

Town of Franklin



Planning Board

Due to the growing concerns regarding the COVID-19 virus, we will be conducting a remote/virtual Planning Board Meeting. In an effort to ensure citizen engagement and comply with open meeting law regulations, citizens will be able to dial into the meeting using the provided phone number (Cell phone or Landline Required) OR citizens can participate by copying the link (Phone, Computer, or Tablet required).

Please click on the link <https://us02web.zoom.us/j/85139760934> or call on your phone at 312-626-6799, meeting # 85139760934.

September 14, 2020

- 7:00 PM Commencement/General Business
- 7:05 PM **PUBLIC HEARING – TO BE CONTINUED**
70, 72 & 94 East Central St – Multi-Family *Adv.: Jan 27 & Feb 3, 2020*
Special Permit & Site Plan Modification *Abuts: Jan. 22, 2020*
- 7:05 PM **PUBLIC HEARING – TO BE CONTINUED**
Maple Hill *Adv.: Feb. 24 & March 2, 2020*
Definitive Subdivision *Abuts: February 24, 2020*
- 7:10 PM **PUBLIC HEARING – Continued**
164 Grove Street *Adv.: July 13 & July 20, 2020*
Special Permit & Site Plan *Abuts: July 13, 2020*
- 7:15 PM **PUBLIC HEARING – Continued**
340 East Central Street *Adv.: June 8 & June 15, 2020*
Special Permit & Site Plan *Abuts: June 5, 2020*
- 7:20 PM **PUBLIC HEARING – Continued**
162 Grove Street *Adv.: June 15 & June 22, 2020*
Special Permit & Site Plan *Abuts: June 15, 2020*

GENERAL BUSINESS:

- A. Final Form H: Villages at Cook's Farm
- B. Final Form H: Franklin Country Club Wash Station
- C. Bond Reduction: Maple Preserve
- D. Endorsement: 122 Chestnut St
- E. Meeting Minutes: July 27, 2020 & August 10, 2020

Tel: (508) 520-4907

Fax: (508) 520 4906

This agenda is subject to change. Last updated: September 8, 2020

The next meeting of the Planning Board is scheduled for September 28, 2020.

SITE PLAN OF LAND
FORM H
ENGINEER'S CERTIFICATE OF COMPLETION
(to be executed by developer's engineer)

Site Plan known as Site As-Built 'Village at Cooks Farm' Franklin Massachusetts
Dated August 7, 2020, revised to September 4, 2020

I hereby certify that all improvements required for the above referenced site plan have been completed in all respects in accordance with the Town of Franklin zoning requirements and the approved plans entitled Site Plan for Village at Cooks Farm Franklin, Massachusetts prepared by Guerriere & Halnon, Inc. and dated March 10, 2014, as approved by the said Planning Board on August 7, 2014.
(revised to 6/19/14)
(Signed by the Franklin Planning Board 11/17/14)

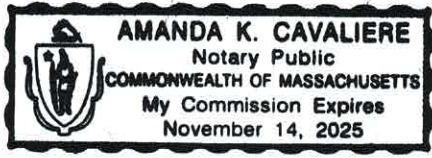
Signed this 4th day of Sept, 2020
By [Signature] Reg. C.E.



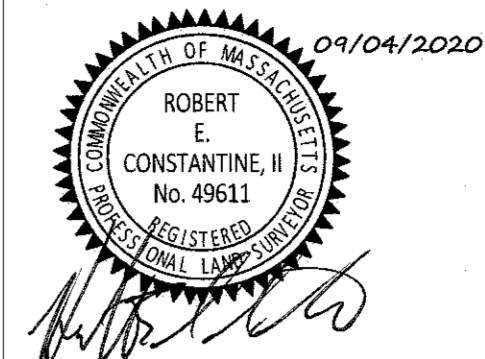
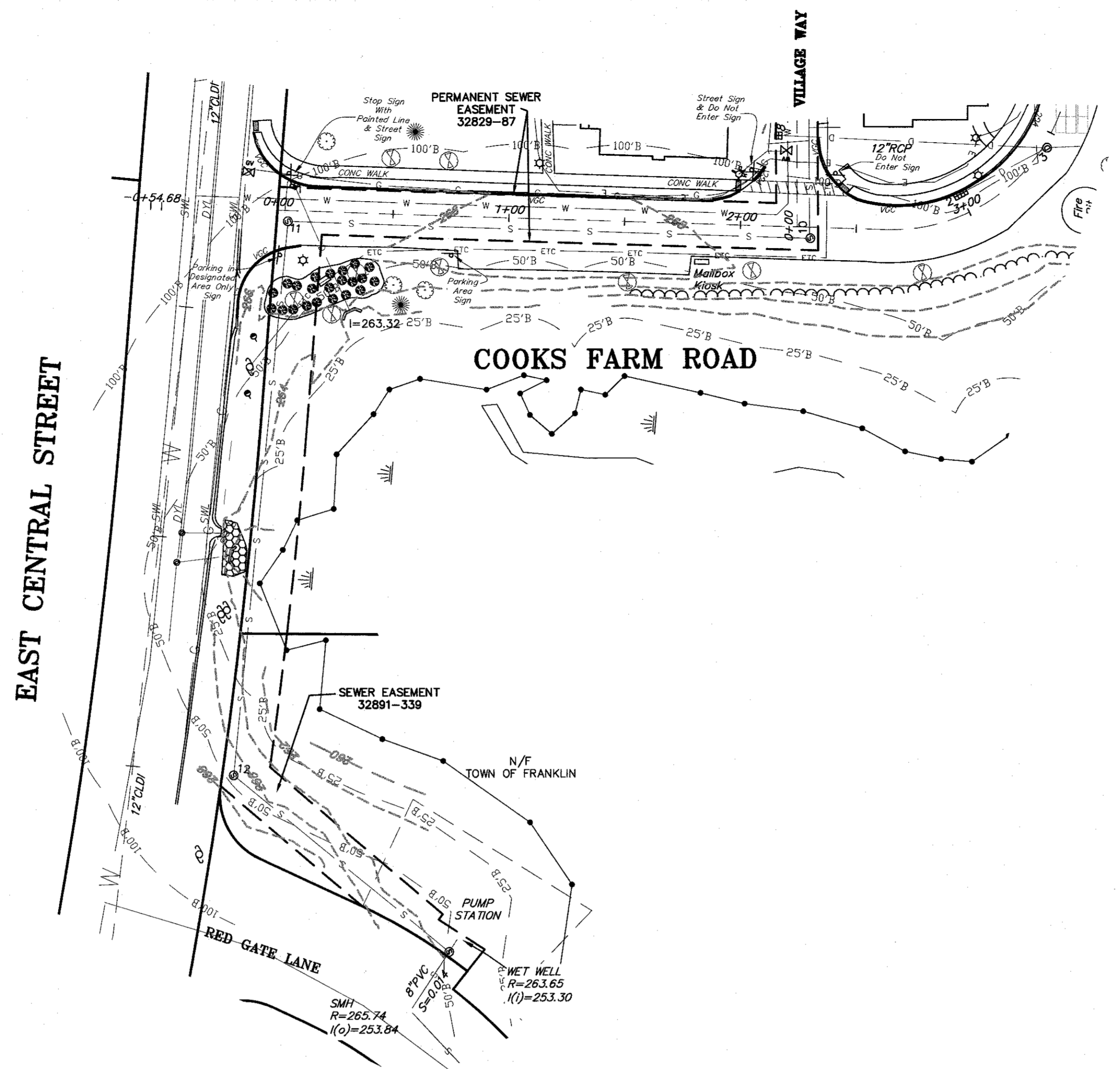
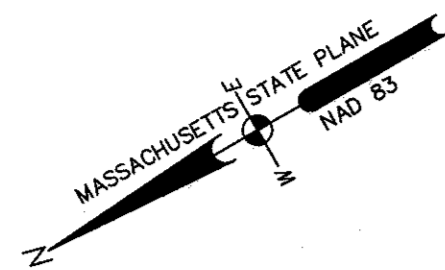
COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS. September 4, 2020

On this 4th day of September 2020, before me, the undersigned notary public, personally appeared Elizabetha Mainini Sanchioni (name of engineer), proved to me through satisfactory evidence of identification, which were MA License to be the person whose name is signed on the preceding document in my presence.



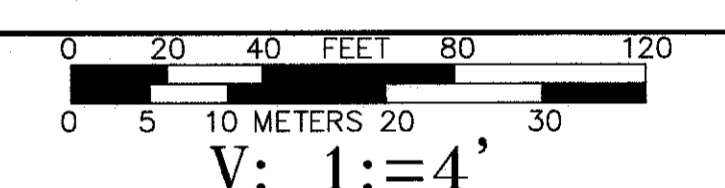
Amanda K. Cavaliere
(Official signature and seal of notary)
Notary Public:
My Commission Expires: Nov. 14, 2025



JOB NO. **F3839**

- PLAN REFERENCES:**
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NOTE:
ALL ROADWAYS SHOWN HEREON ARE PRIVATE, SEE COVENANT ISSUED BY THE TOWN OF FRANKLIN.



OWNER/APPLICANT:

VILLAGE AT COOKS FARM, LLC
31 WHITEWOOD ROAD
MILFORD, MA 01757
DEED BK. 32829 PG. 73 & 79

REVISIONS

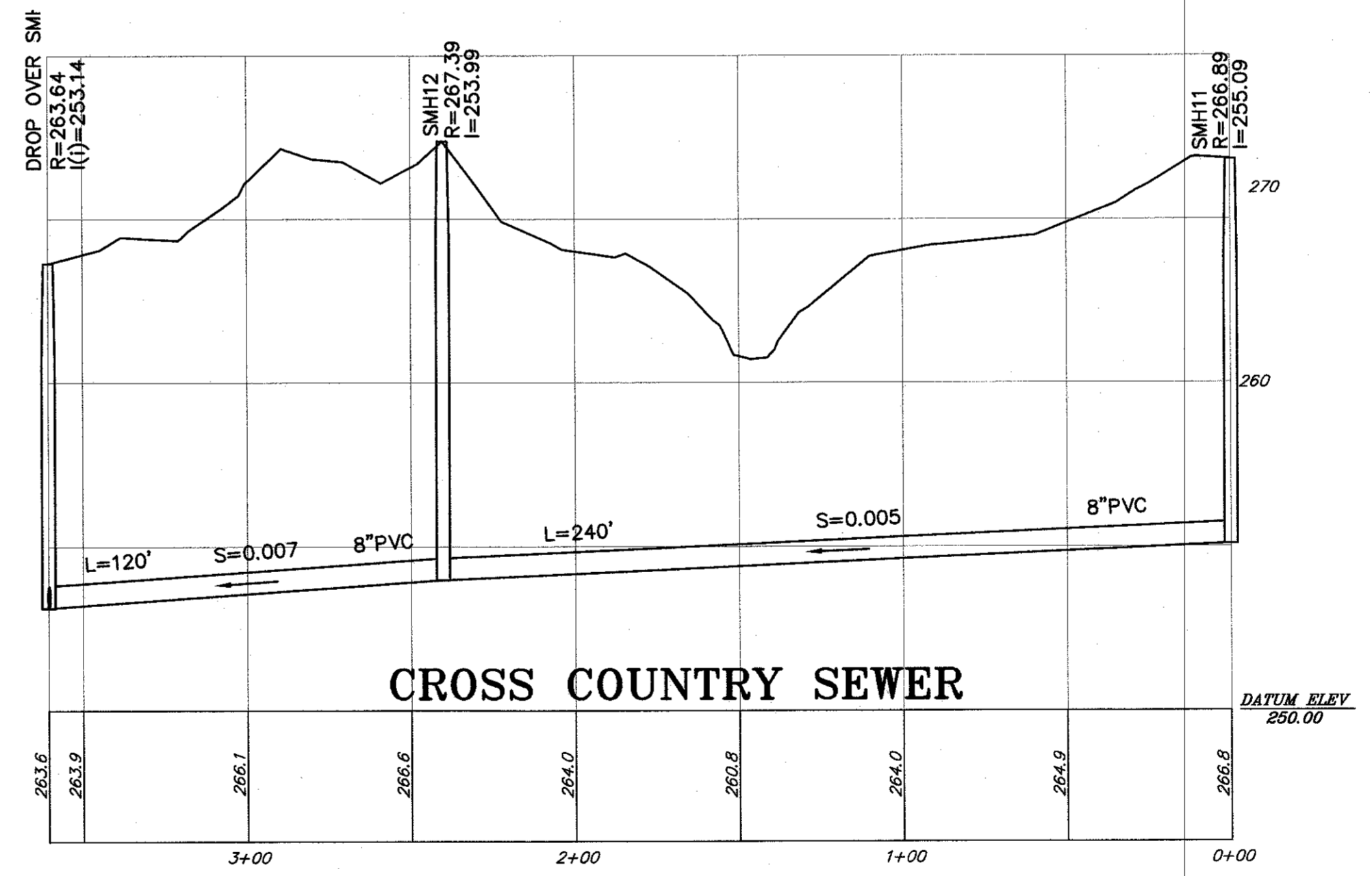
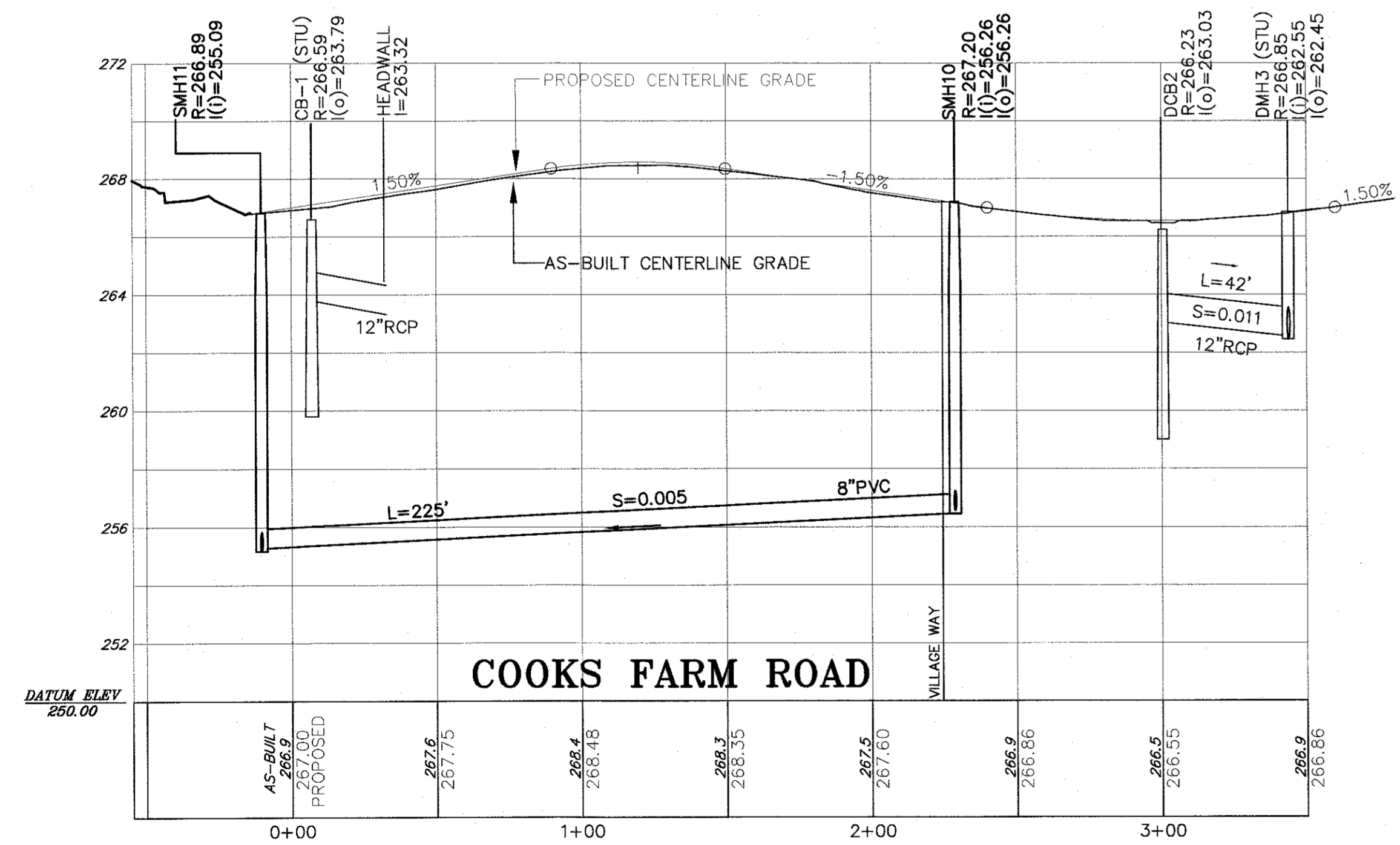
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**SITE AS-BUILT
VILLAGE AT COOKS FARM
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**COOK'S FARM ROAD
0+00 TO 3+50**

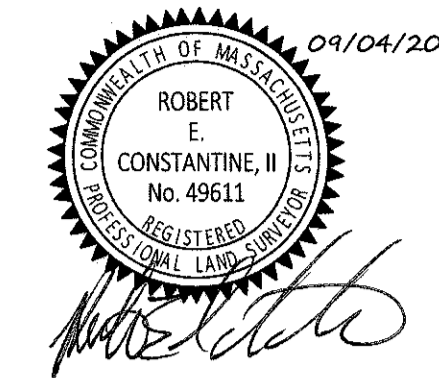
DATE AUGUST 7, 2020	SCALE 1"=40'(H) 1"=4'(V)
SHEET 1 OF 7	JOB NO. F3839



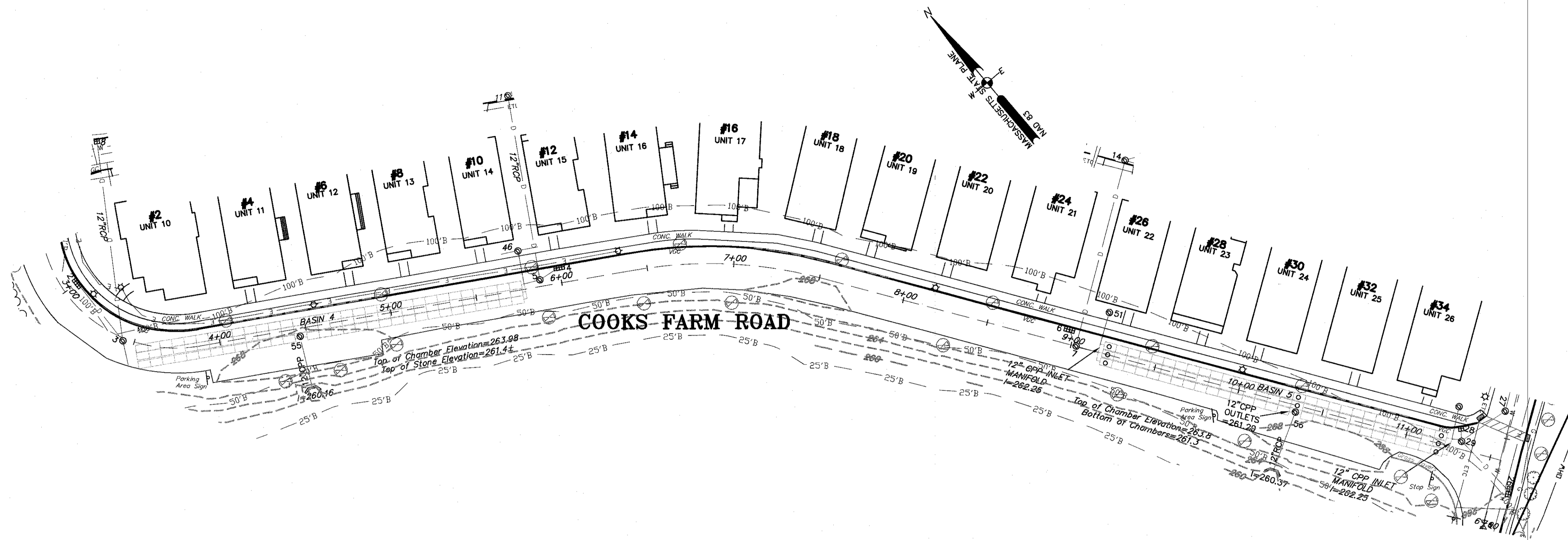
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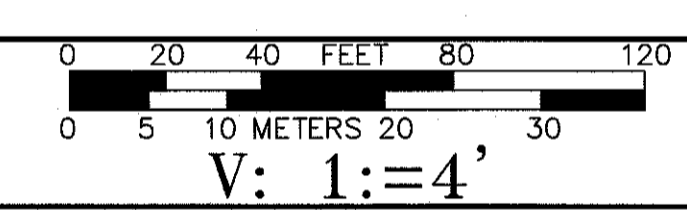


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OWNER/APPLICANT:

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31 WHITWOOD ROAD
MILFORD, MA 01757
DEED BK. 32829 PG. 73 & 79

REVISIONS

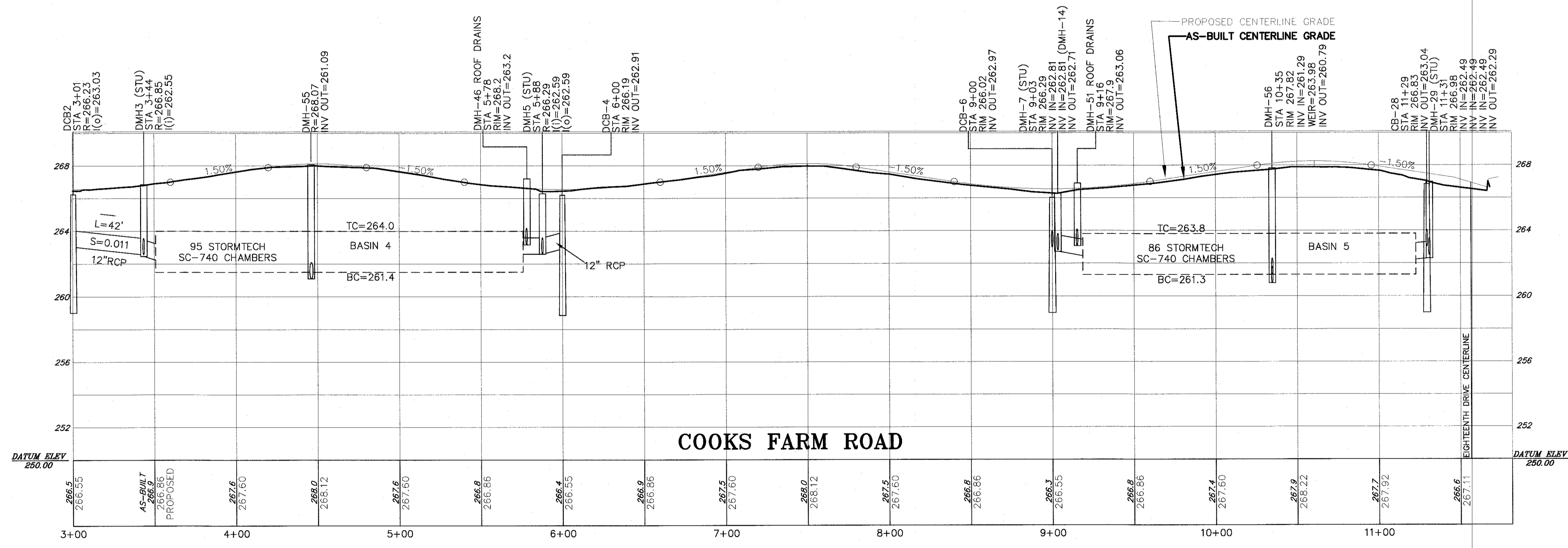
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FRANKLIN
MASSACHUSETTS**

**COOK'S FARM ROAD
3+50-7+80**

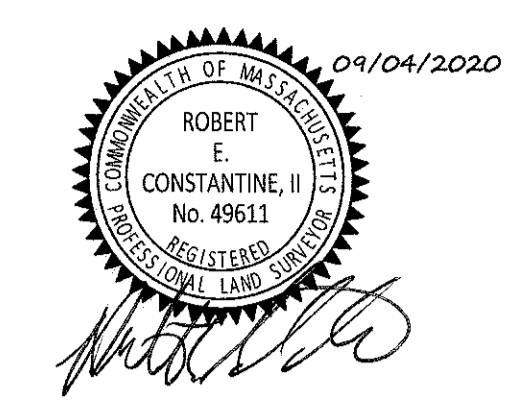
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SHEET 2 OF 7	JOB NO. F3839



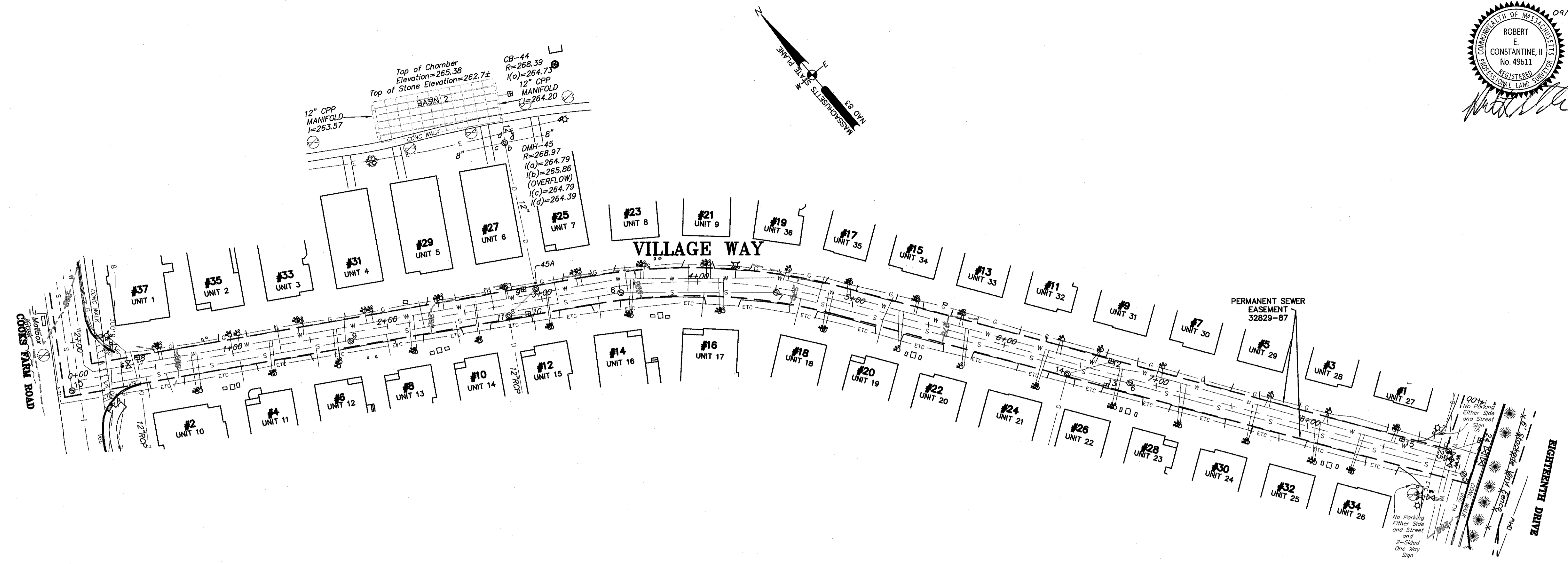
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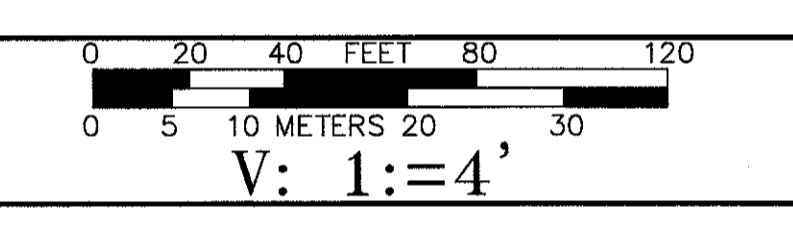
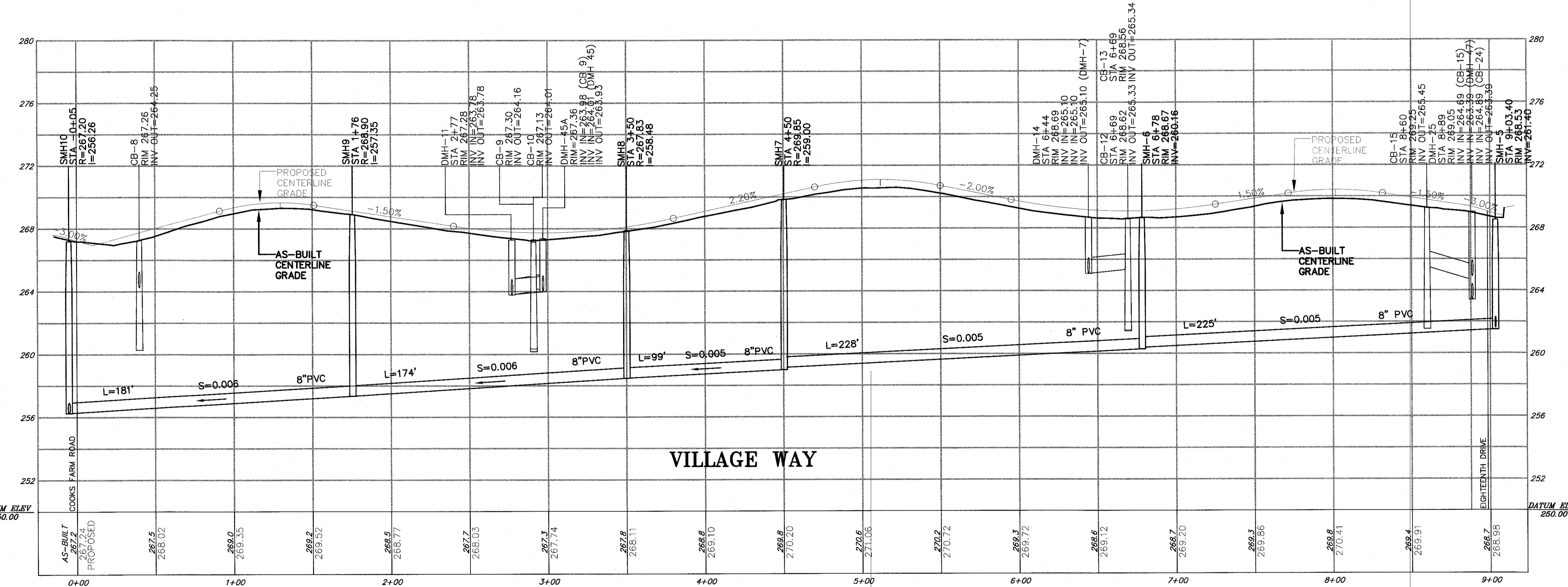


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OWNER/APPLICANT:
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31 WHITEWOOD ROAD
MILFORD, MA 01757
DEED BK. 32829 PG. 73 & 79

REVISIONS

DATE	REVISED
08.19.2020	UPDATED AS-BUILT CONDITIONS.
09.04.2020	UPDATED AS-BUILT CONDITIONS.

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MASSACHUSETTS**

**VILLAGE WAY
0+00 TO 5+00**

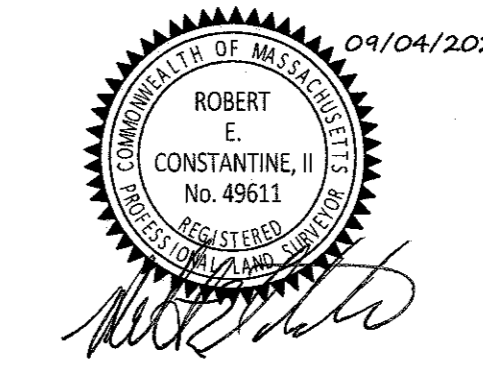
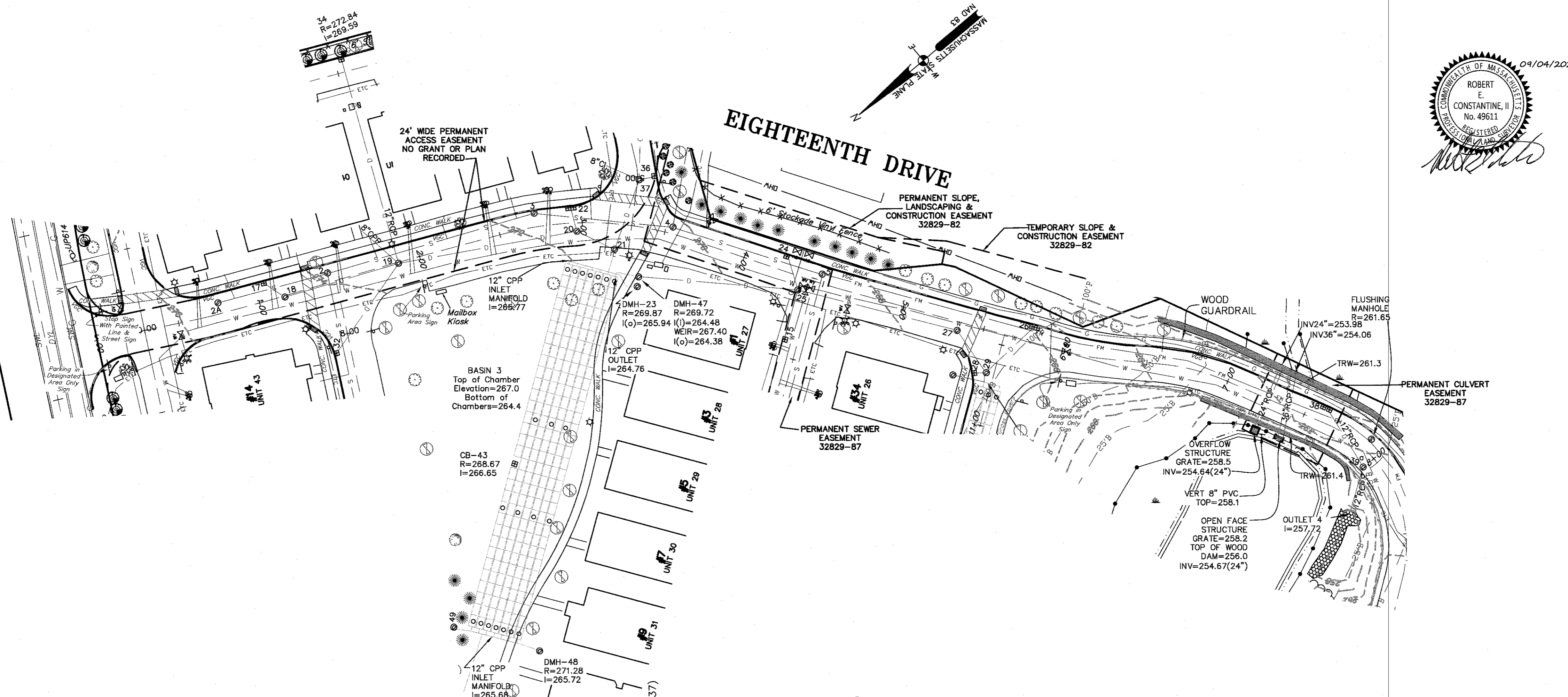
DATE AUGUST 7, 2020	SCALE 1"=40'(H) 1"=4'(V)
SHEET 3 OF 7	JOB NO. F3839

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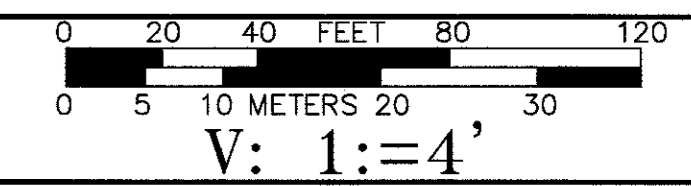
EAST CENTRAL STREET



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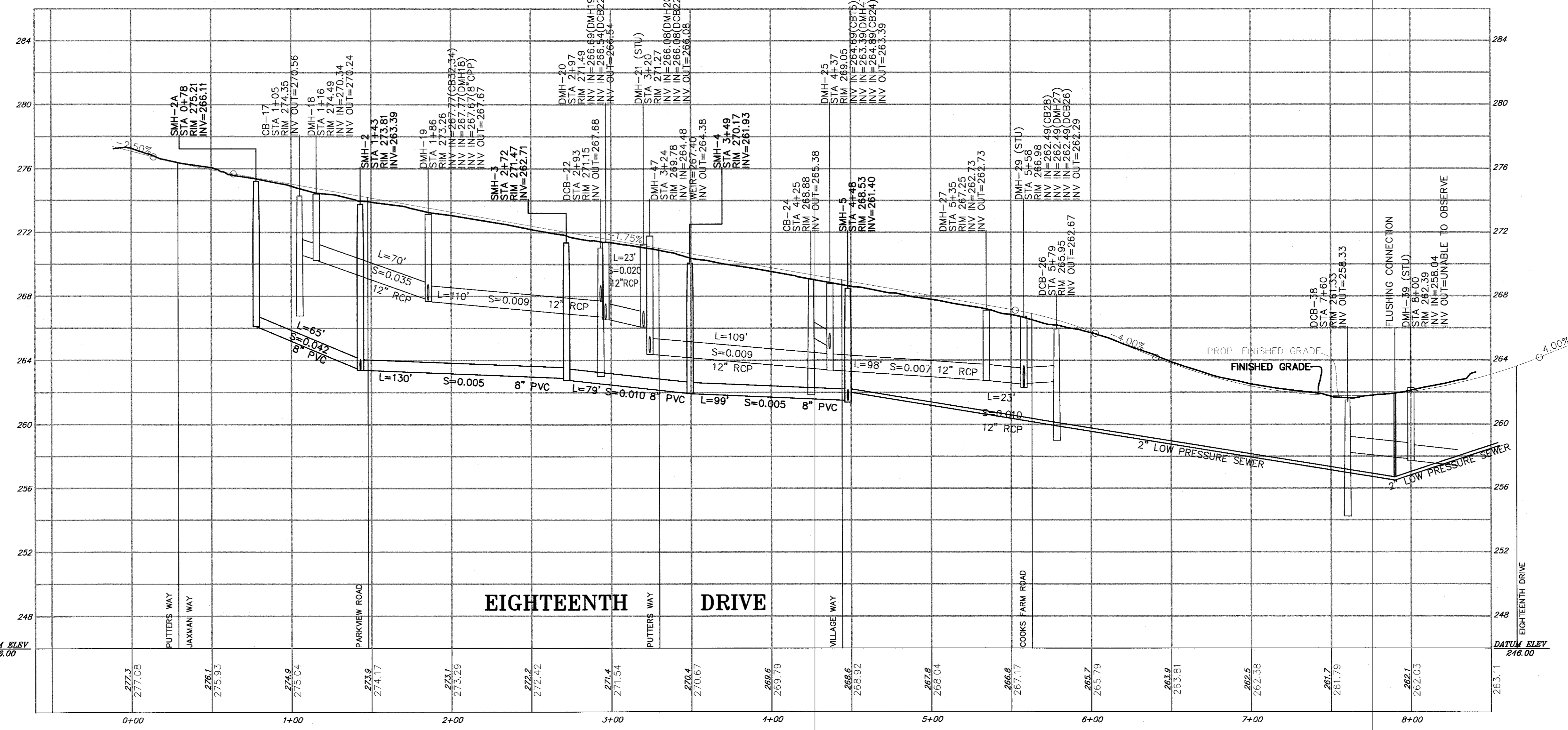
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**EIGHTEENTH DRIVE
0+00 TO 5+80**

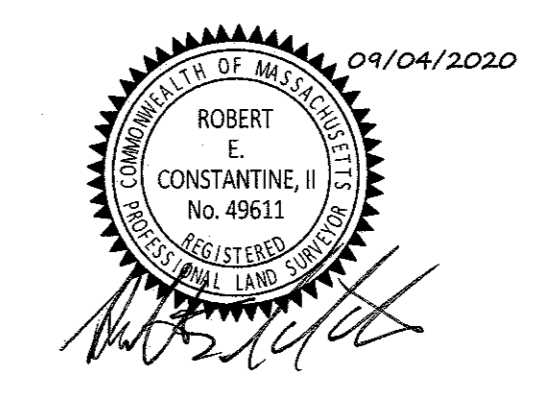
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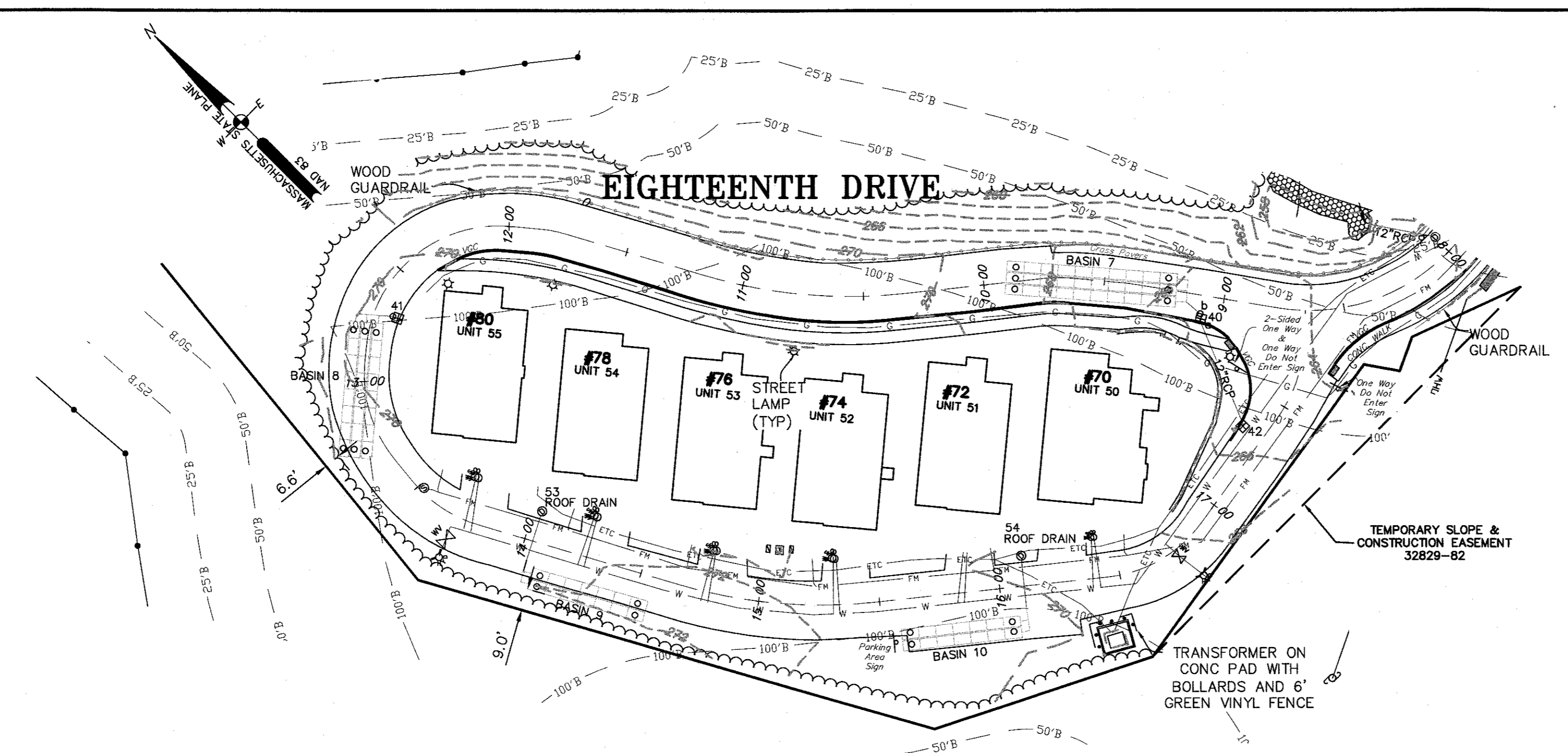
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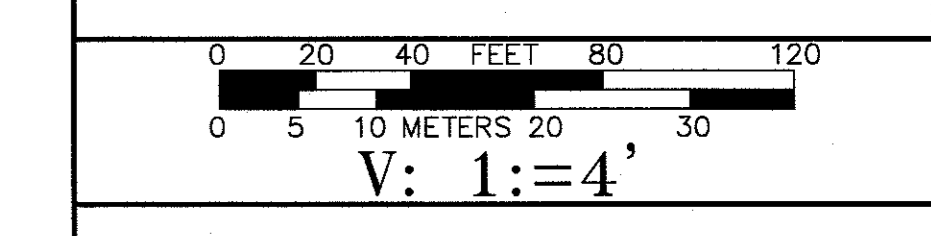


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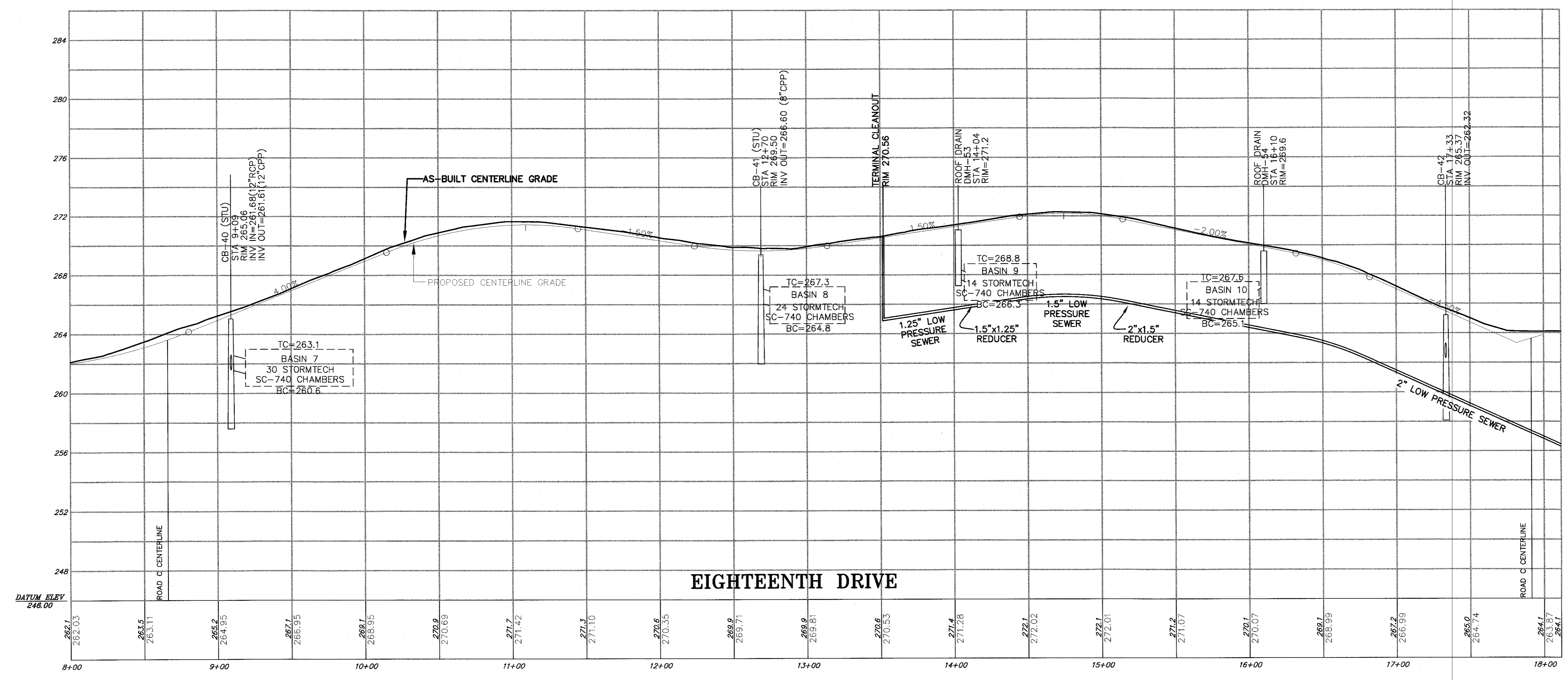
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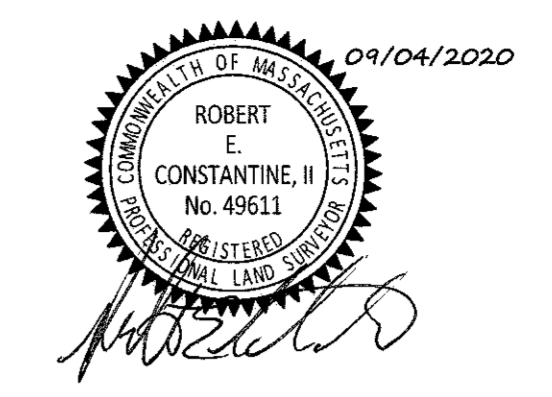
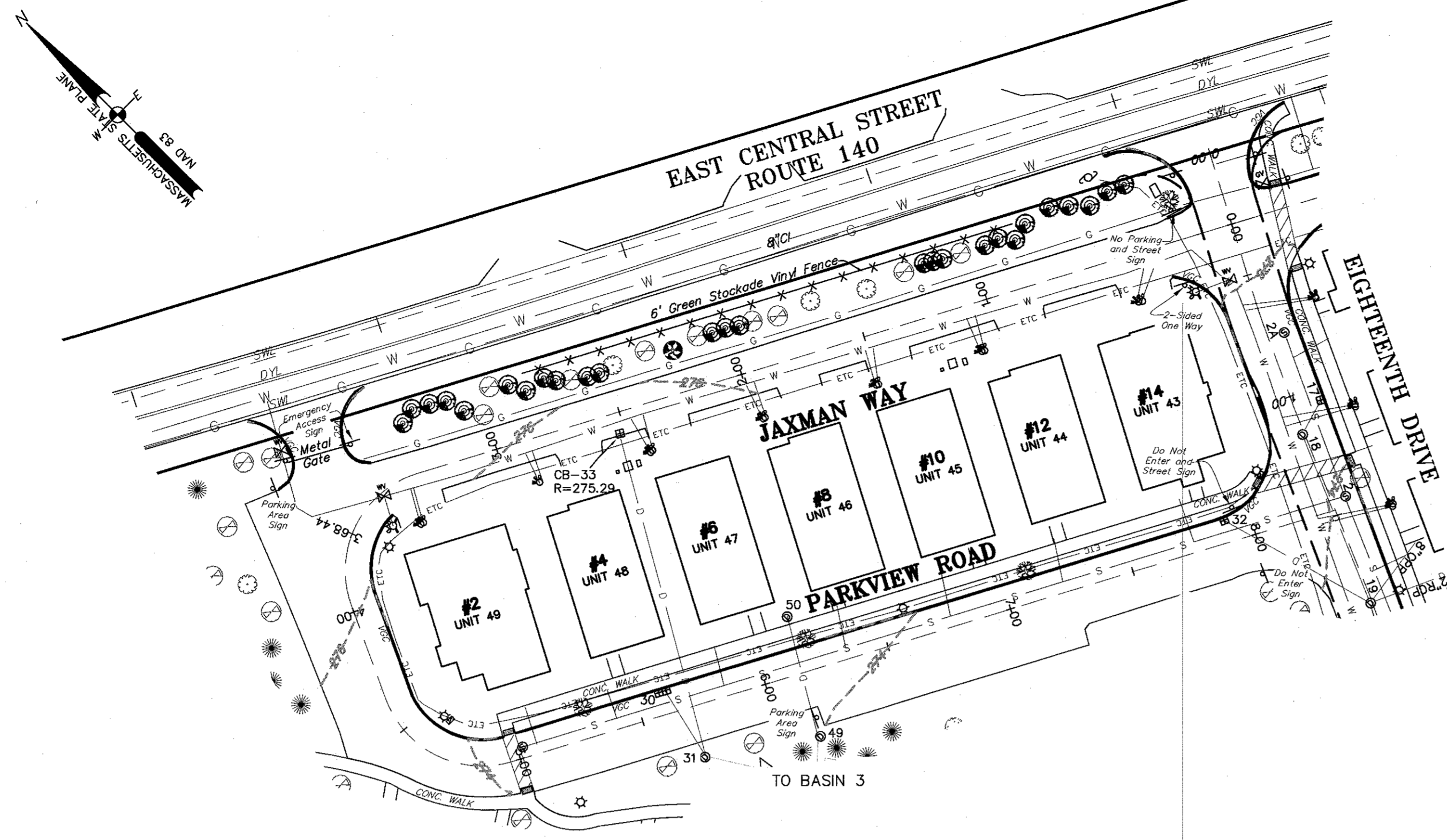
EIGHTEENTH DRIVE 8+50 TO END	
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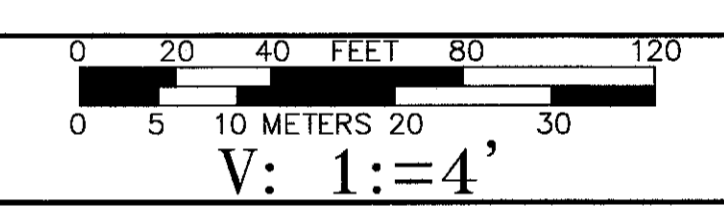
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JOB NO. **F3839**

- PLAN REFERENCES:**
1. SEE PLAN ENTITLED "PLAN OF LAND EAST CENTRAL STREET FRANKLIN MASSACHUSETTS," DATED FEBRUARY 24, 2014, REVISED 10.31.2014, PREPARED BY GUERRIERE & HALNON, INC., PLANNING BOARD ENDORSED NOVEMBER 2, 2014, RECORDED AT THE NORFOLK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 636 PAGE 49.
 2. SEE PLAN ENTITLED "EASEMENTS PLAN OF LAND FRANKLIN MASSACHUSETTS," DATED FEBRUARY 25, 2014, REVISED 11.03.2014, PREPARED BY GUERRIERE & HALNON, INC. RECORDED AT THE NORFOLK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 636 PAGE 50.
 3. SEE PLAN ENTITLED "SITE PLAN FOR VILLAGE AT COOKS FARM FRANKLIN MASSACHUSETTS," DATED MARCH 10, 2014, REVISED 10.10.2014, PREPARED BY GUERRIERE & HALNON, INC. RECORDED AT THE NORFOLK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 636 PAGE 51.
 4. SEE PLAN ENTITLED "PLAN OF LAND OWNED BY VILLAGE AT COOKS FARM, LLC EAST CENTRAL STREET FRANKLIN MASSACHUSETTS," DATED FEBRUARY 26, 2014, REVISED 11.04.2014, PREPARED BY GUERRIERE & HALNON, INC. RECORDED AT THE NORFOLK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 636 PAGE 52.

NOTE:
ALL ROADWAYS SHOWN HEREON ARE PRIVATE, SEE COVENANT ISSUED BY THE TOWN OF FRANKLIN.



