

NEEDHAM PLANNING BOARD

Tuesday, August 27, 2024

7:00 p.m.

Charles River Room

Public Services Administration Building, 500 Dedham Avenue

AND

Virtual Meeting using Zoom

Meeting ID: **880 4672 5264**

(Instructions for accessing below)

To view and participate in this virtual meeting on your phone, download the “Zoom Cloud Meetings” app in any app store or at www.zoom.us. At the above date and time, click on “Join a Meeting” and enter the following Meeting ID: **880 4672 5264**

To view and participate in this virtual meeting on your computer, at the above date and time, go to www.zoom.us click “Join a Meeting” and enter the following ID: **880 4672 5264**

Or to Listen by Telephone: Dial (for higher quality, dial a number based on your current location):

US: +1 312 626 6799 or +1 646 558 8656 or +1 301 715 8592 or +1 346 248 7799 or +1 669 900 9128 or +1 253 215 8782 Then enter ID: **880 4672 5264**

Direct Link to meeting: <https://us02web.zoom.us/j/88046725264>

1. Public Hearing:

7:00 p.m. Amendment to Major Project Site Plan Special Permit No. 2011-04: Town of Needham, 1471 Highland Avenue, Needham, MA, Petitioner (Property is the location of the Center at the Heights, 300 Hillside Avenue, Needham, Massachusetts). Regarding request for the installation of a permanent emergency generator to serve the Center at the Heights as well as a reduction of 3 parking spaces.

2. Public Hearing:

7:30 p.m. Definitive Subdivision: 40 Highland Ave, LLC, 435E Dedham Street Newton, MA 02459, Petitioner, (Property located at 40 Highland Avenue and 14-16 Riverside Street, Needham, MA). Regarding request to subdivide the Premises into three building lots, two of which will be used for residential purposes, having frontage on the new road, and the third of which will continue to be used for commercial purposes.

3. ANR Plan – Majorie A. Pine, Petitioner, (Property located at 321 Cartwright Road, Needham, MA).

4. MBTA Communities (Section 3A of MGL c. 40A) Zoning Initiative

- Presentation of Traffic Study, GPI.

5. Request to extend action deadline: Major Project Site Plan Special Permit No. 2022-02: 557 Highland, LLC, an affiliate of The Bulfinch Companies, Inc., 116 Huntington Avenue, Suite 600, Boston, MA, Petitioner. (Property located at 557 Highland Avenue, Needham, Massachusetts).

6. Request to review and approve Landscaping Plan and Subdivision documents: 920 South Street Definitive Subdivision: Brian Connaughton, 920 South Street, Needham, MA, Petitioner, (Property located at 920 South Street, Needham, MA).

7. Discussion of & Vote to Adopt Code of Conduct.

8. Planning Board appointment to Downtown Redesign Working Group.
9. Planning Board appointment to Mobility Planning and Coordination Committee.
10. Minutes.
11. Report from Planning Director and Board members.
12. Correspondence.

(Items for which a specific time has not been assigned may be taken out of order.)



PLANNING & COMMUNITY
DEVELOPMENT
PLANNING DIVISION

LEGAL NOTICE
Planning Board
TOWN OF NEEDHAM
NOTICE OF HEARING

In accordance with the provisions of M.G.L., Chapter 40A, S. 11, and the Needham Zoning By-Laws, Sections 5.1.1.5, 5.1.2, 5.1.3 and 7.4 and Section 4.2 of Major Project Site Plan Review, No. 2011-04, the Needham Planning Board will hold a public hearing on Tuesday, August 27, 2024, at 7:00 PM in the Public Services Administration Building, Charles River Room, 500 Dedham Ave, Needham, Massachusetts, as well as by Zoom Web ID Number 880 4672 5264 (further instructions for accessing by zoom are below), regarding the application of the Town of Needham for an Amendment to the Special Permit under Site Plan Review, Section 7.4 of the Needham Zoning By-Law.

The subject property is the location of the Center at the Heights at 300 Hillside Avenue, Needham, Massachusetts, shown on Assessor's Map 299, Parcel 14 containing 1.64 acres in the Hillside Avenue Business Zoning District. The requested Major Project Site Plan Special Permit Amendment would, if granted, permit the installation of a permanent emergency generator to serve the Center at the Heights. Additionally, the generator placement will require the reduction of 3 parking spaces from the site.

In accordance with the Zoning By-Law, Section 5.1.1.5, a Special Permit is required to waive strict adherence with the requirements of Sections 5.1.2 and 5.1.3 of the Zoning By-Law (Off Street Parking Requirements). In accordance with the Zoning By-Law, Section 7.4, a Major Project Site Plan Review Amendment is required. In accordance with Special Permit No. 2011-04, Section 4.2, further site plan approval is required.

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Copies of the plan are available upon request in the office of the Planning Board. The application may also be viewed at this link: <https://www.needhamma.gov/Archive.aspx?AMID=146&Type=&ADID=>. Interested persons are encouraged to attend the public hearing and make their views known to the Planning Board. This legal notice is also posted on the Massachusetts Newspaper Publishers Association's (MNPA) website at (<http://masspublicnotices.org/>).

NEEDHAM PLANNING BOARD

Hometown Weekly, August 8, 2024 and August 15, 2024.

TOWN OF NEEDHAM
MASSACHUSETTS



500 Dedham Avenue
Needham, MA 02492
781-455-7550

PLANNING BOARD

APPLICATION FOR SITE PLAN REVIEW

Project Determination: (circle one) Major Project Minor Project

This application must be completed, signed, and submitted with the filing fee by the applicant or his representative in accordance with the Planning Board's Rules as adopted under its jurisdiction as a Special Permit Granting Authority. Section 7.4 of the By-Laws.

Location of Property 300 Hillside Avenue, Needham MA
Name of Applicant Town of Needham
Applicant's Address 1471 Highland Avenue, Needham MA
Phone Number (781) 455-7500

Applicant is: Owner _____ Tenant _____
Agent/Attorney X Purchaser _____

Property Owner's Name Town of Needham
Property Owner's Address 1471 Highland Avenue, Needham MA 02492
Telephone Number (781) 455-7500

Characteristics of Property: Lot Area 1.64 acres Present Use Senior Center
Map # 99 Parcel # 14 Zoning District Business

Description of Project for Site Plan Review under Section 7.4 of the Zoning By-Law:

The Town of Needham seeks an amendment of the Major Project Site Plan Special Permit No. 2011-04 to allow for installation of a permanent emergency generator to serve the Center at the Heights building.

Signature of Applicant (or representative) /s/Christopher H. Heep
Address if not applicant Christopher Heep, 40 Grove Street-Suite 190, Wellesley MA 02482
Telephone # (617) 804-2422
Owner's permission if other than applicant _____

SUMMARY OF PLANNING BOARD ACTION

Received by Planning Board _____ Date _____
Hearing Date _____ Parties of Interest Notified of Public Hearing _____
Decision Required by _____ Decision/Notices of Decision sent _____
Granted _____

Denied _____ Fee Paid _____ Fee Waived _____
Withdrawn _____

NOTE: Reports on Minor Projects must be issues within 35 days of filing date.

June 26, 2024

BY EMAIL

Planning Board
Town of Needham
Public Services Administration Building
500 Dedham Avenue
Needham, MA 02492

**Re: Request to Amend Major Project Site Plan Special Permit No. 2011-04
The Center at the Heights**

Dear Planning Board Members:

This is an application for an amendment of Major Project Site Plan Special Permit No. 2011-04 on behalf of the Town of Needham, acting through its Building Maintenance Division. This permit was originally issued on October 18, 2011, and it authorized construction and use of The Center at the Heights (“CATH”) at 300 Hillside Avenue.¹ The Applicant requests that the permit be amended to authorize placement of a permanent emergency generator on the site, and to authorize a temporary reduction of three (3) parking spaces on site to accommodate the placement of the emergency generator.

Description of Relief

When the CATH was originally permitted with the Planning Board, a generator was not included in the design or shown on the approved plans. A generator was not required at that time, in part because the CATH had not been designated by the Town for use as a shelter in the event of an emergency. That has changed; the Town’s emergency management planning now provides for the CATH to serve as a shelter in the event of an emergency (for example, as a cooling center in an extreme heatwave). To fully serve as an emergency shelter, a permanent on-site emergency generator is needed to support the building and its occupants. A temporary emergency generator has previously been placed at the property, but this temporary generator is not capable of supporting the entire electrical load for the building and an upgrade to a more permanent solution is necessary at this time. The applicant is therefore requesting that the permit be amended to reflect this new site improvement, which was not previously shown on the plans or referred to in the permit.

¹ MPSP 2011-04 has been amended by the Amendments to Decision dated February 21, 2012 (authorizing minor site modifications), September 3, 2013 (authorizing minor site modifications) and December 2, 2014 (modifying parking arrangements for Senior Center employees and volunteers).

The emergency generator is not intended to be used except (a) in event of power outage and (b) during routine maintenance, testing, and exercise of the generator consistent with the manufacturer's specifications. The applicant would expect the Planning Board to include a condition to this effect in its permit amendment, and would be willing to work with the Planning Board to prepare appropriate language for such a condition. In particular, the applicant suggests that the permit include a condition that limits maintenance and testing to an interval consistent with the manufacturer's recommendation, to be conducted on a schedule within weekday hours of 9:00 a.m. and 5:00 p.m. only.

The new emergency generator can be expected to generate noise on the intermittent occasions when its operation is necessary, but it has been strategically placed at a location recommended by the applicant's acoustic engineer to minimize any impact to residential properties and the surrounding area. The emergency generator is proposed to be located along the eastern property line, as shown on Exhibit A attached hereto. This generator location immediately abuts the MBTA commuter rail line. On the opposite side of the commuter rail line, the nearest abutting private properties are 17 Avery Square, a commercial office building, 875 Highland Avenue, a commercial automobile service station, 855 Highland Avenue, a commercial retail store, and 845 Highland Avenue, another commercial retail location. There are no residential abutters in the immediate area to the east side of the CATH property line, nearest to where the proposed emergency generator will be located. The abutting property to the north of the CATH site is 280 Hillside, which is also an office building.

There are residential properties located to the west of the CATH, across Hillside Avenue. The CATH building itself sits between the emergency generator location and the nearest residences across Hillside, and the building will provide a structural sound barrier between the generator and those residences. The proposed location was strategically selected by the applicant's acoustic consultant so that the CATH building will obstruct the path of sound travelling in the direction of the residences on the opposite side of Hillside Avenue.

To provide additional sound protection, the generator will also be constructed within a sound attenuation jacket. In order to fully ensure that the emergency generator operates within the applicable limits of MassDEP's noise policy, the applicant proposes that the Planning Board include a condition in its decision requiring the applicant to submit a sound study after installation to demonstrate compliance with the policy, and to implement appropriate mitigation measures in the event the study shows the applicable limits are exceeded.

The exact make and model of the emergency generator to be installed is not known at the present time, and will be determined during the public procurement process after the conclusion of permitting. Accordingly, the applicant proposes that it submit, as a condition of any permit amendment, specification sheets for the exact make and model to the Planning Board prior to commencement of construction.

In addition to the relief noted above, the applicant requests a temporary amendment of the permit relative to parking. As previously permitted, the project involves 65 on-site parking spaces for the CATH, plus an additional 85 parking spaces used by the MBTA for its Needham Heights commuter rail station. In the original permit issued on October 18, 2011, the Planning Board noted that the recommended number of on-site parking spaces for the CATH was 108, and it granted a special permit pursuant to Section 5.1.1.6 of the Zoning By-Law to waive strict adherence to the requirements of Section 5.1.2 (number of parking spaces) to authorize a waiver of 43 parking spaces (from 108 to 65). The applicant respectfully requests that this special permit be amended to allow for a temporary reduction of 3 additional spaces, from 65 to 62.

Although the proposed emergency generator will result in the loss of 3 parking spaces on site, this situation is expected to be temporary: The Town is presently working with the MBTA, which holds an easement allowing operation of the Needham Heights MBTA Parking Lot, to lease back 12 parking spaces (10 regular parking spaces and 2 accessible parking spaces) for use in connection with the CATH. Therefore, while it is possible depending on construction timing that the emergency generator may temporarily result in a reduction of 3 parking spaces, the applicant expects to be able to report back to the Planning Board in short order that 12 additional spaces have been added to the available CATH parking total, for an increase to the available spaces overall.

Based on the foregoing, the applicant respectfully requests that the Planning Board amend MPSP 2011-04 to authorize placement of a permanent emergency generator at the eastern property line, and to modify the special permit previously granted pursuant to Section 5.1.1.6 of the Zoning By-Law to waive strict adherence to the requirements of Section 5.1.2 (number of parking spaces) by temporarily reducing the number of on-site parking spaces by three (3) spaces, from 65 to 62.

Pursuant to Section 7.4.4, the Applicant requests that the Planning Board waive the submission of any of the required information that is not submitted herewith. The Applicant also requests a waiver of the Planning Board's application fee on the ground that this is a Town project.

In addition, pursuant to Section 7.4.4 the Applicant hereby certifies that the project can be constructed and the proposed use commenced without the need for the issuance of any variance from any provision of the By-Law by the Zoning Board of Appeals.

Thank you very much for your consideration of this application. I look forward to discussing it with the Planning Board, and if there is any additional information I can provide in advance of the hearing please let me know.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chris H. Heep", with a stylized flourish at the end.

Christopher H. Heep

cc: K. Fitzpatrick
B. Dulong

EXHIBIT A



Needham Council
On Aging

New Generator

existing temporary
generator

Layers

323

10 m

August 21, 2024

BY EMAIL

Planning Board
Town of Needham
Public Services Administration Building
500 Dedham Avenue
Needham, MA 02492

**Re: Request to Amend Major Project Site Plan Special Permit No. 2011-04
The Center at the Heights—Emergency Generator**

Dear Planning Board Members:

Enclosed for filing in connection with the requested amendment of Major Project Site Plan Special Permit No. 2011-04 is the noise compliance study prepared by Lawrence G. Copley, PE. At the applicant's request, Mr. Copley reviewed the ambient sound levels at the CATH and its surrounding area, the location of the proposed emergency generator, and the sound levels expected from that generator, and has concluded that the emergency generator will comply with the MassDEP Noise Policy. Mr. Copley's analysis and conclusion are included in the attached report.

Thank you very much for your consideration of this application. I look forward to discussing it with the Planning Board, and if there is any additional information I can provide in advance of the hearing please let me know.

Sincerely,



Christopher H. Heep

Encl.

cc: B. Dulong

L.G. COPLEY ASSOCIATES Acoustics & Vibration

53 BARRETT ST. • P.O. BOX 920479 • NEEDHAM, MASSACHUSETTS 02492

(781) 455-8814

LGCopley@Verizon.net

19 August 2024

To:	Town of Needham Building Maintenance Division
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Attention: Barry Dulong,
Director

From:	Lawrence G. Copley
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Subject:	CATH Emergency Standby Generator Replacement – Noise Compliance
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The purpose of this report is to demonstrate that the replacement emergency standby generator proposed for CATH will comply with the Mass. DEP Noise Policy. This unit will replace the existing trailer mounted generator. In consultation with the design team, the proposed generator location has been moved to the north so that the CATH building will provide more shielding from the residences along the west side of Hillside Avenue.

Figure 1, attached is a site plan showing the proposed revised generator location “G”, behind the CATH building and next to the railroad. Figure 2 is an aerial showing the proposed generator location “G”, and the nearby residences along Hillside Avenue (R1, R2, etc.). These locations are also shown in Fig. 1.

The Mass. DEP Noise Policy requires that the sound level at residences with the generator running shall be no more than 10 dBA higher than the background ambient sound level (LA90) at times when the generator will run.

Ambient Sound Monitoring

The residences closest to the proposed generator are along the west side of Hillside Avenue – see the attached aerial (Fig. 2). All other nearby buildings have commercial occupancy – marked “C” in the aerial.

The attached aerial shows the microphone locations used for the ambient sound survey – A1 and A2. These locations relate to the adjacent residences. Location A1 has an unobstructed view of the Highland Avenue corridor. A2 is shielded by the CATH building. We conducted sound monitoring at A2 because it was thought that the ambient sound levels here might be lower, being shielded from the Highland Avenue corridor.

We monitored ambient sound levels on two different nights during the period 1-2 am. Based on prior 24-hour monitoring in Needham by ourselves and others, this is in the time window when it is generally quietest. At each location we monitored for 20 minutes. The nights were selected to have little or no wind. The LA90 values were as follows:

	R1	R2
Sunday 5/14/23	36.0 dBA (L90)	36.3 dBA (L90)
Tuesday 5/24/23	36.2 dBA (L90)	35.3 dBA (L90)

The night-time ambient sound levels at Location A2 turned out to be essentially the same as those at A1. Therefore we conclude that the applicable night-time background ambient sound level for all of the residences is 36 dBA(L90). The maximum allowable generator sound level at the residences is thus 46 dBA.

Generator Sound Levels

The Electrical Specifications, Section 260020-2.09 Standby Electrical System call for a diesel generator rated at 200kW/250kVA. Sub-section Z requires a sound attenuated enclosure such that the generator sound level will not exceed 75 dBA at a distance of 7 meters in any direction.

The specific model of generator will not be known until the project is bid. However, a typical generator that meets the specifications is the Caterpillar C7-1 installed in a Level 2 sound attenuated enclosure. The attached data sheets from Caterpillar show a sound level of 75 dBA at 7m (23 ft.).

We have analyzed sound transmission from the generator to the residential locations marked as R1, R2, etc. in Figures 1 and 2. The calculations take account of the source-receiver distance, shielding by the CATH building, and sound reflections from the commercial building just north of the CATH site (280 Hillside Ave.).

The results of these calculations are as shown below.

Receptor	Generator Sound Level
R1	45 dBA
R2	39 dBA
R3	39 dBA
R4	44 dBA
R5	44 dBA
R6	41 dBA

In all cases the generator sound level will be less than 46 dBA, and therefore comply with the MassDEP Noise Policy.

* * *

We appreciate this opportunity to assist the Town of Needham.

Lawrence G. Copley, PE
Member Institute of Noise Control Engineering

Attached:

Figure 1 – Site Plan

Figure 2 – Aerial View

Caterpillar Diesel Generator Model C7-1

Caterpillar Diesel Generator Sound Levels with Enclosure

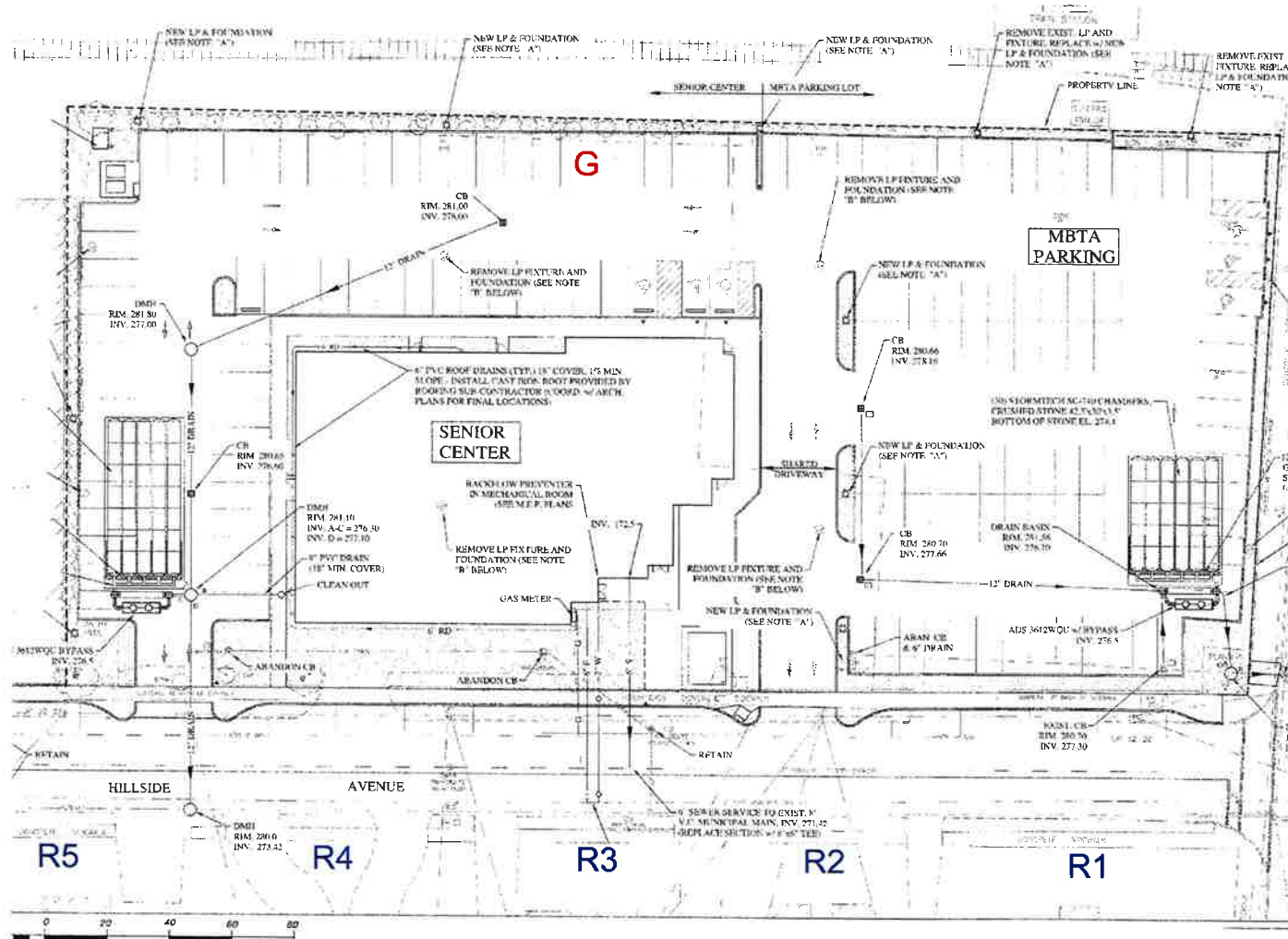


Figure 1 - Site Plan Showing Proposed Generator Location G, and Residential Receptors R1, R2, etc.

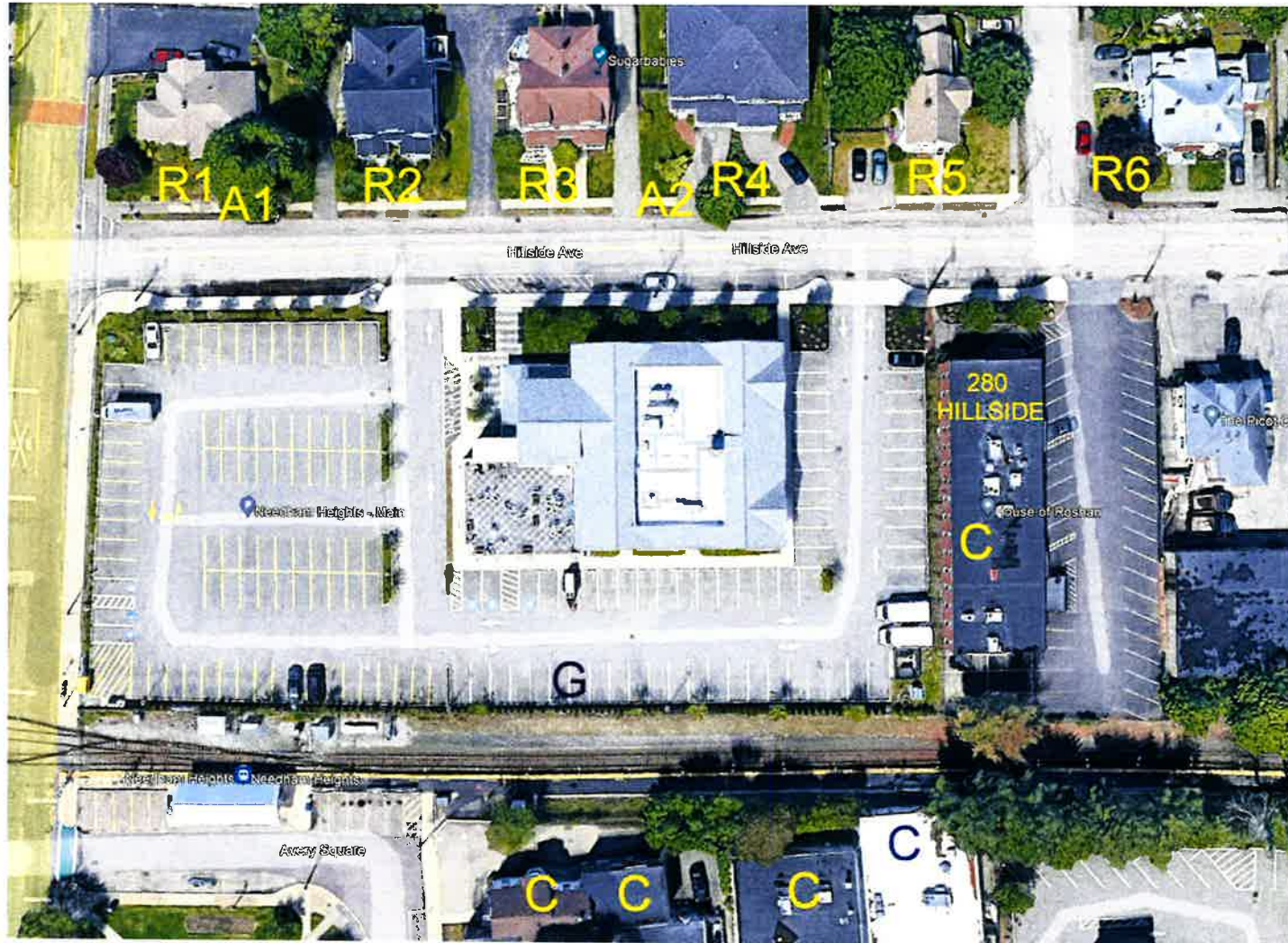


Figure 2 – Aerial View Showing Proposed Generator Location and Ambient Sound Monitoring Locations A1, A2.

Standby & Prime: 60Hz



Image shown might not reflect actual configuration

Engine Model	Cat® C7.1 ACERT In-line 6, 4-cycle diesel
Bore x Stroke	105mm x 127mm (4.1in x 5.0 in)
Displacement	7.01 L (428 in³)
Compression Ratio	16.7:1
Aspiration	Turbocharged Air-to-Air-Aftercooled
Fuel Injection System	Electronic, Common Rail
Governor	Electronic ADEM™ A4

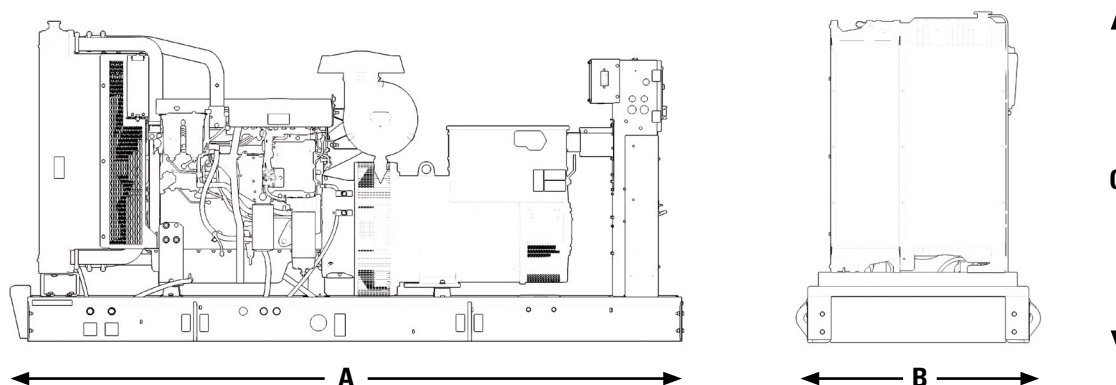
Model	Standby	Emission Strategy
C7.1	250 kVA, 200 ekW	US EPA TIER III

PACKAGE PERFORMANCE

Performance	Standby
Frequency	60 Hz
Genset Power Rating	250 kVA
Genset power rating with fan @ 0.8 power factor	200 ekW
Fuel Consumption	
100% load with fan, L/hr (gal/hr)	56.4 (14.4)
75% load with fan, L/hr (gal/hr)	44.3 (11.7)
50% load with fan, L/hr (gal/hr)	31.6 (8.3)
25% load with fan, L/hr (gal/hr)	13.8 (3.7)
Cooling System¹	
Radiator air flow restriction (system), kPa (in. Water)	0.12 (0.48)
Engine coolant capacity, L (gal)	9.5 (2.5)
Radiator coolant capacity, L (gal)	11.5 (3.0)
Inlet Air	
Combustion air inlet flow rate, m³/min (cfm)	15.8 (558)
Max. Allowable Combustion Air Inlet Temp, °C (°F)	51 (124)
Exhaust System	
Exhaust stack gas temperature, °C (°F)	533 (991)
Exhaust gas flow rate, m³/min (cfm)	38.3 (1353)
Exhaust system backpressure (maximum allowable) kPa (in. water)	15.0 (60.2)
Heat Rejection	
Heat rejection to jacket water, kW (Btu/min)	91.8 (5221)
Heat rejection to exhaust (total) kW (Btu/min)	183.0 (10407)
Heat rejection to aftercooler, kW (Btu/min)	45.0 (2559)
Heat rejection to atmosphere from engine, kW (Btu/min)	35.3 (2019)

Emissions (Nominal) ²		Standby			
NO _x + HC, mg/Nm ³ (g/hp-hr)		2196.0 (3.73)			
CO, mg/Nm ³ (g/hp-hr)		771.24 (1.31)			
PM, mg/Nm ³ (g/hp-hr)		105.8 (0.18)			
Alternator ³		Standby			
Voltages		480V	208V	600V	240V
Motor Starting Capability @ 30% Voltage Dip		454 skVA	641 skVA	516 skVA	641 skVA
Current		300 amps	693 amps	240 amps	601.4 amps
Frame Size		LC5014F	LC5024J	LC5024F	LC5024J
Excitation		SE	AR	AR	AR
Temperature Rise °C (°F)		130 (234)	105 (221)	105 (221)	105 (221)

WEIGHTS & DIMENSIONS



Note: General configuration not to be used for installation. See general dimension drawings for detail.

Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
3039 (120)	1110 (44)	1476 (58)	1500 (3307)

APPLICABLE CODES AND STANDARDS:

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

PRIME: Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated kW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates: Fuel Consumption reported in accordance with ISO3046-1.

Additional ratings may be available for specific customer requirements, contact your Cat representative for details.

LET'S DO THE WORK.™

DEFINITIONS AND CONDITIONS

¹ For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NO_x. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

³ UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

FUEL RATES: Fuel consumption reported in accordance with ISO3046-1.



Picture shown may not reflect actual configuration

Weather Protective and Sound Attenuated Enclosures

D40 to D60

D80 to D100

D125 to D200

Features

Highly Corrosion Resistant construction

- Stainless steel flush fitting latches and hinges tested and proven to withstand extreme conditions of corrosion
- Zinc plated or stainless steel fastener

Excellent Access

- Single side access for service and controls
- All non-service sides have removable doors and/or panels
- Radiator fill access
- Lube oil and coolant drains piped to the exterior of the enclosure base
- Large cable entry area for installation ease
- Double doors on both sides
- Vertically hinged doors with solid bar door stays to hold doors in place when open

Security and Safety

- Lockable access doors which give full access to control panel and breaker
- Cooling fan and battery charging alternator fully guarded
- Fuel fill, oil fill, and battery can only be reached via lockable access
- Stub-up area is rodent proof

Transportability

- These enclosures are of extremely rugged construction to withstand outdoor exposure and rough handling common on many construction sites. The sound deadening material is of a self-extinguishing design
- This range of enclosures are designed on modular principles with many interchangeable components permitting on site repair

Options

- Weather Protective - constructed with 16 gauge steel; industrial silencer mounted within the main enclosure body
- Sound Attenuated Level 1 - constructed with 16 gauge steel; weather protective with critical silencer - silencer mounted in separate upward discharging radiator hood
- Sound Attenuated Level 2 - constructed with 16 gauge steel; weather protective with critical silencer and 100% lined with sound deadening material – silencer mounted in separate upward discharging radiator hood
- Sound Attenuated Aluminum constructed with 14 gauge Aluminum 5052 grade. Weather protective with critical silencer and 100% lined with sound deadening material – silencer mounted in separate upward discharging radiator hood
- Caterpillar Yellow* or white paint
- UL Listed sub base tanks
- Externally mounted emergency stop button
- Seismic certification per applicable building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010
- IBC certification for 180 mph wind loading

*Not available with Aluminium enclosures

Enclosure Sound Pressure Levels (SPL) at 100%

Weather Protective Enclosure		Cooling Air Flow Rate		SPL @7m (23ft)
Model	Standby eKW	m³/s	cfm	dBA
D40 (2/4)	40	1.7	3602	85
D50 (2/4)	50	1.7	3602	86
D60 (2/4)	60	1.9	4026	88
D80-8	80	3.2	6696	79
D100-8	100	3.6	7564	81
D125-8	125	4.6	9676	78
D150-10	150	4.6	9676	79
D175-4	175	5.9	12431	84
D200-2	200	5.9	12431	89

SA Level 1 Enclosure		Cooling Air Flow Rate		SPL @7m (23ft)
Model	Standby eKW	m³/s	cfm	dBA
D40 (2/4)	40	1.7	3602	66
D50 (2/4)	50	1.7	3602	66
D60 (2/4)	60	1.8	3899	71
D80-8	80	3.2	6696	78
D100-8	100	3.2	6696	79
D125-8	125	4.2	8899	74
D150-10	150	4.2	8899	74
D175-4	175	5.6	11830	78
D200-2	200	5.5	11654	81

SA Level 2 Enclosure		Cooling Air Flow Rate		SPL @7m (23ft)
Model	Standby eKW	m³/s	cfm	dBA
D80-8	80	3.2	6696	75
D100-8	100	3.2	6696	76
D125-8	125	4.2	8899	74
D150-10	150	4.2	8899	74
D175-4	175	5.2	11018	74
D200-2	200	5.1	10806	75

Alexandra Clee

From: Tom Conroy
Sent: Friday, August 2, 2024 9:19 AM
To: Alexandra Clee
Cc: Donald Anastasi; Jay Steeves; Ronnie Gavel
Subject: RE: Request for comment - Amendment to CATH permit - adding generator

No issue with the Fire Dept.
Thanks.



Thomas M. Conroy

Fire Chief - Needham Fire Department
tconroy@needhamma.gov
Ph (781) 455-7580

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Thursday, August 1, 2024 4:48 PM
To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcDonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>
Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>
Subject: Request for comment - Amendment to CATH permit - adding generator

Dear all, << File: Application - Center at the Heights - June 2024 (Revised).pdf >>

We have received the attached application materials for the proposal by the Petitioner to allow the addition of a permanent emergency generator at the CATH. More information can be found in the attachments.

The Planning Board has scheduled this matter for August 27, 2024. Please send your comments **by Wednesday August 21, 2024**, at the latest.

The documents attached for your review are as follows:

1. Application for Amendment to Major Project Special Permit No. 2011-04.
2. Letter from Attorney Chris Heep, dated June 26, 2024, with Exhibit A.

Thank you, alex.

Alexandra Clee

Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning

Alexandra Clee

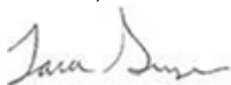
From: Tara Gurge
Sent: Monday, August 12, 2024 1:15 PM
To: Alexandra Clee
Cc: Timothy McDonald
Subject: FW: Request for comment - Amendment to CATH permit - adding generator

Alex –

The Public Health Division conducted the review for the proposed project amendment to the Center at the Heights (CATH) permit, located at 300 Hillside Avenue, for the proposal to add a generator and we have no additional comments to share at this time.

Please let me know if you need any additional information from us on that.

Thanks,



TARA E. GURGE, R.S., C.E.H.T., M.S. (she/her/hers)
ASSISTANT PUBLIC HEALTH DIRECTOR
Needham Public Health Division
Health and Human Services Department
178 Rosemary Street
Needham, MA 02494
Ph- (781) 455-7940; Ext. 211/Fax- (781) 455-7922
Mobile- (781) 883-0127
Email - tgurge@needhamma.gov
Web- www.needhamma.gov/health



please consider the environment before printing this email

STATEMENT OF CONFIDENTIALITY

This e-mail, including any attached files, may contain confidential and privileged information for the sole use of the intended recipient(s). Any review, use, distribution or disclosure by others is strictly prohibited. If you are not the intended recipient (or authorized to receive information for the recipient), please contact the sender by reply e-mail and delete all copies of this message. Thank you.



[Follow Needham Public Health on Twitter!](#)

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Thursday, August 1, 2024 4:48 PM
To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler

<JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcDonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>
Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>
Subject: Request for comment - Amendment to CATH permit - adding generator



Application -
Center at the He...

Dear all,

We have received the attached application materials for the proposal by the Petitioner to allow the addition of a permanent emergency generator at the CATH. More information can be found in the attachments.

The Planning Board has scheduled this matter for August 27, 2024. Please send your comments **by Wednesday August 21, 2024**, at the latest.

The documents attached for your review are as follows:

1. Application for Amendment to Major Project Special Permit No. 2011-04.
2. Letter from Attorney Chris Heep, dated June 26, 2024, with Exhibit A.

Thank you, alex.

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning

Alexandra Clee

From: Joseph Prondak
Sent: Friday, August 2, 2024 8:20 AM
To: Alexandra Clee
Subject: RE: Request for comment - Amendment to CATH permit - adding generator

Hi Alex,

The Building Department has no concerns with this proposal.

Sincerely,

Joe Prondak
Needham Building Commissioner
781-455-7550 x308

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Thursday, August 1, 2024 4:48 PM
To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcDonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>
Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>
Subject: Request for comment - Amendment to CATH permit - adding generator

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We have received the attached application materials for the proposal by the Petitioner to allow the addition of a permanent emergency generator at the CATH. More information can be found in the attachments.

The Planning Board has scheduled this matter for August 27, 2024. Please send your comments **by Wednesday August 21, 2024**, at the latest.

The documents attached for your review are as follows:

1. Application for Amendment to Major Project Special Permit No. 2011-04.
2. Letter from Attorney Chris Heep, dated June 26, 2024, with Exhibit A.

Thank you, alex.

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning

Alexandra Clee

From: John Schlittler
Sent: Friday, August 2, 2024 8:38 AM
To: Alexandra Clee
Subject: RE: Request for comment - Amendment to CATH permit - adding generator

Police has no issues

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Thursday, August 1, 2024 4:48 PM
To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcDonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>
Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>
Subject: Request for comment - Amendment to CATH permit - adding generator

Dear all, << File: Application - Center at the Heights - June 2024 (Revised).pdf >>

We have received the attached application materials for the proposal by the Petitioner to allow the addition of a permanent emergency generator at the CATH. More information can be found in the attachments.

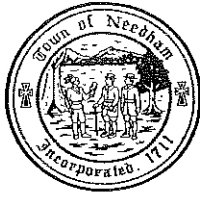
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The documents attached for your review are as follows:

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2. Letter from Attorney Chris Heep, dated June 26, 2024, with Exhibit A.

Thank you, alex.

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning



**TOWN OF NEEDHAM, MASSACHUSETTS
PUBLIC WORKS DEPARTMENT
500 Dedham Avenue, Needham, MA 02492
Telephone (781) 455-7550 FAX (781) 449-9023**

August 21, 2024

Needham Planning Board
Needham Public Service Administration Building
Needham, MA 02492

RE: Amendment to Major Project Special Permit No. 2011-04
300 Hillside Avenue- CATH Generator

Dear Members of the Board,

The Department of Public Works has completed its review of the above-referenced Special Permit. Needham seeks an amendment of the Major Project Site Plan Special Permit No. 2011-04 to allow for installation of a permanent emergency generator to serve the Center at the Heights building (CATH).

The documents submitted for review are as follows:

- Application for the Amendment to Major Project Special Permit No. 2011-04
- Letter from Chris Heep, Town Counsel, dated June 26th, 2024
- Exhibit Aerial site plan showing location of the proposed generator.

Our comments and recommendations are as follows:

- When the make and model of the generator is determined, a noise study needs to be conducted prior to issue of building permit.
- Fencing needs to be shown around the generator for a visual and sound attenuation barrier.
- We have no objection or comment to the parking spaces occupied where the generator is proposed.

If you have any questions regarding the above, please contact our office at 781-455-7538.

Truly yours,

Thomas A Ryder
Town Engineer
tryder

Alexandra Clee

From: Kristin Scoble
Sent: Thursday, August 15, 2024 10:20 AM
To: Alexandra Clee
Cc: Lee Newman; Elisa Litchman
Subject: RE: Request for comment - Amendment to CATH permit - adding generator

Hi Alex –

Thank you for sending along for review. I have no questions or comments on this permit, happy to have a permit generator for the building.

Kristin



Kristin Scoble
Emergency Management Administrator
Town of Needham | Fire Department

88 Chestnut Street
Needham, MA 02492
P: 781.455.7580 ext. 8041
C: 781.708.1701
www.needhamma.gov

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Wednesday, August 14, 2024 7:14 PM
To: Kristin Scoble <kscoble@needhamma.gov>
Cc: Lee Newman <LNewman@needhamma.gov>; Elisa Litchman <elitchman@needhamma.gov>
Subject: FW: Request for comment - Amendment to CATH permit - adding generator

Hi Kristin,

As a matter of course, I send all of our special permits to staff for review and comment. Tim suggested that for emergency generators, I may wish to send to you as well. See below and attached and let us know if you have any comments or questions.

Thanks, alex.

Alexandra Clee
Assistant Town Planner
Needham, MA

781-455-7550 ext. 271

www.needhamma.gov

From: Alexandra Clee

Sent: Thursday, August 1, 2024 4:48 PM

To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcDonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>

Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>

Subject: Request for comment - Amendment to CATH permit - adding generator

Dear all, << File: Application - Center at the Heights - June 2024 (Revised).pdf >>

We have received the attached application materials for the proposal by the Petitioner to allow the addition of a permanent emergency generator at the CATH. More information can be found in the attachments.

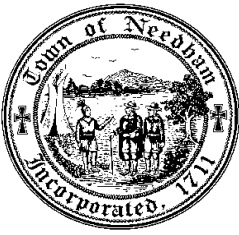
The Planning Board has scheduled this matter for August 27, 2024. Please send your comments **by Wednesday August 21, 2024**, at the latest.

The documents attached for your review are as follows:

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2. Letter from Attorney Chris Heep, dated June 26, 2024, with Exhibit A.

Thank you, alex.

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning



PLANNING & COMMUNITY
DEVELOPMENT
PLANNING DIVISION

LEGAL NOTICE
Planning Board
TOWN OF NEEDHAM
NOTICE OF HEARING

Under the provisions of M.G.L., Ch. 41, S. 81-T, the Needham Planning Board will hold a public hearing on Tuesday, August 27, 2024, at 7:30 p.m. in the Charles River Room, first floor, Public Services Administration Building, 500 Dedham Avenue, Needham, Massachusetts, as well as by Zoom Web ID Number 880 4672 5264 (further instructions for accessing by zoom are below), regarding the application of 40 Highland Ave, LLC, 435E Dedham Street Newton, MA 02459 for approval of a Definitive Subdivision Plan. Said Plan consists of nine (9) sheets and was submitted along with accompanying material on August 1, 2024. If approved, the Plan would subdivide the Premises into three building lots, two of which will be used for residential purposes and the third of which will continue to be used for commercial purposes; the two new residential lots would have frontage and access on the new road.

The land proposed to be subdivided is located at 40 Highland Avenue and 14-16 Riverside Street, and shown and identified, respectively, as Parcels 58 and 45 on Assessor's Map No. 73, and bounded and described as follows:

Two certain parcels of land in Needham, Norfolk County, as follows:

Parcel I

That certain parcel of land known and numbered 40 Highland Avenue, Needham, Norfolk County, MA, being more particularly described as follows:

Beginning at a point on the westerly sideline of Highland Avenue, Massachusetts highway layout number 8542, at the intersection of the southerly sideline of the Metropolitan District Commission;

Thence running, south 74°21'18" east, by land now or formerly of the Metropolitan District Commission, a distance of 453.41 to a concrete bound with a drill hole;

Thence turning and running, south 22°40'29" west, by land now or formerly of Joseph P. & Eileen J. Manning, a distance of 147.31 feet;

Thence turning and running, north 67°55'38" west, by four parcels, a distance of 384.74 feet;

Thence turning and running, south 25°45'55" west, by land now or formerly of Arthur & Anna Deych, a distance of 9.48 feet;

Thence turning and running, north 64°40'02" west, by land now or formerly of Nina Prohodski and Helen Harcovitz, a distance of 85.29 feet to the aforementioned sideline of Highland Avenue;

Thence turning and running, north 34°04'13" east, by said sideline, a distance of 103.41 to the point of beginning.

Containing 56,409 square feet, more or less.

Parcel II

That certain parcel of land known and numbered 14 Riverside Drive, Needham, Norfolk County, MA, being more particularly bounded and described as follows:

Beginning at a point on the northerly sideline of riverside drive being the southwesterly corner of said parcel;

Thence running, north 25°45'55" east, by land now or formerly of Arthur & Anna Deych, a distance of 60.71 to an iron rod with a cap;

Thence turning and running, south 67°55'38" east, by land now or formerly of 40 highland Avenue LLC, a distance of 150.31 feet;

Thence turning and running, south 25°45'55" west, by land now or formerly of Boris Karpachev & Rufina Veysberg, a distance of 70.39 feet to the aforementioned sideline of Riverside Drive;

Thence turning and running, north 64°14'05" west, by said sideline, a distance of 150.00 feet to the point of beginning;

Containing 9,832 square feet, more or less.

To view and participate in this virtual meeting on your phone, download the “Zoom Cloud Meetings” app in any app store or at www.zoom.us. At the above date and time, click on “Join a Meeting” and enter the following Meeting ID: 880 4672 5264

To view and participate in this virtual meeting on your computer, at the above date and time, go to www.zoom.us click “Join a Meeting” and enter the following ID: 880 4672 5264

Or to Listen by Telephone: Dial (for higher quality, dial a number based on your current location):

US: +1 312 626 6799 or +1 646 558 8656 or +1 301 715 8592 or +1 346 248 7799 or +1 669 900 9128 or +1 253 215 8782 Then enter ID: 880 4672 5264

Direct Link to meeting: <https://us02web.zoom.us/j/88046725264>

Copies of the plan are available upon request in the office of the Planning Board. The application may also be viewed at this link:

<https://www.needhamma.gov/Archive.aspx?AMID=146&Type=&ADID=> . Interested persons are encouraged to attend the public hearing and make their views known to the Planning Board. This legal notice is also posted on the Massachusetts Newspaper Publishers Association’s (MNPA) website at (<http://masspublicnotices.org/>).

NEEDHAM PLANNING BOARD

Needham Hometown Weekly: August 8, 2024 and August 15, 2024.

GEORGE GIUNTA, JR.
ATTORNEY AT LAW*
281 CHESTNUT STREET
NEEDHAM, MASSACHUSETTS 02492
*Also admitted in Maryland

TELEPHONE (781) 449-4520

FAX (781) 465-6095

July 16, 2024

Lee Newman
Planning Director
Town of Needham
1471 Highland Avenue
Needham, MA 02492

Re: Definitive Subdivision Application
40 Highland Ave, LLC
40 Highland Avenue & 14-16 Riverside Street

Dear Lee,

Please be advised that I represent 40 Highland Ave, LLC relative to its properties at 40 Highland Avenue and 14-16 Riverside Street, Needham, MA (jointly, the "Premises") and the intent to subdivide same into three lots; one commercial lot and two residential lots. In connection therewith, submitted herewith please find the following:

1. Completed Application for Approval of a Definitive Subdivision Plan;
2. Exhibit A – List of Waivers;
3. Exhibit B - Description;
4. Definitive Subdivision Plan, prepared by Land Design Collaborative, Chauncy Place, Terrace North, Suite 1, 45 Lyman Street, Westborough, MA 01581 and Field Resources, Inc., 281 Chestnut Street, Needham, MA 02492, consisting of eleven sheets, as follows: (a) Cover Sheet, dated April 26, 2024; (b) Sheet 1 of 10, titled "General Notes and Legend", dated April 26, 2024; (c) Sheet 2 of 10, titled "Existing Conditions Plan", dated April 26, 2024; (d) Sheet 3 of 10, titled "Lotting Plan "By Right"", dated April 26, 2024; (e) Sheet 4 of 10, titled "Lotting Plan "Waiver"", dated April 26, 2024; (f) Sheet 5 of 10, titled "Grading & Drainage Plan", dated April 26, 2024; (g) Sheet 6 of 10, titled "Plan & Profile, STA 0+00 to End", dated April 26, 2024; (h) Sheet 7 of 10, titled "Details", dated April 26, 2024; (i) Sheet 8 of 10, titled "Details", dated April 26, 2024; (j) Sheet 9 of 10, titled "Details", dated April 26, 2024; and (k) Sheet 10 of 10, titled "Turning Movement Exhibit", dated April 26, 2024; (hereinafter, collectively, the "Subdivision Plan");
5. Stormwater Management Report, dated April, 2024, prepared by Land Design Collaborative,

6. Letter of Authorization; and

7. Check No. 190 in the amount of \$1,250 for the applicable filing fee.

The Premises, which consists of two parcels of land, is located on the southerly side of Highland Avenue and the easterly side of Riverside Street. It is known and numbered as 40 Highland Avenue and 14-16 Riverside Street, and shown and identified, respectively, as Parcels 58 and 45 on Assessor's Map No. 73. The aforesaid Parcel 45, which is located entirely in the General Residence Zoning District, is currently occupied by a two-story, two-family residential dwelling, detached three-car garage, and associated driveway and yard. The aforesaid Parcel 58, which is located partially in the Highland Commercial-128 zoning district and partially in the General Residence zoning district, is currently occupied by a commercial building and associated driveway and parking, used for automotive repair.¹

As shown and depicted on the Subdivision Plan, the applicant is proposing to subdivide the Premises into three building lots, two of which will be used for residential purposes and the third of which will continue to be used for commercial purposes.² The commercial lot will continue to have frontage on and be served and accessed from Highland Avenue, and the two residential lots will have frontage on and will be served by and accessed from the proposed new roadway, off Riverside Street. All three lots comply with applicable dimensional and density requirements.

As depicted on sheet 3 of 10 of the Subdivision Plan, a new roadway can be built with a 60 foot radius circle and 50 foot width road. However, whereas the proposed road will only serve two residential lots, will end in a turn-around, and is located in relatively close proximity to the Charles River, the Applicant is of the opinion that a full 50 foot wide roadway, with a full 120 foot diameter circle is not the best and most appropriate way to divide this portion of the property. Therefore, the Applicant is requesting a waiver of construction as well as several other waivers in order to utilize a short road ending with a hammerhead or "T" style turnaround. Given the nature of the development, its location and past practice of the Board, The Applicant asserts that the requested waivers are appropriate for this development.

Finally, as noted on the Subdivision Plan, whereas the two new residential lots are located in the General Residence zoning district, it is the plan and intention of the Applicant to utilize same for two-family residential dwellings. In that regard, I note that, consistent with the zoning district, the vast majority of other properties on Riverside Street are used and occupied by two-family dwelling, albeit on much smaller lots, with less than conforming frontage.

¹ The existing commercial building, driveway and parking area and automotive repair use are all located entirely within that portion of the lot contained within the Highland Commercial-128 zoning district. The balance of the lot, situated in the General Residence zoning district is presently undeveloped.

² No change is currently anticipated or proposed in connection with the within application relative to the existing automotive repair business.

Kindly schedule this matter for consideration at the next available meeting of the Planning Board. Please also let me know if you require any further information or materials.

As always, your anticipated courtesy and cooperation and appreciated.

Sincerely,

A handwritten signature in dark ink, appearing to be 'G. Giunta, Jr.', written in a cursive style.

George Giunta, Jr.



TOWN OF NEEDHAM
MASSACHUSETTS

Room 20, Town Hall
Needham, MA 02492
781-455-7526

APPLICATION FOR APPROVAL
OF A DEFINITIVE SUBDIVISION PLAN

PLANNING DEPARTMENT

Date: June 20, 2024

The undersigned, on behalf of 40 Highland Ave, LLC (owner's name or self) of
435E Dedham Street, Newton, MA 02459 (address), owner of land in Needham, the description of
said land being submitted herewith, desiring to make a subdivision of said land hereby submits the following required plans
and documents:

- a) the original tracings and eight full sized copies and six reduced sized copies of each of the
following plans –
- i. a key location map
 - ii. a lot plan
 - iii. a profile plan
 - iv. a municipal services and utility plan
 - v. a topographic plan
 - vi. any detail plans required

Each plan bearing titles, endorsements and imprints required.

- b) a filing fee of \$500 plus \$250 per lot for each lot in the subdivision.
- c) a description of the boundaries of the entire area to be subdivided; and
- d) ~~a list of names and addresses of all abutters as they appear on the most recent Needham Assessors' records~~
- e) Exhibit A - List of Waivers; Exhibit B - Legal Description; and Drainage Calculations
(specify any additional material or information submitted)

and petitions the Planning Board to consider and approve such subdivision plans under the provisions of the Subdivision Control Law (M.G.L. Chapter 41, Sections 81-A through 81-G inclusive, as amended) and in accordance with the Rules and Regulations of the Needham Planning Board and the applicable By-Laws of the Town of Needham.

The undersigned certifies that the applicant(s) is/are the sole owner(s) of the entire land proposed to be subdivided and that the subdivision plans and the description submitted indicate the true boundaries of said land and ~~the correct names of all abutters as shown on the most recent records of the Needham Assessors.~~

(If the applicant is not the owner, written authorization to act as agent must be at

 (owners)
40 Highland Ave, LLC
by Steven Wolberg, Manager

By _____ (agent)

This application is accepted by the Needham Planning Board in accordance with Sections 81-Q and 81-T of the Subdivision Control Law.

20

By _____

EXHIBIT A

Definitive Subdivision Application
40 Highland Avenue & 14-16 Riverside Street
Needham, MA

LIST OF WAIVERS

The Applicants hereby request the following waivers with respect to the Town of Needham, Subdivision Regulations and Procedural Rules of the Planning Board:

1. Waiver of the requirements of 3.2, relative to submission of definitive plans, as follows:

- a. A waiver from the requirements of subsection (b) that plans be drawn on blue tracing cloth or mylar, that the plan be drawn to a scale of 1" = 40' and that the Title Block be located in the lower right-hand corner;
- b. A waiver from the requirements of subsection (e) that street line traverse closures be provided.

2. Waiver of the requirements of Section 3.3, relative to street and construction details, as follows:

- a. A waiver from the required width of roadway layout at Section 3.3.1 from 50 feet to 40 feet;
- b. A waiver from the required circular turnaround at Section 3.3.5 in favor of an alternative back-up strip;
- c. A waiver from the requirement of sidewalks on both sides of the road layout at Section 3.3.16 to no sidewalk
- d. A general waiver of construction and such other unspecified waivers as may be necessary for the construction of the way and related improvements as shown on the plans submitted herewith.

3. Waiver of any and all other requirements as may be necessary and appropriate for the division and reconfiguration of the subject premises as depicted on the plan.

EXHIBIT B

Definitive Subdivision Application
40 Highland Avenue & 14-16 Riverside Street
Needham, MA

Description

Two certain parcels of land in Needham, Norfolk County, as follows:

Parcel I

That certain parcel of land known and numbered 40 Highland Avenue, Needham, Norfolk County, MA, being more particularly described as follows:

Beginning at a point on the westerly sideline of Highland Avenue, Massachusetts highway layout number 8542, at the intersection of the southerly sideline of the Metropolitan District Commission;

Thence running, south $74^{\circ}21'18''$ east, by land now or formerly of the Metropolitan District Commission, a distance of 453.41 to a concrete bound with a drill hole;

Thence turning and running, south $22^{\circ}40'29''$ west, by land now or formerly of Joseph P. & Eileen J. Manning, a distance of 147.31 feet;

Thence turning and running, north $67^{\circ}55'38''$ west, by four parcels, a distance of 384.74 feet;

Thence turning and running, south $25^{\circ}45'55''$ west, by land now or formerly of Arthur & Anna Deych, a distance of 9.48 feet;

Thence turning and running, north $64^{\circ}40'02''$ west, by land now or formerly of Nina Prohodski and Helen Harcovitz, a distance of 85.29 feet to the aforementioned sideline of Highland Avenue;

Thence turning and running, north $34^{\circ}04'13''$ east, by said sideline, a distance of 103.41 to the point of beginning.

Containing 56,409 square feet, more or less.

Parcel II

That certain parcel of land known and numbered 14 Riverside Drive, Needham, Norfolk County, MA, being more particularly bounded and described as follows:

Beginning at a point on the northerly sideline of riverside drive being the southwesterly corner of said parcel;

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Thence turning and running, south $67^{\circ}55'38''$ east, by land now or formerly of 40 highland Avenue LLC, a distance of 150.31 feet;

Thence turning and running, south $25^{\circ}45'55''$ west, by land now or formerly of Boris Karpachev & Rufina Veysberg, a distance of 70.39 feet to the aforementioned sideline of Riverside Drive;

Thence turning and running, north $64^{\circ}14'05''$ west, by said sideline, a distance of 150.00 feet to the point of beginning;

Containing 9,832 square feet, more or less.

40 Highland Ave, LLC
435E Dedham Street
Newton, MA 02459

June 20, 2024

Town of Needham
Planning Board
Needham, Massachusetts 02492

Attn: Lee Newman, Planning Director

Re: 40 Highland Ave, LLC
Application for Approval of
Definitive Subdivision Plan
40 Highland Avenue & 14-16 Riverside Street

Dear Mrs. Newman,

Please accept this letter as confirmation that 40 Highland Ave, LLC, a Massachusetts limited liability company, current owner of the properties known and numbered 40 Highland Avenue and 14-16 Riverside Street, Needham, MA (jointly, the "Premises"), have authorized George Giunta, Jr., Esquire, to make application to the Planning Board for Approval of Definitive Subdivision Plan and other zoning and planning related relief that may be required or appropriate in connection with the division of the said Premises into one commercial lot, two residential lots and a new roadway. In connection therewith, Attorney Giunta is specifically authorized to execute, sign, deliver and receive all necessary documentation related thereto, including, without limitation, Application for Approval of a Definitive Subdivision Plan.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Wolberg', is written over a horizontal line.

40 Highland Ave, LLC
By Steven Wolberg, Manager

DEFINITIVE SUBDIVISION PLAN

PURSUANT TO THE TOWN OF NEEDHAM SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE PLANNING BOARD SECTION 3.2

FOR

40 HIGHLAND AVENUE, LLC

40 Highland Avenue & 14-16 Riverside Street
Needham, MA

DATE
April 26, 2024

NEEDHAM PLANNING BOARD

APPROVED IN ACCORDANCE WITH SECTION 81-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

APPROVED SUBJECT TO TERMS AND CONDITIONS OF A COVENANT GIVEN IN ACCORDANCE WITH SECTION 81-U CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

NEEDHAM PLANNING BOARD

NEEDHAM DIRECTOR OF PUBLIC WORKS

NAMEDATE

NEEDHAM TOWN ENGINEER

NAMEDATE

NEEDHAM TOWN CLERK CERTIFICATION

"I, TOWN CLERK OF THE TOWN OF NEEDHAM, CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE NEEDHAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE"

NAMEDATE

PROJECT TEAM

Civil Engineer | Landscape Architect



Land Surveyor

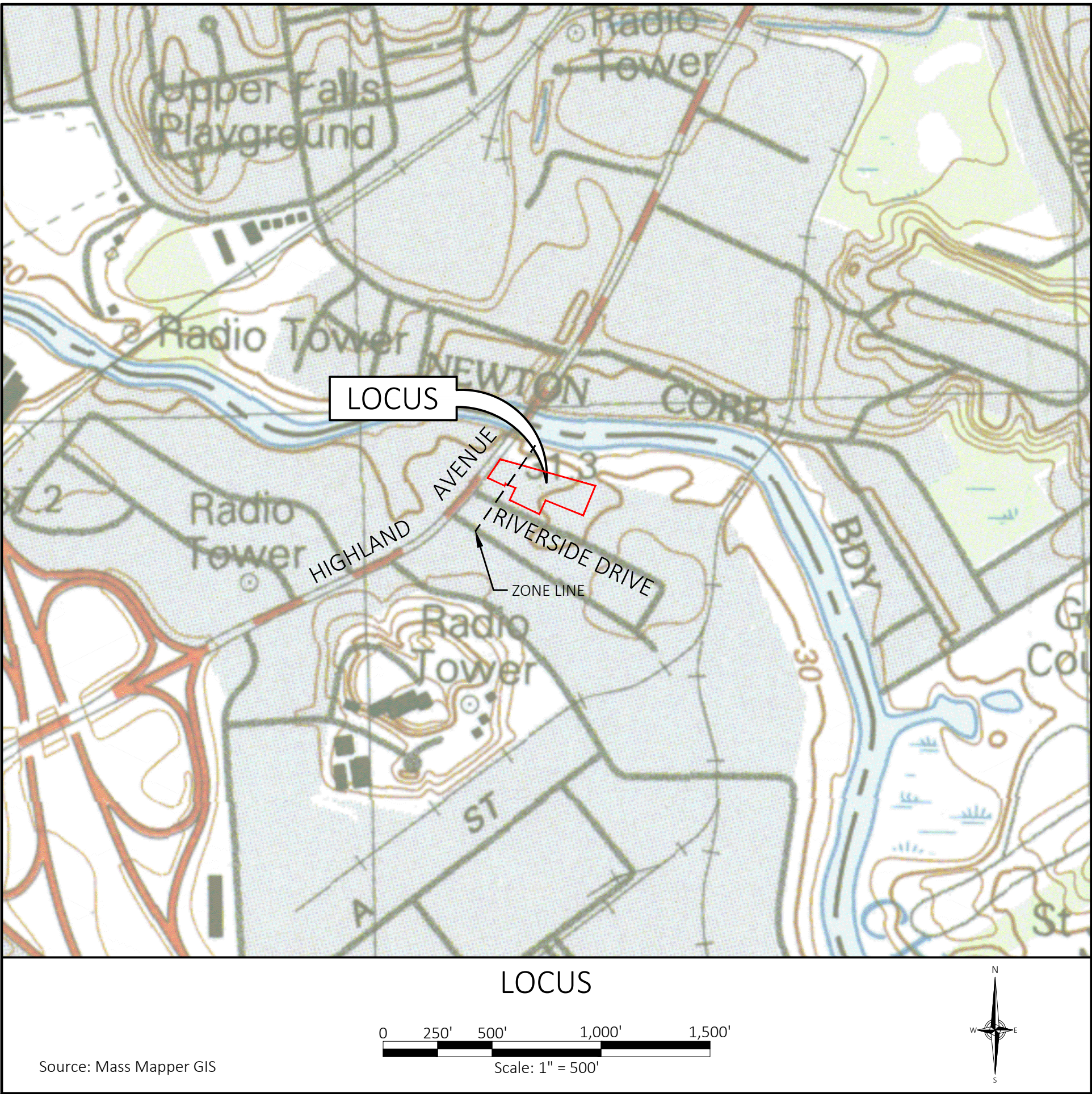
Field Resources, Inc.
281 Chestnut Street P.O. Box 324
Needham, MA 02492 Auburn, MA 01501

PROJECT OWNER

40 Highland Avenue, LLC
435 Dedham, MA Unit E
Newton, MA 02459

PROJECT APPLICANT

40 Highland Avenue, LLC
435 Dedham, MA Unit E
Newton, MA 02459



SHEET INDEX

SHEET NO.	SHEET TITLE
1 OF 10	GENERAL NOTES AND LEGEND
2 OF 10	EXISTING CONDITIONS PLAN (BY FIELD RESOURCES INC.)
3 OF 10	LOTTING PLAN "BY-RIGHT"
4 OF 10	LOTTING PLAN "WAIVER" (REGISTRY SHEET 1 OF 1)
5 OF 10	GRADING & DRAINAGE PLAN
6 OF 10	PLAN & PROFILE SHEET
7-9 OF 10	DETAILS
10 OF 10	TURNING MOVEMENT EXHIBIT (FIRE APPARATUS)

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.



NAME REGISTRATION NO.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.



NAME REGISTRATION NO.

THE CONTENT, INFORMATION AND DESIGN OF THIS PLAN ARE PROPRIETARY AND DUPLICATION AND/OR UTILIZATION FOR ANY PURPOSES IS STRICTLY PROHIBITED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LAND DESIGN COLLABORATIVE. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES.
© LAND DESIGN COLLABORATIVE, LLC.

GENERAL NOTES:

- THIS PROJECT DISTURBS MORE THAN ONE ACRE OF LAND AND IS WITHIN THE NPDES CONSTRUCTION GENERAL PERMIT (CGP) AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) JURISDICTION. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS TO SUBMIT A NOTICE OF INTENT WITH THE EPA AND SECURE AND COMPLY WITH THE CGP IN ACCORDANCE WITH THE NPDES REGULATIONS.
- A MINIMUM OF SEVENTY-TWO (72) HOURS BEFORE COMMENCING SITE WORK, CONTRACTOR SHALL CALL "DIG SAFE" AT 1-888-344-7233 (PER 220 CMR 99), MUNICIPAL UTILITY DEPARTMENTS, AND UTILITY DISTRICTS TO ACCURATELY LOCATE UNDERGROUND UTILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION NOTIFICATION AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS. THE CONTRACTOR SHALL PAY ALL FEES AND POST ALL BONDS ASSOCIATED WITH THE WORK AND COORDINATE WITH THE PROJECT ARCHITECT AND ENGINEER AS NECESSARY.
- THE CONTRACTOR SHALL OBTAIN PERMIT(S) FOR TRENCH EXCAVATION (PER 520 CMR 14).
- ALL ITEMS NOTED FOR REMOVAL AND DISPOSAL, AS WELL AS THOSE ITEMS DISCOVERED DURING EXCAVATION THAT REQUIRE REMOVAL AND REPLACEMENT, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND MUST EITHER BE RECYCLED OR DISPOSED OF OFF SITE ACCORDING TO APPLICABLE REGULATIONS (310 CMR 7, 18 & 19 AND 453 CMR 6). CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITS FOR DEMOLITION, HAULING AND DISPOSING OF SAID MATERIALS.
- CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY, JOB SAFETY AND CONSTRUCTION MEANS AND METHODS. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND STATE AND LOCAL REQUIREMENTS.
- REFUELING OF CONSTRUCTION VEHICLES AND EQUIPMENT SHALL NOT BE CONDUCTED IN PROXIMITY TO CATCH BASINS, STORMWATER BASINS OR WETLAND RESOURCES.
- ANY ALTERATIONS MADE IN THE FIELD TO THE WORK SHOWN ON THESE DRAWINGS SHALL BE RECORDED BY THE CONTRACTOR ON RECORD DOCUMENTS.
- THE CONTRACTOR SHALL NOTIFY APPROPRIATE UTILITY COMPANIES OF ANY UTILITIES DAMAGED DURING CONSTRUCTION. ANY COSTS RELATED TO THE REPAIR OF UTILITIES DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITY SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND MAINTAINING RECORD AS-BUILT DRAWINGS OF ALL SUBSURFACE UTILITIES.
- ANY AREA DISTURBED BY THE CONTRACTOR OUTSIDE THE LIMIT OF WORK SHALL BE RESTORED TO ITS ORIGINAL CONDITIONS AT NO COST TO THE OWNER.

EROSION AND SEDIMENT CONTROL NOTES:

- PRIOR TO CONSTRUCTION A FENCE SHALL BE PLACED AROUND ALL TREES THAT ARE TO BE MAINTAINED AND PROTECTED. NO CONSTRUCTION ACTIVITY OR STOCKPILING OF MATERIAL SHALL BE ALLOWED WITHIN THE DRIPLINE OF THE EXISTING TREES THAT ARE TO REMAIN.
- SITE ELEMENTS TO REMAIN SHALL BE PROTECTED DURING CONSTRUCTION.
- PRIOR TO CONSTRUCTION AN EROSION CONTROL BARRIER (ECB) SHALL BE PROVIDED AT THE EDGE OF THE DEVELOPMENT AREA AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE ECB THROUGHOUT ALL PHASES OF CONSTRUCTION AS WELL AS COMPLYING WITH ANY OTHER CONDITIONS ESTABLISHED IN THE ORDER OF CONDITIONS (MASSDEP FILE # _____) ISSUED BY THE _____ CONSERVATION COMMISSION OR ANY OTHER PERMIT ISSUED FOR THE SITE.
- THE CONTRACTOR SHALL TAKE SUFFICIENT PRECAUTIONS DURING CONSTRUCTION TO MINIMIZE THE RUNOFF OF POLLUTING SUBSTANCES SUCH AS SILT, CLAY, FUELS, OILS, BITUMINOUS CONCRETE OR OTHER POLLUTING MATERIALS HARMFUL TO HUMANS, FISH, OR OTHER LIFE, AND WATER SUPPLIES AND SURFACE WATERS. SPECIAL PRECAUTIONS SHALL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT OPERATIONS WHICH PROMOTE EROSION.
- CONTRACTOR SHALL UTILIZE TEMPORARY SEDIMENT PITS OR BASINS AS NECESSARY TO PREVENT SEDIMENT LADEN WATERS FROM ENTERING DRAINAGE FACILITIES. SPECIAL ATTENTION SHALL BE GIVEN TO AREAS FOR PROPOSED STORMWATER INFILTRATION SYSTEMS. IF ADDITIONAL SILTATION CONTROL IS REQUIRED, CHECK DAMS OR SILT FENCES MAY BE PLACED IN DITCHES RECEIVING STORMWATER FROM DISTURBED AREAS, UPON APPROVAL OF THE PROJECT ENGINEER.
- AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE, MORE SILTATION CONTROL FACILITIES MAY BE REQUIRED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS NEW CONDITIONS THAT MAY BE CREATED AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MEASURES DEPICTED HEREON.
- MEASURES FOR CONTROL OF EROSION MUST BE ADEQUATE TO ASSURE THAT TURBIDITY IN THE RECEIVING WATER WILL NOT BE INCREASED BEYOND LEVELS ESTABLISHED BY THE STATE OR OTHER CONTROLLING BODY, IN WATERS USED FOR PUBLIC SUPPLY OR FISHING UNLESS OTHER LIMITS HAVE BEEN ESTABLISHED FOR THE PARTICULAR WATER.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS DURING THE DURATION OF CONSTRUCTION TO INSURE THAT CHANNELS, DITCHES AND PIPES ARE CLEAR OF DEBRIS AND THAT EROSION CONTROL BARRIERS ARE INTACT. EROSION CONTROL BARRIERS SHALL BE CLEANED AND MAINTAINED AS REQUIRED TO ENSURE FUNCTIONALITY.
- AN ANTI-TRACKING CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AT ALL POINTS OF CONSTRUCTION ACCESS AND EGRESS TO PUBLIC RIGHTS-OF-WAY FOR THE DURATION OF CONSTRUCTION.
- ANY SEDIMENT TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE SWEEPED AND CLEANED AT THE END OF EACH WORK DAY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL, WHICH INCLUDES STREET SWEEPING OF ALL PAVED SURFACES WITHIN THE SITE AND OFF-SITE AREAS THAT ARE IMPACTED BY SITE CONSTRUCTION.
- ALL TOPSOIL WITHIN THE LIMITS OF THE EXCAVATED AREAS SHALL BE STRIPPED TO ITS FULL DEPTH AND STOCKPILED FOR REUSE AND SEGREGATED FROM SUBSURFACE SOIL MATERIAL. EXCESS TOPSOIL SHALL BE DISPOSED OF ON SITE AS DIRECTED BY THE PROJECT ENGINEER.
- ALL STOCKPILE AREAS SHALL BE LOCATED WITHIN THE LIMIT OF WORK LINE AND STABILIZED TO PREVENT EROSION.
- SILT SACKS SHALL BE INSTALLED IN ALL DOWNSTREAM DRAIN INLETS PRIOR TO CONSTRUCTION TO CONTROL SILTATION.
- WITHIN THE LIMIT OF WORK TREES THAT ARE TO BE REMOVED MAY BE CUT BUT BRUSH AND STUMPS SHALL NOT BE REMOVED UNTIL ONE WEEK PRIOR THE START OF CONSTRUCTION. DISTURBANCE OF THE EXISTING GROUND SURFACE SHALL BE MINIMIZED PRIOR TO THE START OF CONSTRUCTION.
- SILTATION AND SEDIMENTATION BASINS SHALL BE INSTALLED ON SITE TO DE-SILT ALL STORMWATER OR WATER PUMPED FROM EXCAVATED AREAS. PROPOSED DETENTION AND INFILTRATION BASINS MAY BE UTILIZED AS SILTATION PONDS PROVIDED THAT TOPSOIL AND SUBSOIL IS NOT STRIPPED FROM THE BOTTOM OF THE BASINS. SILTATION AND SEDIMENTATION BASINS SHALL BE CONSTRUCTED TO RECEIVE DISCHARGE FROM SILTATION AND SEDIMENTATION PONDS IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION. FOLLOWING STABILIZATION OF UPSTREAM TRIBUTARY AREAS, TOPSOIL AND SUBSOIL SHALL BE REMOVED FROM BASINS AND FREE-DRAINING SOIL FILL MATERIAL PLACED FROM PARENT MATERIAL UP TO SUBGRADE. BASIN BOTTOMS SHALL RECEIVE FINAL LOAM AND SEED.
- EROSION CONTROL BLANKETS SHALL BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS FOR AREAS REQUIRING SLOPE STABILIZATION AND SHALL BE LOAMED, SEEDED AND FERTILIZED PRIOR TO THE PLACEMENT OF THE BLANKETS.
- CONTRACTOR SHALL DIVERT STORMWATER RUNOFF AROUND THE SITE AS REQUIRED AND DRAINAGE SHALL BE RESTORED TO CONDITION EXISTING PRIOR TO CONSTRUCTION UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED OR MULCHED AS SOON AS PRACTICABLE.

CONSTRUCTION SEQUENCING NOTES:

- INSTALL CONSTRUCTION ENTRANCE.
- CLEAR AND GRUB ONLY AS NECESSARY FOR SAFE ACCESS TO SITE FOR TREE REMOVAL EQUIPMENT AND MACHINERY AND THE THE INSTALLATION OF EROSION CONTROL BARRIER AND SEDIMENT CONTROL MEASURES AROUND THE INITIAL STAGING AREA(S).
- FELL TREES WITHIN APPROVED LIMITS OF CLEARING (WORK AREA).
- INSTALL EROSION CONTROL BARRIERS AND SEDIMENT CONTROL MEASURES AS WELL AS LIMIT OF WORK DEMARCATION (FLAGGING OR FENCING) AS MAY BE SHOWN ON THE DRAWINGS OR REQUIRED BY PERMIT GRANTING AUTHORITIES.
- EXCAVATE TEMPORARY SEDIMENTATION BASINS TO ONE FOOT ABOVE BOTTOM OF BASIN ELEVATION AND CONSTRUCT TEMPORARY DIVERSION SWALES TO DIRECT SEDIMENTATION RUNOFF TO BASINS.
- CLEAR AND GRUB WITHIN LIMIT OF WORK AREA AND PROPERLY DISPOSE OF STUMPS AND BRUSH.
- PERFORM SITE CUT AND FILL OPERATIONS AND ESTABLISH ROUGH SUB-GRADES.
- ROUGH GRADE PAVED AREAS.
- LOAM AND SEED TEMPORARY SEDIMENT BASINS AND TEMPORARY DIVERSION SWALES.
- ESTABLISH STOCKPILE AREA AND SURROUND WITH EROSION CONTROL BARRIER. AVOID STOCKPILING IN VALLEYS OR LOW-LYING AREA WHERE SUSCEPTIBLE TO EROSION.
- MAINTAIN CONSTRUCTION ENTRANCE, EROSION CONTROL MEASURES, TEMPORARY DIVERSION SWALES AND TEMPORARY SEDIMENTATION BASINS THROUGHOUT DURATION OF CONSTRUCTION. REMOVE SEDIMENT IN TEMPORARY BASIN(S) WHEN ACCUMULATED TO A DEPTH OF TWELVE (12) INCHES.
- SEDIMENTATION BASINS TO REMAIN DURING EARTHWORK OPERATIONS. ALL SEDIMENT SHALL BE REMOVED FROM BASINS AND BOTTOM OF BASINS EXCAVATED TO FINAL BOTTOM ELEVATION FOLLOWING STABILIZATION OF DISTURBED AREAS.
- EROSION AND SEDIMENT CONTROL IS SUBJECT TO CHANGE BASED UPON FIELD CONDITIONS, CONSTRAINTS, AND OTHER UNFORESEEN FACTORS.

LAYOUT AND MATERIAL NOTES:

- ALL SETBACK LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED, UNLESS NOTED OTHERWISE.
- DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL AND CENTERLINE OF PAVEMENT MARKINGS UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE GROUND AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS CONTIGUOUS TO THE BUILDING.
- EXISTING PROPERTY LINE MONUMENTATION SHALL BE PROTECTED DURING CONSTRUCTION. ANY MONUMENTATION DISTURBED DURING CONSTRUCTION OR ANY PROPOSED MONUMENTATION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.
- SYMBOLS OF PROJECT FEATURES DEPICTED IN THESE DRAWINGS ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURER'S SPECIFICATIONS, SHOP DRAWINGS AND FIELD MEASUREMENTS FOR ACCURATE INFORMATION.
- ALL PAVEMENT MARKINGS INCLUDING PARKING SPACES AND CROSSWALKS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTES.
- EACH ACCESSIBLE PARKING SPACE SHALL BE IDENTIFIED BY A SIGN CONTAINING THE "INTERNATIONAL SYMBOL OF ACCESSIBILITY" AS DESCRIBED IN THE AMERICANS WITH DISABILITIES ACT, PUBLIC LAW 101-366, AND DETAILED IN THE FHWA/USDOT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS AMENDED.

GRADING, DRAINAGE AND UTILITY NOTES:

- THE CONTRACTOR SHALL CONFIRM THE SIZE AND DISPOSITION OF ALL UTILITIES TO SITE AND COORDINATE WITH RESPECTIVE UTILITY COMPANIES REGARDING ANY UTILITIES THAT REQUIRE REMOVAL OR RELOCATION. NO EXCAVATION SHALL BE PERFORMED UNTIL ALL UTILITY COMPANIES HAVE BEEN NOTIFIED.
- LOCATIONS OF UNDERGROUND UTILITIES SHOWN HEREON WERE COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND ARE APPROXIMATE AND ASSUMED. THERE MAY BE ADDITIONAL UNDERGROUND UTILITIES THAT ARE NOT DEPICTED HEREON. NO WARRANTY IS EXPRESSED OR IMPLIED AS TO THE ACCURACY OF SUBSURFACE UTILITY LOCATIONS OR DISPOSITION, UNLESS OTHERWISE NOTED ON THE PLAN.
- CONTRACTOR SHALL CONFIRM DEPTH(S) OF PERTINENT UTILITIES BY TEST PIT AND NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE PROJECT SURVEYOR AND ENGINEER.
- PROVIDE CRIBBING TO PROTECT UTILITY LINES DURING CONSTRUCTION AS NECESSARY.
- THE CONTRACTOR SHALL PROTECT SUBSURFACE DRAINAGE, SEWER AND ALL OTHER UTILITIES FROM EXCESSIVE VEHICLE LOADS DURING CONSTRUCTION. FACILITIES DAMAGED DUE TO CONSTRUCTION LOADS SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER OR UTILITY OWNER.
- ALL DRAIN PIPE SHALL BE CLASS II RCP (ASTM C76) OR SMOOTH INTERIOR CORRUGATED POLYETHYLENE (CPE TYPE S; AASHTO M252 OR M294), UNLESS OTHERWISE NOTED. PIPE LENGTHS ARE MEASURED CENTER-OF-STRUCTURE TO CENTER-OF-STRUCTURE.
- ALL GRAVITY SEWER PIPE SHALL BE SDR 35 PVC (ASTM D3034) WITH WATERTIGHT INTEGRAL BELL GASKETED JOINT (ASTM D3212) AND ELASTOMERIC GASKET (ASTM F477), UNLESS OTHERWISE NOTED.
- ALL FORCE MAIN SEWER PIPE SHALL BE SDR 21 PVC (200 PSI RATED, ASTM D2241) WITH WATERTIGHT JOINTS (ASTM D2672 OR D3212 AS ALLOWED), UNLESS OTHERWISE NOTED.
- ALL WATER MAIN PIPE AND FITTINGS SHALL BE CLDI CLASS 52 (AWWA C151, C110 & C104) WITH RUBBER GASKETED JOINTS (AWWA 111), UNLESS OTHERWISE NOTED. ALL WATER SERVICES TO BE PRESSURE RATED PE OR COPPER AS REQUIRED AND APPROVED BY DPW. PROVIDE FIVE (5) FEET MINIMUM COVER ON ALL WATER MAINS AND SERVICES.
- WHERE 10' HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS CANNOT BE MAINTAINED, CROWN OF SEWER MAIN SHALL BE EIGHTEEN (18) INCHES BELOW BOTTOM OF WATER MAIN, IN ACCORDANCE WITH SECTION 9.7.2 OF MASSDEP "GUIDELINES AND POLICIES FOR PUBLIC WATER SYSTEMS" (AS DEFINED IN 310 CMR 22.02).
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION OF GAS, ELECTRIC, TELECOMMUNICATIONS AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES AS REQUIRED. WHERE AN EXISTING UTILITY IS IN CONFLICT WITH THE PROPOSED WORK THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE OWNER AND PROJECT ENGINEER FOR RESOLUTION.
- PROPOSED GAS, ELECTRIC, TELECOMMUNICATIONS AND CABLE TV DEPICTED IS SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANY FOR FINAL PLANS AND SPECIFICATIONS.
- CONTRACTOR SHALL COORDINATE CONNECTION TO MUNICIPAL FIRE ALARM.
- ALL UTILITIES INCLUDING CONCRETE PADS ARE TO BE INSTALLED PER UTILITY COMPANY OR LOCAL DPW STANDARDS AS APPLICABLE.
- ALL UTILITY COVERS, GRATES, HATCHES, ETC., SHALL BE FLUSH WITH THE PAVEMENT FINISHED GRADE.
- EXISTING PAVEMENT SHALL BE SAW CUT AND NEW PAVEMENT SHALL BE BLENDED SMOOTHLY TO MEET CUT EDGES.
- FINAL GRADES SHALL BE PITCHED EVENLY BETWEEN SPOT ELEVATIONS AND ALL AREAS SHALL BE GRADED TO DRAIN WITH NO PUDDLING OR PONDING.
- THE CONTRACTOR SHALL SCHEDULE THE WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURBING MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING. PROVIDE TEMPORARY POSITIVE DRAINAGE AS REQUIRED.
- THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE (1.5% MINIMUM) AWAY FROM ALL BUILDING FOUNDATIONS AND STRUCTURES.
- GRADES IN ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION (PER 521 CMR 23.4.3).
- GRADES IN ACCESSIBLE WALKWAYS SHALL NOT EXCEED 5% (PER 521 CMR 22.3) AND SHALL NOT HAVE A CROSS PITCH OF MORE THAN 2% (PER 521 CMR 22.3.1).
- RIPRAP APRONS SHALL BE PROVIDED AT ALL FLARED ENDS AND HEADWALLS.
- RETAINING WALLS OVER FOUR (4) FEET IN HEIGHT ARE TO BE DESIGNED BY OTHERS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ENGINEERED STRUCTURAL DRAWINGS FOR RETAINING WALLS WHERE REQUIRED BY CODE, INCLUDING BUT NOT LIMITED TO THE STATE BUILDING CODE (780 CMR).
- ALL DISTURBED AREAS SHALL BE LOAMED TO A SIX (6) INCH DEPTH AND SEEDED WITH SUITABLE GRASS SEED MIX UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PLANTING NOTES:

- ALL PLANT MATERIAL SHALL MEET THE THE SPECIFICATIONS AND GUIDELINES OF THE AMERICAN STANDARD FOR NURSERY STOCK ISSUED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
- ANY PROPOSED SUBSTITUTION OF PLANT MATERIAL SHALL BE EQUAL IN OVERALL SIZE, HEIGHT, LEAF, FORM, BRANCHING HABIT, FRUIT, FLOWER, COLOR, AND CULTURE. ALL PROPOSED SUBSTITUTIONS SHALL BE REVIEWED AND APPROVED IN WRITING BY LANDSCAPE ARCHITECT PRIOR TO PURCHASING.
- FINAL QUANTITIES FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLANS. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE LANDSCAPE CONTRACTOR SHALL REPORT AND DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
- THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL AT THE SITE. MATERIAL SHALL BE REMOVED FROM THE PROPERTY BY THE LANDSCAPE CONTRACTOR AND REPLACED WITH PLANT MATERIAL APPROVED BY LANDSCAPE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
- ALL TREES SHALL BE BALLED AND BURLAPPED UNLESS OTHERWISE SPECIFIED.
- THE LANDSCAPE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW AND ABOVE GRADE UTILITIES AND NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICTS.
- ALL TREE PLANTINGS TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION FROM PROPOSED AND EXISTING SEWER AND WATER LINES.
- ALL PLANTING BEDS ARE TO BE CROWNED WITH TOPSOIL AND MULCH ABOVE ADJACENT AREAS.
- NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICT.
- THE LANDSCAPE CONTRACTOR SHALL LAYOUT ALL PLANT MATERIAL AS SHOWN ON THE PLANS AND SHALL NOTIFY THE LANDSCAPE ARCHITECT A MINIMUM OF 48 HOURS PRIOR TO INSTALLATION FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT.
- PROVIDE A 3" DEPTH OF MULCH AS SHOWN ON THE PLANTING DETAILS UNDER AND AROUND ALL PLANT MATERIAL AND IN ALL PLANT BEDS AND LANDSCAPE ISLANDS. MULCH SHALL BE CLEAN, SHREDED PINE BARK MULCH UNLESS OTHERWISE SPECIFIED. PRIOR TO SPREADING MULCH, APPLY A WEED PRE-EMERGENT SUCH AS "PREEM" OR APPROVED EQUAL. FOLLOW MANUFACTURER'S APPLICATION INSTRUCTIONS.
- ALL TREES ADJACENT TO SIDEWALKS SHALL HAVE A 6'-8" MINIMUM BRANCHING HEIGHT AT TIME OF PLANTING.
- LAWN AND DISTURBED SHALL RECEIVE A MINIMUM OF 6" OF LOAM AND SPECIFIED SEED MIX UNLESS OTHERWISE NOTED. AREAS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE MAINTENANCE OF THE PLANT MATERIAL AND LAWN AREAS UNTIL DATE OF FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT. WATERING SHALL BE PROVIDED DURING THE FIRST GROWING SEASON WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
- IF AN IRRIGATION SYSTEM IS PROVIDED THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR FULL COORDINATION WITH THE IRRIGATION CONTRACTOR TO PROVIDE PROPER IRRIGATION TO ALL TREES, PLANT BEDS AND LAWN AREAS UNLESS OTHERWISE NOTED. IRRIGATION DESIGN AND PERMITTING TO BE PROVIDED BY OTHERS.
- ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE LANDSCAPE CONTRACTOR FOR A PERIOD OF ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT. ALL REPLACEMENTS SHALL BE AT NO ADDITIONAL COST TO OWNER.

LEGEND

ENVIRONMENTAL		
100' FLOOD ZONE		100' WBZ
100' WETLAND BUFFER ZONE		
200' RIVERFRONT AREA		BB/AV
APPROX. BOUNDARY BORDERING VEGETATED WETLAND		ABBVW
BOUNDARY BORDERING VEGETATED WETLAND		ECB
EROSION CONTROL BARRIER		FLOP
STREAM - INTERMITTENT		FLOP
STREAM - PERENNIAL		
WATER BODY		
GRADING & TOPOGRAPHY		
BASEMENT FLOOR ELEVATION	BFE=100.00	
CONTOUR - MINOR	99	
CONTOUR - MAJOR	100	
CURB - BOTTOM OF CURB	BcX100	
CURB - TOP OF CURB	TcX100	
FINISH FLOOR ELEVATION	FFE=100.00	
FOUNDATION - TOP OF FOUNDATION	TOP=100.00	
GARAGE FLOOR ELEVATION	GFE=100.00	
HIGH POINT	HPx100	
LOW POINT	LPx100	
SPOT ELEVATION	x100.00	
TREELINE		
WALL - BOTTOM OF WALL	BWx100	
WALL - TOP OF WALL	TWx100	
MATERIALS		
BOLLARD POST		BP
BUILDING		
BUILDING - DOOR		D
BUILDING - OVERHEAD DOOR		OHD
BUILDING - OVERHANG		
CAPE COD BERM		CCB
CURB - BITUMINOUS CONCRETE		BCC
CURB - CONCRETE		CC
CURB - HAUNCHED		HCC
CURB - SLOPED GRANITE		SGC
CURB - VERTICAL GRANITE		VGC
EDGE OF PAVEMENT		EOP
FENCE - CHAIN LINK		CLE
FENCE - POST & RAIL		PRR
FENCE - STOCKADE		SE
GUARDRAIL - STEEL		SGR
GUARDRAIL - STEEL BACK WOODEN		SBWG
GUARDRAIL - WOODEN		WGR
HANDICAP ACCESSIBLE PARKING SPACE		WCR
HANDICAP ACCESSIBLE RAMP		
HANDRAIL - STEEL		SHR
HANDRAIL - WOODEN		WHR
LIGHTPOLE		LP-X (ORNAMENTAL)
RIPRAP		
SIGN		
WALL - CONCRETE		
WALL - HEAD		
WALL - RAILROAD TIE		
WALL - STONE		
WALL - WING		
MONITORING & TESTING		
MONITORING WELL		MW
PERCOLATION TEST		PT-##
TEST PIT		TP-##
UTILITIES & DRAINAGE		
ELECTRIC & COMMUNICATION		
ELECTRIC BOX		E
ELECTRIC, COMMUNICATION & DATE LINE		UGE
ELECTRIC MANHOLE		EMH
OVERHEAD WIRE		OHW
TELEPHONE MANHOLE		TMH
TRANSFORMER		T
UTILITY POLE		UP
GAS		
GAS LINE		G
GAS METER		GM
GATE VALVE		GV
SANITARY SEWER & WASTEWATER		
FORCEMAIN		FM
SANITARY SEWER LINE		S
SANITARY SEWER SERVICE		SS
SANITARY SEWER MANHOLE		SMH
STORMWATER		
AREA DRAIN		AD
CATCH BASIN		CB
CATCH BASIN - D-TYPE		CB D-TYPE
CATCH BASIN - DOUBLE		DCB
CATCH BASIN - LEACHING		LCB
CATCH BASIN - ROUND		CB
DRAIN INLET		DI
DRAINLINE		D
DRAIN MANHOLE		DMH
FLARED END		FE
FOUNDATION DRAIN		FD
INVERT		INV=100.00
OUTLET CONTROL STRUCTURE		OCS
RIM		R=100.00
ROOF DRAIN		RD
WATER & APPURTENANCES		
HYDRANT		HYD
GATE VALVE		GV
REDUCER		
TEE		T
WATER LINE		W
WATER SERVICE		WS
WATER SHUT OFF		WS
WELL		W

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

NAME REGISTRATION NO.

For Registry Use Only

NEEDHAM PLANNING BOARD

APPROVED IN ACCORDANCE WITH SECTION 81-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

APPROVED SUBJECT TO TERMS AND CONDITIONS OF A COVENANT GIVEN IN ACCORDANCE WITH SECTION 81-U CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

NEEDHAM PLANNING BOARD

NEEDHAM DIRECTOR OF PUBLIC WORKS

SIGNATURE DATE

NEEDHAM TOWN ENGINEER

SIGNATURE DATE

NEEDHAM TOWN CLERK CERTIFICATION

"I, TOWN CLERK OF THE TOWN OF NEEDHAM, CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE NEEDHAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE

SIGNATURE DATE

ABBREVIATIONS

ACRES	AC.
BITUMINOUS CONCRETE	BIT. CONC.
CONCRETE	CONC.
DIAMETER	DIA.
FOUND	FND
LINEAR FEET	L.F.
MAINTAIN AND PROTECT	M&P
NOT TO SCALE	N.T.S.
NOW OR FORMERLY	N / F
PLUS OR MINUS	±
SQUARE FEET	S.F.
REMOVE AND DISPOSE	R&D
REMOVE AND REPLACE	R&R
REMOVE AND STOCKPILE	R&S
VERIFY IN FIELD	V.I.F.



THE COMMONWEALTH OF MASSACHUSETTS REQUIRES NOTIFICATION BY EXCAVATORS OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE COMMONWEALTH.

