E-740-U-SLR / WALL MTD (20' AFG)	1.000	6315	58.2	116.4	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	1	W4	Single	ISS-SA1E-740-U-T4FT-HSS / WALL MTD (20' AFG)	1.000	5097	58.2	58.2	COOPER LIGHTING SOLUTIONS	20
	1	W5	Single	ISS-SA1E-740-U-SLL / WALL MTD (20' AFG)	1.000	6315	58.2	58.2	COOPER LIGHTING SOLUTIONS	20



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

8/17/2023

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Plan Name:	LIGHTING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

L4

SHEET 33 OF 61
JBE PROJECT NO. 20564

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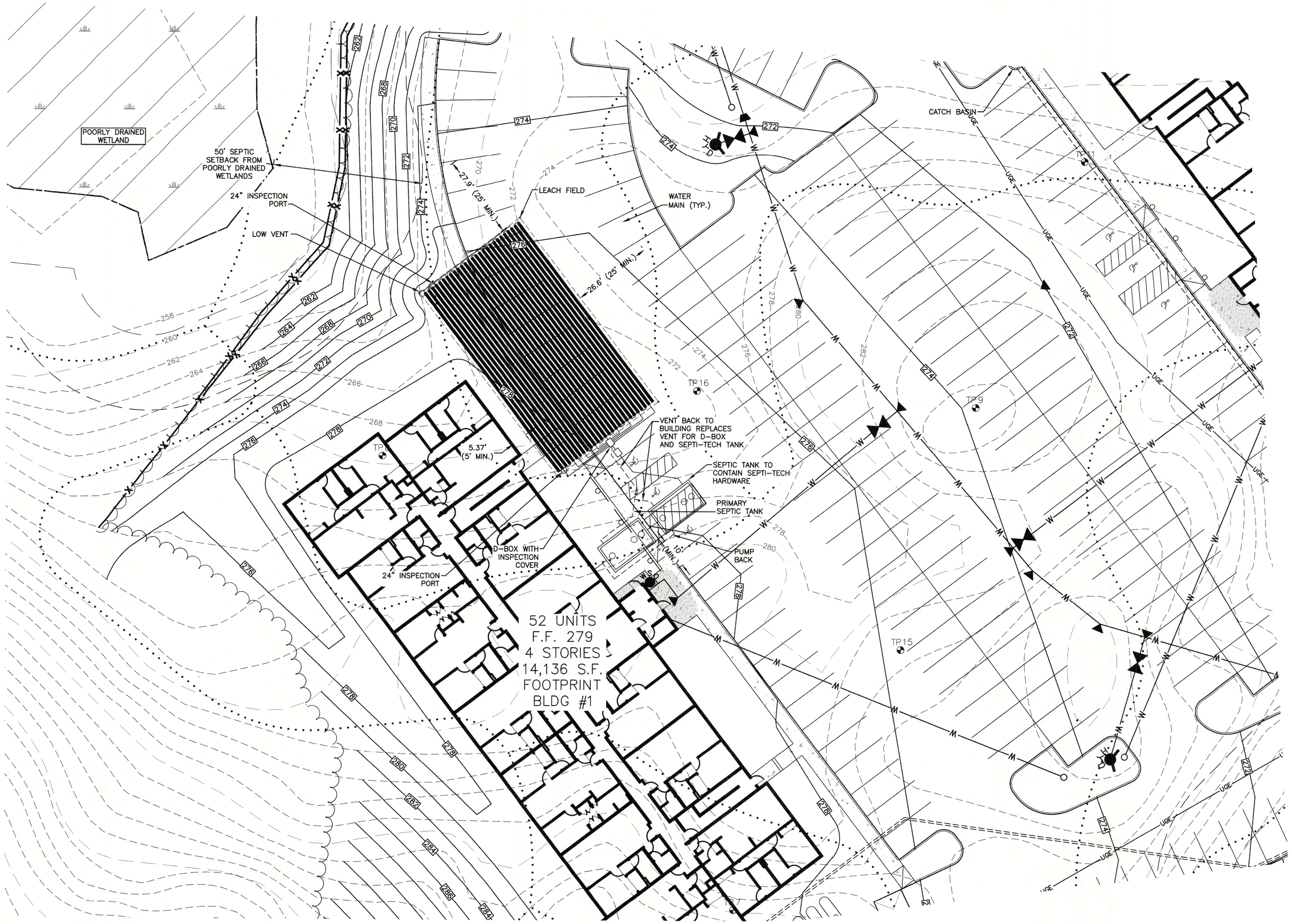
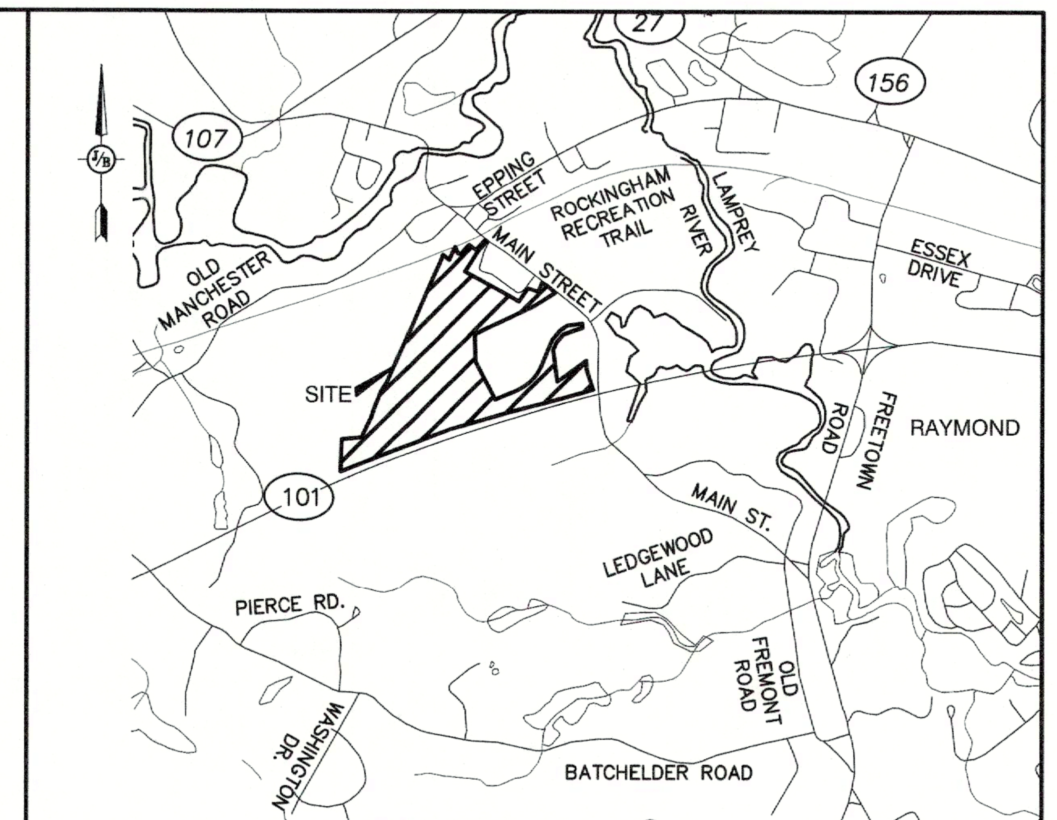
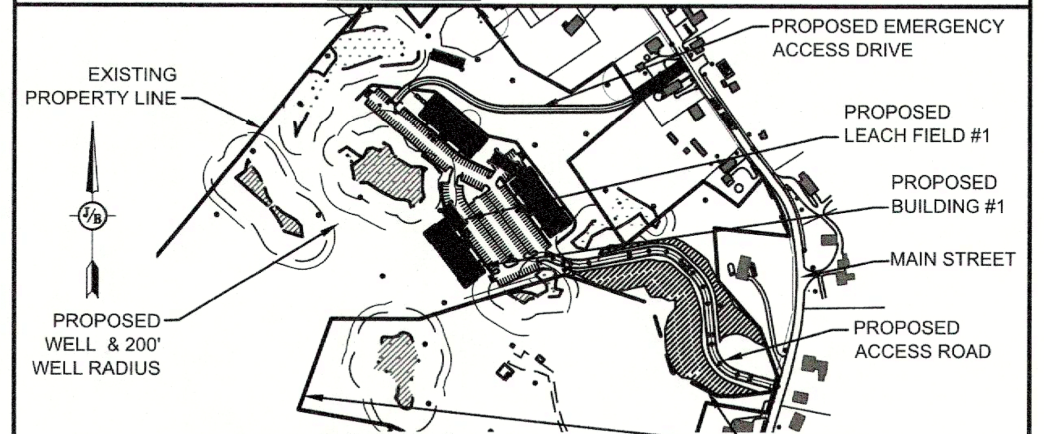




LOCUS SCALE: 1"=2000'



VICINITY SCALE: 1"=500'

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 feet

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PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25
R.C.R.D. BK. 1559 PG. 263

TOTAL LOT AREA: 75.11 ACRES

- CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SEPTIC PLAN FROM THE NHDES APPROVED PLAN
- THE BUILDER/SITE CONTRACTOR IS RESPONSIBLE TO CONFIRM THE ZONING DIMENSIONAL REQUIREMENTS AND SETBACK LINE REQUIREMENTS PRIOR TO INITIATING CONSTRUCTION OF THE PROPOSED HOUSE AND SEPTIC SYSTEM. THE ZONING ORDINANCE OF THE MUNICIPALITY IS TO BE COMPLIED WITH. THE BUILDER/SITE CONTRACTOR IS ALSO RESPONSIBLE TO CONTACT THE MUNICIPALITY REGARDING INSPECTIONS PRIOR TO AND DURING CONSTRUCTION, I.E. LOCATION AND BED-BOTTOM INSPECTIONS.

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9646
LICENSED
PROFESSIONAL ENGINEER
8/17/2023

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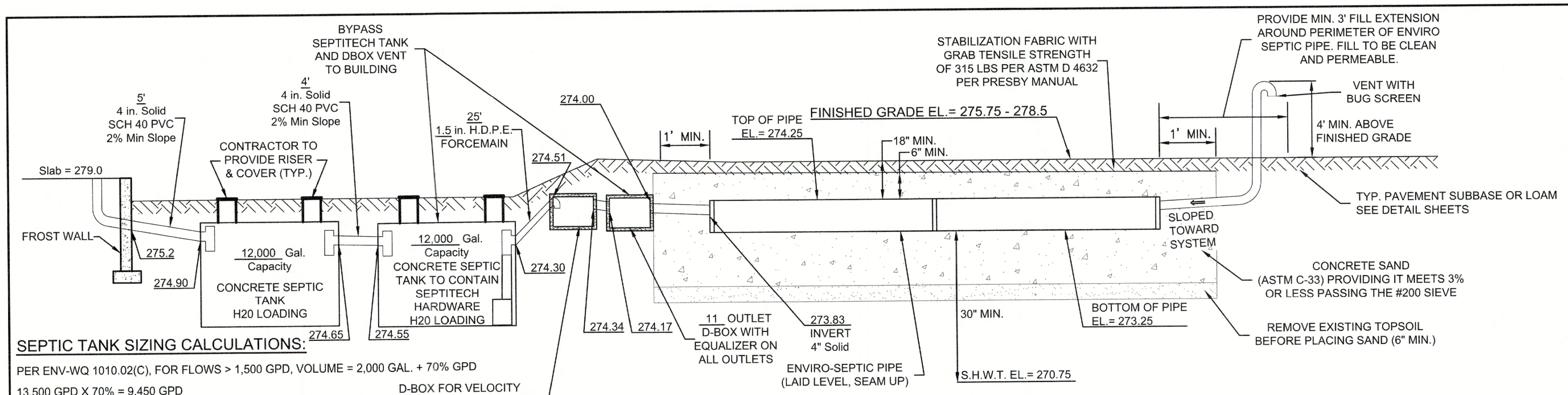
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EFFLUENT DISPOSAL DESIGN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
S1
SHEET 34 OF 61
JBE PROJECT NO. 20564



SEPTIC TANK SIZING CALCULATIONS:

PER ENV-WQ 1010.02(C), FOR FLOWS > 1,500 GPD, VOLUME = 2,000 GAL. + 70% GPD

13,500 GPD X 70% = 9,450 GPD

9,450 GALLONS + 2,000 = 11,450 GALLONS MINIMUM

12,000 GAL. PROVIDED.

CROSS SECTION - DISPOSAL SYSTEM

N.T.S.

SYSTEM TO BE BUILT FOR H20 LOADING

TEST PIT LOGS

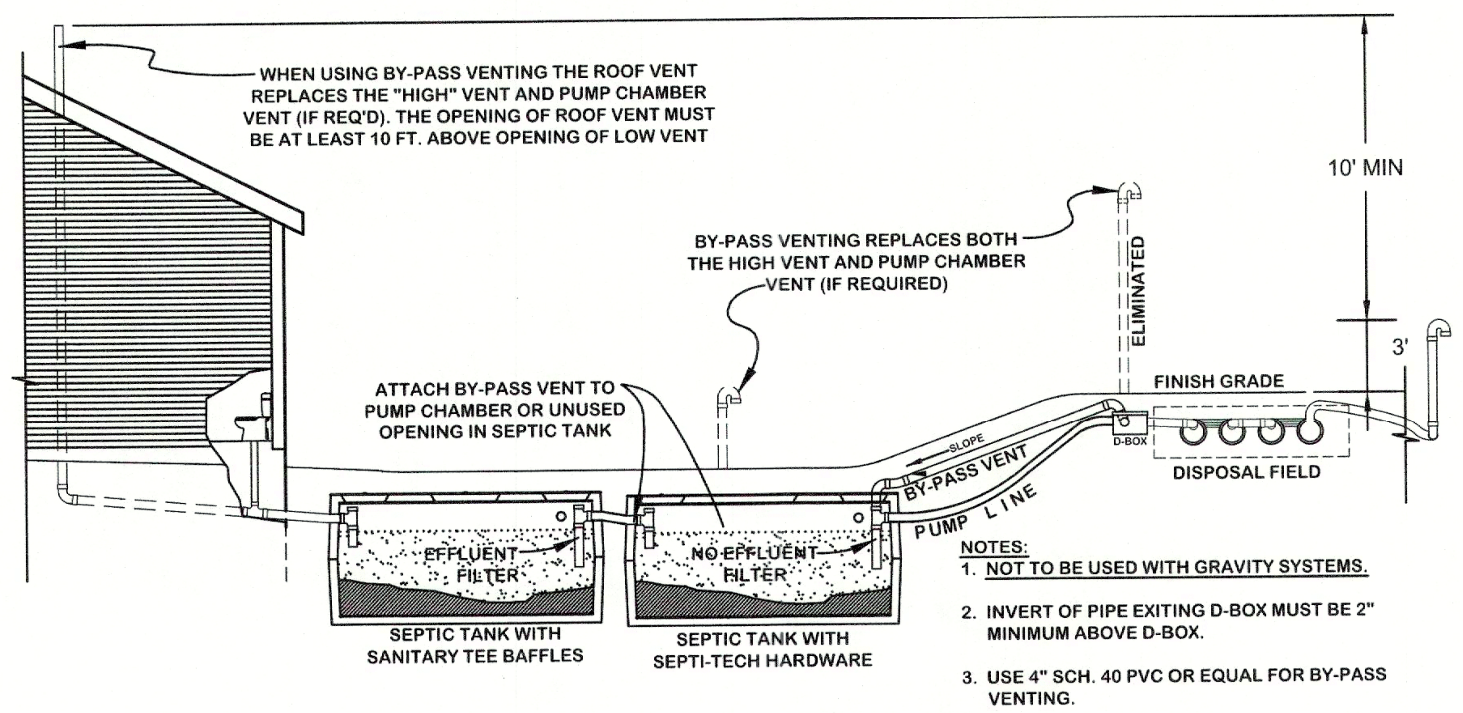
PERFORMED BY: LUKE HURLEY, GOVE ENVIRONMENTAL SERVICES, INC.
WITNESSED BY: CHARLIE SMART, TOWN OF RAYMOND, NH FIRE CHIEF

TEST PIT #16

		FOREST MAT
0"-4"	10YR3/2	FINE SANDY LOAM GRANULAR, FRIABLE
4"-15"	10YR4/4	FINE SANDY LOAM GRANULAR, FRIABLE

SHWT = 15"
NO ROOTS
H2O @ 15"
NO REFUSAL

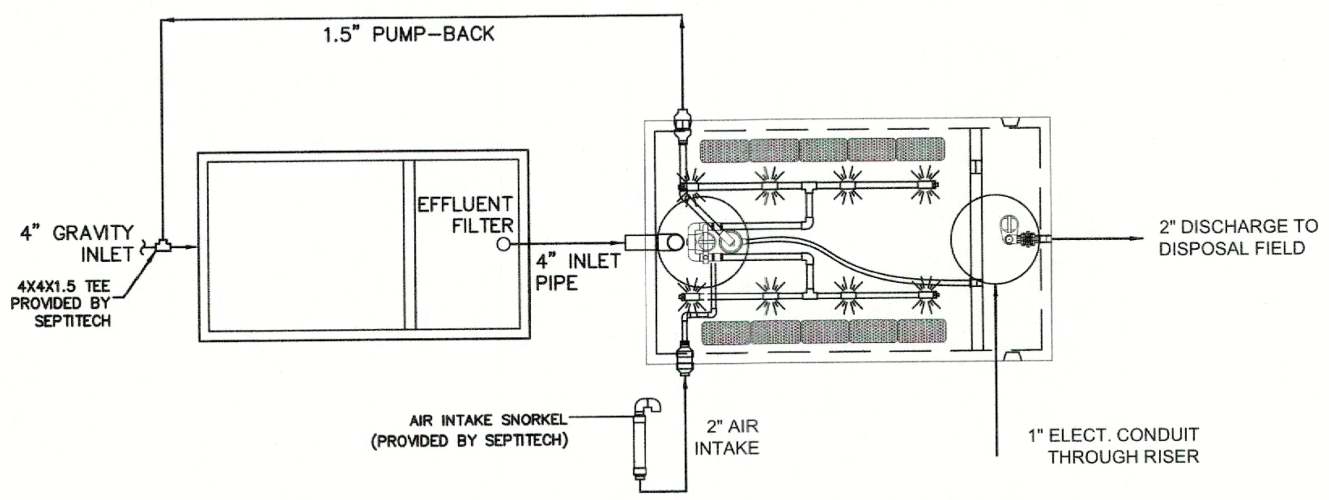
TEST PIT, DATE: FEBRUARY 24, 2022
PERC. TEST, DATE: FEBRAURY 24, 2022
12 MIN./INCH



NOTES:
1. NOT TO BE USED WITH GRAVITY SYSTEMS.
2. INVERT OF PIPE EXITING D-BOX MUST BE 2" MINIMUM ABOVE D-BOX.
3. USE 4" SCH. 40 PVC OR EQUAL FOR BY-PASS VENTING.
4. GLUE ALL PVC JOINTS OR EQUAL.

BY-PASS VENTING

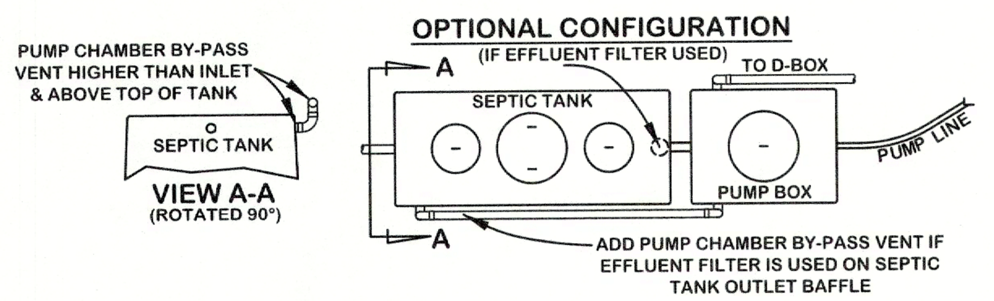
NOT TO SCALE



SEPTI-TECH PLAN VIEW

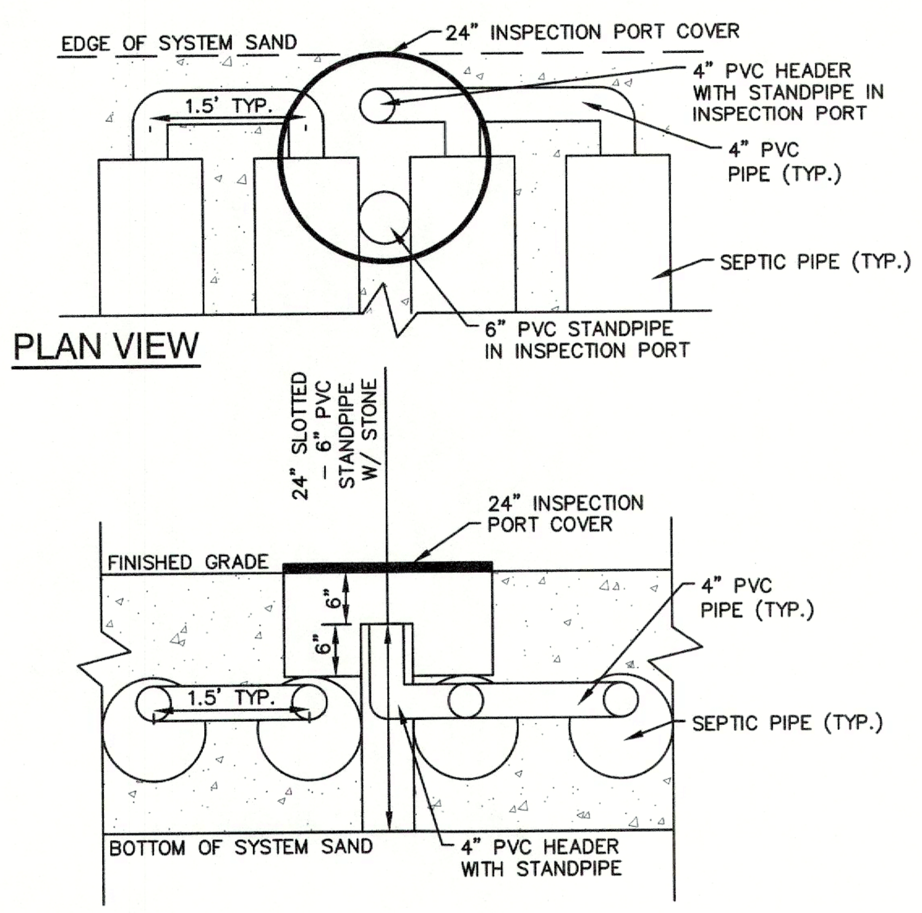
NOTE:

- CONTRACTOR IS RESPONSIBLE FOR PURCHASE AND INSTALLATION OF BOTH TANKS ON THE LOT. SEPTITECH WILL INSTALL THE EQUIPMENT AFTER THE TANK IS INSTALLED IN GROUND
- ALL PUMP SPECIFICATIONS AND MODELS TO BE SUPPLIED BY SEPTITECH
- SEPTITECH MODEL STAAR 18.0 COMMERCIAL SYSTEM REQUIRES A DISCHARGE PUMP UPGRADE THAT IS TO BE DETERMINED BY SEPTITECH.



BY-PASS VENTING W/ EFFLUENT FILTER

NOT TO SCALE



INSPECTION PORT DETAIL

NOT TO SCALE

ENVIRO-SEPTIC DESIGN CALCULATIONS

24 2-BEDROOM UNITS AND 28 1-BEDROOM UNITS (150 GPD/BEDROOM IN 2-BEDROOM UNITS & 225 GPD/1-BEDROOM UNITS)
(2 BEDROOMS * 24 UNITS * 150 GPD/BEDROOM) + (28 UNITS * 225 GPD/1-BEDROOM UNIT) = 13,500 GPD
13,500 GPD @ 12 MIN / INCH = 60*135 = 8,100 LF ENVIRO-SEPTIC PIPE REQUIRED
8,100 LF * 0.25 (75% PRE-TREATMENT SIZE EDUCTION) = 2,025 LF ENVIRO-SEPTIC PIPE REQUIRED
27 ROWS, 75 FT. LONG = 2025 LF OF ENVIRO-SEPTIC PIPE PROVIDED.
9 SERIES OF 3 ROWS.

BED DIMENSIONS 77' x 42'.

DESIGN INTENT

THE BOTTOM OF THE EFFLUENT DISPOSAL SYSTEM (E.D.S.) SHALL BE CONSTRUCTED AT ELEVATION 273.25. THIS IS APPROXIMATELY 1.25 FEET ABOVE ORIGINAL GROUND ON THE HIGH CONTOUR (272.0) OF THE DESIGNED E.D.S. (ENV-WQ-1003.13(aa))

GENERAL NOTES

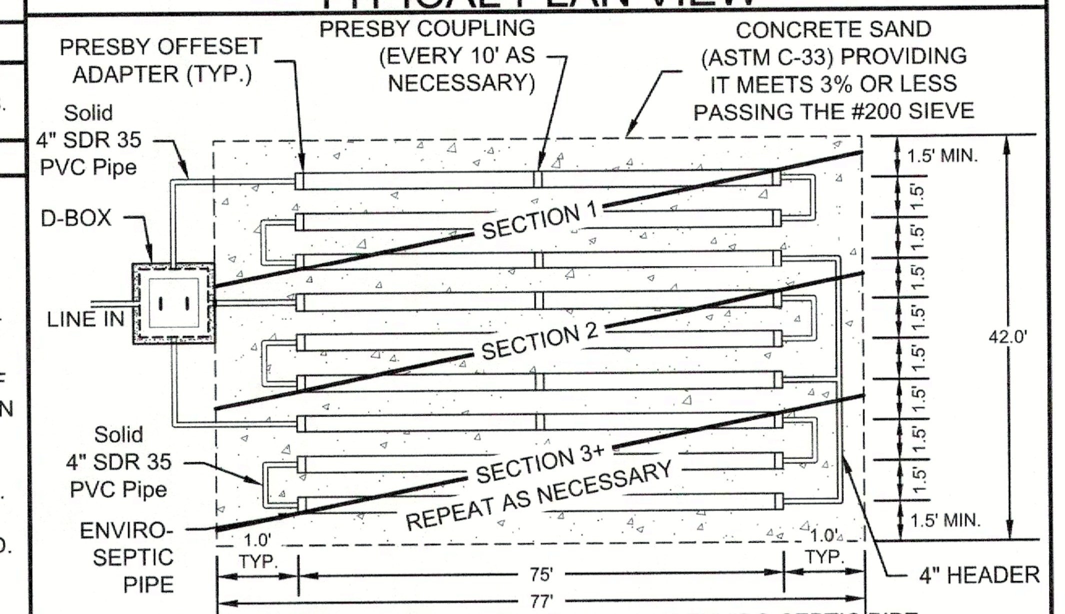
1. CONTRACTOR TO VERIFY ALL ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY DESIGNER OF ANY ABNORMAL CONDITIONS (HARDPAN OR SATURATED SOILS, LEDGE, ETC.) FOUND WHEN EXCAVATING PRIOR TO INSTALLATION OF THE SYSTEM.
2. LEACH BED CONSTRUCTION SHALL BE DONE WITH ENVIRO-SEPTIC LEACHING PIPE. FOR DETAILED INSTALLATION INFORMATION REFER TO "DESIGN AND INSTALLATION MANUAL FOR A.E.S. AND E.S. WASTEWATER TREATMENT SYSTEMS", 2019 EDITION (OR MOST CURRENT EDITION). CONTACT PRESBY ENVIRONMENTAL AT PHONE (800) 473-5298 OR WWW.PRESBYENVIRONMENTAL.COM
3. PER ENV-WQ 1016.03, CONTRACTOR IS TO PROTECT THE NATURAL ABSORPTION QUALITIES OF THE SOIL. DO NOT COMPACT OR DRIVE OVER THE AREA WITH EQUIPMENT AND PROTECT OPEN EXCAVATION TO PREVENT THE ENTRANCE OF SILT AND DEBRIS.
4. FILL AROUND ENVIRO PIPES TO BE ASTM C-33 (CONCRETE SAND) OR EQUAL
5. REMOVE TOPSOIL BEFORE PLACING FILL, 4" THICK LOAM & SEED AROUND PERIMETER OF FILL.
6. CONTRACTOR TO INSTALL A VENT WHEN PROVIDING MORE THAN 18" OF COVER. VENTING IS REQUIRED IF SYSTEM IS DESIGNED FOR H20 LOADING, OR ADVANCED ENVIRO-SEPTIC IS USED.
7. CROWN SYSTEM TO SHED RAINWATER; SLOPE SYSTEM AWAY FROM HOUSE.
8. SYSTEM WILL BE REPLACED IN SAME LOCATION IN CASE OF FAILURE.
9. DISTRIBUTION BOX SHALL HAVE FLOW EQUALIZERS INSTALLED IN THE OUTLET PORTS.
10. JOINTS ARE TO BE BELLED PVC OR STANDARD SLIP COLLARS.
11. PER ENV-WQ 1010.11, THE FIRST COMPARTMENT IN MULTI-COMPARTMENT SEPTIC TANKS MUST EQUAL AT LEAST 2/3 OF THE REQUIRED VOLUME.
12. PER ENV-WQ 1010.10, EXCEPTING LEDGE TANKS, THE LIQUID DEPTH OF THE SEPTIC TANK IS TO BE AT LEAST 40".
13. THE OUTLET BAFFLE SHALL BE A VENTED TEE WHICH SHALL EXTEND TO A DISTANCE BELOW THE SURFACE EQUAL TO 40% OF THE LIQUID DEPTH AND SHALL EXTEND ABOVE THE LIQUID LINE TO NOT LESS THAN ONE INCH FROM THE TOP OF THE TANK.
14. ALL CONNECTIONS BETWEEN A SEPTIC TANK AND THE PIPES LEADING TO AND EXITING FROM THE SEPTIC TANK SHALL BE SEALED WITH A WATERTIGHT, FLEXIBLE JOINT CONNECTOR THAT: (1) WILL ACCOMMODATE NORMAL MOVEMENT OF THE SEPTIC TANK WITHOUT LEAKING OR BREAKING; AND (2) HAS BEEN CERTIFIED BY ITS MANUFACTURER OR DISTRIBUTOR AS MEETING OR EXCEEDING THE STANDARD IN ASTM C 1644-06, SECTION 7.
15. CONTRACTOR TO PROVIDE RISERS FOR TANKS WITH MORE THAN 12" OF COVER.
16. IF GARBAGE GRINDERS ARE DESIRED, SEPTIC TANK SHALL BE 50% LARGER.
17. TOWN OF RAYMOND REQUIRES BED BOTTOM INSPECTION.
18. ENVIRO-SEPTIC TO BE SUPPLIED BY: ELIMINATOR SYSTEMS INC. (603) 868-2242) OR EQUAL.
19. TWO 12,000 GALLON SEPTIC TANKS & D-BOX TO BE SUPPLIED BY: SHEA CONCRETE. (800-696-7432) OR EQUAL.
20. ADVANCED NITRATE TREATMENT SYSTEM TO BE SUPPLIED BY: SEPTITECH / BIO-MICROBICS MAINE INC., 207-333-6940. PRODUCT MAY NOT BE SUBSTITUTED WITHOUT FIRST CONTACTING THE DESIGNER.
21. ROCKINGHAM COUNTY SOIL CONSERVATION SERVICE SOIL TYPE: NEWFIELDS.
22. ANY CHANGES TO SEPTIC TANK, BUILDING OR WELL LOCATION/ORIENTATION WILL REQUIRE AN AS-BUILT PLAN TO BE PROVIDED BY THE DESIGNER PRIOR TO NHDES FINAL INSPECTION.
23. PER ENV-WQ 1004.10, SYSTEMS OVER 2,500 GPD ARE TO BE INSPECTED BY DESIGNER.
24. PER ENV-WQ 1003.13(a)(3) THERE ARE NO KNOWN BURIAL SITES OR CEMETERIES ON THE LOT WITHIN 100' OF ANY COMPONENT OF THE ISDS.
25. 50' SETBACK FROM POORLY DRAINED SOILS.
26. DISTANCE FROM SEWER PIPE TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF SDR26 OR EQUIVALENT IS USED IN ACCORDANCE WITH ENV-WQ 1008.04(c)(1).
27. DISTANCE FROM SEPTIC TANK TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF THE SEPTIC TANK IS EITHER MADE FROM PLASTIC OR COATED WITH A SEALANT TO PREVENT INFILTRATION AND EXFILTRATION IN ACCORDANCE WITH ENV-WQ 1008.04(c)(2).

REFERENCES

APPROVAL FOR CONSTRUCTION IS VALID FOR 4 YEARS FROM DATE OF ISSUE

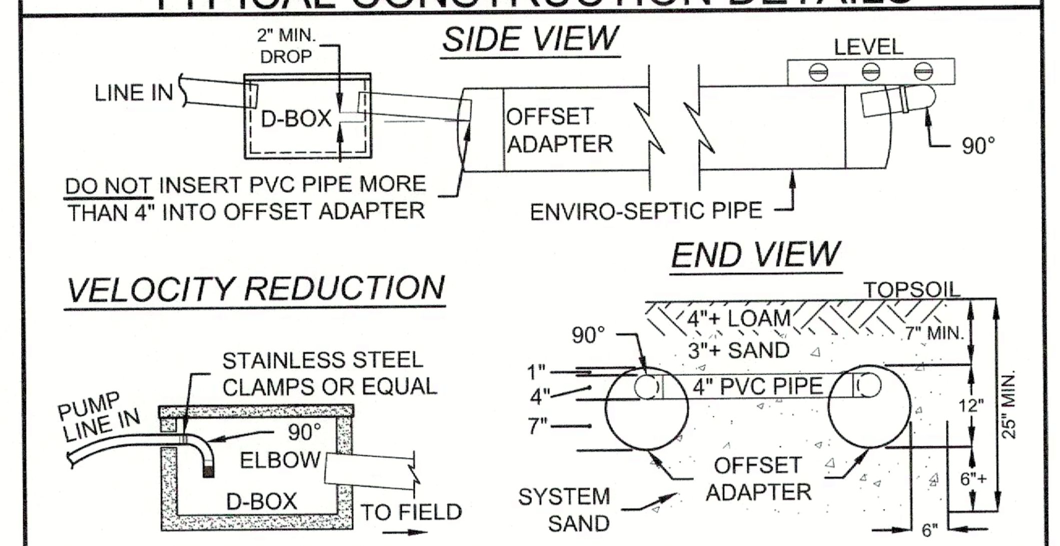
- GROUNDWATER DISCHARGE PERMIT #__________ ISSUED:________.

TYPICAL PLAN VIEW



ACTUAL SYSTEM UTILIZES 27 ROWS (9 SECTIONS) OF 12" ENVIRO-SEPTIC PIPE. SEE PLAN VIEW (SHEET S1) FOR ACTUAL LAYOUT/CONFIGURATION OF SYSTEM.

TYPICAL CONSTRUCTION DETAILS



WETLAND DELINEATION

WETLANDS ON-SITE WERE DELINEATED BY: GOVE ENVIRONMENTAL SERVICES, INC. 8 CONTINENTAL DRIVE, UNIT H, EXETER, NH

DATE: WINTER, 2021 THROUGH AUTUMN, 2022

OWNER NOTES

- KNOW THE LOCATION OF YOUR SEPTIC TANK AND LEACHING AREA.
- INSPECT YOUR SEPTIC TANK YEARLY. HAVE THE SEPTIC TANK PUMPED AS NEEDED BUT AT LEAST ONCE EVERY THREE YEARS.
- DO NOT FLUSH BULKY ITEMS SUCH AS DIAPERS, SANITARY PADS OR BABY WIPES.
- DO NOT FLUSH TOXIC CHEMICALS SUCH AS PAINT THINNERS, DRANO, PESTICIDES, OR CHLORINE, AS THEY MAY KILL THE NECESSARY BACTERIA IN THE SEPTIC TANK.
- REPAIR LEAKING FIXTURES IN THE BUILDING PROMPTLY.
- BE CONSERVATIVE WITH WATER USE, SPREAD OUT USE OVER TIME, AND USE WATER-REDUCING FIXTURES WHENEVER AND WHEREVER POSSIBLE. TOO MUCH USE IN A SHORT TIME CAN OVERLOAD THE SYSTEM, WHICH MAY LEAD TO FAILURE.
- MOW YOUR LEACHING AREA REGULARLY. PREVENT DEEP-ROOTED TREES AND SHRUBS FROM GROWING ON AND ADJACENT TO YOUR LEACHING AREA.
- NO VEHICULAR TRAVEL, LIVESTOCK TRAVEL, OR SNOW REMOVAL IN AREA OF SYSTEM, UNLESS SPECIFICALLY DESIGNED FOR H20 LOADING.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25
R.C.R.D. BK. 1559 PG. 263

TOTAL LOT AREA: 75.11 ACRES

- CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SEPTIC PLAN FROM THE NHDES APPROVED PLAN
- THE BUILDER/SITE CONTRACTOR IS RESPONSIBLE TO CONFIRM THE ZONING DIMENSIONAL REQUIREMENTS AND SETBACK LINE REQUIREMENTS PRIOR TO INITIATING CONSTRUCTION OF THE PROPOSED BUILDING AND SEPTIC SYSTEM. THE ZONING ORDINANCE OF THE MUNICIPALITY IS TO BE COMPLIED WITH. THE BUILDER/SITE CONTRACTOR IS ALSO RESPONSIBLE TO CONTACT THE MUNICIPALITY REGARDING INSPECTIONS PRIOR TO AND DURING CONSTRUCTION, I.E. LOCATION AND BED-BOTTOM INSPECTIONS.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

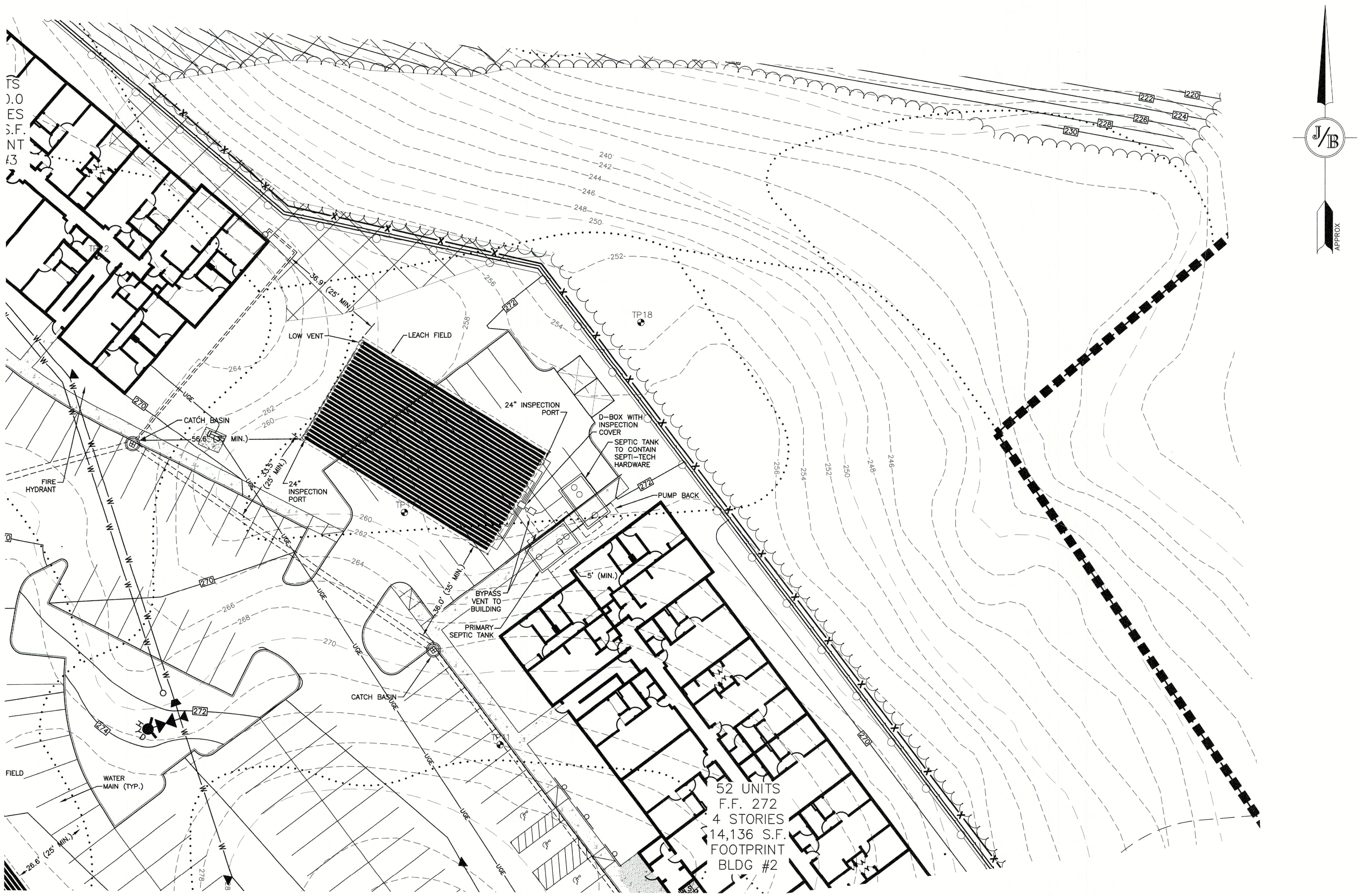
STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

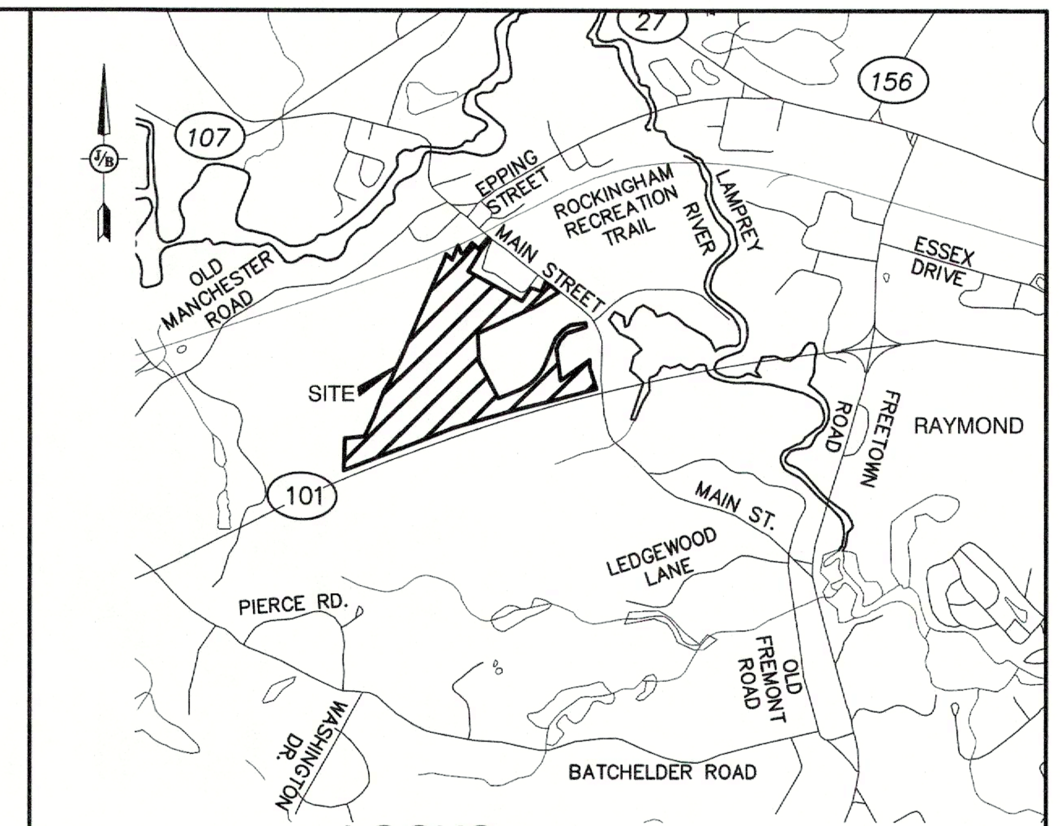
REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

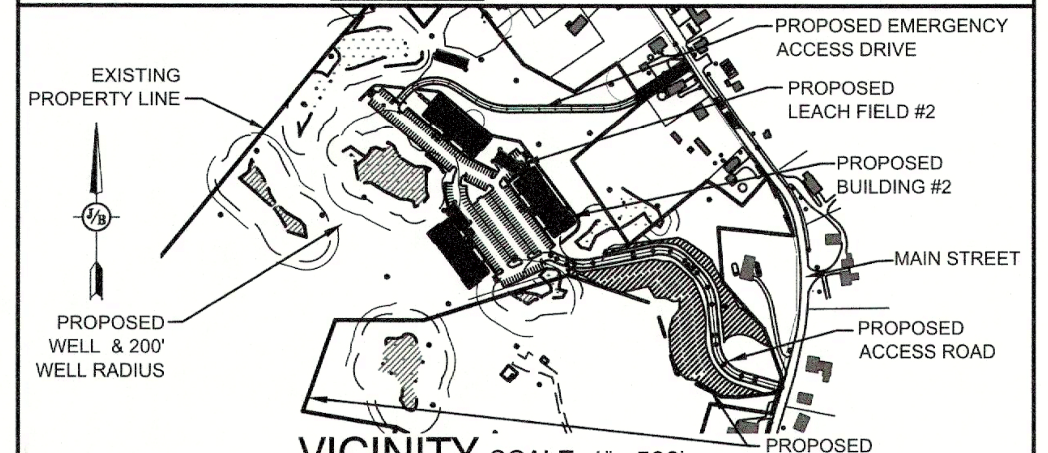
Plan Name:	EFFLUENT DISPOSAL DESIGN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
S2
SHEET 35 OF 61
JBE PROJECT NO. 20564





LOCUS SCALE: 1"=2000'



VICINITY SCALE: 1"=500'

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GRAPHIC SCALE

(IN FEET)
1 inch = 20 feet

PROJECT PARCEL	
TOWN OF RAYMOND TAX MAP 23, LOT 25 R.C.R.D. BK. 1559 PG. 263	- CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SEPTIC PLAN FROM THE NHDES APPROVED PLAN - THE BUILDER/SITE CONTRACTOR IS RESPONSIBLE TO CONFIRM THE ZONING DIMENSIONAL REQUIREMENTS AND SETBACK LINE REQUIREMENTS PRIOR TO INITIATING CONSTRUCTION OF THE PROPOSED HOUSE AND SEPTIC SYSTEM. THE ZONING ORDINANCE OF THE MUNICIPALITY IS TO BE COMPLIED WITH. THE BUILDER/SITE CONTRACTOR IS ALSO RESPONSIBLE TO CONTACT THE MUNICIPALITY REGARDING INSPECTIONS PRIOR TO AND DURING CONSTRUCTION, I.E. LOCATION AND BED-BOTTOM INSPECTIONS.
TOTAL LOT AREA: 75.11 ACRES	

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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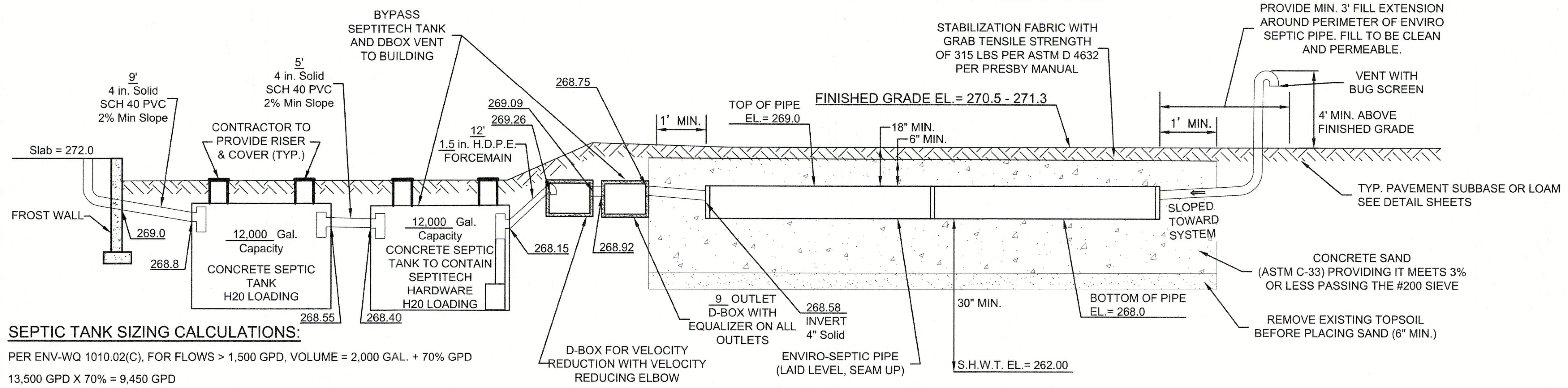
DRAWING No.
S3
SHEET 36 OF 61
JBE PROJECT NO. 20564



SEPTIC TANK SIZING CALCULATIONS:

PER ENV-WQ 1010.02(C), FOR FLOWS > 1,500 GPD, VOLUME = 2,000 GAL. + 70% GPD

13,500 GPD X 70% = 9,450 GPD

9,450 GALLONS + 2,000 = 11,450 GALLONS MINIMUM

12,000 GAL. PROVIDED

CROSS SECTION - DISPOSAL SYSTEM

N.T.S.

SYSTEM TO BE BUILT FOR H20 LOADING

TEST PIT LOGS

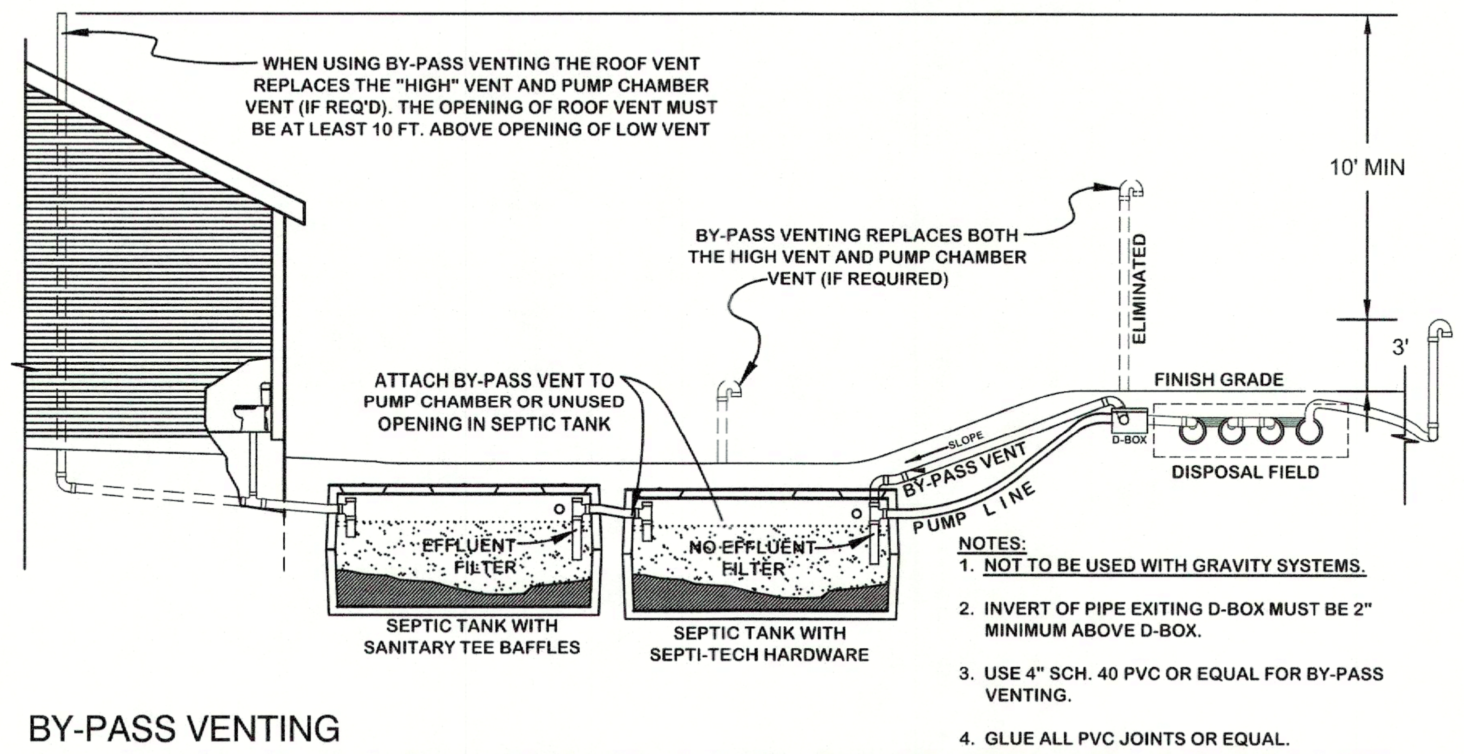
PERFORMED BY: LUKE HURLEY, GOVE ENVIRONMENTAL SERVICES, INC.
WITNESSED BY: CHARLIE SMART, TOWN OF RAYMOND, NH

TEST PIT #17

		FOREST MAT
0"-4"	10YR3/2	FINE SANDY LOAM GRANULAR, FRIABLE
4"-20"	10YR5/6	FINE SANDY LOAM GRANULAR, FRIABLE
20"-42"	2.5Y5/3	FINE SANDY LOAM GRANULAR FRIABLE

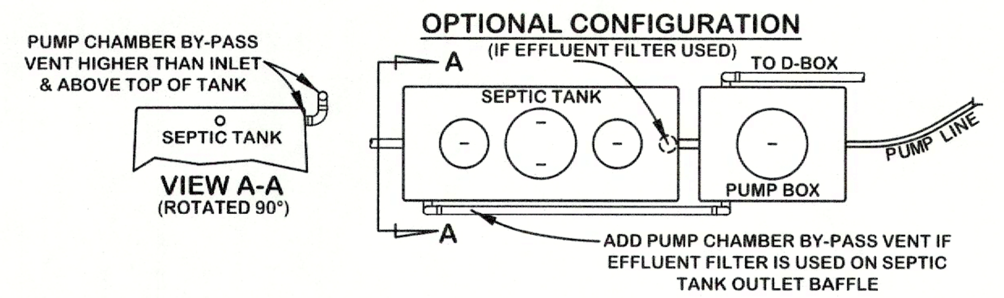
SHWT NOT FOUND
NO ROOTS
NO H_2O
REFUSAL = 42"

◕ TEST PIT, DATE: FEBRUARY 24, 2022
◐ PERC. TEST, DATE: FEBRAURY 24, 2022
12 MIN./INCH



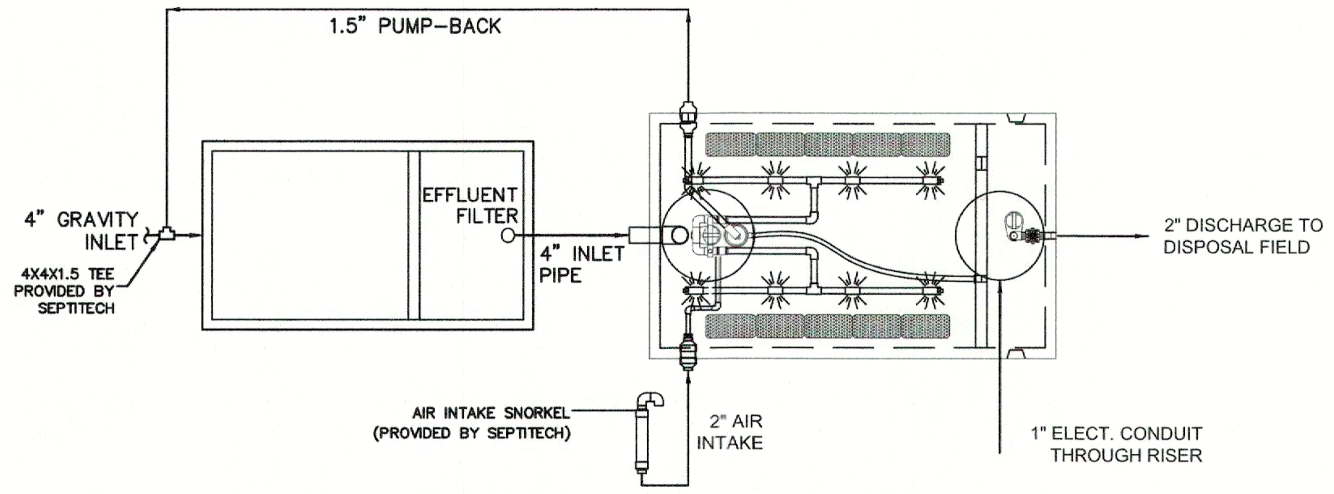
BY-PASS VENTING

NOT TO SCALE



BY-PASS VENTING W/ EFFLUENT FILTER

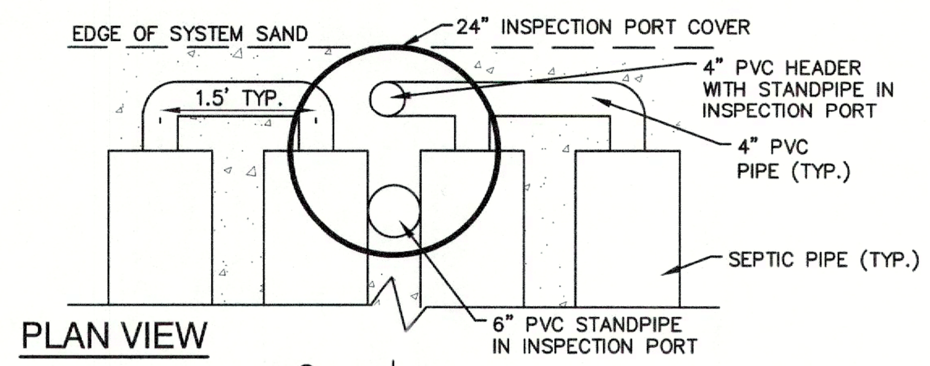
NOT TO SCALE



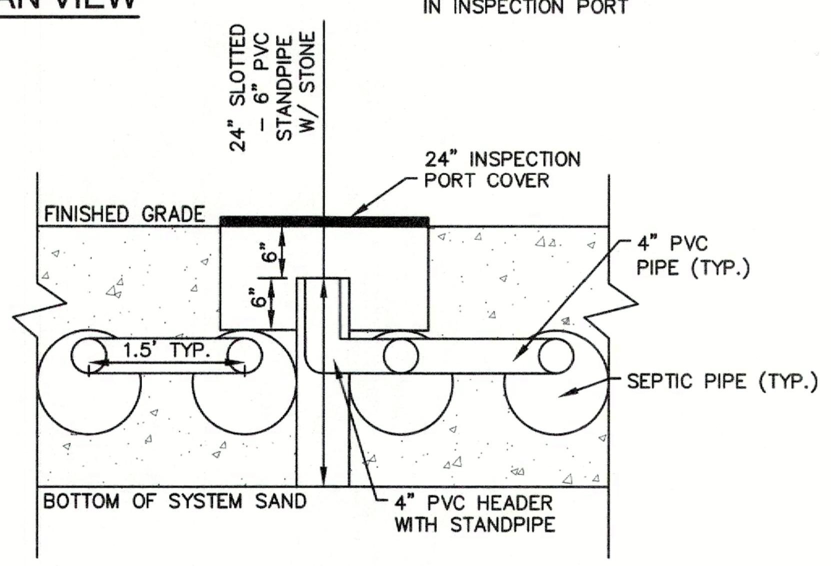
SEPTI-TECH PLAN VIEW

NOTE:

- CONTRACTOR IS RESPONSIBLE FOR PURCHASE AND INSTALLATION OF BOTH TANKS ON THE LOT. SEPTITECH WILL INSTALL THE EQUIPMENT AFTER THE TANK IS INSTALLED IN GROUND
- ALL PUMP SPECIFICATIONS AND MODELS TO BE SUPPLIED BY SEPTITECH
- SEPTITECH MODEL STAAR 18.0 COMMERCIAL SYSTEM REQUIRES A DISCHARGE PUMP UPGRADE THAT IS TO BE DETERMINED BY SEPTITECH.



PLAN VIEW



SECTION VIEW

INSPECTION PORT DETAIL

NOT TO SCALE

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digsafe.com

ENVIRO-SEPTIC DESIGN CALCULATIONS

24 2-BEDROOM UNITS AND 28 1-BEDROOM UNITS (150 GPD/BEDROOM IN 2-BEDROOM UNITS & 225 GPD/1-BEDROOM UNITS)
(2 BEDROOMS * 24 UNITS * 150 GPD/BEDROOM) + (28 UNITS * 225 GPD/1-BEDROOM UNIT) = 13,500 GPD
13,500 GPD @ 12 MIN / INCH = 60*135 = 8,100 LF ENVIRO-SEPTIC PIPE REQUIRED
8,100 LF * 0.25 (75% PRE-TREATMENT SIZE EDUCTION) = 2,025 LF ENVIRO-SEPTIC PIPE REQUIRED
27 ROWS, 100 FT. LONG = 2,025 LF OF ENVIRO-SEPTIC PIPE PROVIDED.
9 SERIES OF 3 ROWS.

BED DIMENSIONS 77' x 42' .

DESIGN INTENT

THE BOTTOM OF THE EFFLUENT DISPOSAL SYSTEM (E.D.S.) SHALL BE CONSTRUCTED AT ELEVATION 268.0 . THIS IS APPROXIMATELY 2 FEET ABOVE ORIGINAL GROUND ON THE HIGH CONTOUR (266.0) OF THE DESIGNED E.D.S. (ENV-WQ-1003.13(aa))

GENERAL NOTES

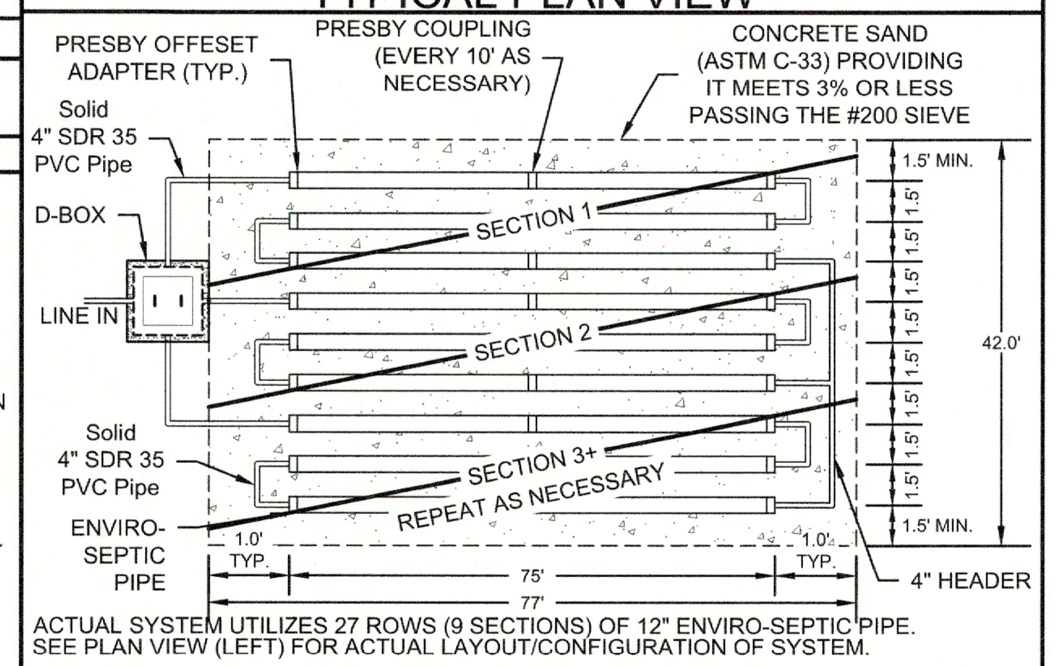
1. CONTRACTOR TO VERIFY ALL ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY DESIGNER OF ANY ABNORMAL CONDITIONS (HARDPAN OR SATURATED SOILS, LEDGE, ETC.) FOUND WHEN EXCAVATING PRIOR TO INSTALLATION OF THE SYSTEM.
2. LEACH BED COMPRISED OF ENVIRO-SEPTIC LEACHING PIPE. FOR DETAILED INSTALLATION INFORMATION REFER TO "DESIGN AND INSTALLATION MANUAL FOR A.E.S. AND E.S. WASTEWATER TREATMENT SYSTEMS", 2019 EDITION (OR MOST CURRENT EDITION). CONTACT PRESBY ENVIRONMENTAL AT PHONE (800) 473-5298 OR WWW.PRESBYENVIRONMENTAL.COM
3. PER ENV-WQ 1016.03, CONTRACTOR IS TO PROTECT THE NATURAL ABSORPTION QUALITIES OF THE SOIL. DO NOT COMPACT OR DRIVE OVER THE AREA WITH EQUIPMENT AND PROTECT OPEN EXCAVATION TO PREVENT THE ENTRANCE OF SILT AND DEBRIS.
4. FILL AROUND ENVIRO PIPES TO BE ASTM C-33 (CONCRETE SAND) OR EQUAL
5. REMOVE TOPSOIL BEFORE PLACING FILL, 4" THICK LOAM & SEED AROUND PERIMETER OF FILL.
6. CONTRACTOR TO INSTALL A VENT WHEN PROVIDING MORE THAN 18" OF COVER. VENTING IS REQUIRED IF SYSTEM IS DESIGNED FOR H20 LOADING, OR ADVANCED ENVIRO-SEPTIC IS USED.
7. CROWN SYSTEM TO SHED RAINWATER; SLOPE SYSTEM AWAY FROM HOUSE.
8. SYSTEM WILL BE REPLACED IN SAME LOCATION IN CASE OF FAILURE.
9. DISTRIBUTION BOX SHALL HAVE FLOW EQUALIZERS INSTALLED IN THE OUTLET PORTS.
10. JOINTS ARE TO BE BELLED PVC OR STANDARD SLIP COLLARS.
11. PER ENV-WQ 1010.11, THE FIRST COMPARTMENT IN MULTI-COMPARTMENT SEPTIC TANKS MUST EQUAL AT LEAST 2/3 OF THE REQUIRED VOLUME.
12. PER ENV-WQ 1010.10, EXCEPTING LEDGE TANKS, THE LIQUID DEPTH OF THE SEPTIC TANK IS TO BE AT LEAST 40".
13. THE OUTLET BAFFLE SHALL BE A VENTED TEE WHICH SHALL EXTEND TO A DISTANCE BELOW THE SURFACE EQUAL TO 40% OF THE LIQUID DEPTH AND SHALL EXTEND ABOVE THE LIQUID LINE TO NOT LESS THAN ONE INCH FROM THE TOP OF THE TANK.
14. ALL CONNECTIONS BETWEEN A SEPTIC TANK AND THE PIPES LEADING TO AND EXITING FROM THE SEPTIC TANK SHALL BE SEALED WITH A WATERTIGHT, FLEXIBLE JOINT CONNECTOR THAT: (1) WILL ACCOMMODATE NORMAL MOVEMENT OF THE SEPTIC TANK WITHOUT LEAKING OR BREAKING; AND (2) HAS BEEN CERTIFIED BY ITS MANUFACTURER OR DISTRIBUTOR AS MEETING OR EXCEEDING THE APPLICABLE STANDARD IN ASTM C 1644-06, SECTION 7.
15. CONTRACTOR TO PROVIDE RISERS FOR TANKS WITH MORE THAN 12" OF COVER.
16. IF GARBAGE GRINDERS ARE DESIRED, SEPTIC TANK SHALL BE 50% LARGER.
17. TOWN OF RAYMOND REQUIRES BED BOTTOM INSPECTION.
18. ENVIRO-SEPTIC TO BE SUPPLIED BY: ELIMINATOR SYSTEMS INC. (603) 868-2242) OR EQUAL.
19. TWO 12,000 GALLON SEPTIC TANKS & D-BOX TO BE SUPPLIED BY: SHEA CONCRETE. (800-696-7432) OR EQUAL.
20. ADVANCED NITRATE TREATMENT SYSTEM TO BE SUPPLIED BY: SEPTITECH / BIO-MICROBICS MAINE INC., 207-333-6940. PRODUCT MAY NOT BE SUBSTITUTED WITHOUT FIRST CONTACTING THE DESIGNER.
21. ROCKINGHAM COUNTY SOIL CONSERVATION SERVICE SOIL TYPE: CANTON.
22. ANY CHANGES TO SEPTIC TANK, BUILDING OR WELL LOCATION/ORIENTATION WILL REQUIRE AN AS-BUILT PLAN TO BE PROVIDED BY THE DESIGNER PRIOR TO NHDES FINAL INSPECTION.
23. PER ENV-WQ 1004.10, SYSTEMS OVER 2,500 GPD ARE TO BE INSPECTED BY DESIGNER.
24. PER ENV-WQ 1003.13(a)(3) THERE ARE NO KNOWN BURIAL SITES OR CEMETERIES ON THE LOT WITHIN 100' OF ANY COMPONENT OF THE ISDS.
25. 50' SETBACK FROM POORLY DRAINED SOILS.
26. DISTANCE FROM SEWER PIPE TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF SDR26 OR EQUIVALENT IS USED IN ACCORDANCE WITH ENV-WQ 1008.04(c)(1).
27. DISTANCE FROM SEPTIC TANK TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF THE SEPTIC TANK IS EITHER MADE FROM PLASTIC OR COATED WITH A SEALANT TO PREVENT INFILTRATION AND EXFILTRATION IN ACCORDANCE WITH ENV-WQ 1008.04(c)(2).

REFERENCES

APPROVAL FOR CONSTRUCTION IS VALID FOR 4 YEARS FROM DATE OF ISSUE

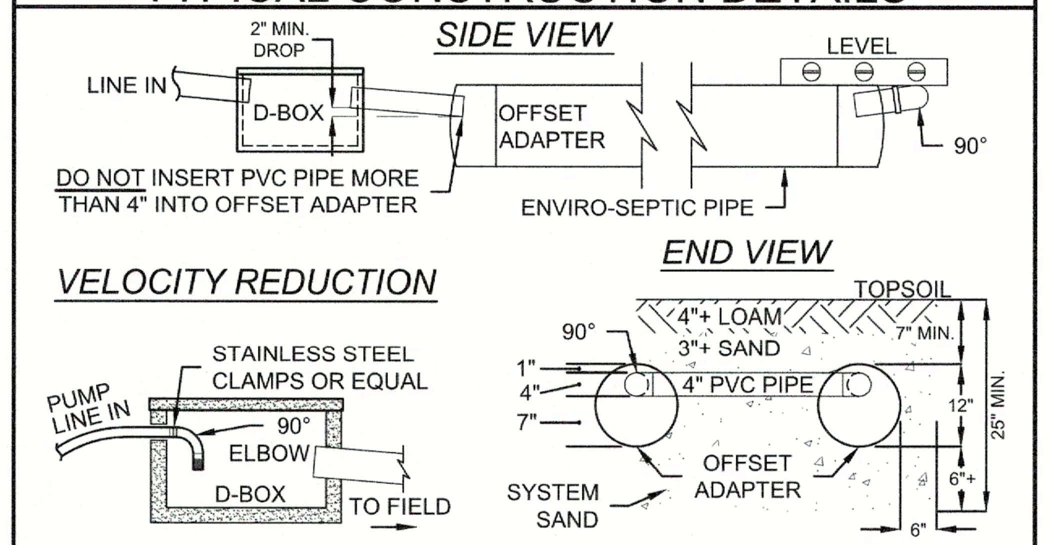
- GROUNDWATER DISCHARGE PERMIT #________________ ISSUED:__________

TYPICAL PLAN VIEW



ACTUAL SYSTEM UTILIZES 27 ROWS (9 SECTIONS) OF 12" ENVIRO-SEPTIC PIPE. SEE PLAN VIEW (LEFT) FOR ACTUAL LAYOUT/CONFIGURATION OF SYSTEM.

TYPICAL CONSTRUCTION DETAILS



WETLAND DELINEATION

WETLANDS ON-SITE WERE DELINEATED BY: GOVE ENVIRONMENTAL SERVICES, INC. 8 CONTINENTAL DRIVE, UNIT H, EXETER, NH

DATE: WINTER, 2021 THROUGH AUTUMN, 2022 - THERE ARE NO WETLANDS WITHIN 75' OF THE PROPOSED ISDS

OWNER NOTES

- KNOW THE LOCATION OF YOUR SEPTIC TANK AND LEACHING AREA.
- INSPECT YOUR SEPTIC TANK YEARLY. HAVE THE SEPTIC TANK PUMPED AS NEEDED BUT AT LEAST ONCE EVERY THREE YEARS.
- DO NOT FLUSH BULKY ITEMS SUCH AS DIAPERS, SANITARY PADS OR BABY WIPES.
- DO NOT FLUSH TOXIC CHEMICALS SUCH AS PAINT THINNERS, DRANO, PESTICIDES, OR CHLORINE, AS THEY MAY KILL THE NECESSARY BACTERIA IN THE SEPTIC TANK.
- REPAIR LEAKING FIXTURES IN THE BUILDING PROMPTLY.
- BE CONSERVATIVE WITH WATER USE, SPREAD OUT USE OVER TIME, AND USE WATER-REDUCING FIXTURES WHENEVER AND WHEREVER POSSIBLE. TOO MUCH USE IN A SHORT TIME CAN OVERLOAD THE SYSTEM, WHICH MAY LEAD TO FAILURE.
- MOW YOUR LEACHING AREA REGULARLY. PREVENT DEEP-ROOTED TREES AND SHRUBS FROM GROWING ON AND ADJACENT TO YOUR LEACHING AREA.
- NO VEHICULAR TRAVEL, LIVESTOCK TRAVEL, OR SNOW REMOVAL IN AREA OF SYSTEM, UNLESS SPECIFICALLY DESIGNED FOR H20 LOADING.

PROJECT PARCEL

TOWN OF RAYMOND
TAX MAP 23, LOT 25
R.C.R.D. BK. 1559 PG. 263

TOTAL LOT AREA: 75.11 ACRES

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Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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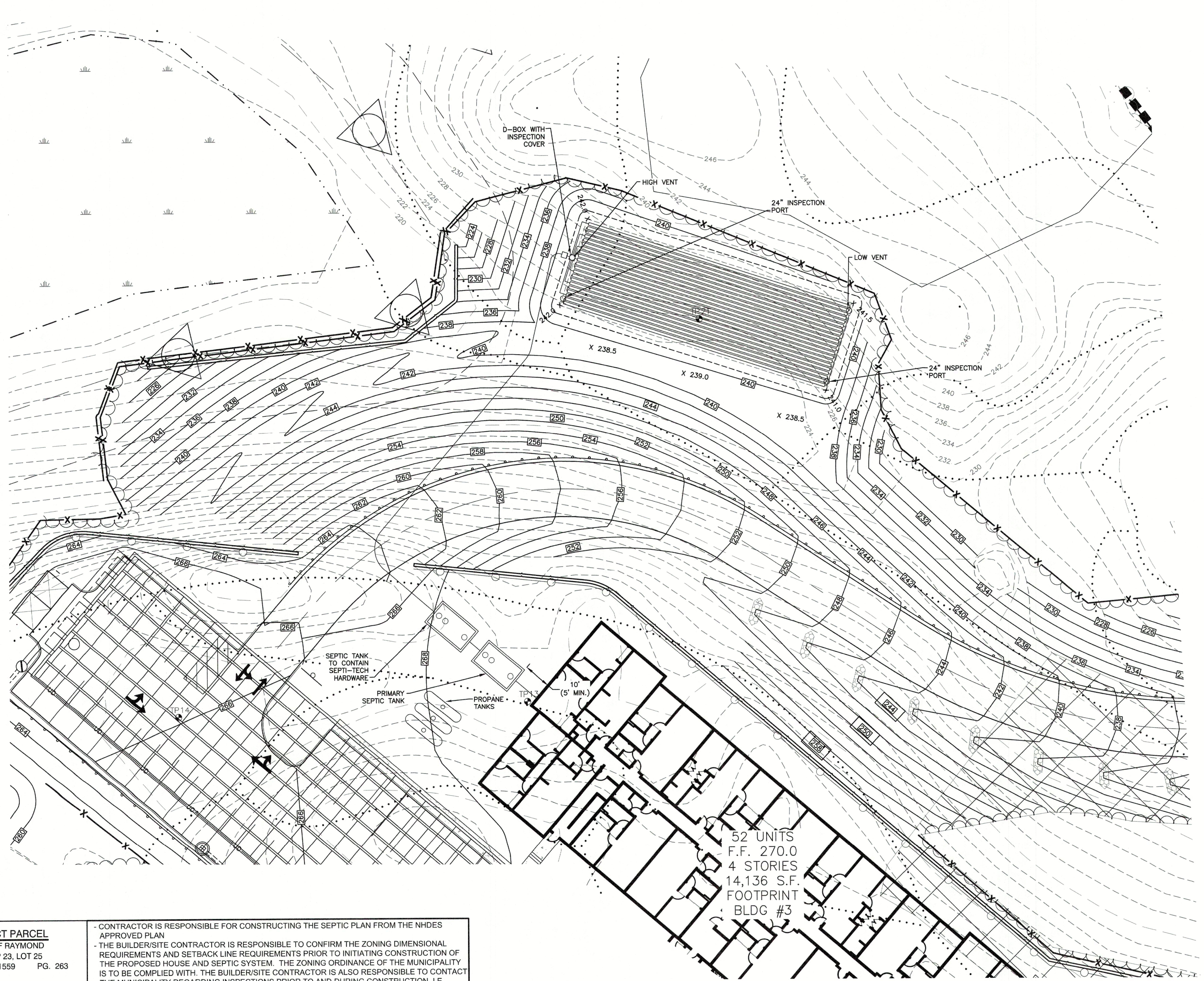
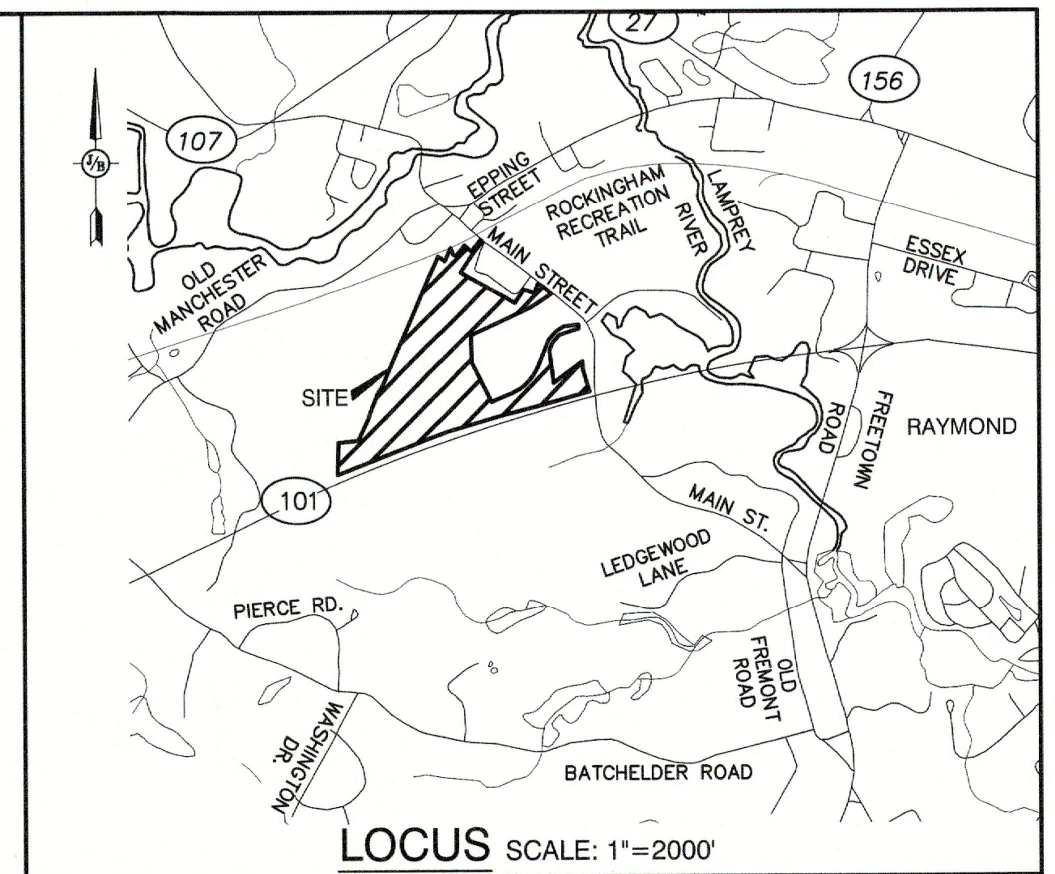
Plan Name:	EFFLUENT DISPOSAL DESIGN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

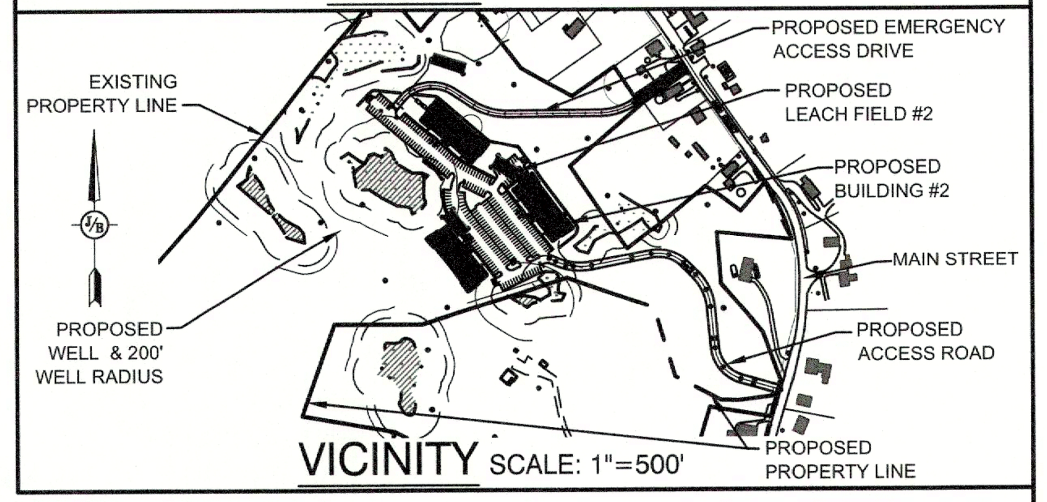
DRAWING No.

S4





LOCUS SCALE: 1"=2000'



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GRAPHIC SCALE

(IN FEET)
1 inch = 20 feet

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PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25
R.C.R.D. BK. 1559 PG. 263

TOTAL LOT AREA: 75.11 ACRES

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STATE OF NEW HAMPSHIRE MICHAEL J. KENIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
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Plan Name:	EFFLUENT DISPOSAL DESIGN
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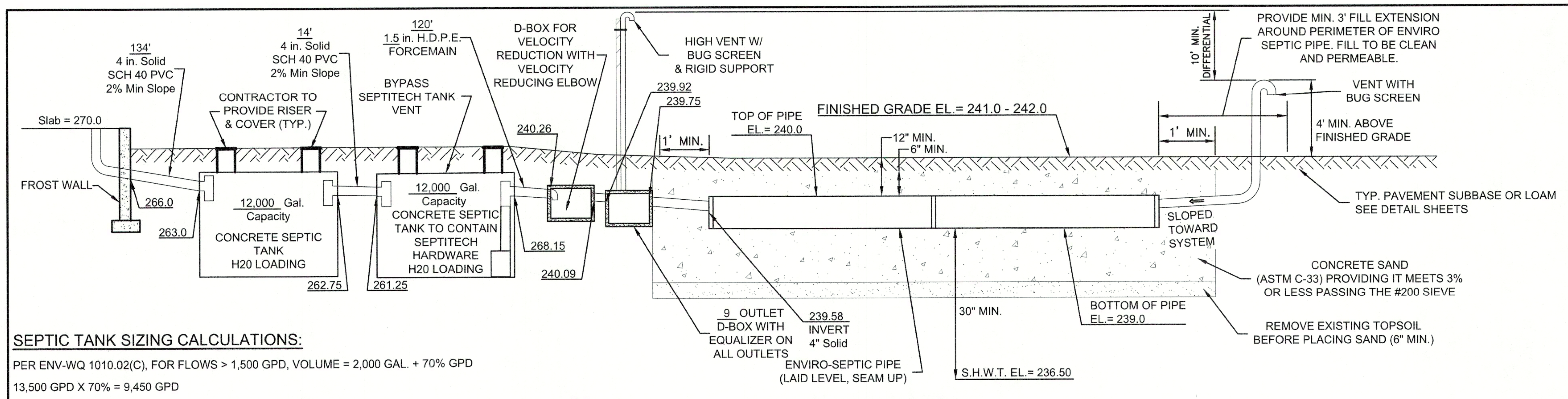
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
S5
SHEET 38 OF 61
JBE PROJECT NO. 20564



SEPTIC TANK SIZING CALCULATIONS:

PER ENV-WQ 1010.02(C), FOR FLOWS > 1,500 GPD, VOLUME = 2,000 GAL. + 70% GPD

13,500 GPD X 70% = 9,450 GPD

9,450 GALLONS + 2,000 = 11,450 GALLONS MINIMUM

12,000 GAL. PROVIDED.

CROSS SECTION - DISPOSAL SYSTEM

N.T.S.

TEST PIT LOGS

PERFORMED BY: JAMES GOVE, GOVE ENVIRONMENTAL SERVICES, INC.
WITNESSED BY: PAUL AYER, RAYMOND CODE ENFORCEMENT

TEST PIT #21

		FOREST MAT
0"-7"	10YR3/2	FINE LOAMY SAND GRANULAR, FRIABLE
7"-46"	10YR5/6	FINE SANDY LOAM GRANULAR, FRIABLE
46"-72"	2.5Y5/4	FINE SANDY LOAM OM, FRIABLE 20% REDOX

SHWT = 36"
NO ROOTS
NO H_2O
REFUSAL = 72"

TEST PIT, DATE: OCTOBER 20, 2022
PERC. TEST, DATE: OCTOBER 20, 2022
12 MIN./INCH

ENVIRO-SEPTIC DESIGN CALCULATIONS

24 2-BEDROOM UNITS AND 28 1-BEDROOM UNITS (150 GPD/BEDROOM IN 2-BEDROOM UNITS & 225 GPD/1-BEDROOM UNITS)
(2 BEDROOMS * 24 UNITS * 150 GPD/BEDROOM) + (28 UNITS * 225 GPD/1-BEDROOM UNIT) = 13,500 GPD
13,500 GPD @ 12 MIN / INCH = 60*135 = 8,100 LF ENVIRO-SEPTIC PIPE REQUIRED
8,100 LF * 0.25 (75% PRE-TREATMENT SIZE EDUCTION) = 2,025 LF ENVIRO-SEPTIC PIPE REQUIRED
21 ROWS, 100 FT. LONG = 2100 LF OF ENVIRO-SEPTIC PIPE PROVIDED.
7 SERIES OF 3 ROWS.

BED DIMENSIONS 102' x 33'.

DESIGN INTENT

THE BOTTOM OF THE EFFLUENT DISPOSAL SYSTEM (E.D.S.) SHALL BE CONSTRUCTED AT ELEVATION 239.0. THIS IS APPROXIMATELY 1.3 FEET BELOW ORIGINAL GROUND ON THE HIGH CONTOUR (240.3) OF THE DESIGNED E.D.S. (ENV-WQ-1003.13(aa))

GENERAL NOTES

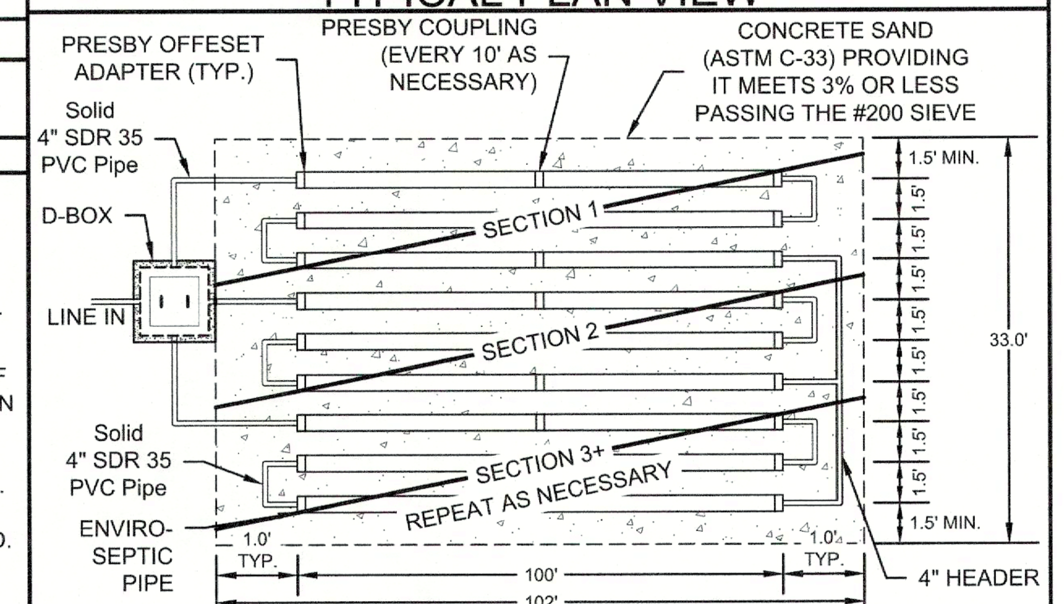
1. CONTRACTOR TO VERIFY ALL ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY DESIGNER OF ANY ABNORMAL CONDITIONS (HARDPAN OR SATURATED SOILS, LEDGE, ETC.) FOUND WHEN EXCAVATING PRIOR TO INSTALLATION OF THE SYSTEM.
2. LEACH BED COMPRISED OF ENVIRO-SEPTIC LEACHING PIPE. FOR DETAILED INSTALLATION INFORMATION REFER TO "DESIGN AND INSTALLATION MANUAL FOR A.E.S. AND E.S. WASTEWATER TREATMENT SYSTEMS", 2019 EDITION (OR MOST CURRENT EDITION). CONTACT PRESBY ENVIRONMENTAL AT PHONE (800) 473-5298 OR WWW.PRESBYENVIRONMENTAL.COM
3. PER ENV-WQ 1016.03, CONTRACTOR IS TO PROTECT THE NATURAL ABSORPTION QUALITIES OF THE SOIL. DO NOT COMPACT OR DRIVE OVER THE AREA WITH EQUIPMENT AND PROTECT OPEN EXCAVATION TO PREVENT THE ENTRANCE OF SILT AND DEBRIS.
4. FILL AROUND ENVIRO PIPES TO BE ASTM C-33 (CONCRETE SAND) OR EQUAL
5. REMOVE TOPSOIL BEFORE PLACING FILL, 4" THICK LOAM & SEED AROUND PERIMETER OF FILL.
6. CONTRACTOR TO INSTALL A VENT WHEN PROVIDING MORE THAN 18" OF COVER. VENTING IS REQUIRED IF SYSTEM IS DESIGNED FOR H20 LOADING, OR ADVANCED ENVIRO-SEPTIC IS USED.
7. CROWN SYSTEM TO SHED RAINWATER; SLOPE SYSTEM AWAY FROM HOUSE.
8. SYSTEM WILL BE REPLACED IN SAME LOCATION IN CASE OF FAILURE.
9. DISTRIBUTION BOX SHALL HAVE FLOW EQUALIZERS INSTALLED IN THE OUTLET PORTS.
10. JOINTS ARE TO BE BELLED PVC OR STANDARD SLIP COLLARS.
11. PER ENV-WQ 1010.11, THE FIRST COMPARTMENT IN MULTI-COMPARTMENT SEPTIC TANKS MUST EQUAL AT LEAST 2/3 OF THE REQUIRED VOLUME.
12. PER ENV-WQ 1010.10, EXCEPTING LEDGE TANKS, THE LIQUID DEPTH OF THE SEPTIC TANK IS TO BE AT LEAST 40".
13. THE OUTLET BAFFLE SHALL BE A VENTED TEE WHICH SHALL EXTEND TO A DISTANCE BELOW THE SURFACE EQUAL TO 40% OF THE LIQUID DEPTH AND SHALL EXTEND ABOVE THE LIQUID LINE TO NOT LESS THAN ONE INCH FROM THE TOP OF THE TANK.
14. ALL CONNECTIONS BETWEEN A SEPTIC TANK AND THE PIPES LEADING TO AND EXITING FROM THE SEPTIC TANK SHALL BE SEALED WITH A WATERTIGHT, FLEXIBLE JOINT CONNECTOR THAT: (1) WILL ACCOMMODATE NORMAL MOVEMENT OF THE SEPTIC TANK WITHOUT LEAKING OR BREAKING; AND (2) HAS BEEN CERTIFIED BY ITS MANUFACTURER OR DISTRIBUTOR AS MEETING OR EXCEEDING THE APPLICABLE STANDARD IN ASTM C 1644-06, SECTION 7.
15. CONTRACTOR TO PROVIDE RISERS FOR TANKS WITH MORE THAN 12" OF COVER.
16. IF GARBAGE GRINDERS ARE DESIRED, SEPTIC TANK SHALL BE 50% LARGER.
17. TOWN OF RAYMOND REQUIRES BED BOTTOM INSPECTION.
18. ENVIRO-SEPTIC TO BE SUPPLIED BY: ELIMINATOR SYSTEMS INC. (603) 868-2242) OR EQUAL.
19. TWO 12,000 GALLON SEPTIC TANKS & D-BOX TO BE SUPPLIED BY: SHEA CONCRETE. (800-696-7432) OR EQUAL.
20. ADVANCED NITRATE TREATMENT SYSTEM TO BE SUPPLIED BY: SEPTITECH / BIO-MICROBICS MAINE INC., 207-333-6940. PRODUCT MAY NOT BE SUBSTITUTED WITHOUT FIRST CONTACTING THE DESIGNER.
21. ROCKINGHAM COUNTY SOIL CONSERVATION SERVICE SOIL TYPE: CANTON.
22. ANY CHANGES TO SEPTIC TANK, BUILDING OR WELL LOCATION/ORIENTATION WILL REQUIRE AN AS-BUILT PLAN TO BE PROVIDED BY THE DESIGNER PRIOR TO NHDES FINAL INSPECTION.
23. PER ENV-WQ 1004.10, SYSTEMS OVER 2,500 GPD ARE TO BE INSPECTED BY DESIGNER.
24. PER ENV-WQ 1003.13(a)(3) THERE ARE NO KNOWN BURIAL SITES OR CEMETERIES ON THE LOT WITHIN 100' OF ANY COMPONENT OF THE ISDS.
25. 50' SETBACK FROM POORLY DRAINED SOILS.
26. DISTANCE FROM SEWER PIPE TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF SDR26 OR EQUIVALENT IS USED IN ACCORDANCE WITH ENV-WQ 1008.04(c)(1).
27. DISTANCE FROM SEPTIC TANK TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF THE SEPTIC TANK IS EITHER MADE FROM PLASTIC OR COATED WITH A SEALANT TO PREVENT INFILTRATION AND EXFILTRATION IN ACCORDANCE WITH ENV-WQ 1008.04(c)(2).

REFERENCES

APPROVAL FOR CONSTRUCTION IS VALID FOR 4 YEARS FROM DATE OF ISSUE

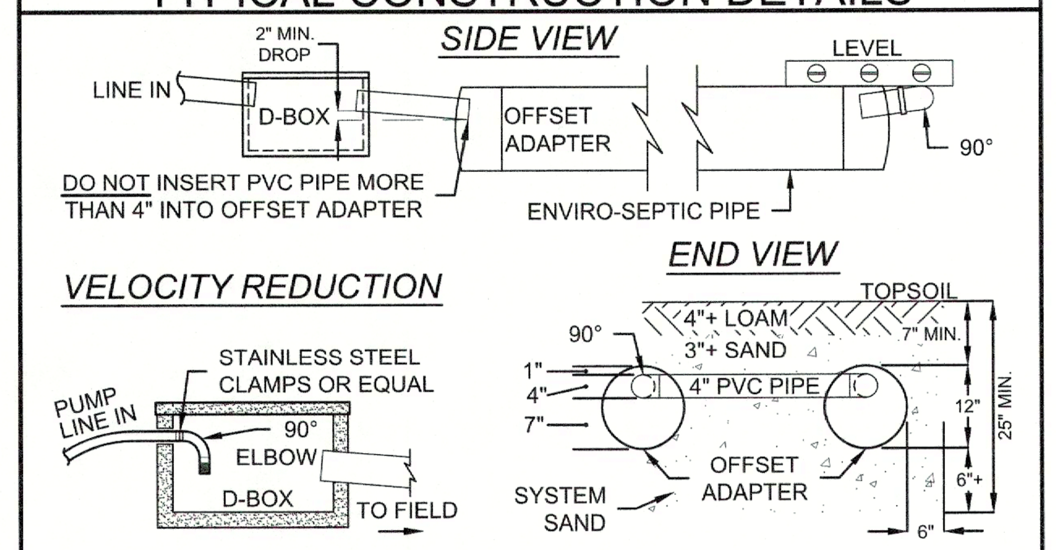
- GROUNDWATER DISCHARGE PERMIT #__________ ISSUED:________

TYPICAL PLAN VIEW



ACTUAL SYSTEM UTILIZES 21 ROWS (7 SECTIONS) OF 12" ENVIRO-SEPTIC PIPE. SEE PLAN VIEW (LEFT) FOR ACTUAL LAYOUT/CONFIGURATION OF SYSTEM.

TYPICAL CONSTRUCTION DETAILS



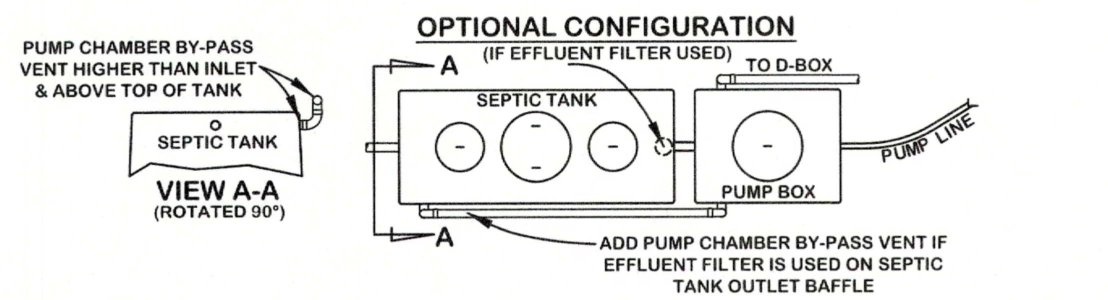
WETLAND DELINEATION

WETLANDS ON-SITE WERE DELINEATED BY: GOVE ENVIRONMENTAL SERVICES, INC. 8 CONTINENTAL DRIVE, UNIT H, EXETER, NH

DATE: WINTER, 2021 THROUGH AUTUMN, 2022 - THERE ARE NO WETLANDS WITHIN 75' OF THE PROPOSED ISDS

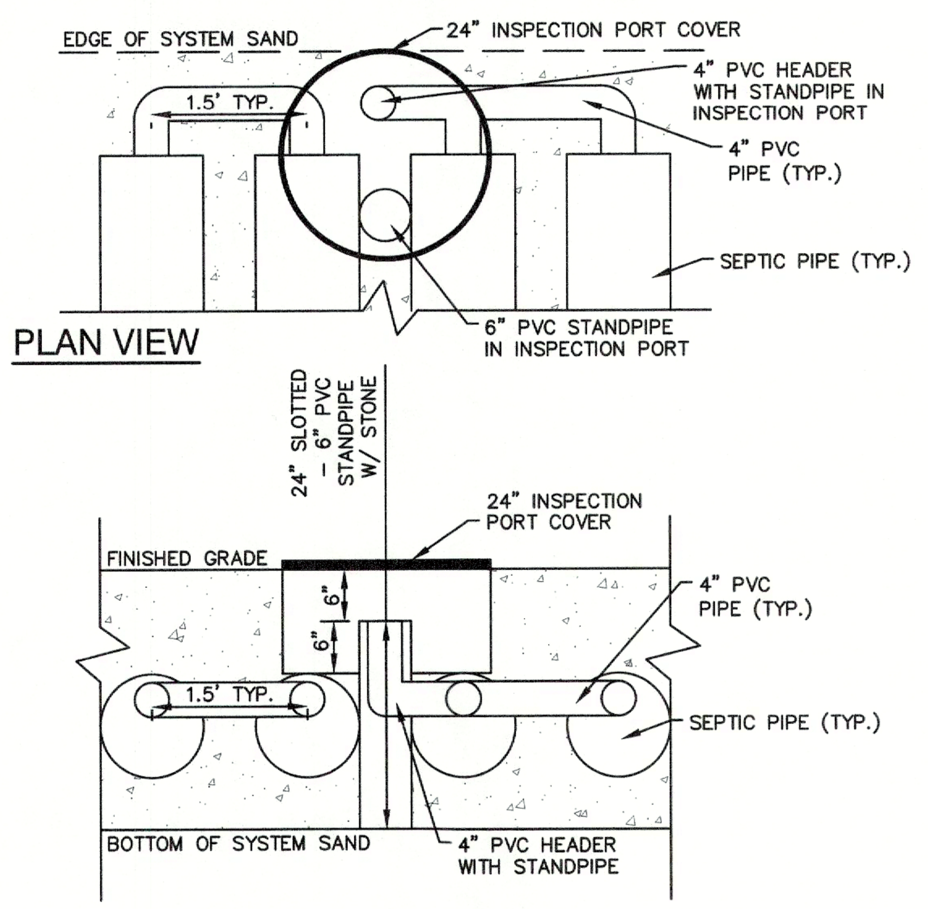
OWNER NOTES

- KNOW THE LOCATION OF YOUR SEPTIC TANK AND LEACHING AREA.
- INSPECT YOUR SEPTIC TANK YEARLY. HAVE THE SEPTIC TANK PUMPED AS NEEDED BUT AT LEAST ONCE EVERY THREE YEARS.
- DO NOT FLUSH BULKY ITEMS SUCH AS DIAPERS, SANITARY PADS OR BABY WIPES.
- DO NOT FLUSH TOXIC CHEMICALS SUCH AS PAINT THINNERS, DRANO, PESTICIDES, OR CHLORINE, AS THEY MAY KILL THE NECESSARY BACTERIA IN THE SEPTIC TANK.
- REPAIR LEAKING FIXTURES IN THE BUILDING PROMPTLY.
- BE CONSERVATIVE WITH WATER USE, SPREAD OUT USE OVER TIME, AND USE WATER-REDUCING FIXTURES WHENEVER AND WHEREVER POSSIBLE. TOO MUCH USE IN A SHORT TIME CAN OVERLOAD THE SYSTEM, WHICH MAY LEAD TO FAILURE.
- MOW YOUR LEACHING AREA REGULARLY. PREVENT DEEP-ROOTED TREES AND SHRUBS FROM GROWING ON AND ADJACENT TO YOUR LEACHING AREA.
- NO VEHICULAR TRAVEL, LIVESTOCK TRAVEL, OR SNOW REMOVAL IN AREA OF SYSTEM, UNLESS SPECIFICALLY DESIGNED FOR H20 LOADING.



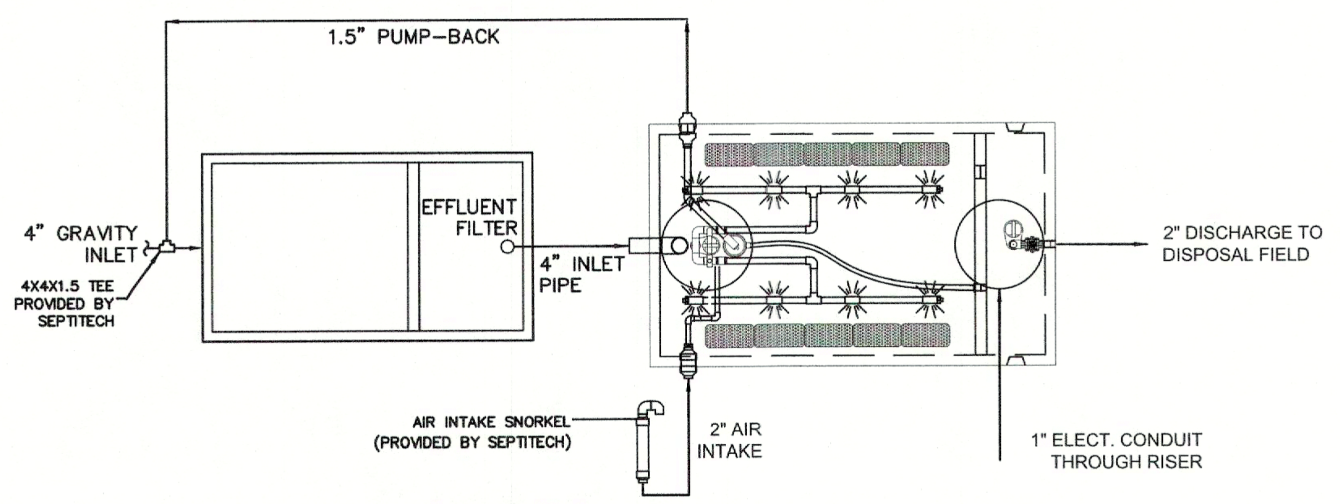
BY-PASS VENTING W/ EFFLUENT FILTER

NOT TO SCALE



INSPECTION PORT DETAIL

NOT TO SCALE



NOTE:

SEPTI-TECH PLAN VIEW

- CONTRACTOR IS RESPONSIBLE FOR PURCHASE AND INSTALLATION OF BOTH TANKS ON THE LOT. SEPTITECH WILL INSTALL THE EQUIPMENT AFTER THE TANK IS INSTALLED IN GROUND
- ALL PUMP SPECIFICATIONS AND MODELS TO BE SUPPLIED BY SEPTITECH
- SEPTITECH MODEL STAAR 18.0 COMMERCIAL SYSTEM REQUIRES A DISCHARGE PUMP UPGRADE THAT IS TO BE DETERMINED BY SEPTITECH.

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1-888-DIG-SAFE
digsafe.com

PROJECT PARCEL	
TOWN OF RAYMOND TAX MAP 23, LOT 25 R.C.R.D. BK. 1559 PG. 263	- CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SEPTIC PLAN FROM THE NHDES APPROVED PLAN - THE BUILDER/SITE CONTRACTOR IS RESPONSIBLE TO CONFIRM THE ZONING DIMENSIONAL REQUIREMENTS AND SETBACK LINE REQUIREMENTS PRIOR TO INITIATING CONSTRUCTION OF THE PROPOSED HOUSE AND SEPTIC SYSTEM. THE ZONING ORDINANCE OF THE MUNICIPALITY IS TO BE COMPLIED WITH. THE BUILDER/SITE CONTRACTOR IS ALSO RESPONSIBLE TO CONTACT THE MUNICIPALITY REGARDING INSPECTIONS PRIOR TO AND DURING CONSTRUCTION, I.E. LOCATION AND BED-BOTTOM INSPECTIONS.
TOTAL LOT AREA: 75.11 ACRES	

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

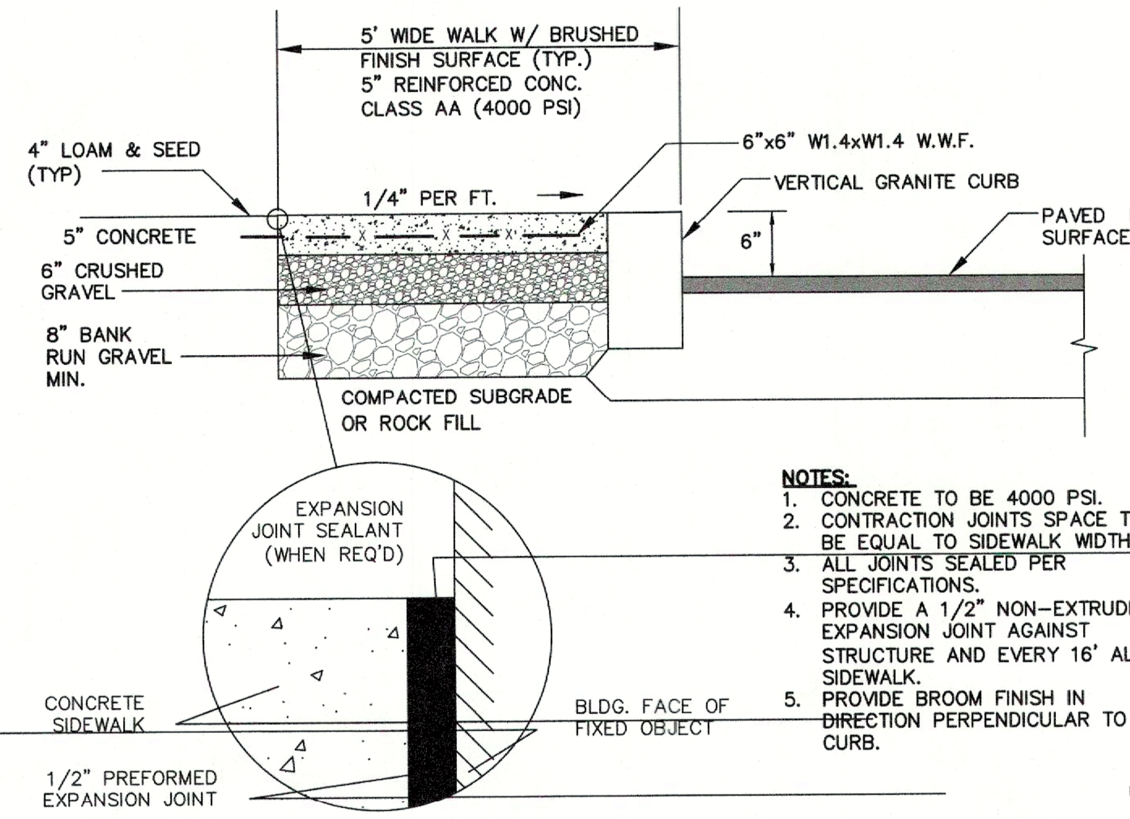
STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/7/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EFFLUENT DISPOSAL DESIGN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

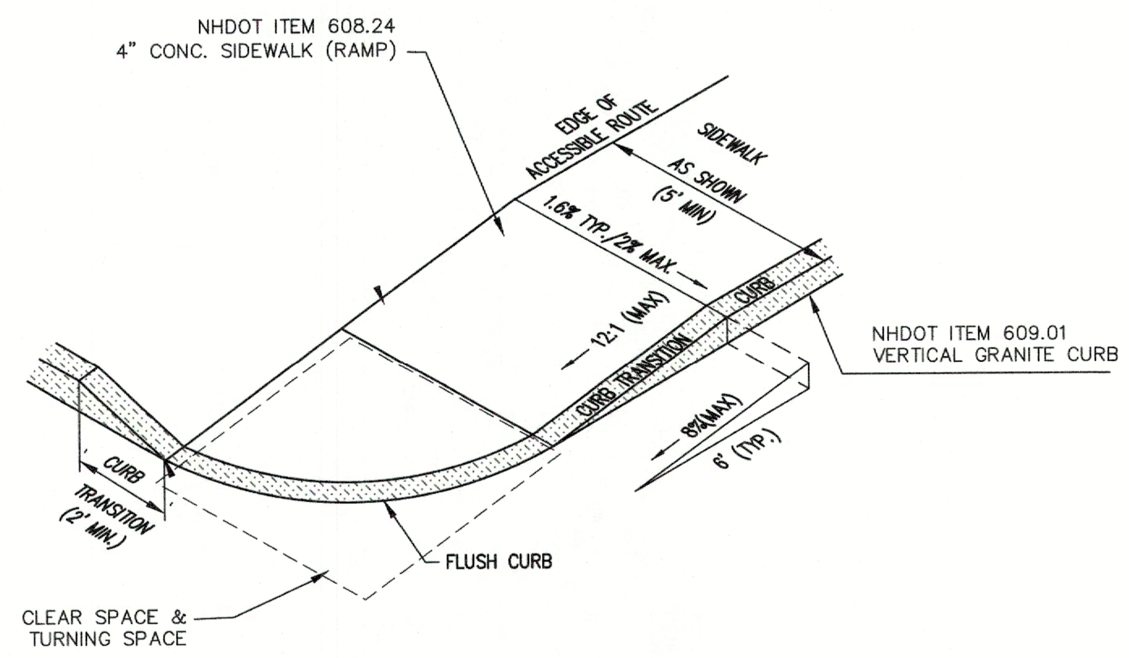
DRAWING No.
S6
SHEET 39 OF 61
JBE PROJECT NO. 20564



NOTES:
1. CONCRETE TO BE 4000 PSI.
2. CONTRACTION JOINTS SPACE TO BE EQUAL TO SIDEWALK WIDTH.
3. ALL JOINTS SEALED PER SPECIFICATIONS.
4. PROVIDE A 1/2" NON-EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
5. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

CONCRETE SIDEWALK W/ VERTICAL GRANITE CURB

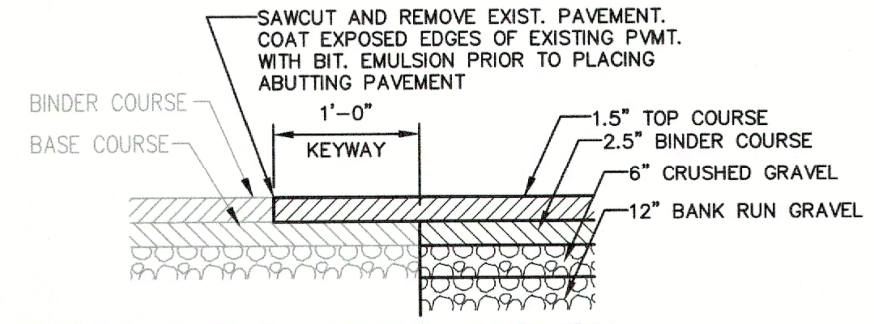
NOT TO SCALE



NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8.3%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.
8. WHERE A CHANGE IN DIRECTION IS REQUIRED TO UTILIZE A CURB RAMP, A TURNING SPACE SHALL BE PROVIDED AT THE BASE AND/OR THE TOP OF THE CURB RAMP. TURNING SPACES SHALL BE PERMITTED TO OVERLAP CLEAR SPACES.
9. TURNING SPACE MAXIMUM CROSS SLOPE IS 2% IN ANY DIRECTION.
10. BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE OF 4'X4' MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN CROSSWALK, AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. THE CLEAR SPACE MAY OVERLAP TURNING SPACES, DETECTABLE WARNING SURFACES AND DROP CURBS.
11. NO DETECTABLE WARNING DEVICE REQUIRED FOR THIS PARTICULAR APPLICATION.

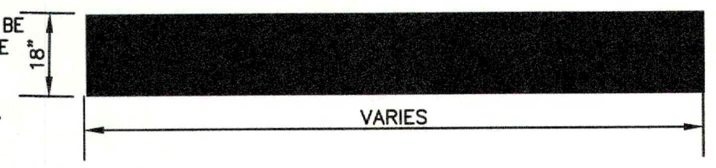
ACCESSIBLE CURB RAMP (NHDOT TYPE 1 WITHOUT DETECTABLE WARNING DEVICE)

NOT TO SCALE



KEYWAY DETAIL FOR CONNECTION TO EXISTING PAVEMENT

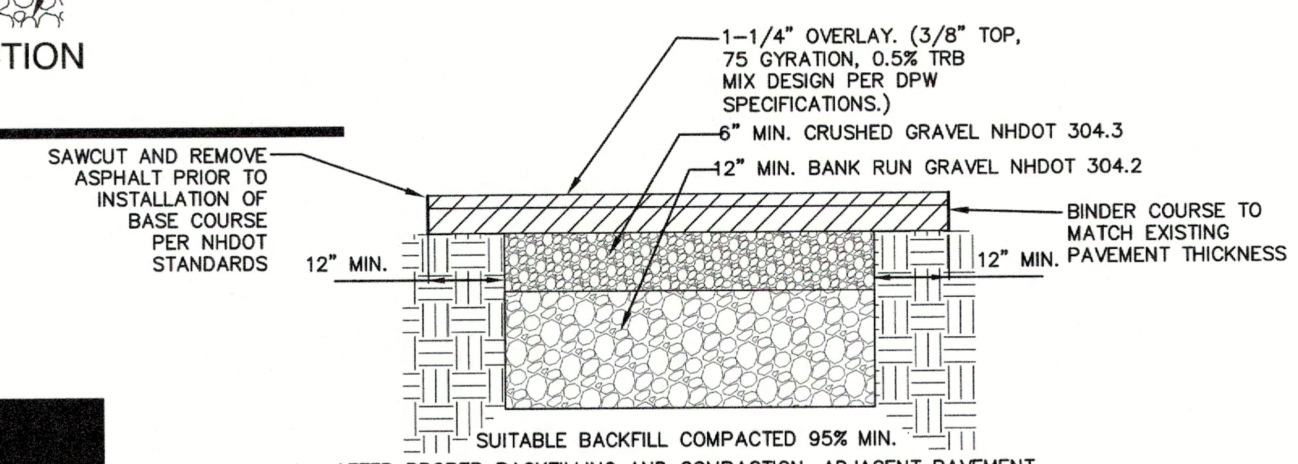
NOT TO SCALE



NOTES:
1. ALL STOP BARS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.

STOP BAR

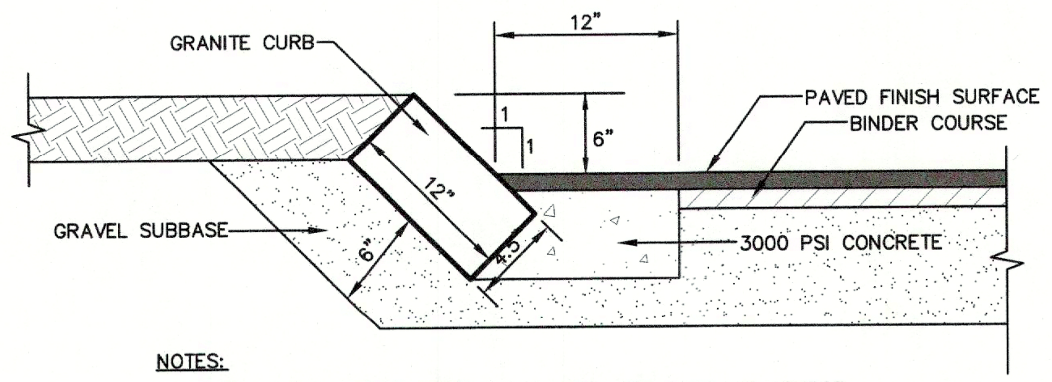
NOT TO SCALE



1. AFTER PROPER BACKFILLING AND COMPACTION, ADJACENT PAVEMENT MUST BE "SAW CUT" (STRAIGHT CUTS) A MINIMUM OF ONE FOOT (1') AROUND THE PERIMETER OF THE EXCAVATION. PAVEMENT MUST BE REMOVED.
2. INSTALL BASE COURSE LEAVING A REVEAL FOR SURFACE COURSE.
3. INSTALL SURFACE COURSE OF ASPHALT PAVING.
4. APPLY EMULSION SEALANT AT PERIMETER OF JOINT OVERLAPPING BASE COURSE. INSTALL WEARING COURSE OF ASPHALT TO GRADE. APPLY LIGHT SAND TO ABSORB EXCESS JOINT SEALANT.
5. GRAVEL COMPACTIONS TO MEET 95% MINIMUM.
6. PAVEMENT REPAIRS IN SAGAMORE AVE. RIGHT OF WAY TO MEET NHDOT STANDARDS.
7. WHERE WORK IMPACTS SAGAMORE AVE. TRAVEL LANE, MILL AND INLAY FOR FULL WIDTH OF LANE MAY BE REQUIRED.

TYPICAL PAVEMENT REPAIR DETAIL

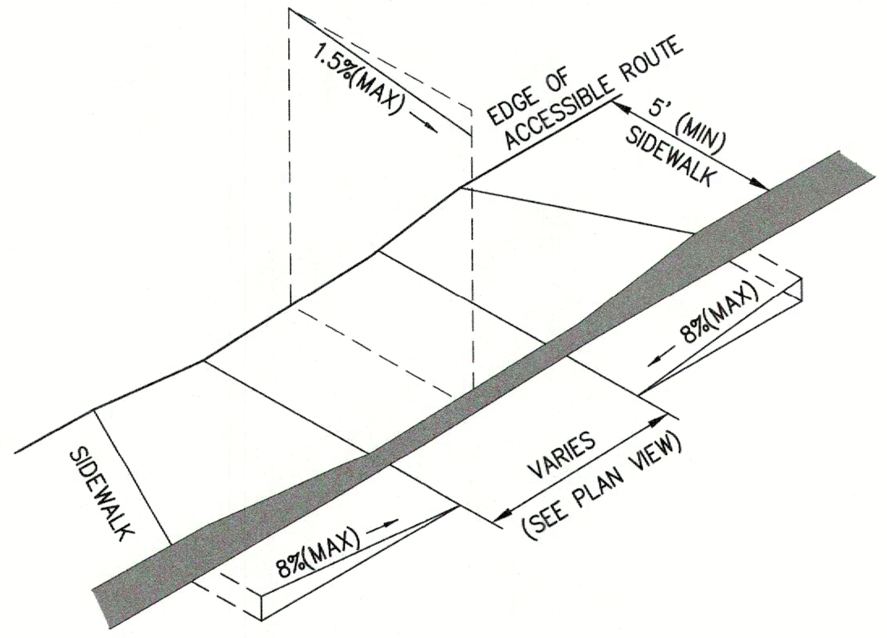
NOT TO SCALE



NOTES:
1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

SLOPED GRANITE CURB

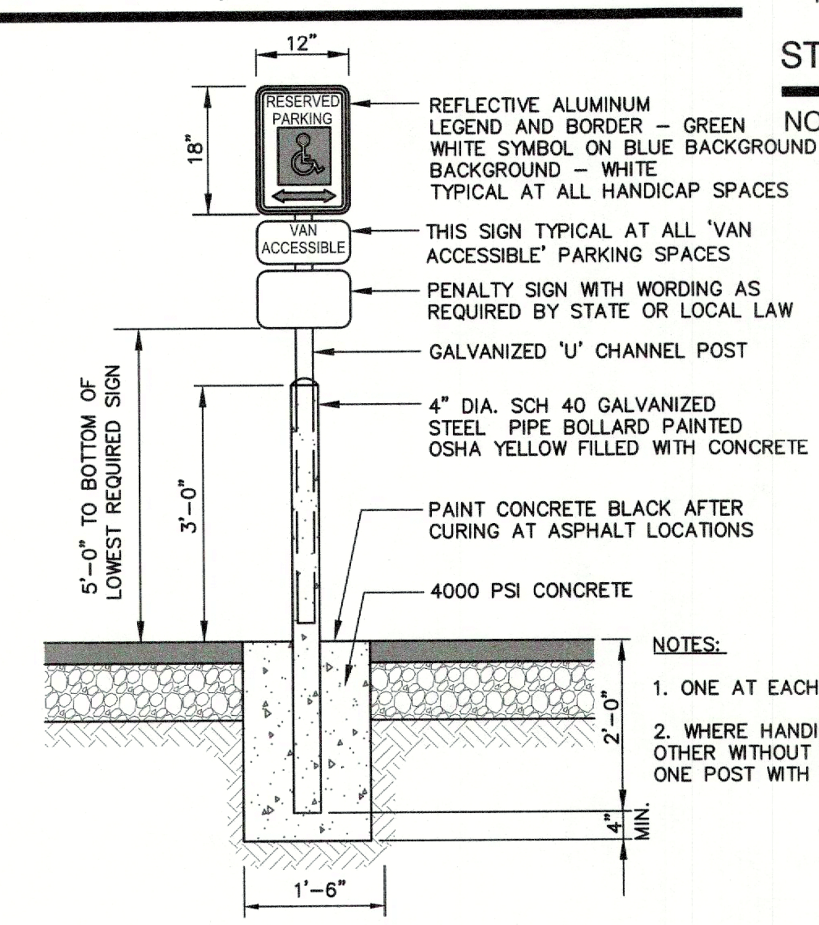
NOT TO SCALE



NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.

ACCESSIBLE CURB RAMP (TYPE `A')

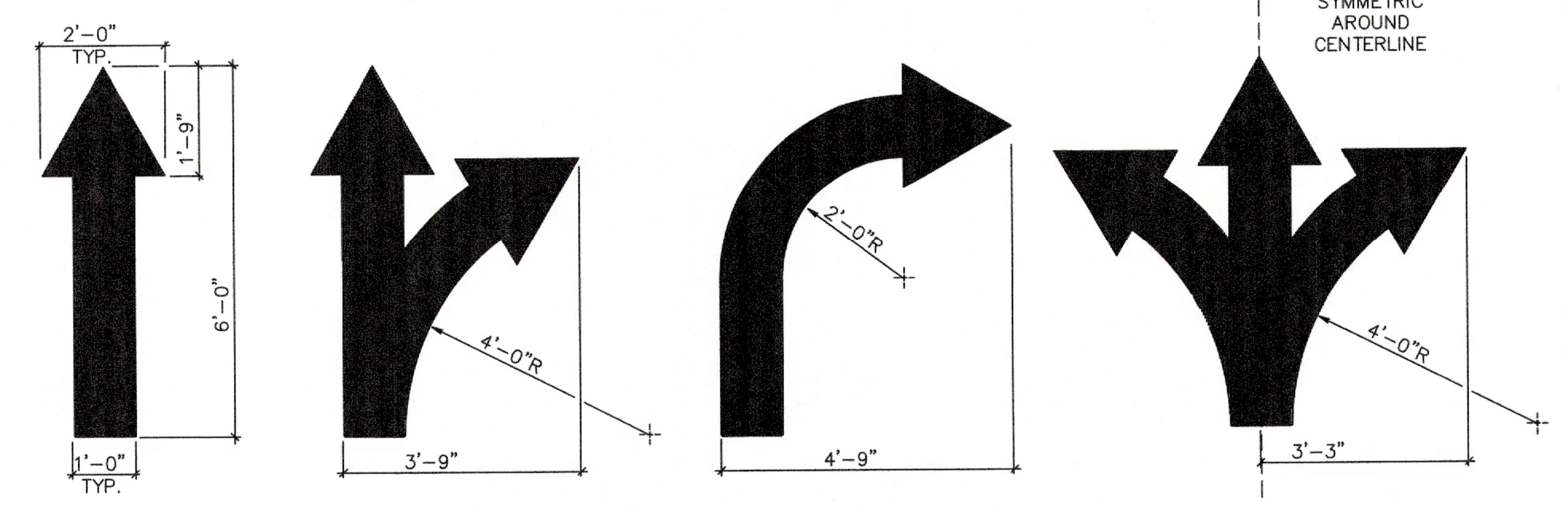
NOT TO SCALE



NOTES:
1. ONE AT EACH HANDICAP SPACE.
2. WHERE HANDICAP SPACES FACE EACH OTHER WITHOUT WALKWAY, THERE SHALL BE ONE POST WITH SIGNS MOUNTED BOTH SIDES.

HANDICAP PARKING SIGN (R7-8)

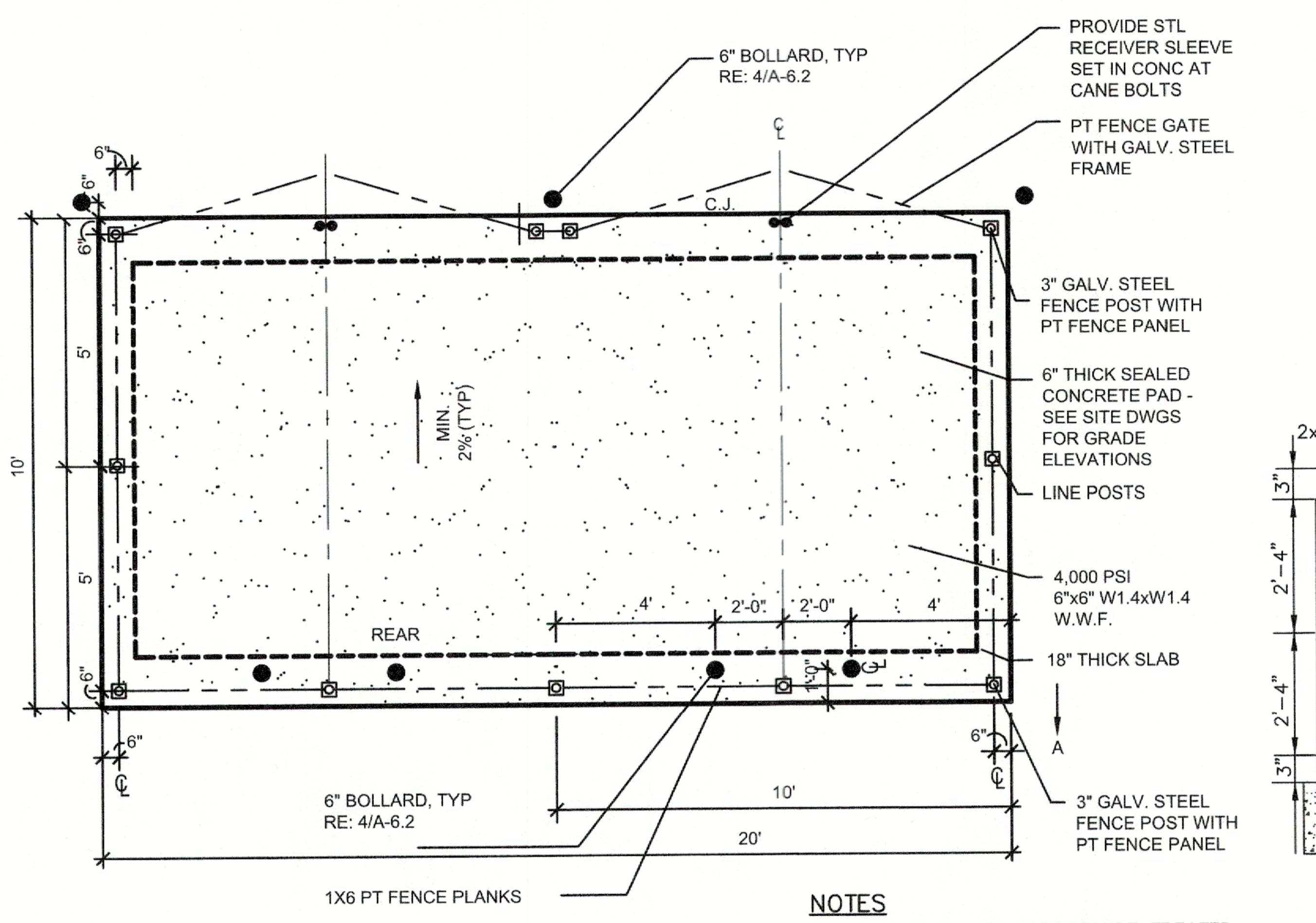
NOT TO SCALE



NOTES:
1. ALL FLOW ARROWS TO BE SOLID WHITE LATEX REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.
2. REVERSE ARROWS FOR OPPOSITE DIRECTION OF FLOW.

PAINTED TRAFFIC ARROWS

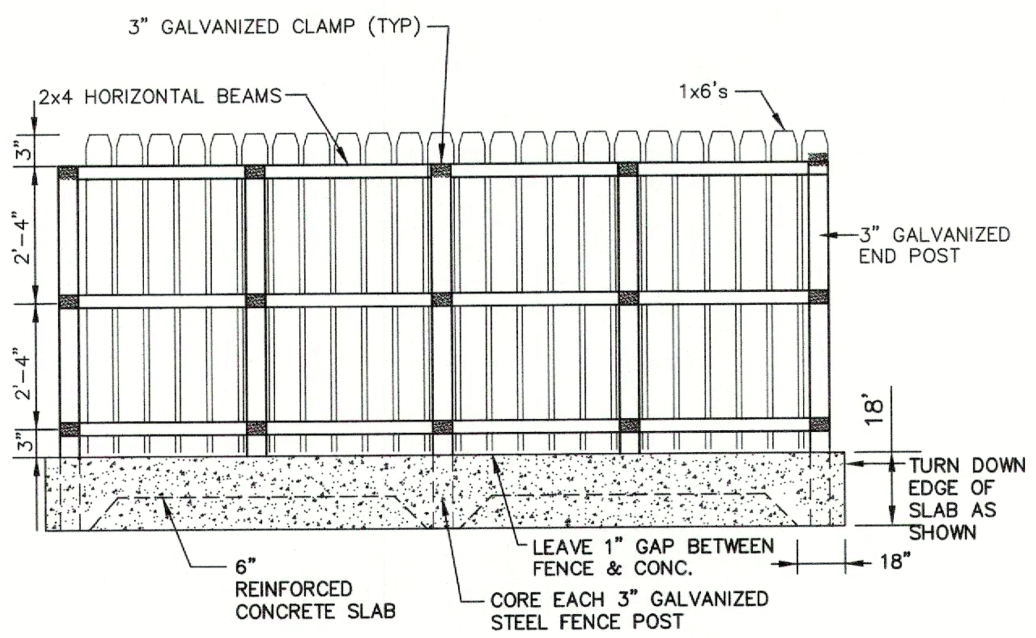
NOT TO SCALE



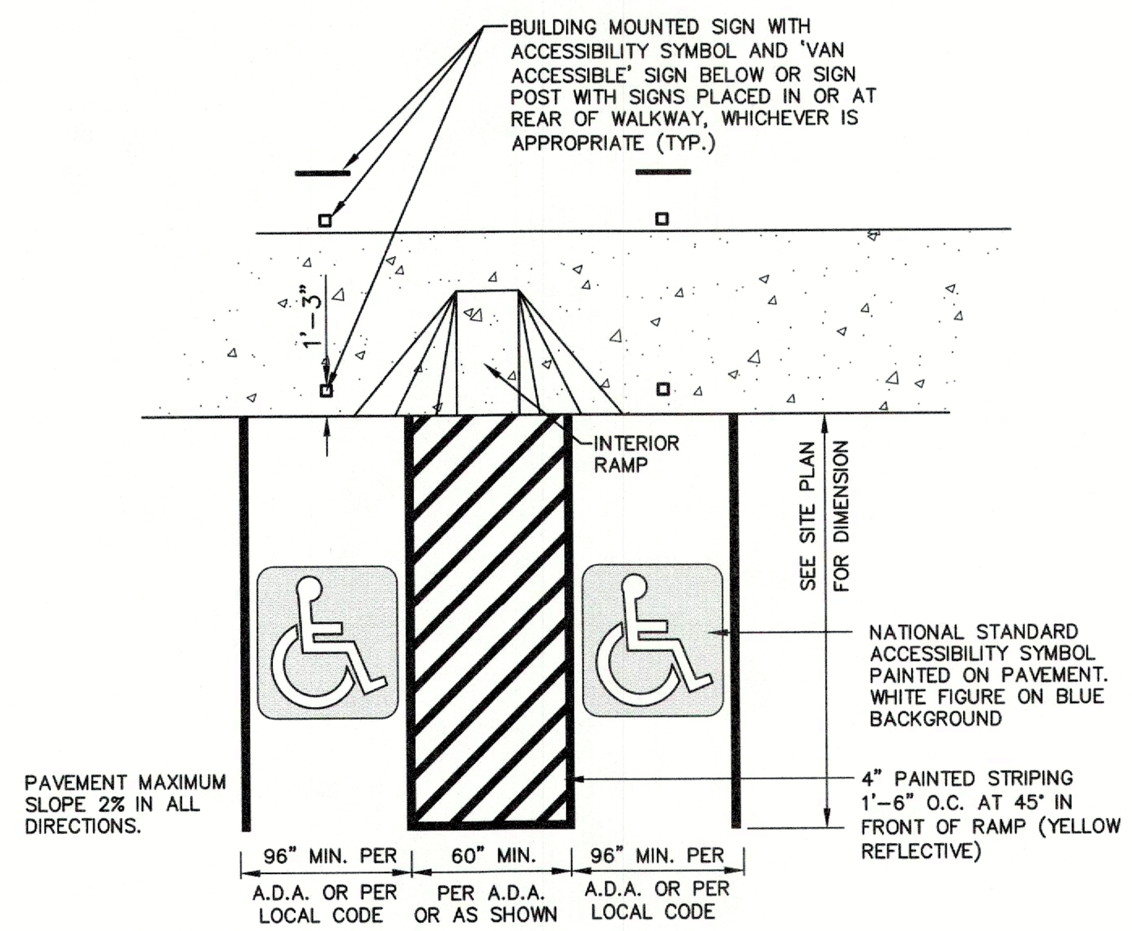
NOTES
1. ALL LUMBER TO BE PRESSURE TREATED.
2. WOOD FENCE TO BE PAINTED OR STAINED TO MATCH BUILDING FOUNDATION.
3. DUMPSTER SIZE VARIES, SEE SITE PLANS FOR SCREENING SIZE

DUMPSTER ENCLOSURE DOUBLE

NOT TO SCALE

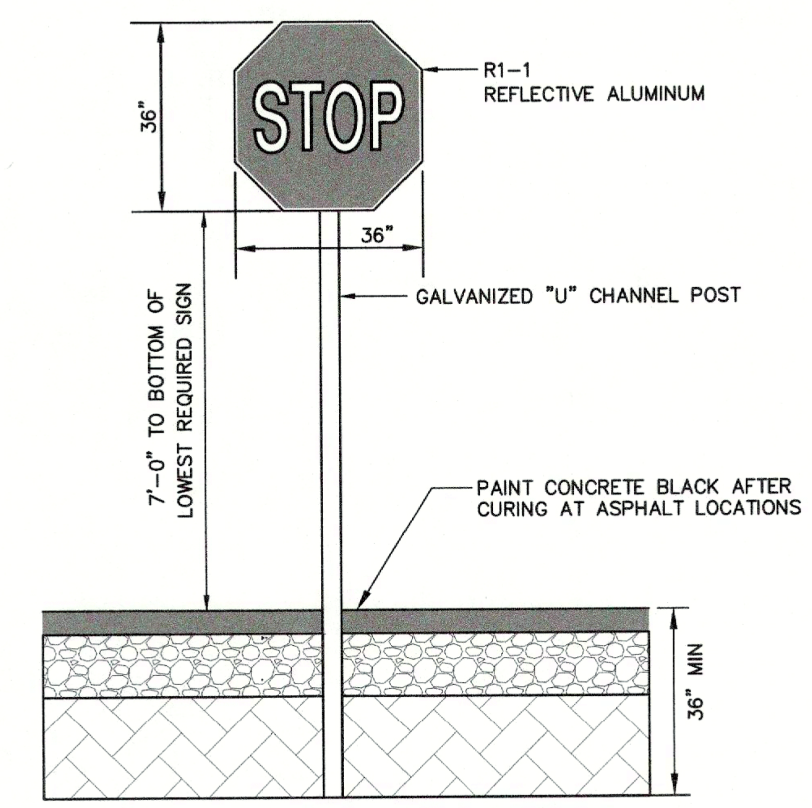


SECTION A-A



HANDICAP PARKING LAYOUT

NOT TO SCALE



STOP SIGN (R1-1)

NOT TO SCALE

NOTES:
1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO 2016 NHDOT STANDARD SPECIFICATION, SECTION 615 – TRAFFIC SIGNS.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
4. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE TOWN OF RAYMOND DEPARTMENT OF PUBLIC WORKS.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/23

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

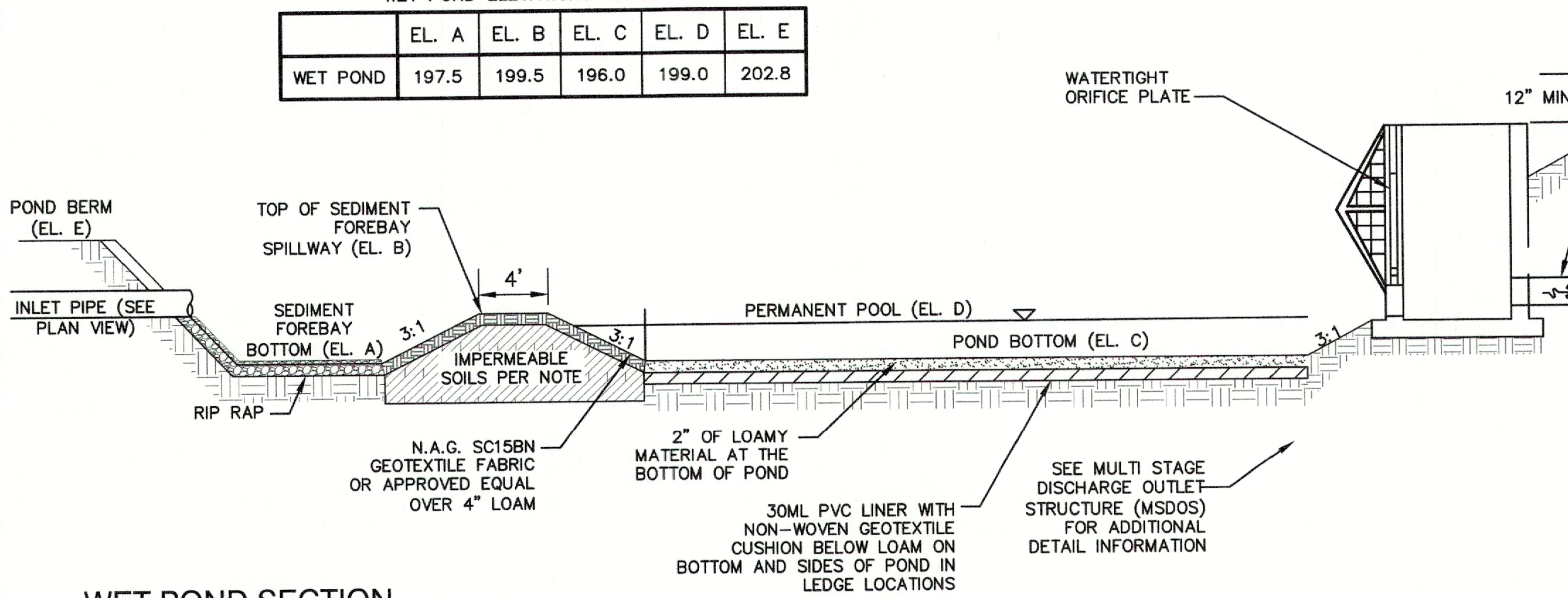
Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
D1
SHEET 40 OF 61
JBE PROJECT NO. 20564

WET POND ELEVATIONS TABLE

	EL. A	EL. B	EL. C	EL. D	EL. E
WET POND	197.5	199.5	196.0	199.0	202.8

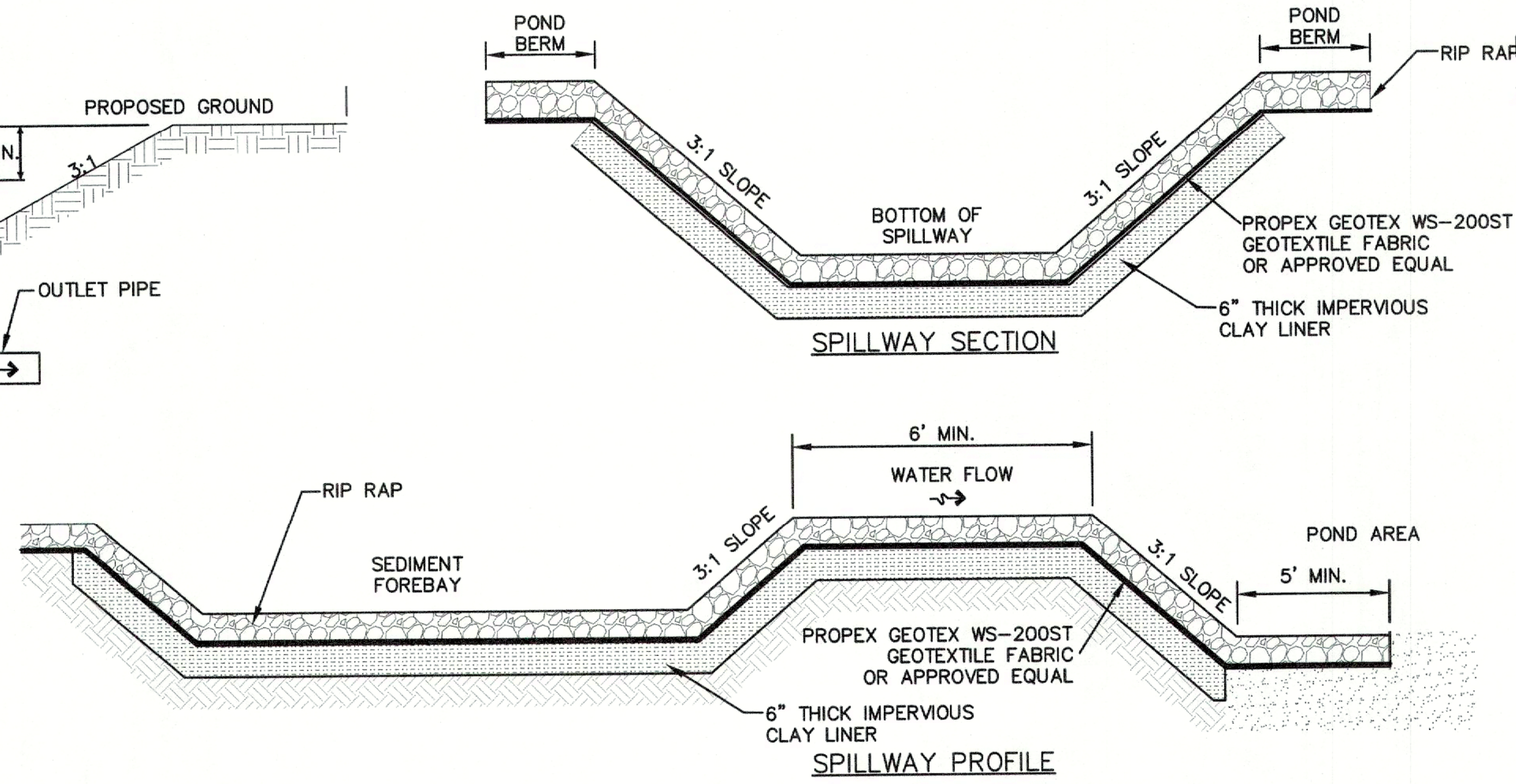


WET POND SECTION

NOT TO SCALE

WET POND CONSTRUCTION CRITERIA

1. FOUNDATION PREPARATION -- THE FOUNDATION AREA SHALL BE CLEARED OF TREES LOGS, STUMPS, ROOTS, BRUSH, BOULDERS, SOD, AND RUBBISH. IF NEEDED TO ESTABLISH VEGETATION, THE TOPSOIL AND SOD SHALL BE STOCKPILED AND SPREAD ON THE COMPLETED DAM AND SPILLWAYS. FOUNDATION SURFACES SHALL BE SLOPED NO STEEPER THAN 1:1. THE FOUNDATION AREA SHALL BE THOROUGHLY SCARIFIED BEFORE PLACEMENT OF THE MATERIAL. THE SURFACE SHALL HAVE MOISTURE ADDED OR IT SHALL BE COMPACTED, IF NECESSARY, SO THAT THE FIRST LAYER OF FILL MATERIAL CAN BE COMPACTED AND BONDED TO THE FOUNDATIONS. THE CUTOFF TRENCH AND ANY OTHER REQUIRED EXCAVATIONS SHALL BE DUG TO THE LINES AND GRADES SHOWN ON THE PLANS OR AS STAKED IN THE FIELD. IF THEY ARE SUITABLE, EXCAVATED MATERIALS SHALL BE USED IN THE PERMANENT FILL. EXISTING STREAM CHANNELS IN THE FOUNDATION AREA SHALL BE SLOPED NO STEEPER THAN 1:1 AND DEEPENED AND WIDENED AS NECESSARY TO REMOVE ALL STONES, GRAVEL, SAND, STUMPS, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND TO ACCOMMODATE COMPACTION EQUIPMENT. FILL PLACEMENT -- THE MATERIAL PLACED IN THE FILL SHALL BE FREE OF DETRIMENTAL AMOUNTS OF SOD, ROOTS, FROZEN SOIL, STONES MORE THAN 6 INCHES IN DIAMETER (EXCEPT FOR ROCK FILLS), AND OTHER OBJECTIONABLE MATTER.
2. SELECTED BACK FILL MATERIAL SHALL BE PLACED AROUND STRUCTURES, PIPE CONDUITS AND ANTI SEEP COLLARS AT ABOUT THE SAME RATE ON ALL SIDES, TO PREVENT DAMAGE FROM UNEQUAL LOADING. THE PLACING AND SPREADING OF FILL MATERIAL SHALL BE STARTED AT THE LOWEST POINT OF THE FOUNDATION AND THE FILL BROUGHT UP IN HORIZONTAL LAYERS OF SUCH THICKNESS THAT THE REQUIRED COMPACTION CAN BE OBTAINED. THE FILL SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS EXCEPT WHERE OPENINGS OR SECTIONALIZED FILLS ARE REQUIRED. IN THOSE CASES, THE SLOPE OF THE BONDING SURFACES BETWEEN THE EMBANKMENT IN PLACE AND THE EMBANKMENT TO BE PLACED SHALL NOT BE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL. THE BONDING SURFACE SHALL BE TREATED THE SAME AS THAT SPECIFIED FOR THE FOUNDATION SO AS TO INSURE A GOOD BOND WITH THE NEW FILL. THE DISTRIBUTION AND GRADATION OF MATERIALS SHALL BE SUCH THAT NO LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFER SUBSTANTIALLY IN TEXTURE OF GRADATION FROM THE SURROUNDING MATERIAL. IF IT IS NECESSARY TO USE MATERIALS OF VARYING TEXTURE AND GRADATION, THE MORE IMPERVIOUS MATERIAL SHALL BE PLACED IN THE CENTER AND UPSTREAM PARTS OF THE FILL. IF ZONED FILLS OF SUBSTANTIALLY DIFFERING MATERIALS ARE SPECIFIED, THE ZONES SHALL BE PLACED ACCORDING TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. THE COMPLETE WORK SHALL CONFORM TO THE LINES, GRADES, AND ELEVATIONS SHOWN ON THE DRAWINGS OR AS STAKED IN THE FIELD.
3. MOISTURE CONTROL -- THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADEQUATE FOR OBTAINING THE REQUIRED COMPACTION. MATERIAL THAT IS TOO WET SHALL BE DRIED TO MEET THIS REQUIREMENT, AND MATERIAL THAT IS TOO DRY SHALL HAVE WATER ADDED AND MIXED UNTIL THE REQUIREMENT IS MET.
4. COMPACTION -- CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER THE AREAS OR EACH LAYER OF FILL TO ENSURE THAT THE REQUIRED COMPACTION IS OBTAINED. SPECIAL EQUIPMENT SHALL BE USED IF NEEDED TO OBTAIN THE REQUIRED COMPACTION. IF A MINIMUM REQUIRED DENSITY IS SPECIFIED, EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY. FILL ADJACENT TO STRUCTURES, PIPE CONDUITS, AND ANTI SEEP COLLARS SHALL BE COMPACTED TO A DENSITY EQUIVALENT TO THAT OF THE SURROUNDING FILL BY MEANS OF HAND TAMPING OR MANUALLY DIRECTED POWER TAMPER OR PLATE VIBRATORS. FILL ADJACENT TO CONCRETE STRUCTURES SHALL NOT BE COMPACTED UNTIL THE CONCRETE IS STRONG ENOUGH TO SUPPORT THE LOAD.
5. PROTECTION -- A PROTECTIVE COVER OF VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, AND BORROW AREA IF SOIL AND CLIMATIC CONDITIONS PERMIT. IF SOIL OR CLIMATIC CONDITIONS PRECLUDE THE USE OF VEGETATION AND PROTECTION IS NEEDED, NON-VEGETATIVE MEANS SUCH AS MULCHES OR GRAVEL MAY BE USED. IN SOME PLACES, TEMPORARY VEGETATION MAY BE USED UNTIL CONDITIONS PERMIT ESTABLISHMENT OF PERMANENT VEGETATION. THE EMBANKMENT AND SPILLWAY SHALL BE FENCED IF NECESSARY TO PROTECT THE VEGETATION.
6. SEEDBED PREPARATION, SEEDING, FERTILIZING, AND MULCHING SHALL COMPLY WITH THE APPROPRIATE VEGETATIVE BMPS.
7. CONCRETE -- THE MIX DESIGN AND TESTING OF CONCRETE SHALL BE CONSISTENT WITH THE STRENGTH REQUIREMENTS OF THE JOB. MIX REQUIREMENTS OR NECESSARY STRENGTH SHALL BE SPECIFIED. THE TYPE OF CEMENT, AIR ENTRAPMENT, SLUMP, AGGREGATE, OR OTHER PROPERTIES SHALL BE SPECIFIED IF NECESSARY. ALL CONCRETE IS TO CONSIST OF A WORKABLE MIX THAT CAN BE PLACED AND FINISHED IN AN ACCEPTABLE MANNER. NECESSARY CURING SHALL BE SPECIFIED. REINFORCING STEEL SHALL BE PLACED AS INDICATED ON THE PLANS AND SHALL BE HELD SECURELY IN PLACE DURING CONCRETE PLACEMENT. SUB GRADES AND FORMS SHALL BE INSTALLED TO LINE AND GRADE, AND THE FORMS SHALL BE MORTAR TIGHT AND UNYIELDING AS THE CONCRETE IS PLACED.
8. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT POND SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVIDERS.
9. CONSTRUCTION OF THE WET PONDS WILL REQUIRE SIGNIFICANT LEDGE EXCAVATION. LEDGE SHALL BE REMOVED CAREFULLY AND SHALL BE REMOVED TO A DEPTH OF 3" BELOW THE BOTTOM OF THE POND. AN IMPERMEABLE LINER SHALL BE PLACED AS SPECIFIED IN LEDGE LOCATIONS IN ORDER TO PREVENT CONTACT BETWEEN LEDGE AND THE PERMANENT POOL, WHICH WOULD IMPEDE THE INTENDED FUNCTIONING OF THE SYSTEM.

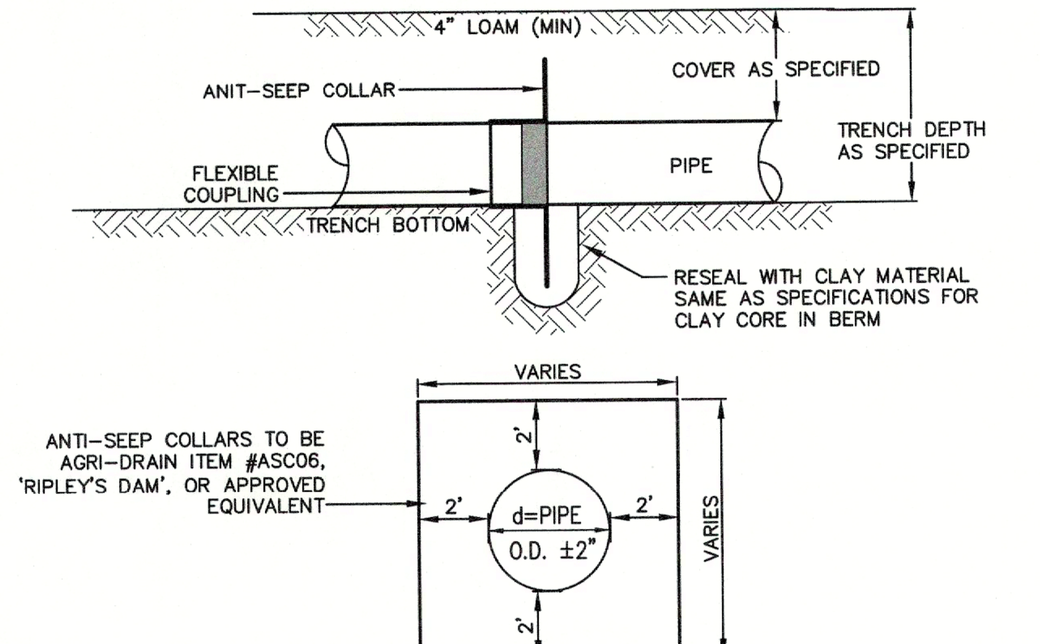


NOTES:

1. A 6" THICK IMPERVIOUS CLAY LINER IS TO BE PLACED UNDER ENTIRE SEDIMENT FOREBAY AND SPILLWAY.
2. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
3. 6" THICK IMPERVIOUS CLAY LINER MATERIAL SHALL BE CLEAN SILTY-CLAY BORROW FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER THREE INCHES (3") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100%, #4 SIEVE 95-100%, #40 SIEVE 60-90%, #100 SIEVE 40-60%, #200 SIEVE 25-45% (OF THE FRACTION PASSING THE #4 SIEVE). THE CLAY COMPONENT SHALL HAVE A PLASTICITY INDEX OF AT LEAST 8 AND A HYDRAULIC CONDUCTIVITY OF 10 TO THE -6 CM/SEC.
4. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

SEDIMENT FOREBAY SPILLWAY

NOT TO SCALE

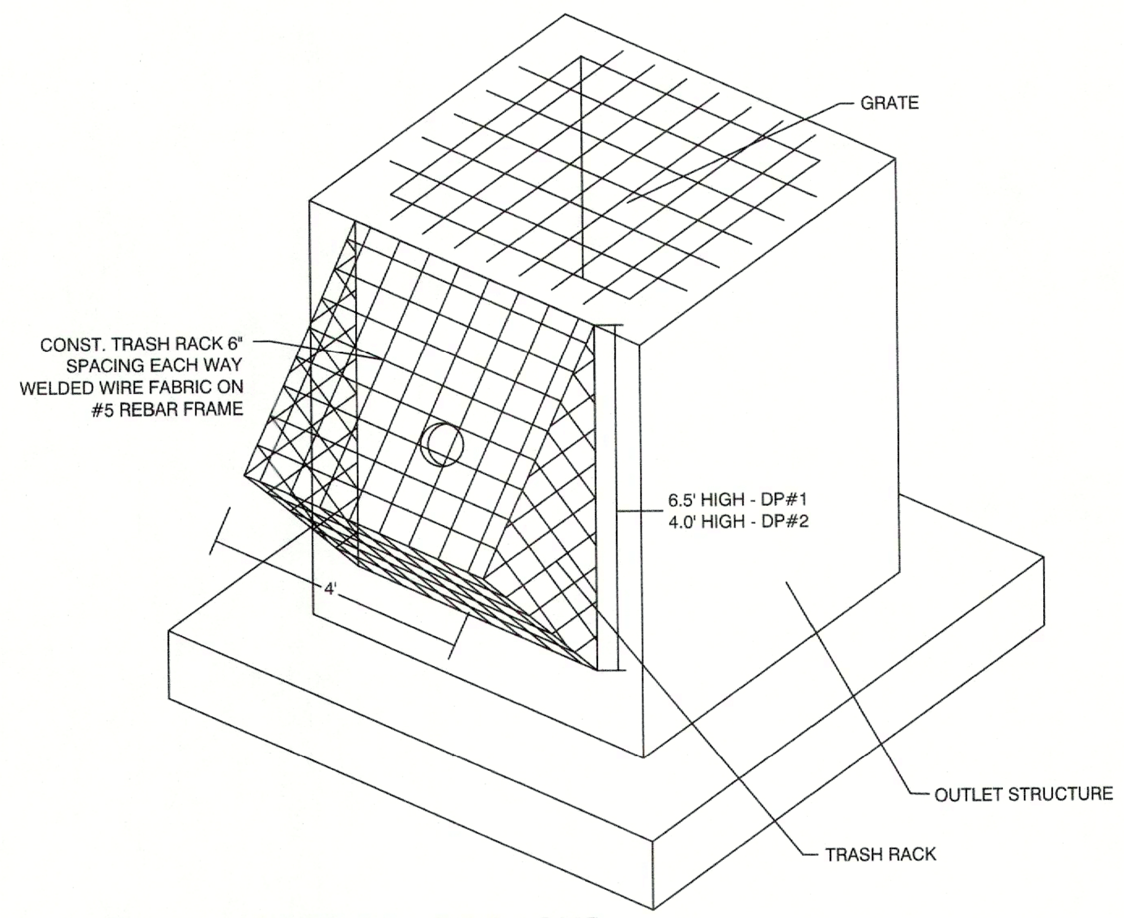


NOTES:

1. CONTRACTOR SHALL INSTALL COLLAR(S) PER MANUFACTURER'S SPECIFICATIONS.
2. CONTRACTOR SHALL ENSURE A WATERTIGHT SEAL BETWEEN THE COLLAR(S) AND PIPE(S).
3. ANTI-SEEP COLLARS SHALL BE PLACED ±15' AND ±25' DOWNSTREAM OF THE CULVERT INLETS, UNLESS OTHERWISE SPECIFIED. WHEN A CLAY CORE IS SPECIFIED, A COLLAR SHALL BE INSTALLED ON BOTH SIDES OF THE CORE.

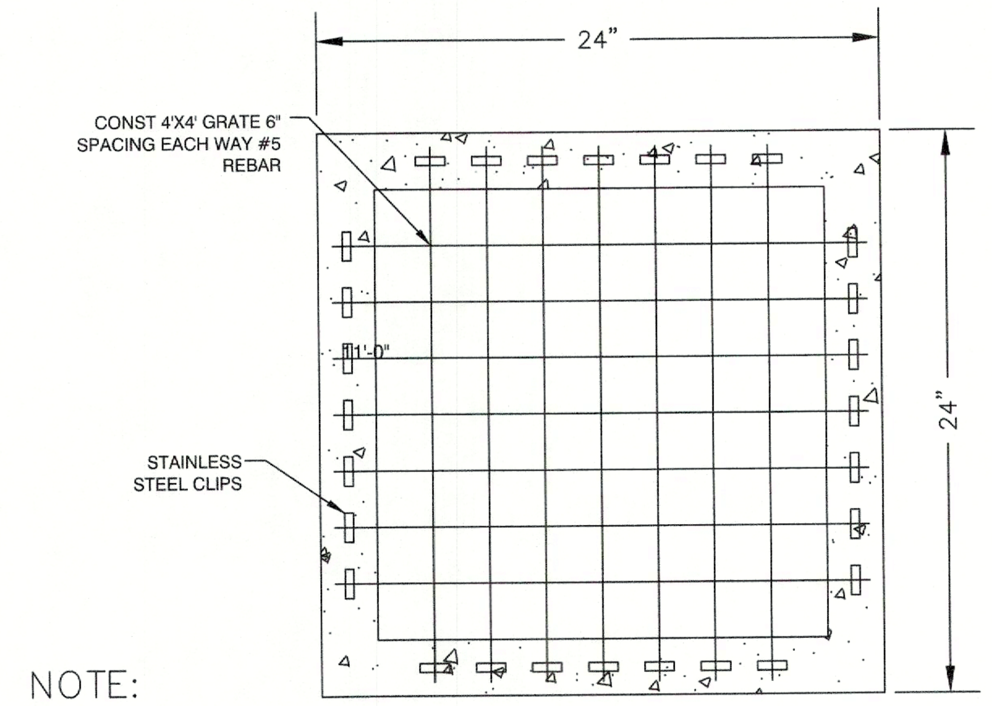
ANTI-SEEP COLLAR

NOT TO SCALE



TYPICAL INLET TRASH RACKS

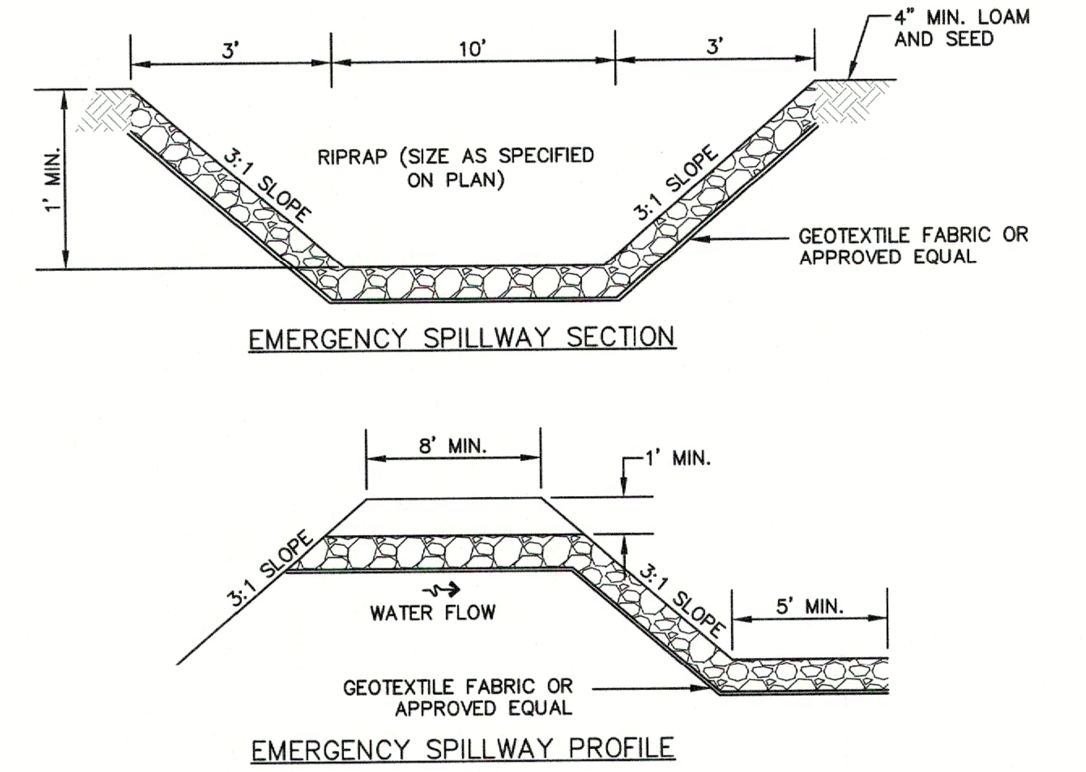
NOT TO SCALE



NOTE:

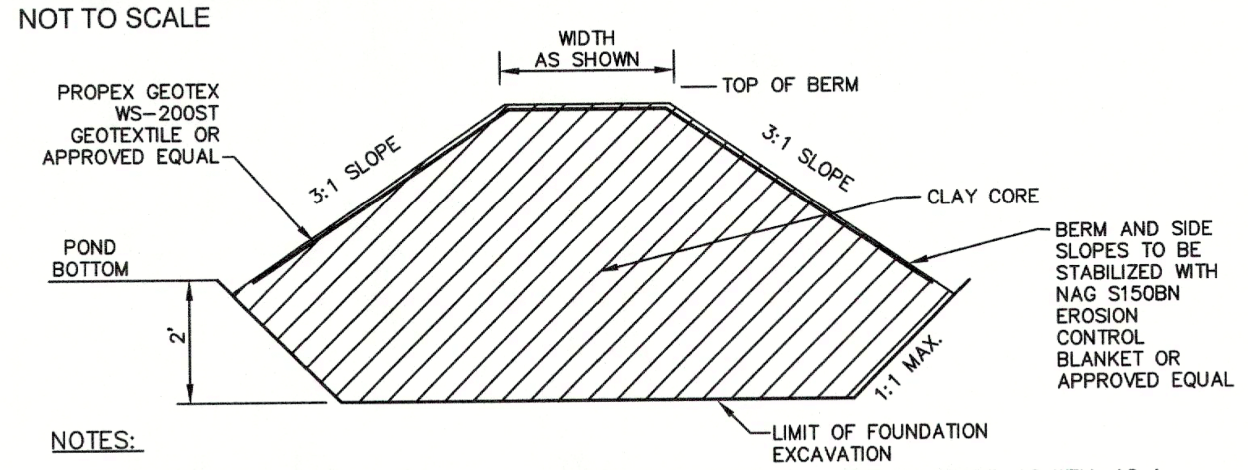
1) ALL OUTLET STRUCTURES SHALL BE PRE CAST WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EACH STRUCTURE FOR REVIEW BY THE TOWN.