OWNER/APPLICANT:

VILLAGE AT COOKS FARM, LLC
31 WHITEWOOD ROAD
MILFORD, MA 01757
DEED BK. 32829 PG. 73 & 79

REVISIONS

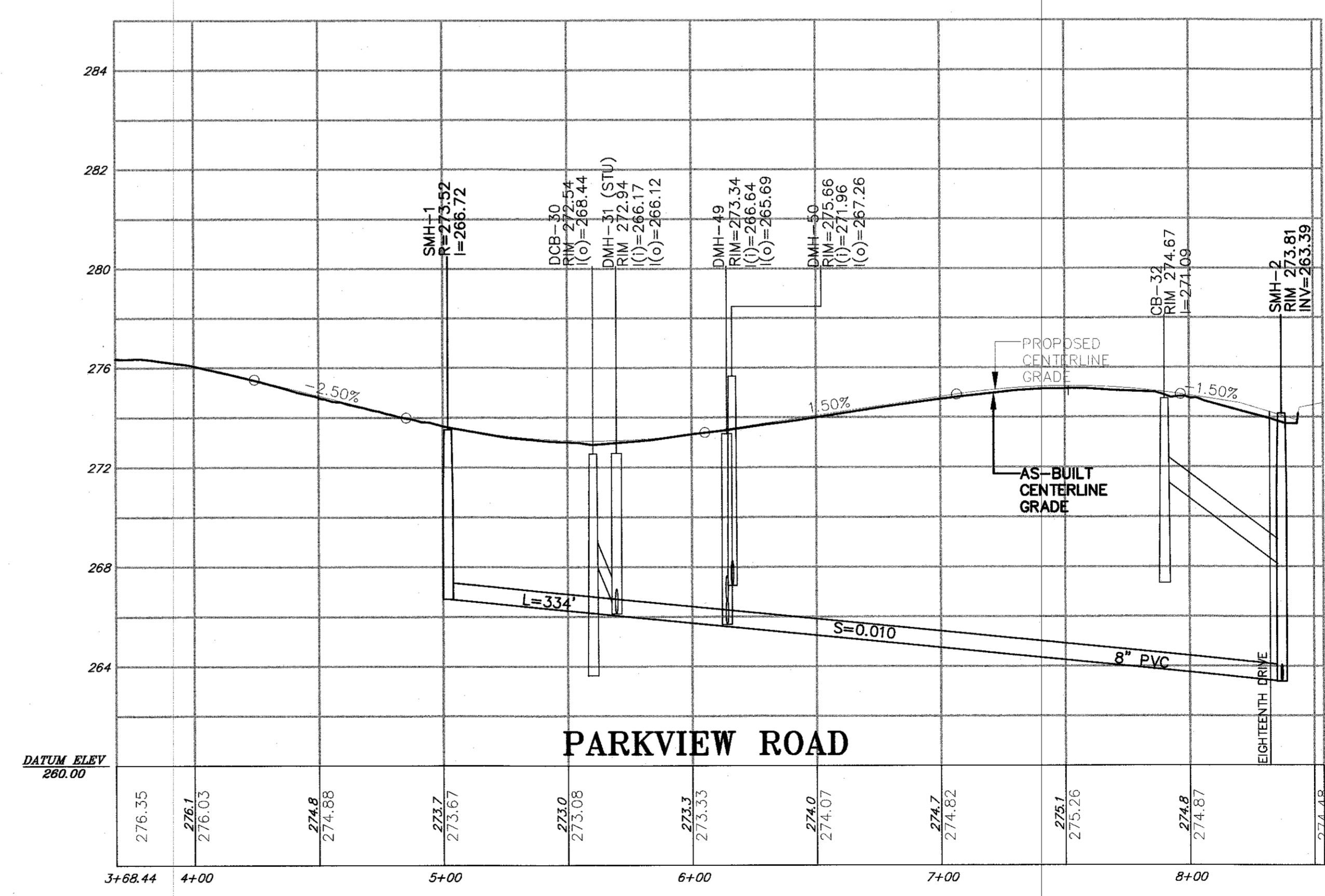
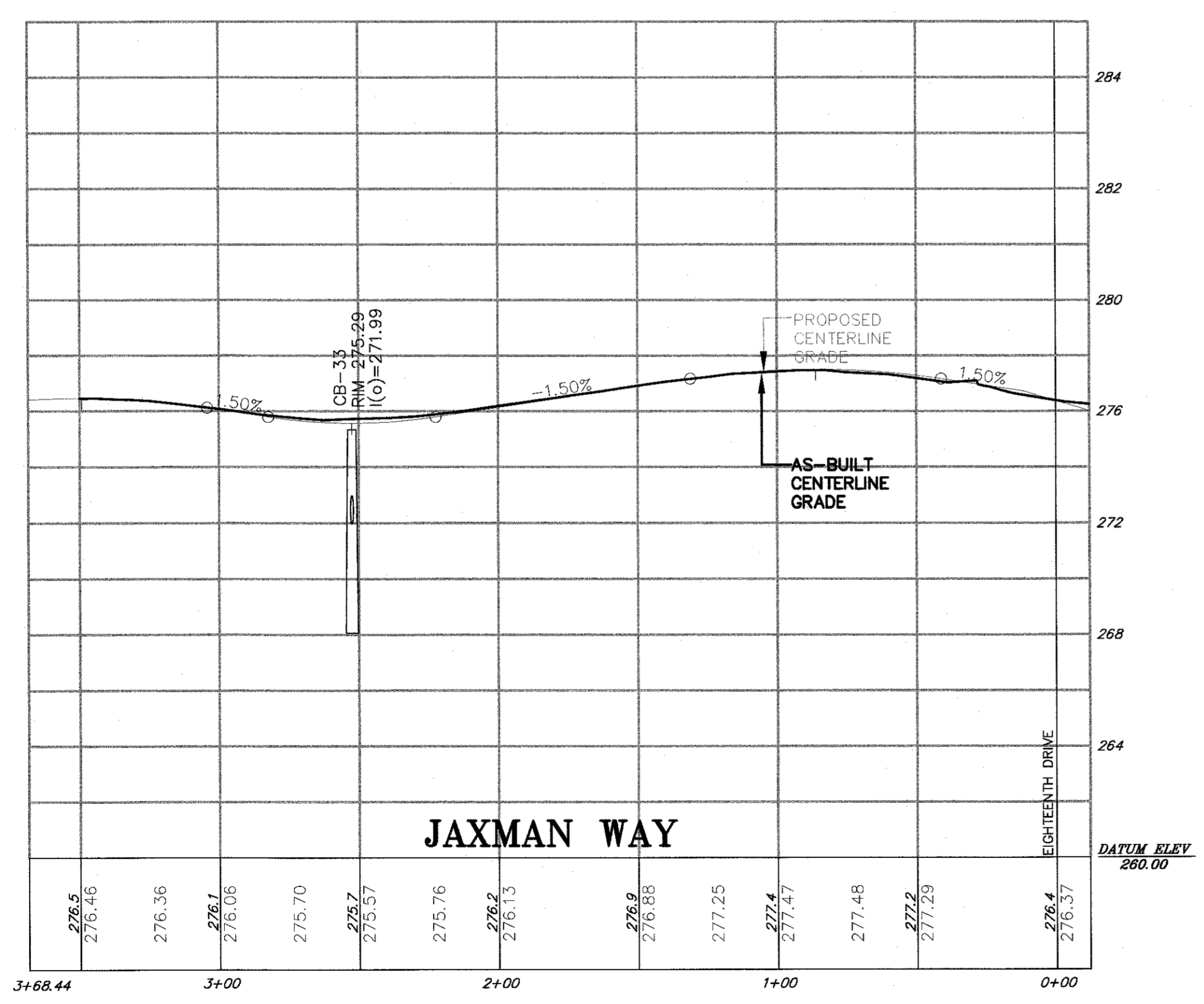
DATE	REVISED
08.19.2020	UPDATED AS-BUILT CONDITIONS.
09.04.2020	UPDATED AS-BUILT CONDITIONS.

Guerriere & Halnon, Inc.
Engineering & Land Surveying
Ph. (508) 528-3221 55 WEST CENTRAL STREET
Fx. (508) 528-7921 FRANKLIN, MA 02038
www.gandhengineering.com

**SITE AS-BUILT
VILLAGE AT COOKS FARM
FRANKLIN
MASSACHUSETTS**

**PARKVIEW ROAD
JAXMAN WAY**

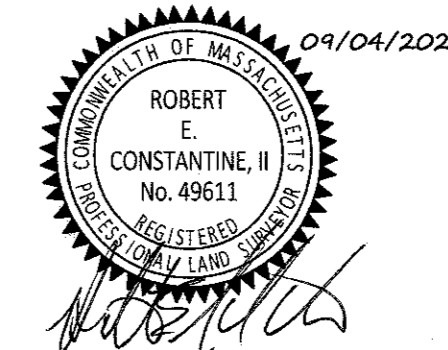
DATE AUGUST 7, 2020	SCALE 1"=40'(H) 1"=4'(V)
SHEET 6 OF 7	JOB NO. F3839



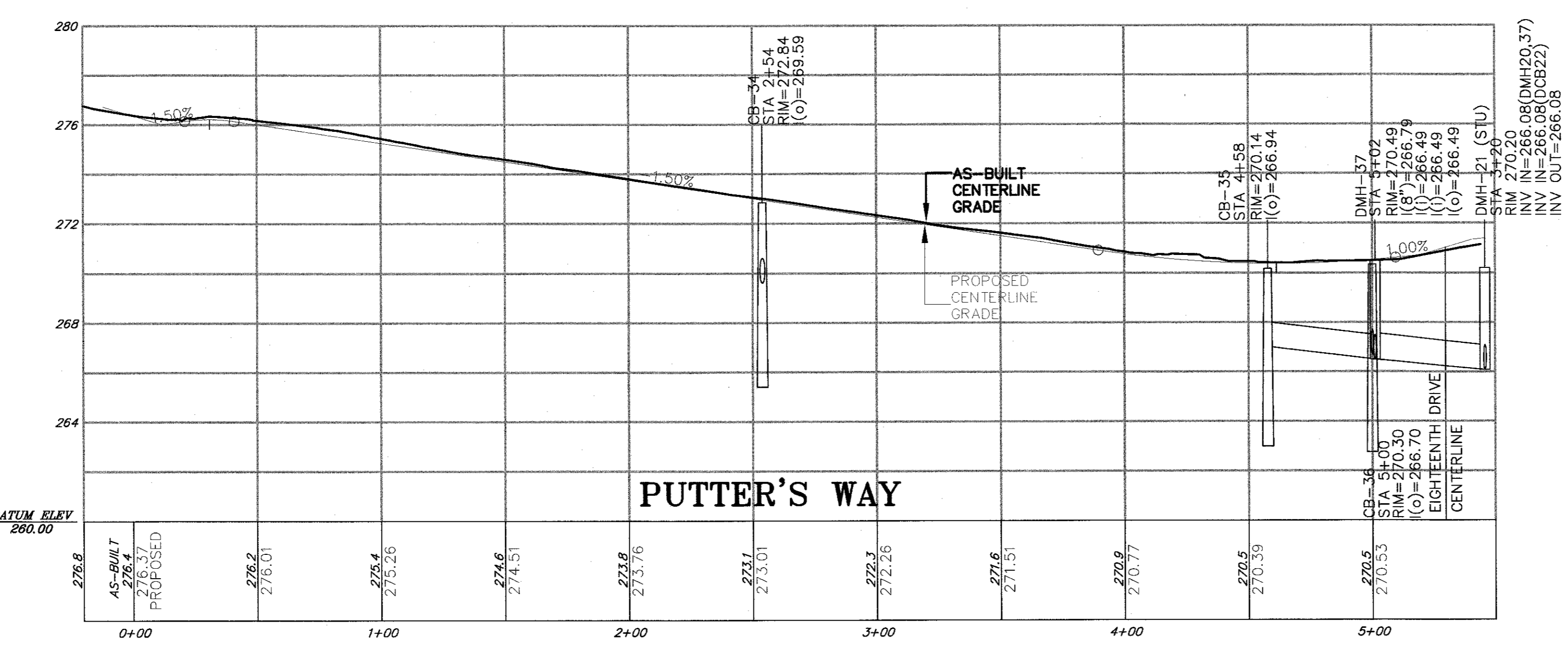
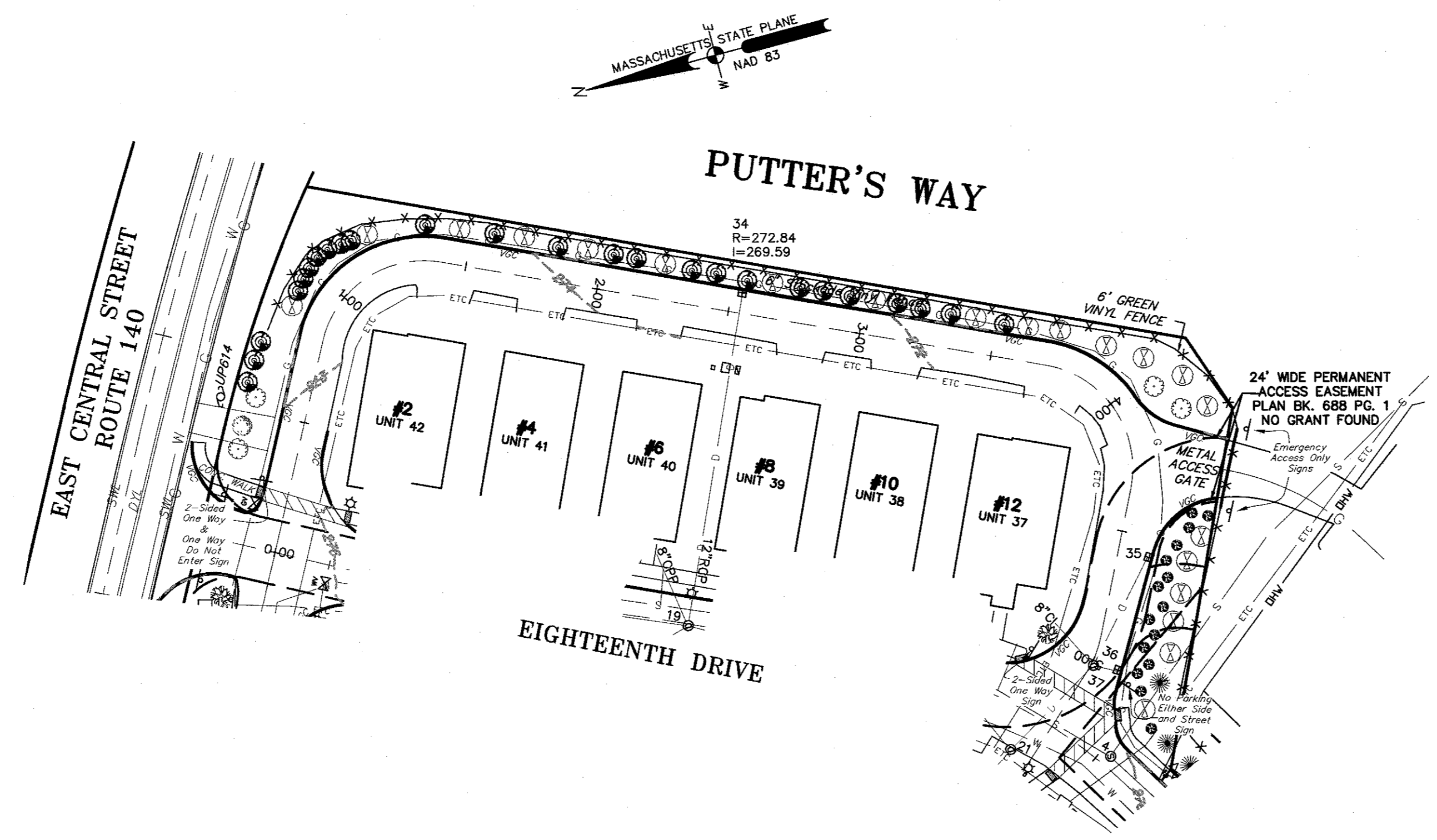
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CONSTRUCTION ON THIS LAND IS SUBJECT TO ANY EASEMENTS, RIGHTS-OF-WAY, RESTRICTIONS, RESERVATIONS, OR OTHER LIMITATIONS WHICH MAY BE REVEALED BY AN EXAMINATION OF THE TITLE.

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JOB NO. **F3839**

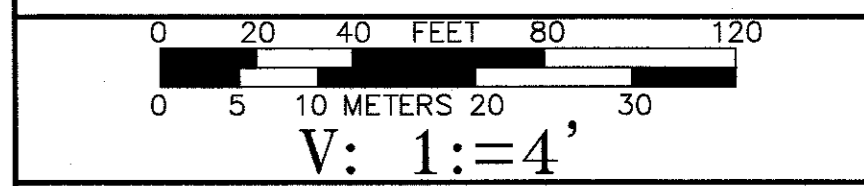


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CONSTRUCTION ON THIS LAND IS SUBJECT TO ANY EASEMENTS, RIGHTS-OF-WAY, RESTRICTIONS, RESERVATIONS, OR OTHER LIMITATIONS WHICH MAY BE REVEALED BY AN EXAMINATION OF THE TITLE.

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NOTE:
ALL ROADWAYS SHOWN HEREON ARE PRIVATE, SEE COVENANT ISSUED BY THE TOWN OF FRANKLIN.



OWNER/APPLICANT:
VILLAGE AT COOKS FARM, LLC
31 WHITEWOOD ROAD
MILFORD, MA 01757
DEED BK. 32829 PG. 73 & 79

REVISIONS	
DATE	REVISED
08.19.2020	UPDATED AS-BUILT CONDITIONS.
09.04.2020	UPDATED AS-BUILT CONDITIONS.

Guerriere & Halnon, Inc.
Engineering & Land Surveying
Ph. (508) 528-3221 55 WEST CENTRAL STREET
Fx. (508) 528-7921 FRANKLIN, MA 02038
www.gandhengineering.com

SITE AS-BUILT
VILLAGE AT COOKS FARM
FRANKLIN
MASSACHUSETTS

PUTTER'S WAY	
DATE	SCALE
AUGUST 7, 2020	1"=40'(H) 1"=4'(V)
SHEET 7 OF 7	JOB NO. F3839

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FRANKLIN PLANNING & COMMUNITY DEVELOPMENT

355 EAST CENTRAL STREET
FRANKLIN, MA 02038-1352
TELEPHONE: 508-520-4907
FAX: 508-520-4906

MEMORANDUM

DATE: September 10, 2020
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: Villages at Cook's Farm
Final Form H

General

1. The applicant has submitted a Final Form H and Engineer's Certificate of Completion and a final as-built plan for Villages at Cook's Farm.
2. BETA has provided an onsite report with pictures verifying the site work is complete.

Comments

DPCD has no further comments.



TOWN OF FRANKLIN - SITE OBSERVATION REPORT

Village at Cooks Farm

Report No.:	4831 443 - 045	Date:	September 9, 2020	Arrive:	2:00 PM
Observer:	Matt Crowley, PE	Weather:	Cloudy ~80°	Leave:	2:45 PM
Owner:	Cook's Farm Realty Trust 5 Pearly Lane Franklin, MA 02038	Contractor:	WW Contracting Corp. 2 Wood Street – PO Box 156 Upton, MA 01568 Kaari Hayward 508-294-3185		

Items Observed: **Conformance Observation – Submitted in conjunction with Applicant's request for acceptance of Form H – Certificate of Completion**

OBSERVATIONS

Observation Requested By: Amanda Cavaliere – Guerriere and Halnon, Inc.

Met/walked site with: Paul – Lobisser

Current Activity on Site: No current activity

Observed Construction: BETA arrived on site to perform a construction observation in conjunction with the Applicant's request for acceptance of Form H – Certificate of Completion. The required Form H, dated September 4, 2020, and the As-built plan, dated August 7, 2020 were prepared by Guerriere and Halnon, Inc. and provided via email. BETA's site walk and review of the Approved Plans confirmed the site to be constructed in general conformance with the Approved Plans and approved field changes with the following exceptions/notations:

- Fencing has not been installed adjacent to the top of the retaining wall at the culvert crossing as shown on the detail. BETA notes that the sidewalk is separated from the top of retaining wall by guardrail and the face of the wall is approximately 5 feet beyond the guardrail.
- BETA did not review landscaping in detail but observed substantial plantings throughout the site. Seeding was observed in recently disturbed areas.
- The hood has not been installed in the catch basin (CB-42) adjacent to Unit 50.
- One "Do Not Enter" sign is missing from the one-way exit of Putter's Way.

Site Photos (Taken between August 25 and September 9, 2020):



Typical paving (Cooks Farm Road)



Typical cross-country sidewalk



Typical hydrant installation



Typical paving (Village Way)



Outlet control structure at Uncas Brook culvert crossing



Typical fence and screening adjacent to East Central Street



Typical fence and screening adjacent to Franklin Country Club



Typical designated parking area and signing



Retaining wall lacking fencing



Typical striped crosswalk

SITE PLAN OF LAND

FORM H
ENGINEER'S CERTIFICATE OF COMPLETION
(to be executed by developer's engineer)

Site Plan known as "Limited Site Plan Modification for Rinse Area and Site Improvements, Franklin, MA"

I hereby certify that all improvements required for the above referenced site plan have been completed in all respects in accordance with the Town of Franklin zoning requirements and the approved plans entitled ***

prepared by Guerriere & Halnon, Inc. and dated Nov. 18, 2018, as approved by the said Planning Board on March 11, 2019. Last Revised Feb. 11, 2018

***"Limited Site Plan Modification for Rinse Area and Site Improvements, Franklin, MA"

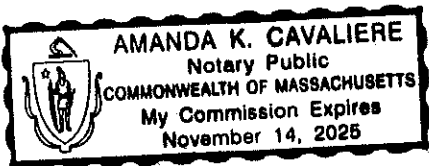
Signed this 24th day of August, 2020
By Dale Mackinnon Reg. C.E.

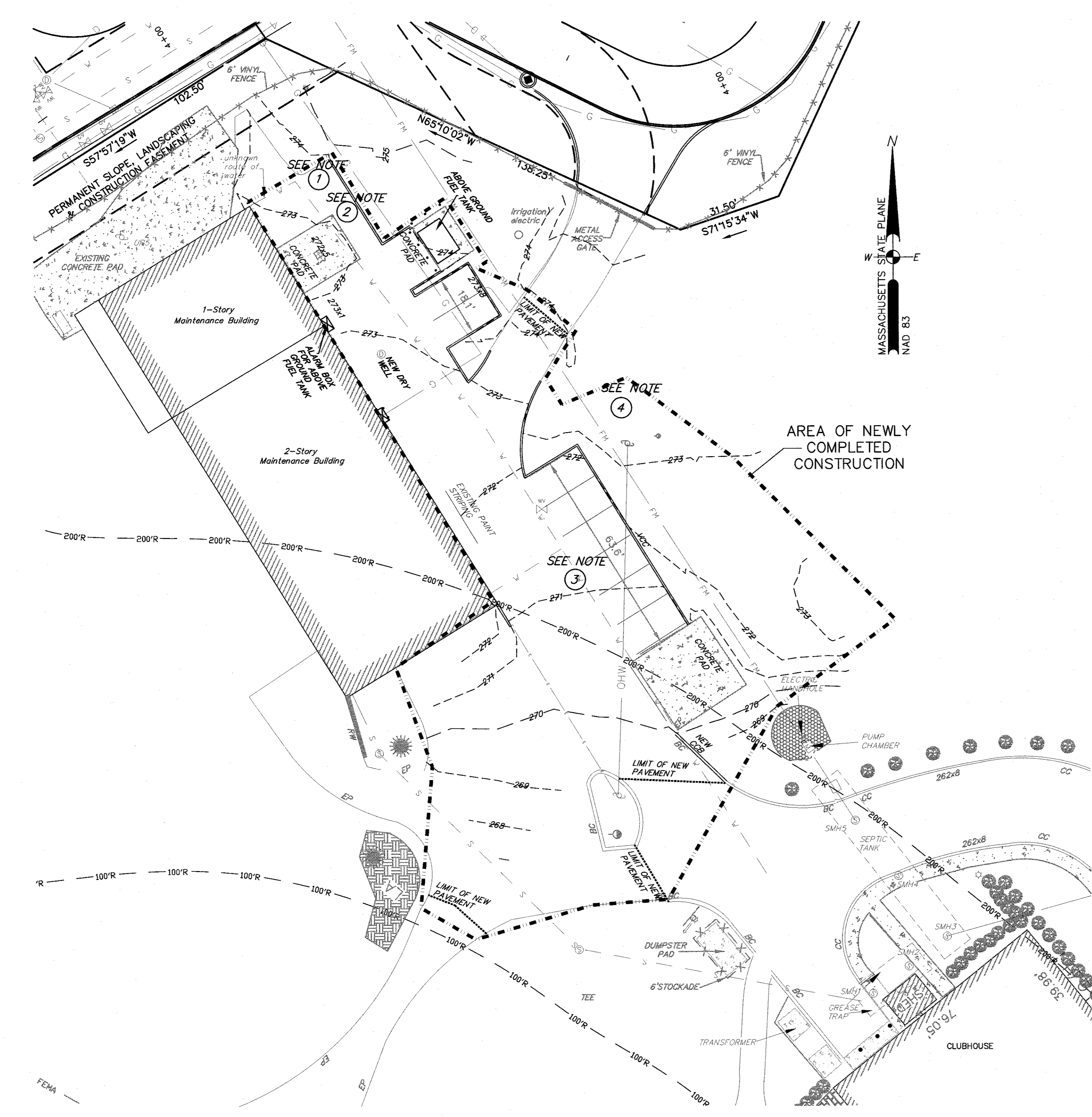
COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS. August 24, 2020

On this 24th day of August, 2020, before me, the undersigned notary public, personally appeared Dale Mackinnon (name of engineer), proved to me through satisfactory evidence of identification, which were MA LICENSE to be the person whose name is signed on the preceding document in my presence.

Amanda K. Cavaliere
(Official signature and seal of notary)
Notary Public:
My Commission Expires: Nov 14, 2025





LEGEND

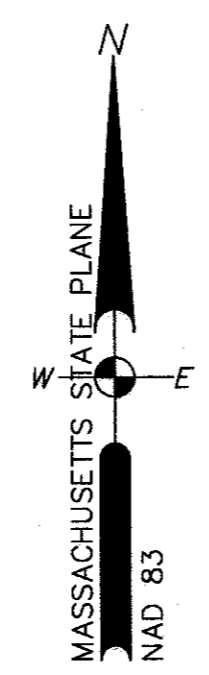
- | | | | |
|--------|----------------------|---------|---------------------|
| ⊠ | CATCH BASIN | ☆ | PROPOSED LIGHT POLE |
| ⊙ | DRAIN MANHOLE | ⊙ | UTILITY POLE |
| ⊙ | ELECTRIC MANHOLE | • | GUY WIRE |
| ⊙ | SEWER MANHOLE | - | SIGN |
| ⊙ | GAS VALVE | -S- | SEWER LINE |
| ⊙ | GAS SHUT OFF VALVE | -D- | DRAIN LINE |
| ⊙ | WATERGATE | -W- | WATER LINE |
| ⊙ | WATER SHUT OFF VALVE | -G- | GAS LINE |
| ⊙ | FIRE HYDRANT | -ETC- | ELEC. TEL. CABLE |
| VCC | VERTICAL CONC CURB | -OHW- | OVERHEAD WRES |
| RW | RETAINING WALL | -25'B- | 25' WETLAND BUFFER |
| A.F.G. | ABOVE FINISH GRADE | EP | EDGE OF PAVEMENT |
| ⊙ | ARBORVITAE | X 000.0 | SPOT ELEVATION |
| ⊙ | SHRUB | * C.O. | CLEAN OUT |
| ⊙ | TREE | ⊠ | ELECTRIC METER |

RURAL RESIDENTIAL I
 FRANKLIN ZONING BYLAW SECTION 185
 ATTACHMENT 9; LAST AMENDED
 11-16-16 BY AMENDMENT 16-771

MINIMUM LOT AREA	40,000 SF
MINIMUM LOT FRONTAGE	200'
MINIMUM LOT DEPTH	200'
MINIMUM LOT WIDTH	180'±

MINIMUM YARDS	
FRONT	40'
SIDE	40'
REAR	40'

% OF LOT UPLAND COVERED BY:
 STRUCTURES 20
 STRUCTURES+PAVING 25



I CERTIFY THAT THIS PLAN WAS PREPARED FROM AN ON THE GROUND SURVEY AND THAT THE BUILDING(S) AND IMPROVEMENT(S) ARE LOCATED ON THE LOT AS SHOWN HEREON.



OWNER(S)/APPLICANT(S):
 FRANKLIN COUNTRY CLUB, INC.
 672 EAST CENTRAL STREET
 FRANKLIN, MA 02038
 DEED BK. 1487 PG. 455
 DEED BK. 5044 PG. 275

REVISIONS

DATE	REVISED

PLAN PURPOSE:
 REQUEST FOR CERTIFICATE OF COMPLIANCE OF ALL WORK BEING COMPLETED IN SUBSTANTIAL ACCORDANCE WITH THE APPROVED PLAN BY GUERRIERE AND HALNON, INC. ENTITLED "LIMITED SITE PLAN MODIFICATION FOR RINSE AREA AND SITE IMPROVEMENTS, FRANKLIN COUNTRY CLUB, FRANKLIN, MASSACHUSETTS," DATED NOVEMBER 19, 2018 AND REVISED THRU FEBRUARY 11, 2019, EXCEPT AS NOTED.

- NOTES:** (SEE PLAN FOR LOCATION)
1. PROPOSED CURB NOT INSTALLED.
 2. VERTICAL CONCRETE CURB WAS INSTALLED, WHERE A CONCRETE APRON WAS PROPOSED.
 3. SIX (6) 10' X 18' PARKING SPACES WERE STRIPED WHERE SEVEN (7) 9' X 18' SPACES WERE PROPOSED.
 4. THE EXISTING SHED WAS REMOVED INSTEAD OF BEING RELOCATED.

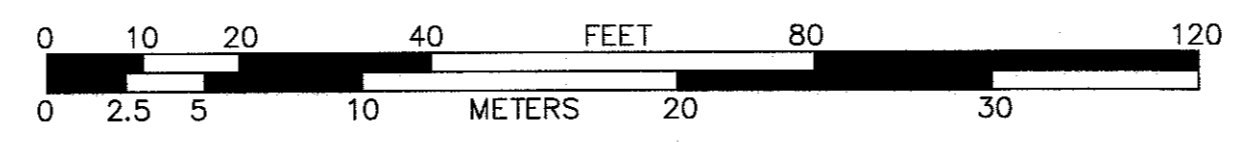
Guerriere & Halnon, Inc.
 Engineering & Land Surveying
 Ph. (508) 528-3221 55 WEST CENTRAL STREET
 Fx. (508) 528-7921 FRANKLIN, MA 02038
 www.gandhengineering.com

**RINSE AREA AS-BUILT
 FRANKLIN COUNTRY CLUB
 FRANKLIN MASSACHUSETTS**

DATE	AUGUST 7, 2020	SCALE	1"=20'
SHEET	1 OF 1	JOB NO.	F4237

UTILITIES ARE PLOTTED AS A COMPILATION OF RECORD DOCUMENTS, MARKINGS, AND OTHER OBSERVED EVIDENCE TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES AND SHOULD BE CONSIDERED APPROXIMATE. LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY COMPLETELY AND RELIABLY DEPICTED. (ADDITIONAL UTILITIES, NOT EVIDENCED BY RECORD DOCUMENTS OR OBSERVED PHYSICAL EVIDENCE, MAY EXIST. CONTRACTORS (IN ACCORDANCE WITH MASS.G.L. CHAPTER 92, SECTION 40 AS AMENDED) MUST CONTACT ALL UTILITY COMPANIES BEFORE EXCAVATING AND DRILLING AND CALL DIGSAFE AT 1(888)DIGSAFE72333.

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FRANKLIN PLANNING & COMMUNITY DEVELOPMENT

355 EAST CENTRAL STREET
FRANKLIN, MA 02038-1352
TELEPHONE: 508-520-4907
FAX: 508-520-4906

MEMORANDUM

DATE: September 10, 2020
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: Franklin Country Club – Rinse Area
Final Form H

General

1. The Planning Board approved a Limited Site Plan Modification Application on March 11, 2019 to construct a rinse area and site improvements.
2. The applicant has submitted a Final Form H and Engineer's Certificate of Completion for Franklin Country Club.
3. BETA has submitted an observation report.
4. BETA has been on site and provided an observation report.

Comments:
DPCD has not further comments.



TOWN OF FRANKLIN - SITE OBSERVATION REPORT

Franklin Country Club

Report No.:	4831 81 - 3	Date:	August 25, 2020	Arrive:	4:45 PM
Observer:	Matt Crowley, PE	Weather:	Sunny, ~84°	Leave:	5:15 PM
Owner:	Franklin Country Club, Inc. 672 East Central St Franklin, MA 02038	Contractor:	PJ Hayes, Inc. 399 South St Walpole, MA 02081 John 508-962-5520		

Items Observed: **Conformance Observation – Submitted in conjunction with Applicant’s request for acceptance of Form H – Certificate of Completion**

OBSERVATIONS

Observation Requested By: Amanda Cavaliere – Guerriere and Halnon, Inc.

Met/walked site with: N/A

Current Activity on Site: No current activity

Observed Construction: BETA arrived on site to perform a construction observation in conjunction with the Applicant’s request for acceptance of Form H – Certificate of Completion. The required Form H, dated August 24, 2020, and the As-built, dated August 7, 2020 were provided via email. BETA’s site walk and review of the Approved Plans confirmed the site to be constructed in general conformance with the Approved Plans with the exception of the items documented in Notes 1 to 4 on the As-built plan.

SITE PHOTOS



Fuel area and bollards



Rinse area and catch basin



Six parking spaces striped at 10' x 18'



Concrete curb installed in place of concrete apron



Typical repaved area



Dumpster area



FRANKLIN PLANNING & COMMUNITY DEVELOPMENT

355 EAST CENTRAL STREET
FRANKLIN, MA 02038-1352
TELEPHONE: 508-520-4907
FAX: 508-520-4906

MEMORANDUM

DATE: September 10, 2020
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: Bond Reduction – Maple Preserve

The DPCD has reviewed the above referenced request for Bond Reduction to be reviewed at the Monday, September 14, 2020 Planning Board meeting and offers the following commentary:

General:

1. The current Bond is held in a Tripartite Agreement with the Town of Franklin in the amount of \$92,610.00 for Lucinda Way.
2. The Applicant has requested a Bond Release.
3. BETA performed a site inspection and has acknowledged the Subdivision is complete.
4. The Applicant has filed for Road Acceptance, which will be on a future Planning Board Agenda.

Recommendation:

DPCD recommends the Board release all of the Bond, except \$1,000 until the roadway is accepted by the Town Council and filed at the Registry of Deeds.



TOWN OF FRANKLIN - SITE OBSERVATION REPORT

The Maple Preserve

Report No.:	4831 48 – 29	Date:	September 9, 2020	Arrive:	3:00 PM
Observer:	Matt Crowley, PE	Weather:	Cloudy ~80°	Leave:	3:15 PM
Applicant:	Carroll Construction Corp. Box 81 Chartley, MA 02712	Contractor:	Rebco Inc. PO Box 107 S. Walpole, MA 02071 Walpole, MA 02071 Josh Ferreira 774-259-4299 Bob Baker Jr. 508-328-2059		

Items Observed: **Conformance Observation in Conjunction with Bond Reduction and Street Acceptance Requests**

OBSERVATIONS

Observation Requested By: Mark Carrol

Met/walked site with: N/A

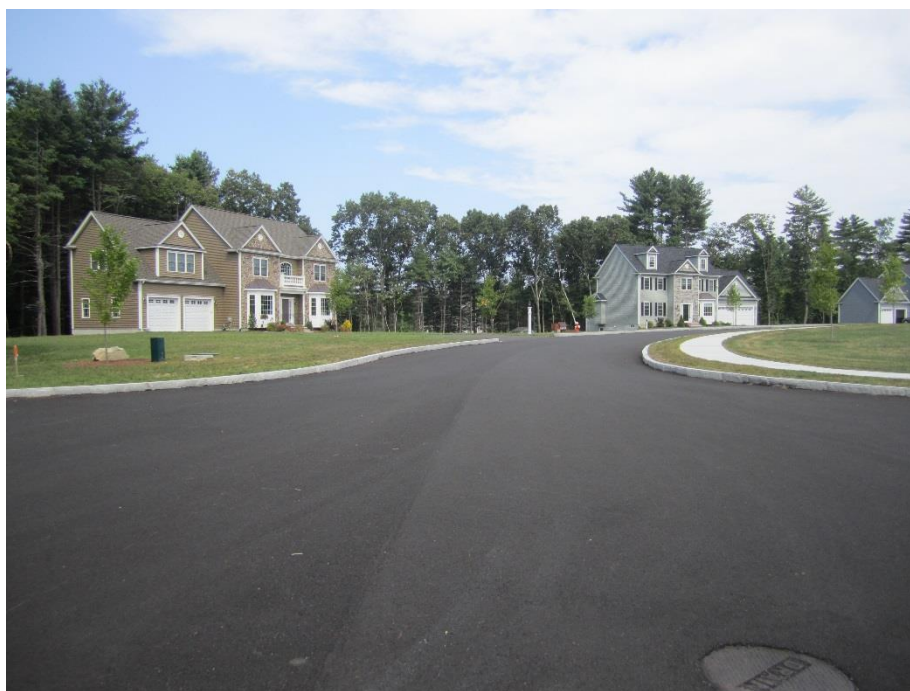
Current Activity on Site: No current activity

Observed Construction BETA arrived on site to perform a construction observation in conjunction with the Applicant's requests for bond reduction and street acceptance. A Roadway As-built plan, dated August 4, 2020, Street Acceptance Plan, dated August 4, 2020, and Form H, dated August 20, 2020 were prepared by Bay Colony Group, Inc. and provided via email. Review of the Street Acceptance Plan will be performed by the Town Engineer. BETA's site walk and review of the as-built confirmed the site to be constructed in general conformance with the Approved plans and approved field modifications.

Site Photos (Taken between July 1 and September 9, 2020)



Typical roadway section



Typical roadway section at cul-de-sac



Typical concrete driveway apron



Typical accessible ramp installation



Typical hydrant installation



Bollard installed adjacent to driveway to protect hydrant (not part of subdivision)



Infiltration basin



Typical seeding recently done to fill gaps in future Town right-of-way



Installed rain garden



Typical catch basin and curbing



Town of Franklin

355 East Central Street • Franklin, Massachusetts 02038-1352
Department of Planning & Community Development

Subdivision Bonding

Bond Estimate:

Please submit a letter requesting the bond estimate and include a check for \$500.00 made payable to the "Town of Franklin" for the filing fee. You will also need to mail the bond estimate request to:

Matthew Crowley, P.E.
BETA Group, Inc.
315 Norwood Park South, 2nd floor
Norwood, MA 02062
mcrowley@beta-inc.com

You will then be contacted and placed on the next Planning Board Agenda under General Business.

Lot Release:

If you are seeking to obtain a building permit, surety must be posted for the road per the estimate prepared by BETA Group, Inc., and a **Form G** requesting lot release must be submitted. You will then be placed on the next available agenda under general business.

Bond Reduction:

Please submit a letter requesting the bond reduction, along with a Certificate of Partial Release, (**Form H**) and a check for \$500.00 made payable to the "Town of Franklin" for the filing fee. You will then be placed on the next available agenda under general business. The Town Engineer and/or BETA Group, Inc. will evaluate your request and make a recommendation to the Planning Board for approval.

Final Bond Release:

Prior to submitting an application, the Planning Department requests that the applicant meet with the Town Engineer to determine if the subdivision is ready for final bond release. The applicant will also need a final inspection by BETA Group, Inc.

Please submit the following to the Planning Department:

- ✓ 1. Letter on company stationery requesting final bond release.
- ✓ 2. Form H – Engineer's Certificate of Completion
- ✓ 3. Certificate of Release and Completion
- ✓ 4. 2 large sets and 10 11x17 copies of "As-Built" drawings
- ✓ 5. Check for \$500.00 made payable to the "Town of Franklin" for the filing fee.
- ان 6. Street Acceptance fee (if applicable) \$1,260 per street.

Carroll Const Corp

PO box 395

Foxboro, MA 02035

Franklin Planning Board,

This letter is a formal request for the bond at The Maple Preserve, Laurinda Lane, Franklin be given a full and final release from the Franklin Planning Board. All the stages and items of the construction of the subdivision have been fulfilled and completed, with approval from the town's consultant Beta Engineering. All the final as built plans and fees have been submitted.

Thank you,

Mark Carroll

SUBDIVISION PLAN OF LAND

FORM H
ENGINEER'S CERTIFICATE OF COMPLETION
(to be executed by developer's engineer)

Subdivision plan known as Maple Preserve

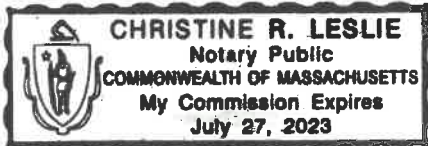
I hereby certify that all improvements required for the below listed ways, a part of the above named subdivision plan, have been completed in all respects in accordance with the rules and regulations of the Franklin Planning Board and the approved plans entitled Definitive Subdivision Plan of Maple Preserve by Bay Colony Group, Inc. and dated 10/3/2016 last rev. 4/11/2017, 20, and as approved by the said Planning Board on April 24, 2017.

Signed this 20th day of August, 2020
By [Signature] Reg. C.E.

COMMONWEALTH OF MASSACHUSETTS

Norfolk, SS. 8/20, 2020

On this 20th day of August 2020, before me, the undersigned notary public, personally appeared William R. Buckley Jr. (name of engineer), proved to me through satisfactory evidence of identification, which were known to me to be the person whose name is signed on the preceding document in my presence.



Christine R. Leslie
(Official signature and seal of notary)
Notary Public:
My Commission Expires: 7/27/2023

CERTIFICATE OF RELEASE AND COMPLETION

WHEREAS, on 8/21/2020, the town of Franklin, a Massachusetts municipal corporation, acting through its Planning Board, with an address of municipal building, 355 E. Central Street, Franklin, Massachusetts 02038 [hereinafter "board"] received a request for a Certificate of Release and Completion concerning the construction of ways and installation of municipal services in a subdivision owned by Franklin Holdings, LLC, with an address of 14 Camp Road Foxborough, MA, [hereinafter "owner"];

WHEREAS, on April 24, 2017, based on the owner's application dated 12/28/2016, and after duly noticed public hearing(s), the board approved a definitive subdivision plan showing 10 lots, which is entitled: The Maple Preserve by: Bay Colony Group, Inc. and recorded or registered at the Norfolk county Registry of Deeds as Plan # PB 663 PP 51-53

WHEREAS, the approved definitive subdivision plan shows the division of a parcel of land located at westerly side of Maple Street [hereinafter "subdivision"] and further described in a deed or deeds dated 2/7/2018 and recorded at the Norfolk county Registry of Deeds in Book(s) 35787, Page(s) 358-359; or is registered in Norfolk County Land Registry as Document No. _____, and noted on Certificate of Title No. _____, in Registration Book _____, Page _____;

NOW THEREFOR, the board has determined that the construction of ways and installation of municipal services:

Laurinda Lane have been fully and satisfactorily completed, subject to application for acceptance of the ways and municipal services to the Franklin Town council, and all existing methods for securing construction of ways and installation of municipal services in the subdivision are hereby released.

_____ have not been fully and satisfactorily completed, thus requiring retention of any and all performance guarantees that secure the construction of ways and installation of municipal services, based on the following insufficiencies:

Duly executed as a sealed instrument this _____ day of _____, 20_____, by a majority of the members of the planning board of the town of Franklin.

PLANNING BOARD OF THE TOWN OF FRANKLIN

COMMONWEALTH OF MASSACHUSETTS

_____, SS. _____, 20____

On this _____ day of _____ 20____, before me, the undersigned notary public, personally appeared _____ (*name of document signer*), proved to me through satisfactory evidence of identification, which were _____ to be the person whose name is signed on the preceding document in my presence.

(Official signature and seal of notary)
Notary Public:
My Commission Expires: _____

cc: Town Clerk, Town of Franklin
Treasurer, Town of Franklin

Small text at top left of check 1

Franklin Holdings LLC
PO Box 395
Foxboro, MA 02035-0395

Walpole Cooperative Bank
982 Main St
Walpole, MA 02001
63-7506-2113

000225

8/20/2020

PAY TO THE ORDER OF Town of Franklin

\$ 2,350.00

Two Thousand Three Hundred Fifty and 00/100

DOLLARS

MEMO Beta Review job# 4831-62 Maple Preserve

Laura Callery

⑆000225⑆ ⑆221373063⑆ 31⑆600448⑆

Small text at top left of check 2

Franklin Holdings LLC
PO Box 395
Foxboro, MA 02035-0395

Walpole Cooperative Bank
982 Main St
Walpole, MA 02001
63-7506-2113

000227

8/20/2020

PAY TO THE ORDER OF Town of Franklin

\$ 500.00

Five Hundred and 00/100

DOLLARS

MEMO Filing fee Bond release, Maple Preserve

Laura Callery

⑆000227⑆ ⑆221373063⑆ 31⑆600448⑆



August 19, 2020

Town of Franklin
Planning Board
355 East Central Street
Franklin, MA 02038

**Re: Definitive Subdivision The Maple Preserve
Construction Services Scope & Fee Amendment**

Dear Planning Board Members:

BETA Group, Inc. continues to observe construction operations for the proposed Maple Preserve Subdivision in Franklin. Previously performed observations, as well as review of field changes, bond reduction estimates, and meeting attendance have depleted construction funds for this project and additional funding will be required. This letter is provided to outline the additional anticipated construction services required by the Town and associated fee.

SCOPE OF SERVICES

The scope of services includes the following tasks:

I. Project Coordination, Meetings and Office Tasks

- I.1. Review as-built drawings for Certificate of Completion (Form H)
- I.2. Prepare bond reduction estimate
- I.3. Attend Planning Board hearing to discuss Form H and bond reduction estimate

II. Site Observations (no. of visits)

- II.1. Site walk to confirm as-built and Form H (2)

FEE

The budget for construction services is approximately \$2,350, including travel expenses, broken down as follows.

I. Project Coordination, Meetings and Office Tasks	\$1,400
II. Site Observations (2) and associated report	\$950

If the Project requires additional coordination, reviews, site observations or items not included under this scope of services (described above) BETA will provide an additional scope and fee prior to commencing those tasks.

Town of Franklin
August 19, 2020
Page 2 of 2

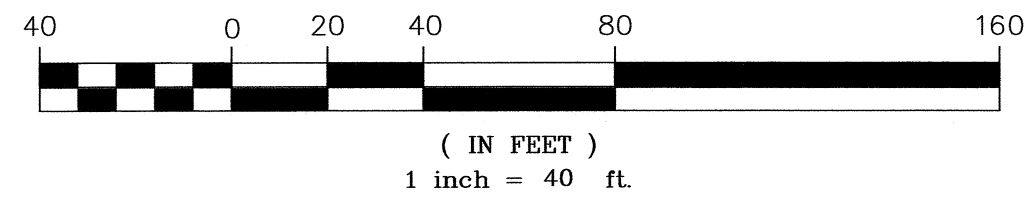
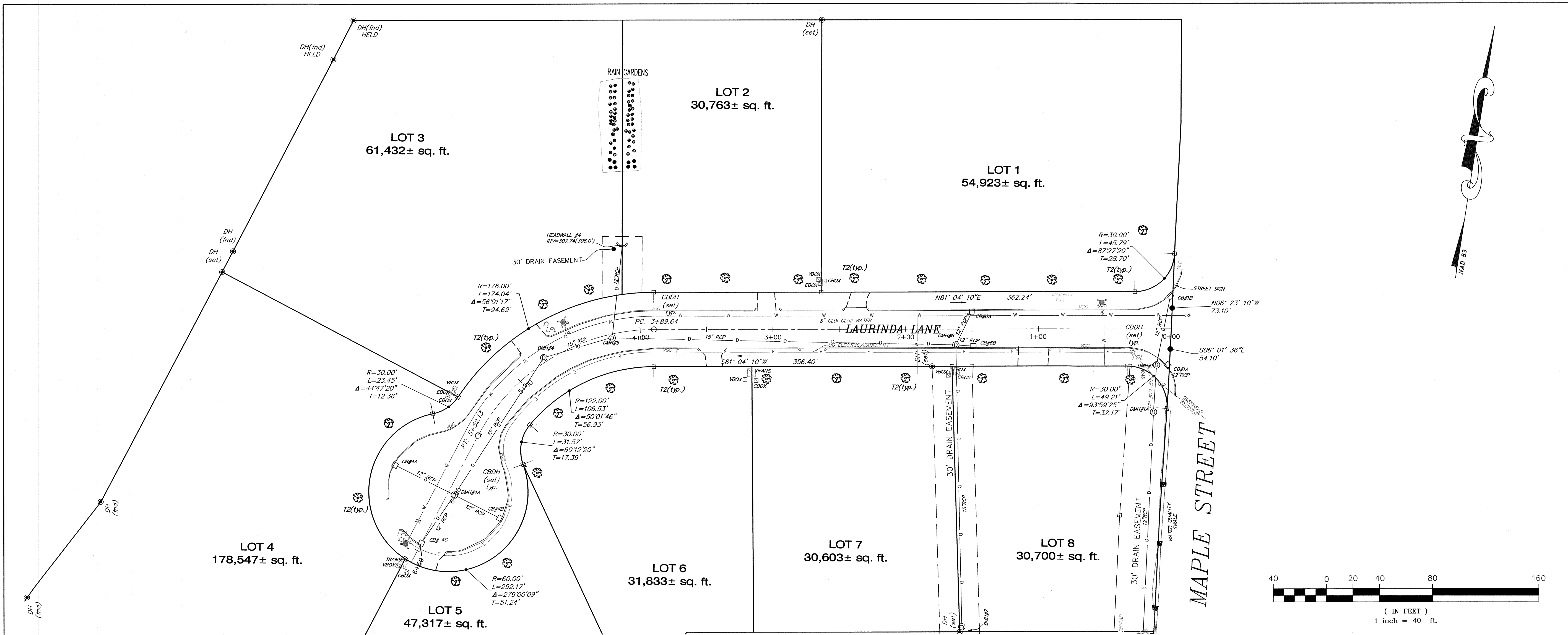
If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



Matthew J. Crowley, PE
Project Manager

cc: Amy Love, Town Planner
Job No: 4831 - 62



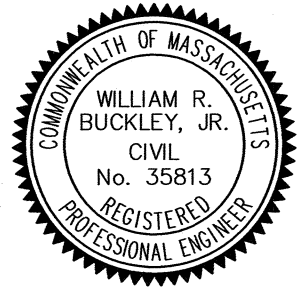
KEY:

☼	HYDRANT	□	CONC. BOUND DRILL HOLE (set)
⊗	WATER GATE	○	UTILITY POLE
○	GAS GATE	SGC	SLOPED GRAN. CURB
⊙	STREET LIGHT	CBHW	CATCH BASIN HEAD WALL
○	ROD & CAP SET	WCR	WHEEL CHAIR RAMP

FILED AT THE OFFICE OF THE TOWN CLERK
 DATE APPROVED: _____
 APPROVED BY VOTE OF TOWN COUNCIL
 DATE APPROVED: _____
 FRANKLIN TOWN CLERK

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE, AND MUNICIPAL SERVICES SHOWN CONFORM TO THE PLANNING BOARD REQUIREMENTS IN ACCORDANCE WITH THE APPROVED DEFINITIVE PLAN.

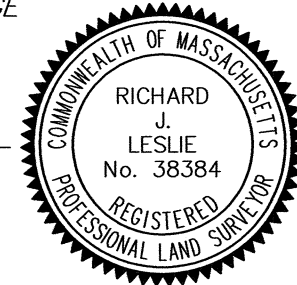
8/16/2020 DATE
 [Signature] PROFESSIONAL ENGINEER



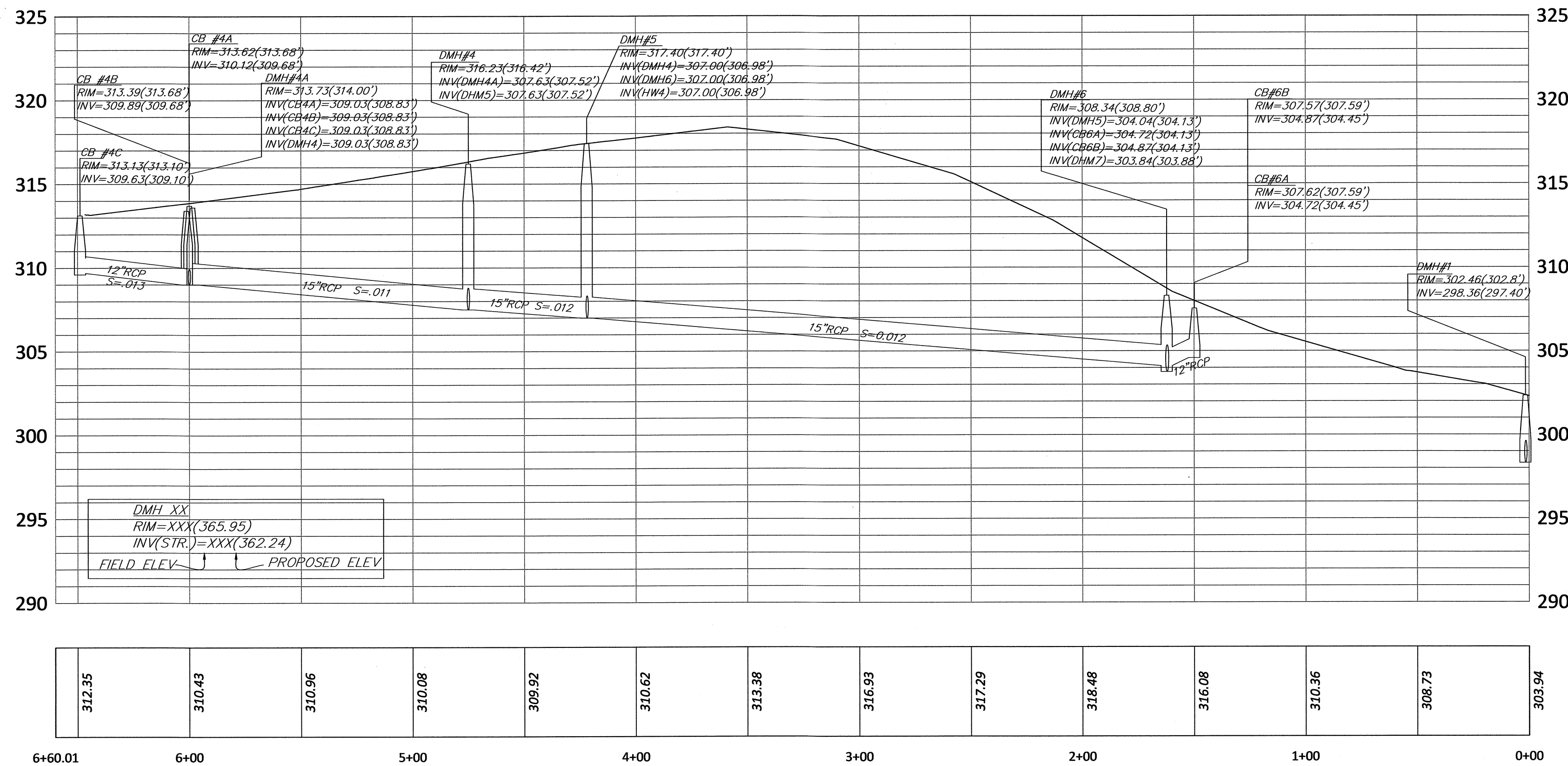
APPROVAL UNDER THE SUBDIVISION CONTROL LAW NOT REQUIRED
 FRANKLIN PLANNING BOARD

I HEREBY CERTIFY THAT LAURINDA LANE HAS BEEN LAID OUT AND ALL THE MARKERS, BOUNDS AND MONUMENTS HAVE BEEN SET AS SHOWN ON THIS PLAN

I HEREBY CERTIFY THAT THIS PLAN SHOWS THE ACTUAL AS-BUILT LOCATIONS, PROFILES AND ELEVATIONS OF THE ROADWAY, DRAINAGE FACILITIES AND UTILITIES BASED ON A FIELD SURVEY CONDUCTED BETWEEN APRIL 28, 2015 AND JULY 30, 2020.
 8/16/2020 DATE
 [Signature] PROFESSIONAL LAND SURVEYOR



DATE APPROVED: _____



Laurinda Lane
 Horizontal Scale: 1" = 40'
 Vertical Scale: 1" = 5'

DRAWING TITLE

As-built
 Plan of
 Laurinda Lane

SCALE: 1" = 40'
 AUGUST 4, 2020 SHEET NUMBER

DMH XX
 RIM=XXX(365.95)
 INV(a)=XXX(362.24)
 FIELD ELEV. PROPOSED ELEV.