Project Title:
Definitive Subdivision Plan
40 Highland Ave.
Needham, MA
(Norfolk County)

Sheet Title:
GENERAL NOTES
AND LEGEND

Definitive Subdivision

Prepared By:

LD
LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDcollaborative.com

Project Surveyor:

FIELD RESOURCES, INC.
Land Surveyors
P.O. Box 324
Auburn, MA 03082-4332
281 Chestnut Street
Needham, MA 01944-5936
fieldresources@hotmail.com

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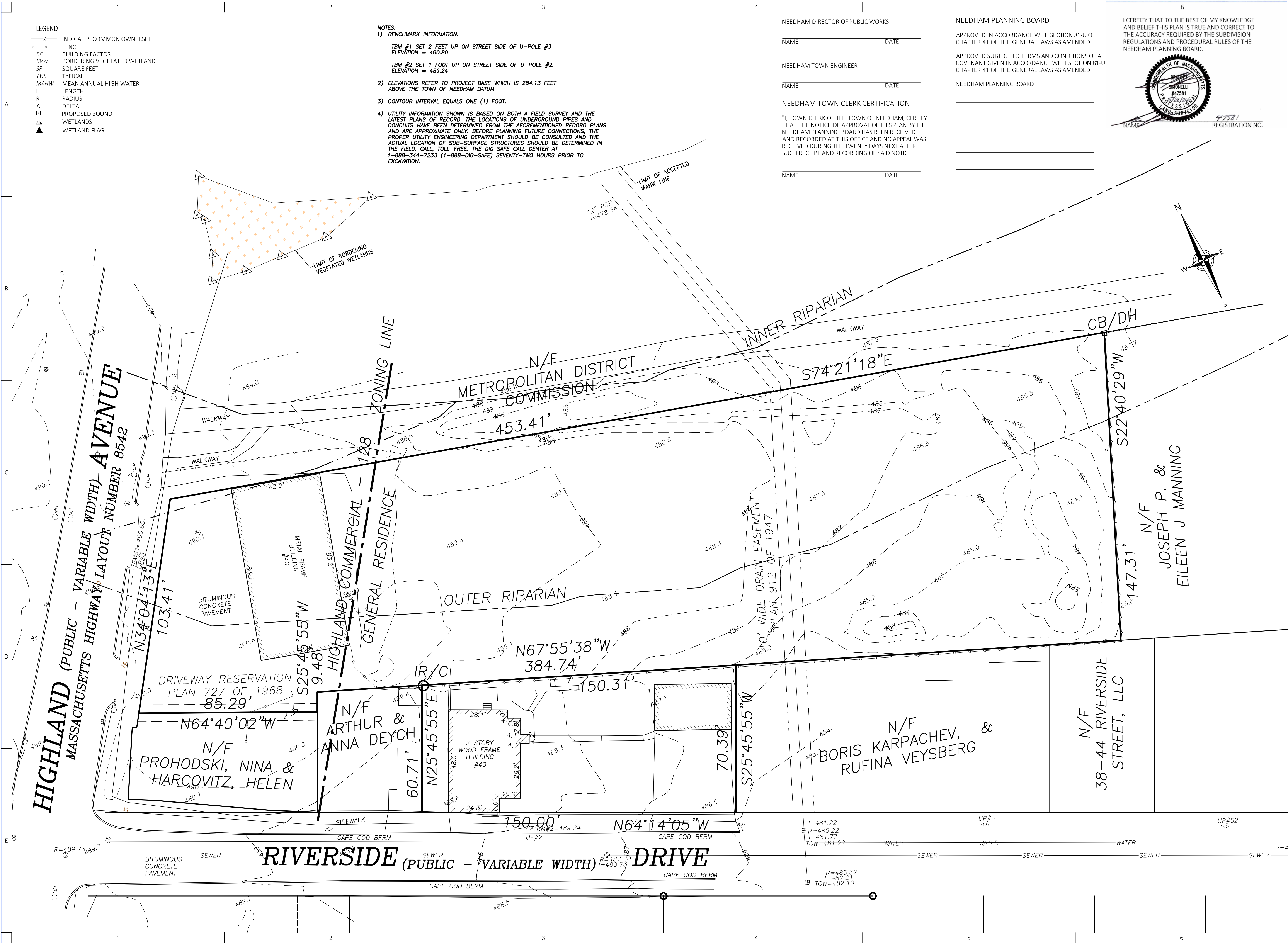
No: Date: Revision | Issue:

Drawn By: JTA Checked By: MIS

Date: 04/19/2024 Project No.: 21-0089

0 10' 20' 40' 60'
Scale: 1" = 20'

Sheet No.:



- LEGEND
- Z— INDICATES COMMON OWNERSHIP
 - FENCE
 - BF BUILDING FACTOR
 - BFVW BORDERING VEGETATED WETLAND
 - SF SQUARE FEET
 - TYP. TYPICAL
 - MAHW MEAN ANNUAL HIGH WATER
 - L LENGTH
 - R RADIUS
 - Δ DELTA
 - PROPOSED BOUND
 - ▣ WETLANDS
 - ▲ WETLAND FLAG

- NOTES:
- 1) BENCHMARK INFORMATION:
- TBM #1 SET 2 FEET UP ON STREET SIDE OF U-POLE #3
ELEVATION = 490.80
- TBM #2 SET 1 FOOT UP ON STREET SIDE OF U-POLE #2.
ELEVATION = 489.24
- 2) ELEVATIONS REFER TO PROJECT BASE WHICH IS 284.13 FEET ABOVE THE TOWN OF NEEDHAM DATUM
- 3) CONTOUR INTERVAL EQUALS ONE (1) FOOT.
- 4) UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND THE LATEST PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUB-SURFACE STRUCTURES SHOULD BE DETERMINED IN THE FIELD. CALL, TOLL-FREE, THE DIG SAFE CALL CENTER AT 1-888-344-7233 (1-888-DIG-SAFE) SEVENTY-TWO HOURS PRIOR TO EXCAVATION.

NEEDHAM DIRECTOR OF PUBLIC WORKS

NAME DATE

NEEDHAM TOWN ENGINEER

NAME DATE

NEEDHAM TOWN CLERK CERTIFICATION

"I, TOWN CLERK OF THE TOWN OF NEEDHAM, CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE NEEDHAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE

NAME DATE

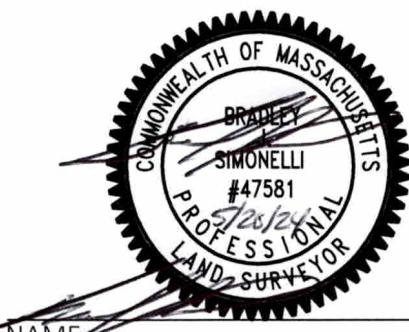
NEEDHAM PLANNING BOARD

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NEEDHAM PLANNING BOARD

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.



NAME 47381 REGISTRATION NO.

THE CONTENT, INFORMATION AND DESIGN OF THIS PLAN ARE PROPRIETARY AND DUPLICATION AND/OR UTILIZATION FOR ANY PURPOSES IS STRICTLY PROHIBITED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LAND DESIGN COLLABORATIVE. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES.
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Project Owner:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Prepared For:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Project Title:

Definitive Subdivision Plan
40 Highland Ave.
Needham, MA
(Norfolk County)

Sheet Title:

EXISTING
CONDITIONS PLAN

Definitive Subdivision

Prepared By:



LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581

508.952.6300 | LDcollaborative.com

Project Surveyor:

Field Resources, Inc.
LAND SURVEYORS

P.O. Box 324 281 Chestnut Street
Auburn, MA Needham, MA
508.832.4332 781.444.5936
office@fieldresources.net

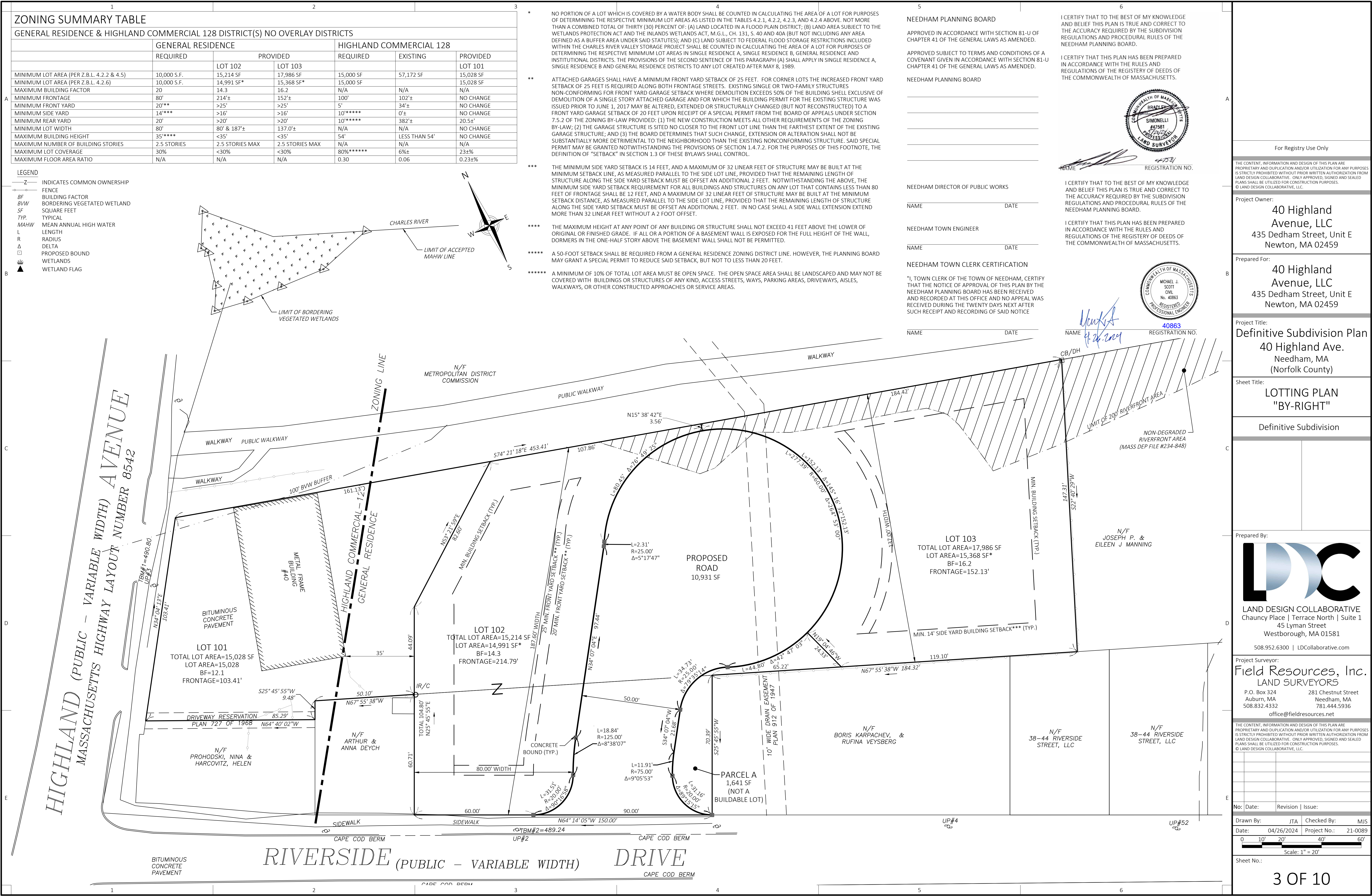
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No: Date: Revision | Issue:

Drawn By: Checked By:
Date: 04/26/2024 Project No.: 21-0089

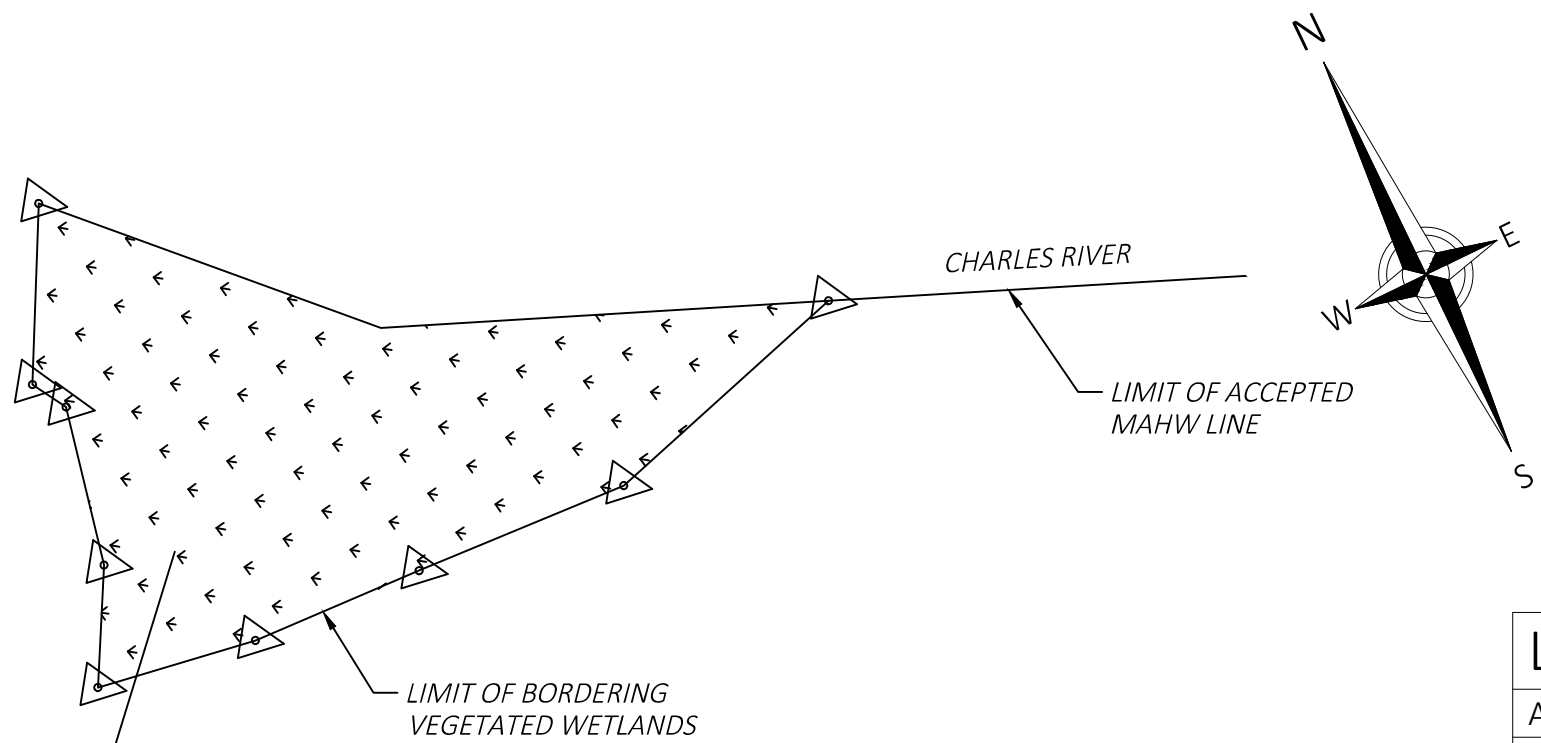
0 10' 20' 40' 60'
Scale: 1" = 20'

Sheet No.:



GENERAL RESIDENCE & HIGHLAND COMMERCIAL 128 DISTRICT(S) NO OVERLAY DISTRICTS

LEGEND	
	INDICATES COMMON OWNERSHIP
	FENCE
<i>BF</i>	BUILDING FACTOR
<i>BWV</i>	BORDERING VEGETATED WETLAND
<i>SF</i>	SQUARE FEET
<i>TP</i>	TYPICAL
<i>MAHW</i>	MEAN ANNUAL HIGH WATER
	LENGTH
<i>R</i>	RADIUS
Δ	DELTA
	PROPOSED BOUND
	WETLANDS
	WETLAND FLAG



APPLICABLE SECTION	PARAMETER	REQUIRED	PROVIDED
3.1.2	SCALE, DATUM	1"=40' & NEEDHAM SEWER OR USC&GS 1929	1"=20' & (SEE NOTES ON SHEET 2 OF 10)
3.1.1	STREETS	50' R.O.W.	40' R.O.W.
3.3.5	DEAD-END STREETS	60' R.O.W.; 50' PAVEMENT	HAMMERHEAD OR T-SHAPE BACK-UP STRIP
3.3.16	SIDEWALKS	4.5' WIDE ON ONE SIDE	8' WIDE GRASS STRIP

A MINIMUM OF 10% OF TOTAL TIT AREA MUST BE OPEN SPACE. THE OPEN SPACE AREA SHALL BE LANDSCAPED AND MAY NOT BE COVERED WITH BUILDINGS OR STRUCTURES OF ANY KIND, ACCESS STREETS, WAYS, PARKING AREAS, DRIVEWAYS, AISLES, WALKWAYS, OR OTHER CONSTRUCTED APPROACHES OR SERVICE AREAS.

NAME _____

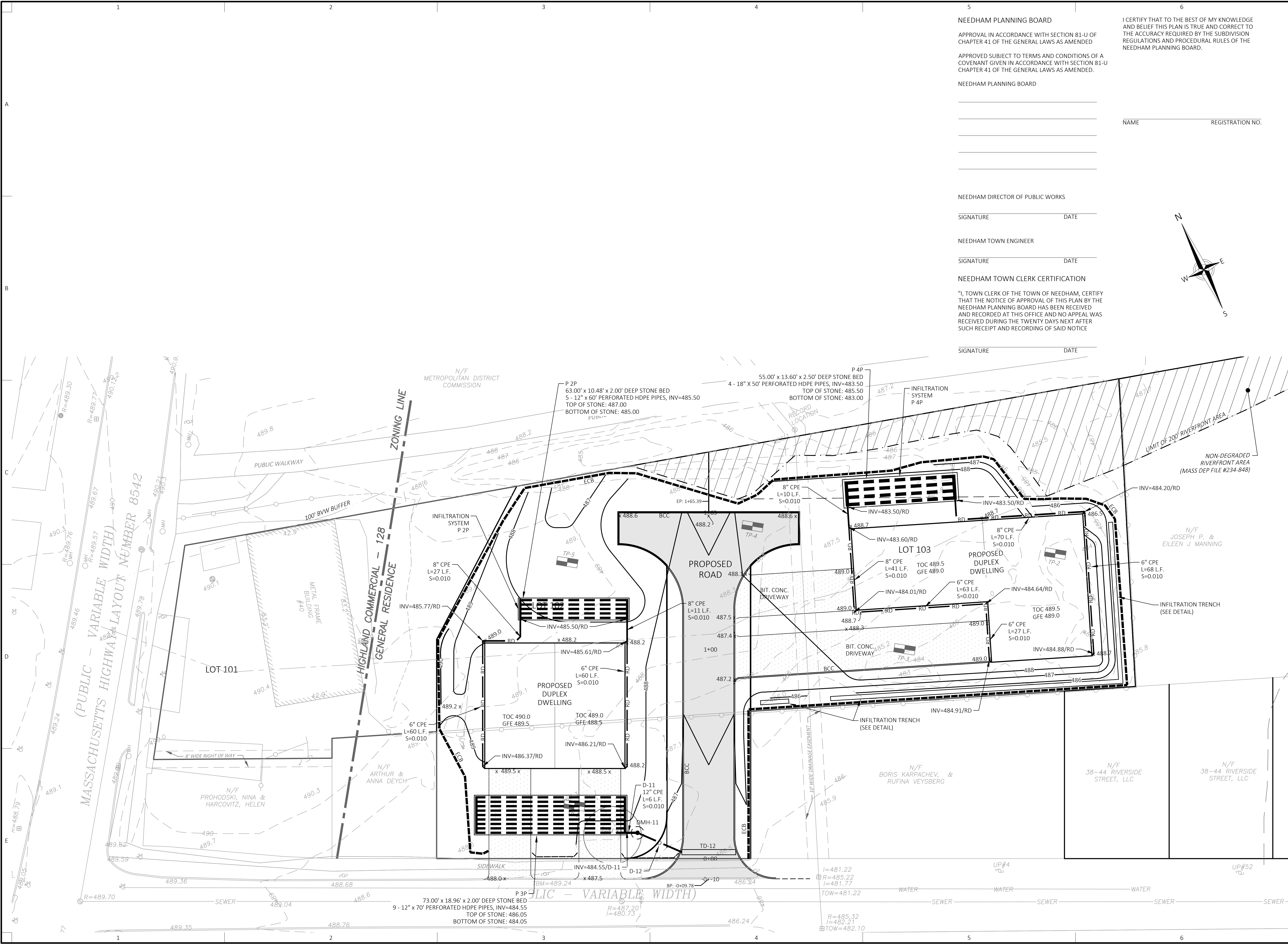
I CERTIFY THAT THIS PLAN HAS BEEN PREPARED
IN ACCORDANCE WITH THE RULES AND
REGULATIONS OF THE REGISTRY OF DEEDS OF
THE COMMONWEALTH OF MASSACHUSETTS.



NAME 42/204 REGISTRATION N 40000

Sheet No.:

REGISTRY SHEET 1 OF 1



NEEDHAM PLANNING BOARD

APPROVAL IN ACCORDANCE WITH SECTION 81-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED

APPROVED SUBJECT TO TERMS AND CONDITIONS OF A COVENANT GIVEN IN ACCORDANCE WITH SECTION 81-U CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

NEEDHAM PLANNING BOARD

NAME _____ REGISTRATION NO. _____

NEEDHAM DIRECTOR OF PUBLIC WORKS

SIGNATURE _____ DATE _____

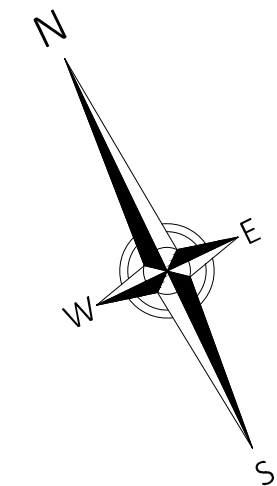
NEEDHAM TOWN ENGINEER

SIGNATURE _____ DATE _____

NEEDHAM TOWN CLERK CERTIFICATION

"I, TOWN CLERK OF THE TOWN OF NEEDHAM, CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE NEEDHAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE

SIGNATURE _____ DATE _____



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Project Owner:
40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

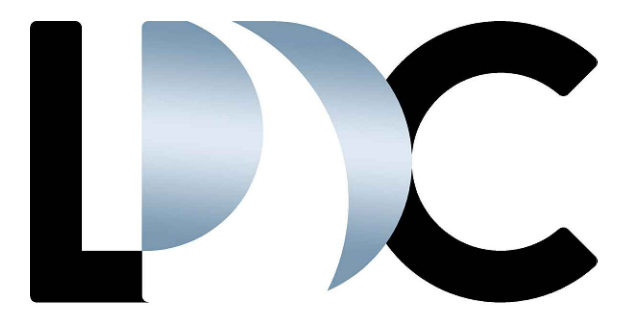
Prepared For:
40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Project Title:
Definitive Subdivision Plan
40 Highland Ave.
Needham, MA
(Norfolk County)

Sheet Title:
GRADING & DRAINAGE PLAN

Definitive Subdivision

Prepared By:



LDL
LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDCollaborative.com

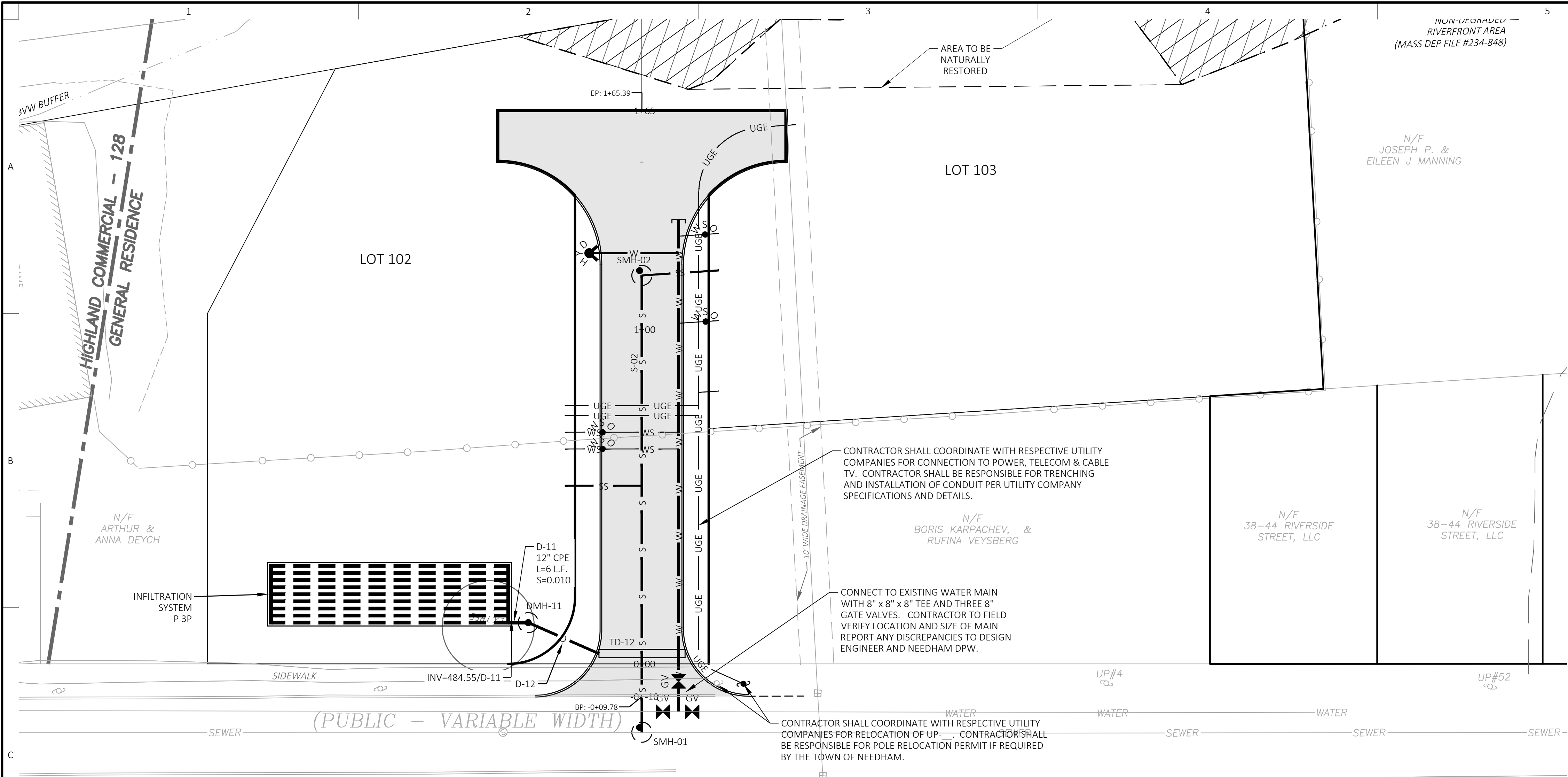
Project Surveyor:
FIELD RESOURCES, INC.
Land Surveyors
P.O. Box 324 Auburn, MA 04886
508.832.4332
281 Chestnut Street Needham, MA 02459
781.444.5936
fieldresources@hotmail.com

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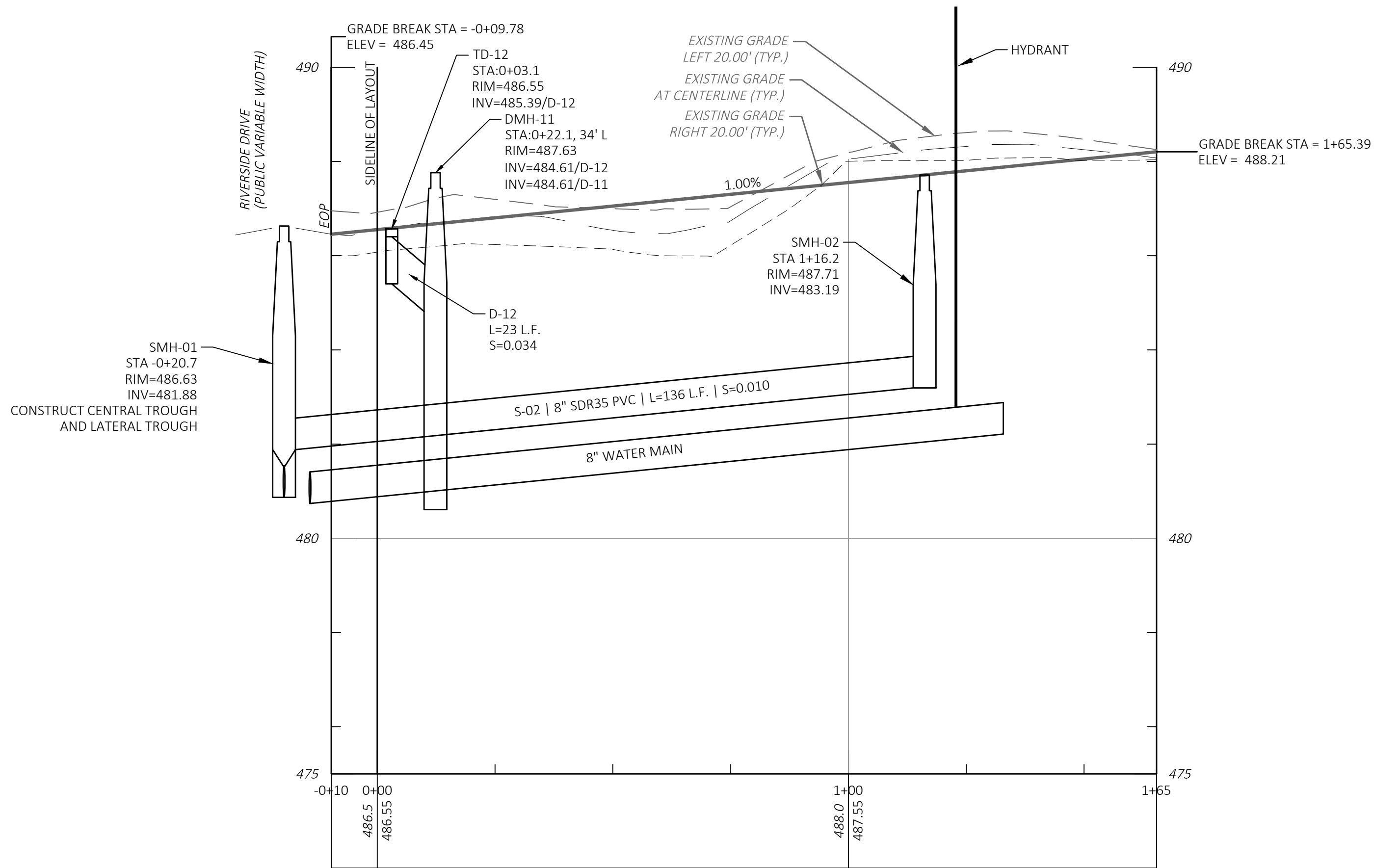
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Drawn By: JTA Checked By: MIS
Date: 04/19/2022 Project No.: 21-0089

0 10' 20' 40' 60'
Scale: 1" = 20'



PLAN



PROFILE

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

NAME _____ REGISTRATION NO. _____

NEEDHAM PLANNING BOARD

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NEEDHAM PLANNING BOARD

NEEDHAM DIRECTOR OF PUBLIC WORKS

SIGNATURE _____ DATE _____

NEEDHAM TOWN ENGINEER

SIGNATURE _____ DATE _____

NEEDHAM TOWN CLERK CERTIFICATION

"I, TOWN CLERK OF THE TOWN OF NEEDHAM, CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE NEEDHAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE

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Project Owner:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Prepared For:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Project Title:

Definitive Subdivision Plan
40 Highland Ave.
Needham, MA
(Norfolk County)

Sheet Title:

PLAN & PROFILE
STA 0+00 TO END

Definitive Subdivision

Prepared By:

LD
LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDcollaborative.com

Project Surveyor:

FIELD RESOURCES, INC.
Land Surveyors
P.O. Box 324 Auburn, MA 508.832.4332
281 Chestnut Street Needham, MA 781.444.5936
fieldresources@hotmail.com

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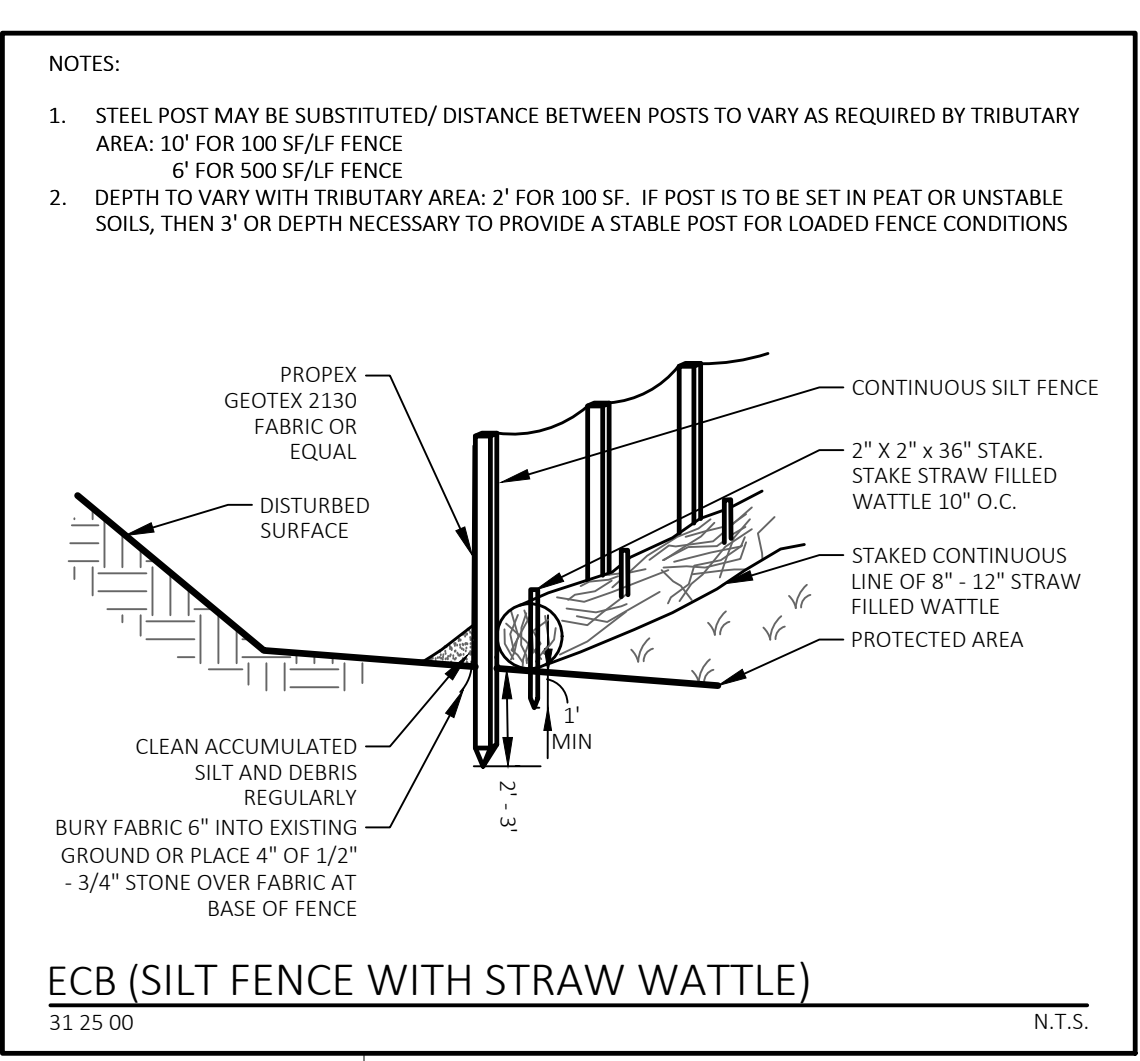
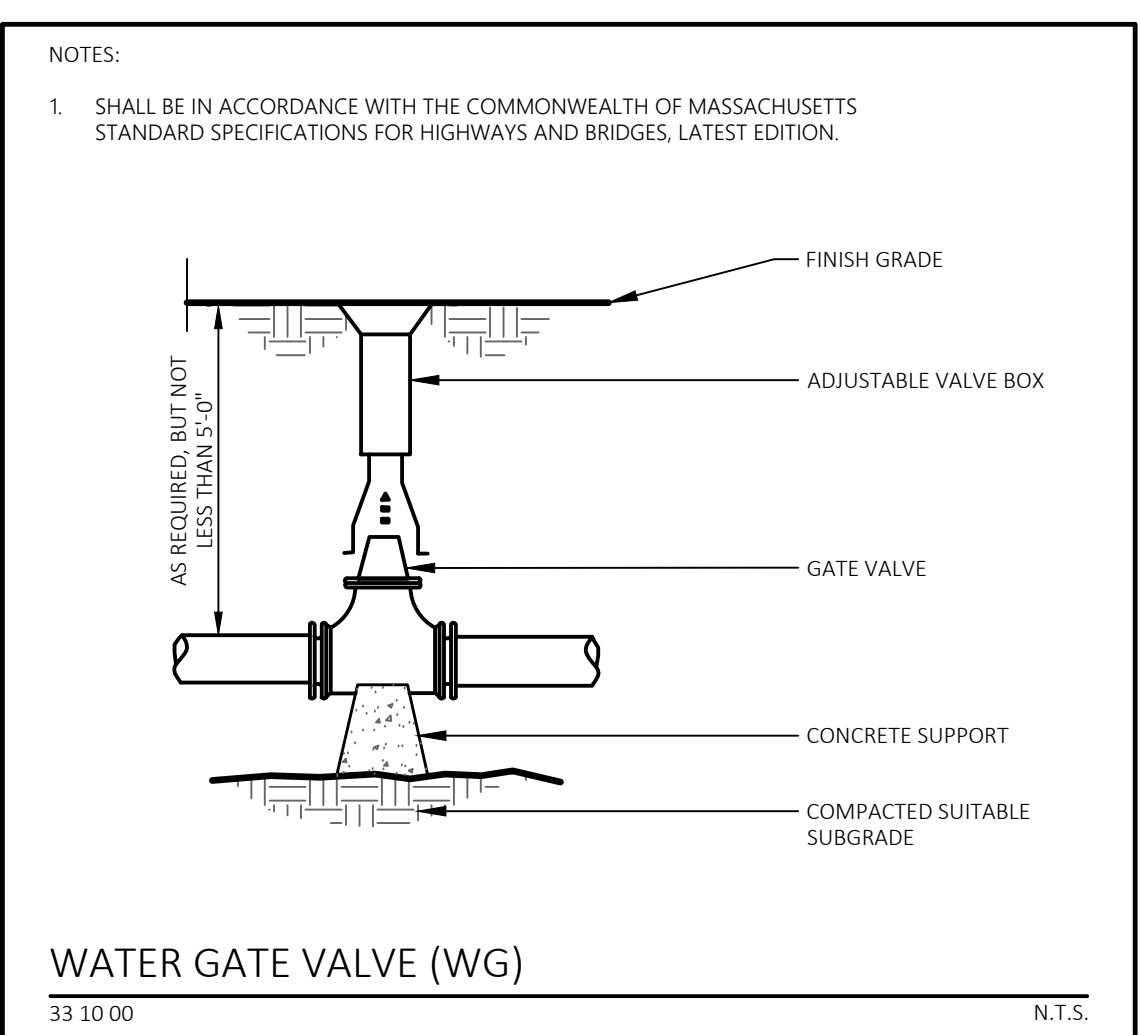
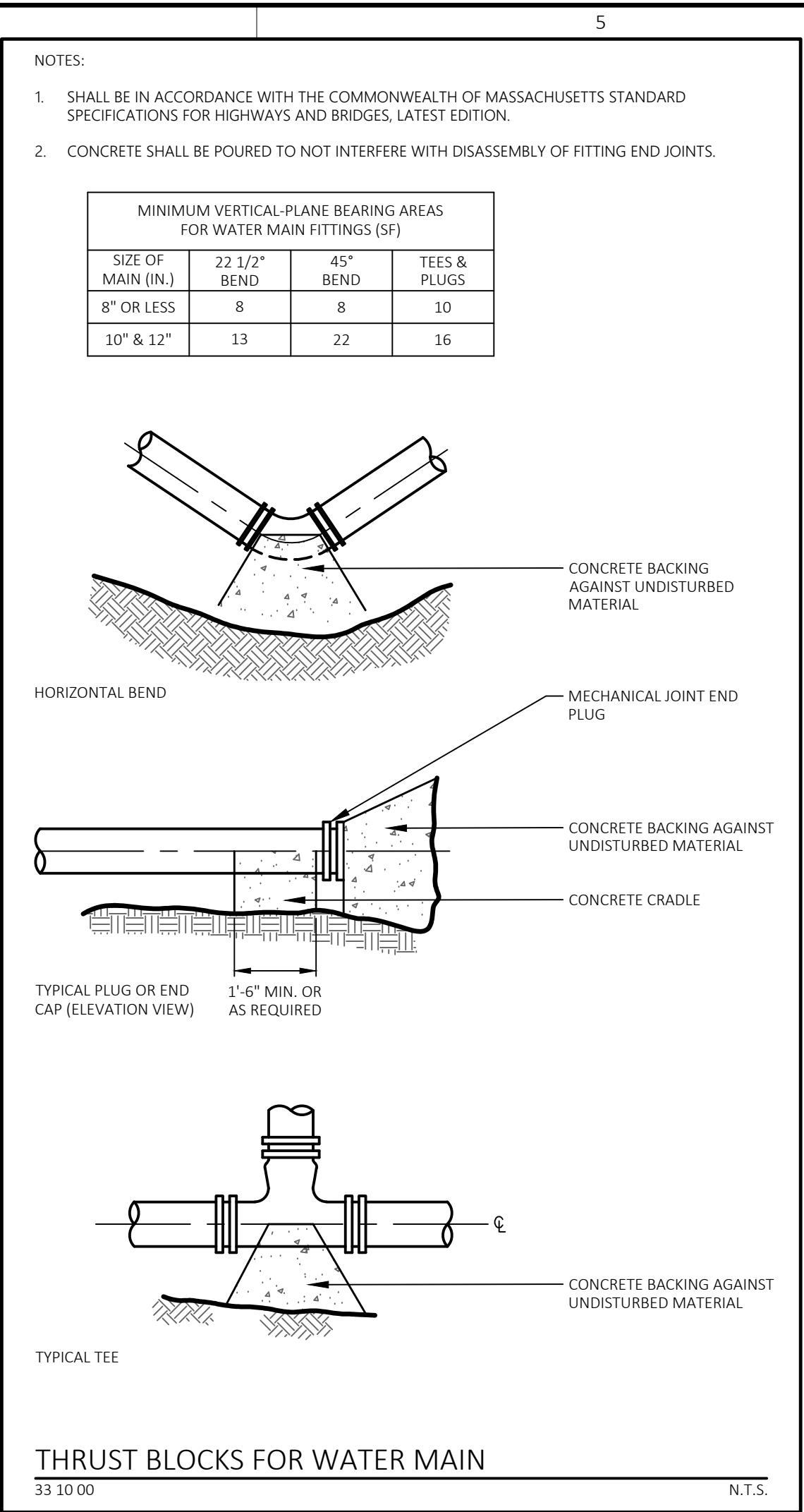
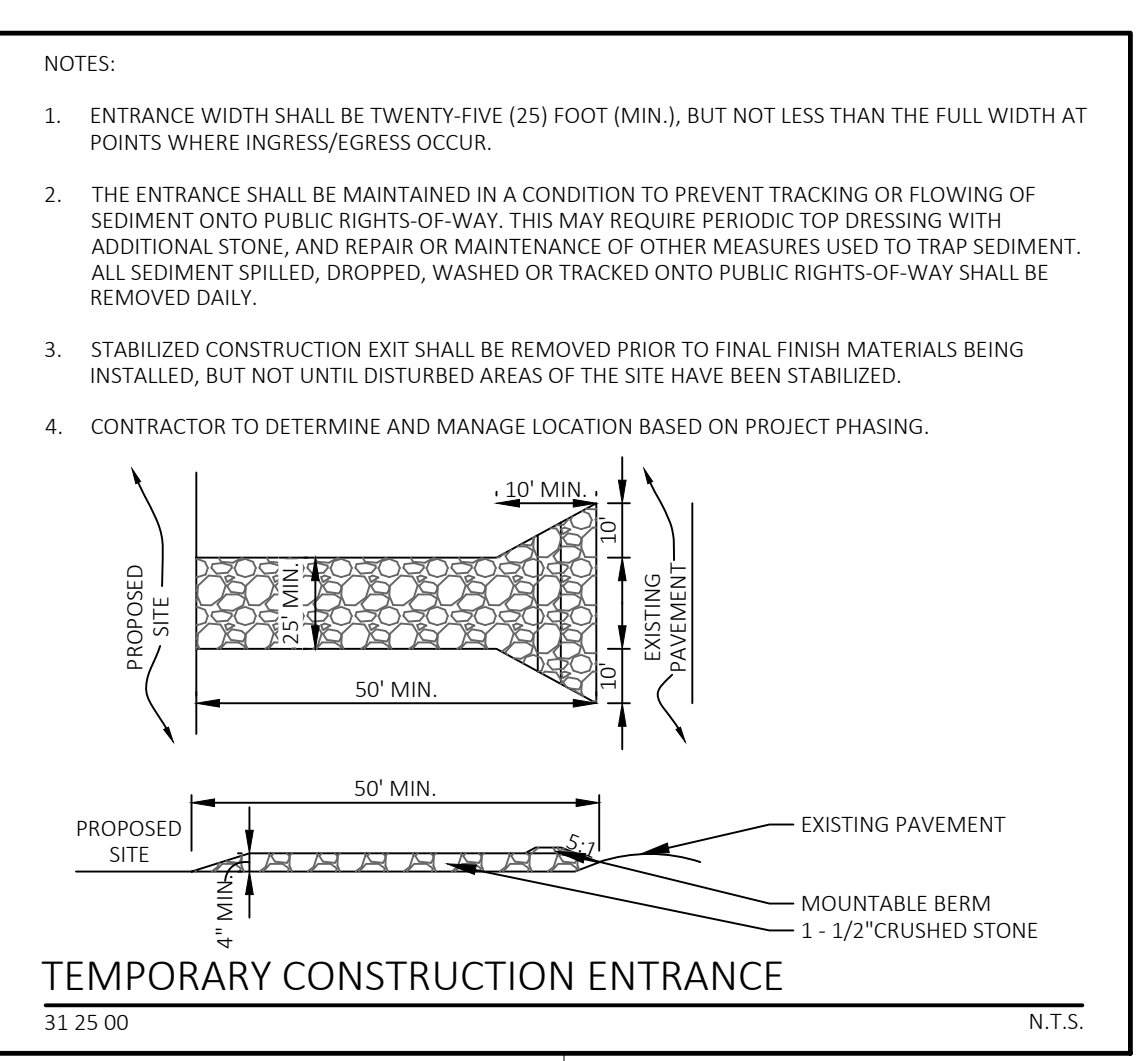
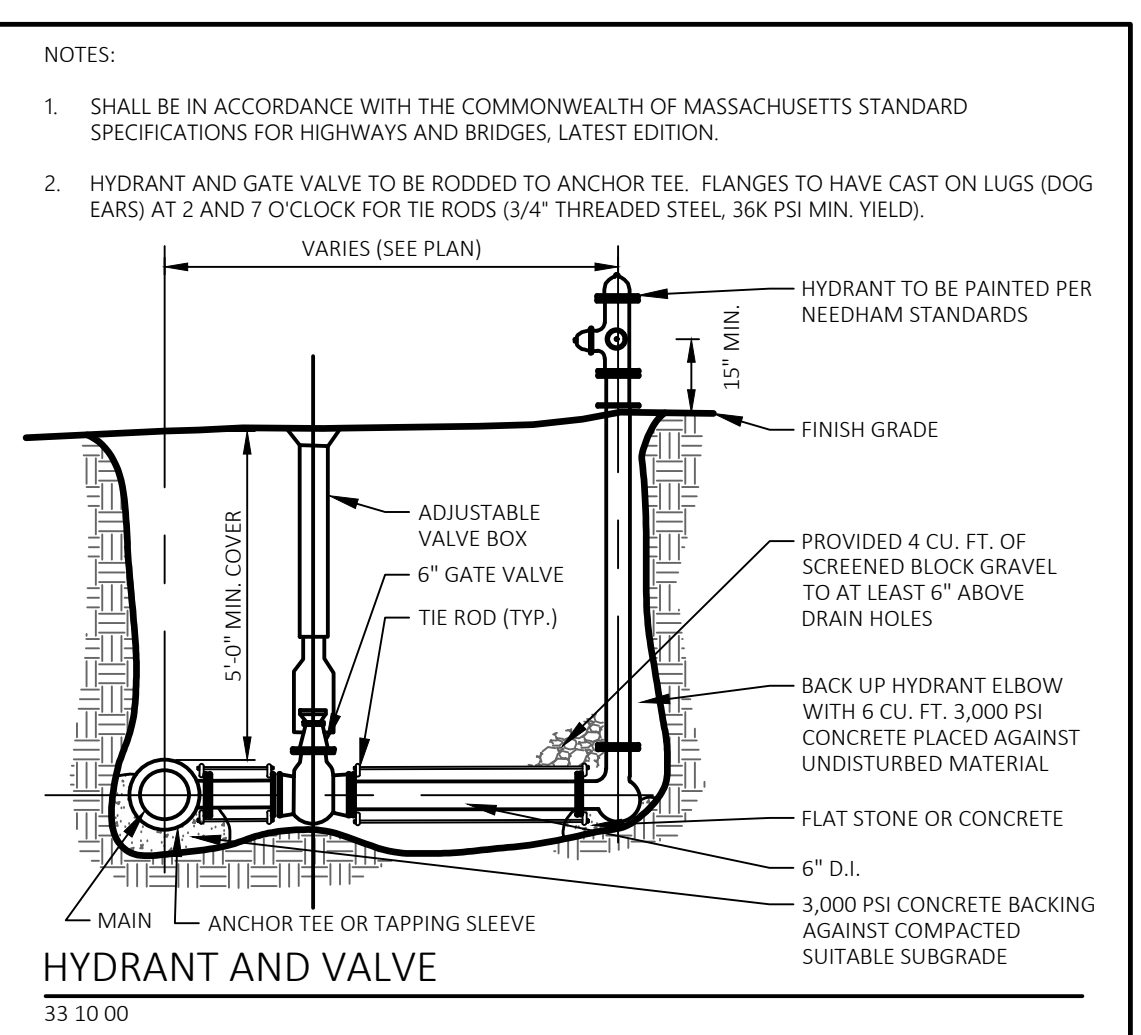
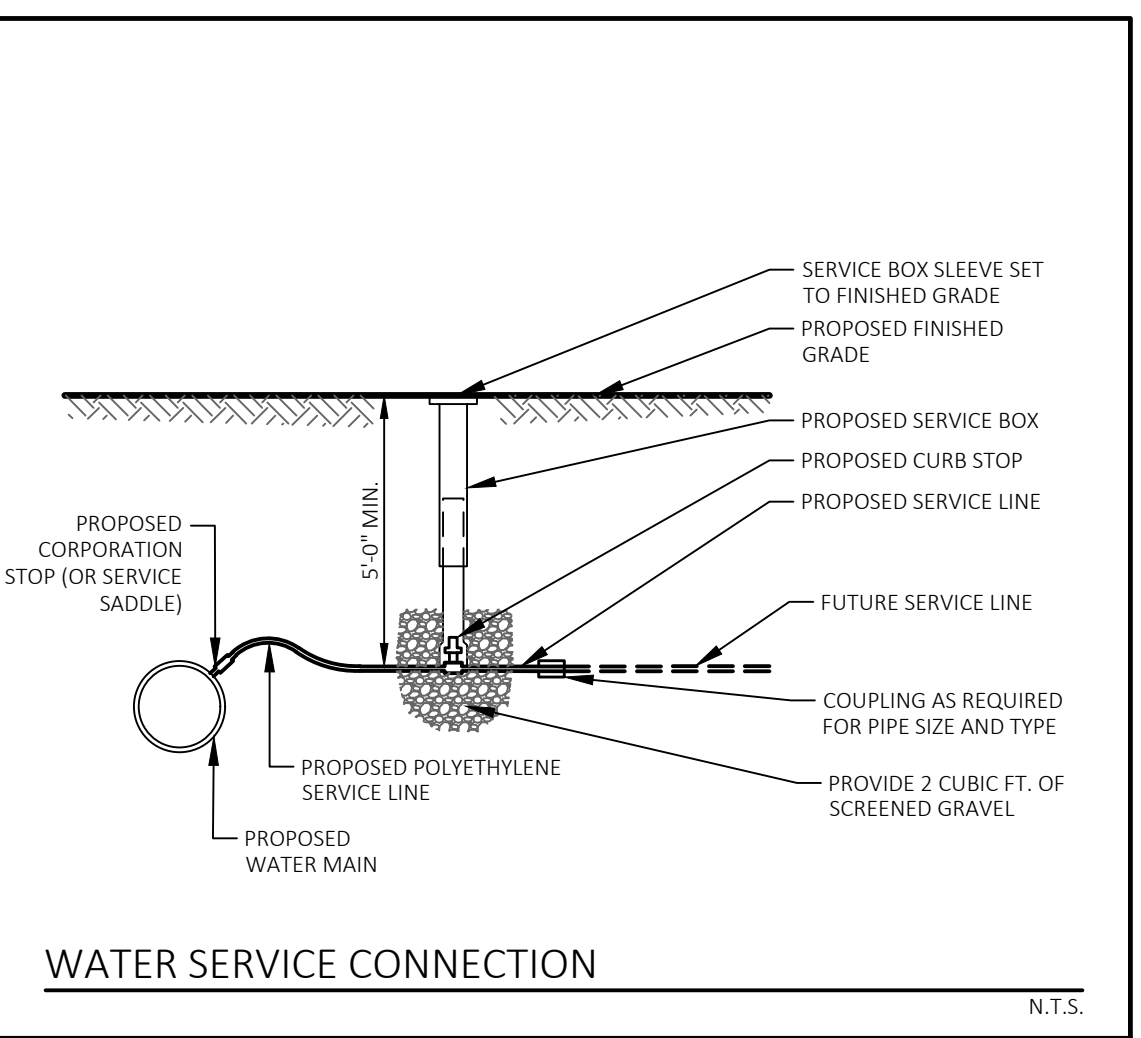
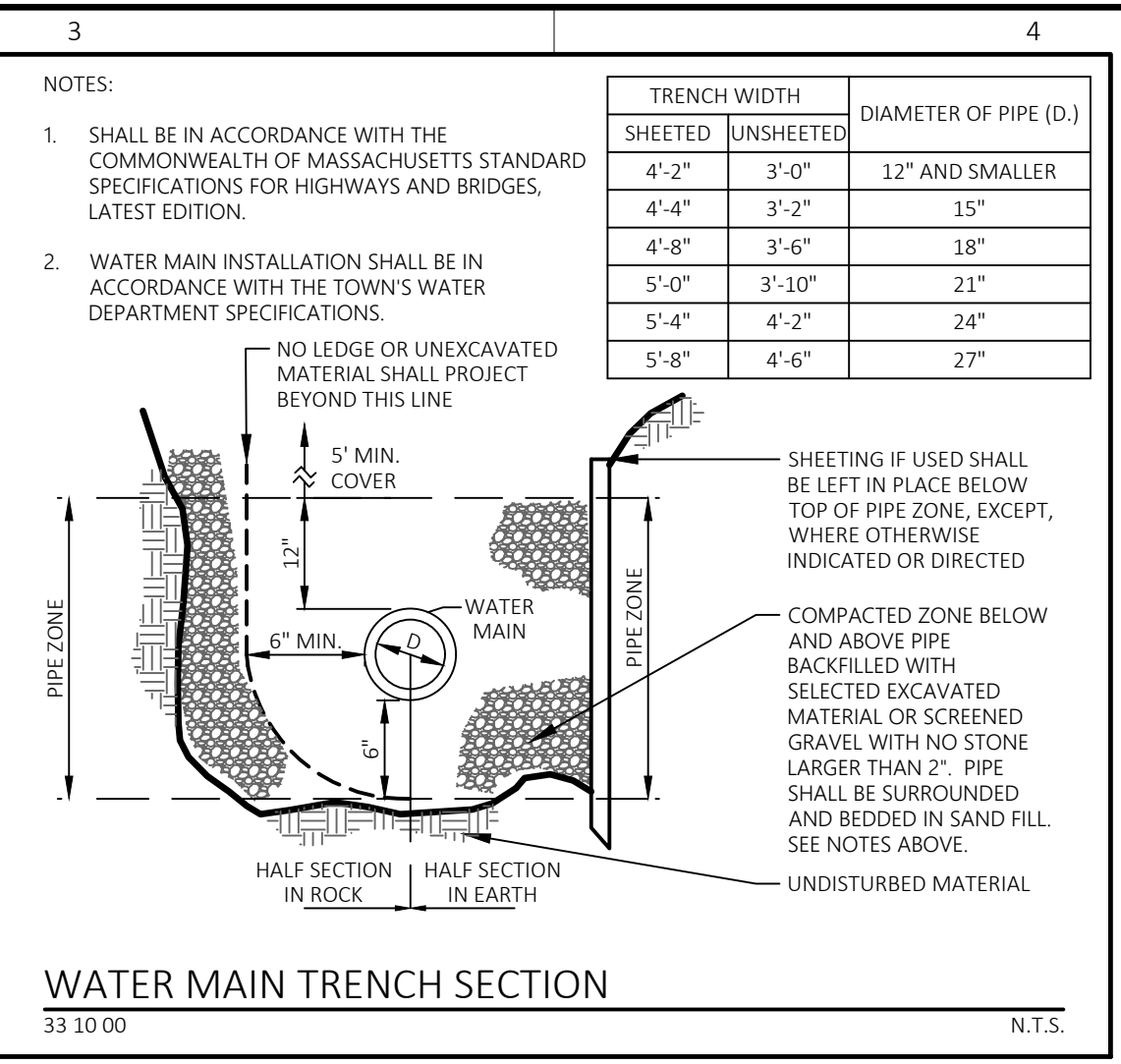
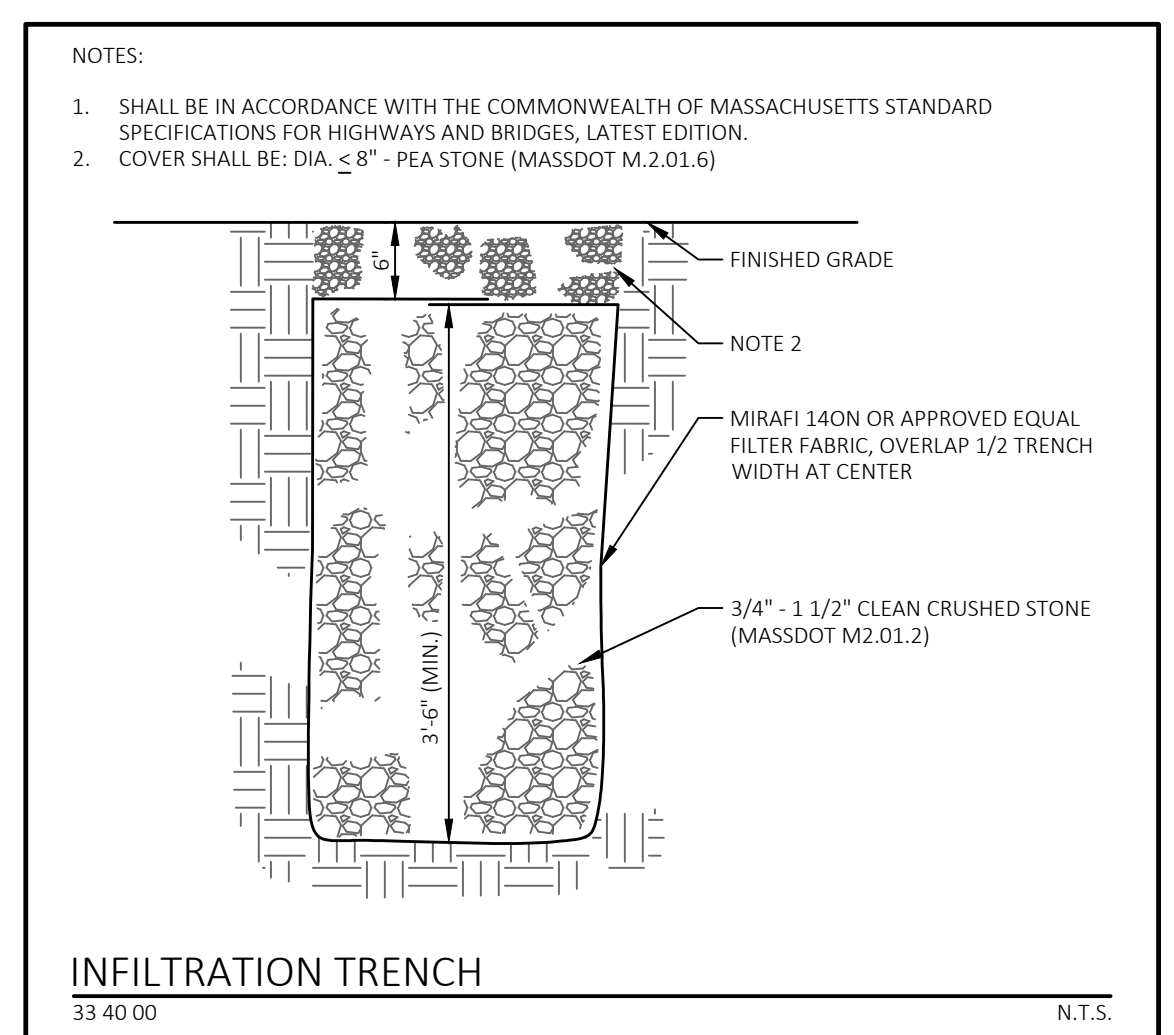
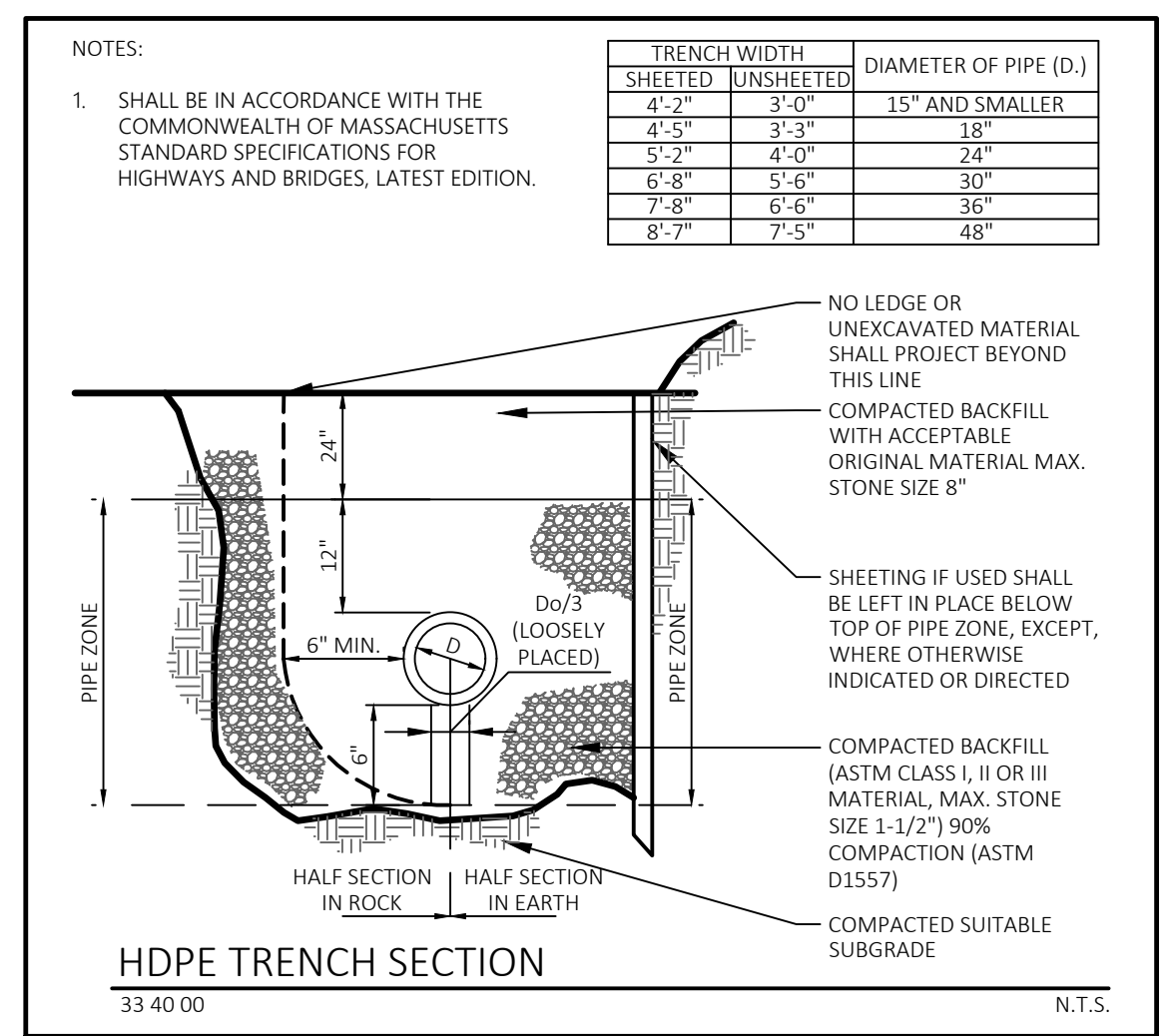
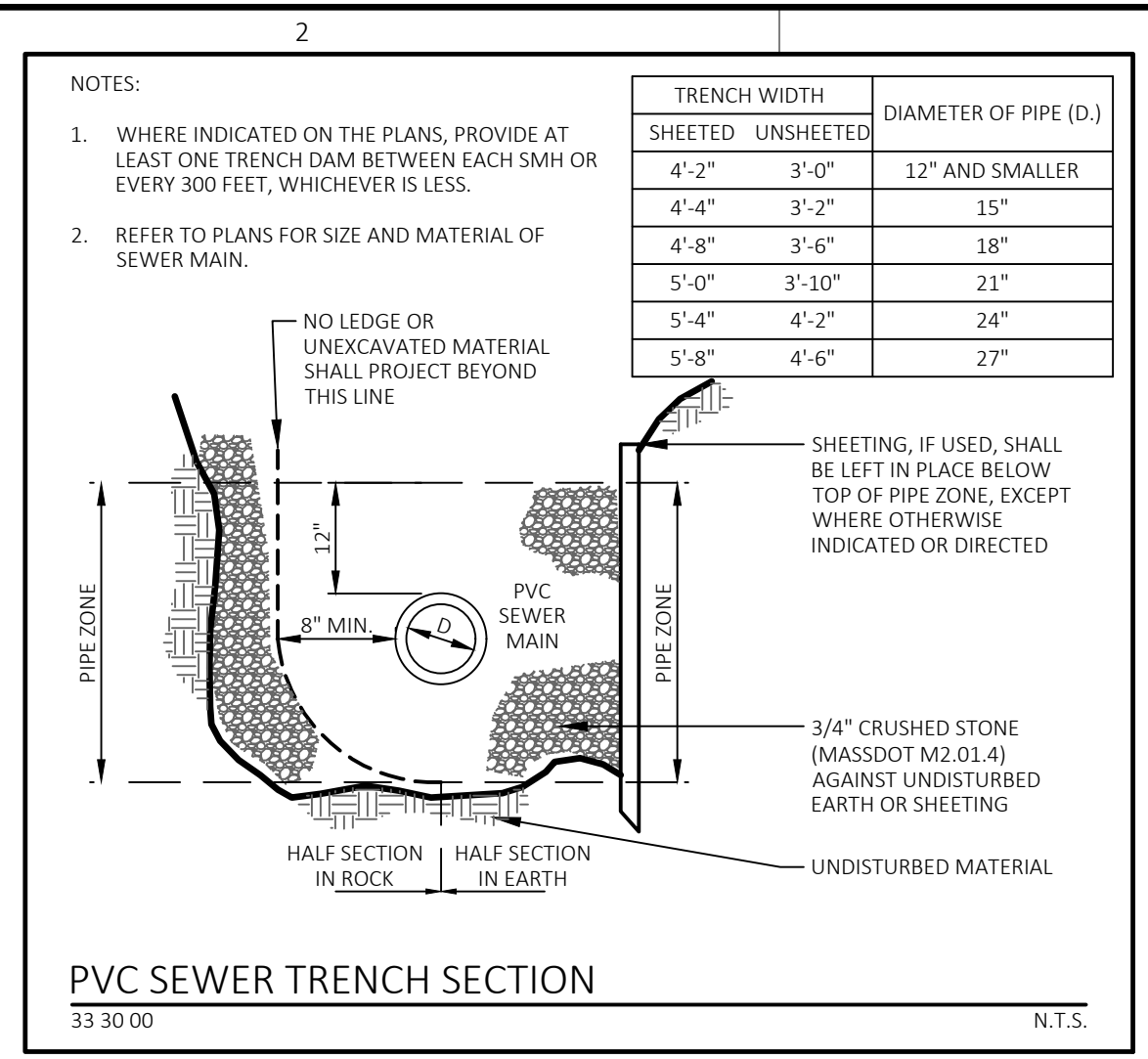
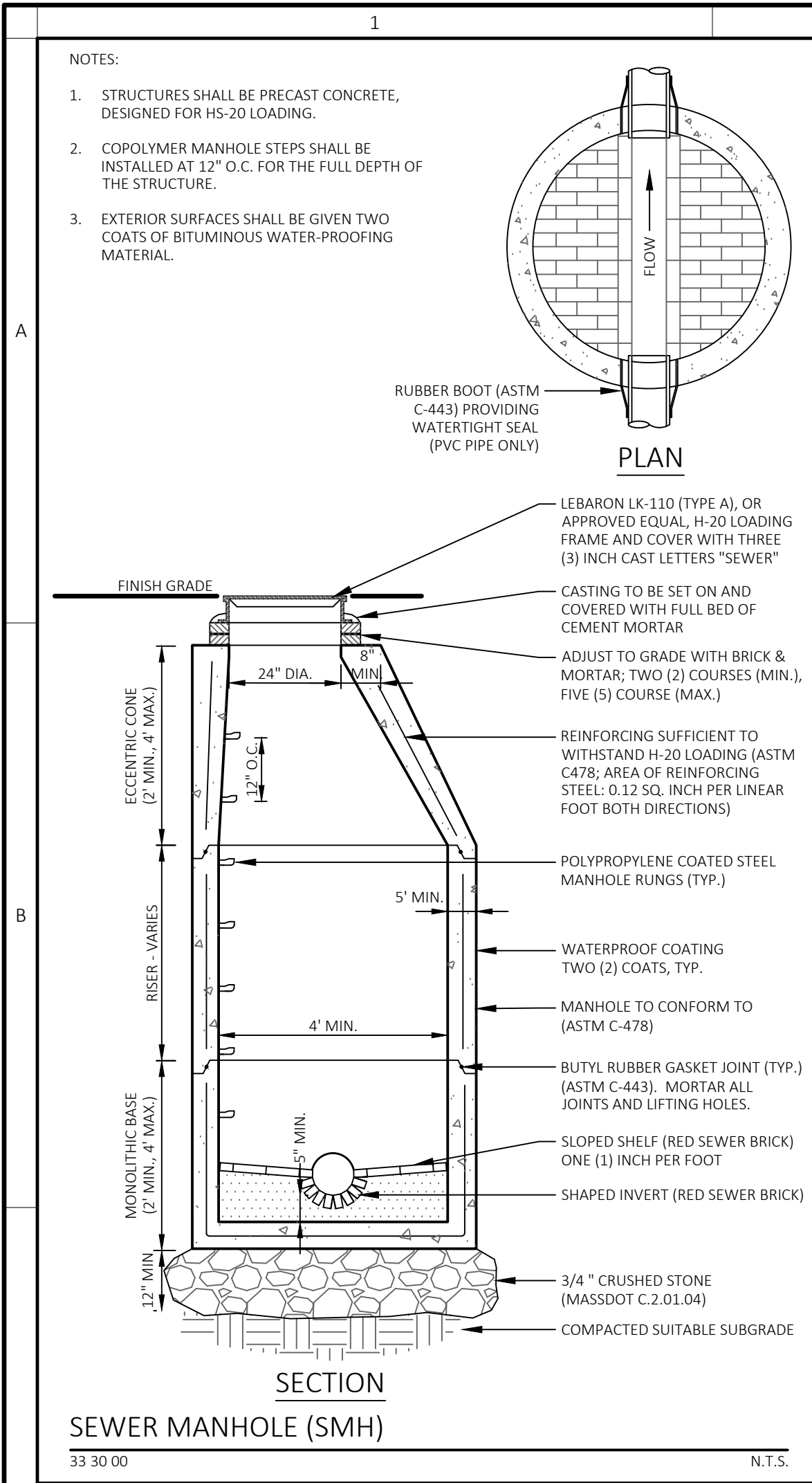
Drawn By: JTA Checked By: MIS

Date: 04/26/2024 Project No.: 21-0089

0 10' 20' 40' 60'
Scale: 1" = 2' V: 1" = 20' H

Sheet No.:

6 OF 10



I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

NAME _____ REGISTRATION NO. _____

NEEDHAM PLANNING BOARD

APPROVED IN ACCORDANCE WITH SECTION 81-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

APPROVED SUBJECT TO TERMS AND CONDITIONS OF A COVENANT GIVEN IN ACCORDANCE WITH SECTION 81-U CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

NEEDHAM PLANNING BOARD

NEEDHAM DIRECTOR OF PUBLIC WORKS

SIGNATURE _____ DATE _____

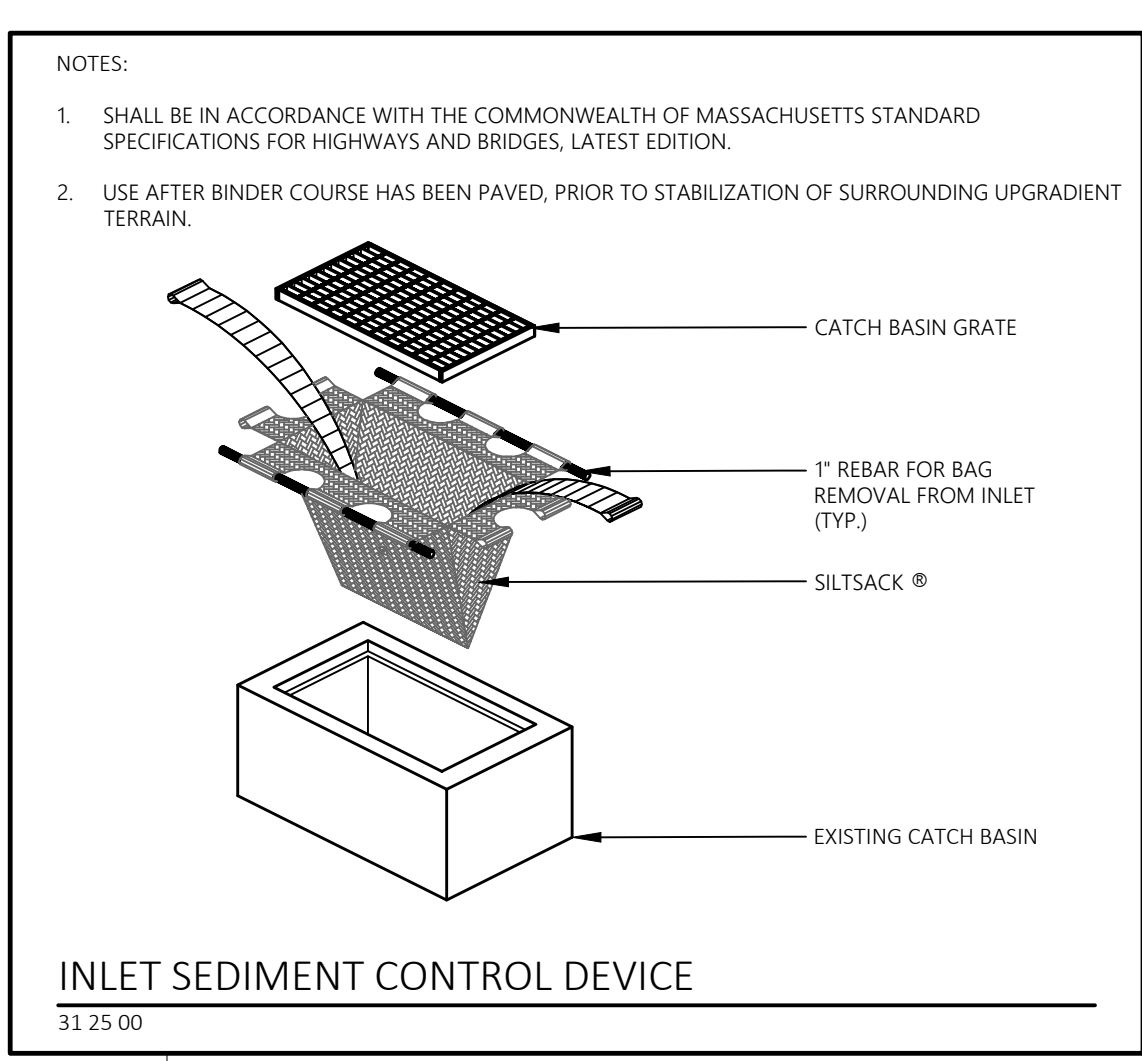
NEEDHAM TOWN ENGINEER

SIGNATURE _____ DATE _____

NEEDHAM TOWN CLERK CERTIFICATION

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Project Owner:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Prepared For:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Project Title:

Definitive Subdivision Plan
40 Highland Ave.
Needham, MA (Norfolk County)

Sheet Title:

DETAILS

Definitive Subdivision

Prepared By:

LDCLAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDcollaborative.com

Project Surveyor:

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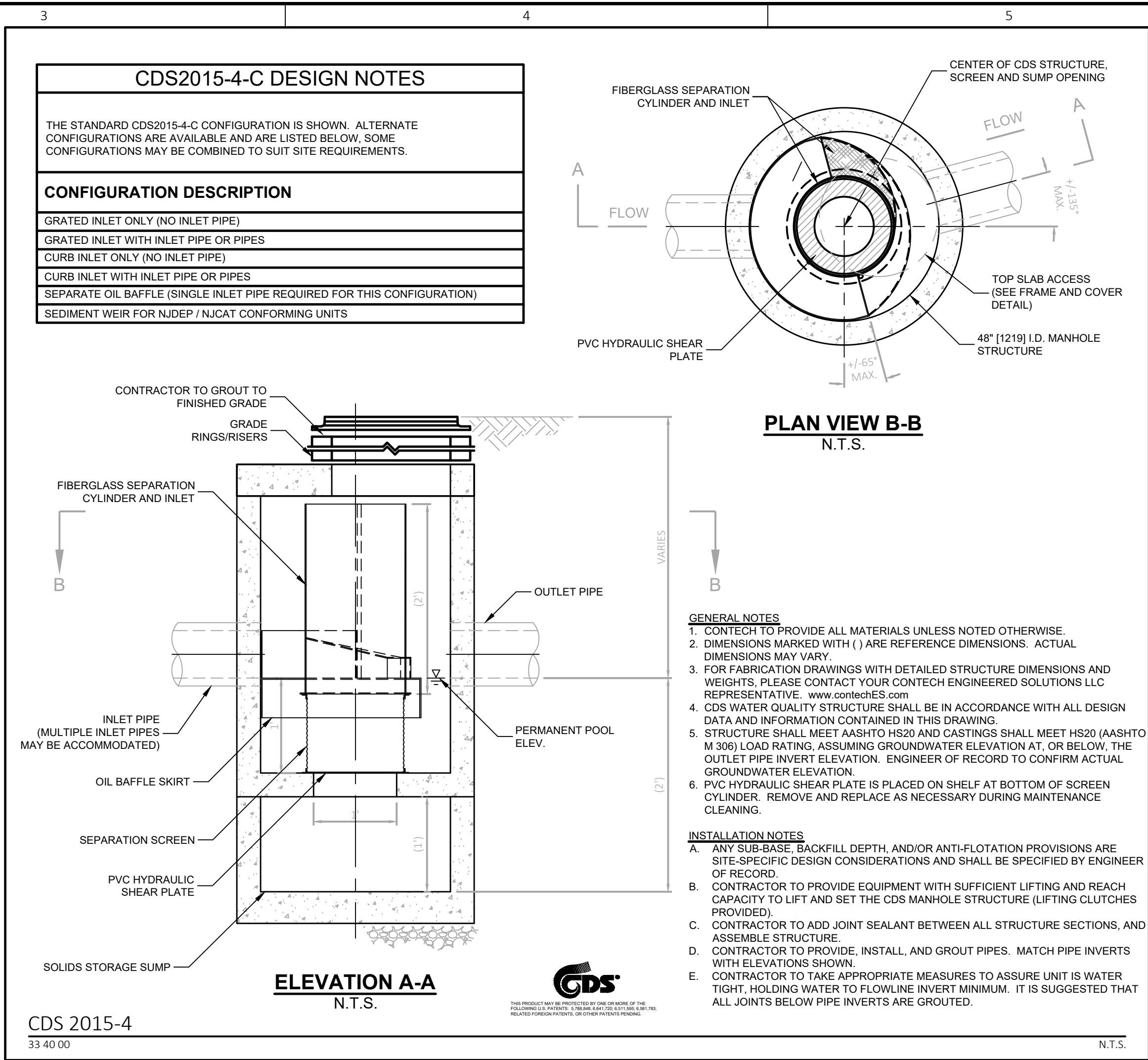
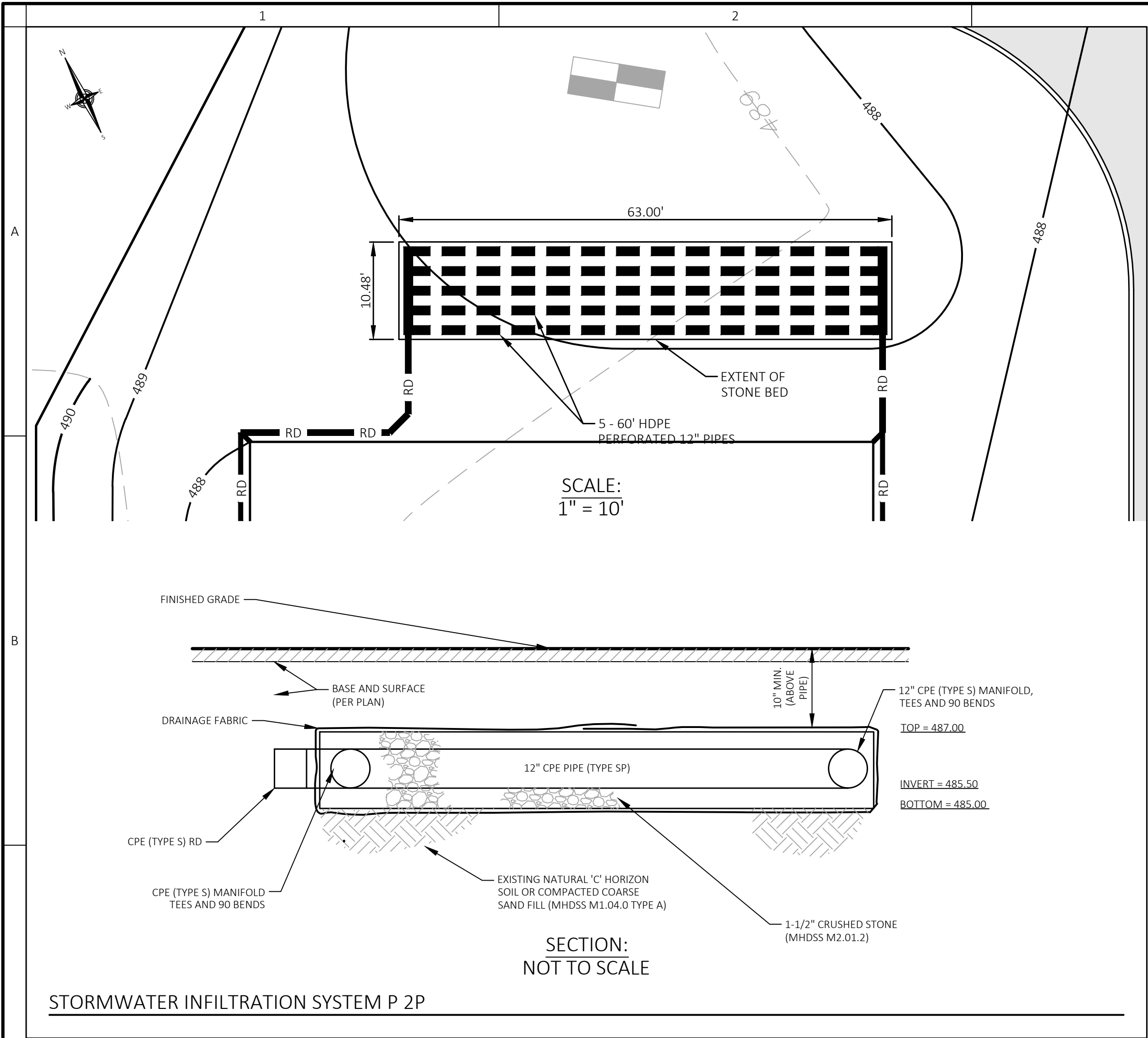
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Drawn By: JTA Checked By: MIS Date: 04/26/2024 Project No.: 21-0089

Sheet No.:

7 OF 10



I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

NAME _____ REGISTRATION NO. _____

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NEEDHAM PLANNING BOARD

NEEDHAM DIRECTOR OF PUBLIC WORKS

SIGNATURE _____ DATE _____

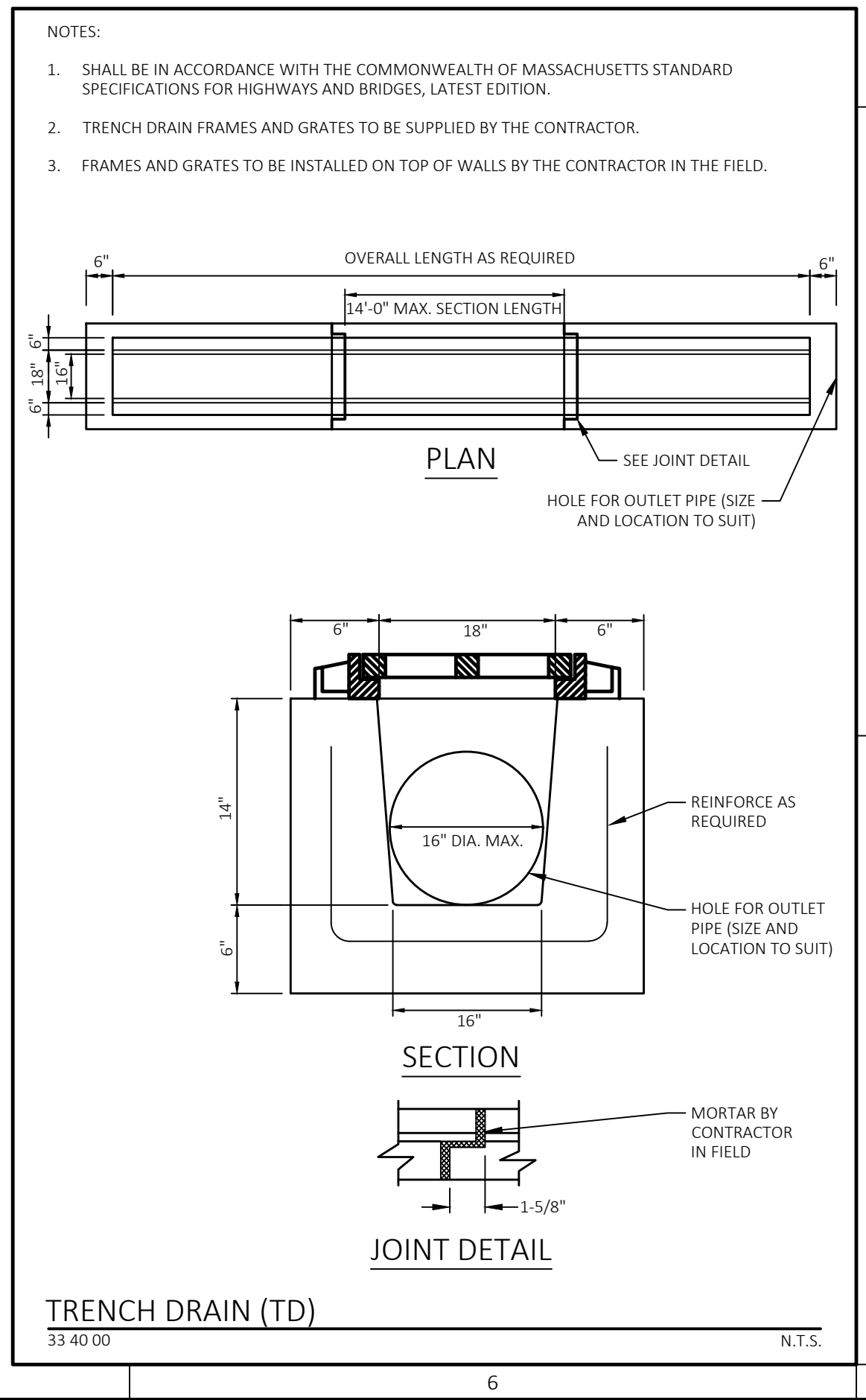
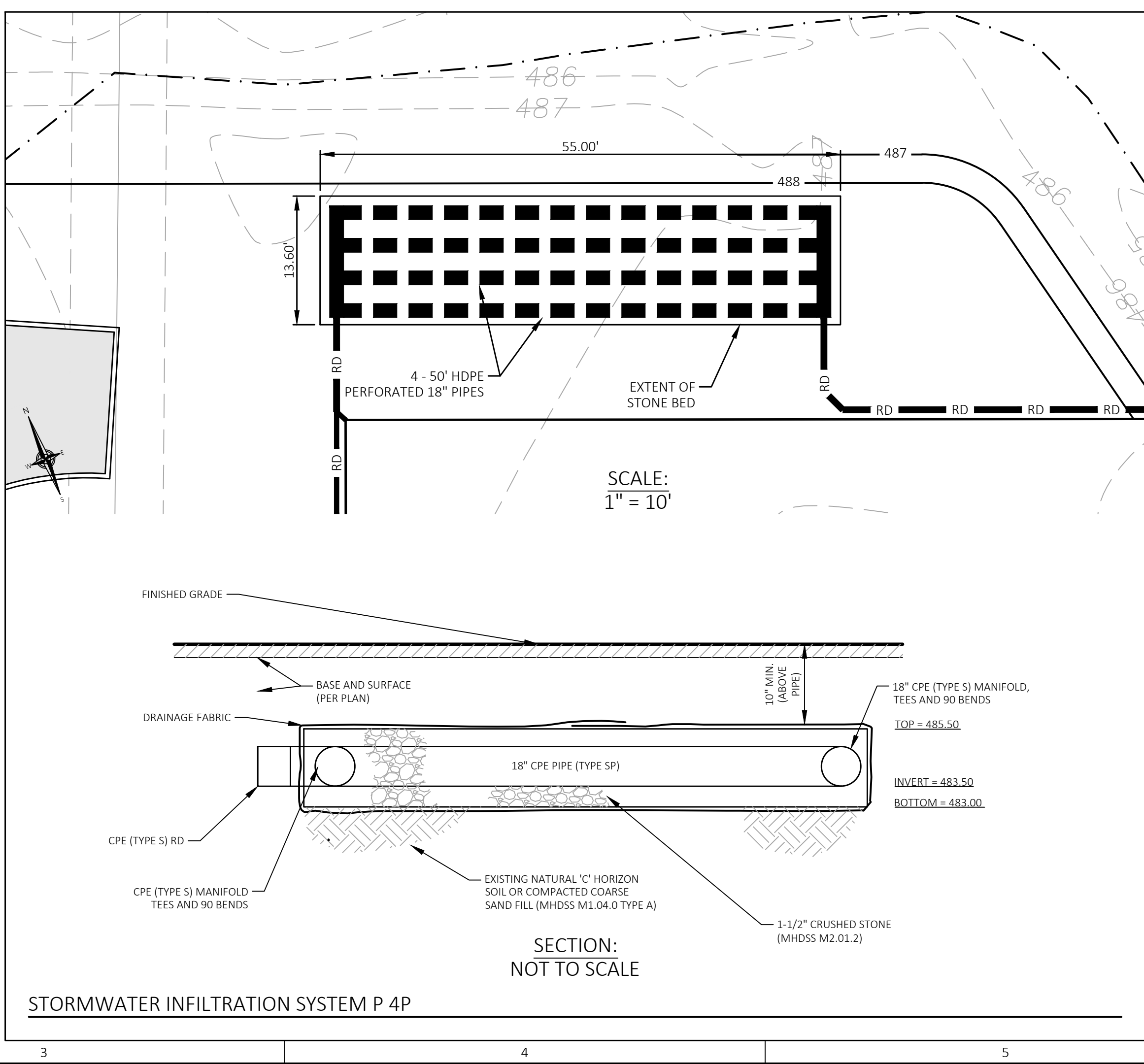
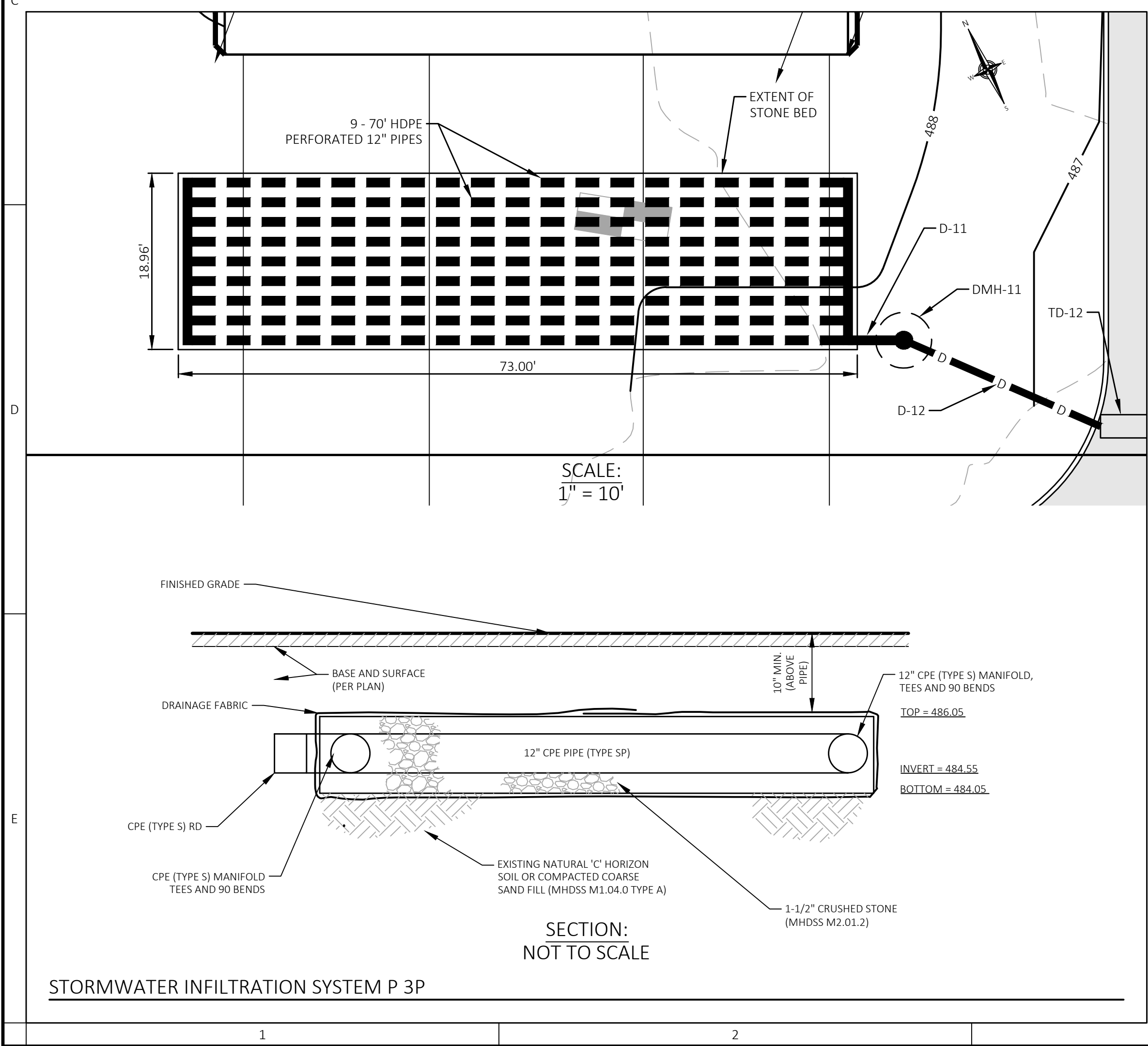
NEEDHAM TOWN ENGINEER