GRATE



EMERGENCY SPILLWAY

NOT TO SCALE

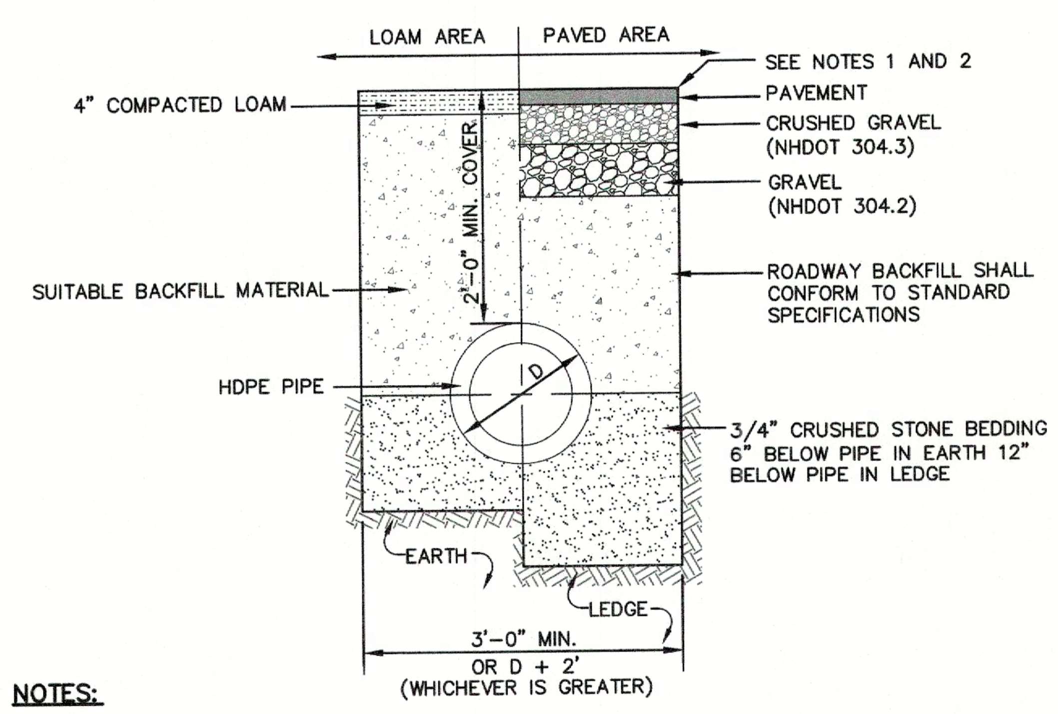


NOTES:

1. BERM SHALL BE CONSTRUCTED WITH A CLAY CORE TO BE KEYED INTO ORIGINAL GRADE, AS WELL AS A FINE GEOTEXTILE, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THE EARTHEN DIVIDER.
2. THE ENTIRE EMBANKMENT AREA OF EACH POND SHALL BE EXCAVATED A MINIMUM OF 2', STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 92% OF ASTM D-1557, AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3%, AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED FOR ANY REASON.
3. CLAY CORE MATERIAL SHALL BE CLEAN SILTY-CLAY BORROW FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER THREE INCHES (3") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100%, #4 SIEVE 95-100%, #40 SIEVE 60-90%, #100 SIEVE 40-60%, #200 SIEVE 25-45% (OF THE FRACTION PASSING THE #4 SIEVE). THE CLAY COMPONENT SHALL HAVE A PLASTICITY INDEX OF AT LEAST 8 AND A HYDRAULIC CONDUCTIVITY OF 10 TO THE -6 CM/SEC.
4. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

POND BERM WITH CLAY CORE

NOT TO SCALE

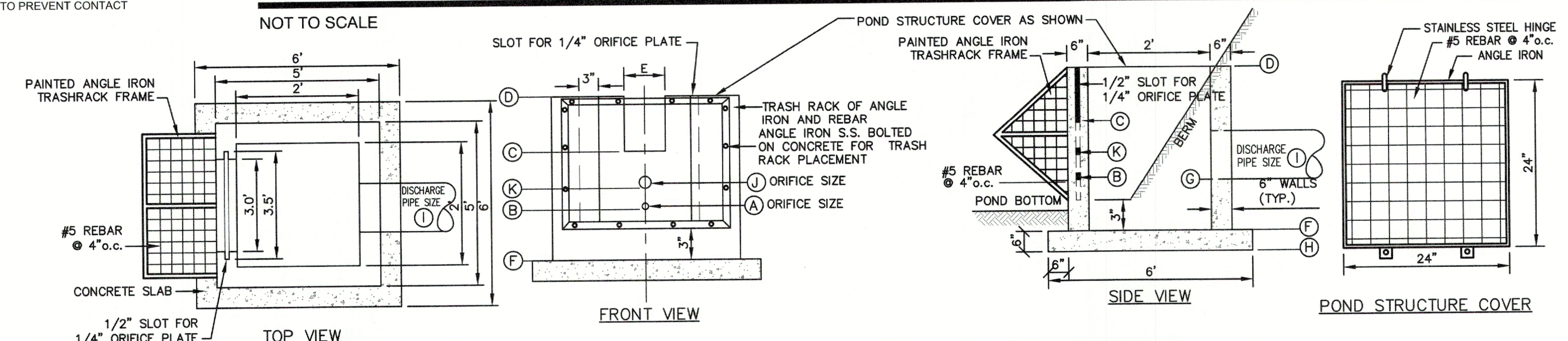


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE



APPROXIMATE LIST OF MATERIALS
1. 3 C.Y. – 5000 PSI CONCRETE
2. 15 ANGLE IRONS @ 4' LENGTH
3. REQUIRED S.S. BOLTS AND FASTENERS
4. 1/4" STEEL PLATE WITH DRILLED ORIFICES
5. 1 C.Y. – CRUSHED STONE FOR BASE
6. 48 #5 REBARS @ 1', 2' AND 3' LENGTHS
7. 32 #4 REBARS @ 4.5' LENGTH

	A	B	C	D	E	F	G	H	I	J	K
MSDOS 1	2"	199.0	N/A	201.7	48"	198.83	199.0	198.33	12"	7.5"	199.85
MSDOS 2	6"	200.3	N/A	201.1	48"	199.93	200.1	199.43	10"	N/A	N/A

NOTES:

1. REINFORCING STEEL SHALL CONSIST OF A SINGLE LAYER OF HORIZONTAL AND VERTICAL PLACED #4 REBAR @ 12" O.C.
2. CONCRETE BOX TO BE CONSTRUCTED OR PRECAST OF EQUAL DIMENSIONS AND REINFORCING.
3. CONCRETE SLAB TO BE CONSTRUCTED ALONG WITH BASE. FOR PRECAST BOX, A SLOTTED CONCRETE SLAB TO BE USED.
4. SECTION JOINTS AND PIPE OPENING SHALL BE SEALED WATERTIGHT WITH MORTAR BY CONTRACTOR.
5. ALL EXPOSED REBAR TO BE PAINTED WITH RUST-RESISTANT PAINT, COLOR AT CONTRACTOR'S DISCRETION.
6. TO BE SUPPLIED BY CAPITAL CONCRETE PRODUCTS OF HENNIKER, N.H., (1-603-428-3218) OR EQUAL.
7. STRUCTURE TO HAVE TEMPORARY PLYWOOD INSTALLED IN THE ORIFICE PLATE SLOT UNTIL THE SITE IS STABLIZED.
8. STRUCTURE IS TO BE DESIGNED FOR H20 LOADING.
9. SOIL UNDERLYING THE STRUCTURE IS TO BE COMPACTED TO 95% MODIFIED PROCTOR.
10. TRASH RACK TO PROTECT ALL ORIFICES 6" OR LESS IN DIAMETER.

MULTI-STAGE DISCHARGE OUTLET STRUCTURE (MSDOS)

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

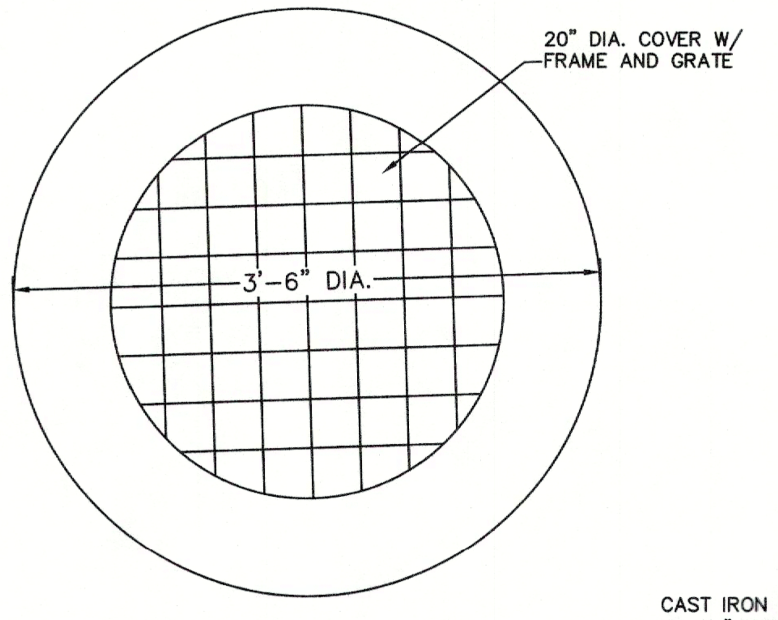
REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

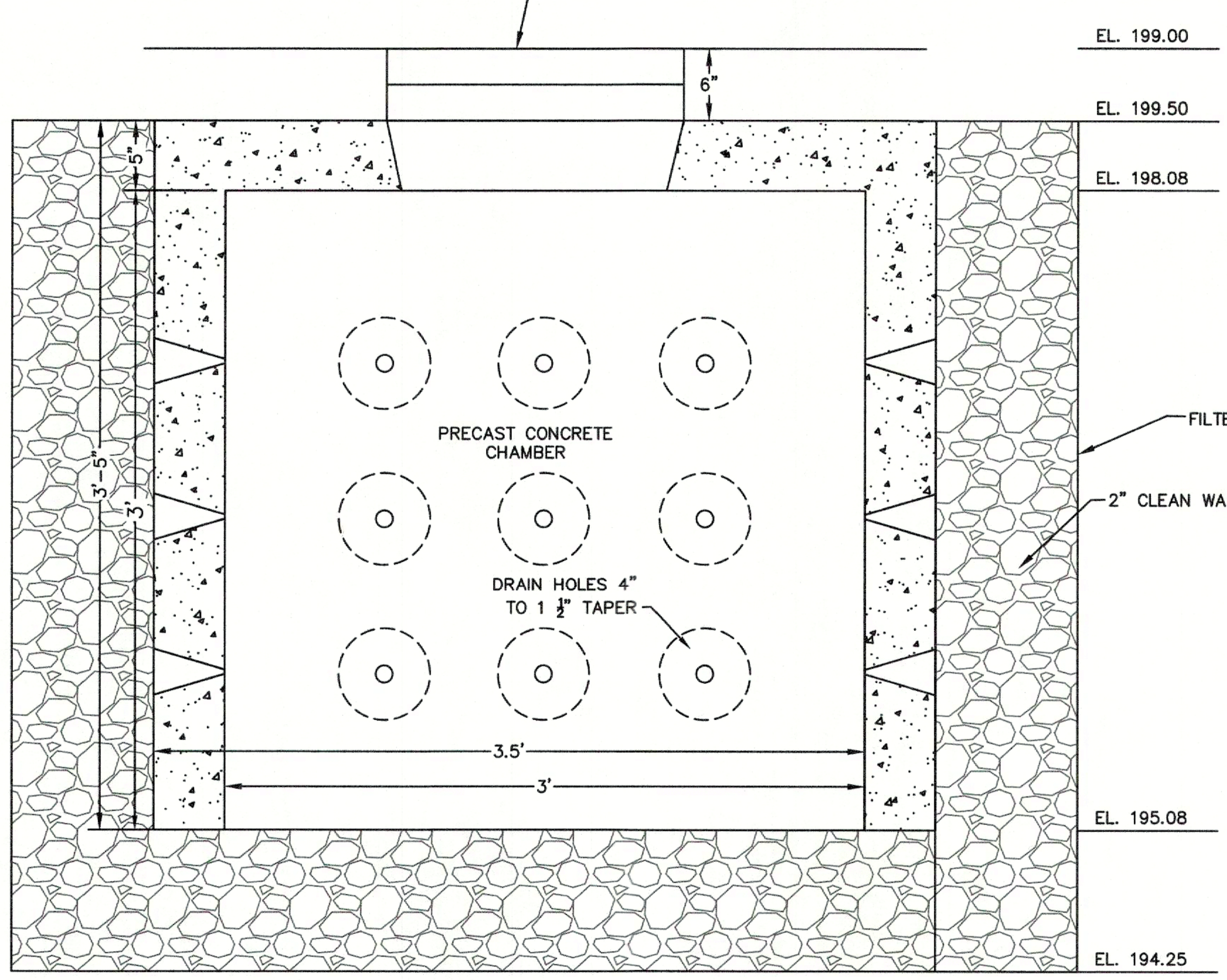
Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

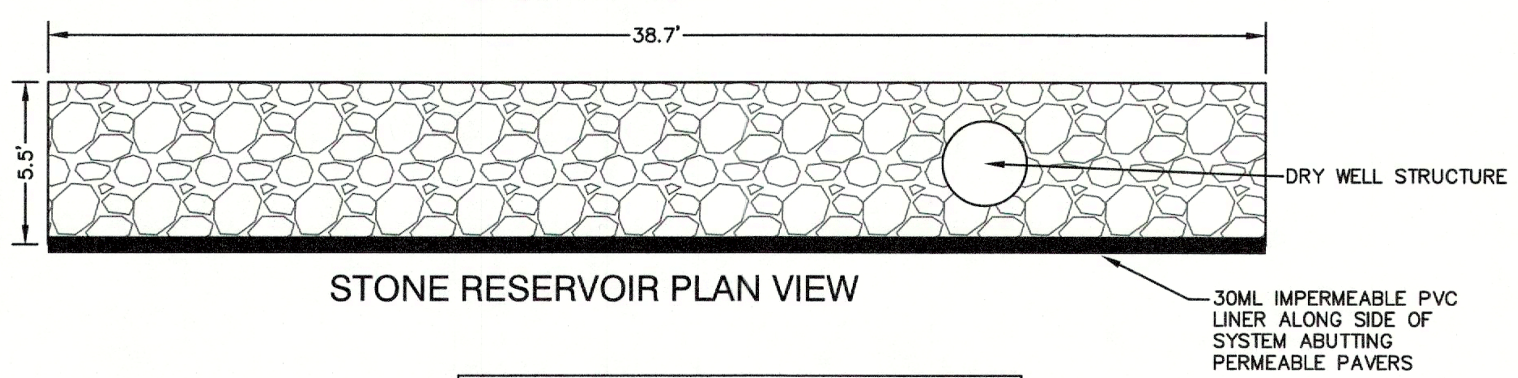
D2



PLAN VIEW



SECTION VIEW



STONE RESERVOIR PLAN VIEW

ITEM NO.		WEIGHT
MDWH	3' SECTION W/ COVER (ONE PIECE)	1,404#
MDWHNC	3' SECTION NO COVER	1,048#

NOTES:

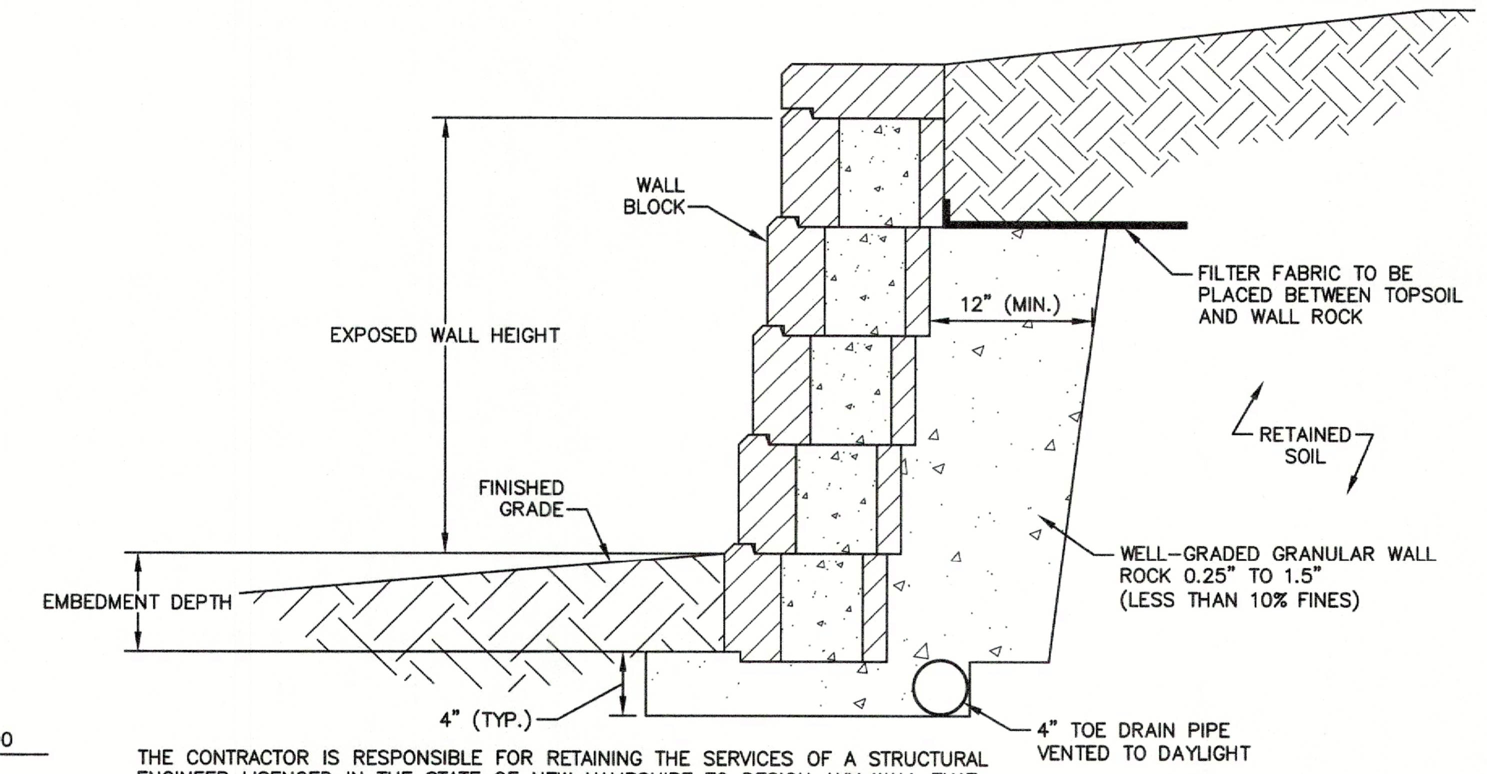
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. ALSO AVAILABLE IN AASHTO HS-20 LOADING.
3. CAPACITY INCREASES IN INCREMENTS OF 160 GALLONS FOR EACH 3' SECTION ADDED.
4. BEDROCK SHALL BE BLASTED TO AN ELEVATION OF AT LEAST 2' BELOW BOTTOM OF SYSTEM.
5. CONTRACTOR TO USE "SHEA CONCRETE MINI DRY WELL – 160 GALLONS" OR APPROVED EQUAL.

OPERATION AND MAINTIANANCE NOTES:

1. ANNUAL INSPECTIONS REQUIRED.
2. DRY WELLS ARE TO BE CLEANED IF THE DEPTH OF DEPOSITS IS GREATER THAN ONE-HALF THE DEPTH FROM THE BASIN BOTTOM TO THE INVERT OF THE LOWEST OPENING. DEBRIS OBSCURING THE GRATE INLET SHOULD ALSO BE REMOVED.
3. CLEAN THE INTERIOR OF THE STRUCTURE EITHER MANUALLY OR BY SPECIALLY DESIGNED EQUIPMENT INCLUDING, BUT NOT LIMITED TO, BUCKET LOADERS AND VACUUM PUMPS.
4. PERFORM A DETAILED CHEMICAL ANALYSIS TO DETERMINE IF THE MATERIALS MEET THE EPA CRITERIA FOR HAZARDOUS WASTE.
5. INSPECT INFILTRATION COMPONENTS AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE AND REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.

MINI DRY WELL - 160 GALLONS

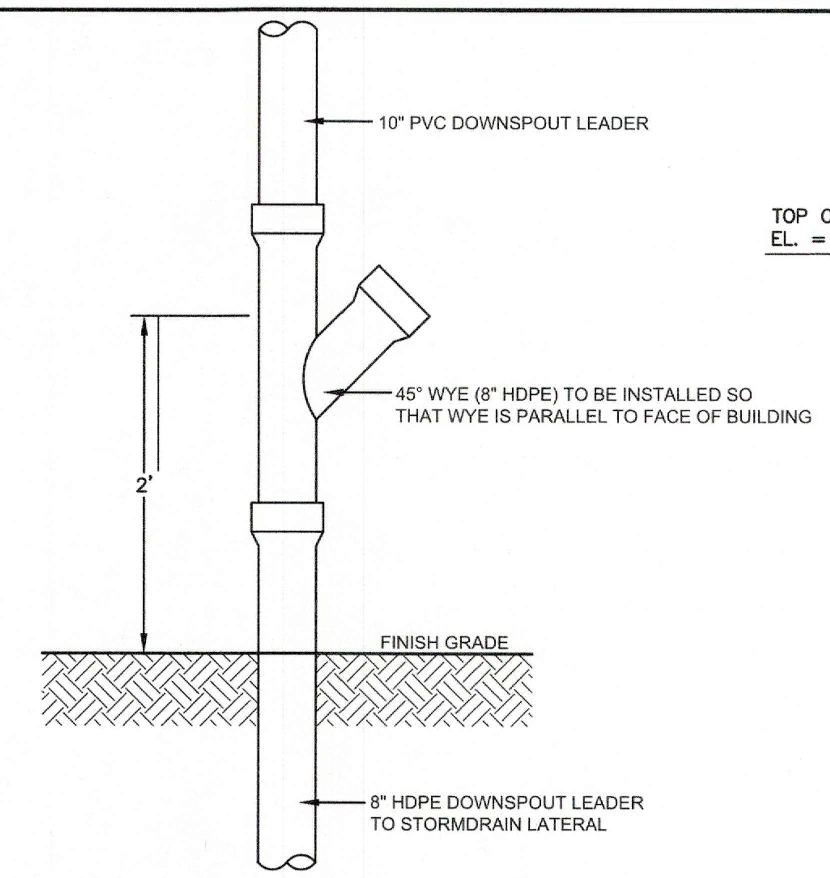
NOT TO SCALE



THE CONTRACTOR IS RESPONSIBLE FOR RETAINING THE SERVICES OF A STRUCTURAL ENGINEER LISCENCED IN THE STATE OF NEW HAMPSHIRE TO DESIGN ANY WALL THAT HAS A HEIGHT OVER 4.0'. JONES & BEACH ENGINEERS, INC. DOES NOT ACCEPT ANY LIABILITY FOR THE STRUCTURAL DESIGN AND/OR INSTALLATION OF ANY RETAINING WALL OF ANY TYPE ABOVE THIS HEIGHT. THIS DETAIL IS INTENDED TO PROVIDE AN EXAMPLE OF THE RETAINING WALL FOR PLANNING PURPOSES ONLY AND IS SPECIFICALLY NOT INTENDED FOR USE BY THE CONTRACTOR IN ANY CONSTRUCTION-RELATED ACTIVITY FOR A WALL GREATER THAN 4.0' IN HEIGHT.

TYPICAL GRAVITY WALL DETAIL

NOT TO SCALE

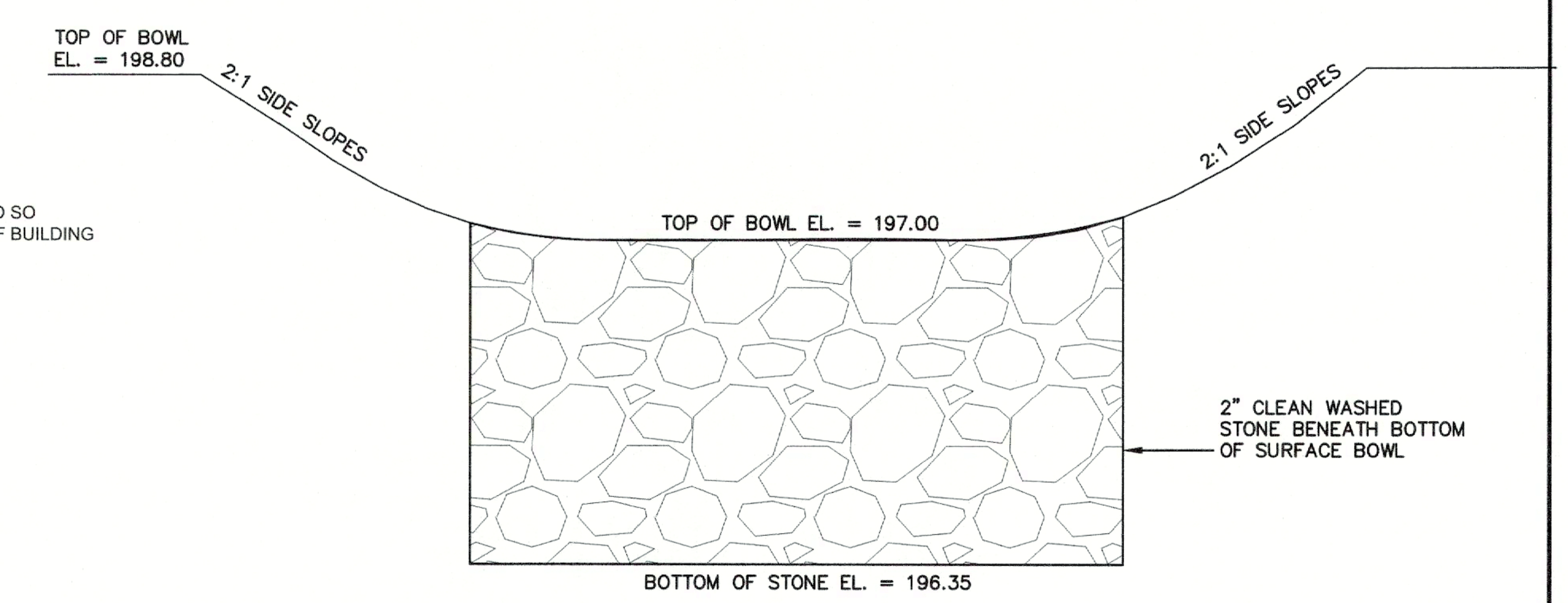


NOTE:

1. OVERFLOWS ARE TO BE INSTALLED ON EXTERIOR DOWNSPOUT LEADERS ONLY. ALL THREE BUILDINGS SHALL HAVE DOWNSPOUT OVERFLOWS.

DOWNSPOUT OVERFLOW

NOT TO SCALE



THE EXISTING NATIVE SUBGRADE MATERIAL SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE PLACEMENT. IF SOIL MEDIA OR SUBGRADE IS OVER COMPACTED, DISTURBED, OR CONTAMINATED BY FOREIGN OR DELETERIOUS MATERIALS OR LIQUIDS, REMOVE THE SOIL MEDIA AND CONTAMINATION; RESTORE THE SUBGRADE AS DIRECTED BY ENGINEER AND REPLACE CONTAMINATED SOIL MEDIA WITH NEW SOIL MEDIA.

INFILTRATION POCKET

NOT TO SCALE

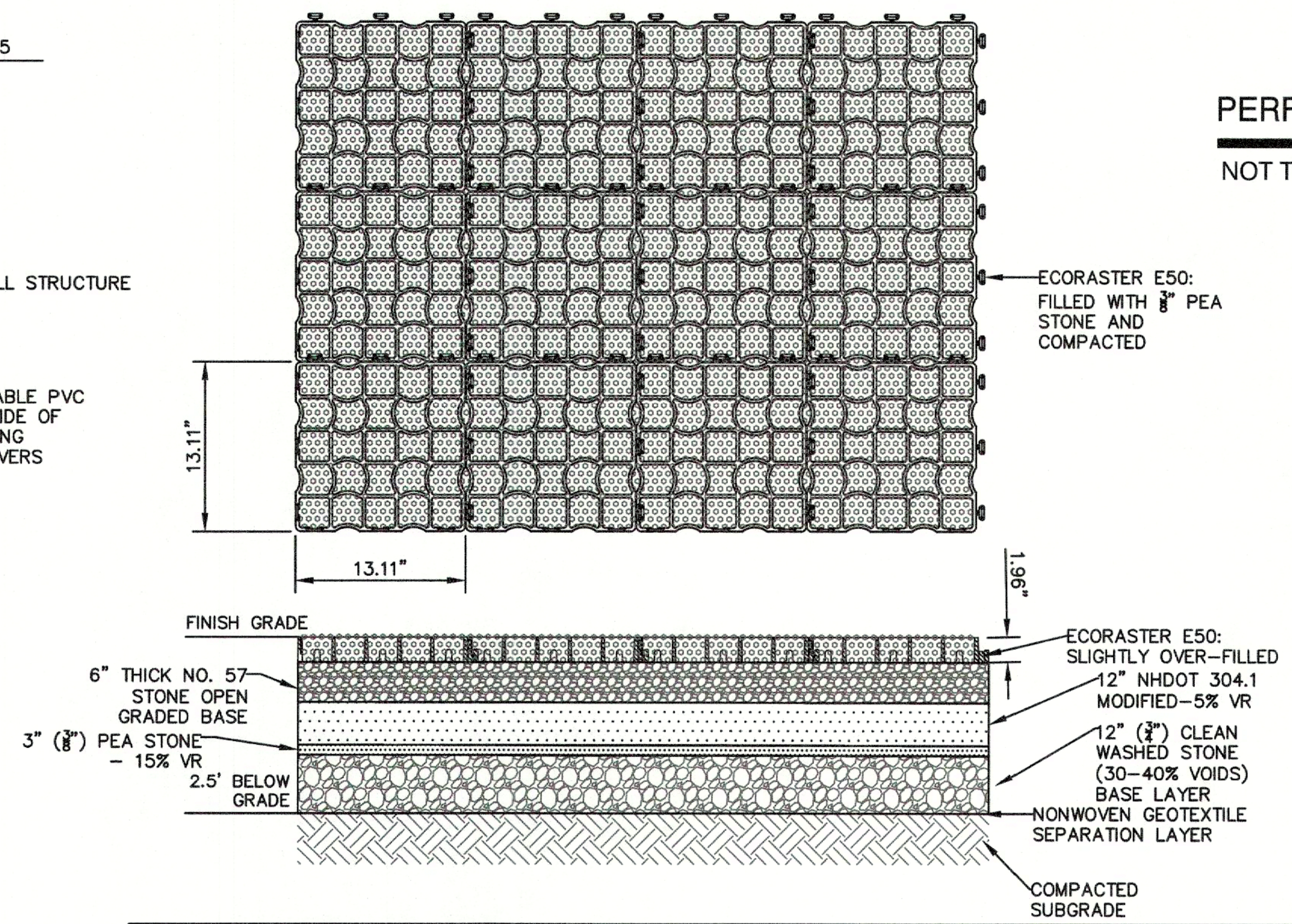
PERMEABLE ECO-RASTERS FOR STORM WATER MANAGEMENT

MAINTENANCE REQUIREMENTS:

PLOW WITH SLIGHTLY RAISED BLADE ONLY
SANDING OF SURFACE PROHIBITED
DEICING PERMITTED (NaCl, $MgCl_2$ OR EQUIVALENT)
SEAL-COATING PROHIBITED
CLEANING BY PRESSURIZED AIR OR WATER PROHIBITED
DRY VACUUM ANNUALLY

TYPICAL ECO-RASTER MAINTENANCE SIGN

NOT TO SCALE

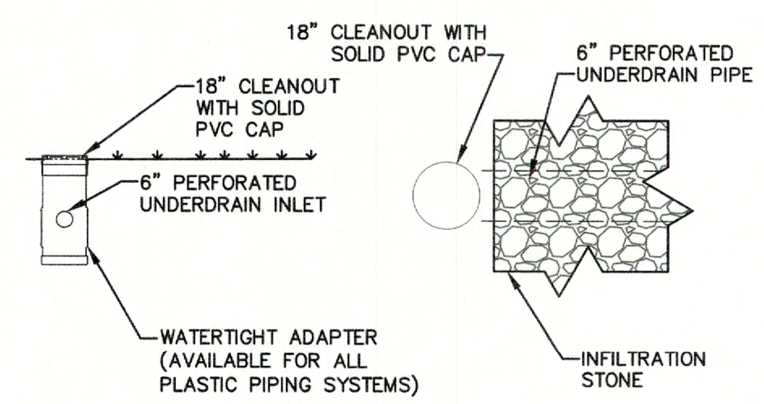


ACF ENVIRONMENTAL
LET'S GET IT DONE

ECORASTER E50 PERMEABLE PAVING SYSTEM GENERAL STONE FILLED*

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

* OR APPROVED EQUIVALENT



PERFORATED UNDERDRAIN CLEANOUT DETAIL

NOT TO SCALE

NOTES:

1. THICKNESS OF GRANULAR BASE LAYER DEPENDENT UPON SPECIFIC SITE & LOADING CONDITIONS.

2. ¼" CHIP CLEAR OR OTHER SUITABLE CLEAR STONE CAN BE USED FOR BASE LAYER TO INCREASE WATER STORAGE CAPACITY.

3. IF CLEAR STONE IS USED FOR BASE LAYER, THEN A NONWOVEN GEOTEXTILE SHOULD BE USED AS A SEPARATION LAYER BETWEEN THE CLEAR STONE BASE AND THE SUBGRADE.

4. DRAINAGE SYSTEM OF THE PERMEABLE PAVING SYSTEM SHALL BE DESIGNED TO ACCOMMODATE EXPECTED INFILTRATION RATES, STORAGE CAPACITIES, OUTLET FLOW RATES, AND OTHER SITE SPECIFIC CONDITIONS.

5. SUBGRADE SHALL BE SLOPED TO AID IN DRAINAGE.

6. THE EXISTING NATIVE SUBGRADE MATERIAL SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE PLACEMENT. IF SOIL MEDIA OR SUBGRADE IS OVER COMPACTED, DISTURBED, OR CONTAMINATED BY FOREIGN OR DELETERIOUS MATERIALS OR LIQUIDS, REMOVE THE SOIL MEDIA AND CONTAMINATION; RESTORE THE SUBGRADE AS DIRECTED BY ENGINEER AND REPLACE CONTAMINATED SOIL MEDIA WITH NEW SOIL MEDIA.

BIORETENTION SYSTEM ELEVATIONS									
BIORETENTION	SIZE OF BOTTOM (S.F.)	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	SHWT	LEDGE
1	2,378	202.5	201.5	200.0	198.5	198.25	197.5	197.41	< 195.58 *

* TEST PITS TERMINATED AT THESE DEPTHS BELOW REFERENCE POINT WITHOUT ENCOUNTERING LEDGE.

SAND SPECIFICATION

SIEVE SIZE	% BY WEIGHT
⅜"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5

TOPSOIL SPECIFICATION

LOAMY SAND TOPSOIL WITH MINIMAL CLAY CONTENT AND BETWEEN 15 TO 25% FINES PASSING THE #200 SIEVE.

MULCH SPECIFICATION

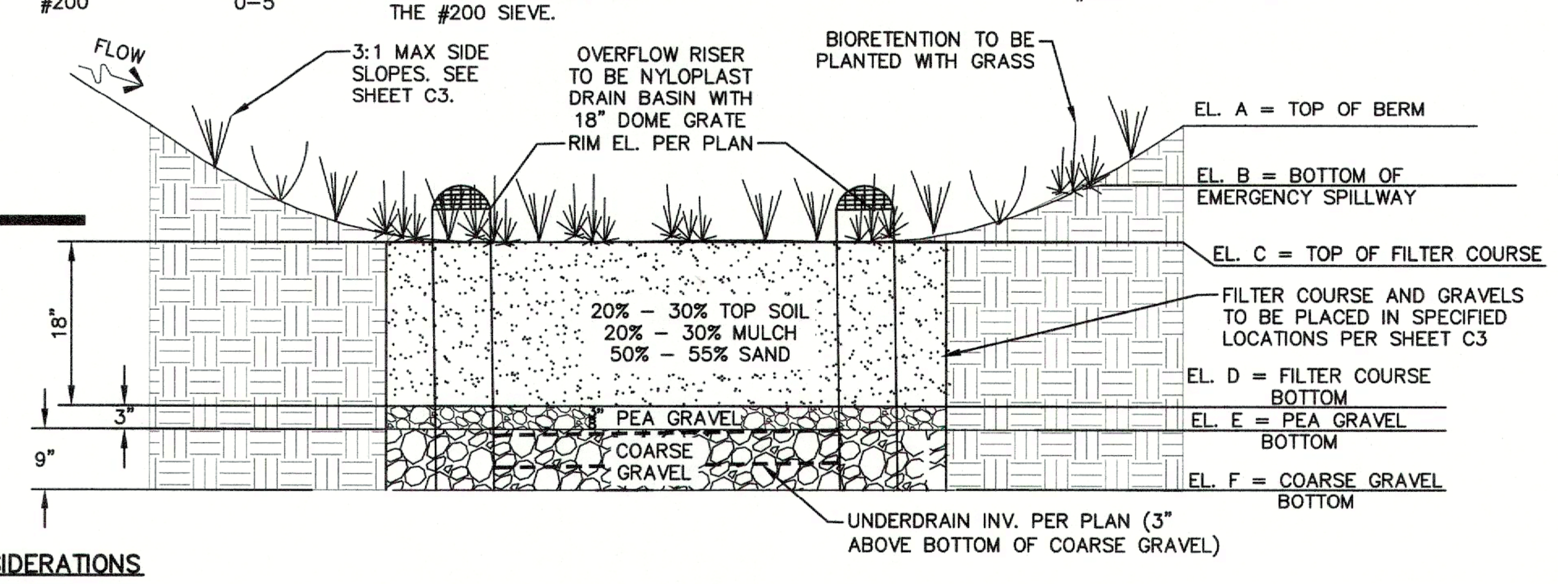
MODERATELY FINE, SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE.

PEA GRAVEL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
½"	100
⅜"	85–100
#4	10–30
#8	0–10
#16	0–15

COARSE GRAVEL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
1"	90–100
½"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5



DESIGN CONSIDERATIONS

1. DO NOT DIRECT RUNOFF TO THE BIORETENTION SYSTEMS UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN-OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
4. EMERGENCY SPILLWAY ELEVATION (EL. B) REFERS TO BOTTOM OF RIP RAP.
5. THE EXISTING NATIVE SUBGRADE MATERIAL SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE PLACEMENT. IF SOIL MEDIA OR SUBGRADE IS OVER COMPACTED, DISTURBED, OR CONTAMINATED BY FOREIGN OR DELETERIOUS MATERIALS OR LIQUIDS, REMOVE THE SOIL MEDIA AND CONTAMINATION; RESTORE THE SUBGRADE AS DIRECTED BY ENGINEER AND REPLACE CONTAMINATED SOIL MEDIA WITH NEW SOIL MEDIA.
6. IN ADDITION TO DESIGN CRITERIA LISTED HERE, REFER TO GUIDELINES LISTED IN UNIVERSITY OF NEW HAMPSHIRE (UNH) STORMWATER CENTER BIORETENTION SOIL SPECIFICATION.
7. BIORETENTION SYSTEM SHALL HAVE SEDIMENT FOREBAYS FOR PRE-TREATMENT.
8. SEDIMENT FOREBAY SPILLWAY, EMERGENCY SPILLWAY, POND BERM, AND MSDOS DETAILS APPLY TO CONSTRUCTION OF WET POND AND BIORETENTION POND.

MAINTENANCE REQUIREMENTS:

1. SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
2. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
3. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72 HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
4. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

BIORETENTION SYSTEM

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE
MICHAEL J. KERWAN
No. 9648
LICENSED
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
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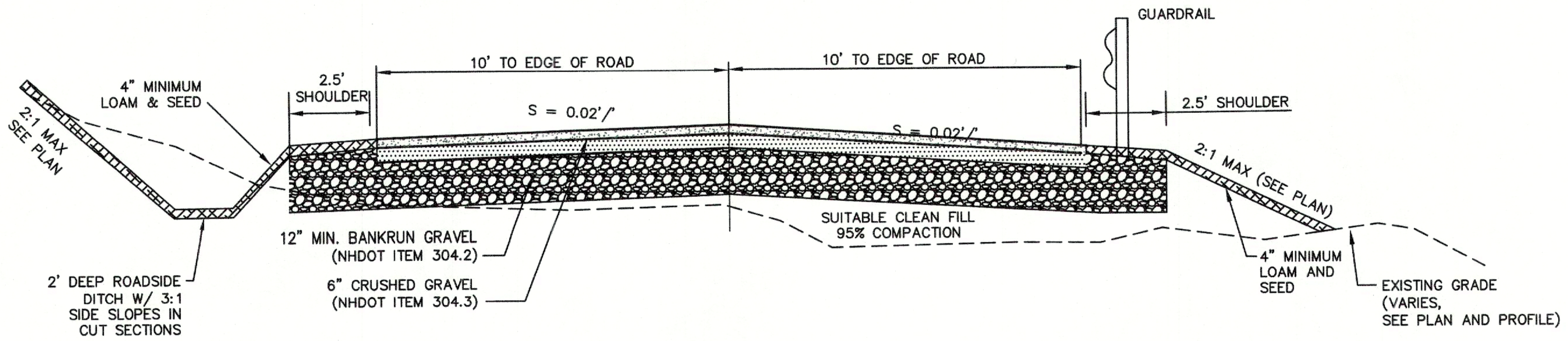
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

D3

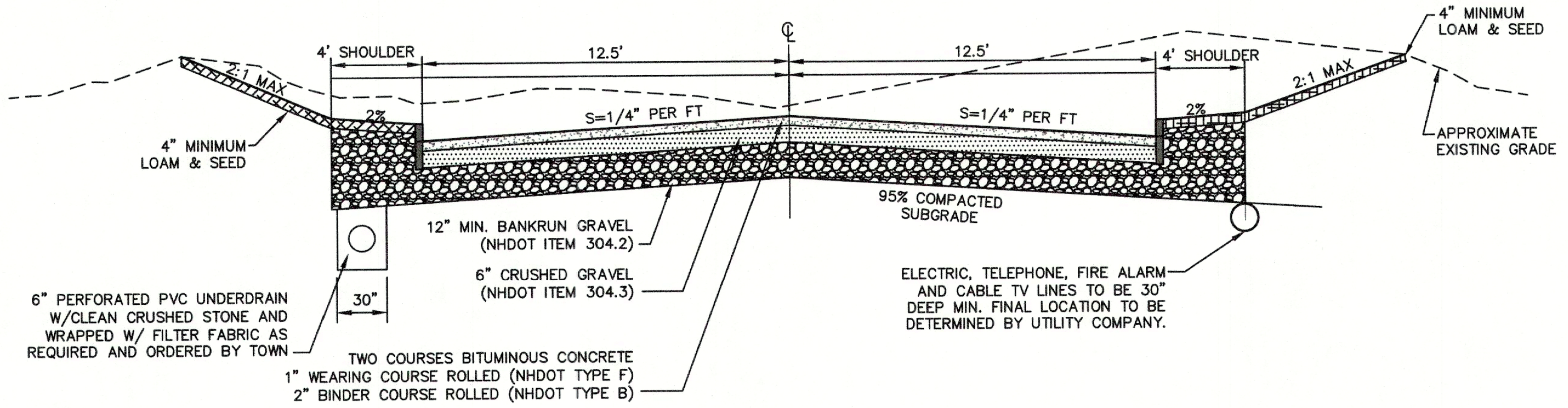


NOTES:

1. REMOVE ALL ORGANICS, TOPSOIL AND MATERIAL YIELDING TO A 10 TON ROLLER. SUBBASE AREAS THAT CONTAIN UNSUITABLE MATERIALS MUST BE EXCAVATED TO A DEPTH NO LESS THAN 36" BELOW FINISH GRADE AND BE REPLACED WITH GRAVEL COMPACTED TO 95%.
2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN AND NHDOT STANDARDS, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
3. TOWN MAY REQUIRE UNDERDRAIN, ADDITIONAL GRAVEL AND/OR ADDITIONAL DRAINAGE IF SOIL CONDITIONS WARRANT.
4. LOAM AND/OR UNSUITABLE MATERIAL SHALL BE REMOVED TO A SOLID BASE MATERIAL.
5. COMPACTION SHALL BE PERFORMED TO 95% OF THE MATERIALS' MODIFIED PROCTOR VALUE.

TYPICAL ROADWAY SECTION (EMERGENCY ACCESS DRIVE STA. 1+93 - 9+67)

NOT TO SCALE



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2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN STANDARDS AND NHDOT, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
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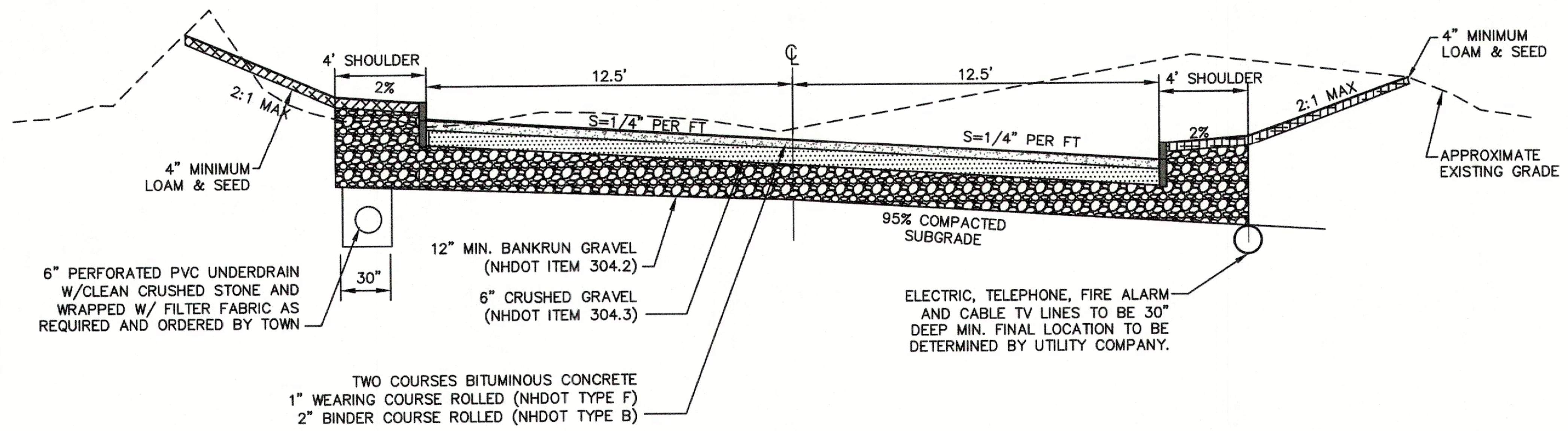
TYPICAL ROADWAY SECTION (WHITE ROCK LANE, STA. 1+46 - 9+95.40)

NOT TO SCALE



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2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN STANDARDS AND NHDOT, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
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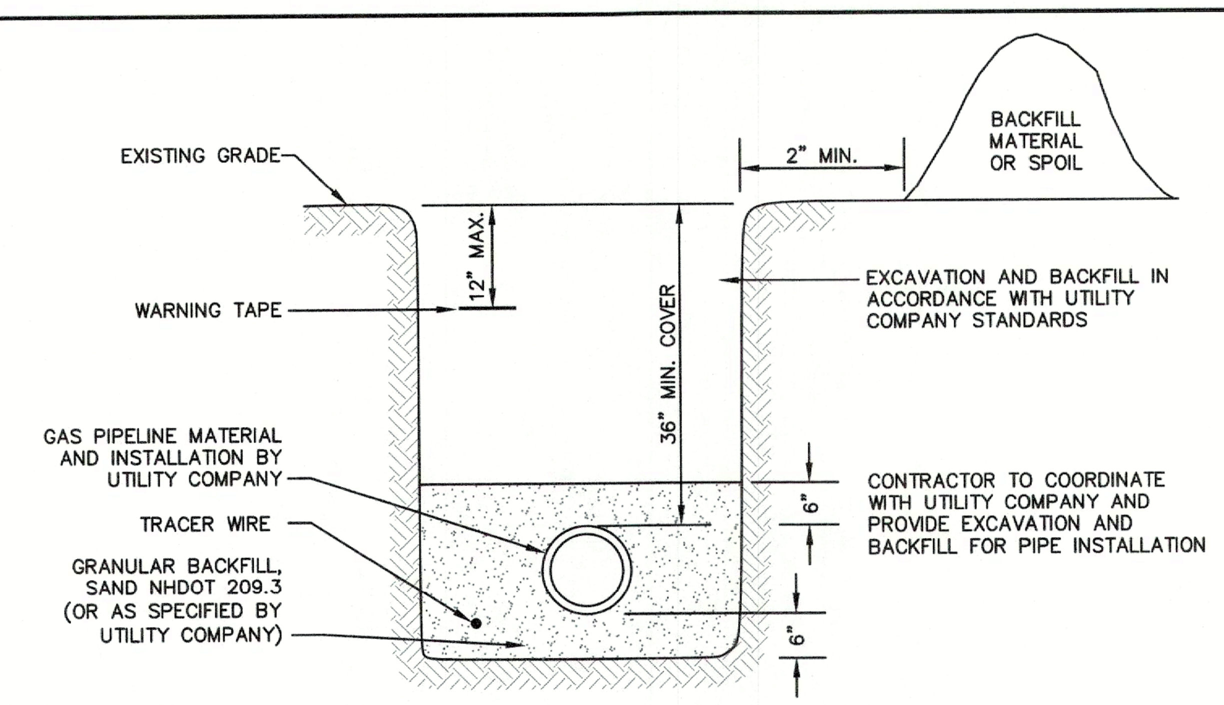
4. LOAM AND/OR UNSUITABLE MATERIAL SHALL BE REMOVED TO A SOLID BASE MATERIAL.
5. COMPACTION SHALL BE PERFORMED TO 95% OF THE MATERIALS' MODIFIED PROCTOR VALUE.

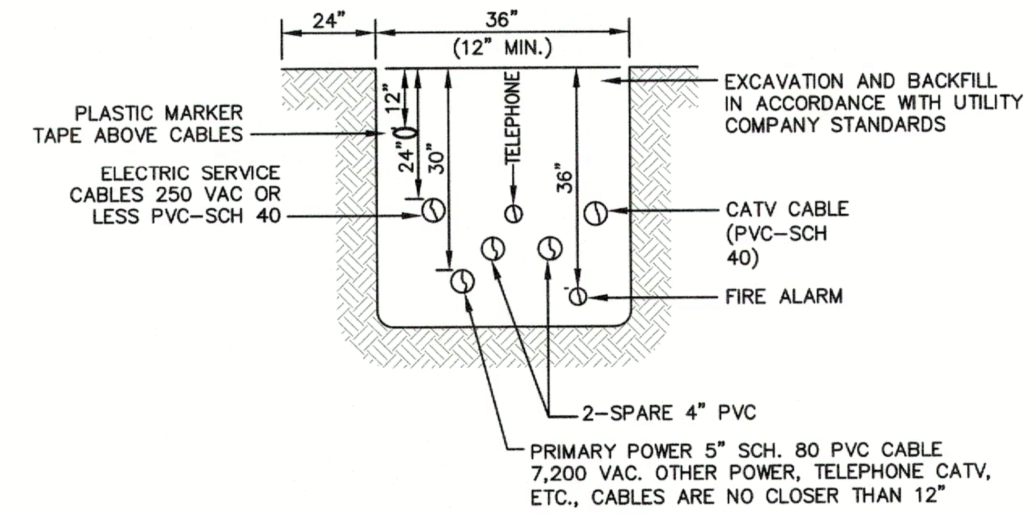
TYPICAL ROADWAY SECTION (WHITE ROCK LANE, STA. 0+00 - 1+46)

NOT TO SCALE



GAS TRENCH

NOT TO SCALE



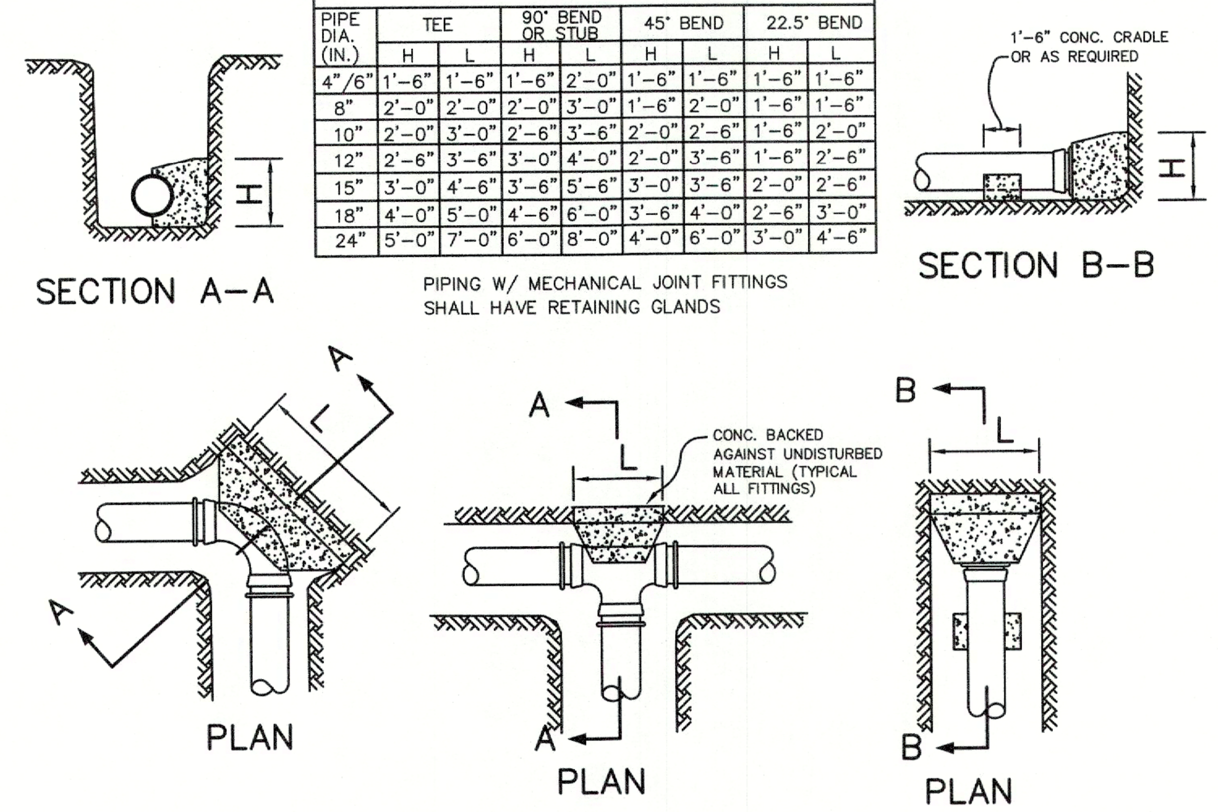
NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

UTILITY TRENCH

NOT TO SCALE

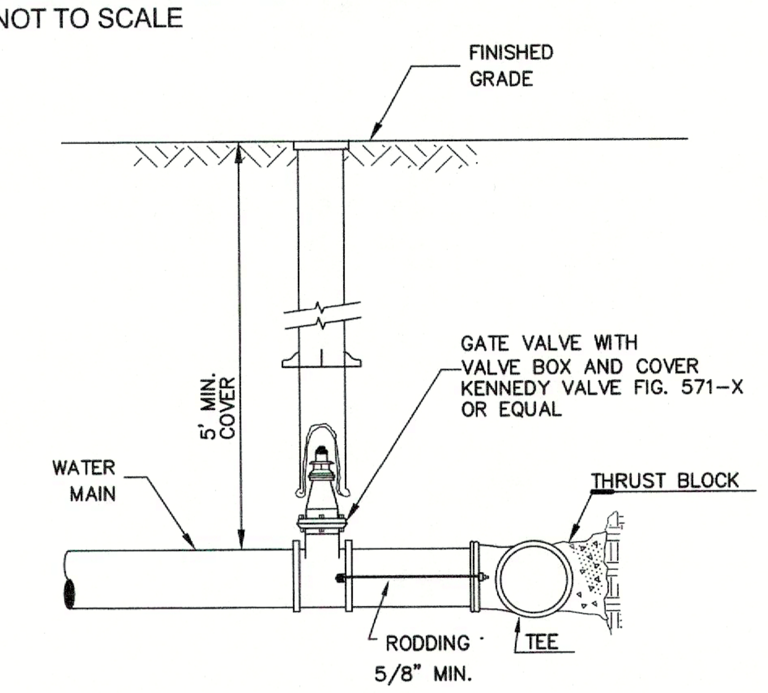
CONCRETE THRUST BLOCK DIMENSIONS								
PIPE DIA. (IN.)	TEE		90° BEND OR STUB		45° BEND		22.5° BEND	
	H	L	H	L	H	L	H	L
4"/6"	1'-6"	1'-6"	1'-6"	2'-0"	1'-6"	1'-6"	1'-6"	1'-6"
8"	2'-0"	2'-0"	2'-0"	3'-0"	1'-6"	2'-0"	1'-6"	1'-6"
10"	2'-0"	3'-0"	2'-6"	3'-6"	2'-0"	2'-6"	1'-6"	2'-0"
12"	2'-6"	3'-6"	3'-0"	4'-0"	2'-0"	3'-6"	1'-6"	2'-6"
15"	3'-0"	4'-6"	3'-6"	5'-6"	3'-0"	3'-6"	2'-0"	2'-6"
18"	4'-0"	5'-0"	4'-6"	6'-0"	3'-6"	4'-0"	2'-6"	3'-0"
24"	5'-0"	7'-0"	6'-0"	8'-0"	4'-0"	6'-0"	3'-0"	4'-6"

PIPING W/ MECHANICAL JOINT FITTINGS SHALL HAVE RETAINING GLANDS



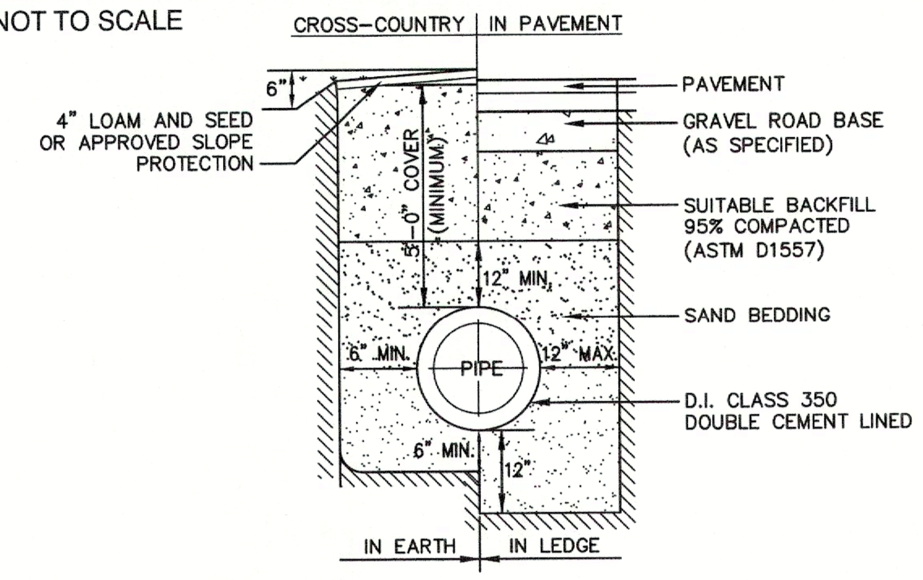
THRUST BLOCK DETAILS

NOT TO SCALE



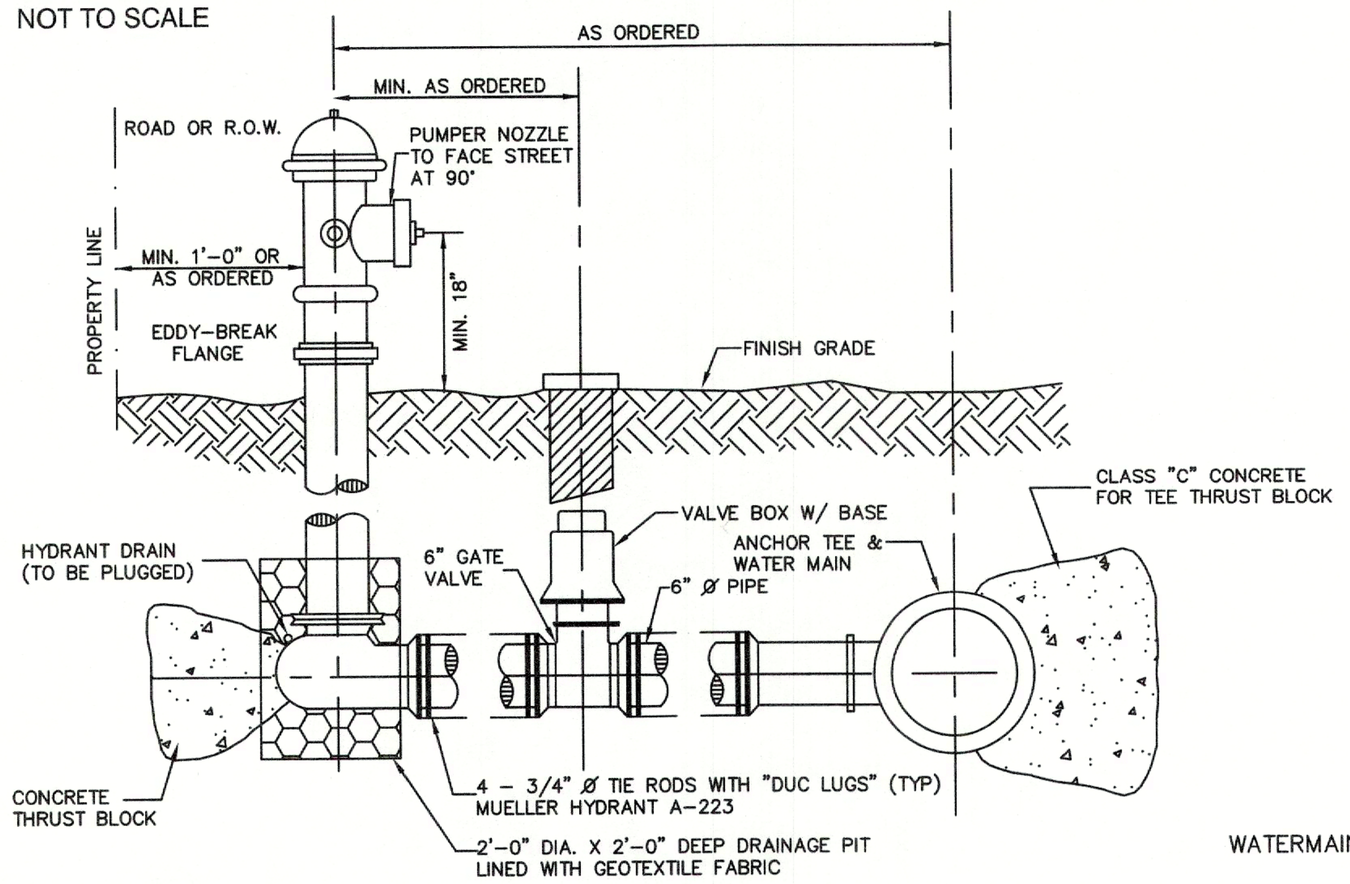
BURIED GATE VALVE DETAIL

NOT TO SCALE



WATER SYSTEM TRENCH

NOT TO SCALE

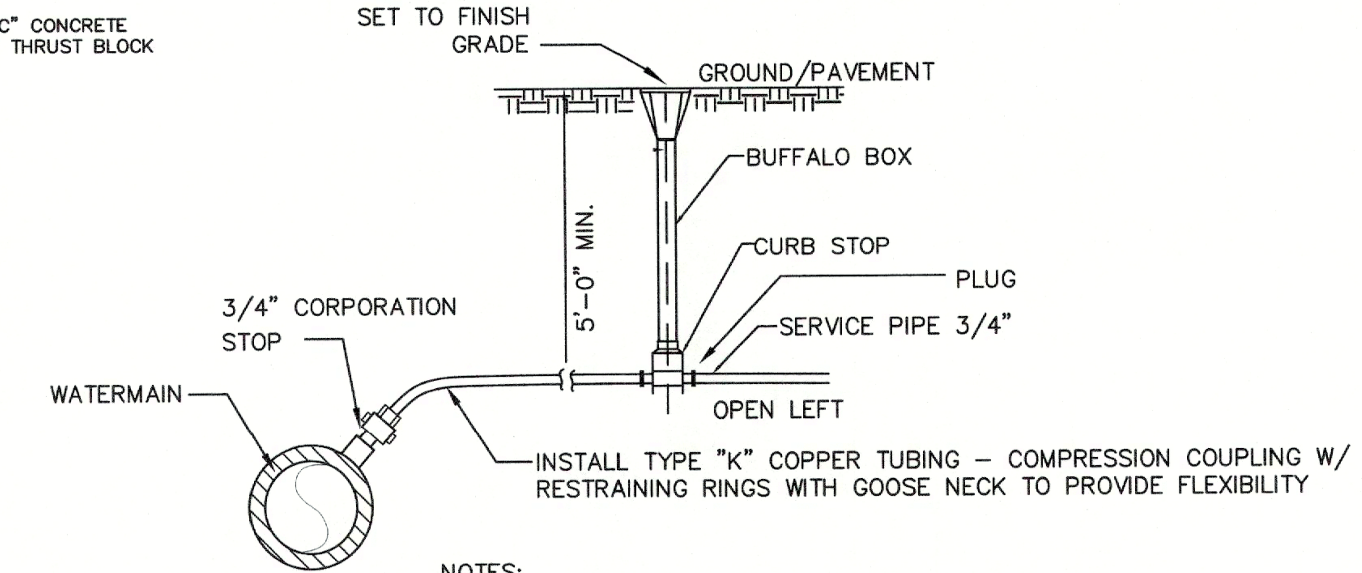


OPEN LEFT
RAYMOND FIRE
DEPARTMENT SPECS.

NOTES:
1. ALL PIPE FITTINGS TO BE D.I. PRESSURE CLASS 350, THICKNESS CLASS 52.
2. HYDRANT TO BE PAINTED RED WITH WHITE "REFLECTOR" PAINT ON BONNET.
3. MECHANICAL JOINTS SHALL HAVE MEGALUG RETAINING GLANDS AS MADE BY EBBA OR APPROVED EQUAL.
4. STEAMER NOZZLE TO BE "STORCH" TYPE.
5. NATIONAL STANDARD THREAD.

HYDRANT INSTALLATION

NOT TO SCALE



NOTES:
1. THE END OF THE INSTALLED WATER SERVICE TO BE MARKED BY A 2X4.
2. ALL WORK TO BE IN ACCORDANCE WITH THE LOCAL WATER COMPANY INSTALLATION PROCEDURES AND SPECIFICATIONS.

TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
D4
SHEET 43 OF 61
JBE PROJECT NO. 20564

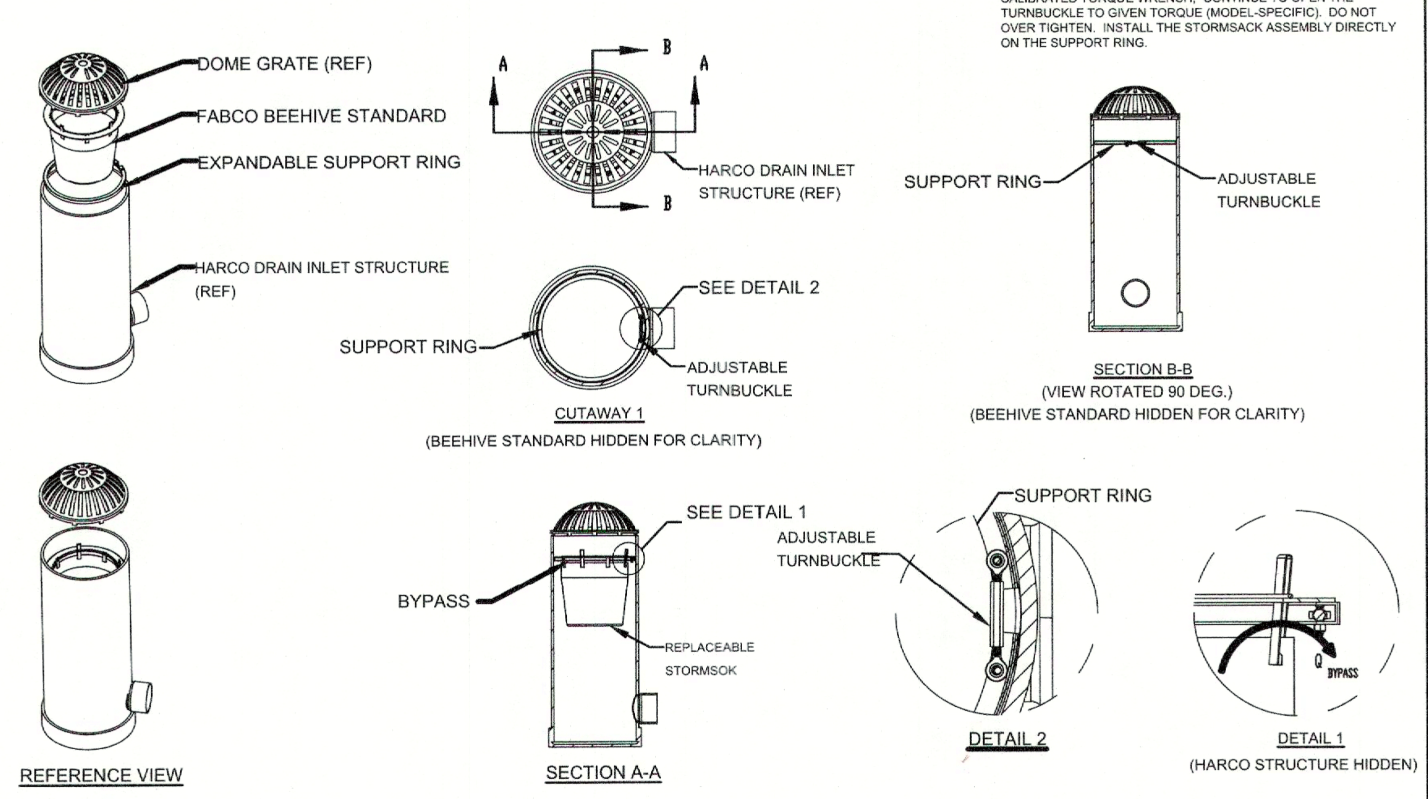
STRUCTURE DIAMETER (IN.)	DEBRIS CAPACITY (CU.FT)	FILTERED FLOWRATE (CFS)	BYPASS FLOWRATE (CFS)
12	0.66	1.7	1.0
15	1.0	2.1	1.3
18	1.2	2.3	1.4
24	2.8	3.9	2.2
30	2.8	3.9	2.2

NOTES:

1. MATERIAL:
   A) SUPPORT FLANGE: ALUMINUM ALLOY PLATE, 5000 SERIES
   B) STORMSOK: WOVEN POLYPROPYLENE GEOTEXTILE
   C) EXPANSION RING: ALUMINUM ALLOY CHANNEL, 6000 SERIES
   D) HARDWARE: STAINLESS STEEL
2. RECOMMENDED MINIMUM VAULT DEPTH: 2-IN BELOW STORMSOK
3. USE ONLY WITH FABCO REPLACEABLE STORMSOK

GENERAL INSTALLATION:

ADJUST THE TURNBUCKLE DOWN TO GIVE THE SMALLEST RING DIAMETER AND LOCATE THE EXPANSION RING INTO THE HARCO STRUCTURE MINIMUM OF 6-IN DOWN FROM THE TOP OPENING AS SHOWN. BEGIN OPENING THE TURNBUCKLE UNTIL THE EXPANSION RING IS SELF SUPPORTING, THEN VERIFY THE RING IS LEVEL AND PLUMB TO THE HARCO STRUCTURE. USING A CALIBRATED TORQUE WRENCH, CONTINUE TO OPEN THE TURNBUCKLE TO GIVEN TORQUE (MODEL-SPECIFIC). DO NOT OVER TIGHTEN. INSTALL THE STORMSACK ASSEMBLY DIRECTLY ON THE SUPPORT RING.



ACF BEEHIVE OVERFLOW FILTER STRUCTURE DETAILS

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
WWW.ACFENVIRONMENTAL.COM
800.448.3636

REVISED AUG 2020

FOCALPOINT HP PERFORMANCE SPECIFICATION:

HIGH PERFORMANCE MEDIA

HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE.

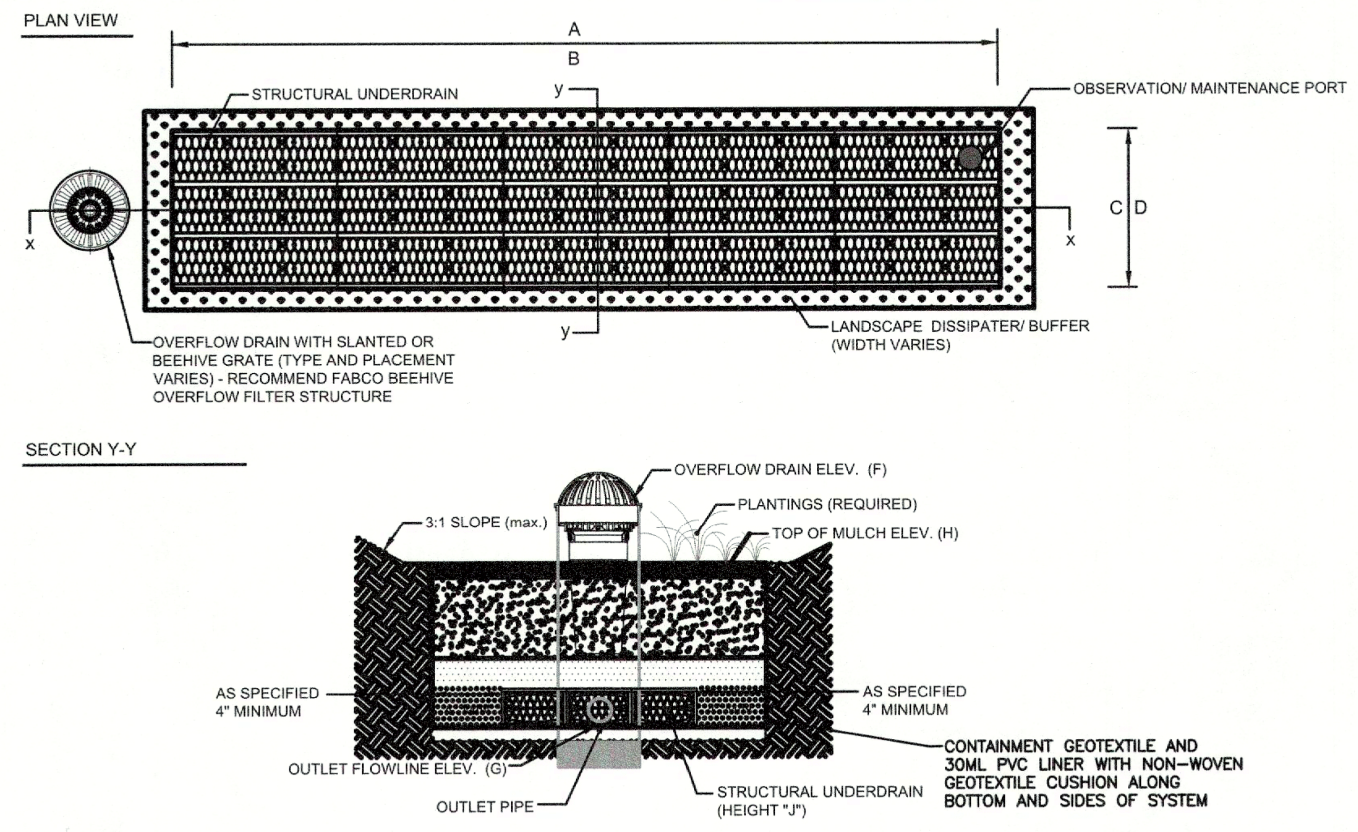
HIGH PERFORMANCE STRUCTURAL UNDERDRAIN

MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

PLANT COMPONENT

SUPPLIER SHALL PROVIDE LIST OF ACCEPTABLE PLANTS
IF PLANTS ARE NOT INCLUDED IN THE LANDSCAPE CONTRACT/PLANS. SITE CONTRACTOR SHALL PROVIDE PLANTS.
PLANTS SHALL BE INSTALLED AT THE TIME THE SYSTEM IS COMMISSIONED FOR USE. PLANTING OUTSIDE THIS TIME REQUIRES APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT OF RECORD.
SEE FOCALPOINT INSTALLATION GUIDE FOR PLANT SPACING, PLANTING PROCEDURES ETC.

FOCALPOINT HP CONSTRUCTION GUIDE		
A	FOCALPOINT LENGTH	SEE PLANS
B	# UNDERDRAIN LONG	SEE PLANS
C	FOCALPOINT WIDTH	SEE PLANS
D	# UNDERDRAIN WIDE	SEE PLANS
E	WATER QUALITY VOLUME	VARIES
F	OVERFLOW ELEVATION	SEE PLANS
G	OUTLET FLOWLINE	SEE PLANS
H	TOP OF MULCH	SEE PLANS
I	TOP OF GABION (OPTIONAL)	NO GABION
J	UNDERDRAIN HEIGHT	SEE PLANS



FOCALPOINT HP CONSTRUCTION GUIDE

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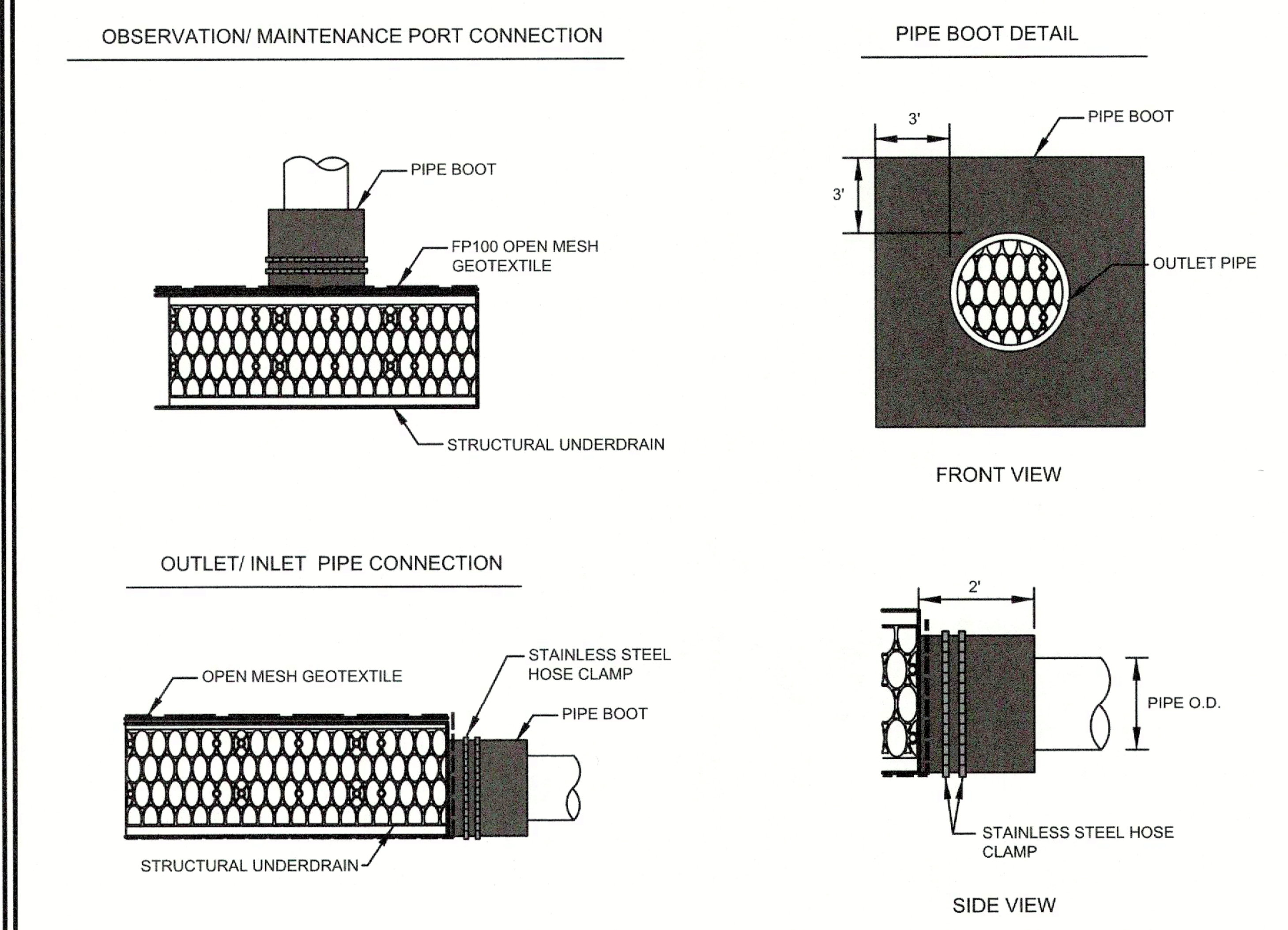

FOCALPOINT PIPE CONNECTION

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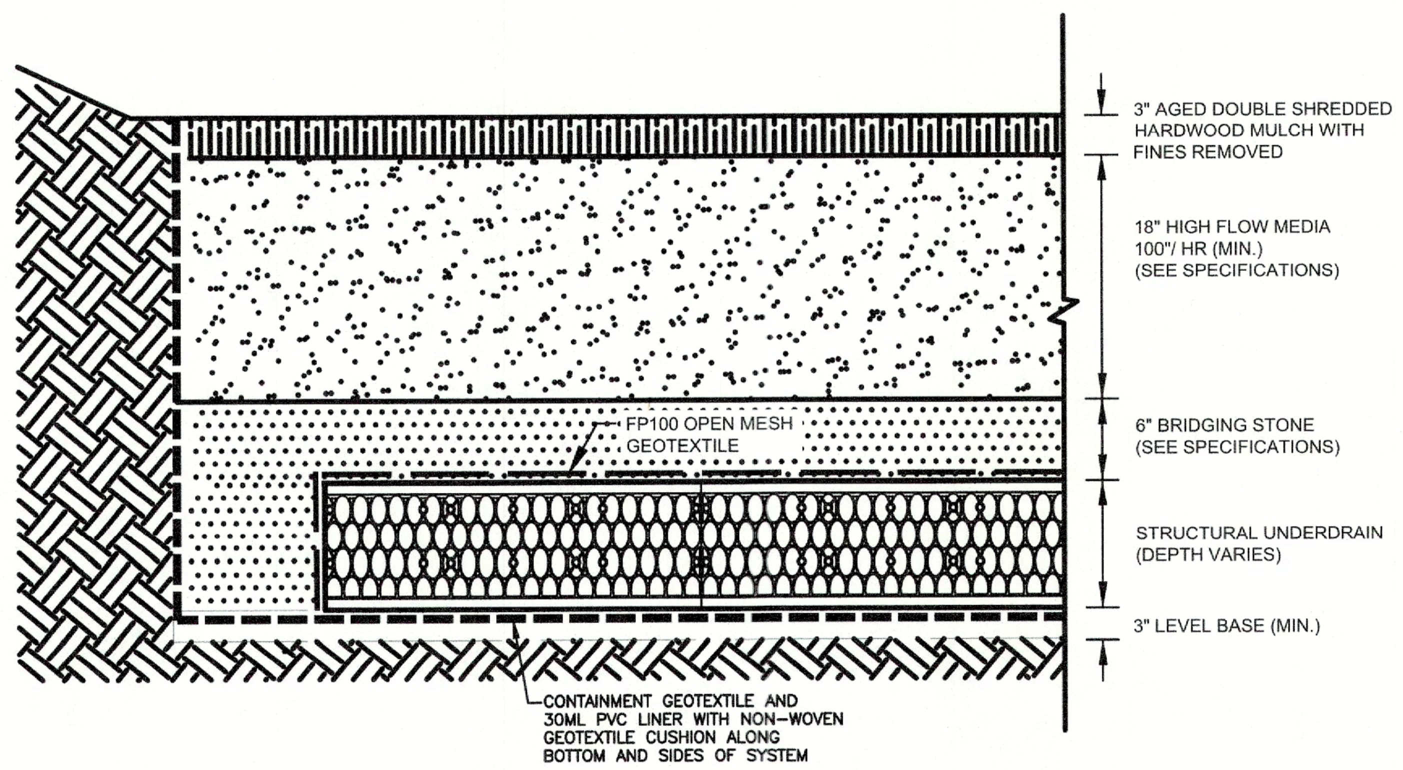

FOCALPOINT HP DETAILED CROSS SECTION

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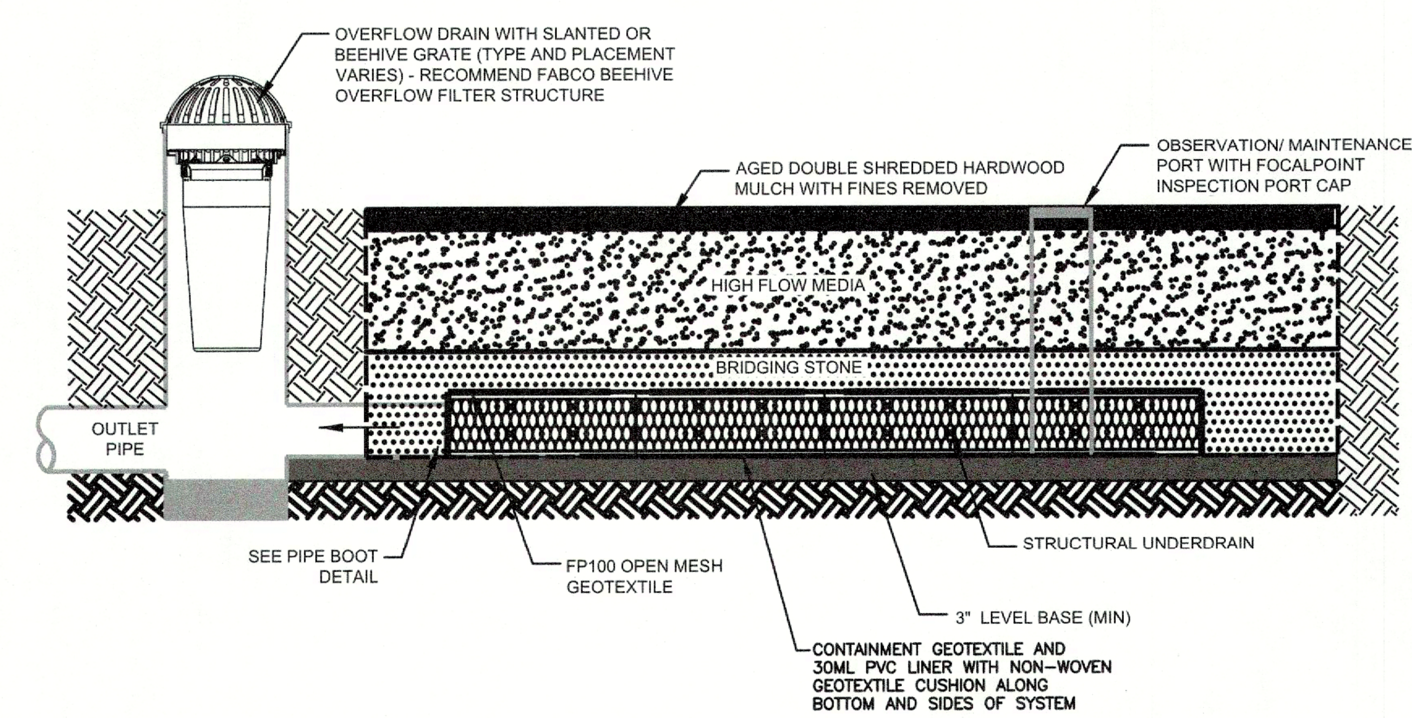

FOCALPOINT HP SECTION X-X

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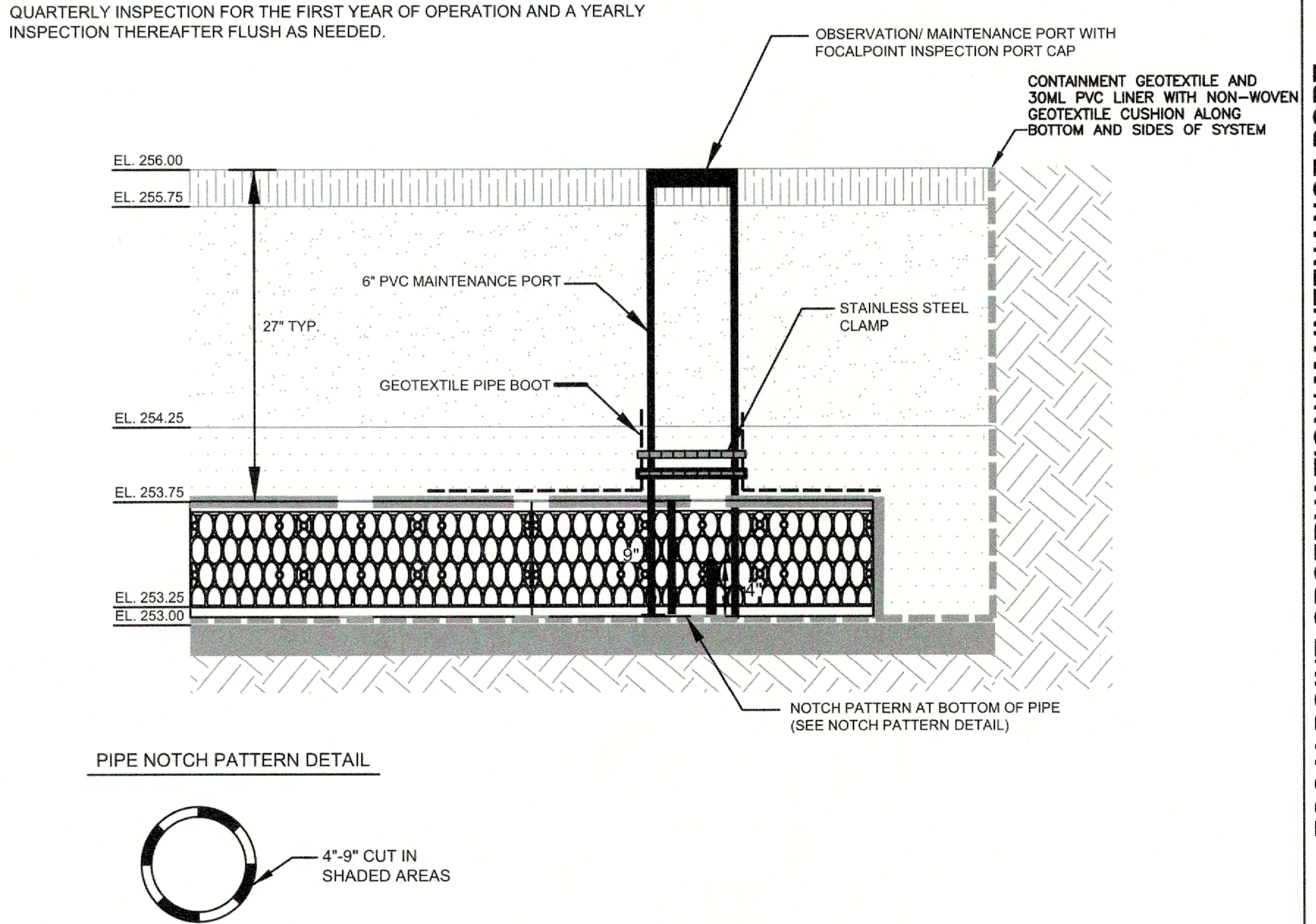
REVISED AUG 2020

OBSERVATION/ MAINTENANCE PORT

PORT USED FOR INSPECTION PURPOSES AND FOR SYSTEM MAINTENANCE AS REQUIRED. WATER SHALL BE PUMPED INTO THE SYSTEM AND RESUSPEND ACCUMULATED SEDIMENT. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION FOR THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER FLUSH AS NEEDED.



FOCALPOINT OBSERVATION/ MAINTENANCE PORT

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REVISED AUG 2020

Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

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DRAWING No.

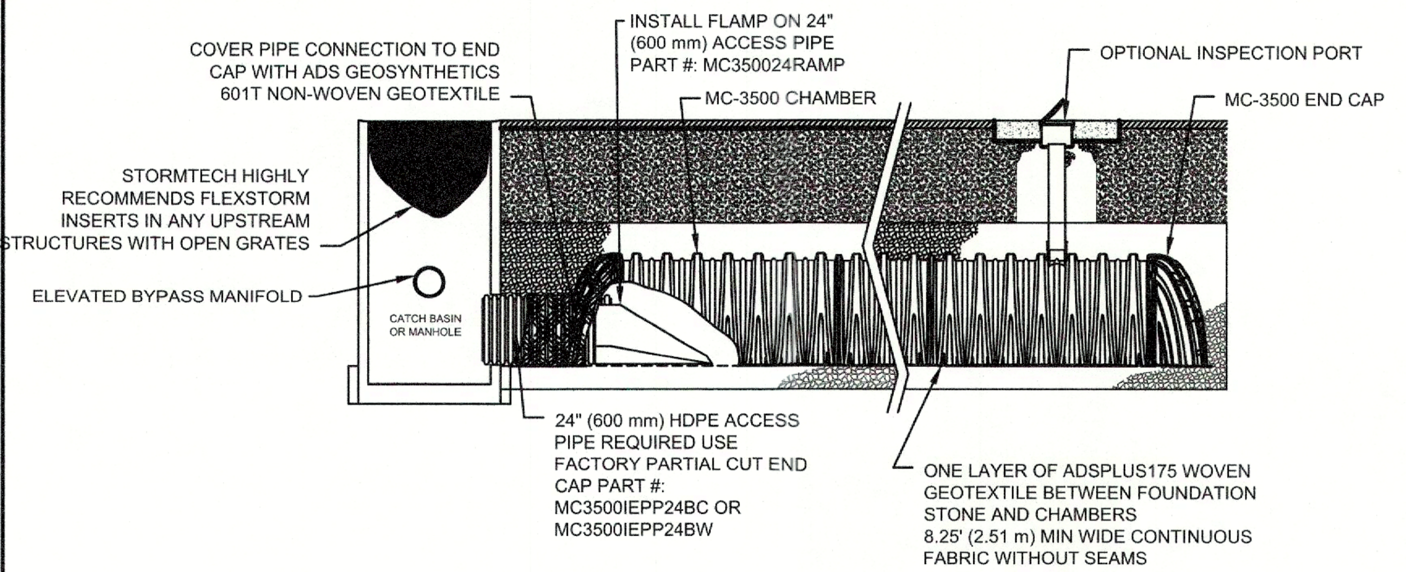
D5

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 6" (150 MM) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.



INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

MC-3500 ISOLATOR ROW PLUS DETAIL

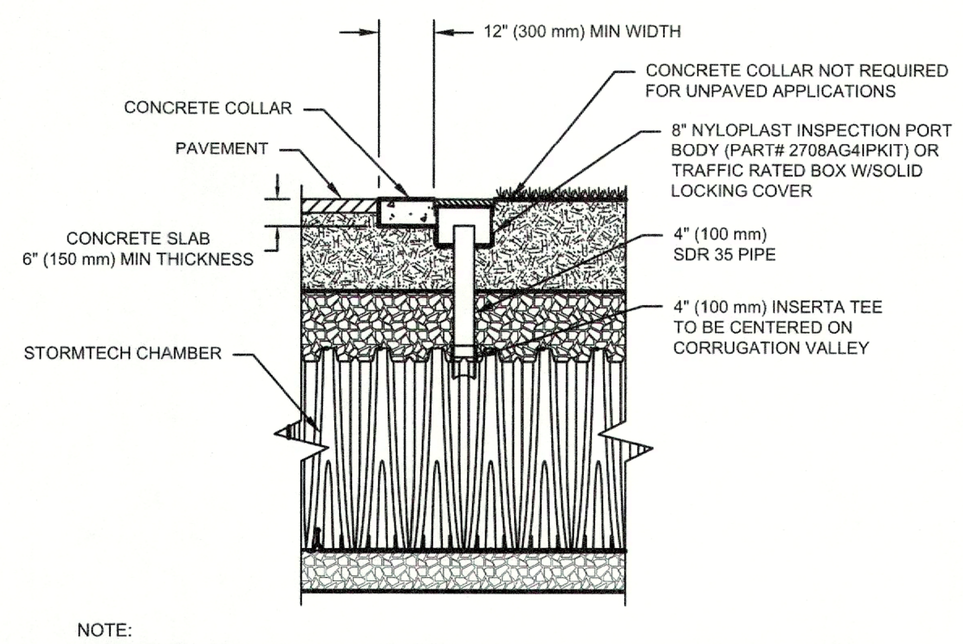
NOT TO SCALE

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

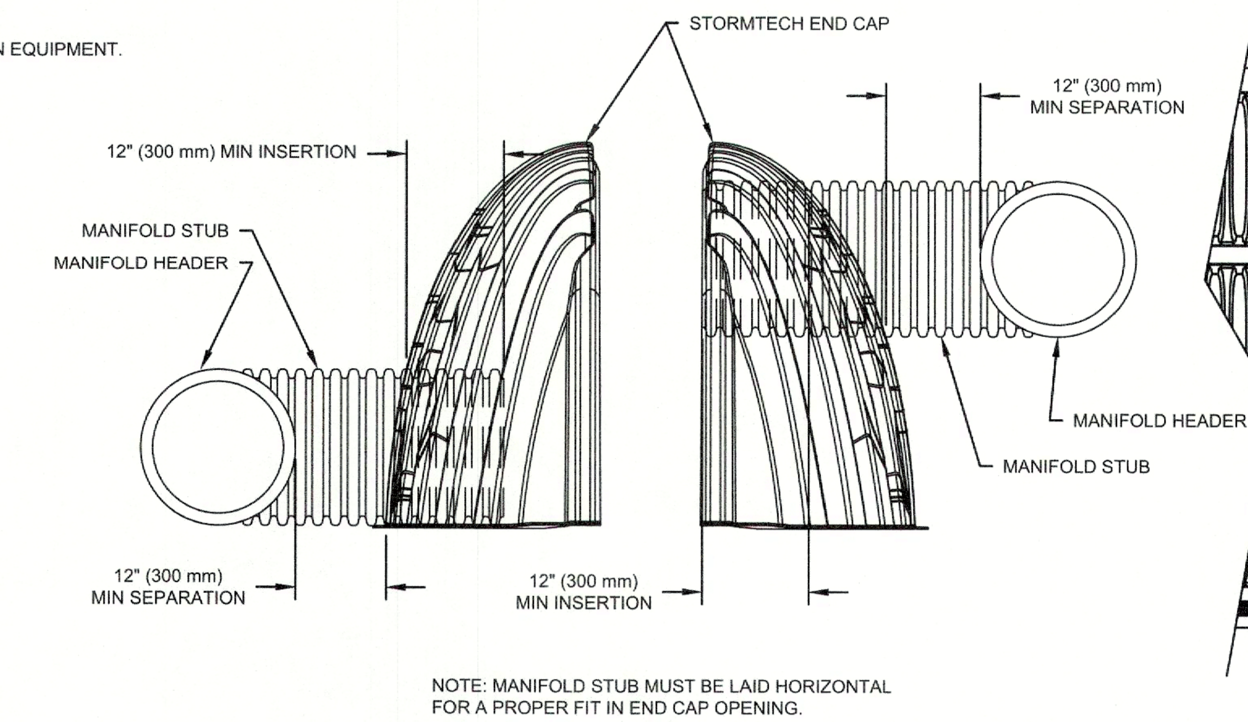
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

MC SERIES 4" PVC INSPECTION PORT DETAIL

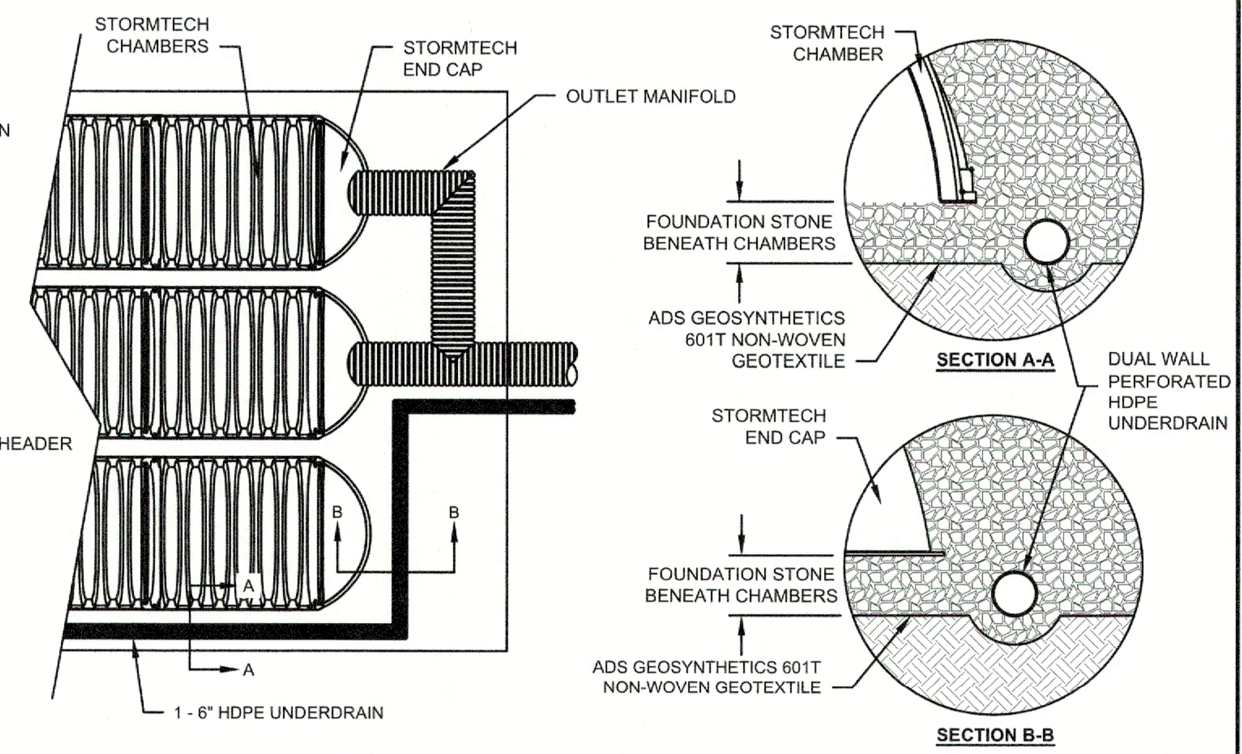
NOT TO SCALE



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

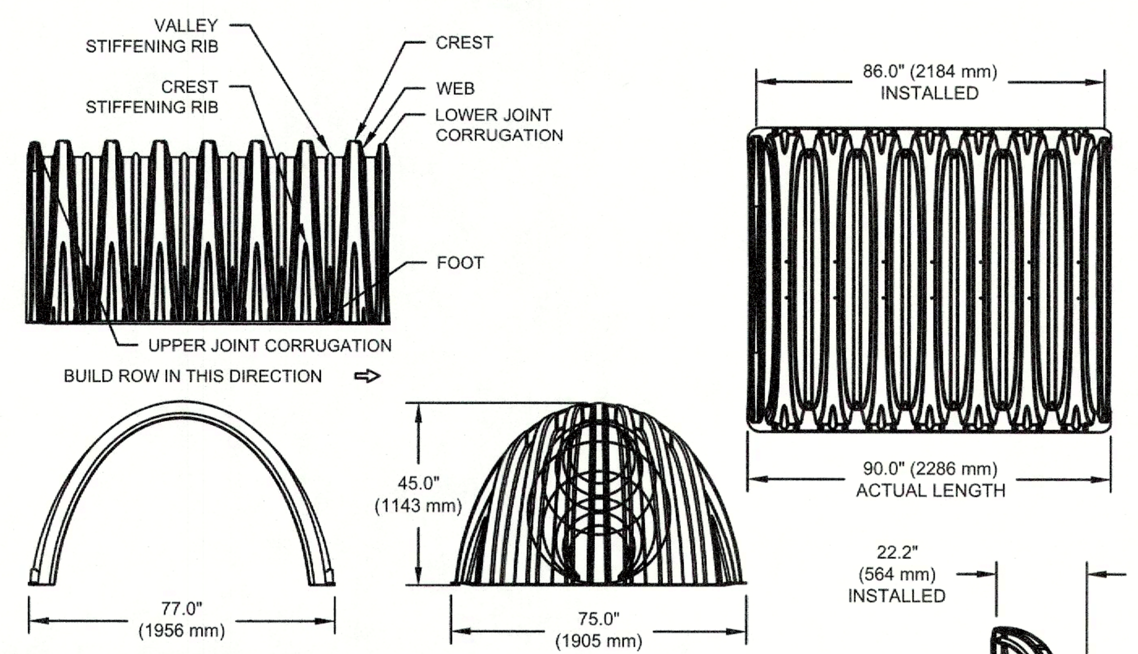
STORMTECH MC SERIES END CAP INSERTION DETAIL

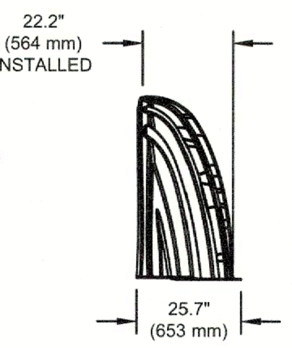
NOT TO SCALE



STORMTECH MC-3500 UNDERDRAIN DETAIL

NOT TO SCALE





NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

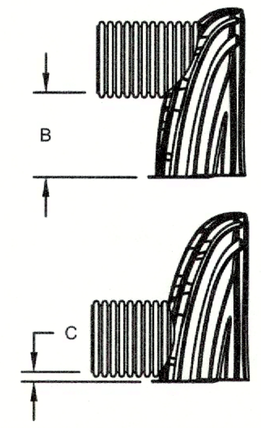
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

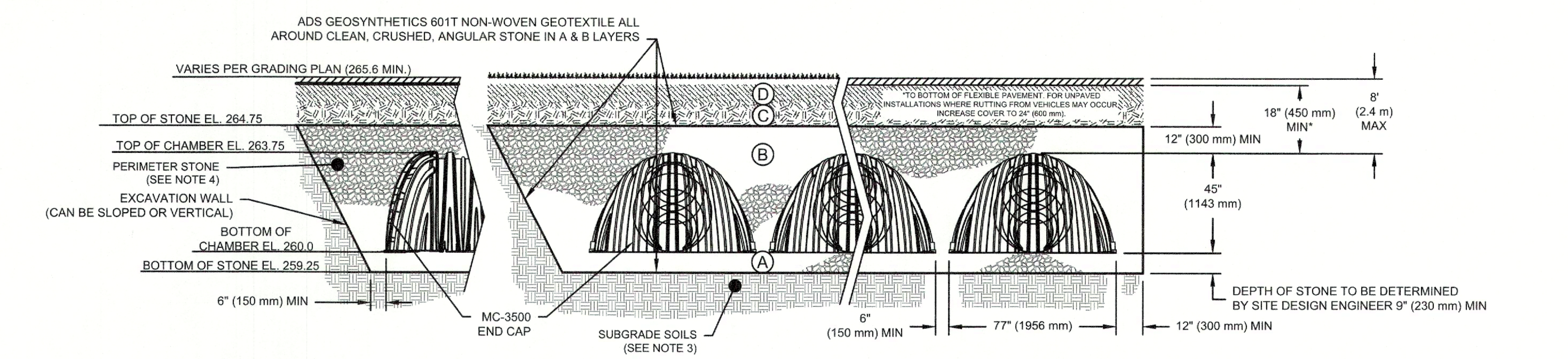
MC-3500 TECHNICAL SPECIFICATIONS

NOT TO SCALE

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

STORMTECH MC-3500 CROSS SECTION DETAIL

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9848
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

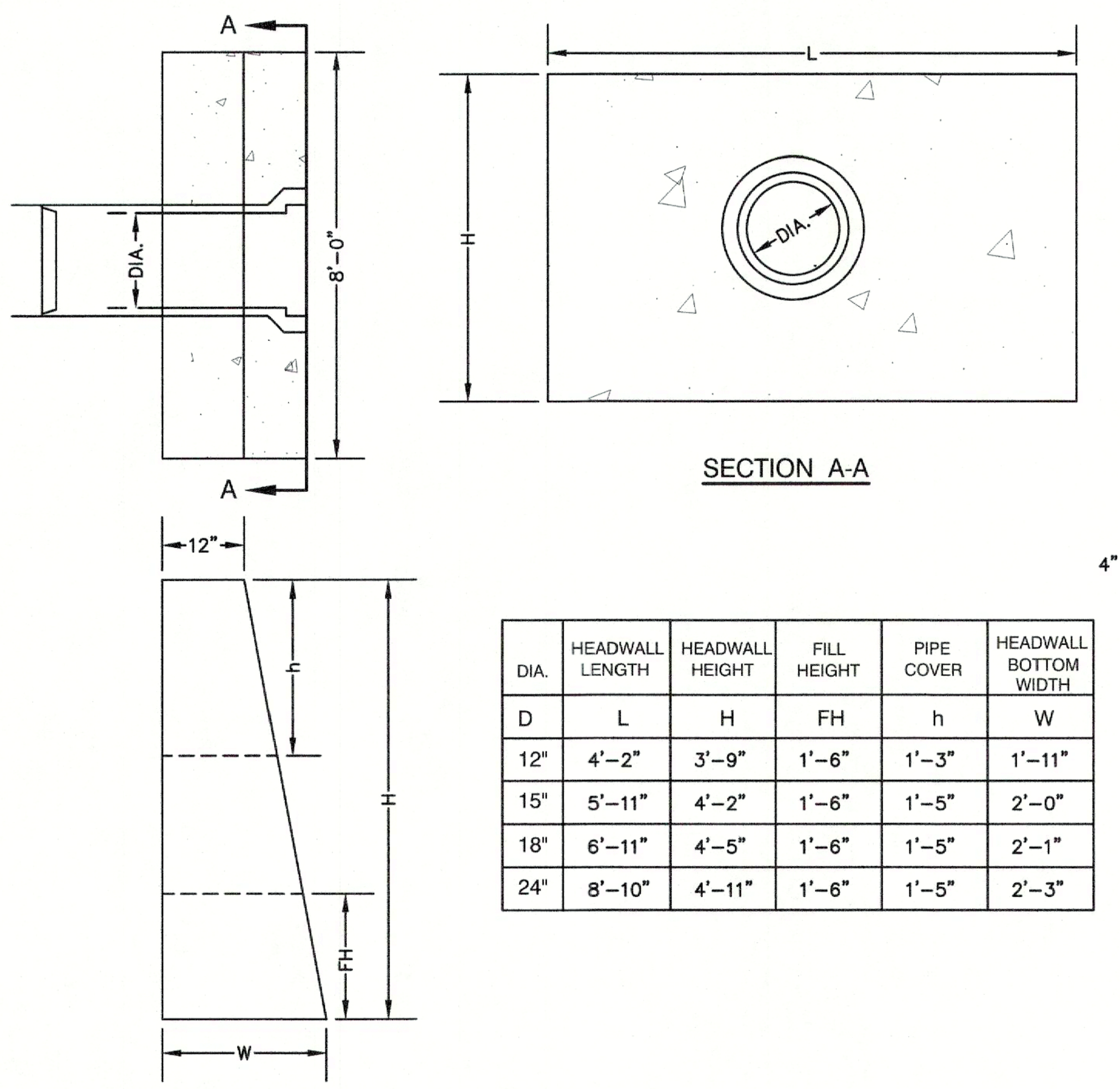
Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

D6

SHEET 45 OF 61
JBE PROJECT NO. 20564



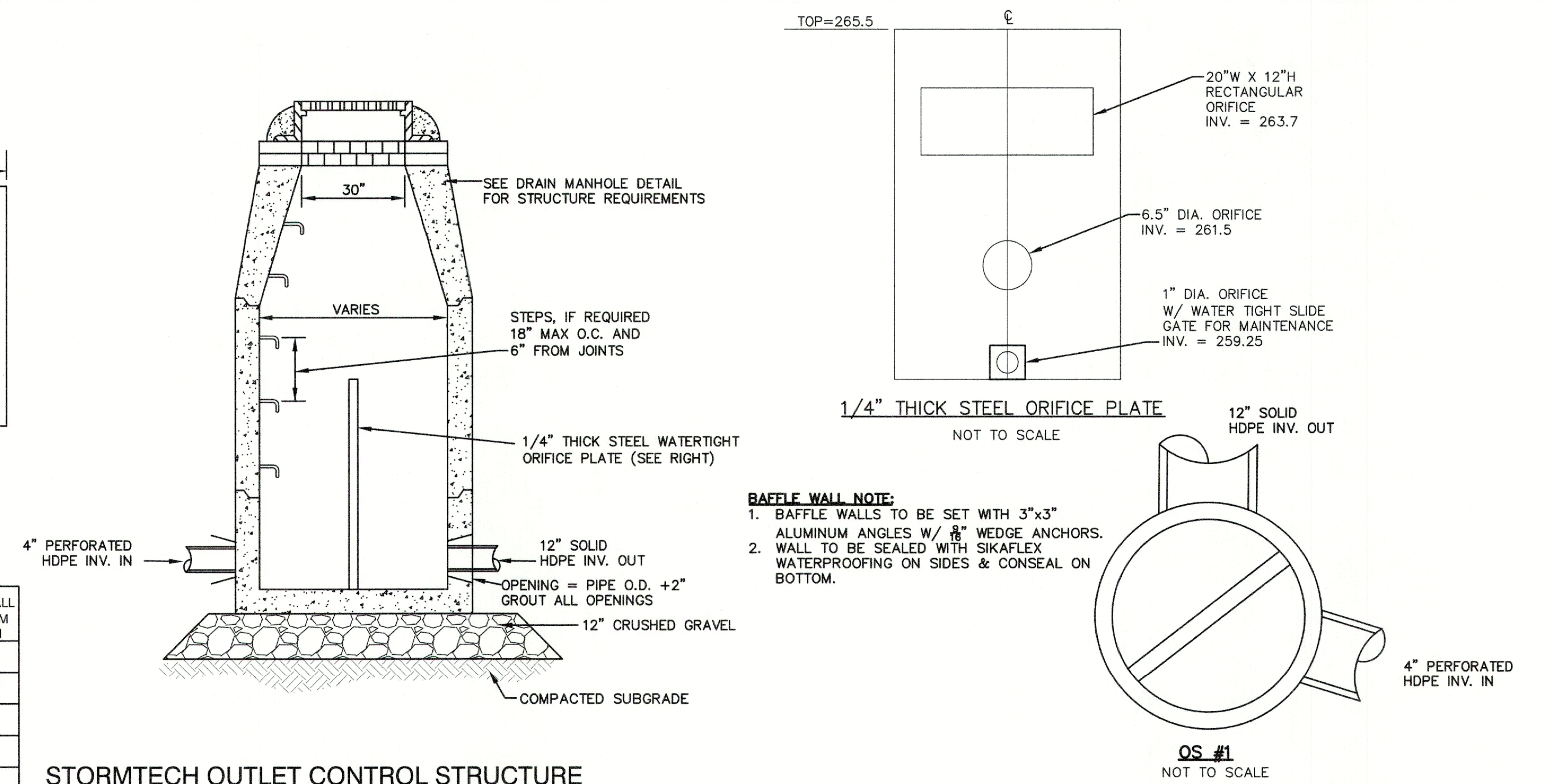
DIA.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	PIPE COVER	HEADWALL BOTTOM WIDTH
D	L	H	FH	h	W
12"	4'-2"	3'-9"	1'-6"	1'-3"	1'-11"
15"	5'-11"	4'-2"	1'-6"	1'-5"	2'-0"
18"	6'-11"	4'-5"	1'-6"	1'-5"	2'-1"
24"	8'-10"	4'-11"	1'-6"	1'-5"	2'-3"

NOTES:

1. ALL DIMENSIONS GIVEN IN FEET & INCHES.
2. PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
3. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
4. 1" THREADED INSERTS PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

PRECAST CONCRETE HEADWALL

NOT TO SCALE



BAFFLE WALL NOTE:
1. BAFFLE WALLS TO BE SET WITH 3"x3" ALUMINUM ANGLES W/ ⅜" WEDGE ANCHORS.
2. WALL TO BE SEALED WITH SIKAFLEX WATERPROOFING ON SIDES & CONSEAL ON BOTTOM.

STORMTECH OUTLET CONTROL STRUCTURE

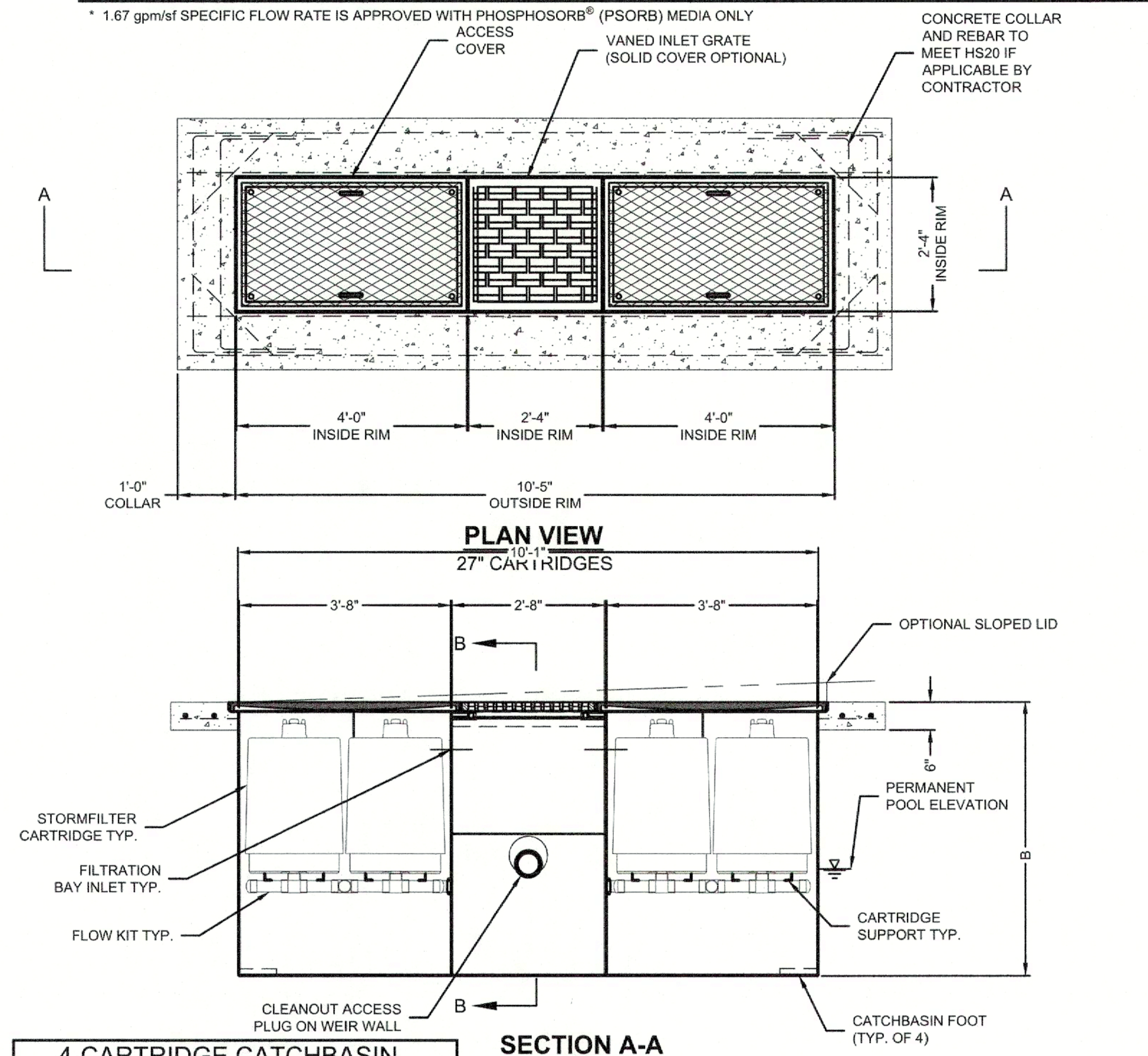
NOT TO SCALE

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 4 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF FOUR CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

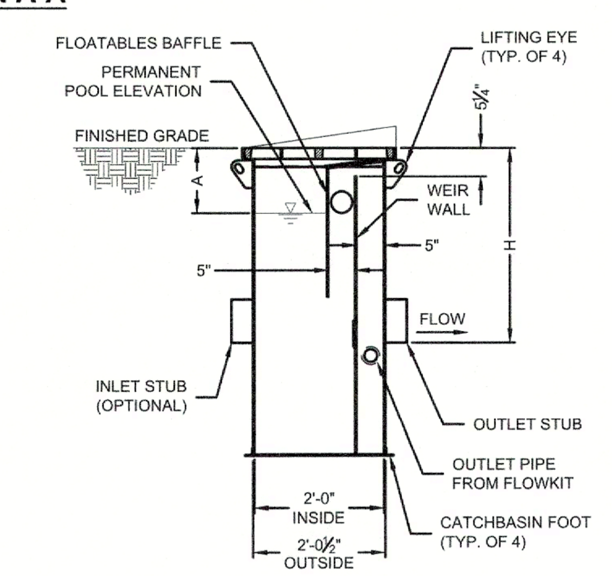
CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY	1.0			1.0			1.8		
INLET PERMANENT POOL LEVEL (A)	1'-0"			1'-0"			2'-0"		
OVERALL STRUCTURE HEIGHT (B)	4'-9"			3'-9"			4'-9"		

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



4-CARTRIDGE CATCHBASIN STORMFILTER DATA		
STRUCTURE ID		1
WATER QUALITY FLOW RATE (cfs)		0.11
PEAK FLOW RATE (<1 cfs)		0.97
RETURN PERIOD OF PEAK FLOW (yrs)		25
CARTRIDGE FLOW RATE (gpm)		1.67/SF
MEDIA TYPE (PERLITE, ZPG, PSORB)		PSORB
RIM ELEVATION		198.4
PIPE DATA:	I.E.	DIAMETER
INLET STUB	N/A	N/A
OUTLET STUB	196.1	15"
CONFIGURATION: OUTLET / INLET		
SLOPED LID		NO
SOLID COVER		NO
NOTES/SPECIAL REQUIREMENTS: SYSTEM TO HAVE GRATED INLET		
*PER ENGINEER OF RECORD		

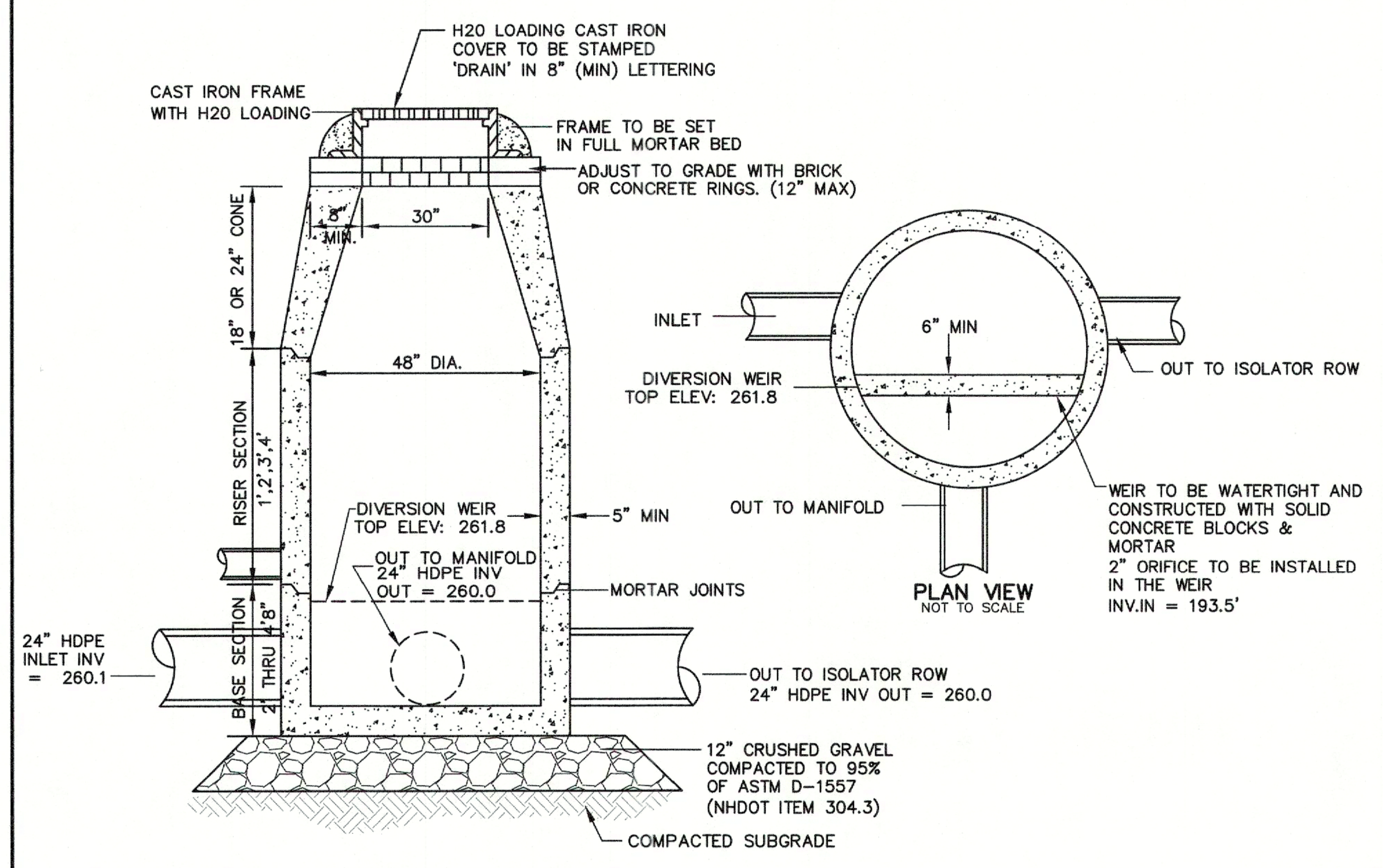


GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
6. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
7. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
8. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

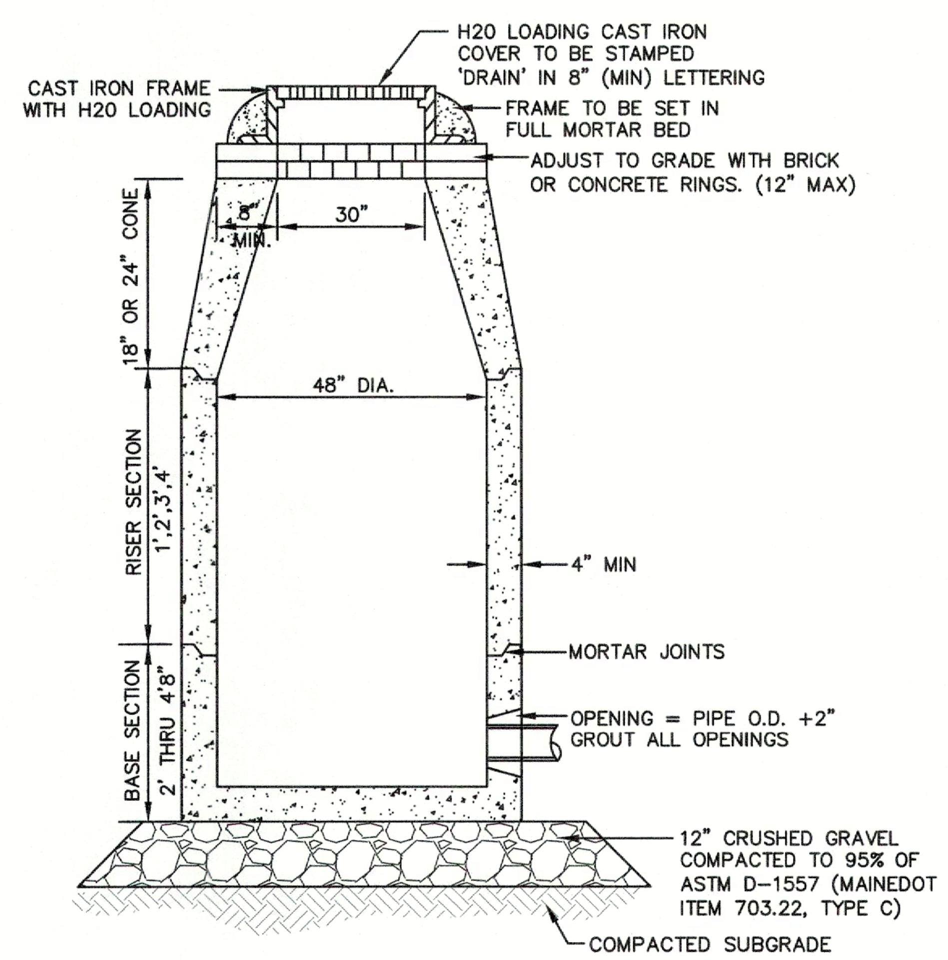
CONTECH "STORMFILTER" DETAIL

NOT TO SCALE



DRAIN MANHOLE WITH DIVERSION WEIR

NOT TO SCALE

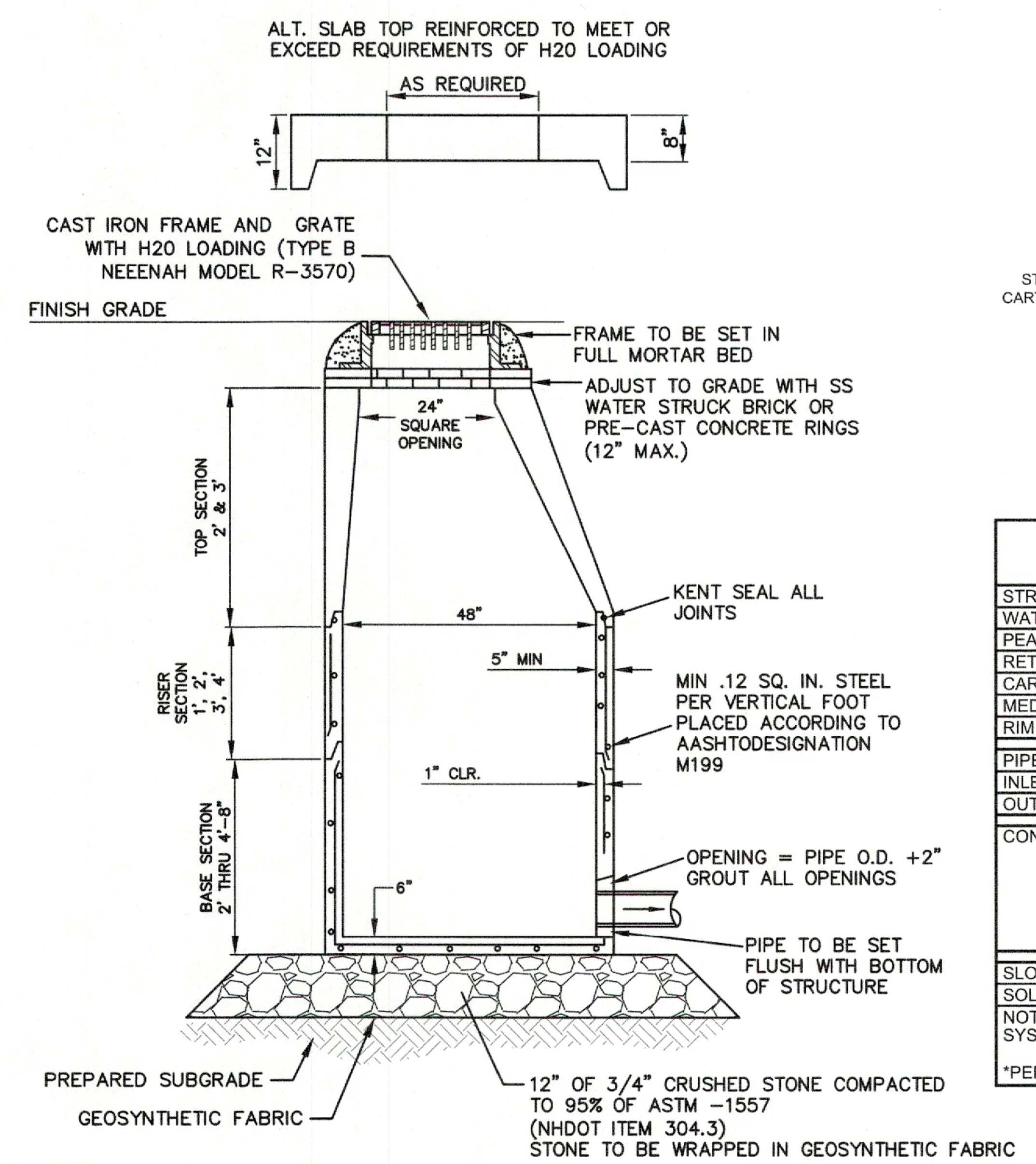


NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

DRAIN MANHOLE (4' DIAM.)

NOT TO SCALE



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6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NHDOT CATCH BASIN TYPE ALTERNATE 1 OR NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

CATCH BASIN (w/o SUMP)

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9845 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
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Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

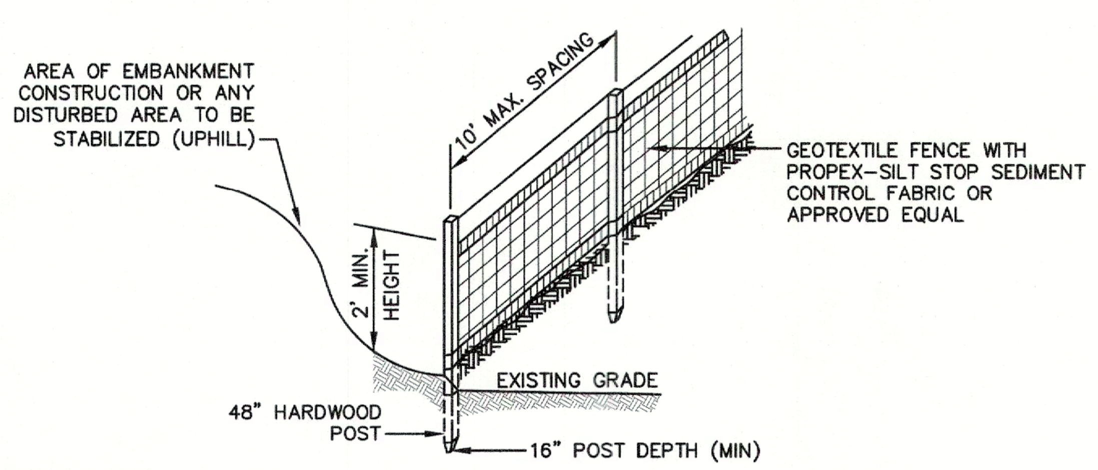
DRAWING No.

D7

JBE PROJECT NO. 20564

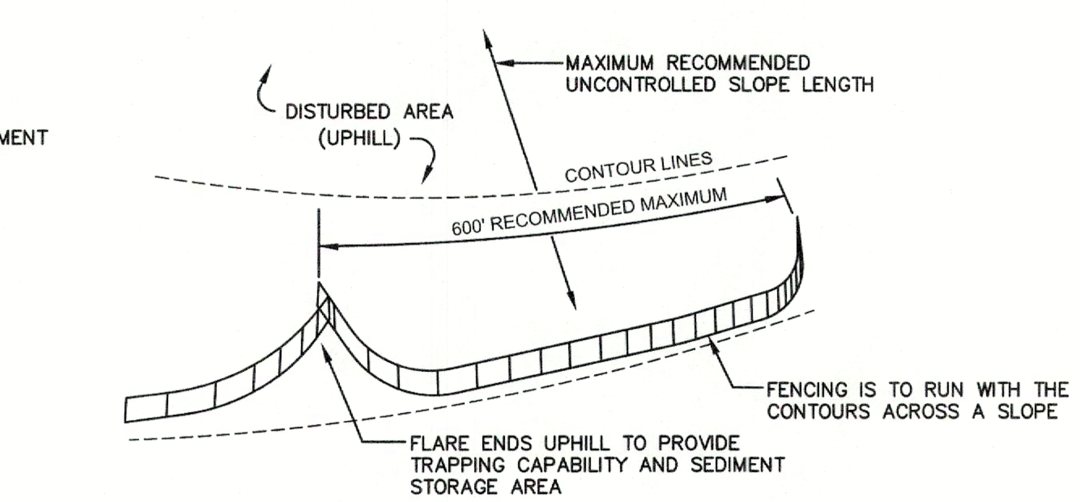
TEMPORARY EROSION CONTROL NOTES

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED, EXCEPT THAT MORE AREA MAY BE EXPOSED AS APPROVED BY NHDES IF AN ENVIRONMENTAL MONITOR IS EMPLOYED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S150BN EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
8. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
9. AFTER OCTOBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    c. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
    d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
12. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
13. PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.
14. IN ORDER TO ENSURE THE STABILITY OF THE SITE AND EFFECTIVE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED IN THE PLANS FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE IN STRICT COMPLIANCE WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS IN ADDITION TO THOSE CALLED FOR IN THE SWPPP:
    a. A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL OR A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE ("MONITOR") SHALL BE EMPLOYED TO INSPECT THE SITE FROM THE START OF ALTERATION OF TERRAIN ACTIVITIES UNTIL THE SITE IS IN FULL COMPLIANCE WITH THE SITE SPECIFIC PERMIT ("PERMIT").
    b. DURING THIS PERIOD, THE MONITOR SHALL INSPECT THE SUBJECT SITE AT LEAST ONCE A WEEK, AND IF POSSIBLE, DURING ANY ½ INCH OR GREATER RAIN EVENT (I.E. ½ INCH OF PRECIPITATION OR MORE WITHIN A 24 HOUR PERIOD). IF UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THIS EVENT.
    c. THE MONITOR SHALL PROVIDE TECHNICAL ASSISTANCE AND RECOMMENDATIONS TO THE CONTRACTOR ON THE APPROPRIATE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROLS REQUIRED TO MEET THE REQUIREMENTS OF RSA 485 A:17 AND ALL APPLICABLE DES PERMIT CONDITIONS.
    d. WITHIN 24 HOURS OF EACH INSPECTION, THE MONITOR SHALL SUBMIT A REPORT TO DES VIA EMAIL (MICHAEL SCHLOSSER AT: MICHAEL.J.SCHLOSSER@DES.NH.GOV).
    e. THE MONITOR SHALL MEET WITH DES TO DECIDE UPON A REPORT FORMAT. THE REPORT FORMAT SHALL BE REVIEWED AND APPROVED BY DES PRIOR TO THE START OF CONSTRUCTION.



CONSTRUCTION SPECIFICATIONS:

1. WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
2. THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCE SHALL REMAIN IN PLACE FOR 24 MONTHS.



7. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE

NOT TO SCALE

BLASTING BEST MANAGEMENT PRACTICES

ALL ACTIVITIES RELATED TO BLASTING SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDLING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.

1. LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
   (a) DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS.
   (b) EXPLOSIVE PRODUCTS SHALL BE MANAGED ON SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF SITE DISPOSAL.
   (c) SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF SITE DISPOSAL.
   (d) LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED.
   (e) LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT.
   (f) EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.
2. EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
   (a) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
   (b) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER.
3. PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.
4. MUCK PILE MANAGEMENT. MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOWING MEASURES:
   (a) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
   (b) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.
5. SPILL PREVENTION MEASURES AND SPILL MITIGATION. SPILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A MINIMUM:
   (a) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:
   1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE.
   2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY.
   3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY.
   4. INSPECT STORAGE AREAS WEEKLY.
   5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS.
   6. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS.
   7. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.

   (b) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
   1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED.
   2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS.
   3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS.
   4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES.
   5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.

   (A) THE TRAINING OF ON SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
   (a) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF NHDES [NOTE THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6: 'BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT' OR ITS SUCCESSOR DOCUMENT.]

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
   B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
      NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
      PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOIL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

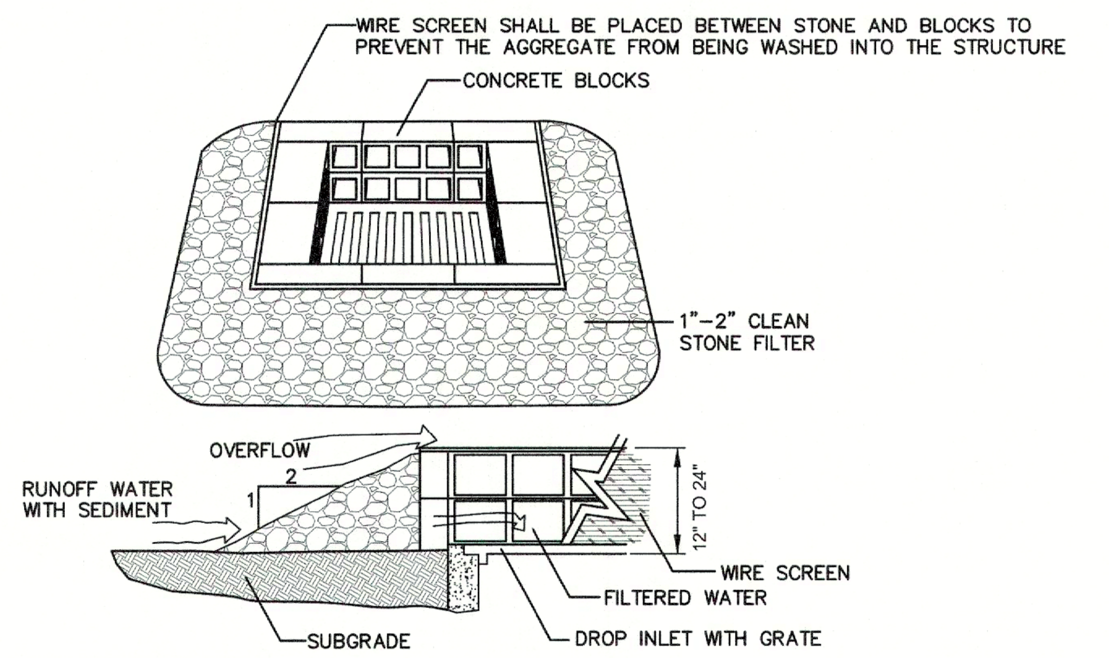
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES



MAINTENANCE NOTE:

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

TEMPORARY CATCH BASIN INLET PROTECTION
(Block and Gravel Drop Inlet Sediment Filter)

NOT TO SCALE

CONSTRUCTION SEQUENCE

1. PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
2. WETLAND BOUNDARIES ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION. AT LEAST A TEMPORARY CULVERT OR ROADBED TO BE IN PLACE PRIOR TO THE START OF CONSTRUCTION.
3. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
4. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
5. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
6. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
7. STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
8. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS, INCLUDING THE CONSTRUCTION OF ANY RETAINING WALLS AND SOUND WALLS.
9. PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
10. INSTALL THE SEWER AND DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
11. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.
12. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
13. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS AND/OR PROPERTY.
14. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
15. PAVE ALL PARKING LOTS AND ROADWAYS WITH INITIAL 'BASE COURSE'.
16. PERFORM ALL REMAINING SITE CONSTRUCTION (i.e. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
17. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (i.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
18. FINISH PAVING ALL ROADWAYS AND PARKING AREAS WITH 'FINISH' COURSE.
19. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
20. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
21. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
22. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
23. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
24. INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
25. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
26. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/23

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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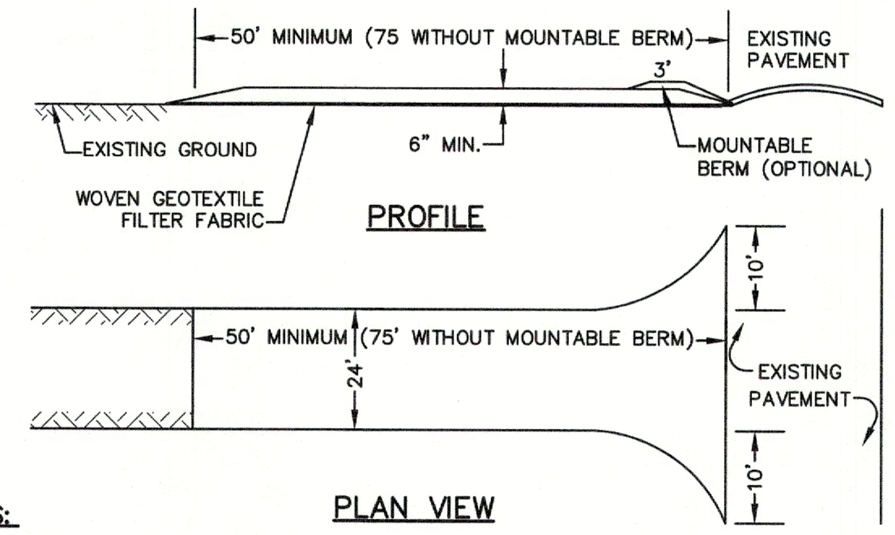
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EROSION AND SEDIMENT CONTROL DETAILS
Project: WHITE ROCK PLACE, 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH, 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No. E1



NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, 75' WITHOUT A MOUNTABLE BERM, AND EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

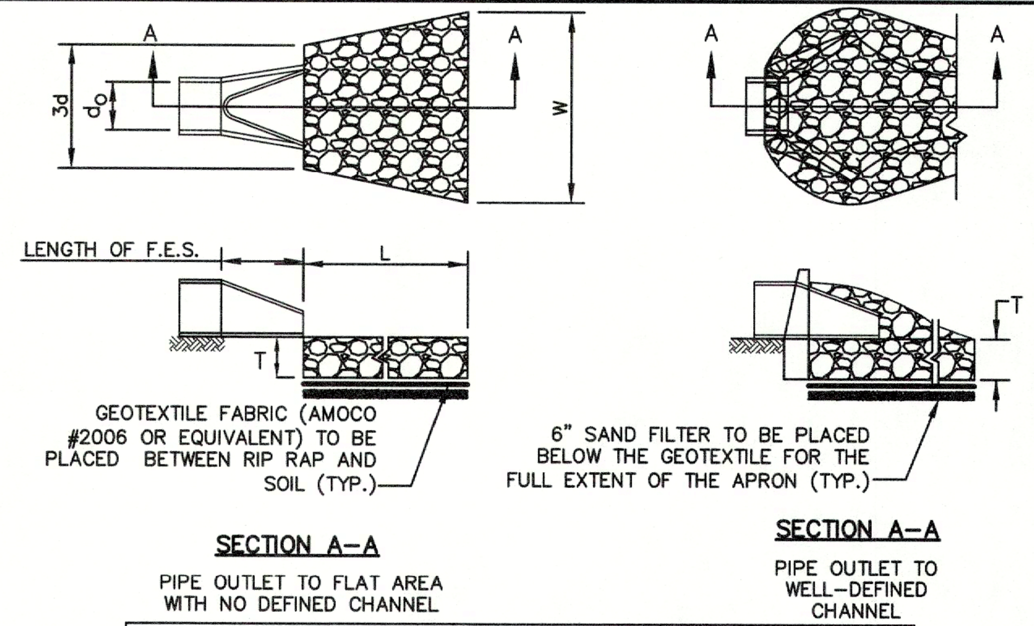


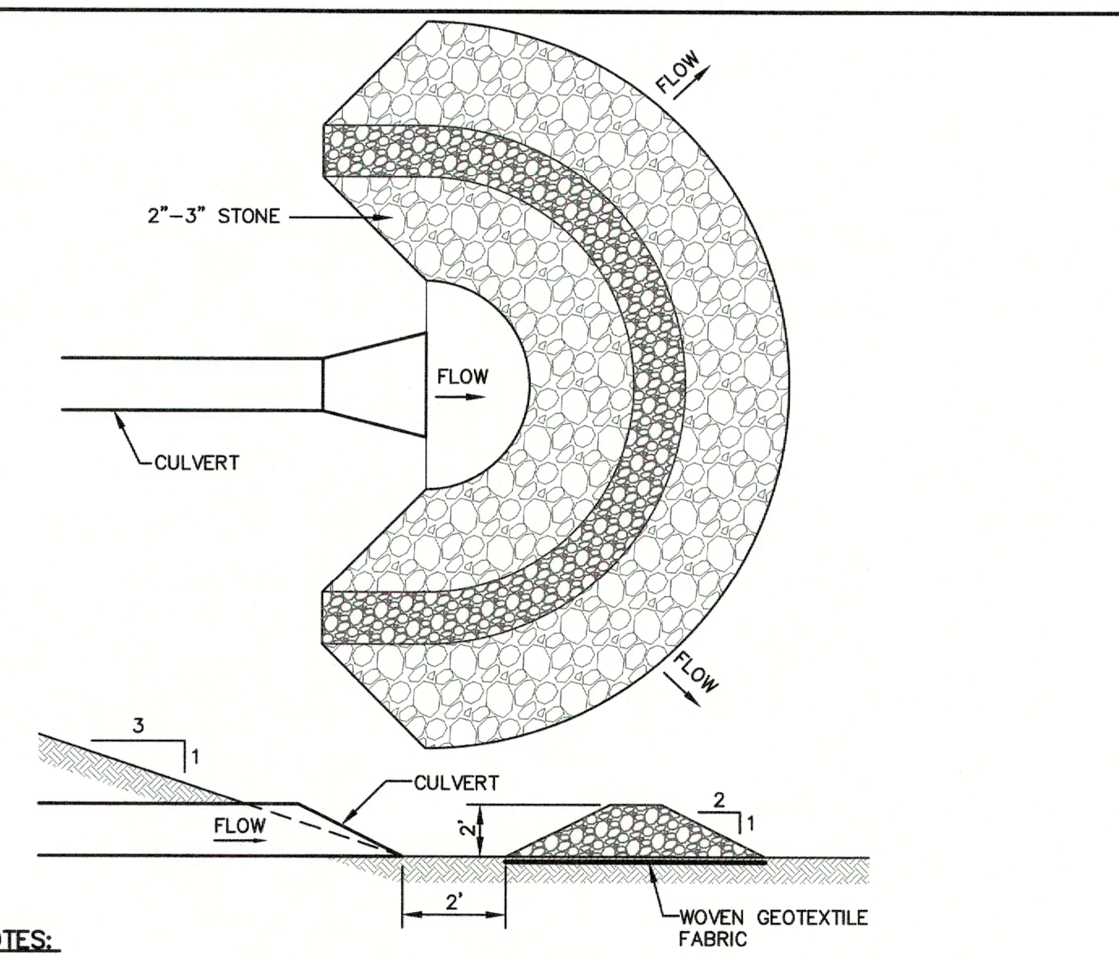
TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
THICKNESS OF RIP RAP = 1.5 FEET			
d50 SIZE=	0.25	FEET	3 INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM		TO
100%	5		6
85%	4		5
50%	3		5
15%	1		2

NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

RIP RAP OUTLET PROTECTION APRON

NOT TO SCALE

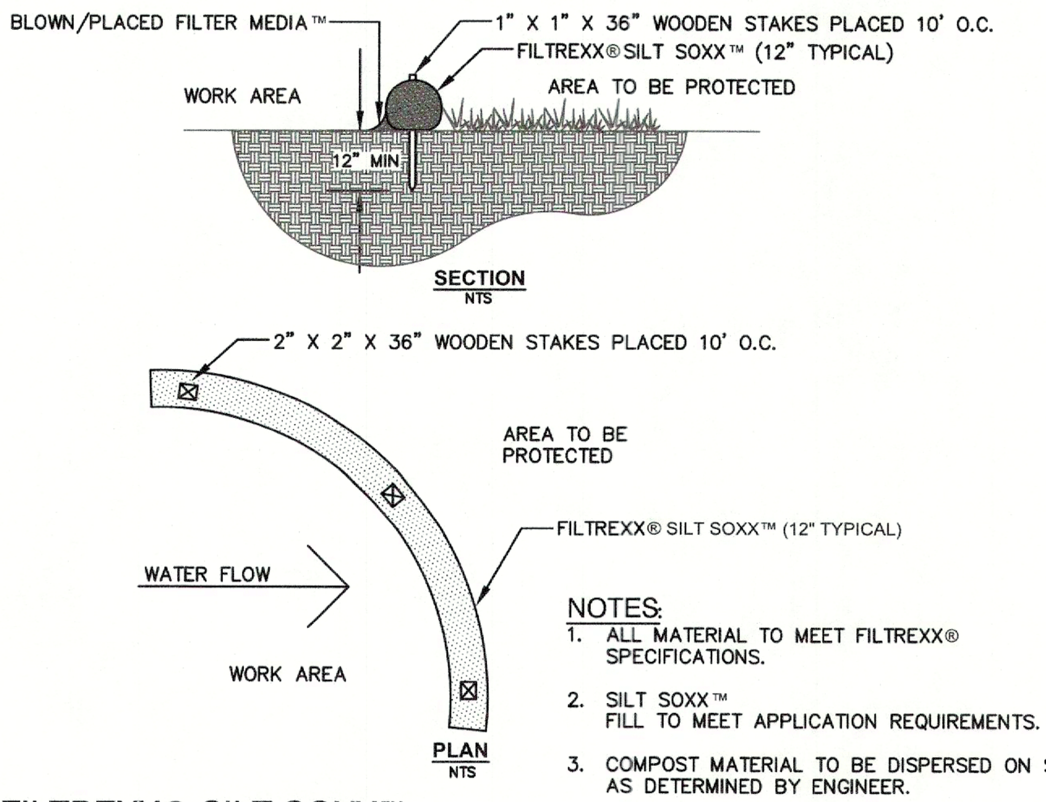


NOTES:

1. TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2-3" STONE OVER WOVEN GEOTEXTILE FABRIC.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
4. STRUCTURE SHALL BE REMOVED WHEN THE SITE IS STABILIZED WITH THE PROPOSED RIP RAP FIELD. AREAS OUTSIDE THE RIP RAP FIELD ARE TO BE VEGETATED AND SMOOTHED.

TEMPORARY CULVERT INLET PROTECTION CHECK DAM

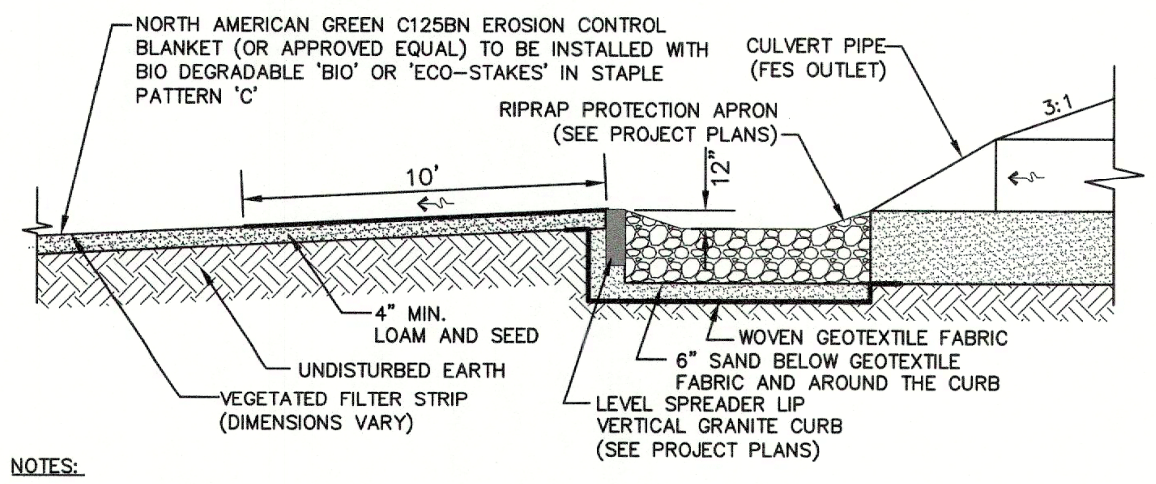
NOT TO SCALE



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX® SILT SOXX™

NOT TO SCALE

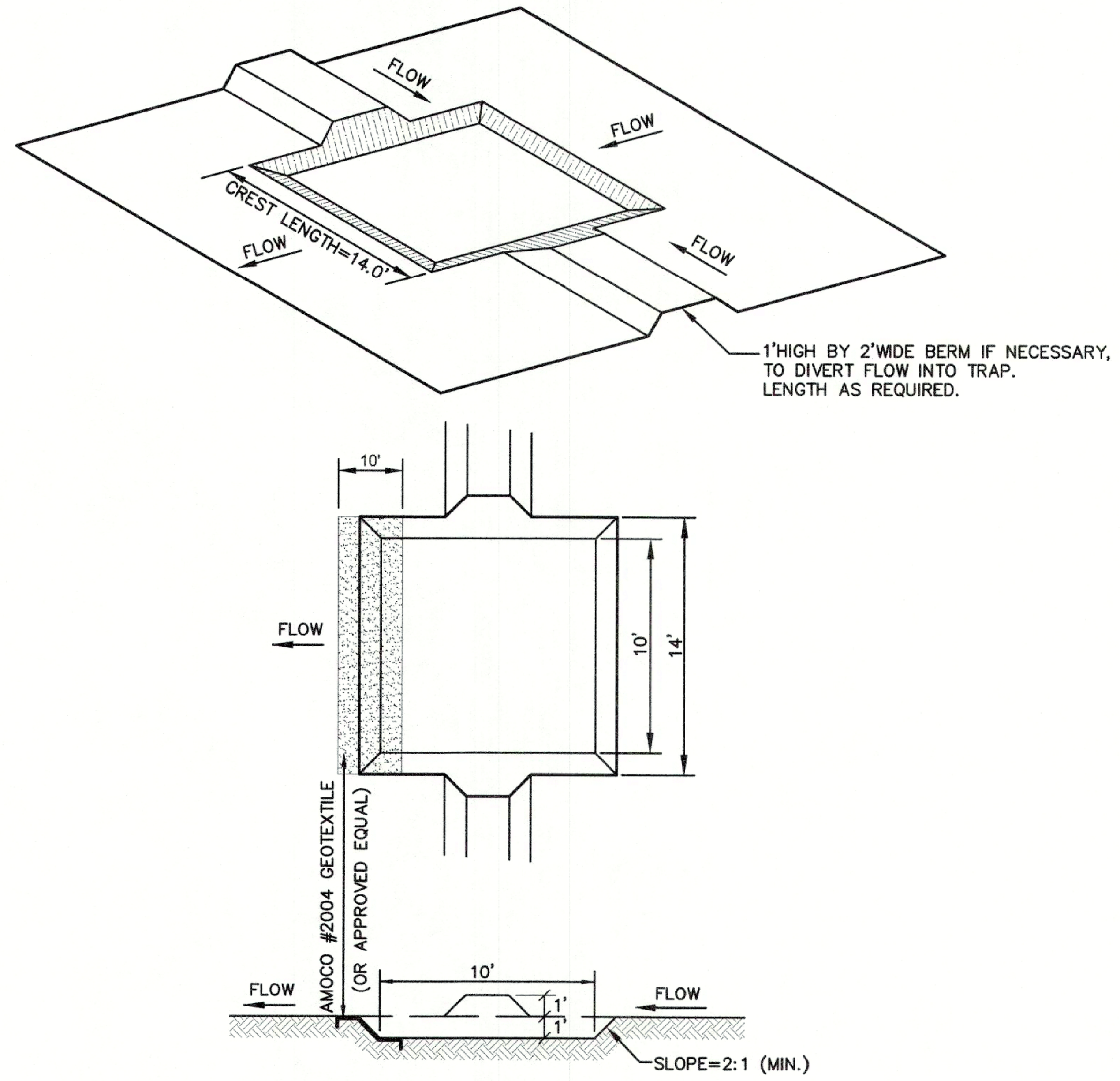


NOTES:

1. CONSTRUCT LEVEL SPREADER LIP ON ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. VERTICAL GRANITE CURB SHALL BE PLACED A MINIMUM OF SIX INCHES DEEP AND EXTEND ENTIRE LENGTH OF LIP.
3. THE RIP RAP APRON PRIOR TO THE LEVEL SPREADER SHALL NOT EXCEED A 0 PERCENT GRADE.
4. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER MUST NOT RECONCENTRATE IMMEDIATELY BELOW THE SPREADER.
5. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PERFORMED.
6. MAINTENANCE: LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE SPREADER HAS BEEN DAMAGED. SEDIMENT DEEPER THAN FOUR INCHES ACCUMULATION SHOULD BE REMOVED. IF RILLING HAS TAKEN PLACE ON LIP, THEN DAMAGE SHOULD BE REPAIRED AND REVEGETATED. VEGETATION SHOULD BE MOWED OCCASIONALLY TO CONTROL WEEDS AND ENCROACHMENT OF WOODY VEGETATION. CLIPPINGS SHOULD BE REMOVED AND DISPOSED OF OUTSIDE SPREADER AND AWAY FROM OUTLET AREA. FERTILIZATION SHOULD BE DONE AS NECESSARY TO KEEP VEGETATION HEALTHY AND DENSE.