FILED AT THE OFFICE OF THE TOWN CLERK
 DATE APPROVED: _____

APPROVED BY VOTE OF TOWN COUNCIL
 DATE APPROVED: _____

FRANKLIN TOWN CLERK

APPROVAL UNDER THE SUBDIVISION
 CONTROL LAW NOT REQUIRED
 FRANKLIN PLANNING BOARD

DATE APPROVED: _____

KEY:

- | | | | |
|--|---------------|--|------------------------------|
| | HYDRANT | | CONC. BOUND DRILL HOLE (set) |
| | WATER GATE | | UTILITY POLE |
| | GAS GATE | | SLOPED GRAN. CURB |
| | STREET LIGHT | | CATCH BASIN HEAD WALL |
| | ROD & CAP SET | | WHEEL CHAIR RAMP |

DETENTION POND
 Proposed Storage Volume

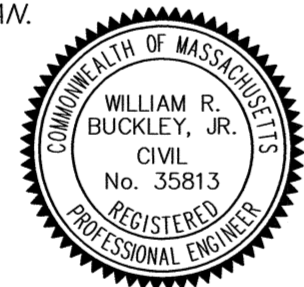
ELEV.	AREA(sq)	CUM. VOL. (cfd)
294	5,368	0
296	6,735	12,077
298	8,325	27,109
298.5	9,262	31,504

As-built Storage Volume

ELEV.	AREA(sq)	CUM. VOL. (cfd)
293	6,660	0
294	7,151	6,906
296	7,660	21,717
298	8,190	37,565
298.5	9,416	41,968

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE, AND MUNICIPAL SERVICES SHOWN SUBSTANTIALLY CONFORM TO THE PLANNING BOARD REQUIREMENTS IN ACCORDANCE WITH THE APPROVED DEFINITIVE PLAN.

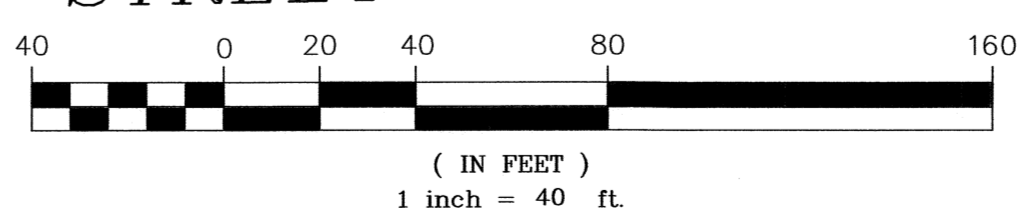
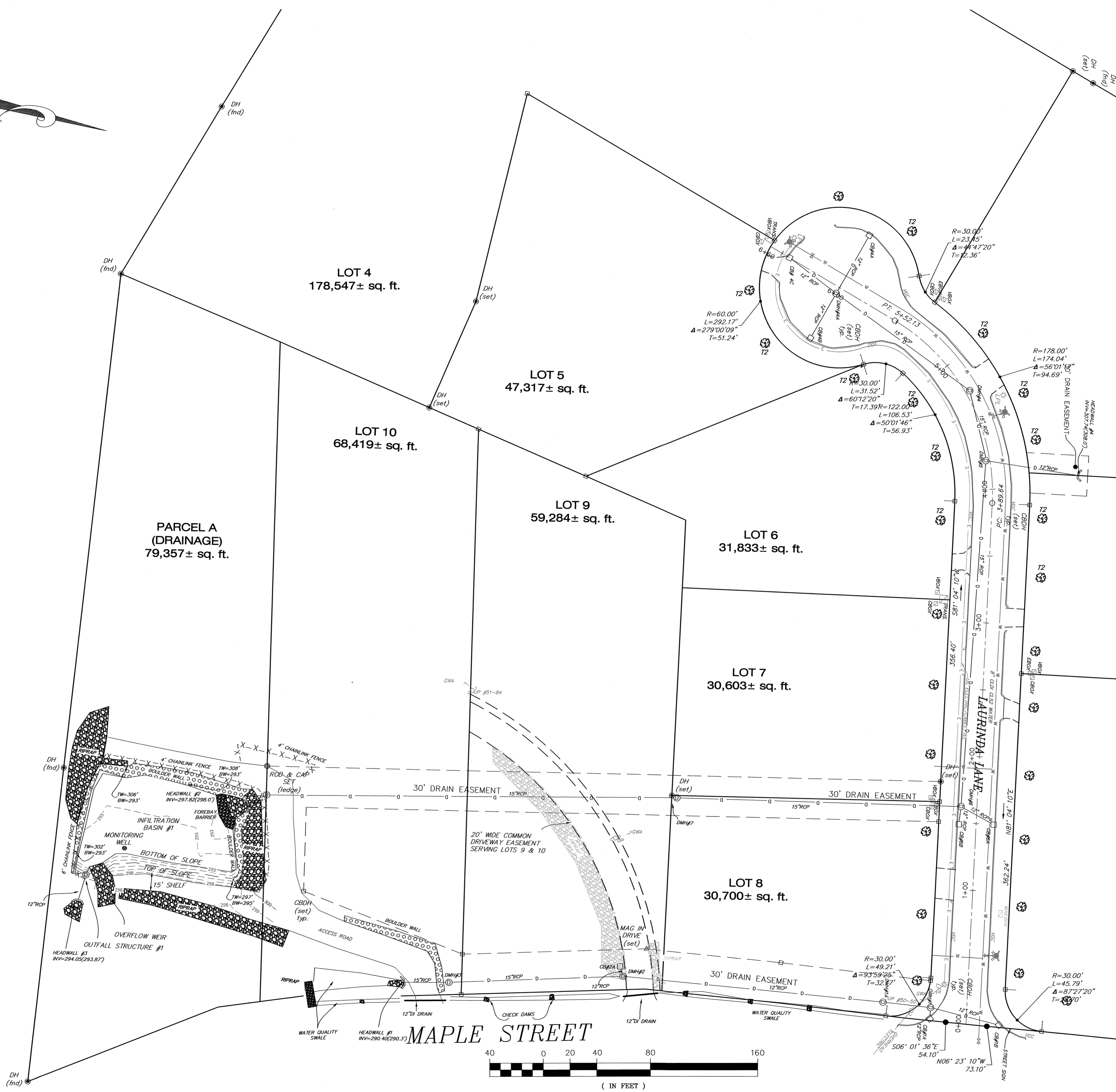
8/6/2020 DATE
 [Signature] PROFESSIONAL ENGINEER



I HEREBY CERTIFY THAT LAURINDA LANE HAS BEEN LAID OUT AND ALL THE MARKERS, BOUNDS AND MONUMENTS HAVE BEEN SET AS SHOWN ON THIS PLAN.

I HEREBY CERTIFY THAT THIS PLAN SHOWS THE ACTUAL AS-BUILT LOCATIONS, PROFILES AND ELEVATIONS OF THE ROADWAY, DRAINAGE FACILITIES AND UTILITIES BASED ON A FIELD SURVEY CONDUCTED BETWEEN APRIL 28, 2015 AND JULY 30, 2020.

8/6/2020 DATE
 [Signature] PROFESSIONAL LAND SURVEYOR



PROJECT:
The Maple Preserve
Franklin
Massachusetts

PREPARED FOR:
FRANKLIN HOLDINGS
LLC
14 CAMP ROAD
FOXBOROUGH, MA
02035

Bay Colony Group, Inc.
 Professional Civil Engineers &
 Professional Land Surveyors

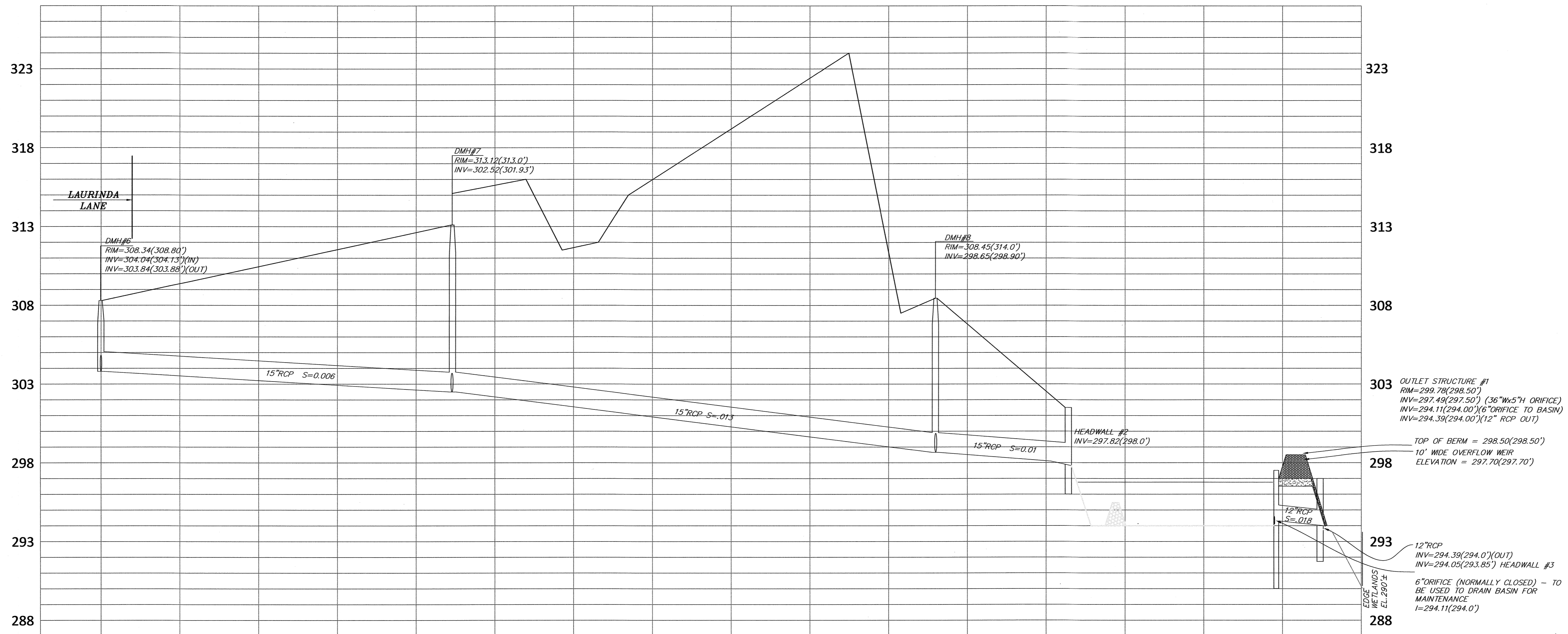
FOUR SCHOOL STREET
 P.O. BOX 9136
 FOXBOROUGH, MA 02035
 508-543-3939

DRAWING TITLE

As-Built
Plan of
Laurinda Lane

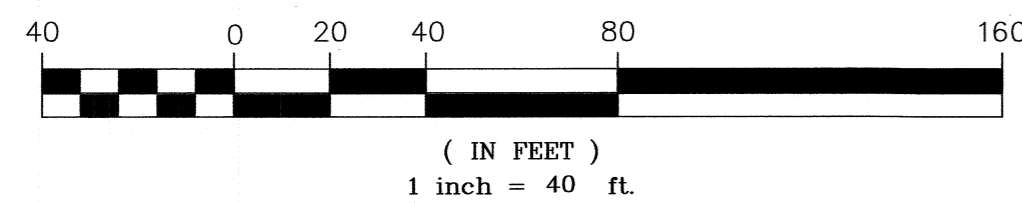
SCALE: 1" = 40'
 AUGUST 4, 2020 SHEET NUMBER

2 of 3



Cross Country Drain

Horizontal Scale: 1" = 40'
 Vertical Scale: 1" = 4'



FILED AT THE OFFICE OF THE TOWN CLERK
 DATE APPROVED: _____

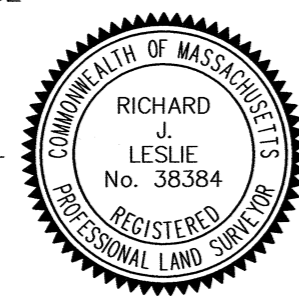
APPROVED BY VOTE OF TOWN COUNCIL
 DATE APPROVED: _____

FRANKLIN TOWN CLERK

I HEREBY CERTIFY THAT LAURINDA LANE HAS BEEN LAID OUT AND ALL THE MARKERS, BOUNDS AND MONUMENTS HAVE BEEN SET AS SHOWN ON THIS PLAN

I HEREBY CERTIFY THAT THIS PLAN SHOWS THE ACTUAL AS-BUILT LOCATIONS, PROFILES AND ELEVATIONS OF THE ROADWAY, DRAINAGE FACILITIES AND UTILITIES BASED ON A FIELD SURVEY CONDUCTED BETWEEN APRIL 28, 2015 AND JULY 30, 2020

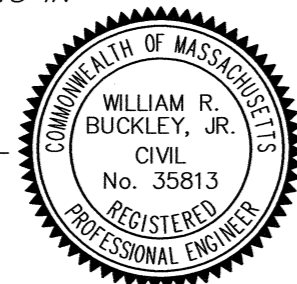
Richard Leslie
 DATE PROFESSIONAL LAND SURVEYOR



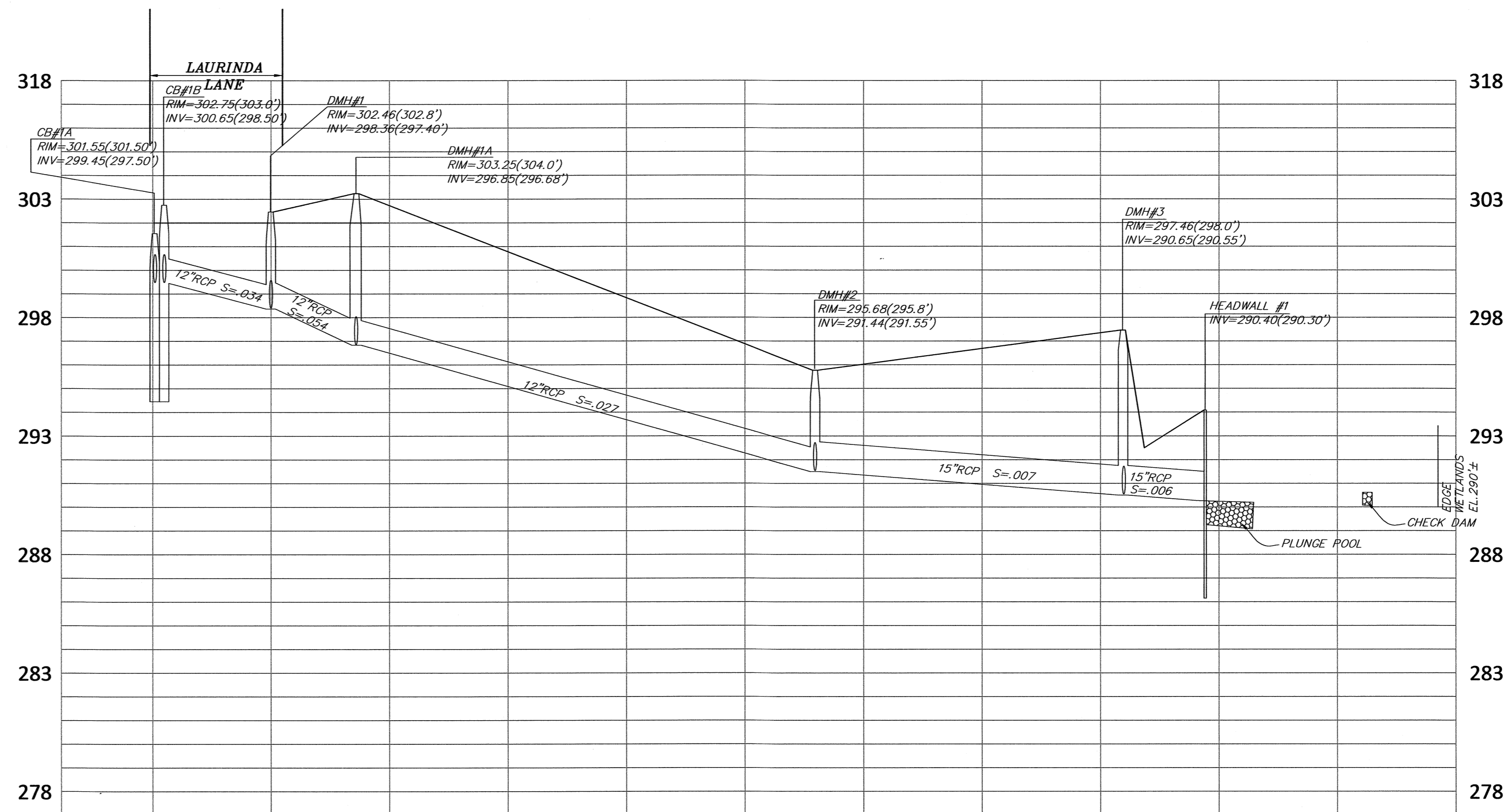
APPROVAL UNDER THE SUBDIVISION CONTROL LAW NOT REQUIRED
 FRANKLIN PLANNING BOARD

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE, AND MUNICIPAL SERVICES SHOWN CONFORM TO THE PLANNING BOARD REQUIREMENTS IN ACCORDANCE WITH THE APPROVED DEFINITIVE PLAN

William R. Buckley, Jr.
 DATE PROFESSIONAL ENGINEER



DATE APPROVED: _____



Maple Street Drain

Horizontal Scale: 1" = 40'
 Vertical Scale: 1" = 4'

KEY:

☆	HYDRANT	□	CONC. BOUND DRILL HOLE (set)
⊗	WATER GATE	○	UTILITY POLE
○	GAS GATE	SGC	SLOPED GRAN. CURB
☆	STREET LIGHT	CBHW	CATCH BASIN HEAD WALL
○	ROD & CAP SET	WCR	WHEEL CHAIR RAMP

DMH XX
 RIM=XXX(365.95)
 INV(a)=XXX(362.24)
 FIELD ELEV. PROPOSED ELEV.

DRAWING TITLE

**As-Built
 Plan of
 Laurinda Lane**

SCALE: 1" = 40'

AUGUST 4, 2020 SHEET NUMBER

3 of 3



FRANKLIN PLANNING & COMMUNITY DEVELOPMENT

355 EAST CENTRAL STREET
FRANKLIN, MA 02038-1352
TELEPHONE: 508-520-4907
FAX: 508-520-4906

MEMORANDUM

DATE: September 10, 2020
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: 122 Chestnut Street
Site Plan

General:

1. The Planning Board approved a Site Plan on July 27, 2020 for a 10-unit residential building located at 122 Chestnut Street.
2. The applicant has submitted plans for Endorsement.
3. The Planning Board required the following be added to the plans prior to endorsement:
 - Fencing around the dumpster shall include vinyl slats for screening.
 - Prior to endorsement, the plans shall show signage in the service parking area, saying “Service Parking only” and stripping shall be added to the area.
 - Plans shall include the Certificate of Vote on front page and color renderings of the building.

Comments:

Applicant has updated the Site Plans and included all the conditions. Planning Board should vote to endorse the Site Plans.



August 3, 2020
 Teresa M. Burr, Town Clerk
 Town of Franklin
 355 East Central Street
 Franklin, MA 02038

CERTIFICATE OF VOTE
Site Plan
122 Chestnut Street

Site Plan: "122 Chestnut Street, in Franklin, Massachusetts"
 Owner: Lawrence Benedetto
 120 Lewis St
 Franklin, MA 02038
 Applicant: Michael O'Brien
 8 Saddle Ridge Way
 Norfolk, MA 02056
 Prepared By: Edmond Spruhan, Spruhan Engineering, 80 Jewett St, Newton, MA 02458
 Surveyor/ Engineer:
 Dated: November 8, 2019
 Property Location: 122 Chestnut St
 Map 280, Lot 077

Dear Mrs. Burr:
 Please be advised that at its meeting on Monday, July 27, 2020 the Planning Board voted (5-0-0), upon motion duly made and seconded to **APPROVE, with conditions,** the above referenced Site Plan. The Conditions of Approval are listed on page 2-3, attached hereto. **Both the Certificate of Vote as well as the conditions of approval shall be referenced on the site plan.**

Sincerely,

 Anthony Padula, Chairman
 Franklin Planning Board

cc: Owner/Applicant/ Applicant's Engineer
 Building Commissioner/DPW- Engineering
 BETA
 File

SITE DEVELOPMENT PLANS

FOR 122 CHESTNUT STREET, FRANKLIN, MA.

NOVEMBER 8TH, 2019

Tel: (508) 520-4907 Fax: (508) 520-4906
 maintenance with respect to said areas, or any of the aforementioned systems within the subject property. The Town will never be required to provide snow plowing or trash pickup, with respect to the subject property.
 10. **Prior to construction activities, there shall be a pre-construction meeting with the owner/applicant, and his contractor(s), the Department of Public Works and the Planning Board's Inspector.**
 11. Applicant shall construct the buildings in accordance with the color rendering as presented to the Planning Board, and recommended by Design Review Commission. Color renderings shall be attached to the Site Plan prior to endorsement.

CERTIFICATE OF VOTE
Site Plan- Special Conditions
122 Chestnut Street

- Fencing around the dumpster shall include vinyl slats for screening.
- Prior to endorsement, the plans shall show signage in the service parking area, saying "Service Parking only" and stripping shall be added to the area.
- Recommend for the Board to include a condition that all water, sewer, and drainage installation shall be in conformance with Town Standards.
- Plans shall include the Certificate of Vote on front page and color renderings of the building.
- The Board may wish to consider a condition of approval that requires the driveway opening to fully comply with Massachusetts Architectural Access Board regulations (e.g. 2% maximum cross slope for 36" minimum width, refer to MassDOT Standard Detail E 107.7).



Spruhan
 Engineering, P.C.

80 JEWETT ST. (SUITE 1)
 NEWTON, MA 02458

Tel: 617-816-0722
 Email: espruhan@gmail.com

122 CHESTNUT STREET
 FRANKLIN
 MASSACHUSETTS

CIVIL PLAN

REVISION BLOCK

DESCRIPTION	DATE

All legal rights including, but not limited to, copyright and design patent rights, in the designs, arrangements and plans shown on this document are the property of Spruhan Engineering, P.C. They may not be used or reused in whole or in part, except in connection with this project, without the prior written consent of Spruhan Engineering, P.C.. Written dimensions on these drawings shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on this project, and Spruhan Engineering, P.C., must be notified of any variation from the dimensions and conditions shown by these drawings.



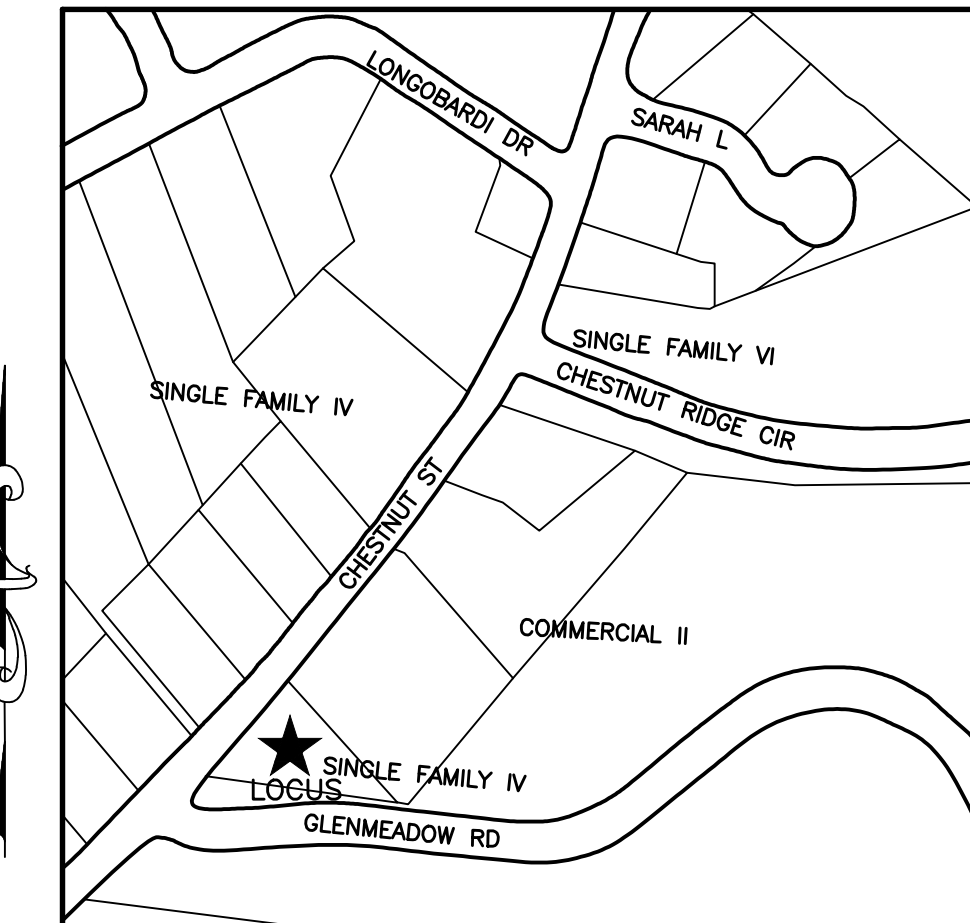
DATE:	10/21/2019
DRAWN BY:	M.G.C.
CHECKED BY:	E.S.
APPROVED BY:	E.S.

FRONT PAGE

SHEET 0 OF 12

INDEX OF SHEETS

SHEET NO.	DESCRIPTION	LATEST REVISED DATE	CONSTRUCTION REVISIONS
1	EXISTING CONDITIONS	6/29/2020	
2	PROPOSED PLOT PLAN	7/15/2020	
3	GRADING AND UTILITIES	7/13/2020	
4	DETAILS	7/13/2020	
5	DETAILS	7/13/2020	
6	DETAILS	7/13/2020	
7	DETAILS	7/13/2020	
8	EXISTING WATERSHED	7/1/2020	
9	PROPOSED WATERSHED	7/1/2020	
10	DEMOLITION & EROSION CONTROL PLAN	7/1/2020	
11	TURNING ANALYSIS IN	7/1/2020	
12	TURNING ANALYSIS OUT	7/1/2020	



**LOCUS MAP
 (NOT TO SCALE)**

OWNER APPLICANT
MICHAEL O'BRIEN
8 SADDLE RIDGE WAY
NORFOLK, MA. 02056

CIVIL ENGINEER
SPRUHAN ENGINEERING P.C.
80 JEWETT ST. (SUITE 1)
NEWTON, MA. 02458

LANDSCAPE ARCHITECT
ERIK SKALA
BROAD MEADOW FARMS LLC
56 BROAD MEADOW ROAD
NEEDHAM, MA. 02492

APPROVED BY THE FRANKLIN PLANNING BOARD

APPROVED DATE: _____

Tel: (508) 520-4907 Fax: (508) 520-4906

CERTIFICATE OF VOTE
Site Plan- Standard Conditions
122 Chestnut Street

- The Planning Board will use outside consultant services to complete construction inspections upon the commencement of construction. The Franklin Department of Public Works Director, directly and through employees of the Department of Public Works and outside consultant services shall act as the Planning Board's inspector to assist the Board with inspections necessary to ensure compliance with all relevant laws, regulations and Planning Board approved plan specifications. Such consultants shall be selected and retained upon a majority vote of the Board.
- Actual and reasonable costs of inspection consulting services shall be paid by the owner/applicant before or at the time of the pre-construction meeting. Should additional inspections be required beyond the original scope of work, the owner/applicant shall be required to submit fees prior to the issuance of a Final Certificate of Completion by the Planning Board (Form II). Said inspection is further outlined in condition #1.
- No alteration of these plans shall be made or affected other than by an affirmative vote of the members of the Board at a duly posted meeting and upon the issuance of a written amended decision.
- All applicable laws, by-laws, rules, regulations, and codes shall be complied with, and all necessary licenses, permits and approvals shall be obtained by the owner/applicant.
- Prior to the endorsement of the site plan, the following shall be done:
 - The owner/applicant shall make a notation on the plan that references the conditions and dates of this Certificate of Vote.
 - A notation shall be made on the plans that all erosion mitigation measures shall be in place prior to major construction or soil disturbance commencing on the site.
 - All outstanding invoices for services rendered by the Town's Engineers and other reviewing Departments of the Town relative to their review of the owner/applicant's application and plans shall have been paid in full.
 - The owner/applicant shall submit a minimum of six copies of the approved version of the plan.
- All required improvements specified in this Certificate of Vote shall be constructed within a one-year period unless the Board grants an extension. No final Certificate of Occupancy shall be issued until all requirements of the approved plan have been completed to the satisfaction of the Board unless the applicant has submitted a Partial Certificate of Completion for the remainder of the required improvements. The applicant's engineer or surveyor, upon completion of all required improvements, shall submit a Certificate of Completion. The Board or its agent(s) shall complete a final inspection of the site upon filing of the Certificate of Completion by the applicant. Said inspection is further outlined in condition #1.
- Prior to any work commencing on the subject property, the owner/applicant shall provide plans to limit construction debris and materials on the site. In the event that debris is carried onto any public way, the owner/applicant and his assigns shall be responsible for all cleanup of the roadway. All cleanups shall occur within twenty-four (24) hours after first written notification to the owner/applicant by the Board or its designee. Failure to complete such cleanup may result in suspension of construction of the site until such public way is clear of debris.
- The owner/applicant shall install erosion control devices as necessary and as directed by the Town's Construction Inspector.
- Maintenance and repair of the parking area, water supply system, sewer pipes, electric distribution system, and stormwater system shall be the responsibility of the owner/applicant and shall never be the responsibility of the Town and the Town shall never be required to perform any service, repair or



Spruhan Engineering, P.C.

80 JEWETT ST. (SUITE 1)
NEWTON, MA 02458

Tel: 617-816-0722
Email: espruhan@gmail.com

122 CHESTNUT STREET
FRANKLIN
MASSACHUSETTS

CIVIL PLAN

REVISION BLOCK

DESCRIPTION	DATE
REVISED AS PER TOWN OF FRANKLIN COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	6/29/2020

All legal rights including, but not limited to, copyright and design patent rights, in the designs, arrangements and plans shown on this document are the property of Spruhan Engineering, P.C. They may not be used or reused in whole or in part, except in connection with this project, without the prior written consent of Spruhan Engineering, P.C. Written dimensions on these drawings shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on this project, and Spruhan Engineering, P.C., must be notified of any variation from the dimensions and conditions shown by these drawings.

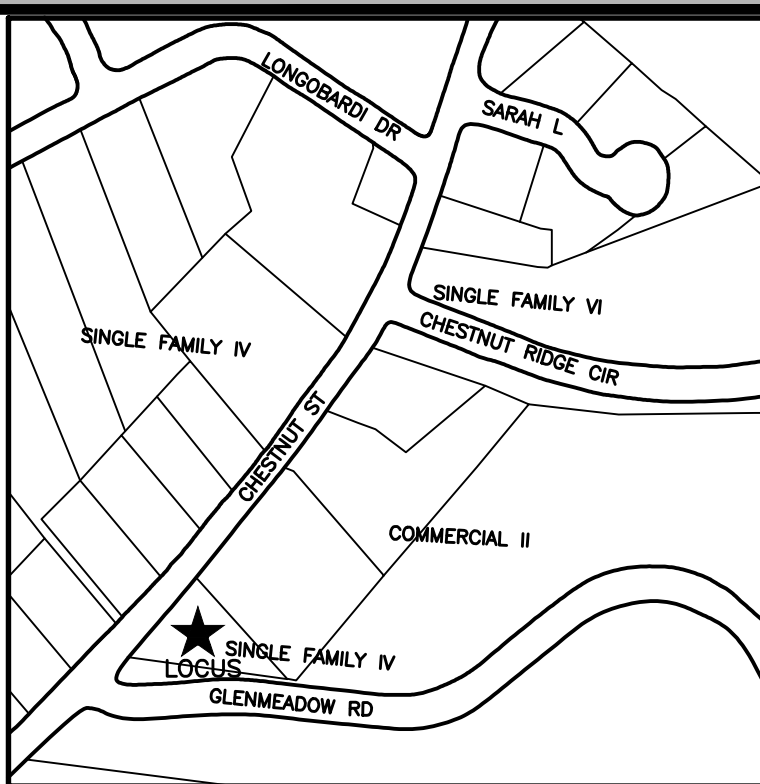


DATE:	10/21/2019
DRAWN BY:	M.G.C.
CHECKED BY:	E.S.
APPROVED BY:	E.S.

EXISTING CONDITIONS

LEGEND

	BOUND
	IRON PIN/PIPE
	TREE
	SEWER MANHOLE
	CATCH BASIN
	WATER VALVE
	GAS VALVE
	UTILITY POLE
	MANHOLE
	SPOT GRADE
	EXISTING BUILDING
	STONE WALL
	FENCE
	TREE LINE
	SEWER LINE
	DRAIN LINE
	WATER LINE
	GAS LINE
	OVERHEAD WIRES
	CONTOUR LINE (MJR)
	CONTOUR LINE (MNR)



LOT LOCATED UNDER DEP APPROVED ZONE II OF WATER RESOURCE DISTRICT.

ZONING LEGEND

ZONING DISTRICT: COMMERCIAL II

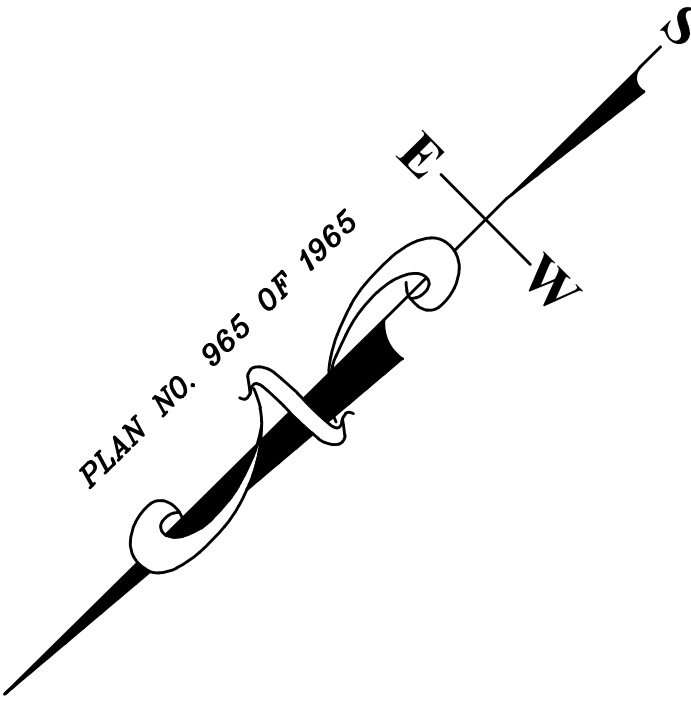
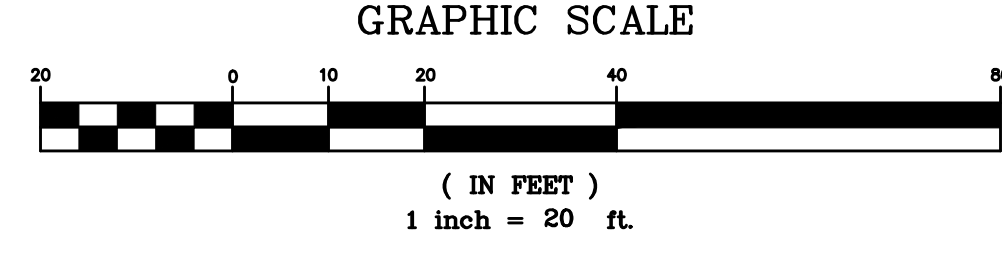
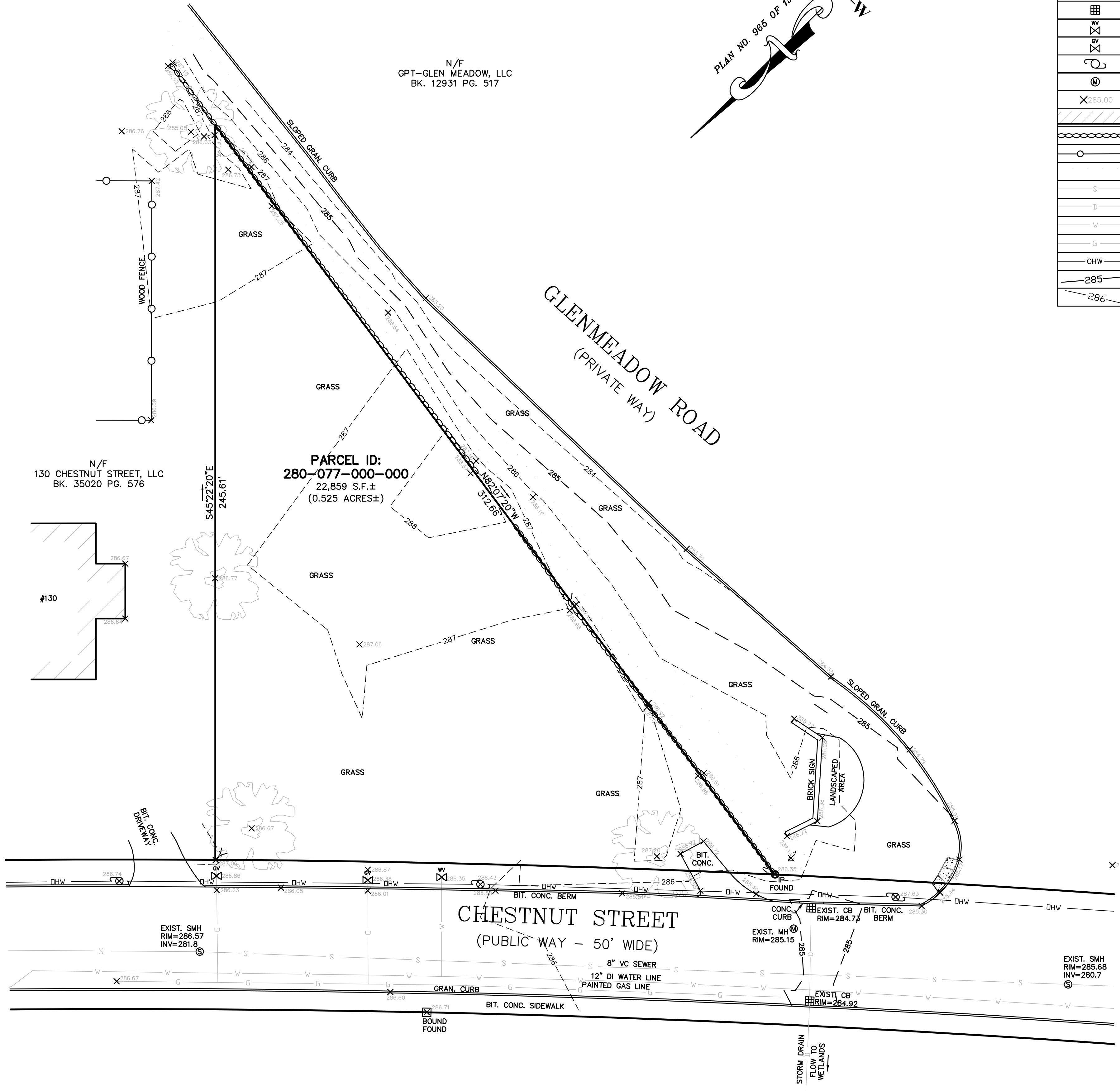
	REQUIRED	EXISTING
MIN. AREA	22,858 S.F.*	22,859 S.F.±
MIN. FRONTAGE	175'	187.15'
MIN. DEPTH	150'*	-
MIN. LOT WIDTH	120'*	-
MIN. YARD FRONT	20'*	-
SIDE (RIGHT)	15'*	-
REAR	30'	-

*SPECIAL PERMIT GRANTED VARIANCES.



- NOTES:
- INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY SPRUHAN ENGINEERING, P.C. AS OF 6/26/2019.
 - DEED REFERENCE: BOOK 27480, PAGE 571
PLAN REFERENCE 1: PLAN NO. 965 OF 1965
PLAN REFERENCE 2: PLAN NO. 94 OF 1967
PLAN REFERENCE 3: PLAN NO. 344 OF 1994
NORFOLK COUNTY REGISTRY OF DEEDS

PLAN REFERENCE 4: PLAN ENTITLED "EXISTING CONDITIONS PLAN OF LAND IN FRANKLIN MASSACHUSETTS", PREPARED BY GUERRIERE & HALRON, INC., DATED JUNE 7, 2007
 - THIS PLAN IS NOT INTENDED TO BE RECORDED.
 - I CERTIFY THAT THE DWELLING SHOWN ON THIS PLAN IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X, ON FLOOD HAZARD BOUNDARY MAP NUMBER 25021C0309E, IN COMMUNITY NUMBER: 250240, DATED 7/17/2012.
 - 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 USES OF THE LAND; HOWEVER THIS NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
 - FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.
 - NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS SPRUHAN ENGINEERING, P.C. ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM TABLE PROVIDED BY LOCAL ZONING ORDINANCE. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS.
 - THE ELEVATIONS SHOWN ARE ON (NGVD 1929).



N/F
GPT-GLEN MEADOW, LLC
BK. 12931 PG. 517

N/F
130 CHESTNUT STREET, LLC
BK. 35020 PG. 576

PARCEL ID:
280-077-000-000
22,859 S.F.±
(0.525 ACRES±)

GLENMEADOW ROAD
(PRIVATE WAY)

CHESTNUT STREET
(PUBLIC WAY - 50' WIDE)



Spruhan Engineering, P.C.

80 JEWETT ST. (SUITE 1)
NEWTON, MA 02458

Tel: 617-816-0722
Email: espruhan@gmail.com

122 CHESTNUT STREET
FRANKLIN
MASSACHUSETTS

CIVIL PLAN

REVISION BLOCK

DESCRIPTION	DATE
REVISED AS PER TOWN OF FRANKLIN COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	7/1/2020
REVISED AS PER BETA COMMENTS	7/13/2020
PARKING SPOT REMOVED	7/15/2020

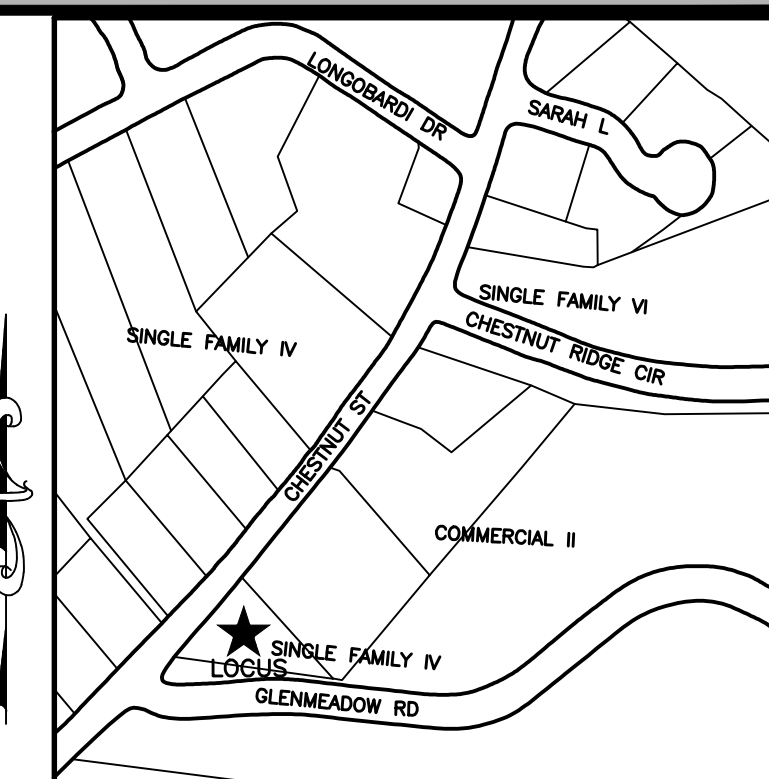
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DATE: 11/08/2019
DRAWN BY: G.P.
CHECKED BY: E.S.
APPROVED BY: E.S.

PROPOSED PLOT
PLAN

SHEET 2 OF 12

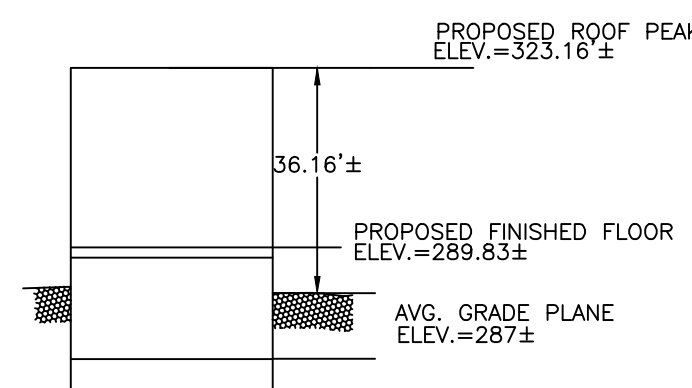


LOCUS MAP
(NOT TO SCALE)

NOTES:

1. INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY SPRUHAN ENGINEERING, P.C. AS OF 6/26/2019.
2. DEED REFERENCE: BOOK 27480, PAGE 571
PLAN REFERENCE 1: PLAN NO. 965 OF 1965
PLAN REFERENCE 2: PLAN NO. 94 OF 1967
PLAN REFERENCE 3: PLAN NO. 344 OF 1994
WORFOLK COUNTY REGISTRY OF DEEDS

PLAN REFERENCE 4: PLAN ENTITLED "EXISTING CONDITIONS PLAN OF LAND IN FRANKLIN MASSACHUSETTS", PREPARED BY GUERRIERE & HALRON, INC., DATED JUNE 7, 2007
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8. THE ELEVATIONS SHOWN ARE ON (NGVD 1929).



PROPOSED PROFILE
NOT TO SCALE

SIGHT DISTANCE SITE DRIVEWAY AND CHESTNUT ST.		
STOP SIGHT DISTANCE	REQUIRED *	SCALED
CHESTNUT ST. APPROACHING FROM SOUTH-WEST	200 FT	400+ FT
CHESTNUT ST. APPROACHING FROM NORTH-EAST	200 FT	400+ FT
INTERSECTION SIGHT DISTANCE		
SITE DRIVEWAY EXITING TO CHESTNUT ST	290 FT**/335 FT***	400+ FT

* Recommended minimum values obtained from Massachusetts Department of Transportation in its 2008 Project Development and Design Guide.
** Recommended minimum value for vehicles turning right exiting a roadway under STOP sign control.
*** Recommended minimum value for vehicles turning left exiting a roadway under STOP sign control.

IMPERVIOUS AREA SUMMARY

	EXISTING	PROPOSED
BUILDING ROOF	-	4,111.1 S.F.
DRIVEWAY/PARKING	95.7 S.F.	8,274 S.F.
WALKWAY	-	652.3 S.F.
TOTAL:	95.7 S.F.	13,037.4 S.F.
IMPERVIOUS INCREASE:		12,941.7 S.F.

* PER TITLE V, SEWER FLOW RESIDENTIAL (G.P.D.)
EXISTING = (0 BEDROOMS X 110 G.P.D.) = 0 G.P.D.
PROPOSED = (15 BEDROOMS X 110 G.P.D.) = 1,650 G.P.D.

* PARKING SCHEDULE:
PARKING SPACES REQUIRED(8185-31)= 10 UNITS X 2 PS = 20 P.S. + 1 HANDICAP SPACE
PARKING SPACES PROVIDED = *19 P.S + 1 HANDICAP SPACE
*AS REQUIRED BY TOWN OF FRANKLIN

LOT LOCATED UNDER DEP APPROVED ZONE II OF WATER RESOURCE DISTRICT.

ZONING LEGEND

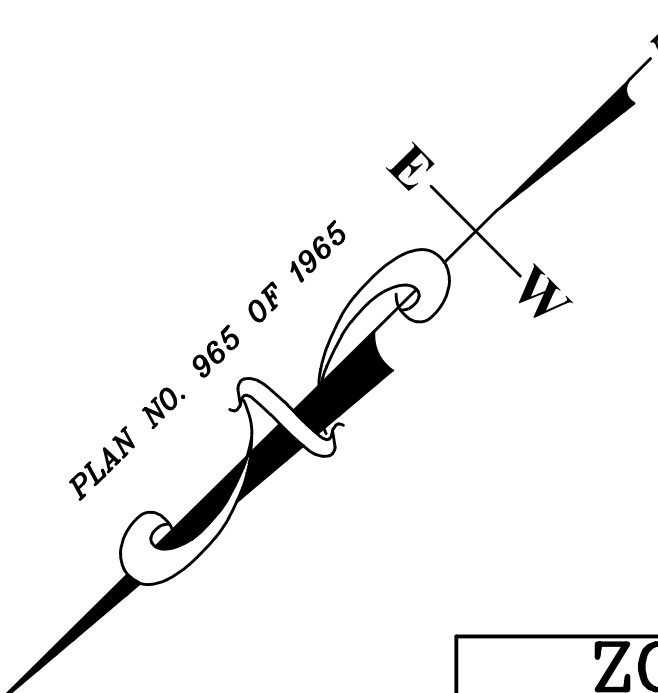
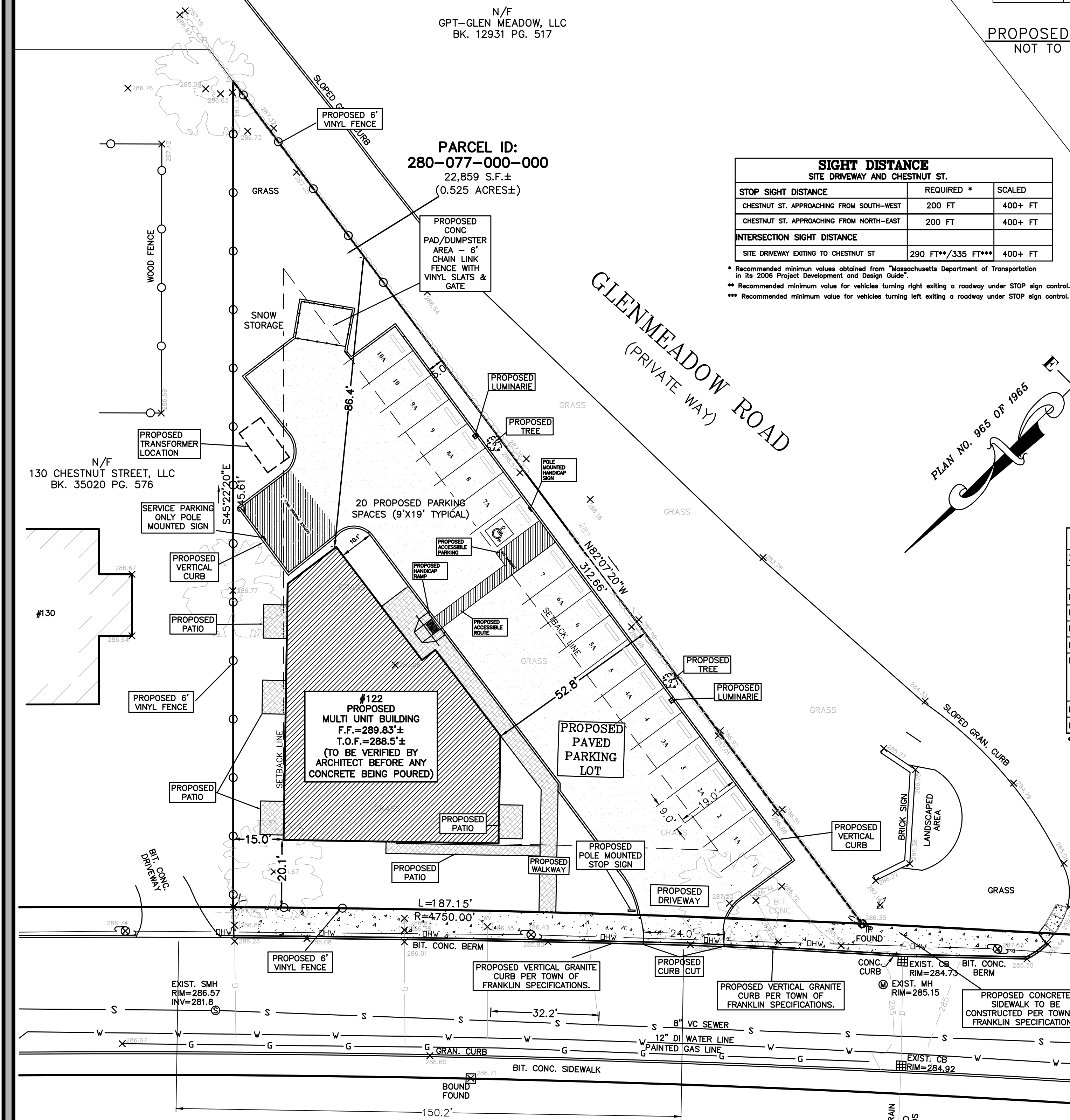
ZONING DISTRICT: COMMERCIAL II

	REQUIRED	PROPOSED
MIN. AREA	22,858 S.F.*	22,859 S.F.±
MIN. FRONTAGE	175'	187.15'
MIN. DEPTH	150'	-
MIN. LOT WIDTH	120'	-
MIN. YARD FRONT	20'	20.1'
SIDE	15'	15'
REAR	30'	86.4'
MAX HEIGHT	40'	36.16'
MAX IMPERVIOUS COVERAGE	80%	57%

*SPECIAL PERMIT GRANTED VARIANCES.