SIGNATURE _____ DATE _____

NEEDHAM TOWN CLERK CERTIFICATION

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Project Owner:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Prepared For:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Project Title:

Definitive Subdivision Plan
40 Highland Ave.
Needham, MA (Norfolk County)

Sheet Title:

DETAILS

Definitive Subdivision

Prepared By:

LD
LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDcollaborative.com

Project Surveyor:

FIELD RESOURCES, INC.
Land Surveyors
P.O. Box 324 Auburn, MA 03083.4332
281 Chestnut Street Needham, MA 02454.5936
fieldresources@hotmail.com

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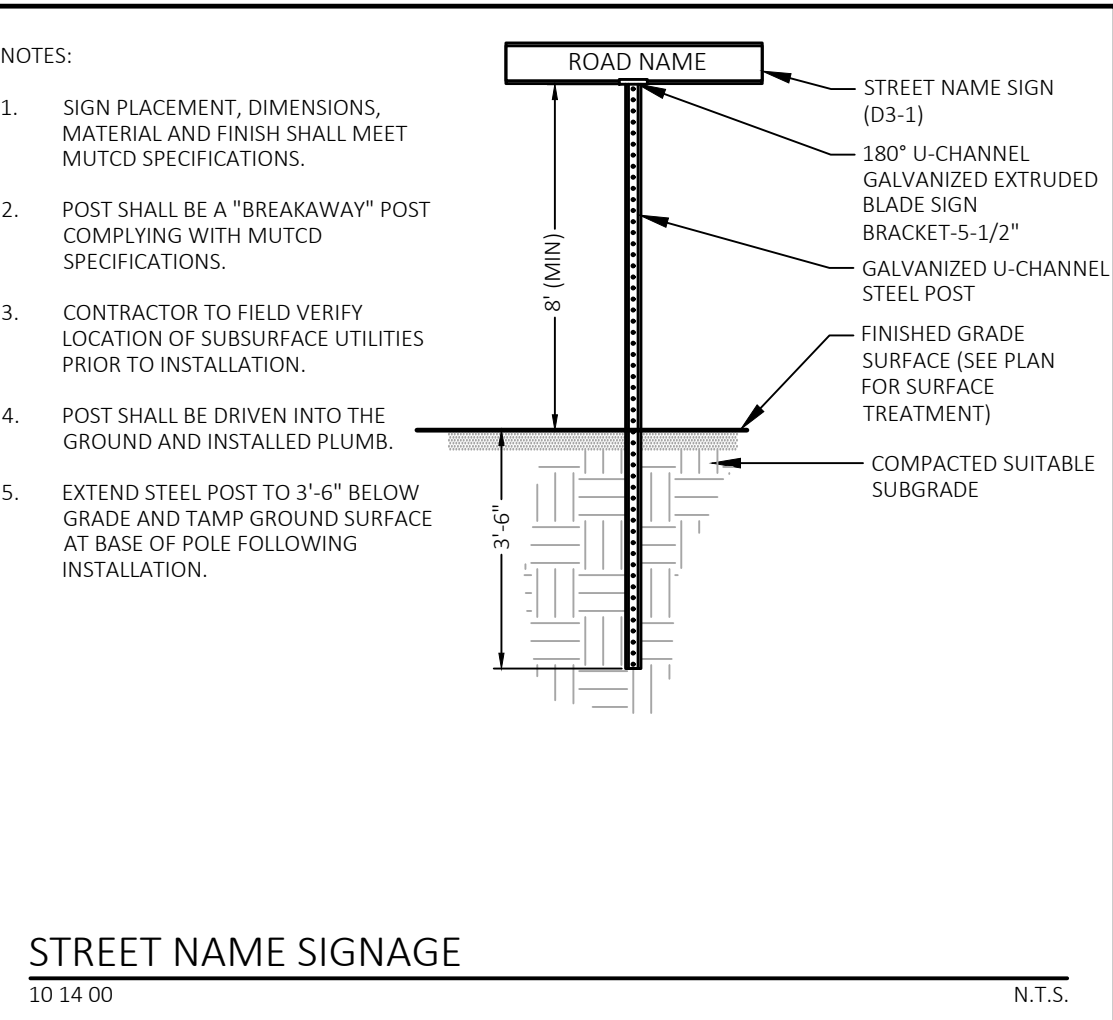
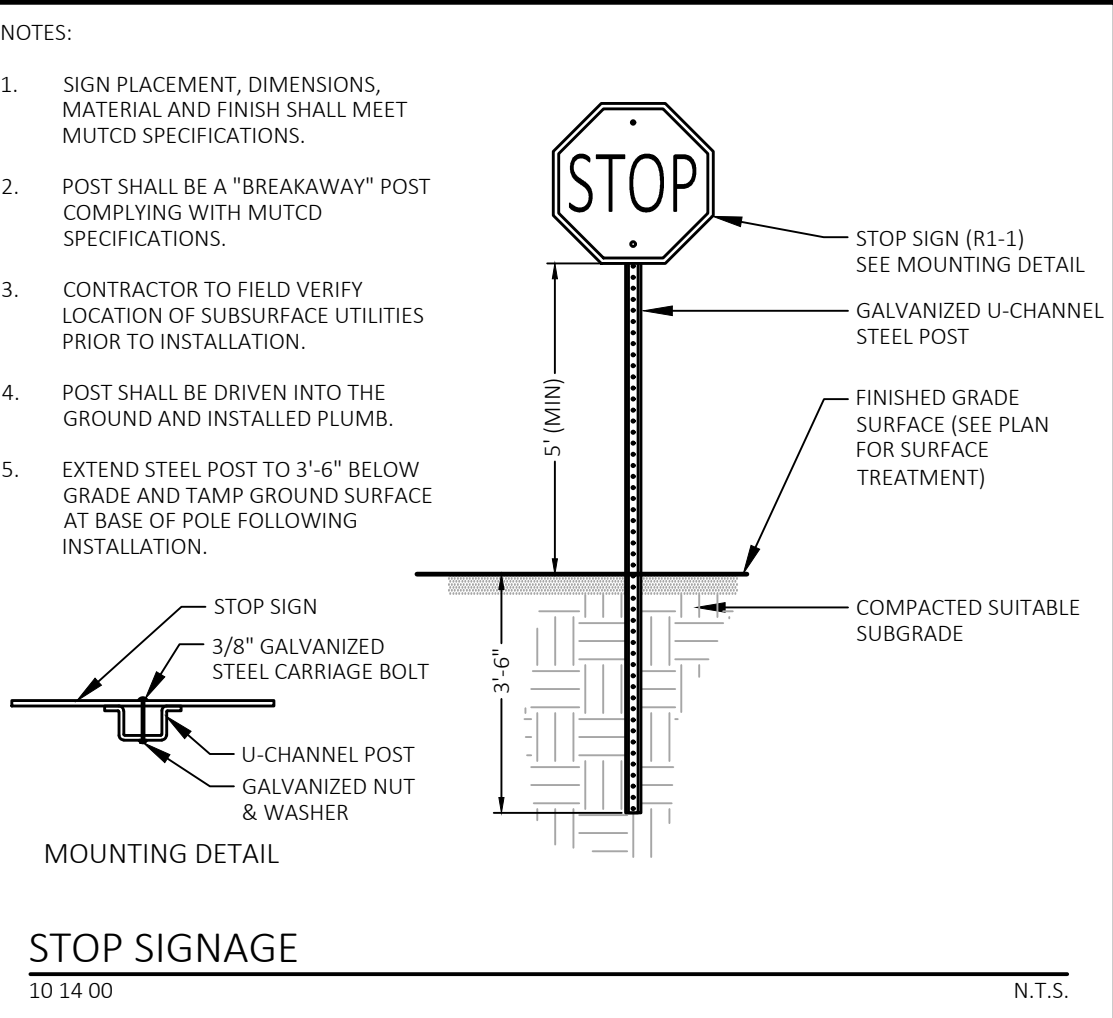
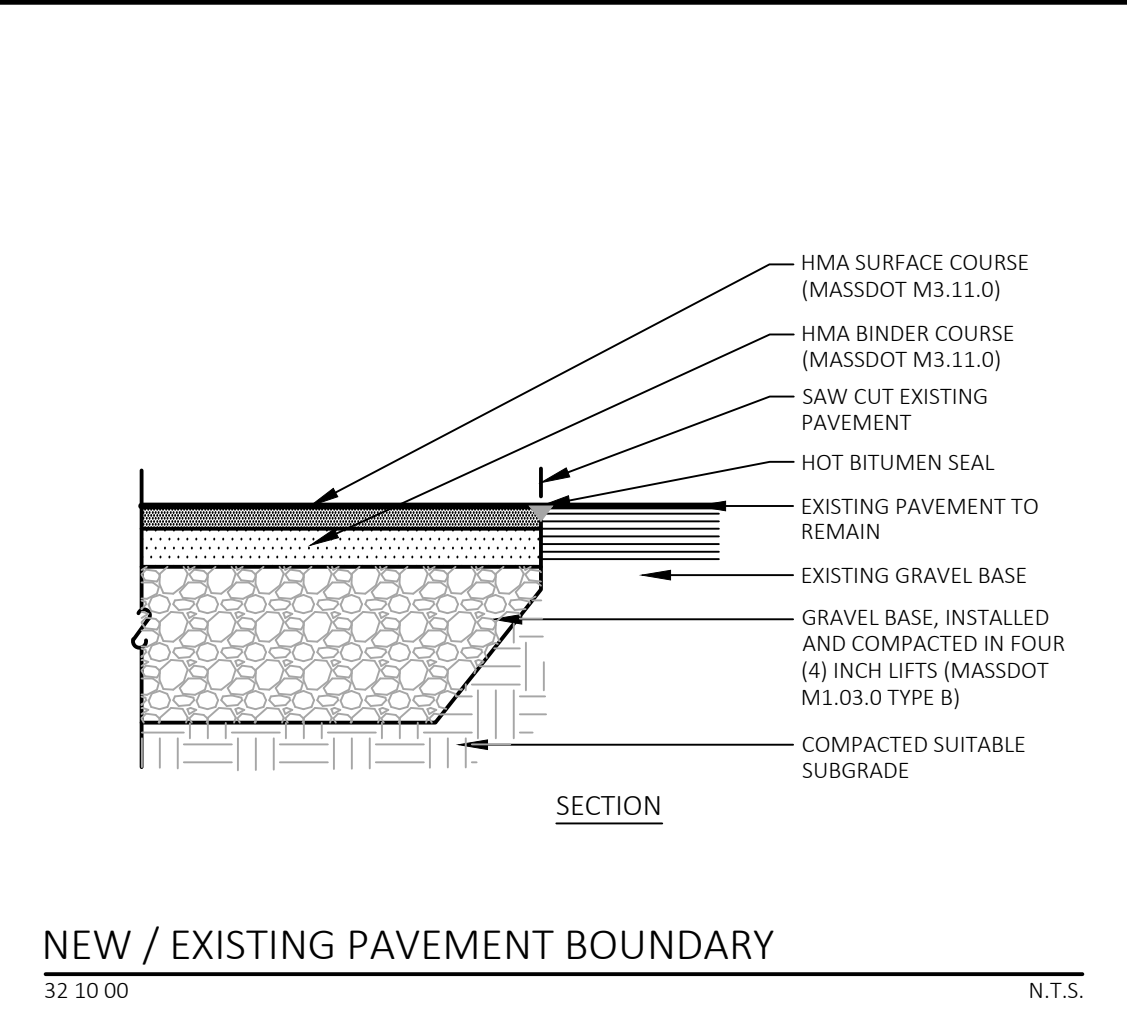
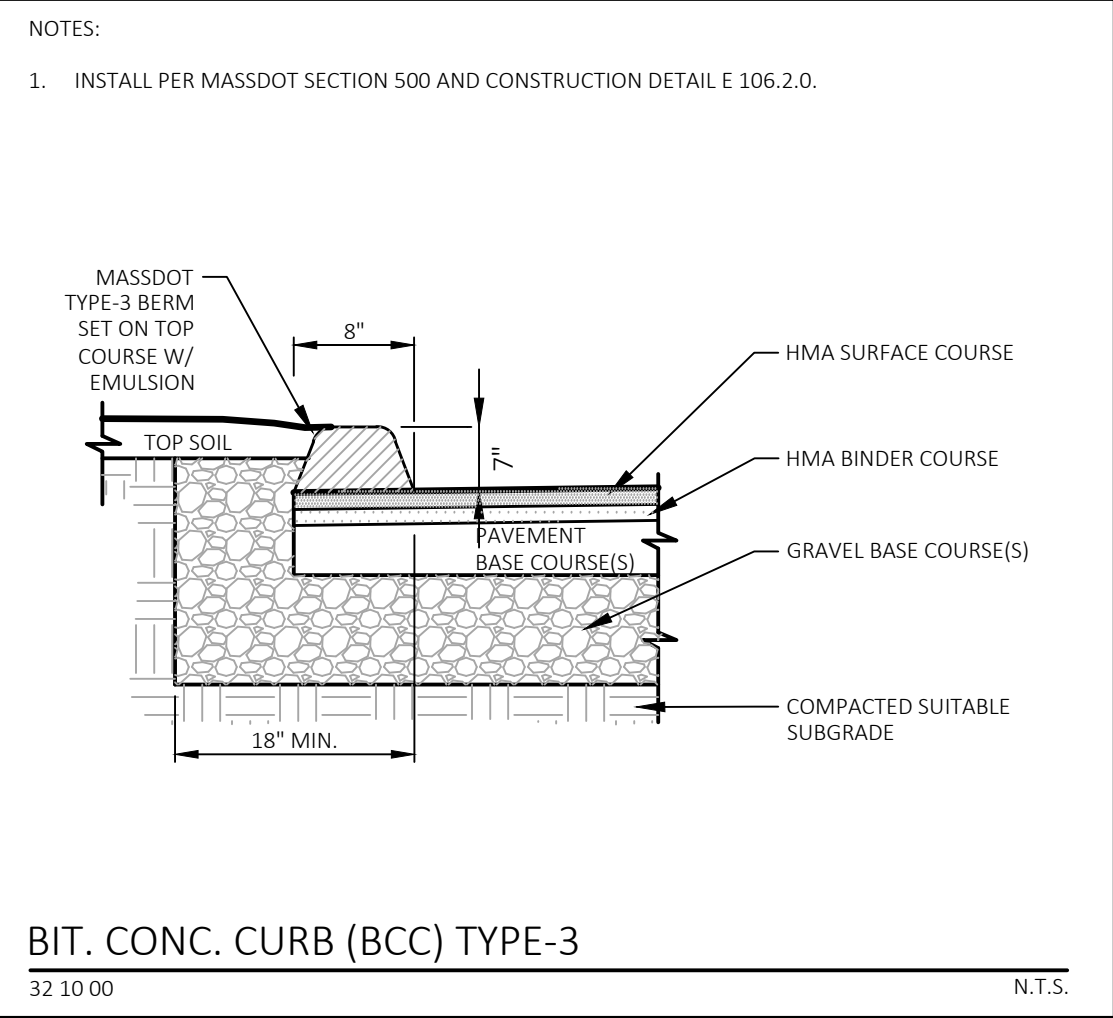
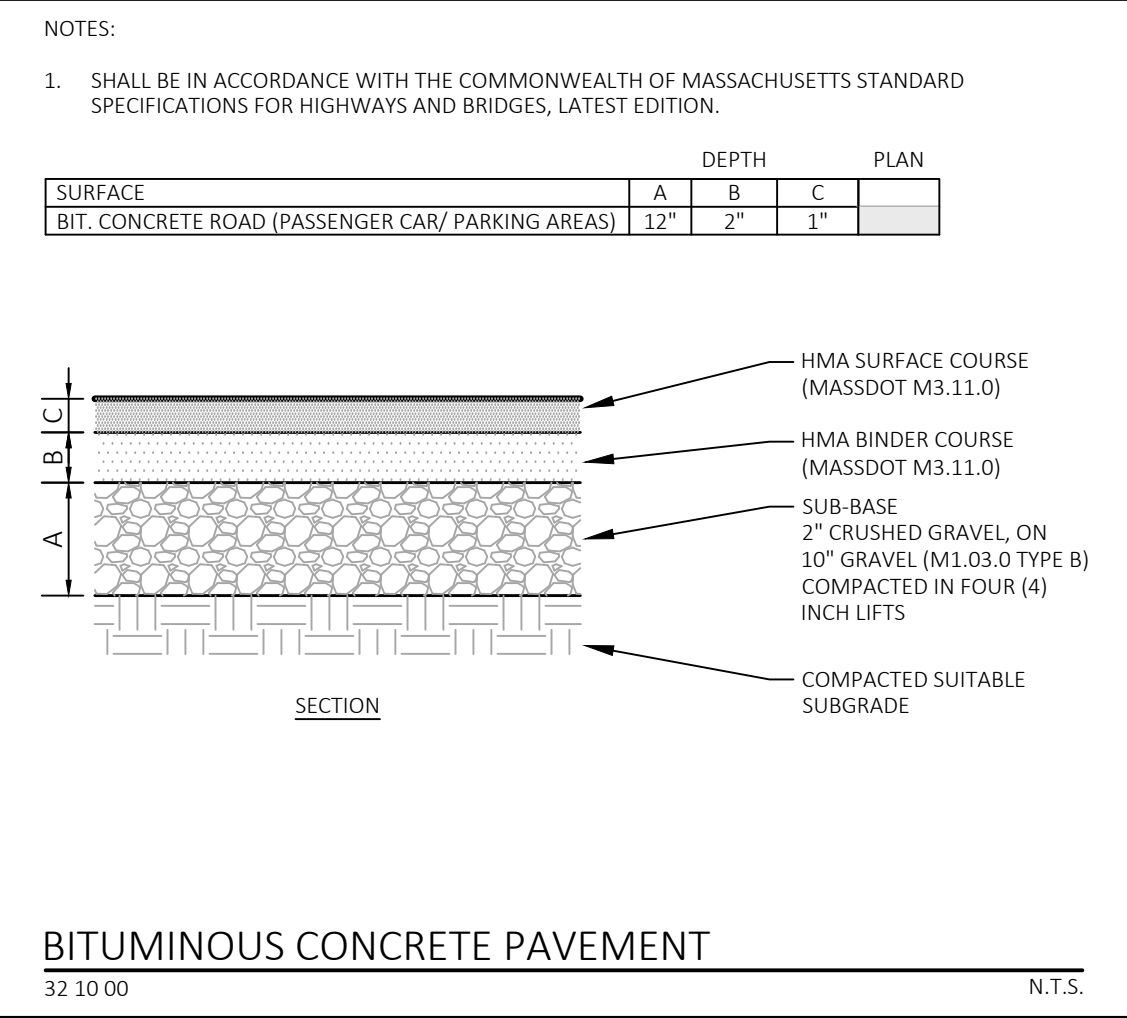
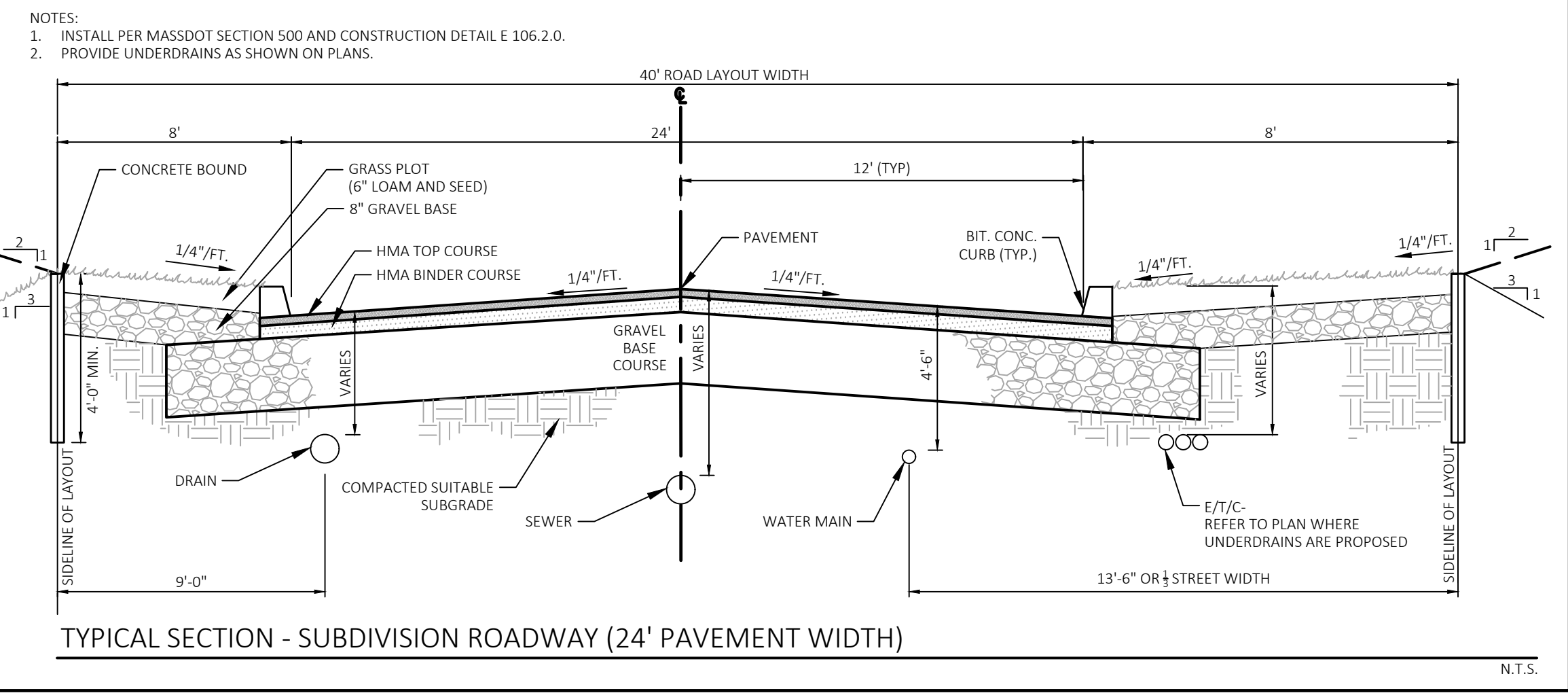
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Drawn By: ESM Checked By: MIS
Date: 04/26/2024 Project No.: 21-0089

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Scale: 1" = 20'

Sheet No.:

8 OF 10



I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

NAME _____ REGISTRATION NO. _____

NEEDHAM PLANNING BOARD

APPROVED IN ACCORDANCE WITH SECTION 81-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

APPROVED SUBJECT TO TERMS AND CONDITIONS OF A COVENANT GIVEN IN ACCORDANCE WITH SECTION 81-U CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

NEEDHAM PLANNING BOARD

NEEDHAM DIRECTOR OF PUBLIC WORKS

SIGNATURE _____ DATE _____

NEEDHAM TOWN ENGINEER

SIGNATURE _____ DATE _____

NEEDHAM TOWN CLERK CERTIFICATION

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SIGNATURE _____ DATE _____

SIGN SUMMARY TABLE			
M.U.T.C.D. NUMBER	SIZE		DESCRIPTION
	WIDTH	HEIGHT	
D3-1	VAR.	8"	ROAD NAME
R1-1	30"	30"	STOP

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Newton, MA 02459

Prepared For:

40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Project Title:

Definitive Subdivision Plan
40 Highland Ave.
Needham, MA
(Norfolk County)

Sheet Title:

DETAILS

Definitive Subdivision

Prepared By:

LD
LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDCollaborative.com

Project Surveyor:

FIELD RESOURCES, INC.
Land Surveyors
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508.832.4332
281 Chestnut Street
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fieldresources@hotmail.com

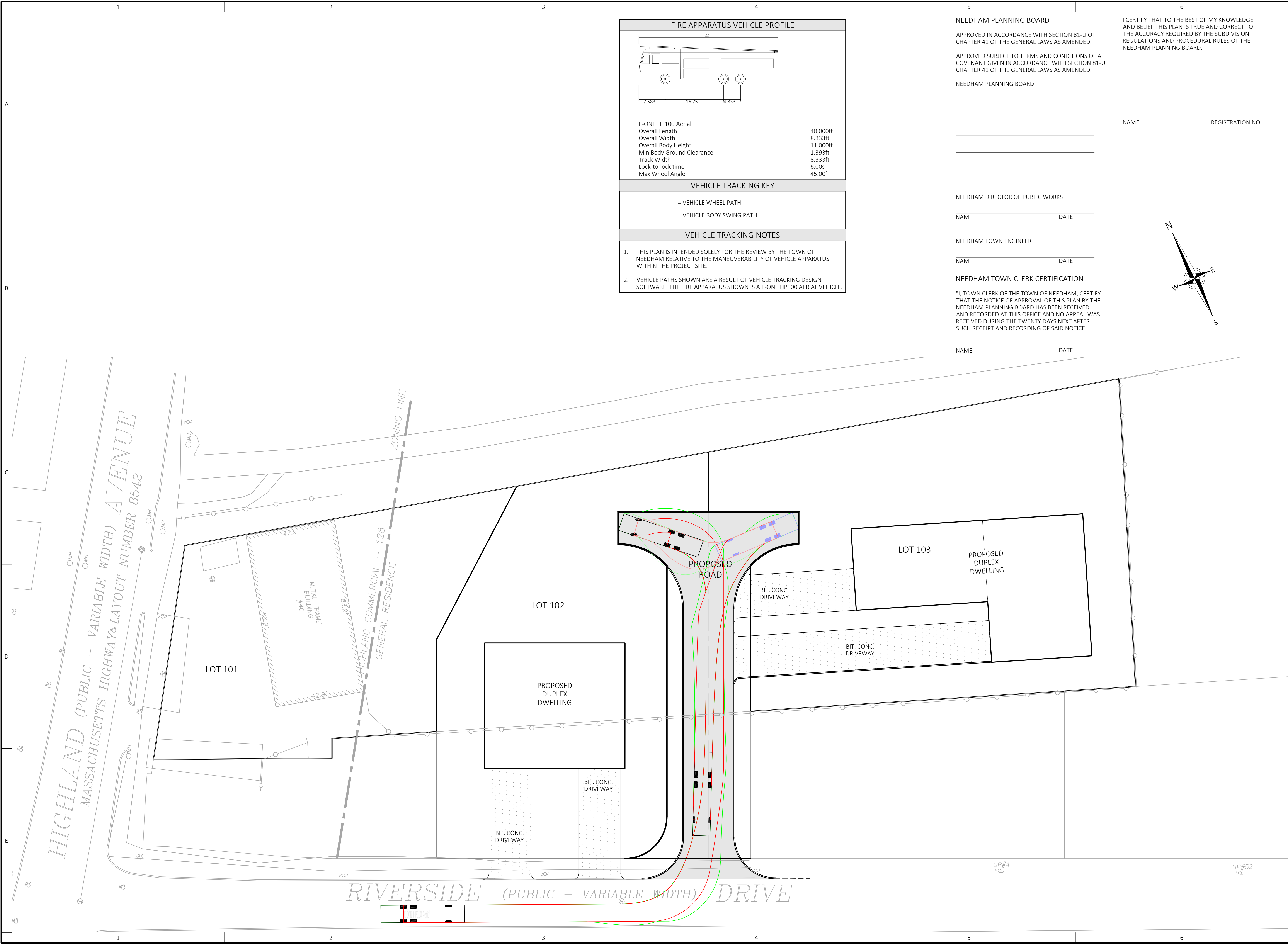
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No: Date: Revision | Issue:

Drawn By: ESM Checked By: MJS
Date: 04/26/2024 Project No.: 21-0089
0 10' 20' 40' 60'
Scale: 1" = 20'

Sheet No.:

9 OF 10



FIRE APPARATUS VEHICLE PROFILE

E-ONE HP100 Aerial

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Track Width

Lock-to-lock time

Max Wheel Angle

40.000ft

8.333ft

11.000ft

1.393ft

8.333ft

6.00s

45.00°

VEHICLE TRACKING KEY

= VEHICLE WHEEL PATH

= VEHICLE BODY SWING PATH

VEHICLE TRACKING NOTES

1.

THIS PLAN IS INTENDED SOLELY FOR THE REVIEW BY THE TOWN OF NEEDHAM RELATIVE TO THE MANEUVERABILITY OF VEHICLE APPARATUS WITHIN THE PROJECT SITE.

2.

VEHICLE PATHS SHOWN ARE A RESULT OF VEHICLE TRACKING DESIGN SOFTWARE. THE FIRE APPARATUS SHOWN IS A E-ONE HP100 AERIAL VEHICLE.

NEEDHAM PLANNING BOARD

APPROVED IN ACCORDANCE WITH SECTION 81-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

APPROVED SUBJECT TO TERMS AND CONDITIONS OF A COVENANT GIVEN IN ACCORDANCE WITH SECTION 81-U CHAPTER 41 OF THE GENERAL LAWS AS AMENDED.

NEEDHAM PLANNING BOARD

NEEDHAM DIRECTOR OF PUBLIC WORKS

NAME

DATE

NEEDHAM TOWN ENGINEER

NAME

DATE

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NAME

REGISTRATION NO.

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Newton, MA 02459

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Newton, MA 02459

Project Title:
Definitive Subdivision Plan
40 Highland Ave.
Needham, MA
(Norfolk County)

Sheet Title:
TURNING MOVEMENT
EXHIBIT
Fire Apparatus

Definitive Subdivision

Prepared By:

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Chauncy Place | Terrace North | Suite 1
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No:	Date:	Revision	Issue:
Drawn By:	JTA	Checked By:	MIS
Date:	04/26/2024	Project No.:	21-0089
010'20'40'60' Scale: 1" = 20'			

Sheet No.:
10 OF 10

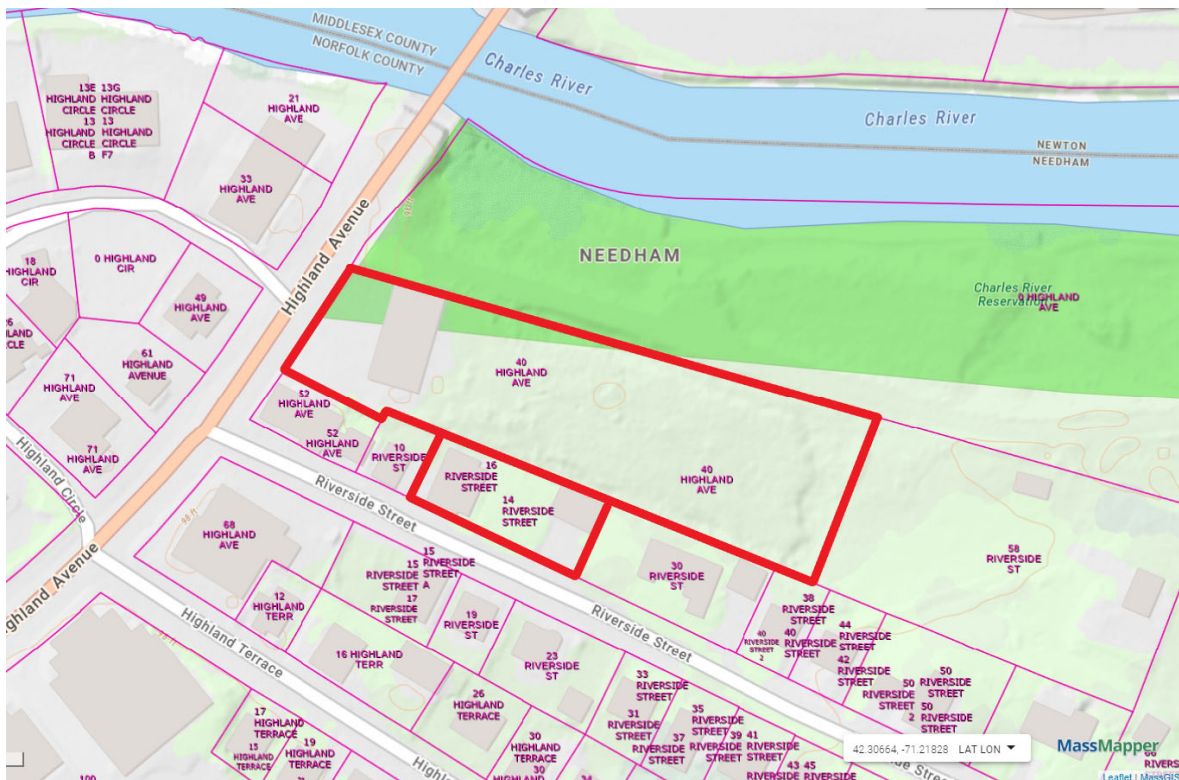
Stormwater Management Report

Date: April 2024

Project: Residential Subdivision
40 Highland Avenue
Needham, MA

Prepared For: 40 Highland Avenue, LLC
435 Dedham Street, Unit E
Newton, MA 02459

Locus Map:



No Information on This Page

Stormwater quality and quantity calculations have been performed for 40 Highland Avenue and 14 Riverside Drive (collectively the Property) to demonstrate compliance with the MassDEP Stormwater Standards, as enumerated in the Wetland Protection Regulations (310 CMR 10) and Town of Needham Stormwater By-Law.

The western portion of the subject Property (adjacent to Highland Avenue) is located within the Highland Commercial district, whereas the central/eastern portion of the Property resides in the General Residence district. The portion of the lot in the Highland Commercial district is developed with a commercial building and a parking lot. The portion of 40 Highland Ave in the General Residence district is presently undeveloped, though there is evidence of historic use as depicted on the survey plan and confirmed by the Needham Conservation Commission. The Applicant also owns 14 Riverside Street. Existing on this parcel is a two-family house and a detached garage. The Applicant proposes a reconfigure the two lots by subdividing the commercial building and parking lot (adjacent to 40 Highland Avenue) along the Town of Needham's zoning line from the rear/eastern portion of the lot, which will be added to the 14 Riverside Street lot. This reconfiguration will allow the current and future uses to reside within the appropriate zoning district. A hammerhead road is proposed (as discussed with Town staff) to access one of the future residential subdivision lots. Both residential lots will have a duplex erected onsite with a driveway for each unit. The road and future duplexes constitute the Project.

The Property resides just south of the Charles River and a portion of the site within the 200' Riverfront Area (RFA). A drainage easement runs through the Property. It appears the street drainage system in Riverside Street discharges through this easement towards the Charles River as shown on the Existing Conditions plan. The site generally drains towards the southeast corner of the Property to a local depression with infiltration occurring throughout the flow path and at the low point. The soils are mapped as Hinckley and Deerfield, both Hydrologic Soil Group A (HSG A). Site specific soils testing confirmed the USDA/NRCS mapping in the area of the proposed development. There is a FEMA flood zone on the Property associated with the 0.2% Flood (500-year storm) as mapped on FIRM 25017C0562E. However, the FEMA mapping appears to be inconsistent with the FEMA Flood Insurance Study (FIS). The FIS for Norfolk County (Revised on July 6, 2021, Flood Insurance Study Number: 25021CV004D) shows the 0.2% Flood elevation as elevation 92 (Flood Profile for the Charles River (Lower Reach) on Pg. '38P'), which is highlighted in red in the LIDAR Exhibit in Appendix F. As can be seen with the highlighted 92 contour, the 0.2% chance flood elevation resides roughly 90' away from the Property.

Site improvements for the future duplexes will be made, including utility connections for sewer, water, underground electric, and stormwater management. Analysis for the proposed stormwater management system shows the Project complies with the guidance documents.

This Report contains:

- A) MassDEP Stormwater Management Checklist
- B) Existing and Proposed Hydrologic Calculations (MassDEP Standards 1 & 2)
- C) Water Quality Calculations (MassDEP Standards 3, 4, 5, 6 & 7)
- D) Construction Period Pollution Prevention Plan, Long-Term Pollution Prevention Plan, Long-Term Operations & Maintenance Plan, and Illicit Discharge Statement (MassDEP Standards 8, 9 & 10)
- E) Soils Information

F) FEMA Flood Map, FIS Profile & LIDAR Exhibit

G) Existing Hydrology Map

H) Proposed Hydrology Map

[https://ldcollaborative.sharepoint.com/sites/landdesigncollaborative/shared documents/_projects/21-0089 - 40 highland avenue, needham/engineering/stormwater components/21-0089 ldc stormwater report.docx](https://ldcollaborative.sharepoint.com/sites/landdesigncollaborative/shared%20documents/_projects/21-0089-40%20highland%20avenue,%20needham/engineering/stormwater%20components/21-0089%20ldc%20stormwater%20report.docx)

A) MassDEP Stormwater Management Checklist (8 pages)

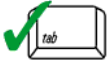
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Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signature and Date

[Handwritten Signature] 4-19-2024

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☐ New development
- ☐ Redevelopment
- ☒ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☒ Other (describe): No new disturbance in the RFA and reclamation of a portion of previously disturbed RFA

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☒ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☒ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

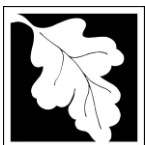
- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☒ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
- ☒ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

B) Pre- and Post-Development Hydrologic Calculations (Standards 1 & 2)

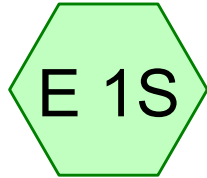
Standard 1)

The stormwater management system has been designed to mimic existing conditions and infiltrate runoff during all storm events, collecting, treating, and discharging (recharging) stormwater via subsurface infiltration systems. The proposed drainage system will mitigate water quality and quantity to match the existing conditions as reported for the 2-, 10-, and 100-year return periods. Stormwater runoff from paved areas will be pretreated as required. Roof drains will collect and direct the 'clean' runoff to one of two infiltration systems. The three proposed infiltration systems maintain a 2' offset to groundwater.

Standard 2)

The Project results in new impervious surfaces. The proposed stormwater management system has been designed to mitigate stormwater runoff rates for the required storm events (refer to HydroCAD calculations), as summarized below.

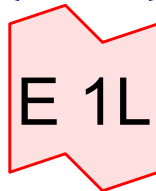
EXXX Y	Existing Conditions Features where “E” designates “Existing”; XXX designates the area or feature “name”; and Y designates the feature - a sub-catchment “S”, a basin/depression/pond/ “P”, a conveyance/reach “R”, or a point of interest/summation point/link “L”		
PXXX- Y	Proposed Conditions Features where “P” designates “Proposed”; XXX designates area or feature “name”; and Y designates the feature - a sub-catchment “S”, a basin/depression/pond/ “P”, a conveyance/reach “R”, or a point of interest/summation point/link “L”		
Rates			
Point of Interest	Storm Event / Runoff (cubic feet/second)		
	2-Year	10-Year	100- Year
E 1L	0.1	0.2	0.5
P 1L	0.0	0.0	0.5
Volumes			
Point of Interest	Storm Event / Runoff (cubic feet)		
	2-Year	10-Year	100-Year
E 1L	277	1,256	4,208
P 1L	6	430	1,929



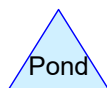
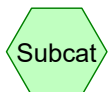
Subcat E 1S



Subcat E 2S



E 1L



Routing Diagram for 21-0089 - Existing

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21-0089 - Existing

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
5,214	39	>75% Grass cover, Good, HSG A (E 1S, E 2S)
2,116	98	Paved parking, HSG A (E 1S, E 2S)
2,501	98	Roofs, HSG A (E 1S, E 2S)
36,645	36	Woods, Fair, HSG A (E 1S)
4,736	30	Woods, Good, HSG A (E 1S)
51,212	41	TOTAL AREA

21-0089 - Existing

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
51,212	HSG A	E 1S, E 2S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
51,212		TOTAL AREA

21-0089 - Existing*Type III 24-hr 2-Year Rainfall=3.20"*

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Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E 1S: Subcat E 1S

Runoff Area=47,440 sf 5.39% Impervious Runoff Depth=0.00"

Flow Length=346' Tc=20.5 min CN=39 Runoff=0.0 cfs 1 cf

Subcatchment E 2S: Subcat E 2S

Runoff Area=3,772 sf 54.64% Impervious Runoff Depth=0.88"

Tc=6.0 min CN=71 Runoff=0.1 cfs 276 cf

Link E 1L: E 1L

Inflow=0.1 cfs 277 cf

Primary=0.1 cfs 277 cf

Total Runoff Area = 51,212 sf Runoff Volume = 277 cf Average Runoff Depth = 0.06"**90.98% Pervious = 46,595 sf 9.02% Impervious = 4,617 sf**

Summary for Subcatchment E 1S: Subcat E 1S

Runoff = 0.0 cfs @ 24.05 hrs, Volume= 1 cf, Depth= 0.00"
Routed to Link E 1L : E 1L

Routed to Link E 1L : E 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

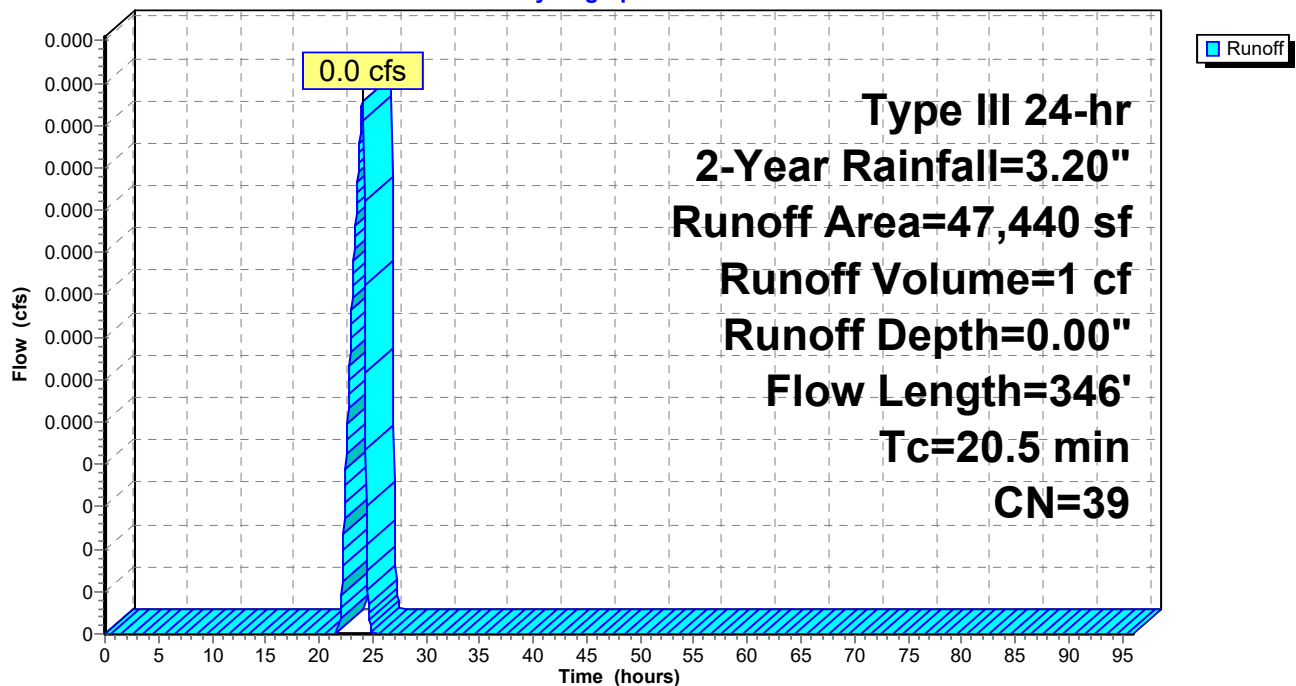
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
3,503	39	>75% Grass cover, Good, HSG A
619	98	Paved parking, HSG A
1,937	98	Roofs, HSG A
36,645	36	Woods, Fair, HSG A
4,736	30	Woods, Good, HSG A
47,440	39	Weighted Average
44,884		94.61% Pervious Area
2,556		5.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0150	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.7	296	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
20.5	346	Total			

Subcatchment E 1S: Subcat E 1S

Hydrograph



21-0089 - Existing

Type III 24-hr 2-Year Rainfall=3.20"

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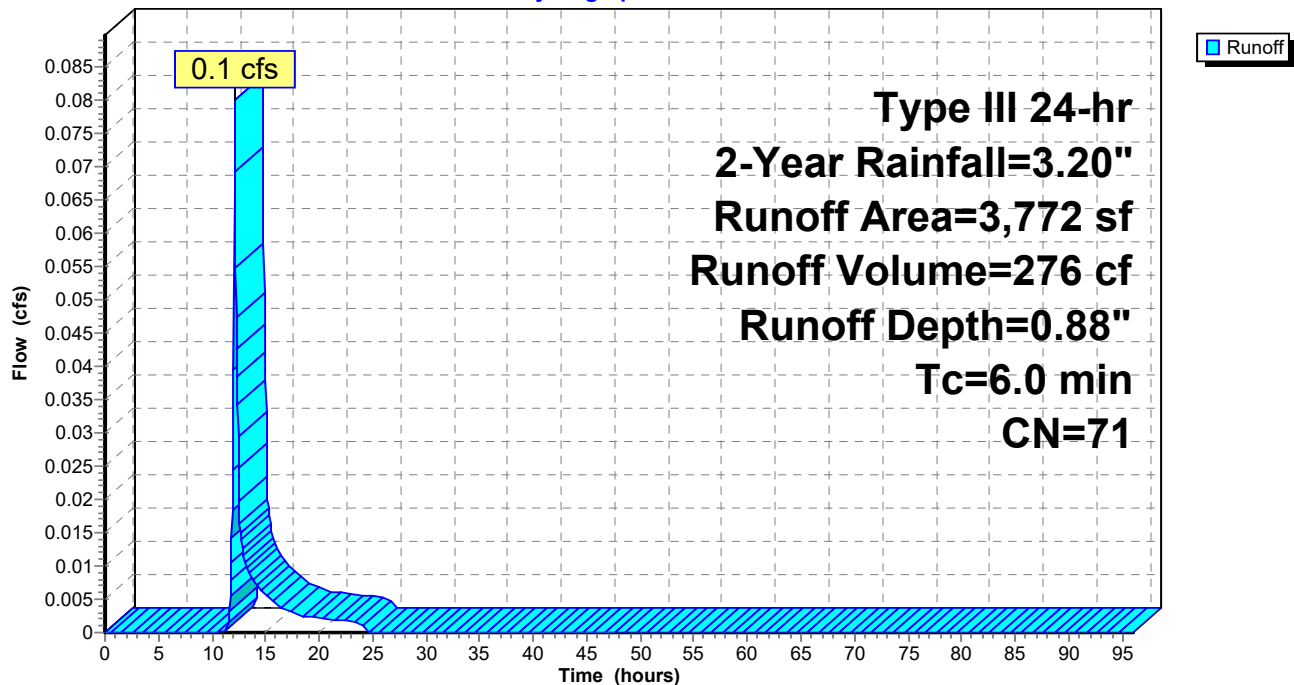
Summary for Subcatchment E 2S: Subcat E 2S

Runoff = 0.1 cfs @ 12.10 hrs, Volume= 276 cf, Depth= 0.88"
Routed to Link E 1L : E 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
1,711	39	>75% Grass cover, Good, HSG A
1,497	98	Paved parking, HSG A
564	98	Roofs, HSG A
3,772	71	Weighted Average
1,711		45.36% Pervious Area
2,061		54.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment E 2S: Subcat E 2S**Hydrograph**

21-0089 - Existing

Type III 24-hr 2-Year Rainfall=3.20"

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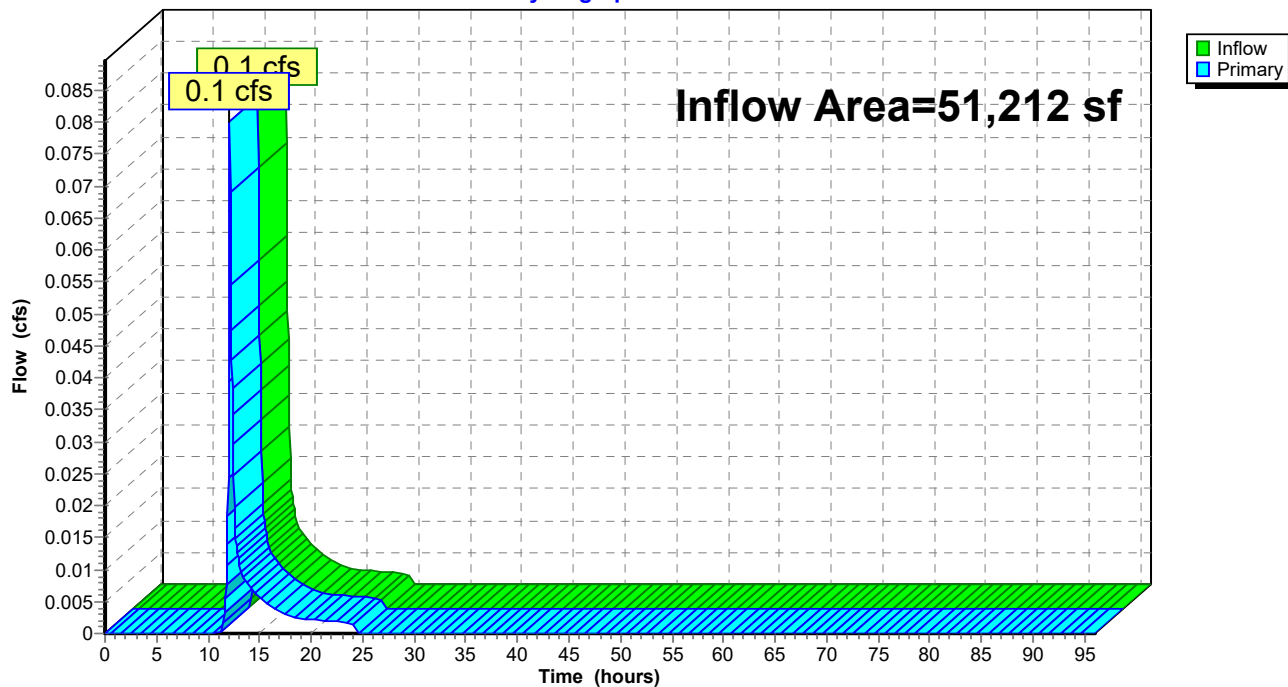
Summary for Link E 1L: E 1L

Inflow Area = 51,212 sf, 9.02% Impervious, Inflow Depth = 0.06" for 2-Year event
Inflow = 0.1 cfs @ 12.10 hrs, Volume= 277 cf
Primary = 0.1 cfs @ 12.10 hrs, Volume= 277 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link E 1L: E 1L

Hydrograph



21-0089 - Existing*Type III 24-hr 10-Year Rainfall=4.80"*

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Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E 1S: Subcat E 1S

Runoff Area=47,440 sf 5.39% Impervious Runoff Depth=0.16"

Flow Length=346' Tc=20.5 min CN=39 Runoff=0.0 cfs 638 cf

Subcatchment E 2S: Subcat E 2S

Runoff Area=3,772 sf 54.64% Impervious Runoff Depth=1.97"

Tc=6.0 min CN=71 Runoff=0.2 cfs 618 cf

Link E 1L: E 1L

Inflow=0.2 cfs 1,256 cf

Primary=0.2 cfs 1,256 cf

Total Runoff Area = 51,212 sf Runoff Volume = 1,256 cf Average Runoff Depth = 0.29"**90.98% Pervious = 46,595 sf 9.02% Impervious = 4,617 sf**

21-0089 - Existing

Type III 24-hr 10-Year Rainfall=4.80"

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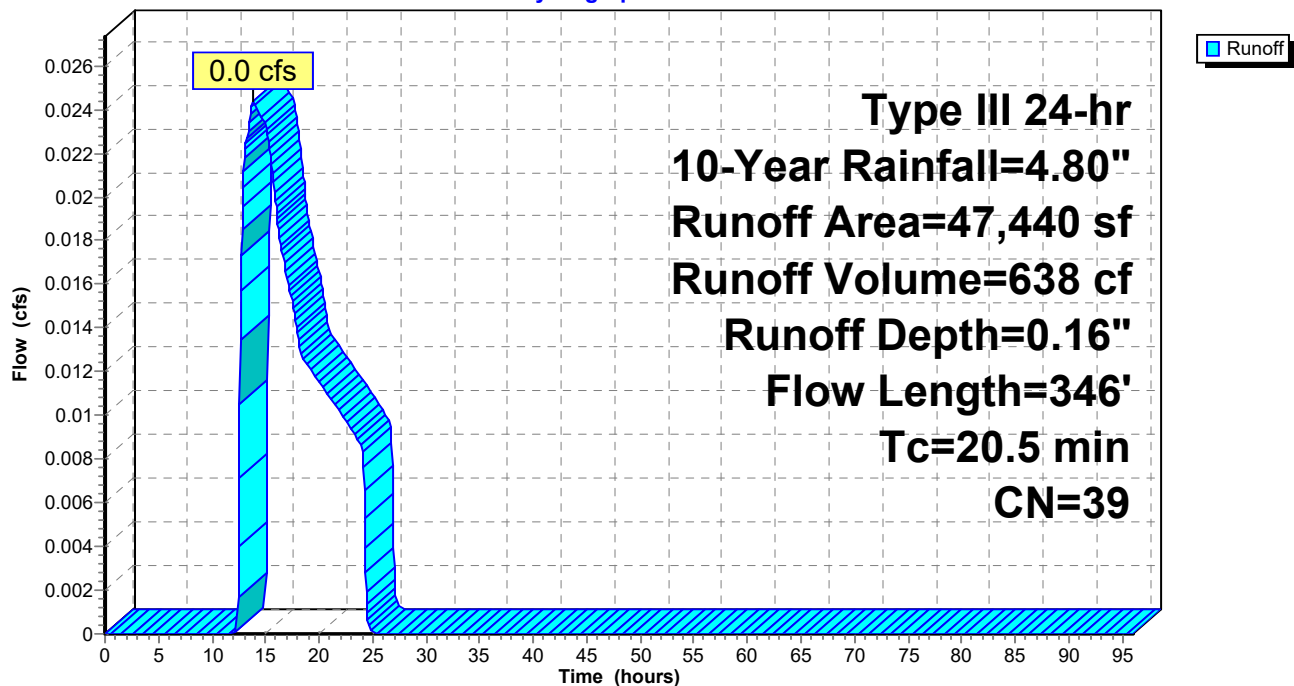
Summary for Subcatchment E 1S: Subcat E 1S

Runoff = 0.0 cfs @ 13.90 hrs, Volume= 638 cf, Depth= 0.16"
 Routed to Link E 1L : E 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
3,503	39	>75% Grass cover, Good, HSG A
619	98	Paved parking, HSG A
1,937	98	Roofs, HSG A
36,645	36	Woods, Fair, HSG A
4,736	30	Woods, Good, HSG A
47,440	39	Weighted Average
44,884		94.61% Pervious Area
2,556		5.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0150	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.7	296	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
20.5	346	Total			

Subcatchment E 1S: Subcat E 1S**Hydrograph**

21-0089 - Existing

Type III 24-hr 10-Year Rainfall=4.80"

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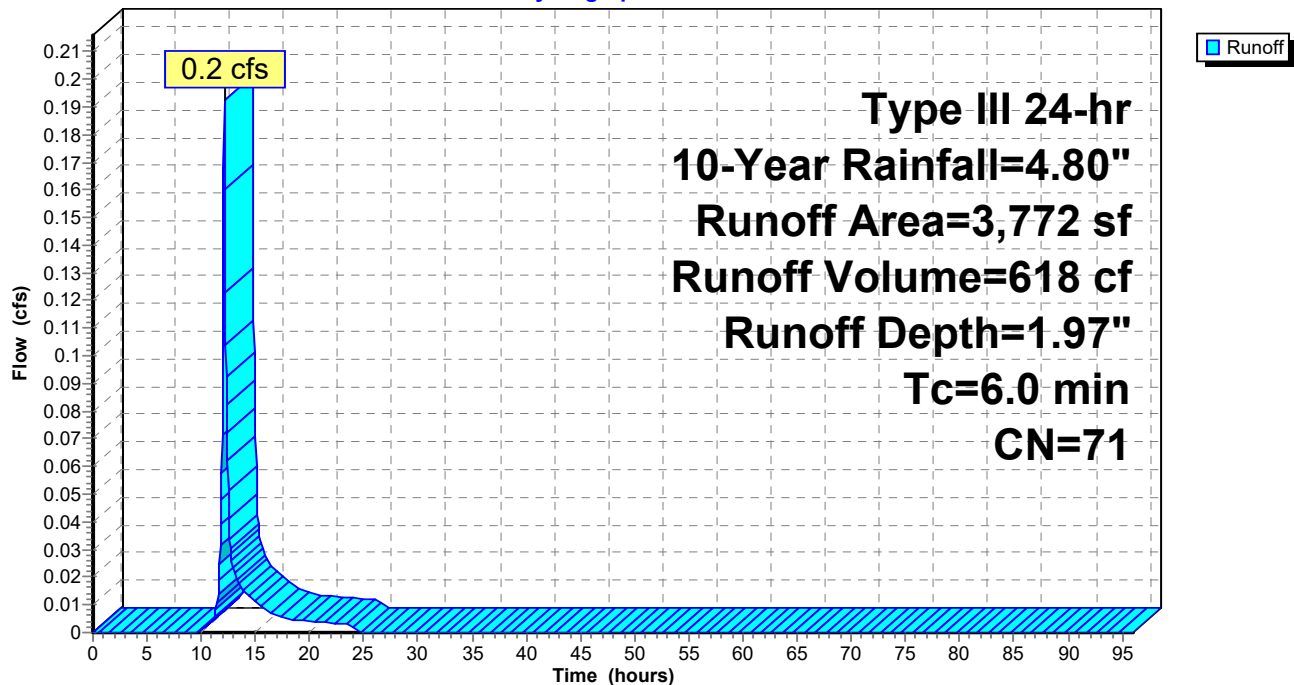
Summary for Subcatchment E 2S: Subcat E 2S

Runoff = 0.2 cfs @ 12.10 hrs, Volume= 618 cf, Depth= 1.97"
Routed to Link E 1L : E 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
1,711	39	>75% Grass cover, Good, HSG A
1,497	98	Paved parking, HSG A
564	98	Roofs, HSG A
3,772	71	Weighted Average
1,711		45.36% Pervious Area
2,061		54.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment E 2S: Subcat E 2S**Hydrograph**

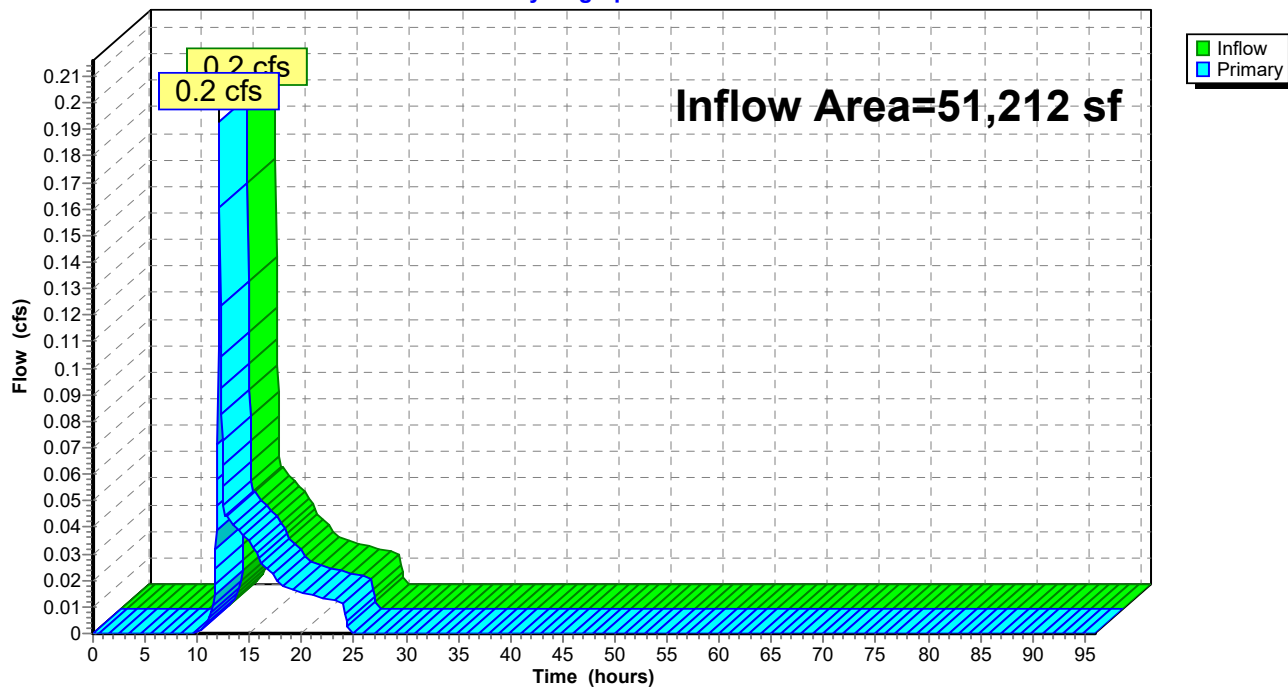
Summary for Link E 1L: E 1L

Inflow Area = 51,212 sf, 9.02% Impervious, Inflow Depth = 0.29" for 10-Year event
Inflow = 0.2 cfs @ 12.10 hrs, Volume= 1,256 cf
Primary = 0.2 cfs @ 12.10 hrs, Volume= 1,256 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link E 1L: E 1L

Hydrograph



21-0089 - Existing*Type III 24-hr 100-Year Rainfall=7.00"*

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Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E 1S: Subcat E 1SRunoff Area=47,440 sf 5.39% Impervious Runoff Depth=0.77"
Flow Length=346' Tc=20.5 min CN=39 Runoff=0.4 cfs 3,037 cf**Subcatchment E 2S: Subcat E 2S**Runoff Area=3,772 sf 54.64% Impervious Runoff Depth=3.72"
Tc=6.0 min CN=71 Runoff=0.4 cfs 1,170 cf**Link E 1L: E 1L**Inflow=0.5 cfs 4,208 cf
Primary=0.5 cfs 4,208 cf**Total Runoff Area = 51,212 sf Runoff Volume = 4,208 cf Average Runoff Depth = 0.99"**
90.98% Pervious = 46,595 sf 9.02% Impervious = 4,617 sf

21-0089 - Existing

Type III 24-hr 100-Year Rainfall=7.00"

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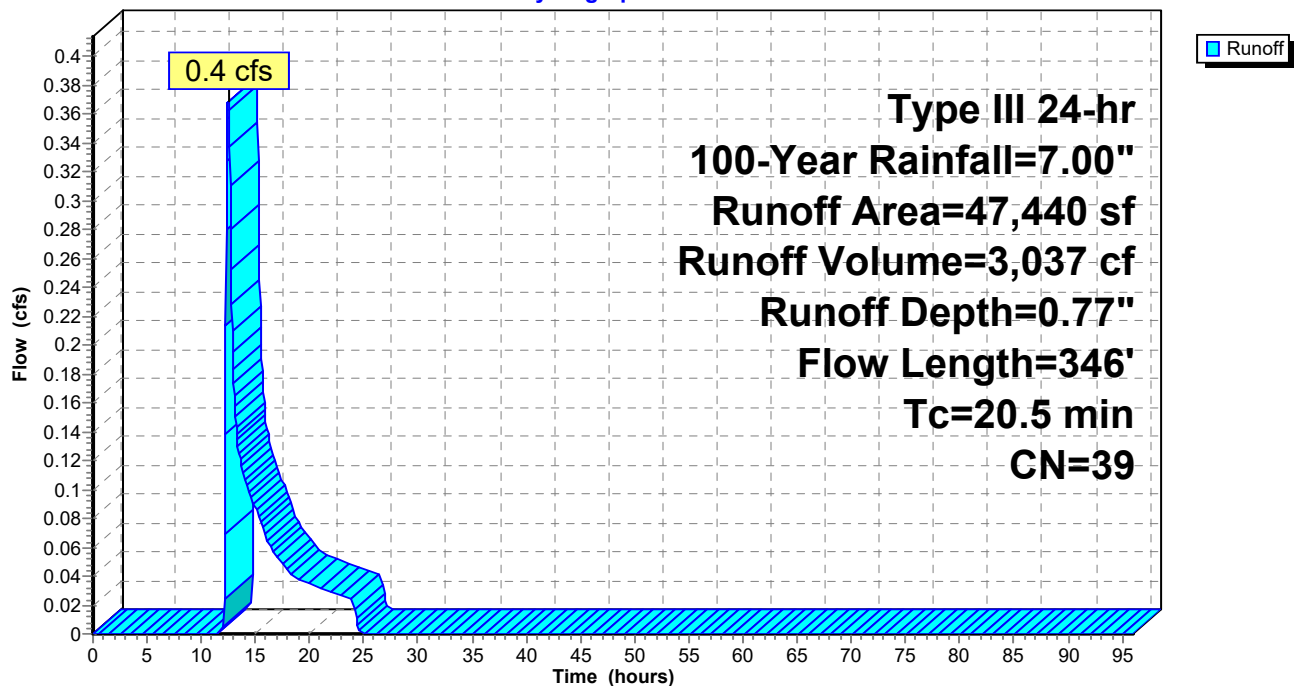
Summary for Subcatchment E 1S: Subcat E 1S

Runoff = 0.4 cfs @ 12.48 hrs, Volume= 3,037 cf, Depth= 0.77"
 Routed to Link E 1L : E 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
3,503	39	>75% Grass cover, Good, HSG A
619	98	Paved parking, HSG A
1,937	98	Roofs, HSG A
36,645	36	Woods, Fair, HSG A
4,736	30	Woods, Good, HSG A
47,440	39	Weighted Average
44,884		94.61% Pervious Area
2,556		5.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0150	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.7	296	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
20.5	346	Total			

Subcatchment E 1S: Subcat E 1S**Hydrograph**

21-0089 - Existing

Type III 24-hr 100-Year Rainfall=7.00"

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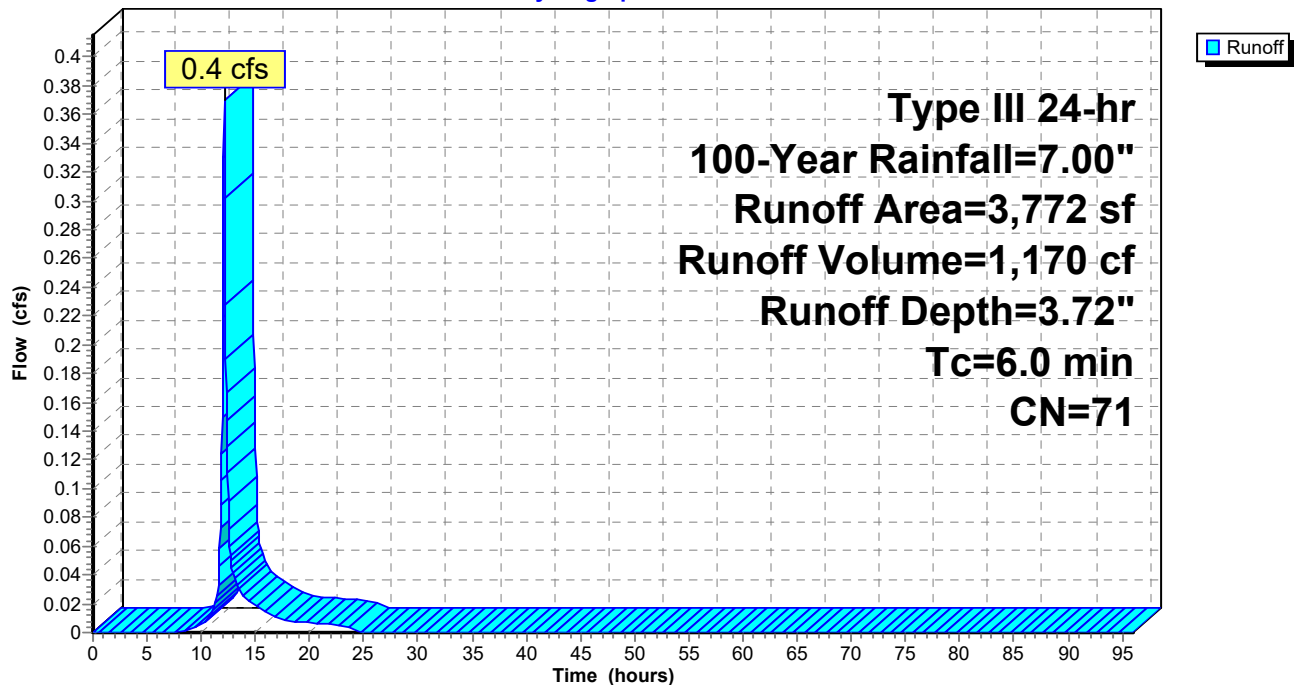
Summary for Subcatchment E 2S: Subcat E 2S

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,170 cf, Depth= 3.72"
Routed to Link E 1L : E 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
1,711	39	>75% Grass cover, Good, HSG A
1,497	98	Paved parking, HSG A
564	98	Roofs, HSG A
3,772	71	Weighted Average
1,711		45.36% Pervious Area
2,061		54.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment E 2S: Subcat E 2S**Hydrograph**

21-0089 - Existing

Type III 24-hr 100-Year Rainfall=7.00"

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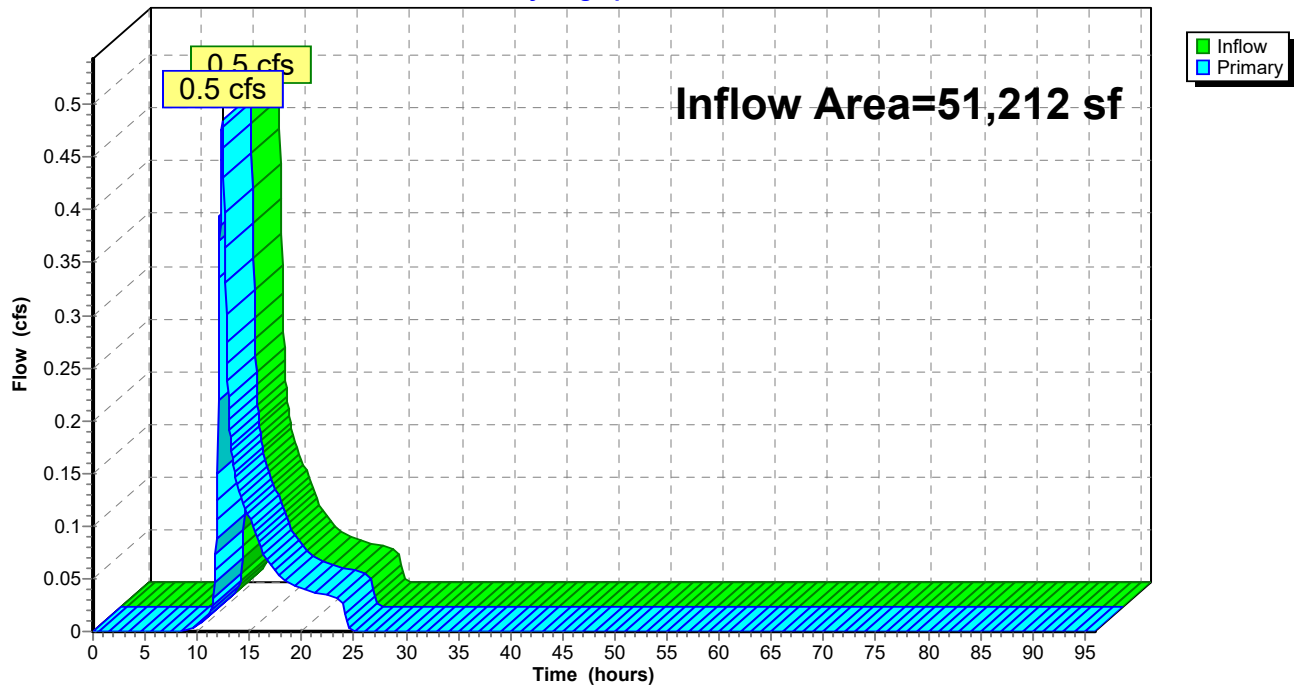
Summary for Link E 1L: E 1L

Inflow Area = 51,212 sf, 9.02% Impervious, Inflow Depth = 0.99" for 100-Year event
Inflow = 0.5 cfs @ 12.40 hrs, Volume= 4,208 cf
Primary = 0.5 cfs @ 12.40 hrs, Volume= 4,208 cf, Atten= 0%, Lag= 0.0 min

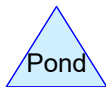
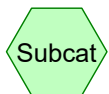
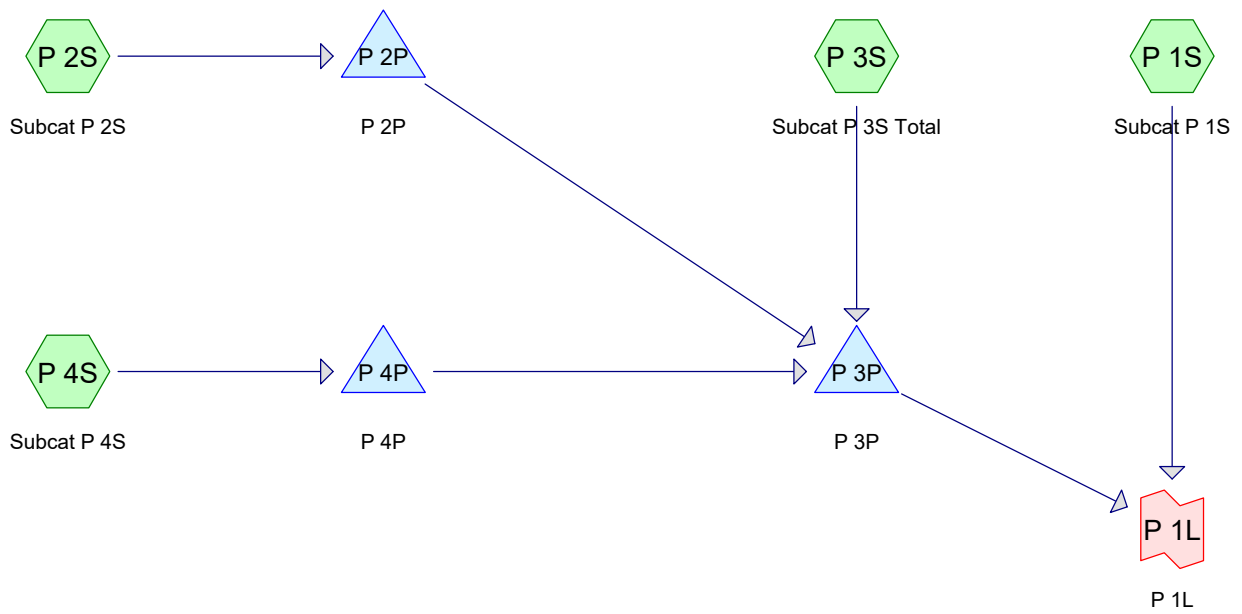
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link E 1L: E 1L

Hydrograph



No Information on This Page



21-0089 - Proposed

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.20	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.80	2
3	100-Year	Type III 24-hr		Default	24.00	1	7.00	2

21-0089 - Proposed

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
22,766	39	>75% Grass cover, Good, HSG A (P 1S, P 3S)
3,076	30	Meadow, non-grazed, HSG A (P 1S)
10,656	98	Paved parking, HSG A (P 1S, P 3S)
9,738	98	Roofs, HSG A (P 2S, P 4S)
239	36	Woods, Fair, HSG A (P 1S)
4,737	30	Woods, Good, HSG A (P 1S)
51,212	61	TOTAL AREA

21-0089 - Proposed

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Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
51,212	HSG A	P 1S, P 2S, P 3S, P 4S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
51,212		TOTAL AREA

21-0089 - Proposed

Type III 24-hr 2-Year Rainfall=3.20"

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Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P 1S: Subcat P 1SRunoff Area=26,765 sf 6.62% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=40 Runoff=0.0 cfs 6 cf**Subcatchment P 2S: Subcat P 2S**Runoff Area=4,020 sf 100.00% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=98 Runoff=0.3 cfs 994 cf**Subcatchment P 3S: Subcat P 3S Total**Runoff Area=14,709 sf 60.39% Impervious Runoff Depth=1.09"
Tc=6.0 min CN=75 Runoff=0.4 cfs 1,341 cf**Subcatchment P 4S: Subcat P 4S**Runoff Area=5,718 sf 100.00% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=98 Runoff=0.4 cfs 1,414 cf**Pond P 2P: P 2P**Peak Elev=485.36' Storage=95 cf Inflow=0.3 cfs 994 cf
Discarded=0.1 cfs 993 cf Primary=0.0 cfs 0 cf Outflow=0.1 cfs 993 cf**Pond P 3P: P 3P**Peak Elev=484.18' Storage=72 cf Inflow=0.4 cfs 1,341 cf
Discarded=0.3 cfs 1,341 cf Primary=0.0 cfs 0 cf Outflow=0.3 cfs 1,341 cf**Pond P 4P: P 4P**Peak Elev=483.62' Storage=192 cf Inflow=0.4 cfs 1,414 cf
Discarded=0.1 cfs 1,414 cf Primary=0.0 cfs 0 cf Outflow=0.1 cfs 1,414 cf**Link P 1L: P 1L**Inflow=0.0 cfs 6 cf
Primary=0.0 cfs 6 cf**Total Runoff Area = 51,212 sf Runoff Volume = 3,755 cf Average Runoff Depth = 0.88"**
60.18% Pervious = 30,818 sf 39.82% Impervious = 20,394 sf

21-0089 - Proposed

Type III 24-hr 2-Year Rainfall=3.20"

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Summary for Subcatchment P 1S: Subcat P 1S

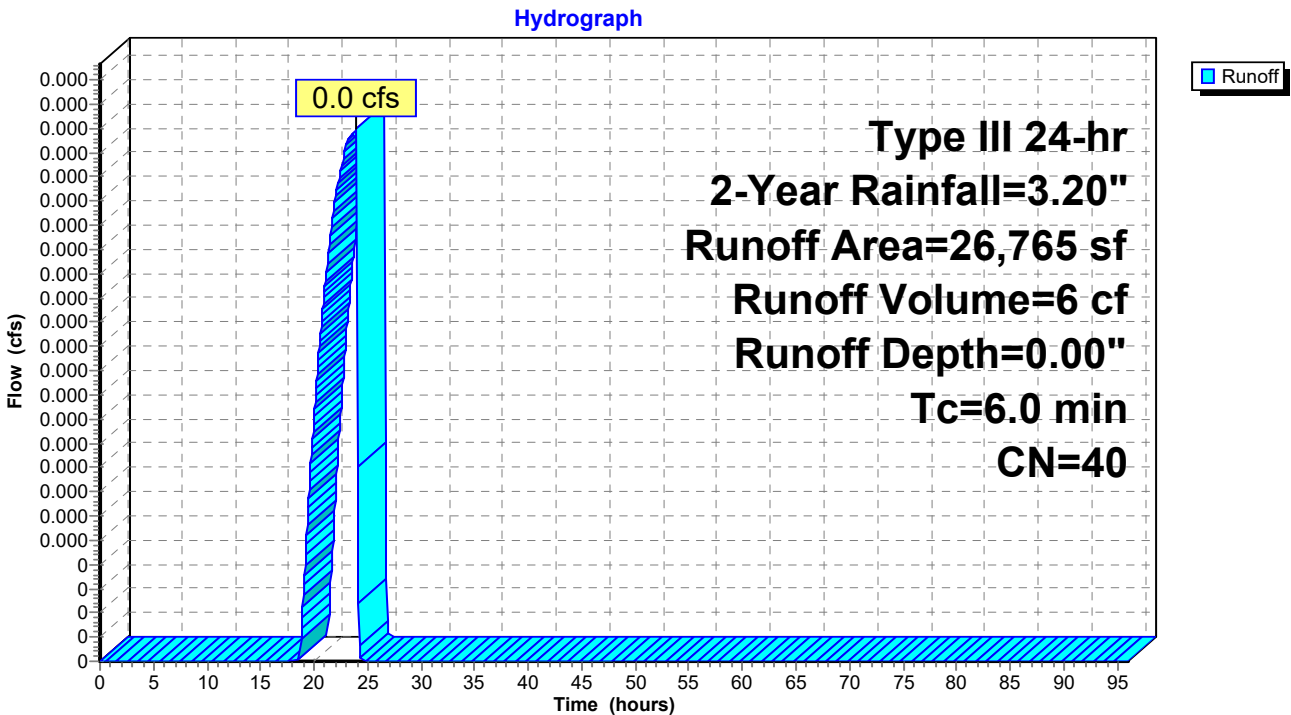
Runoff = 0.0 cfs @ 23.95 hrs, Volume= 6 cf, Depth= 0.00"
Routed to Link P 1L : P 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
16,940	39	>75% Grass cover, Good, HSG A
3,076	30	Meadow, non-grazed, HSG A
1,773	98	Paved parking, HSG A
239	36	Woods, Fair, HSG A
4,737	30	Woods, Good, HSG A
26,765	40	Weighted Average
24,992		93.38% Pervious Area
1,773		6.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 1S: Subcat P 1S



21-0089 - Proposed

Type III 24-hr 2-Year Rainfall=3.20"

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Summary for Subcatchment P 2S: Subcat P 2S

Runoff = 0.3 cfs @ 12.09 hrs, Volume= 994 cf, Depth= 2.97"
Routed to Pond P 2P : P 2P

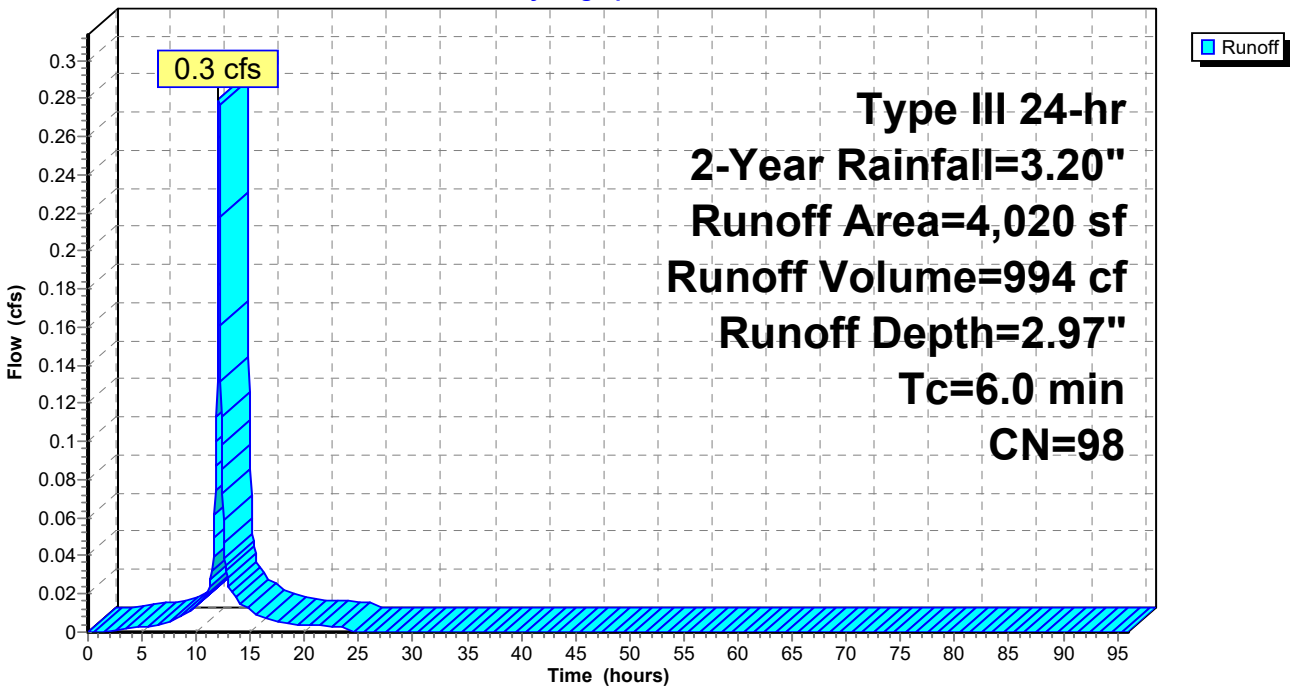
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
4,020	98	Roofs, HSG A
4,020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 2S: Subcat P 2S

Hydrograph



21-0089 - Proposed

Type III 24-hr 2-Year Rainfall=3.20"

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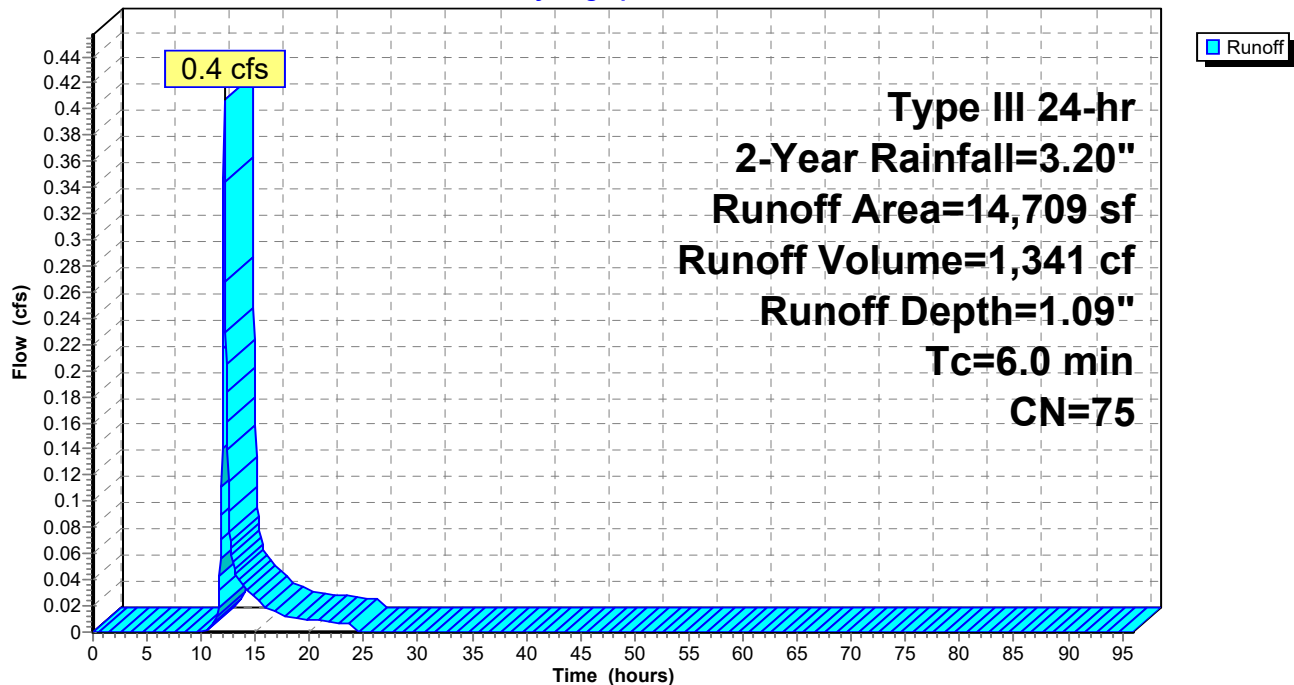
Summary for Subcatchment P 3S: Subcat P 3S Total

Runoff = 0.4 cfs @ 12.10 hrs, Volume= 1,341 cf, Depth= 1.09"
Routed to Pond P 3P : P 3P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
2	98	Paved parking, HSG A
44	39	>75% Grass cover, Good, HSG A
5,280	98	Paved parking, HSG A
1,143	98	Paved parking, HSG A
2,458	98	Paved parking, HSG A
1,049	39	>75% Grass cover, Good, HSG A
4,733	39	>75% Grass cover, Good, HSG A
14,709	75	Weighted Average
5,826		39.61% Pervious Area
8,883		60.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 3S: Subcat P 3S Total**Hydrograph**

Summary for Subcatchment P 4S: Subcat P 4S

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,414 cf, Depth= 2.97"
Routed to Pond P 4P : P 4P

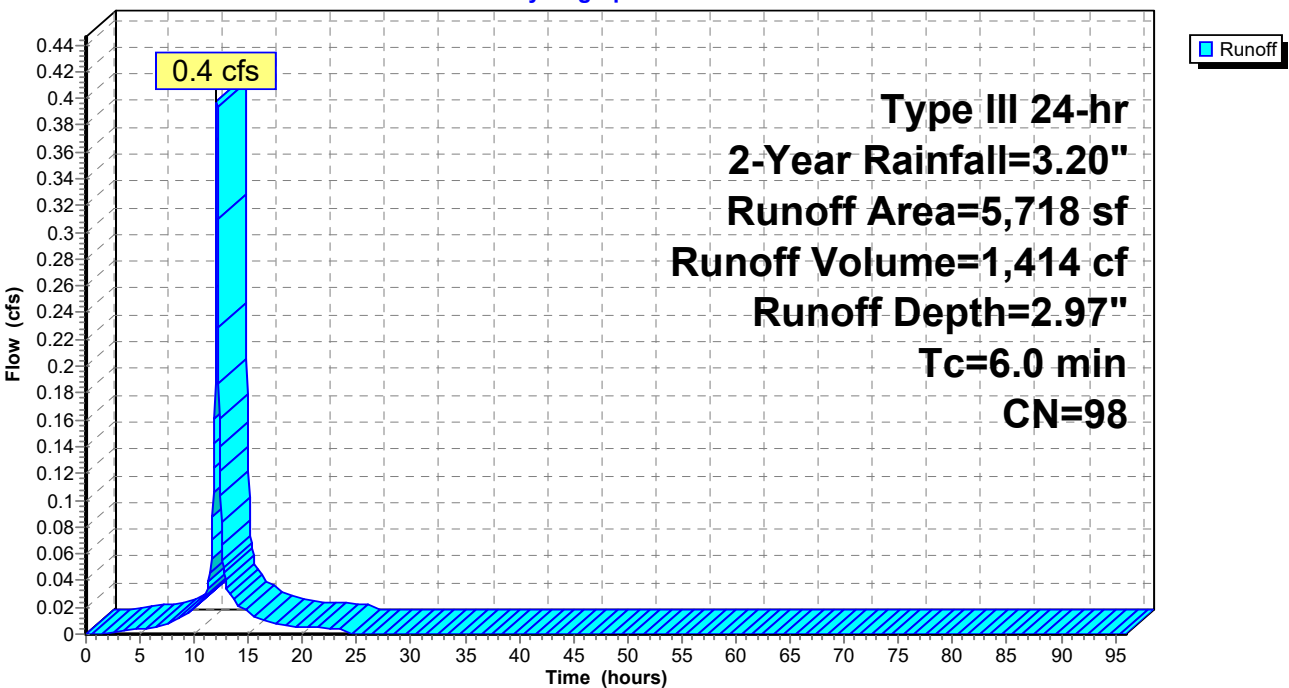
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.20"