LEVEL SPREADER AT CULVERT OUTLET

NOT TO SCALE

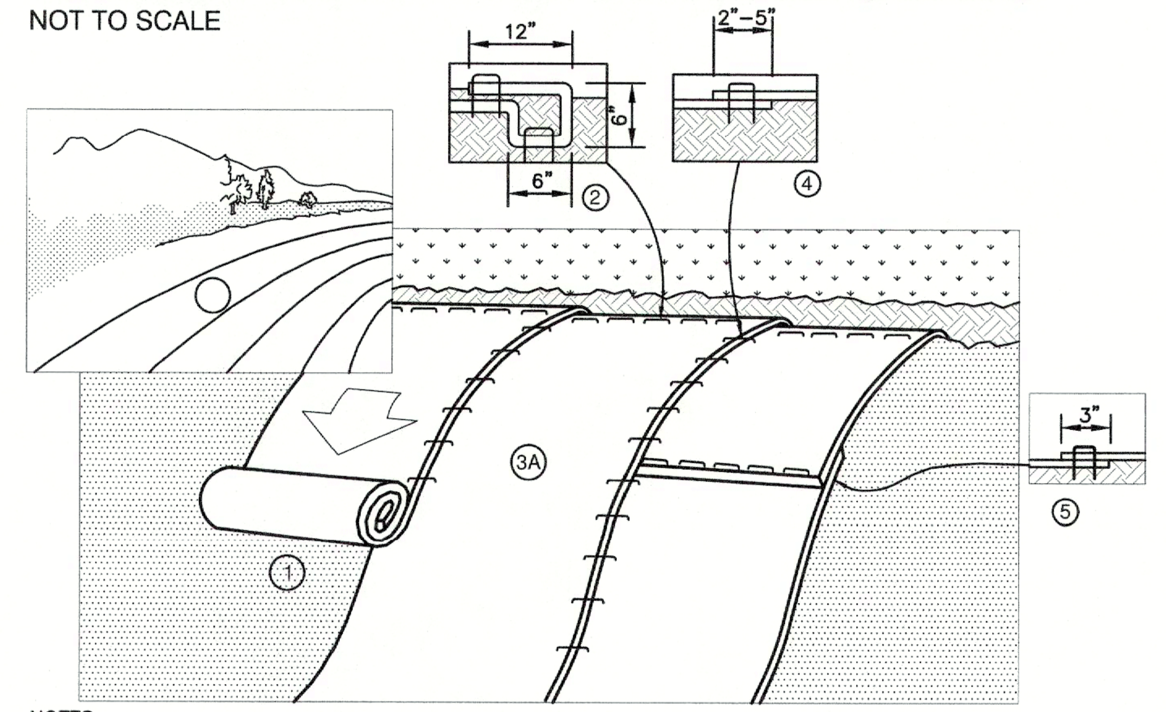


CONSTRUCTION SPECIFICATIONS:

1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION, ROOTS, AND DEBRIS.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS, WOODY VEGETATION, STONES OVER 6" SIZE, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIALS. THE FILL SHALL BE COMPACTED BY ROUTING CONSTRUCTION EQUIPMENT OVER IT SO THAT THE ENTIRE AREA OF THE FILL IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF THE EQUIPMENT.
3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
4. ALL CUT AND FILL SLOPES SHALL BE 2:1 (H:V) OR FLATTER.
5. OUTLET CREST ELEVATIONS SHALL BE AT LEAST ONE FOOT BELOW THE TOP OF THE EMBANKMENT.
6. OUTLET CREST IS TO BE STABILIZED WITH AMOCO #2004 GEOTEXTILE (OR APPROVED EQUAL), WHICH IS TO BE "TOED" INTO THE GROUND AT ITS ENDS AT LEAST SIX INCHES AND IS TO EXTEND AT LEAST ONE FOOT INTO THE TRAP AND ONE FOOT DOWNSTREAM FROM THE OUTLET EDGE FOR THE ENTIRE LENGTH OF THE CREST.
7. ALL DISTURBED AREAS SHALL BE VEGETATED USING THE APPROPRIATE VEGETATIVE BEST MANAGEMENT PRACTICE.
8. ALL TRAPS ARE TO HAVE SEDIMENT DEPOSITS REMOVED AND DISPOSED PROPERLY AT LEAST ONCE WEEKLY AND AFTER EACH RAINFALL.

TEMPORARY SEDIMENT TRAP

NOT TO SCALE



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
6. THERE SHALL BE NO PLASTIC, OR MULTI-FILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN $\frac{1}{8}$ INCHES MATERIAL UTILIZED.
7. TURF REINFORCEMENT MATS SHALL BE COVERED WITH SOIL TO PREVENT EXPOSURE OF THE MATS TO THE SURFACE.

NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040

EROSION CONTROL BLANKET SLOPE INSTALLATION (NORTH AMERICAN GREEN BIONET S150BN)

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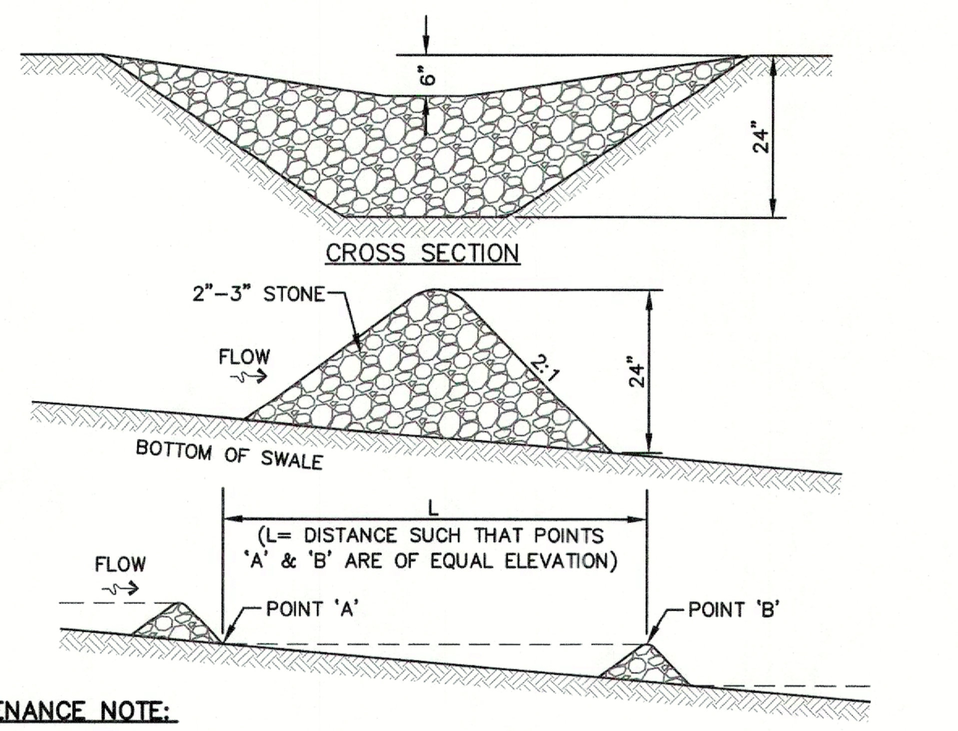
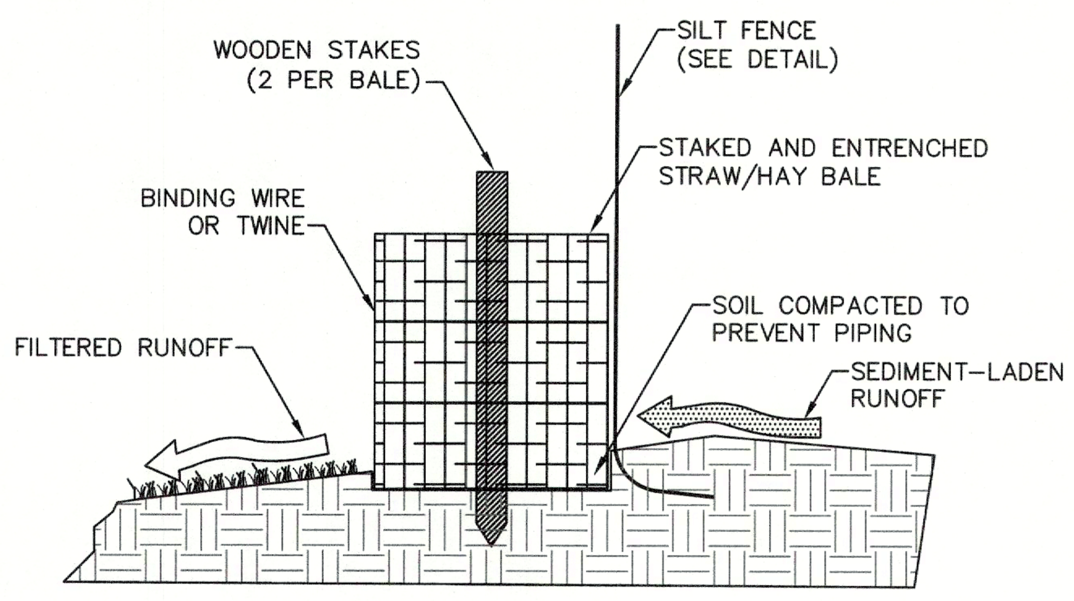


MAINTENANCE NOTE:

1. STONE CHECK DAMS SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM

NOT TO SCALE



HAYBALE DETAIL

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KENVAN No. 9046 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

E2

SHEET 48 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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LICENSED
PROFESSIONAL ENGINEER
8/17/2023

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Plan Name:	TRUCK TURNING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
T1

JBE PROJECT NO. 20564

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APPLICANT
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PO BOX 190
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75.11 ACRES

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DRAWING No.
T2
SHEET 50 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
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PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
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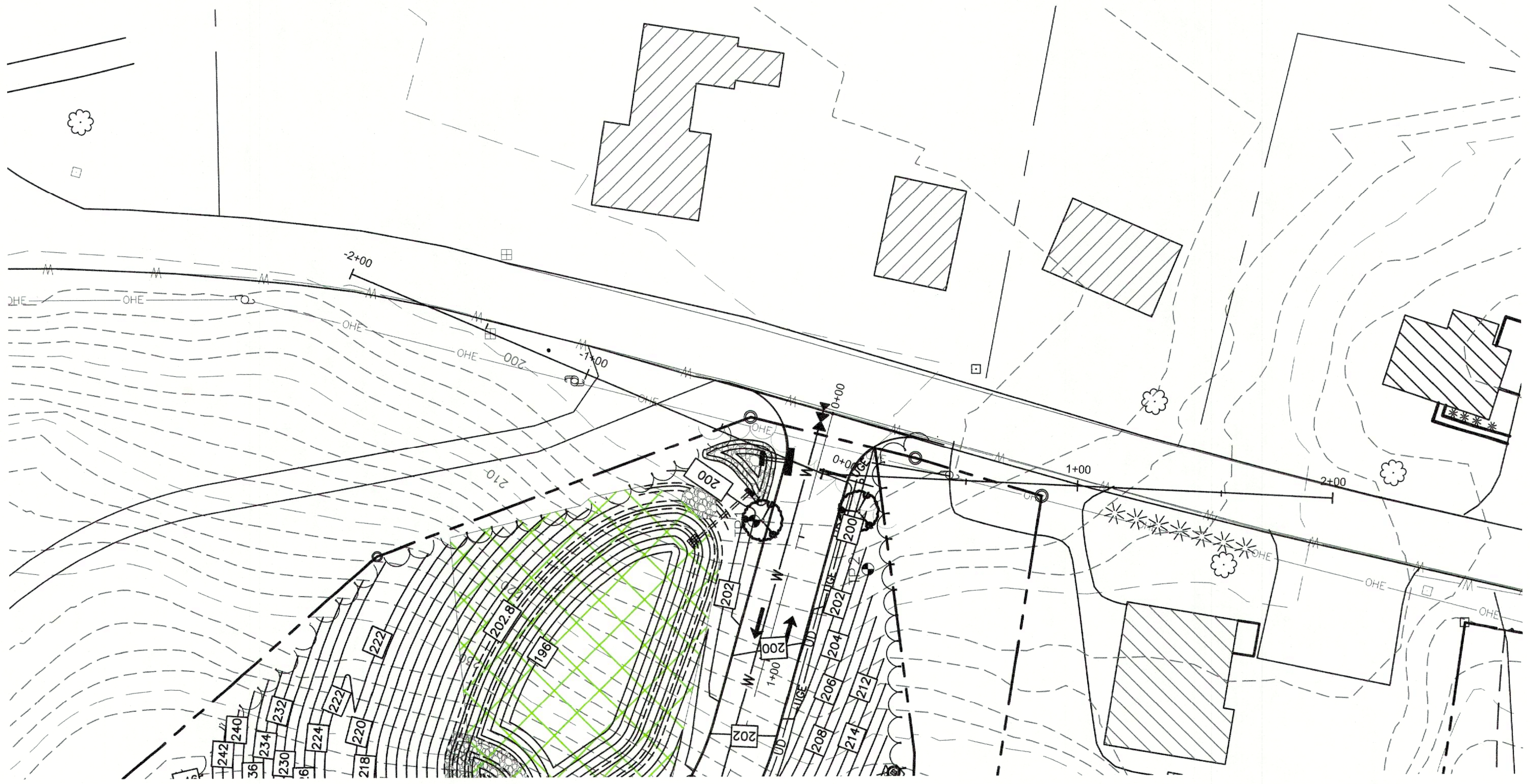
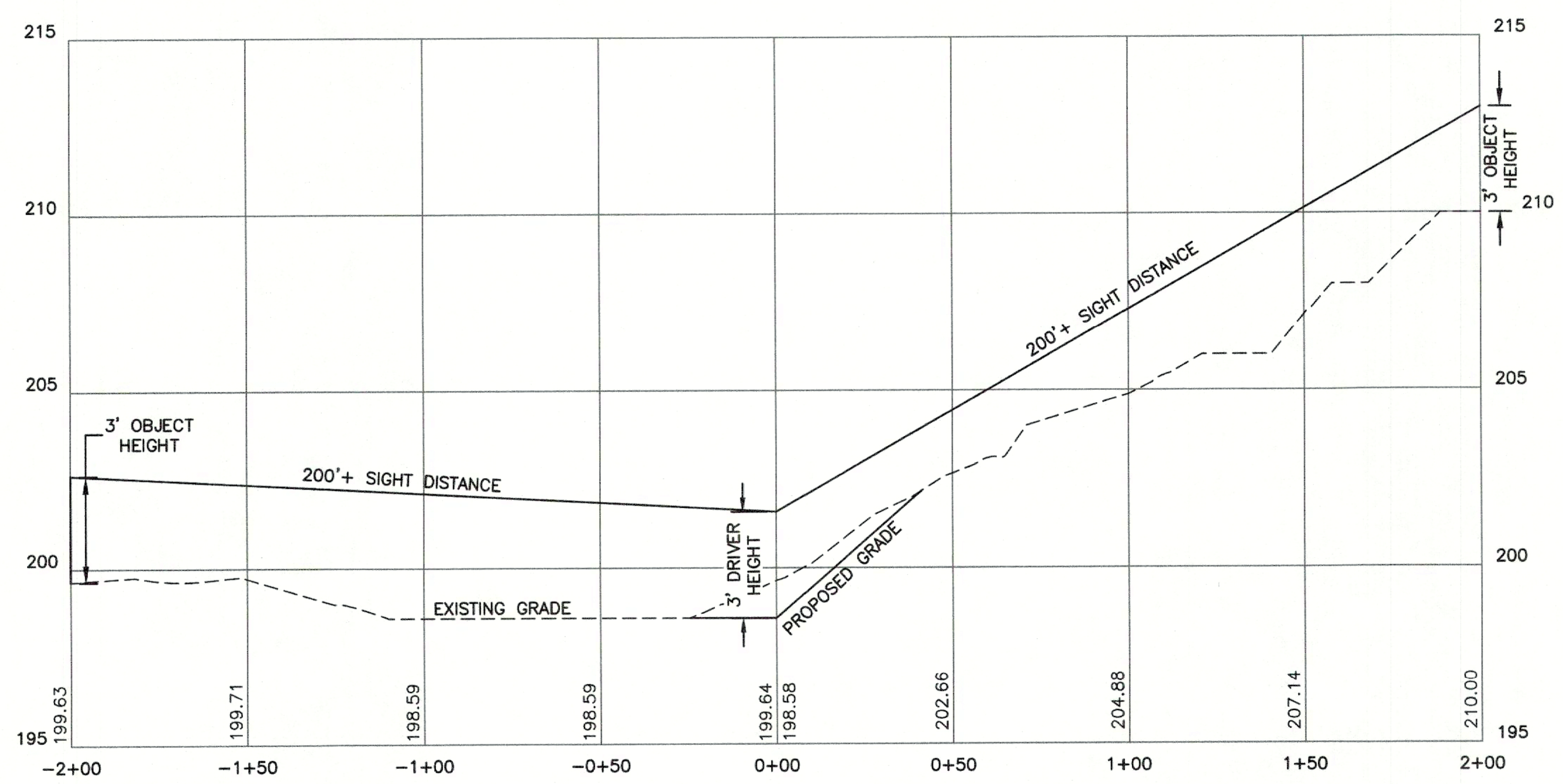


SIGHT DISTANCE PLAN



SIGHT DISTANCE PROFILE

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.

F:\CAD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/23

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	HIGHWAY ACCESS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
H1
SHEET 53 OF 61
JBE PROJECT NO. 20564

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE PARKING THAT WOULD BE NECESSARY IN ORDER TO MEET THE TOWN'S PARKING REQUIREMENTS. THIS PLAN IS NOT FOR CONSTRUCTION.
2. THE EXISTENCE OF THIS PLAN DOES NOT EXEMPT ANYONE FROM OBTAINING REQUIRED LOCAL, STATE, AND FEDERAL PERMITS IF THEY WISH TO EXPAND THE PARKING AT ANY POINT.
3. 3 PARKING SPACES REQUIRED PER UNIT
   156 UNITS PROVIDED
   156*3 = 468 PARKING SPACES REQUIRED
   281 PARKING SPACES PROVIDED AT THIS TIME
   468-281 = 187 ADDITIONAL SPACES NEEDED TO MEET TOWN REQUIREMENT

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PARKING EXPANSION EXHIBIT
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

EX1

SHEET 54 OF 61
JBE PROJECT NO. 20564

NEW HAMPSHIRE FISH AND GAME - RECOMMENDED PERMIT CONDITIONS:

1. BLANDING'S TURTLE (STATE ENDANGERED), SPOTTED TURTLE (STATE THREATENED) AND NORTHERN BLACK RACER (STATE THREATENED) OCCUR WITHIN THE VICINITY OF THE PROJECT AREA. ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHALL BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHALL BE PROVIDED FLYERS THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION.
2. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHALL BE COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT DURING THE CONSTRUCTION PHASE OF THE PROJECT. SEE FLYERS ON THIS SHEET.
3. OBSERVATIONS OF NORTHERN BLACK RACERS IN THE MONTHS OF APRIL–MAY AND SEPTEMBER–OCTOBER MAY INDICATE THE POTENTIAL FOR A DEN SITE ON OR NEAR THE PROJECT SITE. OBSERVATIONS OF THIS SPECIES DURING THIS TIMEFRAME SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM. PLEASE CONTACT MELISSA WINTERS (603–479–1129) OR BRENDAN CLIFFORD (603–944–0885). OBSERVATIONS OF THIS SPECIES OUTSIDE OF THIS TIMEFRAME CAN FOLLOW GENERAL REPORTING GUIDANCE. PLEASE INCLUDE PHOTOGRAPH WITH TEXT IF FEASIBLE.
4. TURTLES AND SNAKES MAY BE ATTRACTED TO DISTURBED GROUND DURING NESTING SEASON. TURTLE NESTING SEASON OCCURS APPROXIMATELY MAY 15TH – JUNE 30TH. ALL TURTLE SPECIES NESTS AND NORTHERN BLACK RACER NESTS ARE PROTECTED BY NH LAWS. IF A NEST IS OBSERVED OR SUSPECTED, OPERATORS SHALL CONTACT MELISSA WINTERS (603–479–1129) OR JOSH MEGYESY (978–578–0802) AT NHFG IMMEDIATELY FOR FURTHER CONSULTATION. THE NEST OR SUSPECTED NEST SHALL BE MARKED (SURROUNDING ROPED OFF OR CONE BUFFER DEPLOYED) AND AVOIDED; THIS SHALL BE COMMUNICATED TO ALL PERSONNEL ONSITE. SITE ACTIVITIES SHALL NOT OCCUR IN THE AREA SURROUNDING THE NEST OR SUSPECTED NEST UNTIL FURTHER GUIDANCE IS PROVIDED BY NHFG.
5. A 25 FOOT NO–CUT, NO–DISTURB BUFFER SHALL BE MAINTAINED AROUND WETLANDS, WITH THE EXCEPTION OF PROPOSED DISTURBANCES DEPICTED ON THE PLAN OF REFERENCE. PLACARDS MARKING THESE AREAS AS "PROTECTED HABITAT– NO CUTTING/ NO DISTURBANCE" SHALL BE PLACED EVERY 75 FEET ALONG THE BUFFER BOUNDARIES. THE 25 FOOT NO–CUT, NO–DISTURB BUFFER AND PLACARDS SHALL BE MAINTAINED AND CONSERVED IN PERPETUITY IN ACCORDANCE WITH FIS 1003.02 (E).
6. THE CONSERVATION EASEMENT DEED DOCUMENT TITLED, "DRAFT CONSERVATION EASEMENT DEED (00971494XC637B), ATTACHED, SHALL BE FINALIZED AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. A COPY OF THE RECORDED DOCUMENT SHALL BE PROVIDED TO NHFG.
   a. A NO CUT, NO DISTURB BUFFER SHALL BE MAINTAINED IN ACCORDANCE WITH THE BOUNDARIES OF THE "OPEN SPACE AREA" ON THE PLAN TITLED, "OVERVIEW SITE PLAN, SHEET C13" DATED 6/1/2023. PLACARDS MARKING THESE AREAS AS "PROTECTED HABITAT– NO CUTTING / NO DISTURB BUFFER" SHALL BE PLACED EVERY 75 FEET ALONG THE OPEN SPACE BOUNDARY. PLEASE IDENTIFY PLACARD PLACEMENTS ON PLAN SHEETS. SEE PLAN SHEET C13.
7. VERNAL POOLS AND POTENTIAL VERNAL POOLS SHALL BE FLAGGED PRIOR TO WORK AND ALL IMPACTS TO VERNAL POOLS AND POTENTIAL VERNAL POOLS SHALL BE AVOIDED.
8. NO SUMPS SHALL BE INCLUDED IN THE DESIGN OF CATCH BASINS OR OUTLET CONTROL STRUCTURES.
9. SLOPED OR "CAPE COD" CURBING SHALL BE UTILIZED WHEREVER CURBING IS PROPOSED.
10. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTIC, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES. SEE PLAN SHEETS E1–E2.
11. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES ON THE PROJECT SITE SHALL BE REPORTED TO THE NHFG NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603–271–2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV, WITH THE EMAIL SUBJECT LINE CONTAINING THE NHB DATACHECK TOOL RESULTS LETTER ASSIGNED NUMBER, THE PROJECT NAME, AND THE TERM WILDLIFE SPECIES OBSERVATION.
12. PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHFG IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION, AS FEASIBLE.
13. IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHFG AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHFG.
    a. SITE OPERATORS SHALL BE ALLOWED TO RELOCATE WILDLIFE ENCOUNTERED IF DISCOVERED WITHIN THE ACTIVE WORK ZONE IF IN DIRECT HARM FROM PROJECT ACTIVITIES. WILDLIFE SHALL BE RELOCATED IN CLOSE PROXIMITY TO THE CAPTURE LOCATION BUT OUTSIDE OF THE WORK ZONE AND IN THE DIRECTION THE INDIVIDUAL WAS HEADING. NHFG SHALL BE CONTACTED IMMEDIATELY IF THIS ACTION OCCURS.
14. NHFG, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

PLEASE REPORT OBSERVATIONS OF RARE TURTLES

The NH Fish & Game Department is requesting observations of the following turtle species

Turtles may be attracted to disturbed ground during nesting season (May 15th – June 30th)

Turtles are most active from April 15th - October 15th

Blanding's turtle
(State Endangered)

Large, dark/black domed shell with lighter speckles.

Distinct yellow throat/chin.

Aquatic but often moves on land.

Spotted turtle
(State Threatened)

Small, mostly aquatic with black or dark brown with yellow spots.

Fairly flat shell compared to Blanding's turtle.

Spots vary in color and number.

Fis 1401.03 (a) No person shall take or possess a spotted turtle (*Clemmys guttata*)...Blanding's turtle (*Emydoidea blandingii*)...or any egg or part thereof.

Report sightings immediately to NHFG Wildlife Division at 603-271-2461 (M-F 8-4) or to NHFG Wildlife Biologist Melissa Winters 603-479-1129 (cell) anytime.

Please report promptly, noting specific location and date – Photographs strongly encouraged

Northern Black Racer

(New Hampshire state threatened species)

Emerge from hibernacula in April, Basking April - August,
Hatchlings emerge August - September, Return to hibernacula mid-September - mid-October

- Solid black with a white throat and chin
- Slender with glossy scales, 3-6 ft. long
- Hatchlings are very small and patterned

Immediately report sightings to NH Fish and Game
Melissa Winters (603-479-1129) or
Brendan Clifford (603-944-0885)

Please report promptly, noting specific location and date
Photographs strongly encouraged

Fis 1401.03 (a) No person shall take or possess a black racer (*Coluber constrictor*)...or any egg or part thereof.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9846 – LICENSED PROFESSIONAL ENGINEER

8/17/2023

REV.	DATE	REVISION	BY
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Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

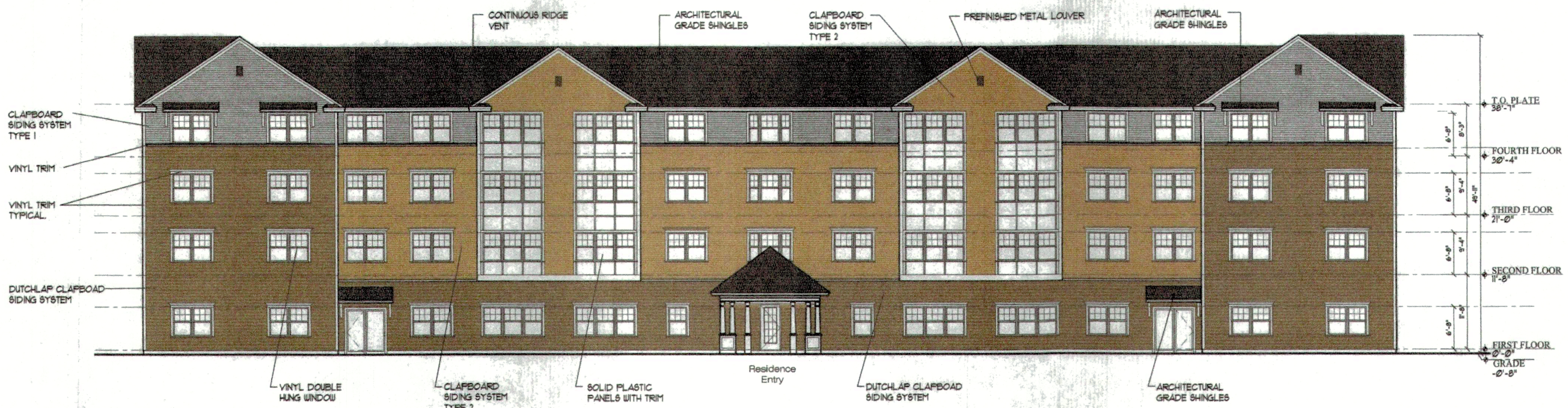
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	FISH AND GAME FLYERS
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

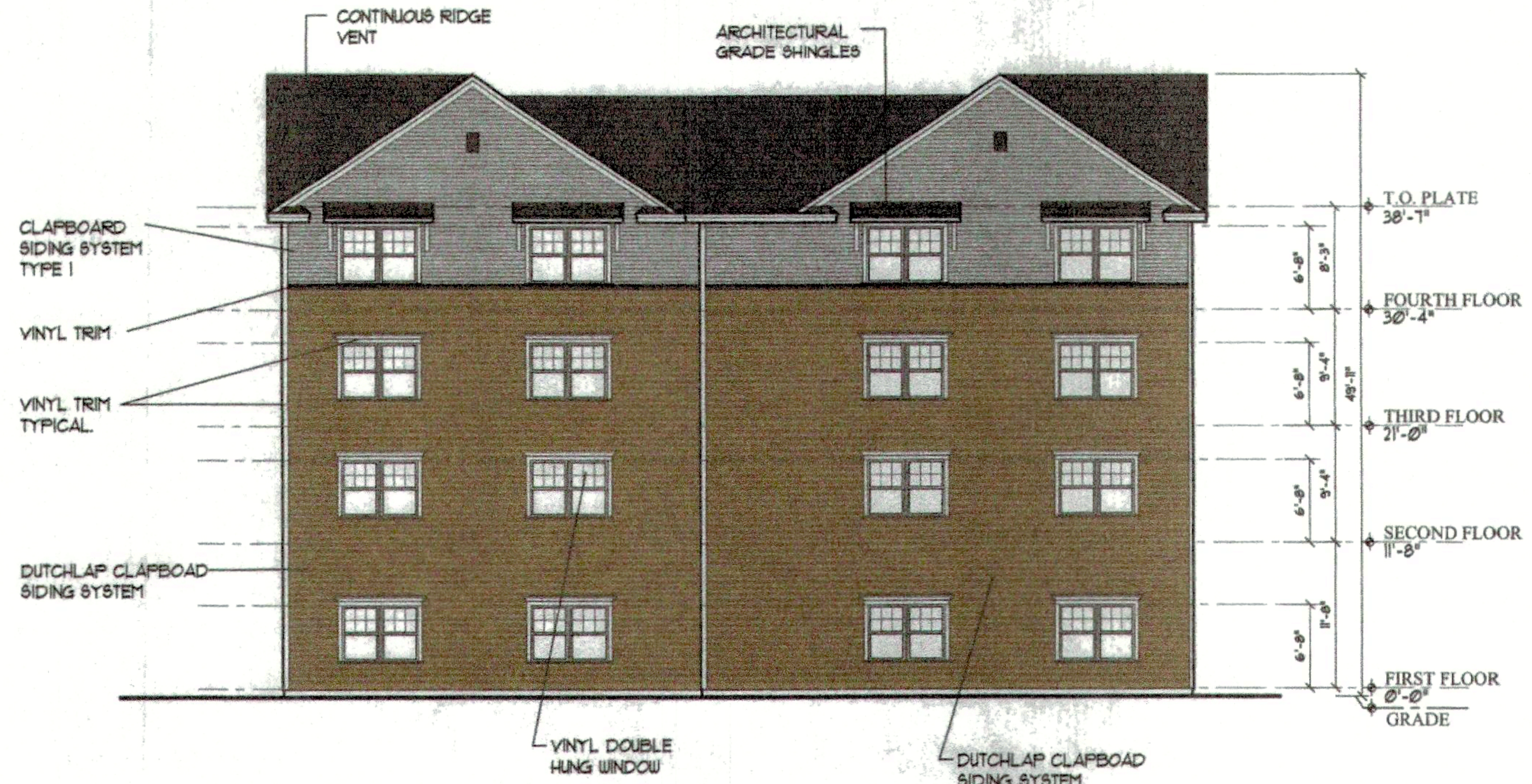
DRAWING No.

WL1

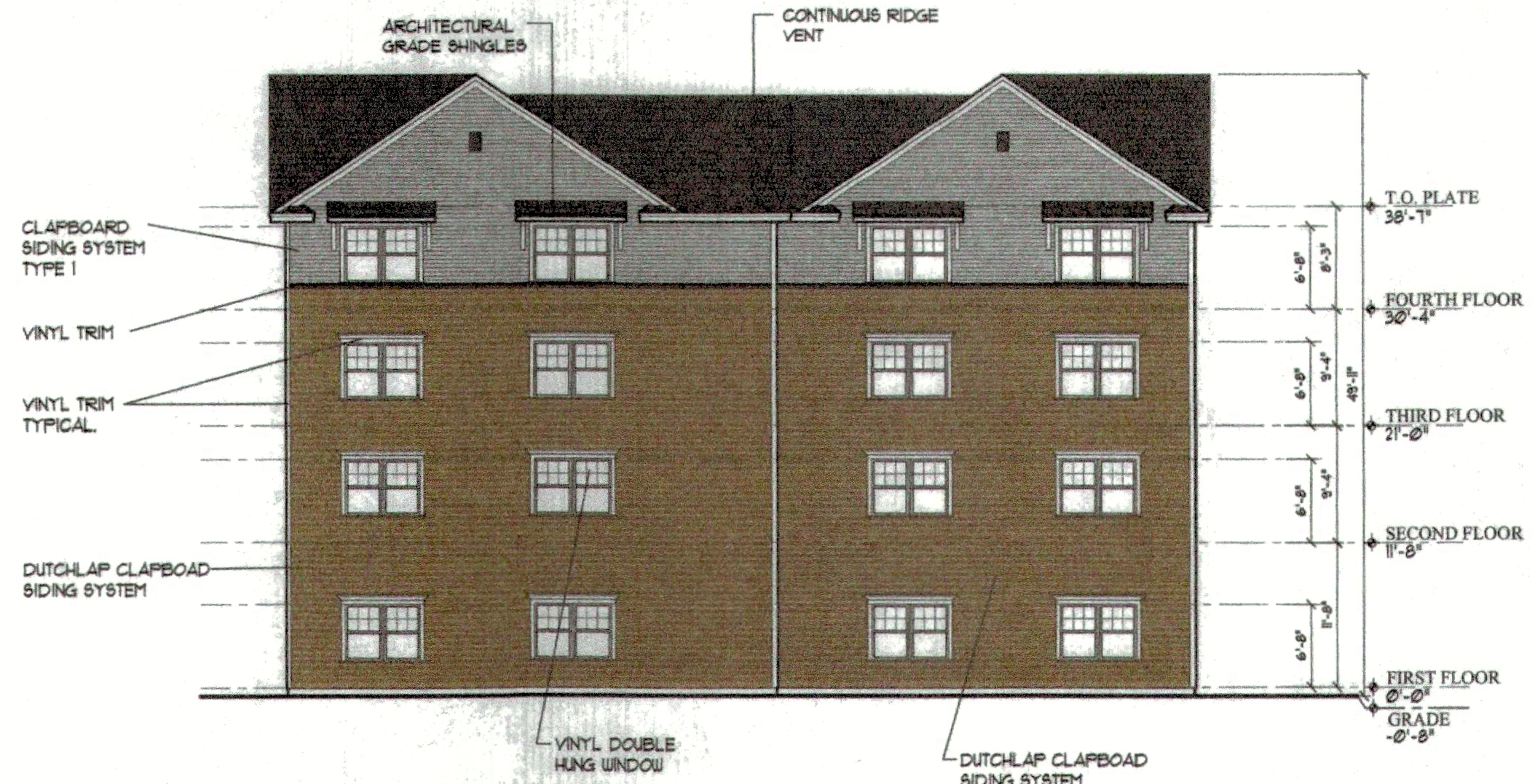
SHEET 55 OF 61
JBE PROJECT NO. 20564



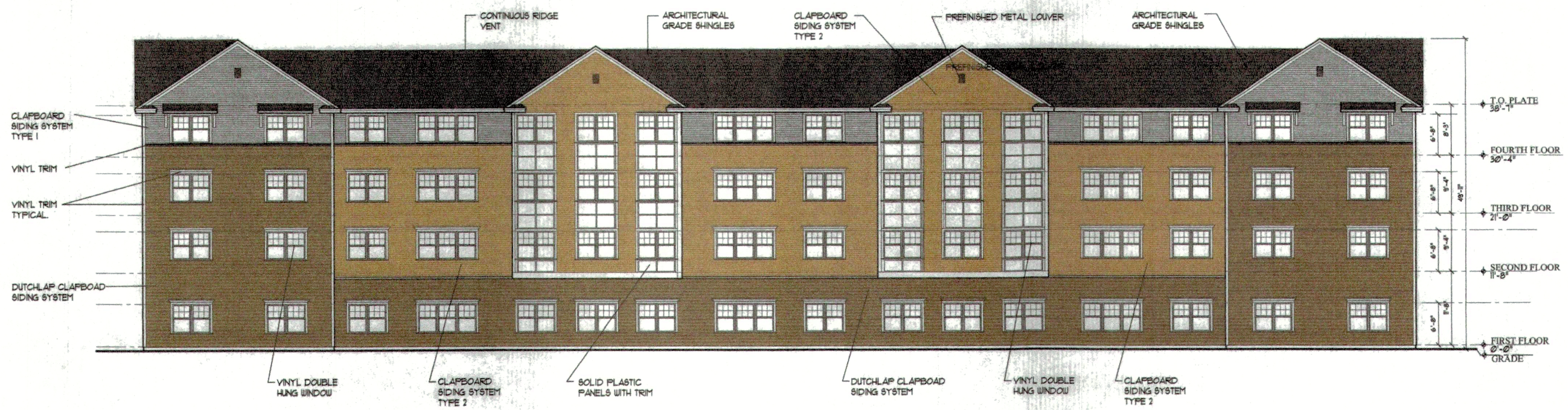
1 Front Elevation
3/32"=1'-0"



2 Right Elevation
3/32"=1'-0"



3 Left Elevation
3/32"=1'-0"

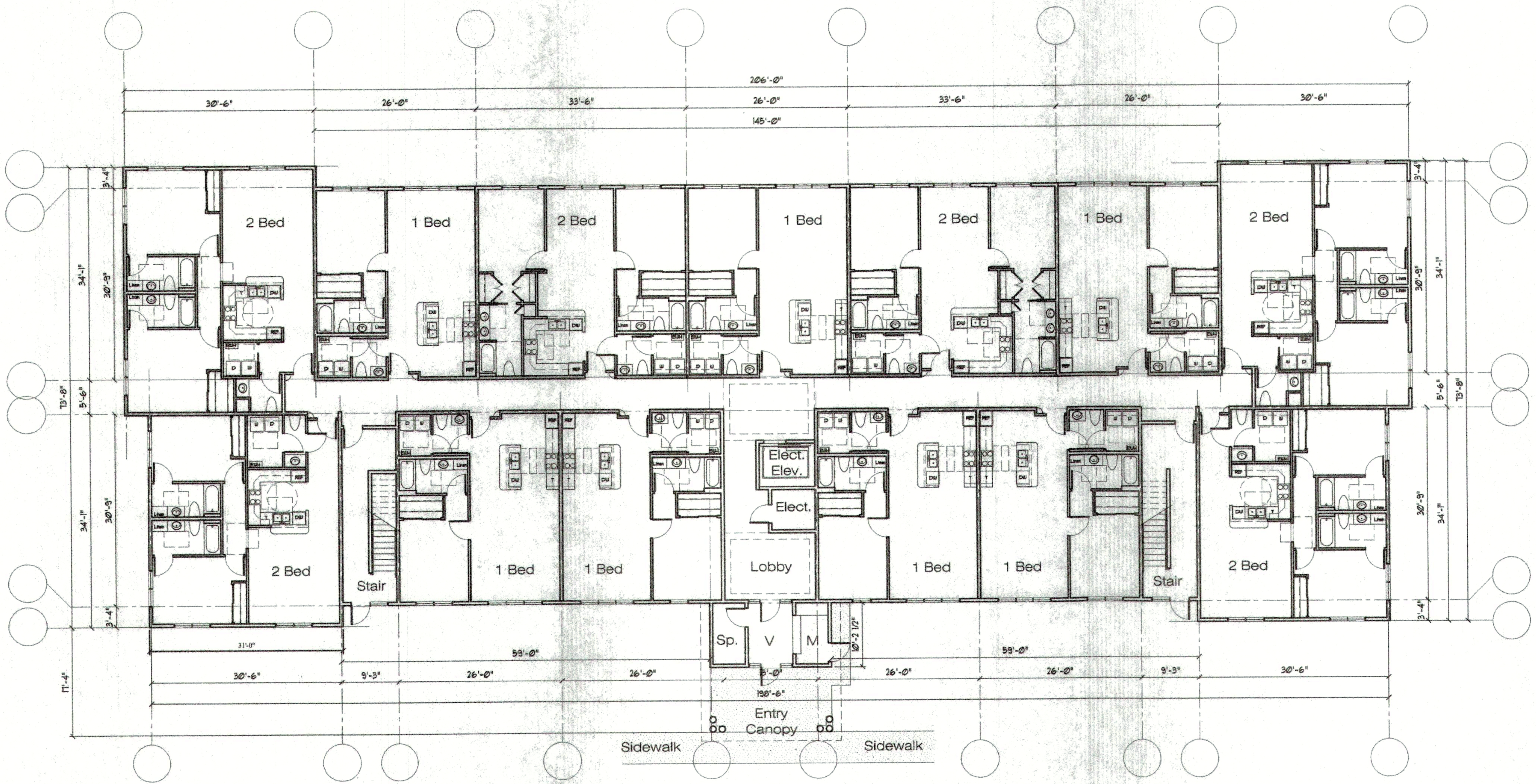


Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

LICENSED ARCHITECT · HOUSE No. 2380 · STATE OF NEW HAMPSHIRE

THA ARCHITECTS, LLC
ARCHITECTURE • PLANNING • CONSULTING • INTERIOR DESIGN
89 WILLOWBROOK AVENUE • STRATHAM, NH 03885
Tel: (603) 770-2491 Fax: (603) •WWW.THAARC.COM



1 First Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

THA ARCHITECTS, LLC
ARCHITECTURE ▪ PLANNING ▪ CONSULTING ▪ INTERIOR DESIGN
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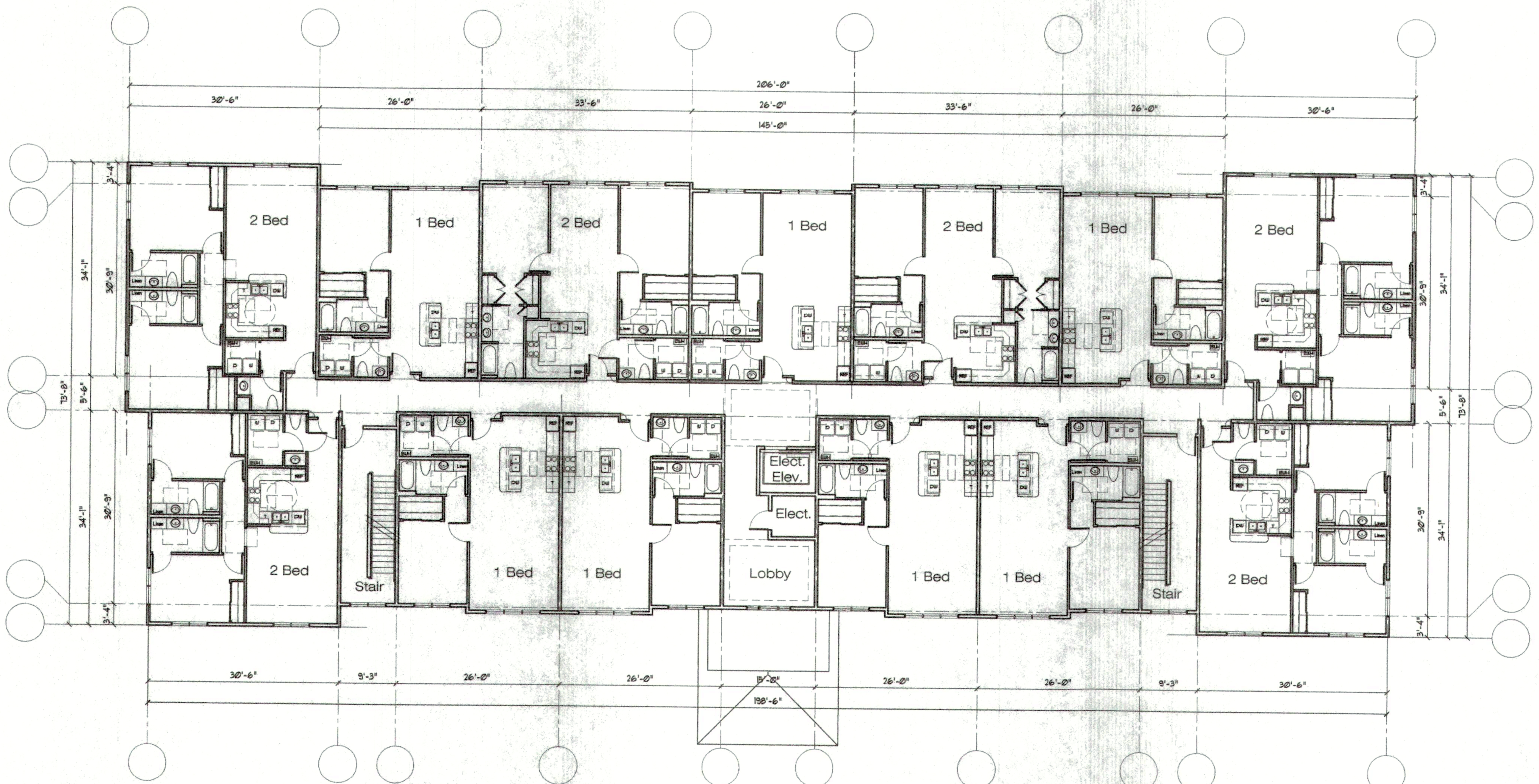

1 Second Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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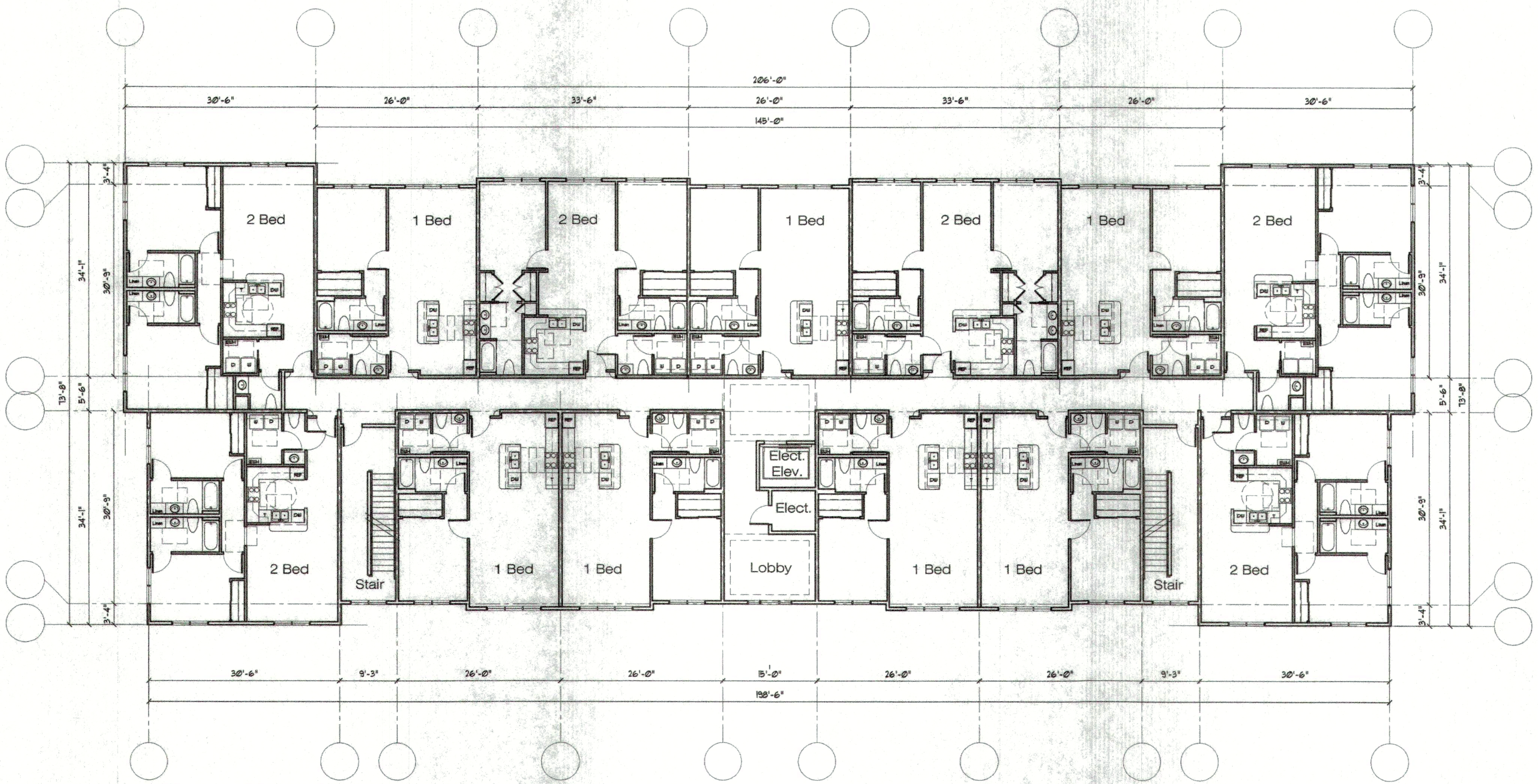

1 Third Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

THA ARCHITECTS, LLC
ARCHITECTURE ▪ PLANNING ▪ CONSULTING ▪ INTERIOR DESIGN
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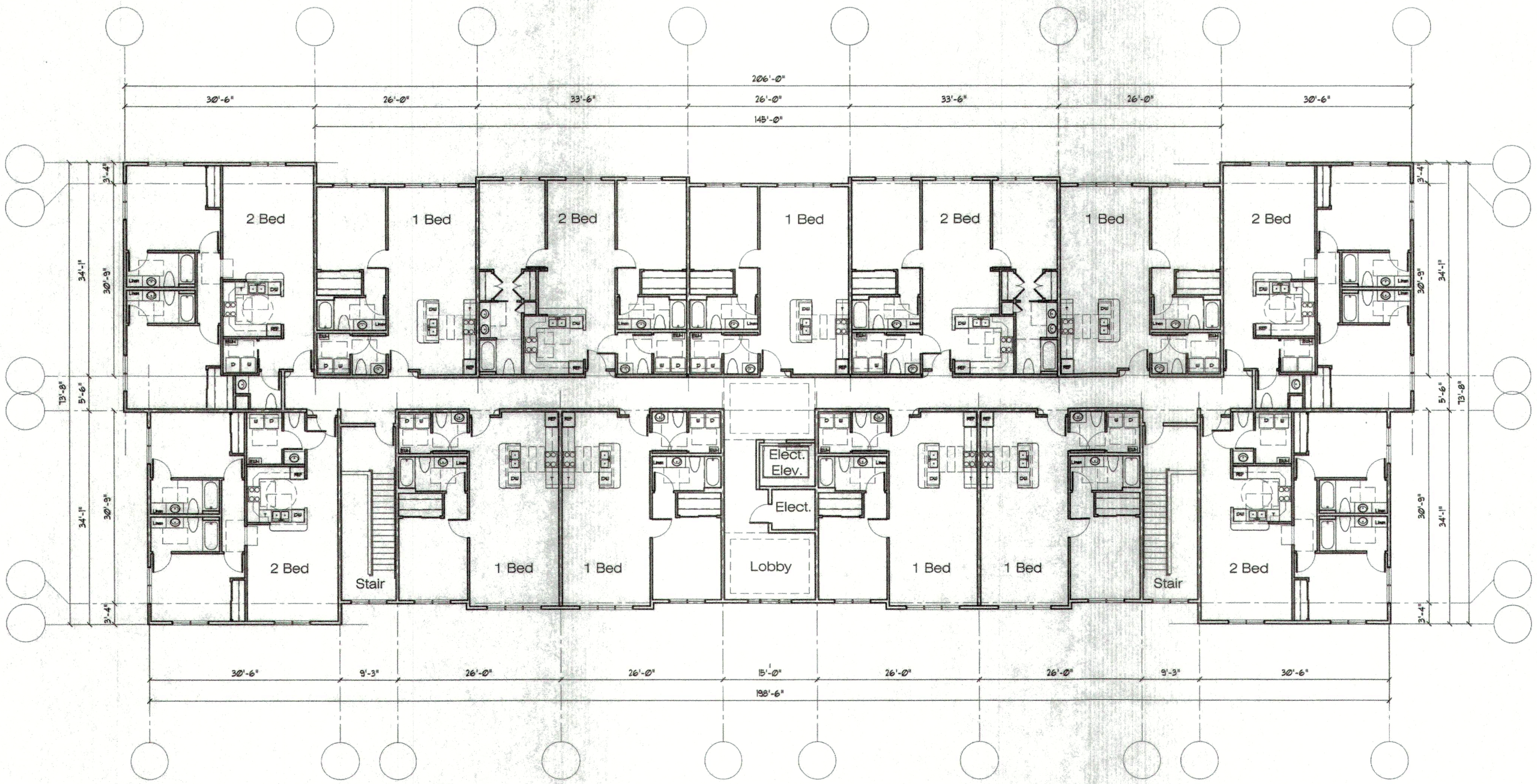

1 Fourth Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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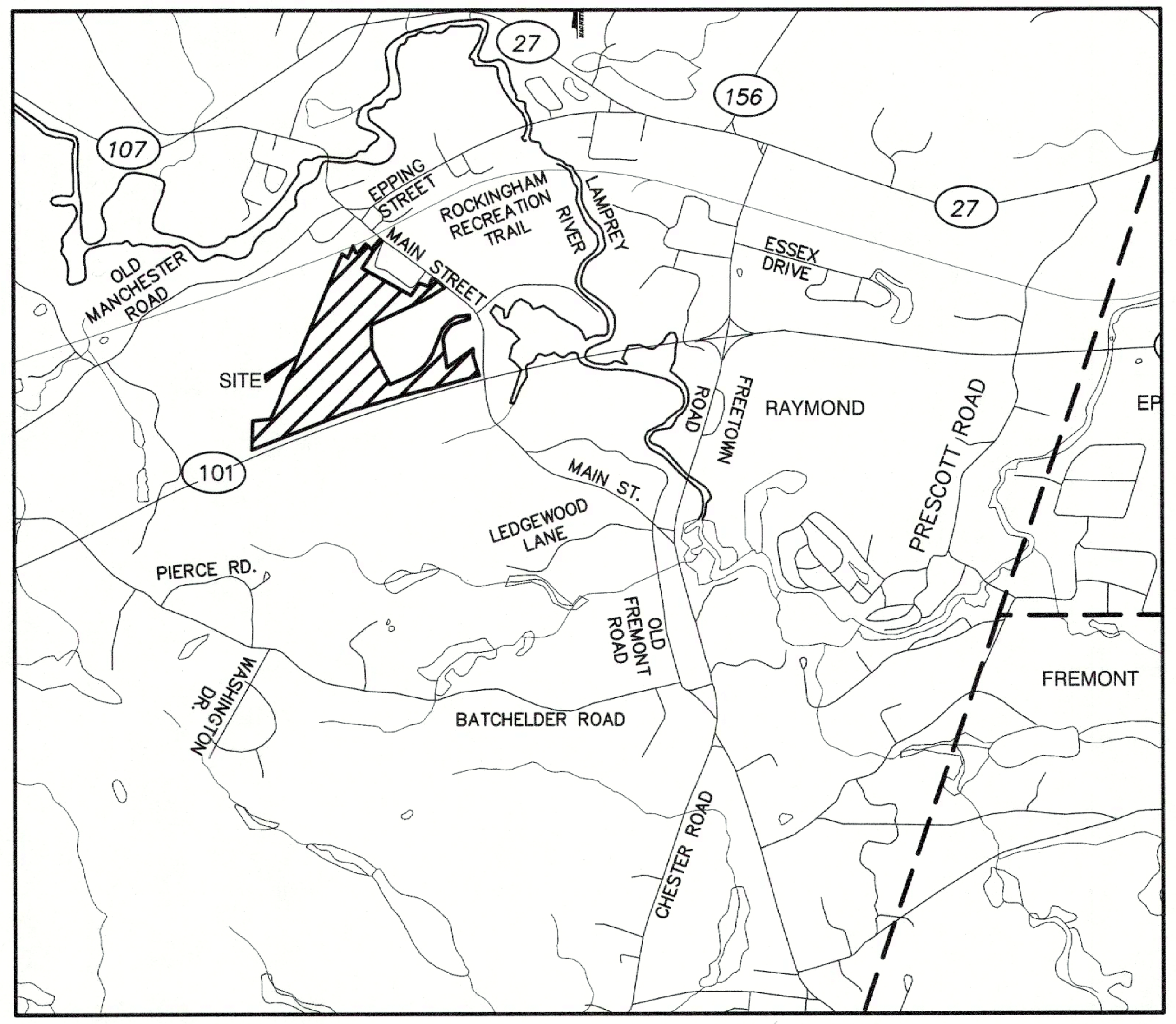
Tel: (603) 770-2491 Fax: (603) •WWW.THAARC.COM

"WHITE ROCK PLACE"
MULTI-FAMILY RESIDENTIAL SITE PLAN & SUBDIVISION
TAX MAP 23, LOT 25
109A MAIN STREET & RTE 101, RAYMOND, NH 03077

Know what's **below**
811 before you dig

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TIDAL WETLANDS LINE
		STREAM CHANNEL
		TREE LINE
		STONEWALL
		BARBED WIRE
		FENCE
		STOCKADE FENCE
		SOIL BOUNDARY
		AQUIFER PROTECTION LINE
		FLOOD PLAIN LINE
		ZONELINE
		EASEMENT
100	100	MAJOR CONTOUR
98	98	MINOR CONTOUR
		EDGE OF PAVEMENT
VGC	VGC	VERTICAL GRANITE CURB
SGC	SGC	SLOPE GRANITE CURB
CCB	CCB	CAPE COD BERM
PCC	PCC	POURED CONCRETE CURB
X	X	SILT FENCE
D		DRAINAGE LINE
S	S	SEWER LINE
FM	FM	SEWER FORCE MAIN
G	G	GAS LINE
W	W	WATER LINE
WS	WS	WATER SERVICE
OHE	OHE	OVERHEAD ELECTRIC
UGE	UGE	UNDERGROUND ELECTRIC
		GUARDRAIL
UD	UD	UNDERDRAIN
F	F	FIRE PROTECTION LINE
	W	THRUST BLOCK
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
100x0	100x0	SPOT GRADE
100.00	100.00	PAVEMENT SPOT GRADE
100.00 99.50	100.00 99.50	CURB SPOT GRADE
		BENCHMARK (TBM)
		DOUBLE POST SIGN
		SINGLE POST SIGN
		WELL
TP 1		TEST PIT
		FAILED TEST PIT
P1 M	M	MONITORING WELL
		PERC TEST
1		PHOTO LOCATION
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
		DRAIN MANHOLE
		SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		DOUBLE GRATE CATCH BASIN
		TRANSFORMER
		CULVERT W/WINGWALLS
		CULVERT W/FLARED END SECTION
		CULVERT W/STRAIGHT HEADWALL
		STONE CHECK DAM
		DRAINAGE FLOW DIRECTION
		4K SEPTIC AREA
		WETLAND IMPACT
		VEGETATED FILTER STRIP
		RIPRAP
		OPEN WATER
		FRESHWATER WETLANDS
		TIDAL WETLANDS
		STABILIZED CONSTRUCTION ENTRANCE
		CONCRETE
		GRAVEL
		SNOW STORAGE
		RETAINING WALL



LOCUS MAP
SCALE 1" = 2000'

SHEET INDEX

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
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CIVIL ENGINEER / SURVEYOR
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JOSEPH CORONATI
EMAIL: JCORONATI@JONESANDBEACH.COM

WETLAND AND SOIL CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DR BUILDING 2 UNIT H
EXETER, NH 03833-7526
(603) 778-0644
CONTACT: JAMES GOVE
EMAIL: JGOVE@GESINC.BIZ

LIGHTING CONSULTANT
CHARRON, INC.
PO BOX 4550
MANCHESTER, NH 03108
(603) 624-4827
CONTACT: DANIEL HEBERT
EMAIL: DHEBERT@CHARRONINC.COM

LANDSCAPE DESIGNER
LM LAND DESIGN
11 SOUTH ROAD
BRENTWOOD, NH 03833
(603) 770-7728
CONTACT: LISE MCNAUGHTON
EMAIL: LMLANDDESIGN@GMAIL.COM

WATER
RAYMOND WATER DEPARTMENT
4 EPPING STREET
RAYMOND, NH 03077
(603) 895-4657

ELECTRIC
EVERSOURCE
74 OLD DOVER ROAD
ROCHESTER, NH 03867
(603) 332-4227

CABLE/TELEPHONE
FAIRPOINT COMMUNICATIONS
5 FLORAL AVE
RAYMOND, NH 03077

PLEASE TAKE NOTE OF NEW HAMPSHIRE FISH AND GAME CONDITIONS AND FLYERS ON SHEET WL1

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9846
LICENSED PROFESSIONAL ENGINEER
8/17/2023

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603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

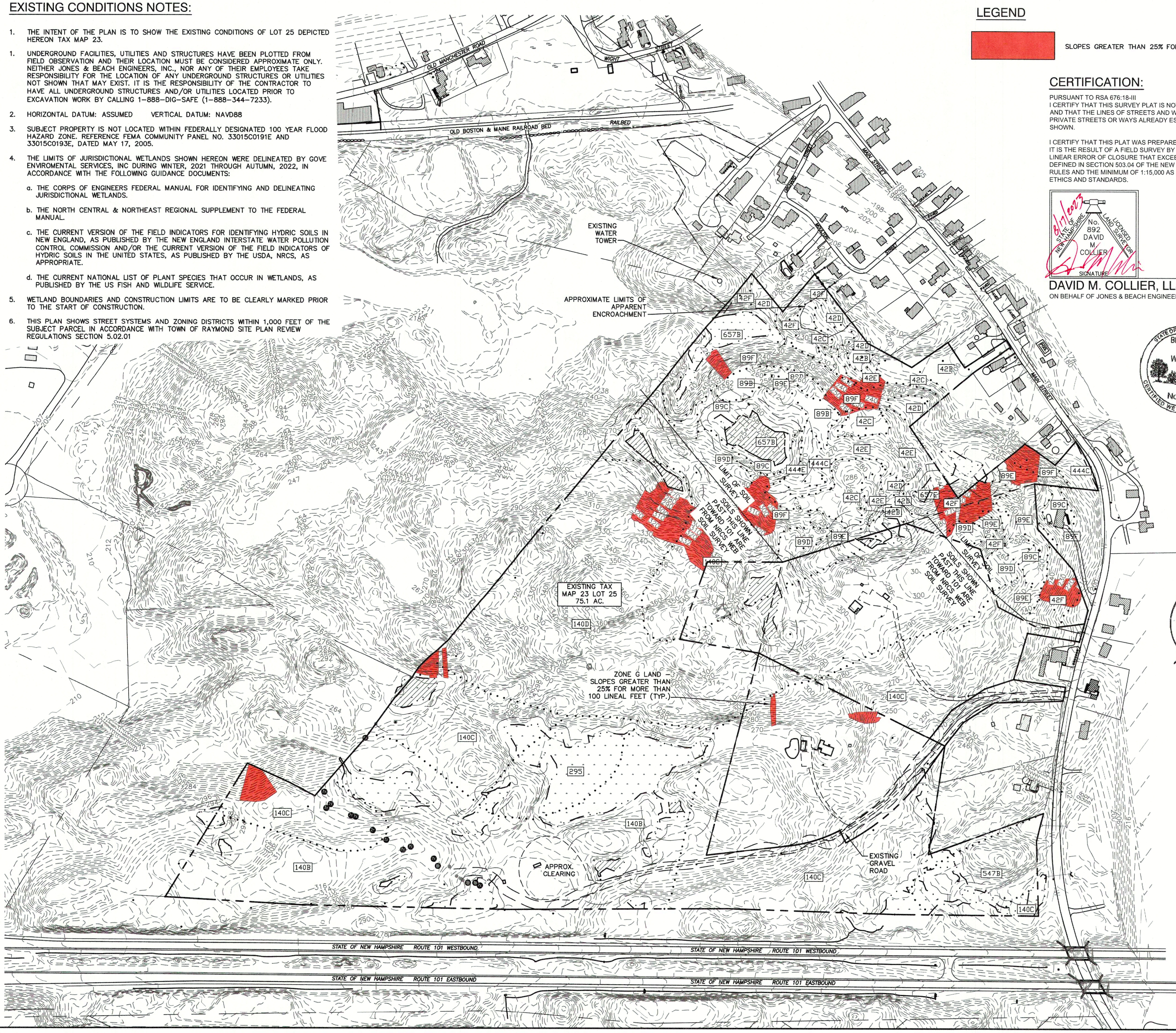
Plan Name:	COVER SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
CS
SHEET 1 OF 61
JBE PROJECT NO. 20564

WHITE ROCK PLACE, RAYMOND, NH
JBE # 20564 REVISION 16, 7/28/23

EXISTING CONDITIONS NOTES:

1. THE INTENT OF THE PLAN IS TO SHOW THE EXISTING CONDITIONS OF LOT 25 DEPICTED HEREON TAX MAP 23.
1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233).
2. HORIZONTAL DATUM: ASSUMED VERTICAL DATUM: NAVD88
3. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0191E AND 33015C0193E, DATED MAY 17, 2005.
4. THE LIMITS OF JURISDICTIONAL WETLANDS SHOWN HEREON WERE DELINEATED BY GOVE ENVIROMENTAL SERVICES, INC DURING WINTER, 2021 THROUGH AUTUMN, 2022, IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
   a. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
   b. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
   c. THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
   d. THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
5. WETLAND BOUNDARIES AND CONSTRUCTION LIMITS ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
6. THIS PLAN SHOWS STREET SYSTEMS AND ZONING DISTRICTS WITHIN 1,000 FEET OF THE SUBJECT PARCEL IN ACCORDANCE WITH TOWN OF RAYMOND SITE PLAN REVIEW REGULATIONS SECTION 5.02.01



LEGEND

SLOPES GREATER THAN 25% FOR 100 OR MORE LINEAL FEET (ZONE G LAND)

CERTIFICATION:

PURSUANT TO RSA 676:18-III
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

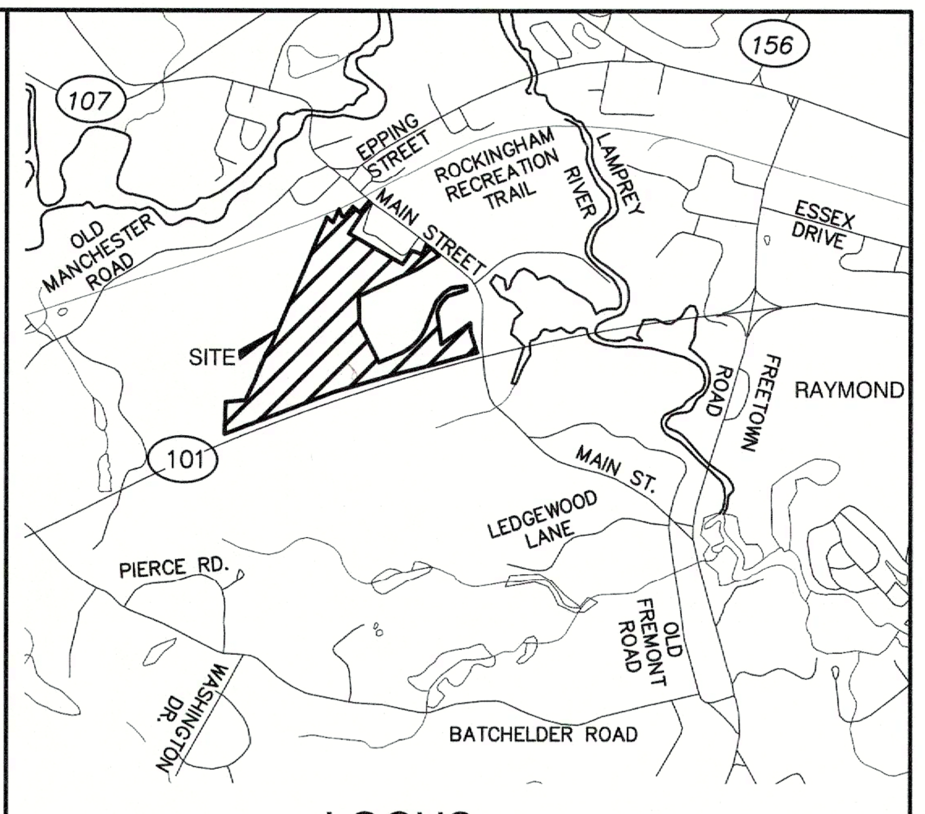
I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023
DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

STATE OF NEW HAMPSHIRE BRENDEN M. WALDEN No. 297 CERTIFIED WETLAND SCIENTIST
6/2/2023

STATE OF NEW HAMPSHIRE JAMES P. GOVE No. 004 CERTIFIED SOIL SCIENTIST
6-1-23



LOCUS SCALE: 1"=2000'

PLAN REFERENCES

1. "PLAN OF LAND OF MRS. DORA W. HILLS, RAYMOND, N.H," BY R. HYDE, SURVEYOR, DATED 12/10/1962.
2. "A PLAN OF THE TWIN CEDAR SUBDIVISION IN RAYMOND, NH," BY H.A.P. ASSOCIATES, DATED JULY, 1977, RCRD PLAN #C-7095.
3. "CENTERLINE OF 30' RIGHT-OF-WAY ACROSS LAND OF JOSEPHINE WELCH" BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 23 1982, RCRD PLAN #D-11967.
4. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO WAYNE WELCH," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED OCTOBER 13, 1983, RCRD PLAN #D-12232.
5. "TWO REMAINING PORTIONS OF THE GREGG LOT (1346-496 LESS ROUTE 101)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 1, 1984, RCRD PLAN #D-13046.
6. "LAND OF JOSEPHINE F. WELCH FORMERLY OF AL S. WELCH (REMAINDER OF 1559-263 & 1198-463)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 20, 1984, RCRD PLAN #D-16672.
7. "A SURVEY AND PLAT OF A PROPERTY PREPARED FOR REX LEATHER FINISHING TRUST SITUATED IN THE TOWN OF RAYMOND N.H.," PREPARED BY RSL LAYOUT & DESIGN INC., DATED OCTOBER 16, 2987, RCRD PLAN #D-17207.
8. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO PAUL W. & TERI L. WELCH A PART OF (VOL. 1559-PG. 263)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 16, 1988, RCRD PLAN #D-18625.
9. "SUBDIVISION PLAN," BY CORNERSTONE SURVEY ASSOCIATES, INC., DATED MAY 2004, RCRD PLAN #D-32014.
10. "A SURVEY AND PLAN OF A BOUNDARY LINE AGREEMENT BETWEEN RICHARD A. & RITA C. GIRARD AND MICHAEL E. & NANCY L. BROWN AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-33603.
11. "A SURVEY AND PLAT OF A LOT LINE ADJUSTMENT & ACCESS EASEMENT PLAN BETWEEN RICHARD A. & RITA C. GIRARD AND TOWN OF RAYMOND, N.H. AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-34073.
12. "LOT LINE ADJUSTMENT," BY CORNERSTONE SURVEY ASSOCIATES INC., DATED SEPTEMBER, 2006, RCRD #D-34431.
13. "SUBDIVISION PLAN OF LAND, TAX MAP 28-3, LOT 120, OLD MANCHESTER ROAD & INDUSTRIAL DRIVE, RAYMOND, NH," BY ERIC C. MITCHELL & ASSOCIATES, INC., DATED JULY 3, 2007, RCRD #D-37834.

SOIL NOTE:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED NOVEMBER 2, 2022, AND WAS PREPARED BY LUKE HURLEY, CSS # 095, GOVE ENVIRONMENTAL SERVICES, INC.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
42	CANTON	221	B
89	CHATFIELD	228	B
444	NEWFIELDS	321	B
657/P	RIDGEBURY VERY STONY	528	C

SEE ABUTTER LABELS ON DETAILED EXISTING CONDITIONS PLANS.

SLOPE PHASE:
0-8% B 8-15% C 15-25% D 25%+ E

0-8%	B	8-15%	C	15-25%	D
25%+	E				

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: OVERVIEW EXISTING CONDITIONS PLAN
Project: WHITE ROCK PLACE
109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH
49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C1
SHEET 2 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

PURSUANT TO RSA 676:18-III
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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE
8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

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PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C2
SHEET 3 OF 61
JBE PROJECT NO. 20564

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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8/17/2023

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Plan Name:	EXISTING CONDITIONS PLAN
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DRAWING No.
C3
SHEET 4 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE, DAVID M. COLLIER, No. 892, LICENSED LAND SURVEYOR — 8/17/2023

DAVID M. COLLIER, LLS 892 DATE: 8/17/2023
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CAD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE, MICHAEL J. KERIVAN, No. 9846, LICENSED PROFESSIONAL ENGINEER — 8/17/2023

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C4
SHEET 5 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023

SIGNATURE 8/17/2023
DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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Plan Name:	EXISTING CONDITIONS PLAN
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Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C5
SHEET 6 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

8/17/2023

SIGNATURE

DAVID M. COLLIER, LLS 892 DATE: 8/17/2023

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

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FAX: 603-772-0227
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Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

C6

SHEET 7 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 892 DAVID M. COLLIER 8/17/2023

SIGNATURE

DAVID M. COLLIER, LLS 892   DATE: 8/17/2023

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CAD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

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E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

C7

SHEET 8 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

PURSUANT TO RSA 676:18-III
I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

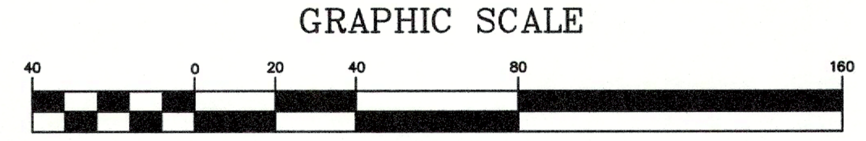
I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE



(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C8
SHEET 9 OF 61
JBE PROJECT NO. 20564

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

CERTIFICATION:

PURSUANT TO RSA 676:18-III
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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C9
SHEET 10 OF 61
JBE PROJECT NO. 20564

CERTIFICATION:

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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Plan Name:	EXISTING CONDITIONS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
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DRAWING No.
C10
SHEET 11 OF 61
JBE PROJECT NO. 20564

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STATE OF NEW HAMPSHIRE · No. 892 DAVID M. COLLIER · LICENSED LAND SURVEYOR

8/17/2023

SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE · MICHAEL J. KERIVAN No. 9846 · LICENSED PROFESSIONAL ENGINEER

8/17/2023

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DRAWING No.

C11

SHEET 12 OF 61
JBE PROJECT NO. 20564

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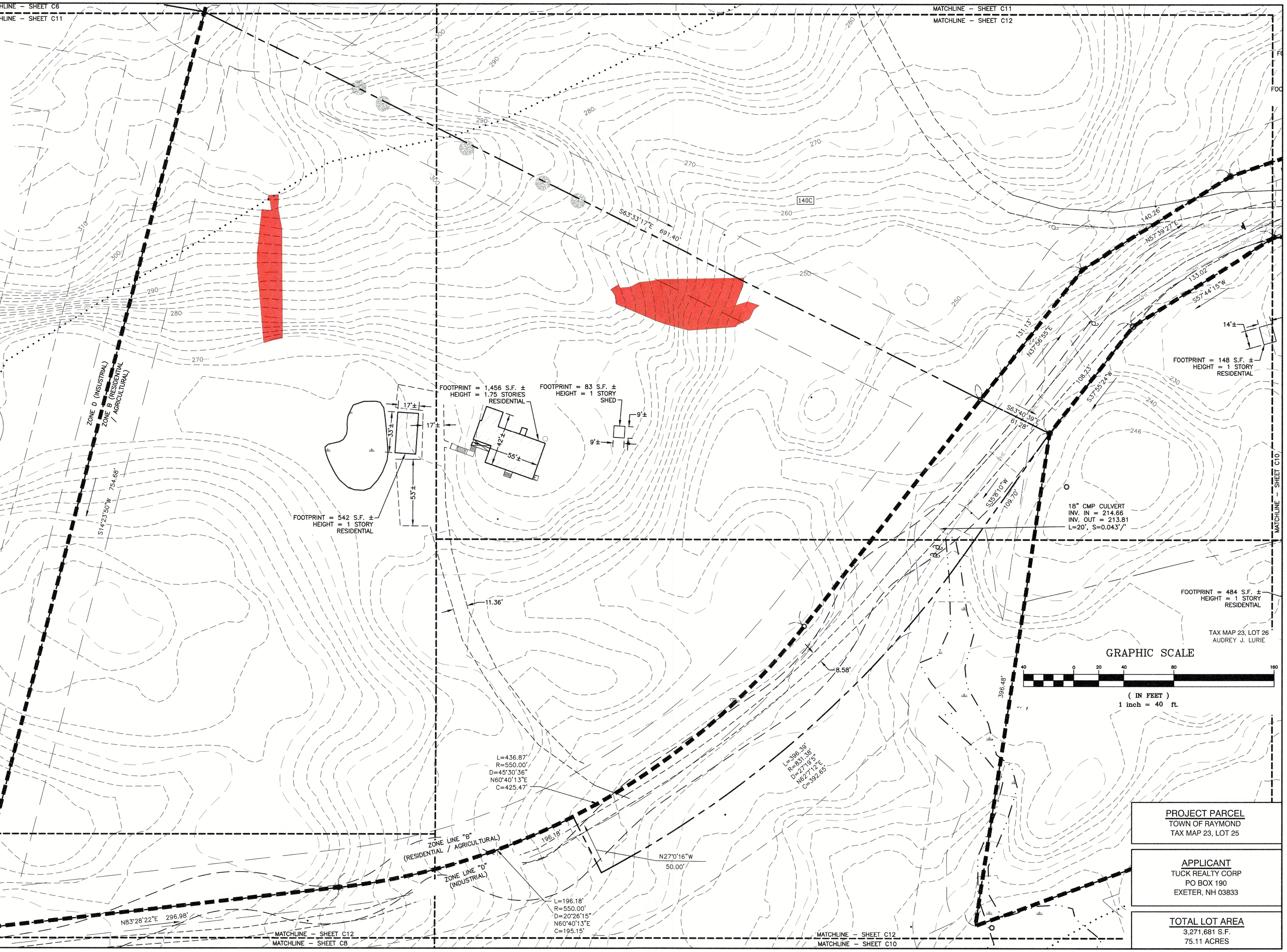
STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE
8/17/2023

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.



PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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Plan Name:	EXISTING CONDITIONS PLAN
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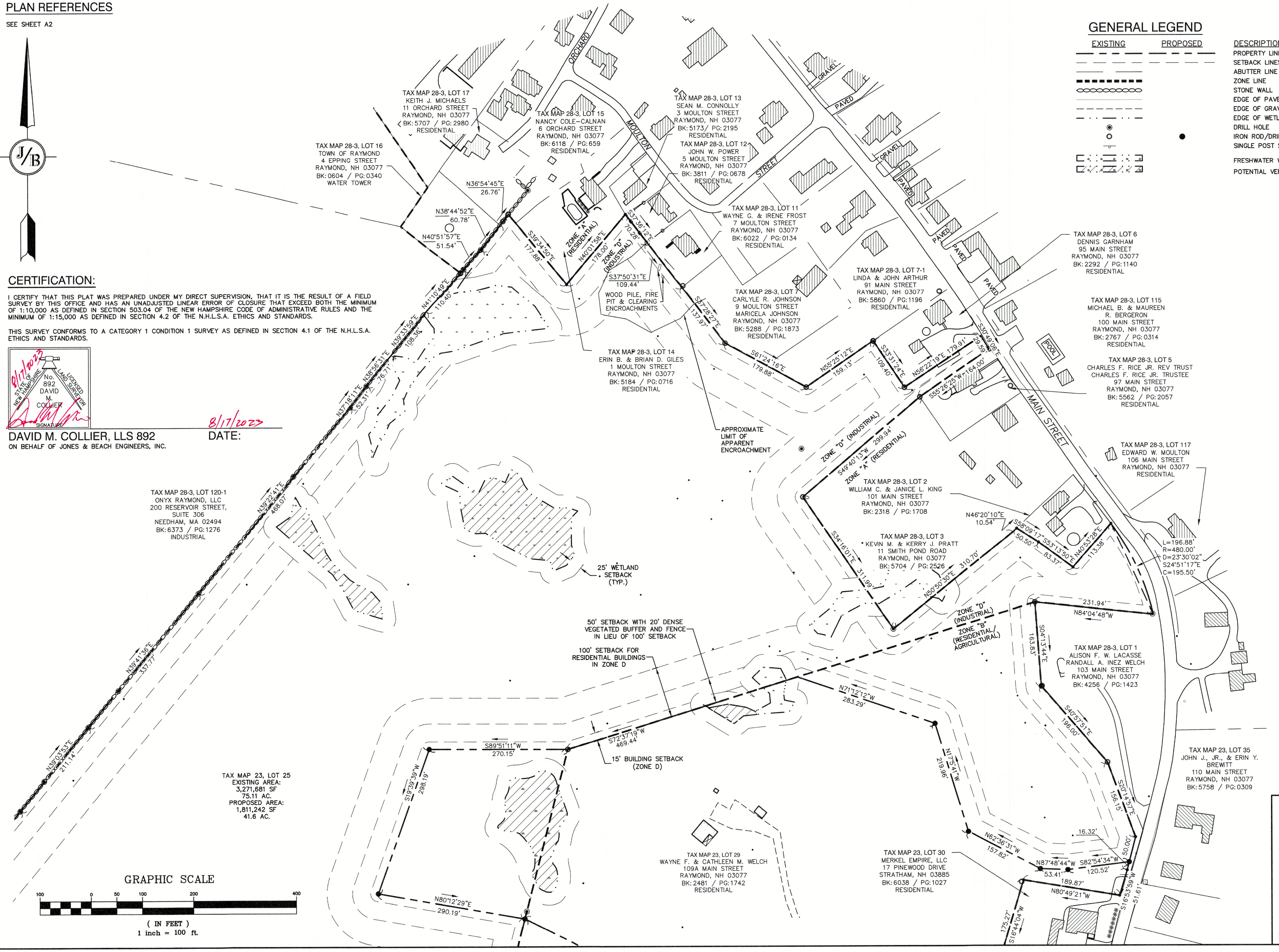
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C12
SHEET 13 OF 61
JBE PROJECT NO. 20564

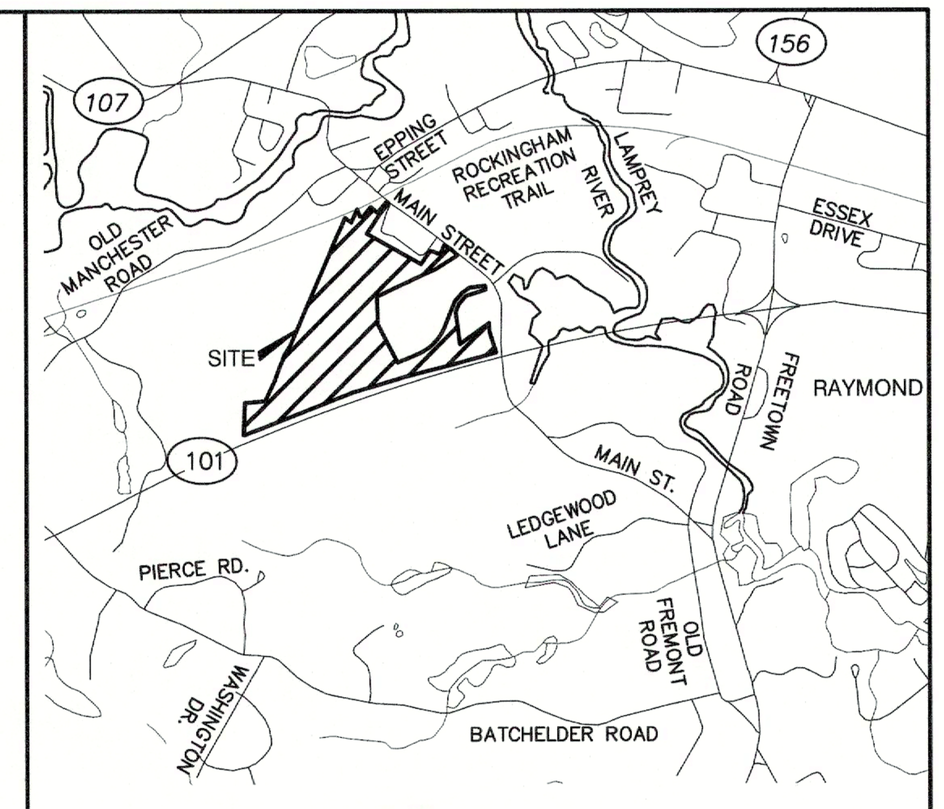
PLAN REFERENCES

SEE SHEET A2



GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		ABUTTER LINE
		ZONE LINE
		STONE WALL
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EDGE OF WETLAND
		DRILL HOLE
		IRON ROD/DRILL HOLE
		SINGLE POST SIGN
		FRESHWATER WETLAND
		POTENTIAL VERNAL POOL



LOCUS SCALE: 1"=2000'

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

8/17/2023

SIGNATURE

8/17/2023

DAVID M. COLLIER, LLS 892 DATE:

ON BEHALF OF JONES & BEACH ENGINEERS, INC.

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE SEPARATELY LOT LINE ADJUSTMENT BETWEEN TAX MAP 23, LOTS 25, 28, & 29 AND CONSOLIDATION OF LOTS 24 & 25, AND TO SUBDIVIDE LOT 25 INTO TWO LOTS.

2. ZONING DISTRICT: D (INDUSTRIAL)
   LOT AREA MINIMUM = 21,780 SF (0.5 ACRES)
   LOT FRONTAGE MINIMUM = 50'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 15'
   SIDE SETBACK = 15'
   REAR SETBACK = 15'
   WETLAND SETBACK = 25' (PER RAYMOND ZONE "G")
   MAX. BUILDING HEIGHT = 30' OR ACTUAL BUILDING SETBACK FROM PROPERTY LINE, WHICHEVER IS GREATER

   ZONING DISTRICT: B (RESIDENTIAL/AGRICULTURAL)
   LOT AREA MINIMUM = 87,120 SF (2 ACRES)
   LOT FRONTAGE MINIMUM = 200'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 30'
   SIDE SETBACK = 30'
   REAR SETBACK = 30'
   WETLAND SETBACK = 25' (PER RAYMOND ZONE "G")
   MAX BUILDING HEIGHT = 30' OR ACTUAL BUILDING SETBACK FROM PROPERTY LINE, WHICHEVER IS GREATER.

3. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.

4. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0191E AND 33015C0193E, DATED MAY 17, 2005.

5. GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY. IRON RODS WITH SURVEY CAPS TO BE SET AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED. ALL MONUMENTS SET ARE 5/8" IRON RODS WITH ALUMINUM CAPS MARKED "JONES & BEACH ENGINEERS BOUNDARY, DO NOT DISTURB, STRATHAM, N.H." AS SHOWN.

6. WETLANDS SHOWN NORTH OF THE "LIMIT OF SURVEY" LINE HEREON WERE DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC., DURING AUTUMN 2020, AND LOCATED BY THIS OFFICE.

7. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.

8. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

9. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF RAYMOND TAX RECORDS AND ARE SUBJECT TO CHANGE.

10. RESEARCH WAS PERFORMED AT THE TOWN OF RAYMOND ASSESSORS OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

11. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.

12. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
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Plan Name:	SUBDIVISION PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

A1

SHEET 14 OF 61
JBE PROJECT NO. 20564

PLAN REFERENCES

1. "PLAN OF LAND OF MRS. DORA W. HILLS, RAYMOND, N.H," BY R. HYDE, SURVEYOR, DATED 12/10/1962.
2. "A PLAN OF THE TWIN CEDAR SUBDIVISION IN RAYMOND, NH," BY H.A.P. ASSOCIATES, DATED JULY, 1977, RCRD PLAN #C-7095.
3. "CENTERLINE OF 30' RIGHT-OF-WAY ACROSS LAND OF JOSEPHINE WELCH" BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 23 1982, RCRD PLAN #D-11967.
4. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO WAYNE WELCH," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED OCTOBER 13, 1983, RCRD PLAN #D-12232.
5. "TWO REMAINING PORTIONS OF THE GREGG LOT (1346-496 LESS ROUTE 101)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 1, 1984, RCRD PLAN #D-13046.
6. "LAND OF JOSEPHINE F. WELCH FORMERLY OF AL S. WELCH (REMAINDER OF 1559-263 & 1198-463)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED JUNE 20, 1984, RCRD PLAN #D-16672.
7. "A SURVEY AND PLAT OF A PROPERTY PREPARED FOR REX LEATHER FINISHING TRUST SITUATED IN THE TOWN OF RAYMOND N.H.," PREPARED BY RSL LAYOUT & DESIGN INC., DATED OCTOBER 16, 2987, RCRD PLAN #D-17207.
8. "LOT TO BE CONVEYED BY JOSEPHINE F. WELCH TO PAUL W. & TERI L. WELCH A PART OF (VOL. 1559-PG. 263)," BY DAVID R. NOYES, REGISTERED LAND SURVEYOR, DATED AUGUST 16, 1988, RCRD PLAN #D-18625.
9. "SUBDIVISION PLAN," BY CORNERSTONE SURVEY ASSOCIATES, INC., DATED MAY 2004, RCRD PLAN #D-32014.
10. "A SURVEY AND PLAN OF A BOUNDARY LINE AGREEMENT BETWEEN RICHARD A. & RITA C. GIRARD AND MICHAEL E. & NANCY L. BROWN AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-33603.
11. "A SURVEY AND PLAT OF A LOT LINE ADJUSTMENT & ACCESS EASEMENT PLAN BETWEEN RICHARD A. & RITA C. GIRARD AND TOWN OF RAYMOND, N.H. AND SITUATED IN THE TOWN OF RAYMOND, N.H.," BY RSL LAYOUT & DESIGN, INC., DATED DECEMBER 7, 2005, RCRD PLAN #D-34073.
12. "LOT LINE ADJUSTMENT," BY CORNERSTONE SURVEY ASSOCIATES INC., DATED SEPTEMBER, 2006, RCRD #D-34431.
13. "SUBDIVISION PLAN OF LAND, TAX MAP 28-3, LOT 120, OLD MANCHESTER ROAD & INDUSTRIAL DRIVE, RAYMOND, NH," BY ERIC C. MITCHELL & ASSOCIATES, INC., DATED JULY 3, 2007, RCRD #D-37834.

TAX MAP 23, LOT 25
EXISTING AREA:
3,271,681 SF
75.11 AC.
PROPOSED AREA:
1,811,242 SF
41.6 AC.

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
8/17/2023
SIGNATURE

DAVID M. COLLIER, LLS 892 DATE: 8/17/2023
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SUBDIVISION PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
A2
SHEET 15 OF 61
JBE PROJECT NO. 20564

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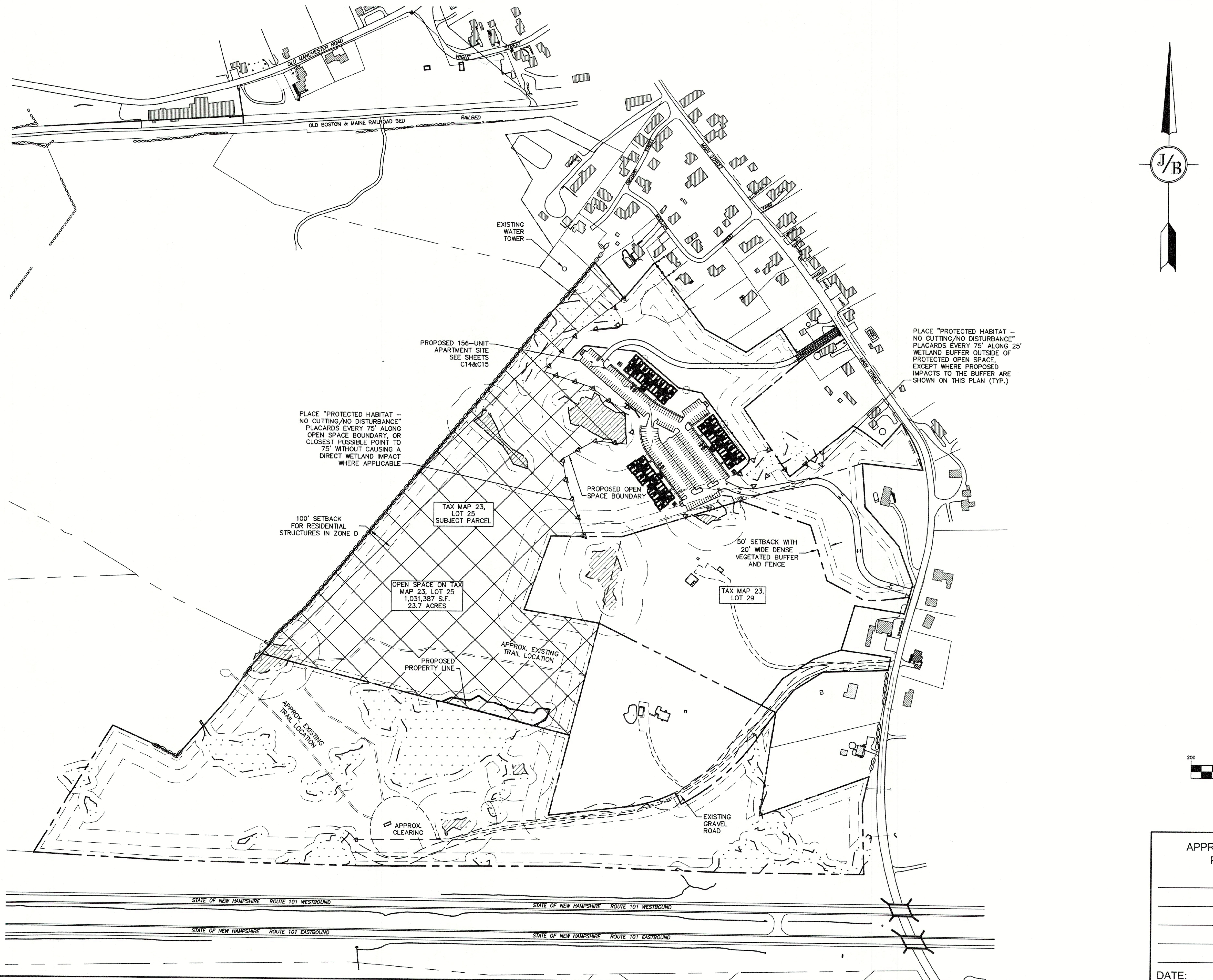

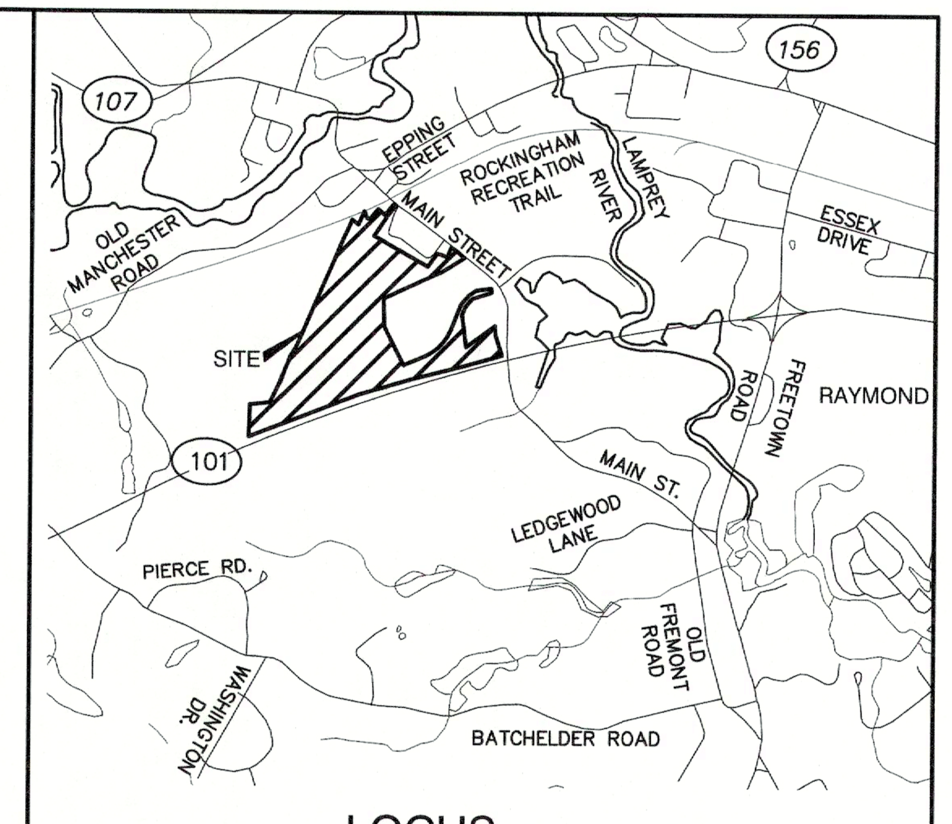

LOCUS SCALE: 1"=2000'

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
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Civil Engineering Services
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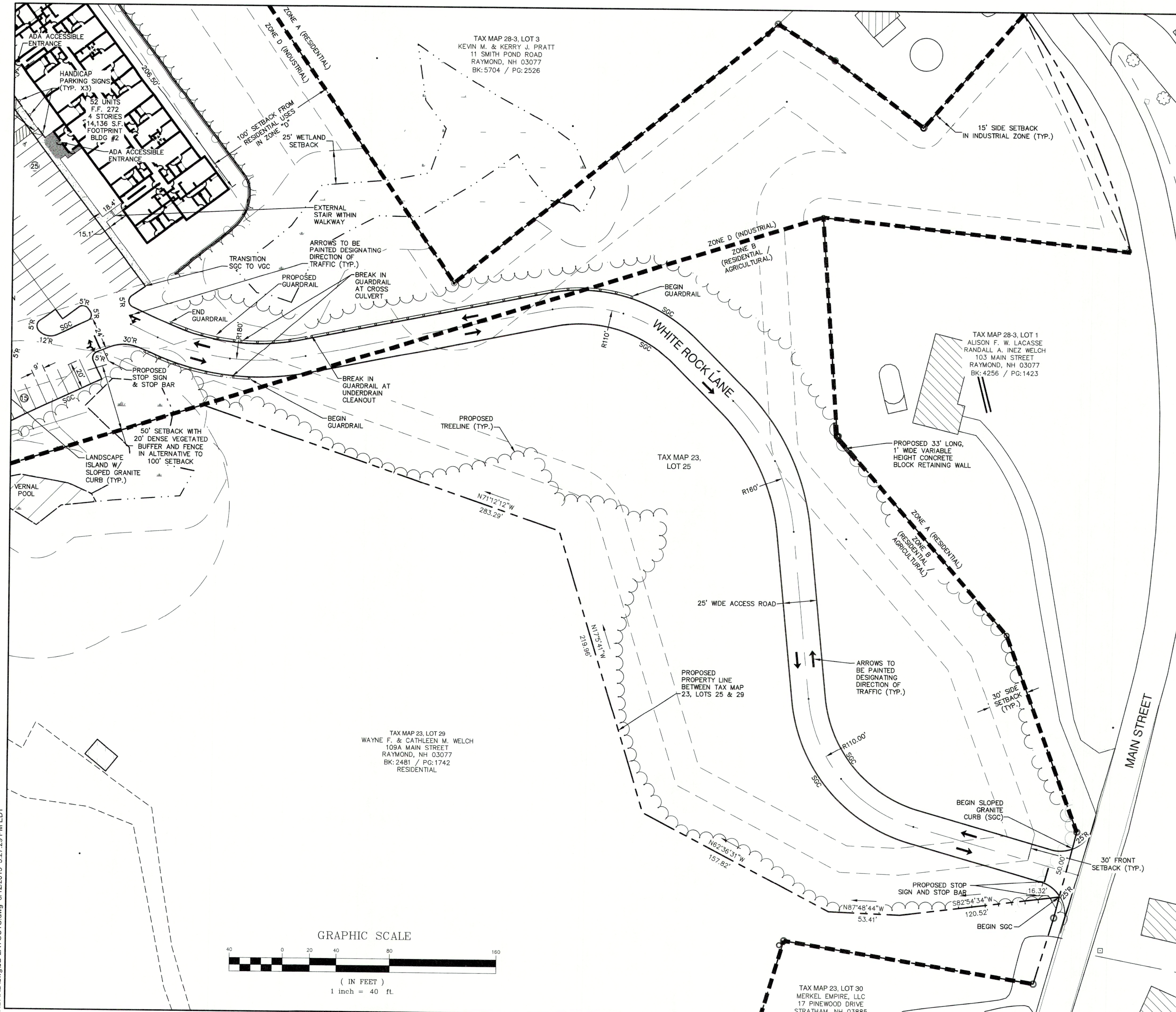
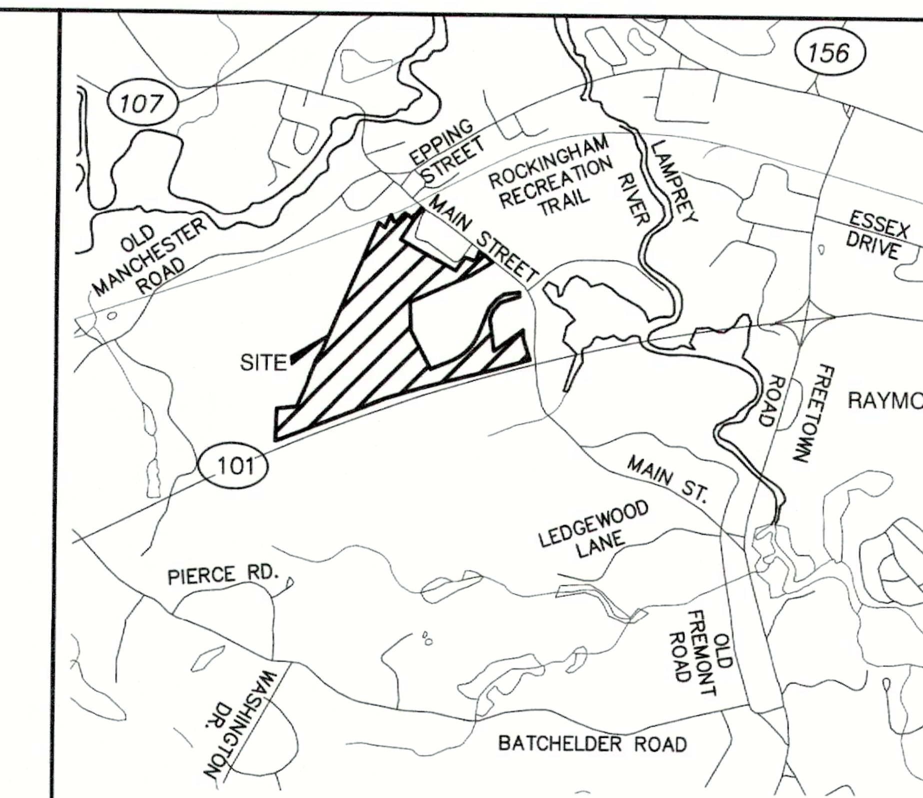
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW SITE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C13
SHEET 16 OF 61
JBE PROJECT NO. 20564





LOCUS SCALE: 1"=2000'

SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO SUBDIVIDE THE TAX MAP 23, LOT 25 INTO ONE RESIDENTIAL LOT CONTAINING A 156-UNIT APARTMENT COMPLEX AND ONE INDUSTRIAL LOT.
2. ZONING DISTRICT: D (INDUSTRIAL)
   LOT AREA MINIMUM = 21,780 SF
   LOT FRONTAGE MINIMUM = 50'
   BUILDING SETBACKS (MINIMUM):
   - FRONT SETBACK = 15'
   - SIDE SETBACK = 15'
   - REAR SETBACK = 15'
   - WETLAND SETBACK = 25' (PER RAYMOND ZONE "G")

   MAX. BUILDING HEIGHT = 30' OR ACTUAL BUILDING SETBACK FROM PROPERTY LINE, WHICHEVER IS GREATER
3. PARKING CALCULATIONS:
   RESIDENTIAL/MULTI-FAMILY: 3 SPACES PER UNIT REQUIRED
   156 UNITS: 468 SPACES REQUIRED
   281 SPACES PROVIDED (1.80 SPACES PER UNIT)
4. DENSITY CALCULATIONS:
   16 UNITS/ACRE ALLOWED FOR LOTS IN SEWER OVERLAY DISTRICT BASED ON 25% OF NON-ZONE G LAND; LOT 25 IS VESTED INTO SEWER OVERLAY DISTRICT BASED ON 2020 ZONING ORDINANCE.
   A. AREA OF LOT 25 THAT WAS PART OF LOT 25 ORIGINALLY = 1,661,113 S.F. (38.13 AC.)
   B. PORTION OF AREA A THAT CONSISTS OF WETLANDS = 97,142 S.F.
   C. PORTION OF AREA A THAT CONSISTS OF SLOPES >25% FOR 100 FEET OR GREATER = 120,024 S.F.
   D. PORTION OF AREA A THAT IS NOT ZONE G LAND (A-B-C) = 1,443,947 S.F. (33.15 AC.)

   156 UNITS / 30.69 AC. = 4.7 UNITS PER ACRE PROVIDED.
   LOT AREA PROVIDED IS MINIMUM ALLOWED BASED ON LOT LOADING PER ENV-WQ 1000
5. WITH APPROVAL OF THIS PLAN BY THE PLANNING BOARD, THE FOLLOWING WAIVERS ARE REQUESTED:
   A) "SITE PLAN REVIEW REGULATIONS" SECTION 6.06.01 – PARKING REQUIREMENTS
   B) "SITE PLAN REVIEW REGULATIONS" SECTION 3.03.03(C) – LICENSED LANDSCAPE ARCHITECT
   C) "SUBDIVISION REGULATIONS" SECTION 5.6.D.1 – MAXIMUM ROAD GRADE (FOR EMERGENCY ACCESS ROAD ONLY)
   D) SUBDIVISION REGULATIONS ROW DESIGN MATRIX – MINIMUM PAVEMENT WIDTH (FOR EMERGENCY ACCESS ROAD ONLY)
   E) SUBDIVISION REGULATIONS ROW DESIGN MATRIX – SIDEWALK REQUIREMENT
6. NHDES ALTERATION OF TERRAIN PERMIT #AOT-2436, DATED 8/2/2023.
   NHDES GROUNDWATER DISCHARGE PERMIT # , DATED .
   NHDES STATE SUBDIVISION PERMIT # , DATED .
   NHDES SEPTIC APPROVAL # , DATED .
   NHDES SEPTIC APPROVAL # , DATED .
   NHDES SEPTIC APPROVAL # , DATED .
7. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ONSITE OR OFFSITE TO ENSURE SAFETY AND OBEY THE LAW.
8. ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
9. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0191E AND 33015C0193E, DATED MAY 17, 2005.
10. WITH THE APPROVAL OF THE RAYMOND, NH PLANNING BOARD, A SPECIAL PERMIT IS REQUESTED FOR IMPACTS WITHIN ZONE G.
11. ZONE G IMPACT CALCULATIONS:
    STEEP SLOPE DISTURBANCE AREA = 41,000 SF
    WETLAND DISTURBANCE AREA = 0 SF
    TOTAL STEEP SLOPE AREA ON LOT 25 = 144,268 SF
    TOTAL WETLAND AREA ON LOT 25 = 84,998 SF
    TOTAL ZONE G LAND ON LOT 25 = 229,266 SF
    TOTAL IMPACT TO ZONE G LAND = 41,000 SF = 17.9%
12. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
13. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.
14. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
15. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED.
16. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND NHDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.
17. ALL PARKING STALLS SHALL BE SEPARATED USING 4" WIDE SOLID STRIPES. STRIPING SHALL HAVE TWO COATS OF PAINT, ALKYD BASIN SYNTHETIC RESIN, FEDERAL SPECIFICATION TTP-115 TYPE 1, IN A COLOR OF WHITE.
18. ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.
19. ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.
20. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.
21. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
22. IMPERVIOUS AREA = 182,000 SF
23. AREA OF DISTURBANCE = 437,000 SF

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERVAN
No. 9648
LICENSED
PROFESSIONAL ENGINEER
8/17/23

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SITE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C14
SHEET 17 OF 61
JBE PROJECT NO. 20564

APPROVED - RAYMOND, NH PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

Design: JAC	Draft: DJM	Date: 07/06/20	
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Drawing Name: 20564-PLAN.dwg			

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9648
LICENSED
PROFESSIONAL ENGINEER
8/7/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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Plan Name:	SITE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C15
SHEET 18 OF 61
JBE PROJECT NO. 20564

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LEGEND

(red fill)	SLOPES GREATER THAN 25% FOR 100 OR MORE LINEAL FEET (ZONE G LAND)
(green cross-hatch)	IMPACTS TO ZONE G LAND

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
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14	6/1/23	REVISED PER TRC COMMENTS	DJM

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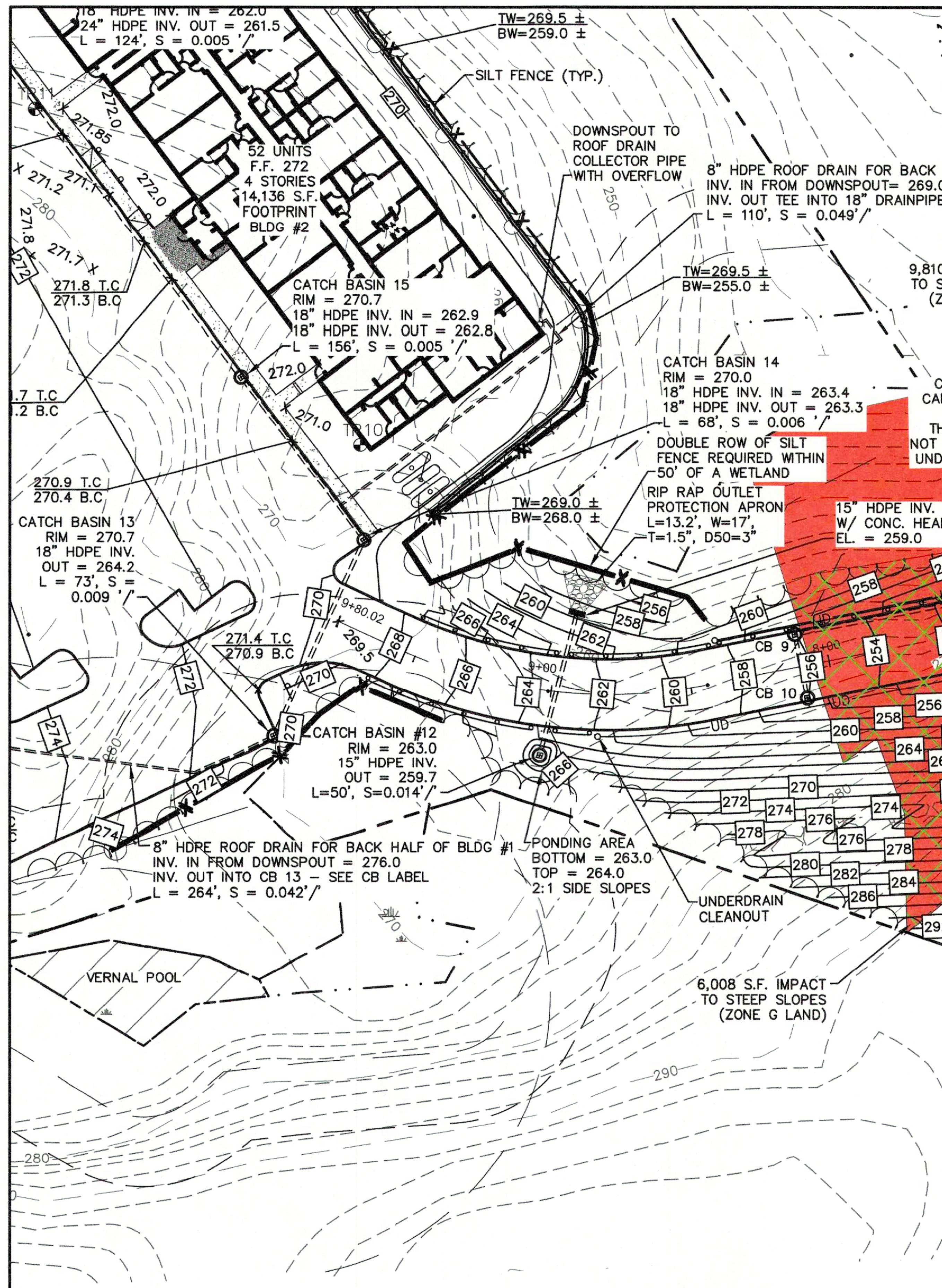
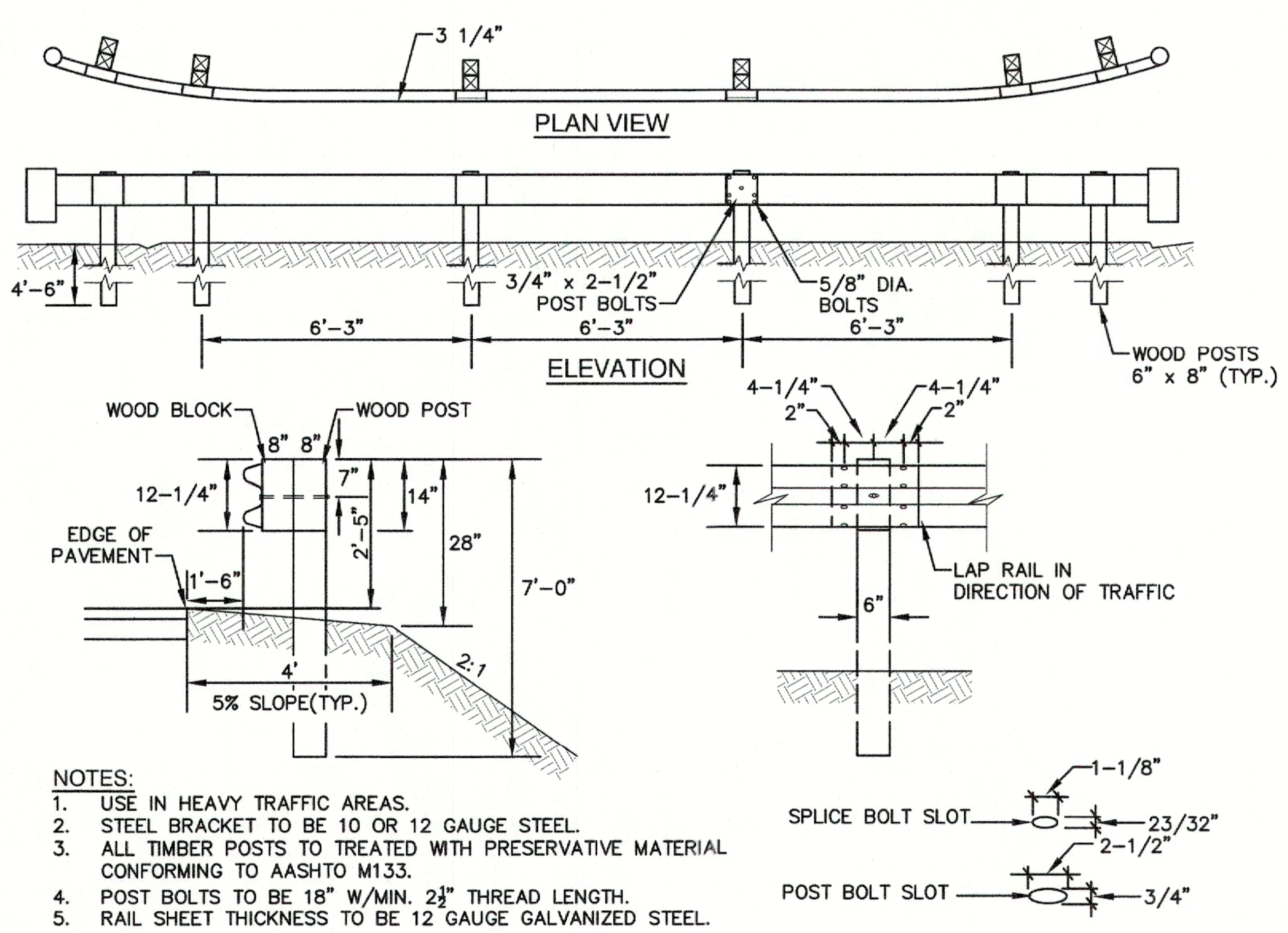
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW GRADING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C16
SHEET 19 OF 61
JBE PROJECT NO. 20564



NOTES:

1. USE IN HEAVY TRAFFIC AREAS.
2. STEEL BRACKET TO BE 10 OR 12 GAUGE STEEL.
3. ALL TIMBER POSTS TO TREATED WITH PRESERVATIVE MATERIAL CONFORMING TO AASHTO M133.
4. POST BOLTS TO BE 18" W/MIN. 2½" THREAD LENGTH.
5. RAIL SHEET THICKNESS TO BE 12 GAUGE GALVANIZED STEEL.

GUARD RAIL (STEEL)

NOT TO SCALE

DRAINAGE STRUCTURE SCHEDULE

CATCH BASIN 1
RIM = 203.9
6" HDPE UNDERDRAIN INV. IN = 201.4
15" HDPE INV. OUT = 200.6 (CB 2)
L = 19', S = 0.005'/'

CATCH BASIN 2
RIM = 203.9
6" HDPE UNDERDRAIN INV. IN = 201.4
15" HDPE INV. IN = 200.5 (X2, CB 1&11)
15" HDPE INV. OUT = 200.4 (DMH 1)
L = 84', S = 0.005 '/'

DRAIN MANHOLE 1
RIM = 211.0
15" HDPE INV. IN = 206.7 (CB 3)
15" HDPE INV. IN = 200.0 (CB 2)
15" HDPE INV. OUT = 199.9 (OUTFALL)
L = 30', S = 0.007 '/'

CATCH BASIN 3
RIM = 216.4
6" HDPE UNDERDRAIN INV. IN = 213.9
15" HDPE INV. IN = 212.2 (X2, CB 4 & DMH 2)
15" HDPE INV. OUT = 212.1 (DMH 1)
L = 65', S = 0.083 '/'

CATCH BASIN 4
RIM = 216.4
6" HDPE UNDERDRAIN INV. IN = 213.9
15" HDPE INV. OUT = 212.3 (CB 3)
L = 19', S = 0.005 '/'

DRAIN MANHOLE 2
RIM = 223.3
15" HDPE INV. IN = 217.6 (CB 5)
15" HDPE INV. OUT = 217.5 (CB 3)
L = 84', S = 0.06 '/'

CATCH BASIN 5
RIM = 229.7
6" HDPE UNDERDRAIN INV. IN = 227.2
15" HDPE INV. IN = 225.6 (X2, CB 6 & DMH 3)
15" HDPE INV. OUT = 225.5 (DMH 2)
L = 82', S = 0.096 '/'

CATCH BASIN 6
RIM = 229.7
6" HDPE UNDERDRAIN INV. IN = 227.2
15" HDPE INV. OUT = 225.7 (CB 5)
L = 19', S = 0.005 '/'

DRAIN MANHOLE 3
RIM = 237.9
15" HDPE INV. IN = 233.1 (CB 8)
15" HDPE INV. OUT = 233.0 (CB 5)
L = 104', S = 0.07 '/'

CATCH BASIN 7
RIM = 242.8
6" HDPE UNDERDRAIN INV. IN = 240.3
12" HDPE INV. OUT = 238.9 (CB 8)
L = 19', S = 0.005 '/'

CATCH BASIN 8
RIM = 242.8
6" HDPE UNDERDRAIN INV. IN = 240.3
15" HDPE INV. IN = 238.8 (X2, CB 7&9)
15" HDPE INV. OUT = 238.7 (DMH 3)
L = 63', S = 0.09 '/'

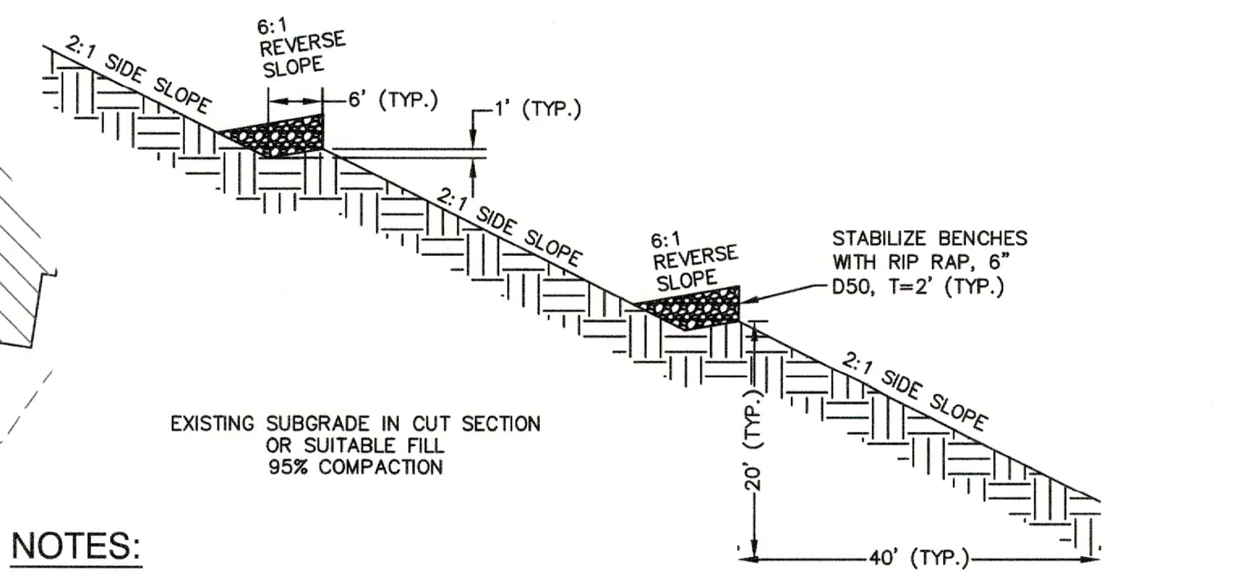
CATCH BASIN 9
RIM = 256.1
6" HDPE UNDERDRAIN INV. IN = 253.6
15" HDPE INV. IN = 252.0 (CB 10)
15" HDPE INV. OUT = 251.9 (CB 8)
L = 163', S = 0.08 '/'

CATCH BASIN 10
RIM = 256.1
6" HDPE UNDERDRAIN INV. IN = 253.6
15" HDPE INV. OUT = 252.1 (CB 9)
L = 19', S = 0.005 '/'

CATCH BASIN 11
RIM = 221.0
15" HDPE INV. OUT = 208.0 (CB 2)
L = 57', S = 0.132 '/'

GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
6. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
8. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S150BN EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
9. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL NOT HAVE SUMPS.
10. ALL DRAINAGE STRUCTURES AND STORMWATER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
11. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
12. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
13. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
14. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
15. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
16. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
17. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
18. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
19. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
20. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
21. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
22. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
23. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
24. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
25. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
26. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
27. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.



NOTES:

1. STABILIZE BENCHED SLOPE, FROM ROAD EMBANKMENT TO EXISTING GRADE, WITH NAG S150BN EROSION CONTROL BLANKET. FACE OF GRADED SLOPE MUST BE PROTECTED FROM SURFACE RUNOFF UNTIL STABILIZED. ALSO STABILIZE BENCHES WITH RIP RAP AS DIRECTED.
2. ALL GRADED AND DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE ADEQUATELY STABILIZED.
3. TERRACES AND SLOPES SHALL BE INSPECTED PERIODICALLY FOR ANY SIGN OF RILL OR GULLY EROSION, AND IF SUCH CONDITIONS ARE NOTED, THE AREA SHALL BE IMMEDIATELY INVESTIGATED AND REPAIRED AS NEEDED.
4. STABILIZE SLOPE AS SOON AS POSSIBLE AFTER COMPLETION OF GRADING.

BENCHED/TERRACED SLOPE DETAIL

NOT TO SCALE

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Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH

Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	GRADING AND DRAINAGE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

C17

SHEET 20 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER – 8/17/2023

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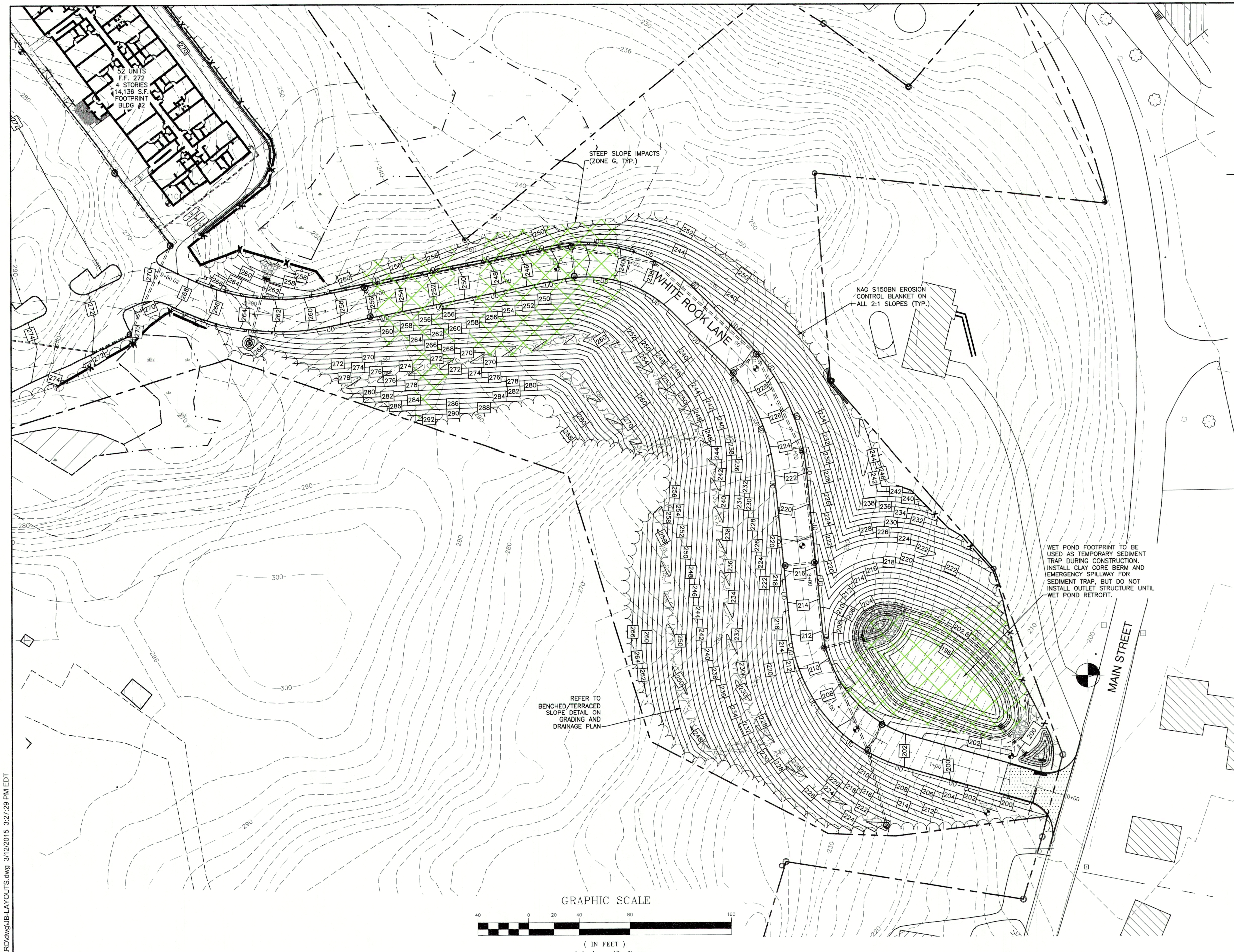
DRAWING No.
C18
SHEET 21 OF 61
JBE PROJECT NO. 20564



EROSION AND SEDIMENT CONTROL NOTES:

1. SEE ALSO EROSION AND SEDIMENT CONTROL DETAILS AND CONSTRUCTION SEQUENCE ON SHEETS E1–E2.
2. TO THE EXTENT PRACTICABLE, THE SPOILS FROM THE EXCAVATION OF WHITE ROCK DRIVE AND THE SECTIONS OF THE APARTMENT SITE THAT ARE IN CUT SHALL BE USED AS FILL MATERIAL BENEATH THE EMERGENCY ACCESS ROAD AND THE SECTIONS OF THE SITE THAT ARE IN FILL. ACCOUNTING FOR SELECT FILLS UNDERNEATH THE ROADS, SIDEWALK, PARKING LOT AND OTHER AREAS, THIS PROJECT PROPOSES A NET EXPORT OF 77,000 CY OF MATERIAL.
3. ALL STORMWATER PONDS SHALL BE USED AS TEMPORARY SEDIMENT TRAPS DURING CONSTRUCTION UNTIL RETROFIT INTO THEIR PERMANENT SHAPES. HOWEVER, THIS DOES NOT PRECLUDE ADDITIONAL EROSION AND SEDIMENT CONTROLS THAT MAY BE NECESSARY.

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

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Plan Name:	EROSION AND SEDIMENT CONTROL PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C19
SHEET 22 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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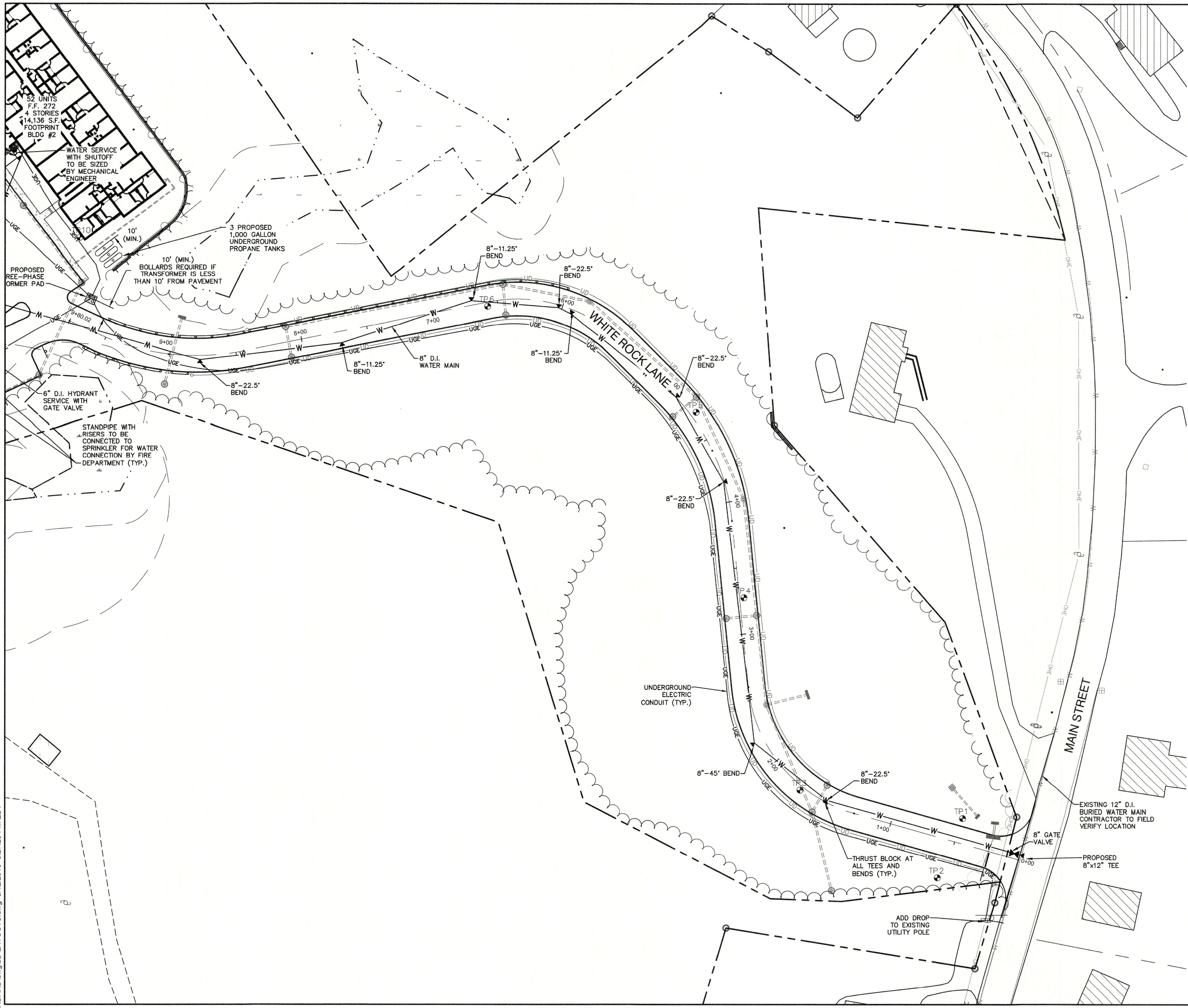
Plan Name: EROSION AND SEDIMENT CONTROL PLAN
Project: WHITE ROCK PLACE, 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH, 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C20
SHEET 23 OF 61
JBE PROJECT NO. 20564



UTILITY NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDING TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
9. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
10. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA, CLEAR OPENING. THE WORD "SEWER" OR DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
11. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
12. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
13. SEPTIC FLOW CALCULATIONS:
    72 2-BEDROOM UNITS @ 150 GPD/BEDROOM = 21,600 GPD
    84 1-BEDROOM UNITS @ 225 GPD/UNIT = 18,900 GPD
    13,500 GPD PER BUILDING
    TOTAL FLOW = 40,500 GPD
14. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
15. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
16. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
17. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
18. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
19. IF THE BUILDING IS REQUIRED TO HAVE A SPRINKLER SYSTEM, A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR, OWNER, ARCHITECT AND THE LOCAL FIRE DEPARTMENT PRIOR TO THE INSTALLATION.
20. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND FIRE HYDRANTS.
21. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
22. THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
23. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
24. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
25. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
26. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES.
27. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END AT RIGHT OF WAY AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
28. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
29. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9848 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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14	6/1/23	REVISED PER TRC COMMENTS	DJM

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PO Box 219
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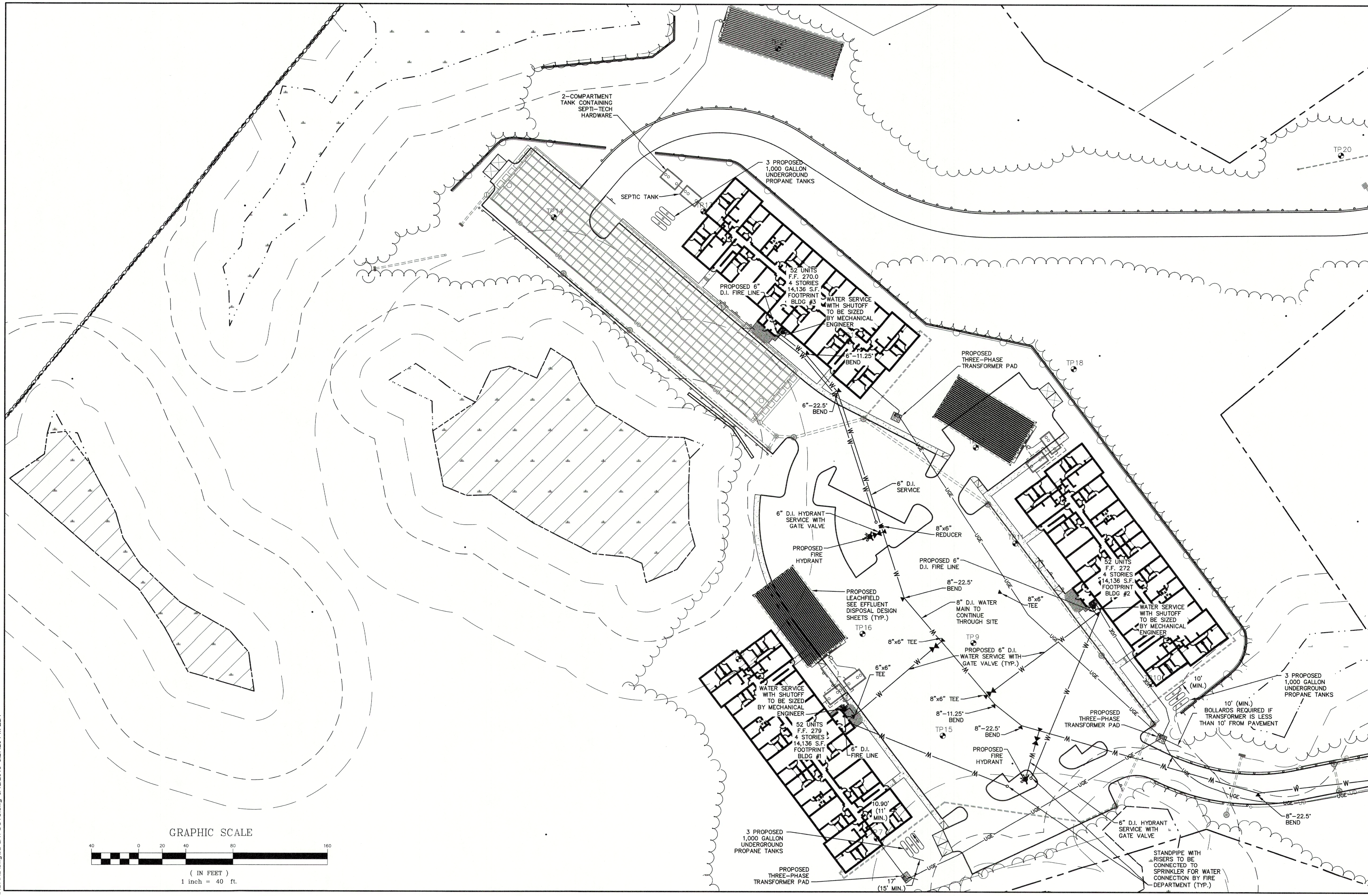
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	UTILITY PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C19
SHEET 24 OF 61
JBE PROJECT NO. 20564



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PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9046 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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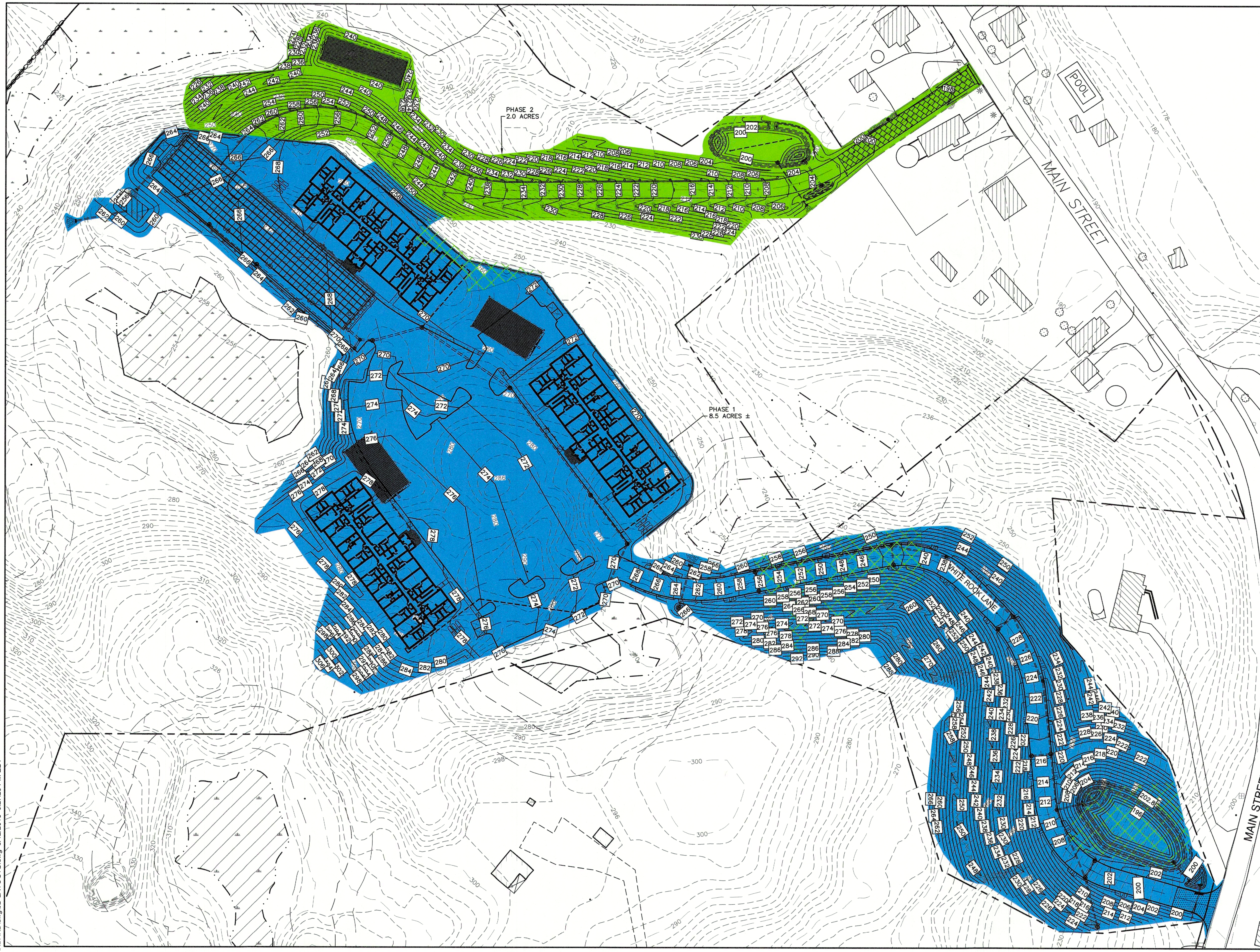
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **UTILITY PLAN**

Project: WHITE ROCK PLACE, 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077

Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH, 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C22
SHEET 25 OF 61
JBE PROJECT NO. 20564



NOTES:

1. PHASE 1 SHALL BE COMPLETED AND STABILIZED BEFORE BEGINNING PHASE 2. TO THE EXTENT PRACTICABLE, THE SUITABLE SPOILS FROM PHASE 1 SHALL BE USED AS FILL MATERIAL FOR PHASE 2.
2. AN ENVIRONMENTAL MONITOR SHALL BE EMPLOYED DURING CONSTRUCTION PER THE PROVISIONS OF ENV-WQ 1505.03(d-e). ALSO SEE NOTES ON SHEET E1 DESCRIBING THE DUTIES OF THE MONITOR. SEE ALSO EROSION AND SEDIMENT CONTROL PLANS.

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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STATE OF NEW HAMPSHIRE · MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER

8/17/2023

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Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PHASING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

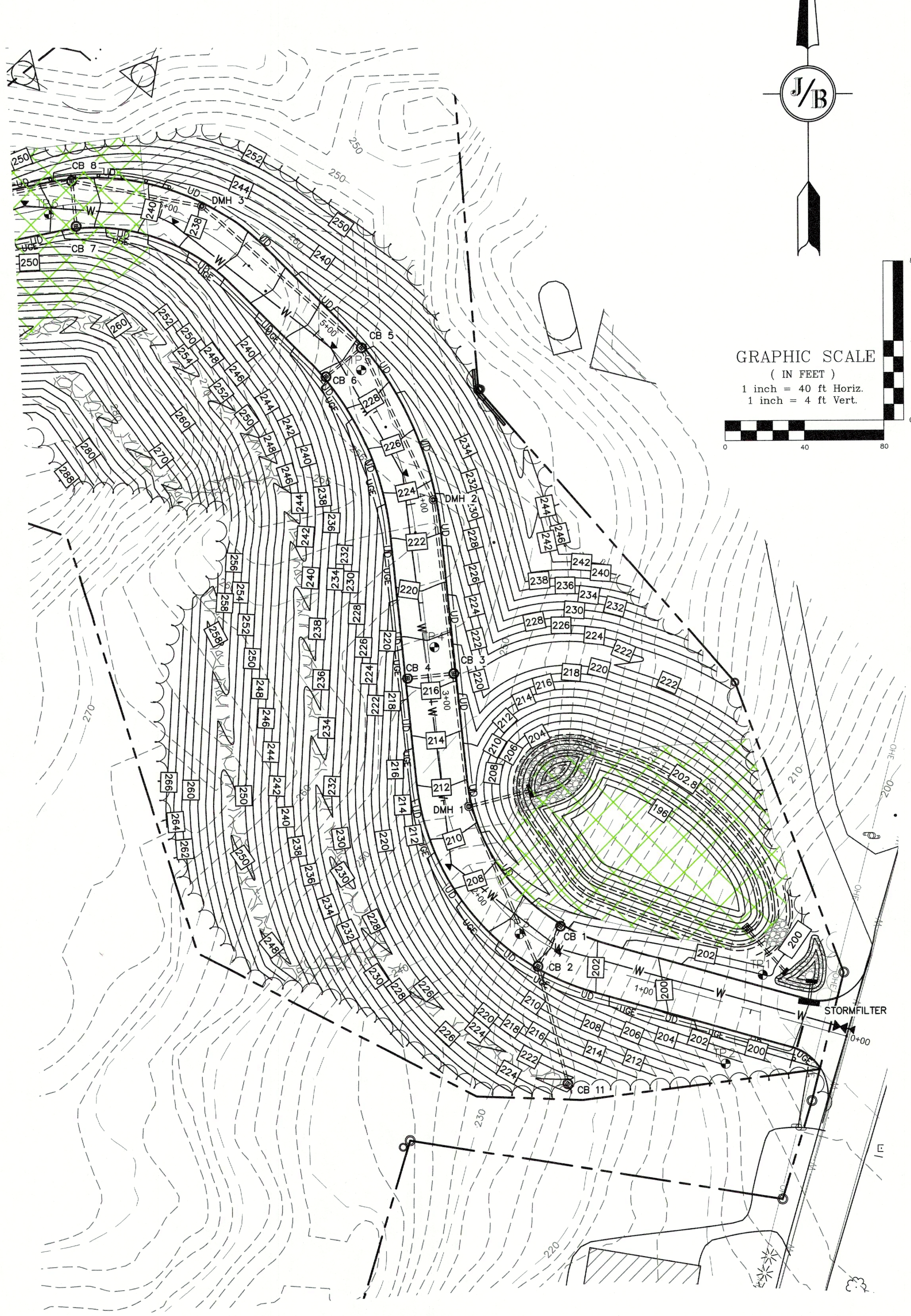
DRAWING No.

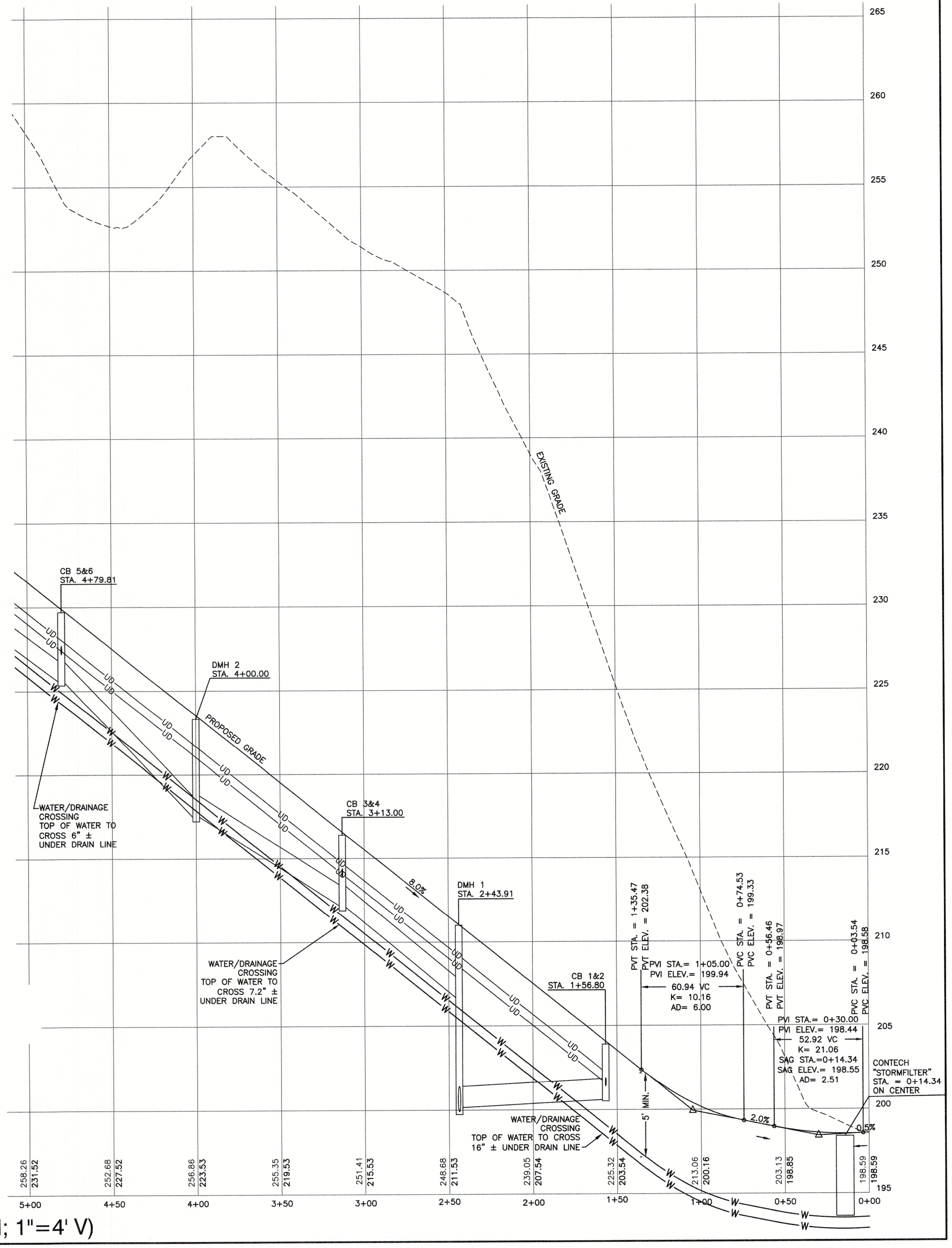
PH1

SHEET 26 OF 61
JBE PROJECT NO. 20564

NOTES:

1. THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT HTTP://CFPUB1.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
   - A. FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
   - A. ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
2. ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
3. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
4. CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV, TELEPHONE, AND FIRE ALARM PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
5. THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
6. SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
7. ALL DISTURBED AREAS NOT STABILIZED BY OCTOBER 15TH SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
8. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
9. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
10. ROADWAY INTERSECTIONS WITH SLOPE GRANITE CURB SHALL EXTEND AROUND RADIUS WITH 6' STRAIGHT PIECE ALONG TANGENT.
11. RETAINING WALLS SHALL BE DESIGNED AND STAMPED BY A STRUCTURAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER PRIOR TO INSTALLATION.
12. 6" PERFORATED ADS-N12 UNDER DRAIN IS TO BE PLACED BENEATH ROAD SHOULDERS AS SHOWN. CONTRACTOR TO ADJUST LOCATION IN THE FIELD ONLY WITH PRIOR APPROVAL OF PROJECT ENGINEER AND PUBLIC WORKS DEPARTMENT.
13. ALL PAVED OR GRAVELED AREAS INTENDED FOR VEHICULAR TRAFFIC TO BE CONSTRUCTED WITH MAXIMUM 8% SLOPE UNLESS OTHERWISE SPECIFIED, SUBJECT TO WAIVER FROM THE PLANNING BOARD.
14. DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT FENCING WILL BE INSPECTED DURING AND AFTER STORM EVENTS IN EXCESS OF 0.25" TO ENSURE THAT THE FENCE STILL HAS INTEGRITY AND IS NOT ALLOWING SEDIMENT TO PASS. SEDIMENT BUILD UP IN SWALES WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SUMPS BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS. FOLLOWING MAJOR STORM EVENTS, THE STAGE DISCHARGE OUTLET STRUCTURES ARE TO BE INSPECTED AND ANY DEBRIS REMOVED FROM THE ORIFICE, TRASH RACK AND EMERGENCY SPILLWAY. INFREQUENTLY, SEDIMENT MAY ALSO HAVE TO BE REMOVED FROM THE SUMP OF THE STRUCTURE.
15. ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
16. DETENTION PONDS REQUIRE TIMELY MAINTENANCE AND SHOULD BE INSPECTED AFTER EVERY MAJOR STORM EVENT, AS WELL AS FREQUENTLY DURING THE FIRST YEAR OF OPERATION, AND ANNUALLY THEREAFTER. EVERY FIVE YEARS, THE SERVICES OF A PROFESSIONAL ENGINEER SHOULD BE RETAINED TO PERFORM A THOROUGH INSPECTION OF THE DETENTION POND AND ITS INFRASTRUCTURE. ANY DEBRIS AND SEDIMENT ACCUMULATIONS SHOULD BE REMOVED FROM THE OUTLET STRUCTURE(S) AND EMERGENCY SPILLWAY(S) AND DISPOSED OF PROPERLY. DETENTION POND BERMS SHOULD BE MOWED AT LEAST ONCE ANNUALLY SO AS TO PREVENT THE ESTABLISHMENT OF WOODY VEGETATION. TREES SHOULD NEVER BE ALLOWED TO GROW ON A DETENTION POND BERM, AS THEY MAY DESTABILIZE THE STRUCTURE AND INCREASE THE POTENTIAL FOR FAILURE. AREAS SHOWING SIGNS OF EROSION OR THIN OR DYING VEGETATION SHOULD BE REPAIRED IMMEDIATELY BY WHATEVER MEANS NECESSARY, WITH THE EXCEPTION OF FERTILIZER. RODENT BURROWS SHOULD BE REPAIRED IMMEDIATELY AND THE ANIMALS SHOULD BE TRAPPED AND RELOCATED IF THE PROBLEM PERSISTS.
17. THE DETENTION PONDS ARE TO BE CONSTRUCTED PRIMARILY THROUGH EXCAVATION. IN THOSE AREAS WHERE THE BERMS MUST BE CONSTRUCTED BY THE PLACEMENT OF FILL, THE ENTIRE EMBANKMENT AREA OF THE DETENTION PONDS SHALL BE EXCAVATED TO PROPOSED GRADE, STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 95% AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. IN THE EVENT THE FOUNDATION MATERIAL EXPOSED DOES NOT ALLOW THE SPECIFIED COMPACTION, AN ADDITIONAL ONE FOOT (1') OF EXCAVATION AND THE PLACEMENT OF A ONE FOOT (1') THICK, TWELVE FOOT (12') WIDE PAD OF THE MATERIAL DESCRIBED IN THE NOTE BELOW, COMPACTED TO 95% OF ASTM D-1557 MAY BE NECESSARY. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3%, AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED WITHIN FOR ANY REASON.
18. DETENTION PONDS SHALL HAVE BERMS WITH CLAY CORES. SEE DETAIL SHEETS FOR POND AND POND BERM SPECIFICATIONS.
19. ROAD SIDE SLOPES MUST BE BENCHED AS SHOWN ON THIS PLAN. THERE SHALL BE A 6' WIDE BENCH WITH A MAXIMUM REVERSE SLOPE OF 6:1 EVERY 20' VERTICALLY ALONG THE 2:1 SLOPE. SEE DETAIL ON SHEET C3.
20. COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION, AND ON THE FOUNDATION OF THE BERM AND ON EVERY LIFT OF NEWLY PLACED MATERIAL.
21. ORNAMENTAL STREET LIGHTING SHALL BE PRIVATELY OWNED AND MAINTAINED. LIGHTING SHALL NOT TO BE OWNED OR MAINTAINED BY THE TOWN.
22. SEE GRADING AND DRAINAGE PLANS FOR INFORMATION SUCH AS DRAINAGE STRUCTURE RIMS, INVERTS, STORMWATER PIPE SIZES AND MATERIALS, ETC.





MAIN DRIVEWAY PLAN AND PROFILE STA. 0+00 - 5+00 (1"=40' H; 1"=4' V)

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
P1
SHEET 26 OF 61
JBE PROJECT NO. 20564

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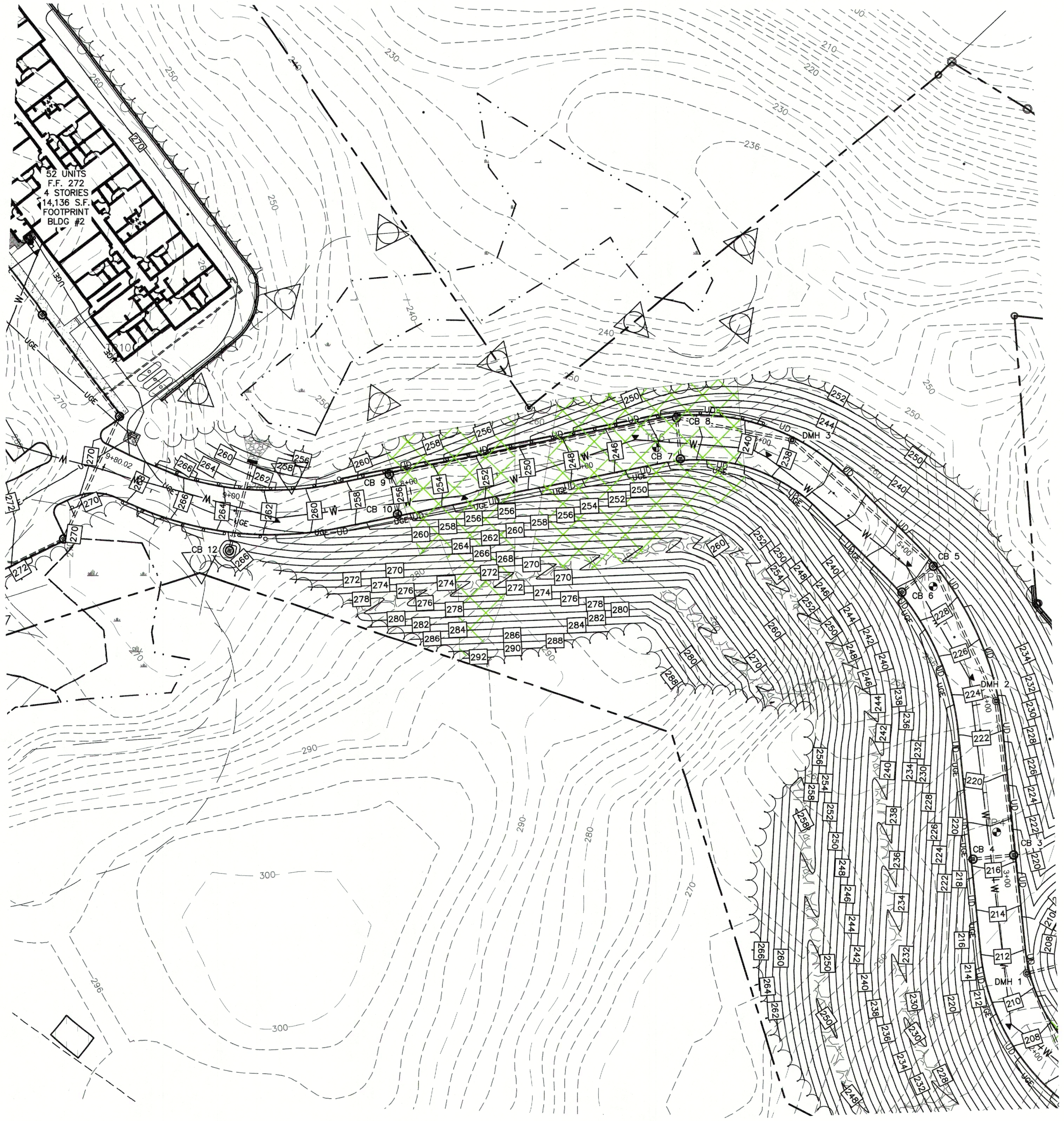
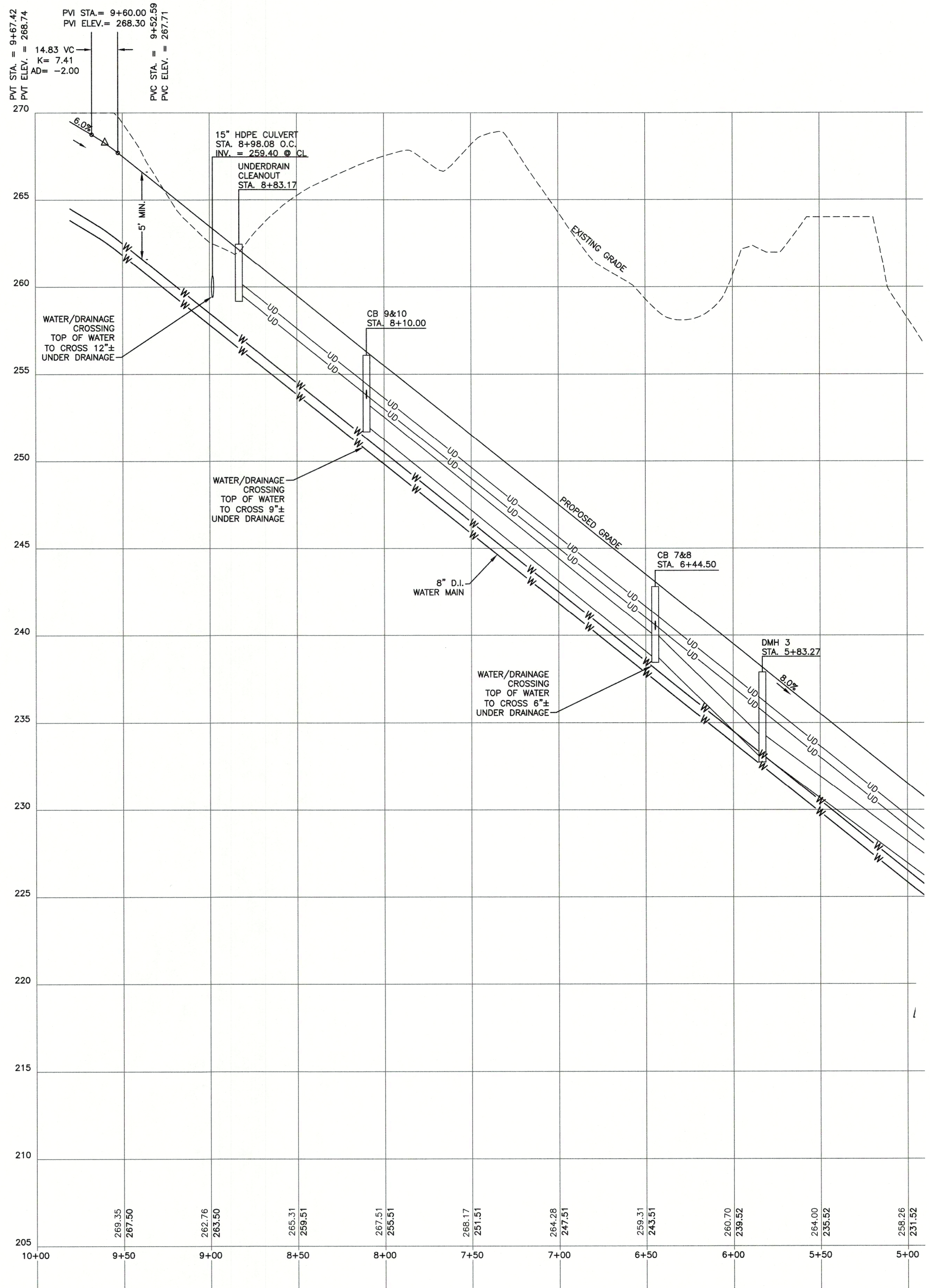
NOTES:

1. SEE NOTES ON SHEET P1, AS THEY APPLY TO THIS SHEET AS WELL.





GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.