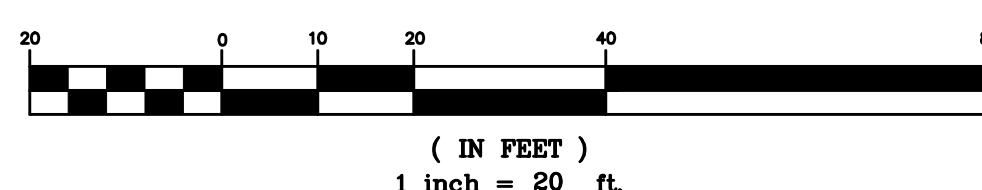
LEGEND

□	BOUND
○	IRON PIN/PIPE
⊙	TREE
⊙	SEWER MANHOLE
⊙	CATCH BASIN
⊙	WATER VALVE
⊙	GAS VALVE
⊙	UTILITY POLE
⊙	MANHOLE
X	SPOT GRADE
▨	EXISTING BUILDING
⊖	STONE WALL
○	FENCE
—	TREE LINE
—	SEWER LINE
—	DRAIN LINE
—	WATER LINE
—	GAS LINE
—	OVERHEAD WIRES
—	CONTOUR LINE (MJR)
—	CONTOUR LINE (MNR)



PLAN NO. 965 OF 1965

GRAPHIC SCALE



(IN FEET)
1 inch = 20 ft.



**Spruhan
Engineering, P.C.**

80 JEWETT ST. (SUITE 1)
NEWTON, MA 02458

Tel: 617-816-0722
Email: espruhan@gmail.com

122 CHESTNUT STREET
FRANKLIN
MASSACHUSETTS

CIVIL PLAN

REVISION BLOCK

DESCRIPTION	DATE
REVISED AS PER TOWN OF FRANKLIN COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	28/02/2020
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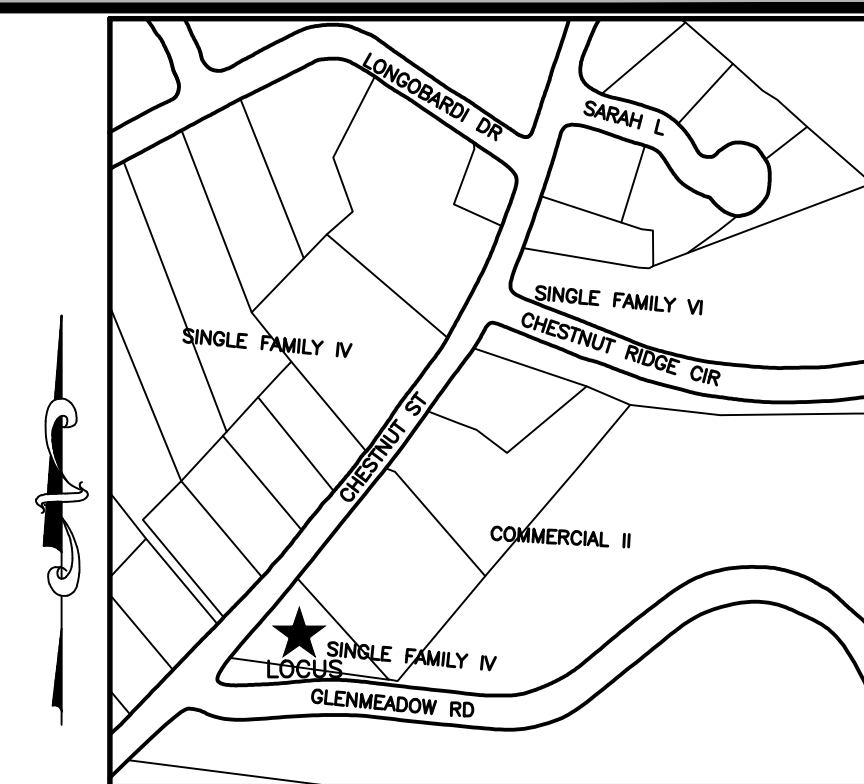
DATE: 11/08/2019
DRAWN BY: G.P.
CHECKED BY: E.S.
APPROVED BY: E.S.

PROPOSED GRADING
AND UTILITIES

SHEET 3 OF 12

- NOTES:
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 8. THE ELEVATIONS SHOWN ARE ON (NGVD 1929).



LOCUS MAP
(NOT TO SCALE)

LOT LOCATED UNDER DEP
APPROVED ZONE II OF WATER
RESOURCE DISTRICT.

IMPERVIOUS AREA SUMMARY

	EXISTING	PROPOSED
BUILDING ROOF	-	4,111.1 S.F.
DRIVEWAY/PARKING	95.7 S.F.	8,274 S.F.
WALKWAY	-	652.3 S.F.
TOTAL:	95.7 S.F.	13,037.4 S.F.
IMPERVIOUS INCREASE:		12,941.7 S.F.

1. THE CONTRACTOR SHALL REPORT TO THE OWNER AND ENGINEER OF ANY SIGNIFICANT VARIATIONS IN EXISTING SITE CONDITIONS FROM THOSE SHOWN ON THESE PLANS. ANY PROPOSED REVISIONS TO THE WORK, IF REQUIRED BY THESE SITE CONDITIONS, SHALL NOT BE UNDERTAKEN UNTIL REVIEWED AND APPROVED BY THE OWNER AND THE ENGINEER.
2. IN ORDER TO PROTECT THE PUBLIC SAFETY DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING AT ALL TIMES ALL NECESSARY SAFETY DEVICES AND PERSONNEL, WARNING LIGHTS, BARRICADES, AND POLICE OFFICERS.
3. ALL WORK SHALL CONFORM TO TOWN OF FRANKLIN GENERAL CONSTRUCTION STANDARDS.
4. THE CONTRACTOR SHALL REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. ALL DEMOLITION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE SITE TO A LEGAL DUMP SITE. ALL TRUCKS LEAVING THE SITE SHALL BE COVERED.
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTITUTE EROSION CONTROL MEASURES ON AN AS NECESSARY BASIS, SUCH THAT EXCESSIVE SOIL EROSION DOES NOT OCCUR.
6. THE LOCATION OF UNDERGROUND UTILITIES AS REPRESENTED ON THESE PLANS IS BASED UPON PLANS AND INFORMATION PROVIDED BY THE RESPECTIVE UTILITY COMPANIES OR MUNICIPAL DEPARTMENTS SUPPLEMENTED BY FIELD IDENTIFICATION WHEREVER POSSIBLE. NO WARRANTY IS MADE AS TO THE ACCURACY OF THESE LOCATIONS OR THAT ALL UNDERGROUND UTILITIES ARE SHOWN. THE CONTRACTOR SHALL CONTRACT DIG SAFE AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. DIG SAFE TELEPHONE NUMBER IS 1-800-322-4844.
7. THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO TAPPING INTO, CROSSING OR EXTENDING THEM. IF THE NEW WORK POSES A CONFLICT WITH EXISTING UTILITIES, THE ENGINEER SHALL BE NOTIFIED PRIOR TO THE CONTRACTOR CONTINUING.
8. NO LEDGE, BOULDERS, OR OTHER UNYIELDING MATERIALS ARE TO BE LEFT WITHIN 6" OF THE WATER IN THE TRENCH, NOR ARE THEY TO BE USED FOR BACKFILL FOR THE FIRST 12" ABOVE THE PIPES.
9. PAVEMENT AREA SHALL BE PAVED TO A THICKNESS AS SHOWN ON THE PLANS MEASURED AFTER COMPACTION, WITH A BINDER COURSE AND TOP COURSE OF CLASS 1 BITUMINOUS CONCRETE PAVEMENT, TYPE 1-1.
10. BASE MATERIAL SHALL BE CLEAN BANK RUN GRAVEL, CONFORMING TO M.D.P.W. M1.03.1, WITH NO STONES LARGER THAN THREE (3) INCHES IN DIAMETER AND SHALL BE PLACED AND ROLLED WITH AT LEAST A TEN TON ROLLER. THE SURFACES SHALL BE WET DURING ROLLING TO BIND THE MATERIAL. ALL STONES OF 4" DIAMETER OR LARGER SHALL BE REMOVED FROM THE SUB-BASE PRIOR TO PLACING BASE MATERIAL.
11. ALL EXISTING PAVING TO BE DISTURBED SHALL BE CUT ALONG A STRAIGHT LINE THROUGH ITS ENTIRE THICKNESS, BUTT THE NEW PAVING INTO THE EXISTING PAVEMENT TO REMAIN.
12. ANY PAVEMENT REMOVED FOR UTILITY TRENCH EXCAVATION OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH A PAVEMENT SECTION CONSISTING OF 1" WEAR COURSE OVERLYING A 1 1/2" BINDER COURSE OVERLYING A 6" COMPACTED GRAVEL BASE COURSE.
13. THE CONTRACTOR SHALL APPLY FOR A STREET OPENING AND UTILITY CONNECTION PERMITS AND SIDEWALK CROSSING PERMIT WITH THE TOWN OF FRANKLIN.
14. CONTRACTOR TO ENSURE THAT ALL SURFACE WATER IS DIVERTED AWAY FROM BUILDING FOUNDATION DURING FINAL GRADING.

LEGEND

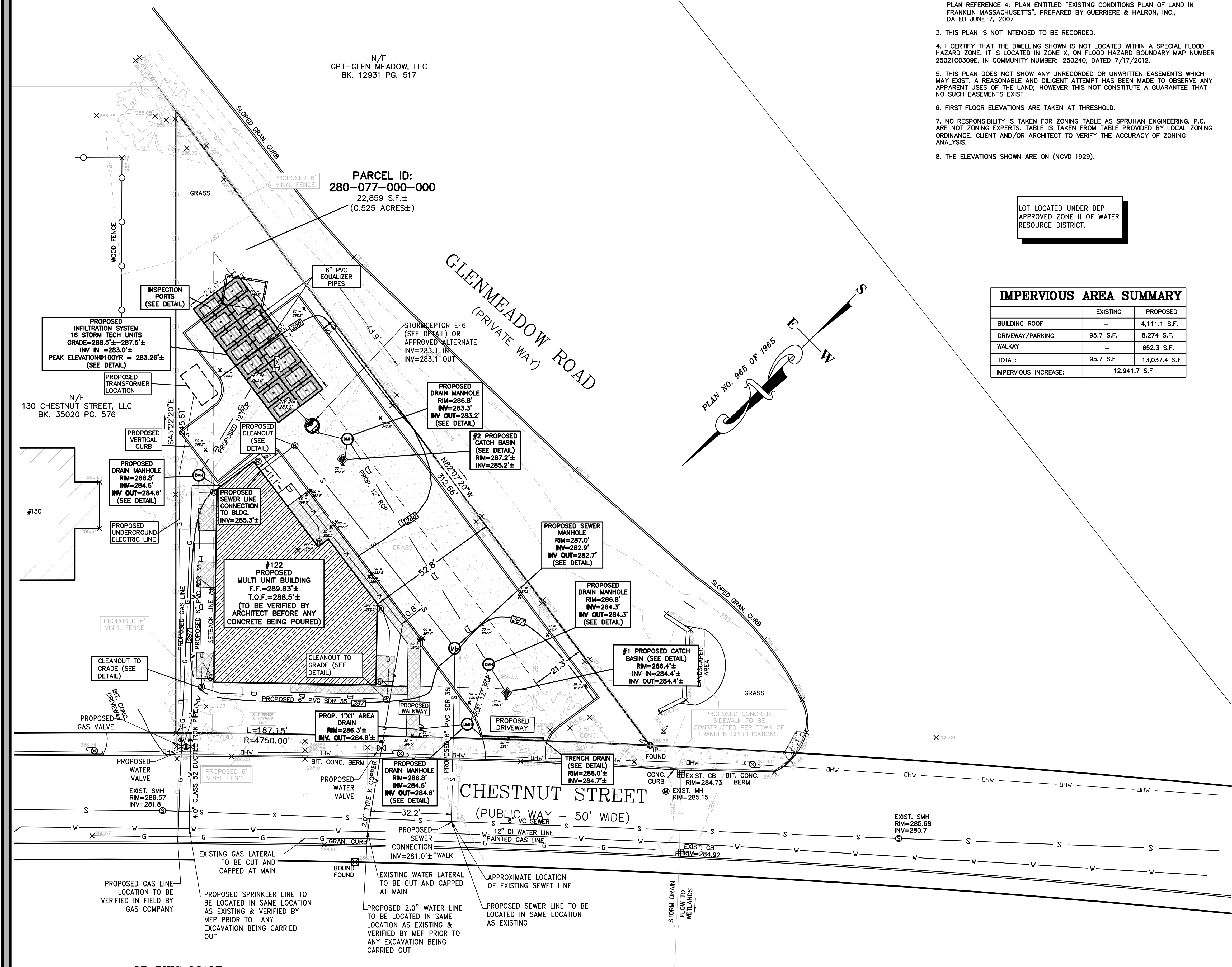
	BOUND
	IRON PIN/PIPE
	TREE
	SEWER MANHOLE
	CATCH BASIN
	WATER VALVE
	GAS VALVE
	UTILITY POLE
	MANHOLE
	SPOT GRADE
	EXISTING BUILDING
	STONE WALL
	FENCE
	TREE LINE
	SEWER LINE
	DRAIN LINE
	WATER LINE
	GAS LINE
	OVERHEAD WIRES
	CONTOUR LINE (MJR)
	CONTOUR LINE (MNR)

N/F
GPT-GLEN MEADOW, LLC
BK. 12931 PG. 517

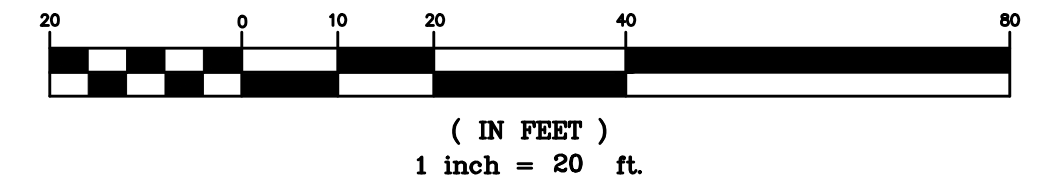
PARCEL ID:
280-077-000-000
22,859 S.F.±
(0.525 ACRES±)

N/F
130 CHESTNUT STREET, LLC
BK. 35020 PG. 576

#130

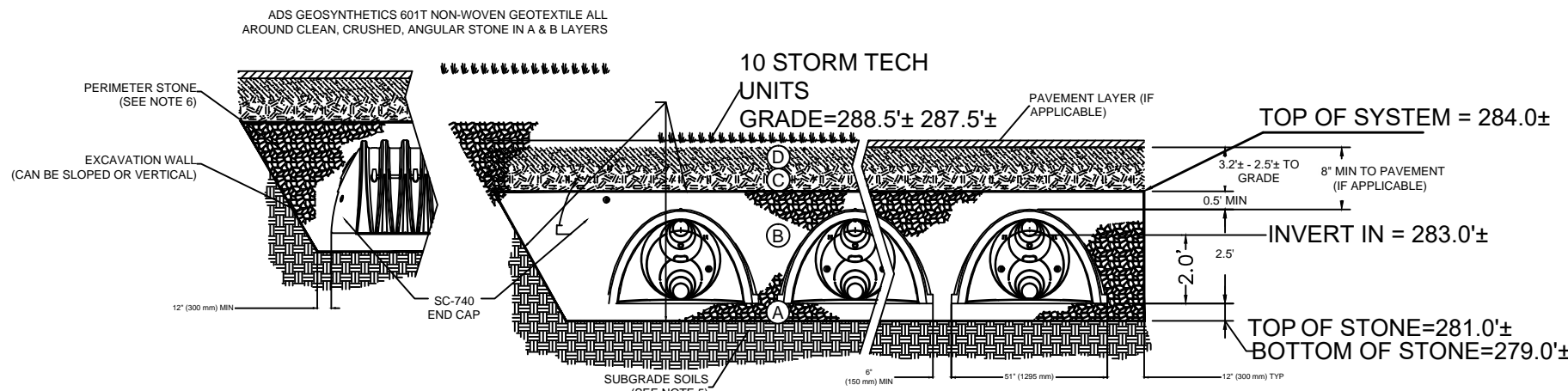


GRAPHIC SCALE



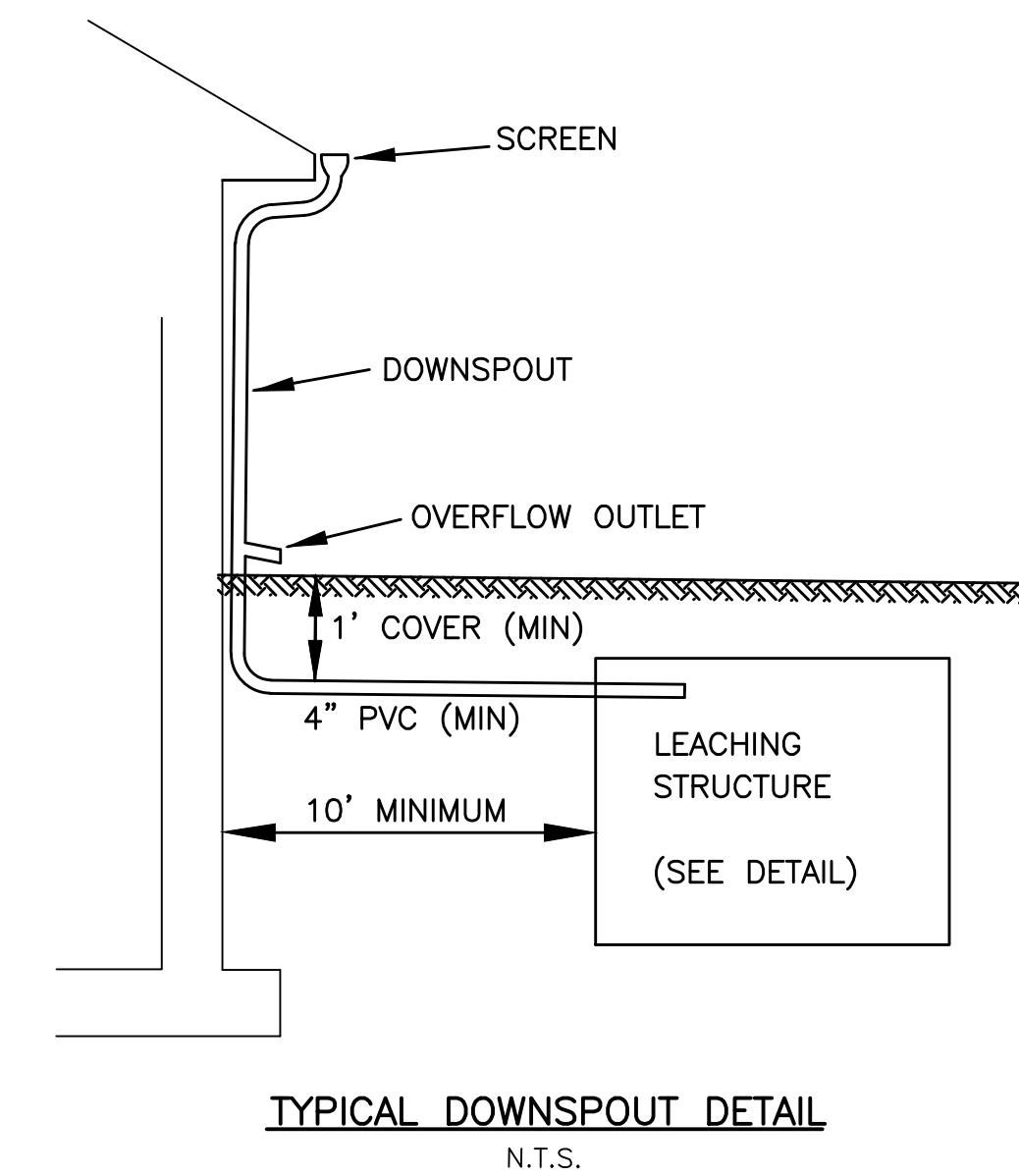
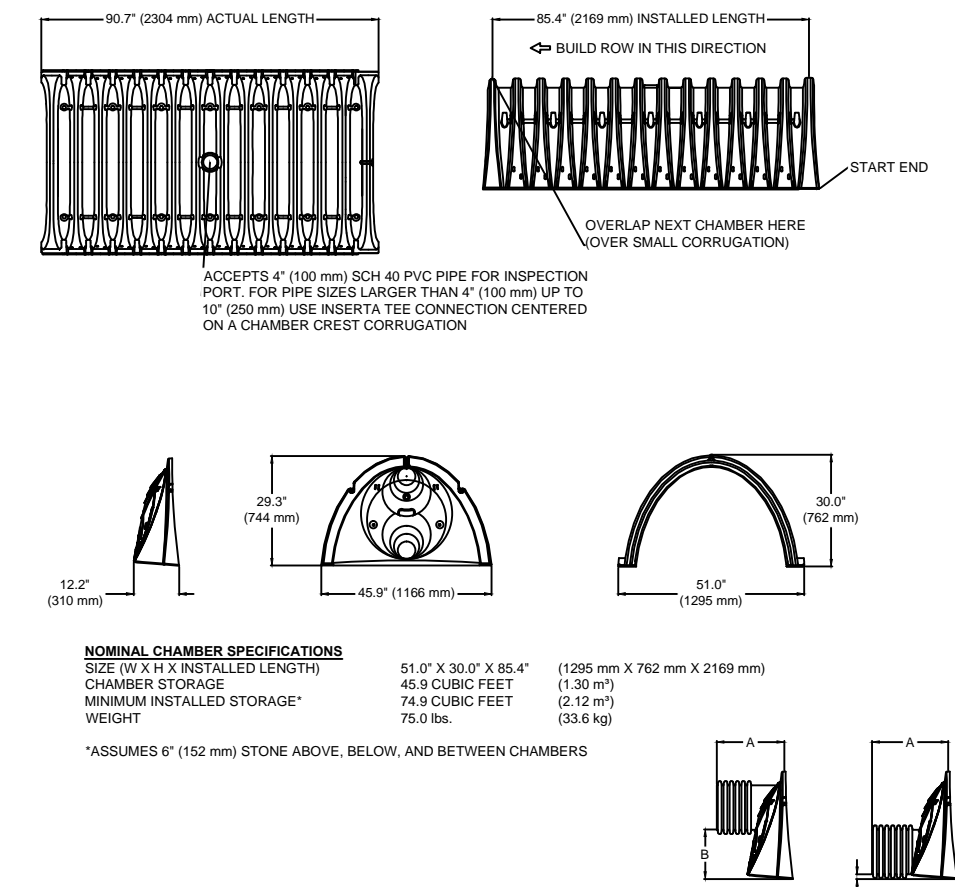
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D FINAL FILL MATERIAL FOR LAYER D STARTS FROM THE TOP OF THE C LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THIS LAYER.	ANY SOLID ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLAN. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRONGER MATERIAL AND PREPARATION REQUIREMENTS.
C FINAL FILL MATERIAL FOR LAYER C STARTS FROM THE TOP OF THE EMBEDED STONE OR LAYER TO 10" ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THIS LAYER.	GRANULAR WELL-GRADED SOLOAGGREGATE MIXTURES, $AASHTO M147$ OR FINER OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M147 A-1, A-2, A-3 OR AASHTO M47 3, 3.57, 4, 4.67, 5, 5.6, 5.7, 6, 6.37, 6.6, 7, 7.6, 8, 8.5, 9, 10	BEGIN COMPACTORS AFTER 1" (25.4 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 1" (25.4 mm) MAX LIFT TO A MIN. 90% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER OR DRUM WEIGHT NOT TO EXCEED 12,000 lbs (5,443 kg) DYNAMIC FORCE NOT TO EXCEED 30,000 lbs (13,608 kg).
B EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE C LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4" (20.6 mm)	AASHTO M47 3, 3.57, 4, 4.67, 5, 5.6, 5.7	NO COMPACTION REQUIRED.
A FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT BOTTOMS OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4" (20.6 mm)	AASHTO M47 3, 3.57, 4, 4.67, 5, 5.6, 5.7	FLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. **



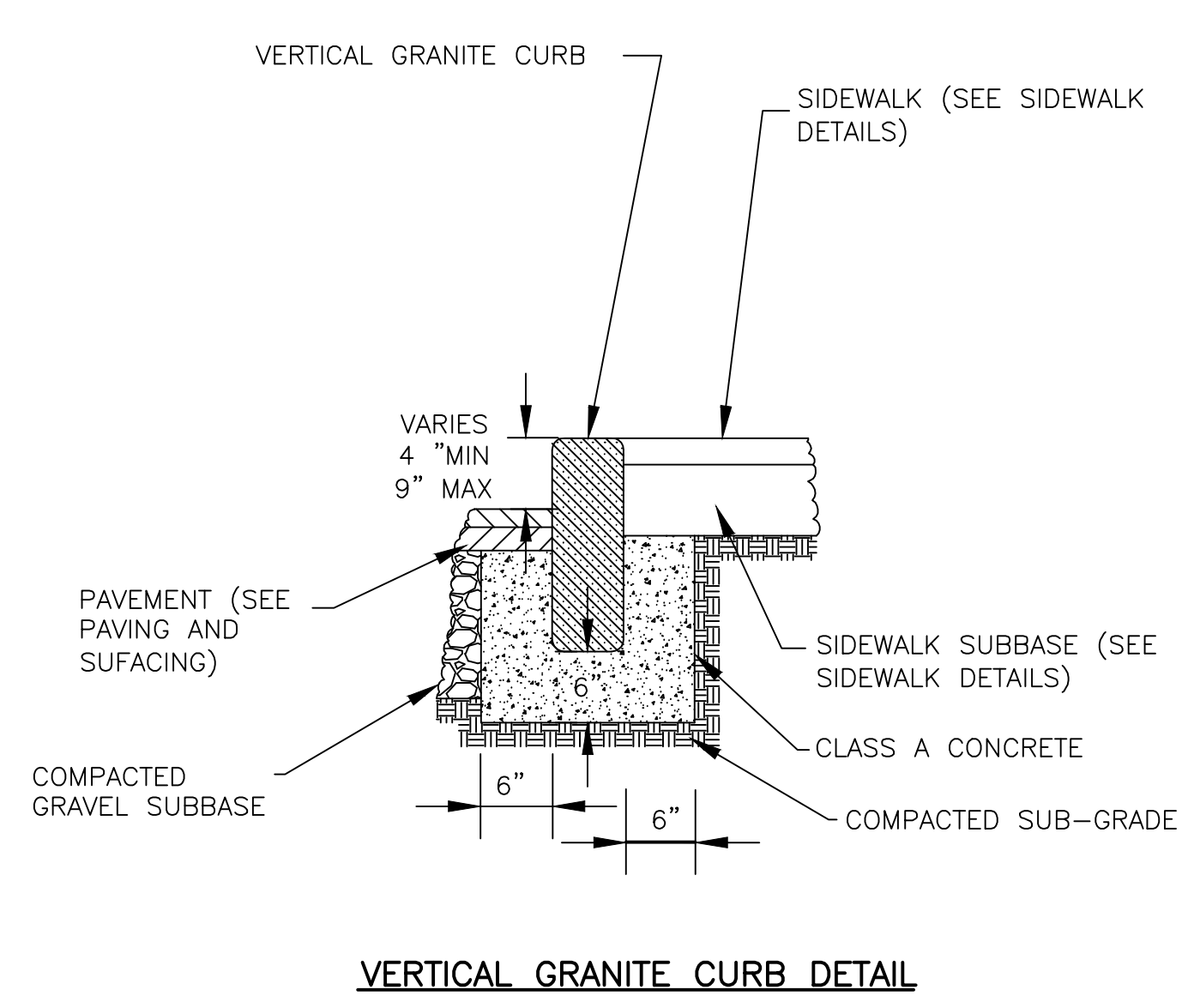
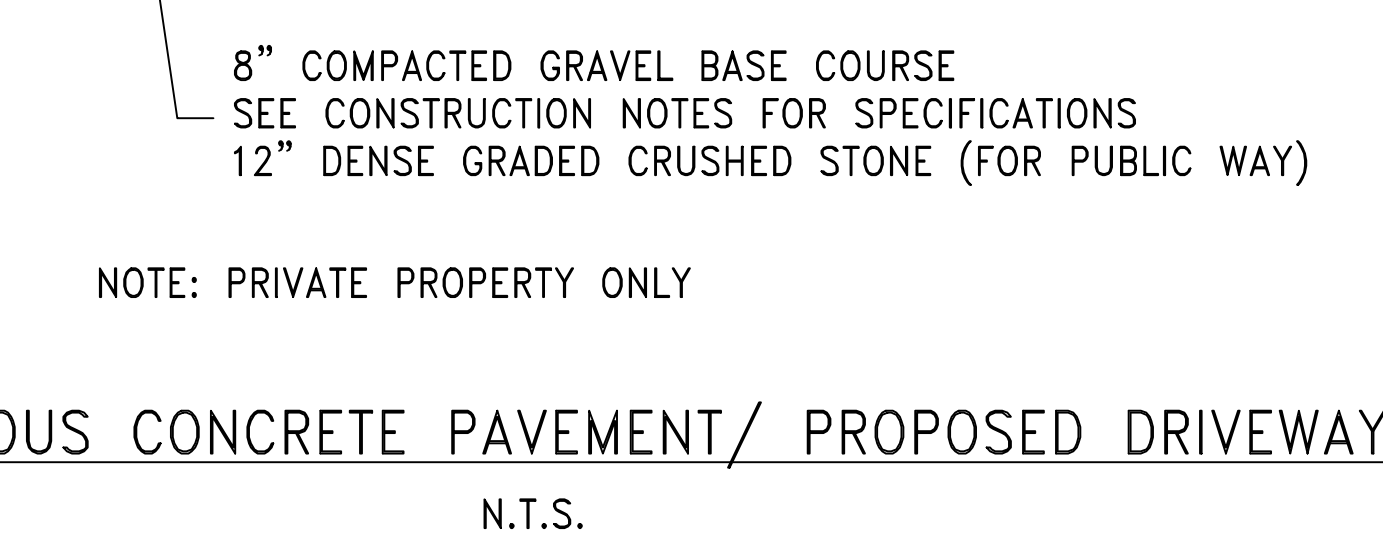
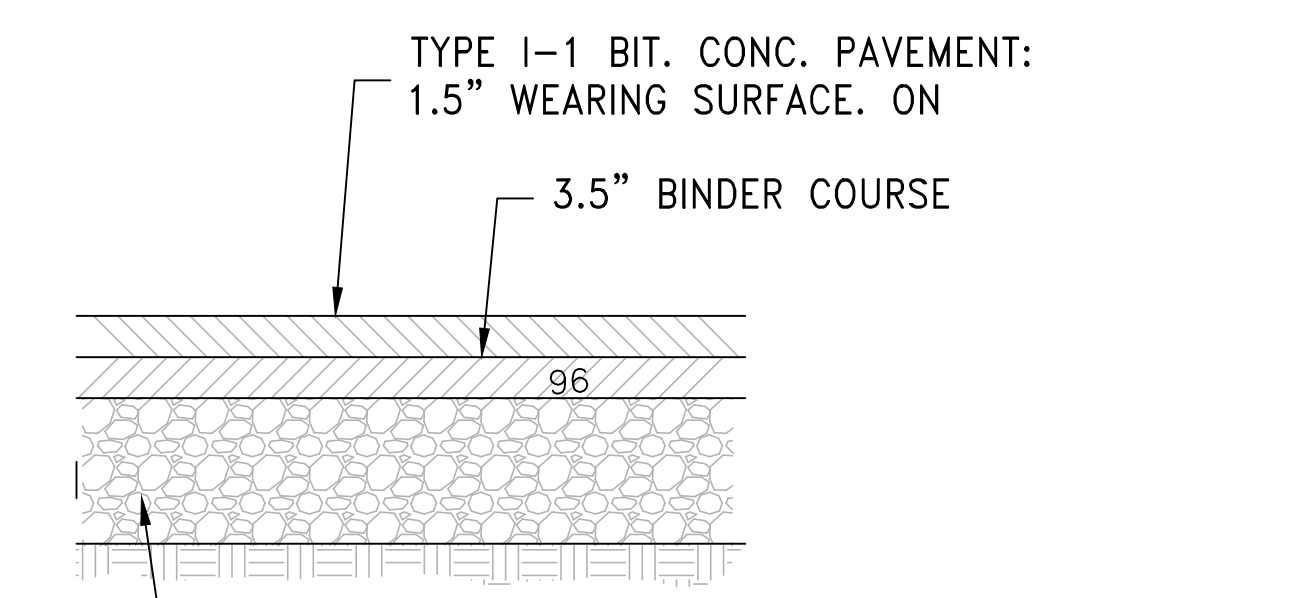
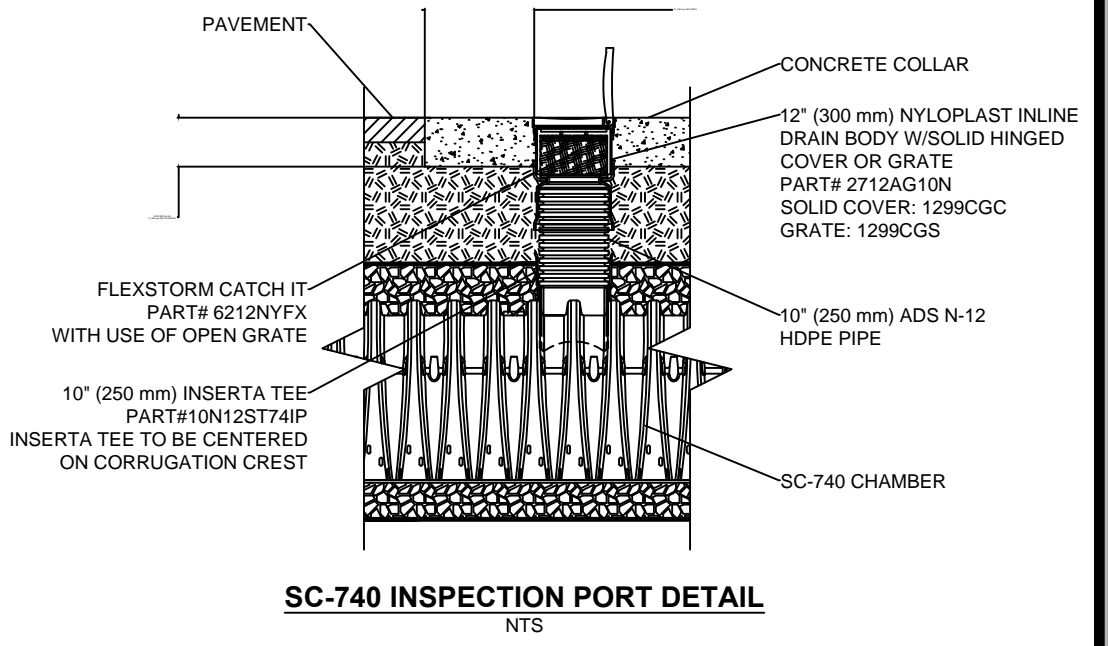
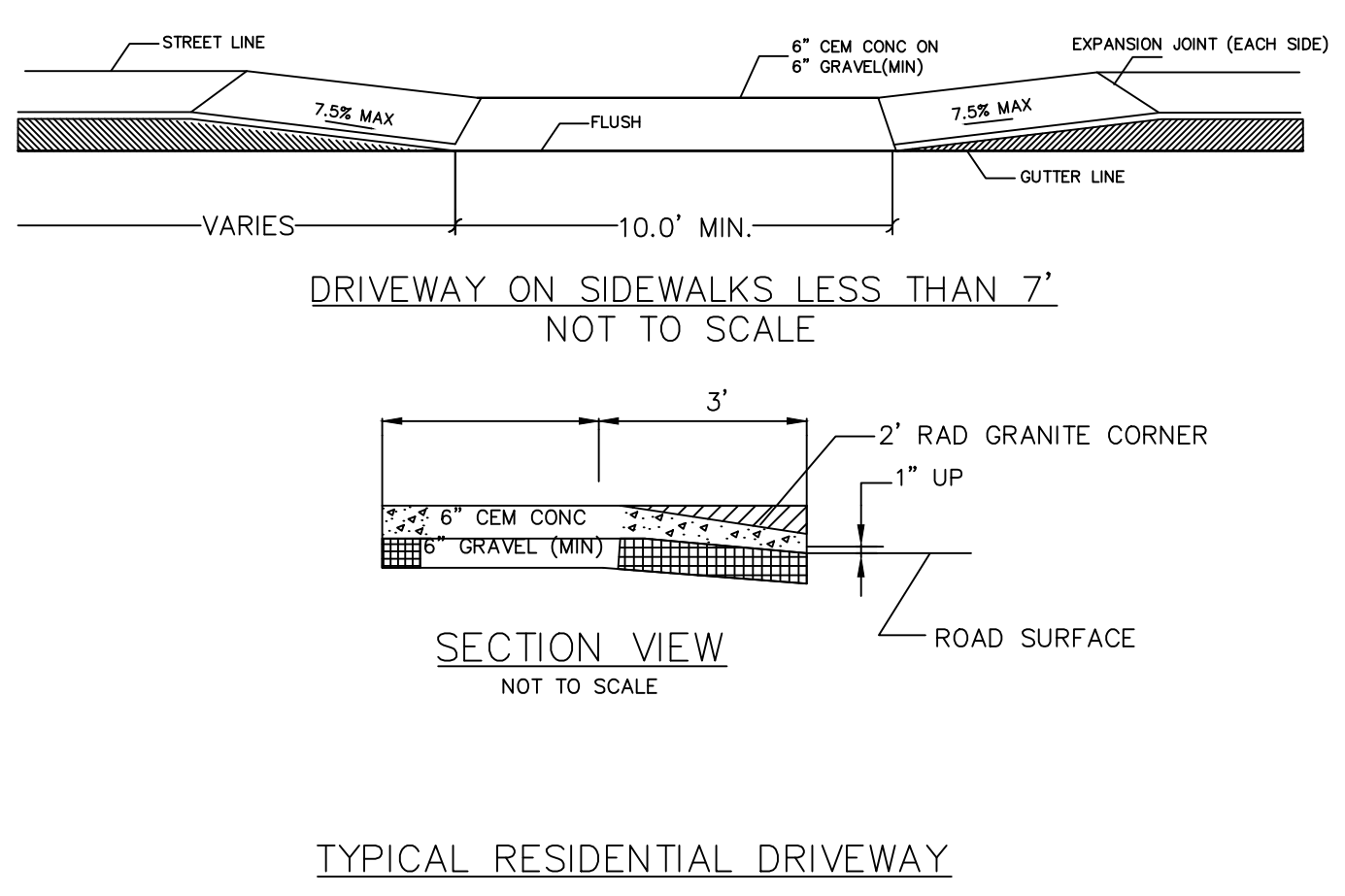
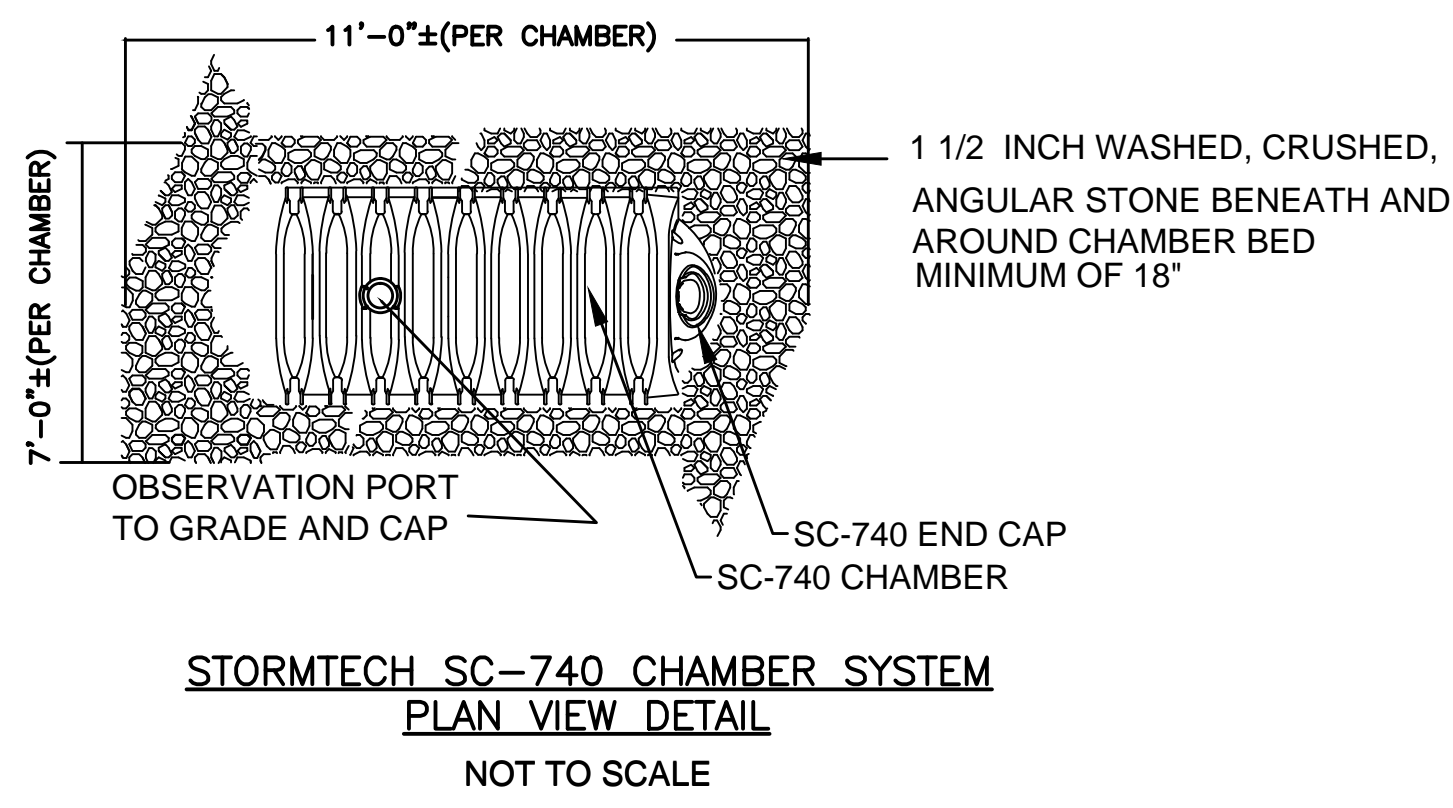
- NOTES:**
- SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" OR ASTM F2021 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
 - SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2737 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
 - "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
 - THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
 - THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
 - PERMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
 - ONCE LAYER C IS PLACED, ANY SOLID MATERIAL CAN BE PLACED IN LAYER D UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER C OR AT THE SITE DESIGN ENGINEER'S DISCRETION.

SC-740 TECHNICAL SPECIFICATION



STORMTECH GENERAL NOTES

- STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
- STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.). MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT. MAXIMUM COVER IS 36 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES. MAXIMUM COVER IS 36 INCHES.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
- AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
- STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE. CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
- THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.



SOIL LOG

DEEP OBSERVATION HOLE LOG

GENERAL SOIL CONDITIONS FOR THE AREA PERFORMED AT 122 CHESTNUT STREET, FRANKLIN BY PETER NOLAN & ASSOCIATES, LLC. AND SPRUHAN ENGINEERING, P.C.

HOLE NUMBER: TP - 1 DATED: 6/24/19

GENERAL SITE CONDITIONS: GRASS AND TREES.

DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	OTHER
0" - 6"	A _p	LS _{ND}	7.5 YR 4/1	NO	NONE
6" - 18"	B _w	LS _{ND}	7.5 YR 5/1	NO	NONE
18" - 36"	C ₁	COARSE S _{ND}	10 YR 6/1	NO	GRAVEL
36" - 60"	C ₂	COARSE S _{ND}	10 YR 7/5	NO	GRAVEL
60" - 120"	C ₃	MEDIUM S _{ND}	10 YR 7/1	NO	NONE



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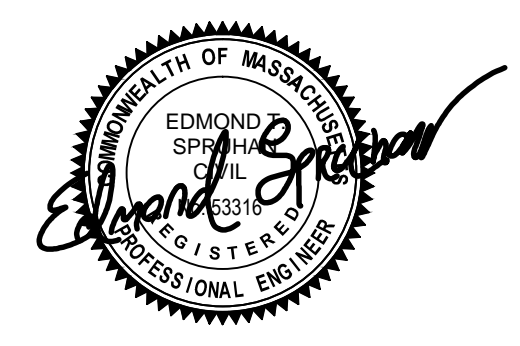
122 CHESTNUT STREET
FRANKLIN
MASSACHUSETTS

CIVIL PLANS

REVISION BLOCK

DESCRIPTION	DATE
REVISED AS PER TOWN OF FRANKLIN COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	03/05/2020
REVISED AS PER BETA COMMENTS	7/1/2020
REVISED AS PER BETA COMMENTS	7/13/2020

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DETAILS



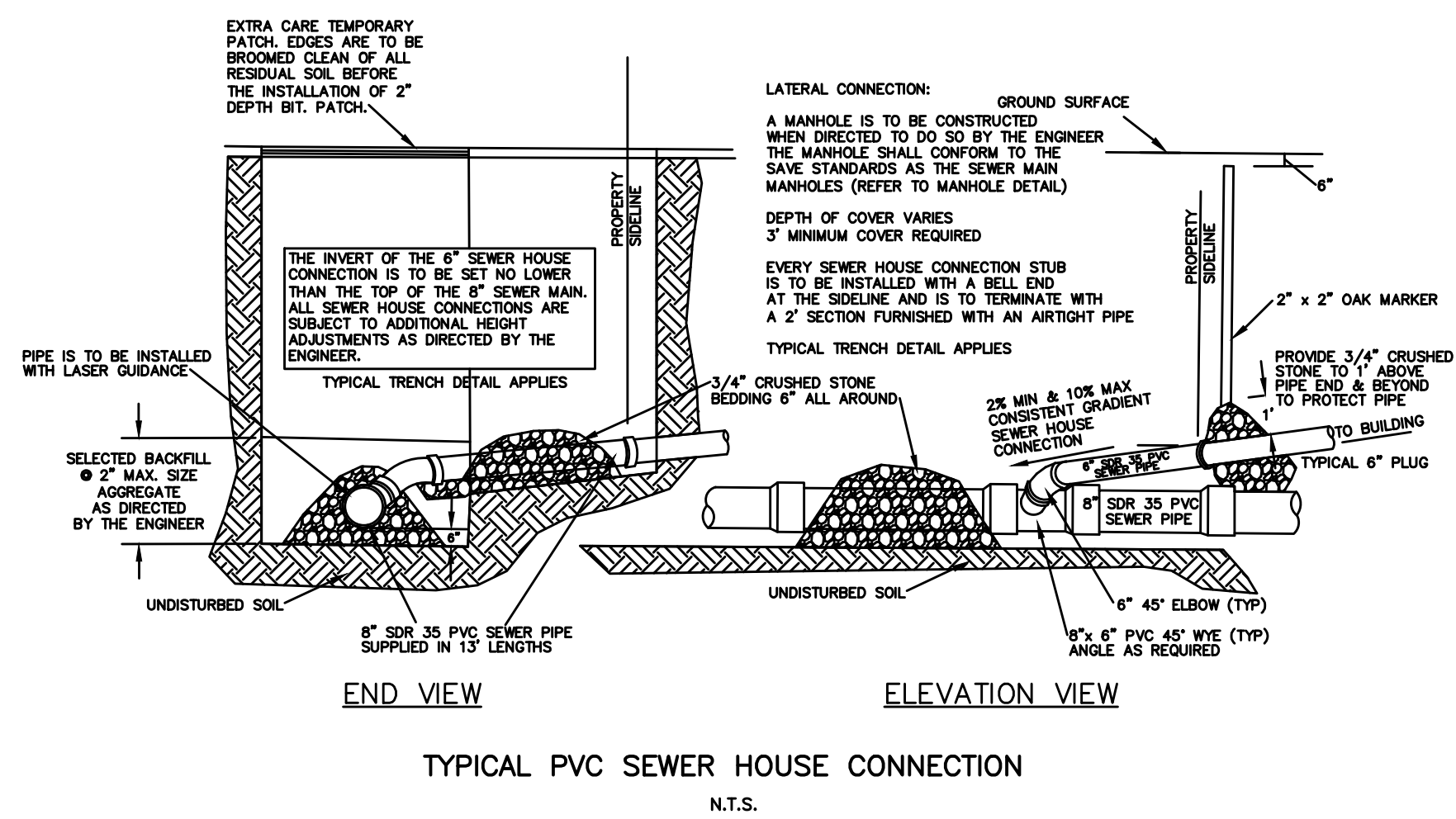
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**122 CHESTNUT STREET
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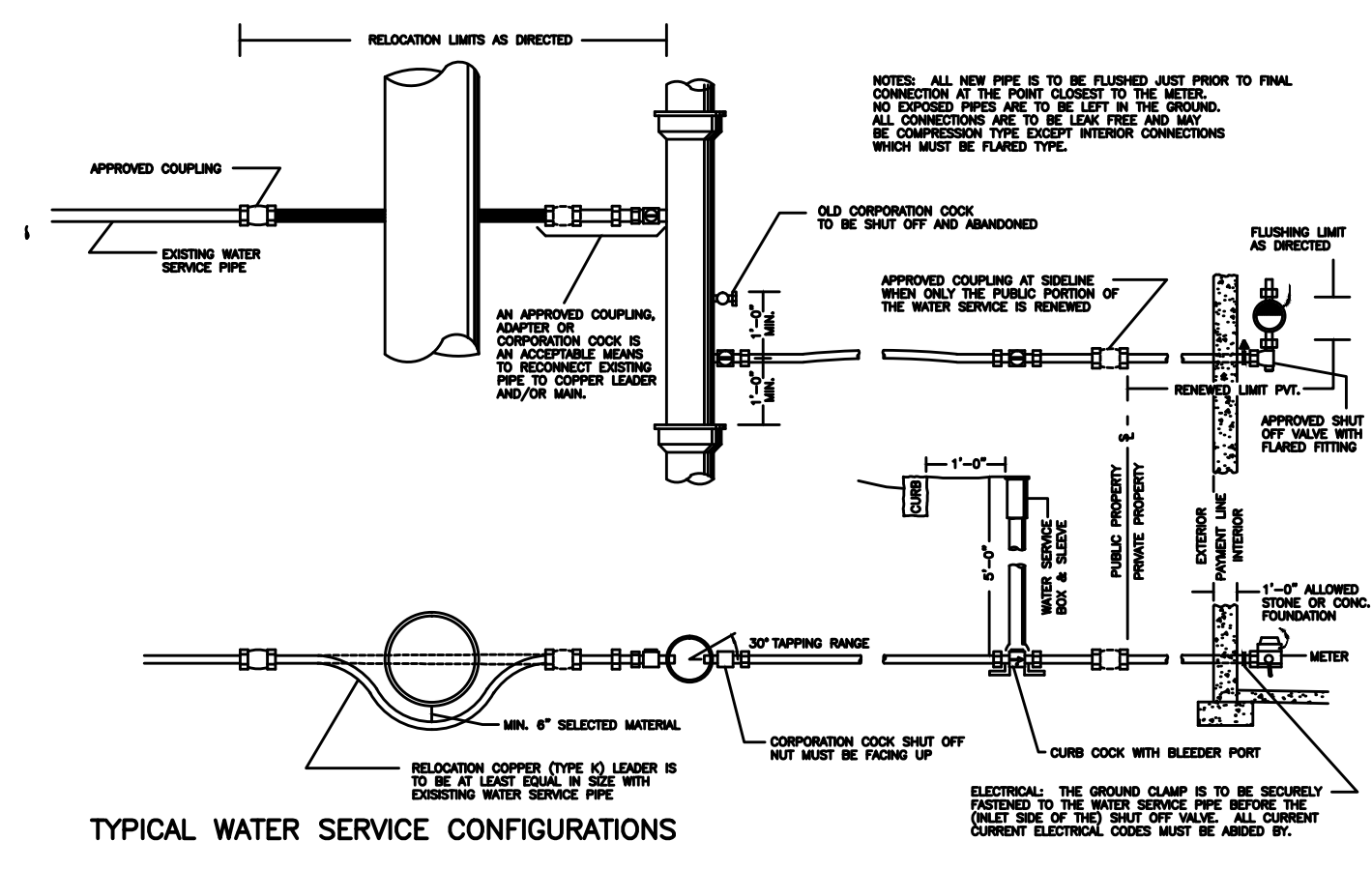
CIVIL PLANS

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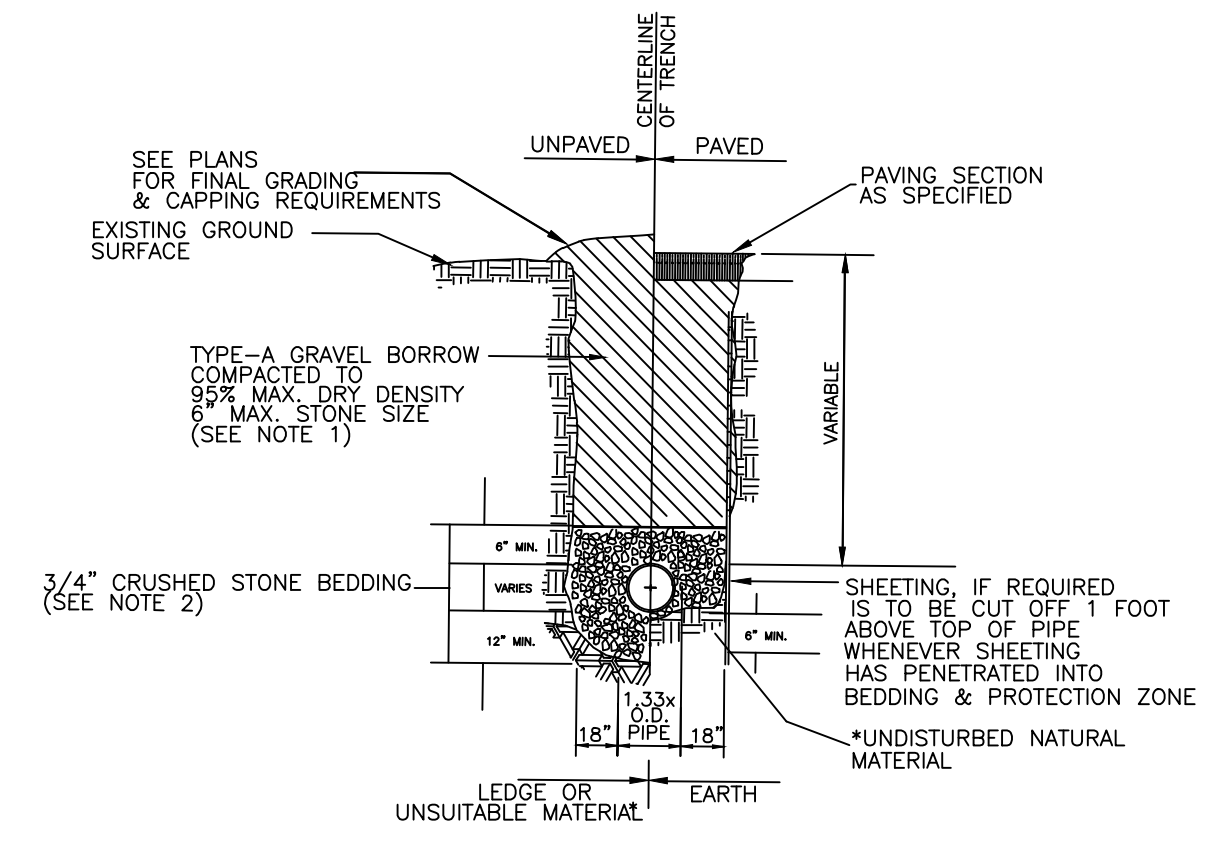
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REVISED AS PER BETA COMMENTS	7/13/2020



TYPICAL PVC SEWER HOUSE CONNECTION
N.T.S.