Area (sf)	CN	Description
5,718	98	Roofs, HSG A
5,718		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 4S: Subcat P 4S

Hydrograph



21-0089 - Proposed

Type III 24-hr 2-Year Rainfall=3.20"

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Summary for Pond P 2P: P 2P

Inflow Area = 4,020 sf, 100.00% Impervious, Inflow Depth = 2.97" for 2-Year event
 Inflow = 0.3 cfs @ 12.09 hrs, Volume= 994 cf
 Outflow = 0.1 cfs @ 12.00 hrs, Volume= 993 cf, Atten= 55%, Lag= 0.0 min
 Discarded = 0.1 cfs @ 12.00 hrs, Volume= 993 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond P 3P : P 3P

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 485.36' @ 12.27 hrs Surf.Area= 660 sf Storage= 95 cf

Plug-Flow detention time= 4.5 min calculated for 993 cf (100% of inflow)
 Center-of-Mass det. time= 3.5 min (759.9 - 756.4)

Volume	Invert	Avail.Storage	Storage Description
#1	485.50'	2 cf	1.00'D x 2.71'H Vertical Cone/Cylinder
#2	485.50'	236 cf	12.0" Round Pipe Storage x 5 Inside #3 L= 60.0'
#3	485.00'	434 cf	10.48'W x 63.00'L x 2.00'H Prismatic 1,320 cf Overall - 236 cf Embedded = 1,085 cf x 40.0% Voids
672 cf			Total Available Storage

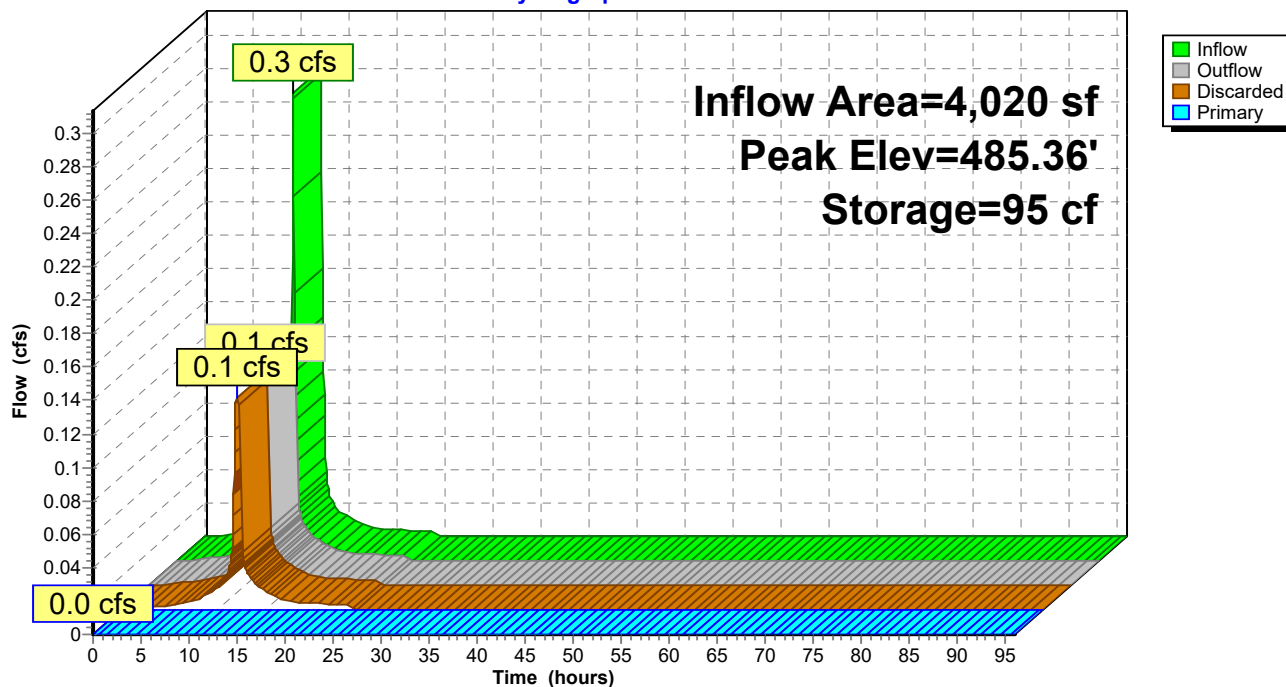
Device	Routing	Invert	Outlet Devices
#1	Primary	488.20'	6.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Discarded	485.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.1 cfs @ 12.00 hrs HW=485.06' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=485.00' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 2P: P 2P

Hydrograph



21-0089 - Proposed

Type III 24-hr 2-Year Rainfall=3.20"

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Summary for Pond P 3P: P 3P

Inflow Area = 24,447 sf, 76.17% Impervious, Inflow Depth = 0.66" for 2-Year event
 Inflow = 0.4 cfs @ 12.10 hrs, Volume= 1,341 cf
 Outflow = 0.3 cfs @ 12.05 hrs, Volume= 1,341 cf, Atten= 35%, Lag= 0.0 min
 Discarded = 0.3 cfs @ 12.05 hrs, Volume= 1,341 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link P 1L : P 1L

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 484.18' @ 12.21 hrs Surf.Area= 1,384 sf Storage= 72 cf

Plug-Flow detention time= 1.8 min calculated for 1,340 cf (100% of inflow)
 Center-of-Mass det. time= 1.8 min (860.6 - 858.8)

Volume	Invert	Avail.Storage	Storage Description
#1	484.61'	38 cf	4.00'D x 3.03'H Vertical Cone/Cylinder
#2	484.55'	495 cf	12.0" Round Pipe Storage x 9 Inside #3 L= 70.0'
#3	484.05'	909 cf	18.96'W x 73.00'L x 2.00'H Prismatoid
			2,768 cf Overall - 495 cf Embedded = 2,273 cf x 40.0% Voids
			1,442 cf Total Available Storage

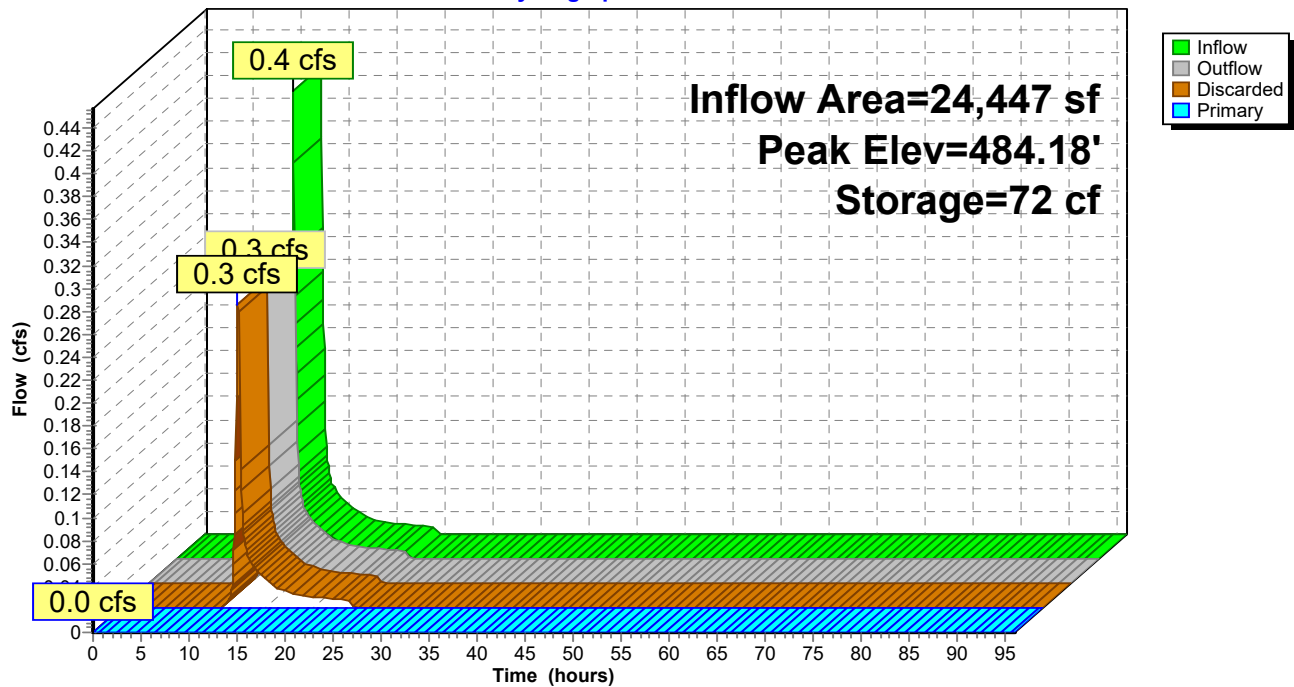
Device	Routing	Invert	Outlet Devices
#1	Primary	486.58'	1.0" x 5.0" Horiz. Orifice/Grate X 11.00 columns X 2 rows C= 0.600 in 18.0" x 25.7" Grate (24% open area) Limited to weir flow at low heads
#2	Discarded	484.05'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.3 cfs @ 12.05 hrs HW=484.09' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=484.05' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 3P: P 3P

Hydrograph



21-0089 - Proposed

Type III 24-hr 2-Year Rainfall=3.20"

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Summary for Pond P 4P: P 4P

Inflow Area = 5,718 sf, 100.00% Impervious, Inflow Depth = 2.97" for 2-Year event
 Inflow = 0.4 cfs @ 12.09 hrs, Volume= 1,414 cf
 Outflow = 0.1 cfs @ 12.15 hrs, Volume= 1,414 cf, Atten= 64%, Lag= 3.8 min
 Discarded = 0.1 cfs @ 12.15 hrs, Volume= 1,414 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond P 3P : P 3P

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 483.62' @ 12.34 hrs Surf.Area= 749 sf Storage= 192 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 6.8 min (763.2 - 756.4)

Volume	Invert	Avail.Storage	Storage Description
#1	483.50'	4 cf	1.00'D x 5.51'H Vertical Cone/Cylinder
#2	483.50'	353 cf	18.0" Round Pipe Storage x 4 Inside #3 L= 50.0'
#3	483.00'	607 cf	13.60'W x 55.00'L x 2.50'H Prismatoid 1,870 cf Overall - 353 cf Embedded = 1,517 cf x 40.0% Voids
		964 cf	Total Available Storage

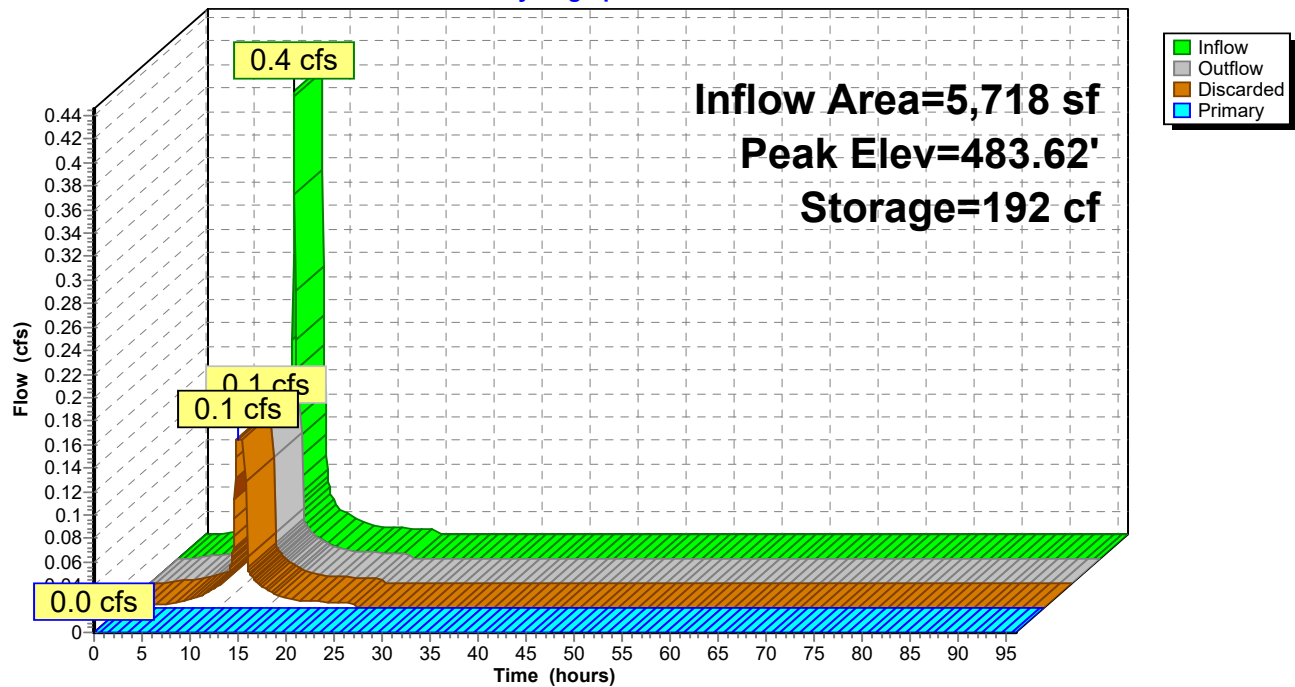
Device	Routing	Invert	Outlet Devices
#1	Primary	489.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#2	Discarded	483.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.1 cfs @ 12.15 hrs HW=483.51' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=483.00' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 4P: P 4P

Hydrograph



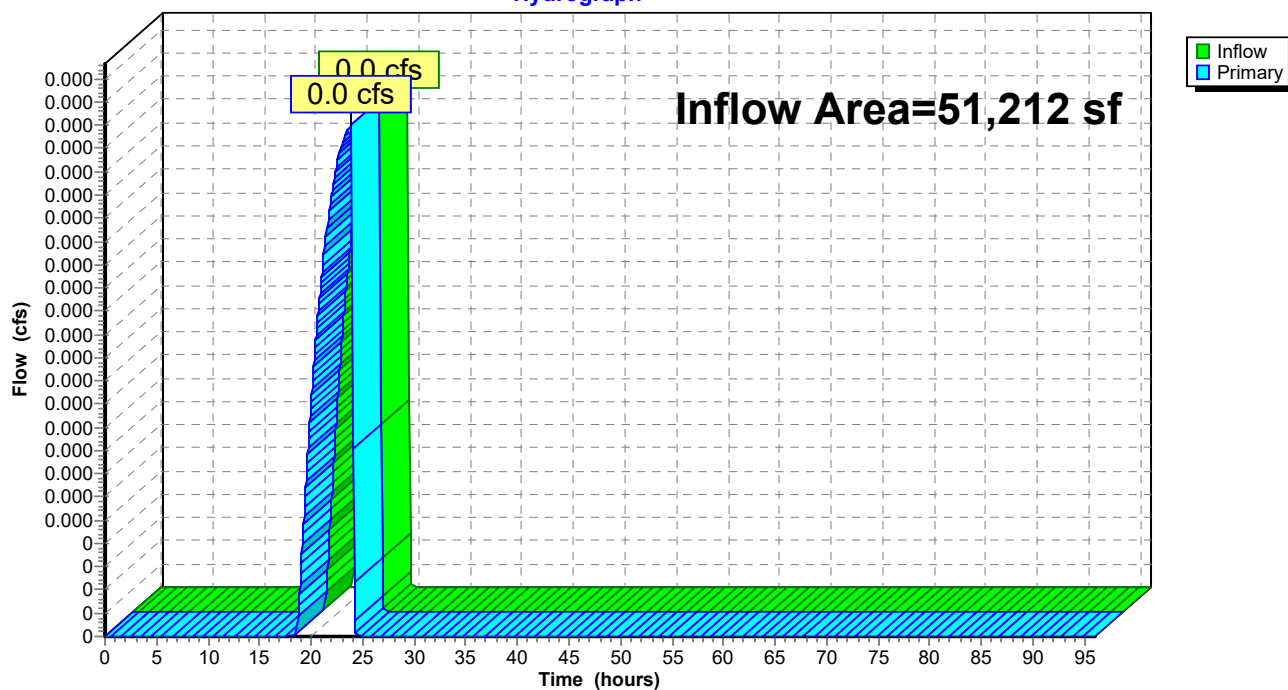
Summary for Link P 1L: P 1L

Inflow Area = 51,212 sf, 39.82% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.0 cfs @ 23.95 hrs, Volume= 6 cf
Primary = 0.0 cfs @ 23.95 hrs, Volume= 6 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link P 1L: P 1L

Hydrograph



21-0089 - Proposed

Type III 24-hr 10-Year Rainfall=4.80"

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Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P 1S: Subcat P 1SRunoff Area=26,765 sf 6.62% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=40 Runoff=0.0 cfs 430 cf**Subcatchment P 2S: Subcat P 2S**Runoff Area=4,020 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.4 cfs 1,529 cf**Subcatchment P 3S: Subcat P 3S Total**Runoff Area=14,709 sf 60.39% Impervious Runoff Depth=2.29"
Tc=6.0 min CN=75 Runoff=0.9 cfs 2,805 cf**Subcatchment P 4S: Subcat P 4S**Runoff Area=5,718 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.6 cfs 2,175 cf**Pond P 2P: P 2P**Peak Elev=485.80' Storage=246 cf Inflow=0.4 cfs 1,529 cf
Discarded=0.1 cfs 1,526 cf Primary=0.0 cfs 0 cf Outflow=0.1 cfs 1,526 cf**Pond P 3P: P 3P**Peak Elev=484.83' Storage=507 cf Inflow=0.9 cfs 2,805 cf
Discarded=0.3 cfs 2,805 cf Primary=0.0 cfs 0 cf Outflow=0.3 cfs 2,805 cf**Pond P 4P: P 4P**Peak Elev=484.18' Storage=445 cf Inflow=0.6 cfs 2,175 cf
Discarded=0.1 cfs 2,175 cf Primary=0.0 cfs 0 cf Outflow=0.1 cfs 2,175 cf**Link P 1L: P 1L**Inflow=0.0 cfs 430 cf
Primary=0.0 cfs 430 cf**Total Runoff Area = 51,212 sf Runoff Volume = 6,938 cf Average Runoff Depth = 1.63"**
60.18% Pervious = 30,818 sf 39.82% Impervious = 20,394 sf

21-0089 - Proposed

Type III 24-hr 10-Year Rainfall=4.80"

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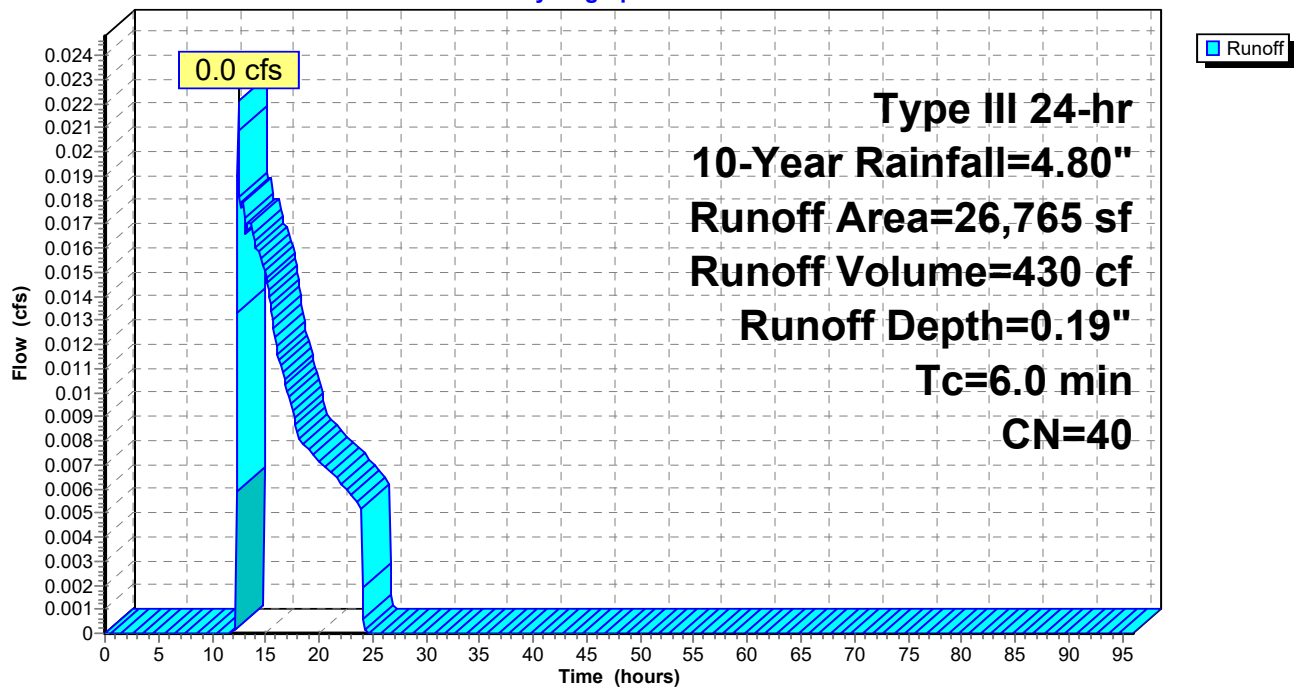
Summary for Subcatchment P 1S: Subcat P 1S

Runoff = 0.0 cfs @ 12.48 hrs, Volume= 430 cf, Depth= 0.19"
 Routed to Link P 1L : P 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
16,940	39	>75% Grass cover, Good, HSG A
3,076	30	Meadow, non-grazed, HSG A
1,773	98	Paved parking, HSG A
239	36	Woods, Fair, HSG A
4,737	30	Woods, Good, HSG A
26,765	40	Weighted Average
24,992		93.38% Pervious Area
1,773		6.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 1S: Subcat P 1S**Hydrograph**

21-0089 - Proposed

Type III 24-hr 10-Year Rainfall=4.80"

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Summary for Subcatchment P 2S: Subcat P 2S

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,529 cf, Depth= 4.56"
Routed to Pond P 2P : P 2P

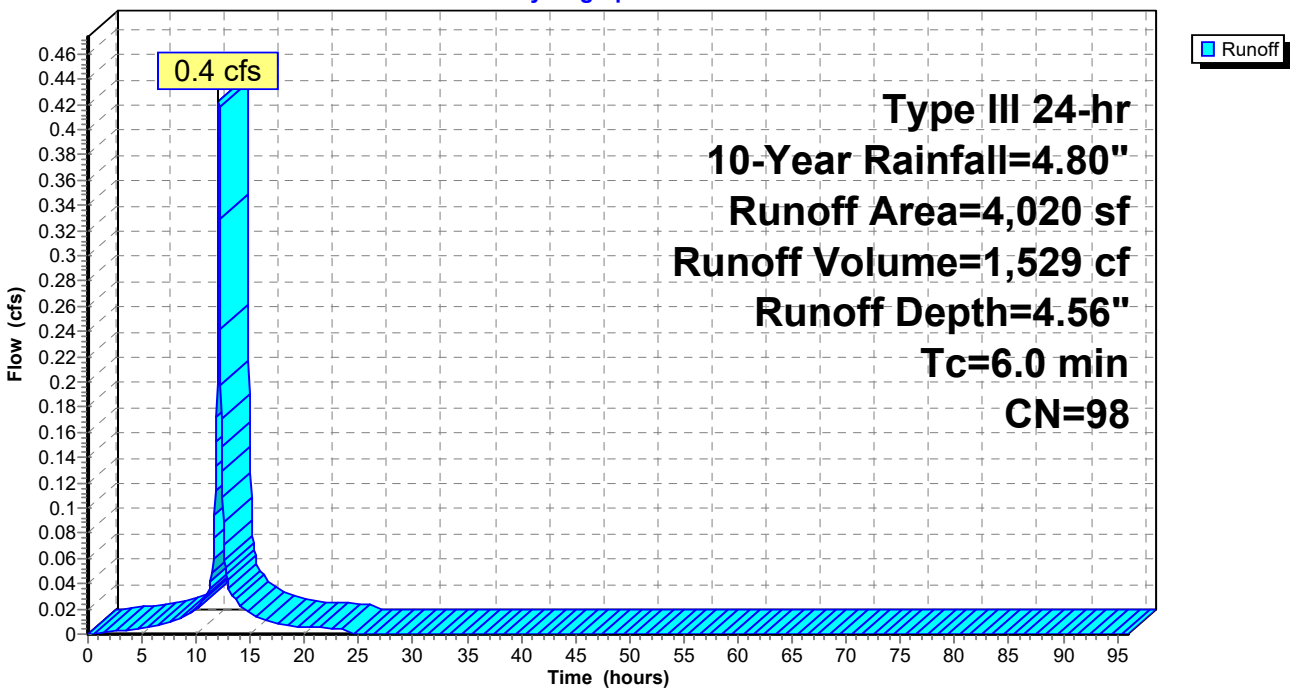
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
4,020	98	Roofs, HSG A
4,020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 2S: Subcat P 2S

Hydrograph



21-0089 - Proposed

Type III 24-hr 10-Year Rainfall=4.80"

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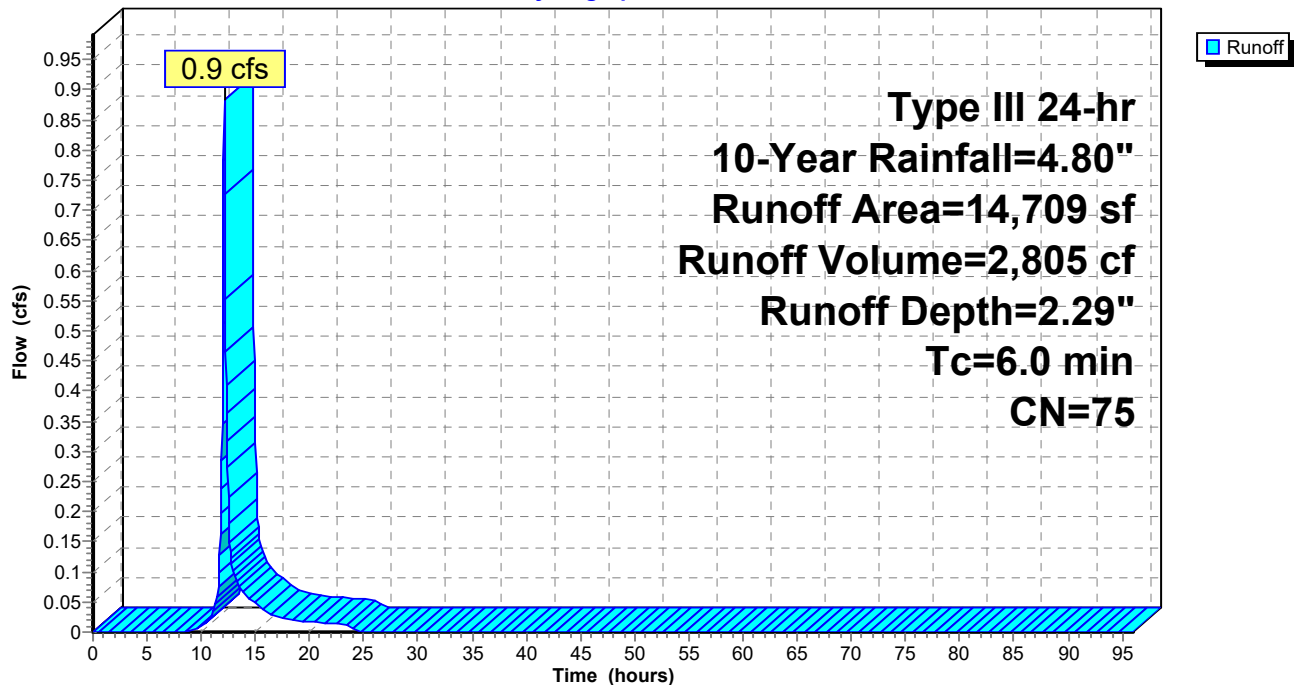
Summary for Subcatchment P 3S: Subcat P 3S Total

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,805 cf, Depth= 2.29"
Routed to Pond P 3P : P 3P

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
2	98	Paved parking, HSG A
44	39	>75% Grass cover, Good, HSG A
5,280	98	Paved parking, HSG A
1,143	98	Paved parking, HSG A
2,458	98	Paved parking, HSG A
1,049	39	>75% Grass cover, Good, HSG A
4,733	39	>75% Grass cover, Good, HSG A
14,709	75	Weighted Average
5,826		39.61% Pervious Area
8,883		60.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 3S: Subcat P 3S Total**Hydrograph**

Summary for Subcatchment P 4S: Subcat P 4S

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 2,175 cf, Depth= 4.56"
Routed to Pond P 4P : P 4P

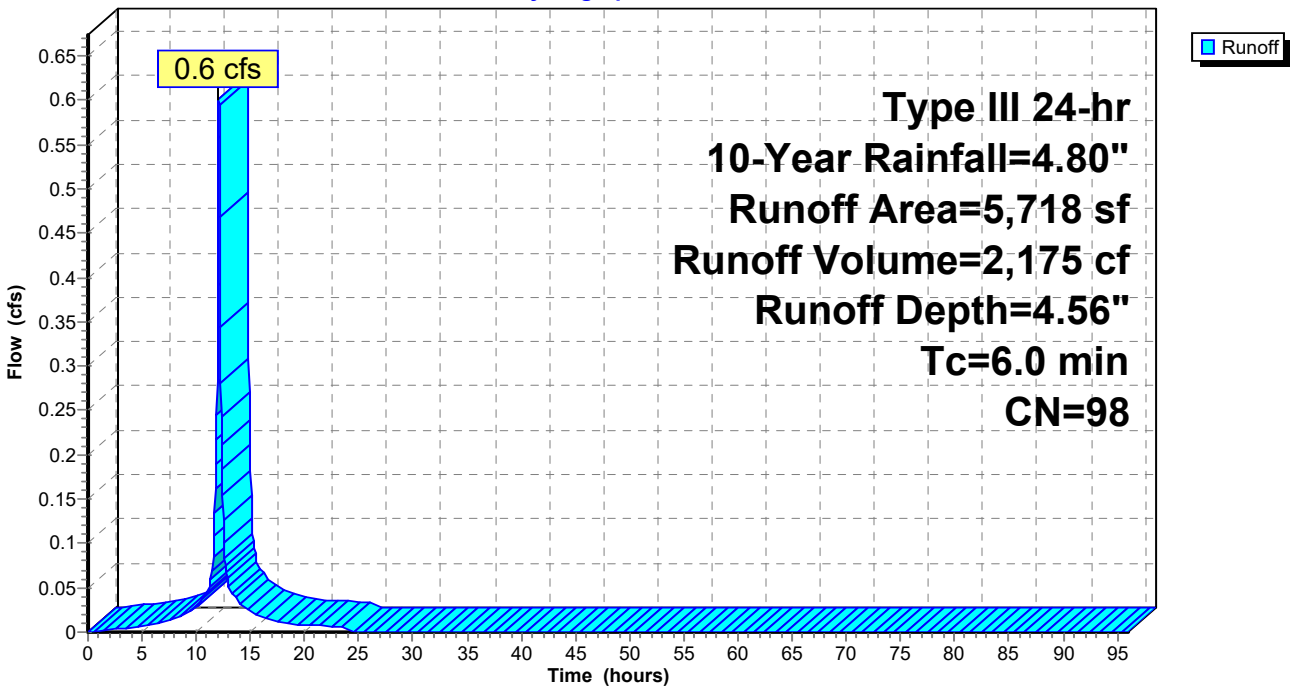
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
5,718	98	Roofs, HSG A
5,718		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 4S: Subcat P 4S

Hydrograph



21-0089 - Proposed

Type III 24-hr 10-Year Rainfall=4.80"

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Summary for Pond P 2P: P 2P

Inflow Area = 4,020 sf, 100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
 Inflow = 0.4 cfs @ 12.09 hrs, Volume= 1,529 cf
 Outflow = 0.1 cfs @ 12.10 hrs, Volume= 1,526 cf, Atten= 70%, Lag= 0.8 min
 Discarded = 0.1 cfs @ 12.10 hrs, Volume= 1,526 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond P 3P : P 3P

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 485.80' @ 12.41 hrs Surf.Area= 661 sf Storage= 246 cf

Plug-Flow detention time= 9.8 min calculated for 1,526 cf (100% of inflow)
 Center-of-Mass det. time= 8.8 min (757.5 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	485.50'	2 cf	1.00'D x 2.71'H Vertical Cone/Cylinder
#2	485.50'	236 cf	12.0" Round Pipe Storage x 5 Inside #3 L= 60.0'
#3	485.00'	434 cf	10.48'W x 63.00'L x 2.00'H Prismatic 1,320 cf Overall - 236 cf Embedded = 1,085 cf x 40.0% Voids
672 cf			Total Available Storage

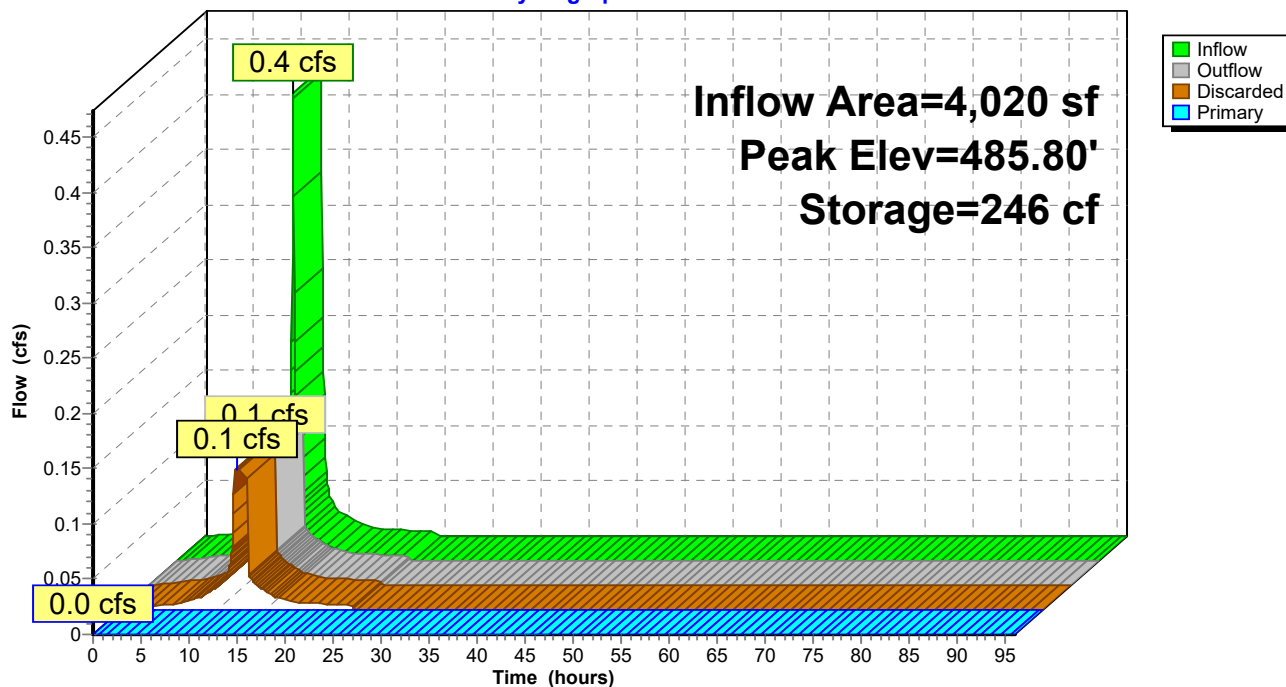
Device	Routing	Invert	Outlet Devices
#1	Primary	488.20'	6.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Discarded	485.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.1 cfs @ 12.10 hrs HW=485.52' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=485.00' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 2P: P 2P

Hydrograph



21-0089 - Proposed

Type III 24-hr 10-Year Rainfall=4.80"

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Summary for Pond P 3P: P 3P

Inflow Area = 24,447 sf, 76.17% Impervious, Inflow Depth = 1.38" for 10-Year event
 Inflow = 0.9 cfs @ 12.09 hrs, Volume= 2,805 cf
 Outflow = 0.3 cfs @ 12.15 hrs, Volume= 2,805 cf, Atten= 70%, Lag= 3.3 min
 Discarded = 0.3 cfs @ 12.15 hrs, Volume= 2,805 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link P 1L : P 1L

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 484.83' @ 12.45 hrs Surf.Area= 1,397 sf Storage= 507 cf

Plug-Flow detention time= 10.0 min calculated for 2,803 cf (100% of inflow)
 Center-of-Mass det. time= 10.0 min (846.9 - 836.9)

Volume	Invert	Avail.Storage	Storage Description
#1	484.61'	38 cf	4.00'D x 3.03'H Vertical Cone/Cylinder
#2	484.55'	495 cf	12.0" Round Pipe Storage x 9 Inside #3 L= 70.0'
#3	484.05'	909 cf	18.96'W x 73.00'L x 2.00'H Prismatoid
			2,768 cf Overall - 495 cf Embedded = 2,273 cf x 40.0% Voids
			1,442 cf Total Available Storage

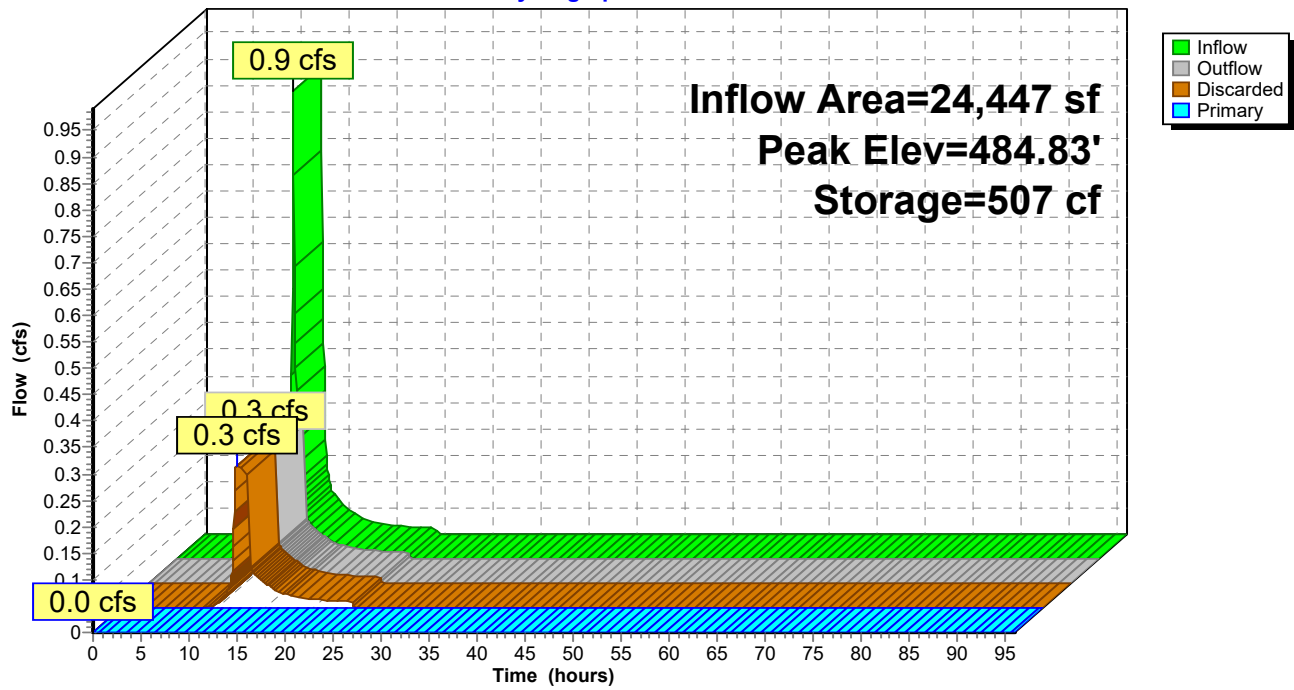
Device	Routing	Invert	Outlet Devices
#1	Primary	486.58'	1.0" x 5.0" Horiz. Orifice/Grate X 11.00 columns X 2 rows C= 0.600 in 18.0" x 25.7" Grate (24% open area) Limited to weir flow at low heads
#2	Discarded	484.05'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.3 cfs @ 12.15 hrs HW=484.62' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=484.05' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 3P: P 3P

Hydrograph



21-0089 - Proposed

Type III 24-hr 10-Year Rainfall=4.80"

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Summary for Pond P 4P: P 4P

Inflow Area = 5,718 sf, 100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
 Inflow = 0.6 cfs @ 12.09 hrs, Volume= 2,175 cf
 Outflow = 0.1 cfs @ 12.05 hrs, Volume= 2,175 cf, Atten= 76%, Lag= 0.0 min
 Discarded = 0.1 cfs @ 12.05 hrs, Volume= 2,175 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond P 3P : P 3P

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 484.18' @ 12.47 hrs Surf.Area= 749 sf Storage= 445 cf

Plug-Flow detention time= 15.3 min calculated for 2,174 cf (100% of inflow)
 Center-of-Mass det. time= 15.5 min (764.2 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	483.50'	4 cf	1.00'D x 5.51'H Vertical Cone/Cylinder
#2	483.50'	353 cf	18.0" Round Pipe Storage x 4 Inside #3 L= 50.0'
#3	483.00'	607 cf	13.60'W x 55.00'L x 2.50'H Prismatoid 1,870 cf Overall - 353 cf Embedded = 1,517 cf x 40.0% Voids
			964 cf Total Available Storage

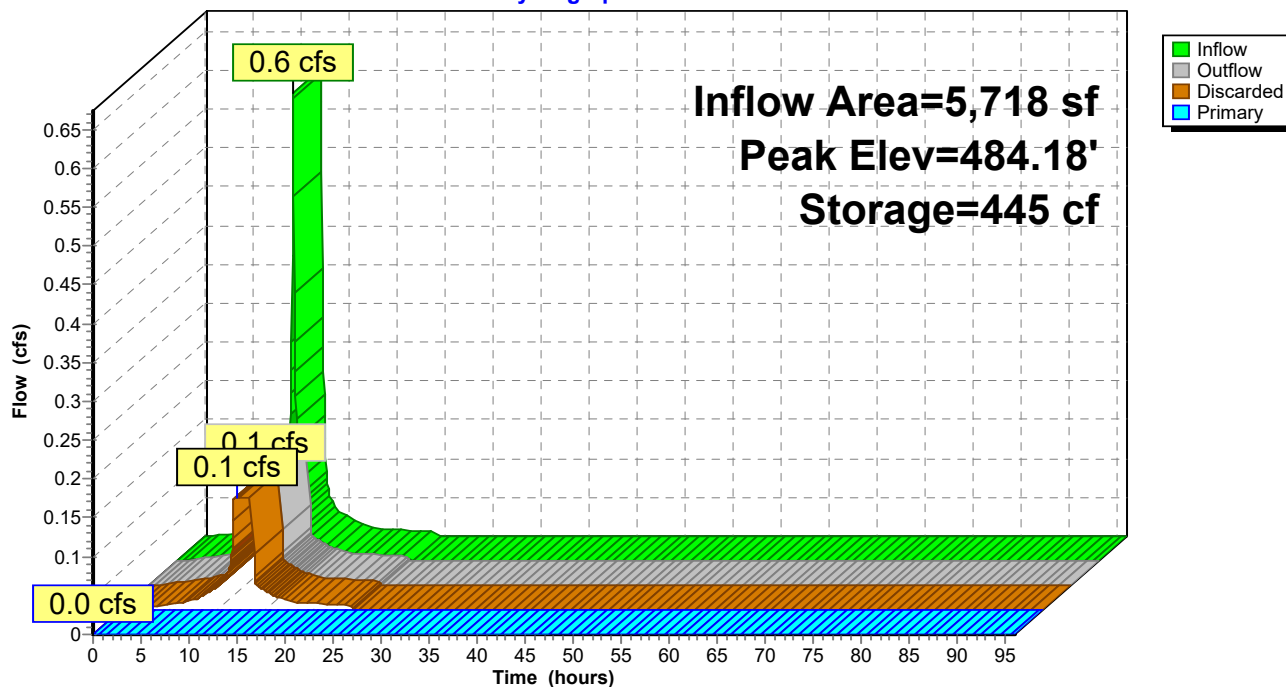
Device	Routing	Invert	Outlet Devices
#1	Primary	489.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#2	Discarded	483.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.1 cfs @ 12.05 hrs HW=483.55' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=483.00' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 4P: P 4P

Hydrograph



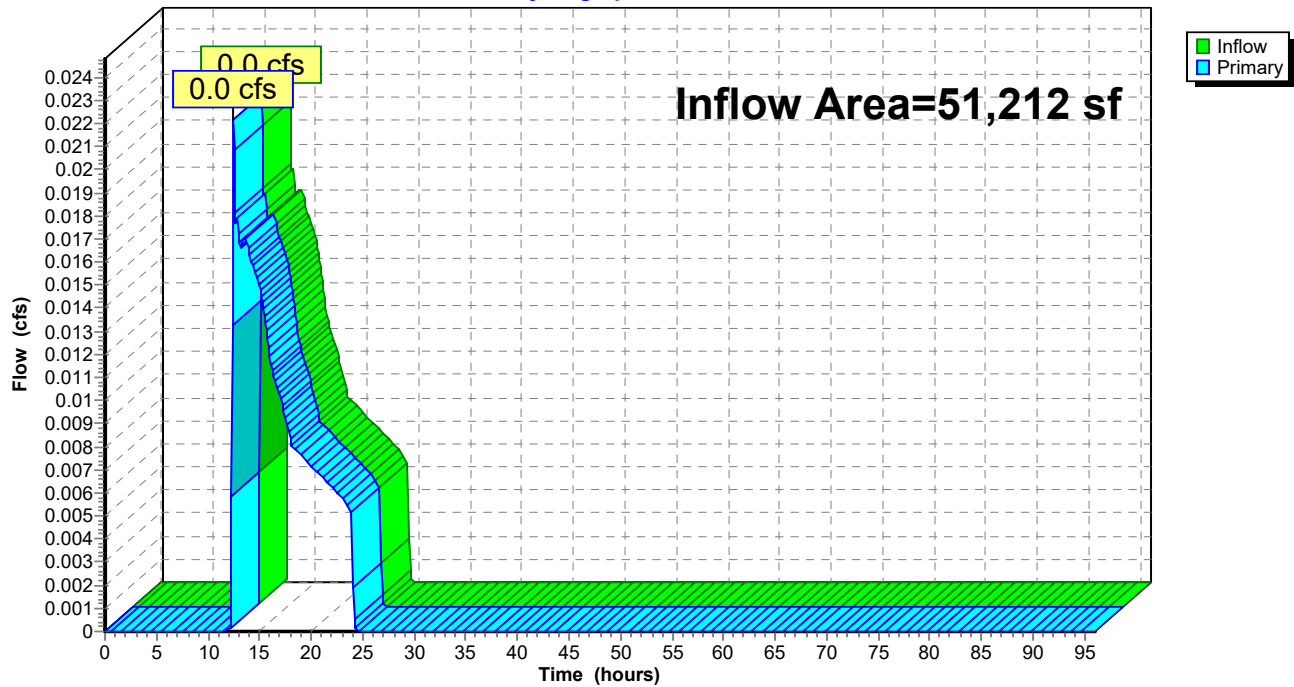
Summary for Link P 1L: P 1L

Inflow Area = 51,212 sf, 39.82% Impervious, Inflow Depth = 0.10" for 10-Year event
Inflow = 0.0 cfs @ 12.48 hrs, Volume= 430 cf
Primary = 0.0 cfs @ 12.48 hrs, Volume= 430 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link P 1L: P 1L

Hydrograph



21-0089 - Proposed*Type III 24-hr 100-Year Rainfall=7.00"*

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Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P 1S: Subcat P 1SRunoff Area=26,765 sf 6.62% Impervious Runoff Depth=0.84"
Tc=6.0 min CN=40 Runoff=0.3 cfs 1,878 cf**Subcatchment P 2S: Subcat P 2S**Runoff Area=4,020 sf 100.00% Impervious Runoff Depth=6.76"
Tc=6.0 min CN=98 Runoff=0.6 cfs 2,265 cf**Subcatchment P 3S: Subcat P 3S Total**Runoff Area=14,709 sf 60.39% Impervious Runoff Depth=4.15"
Tc=6.0 min CN=75 Runoff=1.6 cfs 5,086 cf**Subcatchment P 4S: Subcat P 4S**Runoff Area=5,718 sf 100.00% Impervious Runoff Depth=6.76"
Tc=6.0 min CN=98 Runoff=0.9 cfs 3,222 cf**Pond P 2P: P 2P**Peak Elev=486.41' Storage=508 cf Inflow=0.6 cfs 2,265 cf
Discarded=0.1 cfs 2,264 cf Primary=0.0 cfs 0 cf Outflow=0.1 cfs 2,264 cf**Pond P 3P: P 3P**Peak Elev=486.66' Storage=1,430 cf Inflow=1.6 cfs 5,086 cf
Discarded=0.3 cfs 5,035 cf Primary=0.3 cfs 51 cf Outflow=0.6 cfs 5,086 cf**Pond P 4P: P 4P**Peak Elev=485.11' Storage=843 cf Inflow=0.9 cfs 3,222 cf
Discarded=0.1 cfs 3,223 cf Primary=0.0 cfs 0 cf Outflow=0.1 cfs 3,223 cf**Link P 1L: P 1L**Inflow=0.5 cfs 1,929 cf
Primary=0.5 cfs 1,929 cf**Total Runoff Area = 51,212 sf Runoff Volume = 12,451 cf Average Runoff Depth = 2.92"**
60.18% Pervious = 30,818 sf 39.82% Impervious = 20,394 sf

21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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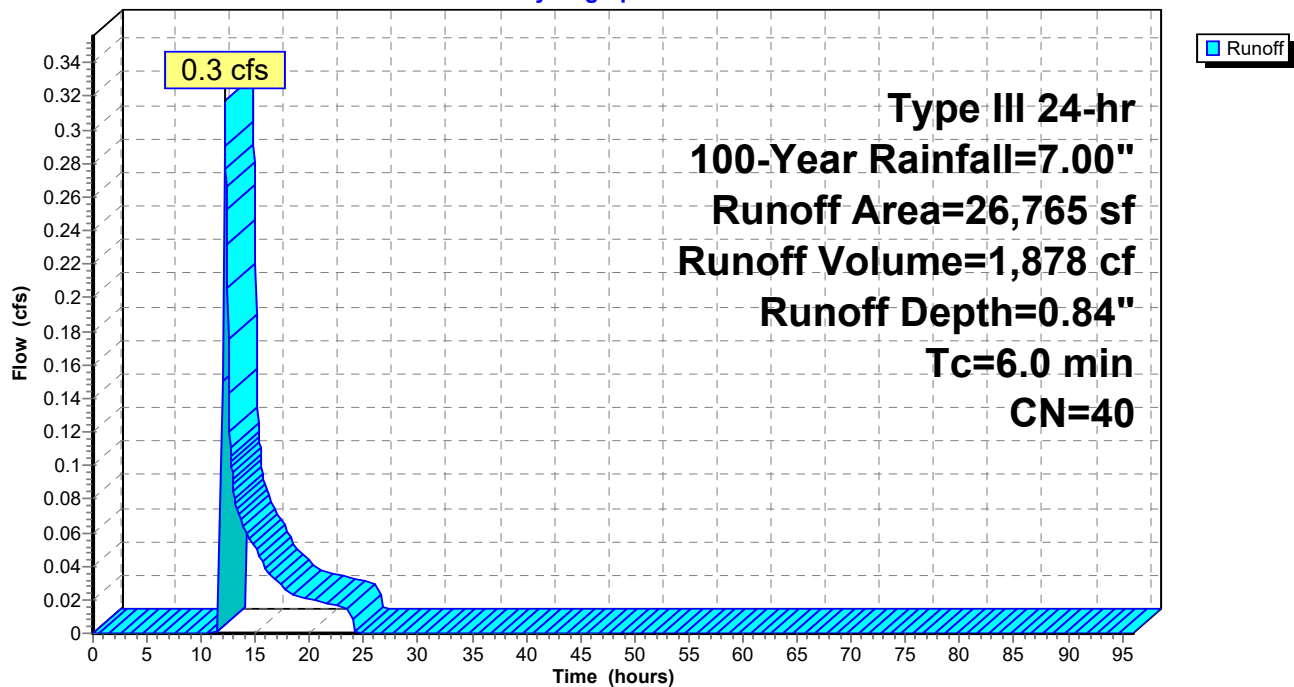
Summary for Subcatchment P 1S: Subcat P 1S

Runoff = 0.3 cfs @ 12.15 hrs, Volume= 1,878 cf, Depth= 0.84"
Routed to Link P 1L : P 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
16,940	39	>75% Grass cover, Good, HSG A
3,076	30	Meadow, non-grazed, HSG A
1,773	98	Paved parking, HSG A
239	36	Woods, Fair, HSG A
4,737	30	Woods, Good, HSG A
26,765	40	Weighted Average
24,992		93.38% Pervious Area
1,773		6.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 1S: Subcat P 1S**Hydrograph**

21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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Summary for Subcatchment P 2S: Subcat P 2S

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 2,265 cf, Depth= 6.76"
Routed to Pond P 2P : P 2P

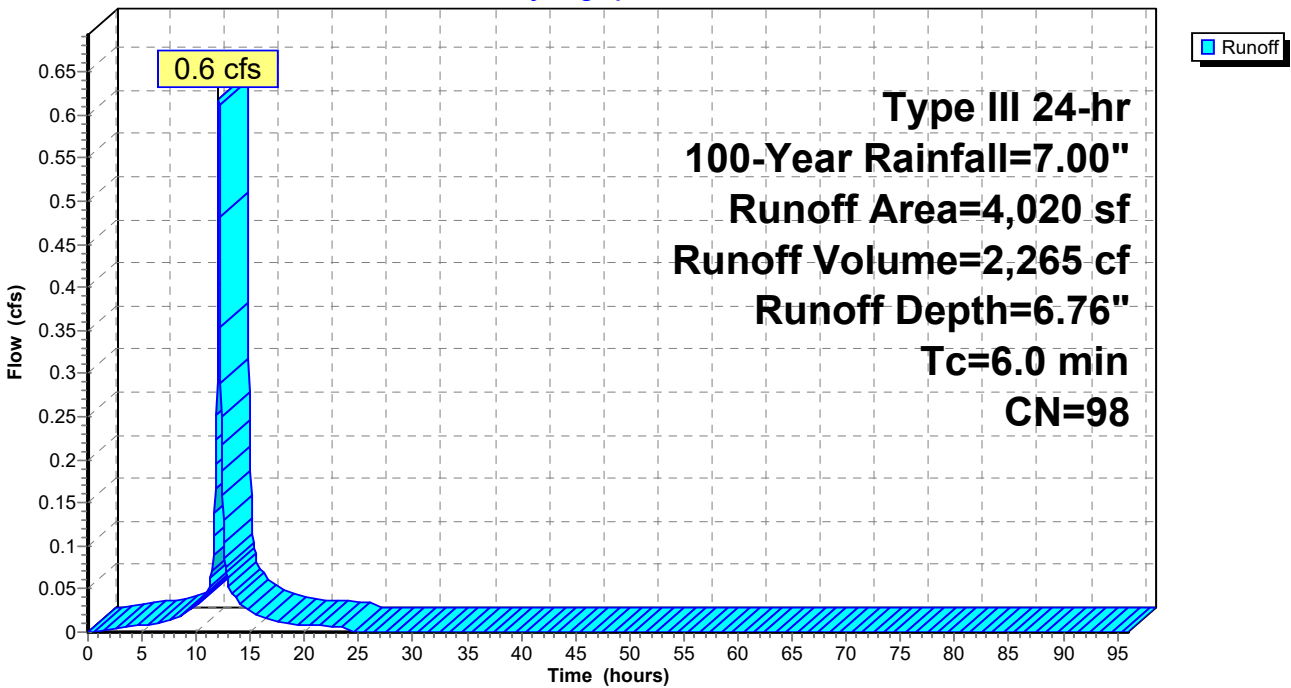
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
4,020	98	Roofs, HSG A
4,020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 2S: Subcat P 2S

Hydrograph



21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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Summary for Subcatchment P 3S: Subcat P 3S Total

Runoff = 1.6 cfs @ 12.09 hrs, Volume= 5,086 cf, Depth= 4.15"
Routed to Pond P 3P : P 3P

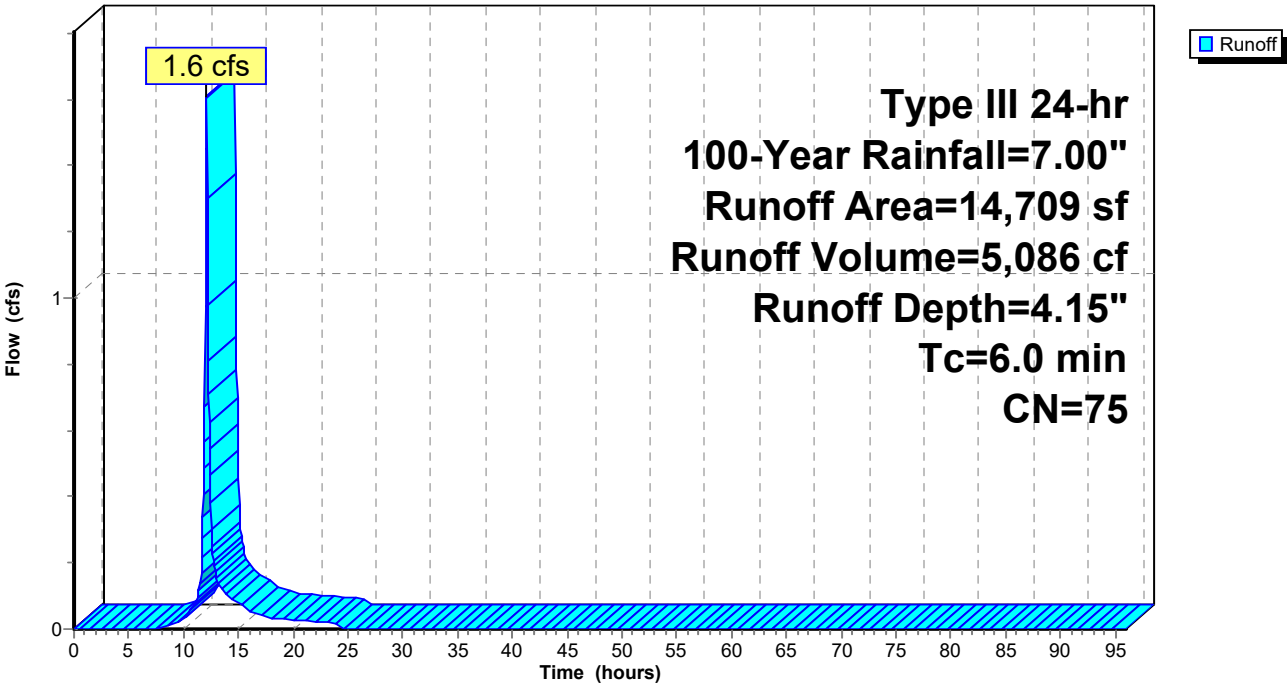
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
2	98	Paved parking, HSG A
44	39	>75% Grass cover, Good, HSG A
5,280	98	Paved parking, HSG A
1,143	98	Paved parking, HSG A
2,458	98	Paved parking, HSG A
1,049	39	>75% Grass cover, Good, HSG A
4,733	39	>75% Grass cover, Good, HSG A
14,709	75	Weighted Average
5,826		39.61% Pervious Area
8,883		60.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 3S: Subcat P 3S Total

Hydrograph



21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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Summary for Subcatchment P 4S: Subcat P 4S

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 3,222 cf, Depth= 6.76"
Routed to Pond P 4P : P 4P

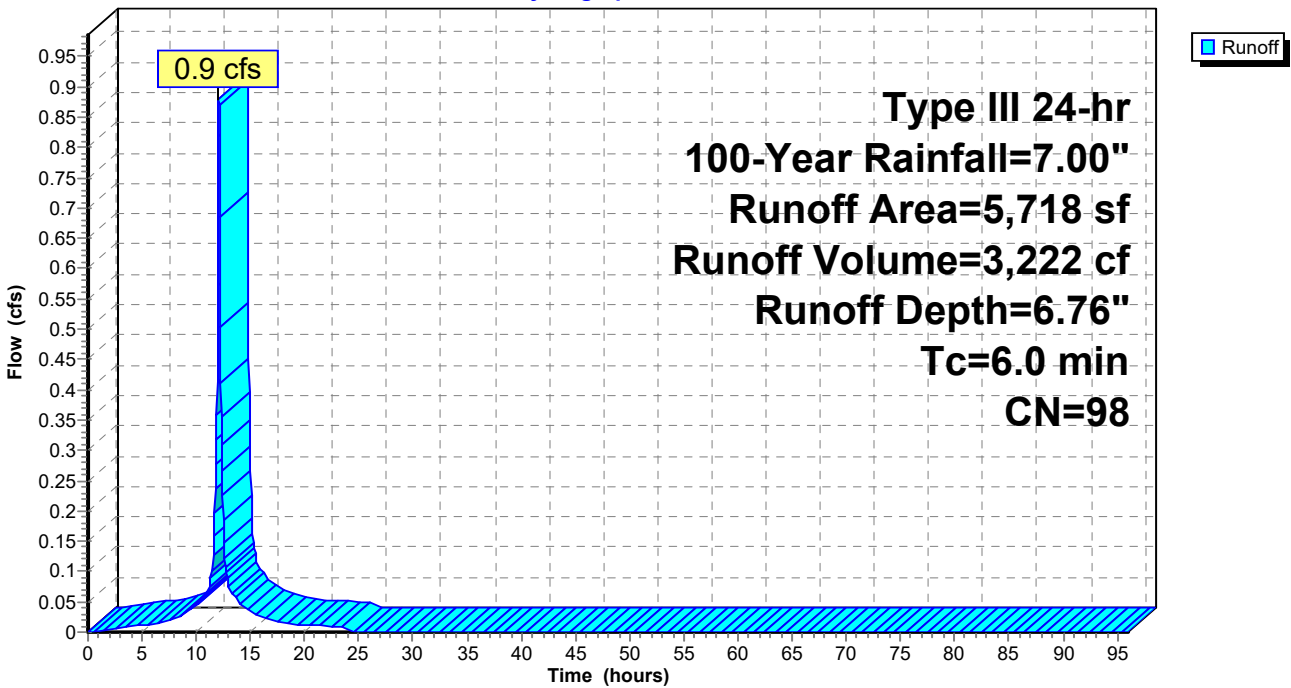
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
5,718	98	Roofs, HSG A
5,718		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment P 4S: Subcat P 4S

Hydrograph



21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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Summary for Pond P 2P: P 2P

Inflow Area = 4,020 sf, 100.00% Impervious, Inflow Depth = 6.76" for 100-Year event
 Inflow = 0.6 cfs @ 12.09 hrs, Volume= 2,265 cf
 Outflow = 0.1 cfs @ 12.05 hrs, Volume= 2,264 cf, Atten= 80%, Lag= 0.0 min
 Discarded = 0.1 cfs @ 12.05 hrs, Volume= 2,264 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond P 3P : P 3P

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 486.41' @ 12.51 hrs Surf.Area= 661 sf Storage= 508 cf

Plug-Flow detention time= 20.0 min calculated for 2,264 cf (100% of inflow)
 Center-of-Mass det. time= 19.8 min (762.8 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1	485.50'	2 cf	1.00'D x 2.71'H Vertical Cone/Cylinder
#2	485.50'	236 cf	12.0" Round Pipe Storage x 5 Inside #3 L= 60.0'
#3	485.00'	434 cf	10.48'W x 63.00'L x 2.00'H Prismatoid 1,320 cf Overall - 236 cf Embedded = 1,085 cf x 40.0% Voids
672 cf			Total Available Storage

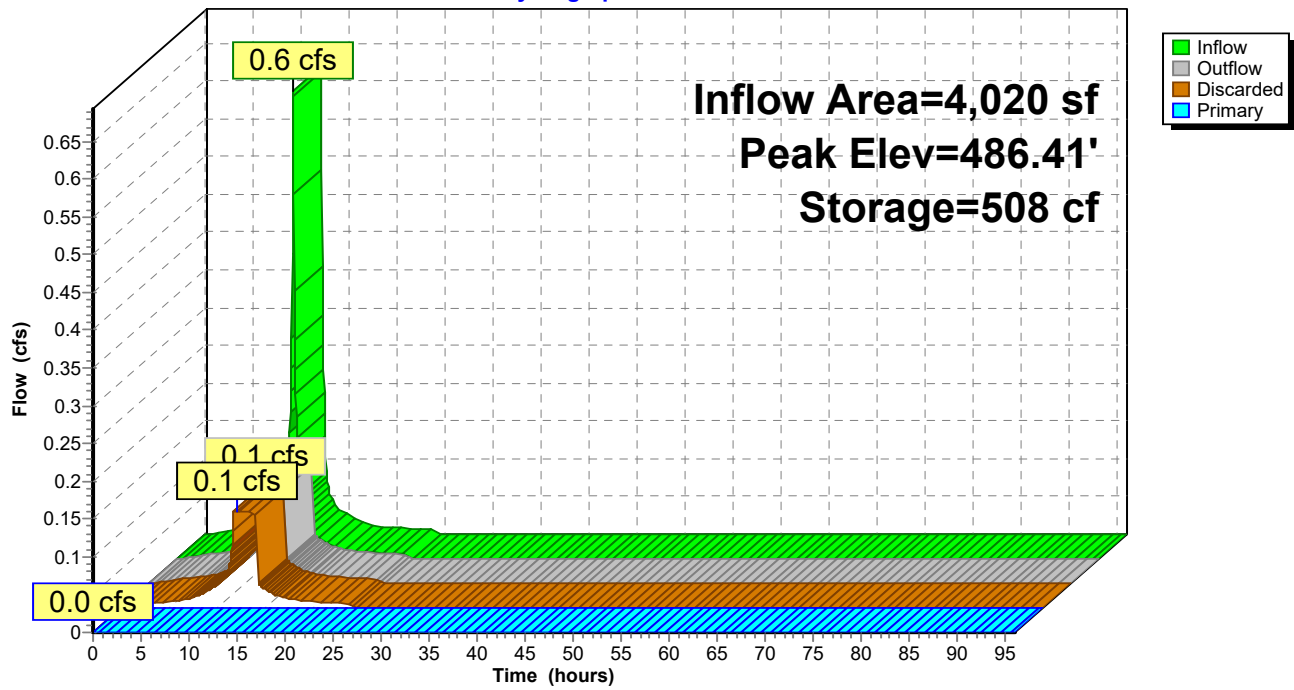
Device	Routing	Invert	Outlet Devices
#1	Primary	488.20'	6.0" Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2	Discarded	485.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.1 cfs @ 12.05 hrs HW=485.66' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=485.00' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 2P: P 2P

Hydrograph



21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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Summary for Pond P 3P: P 3P

Inflow Area = 24,447 sf, 76.17% Impervious, Inflow Depth = 2.50" for 100-Year event
 Inflow = 1.6 cfs @ 12.09 hrs, Volume= 5,086 cf
 Outflow = 0.6 cfs @ 12.50 hrs, Volume= 5,086 cf, Atten= 66%, Lag= 24.5 min
 Discarded = 0.3 cfs @ 12.05 hrs, Volume= 5,035 cf
 Primary = 0.3 cfs @ 12.50 hrs, Volume= 51 cf
 Routed to Link P 1L : P 1L

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 486.66' @ 12.49 hrs Surf.Area= 1,397 sf Storage= 1,430 cf

Plug-Flow detention time= 33.9 min calculated for 5,084 cf (100% of inflow)
 Center-of-Mass det. time= 33.9 min (853.6 - 819.7)

Volume	Invert	Avail.Storage	Storage Description
#1	484.61'	38 cf	4.00'D x 3.03'H Vertical Cone/Cylinder
#2	484.55'	495 cf	12.0" Round Pipe Storage x 9 Inside #3 L= 70.0'
#3	484.05'	909 cf	18.96'W x 73.00'L x 2.00'H Prismatoid
			2,768 cf Overall - 495 cf Embedded = 2,273 cf x 40.0% Voids
			1,442 cf Total Available Storage

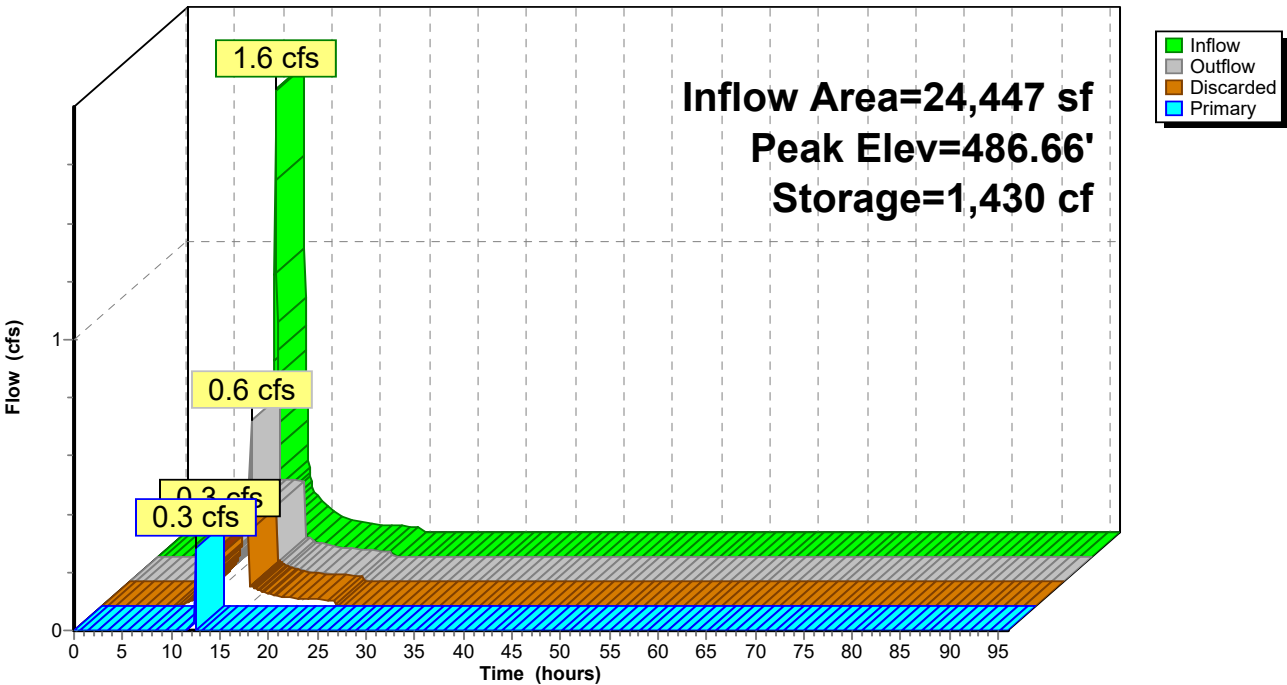
Device	Routing	Invert	Outlet Devices
#1	Primary	486.58'	1.0" x 5.0" Horiz. Orifice/Grate X 11.00 columns X 2 rows C= 0.600 in 18.0" x 25.7" Grate (24% open area) Limited to weir flow at low heads
#2	Discarded	484.05'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.3 cfs @ 12.05 hrs HW=484.78' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.3 cfs @ 12.50 hrs HW=486.63' (Free Discharge)
 ↑ **1=Orifice/Grate** (Weir Controls 0.3 cfs @ 0.74 fps)

Pond P 3P: P 3P

Hydrograph



21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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Summary for Pond P 4P: P 4P

Inflow Area = 5,718 sf, 100.00% Impervious, Inflow Depth = 6.76" for 100-Year event
 Inflow = 0.9 cfs @ 12.09 hrs, Volume= 3,222 cf
 Outflow = 0.1 cfs @ 11.95 hrs, Volume= 3,223 cf, Atten= 84%, Lag= 0.0 min
 Discarded = 0.1 cfs @ 11.95 hrs, Volume= 3,223 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond P 3P : P 3P

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 485.11' @ 12.56 hrs Surf.Area= 749 sf Storage= 843 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 32.4 min (775.3 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1	483.50'	4 cf	1.00'D x 5.51'H Vertical Cone/Cylinder
#2	483.50'	353 cf	18.0" Round Pipe Storage x 4 Inside #3 L= 50.0'
#3	483.00'	607 cf	13.60'W x 55.00'L x 2.50'H Prismatoid 1,870 cf Overall - 353 cf Embedded = 1,517 cf x 40.0% Voids
			964 cf Total Available Storage

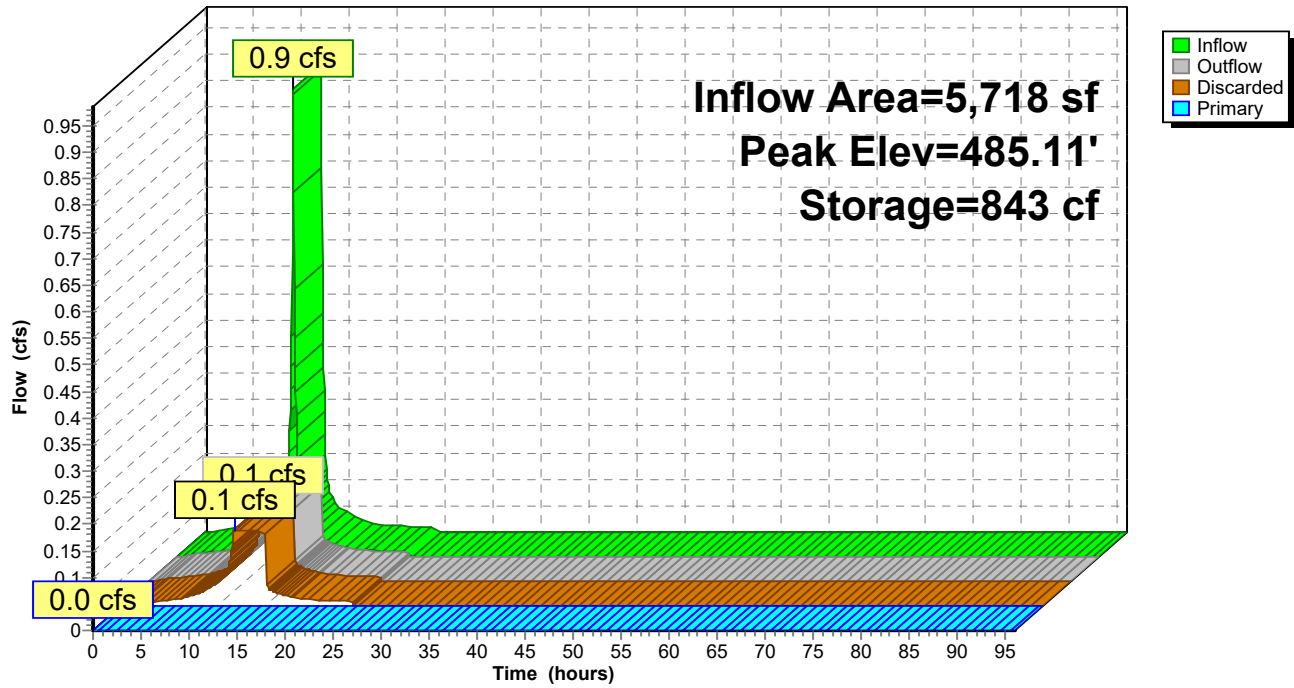
Device	Routing	Invert	Outlet Devices
#1	Primary	489.00'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#2	Discarded	483.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.1 cfs @ 11.95 hrs HW=483.55' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=483.00' (Free Discharge)
 ↑ **1=Orifice/Grate** (Controls 0.0 cfs)

Pond P 4P: P 4P

Hydrograph



21-0089 - Proposed

Type III 24-hr 100-Year Rainfall=7.00"

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Summary for Link P 1L: P 1L

Inflow Area = 51,212 sf, 39.82% Impervious, Inflow Depth = 0.45" for 100-Year event

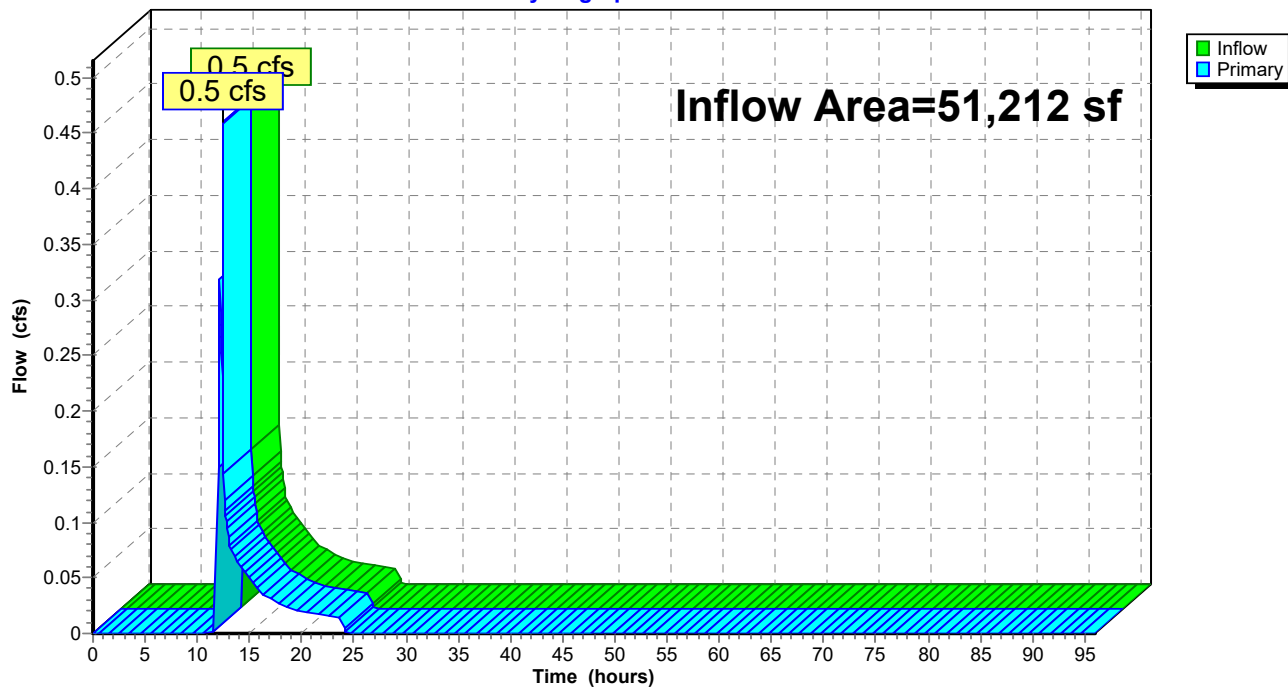
Inflow = 0.5 cfs @ 12.50 hrs, Volume= 1,929 cf

Primary = 0.5 cfs @ 12.50 hrs, Volume= 1,929 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Link P 1L: P 1L

Hydrograph



C) Water Quality Calculations (Standards 3, 4, 5, 6 & 7)

The proposed stormwater management system is comprised of pervious areas, a trench drain, roof drains, a water quality unit, and three subsurface infiltration systems.

Standard 3)

The Project results in an increase in impervious area of about 15,077 S.F. however accounts for about twice the required recharge volume for the 20,394 S.F. paved access drive, roof areas, and driveways thereby meeting the recharge requirements. Stormwater runoff from the site is pretreated and then directed to the infiltration systems to provide recharge.

Standard 4)

The Project results in an increase in impervious area of about 15,077 S.F. however proposed TSS removal accounts for a water quality volume for the 29,394 S.F. paved access drive, roof areas, and driveways thereby meeting the water quality volume requirements. The site stormwater system provides water quality volume in the water quality structure and below the overflow outlet from the subsurface detention/ infiltration systems.

Standard 5)

This Standard is not applicable.

Standard 6)

This Standard is not applicable.

Standard 7)

The Project is a mix of new and redevelopment. The stormwater management system has been designed to fully comply with all ten Standards.

No Information on This Page

MassDEP Stormwater Standard 3
TSS Removal

Project: 40 Highland Avenue
Project No: 21--0089

Date: Apr-24
Page: C-2

Critical Area - Yes or No No

	TSS			
BMP Name	Removal	Starting	Amount	Remaining
Sump	Rate	TSS	Removed	Load
	25%	100%	25%	75%
CDS Unit	50%	75%	38%	38%
Infiltration	80%	38%	30%	8%
	0%	8%	0%	8%
	0%	8%	0%	8%
Total TSS Remaining:			8%	OK

Critical Area - Yes or No No

Note: No credit for existing impervious areas was taken for the recharge calculations.

Impervious Area	Area (S.F.)	Soil	Depth (inches)	Volume (C.F.)
P 2S	4,020	A	0.60	201.0
P 3S	8,883	A	0.60	444.2
P 4S	5,718	A	0.60	285.9

Total Area	18,621	S.F.	Volume Required	931.1	C.F.
------------	--------	------	-----------------	-------	------

Capture Area Adjustment

To Recharge Facility	Area (S.F.)	
P 1S	1,773	Volume Required 1029.0 C.F.

Volume Provided below lowest invert (Static Method)

BMP

P 2P	672	C.F.	(See Stormwater Report)
P 3P	1429	C.F.	(See Stormwater Report)
P 4P	964	C.F.	(See Stormwater Report)

Volume Provided: 3065.0 C.F. **OK**

Critical Area - Yes or No Yes (Note: Not a Critical Area, however the 1" was used for documentation)

Watershed (Subcatchment)	Impervious Area (S.F.)	Required Depth (inches)	Required Volume (C.F.)
P 1S	1,773	1.00	147.8
P 2S	4,020	1.00	335.0
P 3S	8,883	1.00	740.3
P 4S	5,718	1.00	476.5

Total Area: 20,394 Volume Required: **1699.5**

Volume Provided (per HydroCAD)

BMP

P 2P	672	C.F.	(See Stormwater Report)
P 3P	1429	C.F.	(See Stormwater Report)
P 4P	964	C.F.	(See Stormwater Report)

Volumes reported are below lowest invert (Static Method)

Volume Provided **3065.0** C.F. **OK**

No Information on This Page

D) Construction Period Pollution Prevention Plan, Long-Term Pollution Prevention Plan, and Long-Term Operations & Maintenance Plan (Standards 8, 9 & 10)

Standards 8 & 9)

The owner is responsible for implementation of the Construction Period Pollution Prevention Plan, the Long-Term Operation & Maintenance Plan, and the Long-Term Pollution Prevention Plan for 40 Highland Avenue in Needham, Massachusetts.

The site work will result in more than one (1) acre of disturbance, therefore NPDES requirements of the Construction General Permit are applicable and a SWPPP is required. A SWPPP will be prepared prior to the start of construction once a contractor has been selected.

The stormwater management system for 40 Highland Avenue is comprised of pervious areas, roof drains, trench drains, drain manholes, and three subsurface infiltration systems. Only stormwater may be discharged through these facilities, there shall be no connections of floor drains and/or sanitary connections. Refer to the following pages for specific requirements to prevent pollution and the maintenance of the stormwater management system.

Standard 10)

No illicit connections to the stormwater management system are known or proposed. Sanitary wastewater will be discharged to an onsite sewage disposal system designed in accordance with 310 CMR 15 (Title 5) and industrial wastewater will be collected in holding tanks in accordance with 314 CMR 18.

No Information on This Page

Best Management Practice	Frequency Of Inspection	Maintenance (Inspect for these items) and Frequency (major storms being ½" of rain or more)	Inspection (Date) Maintenance (Yes/No)	Maintenance Performed (Date and Initial)
--------------------------	-------------------------	---	--	--

Natural Buffer	Daily	These areas are beyond the Limit of Work and are to be protected. Replace Limit of Work demarcation (flagging, berms/dikes, fencing or ECB's) when deteriorated. Should infringement into Natural Buffers occur, take corrective action immediately and implement mitigation measures (seeding, planting of native trees or shrubs) to restore Natural Buffers.		
Erosion Control Barriers (ECB)	Weekly and after major storms	Remove sediment before it has accumulated to one-half of the above-ground height of ECB's. Replace ECB's before they have deteriorated/decomposed to half their original height or every twelve (12) months, whichever comes first. Sediments to be removed and disposed of above the ECB line in an area to be stabilized later. Fabric to be disposed of offsite. Natural liners and wooden stakes may be left to decompose.		
Silt-sacks	Weekly and after major storms	Replace at least twice per year, or when sediment reaches two (2) inches in depth, or if flooding is observed. Dispose of materials offsite.		
Anti-tracking Pad	Daily	Replace at least one per year, or when effectiveness has diminished. Where sediment has been tracked-out offsite onto paved roads, sidewalks, or other paved areas offsite, remove the deposited sediment by the end of the same business day in which the track-out occurs or by the end of the next business day if track-out occurs on a non-business day. Remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. Hosing or sweeping tracked-out sediment into any stormwater conveyance, storm drain inlet, or water of the U.S. (i.e., wetland or stream) is PROHIBITED.		
Equipment Storage and Refueling	Daily	Storage or refueling of construction equipment within one hundred (100) feet of any stormwater conveyance, storm drain inlet, or water of the U.S. (i.e., wetland or stream) is PROHIBITED. Spill kits shall be readily available on site if refueling is to occur. All materials shall be disposed of offsite.		
Soil Stockpiles	Weekly and after major storms	Locate Stockpiles away from stormwater channels and conveyances. Provide ECB or Stone Check Dams around Stockpiles. Stockpiles that will remain unused for more than a month should be seeded with a quick cover crop such as Ryegrass (10-30 lbs./acres). Hosing or sweeping tracked-out		

Best Management Practice	Frequency Of Inspection	Maintenance (Inspect for these items) and Frequency (major storms being ½" of rain or more)	Inspection (Date) Maintenance (Yes/No)	Maintenance Performed (Date and Initial)
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Soil Stockpiles (Cont.)		sediment into any stormwater conveyance, storm drain inlet, or water of the U.S. (i.e., wetland or stream) is PROHIBITED.		
Sediment Basins	Weekly and after major storms	Remove floatables and any accumulated debris or as soon as observed. Remove accumulated sediment to maintain at least one-half of the design capacity and conduct all other appropriate maintenance to ensure the basin or impoundment remains in effective operating condition.		
Stone Check Dams	Weekly and after major storms	Remove sediment at least every other month or when sediment is six (6) inches deep.		
Dust Control	Daily	Minimizing disturbed areas and rapid seeding/stabilization of disturbed areas is the preferred option. Water or an acceptable Dust Palliative should be used on haul roads to prevent dust from emanating and leaving the site or affecting Natural Buffers.		
Outlet & Channel Protection	Weekly and after major storm events	Observe slopes downgradient of Sediment Basins for stability, integrity, and erosion and repair immediately with seed or Turf Reinforcement Mat (TRM) and seed as necessary.		

Potential Source of Pollution	Protective Measures
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Reportable Spill(s)	• The Responsible Party or its representative is obligated to notify appropriate authorities of any spills of hazardous/harmful materials. • Should a spill bypass a containment device – trench drain, berm, etc. – and impact a stormwater detention or retention facility, the Responsible Party shall clean-up, mitigate and/or restore the facility to its original condition.
Lawn/Landscape Maintenance	• Clippings and yard waste shall not be disposed of in stormwater management facilities or wetland resource areas. • Pesticides and fertilizers shall only be stored on site in approved containers within a structure. • Pesticides and fertilizers shall be applied at the proper time of year in the minimal effective quantity/concentration. They should not be applied when severe rainfall events are forecast. • Use drought-tolerant species to limit watering requirements, and mulch and compost to retain soil moisture. Irrigate at appropriate times of day - early morning and late evening – for the minimal period necessary to restore soil moisture. • Pet waste shall not be disposed of in stormwater management facilities or wetland resource areas.
De-icing	• Application rates of de-icing materials shall be the minimum acceptable to adequately treat storm-specific conditions. Multiple treatments are preferred to use of excessive quantities during the initial response. • De-icing materials may not be stored on site. • Non-toxic and inert materials (sand/gravel) are preferable in areas adjacent to stormwater management facilities and wetland resource areas. For general use, calcium magnesium acetate (CMA), calcium chloride and potassium acetate are preferable to sodium chloride.
Snow Removal	• Snow shall be piled in pervious areas where melt water can infiltrate (as designated on the plan). • Snow shall not be piled within one hundred (100) feet of a wetland resource area. • Snow shall not be piled on trench drains or swales. • Management of snow shall not create a nuisance or hazard. The Responsible Party shall remove snow from site if adequate area on site is not available. • Sediments deposited in snow storage areas shall be removed each spring and disposed of offsite.

No Information on This Page

Responsible Party:

Owner or their assigns are responsible for implementation of the Long-Term Operation & Maintenance Plan and the Long-Term Pollution Prevention Plan for 40 Highland Avenue in Needham, Massachusetts.

System Components:

The stormwater management system for 40 Highland Avenue in Needham, Massachusetts is comprised of pervious areas, a trench drain, roof leaders/drains, subsurface infiltration systems, infiltration trenches, and stabilized discharge points. Only stormwater may be discharged through these facilities, there shall be no connections of floor drains and/or sanitary connections, and nothing shall be dumped into any of the System Components. The stormwater system components are shown on the attached Stormwater Management System Plan.

Trench Drain – the Trench Drain is meant to collect, but not treat, runoff from the roadway and some future driveways.

Roof Leaders/Drains – conveyances that collect and direct runoff from the two roofs towards the designated subsurface infiltration system.

Subsurface Infiltration Systems – subsurface stormwater systems meant to capture, retain, and infiltrate stormwater. Each system is made up of pipe and stone and utilizes trench drains as stabilized outlets/overflows meant to allow water to drain during periods of frozen ground or saturated conditions. The infiltration systems are to be kept free of trash and debris. No yard waste and / or landscape maintenance clippings or brush shall be disposed of in these areas. No accessory structures are permitted in these areas.

Pervious Areas / Vegetated Filter Strips – open, vegetated (turf lawns or other grasses) areas over which stormwater runoff flows slowly and in a sheeting manner. These areas are to be kept free of trash and debris. No yard waste and/or landscape maintenance clippings or brush shall be disposed of in these areas. Residents may not store vehicles or other personal items in these areas. No accessory structures are permitted in these areas.

Infiltration Trenches – open drains of crushed stone capped with pea stone for collecting and infiltration runoff from surrounding areas. No yard waste and/or landscape maintenance clippings or brush shall be disposed of in these areas. Residents may not store vehicles or other personal items in these areas. No accessory structures are permitted in these areas.

Grass Channels / Drainage Swales – shallow channels/swales lined with vegetation. Some may be lined with a turf reinforcement mat (TRM).

Residential Subdivision
40 Highland Avenue
Needham, MA
Owner: 40 Highland Avenue, LLC

**Stormwater Management
Long Term Operation
& Maintenance Plan**



Illicit Connections

No illicit connections to the stormwater management system are proposed or shall be installed during construction. No future connections to the stormwater system shall be allowed without permission of the Needham DPW or other Town's issuing authorities, as applicable. The proposed townhomes will be served by a wastewater (sewer) system including pipes and manholes connecting to the Town's system in Riverside Ave.

Maintenance Schedule and Forms:

Refer to the following pages for specific requirements to prevent pollution and the maintenance of the stormwater management system.

Snow Storage / Removal:

Refer to the following pages for specific requirements on snow storage and removal.

Stormwater Management
Long Term Operation
& Maintenance Plan

Best Management Practice	Frequency Of Inspection	Maintenance (Inspect for these items) and Frequency	Inspection (Date) Maintenance (Yes/No)	Maintenance Performed (Date and Initial)
Street/Pavement Sweeping	Annually (March – April)	Annually (March – April). Paved areas to be swept of sediments, trash, and debris. Sediments to be removed and disposed off-site.		
Trench Drain	Monthly or per Manufacturer's Recommendation	At least twice per year, or per Manufacturer's Recommendation. Remove floatables and remove sediment when it reaches one (1) foot in depth. Dispose of debris and sediment off-site.		
Subsurface Infiltration	Monthly for first three (3) months, Quarterly and after major storm events	Twice per year or after major storm events. Camera inspection may be required. Remove debris and sediment at inlets and outlets by jetting or vacuor truck. Debris and sediment must be disposed of off-site in accordance with Local, State, and Federal requirements.		
Grassed Channel / Drainage Swale	Monthly (mowing) Annually	Mow monthly during growing season. Remove sediment annually and re-seed (if necessary). Repair erosion and re-seed when necessary. Turf reinforcement mat (TRM) or rock riprap may be required.		
Infiltration Trenches	Monthly for first three (3) months, Quarterly and after major storm events	Remove any sediment and/or woody vegetation annually. Replace crushed stone if system becomes clogged as evidenced by prolonged periods of ponding.		