MAIN DRIVEWAY PLAN AND PROFILE STA. 5+00 - 9+80.02 (1"=40' H; 1"=4' V)

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9648 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
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15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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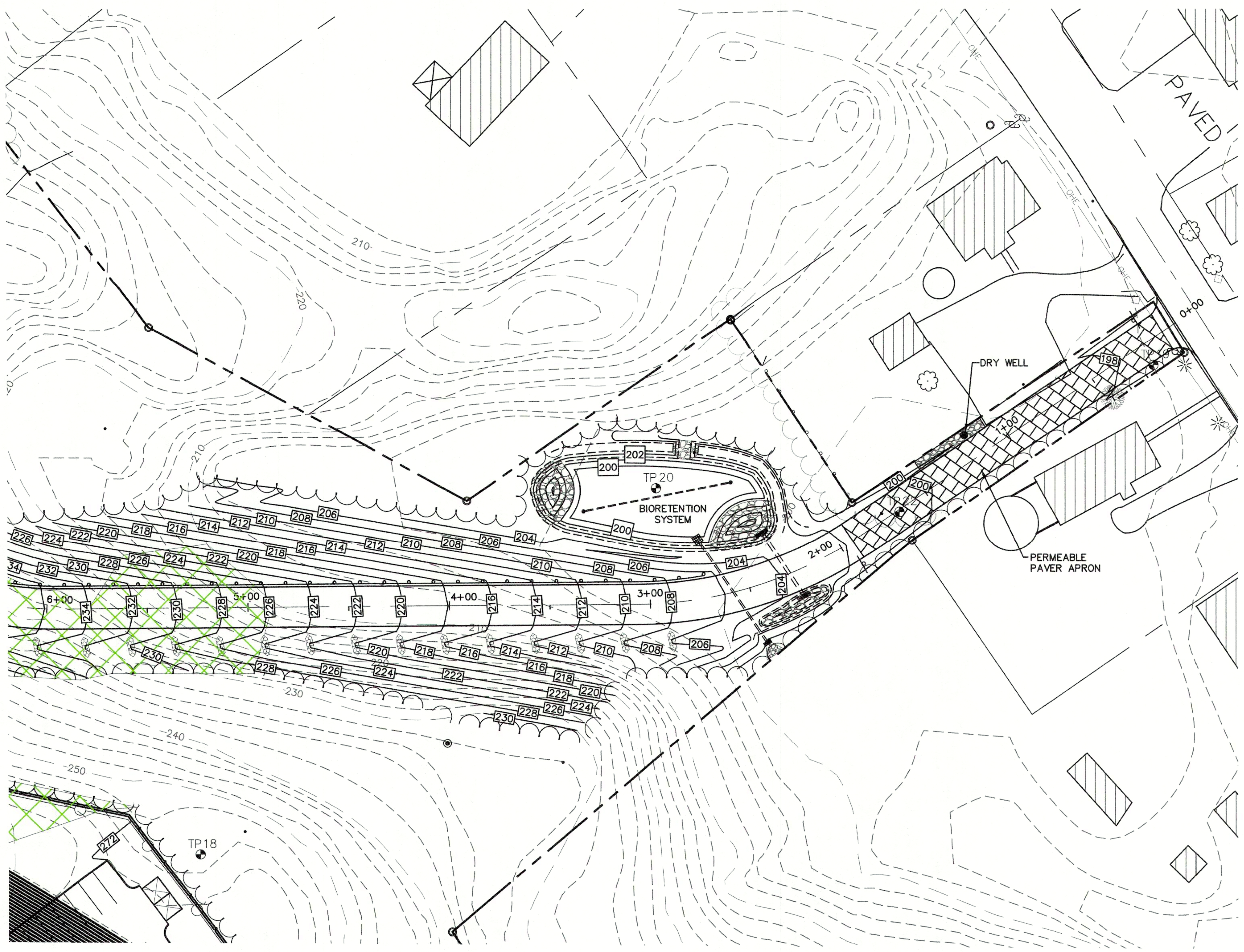
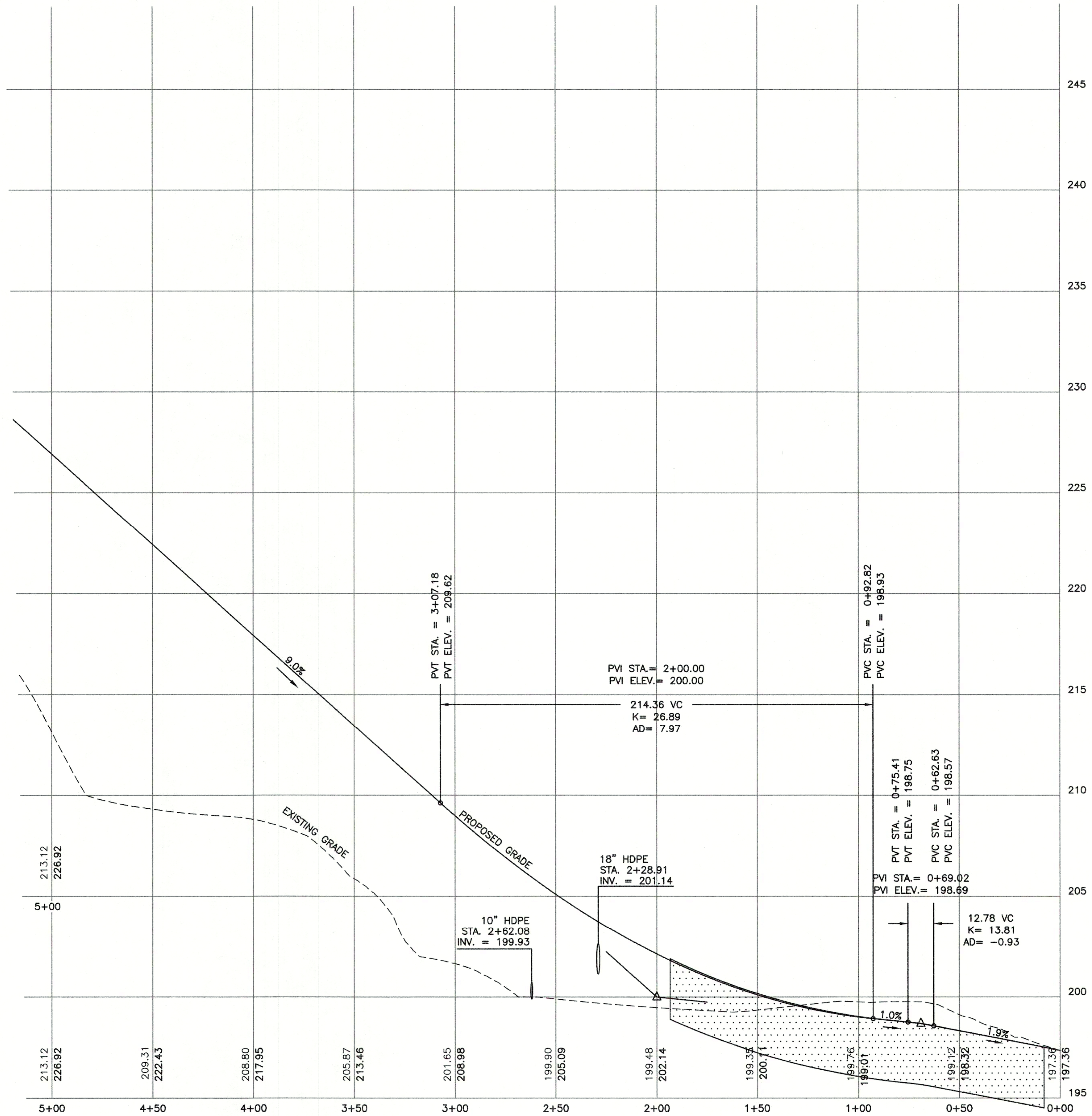
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

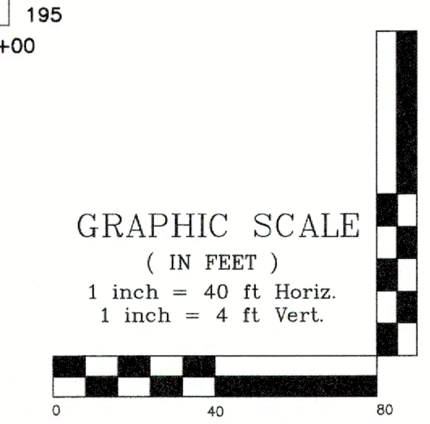
DRAWING No.
P2
SHEET 27 OF 61
JBE PROJECT NO. 20564

NOTES:

1. SEE NOTES ON SHEET P1, AS THEY APPLY TO THIS SHEET AS WELL.







EMERGENCY ACCESS ROAD PLAN AND PROFILE STA. 0+00 - 5+00 (1"=40' H; 1"=4' V)

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

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16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
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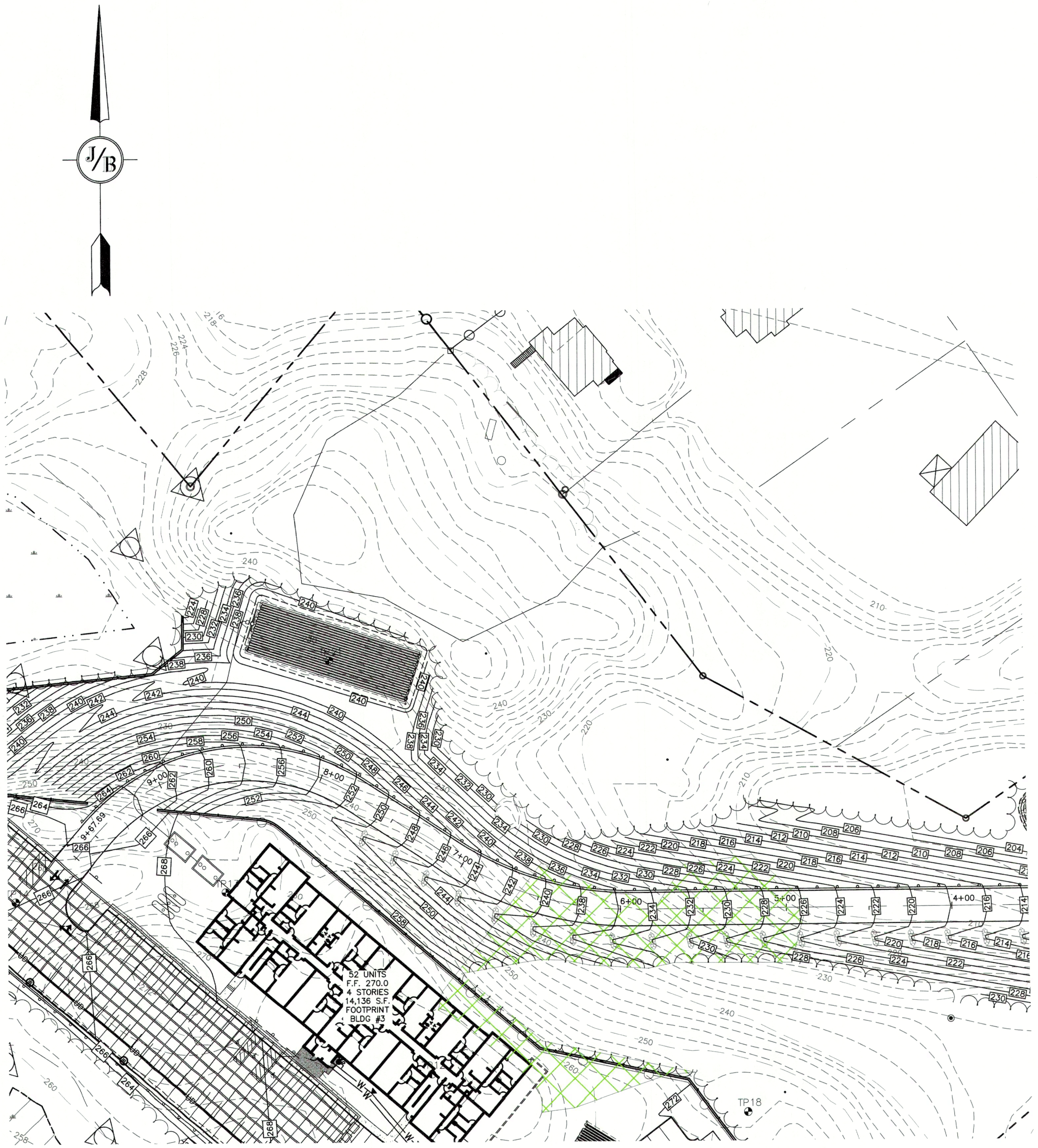
DRAWING No.

P3

SHEET 28 OF 61
JBE PROJECT NO. 20564



NOTES:

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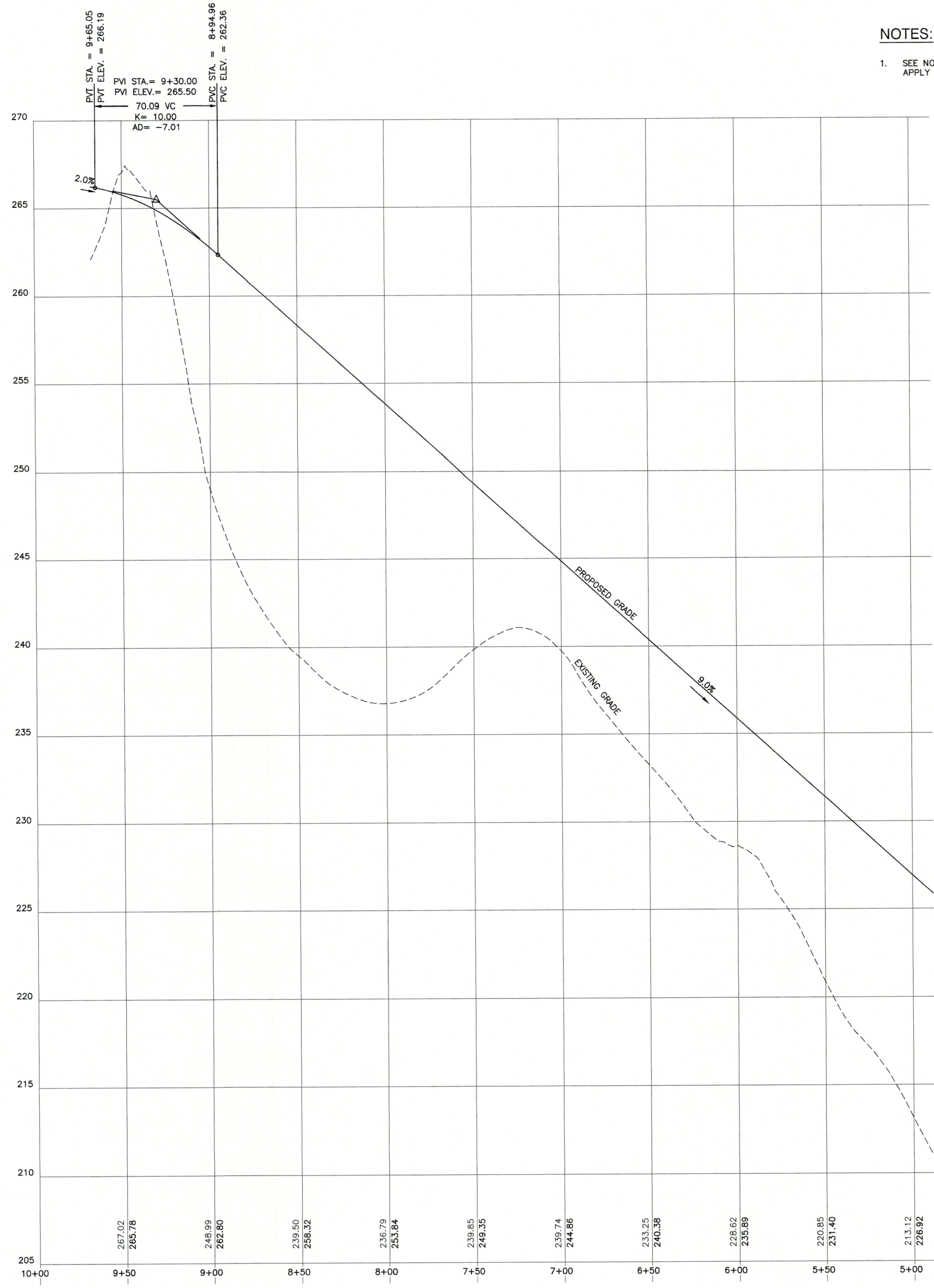

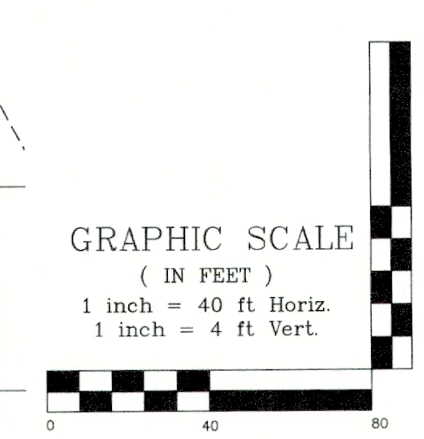

EMERGENCY ACCESS ROAD PLAN AND PROFILE STA. 5+00 - 9+67.69 (1"=40' H; 1"=4' V)

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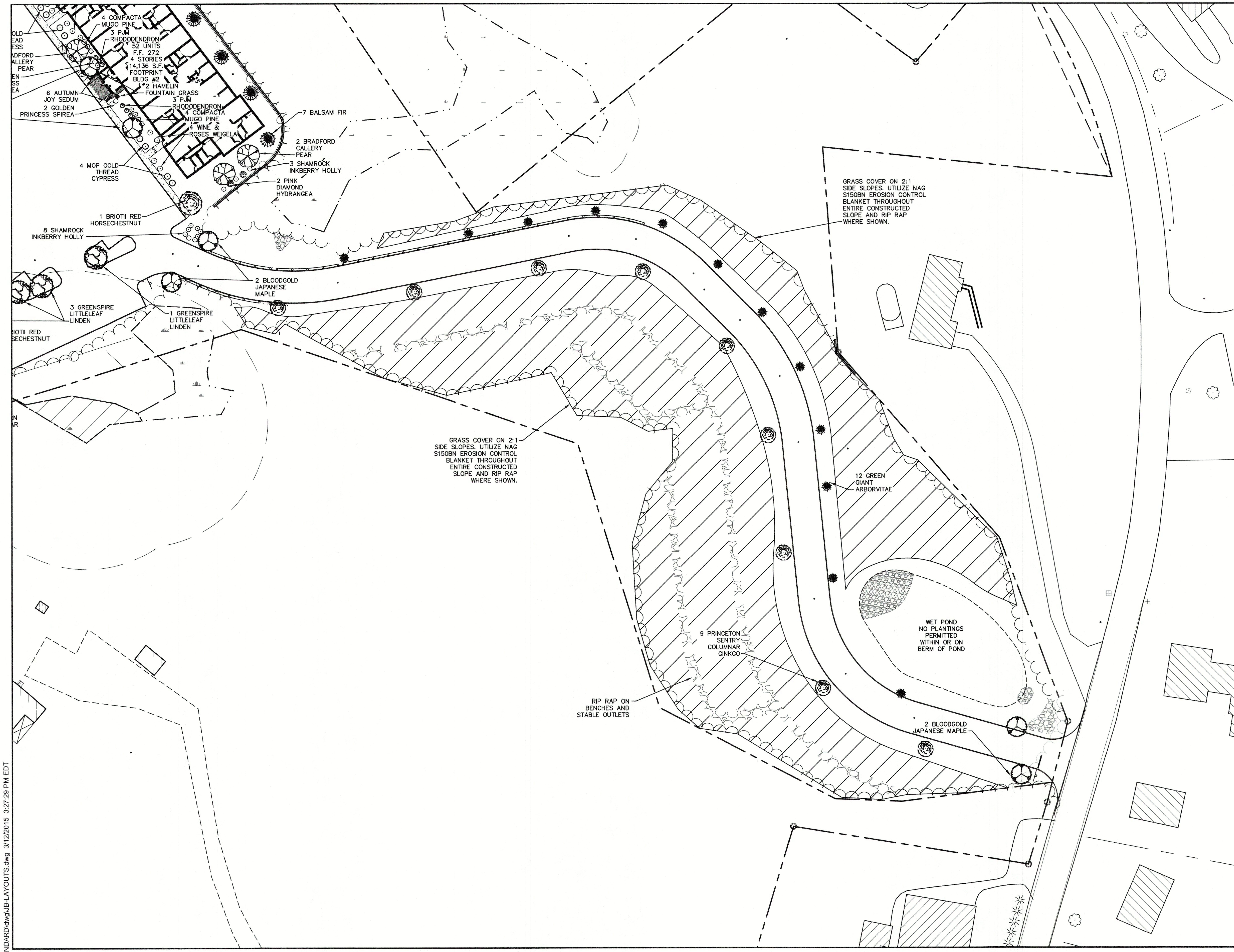
DRAWING No.

P4

JBE PROJECT NO. 20564



LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED THE LANDSCAPE DESIGNER.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE DESIGNER. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING FOR CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. ALL WORK AND PLANTS SHALL BE DONE, INSTALLED AND DETAILED IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
9. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
10. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION, EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS SPECIFIED.
11. ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS WITH EDGE STRIPS TO SEPARATE TURF GRASS AREAS.
12. THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC. FROM ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE. GRASS SEED OR PINE BARK MULCH SHALL BE APPLIED AS DEPICTED ON PLANS.
13. FINISHED GRADES IN LANDSCAPED ISLANDS SHALL BE INSTALLED SO THAT THEY ARE 1" HIGHER THAN THE TOP OF THE SURROUNDING CURB.
14. ALL LANDSCAPING SHALL MEET THE TOWN STANDARDS AND REGULATIONS.
15. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE DRIPLINE OF THE TREE. THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
16. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO 'WEEDBLOCK' BY EASY GARDENER OR DEWITT WEED BARRIER.
17. ALL LANDSCAPED AREAS SHALL HAVE SELECT MATERIALS REMOVED TO A DEPTH OF AT LEAST 9" BELOW FINISH GRADE. THE RESULTING VOID IS TO BE FILLED WITH A MINIMUM OF 9" HIGH-QUALITY SCREENED LOAM AMENDED WITH 3" OF AGED ORGANIC COMPOST.
18. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.
19. FOCAL POINT STORMWATER TREATMENT AREA TO BE PLANTED WITH PERENNIAL GRASSES, CONEFLOWERS, DAYLILIES, BUTTERFLY MILKWEED, BEE BALM, BLUE FLAG IRIS, AND JOE PYE WEED. PLANT IN RANDOM GROUPINGS OF 10-12 PLANTS APPROXIMATELY 3 FEET ON CENTER.
20. ALL PLANTING AREAS INTENDED TO BE MOWED OR MAINTAINED SHALL RECEIVE A MINIMUM OF FOUR INCHES OF LOAM FREE OF SOD, CLAY AND STONES OVER ONE INCH IN DIAMETER.
21. THE OWNER AND TENANT OF THE PROPERTY SHALL BE JOINTLY RESPONSIBLE FOR THE MAINTENANCE OF ALL REQUIRED PLANT MATERIAL AND CONTINUED COMPLIANCE WITH THE RAYMOND SITE PLAN REVIEW REGULATIONS.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20	
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STATE OF NEW HAMPSHIRE MICHAEL J. KERWAN No. 9848 LICENSED PROFESSIONAL ENGINEER 8/17/2023

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DRAWING No.

L1

SHEET 30 OF 61
JBE PROJECT NO. 20564

Plants			
Quantity	Botanical Name	Common Name	Size
17	Abies balsamea	BALSAM FIR	8-10 Ft. Ht.
7	Acer palmatum 'Bloodgood'	BLOODGOOD JAPANESE MAPLE	15 Gallon
41	Acer rubrum 'October Glory'	OCTOBER GLORY RED MAPLE	3" Caliper
6	Aesculus x carnea 'Briotii'	BRIOTII RED HORSECHESTNUT	2.5" Caliper
21	Ginkgo bibola 'Princeton Sentry'	PRINCETON SENTRY COLUMNAR GINKGO	3" Caliper
18	Juniperus virginiana	EASTERN RED CEDAR	7-8 Ft. Ht.
17	Pyrus calleryana 'Bradford'	BRADFORD CALLERY PEAR	2.5" Caliper
22	Thuja plicata 'Green Giant'	GREEN GIANT ARBORVITAE	7-8 Ft. Ht.
10	Tilia cordata 'Greenspire'	GREENSPIRE LITTLELEAF LINDEN	3" Caliper
24	Chamaecyparis pisifera 'Mop'	MOP GOLD THREAD CYPRESS	5 Gallon
12	Hydrangea paniculata 'Pink Diamond'	PINK DIAMOND HYDRANGEA	7 Gallon
18	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
24	Pinus mugo 'Compacta'	COMPACTA MUGO PINE	5 Gallon
18	Rhododendron 'PJM'	PJM RHODODENDRON	5 Gallon
12	Spiraea japonica 'Golden Princess'	GOLDEN PRINCESS SPIREA	3 Gallon
24	Weigela florida 'Alexandra'	WINE & ROSES WEIGELA	5 Gallon
6	Pennisetum alopecuroides 'Hamelin'	HAMELIN FOUNTAIN GRASS	1 Gallon
18	Sedum 'Autumn Joy'	AUTUMN JOY SEDUM	1 Gallon

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

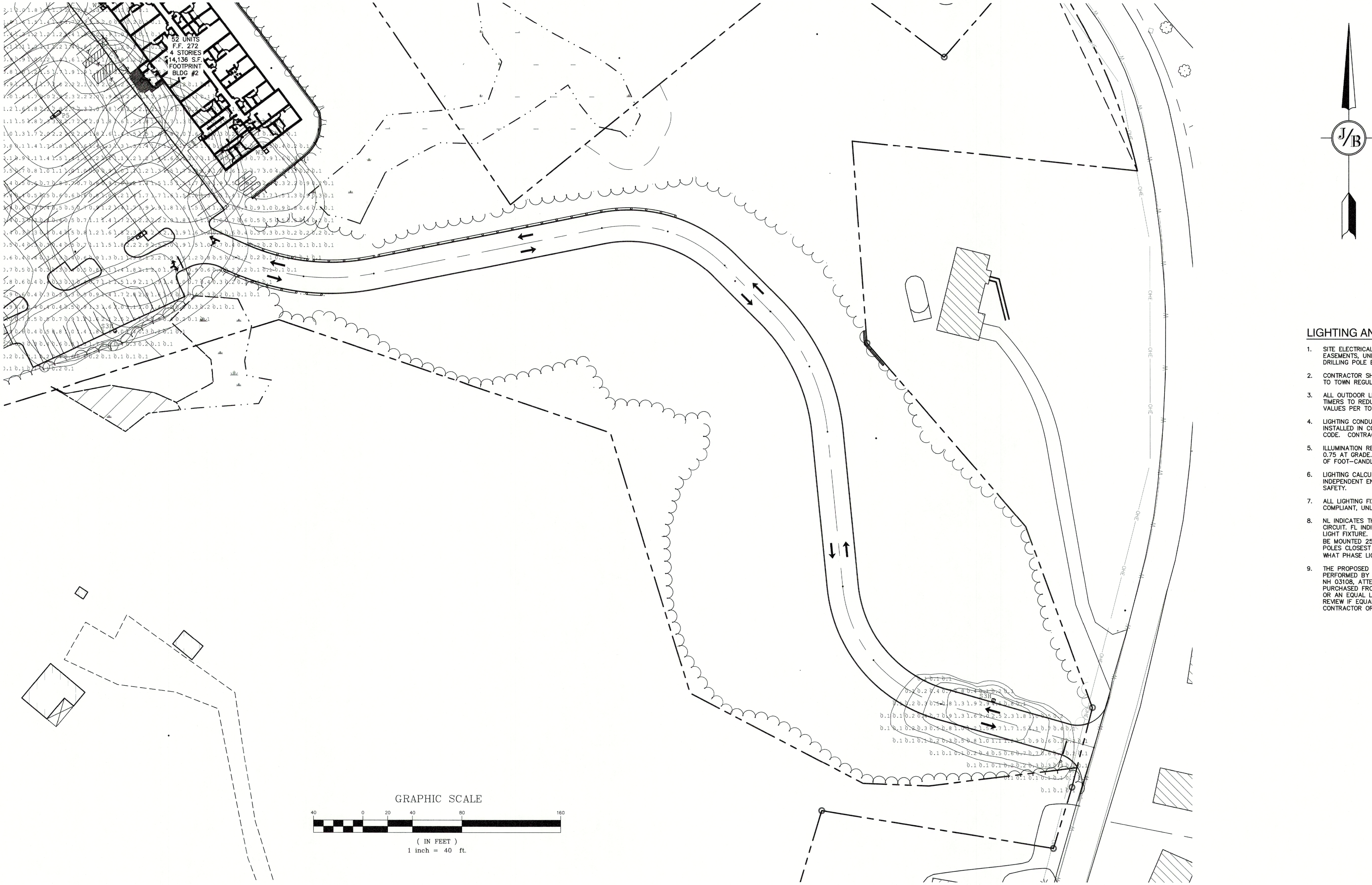
Designed and Produced in NH

Jones & Beach Engineers, Inc.
Civil Engineering Services

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LANDSCAPE PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
L2
SHEET 31 OF 61
JBE PROJECT NO. 20564



LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
2. CONTRACTOR SHALL INSTALL PROPOSED LIGHT POLES ACCORDING TO TOWN REGULATIONS.
3. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
4. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
5. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDLES.
6. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
7. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
8. NL INDICATES THAT THIS LUMINAIRE SHALL BE ON A NIGHT LIGHT CIRCUIT. FL INDICATES THAT THIS LUMINAIRE SHALL BE A FLOOD LIGHT FIXTURE. MOUNTING BRACKET FOR THIS FL FIXTURE SHALL BE MOUNTED 25' ABOVE BOTTOM OF POLE BASE FOR ALL LIGHT POLES CLOSEST TO STOREFRONT. THESE DESIGNATIONS INDICATE WHAT PHASE LIGHTS ARE WIRED TO (TYP).
9. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION DANIEL HEBERT. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY OR ONE OF THEIR SUPPLIERS, OR AN EQUAL LIGHTING DESIGN SHALL BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
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85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

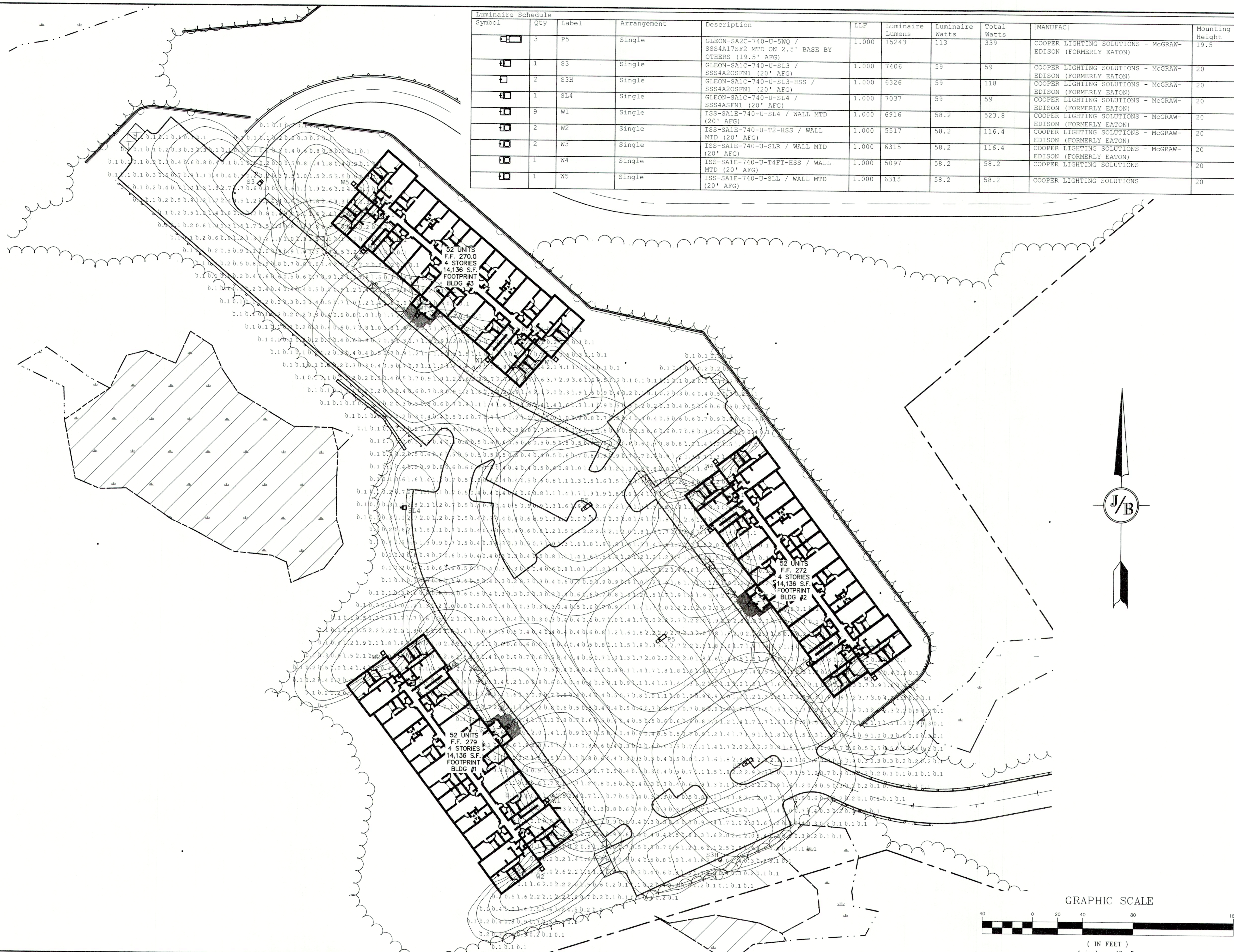
Plan Name:	LIGHTING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
L3

JBE PROJECT NO. 20564

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts	[MANUFAC]	Mounting Height
	3	P5	Single	GLEON-SA2C-740-U-5WQ / SSS4A17SF2 MTD ON 2.5' BASE BY OTHERS (19.5' AFG)	1.000	15243	113	339	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	19.5
	1	S3	Single	GLEON-SA1C-740-U-SL3 / SSS4A20SFN1 (20' AFG)	1.000	7406	59	59	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	2	S3H	Single	GLEON-SA1C-740-U-SL3-HSS / SSS4A20SFN1 (20' AFG)	1.000	6326	59	118	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	1	SL4	Single	GLEON-SA1C-740-U-SL4 / SSS4ASFN1 (20' AFG)	1.000	7037	59	59	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	9	W1	Single	ISS-SA1E-740-U-SL4 / WALL MTD (20' AFG)	1.000	6916	58.2	523.8	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	2	W2	Single	ISS-SA1E-740-U-T2-HSS / WALL MTD (20' AFG)	1.000	5517	58.2	116.4	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	2	W3	Single	ISS-SA1E-740-U-SLR / WALL MTD (20' AFG)	1.000	6315	58.2	116.4	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON (FORMERLY EATON)	20
	1	W4	Single	ISS-SA1E-740-U-T4FT-HSS / WALL MTD (20' AFG)	1.000	5097	58.2	58.2	COOPER LIGHTING SOLUTIONS	20
	1	W5	Single	ISS-SA1E-740-U-SLL / WALL MTD (20' AFG)	1.000	6315	58.2	58.2	COOPER LIGHTING SOLUTIONS	20



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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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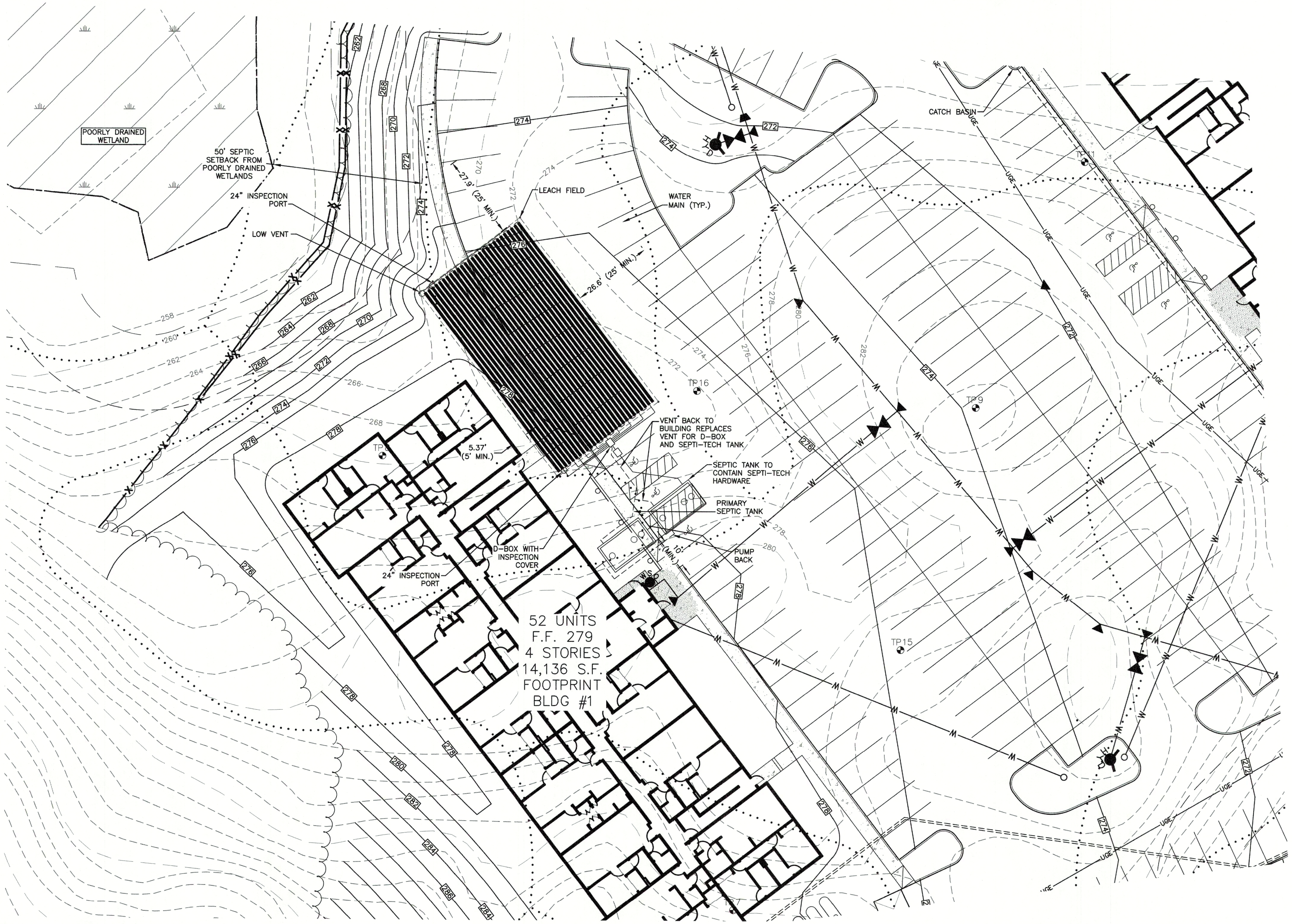
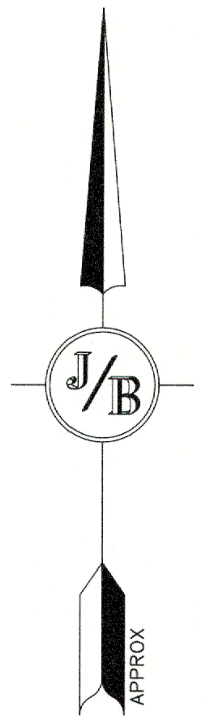
Plan Name:	LIGHTING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

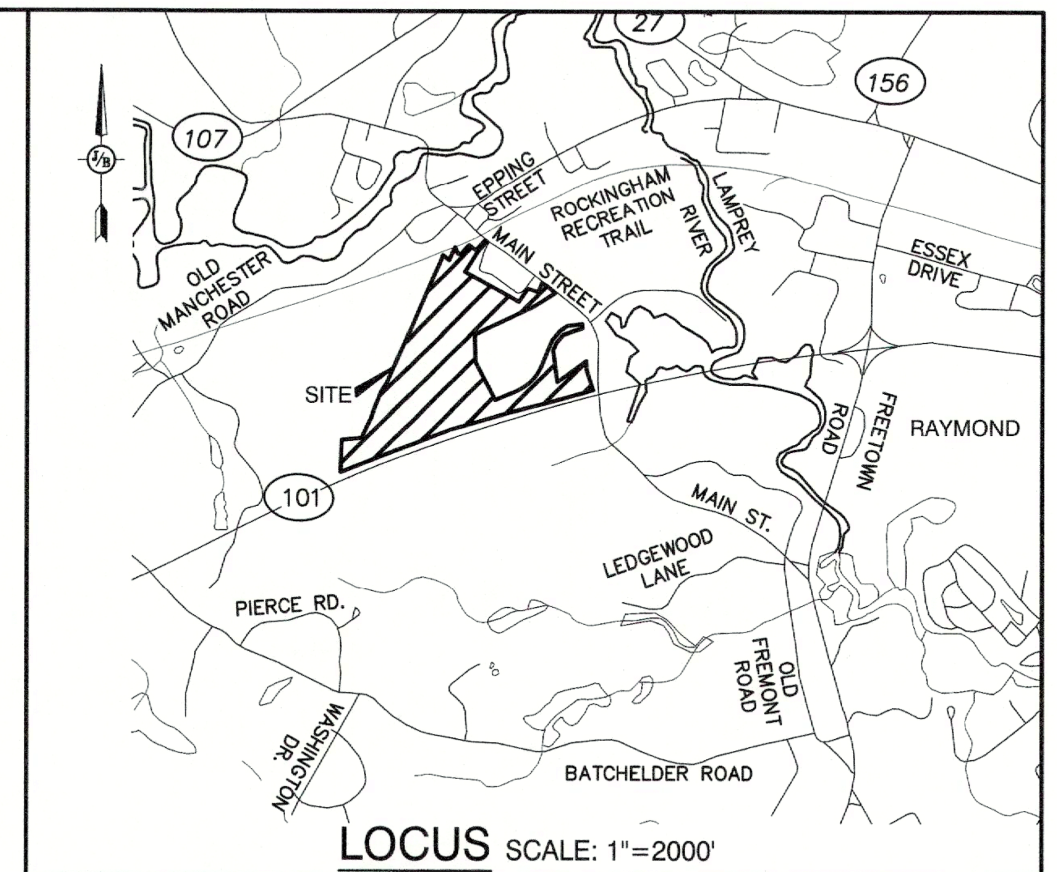
DRAWING No.

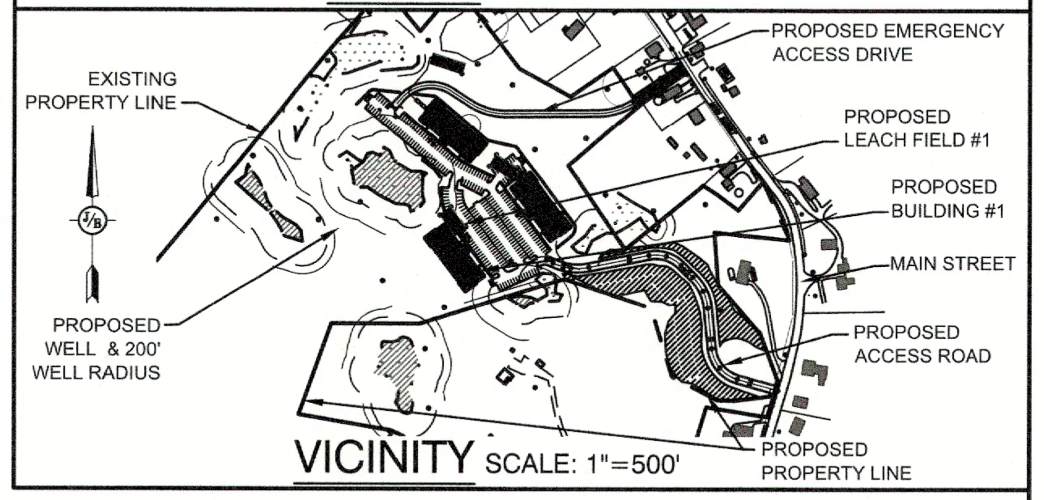
L4

SHEET 33 OF 61
JBE PROJECT NO. 20564









GRAPHIC SCALE

(IN FEET)
1 inch = 20 feet

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PROJECT PARCEL	
TOWN OF RAYMOND	
TAX MAP 23, LOT 25	
R.C.R.D. BK. 1559 PG. 263	
TOTAL LOT AREA:	75.11 ACRES

- CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SEPTIC PLAN FROM THE NHDES APPROVED PLAN
- THE BUILDER/SITE CONTRACTOR IS RESPONSIBLE TO CONFIRM THE ZONING DIMENSIONAL REQUIREMENTS AND SETBACK LINE REQUIREMENTS PRIOR TO INITIATING CONSTRUCTION OF THE PROPOSED HOUSE AND SEPTIC SYSTEM. THE ZONING ORDINANCE OF THE MUNICIPALITY IS TO BE COMPLIED WITH. THE BUILDER/SITE CONTRACTOR IS ALSO RESPONSIBLE TO CONTACT THE MUNICIPALITY REGARDING INSPECTIONS PRIOR TO AND DURING CONSTRUCTION, I.E. LOCATION AND BED-BOTTOM INSPECTIONS.

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

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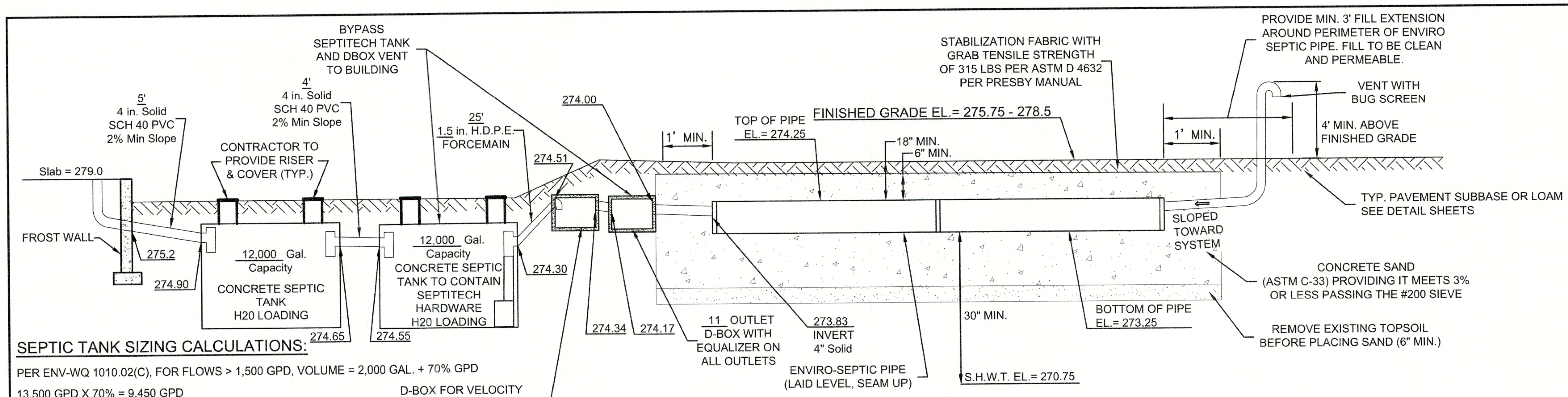
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EFFLUENT DISPOSAL DESIGN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
S1
SHEET 34 OF 61
JBE PROJECT NO. 20564



SEPTIC TANK SIZING CALCULATIONS:

PER ENV-WQ 1010.02(C), FOR FLOWS > 1,500 GPD, VOLUME = 2,000 GAL. + 70% GPD

13,500 GPD X 70% = 9,450 GPD

9,450 GALLONS + 2,000 = 11,450 GALLONS MINIMUM

12,000 GAL. PROVIDED.

CROSS SECTION - DISPOSAL SYSTEM

N.T.S.

SYSTEM TO BE BUILT FOR H20 LOADING

TEST PIT LOGS

PERFORMED BY: LUKE HURLEY, GOVE ENVIRONMENTAL SERVICES, INC.
WITNESSED BY: CHARLIE SMART, TOWN OF RAYMOND, NH FIRE CHIEF

TEST PIT #16

		FOREST MAT
0"-4"	10YR3/2	FINE SANDY LOAM GRANULAR, FRIABLE
4"-15"	10YR4/4	FINE SANDY LOAM GRANULAR, FRIABLE

SHWT = 15"
NO ROOTS
H2O @ 15"
NO REFUSAL

TEST PIT, DATE: FEBRUARY 24, 2022

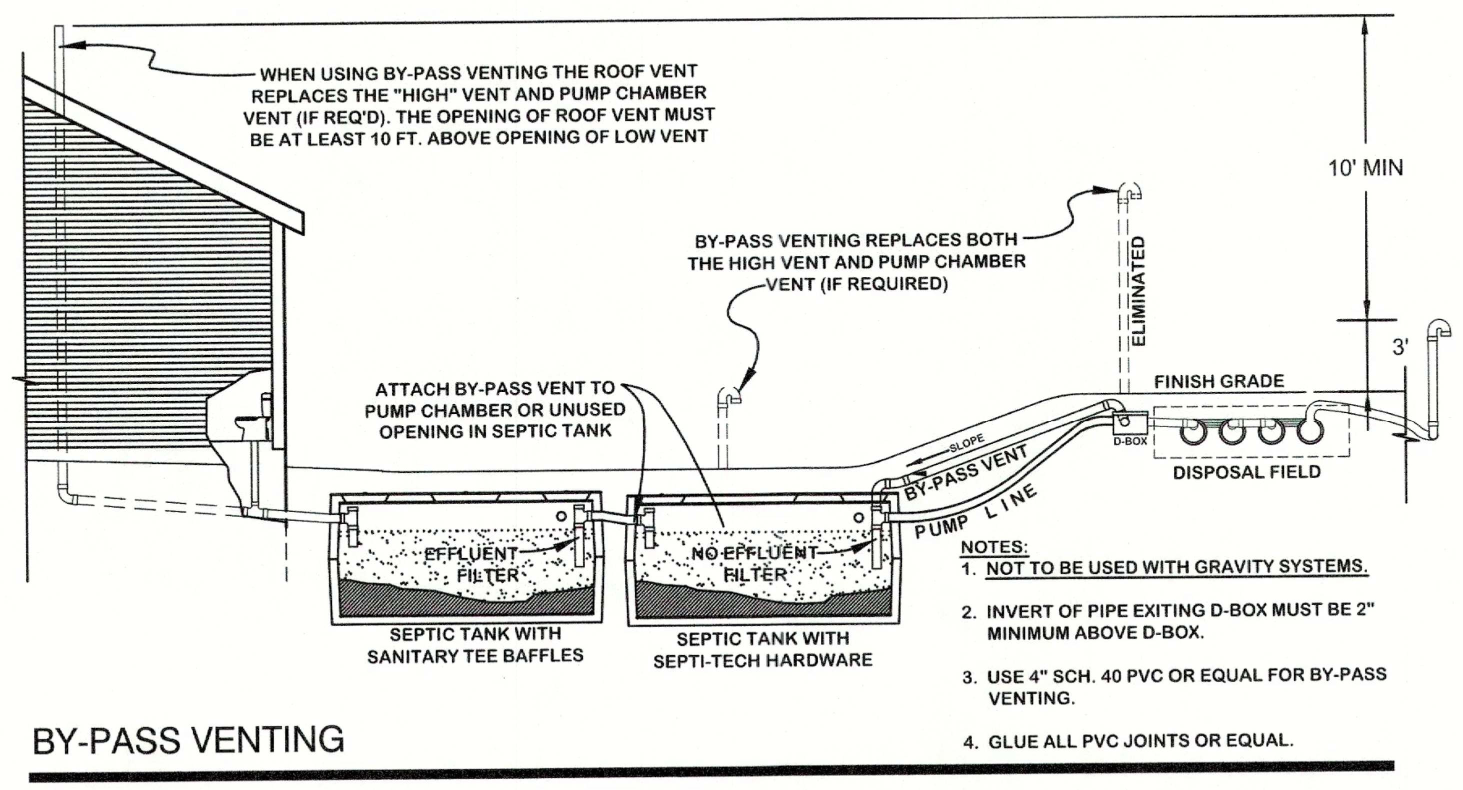
PERC. TEST, DATE: FEBRAURY 24, 2022

12 MIN./INCH

REFERENCES

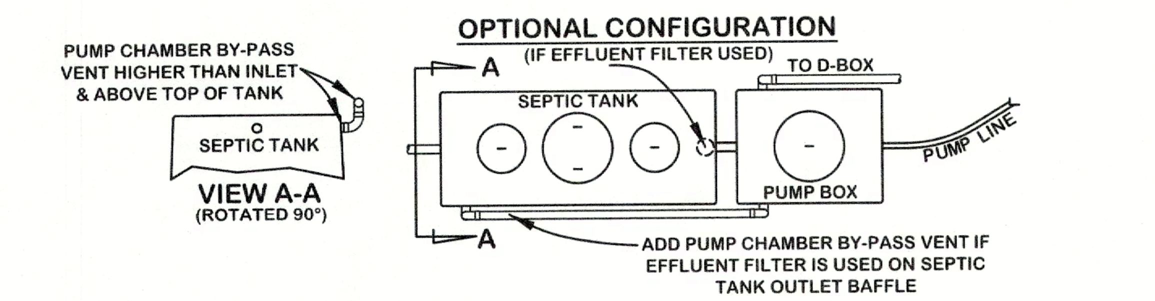
APPROVAL FOR CONSTRUCTION IS VALID FOR 4 YEARS FROM DATE OF ISSUE

- GROUNDWATER DISCHARGE PERMIT #__________ ISSUED:________.



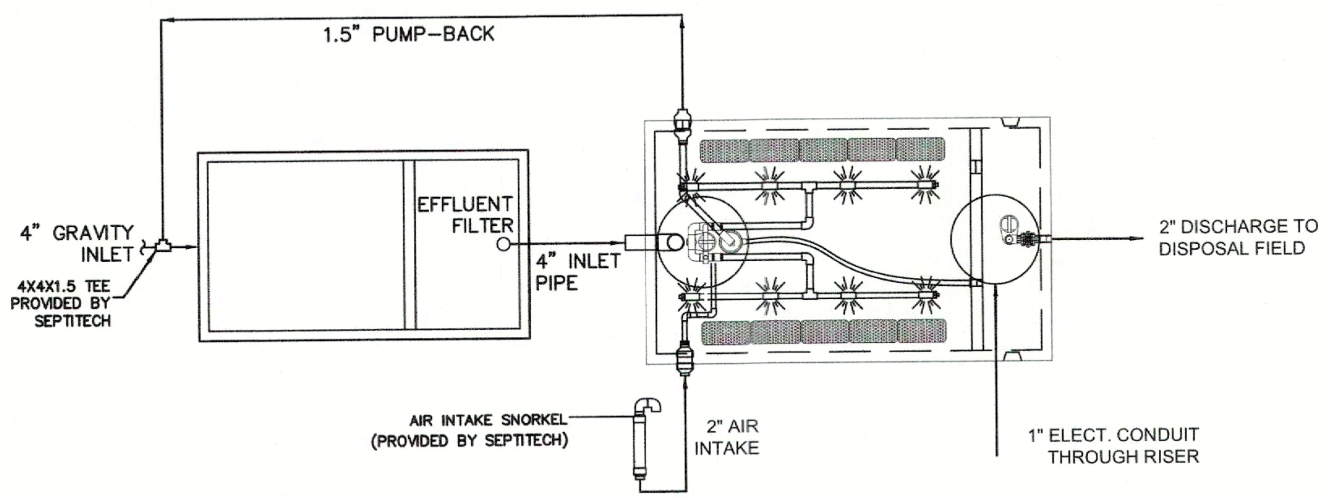
BY-PASS VENTING

NOT TO SCALE



BY-PASS VENTING W/ EFFLUENT FILTER

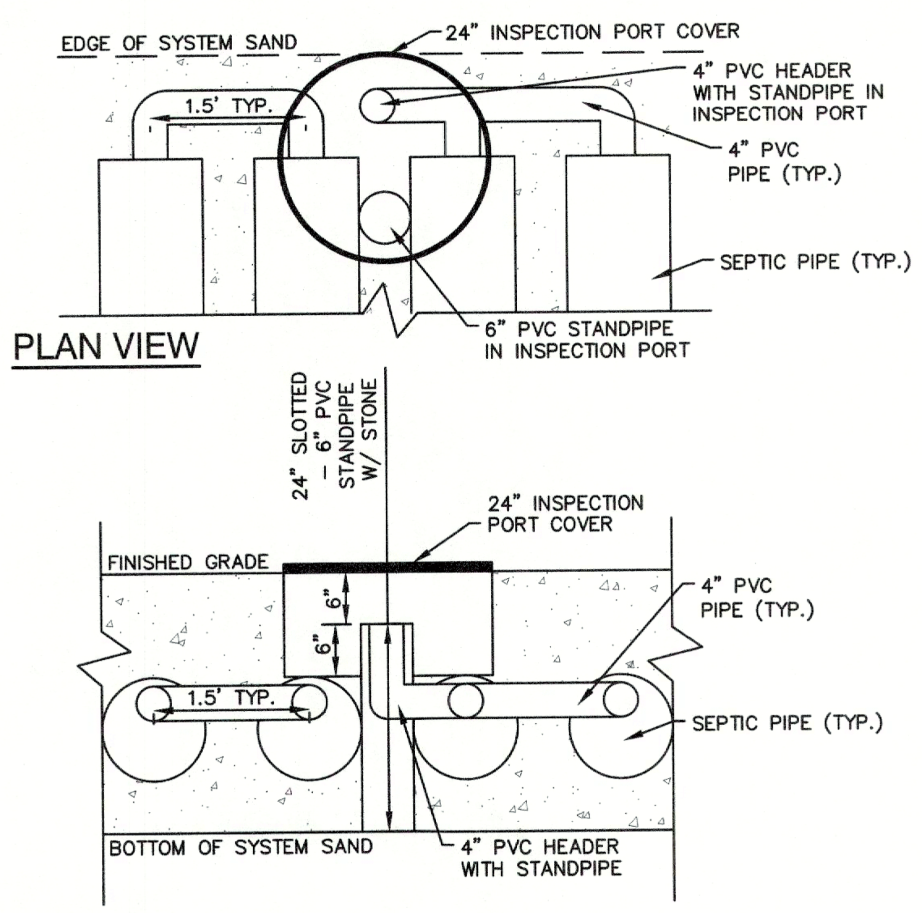
NOT TO SCALE



NOTE:

SEPTI-TECH PLAN VIEW

- CONTRACTOR IS RESPONSIBLE FOR PURCHASE AND INSTALLATION OF BOTH TANKS ON THE LOT. SEPTITECH WILL INSTALL THE EQUIPMENT AFTER THE TANK IS INSTALLED IN GROUND
- ALL PUMP SPECIFICATIONS AND MODELS TO BE SUPPLIED BY SEPTITECH
- SEPTITECH MODEL STAAR 18.0 COMMERCIAL SYSTEM REQUIRES A DISCHARGE PUMP UPGRADE THAT IS TO BE DETERMINED BY SEPTITECH.



INSPECTION PORT DETAIL

NOT TO SCALE

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ENVIRO-SEPTIC DESIGN CALCULATIONS

24 2-BEDROOM UNITS AND 28 1-BEDROOM UNITS (150 GPD/BEDROOM IN 2-BEDROOM UNITS & 225 GPD/1-BEDROOM UNITS)
(2 BEDROOMS * 24 UNITS * 150 GPD/BEDROOM) + (28 UNITS * 225 GPD/1-BEDROOM UNIT) = 13,500 GPD
13,500 GPD @ 12 MIN / INCH = 60*135 = 8,100 LF ENVIRO-SEPTIC PIPE REQUIRED
8,100 LF * 0.25 (75% PRE-TREATMENT SIZE EDUCTION) = 2,025 LF ENVIRO-SEPTIC PIPE REQUIRED
27 ROWS, 75 FT. LONG = 2025 LF OF ENVIRO-SEPTIC PIPE PROVIDED.
9 SERIES OF 3 ROWS.

BED DIMENSIONS 77' x 42'.

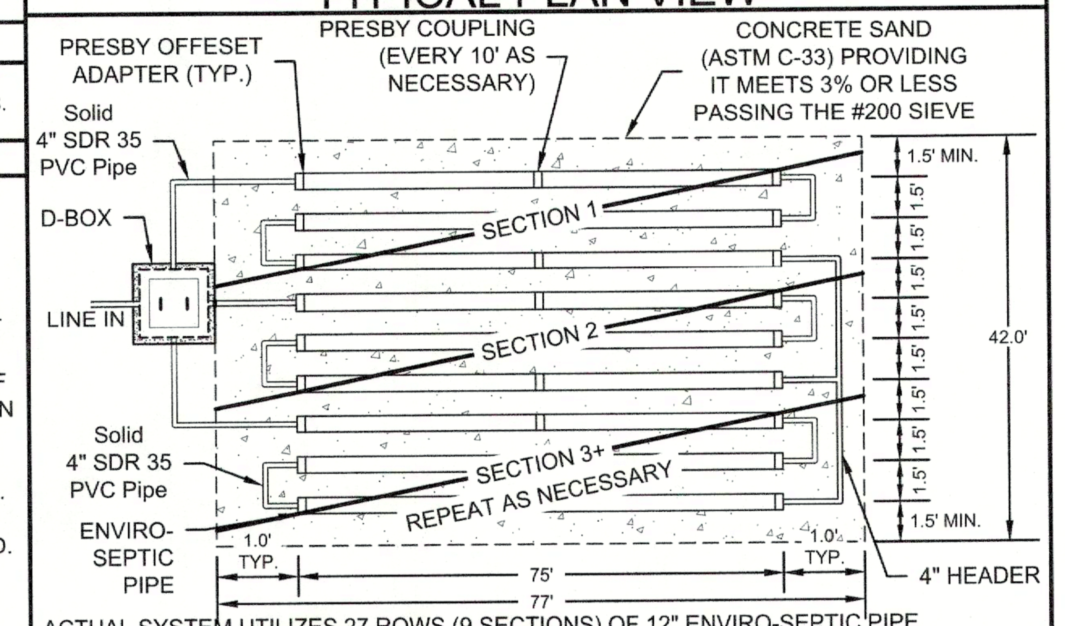
DESIGN INTENT

THE BOTTOM OF THE EFFLUENT DISPOSAL SYSTEM (E.D.S.) SHALL BE CONSTRUCTED AT ELEVATION 273.25. THIS IS APPROXIMATELY 1.25 FEET ABOVE ORIGINAL GROUND ON THE HIGH CONTOUR (272.0) OF THE DESIGNED E.D.S. (ENV-WQ-1003.13(aa))

GENERAL NOTES

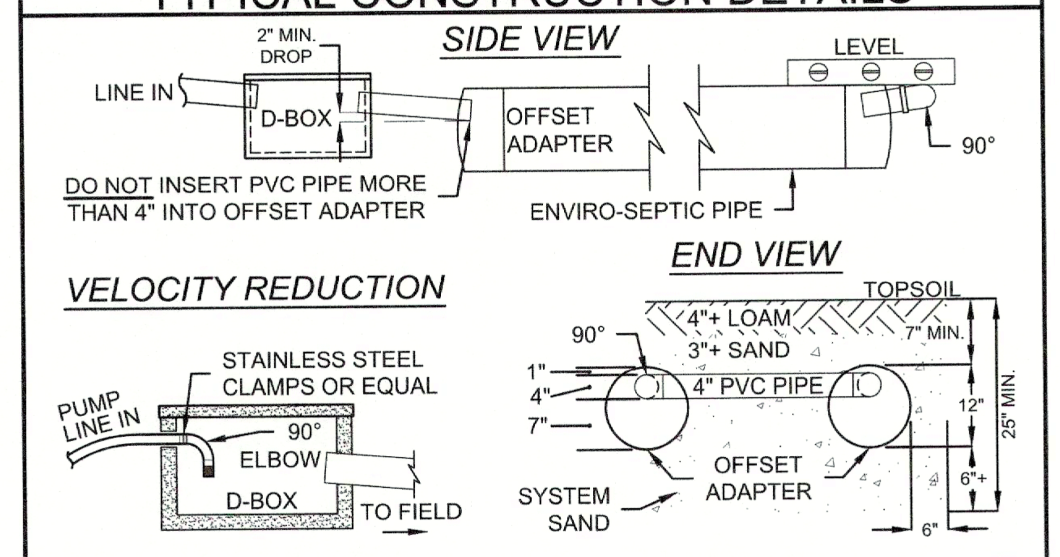
1. CONTRACTOR TO VERIFY ALL ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY DESIGNER OF ANY ABNORMAL CONDITIONS (HARDPAN OR SATURATED SOILS, LEDGE, ETC.) FOUND WHEN EXCAVATING PRIOR TO INSTALLATION OF THE SYSTEM.
2. LEACH BED COMPRISED OF ENVIRO-SEPTIC LEACHING PIPE. FOR DETAILED INSTALLATION INFORMATION REFER TO "DESIGN AND INSTALLATION MANUAL FOR A.E.S. AND E.S. WASTEWATER TREATMENT SYSTEMS", 2019 EDITION (OR MOST CURRENT EDITION). CONTACT PRESBY ENVIRONMENTAL AT PHONE (800) 473-5298 OR WWW.PRESBYENVIRONMENTAL.COM
3. PER ENV-WQ 1016.03, CONTRACTOR IS TO PROTECT THE NATURAL ABSORPTION QUALITIES OF THE SOIL. DO NOT COMPACT OR DRIVE OVER THE AREA WITH EQUIPMENT AND PROTECT OPEN EXCAVATION TO PREVENT THE ENTRANCE OF SILT AND DEBRIS.
4. FILL AROUND ENVIRO PIPES TO BE ASTM C-33 (CONCRETE SAND) OR EQUAL
5. REMOVE TOPSOIL BEFORE PLACING FILL, 4" THICK LOAM & SEED AROUND PERIMETER OF FILL.
6. CONTRACTOR TO INSTALL A VENT WHEN PROVIDING MORE THAN 18" OF COVER. VENTING IS REQUIRED IF SYSTEM IS DESIGNED FOR H20 LOADING, OR ADVANCED ENVIRO-SEPTIC IS USED.
7. CROWN SYSTEM TO SHED RAINWATER; SLOPE SYSTEM AWAY FROM HOUSE.
8. SYSTEM WILL BE REPLACED IN SAME LOCATION IN CASE OF FAILURE.
9. DISTRIBUTION BOX SHALL HAVE FLOW EQUALIZERS INSTALLED IN THE OUTLET PORTS.
10. JOINTS ARE TO BE BELLED PVC OR STANDARD SLIP COLLARS.
11. PER ENV-WQ 1010.11, THE FIRST COMPARTMENT IN MULTI-COMPARTMENT SEPTIC TANKS MUST EQUAL AT LEAST 2/3 OF THE REQUIRED VOLUME.
12. PER ENV-WQ 1010.10, EXCEPTING LEDGE TANKS, THE LIQUID DEPTH OF THE SEPTIC TANK IS TO BE AT LEAST 40".
13. THE OUTLET BAFFLE SHALL BE A VENTED TEE WHICH SHALL EXTEND TO A DISTANCE BELOW THE SURFACE EQUAL TO 40% OF THE LIQUID DEPTH AND SHALL EXTEND ABOVE THE LIQUID LINE TO NOT LESS THAN ONE INCH FROM THE TOP OF THE TANK.
14. ALL CONNECTIONS BETWEEN A SEPTIC TANK AND THE PIPES LEADING TO AND EXITING FROM THE SEPTIC TANK SHALL BE SEALED WITH A WATERTIGHT, FLEXIBLE JOINT CONNECTOR THAT: (1) WILL ACCOMMODATE NORMAL MOVEMENT OF THE SEPTIC TANK WITHOUT LEAKING OR BREAKING; AND (2) HAS BEEN CERTIFIED BY ITS MANUFACTURER OR DISTRIBUTOR AS MEETING OR EXCEEDING THE APPLICABLE STANDARD IN ASTM C 1644-06, SECTION 7.
15. CONTRACTOR TO PROVIDE RISERS FOR TANKS WITH MORE THAN 12" OF COVER.
16. IF GARBAGE GRINDERS ARE DESIRED, SEPTIC TANK SHALL BE 50% LARGER.
17. TOWN OF RAYMOND REQUIRES BED BOTTOM INSPECTION.
18. ENVIRO-SEPTIC TO BE SUPPLIED BY: ELIMINATOR SYSTEMS INC. (603) 868-2242) OR EQUAL.
19. TWO 12,000 GALLON SEPTIC TANKS & D-BOX TO BE SUPPLIED BY: SHEA CONCRETE. (800-696-7432) OR EQUAL.
20. ADVANCED NITRATE TREATMENT SYSTEM TO BE SUPPLIED BY: SEPTITECH / BIO-MICROBICS MAINE INC., 207-333-6940. PRODUCT MAY NOT BE SUBSTITUTED WITHOUT FIRST CONTACTING THE DESIGNER.
21. ROCKINGHAM COUNTY SOIL CONSERVATION SERVICE SOIL TYPE: NEWFIELDS.
22. ANY CHANGES TO SEPTIC TANK, BUILDING OR WELL LOCATION/ORIENTATION WILL REQUIRE AN AS-BUILT PLAN TO BE PROVIDED BY THE DESIGNER PRIOR TO NHDES FINAL INSPECTION.
23. PER ENV-WQ 1004.10, SYSTEMS OVER 2,500 GPD ARE TO BE INSPECTED BY DESIGNER.
24. PER ENV-WQ 1003.13(a)(3) THERE ARE NO KNOWN BURIAL SITES OR CEMETERIES ON THE LOT WITHIN 100' OF ANY COMPONENT OF THE ISDS.
25. 50' SETBACK FROM POORLY DRAINED SOILS.
26. DISTANCE FROM SEWER PIPE TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF SDR26 OR EQUIVALENT IS USED IN ACCORDANCE WITH ENV-WQ 1008.04(c)(1).
27. DISTANCE FROM SEPTIC TANK TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF THE SEPTIC TANK IS EITHER MADE FROM PLASTIC OR COATED WITH A SEALANT TO PREVENT INFILTRATION AND EXFILTRATION IN ACCORDANCE WITH ENV-WQ 1008.04(c)(2).

TYPICAL PLAN VIEW



ACTUAL SYSTEM UTILIZES 27 ROWS (9 SECTIONS) OF 12" ENVIRO-SEPTIC PIPE.
SEE PLAN VIEW (SHEET S1) FOR ACTUAL LAYOUT/CONFIGURATION OF SYSTEM.

TYPICAL CONSTRUCTION DETAILS



WETLAND DELINEATION

WETLANDS ON-SITE WERE DELINEATED BY: GOVE ENVIRONMENTAL SERVICES, INC. 8 CONTINENTAL DRIVE, UNIT H, EXETER, NH

DATE: WINTER, 2021 THROUGH AUTUMN, 2022

OWNER NOTES

- KNOW THE LOCATION OF YOUR SEPTIC TANK AND LEACHING AREA.
- INSPECT YOUR SEPTIC TANK YEARLY. HAVE THE SEPTIC TANK PUMPED AS NEEDED BUT AT LEAST ONCE EVERY THREE YEARS.
- DO NOT FLUSH BULKY ITEMS SUCH AS DIAPERS, SANITARY PADS OR BABY WIPES.
- DO NOT FLUSH TOXIC CHEMICALS SUCH AS PAINT THINNERS, DRANO, PESTICIDES, OR CHLORINE, AS THEY MAY KILL THE NECESSARY BACTERIA IN THE SEPTIC TANK.
- REPAIR LEAKING FIXTURES IN THE BUILDING PROMPTLY.
- BE CONSERVATIVE WITH WATER USE, SPREAD OUT USE OVER TIME, AND USE WATER-REDUCING FIXTURES WHENEVER AND WHEREVER POSSIBLE. TOO MUCH USE IN A SHORT TIME CAN OVERLOAD THE SYSTEM, WHICH MAY LEAD TO FAILURE.
- MOW YOUR LEACHING AREA REGULARLY. PREVENT DEEP-ROOTED TREES AND SHRUBS FROM GROWING ON AND ADJACENT TO YOUR LEACHING AREA.
- NO VEHICULAR TRAVEL, LIVESTOCK TRAVEL, OR SNOW REMOVAL IN AREA OF SYSTEM, UNLESS SPECIFICALLY DESIGNED FOR H20 LOADING.

PROJECT PARCEL

TOWN OF RAYMOND
TAX MAP 23, LOT 25
R.C.R.D. BK. 1559 PG. 263

TOTAL LOT AREA: 75.11 ACRES

- CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SEPTIC PLAN FROM THE NHDES APPROVED PLAN
- THE BUILDER/SITE CONTRACTOR IS RESPONSIBLE TO CONFIRM THE ZONING DIMENSIONAL REQUIREMENTS AND SETBACK LINE REQUIREMENTS PRIOR TO INITIATING CONSTRUCTION OF THE PROPOSED BUILDING AND SEPTIC SYSTEM. THE ZONING ORDINANCE OF THE MUNICIPALITY IS TO BE COMPLIED WITH. THE BUILDER/SITE CONTRACTOR IS ALSO RESPONSIBLE TO CONTACT THE MUNICIPALITY REGARDING INSPECTIONS PRIOR TO AND DURING CONSTRUCTION, I.E. LOCATION AND BED-BOTTOM INSPECTIONS.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

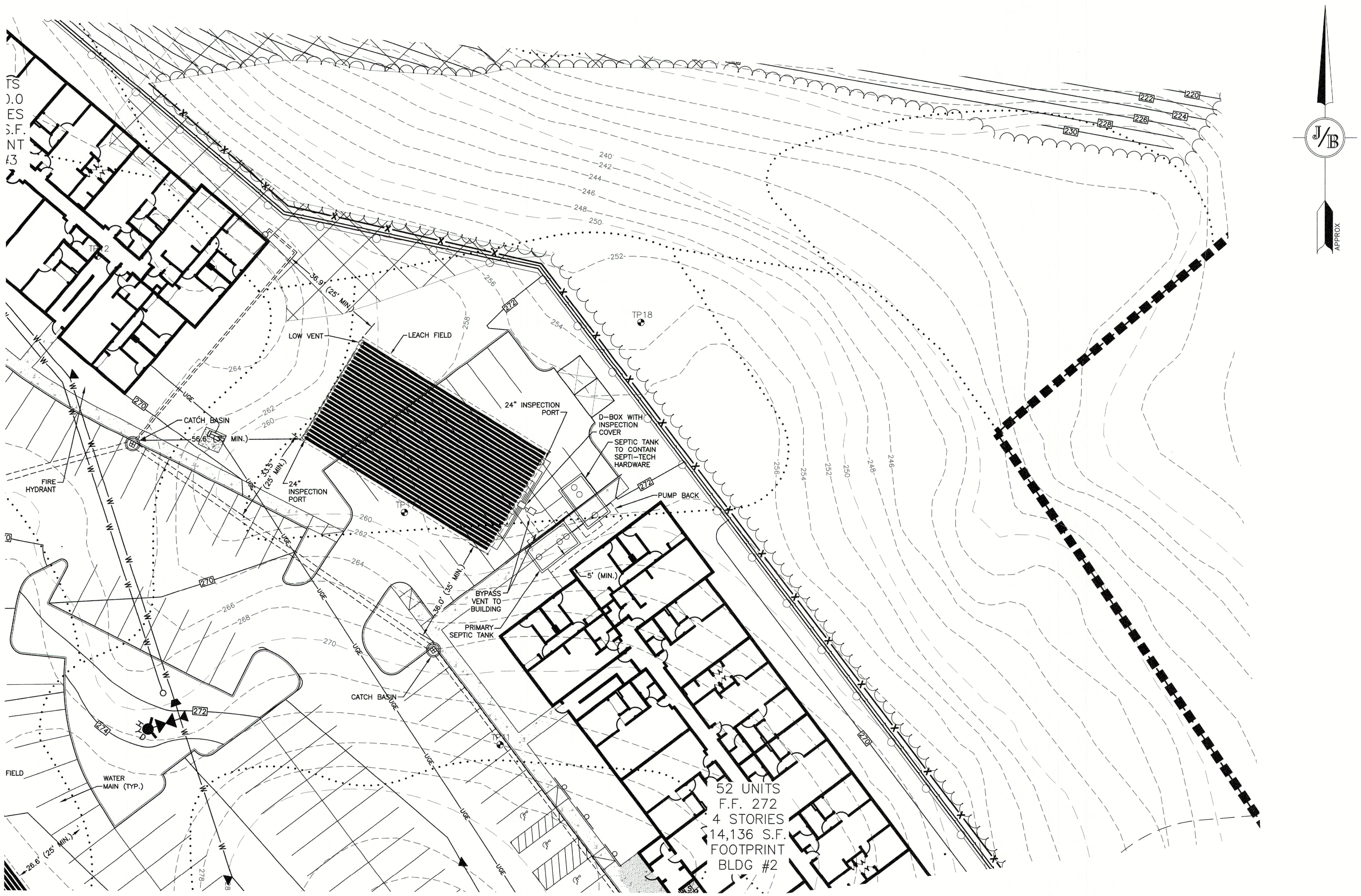
STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

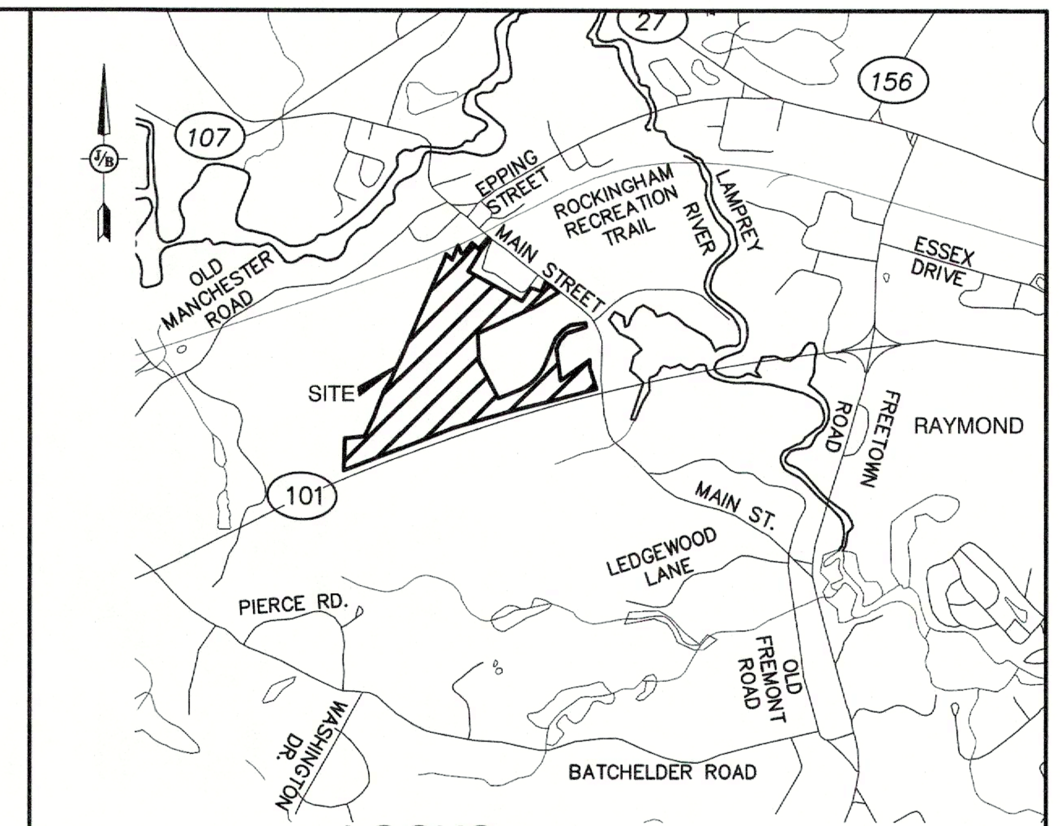
REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

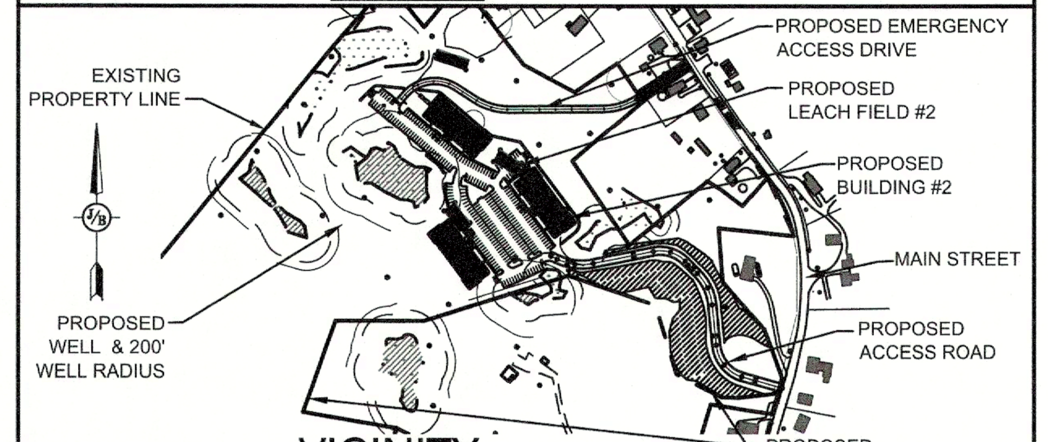
Plan Name:	EFFLUENT DISPOSAL DESIGN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
S2



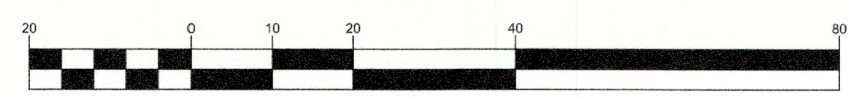


LOCUS SCALE: 1"=2000'



VICINITY SCALE: 1"=500'

GRAPHIC SCALE



(IN FEET)
1 inch = 20 feet

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PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25
R.C.R.D. BK. 1559 PG. 263

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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PO Box 219
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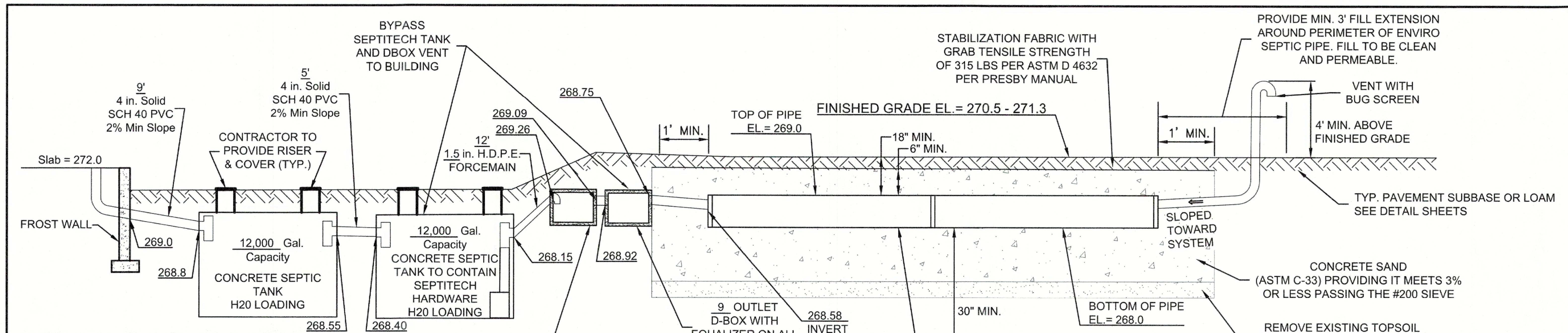
DRAWING No.
S3
SHEET 36 OF 61
JBE PROJECT NO. 20564



SEPTIC TANK SIZING CALCULATIONS:

PER ENV-WQ 1010.02(C), FOR FLOWS > 1,500 GPD, VOLUME = 2,000 GAL. + 70% GPD

13,500 GPD X 70% = 9,450 GPD

9,450 GALLONS + 2,000 = 11,450 GALLONS MINIMUM

12,000 GAL. PROVIDED

CROSS SECTION - DISPOSAL SYSTEM

N.T.S.

SYSTEM TO BE BUILT FOR H20 LOADING

TEST PIT LOGS

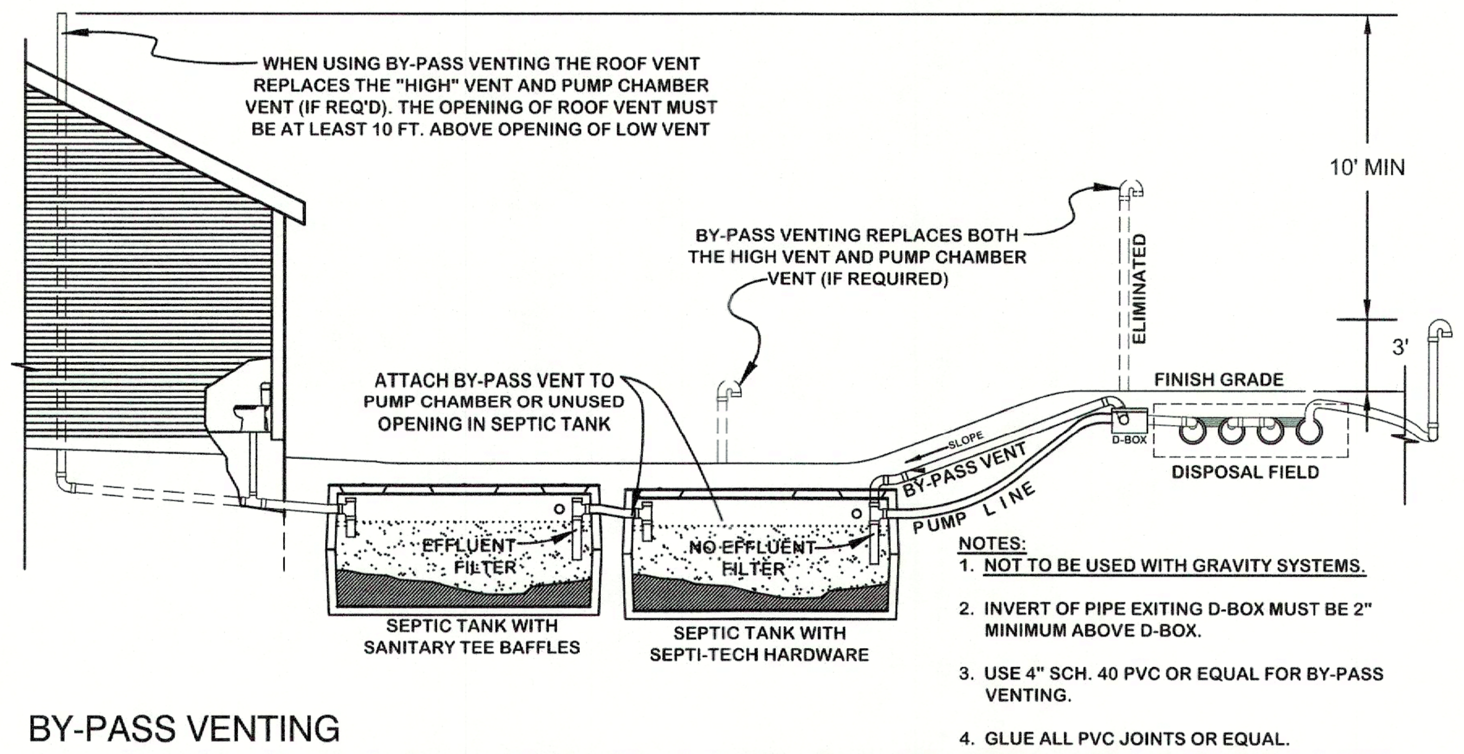
PERFORMED BY: LUKE HURLEY, GOVE ENVIRONMENTAL SERVICES, INC.
WITNESSED BY: CHARLIE SMART, TOWN OF RAYMOND, NH

TEST PIT #17

		FOREST MAT
0"-4"	10YR3/2	FINE SANDY LOAM GRANULAR, FRIABLE
4"-20"	10YR5/6	FINE SANDY LOAM GRANULAR, FRIABLE
20"-42"	2.5Y5/3	FINE SANDY LOAM GRANULAR FRIABLE

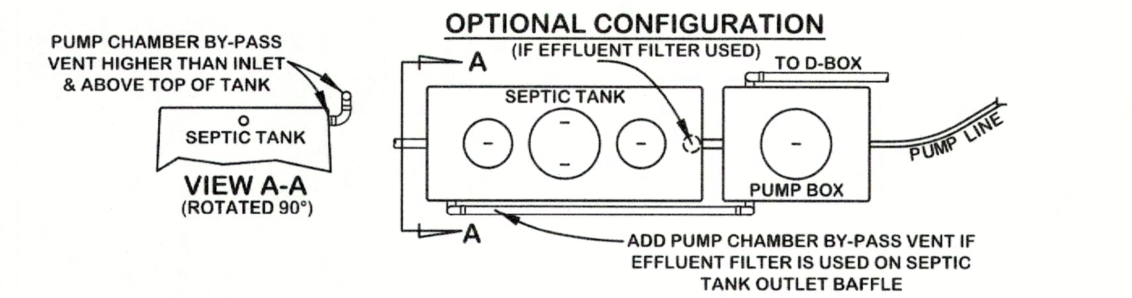
SHWT NOT FOUND
NO ROOTS
NO H_2O
REFUSAL = 42"

◕ TEST PIT, DATE: FEBRUARY 24, 2022
◐ PERC. TEST, DATE: FEBRAURY 24, 2022
12 MIN./INCH



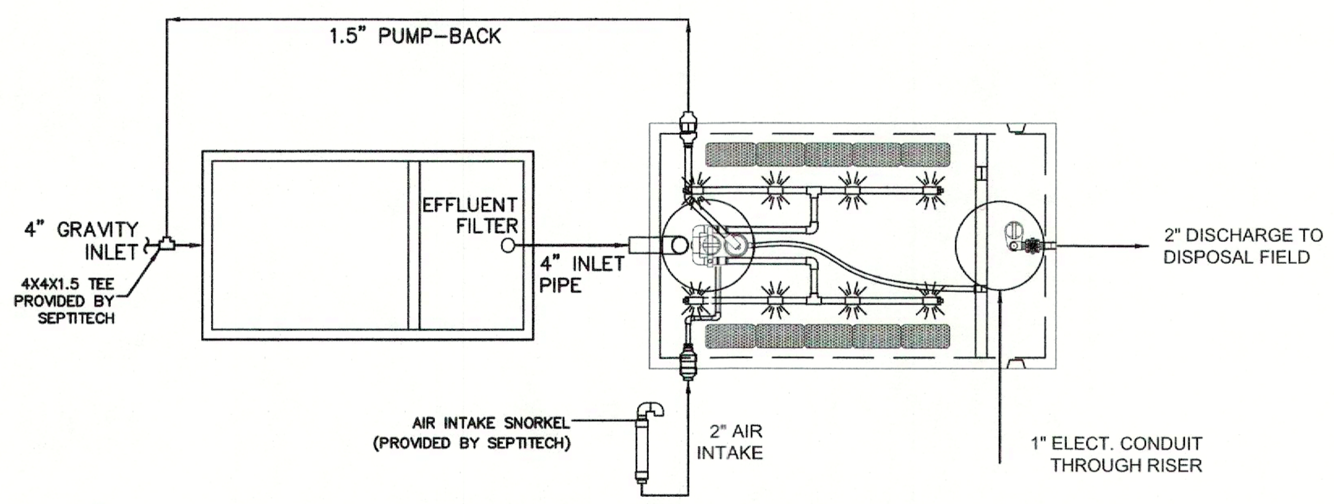
BY-PASS VENTING

NOT TO SCALE



BY-PASS VENTING W/ EFFLUENT FILTER

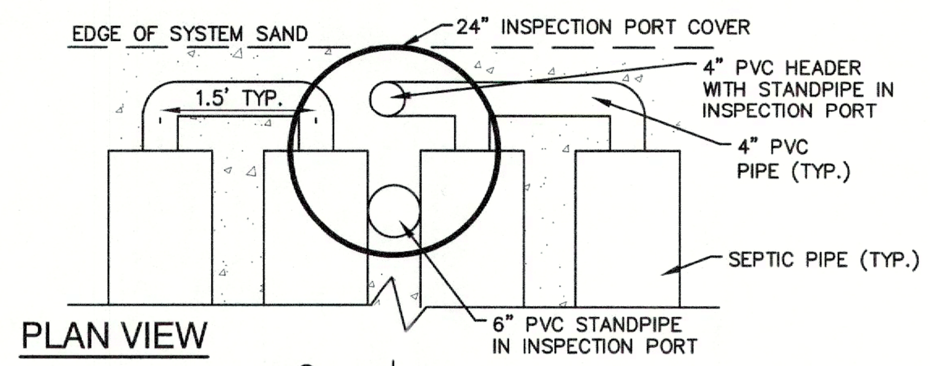
NOT TO SCALE



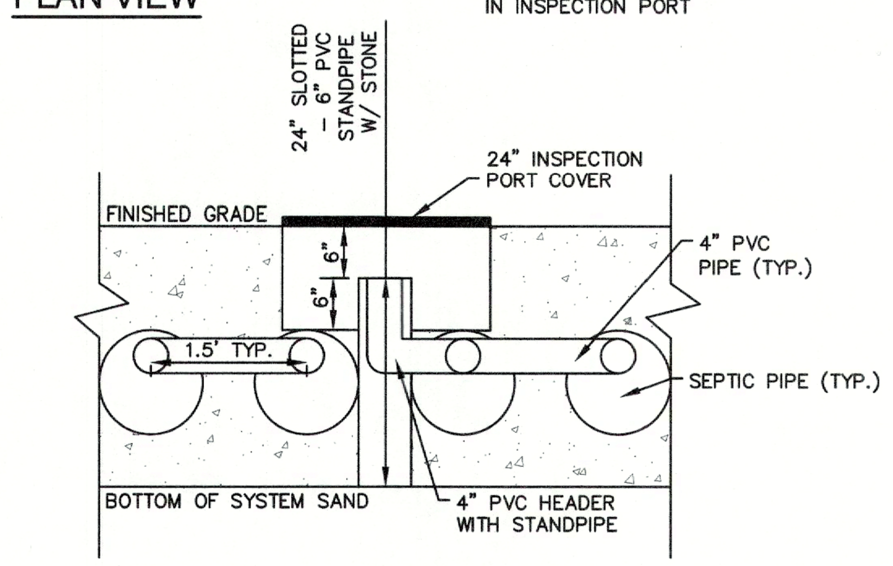
SEPTI-TECH PLAN VIEW

NOTE:

- CONTRACTOR IS RESPONSIBLE FOR PURCHASE AND INSTALLATION OF BOTH TANKS ON THE LOT. SEPTITECH WILL INSTALL THE EQUIPMENT AFTER THE TANK IS INSTALLED IN GROUND
- ALL PUMP SPECIFICATIONS AND MODELS TO BE SUPPLIED BY SEPTITECH
- SEPTITECH MODEL STAAR 18.0 COMMERCIAL SYSTEM REQUIRES A DISCHARGE PUMP UPGRADE THAT IS TO BE DETERMINED BY SEPTITECH.



PLAN VIEW



SECTION VIEW

INSPECTION PORT DETAIL

NOT TO SCALE

ENVIRO-SEPTIC DESIGN CALCULATIONS

24 2-BEDROOM UNITS AND 28 1-BEDROOM UNITS (150 GPD/BEDROOM IN 2-BEDROOM UNITS & 225 GPD/1-BEDROOM UNITS)
(2 BEDROOMS * 24 UNITS * 150 GPD/BEDROOM) + (28 UNITS * 225 GPD/1-BEDROOM UNIT) = 13,500 GPD
13,500 GPD @ 12 MIN / INCH = 60*135 = 8,100 LF ENVIRO-SEPTIC PIPE REQUIRED
8,100 LF * 0.25 (75% PRE-TREATMENT SIZE EDUCTION) = 2,025 LF ENVIRO-SEPTIC PIPE REQUIRED
27 ROWS, 100 FT. LONG = 2,025 LF OF ENVIRO-SEPTIC PIPE PROVIDED.
9 SERIES OF 3 ROWS.

BED DIMENSIONS 77' x 42' .

DESIGN INTENT

THE BOTTOM OF THE EFFLUENT DISPOSAL SYSTEM (E.D.S.) SHALL BE CONSTRUCTED AT ELEVATION 268.0 . THIS IS APPROXIMATELY 2 FEET ABOVE ORIGINAL GROUND ON THE HIGH CONTOUR (266.0) OF THE DESIGNED E.D.S. (ENV-WQ-1003.13(aa))

GENERAL NOTES

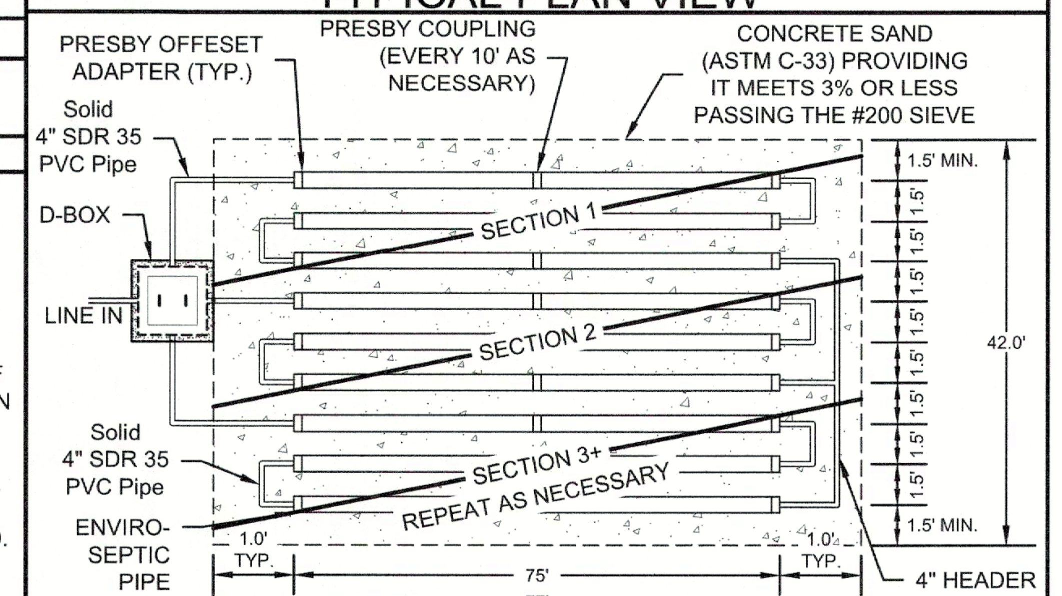
1. CONTRACTOR TO VERIFY ALL ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY DESIGNER OF ANY ABNORMAL CONDITIONS (HARDPAN OR SATURATED SOILS, LEDGE, ETC.) FOUND WHEN EXCAVATING PRIOR TO INSTALLATION OF THE SYSTEM.
2. LEACH BED COMPRISED OF ENVIRO-SEPTIC LEACHING PIPE. FOR DETAILED INSTALLATION INFORMATION REFER TO "DESIGN AND INSTALLATION MANUAL FOR A.E.S. AND E.S. WASTEWATER TREATMENT SYSTEMS", 2019 EDITION (OR MOST CURRENT EDITION). CONTACT PRESBY ENVIRONMENTAL AT PHONE (800) 473-5298 OR WWW.PRESBYENVIRONMENTAL.COM
3. PER ENV-WQ 1016.03, CONTRACTOR IS TO PROTECT THE NATURAL ABSORPTION QUALITIES OF THE SOIL. DO NOT COMPACT OR DRIVE OVER THE AREA WITH EQUIPMENT AND PROTECT OPEN EXCAVATION TO PREVENT THE ENTRANCE OF SILT AND DEBRIS.
4. FILL AROUND ENVIRO PIPES TO BE ASTM C-33 (CONCRETE SAND) OR EQUAL
5. REMOVE TOPSOIL BEFORE PLACING FILL, 4" THICK LOAM & SEED AROUND PERIMETER OF FILL.
6. CONTRACTOR TO INSTALL A VENT WHEN PROVIDING MORE THAN 18" OF COVER. VENTING IS REQUIRED IF SYSTEM IS DESIGNED FOR H20 LOADING, OR ADVANCED ENVIRO-SEPTIC IS USED.
7. CROWN SYSTEM TO SHED RAINWATER; SLOPE SYSTEM AWAY FROM HOUSE.
8. SYSTEM WILL BE REPLACED IN SAME LOCATION IN CASE OF FAILURE.
9. DISTRIBUTION BOX SHALL HAVE FLOW EQUALIZERS INSTALLED IN THE OUTLET PORTS.
10. JOINTS ARE TO BE BELLED PVC OR STANDARD SLIP COLLARS.
11. PER ENV-WQ 1010.11, THE FIRST COMPARTMENT IN MULTI-COMPARTMENT SEPTIC TANKS MUST EQUAL AT LEAST 2/3 OF THE REQUIRED VOLUME.
12. PER ENV-WQ 1010.10, EXCEPTING LEDGE TANKS, THE LIQUID DEPTH OF THE SEPTIC TANK IS TO BE AT LEAST 40".
13. THE OUTLET BAFFLE SHALL BE A VENTED TEE WHICH SHALL EXTEND TO A DISTANCE BELOW THE SURFACE EQUAL TO 40% OF THE LIQUID DEPTH AND SHALL EXTEND ABOVE THE LIQUID LINE TO NOT LESS THAN ONE INCH FROM THE TOP OF THE TANK.
14. ALL CONNECTIONS BETWEEN A SEPTIC TANK AND THE PIPES LEADING TO AND EXITING FROM THE SEPTIC TANK SHALL BE SEALED WITH A WATERTIGHT, FLEXIBLE JOINT CONNECTOR THAT: (1) WILL ACCOMMODATE NORMAL MOVEMENT OF THE SEPTIC TANK WITHOUT LEAKING OR BREAKING; AND (2) HAS BEEN CERTIFIED BY ITS MANUFACTURER OR DISTRIBUTOR AS MEETING OR EXCEEDING THE APPLICABLE STANDARD IN ASTM C 1644-06, SECTION 7.
15. CONTRACTOR TO PROVIDE RISERS FOR TANKS WITH MORE THAN 12" OF COVER.
16. IF GARBAGE GRINDERS ARE DESIRED, SEPTIC TANK SHALL BE 50% LARGER.
17. TOWN OF RAYMOND REQUIRES BED BOTTOM INSPECTION.
18. ENVIRO-SEPTIC TO BE SUPPLIED BY: ELIMINATOR SYSTEMS INC. (603) 868-2242) OR EQUAL.
19. TWO 12,000 GALLON SEPTIC TANKS & D-BOX TO BE SUPPLIED BY: SHEA CONCRETE. (800-696-7432) OR EQUAL.
20. ADVANCED NITRATE TREATMENT SYSTEM TO BE SUPPLIED BY: SEPTITECH / BIO-MICROBICS MAINE INC., 207-333-6940. PRODUCT MAY NOT BE SUBSTITUTED WITHOUT FIRST CONTACTING THE DESIGNER.
21. ROCKINGHAM COUNTY SOIL CONSERVATION SERVICE SOIL TYPE: CANTON.
22. ANY CHANGES TO SEPTIC TANK, BUILDING OR WELL LOCATION/ORIENTATION WILL REQUIRE AN AS-BUILT PLAN TO BE PROVIDED BY THE DESIGNER PRIOR TO NHDES FINAL INSPECTION.
23. PER ENV-WQ 1004.10, SYSTEMS OVER 2,500 GPD ARE TO BE INSPECTED BY DESIGNER.
24. PER ENV-WQ 1003.13(a)(3) THERE ARE NO KNOWN BURIAL SITES OR CEMETERIES ON THE LOT WITHIN 100' OF ANY COMPONENT OF THE ISDS.
25. 50' SETBACK FROM POORLY DRAINED SOILS.
26. DISTANCE FROM SEWER PIPE TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF SDR26 OR EQUIVALENT IS USED IN ACCORDANCE WITH ENV-WQ 1008.04(c)(1).
27. DISTANCE FROM SEPTIC TANK TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF THE SEPTIC TANK IS EITHER MADE FROM PLASTIC OR COATED WITH A SEALANT TO PREVENT INFILTRATION AND EXFILTRATION IN ACCORDANCE WITH ENV-WQ 1008.04(c)(2).

REFERENCES

APPROVAL FOR CONSTRUCTION IS VALID FOR 4 YEARS FROM DATE OF ISSUE

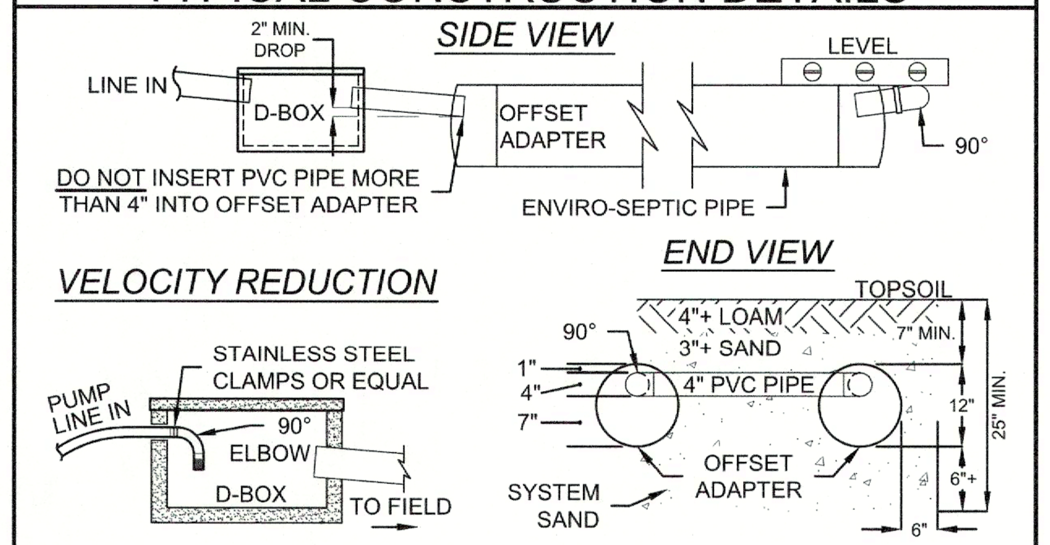
- GROUNDWATER DISCHARGE PERMIT #__________ ISSUED:________

TYPICAL PLAN VIEW



ACTUAL SYSTEM UTILIZES 27 ROWS (9 SECTIONS) OF 12" ENVIRO-SEPTIC PIPE. SEE PLAN VIEW (LEFT) FOR ACTUAL LAYOUT/CONFIGURATION OF SYSTEM.

TYPICAL CONSTRUCTION DETAILS



WETLAND DELINEATION

WETLANDS ON-SITE WERE DELINEATED BY: GOVE ENVIRONMENTAL SERVICES, INC. 8 CONTINENTAL DRIVE, UNIT H, EXETER, NH

DATE: WINTER, 2021 THROUGH AUTUMN, 2022 - THERE ARE NO WETLANDS WITHIN 75' OF THE PROPOSED ISDS

OWNER NOTES

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TOWN OF RAYMOND
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STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9846 LICENSED 8/17/2023

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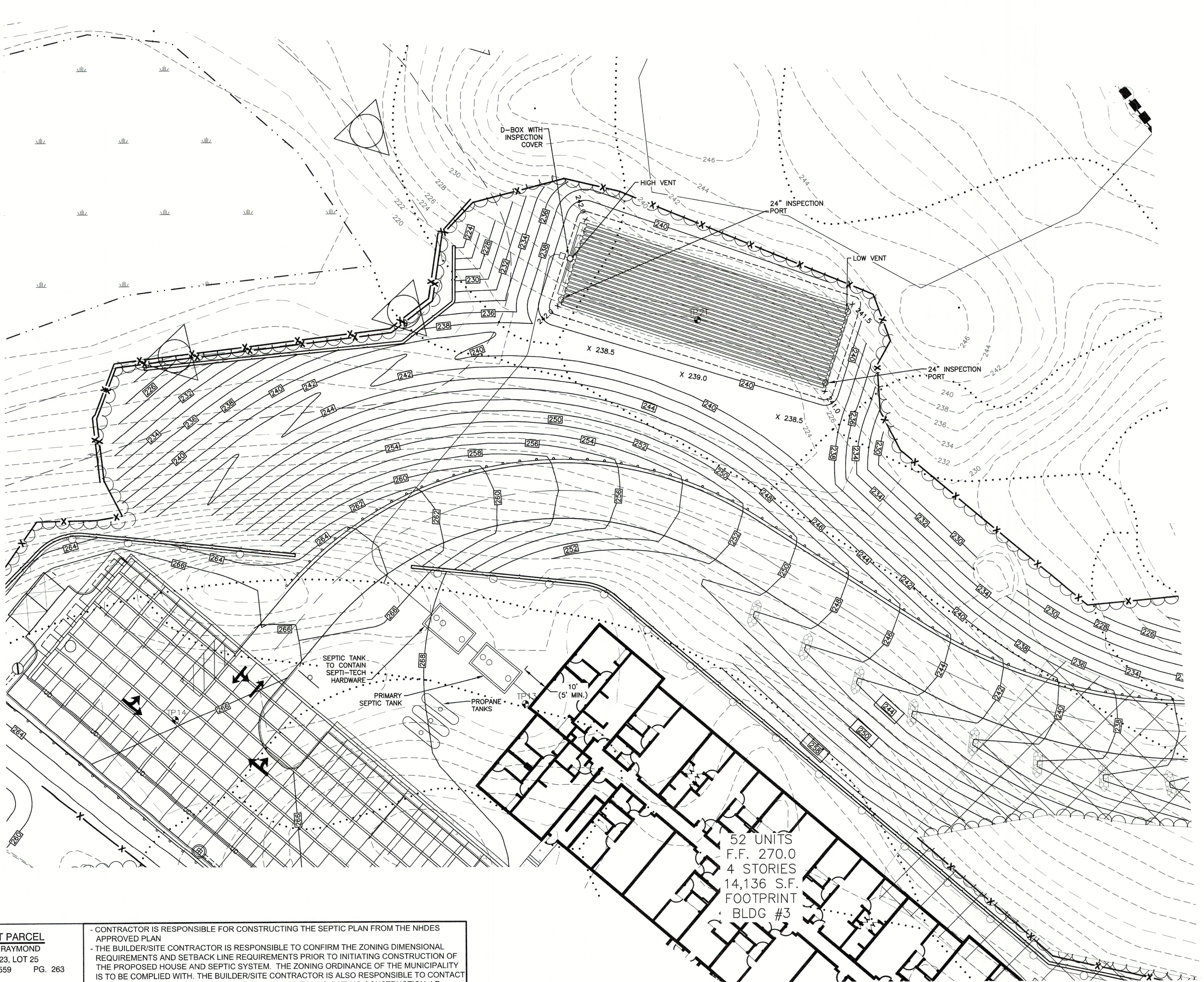
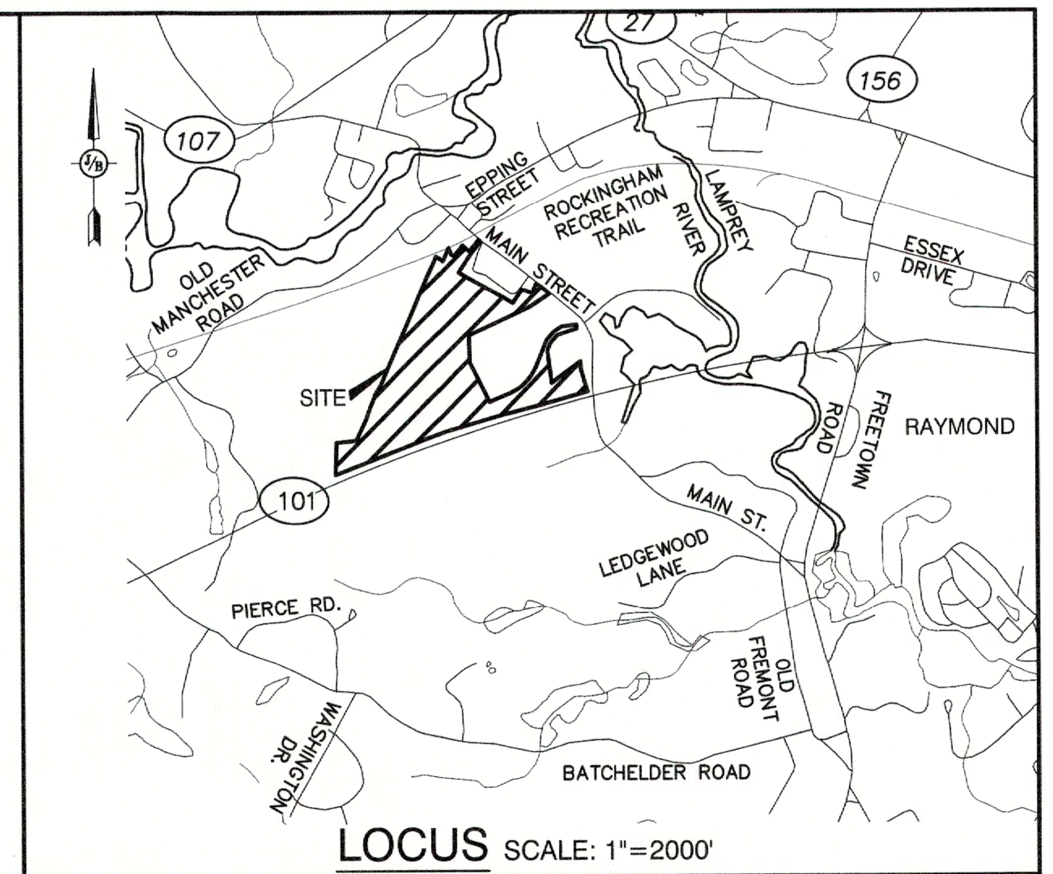
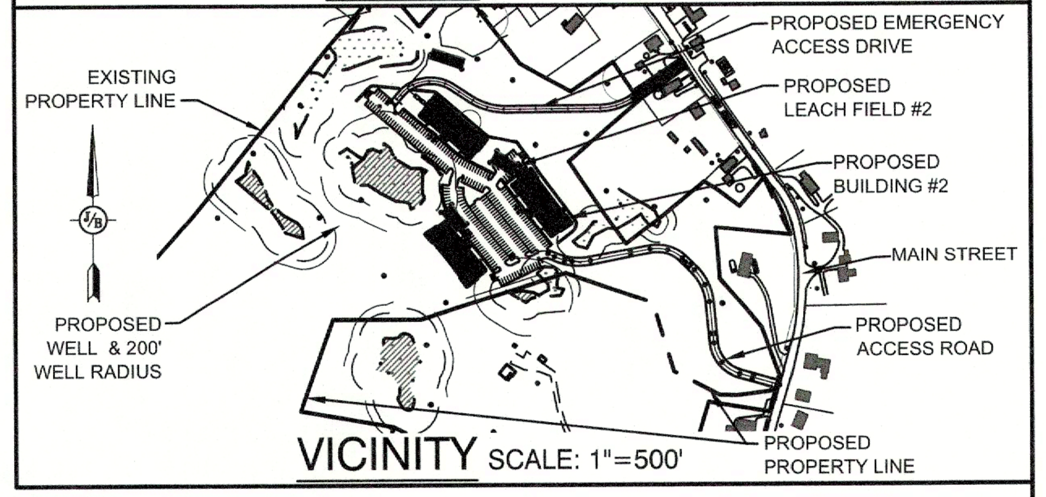
DRAWING No.
S4
SHEET 37 OF 61
JBE PROJECT NO. 20564





LOCUS SCALE: 1"=2000'



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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9846
LICENSED PROFESSIONAL ENGINEER
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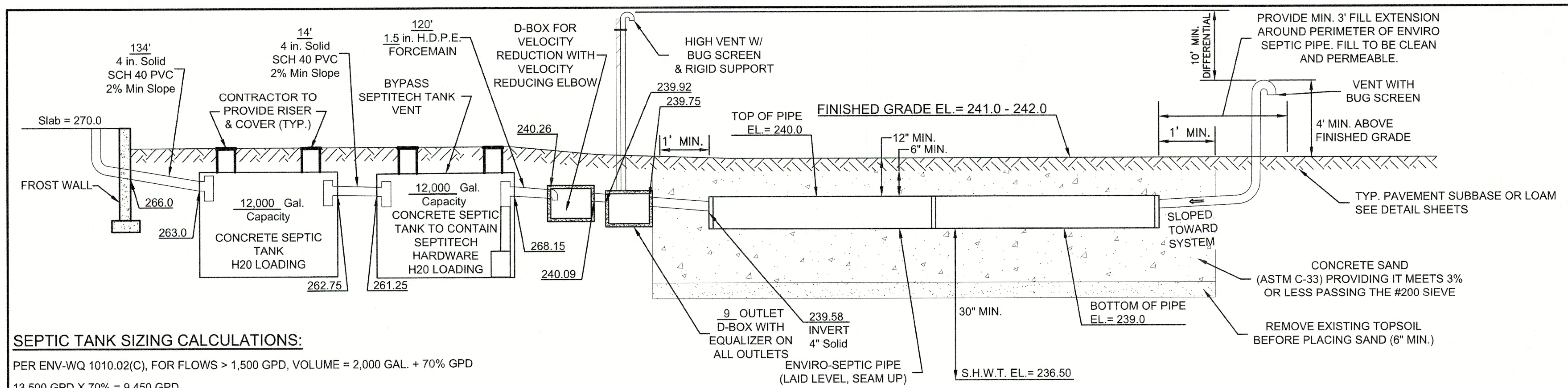
DRAWING No.
S5
SHEET 38 OF 61
JBE PROJECT NO. 20564



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9,450 GALLONS + 2,000 = 11,450 GALLONS MINIMUM

12,000 GAL. PROVIDED.

CROSS SECTION - DISPOSAL SYSTEM

N.T.S.

TEST PIT LOGS

PERFORMED BY: JAMES GOVE, GOVE ENVIRONMENTAL SERVICES, INC.
WITNESSED BY: PAUL AYER, RAYMOND CODE ENFORCEMENT

TEST PIT #21

		FOREST MAT
0"-7"	10YR3/2	FINE LOAMY SAND GRANULAR, FRIABLE
7"-46"	10YR5/6	FINE SANDY LOAM GRANULAR, FRIABLE
46"-72"	2.5Y5/4	FINE SANDY LOAM OM, FRIABLE 20% REDOX

SHWT = 36"
NO ROOTS
NO H_2O
REFUSAL = 72"

TEST PIT, DATE: OCTOBER 20, 2022
PERC. TEST, DATE: OCTOBER 20, 2022
12 MIN./INCH

ENVIRO-SEPTIC DESIGN CALCULATIONS

24 2-BEDROOM UNITS AND 28 1-BEDROOM UNITS (150 GPD/BEDROOM IN 2-BEDROOM UNITS & 225 GPD/1-BEDROOM UNITS)
(2 BEDROOMS * 24 UNITS * 150 GPD/BEDROOM) + (28 UNITS * 225 GPD/1-BEDROOM UNIT) = 13,500 GPD
13,500 GPD @ 12 MIN / INCH = 60*135 = 8,100 LF ENVIRO-SEPTIC PIPE REQUIRED
8,100 LF * 0.25 (75% PRE-TREATMENT SIZE EDUCTION) = 2,025 LF ENVIRO-SEPTIC PIPE REQUIRED
21 ROWS, 100 FT. LONG = 2100 LF OF ENVIRO-SEPTIC PIPE PROVIDED.
7 SERIES OF 3 ROWS.

BED DIMENSIONS 102' x 33'.

DESIGN INTENT

THE BOTTOM OF THE EFFLUENT DISPOSAL SYSTEM (E.D.S.) SHALL BE CONSTRUCTED AT ELEVATION 239.0. THIS IS APPROXIMATELY 1.3 FEET BELOW ORIGINAL GROUND ON THE HIGH CONTOUR (240.3) OF THE DESIGNED E.D.S. (ENV-WQ-1003.13(aa))

GENERAL NOTES

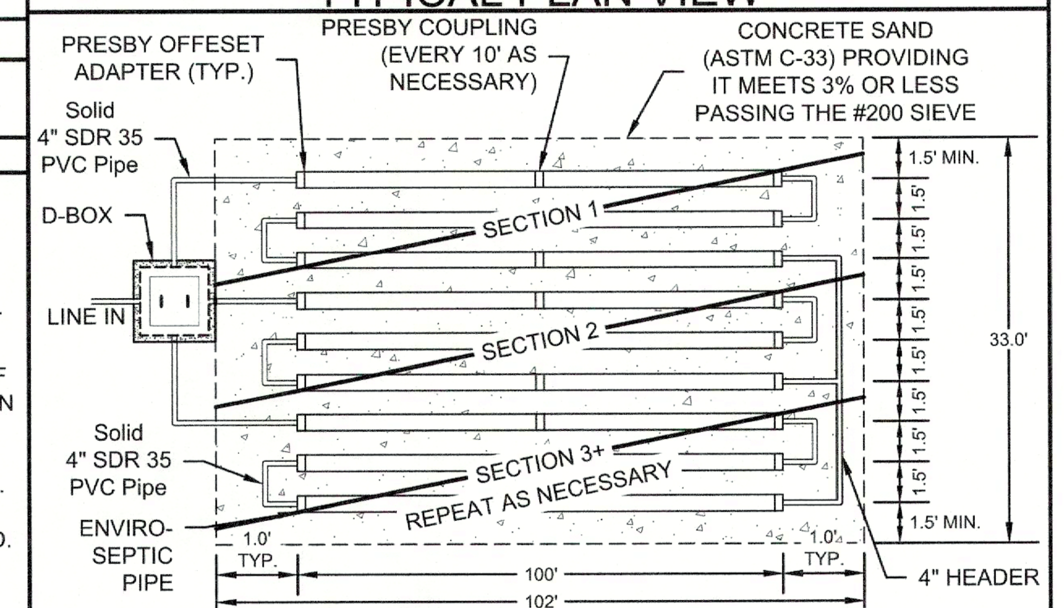
1. CONTRACTOR TO VERIFY ALL ELEVATIONS IN FIELD PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY DESIGNER OF ANY ABNORMAL CONDITIONS (HARDPAN OR SATURATED SOILS, LEDGE, ETC.) FOUND WHEN EXCAVATING PRIOR TO INSTALLATION OF THE SYSTEM.
2. LEACH BED COMPRISED OF ENVIRO-SEPTIC LEACHING PIPE. FOR DETAILED INSTALLATION INFORMATION REFER TO "DESIGN AND INSTALLATION MANUAL FOR A.E.S. AND E.S. WASTEWATER TREATMENT SYSTEMS", 2019 EDITION (OR MOST CURRENT EDITION). CONTACT PRESBY ENVIRONMENTAL AT PHONE (800) 473-5298 OR WWW.PRESBYENVIRONMENTAL.COM
3. PER ENV-WQ 1016.03, CONTRACTOR IS TO PROTECT THE NATURAL ABSORPTION QUALITIES OF THE SOIL. DO NOT COMPACT OR DRIVE OVER THE AREA WITH EQUIPMENT AND PROTECT OPEN EXCAVATION TO PREVENT THE ENTRANCE OF SILT AND DEBRIS.
4. FILL AROUND ENVIRO PIPES TO BE ASTM C-33 (CONCRETE SAND) OR EQUAL
5. REMOVE TOPSOIL BEFORE PLACING FILL, 4" THICK LOAM & SEED AROUND PERIMETER OF FILL.
6. CONTRACTOR TO INSTALL A VENT WHEN PROVIDING MORE THAN 18" OF COVER. VENTING IS REQUIRED IF SYSTEM IS DESIGNED FOR H20 LOADING, OR ADVANCED ENVIRO-SEPTIC IS USED.
7. CROWN SYSTEM TO SHED RAINWATER; SLOPE SYSTEM AWAY FROM HOUSE.
8. SYSTEM WILL BE REPLACED IN SAME LOCATION IN CASE OF FAILURE.
9. DISTRIBUTION BOX SHALL HAVE FLOW EQUALIZERS INSTALLED IN THE OUTLET PORTS.
10. JOINTS ARE TO BE BELLED PVC OR STANDARD SLIP COLLARS.
11. PER ENV-WQ 1010.11, THE FIRST COMPARTMENT IN MULTI-COMPARTMENT SEPTIC TANKS MUST EQUAL AT LEAST 2/3 OF THE REQUIRED VOLUME.
12. PER ENV-WQ 1010.10, EXCEPTING LEDGE TANKS, THE LIQUID DEPTH OF THE SEPTIC TANK IS TO BE AT LEAST 40".
13. THE OUTLET BAFFLE SHALL BE A VENTED TEE WHICH SHALL EXTEND TO A DISTANCE BELOW THE SURFACE EQUAL TO 40% OF THE LIQUID DEPTH AND SHALL EXTEND ABOVE THE LIQUID LINE TO NOT LESS THAN ONE INCH FROM THE TOP OF THE TANK.
14. ALL CONNECTIONS BETWEEN A SEPTIC TANK AND THE PIPES LEADING TO AND EXITING FROM THE SEPTIC TANK SHALL BE SEALED WITH A WATERTIGHT, FLEXIBLE JOINT CONNECTOR THAT: (1) WILL ACCOMMODATE NORMAL MOVEMENT OF THE SEPTIC TANK WITHOUT LEAKING OR BREAKING; AND (2) HAS BEEN CERTIFIED BY ITS MANUFACTURER OR DISTRIBUTOR AS MEETING OR EXCEEDING THE APPLICABLE STANDARD IN ASTM C 1644-06, SECTION 7.
15. CONTRACTOR TO PROVIDE RISERS FOR TANKS WITH MORE THAN 12" OF COVER.
16. IF GARBAGE GRINDERS ARE DESIRED, SEPTIC TANK SHALL BE 50% LARGER.
17. TOWN OF RAYMOND REQUIRES BED BOTTOM INSPECTION.
18. ENVIRO-SEPTIC TO BE SUPPLIED BY: ELIMINATOR SYSTEMS INC. (603) 868-2242) OR EQUAL.
19. TWO 12,000 GALLON SEPTIC TANKS & D-BOX TO BE SUPPLIED BY: SHEA CONCRETE. (800-696-7432) OR EQUAL.
20. ADVANCED NITRATE TREATMENT SYSTEM TO BE SUPPLIED BY: SEPTITECH / BIO-MICROBICS MAINE INC., 207-333-6940. PRODUCT MAY NOT BE SUBSTITUTED WITHOUT FIRST CONTACTING THE DESIGNER.
21. ROCKINGHAM COUNTY SOIL CONSERVATION SERVICE SOIL TYPE: CANTON.
22. ANY CHANGES TO SEPTIC TANK, BUILDING OR WELL LOCATION/ORIENTATION WILL REQUIRE AN AS-BUILT PLAN TO BE PROVIDED BY THE DESIGNER PRIOR TO NHDES FINAL INSPECTION.
23. PER ENV-WQ 1004.10, SYSTEMS OVER 2,500 GPD ARE TO BE INSPECTED BY DESIGNER.
24. PER ENV-WQ 1003.13(a)(3) THERE ARE NO KNOWN BURIAL SITES OR CEMETERIES ON THE LOT WITHIN 100' OF ANY COMPONENT OF THE ISDS.
25. 50' SETBACK FROM POORLY DRAINED SOILS.
26. DISTANCE FROM SEWER PIPE TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF SDR26 OR EQUIVALENT IS USED IN ACCORDANCE WITH ENV-WQ 1008.04(c)(1).
27. DISTANCE FROM SEPTIC TANK TO SURFACE WATER, OPEN DRAINAGE, VERY POORLY DRAINED SOIL, AN OPEN LOOP GEOTHERMAL WELL, OR A PRIVATE ON-SITE WELL SHALL BE 75 FT. THIS MAY BE REDUCED TO 50 FT IF THE SEPTIC TANK IS EITHER MADE FROM PLASTIC OR COATED WITH A SEALANT TO PREVENT INFILTRATION AND EXFILTRATION IN ACCORDANCE WITH ENV-WQ 1008.04(c)(2).

REFERENCES

APPROVAL FOR CONSTRUCTION IS VALID FOR 4 YEARS FROM DATE OF ISSUE

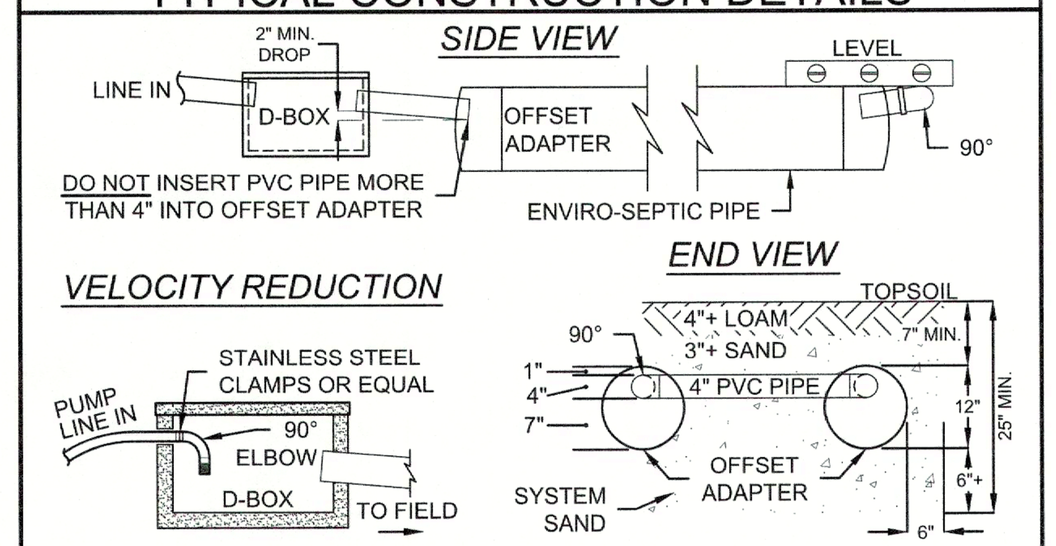
- GROUNDWATER DISCHARGE PERMIT #____________ ISSUED:________

TYPICAL PLAN VIEW



ACTUAL SYSTEM UTILIZES 21 ROWS (7 SECTIONS) OF 12" ENVIRO-SEPTIC PIPE.
SEE PLAN VIEW (LEFT) FOR ACTUAL LAYOUT/CONFIGURATION OF SYSTEM.

TYPICAL CONSTRUCTION DETAILS



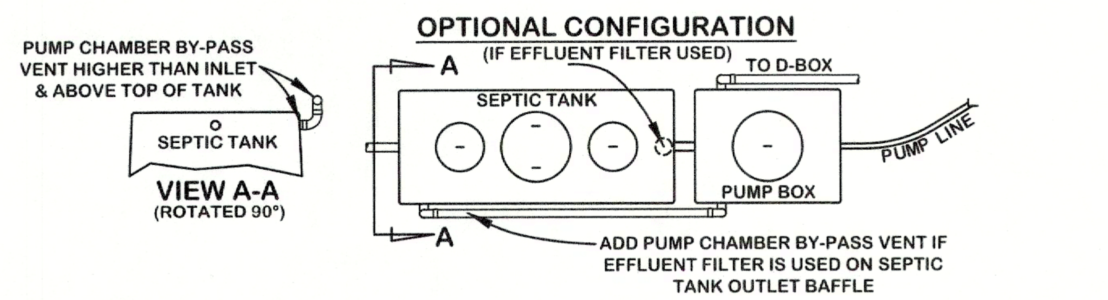
WETLAND DELINEATION

WETLANDS ON-SITE WERE DELINEATED BY: GOVE ENVIRONMENTAL SERVICES, INC. 8 CONTINENTAL DRIVE, UNIT H, EXETER, NH

DATE: WINTER, 2021 THROUGH AUTUMN, 2022 - THERE ARE NO WETLANDS WITHIN 75' OF THE PROPOSED ISDS

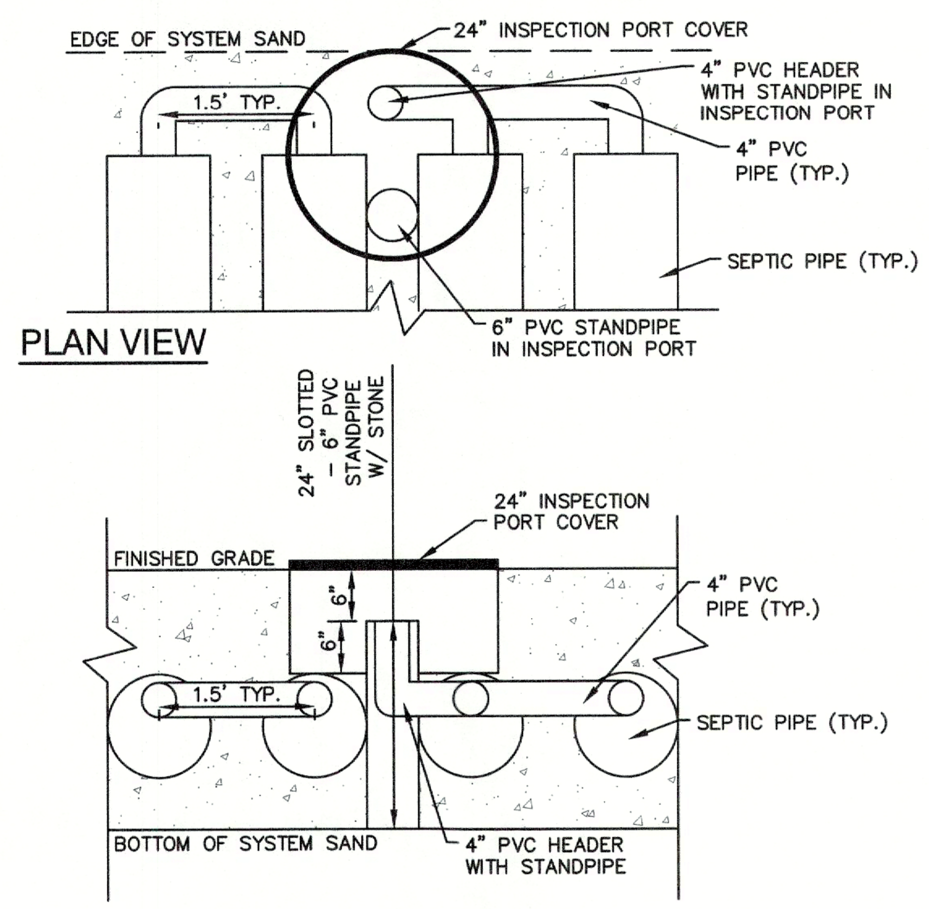
OWNER NOTES

- KNOW THE LOCATION OF YOUR SEPTIC TANK AND LEACHING AREA.
- INSPECT YOUR SEPTIC TANK YEARLY. HAVE THE SEPTIC TANK PUMPED AS NEEDED BUT AT LEAST ONCE EVERY THREE YEARS.
- DO NOT FLUSH BULKY ITEMS SUCH AS DIAPERS, SANITARY PADS OR BABY WIPES.
- DO NOT FLUSH TOXIC CHEMICALS SUCH AS PAINT THINNERS, DRANO, PESTICIDES, OR CHLORINE, AS THEY MAY KILL THE NECESSARY BACTERIA IN THE SEPTIC TANK.
- REPAIR LEAKING FIXTURES IN THE BUILDING PROMPTLY.
- BE CONSERVATIVE WITH WATER USE, SPREAD OUT USE OVER TIME, AND USE WATER-REDUCING FIXTURES WHENEVER AND WHEREVER POSSIBLE. TOO MUCH USE IN A SHORT TIME CAN OVERLOAD THE SYSTEM, WHICH MAY LEAD TO FAILURE.
- MOW YOUR LEACHING AREA REGULARLY. PREVENT DEEP-ROOTED TREES AND SHRUBS FROM GROWING ON AND ADJACENT TO YOUR LEACHING AREA.
- NO VEHICULAR TRAVEL, LIVESTOCK TRAVEL, OR SNOW REMOVAL IN AREA OF SYSTEM, UNLESS SPECIFICALLY DESIGNED FOR H20 LOADING.



BY-PASS VENTING W/ EFFLUENT FILTER

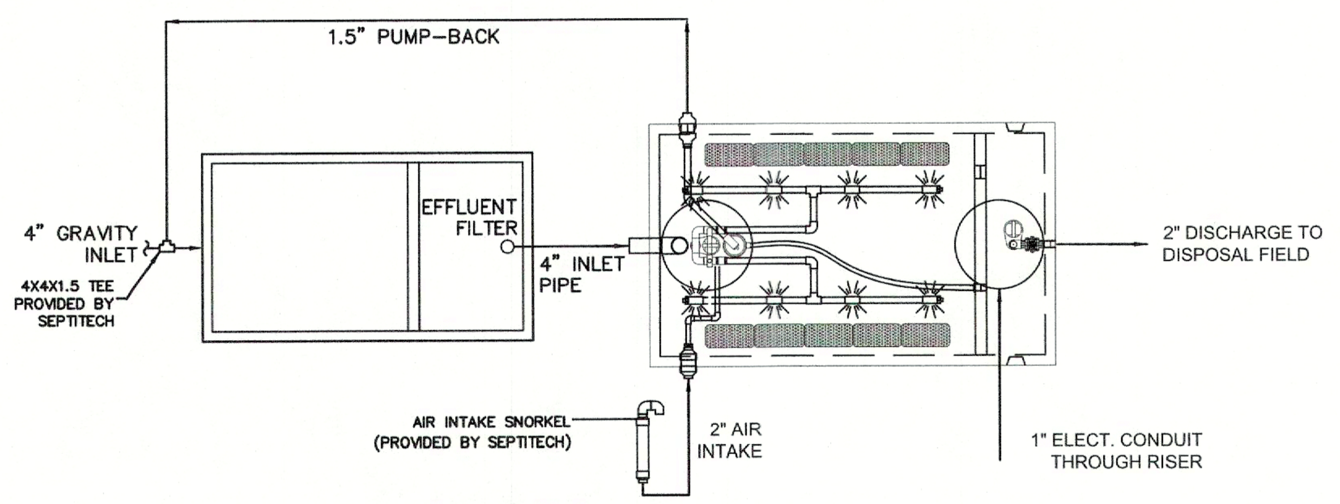
NOT TO SCALE



SECTION VIEW

INSPECTION PORT DETAIL

NOT TO SCALE



NOTE: SEPTI-TECH PLAN VIEW

- CONTRACTOR IS RESPONSIBLE FOR PURCHASE AND INSTALLATION OF BOTH TANKS ON THE LOT. SEPTITECH WILL INSTALL THE EQUIPMENT AFTER THE TANK IS INSTALLED IN GROUND
- ALL PUMP SPECIFICATIONS AND MODELS TO BE SUPPLIED BY SEPTITECH
- SEPTITECH MODEL STAAR 18.0 COMMERCIAL SYSTEM REQUIRES A DISCHARGE PUMP UPGRADE THAT IS TO BE DETERMINED BY SEPTITECH.

Dig Safe Systems, Inc.
It's Smart. It's Easy. It's the Law.
1-888-DIG-SAFE
digsafe.com

PROJECT PARCEL	
TOWN OF RAYMOND	- CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SEPTIC PLAN FROM THE NHDES APPROVED PLAN
TAX MAP 23, LOT 25	- THE BUILDER/SITE CONTRACTOR IS RESPONSIBLE TO CONFIRM THE ZONING DIMENSIONAL REQUIREMENTS AND SETBACK LINE REQUIREMENTS PRIOR TO INITIATING CONSTRUCTION OF THE PROPOSED HOUSE AND SEPTIC SYSTEM. THE ZONING ORDINANCE OF THE MUNICIPALITY IS TO BE COMPLIED WITH. THE BUILDER/SITE CONTRACTOR IS ALSO RESPONSIBLE TO CONTACT THE MUNICIPALITY REGARDING INSPECTIONS PRIOR TO AND DURING CONSTRUCTION, I.E. LOCATION AND BED-BOTTOM INSPECTIONS.
R.C.R.D. BK. 1559 PG. 263	
TOTAL LOT AREA: 75.11 ACRES	

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

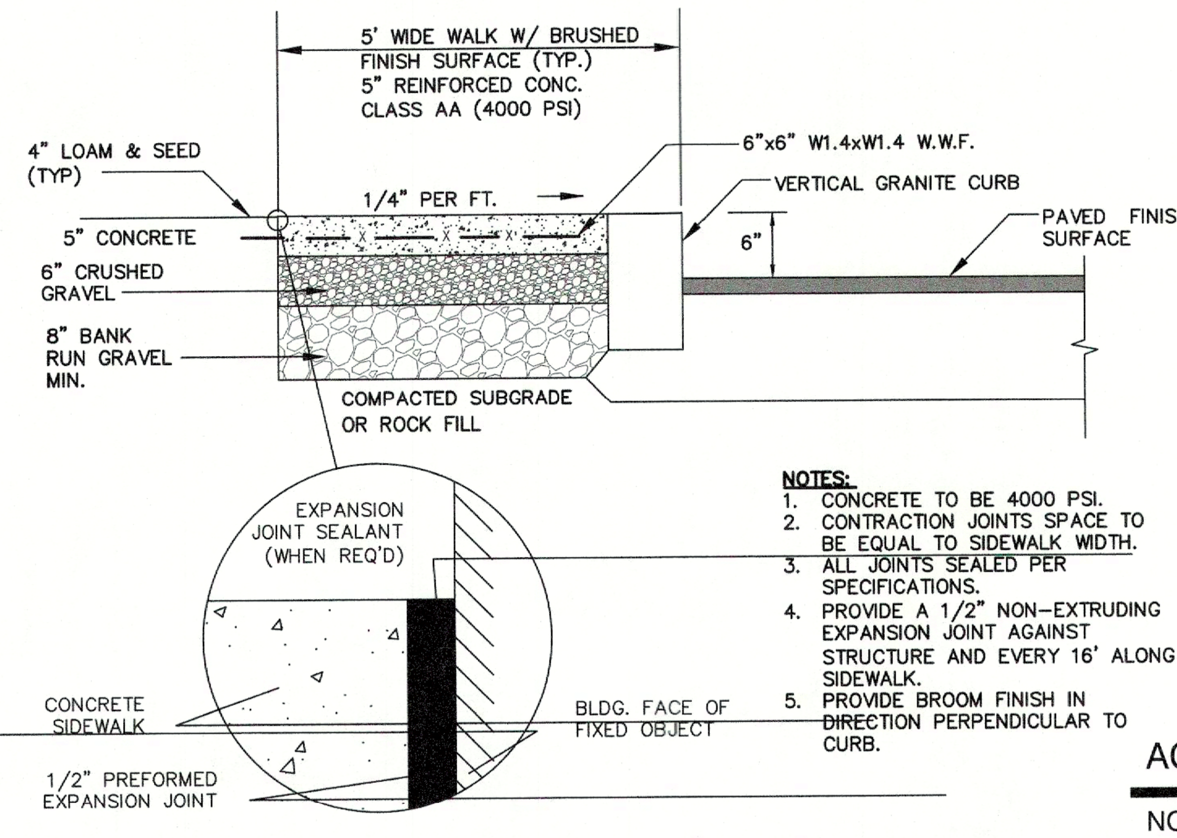
STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER
8/7/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EFFLUENT DISPOSAL DESIGN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

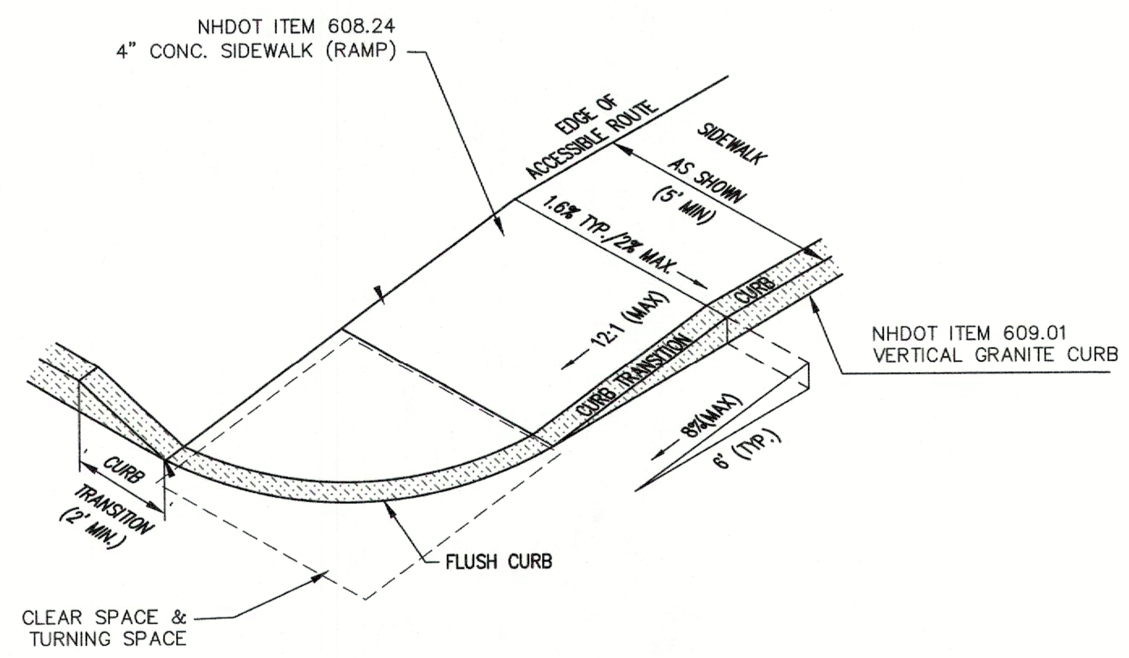
DRAWING No.
S6
SHEET 39 OF 61
JBE PROJECT NO. 20564



NOTES:
1. CONCRETE TO BE 4000 PSI.
2. CONTRACTION JOINTS SPACE TO BE EQUAL TO SIDEWALK WIDTH.
3. ALL JOINTS SEALED PER SPECIFICATIONS.
4. PROVIDE A 1/2" NON-EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
5. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

CONCRETE SIDEWALK W/ VERTICAL GRANITE CURB

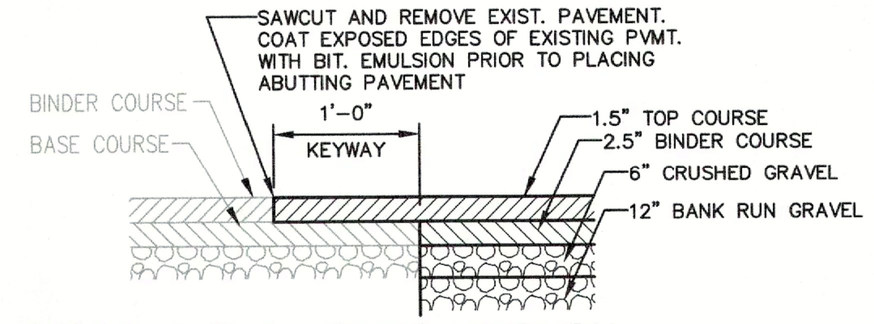
NOT TO SCALE



NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8.3%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.
8. WHERE A CHANGE IN DIRECTION IS REQUIRED TO UTILIZE A CURB RAMP, A TURNING SPACE SHALL BE PROVIDED AT THE BASE AND/OR THE TOP OF THE CURB RAMP. TURNING SPACES SHALL BE PERMITTED TO OVERLAP CLEAR SPACES.
9. TURNING SPACE MAXIMUM CROSS SLOPE IS 2% IN ANY DIRECTION.
10. BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE OF 4'X4' MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN CROSSWALK, AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. THE CLEAR SPACE MAY OVERLAP TURNING SPACES, DETECTABLE WARNING SURFACES AND DROP CURBS.
11. NO DETECTABLE WARNING DEVICE REQUIRED FOR THIS PARTICULAR APPLICATION.

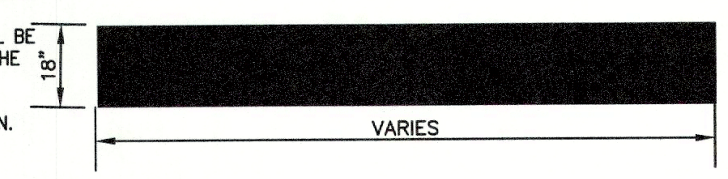
ACCESSIBLE CURB RAMP (NHDOT TYPE 1 WITHOUT DETECTABLE WARNING DEVICE)

NOT TO SCALE



KEYWAY DETAIL FOR CONNECTION TO EXISTING PAVEMENT

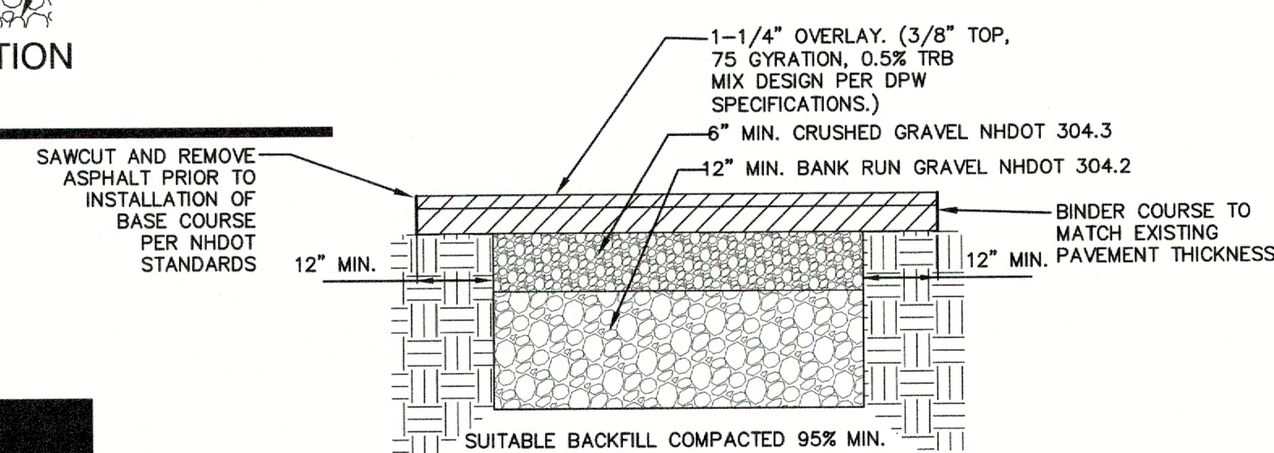
NOT TO SCALE



NOTES:
1. ALL STOP BARS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.

STOP BAR

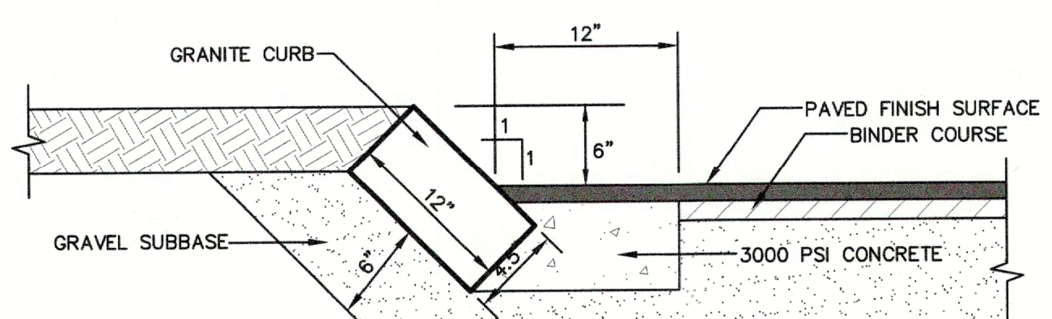
NOT TO SCALE



1. AFTER PROPER BACKFILLING AND COMPACTION, ADJACENT PAVEMENT MUST BE "SAW CUT" (STRAIGHT CUTS) A MINIMUM OF ONE FOOT (1') AROUND THE PERIMETER OF THE EXCAVATION. PAVEMENT MUST BE REMOVED.
2. INSTALL BASE COURSE LEAVING A REVEAL FOR SURFACE COURSE.
3. INSTALL SURFACE COURSE OF ASPHALT PAVING.
4. APPLY EMULSION SEALANT AT PERIMETER OF JOINT OVERLAPPING BASE COURSE. INSTALL WEARING COURSE OF ASPHALT TO GRADE. APPLY LIGHT SAND TO ABSORB EXCESS JOINT SEALANT.
5. GRAVEL COMPACTIONS TO MEET 95% MINIMUM.
6. PAVEMENT REPAIRS IN SAGAMORE AVE. RIGHT OF WAY TO MEET NHDOT STANDARDS.
7. WHERE WORK IMPACTS SAGAMORE AVE. TRAVEL LANE, MILL AND INLAY FOR FULL WIDTH OF LANE MAY BE REQUIRED.

TYPICAL PAVEMENT REPAIR DETAIL

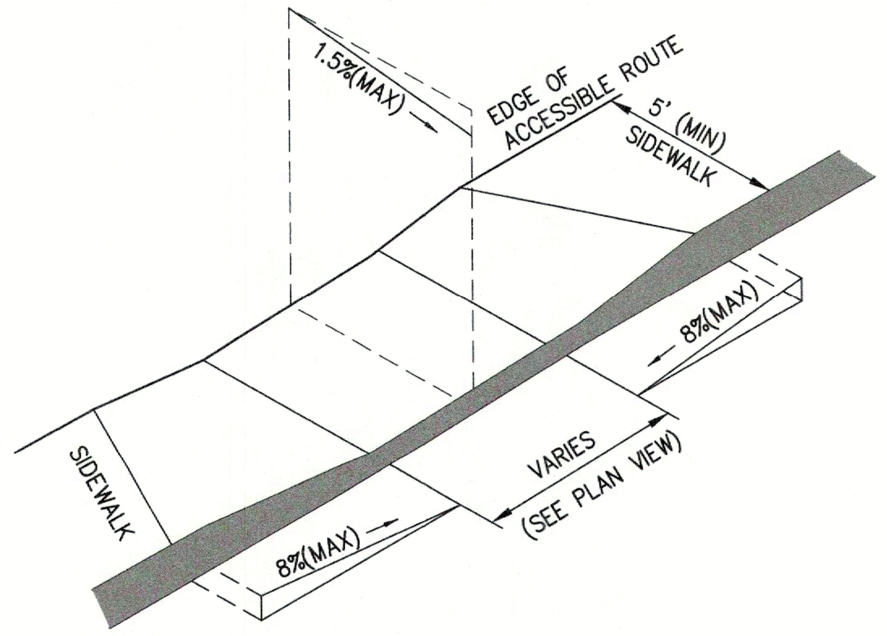
NOT TO SCALE



NOTES:
1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

SLOPED GRANITE CURB

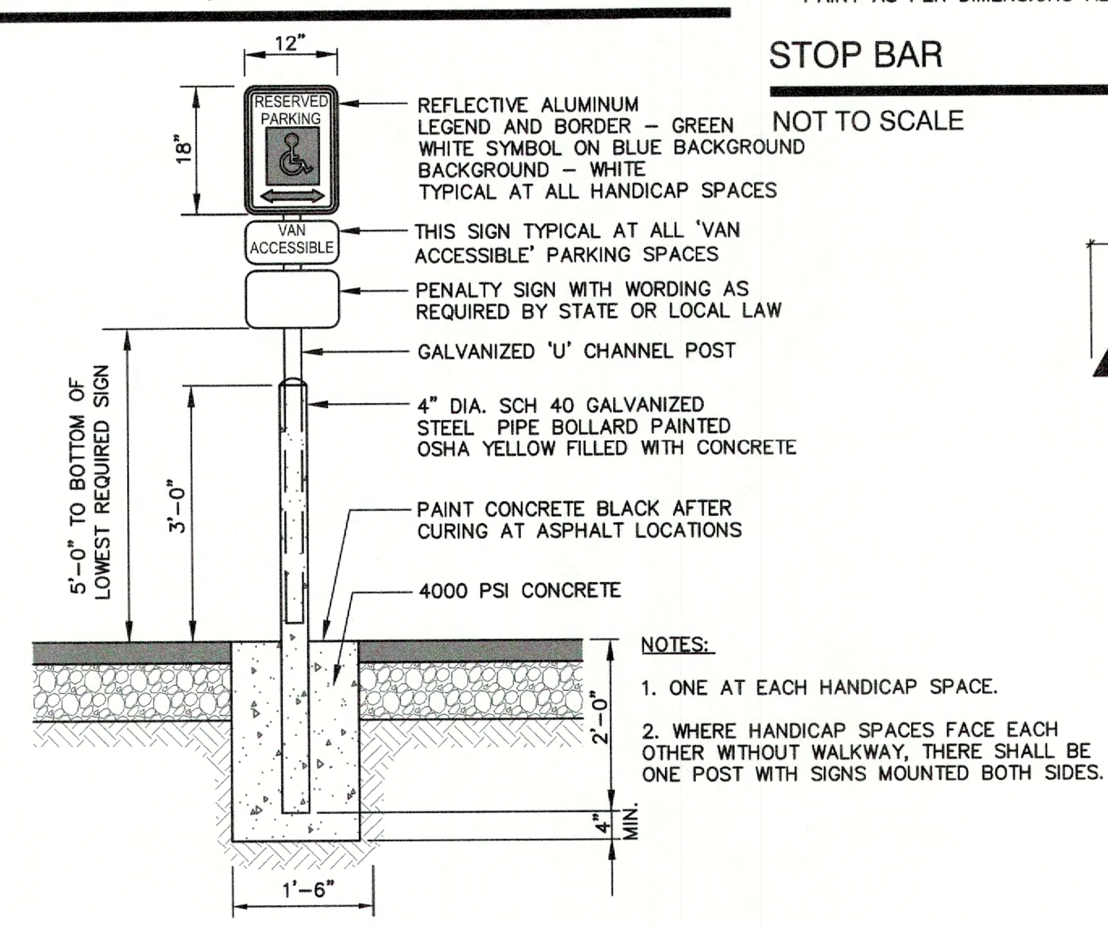
NOT TO SCALE



NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.

ACCESSIBLE CURB RAMP (TYPE `A')

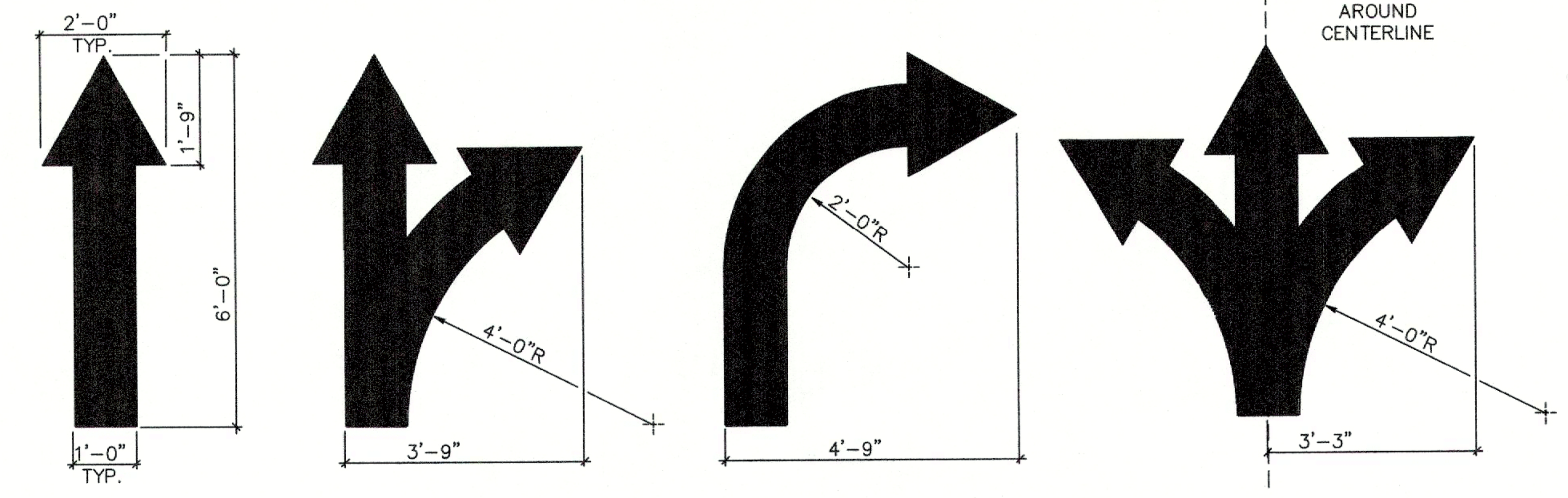
NOT TO SCALE



NOTES:
1. ONE AT EACH HANDICAP SPACE.
2. WHERE HANDICAP SPACES FACE EACH OTHER WITHOUT WALKWAY, THERE SHALL BE ONE POST WITH SIGNS MOUNTED BOTH SIDES.

HANDICAP PARKING SIGN (R7-8)

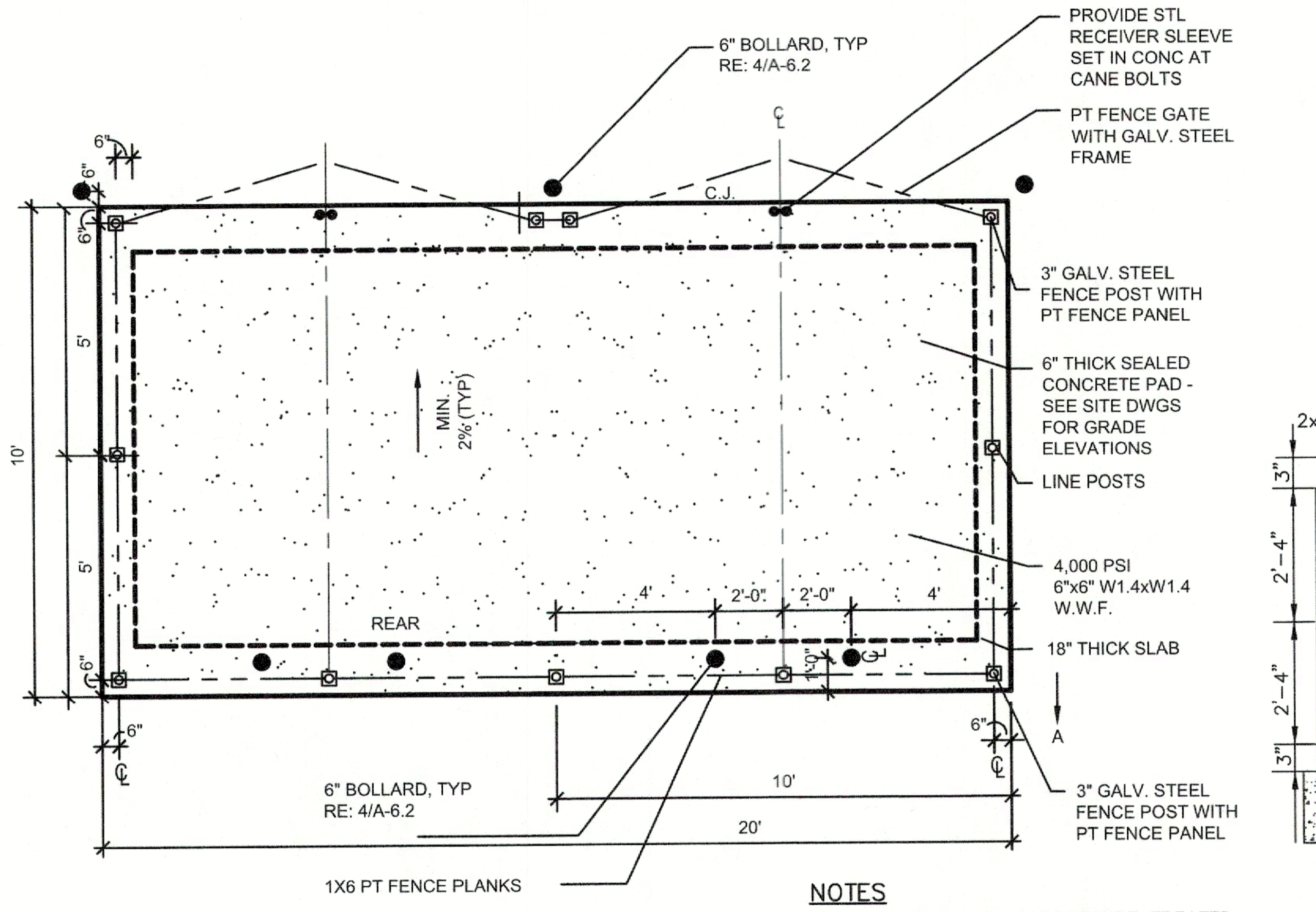
NOT TO SCALE



NOTES:
1. ALL FLOW ARROWS TO BE SOLID WHITE LATEX REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.
2. REVERSE ARROWS FOR OPPOSITE DIRECTION OF FLOW.