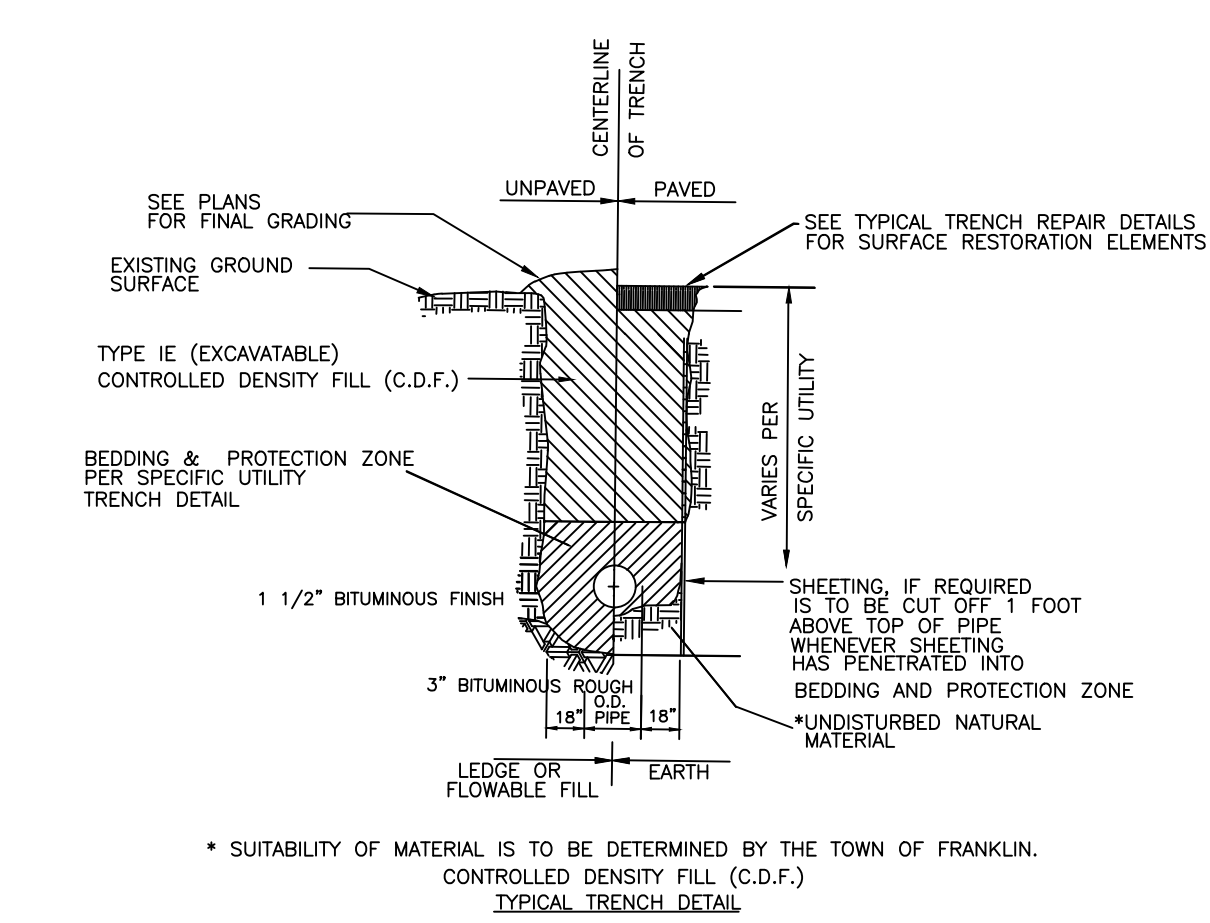


TYPICAL WATER SERVICE CONFIGURATIONS

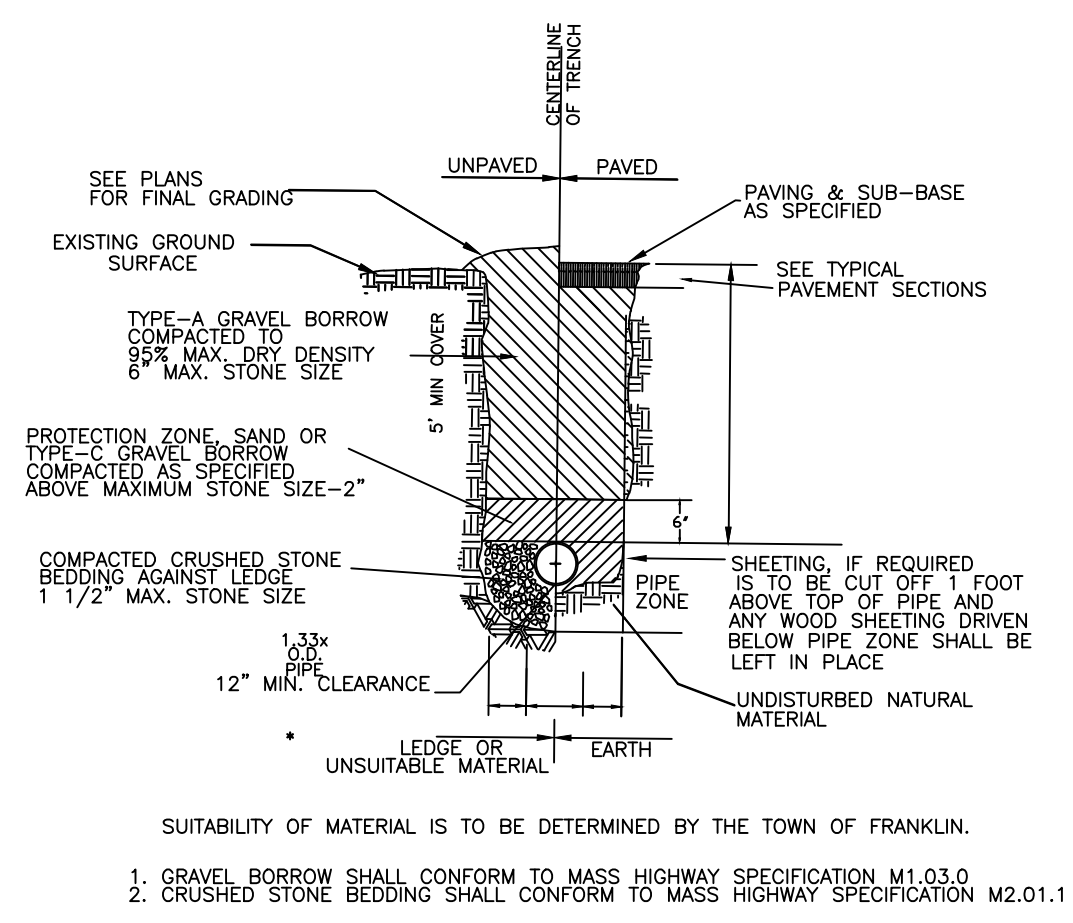


- * SUITABILITY OF MATERIAL IS TO BE DETERMINED BY THE TOWN OF FRANKLIN.
- 1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
- 2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

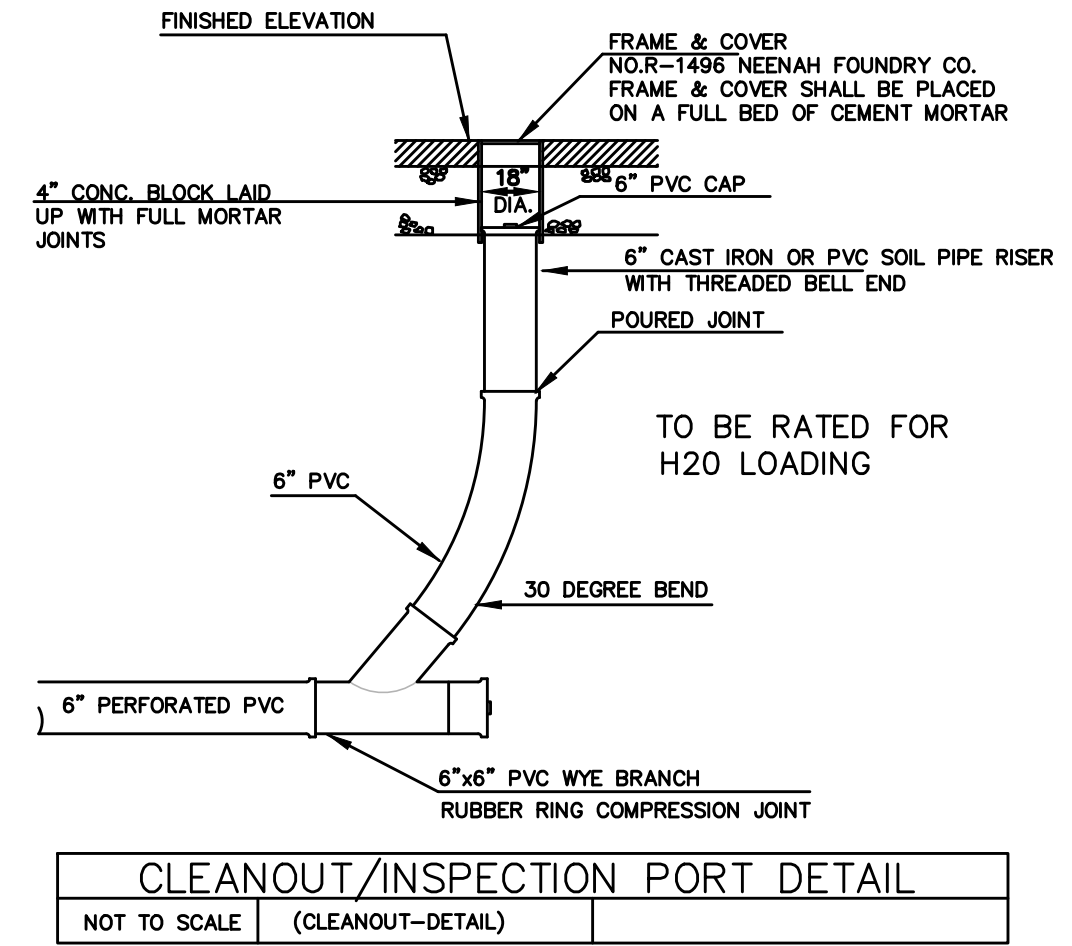
GRAVITY SEWER TRENCH DETAIL
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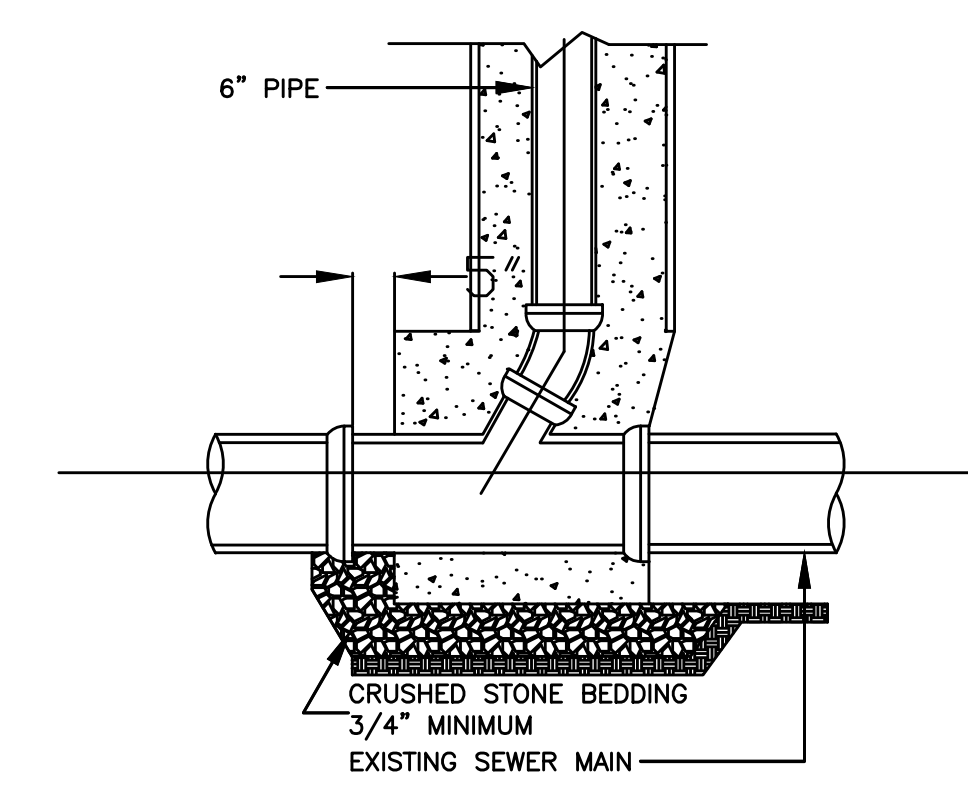
TYPICAL WATER TRENCH DETAIL
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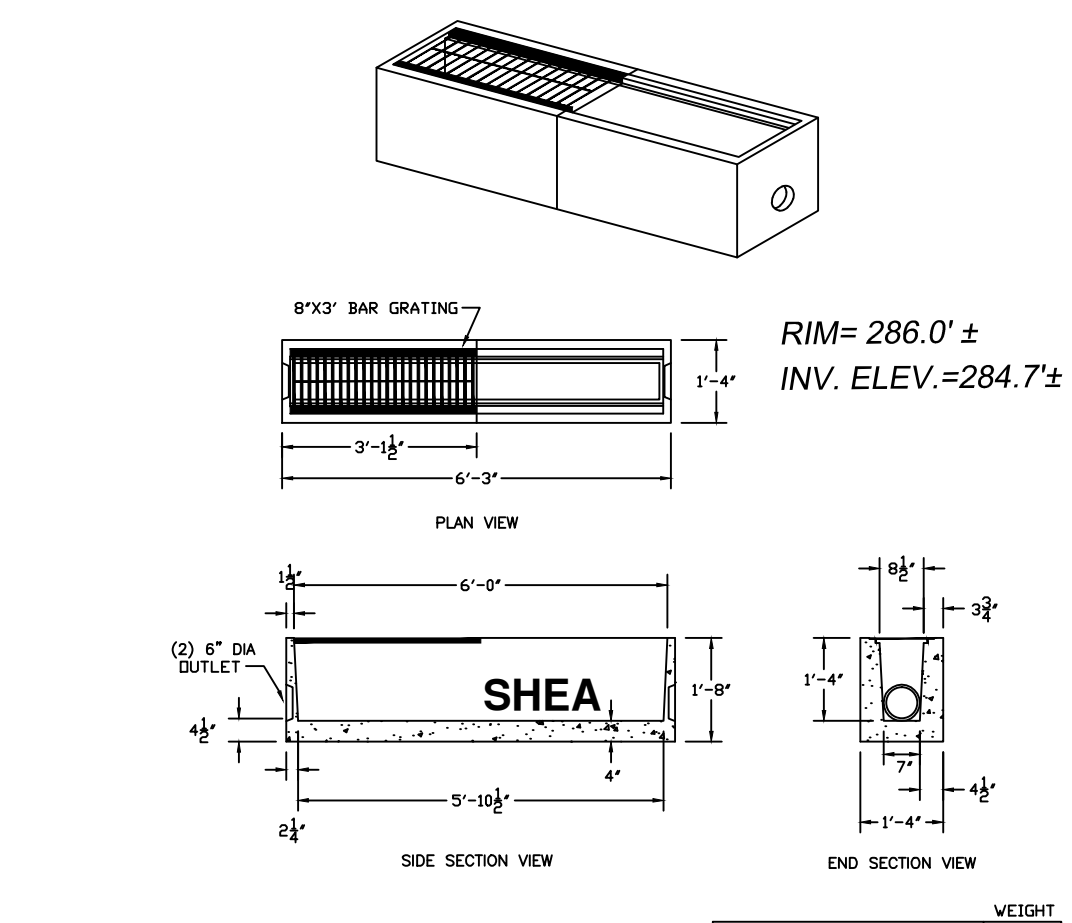
TYPICAL TRENCH DETAIL
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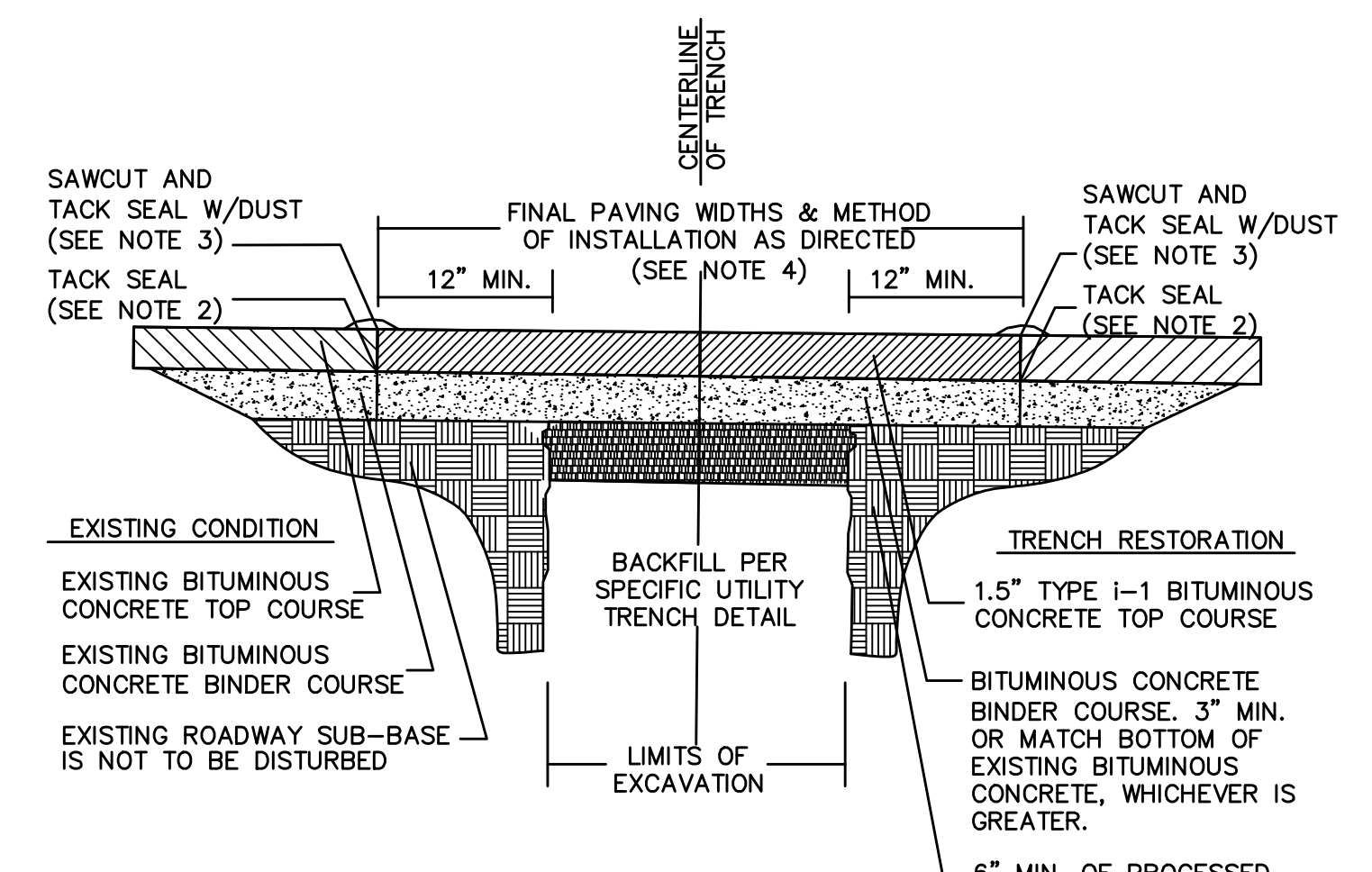
CLEANOUT/INSPECTION PORT DETAIL
NOT TO SCALE (CLEANOUT-DETAIL)



TYPICAL SEWER CONFIGURATION

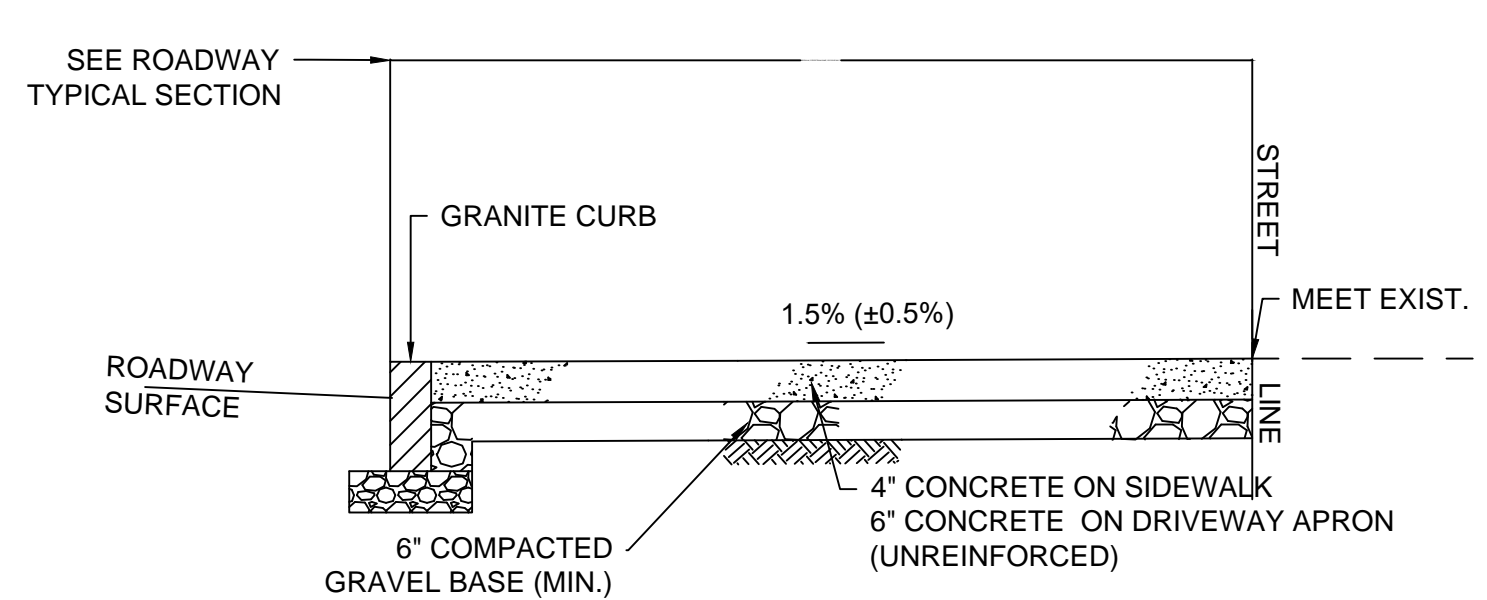


TRENCH DRAIN 8" x 16"



TYPICAL TRENCH REPAIR & PAVEMENT SECTION DETAIL

1. ALL INSTALLATION AND MATERIAL SPECIFICATIONS PER MASS. HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988 AS AMENDED.
2. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MHD PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATIONS.
3. ALL EXPOSED JOINTS ARE TO BE SEALED WITH TACK AND STONE DUST.
4. ANY TOP COURSE APPLIED AT A WIDTH OF 6' WIDE OR GREATER IS TO BE PLACED BY MACHINE/BAX SPREADER WHEN & AS DIRECTED BY THE TOWN OF FRANKLIN.



*DETAIL DEPICTS SIDEWALK CONDITION ALTHOUGH THE SAME CROSS SECTION SHALL BE USED FOR CURB RAMPS OR DRIVEWAYS.

CONCRETE SIDEWALK

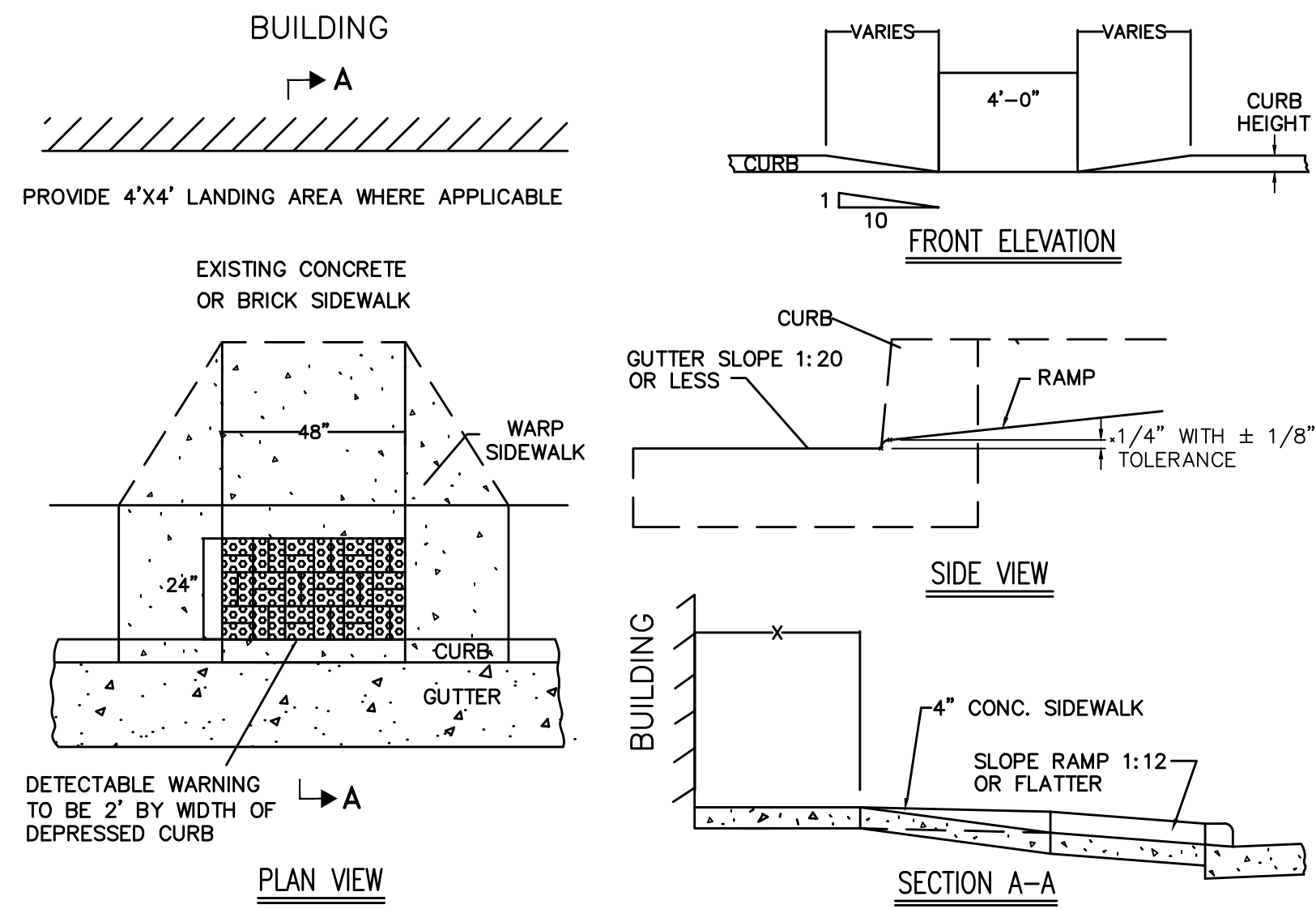
SCALE: N.T.S.

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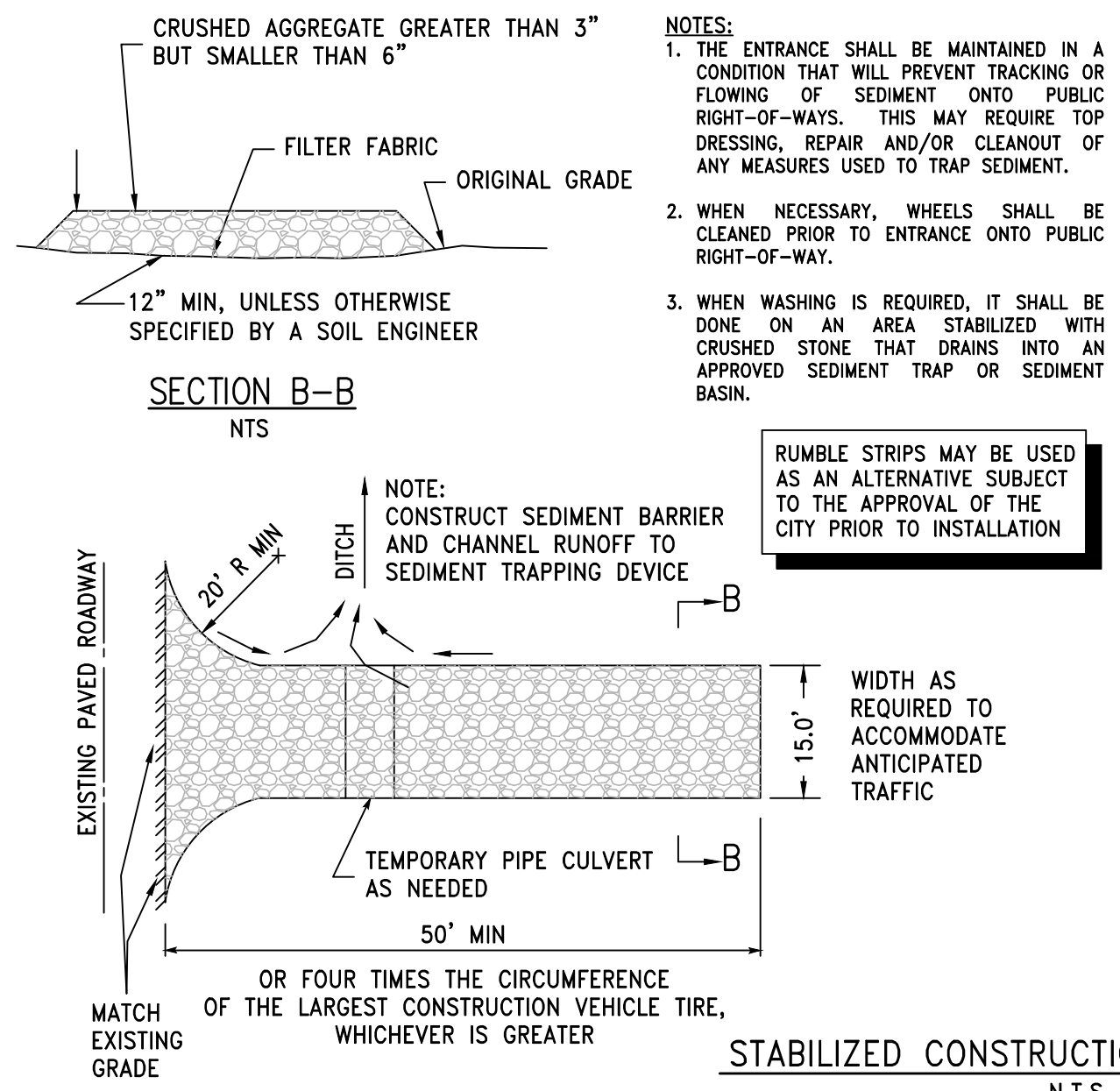


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APPROVED BY:	E.S.

DETAILS



HANDICAP RAMP



- CONSTRUCTION SPECIFICATIONS:**
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
 3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
 4. THE AGGREGATE SIZE FOR CONSTRUCTION OF THE PAD SHALL BE 2-3 INCH (50-75 MM) STONE. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
 5. THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 6 INCHES (152 MM). USE GEOTEXTILE FABRICS, IF NECESSARY, TO IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.
 6. THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS AND IN ANY CASE SHALL NOT BE LESS THAN 12 FEET (3.6 M) WIDE.
 7. THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET (15.2 M). LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID ENTRANCES WHICH HAVE STEEP GRADES AND ENTRANCES AT CURVES IN PUBLIC ROADS.
 8. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR MAINTENANCE OF ANY MEASURES USED TO TRAP SEDIMENT.
 9. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
 10. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
 11. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. SEE SEDIMENT BASIN BMP.
 12. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, STRAW BALES, OR OTHER APPROVED METHODS.
- INSPECTION AND MAINTENANCE:**
1. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.
 2. REPLACE GRAVEL MATERIAL WHEN SURFACE VOIDS ARE NOT VISIBLE.
 3. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY.
 4. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS WITHIN 24 HOURS.



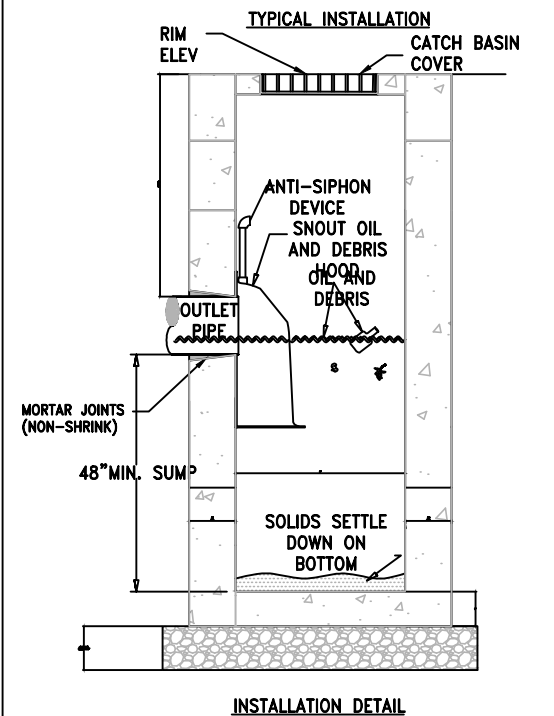
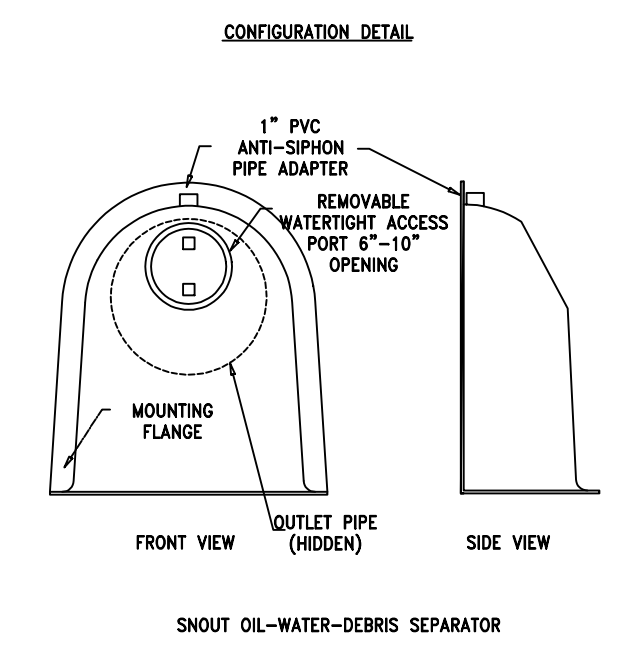
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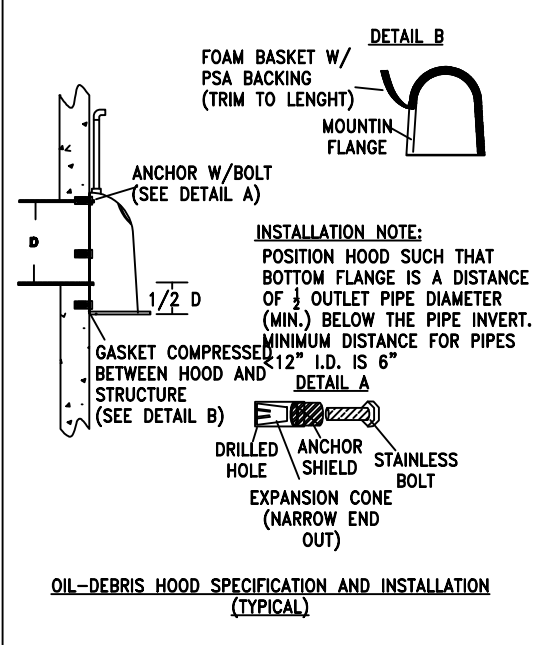
CIVIL PLANS

REVISION BLOCK

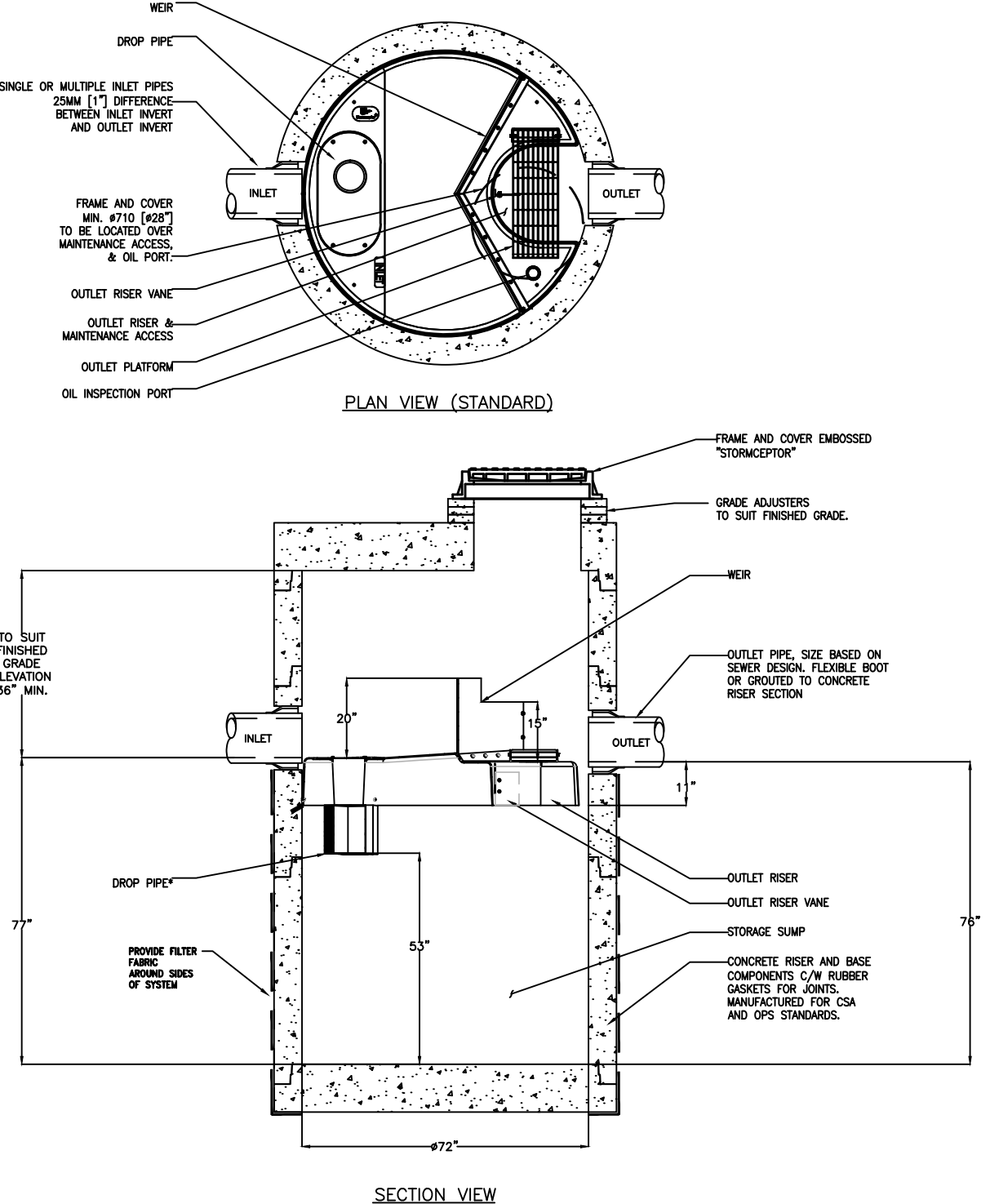
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REVISED AS PER TOWN OF FRANKLIN COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	6/29/2020
REVISED AS PER BETA COMMENTS	7/13/2020



- NOTES:**
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY: BEST MANAGEMENT PRODUCTS INC. 53 MT. ARKERS RD. LYME, CT 06371 (860) 434-0277, (860)434-3185 FAX TOLL FREE: (800) 504-8008 OR (888)354-7585 WEB SITE: www.bamp.com OR PRE-APPROVED EQUAL.
 2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
 3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS SHOWN. (SEE CONFIGURATION DETAIL).
 4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION.
 5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
 6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
 7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
 8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER (SEE INSTALLATION DETAILS).
 9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT. INSTALLATION SHALL INCLUDE:
 - A. INSTALLATION INSTRUCTIONS
 - B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
 - C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
 - D. 3/8" STAINLESS STEEL BOLTS
 - E. ANCHOR SHIELDS
- US PATENT # 6128817



DEEP SUMP CATCH BASIN WITH DEBRIS COLLECTOR DETAIL
N.T.S.



STORMCEPTOR EF6 (OIL/GRIT SEPARATOR) DETAIL

- GENERAL NOTES:**
- * MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m² (27.9 gpm/ft²) FOR STORMCEPTOR EF6 AND 535 L/min/m² (13.1 gpm/ft²) FOR STORMCEPTOR EF06 (OIL CAPTURE CONFIGURATION).
1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
 2. STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
 3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
 4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
 5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.
- INSTALLATION NOTES**
- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
 - C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
 - D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
 - E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS.

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122 CHESTNUT STREET
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CIVIL PLANS