No Information on This Page

E) Soils Information

No Information on This Page



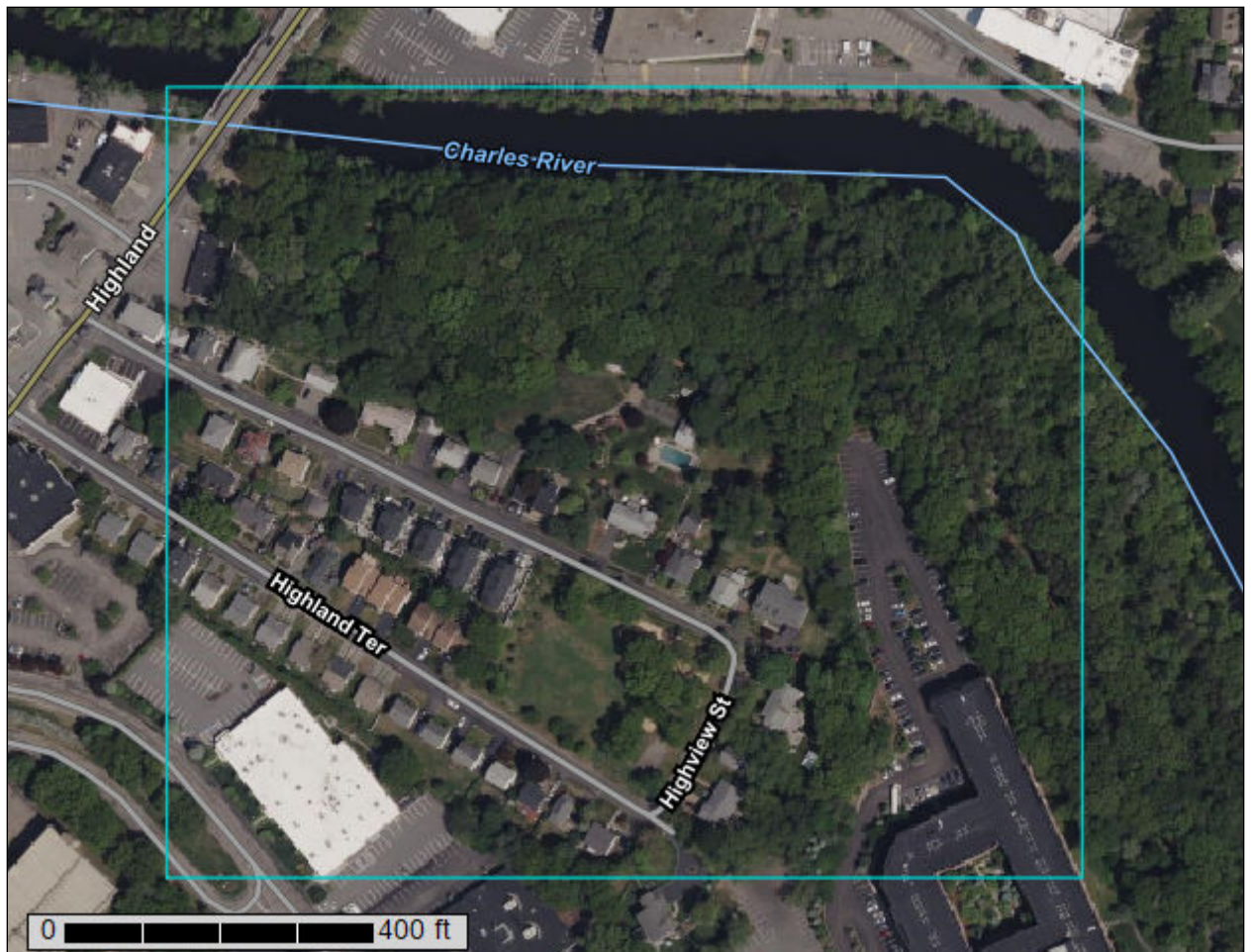
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Middlesex County, Massachusetts, and Norfolk and Suffolk Counties, Massachusetts



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

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 scales ranging from 1:24,000 to 1:25,000.

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: Middlesex County, Massachusetts

Survey Area Data: Version 23, Sep 12, 2023

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts

Survey Area Data: Version 19, Sep 10, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

MAP LEGEND

MAP INFORMATION

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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
1	Water	1.0	3.6%
602	Urban land	0.7	2.4%
Subtotals for Soil Survey Area		1.7	5.9%
Totals for Area of Interest		28.0	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	3.3	11.9%
105D	Rock outcrop-Hollis complex, 3 to 25 percent slopes	0.1	0.3%
245B	Hinckley loamy sand, 3 to 8 percent slopes	18.2	65.2%
256A	Deerfield loamy fine sand, 0 to 3 percent slopes	2.4	8.4%
602	Urban land, 0 to 15 percent slopes	2.3	8.3%
Subtotals for Soil Survey Area		26.3	94.1%
Totals for Area of Interest		28.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They

generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Middlesex County, Massachusetts

1—Water

Map Unit Setting

National map unit symbol: 996p

Frost-free period: 110 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Linear

602—Urban land

Map Unit Setting

National map unit symbol: 9950

Elevation: 0 to 3,000 feet

Mean annual precipitation: 32 to 50 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 110 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Excavated and filled land

Minor Components

Rock outcrop

Percent of map unit: 5 percent

Landform: Ledges

Landform position (two-dimensional): Summit

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Landform position (three-dimensional): Head slope

Down-slope shape: Concave

Across-slope shape: Concave

Udorthents, wet substratum

Percent of map unit: 5 percent

Hydric soil rating: No

Udorthents, loamy

Percent of map unit: 5 percent

Hydric soil rating: No

Norfolk and Suffolk Counties, Massachusetts

1—Water

Map Unit Setting

National map unit symbol: vkyp
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

105D—Rock outcrop-Hollis complex, 3 to 25 percent slopes

Map Unit Setting

National map unit symbol: vkxr
Elevation: 0 to 620 feet
Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 120 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Rock outcrop: 65 percent
Hollis and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop

Setting

Parent material: Igneous and metamorphic rock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Description of Hollis

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear

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Across-slope shape: Convex

Parent material: Shallow, friable loamy ablation till

Typical profile

H1 - 0 to 3 inches: fine sandy loam

H2 - 3 to 14 inches: gravelly fine sandy loam

H3 - 14 to 18 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 25 percent

Surface area covered with cobbles, stones or boulders: 9.0 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: F144AY033MA - Shallow Dry Till Uplands

Hydric soil rating: No

Minor Components

Chatfield

Percent of map unit: 7 percent

Hydric soil rating: No

Swansea

Percent of map unit: 2 percent

Landform: Bogs

Hydric soil rating: Yes

Whitman

Percent of map unit: 1 percent

Landform: Depressions

Hydric soil rating: Yes

245B—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8

Elevation: 0 to 1,430 feet

Mean annual precipitation: 36 to 53 inches

Mean annual air temperature: 39 to 55 degrees F

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Frost-free period: 140 to 250 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash deltas, outwash terraces, kames, kame terraces, moraines, eskers, outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Base slope, crest, nose slope, side slope, riser, tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand

C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 8 percent

Landform: Outwash deltas, outwash terraces, moraines, eskers, kames, outwash plains, kame terraces

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Custom Soil Resource Report

Landform position (three-dimensional): Base slope, crest, nose slope, side slope, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Outwash deltas, outwash terraces, moraines, outwash plains, kame terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, head slope, side slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Agawam

Percent of map unit: 2 percent
Landform: Outwash deltas, outwash terraces, moraines, eskers, kames, outwash plains, kame terraces
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Base slope, crest, nose slope, side slope, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

256A—Deerfield loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2xfg8
Elevation: 0 to 1,100 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Outwash terraces, outwash deltas, outwash plains, kame terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy outwash derived from granite, gneiss, and/or quartzite

Custom Soil Resource Report

Typical profile

Ap - 0 to 9 inches: loamy fine sand
Bw - 9 to 25 inches: loamy fine sand
BC - 25 to 33 inches: fine sand
Cg - 33 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: About 15 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 11.0
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 7 percent
Landform: Outwash terraces, kame terraces, outwash deltas, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Wareham

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sudbury

Percent of map unit: 2 percent
Landform: Outwash plains, kame terraces, outwash deltas, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent
Landform: Kame terraces, outwash plains, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex, linear

Across-slope shape: Convex, concave
Hydric soil rating: No

602—Urban land, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: vkyj
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 99 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Rock outcrops

Percent of map unit: 1 percent
Hydric soil rating: Unranked

References

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- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

No Information on This Page



Commonwealth of Massachusetts

City/Town of NEEDHAM

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

A. Facility Information

40 HIGHLAND AVENUE LLC

Owner Name

234 ARNOLD ROAD

Street Address

NEEDHAM

City

MA

State

Map/Lot #

02459

Zip Code

B. Site Information

1. (Check one) ☒ New Construction ☐ Upgrade ☐ Repair

2. Soil Survey Available? ☒ Yes ☐ No If yes:

MRCS SOIL SURVEY

Source

245B

Soil Map Unit

HICKLEY LOAM SAND

Soil Name

Soil Limitations

MATTAPAN VOLCANIC COMPLEX

Soil Parent material

Landform

3. Surficial Geological Report Available? ☒ Yes ☐ No

If yes:

Year Published/Source

Map Unit

Description of Geologic Map Unit:

4. Flood Rate Insurance Map Within a regulatory floodway? ☐ Yes ☒ No

5. Within a velocity zone? ☐ Yes ☒ No

6. Within a Mapped Wetland Area? ☐ Yes ☒ No

If yes, MassGIS Wetland Data Layer:

Wetland Type

7. Current Water Resource Conditions (USGS):

Month/Day/ Year

Range: ☐ Above Normal

☒ Normal

☐ Below Normal

8. Other references reviewed:



Commonwealth of Massachusetts

City/Town of NEEDHAM

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (minimum of two holes required, at every proposed primary and reserve disposal area)

Deep Observation Hole Number: 622-01

Hole #

Date

Time

Weather

Latitude

Longitude:

1. Land Use

(e.g., woodland, agricultural field, vacant lot, etc.)

Vegetation

Surface Stones (e.g., cobbles, stones, boulders, etc.)

Slope (%)

Description of Location:

2. Soil Parent Material:

Landform

Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from:

Open Water Body _____ feet

Drainage Way _____ feet

Wetlands _____ feet

Property Line _____ feet

Drinking Water Well _____ feet

Other _____ feet

4. Unsuitable Materials Present:

☐ Yes☒ No

If Yes:

☐ Disturbed Soil☐ Fill Material☐ Weathered/Fractured Rock☐ Bedrock5. Groundwater Observed: ☐ Yes☐ No

If yes: _____ Depth Weeping from Pit

_____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon / Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0"-13"	AP	SANDY LOESS	10YR 3/2								
13"-40"	B ₀		10YR 5/6								
40"-90"	C	SAND	2.5Y 3/3	75"	7.5-12.5/3	5%					

Additional Notes:

NO GROUNDWATER, NO WEPPAGE
NO STONES



Commonwealth of Massachusetts

City/Town of NEEDHAM

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (minimum of two holes required at every proposed primary and reserve disposal area)

Deep Observation Hole Number: 677-02 Hole # 6/17/22 Date AM Time SUNNY Weather 60°S Latitude 42.729 Longitude: -71.128

1. Land Use: WOODLAND (e.g., woodland, agricultural field, vacant lot, etc.) Vegetation: MAPLES Surface Stones (e.g., cobbles, stones, boulders, etc.): N/A Slope (%): 2-5%

Description of Location: _____

2. Soil Parent Material: FINE SAND Landform: OUTWASH TERRACE Position on Landscape (SU, SH, BS, FS, TS): BACK SLOPE

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Wetlands _____ feet
Property Line _____ feet Drinking Water Well _____ feet Other _____ feet

4. Unsuitable

Materials Present: ☐ Yes ☐ No If Yes: ☐ Disturbed Soil ☒ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☐ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-49"											
49-70"	B ₁₀	SANDY LOAM	10YR 5/6								
70-105"	C	FINE SAND	5YR 4/4	70"	7.5YR 5/6	5%					RELICS OF SANDY LOAM

Additional Notes:

NO GROUNDWATER
NO WEPPAGE



Commonwealth of Massachusetts

City/Town of NEEDHAM

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (minimum of two holes required at every proposed primary and reserve disposal area)

Deep Observation Hole Number: 62203

Hole #

Date

6/17/22

Time

12PM

Weather

SUNNY 60°

Latitude

42.729

Longitude:

-71.128

1. Land Use (e.g., woodland, agricultural field, vacant lot, etc.)

WOODLAND

Vegetation

MAPLE, IVY

Surface Stones (e.g., cobbles, stones, boulders, etc.)

N/A

Slope (%)

2-5%

Description of Location:

2. Soil Parent Material:

FINE SAND

Landform

OUTWASH
TERRACE

Position on Landscape (SU, SH, BS, FS, TS)

BACKSLOPE

3. Distances from: Open Water Body _____ feet

Drainage Way _____ feet

Wetlands _____ feet

Property Line _____ feet

Drinking Water Well _____ feet

Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☐ NoIf Yes: ☐ Disturbed Soil ☒ Fill Material☐ Weathered/Fractured Rock ☐ Bedrock5. Groundwater Observed: ☐ Yes ☒ No

If yes: _____ Depth Weeping from Pit

_____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-72"	FILL										
72-79"	B ₁₀	SANDY LOAM	10YR 5/6								
79-110"	C	FINE SAND	2.5Y 5/3	86"	7.5Y 5/6	5%					LENSES OF SANDY LOAM

Additional Notes:

NO GROUNDWATER, NO WEEPAGE, NO STONES



Commonwealth of Massachusetts

City/Town of MIDDLEHAM

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (minimum of two holes required at every proposed primary and reserve disposal area)

Deep Observation Hole Number: 622-04 Hole # 4/17/22 Date AM Time SUNNY 60'S Weather 42.729 Latitude -71.128 Longitude

1. Land Use WOODLAND (e.g., woodland, agricultural field, vacant lot, etc.) Vegetation RAPED, 144 Surface Stones (e.g., cobbles, stones, boulders, etc.) N/A Slope (%) 2-5%

Description of Location: _____

2. Soil Parent Material: MED. SAND Landform OUTWASH TERRACE Position on Landscape (SU, S-I, BS, FS, TS) BACK-SLOPE

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Wetlands _____ feet

Property Line _____ feet Drinking Water Well _____ feet Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☐ No If Yes: ☐ Disturbed Soil ☒ Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-60	Full										
60-68	Bu	SANDY LOAM	10YR 5/6								
68-90	C	MED SAND	2.5Y 5/3	72"	7.5YR 5/3	5%					

Additional Notes:

NO GROUNDWATER, NO WEPPING



Commonwealth of Massachusetts

City/Town of NEEDHAM**Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal****C. On-Site Review** (minimum of two holes required at every proposed primary and reserve disposal area)Deep Observation Hole Number: 622-05

Hole #

Date

6/17/72

Time

1:00 PM

Weather

SUNNY 60°S

Latitude

42.729

Longitude:

-71.1281. Land Use WOODLAND
(e.g., woodland, agricultural field, vacant lot, etc.)Vegetation MAPLE, 147Surface Stones (e.g., cobbles, stones, boulders, etc.) N/ASlope (%) 2-5%

Description of Location: _____

2. Soil Parent Material: FIRED SAND

Landform

OUTWASH TERRACEPosition on Landscape (SU, S-H, BS, FS, TS) BACKSLOPE

3. Distances from: Open Water Body _____ feet

Drainage Way _____ feet

Wetlands _____ feet

Property Line _____ feet

Drinking Water Well _____ feet

Other _____ feet

4. Unsuitable Materials Present: ☐ Yes ☐ NoIf Yes: ☐ Disturbed Soil ☒ Fill Material☐ Weathered/Fractured Rock ☐ Bedrock5. Groundwater Observed: ☐ Yes ☒ No

If yes: _____ Depth Weeping from Pit

_____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0"-51"	FILL										
51"-80"	BU	SANDY LOAM	10YR 5/6	75"	2.5Y 5/3	5%					
80"-101"	C	FINE SAND	2.5Y 3/3								CORROSE

Additional Notes:

NO GROUNDWATER, NO WEPPAGE



Commonwealth of Massachusetts

City/Town of NEEDHAM

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

D. Determination of High Groundwater Elevation

1. Method Used:

☐ Depth observed standing water in observation hole

Obs. Hole # _____

Obs. Hole # _____

_____ inches

_____ inches

☐ Depth weeping from side of observation hole

_____ inches

_____ inches

☒ Depth to soil redoximorphic features (mottles)

_____ inches

_____ inches

☐ Depth to adjusted seasonal high groundwater (S_h)
(USGS methodology)

_____ inches

_____ inches

Index Well Number _____

Reading Date _____

$$S_h = S_c - [S_r \times (OW_c - OW_{max}) / OW_r]$$

Obs. Hole/Well# _____

S_c _____

S_r _____

OW_c _____

OW_{max} _____

OW_r _____

S_h _____

2. Estimated Depth to High Groundwater: UNAVAILABLE inches

E. Depth of Pervious Material

1. Depth of Naturally Occurring Pervious Material

a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?

☒ Yes ☐ No

b. If yes, at what depth was it observed (exclude A and O Horizons)?

Upper boundary: _____

UNAVAILABLE
Lower boundary: _____

inches

inches

c. If no, at what depth was impervious material observed?

Upper boundary: _____

Lower boundary: _____

inches

inches



Commonwealth of Massachusetts
City/Town of MEDFORD

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 31C CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature of Soil Evaluator

LAURENCE L. GREENE
Typed or Printed Name of Soil Evaluator / License #

2665

Date

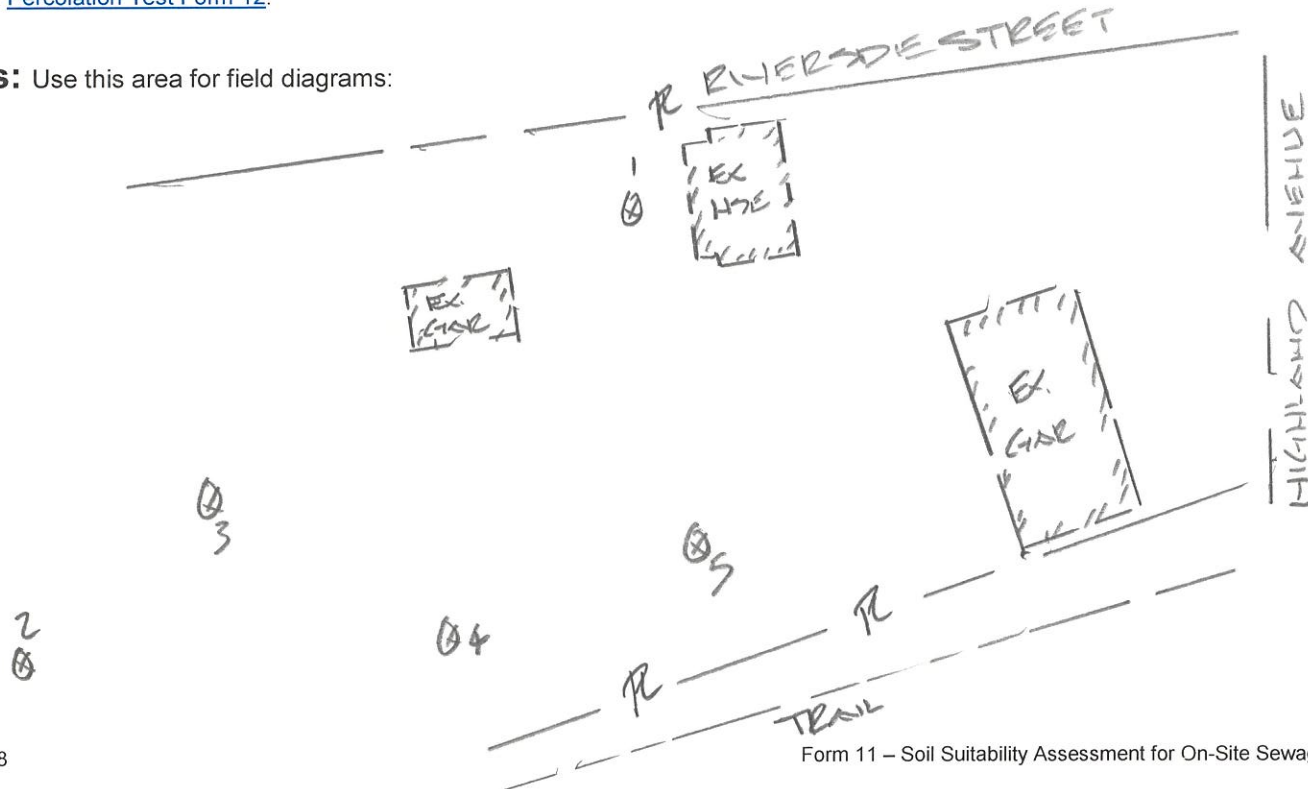
9/15/22
9/30/22
Expiration Date of License

Name of Approving Authority Witness

Approving Authority

Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with [Percolation Test Form 12](#).

Field Diagrams: Use this area for field diagrams:



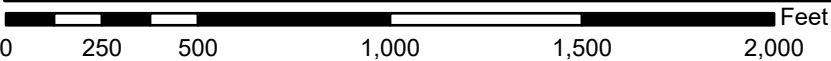
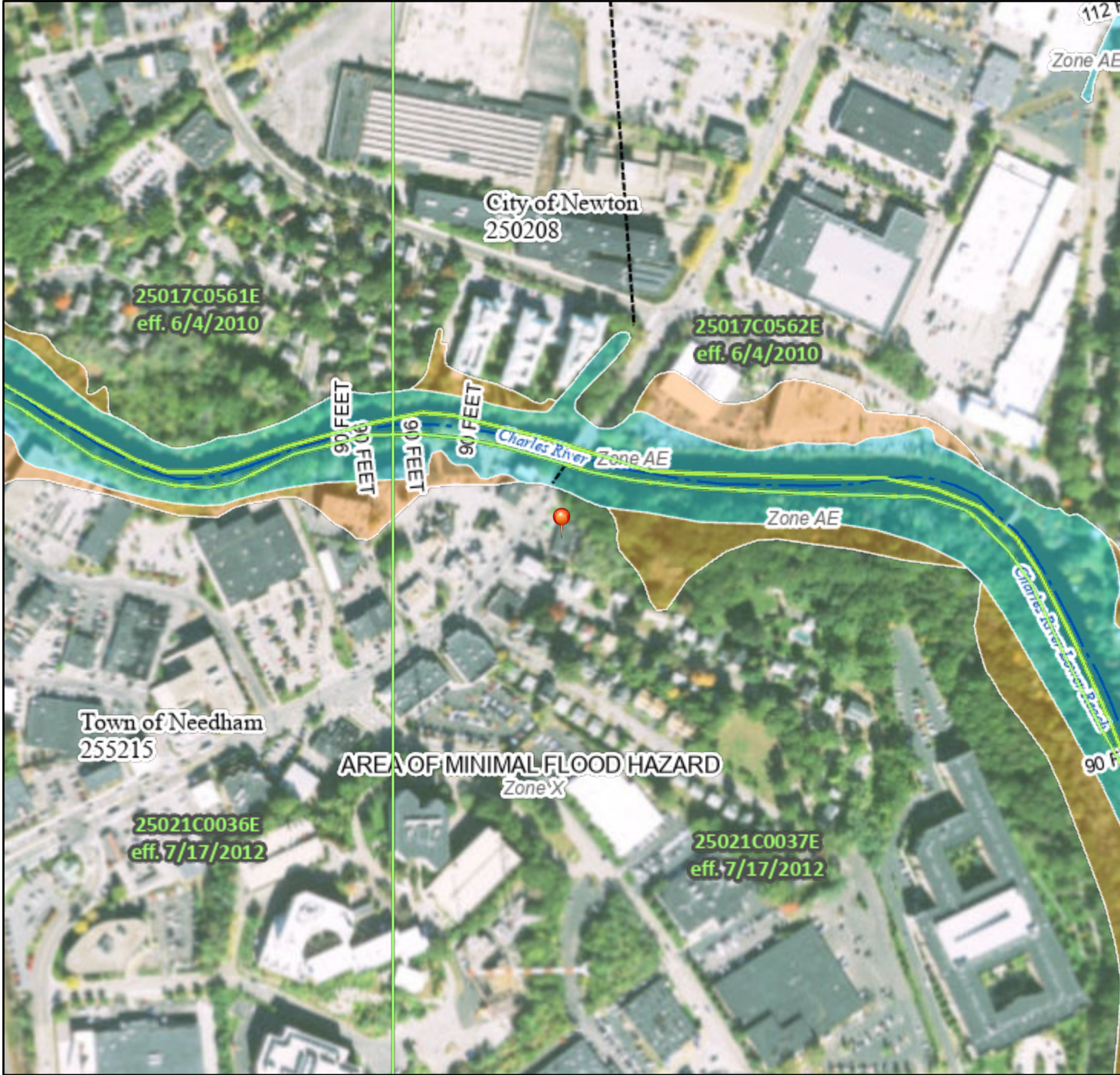
F) FEMA Flood Map, FIS Profile & LIDAR Exhibit

No Information on This Page

National Flood Hazard Layer FIRMMette



71°13'21"W 42°18'35"N



1:6,000

71°12'43"W 42°18'8"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

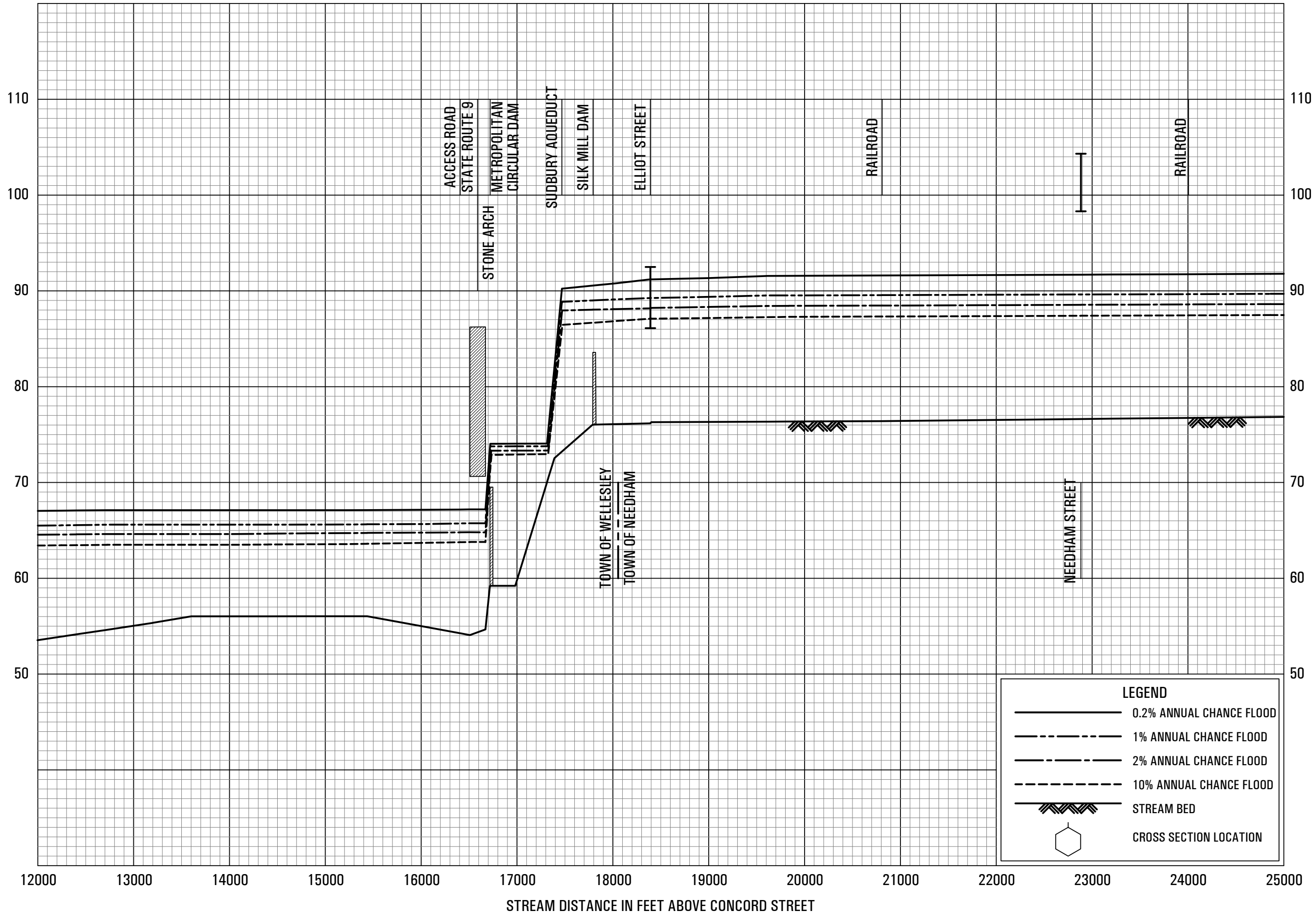
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/6/2023 at 9:49 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

No Information on This Page

ELEVATION IN FEET (NAVD 88)

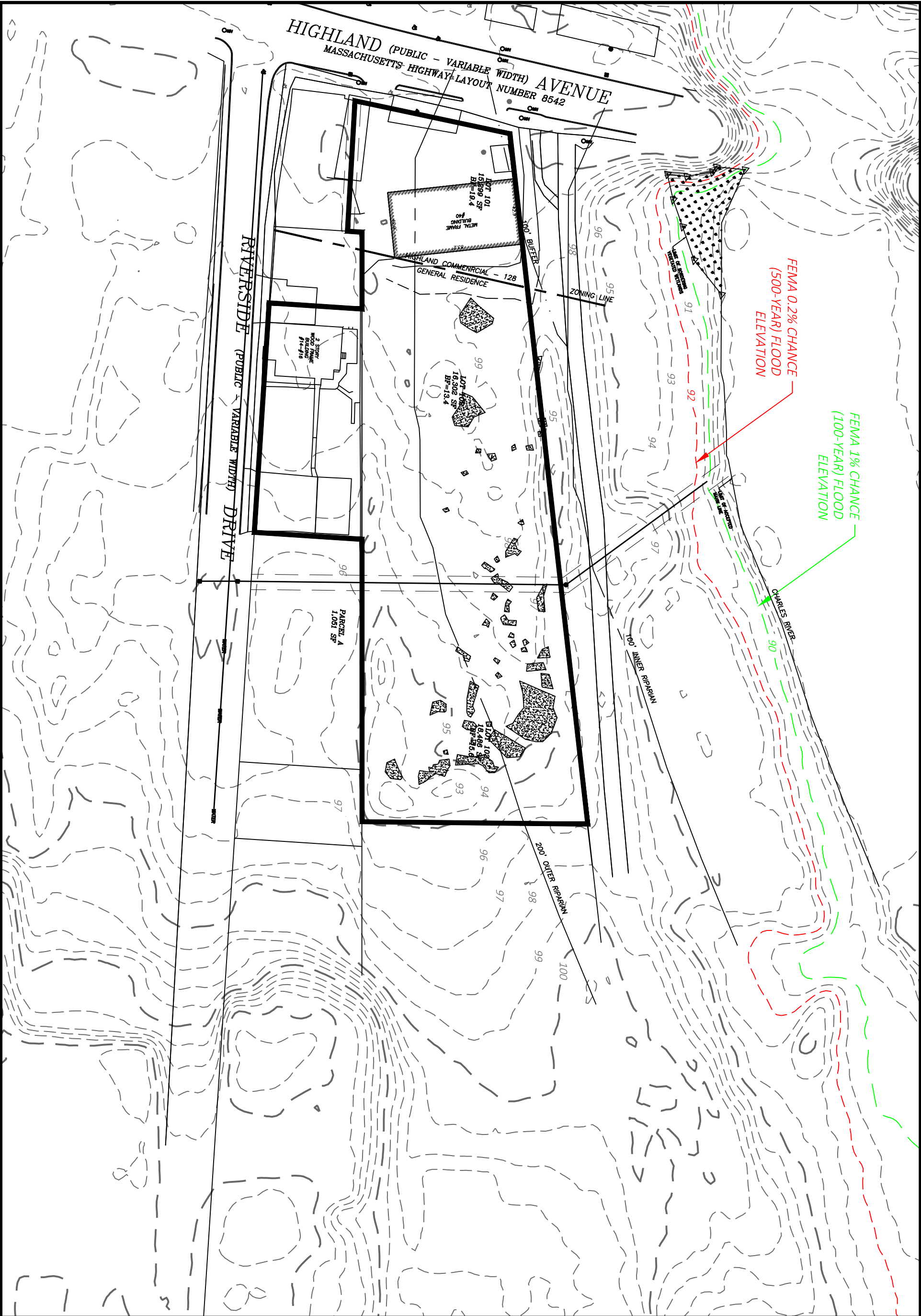


FEDERAL EMERGENCY MANAGEMENT AGENCY
MIDDLESEX COUNTY, MA
(ALL JURISDICTIONS)

FLOOD PROFILES

CHARLES RIVER (LOWER REACH)

No Information on This Page



Project Title:

40 Highland Avenue, LLC
Needham, MA
(Norfolk County)

Sheet Title:

FEMA & LIDAR Overlay
40 Highland Avenue
Needham, MA
(Norfolk County)

Date: 12/07/2023

Project No.: 21-0089

Reference Plan No.: LIDAR & ILSF

Drawn By: ESM

Checked By: MJS

0 30 60 120 180

Scale: 1" = 60'

LIDAR Exhibit

LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDCollaborative.com

No Information on This Page

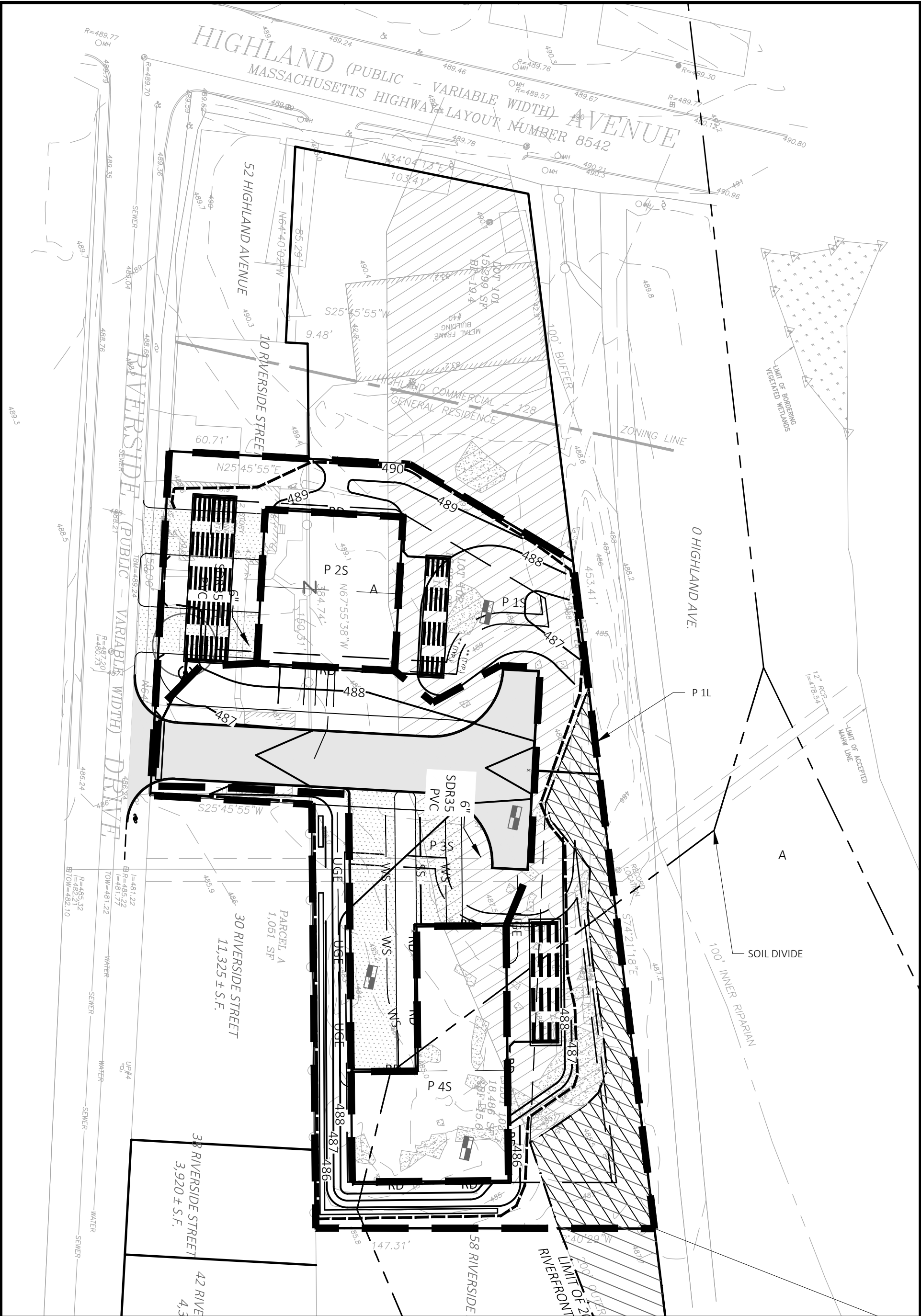
G) Existing Watershed Map

No Information on This Page

No Information on This Page

H) Proposed Watershed Map

No Information on This Page



Project Title:

Residential
Subdivision
40 Highland Avenue
Needham, MA 02459

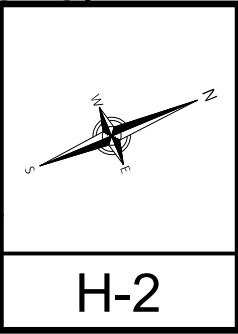
Sheet Title:

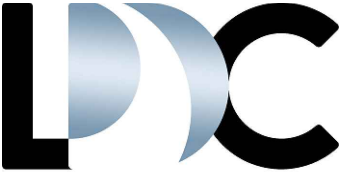
Proposed
Hydrology
40 Highland Avenue
Needham, MA
(Norfolk County)

Date: 04/01/2024 Project No.: 21-0089 Reference Plan No.: C-260 Drawn By: ESM Checked By: MJS

0 20 40 80 120

Scale: 1" = 40'





LAND DESIGN COLLABORATIVE
Chauncy Place | Terrace North | Suite 1
45 Lyman Street
Westborough, MA 01581
508.952.6300 | LDCollaborative.com

H-2

No Information on This Page

Alexandra Clee

From: Joseph Prondak
Sent: Friday, August 2, 2024 8:18 AM
To: Alexandra Clee
Subject: RE: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Hi Alex,

The Building Department has no concerns with this proposal.

Sincerely,

Joe Prondak
Needham Building Commissioner
781-455-7550 x308

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Thursday, August 1, 2024 5:03 PM
To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcDonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>; Deb Anderson <andersond@needhamma.gov>
Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>
Subject: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Dear all,

We have received the attached application materials for the proposal by the Petitioner to allow the subdivision of the Premises into three building lots, two of which will be used for residential purposes and the third of which will continue to be used for commercial purposes; the two new residential lots would have frontage and access on the new road.

More information can be found in the attachments.

The Planning Board has scheduled this matter for August 27, 2024. Please send your comments **by Wednesday August 21, 2024**, at the latest.

The documents attached for your review are as follows:

1. Letter from Attorney George Giunta Jr., dated July 16, 2024.

2. Application for Definitive Subdivision Approval with Exhibit A (List of Waivers) and Exhibit B (Property Description).
3. Letter from Steven Wolberg, Manager, 40 Highland Ave, LLC, dated June 20, 2024.
4. Plan set entitled Definitive Subdivision Plan for 40 Highland Ave, LLC, prepared by Land Design Collaborative, 45 Lyman Street, Westborough, MA 01581, Field Resources, 281 Chestnut Street, Needham, MA, 02492 consisting of 11 sheets: Sheet 1, Title Sheet, dated April 26, 2024; Sheet 2, entitled "General Notes and Legend," dated April 19, 2024; Sheet 3, entitled "Existing Conditions Plan," dated April 26, 2024; Sheet 4, entitled "Lotting Plan, By Right," dated April 26, 2024; Sheet 5, entitled "Lotting Plan, Waiver," dated April 26, 2024; Sheet 6, entitled "Grading and Drainage Plan," dated April 19, 2024; Sheet 7, entitled "Plan & Profile, STA0+00 To End," dated April 26, 2024; Sheet 8, entitled "Details," dated April 26, 2024; Sheet 9, entitled "Details," dated April 26, 2024; Sheet 10, entitled "Details," dated April 26, 2024; and Sheet 11, entitled "Turning Movement Exhibit, Fire Apparatus," dated April 26, 2024.

Thank you, alex. << File: 40 Highland, 14-16 Riverside Subdivision - full application.pdf >>

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning

Lee Newman

From: Donald Anastasi
Sent: Tuesday, August 20, 2024 2:09 PM
To: Lee Newman
Cc: Tom Conroy
Subject: RE: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Hi Lee,

I believe Chief Conroy has already approved this project. The fire department does not have any issues.

Thank you,

Donald E. Anastasi
Deputy Chief of Operations
Needham Fire Department
88 Chestnut Street
Needham, MA 02492
781-455-7580
danastasi@needhamma.gov



From: Lee Newman <LNewman@needhamma.gov>
Sent: Tuesday, August 20, 2024 12:28 PM
To: Donald Anastasi <DAnastasi@needhamma.gov>
Subject: FW: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Donald,

I received an away message from the Chief. Are you able to provide the Fire Departments comments on this project? See below.

Lee

From: Lee Newman
Sent: Tuesday, August 20, 2024 12:22 PM
To: Tom Conroy <TConroy@needhamma.gov>
Subject: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Tom,

I am following up on the email below. Alex is away this week, and I need your comments on this application by Wednesday, August 21.

Thanks,

Lee

From: Alexandra Clee <aclee@needhamma.gov>

Sent: Thursday, August 1, 2024 5:03 PM

To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcdonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>; Deb Anderson <andersond@needhamma.gov>

Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>

Subject: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Dear all,

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Sheet 10, entitled "Details," dated April 26, 2024; and Sheet 11, entitled "Turning Movement Exhibit, Fire Apparatus," dated April 26, 2024.

Thank you, alex. << File: 40 Highland, 14-16 Riverside Subdivision - full application.pdf >>

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning

Alexandra Clee

From: John Schlittler
Sent: Friday, August 2, 2024 8:38 AM
To: Alexandra Clee
Subject: RE: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Police has no issues

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Thursday, August 1, 2024 5:03 PM
To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcDonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>; Deb Anderson <andersond@needhamma.gov>
Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>
Subject: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Dear all,

We have received the attached application materials for the proposal by the Petitioner to allow the subdivision of the Premises into three building lots, two of which will be used for residential purposes and the third of which will continue to be used for commercial purposes; the two new residential lots would have frontage and access on the new road.

More information can be found in the attachments.

The Planning Board has scheduled this matter for August 27, 2024. Please send your comments **by Wednesday August 21, 2024**, at the latest.

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Sheet 10, entitled "Details," dated April 26, 2024; and Sheet 11, entitled "Turning Movement Exhibit, Fire Apparatus," dated April 26, 2024.

Thank you, alex. << File: 40 Highland, 14-16 Riverside Subdivision - full application.pdf >>

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning



Needham Public Health Division

Prevent. Promote. Protect.



MEMO

To: Lee Newman, Planning Department
Alex Clee, Planning Department
From: Tara Gurge, Public Health Division
CC: Timothy McDonald, Health and Human Services Dept.
Date: August 20, 2024
Subject: Definitive Subdivision Plan for 40 Highland Avenue / 14-16 Riverside Drive

This memo is in reference to the Planning Board application that was received for the proposed Definitive Subdivision Plan. The premises, which consists of two parcels of land, is known and numbered as 40 Highland Avenue and 14-16 Riverside Street, and shown and identified, respectively, as Parcels 58 and 45 on Assessor's Map No. 73. The plans are dated April 26, 2024, and signed and stamped by Micheal J. Scott, Registered Professional Civil Engineer.

This definitive subdivision would split the existing two parcels of land into three separate building lots, two of which will be used for residential purposes and the third of which will continue to be used for commercial purposes. The existing commercial lot will continue to have frontage on and be served and accessed from Highland Avenue, and the other two residential lots will have frontage on and will be served by and accessed from the proposed new roadway, off Riverside Drive. All lots will be serviced by municipal water and sewer.

The following off-street drainage requirements are indicated:

- 1) All lots should be graded to the limits of construction as to have no standing water or otherwise create a public health nuisance.
- 2) Grading shall not improperly shed or illegally increase drainage onto adjacent properties.
- 3) All subsequent developers or builders should be notified of the off-street drainage requirements.
- 4) If there are difficult or unusual conditions as determined in the field from the approved grading plan, or other circumstances or objections received from abutters, the Public Health Division may require an as-built grading plan for further evaluation.
- 5) Following the Board of Health off-street drainage guidelines for a subdivision, a drainage surety of \$3,500 per lot should be set for each buildable lot or \$10,500 for the three-lot subdivision, will be required.

Please feel free to contact the Public Health Division office if you have any additional questions.

40Highland_14 16 Riverside Prop Def SubdivPlanCommentMemo_8.20.24

Lee Newman

From: Deb Anderson
Sent: Wednesday, August 21, 2024 4:49 PM
To: Alexandra Clee
Cc: Lee Newman
Subject: Re: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Hi Alex,

The information remains the same and is accurate. The owners filed to extend their Order of Resource Area Delineation (permit approving the wetland resource areas and portions of Riverfront Area degraded to 2025.

Debbie Anderson, PWS
Director of Conservation
Town of Needham
500 Dedham Avenue
Needham, MA 02492
781-455-7550 x 248

From: Alexandra Clee <aclee@needhamma.gov>
Sent: Thursday, August 1, 2024 5:03:19 PM
To: Joseph Prondak <jprondak@needhamma.gov>; Thomas Ryder <tryder@needhamma.gov>; John Schlittler <JSchlittler@needhamma.gov>; Tara Gurge <TGurge@needhamma.gov>; Timothy McDonald <tmcdonald@needhamma.gov>; Tom Conroy <TConroy@needhamma.gov>; Carys Lustig <clustig@needhamma.gov>; Deb Anderson <andersond@needhamma.gov>
Cc: Elisa Litchman <elitchman@needhamma.gov>; Lee Newman <LNewman@needhamma.gov>; Justin Savignano <jsavignano@needhamma.gov>; Donald Anastasi <DAnastasi@needhamma.gov>; Jay Steeves <steevesj@needhamma.gov>; Ronnie Gavel <rgavel@needhamma.gov>; Edward Olsen <eolsen@needhamma.gov>
Subject: Request for comment - subdivision - 40 Highland / 14-16 Riverside

Dear all,

We have received the attached application materials for the proposal by the Petitioner to allow the subdivision of the Premises into three building lots, two of which will be used for residential purposes and the third of which will continue to be used for commercial purposes; the two new residential lots would have frontage and access on the new road.

More information can be found in the attachments.

The Planning Board has scheduled this matter for August 27, 2024. Please send your comments **by Wednesday August 21, 2024**, at the latest.

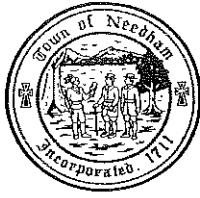
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Thank you, alex. [40 Highland, 14-16 Riverside Subdivision - full application.pdf](#)

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov/planning



**TOWN OF NEEDHAM, MASSACHUSETTS
PUBLIC WORKS DEPARTMENT
500 Dedham Avenue, Needham, MA 02492
Telephone (781) 455-7550 FAX (781) 449-9023**

August 21, 2024

Needham Planning Board
Needham Public Service Administration Building
Needham, MA 02492

RE: Definitive Subdivision Application
40 Highland/ 14-16 Riverside Subdivision Special Permit Review

Dear Members of the Board,

The Department of Public Works has completed its review of the above-referenced subdivision plan review. The applicant is proposing the demolition of an existing structure then subdividing the property to create two new duplex residential lots.

The documents submitted for review are as follows:

- Cover letter Prepared by George Giunta Jr. Dated July 16th, 2024
- Application for Approval of a Definitive Subdivision Plan
- Exhibit A Lists of Waivers
- Exhibit B Description
- Definitive Subdivision Plan prepared by Land Design Collaborative Dated April 26th, 2024, consisting of 10 Sheets
- Stormwater Management Report, dated April 2024 prepared by Land Design Collaborative
- Letter of Authorization

Our comments and recommendations are as follows:

- Grades down gradient from Lot 103's driveway and house are shown to be 3:1 slope towards the neighboring property lines. While the plans propose an infiltration trench to assist with collection of the stormwater, the applicant should also provide a Landscape plan for screening and a berm, swale, and or yard drains to ensure runoff is collected into the infiltration trenches.
- The 200-foot River front area is not clear on the proposed set of plans showing differences between the existing conditions plan from the proposed construction drawing set. The proposed construction may be subject to Conservation Commission approvals.

- The plans should be updated to that the proposed infiltration pipe network will have observation/cleanout port(s) with risers and covers in order to accommodate inspections or to clean the system per the operation and maintenance plans.
- As part of the Planning Board Decision's the DPW requests that Operation and Maintenance plan for the stormwater controls be incorporated into the homeowners association such that the operation and maintenance is funded, and that the reports are submitted to the DPW-Engineering by the end of April every year.
- As part of the NPDES requirements, the applicant will need to comply with the Public Out Reach & Education and Public Participation & Involvement control measures. The applicant shall submit a letter to the DPW identifying the measures selected and dates by which the measures will be completed in order to incorporate it into the Planning Board's decision.

If you have any questions regarding the above, please contact our office at 781-455-7538.

Truly yours,

Thomas A Ryder
Town Engineer



August 26, 2024

Needham Planning Board
c/o Lee Newman
Director of Planning and Community Development
Needham Public Service Administration Building
Needham, Massachusetts 02492

Re: Response to Comments
40 Highland Avenue & 14-16 Riverside Street Subdivision
Needham, Massachusetts

Dear Members of the Board:

On Behalf of the Applicant, 40 Highland Ave, LLC, we are submitting herewith a Response to the Comments received from the Department of Public Works Engineering Division dated August 21, 2024 and Public Health Division, dated August 20, 2024. We have also received letters from the Police and Building Departments stating that they had no comments or concerns with the Project. We will provide a revised set of plans that reflect the response to the comments noted below as well as the comments received. For your convenience, we present the comments in a conventional font and the LDC responses in *"italics"*. Please find the following:

DPW - Engineering Comments

1. Grades down gradient from Lot 103's driveway and house are shown to be 3:1 slope towards the neighboring property lines. While the plans propose an infiltration trench to assist with collection of the stormwater, the Applicant should also provide a Landscape plan for screening and a berm, swale, and or yard drains to ensure runoff is collected into the infiltration trenches.

The plan depicts a swale around the eastern and southern portion of Lot 103 to collect stormwater flow onto the site from the neighboring lots. The plans will be revised to include a few yard drains to better ensure collection of this stormwater run on. Please note that a curb is shown along the driveway for Lot 103 to reduce runoff from the site into the infiltration trenches to minimize run off from the site. Please also note the swales will continue to overflow to the north toward the river to perpetuate the existing conditions.

2. The 200-foot River front area is not clear on the proposed set of plans showing differences between the existing conditions plan from the proposed construction drawing set. The proposed construction may be subject to Conservation Commission approval.

The plans will be revised to show the 200' Riverfront Area. We understand the proposed construction will require a Notice of Intent with the Conservation Commission and plan to file Notice within the coming weeks.

3. The plans should be updated to show that the proposed infiltration pipe network will have observation/cleanout port(s) with risers and covers in order to accommodate inspections or to clean the system per the operation and maintenance plans.

The plans will be revised to include observation/cleanout ports and covers to grade.

4. As part of the Planning Board Decision's the DPW requests that Operation and Maintenance plan for the stormwater controls be incorporated into the homeowner's association such that the operation and maintenance is funded, and that the reports are submitted to the DPW-Engineering by the end of April every year.

The Applicant understands that the O&M plan should be incorporated and funded by the homeowner's association and reports submitted to the DPW-Engineering by the end of April every year.

5. As part of the NPDES requirements, the Applicant will need to comply with the Public Outreach & Education and Public Participation & Involvement control measures. The Applicant shall submit a letter to the DPW identifying the measures selected and dates by which the measures will be completed in order to incorporate it into the Planning Board's decision.

The Applicant will coordinate with DPW and the Planning Board to ensure these requirements are met.

Public Health Division Comments

1. All lots should be graded to the limits of construction as to have no standing water or otherwise create a public health nuisance.

The plans have been designed to ensure that there will be no standing water and that stormwater will flow to the appropriate collection systems.

2. Grading shall not improperly shed or illegally increase drainage onto adjacent properties.

The plans have been designed and the Stormwater Management Report has been prepared to ensure the graded and drainage will not be increased onto adjacent property.

3. All subsequent developers or builders should be notified of the off-street drainage requirements.

All subsequent developers or builders will be notified of the off-street drainage requirements.

4. If there are difficult or unusual conditions as determined in the field from the approved grading plan, or other circumstances or objections received from abutters, the Public Health Division may require an as-built grading plan for further evaluation.

Needham Planning Board
c/o Lee Newman
Director of Planning and Community Development
August 26, 2024

Understood. No response required.

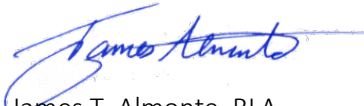
5. Following the Board of Health off-street drainage guidelines for a subdivision, a drainage surety of \$3,500 per lot should be set for each buildable lot or \$10,500 for the three-lot subdivision will be required.

The Applicant is aware of these fees.

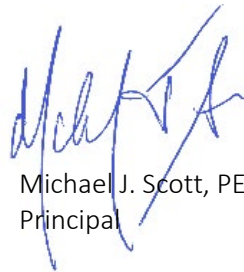
We trust that you will find the enclosed information acceptable, and we thank you in advance for your review of the information. Please feel free to contact me should you have any questions or wish to discuss.

Sincerely,

LAND DESIGN COLLABORATIVE



James T. Almonte, RLA
Principal



Michael J. Scott, PE
Principal

cc: Mr. George Giunta, Jr. Attorney at Law
Mr. Steven Wolberg

https://ldcollaborative.sharepoint.com/sites/LandDesignCollaborative/Shared Documents/_PROJECTS/21-0089 - 40 Highland Avenue, Needham/Permits/Definitive Subdivision/21-0085 Resp ltr 01.docx

Alexandra Clee

From: Patricia Baker <patriciabaker100@gmail.com>
Sent: Tuesday, August 27, 2024 9:31 AM
To: Alexandra Clee
Subject: I oppose the 40 Highland Ave 14-16 Riverside St project

Dear Ms. Clee

I own and live at 30 Highland Terrace.

I am very concerned about this project being built so close to the river. For the past few years there has been so much work at this location and it is impossible to get out of Highland Terrace onto Highland Ave. The traffic even during the summer in front of our street is a major problem. The street is blocked by cars all day long. With this project and the Newton project, it will be more of a nightmare.

How can this project be approved so close to the river? Even with a drainage plan, during heavy rains that runoff will probably go into the Charles. And it will affect Highland Terrace which has inadequate drainage presently.

This project should not go forward.

Respectfully Yours,

Patricia Baker



Alexandra Clee

From: Robert Deutsch <bloomeanie@icloud.com>
Sent: Tuesday, August 27, 2024 10:15 AM
To: Lee Newman; Alexandra Clee; Elisa Litchman
Cc: Janice Epstein; Elizabeth Kaponya; Emily Keller; lihwen lin; Samson Chu; Ryan McKee; Tonya
Subject: 21 Year Resident Outraged at Plans for 40 Highland Ave LLC/14-16 Riverside Expansion

Importance: High

Dear Planning Board:

Instead of a lengthy diatribe detailing the traumas visited about the neighborhood known as Riverside Park and surrounds since 2007, I will simply say that it is unconscionable to consider any new development as is suggested in the plans of the petitioner.

Not just because of the traumas, but also:

- Because the continuous development in and around the neighborhood has already made it impossible to navigate our way in and out during morning commute and evening return (and most of Saturday).
- Because the town and the DOT have ignored our cries about the non-functional nature of the two egresses to the neighborhood.
- Because the looming monstrosity of the Northland project in Newton (0.3 miles from 40 Highland Ave) promises to deliver NEW, paralyzing traffic volumes and I'm sure we can expect the same from sprawling TBD project at Muzi.

If the petitioner wants to get into the residential real estate business, I suggest they investigate some of the projects in town like the N2 Innovation District, Wexford Street shops, or the sad empty carcass of You-Do-It-Electronics, closed after 75 years of business as a loyal Needham business.

TLDR: Development on all sides of our neighborhood, past and present, have destroyed/removed trees and have made driving/parking living conditions harder without equivalent benefits. This project appears to continue that trend without a true benefit to anyone except the petitioner. I strenuously object.

Thank you,

Robert Deutsch
14 Highview Street
Needham MA
617-817-3222

Alexandra Clee

From: Elizabeth Kaponya <liz.kaponya@gmail.com>
Sent: Tuesday, August 27, 2024 8:39 AM
To: Lee Newman; Alexandra Clee
Subject: Planning Board Meeting Tues Aug 27 - Riverside St Development

Planning Board Member,

I have been in communication with my Highland Terrace, Highview Street, and Riverside Street neighbors regarding the proposed development at the base of Riverside Street bordering the Charles River Walkway.

Not one person believes this is a good idea!

The #1 reason is repeated flooding of the base of Highland Terrace and Riverside Street.

Nina Prohodski, the doyenne property owner of Riverside St, states that poor drainage and flooding has been a problem for years. Now it is worsening as many duplexes were recently built on Riverside St. Whenever there are severe downpours I hear the sump pumps going in the new units on Riverside Street at the base of the slope. My neighbor Giuseppe Stefanelli, across the street from me at the base of Highland Terrace has the same problem in his new duplex house. Just a few days ago we had a bad downpour and the street flooded - and so did his basement. Also, Climate Change should be considered.

With this proposed new Riverside Street development we will 1st of all get clearcutting of all trees for the new road and duplexes. Then this will be replaced with impervious surfaces causing more drainage and flooding issues...

We need to solve the pre existing Drainage and Flooding 1st before proceeding to new construction!

Thank You for your consideration, unfortunately I cannot attend the Planning Board Meeting, as I have my own Meeting to attend.

Elizabeth Kaponya, TMM
27 Highland Terrace
781-455-9967

Alexandra Clee

From: McKee, Ryan <Ryan.Mckee@FMR.com>
Sent: Tuesday, August 27, 2024 6:30 AM
To: Lee Newman; Alexandra Clee; Elisa Litchman
Cc: sweet.ton@gmail.com
Subject: Riverside Street Development

Good Morning,

I understand that you're meeting this evening to consider, among other things, a new street development and subdivision abutting the Riverside Park Neighborhood. I wanted to reach out to you to ask you to strongly reconsider this for a number of reasons including:

- A garage/mechanic should probably not be as close to the river as the current garage already is – adding more development in that area only more strongly runs the risk of run-off of gas, fuels, garbage, etc. into the river. This is already an issues and this area's ecology has already been severely disrupted by the bridge and street development.
- All of the new development on Riverside street over the last few years has already caused issues with drainage and run off with regular flooding and run-off issues – this will only exacerbate these issues.
- The section and the various intersections over this stretch of Needham Street is already quite dangerous – as roads merge, the bridge approaches, and a turn-only lane develops – adding another element here seems inappropriately dangerous.
- There are plenty of sections of Needham that may be able to accommodate additional development; this does not seem like one of them.

I will not be able to attend the meeting this evening, but thank you for your consideration as you review this plan. I'm not sure how seriously this proposal is being considered as it seems like the proposal would just have far too many negatives to even be considered, but I appreciate your review of the neighborhood's concerns.

Thank you again,
Ryan
18 Highview Street / Riverside Park Neighborhood Resident

Ryan K. McKee, CIMA®
Senior Vice President
Head of Emerging Product Specialists
Fidelity Institutional®
[500 Salem Street](#)
[Smithfield, RI 02917](#)
Mobile #: [617.921.1987](#)
Text #: [617.855.0072](#)
Fax #: [401.292.1248](#)
E-Mail: ryan.mckee@fmr.com



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**TOWN OF NEEDHAM
MASSACHUSETTS**



PLANNING BOARD

500 Dedham Avenue
Needham, MA 02492
781-455-7550

**APPLICATION FOR ENDORSEMENT OF PLAN
BELIEVED NOT TO REQUIRE APPROVAL**

Submit three(3) copies. One copy to be filed with the Planning Board and one with the Town Clerk as required by Section 81-P, Chapter 41 of the General Laws. This application must be accompanied by the **Original Tracing** and **three (3) copies of the plan**.

To the Planning Board:

The undersigned, believing that the accompanying plan of land in the Town of Needham does not constitute a subdivision within the meaning of the Subdivision Control Law, for the reasons outlined below, herewith submits said plan for a determination and endorsement that Planning Board approval under the Subdivision Control Law is not required.

1. Name of Applicant Marprie A. Pine, Personal Rep
Address 18 Basin St., Newburyport, MA 01950
2. Name of Engineer or Surveyor Field Resources, Inc
Address 281 Chestnut Street, Needham, MA
3. Deed of property recorded in Norfolk County Registry.
Book 1673 Page 439
4. Location and description of property 321 Cartwright Road
Needham, MA
5. Reasons approval is not required (check as applicable):
 - a) Every lot shown has the area and frontage required by the Zoning By-Law on a way, as defined by Section 81-L, Chapter 41 of the General Laws.
 - b) Land designated _____ shall not be used as separate building lot(s) but only together with adjacent lots having the required area and frontage.
 - c) Lot(s) having less than required frontage or area resulted from a taking for public purpose or have been recorded prior to 3/26/1925, no land is available to make up the deficiency and the frontage and land area of such lots are not being reduced by the plan.
 - d) _____

(If the applicant is not the owner, written authorization to act as agent must be attached)

Signature of Applicant Marprie A. Pine, Personal Rep

Address 18 Basin St., Newburyport, MA 01950

By _____ (agent)

Application accepted this _____ day of _____
as duly submitted under the rules and regulations of the Planning Board.

20 _____

By _____

**LETTERS OF AUTHORITY FOR
PERSONAL REPRESENTATIVE**

Docket No.
NO21P1203EA

**Commonwealth of Massachusetts
The Trial Court
Probate and Family Court**

Estate of:
Phillip W. Thiessen

Date of Death: 01/09/2021

Norfolk Probate and Family Court
35 Shawmut Road
Canton, MA 02021
(781)830-1200

To:

Marjorie A. Pine
18 Basin Street
Newburyport, MA 01950

You have been appointed and qualified as Personal Representative in ☐ Supervised ☒ Unsupervised
administration of this estate on August 18, 2021
(date)

These letters are proof of your authority to act pursuant to G. L. c. 190B, except for the following restrictions if any:

☐ Pursuant to G. L. c. 190B, § 3-108(4), the Personal Representative shall have no right to possess estate assets as provided in § 3-709 beyond that necessary to confirm title thereto in the successors to the estate and claims, other than expenses of administration, if any, shall not be paid.

☐ The Personal Representative was appointed before March 31, 2012 as Executor or Administrator of the estate.

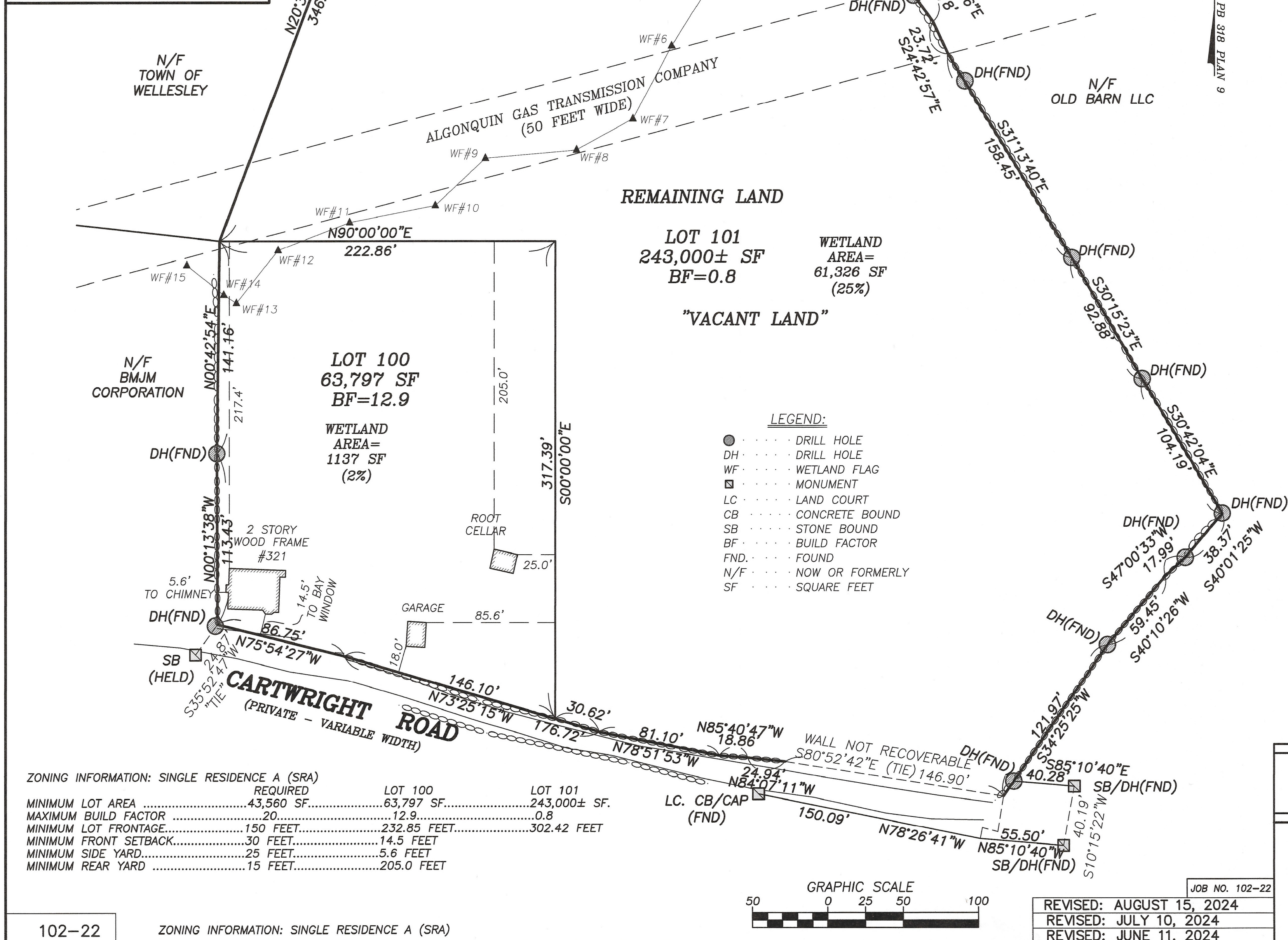
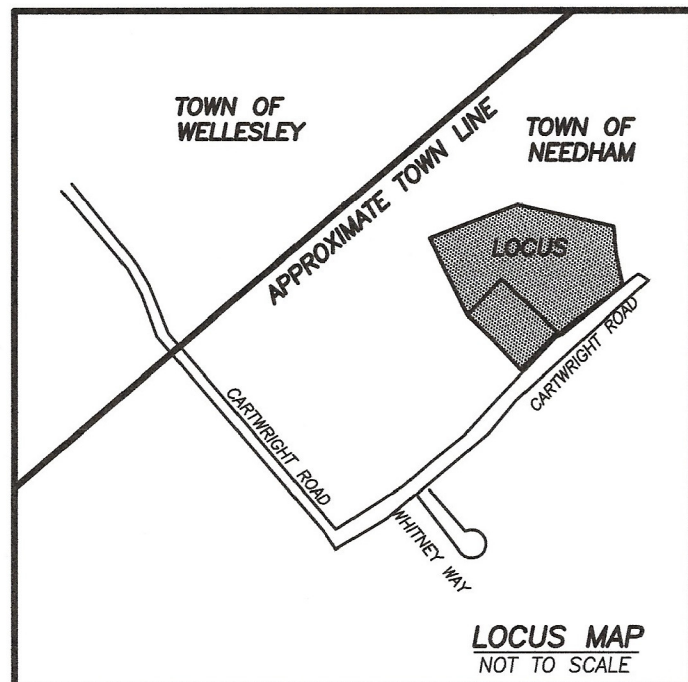
(Do Not Write Below This Line-For Court Use Only)

CERTIFICATION

I certify that it appears by the records of this Court that said appointment remains in full force and effect. IN TESTIMONY
WHEREOF I have hereunto set my hand and affixed the seal of said Court.

Date October 28, 2022

Colleen M. Brierley
Colleen M Brierley, Register of Probate



FOR REGISTRY USE ONLY

APPROVAL UNDER THE SUBDIVISION CONTROL LAW NOT REQUIRED
NEEDHAM PLANNING BOARD

DATE:

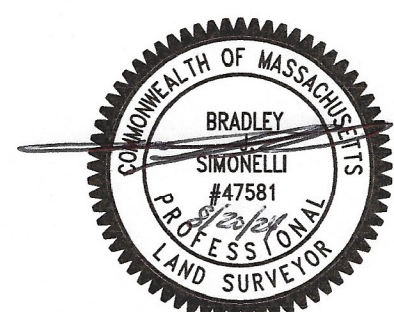
NO DETERMINATION AS TO COMPLIANCE WITH ZONING REQUIREMENTS IS MADE OR INTENDED.

THE PURPOSE OF THIS PLAN IS TO DIVIDE 321 CARTWRIGHT ROAD INTO LOT 100 WITH THE EXISTING STRUCTURES AND LOT 101 WITH THE VACANT REMAINING LAND

TOWN OF NEEDHAM
MAP 219 PARCEL 07
NORFOLK PROBATE DOCKET#
NO21P1203EA

NORFOLK COUNTY
REGISTRY OF DEEDS
BOOK 1673 PAGE 439

OWNER/APPLICANT:
MARJORIE A. PINE
18 BASIN ROAD
NEWBURYPORT, MA



APPROVAL NOT REQUIRED
SUBDIVISION PLAN OF LAND
321 CARTWRIGHT ROAD
NEEDHAM, MASS.

Field Resources, Inc.
LAND SURVEYORS

JUNE 3, 2024

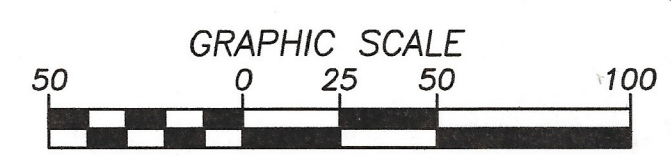
SCALE 1"=50'

P.O. BOX 324
AUBURN, MA
508 832 4332

281 CHESTNUT ST.
NEEDHAM, MA.
781 444 5936

fieldresources@hotmail.com

ZONING INFORMATION: SINGLE RESIDENCE A (SRA)			
	REQUIRED	LOT 100	LOT 101
MINIMUM LOT AREA	43,560 SF	63,797 SF	243,000± SF
MAXIMUM BUILD FACTOR	20	12.9	0.8
MINIMUM LOT FRONTAGE	150 FEET	232.85 FEET	302.42 FEET
MINIMUM FRONT SETBACK	30 FEET	14.5 FEET	
MINIMUM SIDE YARD	25 FEET	5.6 FEET	
MINIMUM REAR YARD	15 FEET	205.0 FEET	



REVISED: AUGUST 15, 2024
REVISED: JULY 10, 2024
REVISED: JUNE 11, 2024

July 19, 2024

Ref: NEX-2200392.07

Mr. Lee Newman
Director, Planning and Community Development
Town of Needham
500 Dedham Avenue
Needham, MA 02492

Attention: Kate Fitzpatrick
Town Manager

Reference: MBTA Communities Traffic Impact Analysis
Contract No. 24GEN298M
Project Manager: John W. Diaz, P.E.

Dear Mr. Newman:

Greenman-Pedersen, Inc. (GPI) has prepared this technical memo providing a comprehensive summary of the traffic analysis conducted to evaluate the potential impacts of the rezoning proposed in the *Town of Needham, MA – MBTA Communities Summary Report, April 2024* prepared by RKG Associates and Innes Associates, Ltd. The rezoning aims to facilitate the development of additional housing units in compliance with the MBTA Communities Act. The analysis encompasses current traffic conditions, projected traffic volumes, and the anticipated effects on local transportation infrastructure. Our goal is to present data-driven insights to inform decision-making processes, ensuring that the rezoning aligns with community goals while mitigating adverse traffic impacts.

Summary of Findings

To present a worst-case scenario, the traffic operations analysis conducted was conservative and likely overestimates future traffic levels. This approach included a higher-than-expected future growth rate, a larger-than-expected trip generation rate for the proposed development, and a higher-than-expected auto mode share for a transit-oriented development.

Due to this conservative approach, many study area intersections are anticipated to experience high delays in future conditions, primarily due to background traffic growth rather than traffic generated by the proposed projects. Scenario A (Base Compliance) is expected to have little to no impact, while Scenario B (Neighborhood Housing Plan) is expected to cause localized impacts at key intersections.

Potential mitigation measures identified include signal timing optimizations, roadway restriping, adjustments to pedestrian timings, and new signalization. The mitigation analysis shows improvements in the Level of Service (LOS) and decreased delays across the network of intersections when comparing the No-Build scenario to Build Scenarios A and B. During the AM peak hour, many intersections that would operate at an unacceptable LOS F in the No-Build scenario improve to LOS D or better in the Build Mitigated Scenarios. Similarly, during the PM peak hour, the network sees LOS improvements with the implementation of Build Mitigated Scenarios A and B.

Overall, the Build Scenarios A and B with mitigation demonstrate a positive impact on traffic performance, reducing delays and improving LOS across the network of intersections during peak hours despite the increase in vehicle trips from the developments.

Data Collection

Traffic data for the study area intersections and roadways, as illustrated in Figure 1, was compiled from a combination of past studies and new traffic counts. In line with MassDOT guidelines, traffic data collected before the COVID-19 pandemic were seasonally adjusted, projected to 2019 using the DOT's growth rate, and then adjusted to 2024 based on a nearby continuous count station. Post-pandemic data, collected after March 2022, were increased by 1.00% per year to estimate 2024 traffic levels. Data collected in 2024 required only seasonal adjustments, if necessary. All traffic-count and MassDOT adjustment data is provided in detail in the Appendix. Figures 2A and 2B display the existing traffic volumes in the morning and evening peak hours, respectively.

Table 1 provides a detailed overview of the intersections analyzed in this study, describing each intersection within the study area, the source of the traffic count data, and the date when the data was collected.

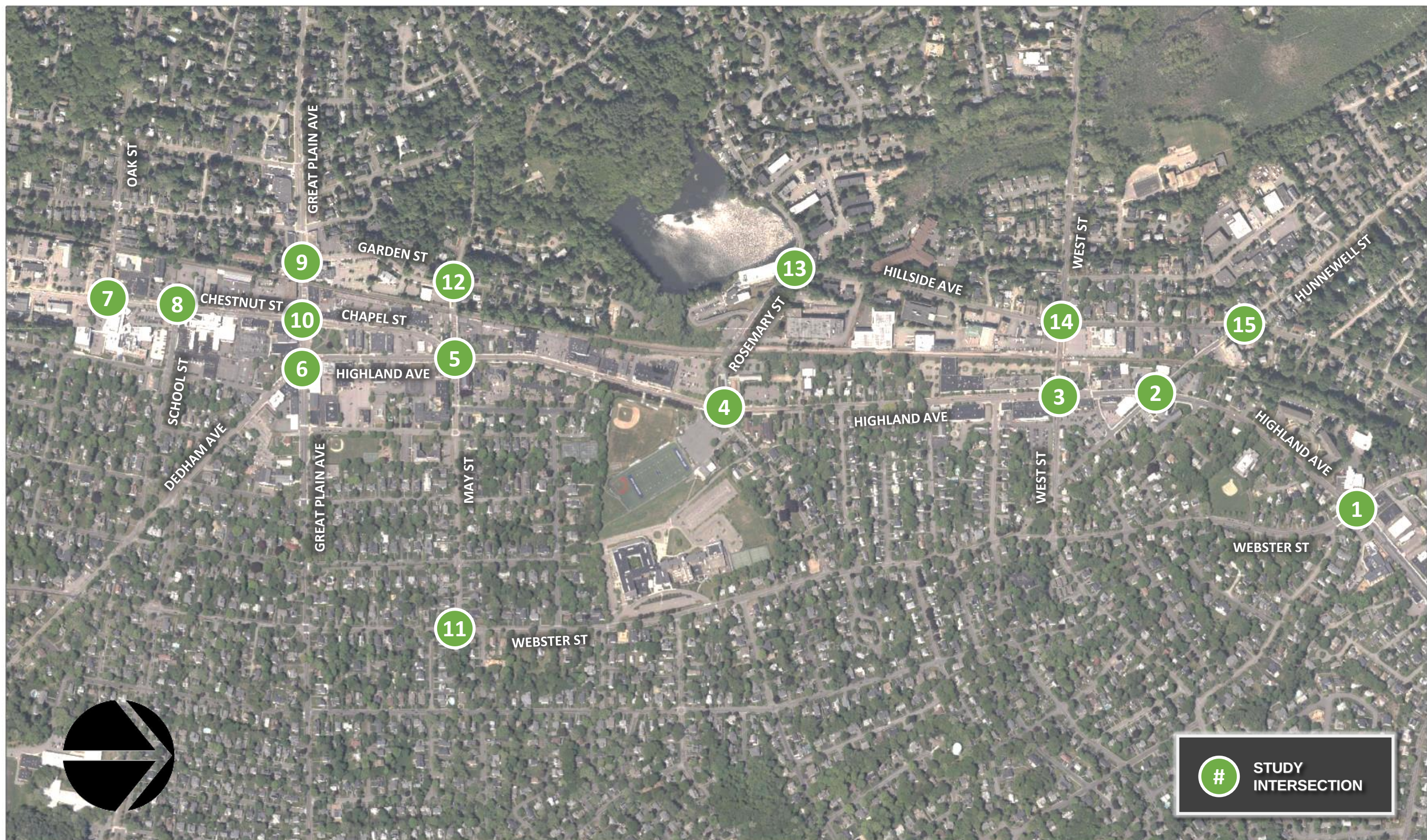
<u>Intersection Location</u>	<u>Data Source</u>	<u>Date Collected</u>
1. Highland Ave at Webster St	Highland Ave Corridor Study	May, 2022
2. Highland Ave at Hunnewell St	Highland Ave Corridor Study	May, 2022
3. Highland Ave at West St	Highland Ave Corridor Study	May, 2022
4. Highland Ave at Rosemary St	Highland Ave Corridor Study	May, 2022
5. Highland Ave at Chapel St & May St	Turning Movement Counts	May, 2024
6. Highland Ave at Great Plain Ave & Dedham Ave	Highland Ave Corridor Study	May, 2022
7. Chestnut St at Oak St	433 Chestnut Study	November, 2018
8. Chestnut St at School St	433 Chestnut Study	November, 2018
9. Great Plain Ave at Garden St	Downtown Signal Retiming	January, 2024
10. Great Plain Ave at Chapel St & Chestnut St	Turning Movement Counts	May, 2024
11. Webster St at May St	Turning Movement Counts	May, 2024
12. Garden St at May St	Turning Movement Counts	May, 2024
13. Rosemary St at Hillside Ave	Turning Movement Counts	May, 2024
14. Hillside Ave at West St	100 West Street Study	April, 2024
15. Hillside Ave at Hunnewell St	Turning Movement Counts	May, 2024

Traffic Growth

To develop the 2034 No-Build (ten-year) forecast volumes, an annual growth percentage was applied. Based on discussions with the Town of Needham, a conservative (higher than expected) 1.0 percent compounded annual growth rate was assumed for the project area. This approach ensures that the forecasted traffic volumes account for potential increases in traffic demand over the next decade, providing a basis for comparison with the proposed rezoning scenarios. Figures 3A and 3B display the 2034 No-Build traffic volumes in the morning and evening peak hours, respectively.

Trip Generation Methodology

To estimate the potential traffic impact of the proposed rezoning, two scenarios were analyzed. Scenario A, Base Compliance, projects a build-out of 222 multifamily units, while Scenario B, Neighborhood Housing Plan, projects a build-out of 1,099 multifamily units. The trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual for Land Use Code (LUC) 220 (Multi-Family Housing, Low-Rise) and LUC 221 (Multi-Family Housing, Mid-Rise) were used to estimate the volume of traffic generated by each scenario. Due to the limited number of studies for settings adjacent to rail transit, the trip generation rates were calculated using the "Not Close to Rail Transit" subcategory and "General Urban/Suburban" location to provide a conservative (worst-case) analysis scenario.



Greenman-Pedersen, Inc.
 MBTA COMMUNITIES ACT TIA
 NEEDHAM, MASSACHUSETTS

FIGURE I
 PROJECT LOCATION MAP

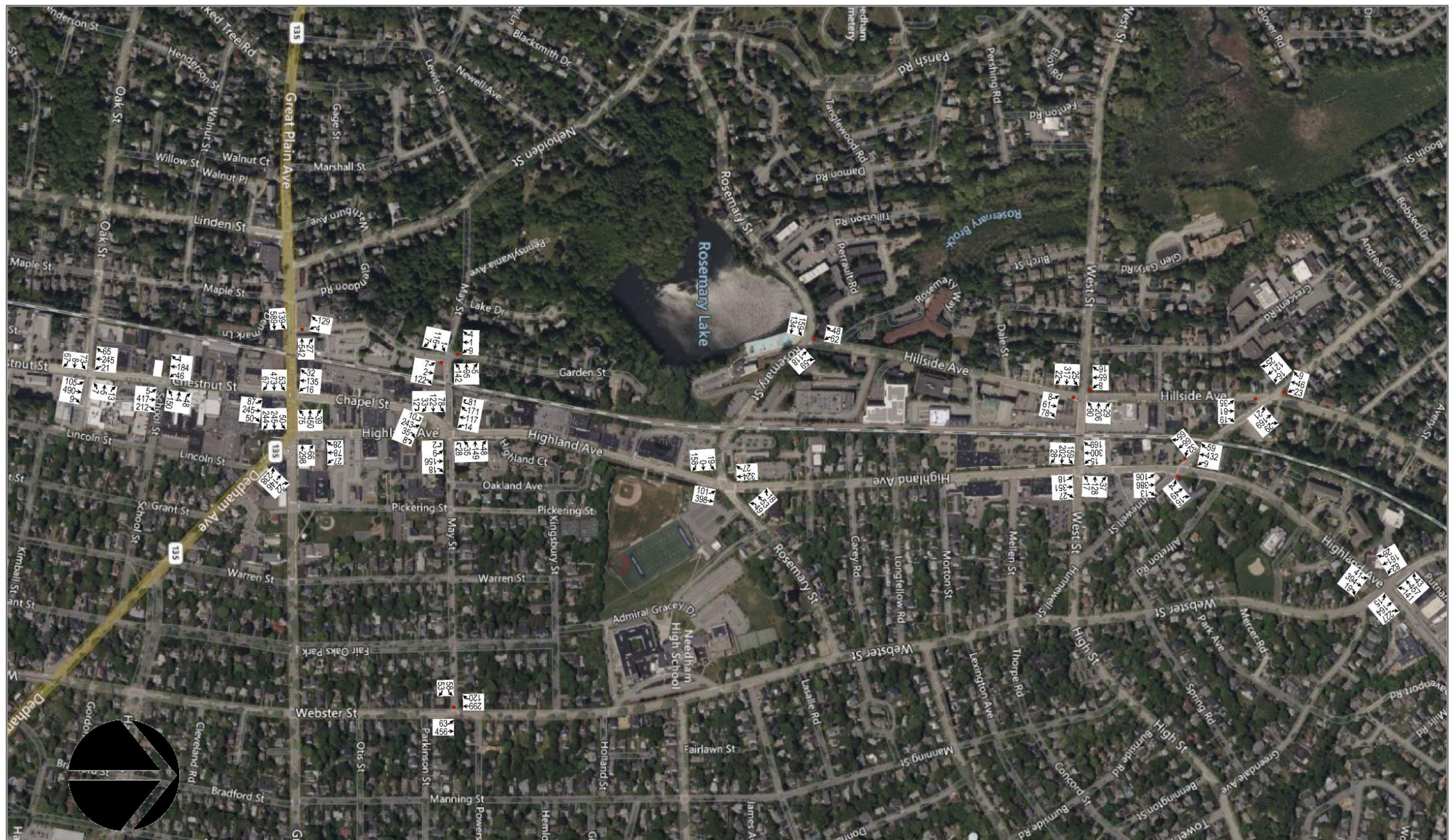


FIGURE 2A
 2024 EXISTING CONDITIONS
 MORNING PEAK HOUR VOLUMES

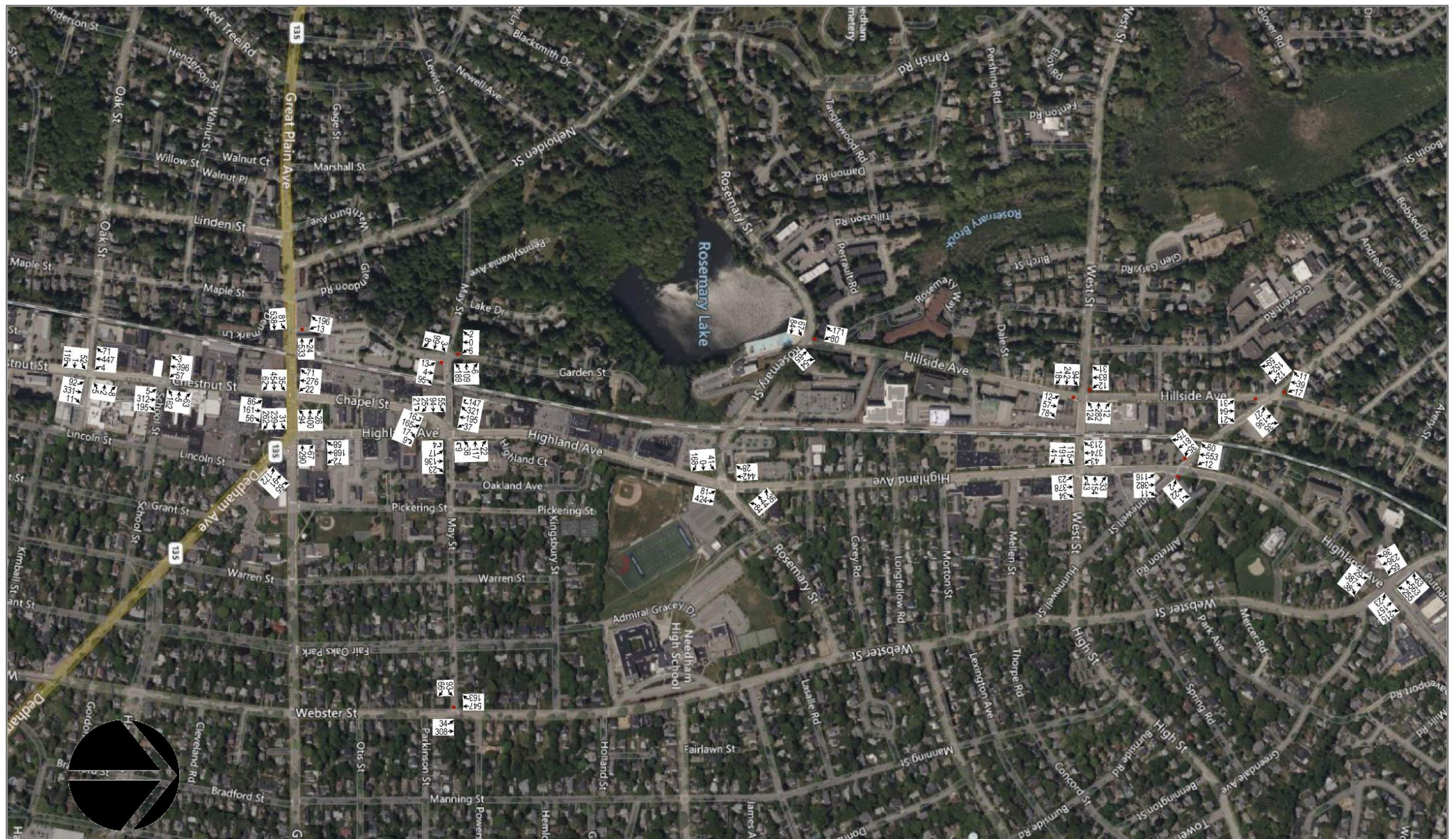


FIGURE 2B
 2024 EXISTING CONDITIONS
 EVENING PEAK HOUR VOLUMES

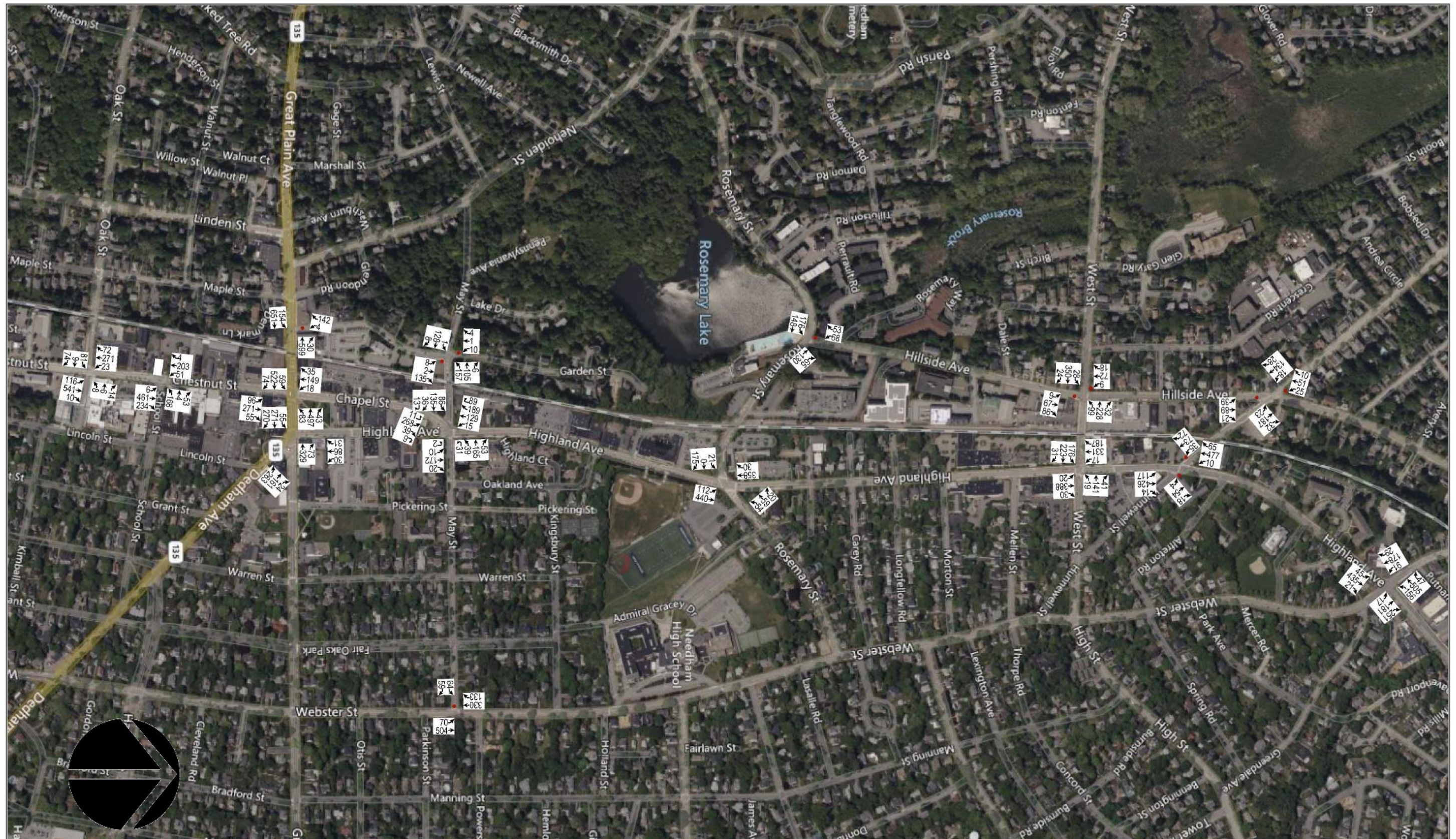


FIGURE 3A
 2024 NO-BUILD CONDITIONS
 MORNING PEAK HOUR VOLUMES

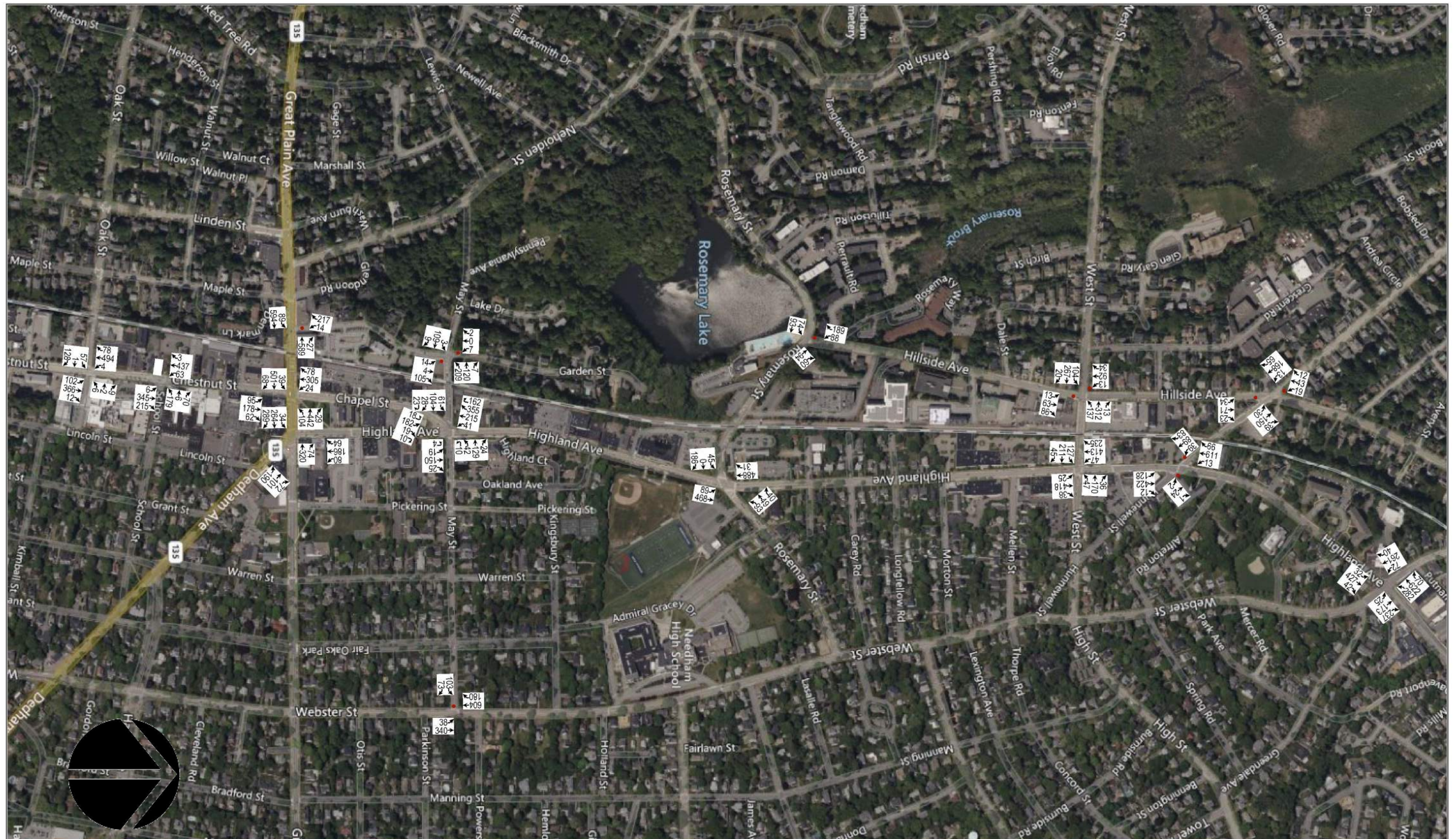


FIGURE 3B
 2024 NO-BUILD CONDITIONS
 EVENING PEAK HOUR VOLUMES

Person Trips

The vehicle trips estimated using the ITE data were subsequently converted into person trips by applying average vehicle occupancy rates (VOR) based on national data. The national average VOR applied was 1.67 persons per vehicle, which is representative of general, all-purpose trips. This conversion allows for the application of the mode share credits discussed in the following section, providing a more accurate representation of the total number of trips generated by the proposed rezoning scenarios.