PAINTED TRAFFIC ARROWS

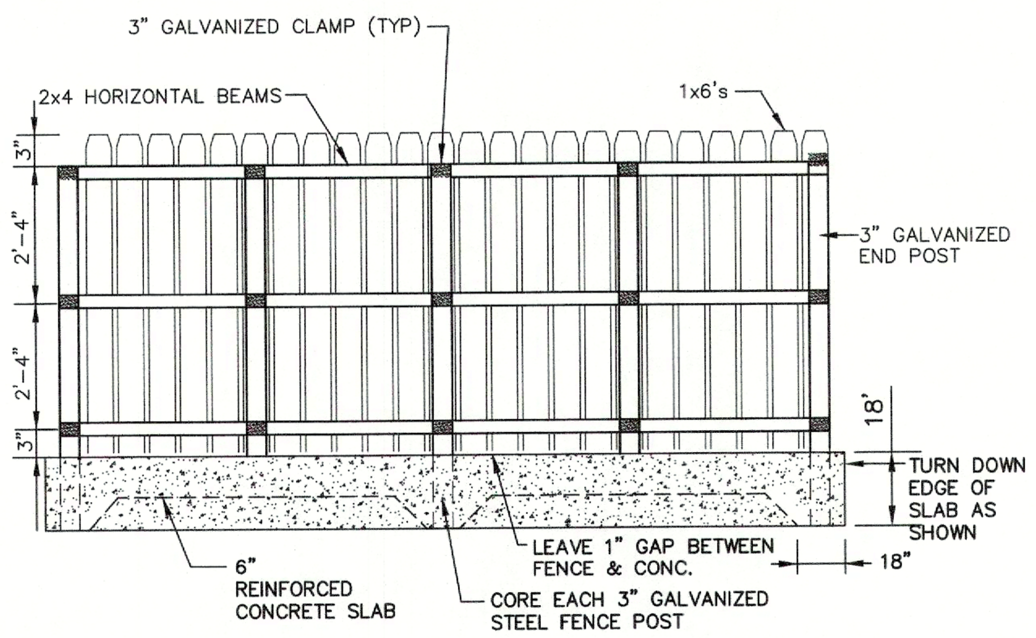
NOT TO SCALE



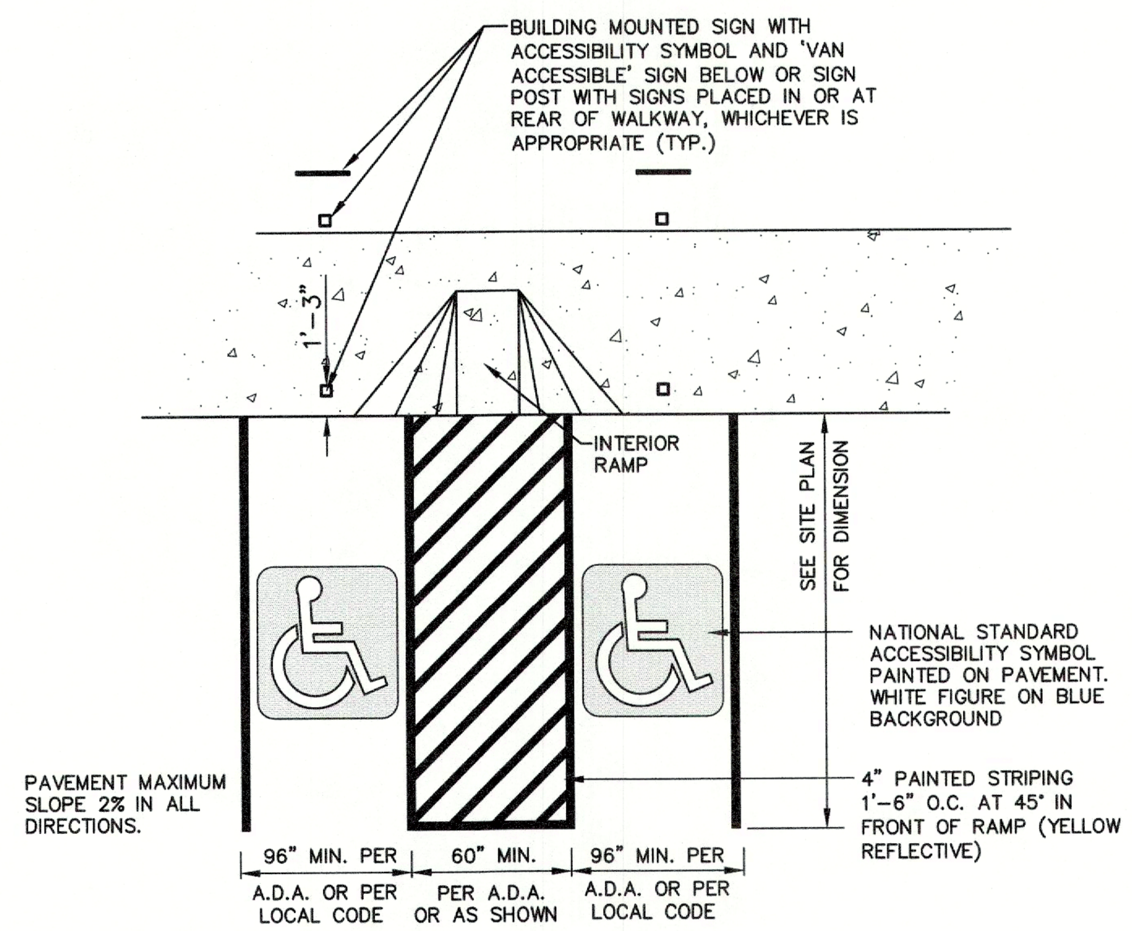
NOTES
1. ALL LUMBER TO BE PRESSURE TREATED.
2. WOOD FENCE TO BE PAINTED OR STAINED TO MATCH BUILDING FOUNDATION.
3. DUMPSTER SIZE VARIES, SEE SITE PLANS FOR SCREENING SIZE

DUMPSTER ENCLOSURE DOUBLE

NOT TO SCALE

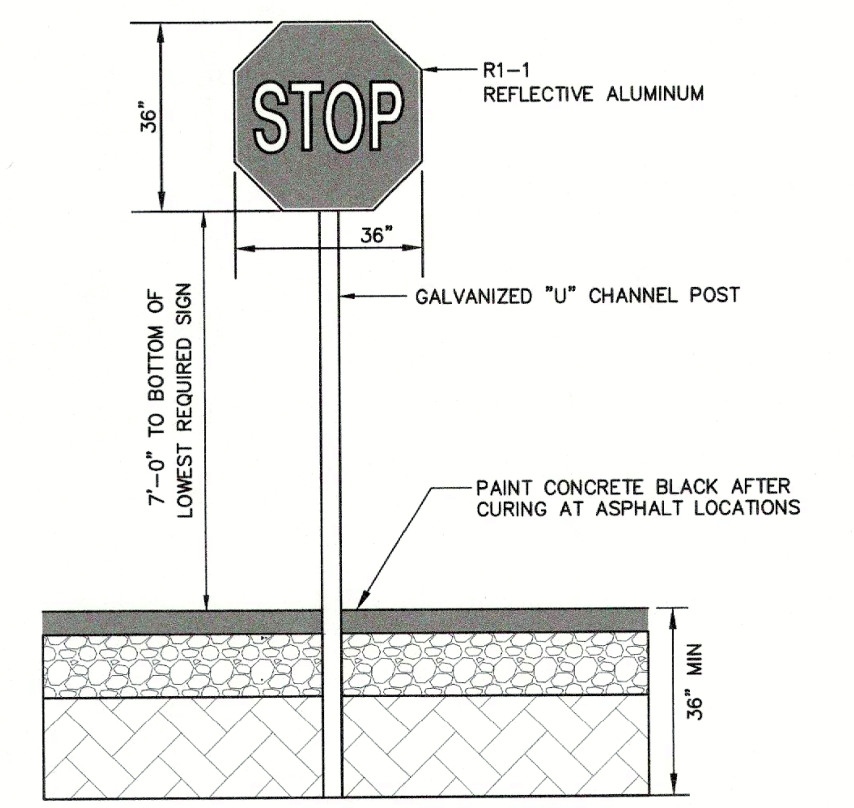


SECTION A-A



HANDICAP PARKING LAYOUT

NOT TO SCALE



STOP SIGN (R1-1)

NOT TO SCALE

NOTES:
1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO 2016 NHDOT STANDARD SPECIFICATION, SECTION 615 – TRAFFIC SIGNS.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
4. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE TOWN OF RAYMOND DEPARTMENT OF PUBLIC WORKS.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/23

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

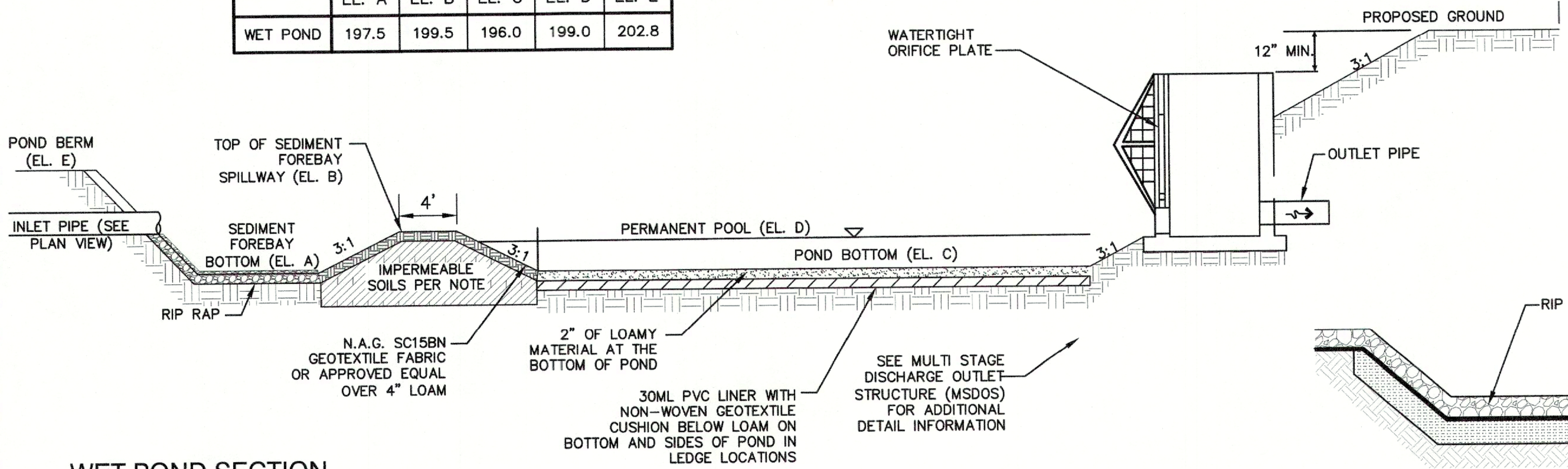
DRAWING No.

D1

SHEET 40 OF 61
JBE PROJECT NO. 20564

WET POND ELEVATIONS TABLE

	EL. A	EL. B	EL. C	EL. D	EL. E
WET POND	197.5	199.5	196.0	199.0	202.8

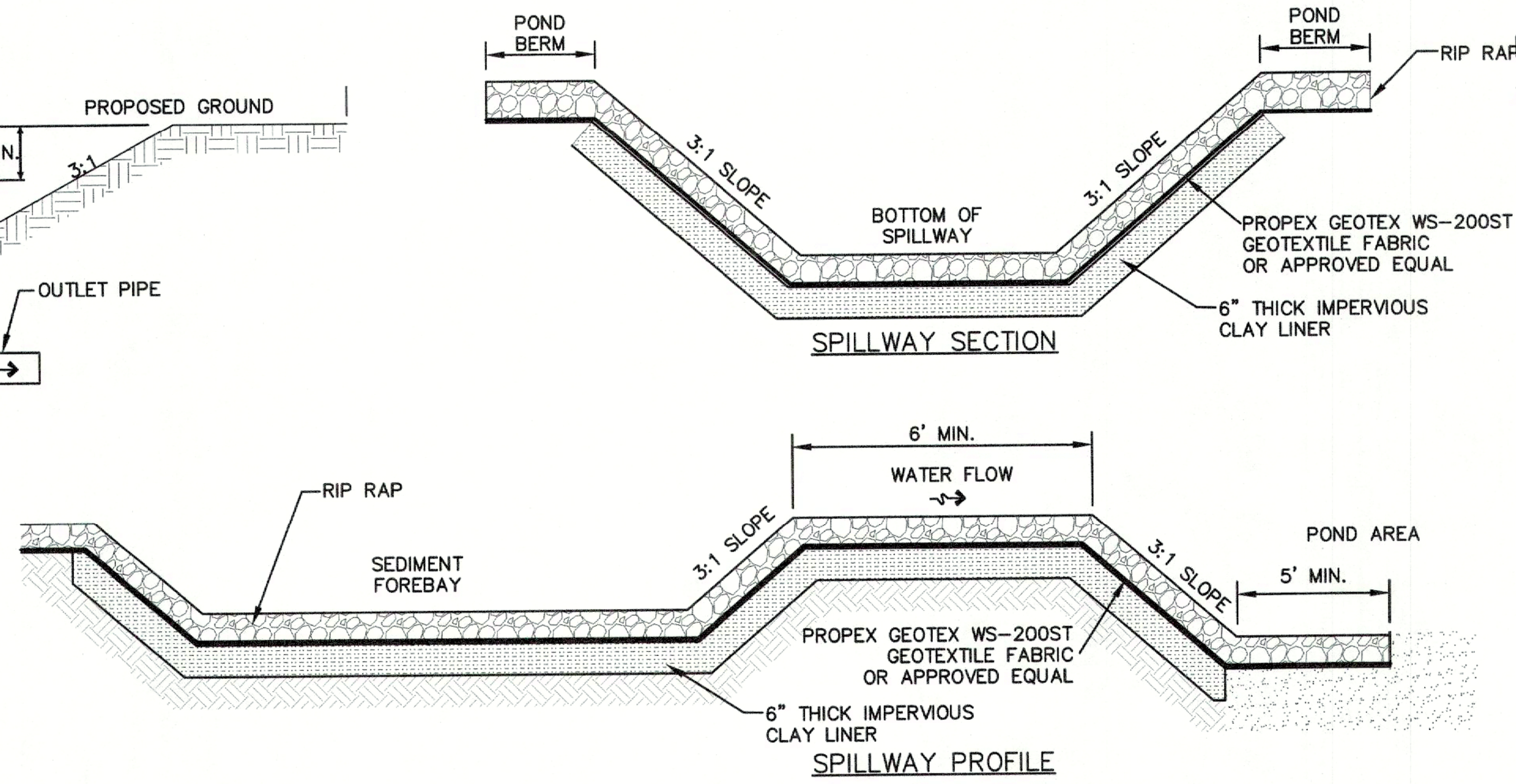


WET POND SECTION

NOT TO SCALE

WET POND CONSTRUCTION CRITERIA

1. FOUNDATION PREPARATION -- THE FOUNDATION AREA SHALL BE CLEARED OF TREES LOGS, STUMPS, ROOTS, BRUSH, BOULDERS, SOD, AND RUBBISH. IF NEEDED TO ESTABLISH VEGETATION, THE TOPSOIL AND SOD SHALL BE STOCKPILED AND SPREAD ON THE COMPLETED DAM AND SPILLWAYS. FOUNDATION SURFACES SHALL BE SLOPED NO STEEPER THAN 1:1. THE FOUNDATION AREA SHALL BE THOROUGHLY SCARIFIED BEFORE PLACEMENT OF THE MATERIAL. THE SURFACE SHALL HAVE MOISTURE ADDED OR IT SHALL BE COMPACTED, IF NECESSARY, SO THAT THE FIRST LAYER OF FILL MATERIAL CAN BE COMPACTED AND BONDED TO THE FOUNDATIONS. THE CUTOFF TRENCH AND ANY OTHER REQUIRED EXCAVATIONS SHALL BE DUG TO THE LINES AND GRADES SHOWN ON THE PLANS OR AS STAKED IN THE FIELD. IF THEY ARE SUITABLE, EXCAVATED MATERIALS SHALL BE USED IN THE PERMANENT FILL. EXISTING STREAM CHANNELS IN THE FOUNDATION AREA SHALL BE SLOPED NO STEEPER THAN 1:1 AND DEEPENED AND WIDENED AS NECESSARY TO REMOVE ALL STONES, GRAVEL, SAND, STUMPS, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND TO ACCOMMODATE COMPACTION EQUIPMENT. FILL PLACEMENT -- THE MATERIAL PLACED IN THE FILL SHALL BE FREE OF DETRIMENTAL AMOUNTS OF SOD, ROOTS, FROZEN SOIL, STONES MORE THAN 6 INCHES IN DIAMETER (EXCEPT FOR ROCK FILLS), AND OTHER OBJECTIONABLE MATTER.
2. SELECTED BACK FILL MATERIAL SHALL BE PLACED AROUND STRUCTURES, PIPE CONDUITS AND ANTI SEEP COLLARS AT ABOUT THE SAME RATE ON ALL SIDES, TO PREVENT DAMAGE FROM UNEQUAL LOADING. THE PLACING AND SPREADING OF FILL MATERIAL SHALL BE STARTED AT THE LOWEST POINT OF THE FOUNDATION AND THE FILL BROUGHT UP IN HORIZONTAL LAYERS OF SUCH THICKNESS THAT THE REQUIRED COMPACTION CAN BE OBTAINED. THE FILL SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS EXCEPT WHERE OPENINGS OR SECTIONALIZED FILLS ARE REQUIRED. IN THOSE CASES, THE SLOPE OF THE BONDING SURFACES BETWEEN THE EMBANKMENT IN PLACE AND THE EMBANKMENT TO BE PLACED SHALL NOT BE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL. THE BONDING SURFACE SHALL BE TREATED THE SAME AS THAT SPECIFIED FOR THE FOUNDATION SO AS TO INSURE A GOOD BOND WITH THE NEW FILL. THE DISTRIBUTION AND GRADATION OF MATERIALS SHALL BE SUCH THAT NO LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFER SUBSTANTIALLY IN TEXTURE OF GRADATION FROM THE SURROUNDING MATERIAL. IF IT IS NECESSARY TO USE MATERIALS OF VARYING TEXTURE AND GRADATION, THE MORE IMPERVIOUS MATERIAL SHALL BE PLACED IN THE CENTER AND UPSTREAM PARTS OF THE FILL. IF ZONED FILLS OF SUBSTANTIALLY DIFFERING MATERIALS ARE SPECIFIED, THE ZONES SHALL BE PLACED ACCORDING TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. THE COMPLETE WORK SHALL CONFORM TO THE LINES, GRADES, AND ELEVATIONS SHOWN ON THE DRAWINGS OR AS STAKED IN THE FIELD.
3. MOISTURE CONTROL -- THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADEQUATE FOR OBTAINING THE REQUIRED COMPACTION. MATERIAL THAT IS TOO WET SHALL BE DRIED TO MEET THIS REQUIREMENT, AND MATERIAL THAT IS TOO DRY SHALL HAVE WATER ADDED AND MIXED UNTIL THE REQUIREMENT IS MET.
4. COMPACTION -- CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER THE AREAS OR EACH LAYER OF FILL TO ENSURE THAT THE REQUIRED COMPACTION IS OBTAINED. SPECIAL EQUIPMENT SHALL BE USED IF NEEDED TO OBTAIN THE REQUIRED COMPACTION. IF A MINIMUM REQUIRED DENSITY IS SPECIFIED, EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY. FILL ADJACENT TO STRUCTURES, PIPE CONDUITS, AND ANTI SEEP COLLARS SHALL BE COMPACTED TO A DENSITY EQUIVALENT TO THAT OF THE SURROUNDING FILL BY MEANS OF HAND TAMPING OR MANUALLY DIRECTED POWER TAMPER OR PLATE VIBRATORS. FILL ADJACENT TO CONCRETE STRUCTURES SHALL NOT BE COMPACTED UNTIL THE CONCRETE IS STRONG ENOUGH TO SUPPORT THE LOAD.
5. PROTECTION -- A PROTECTIVE COVER OF VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, AND BORROW AREA IF SOIL AND CLIMATIC CONDITIONS PERMIT. IF SOIL OR CLIMATIC CONDITIONS PRECLUDE THE USE OF VEGETATION AND PROTECTION IS NEEDED, NON-VEGETATIVE MEANS SUCH AS MULCHES OR GRAVEL MAY BE USED. IN SOME PLACES, TEMPORARY VEGETATION MAY BE USED UNTIL CONDITIONS PERMIT ESTABLISHMENT OF PERMANENT VEGETATION. THE EMBANKMENT AND SPILLWAY SHALL BE FENCED IF NECESSARY TO PROTECT THE VEGETATION.
6. SEEDBED PREPARATION, SEEDING, FERTILIZING, AND MULCHING SHALL COMPLY WITH THE APPROPRIATE VEGETATIVE BMPS.
7. CONCRETE -- THE MIX DESIGN AND TESTING OF CONCRETE SHALL BE CONSISTENT WITH THE STRENGTH REQUIREMENTS OF THE JOB. MIX REQUIREMENTS OR NECESSARY STRENGTH SHALL BE SPECIFIED. THE TYPE OF CEMENT, AIR ENTRAPMENT, SLUMP, AGGREGATE, OR OTHER PROPERTIES SHALL BE SPECIFIED IF NECESSARY. ALL CONCRETE IS TO CONSIST OF A WORKABLE MIX THAT CAN BE PLACED AND FINISHED IN AN ACCEPTABLE MANNER. NECESSARY CURING SHALL BE SPECIFIED. REINFORCING STEEL SHALL BE PLACED AS INDICATED ON THE PLANS AND SHALL BE HELD SECURELY IN PLACE DURING CONCRETE PLACEMENT. SUB GRADES AND FORMS SHALL BE INSTALLED TO LINE AND GRADE, AND THE FORMS SHALL BE MORTAR TIGHT AND UNYIELDING AS THE CONCRETE IS PLACED.
8. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT POND SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVIDERS.
9. CONSTRUCTION OF THE WET PONDS WILL REQUIRE SIGNIFICANT LEDGE EXCAVATION. LEDGE SHALL BE REMOVED CAREFULLY AND SHALL BE REMOVED TO A DEPTH OF 3" BELOW THE BOTTOM OF THE POND. AN IMPERMEABLE LINER SHALL BE PLACED AS SPECIFIED IN LEDGE LOCATIONS IN ORDER TO PREVENT CONTACT BETWEEN LEDGE AND THE PERMANENT POOL, WHICH WOULD IMPEDE THE INTENDED FUNCTIONING OF THE SYSTEM.

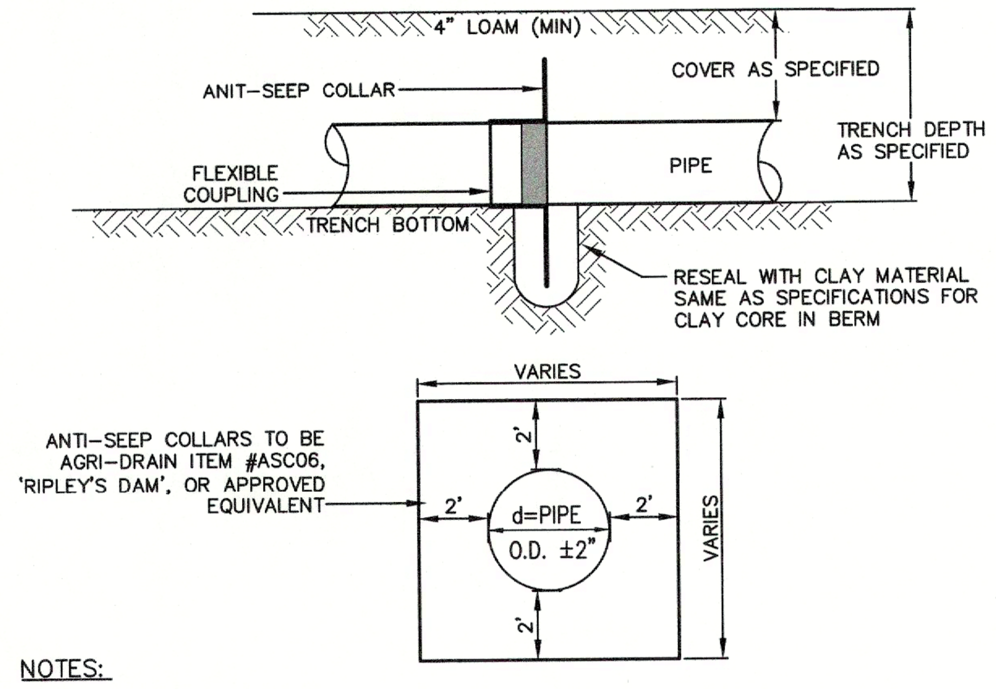


NOTES:

1. A 6" THICK IMPERVIOUS CLAY LINER IS TO BE PLACED UNDER ENTIRE SEDIMENT FOREBAY AND SPILLWAY.
2. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
3. 6" THICK IMPERVIOUS CLAY LINER MATERIAL SHALL BE CLEAN SILTY-CLAY BORROW FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER THREE INCHES (3") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100%, #4 SIEVE 95-100%, #40 SIEVE 60-90%, #100 SIEVE 40-60%, #200 SIEVE 25-45% (OF THE FRACTION PASSING THE #4 SIEVE). THE CLAY COMPONENT SHALL HAVE A PLASTICITY INDEX OF AT LEAST 8 AND A HYDRAULIC CONDUCTIVITY OF 10 TO THE -6 CM/SEC.
4. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

SEDIMENT FOREBAY SPILLWAY

NOT TO SCALE

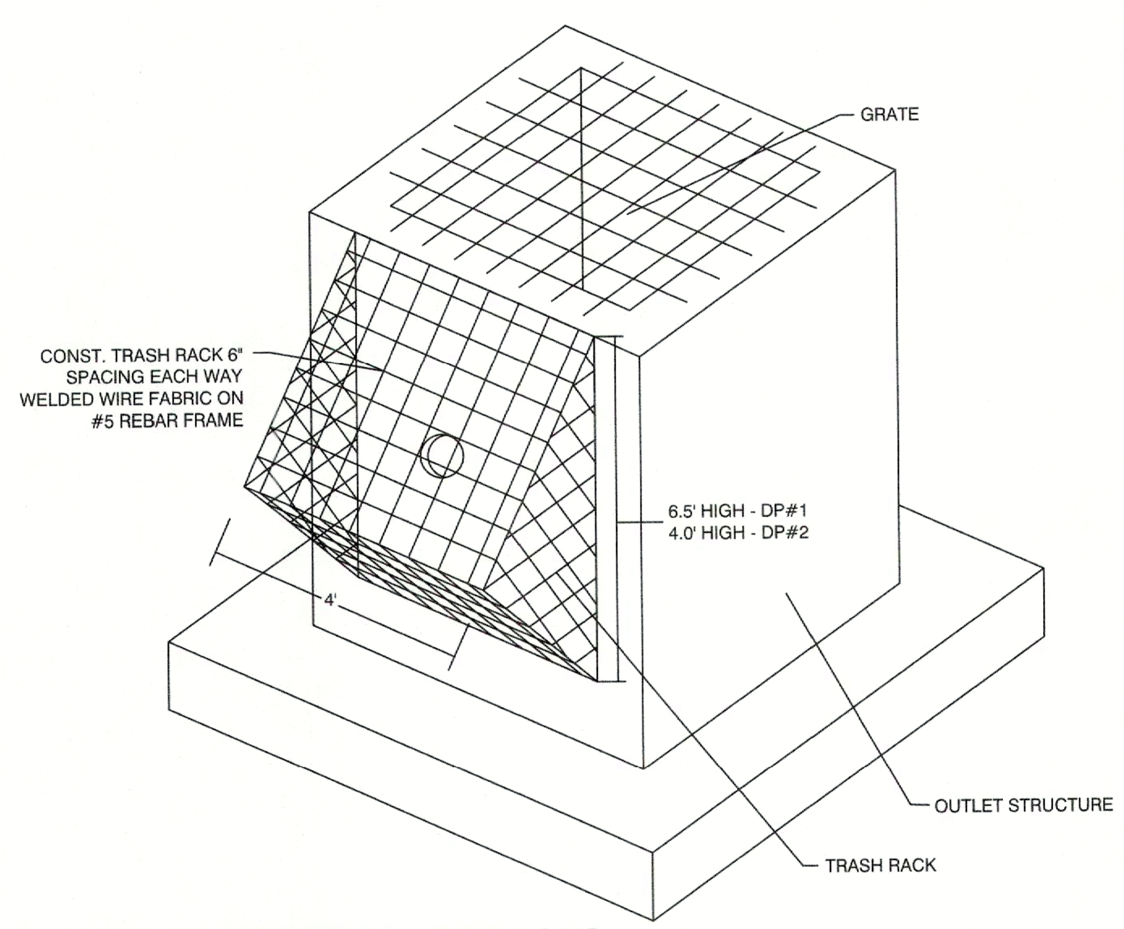


NOTES:

1. CONTRACTOR SHALL INSTALL COLLAR(S) PER MANUFACTURER'S SPECIFICATIONS.
2. CONTRACTOR SHALL ENSURE A WATERTIGHT SEAL BETWEEN THE COLLAR(S) AND PIPE(S).
3. ANTI-SEEP COLLARS SHALL BE PLACED ±15' AND ±25' DOWNSTREAM OF THE CULVERT INLETS, UNLESS OTHERWISE SPECIFIED. WHEN A CLAY CORE IS SPECIFIED, A COLLAR SHALL BE INSTALLED ON BOTH SIDES OF THE CORE.

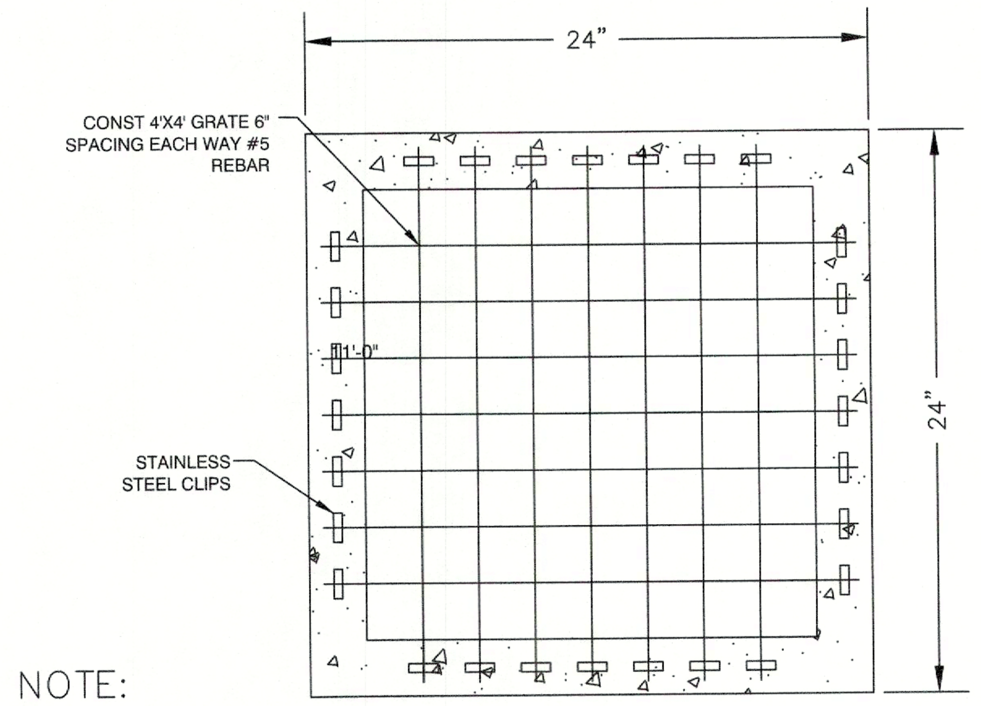
ANTI-SEEP COLLAR

NOT TO SCALE



TYPICAL INLET TRASH RACKS

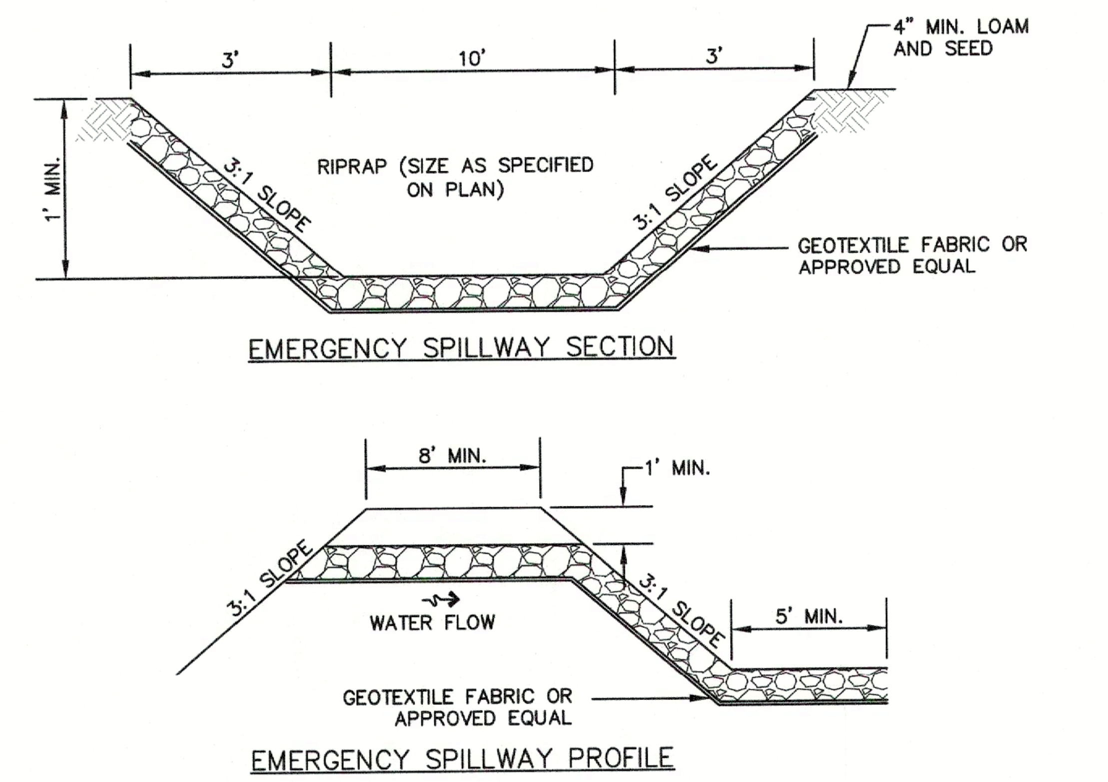
NOT TO SCALE



NOTE:

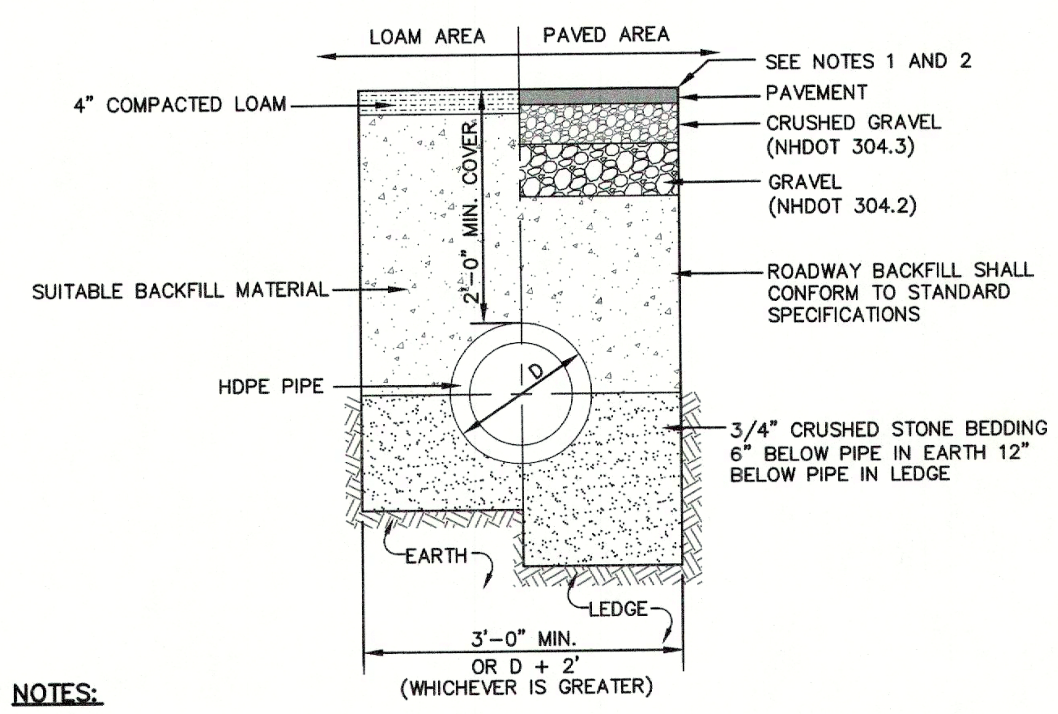
1) ALL OUTLET STRUCTURES SHALL BE PRE CAST WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EACH STRUCTURE FOR REVIEW BY THE TOWN.

GRATE



EMERGENCY SPILLWAY

NOT TO SCALE

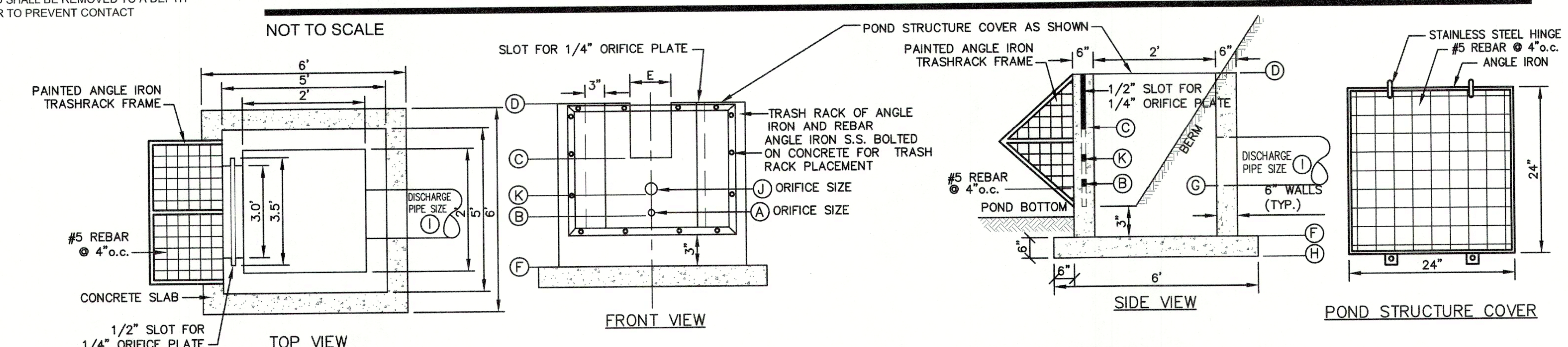


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE



APPROXIMATE LIST OF MATERIALS

1. 3 C.Y. - 5000 PSI CONCRETE
2. 15 ANGLE IRONS @ 4' LENGTH
3. REQUIRED S.S. BOLTS AND FASTENERS
4. 1/4" STEEL PLATE WITH DRILLED ORIFICES
5. 1 C.Y. - CRUSHED STONE FOR BASE
6. 48 #5 REBARS @ 1', 2' AND 3' LENGTHS
7. 32 #4 REBARS @ 4.5' LENGTH

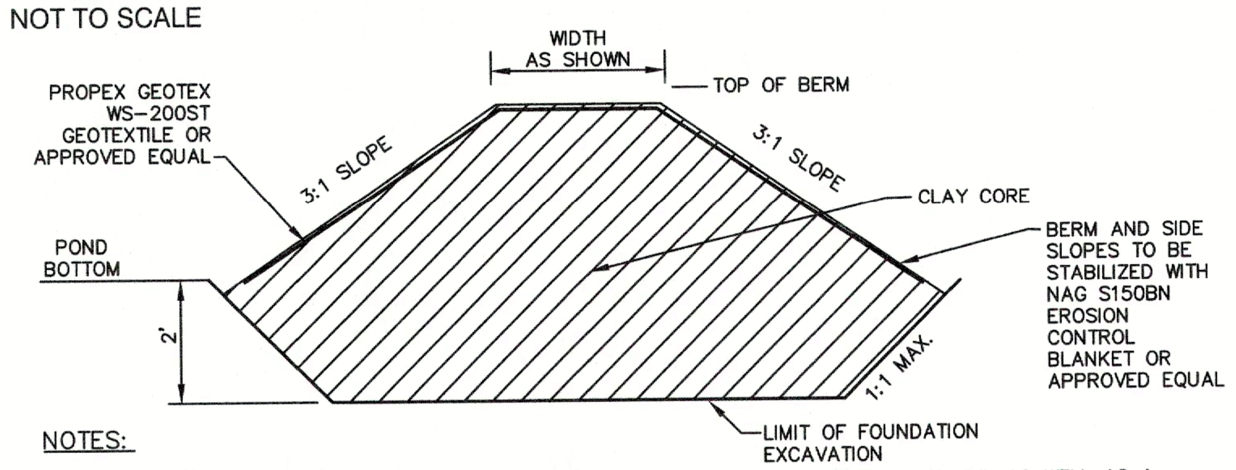
	A	B	C	D	E	F	G	H	I	J	K
MSDOS 1	2"	199.0	N/A	201.7	48"	198.83	199.0	198.33	12"	7.5"	199.85
MSDOS 2	6"	200.3	N/A	201.1	48"	199.93	200.1	199.43	10"	N/A	N/A

NOTES:

1. REINFORCING STEEL SHALL CONSIST OF A SINGLE LAYER OF HORIZONTAL AND VERTICAL PLACED #4 REBAR @ 12" O.C.
2. CONCRETE BOX TO BE CONSTRUCTED OR PRECAST OF EQUAL DIMENSIONS AND REINFORCING.
3. CONCRETE SLAB TO BE CONSTRUCTED ALONG WITH BASE. FOR PRECAST BOX, A SLOTTED CONCRETE SLAB TO BE USED.
4. SECTION JOINTS AND PIPE OPENING SHALL BE SEALED WATERTIGHT WITH MORTAR BY CONTRACTOR.
5. ALL EXPOSED REBAR TO BE PAINTED WITH RUST-RESISTANT PAINT, COLOR AT CONTRACTOR'S DISCRETION.
6. TO BE SUPPLIED BY CAPITAL CONCRETE PRODUCTS OF HENNIKER, N.H., (1-603-428-3218) OR EQUAL.
7. STRUCTURE TO HAVE TEMPORARY PLYWOOD INSTALLED IN THE ORIFICE PLATE SLOT UNTIL THE SITE IS STABLIZED.
8. STRUCTURE IS TO BE DESIGNED FOR H20 LOADING.
9. SOIL UNDERLYING THE STRUCTURE IS TO BE COMPACTED TO 95% MODIFIED PROCTOR.
10. TRASH RACK TO PROTECT ALL ORIFICES 6" OR LESS IN DIAMETER.

MULTI-STAGE DISCHARGE OUTLET STRUCTURE (MSDOS)

NOT TO SCALE



NOTES:

1. BERM SHALL BE CONSTRUCTED WITH A CLAY CORE TO BE KEYED INTO ORIGINAL GRADE, AS WELL AS A FINE GEOTEXTILE, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THE EARTHEN DIVIDER.
2. THE ENTIRE EMBANKMENT AREA OF EACH POND SHALL BE EXCAVATED A MINIMUM OF 2', STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 92% OF ASTM D-1557, AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3%, AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED FOR ANY REASON.
3. CLAY CORE MATERIAL SHALL BE CLEAN SILTY-CLAY BORROW FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER THREE INCHES (3") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100%, #4 SIEVE 95-100%, #40 SIEVE 60-90%, #100 SIEVE 40-60%, #200 SIEVE 25-45% (OF THE FRACTION PASSING THE #4 SIEVE). THE CLAY COMPONENT SHALL HAVE A PLASTICITY INDEX OF AT LEAST 8 AND A HYDRAULIC CONDUCTIVITY OF 10 TO THE -6 CM/SEC.
4. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

POND BERM WITH CLAY CORE

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

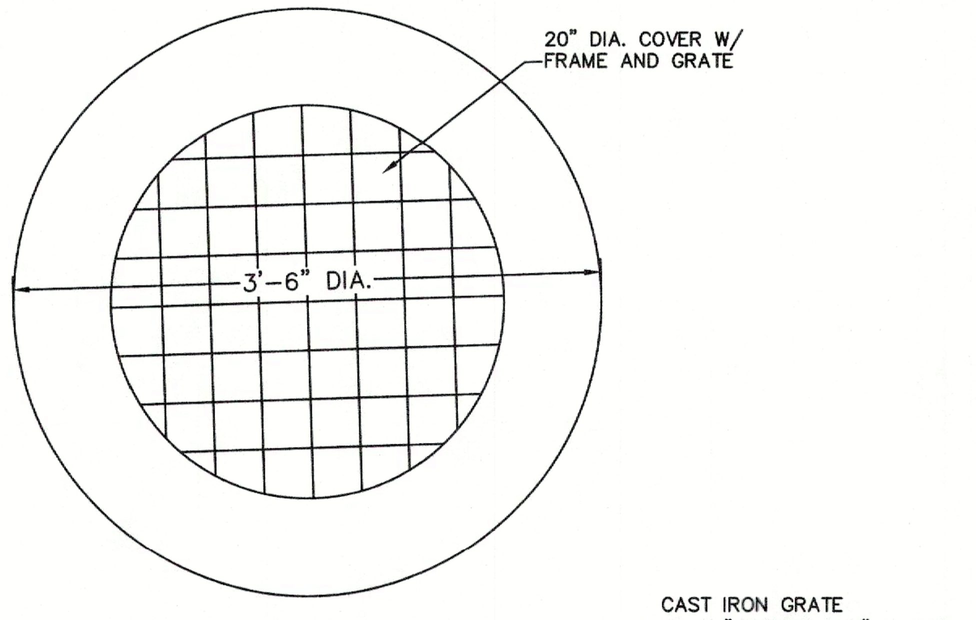
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

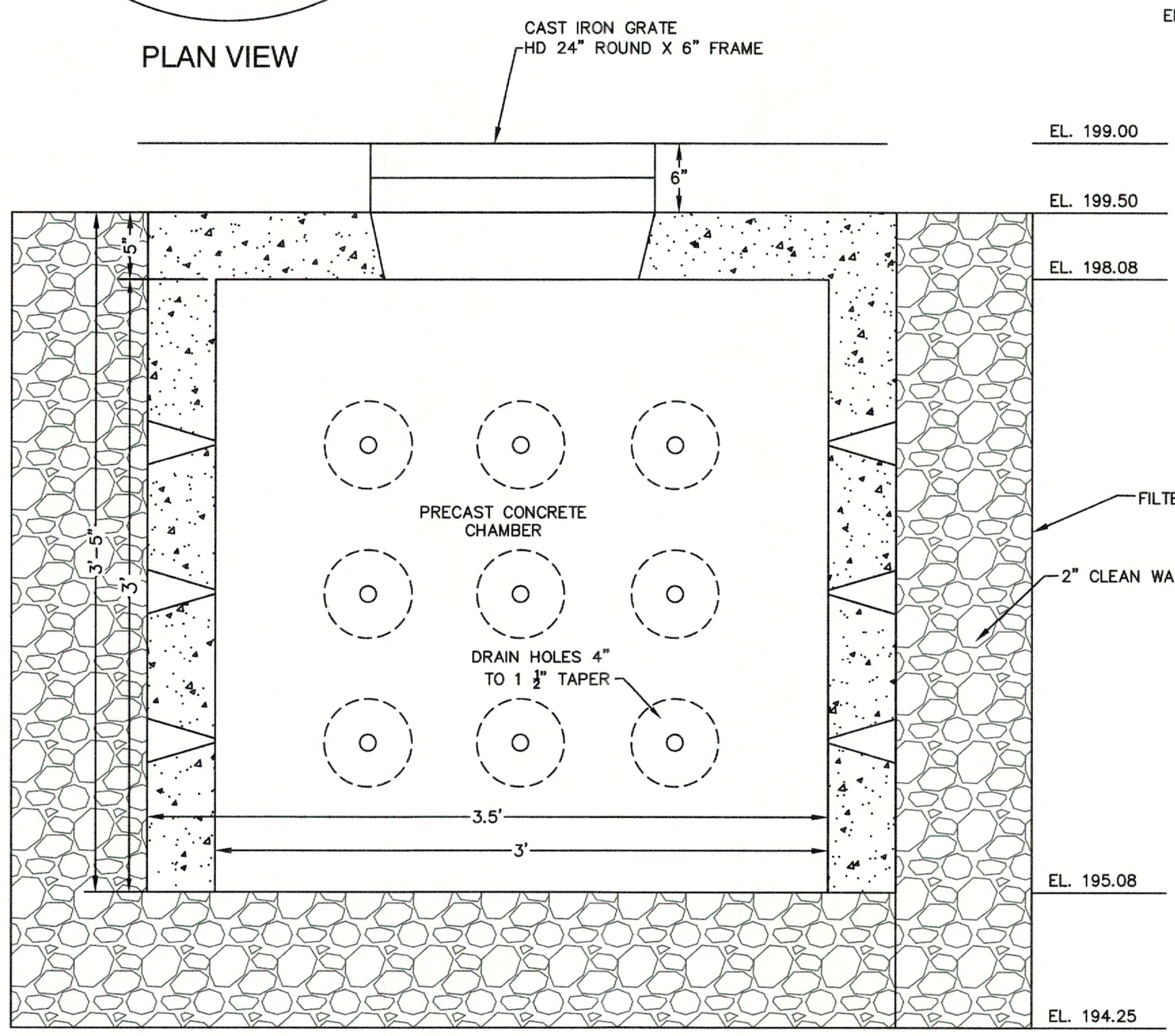
DRAWING No.

D2

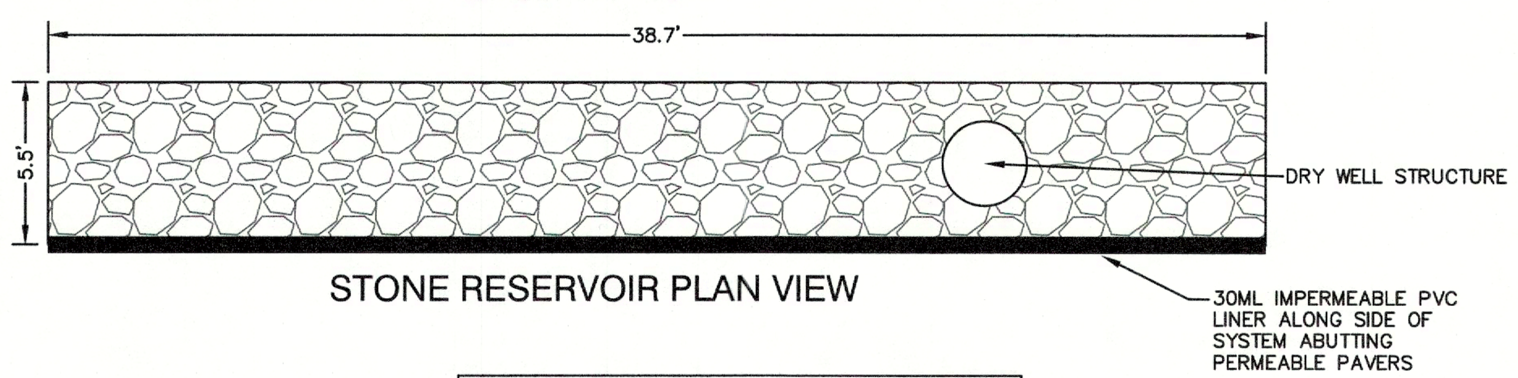
JBE PROJECT NO. 20564



PLAN VIEW



SECTION VIEW



STONE RESERVOIR PLAN VIEW

ITEM NO.		WEIGHT
MDWH	3' SECTION W/ COVER (ONE PIECE)	1,404#
MDWHNC	3' SECTION NO COVER	1,048#

NOTES:

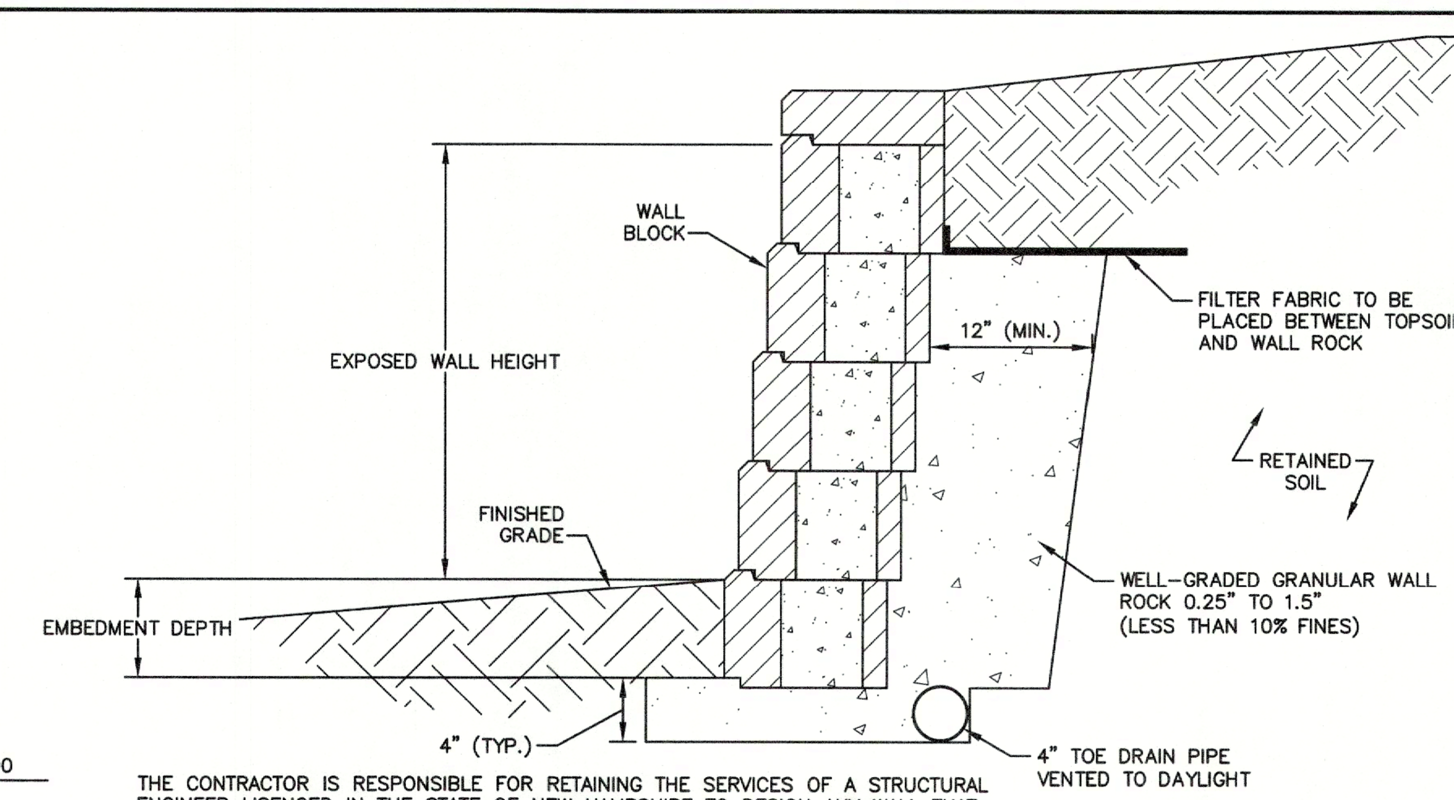
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. ALSO AVAILABLE IN AASHTO HS-20 LOADING.
3. CAPACITY INCREASES IN INCREMENTS OF 160 GALLONS FOR EACH 3' SECTION ADDED.
4. BEDROCK SHALL BE BLASTED TO AN ELEVATION OF AT LEAST 2' BELOW BOTTOM OF SYSTEM.
5. CONTRACTOR TO USE "SHEA CONCRETE MINI DRY WELL – 160 GALLONS" OR APPROVED EQUAL.

OPERATION AND MAINTIANANCE NOTES:

1. ANNUAL INSPECTIONS REQUIRED.
2. DRY WELLS ARE TO BE CLEANED IF THE DEPTH OF DEPOSITS IS GREATER THAN ONE-HALF THE DEPTH FROM THE BASIN BOTTOM TO THE INVERT OF THE LOWEST OPENING. DEBRIS OBSCURING THE GRATE INLET SHOULD ALSO BE REMOVED.
3. CLEAN THE INTERIOR OF THE STRUCTURE EITHER MANUALLY OR BY SPECIALLY DESIGNED EQUIPMENT INCLUDING, BUT NOT LIMITED TO, BUCKET LOADERS AND VACUUM PUMPS.
4. PERFORM A DETAILED CHEMICAL ANALYSIS TO DETERMINE IF THE MATERIALS MEET THE EPA CRITERIA FOR HAZARDOUS WASTE.
5. INSPECT INFILTRATION COMPONENTS AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE AND REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.

MINI DRY WELL - 160 GALLONS

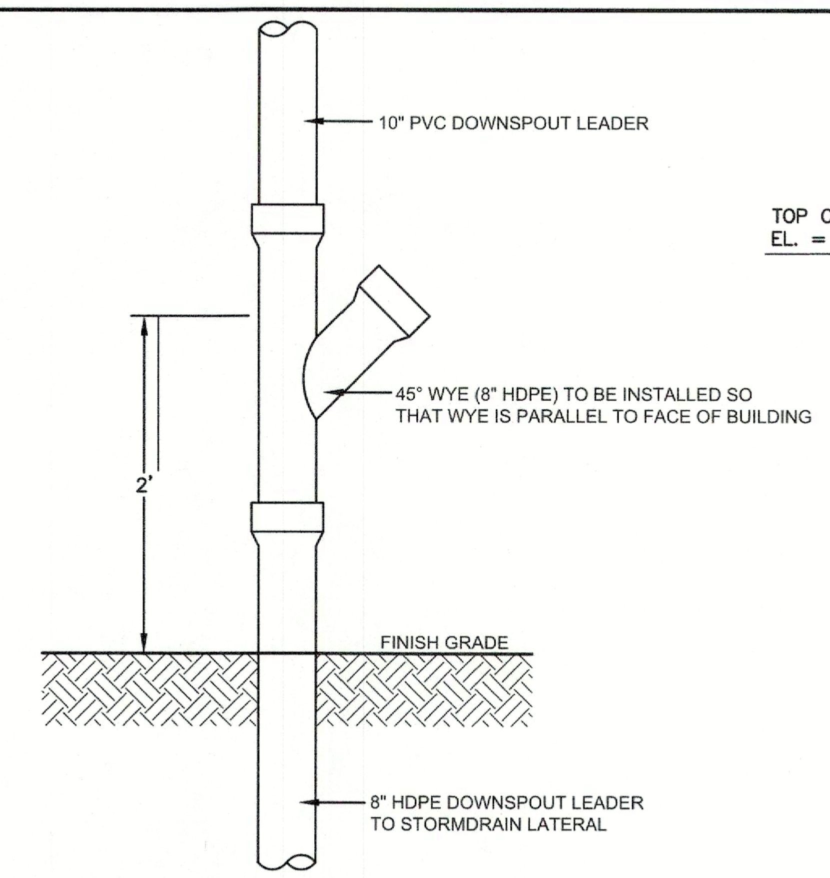
NOT TO SCALE



THE CONTRACTOR IS RESPONSIBLE FOR RETAINING THE SERVICES OF A STRUCTURAL ENGINEER LISENCED IN THE STATE OF NEW HAMPSHIRE TO DESIGN ANY WALL THAT HAS A HEIGHT OVER 4.0'. JONES & BEACH ENGINEERS, INC. DOES NOT ACCEPT ANY LIABILITY FOR THE STRUCTURAL DESIGN AND/OR INSTALLATION OF ANY RETAINING WALL OF ANY TYPE ABOVE THIS HEIGHT. THIS DETAIL IS INTENDED TO PROVIDE AN EXAMPLE OF THE RETAINING WALL FOR PLANNING PURPOSES ONLY AND IS SPECIFICALLY NOT INTENDED FOR USE BY THE CONTRACTOR IN ANY CONSTRUCTION-RELATED ACTIVITY FOR A WALL GREATER THAN 4.0' IN HEIGHT.

TYPICAL GRAVITY WALL DETAIL

NOT TO SCALE

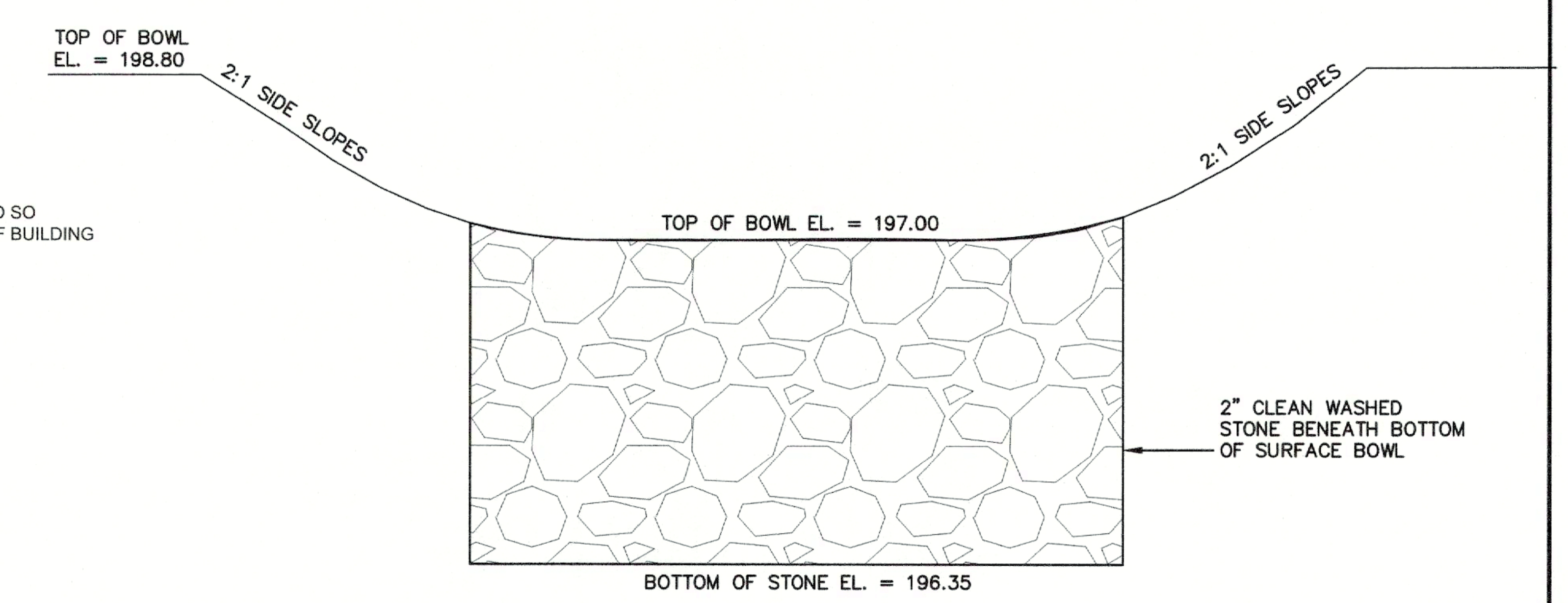


NOTE:

1. OVERFLOWS ARE TO BE INSTALLED ON EXTERIOR DOWNSPOUT LEADERS ONLY. ALL THREE BUILDINGS SHALL HAVE DOWNSPOUT OVERFLOWS.

DOWNSPOUT OVERFLOW

NOT TO SCALE



THE EXISTING NATIVE SUBGRADE MATERIAL SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE PLACEMENT. IF SOIL MEDIA OR SUBGRADE IS OVER COMPACTED, DISTURBED, OR CONTAMINATED BY FOREIGN OR DELETERIOUS MATERIALS OR LIQUIDS, REMOVE THE SOIL MEDIA AND CONTAMINATION; RESTORE THE SUBGRADE AS DIRECTED BY ENGINEER AND REPLACE CONTAMINATED SOIL MEDIA WITH NEW SOIL MEDIA.

INFILTRATION POCKET

NOT TO SCALE

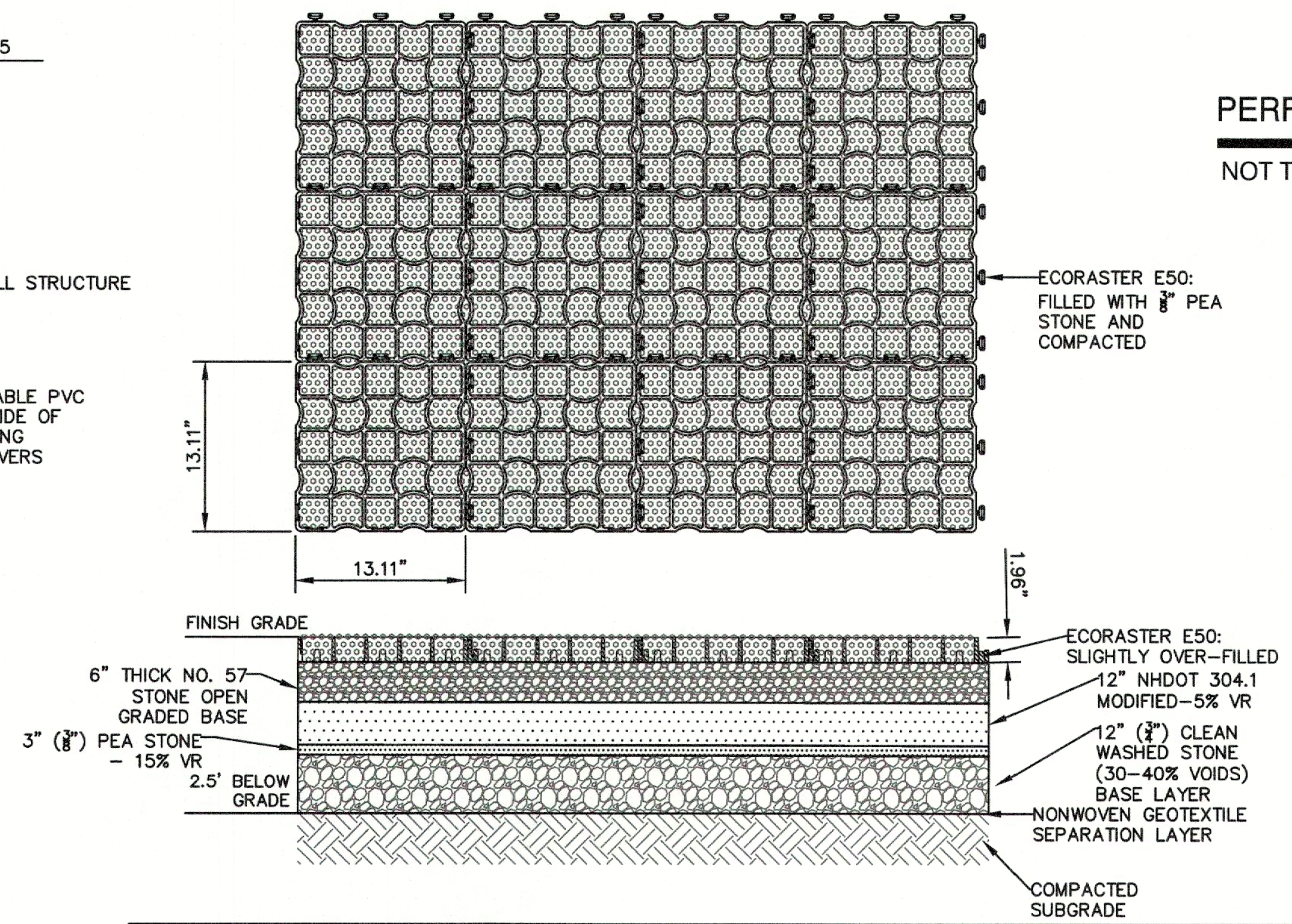
PERMEABLE ECO-RASTERS FOR STORM WATER MANAGEMENT

MAINTENANCE REQUIREMENTS:

PLOW WITH SLIGHTLY RAISED BLADE ONLY
SANDING OF SURFACE PROHIBITED
DEICING PERMITTED (NaCl, $MgCl_2$ OR EQUIVALENT)
SEAL-COATING PROHIBITED
CLEANING BY PRESSURIZED AIR OR WATER PROHIBITED
DRY VACUUM ANNUALLY

TYPICAL ECO-RASTER MAINTENANCE SIGN

NOT TO SCALE

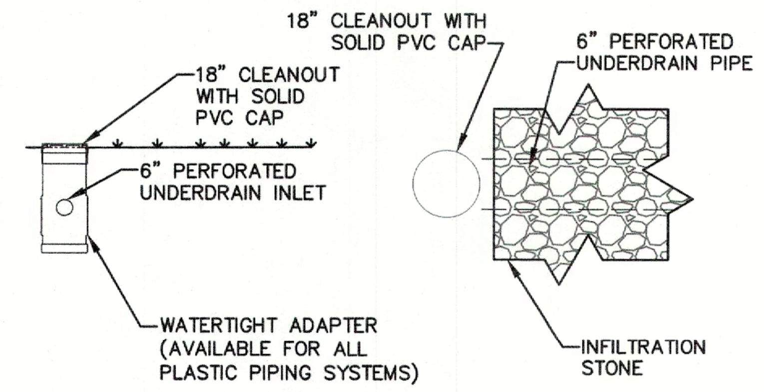


ECORASTER E50 PERMEABLE PAVING SYSTEM
GENERAL STONE FILLED*

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

ACF ENVIRONMENTAL
LET'S GET IT DONE

* OR APPROVED EQUIVALENT



PERFORATED UNDERDRAIN CLEANOUT DETAIL

NOT TO SCALE

NOTES:

1. THICKNESS OF GRANULAR BASE LAYER DEPENDENT UPON SPECIFIC SITE & LOADING CONDITIONS.

2. ¼" CHIP CLEAR OR OTHER SUITABLE CLEAR STONE CAN BE USED FOR BASE LAYER TO INCREASE WATER STORAGE CAPACITY.

3. IF CLEAR STONE IS USED FOR BASE LAYER, THEN A NONWOVEN GEOTEXTILE SHOULD BE USED AS A SEPARATION LAYER BETWEEN THE CLEAR STONE BASE AND THE SUBGRADE.

4. DRAINAGE SYSTEM OF THE PERMEABLE PAVING SYSTEM SHALL BE DESIGNED TO ACCOMMODATE EXPECTED INFILTRATION RATES, STORAGE CAPACITIES, OUTLET FLOW RATES, AND OTHER SITE SPECIFIC CONDITIONS.

5. SUBGRADE SHALL BE SLOPED TO AID IN DRAINAGE.

6. THE EXISTING NATIVE SUBGRADE MATERIAL SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE PLACEMENT. IF SOIL MEDIA OR SUBGRADE IS OVER COMPACTED, DISTURBED, OR CONTAMINATED BY FOREIGN OR DELETERIOUS MATERIALS OR LIQUIDS, REMOVE THE SOIL MEDIA AND CONTAMINATION; RESTORE THE SUBGRADE AS DIRECTED BY ENGINEER AND REPLACE CONTAMINATED SOIL MEDIA WITH NEW SOIL MEDIA.

BIORETENTION SYSTEM ELEVATIONS									
BIORETENTION	SIZE OF BOTTOM (S.F.)	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	SHWT	LEDGE
1	2,378	202.5	201.5	200.0	198.5	198.25	197.5	197.41	< 195.58 *

* TEST PITS TERMINATED AT THESE DEPTHS BELOW REFERENCE POINT WITHOUT ENCOUNTERING LEDGE.

SAND SPECIFICATION

SIEVE SIZE	% BY WEIGHT
⅜"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–60
#60	10–30
#100	2–10
#200	0–5

TOPSOIL SPECIFICATION

LOAMY SAND TOPSOIL WITH MINIMAL CLAY CONTENT AND BETWEEN 15 TO 25% FINES PASSING THE #200 SIEVE.

MULCH SPECIFICATION

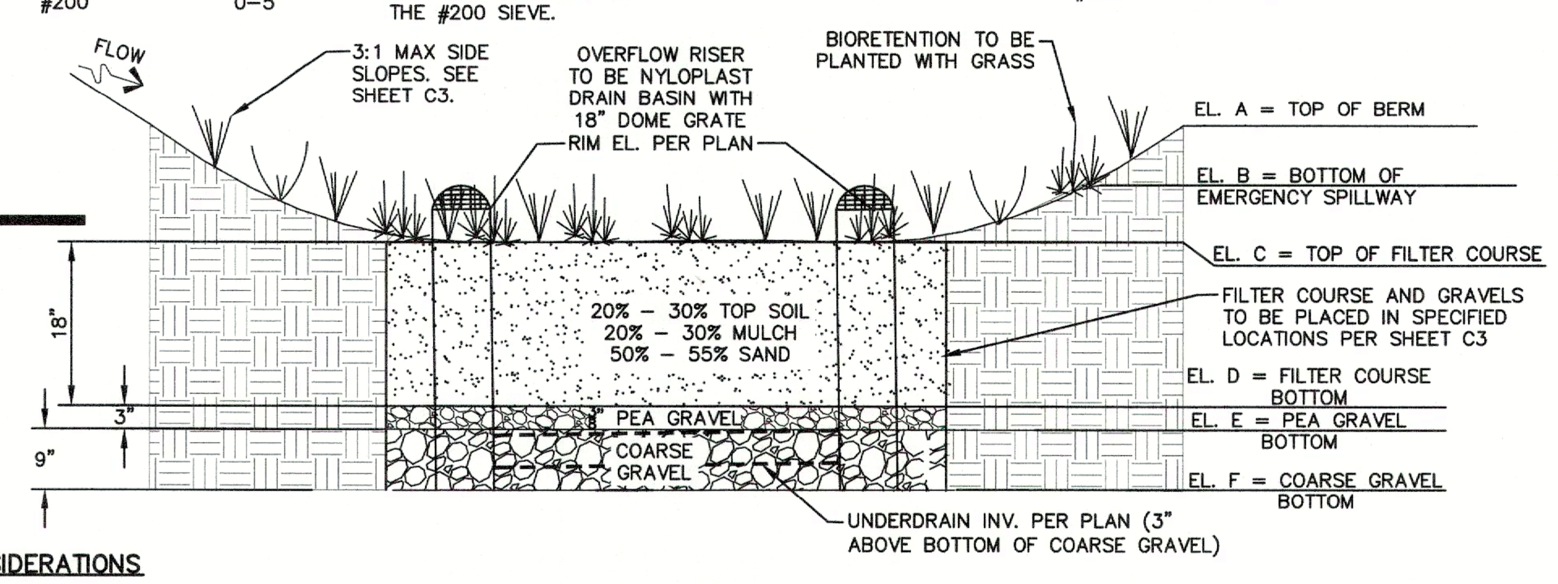
MODERATELY FINE, SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE #200 SIEVE.

PEA GRAVEL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
½"	100
⅜"	85–100
#4	10–30
#8	0–10
#16	0–15

COARSE GRAVEL SPECIFICATION

SIEVE SIZE	% BY WEIGHT
1"	90–100
½"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5



DESIGN CONSIDERATIONS

1. DO NOT DIRECT RUNOFF TO THE BIORETENTION SYSTEMS UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN-OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
4. EMERGENCY SPILLWAY ELEVATION (EL. B) REFERS TO BOTTOM OF RIP RAP.
5. THE EXISTING NATIVE SUBGRADE MATERIAL SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO STONE PLACEMENT. IF SOIL MEDIA OR SUBGRADE IS OVER COMPACTED, DISTURBED, OR CONTAMINATED BY FOREIGN OR DELETERIOUS MATERIALS OR LIQUIDS, REMOVE THE SOIL MEDIA AND CONTAMINATION; RESTORE THE SUBGRADE AS DIRECTED BY ENGINEER AND REPLACE CONTAMINATED SOIL MEDIA WITH NEW SOIL MEDIA.
6. IN ADDITION TO DESIGN CRITERIA LISTED HERE, REFER TO GUIDELINES LISTED IN UNIVERSITY OF NEW HAMPSHIRE (UNH) STORMWATER CENTER BIORETENTION SOIL SPECIFICATION.
7. BIORETENTION SYSTEM SHALL HAVE SEDIMENT FOREBAYS FOR PRE-TREATMENT.
8. SEDIMENT FOREBAY SPILLWAY, EMERGENCY SPILLWAY, POND BERM, AND MSDOS DETAILS APPLY TO CONSTRUCTION OF WET POND AND BIORETENTION POND.

MAINTENANCE REQUIREMENTS:

1. SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
2. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
3. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72 HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
4. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

BIORETENTION SYSTEM

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERWAN No. 9648 LICENSED PROFESSIONAL ENGINEER
8/17/2023

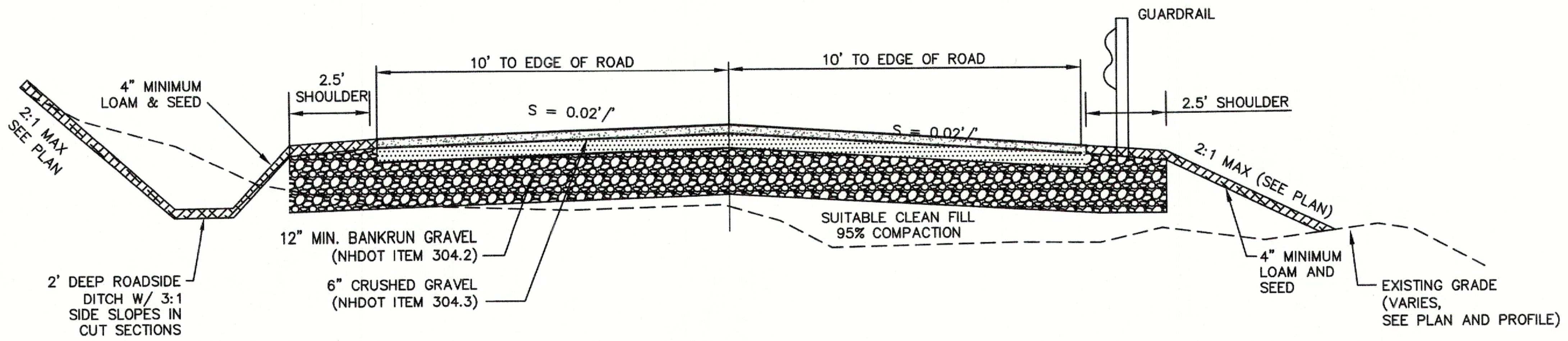
REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
D3

JBE PROJECT NO. 20564

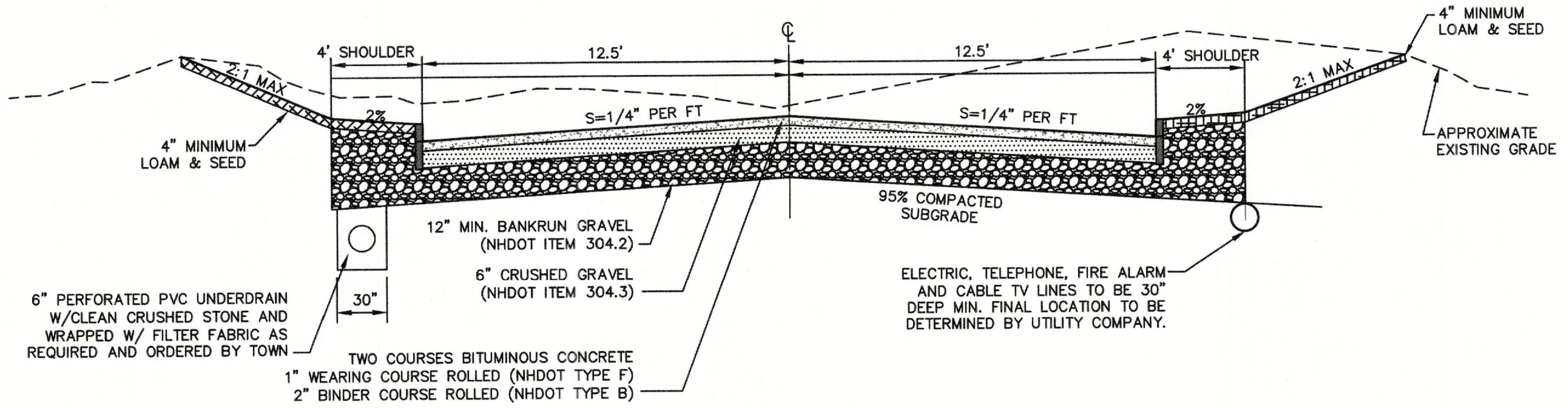


NOTES:

1. REMOVE ALL ORGANICS, TOPSOIL AND MATERIAL YIELDING TO A 10 TON ROLLER. SUBBASE AREAS THAT CONTAIN UNSUITABLE MATERIALS MUST BE EXCAVATED TO A DEPTH NO LESS THAN 36" BELOW FINISH GRADE AND BE REPLACED WITH GRAVEL COMPACTED TO 95%.
2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN AND NHDOT STANDARDS, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
3. TOWN MAY REQUIRE UNDERDRAIN, ADDITIONAL GRAVEL AND/OR ADDITIONAL DRAINAGE IF SOIL CONDITIONS WARRANT.
4. LOAM AND/OR UNSUITABLE MATERIAL SHALL BE REMOVED TO A SOLID BASE MATERIAL.
5. COMPACTION SHALL BE PERFORMED TO 95% OF THE MATERIALS' MODIFIED PROCTOR VALUE.

TYPICAL ROADWAY SECTION (EMERGENCY ACCESS DRIVE STA. 1+93 - 9+67)

NOT TO SCALE



NOTES:

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2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN STANDARDS AND NHDOT, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
3. TOWN MAY REQUIRE UNDERDRAIN, ADDITIONAL GRAVEL AND/OR ADDITIONAL DRAINAGE IF SOIL CONDITIONS WARRANT.
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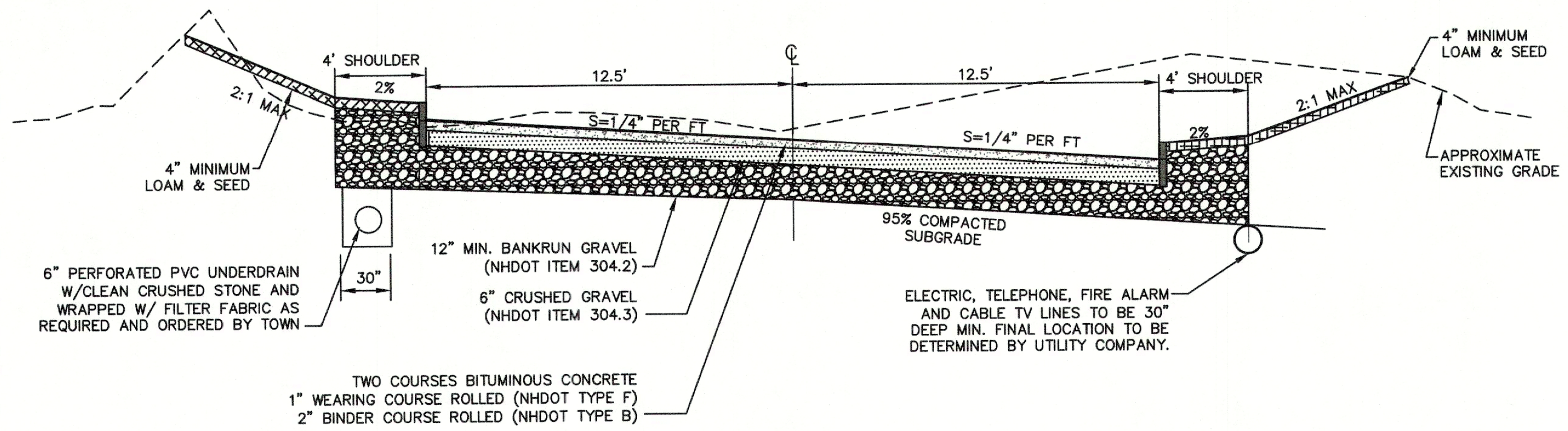
TYPICAL ROADWAY SECTION (WHITE ROCK LANE, STA. 1+46 - 9+95.40)

NOT TO SCALE



NOTES:

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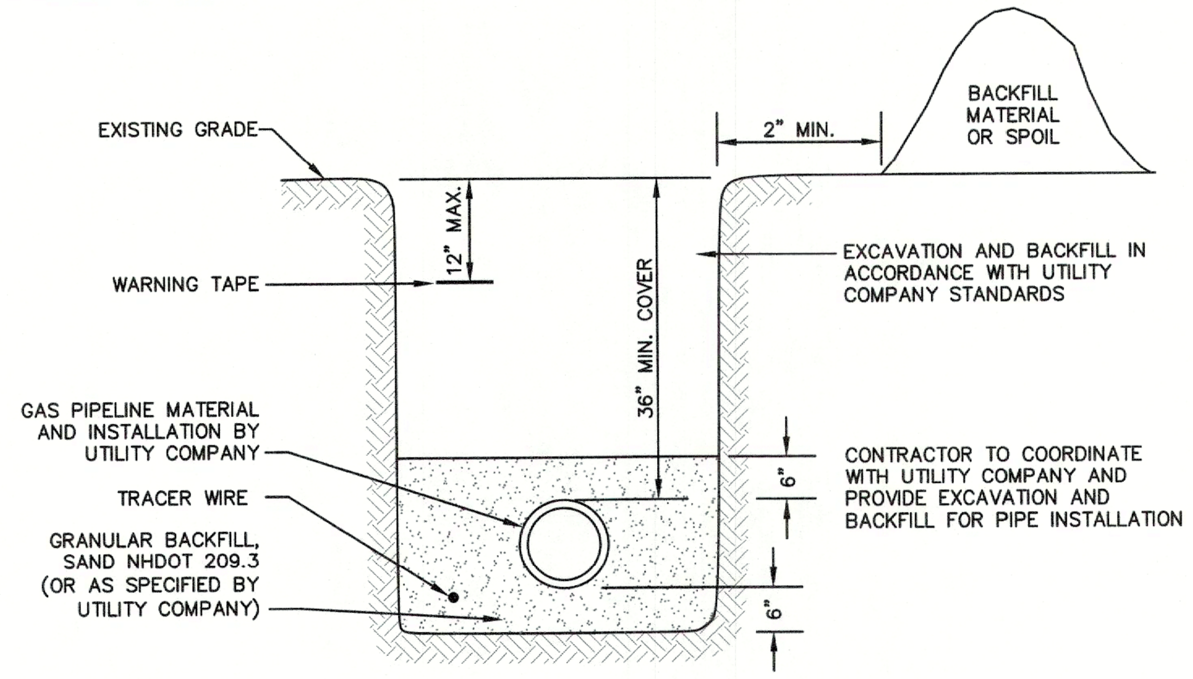
2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN STANDARDS AND NHDOT, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
3. TOWN MAY REQUIRE UNDERDRAIN, ADDITIONAL GRAVEL AND/OR ADDITIONAL DRAINAGE IF SOIL CONDITIONS WARRANT.
4. LOAM AND/OR UNSUITABLE MATERIAL SHALL BE REMOVED TO A SOLID BASE MATERIAL.
5. COMPACTION SHALL BE PERFORMED TO 95% OF THE MATERIALS' MODIFIED PROCTOR VALUE.

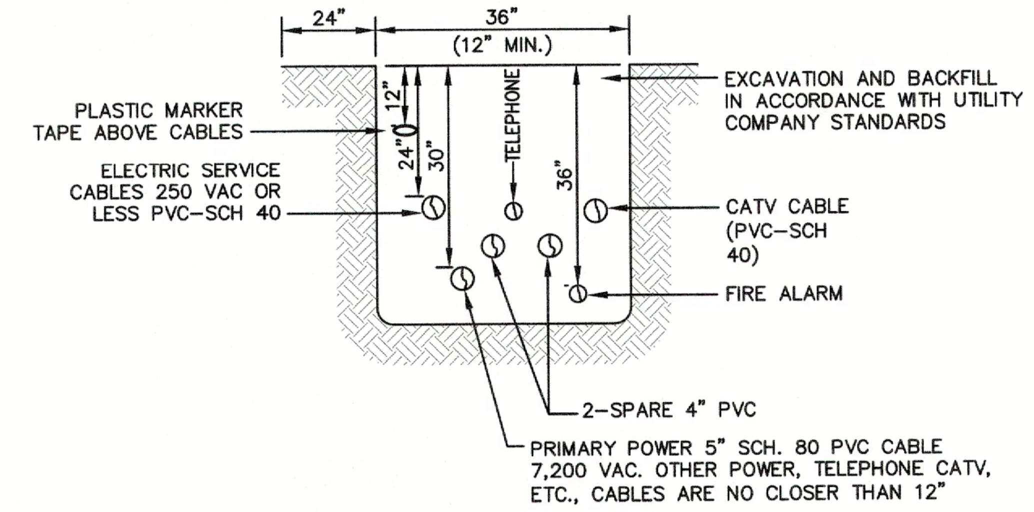
TYPICAL ROADWAY SECTION (WHITE ROCK LANE, STA. 0+00 - 1+46)

NOT TO SCALE



GAS TRENCH

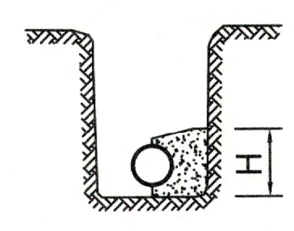
NOT TO SCALE



NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

UTILITY TRENCH

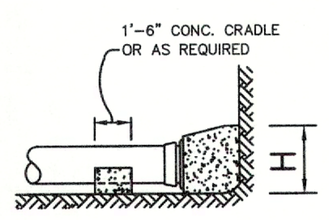
NOT TO SCALE



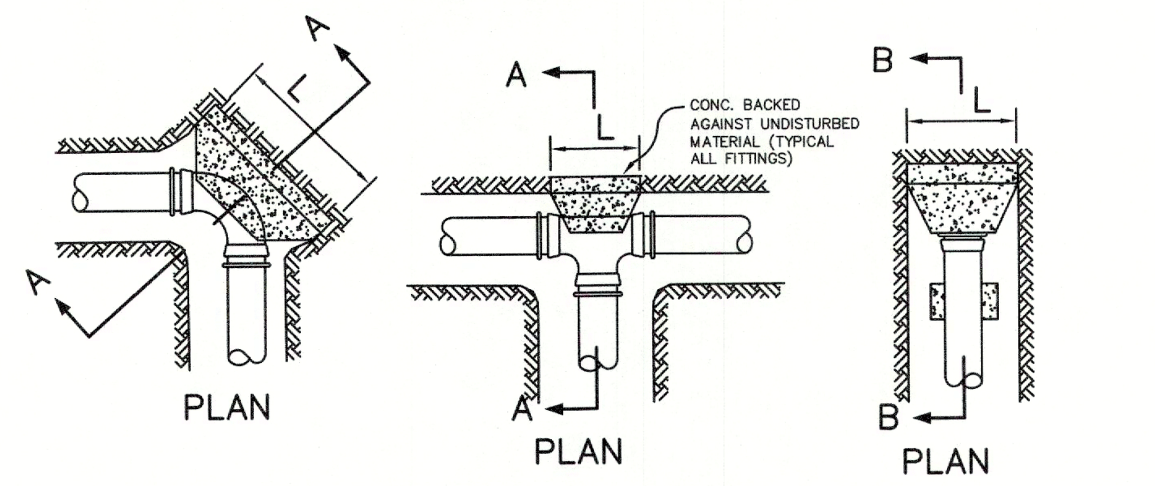
SECTION A-A

CONCRETE THRUST BLOCK DIMENSIONS								
PIPE DIA. (IN.)	TEE		90° BEND OR STUB		45° BEND		22.5° BEND	
	H	L	H	L	H	L	H	L
4"/6"	1'-6"	1'-6"	1'-6"	2'-0"	1'-6"	1'-6"	1'-6"	1'-6"
8"	2'-0"	2'-0"	2'-0"	3'-0"	1'-6"	2'-0"	1'-6"	1'-6"
10"	2'-0"	3'-0"	2'-6"	3'-6"	2'-0"	2'-6"	1'-6"	2'-0"
12"	2'-6"	3'-6"	3'-0"	4'-0"	2'-0"	3'-6"	1'-6"	2'-6"
15"	3'-0"	4'-6"	3'-6"	5'-6"	3'-0"	3'-6"	2'-0"	2'-6"
18"	4'-0"	5'-0"	4'-6"	6'-0"	3'-6"	4'-0"	2'-6"	3'-0"
24"	5'-0"	7'-0"	6'-0"	8'-0"	4'-0"	6'-0"	3'-0"	4'-6"

PIPING W/ MECHANICAL JOINT FITTINGS SHALL HAVE RETAINING GLANDS

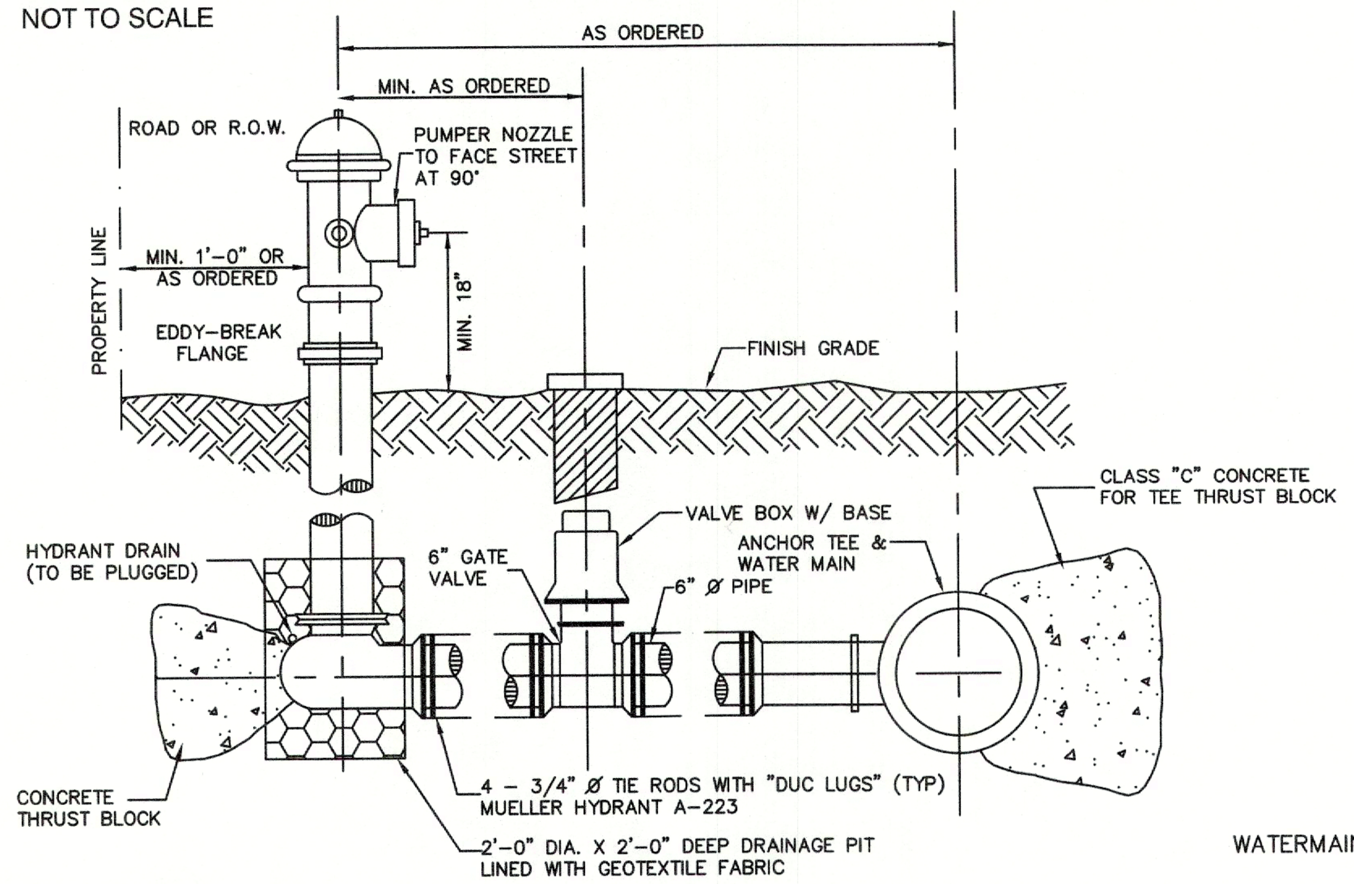


SECTION B-B



THRUST BLOCK DETAILS

NOT TO SCALE

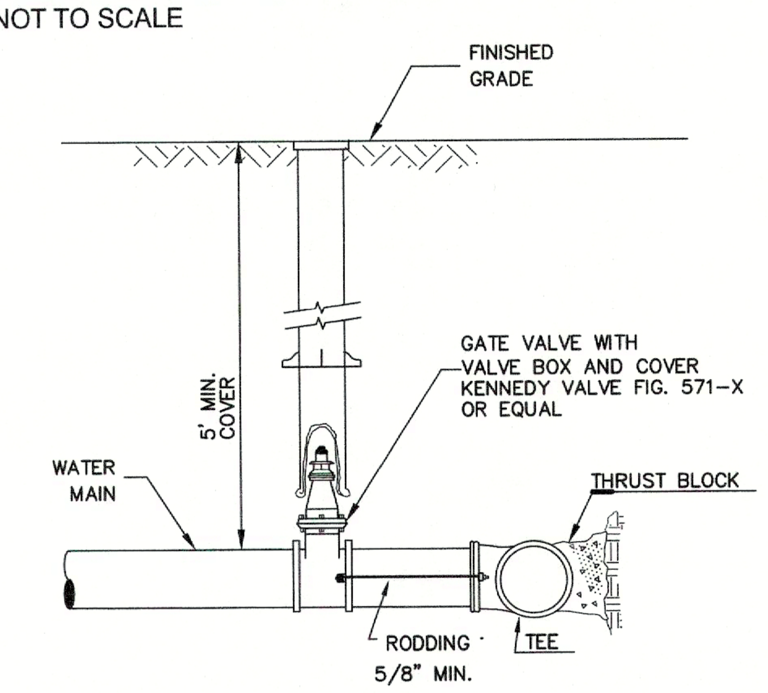


OPEN LEFT
RAYMOND FIRE
DEPARTMENT SPECS.

NOTES:
1. ALL PIPE FITTINGS TO BE D.I. PRESSURE CLASS 350, THICKNESS CLASS 52.
2. HYDRANT TO BE PAINTED RED WITH WHITE "REFLECTOR" PAINT ON BONNET.
3. MECHANICAL JOINTS SHALL HAVE MEGALUG RETAINING GLANDS AS MADE BY EBBA OR APPROVED EQUAL.
4. STEAMER NOZZLE TO BE "STORCH" TYPE.
5. NATIONAL STANDARD THREAD.

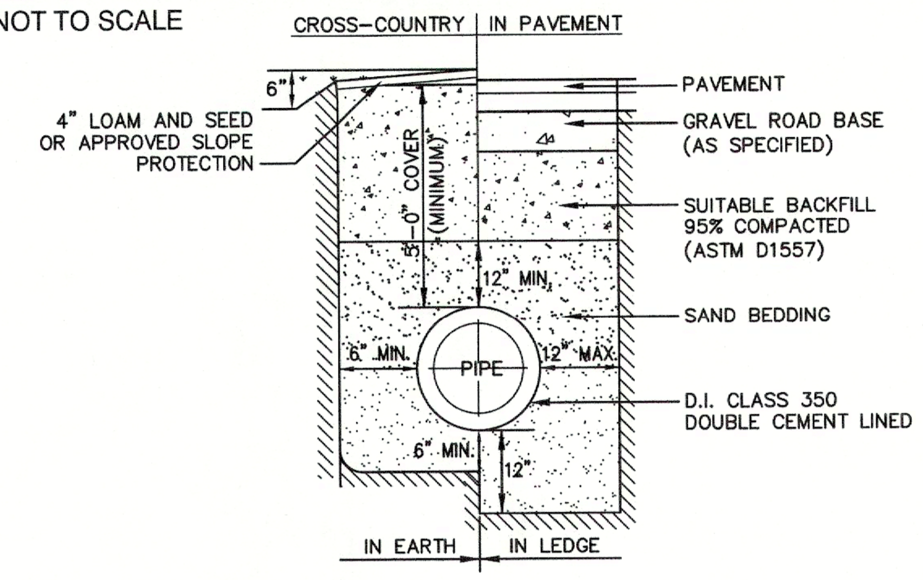
HYDRANT INSTALLATION

NOT TO SCALE



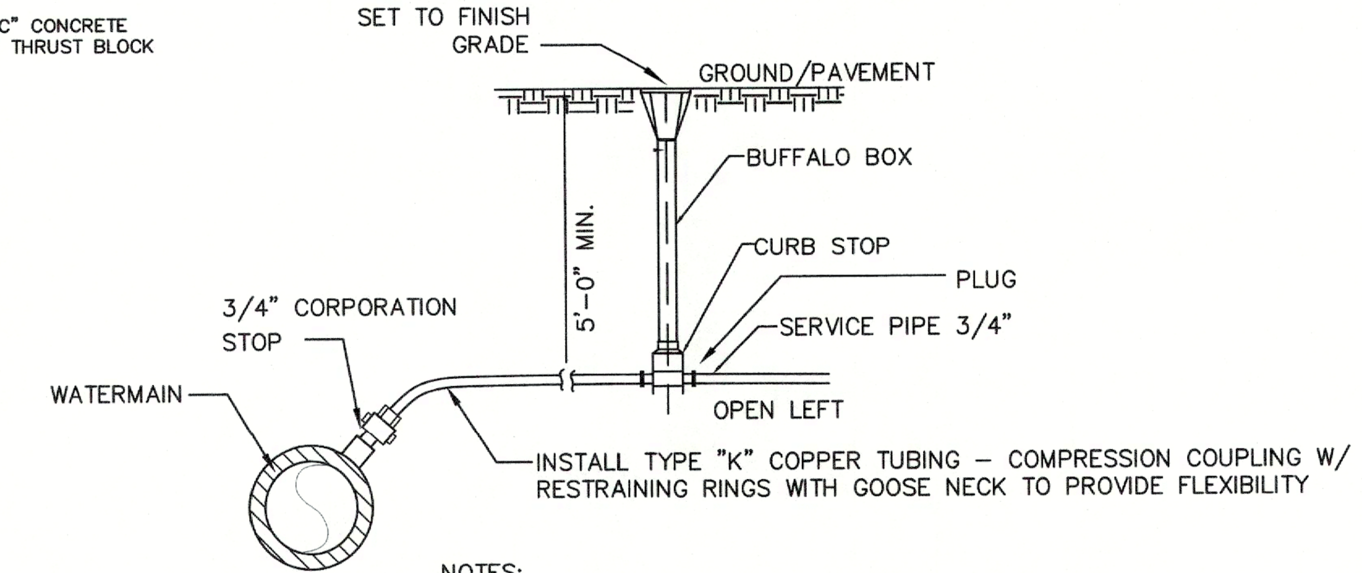
BURIED GATE VALVE DETAIL

NOT TO SCALE



WATER SYSTEM TRENCH

NOT TO SCALE



NOTES:
1. THE END OF THE INSTALLED WATER SERVICE TO BE MARKED BY A 2X4.
2. ALL WORK TO BE IN ACCORDANCE WITH THE LOCAL WATER COMPANY INSTALLATION PROCEDURES AND SPECIFICATIONS.

TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
D4
SHEET 43 OF 61
JBE PROJECT NO. 20564

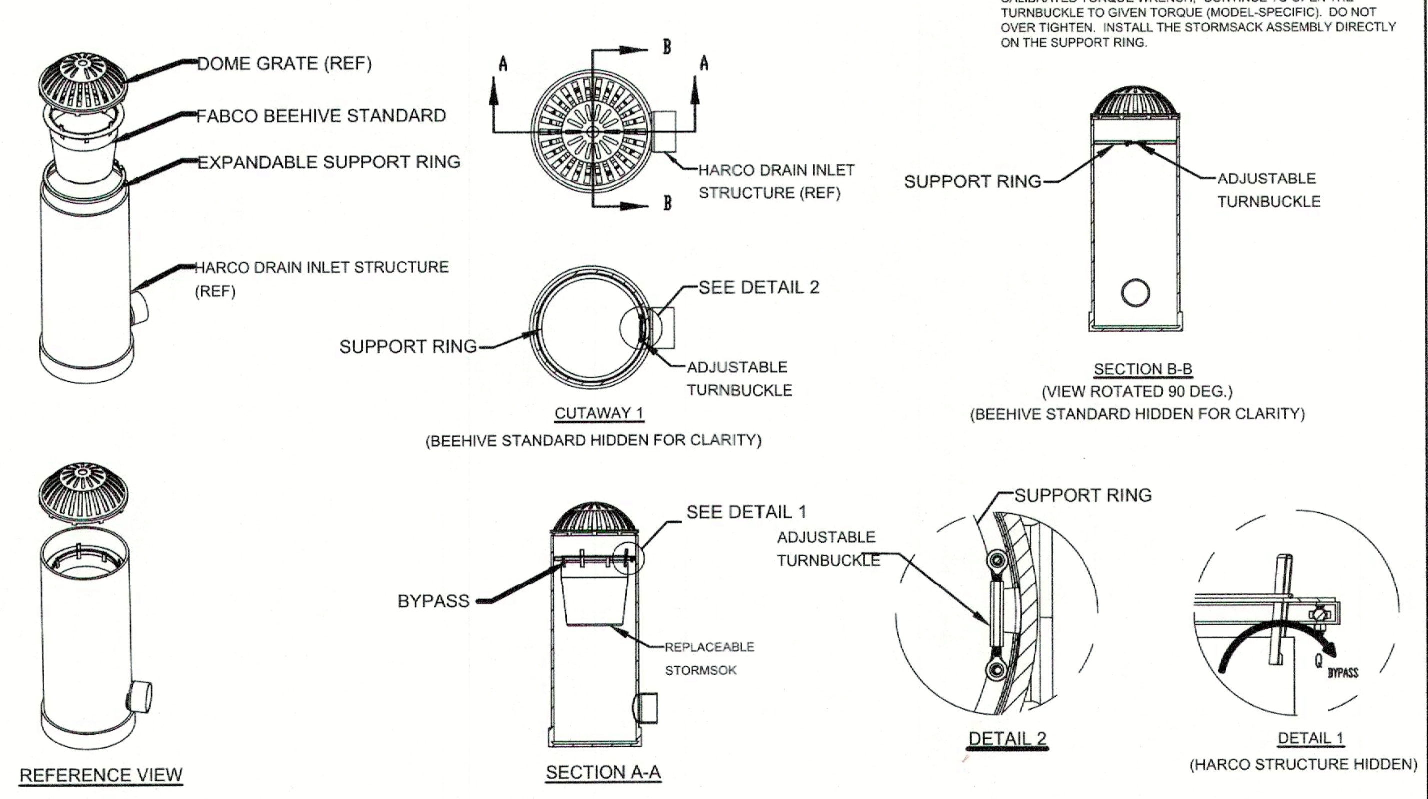
STRUCTURE DIAMETER (IN.)	DEBRIS CAPACITY (CU.FT)	FILTERED FLOWRATE (CFS)	BYPASS FLOWRATE (CFS)
12	0.66	1.7	1.0
15	1.0	2.1	1.3
18	1.2	2.3	1.4
24	2.8	3.9	2.2
30	2.8	3.9	2.2

NOTES:

1. MATERIAL:
   A) SUPPORT FLANGE: ALUMINUM ALLOY PLATE, 5000 SERIES
   B) STORMSOK: WOVEN POLYPROPYLENE GEOTEXTILE
   C) EXPANSION RING: ALUMINUM ALLOY CHANNEL, 6000 SERIES
   D) HARDWARE: STAINLESS STEEL
2. RECOMMENDED MINIMUM VAULT DEPTH: 2-IN BELOW STORMSOK
3. USE ONLY WITH FABCO REPLACEABLE STORMSOK

GENERAL INSTALLATION:

ADJUST THE TURNBUCKLE DOWN TO GIVE THE SMALLEST RING DIAMETER AND LOCATE THE EXPANSION RING INTO THE HARCO STRUCTURE MINIMUM OF 6-IN DOWN FROM THE TOP OPENING AS SHOWN. BEGIN OPENING THE TURNBUCKLE UNTIL THE EXPANSION RING IS SELF SUPPORTING, THEN VERIFY THE RING IS LEVEL AND PLUMB TO THE HARCO STRUCTURE. USING A CALIBRATED TORQUE WRENCH, CONTINUE TO OPEN THE TURNBUCKLE TO GIVEN TORQUE (MODEL-SPECIFIC). DO NOT OVER TIGHTEN. INSTALL THE STORMSACK ASSEMBLY DIRECTLY ON THE SUPPORT RING.



ACF BEEHIVE OVERFLOW FILTER STRUCTURE DETAILS

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
WWW.ACFENVIRONMENTAL.COM
800.448.3636

REVISED AUG 2020

FOCALPOINT HP PERFORMANCE SPECIFICATION:

HIGH PERFORMANCE MEDIA

HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE.

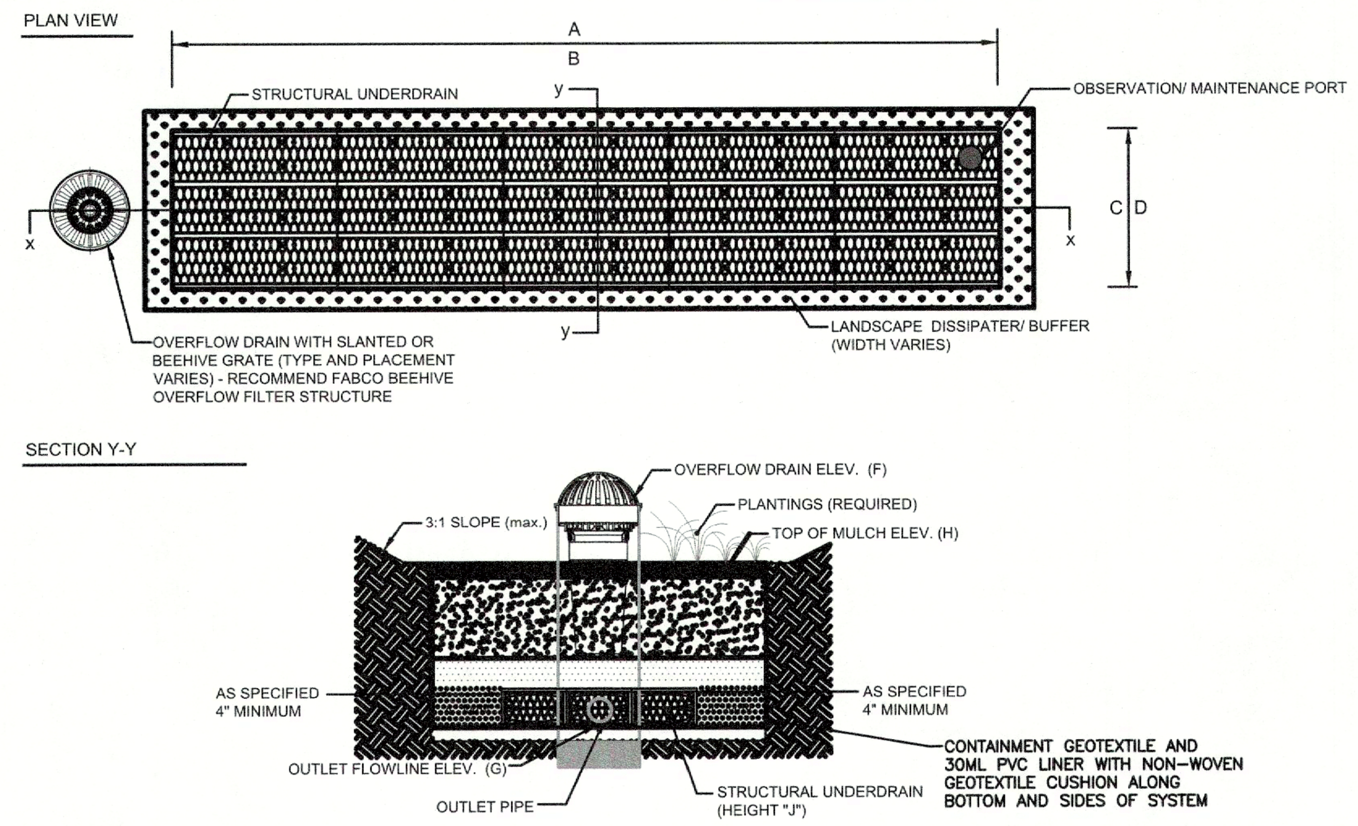
HIGH PERFORMANCE STRUCTURAL UNDERDRAIN

MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

PLANT COMPONENT

SUPPLIER SHALL PROVIDE LIST OF ACCEPTABLE PLANTS
IF PLANTS ARE NOT INCLUDED IN THE LANDSCAPE CONTRACT/PLANS. SITE CONTRACTOR SHALL PROVIDE PLANTS.
PLANTS SHALL BE INSTALLED AT THE TIME THE SYSTEM IS COMMISSIONED FOR USE. PLANTING OUTSIDE THIS TIME REQUIRES APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT OF RECORD.
SEE FOCALPOINT INSTALLATION GUIDE FOR PLANT SPACING, PLANTING PROCEDURES ETC.

FOCALPOINT HP CONSTRUCTION GUIDE		
A	FOCALPOINT LENGTH	SEE PLANS
B	# UNDERDRAIN LONG	SEE PLANS
C	FOCALPOINT WIDTH	SEE PLANS
D	# UNDERDRAIN WIDE	SEE PLANS
E	WATER QUALITY VOLUME	VARIES
F	OVERFLOW ELEVATION	SEE PLANS
G	OUTLET FLOWLINE	SEE PLANS
H	TOP OF MULCH	SEE PLANS
I	TOP OF GABION (OPTIONAL)	NO GABION
J	UNDERDRAIN HEIGHT	SEE PLANS



FOCALPOINT HP CONSTRUCTION GUIDE

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
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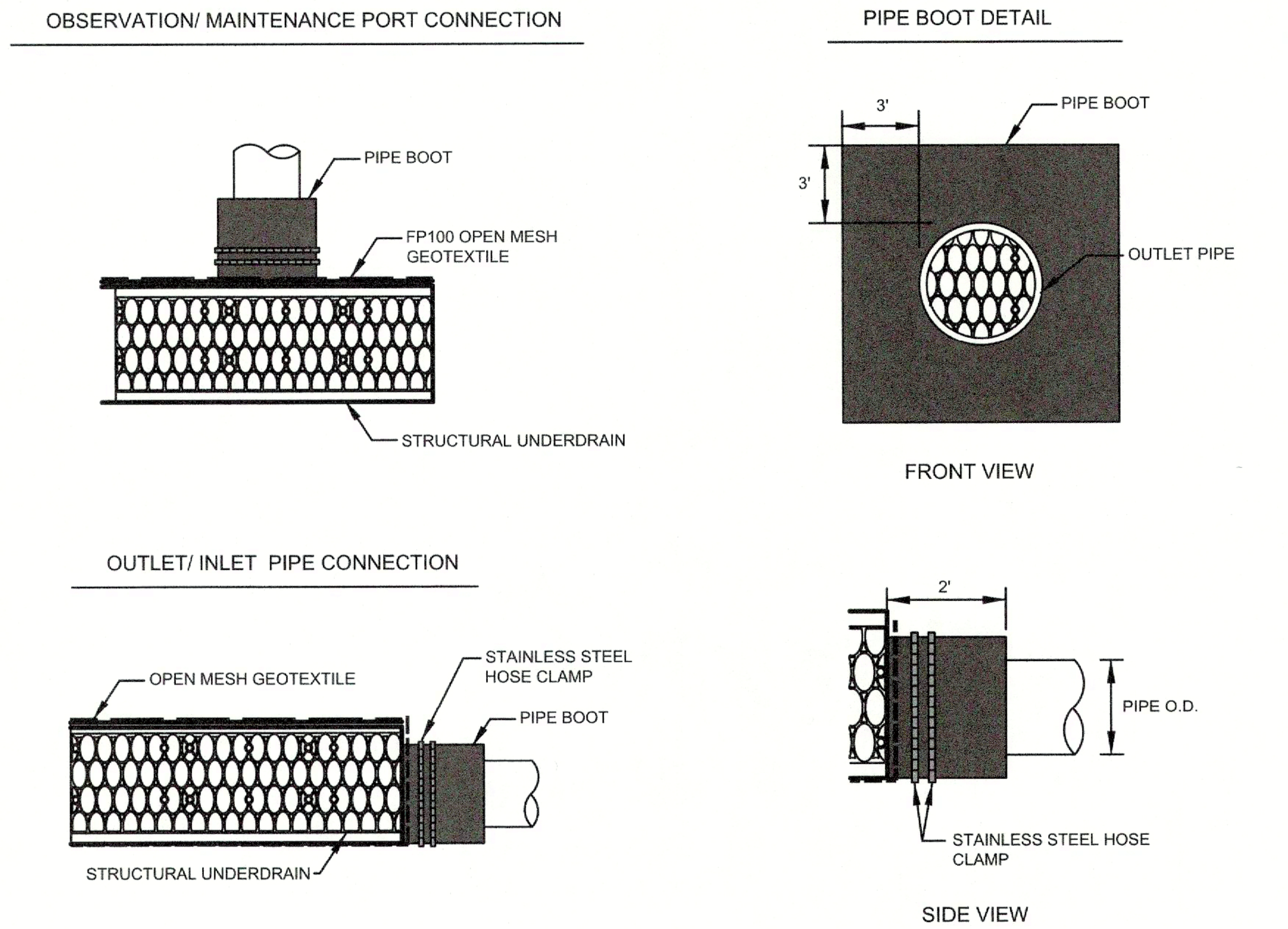

FOCALPOINT PIPE CONNECTION

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
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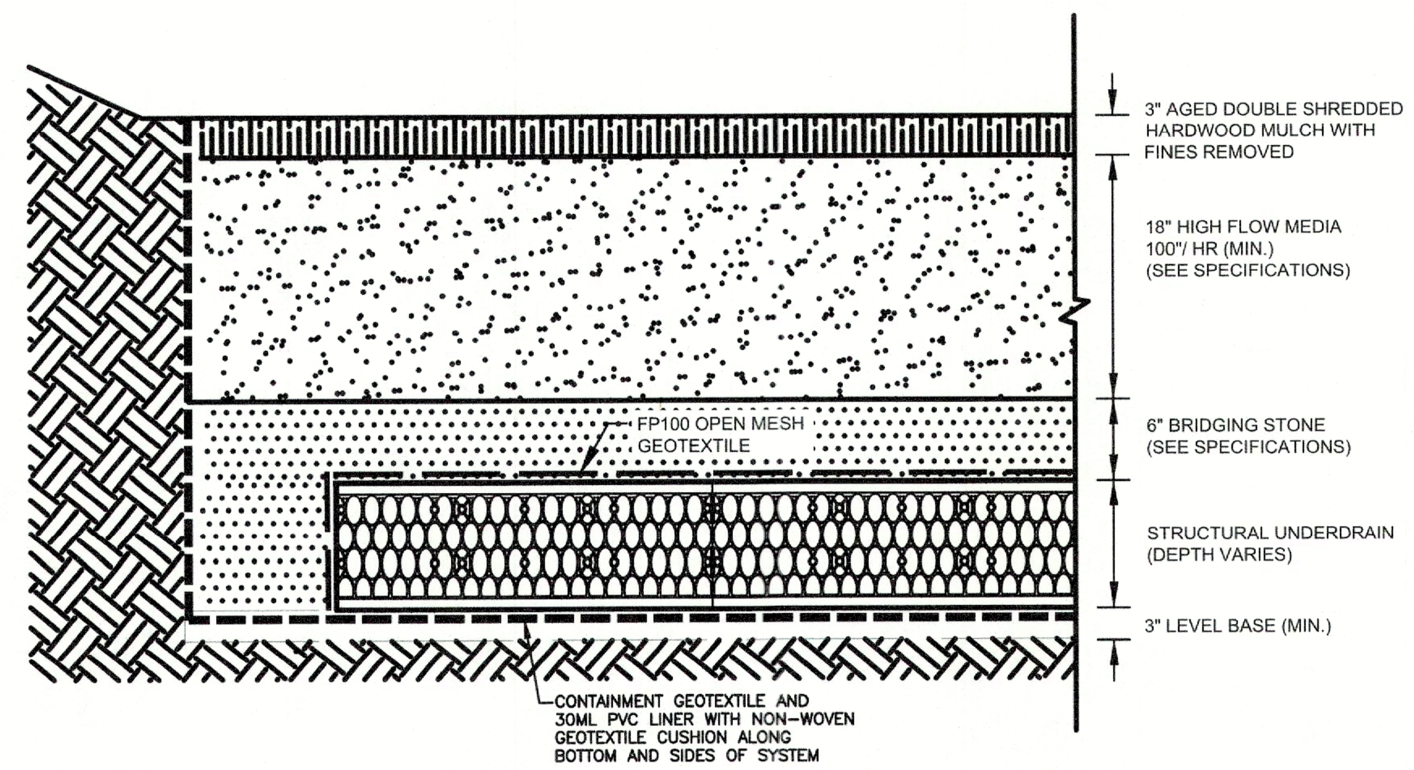

FOCALPOINT HP DETAILED CROSS SECTION

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
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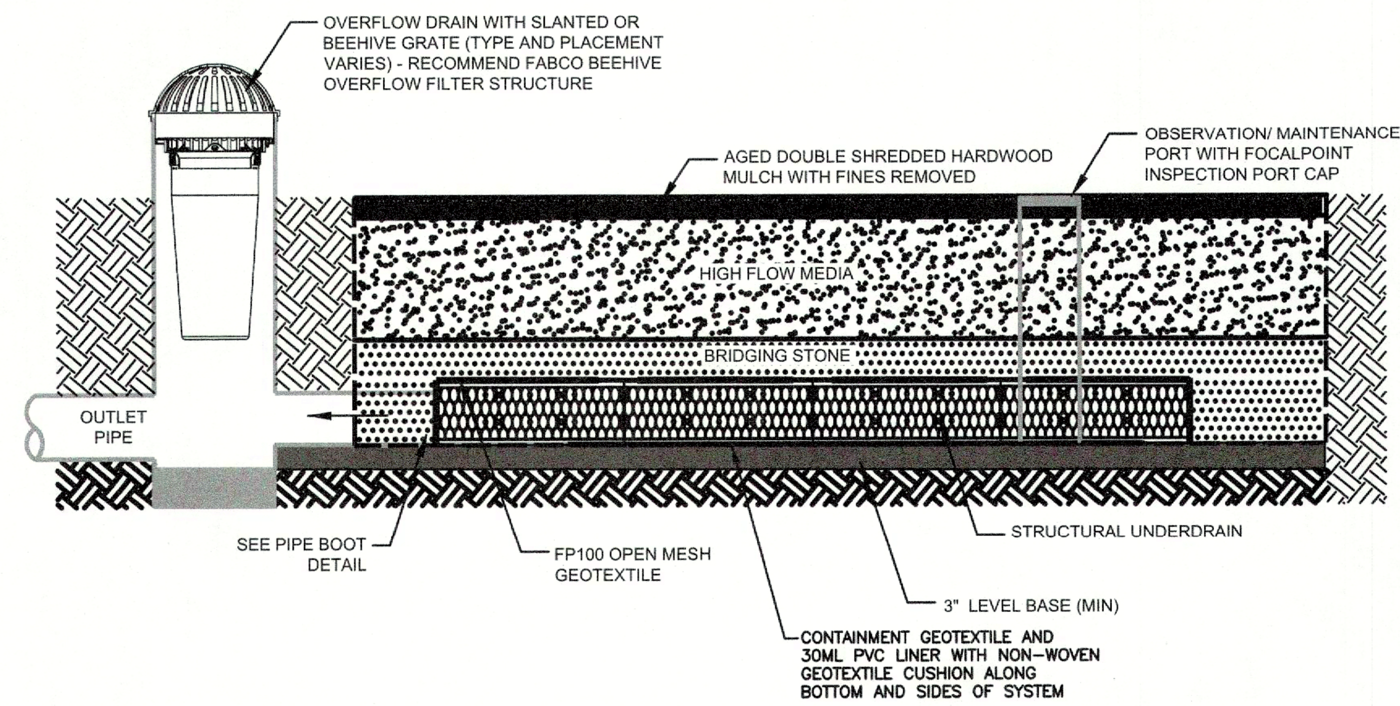
800.448.3636

REVISED AUG 2020



FOCALPOINT HP SECTION X-X

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
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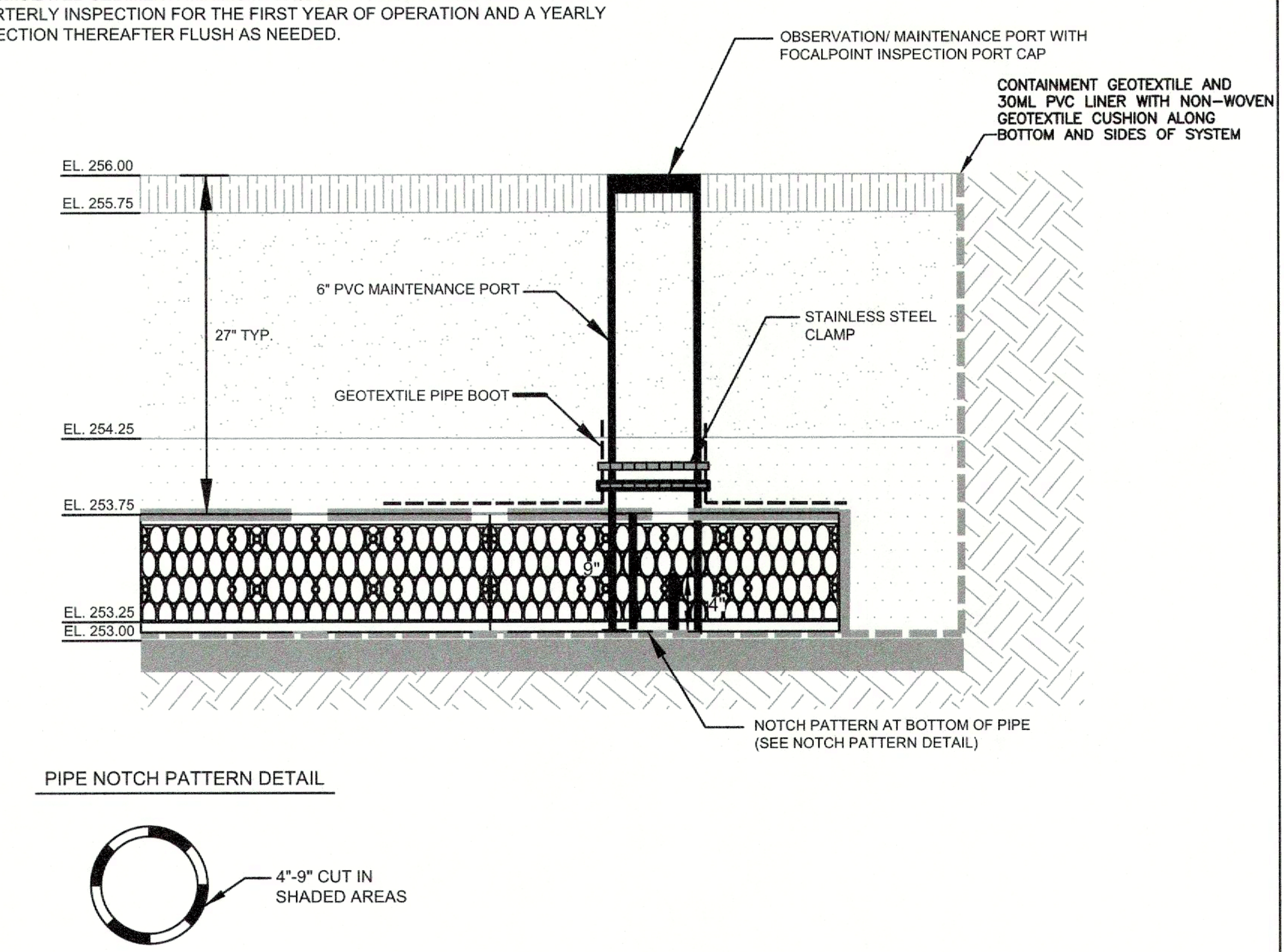
REVISED AUG 2020

OBSERVATION/ MAINTENANCE PORT

PORT USED FOR INSPECTION PURPOSES AND FOR SYSTEM MAINTENANCE AS REQUIRED. WATER SHALL BE PUMPED INTO THE SYSTEM AND RESUSPEND ACCUMULATED SEDIMENT. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION FOR THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER FLUSH AS NEEDED.



FOCALPOINT OBSERVATION/ MAINTENANCE PORT

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
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REVISED AUG 2020

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
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E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

D5

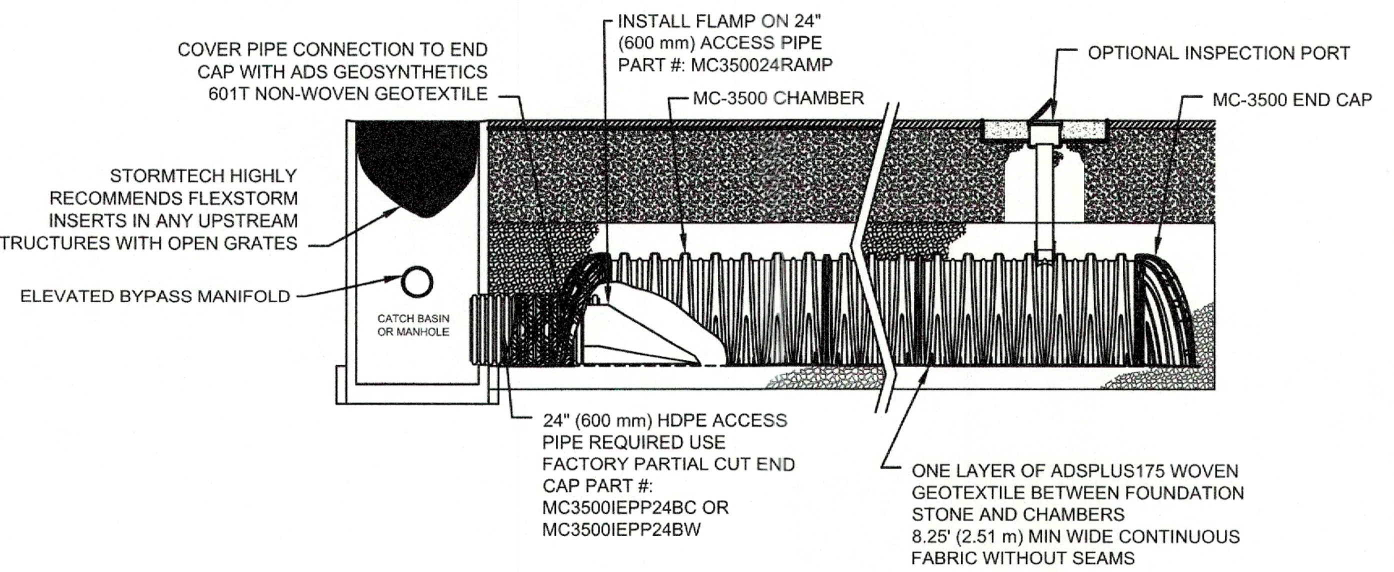
SHEET 44 OF 61
JBE PROJECT NO. 20564

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 6" (150 MM) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.



INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

MC-3500 ISOLATOR ROW PLUS DETAIL

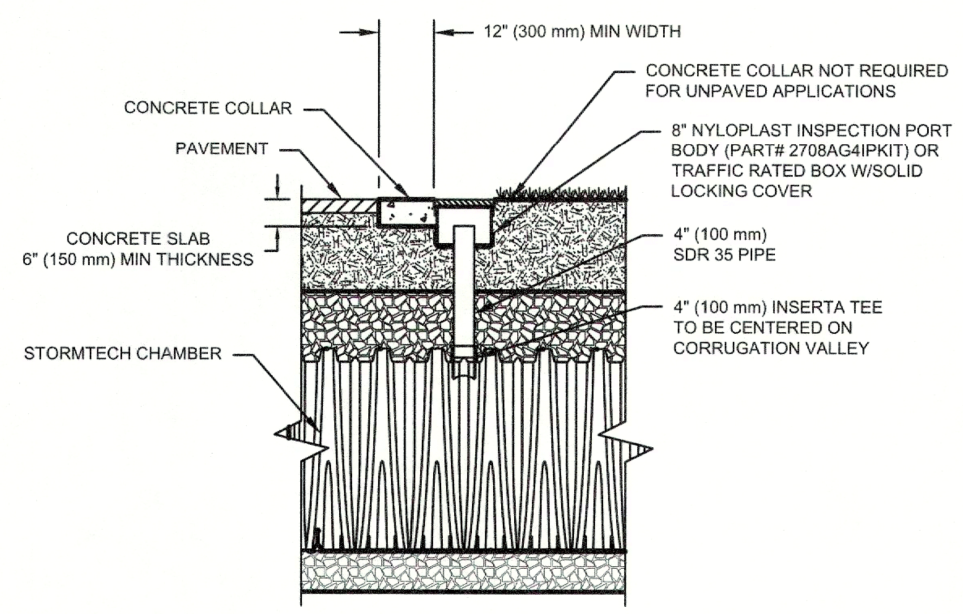
NOT TO SCALE

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

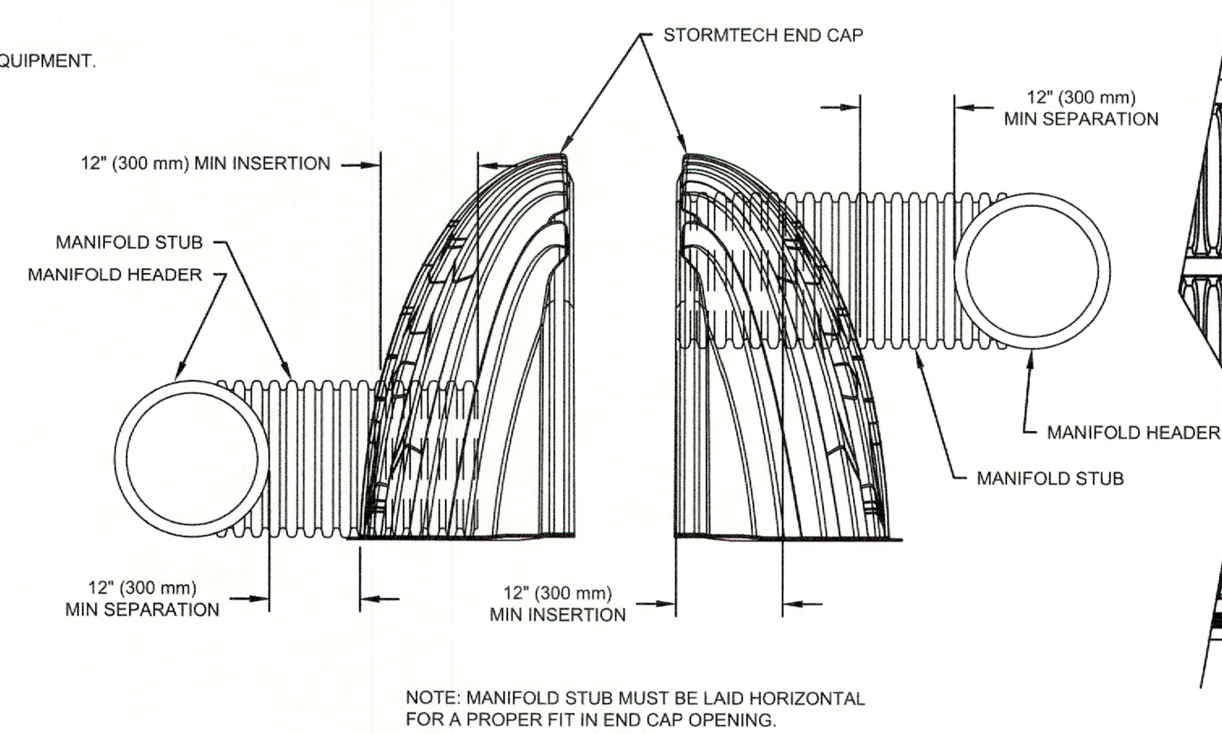
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

MC SERIES 4" PVC INSPECTION PORT DETAIL

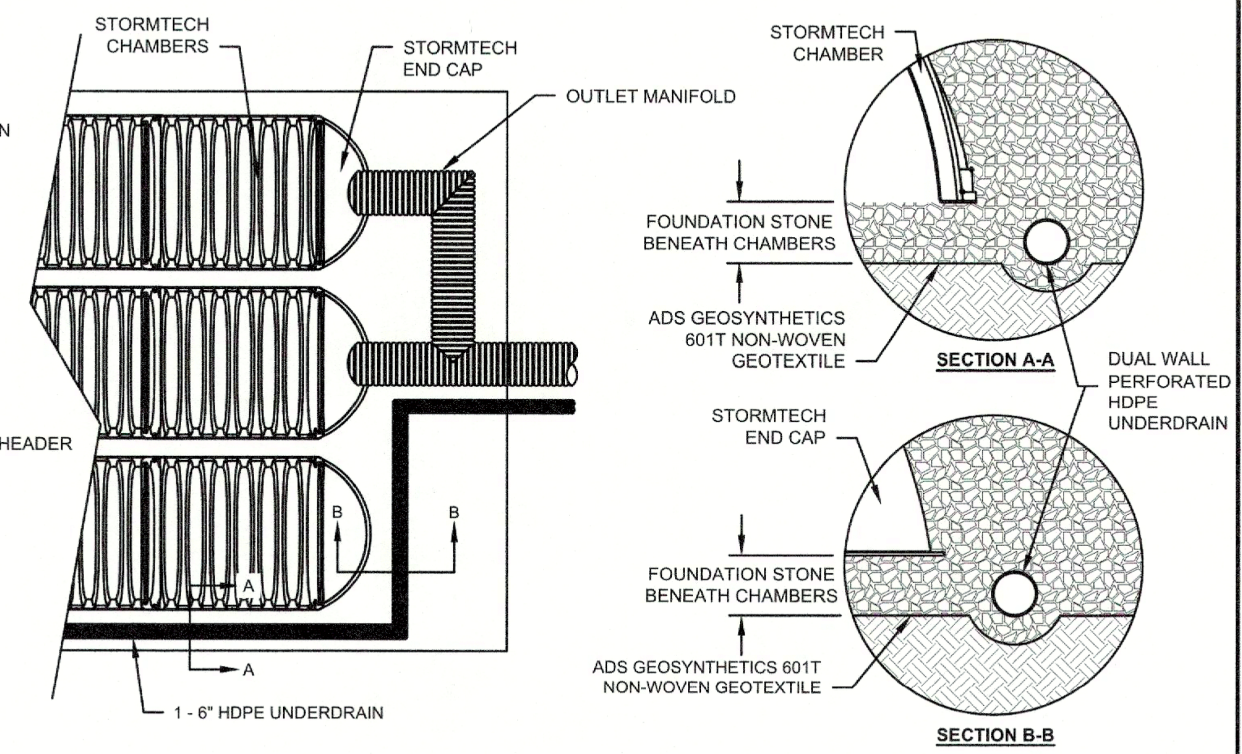
NOT TO SCALE



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

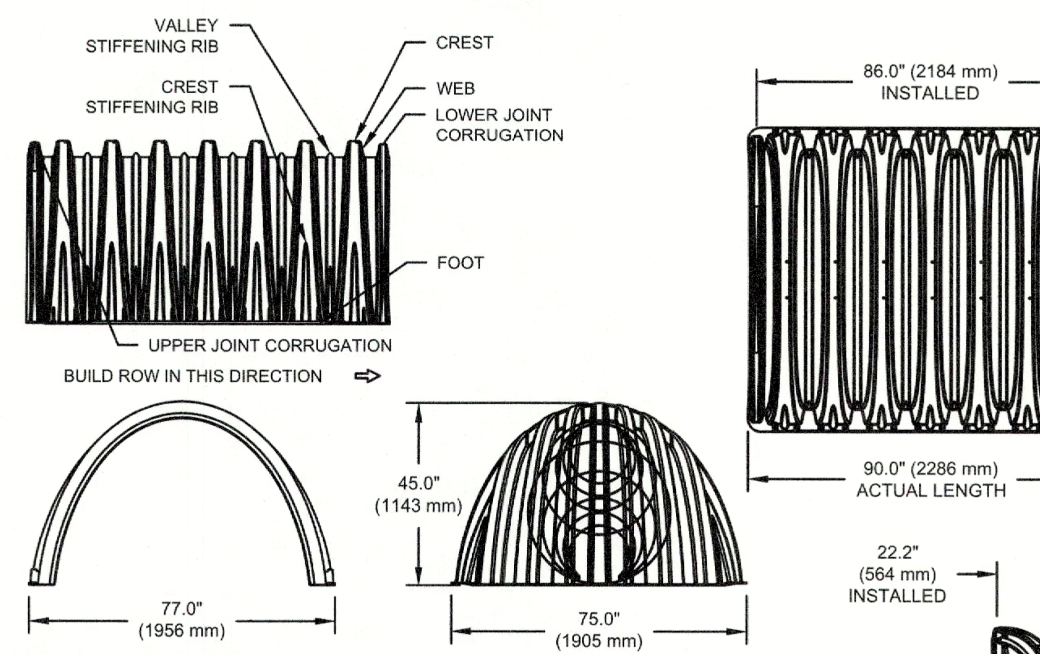
STORMTECH MC SERIES END CAP INSERTION DETAIL

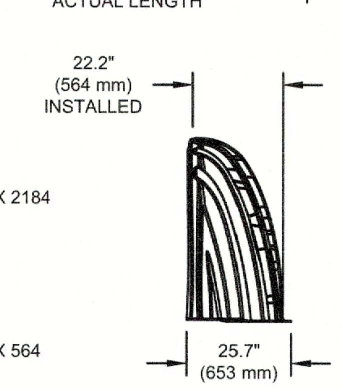
NOT TO SCALE



STORMTECH MC-3500 UNDERDRAIN DETAIL

NOT TO SCALE





NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

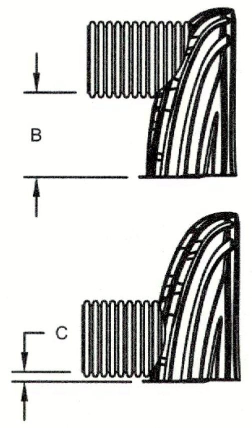
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

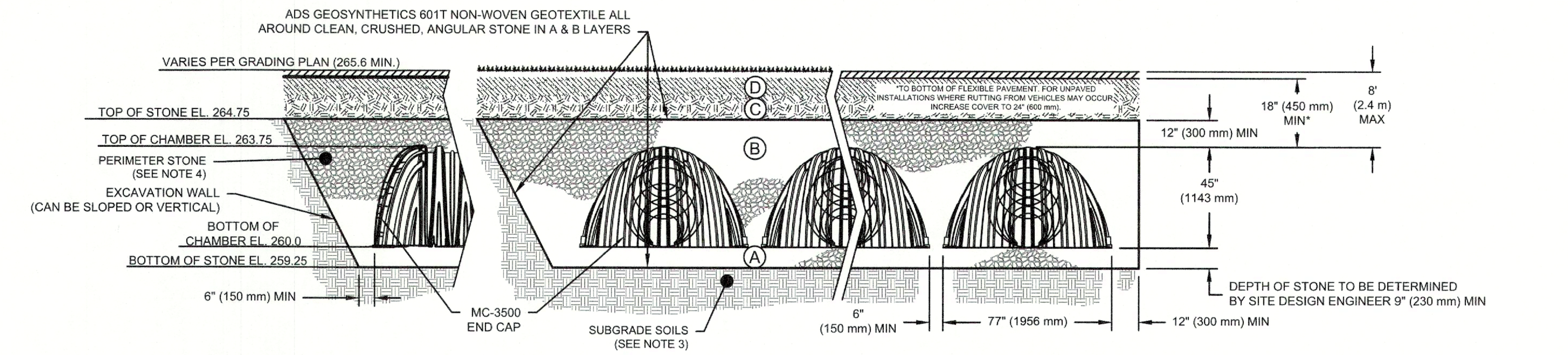
MC-3500 TECHNICAL SPECIFICATIONS

NOT TO SCALE

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

STORMTECH MC-3500 CROSS SECTION DETAIL

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/7/23

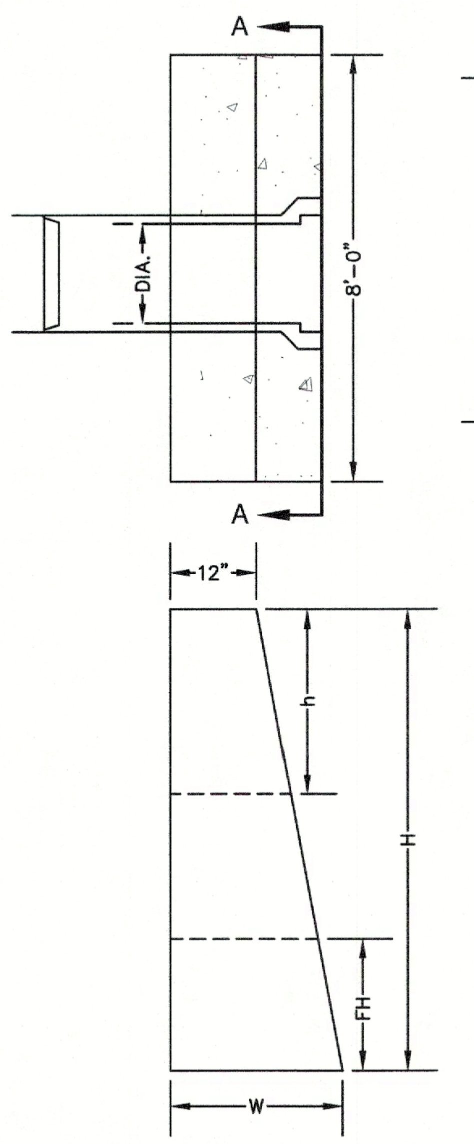
REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

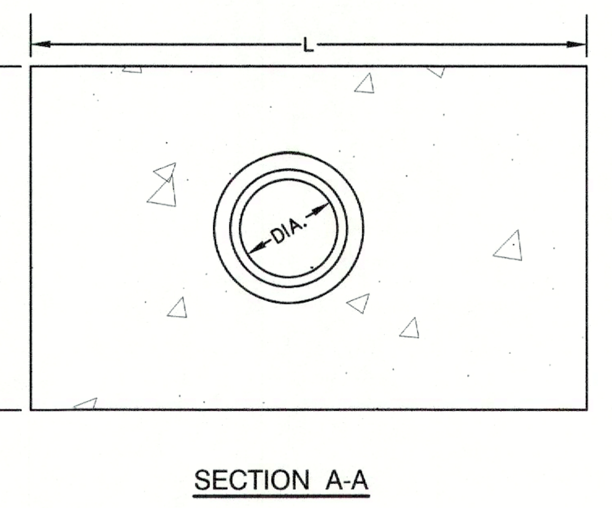
Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
D6

JBE PROJECT NO. 20564





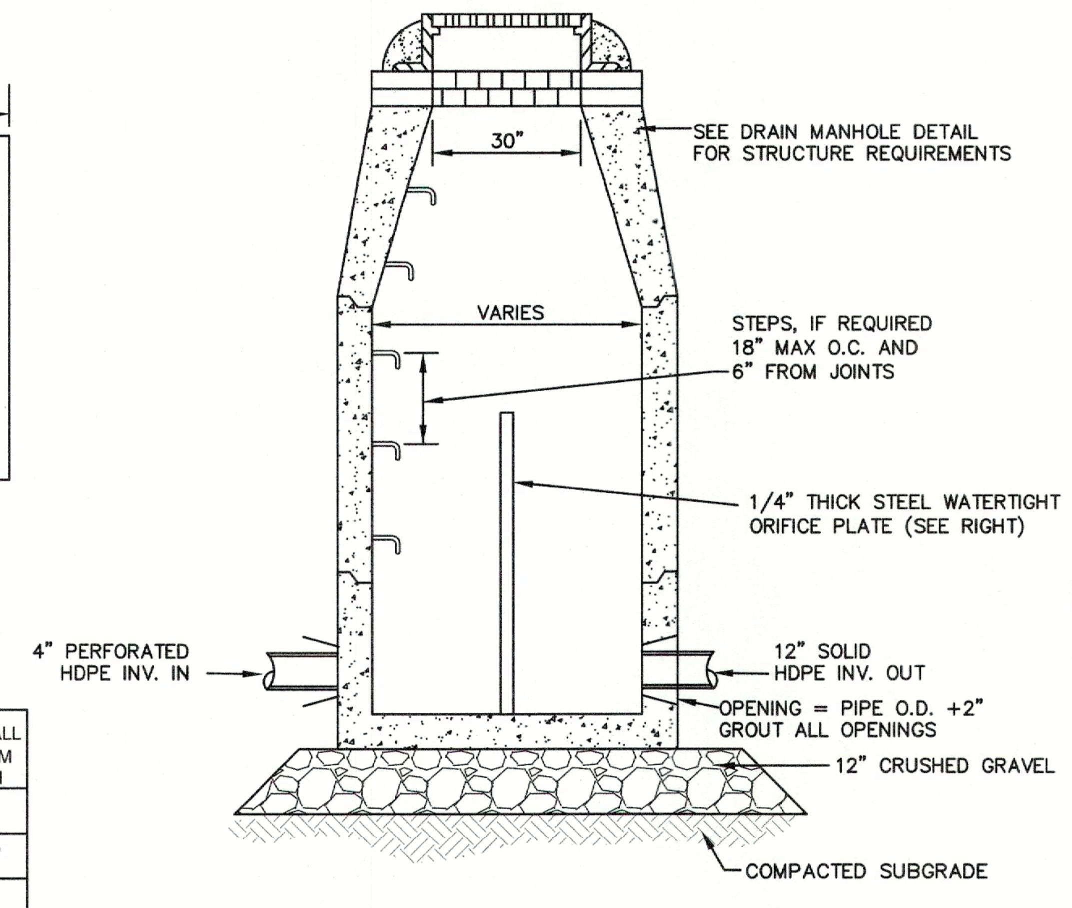
DIA.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	PIPE COVER	HEADWALL BOTTOM WIDTH
D	L	H	FH	h	W
12"	4'-2"	3'-9"	1'-6"	1'-3"	1'-11"
15"	5'-11"	4'-2"	1'-6"	1'-5"	2'-0"
18"	6'-11"	4'-5"	1'-6"	1'-5"	2'-1"
24"	8'-10"	4'-11"	1'-6"	1'-5"	2'-3"

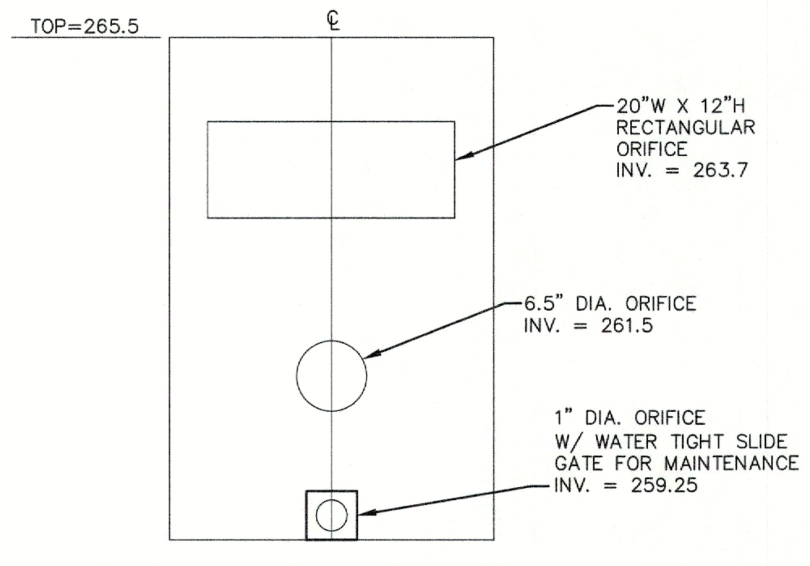
NOTES:

1. ALL DIMENSIONS GIVEN IN FEET & INCHES.
2. PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
3. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
4. 1" THREADED INSERTS PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

PRECAST CONCRETE HEADWALL

NOT TO SCALE

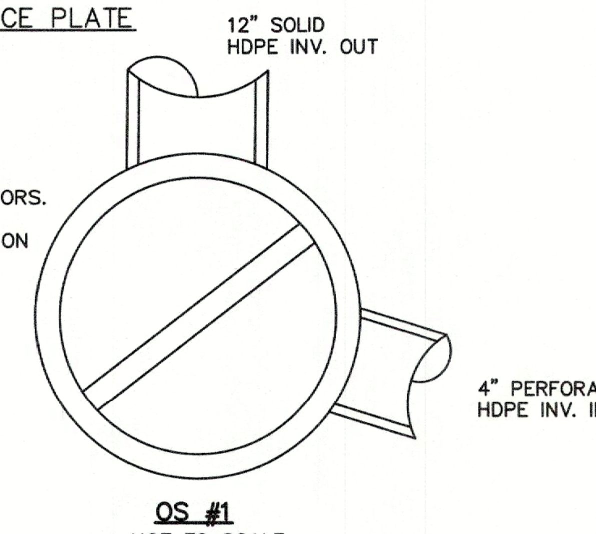




1/4" THICK STEEL ORIFICE PLATE

NOT TO SCALE

BAFFLE WALL NOTE:
1. BAFFLE WALLS TO BE SET WITH 3"x3" ALUMINUM ANGLES W/ ⅜" WEDGE ANCHORS.
2. WALL TO BE SEALED WITH SIKAFLEX WATERPROOFING ON SIDES & CONSEAL ON BOTTOM.



OS #1

NOT TO SCALE

STORMTECH OUTLET CONTROL STRUCTURE

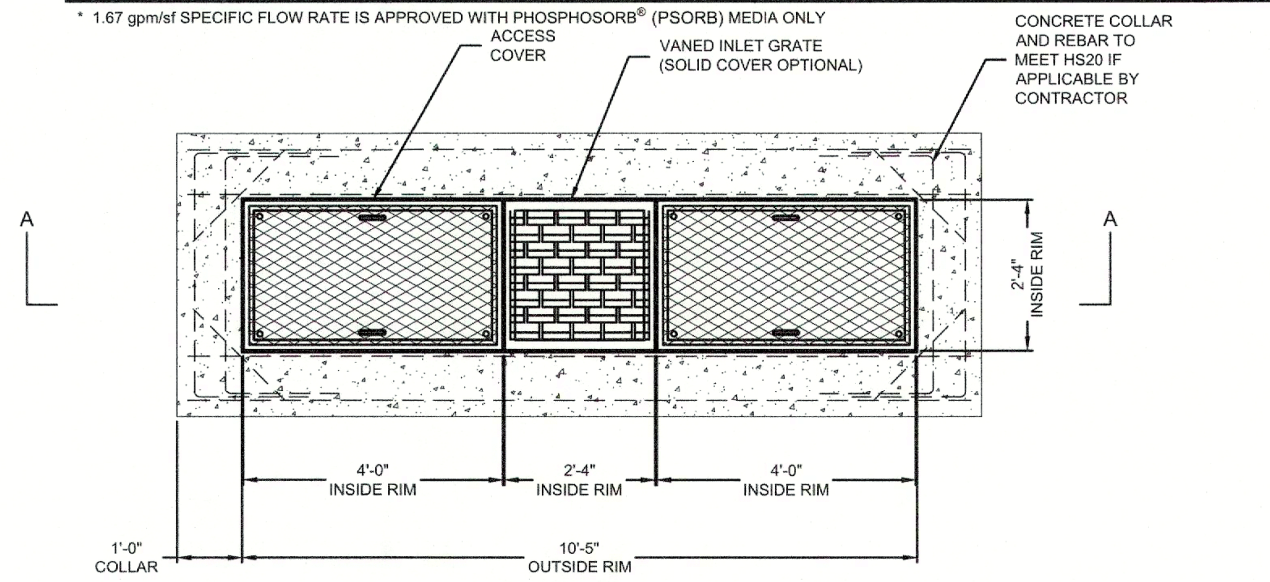
NOT TO SCALE

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 4 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF FOUR CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

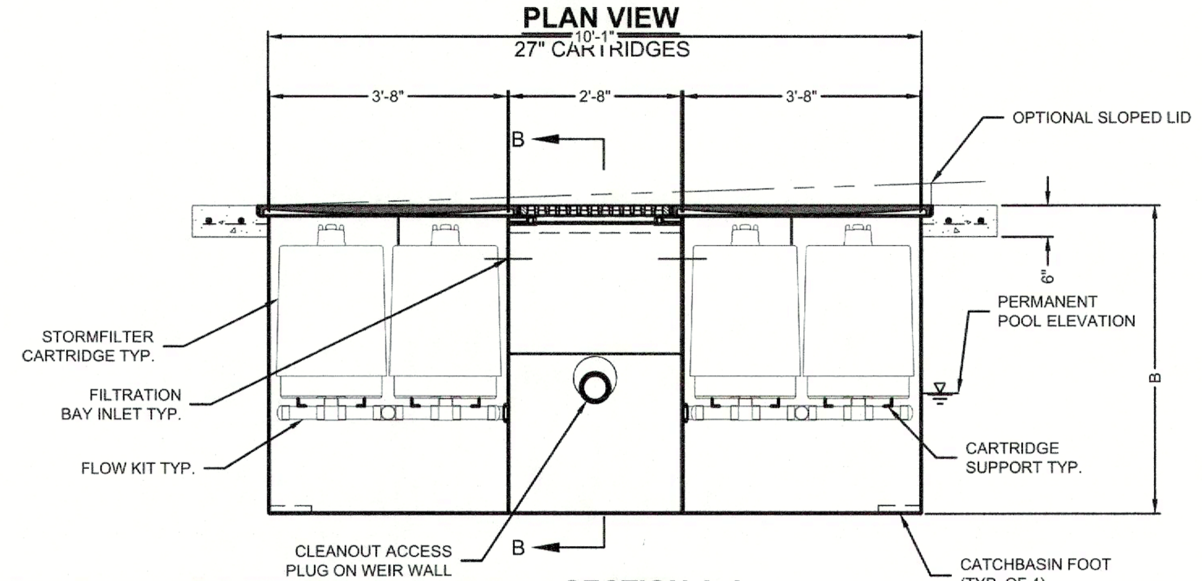
CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY	1.0			1.0			1.8		
INLET PERMANENT POOL LEVEL (A)	1'-0"			1'-0"			2'-0"		
OVERALL STRUCTURE HEIGHT (B)	4'-9"			3'-9"			4'-9"		

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY

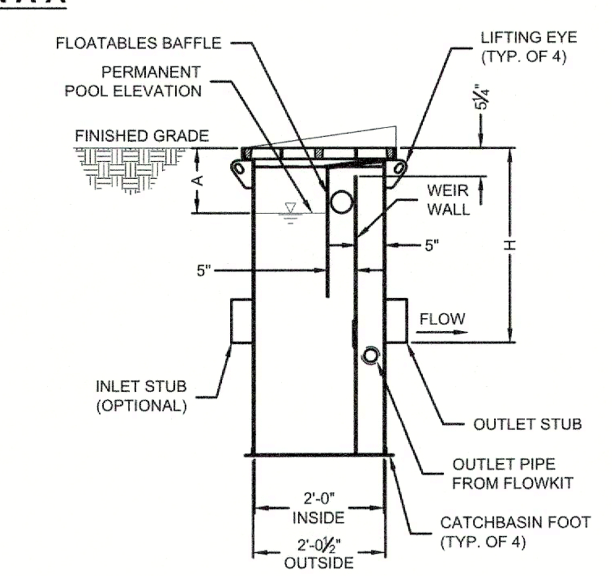


PLAN VIEW
27" CARTRIDGES



SECTION A-A

4-CARTRIDGE CATCHBASIN STORMFILTER DATA		
STRUCTURE ID		1
WATER QUALITY FLOW RATE (cfs)		0.11
PEAK FLOW RATE (<1 cfs)		0.97
RETURN PERIOD OF PEAK FLOW (yrs)		25
CARTRIDGE FLOW RATE (gpm)		1.67/SF
MEDIA TYPE (PERLITE, ZPG, PSORB)		PSORB
RIM ELEVATION		198.4
PIPE DATA:	I.E.	DIAMETER
INLET STUB	N/A	N/A
OUTLET STUB	196.1	15"
CONFIGURATION (OUTLET / INLET)		
SLOPED LID		NO
SOLID COVER		NO
NOTES/SPECIAL REQUIREMENTS: SYSTEM TO HAVE GRATED INLET		
*PER ENGINEER OF RECORD		



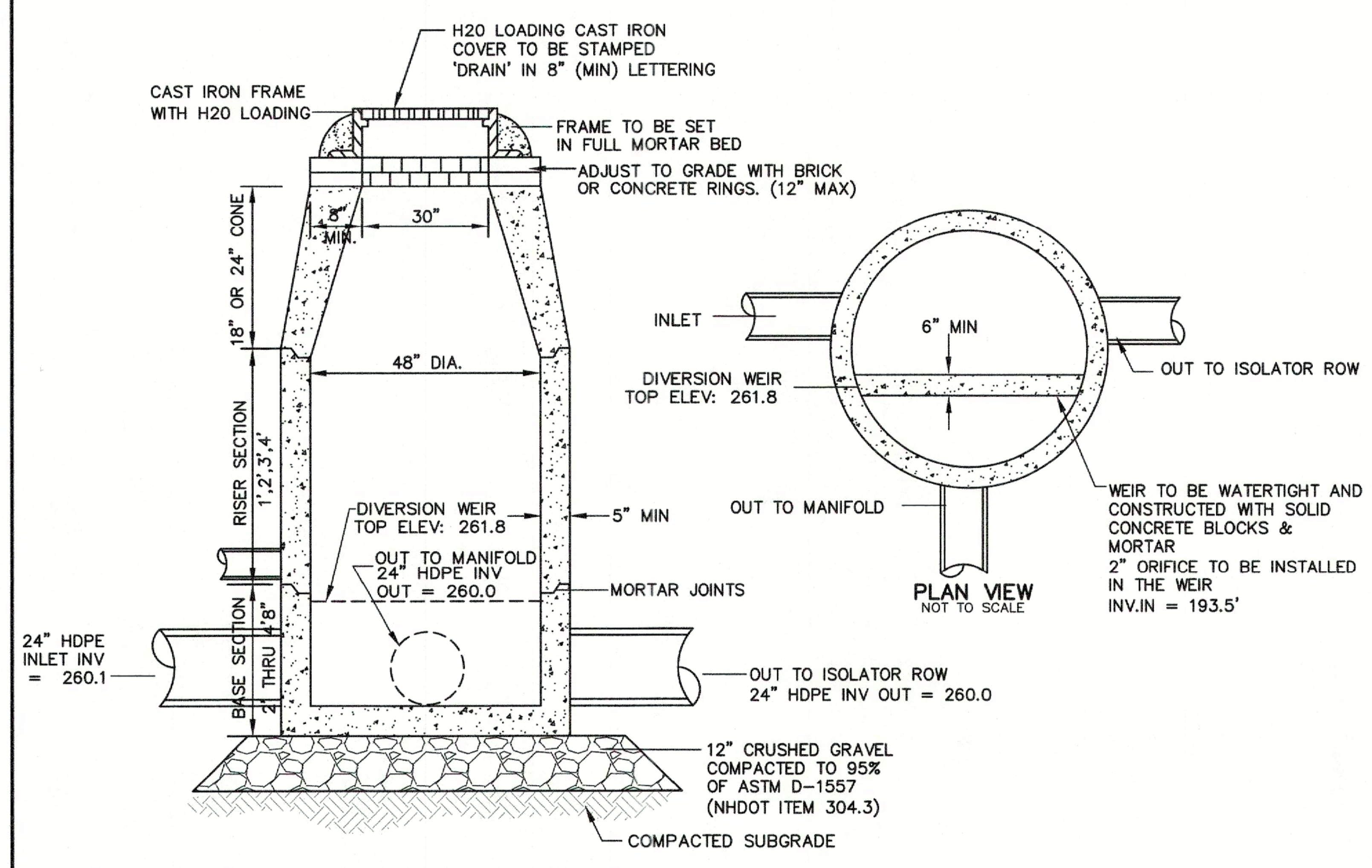
SECTION C-C

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
6. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
7. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
8. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

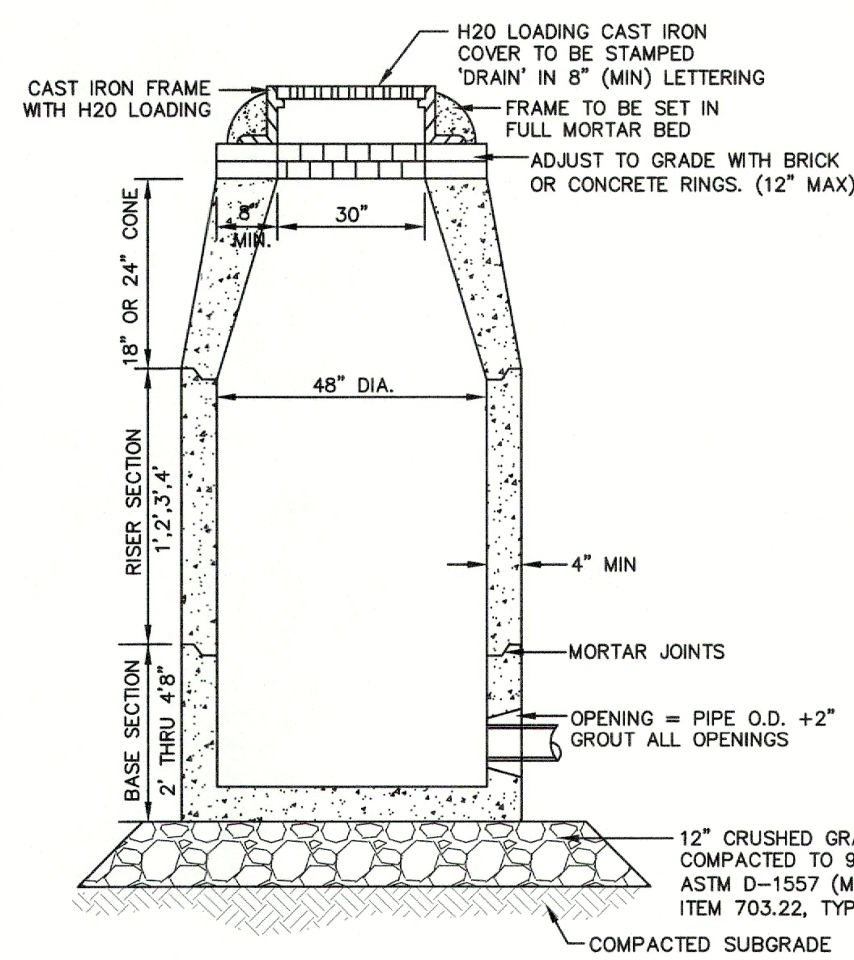
CONTECH "STORMFILTER" DETAIL

NOT TO SCALE



DRAIN MANHOLE WITH DIVERSION WEIR

NOT TO SCALE

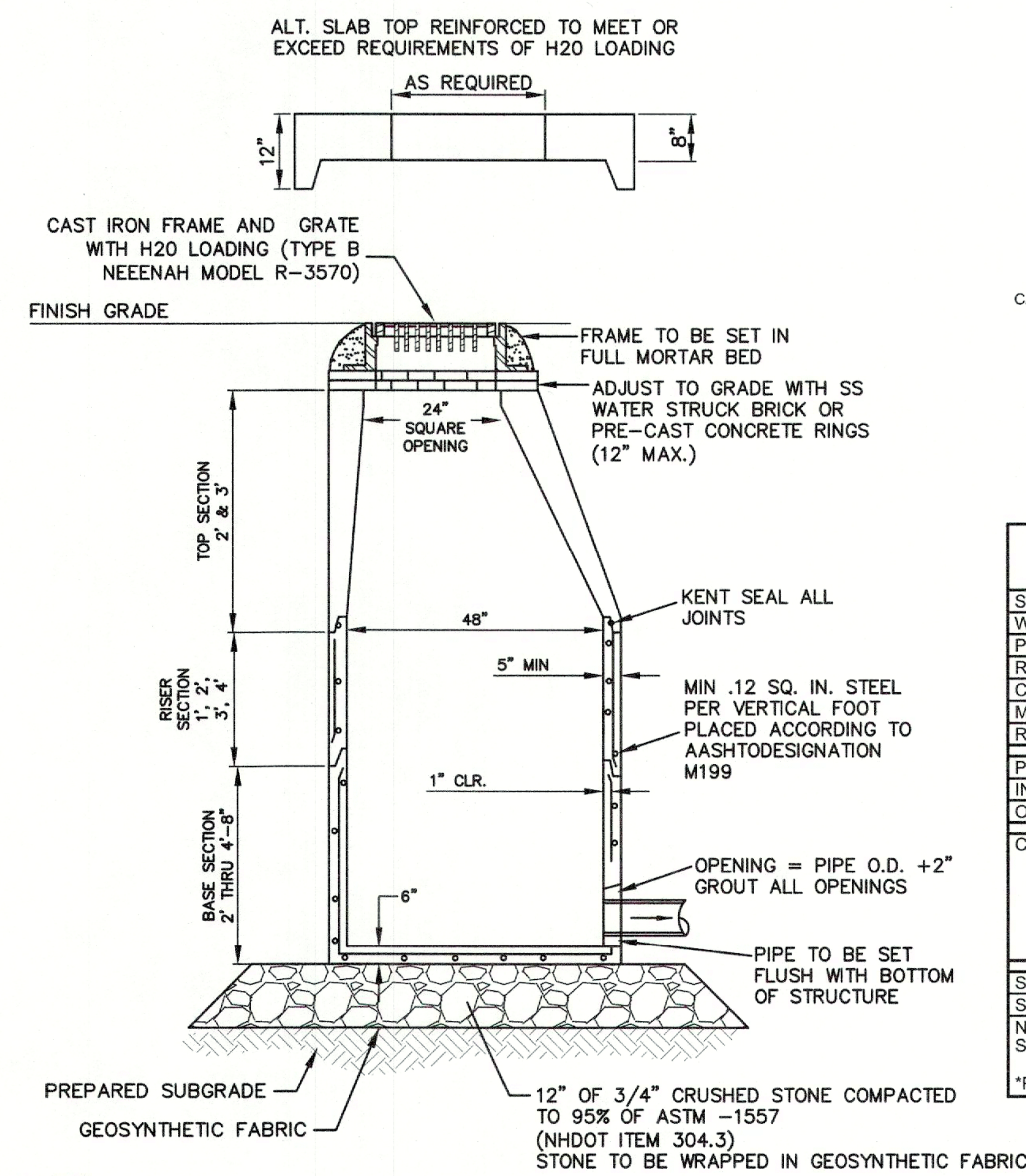


NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

DRAIN MANHOLE (4' DIAM.)