REVISION BLOCK

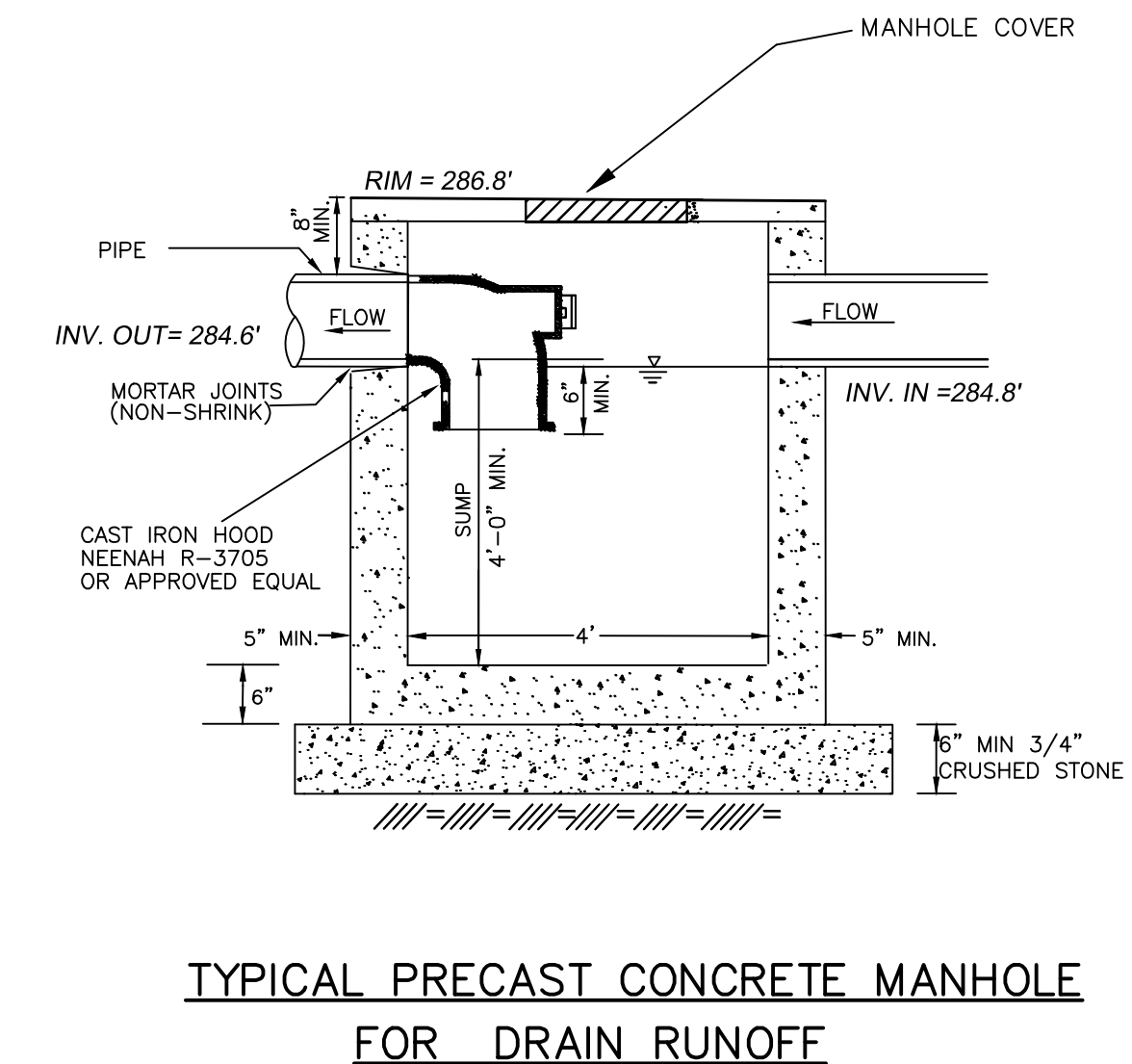
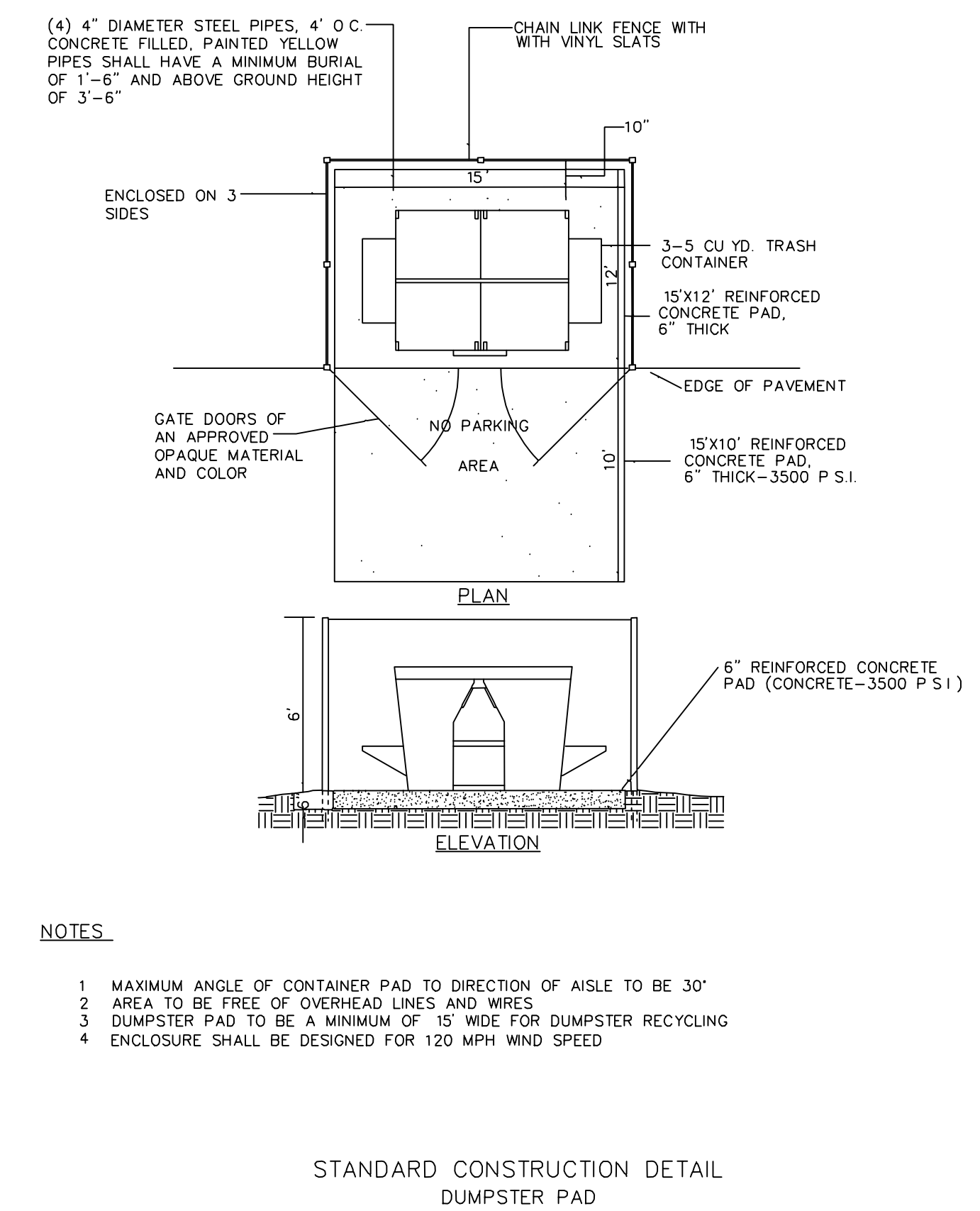
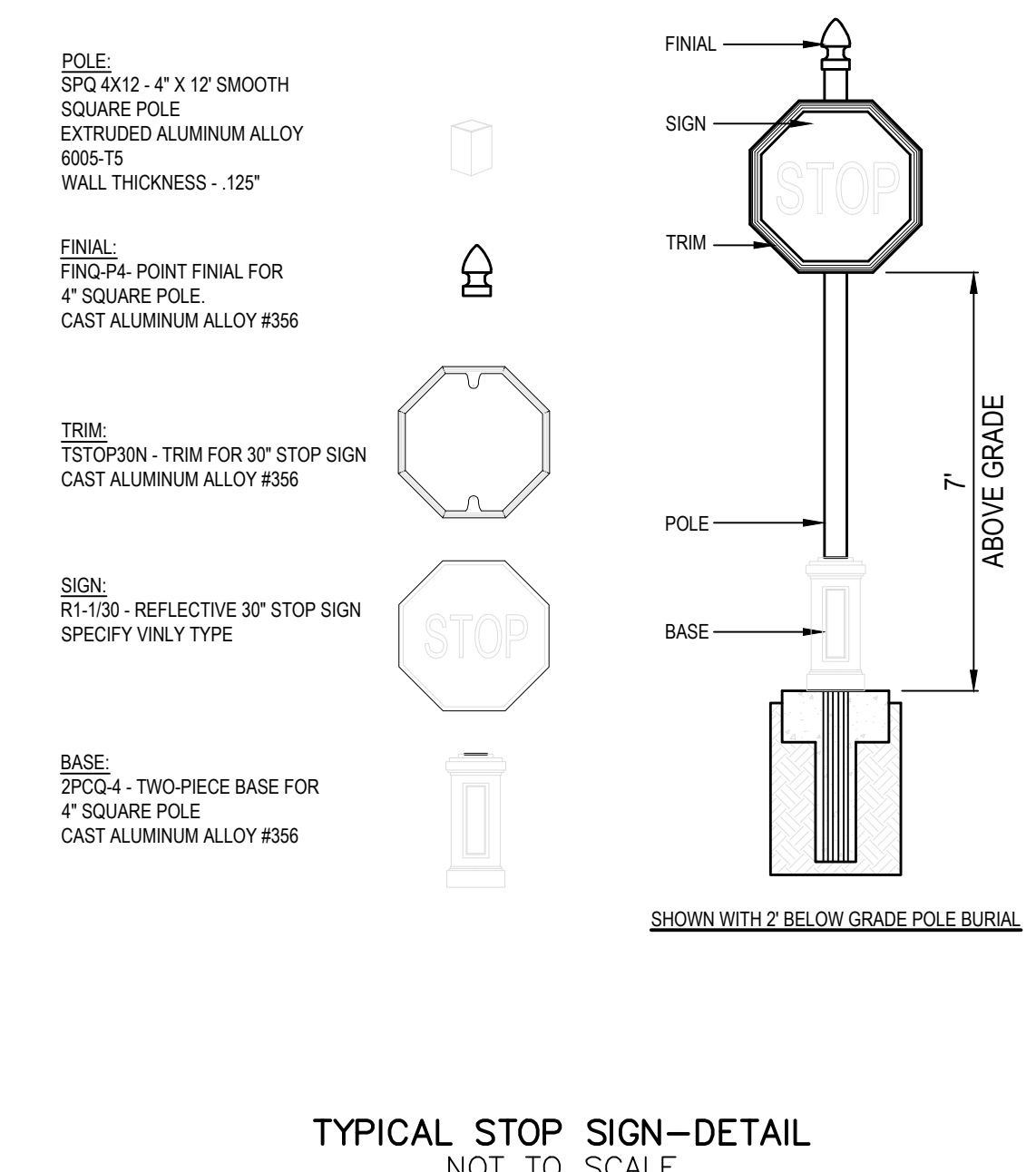
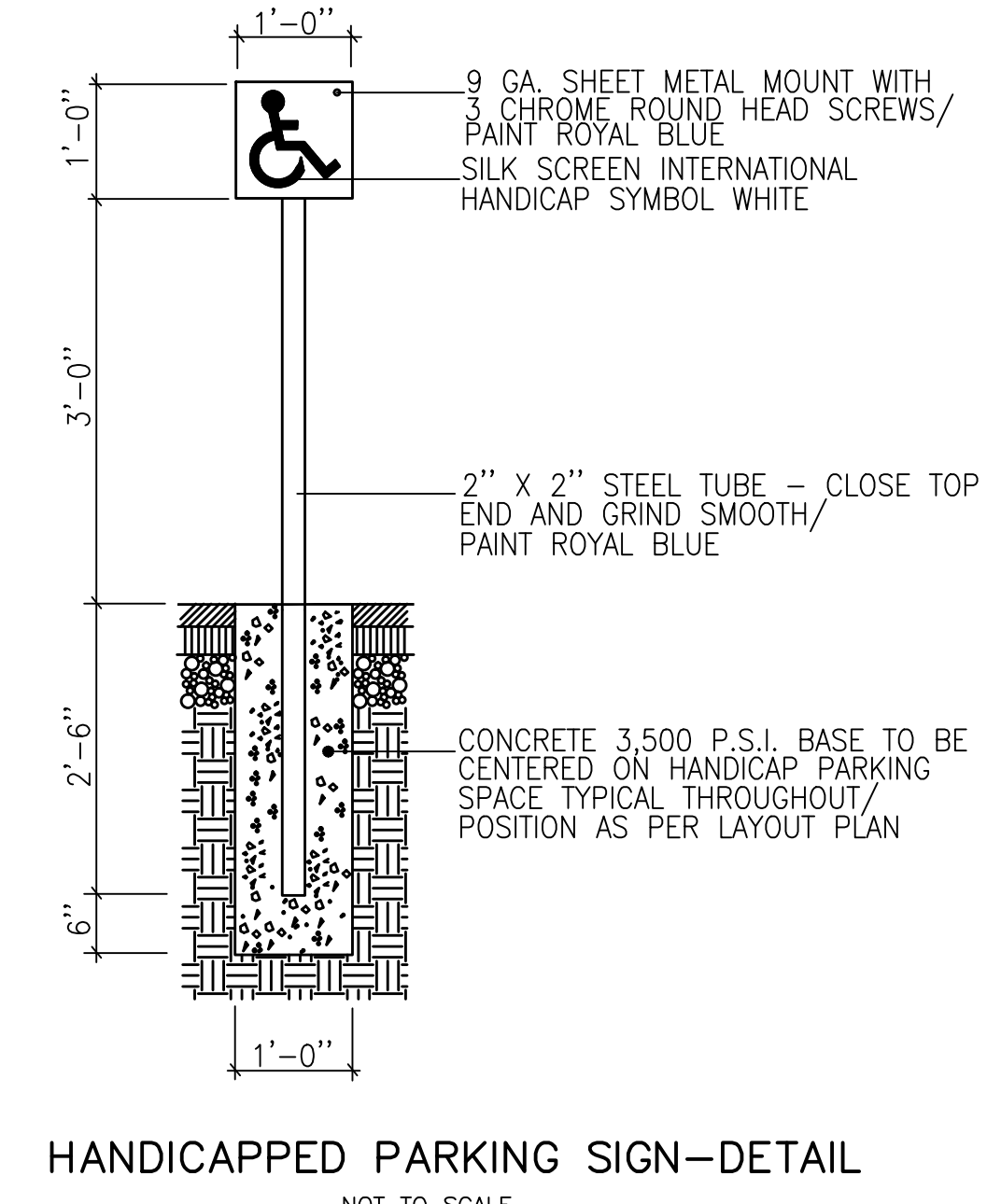
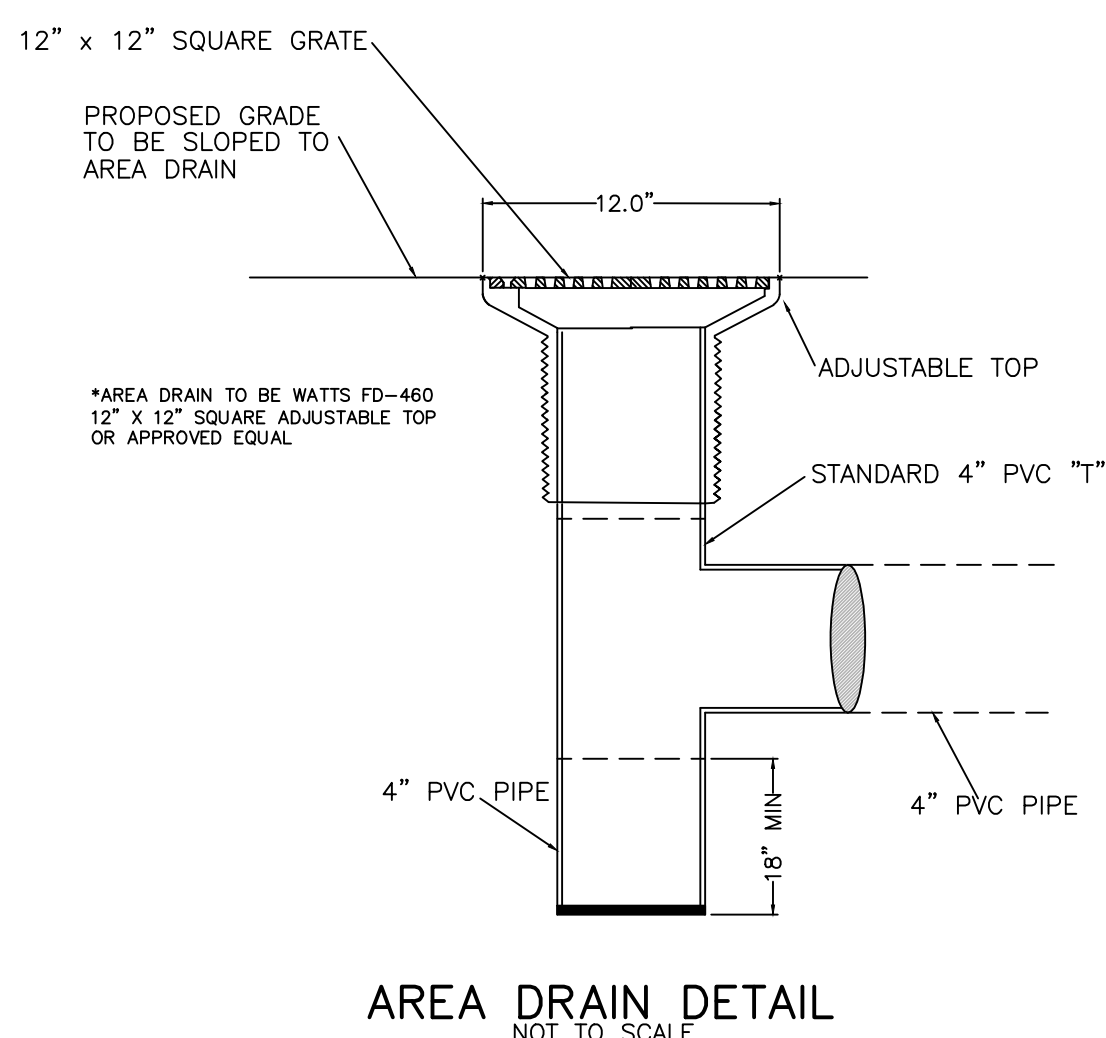
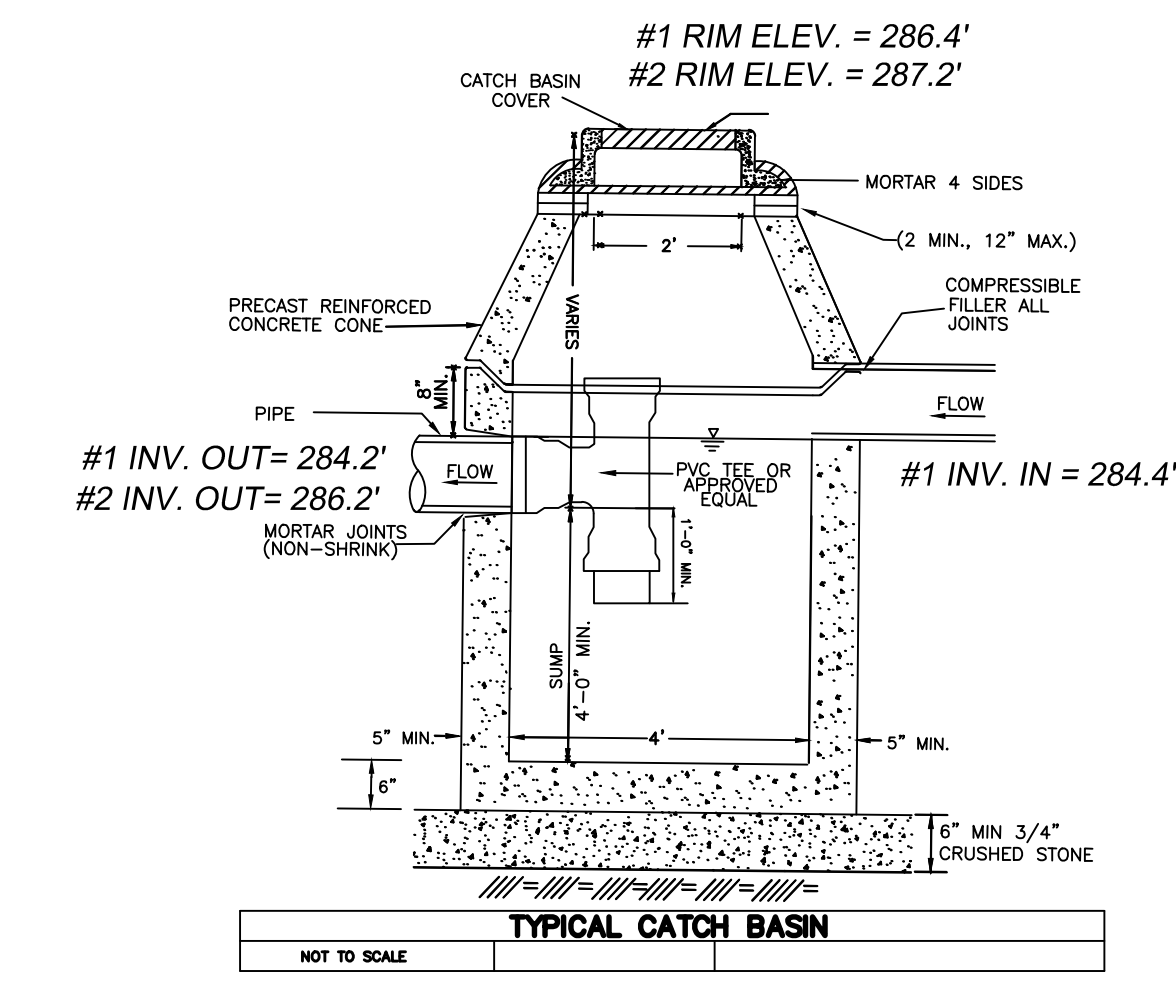
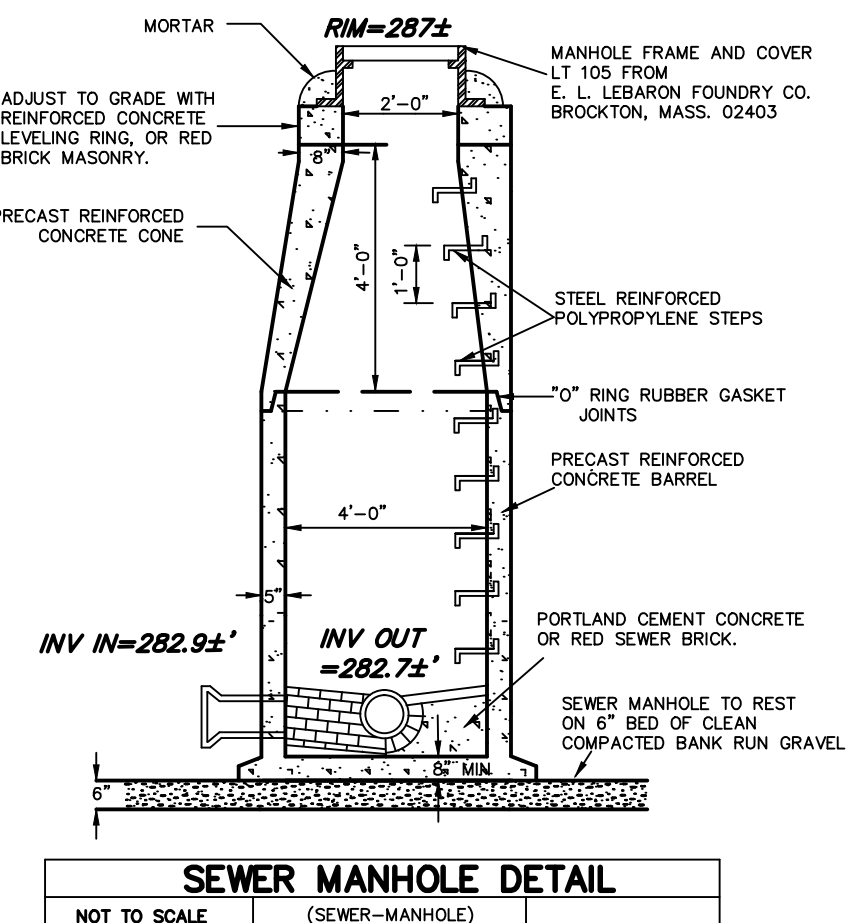
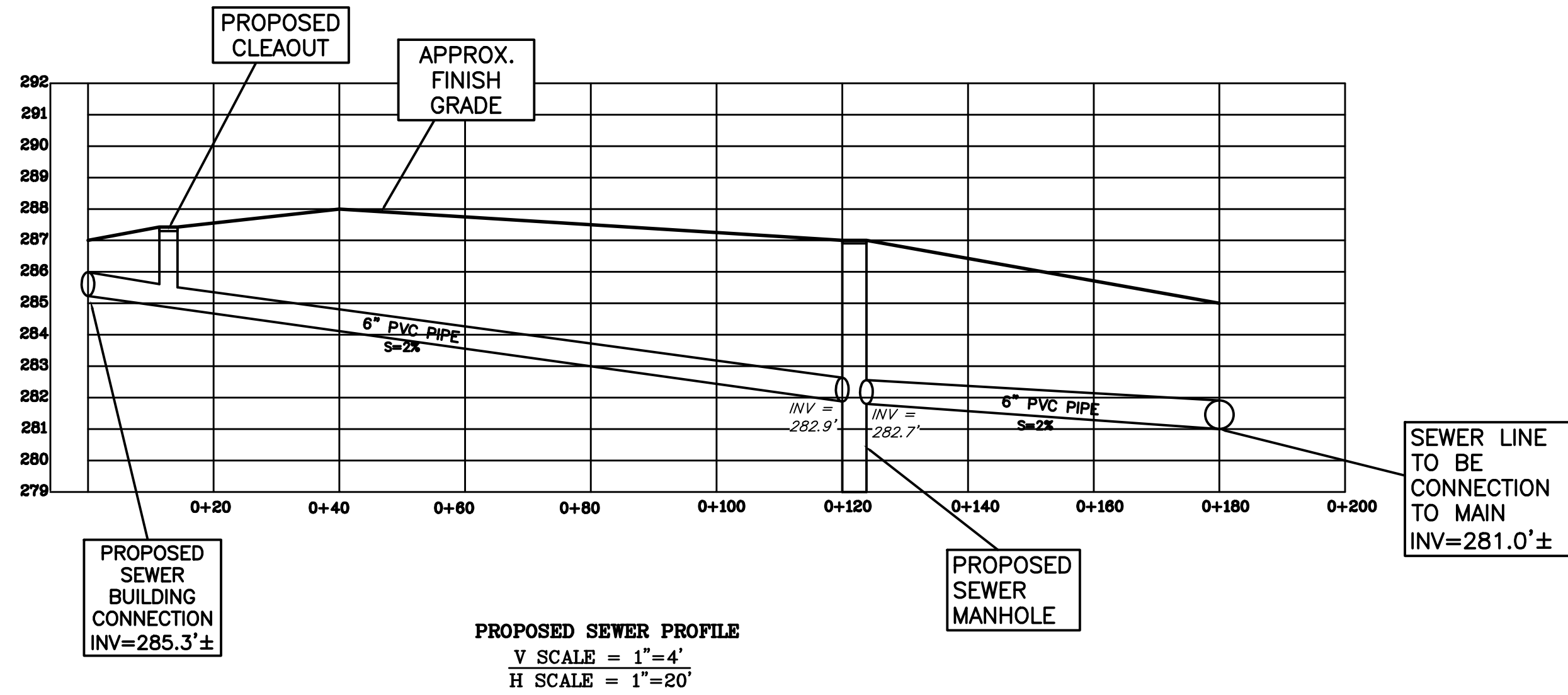
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REVISED AS PER TOWN OF FRANKLIN COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	7/1/2020
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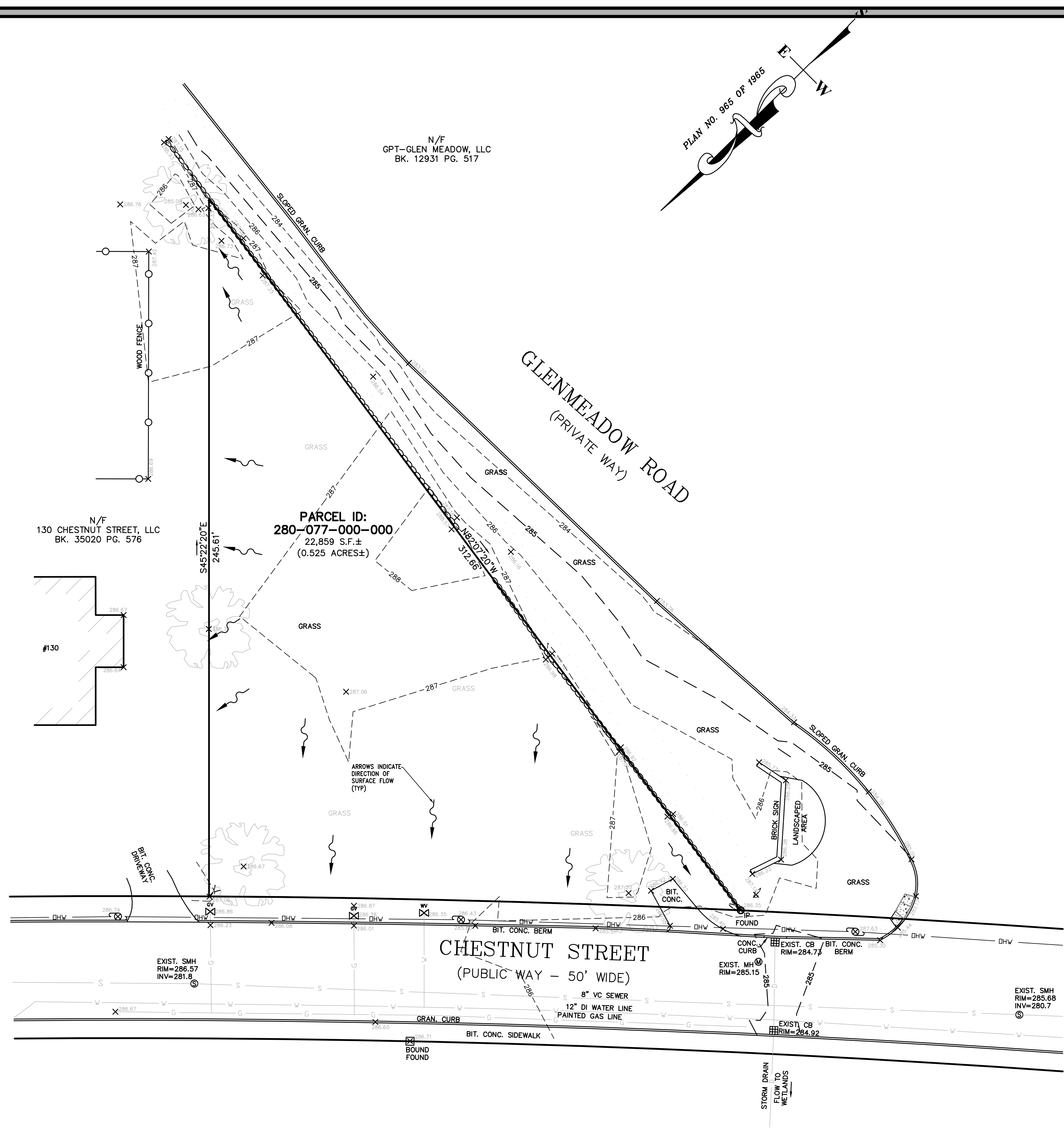
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EXISTING CONDITIONS
WATERSHED

SHEET 8 OF 12



N/F
GPT-GLEN MEADOW, LLC
BK. 12931 PG. 517

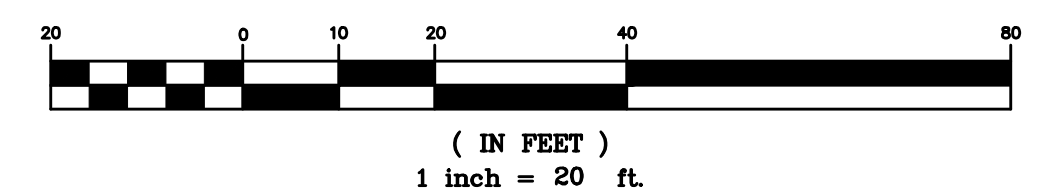
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130 CHESTNUT STREET, LLC
BK. 35020 PG. 576

PARCEL ID:
280-077-000-000
22,859 S.F.±
(0.525 ACRES±)

CHESTNUT STREET
(PUBLIC WAY - 50' WIDE)

GLENMEADOW ROAD
(PRIVATE WAY)

GRAPHIC SCALE





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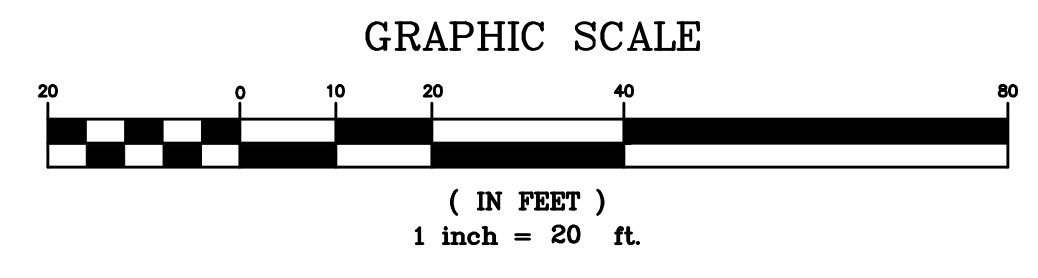
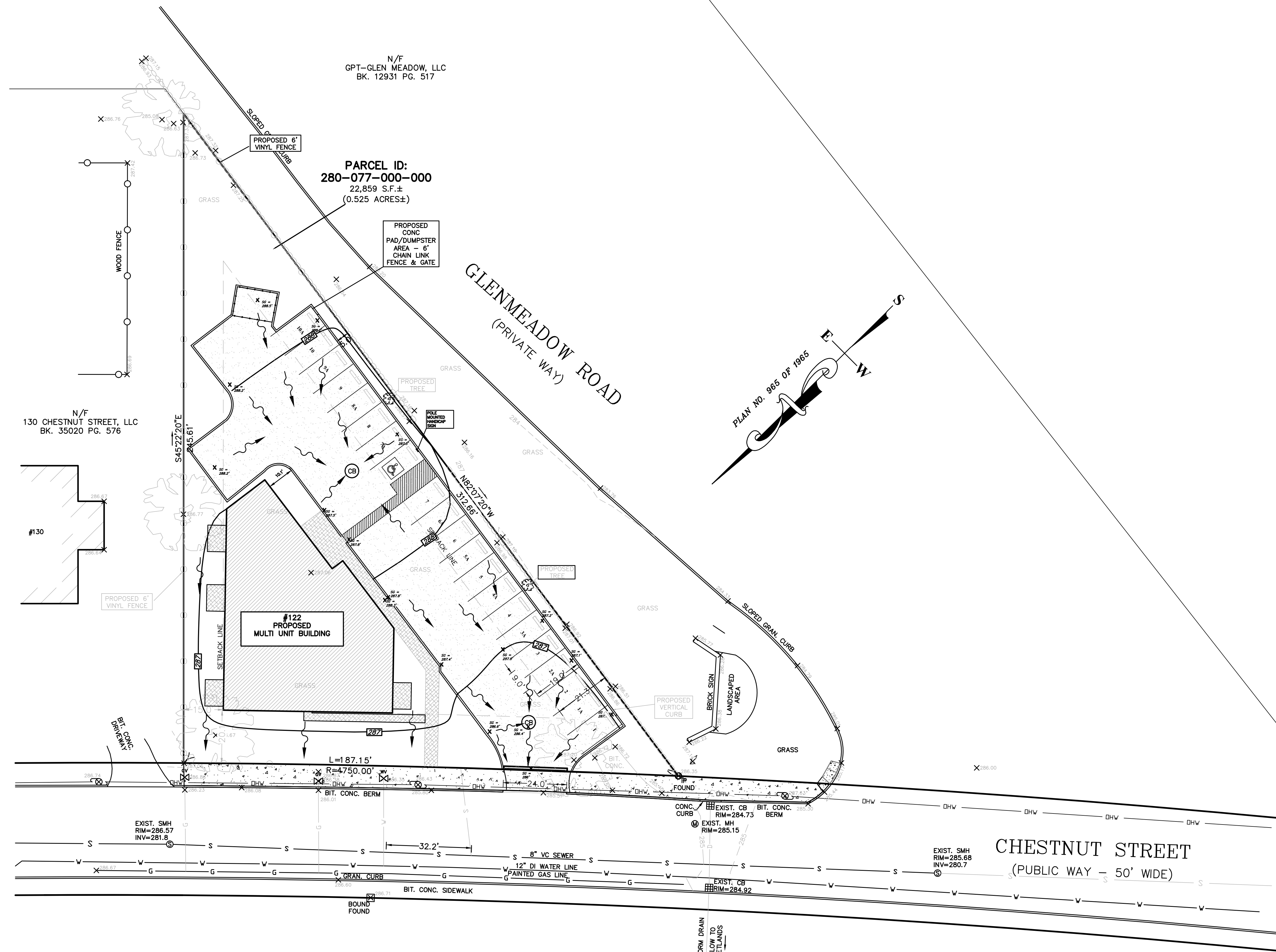
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**PROPOSED
WATERSHED**

SHEET 9 OF 12



VEHICLE STORAGE AND MAINTENANCE

- MEASURES SHALL BE TAKEN TO PREVENT OIL, GREASE, OR FUEL TO LEAK IN TO THE GROUND, STORM DRAINS OR SURFACE WATERS.
- ALL EQUIPMENT OR VEHICLES, WHICH ARE TO BE FUELED, MAINTAINED AND STORED ONSITE SHALL BE IN A DESIGNATED AREA FITTED WITH APPROPRIATE BMPs.
- LEAKS SHALL BE IMMEDIATELY CLEANED AND LEAKED MATERIALS SHALL BE DISPOSED OF PROPERLY.

LANDSCAPE MATERIALS

- CONTAIN STOCKPILED MATERIALS SUCH AS MULCHES AND TOPSOIL WHEN THEY ARE NOT ACTIVELY BEING USED
- CONTAIN FERTILIZERS AND OTHER LANDSCAPE MATERIALS WHEN THEY ARE NOT ACTIVELY BEING USED.
- DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE MATERIAL WITHIN 2 DAYS BEFORE A FORECASTED RAIN EVENT OR DURING PERIODS OF PRECIPITATION.
- APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURE RECOMMENDATIONS OR BASED ON WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCED FIELD PERSONNEL.
- STACK ERODIBLE LANDSCAPE MATERIAL ON PALLETS AND COVERING OR STORING SUCH MATERIALS WHEN NOT BEING USED OR APPLIED.

FIBER ROLL CONSTRUCTION SPECIFICATIONS

1. PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
2. DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR, TO PLACE WATTLES IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
3. START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND WORK UP.
4. CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES.
5. LAY THE WATTLE ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WOODEN STAKES.
6. DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL. LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. IF USING WILLOW STAKES REFER TO USDA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, BIOENGINEERING, FOR GUIDELINES TO PREPARING LIVE WILLOW MATERIAL.
7. INSTALL STAKES AT LEAST EVERY FOUR FEET APART THROUGH WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY EROSION OR VERY STEEP SLOPES.

FIBER ROLL INSTALLATION AND MAINTENANCE

8. INSPECT THE STRAW WATTLE AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE WATTLES ARE IN CONTACT WITH THE SOIL.
9. REPAIR ANY RILLS OR GULLIES PROMPTLY.
10. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.

EROSION CONTROL NOTES

1. THE EROSION CONTROL PLANS IN THIS SET SHALL BE REVIEWED AND IMPLEMENTED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL WORK WITH THE PROJECT'S ENGINEER THROUGHOUT CONSTRUCTION TO ENSURE THE SITE IS PROPERLY PROTECTED FROM POSSIBLE POLLUTANTS. THE ENGINEER HAS AUTHORIZATION TO ADD OR REMOVE BMP MEASURES THROUGHOUT CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SITE EROSION CONTROL AT ALL TIMES.
3. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND THE PERMITTEE TO ENSURE THAT EROSION DOES NOT OCCUR FROM ANY ACTIVITY DURING OR AFTER PROJECT CONSTRUCTION. ADDITIONAL MEASURES, BEYOND THOSE SPECIFIED, MAY BE REQUIRED BY THE PLANNING DIRECTOR AS DEEMED NECESSARY TO CONTROL ACCELERATED EROSION.
4. AT THE END OF EACH WORKDAY, AT THE END OF EACH WORKWEEK, THE CONTRACTOR SHALL IMPLEMENT ALL TEMPORARY MEASURES NECESSARY TO PREVENT EROSION AND SILTATION, UNTIL THE PROJECT HAS BEEN FINALIZED. THESE MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, DIRECT SEEDING OF THE AFFECTED AREAS, STRAW MULCHING, AND/OR INSTALLATION OF STRAW BALES DAMS/SILT FENCES.
5. DURING CONSTRUCTION, NO TURBID WATER SHALL BE PERMITTED TO LEAVE THE SITE. USE OF SILT AND GREASE TRAPS, FILTER BERMS, HAY BALES OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.
6. ALL AREAS ON- AND OFF-SITE EXPOSED DURING CONSTRUCTION ACTIVITIES, IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE PROTECTED BY MULCHING AND/OR SEEDING.
7. ALL EXCAVATED MATERIAL SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE OR DISPOSED OF ON-SITE IN A MANNER THAT WILL NOT CAUSE EROSION.
8. ANY MATERIAL STOCKPILED, FOR LONGER THAN 14 DAYS, DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC.
9. UPON COMPLETION OF CONSTRUCTION, ALL REMAINING EXPOSED SOILS SHALL BE PERMANENTLY REVEGETATED.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.
11. ALL SPILLS AND/OR LEAKS SHALL BE IMMEDIATELY CLEANED UP AND MITIGATED.



Spruhan Engineering, P.C.

80 JEWETT ST. (SUITE 1)
NEWTON, MA 02458
Tel: 617-816-0722
Email: espruhan@gmail.com

122 CHESTNUT STREET
FRANKLIN
MASSACHUSETTS

CIVIL PLANS

REVISION BLOCK

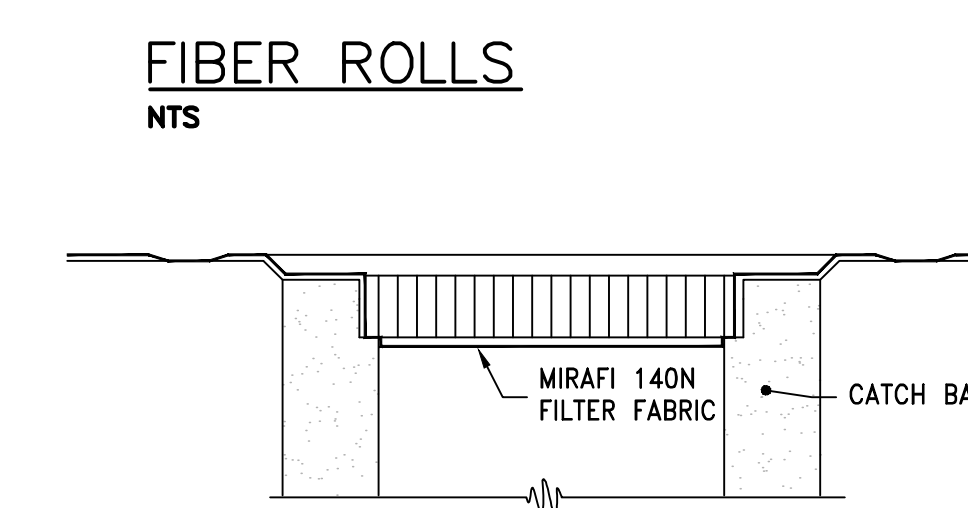
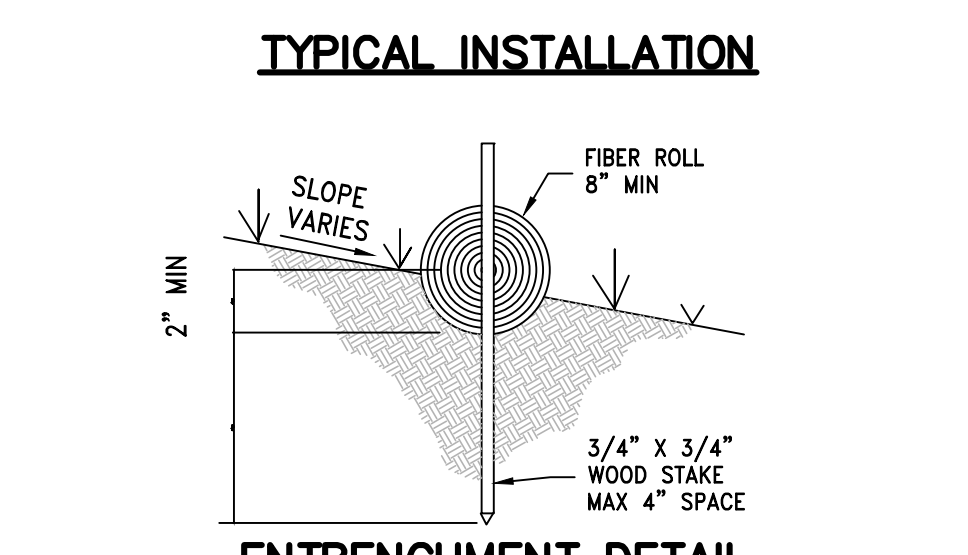
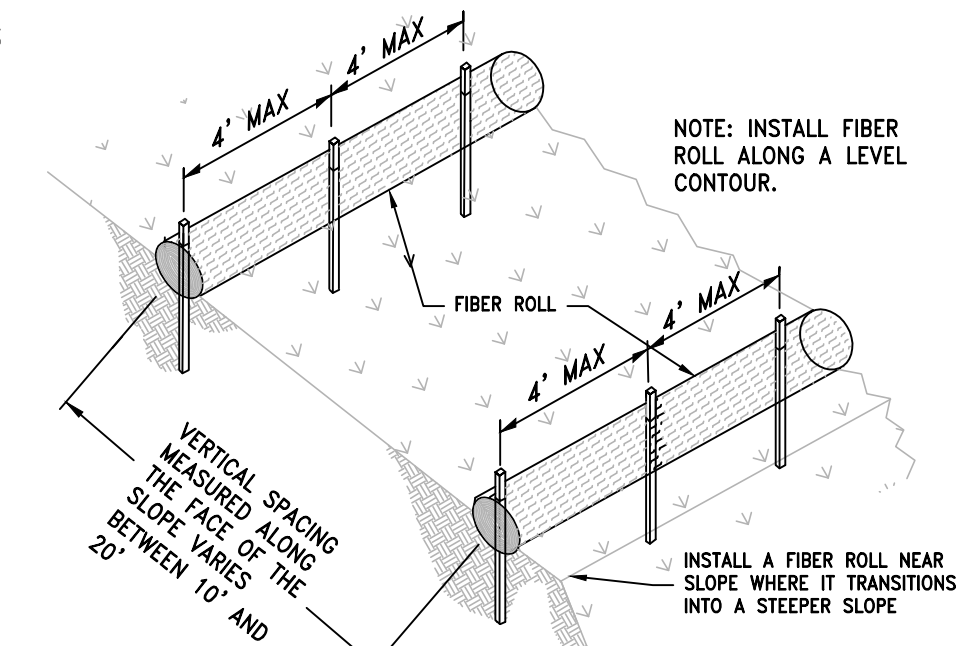
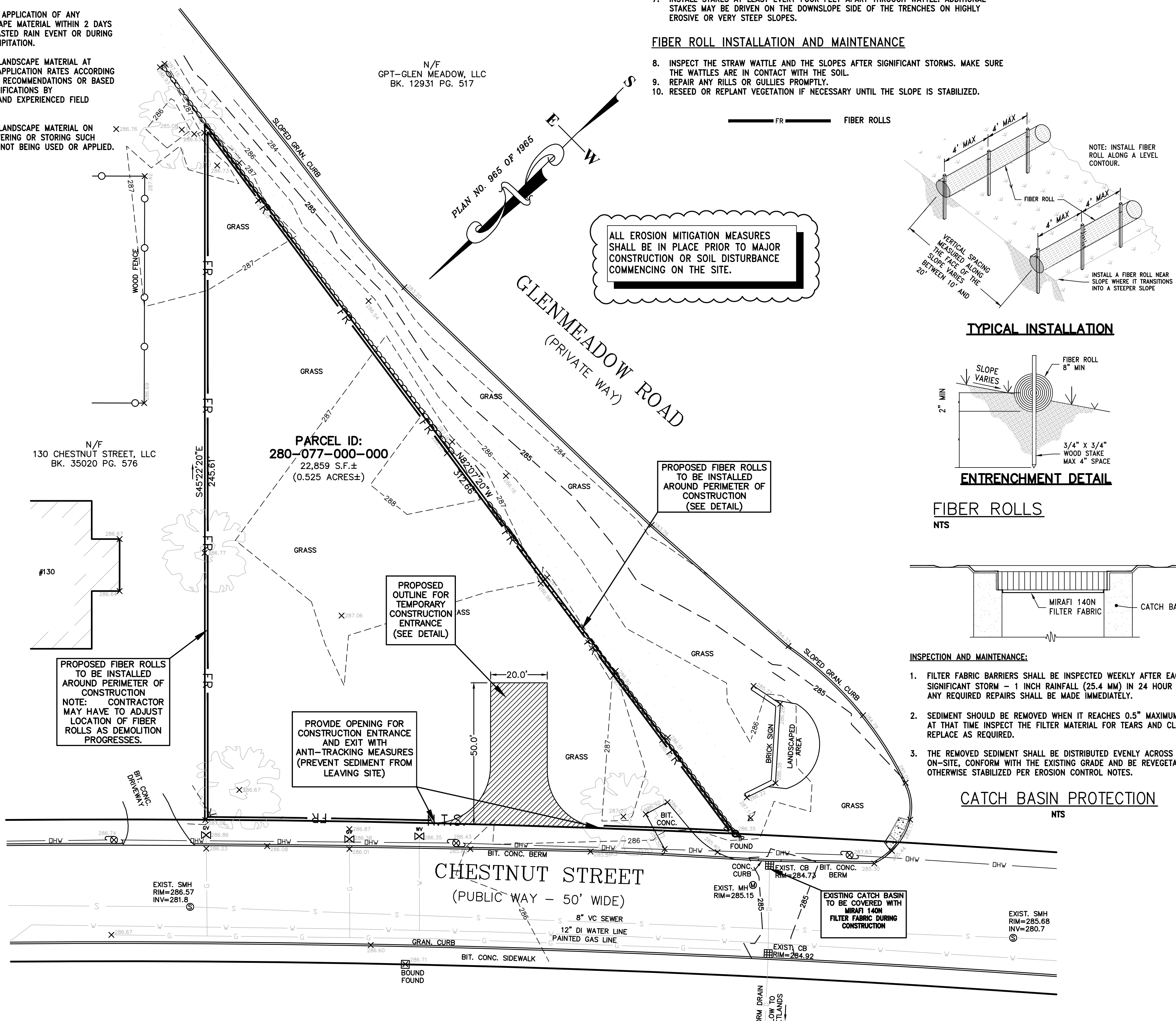
DESCRIPTION	DATE
REVISED AS PER TOWN OF FRANKLIN COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	28/02/2020
REVISED AS PER BETA COMMENTS	7/1/2020

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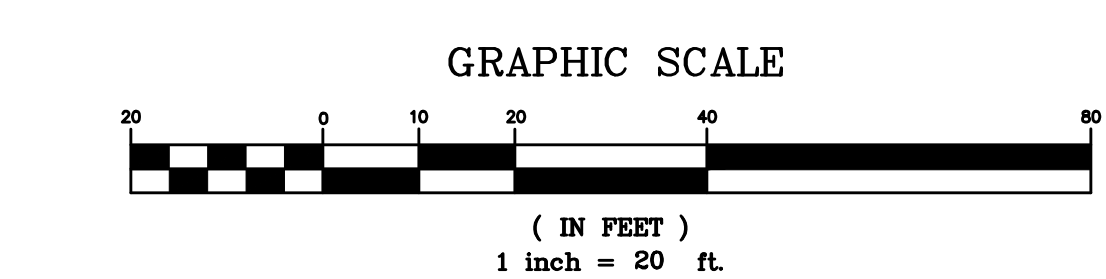


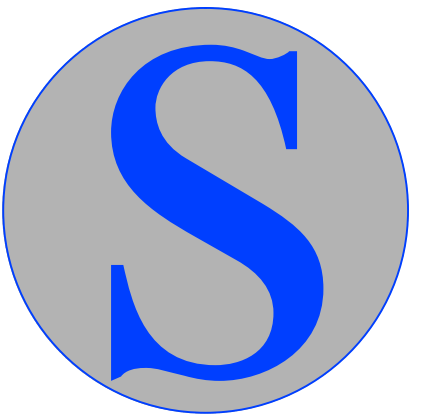
DATE:	11/08/2019
DRAWN BY:	G.P.
CHECKED BY:	E.S.
APPROVED BY:	E.S.

DEMOLITION & EROSION CONTROL PLAN



- INSPECTION AND MAINTENANCE:**
1. FILTER FABRIC BARRIERS SHALL BE INSPECTED WEEKLY AFTER EACH SIGNIFICANT STORM - 1 INCH RAINFALL (25.4 MM) IN 24 HOUR PERIOD. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
 2. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 0.5" MAXIMUM HEIGHT. AT THAT TIME INSPECT THE FILTER MATERIAL FOR TEARS AND CLEAN OR REPLACE AS REQUIRED.
 3. THE REMOVED SEDIMENT SHALL BE DISTRIBUTED EVENLY ACROSS AREAS ON-SITE, CONFORM WITH THE EXISTING GRADE AND BE REVEGETATED OR OTHERWISE STABILIZED PER EROSION CONTROL NOTES.





Spruhan
Engineering, P.C.

80 JEWETT ST. (SUITE 1)
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Tel: 617-816-0722
Email: espruhan@gmail.com

122 CHESTNUT STREET
FRANKLIN
MASSACHUSETTS

CIVIL PLAN

REVISION BLOCK

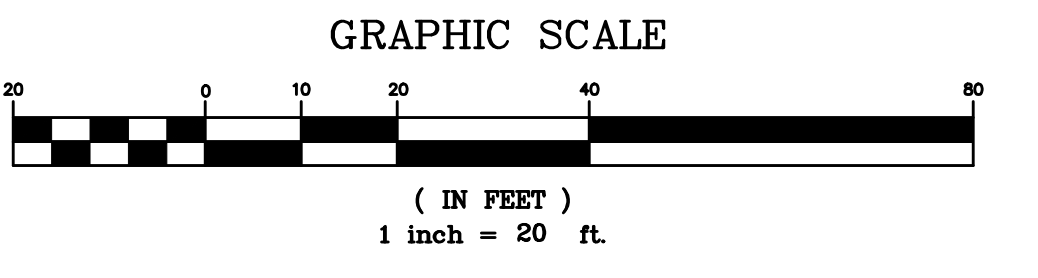
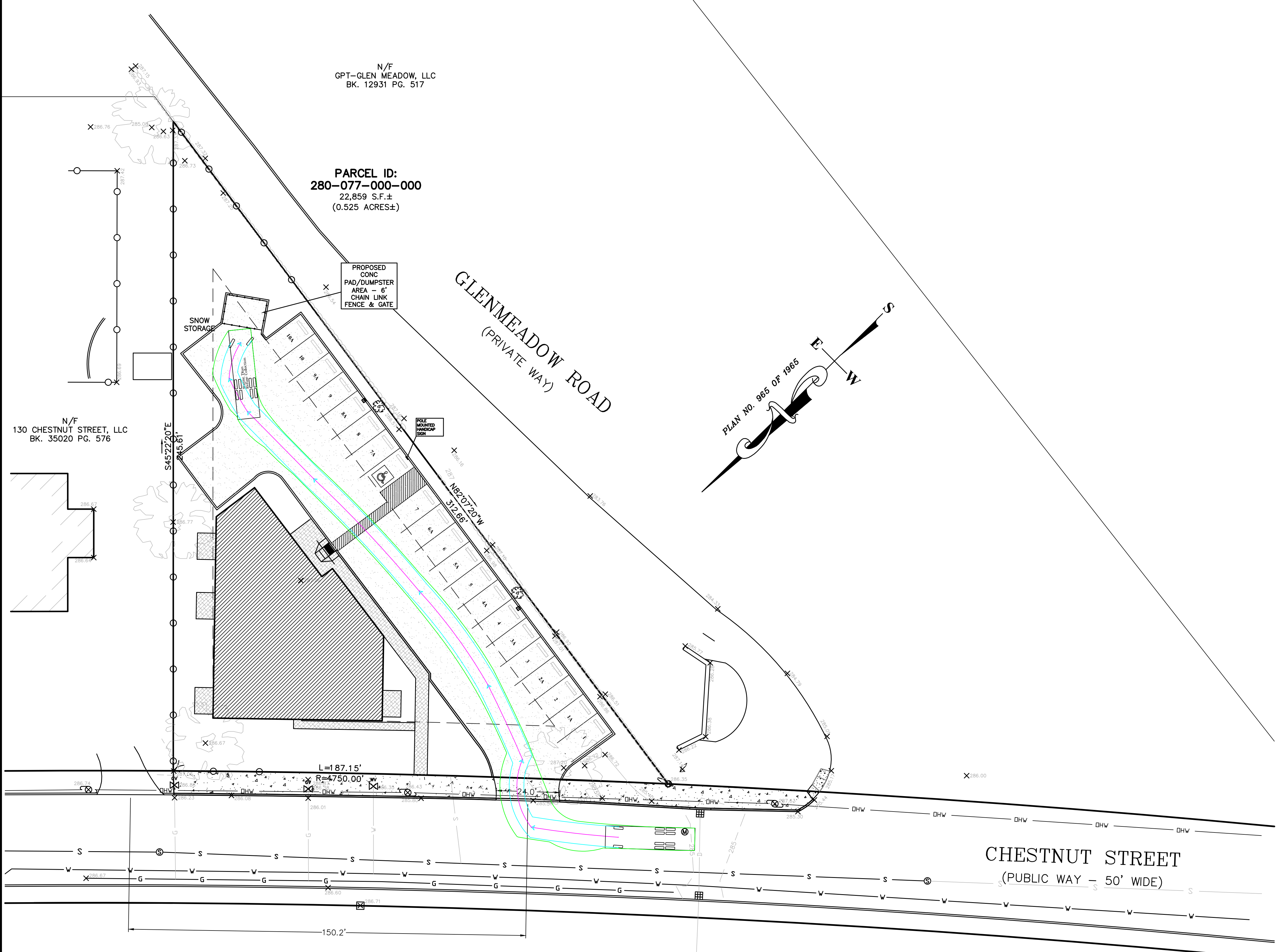
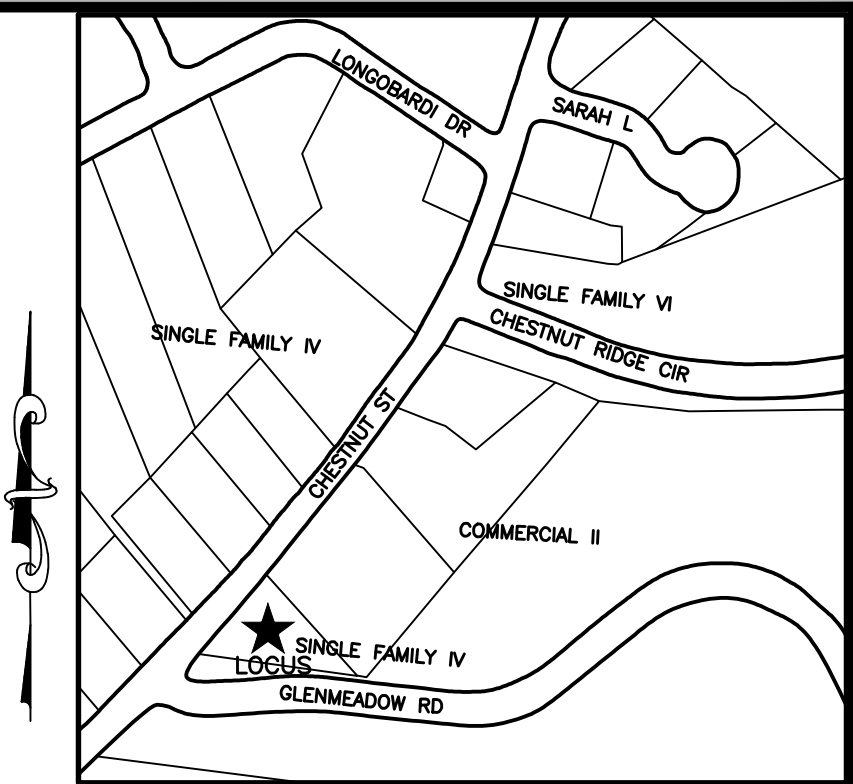
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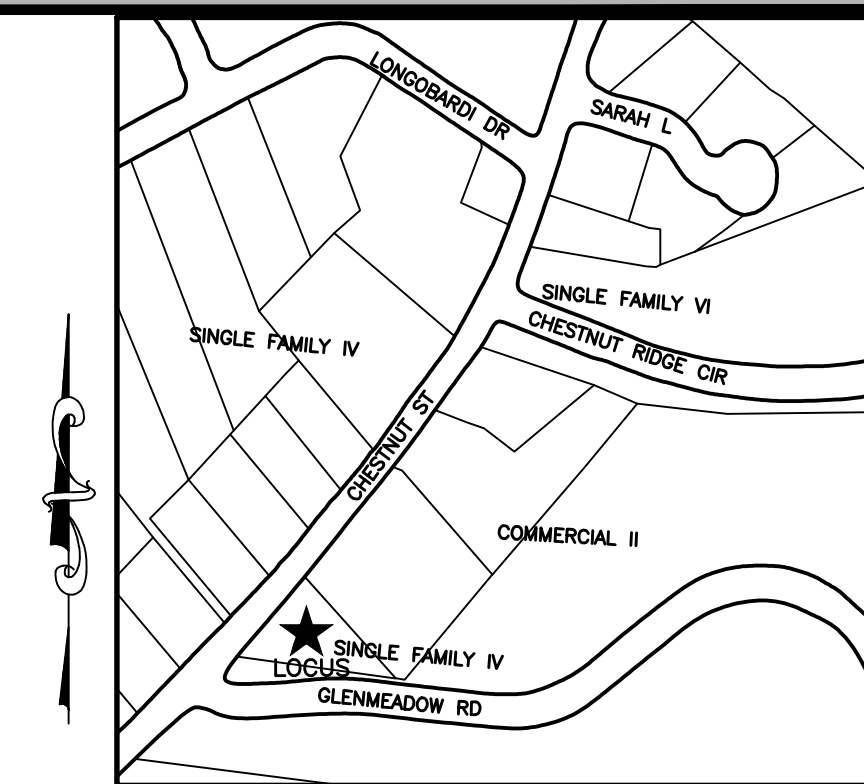
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DATE: 7/1/2019
DRAWN BY: G.P.
CHECKED BY: E.S.
APPROVED BY: E.S.