Mode Shares

The MBTA provides service within the proposed rezoning districts, with two commuter rail stations offering access to Boston and bus services connecting to Watertown. Additionally, the districts are in close proximity to various retail, restaurant, and commercial developments. A robust sidewalk network on surrounding roadways further enhances pedestrian connections to these establishments. The availability of public transportation and pedestrian connections is expected to reduce the number of passenger vehicle trips to and from the site. After reviewing multi-modal trip share information from U.S. Census Data and Replica Traffic Data Set for the Town of Needham, a 19 percent reduction in residential vehicle trips to and from the sites is anticipated for the proposed scenarios.

Trip Generation by Mode

As detailed in Table 5, Scenario A is projected to generate 75 new vehicle trips (18 entering and 57 exiting) during the weekday AM peak hour, and 94 new vehicle trips (59 entering and 35 exiting) during the weekday PM peak hour. In contrast, Scenario B is expected to generate 324 new vehicle trips (77 entering and 247 exiting) during the weekday AM peak hour, and 388 new vehicle trips (242 entering and 146 exiting) during the weekday PM peak hour.

Comprehensive trip generation calculations and supporting information are provided in the Appendix. Table 2 summarizes the resulting trip generation estimates.

Table 2
PROPOSED TRIP-GENERATION SUMMARY

Time Period/Direction	Scenario A: Base Compliance				Scenario B: Neighborhood Housing Plan			
	Residential Trips ^a	Person Trips ^b	Other Trips ^c	Vehicle Trips ^d	Residential Trips ^e	Person Trips	Other Trips ^c	Vehicle Trips
Weekday Daily	1,498	2,502	476	1,214	6,474	10,812	2,056	5,244
Weekday AM Peak Hour:								
<i>Enter</i>	22	37	7	18	94	157	30	77
<i>Exit</i>	<u>70</u>	<u>117</u>	<u>23</u>	<u>57</u>	<u>305</u>	<u>509</u>	<u>98</u>	<u>247</u>
<i>Total</i>	92	154	30	75	399	666	128	324
Weekday PM Peak Hour:								
<i>Enter</i>	73	122	24	59	299	499	95	242
<i>Exit</i>	<u>43</u>	<u>72</u>	<u>14</u>	<u>35</u>	<u>180</u>	<u>301</u>	<u>57</u>	<u>146</u>
<i>Total</i>	116	194	38	94	479	800	152	388

^a Based on ITE LUC 220 (Multi-Family Housing, Low-Rise) for 222 units.

^b Based on a Vehicle Occupancy Rate (VOR) of 1.67. Residential Trips multiplied by VOR.

^c Based on a 19% transit and walk credit.

^d Person Trips minus Other Trips divided by VOR.

^e Based on ITE LUC 220 (Multi-Family Housing, Low-Rise) for 733 units and ITE LUC 221 (Multi-Family Housing, Mid-Rise) for 366 units.

Trip Distribution

The estimated project-generated vehicle trips were distributed across the local roadway network based on U.S. Census Journey-to-Work data for residents of the Town of Needham, reflecting typical commuter travel patterns. Table 3 illustrates the primary trip distribution for both future build scenarios.

Table 3
TRIP-DISTRIBUTION SUMMARY

Direction	Residential Distribution (%)
I-95 Ramps, to/from North	61
West Street, to/from East	8
RT-135, to/from Southeast	12
Chestnut Street, to/from South	6
RT-135, to/from West	10
Hunnewell Street, to/from Northwest	3
Total	100

Build Traffic Volumes

Based on the traffic generation and distribution estimates for this project, the traffic volumes associated with the proposed scenarios were assigned to the roadway network. These site-generated traffic volumes were then combined with the 2034 No-Build traffic volumes to develop the 2034 Build peak-hour traffic-volume networks. The Scenario A traffic volumes are depicted in Figures 4A and 4B for the weekday AM and weekday PM peak hours, respectively. Similarly, the Scenario B traffic volumes are shown in Figures 5A and 5B for the weekday AM and weekday PM peak hours. Table 4 shows the increase of vehicle trips traveling through each study area intersection expressed in vehicles per minute when compared to the No-Build Condition. Figure 6A and 6B provide a graphical representation of the data displayed in Table 4.

Table 4
INTERSECTION TRIP INCREASE SUMMARY

Intersection	Morning Peak Hour		Evening Peak Hour	
	Scenario A	Scenario B	Scenario A	Scenario B
Highland Ave at Webster St	0.7 ^a (%2)	3.3 (%10)	1.0 (%2)	4.0 (%10)
Highland Ave at Hunnewell St	0.9 (%4)	3.6 (%16)	1.1 (%4)	4.3 (%17)
Highland Ave at West St	0.8 (%3)	3.7 (%14)	0.9 (%3)	4.5 (%15)
Highland Ave at Rosemary St	0.7 (%3)	3.4 (%16)	0.7 (%3)	4.0 (%16)
Highland Ave at Chapel St & May St	0.6 (%2)	3.0 (%12)	0.6 (%2)	3.6 (%13)
Highland Ave at Great Plain Ave & Dedham Ave	0.1 (%1)	0.7 (%2)	0.2 (%1)	0.8 (%3)
Chestnut St at Oak St	0.3 (%2)	3.4 (%16)	0.4 (%2)	4.0 (%19)
Chestnut St at School St	0.3 (%2)	3.4 (%17)	0.4 (%2)	4.0 (%18)
Great Plain Ave at Garden St	0.2 (%1)	0.6 (%2)	0.2 (%1)	0.6 (%2)
Great Plain Ave at Chapel St & Chestnut St	0.5 (%2)	3.6 (%11)	0.6 (%2)	4.2 (%13)
Webster St at May St	0.0 (%0)	0.0 (%0)	0.0 (%0)	0.0 (%0)
Garden St at May St	0.0 (%0)	0.0 (%0)	0.0 (%0)	0.0 (%0)
Rosemary St at Hillside Ave	0.1 (%1)	0.2 (%2)	0.1 (%1)	0.3 (%3)
Hillside Ave at West St	0.3 (%1)	0.6 (%4)	0.3 (%2)	0.7 (%4)
Hillside Ave at Hunnewell St	0.4 (%3)	0.6 (%5)	0.5 (%4)	0.7 (%6)

^a Number of additional vehicles per minute

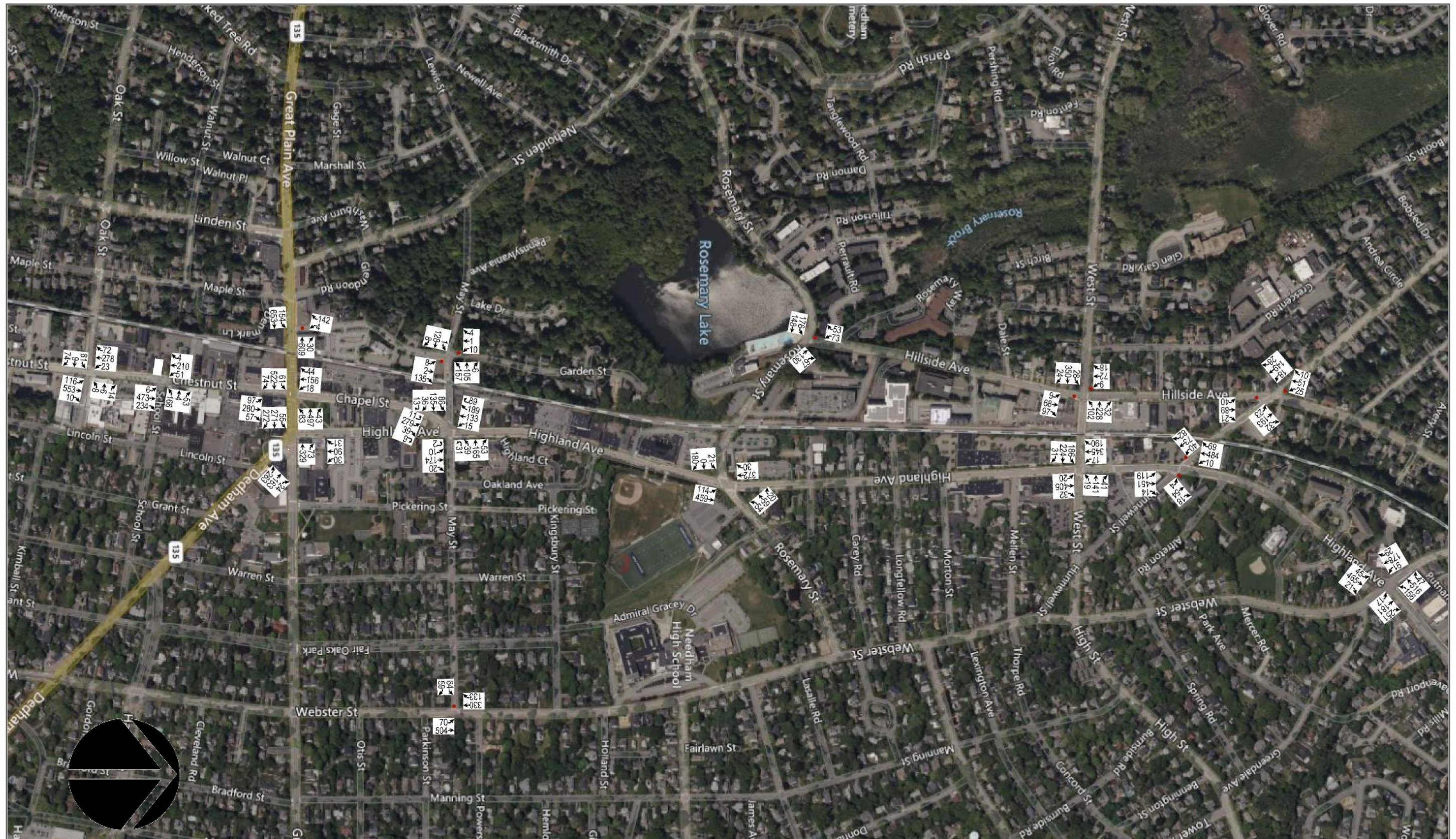


FIGURE 4A
 2024 BUILD SCENARIO A
 MORNING PEAK HOUR VOLUMES



Greenman-Pedersen, Inc.
 MBTA COMMUNITIES ACT TIA
 NEEDHAM, MASSACHUSETTS

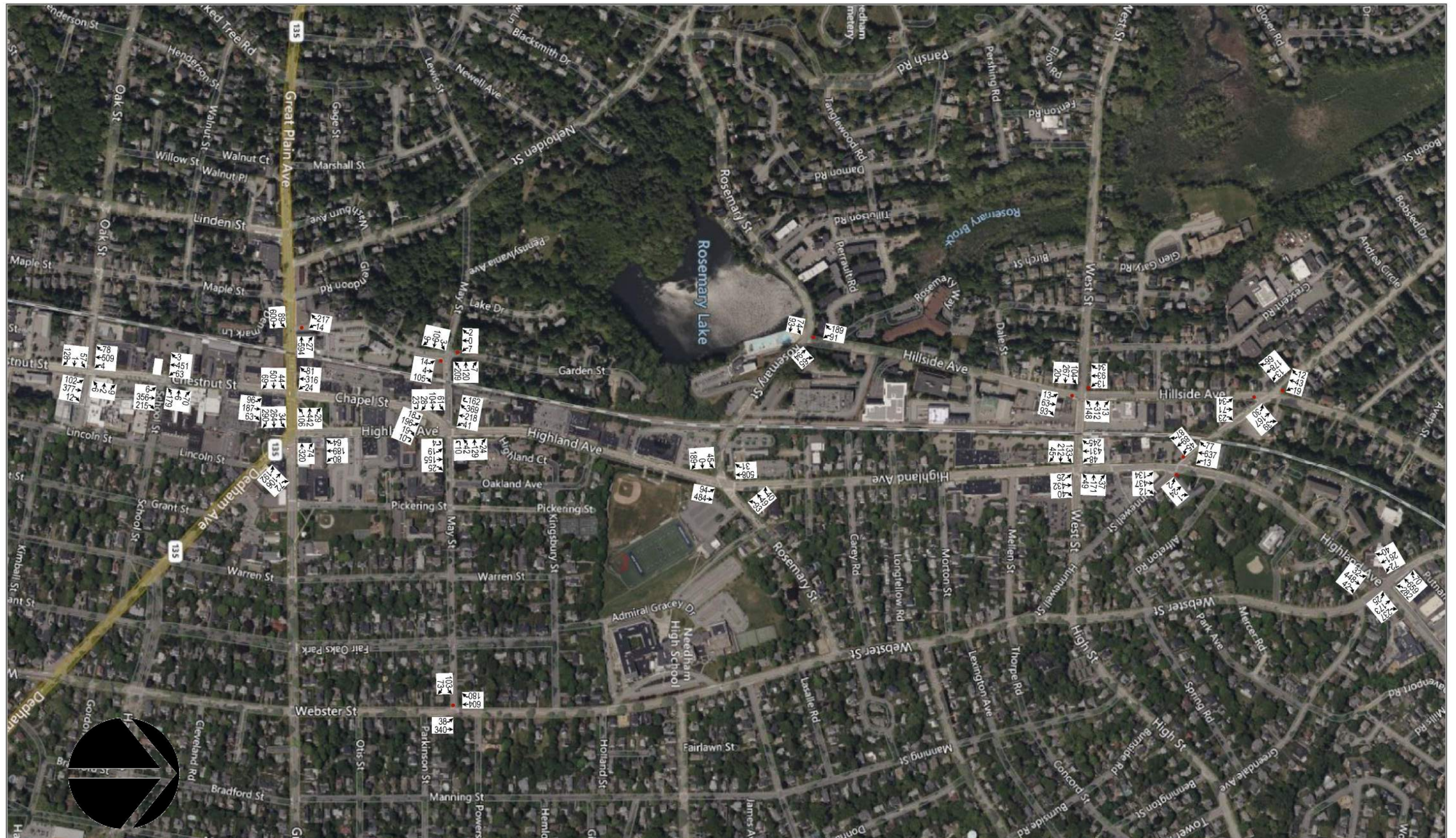
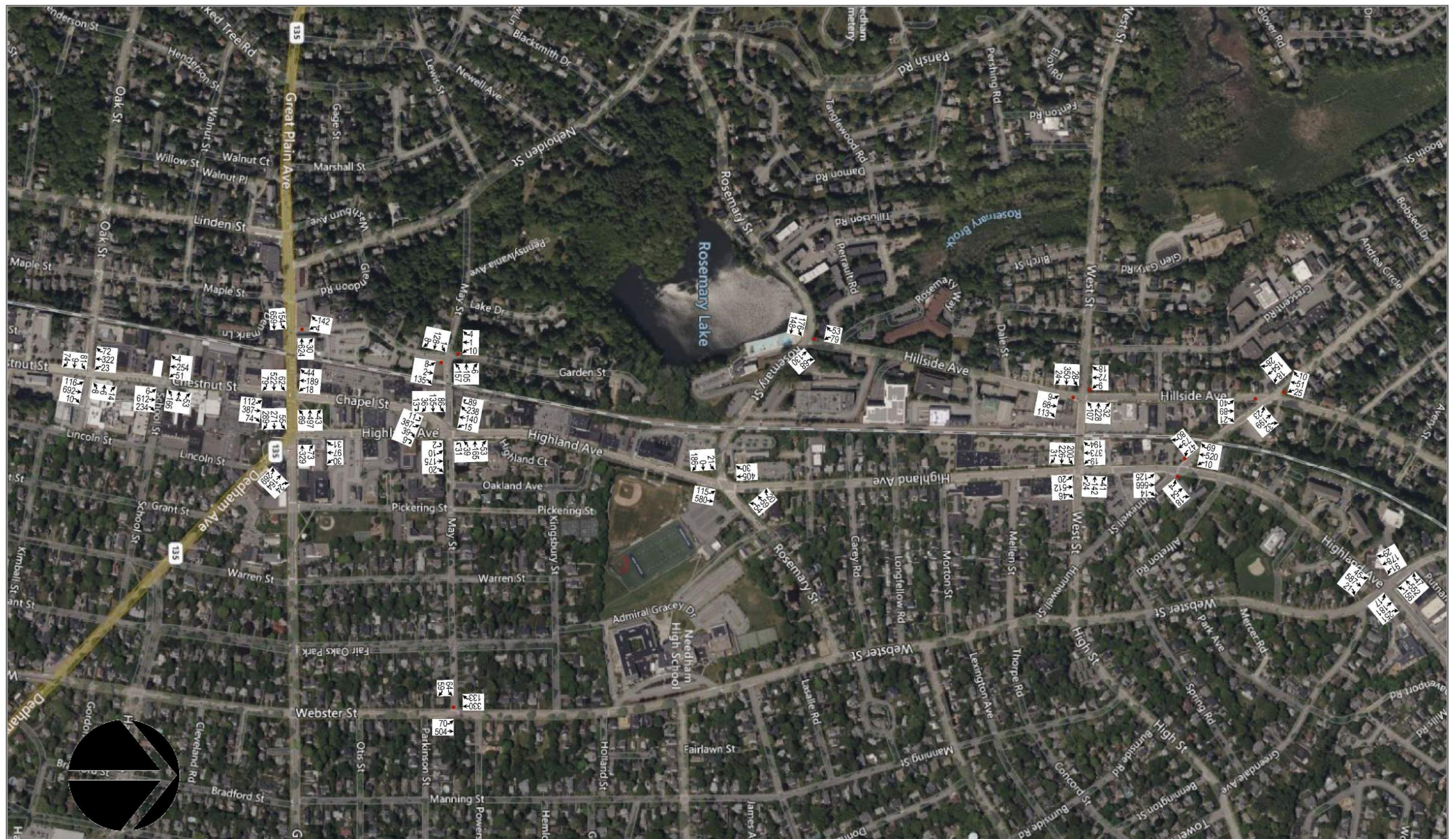


FIGURE 4B
 2024 BUILD SCENARIO A
 EVENING PEAK HOUR VOLUMES



Greenman-Pedersen, Inc.
MBTA COMMUNITIES ACT TIA
NEEDHAM, MASSACHUSETTS

FIGURE 5A
2024 BUILD SCENARIO B
MORNING PEAK HOUR VOLUMES

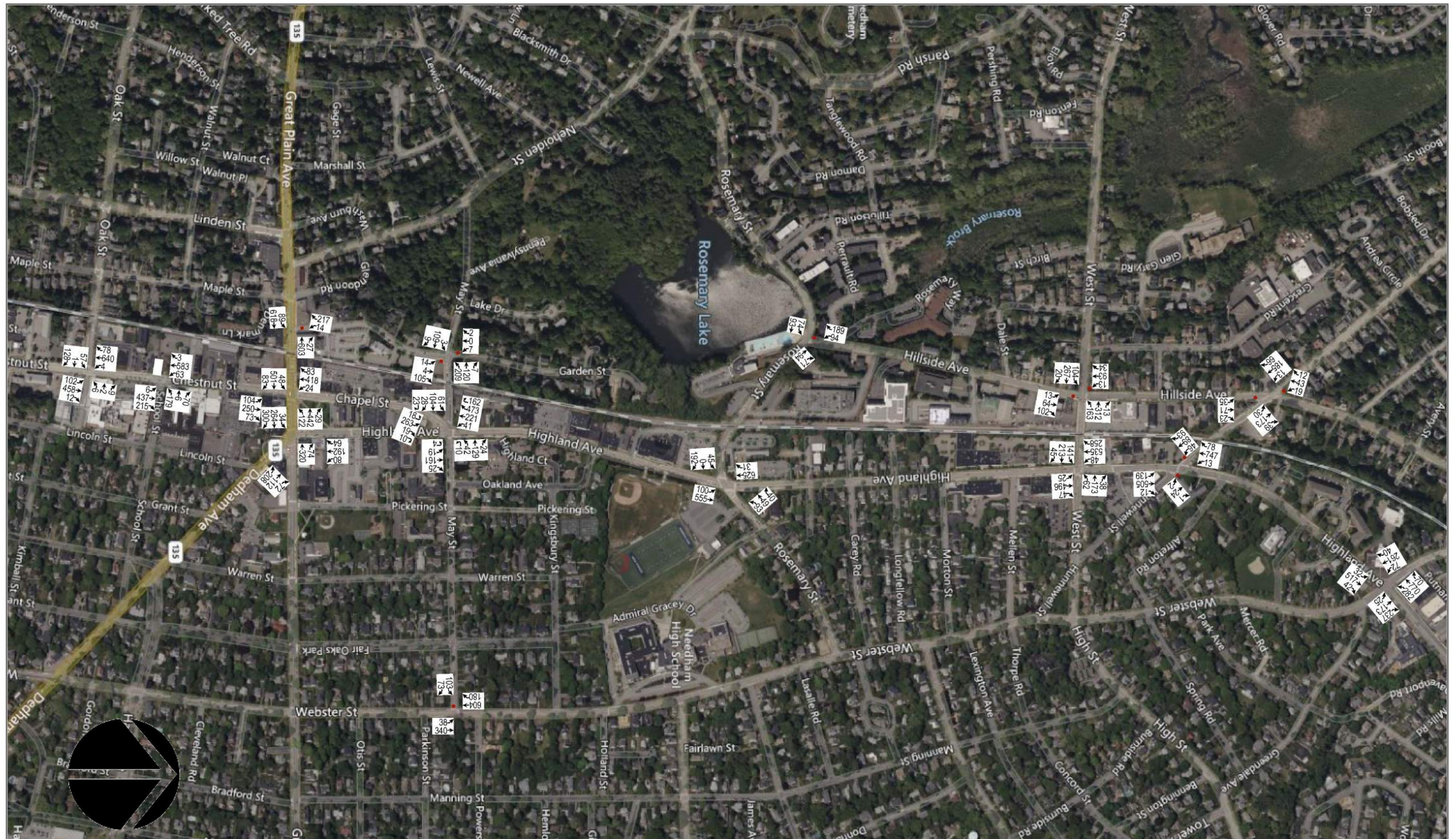
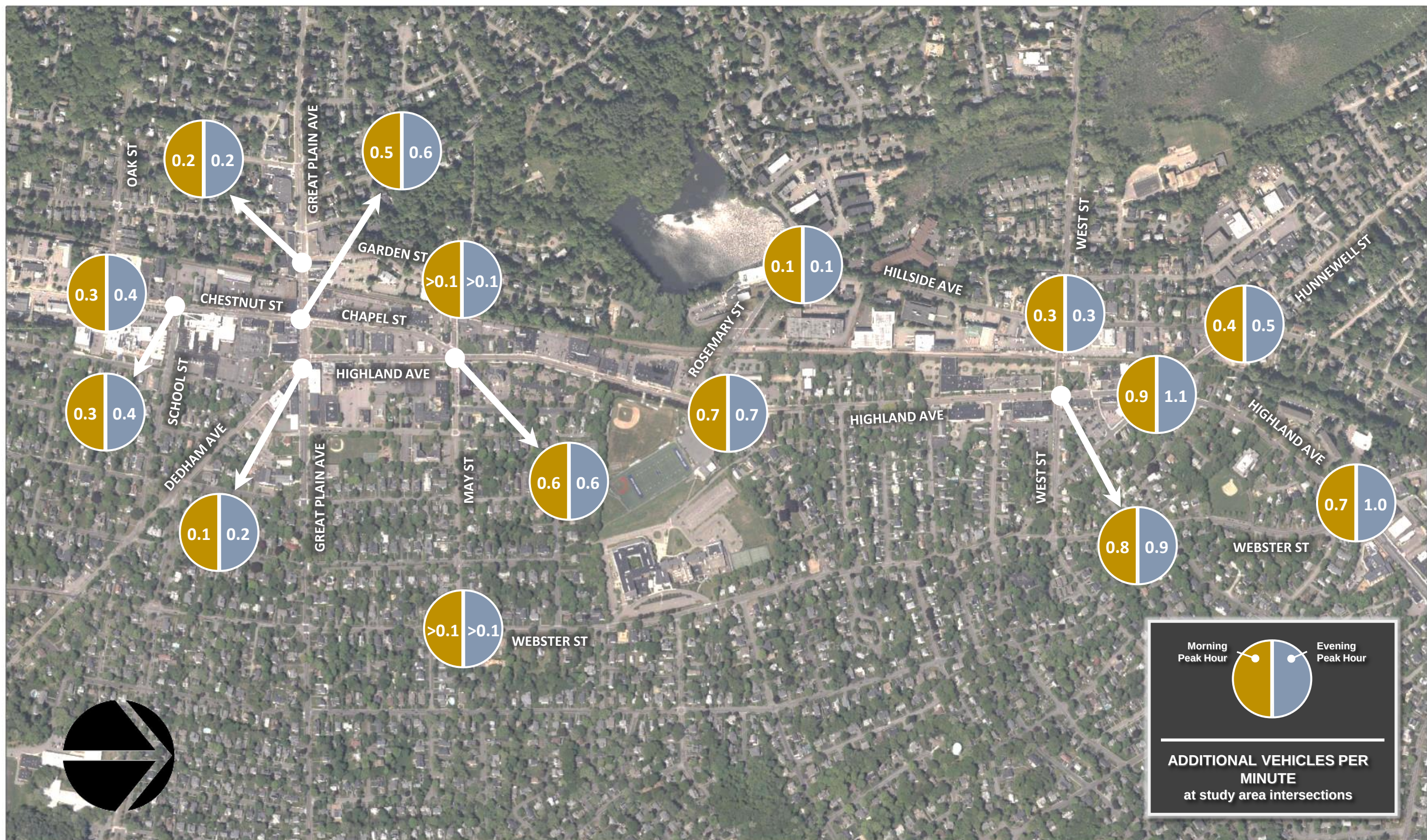
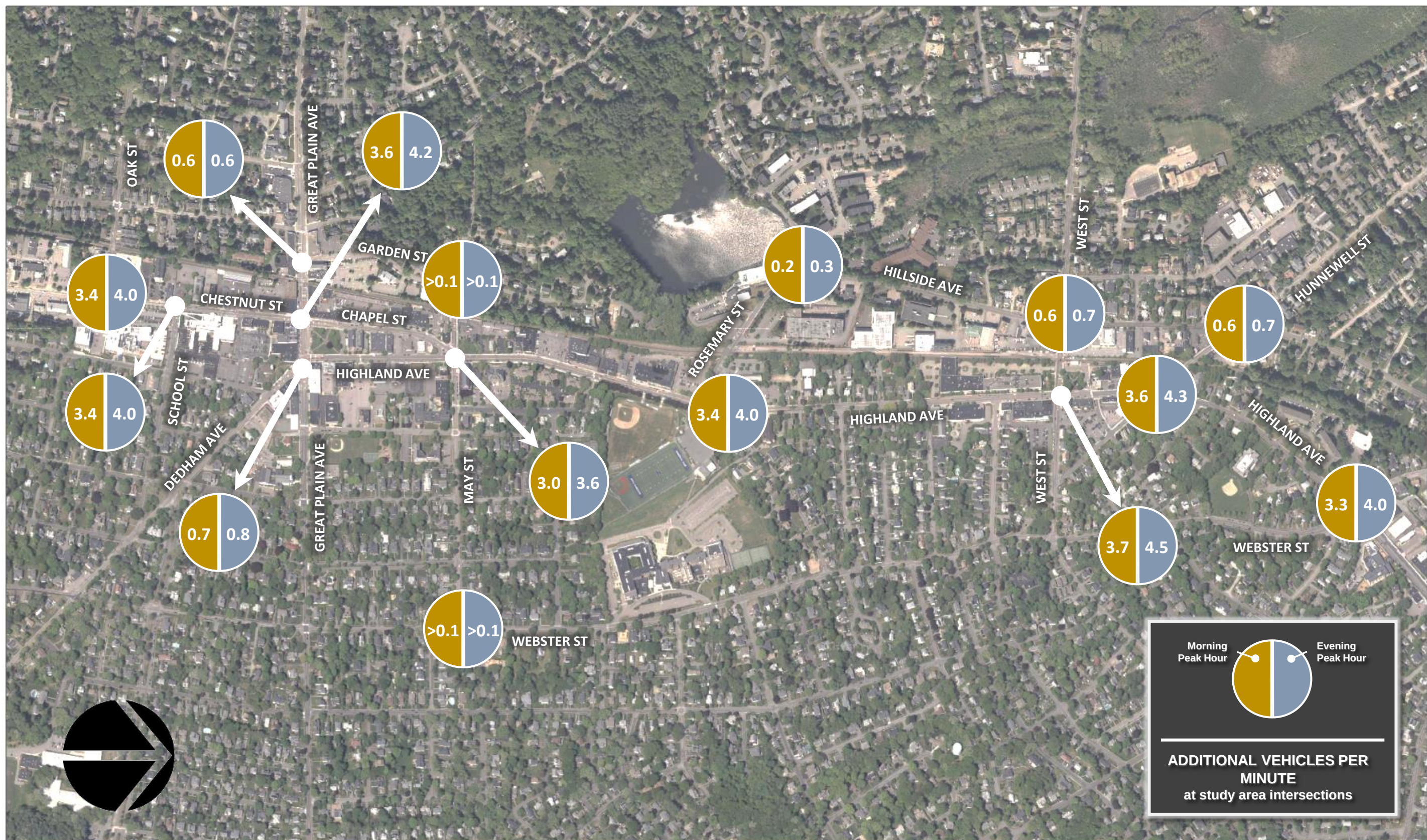


FIGURE 5B
 2024 BUILD SCENARIO B
 EVENING PEAK HOUR VOLUMES



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 NEEDHAM, MASSACHUSETTS

FIGURE 6A
 2034 BUILD SCENARIO A
 ADDITIONAL VEHICLES PER MINUTE



Greenman-Pedersen, Inc.
MBTA COMMUNITIES ACT TIA
NEEDHAM, MASSACHUSETTS

FIGURE 6B
2034 BUILD SCENARIO B
ADDITIONAL VEHICLES PER MINUTE

Capacity and Queue Analysis Methodology

Capacity and queue analyses were conducted at all study area locations under 2024 Existing, 2034 No-Build, and 2034 Build traffic-volume conditions (for both Scenario A and Scenario B). The impact of site-generated traffic was measured by comparing 2034 No-Build conditions to 2034 Build conditions.

Capacity and queue analyses at the study area intersections were conducted using Synchro software. The analysis utilizes the HCM 2000 methodology for signalized intersections, as the HCM 6th Edition does not effectively analyze exclusive pedestrian signal phasing provided at the signalized study area intersections. MassDOT has acknowledged these inefficiencies with the HCM 6th Edition method and still accepts the HCM 2000 results as the most recently approved method. For study area intersections with STOP sign control, the HCM 6th Edition methodology was applied.

Capacity analyses provide an indication of how well the intersection accommodates the traffic demand placed upon it. A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The concept of level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to the quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the optimal operating conditions and LOS F the least desirable operating conditions. Since the level of service of a traffic facility is a function of the traffic 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 year. A description of the operating condition under each level of service is provided below:

- LOS A: Indicates excellent conditions with minimal delay. Traffic flows smoothly with very short stops.
- LOS B: Represents very good conditions with slightly more delay. Traffic remains stable, and stops are brief.
- LOS C: Conditions are still manageable, with minor delays. While the flow of traffic remains stable, the frequency of stops increases slightly.
- LOS D: In an urban setting, LOS D is often typical and indicates reasonable traffic conditions given the higher density. Traffic flow is still manageable, though there are some delays.
- LOS E: reflects conditions where delays are more noticeable and traffic flow is less stable, but is common in busy urban areas. In such contexts, LOS E can still represent a functional intersection, albeit with higher levels of congestion.
- LOS F: The most congested conditions, where delays are substantial and traffic flow is heavily disrupted. The average delay exceeds 80 seconds per vehicle, often requiring further analysis or improvements.

Thresholds for vehicular LOS criteria for unsignalized and signalized intersections are shown in **Table 5**.

Table 5
LEVEL-OF-SERVICE CRITERIA FOR INTERSECTIONS

Level of Service	Unsignalized Intersection Control Delay Ranges (Seconds)	Signalized Intersection Control Delay Ranges (Seconds)
A	≤10	≤10
B	>10 and ≤15	>10 and ≤20
C	>15 and ≤25	>20 and ≤35

D	>25 and ≤35	>35 and ≤55
E	>35 and ≤50	>55 and ≤80
F	>50	>80

Source: *Highway Capacity Manual, 6th Edition*, Transportation Research Board; Washington, D.C.; 2016.

For signalized intersections, the maximum back of queue during a typical (average) and 95th percentile signal cycle was calculated for each lane group during peak periods. The back of queue measures the vehicle backup length from the stop line to the last vehicle required to stop. This length depends on signal timing, vehicle arrival patterns, and saturation flow rate. For unsignalized intersections, the 95th percentile queue represents the queue length of the critical minor-street movement that is not expected to be exceeded 95 percent of the time during the analysis period, typically one hour. This queue length is determined by the capacity and saturation level of the movement.

Signalized Intersections Analysis Results

The results of the level-of-service (LOS) and queue analyses are shown in Table 6 and are discussed below. Figures 7A and 7B display the intersection LOS in the morning and evening peak hours, respectively.

Highland Avenue at Webster Street

In the AM peak hour, the overall LOS declines from E in 2024 to F in 2034 under the No-Build scenario and remains at LOS F in both Build Scenarios A and B. Notably, the northbound through (NBT) movement deteriorates significantly, with the delay increasing from 86 seconds in 2024 to up to 315 seconds in Build Scenario B. Additionally, the southbound left (SBL) movement also shows substantial worsening, with delays increasing from 132 seconds in 2024 to 198 seconds in all 2034 scenarios, maintaining LOS F.

In the PM peak hour, the intersection's overall LOS is F in 2024 and further deteriorates in all 2034 scenarios. The NBT movement shows an increase in delay from 104 seconds in 2024 to up to 265 seconds in Build Scenario B while the southbound through (SBT) movements also significantly worsens, with LOS dropping from C in 2024 to F in Build Scenario B and delays increasing from 34 seconds to 139 seconds. In addition, the SBL movement experiences LOS F across all four scenarios.

Highland Avenue at West Street

In the AM peak hour, the overall LOS degrades from C in 2024 to D in 2034 under the No-Build scenario, and further to LOS E in Build Scenario B. Notably, the eastbound left (EBL) movement deteriorates significantly, worsening from LOS D in 2024 to LOS F in all 2034 scenarios, with delays increasing from 40 seconds to 148 seconds. Additionally, the westbound through (WBT) movement shows increased congestion, moving from LOS D in 2024 to LOS E in both future build scenarios.

In the PM peak hour, the overall LOS is D in 2024 and deteriorates to E and F in the 2034 Build Scenarios. The EBL movement, which operates at LOS E in 2024, worsens to LOS F in all 2034 scenarios, with delays increasing from 71 seconds to 148 seconds. The southbound through (SBT) movement shows significant deterioration, moving from LOS D in 2024 to LOS F in Build Scenario B, with delays increasing from 39 seconds to 147 seconds.

Highland Avenue at Chapel Street & May Street

In the AM peak hour, the overall level of service (LOS) degrades from E in 2024 to F in 2034 under the No-Build and Build scenarios. Notably, the eastbound through (EBT) and westbound through (WBT) movements experience significant deterioration, with delays increasing from 94 and 145 seconds in 2024 to 161 and 225 seconds, respectively, in Build Scenario B. Additionally, the northeastbound left (NEL) movement worsens from LOS C to F, with delays increasing from 34 to 81 seconds.

In the PM peak hour, the intersection's overall LOS declines from E in 2024 to F in all 2034 scenarios. The northbound through (NBT) movement shows a dramatic increase in delay from 59 seconds in 2024 to 242 seconds in Build Scenario B, resulting in LOS F. Similarly, the southbound through (SBT) movement experiences severe deterioration, with delays increasing from 81 seconds in 2024 to 335 seconds in Build Scenario B, also resulting in LOS F. The southbound right (SBR) movement further deteriorates from LOS C to F, with delays increasing from 34 seconds to 123 seconds.

Highland Avenue at Great Plain Avenue & Dedham Avenue

In the AM peak hour at the intersection of Highland at Great Plain Ave & Dedham Ave, the overall level of service (LOS) declines from D in 2024 to F in all 2034 scenarios. Specifically, the eastbound through (EBT) movement exhibits a notable deterioration, with delays escalating from 95 seconds in 2024 to 291 seconds in Build Scenario B, maintaining LOS F consistently across scenarios.

In the PM peak hour, the intersection's overall LOS decreases from D in 2024 to E in all 2034 scenarios. The eastbound through (EBT) movement shows significant delays, degrading from LOS C in 2024 to LOS F across all future scenarios. The northbound left movement (NBL) experiences significant delays and LOS F across all four study scenarios. Similarly, the southbound through (SBT) movement experiences delays rising from 77 seconds to 79 seconds in all 2034 scenarios, maintaining LOS E.

Chestnut Street at School Street

In the AM peak hour at the intersection of Chestnut Street at School Street, the overall level of service (LOS) degrades from C in 2024 to D in 2034 No-Build and E in 2034 Build Scenario B. The westbound through (WBT) movement experiences significant delays across all analysis scenarios, maintaining LOS F. The northbound through (NBT) movement worsens notably, with delays rising from 28 seconds in 2024 to 83 seconds in Build Scenario B, shifting from LOS C to F.

In the PM peak hour, the intersection maintains an overall LOS C from 2024 through 2034 scenarios, but the westbound through (WBT) movement's delay increases from 71 seconds in 2024 to 98 seconds in all 2034 scenarios, shifting from LOS E to F.

Great Plain Avenue at Chapel Street & Chestnut Street

In the AM peak hour, the overall LOS degrades from C in 2024 to D in 2034 under the No-Build scenario, with further deterioration to LOS D in Build Scenario A and LOS F in Build Scenario B. Specifically, the eastbound through (EBT) movement deteriorates significantly, moving from LOS C in 2024 to LOS D in the No-Build scenario, LOS E in Build Scenario A, and LOS F in Build Scenario B. Similarly, the westbound through (WBT) movement deteriorates from LOS B to LOS D in the No-Build, and LOS F in Build Scenario B.

In the PM peak hour, the intersection's overall LOS worsens from D in 2024 to E in 2034 under the No-Build scenario and further declines to LOS E in Build Scenario A and LOS F in Build Scenario B. Notably, the southbound through (SBT) movement shows a dramatic decline, with LOS dropping from E in 2024 to F in all 2034 scenarios, and delay increasing substantially, indicating severe congestion issues. The westbound through (WBT) movement deteriorates from LOS D to LOS E in the No-Build, and LOS F in Build Scenario B.

All other signalized intersections in the study area maintain an acceptable level of service (LOS D or better) across all analysis scenarios.

Table 6
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Highland at Webster Street																				
<i>Weekday AM:</i>																				
EBT	0.64	28	C	54	#159	0.68	29	C	61	#188	0.68	29	C	61	#188	0.68	29	C	61	#188
WBT	0.69	32	C	80	#186	0.72	33	C	90	#217	0.72	33	C	90	#217	0.72	33	C	90	#217
WBR	0.83	60	E	116	172	0.88	74	E	135	192	0.88	74	E	135	192	0.88	74	E	135	192
NBL	0.24	17	B	16	47	0.35	19	B	18	53	0.38	19	B	18	54	0.46	20	B	18	57
NBT	1.04	86	F	~233	#448	1.18	141	F	~310	#512	1.25	175	F	~348	#556	1.56	315	F	~501	#731
SBL	1.08	132	F	~71	#97	1.23	198	F	~97	#119	1.23	198	F	~97	#119	1.23	198	F	~97	#119
SBT	0.7	17	B	155	#467	0.79	23	C	181	#541	0.81	24	C	187	#557	0.86	30	C	207	#609
	1.10	57	E			1.22	82	F			1.22	92	F			1.28	139	F		
<i>Weekday PM:</i>																				
EBT	0.77	41	D	112	#176	0.82	45	D	127	#211	0.82	45	D	127	#211	0.82	45	D	127	#211
WBT	0.73	41	D	126	#195	0.77	44	D	141	#236	0.77	44	D	141	#236	0.77	44	D	141	#236
WBR	0.62	29	C	162	167	0.67	31	C	183	185	0.67	31	C	183	185	0.67	31	C	183	185
NBL	0.27	24	C	19	44	0.51	28	C	22	#64	0.51	28	C	22	#64	0.51	28	C	22	#64
NBT	1.10	104	F	~447	#530	1.24	162	F	~522	#599	1.30	185	F	~559	#635	1.48	265	F	~678	#746
SBL	1.33	220	F	~395	#235	1.50	298	F	~464	#277	1.50	298	F	~464	#277	1.50	298	F	~464	#277
SBT	0.89	34	C	~504	#699	1.00	61	E	~602	#801	1.05	77	E	~655	#855	1.21	139	F	~820	#1025
	0.90	83	F			0.99	117	F			1.01	126	F			1.08	162	F		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

Table 6 (continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Highland at West Street																				
<i>Weekday AM:</i>																				
EBL	0.70	40	D	112	#216	0.92	85	F	126	#278	1.02	120	F	~142	#309	1.10	148	F	~170	#346
EBT	0.55	29	C	181	276	0.65	36	D	206	310	0.67	39	D	207	311	0.68	39	D	208	313
WBL	0.24	34	C	21	30	0.30	38	D	24	33	0.31	40	D	24	33	0.40	42	D	31	39
WBT	0.69	42	D	152	201	0.78	53	D	171	222	0.79	58	E	171	222	0.80	58	E	172	224
NBT	0.74	25	C	336	355	0.76	26	C	401	408	0.77	26	C	429	434	0.97	52	D	~694	#664
SBT	0.87	34	C	421	#617	0.89	37	D	510	#727	0.90	38	D	~549	#761	0.96	50	D	~646	#834
	0.72	32	C			0.81	40	D			0.85	45	D			0.92	59	E		
<i>Weekday PM:</i>																				
EBL	0.84	71	E	104	124	0.97	109	F	~117	#161	1.03	124	F	~133	#177	1.10	148	F	~153	#196
EBT	0.59	36	D	171	263	0.64	37	D	192	292	0.64	37	D	193	293	0.64	37	D	195	295
WBL	0.37	40	D	44	63	0.41	41	D	48	68	0.43	41	D	51	71	0.54	44	D	66	86
WBT	0.77	55	D	167	238	0.81	59	E	188	#278	0.83	60	E	191	#285	0.83	61	E	194	#292
NBT	0.57	19	B	281	403	0.64	21	C	324	462	0.67	22	C	342	488	0.76	26	C	422	#644
SBT	0.91	39	D	~600	#803	1.02	65	E	~722	#929	1.06	81	F	~777	#985	1.23	147	F	~993	#1205
	0.80	39	D			0.91	53	D			0.95	60	E			1.07	90	F		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

Table 6 (continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Highland at Rosemary Street																				
<i>Weekday AM:</i>																				
EBT	0.66	27	C	12	83	0.67	27	C	14	92	0.68	27	C	14	93	0.69	27	C	14	94
WBL	0.65	40	D	39	53	0.73	50	D	44	58	0.74	51	D	45	58	0.76	53	D	45	59
WBT	0.43	28	C	46	55	0.45	28	C	52	61	0.45	27	C	52	61	0.44	27	C	52	61
NBL	0.42	17	B	49	95	0.53	21	C	60	112	0.57	23	C	63	#119	0.65	28	C	67	#142
NBT	0.60	18	B	195	320	0.67	20	B	234	#395	0.70	21	C	250	#422	0.89	33	C	~401	#597
SBT	0.51	16	B	172	262	0.58	17	B	205	296	0.60	18	B	216	310	0.65	19	B	244	342
	0.52	21	C			0.58	23	C			0.60	23	C			0.72	28	C		
<i>Weekday PM:</i>																				
EBT	0.67	26	C	15	98	0.69	26	C	16	109	0.69	26	C	16	110	0.69	26	C	16	110
WBL	0.63	35	D	29	93	0.70	41	D	33	#109	0.70	42	D	33	#114	0.71	43	D	33	#115
WBT	0.32	24	C	15	62	0.33	24	C	16	67	0.33	24	C	16	67	0.33	24	C	16	67
NBL	0.35	14	B	17	82	0.47	18	B	22	98	0.52	21	C	24	#118	0.93	80	F	35	#170
NBT	0.53	14	B	88	342	0.59	16	B	108	#423	0.61	17	B	114	#447	0.71	19	B	140	#550
SBT	0.57	15	B	104	376	0.64	17	B	129	#470	0.66	17	B	138	#499	0.81	23	C	188	#667
	0.53	18	B			0.59	20	C			0.61	21	C			0.78	27	C		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

Table 6 (continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Highland at Chapel Street & May Street																				
<i>Weekday AM:</i>																				
EBT	1.05	94	F	~216	#283	1.22	156	F	~284	#338	1.22	158	F	~284	#338	1.23	161	F	~284	#338
WBT	1.19	145	F	~287	#367	1.38	221	F	~351	#427	1.38	223	F	~351	#427	1.38	225	F	~351	#427
NBT	0.83	51	D	168	214	0.91	64	E	190	#242	0.92	66	E	192	#252	0.93	68	E	192	#252
SBT	0.61	39	D	89	166	0.69	43	D	100	#196	0.71	45	D	103	#203	0.74	47	D	109	#218
SBR	0.51	21	C	115	258	0.55	22	C	130	291	0.58	23	C	139	310	0.64	25	C	161	355
NEL2	0.13	42	D	9	23	0.14	42	D	9	25	0.14	42	D	9	25	0.14	43	D	9	25
NEL	0.62	34	C	107	258	0.71	37	D	129	#327	0.73	39	D	137	#347	1.01	81	F	225	#546
	0.93	71	E			1.06	104	F			1.07	104	F			1.17	110	F		
<i>Weekday PM:</i>																				
EBT	0.71	39	D	125	232	0.73	39	D	142	#263	0.73	39	D	142	#264	0.73	39	D	142	#264
WBT	0.76	43	D	118	#249	0.79	45	D	136	#298	0.79	45	D	136	#298	0.79	45	D	136	#298
NBT	0.85	59	E	131	#261	1.24	183	F	~184	#333	1.32	214	F	~196	#347	1.39	242	F	~209	#362
SBT	1.20	81	F	~203	#405	1.51	293	F	~264	#467	1.56	313	F	~271	#475	1.61	335	F	~278	#483
SBR	0.83	34	C	235	#582	0.96	55	C	292	#667	0.98	62	E	304	#691	1.17	123	F	~454	#867
NEL2	0.27	44	D	17	30	0.31	46	D	20	33	0.30	45	D	20	33	0.30	45	D	20	33
NEL	0.36	28	C	51	131	0.43	31	C	65	152	0.47	31	C	74	166	0.65	36	D	121	243
	0.85	59	E			0.97	104	F			1.00	113	F			1.07	135	F		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

Table 6 (continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Highland at Great Plain Ave & Dedham Ave																				
<i>Weekday AM:</i>																				
EBT	1.06	95	F	340	#371	1.48	272	F	~498	#464	1.49	276	F	~499	#465	1.54	291	F	~502	m#399
EBR	0.35	5	A	24	65	0.39	5	A	27	m74	0.40	6	A	28	m72	0.43	6	A	50	m61
WBT	0.43	33	C	114	198	0.53	38	D	138	221	0.53	38	D	139	221	0.54	38	D	142	221
NBL	0.68	42	D	184	#407	0.69	41	D	198	#472	0.69	41	D	198	#476	0.71	42	D	202	#493
NBT	0.41	36	D	111	191	0.42	34	C	119	#242	0.43	34	C	120	#249	0.43	34	C	119	#257
NBR	0.07	32	C	0	0	0.08	30	C	0	0	0.08	30	C	0	0	0.08	30	C	0	0
SBT	0.73	61	E	112	137	0.76	62	E	124	147	0.76	62	E	127	150	0.77	63	E	135	158
SBR	0.20	45	D	0	0	0.22	44	D	0	0	0.21	44	D	0	0	0.21	43	D	0	0
	0.79	48	D			0.94	92	F			0.94	93	F			0.96	96	F		
<i>Weekday PM:</i>																				
EBT	0.76	28	C	92	#345	1.05	83	F	~315	#444	1.08	93	F	~320	#448	1.15	122	F	~329	m#450
EBR	0.39	11	B	49	97	0.45	15	B	56	m136	0.45	16	B	65	m140	0.47	17	B	80	m135
WBT	0.45	34	C	144	184	0.55	39	D	162	204	0.56	40	D	162	204	0.58	41	D	162	204
NBL	0.95	99	F	156	#288	0.96	97	F	~192	#327	0.96	95	F	~195	#332	0.98	102	F	~225	#366
NBT	0.52	49	D	86	126	0.53	48	D	97	137	0.55	48	D	102	144	0.55	47	D	108	151
NBR	0.30	45	D	0	24	0.31	43	D	0	32	0.31	43	D	0	32	0.30	42	D	0	32
SBT	0.92	77	E	226	#345	0.94	79	E	256	#399	0.94	79	E	~262	#405	0.94	78	E	~270	#413
SBR	0.18	38	D	0	16	0.19	37	D	0	22	0.19	36	D	0	22	0.19	36	D	0	22
	0.68	45	D			0.80	57	E			0.81	59	E			0.83	66	E		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

Table 6 (continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Chestnut Street at Oak Street																				
<i>Weekday AM:</i>																				
EBT	0.52	32	C	73	136	0.58	35	C	82	151	0.58	35	C	82	151	0.58	35	C	82	151
WBT	0.07	23	C	11	31	0.08	24	C	12	34	0.08	24	C	12	34	0.08	24	C	12	34
NBL	0.28	14	B	25	93	0.32	15	B	28	106	0.33	16	B	28	106	0.36	16	B	29	111
NBT	0.71	23	C	159	#508	0.78	27	C	186	#580	0.80	28	C	193	#596	1.00	61	E	290	#784
SBT	0.40	15	B	68	206	0.45	16	B	78	233	0.45	16	B	80	239	0.66	23	C	106	#367
SBR	0.10	11	B	0	27	0.11	11	B	0	28	0.11	11	B	0	28	0.11	11	B	0	28
	0.58	21	C			0.65	23	C			0.66	24	C			0.77	42	D		
<i>Weekday PM:</i>																				
EBT	0.66	41	D	89	#176	0.73	45	D	100	#202	0.73	45	D	100	#202	0.73	45	D	100	#202
WBT	0.05	25	C	7	23	0.06	26	C	8	25	0.06	26	C	8	25	0.06	26	C	8	25
NBL	0.32	14	B	20	88	0.40	17	B	24	#112	0.42	17	B	24	#120	0.63	31	C	28	#156
NBT	0.46	15	B	82	253	0.50	15	B	94	288	0.52	16	B	98	300	0.63	18	B	129	#436
SBT	0.60	23	C	73	m#366	0.66	24	C	80	m#413	0.68	24	C	83	m#435	0.86	33	C	112	m#619
SBR	0.11	28	C	0	m44	0.12	26	C	0	m54	0.12	25	C	0	m54	0.12	23	C	1	m42
	0.56	23	C			0.62	24	C			0.63	24	C			0.74	29	C		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

Table 6 (continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Chestnut Street at School Street																				
<i>Weekday AM:</i>																				
WBT	0.92	86	F	101	#224	1.02	113	F	~115	#251	1.02	113	F	~115	#251	1.02	113	F	~115	#251
WBR	0.14	32	C	0	29	0.15	32	C	0	30	0.15	32	C	0	30	0.15	32	C	0	30
NBL	0.01	11	B	1	10	0.01	11	B	1	13	0.01	11	B	1	13	0.01	11	B	1	13
NBT	0.78	28	C	225	#723	0.86	36	D	271	#822	0.88	38	D	281	#841	1.04	83	F	412	#1049
SBL	0.17	20	C	6	38	0.22	24	C	7	40	0.22	25	C	7	40	0.35	38	D	7	43
SBT	0.19	8	A	28	122	0.21	8	A	32	134	0.22	8	A	33	138	0.26	9	A	41	168
	0.69	33	C			0.76	41	D			0.77	42	D			0.89	69	E		
<i>Weekday PM:</i>																				
WBT	0.89	71	E	96	#216	1.00	98	F	109	#245	1.00	98	F	109	#245	1.00	98	F	109	#245
WBR	0.16	27	C	0	29	0.17	28	C	0	30	0.17	28	C	0	30	0.17	28	C	0	30
NBL	0.02	7	A	1	m3	0.02	7	A	1	m5	0.02	7	A	1	m4	0.04	7	A	1	m3
NBT	0.70	18	B	183	#561	0.77	22	C	212	#615	0.79	23	C	219	#632	0.90	34	C	270	#740
SBL	0.18	17	B	8	46	0.22	20	B	9	49	0.23	20	C	9	49	0.28	25	C	9	49
SBT	0.44	12	B	71	288	0.48	12	B	82	328	0.50	13	B	85	343	0.64	16	B	126	#548
	0.64	24	C			0.71	30	C			0.72	30	C			0.81	34	C		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

Table 6 (continued)
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing					2034 No-Build					2034 Build: Scenario A					2034 Build: Scenario B				
	V/C ^a	Delay ^b	LOS ^c	50Q ^d	95Q ^d	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q	V/C	Delay	LOS	50Q	95Q
Great Plain Ave at Chapel Street & Chestnut Street																				
<i>Weekday AM:</i>																				
EBT	0.68	27	C	228	312	0.90	52	D	309	#413	0.95	66	E	324	#422	1.32	243	F	~467	#460
WBT	0.69	13	B	152	#356	0.91	36	D	308	#441	0.95	49	D	313	#445	.38dl	229	F	~418	#482
NBL	0.38	28	C	53	96	0.38	24	C	56	105	0.38	23	C	56	106	0.35	17	B	51	120
NBT	0.77	47	D	232	#456	0.73	41	D	251	#519	0.73	39	D	257	#540	0.78	35	C	331	#783
SBL	0.15	33	C	15	23	0.15	29	C	16	24	0.15	28	C	16	24	0.14	22	C	12	24
SBT	0.61	42	D	135	234	0.57	38	D	145	#278	0.60	38	D	160	#324	0.53	29	C	163	#389
	0.72	27	C			0.85	42	D			0.86	51	D			1.04	160	F		
<i>Weekday PM:</i>																				
EBT	0.69	40	D	195	262	0.75	42	D	227	303	0.78	44	D	234	313	0.84	50	D	250	#356
WBT	0.90	43	D	250	m302	0.98	59	E	287	m#370	0.99	61	E	288	m#372	1.05	82	F	~314	m#391
NBL	0.55	29	C	61	95	0.70	40	D	68	#127	0.71	40	D	68	#128	0.74	42	D	75	#146
NBT	0.51	34	C	185	#284	0.60	38	D	209	#329	0.62	39	D	221	#351	0.80	48	D	~333	#495
SBL	0.10	28	C	17	31	0.13	30	C	19	33	0.13	30	C	19	33	0.16	31	C	19	33
SBT	1.00	71	E	~409	#580	1.19	124	F	~478	#652	1.23	139	F	~504	#679	1.55	264	F	~695	#879
	0.76	46	D			0.86	63	E			0.88	68	E			1.00	108	F		

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 50th/95th percentile queue length in feet per lane (assuming 25 feet per vehicle)

Unsignalized Intersections Analysis Results

The results of the level-of-service (LOS) and queue analyses are shown in Table 7 and are discussed below. Figures 7A and 7B display the intersection LOS in the morning and evening peak hours, respectively.

Highland Avenue at Hunnewell Street

In the AM peak hour, both the eastbound (EB) and westbound (WB) directions at the Highland Avenue and Hunnewell Street intersection experience severe congestion with a volume-to-capacity (V/C) ratio greater than 1.50 and delays exceeding 200 seconds, resulting in a Level of Service (LOS) F. The 95th percentile queue lengths are substantial, with the EB direction experiencing a queue of 20.4 units in 2024, and both directions expected to have queues exceeding 25 units in all 2034 scenarios.

Similarly, during the PM peak hour, both the EB and WB directions face extreme congestion with V/C ratios exceeding 1.50 and delays greater than 200 seconds, maintaining a LOS F across all scenarios. The 95th percentile queue lengths for the EB direction are 20.4 units in 2024, while the queues for both directions are expected to surpass 25 units in the 2034 No-Build and Build scenarios.

Great Plain Avenue at Garden Street

In the AM peak hour, the southbound (SB) direction at the Great Plain Avenue and Garden Street intersection operates at an acceptable level of service (LOS C) across all scenarios.

During the PM peak hour, the SB direction experiences more significant congestion. The LOS deteriorates from D in 2024 to E in all 2034 scenarios, with the V/C ratio increasing from 0.61 to 0.78 in Build Scenario B. Delays rise from 26 to 42 seconds, and the 95th percentile queue length grows from 4 to 6.6 units.

Hillside Avenue at West Street

During the AM peak hour, the northbound (NB) and southbound (SB) directions at the Hillside Avenue and West Street intersection operate at LOS F across all scenarios. For the NB direction, the V/C ratio increases from 0.79 in 2024 to 1.21 in the 2034 Build Scenario B, with delays rising significantly from 53 to 167 seconds and the 95th percentile queue length increasing from 6.2 to 14 units. Similarly, the SB direction sees its V/C ratio rise from 0.74 to 1.15, with delays increasing from 63 to 187 seconds and the 95th percentile queue length growing from 4.8 to 9.2 units.

In the PM peak hour, both the NB and SB directions experience severe congestion, with the V/C ratio exceeding 1.50 and delays surpassing 200 seconds in all scenarios, resulting in LOS F. The 95th percentile queue lengths are consistently greater than 25 units, indicating substantial queuing and delays.

Webster Street at May Street

In the AM peak hour, the eastbound (EB) direction at the Webster Street and May Street intersection experiences a degradation in LOS from E in 2024 to F in the 2034 No-Build and Build scenarios. The V/C ratio increases from 0.61 to 0.83, with delays rising from 43 to 80 seconds and the 95th percentile queue length growing from 3.6 to 5.9 units.

During the PM peak hour, the EB direction also deteriorates, with the LOS dropping from F to even worse conditions. The V/C ratio escalates from 0.97 in 2024 to 1.29 in 2034 scenarios, and delays increase from 100 to 218 seconds, with the 95th percentile queue length extending from 8.4 to 13.1 units.

All other unsignalized intersections in the study area maintain an acceptable level of service (LOS D or better) across all analysis scenarios.

Table 7
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing				2034 No-Build				2034 Build: Scenario A				2034 Build: Scenario B			
	V/C ^a	Delay ^b	LOS ^c	95Q ^d	V/C	Delay	LOS	95Q	V/C	Delay	LOS	95Q	V/C	Delay	LOS	95Q
Highland Avenue at Hunnewell Street																
<i>Weekday AM:</i>																
EB	>1.50	>200	F	20.4	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25
WB	1.07	188	F	6.9	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25
<i>Weekday PM:</i>																
EB	>1.50	>200	F	20.4	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25
WB	1.07	188	F	6.9	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25
Great Plain Avenue at Garden Street																
<i>Weekday AM:</i>																
SB	0.38	17	C	1.7	0.47	22	C	2.4	0.48	22	C	2.5	0.50	23	C	2.6
<i>Weekday PM:</i>																
SB	0.61	26	D	4	0.76	38	E	6.2	0.77	39	E	6.3	0.78	42	E	6.6
Garden Street at May Street																
<i>Weekday AM:</i>																
NB	0.25	12	B	1	0.29	13	B	1.2	0.29	13	B	1.2	0.29	13	B	1.2
SB	0.10	19	C	0.3	0.12	22	C	0.4	0.12	22	C	0.4	0.12	22	C	0.4
<i>Weekday PM:</i>																
NB	0.29	14	B	1.2	0.34	16	C	1.5	0.34	16	C	1.5	0.34	16	C	1.5
SB	0.11	21	C	0.4	0.14	26	D	0.5	0.14	26	D	0.5	0.14	26	D	0.5

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 95th percentile queue length in vehicles per lane (assuming 25 feet per vehicle)

Table 7 (continued)
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2024 Existing				2034 No-Build				2034 Build: Scenario A				2034 Build: Scenario B			
	V/C ^a	Delay ^b	LOS ^c	95Q ^d	V/C	Delay	LOS	95Q	V/C	Delay	LOS	95Q	V/C	Delay	LOS	95Q
Rosemary Street at Hillside Avenue																
Weekday AM:																
SB	0.38	20	C	1.7	0.47	24	C	2.4	0.50	26	D	2.7	0.53	28	D	3
Weekday PM:																
SB	0.54	17	C	3.3	0.63	20	C	4.5	0.65	21	C	4.8	0.67	22	C	5
Hillside Avenue at West Street																
Weekday AM:																
NB	0.79	53	F	6.2	1.07	123	F	10.6	1.13	143	F	12.1	1.21	167	F	14
SB	0.74	63	F	4.8	1.03	141	F	8.1	1.08	159	F	8.5	1.15	187	F	9.2
Weekday PM:																
NB	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25
SB	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25	>1.50	>200	F	>25
Hillside Avenue at Hunnewell Street																
Weekday AM:																
NB	0.45	19	C	2.3	0.54	23	C	3.1	0.57	25	C	3.4	0.58	26	D	3.5
SB	0.28	17	C	1.1	0.35	20	C	1.5	0.36	21	C	1.6	0.37	21	C	1.7
Weekday PM:																
NB	0.48	23	C	2.5	0.58	29	D	3.5	0.62	32	D	3.9	0.64	34	D	4.1
SB	0.29	19	C	1.2	0.36	23	C	1.6	0.38	24	C	1.7	0.39	25	D	1.8
Webster Street at May Street																
Weekday AM:																
EB	0.61	43	E	3.6	0.83	80	F	5.9	0.83	80	F	5.9	0.83	80	F	5.9
Weekday PM:																
EB	0.97	100	F	8.4	1.29	218	F	13.1	1.29	218	F	13.1	1.29	218	F	13.1

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d 95th percentile queue length in vehicles per lane (assuming 25 feet per vehicle)



Greenman-Pedersen, Inc.
MBTA COMMUNITIES ACT TIA
NEEDHAM, MASSACHUSETTS

FIGURE 7A
WEEKDAY AM LOS



FIGURE 7B
WEEKDAY PM LOS

Potential Mitigation Measures

The intersection capacity analysis indicates that several intersections in the study area experience a Level of Service (LOS) of F under the No-Build Scenario. Additionally, two more intersections—Highland Ave at West St and Great Plain Ave at Chapel St & Chestnut St—are projected to experience a LOS of F under Scenario B Build Condition. To mitigate the impact of site traffic at these intersections, several potential measures have been identified. These include signal timing optimizations, roadway restriping, adjustments to pedestrian timings, and signalization, as detailed below:

Highland Avenue at Webster Street

- Signal timing optimization
- Addition of a southbound left-turn (SBL) lane, potentially requiring the widening of the Highland Avenue southbound approach. Webster Street has two receiving lanes.

Highland Avenue at West Street (*required under Build Scenario B*)

- Signal timing optimization
- Roadway restriping: removal of parking spaces and restriping as a southbound right-turn (SBR) lane, which may necessitate roadway widening or intersection reconstruction. Alternatively, Avery Square can be utilized as a southbound right turn bypass.

Great Plain Avenue at Chapel Street & Chestnut Street (*required under Build Scenario B*)

- Signal timing optimization
- Removal of exclusive pedestrian phase in favor of concurrent pedestrian crossings. Pedestrians would cross along with through traffic outside of left turning phases.
 - Pedestrian safety will need to be evaluated for this change to be implemented.

Highland Avenue at Hunnewell Street

- Signalization
- Roadway restriping: removal of parking spaces and restriping as a northbound left-turn (NBL) lane, which may necessitate roadway widening or intersection reconstruction.

Additionally, the following intersections were improved through signal timing optimization or signalization, without requiring any changes to intersection geometry:

- Hillside Avenue at West Street (*signalization*)
- Webster Street at May Street (*signalization*)
- Highland Avenue at Chapel Street & May Street (*signal timing optimization*)
- Highland Avenue at Great Plain Avenue & Dedham Avenue (*signal timing optimization*)
- Chestnut Street at School Street (*signal timing optimization*)

Intersections Analysis Results, with Mitigation

An analysis incorporating potential mitigation measures was conducted, yielding preliminary results that may vary with a more in-depth examination. The overall intersection level-of-service (LOS) outcomes are detailed in Table 8 and discussed below. Figures 8A and 8B display the intersection with mitigation LOS in the morning and evening peak hours, respectively.

In the mitigation analysis, the Level of Service (LOS) across the network of intersections shows improvements when comparing the No-Build scenario (unmitigated) to the Build Scenarios A and B (mitigated). In the AM peak hour, many intersections that operate at an unacceptable LOS F in the unmitigated future scenarios experience significant improvements to LOS D or better in the mitigated scenarios. For example, intersections such as Highland Avenue at Hunnewell Street and Hillside Avenue at West Street, which perform poorly with LOS F in the No-Build unmitigated scenario, improve to LOS B or C under the Build mitigated scenarios.

Similarly, during the PM peak hour, the network sees improvements in LOS with the implementation of mitigation. Intersections such as Highland Ave at Webster Street and Great Plain Ave at Chapel / Chestnut Street, which face severe delays and poor LOS in the No-Build unmitigated scenario, improve to more acceptable LOS C or D in the Build mitigated scenarios. Overall, the Build Scenarios A and B with mitigation demonstrate a positive impact on the overall traffic performance, reducing delays and improving the LOS across the network of intersections during peak hours despite the increase in vehicle trips due to the respective development programs.

Conclusion

A capacity analysis was conducted to assess the impacts of the proposed rezoning in the Town of Needham, which aims to support the development of additional housing units in alignment with the MBTA Communities Act. The analysis considered current traffic conditions, projected traffic volumes, and the anticipated effects on the local transportation infrastructure.

The analysis was conducted under three main conditions: existing conditions, future no build condition, and two build scenarios—Scenario A and Scenario B. Both build scenarios reflect the proposed rezoning, with Scenario A representing moderate housing development and Scenario B representing a higher density of housing units.

The analysis demonstrates that, with the implementation of recommended mitigation measures, the traffic system will maintain an acceptable Level of Service (LOS) under both Scenario A and Scenario B. Despite the increased traffic volumes associated with the proposed rezoning, the intersections will continue to operate within acceptable urban LOS thresholds, ensuring efficient traffic flow and supporting the planned development.

Table 8
MITIGATED INTERSECTION CAPACITY ANALYSIS SUMMARY

Intersection/Peak Hour/Lane Group	2034 No-Build Mitigated			2034 Build: Scenario A Mitigated			2034 Build: Scenario B Mitigated		
	V/C ^a	Delay ^b	LOS ^c	V/C	Delay	LOS	V/C	Delay	LOS
Highland Ave at Webster Street									
Weekday AM:	0.92	44	D	0.95	48	D	1.09	76	E
Weekday PM:	0.81	46	D	0.84	53	D	0.97	78	E
Highland Ave at West Street									
Weekday AM:	0.73	31	C	0.75	33	C	0.88	49	D
Weekday PM:	0.70	27	C	0.72	28	C	0.84	38	D
Highland Ave at Chapel Street / May Street									
Weekday AM	1.00	60	E	1.02	62	E	1.11	87	F
Weekday PM:	0.92	45	D	0.94	47	D	1.09	76	E
Highland Ave at Great Plain / Dedham Ave									
Weekday AM:	0.89	63	E	0.90	65	E	0.91	64	E
Weekday PM:	0.80	57	E	0.80	60	E	0.82	74	E
Chestnut Street at School Street									
Weekday AM:	0.74	40	D	0.75	41	D	0.86	55	D
Weekday PM:	0.71	30	C	0.72	30	C	0.81	34	C
Great Plain Ave at Chapel / Chestnut Street									
Weekday AM:	0.80	27	C	0.81	30	C	0.95	42	D
Weekday PM:	0.80	28	C	0.82	29	C	0.95	35	C
Highland Ave at Hunnewell Street									
Weekday AM:	0.64	20	C	0.68	20	B	0.74	25	C
Weekday PM:	0.72	25	C	0.76	25	C	0.85	34	C
Hillside Ave at West Street									
Weekday AM:	0.60	11	B	0.61	11	B	0.63	12	B
Weekday PM:	1.09	59	E	1.10	61	E	1.11	64	E
Webster Street at May Street									
Weekday AM:	0.80	19	B	0.80	19	B	0.80	19	B
Weekday PM:	0.83	22	C	0.83	22	C	0.83	22	C

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

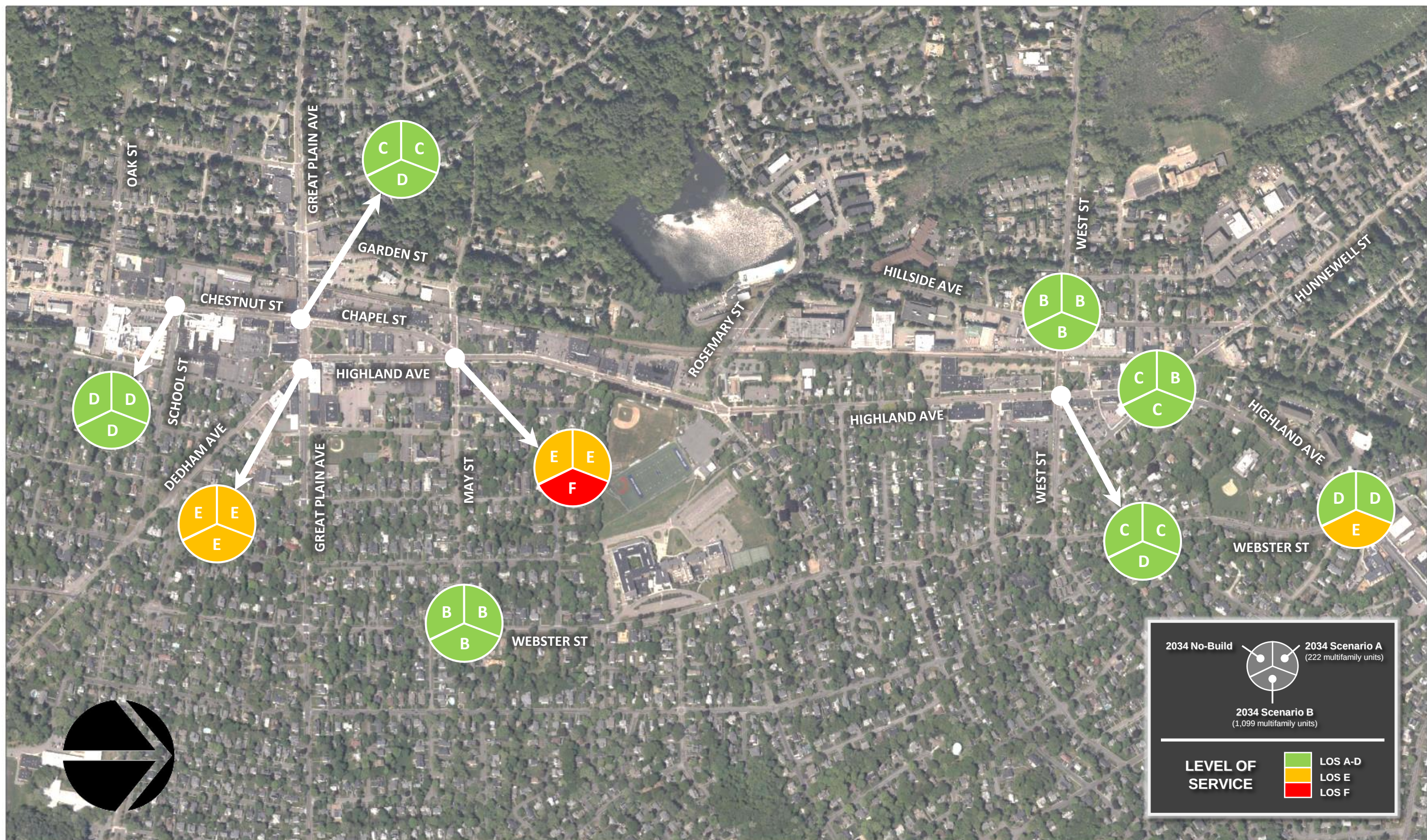


FIGURE 8A
WEEKDAY AM LOS - MITIGATED



FIGURE 8B
WEEKDAY PM LOS - MITIGATED

MBTA Communities Act Overview

The law (MGL C.40A Section 3A) established a requirement that each of the 177 designated MBTA Communities must have zoning that:

- Provides for at least 1 district of reasonable size in which multifamily housing is permitted as of right.
- Cannot have age-restrictions and shall be suitable for families with children.
- Must have a minimum gross density of 15 dwelling units per acre.
- A portion of the district must be located within 0.5 miles from a commuter rail station.
- Commuter rail communities, including Needham, have a deadline to comply of **December 31, 2024**.

Needham’s MBTA Communities Requirements:

Compliance Metric	Requirement
Gross Acres	50 acres
Unit Capacity	1,784 units
Dwelling Units per Acre	15 DU/AC
Percentage to be Located in Station Area	90%

Recommended Zoning Proposals

- 1. Base Compliance Plan:** A scenario that adheres very closely to the zoning boundaries and dimensional standards in Needham’s current Zoning Bylaw. This scenario is intended to meet the minimum compliance requirements of the MBTA Communities Act.
- 2. Neighborhood Housing Plan:** A scenario that increases dimensional standards and the number of units that can be built on a parcel of land as a way to encourage housing production and respond to the goals in Needham’s Housing Plan. This scenario is intended to meet and exceed the minimum compliance requirements of the MBTA Communities Act.

	Needham Requirement	Base Compliance Plan	Neighborhood Housing Plan
Acreage (net)	50	100.26	92.57
Unit Capacity	1,784	1,868	3,294
Density (units/acre)	15	18.6	35.6
Percent in Transit Area	90%	92.5%	91.8%

Article Overview

Four zoning amendments, which build on each other:

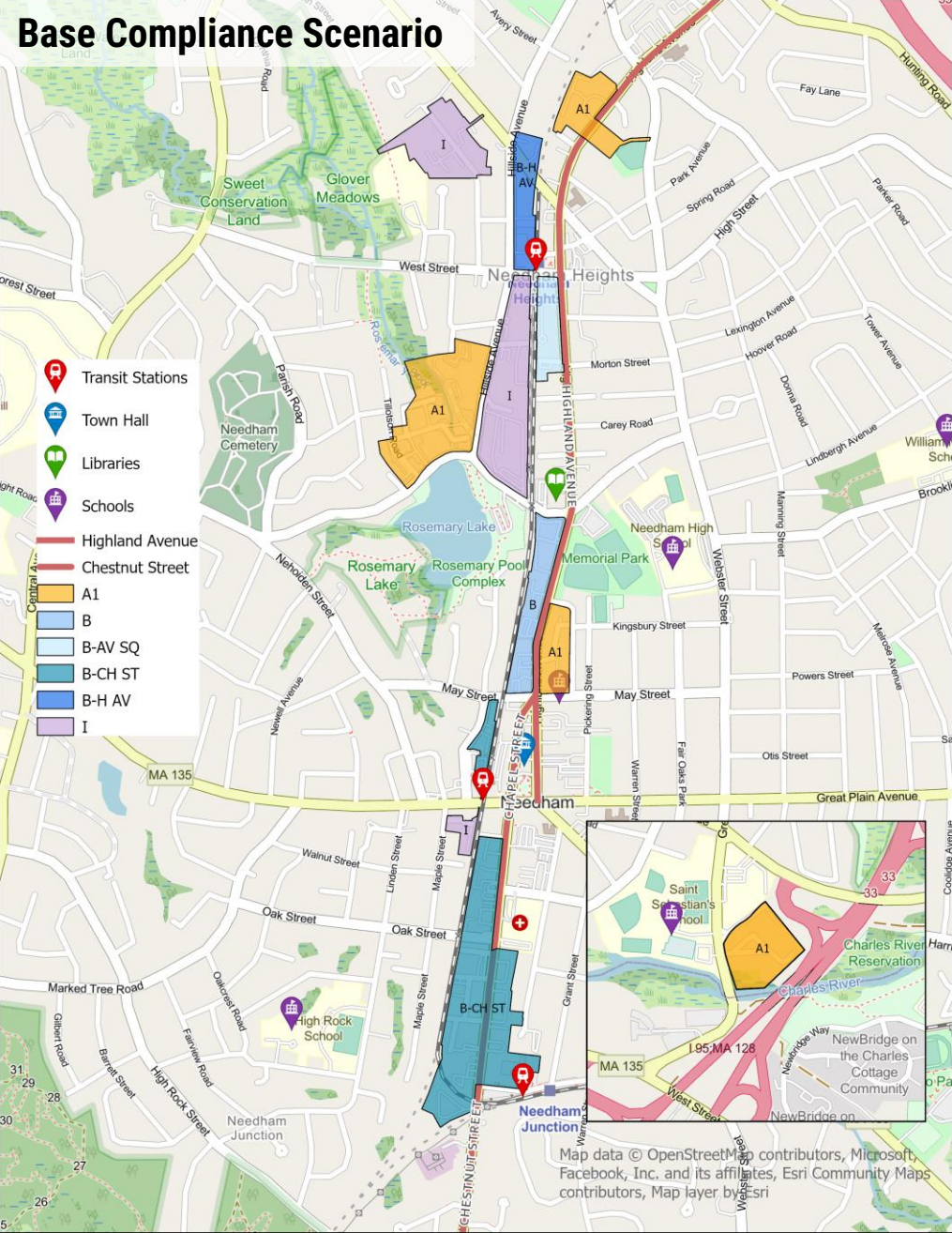
Article 1: Creates a multi-family overlay district following the recommended district boundaries and dimensional standards in the Base Compliance Plan.

Article 2: The map change for the Base Compliance Plan to accompany Article 1.

Article 3: Amends Article 1 and inserts the dimensional standards of the Neighborhood Housing Plan.

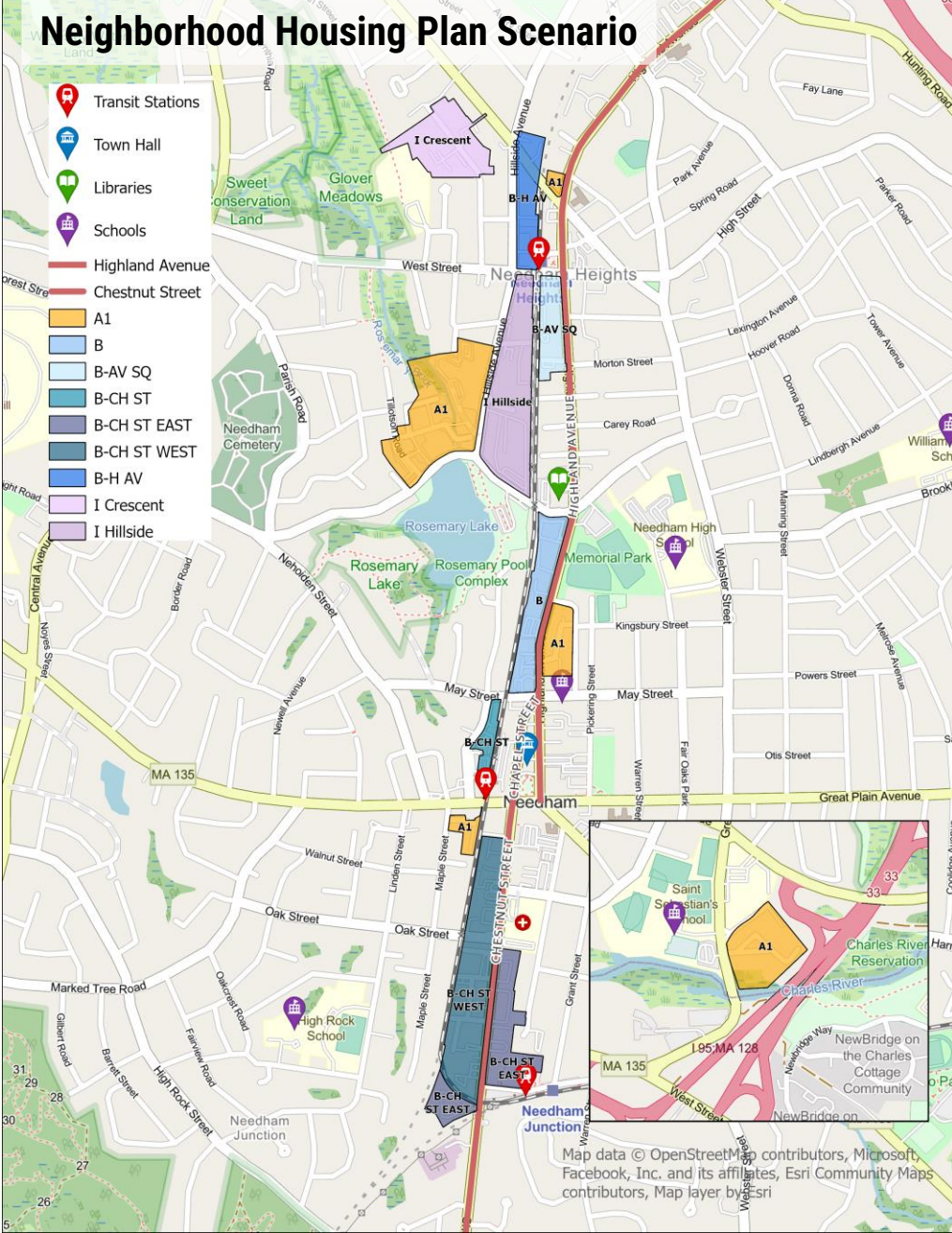
Article 4: The map change for the Neighborhood Housing Plan to accompany Article 3.

Base Compliance Scenario



Needham MBTA Communities Zoning

Neighborhood Housing Plan Scenario



Propensity for Change & Traffic Impact Results

Propensity for Change Modeling

The Propensity for Change Analysis uses a financial feasibility model for multifamily development that derives land value utilizing market return metrics, asking rents, and construction costs.

The analytical approach can be simplified into the following steps:

- Identify development scenarios requirements.
- Run a financial feasibility model.
- Derive land values required to meet developer's return requirements.
- Identify parcels that currently have land values below the established threshold.

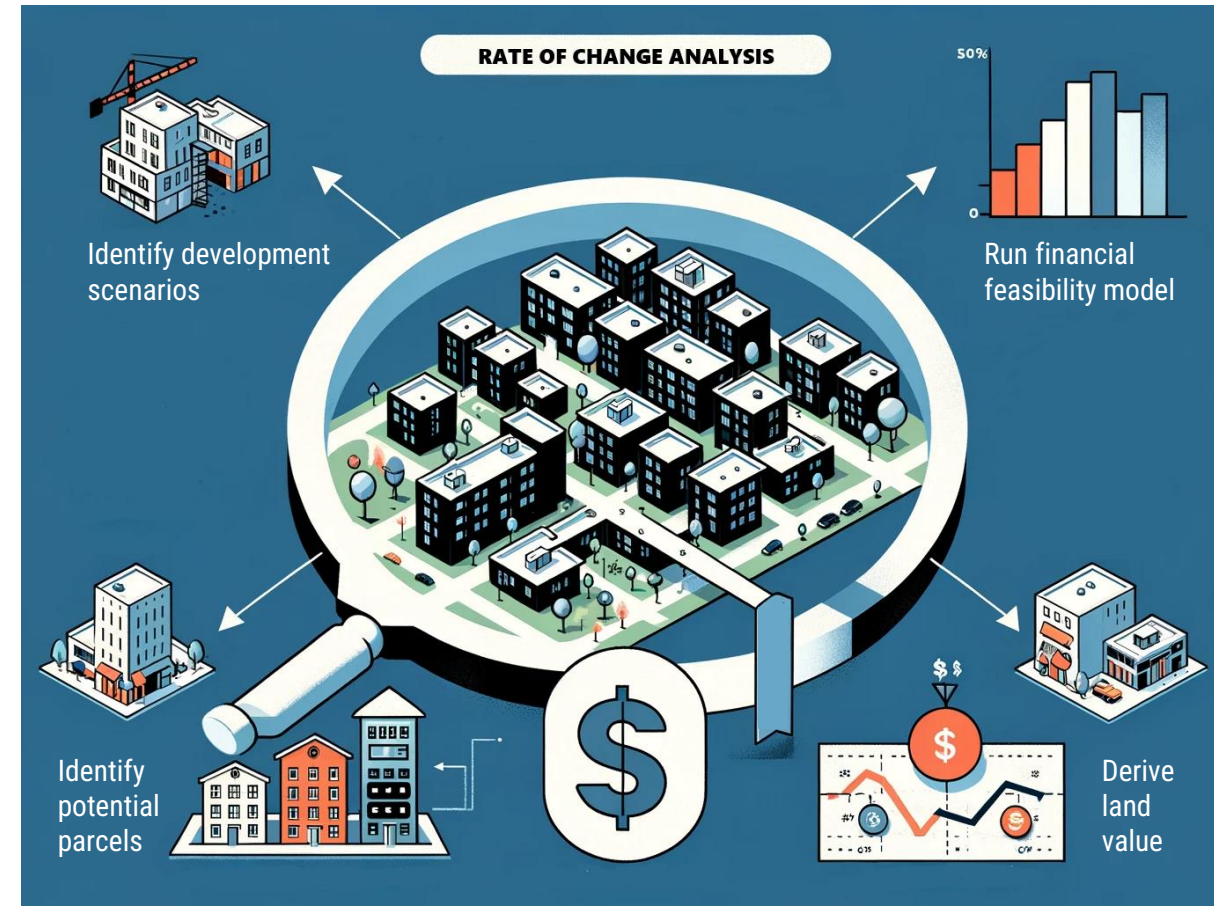
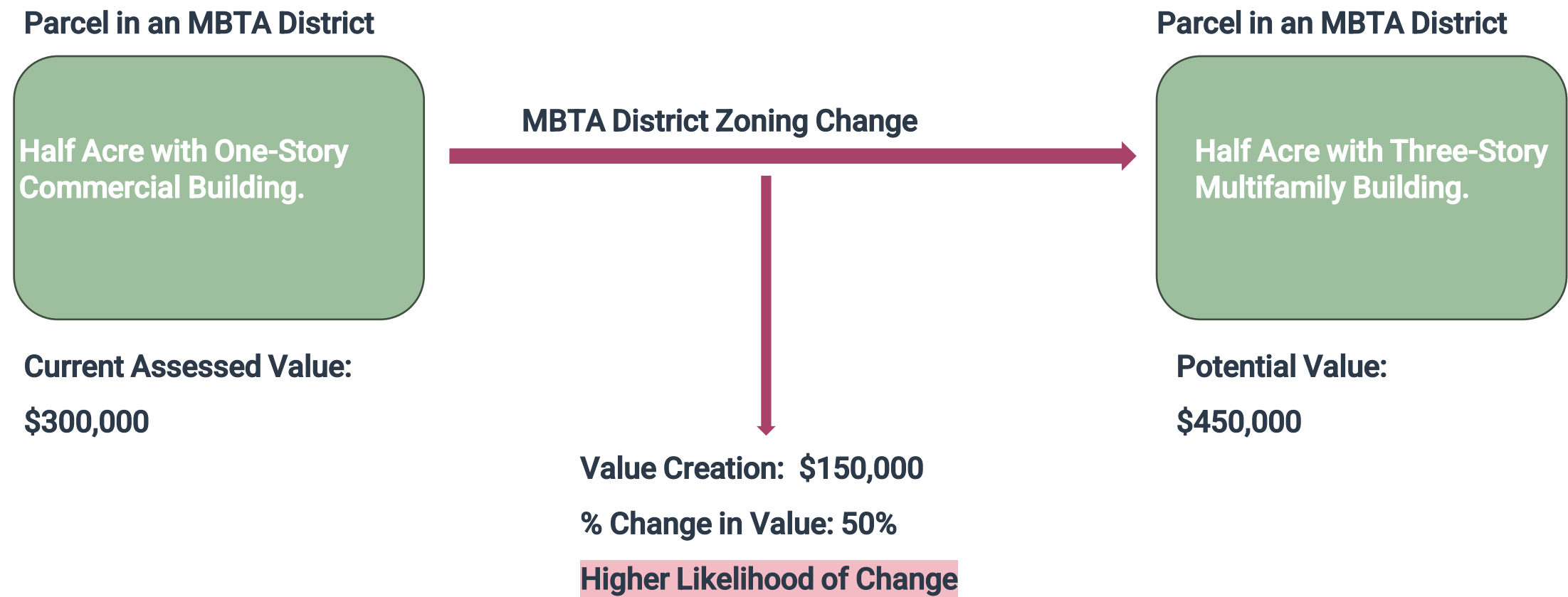


Image Source: RKG Associates, Inc.

Propensity for Change Modeling



Propensity for Change Results

District Name	Base Compliance Propensity Units from Likely Build Out	Base Compliance Full Build Out
Apartment 1	0	526
Business	43	210
Avery Square Business	0	187
Chestnut Street East	50	370
Chestnut Street West	-	-
Chestnut Street Business	-	-
Hillside Ave Business	8	80
Industrial	121	495
Industrial - Crescent	-	-
Industrial - Hillside	-	-
TOTALS	222	1,868

Neighborhood Housing Plan Propensity Units from Likely Build Out	Neighborhood Housing Plan Full Build Out
82	877
111	305
0	187
137	547
560	732
33	75
6	62
-	-
79	184
91	325
1,099	3,294



Rezoning in Needham

Traffic Impact Assessment
and Mitigation Strategies

GPI



AGENDA

01

Overview

02

Analysis

03

Results (Level of Service)

04

Proposed Improvements

05

Conclusions

OVERVIEW

A Traffic analysis was conducted to assess the impacts of proposed rezoning.

The rezoning, detailed in the **MBTA Communities Summary Report (April 2024)** by RKG Associates and Innes Associates, Ltd., aims to support additional housing development in line with the MBTA Communities Act.

Scenarios Analyzed:

- Scenario A: Base Compliance (222 units)
- Scenario B: Neighborhood Housing Plan (1,099 units)

Key Focus Areas:

- Current Traffic Conditions: Understanding the existing traffic landscape.
- Projected Traffic Volumes: Anticipating changes in traffic due to rezoning.
- Impact on Local Infrastructure: Assessing the potential effects on transportation networks.

ANALYSIS



Existing Conditions: Traffic data collected, compiled, and grown to 2024 base year.