NOT TO SCALE



NOTES:

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5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NHDOT CATCH BASIN TYPE ALTERNATE 1 OR NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

CATCH BASIN (w/o SUMP)

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
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603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

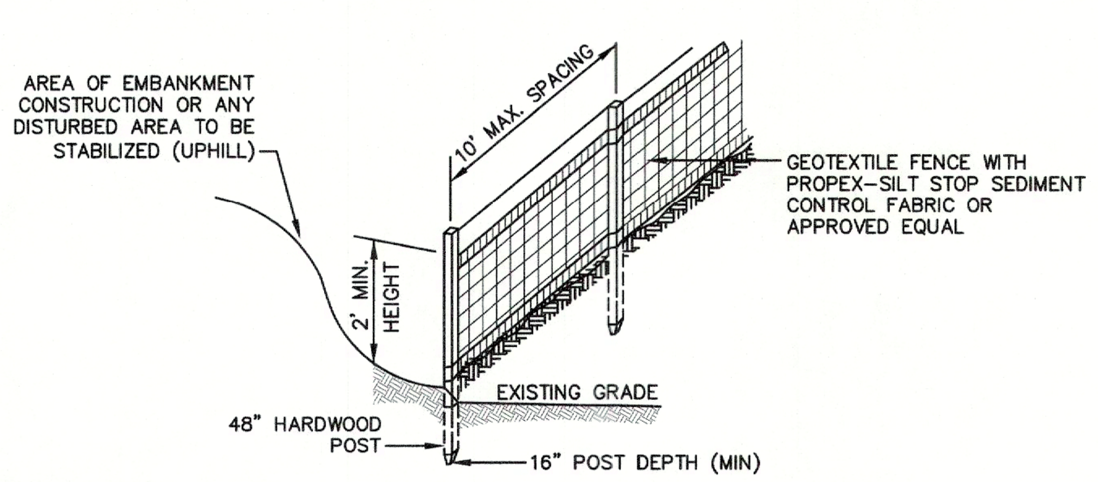
DRAWING No.

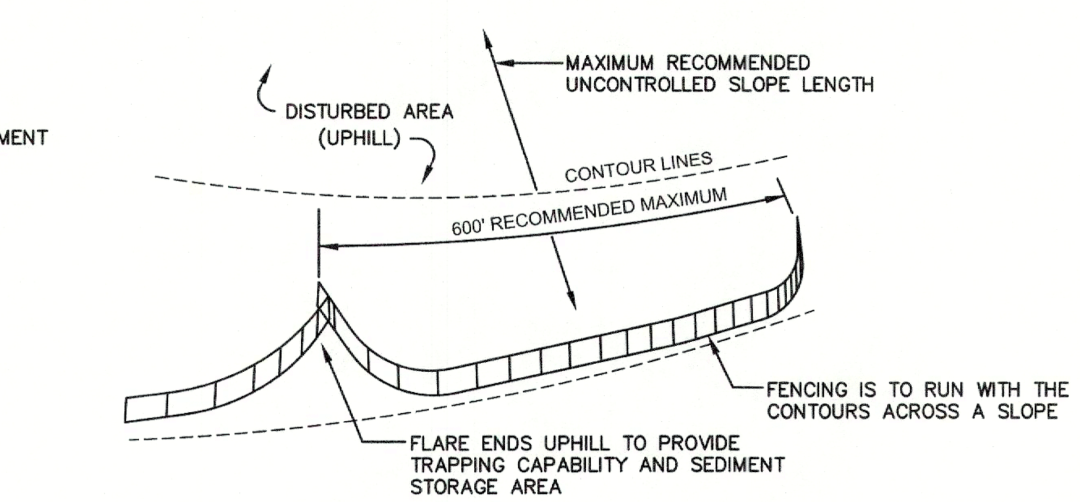
D7

SHEET 46 OF 61
JBE PROJECT NO. 20564

TEMPORARY EROSION CONTROL NOTES

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED, EXCEPT THAT MORE AREA MAY BE EXPOSED AS APPROVED BY NHDES IF AN ENVIRONMENTAL MONITOR IS EMPLOYED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S150BN EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
8. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
9. AFTER OCTOBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    c. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
    d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
12. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
13. PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.
14. IN ORDER TO ENSURE THE STABILITY OF THE SITE AND EFFECTIVE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED IN THE PLANS FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE IN STRICT COMPLIANCE WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS IN ADDITION TO THOSE CALLED FOR IN THE SWPPP:
    a. A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL OR A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE ("MONITOR") SHALL BE EMPLOYED TO INSPECT THE SITE FROM THE START OF ALTERATION OF TERRAIN ACTIVITIES UNTIL THE SITE IS IN FULL COMPLIANCE WITH THE SITE SPECIFIC PERMIT ("PERMIT").
    b. DURING THIS PERIOD, THE MONITOR SHALL INSPECT THE SUBJECT SITE AT LEAST ONCE A WEEK, AND IF POSSIBLE, DURING ANY ½ INCH OR GREATER RAIN EVENT (I.E. ½ INCH OF PRECIPITATION OR MORE WITHIN A 24 HOUR PERIOD). IF UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THIS EVENT.
    c. THE MONITOR SHALL PROVIDE TECHNICAL ASSISTANCE AND RECOMMENDATIONS TO THE CONTRACTOR ON THE APPROPRIATE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROLS REQUIRED TO MEET THE REQUIREMENTS OF RSA 485 A:17 AND ALL APPLICABLE DES PERMIT CONDITIONS.
    d. WITHIN 24 HOURS OF EACH INSPECTION, THE MONITOR SHALL SUBMIT A REPORT TO DES VIA EMAIL (MICHAEL SCHLOSSER AT: MICHAEL.J.SCHLOSSER@DES.NH.GOV).
    e. THE MONITOR SHALL MEET WITH DES TO DECIDE UPON A REPORT FORMAT. THE REPORT FORMAT SHALL BE REVIEWED AND APPROVED BY DES PRIOR TO THE START OF CONSTRUCTION.





CONSTRUCTION SPECIFICATIONS:

1. WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
2. THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCE SHALL REMAIN IN PLACE FOR 24 MONTHS.
7. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE

NOT TO SCALE

BLASTING BEST MANAGEMENT PRACTICES

ALL ACTIVITIES RELATED TO BLASTING SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDLING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.

1. LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
   (a) DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS.
   (b) EXPLOSIVE PRODUCTS SHALL BE MANAGED ON SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF SITE DISPOSAL.
   (c) SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF SITE DISPOSAL.
   (d) LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED.
   (e) LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT.
   (f) EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.
2. EXPLOSIVE SELECTION. THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
   (a) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
   (b) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER.
3. PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.
4. MUCK PILE MANAGEMENT. MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOWING MEASURES:
   (a) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
   (b) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.
5. SPILL PREVENTION MEASURES AND SPILL MITIGATION. SPILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A MINIMUM:
   (a) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:
      1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE.
      2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY.
      3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY.
      4. INSPECT STORAGE AREAS WEEKLY.
      5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS.
      6. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS.
      7. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
   (b) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
      1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED.
      2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS.
      3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS.
      4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES.
      5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
   (A) THE TRAINING OF ON SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
   (a) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF NHDES [NOTE THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6: 'BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT" OR ITS SUCCESSOR DOCUMENT.]

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
   B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
      NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
      PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOIL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

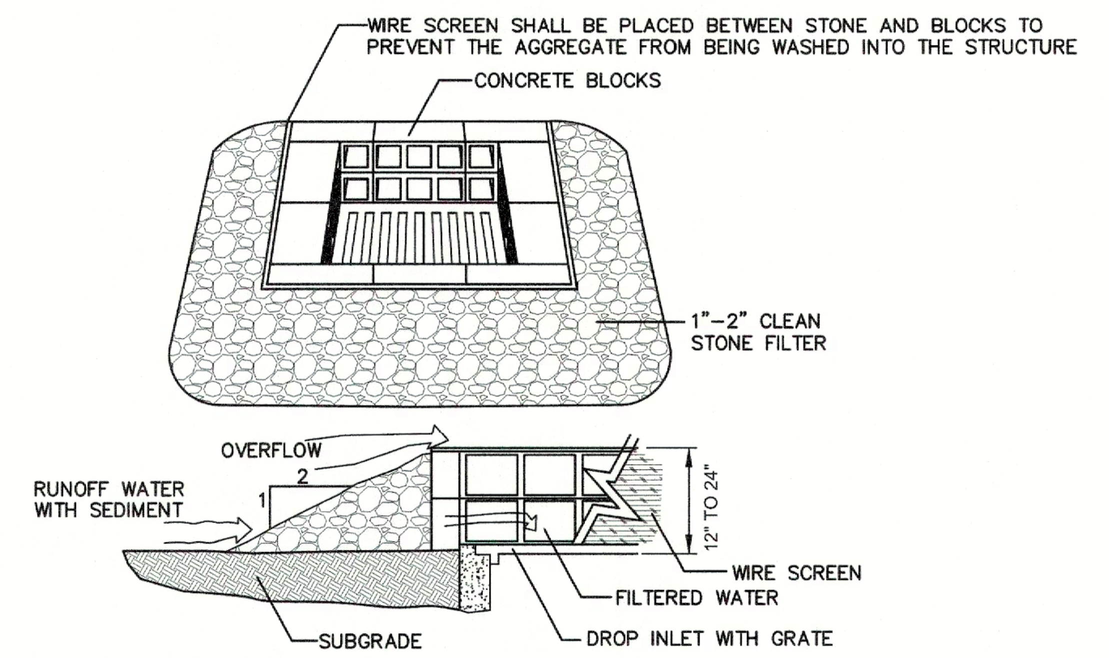
NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft..
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES



MAINTENANCE NOTE:

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

TEMPORARY CATCH BASIN INLET PROTECTION
(Block and Gravel Drop Inlet Sediment Filter)

NOT TO SCALE

CONSTRUCTION SEQUENCE

1. PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
2. WETLAND BOUNDARIES ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION. AT LEAST A TEMPORARY CULVERT OR ROADBED TO BE IN PLACE PRIOR TO THE START OF CONSTRUCTION.
3. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
4. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
5. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
6. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
7. STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
8. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS, INCLUDING THE CONSTRUCTION OF ANY RETAINING WALLS AND SOUND WALLS.
9. PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
10. INSTALL THE SEWER AND DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
11. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.
12. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
13. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS AND/OR PROPERTY.
14. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
15. PAVE ALL PARKING LOTS AND ROADWAYS WITH INITIAL 'BASE COURSE'.
16. PERFORM ALL REMAINING SITE CONSTRUCTION (i.e. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
17. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (i.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
18. FINISH PAVING ALL ROADWAYS AND PARKING AREAS WITH 'FINISH' COURSE.
19. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
20. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
21. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
22. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
23. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
24. INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
25. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
26. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

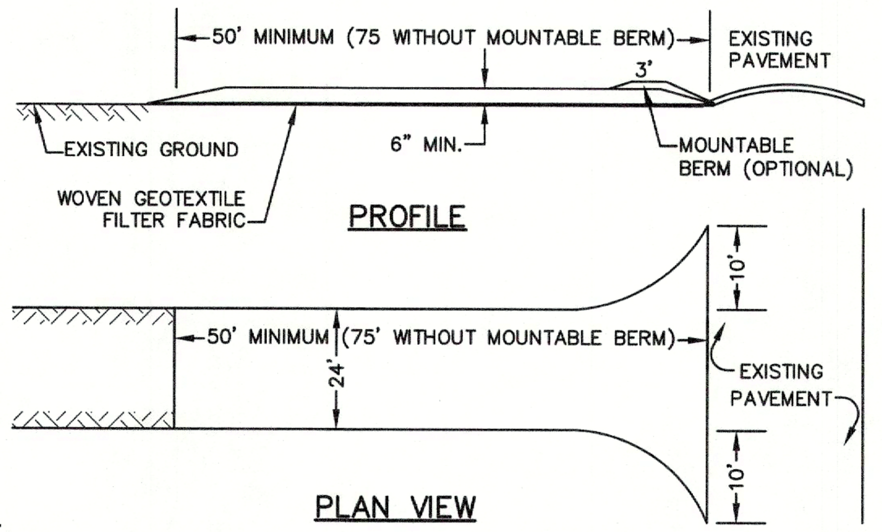
STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN No. 9846
LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EROSION AND SEDIMENT CONTROL DETAILS
Project: WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
E1
SHEET 47 OF 61
JBE PROJECT NO. 20564



NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, 75' WITHOUT A MOUNTABLE BERM, AND EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

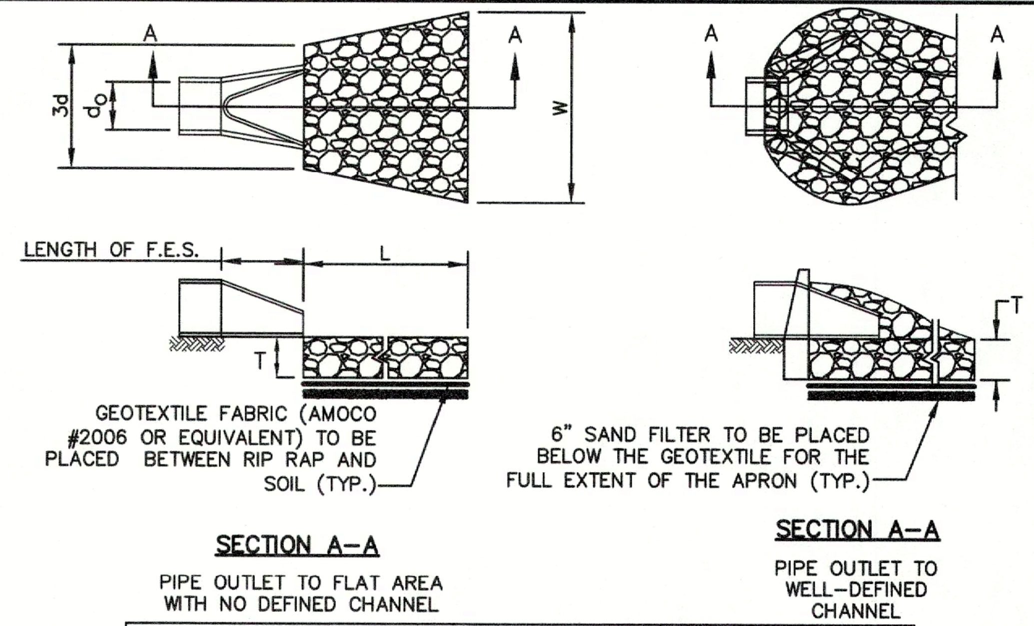


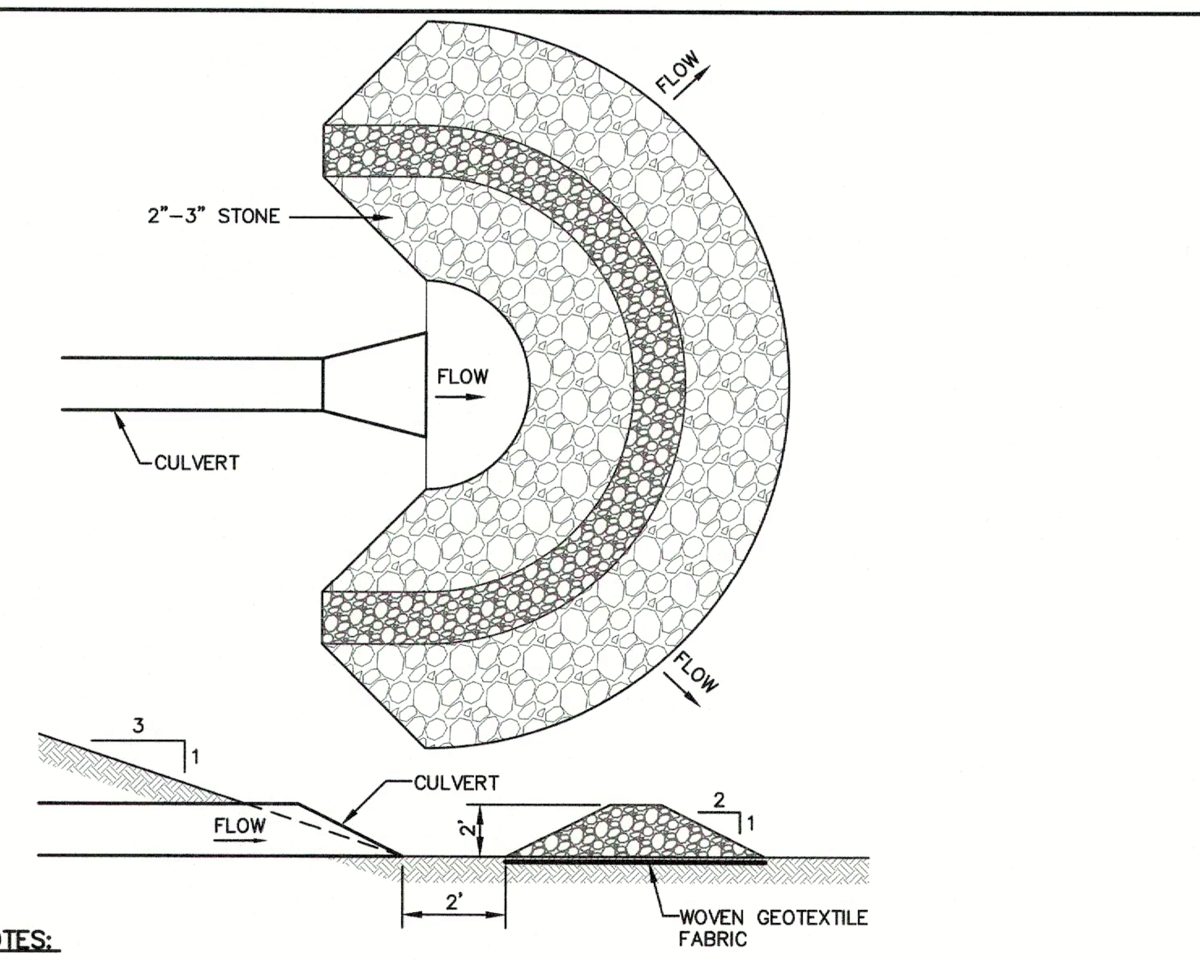
TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
THICKNESS OF RIP RAP = 1.5 FEET			
d50 SIZE=	0.25	FEET 3	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE		SIZE OF STONE (INCHES) FROM	TO
100%		5	6
85%		4	5
50%		3	5
15%		1	2

NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

RIP RAP OUTLET PROTECTION APRON

NOT TO SCALE

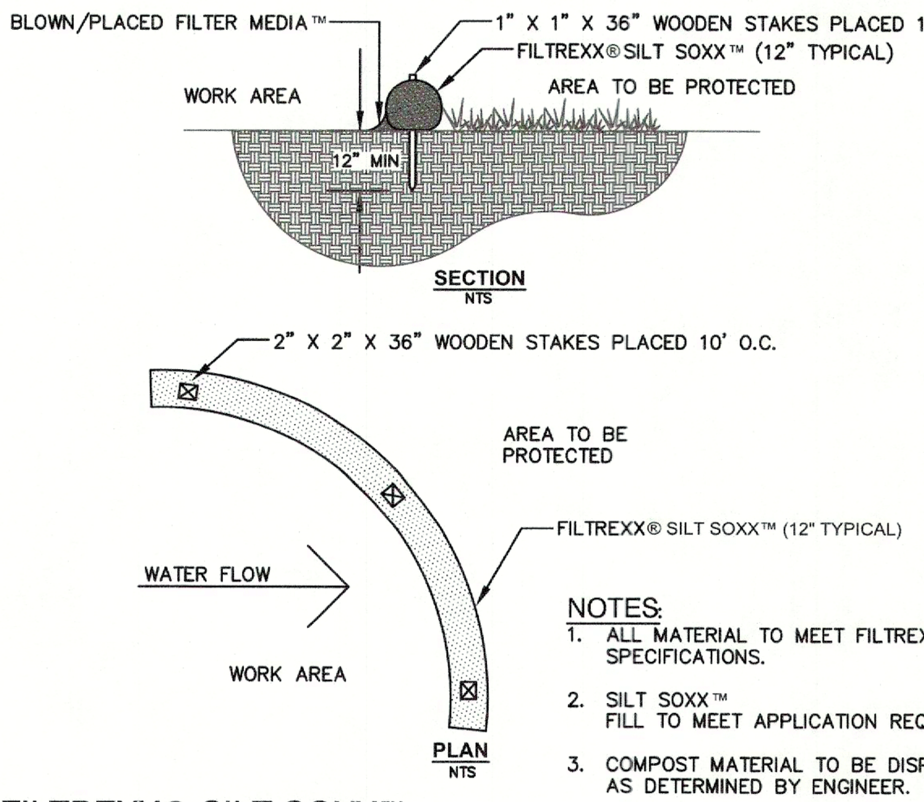


NOTES:

1. TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2-3" STONE OVER WOVEN GEOTEXTILE FABRIC.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
4. STRUCTURE SHALL BE REMOVED WHEN THE SITE IS STABILIZED WITH THE PROPOSED RIP RAP FIELD. AREAS OUTSIDE THE RIP RAP FIELD ARE TO BE VEGETATED AND SMOOTHED.

TEMPORARY CULVERT INLET PROTECTION CHECK DAM

NOT TO SCALE

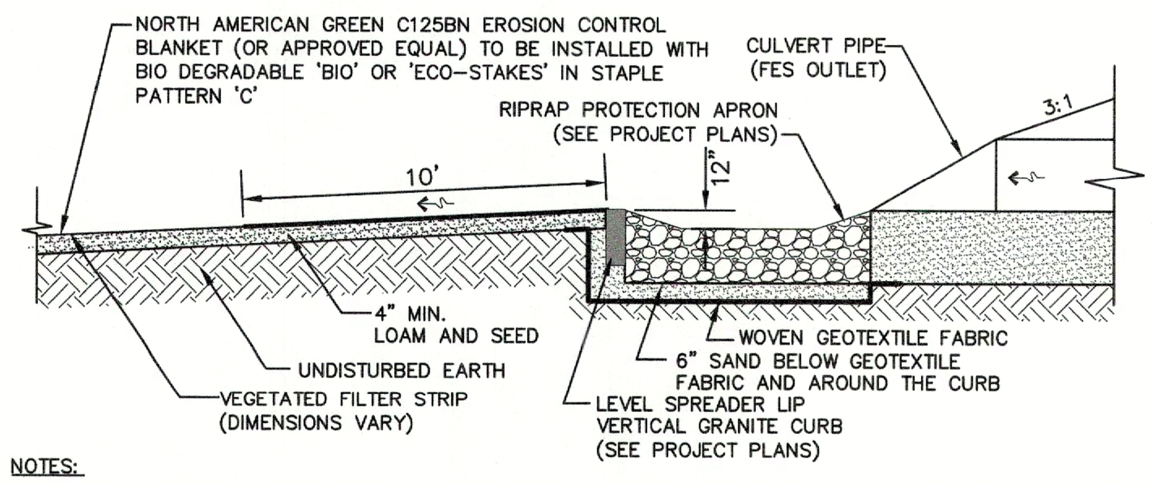


NOTES:

1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX® SILT SOXX™

NOT TO SCALE

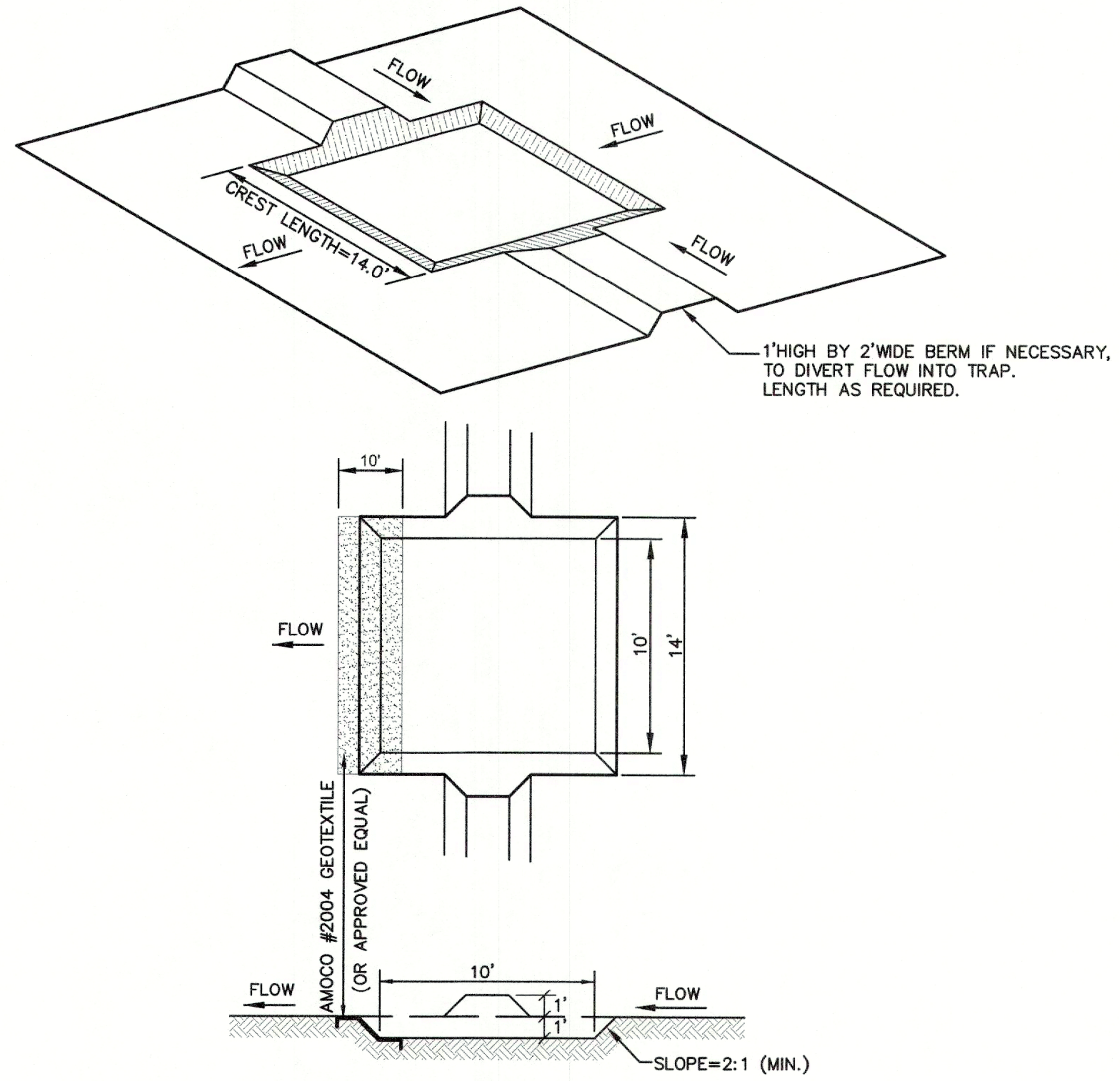


NOTES:

1. CONSTRUCT LEVEL SPREADER LIP ON ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. VERTICAL GRANITE CURB SHALL BE PLACED A MINIMUM OF SIX INCHES DEEP AND EXTEND ENTIRE LENGTH OF LIP.
3. THE RIP RAP APRON PRIOR TO THE LEVEL SPREADER SHALL NOT EXCEED A 0 PERCENT GRADE.
4. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER MUST NOT RECONCENTRATE IMMEDIATELY BELOW THE SPREADER.
5. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PERFORMED.
6. MAINTENANCE: LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE SPREADER HAS BEEN DAMAGED. SEDIMENT DEEPER THAN FOUR INCHES ACCUMULATION SHOULD BE REMOVED. IF RILLING HAS TAKEN PLACE ON LIP, THEN DAMAGE SHOULD BE REPAIRED AND REVEGETATED. VEGETATION SHOULD BE MOWED OCCASIONALLY TO CONTROL WEEDS AND ENCROACHMENT OF WOODY VEGETATION. CLIPPINGS SHOULD BE REMOVED AND DISPOSED OF OUTSIDE SPREADER AND AWAY FROM OUTLET AREA. FERTILIZATION SHOULD BE DONE AS NECESSARY TO KEEP VEGETATION HEALTHY AND DENSE.

LEVEL SPREADER AT CULVERT OUTLET

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS:

1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION, ROOTS, AND DEBRIS.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS, WOODY VEGETATION, STONES OVER 6" SIZE, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIALS. THE FILL SHALL BE COMPACTED BY ROUTING CONSTRUCTION EQUIPMENT OVER IT SO THAT THE ENTIRE AREA OF THE FILL IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF THE EQUIPMENT.
3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
4. ALL CUT AND FILL SLOPES SHALL BE 2:1 (H:V) OR FLATTER.
5. OUTLET CREST ELEVATIONS SHALL BE AT LEAST ONE FOOT BELOW THE TOP OF THE EMBANKMENT.
6. OUTLET CREST IS TO BE STABILIZED WITH AMOCO #2004 GEOTEXTILE (OR APPROVED EQUAL), WHICH IS TO BE "TOED" INTO THE GROUND AT ITS ENDS AT LEAST SIX INCHES AND IS TO EXTEND AT LEAST ONE FOOT INTO THE TRAP AND ONE FOOT DOWNSTREAM FROM THE OUTLET EDGE FOR THE ENTIRE LENGTH OF THE CREST.
7. ALL DISTURBED AREAS SHALL BE VEGETATED USING THE APPROPRIATE VEGETATIVE BEST MANAGEMENT PRACTICE.
8. ALL TRAPS ARE TO HAVE SEDIMENT DEPOSITS REMOVED AND DISPOSED PROPERLY AT LEAST ONCE WEEKLY AND AFTER EACH RAINFALL.

TEMPORARY SEDIMENT TRAP

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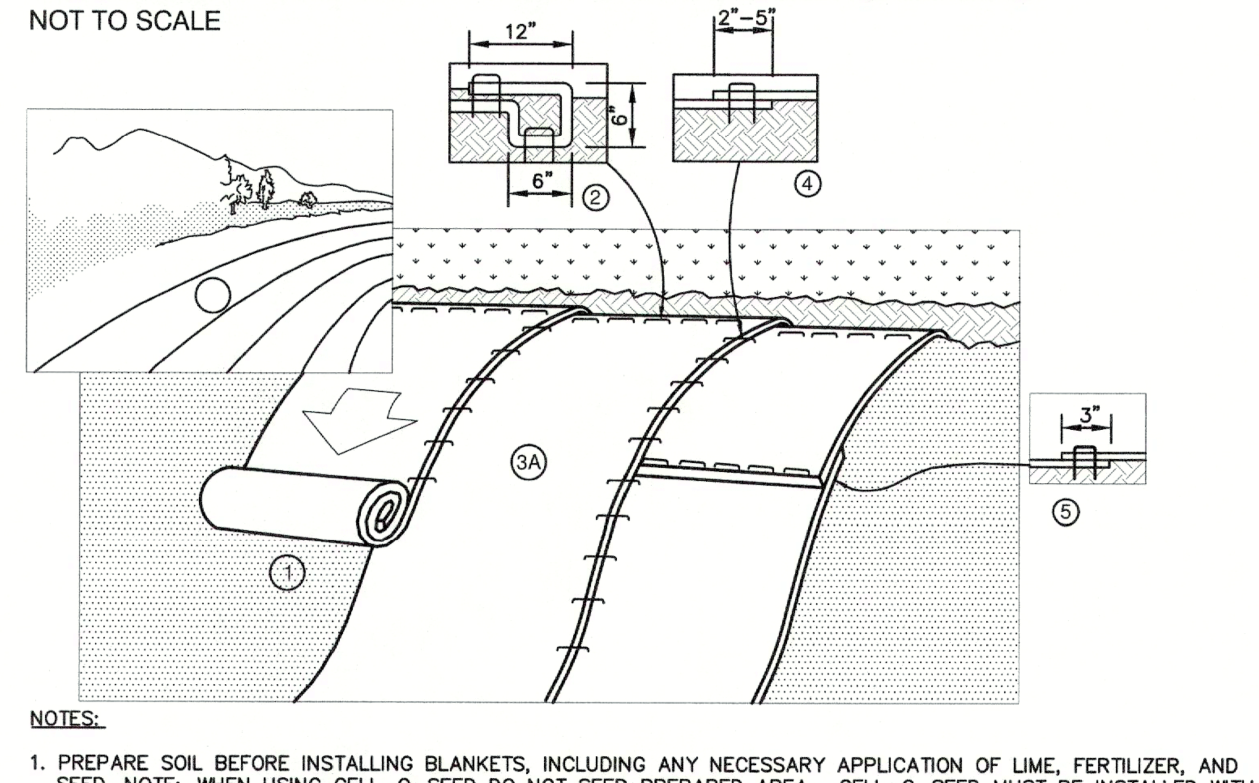


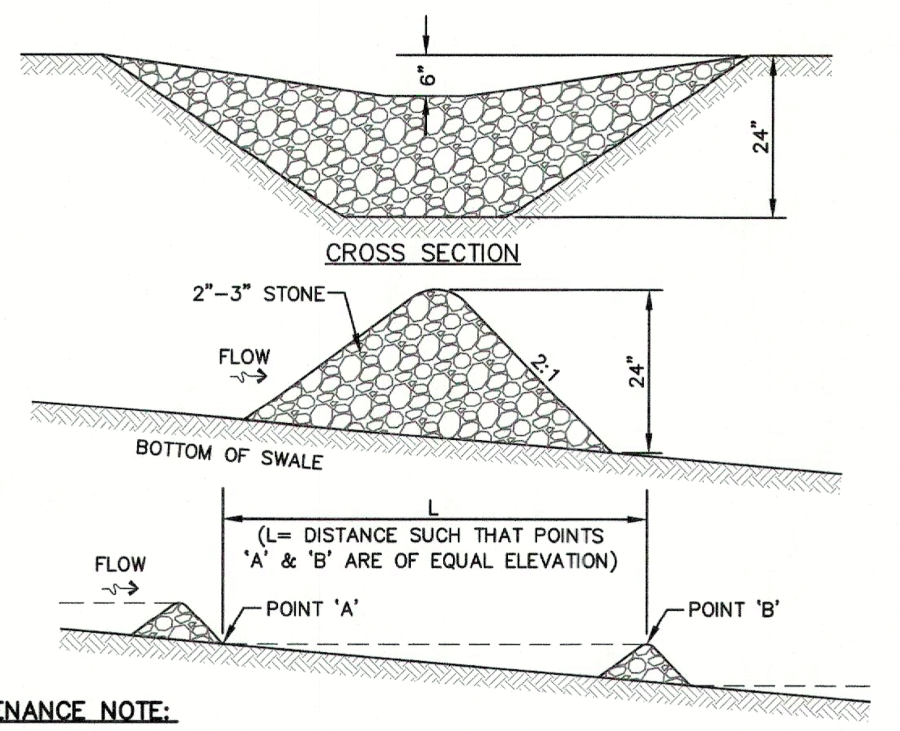
NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
6. THERE SHALL BE NO PLASTIC, OR MULTI-FILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN $\frac{1}{8}$ INCHES MATERIAL UTILIZED.
7. TURF REINFORCEMENT MATS SHALL BE COVERED WITH SOIL TO PREVENT EXPOSURE OF THE MATS TO THE SURFACE.

NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040

EROSION CONTROL BLANKET SLOPE INSTALLATION (NORTH AMERICAN GREEN BIONET S150BN)

NOT TO SCALE

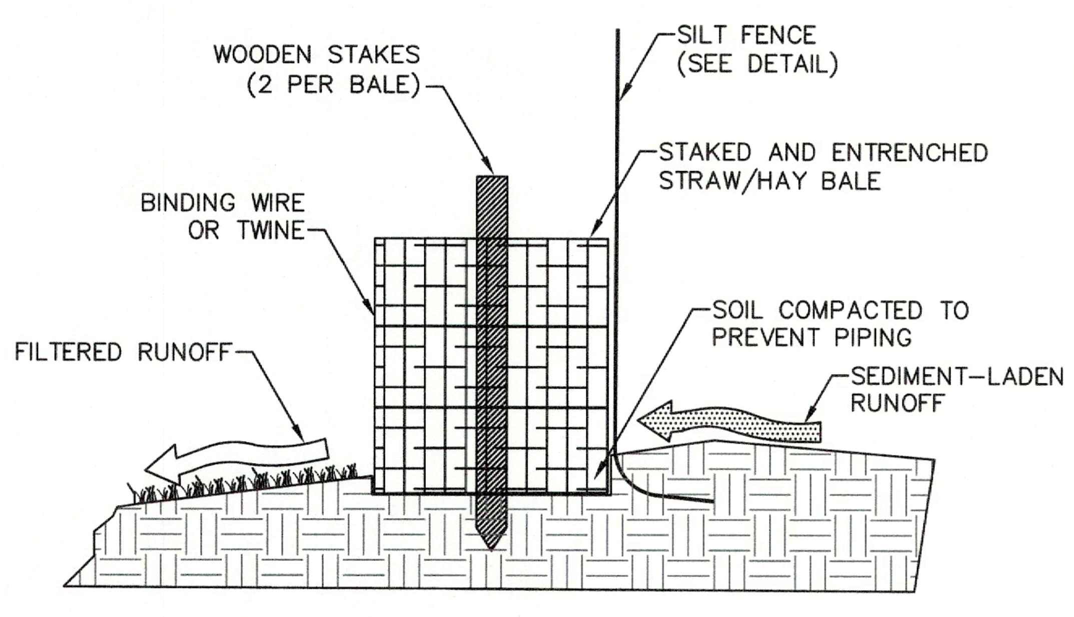


MAINTENANCE NOTE:

1. STONE CHECK DAMS SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM

NOT TO SCALE



HAYBALE DETAIL

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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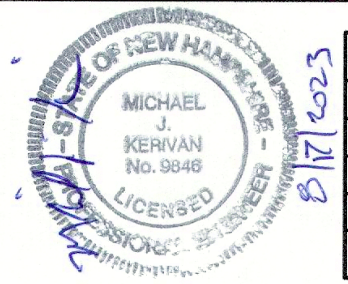

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

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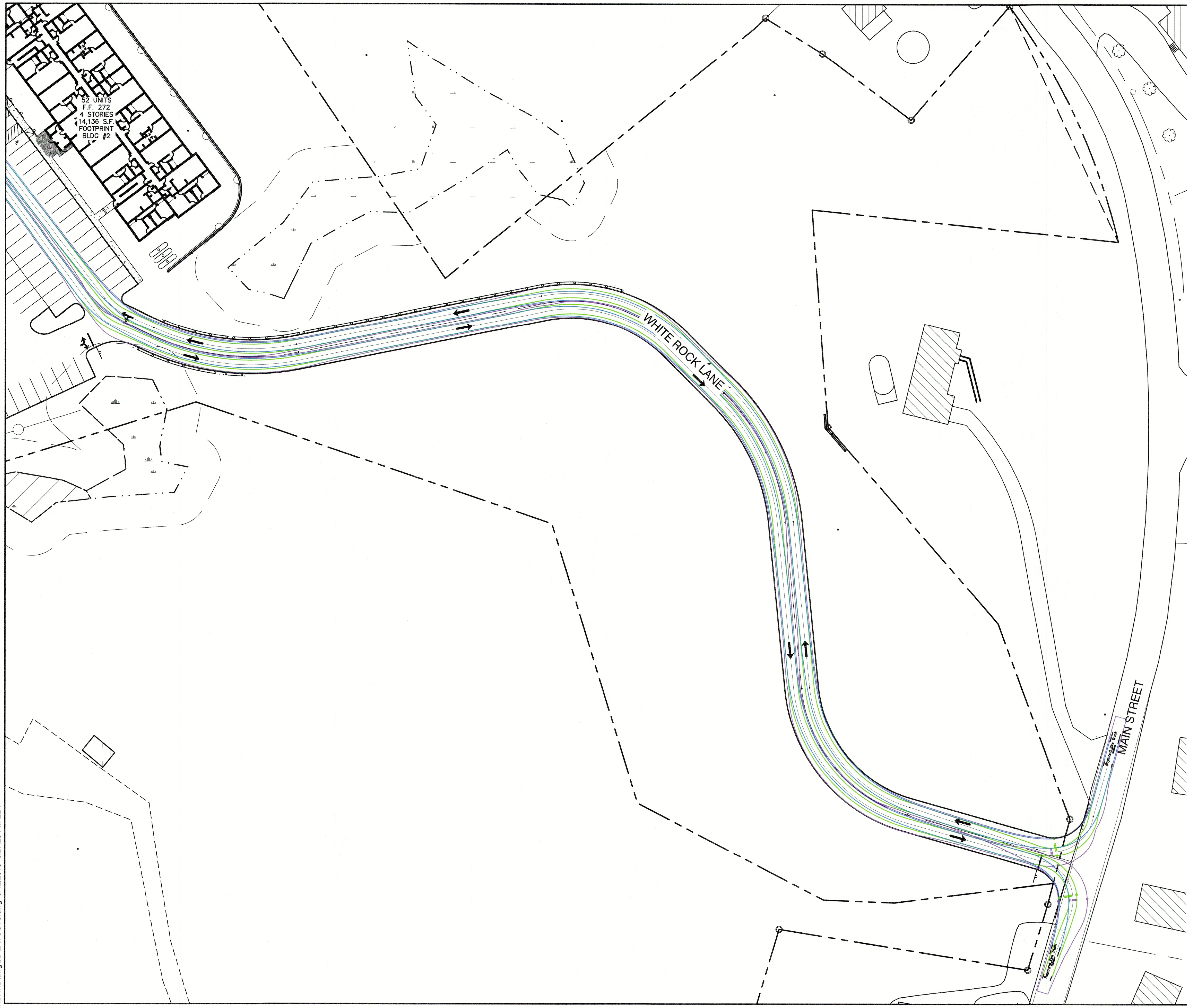
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

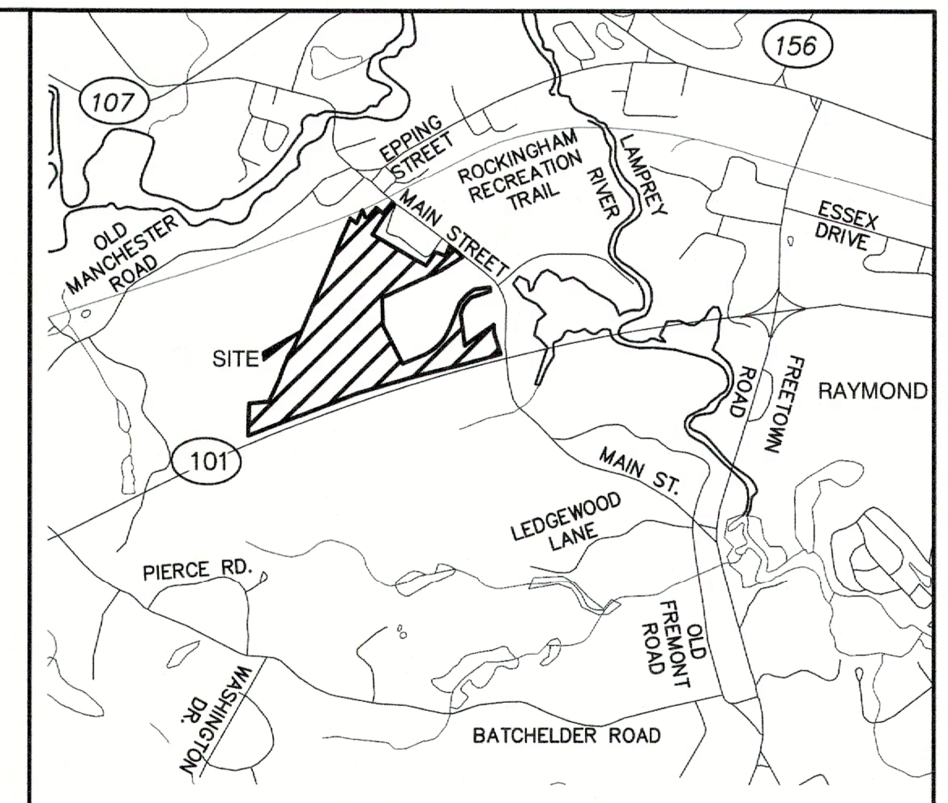
Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

E2

SHEET 48 OF 61
JBE PROJECT NO. 20564





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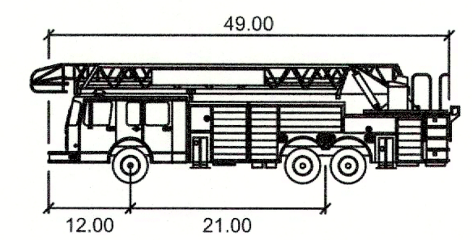
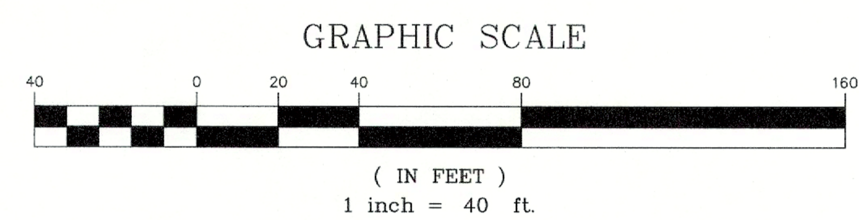


Raymond Fire Truck

	feet
Width	: 8.50
Track	: 6.91
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

= VEHICLE BODY
= FRONT WHEELS
= REAR WHEELS



PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9648 LICENSED PROFESSIONAL ENGINEER 2/1/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	TRUCK TURNING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
T1
SHEET 49 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN No. 9846
LICENSED PROFESSIONAL ENGINEER
8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **TRUCK TURNING PLAN**

Project: WHITE ROCK PLACE
109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077

Owner of Record: JOSEPH, JOHN, ARDELL & INEX WELCH
49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
T2
SHEET 50 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
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603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	TRUCK TURNING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
T3
SHEET 51 OF 61
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER 8/17/2023

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
17	8/2/23	REMOVED SUMPS FROM OUTLET STRUCTURES	DJM
16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

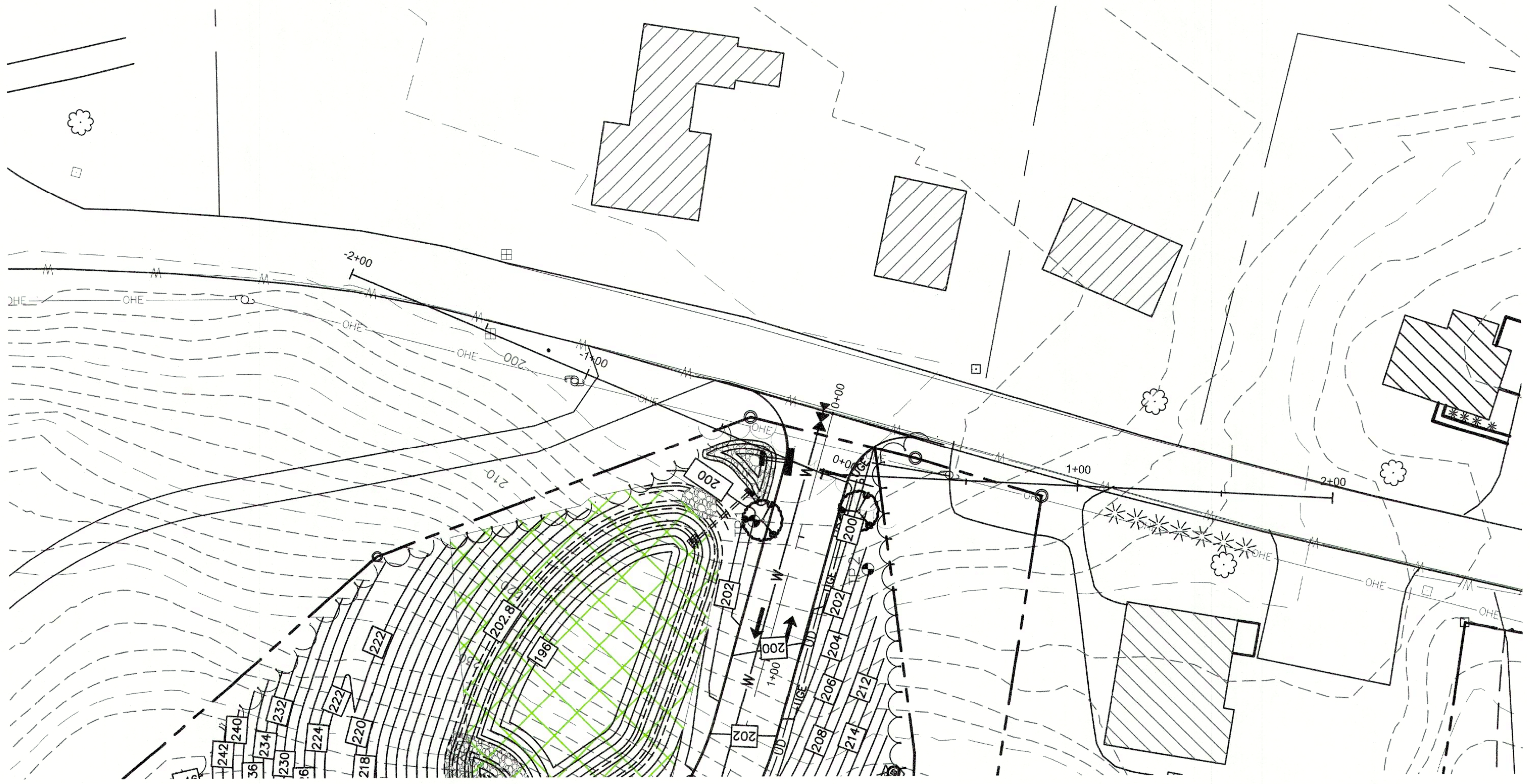
Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	TRUCK TURNING PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

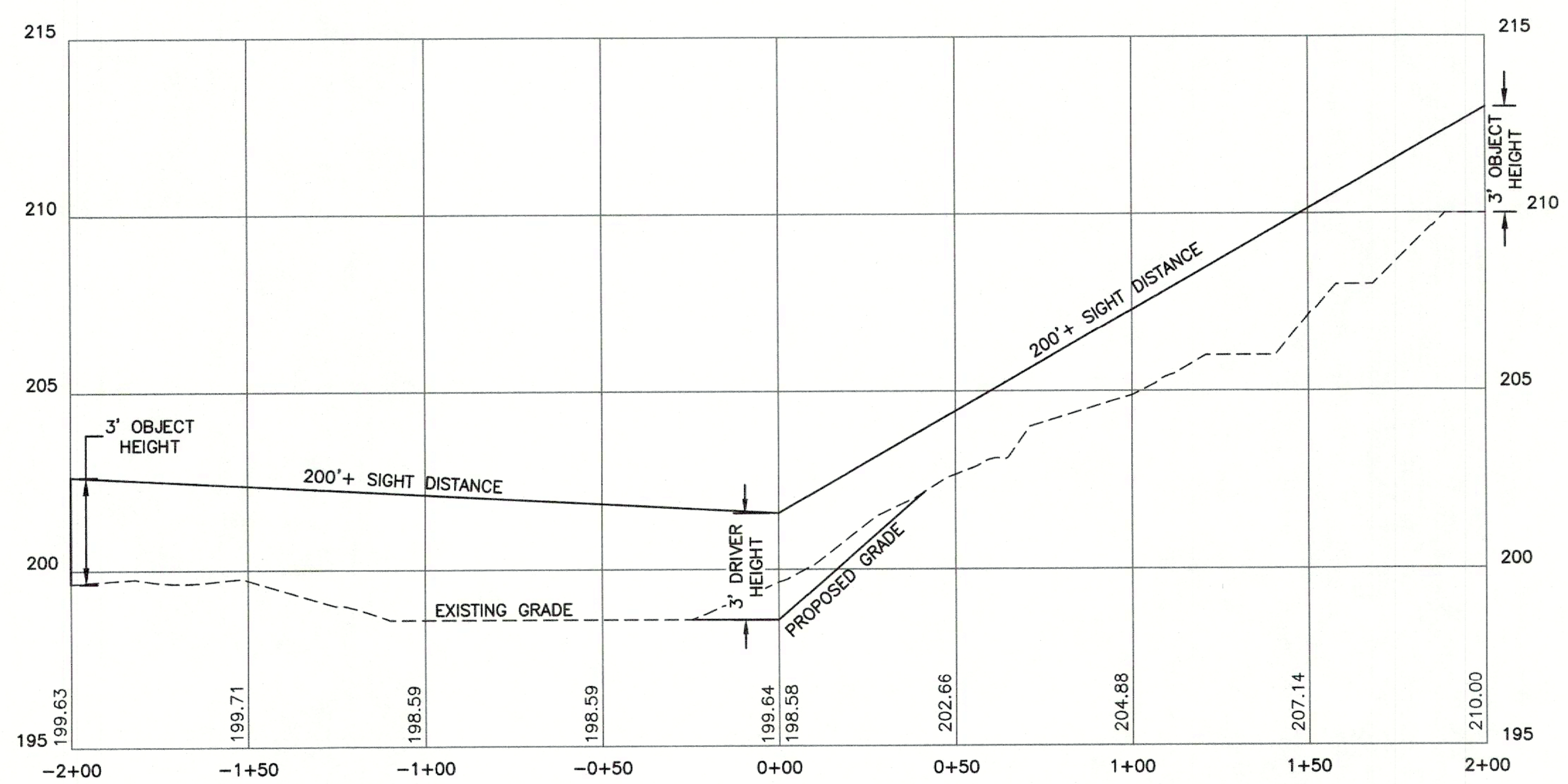
DRAWING No.

T4

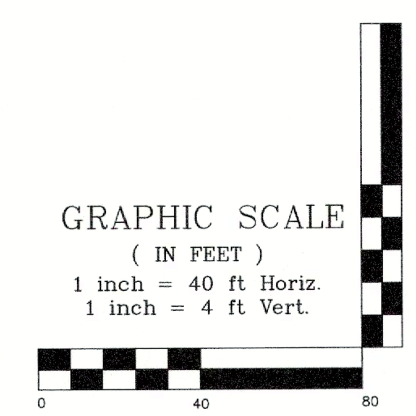
SHEET 52 OF 61
JBE PROJECT NO. 20564



SIGHT DISTANCE PLAN



SIGHT DISTANCE PROFILE



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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 8/17/23

REV.	DATE	REVISION	BY
18	8/3/23	ADDED AOT PERMIT NUMBER	DJM
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16	7/28/23	ADDED NH FISH AND GAME CONDITIONS	DJM
15	7/10/23	ADDED PHASING PLAN	DJM
14	6/1/23	REVISED PER TRC COMMENTS	DJM

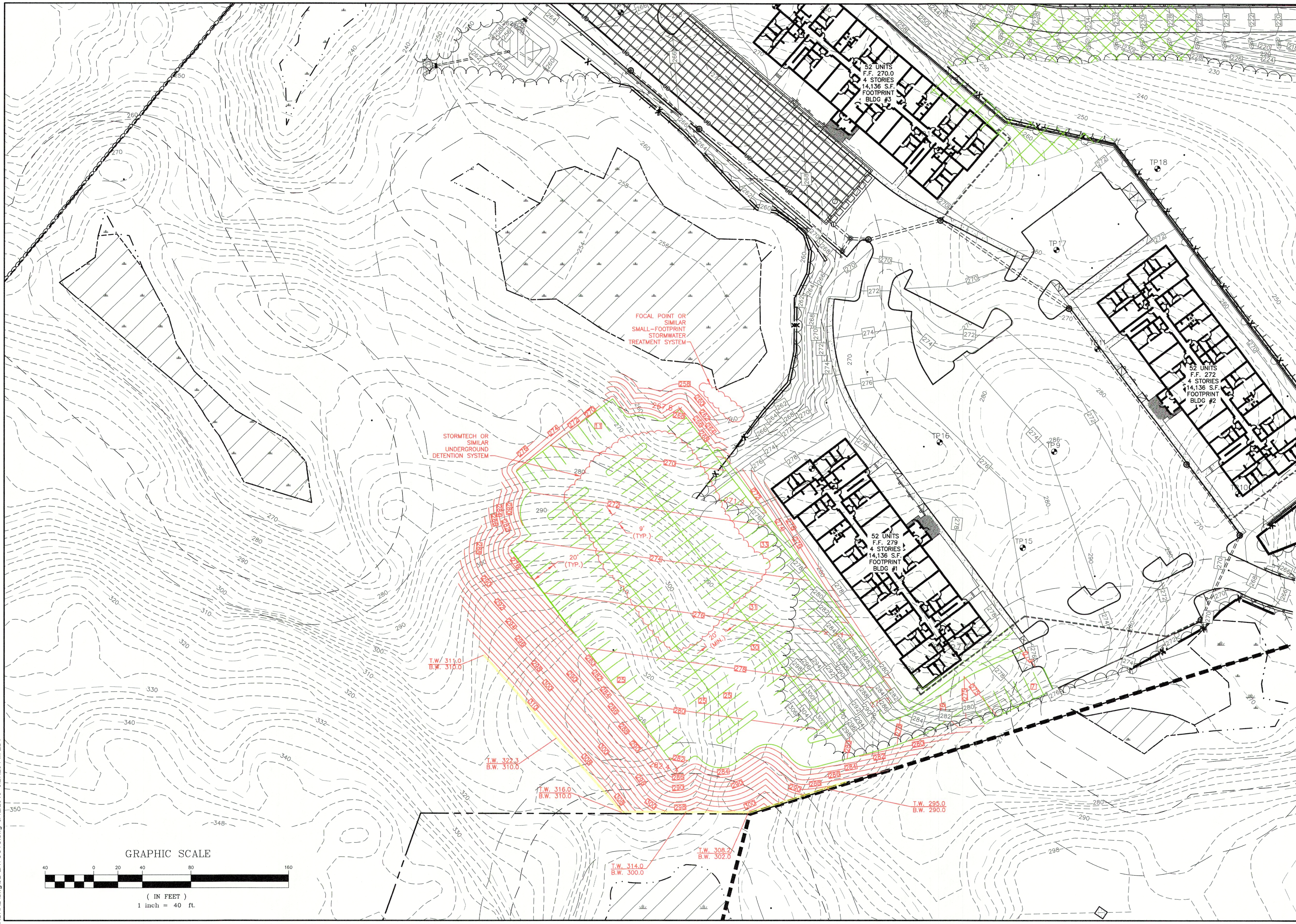
Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	HIGHWAY ACCESS PLAN
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

H1

SHEET 53 OF 61
JBE PROJECT NO. 20564



NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE PARKING THAT WOULD BE NECESSARY IN ORDER TO MEET THE TOWN'S PARKING REQUIREMENTS. THIS PLAN IS NOT FOR CONSTRUCTION.
2. THE EXISTENCE OF THIS PLAN DOES NOT EXEMPT ANYONE FROM OBTAINING REQUIRED LOCAL, STATE, AND FEDERAL PERMITS IF THEY WISH TO EXPAND THE PARKING AT ANY POINT.
3. 3 PARKING SPACES REQUIRED PER UNIT
   156 UNITS PROVIDED
   156*3 = 468 PARKING SPACES REQUIRED
   281 PARKING SPACES PROVIDED AT THIS TIME
   468−281 = 187 ADDITIONAL SPACES NEEDED TO MEET TOWN REQUIREMENT

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOT 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

STATE OF NEW HAMPSHIRE
MICHAEL J. KERIVAN
No. 9846
LICENSED
PROFESSIONAL ENGINEER
8/17/2023

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14	6/1/23	REVISED PER TRC COMMENTS	DJM

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PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PARKING EXPANSION EXHIBIT
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
EX1
SHEET 54 OF 61
JBE PROJECT NO. 20564

NEW HAMPSHIRE FISH AND GAME - RECOMMENDED PERMIT CONDITIONS:

1. BLANDING'S TURTLE (STATE ENDANGERED), SPOTTED TURTLE (STATE THREATENED) AND NORTHERN BLACK RACER (STATE THREATENED) OCCUR WITHIN THE VICINITY OF THE PROJECT AREA. ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHALL BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHALL BE PROVIDED FLYERS THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION.
2. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHALL BE COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT DURING THE CONSTRUCTION PHASE OF THE PROJECT. SEE FLYERS ON THIS SHEET.
3. OBSERVATIONS OF NORTHERN BLACK RACERS IN THE MONTHS OF APRIL–MAY AND SEPTEMBER–OCTOBER MAY INDICATE THE POTENTIAL FOR A DEN SITE ON OR NEAR THE PROJECT SITE. OBSERVATIONS OF THIS SPECIES DURING THIS TIMEFRAME SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM. PLEASE CONTACT MELISSA WINTERS (603–479–1129) OR BRENDAN CLIFFORD (603–944–0885). OBSERVATIONS OF THIS SPECIES OUTSIDE OF THIS TIMEFRAME CAN FOLLOW GENERAL REPORTING GUIDANCE. PLEASE INCLUDE PHOTOGRAPH WITH TEXT IF FEASIBLE.
4. TURTLES AND SNAKES MAY BE ATTRACTED TO DISTURBED GROUND DURING NESTING SEASON. TURTLE NESTING SEASON OCCURS APPROXIMATELY MAY 15TH – JUNE 30TH. ALL TURTLE SPECIES NESTS AND NORTHERN BLACK RACER NESTS ARE PROTECTED BY NH LAWS. IF A NEST IS OBSERVED OR SUSPECTED, OPERATORS SHALL CONTACT MELISSA WINTERS (603–479–1129) OR JOSH MEGYESY (978–578–0802) AT NHFG IMMEDIATELY FOR FURTHER CONSULTATION. THE NEST OR SUSPECTED NEST SHALL BE MARKED (SURROUNDING ROPED OFF OR CONE BUFFER DEPLOYED) AND AVOIDED; THIS SHALL BE COMMUNICATED TO ALL PERSONNEL ONSITE. SITE ACTIVITIES SHALL NOT OCCUR IN THE AREA SURROUNDING THE NEST OR SUSPECTED NEST UNTIL FURTHER GUIDANCE IS PROVIDED BY NHFG.
5. A 25 FOOT NO–CUT, NO–DISTURB BUFFER SHALL BE MAINTAINED AROUND WETLANDS, WITH THE EXCEPTION OF PROPOSED DISTURBANCES DEPICTED ON THE PLAN OF REFERENCE. PLACARDS MARKING THESE AREAS AS "PROTECTED HABITAT– NO CUTTING/ NO DISTURBANCE" SHALL BE PLACED EVERY 75 FEET ALONG THE BUFFER BOUNDARIES. THE 25 FOOT NO–CUT, NO–DISTURB BUFFER AND PLACARDS SHALL BE MAINTAINED AND CONSERVED IN PERPETUITY IN ACCORDANCE WITH FIS 1003.02 (E).
6. THE CONSERVATION EASEMENT DEED DOCUMENT TITLED, "DRAFT CONSERVATION EASEMENT DEED (00971494XC637B), ATTACHED, SHALL BE FINALIZED AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. A COPY OF THE RECORDED DOCUMENT SHALL BE PROVIDED TO NHFG.
   a. A NO CUT, NO DISTURB BUFFER SHALL BE MAINTAINED IN ACCORDANCE WITH THE BOUNDARIES OF THE "OPEN SPACE AREA" ON THE PLAN TITLED, "OVERVIEW SITE PLAN, SHEET C13" DATED 6/1/2023. PLACARDS MARKING THESE AREAS AS "PROTECTED HABITAT– NO CUTTING / NO DISTURB BUFFER" SHALL BE PLACED EVERY 75 FEET ALONG THE OPEN SPACE BOUNDARY. PLEASE IDENTIFY PLACARD PLACEMENTS ON PLAN SHEETS. SEE PLAN SHEET C13.
7. VERNAL POOLS AND POTENTIAL VERNAL POOLS SHALL BE FLAGGED PRIOR TO WORK AND ALL IMPACTS TO VERNAL POOLS AND POTENTIAL VERNAL POOLS SHALL BE AVOIDED.
8. NO SUMPS SHALL BE INCLUDED IN THE DESIGN OF CATCH BASINS OR OUTLET CONTROL STRUCTURES.
9. SLOPED OR "CAPE COD" CURBING SHALL BE UTILIZED WHEREVER CURBING IS PROPOSED.
10. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTIC, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES. SEE PLAN SHEETS E1–E2.
11. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES ON THE PROJECT SITE SHALL BE REPORTED TO THE NHFG NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603–271–2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV, WITH THE EMAIL SUBJECT LINE CONTAINING THE NHB DATACHECK TOOL RESULTS LETTER ASSIGNED NUMBER, THE PROJECT NAME, AND THE TERM WILDLIFE SPECIES OBSERVATION.
12. PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHFG IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION, AS FEASIBLE.
13. IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHFG AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHFG.
   a. SITE OPERATORS SHALL BE ALLOWED TO RELOCATE WILDLIFE ENCOUNTERED IF DISCOVERED WITHIN THE ACTIVE WORK ZONE IF IN DIRECT HARM FROM PROJECT ACTIVITIES. WILDLIFE SHALL BE RELOCATED IN CLOSE PROXIMITY TO THE CAPTURE LOCATION BUT OUTSIDE OF THE WORK ZONE AND IN THE DIRECTION THE INDIVIDUAL WAS HEADING. NHFG SHALL BE CONTACTED IMMEDIATELY IF THIS ACTION OCCURS.
14. NHFG, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

PLEASE REPORT OBSERVATIONS OF RARE TURTLES

The NH Fish & Game Department is requesting observations of the following turtle species

Turtles may be attracted to disturbed ground during nesting season (May 15th – June 30th)

Turtles are most active from April 15th - October 15th

Blanding's turtle
(State Endangered)

Large, dark/black domed shell with lighter speckles.

Distinct yellow throat/chin.

Aquatic but often moves on land.

Spotted turtle
(State Threatened)

Small, mostly aquatic with black or dark brown with yellow spots.

Fairly flat shell compared to Blanding's turtle.

Spots vary in color and number.

Fis 1401.03 (a) No person shall take or possess a spotted turtle (*Clemmys guttata*)...Blanding's turtle (*Emydoidea blandingii*)...or any egg or part thereof.

Report sightings immediately to NHFG Wildlife Division at 603-271-2461 (M-F 8-4) or to NHFG Wildlife Biologist Melissa Winters 603-479-1129 (cell) anytime.

Please report promptly, noting specific location and date – Photographs strongly encouraged

Northern Black Racer

(New Hampshire state threatened species)

Emerge from hibernacula in April, Basking April - August,
Hatchlings emerge August - September, Return to hibernacula mid-September - mid-October

- Solid black with a white throat and chin
- Slender with glossy scales, 3-6 ft. long
- Hatchlings are very small and patterned

Immediately report sightings to NH Fish and Game
Melissa Winters (603-479-1129) or
Brendan Clifford (603-944-0885)

Please report promptly, noting specific location and date
Photographs strongly encouraged

Fis 1401.03 (a) No person shall take or possess a black racer (*Coluber constrictor*)...or any egg or part thereof.

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER
8/17/2023

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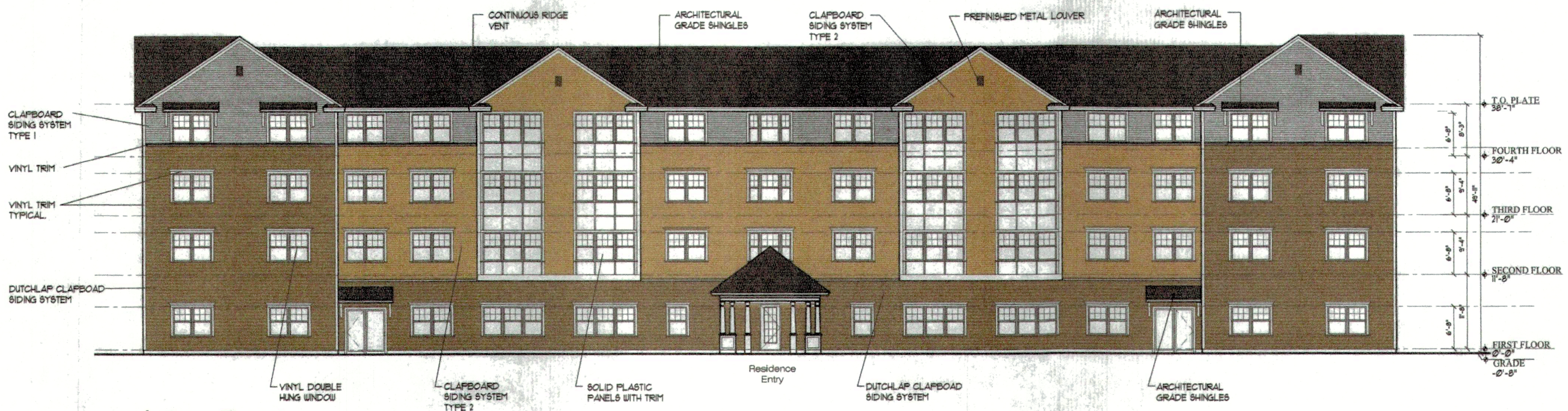
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

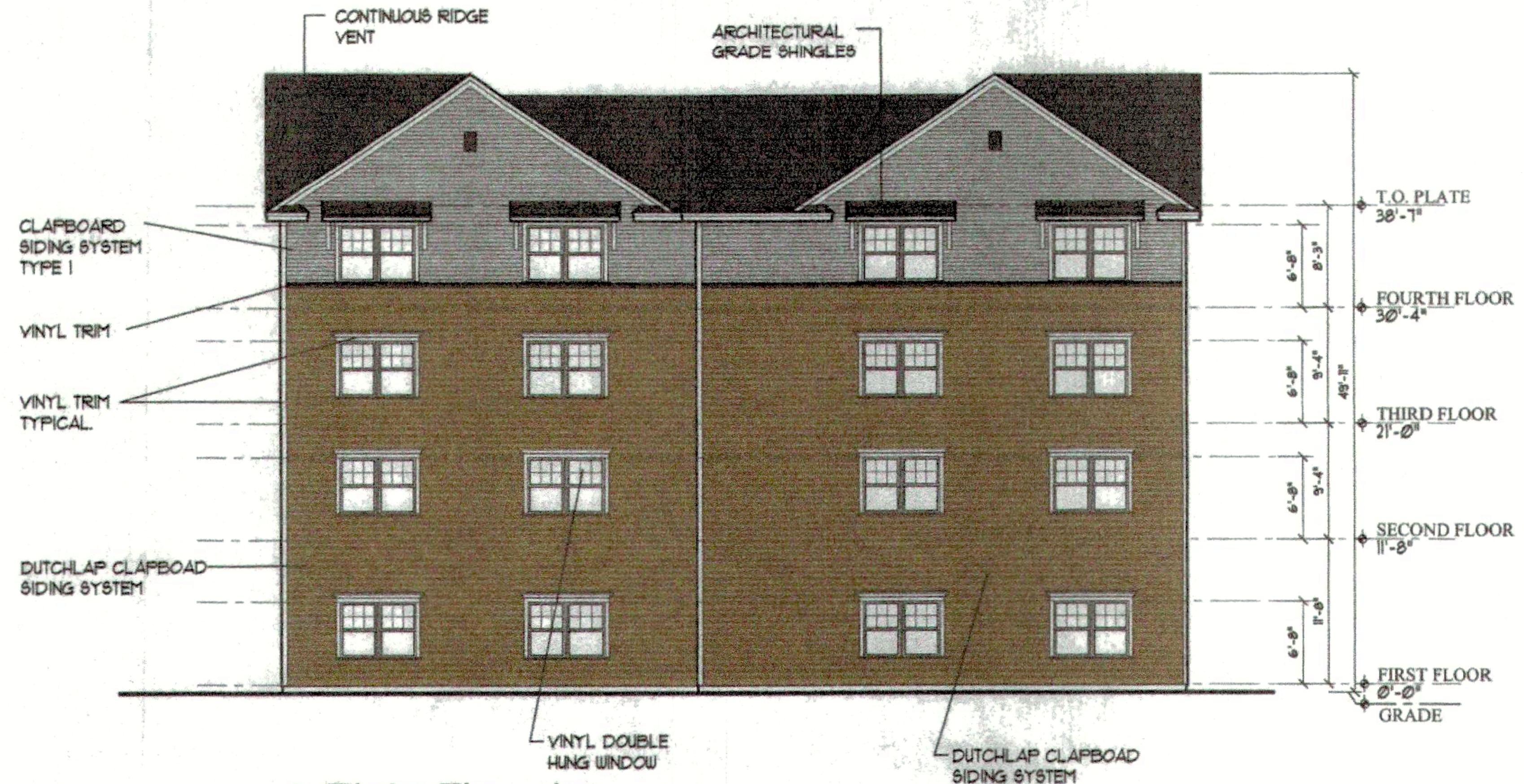
Plan Name:	FISH AND GAME FLYERS
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077
Owner of Record:	JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
WL1

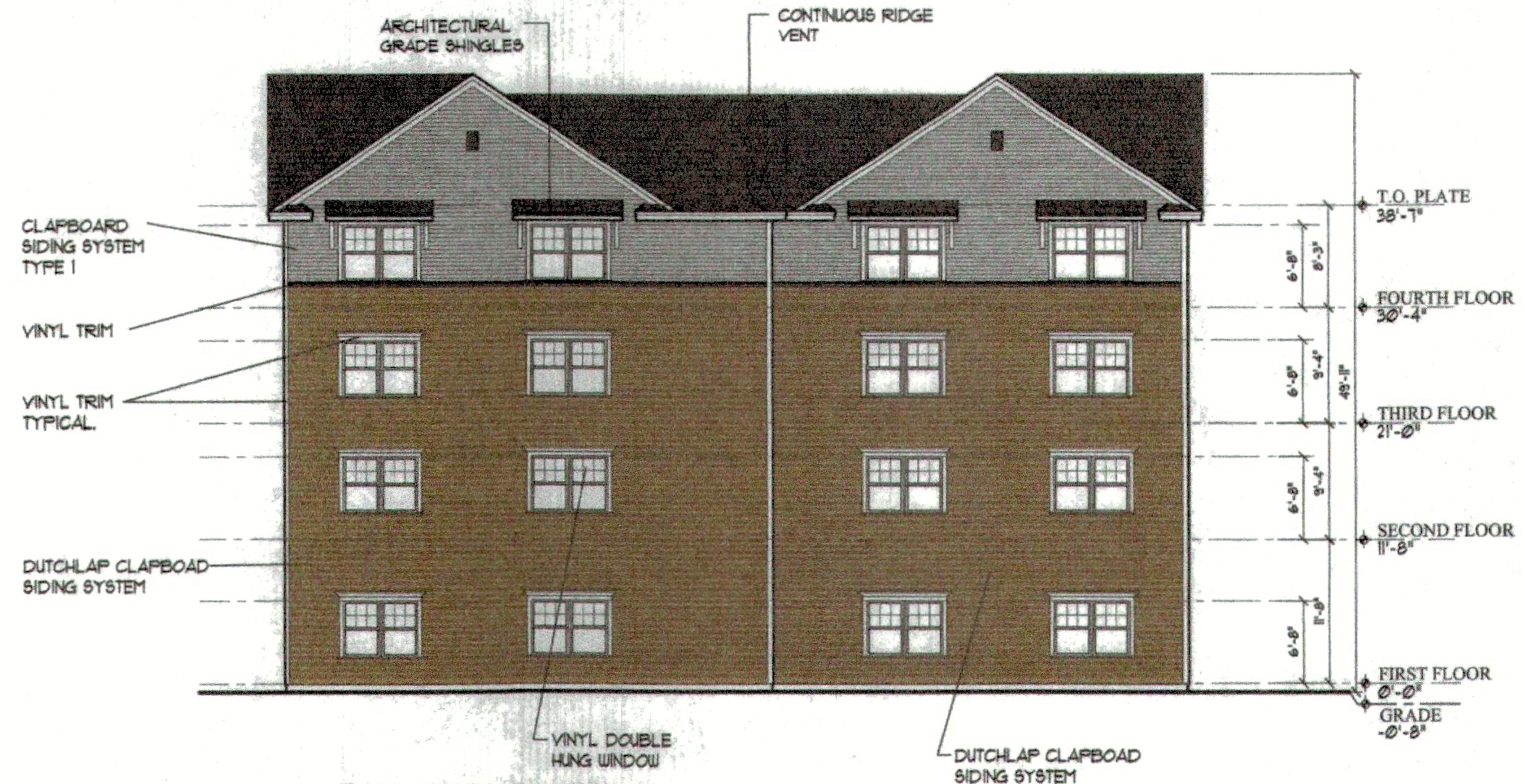
JBE PROJECT NO. 20564



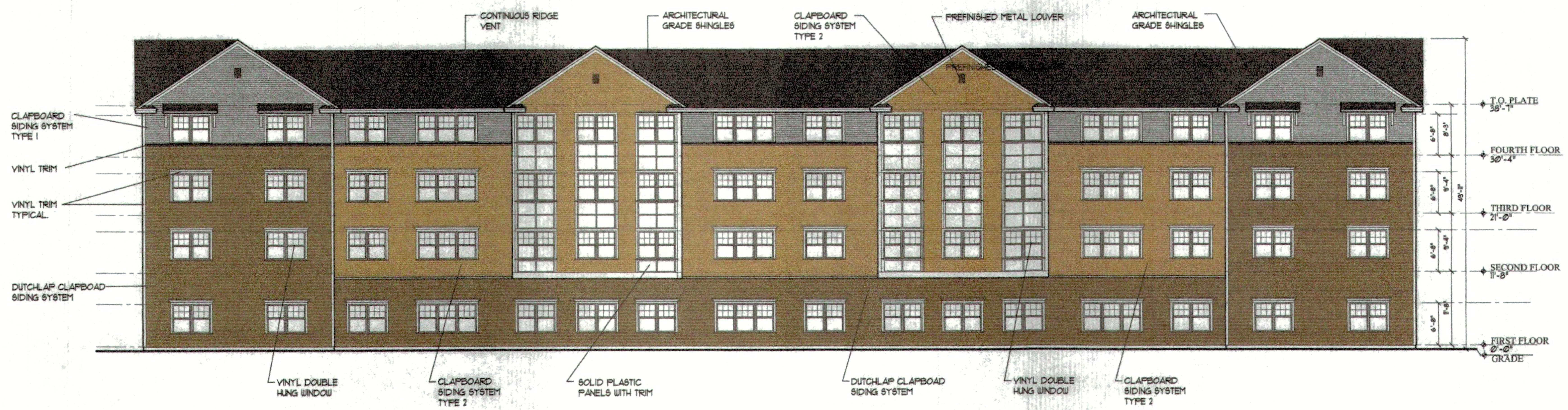
1 Front Elevation
3/32"=1'-0"



2 Right Elevation
3/32"=1'-0"



3 Left Elevation
3/32"=1'-0"

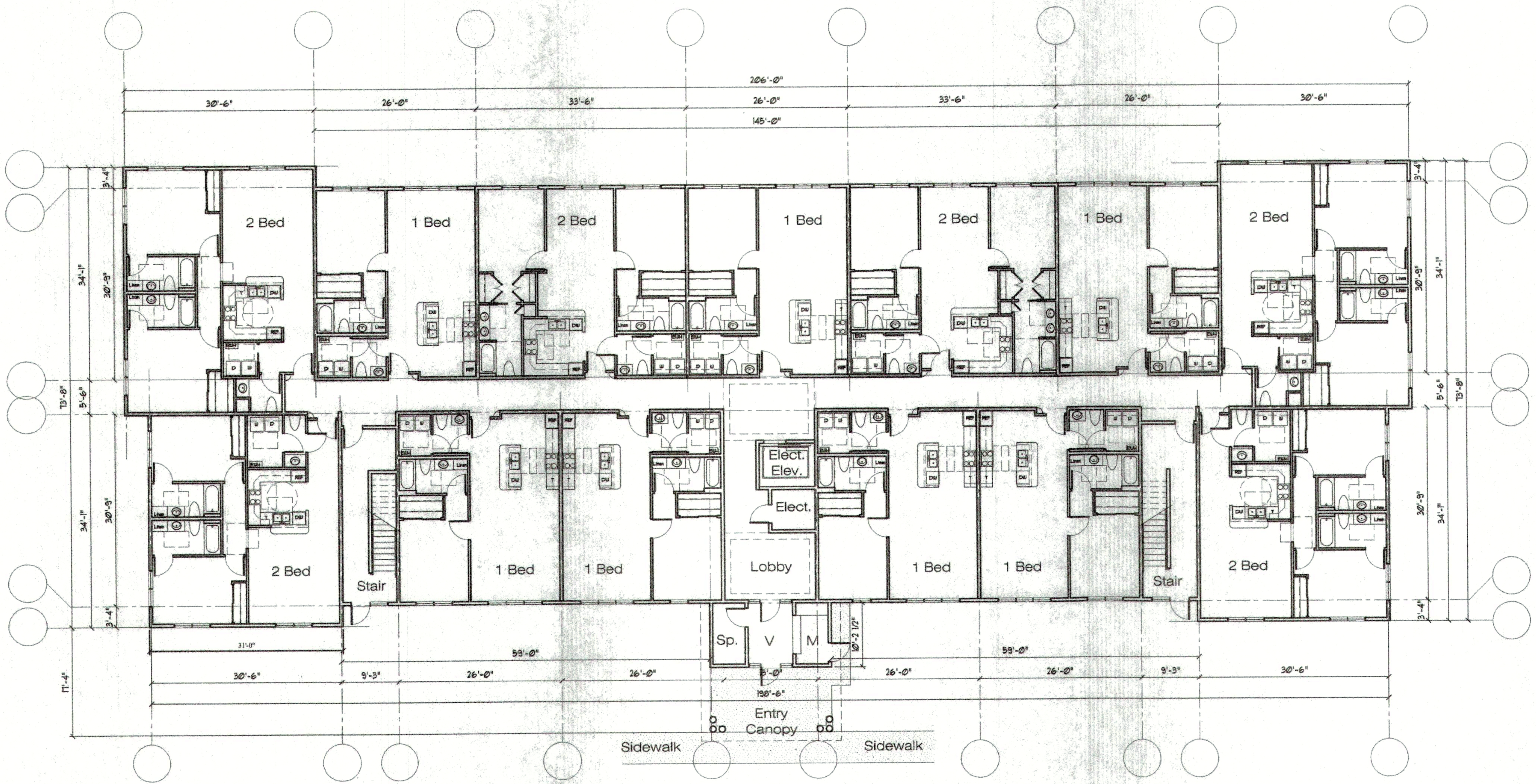


Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

LICENSED ARCHITECT · STATE OF NEW HAMPSHIRE · HOUSE No. 2380

THA ARCHITECTS, LLC
ARCHITECTURE ▪ PLANNING ▪ CONSULTING ▪ INTERIOR DESIGN
89 WILLOWBROOK AVENUE ▪ STRATHAM, NH 03885
Tel: (603) 770-2491 Fax: (603) ▪WWW.THAARC.COM



1 First Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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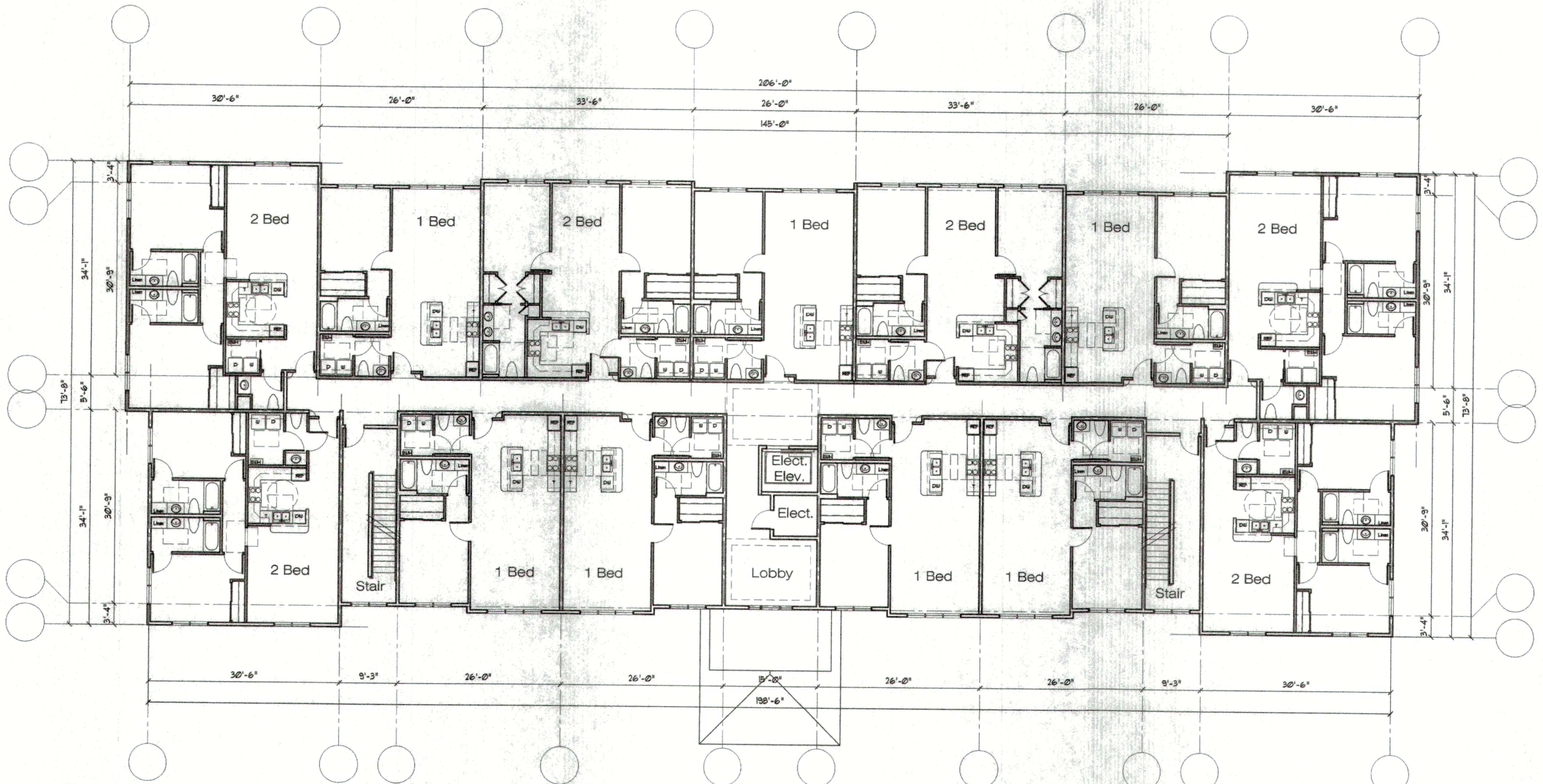

1 Second Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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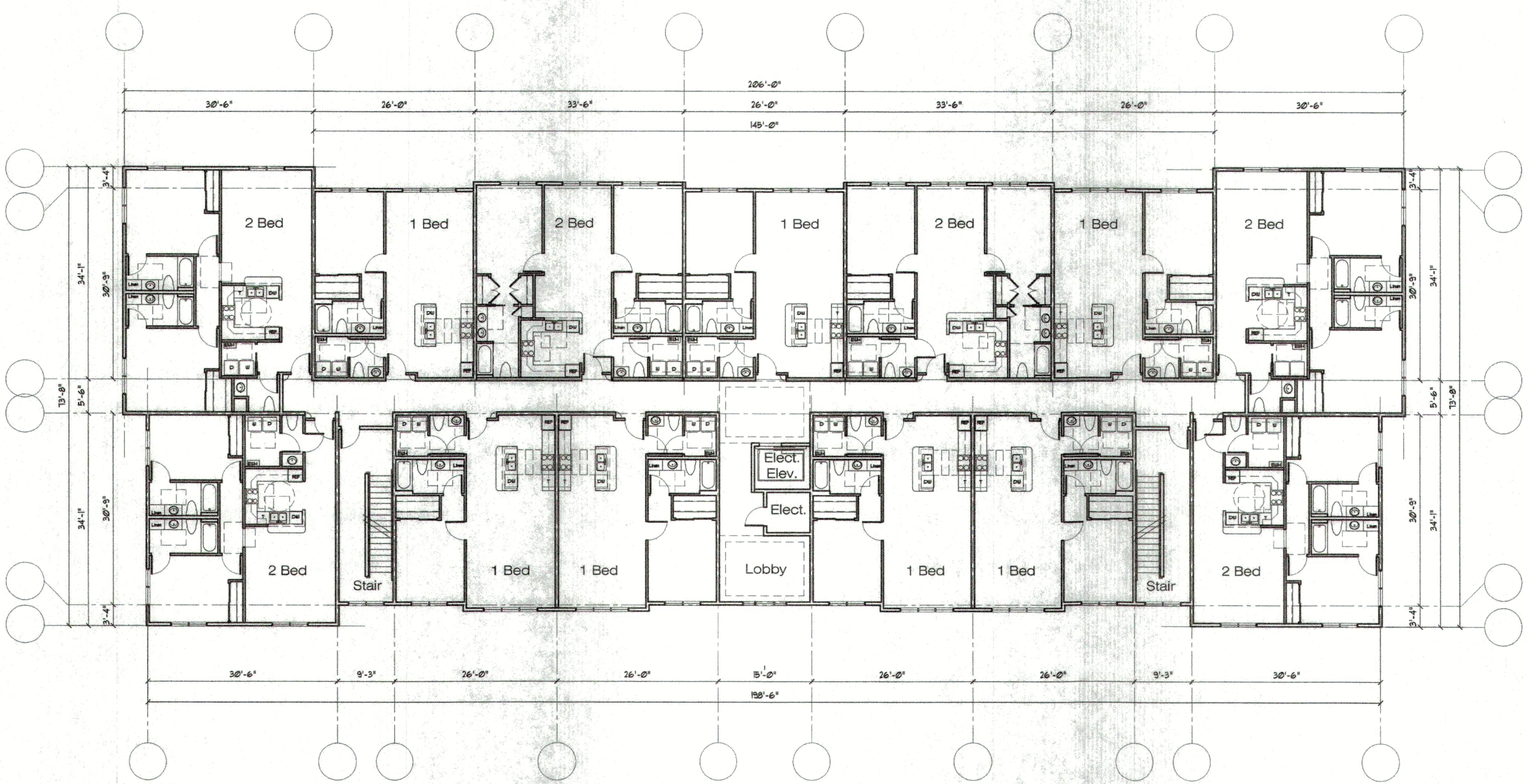

1 Third Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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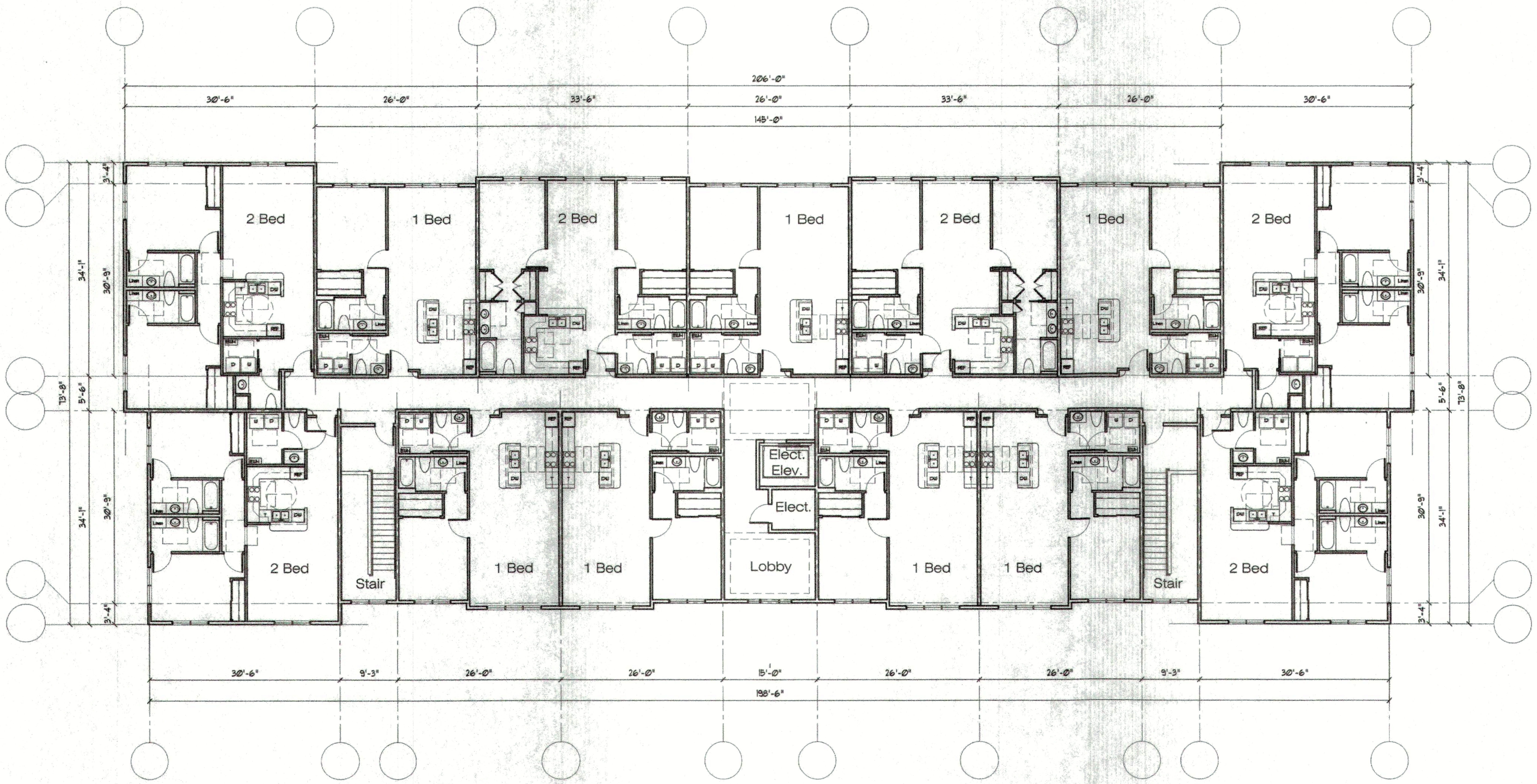

1 Fourth Floor Plan
3/32"=1'-0"

Tuck Realty Corp.
Exeter, New Hampshire

White Rock Place
Raymond, NH
March 17, 2023

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JONES&BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

August 29, 2023

Raymond Planning Board
Attn. Diana Luszcz, Chair
4 Epping Street
Raymond, NH 03077

Re: Addendum to 8/17/2023 Resubmission
White Rock Place
109A Main Street, Raymond, NH
Tax Map 23, Lot 25
JBE Project No. 20564

Dear Ms. Luszcz,

Jones & Beach Engineers, Inc. resubmitted documents on August 17, 2023 for the above-referenced documents. We realized that some additional information would be prudent to include. Please accept this addendum containing additional information relative to the above-referenced application.

Also please note that the waiver request letters contained in Section 1 of the 8/17 resubmission were only reflect what was submitted with the original application, and have since been revised. The waiver request letters contained in Section 8 of the 8/17 resubmission are the most up to date versions.

The following items are provided in support of this Addendum:

1. Section 13 – Parking Demand Letter.
2. Section 14 – Special Permit Application.
3. Section 15 – Test Pit Logs.
4. Section 16 – Stormwater Operations and Maintenance Manual.
5. Section 17 – New Hampshire Fish and Game Signoff and Comments.
6. Section 18 – Updated Abutters List.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Michael Garrepy, Tuck Realty Corp. (via email)
Kevin Baum, Esquire, Hoefle Pheonix Gormley & Roberts (via email)

Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

Ref: 9643

May 26, 2023

Tuck Realty Corporation
c/o Mr. Turner Porter
PO Box 190
Exeter, NH 03833

Re: Parking Demand Assessment
White Rock Place Multifamily Residential Development – 109 Main Street
Raymond, Massachusetts

Mr. Porter:

Vanasse & Associates, Inc. (VAI) has completed a parking demand assessment in order to determine the adequacy of the proposed parking supply associated with the construction of a 156±-unit multifamily residential development to be known as White Rock Place and located at 109 Main Street in Raymond, New Hampshire (hereafter referred to as the "Project"). This assessment reviews parking demand data obtained for multifamily residential communities located in a similar setting to the Project and parking demand data published by the Institute of Transportation Engineers (ITE)[1] for multifamily residential communities. The following details our assessment of the anticipated parking demand for the Project.

Parking Demand Observations

Parking demand observations were obtained from four (4) multifamily residential communities located in Massachusetts and New Hampshire, which included parking occupancy data collected at each community on a weekday between 4:00 and 6:00 AM, or between 5:00 and 8:00 AM. These time periods represent the peak parking demand periods for a residential community.[2] Table 1 summarizes the parking demand observations for each community along with the parking occupancy and corresponding parking ratio.

As can be seen in Table 1, the peak-parking demands at the four (4) multifamily residential communities were found to range from 1.23 parking spaces per unit to 1.49 parking spaces per unit, or an average peak parking demand of 1.34 parking spaces per unit. The average peak occupancy rate was found to be approximately 77 percent of the available parking spaces.

[1] *Parking Generation,* 5th Edition; Institute of Transportation Engineers; Washington, D.C.; January 2019.
[2] The peak-parking demand for a residential community generally occurs on a weekday after 10:00 PM and before 6:00 AM.

Table 1
MULTIFAMILY PARKING DEMAND OBSERVATIONS

	Domain Foxborough, Foxborough, MA			*Hanover at Andover, Andover, MA*			*Hanover Tuscan Village, Salem, NH*			*Bell Westford, Westford, MA*		
Time	No. of Occupied Spaces	Occupancy[a]	Parking Demand Ratio[b]	No. of Occupied Spaces	Occupancy[c]	Parking Demand Ratio[d]	No. of Occupied Spaces[e]	Occupancy[f]	Parking Demand Ratio[g]	No. of Occupied Spaces[h]	Occupancy[i]	Parking Demand Ratio[j]
4:00 AM	298	76.4%	1.27	282	78.3%	1.23	--	--	--	--	--	--
4:30	296	75.9%	1.26	281	78.1%	1.23	--	--	--	--	--	--
5:00	295	75.6%	1.26	280	77.8%	1.22	350	77.6%	1.35	548	75.8%	1.49
5:30	286	73.3%	1.22	277	76.9%	1.21	340	75.4%	1.31	543	75.1%	1.48
6:00	282	72.3%	1.21	273	75.8%	1.19	333	73.8%	1.28	532	73.6%	1.45
6:30	--	--	--	--	--	--	327	72.5%	1.26	517	71.5%	1.41
7:00	--	--	--	--	--	--	307	68.1%	1.18	501	69.3%	1.37
7:30	--	--	--	--	--	--	292	64.7%	1.12	473	65.4%	1.29
8:00	--	--	--	--	--	--	283	62.7%	1.09	435	60.2%	1.19

[a]The available parking supply consists of 390 parking spaces.
[b]Based on 234 occupied units at the time of the parking demand observations.
[c]The available parking supply consists of 360 parking spaces
[d]Based on 229 occupied units at the time of the parking demand observations.
[e]Assumes full occupancy of the 41 individual garages located throughout the property.
[f]The available parking supply consists of 451 parking spaces, including the 41 garage spaces.
[g]Based on approximately 260 occupied units at the time of the parking demand observations.
[h]Assumes full occupancy of the 90 individual garages located throughout the property
[i]The available parking supply consists of 723 parking spaces, including the 90 garage spaces.
[j]Based on approximately 367 occupied units at the time of the parking demand observations.

ITE Parking Demand Data

Table 2 summarizes the ITE peak parking demand data that is derived from parking demand observations performed at multifamily residential communities situated in a general urban/suburban setting.

Table 2
ITE PEAK PARKING DEMAND DATA

	Peak Parking Demand per Dwelling Unit	
Land Use Code/Time Period	**Average Rate**	**85th Percentile**
Multifamily Housing (Mid-Rise)[a]		
Weekday	1.31	1.47
Saturday	1.22	1.33

[a]ITE Land Use Code 221, *Multifamily Housing (Mid-Rise)*.

As can be seen in Table 2, the ITE parking demand data for a multifamily residential community indicates that the average peak parking demand on a weekday is 1.31 parking spaces per unit, with an observed 85th percentile peak parking demand[3] of 1.47 parking spaces per unit. On a Saturday, the average observed peak parking demand was observed to be 1.22 parking spaces per unit, with the observed 85th percentile peak parking demand found to be 1.33 parking spaces per unit. Given that the weekday peak parking demands are higher than those on a Saturday, the weekday data is used for design purposes.

The ITE data for a multifamily residential community is generally consistent with the parking demand observations that were obtained for the four (4) residential communities, with an average peak parking demand of 1.31 to 1.34 parking spaces per unit, and a design value (typically the 85th percentile peak parking demand) of between 1.47 and 1.49 parking spaces per unit. The ITE parking demand data is provided in the Appendix.

Parking Demand Comparison

On-site parking will be provided for 281 vehicles, or a parking ratio of 1.8 parking spaces per dwelling unit,[4] which is greater than the parking ratios at the observed multifamily residential communities and those located in a similar setting as documented by the ITE.

Based on a review of parking demand observations obtained for multifamily residential communities in similar settings and those documented by the ITE, the proposed parking supply should be sufficient to support the needs of the Project.

[3]The 85th percentile peak parking demand is defined as the parking demand at which 85 percent of the observed peak parking demands fall below and 15 percent are above.
[4]156± residential units are proposed.

If you should have any questions regarding the anticipated parking demand for the Project, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Managing partner

Professional Engineer in CT, MA, ME, NH, RI and VA

JSD/dcl

ATTACHMENTS

Project Site Plan
ITE Parking Demand Data

Project Site Plan

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER 3/20/23

REV.	DATE	REVISION	BY
12	3/19/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM
8	8/2/22	ADDED DRAINAGE	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: SITE PLAN
Project: WHITE ROCK PLACE 109 A, B & C MAIN STREET, RAYMOND, NH 03077
Owner of Record: LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833; LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263; LOT 28: PAUL W & TERI L WELCH 109 MAIN STREET, RAYMOND, NH 03077 BK 2839 PG 770; LOT 29: WAYNE & CATHLEEN WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
C15
SHEET 18 OF 52
JBE PROJECT NO. 20564

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

ITE Parking Demand Data

Graph Look Up

ITEParkGen Web-based App

- Graph Look Up
- Technical Support
- Add Users
- Comments

Query   Filter

DATA SOURCE:
Parking Generation Manual, 5th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE:
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
All Sites

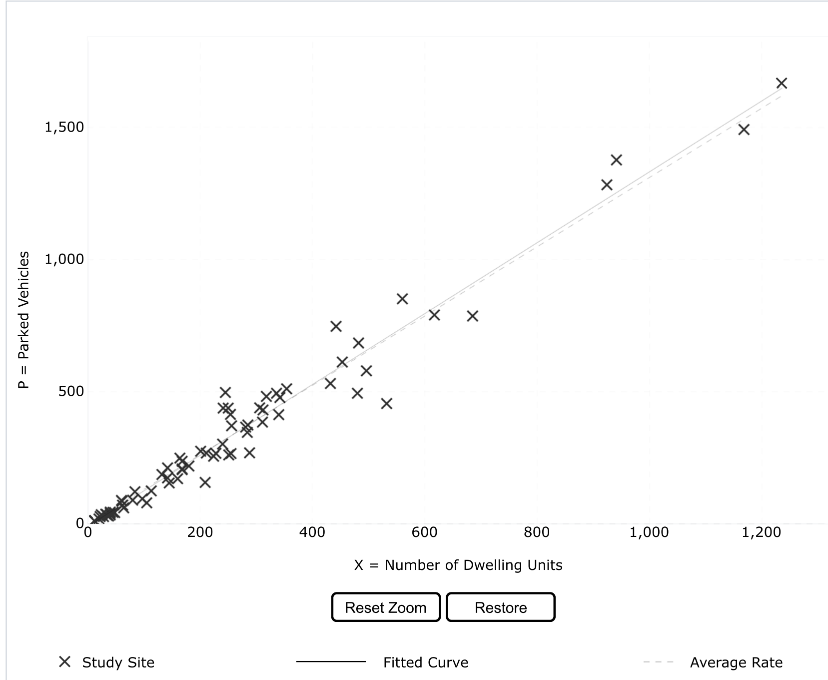
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday (Monday - Friday)

SETTING/LOCATION:
General Urban/Suburban (no nearby rail transi

ENTER IV VALUE TO CALCULATE PARKING DEMAND:
Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and P values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) (221) Click for more details

Independent Variable:
Dwelling Units

Time Period:
Weekday (Monday - Friday)

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Peak Period of Parking Demand:
10:00 p.m. - 5:00 a.m.

Number of Studies:
73

Avg. Num. of Dwelling Units:
261

Average Rate:
1.31

Range of Rates:
0.75 - 2.03

33rd / 85th Percentile:
1.13 / 1.47

95% Confidence Interval:
1.26 - 1.36

Standard Deviation:
0.22

Coefficient of Variation:
17%

Fitted Curve Equation:
P = 1.34(X) - 8.73

R^2:
0.97

ITEParkGen Web-based App

? Help | Jeffrey Dirk | Sign out

ite
A Community of Transportation Professionals

ITEParkGen Web-based App

- Graph Look Up
- Technical Support
- Add Users
- Comments

Graph Look Up

Query | Filter

DATA SOURCE:
Parking Generation Manual, 5th Ed

SEARCH BY LAND USE CODE:
221

LAND USE GROUP:
(200-299) Residential

LAND USE:
221 - Multifamily Housing (Mid-Rise)

LAND USE SUBCATEGORY:
All Sites

INDEPENDENT VARIABLE (IV):
Dwelling Units

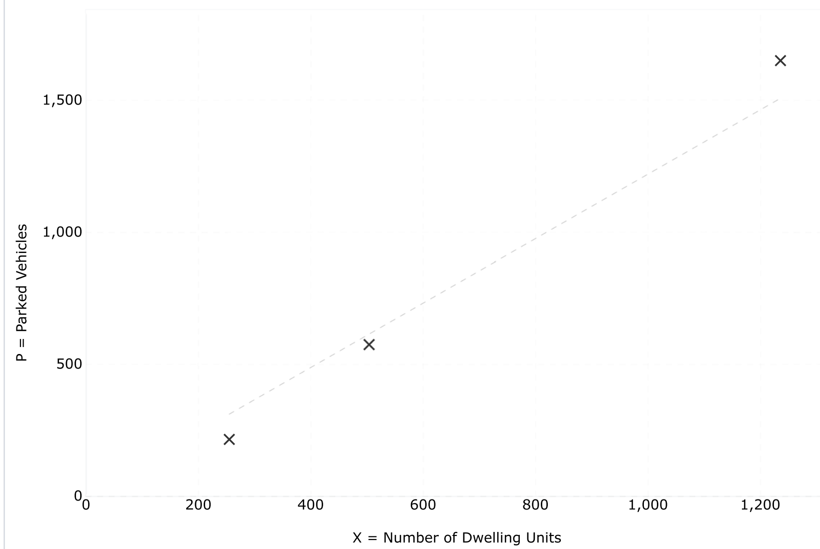
TIME PERIOD:
Saturday

SETTING/LOCATION:
General Urban/Suburban (no nearby rail transi

ENTER IV VALUE TO CALCULATE PARKING DEMAND:
Calculate

Data Plot and Equation

Caution – Small Sample Size



Reset Zoom | Restore

× Study Site — — Average Rate

Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and P values.

DATA STATISTICS

Land Use:
Multifamily Housing (Mid-Rise) (221) Click for more details

Independent Variable:
Dwelling Units

Time Period:
Saturday

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Peak Period of Parking Demand:
11:00 p.m. - 7:00 a.m.

Number of Studies:
3

Avg. Num. of Dwelling Units:
665

Average Rate:
1.22

Range of Rates:
0.84 - 1.33

33rd / 85th Percentile:
0.94 / 1.33

95% Confidence Interval:
***

Standard Deviation:
0.20

Coefficient of Variation:
16%

Fitted Curve Equation:
***

R^2:
***

Application for Special Permit

Town of Raymond, NH

Site Information

Property Address: 109 A, B, C & D Main Street

Map #: 23 Lot #: 24, 25, 28 & 29

Property Owner Information

Name: Lot 24 - Tuck Realty Corp., PO Box 190, Exeter, NH 03833 Phone:

Address: Lot 25 - Joseph, John, Ardell & Inez Welch, 49 Raymond Rd., Nottingham, NH 03290
Lot 28 - Paul & Teri Welch, 109 Main St., Raymond, NH 03077

Address: Lot 29 - Wayne & Cathleen Welch, 109A Main St., Raymond, NH 03077

Applicant/Agent Information

Name: Turner Porter, Tuck Realty Corp. Phone: 603-944-7530

Address: PO Box 190, Exeter, NH 03833

Address:

Project Description

The intent of this project is to subdivide the lot into one residential lot containing 156-unit apartment complex and one industrial lot. We have 86,000 S.F. of steep slope impact in Zone G and therefore are requesting a Special Permit. This site is situated such that the impacts are unavoidable. We are also putting 23 acres into open space that will not be developed in the future.

Applicant Signature* (see page 2): Daniel Meditz **Date:** 3/20/23

Submission Checklist

- ***COMPLETED & SIGNED APPLICATION.** If the applicant is NOT the property owner, a notarized letter of permission from the property owner is required to be submitted with this application.

- **LIST OF ABUTTERS.** The list of abutters must include the following information:
  - Name of property owner(s)
  - Address of property owner(s)
  - Name of abutting property owner(s)
  - Address of abutting property owner(s)
  - Tax Map and Lot Numbers for all properties listed
  - Name and Address of any agents authorized by the applicant to represent them and whose professional seal appears on a plat submitted to the Planning Board (i.e. land surveyors, wetland scientists, engineers, etc.)

  (For more information, please refer to NH Revised Statues Annotated 672:3 for a definition of the term "abutter," and RSA 676:4 for legal notice requirements).

- **APPLICATION FEE.** The application fee to the Planning Board for a Special Permit is as follows:
  - $100.00 base application fee, plus;
  - $10.00 per abutter (including the applicant, property owner(s), and any agents authorized to represent the property owner(s))
  - **When writing a check, this amount must be kept separate from the Escrow Account (see below).** Please make checks payable to the Town of Raymond.

- **ESCROW ACCOUNT.** This is a separate account established by the applicant to cover the cost of any additional legal notification, engineering review, legal review, document recording or outside copying incurred by the Town. Any unused funds will be returned to the applicant.
  - $250.00 – Minimum amount required to establish Escrow Account.
  - **When writing a check, this amount must be kept separate from the Application Fee (see above).** Please make checks payable to the Town of Raymond.

- **PLANS.**
  - One (1) 24" x 36" copy of the plan, plus ten (10) 11" x 17" copies shall be provided.

    -OR-

  - If the original plan is smaller than 24" x 36" in size, then one (1) copy of the original plan, plus ten (10) 11" x 17" copies of the plan shall be provided.

GOVE ENVIRONMENTAL SERVICES, INC.

Test Pit Log
109 Main Street, Raymond
Logged by: Luke Hurley, CSS 095, 2/24/22

Test Pit #1:
0-8 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
8-20 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
20-32 INCHES, 2.5Y 4/3, FINE SANDY LOAM , GRANULAR, FRIABLE
32-64 INCHES, 2.5Y 4/3, SAND/GRVEL, MASSIVE, FIRM IN PLACE, REDOX 15%
ESHWT: 32 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #2:
0-8 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
8-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-36 INCHES, 2.5Y 4/3, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #3:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-18 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
18-40 INCHES, 2.5Y 5/3, SAND, GRANULAR, FRIABLE
40-60 INCHES, 2.5Y 5/4, SAND, GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #4:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-20 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
20-40 INCHES, 2.5Y 5/4, FINE SANDY LOAM, GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #5:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-12 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-20 INCHES, 10YR3/6, FINE SANDY LOAM , GRANULAR FRIABLE
20-40 INCHES, 2.5Y 4/6, SAND/GRAVEL, SINGLE GRAIN, LOOSE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #6: DONE AT STATOIN 6+00
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-28 INCHES, 10YR4/6, FINE SANDY LOAM , GRANULAR, FRIABLE
28-50 INCHES, 2.5Y4/4, FINE SAND , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 50 INCHES OBSERVED WATER: N/A

Test Pit #7:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-10 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
10-30 INCHES, 10Y4/4, FINE SAND , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #8:
0-2 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
2-12 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-24 INCHES, 10Y4/4, FINE SAND , GRANULAR, FRIABLE
24-50 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE, REDOX 15%
ESHWT: 24 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #9:
0-6 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
6-12 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
12-30 INCHES, 2.5Y5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
30-60 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE
ESHWT: N/A REFUSAL: 60 INCHES OBSERVED WATER: N/A

Test Pit #10:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-24 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
24-40 INCHES, 2.5Y5/3, FINE SANDY LOAM , GRANULAR, FRIABLE, REDOX 15%
40-60 INCHES, 2.5Y5/3, SAND/GRAVEL, SINGLE GRAIN, LOOSE, REDOX 15%
ESHWT: 24 REFUSAL: 60 INCHES OBSERVED WATER: N/A

Test Pit #11:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-14 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
14-56 INCHES, 2.5Y4/4, SAND/GRAVEL, MASSIVE, FIRM IN PLACE
ESHWT: N/A REFUSAL: 54 INCHES OBSERVED WATER: N/A

Test Pit #12:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-18 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
18-40 INCHES, 2.5Y5/4, SAND/GRAVEL, MASSIVE, FIRM IN PLACE
ESHWT: N/A REFUSAL: 40 INCHES OBSERVED WATER: N/A

Test Pit #13:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-16 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-36 INCHES, 10YR5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #14:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-14 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
14-36 INCHES, 10YR5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 36 INCHES OBSERVED WATER: N/A

Test Pit #15:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-16 INCHES, 10YR 5/4, FINE SANDY LOAM , GRANULAR, FRIABLE
16-24 INCHES, 2.5Y5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
24-50 INCHES, 2.5Y4/4, SAND, MASIVE, FIRM IN PLACE
50-62 INCHES, 2.5Y5/3, SAND/GRAVEL, MASIVE, FIRM IN PLACE
ESHWT: 50 INCHES REFUSAL: N/A OBSERVED WATER: N/A

Test Pit #16:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-15 INCHES, 10YR 4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: 15 INCHES REFUSAL: N/A OBSERVED WATER: 15 INCHES

Test Pit #17:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-20 INCHES, 10YR 5/6, FINE SANDY LOAM , GRANULAR, FRIABLE
20-42 INCHES, 2.5Y5/3, FINE SANDY LOAM , GRANULAR, FRIABLE
ESHWT: N/A REFUSAL: 42 INCHES OBSERVED WATER: N/A

Test Pit #18:
0-4 INCHES, 10YR 3/2, FINE SANDY LOAM , GRANULAR, FRIABLE
4-12 INCHES, 10YR 4/6, FINE SANDY LOAM , GRANULAR, FRIABLE
12-24 INCHES, 10YR4/4, FINE SANDY LOAM , GRANULAR, FRIABLE
24-52 INCHES, 2.5Y5/3, SAND, GRNAULAR, FIRM IN PLACE
ESHWT: N/A REFUSAL: 52 INCHES OBSERVED WATER: N/A

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA

Project – 109C Main Street, Raymond, NH
Client - Tuck Realty
GES Project No. 2020234
MM/DD/YY Staff 10-20-2022 JPG Observed by Paul Ayer, Raymond Code Enforcement

Test Pit No. 19
ESHWT: 50”
Termination @ 65”
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–9”	10YR 3/2	LS	GR	FR	NONE , Ap
9–50”	10YR 5/6	LS	GR	FR	NONE, Bw
50–65”	2.5Y5/4	LS	OM	FR	10%, C

Test Pit No. 20
ESHWT: 43”
Termination @ 65”
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–17”	10YR 3/2	LS	GR	FR	NONE , Ap
17–43”	10YR 5/6	LS	GR	FR	NONE, Bw
43–65”	2.5Y5/4	LS	PL	FR	20%, C

Test Pit No. 21
ESHWT: 46”
Termination @ 72”
Refusal: None
Obs. Water: None

Depth	Color	Texture	Structure	Consistence	Redox %, Layer
0–7”	10YR 3/2	FLS	GR	FR	NONE , Ap
7–46”	10YR 5/6	FSL	GR	FR	NONE, Bw
46–72”	2.5Y5/4	FSL	OM	FR	20%, C

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz
www.gesinc.biz

GOVE ENVIRONMENTAL SERVICES, INC.

TEST PIT DATA

Project 109C Main Street, Raymond, NH
Client Tuck
GES Project No. 2020234
MM/DD/YY Staff 03-16-2023 James Gove, CSS#004

Test Pit No.	**22**	Soils Series:	Hinckley
ESHWT::	57”	Landscape:	Flat
Termination @	108”	Slope:	A
Refusal:	None	Parent Material:	Outwash
Obs. Water:	None	Ksat (above ESHWT):	20”/hr

Horizon	Color (Munsell)	Texture	Structure-Consistence-Redox
A 0-10”	10YR3/2	fine sandy loam	granular-friable-none
Bw 10-27”	10YR5/6	gravelly loamy sand	granular-friable-none
B/C 27-57”	10YR4/4	gravelly loamy sand	massive-friable-none
C 57-108”	10YR5/8	very fine sand	massive-friable-7.5YR5/8 -2.5Y5/3

Hydrologic Soil Group of this Hinckley soil test pit is A.

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz
www.gesinc.biz

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

White Rock Place
109A&C Main Street
Raymond, NH 03077
Tax Map 23, Lots 24, 25, & 29

Prepared for:
Tuck Realty Corporation
PO Box 190
Exeter, NH 03833
ATTN: Michael Garrepy
mgarrepy@gmail.com
(603) 944-7530

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746

November 22, 2022
REVISED December 12, 2022
REVISED March 20, 2023
JBE Project No. 20564

JONES&BEACH ENGINEERS INC.

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. Tuck Realty Corporation., future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. Tuck Realty Corporation, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. All record keeping required by this manual shall be maintained by the responsible party(ies) and be made available to NHDES upon request.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

   a. Pavement
   b. Sediment Forebay
   c. Wet Pond
   d. Bioretention System
   e. ADS Stormtech System
   f. ACF Focal Point
   g. Permeable Pavers
   h. Catch Basins & Dry Well
   i. Drain Manholes
   j. Culverts
   k. Rip Rap Outlet Protection
   l. Contech StormFilter
   m. Vegetation and landscaping

2. Maintenance of permanent measures shall follow the following schedule:

   a. Normal winter roadway maintenance including plowing and snow removal. Road and parking lot sweeping at the end of every winter, preferably at the start of the spring rain season. Snow removal shall be performed by Sno-Pro certified personnel to keep road salt from contaminating the river or groundwater.

   b. Cleaning Criteria for all Sedimentation Forebays: Sediment should be removed from the sedimentation chamber (forebay) when it accumulates to a depth of more than 12 inches (30 cm) or 10 percent of the pretreatment volume. The sedimentation forebay should be cleaned of vegetation if persistent standing water and wetland vegetation becomes dominant. The cleaning interval is once every year. A dry sedimentation forebay is the optimal condition while in practice this condition is rarely achieved. The sedimentation chamber, forebay, and treatment cell outlet devices should be cleaned when drawdown

times exceed 60 to 72 hours. Materials can be removed with heavy construction equipment; however this equipment should not track on the wetland surface. Revegetate disturbed areas as necessary. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

c. Wet Ponds should require little maintenance, but should be inspected frequently during the first year of operation, and annually thereafter. Every five years, the services of a professional engineer should be retained to perform a thorough inspection of all the aspects of the pond and its infrastructure. Any debris and sediment accumulations should be removed from the outlet structure(s) and emergency spillway(s) and disposed of properly. Inspect outlet structure for deterioration and or clogging. Wet Pond berms should be mowed at least once annually so as to prevent the establishment of woody vegetation – trees should *never* be allowed to grow on a Wet Pond berm, as they may destabilize the structure and increase the potential for failure. Areas showing signs of erosion or thin or dying vegetation should be repaired immediately by whatever means necessary, *with the exception of fertilizer.* Rodent burrows are to be repaired immediately and the suspect animals apprehended with non-lethal traps if the problem persists.

The wet pond should remain full to the elevation of the lowest outlet in the pond.

d. Bioretention Systems:

- Visually inspect monthly and repair erosion. Use small stones to stabilize erosion along drainage paths.
- Check the pH once a year if grass is not surviving. Apply an alkaline product, such as limestone, if needed.
- Re-seed any bare areas by hand as needed.
- Immediately after the completion of cell construction, water grass for 14 consecutive days unless there is sufficient natural rainfall.
- Once a month (more frequently in the summer), residents are encouraged to visually inspect vegetation for disease or pest problems and treat as required.
- During times of extended drought, look for physical features of stress. Water in the early morning as needed.
- Weed regularly, if needed.
- After rainstorms, inspect the cell and make sure that drainage paths are clear and that ponding water dissipates over 4-6 hours. (Water may pond for longer times during the winter and early spring.)
- Twice annually, inspect the outlet control structures to ensure that they are not clogged and correct any clogging found as needed.

KEEP IN MIND, THE BIORETENTION CELL IS NOT A POND. IT SHOULD NOT PROVIDE A BREEDING GROUND FOR MOSQUITOES. MOSQUITOES NEED AT LEAST FOUR (4) DAYS OF STANDING WATER TO DEVELOP AS LARVA.

e. **ADS Stormtech System:**

- Removal of debris from inlet and outlet structures.
- Removal of accumulated sediment.
- Inspection and repair of outlet structures and appurtenances.
- Inspection of infiltration components at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Inspection of pretreatment measures at least twice annually, and removal of accumulated sediment as warranted by inspection, but no less than once annually.
- If an infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration trench.
- Camera inspections of the system should be done on an annual basis.
- See also attachment from ADS.

f. ACF Focal Point: See attachment from ACF

g. Permeable Pavers:

A short stretch of the emergency access road is constructed from EcoRaster permeable pavers and the remainder is constructed from gravel. The following recommendations will help assure that the pavers are maintained to preserve its hydrologic effectiveness.

Winter maintenance:

- Sanding for winter traction is prohibited. Deicing is permitted (NaCl, $MgCl_2$, or equivalent). Reduced salt application is possible and can be a cost savings for winter maintenance. Nontoxic, organic deicers, applied either as blended, magnesium chloride-based liquid products or as pretreated salt, are preferable.
- Plowing is allowed, blade should be set approximately 1" above the paver surface. Ice and light snow accumulation are generally not as problematic as for standard asphalt. Snow will accumulate during heavier storms and should be plowed. (more than usual, about an inch).

Routine maintenance:

- Seal coating is absolutely forbidden. Surface seal coating is not reversible.
- The paver surface should be vacuumed 2 or 3 times per year, and at any additional times sediment is spilled, eroded, or tracked onto the surface.
- Planted areas adjacent to permeable pavers should be well maintained to prevent soil washout onto the pavers. If any bare spots or eroded areas are

observed within the planted areas, they should be replanted and/or stabilized at once.

- Immediately clean any soil deposited on pavers. Superficial dirt does not necessarily clog the paver voids. However, dirt that is ground in repeatedly by tires can lead to clogging. Therefore, trucks or other heavy vehicles should be prevented from tracking or spilling dirt onto the pavers.
- Do not allow construction staging, soil/mulch storage, etc. on unprotected paver surface. Contractor to lay down tarps, plywood or removable item and take care not to track material onto unprotected pavers.
- Repairs: Potholes or other surface blemishes shall be replaced in kind. Any required repair of drainage structures should be done promptly to ensure continued proper functioning of the system.
- Written and verbal communication to the future owner should make clear the pavement's special purpose and special maintenance requirements such as those listed here.

h. **Annual inspection** of catch basins to determine if they need to be cleaned. Catch basin is to be cleaned if the depth of deposits is greater than one-half the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-half depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in the catch basin, then it should be cleaned on a weekly basis. The Catch basin can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed. Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

i. **Annual inspection** of drain manholes to determine if they need to be cleaned. Manholes should be cleaned of any material upon inspection. Manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed.

j. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

k. Rock riprap should be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a

stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

l. Contech StormFilter: See attachment from Contech.

m. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying. The site shall remain in a stabilized condition at all times. A site is considered stable if one of the following has occurred.

   b.a. A minimum of 85% vegetative cover has been established;
   b.b. A minimum of 3 inches of non-erosive material such as stone or riprap has been installed; or
   b.c. Erosion control blankets have been installed in accordance with Env-Wq 1506.03.

n. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
T#: (603) 772-4746
Email: jcoronati@jonesandbeach.com

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

____

Tuck Realty Corporation

____

By: Print Name

____

Signature

____

Title

____

Email Address

____

Phone Number

____

Date

Commitment to maintenance requirements

This signature page shall be provided to NHDES upon the change of Ownership, Transfer or Assignment. Contact information is to remain updated and the responsibility of the applicable party responsible for this Operation and Maintenance Manual.

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

____

Property Owner or future assigns

____

By: Print Name

____

Signature

____

Title

____

Email Address

____

Phone Number

____

Date

Annual Operations and Maintenance Report

Tuck Realty Corporation, future owners and assigns, are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. Tuck Realty Corporation, future owners and assigns shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. All record keeping required by this manual shall be maintained by the responsible party(ies) and be made available to NHDES upon request.

Tuck Realty Corporation, future owners and assigns, are responsible for submitting a report to the Planning Department or their designated agent by September 1 every two years, with the first report due within two years of receipt of an Occupancy Permit. The report shall be signed and stamped by a qualified professional engineer that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their report and include detail regarding when the infrastructure shall be repaired and functioning as approved.

If no report is filed by September 1 in the year the report is due, the Select Board or their designated agent shall have site access to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.

Construction Activity	**Date of Inspection**	**Who Inspected**	**Findings of Inspector**
Pavement			
Sediment Forebays			
Wet Pond			

Bioretention System			
ADS Stormtech			
ACF Focal Point			
Permeable Pavers			
Catch Basins & Dry Well			
Drain Manholes			

Culverts			
Rip-Rap Outlet Protection			
Contech StormFilter			
Vegetation and Landscaping			
Other:			

Comments:

Deicing Log

Date Applied	Type of Deicing Material	Amount Applied

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Background:

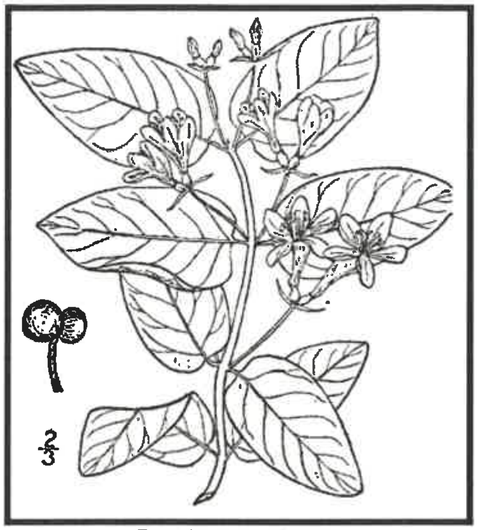
Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

UNIVERSITY *of* NEW HAMPSHIRE
COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions.* Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

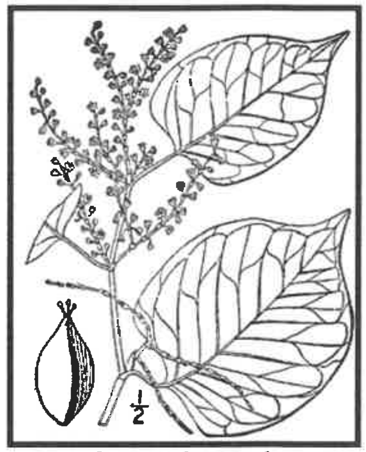
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

Woody Plants	Method of Reproducing	Methods of Disposal
Norway maple *(Acer platanoides)* European barberry *(Berberis vulgaris)* Japanese barberry *(Berberis thunbergii)* autumn olive *(Elaeagnus umbellata)* burning bush *(Euonymus alatus)* Morrow's honeysuckle *(Lonicera morrowii)* Tatarian honeysuckle *(Lonicera tatarica)* showy bush honeysuckle *(Lonicera x bella)* common buckthorn *(Rhamnus cathartica)* glossy buckthorn *(Frangula alnus)*	**Fruit and Seeds**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Use as firewood. ▪ Make a brush pile. ▪ Chip. ▪ Burn.
		After fruit/seed is ripe Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip once all fruit has dropped from branches. ▪ Leave resulting chips on site and monitor.
oriental bittersweet *(Celastrus orbiculatus)* multiflora rose *(Rosa multiflora)*	**Fruits, Seeds, Plant Fragments**	**Prior to fruit/seed ripening** Seedlings and small plants ▪ Pull or cut and leave on site with roots exposed. No special care needed. Larger plants ▪ Make a brush pile. ▪ Burn.
		After fruit/seed is ripe Don't remove from site. ▪ Burn. ▪ Make a covered brush pile. ▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.

<table>
<tr><th>Non-Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">garlic mustard
(Alliaria petiolata)
spotted knapweed
(Centaurea maculosa)
▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
black swallow-wort
(Cynanchum nigrum)
▪ May cause skin rash. Wear gloves and long sleeves when handling.
pale swallow-wort
(Cynanchum rossicum)
giant hogweed
(Heracleum mantegazzianum)
▪ Can cause major skin rash. Wear gloves and long sleeves when handling.
dame's rocket
(Hesperis matronalis)
perennial pepperweed
(Lepidium latifolium)
purple loosestrife
(Lythrum salicaria)
Japanese stilt grass
(Microstegium vimineum)
mile-a-minute weed
(Polygonum perfoliatum)</td><td rowspan="2">Fruits and Seeds</td><td>Prior to flowering
Depends on scale of infestation
Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>During and following flowering
Do nothing until the following year or remove flowering heads and bag and let rot.

Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>common reed
(Phragmites australis)
Japanese knotweed
(Polygonum cuspidatum)
Bohemian knotweed
(Polygonum x bohemicum)</td><td>Fruits, Seeds, Plant Fragments
Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.</td><td>Small infestation
▪ Bag all plant material and let rot.
▪ Never pile and use resulting material as compost.
▪ Burn.

Large infestation
▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.
▪ Monitor and remove any sprouting material.
▪ Pile, let dry, and burn.</td></tr>
</table>

January 2010

NOTES:

1. THE INTENT OF THIS PLAN IS TO GUIDE ONGOING INSPECTIONS AND MAINTENANCE OF THE SITE POST-CONSTRUCTION. THIS PLAN IS NOT FOR CONSTRUCTION.
2. SEE SHEET 2 OF 2 AS WELL.

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

REV.	DATE	REVISION	BY
12	3/19/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM
8	8/2/22	ADDED DRAINAGE	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

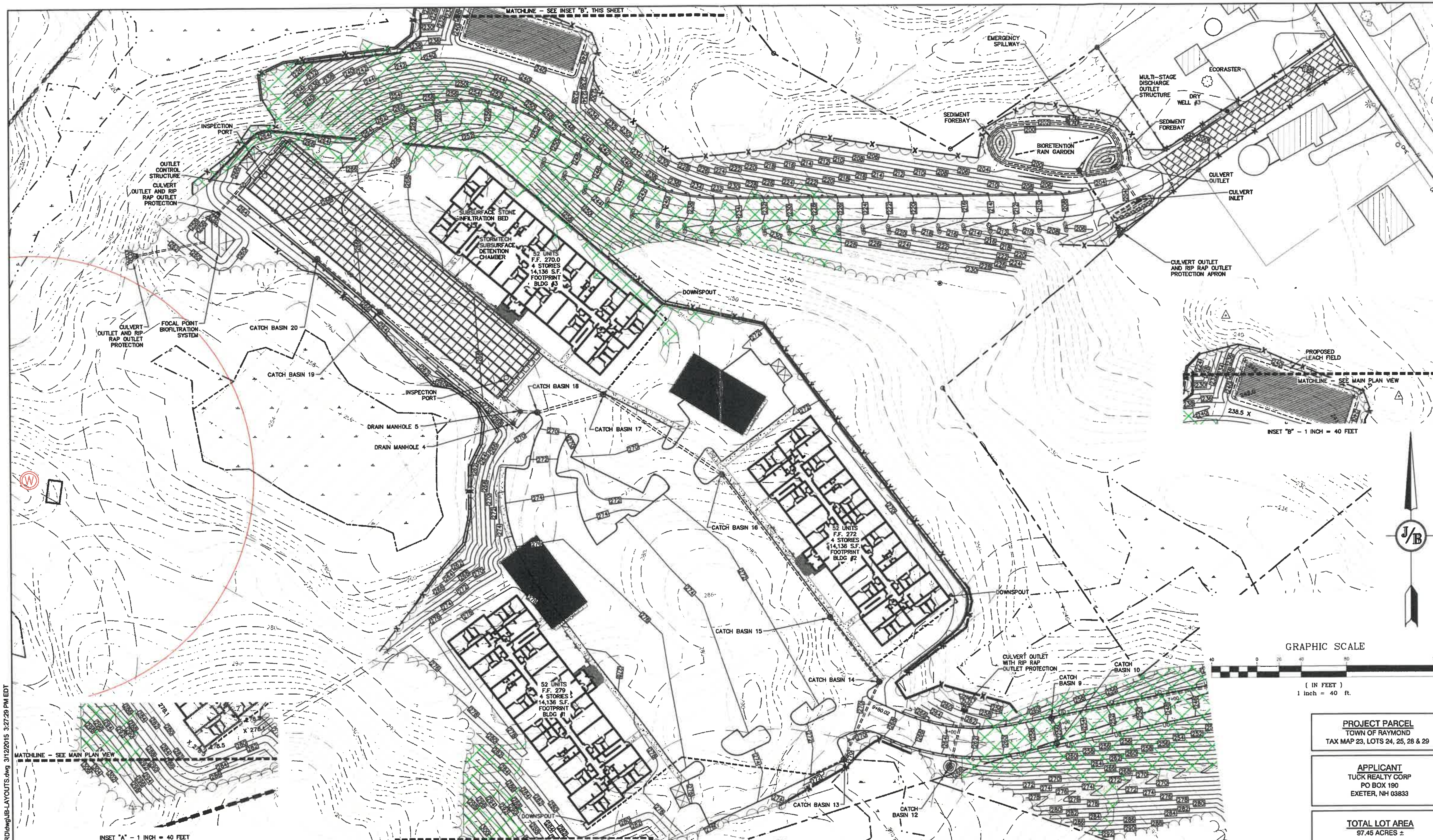
Plan Name: OPERATIONS AND MAINTENANCE PLAN

Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077

Owner of Record:

LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833	LOT 28: PAUL W & TERI L WELCH 109 MAIN STREET, RAYMOND, NH 03077 BK 2539 PG 770
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263	LOT 29: WAYNE & CATHLEEN WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
OM1
SHEET 1 OF 2
JBE PROJECT NO. 20564



PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24, 25, 28 & 29

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
97.45 ACRES ±

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
12	3/19/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM
8	8/2/22	ADDED DRAINAGE	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: OPERATIONS AND MAINTENANCE PLAN
Project: WHITE ROCK PLACE
109 A, B & C MAIN STREET, RAYMOND, NH 03077
Owner of Record:
LOT 24: TUCK REALTY CORP, PO BOX 190, EXETER, NH 03833
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH, 48 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1558 PG 263
LOT 28: PAUL W & TERI L WELCH, 109 MAIN STREET, RAYMOND, NH 03077 BK 2639 PG 770
LOT 29: WAYNE & CATHLEEN WELCH, 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1743

DRAWING No.
OM2
SHEET 2 OF 2
JBE PROJECT NO. 20564

Daniel Meditz

From: Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Sent: Friday, July 28, 2023 11:30 AM
To: Daniel Meditz; Brenden Walden
Cc: FGC: NHFG review; Winters, Melissa; Schlosser, Michael
Subject: NHB23-0047, White Rock Place, Raymond NH Alteration of Terrain Permit file # 230105-001
Attachments: Draft Conservation Easement Deed (00871494xC637B).pdf; Spotted_Blandings Flyer_ 2022.pdf; racer flyer_2022.pdf

Good afternoon,

New Hampshire Fish and Game has completed review of materials submitted for consultation for NHB23-0047, White Rock Place, prepared by Gove Environmental Services, Inc. and Jones & Beach Engineers, Inc. The proposed project is for multi-family residential development located at 109 C Main Street, Raymond, NH.

Applications associated with this review:

- NHDES – Alteration of Terrain Permit file #230105-001

Based on the NHB datacheck results letter and the information provided in the submission, we request the following recommended permit conditions. THESE RECOMMENDED PERMIT CONDITIONS ARE APPLICABLE TO ALL STATE PERMITS LISTED ABOVE.

Please include recommended permit conditions in final plan sheets as written below (updated highlighted text as applicable) and provide to NHDES for final review, with a copy to NHFG. Permit reviewers will adopt/include NHFG permit conditions in the permit if approved.

New Hampshire Fish and Game – Recommended Permit Conditions

1. Blanding's Turtle (State Endangered), Spotted Turtle (State threatened) and Northern Black Racer (State Threatened) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information.
2. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be communicated during morning tailgate meetings prior to work commencement during the construction phase of the project. See Plan Sheet xxxxxx**. Include attached flyers to plan sheet set**.
3. Observations of Northern black racers in the months of April-May and September-October may indicate the potential for a den site on or near the project site. Observations of this species during this timeframe shall be reported immediately to the New Hampshire Fish and Game Department Nongame and Endangered Wildlife Environmental Review Program. Please contact Melissa Winters (603-479-1129) or Brendan Clifford (603-944-0885). Observations of this species outside of this timeframe can follow general reporting guidance. Please include photograph with text if feasible.
4. Turtles and snakes may be attracted to disturbed ground during nesting season. Turtle nesting season occurs approximately May 15th – June 30th. All turtle species nests and northern black racer nests are protected by NH laws. If a nest is observed or suspected, operators shall contact Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802) at NHFG immediately for further consultation. The nest or suspected nest shall be marked (surrounding roped off or cone buffer deployed) and avoided; this shall be communicated to all personnel onsite. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.

5. A 25 foot no-cut, no-disturb buffer shall be maintained around wetlands, with the exception of proposed disturbances depicted on the plan of reference. Placards marking these areas as "Protected habitat- no cutting/ no disturbance" shall be placed every 75 feet along the buffer boundaries. **The 25 foot no-cut, no-disturb buffer and placards shall be maintained and conserved in perpetuity in accordance with FIS 1003.02 (e).**
6. The Conservation Easement Deed document titled, "Draft Conservation Easement Deed (00971494Xc637b), attached, shall be finalized and recorded at the Rockingham County Registry of Deeds. A copy of the recorded document shall be provided to NHFG.
    a. A no cut, no disturb buffer shall be maintained in accordance with the boundaries of the "Open Space Area" on the plan titled, "Overview Site Plan, Sheet C13" dated 6/1/2023. Placards marking these areas as "Protected habitat- no cutting / no disturb buffer" shall be placed every 75 feet along the open space boundary. Please identify placard placements on plan sheets. See Plan Sheet xxxxxx.
7. Vernal pools and potential vernal pools shall be flagged prior to work and all impacts to vernal pools and potential vernal pools shall be avoided.
8. No sumps shall be included in the design of catch basins or outlet control structures.
9. Sloped or "Cape Cod" curbing shall be utilized wherever curbing is proposed.
10. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches. See Plan Sheet xxxxxx.
11. All observations of threatened or endangered species on the project site shall be reported to the NHFG nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at NHFGreview@wildlife.nh.gov, with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation.
12. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible.
13. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG.
    a. Site operators shall be allowed to relocate wildlife encountered if discovered within the active work zone if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. NHFG shall be contacted immediately if this action occurs.
14. NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

NHFG has completed our review of materials submitted for consultation under FIS 1004. No further coordination with NHFG is requested, and the final recommendations have been transmitted to the applicable permitting agency. Questions or concerns on NHFG recommendations must follow FIS 1004.12. Note that NHFG recommendations may be withdrawn pursuant to FIS 1004.

Sincerely,

Kevin Newton
Wildlife Biologist
NH Fish and Game Department
Wildlife Division
11 Hazen Drive, Concord NH 03301
Phone: 603-271- 5860

New Hampshire Fish and Game requirements for environmental review consultation can be found at: https://gencourt.state.nh.us/rules/state_agencies/fis1000.html. ALL requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent hardcopy by mail. **The NHB datacheck results letter number needs to be included in the email subject line to read as "NHB*xx-xxxx_Project Name*_FIS 1004 Consultation Submittal".**

The requirements for consultation (Fis 1004) shall not apply to the following: statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule. Review requests for these projects or other project types should be submitted to NHFGreview@wildlife.nh.gov or can be sent hardcopy by mail – email or mail subject line for these review requests should read **"NHBxx-xxxx_Project Name_ Env. Review Request".**

Please provide shapefiles/KMZ/KMLs of the project site (and relevant features if applicable) with your submittal. Review statements provided in the NHB Datacheck Results letter for additional guidance.

EXTERNAL SENDER: Use caution when following links or opening attachments.

Daniel Meditz

From: Brenden Walden <bwalden@gesinc.biz>
Sent: Tuesday, April 25, 2023 3:54 PM
To: Joseph Coronati; Daniel Meditz
Cc: Mike Garrepy
Subject: FW: NHB23-0047, White Rock Place, Raymond

Please see below from Kevin.
We can get a response together for him but will need assistance on items 2 through 6.
Thanks.
-BW

From: Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Sent: Monday, April 24, 2023 3:10 PM
To: Brenden Walden <bwalden@gesinc.biz>
Cc: FGC: NHFG review <NHFGreview@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Mauck, Ridgely <Addison.R.Mauck@des.nh.gov>; Lewis, Eben <EBEN.M.LEWIS@des.nh.gov>
Subject: NHB23-0047, White Rock Place, Raymond

Good afternoon,

The New Hampshire Fish and Game Department (NHFG), Nongame & Endangered Wildlife Program is currently reviewing your request for consultation for **NHB23-0047, White Rock Place,** located in Raymond, NH.

Pursuant to FIS 1004.05 (c), NHFG determined additional information is necessary for us to continue our review.

Additional information required as per FIS 1004.05(c). Your response to this request RFAI shall follow FIS 1004.07. Please send all missing components as a **single submission.** Submissions must be deemed satisfactory in order to continue our review.

1. Construction sequence #2 within your written report states, " Wetland boundaries are to be clearly marked and at least a temporary culvert or roadbed to be done prior to the start of construction." Please confirm if there will be wetland impacts associated with this project. The NHB data check letter lists NHDES Alteration of Terrain Permit and NHDES Wetland Standard Dredge and Fill – Minor, and the consultation package submitted to NHFG lists only NHDES Alteration of Terrain. If wetland impacts are indeed proposed, please provide information on the impacts and any installation notes for culverts (sizing etc.).
2. Please confirm the proposed no cut, no disturb buffer widths to wetlands on-site. The section within your report, **"Vegetated Buffers (review verbiage)"** at the bottom of page 4, makes several statements about the importance of vegetated buffers in removing sediment and pollutants from runoff. NHFG recommends a minimum 100 ft. no cut/ no disturb buffers on vernal pools as they provide significant feeding habitat for Blanding's and Spotted turtles. Vernal pools should be connected by mature forested corridors for turtle travel as turtles are intolerant of early forest regeneration, high stem density and higher temperatures. Blanding's turtle is a highly terrestrial turtle and utilizes uplands, travelling between core wetland habitats, vernal pools and nesting areas which may be located up to a mile away from their core wetlands. Both turtle species will also use vernal pools for winter hibernation. Mature tree canopy cover around vernal pools also protects (cools) water temperature and prolongs hydro period, critical for protecting amphibian eggs, larval development and maturation. Blanding's and spotted turtles both feed heavily upon amphibian eggs and larvae.
3. Does the proposed well pump house have the potential to impact hydrology of the adjacent vernal pools?

4. How is the proposed open space going to be protected? NHFG recommends a Conservation Easement be proposed to provide permanent protection of habitat for T&E species. NHFG has examples available to assist with drafting of an Easement.
5. Closed drainage systems pose a significant mortality threat to rare turtles and snakes that may be swept into closed systems (sumps, non-day lighted piping) during storm events or become entrapped after falling through catch basin grates. What opportunities are there to mitigate this mortality threat by incorporating open drainage features (i.e conveyance swales) in place of the proposed catch basin system with deep sumps?
6. What is the purpose of the parking expansion exhibit? If these spaces are going to be required by the town as part of the project, NHFG will need to review the proposed plans, specifically the drainage associated with the additional parking. NHFG encourages incorporating open drainage features in these plans.

Pursuant to Fis 1004.06 (b), NHFG is requesting that the above be received within **30 days** of the date of this request (no later than 5/24/2023).

Per Fis 1004.09(b), the NHFG shall not deliver recommendations if the applicant fails to file a **complete** response to a request for additional information unless the partial response (1) explains why the missing information is unavailable or cannot be provided with the specified time, and (2) agrees in writing to extend the time to complete NHFG's review, and the decision of the referring agency on the underlying permit application, until a reasonable time after the requested information is in fact provided to the department.

Should additional time be necessary to submit the requested information, an extension of the deadline may be requested. **Requests for additional time must be received prior to the deadline and follow the guidelines in Fis 1004.10 in order to be approved**.

Thank you and please let me know if you have any questions,

Kevin Newton
Wildlife Biologist
NH Fish and Game Department
Wildlife Division
11 Hazen Drive, Concord NH 03301
Phone: 603-271- 5860

GOVE ENVIRONMENTAL SERVICES, INC.

May 23, 2023

To: Kevin Newton
Wildlife Biologist
NH Fish and Game Department
Wildlife Division

From Brenden Walden, Gove Environmental Services

Subject: NHB23-0047, White Rock Place, Raymond

Re: April 24, 2023 FIS 1004.05(c) Request for More Information

Kevin,

Please find enclosed a response to your RFMI dated November 9th, 2022. All items are addressed in the order they appear in your letters.

Response to Request for More Information:

1. *Construction sequence #2 within your written report states, "Wetland boundaries are to be clearly marked and at least a temporary culvert or roadbed to be done prior to the start of construction." Please confirm if there will be wetland impacts associated with this project. The NHB data check letter lists NHDES Alteration of Terrain Permit and NHDES Wetland Standard Dredge and Fill – Minor, and the consultation package submitted to NHFG lists only NHDES Alteration of Terrain. If wetland impacts are indeed proposed, please provide information on the impacts and any installation notes for culverts (sizing etc.).*

   There are no proposed wetland impacts. The proposed installation of the culvert is to maintain hydrologic connectivity from sheet flow that exists on the landscape. We typically file NHB's in early stages of planning, with AOT and Wetlands selected so that in the instance those state permit applications are required for a project then we don't have to refile the NHB report.

2. *Please confirm the proposed no cut, no disturb buffer widths to wetlands on-site. The section within your report, "Vegetated Buffers (review verbiage)" at the bottom of page 4, makes several statements about the importance of vegetated buffers in removing sediment and pollutants from runoff. NHFG recommends a minimum 100 ft. no cut/ no disturb buffers on vernal pools as they provide significant feeding habitat for Blanding's and Spotted turtles. Vernal pools should be connected by mature forested corridors for turtle travel as turtles are intolerant of early forest regeneration, high stem density and higher temperatures. Blanding's turtle is a highly terrestrial turtle and utilizes uplands,*

travelling between core wetland habitats, vernal pools and nesting areas which may be located up to a mile away from their core wetlands. Both turtle species will also use vernal pools for winter hibernation. Mature tree canopy cover around vernal pools also protects (cools) water temperature and prolongs hydro period, critical for protecting amphibian eggs, larval development and maturation. Blanding's and spotted turtles both feed heavily upon amphibian eggs and larvae.

In general, we are maintaining a 25' buffer between wetlands and the proposed development. This 25' buffer is actually a building setback required by the Town but we are in fact keeping most disturbance altogether out of this, with a few slight encroachments. We are requesting a waiver from the Town's parking requirements and instead have our parking number at 1.8 spaces per unit, based on empirical data. This will keep us out of the 100' vernal pool buffer as much as we reasonably can while still providing space for parking and stormwater management associated with the proposed development. A total of 26,792 SF of the existing vernal pool buffer areas will be covered with impervious surface post-construction, and a total of 49,653 SF will be impacted out of the total of 271,303 SF of vernal pools and their associated buffers on the proposed development site (within the proposed boundary of Lot 25). This means that 221,650 SF of vernal pools and associated buffers will remain undisturbed and a large portion will be in deed restricted open space. There will be no direct impacts to vernal pools or other wetlands.

3. *Does the proposed well pump house have the potential to impact hydrology of the adjacent vernal pools?*

   At this time the well and pump house are no longer proposed. This project is intended to be serviced by town water.

4. *How is the proposed open space going to be protected? NHFG recommends a Conservation Easement be proposed to provide permanent protection of habitat for T&E species. NHFG has examples available to assist with drafting of an Easement.*

   The applicant is working on putting draft protection language together for the proposed open space for review by Fish and Game.

5. *Closed drainage systems pose a significant mortality threat to rare turtles and snakes that may be swept into closed systems (sumps, non-day lighted piping) during storm events or become entrapped after falling through catch basin grates. What opportunities are there to mitigate this mortality threat by incorporating open drainage features (i.e conveyance swales) in place of the proposed catch basin system with deep sumps?*

   Please see attached revised plans with no sump catch basins.

6. *What is the purpose of the parking expansion exhibit? If these spaces are going to be required by the town as part of the project, NHFG will need to review the proposed plans, specifically the drainage associated with the additional parking. NHFG encourages incorporating open drainage features in these plans.*

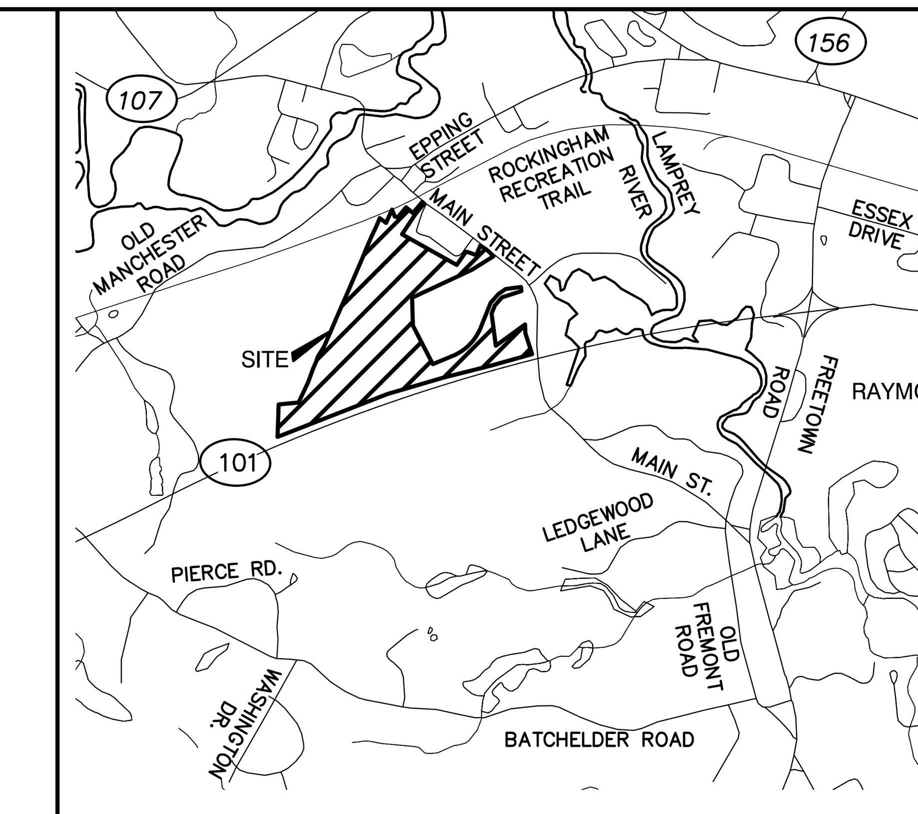
   These additional parking spaces are not proposed at this time, the exhibit is simply to show what the full built out parking lot would look like to meet the Town's requirement of 3 spaces per unit where we are seeking a waiver to allow 1.8 spaces per unit. If additional parking were to be built in the future, no matter the number of additional spaces, it would have to go through the required permitting process and would be subject to whatever permitting requirements exist at the time that it is proposed.

This completes the response to the FIS request for more information related to the White Rock Place development on Main Street, in Raymond. If you have any questions or feel I can be of further assistance please feel free to contact me by email, bwalden@gesinc.biz .

Sincerely,

Brenden Walden
Certified Wetland Scientist #297
Gove Environmental Services, Inc.

Attachments: Revised Plan Sheets



LOCUS SCALE: 1"=2000'

APPROVED - RAYMOND, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 24 & 25

APPLICANT
TUCK REALTY CORP
PO BOX 190
EXETER, NH 03833

TOTAL LOT AREA
3,271,681 S.F.
75.11 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
13	5/5/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
12	3/19/23	REVISED PER TRC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM

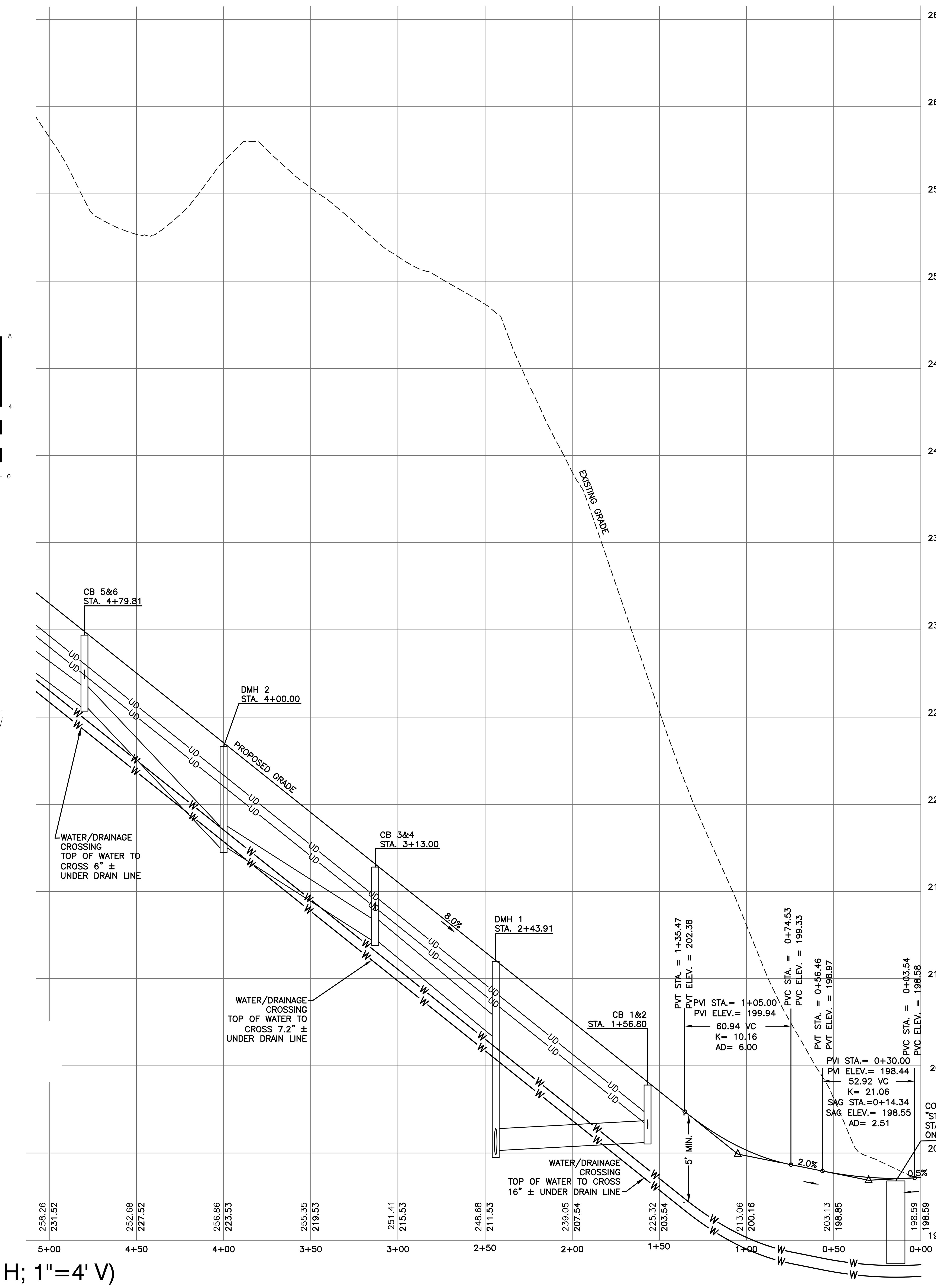
Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW SITE PLAN	
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077	
Owner of Record:	LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833 BK 6437 PG 2569	LOT 25: JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
C13
SHEET 16 OF 59
JBE PROJECT NO. 20564

NOTES:

1. THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT HTTP://CFPUB1.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
   - A. FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
   - A. ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
2. ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
3. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
4. CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV, TELEPHONE, AND FIRE ALARM PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
5. THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
6. SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
7. ALL DISTURBED AREAS NOT STABILIZED BY OCTOBER 15TH SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
8. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
9. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
10. ROADWAY INTERSECTIONS WITH SLOPE GRANITE CURB SHALL EXTEND AROUND RADIUS WITH 6' STRAIGHT PIECE ALONG TANGENT.
11. RETAINING WALLS SHALL BE DESIGNED AND STAMPED BY A STRUCTURAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER PRIOR TO INSTALLATION.
12. 6" PERFORATED ADS-N12 UNDER DRAIN IS TO BE PLACED BENEATH ROAD SHOULDERS AS SHOWN. CONTRACTOR TO ADJUST LOCATION IN THE FIELD ONLY WITH PRIOR APPROVAL OF PROJECT ENGINEER AND PUBLIC WORKS DEPARTMENT.
13. ALL PAVED OR GRAVELED AREAS INTENDED FOR VEHICULAR TRAFFIC TO BE CONSTRUCTED WITH MAXIMUM 8% SLOPE UNLESS OTHERWISE SPECIFIED, SUBJECT TO WAIVER FROM THE PLANNING BOARD.
14. DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT FENCING WILL BE INSPECTED DURING AND AFTER STORM EVENTS IN EXCESS OF 0.25" TO ENSURE THAT THE FENCE STILL HAS INTEGRITY AND IS NOT ALLOWING SEDIMENT TO PASS. SEDIMENT BUILD UP IN SWALES WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SUMPS BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS. FOLLOWING MAJOR STORM EVENTS, THE STAGE DISCHARGE OUTLET STRUCTURES ARE TO BE INSPECTED AND ANY DEBRIS REMOVED FROM THE ORIFICE, TRASH RACK AND EMERGENCY SPILLWAY. INFREQUENTLY, SEDIMENT MAY ALSO HAVE TO BE REMOVED FROM THE SUMP OF THE STRUCTURE.
15. ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
16. DETENTION PONDS REQUIRE TIMELY MAINTENANCE AND SHOULD BE INSPECTED AFTER EVERY MAJOR STORM EVENT, AS WELL AS FREQUENTLY DURING THE FIRST YEAR OF OPERATION, AND ANNUALLY THEREAFTER. EVERY FIVE YEARS, THE SERVICES OF A PROFESSIONAL ENGINEER SHOULD BE RETAINED TO PERFORM A THOROUGH INSPECTION OF THE DETENTION POND AND ITS INFRASTRUCTURE. ANY DEBRIS AND SEDIMENT ACCUMULATIONS SHOULD BE REMOVED FROM THE OUTLET STRUCTURE(S) AND EMERGENCY SPILLWAY(S) AND DISPOSED OF PROPERLY. DETENTION POND BERMS SHOULD BE MOWED AT LEAST ONCE ANNUALLY SO AS TO PREVENT THE ESTABLISHMENT OF WOODY VEGETATION. TREES SHOULD NEVER BE ALLOWED TO GROW ON A DETENTION POND BERM, AS THEY MAY DESTABILIZE THE STRUCTURE AND INCREASE THE POTENTIAL FOR FAILURE. AREAS SHOWING SIGNS OF EROSION OR THIN OR DYING VEGETATION SHOULD BE REPAIRED IMMEDIATELY BY WHATEVER MEANS NECESSARY, WITH THE EXCEPTION OF FERTILIZER. RODENT BURROWS SHOULD BE REPAIRED IMMEDIATELY AND THE ANIMALS SHOULD BE TRAPPED AND RELOCATED IF THE PROBLEM PERSISTS.
17. THE DETENTION PONDS ARE TO BE CONSTRUCTED PRIMARILY THROUGH EXCAVATION. IN THOSE AREAS WHERE THE BERMS MUST BE CONSTRUCTED BY THE PLACEMENT OF FILL, THE ENTIRE EMBANKMENT AREA OF THE DETENTION PONDS SHALL BE EXCAVATED TO PROPOSED GRADE, STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 95% AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. IN THE EVENT THE FOUNDATION MATERIAL EXPOSED DOES NOT ALLOW THE SPECIFIED COMPACTION, AN ADDITIONAL ONE FOOT (1') OF EXCAVATION AND THE PLACEMENT OF A ONE FOOT (1') THICK, TWELVE FOOT (12') WIDE PAD OF THE MATERIAL DESCRIBED IN THE NOTE BELOW, COMPACTED TO 95% OF ASTM D-1557 MAY BE NECESSARY. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3%, AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED WITHIN FOR ANY REASON.
18. DETENTION PONDS SHALL HAVE BERMS WITH CLAY CORES. SEE DETAIL SHEETS FOR POND AND POND BERM SPECIFICATIONS.
19. ROAD SIDE SLOPES MUST BE BENCHED AS SHOWN ON THIS PLAN. THERE SHALL BE A 6' WIDE BENCH WITH A MAXIMUM REVERSE SLOPE OF 6:1 EVERY 20' VERTICALLY ALONG THE 2:1 SLOPE. SEE DETAIL ON SHEET C3.
20. COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION, AND ON THE FOUNDATION OF THE BERM AND ON EVERY LIFT OF NEWLY PLACED MATERIAL.
21. ORNAMENTAL STREET LIGHTING SHALL BE PRIVATELY OWNED AND MAINTAINED. LIGHTING SHALL NOT TO BE OWNED OR MAINTAINED BY THE TOWN.
22. SEE GRADING AND DRAINAGE PLANS FOR INFORMATION SUCH AS DRAINAGE STRUCTURE RIMS, INVERTS, STORMWATER PIPE SIZES AND MATERIALS, ETC.