TURNING ANALYSIS
IN





Spruhan Engineering, P.C.
 80 JEWETT ST. (SUITE 1)
 NEWTON, MA 02458
 Tel: 617-816-0722
 Email: espruhan@gmail.com

**122 CHESTNUT STREET
 FRANKLIN
 MASSACHUSETTS**

CIVIL PLAN

REVISION BLOCK

DESCRIPTION	DATE

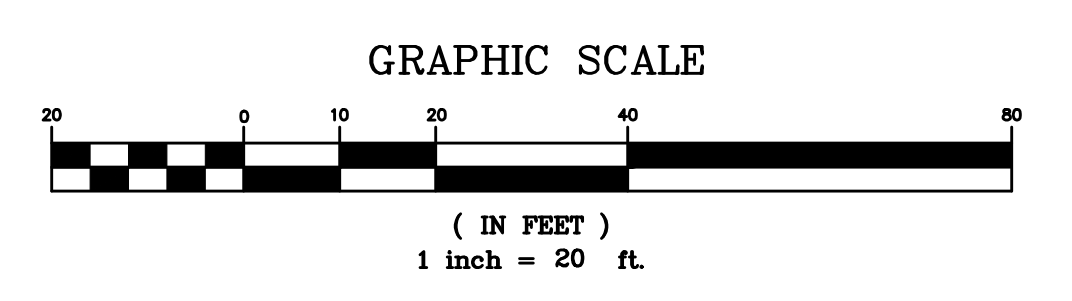
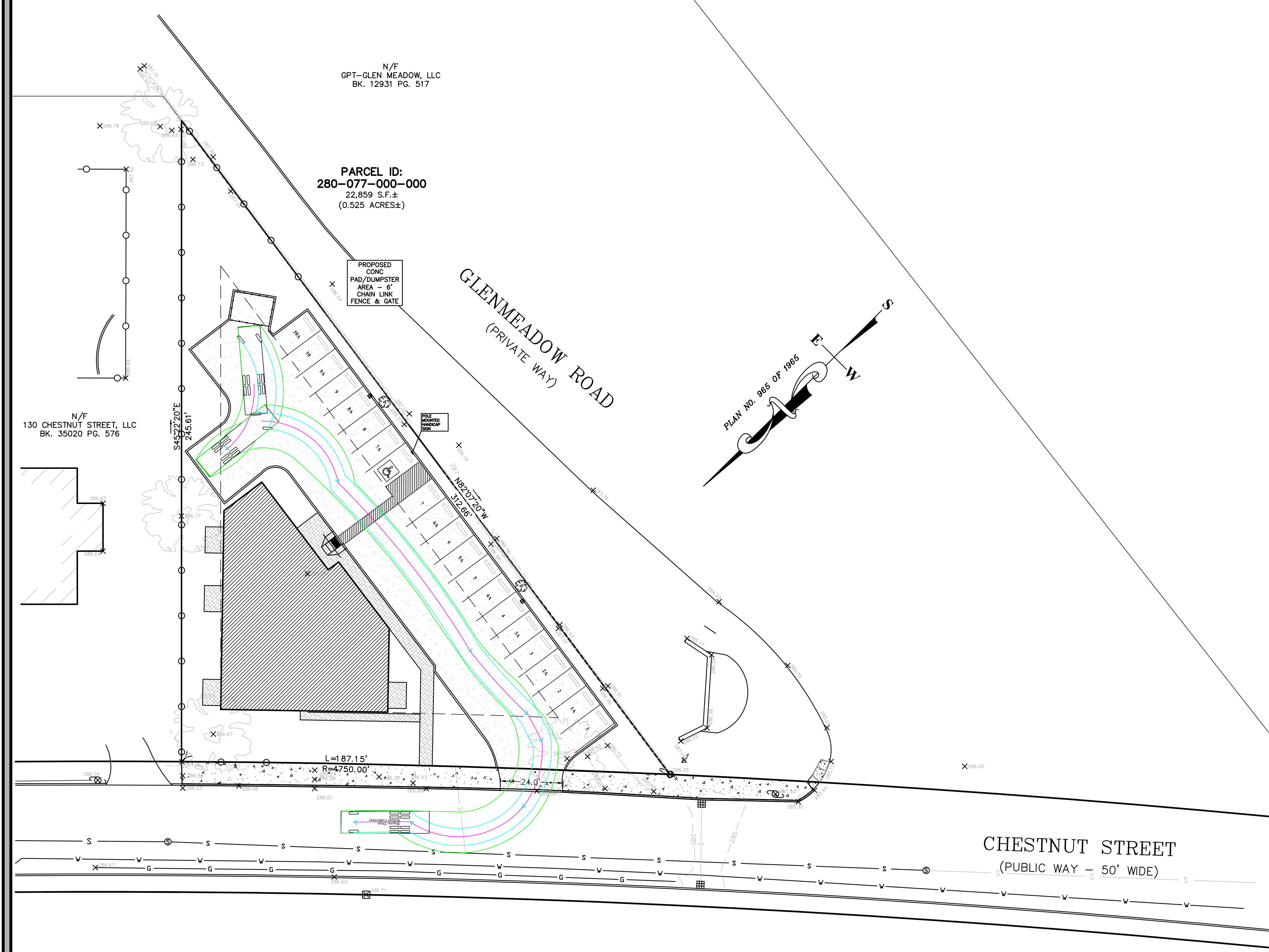
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DATE:	7/1/2019
DRAWN BY:	G.P.
CHECKED BY:	E.S.
APPROVED BY:	E.S.

**TURNING ANALYSIS
 OUT**

SHEET 12 OF 12



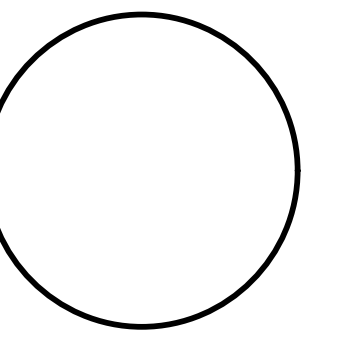
New
Multi-Family
Dwelling

122
Chestnut Street
Franklin, MA

OWNER

architects
mckay

35 Bryant Street
Dorham, MA 02026
ph:781.326.5400
www.mckayarchitects.net



REV # DATE ISSUANCE

REV #	DATE	ISSUANCE

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Chestnut Street
Elevation

JOB NO	0240
DATE	06.09.2020
DWG BY	EAL
CKD BY	MLM
SCALE	1/4" = 1'-0"

A-2.1



1 Chestnut Street Elevation
A-2.1 1/4" = 1'-0"

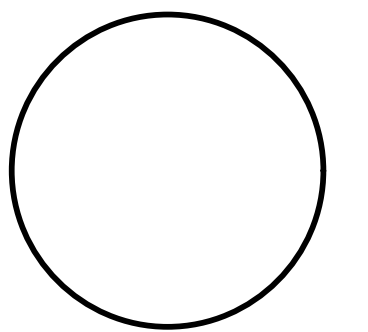
**New
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**Right Side &
Lobby Elevations**

JOB NO	0240
DATE	06.09.2020
DWG BY	EAL
CKD BY	MLM
SCALE	1/4" = 1'-0"

A-2.2



1 Right Side Elevation
A-2.2 1/4" = 1'-0"

2 Lobby Elevation
A-2.2 1/4" = 1'-0"

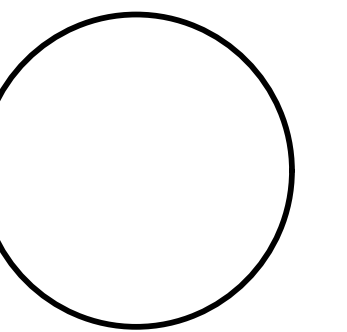
New Multi-Family Dwelling

122 Chestnut Street Franklin, MA

OWNER

architects
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Dedham, MA 02026
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Rear & Left Side Elevations

JOB NO	0240
DATE	06.09.2020
DWG BY	EAL
CKD BY	MLM
SCALE	1/4" = 1'-0"

A-2.3



1 Rear Elevation
A-2.3 1/4" = 1'-0"

2 Left Side Elevation
A-2.3 1/4" = 1'-0"

PLANTING PLAN (TREES)

TREE SCHEDULE			
ID	QTY	LATIN NAME	COMMON NAME
AR	2	ACER RUBRUM	RED MAPLE
JVES	13	JUNIPERUS VIRGINIANA 'EMERALD SENTINEL'	EMERALD SENTINEL JUNIPER
PG	1	PICEA GLAUCA	WHITE SPRUCE
PP	2	PICEA PUNGENS	COLORADO SPRUCE

RED MAPLE
ACER RUBRUM



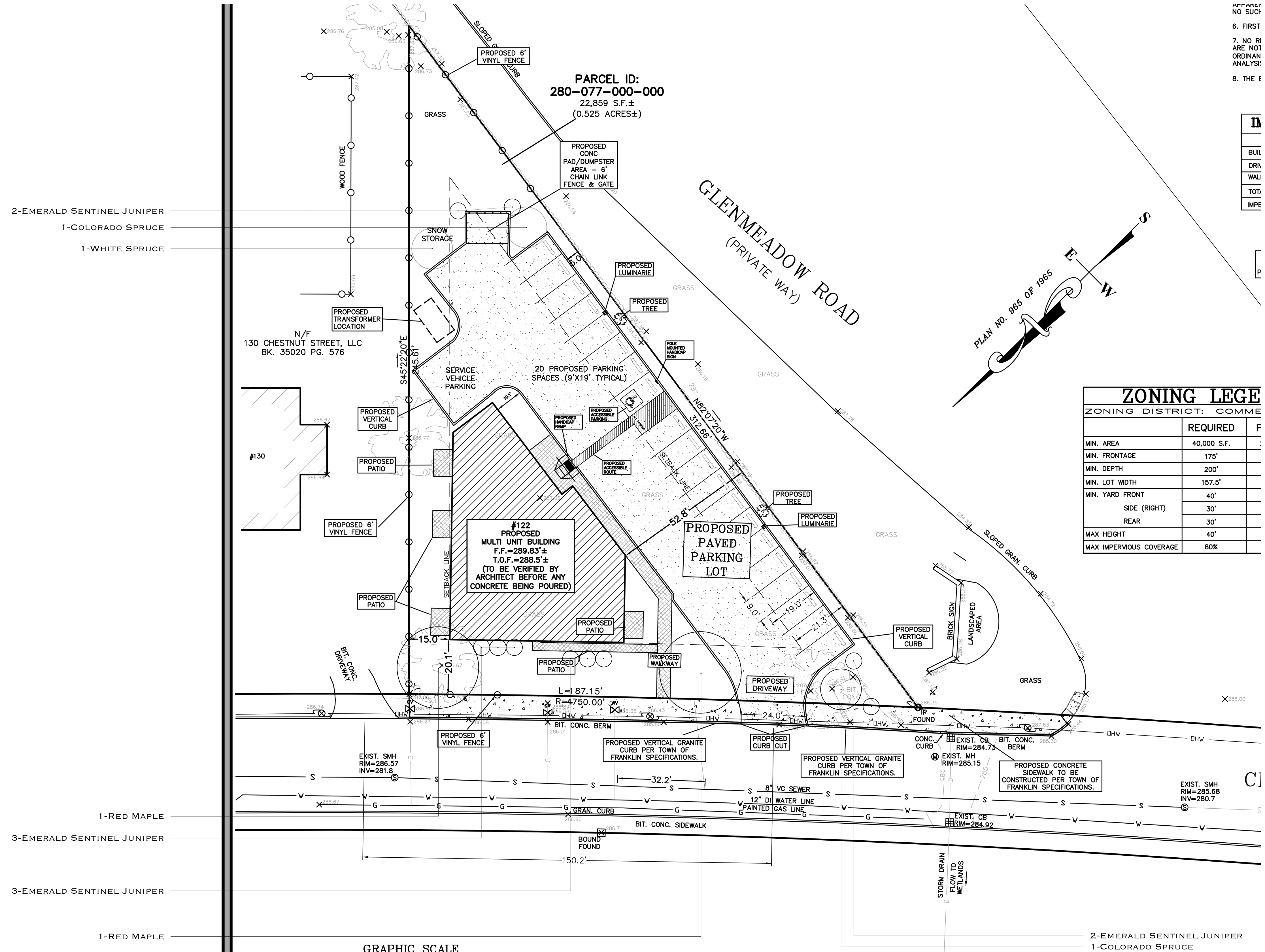
EMERALD SENTINEL JUNIPER
JUNIPERUS VIRGINIANA
'EMERALD SENTINEL'



WHITE SPRUCE
PICEA GLAUCA



SPRUCE (COLORADO)
PICEA PUNGENS



2-EMERALD SENTINEL JUNIPER
1-COLORADO SPRUCE
1-WHITE SPRUCE

1-RED MAPLE
3-EMERALD SENTINEL JUNIPER
3-EMERALD SENTINEL JUNIPER
1-RED MAPLE

ZONING LEGE		
ZONING DISTRICT: COMME		
	REQUIRED	P
MIN. AREA	40,000 S.F.	:
MIN. FRONTAGE	175'	:
MIN. DEPTH	200'	:
MIN. LOT WIDTH	157.5'	:
MIN. YARD FRONT	40'	:
SIDE (RIGHT)	30'	:
REAR	30'	:
MAX HEIGHT	40'	:
MAX IMPERVIOUS COVERAGE	80%	:

SHEET TITLE:
PLANTING PLAN
SCALE:
1"=200'
DATE: 07.14.20

PREPARED FOR:
MICHAEL O'BRIEN
122 CHESTNUT STREET
FRANKLIN, MA

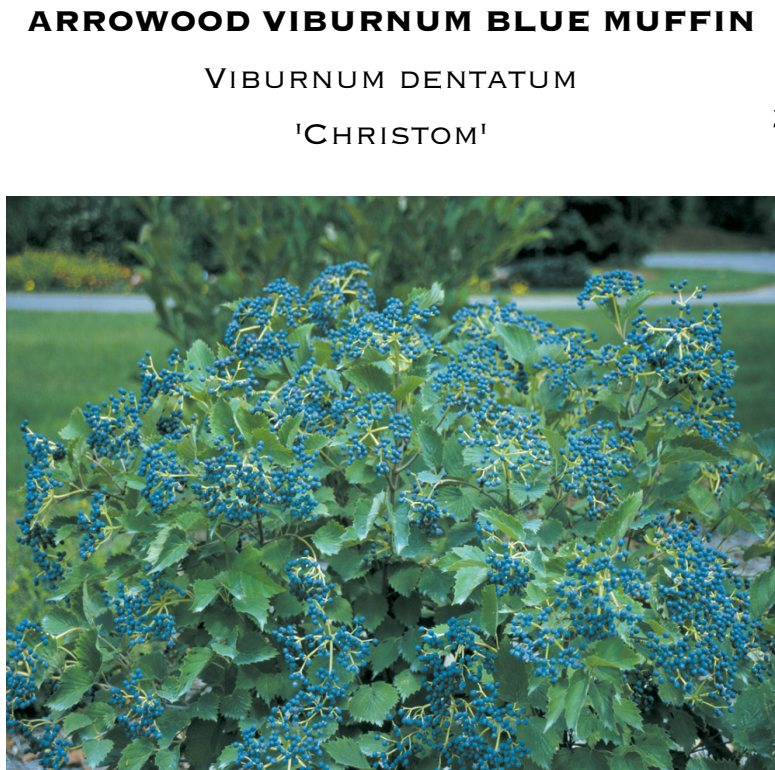
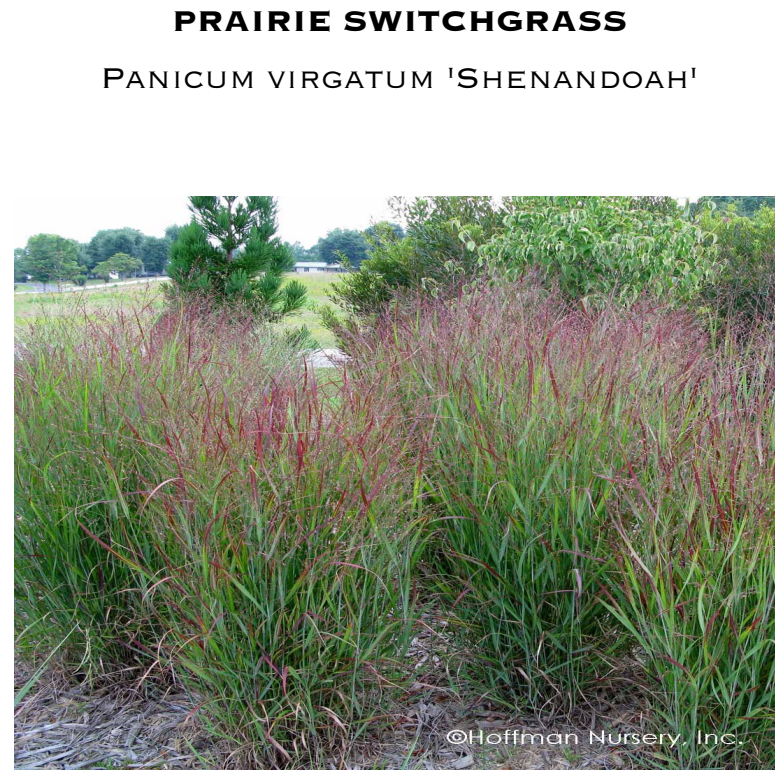
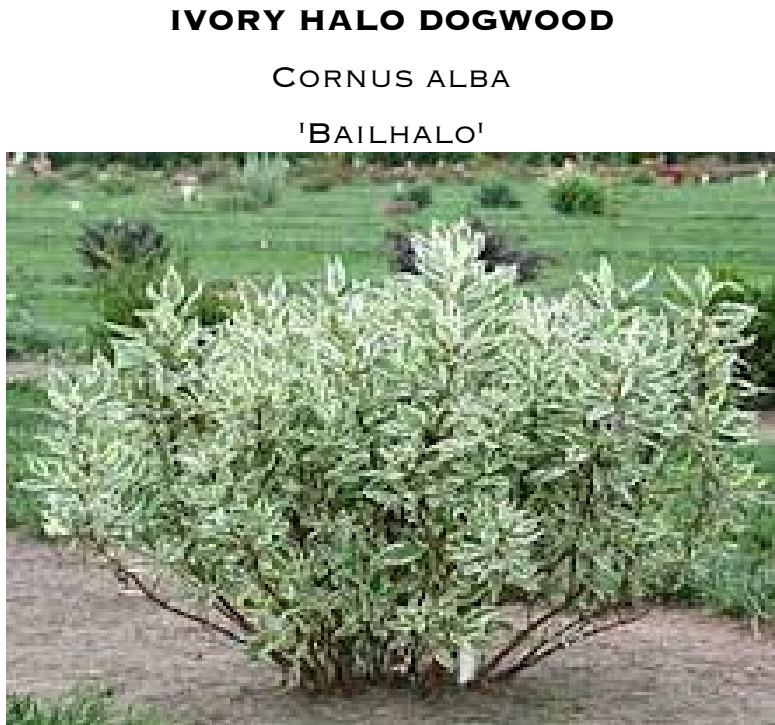
PROJECT:
MICHAEL O'BRIEN
122 CHESTNUT STREET
FRANKLIN, MA

ERIK J SKALA,
LANDSCAPE DESIGNER
BROAD MEADOW FARMS
56 BROAD MEADOW ROAD
NEEDHAM, MA 02492

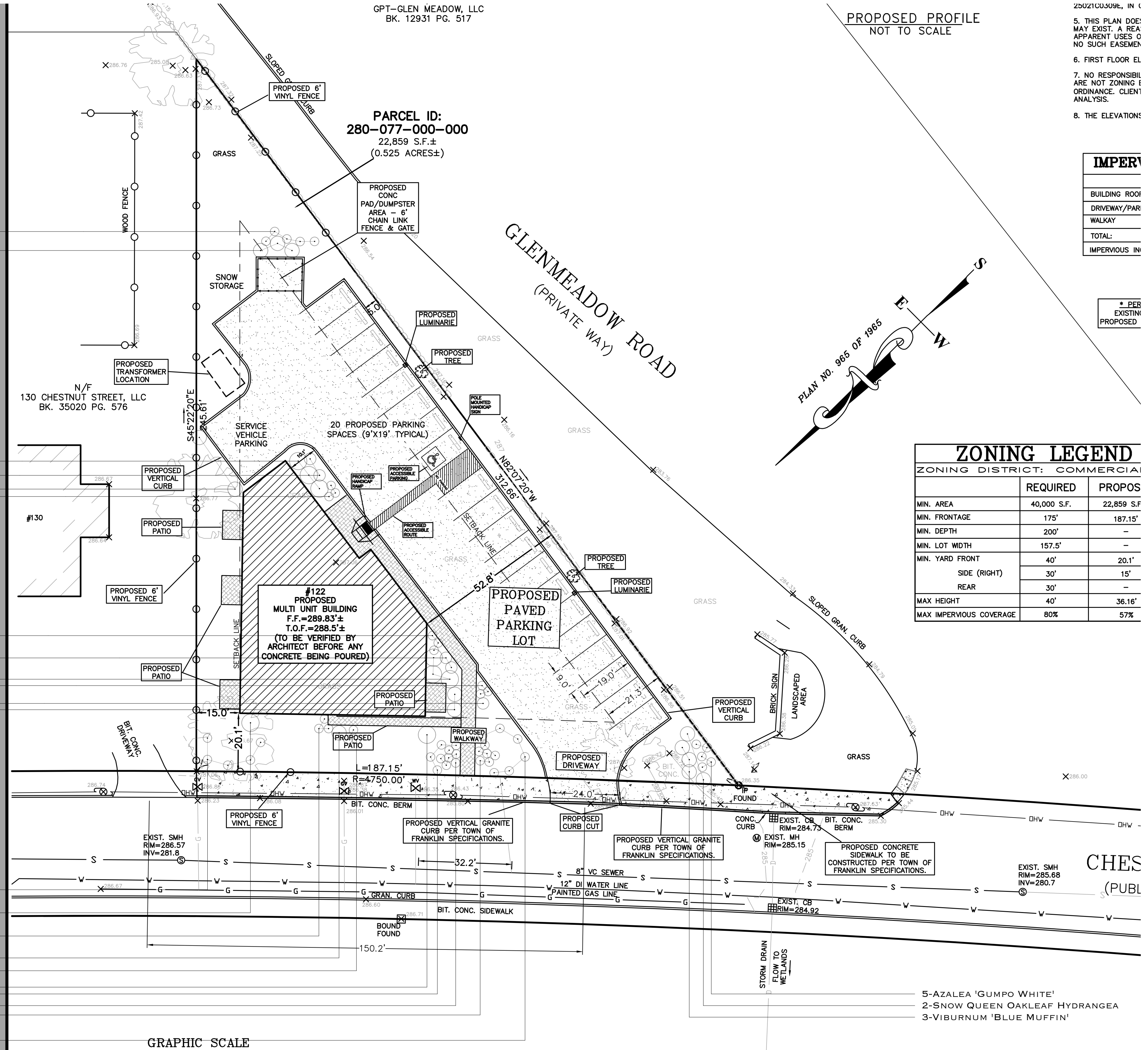
L-4.1

SHRUB & PERENNIAL SCHEDULE				
ID	QTY	LATIN NAME	COMMON NAME	SIZE
AZGW	25	AZALEA 'GUMPO WHITE'	AZALEA 'GUMPO WHITE'	#3
CAB	5	CORNUS ALBA 'BALHALO'	IVORY HALO DOGWOOD	#3
HQSQ	11	HYDRANGEA QUERCIFOLIA 'SNOW QUEEN'	SNOW QUEEN OAKLEAF HYDRANGEA	#5
KLOF	8	KALMIA LATIFOLIA 'OLYMPIC FIRE'	OLYMPIC FIRE MOUNTAIN LAUREL	#3
PVSH	27	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	#2
VDC	9	VIBURNUM DENTATUM 'CHRISTOM'	VIBURNUM 'BLUE MUFFIN'	#5

PLANTING PLAN (SHRUBS)



- 5-AZALEA 'GUMPO WHITE'
- 3-VIBURNUM 'BLUE MUFFIN'
- 3-OLYMPIC FIRE MOUNTAIN LAUREL
- 2-IVORY HALO DOGWOOD
- 2-SNOW QUEEN OAKLEAF HYDRANGEA
- 3-SHENANDOAH SWITCH GRASS
- 3-SHENANDOAH SWITCH GRASS
- 2-IVORY HALO DOGWOOD
- 3-OLYMPIC FIRE MOUNTAIN LAUREL
- 3-SHENANDOAH SWITCH GRASS
- 1-IVORY HALO DOGWOOD
- 2-SNOW QUEEN OAKLEAF HYDRANGEA
- 5-AZALEA 'GUMPO WHITE'
- 1-OLYMPIC FIRE MOUNTAIN LAUREL
- 3-SHENANDOAH SWITCH GRASS
- 1-SNOW QUEEN OAKLEAF HYDRANGEA
- 3-SHENANDOAH SWITCH GRASS
- 1-OLYMPIC FIRE MOUNTAIN LAUREL
- 4-AZALEA 'GUMPO WHITE'
- 6-SHENANDOAH SWITCH GRASS
- 6-SHENANDOAH SWITCH GRASS
- 6-AZALEA 'GUMPO WHITE'



SHEET TITLE:
PLANTING PLAN
SCALE:
1" = 20'0"
DATE: 07.14.20

PREPARED FOR:
MICHAEL O'BRIEN
122 CHESTNUT STREET
FRANKLIN, MA

PROJECT:
MICHAEL O'BRIEN
122 CHESTNUT STREET
FRANKLIN, MA

ERIK J SKALA,
LANDSCAPE DESIGNER
BROAD MEADOW FARMS
56 BROAD MEADOW ROAD
NEEDHAM, MA 02492

Town of Franklin



Planning Board

**July 27, 2020
Meeting Minutes**

Chair Anthony Padula called the above-captioned **Remote Access Virtual Zoom Meeting** to order this date at 7:00 PM. Members in attendance: Joseph Halligan, William David, Gregory Rondeau, Rick Power. Members absent: None. Also present: Amy Love, Planner; Bryan Taberner, Director of Planning and Community Development; Matthew Crowley, BETA Group, Inc.

*As stated on the agenda, due to the growing concerns regarding the COVID-19 virus, the Planning Board will conduct a **Remote Access Virtual Zoom Meeting**. The Massachusetts State of Emergency and the associated state legislation allows towns to hold remote access virtual meetings during the COVID-19 pandemic crisis. In an effort to ensure citizen engagement and comply with open meeting law regulations, citizens will be able to dial into the meeting using the provided phone number, or citizens can participate by using the Zoom link also provided on the agenda.*

7:00 PM **Commencement/General Business**

Chair Padula read aloud the Zoom platform call-in phone number and the Zoom link which were also provided on the meeting agenda.

A. Bond Reduction: Acorn Hill Estates

Ms. Love stated the Planning Board approved on May 8, 2017 a Definitive Subdivision plan entitled “Acorn Hill Estates-Acorn Place.” The Planning Board is currently holding a bond in the amount of \$97,635. The applicant has requested a bond reduction for work that has been completed. BETA Group performed an onsite inspection and has estimated the cost for completion is \$70,825. As such, the reduction amount of the bond is \$26,810.

Mr. Crowley stated the bond reduction was due to the installation of the top coat of pavement. He reviewed the outstanding work items as indicated in his Site Observation Report of July 7, 2020. He noted the radius for two driveways was not installed when the roadway top course of pavement was done. The contractor indicated the residents said they did not want them installed. He suggested DPW would need to comment on this. Planning Board members discussed how the driveway curbs would be installed since the top coat was already done. Mr. Crowley stated only the curbstones were noted in the bond; not the labor that would be needed.

Chair Padula said that for the deficiencies and discrepancies, another \$5,000 should be added to the bond. Discussion commenced about possible costs for the top coat to be repaired after the driveways are fixed. Chair Padula stated this is the obligation of the contractor as designated on the bond regardless of what the homeowners say they want; the money must be in the bond for this. He recommended \$20,000 should be released and \$6,810 be added back into the bond for remaining work as discussed.

Motion to Accept Bond Reduction of \$20,000 for Acorn Hill Estates for a bond total of \$77,635. Halligan. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

B. Final Form H: 186 Grove Street

The applicant submitted a Final Form H and Engineer's Certificate of Completion and a final As-Built plan. Mr. Crowley stated a final site walk was conducted on July 7, 2020, as outlined in his Site Observation Report. All items have been completed.

Motion to Accept Final Form H for 186 Grove Street. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

C. Partial Form H: 45 Forge Parkway - YMCA

Ms. Love stated that the Planning Board approved a Limited Site Plan Modification on May 7, 2018, allowing the applicant to install a covered concrete slab to be used as a picnic area. The applicant provided a Partial Form H and partial As-Built plan. BETA provided an onsite report with pictures. The applicant is requesting to use the picnic area for summer camp this year and proposing to finish the project in October.

Chair Padula stated there are no lights under the canopy and requested the hours of operation. He asked if the applicant has a permit to have the trailer onsite. Mr. Kevin Dionne of the Hockomock YMCA stated he believes the one trailer was put onsite with a permit, but he will confirm. He stated it is used for a summer camp office from mid-June through August; then it will be removed. He stated this has been done for the past seven years. He stated the picnic pavilion will only be used during the day from 7 AM to 6 PM to shade the children from the sun. He noted that the company that was building the structure shut down due to the pandemic. He confirmed the step off the cement slab to the grass area was smooth as shown in a picture in BETA's report. Planning Board members asked questions. Mr. Dionne explained the reasons that the Cultec system is not yet installed. Chair Padula stated that usually nothing is released for use until the drainage is done.

Mr. Crowley stated there are a few outstanding work items as indicated in his Site Observation Report dated July 15, 2020. The downspouts are on the roof, but there is no system in place to discharge to the Cultec system. Mr. Halligan noted this is a shed roof and asked what was the purpose of a Cultec system. He asked if it was handicapped accessible. Chair Padula stated the Cultec system is for the impervious coverage. Mr. Dionne stated it was handicapped accessible; it is a gradual level grade to the slab. He stated that as soon as summer camp is over at the end of August, he will have the contractor complete the trench work and install the Cultec system. He will return to the Planning Board by the beginning of October. Planning Board members asked questions. Chair Padula stated the Planning Board can limited this approval for the Partial Form H for two months.

Motion to Approve the Partial Form H for 45 Forge Parkway – YMCA until October 1, 2020. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

D. Decision: 160 Grove Street

Ms. Love stated that at a previous Planning Board meeting this public hearing was closed. She stated that the suggested special conditions were previously discussed as outlined in her memo to the Planning Board dated July 22, 2020. She stated the applicant requested two waivers which the Planning Board indicated they were satisfied with: the reduced number of parking and some parking that was over 300 ft. away. She noted the Planning Board may want to discuss the odor mitigation conditions.

Mr. Maglio stated concern with the line striping on Grove Street; he would like to see a plan. Ms. Love reviewed the special conditions. She stated the applicant has not gone to Design Review as they are in the Industrial Zoning district. Chair Padula asked about the odor mitigation system. It was noted that if there is any concern with the odor mitigation system once it is put in place, what will the solution be? Mr. Halligan asked if the State takes part in regulating odors if there are odor complaints. Mr. Crowley stated he does not know that DEP can shut a facility down due to odor. He stated that the applicant does not have to have a full odor redesign on hand, but should have a plan if they do not meet the expectation of what the Town thought regarding odor. Mr. Halligan asked how many odor complaints are needed before someone does something.

Mr. Crowley stated he would have to refer to DEP's rules. Mr. Taberner stated that a previous project had multiple complaints by neighbors to both the Town and State regarding the smell. Eventually, the issue was addressed. The State, as well as the Town's Building Commissioner and Health Director, were involved. When there is a problem, it has to be addressed. He recommended the wording in the decision be strong enough. Mr. Halligan suggested this is a major issue that the Planning Board should be concerned with. Mr. Rondeau agreed.

Chair Padula confirmed the Planning Board would like more feedback and possibly an independent review to clarify the special conditions. Ms. Love confirmed the Planning Board would like to have some type of post-development monitor of the odor and the alternative odor mitigation plan to put in the special conditions of the decision. Chair Padula reviewed the special conditions as listed and stated that suggested special condition #5 is not needed prior to endorsement. Mr. Halligan asked if special conditions #3 and #4 were the same. Ms. Love suggested rewording.

Motion to Continue the Decision for 160 Grove Street to August 10, 2020. Halligan. Second: Rondeau. Vote: 5-0-0 (5-Yes; 0-No).

E. Limited Site Plan: 303 East Central Street – Pet Supply Plus

Mr. Michael Doherty, attorney on behalf of the applicant, was present at the meeting.

Ms. Love stated that the Planning Board requires any new tenants that occupy the space provide a Limited Site Plan to show sufficient tenant parking. The applicant provided a Limited Site Plan; however, it does not indicate Pet Supply Plus for Tenant 3, does not provide the amount of parking required for Pet Supply Plus, and the plan purpose states it is for Tenant 2 and 5, not for Tenant 3. She recommended the Limited Site Plan be updated accordingly. Mr. Halligan suggested the parking is sufficient as this is a pet supply store; Planning Board members agreed.

Motion to Approve the Limited Site Plan for 303 East Central Street – Pet Supply Plus. Halligan. Second: Rondeau. Vote: 5-0-0 (5-Yes; 0-No).

F. Limited Site Plan: Ben Franklin Charter School

Ms. Love stated the applicant submitted a Limited Site Plan Modification for grade changes at the front entrance and to remove the curb cut ramps. She suggested that the applicant provide an explanation that the site will still comply will all ADA rules and regulations.

Mr. Richard Marks, applicant, addressed the Planning Board as to why the two handicapped ramps were removed. He stated two ramps were shown on the Site Plan; however, they were not needed by code. The civil engineer removed them as they are not needed by the school due to the way children were accessing the school by bus or vehicle. Chair Padula reminded the applicant that items must not be removed from plans without Planning Board approval.

Mr. Maglio stated that if an accessible wheelchair ramp is not being provided, the applicant should identify why one is not required under the current Federal ADA or State AAB requirements. Mr. Daniel Snider, architect, reviewed the requirements for ramps and where the accessible routes to the entrances are provided and said the ramps are not relevant to this situation. Chair Padula requested a letter be provided to the Planning Board from ADA that the ramps are not required; he will then ask the Planning Board for a Site Plan Modification.

Mr. Stephen Garvin, engineer, reviewed the main student drop off and places for children to be dropped off with access to a ramp. He stated that anytime there is not a crosswalk, there is not a need for that type of ramp. Chair Padula said that in an emergency if someone has to be wheeled out of the school, it is usually the main entrance where public vehicles pick up and drop off such as an ambulance. He cannot imagine a main

entrance not being handicapped accessible. Mr. Garvin confirmed they could get a letter from the AAB. Mr. Halligan reviewed the applicant’s rationale and stated he agreed. Planning Board members asked questions about the traffic and drop off areas. Mr. Marks stated the paving work would be completed by mid-August. He noted they have a temporary Certificate of Occupancy at this time. He stated the signal lights are complete.

Mr. Maglio stated the regulations for the AAB and ADA are comprehensive. He would like to put it on the applicant to verify that the ramp is not required; a letter from the AAB would satisfy this. Mr. Garvin stated that they are compliant. Chair Padula requested documentation from a licensed engineer or AAB. Planning Board members agreed. Mr. Snider stated he would provide a written statement. Mr. Marks asked if the repaving work could continue. Chair Padula stated yes.

Chair Padula stated that the Limited Site Plan for Ben Franklin Charter School would be continued to August 10, 2020. No motion or second was made; no vote was taken.

G. Meeting Minutes Approval: May 18, 2020 & June 8, 2020

Motion to Approve the Meeting Minutes for May 18, 2020. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

Motion to Approve the Meeting Minutes for June 8, 2020. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

7:05 PM **PUBLIC HEARING** – *To Be Continued*
340 East Central Street
Special Permit & Site Plan
Documents presented to the Planning Board are on file.

Chair Padula stated Jones & Beach Engineers, Inc. requested a continuance.

Motion to Continue the public hearing for 340 East Central Street, Special Permit & Site Plan, to August 24, 2020. Padula. No Second provided. Vote: 4-0-1 (4-Yes; 0-No; 1-Abstain). (Mr. Halligan abstained.)

7:10 PM **PUBLIC HEARING** – *Initial*
164 Grove Street
Special Permit & Site Plan
Documents presented to the Planning Board are on file.

Motion to Waive the Reading. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

Ms. Love stated the site is approximately 1.5 acres and is in the Industrial Zoning and Marijuana Overlay District. The applicant has filed for a Special Permit to allow a non-medical retail marijuana facility under 185 Attachment 3, Part II Section 2.23. The applicant is proposing to construct a 4,150 sq. ft. building with 70 parking spaces. The main use of the building is for retail marijuana. There will be no product manufacturing, testing, or research operations at the facility. Letters were received from the Fire Department, Town Engineer, and BETA. The applicant will need to file with the Conservation Commission for the 100 ft. buffer zone. She stated that the applicant is proposing to enter the site from a driveway owned by the abutting property. The applicant will need to provide an easement agreement prior to the Planning Board vote. Due to COVID-19 regulations, there should be entrance only and exit only doors provided and shown on the plans as to how the customers will enter and exit the building.

Mr. Maglio reviewed his comment letter to the Planning Board dated July 23, 2020, which was provided in the meeting packet. Chair Padula stated that most of the site is in the Water Resource District. He read aloud

the letter from the Fire Department indicating an issue with the proposed access for the project. Mr. Crowley reviewed a number of his comments as provided in his review letter to the Planning Board dated July 23, 2020.

Planning Board members asked questions. Mr. Rondeau stated that traffic would be an issue as another facility is coming onboard next door. He asked if the Police Department weighed in and how many transactions per hour would be allowed at the facility. Mr. Halligan noted that the Town Council likes to see liquor stores spread out in Town. Does it make sense to have two retail marijuana establishments located next to each other? Chair Padula stated it is up to the applicant if they want to compete with each other. He asked whether or not this was advertised in the correct way as two special permits are needed. He read from the Zoning Bylaws. He discussed common driveways and said that as this is a third lot, it would require a special permit.

Ms. Carla Moynihan, attorney representing the owner, discussed the covenant needed for the easement. This permit could be considered in parallel. Chair Padula asked if the driveway could handle their traffic as the driveway was put in to handle the Planet Fitness traffic, not high-traffic-sales of marijuana. He stated it is private property, not a street. He stated the conditions for Planet Fitness's approval need to be reviewed. Ms. Moynihan stated a traffic consultant was in attendance. She stated she thought the frontage was grandfathered, she would do a legal analysis of the site, she will look at the legal aspect for a special permit for the shared driveway access, another special permit for non-medical marijuana will be added, and they hope to have an agreement with the abutter regarding the driveway.

Ms. Shelley Stormo, Executive Director of PharmaCann LLC, stated they operate 10 dispensaries in other states, as well as one dispensary in Wareham, MA and another opening in Shrewsbury, MA. The third dispensary is proposed for Franklin for medical and non-medical marijuana. Their focus is having knowledgeable sales consultants and a wide variety of products. They operate their dispensaries compliantly. There are about 500 transactions per day in Wareham from 9 AM to 9 PM, seven days per week. She said since COVID-19 they have implemented an online order system; they use ID software and signs encouraging social distancing. They plan to employ about 40 people from the local area.

Mr. Thomas Schwallie, project manager, stated the parking was split up due to the setback distances and due to the steep grade. They have more parking spots than required by code. He noted there is underground stormwater storage.

Mr. Allan Mellske, Interform Architecture & Design, reviewed the provided drawings for the dispensary. The building is sited in the middle of the site. He reviewed the split parking condition. The entry is defined with a distinct in and out which goes into a waiting area which customers are then moved into the sales area of the building. He noted there is a solar array on the roof. He reviewed the façade and the interior floor plan.

Ms. Rebecca Brown, traffic consultant of GPI, confirmed her comprehensive traffic study report which looks at safety and traffic operations is almost done and will be ready for the next meeting. She stated that some traffic numbers were obtained pre-COVID-19 conditions, sight distances meet the required guidelines, and traffic volumes were projected for a seven-year period consistent with DOT guidelines. Traffic operations analysis was performed at the site driveway showing a service level of B or better. More detail will be provided at the next meeting.

Mr. Halligan asked if an agreement has been set up with the administration on this project. Ms. Love confirmed there is a host agreement; as well, the host community public meeting has been scheduled. Mr. Halligan confirmed the busiest day for these facilities is Saturday and Saturday mornings and afternoons are busy for workout facilities, also. He would like a traffic study done for Planet Fitness to show that both facilities can work together and share the driveway. Ms. Brown discussed the critical time periods on Grove Street are after work and the Saturday. Planet Fitness and the other retail use was included in the traffic

study. She stated she would get the exact dates when the traffic studies were done; she noted traffic volumes were seasonally adjusted. Mr. Halligan asked for a simple chart at the end of her report of the actual traffic counts for vehicles coming and going.

Motion to Continue 164 Grove Street, Special Permit & Site Plan, to August 24, 2020. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

7:15 PM **PUBLIC HEARING** – *Continued*
 162 Grove Street
 Special Permit & Site Plan
 Documents presented to the Planning Board are on file.

Mr. Rick Goodreau of United Consultants; Ms. Amanda Rositano, President of NETA/applicant; Mr. Don Cooper, attorney on behalf of the applicant; and Ms. Sasha Wood, traffic engineer from Tetra Tech, addressed the Planning Board. Mr. Goodreau stated this is the second public hearing. They have responded to review comments from various Town departments and BETA. There are a few comments remaining from BETA. He stated that they propose to add a bollard to the middle of the overhead doorway; therefore, vehicles cannot enter the building. As well, they have revised the plan to install a guardrail at the end of the parking spaces rather than the bollards. Planning Board members stated they were okay with the changes. Mr. Maglio stated he feels the guardrail would be sufficient to stop a car in this area.

Ms. Love stated the applicant included the requested snow storage, a revised landscape plan has not been received, and signage should be included as a condition. Mr. Taberner said that all signage must go through Design Review regardless of zoning district. Mr. Goodreau stated they are scheduled to meet with Conservation Commission this Thursday. Mr. Maglio stated all their comments have been addressed.

Ms. Wood reviewed the traffic study. She stated that five intersections were looked at along Grove Street, as well as 160 Grove Street, 164 Grove Street, and 176-210 Grove Street projects. They looked at NETA's North Hampton Facility for projections of NETA customer trips, NETA employee trips, and total NETA trip generation. Overall, they determined 3,400 daily trips projected and about 3,600 trips on a Saturday. She explained the level of service for specific intersections along Grove Street. She stated that parking demand was calculated with 120 parking spaces on weekdays and 128 parking spaces on Saturdays. She noted the proposed parking supply of 141 spaces is expected to be adequate. Sight distance was reviewed as part of the traffic impact study. In terms of mitigation, they are proposing site access improvements, post-occupancy monitoring, and transportation demand management program. Mr. Halligan asked if there were any electric vehicle stations within the parking, if the GATRA bus would be able to stop in there, and if the traffic counts were based on the facility within the first three months of opening or once established. Ms. Wood stated there were no electric vehicle stations proposed at this time, a van/bus could circulate the parking area, and the numbers are based on November data from the North Hampton facility which had been opened for approximately one year.

Chair Padula asked why the data was taken from North Hampton and if the population of North Hampton matches Franklin and surrounding towns. Ms. Wood stated it was important to take NETA's numbers so they are looking at what they are potentially generating. She does not have the North Hampton's population. Ms. Rositano stated that the numbers from North Hampton were used and are similar to Brookline which has more population. She stated the volume usually increases over time. She noted that in November there were only about 35 operators in the State so the numbers probably were higher. She stated that the pre-COVID numbers were higher. She discussed that they can control the number of customers with their reserve-ahead operating model. She stated there would be about 20 customers per 15 minutes which is about 80 customers per hour. She stated they do not take walk-ins. They have staff onsite outside the store as well. Mr. Rondeau stated there is going to be a great amount of traffic on Grove Street and more research on this should be done. Chair Padula noted that 45 percent of the traffic would be coming from Washington Street which is an

un-signalized intersection. He asked the applicant to determine ways to mitigate the traffic for the next meeting.

Motion to Continue the public hearing for 162 Grove Street, Special Permit & Site Plan, to August 17, 2020. Halligan. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

7:20 PM **PUBLIC HEARING** – *Continued*
 122 Chestnut Street
 Site Plan
 Documents presented to the Planning Board are on file.

Ms. Love stated there were a few outstanding items from the last meeting. The applicant submitted revised plans based on the Planning Board’s comments from the July 13, 2020, meeting regarding removing one parking space and transition roundings along the entrance. She reviewed recommended Special Conditions as outlined in her letter to the Planning Board dated July 22, 2020.

Chair Padula stated he is not concerned with getting rid of the first parking space. He is concerned that the dumpster truck cannot turn around and will have to back onto Chestnut Street. Ms. Love stated the dumpster truck would be able to back into the service spaces and then pull out forward as shown on the plans. Chair Padula asked that the turn-around area be striped so no one parks there. Mr. Crowley stated he agreed with the turning plan. He confirmed there was a 6 ft. screening fence that runs along the property line. Mr. Maglio stated all his comments have been addressed.

Motion to Close the public hearing for 122 Chestnut Street, Site Plan. Halligan. Second: Rondeau. Vote: 5-0-0 (5-Yes; 0-No).

Motion to Approve the Site Plan for 122 Chestnut Street with the following Special Conditions:

- 1. Fencing around the dumpster shall include vinyl slats for screening.***
- 2. Recommend for the Board to include a condition that all water, sewer, and drainage installation shall be in conformance with Town Standards.***
- 3. Plans shall include the Certificate of Vote on front page and color renderings of the building.***
- 4. The Board may wish to consider a condition of approval that requires the driveway opening to fully comply with Massachusetts Architectural Access Board regulations (e.g. 2% maximum cross slope for 36” minimum width, refer to MassDOT Standard Detail E 107.7.0.***
- 5. The backup area for the dumpster truck shall be cross-striped for no parking and a No Parking sign installed.***

Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

Motion to Adjourn the Remote Access Virtual Zoom Planning Board Meeting. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No). Meeting adjourned at 9:46 PM.

Respectfully submitted,

Judith Lizardi,
Recording Secretary

Town of Franklin



Planning Board

**August 10, 2020
Meeting Minutes**

Chair Anthony Padula called the above-captioned **Remote Access Virtual Zoom Meeting** to order this date at 7:00 PM. Members in attendance: Joseph Halligan, William David, Gregory Rondeau, Rick Power. Members absent: None. Also present: Bryan Taberner, Director of Planning and Community Development; Michael Maglio, Town Engineer; Matthew Crowley, BETA Group, Inc.

*As stated on the agenda, due to the growing concerns regarding the COVID-19 virus, the Planning Board will conduct a **Remote Access Virtual Zoom Meeting**. The Massachusetts State of Emergency and the associated state legislation allows towns to hold remote access virtual meetings during the COVID-19 pandemic crisis. In an effort to ensure citizen engagement and comply with open meeting law regulations, citizens will be able to dial into the meeting using the provided phone number, or citizens can participate by using the Zoom link also provided on the agenda.*

7:00 PM **Commencement/General Business**

Chair Padula read aloud the Zoom platform call-in phone number and the Zoom link which were also provided on the meeting agenda.

A. Bond Reduction: Union Meadows

Chair Padula read aloud a letter from the Department of Planning and Community Development to the Franklin Planning Board dated August 6, 2020: The current Bond is held in a Tripartite Agreement with the Town of Franklin in the amount of \$27,002.00 for Union Meadows Rd.; the applicant has requested a Bond Release; BETA performed a site inspection and has documented list of completed items; based on BETA's inspection, the recommendation is to reduce the bond from \$27,002.00 to the amount of \$1,250.00, releasing a total amount of \$25,752.00. Mr. Crowley reviewed his Site Observation Report dated August 4, 2020. He noted there were several cracks in the sidewalk and driveway concrete panels. He stated the contractor cleaned out the pond and culvert. Chair Padula confirmed the culvert on the plans was supposed to have a headwall; the applicant put flared end sections on either side without coming before the Planning Board for a modification. Mr. Crowley stated he believes the Town Engineer was consulted on this. Mr. Maglio discussed the culvert and stated he did not believe it was a good location for a headwall. Discussion commenced on the culvert. Mr. Maglio explained that he did not recommend replacing the cracked sidewalk or the other two cracks as he did not think it was a major issue. Chair Padula stated it is only going to get worse; it should be replaced. He discussed the probable cost for this fix the cracks. Mr. Rondeau recommended replacing the cracked panels. Mr. Maglio stated that normally the Planning Board holds back a few thousand dollars until the Town accepts the roadway in case there are any changes or problems.

Motion to Release \$25,000 of the Bond for Union Meadows for a remaining Bond total of \$2,002. Halligan. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

B. Limited Site Plan Modification: Brookview – Pond Street

Mr. Maglio stated that the proposed infiltration basin has been adequately sized to infiltrate all

additional runoff created from paving the existing parking lot. He does not see an issue with the proposed modification. The applicant has filed with the Conservation Commission. Chair Padula read from DPCD's letter to the Planning Board dated August 4, 2020: DPCD recommends that signage for public parking and trail access be posted, as per the Certificate of Vote, Special Conditions issued on February 27, 2017, and DPCD recommends that a condition be added that the property owner (or Condominium Association) shall maintain the parking area and drainage. Mr. Halligan confirmed this was originally proposed as a gravel parking lot and now it is going to be paved. He asked if there is any existing curbing that needs to be matched. Mr. Maglio stated the plan submitted shows no edging or curbing. Mr. John Kucich, applicant's representative, stated it was about 4,500 sq. ft. increase in impervious coverage with no curbing. Mr. Maglio stated he was mainly looking at stormwater; he defers to the Planning Board if they want edging, berm, or curb. Chair Padula noted another development that was required to put in temporary curbing to control the runoff. Therefore, this applicant should at least put in a cape cod-type berm to control the runoff. Mr. Kucich stated putting cape cod berm is acceptable although he hoped to keep it as is. Chair Padula confirmed the runoff would not end up in anyone's yard. Discussion commenced about the paving and need or no need for berm. Mr. Halligan noted this road does not have heavy traffic; it is just a place for people to be able to access Mine Brook. Planning Board members agreed to the rough edge; applicant will not roll the binder or top coat but leave a flared edge.

Motion to Accept Limited Site Plan Modification: Brookview – Pond Street. Halligan. Second: Rondeau. Vote: 5-0-0 (5-Yes; 0-No).

C. 81-P ANR: 49 Raymond Street

Chair Padula read aloud a letter from the Department of Planning and Community Development to the Franklin Planning Board dated August 4, 2020: 1. The applicant has submitted a Form A application for 81-p Plan Review to accompany the plan titled "Franklin Condominium II Modification Plan of Registered Land, Franklin, Massachusetts" dated July 17, 2020; 2. The purpose of the plan is to create 3 lots from the existing 1 lot, with lot #169 being a buildable lot; 3. The above application depicts a location within the Single-Family IV Zoning District. The proposed lot shown conforms to lot requirements associated with this zoning district with Minimum Lot area of 15,000 s.f., and Minimum Frontage of 100', and Lot Width of 90'; 4. The above application depicts the land known on Assessors Map 269 Lots 052.000 & 052.001; 5. The Plans were submitted on August 3, 2020. The Planning Board is required to make a decision within 21 days of submittal date.

Chair Padula noted the cul de sac at the end of the lot and a drain easement going into the lot. He asked if the frontage of the lot is where the drainage easement is. Ms. Amanda Cavaliere of Guerriere & Halnon Inc. stated the frontage is supposed to be 100 ft., and they have 115 ft. without the easement. She reviewed where the frontage was taken from. Chair Padula asked who owns the turnaround easement, the Town or the applicant, and who owns the easement for the drainage. Ms. Cavaliere stated the drainage easement has been worked on with Mr. Maglio; the applicant will maintain it. Chair Padula stated the catch basin is in a public way. He asked where the frontage was taken from. Mr. Edward Cannon, attorney for the applicant, stated at this time there is no easement in place; however, it does not impact the frontage. They are working on having an easement with the Town. Chair Padula stated it is shown as a public street. He questioned that the frontage would be taken from the drainage easement to the lot line.

Mr. Maglio stated that when they started to do the survey, they found the outfall. They created the easements which are going to be granted to the Town for acceptance so the Town can take care of it in the future as it is drainage from the roadway. Chair Padula expressed concern about the frontage. Mr. Cannon reviewed the two easements to be granted to the Town; the frontage will not be impacted by either.

Motion to Approve 81-P ANR for signing: 49 Raymond Street, Rondeau. Second: Power. Vote: 4-0-1 (4-Yes; 0-No; 1-Abstain). (Mr. Halligan abstained.)

D. Decision: 160 Grove Street - Special Permit & Site Plan

Mr. Taberner referenced the letter from the Department of Planning and Community Development to the Planning Board dated August 4, 2020. He stated that the proposed site is for a marijuana cultivating, processing, and distribution facility. The Conservation Commission has approved. He reviewed the two waivers requested, the suggested special conditions, and the suggested odor mitigation conditions as listed in the letter.

Waiver Requests:

Motion to allow 138 parking spaces where 159 parking spaces are required for 160 Grove Street, Special Permit & Site Plan. Halligan. Second: Power. Vote: 5-0-0 (5-Yes; 0-No).

Motion to allow 68 of the 138 Parking spaces, that are located more than 300' feet from the building entrance for 160 Grove Street, Special Permit & Site Plan. Halligan. Second: Power. Vote: 5-0-0 (5-Yes; 0-No).

Special Conditions:

Motion to Accept the following Suggested Special Conditions, and that the Suggested Special Conditions be included on the front page of the plans before they are endorsed by the Planning Board:

1. **A plan for the proposed Grove St turning lane pavement marking modifications should be included in the final plan set to be endorsed by the Board,**
2. **Existing soil conditions are to be evaluated by the design engineer during construction to verify field conditions,**
3. **To minimize noise, there will be no deliveries after 10:00PM and before 7:00AM, 7 days a week.**
4. **Road improvements on Grove Street shall be complete prior to any Occupancy Permit.**

Padula. No Second or Vote taken.

Motion to Accept the following Suggested Odor Mitigation Conditions:

1. **Provide mitigation of a fan and similar continuous noise sources if those sounds are perceptible without instruments more than 400 feet from the boundaries of the property.**
2. **Installation of a weather station, capable of logging wind speed, wind direction and temperature to assist in identification of odor complaint tracking (Applicant has committed to this condition).**
3. **The Applicant shall install the odor control system as proposed and designed on the Plans. In the event the system does not operate in accordance with the design, the Applicant will work with the Town to further mitigate the odor provided such actions are reasonably practicable and are not in violation of MGL 94G(3).**
4. **Notwithstanding, the odor system shall not be in violation of any DEP and MASS EPA air quality regulations related to odor.**
5. **Prior to endorsement, the Applicant should provide the Board with an Odor Complaint Tracking system.**

Padula. No Second or Vote taken.

ROLL CALL VOTE:

This determination shall be in addition to the following specific findings:

Special Permit VOTE for USE: §185 Attachment 3 Section 2.23 – Non-Medical Marijuana facility.

- (1) **Special Permit: To allow Non-Medical Marijuana Cultivation and Product Manufacturing within the Marijuana Use Overlay Zoning District.**

Chairman Padula read aloud the following.

- a) Proposed project addresses or is consistent with neighbor or Town need.
Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

- b) Vehicular traffic flow, access and parking and pedestrian safety are properly addressed.
Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

- c) Public roadways, drainage, utilities and other infrastructure are adequate or will be upgraded to accommodate development.
Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

- d) Neighborhood character and social structure will not be negatively impacted.
Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

- e) Project will not destroy or cause substantial damage to any environmentally significant natural resource, habitat, or feature or, if it will, proposed mitigation, remediation, replication or compensatory measures are adequate.
Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

- f) Number, height, bulk, location and siting of building(s) and structures(s) will not result in abutting properties being deprived of light or fresh air circulation or being exposed to flooding or subjected to excessive noise, odor, light, vibrations, or airborne particulates.
Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

- g) Water consumption and sewer use taking into consideration current and projected future local water supply and demand and wastewater treatment capacity, will not be excessive.
Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

The proposed use will not have adverse effects which overbalance its beneficial effects on either the neighborhood or the Town, in view of the particular characteristics of the site and of the proposal in relation to that site.

Padula-YES; Power-YES; Halligan-YES; Rondeau-YES; David-YES. Vote: 5-0 (5-Yes; 0-No)

Motion to Approve 160 Grove Street Site Plan. Halligan. Second: Rondeau. Vote: 5-0-0 (5-Yes; 0-No).

E. Partial Form H: Dean Ave – Garages, Bike Rack & Dog Wash

Chair Padula read aloud a letter from the Department of Planning and Community Development to the Franklin Planning Board dated August 5, 2020 which stated that 1. The applicant has submitted a Partial Form H and Engineer’s Certificate of Completion for the following building uses: Garages 1-6, Mail/Bike Storage Building, Maintenance Building, and Dog Wash Building; 2. The Applicant has also submitted a diagram outlining what is complete and what outstanding items are still being completed; and 3. BETA has provided an onsite report with pictures.