Future Conditions: Applied annual traffic growth of 1% per year compounded.



Trip Generation: Utilized ITE Trip Generation Methodology.



Mode Shares: Walk, Bike, and Transit account for 19% of trips.



Trip Distribution: Estimated based on U.S. Census Data.

ANALYSIS

To present a worst-case scenario, the traffic operations analysis conducted was conservative and likely overestimates future traffic levels.



Future Conditions: Higher than expected growth rate.

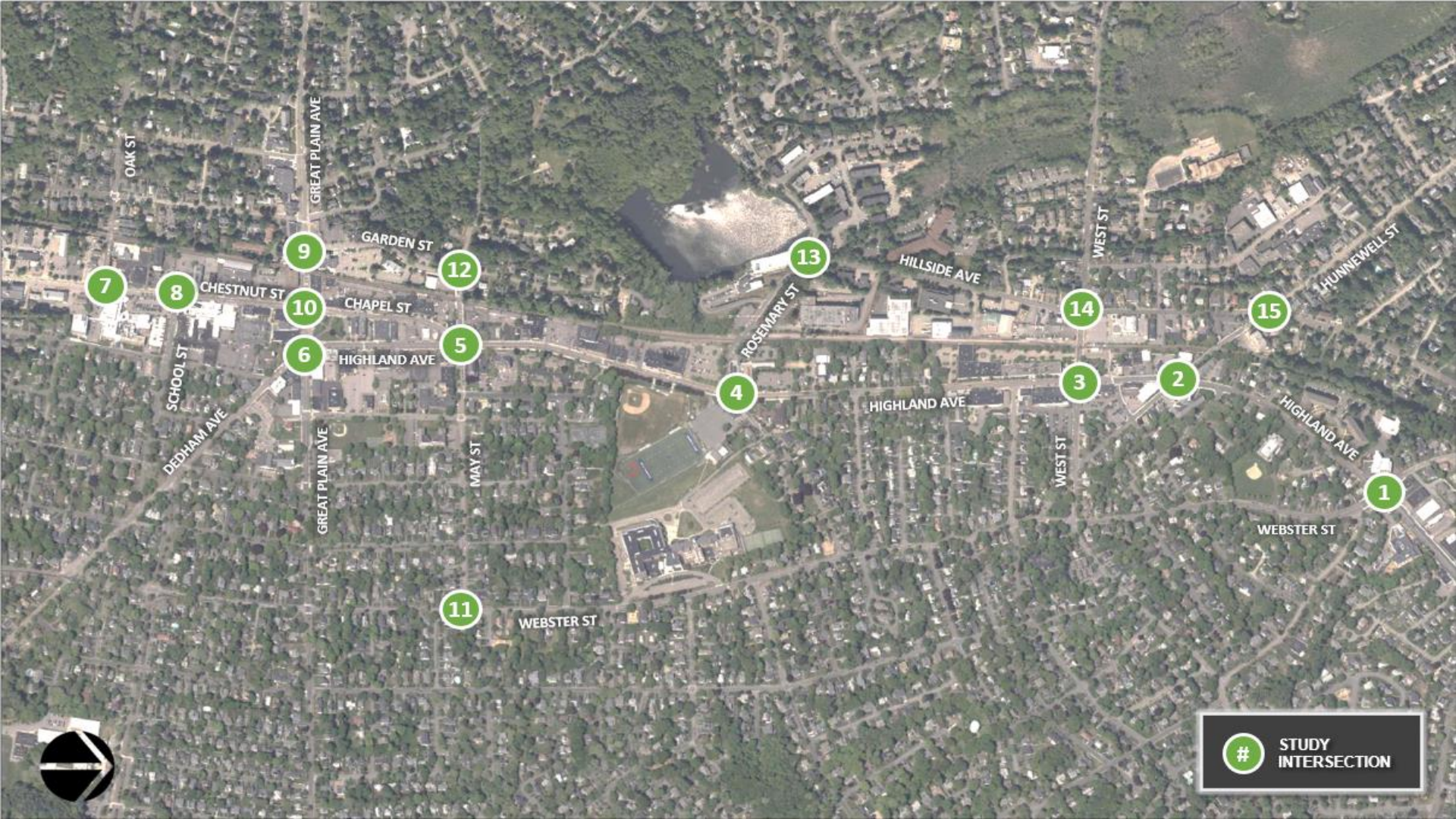


Trip Generation: Larger than expected trip generation rate for an urban setting.



Mode Shares: Higher-than-expected auto mode share for a transit-oriented development.

Due to this conservative approach, many study area intersections are anticipated to experience high delays in future conditions, independent of traffic generated by the proposed projects.



STUDY
INTERSECTION

Results (Level of Service)

A

Indicates excellent conditions with minimal delay. Traffic flows smoothly with very short stops.

B

Represents very good conditions with slightly more delay. Traffic remains stable, and stops are brief.

C

Conditions are still manageable, with minor delays. While the flow of traffic remains stable, the frequency of stops increases slightly.

D

In an urban setting, LOS D is often typical and indicates reasonable traffic conditions given the higher density. Traffic flow is still manageable, though there are some delays.

E

Reflects conditions where delays are more noticeable and traffic flow is less stable, but is common in busy urban areas.

F

Congested conditions, where delays are substantial and traffic flow is heavily disrupted. Often requires further analysis or improvements..

Existing and No-Build Results: Morning Peak Hour



Existing and No-Build Results: Evening Peak Hour



No-Build and Build Results: Morning Peak Hour



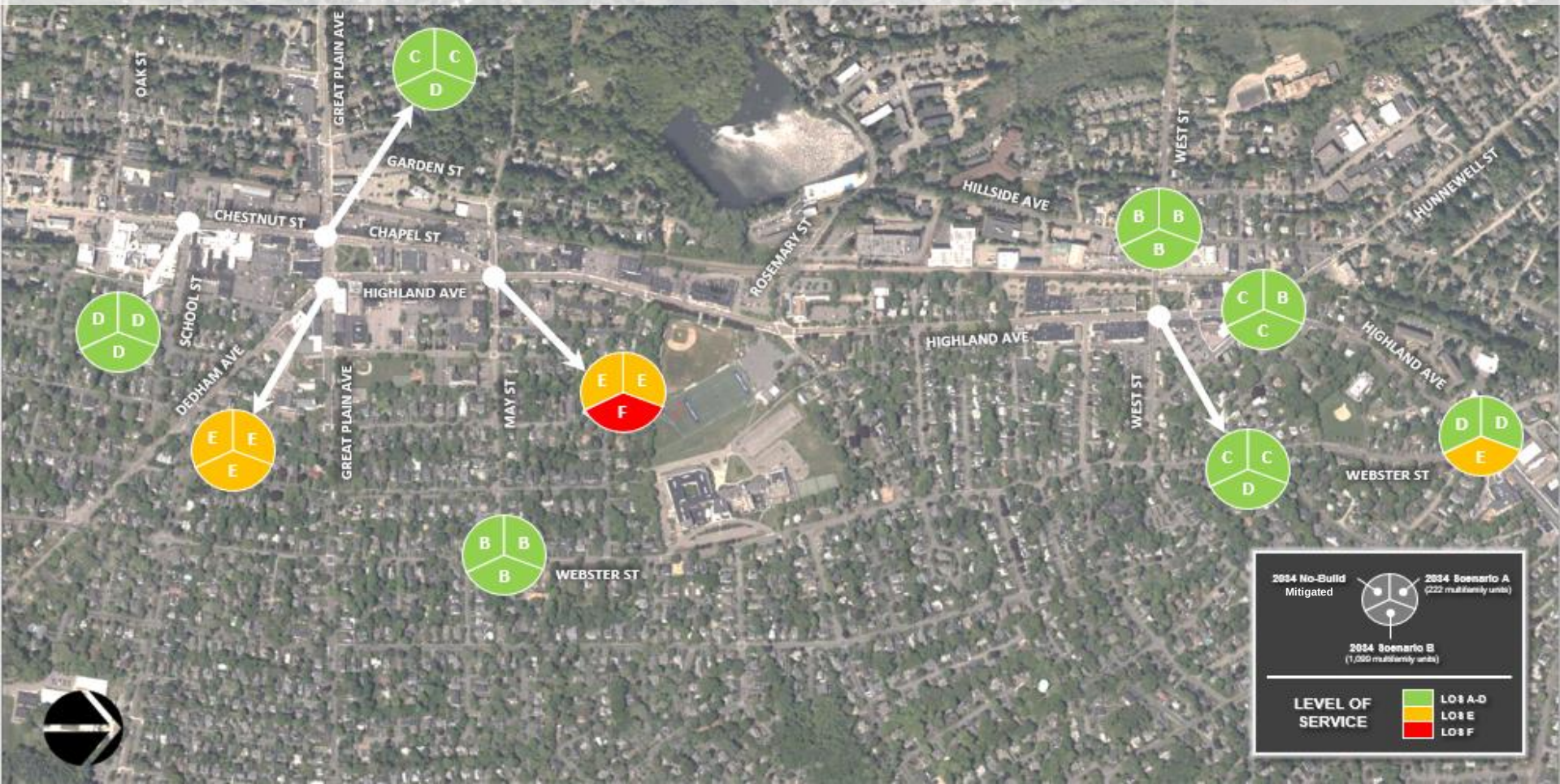
No-Build and Build Results: Evening Peak Hour



Proposed Mitigation

- Scenario A (Base Compliance) is expected to have little to no impact, while Scenario B (Neighborhood Housing Plan) is expected to cause localized impacts at key intersections. **Most impacts are a result of the background growth.**
- Potential mitigation measures identified include signal timing optimizations, roadway restriping, adjustments to pedestrian timings, and new signalization.
- The mitigation analysis shows improvements in the Level of Service (LOS) and decreased delays across the network of intersections when comparing the No-Build scenario to Build Scenarios A and B.
- Overall, the Build Scenarios A and B with mitigation demonstrate a positive impact on the overall traffic performance, reducing delays and improving the LOS across the network of intersections during peak hours despite the increase in vehicle trips due to the respective development programs.

Results, Mitigated: Morning Peak Hour



Results, Mitigated: Evening Peak Hour



Conclusion

- With recommended mitigation measures, the traffic system will maintain an acceptable Level of Service (LOS) under both Scenario A and Scenario B.
- Despite increased traffic volumes, intersections will operate within acceptable urban LOS thresholds.
- Mitigation ensures efficient traffic flow, supporting the planned development.

August 1, 2024

Needham Planning Board
Public Services Administration Building
500 Dedham Avenue
Needham, MA 02492
Attn: Chair Natasha Espada

Re: Highland Innovation Center / 557 Highland Avenue, Needham Heights
Request for Extension of Major Project Site Plan Review Special Permit Decision

Dear Needham Planning Board Members:

On behalf of 557 Highland, LLC, we are requesting a two-year extension of the Major Project Site Plan Review Special Permit decision¹ granted by the Needham Planning Board on December 22, 2022 for the 557 Highland Avenue project to redevelop the former Muzi dealership site (the "Decision"). Such an extension is contemplated by the Decision's Limitation 4.6 and allowed under Needham Zoning By-Law Sections 7.5.2 and 7.6.1.

Since receiving the Decision, we have been diligently seeking a tenant(s) for the Highland Innovation Center. We have received some interest from prospective tenants but have not yet executed a lease for an office or laboratory tenant for either one or both buildings. Persistently high interest rates and a pullback by venture capital investors has greatly softened the demand for laboratory space in the greater Boston and suburban leasing markets. The office leasing market also is slow, with companies reluctant to commit to new headquarter space such as the Highland Innovation Center might provide, while still working through the post-Pandemic realities of remote and hybrid working. These market factors combined with construction costs at historic highs continue to make it financially infeasible to undertake speculative construction of a project this large. We believe that these factors constitute "good cause" for construction having not yet begun.²

¹ The decision also grants dimensional and parking relief for the proposed Highland Innovation Center.

² We have already demolished all of the former Muzi buildings and the carwash, and performed environmental assessments and initial environmental remediation activities.



Rest assured that we remain committed to the Town of Needham and to the Highland Innovation Center concept. When realized, the project will bring hundreds of high paying jobs to the Highway Commercial 1 zoning district, along with retail/restaurant uses and other amenities available to the neighborhood, improvements to the nearby traffic infrastructure, and millions of dollars in annual tax revenue to the Town. The Decision's findings remain valid and achievable.

In light of these ongoing challenges, we respectfully request that the Planning Board grant a two-year extension for the deadline for commencement of construction, from December 22, 2024 until December 22, 2026.

Thank you for your consideration

Sincerely,
557 HIGHLAND, LLC

A blue ink handwritten signature, appearing to read "Robert A. Schlager", written over the printed name.

Robert A. Schlager, CPM
Member

cc: Timothy W. Sullivan, Esq., Goulston & Storrs, PC
Charles N. Le Ray, Esq., Dain, Torpy, Le Ray, Wiest & Garner, PC
Mark. R. DiOrio, Esq.

BUFFER PLANTING STRIP COVENANT AND RESTRICTION

River Run Road

This Declaration is made this day of ~~July~~August, 2024, by Brian Connaughton of 19 Walsingham Street, Newton MA 02462 (hereinafter, the “Declarant” or “Owner”).

WHEREAS the Declarant is the fee owner of a portion of the private way known and designated as River Run Road (the “Private Way”), shown as “Proposed 20’ Wide Private Roadway”, and certain land situated in Needham, Norfolk County, Massachusetts, shown as Lots 1 and 2, inclusive, on a plan set consisting of 9 sheets, prepared by Verne T. Porter, 354 Elliot Street, Newton, MA: Sheet 1, Title Sheet, dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 2, entitled "Existing Conditions Site Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 3, entitled "By Right Subdivision Plan of Land," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 4, entitled "Proposed Lotting Plan," dated September 9, 2022, revised October 5, 2022, January 19, 2023 and February 23, 2023; Sheet 5, entitled "Proposed Grading Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 6, entitled "Proposed Utilities Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 7, entitled "Plan, Profile & Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 8, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 9, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; a copy of which Sheet 5 shall be ~~recorded herewith~~attached hereto as Exhibit A, incorporated herein and made a part hereof, and all of which Sheets are hereinafter referred to as the “Plan”;

WHEREAS the Town of Needham Planning Board (the “Board”) approved the Plan subject to certain conditions and waivers as set forth in the Board’s decision dated April 25, 2023, entitled “Definitive Subdivision Decision, 920 South Street” (hereinafter the “Decision”), said Decision recorded herewith;

WHEREAS pursuant to Paragraph 2 of the Decision, the Planning Board required, in pertinent part, that the Owner cause the Plan to be revised to show the following additional or revised information subject to review and approval of the Board prior to endorsement of the Plan: “A landscaping plan for the 10 foot Raised/Buffer Planting Strip, located along a portion of the westerly boundary;”

WHEREAS pursuant to Paragraph 40 of the Decision, the Planning Board required, in pertinent part, that the Owner deliver to the Board, a “Buffer Planting Strip Covenant and Restriction,” subject to review and approval of the Board prior to endorsement of the Plan;

WHEREAS, ~~on {DATE, 2024,}~~ the Owner has submitted to the Board a revision to the Proposed Grading Plan (Sheet 5) dated August 21, 2024, showing, in pertinent part, proposed landscaping consisting of 265 trees of specified species and size for the 10 foot Raised / Buffer Planting Strip, 150 feet long, located along a portion of the westerly boundary of Lot 2;

WHEREAS, on ~~{DATE, 2024,}~~ August 27, 2024, the Board approved the revision to the Proposed Grading Plan showing, in pertinent part, proposed landscaping for the 10 foot Raised / Buffer Planting Strip located along a portion of the westerly boundary of Lot 2 (hereinafter the "Approved Buffer Plan");

WHEREAS, the declarations set forth herein by the Owner are intended to comply with the aforesaid requirement of the Planning Board, as stated in Paragraph 40 of the Decision;

NOW THEREFORE, the Declarant hereby declares that Lot 2, as shown on the Plan, shall be held, sold and conveyed subject to the following covenants, restrictions and conditions, for the benefit of the Town of Needham, its successors and assigns, said restrictions and conditions to run with the Lot 2 and to be binding on all parties having any right, title or interest in Lot 2 or any part thereof, their heirs, successors and assigns, in perpetuity.

1. The portion of Lot 2 shown on the Plan as 10 foot Raised Buffer / Planting Strip, and the adjacent "Swale" (created to convey stormwater runoff), situated along a portion of the Westerly boundary of said Lot 2 (jointly, the "Buffer Area"), shall be graded and landscaped in accordance with the Approved Buffer Plan;
2. Following completion of grading and installation of trees as set forth above and as shown on the Approved Buffer Plan, neither the owner(s) of Lot 2 nor the Trustees of the River Run Road Homeowner's Trust shall cause, permit or allow any changes to be made to such grading and trees in the Buffer Area except in connection with maintenance of the condition of the area in accordance with the Approved Buffer Plan.
3. The Owner and all future owners of Lot 2 shall be obligated to maintain the condition of the grading and trees in the Buffer Area, in accordance with the Approved Buffer Plan, by maintaining and restoring the condition and stability of the grading and trees, as reasonably necessary, including replacing any dead or diseased trees during the subsequent Spring or Fall planting season with specimens of the same size and species as set forth in the Approved Buffer Plan.
4. Neither the provisions of this Buffer Planting Strip Covenant And Restriction nor the absence of any fence on the Approved Buffer Plan shall prohibit or restrict the Owner, his heirs, successors and assigns from placing, installing and maintaining a fence within the Buffer Area, along the westerly boundary of Lot 2.
5. Any deed or other instrument purporting to transfer or convey any interest in Lot 2 which does not expressly refer to and incorporate these conditions shall nevertheless be deemed to contain the same and in all events shall be subject thereto.

6. This Buffer Planting Strip Covenant and Restriction shall be recorded in the Registry of Deeds and shall run with the land and shall be enforceable by the Town of Needham. This Buffer Planting Strip Covenant and Restriction shall be referenced on the Plan and shall be recorded therewith. This Restrictive Covenant shall be enforceable in perpetuity or for the longest period permitted by law and in any event for 100 years.

For Declarant's title see Deed filed with the Norfolk County Registry District of the Land Court as Document No. 1501178 and Certificate of Title No. 207299.

IN WITNESS WHEREOF, the said Brian Connaughton has hereunto set his hand and seal this _____ day of ~~July~~August, 2024.

Brian Connaughton

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS ~~July~~August, 2024

Then personally appeared before me the above named Brian Connaughton, personally known to me or proved to me through the production of sufficient evidence to be the person whose signature is affixed above, and acknowledged that he signed the foregoing document freely for its stated purpose.

Notary Public
My commission expires:

Approved as to Form:

Christopher Heep
Town Counsel

ACCEPTANCE BY THE TOWN OF NEEDHAM

The foregoing Buffer Planting Strip Covenant and Restriction hereby is accepted by the Town of Needham, subject to the terms and conditions set forth therein.

TOWN OF NEEDHAM
By Its Select Board

By: _____
Name: _____
Title: _____

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS _____ ~~July~~ _____, 2024

On this ____ day of ~~July~~ _____, 2024, before me, the undersigned notary public, personally appeared _____, Selectperson of the Town of Needham, proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public
My commission expires:

DECLARATION OF
RESTRICTIVE COVENANTS
River Run Road

This Declaration is made this day of August, 2024, by Brian Connaughton of 19 Walsingham St, Newton MA 02462 (hereinafter, the “Declarant”).

WHEREAS the Declarant is the fee owner of the private way known and designated as River Run Road (the “Private Way”), shown as “Proposed 20’ Wide Private Roadway”, and certain land situated in Needham, Norfolk County, Massachusetts, shown as Lots 1 and 2, inclusive, on plan set consisting of 9 sheets, prepared by Verne T. Porter, 354 Elliot Street, Newton, MA: Sheet 1, Title Sheet, dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 2, entitled "Existing Conditions Site Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 3, entitled "By Right Subdivision Plan of Land," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 4, entitled "Proposed Lotting Plan," dated September 9, 2022, revised October 5, 2022, January 19, 2023 and February 23, 2023; Sheet 5, entitled "Proposed Grading Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 6, entitled "Proposed Utilities Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 7, entitled "Plan, Profile & Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 8, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 9, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; which Sheet 4 shall be recorded herewith, and all of which Sheets are hereinafter referred to as the “Plan”;

WHEREAS the Town of Needham Planning Board approved the Plan subject to certain conditions and waivers as set forth in the Board’s decision dated April 25, 2023, entitled “Definitive Subdivision Decision, 920 South Street” (hereinafter the “Decision”), said Decision recorded herewith;

NOW THEREFORE, the Declarant hereby declares, pursuant to the Decision, that Lots 1 and 2, inclusive, as shown on the Plan, (hereinafter referred to individually as a Lot or collectively as the “Lots”), shall be held, sold and conveyed subject to the following restrictions and conditions, for the benefit of the Town of Needham, its successors and assigns, and for the benefit of the owners of said Lots, their heirs, successors and assigns, said restrictions and conditions to run with the Lots and to be binding on all parties having any right, title or interest in the Lots or any part thereof, their heirs, successors and assigns, in perpetuity.

1. Neither the Declarant, nor any successor owner or owners of Lots 1 through 2, inclusive, as shown on the Plan, shall use the Lots for any purpose other than single-family residential use, or lot owner home occupations as allowed under the Zoning By-Law, and there shall be no further division of the Lots as shown thereon without the prior written approval of the Planning Board.

2. Each and every owner or owners of any Lot shall be jointly and severally responsible and liable, and shall fulfill all lot owners' obligations under the River Run Road Homeowners Trust, recorded herewith, for the costs of the maintenance, repair and reconstruction of the Private Way shown on the Plan and designated thereon and all services, (whether the services are located within the Private Way or in areas shown partially on the Private Way and partially on a Lot), the installation of which are required in connection with this approval, or which may be installed at any time, including, without limitation, maintenance, repair and reconstruction of roadways, water, sewer and drainage facilities and other utilities and related equipment, curbs, monuments, walkways, landscaping and street signs, as and whenever necessary, and including all actions of any kind or nature necessary or appropriate in order to maintain the Private Way in a good, safe and passable condition, including snow plowing, providing access from each Lot to a public way, as shown on the Plan, and providing adequate services to each Lot, all in accordance with these conditions.

3. Each and every owner or owners of any Lot shall be jointly and severally responsible and liable, and shall fulfill all Lot owners' obligations under the River Run Road Homeowners Trust, for all maintenance, repairs and reconstruction required for or on the Private Way in compliance with and in conformity with requirements of the Town of Needham and other requirements imposed by law or governmental authority.

4. The Trustees under the River Run Road Homeowners Trust and each owner of a Lot shall not use or permit use of the Private Way for any purpose other than ingress and egress from the Lots by the residents of the Lots and their guests and invitees, such use to be limited to pedestrian and private-passenger vehicular traffic, and such other vehicular traffic as is necessary from time to time in cases of emergency, delivery of customary and usual household services and equipment or in connection with the maintenance, repair or reconstruction of the Private Way, the Lot, and any structures thereon and services installed thereon, or hereunder.

5. Neither the Lot owner(s) nor the Trustees of the River Run Road Homeowners Trust shall perform, nor shall they permit changes to be made to any Lot, which would impact the functionality or design of the drainage improvements as shown on the Plan.

6. Any and all maintenance, repair or reconstruction work performed on or to the Private Way or in connection with services installed thereon or thereunder by or at the direction of any owner or owners of any Lot or the Trustees of the River Run Road Homeowners Trust as provided herein, shall be carried out so as to ensure that no fill material nor any products or excavation or erosion resulting from or arising in connection with such work shall be discharged into any storm drainage system, and soil and other material or debris shall be removed from the site only if such removal will not impact the functionality or design of the drainage improvements shown on the Plan, and only to the extent necessary in connection with such work.

7. No Lot owner or owners nor the Trustees of the River Run Road Homeowners Trust shall at any time request that the Private Way be laid out or accepted as a public way in the Town of Needham unless such owner(s) or Trustees at its or their sole expense, perform and complete such work as is necessary to cause the Private Way to comply with all standards and regulations of the Town of Needham without waiver, and obtain all permits and approvals required by law in

connection therewith. If the Private Way is accepted by the Town of Needham as a public way, at any time, then the provisions hereof applicable to ownership and maintenance of the Private Way shall thereupon terminate.

8. No Lot owner(s) nor the Trustees of the River Run Road Homeowners Trust, shall at any time request or petition that any drainage system, water pipes, sewer pipes or related equipment or any other improvement within the subdivision for which design or improvement requirements have been waived by the Board as provided herein, be accepted or maintained by the Town of Needham.

9. The Town of Needham and its designees shall have the right to enter upon and use the Private Way for all purposes for which public ways are used in the Town of Needham.

11. Lots 1 and 2 inclusive as shown on the Plan shall be accessed solely from River Run Road with no vehicular access for said lots provided directly to South Street. Vehicular access to River Run Road shall be limited to said Lots 1 and 2 as shown on the Plan.

12. The island in the center of the River Run Road cul-de-sac shall be landscaped. The island landscaping shall be maintained by the record owners of Lots 1 and 2 through the River Run Road Homeowners Trust.

13. There shall be no alteration or change to a Lot so as to affect the drainage system for any Lot, or the drainage systems running across a Lot, as shown on the Plan, without the prior written approval of the Planning Board or Town Engineer as noted below. Any Lot owner who proposes to make a change from the approved Plan shall first file a copy of a plan depicting the proposed changes with the Needham Town Engineer, with a request for a determination as to whether the changes affect the drainage system. If the Town Engineer determines that the changes affect the drainage system, or if the Town Engineer fails to respond to the request for a determination within 45 days, the Lot owner may file the plan with the Planning Board for its review. In such event, the Lot owner shall file with the Planning Board such information as the Planning Board determines necessary for its review. The Planning Board shall hold a public hearing within 60 days of receiving a complete filing. After said public hearing, the Board may, in its sole discretion, find that the proposed changes do not appear to negatively impact down gradient property owners or interfere with the functioning of the drainage systems of the Lot or subdivision. In such event the Lot owner, only upon receipt of a written decision from the Planning Board, may implement the changes as shown on the new plan.

14. Each record owner, whether one or more persons or entities, of title to Lots 1 and 2, as shown on the Plan, shall maintain and keep operational their respective roof drainage system in accordance with the Plan, and as further described in the Drainage Summary, Proposed Two Lot Residential Subdivision, 920 South Street, Needham, MA, prepared by Verne T. Porter, 354 Elliot Street, Newton, MA, dated September 28, 2022.

15. In any sale or transfer by the owner(s) or any successor owner(s) of any of the Lots, the deed or other instrument shall refer to and incorporate the above conditions, and a) any conveyance shall include transfer of a fee interest or the perpetual right and easement to use the Private Way

in common with others lawfully entitled thereto for all purposes for which public ways in the Town of Needham may now or hereafter be used consistent with the provisions hereof, and b) the subsurface areas, equipment and facilities used and maintained in connection with the provision of water, sewer, drainage and other utility services provided to the conveyed premises.

Any deed or other instrument purporting to transfer or convey any interest in any Lot or Lots which does not expressly refer to and incorporate these conditions shall nevertheless be deemed to contain the same and in all events shall be subject thereto.

16. This Restrictive Covenant incorporating conditions 3 through 12 and conditions 14, 15, 16, and 18 of the Decision will be recorded in the Registry of Deeds and shall run with the land and shall be enforceable by the Town of Needham. This Restrictive Covenant shall be referenced on the Plan and shall be recorded therewith. This Restrictive Covenant shall be enforceable in perpetuity or for the longest period permitted by law and in any event for 100 years.

For Declarant's title see Deed filed with the Norfolk County Registry District of the Land Court as Document No. 1501178 and Certificate of Title No. 207299.

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IN WITNESS WHEREOF, the said Brian Connaughton has hereunto set his hand and seal this day of July, 2024.

Brian Connaughton

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS

August , 2024

Then personally appeared before me the above named Brian Connaughton, personally known to me or proved to me through the production of sufficient evidence to be the person whose signature is affixed above, and acknowledged that he signed the foregoing document freely for its stated purpose.

Notary Public
My commission expires:

Approved as to Form:

Christopher Heep
Town Counsel

ACCEPTANCE BY THE TOWN OF NEEDHAM

The foregoing Declaration of Restrictive Covenants hereby is accepted by the Town of Needham, subject to the terms and conditions set forth therein.

TOWN OF NEEDHAM
By Its Select Board

By: _____
Name:
Title:

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS _____, 2024

On this ____ day of _____, 2024, before me, the undersigned notary public, personally appeared _____, Selectperson of the Town of Needham, proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public
My commission expires:

SUBDIVISION COVENANT
UNDER PROVISIONS OF GENERAL LAWS CHAPTER 41, SECTION 81-U
River Run Road, Needham, MA

WHEREAS Brian Connaughton of 19 Walsingham St, Newton MA 02462 (the “Developer”), has filed with the Planning Board of the Town of Needham, hereinafter referred to as the “Town,” a certain subdivision plan of land in said Needham, as shown on plan set consisting of 9 sheets, prepared by Verne T. Porter, 354 Elliot Street, Newton, MA: Sheet 1, Title Sheet, dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 2, entitled "Existing Conditions Site Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 3, entitled "By Right Subdivision Plan of Land," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 4, entitled "Proposed Lotting Plan," dated September 9, 2022, revised October 5, 2022, January 19, 2023 and February 23, 2023; Sheet 5, entitled "Proposed Grading Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 6, entitled "Proposed Utilities Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 7, entitled "Plan, Profile & Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 8, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 9, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; which Sheet 4 shall be recorded herewith, and all of which Sheets are hereinafter referred to as the “Plan”; which Sheet 4 shall be recorded herewith, and all of which Sheets are hereinafter referred to as the “Plan”;

WHEREAS the said Brian Connaughton (hereinafter also referred to as the “Owner”) is also the current record owner of the land shown on the Plan;

WHEREAS the Owner intends to implement the Plan and build the improvements shown thereon, including, without limitation, the landscaping and grading within the cul-de-sac center island and 10’ Buffer Strip shown on the Plan;

NOW THEREFORE, the said Owner, hereby covenants and agrees with the said Town as follows:

- I. The said Owner is the current owner of record of the premises shown on said definitive plan.
- II. This Covenant shall run with the land and shall be binding upon the executor, administrators, heirs, and assigns of the Owner and the Owner’s successors in title to the Premises, as shown on said Plan.
- III. In addition to the regular requirements relative to the grading and construction of streets and the installation of municipal services, the said subdivision shall be subject to all of the 42 findings and conditions and any subsequent amendments to the Definitive Subdivision Decision, dated April 25, 2023, entitled “Definitive Subdivision Decision, 920 South Street”, filed with the Town Clerk on April 27, 2023, a copy of which is on file with the Town Clerk’s office, Needham Town Hall, and a copy of which is recorded herewith.

And whereas the said Owner has agreed to subdivide the land, to construct ways and to install municipal services therein in accordance with the Plan and in accordance with all approvals imposed by the Town and whereas the Owner has elected to give a Covenant to the said Town to insure the construction of ways and installation of municipal services as shown on said Plan as authorized by Subsection (2) of Section 81-U of General Laws, including all conditions as set forth in:

- (1) Board of Health Drainage Conditions
- (2) Conservation Commission - Order of Conditions as may be issued pursuant to Chapter 131, Section 40, Massachusetts General Laws,
- (3) Board of Selectmen - Sanitary Sewer Conditions

are herewith made part of this Covenant as set forth in the Planning Board's Definitive Subdivision Decision dated April 25, 2023. It is further agreed by the Owner that by signing the within Covenant the Owner agrees to such requirements and also waives all rights of appeal. And further the Board of Health drainage surety referred to in the Definitive Subdivision Decision shall be in a form of surety acceptable to the Planning Board and Board of Health. The Board of Health shall have the right to increase the amount above the Seven Thousand Dollars (\$7,000.00) total based upon the term of completion of the lots affected by such drainage surety and the number of lots that will be involved by the surety. This drainage surety will be determined upon request by the Owner for release of the lot for building and sale and upon execution of the Agreement required.

IV. Except as hereinafter provided, until the following improvements and conditions have been completed or fulfilled in accordance with the specifications and requirements referred to or enumerated below, with respect to any of the lots in the subdivision, which in the opinion of the Town are affected by such conditions and improvements, no such lot shall be built upon or conveyed, except by a mortgage deed, nor shall building permits for such lot or lots be applied for or issued:

A. Except as to those standards that were waived by the Planning Board in its "Definitive Subdivision Decision, 920 South Street", dated April 25, 2023, paragraphs 1V.A through 1V.J herein, or as may be further revised through any amendment of that Decision, all streets, including walks, berms, curbing, street name signs, bounds, retaining walls slopes and fences, and all utilities, including but not limited to storm drains, sanitary sewers, water mains and their appurtenances such as manholes, catch basins, curb inlets, gate valves, hydrants, and headwalls, shall be constructed or installed at the expense of the Owner to the entire limits of the subdivision in strict compliance with the "Subdivision Regulations and Procedural Rules of the Planning Board of the Town of Needham, Massachusetts, as most recently amended, including the "Standard Specifications for Highways" and the "Standard Cross-Section for Street Construction" referred to therein, as most recently revised, which Subdivision Regulations and Procedural Rules and Standard Specifications are specifically incorporated herein by reference, and to the satisfaction of the Director of Public Works of the Town of Needham, including all maintenance and repairs necessary to maintain said streets and

utilities in a condition satisfactory to the Town until all lots and all sureties, as provided in Section IV herein, have been released by the Town upon the completion of all terms and conditions of this Covenant, except as otherwise presented in said definitive Plan.

B. Street construction work shall conform with the details as noted on the approved plans and conditioned in the “Definitive Subdivision Decision, 920 South Street”, dated April 25, 2023. Where applicable, excavation and fill to the surface of the sub-grade fifteen (15) inches below the finished surface grade for the roadway and the necessary excavation and fill for sidewalks and berms within the total width of the street; application of ten (10) inch depth of gravel sub-base and a two (2) inch depth of crushed bank gravel base, the surface of which shall be treated with one (1) application of bitumen; application of bituminous concrete pavement Type I-1 to be constructed in two (2) courses top course of 1” bituminous concrete and bottom course of 2” bituminous concrete, application of eight (8) inch depth of gravel sidewalks with bituminous concrete surface applied in two (2) one-inch courses four and one-half (4 ½) feet wide as indicated in paragraph “A” above and including all driveway entrances; application of six (6) inch depth of loam and seeding for grass plots between the edge of the roadway and the walk or the sidelines of the street; granite or reinforced concrete curbing to be installed on all curves having a radius of sixty (60) feet or less, except for temporary turnarounds.

C. A contractor approved by the Superintendent of the Water Division shall be engaged by the Developer at their expense for the installation of any water mains in accordance with the requirements of and to the satisfaction of the Superintendent of said Water Division.

- (i) A certified check covering the estimated cost of all materials to be furnished by the Town, including all pipes, hydrants, gate valves, boxes and fittings as required, shall be deposited with the Town of Needham.

- (ii) Upon the completion of such installation a final estimate, including the cost of supervision, inspection, and labor furnished by the Town shall be given.

- (iii) This estimate shall also include the cost of all materials plus a 20% overhead charge on all materials furnished by the Town.

- (iv) The Developers shall pay the total cost less any amounts deposited before the water shall be turned into the new main.

D. Sanitary sewers shall be constructed by an approved contractor at the expense of the Developers as shown on approved plans and profiles, in accordance with the standard specifications of the Town of Needham, and to the satisfaction of the Director of Public Works.

- (i) The Town shall have the right to extend said sewer without cost to the Developers, beyond the limits of the sewer as shown on the development plans and profiles.

(ii) The Developer shall pay to the town a fee equal to \$1.50 per linear foot of sewer to be constructed, to pay for the cost of the engineering service, supervision and inspection furnished by the Town.

E. Storm water drains shall be installed in accordance with the approved plan and profile to the satisfaction of the Director of Public Works, and all lots shall be graded in accordance with the proposed contours of land as shown on said definitive plan.

F. Granite or concrete bounds, at least four feet long, shall be set at all points in every street or other permanent marks acceptable to and approved by the Town Engineer shall be set within the subdivision. After installation of such bounds, the Developer shall submit to the Town Engineer a written certification by a registered land surveyor stating that said bounds are located as shown on the subdivision plans recorded in the Norfolk Registry of Deeds or in the Land Court.

G. The Owner hereby grants to the Town of Needham a perpetual right and easement to enter upon streets for all appropriate purposes for which public ways are used in the Town of Needham. The Owner agrees for itself that as long as it remains the Developer of said premises, it will keep all catch basin inlets and access thereto clear and free of all debris and/or other materials which might interfere with the proper operation of said drains, and thereafter the owners of said premises will keep catch basin inlets and access thereto clear and free of all debris and/or other materials which might interfere with the proper operation of said drains.

H. Permanent street name signs will be furnished and erected at all entrances, the name to be in conformity as to size and quality with signs now generally in use in the Town of Needham.

(1) Co-incident with the start of any street within a subdivision, temporary street signs shall be installed at all points where permanent signs will be required. These signs may be painted using black block lettering not less than four inches high on a light background.

(2) Complete visibility of these signs must be maintained at all times until they are replaced with the permanent signs specified in Section H.

(3) Permanent street signs and the size and other details shall be furnished and installed at no expense to the Town as directed by the Town Director of Public Works.

I. Install bounds to define the street line at the direction of the Town Engineer and submit to said Town Engineer a certificate by a Registered Land Surveyor that said bounds have been so installed.

J. Prior to the commencement of construction on all major phases of the subdivision including installation of the sewer, water, drains, and street construction, the Owner will

notify the Director of Public Works and obtain necessary signatures on the Subdivision Inspection Form.

V. The construction of all ways and the installation of all municipal services shall be completed in accordance with the applicable Subdivision Rules and Regulations and Procedural Rules of the Planning Board, as well as the requirements contained in Sections III and IV above, (except to the extent that applicable standards were waived by the Planning Board as described above in paragraph IV(A) above) within a period of two (2) years from the date of the endorsement by the Board of the approved Definitive Plan. Failure to so complete shall automatically rescind approval of the subdivision plan, unless such approval is further extended by the Planning Board on the request of the Owner.

VI. The grading and installation of landscaping and trees in the Cul-de-Sac Center Island and the 10' Buffer Strip, shown on the Plan, shall be completed in accordance with the "Definitive Subdivision Decision, 920 South Street", dated April 25, 2023 and the Proposed Grading Plan revised August 21, 2024 and approved by the Board on August 27, 2024 (the "Approved Buffer Plan"), and an as-built plan for the landscaping and grading in the buffer strip, along with a report from a certified arborist, shall be filed with the Board following completion.

VII. Prior to the completion of all the work required herein, the Planning Board may, at its discretion, in accordance with the provisions of Subsection (1) of Section 81-U, Chapter 41, release any or all of said lots, for purposes of sale or for the issuance of permits for building therein, upon the furnishing to the Town by the Owner of an agreement and a surety acceptable to the Town, to secure the completion of such part or all of the work specified above, as, at the discretion of the Planning Board should be completed for the proper use of said lots in accordance with the purposes of this Covenant, said surety to be in a penal sum or amount equal to the cost, as estimated by said Director of Public Works, of completing said works. Said release by the Planning Board shall be evidenced by a certificate enumerating the lot or lots released and signed by a majority of said Planning Board, in proper form for recording in the Registry of Deeds or registration in the Registry District of the Land Court.

VIII. The enforcement of the terms herein shall be made as provided for by General Laws, Chapter 41, Section 81-X and 81-Y, in the name of the Town, and upon any breach thereof the Town shall be entitled to an injunction restraining any further sale of any of the lots included in said plans, until the said breach has been cured or security given therefore satisfactory to the then Planning Board of the said Town.

IX. Nothing herein shall be deemed to prohibit a conveyance subject to this Covenant by a single deed of the entire parcel of land shown on said subdivision plan or of all lots, subject to this Covenant, by any of the parties named herein to any other person.

X. The Owner accepts all conditions as set forth in the Definitive Subdivision Decision dated April 25, 2023.

XI. This Covenant shall take effect upon endorsement of said plans by a majority of the Planning Board.

For Owner's title see Deed filed with the Norfolk County Registry District of the Land Court as Document No. 1501178 and Certificate of Title No. 207299.

IN WITNESS WHEREOF, the said Brian Connaughton has hereunto set his hand and seal this day of August, 2024.

Brian Connaughton

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS

August , 2024

Then personally appeared before me the above-named Brian Connaughton, personally known to me or proved to me through the production of sufficient evidence to be the person whose signature is affixed above, and acknowledged that he signed the foregoing document freely for its stated purpose.

Notary Public
My commission expires:

Approved as to form:

Christopher Heep
Town Counsel

GRANT
OF
EASEMENTS

WHEREAS, Brian Connaughton of 19 Walsingham St, Newton MA 02462 (the "Owner"), is the owner of certain land situated in Needham, Norfolk County, Massachusetts, shown as Lots 1 and 2, inclusive, and River Run Road, shown as "Proposed 20' Wide Private Roadway" on plan set consisting of 9 sheets, prepared by Verne T. Porter, 354 Elliot Street, Newton, MA: Sheet 1, Title Sheet, dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 2, entitled "Existing Conditions Site Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 3, entitled "By Right Subdivision Plan of Land," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 4, entitled "Proposed Lotting Plan," dated September 9, 2022, revised October 5, 2022, January 19, 2023 and February 23, 2023; Sheet 5, entitled "Proposed Grading Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 6, entitled "Proposed Utilities Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 7, entitled "Plan, Profile & Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 8, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 9, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; which Sheet 4 shall be recorded herewith, and all of which Sheets are hereinafter referred to as the "Plan";

WHEREAS pursuant to Paragraph 40 of that certain "Definitive Subdivision Decision, 920 South Street", dated April 25, 2023, filed herewith (the "Decision"), the Planning Board for the Town of Needham, Massachusetts, required, in pertinent part, that the Owner deliver to the Board, a certain easement, granting to the Town the right to pass on foot or by vehicle over River Run Road and access rights over the "Proposed 20' Drain Easement" and "Proposed 20' Sewer & Drain Easement" on each of the Lots shown on the Plan;

WHEREAS, the within grant of easement by the Owner is intended to comply with the aforesaid requirement of the Planning Board, as stated in Paragraph 40 of the Decision;

NOW THEREFORE, the Owner hereby grants to the Town of Needham (hereinafter, the "Grantee"), (i) the non-exclusive right and perpetual easement and right of way over River Run Road, shown on the Plan as "Proposed 20' Wide Private Road" (hereinafter referred to as River Run Road), for the purpose passing on foot or by vehicle, consistent with the manner in which streets and ways are customarily used in the Town of Needham; subject to applicable laws, statutes, rules, regulations, by-laws, and ordinances, and (ii) the non-exclusive right and perpetual easement over, across and under that portion of Lots 1 and 2, inclusive, shown and designated as "Proposed 20' Drain Easement" (hereinafter referred to as Drain Easement) and "Proposed 20' Sewer & Drain Easement" (hereinafter referred to as Sewer and Drain Easement) on the Plan, for the

purpose of inspecting or making repairs in the event of an emergency. An emergency shall be defined as the creation of a condition that results or could result in flooding of adjacent properties or overloading of the municipal drainage system or the creation of a condition that is injurious to the public health or safety. Within thirty days of invoice by the Town all costs incurred by the Town of Needham in the event of such an emergency shall be paid by the River Run Road Homeowners Trust, and if not paid within said thirty days, then such costs shall be assessed against all the Lot owners and shall become a lien on all the Lots in the subdivision which may be collected and enforced in the manner fixed by law for the collection of taxes. All costs shall include, but shall not be limited to, the cost of materials and the salary costs for all employees involved with the emergency actions. Notice of lien shall be recorded in the Norfolk County Registry of Deeds. The said River Run Road, Drain Easement and Sewer and Drain Easement are collectively referred to hereinafter as the "Easement Area".

As a condition of the exercise of the rights granted hereunder, the Grantee shall not act inconsistent with the intent and purpose of this easement nor create any nuisance or commit any act or waste which will be materially harmful or which will substantially interfere with the adjoining land or premises of Owner, its successors and assigns.

Furthermore, Grantee shall provide Owner, its successors and assigns, reasonable notice of the exercise of the rights herein granted. Upon completion of any work which disturbs the surface of the Drainage Easement, Grantee shall promptly regrade, recover, repair, and in connection therewith repave, reloam or reseed the area as needed. Grantee shall not have any obligation to take any further action to revegetate beyond initial reseedling or reloaming.

As a further condition for the exercise of the rights granted hereunder, the Town of Needham and the Owner, its successors and assigns, agree to hold each other harmless and indemnified from all claims, losses or damage for property damage or personal injury or liability, or either, resulting in any way by reason of their own activities within the said Easement Area, or the activities of their respective agents, servants and employees, it being understood that the Town's liability shall not exceed the limit of One Hundred Thousand (\$100,000.00) Dollars per claim, or such other different amount for which the Town may be liable by the provisions of M.G.L.c.258, Sec. 2, at the time of such damage or injury.

The within grant of easement shall be binding upon Owner and all its respective successors and assigns and shall inure to the benefit of the Town of Needham, subject to all the terms and conditions hereof. The burdens and benefits hereof shall run with the aforesaid Lot 1 and Lot 2.

For Owner's title see see Deed filed with the Norfolk County Registry District of the Land Court as Document No. 1501178 and Certificate of Title No. 207299.

IN WITNESS WHEREOF, the said Brian Connaughton has hereunto set his hand and seal this day of August , 2024.

Brian Connaughton

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS

August , 2024

Then personally appeared before me the above named Brian Connaughton, personally known to me or proved to me through the production of sufficient evidence to be the person whose signature is affixed above, and acknowledged that he signed the foregoing document freely for its stated purpose.

Notary Public
My commission expires:

Approved as to Form:

Christopher Heep
Town Counsel

ACCEPTANCE BY THE TOWN OF NEEDHAM

The foregoing Grant of Easements hereby is accepted by the Town of Needham, subject to the terms and conditions set forth therein.

TOWN OF NEEDHAM
By Its Select Board

By: _____
Name:
Title:

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS

, 2024

On this ____ day of _____, 2024, before me, the undersigned notary public, personally appeared _____, Selectperson of the Town of Needham, proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public
My commission expires:

DECLARATION OF TRUST
RIVER RUN ROAD HOMEOWNERS TRUST

This Declaration of Trust is made this day of August, 2024, by Brian Connaughton of 19 Walsingham St, Newton MA 02462 (the "Current Owner"), being the owner of the premises formerly known and numbered 920 South Street, Needham, Massachusetts, which premises comprise the River Run Road Subdivision (the "Subdivision"), as more particularly described at Exhibit A attached hereto.

1. Name of Trust. The name of this Trust shall be the **River Run Road Homeowners Trust** (the "Trust"). This Trust is created as an organization of homeowners (the "Owners"), as defined in Section 4 hereof, for the purpose of taking title to and/or managing the private ways, utilities, easements and common open space areas as shown on the Plan referenced at Exhibit A (hereinafter collectively referred to as the "Plan").

2. Initial Trustees. The Initial Trustee of this Trust shall be Brian Connaughton, or his successor trustee, who shall serve until that date which is sixty (60) days following the sale and conveyance of the first of either Lot 1 or Lot 2 of the Subdivision, to a bona fide, unrelated third party, and specifically excluding any trust or other entity owned and controlled by the Current Owner.

Following such event, or in the event the Trustee or Successor Trustee is no longer willing or able to serve, then there shall be not less than one (1) and not more than two (2) Trustees, elected by a unanimity of the Owners, in accordance with the provisions of this Trust.

3. Purpose of Trust. The purpose of this Trust is to provide for the preservation, administration and maintenance of the private way, for the common enjoyment and benefit of the Owners of River Run Road, the proposed Drain Easement and Proposed Sewer and Drain Easement shown on the Plan, the Utilities (defined as all electrical, cable and other underground utilities within the Subdivision which will serve the lots therein) and the Drainage Facilities (defined as those facilities within the Subdivision and designated on the Plan which serve conveyance, detention and filtration purposes related to storm water run-off and sewer disposal, including without limitation, drainage swales, detention basins, and other systems as presented on the Plan) as are or maybe conveyed to the Trustee(s) of this Trust, and of any other property, real or personal, which may hereafter be conveyed to or acquired by the Trustee(s) of this Trust, or otherwise made subject to their administration for the benefit of the Owners (collectively, the "Trust Property").

The purpose of the Trust shall also include:

- (a) the exercise of the rights and powers of the Trustees set forth herein with the respect to all the land within the Subdivision as described at Exhibit A hereto ("the Property") and the building(s) and other improvements which now exist or may hereinafter be constructed thereon,

(b) the administration and enforcement of the documents set forth in paragraph 6(f) below, and

(c) all other purposes set forth herein.

All of the Owners shall have the right to use the Trust Property subject to the restrictions and obligations contained herein, and such reasonable rules and regulations as may be adopted and amended, from time to time, by the Trustees.

4. Beneficiaries. The beneficiaries of this Trust shall be the Owners. The word "Owner" shall mean and refer to the record holder or holders from time to time of the legal title of any lot and the building or other improvements, if any, constructed thereon, which constitutes all or a portion of the Property. The holder of legal title shall include the holder of the equity of redemption in the case of mortgaged land and one having a legal life or other estate in possession and excluding a lessee, tenant, mortgagee and one having a legal estate in remainder or otherwise subsequent to a legal estate in possession and also excluding the Trustees as owners of the Trust Property. Two or more persons or entities holding legal title to the same parcel or parcels shall be treated as a single Owner; exercise of their rights as such owners shall be by their unanimous action and their obligations to pay any assessment shall be joint and several. If the same Owner shall hold record title to more than one lot, such Owner shall be treated as a separate Owner for each lot. Each Owner of a Lot, acting through this Trust, shall perform all maintenance, repairs and reconstruction required for or in River Run Road in compliance with and in conformity with the requirements of the Town of Needham and other requirements imposed by law or governmental authority.

The Owners and the Town of Needham are the beneficiaries of the restrictions imposed by the documents identified in Section 6(f) hereof and, as such, individually and jointly shall have the right to enforce said restrictions, obligations, and rights by injunction or other appropriate judicial proceeding. The Trustees shall cooperate with representatives of the Town of Needham in enforcing the provisions hereof against any Owner or Owners violating this Agreement. Further, in the event the Trustees fail to own or maintain the Trust Property in reasonable order and condition, the Needham Planning Board may serve written notice of such failure upon the Trustees and shall include a demand for correction within sixty (60) days of the notice and shall state the date, time and place of a hearing thereof which shall be held within thirty (30) days of the notice. Provided further, however, that in the event that corrective actions requires construction activities by the Trust, the sixty (60) day time period shall be extended for such time period as is reasonable due to weather conditions and availability of labor and materials. If the deficiencies are not corrected or the Town's demand modified, the Town, acting through the Planning Board, may (but shall not be obligated to) enter upon the Trust Property in question and maintain or correct the same. All costs incurred by the Town shall be assessed against the Owners (to the extent of their respective shares) and shall

become a lien on the Lots (and the improvements thereon) which may be collected and enforced in the manner fixed by law for the collection of real estate taxes, including recordation of the notice of the lien in the Registry of Deeds.

Notwithstanding anything in this Trust to the contrary, each Owner shall have the right to maintain, repair, reconstruct or replace the utility lines and related equipment serving said Owner's Lot, including, but not limited, to access River Run Road and excavate within said River Run Road if necessary to conduct said maintenance, repair or replacement. Said Owner shall be responsible for restoring all disturbed areas to the condition that existed prior to such access.

5. Powers and Duties of Trustees. For the purpose of carrying out the terms of this Trust, the Trustees shall have the powers and duties necessary for the administration of the Trust Property, including, without limitation, the following powers, which may be exercised by them without any action or consent of the Owners, and which shall continue after the termination of the Trust for the purpose of disposing of the Trust Property and until final disposition thereof:

a. to take such actions as may be reasonably necessary or convenient for the maintenance, repair and reconstruction of the private way known as River Run Road, as shown on the Plan and designated thereon, and all services, the installation of which is required in connection with the documents described in paragraph 6 of this Agreement, or which may be installed at any time, including, without limitation, maintenance, repair and reconstruction of roadways, water, sewer and drainage facilities and other utilities and related equipment, curbs, monuments, sidewalks, landscaping and street signs, as and whenever necessary, and including all actions of any kind or nature necessary or appropriate in order to maintain River Run Road in a good, safe and passable condition, including snow plowing, providing access from each Lot to a public way, as shown on the Plan, and to provide adequate services to each Lot, whether the services are located within the private way known as River Run Road, or in the areas shown partially on private ways and partially on individual lots within areas designated on said Plan as "Proposed Drain Easement" and "Proposed Sewer and Drain Easement", all in accordance with the documents set forth in paragraph 6(f) below.

The Trust shall have no responsibility for sewage and drainage facilities, and other utilities and related equipment located on individual lots (other than those facilities and utilities which are located within the "Proposed Drain Easement" and "Proposed Sewer and Drain Easement", for which the Trust shall have the right and easement to enter such areas to carry out its responsibilities), which shall be the sole responsibility of the Owner of the lot where such facilities and equipment are located.

b. to acquire by purchase, hire or otherwise, property, both real and personal, which is convenient to the performance of their functions as Trustees;

- c. to adopt reasonable rules and regulations governing the use and enjoyment by the Owners of the Trust Property;
- d. to convey permanent easements and lesser interests in, upon and over any ways or other Trust Property, for the installation, maintenance, repair and replacement of utilities and other services and rights incidental thereto for the benefit of one or more Owners; or to convey a fee or lesser interest in any ways, utilities, or drainage system owned by the Trustees from time to time, for the benefit of one or more Owners; to convey to the Town of Needham or other public body the fee or any lesser interest in any way and utilities therein or in all or any portions of the drainage system serving the Property;
- e. to make such contracts as the Trustees deem convenient to the performance of their duties;
- f. to borrow money and to pledge or encumber Trust Property to secure repayment of such borrowings;
- g. to open, close and maintain bank accounts in the name of the Trust or the Trustees with power in any one of the Trustees to draw on such amounts;
- h. to procure insurance against damage to the Trust Property or against any liability of the Trustees or the Owners from any actions occurring on or about or on account of the Trust Property, or workers' compensation insurance or any insurance of any type, nature or description which the Trustees may deem appropriate with respect to the Trust or the Trust Property;
- i. to pay, resist, compromise or submit to arbitration any claim or matter in dispute with respect to the Trust or any Trust Property;
- j. to determine and collect common and special charges from the Owners as provided in this Declaration of Trust and to undertake all expenses and pay all costs on account of such common and special charges;
- k. to maintain, repair and replace any or all of the Trust Property, including but not limited to River Run Road itself;
- l. to exercise any other powers which may be necessary or desirable for carrying out the terms of this Trust or which the Trustees may have under any present or future statute or rule of law, and to execute and deliver all appropriate instruments in connection therewith;
- m. to undertake such maintenance and other obligations as may be required under applicable permits and approvals issued for the Trust Property pursuant to G.L.40A and c.41, Section 81(k) et. seq., including but not limited to the obligations set forth in paragraphs 4, 5, 6 and 7 of the Definitive Subdivision Decision described in paragraph 6 below;

n. to retain such counsel or accountants as the Trustees shall deem advisable and to pay the costs thereof as a common charge from funds of the Trust; to maintain the landscaping within the island in the center of River Run Road cul-de- sac as described in paragraph 15 of the Definitive Subdivision Decision described in paragraph 6 below; and

o. to take such steps as are necessary to enforce the Grant of Restriction of even date and recorded herewith.

6. Common and Special Charges. The Trustees shall from time to time, and at least annually, prepare a budget for the Trust to determine the amount of the common charges payable by the Owners to meet the common expenses of the Trust. The Trustees shall have the power to raise such amounts of money to meet any needs of the Trust by assessing on each occasion upon all of the land (which term shall include land and improvements) of each Owner such Owner's proportionate share of the total amount to be raised. The date of each such assessment shall be the date it is voted by the Trustees. Such share shall be determined by dividing the total amount to be raised by the total number of Owners. The Trustees determination regarding the amount of the assessment shall be conclusive. Common expenses may include, without limitation, the following:

a. all costs relating to the maintenance, repair and reconstruction of the private way known as River Run Road as shown on the Plan and designated thereon and all services the installation of which is required in connection with the documents described in paragraph 6(f) of this Agreement, or which may be installed at any time, including, without limitation, maintenance, repair and reconstruction of roadways, water, sewer and drainage facilities and other utilities and related equipment, curbs, monuments, sidewalks, landscaping and street signs, as and whenever necessary, and including all actions of any kind or nature necessary or appropriate in order to maintain Sunrise Terrace in a good, safe and passable condition, including snow plowing, providing access from each Lot to a public way, as shown on the Plan, and to provide adequate services to each Lot, all in accordance with the documents set forth in paragraph 6(f) below.

The Trust shall also have no responsibility for sewage and drainage facilities, and other utilities and related equipment located on individual lots, which shall be the sole responsibility of the Owner of the lot where such facilities and equipment are located (other than the portion of sewage, drainage and other utility and related facilities located within the Proposed Drain Easement and Proposed Sewer and Drain Easement shown on the Plan for which the Trustees shall be responsible). Each Owner shall also be responsible for maintaining and keeping operational, their respective roof drainage system, as more fully described in Paragraph 18 of the Definitive Subdivision Decision referred to in Section 6(f) hereof. The Trustees shall have the specific authority to assess special charges necessary to fulfill their responsibilities as set forth in this Agreement;

b. all insurance premiums for the master policy for the Trust Property, fidelity bonds for the Trustee and agents and employees, any insurance purchased to protect the Trustees and such other insurance as the Trustees may deem necessary and appropriate;

- c. all expenses relating to the financing, operation, improvement, maintenance and replacement of any Trust Property;
- d. all costs of attorneys, accountants and other usual, customary or necessary professional advisors to the Trustees;
- e. the amount that the Trustees shall deem necessary and appropriate for the working capital of the Trust, for an operating reserve for expenses, a reserve fund for the replacements, and any charges for deficits from previous operating years; and
- f. all expenses relating to the Trustees' enforcement and administration of the following;
 - i. Definitive Subdivision Decision, 920 South Street, dated April 25, 2023, filed with the Norfolk County Registry District of the Land Court herewith;
 - ii. Subdivision Covenant Under the Provisions of General laws, Chapter 41, Section 81-U, dated August , 2024, filed with the Norfolk County Registry District of the Land Court herewith;
 - iii. Grant of Easements dated August , 2024, filed with the Norfolk County Registry District of the Land Court herewith; and
 - iv. Declaration of Restrictive Covenants, dated August , 2024, filed with the Norfolk County Registry District of the Land Court herewith.

In addition, the Trustees shall have the power to assess individual Owners for special charges in connection with repairs, improvements or replacements caused or necessitated solely by the actions or omissions of such Owner.

The Trustees shall, upon reasonable request, render certificates suitable for recording indicating that no payments are due to the Trust with respect to any common or special charges, which certificates shall be conclusive as to the facts stated therein.

7. Payment of Common and Special Charges. All Owners shall pay the common charges assessed by the Trustees in one annual installment of the first day of each month and every month, or at such other time or times as the Trustees may reasonably determine. Special charges shall be paid within thirty days after notice from the Trustees, or as the Trustees in their sole discretion may otherwise require.

8. Lien for Common Charges. Each assessment so made upon an Owner shall constitute and remain a charge and lien upon such Owner's land and every portion thereof from the date of the assessment until paid in full, and shall also constitute a personal debt of the Owner who is the Owner of such land on the date of assessment by the Trustees. Such charge, lien or personal debt may be enforced or collected by the Trustees by any available process including, without limitation, collection proceedings in a court and

foreclosure of the charge or lien against the land under processes comparable to processes provided in G.L. c. 254 to the extent lawful. All costs and expenses incurred by the Trustees in enforcing or collecting any assessment, including, but not limited to, reasonable attorneys fees shall be paid by the Owner responsible for the assessment and shall constitute a further lien or charge on said land and a personal debt of said Owner.

Notwithstanding the above provisions, such charge and lien shall be junior to each bona-fide mortgage to an institutional mortgage lender outstanding upon such land on the date of the assessment, whether the mortgage be given before or after this Trust takes effect and its provisions become restrictions and servitudes upon such land, but foreclosure of the mortgage shall not impair the power of the Trustees thereafter to make further assessments upon such land nor otherwise impair such restrictions and servitudes thereon.

If any assessment is not paid when due, such assessment shall bear interest at the rate of eighteen percent (18%) per year from the due date. The Trustees may, in addition to the other rights herein reserved, accelerate the payment of the reasonable estimate of common charges for the twelve (12) month period following any default and such sum shall serve as security for the payment of future common and special charge obligations.

9. Liability of Trustees. All persons extending credit to or contracting with or having any claim against the Trustees hereunder shall look only to the Trust Property for any such contract of claim, so that neither the Trustees nor the Owners shall be personally liable therefor. No Trustee hereunder shall be liable to this Trust or to the Owners for the default of any other Trustee or for leaving property in the hands of another Trustee, or for any reasonable error in judgment of law on his or her own part, but shall be liable only for his or her own willful or reckless default. Any Trustee hereunder shall be reimbursed in full for any loss or expense incurred or suffered by him or her, or his or her estate, as a result of acting as Trustee hereunder, excluding only such loss or expense resulting from his own willful or reckless default.

10. Reliance by Third Parties. No person dealing with any Trustee shall be bound to inquire concerning the validity of any act purporting to be done by him or her or be bound to see to the application of any money paid or property transferred to him or her upon his or her order. Any Trustee may at any time or times by written power of attorney delegate all or any of his or her powers and authorities, except the power to make assessments as provided in paragraph above, whether discretionary or otherwise, to any other Trustee in each case for a period of not more than six (6) months at a time, but any such delegation may be renewed by successive powers of attorney and may be revoked.

11. Financial Records. The Trustees shall at all times keep proper records and accounts of the affairs of the Trust which shall be open to inspection by any Owner at all reasonable times. At least once a year the Trustees shall render a written report and financial statement to the Owners. The approval by a majority of the Owners of any report or financial statement by the Trustees shall be, as to all matters and transaction stated in said report or statement or shown thereby, a complete discharge of the Trustees and final and binding upon all Owners.

12. Trustees - Number and Terms of Office. There shall always be at least one Trustee hereunder, and never more than two (2) Trustees except as provided in paragraph 13 below. No Trustee need be an Owner. Trustees may be persons, firms, or other legal entities. Except for the Initial Trustee, Trustees shall serve until their successors are appointed and duly qualified.

13. Appointment of Trustee. At each annual meeting of the Owners commencing with the annual meeting to be held after the sale and conveyance of the last of Lots 1 and 2, to bona fide third parties, as provided in paragraph 2 above, each Owner of Lots 1 and 2 shall vote to appoint a Trustee.

14. Vacancies and Removals. Any Trustee may at any time resign as Trustee by a written instrument signed by him or her, acknowledged and delivered to the remaining Trustee or Trustees. Upon the death or resignation of any Trustee, a vacancy in the office of Trustee shall be deemed to exist, and, a successor Trustee shall be elected for the unexpired term, by the remaining Trustee or Trustees. Any successor Trustee shall qualify as a Trustee by written acceptance, signed and acknowledged by him. Pending any appointment of a successor Trustee, the remaining Trustee or Trustees shall have and may exercise all powers, authority and discretion conferred by this Trust. Upon election of a successor Trustee, the Trust Property shall vest in successor Trustee and the continuing Trustees, as applicable, without further action.

15. Fidelity Bonds and Surety. The Trustees may obtain fidelity bonds in amounts which they deem reasonably sufficient to cover Trustees and employees of the Trust handling or responsible for the funds. The cost of any such bond shall be a common charge as provided in Paragraph 6 above.

16. Owners Annual and Special Meetings. Any action or consent by the Owners shall be taken or given at the annual meeting or at any special meeting of the Owners. The annual meeting of the Owners shall be held on the first Saturday in November of each and every year, at the hour and place to be fixed by the Trustees. If no annual meeting has been held on the date fixed above, a special meeting in lieu thereof may be held. Special meetings of Owners may be called by the Trustees on their own motion and, after the annual meeting following the sale of the last of lots 1 and 2 to bona fide third parties, as provided in paragraph 2 above, shall be called by the Trustees upon written application to the Trustees of at least one Owner. A written notice of the place, date, and hour of all meetings of Owners, shall be given by the Trustees at least seven days before the meeting to each Owner. Notice need not be given to an Owner if a written waiver of notice, executed before or after the meeting by such owner or this attorney thereunto authorized, is filed with the records of the meeting. Notwithstanding the above, no annual meeting of the Owners shall be held so long as the Initial Trustee remains in office, except with the assent of said Initial Trustee.

17. Quorum. A unanimity of the Owners shall constitute a quorum, but if a quorum is not present, a lesser number may adjourn the meeting from time to time and the meeting maybe held as adjourned without further notice.

18. Voting. Each Owner shall be entitled to one vote for each lot within the Property owned; such vote may be cast in person, or by proxy. Any instrument dated not more than six months before the meeting purporting to grant authority to another to cast such vote, duly executed by the Owner and acknowledged before a notary public, shall be deemed a proxy. A proxy shall be revocable at any time by written notice to the Trustees. When a quorum is present, any matter before the meeting shall be decided by the unanimous vote of the Owners if two, and otherwise by a majority vote, except where a larger vote is required by this Trust. Provided further, however, that so long as the Initial Trustee continues to serve, no Owner shall have any voting authority.

19. Termination or Amendment by Consent. This Trust may be terminated or amended at any time by an instrument in writing signed by the Trustees and assented to by the unanimous action of the Owners. Provided further, however, that so long as the Initial Trustee continues to serve, this Trust may be terminated or amended at any time by an instrument in writing signed by the Initial Trustee. No assent to such action from Owners shall be required.

20. Disposition of Trust Property. Upon termination of the Trust, the Trust Property shall be conveyed as directed by a unanimity of the Owners either (i) to a Trust for the benefit of the Owners for the same or similar purposes as the trust herein created, or (ii) to the Owners as tenants in common, subject to all matters of record, specifically including, but not limited to the documents set forth in paragraph 6(f) above, which henceforth shall be enforceable by and against the Owners, joint and severally.

21. Notices. All notices to the Owners shall be in writing and shall be sent to the Owners or to such one of them as they may designate in writing from time to time, at the last address of such Owner as it appears in the records of the Trust. Changes in the Owners or their addresses shall be noted in the records of the Trust only upon written notice filed with the Trustees. Notice shall be deemed given as of the date of mailing

22. Termination by Law. This Trust, unless sooner terminated as herein provided, shall terminate on the last day permitted by law.

23. Incumbency of Trustees. A certificate signed by at least one Trustee and acknowledged before a Notary Public shall be conclusive evidence in favor of any person, firm, corporation, trust or association acting in good faith in reliance thereon as to the truth of any matter or facts stated therein relating to:

a. the death, resignation, removal or appointment of a Trustee or to the delegation by a Trustee to another Trustee of his or her powers, authorities and discretions;

b. compliance by the Trustees and Owners with any requirement of this Trust;

- c. the terms of this instrument and any amendment or termination of this Trust;
- d. the fact of the validity of any action taken by the Trustees or Owners and to the authority of the Trustees or Owners to take such action; or
- e. any other matter pertaining to the Trustees, Owners or the Trust Property.

Provided further, however, that so long as the Initial Trustee shall continue to act as such, the signature of the one Initial Trustee on a certificate and acknowledged before a Notary Public shall be deemed to satisfy the provisions of this paragraph and all other provisions requiring or authorizing Trustee action.

When recorded with the Norfolk County Registry of Deeds, such certificate shall be conclusive evidence to all persons regardless of whether they have notice thereof or act in reliance thereon.

24. Recording. The termination and all amendments of this Trust and resignations and appointments of Trustees shall be filed with said Norfolk County Registry District of the Land Court, and any person shall be entitled to rely on the records of said Registry District with respect to the termination of the Trust, any amendment thereto and the identity of the Trustees, the identity of the Owners and to any other matter pertaining to the Trust, the Trustees, the Owners of the Trust Property.

25. Disputes. Any Owner aggrieved by any failure or refusal to act by a quorum of the Trustees or by a deadlock among the Trustees, may, within thirty (30) days of such failure, refusal to act, or deadlock, appoint an arbitrator who shall be a member of the American Arbitration Association with not less than seven (7) years experience as an arbitrator. Within ten (10) days after written notice of such appointment, the Trustees shall appoint another such arbitrator, and the two so chosen shall within ten (10) days thereafter choose a third such arbitrator. A majority of such arbitrators shall be entitled to decide any such matter, and their decision shall be rendered within thirty (30) days of the appointment of the third arbitrator. Such decision, subject to Chapter 251 of the General Laws of Massachusetts, as from time to time amended, shall be final and conclusive on all persons. The cost of such arbitration shall be a common charge as provided in Paragraph 6 above. In the event that any party elects to be represented by counsel, all counsel fees shall be the sole responsibility of the party retaining such counsel.

26. Construction and Interpretation. In the construction hereof, whether or not so expressed, words used in the singular or in the plural, respectively, include both the plural and singular; words denoting males include females, and words denoting persons include individuals, firms, associations, companies (joint, stock or otherwise), trusts and corporations, unless a contrary intention is to be inferred from or required by the subject matter or context. The captions of Articles and Sections are inserted only for the

convenience of reference and are not to be taken to be any part hereof or to control or affect the meaning, construction, interpretation, or effect hereof.

All of the trusts, powers and provisions herein contained shall take effect and be construed according-to-the laws of the Commonwealth of Massachusetts.

27. Waiver. No restriction, condition, obligation or provision contained in the Declaration of Trust or any of the documents set forth in Paragraph 6(f) above, shall be deemed to have been abrogated or waived by reason of any failure to enforce the same, irrespective of the number of violations or breaches thereof which occur.

28. Conflict. In case any of the provisions of this Declaration of Trust or of any Rules and Regulations adopted by the Trustees shall be in conflict with any of the provision of the documents set forth in Paragraph 6(f) above, or the provisions of any statute, then the provisions of said documents or statute, as the case may be, shall control.

- BLANCE OF PAGE INTENTIONALLY LEFT BLANK -

IN WITNESS WHEREOF, the said Brian Connaughton has hereunto set his hand and seal this day of August, 2024.

Brian Connaughton

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS

August , 2024

Then personally appeared before me the above named Brian Connaughton, personally known to me or proved to me through the production of sufficient evidence to be the person whose signature is affixed above, and acknowledged that he signed the foregoing document freely for its stated purpose.

Notary Public
My commission expires:

Approved as to form:

David S. Tobin
Town Counsel

EXHIBIT A

The land formerly known as 920 South Street, Needham, Massachusetts comprising the River Run Road Subdivision, as more particularly shown on plan set consisting of 9 sheets, prepared by Verne T. Porter, 354 Elliot Street, Newton, MA: Sheet 1, Title Sheet, dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 2, entitled "Existing Conditions Site Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 3, entitled "By Right Subdivision Plan of Land," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 4, entitled "Proposed Lotting Plan," dated September 9, 2022, revised October 5, 2022, January 19, 2023 and February 23, 2023; Sheet 5, entitled "Proposed Grading Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 6, entitled "Proposed Utilities Plan," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 7, entitled "Plan, Profile & Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 8, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; Sheet 9, entitled "Detail Sheet," dated September 9, 2022, revised January 19, 2023 and February 23, 2023; which Sheet 4 shall be recorded herewith, and all of which Sheets are hereinafter referred to as the "Plan"

ACKNOWLEDGMENT, ASSENT and SUBORDINATION
OF MORTGAGEE

JP Morgan Chase, holder of a mortgage interest in the above described premises pursuant to a certain Mortgage, given by Brian Connaughton to First Republic Bank, dated April 8, 2022, filed with the Norfolk County Registry District of the Land Court as Document No. 1501179, hereby acknowledges, assents to, and agrees to be bound by the foregoing (i) Definitive Subdivision Decision, 920 South Street, Brian Connaughton, (ii) Subdivision Covenant Under Provisions of General Laws Chapter 31, Section 81-U, (iii) Declaration of Restrictive Covenants, (iv) Buffer Planting Strip Covenant and Restriction, (v) Grant of Easements, Declaration of Trust, and (vi) River Run Road Homeowners Trust, and agrees that same shall have the same status, force and effect as though executed and recorded before taking of the mortgage interests and further agrees that the mortgage interests shall be subordinate to same.

IN WITNESS WHEREOF the said JP Morgan Chase has caused its corporate seal to be hereto affixed and these presents to be signed, acknowledged and delivered in its name and behalf by _____, its _____ (title of corporate officer), duly authorized, this _____ day of _____, 2024.

JP Morgan Chase

by:

COMMONWEALTH OF MASSACHUSETTS

_____, SS

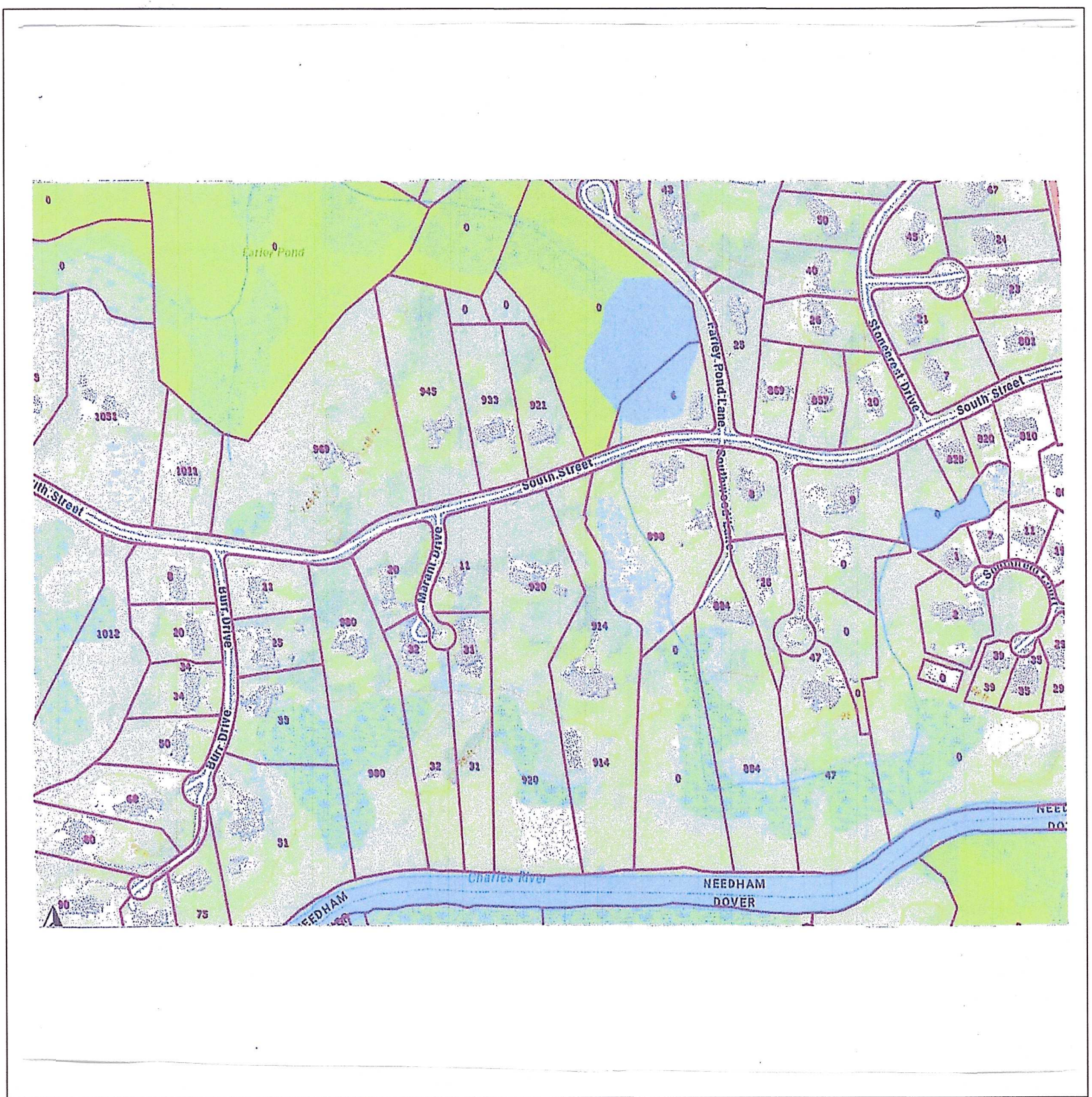
_____, 2024

Then personally appeared the above named _____,
_____ of JP Morgan Chase as aforesaid, personally known to me
or proved to me through the production of sufficient evidence, namely
to be the person whose signature is affixed above, and acknowledged that s/he signed the
foregoing document voluntarily for its stated purpose as
of Dedham Institution for Savings, before me,

Notary Public
My commission expires:

Definitive Subdivision Plan
~920 South Street~
Needham, Massachusetts

FOR REGISTRY USE ONLY



Locus Map

Scale 1"=400'

1. THIS PLAN WAS MADE FROM AN ACTUAL ON THE GROUND SURVEY BY THIS OFFICE
2. THE SUBJECT PROPERTY IS LOCATED IN THE RURAL RESIDENTIAL ZONE
3. ASSESSORS MAP 205 PARCEL 7
4. UTILITIES SHOWN WERE COMPILED FROM BEST AVAILABLE INFORMATION AND ACTUAL FIELD LOCATIONS. THEY MAY OR MAY NOT BE COMPLETE OR CORRECT. CONTRACTOR TO FIELD VERIFY ALL LOCATIONS AND DEPTHS PRIOR TO ANY EXCAVATION.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT, VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
6. WETLANDS DELINEATIONS PERFORMED BY ECOTEC INC.
7. LOCUS IS LOCATED IN THE FOLLOWING FLOOD ZONE PER FEMA FLOOD INSURANCE RATE MAP NUMBER 25021C0038E DATED 7-17-2012

Zone Rural Residence Conservation
43,560s.f. Minimum
150' Lot Frontage
50' Front Setback
25' Side Setback
25' Rear Setback
FAR Not Applicable
Max. Lot Coverage 15%
Max. Stories 2 1/2
Max. Height 35'

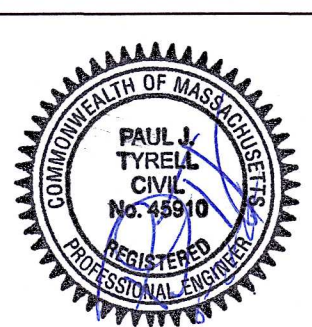
Owner/Applicant:
Brian Connaughton
920 South Street
Needham, Ma. 02492
Cert. #207299

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS

Brian Connaughton 8-21-2024

REVISIONS	
DATE	DESCRIPTION
1-19-23	ADDED HOUSE FOOTPRINTS & GRADING
2-23-23	GRADING, EASEMENTS, BUFFER STRIP, ETC.
4-23-24	SEWER & DRAIN EASEMENT GRADING
8-21-24	GRADING SHEET/LANDSCAPE PLANTINGS



~Title Sheet~

920 South Street

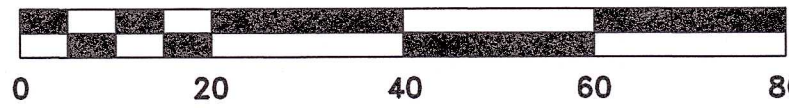
Needham, Massachusetts

Scale: As Noted September 9, 2022

VERNE T. PORTER Jr., PLS

Land Surveyors - Civil Engineers

354 Elliot Street Newton, Massachusetts 02464



Cover Sheet

#22019

Design By:

Checked By:

Drawn By:

Legend

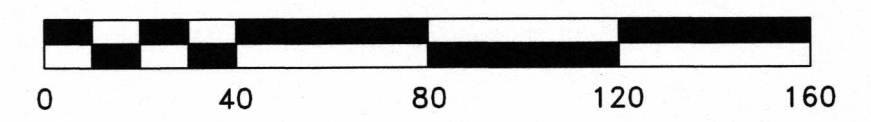
 = Erosion Control
 = Trench Drain
 = Catch Basin
 = Drain ManHole
 = Sewer ManHole
 = Hydrant
 = Gas Gate
 = Water Gate
 = Gas Gate
 = Water Gate
 = Utility Pole
 = Light Pole
 = Test Pit
 = Wetland Flag
 = Wetland Flag
 = Vegetated Wetland
 = Tree To Remain
 = Tree To Be Removed

$R=100.00$ = Rim Elevation
 $I=90.00$ = Invert Elevation
 $T.C.=103.00$ = Top of Concrete Elevation
~~24x24~~ = Proposed Spot Elevation
~~24~~ = Proposed Contour Line
~~64~~ = Existing Contour Line
 6.3×3 = Existing Spot Elevation
 $\times$ = Existing Fence
 = Stone

S8519°54'E
102.43' = Property Line W/Bearing & Distance

- | | |
|---|------------|
| DIRECTOR OF PUBLIC WORKS | |
| DATE APPROVED | |
| | |
| TOWN ENGINEER | |
| DATE APPROVED | |
| | |
| I, TOWN CLERK OF THE TOWN OF NEEDHAM, HEREBY
CERTIFY THAT THE NOTICE OF THE PLANNING BOARD HAS
BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO
APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT
AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE | |
| | |
| DATE | TOWN CLERK |

Checked By:

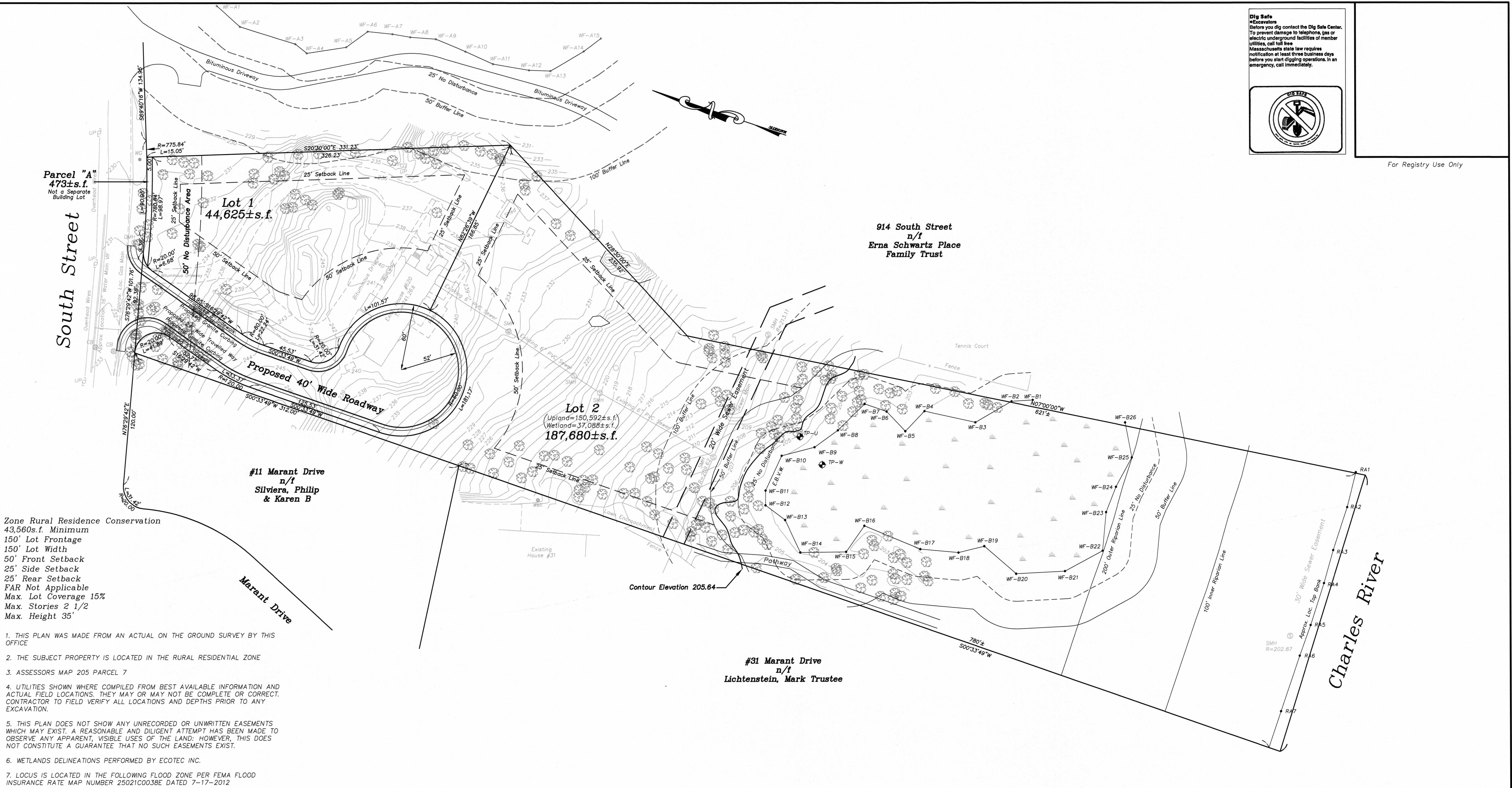


Sheet 1 of 8

Dig Safe
Excavators
Before you dig contact the Dig Safe Center.
To prevent damage to telephone, gas or
electric underground facilities of member
utilities, call toll free
Massachusetts state law requires
notification at least three business days
before you start digging operations. In an
emergency, call immediately.



For Registry Use Only



Zone Rural Residence Conservation
43,560s.f. Minimum
150' Lot Frontage
150' Lot Width
50' Front Setback
25' Side Setback
25' Rear Setback
FAR Not Applicable
Max. Lot Coverage 15%
Max. Stories 2 1/2
Max. Height 35'

1. THIS PLAN WAS MADE FROM AN ACTUAL ON THE GROUND SURVEY BY THIS OFFICE
2. THE SUBJECT PROPERTY IS LOCATED IN THE RURAL RESIDENTIAL ZONE
3. ASSESSORS MAP 205 PARCEL 7
4. UTILITIES SHOWN WHERE COMPILED FROM BEST AVAILABLE INFORMATION AND ACTUAL FIELD LOCATIONS. THEY MAY OR MAY NOT BE COMPLETE OR CORRECT. CONTRACTOR TO FIELD VERIFY ALL LOCATIONS AND DEPTHS PRIOR TO ANY EXCAVATION.
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6. WETLANDS DELINEATIONS PERFORMED BY ECOTEC INC.
7. LOCUS IS LOCATED IN THE FOLLOWING FLOOD ZONE PER FEMA FLOOD INSURANCE RATE MAP NUMBER 25021C0038E DATED 7-17-2012

DIRECTOR OF PUBLIC WORKS	
DATE APPROVED	
TOWN ENGINEER	
DATE APPROVED	
I, TOWN CLERK OF THE TOWN OF NEEDHAM, HEREBY CERTIFY THAT THE NOTICE OF THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE	
DATE	TOWN CLERK

APPROVAL IN ACCORDANCE WITH SECTION 91-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED	
TOWN OF NEEDHAM PLANNING BOARD	
BY:	
APPROVED:	

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

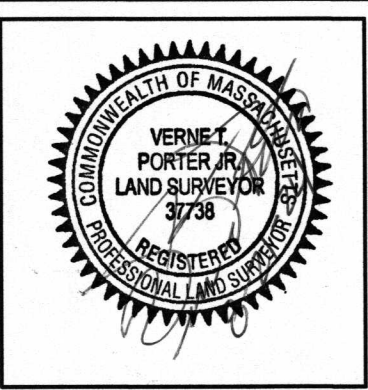
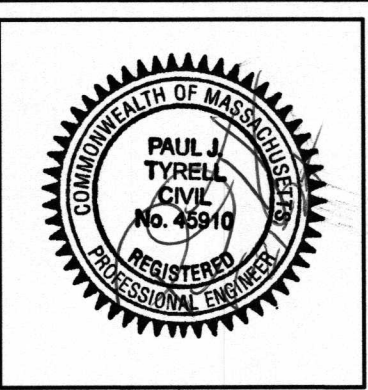
Brian Connaughton 8-21-2024

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS

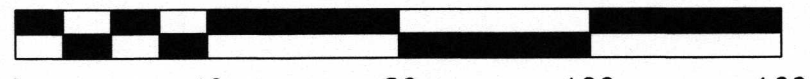
Paul J. Tyrell 8-21-2024

Owner/Applicant:
Brian Connaughton
920 South Street
Needham, Ma. 02492
Cert. #207299

REVISIONS	
DATE	DESCRIPTION
1-19-23	NO REVISIONS MADE
2-23-23	NO REVISIONS MADE
4-23-24	NO REVISIONS MADE
8-21-24	NO REVISIONS MADE



~By Right Subdivision Plan of Land~	
920 South Street	
Needham, Massachusetts	
Scale: 1"=40'	September 9, 2022
VERNE T. PORTER Jr, PLS	
Land Surveyors - Civil Engineers	
354 Elliot Street, Newton, Ma. 02464	
Project:22019	
Desinged By:	
Drawn By:	
Checked By:	



Sheet 2 of 8

South Street

Parcel "A"
517±s.f.
Not A Separate
Building Lot

Lot 1
43,617±s.f.
B.F.=19.08

Lot 2
(Upland=157,803±s.f.
Wetland=37,089±s.f.)
194,892±s.f.
4.4741 Acres
B.F.=9.08

914 South Street
n/f
Erna Schwartz Place
Family Trust

#11 Marant Drive
n/f
Silviera, Philip
& Karen B

#31 Marant Drive
n/f
Lichtenstein, Mark Trustee

Charles River

Zone Rural Residence Conservation
43,560s.f. Minimum
150' Lot Frontage
50' Front Setback
25' Side Setback
25' Rear Setback
FAR Not Applicable
Max. Lot Coverage 15%
Max. Stories 2 1/2
Max. Height 35'

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6. WETLANDS DELINEATIONS PERFORMED BY ECOTEC INC.
7. LOCUS IS LOCATED IN THE FOLLOWING FLOOD ZONE PER FEMA FLOOD INSURANCE RATE MAP NUMBER 25021C0038E DATED 7-17-2012

Total Lot Area=255,097±s.f.
Roadway Area=16,071±s.f.

Subject to:

1. Subdivision Decision dated April 25, 2023, filed herewith;
2. Suddivision Covenant, River Run Road, dated , 2024, filed herewith;
3. Declaration of Restrictive Covenants, River Run Road, dated , 2024 filed herewith;
4. Grant of Easements, dated , 2024 filed herewith;
5. Declaration of Trust, River Run Road Homeowners Trust, dated , 2024 filed herewith;
6. Buffer Planting Strip Covenant and Restriction, River Run Road, dated , 2024, filed herewith;

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

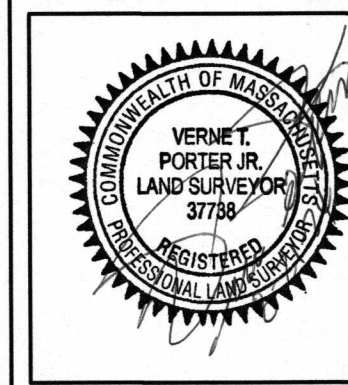
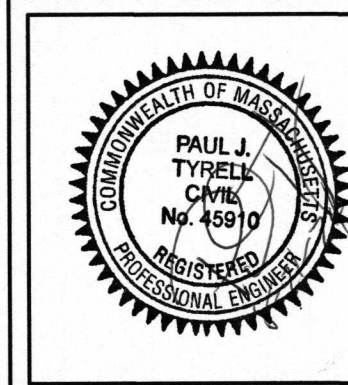
[Signature] 8-21-2024

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS

[Signature] 8-21-2024

Owner/Applicant:
Brian Connaughton
920 South Street
Needham, Ma. 02492
Cert. #207299

REVISIONS	
DATE	DESCRIPTION
10-5-22	LOT WIDTHS ADDED
1-19-23	NO REVISIONS MADE
2-23-23	REVISED DRAIN EASEMENTS
4-23-24	NO REVISIONS MADE
8-21-24	ADDED STREET NAME & NOTES



~Proposed Lotting Plan of Land~

920 South Street

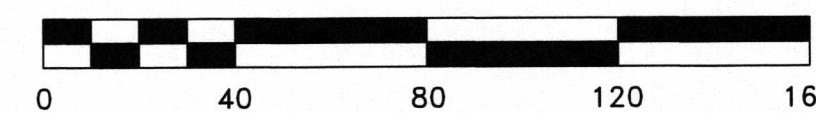
Needham, Massachusetts

Scale: 1"=40' September 9, 2022

VERNE T. PORTER Jr, PLS

Land Surveyors - Civil Engineers

354 Elliot Street, Newton, Ma. 02464



Sheet 3 of 8

Project:22019

Desinged By:

Drawn By:

Checked By:

South Street

50' No Disturbance Area

Lot 1

Lot 2

Proposed 20' Wide Private Roadway

Dig Safe
Before you dig contact the Dig Safe Center.
To prevent damage to telephone, gas or electric underground facilities of member utilities, call toll free
Massachusetts state law requires notification at least three business days before you start digging operations. In an emergency, call immediately.