MAIN DRIVEWAY PLAN AND PROFILE STA. 0+00 - 5+00 (1"=40' H; 1"=4' V)

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

REV.	DATE	REVISION	BY
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10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: PLAN AND PROFILE

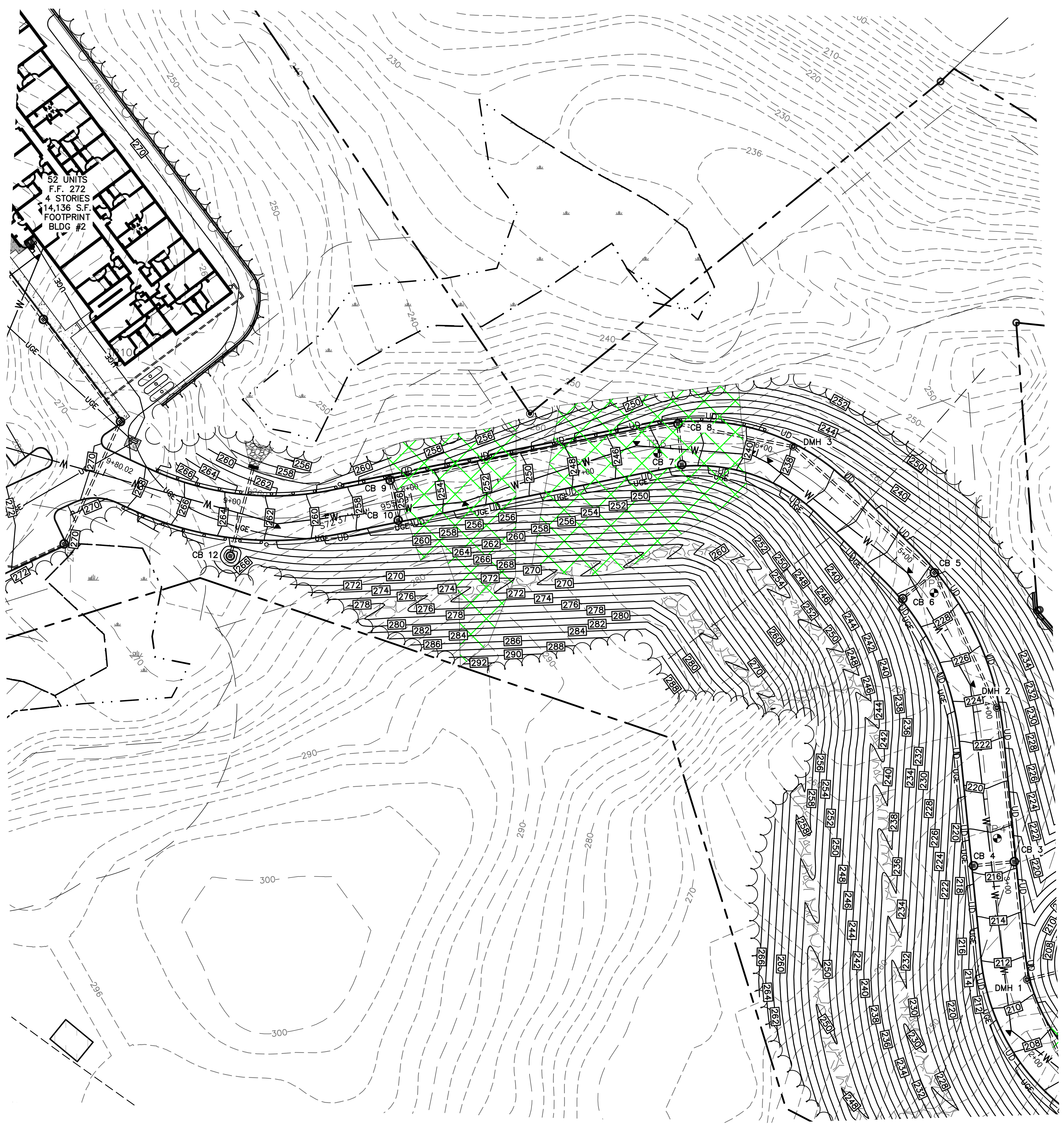
Project: WHITE ROCK PLACE
109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077

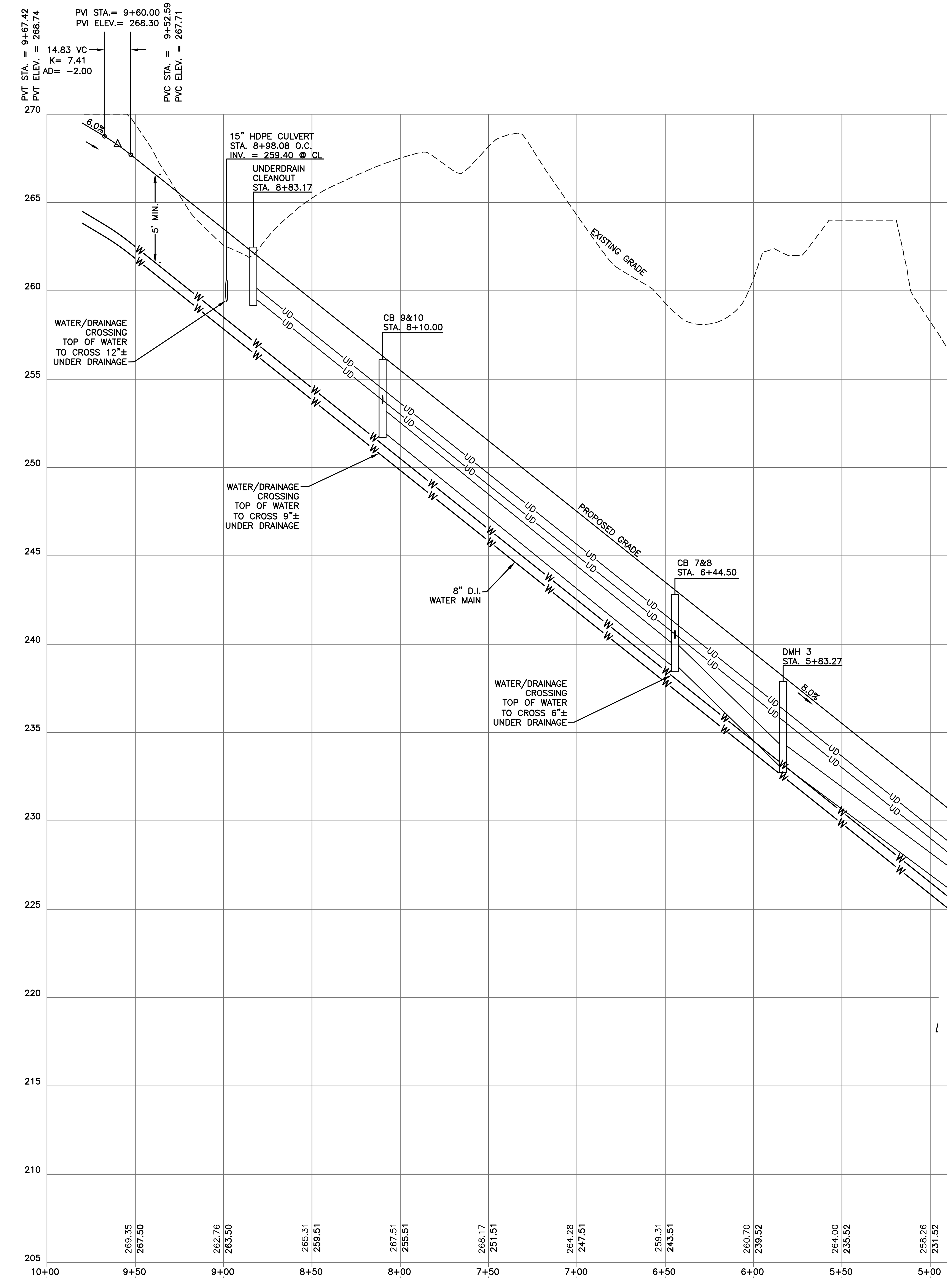
Owner of Record:
LOT 24: TUCK REALTY CORP, PO BOX 190, EXETER, NH 03833, BK 6437 PG 2569
LOT 25: JOSEPH, JOHN, ARDELL & INEX WELCH, 49 RAYMOND RD., NOTTINGHAM, NH 03290, BK 1559 PG 263

DRAWING No.
P1
SHEET 26 OF 59
JBE PROJECT NO. 20564

NOTES:

1. SEE NOTES ON SHEET P1, AS THEY APPLY TO THIS SHEET AS WELL.





GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.

MAIN DRIVEWAY PLAN AND PROFILE STA. 5+00 - 9+80.02 (1"=40' H; 1"=4' V)

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

REV.	DATE	REVISION	BY
13	5/5/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
12	3/19/23	REVISED PER TRC, TOWN ENGINEER, AND AOT COMMENTS	DJM
11	2/14/23	REVISED PER TOWN ENGINEER COMMENTS	DJM
10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

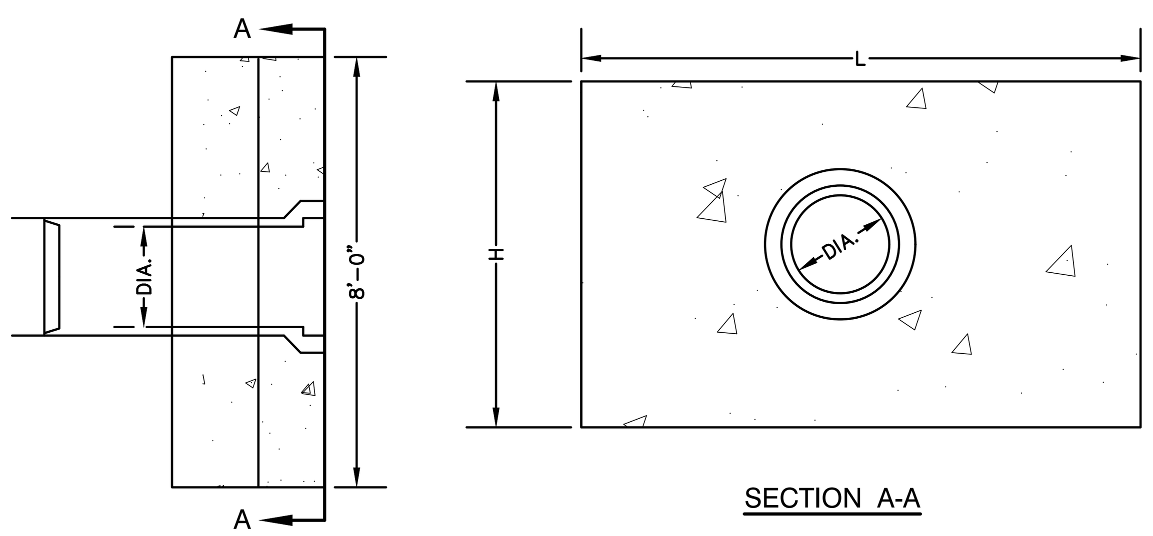
Plan Name: PLAN AND PROFILE

Project: WHITE ROCK PLACE
109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077

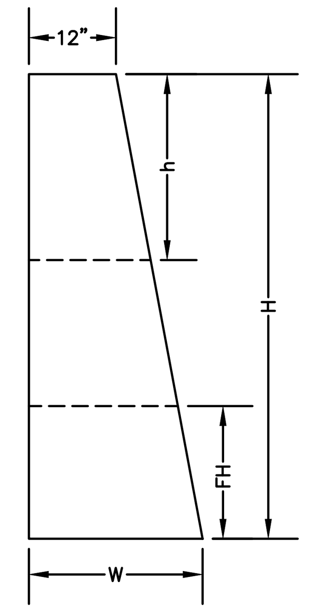
Owner of Record:

LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833 BK 6437 PG 2569	LOT 25: JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.
P2



SECTION A-A



DIA.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	PIPE COVER	HEADWALL BOTTOM WIDTH
D	L	H	FH	h	W
12"	4'-2"	3'-9"	1'-6"	1'-3"	1'-11"
15"	5'-11"	4'-2"	1'-6"	1'-5"	2'-0"
18"	6'-11"	4'-5"	1'-6"	1'-5"	2'-1"
24"	8'-10"	4'-11"	1'-6"	1'-5"	2'-3"

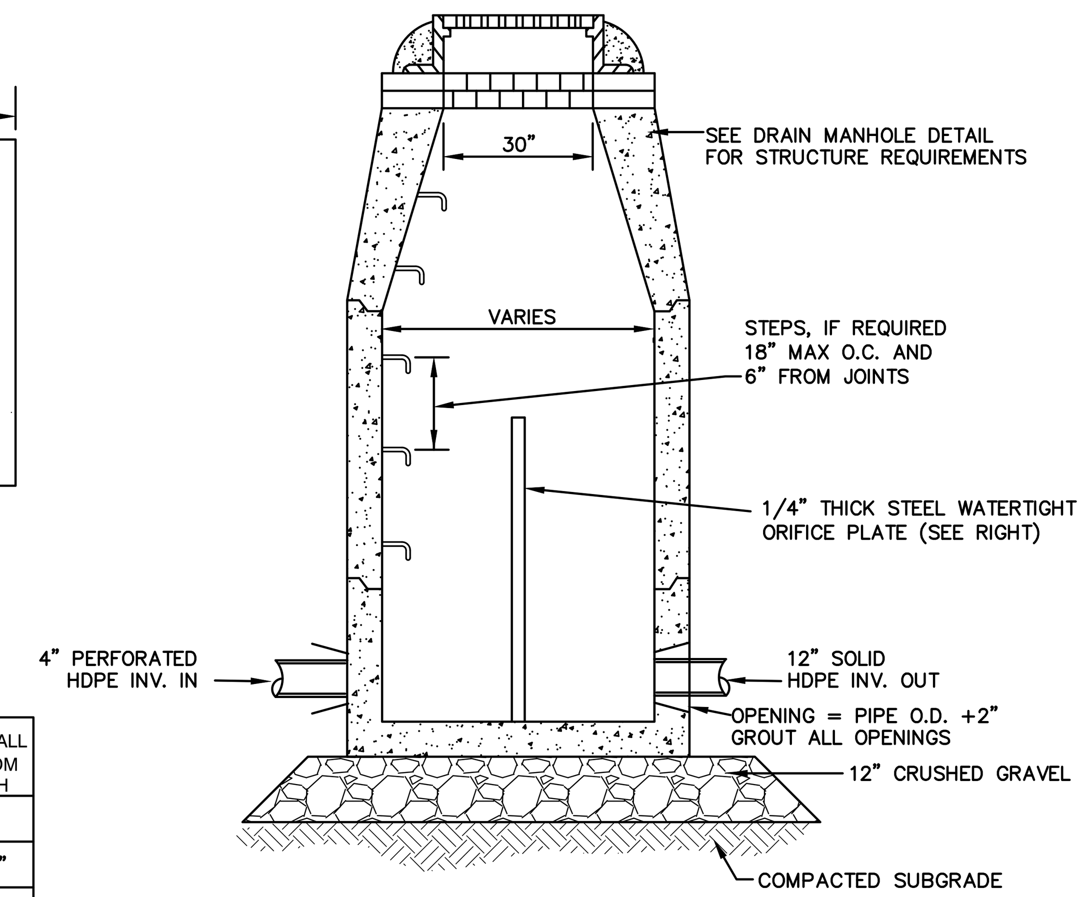
LONGITUDINAL SECTION

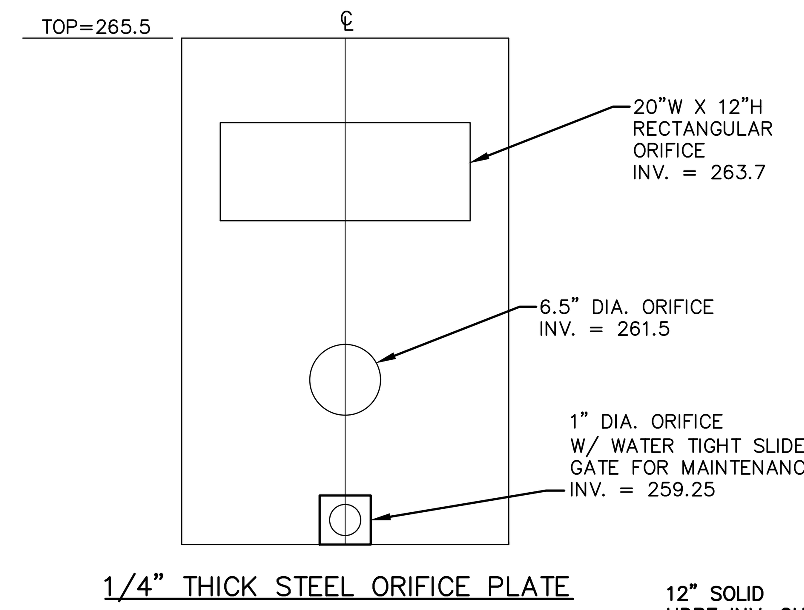
NOTES:

1. ALL DIMENSIONS GIVEN IN FEET & INCHES.
2. PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
3. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
4. 1" THREADED INSERTS PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

PRECAST CONCRETE HEADWALL

NOT TO SCALE



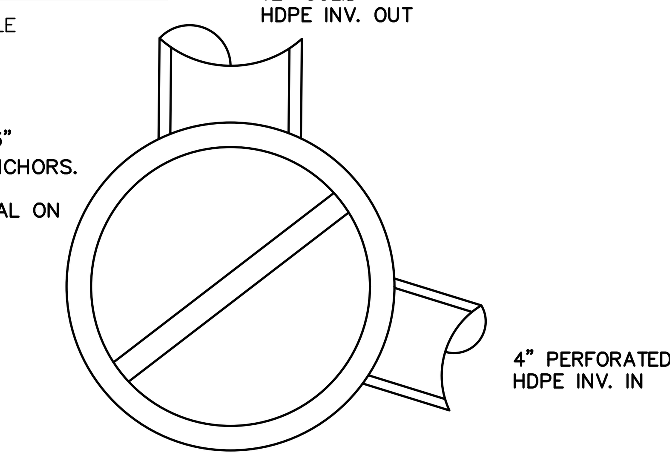


1/4" THICK STEEL ORIFICE PLATE

NOT TO SCALE

BAFFLE WALL NOTE:

1. BAFFLE WALLS TO BE SET WITH 3"x3" ALUMINUM ANGLES W/ 3/8" WEDGE ANCHORS.
2. WALL TO BE SEALED WITH SIKAFLEX WATERPROOFING ON SIDES & CONSEAL ON BOTTOM.



OS #1

NOT TO SCALE

STORMTECH OUTLET CONTROL STRUCTURE

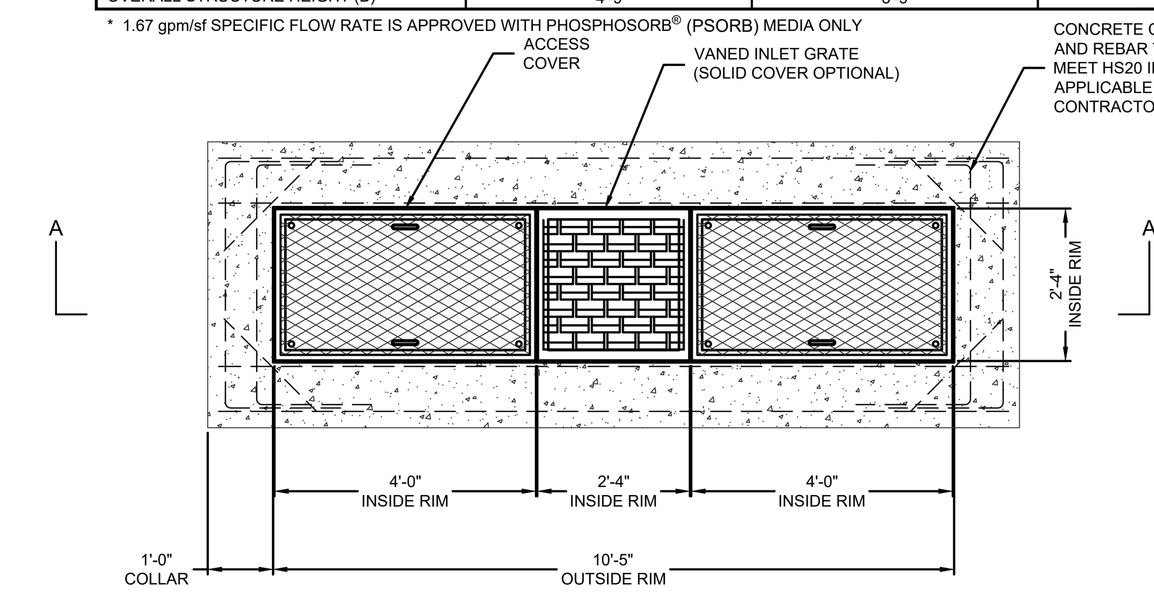
NOT TO SCALE

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. 4 CARTRIDGE CATCHBASIN HAS A MAXIMUM OF FOUR CARTRIDGES. SYSTEM IS SHOWN WITH A 27" CARTRIDGE, AND IS ALSO AVAILABLE WITH AN 18" CARTRIDGE. STORMFILTER CATCHBASIN CONFIGURATIONS ARE AVAILABLE WITH A DRY INLET BAY FOR VECTOR CONTROL.
PEAK HYDRAULIC CAPACITY PER TABLE BELOW. IF THE SITE CONDITIONS EXCEED PEAK HYDRAULIC CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

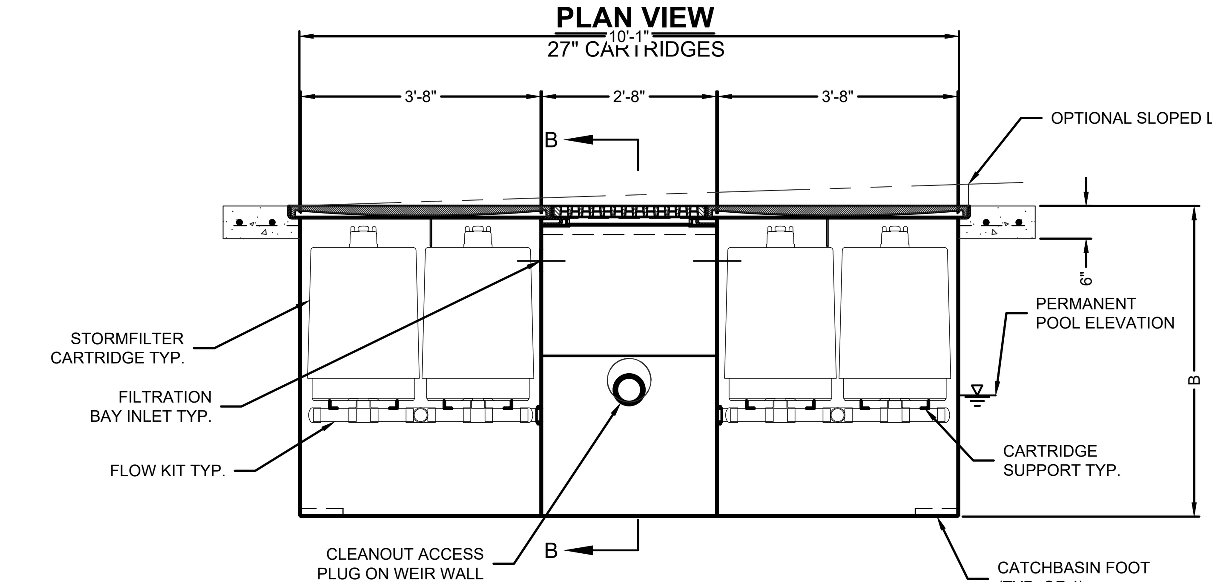
CARTRIDGE HEIGHT	27"			18"			18" DEEP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			3.3'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	15	12.53	7.5
PEAK HYDRAULIC CAPACITY	1.0			1.0			1.8		
INLET PERMANENT POOL LEVEL (A)	1'-0"			1'-0"			2'-0"		
OVERALL STRUCTURE HEIGHT (B)	4'-9"			3'-9"			4'-9"		

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



PLAN VIEW

27" CARTRIDGES



SECTION A-A

4-CARTRIDGE CATCHBASIN STORMFILTER DATA	
STRUCTURE ID	1
WATER QUALITY FLOW RATE (cfs)	0.11
PEAK FLOW RATE (<1 cfs)	0.97
RETURN PERIOD OF PEAK FLOW (yrs)	25
CARTRIDGE FLOW RATE (gpm)	1.67/SF
MEDIA TYPE (PERLITE, ZPG, PSORB)	PSORB
RIM ELEVATION	198.4

PIPE DATA:	I.E.	DIAMETER
INLET STUB	N/A	N/A
OUTLET STUB	196.1	15"

CONFIGURATION

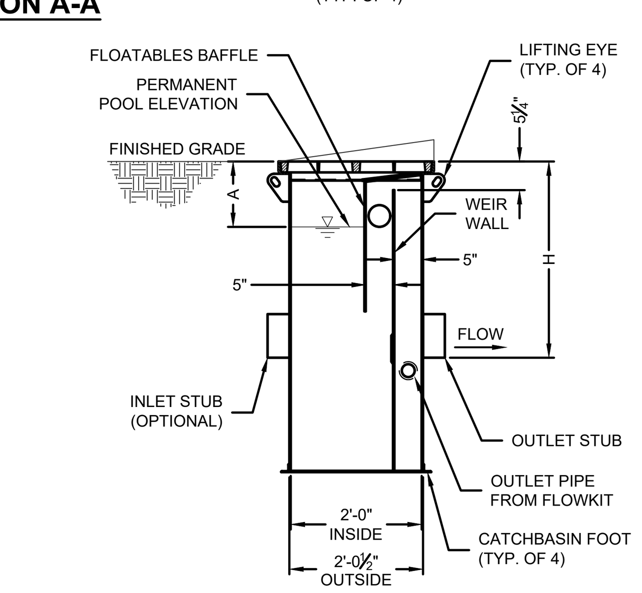
OUTLET

INLET

SLOPED LID	NO
SOLID COVER	NO

NOTES/SPECIAL REQUIREMENTS:
SYSTEM TO HAVE GRATED INLET

*PER ENGINEER OF RECORD



SECTION C-C

GENERAL NOTES

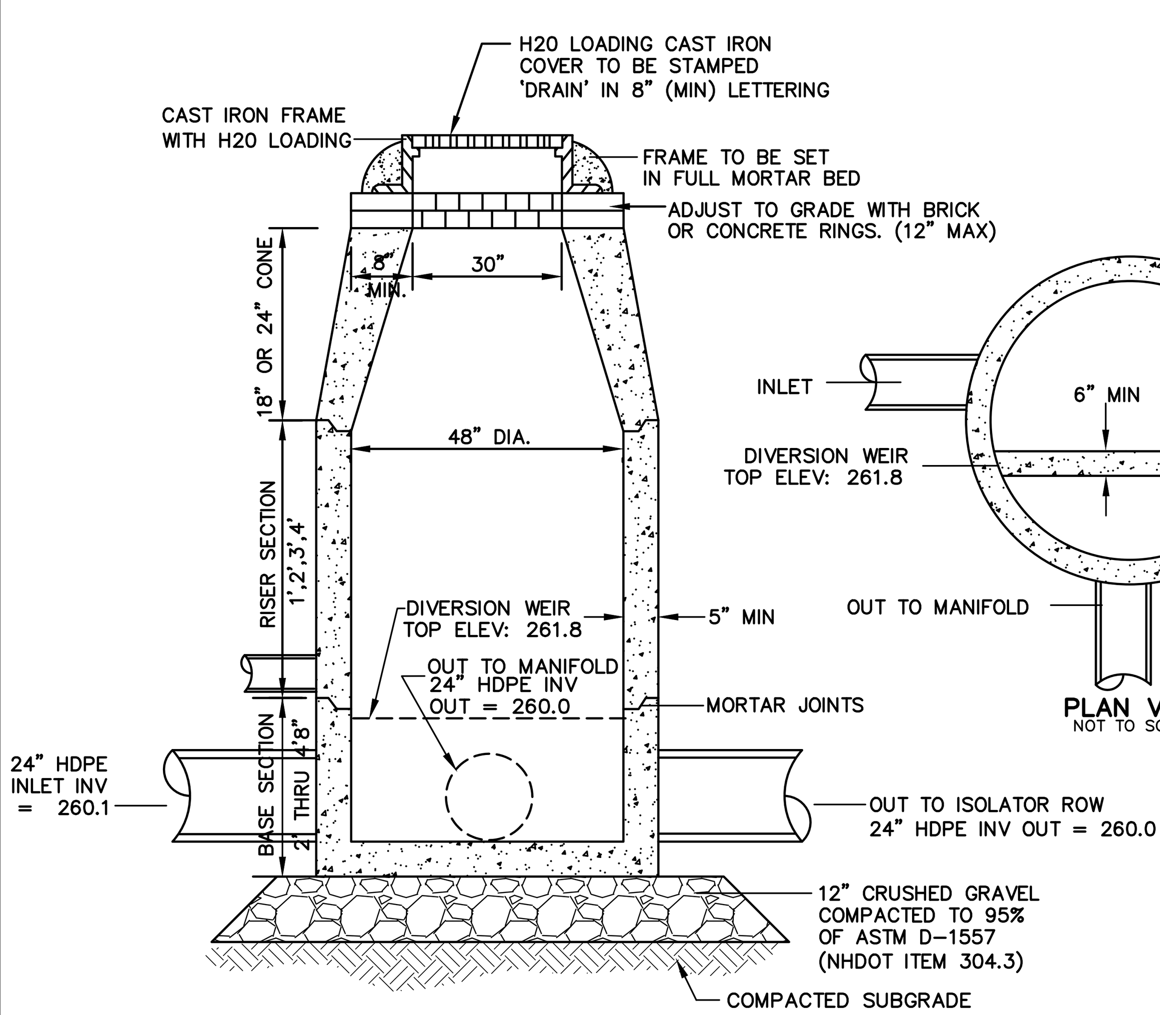
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STORMFILTER CATCHBASIN STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER CATCHBASIN WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
4. INLET SHOULD NOT BE LOWER THAN OUTLET. INLET (IF APPLICABLE) AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
5. MANUFACTURER TO APPLY A SURFACE BEAD WELD IN THE SHAPE OF THE LETTER "O" ABOVE THE OUTLET PIPE STUB ON THE EXTERIOR SURFACE OF THE STEEL SFCB.
6. STORMFILTER CATCHBASIN EQUIPPED WITH 4 INCH (APPROXIMATE) LONG STUBS FOR INLET (IF APPLICABLE) AND OUTLET PIPING. STANDARD OUTLET STUB IS 8 INCHES IN DIAMETER. MAXIMUM OUTLET STUB IS 15 INCHES IN DIAMETER. CONNECTION TO COLLECTION PIPING CAN BE MADE USING FLEXIBLE COUPLING BY CONTRACTOR.
7. STEEL STRUCTURE TO BE MANUFACTURED OF 1/4 INCH STEEL PLATE. CASTINGS SHALL MEET AASHTO M306 LOAD RATING. TO MEET HS20 LOAD RATING ON STRUCTURE, A CONCRETE COLLAR IS REQUIRED. WHEN REQUIRED, CONCRETE COLLAR WITH #4 REINFORCING BARS TO BE PROVIDED BY CONTRACTOR.
8. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
9. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).

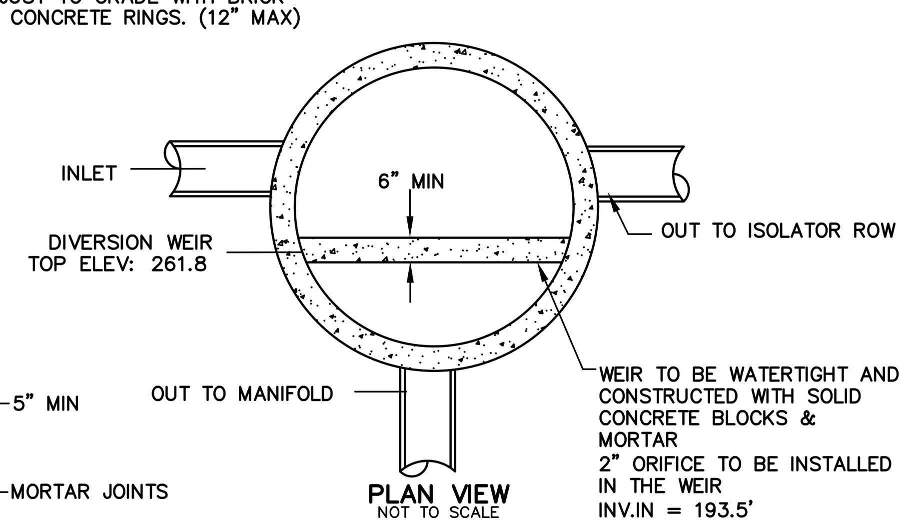
INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CATCHBASIN (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH "STORMFILTER" DETAIL

NOT TO SCALE



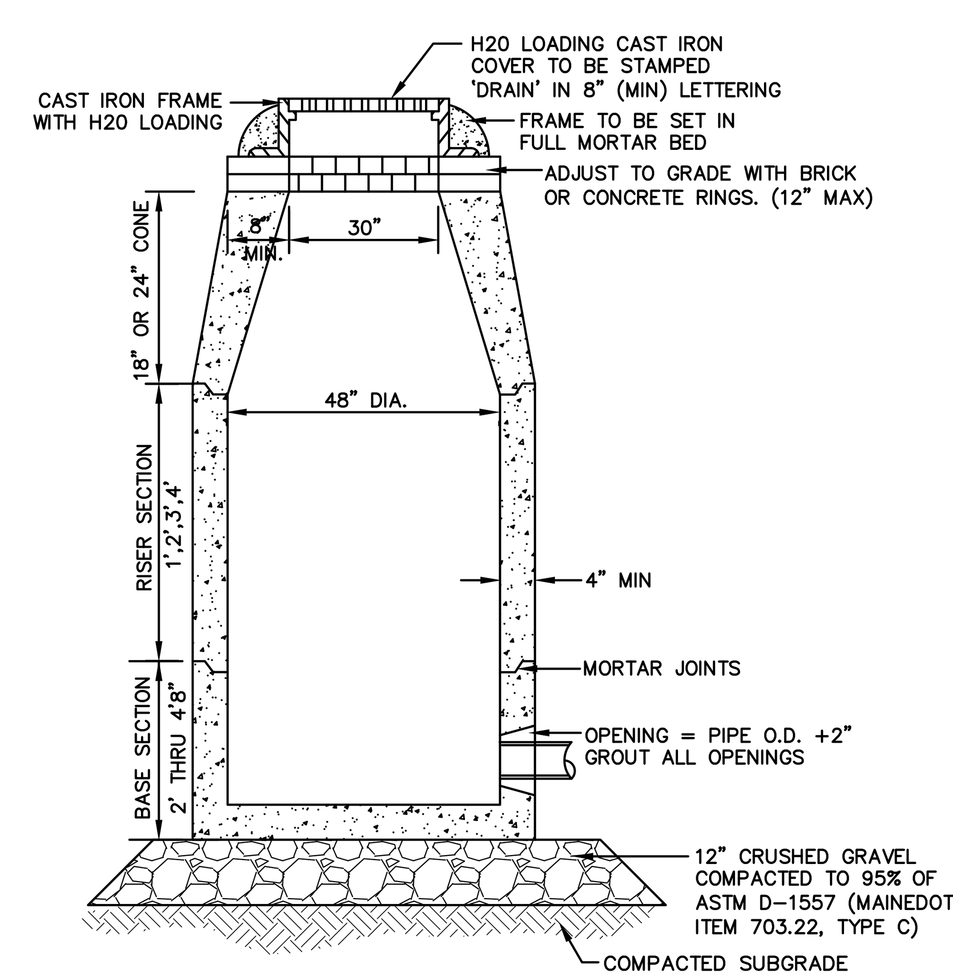


PLAN VIEW

NOT TO SCALE

DRAIN MANHOLE WITH DIVERSION WEIR

NOT TO SCALE

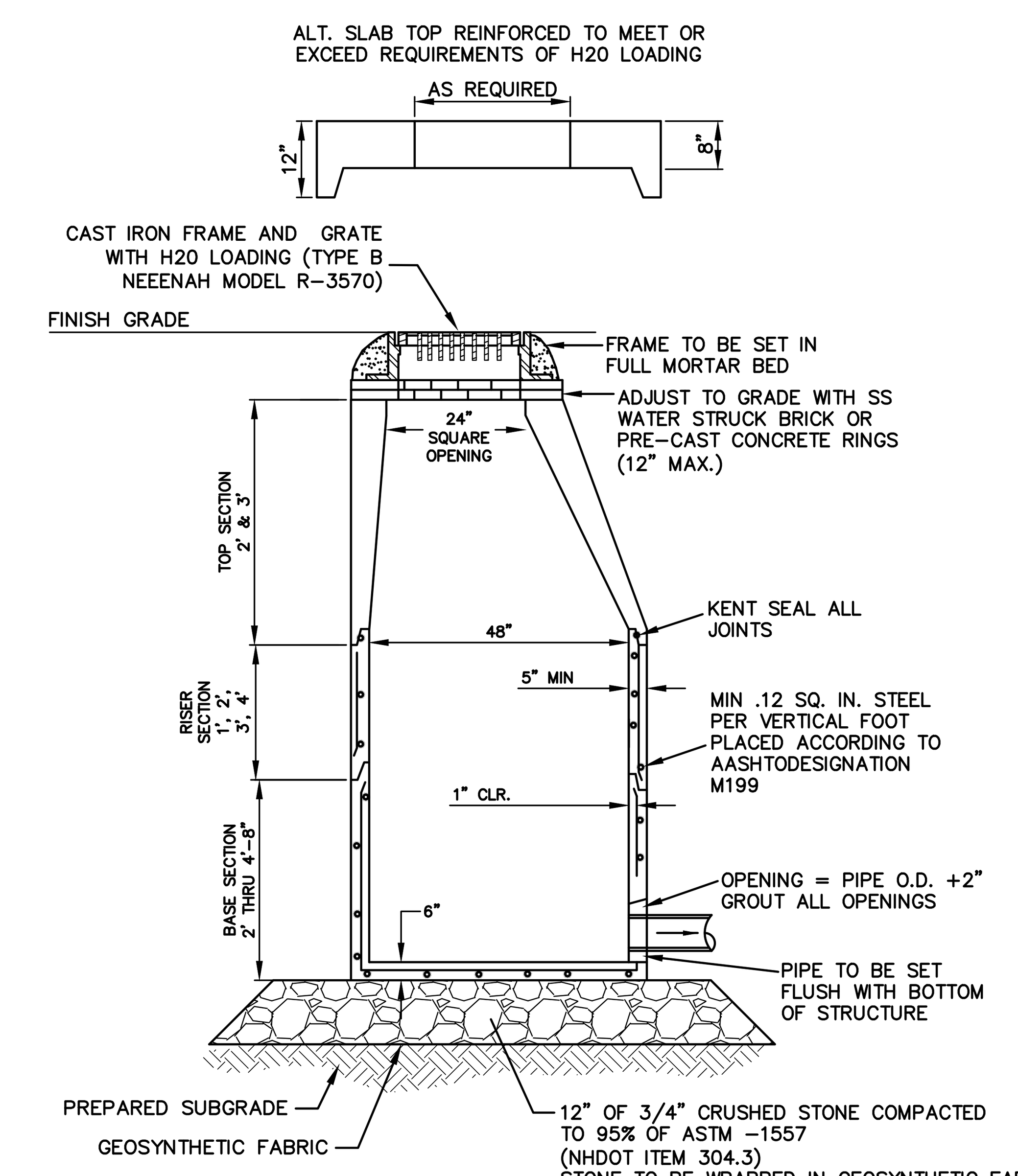


NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

DRAIN MANHOLE (4' DIAM.)

NOT TO SCALE



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6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NHDOT CATCH BASIN TYPE ALTERNATE 1 OR NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

CATCH BASIN (w/o SUMP)

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
13	5/5/23	REVISED PER TAC, TOWN ENGINEER, AND AOT COMMENTS	DJM
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10	12/12/22	DRAINAGE REVISIONS FOR AOT	DJM
9	11/22/22	ISSUED FOR REVIEW	DJM

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Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET	
Project:	WHITE ROCK PLACE 109A MAIN STREET & ROUTE 101, RAYMOND, NH 03077	
Owner of Record:	LOT 24: TUCK REALTY CORP PO BOX 190, EXETER, NH 03833 BK 6437 PG 2569	LOT 25: JOSEPH, JOHN, ARDELL & INEX WELCH 49 RAYMOND RD., NOTTINGHAM, NH 03290 BK 1559 PG 263

DRAWING No.

D7

SHEET 46 OF 59
JBE PROJECT NO. 20564

Daniel Meditz

From:	Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Sent:	Friday, June 30, 2023 2:12 PM
To:	Daniel Meditz; Stefanie Michaud
Cc:	Joseph Coronati; 'Mike Garrepy'; 'Brenden Walden'; Kevin Baum; Schlosser, Michael; FGC: NHFG review; Winters, Melissa
Subject:	RE: JBE 20564 - White Rock Place, Raymond, AoT Application 230105-001 - NHB23-0047

Hi Dan,

Thank you for your patience with our review process. We appreciate your team addressing our comments. I was able to sit down with Melissa yesterday to review the latest materials. We are very close to wrapping up but need clarification on a couple of items.

1. Is the Warranty Deed document provided in the response letter the complete draft document or are there other sections (purposes, definitions) available to review?
2. When reviewing the site plans, Melissa pointed out the proposed property line separating the conservation area from the newly proposed lot to the south. Are there any development plans for the new lot to the south expected in the future? If so, it may be worth considering them and how they may impact the functionality of the conservation area as it relates to threatened and endangered species habitat.

Thank you and enjoy the 4th of July,

Kevin Newton

Kevin Newton
Wildlife Biologist
NH Fish and Game Department
Wildlife Division
11 Hazen Drive, Concord NH 03301
Phone: 603-271- 5860

From: Newton, Kevin
Sent: Monday, June 19, 2023 10:25 AM
To: Daniel Meditz <DMeditz@jonesandbeach.com>; Stefanie Michaud <smichaud@jonesandbeach.com>; Schlosser, Michael <Michael.J.Schlosser@des.nh.gov>
Cc: Joseph Coronati <jcoronati@Jonesandbeach.com>; 'Mike Garrepy' <mgarrepy@gmail.com>; 'Brenden Walden' <bwalden@gesinc.biz>; Kevin Baum <kbaum@hpgrlaw.com>
Subject: RE: JBE 20564 - White Rock Place, Raymond, AoT Application 230105-001 - NHB23-0047

Thank you, Dan. We will review and provide a response.

Kevin Newton
Wildlife Biologist
NH Fish and Game Department
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11 Hazen Drive, Concord NH 03301

Phone: 603-271- 5860

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Cc: Joseph Coronati <jcoronati@Jonesandbeach.com>; 'Mike Garrepy' <mgarrepy@gmail.com>; 'Brenden Walden' <bwalden@gesinc.biz>; Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>; Kevin Baum <kbaum@hpgrlaw.com>
Subject: RE: JBE 20564 - White Rock Place, Raymond, AoT Application 230105-001 - NHB23-0047

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Kevin N., The resubmission package also contains our responses to your most recent comments.

Dan Meditz, E.I.T
Project Engineer
Jones&Beach Engineers, Inc.
85 Portsmouth Avenue
PO Box 219
Stratham, NH 03885
(603) 772-4746 (ext. #128)
http://www.jonesandbeach.com

From: Stefanie Michaud <smichaud@jonesandbeach.com>
Sent: Thursday, June 15, 2023 9:44 AM
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Cc: Joseph Coronati <jcoronati@Jonesandbeach.com>; Daniel Meditz <DMeditz@jonesandbeach.com>; 'Mike Garrepy' <mgarrepy@gmail.com>; 'Brenden Walden' <bwalden@gesinc.biz>; 'Kevin.M.Newton@wildlife.nh.gov' <Kevin.M.Newton@wildlife.nh.gov>; Kevin Baum <kbaum@hpgrlaw.com>
Subject: JBE 20564 - White Rock Place, Raymond, AoT Application 230105-001

Good Morning Michael,

Please follow the link below to download the revised documents for the above-mentioned project. We have mailed you a hard copy as well. Thank you.

2023-06-15 NHDES AoT Resubmission

Stefanie Michaud
Office Manager
Jones&Beach Engineers, Inc.
85 Portsmouth Avenue
PO Box 219
Stratham, NH 03885

(603) 772-4746 (ext. #119)
smichaud@jonesandbeach.com

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From:	Daniel Meditz
Sent:	Thursday, July 27, 2023 12:21 PM
To:	Newton, Kevin
Cc:	Joseph Coronati; 'Mike Garrepy'; 'Brenden Walden'; Kevin Baum; Schlosser, Michael; FGC: NHFG review; Winters, Melissa
Subject:	RE: JBE 20564 - White Rock Place, Raymond, AoT Application 230105-001 - NHB23-0047
Attachments:	Draft Conservation Easement Deed (00871494xC637B).pdf

Kevin,

Please see attached draft easement deed. We have no plans for the other subdivided lot at this time. Any development on that lot in the future would have to go through the typical permitting process.

Thanks,

Dan Meditz, E.I.T
Lead Design Engineer
Jones&Beach Engineers, Inc.
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100 feet Abutters List Report

Raymond, NH
August 25, 2023

Subject Property:

Parcel Number:	023-000-024-000	Mailing Address:	TUCK REALTY CORPORATION
CAMA Number:	023-000-024-000-000		P.O. BOX 190
Property Address:	ROUTE 101		EXETER, NH 03833

Subject Property

Parcel Number:	023-000-025-000	Mailing Address:	WELCH,JOSEPH & JOHN & ARDELL & INEZ BETSY PATTERSON & ROBIN PROULX
CAMA Number:	023-000-025-000-000		49 RAYMOND ROAD, ROUTE 156
Property Address:	MAIN STREET		NOTTINGHAM, NH 03290

Abutters:

Parcel Number:	023-000-026-000	Mailing Address:	LURIE, AUDREY J.
CAMA Number:	023-000-026-000-000		111 MAIN STREET
Property Address:	111 MAIN STREET		RAYMOND, NH 03077

Abutters:

Parcel Number:	023-000-027-000	Mailing Address:	BUCKUS, JILLIAN
CAMA Number:	023-000-027-000-000		109 MAIN STREET
Property Address:	109 MAIN STREET		RAYMOND, NH 03077

Subject Property

Parcel Number:	023-000-028-000	Mailing Address:	WELCH, PAUL W & TERI L
CAMA Number:	023-000-028-000-000		109 MAIN STREET
Property Address:	109 B MAIN STREET		RAYMOND, NH 03077

Subject Property

Parcel Number:	023-000-029-000	Mailing Address:	WELCH, WAYNE F CATHLEEN M WELCH
CAMA Number:	023-000-029-000-000		109 A MAIN STREET
Property Address:	109A MAIN STREET		RAYMOND, NH 03077

Abutters:

Parcel Number:	023-000-030-000	Mailing Address:	MERKEL EMPIRE , LLC
CAMA Number:	023-000-030-000-000		17 PINEWOOD DRIVE
Property Address:	105 MAIN STREET		STRATHAM, NH 03885

Parcel Number:	023-000-035-000	Mailing Address:	BREWITT, JOHN J.,JR. & ERIN Y.
CAMA Number:	023-000-035-000-000		110 MAIN STREET
Property Address:	110 MAIN STREET		RAYMOND, NH 03077

Parcel Number:	023-000-036-000	Mailing Address:	MCCARTHY, TONA & CYNTHIA P CINDY A. TOWNSEND
CAMA Number:	023-000-036-000-000		112 MAIN STREET
Property Address:	112 MAIN STREET		RAYMOND, NH 03077

Parcel Number:	023-000-037-000	Mailing Address:	RUELAS, JEREMY S & SUSANNA L
CAMA Number:	023-000-037-000-000		114 MAIN STREET
Property Address:	114 MAIN STREET		RAYMOND, NH 03077

Parcel Number:	023-000-038-000	Mailing Address:	PERREAULT, JOHN W
CAMA Number:	023-000-038-000-000		116 MAIN STREET
Property Address:	116 MAIN STREET		RAYMOND, NH 03077

100 feet Abutters List Report

Raymond, NH
August 25, 2023

Parcel Number:	028-003-001-000	Mailing Address:	LACASSE, ALISON F. W. & RANDALL A INEZ WELCH 103 MAIN STREET RAYMOND, NH 03077
CAMA Number:	028-003-001-000-000		
Property Address:	103 MAIN STREET		
Parcel Number:	028-003-002-000	Mailing Address:	KING, WILLIAM C JANICE L KING 101 MAIN STREET RAYMOND, NH 03077
CAMA Number:	028-003-002-000-000		
Property Address:	101 MAIN STREET		
Parcel Number:	028-003-003-000	Mailing Address:	PRATT, KEVIN M. KERRY J. PRATT 11 SMITH POND ROAD RAYMOND, NH 03077
CAMA Number:	028-003-003-000-000		
Property Address:	99 MAIN STREET		
Parcel Number:	028-003-005-000	Mailing Address:	RICE, CHARLES F.JR. REVOCABLE TRUST CHARLES F. RICE, JR. / TRUSTEE 97 MAIN STREET RAYMOND, NH 03077
CAMA Number:	028-003-005-000-000		
Property Address:	97 MAIN STREET		
Parcel Number:	028-003-006-000	Mailing Address:	GARNHAM, DENNIS JANET BUTLER 95 MAIN STREET RAYMOND, NH 03077
CAMA Number:	028-003-006-000-000		
Property Address:	95 MAIN STREET		
Parcel Number:	028-003-007-000	Mailing Address:	JOHNSON, CARLYLE R. MARICELA JOHNSON 9 MOULTON STREET RAYMOND, NH 03077
CAMA Number:	028-003-007-000-000		
Property Address:	9 MOULTON STREET		
Parcel Number:	028-003-007-001	Mailing Address:	ARTHUR, LINDA & JOHN 91 MAIN STREET RAYMOND, NH 03077
CAMA Number:	028-003-007-001-000		
Property Address:	91 MAIN STREET		
Parcel Number:	028-003-011-000	Mailing Address:	FROST, WAYNE G. & IRENE 7 MOULTON STREET RAYMOND, NH 03077
CAMA Number:	028-003-011-000-000		
Property Address:	7 MOULTON STREET		
Parcel Number:	028-003-012-000	Mailing Address:	POWER, JOHN W 5 MOULTON STREET RAYMOND, NH 03077
CAMA Number:	028-003-012-000-000		
Property Address:	5 MOULTON STREET		
Parcel Number:	028-003-013-000	Mailing Address:	CONNOLLY, SEAN M. 3 MOULTON STREET RAYMOND, NH 03077
CAMA Number:	028-003-013-000-000		
Property Address:	3 MOULTON STREET		
Parcel Number:	028-003-014-000	Mailing Address:	GILES, ERIN B. & BRIAN D. 1 MOULTON STREET RAYMOND, NH 03077
CAMA Number:	028-003-014-000-000		
Property Address:	1 MOULTON STREET		
Parcel Number:	028-003-015-000	Mailing Address:	COLE-CALNAN, NANCY 6 ORCHARD STREET RAYMOND, NH 03077
CAMA Number:	028-003-015-000-000		
Property Address:	6 ORCHARD STREET		

100 feet Abutters List Report

Raymond, NH
August 25, 2023

Parcel Number:	028-003-016-000	Mailing Address:	RAYMOND, TOWN OF
CAMA Number:	028-003-016-000-000		4 EPPING STREET
Property Address:	ORCHARD STREET		RAYMOND, NH 03077
Parcel Number:	028-003-017-000	Mailing Address:	MICHAELS, KEITH J.
CAMA Number:	028-003-017-000-000		11 ORCHARD STREET
Property Address:	11 ORCHARD STREET		RAYMOND, NH 03077
Parcel Number:	028-003-115-000	Mailing Address:	BERGERON, MICHAEL B MAUREEN R
CAMA Number:	028-003-115-000-000		BERGERON
Property Address:	100 MAIN STREET		100 MAIN STREET
			RAYMOND, NH 03077
Parcel Number:	028-003-116-000	Mailing Address:	WATT, DANIEL E
CAMA Number:	028-003-116-000-000		102 MAIN STREET
Property Address:	102 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-117-000	Mailing Address:	MOULTON, EDWARD W JEAN MOULTON
CAMA Number:	028-003-117-000-000		2 OLD FREMONT ROAD
Property Address:	106 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-003-120-001	Mailing Address:	ONYX RAYMOND LLC.
CAMA Number:	028-003-120-001-000		200 RESERVOIR STREET SUITE 306
Property Address:	INDUSTRIAL DRIVE		NEEDHAM, MA 02494
Parcel Number:	028-004-007-000	Mailing Address:	MOULTON, EDWARD W
CAMA Number:	028-004-007-000-000		2 OLD FREMONT ROAD
Property Address:	108 MAIN STREET		RAYMOND, NH 03077
Parcel Number:	028-004-007-000	Mailing Address:	VERIZON
CAMA Number:	028-004-007-002-000		P.O. BOX 2549
Property Address:	108 MAIN STREET		ADDISON, TX 75001
Parcel Number:	028-004-007-000	Mailing Address:	A T &T COMPANY
CAMA Number:	028-004-007-003-000		754 PEACHTREE STREET
Property Address:	108 MAIN STREET		ATLANTA, GA 30308
Parcel Number:	028-004-007-000	Mailing Address:	METRO PCS
CAMA Number:	028-004-007-004-000		12920 SE 38TH Street
Property Address:	108 MAIN STREET		Bellevue, WA 98006
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT COMMUNICATIONS C/O
CAMA Number:	028-004-007-005-000		PROPERTY TAX DEPARTMENT
Property Address:	108 MAIN STREET		P.O. BOX 85022
			BELLEVUE, WA 98015-8522
Parcel Number:	028-004-007-000	Mailing Address:	SPRINT COMMUNICATIONS CO. L.P.
CAMA Number:	028-004-07S-000-000		ATTN: PROPERTY TAX DEPARTMENT
Property Address:	TOWN WIDE		PO BOX 85022
			BELLEVUE, WA 98015-8522

100 feet Abutters List Report
Raymond, NH
August 25, 2023

Parcel Number:	028-004-007-000	Mailing Address:	SPRINT SPECTRUM LP C/O PROPERTY TAX DEPARTMENT P O BOX 85022 BELLEVUE, WA 98015-8522
CAMA Number:	028-004-07T-000-000		
Property Address:	108 MAIN STREET		
Parcel Number:	028-004-007-000	Mailing Address:	A T & T COMPANY 1010 PINE, 9E-L-01 ST. LOUIS, MO 63101
CAMA Number:	028-004-07U-000-000		
Property Address:	TOWN WIDE		

JONES & BEACH ENGINEERS, INC., ATTN. JOSEPH CORONATI, DAVID COLLIER & MICHAEL KERIVAN, PO BOX 219, STRATHAM, NH 03885

GOVE ENVIRONMENTAL SERVICES, 8 CONTINENTIAL DRIVE, UNIT H, EXETER, NH 03833

updated 8/30/23

A T & T COMPANY
1010 PINE, 9E-L-01
ST. LOUIS, MO 63101

A T &T COMPANY
754 PEACHTREE STREET
ATLANTA, GA 30308

ARTHUR, LINDA & JOHN
91 MAIN STREET
RAYMOND, NH 03077

BERGERON, MICHAEL B
MAUREEN R BERGERON
100 MAIN STREET
RAYMOND, NH 03077

BREWITT, JOHN J.,JR. & ER
110 MAIN STREET
RAYMOND, NH 03077

*BRUHMULLER, DANIEL
123 MAIN STREET
RAYMOND, NH 03077

BUCKUS, JILLIAN
109 MAIN STREET
RAYMOND, NH 03077

COLE-CALNAN, NANCY
6 ORCHARD STREET
RAYMOND, NH 03077

CONNOLLY, SEAN M.
3 MOULTON STREET
RAYMOND, NH 03077

FROST, WAYNE G. & IRENE
7 MOULTON STREET
RAYMOND, NH 03077

GARNHAM, DENNIS
JANET BUTLER
95 MAIN STREET
RAYMOND, NH 03077

GILES, ERIN B. & BRIAN D.
1 MOULTON STREET
RAYMOND, NH 03077

JOHNSON, CARLYLE R.
MARICELA JOHNSON
9 MOULTON STREET
RAYMOND, NH 03077

KING, WILLIAM C
JANICE L KING
101 MAIN STREET
RAYMOND, NH 03077

*KITTREDGE, OCEANNE SARAH
ADAM KITTREDGE
126 MAIN STREET
RAYMOND, NH 03077

LACASSE, ALISON F. W. & R
INEZ WELCH
103 MAIN STREET
RAYMOND, NH 03077

LURIE, AUDREY J.
111 MAIN STREET
RAYMOND, NH 03077

MCCARTHY, TONA & CYNTHIA
CINDY A. TOWNSEND
112 MAIN STREET
RAYMOND, NH 03077

MERKEL EMPIRE , LLC
17 PINEWOOD DRIVE
STRATHAM, NH 03885

METRO PCS
12920 SE 38TH Street
Bellevue, WA 98006

MICHAELS, KEITH J.
11 ORCHARD STREET
RAYMOND, NH 03077

MOULTON, EDWARD W
2 OLD FREMONT ROAD
RAYMOND, NH 03077

MOULTON, EDWARD W
JEAN MOULTON
2 OLD FREMONT ROAD
RAYMOND, NH 03077

ONYX RAYMOND LLC.
200 RESERVOIR STREET
SUITE 306
NEEDHAM, MA 02494

PERREAULT, JOHN W
116 MAIN STREET
RAYMOND, NH 03077

POWER, JOHN W
5 MOULTON STREET
RAYMOND, NH 03077

PRATT, KEVIN M.
KERRY J. PRATT
11 SMITH POND ROAD
RAYMOND, NH 03077

~~RAYMOND, TOWN OF~~
~~4 EPPING STREET~~
~~RAYMOND, NH 03077~~

RICE, CHARLES F.JR. REVOC
CHARLES F. RICE, JR. / TR
97 MAIN STREET
RAYMOND, NH 03077

RUELAS, JEREMY S & SUSANN
114 MAIN STREET
RAYMOND, NH 03077

* Added

updated
8/30/23

SPOFFORD, LISA REVOCABLE
LISA M. DESISTO / TRUSTEE
38 W. BROADWAY
DERRY, NH 03038

SPRINT COMMUNICATIONS
C/O PROPERTY TAX DEPARTME
P.O. BOX 85022
BELLEVUE, WA 98015-8522

SPRINT COMMUNICATIONS CO.
ATTN: PROPERTY TAX DEPART
PO BOX 85022
BELLEVUE, WA 98015-8522

SPRINT SPECTRUM LP
C/O PROPERTY TAX DEPARTME
P O BOX 85022
BELLEVUE, WA 98015-8522

* STATE OF NEW HAMPSHIRE
JOHN O. MORTON BLDG.
P.O. BOX 483
CONCORD, NH 03301

TUCK REALTY CORPORATION
P.O. BOX 190
EXETER, NH 03833

VERIZON
P.O. BOX 2549
ADDISON, TX 75001

WATT, DANIEL E
102 MAIN STREET
RAYMOND, NH 03077

WELCH, PAUL W & TERI L
109 MAIN STREET
RAYMOND, NH 03077

WELCH, WAYNE F
CATHLEEN M WELCH
109 A MAIN STREET
RAYMOND, NH 03077

WELCH,JOSEPH & JOHN & ARD
BETSY PATTERSON & ROBIN P
49 RAYMOND ROAD, ROUTE 156
NOTTINGHAM, NH 03290

* ZABEK, THEODORE R.
SARAH J. ZABEK & THOMAS Z
30 KESSLER FARM ROAD
APT. 543
NASHUA, NH 03063

Jones & Beach

Gove Environmental

* NHDOT

* ADDED

Christina McCarthy

From: Thomas Quarles <tquarles@devinemillimet.com>
Sent: Friday, February 3, 2023 11:31 AM
To: Madeleine DiIonno; Christina McCarthy
Subject: RE: Project Question

I agree that the application is timely, since the applicant filed their application one day before the one year deadline from the date of the conceptual review. The RSA citation is slightly off It is RSA 676:12, VI, not IV. So the applicant is not limited to building in the sewer overlay district and their application should proceed.

On a different matter, are either of you keeping track of the 95 day clock for PB approval or denial of the Jewett and Onyx warehouse applications ? Those applications were formally accepted by the PB at their December 15, 2022 meeting. Of course these deadlines can be extended if the applicant agrees to do so. Thanks.

Thomas Quarles, Jr. Esq.
Shareholder
p. 603-695-8641 | Biography |

DEVINE MILLIMET
ATTORNEYS AT LAW
MANCHESTER | CONCORD PORTSMOUTH
603-669-1000 | DEVINEMILLIMET.COM

From: Madeleine DiIonno <mdiionno@therpc.org>
Sent: Friday, February 3, 2023 9:38 AM
To: Christina McCarthy <cmccarthy@raymondnh.gov>; Thomas Quarles <tquarles@devinemillimet.com>
Subject: RE: Project Question

Chris, Tom, I've weighed in on this previously and will share my take:

RSA 676:12, IV states applications that have been submitted and noticed for Design Review are protected from subsequent changes in the Zoning Ordinance provided that a formal application is filed within 12 months of the end of the design review process. As Chris stated below, the application in question went before the Planning Board for Design Review on November 5, 2020, and a formal application was submitted November 4, 2021. Based on that information, I believe the application is protected from any zoning changes that occurred after that.

-Maddie

From: Christina McCarthy <cmccarthy@raymondnh.gov>
Sent: Friday, February 3, 2023 9:25 AM
To: Thomas Quarles <tquarles@devinemillimet.com>
Cc: Madeleine DiIonno <mdiionno@therpc.org>
Subject: Project Question
Importance: High

Tom,
We have an application for a multi-family to be built in a Zone B & D, this was only allowable under the sewer overlay district which was removed by Town vote in March 2021. Now it is no longer allowed in either of these zones. The question is does this project given the timeline below still get the protection of the conceptual design review to include the sewer overlay district?

Nov 5th, 2020 - conceptual design review meeting
March 2021 - Sewer Overlay removed
Nov 4th , 2021 - Application submitted
Feb 2023 - project ready to move forward to TRC and PB

Christina McCarthy

Tax Collector

Town of Raymond

4 Epping Street

Raymond NH 03077

603-895-7016

cmccarthy@raymondnh.gov

TEAMWORK-coming together is a beginning, keeping together is progress, working together is success- Henry Ford

ROCKINGHAM PLANNING COMMISSION
theRPC.org

156 Water Street | Exeter, NH 03833
603-778-0885 | www.therpc.org

Memo To: Town of Raymond Community Development Department
From: Madeleine DiIonno, Regional Planner, Rockingham Planning Commission
Date: February 14, 2023
Subject: Review of Site Plan Application 2021-018; 109 A & C Main Street, "White Rock Place" (Tax Map 23 Lots 24, 25 & 29)

Rockingham Planning Commission has reviewed a site plan and lot line adjustment application submitted by Jones & Beach Engineers on behalf of Tuck Realty Corp for the construction of a 156-unit apartment complex with associated utilities, parking areas, stormwater management two points of access; one main driveway and an emergency access road. The subject property is identified as Tax Map 23 Lot 25 located in Zone D (Industrial).

Tax Map 23 Lot 25 was originally included in Raymond's Sewer Overlay District, in which, multi-family residential development was a permitted use *(Article 14: Allowed Uses Table, Raymond Zoning Ordinance 2020).* The Sewer Overlay District was removed from the Zoning Ordinance by town vote in March 2021; however, the provisions of the Sewer Overlay District are still applicable to this application.

RSA 676:12, VI states applications that have been submitted and noticed for Design Review are protected from subsequent regulatory changes provided that a formal application is filed within 12 months of the end of the design review process. Application 2021-018 came before the Planning Board for Design Review on November 5, 2020, and a formal application was filed November 4, 2021. Therefore, the application is legally vested.

My specific comments are as follows:

General Comments:

It appears the following Permits are required for this application: 1) NHDES Alteration of Terrain Permit and 2) Town of Raymond Driveway Permit. It's recommended each required permit be received prior to or as a condition of approval; and receipt of each permit be acknowledged in a note on the Cover Sheet of the final plans.

The following waivers have been requested from the Raymond Site Plan and Subdivision Regulations:

1. Site Plan regulation 6.06 – Parking Standards
2. Site Plan regulation 3.03.03 – Licensed Landscape Architect (*Note 5b on Sheet C3 should be revised to reflect the accurate section).
3. Subdivision Regulation 5.6.D.1 (Road Design Standards) – Maximum Road Grade (for emergency access road only)
4. Subdivision Regulation ROW Design Matrix – Minimum Pavement Width (for emergency access road only.

It is recommended that a petition for the above waivers be submitted in writing using the town's Waiver Request Form in accordance with Section 7.08 of the Raymond Site Plan Regulations and Section 1.4.d of the Raymond Subdivision Regulations. In the event the Planning Board grants one or more of the waivers, it is recommended that notes acknowledging such relief be provided on the cover sheet of the final plans.

Zoning Matters:

1. It is recommended that the applicant provide a written Unified Development Plan in accordance with the provisions of the Sewer Overlay District (Section 5.3.2 of the ***2020*** Raymond Zoning Ordinance). See full text on page 4.

2. Sheets C2 and C3 show front and side building setbacks of 30 feet. Article 15.2.7 states "any residential structure proposed for location within a Commercial (C.1 and C.2) or Industrial zone (D) requires a minimum setback of one hundred feet (100') from property lines, or, in the alternative, fifty feet (50') inclusive of a minimum of twenty feet (20') of dense vegetative buffer and a fence of a type..." It is recommended the plans be revised accordingly.

3. A special permit is required for impacts to Zone G land (in this case, 128,000 square feet of steep slope disturbance). It is recommended the applicant seek input from the Raymond Conservation Commission on such impacts in accordance with Article 4.9.6.2.2 of the Zoning Ordinance.

Site Plan Submission Requirements:

1. It is recommended that a Community Impact Analysis be prepared in accordance with SPR 4.02.03. The Community Impact Analysis shall describe the proposed use and include a description of how the proposed activity, both during and following construction, will impact traffic, parking and circulation, storm drainage, utilities, schools, noise, the Town's fiscal condition and other Community services.

2. It is recommended that a traffic impact analysis be prepared in accordance with SPR 5.03.13.

3. It is recommended that architectural concept drawings be submitted for proposed buildings in accordance SPR 5.03.14.f. Said plans shall consist of plan and exterior elevation views or proposed improvements, with external mechanical components of the building (i.e., heating, ventilation, and air conditioning). Plans shall be conceptual only, but of sufficient detail to determine compliance with Town Regulations.

Road Design, Access, and Parking:

1. The width of the proposed access road is 22 feet where a width of 25 feet is required (SPR 6.02.01.a). The plans should be revised accordingly. It is understood that a waiver has been requested from this requirement for the emergency access road only.

2. According to the Right of Way Design Matrix in the Raymond Subdivision Regulations, sidewalks are required on private streets serving 20 units or more. The plans should be revised accordingly.

3. The grade of the proposed emergency access road is 9%. It is understood that a waiver has been requested from section 5.6.D.1 of the Raymond Subdivision Regulations, which states grades of streets shall not exceed 8%. It is recommended that the applicant consult with the Raymond Fire and Police Departments as to the adequacy of both roadways for emergency access.

4. Note 3 on Sheet P1 states "as built plans will be submitted to the town prior to acceptance of the roadway." Are one or both proposed access roads intended to be dedicated as public streets? If so, it is recommended that Note 3 on sheet P1 be revised to clarify this intent. Additionally, it is

recommended that a note be added to the final plans acknowledging that all maintenance of the future streets is the responsibility of the applicant until such time as it may be accepted as a Class V public way by the Town of Raymond in accordance with RSA 674:40.

5. The minimum parking requirements for a residential / multi-family development is 3 spaces per unit (SPR 6.06), which would require 468 spaces for the proposed development. A total of 281 spaces are currently proposed. It is understood that the applicant is requesting a waiver from this requirement. SPR 6.06.03 states that the Planning Board has the prerogative to adjust these (parking) requirements and such decision will be based on the expected number of trips generated by the activity at its peak hour. It is recommended that the applicant provide such information and any other supporting documentation to justify the reduced parking count.

   SPR 6.06.04.i states when a waiver is requested for relief from the number of parking spaces required by the Raymond Site Plan Review Regulations, the applicant must present a plan showing the ability to install the full number of spaces in the future if the need arises. It is recommended the applicant provide such information.

Water / Stormwater:

1. SPR 6.05.02 states that connection to the municipal water system requires a letter from the Raymond Water Department indicating acceptance of the proposed design and agreement to furnish the requested service(s).

   It is my understanding that the proposed development has been submitted to the town's consulting engineer, Underwood Engineers, for evaluation of impacts to the town's water distribution system.

2. Inspection and maintenance responsibilities for the stormwater management and erosion control measures should be noted on the final plans in accordance with 6.11.07 of the Raymond Site Plan Regulations.

Fire Protection

1. It is recommended that the applicant meet with the Fire Department to review the proposed protection activities, such as fire alarms, sprinkler systems, fire hydrants, dry hydrants, emergency access and cisterns in accordance with Section 6.09 of the Raymond Site Plan Regulations.

Landscaping and Screening

1. It is understood that the applicant is seeking a waiver from section Site Plan regulation 3.03.03 which requires landscape plans be developed by a licensed landscape architect.

2. It is recommended that a note be added to the landscape plan stating the owner and tenant of the property shall be jointly responsible for the maintenance of all required plant material and continued compliance with the Raymond Site Plan Regulations (SPR 6.10.07).

5.3.2. UNIFIED DEVELOPMENT: All development within this SOD must take place in accordance with a Unified Development Plan approved by the Planning Board. For purposes of this Ordinance, a Unified Development Plan shall be defined as an overall plan that identifies in a conceptual nature how the lot or lots contained in the plan will be developed in a manner consistent with the intent of this Ordinance and how the plan will allow and encourage the development of other lots within the SOD zoning district, in a manner consistent with the intent of the Ordinance.

5.3.2.1. The Unified Development Plan must describe and illustrate, in written and graphic format, and shall specify the intended locations and types of proposed uses, the layout of proposed vehicle and pedestrian access and circulation systems, provision of transit facilities and water and sewer facilities, and areas designated to meet requirements for open space, parking, on site amenities, utilities and landscaping. It shall include statements or conceptual plans describing how signage and lighting will be designed in a unified and integrated manner within the district. In addition, the Unified Development Plan shall indicate how the proposed uses will relate to the surrounding properties both within and outside of the district.

5.3.2.2. The submittal of written concept statement(s) in lieu of a Unified Development Plan shall not be accepted. In determining whether to approve a Unified Development Plan, the Planning Board will consider the following criteria:

5.3.2.2.1. Compatibility of the plan with the goals and objectives set forth in the Town's Master Plan;

5.3.2.2.2. Compatibility of the plan with the permitted uses in the Sewer Overlay District.

5.3.2.2.3. Approval of the Unified Development Plan must occur prior to the consideration of individual site development plans for one or several contiguous lots within the SOD. All site development plans must be reviewed and approved in accordance with this Ordinance and the Planning Board's Site Plan, Subdivision and Earth Excavation Regulations prior to the issuance of any building permits within the district.

5.3.3. AMENDMENT TO UNIFIED DEVELOPMENT PLAN: Any Unified Development Plan may be changed or amended by an applicant and such changes may occur concurrently with, or prior to the submittal of individual site development plans. To the extent that the approved Unified Development Plan addresses lots within the SOD which are not owned by the applicant, then such approved plan shall be binding only on the applicant and the owners of such other lots may seek changes to the Unified Development Plan consistent with their own development project.

5.3.4. SPECIAL PROVISIONS: All new development, change of use, subdivision, site review or development requiring a building permit must be connected to both town water and town sewer services. Notwithstanding the above, application for new development may be made prior to the availability of town water and sewer, provided that the proposed use is permitted as a matter of right in the underlying districts or provided that relief is obtained from the Zoning Board of Adjustment, and provided that the applicant proposes development subject to a condition of approval that the property shall be connected to town water and sewer when it becomes available within one hundred (100) feet of the property line.

Developments with Regional Impact
Project Name:
Application No.:
Tax Map & Lot:

The Rockingham Planning Commission has developed this guidance document to aid our communities in evaluating whether or not a development should be determined to have regional impact. The document summarizes the statutory process that must be followed under New Hampshire state law and suggest a number of triggering factors that should be considered for making this determination. Bear in mind that the criteria suggested here are our recommendations: they have no regulatory force.

Statutory Authority: refer to RSA 36:54-58 – The purpose of this statute is to establish the framework to be followed by a community that is reviewing a development proposal with **potential impacts beyond its municipal boundaries**.

*Findings of **YES** on one or more of the items below indicates the possible need for a local land use board to make a determination that the development proposal results in regional impacts.*

NOTE: THIS IS ON A REGIONAL BASIS NOT A LOCAL BASIS

1. **School Impacts:** Does the development create significant new student population affecting a regional school district?____Yes____No

2. **Traffic Generation:** Will the project generate traffic that will create an impact on surrounding municipalities?______Yes_____No

3. **Road Networks:** Does the development provide the opportunity to create a more efficient road network for the regional area or potentially affect regional travel patterns?___Yes____No

4. **Building Size:** Is the proposed building greater than 50,000 square feet and located within 2,500 feet of a municipal line?____Yes____No

5. **Visual Impacts:** Will the development create visual impacts to neighboring municipalities such as light pollution, glare, or structures visible from neighboring municipalities?____Yes____No

6. **Pollution:** Does the development propose the operation of a facility or business which would generate excessive amount of air pollution, wastewater discharge, noise, or hazardous waste transport?
___ Yes___ No

7. **Water Supply Impacts:** Will the development require a major impact wetland permit from NH DES?
___ Yes____No

Will impacts to known aquifers occur?____Yes____No

Does the project involve permitting for a large groundwater withdrawal?____Yes____No

Will the development cause negative impacts to another community's municipal water supply?
____Yes ____No

8. **Conservation Lands:** Does the development abut existing conservation lands, greenway or existing farmland such that coordination between municipalities could lead to the creation or preservation of greenways or wildlife habitat areas or prevent fragmentation of forests, farms or other conservation lands?
____Yes___ No

9. **Economic Impacts:** Does the development propose the creation of business or industry that would significantly impact regional economic development?____Yes____No

10. **Emergency Response:** Does the proposal create a significant increased demand for emergency services response (including mutual aid) from abutting communities?____Yes____No

11. **Historic or Cultural Resources:** Does the proposed development have negative impacts on historic or cultural resources that may have significance regionally?____Yes____No

12. **Other:** Does the development create other regional impacts not listed in items 1 – 11 above?_
___ Yes ___No

Describe: ____

____

2895.00

March 2, 2023

Ms. Christina McCarthy
Planning Technician
Town of Raymond
4 Epping Street
Raymond, New Hampshire 03077

Re: ***Analysis for Water Request***
White Rock Place
109A&C Main Street, Raymond, NH
Tax Map 23, Lots 25 & 29

Dear Ms. McCarthy,

In accordance with Engineering Service Request (ESR) #2, Underwood Engineers (UE) has reviewed the proposal for the White Rock Place Development submitted by Jones & Beach Engineers, Inc. We have completed an analysis of the Raymond water distribution system to evaluate conditions at the location of the proposed connection at 41 Chester Rd.

Proposed Development

The proposed development includes three (3) four-story residential buildings at 41 Rte 102 (Chester Rd)

The following documents were submitted for review:

- Drainage and Grading Plans C5-C6, Utility Plans C7-C8, Detail Sheets D1-D3 (3 sheets labeled D3) prepared by Jones & Beach Engineers, Inc. dated June 6, 2020 (last revised August 2, 2022).
- Water availability request letter dated September 15, 2022 from Jones & Beach Engineering.

An excerpt of these Drawings and letter is included as ***Attachment A***. The proposed development includes 156 units with (24) two-bedroom and (28) one-bedroom units.

Estimated Water Demands

The estimated water demands provided by Jones & Beach are included in ***Attachment A***. Domestic demands were based on the NHDES septic rules for a total water request of approximately of 40,500 GPD or 26,520 GPD using the "Metcalf & Eddy/Aecom book" (We assume this reference is to the *Wastewater Engineering, Treatment and Resource Recovery* text by Metcalf & Eddy/AECOM). We concur that 26,520 GPD is reasonable for average day demand (ADD). Applying a peaking factor of 1.7 would yield a maximum day demand (MDD) of 45,084 GPD. The peaking factor of 1.7 was based on historic system ADD and MDD usage, calculated in a recent Weston and Sampson (W&S) Storage Tank Evaluation Report dated January 21, 2020.

ph 603.230.9898
fx 603.230.9899
99 North State Street
Concord, NH 03301
underwoodengineers.com

We were recently informed by Scott Keddy, Water Superintendent, that the requested fire flow for the site is 1,600 gpm.

A summary of the proposed demands are as follows:

ADD = 26,520 gpd
MDD = 45,084 gpd
Fire flow = 1,600 gpm

Impact on Supply

Current system demands and source capacity were reviewed based on existing information provided by the water department and historic reports. Refer to a letter to the Town from UE dated 2/23/23, titled *Available Municipal Water Supply and Demands, Initial Findings*, in ***Attachment B***, for evaluation of the available source capacity.

In accordance with NHDES criteria, sources must meet the following goals:

- The maximum day demand must be met with all sources in service
- The average day demand must be met with the largest source out of service.

The Town of Raymond does not have the source capacity to meet existing nor future demands when the largest source is out of service.

The Town's existing water distribution system computer model (using WaterGEMS modeling software) was run using the following assumptions/conditions:

- Tank level 6 ft below overflow (elev 344 ft)
- All well pumps off
- Average-day demand in the system
- Steady state analysis

Based on modeling these conditions, the static pressure and available fire flow at the proposed development location are estimated to be:

- Static Pressure at 41 Chester Rd: 60 psi
- Static Pressure at the Proposed Building's **ground** floor: **28.1 psi**
- Available Fire Flow at the building grounds: 550 gpm @ 20 psi residual pressure
- Residual Pressure on Chester Rd = 56 psi
- Approximate Maximum Elevation on the development site to provide 35 psi to services: 263 ft
    - Fire Flow available at elev 263 ft: 773 gpm @ 20 psi

The elevation of the site is too high to be supplied by the municipal water supply and maintain an operating pressure of 35 psi under normal operation. The calculated pressures above are at ground elevation and do not account for the 4 story buildings proposed. In order for there to be an operating pressure of 35 psi on the development site, the elevation of the building needs to be approximately 263 ft, as shown above.

Conclusions
The applicant has requested the following water supply:

ADD = 26,520 gpd
MDD = 45,084 gpd
Fire Flow = 1,600 gpm

The water system currently has limited source capacity and cannot meet the above-noted NHDES requirements to supply current average day flow with the largest source out of service without source improvements or the development of a new source. Additional water demands will exacerbate this condition, and a demand of this size would also limit the system's ability to meet MDD with all sources in service.

The elevation of the site is too high to be serviced by the municipal water system. The existing hydraulic grade line cannot maintain pressures of 35 psi under normal operation above sites at elevation 236 ft. The proposed finished floor of the buildings are 270-279 ft. Additionally, fire flows cannot be provided.

This proposed development has been reviewed only for the Water Availability Request. Detailed construction plans for the connection have not been submitted or reviewed at this time and should be reviewed if this development proceeds. NHDES approval of the connection and design details would also be required.

Please call if you have any questions.

Very truly yours,

UNDERWOOD ENGINEERS, INC.

Stephanie Kosin

Stephanie Kosmin, E.I.T.
Project Engineer

Lynnette Carney

Lynnette Carney, P.E
Project Manager

snk/lec

Encl.

cc: Scott Keddy, Ernie Cartier-Creveling – Raymond (w/ encl).
Keith Pratt, UE (w/ encl.)

Attachment A

JONES & BEACH
ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

September 15, 2022

Raymond Department of Public Works
Attn. David Frederickson
4 Epping Street
Raymond, NH 03077

RE: Water Availability Request
White Rock Place
109A&C Main Street, Raymond, NH
Tax Map 23, Lots 25 & 29
JBE Project No. 20564

Dear Mr. Frederickson,

Jones & Beach Engineers, Inc. on behalf of our client, Tuck Realty Corp., request water availability on the above-mentioned property. The Welch apartment project on Main Street is 156 units, total of 3 buildings, each building is 13,500 GPD based on the state septic rules. That is a total of 40,500 GPD for water. Each building is proposed to have 24 – 2 bedroom units at 300 GPD/unit and 28 – 1 bedroom units at 225 GPD/unit. This is a highly conservative septic design number and actual flows will be lower.

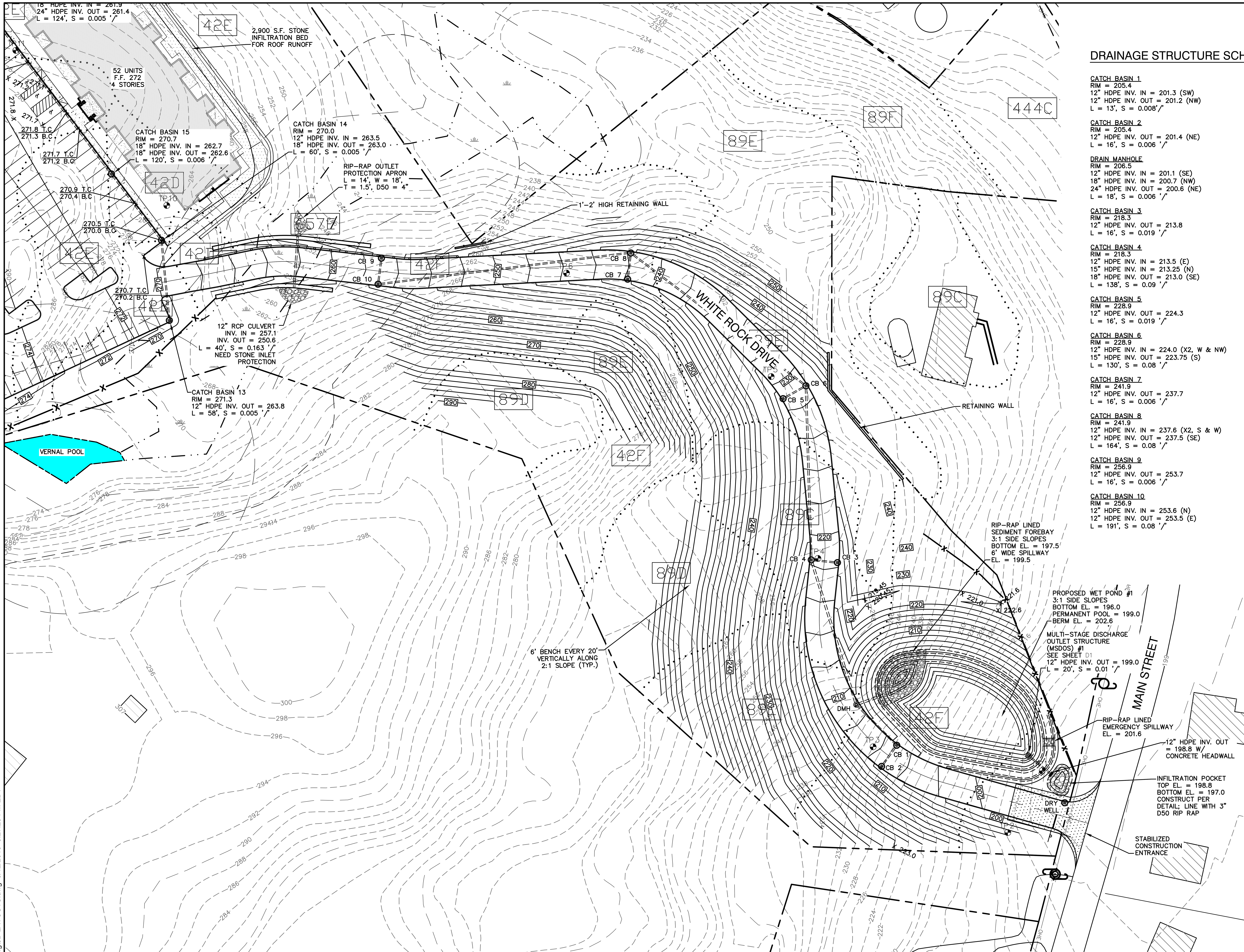
For instance the Metcalf & Eddy/Aecom book that is required to be used in the design of pump stations uses 68 GPD per person in multifamily developments. If you use that flow rate and assume 2.5 people per unit (which is high given the number of 1 bedroom units), that would be 8,840 GPD per building or a total of 26,520 gpd. Either way, we would like to request a letter stating whether the Town can service this development for water. We have also emailed the current design plans for your review and Underwood's review.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Michael Garrepy, Tuck Realty Corp. (via email)



DRAINAGE STRUCTURE SCHEDULE

CATCH BASIN 1
RIM = 205.4
12" HDPE INV. IN = 201.3 (SW)
12" HDPE INV. OUT = 201.2 (NW)
L = 13', S = 0.008'/'

CATCH BASIN 2
RIM = 205.4
12" HDPE INV. OUT = 201.4 (NE)
L = 16', S = 0.006 '/'

DRAIN MANHOLE
RIM = 206.5
12" HDPE INV. IN = 201.1 (SE)
18" HDPE INV. IN = 200.7 (NW)
24" HDPE INV. OUT = 200.6 (NE)
L = 18', S = 0.006 '/'

CATCH BASIN 3
RIM = 218.3
12" HDPE INV. OUT = 213.8
L = 16', S = 0.019 '/'

CATCH BASIN 4
RIM = 218.3
12" HDPE INV. IN = 213.5 (E)
15" HDPE INV. IN = 213.25 (N)
18" HDPE INV. OUT = 213.0 (SE)
L = 138', S = 0.09 '/'

CATCH BASIN 5
RIM = 228.9
12" HDPE INV. OUT = 224.3
L = 16', S = 0.019 '/'

CATCH BASIN 6
RIM = 228.9
12" HDPE INV. IN = 224.0 (X2, W & NW)
15" HDPE INV. OUT = 223.75 (S)
L = 130', S = 0.08 '/'

CATCH BASIN 7
RIM = 241.9
12" HDPE INV. OUT = 237.7
L = 16', S = 0.006 '/'

CATCH BASIN 8
RIM = 241.9
12" HDPE INV. IN = 237.6 (X2, S & W)
12" HDPE INV. OUT = 237.5 (SE)
L = 164', S = 0.08 '/'

CATCH BASIN 9
RIM = 256.9
12" HDPE INV. OUT = 253.7
L = 16', S = 0.006 '/'

CATCH BASIN 10
RIM = 256.9
12" HDPE INV. IN = 253.6 (N)
12" HDPE INV. OUT = 253.5 (E)
L = 191', S = 0.08 '/'

GRADING AND DRAINAGE NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
3. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
5. ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
6. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
8. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
9. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 3' DEEP SUMPS WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
10. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
11. IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/-½" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
12. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
13. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
14. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
15. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
16. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
17. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
18. SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
19. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
20. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
21. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
22. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
23. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
24. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
25. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
26. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
27. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

REV.	DATE	REVISION	BY
8	8/2/22	ADDED DRAINAGE	DJM
7	11/04/21	UPDATED DESIGN	AJB
6	09/21/21	GRADED DRIVEWAY	DJM
5	06/08/21	REVISED CONCEPT	DJM
4	03/01/21	REVISED DRIVEWAY; LAND TRANSFER EXHIBITS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: GRADING AND DRAINAGE PLAN

Project: WHITE ROCK PLACE
109 A & C MAIN STREET, RAYMOND, NH 03077

Owner of Record: LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH, 49 RAYMOND ROAD, NOTTINGHAM, NH 03290, BK 1559 PG 263; LOT 29: WAYNE F. & CATHLEEN M. WELCH, 109A MAIN STREET, RAYMOND, NH 03077, BK 2481 PG 1742

DRAWING No.
C5

JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 25 & 29

APPLICANT
TUCK REALTY CORP
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
82.15 ACRES ±

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Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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Plan Name: **GRADING AND DRAINAGE PLAN**

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109 A & C MAIN STREET, RAYMOND, NH 03077

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DRAWING No.
C6
SHEET 11 OF 23
JBE PROJECT NO. 20564

UTILITY NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT–RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDING TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. AS–BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
9. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
10. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA, CLEAR OPENING. THE WORD "SEWER" OR DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
11. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
12. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
13. SEPTIC FLOW CALCULATIONS:
    72 2–BEDROOM UNITS @ 150 GPD/BEDROOM = 21,600 GPD
    84 1–BEDROOM UNITS @ 225 GPD/UNIT = 18,900 GPD
    13,500 GPD PER BUILDING
    TOTAL FLOW = 40,500 GPD
14. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
15. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
16. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
17. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
18. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
19. IF THE BUILDING IS REQUIRED TO HAVE A SPRINKLER SYSTEM, A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR, OWNER, ARCHITECT AND THE LOCAL FIRE DEPARTMENT PRIOR TO THE INSTALLATION.
20. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND FIRE HYDRANTS.
21. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
22. THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
23. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
24. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
25. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
26. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES.
27. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END AT RIGHT OF WAY AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
28. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
29. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 25 & 29

APPLICANT
TUCK REALTY CORP
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
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Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	UTILITY PLAN
Project:	WHITE ROCK PLACE 109 A & C MAIN STREET, RAYMOND, NH 03077
Owner of Record:	LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263 LOT 29: WAYNE F. & CATHLEEN M. WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.
C7
SHEET 12 OF 23
JBE PROJECT NO. 20564

PROJECT PARCEL
TOWN OF RAYMOND
TAX MAP 23, LOTS 25 & 29

APPLICANT
TUCK REALTY CORP
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

TOTAL LOT AREA
82.15 ACRES ±

F:\CADDMASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

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8	8/2/22	ADDED DRAINAGE	DJM
7	11/04/21	UPDATED DESIGN	AJB
6	09/21/21	GRADED DRIVEWAY	DJM
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4	03/01/21	REVISED DRIVEWAY; LAND TRANSFER EXHIBITS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

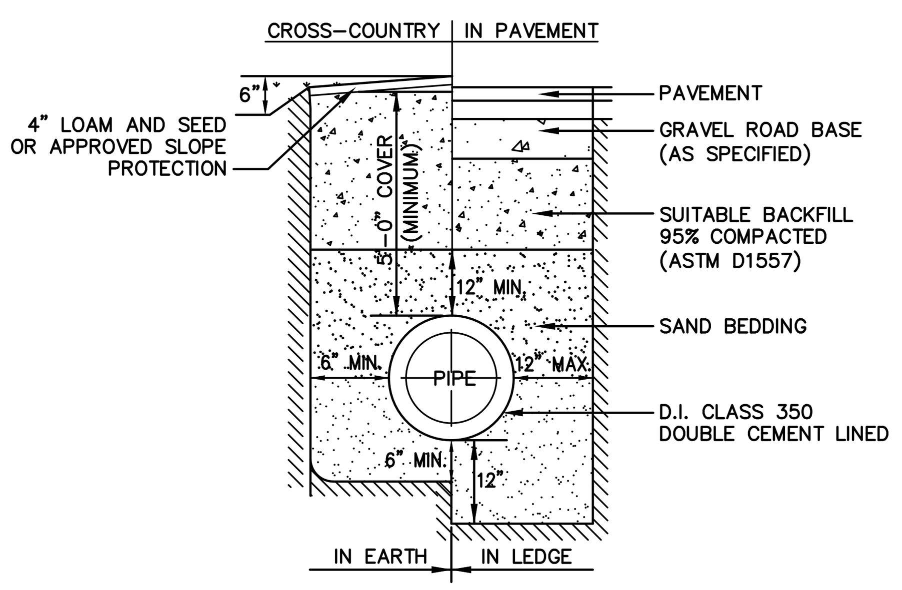
Plan Name: **UTILITY PLAN**

Project: WHITE ROCK PLACE
109 A & C MAIN STREET, RAYMOND, NH 03077

Owner of Record:
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH
49 RAYMOND ROAD, NOTTINGHAM, NH 03290
BK 1559 PG 263

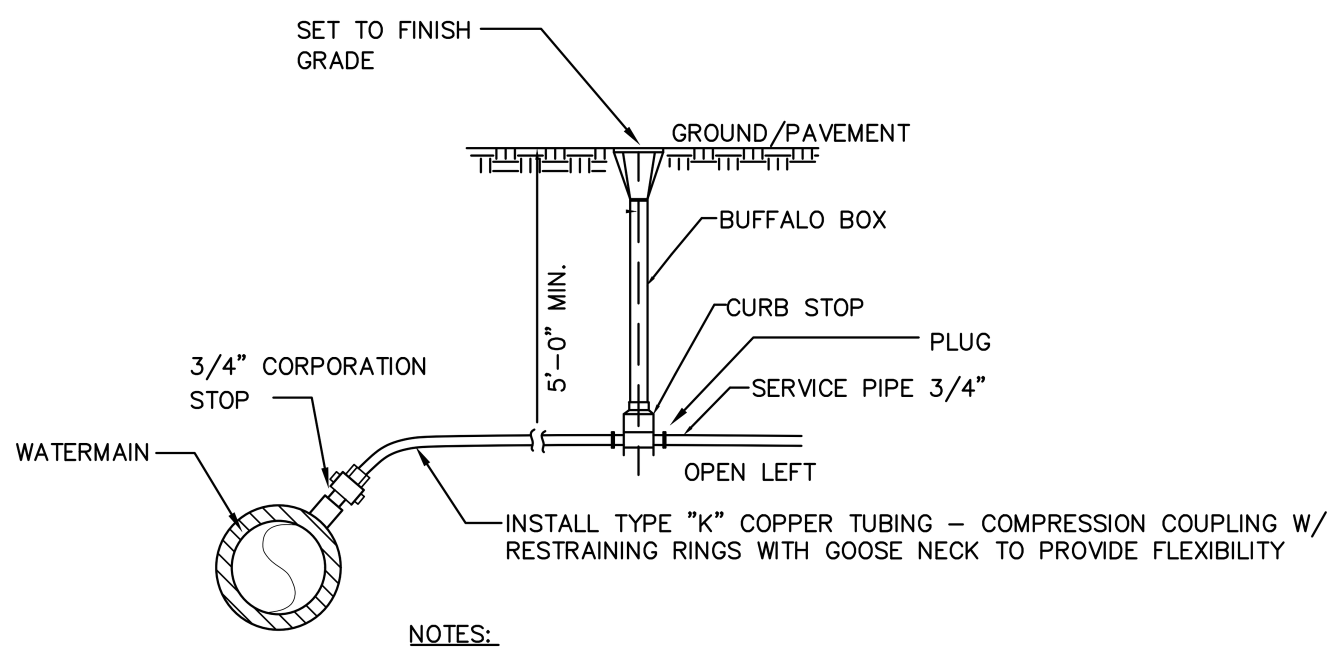
LOT 29: WAYNE F. & CATHLEEN M. WELCH
109A MAIN STREET, RAYMOND, NH 03077
BK 2481 PG 1742

DRAWING No.
C8
SHEET 13 OF 23
JBE PROJECT NO. 20564



WATER SYSTEM TRENCH

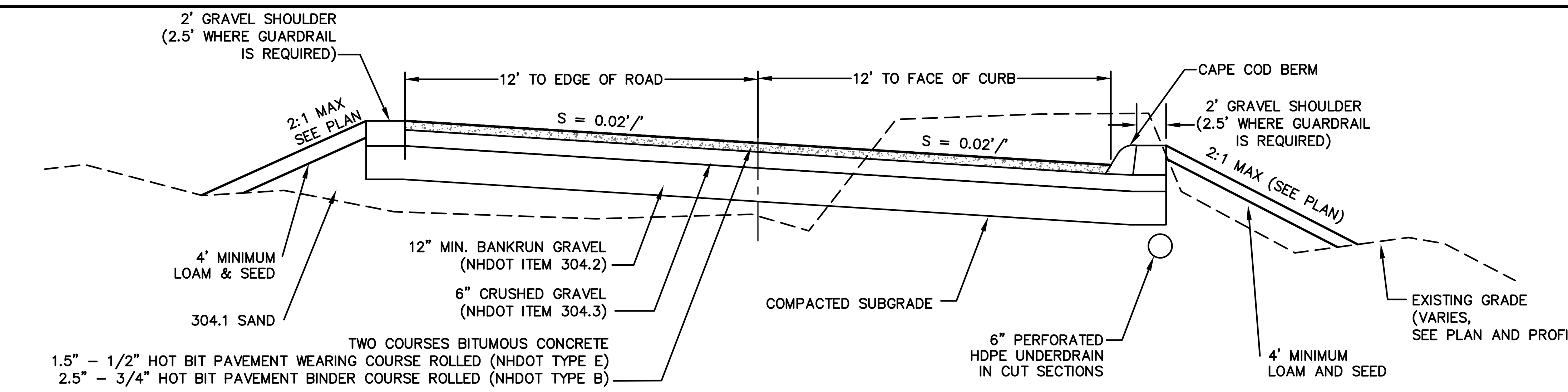
NOT TO SCALE



NOTES:
1. THE END OF THE INSTALLED WATER SERVICE TO BE MARKED BY A 2X4.
2. ALL WORK TO BE IN ACCORDANCE WITH THE LOCAL WATER COMPANY INSTALLATION PROCEDURES AND SPECIFICATIONS.

TYPICAL WATER SERVICE CONNECTION

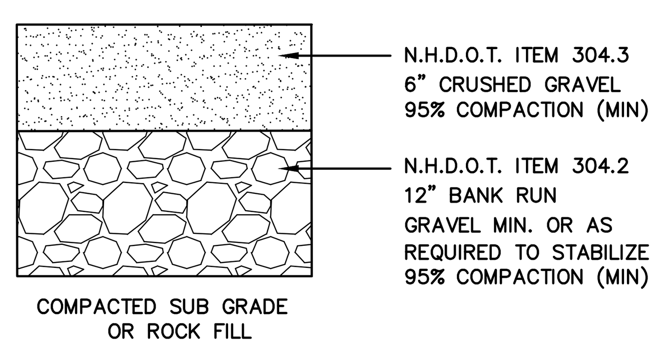
NOT TO SCALE



NOTES:
1. REMOVE ALL ORGANICS, TOPSOIL AND MATERIAL YIELDING TO A 10 TON ROLLER. SUBBASE AREAS THAT CONTAIN UNSUITABLE MATERIALS MUST BE EXCAVATED TO A DEPTH NO LESS THAN 36" BELOW FINISH GRADE AND BE REPLACED WITH GRAVEL COMPACTED TO 95%.
2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN STANDARDS AND NHDOT, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
3. LOAM AND/OR UNSTABLE MATERIAL SHALL BE REMOVED TO A SOLID BASE MATERIAL.
4. COMPACTION SHALL BE PERFORMED TO 95% OF THE MATERIALS' MODIFIED PROCTOR VALUE.
5. SEE SHEET X1 FOR SPECIFIC CROSS SECTIONS AT 100' STATIONS AND AT CULVERT / CATCH BASIN LOCATIONS.

TYPICAL ROADWAY SECTION

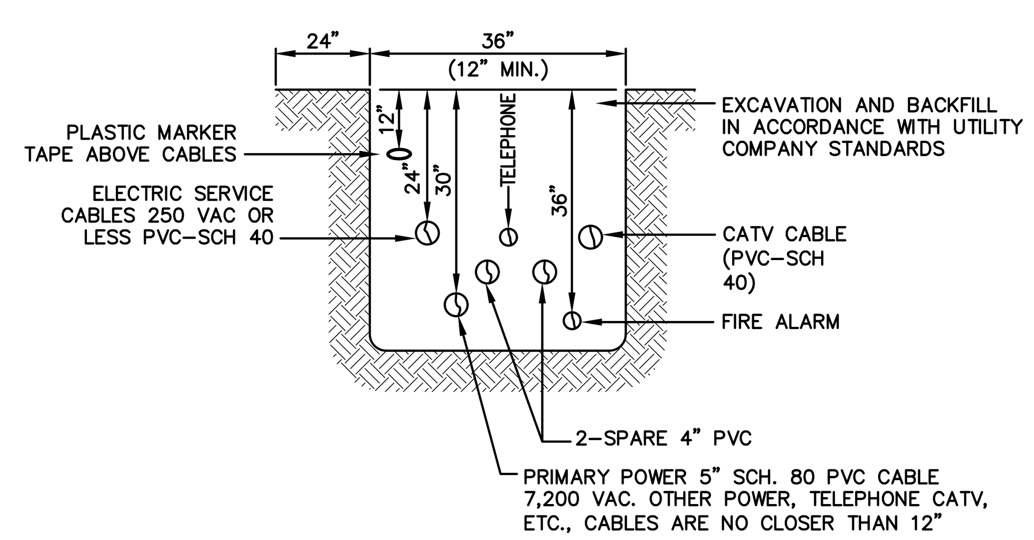
NOT TO SCALE



NOTE: IN AREAS OF ROCK EXCAVATION, MINIMUM 9" BANK RUN GRAVEL SHALL BE PLACED

GRAVEL SECTION

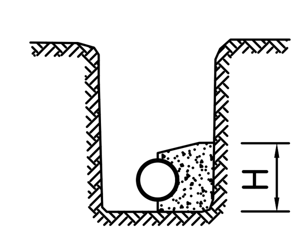
NOT TO SCALE



NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

UTILITY TRENCH

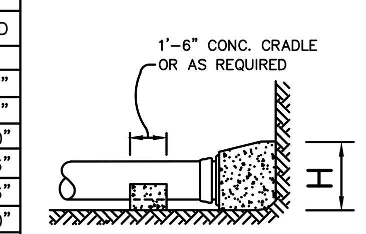
NOT TO SCALE



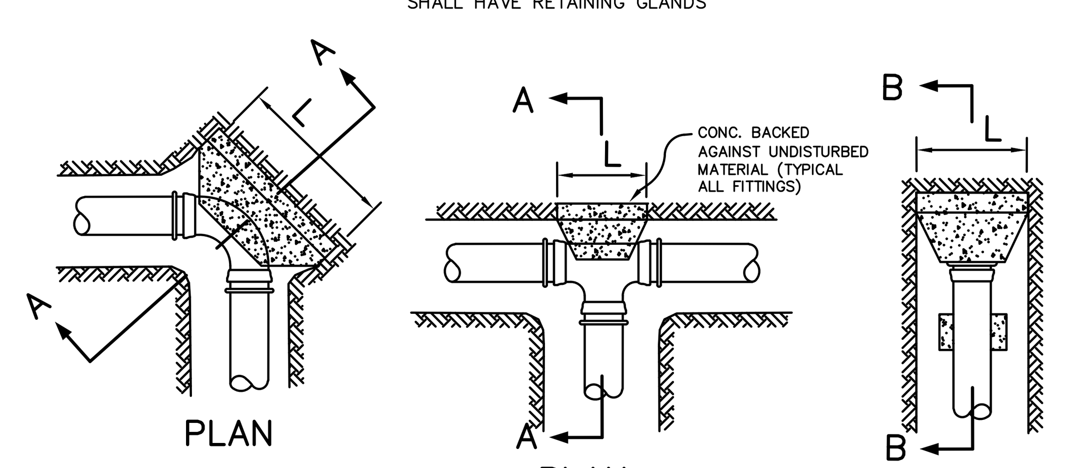
SECTION A–A

CONCRETE THRUST BLOCK DIMENSIONS								
PIPE DIA. (IN.)	TEE		90° BEND OR STUB		45° BEND		22.5° BEND	
	H	L	H	L	H	L	H	L
4"/6"	1'–6"	1'–6"	1'–6"	2'–0"	1'–6"	1'–6"	1'–6"	1'–6"
8"	2'–0"	2'–0"	2'–0"	3'–0"	1'–6"	2'–0"	1'–6"	1'–6"
10"	2'–0"	3'–0"	2'–6"	3'–6"	2'–0"	2'–6"	1'–6"	2'–0"
12"	2'–6"	3'–6"	3'–0"	4'–0"	2'–0"	3'–6"	1'–6"	2'–6"
15"	3'–0"	4'–6"	3'–6"	5'–6"	3'–0"	3'–6"	2'–0"	2'–6"
18"	4'–0"	5'–0"	4'–6"	6'–0"	3'–6"	4'–0"	2'–6"	3'–0"
24"	5'–0"	7'–0"	6'–0"	8'–0"	4'–0"	6'–0"	3'–0"	4'–6"

PIPING W/ MECHANICAL JOINT FITTINGS SHALL HAVE RETAINING GLANDS



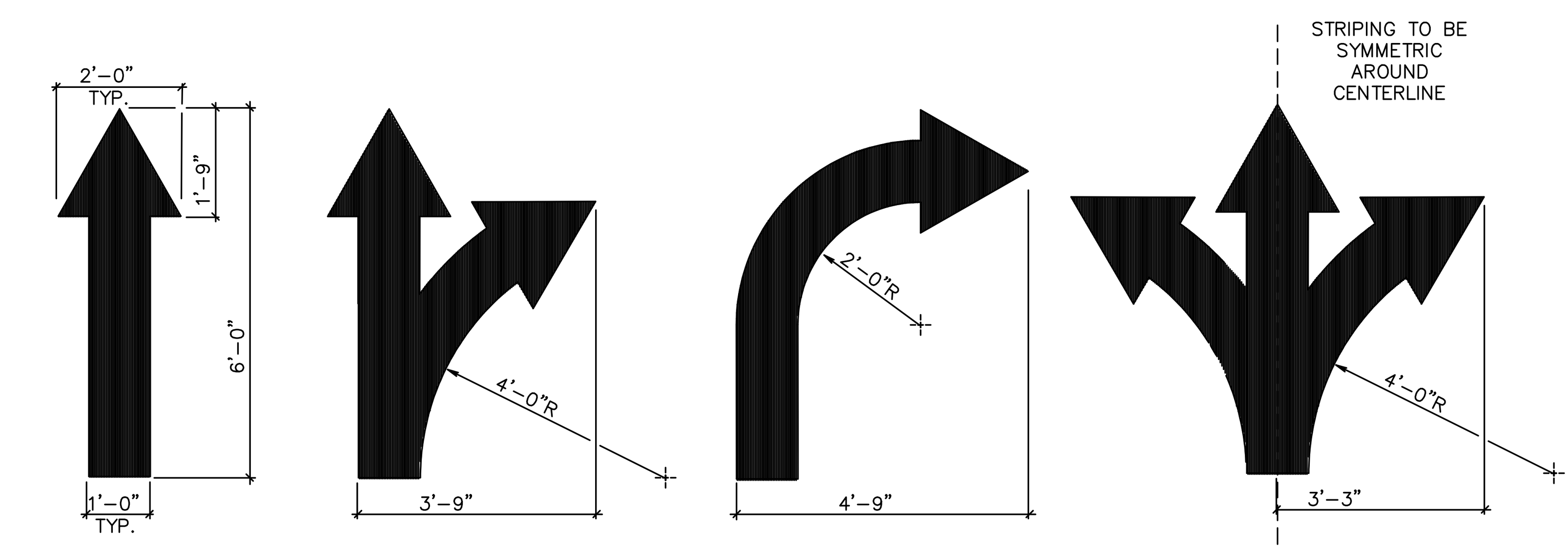
SECTION B–B



PLAN PLAN PLAN

THRUST BLOCK DETAILS

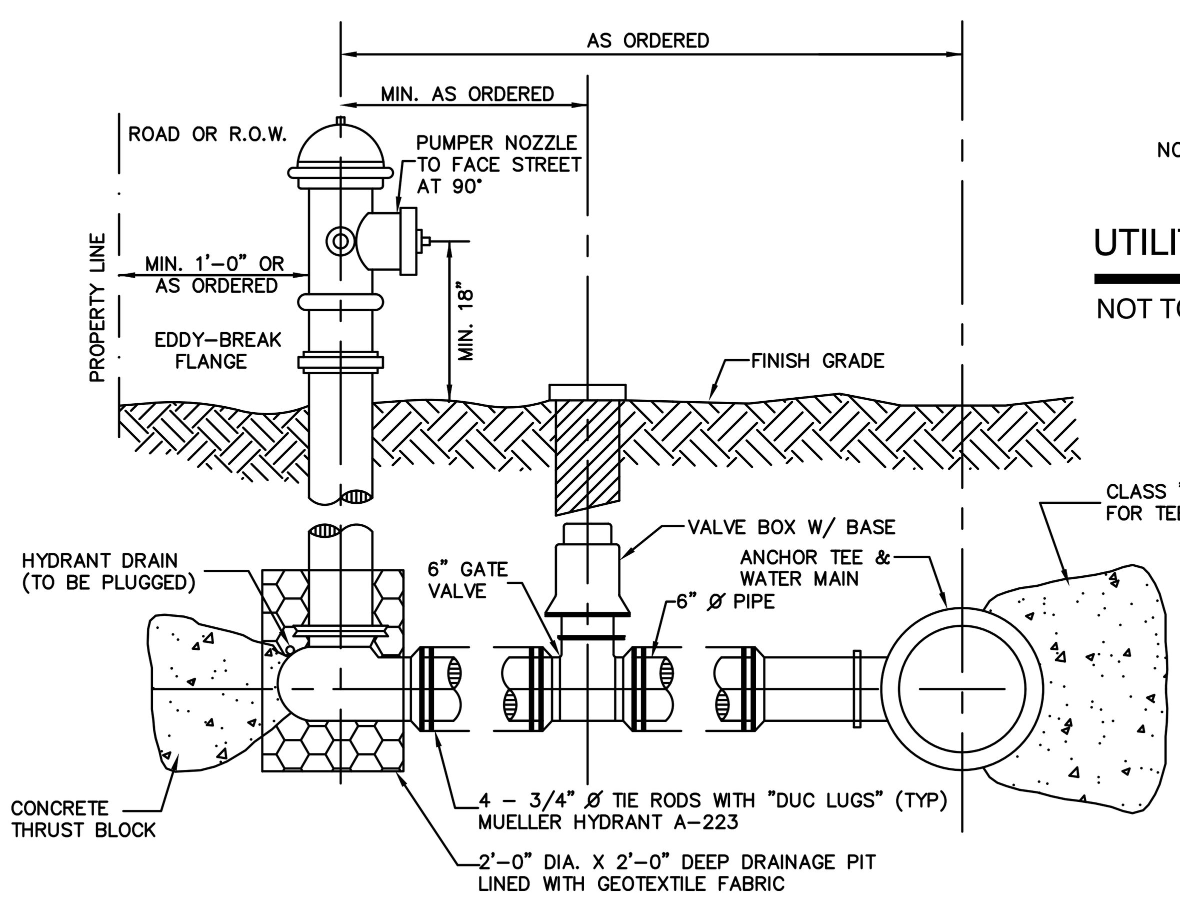
NOT TO SCALE



NOTES:
1. ALL FLOW ARROWS TO BE SOLID WHITE LATEX REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS ABOVE.
2. REVERSE ARROWS FOR OPPOSITE DIRECTION OF FLOW.

PAINTED TRAFFIC ARROWS

NOT TO SCALE

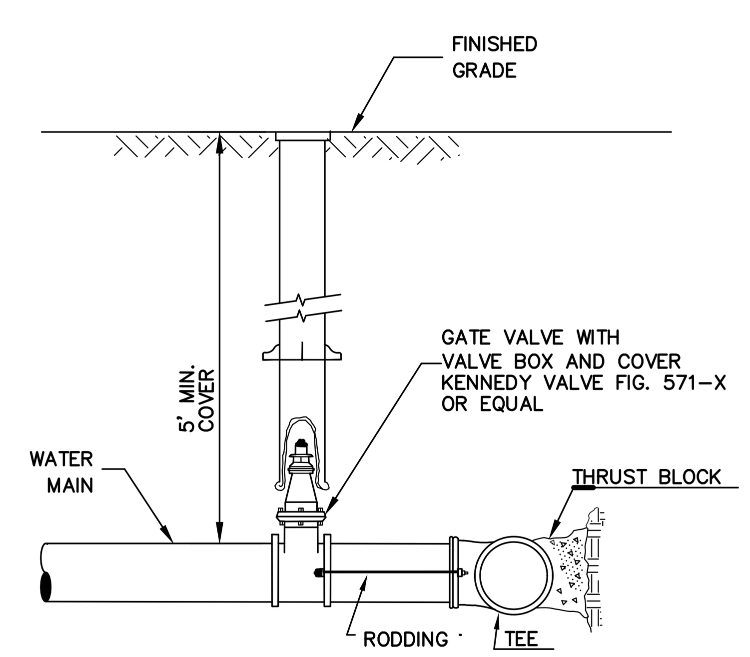


OPEN LEFT
RAYMOND FIRE
DEPARTMENT SPECS.

NOTES
1. ALL PIPE FITTINGS TO BE D.I. PRESSURE CLASS 350, THICKNESS CLASS 52.
2. HYDRANT TO BE PAINTED RED WITH WHITE "REFLECTOR" PAINT ON BONNET.
3. MECHANICAL JOINTS SHALL HAVE MEGALUG RETAINING GLANDS AS MADE BY EBBA OR APPROVED EQUAL.
4. STEAMER NOZZLE TO BE "STORCH" TYPE.
5. NATIONAL STANDARD THREAD.

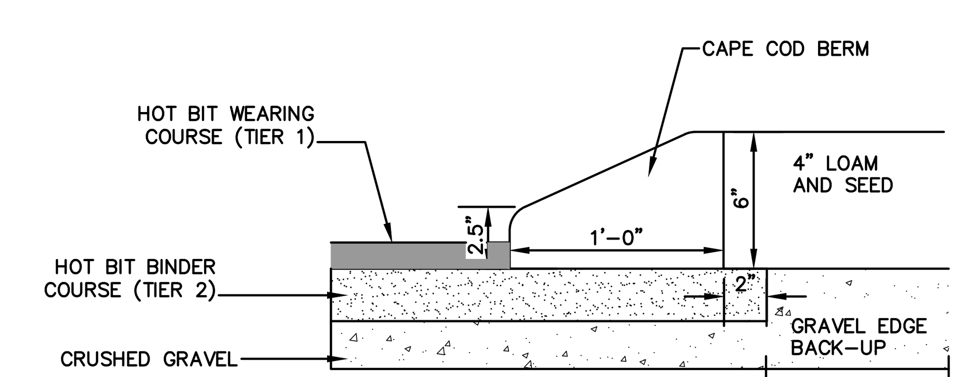
HYDRANT INSTALLATION

NOT TO SCALE



BURIED GATE VALVE DETAIL

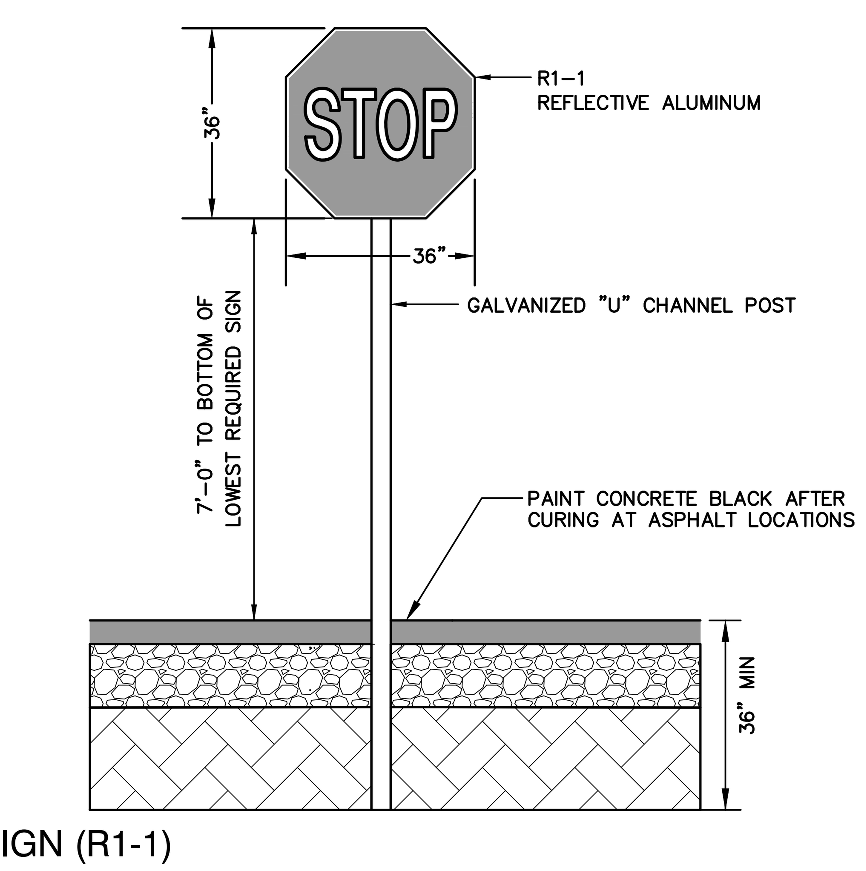
NOT TO SCALE



THE CAPE COD BERM IS TO BE CONSTRUCTED OF A POLYFIBER CURB MIX CONTAINING 59.2% SAND, 27.6% 3/8" STONE, 9.2% 1/2" STONE, 0.3% FIBERS, AND 3.0% ASPHALT.

CAPE COD BERM

NOT TO SCALE



STOP SIGN (R1-1)

NOT TO SCALE

NOTES:
1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO 2016 NHDOT STANDARD SPECIFICATION, SECTION 615 – TRAFFIC SIGNS.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
4. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE TOWN OF RAYMOND DEPARTMENT OF PUBLIC WORKS.

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Plan Name: DETAIL SHEET

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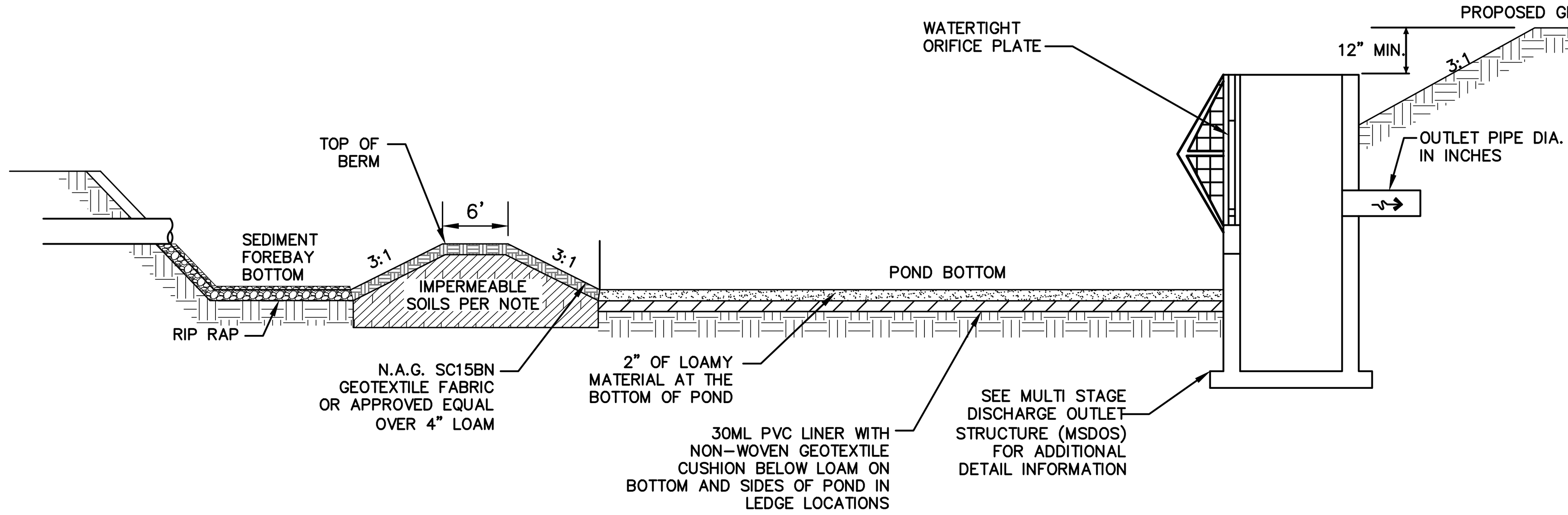
DRAWING No.

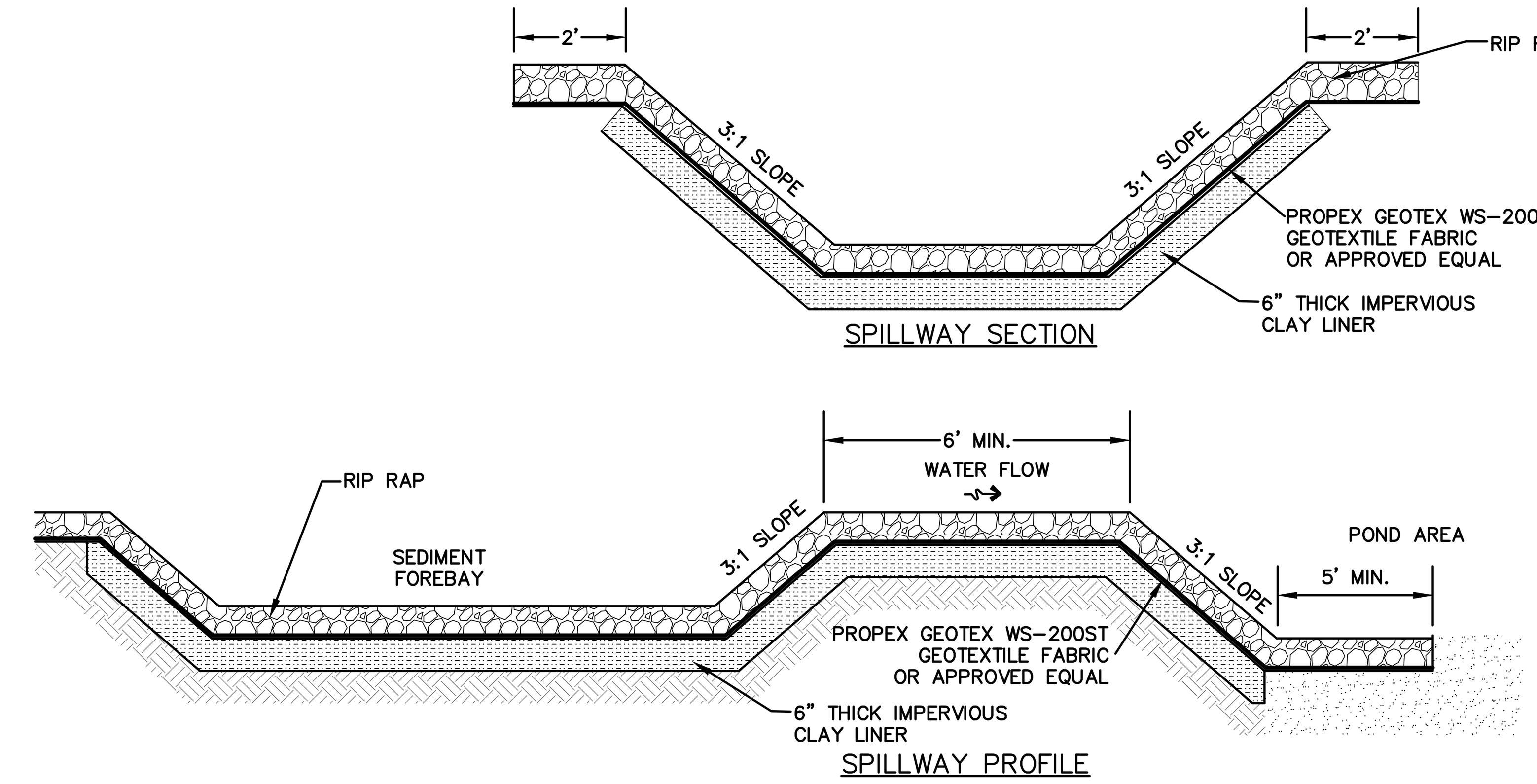
D1

SHEET 19 OF 23
JBE PROJECT NO. 20564



WET POND SECTION

NOT TO SCALE



NOTES:

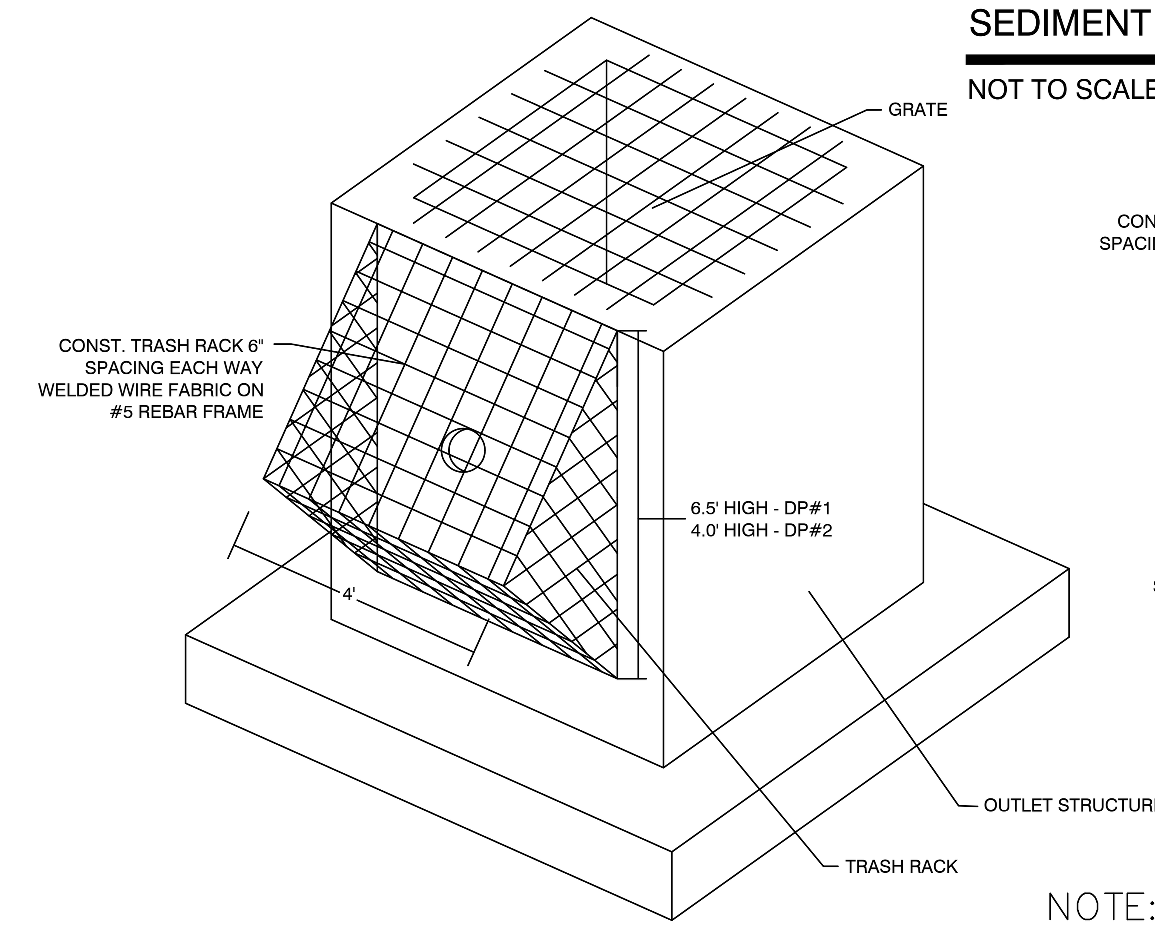
1. A 6" THICK IMPERVIOUS CLAY LINER IS TO BE PLACED UNDER ENTIRE SEDIMENT FOREBAY AND SPILLWAY.
2. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
3. EMBANKMENT MATERIAL SHALL BE CLEAN MINERAL SOIL FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES. IT SHALL CONTAIN NO ROCKS OR LUMPS OVER FOUR INCHES (4") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100%, #4 SIEVE 40-90%, #40 SIEVE 50-80%, #100 SIEVE 25-40%, #200 SIEVE 15-30% (OF THE TOTAL SAMPLE).
4. 6" THICK IMPERVIOUS CLAY LINER MATERIAL SHALL BE CLEAN SILTY-CLAY BORROW FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER THREE INCHES (3") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100%, #4 SIEVE 95-100%, #40 SIEVE 60-90%, #100 SIEVE 40-60%, #200 SIEVE 25-45% (OF THE FRACTION PASSING THE #4 SIEVE). THE CLAY COMPONENT SHALL HAVE A PLASTICITY INDEX OF AT LEAST 8 AND A HYDRAULIC CONDUCTIVITY OF 10 TO THE -6 CM/SEC.
5. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

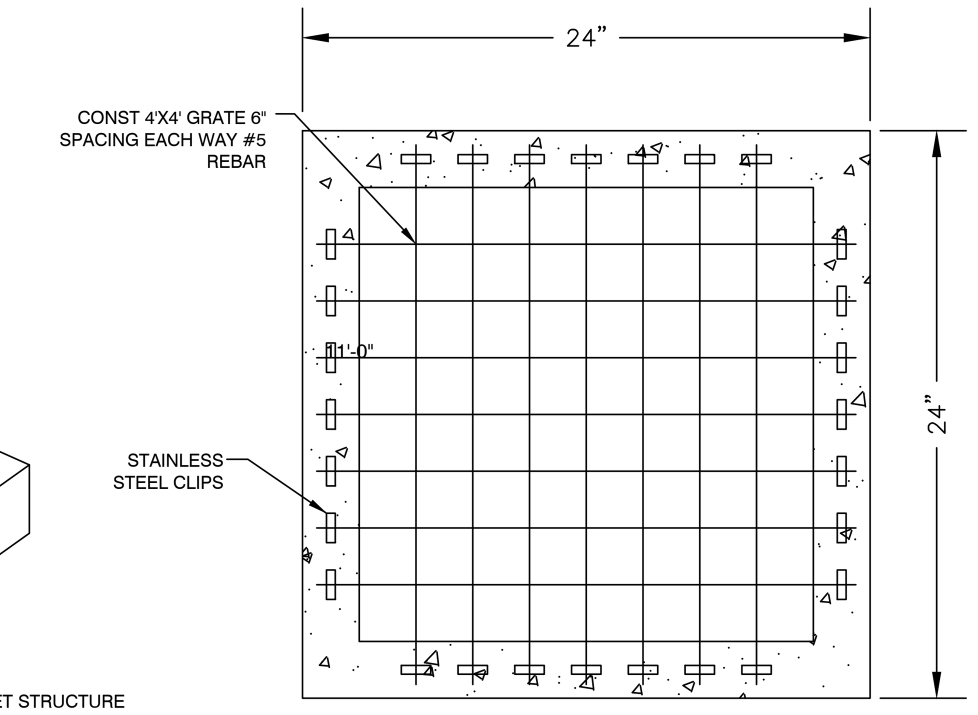
SEDIMENT FOREBAY SPILLWAY

NOT TO SCALE

WET POND CONSTRUCTION CRITERIA

1. FOUNDATION PREPARATION -- THE FOUNDATION AREA SHALL BE CLEARED OF TREES LOGS, STUMPS, ROOTS, BRUSH, BOULDERS, SOD, AND RUBBISH. IF NEEDED TO ESTABLISH VEGETATION, THE TOPSOIL AND SOD SHALL BE STOCKPILED AND SPREAD ON THE COMPLETED DAM AND SPILLWAYS. FOUNDATION SURFACES SHALL BE SLOPED NO STEEPER THAN 1:1. THE FOUNDATION AREA SHALL BE THOROUGHLY SCARIFIED BEFORE PLACEMENT OF THE MATERIAL. THE SURFACE SHALL HAVE MOISTURE ADDED OR IT SHALL BE COMPACTED, IF NECESSARY, SO THAT THE FIRST LAYER OF FILL MATERIAL CAN BE COMPACTED AND BONDED TO THE FOUNDATIONS. THE CUTOFF TRENCH AND ANY OTHER REQUIRED EXCAVATIONS SHALL BE DUG TO THE LINES AND GRADES SHOWN ON THE PLANS OR AS STAKED IN THE FIELD. IF THEY ARE SUITABLE, EXCAVATED MATERIALS SHALL BE USED IN THE PERMANENT FILL. EXISTING STREAM CHANNELS IN THE FOUNDATION AREA SHALL BE SLOPED NO STEEPER THAN 1:1 AND DEEPENED AND WIDENED AS NECESSARY TO REMOVE ALL STONES, GRAVEL, SAND, STUMPS, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND TO ACCOMMODATE COMPACTION EQUIPMENT. FILL PLACEMENT -- THE MATERIAL PLACED IN THE FILL SHALL BE FREE OF DETRIMENTAL AMOUNTS OF SOD, ROOTS, FROZEN SOIL, STONES MORE THAN 6 INCHES IN DIAMETER (EXCEPT FOR ROCK FILLS), AND OTHER OBJECTIONABLE MATTER.
2. SELECTED BACK FILL MATERIAL SHALL BE PLACED AROUND STRUCTURES, PIPE CONDUITS AND ANTI SEEP COLLARS AT ABOUT THE SAME RATE ON ALL SIDES, TO PREVENT DAMAGE FROM UNEQUAL LOADING. THE PLACING AND SPREADING OF FILL MATERIAL SHALL BE STARTED AT THE LOWEST POINT OF THE FOUNDATION AND THE FILL BROUGHT UP IN HORIZONTAL LAYERS OF SUCH THICKNESS THAT THE REQUIRED COMPACTION CAN BE OBTAINED. THE FILL SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS EXCEPT WHERE OPENINGS OR SECTIONALIZED FILLS ARE REQUIRED. IN THOSE CASES, THE SLOPE OF THE BONDING SURFACES BETWEEN THE EMBANKMENT IN PLACE AND THE EMBANKMENT TO BE PLACED SHALL NOT BE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL. THE BONDING SURFACE SHALL BE TREATED THE SAME AS THAT SPECIFIED FOR THE FOUNDATION SO AS TO INSURE A GOOD BOND WITH THE NEW FILL. THE DISTRIBUTION AND GRADATION OF MATERIALS SHALL BE SUCH THAT NO LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFER SUBSTANTIALLY IN TEXTURE OF GRADATION FROM THE SURROUNDING MATERIAL. IF IT IS NECESSARY TO USE MATERIALS OF VARYING TEXTURE AND GRADATION, THE MORE IMPERVIOUS MATERIAL SHALL BE PLACED IN THE CENTER AND UPSTREAM PARTS OF THE FILL. IF ZONED FILLS OF SUBSTANTIALLY DIFFERING MATERIALS ARE SPECIFIED, THE ZONES SHALL BE PLACED ACCORDING TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. THE COMPLETE WORK SHALL CONFORM TO THE LINES, GRADES, AND ELEVATIONS SHOWN ON THE DRAWINGS OR AS STAKED IN THE FIELD.
3. MOISTURE CONTROL -- THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADEQUATE FOR OBTAINING THE REQUIRED COMPACTION. MATERIAL THAT IS TOO WET SHALL BE DRIED TO MEET THIS REQUIREMENT, AND MATERIAL THAT IS TOO DRY SHALL HAVE WATER ADDED AND MIXED UNTIL THE REQUIREMENT IS MET.
4. COMPACTION -- CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER THE AREAS OR EACH LAYER OF FILL TO ENSURE THAT THE REQUIRED COMPACTION IS OBTAINED. SPECIAL EQUIPMENT SHALL BE USED IF NEEDED TO OBTAIN THE REQUIRED COMPACTION. IF A MINIMUM REQUIRED DENSITY IS SPECIFIED, EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY. FILL ADJACENT TO STRUCTURES, PIPE CONDUITS, AND ANTI SEEP COLLARS SHALL BE COMPACTED TO A DENSITY EQUIVALENT TO THAT OF THE SURROUNDING FILL BY MEANS OF HAND TAMPING OR MANUALLY DIRECTED POWER TAMPER OR PLATE VIBRATORS. FILL ADJACENT TO CONCRETE STRUCTURES SHALL NOT BE COMPACTED UNTIL THE CONCRETE IS STRONG ENOUGH TO SUPPORT THE LOAD.
5. PROTECTION -- A PROTECTIVE COVER OF VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, AND BORROW AREA IF SOIL AND CLIMATIC CONDITIONS PERMIT. IF SOIL OR CLIMATIC CONDITIONS PRECLUDE THE USE OF VEGETATION AND PROTECTION IS NEEDED, NON-VEGETATIVE MEANS SUCH AS MULCHES OR GRAVEL MAY BE USED. IN SOME PLACES, TEMPORARY VEGETATION MAY BE USED UNTIL CONDITIONS PERMIT ESTABLISHMENT OF PERMANENT VEGETATION. THE EMBANKMENT AND SPILLWAY SHALL BE FENCED IF NECESSARY TO PROTECT THE VEGETATION.
6. SEEDBED PREPARATION, SEEDING, FERTILIZING, AND MULCHING SHALL COMPLY WITH THE APPROPRIATE VEGETATIVE BMPS.
7. CONCRETE -- THE MIX DESIGN AND TESTING OF CONCRETE SHALL BE CONSISTENT WITH THE STRENGTH REQUIREMENTS OF THE JOB. MIX REQUIREMENTS OR NECESSARY STRENGTH SHALL BE SPECIFIED. THE TYPE OF CEMENT, AIR ENTRAPMENT, SLUMP, AGGREGATE, OR OTHER PROPERTIES SHALL BE SPECIFIED IF NECESSARY. ALL CONCRETE IS TO CONSIST OF A WORKABLE MIX THAT CAN BE PLACED AND FINISHED IN AN ACCEPTABLE MANNER. NECESSARY CURING SHALL BE SPECIFIED. REINFORCING STEEL SHALL BE PLACED AS INDICATED ON THE PLANS AND SHALL BE HELD SECURELY IN PLACE DURING CONCRETE PLACEMENT. SUB GRADES AND FORMS SHALL BE INSTALLED TO LINE AND GRADE, AND THE FORMS SHALL BE MORTAR TIGHT AND UNYIELDING AS THE CONCRETE IS PLACED.
8. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT POND SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVIDERS.
9. CONSTRUCTION OF THE WET PONDS WILL REQUIRE SIGNIFICANT LEDGE EXCAVATION. LEDGE SHALL BE REMOVED CAREFULLY AND SHALL BE REMOVED TO A DEPTH OF 3" BELOW THE BOTTOM OF THE POND. AN IMPERMEABLE LINER SHALL BE PLACED AS SPECIFIED IN LEDGE LOCATIONS IN ORDER TO PREVENT CONTACT BETWEEN LEDGE AND THE PERMANENT POOL, WHICH WOULD IMPEDE THE INTENDED FUNCTIONING OF THE SYSTEM.





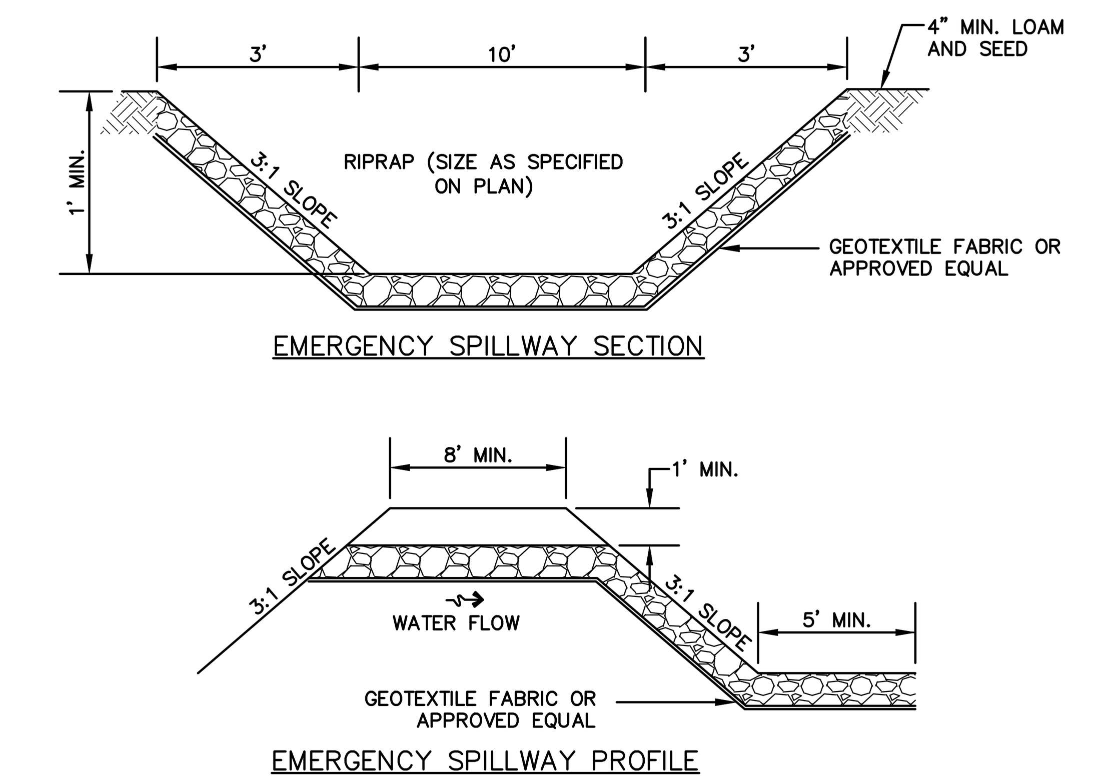
GRATE

NOTE:

1) ALL OUTLET STRUCTURES SHALL BE PRE CAST WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI @ 28 DAYS.
2) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EACH STRUCTURE FOR REVIEW BY THE TOWN.

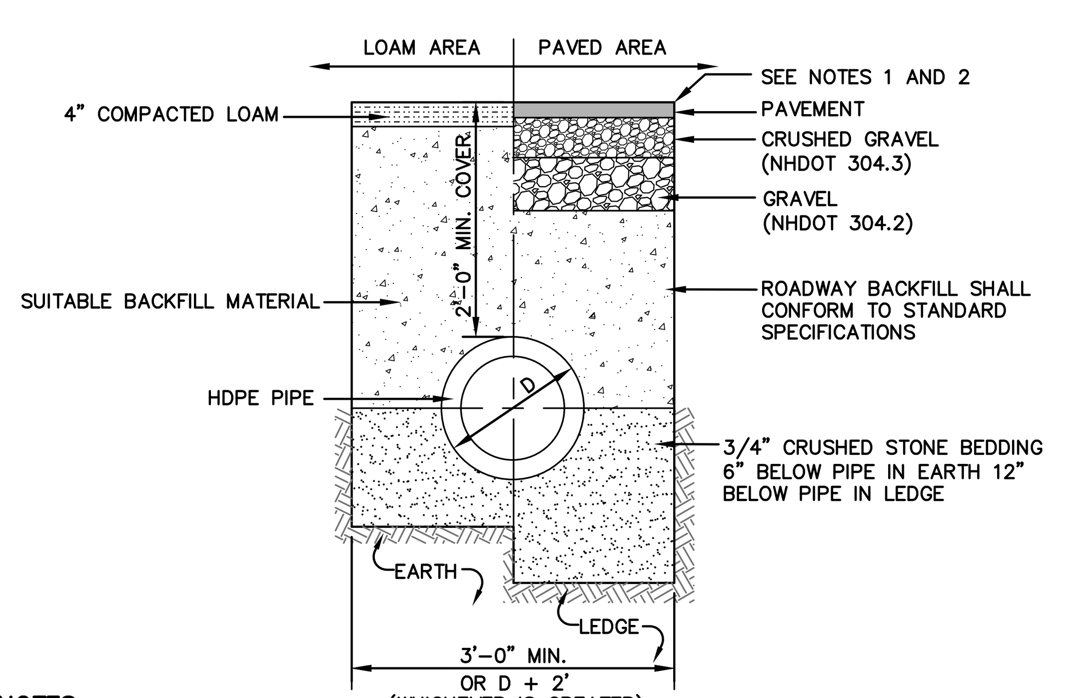
TYPICAL INLET TRASH RACKS

NOT TO SCALE



EMERGENCY SPILLWAY

NOT TO SCALE

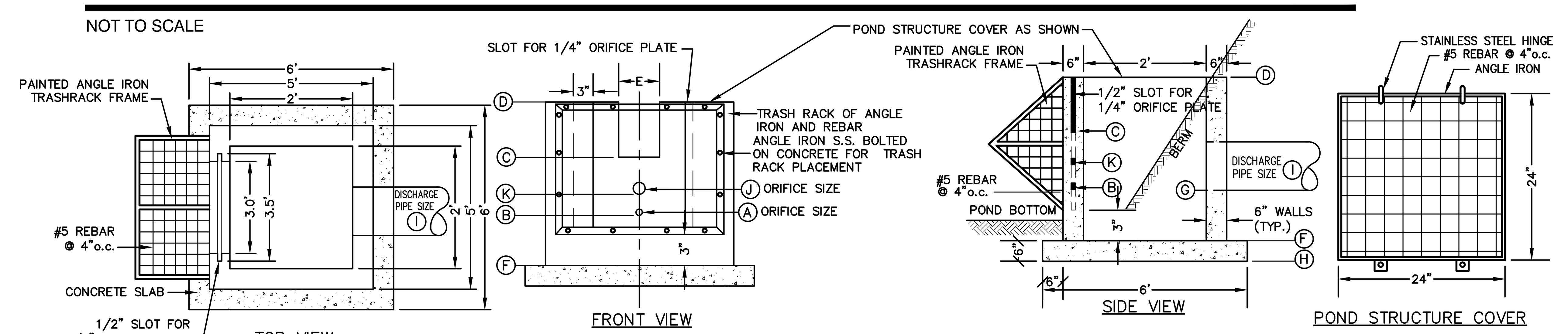


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE



APPROXIMATE LIST OF MATERIALS

1. 3 C.Y. – 5000 PSI CONCRETE
2. 15 ANGLE IRONS @ 4' LENGTH
3. REQUIRED S.S. BOLTS AND FASTENERS
4. 1/4" STEEL PLATE WITH DRILLED ORIFICES
5. 1 C.Y. – CRUSHED STONE FOR BASE
6. 48 #5 REBARS @ 1', 2' AND 3' LENGTHS
7. 32 #4 REBARS @ 4.5' LENGTH

NOTES:

1. REINFORCING STEEL SHALL CONSIST OF A SINGLE LAYER OF HORIZONTAL AND VERTICAL PLACED #4 REBAR @ 12" O.C.
2. CONCRETE BOX TO BE CONSTRUCTED OR PRECAST OF EQUAL DIMENSIONS AND REINFORCING.
3. CONCRETE SLAB TO BE CONSTRUCTED ALONG WITH BASE. FOR PRECAST BOX, A SLOTTED CONCRETE SLAB TO BE USED.
4. SECTION JOINTS AND PIPE OPENING SHALL BE SEALED WATERTIGHT WITH MORTAR BY CONTRACTOR.
5. ALL EXPOSED REBAR TO BE PAINTED WITH RUST-RESISTANT PAINT, COLOR AT CONTRACTOR'S DISCRETION.
6. TO BE SUPPLIED BY CAPITAL CONCRETE PRODUCTS OF HENNIKER, N.H., (1-603-428-3218) OR EQUAL.
7. STRUCTURE TO HAVE TEMPORARY PLYWOOD INSTALLED IN THE ORIFICE PLATE SLOT UNTIL THE SITE IS STABLIZED.
8. STRUCTURE IS TO BE DESIGNED FOR H20 LOADING.
9. SOIL UNDERLYING THE STRUCTURE IS TO BE COMPACTED TO 95% MODIFIED PROCTOR.
10. TRASH RACK TO PROTECT ALL ORIFICES 6" OR LESS IN DIAMETER.

MULTI-STAGE DISCHARGE OUTLET STRUCTURE (MSDOS)

NOT TO SCALE

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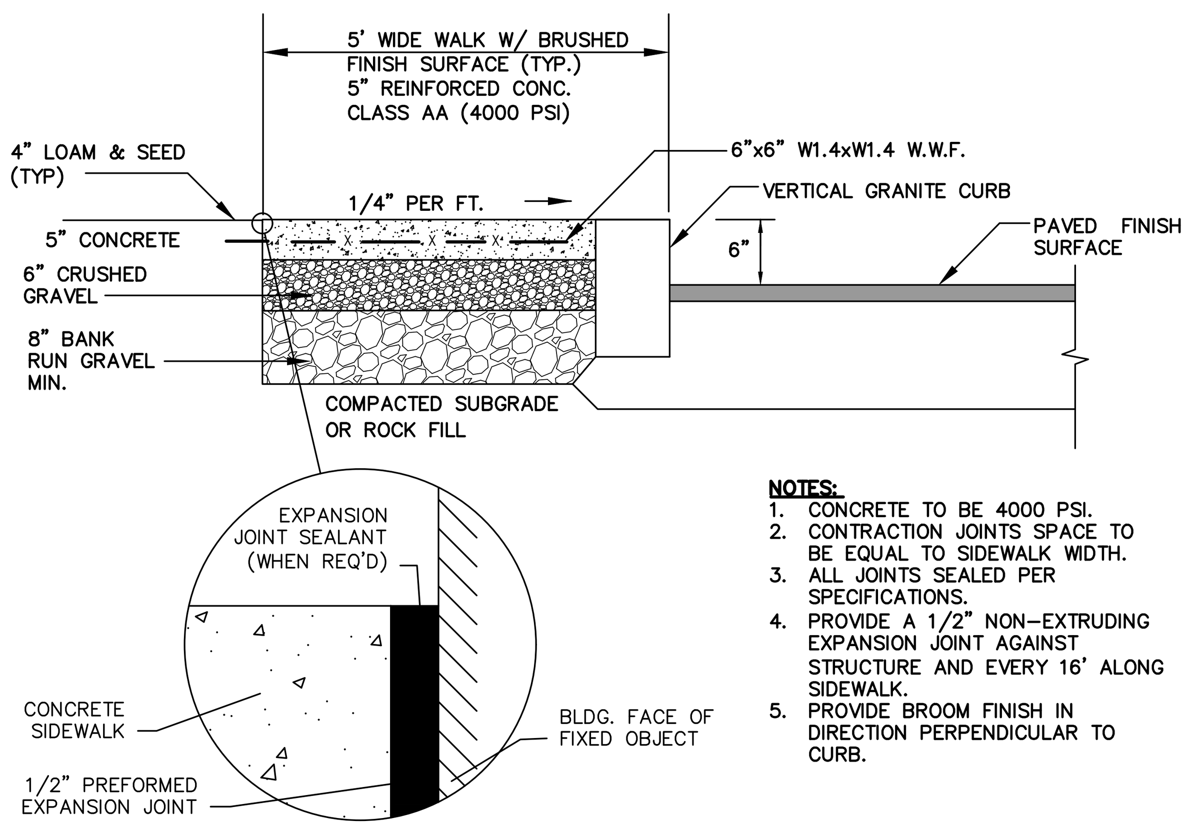
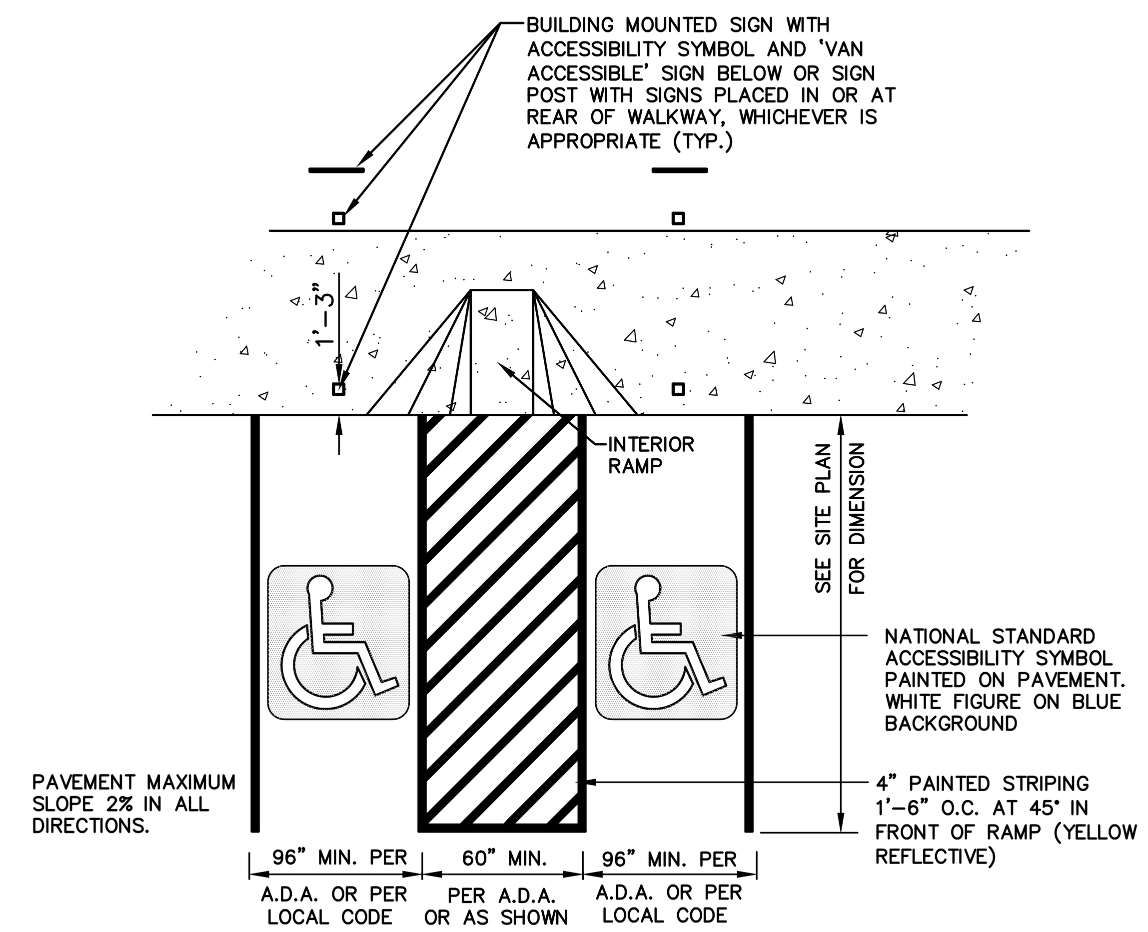
DRAWING No.
D2
SHEET 20 OF 23
JBE PROJECT NO. 20564



NOTES:
1. CONCRETE TO BE 4000 PSI.
2. CONTRACTION JOINTS SPACE TO BE EQUAL TO SIDEWALK WIDTH.
3. ALL JOINTS SEALED PER SPECIFICATIONS.
4. PROVIDE A 1/2" NON-EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
5. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.

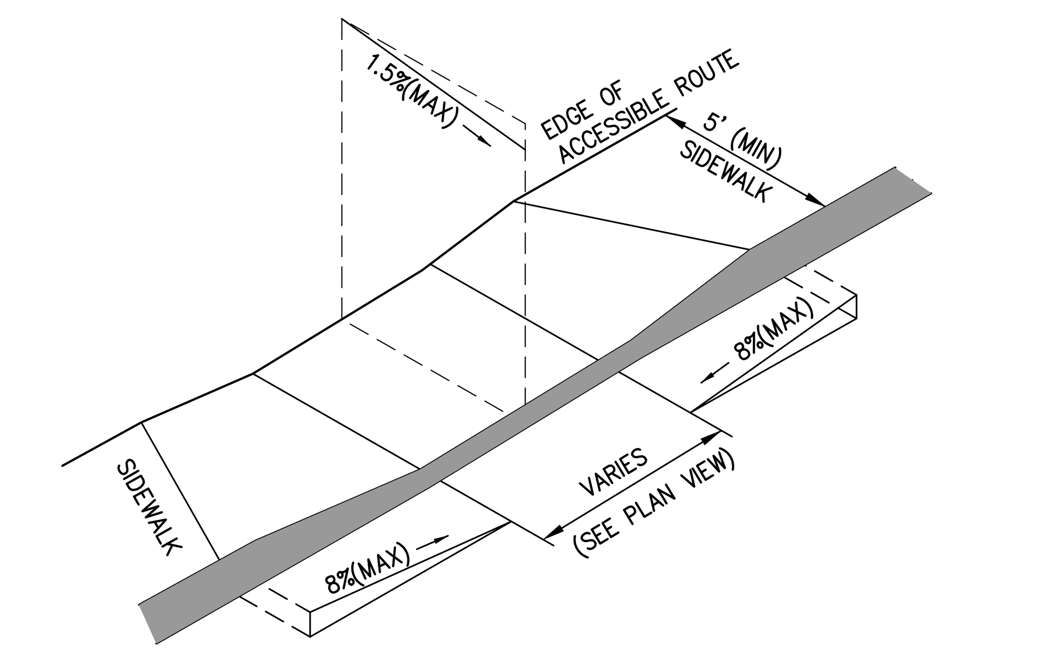
CONCRETE SIDEWALK W/ VERTICAL GRANITE CURB

NOT TO SCALE



HANDICAP PARKING LAYOUT

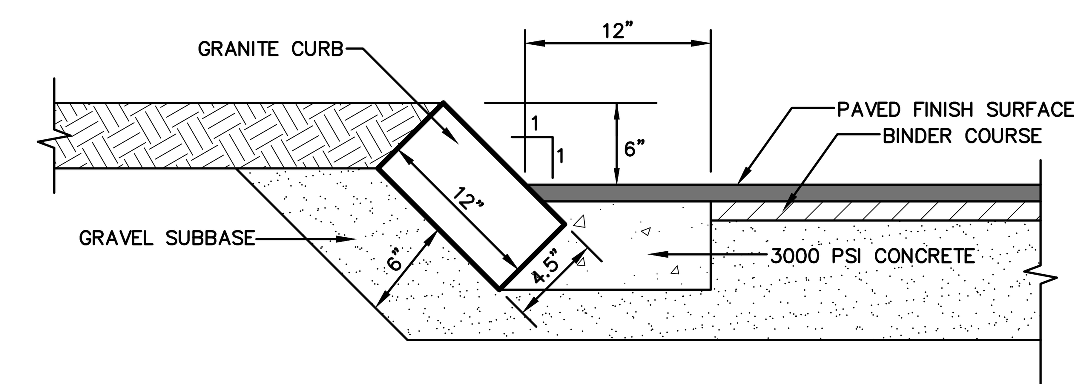
NOT TO SCALE



NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTLITY POLES, TREE WELLS, SIGNS, ETC.).
5. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.

ACCESSIBLE CURB RAMP (TYPE `A')

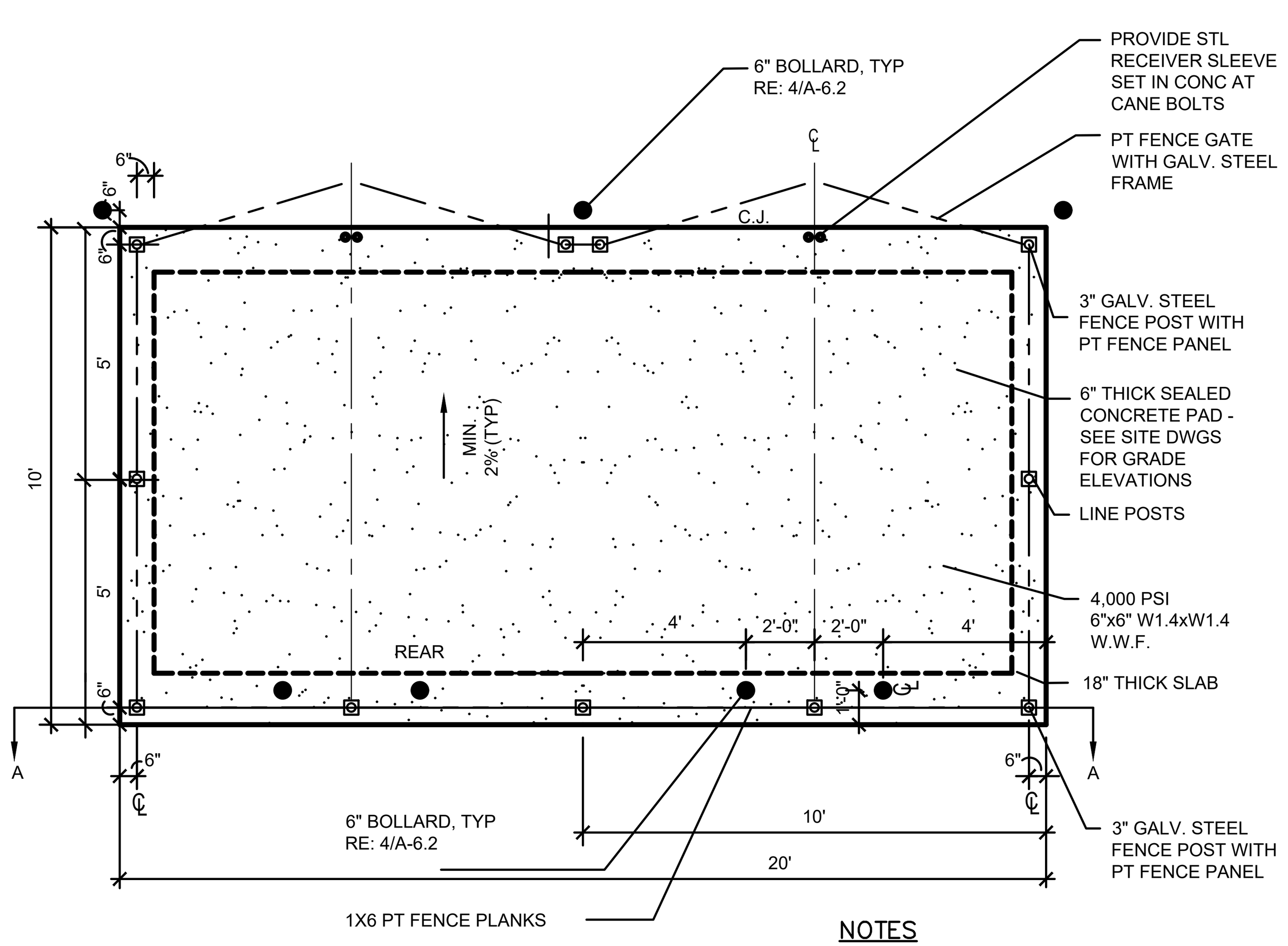
NOT TO SCALE



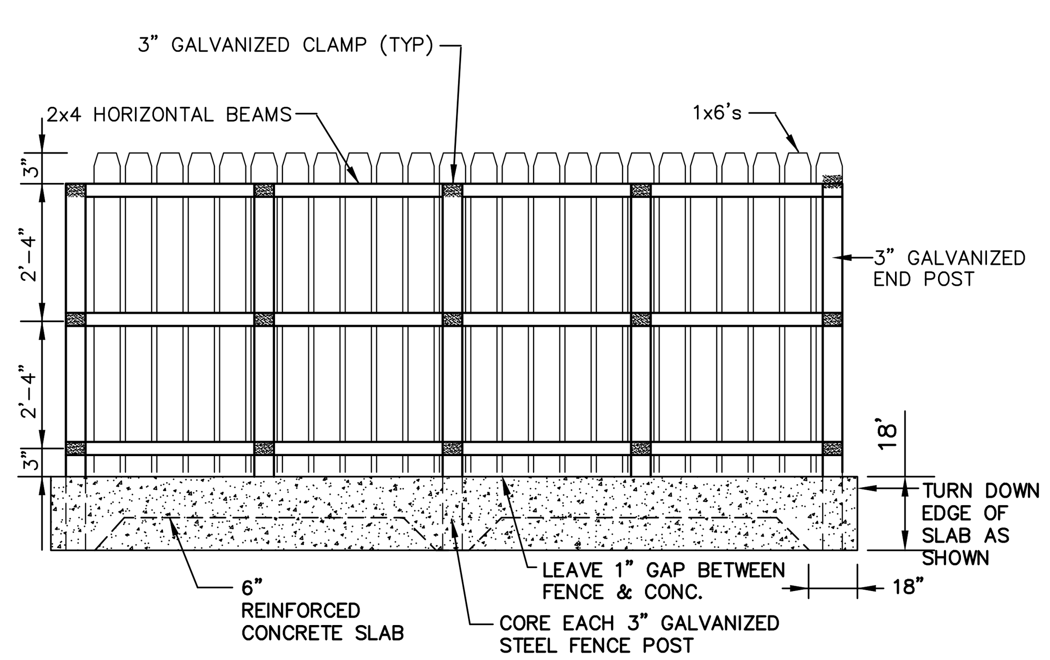
NOTES:
1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

SLOPED GRANITE CURB

NOT TO SCALE



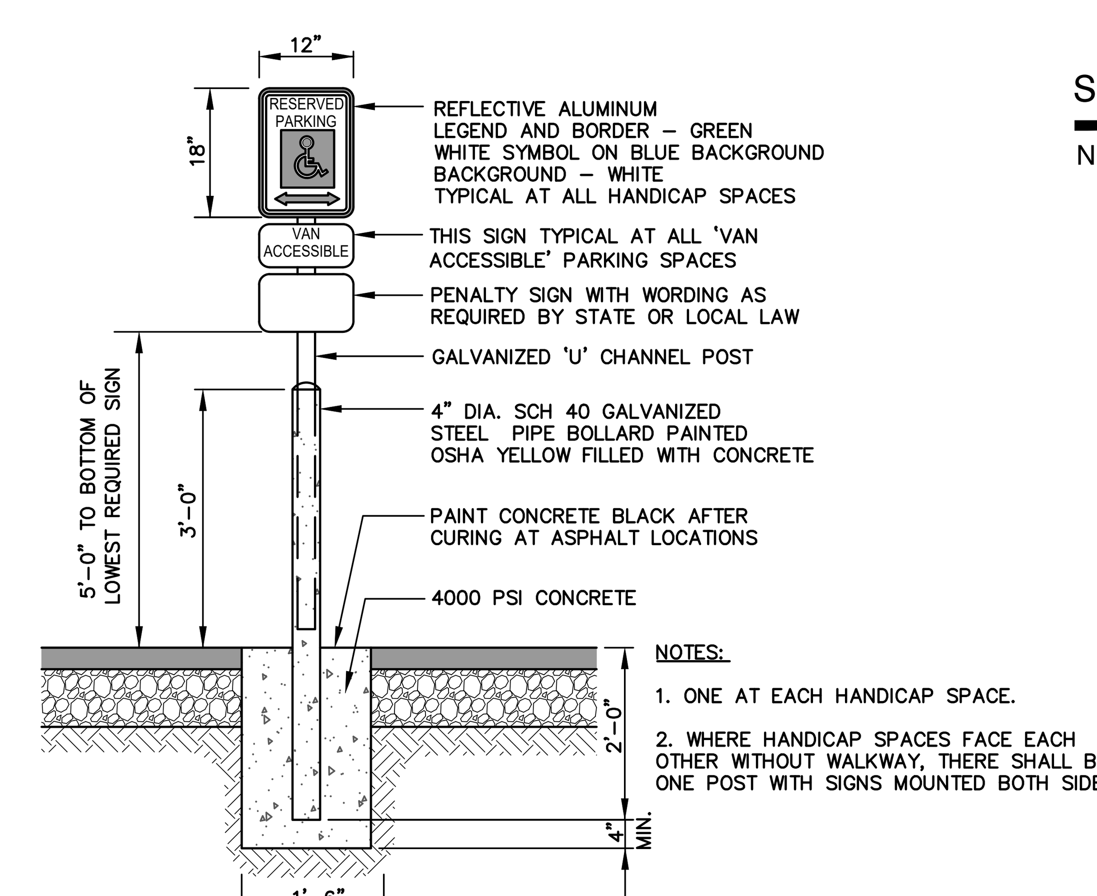
NOTES
1. ALL LUMBER TO BE PRESSURE TREATED.
2. WOOD FENCE TO BE PAINTED OR STAINED TO MATCH BUILDING FOUNDATION.
3. DUMPSTER SIZE VARIES, SEE SITE PLANS FOR SCREENING SIZE



SECTION A-A

DUMPSTER ENCLOSURE DOUBLE

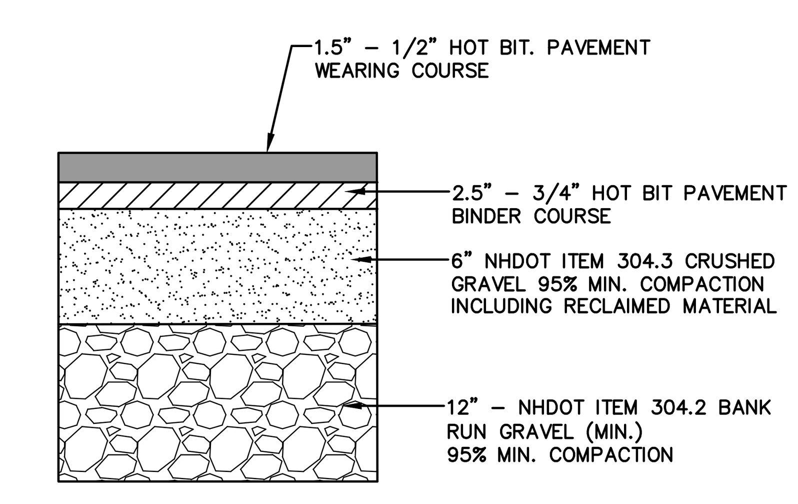
NOT TO SCALE



NOTES:
1. ONE AT EACH HANDICAP SPACE.
2. WHERE HANDICAP SPACES FACE EACH OTHER WITHOUT WALKWAY, THERE SHALL BE ONE POST WITH SIGNS MOUNTED BOTH SIDES.

HANDICAP PARKING SIGN (R7-8)

NOT TO SCALE



1. LOAM AND/OR UNSTABLE MATERIAL SHALL BE REMOVED TO A SOLID BASE MATERIAL.
2. COMPACTION SHALL BE PERFORMED TO 95% OF THE MATERIALS' MODIFIED PROCTOR VALUE.

TYPICAL BITUMINOUS PAVEMENT

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

REV.	DATE	REVISION	BY
8	8/2/22	ADDED DRAINAGE	DJM
7	11/04/21	UPDATED DESIGN	AJB
6	09/21/21	GRADED DRIVEWAY	DJM
5	06/08/21	REVISED CONCEPT	DJM
4	03/01/21	REVISED DRIVEWAY; LAND TRANSFER EXHIBITS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
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E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	WHITE ROCK PLACE 109 A & C MAIN STREET, RAYMOND, NH 03077
Applicant / Owner:	LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263 — LOT 29: WAYNE F. & CATHLEEN M. WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.

D3

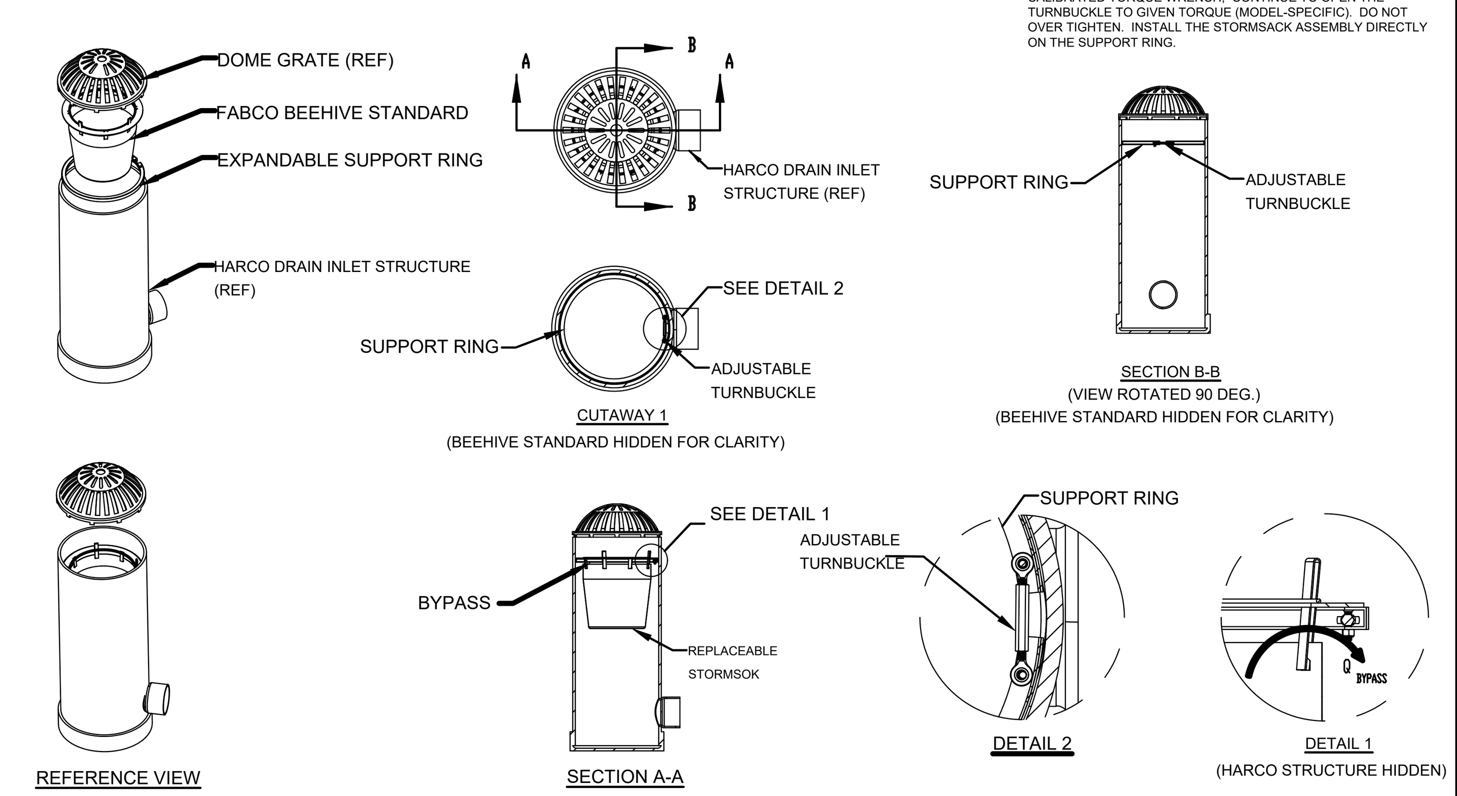
STRUCTURE DIAMETER (IN.)	DEBRIS CAPACITY (CU.FT)	FILTERED FLOWRATE (CFS)	BYPASS FLOWRATE (CFS)
12	0.66	1.7	1.0
15	1.0	2.1	1.3
18	1.2	2.3	1.4
24	2.8	3.9	2.2
30	2.8	3.9	2.2

NOTES:

1. MATERIAL:
   - A) SUPPORT FLANGE: ALUMINUM ALLOY PLATE, 5000 SERIES
   - B) STORMSOK: WOVEN POLYPROPYLENE GEOTEXTILE
   - C) EXPANSION RING: ALUMINUM ALLOY CHANNEL, 6000 SERIES
   - D) HARDWARE: STAINLESS STEEL
2. RECOMMENDED MINIMUM VAULT DEPTH: 2-IN BELOW STORMSOK
3. USE ONLY WITH FABCO REPLACEABLE STORMSOK

GENERAL INSTALLATION:

ADJUST THE TURNBUCKLE DOWN TO GIVE THE SMALLEST RING DIAMETER AND LOCATE THE EXPANSION RING INTO THE HARCO STRUCTURE MINIMUM OF 6-IN DOWN FROM THE TOP OPENING AS SHOWN. BEGIN OPENING THE TURNBUCKLE UNTIL THE EXPANSION RING IS SELF SUPPORTING, THEN VERIFY THE RING IS LEVEL AND PLUMB TO THE HARCO STRUCTURE. USING A CALIBRATED TORQUE WRENCH, CONTINUE TO OPEN THE TURNBUCKLE TO GIVEN TORQUE (MODEL-SPECIFIC). DO NOT OVER TIGHTEN. INSTALL THE STORMSACK ASSEMBLY DIRECTLY ON THE SUPPORT RING.



ACF BEEHIVE OVERFLOW FILTER STRUCTURE DETAILS

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
WWW.ACFENVIRONMENTAL.COM
800.448.3636

REVISED AUG 2020

FOCALPOINT HP PERFORMANCE SPECIFICATION:

HIGH PERFORMANCE MEDIA

HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE.

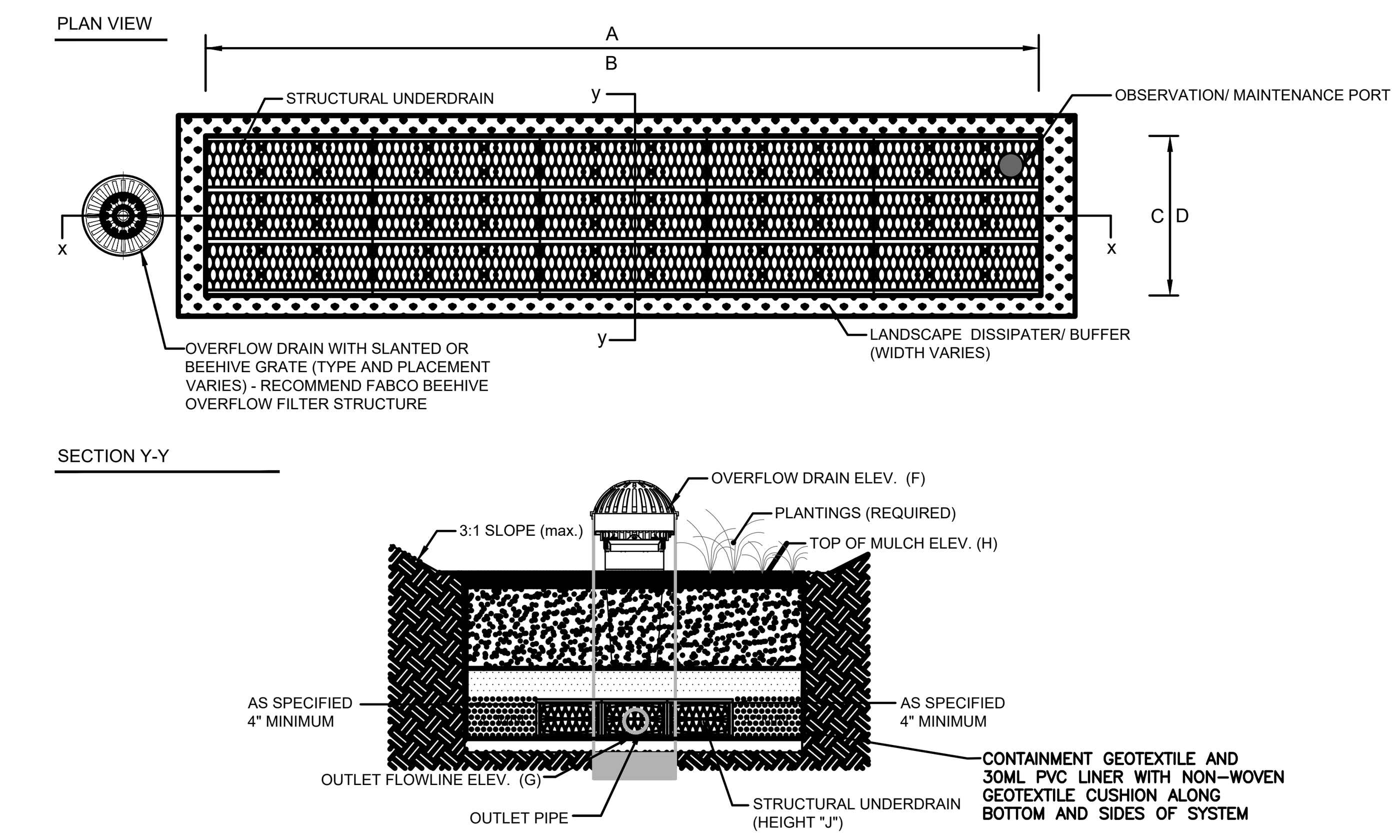
HIGH PERFORMANCE STRUCTURAL UNDERDRAIN

MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

PLANT COMPONENT

SUPPLIER SHALL PROVIDE LIST OF ACCEPTABLE PLANTS
IF PLANTS ARE NOT INCLUDED IN THE LANDSCAPE CONTRACT/PLANS. SITE CONTRACTOR SHALL PROVIDE PLANTS.
PLANTS SHALL BE INSTALLED AT THE TIME THE SYSTEM IS COMMISSIONED FOR USE. PLANTING OUTSIDE THIS TIME REQUIRES APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT OF RECORD.
SEE FOCALPOINT INSTALLATION GUIDE FOR PLANT SPACING, PLANTING PROCEDURES ETC.

FOCALPOINT HP CONSTRUCTION GUIDE		
A	FOCALPOINT LENGTH	SEE PLANS
B	# UNDERDRAIN LONG	SEE PLANS
C	FOCALPOINT WIDTH	SEE PLANS
D	# UNDERDRAIN WIDE	SEE PLANS
E	WATER QUALITY VOLUME	VARIES
F	OVERFLOW ELEVATION	SEE PLANS
G	OUTLET FLOWLINE	SEE PLANS
H	TOP OF MULCH	SEE PLANS
I	TOP OF GABION (OPTIONAL)	NO GABION
J	UNDERDRAIN HEIGHT	SEE PLANS



FOCALPOINT HP CONSTRUCTION GUIDE

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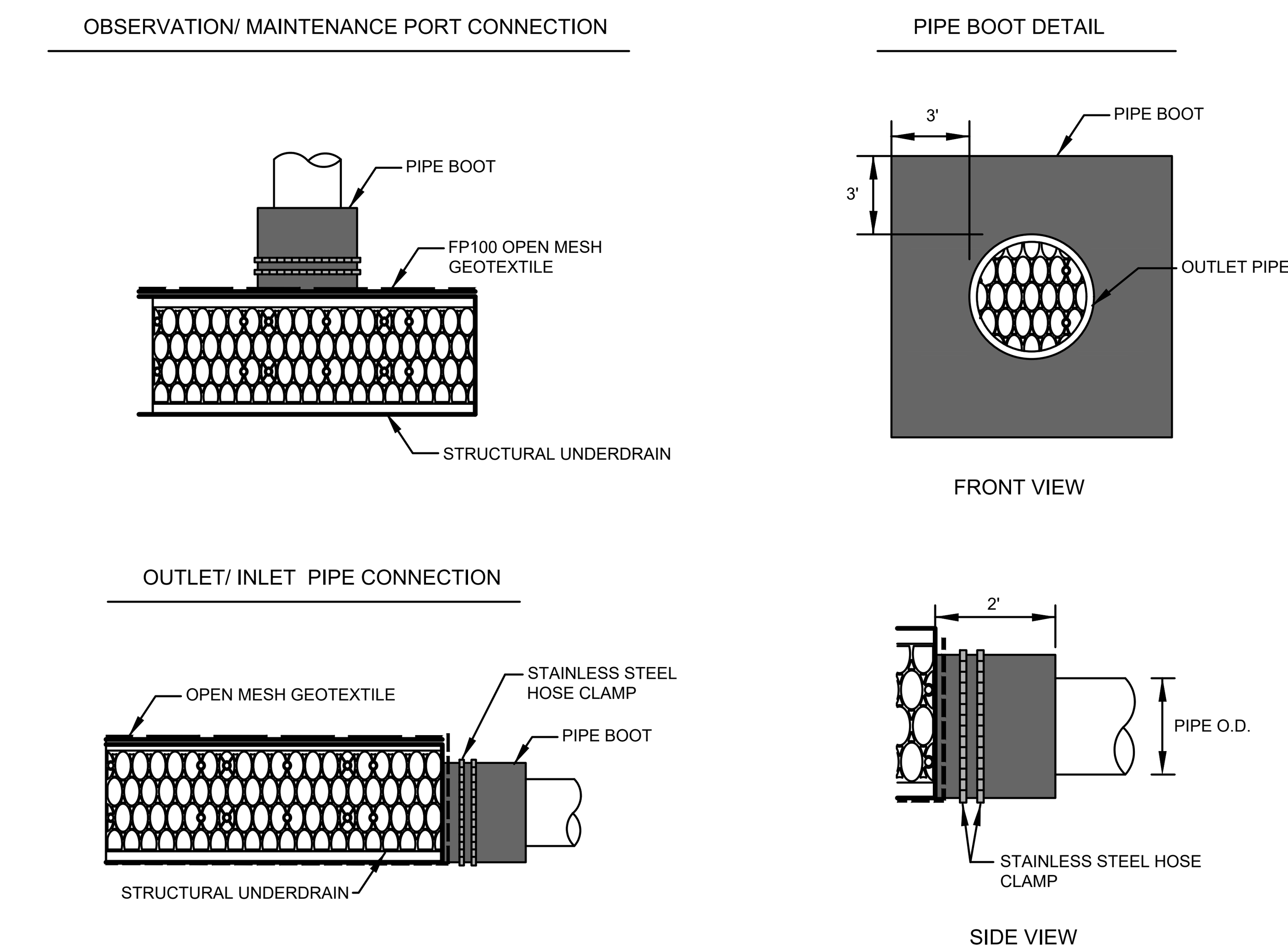

FOCALPOINT PIPE CONNECTION

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800.448.3636

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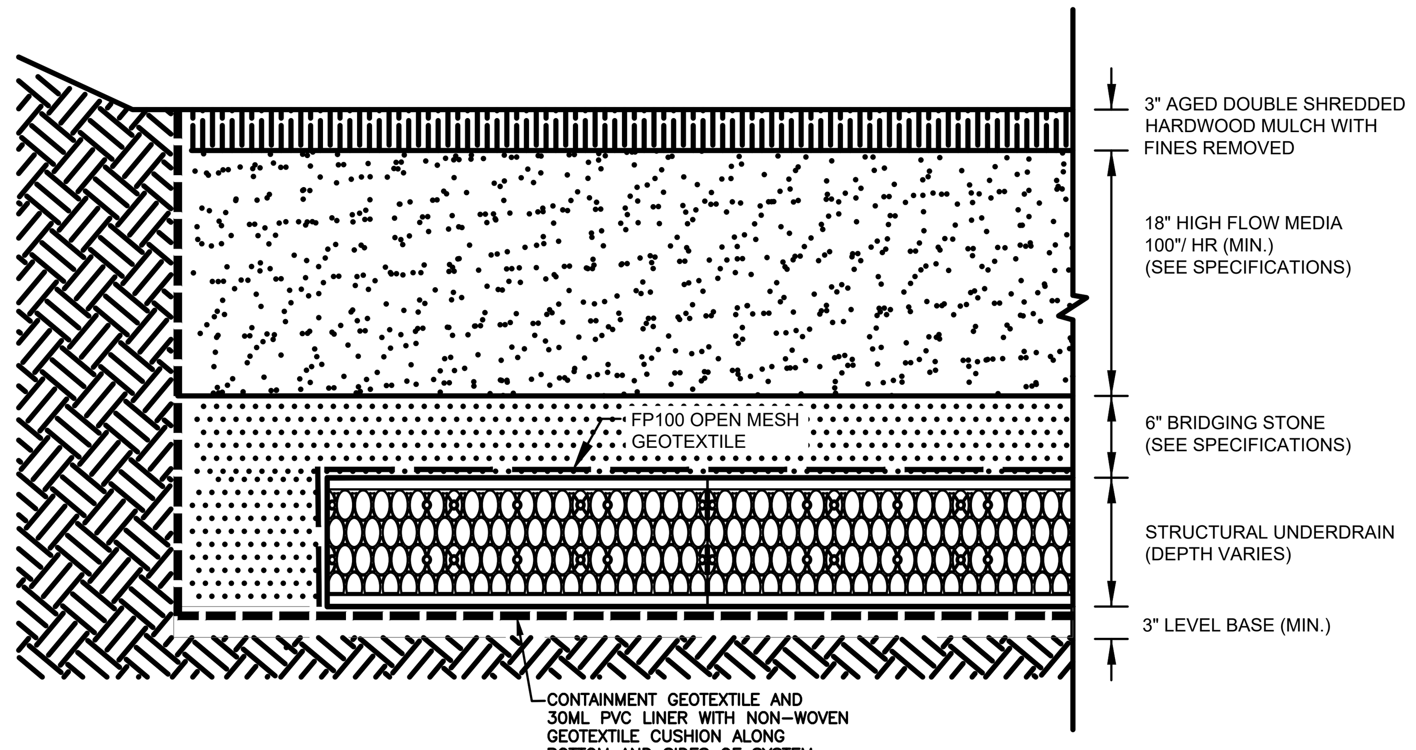

FOCALPOINT HP DETAILED CROSS SECTION

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
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800.448.3636

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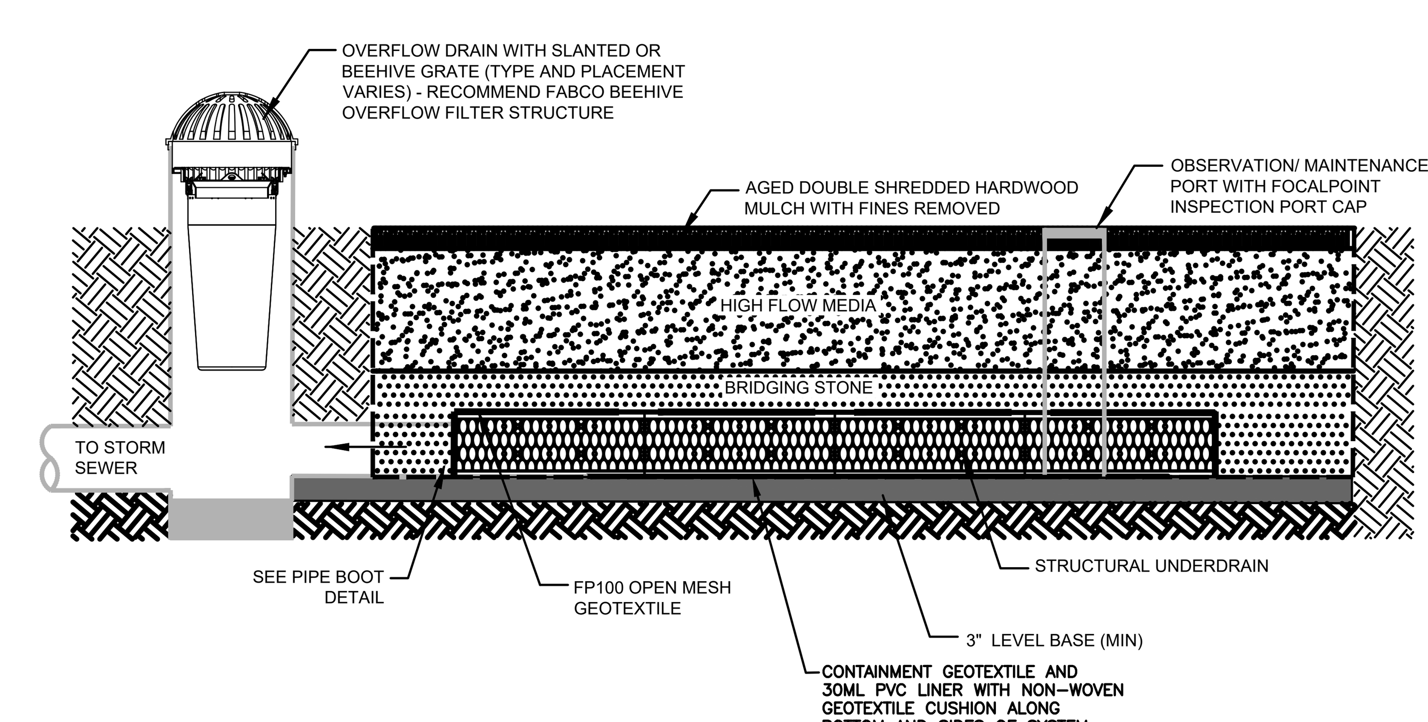

FOCALPOINT HP SECTION X-X

FOR MORE INFORMATION CONTACT ACF ENVIRONMENTAL
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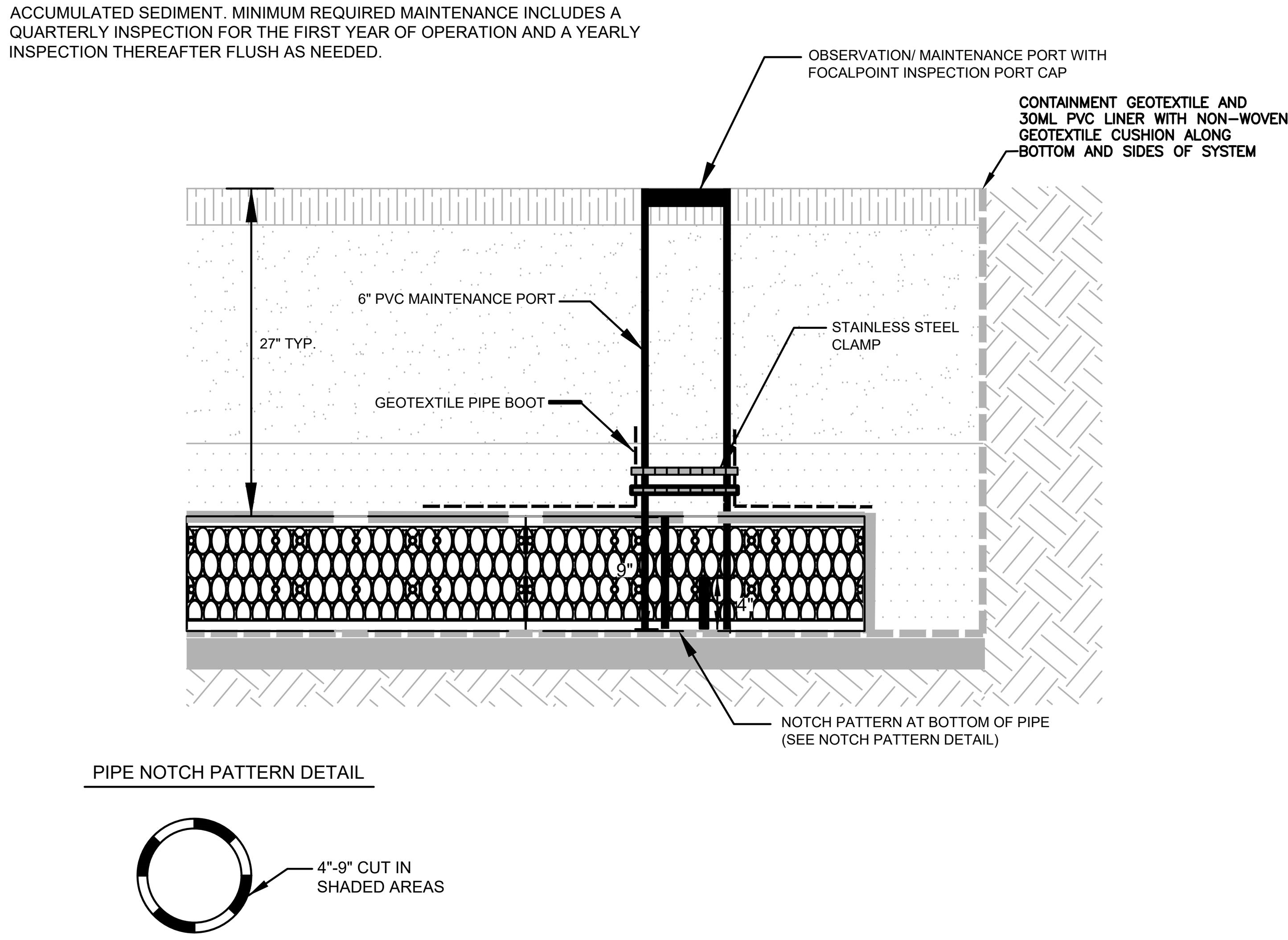
REVISED AUG 2020

OBSERVATION/ MAINTENANCE PORT

PORT USED FOR INSPECTION PURPOSES AND FOR SYSTEM MAINTENANCE AS REQUIRED. WATER SHALL BE PUMPED INTO THE SYSTEM AND RESUSPEND ACCUMULATED SEDIMENT. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION FOR THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER FLUSH AS NEEDED.



FOCALPOINT OBSERVATION/ MAINTENANCE PORT

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REVISED AUG 2020

Design: JAC	Draft: DJM	Date: 07/06/20
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Drawing Name: 20564-PLAN.dwg		

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8	8/2/22	ADDED DRAINAGE	DJM
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4	03/01/21	REVISED DRIVEWAY; LAND TRANSFER EXHIBITS	DJM

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603-772-4746
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E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: DETAIL SHEET

Project: WHITE ROCK PLACE
109 A & C MAIN STREET, RAYMOND, NH 03077

Applicant / Owner:
LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH
49 RAYMOND ROAD, NOTTINGHAM, NH 03290
BK 1559 PG 263

LOT 29: WAYNE F. & CATHLEEN M. WELCH
109A MAIN STREET, RAYMOND, NH 03077
BK 2481 PG 1742

DRAWING No.

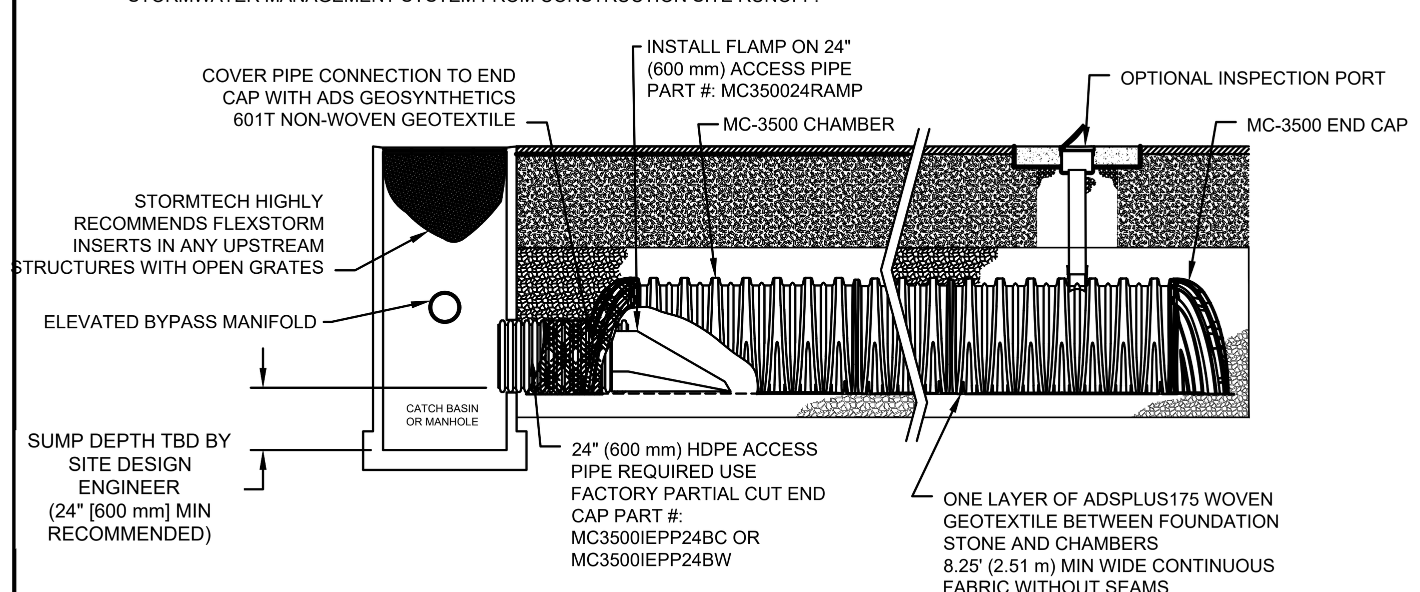
D3

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 6" (150 MM) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.



INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

MC-3500 ISOLATOR ROW PLUS DETAIL

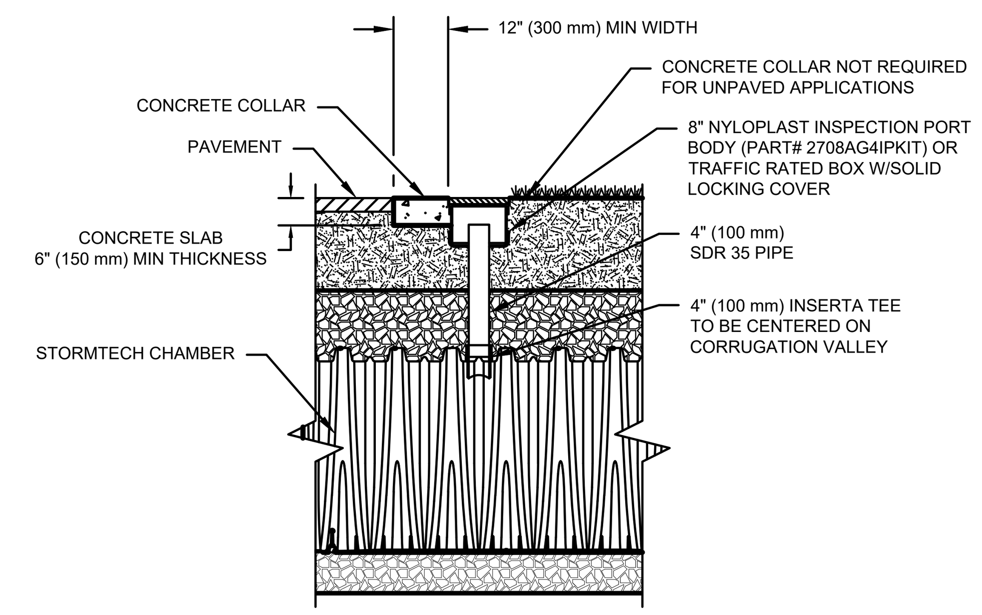
NOT TO SCALE

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

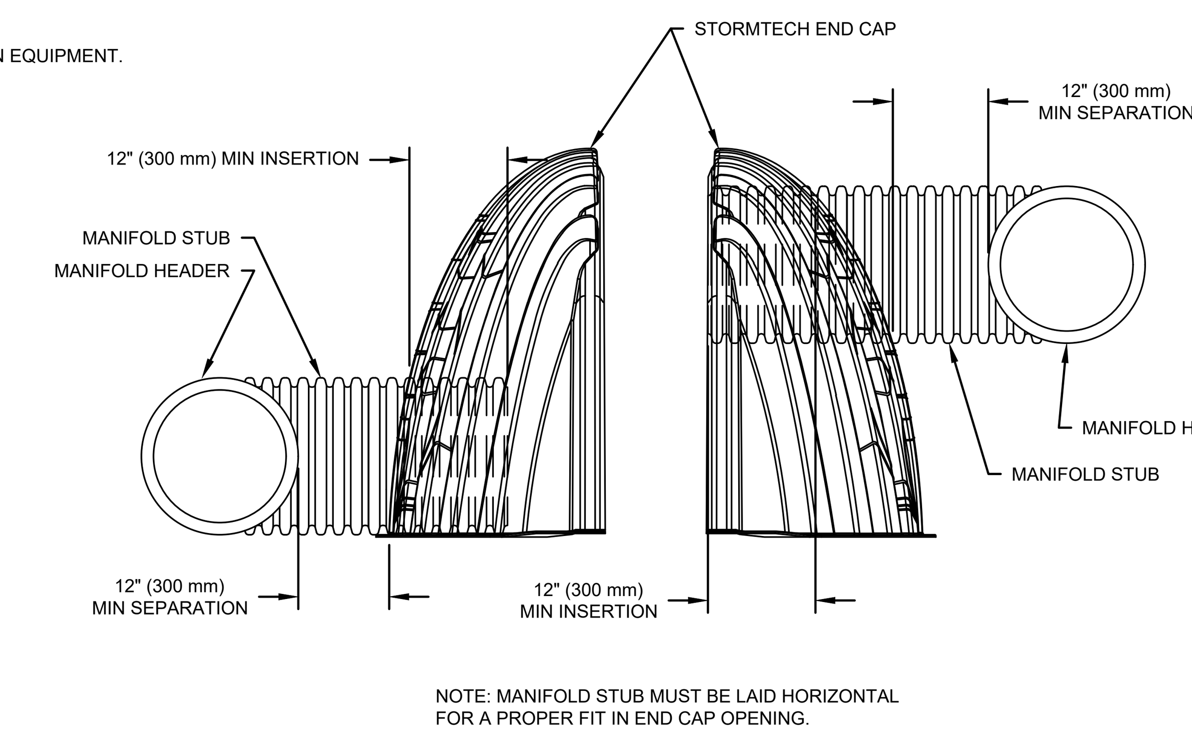
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

MC SERIES 4" PVC INSPECTION PORT DETAIL

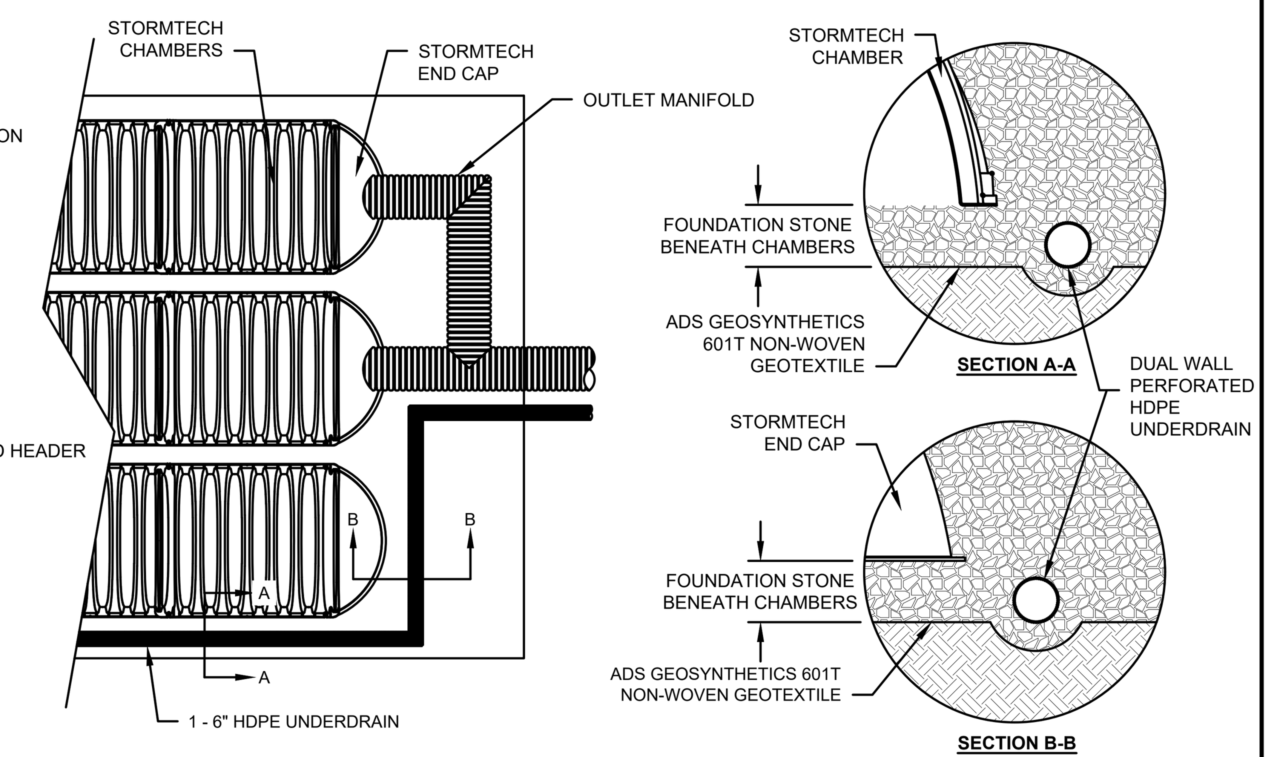
NOT TO SCALE



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

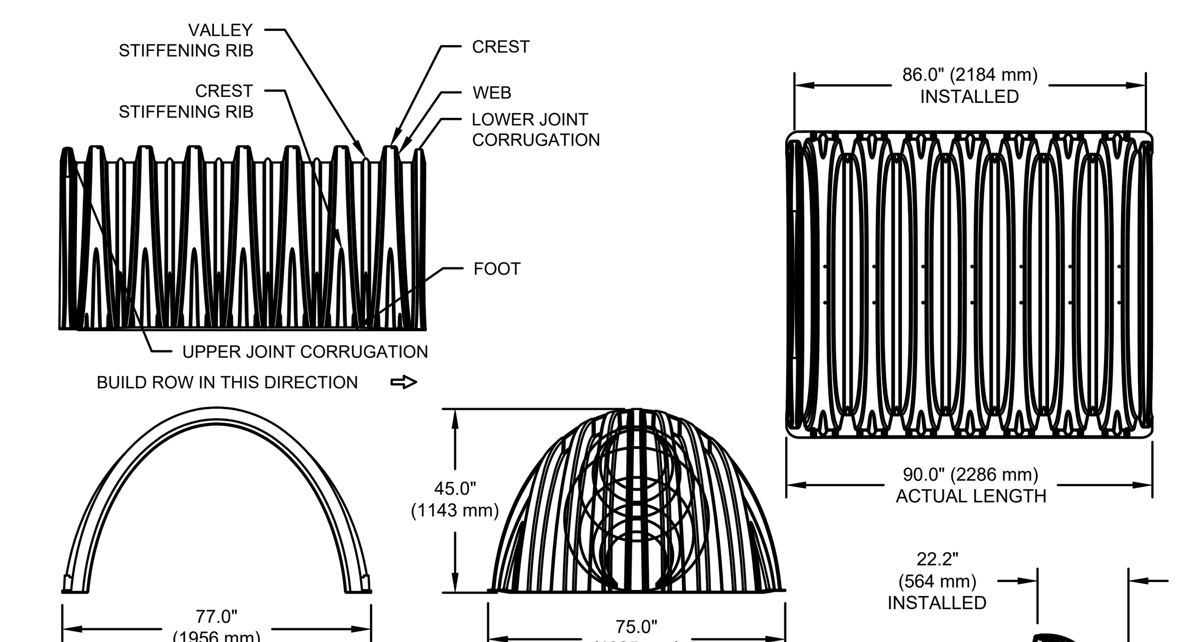
STORMTECH MC SERIES END CAP INSERTION DETAIL

NOT TO SCALE



STORMTECH MC-3500 UNDERDRAIN DETAIL

NOT TO SCALE



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	($3.11\ m^3$)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	($4.96\ m^3$)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

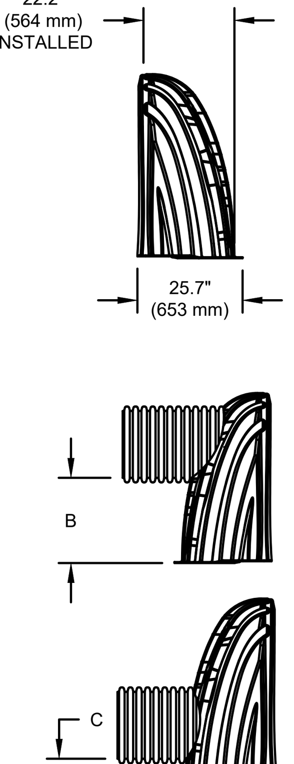
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	($0.42\ m^3$)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	($1.28\ m^3$)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

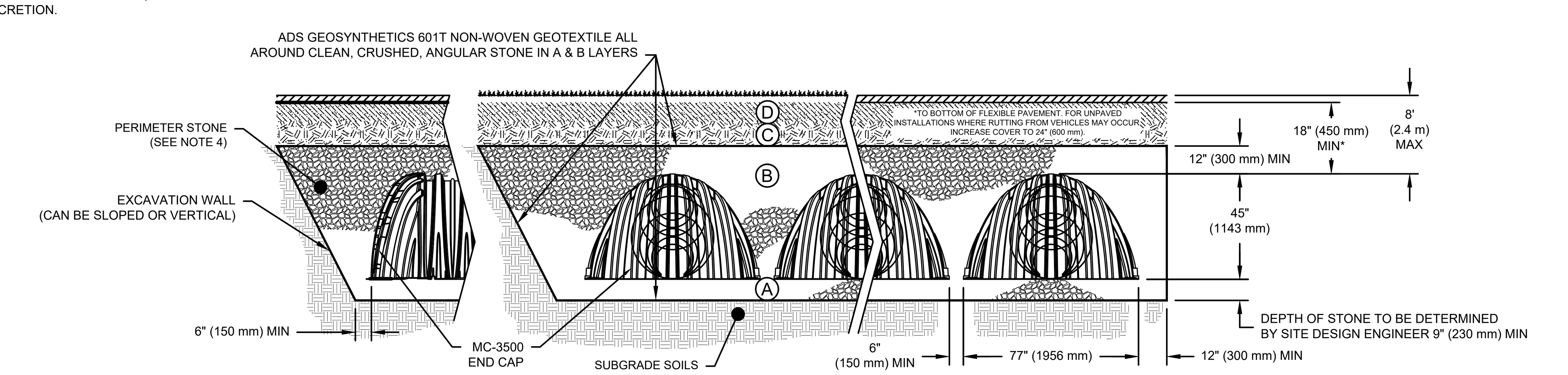
MC-3500 TECHNICAL SPECIFICATIONS

NOT TO SCALE

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

STORMTECH MC-3500 CROSS SECTION DETAIL

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20	
Checked: JAC	Scale: AS NOTED	Project No.: 20564	
Drawing Name: 20564-PLAN.dwg			

REV.	DATE	REVISION	BY
8	8/2/22	ADDED DRAINAGE	DJM
7	11/04/21	UPDATED DESIGN	AJB
6	09/21/21	GRADED DRIVEWAY	DJM
5	06/08/21	REVISED CONCEPT	DJM
4	03/01/21	REVISED DRIVEWAY; LAND TRANSFER EXHIBITS	DJM

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

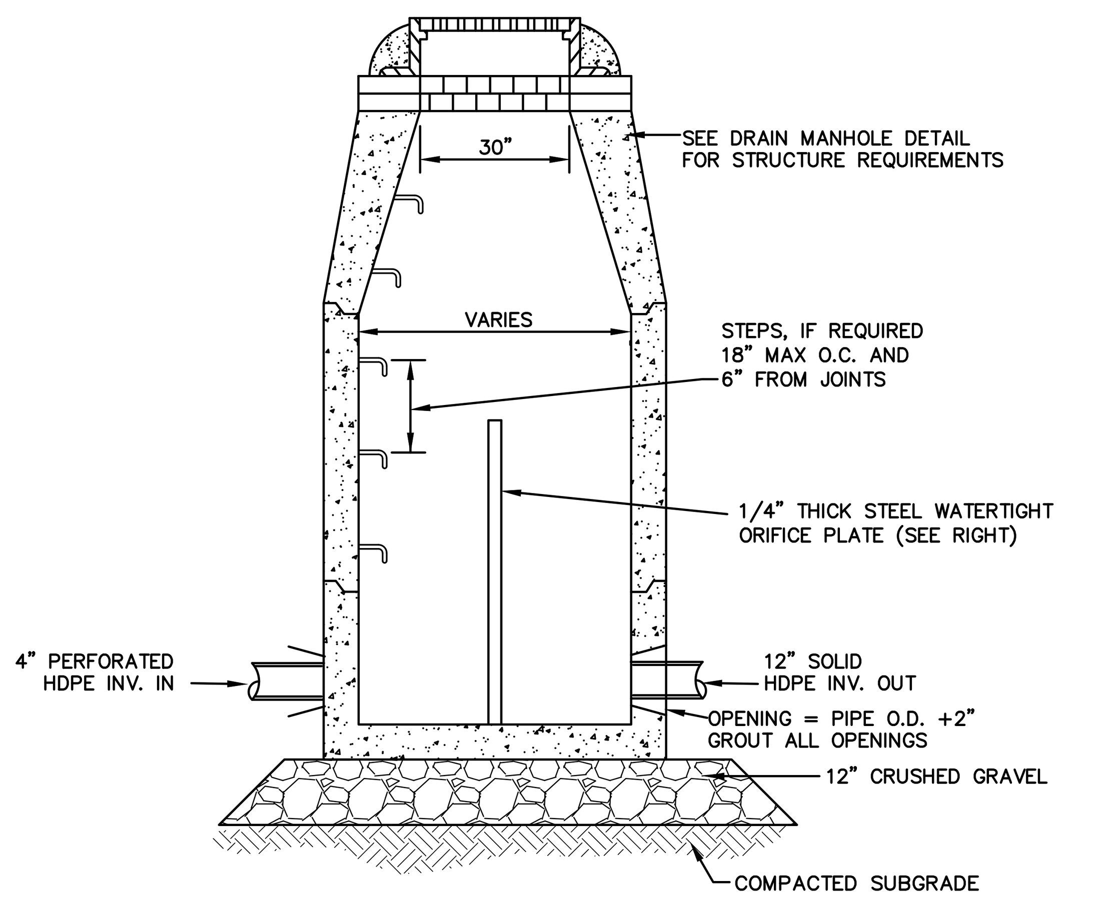
Plan Name: DETAIL SHEET

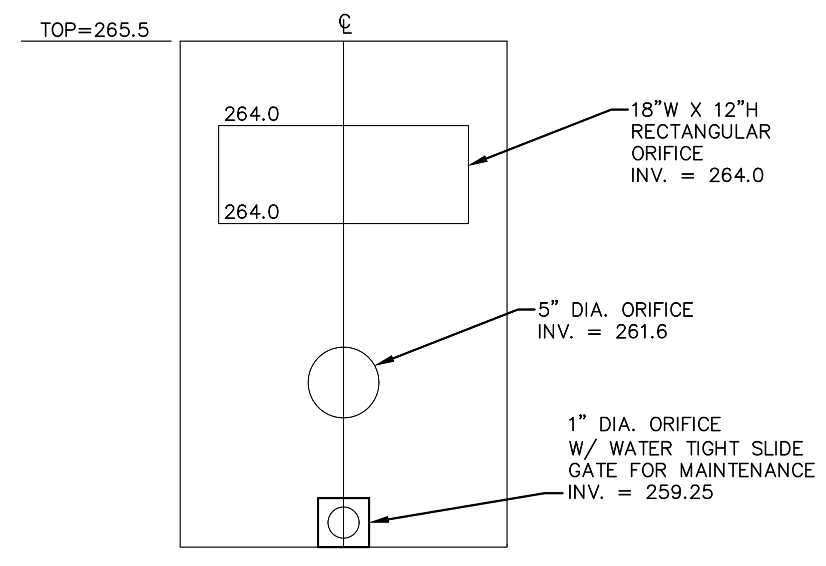
Project: WHITE ROCK PLACE 109 A & C MAIN STREET, RAYMOND, NH 03077

Applicant / Owner: LOT 25: JOSEPH, JOHN, ARDELL, & INEX WELCH 49 RAYMOND ROAD, NOTTINGHAM, NH 03290 BK 1559 PG 263 — LOT 29: WAYNE F. & CATHLEEN M. WELCH 109A MAIN STREET, RAYMOND, NH 03077 BK 2481 PG 1742

DRAWING No.

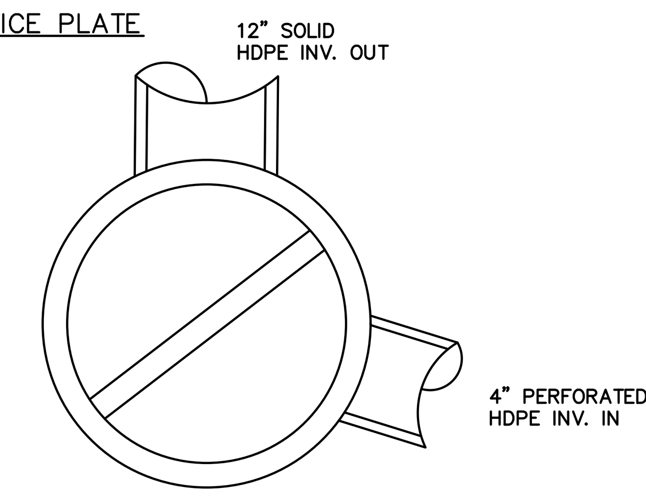
D3





1/4" THICK STEEL ORIFICE PLATE

NOT TO SCALE



BAFFLE WALL NOTE:

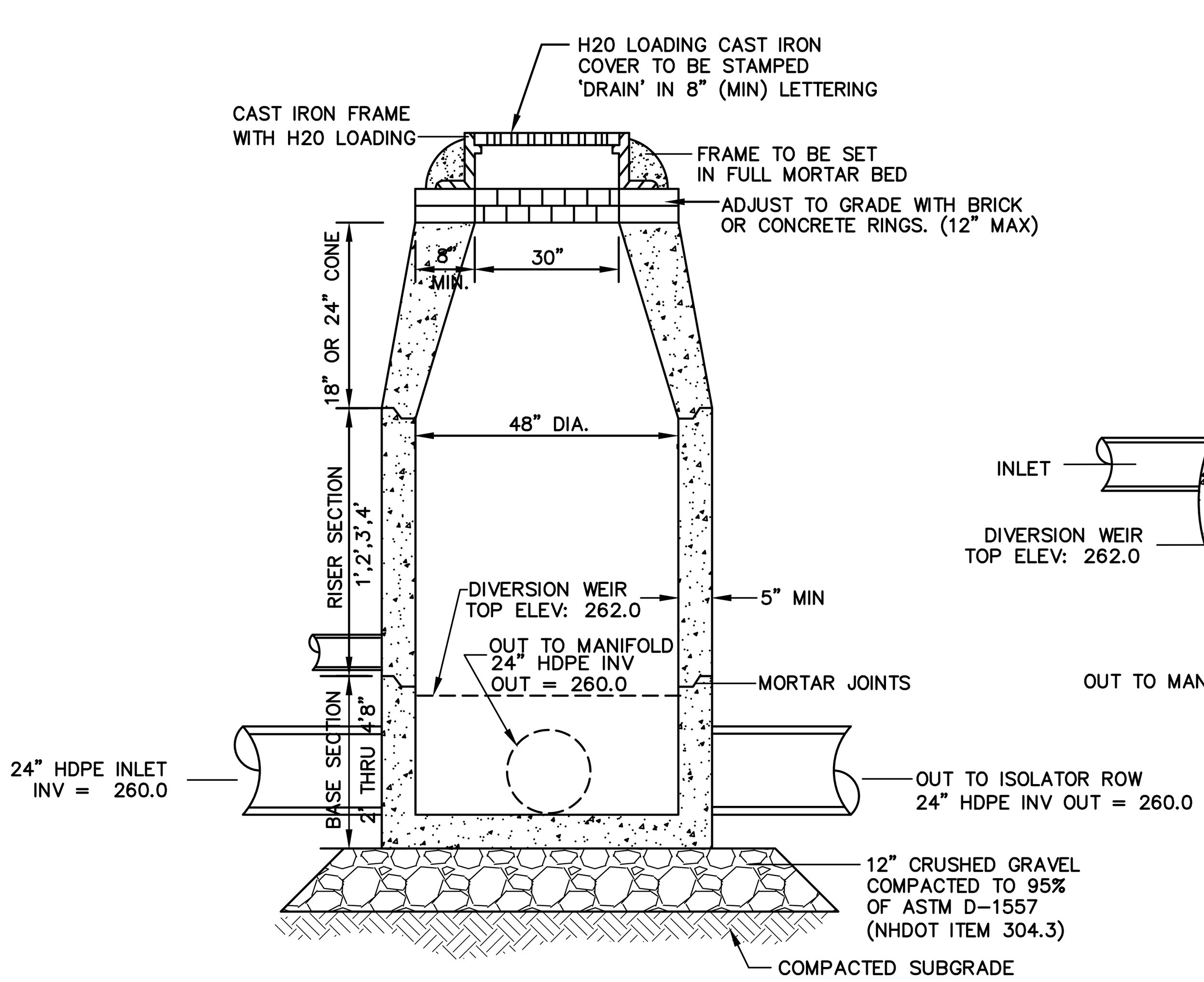
1. BAFFLE WALLS TO BE SET WITH 3"x3" ALUMINUM ANGLES W/ 3/8" WEDGE ANCHORS.
2. WALL TO BE SEALED WITH SIKAFLEX WATERPROOFING ON SIDES & CONSEAL ON BOTTOM.

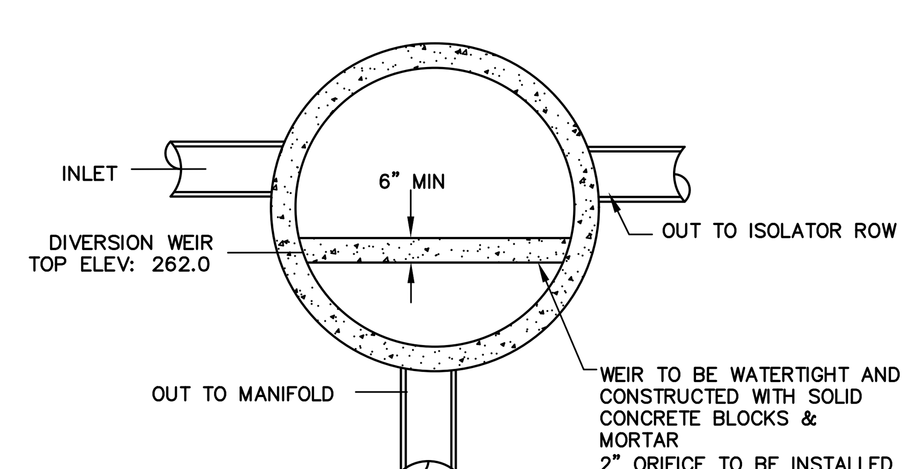
OS #1

NOT TO SCALE

STORMTECH OUTLET CONTROL STRUCTURE

NOT TO SCALE

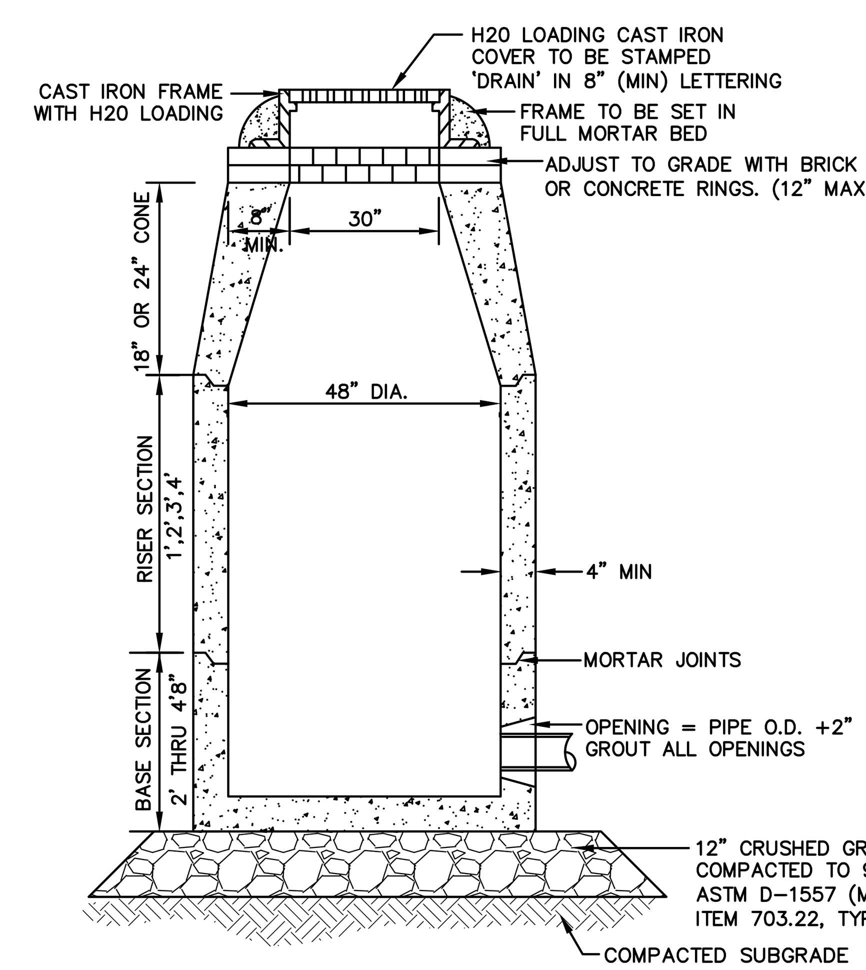




PLAN VIEW

NOT TO SCALE

DRAIN MANHOLE WITH DIVERSION WEIR

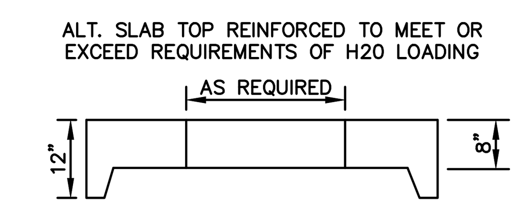


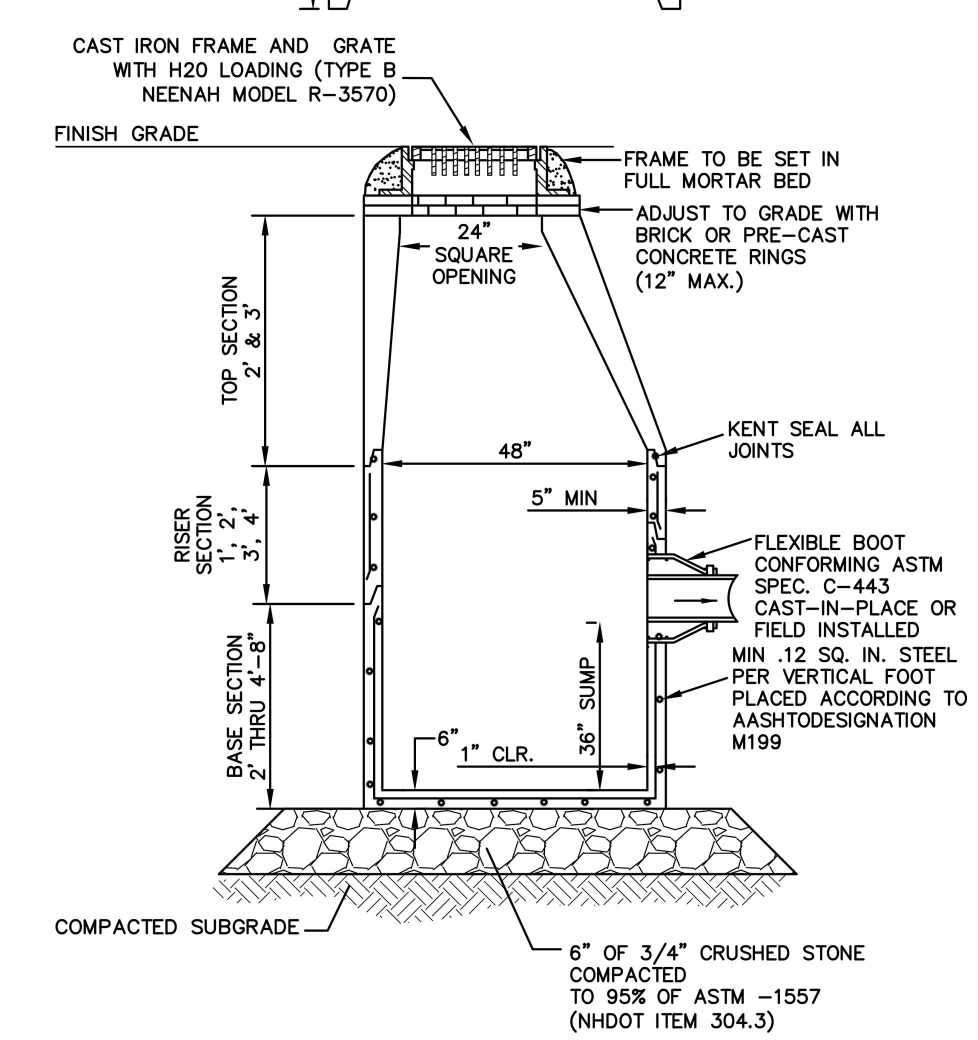
NOTES:

1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

DRAIN MANHOLE (4' DIAM.)

NOT TO SCALE





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3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NHDOT CATCH BASIN TYPE ALTERNATE 1 OR NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.

CATCH BASIN

NOT TO SCALE

Design: JAC	Draft: DJM	Date: 07/06/20
Checked: JAC	Scale: AS NOTED	Project No.: 20564
Drawing Name: 20564-PLAN.dwg		

8	8/2/22	ADDED DRAINAGE	DJM
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DRAWING No.

D3

Attachment B

civil &
environmental
engineering

UNDERWOOD engineers

2896.00

February 23, 2023

Ms. Christina McCarthy, Planning Technician
Town of Raymond
4 Epping Street
Raymond, NH 03077

Re: ***Available Municipal Water Supply and Demands***
Initial Findings
Raymond, NH

Dear Ms. McCarthy,

In accordance with our contracts (ESR #1 through #4), Underwood Engineers is currently reviewing the available water supply and hydraulic capacity as it relates to three pending developments that are under consideration with the Planning Board.

Although UE is only evaluating three developments (bold), the 8 projects shown below are being considered as added demands to the system:

- Exit 4 Project Area Expansion (Approved and under construction)
- Ridgewood Commons (Approved and under construction)
- Main Street Commons (Approved and online approximately 6 months ago)
- Essex Commons (Approved and under construction
- **White Rock Place (in the planning process)**
- **65 Batchelder Road (in the planning process)**
- **Industrial Dr. Warehouse (Onyx) (in the planning process)**
- Campbell Mills Warehouse (Jewett) (pending ESR)

The information presented below is based on previous work completed by UE and others over the last 10-15 years as well as our understanding of the current system operational status. According to Weston and Sampson's Water Storage Tank Evaluation Report (2020), the existing demands (production) are as follows:

- Average Day Demand = 291,000 gpd
- Maximum Day Demand = 484,000 gpd

The 8 development projects are estimated to increase demands in the municipal water system by ~43% when fully occupied as proposed. This increases the total demands to:

- Average Day Demand = 415,000 gpd
- Maximum Day Demand = 694,000 gpd

ph 603.230.9898
fx 603.230.9899
99 North State Street
Concord, NH 03301
underwoodengineers.com

The Town's supply consists of four (4) wells; 3 operating wells and one well (#2) that is currently offline due to structural issues. Wells #1R, #2 (offline), and #3 are treated by the water treatment plant and conveyed to the distribution system. Well #4 is the only well that does not have treatment.

Based on current water quality, the operational capacity of the water treatment plant is 378,000 gpd which is limiting even though the three wells served by it have a greater yield. Also limited by water quality, well #4 currently produces 216,000 gpd. Therefore, the total system supply capacity is 594,000 gpd, as illustrated in Table 1 attached.

Consistent with NHDES criteria, a municipal groundwater system shall be able to provide adequate supply as follows:

- Meet maximum day demand with all sources in service (WTP and Well #4).
    - Current demands can be met
    - Future demands with all 8 developments cannot be met
- Meet average day demand with the largest source out of service. For the purposes of this evaluation, the WTP was assumed to be the largest source.
    - Current demands cannot be met if the WTP is out of service
    - Future demands with all 8 developments cannot be met

It should be noted that the above summary does not consider other potential growth in the Town. Further, our work is based on existing information and further evaluation is appropriate. We are providing the information for planning purposes.

As you know, separately we are finalizing a scope of work that will look towards solutions to the supply issue. Also note, these findings do not impact the need or change the approach for the water storage tank project currently on the Town Warrant.

Please call if you have any questions.

Very truly yours,
UNDERWOOD ENGINEERS, INC.

Lynnette Carney
Lynnette Carney, P.E.
Project Manager

Keith A. Pratt
Keith A. Pratt, P.E.
President

KAP/lec
Encl. Table 1

Cc: Scott Keddy
Ernie Cartier Creveling
Jen Mates, NHDES
Rick Skarinka, NHDES

Table 1 Demand vs Supply Capacity Summary

Most Recent Demand Analysis:

Average Day Demand, gpd (2018-2020)	291,000
Maximum Day Demand, gpd (2018-2020)	484,000
Reference	W&S Storage Tank Evaluation Report, 2020

Goal: Meet maxium demand with all sources in service

Goal: Meet average day demand with largest source out of service

Source	Rated Source Capacity/PPV (gpm) - not used in calcs	Reference	Operational Source Capacity (gpm)	% of permitted capacity	Hours of Operation	Operational Capacity (gpd)	Capacity with WTP out of service
WTP (Wells 1R-3)	417	Stantec 2016 rpt	350	84%	18	378,000	0
Well 1R	350	Well 1R Permit	150		18	162,000	162000
Well 2	385	Stantec 2016 rpt	Offline				
Well 3	330	Stantec 2016 rpt	180		18	194,400	194400
Wells 1-3 wellfield	498	Well 1R Permit	330				
Well 4	250	CIP 2016/EGGI Pump Test	150	60%	24	216,000	216,000
Permitted Capacity	748						
Total Source Capacity (WTP + Well #4)			500			594,000	216,000
Excess available capacity at Average Demand						303,000	-75,000
Excess available capacity at Maximum Demand						110,000	-268,000
Developments					Requested, gpd	Max Day, gpd	Avg Day, gpd
Exit 4 Project Area Expansion (Mega X gas station)						2,285	1,345
Ridgewood Commons/The Meadows (approved & under construction)						59,500	35,000
Main Street Commons - medical facility (on-line)						2,250	1,325
Essex Commons/Silver Fox Ln - 6 properties -Startbucks, Dominoes						6,460	3,800
Developments - current requests from developers			Avg Day Requested, gpd	Fire Flow requested	Notes	Max Day, gpd	Avg Day, gpd
White Rock Place (156 1 & 2 Br units)*			26,520-40,500	1,600		45,084	26,520
65 Batchelder Road (254 two BR units)*			50,000-88,000			85,000	50,000
Industrial Dr. Warehouse/Onyx			4,890	2,850 gpm @ 24 psi	Fire pump & tank	8,313	4,890
Campbell Mills Warehouse/Jewett Construction			788	2,100 gpm @ 97 psi for 90 min	Sprinkler design; pump?	1,340	788
Net Excess available capacity at Average Demand						179,332	-198,668
Net Excess available capacity at Maximum Demand						-100,232	-478,232

August 2, 2023

Mr. Michael Garrepy
Tuck Realty Corporation
P.O. Box 190
Exeter, NH 03833
(sent via email to: mgarrepy@gmail.com)

Re: White Rock Place **Permit: AoT-2436**
109A, B & C Main Street - Raymond
Tax Map 23 Lot 24, 25, 28 & 29

Dear Applicant:

Based upon the plans and application, approved on August 2, 2023, we are hereby issuing RSA 485-A:17 Alteration of Terrain Permit AoT-2436. The permit is subject to the following conditions:

PROJECT SPECIFIC CONDITIONS:

1. The plans titled *White Rock Place,* by Jones & Beach Engineers, Inc., last revision date August 2, 2023, are a part of this approval. The project must be constructed as shown on the approved plans.

2. **This permit expires on August 2, 2028.** No earth moving activities shall occur on the project after this expiration date unless the permit has been extended by the Department. If requesting an extension, the request must be received by the department before the permit expires. The Amendment Request form is available at: https://www.des.nh.gov/land/land-development.

3. In accordance with Env-Wq 1503.21 (c)(1), a written notice signed by the permit holder and a qualified engineer shall be submitted to DES stating that the project was completed in accordance with the approved plans and specifications. If deviations were made, the permit holder shall review the requirements in Env-Wq 1503.21(c)(2).

4. Pursuant to Env-Wq 1504.18, the Permittee shall comply with wildlife protection notes that are incorporated into the project plans, and, if applicable, all recommendations by the New Hampshire Fish and Game Department related to state or federally listed threatened or endangered species that are incorporated into the project plans.

5. Groundwater Monitoring of private wells must be performed prior to, throughout the duration of, and following completion of blasting pursuant to the Groundwater Monitoring Plan prepared by Jones & Beach Engineers, Inc., dated May 2, 2023, latest revision dated June 9, 2023.

6. This project includes underground detention, and infiltration and filtering systems. **A letter signed by a qualified engineer must be provided to DES** stating that the individual observed any underground detention, infiltration, or filtering systems prior to backfilling, and whether, in his or her professional opinion, the system(s) conform to the approved plans and specifications.

Representative photographs of the system prior to being backfilled must be submitted with the letter.

7. The project is to be phased as shown on the plans. Each phase shall be stabilized pursuant to Env-Wq 1505.04 before disturbance of subsequent phases.

8. The permittee shall employ the services of an Environmental Monitor (EM) for the purposes of providing independent professional environmental inspections of the project. The permittee shall receive prior approval of the EM by the Department. The EM shall inspect the project at a minimum frequency of once per week and following rainfall events of 0.5-inch or greater in a 24-hour period. The inspections shall be for the purposes of determining compliance with the permit. The Monitor shall submit a written report, stamped by a qualified engineer or a Certified Professional in Erosion and Sediment Control to the Department within 24 hours of the inspections. The reports shall describe, at a minimum, whether the project is being constructed in accordance with the approved sequence, shall identify any deviation from the conditions of this permit and the approved plans, and identify any other noted deficiencies. Reports shall be submitted to michael.j.schlosser@des.nh.gov.

GENERAL CONDITIONS:

1. Activities shall not cause or contribute to any violations of the surface water quality standards established in Administrative Rule Env-Wq 1700.

2. You must submit revised plans for permit amendment prior to any changes in construction details or sequences. You must notify the Department in writing within ten days of a change in ownership.

3. You must notify the Department in writing prior to the start of construction and upon completion of construction. Forms can be submitted electronically at: https://www.des.nh.gov/land/land-development. Paper forms are available at that same web page.

4. **All stormwater practices shall be inspected and maintained in accordance with Env-Wq 1507.07 and the project Inspection and Maintenance (I&M) Manual.** All record keeping required by the I&M Manual shall be maintained by the identified responsible party and be made available to the department upon request. Photographs of the site and BMPs must accompany the I&M submittals.

5. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits that may be required (e.g., from US EPA, US Army Corps of Engineers, etc.). Projects disturbing over 1 acre may require a federal stormwater permit from EPA. Information regarding this permitting process can be obtained at: https://www.epa.gov/npdes/2022-construction-general-permit-cgp.

6. If applicable, no activity shall occur in wetland areas until a Wetlands Permit is obtained from the Department. Issuance of this permit does not obligate the Department to approve a Wetlands Permit for this project.

7. This project has been screened for potential impact to known occurrences of protected species and exemplary natural communities in the immediate area. Since many areas have never been

surveyed, or have not been surveyed in detail, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species. This permit does not authorize in any way the take of threatened or endangered species, as defined by RSA 212-A:2, or of any protected species or exemplary natural communities, as defined in RSA 217-A:3.

Sincerely,

Michael Schlosser, PE
Alteration of Terrain Bureau

ec: Raymond Planning Board (cmccarthy@raymondnh.gov)
Joe Coronati, Jones & Beach Engineers, Inc.
Kevin Newton, NHFG

FLORAL AVE. LLA
2023-006

Map #_______ Lot #_______

Application for Lot Line Adjustment

Town of Raymond, NH

Project Name: FAHEY LOT LINE ADJUSTMENT

Location: 14A, 14B & 14 Floral Ave Tax Map 28-1 Lots 57,58 & 59

Project Description: ADJUST THE LOT LINES BETWEEN LOTS 57, 58 & 59 FOR THE PURPOSE OF REPLACING THE SEPTIC SYSTEM FOR LOTS 57 & 58

Zone: A Total Number of Lots: 3

Applicant/Agent Information:

Name: JASON FRANKLIN

Phone: 603-483-3096 Fax:

Company: FRANKLIN ASSOCIATES, LLC

Address: 143 RAYMOND RD, UNIT , CANDIA, NH 03034

By signing this application, you are agreeing to all rules and regulations of the Town of Raymond, and are agreeing to allow agents of the Town of Raymond to conduct inspections of your property during normal business hours to ensure compliance with all Raymond Zoning and Subdivision Regulations while your application is under consideration and during any construction and operational phases after approval is granted.

Signed*: Michael Fahey Date: 8/16/23

*Requires notarized letter of permission

Owner Information:

Name: Michael Fahey

Phone: 603-793-2201 Fax:

Company: INTERPRO INVESTMENTS, LLC

Address: 105 CENTRAL ST, STONEHAM, MA, 02180

Signed: Michael Fahey Date: 8/16/23

Designers of Record: (Provide Name & License Number for each)

Engineer:

Surveyor: JAMES E. FRANKLIN, LLS #733

Soil Scientist:

Landscape Architect:

Fire Protection Engineer:

Other(s):

FEES: $75.00 Application Fee

For Office Use Only:

Date Application Received: _______ Total Fees Collected w/Application: _______

Abutters List Received: _______ Plans & Checklist Received: _______

Map # 28-1 Lot # 57, 58 & 59

Applicant Name FRANKLIN ASSOCIATES, LLC Date 8/16/2023

Lot Line Adjustment Checklist

Town of Raymond, NH

The items on this page are considered to be the minimum requirements for a lot line adjustment or technical subdivision, where no new lots are being created. The Planning Board reserves the right, however, to request additional information if, in its judgment, the data are necessary in order to make an informed decision.

SUBMITTED	WAIVED	
☑	☐	1. Name of subdivision; name and address of subdivider
☑	☐	2. Name, license number and seal of surveyor or other persons preparing the plan
☑	☐	3. Names and addresses of all abutters and all holders of conservation, preservation, or agricultural preservation easements (on the plat or on separate sheet)
☑	☐	4. North arrow, scale, and date of plan
☑	☐	5. Signature block for Planning Board endorsement
☑	☐	6. Locus plan, showing zoning designations
☑	☐	7. Boundary survey and location of permanent markers
☑	☐	8. Location of property lines, lot areas in square feet and acres; lots numbered according to Town tax map system
☑	☐	9. Location and amount of frontage on public right-of-way; names, classification of abutting streets
☐	☐	10. Location of building setback lines
☑	☐	11. Location of existing buildings and other structures
☑	☐	12. Location of existing driveways
☑	☐	13. Location and description of any existing or proposed easements or public dedication

BROWN, RICHARD
11 FLORAL AVENUE
RAYMOND, NH 03077

DENNETT, DAVID C.
JOANN D. DENNETT
12 FLORAL AVENUE
RAYMOND, NH 03077

FAHEY REVOCABLE TRUST
LINDA J. FAHEY / TRUSTEE
10 FLORAL AVENUE
RAYMOND, NH 03077

GRAY ROCKS, LLC
P.O. BOX 924
RAYMOND, NH 03077

~~INTERPRO INVESTMENTS, LLC~~
~~105 CENTRAL STREET #3100~~
~~STONEHAM, MA 02180~~

INTERPRO INVESTMENTS,LLC
105 CENTRAL STREET
STONEHAM, MA 02180

MCKINLEY, HEATHER L.
7 FLORAL AVENUE
RAYMOND, NH 03077

~~RAYMOND, TOWN OF~~
~~4 EPPING STREET~~
~~RAYMOND, NH 03077~~

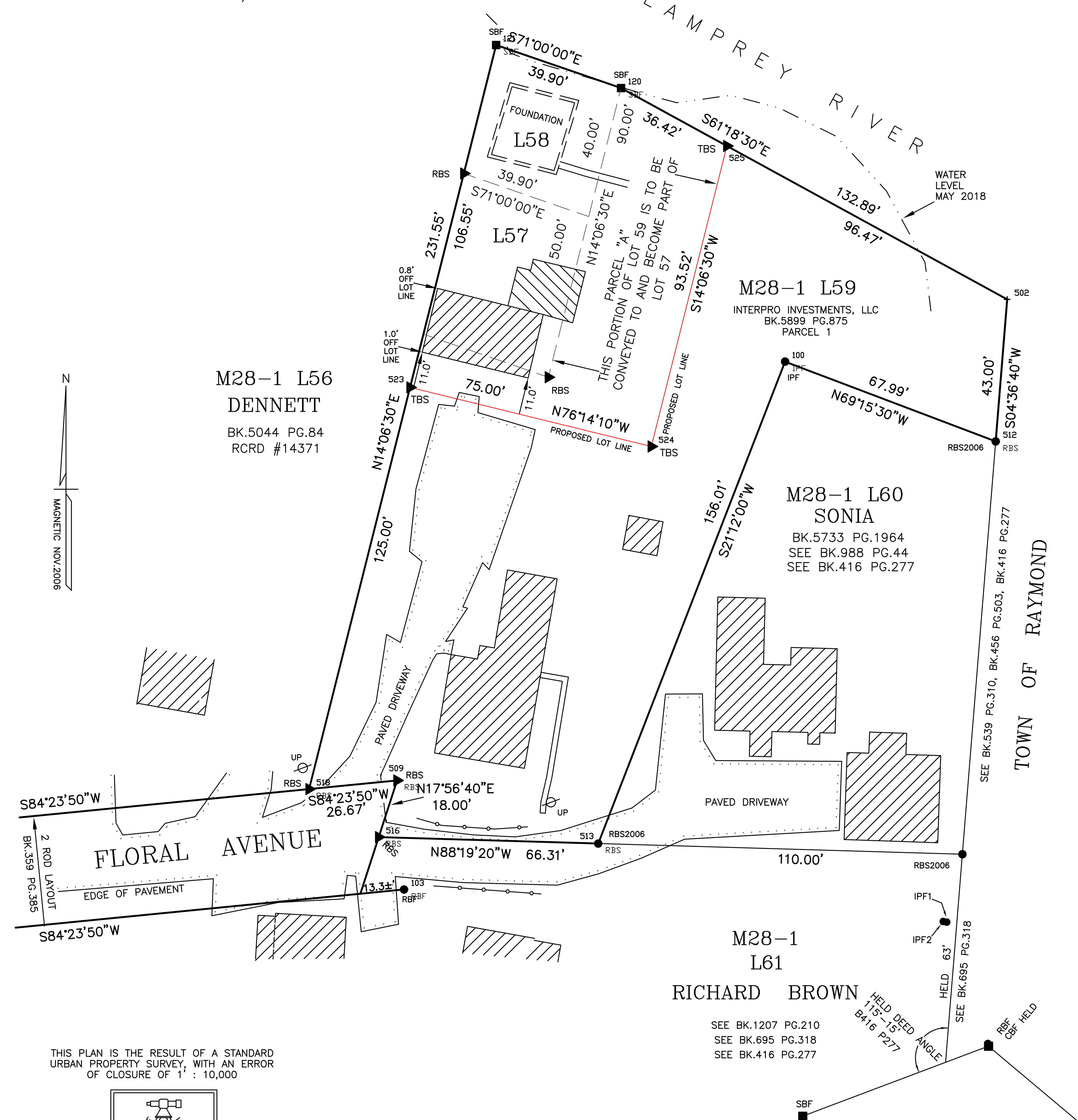
SONIA, ROBERT G.
16 FLORAL AVENUE
RAYMOND, NH 03077

SPANKS, KRISTOPHER JAMES
CHRISTIAN EICHER
9 FLORAL AVENUE
RAYMOND, NH 03077

WATERHOUSE, JONATHAN
21 GLEN RIDGE ROAD
RAYMOND, NH 03077

Jason Franklin of Franklin Asscoiates

LOT LOADING:
SOIL: 12B HINCKLEY FINE SANDY LOAM
PROPOSED LOT 57: 0.18AC x 2000/1 = 350GPD
PROPOSED LOT 59: 0.41AC x 2000/1 = 820GPD



LIST OF ABUTTERS:
PARCEL # 028-001-055 FAHEY REVOCABLE TRUST, 10 FLORAL AVENUE, RAYMOND, NH
PARCEL # 028-001-056 DAVID & JOAN DENNETT, 12 FLORAL AVENUE, RAYMOND, NH
PARCEL # 028-001-060 ROBERT SONIA, 16 FLORAL AVENUE, RAYMOND, NH
PARCEL # 028-001-061 RICHARD BROWN, 11 FLORAL AVENUE, RAYMOND, NH
PARCEL # 028-001-062 JUSTIN WALKER, 9 FLORAL AVENUE, RAYMOND, NH
PARCEL # 028-001-067 TOWN OF RAYMOND, 4 EPPING STREET, RAYMOND, NH
PARCEL # 028-003-074 HEATHER McKINLEY, 7 FLORAL AVENUE, RAYMOND, NH
OWNER OF RECORD:
PARCEL # 028-001-057, 028-001-058, 028-001-059
INTERPRO INVESTMENTS, LLC,
105 CENTRAL STREET, STONEHAM, MA 02180

THESE PROPERTIES ARE IN ZONE "A" RESIDENTIAL WITH THE FOLLOWING MINIMUM REQUIREMENTS:
LOT SIZE 40,000 S.F.; FRONTAGE 100'; FRONT SETBACK 25', SIDE AND REAR SETBACKS 10'. THESE LOTS ARE PRE-EXISTING, NON-CONFORMING LOTS OF RECORD.

PLAN REFERENCES:
1. RCRD PLAN 40886 BY JAMES E. FRANKLIN, LLC
2. RCRD PLAN 4851 BY PARKER SURVEY ASSOC., INC
3. RCRD PLAN 14371 BY RSL LAYOUT & DESIGN

TAX MAP LOCUS SKETCH

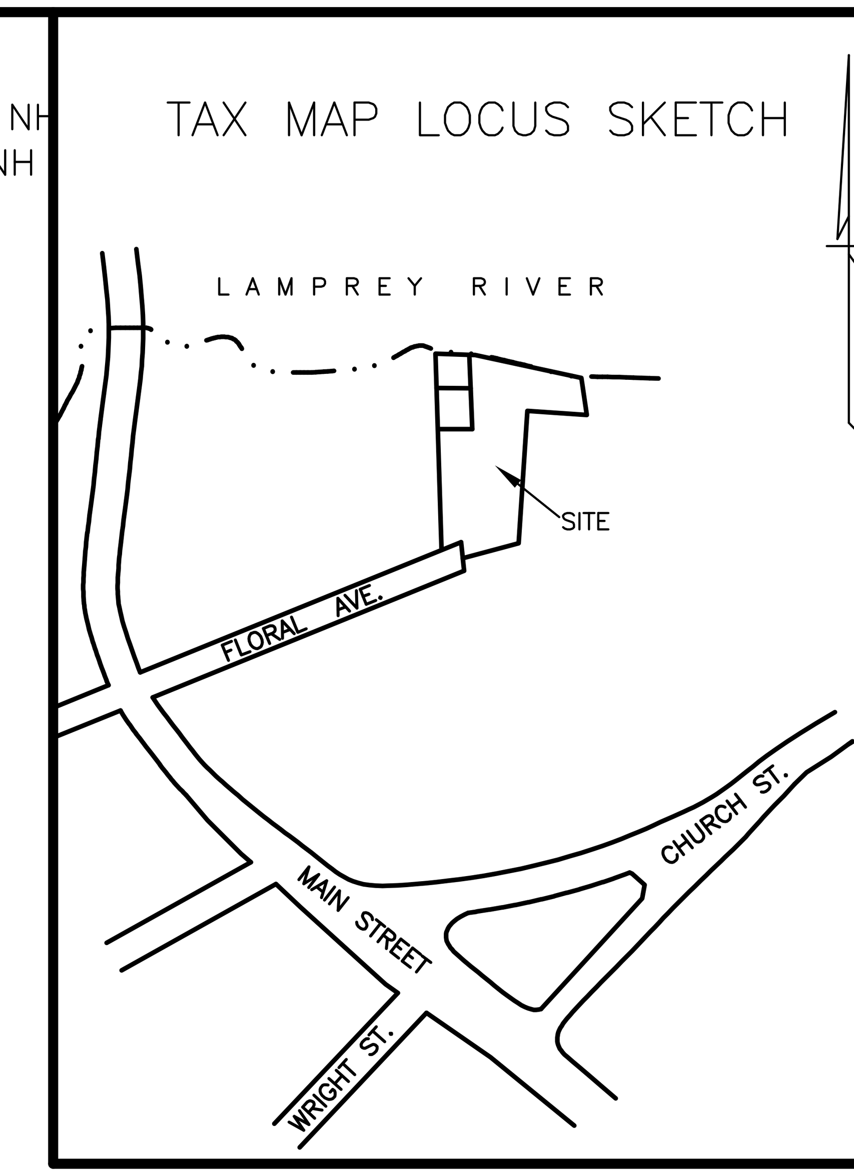


TABLE OF AREAS:
EXISTING LOT 58 IS 1,596±S.F.
LOT 58 IS TO BE CONSOLIDATED WITH LOT 57

EXISTING LOT 57 IS 1,995±S.F.
PLUS LOT 58 1,596±S.F.
PLUS PARCEL "A" 4,047±S.F. FROM LOT 59
PROPOSED LOT 57 WILL BE 7,624±S.F.

EXISTING LOT 59 IS 21,843±S.F.
PROPOSED LOT 59 WILL BE 17,796±S.F.

APPROVED BY THE TOWN OF RAYMOND PLANNING BOARD

CHAIR: ____________________
DATE: ____________________

THE PURPOSE OF THIS PLAN IS TO ADJUST THE COMMON BOUNDARY LINES, BETWEEN LOT 57 & LOT 59 AND TO CONSOLIDATE LOT 58 WITH LOT 57.

NO ADDITIONAL LOTS WILL BE CREATED BY THIS PLAN.

OWNERS OF RECORD:

MAP 28-1 LOT 57 INTERPRO INVESTMENTS, LLC
BOOK 5899 PAGE 875 PARCEL 3

MAP 28-1 LOT 58 INTERPRO INVESTMENTS, LLC
BOOK 5899 PAGE 875 PARCEL 2

MAP 28-1 LOT 59 INTERPRO INVESTMENTS, LLC
BOOK 5899 PAGE 875 PARCEL 1

SEE BK.1164 PG.321
SEE BK.416 PG.277
SEE BK.416 PG.276

— — — — — — — LOT LINE TO BE ELIMINATED
SBF ~ STONE BOUND FOUND
CBF ~ ROUND CONCRETE BOUND FOUND
RBF ~ REBAR FOUND
RRSF ~ RAIL ROAD SPIKE FOUND
IPF ~ IRON PIPE FOUND
● RBS ~ REBAR SET 12/16/06
◄ RBS ~ REBAR SET AS OF 6-8-18
◄ TBS ~ REBAR TO BE SET
M28-3 L79 ASSESSOR'S MAP AND LOT NUMBER
EXISTING BUILDINGS
BK.PG. ~ DEED BOOK AND PAGE NUMBER
RCRD # ~ ROCKINGHAM COUNTY REGISTRY OF DEEDS PLAN NUMBER

THIS PLAN IS THE RESULT OF A STANDARD URBAN PROPERTY SURVEY, WITH AN ERROR OF CLOSURE OF 1' : 10,000

STATE OF NEW HAMPSHIRE
No. 733
JAMES E. FRANKLIN
LICENSED LAND SURVEYOR
SIGNATURE

FRANKLIN ASSOCIATES, LLC
New Hampshire ~Massachusetts ~Connecticut
Land Surveyors & Septic System Designers
143 RAYMOND ROAD, CANDIA, NH 03034
Tel. (603) 483-3096
www.JEFLS.com

GRAPHIC SCALE:1"=20'
1" 0" 1" 2" 3"
TO CONVERT DISTANCES SHOWN TO METERS, MULTIPLY BY 0.3048006

PRELIMINARY CONCEPT LOT LINE ADJUSTMENT
Assessor's Map 28-1 Lots 57, 58, 59
Floral Avenue, Raymond, NH
Land Of
INTERPRO INVESTMENTS, LLC
Scale: 1"=20' ~ AUGUST 11, 2023

KCGLBJC PM?B QS@BGTGQGML
0.01+..5

SUBDIVISION APPLICATION
Town of Raymond NH

Map # 41 Lot # 47 Application Date 8-15-23 Application #________

Project Name: 3 lot subdivision

Location: Meindl Road

Project Description: ________

Zone: B New Industrial / Commercial Square Footage: ____or Number of Residential Units: 3

Applicant/Agent Information:

Name: Joseph Falzone Phone: 603-772-9400

Company: ________ Fax: ________

Address: 7B Emery Lane, Stratham, NH 03885

Signed*: ________ Date: ________

***Requires notarized letter of permission.**

By signing this application, you are agreeing to all rules and regulations of the Town of Raymond, and are agreeing to allow agents of the Town of Raymond to conduct inspections, during normal business hours to ensure compliance with all Raymond Zoning and Site Review regulations while your application is under consideration and during any construction and operational phases after approval is granted.

Owner Information:

Name: Frances & Raymond Scanlon Phone: ________

Company: ________ Fax: ________

Address: 11 John McQuinn Circle, Framingham, MA 01701

Signed: Joseph Falzone agent Date: 8/14/2023

Designers of Record:

Engineer: Beals Associates PLLc

Surveyor: Doucet Survey Inc.

Soil Scientist: Gove Environmental Services

Landscape Architect: n/a

Fees: See Attached Fee Schedule

FOR OFFICE USE ONLY

Date Application Received: ________Total Fees Collected with Application: $________ *Abutters List Received:* ________ *Check List Received:* ________

PB Hearing Date: ________ *Notice Date:* ________

PB Application Acceptance Date: ________

Letter of Authorization

We, Raymond and Frances Scanlon, owners of Tax Map 41 Lot 47 on Miendl Road in Raymond, NH, do hereby authorize the following parties to act as agents on my behalf for the above-described property in order to apply for any necessary state and local applications or permits relative to the development of said lot:

Joseph Falzone and their agents to include but not limited to:

The Gove Group Real Estate, LLC, 70 Portsmouth Ave Stratham, NH 03885

Beals Associates, 70 Portsmouth Ave Stratham, NH 03885

Doucet Survey Kent Place Newmarket, NH

Gove Environmental Continental Drive Exeter, NH

GZA Environmental Bedford, NH

as agents to act on my behalf in matters to be discussed with the Town of Raymond, State Departments and other Land Use Boards concerning the property previously mentioned.

I hereby appoint the above referenced parties as my agent to act on my behalf in the review process, to include any required signatures.

6/12/23, 1:00PM

SELLER | DATE/TIME

Raymond Scanlon

11 John McQuinn Circle

MAILING ADDRESS

Framingham	MA	01701
CITY	STATE	ZIP

6/12/23, 1:00PM

SELLER | DATE/TIME

Frances Scanlon by her attorney in fact Raymond Scanlon

MAILING ADDRESS

CITY STATE ZIP

Date: 6/12/2023

Danielle Mary Bianco

Commission Expires: February 24th, 2028

DANIELLE MARY BIANCO
Notary Public, Commonwealth of Massachusetts
My Commission Expires February 24, 2028

Subdivision Checklist

TOWN OF RAYMOND, NH

PROJECT NAME 3-LOT SUBDIVISION

MAP# 41 **LOT #** 47 **APPLICATION DATE** 8-15-23 **APPLICATION #** ____

This checklist can be used for either a major or minor subdivision. For a minor subdivision, several of the items would likely be waived by the Planning Board due to lack of relevancy (e.g., topographic or soils data) The Board, however, reserves the right to require that all items be met if, in its judgment, the data are necessary to make an informed decision.

A copy of all plans and technical reports must be sent to the Town engineer. Proof of submittal must be provided to the Community Development Department at the time of application. If proof of transmittal is not provided, the application may be delayed until the following month's Planning Board meeting. Address is: ***Dubois & King, 18 Constitution Dr., Bedford NH 03110, ATTN: Jeff Adler.***

SUBMITTED YES	SUBMITTED NO			WAIVED YES	WAIVED NO
✓		1.	Name of subdivision; name and address of subdivider.		
✓		2.	Name, license number and seal of surveyor or other persons north arrow, scale and date of plan.		
✓		3.	Names and addresses of all abutters and all holders of conservation preservation or agricultural preservation easements (on the plat or on separate sheet.)		
✓		4.	Locus plan, showing zoning designations		
✓		5.	Signature block for Planning Board endorsement.		
✓		6.	Names of abutting subdivisions, streets, driveways, easements, building lines, parks/public spaces, notation of use of abutting land, and similar facts regarding abutting properties.		
✓		7.	Boundary survey and location of permanent markers.		
✓		8.	Location of property lines, lot areas in square feet and acres; lots numbered According to Town tax map system.		
✓		9.	Location and amount of frontage on public right-of-way		
✓		10.	Location of building setback lines.		
	✓	11.	Existing and/or proposed buildings, other structures.		
	✓	12.	Location of any existing or proposed easements, land to be dedicated to public use.		
✓		13.	Existing and proposed water mains, culverts, drains, sewers; proposed connections or alternative means of providing water supply and sewage disposal.		

Subdivision Checklist

TOWN OF RAYMOND, NH

SUBMITTED YES	SUBMITTED NO			WAIVED YES	WAIVED NO
✓		14.	Existing and proposed streets, with names, classification, width of travel surface and rights-of-way.		
	✓	15.	Final road profiles, centerline stationing, cross sections.		
✓		16.	Location and width of existing and proposed driveways.		
✓		17.	Location of all surface water, wetlands, rock ledges, stone walls, open space to be preserved, and any other man-made or natural features.		
✓		18.	Existing and proposed topographic contours.		
✓		19.	Soil and wetland delineation. *(see: requirements for soils and wetlands data).*		
✓		20.	Location of perc tests, test results, outline of 4,000 area, applicable septic square-foot septic setback lines.		
✓		21.	Location of existing and proposed wells, with required radius on property.		
	✓	22.	Base flood elevations. None		
OTHER:					
	✓	23.	Plans for stormwater management and erosion control.		
		24.	Copy of state subdivision approval for septic system.		
	✓	25.	Alteration of Terrain Permit.		
		26.	Town or DOT Driveway Permit		
	✓	27.	Copies of any proposed or existing easements, deed restrictions, covenants, and street deeds.		
	✓	28.	Such additional studies as may be required.		
✓		29.	Six (6) full-size copies of all plans and ten (10) copies of all plans in 11 X 17 format, and digital copy of plans. *		
	✓	30.	Three (3) copies of all studies*		

FEES

YES	NO	
✓		1. Application Fees
✓		2. Abutters Notice Fees ***(to include three (3) labels per abutter)***
		3. Engineering and Legal Review Escrow TBD

ABUTTERS LIST
FOR
NH-1491 – Harbor Street Limited Partnership - Raymond
Tax Map # 41 Lot 47
08/14/23

SUBJECT PARCEL TAX MAP/LOT	**OWNER OF RECORD**
TAX MAP 41 LOT 47	FRANCES S. SCANLON RAYMOND SCANLON 11 JOHN MCQUINN CIRCLE FRAMINGHAM, MA 01701-3677

ABUTTERS TAX MAP/LOT	**OWNER OF RECORD**
041-000-042	BARRY & PAMELA BRADBURY 39 MOUNTAIN RD RAYMOND, NH 03077
041-000-041	DANIEL J. ST' ONGE 33 BEACH HEAD RD NOTTINGHAM, NH 03290
041-000-043	PLANTE FAMILY TRUST TRACY & GEORGE PLANTE TRSTEES 37 MOUNTAIN RD RAYMOND, NH 03077
041-000-046	FREDERICK & SHIRLEY PLANTE PO BOX 737 RAYMOND, NH 03077
041-000-048	TUCKAWAY SHORE DEVELOPMENT, LLC. 8 TUCKAWAY SHORES RD NOTTINGHAM, NH 03290
041-000-067-001	GLIDDEN FAMILY TRUST FLORENCE H GLIDDEN TRSTEE 92 NOTTINGHAM RD RAYMOND, NH 03077

041-000-067	GLIDDEN FAMILY TRUST DAVID GLIDDEN TRUSTEE 29 MOUNTAIN RD RAYMOND, NH 03077
047-000-003	SUMINSBY 2018 TRUST J. DAVID SUMINSBY TRSTEE 67 ARBOR ST WENHAM, MA 01984
047-000-001	LITTLEFIELD REVOCABLE TRUST JOHN F OR SYLVIA A TRSTEES PO BOX 1 RAYMOND, NH 03077
046-000-023	DANIEL & SUSAN SHIELDS 71 MOUNTAIN RD RAYMOND, NH 03077

DESIGN PROFESSIONALS

ENGINEERING FIRM	BEALS ASSOCIATES, PLLC CHRISTIAN O. SMITH, PE 70 PORTSMOUTH AVENUE 3RD FLOOR STRATHAM, NH 03885
APPLICANT	OFFICE ACCOUNT, LLC 7B EMERY LANE STRATHAM, NH 03885
WETLAND SCIENTIST	GOVE ENVIRONMENTAL 8 CONTINENTAL DR. UNIT H EXETER, NH 03833
SURVEYOR	DOUCET SURVEY 102 KENT PLACE NEWMARKET, NH 03857

ROCKINGHAM PLANNING COMMISSION
theRPC.org

156 Water Street | Exeter, NH 03833
603-778-0885 | www.therpc.org

Memo To: Town of Raymond Planning Board
From: Madeleine DiIonno, Regional Planner, Rockingham Planning Commission
Date: August 29, 2023
Subject: Review of Subdivision Application #2023-007, (Tax Map 41 Lot 47)

Rockingham Planning Commission has reviewed a subdivision application submitted by Joseph Falzone for property located on Meindl Road, Raymond NH (Tax Map 41 Lot 47). The proposal is to subdivide the existing 10.42-acre parcel into three lots with frontage on Meindl Road. The subject property is in Zone B (Residential).

Based upon review of the application materials submitted, I find that the application is complete and recommend the Board invoke jurisdiction before taking further action.

It is understood that Meindl Road is considered a private road in the Town of Raymond, but the Raymond portion of the road is maintained by the Town of Nottingham (see Page 2 for correspondence from Nottingham Town Administrator).

Per Article 13.1.31 of the Raymond Zoning Ordinance, frontage is defined as "The length of a lot at its front lot line which borders on a public street, or a street paved in a subdivision approved by the Planning Board." In short, to create a new lot through a subdivision in Raymond the new lot must have frontage on a public street. As such, it appears that a variance may be needed for the proposed subdivision as the existing lot and proposed lots only have frontage on a private road.

It is also recommended that a note be added to the subdivision plan stating the following:

"Prior to the issuance of any building permit on the proposed lots that a written release must recorded at the registry of deeds containing the limits of municipal responsibility and liability for Meindl Road. Such release shall be presented to the Raymond Select Board for proof of recordation. If Meindl Road becomes a public road, no release of liability shall be required."

If any members of the Board have questions, please feel free to contact me.

From: *Ellen White <TA@nottingham-nh.gov>*
Sent: *Thursday, June 29, 2023 4:11:11 PM*
To: *Christina McCarthy <cmccarthy@raymondnh.gov>*
Cc: *Plan.Zone <plan.zone@nottingham-nh.gov>*
Subject: *RE: Miendl Road*

Hi Christina,

I searched our files, checked with our past Public Works Director, and found that there is no agreement in place for Miendl Road between the towns of Nottingham and Raymond. It's probably a result of an old handshake agreement. Please let me know if you have any other questions.

Thank you,

Ellen White
Town Administrator

Town of Nottingham
P.O. Box 114
Nottingham, NH 03290
Phone (603) 679-5022

From: *Christina McCarthy <cmccarthy@raymondnh.gov>*
Sent: *Wednesday, June 28, 2023 10:40 AM*
To: *Public Works Director <smclean@nottingham-nh.gov>; Plan.Zone <plan.zone@nottingham-nh.gov>*
Subject: *Miendl Road*

Hello,
I am the Planning/Zoning admin for the Town of Raymond, I was wondering if there was a written agreement between the Town of Nottingham and the Town of Raymond for the maintenance of Miendl Road. If so, could I get a copy please?

Christina McCarthy
Tax Collector
Town of Raymond
4 Epping Street
Raymond NH 03077
603-895-7016
cmccarthy@raymondnh.gov

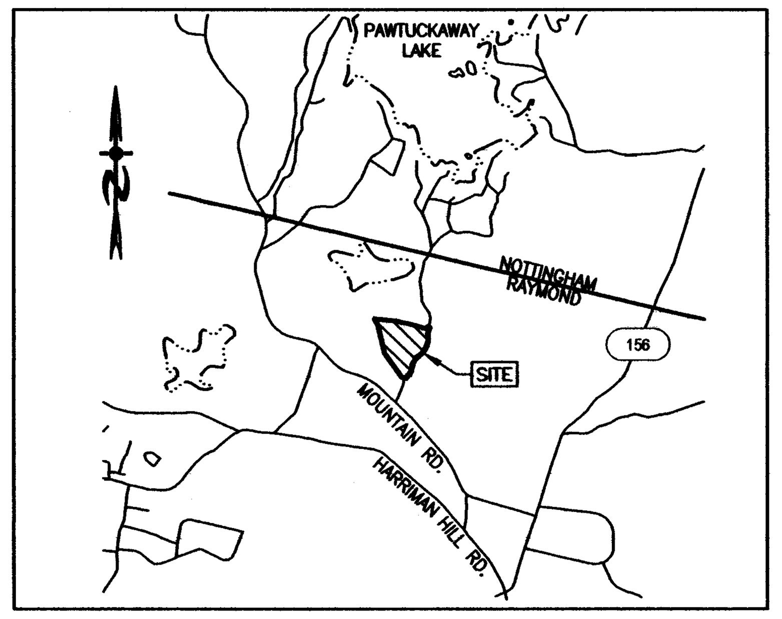
3-LOT SUBDIVISION
TAX MAP 41 LOT 47
MEINDL ROAD

RECORD OWNERS:

FRANCES & RAYMOND SCANLON
11 JOHN MCQUINN CIRCLE
FRAMINGHAM, MA 01701

APPLICANT:

JOSEPH FALZONE
7B EMERY LANE
STRATHAM, N.H. 03885



LOCATION MAP
1"=1500'

PLANNING BOARD APPROVAL BLOCK

REQUIRED PERMITS
NHDES SUBDIVISION APPROVAL NUMBER: SA 2023.....

WETLAND/SOIL CONSULTANT:

GOVE ENVIRONMENTAL SERVICES INC.
8 CONTINENTAL DRIVE,
BLDG 2 UNIT H
EXETER, NH 03833
1-603-778-0644

STATE OF NEW HAMPSHIRE BRENDEN M. WALDEN No. 297 CERTIFIED WETLAND SCIENTIST 8/16/23

CIVIL ENGINEERS:

BA BEALS ASSOCIATES, PLLC

70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

STATE OF NEW HAMPSHIRE CHRISTIAN O. SMITH No.9900 PROFESSIONAL ENGINEER

LAND SURVEYORS:

DOUCET SURVEY INC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857-0163
Voice (603) 659-6560, Data (603) 659-4118

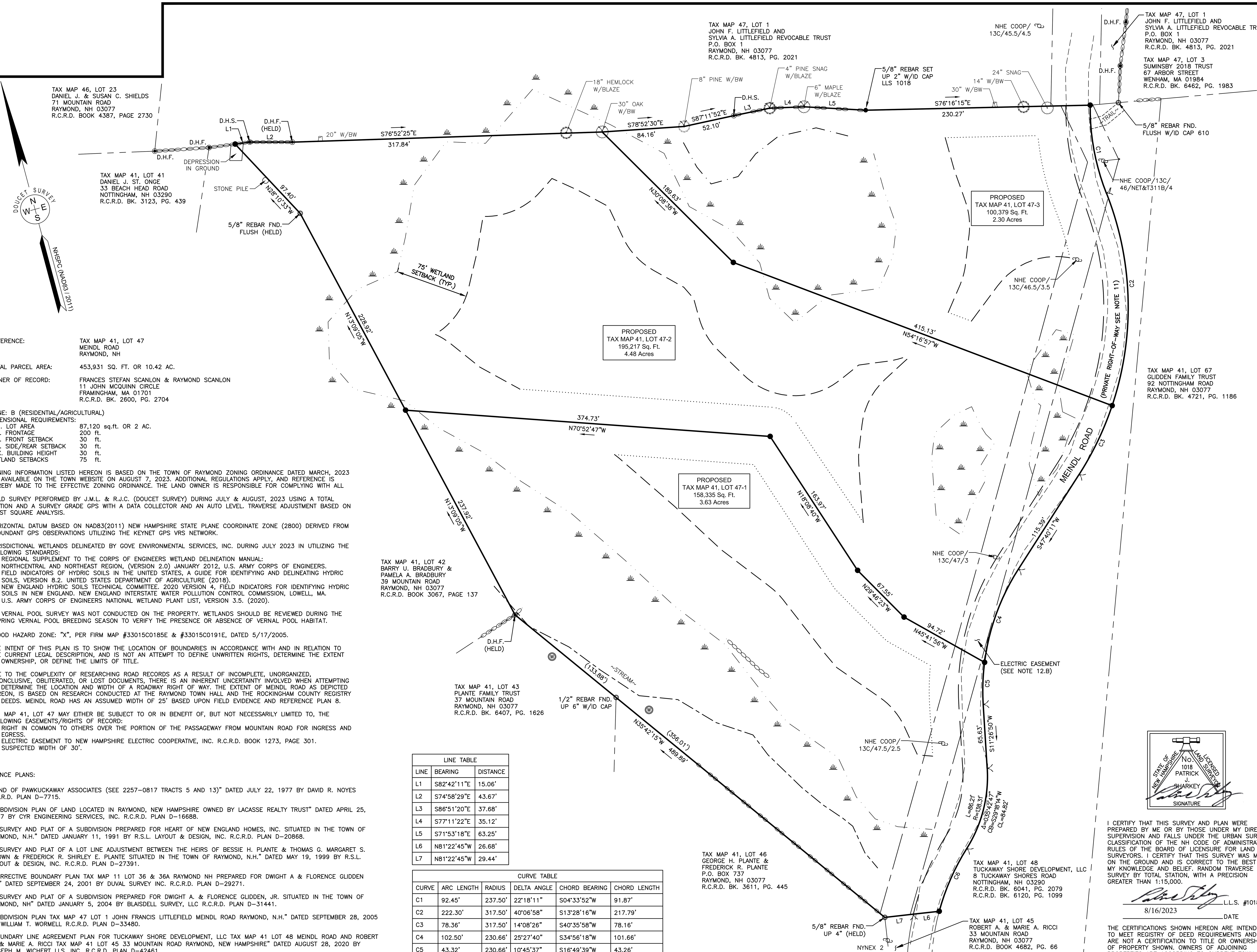
REVISIONS:	DATE:

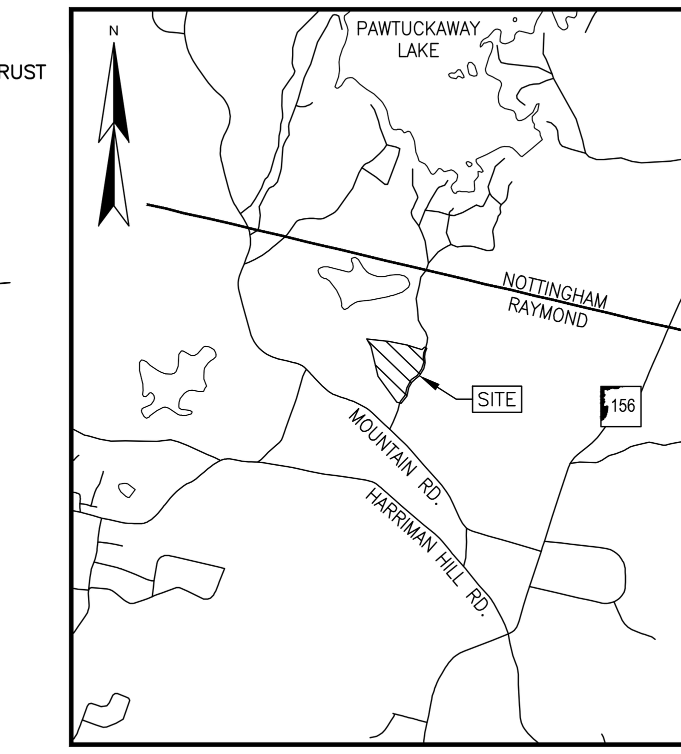
COVER SHEET

PLAN FOR:
RESIDENTIAL DEVELOPMENT
MEINDL ROAD
RAYMOND, NH

PROJ. N0:	NH-1491	DATE:	AUG 2023

NH-1491 MEINDL ROAD, RAYMOND





LOCATION MAP (n.t.s.)

LEGEND

- EXISTING LOT LINE
- PROPOSED LOT LINE
- BUILDING SETBACK LINE
- APPROXIMATE ABUTTERS LINE
- EXISTING RIGHT-OF-WAY LINE
- EXISTING EASEMENT LINE
- STONE WALL
- REMNANT STONE WALL
- EDGE OF DELINEATED WETLAND
- 75' WETLAND SETBACK
- EDGE OF WATER
- WETLAND AREA
- D.H.F. DRILL HOLE FOUND
- PIPE/ROD FOUND
- 5/8" REBAR W/ID CAP SET TO BE SET
- UTILITY POLE
- UTILITY POLE & GUY WIRE
- DUG WELL
- CONIFEROUS TREE
- DECIDUOUS TREE 10" DIA. OR GREATER
- TREE STUMP
- BW BARBED WIRE
- D.H.S. DRILL HOLE SET

NOTES:

1. REFERENCE: TAX MAP 41, LOT 47
   MEINDL ROAD
   RAYMOND, NH

2. TOTAL PARCEL AREA: 453,931 SQ. FT. OR 10.42 AC.

3. OWNER OF RECORD: FRANCES STEFAN SCANLON & RAYMOND SCANLON
   11 JOHN MCQUINN CIRCLE
   FRAMINGHAM, MA 01701
   R.C.R.D. BK. 2600, PG. 2704

4. ZONE: B (RESIDENTIAL/AGRICULTURAL)
   DIMENSIONAL REQUIREMENTS:
   MIN. LOT AREA 87,120 sq.ft. OR 2 AC.
   MIN. FRONTAGE 200 ft.
   MIN. FRONT SETBACK 30 ft.
   MIN. SIDE/REAR SETBACK 30 ft.
   MAX. BUILDING HEIGHT 30 ft.
   WETLAND SETBACKS 75 ft.

   ZONING INFORMATION LISTED HEREON IS BASED ON THE TOWN OF RAYMOND ZONING ORDINANCE DATED MARCH, 2023 AS AVAILABLE ON THE TOWN WEBSITE ON AUGUST 7, 2023. ADDITIONAL REGULATIONS APPLY, AND REFERENCE IS HEREBY MADE TO THE EFFECTIVE ZONING ORDINANCE. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL

5. FIELD SURVEY PERFORMED BY J.M.L. & R.J.C. (DOUCET SURVEY) DURING JULY & AUGUST, 2023 USING A TOTAL STATION AND A SURVEY GRADE GPS WITH A DATA COLLECTOR AND AN AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

6. HORIZONTAL DATUM BASED ON NAD83(2011) NEW HAMPSHIRE STATE PLANE COORDINATE ZONE (2800) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

7. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING JULY 2023 IN UTILIZING THE FOLLOWING STANDARDS:
   A. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
   B. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2. UNITED STATES DEPARTMENT OF AGRICULTURE (2018).
   C. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2020 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
   D. U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5. (2020).

   A VERNAL POOL SURVEY WAS NOT CONDUCTED ON THE PROPERTY. WETLANDS SHOULD BE REVIEWED DURING THE SPRING VERNAL POOL BREEDING SEASON TO VERIFY THE PRESENCE OR ABSENCE OF VERNAL POOL HABITAT.

8. FLOOD HAZARD ZONE: "X", PER FIRM MAP #33015C0185E & #33015C0191E, DATED 5/17/2005.

9. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.

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    B. ELECTRIC EASEMENT TO NEW HAMPSHIRE ELECTRIC COOPERATIVE, INC. R.C.R.D. BOOK 1273, PAGE 301. SUSPECTED WIDTH OF 30'.

REFERENCE PLANS:

1. "LAND OF PAWKUCKAWAY ASSOCIATES (SEE 2257-0817 TRACTS 5 AND 13)" DATED JULY 22, 1977 BY DAVID R. NOYES R.C.R.D. PLAN D-7715.
2. "SUBDIVISION PLAN OF LAND LOCATED IN RAYMOND, NEW HAMPSHIRE OWNED BY LACASSE REALTY TRUST" DATED APRIL 25, 1987 BY CYR ENGINEERING SERVICES, INC. R.C.R.D. PLAN D-16688.
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5. "CORRECTIVE BOUNDARY PLAN TAX MAP 11 LOT 36 & 36A RAYMOND NH PREPARED FOR DWIGHT A & FLORENCE GLIDDEN JR." DATED SEPTEMBER 24, 2001 BY DUVAL SURVEY INC. R.C.R.D. PLAN D-29271.
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9. HAND DRAWN SKETCH OF SAMUEL B. GOVE LAND DATED DECEMBER 9, 1882 IN THE POSSESSION OF SYLVIA A. LITTLEFIELD.

FILE NAME: Y:\PROJECTS\8178 C3D\DWG\8178B (SUB).dwg LAYOUT NAME: 22X34 SUB PLAN PLOTTED: Wednesday, August 16, 2023 - 11:24am

LINE TABLE

LINE	BEARING	DISTANCE
L1	S82°42'11"E	15.06'
L2	S74°58'29"E	43.67'
L3	S86°51'20"E	37.68'
L4	S77°11'22"E	35.12'
L5	S71°53'18"E	63.25'
L6	N81°22'45"W	26.68'
L7	N81°22'45"W	29.44'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	92.45'	237.50'	22°18'11"	S04°33'52"W	91.87'
C2	222.30'	317.50'	40°06'58"	S13°28'16"W	217.79'
C3	78.36'	317.50'	14°08'26"	S40°35'58"W	78.16'
C4	102.50'	230.66'	25°27'40"	S34°56'18"W	101.66'
C5	43.32'	230.66'	10°45'37"	S16°49'39"W	43.26'
C6	70.50'	237.50'	17°00'28"	S38°39'23"W	70.24'

SUBDIVISION PLAN
FOR
JOE FALZONE
LAND OF
FRANCES STEFAN SCANLON &
RAYMOND SCANLON
TAX MAP 41, LOT 47
MEINDL ROAD
RAYMOND, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 1018 PATRICK J. SHARKEY
SIGNATURE

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

L.L.S. #1018
8/16/2023 DATE

THE CERTIFICATIONS SHOWN HEREON ARE INTENDED TO MEET REGISTRY OF DEED REQUIREMENTS AND ARE NOT A CERTIFICATION TO TITLE OR OWNERSHIP OF PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.

DRAWN BY:	M.T.L.	DATE:	AUGUST 14, 2023
CHECKED BY:	P.J.S.	DRAWING NO.	8178B
JOB NO.	8178	SHEET 1 OF 1	

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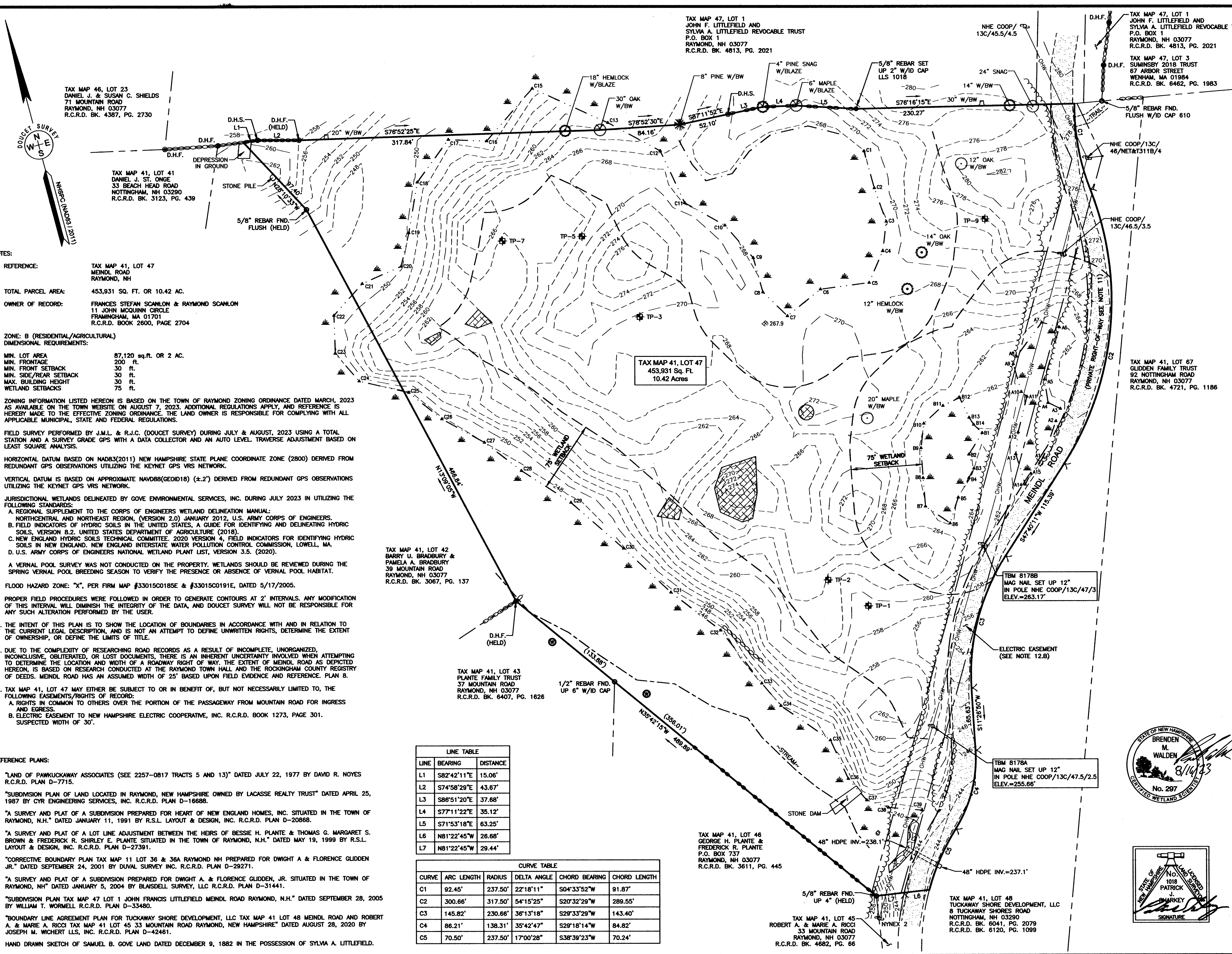

NOTES:

1. REFERENCE: TAX MAP 41, LOT 47
MEINDL ROAD
RAYMOND, NH

2. TOTAL PARCEL AREA: 453,931 SQ. FT. OR 10.42 AC.

3. OWNER OF RECORD: FRANCES STEFAN SCANLON & RAYMOND SCANLON
11 JOHN MCQUINN CIRCLE
FRAMINGHAM, MA 01701
R.C.R.D. BOOK 2600, PAGE 2704

4. ZONE: B (RESIDENTIAL/AGRICULTURAL)
DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA	87,120 sq.ft. OR 2 AC.
MIN. FRONTAGE	200 ft.
MIN. FRONT SETBACK	30 ft.
MIN. SIDE/REAR SETBACK	30 ft.
MAX. BUILDING HEIGHT	30 ft.
WETLAND SETBACKS	75 ft.

ZONING INFORMATION LISTED HEREON IS BASED ON THE TOWN OF RAYMOND ZONING ORDINANCE DATED MARCH, 2023 AS AVAILABLE ON THE TOWN WEBSITE ON AUGUST 7, 2023. ADDITIONAL REGULATIONS APPLY, AND REFERENCE IS HEREBY MADE TO THE EFFECTIVE ZONING ORDINANCE. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE AND FEDERAL REGULATIONS.

5. FIELD SURVEY PERFORMED BY J.M.L. & R.J.C. (DOUCET SURVEY) DURING JULY & AUGUST, 2023 USING A TOTAL STATION AND A SURVEY GRADE GPS WITH A DATA COLLECTOR AND AN AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

6. HORIZONTAL DATUM BASED ON NAD83(2011) NEW HAMPSHIRE STATE PLANE COORDINATE ZONE (2800) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

7. VERTICAL DATUM IS BASED ON APPROXIMATE NAVD88(GEOID18) (±.2') DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

8. JURISDICTIONAL WETLANDS DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING JULY 2023 IN UTILIZING THE FOLLOWING STANDARDS:
   A. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
   B. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2. UNITED STATES DEPARTMENT OF AGRICULTURE (2018).
   C. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2020 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
   D. U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST, VERSION 3.5. (2020).

   A VERNAL POOL SURVEY WAS NOT CONDUCTED ON THE PROPERTY. WETLANDS SHOULD BE REVIEWED DURING THE SPRING VERNAL POOL BREEDING SEASON TO VERIFY THE PRESENCE OR ABSENCE OF VERNAL POOL HABITAT.

8. FLOOD HAZARD ZONE: "X", PER FIRM MAP #33015C0185E & #33015C0191E, DATED 5/17/2005.

9. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.

10. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.

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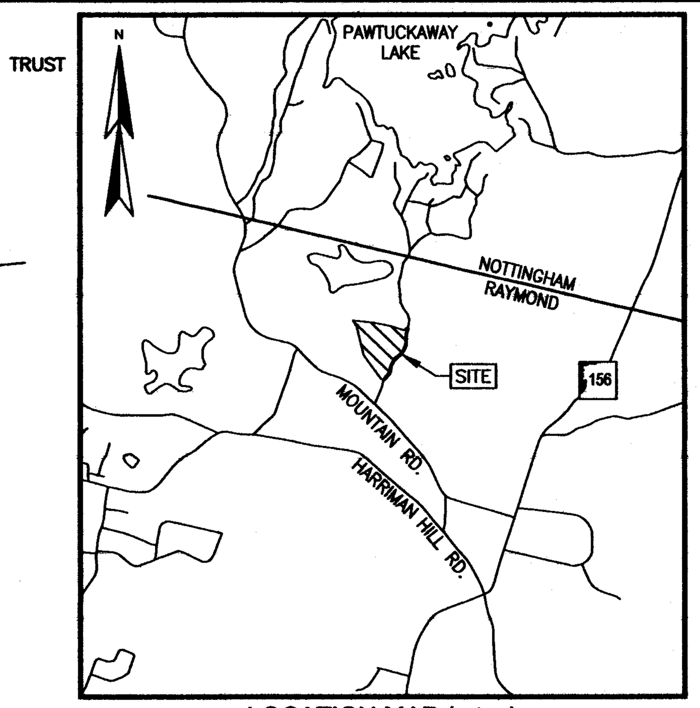

LOCATION MAP (n.t.s.)

LEGEND

- APPROXIMATE LOT LINE
- APPROXIMATE ABUTTERS LINE
- EXISTING RIGHT-OF-WAY LINE
- EXISTING EASEMENT LINE
- 100 MAJOR CONTOUR LINE
- 98 MINOR CONTOUR LINE
- STONE WALL
- REMNANT STONE WALL
- OHW OVERHEAD WIRE
- TREE LINE
- EDGE OF DELINEATED WETLAND
- 75' WETLAND SETBACK
- EDGE OF WATER
- WETLAND AREA
- A-1 WETLAND FLAG
- RIP RAP
- CRUSHED STONE
- PILE
- LEDGE OUTCROP
- ×100.0 SPOT GRADE
- DRILL HOLE
- PIPE/ROD FOUND
- 5/8" REBAR W/ID CAP SET
- UTILITY POLE
- UTILITY POLE & GUY WIRE
- SUPPLY WELL
- ROCK/BOULDER
- CONIFEROUS TREE 10" DIA. OR GREATER
- CONIFEROUS TREE LESS THAN 10" DIA.
- DECIDUOUS TREE 10" DIA. OR GREATER
- TREE STUMP
- TEST PIT LOCATION
- BW BARBED WIRE
- D.H.F. DRILL HOLE FOUND
- D.H.S. DRILL HOLE SET
- HDPE HIGH DENSITY POLYETHYLENE PIPE

50 0 50 100
SCALE: 1 INCH = 50 FT.

EXISTING CONDITIONS PLAN
FOR
JOE FALZONE
LAND OF
FRANCES STEFAN SCANLON &
RAYMOND SCANLON
TAX MAP 41, LOT 47
MEINDL ROAD
RAYMOND, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY: J.R.P.	DATE: AUGUST 8, 2023
CHECKED BY: P.J.S.	DRAWING NO. 8178A
JOB NO. 8178	SHEET 1 OF 1

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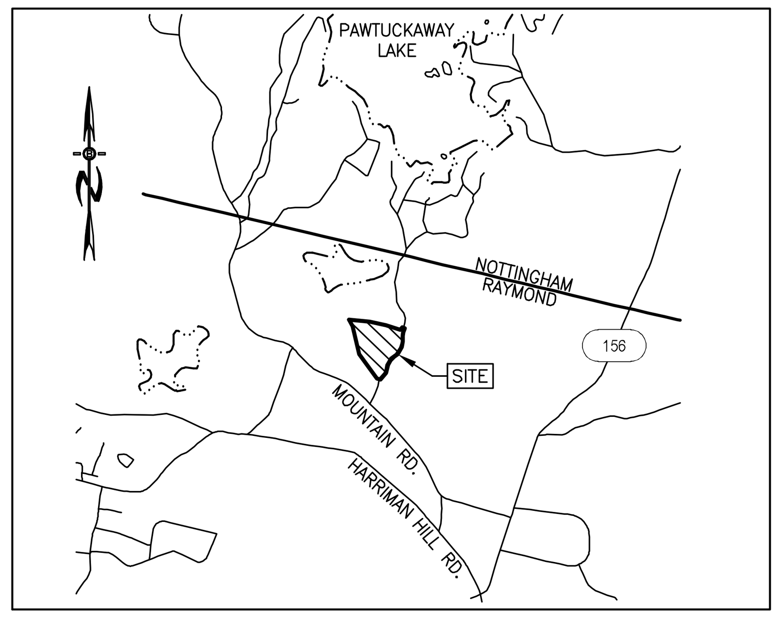
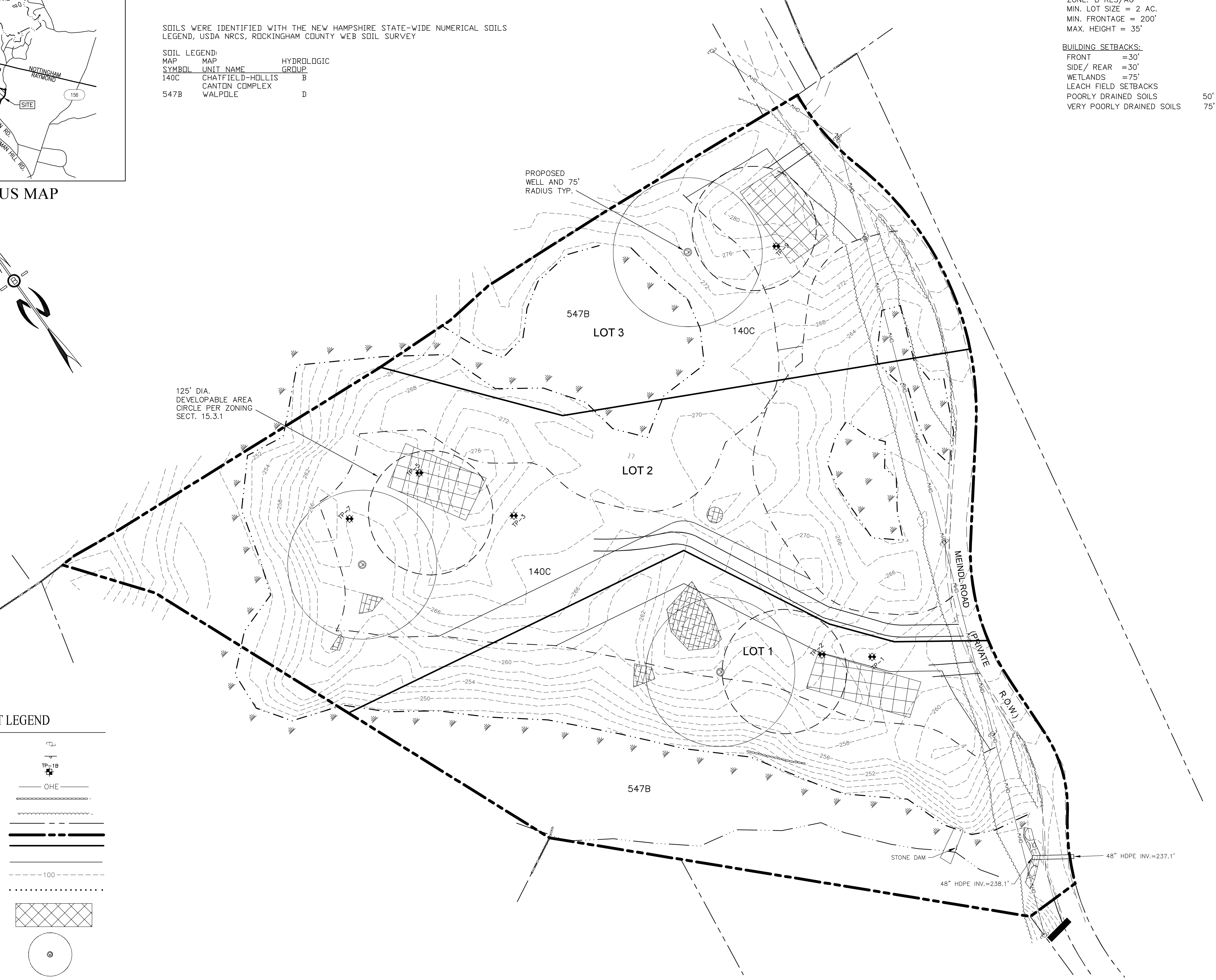


LOCUS MAP

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, ROCKINGHAM COUNTY WEB SOIL SURVEY

SOIL LEGEND:

MAP SYMBOL	MAP UNIT NAME	HYDROLOGIC GROUP
140C	CHATFIELD-HOLLIS CANTON COMPLEX	B
547B	WALPOLE	D



ZONING REQUIREMENTS

ZONE: B RES/AG
MIN. LOT SIZE = 2 AC.
MIN. FRONTAGE = 200'
MAX. HEIGHT = 35'

BUILDING SETBACKS:

FRONT	=30'
SIDE/ REAR	=30'
WETLANDS	=75'
LEACH FIELD SETBACKS	
POORLY DRAINED SOILS	50'
VERY POORLY DRAINED SOILS	75'

PREPARED FOR:

JOSEPH FALZONE
7B EMERY LANE
STRATHAM, N.H. 03885

BA BEALS ASSOCIATES, PLLC
70 PORTSMOUTH AVE, THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

NOTES

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. BEALS ASSOCIATES OR ANY OF THEIR EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN, THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES OR STRUCTURES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE

2. THIS PLAN HAS BEEN PREPARED FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.

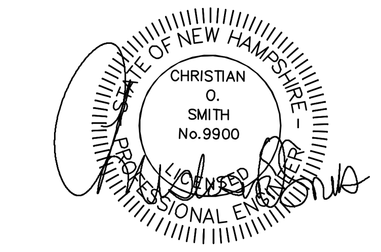
3. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.

4. ALL ROAD AND DRAINAGE WORK TO CONFORM TO TOWN STANDARD SPECIFICATIONS FOR CONSTRUCTION.

5. ALL PROPOSED SIGNS SHALL CONFORM TO THE TOWN ZONING REGULATIONS.

6. PROJECT IS BASED ON USGS DATUM NAVD 1988. GPS OBSERVATIONS

7. THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.



PLANNING BOARD APPROVAL BLOCK

PLAN SET LEGEND

UTILITY POLE
SINGLE POST SIGN
TEST PIT
OVERHEAD ELEC. LINE
STONE WALL
TREE LINE
ABUT. PROPERTY LINES
EXIST. PROPERTY LINES
PROP. PROPERTY LINES
BUILDING SETBACK LINES
EXIST. CONTOUR
SOIL LINES
4000 SF SEPTIC RESERVE AREA
PROP. WELL W/ 75' PROTECTIVE RAD.

REVISIONS:	DATE:

SUBDIVISION SITE PLAN

PLAN FOR:
RESIDENTIAL DEVELOPMENT
MEINDL ROAD
RAYMOND, NH

DATE:	AUG 2023	SCALE:	1"=50'
PROJ. N0:	NH-1491	SHT. NO.	3

Planning Board Minutes
August 24, 2023 @ 6:00 PM
Media Center Raymond High School
45 Harriman Hill Road, Raymond, NH 03077

Planning Board Members Present:
Patricia Bridgeo – Ex Officio
Jim McLeod – Vice Chairman
Bob McDonald
Gretchen Gott
Tom Daigle (Alternate)(Seated)

Planning Board Members Absent:
Dee Luszcz – Chairman (Excused)

Staff Present:
None

Pledge of Allegiance: Recited by all in attendance.

Meeting called to order:
The meeting started at approximately 6:00 pm.

Roll Call:
Gretchen Gott, Planning Board, Jim McLeod, Planning Board, Tom Daigle, Planning Board Alternate, Bob McDonald, Planning Board, Trisha Bridgeo, Board of Selectmen.

Mr. McLeod said Dee Luszcz has an excused absence and Tom Daigle would be seated for the meeting.

Work Session:

Ms. Bridgeo said that she thinks TRC needs to be extricated as a whole because she does not think that in the Planning Board Site Plan Regulations the TRC should be holding authority.

Mr. McLeod said he was going to assign Ms. Bridgeo the duty of marking off every reference to TRC. Mr. McDonald said he would do that on his computer.

Ms. Bridgeo asked if multifamily units are enough of a dialogue for conservation subdivisions.

Mr. McLeod said it is part of the authority not like an actual regulation on its own, he thinks it is supposed to be general.

Ms. Gott said she would like to go back to page 8 and the TRC membership and who is Chair. She does not know if that ever got resolved.

Ms. Bridgeo said they did not define that.

Kathy McDonald, 1 Park Place, asked that before they go to 3.01 under 29 Under Wetlands if you could remove the date and put *most recent.*

Mr. McDonald said on page 9 he had a question under Article 3.01 07 “why is this waiver the only one mentioned in this section.”

Ms. Gott said the applicant should always submit a waiver form.

Regarding section 3.03.02 Mr. McDonald said the applicant should go to the Planning Board before they go to TRC.

Ms. Gott said she fully believes that the Board should not be sending anyone to TRC until the Board has accepted the plan as complete for the purposes of review.

Mr. McDonald suggested removing Technical Review from the informal process. Until they come to the Planning Board with a complete plan which the Board can review and accept as complete and they begin the review process.

Mr. McLeod said they are going to strike where is says *and or Technical Review Committee.*

Mr. McDonald said the second part of that is the next sentence striking *or the TRC.*

Poll: Is the Board in agreement with striking these sections?

Ms. Bridgeo – Yes
Mr. McDonald – Yes
Mr. Daigle – Yes
Ms. Gott – Yes

In the next section Mr. McLeod suggested removing the words *technical aspects of the plan*.

Mr. McDonald suggested *Upon successful zoning determination then the planning staff will review the application for completeness at that point the planning staff will schedule a hearing before the Planning Board.*

Ms. Bridgeo disagreed and suggested *upon submission of an application to the planning, development department,* whatever we call ourselves*, upon submission of an application to the planning department. Once all required fees have been paid, a zoning determination is conducted to ensure conformity period.*

Mr. McLeod said It isn't because this is saying that once this step has been completed, this is the next step. Right, you have to leave it in here upon receipt of the successful zoning determination is exactly how that should be written because that is what leads us to the next part of this.

Mr. McLeod said the wording would be *prior to a public hearing*. So I think what I was thinking that is missing here, because we've changed this paragraph above it is saying that the planning board can send the applicant back to TRC. And I know that we have that listed elsewhere. But because we've taken it out of this general rule, I think we need to put it back in here in some fashion. Even if it's just to say the planning board may require the applicant to go to schedule a meeting with TRC. Just because we've taken TRC out of the discussion in this first paragraph. If we want to be able to send somebody to TRC, we need to show that so that it's in here, I want to say that the planning board may send an applicant to TRC at any time.

Mr. McDonald said my question on the next paragraph where it says the planning board may authorize the TRC to review and approve projects of minor nature. Consensus of the Board members said that should be removed form the document.

Mr. McLeod suggested instead of slamming the door, would it be more appropriate to say that the planning board may authorize the TRC to review and approve projects of a minor nature? After a vote of the planning board?

Ms. Gott said that was fine with her.

Ms. Bridgeo said I think again, you're setting yourself up for the unintended consequences you would happen, you don't see those problems of what TRC would and you've already been granted the authority, and I'm sorry, to delegate that kind of without seeing the information to me is running blind. So, I would say no.

Mr. Daigle said he would strike the whole thing because I agree with Trish, I think I think that allows us to be run a little bit blind in that area. You wouldn't the board wouldn't be able to see it.

Mr. McLeod said they are in section 3.03 E.

Ms. Bridgeo said 3.03 E. It says certified. They're not licensed again is that assumed?

Mr. McDonald was looking up the information and found on the New Hampshire Office of Professional Licensure and Certification under their board is called Board of Natural Scientists. And they have who we regulate, they regulate certified soil scientist and a certified wetland scientist.

Mr. McLeod said so we leave this the way that it's written. And we add after New Hampshire certified, so soil scientists comma … It has to be performed by them it can't be performed by somebody else. The actual work must be performed by New Hampshire certified soil scientist, right, who will then sign and seal the plan on which the soils are mapped.

Kathy McDonald said we've run into a case where the field delineation the delineation was done by x, what certified wetland scientist x. And then the actual field delineation was done by an associate.

Mr. McLeod said that would not be appropriate, based on the way that we have this written.

Mr. McLeod asked that every look at 3.03 06 Abandonment and Resubmission. The second to the last sentence, it says the applicant may be granted an extension of not more than 60 days by the board upon written application and for reasons determined to be adequate by the board. I'm asking that we strike that we have not been following that. And this is a there is there's no

RSA that limits us to 60 days. Just recently, an application which shall not be named, was given a 12-month extension by the sport. And we've been that's not the first time that we've granted extensions. They thought that this meant it wouldn't it says to me is that we're limited by 60 days, and we haven't been following it. And we shouldn't follow it. Because this is the only instance of us being limited by that.

Ms. Gott said so you're not saying that we shouldn't consider extensions, you're just taking the six months or 60 days?

Mr. McLeod said they should strike the line.

Ms. Bridgeo said I think it's six and seven. The again, we're creating a problem unbeknownst. Because the problem, I think, is that that's why I stopped on seven. The problem with this is that this has passed the pipeline. And that's my note, it says it's both sixth and seventh pass the pipeline of the planning board. These are their agreements and everything are heading onto the other side of the applications in their approval states and all of that that's where I think there's no gap closure for the board versus it's supposed to go to the building inspector. And that's where afterwards passed us for change of design improvement and abandonment are in a tight timeframe of once have gone through in Board spent all the time to get them ready to be doing their performative actions. I think 60 days is saying that, if we put performance agreements in, and the board probably still doesn't have the mylars at that point, it gave that last little bit of time to look at something.

Mr. McLeod said the way that this is written is that it doesn't limit it to just the six-month requirement of the performance agreement.

Ms. Bridgeo said I think six and seven are problems because things that should be being done not being done. That's what would trigger the reviews to make sure that they've met the conditions of approval, which they may be said that they'd have done in 60 days, and it just goes two years down the road. And then all of a sudden, it's picked up on the next one where there's applications right now being changed.

Ms. Gott said that is different than 06.

Mr. McDonald said I agree with Jim. 06 basically says Planning Board two years ago approves a plan. And they don't meet the conditions of doing anything for over 2 years. So, then they have to come before the Planning Board before that date is up to ask for an extension. And that's what Jim's bringing up about a 60-day extension, a two-year extension and that since we're struggling these days, and if they don't come before us within two years, is I read both our rules in our and the RSA instead to have to resubmit.

Ms. Bridgeo said 07 has inherent issues with the fact that the planning board may authorize changes. The problem is right now changes that are happening. We're not even being notified of so I just don't know how we make that so that we are. We should not have plans that a board approved that are different floating around. I don't think after a board has approved plans should be modified. They should be reviewed, and at least a meeting by the Planning Board to see them.

Ms. Gott said the applicant should present request for amended site plan. And then the planning board does their thing.

Mr. McDonald said I think it's already there level is already there, if you continue to read down. And I think the word should change from as you said, Jim, from May to shall, the Board. And I'm just reading on page 11. Halfway down *the Board may authorize a change only after an amended site plan or as good plans have been submitted for review the board right at a properly notice public hearing*. So, change the word may to Shall.

Mr. Daigle suggested striking the sentence that said *the minimum standards of regulations or design intent of the applicant's agent may be approved by the town engineer and code enforcement officer.*

Ms. Bridgeo suggested that the Board table the discussion about section 3.04 Fees.

Mr. McLeod said that that would be tabled until the next work session.

Motion:
Mr. McLeod made a motion to allow member Bridgeo to speak with the finance director of the Town to get the information that she needs to bring this back to the Board also to have the date of the last update of fees.
Mr. McDonald seconded the motion.

A vote was taken and the motion passed unanimously.

Section 3.08 – Mr. McLeod said he had some significant changes to this section. This blasting is outside of our excavation, our Earth excavation regulations, this this is for when a blasting is occurring, but it is not occurring within the purview of the excavation it is part of the site development. Mr. McLeod said the reason why I want to make these changes is because the responsibility for making sure that the blasting is performed properly is on the planning board. But it's the fire department that issues the actual permit. So, they don't have access to the information to be able to determine if the applicant has met all the conditions to allow them to start blasting. And so those conditions need to be set by the board. And then once everything is set, then it can go to the fire department for them to issue the permit.

Ms. Gott noted that they must inform the planning board of intent for blasting even on adjunct work on the site as adjunct work on site.

Mr. McLeod said this is 3.08 Blasting 01. Local blasting permit required under A. I want to insert *after review by the planning board for compliance with applicable regulations and conditions comma blasting permits are issued and administered*. It would read *After review by the planning board for compliance and applicable regulations and conditions blasting permits are issued and administered by the Raymond fire chief or designee blaster shall be responsible to pay local blasting permit fees, as may be revised from time to time by the Board of Selectmen.* Insert number two, this is about halfway down. It says *the planning board may increase this distance talking about the 200 feet of the blast site, the planning board may increase this distance in accordance with the recommendations it receives from a qualified professional.* And then I want to insert at the applicant's expense. The next insert would be after where it *says received from a qualified professional*. And it should be “contracted by the Planning Board at the applicant's expense”. Then the third one is in the next line down it says *the applicant shall provide a detailed record of each survey to the fire chief.* And what we want to do is say “the applicant shall provide a detailed record of each survey to the Planning Board for review and to the fire chief.”

The Board members all agreed to make Mr. McLeod’s recommended changes.

Article 4 General requirements:

Poll: Can we just stipulate that if it isn't already in the checklist, that we add a requirement that they provide the location of aquifer boundaries and wellhead protection areas?

Ms. Gott – Yes
Ms. Bridgeo – Yes
Mr. Daigle – Yes
Mr. McDonald – Yes

Mr. McDonald said I think we all should really look at the general requirements. And then our next work session, we come back on the general requirement issues and make sure that any of those things are part of the checklist. You know, such as you know, I just quickly looked at this checklist. traffic study is not the answer to that. That's why I had that general comment before at the beginning of this section. Under general requirements, because there were some important things once you drill down, and we've had applicants before is saying, well, it's not in your checklist, but it's certainly in our regulations. And that's why you, Jim, you indicated some towns have multiple pages to the checklist. Because that has happened to that particular community. There's a lot of good stuff in the general requirements. And so, I think we should all revisit it, and come back and make sure that that makes sense. That way we can move off the general requirements unless someone sees this something clearly missing in the general requirements that we need.

Mr. Daigle agreed with Mr. McDonald.

Ms. Bridgeo asked about 5.02 04 the boundary lines of the area included in the site, including distance and bearings of the lines, dimensions and the lot area for prepared and stamped by a licensed New Hampshire land surveyor. So, all of the boundaries of the site are surveyed and stamped before we accept it? That would mean then that a lot line adjustment would have to be done and recorded?

Ms. Gott said it would have to be surveyed.

Mr. McDonald said from the standpoint, if an applicant needs a lot line adjustment, then that needs to happen first before the application comes before the board. Right. That's all I think, I think the what's missing in here, and I haven't looked check for lot line adjustment in the site, plan regs. But if someone needs a lot line adjustment, to get to the point that the planning board could then look at the site plan application? Well, that's a cart before the horse, as opposed to what we spent all my time looking at a hypothetical white line adjustment, and we approve it, but yet, they don't get approved for a lot of money adjustment at the end. I so it's the So to go back to this 04 where it says boundary lines. Its boundary lines that don't require any white line adjustments. I think it's a procedural question. That in application all the lot line adjustments are done prior to the application being accepted. A lot line adjustment should not be part of an application. It hasn’t been done yet.

Ms. Gott in section 4.02 03 under Community Impact Analysis, I wanted to it outline some of the things that it requires. And I would like to specify add *water supply and wastewater impact* are things that need to be reviewed. It has a list of things that need to be reviewed.

Mr. McLeod said it storm drainage, wastewater impact, and water supply comma utilities.

Everyone agreed to add the changes Ms. Gott suggested.

Ms. Gott said 4.05 01 on page 16*, No construction shall be made until approval is granted by the Planning Board.*

Mr. McLeod said I think we're trying to define what the improvements are here. And that isn't clearing for me. For you. It's land clearing, but it's one for a while, but what is the definition of approvers? In here, before we can make any changes here, we all we have to have a consensus on that. And there isn't a consensus on what improvements are. So, if there's a definition of it somewhere that we can refer back to, then we can change the definition. So that encompasses what you think it should encompass. But the but I don't want to redefine everything that's written in here. If the way that this is written, the intent is okay, that we should move on to something else that needs to be changed.

Ms. Gott said in section 5.01 001 under that the applicant or his agent make submitted a sketch.

Ms. Bridgeo suggested removing that verbiage because they could come before as conceptual but they can't be bringing sketches.

Ms. Gott suggested removing it all together.

Mr. McLeod suggested adding to the end of this sentence, as requested by the Planning Board, that way, they're not making the decision. We're making the decision saying now you can just bring us a sketch of what you're doing so that we can visualize it better?

Mr. McDonald said what he thinks is missing in that sentence is an applicant has every right to come before the Planning Board with a conceptual and they should get rid of sketch and put conceptual plan.

Mr. McLeod said under 5.01 02 letter H they would add completed site plan review checklist.

Mr. Daigle said he would agree to that.

The Board discussed having the plans in the planning department 10 days prior to the Planning Board meeting. Mr. McLeod suggested on the initial submission, but then subsequent trips back to the board which information we still need these 10 days before that meeting. Mr.

McLeod said the way that this is written, it's clear to me. And the only problem that we have with this is that it hasn't been followed.

Ms. Bridgeo suggested making a note and look, because I there's a lot of dates times right out that how that works. Accepting the time, the clock, because that's the other part of this, right? It's the accepting clock. And that's what we really are trying to pay attention to. And what's the, in that longest amount of time, you can have an applicant have to have material enter.

Mr. McLeod said actually should be under 5.01 03. **A**. subsequent submissions to the Planning Board.

Mr. Daigle said everything on a 5.01 02 should be, we should make a determination to all that should be 10 days before your meeting, everything should be completed.

Mr. McLeod said this is saying that this has to happen before that these are the formal submission requirements. The 10 days is an exception to that all this other stuff has to be done. The 10 days is an exception to that. Saying that you don't have to have these plans when you submit it. But they have to be in 10 days before the meeting, is what the steps, this is a caveat for them. If we give that caveat to all of it, then they could submit it without anything, and then just provide it all 10 days before the meeting.

The Board decided to table the discussion and discuss at the next work session.

Section 5.03:

Ms. Gott said under E. Landscaping Plan she would like to specify that the landscaping plan includes native species is listed by NHDES.

Ms. Bridgeo said that is in the zoning and has to go before a warrant.

Section 5.05:

Ms. Bridgeo said 5.05 02 should be that the size of the system depends on whether or not it's a licensed septic designer? Or if it's an engineer, that's very different requirements.

Mr. McLeod suggested to Ms. Bridgeo to figure out how to word it and then bring it to the next one. I think that everybody's in agreement that that needs to happen.

Mr. McDonald said talking about under 5.05 Under items required, there's a list. It says permits and things? Well, instead of permit. We have application. The list is there he needs to just double check it. Mr. McDonald said he would look it over and bring it back next work session.

Mr. McLeod said they are leaving off at **5.06 Groundwater Protection**.

Motion:
Mr. McLeod made a motion to move all of the affirmatively polled items to the future public hearing date to be determined.
Mr. McDonald seconded the motion.

A vote was taken and the motion passed unanimously with a vote of 5 in favor, 0 opposed and 0 abstentions.

Board Member Updates:

Mr. McLeod said the Water Planning Committee met with the Board of Selectmen and LRAC and Therese Thompson at a meeting yesterday that brought up a couple points of concern, and to Cons Comm regarding the spraying of herbicides around our bridges. The Conservation Commission is going to be sending a letter of with some conditions that they'd like to see imposed. The other thing was bacterial counts over at Carroll Lake Beach, which is the beach by the Lamprey River Elementary School. And those numbers spiked last month. There are several theories as to why that it spiked so high, but it has not been determined. What is causing these high levels, the level for unregulated waters and in New Hampshire is just under 160 units per 100 milliliters. And we have been under that all year, until last month, and it spiked up over 2,600 or so for coliforms and over 2,500 for E coli. So, we don't know where the level is now. They are continuing to test it. This is through UNH, they get a grant from LRAC, these are not the same testing that the NHDES does at like tuckaway swimming beaches. This does not fall all under that this beach it falls under the town. And so, the Water Planning Committee is going to, well, we're waiting for some more information from the professor from UNH that did the tests, and he replied back to Therese on, on some questions that we, once we have that information, then we're gonna go to DPW, and to the health officer, bringing that information so that we can get it out to the public. That being said, if you are utilizing the Lamprey River, then I would just I would suggest caution, because we don't really know where the levels are right now. But they were shockingly high last month.

Mr. McLeod said the September 7, meeting is one we need to take a look, we need to add some dates for work sessions. November 16, and December 7, are work sessions. Those are the ones that are required by the state in order to meet the zoning obligation. One of them is like the last day to submit for the public. And the other one is the last date that we have to take them up in public or I'm not sure exactly how it works out, there is a sheet that Dee should have sent everybody that has the timeline for that. So, these two dates are going to be reserved for that. In addition to that, I have a list of dates that we want to set for work sessions to do our own zoning. And additionally, we have a lot of work to do, obviously, still. So, the first date, though, and these would all be from 6pm to 9pm. is to add a meeting for September 28.

Ms. Gott said she was unavailable because that is Deerfield Fair night.

Mr. McDonald said he was good.

Mr. Daigle said he should be available.

Ms. Bridgeo said she is not usually available on that date.

Mr. McLeod said he was available for all of the dates and Ms. Luszcz would be available for all of the dates.

There is a quorum for September 28, 2023 for a work session.

The next date on the list is Thursday, October 12, 2023. Note* all of the dates are Thursdays.

Ms. Gott and Mr. McDonald said they were available and that was enough for quorum.

The next date is October 26, 2023.

Ms. Gott and Mr. McDonald said they were available and that was enough for quorum.

November 9, 2023.

Ms. Gott and Mr. McDonald said they were available and that was enough for quorum.

November 30, 2023.

Ms. Gott said she could make it but might be late due to an appointment previously made.

Mr. McLeod said there is a voluntary meeting tentatively on September 31, 2023 at 6 pm with both the Selectmen and the Planning Board it could change to have a non-meeting. Actually, I'm not sure if it's a non-meeting or a meeting with legal but it is an opportunity to actually meet a planner that is being that has submitted an application and is being brought to the Board of Selectmen and the Planning Board to be introduced and asked questions.

The Conservation Commission last night went through some things that they want us to look at for the zoning. They're going to put that in a letter and submit it to us and then we'll schedule a joint meeting with them to go over it on one of these work sessions.

Ms. Bridgeo asked if the Board could you reach out to the zoning board and ask if they've had any applications that have the same reoccurring issues for variances.

Mr. McLeod said he would have the Chairwoman look into that and one final announcement, there is a site walk/work session for the Raymond Conservation Commission Sunday, August 2, 2023 at 10 am. Meeting at the end of Briar Road. And this is a Conservation Commission will conduct a site walk and perform property maintenance at the Cassier Memorial Forest. The public is welcome to attend. If you have any questions, comments, or would like to participate in the site work, please contact conscomchair@raymondnh.gov .

Mr. McLeod requested that the Water Planning Committee add two alternates at their discretion.

Motion:
Mr. McLeod made a motion to that the water planning committee can appoint two alternates to the committee at their discretion.
Ms. Bridgeo seconded the motion.

Discussion:

Mr. McLeod said they have the authority for 7 regular members and I should have asked for two alternates at the time because now with seven we have to have four people for a quorum. And where we have people that are wearing a lot of hats.

A roll call vote was taken.
Ms. Bridgeo – Aye
Mr. McDonald – Aye
Mr. Daigle – Aye
Ms. Gott – Aye
Mr. McLeod - Aye

The motion passed with a vote of 5 in favor, 0 opposed and 0 abstentions.

Ms. Bridgeo said there is a work session on Monday night five o'clock with the Board of Selectman with the Water Planning Committee from 5 to 7.

Motion:
Ms. Gott made a motion to move Mr. Daigle from alternate to full member.
Ms. Bridgeo seconded the motion.

Discussion:
Mr. McLeod said in consideration that the chairwoman isn't here to do the honors, I'm not in agreement with taking the vote right now, though, I am absolutely in agreement with appointing you as a full member.

A roll call vote was taken.
Ms. Bridgeo – Aye
Mr. McDonald – Aye
Ms. Gott – Aye
Mr. McLeod - Aye

The motion passed with a vote of 4 in favor, 0 opposed and 0 abstentions.

Motion:
Mr. McDonald made a motion to adjourn.
Ms. Gott seconded the motion.

A roll call vote was taken.
Ms. Bridgeo – Aye
Mr. McDonald – Aye
Mr. Daigle – Aye
Ms. Gott – Aye
Mr. McLeod - Aye

The motion passed with a vote of 5 in favor, 0 opposed and 0 abstentions.

The video of this meeting is to be preserved as part of the permanent and official record.

Respectfully submitted,

Jill A. Vadeboncoeur