For Registry Use Only

Benchmark:
Top Concrete Bound
With X-Cut
Elevation=227.405

- Proposed Tree Legend
- Pinus Strobus "Fastigiata B&B 6-8"
 - Picea abies "Cupressina B&B 7-8"
 - Pinus parviflora Tempelhof B&B 8-10"
 - Cercis canadensis Forest Pansy 2.5-3"

13 Fastigiata and 13 Cupressina to be planted
6' O.C. with a total length of plantings of 150L.F.

Approx. Location
House #31

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

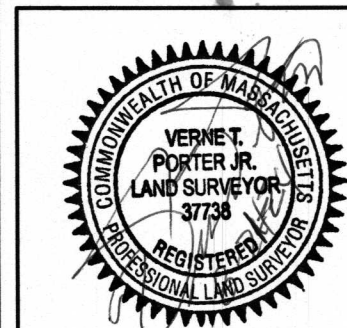
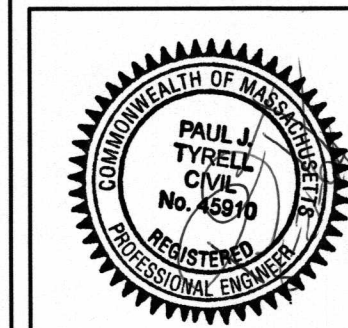
Verne T. Porter Jr. 8-21-2022

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS

Verne T. Porter Jr. 8-21-2022

Owner/Applicant:
Brian Connaughton
920 South Street
Needham, Ma. 02492
Cert. #207299

REVISIONS	
DATE	DESCRIPTION
1-19-23	ADDED HOUSE FOOTPRINTS & GRADING
2-23-23	LOT & ROAD GRADING, ELEVATIONS, SWALE
4-23-24	SEWER & DRAIN EASEMENT GRADING
8-21-24	LANDSCAPE PLANTINGS & STREET NAME



~Proposed Grading Plan~

920 South Street

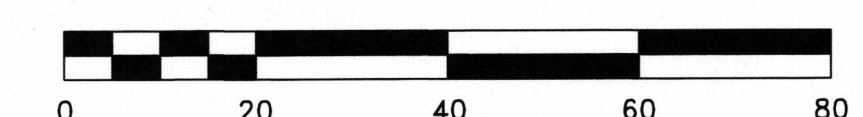
Needham, Massachusetts

Scale: 1"=20' September 9, 2022

VERNE T. PORTER Jr, PLS

Land Surveyors - Civil Engineers

354 Elliot Street, Newton, Ma. 02464



Sheet 4 of 8

Project:22019

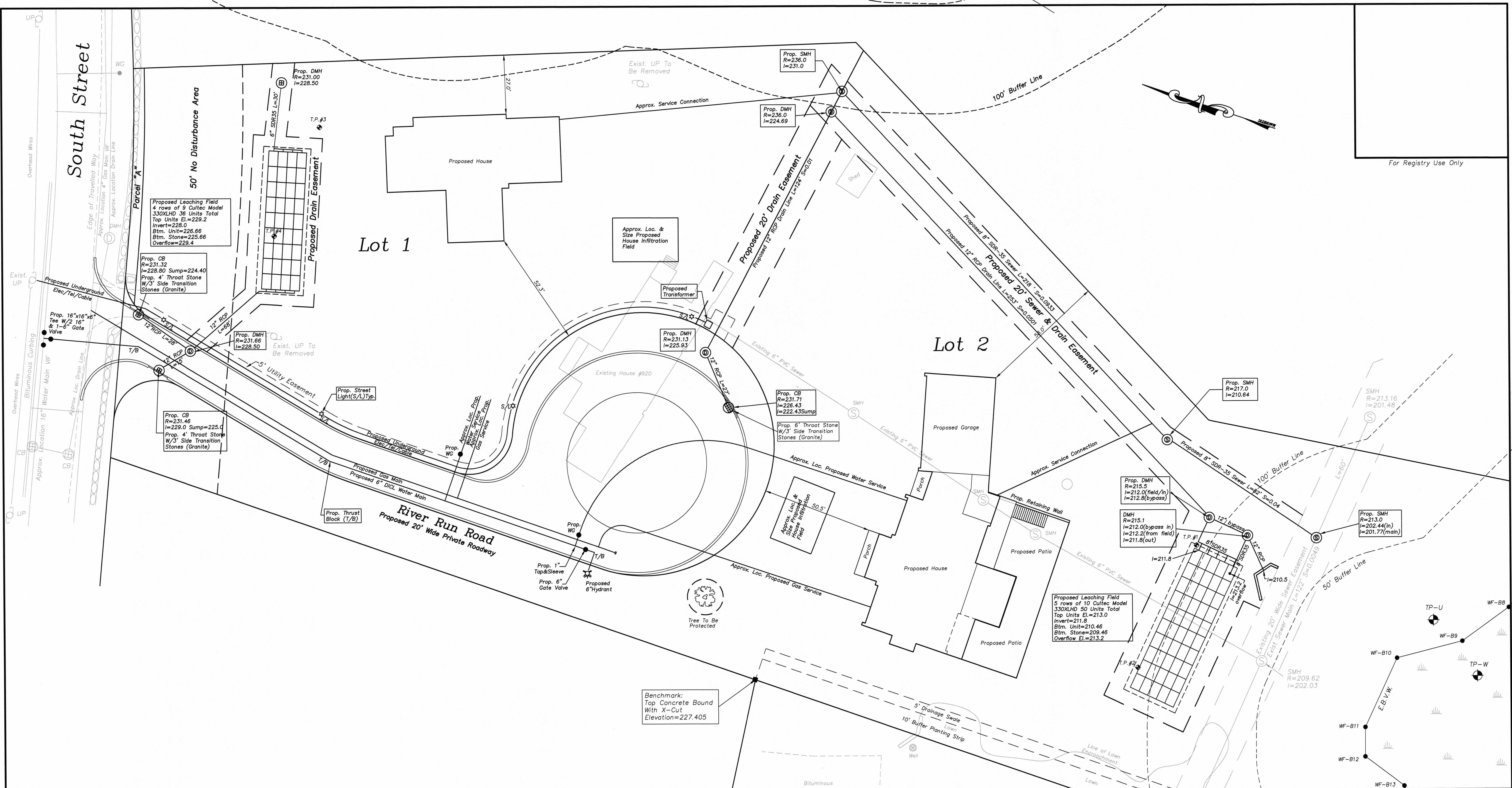
Designed By:

Drawn By:

Checked By:

DIRECTOR OF PUBLIC WORKS	
DATE APPROVED	
TOWN ENGINEER	
DATE APPROVED	
I, TOWN CLERK OF THE TOWN OF NEEDHAM, HEREBY CERTIFY THAT THE NOTICE OF THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE	
DATE	TOWN CLERK

APPROVAL IN ACCORDANCE WITH SECTION 91-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED	
TOWN OF NEEDHAM PLANNING BOARD	
BY:	
APPROVED:	



DIRECTOR OF PUBLIC WORKS

DATE APPROVED

TOWN ENGINEER

DATE APPROVED

I, TOWN CLERK OF THE TOWN OF NEEDHAM, HEREBY CERTIFY THAT THE NOTICE OF THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE

DATE

TOWN CLERK

APPROVAL IN ACCORDANCE WITH SECTION 91-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED

TOWN OF NEEDHAM PLANNING BOARD

BY:

APPROVED:

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

Verne T. Porter Jr. 8-21-2024

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS

Verne T. Porter Jr. 8-21-2024

REVISIONS	
DATE	DESCRIPTION
1-19-23	ADDED HOUSE FOOTPRINTS & GRADING
2-23-23	EASEMENTS, BUFFER STRIP, SWALE
4-23-24	NO REVISIONS MADE
8-21-24	ADDED STREET NAME

Owner/Applicant:
Brian Connaughton
920 South Street
Needham, Ma. 02492
Cert. #207299

For Registry Use Only

~Proposed Utilities Plan~

920 South Street

Needham, Massachusetts

Scale: 1"=20' September 9, 2022

VERNE T. PORTER Jr, PLS

Land Surveyors - Civil Engineers

354 Elliot Street, Newton, Ma. 02464

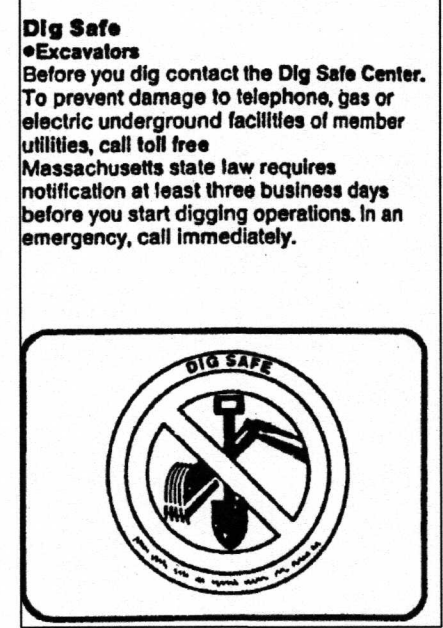
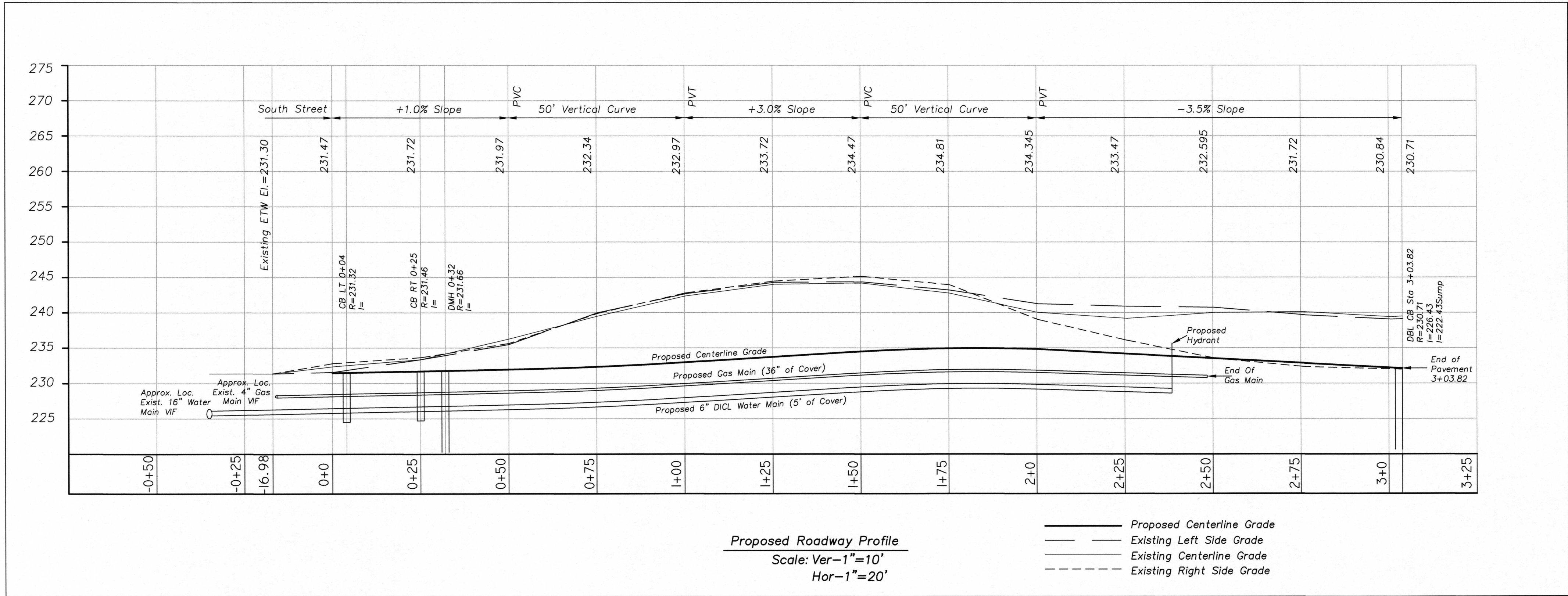
Sheet 5 of 8

Project:22019

Desinged By:

Drawn By:

Checked By:



For Registry Use Only

DIRECTOR OF PUBLIC WORKS	
DATE APPROVED	
TOWN ENGINEER	
DATE APPROVED	
I, TOWN CLERK OF THE TOWN OF NEEDHAM, HEREBY CERTIFY THAT THE NOTICE OF THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE	
DATE	TOWN CLERK

APPROVAL IN ACCORDANCE WITH SECTION 91-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED

TOWN OF NEEDHAM PLANNING BOARD

BY:

APPROVED:

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

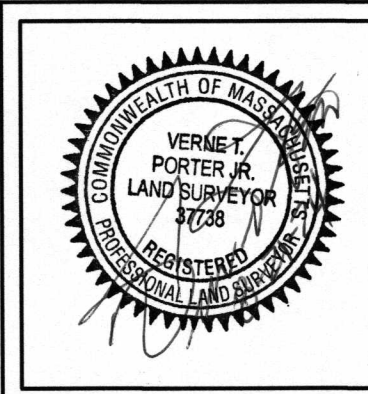
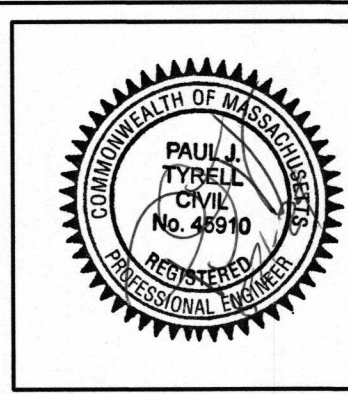
Verne T. Porter Jr. 8-21-2024

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS

Verne T. Porter Jr. 8-21-2024

Owner/Applicant:
Brian Connaughton
920 South Street
Needham, Ma. 02492
Cert. #207299

REVISIONS	
DATE	DESCRIPTION
1-19-23	NO REVISIONS MADE
2-23-23	ROAD GRADING
4-23-24	NO REVISIONS MADE
8-21-24	NO REVISIONS MADE



~Plan, Profile & Detail Sheet~

920 South Street

Needham, Massachusetts

Scale: As Noted September 9, 2022

VERNE T. PORTER Jr, PLS
Land Surveyors - Civil Engineers
354 Elliot Street, Newton, Ma. 02464

Project:22019

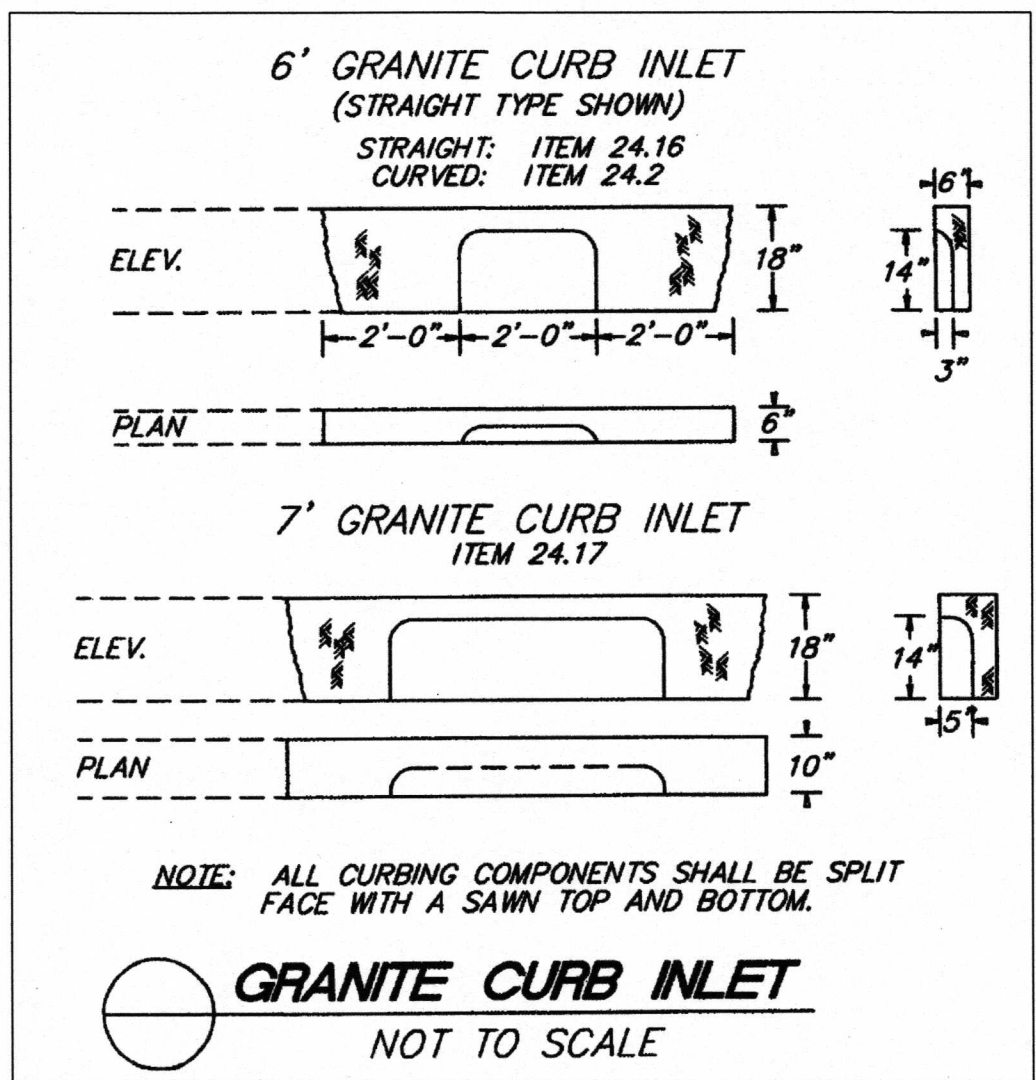
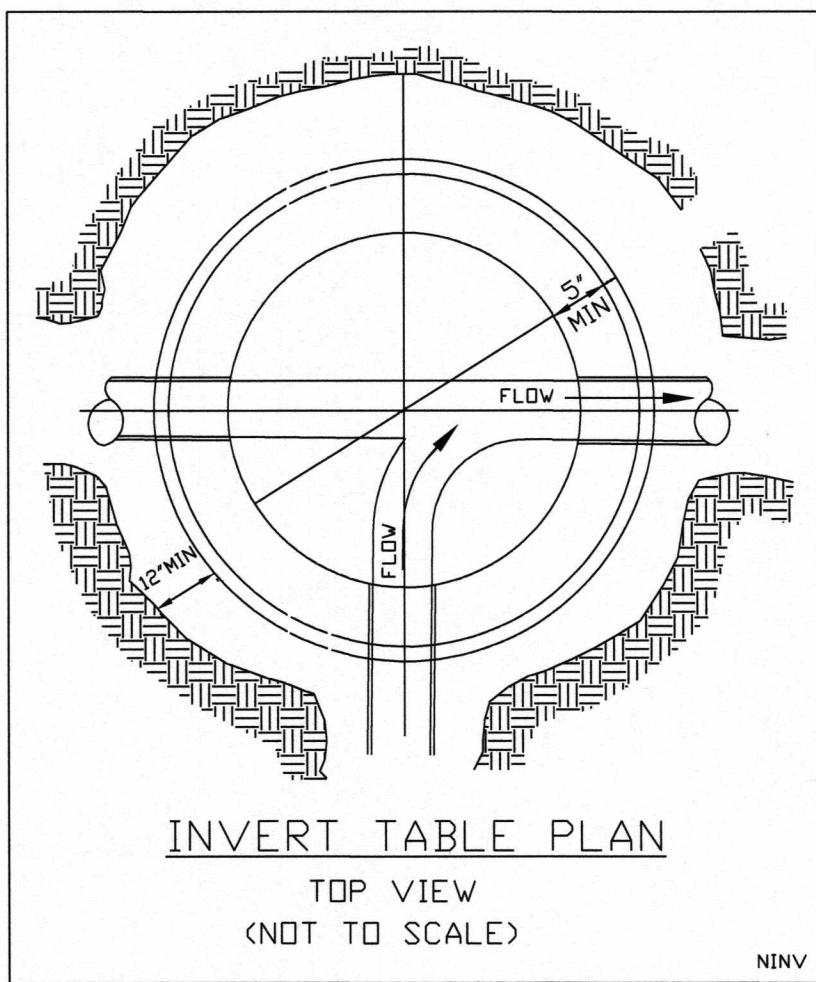
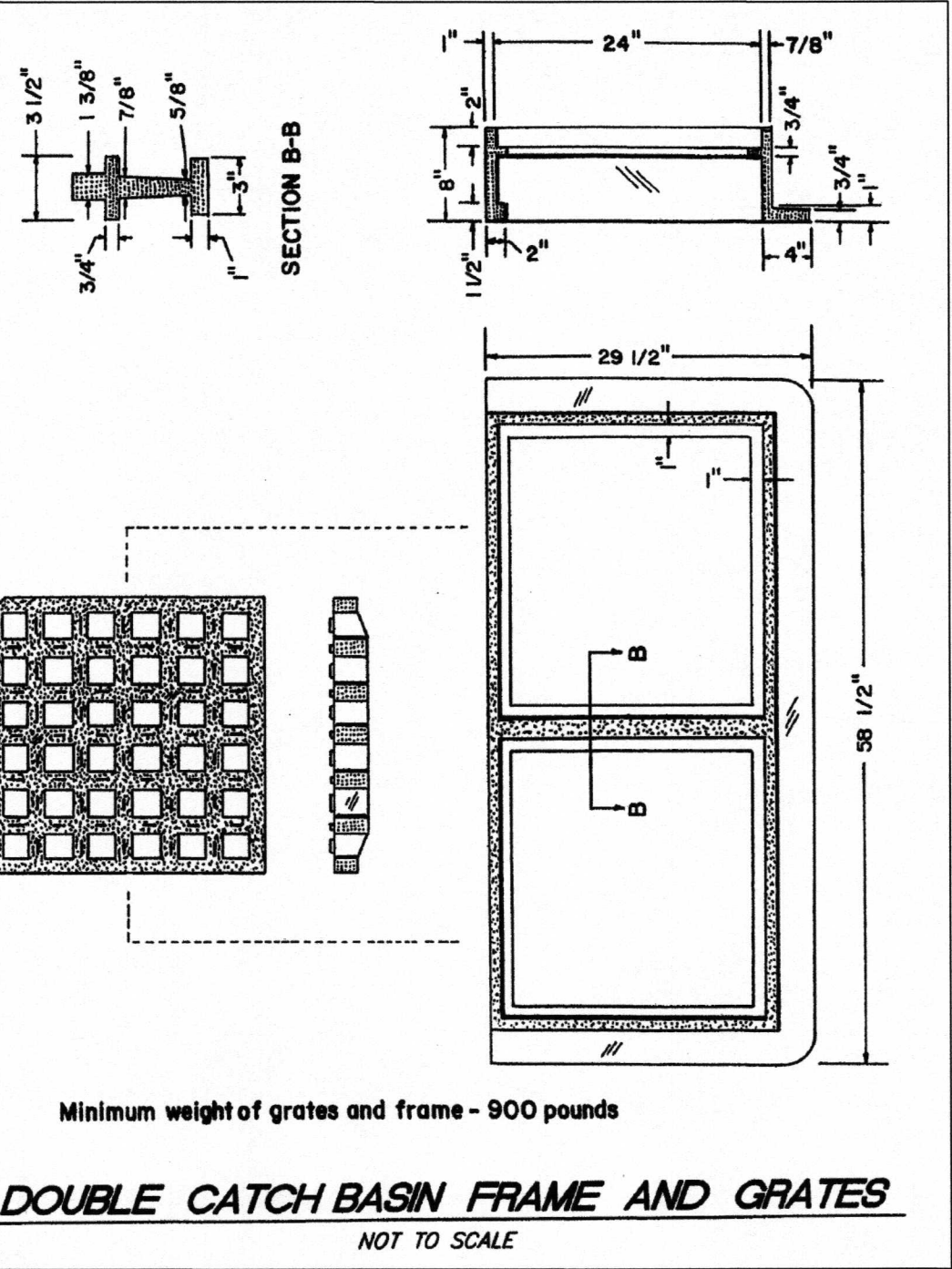
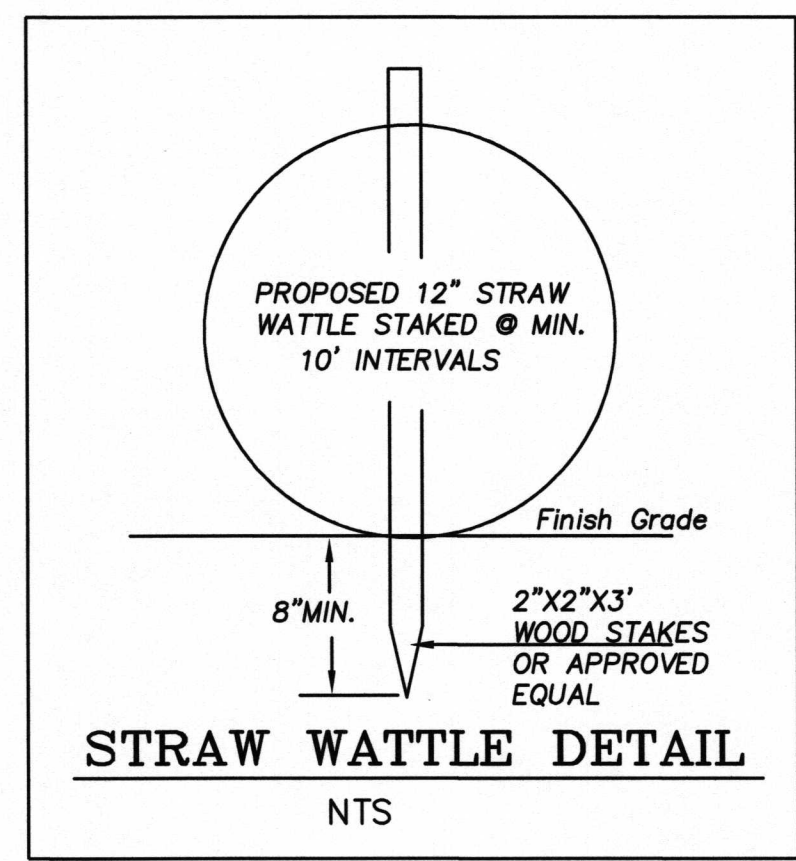
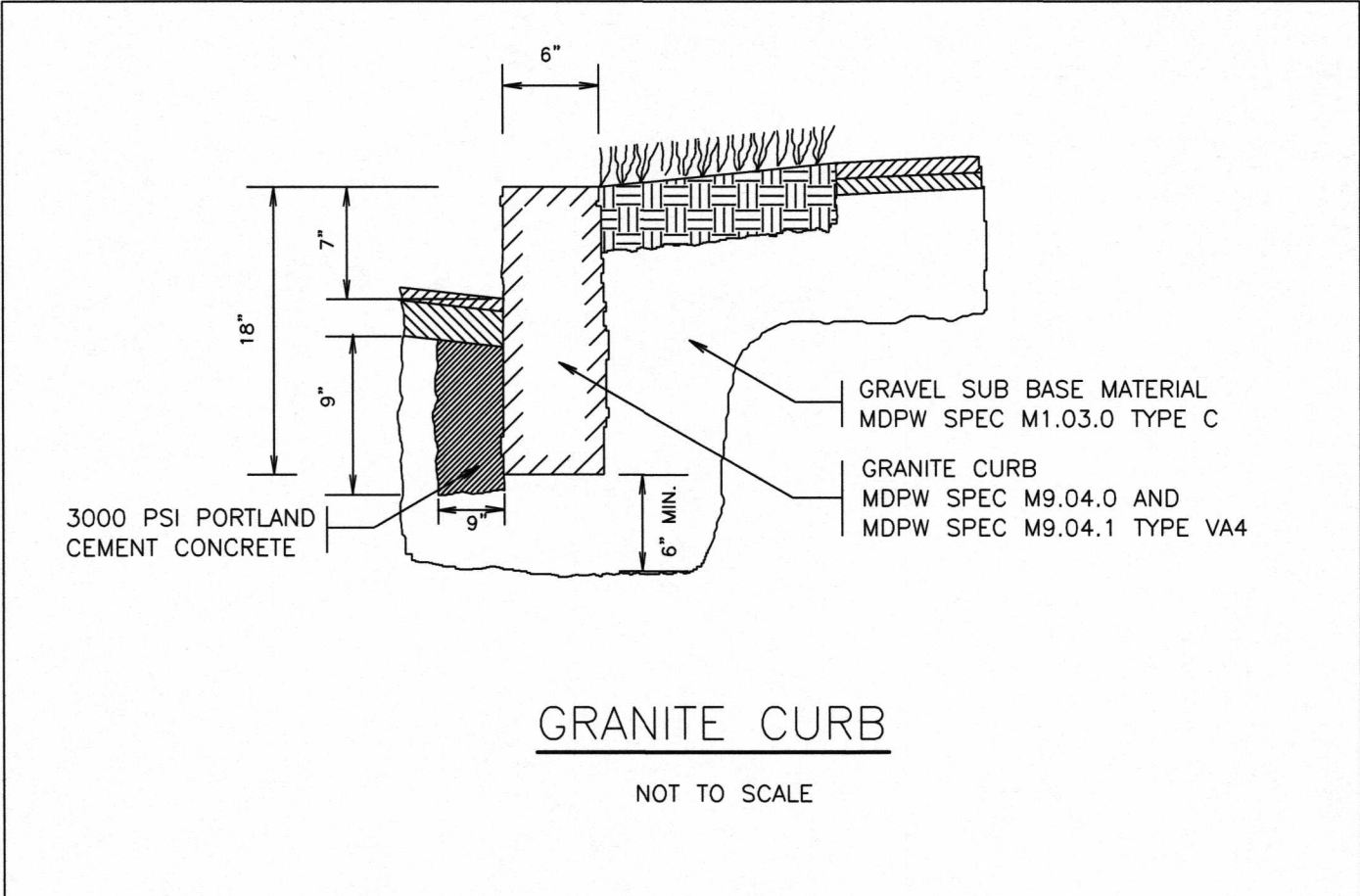
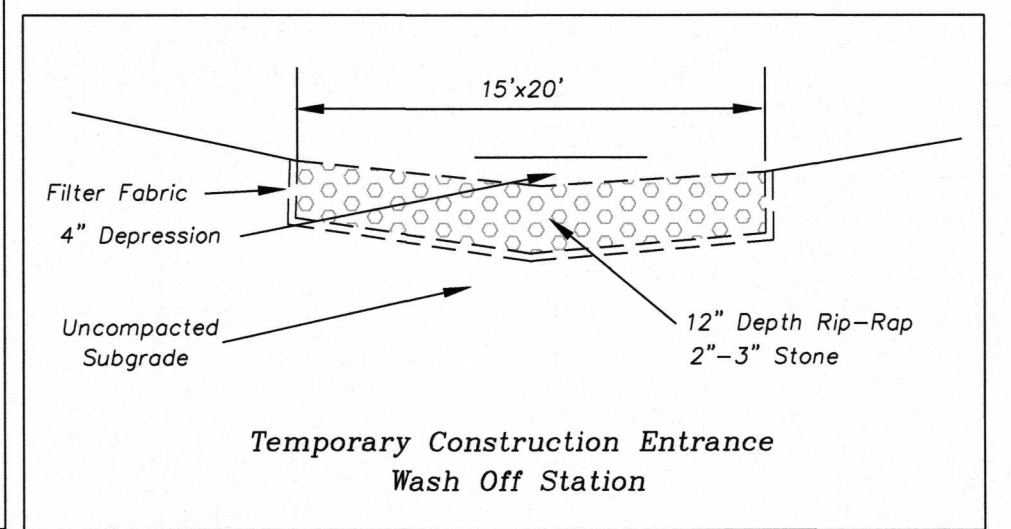
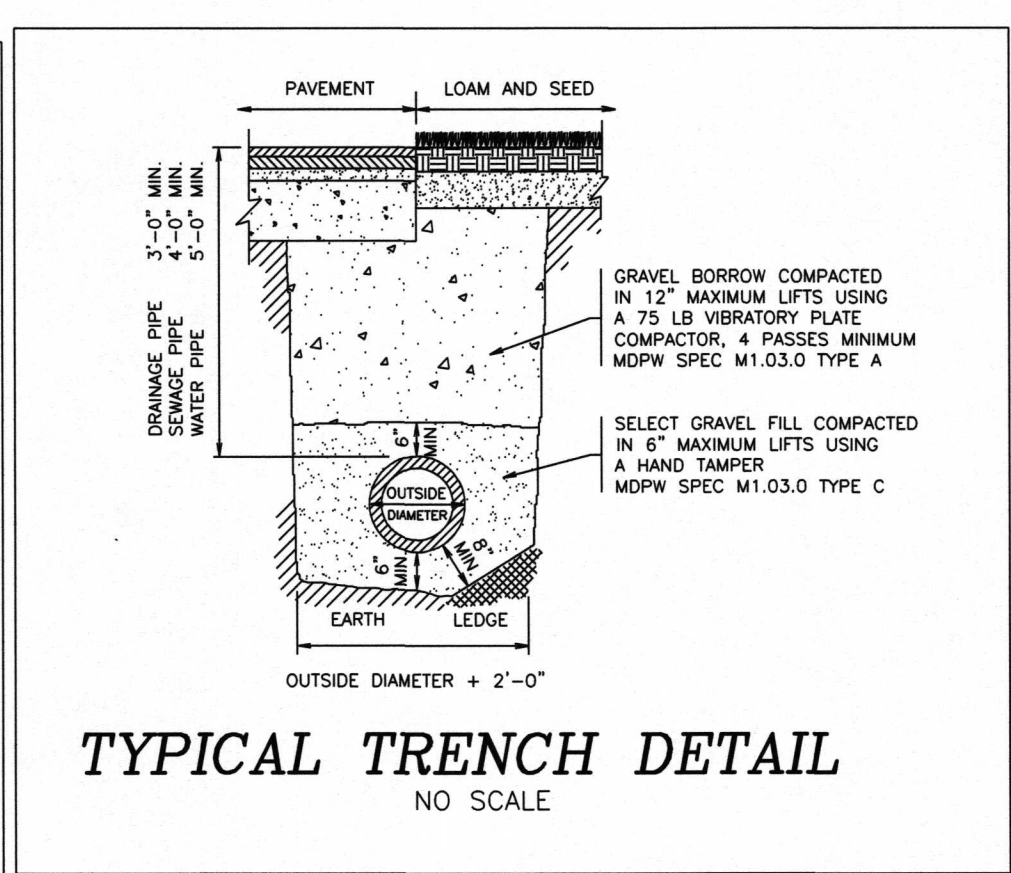
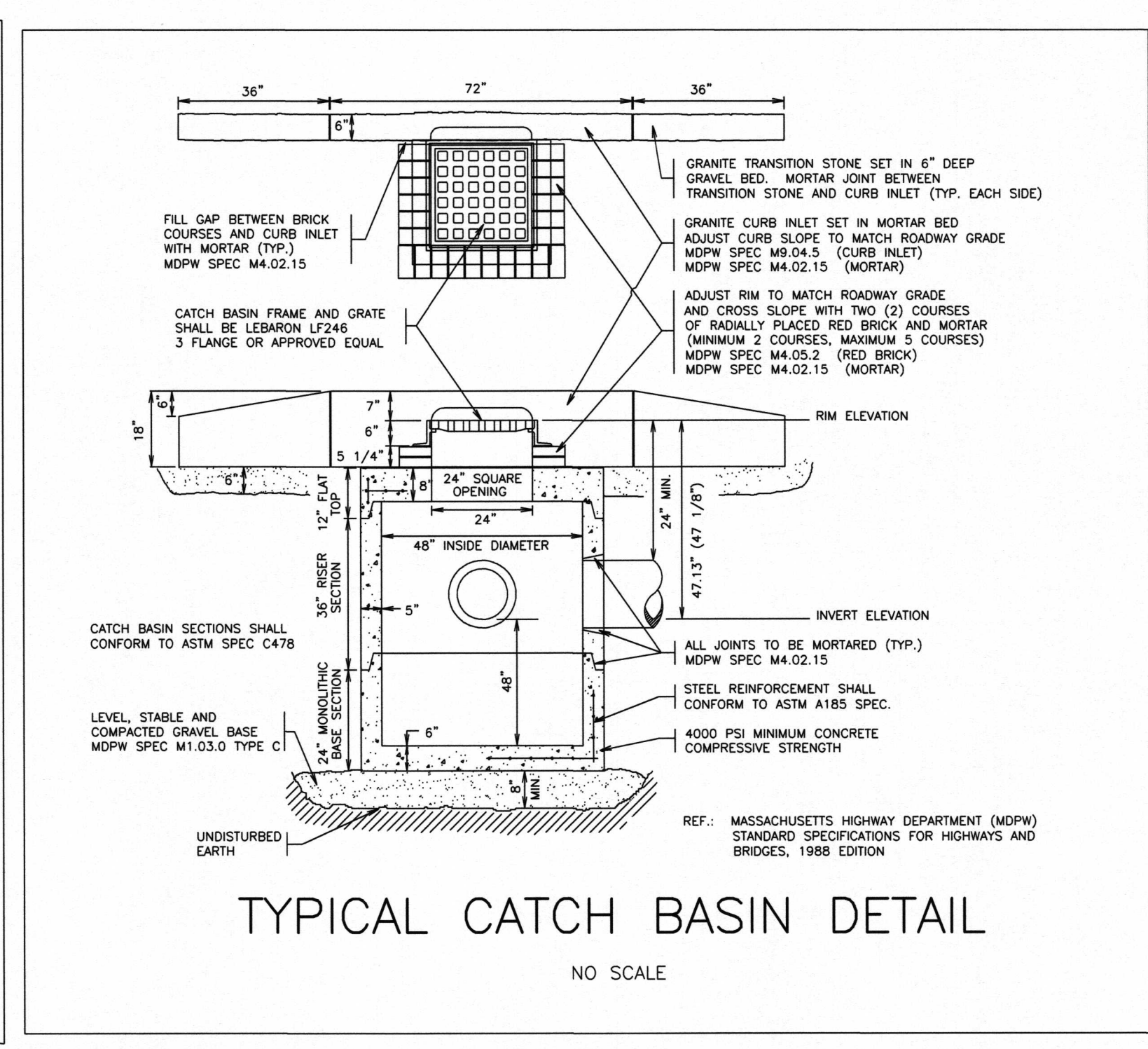
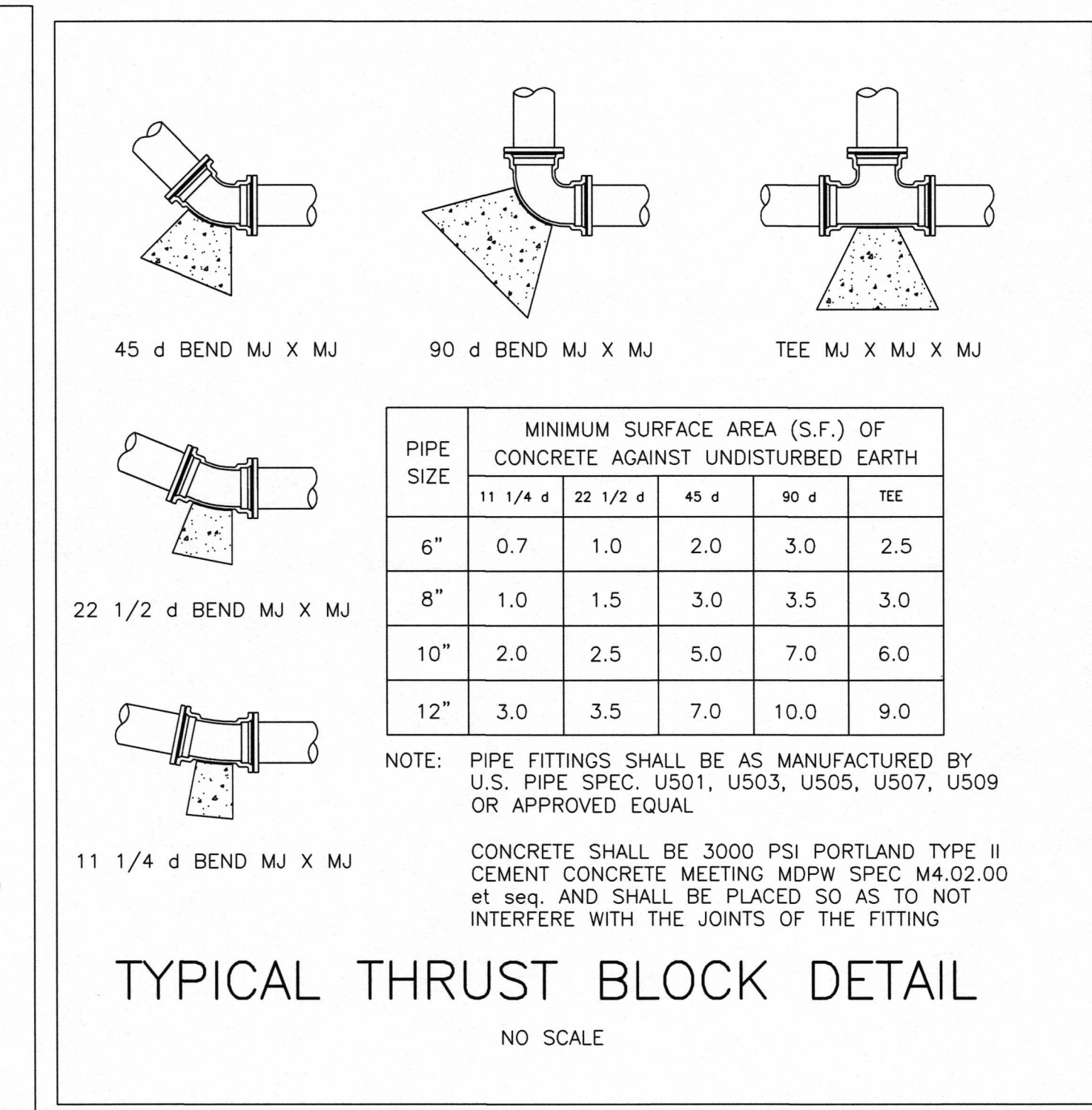
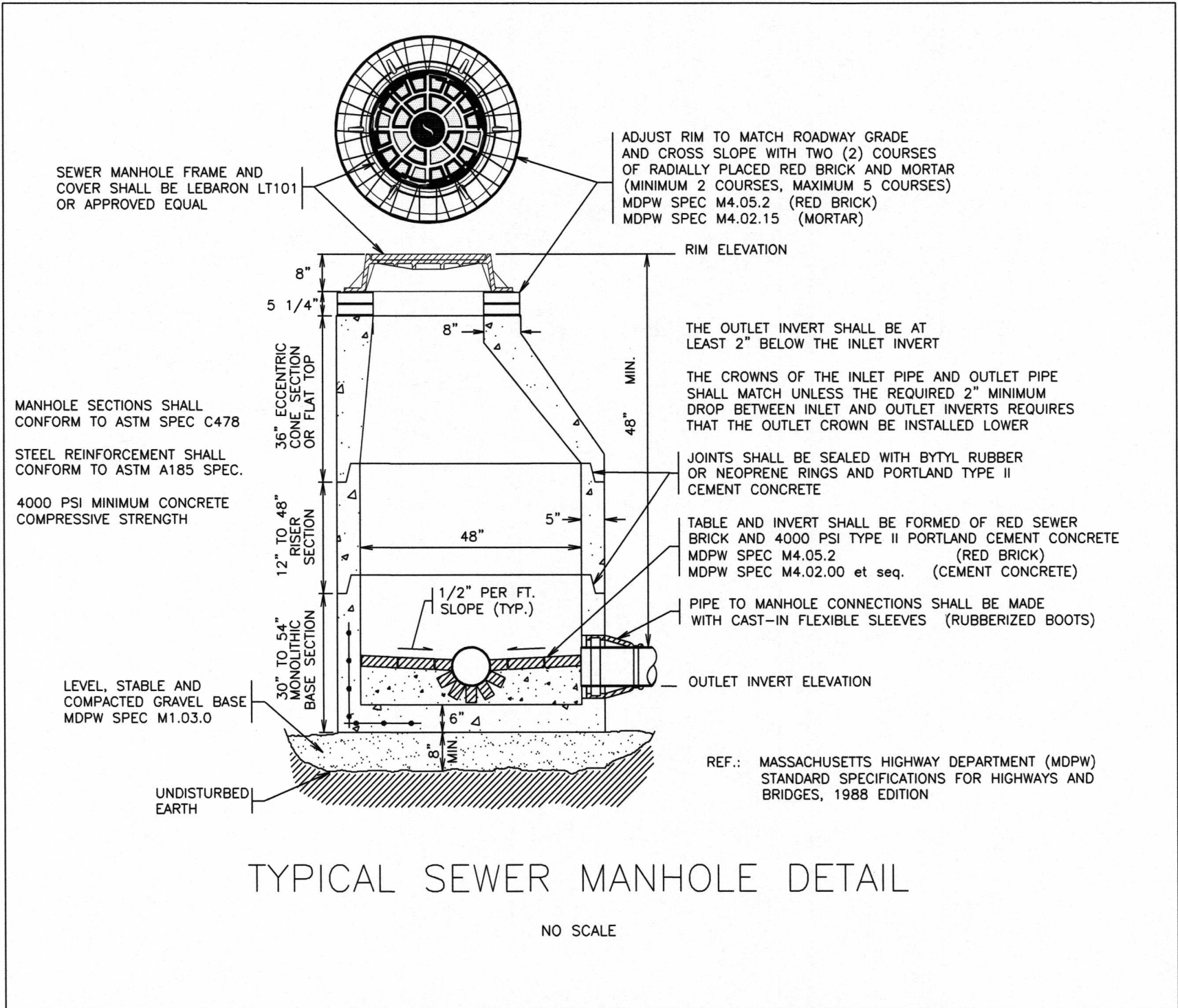
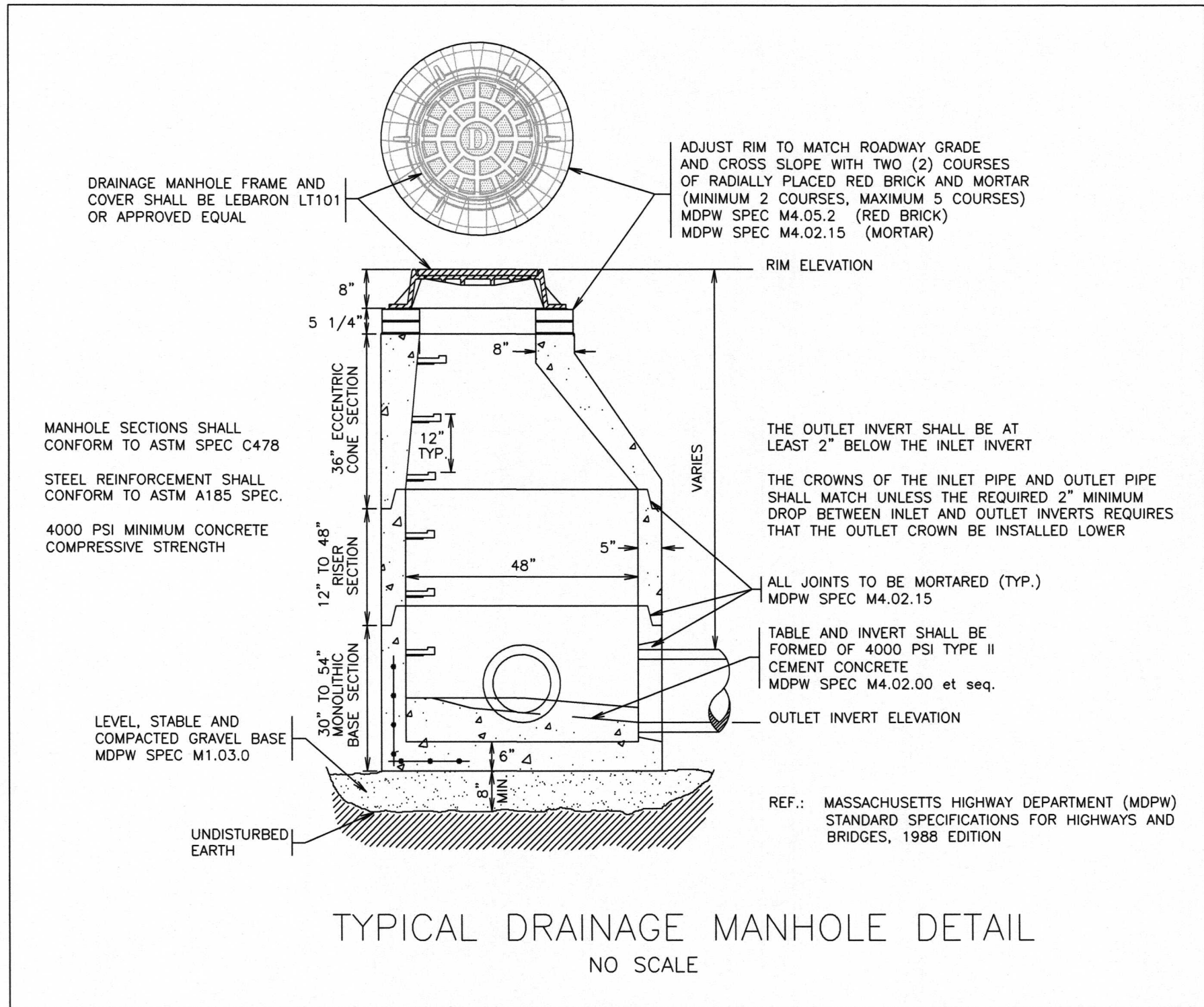
Desinged By:

Drawn By:

Checked By:

0

Sheet 6 of 8



DIRECTOR OF PUBLIC WORKS	
DATE APPROVED	
TOWN ENGINEER	
DATE APPROVED	
I, TOWN CLERK OF THE TOWN OF NEEDHAM, HEREBY CERTIFY THAT THE NOTICE OF THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE	
DATE	TOWN CLERK

APPROVAL IN ACCORDANCE WITH SECTION 91-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED	
TOWN OF NEEDHAM PLANNING BOARD	
BY:	
APPROVED:	

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS AND PROCEDURAL RULES OF THE NEEDHAM PLANNING BOARD.

Don J. Dargatzis 8-21-2024

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS

Don J. Dargatzis 8-21-2024

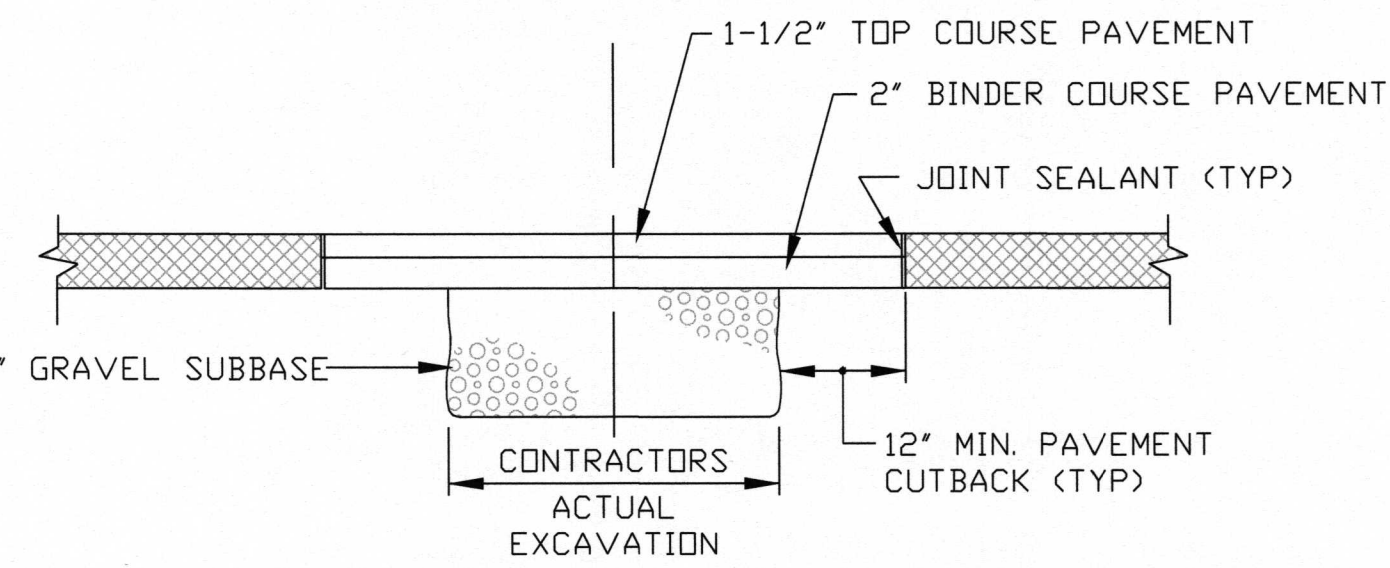
Owner/Applicant:
Brian Connaughton
920 South Street
Needham, Ma. 02492
Cert. #207299



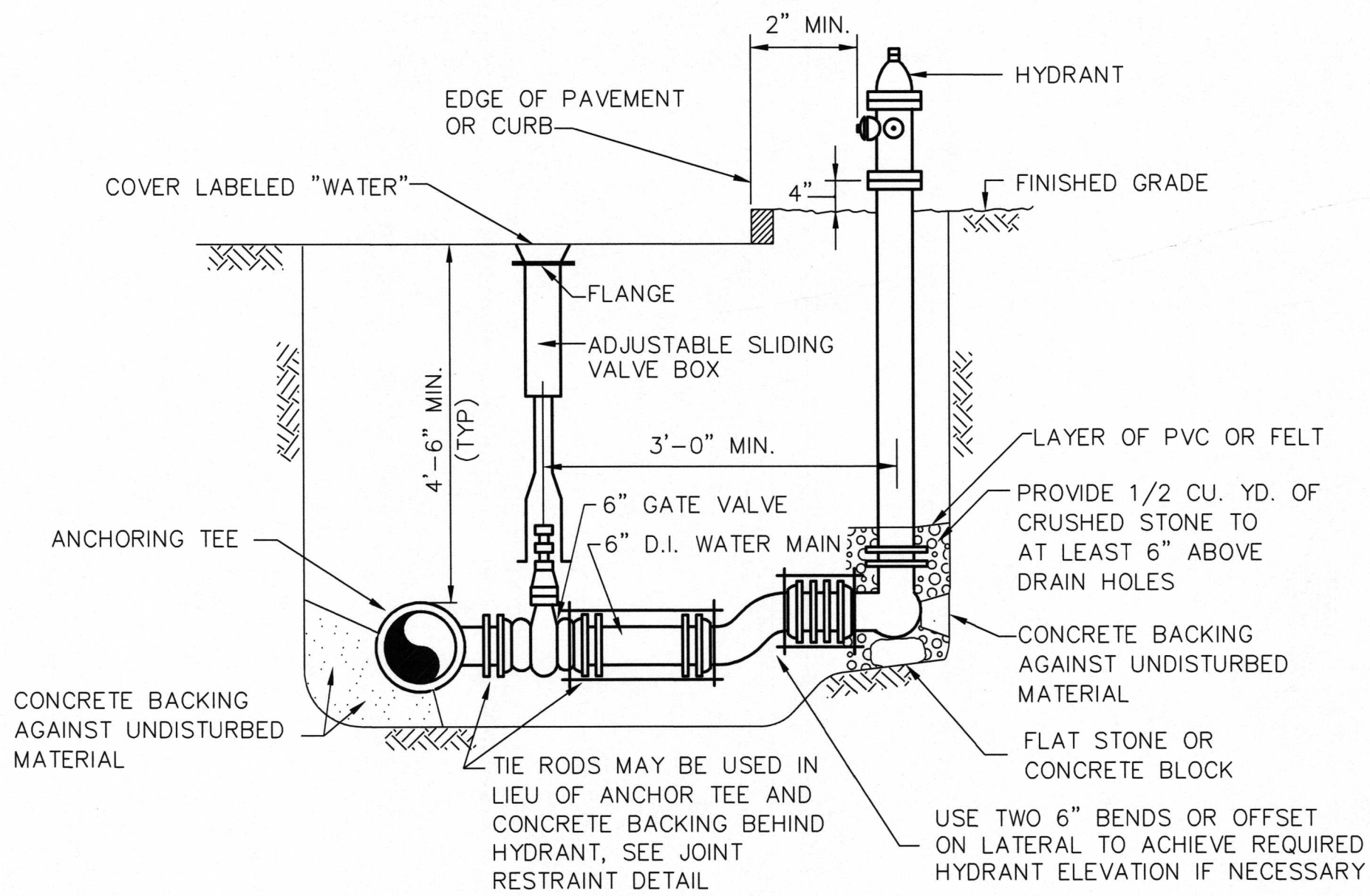
REVISIONS	
DATE	DESCRIPTION
1-19-23	NO REVISIONS MADE
2-23-23	NO REVISIONS MADE
4-23-24	NO REVISIONS MADE
8-21-24	NO REVISIONS MADE

~Detail Sheet~	
920 South Street	
Needham, Massachusetts	
Scale: As Noted	September 9, 2022
VERNE T. PORTER Jr, PLS Land Surveyors - Civil Engineers 354 Elliot Street, Newton, Ma. 02464	
Project:22019	Desinged By:
Drawn By:	Checked By:
Sheet 7 of 8	

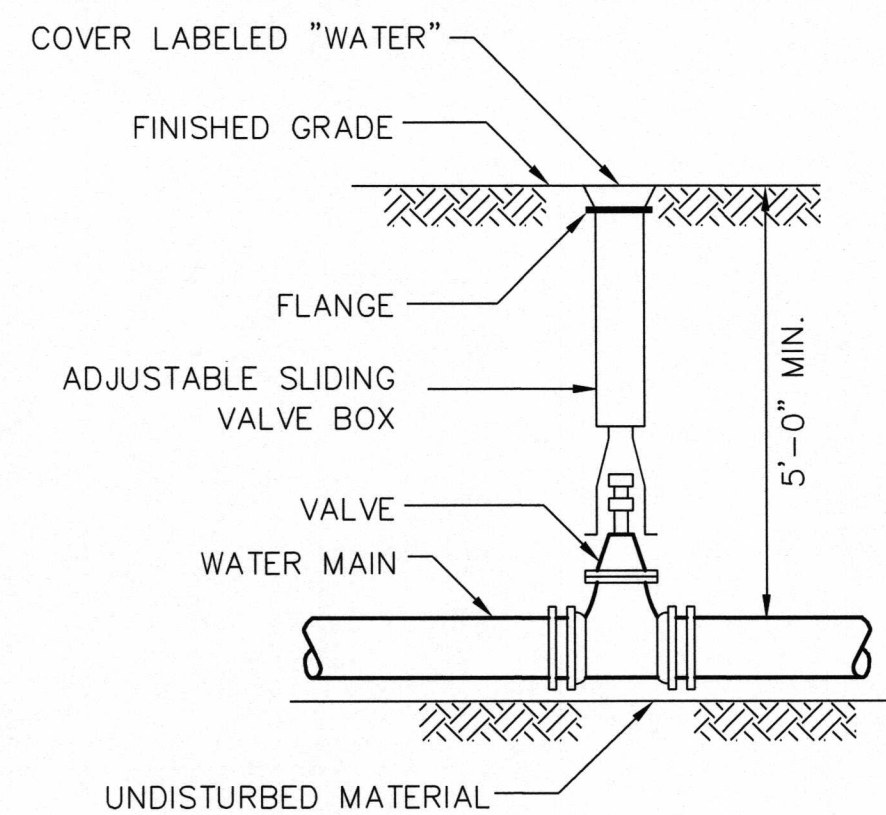
Dig Safe
Excavators
Before you dig, contact the Dig Safe Center.
To prevent damage to telephone, gas or
electric underground facilities of member
utilities, call toll free
Massachusetts state law requires
notification at least three business days
before you start digging operations. In an
emergency, call immediately.



PAVEMENT REPLACEMENT DETAILS
N.T.S.



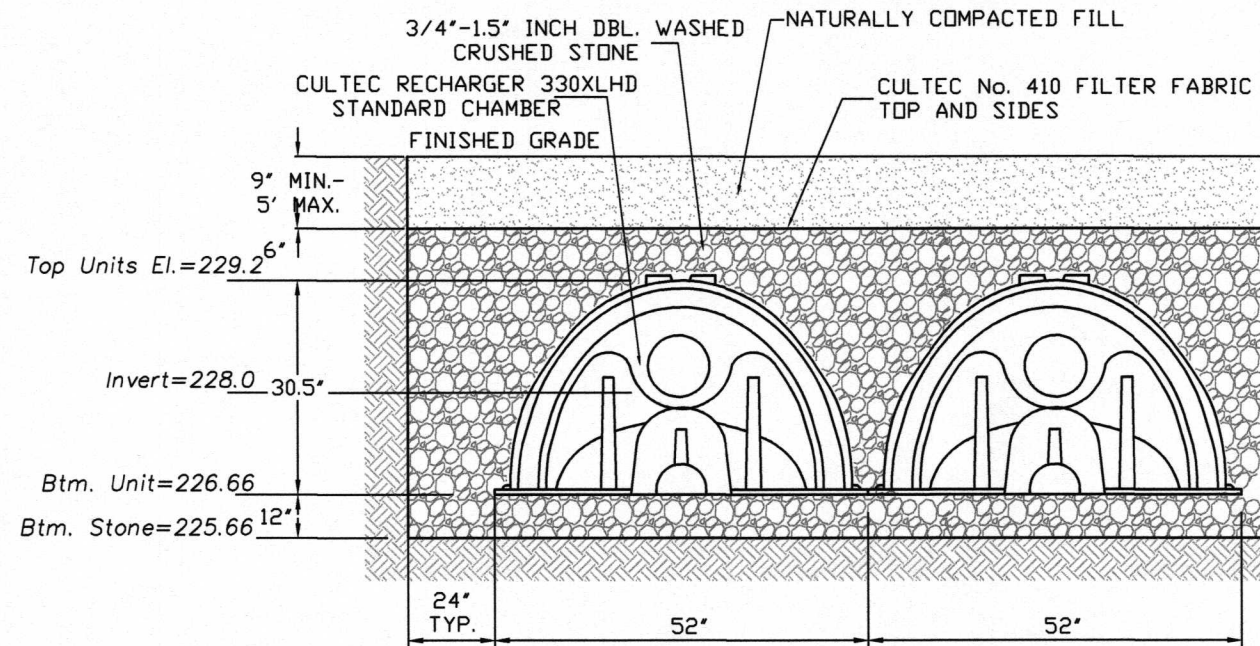
HYDRANT AND VALVE DETAIL
N.T.S.



VALVE AND BOX DETAIL
N.T.S.

**CULTEC RECHARGER 330XLHD CHAMBER SYSTEM
NON-TRAFFIC APPLICATION
TYPICAL CROSS SECTION DETAIL**

Lot 1 Side Yard Field, 4 rows of 9 Total 36 Units

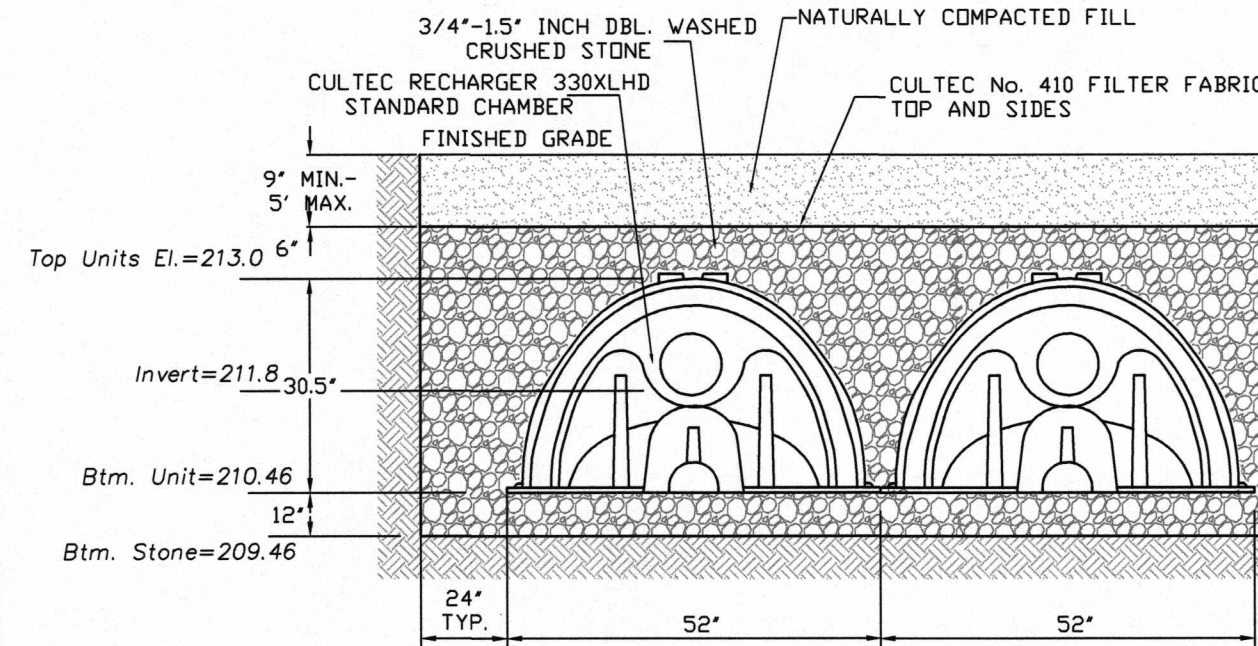


GENERAL NOTES
RECHARGER 330 BY CULTEC, INC. OF BROOKFIELD, CT.
ALL RECHARGER 330 CHAMBERS MUST BE INSTALLED IN ACCORDANCE
WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.

ALL RECHARGER 330HD HEAVY DUTY UNITS ARE MARKED WITH A COLOR
STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
6\"/>

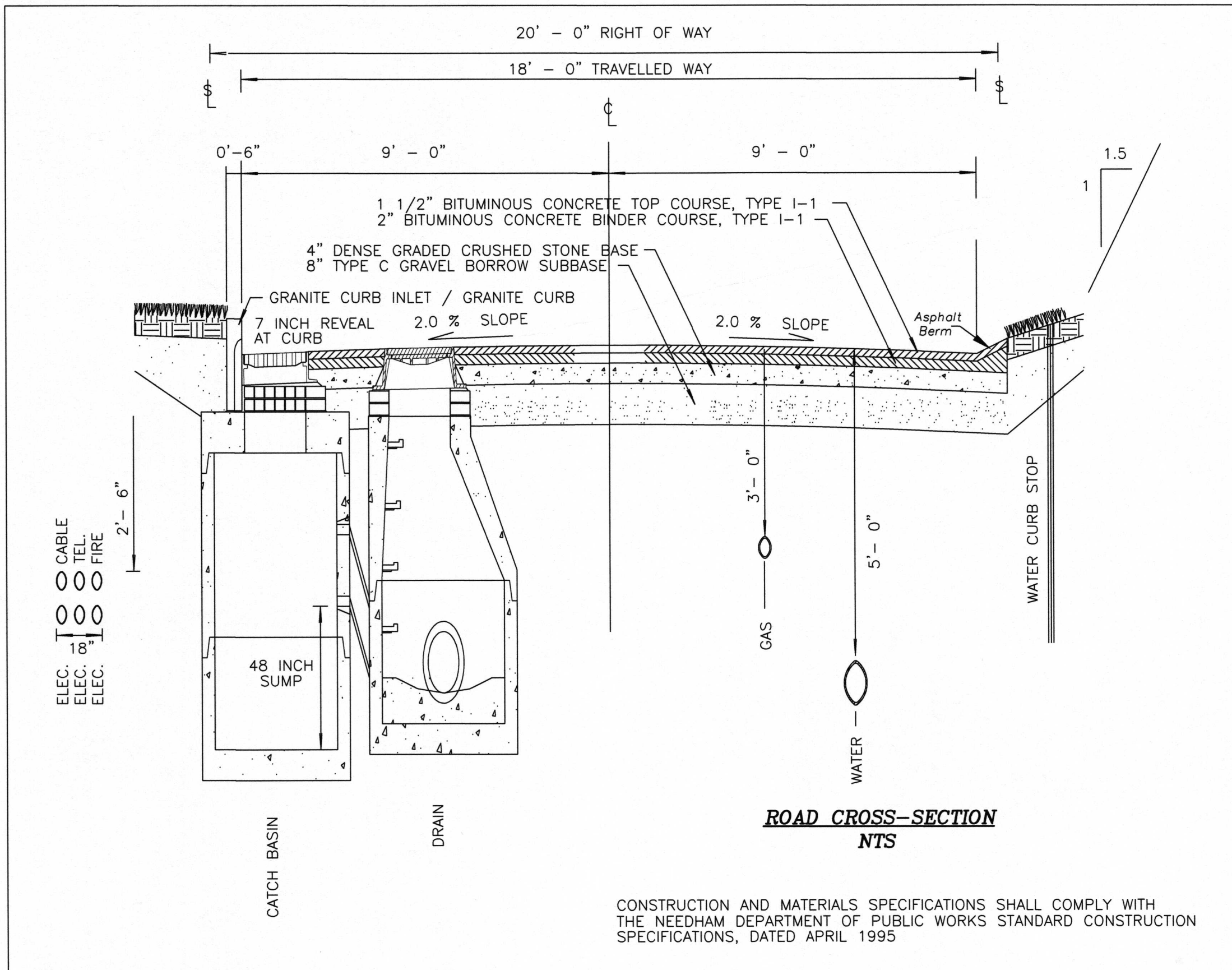
**CULTEC RECHARGER 330XLHD CHAMBER SYSTEM
NON-TRAFFIC APPLICATION
TYPICAL CROSS SECTION DETAIL**

Lot 2 Rear Yard Field, 5 rows of 10 Total 50 Units



GENERAL NOTES
RECHARGER 330 BY CULTEC, INC. OF BROOKFIELD, CT.
ALL RECHARGER 330 CHAMBERS MUST BE INSTALLED IN ACCORDANCE
WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.

ALL RECHARGER 330HD HEAVY DUTY UNITS ARE MARKED WITH A COLOR
STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
6\"/>



CONSTRUCTION AND MATERIALS SPECIFICATIONS SHALL COMPLY WITH
THE NEEDHAM DEPARTMENT OF PUBLIC WORKS STANDARD CONSTRUCTION
SPECIFICATIONS, DATED APRIL 1995

DIRECTOR OF PUBLIC WORKS	
DATE APPROVED	
TOWN ENGINEER	
DATE APPROVED	
I, TOWN CLERK OF THE TOWN OF NEEDHAM, HEREBY CERTIFY THAT THE NOTICE OF THE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE	
DATE	TOWN CLERK

APPROVAL IN ACCORDANCE WITH SECTION 91-U OF CHAPTER 41 OF THE GENERAL LAWS AS AMENDED	
TOWN OF NEEDHAM PLANNING BOARD	
BY:	
APPROVED:	

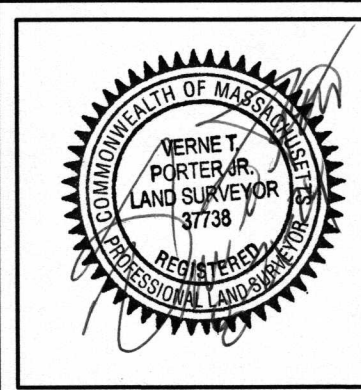
I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND
BELIEF THIS PLAN IS TRUE AND CORRECT TO THE
ACCURACY REQUIRED BY THE SUBDIVISION REGULATIONS
AND PROCEDURAL RULES OF THE NEEDHAM PLANNING
BOARD.

Paul J. Tyrell 8-21-2024

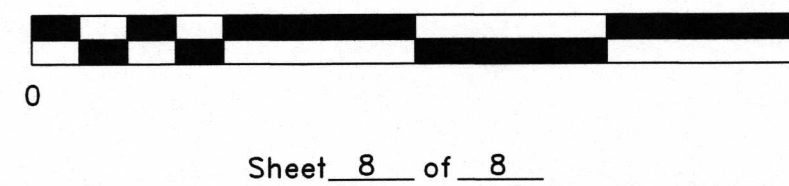
I CERTIFY THAT THIS PLAN HAS BEEN PREPARED
IN ACCORDANCE WITH THE RULES AND REGULATIONS
OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH
OF MASSACHUSETTS

Paul J. Tyrell 8-21-2024

REVISIONS	
DATE	DESCRIPTION
1-19-23	NO REVISIONS MADE
2-23-23	DRAINAGE DETAILS ADDED
4-23-24	NO REVISIONS MADE
8-21-24	NO REVISIONS MADE



~Detail Sheet~	
920 South Street	
Needham, Massachusetts	
Scale: As Noted	September 9, 2022
VERNE T. PORTER Jr, PLS Land Surveyors - Civil Engineers 354 Elliot Street, Newton, Ma. 02464	
Project:22019	
Desinged By:	
Drawn By:	
Checked By:	



Alexandra Clee

From: Christopher Heep <cheep@harringtonheep.com>
Sent: Monday, August 12, 2024 11:04 AM
To: Alexandra Clee
Cc: Lee Newman
Subject: Re: Planning Board Code of Conduct draft
Attachments: Planning Board CODE OF CONDUCT redlined from mtg 6.4.24&members - ch edits.docx

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Hi Alex. Sorry for the delay on the Code of Conduct. I have attached a draft with a few additional minor revisions.

In his comments, Adam asked that Section 3.6 be added back in to the Code of Conduct. That section stated: "The Chair or individual Board members are expected to immediately address conduct or language by invited participants and members of the public who are disrespectful, demeaning, inappropriate, or otherwise in violation of community standards."

I had previously cautioned against including this section. My rationale was that there may be cases where the easiest way to defuse a "disrespectful, demeaning or inappropriate" comment might be to give the speaker their allotted time, and then move on without engaging. This section creates an expectation that the Board shall respond, and therefore eliminates flexibility in how to respond in a given situation.

In addition, the recent SJC case on public comment means that there may be cases where a speaker is disrespectful, demeaning, or inappropriate, and their comments must nonetheless be allowed to continue out of respect for their rights under the First Amendment.

That being said, the question of whether to include Section 3.6 is essentially up to the Board. If there is a consensus that this should stay in, I have no legal objection to that result, provided that the Chair understands that a speaker should almost never be ordered to stop talking (we can discuss this if the section is added back in).

There was also a question embedded in Section 4.2 – "How do we enforce this?" The best answer is that this Code of Conduct is a set of non-binding guidelines that the Board is asking the members to abide by. I do not regard these as enforceable in any meaningful way. I certainly would not want the Board to make any attempt to silence a member's speech outside of a Board meeting. This document is aspirational, not enforceable.

Hope that helps, and happy to answer any additional questions or make any further revisions.

Thanks,
Chris



CHRISTOPHER H. HEEP

Partner at Harrington Heep LLP

office [617.489.1600](tel:617.489.1600)

direct [617.804.2422](tel:617.804.2422)

email cheep@harringtonheep.com

website harringtonheep.com

address 40 Grove Street, Suite 190 Wellesley, MA 02482

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From: Alexandra Clee <aclee@needhamma.gov>
Date: Tuesday, August 6, 2024 at 11:07 AM
To: Christopher Heep <cheep@harringtonheep.com>
Cc: Lee Newman <LNewman@needhamma.gov>
Subject: RE: Planning Board Code of Conduct draft

Hi Chris,

I am not sure if I ever got any feedback from you on this, but I am not seeing it. I know we have you busy with other things now. Do you think I should put this on a future agenda or keep it on for 8/14? I would want any feedback in the packet, which I would be probably finalizing on Thursday I think. Otherwise, I could do 8/27.

Let me know, thanks, alex.

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov

From: Christopher Heep <cheep@harringtonheep.com>
Sent: Tuesday, July 2, 2024 3:24 PM
To: Alexandra Clee <aclee@needhamma.gov>
Cc: Lee Newman <LNewman@needhamma.gov>
Subject: Re: Planning Board Code of Conduct draft

Thanks Alex! I was thinking I could cram to get this out by end of this week, but should have realized the packet was going out tomorrow. I think I'm unlikely to hit that mark, so the next meeting in August sounds better. Still, I should have it back over to you with any comments/revisions in a few days and won't take all that time between now and then.

Thanks,
Chris



CHRISTOPHER H. HEEP

Partner at Harrington Heep LLP

office [617.489.1600](tel:617.489.1600)

direct [617.804.2422](tel:617.804.2422)

email cheep@harringtonheep.com

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From: Alexandra Clee <aclee@needhamma.gov>
Date: Tuesday, July 2, 2024 at 11:57 AM
To: Christopher Heep <cheep@harringtonheep.com>
Cc: Lee Newman <LNewman@needhamma.gov>
Subject: RE: Planning Board Code of Conduct draft

Our next meeting is July 11 but the packet is going out tomorrow for that. It's the summer; if we put it on our august 14 agenda (next meeting beyond the MBTA one I am scheduling), that is okay. They've gone this long without it!

So, shall we say for the 8/14 agenda? I would get it back form you maybe a week prior?

Thanks, alex.

Alexandra Clee
Assistant Town Planner
Needham, MA

From: Christopher Heep <cheep@harringtonheep.com>
Sent: Tuesday, July 2, 2024 11:10 AM
To: Alexandra Clee <aclee@needhamma.gov>
Cc: Lee Newman <LNewman@needhamma.gov>
Subject: Re: Planning Board Code of Conduct draft

Hi Alex. Happy to review. I am in and out of the office this week, so just want to check: When is this next on the PB's agenda?

Thanks,
Chris



CHRISTOPHER H. HEEP

Partner at Harrington Heep LLP

office [617.489.1600](tel:617.489.1600)
direct [617.804.2422](tel:617.804.2422)
email cheep@harringtonheep.com
website harringtonheep.com
address 40 Grove Street, Suite 190 Wellesley, MA 02482

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From: Alexandra Clee <aclee@needhamma.gov>
Date: Sunday, June 30, 2024 at 9:41 AM
To: Christopher Heep <cheep@harringtonheep.com>

Cc: Lee Newman <LNewman@needhamma.gov>

Subject: Planning Board Code of Conduct draft

Hi Chris,

The Planning Board asked that we send this to you for your review – specifically to find out if there's a way to legally restore some aspect of Section 3.6 (Adam provides a proposal to this in the attached, which may work). Also if you could make sure that nothing they have changed/added is an issue legally.

Thanks!

Alexandra Clee
Assistant Town Planner
Needham, MA
781-455-7550 ext. 271
www.needhamma.gov



Town of Needham Planning Board Code of Conduct Adopted: Month, Day, 2024

In its role as a planning body for the Town of Needham, the Planning Board establishes the following Code of Conduct. This self-enforcing set of guidelines is designed to supplement all relevant state laws and regulations governing ~~to~~ conduct of public bodies and elected officials, to include (but not limited to) the Open Meeting Law ([G.L. c.30A, §§18-25](#)), the Public Records Law ([G.L. c.66](#)), the Campaign Finance Law ([G.L. c.55](#)), and the Conflict of Interest Law ([G.L. c.268A](#)). Members are expected to familiarize themselves with and adhere to both the above listed laws and other relevant statutes. The purpose of this Code of Conduct is to set forth the Board's expectations of member conduct and responsibilities, as well as to maintain public trust in the Planning Board and Town government.

1. General

1.1 Planning Board members will act honestly, conscientiously, reasonably, and in good faith at all times having regard to their responsibilities, the interests of the Town, and the welfare of its residents.

1.2 Planning Board members will conduct themselves in a manner that cultivates an environment of dignity and mutual respect, in which every person feels welcomed, safe, and valued.

1.3 All members of the Planning Board will fully comply with all applicable Town personnel policies, to include (but not limited to) Policies #202 ([Sexual Harassment](#)), #205 ([Harassment of Individuals in Protected Classes](#)), and #426 ([Workplace Violence Policy](#)).

2. Preparation for Meetings

2.1 All members of the Planning Board will arrive for meetings having prepared themselves for discussion on any and all items scheduled to be discussed on the agenda.

2.2 Pursuant to the Open Meeting Law, members will limit discussion of agenda items and matters within the Planning Board's jurisdiction outside of posted public meetings. This includes, for example, refraining from discussion of agenda topics and matters within the Planning Board's jurisdiction with more than one other member outside of a public

Commented [AB1]: Should we also reference state statutes that regulate our own authority and acknowledge that in the event of a conflict between this code and those statutes, those statutes prevail?

Commented [CH2R1]: I don't think it necessary to refer to M.G.L. c.40A, the subdivision control law, etc. in this document.

Date June 4, 2024

meeting. This includes discourse and deliberation on such topics in person, via email, using messaging tools, or posting on social media.

2.3 In preparation for public meetings, members will refrain from taking public stances on pending agenda items and are encouraged to enter each meeting open-minded, ready to hear new information.

2.4 Members will notify the Chair and Office of the Planning Board as soon as possible if they anticipate being late and/or if they are unable to attend a scheduled meeting or require remote participation, if permitted by ~~Planning Board~~ Member Remote Participation in Public Meetings Policy ([SB-ADMIN-008](#)), Office of the Attorney General regulations governing remote participation in public meetings ([940 CMR 29.10](#)), the Open Meeting Law ([G.L. c.30A, §§18-25](#)), and any other applicable regulation or law governing remote participation.

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3. Conduct at Meetings

3.1 The Planning Board seeks to be a deliberative body in which various opinions may be shared in an environment of dignity and respect. The Board understands that there is space for disagreement amongst its members, but that dissent and debate will take place in a civil manner with a focus on policy over personality. No member shall disparage or impugn another member during a meeting.

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3.2 Board members will refrain from comments on the individual personality or character of a fellow Board member, other Town elected or appointed official, and Town staff.

3.3. Board members will refrain from disparaging and impugning petitioners, their representatives and the public whether in a hearing or otherwise. Board members will refrain from comments on the individual personality or character of petitioners, their representatives and the members of the public whether during a hearing or otherwise and shall treat show due deference to petitioners, their representatives and the public respectfully.

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3.4 Board members shall refrain from raising their voice at other members, petitioners, their representatives and members of the public at all times.

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3.5 Board members shall respect the Chair by waiting to be recognized to speak by the Chair and by not talking over the Chair or each other, whether the Chair uses the gavel to call for order or otherwise.

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3.6 In the event a Board member violates such conduct, the Chair may, on their own motion shall themselves or at the request of another member, immediately recess the

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Date June 4, 2024

~~meeting for a period of 5 (five) minutes to establish proper order and to and invite the member(s) found in violation of this Code of Conduct to recompose themselves and to remind such member(s) of this element of the to uphold thBoard's is-Code of Conduct.~~

3.3 Members will not use messaging apps or other media to communicate with each other, a petitioner or its representatives, or the public, in private during Planning Board meetings.

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3.4 In accordance with the purpose of G.L. c.30A, §22(f), following all Executive Sessions, members will keep the contents of discussions privileged and confidential unless and until the minutes of said session are released to the public.

3.5 Further, in accordance with G.L. c.268A, §23(c)(1) and (2), members will refrain from disclosing confidential information gained by reason of their official position or duties.

~~I don't think we should delete former 3.6 relating to language. I think we should spell out specific remedies including gaveling order, inviting the speaker to refrain from such demeaning or otherwise inappropriate conduct or language, enforcing the speaker's time limit and recessing the meeting. I don't know of anything in the Court's decision that prohibits this positive acts to restore order. 3.6 — The Chair or individual Board members are expected to immediately address conduct or language by invited participants and members of the public who are disrespectful, demeaning, inappropriate, or otherwise in violation of community standards.~~

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~~3.67~~ The Board affirms that its members will act in good faith to share all relevant information they may have to contribute to a discussion and will disclose to other members and the public any conflicts of interest, either actual or perceived, in matters before the Board.

~~3.78~~ In response to a self-identified determined or perceived conflict of interest by a Board member, it is incumbent upon said Board member to seek advice from the State Ethics Commission and/or Town Counsel before participating in the particular matter. Further, a Board member is always welcome to obtain a written opinion from the State Ethics Commission and/or Town Counsel before participating in a matter when they believe a written opinion would be beneficial to their potential participation in the matter.

~~3.89~~ Should a Board member believe a colleague may be in jeopardy of violating State Ethics Law, they should inform that member before the Board discusses the agenda item in question as both a courtesy and opportunity for education.

Date June 4, 2024

3.910 Should a Board member believe that a colleague has violated this Code of Conduct, they may request that the Chair place an item on a Planning Board agenda so that the Board may discuss the member's concern and take any actions deemed necessary.

4. Conduct Outside of Meetings

4.1 No member shall disparage or impugn another member in public, online or on social media platforms and shall refrain from casting aspersions and promoting unfounded claims of misconduct, conflict of interest or corruption against another member.

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4.1 Members of the Planning Board are always permitted to voice their opinions on issues at hand in their capacity as a private citizen or candidate for office. In these capacities, members may participate in partisan political events, take positions on candidates for office or ballot measure, and other related actions, but must exercise care to ensure that they are speaking on behalf of themselves in their private capacity, and not as a member or representative of the Planning Board. Members are encouraged to seek advice from Town Counsel or the State Ethics Commission if they have questions.

4.2 When acting in their capacity as members of the Planning Board, members should speak on behalf of the Board's decisions and actions, even when their personal position was not in the majority opinion. How do we enforce this? If a member is attending an event as a private citizen, members of the public still may address them in their official capacity – in this circumstance, members should take care to represent the Board in their official capacity.

4.3 At times, the Planning Board may be asked to attend community events. The Planning Board Chair will designate a member (or members) to attend. Some of these events may involve a cost to the attending member(s). The member's annual stipend is expected to cover the cost of such events. In other cases, members may attend events for which they are offered free admission to events in exchange for providing a service (e.g. moderating a panel or acting as master of ceremonies). Without limiting the foregoing expectations, members should consult Town Counsel or the State Ethics Commission before accepting payment for, or waiver of, fees for admission to an event from outside persons or organizations.

4.4 When the Board as a body is asked questions by the public (through email, mail, or other means), the Chair will either respond directly or designate a Board member to respond. If the question is related to the operations of Town government, the Chair may place the question on an agenda of a Board meeting or ask the Director of Planning and Community Development to respond on behalf of the Board.

Date June 4, 2024

5. Policymaking versus Administration of Policy

5.1 The Planning Board is a policymaking body. The Director of Planning and Community Development oversees administration of the Planning and Community Development department. Members will generally direct questions or concerns relative to department administration and operations to the Director of Planning and Community Development.

6. Use of Town Counsel

6.1 Members of the Planning Board will engage with Town Counsel to resolve any questions they may have relating to potential or perceived conflicts of interest, and regarding rules and requirements of the Board as a public body subject to relevant state law.

7. Public Records

7.1 Members will archive and provide upon request any documents, texts, emails, or other communications contained or stored by the member on their premises, private devices, or private accounts that constitute public records in accordance with relevant law and regulation, to include (but not limited to) the Public Records Law ([G.L. c.66](#)); Statutes ([G.L. c.4](#)); and Office of the Secretary of the Commonwealth regulations governing public records access ([950 CMR 32](#)) .

7.2 Members shall not delete such documents, texts, emails, or other communications, whether stored on Town-issued or private email systems or devices, unless it is in accordance with the [Municipal Records Retention Schedule](#).

8. Trainings and Acknowledgements

8.1 All members are required to complete the initial and bi-annual Conflict of Interest Law education requirements as mandated by the State Ethics Commission. Members are encouraged to take advantage of the confidential phone advice provided by the State Ethics Commission (617-371-9500) and to periodically review "The Summary of the Conflict of Interest Law for Municipal Employees" and "The Municipal Officials Guide to Avoiding Conflicts of Interest" to be cognizant of any potential ethical issue.

8.2 All new members are required to complete the Certificate of Receipt of Open Meeting Law materials as required by the Office of the Attorney General.

AGREED TO BY:

Date June 4, 2024

Member, Needham Planning Board

Date: _____

~~Date~~ June 4, 2024

Town of Needham

Needham Center Project Working Group

Charge & Composition

Type:	Ad hoc
Legal Reference:	Select Board Vote
Appointing Authority:	Select Board
Number of Voting Members:	Fifteen (15)
Term of Appointment	3 Years
Special Municipal Employee	Yes
Staff Support	Department of Public Works

Member	Seat	Year Appointed	Term Expiration
	Select Board Member		
	Planning Board Member		
	Finance Committee Member		
	Needham Community Revitalization Trust Fund Member		
	Mobility Planning and Coordination Committee Member		
	Climate Action Committee Member		
	Design Review Board Member		
	Transportation Safety Committee Member		
	Council of Economic Advisors Member		
	Needham Center Small Business Owner		
	Needham Center Restaurant Owner		

	Needham Center Property Owner		
	Resident At-Large		
	Resident At-Large		
	Director of Public Works or designee (ex- officio)		

Composition:

- One (1) member of the Select Board*
- One (1) member of the Transportation Safety Committee
- One (1) member of the Needham Revitalization Trust Fund Commission
- One (1) member of the Council of Economic Advisors
- One (1) member of the Planning Board
- One (1) member of the Finance Committee
- One (1) member of the Mobility Planning and Coordination Committee
- One (1) member of the Climate Action Committee
- One (1) member of the Design Review Board
- One (1) small business owner in Needham Center
- One (1) restaurant owner in Needham Center
- One (1) property owner in Needham Center
- Two (2) residents at large
- The Director of Public Works or Designee*

* Regular municipal employees serving on the Committee remain regular municipal employees, even though the committee members are designated as special municipal employees

Purpose: The purpose of the working group is to provide input and feedback to the Department of Public Works and its consulting engineers on the design and layout of the Needham Center/Great Plain Avenue project.

Charge: The charge of the working group is to:

- Meet regularly with Town staff and consulting engineers to provide input.
- Ensure that constituency needs and desires are considered.
- Report back to constituencies to ensure clear communication on progress.
- Help staff and consulting engineers narrow concept choices.
- Make recommendations to the Select Board on key milestones and decision points.
- Participate in community outreach efforts.
- Make recommendations for funding, as appropriate.

Charge Adopted: [DATE] **Charge Revised:**

SME Status Voted: [DATE]

Town of Needham

Mobility Planning & Coordination Committee (MPCC)

Committee Charge

Type:	Permanent
Legal Reference:	Select Board Goals
Appointing Authority:	Select Board
Number of Voting Members:	Seven (7) Nine (9)
Term of Appointment	Three Years
Special Municipal Employee	Yes
Staff Support	Director of Public Works/Designee

Members	Year Appointed	Term Expiration	Membership
Paul Molta	2023	2026	At Large
TBD	2023	2026	At Large
Moe Handel	2023	2026	MAPC Rep
Duncan Allen	2023	2026	MBTA Advisory Rep
Timothy Bulger	2023	2026	MPO RTAC Rep
Justin McCullen	2023	2026	TSC Rep
James Goldstein	2023	2026	Rail Trail Rep
Carys Lustig	2023	2026	Director of Public Works
Alex Clee	2023	2026	Director of Planning/Community Development
	2024	2026	Planning Board Rep.
	2024	2026	Climate Action Committee Rep.

Composition:

- Two at-large Community Members
- Representative or Alternate Representative to the Metropolitan Area Planning Council (MAPC)*
- Current Town representative to the MBTA Advisory Board
- Current Town representative to the Boston MPO Regional Transportation Advisory Council
- One representative from the Transportation Safety Committee
- One representative from the Rail Trail Advisory Committee
- **One member of the Planning Board**
- **One member of the Climate Action Committee**
- Director of Public Works/Designee, (ex officio, non-voting)*
- Director of Planning & Community Development/Designee (ex officio, non-voting)*

* Full-time employees and Select Board members serving on the Committee are regular municipal employees, even though the MPCC members are designated as special municipal employees.

Purpose: The MPCC shall advise the Select Board in developing and maintaining plans, and recommending policies for the future of mobility-related infrastructure in the Town. Its functions will complement those of the Transportation Safety Committee.

Charge: The MPCC Committee will:

- Review the Town's needs for a Comprehensive Transportation Plan (CTP) and/or individual components thereof (e.g. transit plan, bicycle plan, traffic calming or speed management plan, traffic or transportation safety plan, pedestrian plan, etc.). Identify and recommend to the Select Board specific CTP elements to be developed.
- Advise and coordinate with Town staff on the development of CTP or CTP elements advanced by the Select Board, including purpose, scope, contents of plan elements, and the appropriateness of engaging outside sources (consultants).
- Provide oversight of transportation policies and annual transportation plans as long term plan steps are identified and funded.
- Review and comment to the Select Board on newly developed CTP elements or changes to established elements, especially as they result to policy (as opposed to specific projects).
- Review and advise on the addition or deletion of specific projects from CTP elements, as may periodically be requested by the Select Board, the TSC and/or the Rail Trail Advisory Committee.
- Participate in the semi-annual meetings of the Transportation committees (Mobility Planning & Coordination Committee, Transportation Safety Committee, and Rail Trail Advisory Committee). The purpose of the joint meetings is to align activities, projects, and planning initiatives to facilitate public awareness of current and planned Public Works projects. These meetings shall constitute a regular committee meeting for each committee. The semi-annual meetings will occur in September and February of each year.

- Advise and coordinate with Town staff and the other transportation committees on the prioritization of mobility-related capital infrastructural improvements, including anticipated funding sources for same.
- Review and comment to the Select Board on the particulars of transportation mitigation measures regularly considered by the Planning Board with respect to new developments, especially regarding conformance with transportation plan elements.
- In collaboration with the Select Board, identify and/or respond to opportunities for coordinating mobility infrastructure plans and improvements and expansion of transit networks with neighboring municipalities.
- The Committee will meet at least semi-annually at the joint meetings, and more often as needed.
- The Committee will elect a chair who shall rotate at least biannually.

Charge Adopted: June 13, 2023 **Charge Revised:** 8/13/2024

SME Status Voted: June 13, 2023