Chair Padula stated there was a question about a temporary fence. Mr. Crowley reviewed the temporary fence on the plans and stated that the fence locations are where they were in July allowing access to areas of the site with ongoing construction. The fencing should be installed as soon as possible. Mr. Brian McCarthy of RJO’Connell & Associates stated they have no issue with that; the fences can be installed quickly. Planning Board members asked questions. Mr. McCarthy stated the hill will be seeded and vegetated. Chair Padula stated the applicant is here for Certificates of Occupancy for Garages 1-6. Mr. Rondeau noted asphalt sidewalks were in front of the site and concrete sidewalks were further down on Dean Avenue. If a private developer were to do this, the Planning Board would be making them take it out. Chair Padula stated the Town Engineer and the Town Administrator did this; they believe they are exempt from their own bylaws that they write and they make all developers follow the bylaws, but not the Town. He stated this should be gotten into one of these days, but it is not Fairfield’s problem; shame on the Town for allowing this.

Motion to Approve Partial Form H: Dean Ave – Garages 1-6, Mail/Bike Storage Building, Maintenance Building, and Dog Wash Building. Rondeau. Second: Daivd. Vote: 4-0-1 (4-Yes; 0-No; 1-Abstained).
(Mr. Halligan abstained.)

F. Limited Site Plan: Charter School

Chair Padula read aloud a letter from the Department of Planning and Community Development to the Franklin Planning Board dated August 5, 2020: 1. At the last meeting held on July 27, 2020, the Planning Board requested a letter from a certified engineer that the changes to the curb cut ramp is in compliance with ADA regulations; 2. The Applicant has submitted a letter for review; 3. If the Planning Board is satisfied, the Board should vote on the Limited Site Plan.

Mr. Richard Marks and Mr. Larry Spang, Principal of Arrowstreet, addressed the Commission. Mr. Spang reviewed his letter to Ms. Amy Love, Town Planner, dated August 4, 2020, regarding accessibility to the front entrance of the school which indicates their strategy for providing said accessibility. Mr. Maglio stated he is satisfied with the explanation in the letter.

Motion to Approve Limited Site Plan: Charter School. Halligan. Second: Power. Vote: 5-0-0 (5-Yes; 0-No).

7:05 PM **PUBLIC HEARING** – *Continued*
 70, 72 & 94 East Central St – Multi-Family
 Special Permit & Site Plan Modification
 Documents presented to the Planning Board are on file.

Chair Padula recused himself.

Mr. Richard Cornetta, attorney representing the applicant; Mr. Brad Chaffee, owner/applicant; Ms. Liz Ranieri and Mr. Rob Marcalow of Kuth Ranieri Architects; and Mr. Rick Goodreau of United Consultants, Inc. addressed the Planning Board. Mr. Cornetta stated that during the last meeting there were several concerns regarding the location of the building with regard to the lack of parking in areas adjacent to the

building and access to the back of the building. As well, there was discussion as to what would take place with the middle parcel. He stated there is a new Site Plan and some 3-D renderings for tonight’s meeting.

Mr. Goodreau provided an overview of the revised Site Plan that addresses the concerns raised by the Planning Board at the last meeting. He reviewed the concept plan two-page set as provided in the Planning Board members’ meeting packet which shows the proposed rendition and addition to the house. He reviewed the proposed parking spaces and the added 26 ft. access driveway to the rear of the building which will provide access to four garage spaces available to the residents of the project. He stated they have provided a stormwater system plan for the site.

Ms. Ranieri stated this process involves the restoration and new addition of the existing historic house and the new building. She reviewed the Site Plan. Vice Chair Halligan asked what is the building to be. Mr. Chaffee stated that they do not know the tenant, but in an ideal situation it would be a café or something with a fast/casual feel; it is about 1,800 sq. ft. and one story. Vice Chair Halligan stated the layout looks good. Mr. Chaffee reviewed the underground parking. Mr. Rondeau asked if this is going to be all one site or three separate parcels, and if the fire access road will have a gate so it is not a cut through. He would like to see sidewalks throughout. He noted he received calls from residents in the area about the size of the building. Mr. Chaffee said they met with the Fire Chief, and it should have a gate or a chain. Mr. David asked about snow storage. He confirmed that the house is historical all the work to be done is allowed. Mr. Power asked for assurance that once the back building is up, the add-on building will get done. Mr. Chaffee stated the challenge is that someone is living in the house; those people will be the first to move into the new building. He can provide assurance for the completion of the historic building such as holding something back. He confirmed a fence would be put up around the ACs instead of evergreens. Vice Chair Halligan asked that if it was one entity owned by one group, why could it not all be connected. He is not in favor of the fire access being blocked off; he is in favor of open circulation. Planning Board members agreed. Mr. Chaffee stated he would look at that. Vice Chair Halligan stated he would like to see all infrastructure including drainage, parking, curbing, and binder done at the same time, not phased.

Motion to Continue the public hearing for 70, 72 & 94 East Central St – Multi-Family, Special Permit & Site Plan Modification, to September 14, 2020, at 7:05 PM. David. Second: Rondeau. Vote: 4-0-0 (4-Yes; 0-No).

Chair Padula re-entered the meeting.

7:10 PM **PUBLIC HEARING** – *Initial*
 5 Fisher and 29 Hayward Streets
 Special Permit & Site Plan Modification
 Documents presented to the Planning Board are on file.

Motion to Waive the Reading. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

Chair Padula read aloud a letter from the Department of Planning and Community Development to the Franklin Planning Board dated August 6, 2020 which stated that 1. The proposed Site Plan is located at 5 Fisher Street and 29 Hayward St in the Mixed Innovation Business District; Assessor’s Map 278 Lot 016, and 2. The applicant has filed a Site Plan Modification for manufacturing use at 29 Hayward St. The letter included comments which stated that 1. The application is for 29 Hayward Street, and which is located on the same parcel as 5 Fisher Street, 2. The previous use was to manufacture non-woven goods for the automotive industry. The Applicant is looking to manufacture non-woven goods for the healthcare industry, and 3. The Applicant has included a memo explaining the change in use and the parking schedule.

Mr. Edward Cannon, attorney on behalf of the applicant, provided an overview of the project. He reviewed page 108 of the Planning Board’s meeting packet showing the layout of the area. He stated they are here only

for a Site Plan Modification to allow Mass Standard Materials to occupy and begin their business at 29 Hayward Street. Chair Padula stated the application is for a Special Permit and Site Plan. Mr. Cannon reiterated that a Special Permit is not being requested at this time. They are only asking for the Site Plan Modification portion of the application. He reviewed the occupants and tenants of the existing buildings and noted all of the other spaces are vacant. He stated that 29 Hayward is currently vacant; the building commissioner did not want to allow occupancy until they came before the Planning Board. The proposed tenant, Mass Standard Materials, will be making N95 masks. There is an existing Site Plan from 2003 for this property. They would like to utilize the existing parking; there will be no change in impervious. He reviewed the parking schedule as shown on page 90 of the meeting packet; he reviewed the parking on the 2003 Plan as shown on page 98. He stated there are more than enough spaces for the tenant at 29 Hayward Street.

Chair Padula stated the applicant came before the Planning Board before to occupy one of the buildings. However, the applicant never came before the Planning Board for Contollo Mass Manufacturing to occupy the space for making PPE; it seems that was done by the Town Council. The applicant was told to come to the Planning Board with a full Site Plan for the complete area after the zoning was changed. In 2003 the building was for storage and shipping which is why there is so little parking. Since then the facility has not been occupied. The owner agreed to come in with a full Site Plan. He noted that N95s are available online and therefore are not an urgent necessity at this time. He noted the spaces that are vacant on the provided map diagram. He reiterated that this needs a full Site Plan for what it is zoned for; we are not going to start picking places within the facility to occupy. Mr. Halligan asked if this is Mr. Taberner's vision for the use of this parcel. Mr. Taberner stated if it is an allowed use by right or special permit, the applicant should go to the Planning Board. He said that light to medium manufacture is allowed by right in this zone. Planning Board members discussed the parking. Chair Padula stated the redevelopment as a whole should be considered for this site including parking; that is why the Planning Board is looking for a Site Plan. He does not believe the rezoning for this site was to do piecemeal. They have to understand what the Town is requiring and what the Town wants to see for development. Mr. Chris Peterson reviewed page 110 as shown in the meeting packet which reviews the end vision of what they are trying to do. He stated that the Pilates tenant never went in. Mr. Rick Kaplan, new owner of 5 Fisher Street, stated he came to the Planning Board about the Pilates tenant. He discussed the Contollo tenant issue and stated he was contacted by Contollo, Tom Mercer, and Jeff Roy. He was told by Gus Brown, Tom Mercer, and Jeff Roy that he had approval for Contollo to occupy. He then consulted Amy Love and Bryan Taberner and was told he did not need to go to the Planning Board. He is not trying to side step anyone. Mass Standard Materials is making unwoven materials; this is not a change of use. The building was used for manufacturing. Mr. Cannon stated the Building Commissioner stated there was no occupancy until they came before the Planning Board. He stated it is not possible to come before the Planning Board all at once as they do not know who the tenants will be. Chair Padula stated the applicant still has not addressed what buildings will remain, what will be torn down, where is the parking, what is the drainage. He stated that Town Council Chair Mercer and Representative Jeff Roy have no right to tell people that they can occupy a building; they do not do the Planning Board's job. Mr. Cannon stated they know it was not the way to go about doing it; they are trying to do it the right way now. Discussion commenced that possibly after this occupancy the owner would not be allowed to come back again for another tenant without a full Site Plan. Mr. Kaplan discussed the parking constraints. Chair Padula stated the application for tonight is a Special Permit and Site Plan. Mr. Cannon stated it is only for a Site Plan. Mr. Halligan confirmed the applicant was only looking for an occupancy for 29 Hayward Street; he suggested the applicant not have any further occupancy until a legal document is signed and a full Site Plan is done. Chair Padula requested this be a stand-alone operation with Jersey barriers put up; if so, he would consider this a Limited Site Plan Modification to the 2003 approved Site Plan. Mr. Cannon said he would check with the Fire Department for a letter. Chair Padula stated this application would be advertised as a Limited Site Plan Modification for 29 Hayward Street. Mr. Halligan requested a legal document from the attorney agreeing to no further occupancy until a full Site Plan is provided.

Motion to Continue 5 Fisher and 29 Hayward Streets, Special Permit & Site Plan Modification, to September 17, 2020. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

7:15 PM **PUBLIC HEARING** – *Continued*

Maple Hill

Definitive Subdivision

Documents presented to the Planning Board are on file.

Chair Padula stated this meeting is for a discussion on traffic. He read aloud a letter from the Department of Planning and Community Development to the Franklin Planning Board dated August 6, 2020, which included six waiver requests.

Mr. Taberner reviewed DPCD Comments: 1. Applicant has submitted a phase development plan. The Planning Board should determine if they will allow the road way to be constructed in phases; 2. As per §300-13.E. Shade Trees - The applicant shall submit a shade tree and landscape plan to the Planning Board. The applicant has not submitted this plan for review; and 3. Town Water shall require a By-Law Amendment from the Town Council. Each lot will have individual septic systems. He noted BETA provided a review letter dated August 4, 2020, and Bay Colony Group provided a summary letter dated July 31, 2020.

Mr. Maglio reiterated some of the traffic issues discussed in the past which were summarized in his letter dated August 5, 2020. He discussed some of the traffic calming measures that DPW recommends and the sight distance issue on Maple Street at Kimberlee Avenue. Mr. Crowley stated that they are generally satisfied with the methodology of the traffic report. The implementation of the traffic calming measures will be determined based on what the Town wants. He noted that at the initial public hearing there was discussion of a construction access off of Maple Street; he would like an update on that.

Citizens' Comments: ► Mr. Steve Dunbar, 30 Madison Avenue, expressed concern regarding the stopping sight distance on Maple Street approaching Kimberlee Avenue. He requested the Planning Board require the vertical curve reconstruction on Maple Street to address this. He explained there are two horizontal curves on Kimberlee Avenue that are less than what is required for a collector road, and he has not seen anything from Vanasse & Associates or BETA to address this. ► Mr. Maglio discussed the vertical curve reconstruction on Maple Street to improve sight distance. He explained the existing sharp turns on Kimberlee Avenue do not meet the collector road criteria. ► Ms. Maegan Schlitzer, 59 Bridle Path, addressed the request for a second sidewalk. ► Mr. Maglio discussed adding a second sidewalk. He said he discussed this with the DPW Director who would like to see one continuous sidewalk. ► Mr. John Cetrano, 64 Bridle Path, noted a wheelchair ramp on the plans and asked if a sidewalk will be put there. ► Mr. William Buckley of Bay Colony Group, Inc. stated the wheelchair ramp ends at the roadway, and there is no connection of the sidewalk to Bridle Path. ► Mr. Cetrano requested that the Planning Board require a sidewalk connecting the new roadway with the existing sidewalk. He requested the plan be updated to show all the changes the Planning Board and BETA have requested. ► Mr. Stephen Higgins, 4 Phaeton Lane, asked about traffic calming measures. He requested locations that have such traffic calming measures so the neighbors could view them. ► Mr. Maglio discussed the calming measures that DPW recommends. ► Chair Padula stated the Planning Board would review and determine the calming measures that would be required. ► Mr. Michael Doherty, 50 Bridle Path, stated everyone agrees there will be added traffic on Bridle Path, but there is disagreement on what to do about it. He requested the residents continue to be consulted before decisions are made on the traffic calming measures. ► Mr. Christopher Brady and Ms. Lisa Brady, 36 Kimberlee Avenue, asked who would maintain any island put on Bridle Path, requested the Planning Board not allow phasing of the project, and requested the staging area for trucks and materials be placed far into the property so all the existing neighborhoods do not have to have the trucks stored close by. ► Mr. Chris Campbell and Ms. Patty Campbell, 12 Kimberlee Avenue, expressed concerns about the construction traffic. He noted 27,000 cubic yards of material will be needed for the roadways. This would generate about 2,000 truckloads of material meaning 4,000 truck trips of truck traffic. ► Mr. Chris Peterson, 66 Bridle Path, expressed concern about the truck traffic. He stated that the current condition of Bridle Path road is deteriorating and cannot take any truck traffic. ► Mr. Lincoln Purdy, 54 Bridle Path stated he is against phasing the project. He wants to make

sure the access roads during construction are not open for the public. ► Chair Padula stated if it was phased and there was a temporary loop system, the Planning Board would probably require it to be blocked off until the developer got building permits for the lots. The base coat would have to be in and drainage would have to be operational. ► Ms. Maegan Schlitzer asked that if the DPW likes roads to be narrowed, why would they oppose a second sidewalk which would narrow the road. ► Mr. Maglio reiterated that it is just what DPW does. Their attitude is they do not want to have two sidewalks on the street, and they do not want to have to maintain it.

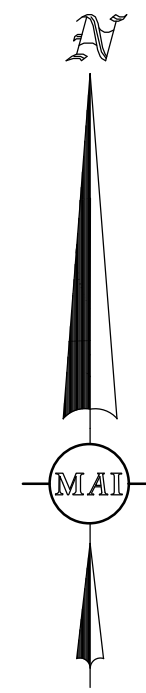
Mr. Buckley suggested Mr. Jeffrey Dirk from Vanasse & Associates meet with Mr. Maglio and BETA to come up with a more definitive concept of exactly what they would propose in the context of getting an approval. Chair Padula stated that the Planning Board is the deciding board, not the DPW Director. Mr. Dirk stated he would take that information and meet with Mr. Maglio and BETA to put together plans for the next meeting. Chair Padula stated there were many concerns including the vertical curve on Maple Street, existing curves on Kimberlee Avenue, truck traffic, phasing, and traffic calming measures.

Motion to Continue the public hearing for Maple Hill, Definitive Subdivision, to September 14, 2020. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No).

Motion to Adjourn the Remote Access Virtual Zoom Planning Board Meeting. Rondeau. Second: David. Vote: 5-0-0 (5-Yes; 0-No). Meeting adjourned at 10:00 PM.

Respectfully submitted,

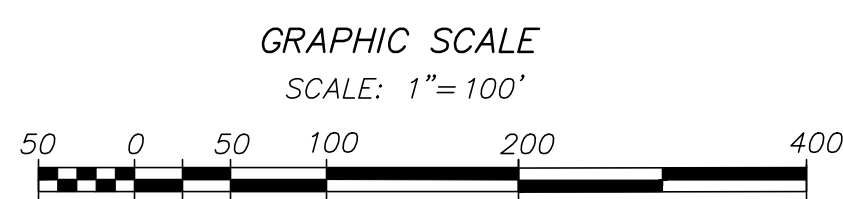
Judith Lizardi,
Recording Secretary



APPROVED BY PLANNING BOARD

DATE: _____

LOCUS CONTEXT MAP



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5/5/2020 7:50:26 AM

PERMIT SITE DEVELOPMENT PLANS

(TO ACCOMPANY A SITE PLAN REVIEW APPLICATION & ZONING APPROVAL APPLICATION)

164 GROVE STREET

(MAP: 306 LOT: 4)

LOCATED IN

FRANKLIN, MASSACHUSETTS

DATE: MAY 18, 2020

REVISED: AUGUST 20, 2020

OWNER/APPLICANT:

NLCP 164 GROVE STREET MA, LLC

C/O NEWLAKE CAPITAL

549 W. RANDOLPH, SUITE 200
CHICAGO, IL 60661

PREPARED BY:



500 CUMMINGS CENTER SUITE 5950
BEVERLY, MASSACHUSETTS 01915
TELEPHONE: (978) 299-0447

69 MILK STREET, SUITE 302
WESTBOROUGH, MASSACHUSETTS 01581
TELEPHONE: (508) 871-7030
WWW.MERIDIANASSOC.COM

DRAWING INDEX:

- C0.0 COVER SHEET**
- C1.0 RECORD CONDITIONS & DEMOLITION PLAN**
- C2.0 LAYOUT, GRADING & EROSION CONTROL PLAN**
- C3.0 UTILITY PLAN**
- C4.0 LANDSCAPING PLAN**
- C5.0 SITE DETAILS**
- C5.1 SITE DETAILS**
- C5.2 SITE DETAILS**

REFERENCE DRAWINGS:

- VM1.0 VEHICLE MOVEMENT PLAN**
- 1 of 1 SITE LIGHTING PLAN**

WAIVER REQUESTS:

A WAIVER IS BEING REQUESTED FROM (§300- 11.B.(2)(A)) TO ALLOW FOR HDPE STORM DRAIN PIPE IN LIEU OF CLASS V RCP.



500 CUMMINGS CENTER, SUITE 5950
BEVERLY, MASSACHUSETTS 01915
TELEPHONE: (978) 299-0447

69 MILK STREET, SUITE 302
WESTBOROUGH, MASSACHUSETTS 01581
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19 SOUTH LASALLE STREET
SUITE 300 CHICAGO, IL 60603
312/933.2701



NEW CONSTRUCTION OF
RETAIL CANNABIS
DISPENSARY

164 GROVE STREET
FRANKLIN, MA 02038

ISSUED FOR PERMITTING
ONLY NOT FOR
CONSTRUCTION

NO.	DESCRIPTION	DATE
1	PLANNING BOARD REVIEW COMMENTS	08/20/2020

DATE	05/08/2020
SCALE	AS INDICATED
DRAWN	NB
CHECKED	DK
PROJECT NO.	6120-2

SEAL



COVER SHEET

C0.0

UNOFFICIAL SOILS INFORMATION
DATE: OCTOBER 10, 2018
CONDUCTED BY: ANDREW RODRIGUEZ, SE (13890)

TEST PIT TP-1
ELEV.=252.0±
ASSUMED E.S.H.G.W. ELEV.=248.3±
0"-6" A HORIZON: SANDY LOAM
6"-13" B HORIZON: SANDY LOAM
13"-21" C LAYER: SAND AND GRAVEL, COBBLES
21"-32" C2 LAYER: FINE LOAMY SAND
32"-76" *C3 LAYER: COARSE SAND AND GRAVEL, COBBLES
REDOX @ 44"
WEeping @ 46"
STANDING @ 74"
* POCKETS OF SANDY LOAM

TEST PIT TP-2
ELEV.=254.6±
ASSUMED E.S.H.G.W. ELEV.=251.5±
0"-15" HTM: SANDY LOAM
15"-23" B HORIZON: SANDY LOAM
23"-74" *C LAYER: COARSE SAND AND GRAVEL, COBBLES
LIGHT REDOX @ 37"
WEeping @ 45"
STANDING @ 70"
* POCKETS OF SANDY LOAM

TEST PIT TP-3
ELEV.=257.6±
ASSUMED E.S.H.G.W. ELEV.=253.6±
0"-38" HTM: SANDY LOAM, BRICKS
38"-45" B HORIZON: SANDY LOAM
45"-68" *C LAYER: COARSE SAND AND GRAVEL, COBBLES
REDOX @ 48"
WEeping @ 56"
STANDING @ 65"
* POCKETS OF SANDY LOAM

TEST PIT TP-4
ELEV.=260.2±
ASSUMED E.S.H.G.W. ELEV.=254.2±
0"-39" HTM: SANDY LOAM
39"-43" Ab HORIZON: SANDY LOAM
43"-60" B HORIZON: LOAMY SAND
60"-71" *C LAYER: COARSE SAND AND GRAVEL, COBBLES
WEeping @ 48"
STANDING @ 69"
* POCKETS OF SANDY LOAM

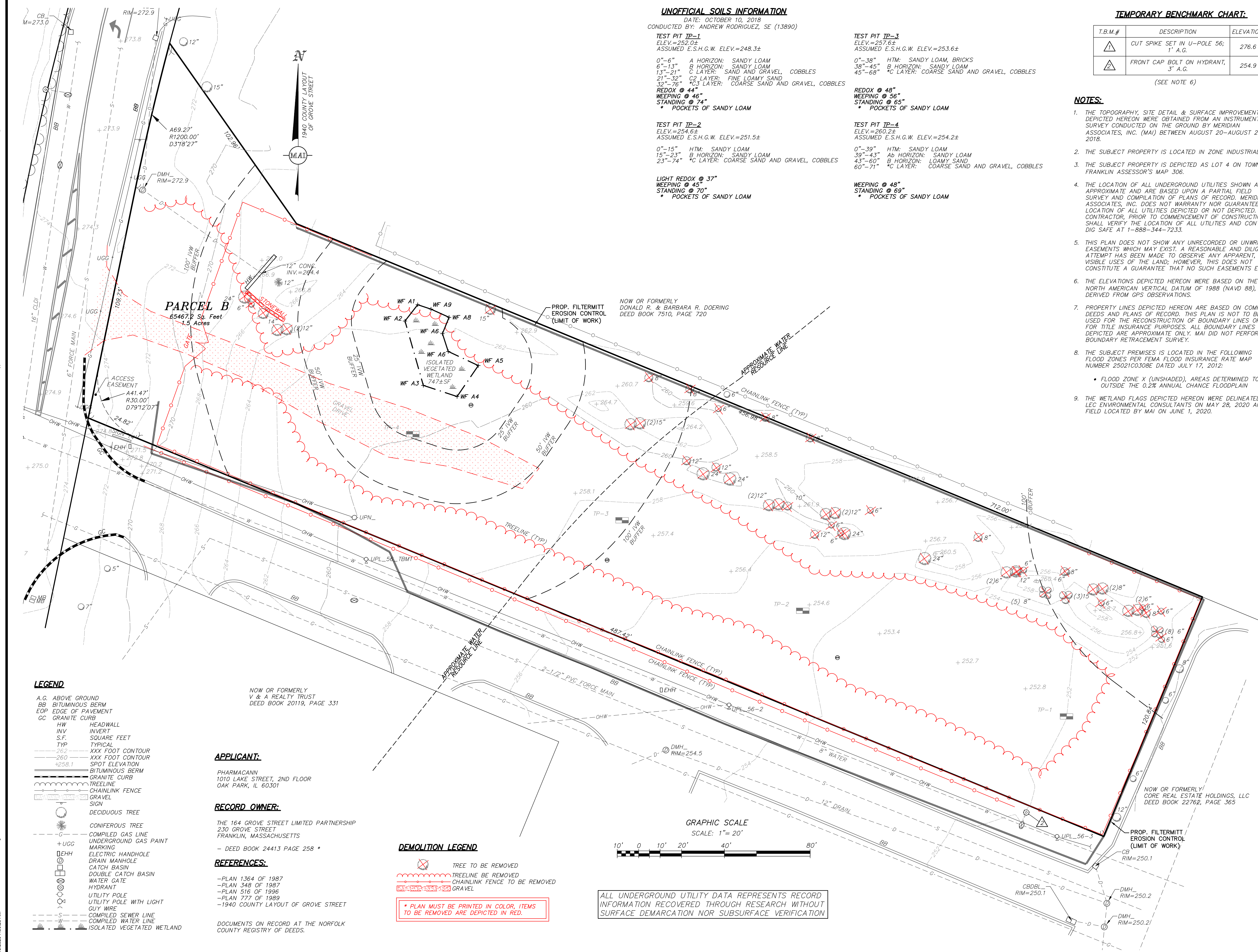
TEMPORARY BENCHMARK CHART:

T.B.M.#	DESCRIPTION	ELEVATION
△	CUT SPIKE SET IN U-POLE 56; 1' A.G.	276.6
△	FRONT CAP BOLT ON HYDRANT, 3' A.G.	254.9

(SEE NOTE 6)

NOTES:

1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM AN INSTRUMENT SURVEY CONDUCTED ON THE GROUND BY MERIDIAN ASSOCIATES, INC. (MAI) BETWEEN AUGUST 20-AUGUST 29, 2018.
2. THE SUBJECT PROPERTY IS LOCATED IN ZONE INDUSTRIAL.
3. THE SUBJECT PROPERTY IS DEPICTED AS LOT 4 ON TOWN OF FRANKLIN ASSESSOR'S MAP 306.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND COMPILATION OF PLANS OF RECORD. MERIDIAN ASSOCIATES, INC. DOES NOT WARRANT NOR GUARANTEE THE LOCATION OF ALL UTILITIES DEPICTED OR NOT DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 1-888-344-7233.
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. THE ELEVATIONS DEPICTED HEREON WERE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), AS DERIVED FROM GPS OBSERVATIONS.
7. PROPERTY LINES DEPICTED HEREON ARE BASED ON COMPILED DEEDS AND PLANS OF RECORD. THIS PLAN IS NOT TO BE USED FOR THE RECONSTRUCTION OF BOUNDARY LINES OR FOR TITLE INSURANCE PURPOSES. ALL BOUNDARY LINES DEPICTED ARE APPROXIMATE ONLY. MAI DID NOT PERFORM A BOUNDARY RETRACEMENT SURVEY.
8. THE SUBJECT PREMISES IS LOCATED IN THE FOLLOWING FLOOD ZONES PER FEMA FLOOD INSURANCE RATE MAP NUMBER 25021C0308E DATED JULY 17, 2012:
• FLOOD ZONE X (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN
9. THE WETLAND FLAGS DEPICTED HEREON WERE DELINEATED BY LEC ENVIRONMENTAL CONSULTANTS ON MAY 28, 2020 AND FIELD LOCATED BY MAI ON JUNE 1, 2020.



LEGEND

- A.G. ABOVE GROUND
- BB BITUMINOUS BERM
- EOP EDGE OF PAVEMENT
- GC GRANITE CURB
- HW HEADWALL
- INV INVERT
- S.F. SQUARE FEET
- TYP TYPICAL
- 262 XXX FOOT CONTOUR
- 260 XXX FOOT CONTOUR
- +258.1 SPOT ELEVATION
- BITUMINOUS BERM
- GRANITE CURB
- TREELINE
- CHAINLINK FENCE
- GRAVEL
- SIGN
- DECIDUOUS TREE
- CONIFEROUS TREE
- CG COMPILED GAS LINE
- UGG UNDERGROUND GAS PAINT MARKING
- EHH ELECTRIC HANDHOLE
- DMH DRAIN MANHOLE
- CB catch basin
- WG WATER GATE
- HYDRANT
- UP utility pole
- UPW utility pole with light
- GUY WIRE
- SC COMPILED SEWER LINE
- WC COMPILED WATER LINE
- ISOLATED VEGETATED WETLAND

APPLICANT:
PHARMACANN
1010 LAKE STREET, 2ND FLOOR
OAK PARK, IL 60301

RECORD OWNER:
THE 164 GROVE STREET LIMITED PARTNERSHIP
230 GROVE STREET
FRANKLIN, MASSACHUSETTS
- DEED BOOK 24413 PAGE 258 *

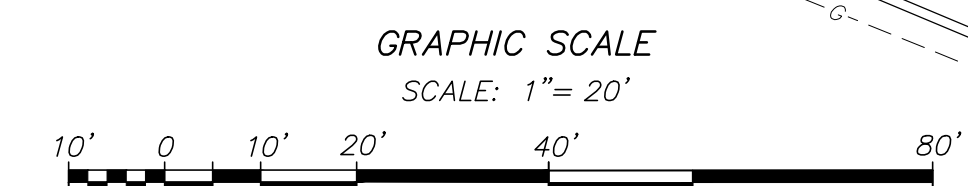
REFERENCES:
-PLAN 1364 OF 1987
-PLAN 348 OF 1987
-PLAN 516 OF 1996
-PLAN 777 OF 1989
-1940 COUNTY LAYOUT OF GROVE STREET

DOCUMENTS ON RECORD AT THE NORFOLK COUNTY REGISTRY OF DEEDS.

DEMOLITION LEGEND

- Tree to be removed
- Treeline to be removed
- Chainlink fence to be removed
- Gravel

* PLAN MUST BE PRINTED IN COLOR, ITEMS TO BE REMOVED ARE DEPICTED IN RED.



ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARCATION NOR SUBSURFACE VERIFICATION

MERIDIAN ASSOCIATES
500 CUMMINGS CENTER, SUITE 5950
BEVERLY, MASSACHUSETTS 01915
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INTERFORM ARCHITECTURE + DESIGN
19 SOUTH LASALLE STREET
SUITE 300 CHICAGO, IL 60603
312/933.2701

NEW CONSTRUCTION OF RETAIL CANNABIS DISPENSARY

164 GROVE STREET
FRANKLIN, MA 02038

ISSUED FOR PERMITTING ONLY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	PLANNING BOARD REVIEW COMMENTS	08/20/2020

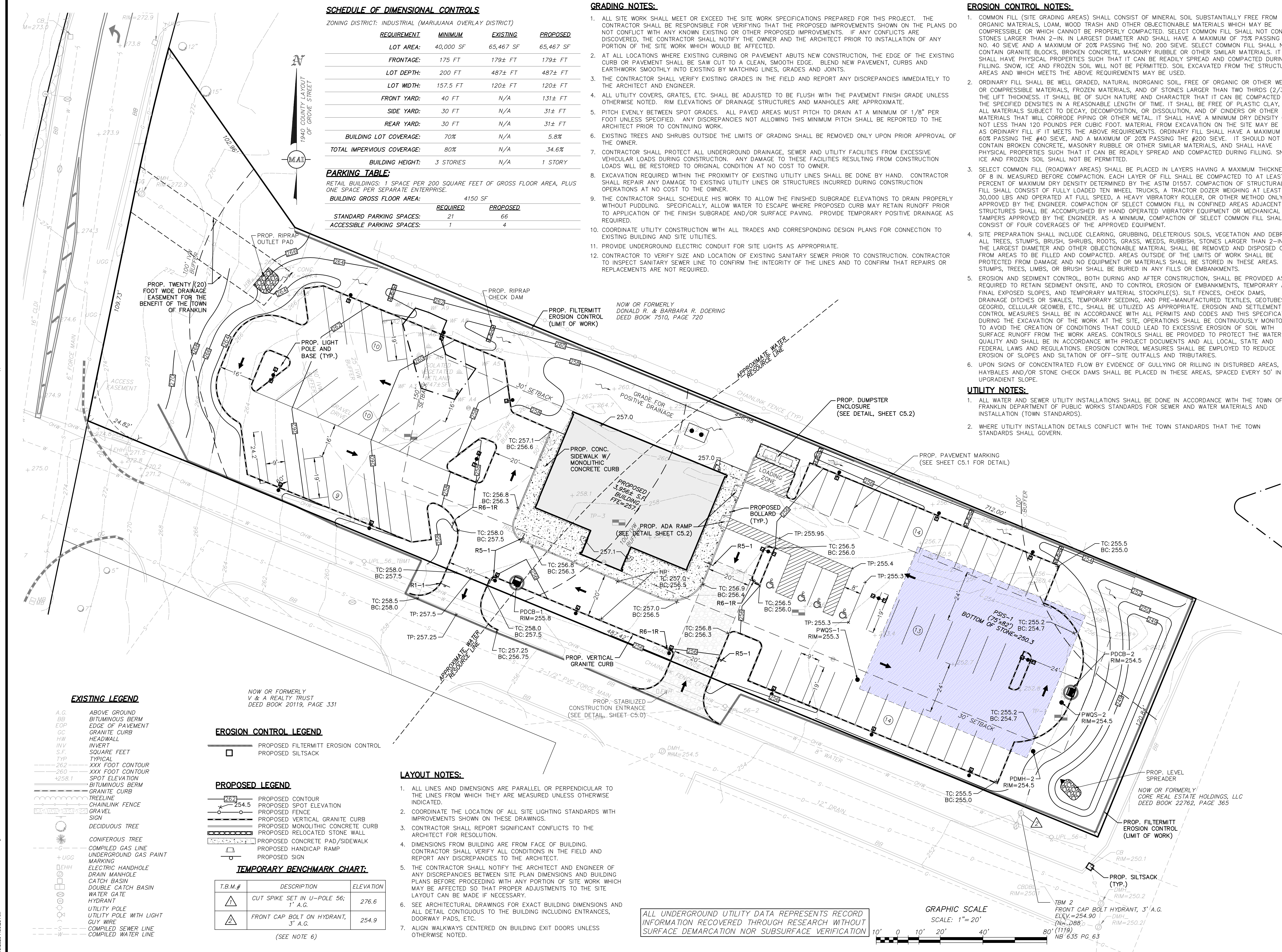
DATE: 05/08/2020
SCALE: AS INDICATED
DRAWN: NB
CHECKED: DK
PROJECT NO.: 6120-2

08/20/2020

RECORD CONDITIONS & DEMOLITION PLAN

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5/6/2020 7:50:26 AM



SCHEDULE OF DIMENSIONAL CONTROLS
ZONING DISTRICT: INDUSTRIAL (MARIJUANA OVERLAY DISTRICT)

REQUIREMENT	MINIMUM	EXISTING	PROPOSED
LOT AREA:	40,000 SF	65,467 SF	65,467 SF
FRONTAGE:	175 FT	179± FT	179± FT
LOT DEPTH:	200 FT	487± FT	487± FT
LOT WIDTH:	157.5 FT	120± FT	120± FT
FRONT YARD:	40 FT	N/A	131± FT
SIDE YARD:	30 FT	N/A	31± FT
REAR YARD:	30 FT	N/A	31± FT
BUILDING LOT COVERAGE:	70%	N/A	5.8%
TOTAL IMPERVIOUS COVERAGE:	80%	N/A	34.6%
BUILDING HEIGHT:	3 STORIES	N/A	1 STORY

PARKING TABLE:
RETAIL BUILDINGS: 1 SPACE PER 200 SQUARE FEET OF GROSS FLOOR AREA, PLUS ONE SPACE PER SEPARATE ENTERPRISE.
BUILDING GROSS FLOOR AREA: 4150 SF

STANDARD PARKING SPACES:	REQUIRED	PROPOSED
STANDARD PARKING SPACES:	21	66
ACCESSIBLE PARKING SPACES:	1	4

- GRADING NOTES:**
- ALL SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ARCHITECT PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.
 - AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES AND JOINTS.
 - THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT AND ENGINEER.
 - ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED. RIM ELEVATIONS OF DRAINAGE STRUCTURES AND MANHOLES ARE APPROXIMATE.
 - PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/8" PER FOOT UNLESS SPECIFIED. ANY DISCREPANCIES NOT ALLOWING THIS MINIMUM PITCH SHALL BE REPORTED TO THE ARCHITECT PRIOR TO CONTINUING WORK.
 - EXISTING TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON PRIOR APPROVAL OF THE OWNER.
 - CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION AT NO COST TO OWNER.
 - EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
 - THE CONTRACTOR SHALL SCHEDULE HIS WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING. PROVIDE TEMPORARY POSITIVE DRAINAGE AS REQUIRED.
 - COORDINATE UTILITY CONSTRUCTION WITH ALL TRADES AND CORRESPONDING DESIGN PLANS FOR CONNECTION TO EXISTING BUILDING AND SITE UTILITIES.
 - PROVIDE UNDERGROUND ELECTRIC CONDUIT FOR SITE LIGHTS AS APPROPRIATE.
 - CONTRACTOR TO VERIFY SIZE AND LOCATION OF EXISTING SANITARY SEWER PRIOR TO CONSTRUCTION. CONTRACTOR TO INSPECT SANITARY SEWER LINE TO CONFIRM THE INTEGRITY OF THE LINES AND TO CONFIRM THAT REPAIRS OR REPLACEMENTS ARE NOT REQUIRED.

- EROSION CONTROL NOTES:**
- COMMON FILL (SITE GRADING AREAS) SHALL CONSIST OF MINERAL SOIL SUBSTANTIALLY FREE FROM ORGANIC MATERIALS, LOAM, WOOD TRASH AND OTHER OBJECTIONABLE MATERIALS WHICH MAY BE COMPRESSIBLE OR WHICH CANNOT BE PROPERLY COMPACTED. SELECT COMMON FILL SHALL NOT CONTAIN STONES LARGER THAN 2-IN. IN LARGEST DIAMETER AND SHALL HAVE A MAXIMUM OF 75% PASSING THE NO. 40 SIEVE AND A MAXIMUM OF 20% PASSING THE NO. 200 SIEVE. SELECT COMMON FILL SHALL NOT CONTAIN GRANITE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE AND FROZEN SOIL WILL NOT BE PERMITTED. SOIL EXCAVATED FROM THE STRUCTURE AREAS AND WHICH MEETS THE ABOVE REQUIREMENTS MAY BE USED.
 - ORDINARY FILL SHALL BE WELL GRADED, NATURAL INORGANIC SOIL, FREE OF ORGANIC OR OTHER WEAK OR COMPRESSIBLE MATERIALS, FROZEN MATERIALS, AND OF STONES LARGER THAN TWO THIRDS (2/3) THE LIFT THICKNESS. IT SHALL BE OF SUCH NATURE AND CHARACTER THAT IT CAN BE COMPACTED TO THE SPECIFIED DENSITIES IN A REASONABLE LENGTH OF TIME. IT SHALL BE FREE OF PLASTIC CLAY, OF ALL MATERIALS SUBJECT TO DECAY, DECOMPOSITION, OR DISSOLUTION, AND OF CINDERS OR OTHER MATERIALS THAT WILL CORRODE PIPING OR OTHER METAL. IT SHALL HAVE A MINIMUM DRY DENSITY OF NOT LESS THAN 120 POUNDS PER CUBIC FOOT. MATERIAL FROM EXCAVATION ON THE SITE MAY BE USED AS ORDINARY FILL IF IT MEETS THE ABOVE REQUIREMENTS. ORDINARY FILL SHALL HAVE A MAXIMUM OF 60% PASSING THE #40 SIEVE, AND A MAXIMUM OF 20% PASSING THE #200 SIEVE. IT SHOULD NOT CONTAIN BROKEN CONCRETE, MASONRY RUBBLE OR OTHER SIMILAR MATERIALS, AND SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE AND FROZEN SOIL SHALL NOT BE PERMITTED.
 - SELECT COMMON FILL (ROADWAY AREAS) SHALL BE PLACED IN LAYERS HAVING A MAXIMUM THICKNESS OF 8 IN. MEASURED BEFORE COMPACTION. EACH LAYER OF FILL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY DETERMINED BY THE ASTM D1557. COMPACTION OF STRUCTURAL FILL SHALL CONSIST OF FULLY LOADED TEN WHEEL TRUCKS, A TRACTOR DOZER WEIGHING AT LEAST 30,000 LBS AND OPERATED AT FULL SPEED, A HEAVY VIBRATORY ROLLER, OR OTHER METHOD ONLY AS APPROVED BY THE ENGINEER. COMPACTION OF SELECT COMMON FILL IN CONFINED AREAS ADJACENT TO STRUCTURES SHALL BE ACCOMPLISHED BY HAND OPERATED VIBRATORY EQUIPMENT OR MECHANICAL TAMPERS APPROVED BY THE ENGINEER. AS A MINIMUM, COMPACTION OF SELECT COMMON FILL SHALL CONSIST OF FOUR COVERAGES OF THE APPROVED EQUIPMENT.
 - SITE PREPARATION SHALL INCLUDE CLEARING, GRUBBING, DELETERIOUS SOILS, VEGETATION AND DEBRIS. ALL TREES, STUMPS, BRUSH, SHRUBS, ROOTS, GRASS, WEEDS, RUBBISH, STONES LARGER THAN 2-IN. IN THE LARGEST DIAMETER AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF FROM AREAS TO BE FILLED AND COMPACTED. AREAS OUTSIDE OF THE LIMITS OF WORK SHALL BE PROTECTED FROM DAMAGE AND NO EQUIPMENT OR MATERIALS SHALL BE STORED IN THESE AREAS. NO STUMPS, TREES, LIMBS, OR BRUSH SHALL BE BURIED IN ANY FILLS OR EMBANKMENTS.
 - EROSION AND SEDIMENT CONTROL, BOTH DURING AND AFTER CONSTRUCTION, SHALL BE PROVIDED AS REQUIRED TO RETAIN SEDIMENT ON-SITE, AND TO CONTROL EROSION OF EMBANKMENTS, TEMPORARY AND FINAL EXPOSED SLOPES AND TEMPORARY MATERIAL STOCKPILES(S). SILT FENCES, CHECK DAMS, ONLY AS APPROVED BY THE ENGINEER. EROSION CONTROL MEASURES SHALL BE EMPLOYED TO REDUCE EROSION OF SLOPES AND SILTATION OF OFF-SITE OUTFALLS AND TRIBUTARIES.
 - UPON SIGNS OF CONCENTRATED FLOW BY EVIDENCE OF GULLYING OR RILLING IN DISTURBED AREAS, HAYBALES AND/OR STONE CHECK DAMS SHALL BE PLACED IN THESE AREAS, SPACED EVERY 50' IN THE UPGRADE DIRECTION.

- UTILITY NOTES:**
- ALL WATER AND SEWER UTILITY INSTALLATIONS SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF FRANKLIN DEPARTMENT OF PUBLIC WORKS STANDARDS FOR SEWER AND WATER MATERIALS AND INSTALLATION (TOWN STANDARDS).
 - WHERE UTILITY INSTALLATION DETAILS CONFLICT WITH THE TOWN STANDARDS THAT THE TOWN STANDARDS SHALL GOVERN.

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PHARMACANN

NEW CONSTRUCTION OF RETAIL CANNABIS DISPENSARY
164 GROVE STREET
FRANKLIN, MA 02038

ISSUED FOR PERMITTING ONLY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	PLANNING BOARD REVIEW COMMENTS	08/20/2020

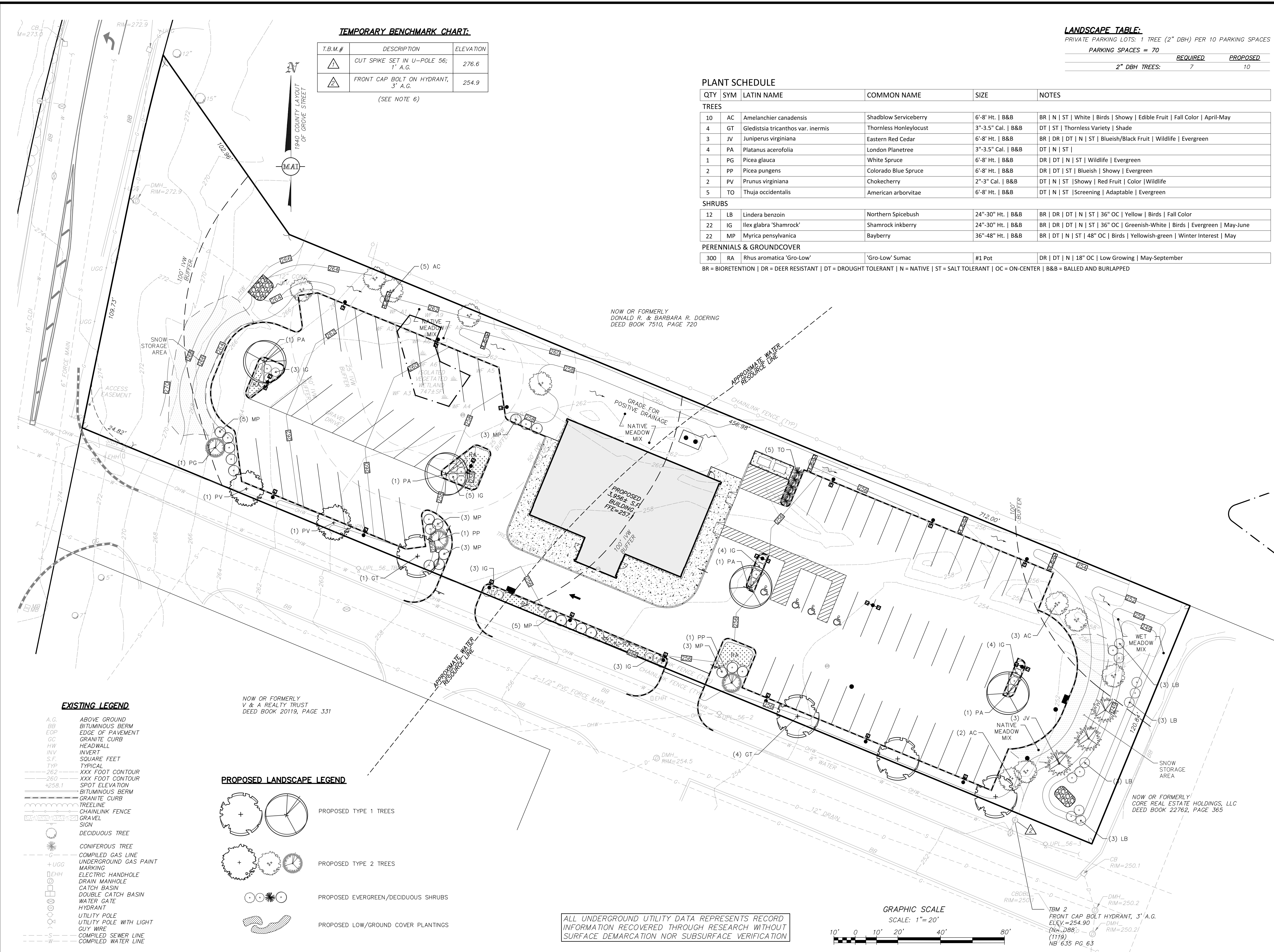
DATE	05/08/2020
SCALE	AS INDICATED
DRAWN	NB
CHECKED	DK
PROJECT NO.	6120-2

SEAL
DAVID S. KELLEY
CIVIL
NO. 4839
08/20/2020

LAYOUT, GRADING & EROSION CONTROL PLAN

C2.0

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TEMPORARY BENCHMARK CHART:

T.B.M.#	DESCRIPTION	ELEVATION
1	CUT SPIKE SET IN U-POLE 56; 1' A.G.	276.6
2	FRONT CAP BOLT ON HYDRANT, 3' A.G.	254.9

(SEE NOTE 6)

LANDSCAPE TABLE:

PRIVATE PARKING LOTS: 1 TREE (2" DBH) PER 10 PARKING SPACES

PARKING SPACES = 70

	REQUIRED	PROPOSED
2" DBH TREES:	7	10

PLANT SCHEDULE

QTY	SYM	LATIN NAME	COMMON NAME	SIZE	NOTES
TREES					
10	AC	Amelanchier canadensis	Shadblow Serviceberry	6'-8" Ht. B&B	BR N ST White Birds Showy Edible Fruit Fall Color April-May
4	GT	Gleditsia tricanthos var. inermis	Thornless Honeylocust	3"-3.5" Cal. B&B	DT ST Thornless Variety Shade
3	JV	Juniperus virginiana	Eastern Red Cedar	6'-8" Ht. B&B	BR DR DT N ST Blueish/Black Fruit Wildlife Evergreen
4	PA	Platanus acerifolia	London Planetree	3"-3.5" Cal. B&B	DT N ST
1	PG	Picea glauca	White Spruce	6'-8" Ht. B&B	DR DT N ST Wildlife Evergreen
2	PP	Picea pungens	Colorado Blue Spruce	6'-8" Ht. B&B	DR DT ST Blueish Showy Evergreen
2	PV	Prunus virginiana	Chokecherry	2"-3" Cal. B&B	DT N ST Showy Red Fruit Color Wildlife
5	TO	Thuja occidentalis	American arborvitae	6'-8" Ht. B&B	DT N ST Screening Adaptable Evergreen
SHRUBS					
12	LB	Lindera benzoin	Northern Spicebush	24"-30" Ht. B&B	BR DR DT N ST 36" OC Yellow Birds Fall Color
22	IG	Ilex glabra 'Shamrock'	Shamrock inkberry	24"-30" Ht. B&B	BR DR DT N ST 36" OC Greenish-White Birds Evergreen May-June
22	MP	Myrica pensylvanica	Bayberry	36"-48" Ht. B&B	BR DT N ST 48" OC Birds Yellowish-green Winter Interest May
PERENNIALS & GROUND COVER					
300	RA	Rhus aromatica 'Gro-Low'	'Gro-Low' Sumac	#1 Pot	DR DT N 18" OC Low Growing May-September

BR = BIORETENTION | DR = DEER RESISTANT | DT = DROUGHT TOLERANT | N = NATIVE | ST = SALT TOLERANT | OC = ON-CENTER | B&B = BALLED AND BURLAPPED

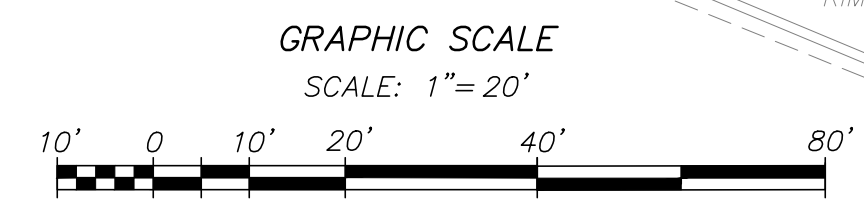
EXISTING LEGEND

- A.G. ABOVE GROUND
- BB BITUMINOUS BERM
- EOP EDGE OF PAVEMENT
- GC GRANITE CURB
- HW HEADWALL
- INV INVERT
- S.F. SQUARE FEET
- TYP TYPICAL
- 262 XXX FOOT CONTOUR
- 260 XXX FOOT CONTOUR
- +258.1 SPOT ELEVATION
- BITUMINOUS BERM
- GRANITE CURB
- TREELINE
- CHAINLINK FENCE
- GRAVEL
- DECIDUOUS TREE
- CONIFEROUS TREE
- CG COMPILED GAS LINE
- UGG UNDERGROUND GAS PAINT MARKING
- EHH ELECTRIC HANDHOLE
- DMH DRAIN MANHOLE
- CB CATCH BASIN
- DB CATCH BASIN
- WG WATER GATE
- HYDRANT
- UP UTILITY POLE
- UL UTILITY POLE WITH LIGHT
- WUY WUY WIRE
- CS COMPILED SEWER LINE
- WCW COMPILED WATER LINE

PROPOSED LANDSCAPE LEGEND

- PROPOSED TYPE 1 TREES
- PROPOSED TYPE 2 TREES
- PROPOSED EVERGREEN/DECIDUOUS SHRUBS
- PROPOSED LOW/GROUND COVER PLANTINGS

ALL UNDERGROUND UTILITY DATA REPRESENTS RECORD INFORMATION RECOVERED THROUGH RESEARCH WITHOUT SURFACE DEMARICATION NOR SUBSURFACE VERIFICATION



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DATE 05/08/2020
 SCALE AS INDICATED
 DRAWN NB
 CHECKED DK
 PROJECT NO. 6120-2

SEAL



LANDSCAPE PLAN

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WIRELESS CONTROL APP

SCL2 Series

SOLAR LED INTEGRATED COMMERCIAL AREA LIGHT

Project: _____

Type: _____ Quantity: _____

The SCL2 Series solar LED luminaire is a great fit for commercial, parking lot, recreational bikeway/pathway and public space lighting applications. The self-contained, unobtrusive design integrates its solar power, adaptive control and LED technologies into a compact and efficient form. With robust construction and unequalled performance, the SCL2 series is an excellent fit wherever cost effective, full cutoff lighting is required.

Using solar power and LEDs, the SCL2 series is completely self-contained and offers significant benefits:

- Cost effective design ships fully assembled and installs in minutes
- Smart Connect provides wireless control & communication with your light
- Low installation cost and minimal site impact with no trenching, cabling or wiring
- Minimal ongoing costs with no electrical bills or bulbs to change
- Operates entirely independent from the grid and is immune to power outages
- A sustainable choice without recurring carbon emissions

All of our solar powered lights are enabled by our innovative Solar Lighting Controller (SLC). The SLC in each light is "self-learning" and allows the lights to predictively adapt to their surroundings, providing a level of lighting performance and reliability unavailable in other solar lighting products.

TECHNICAL SPECIFICATIONS

- Solar Module:**
- High-efficiency monocrystalline cells
 - Inconspicuously integrated into the top of luminaire
 - Used for day/night detection (no photocell required)
- Solar Lighting Controller (SLC):**
- Microcontroller-based technology
 - High-efficiency, Maximum Power Point Tracking (MPPT) battery charger
 - Built-in high-efficiency LED driver
 - Multiyear data logging
 - Automatically manages lighting performance based on environmental conditions and lighting requirements
 - Integrated into luminaire housing
- Battery:**
- High performance lithium (LiFePO₄)
 - Exceptional 8 - 10 year lifecycle
 - High temperature tolerance
 - Contained within luminaire housing
 - Designed for easy battery changes when required

- LEDs and Optics:**
- 100,000 hour L70 lifetime LED
 - Warm (3000K) and neutral (4000K) white color temperatures available
 - High-efficiency type 2, 3, 4 and 5, full cutoff optics
 - Typical lumen output from 2696 to 2930 lumens
- Mechanical Construction:**
- Extruded and formed, low copper aluminum enclosure and mounting arm
 - Stainless fasteners with security fastener option
 - Architectural grade, super durable, TGIC powder coat
 - Four standard colors with custom colors available
- Factory Set Lighting Profiles:**
- 11 standard duration profiles available
 - Real-time lighting profile options available
 - See lighting profile sheet for all options
 - Lighting profiles and motion sensing options are field configurable with app
 - Motion sensing capabilities optimize performance based on usage
- Wireless Controls:**
- Easy-to-use interface via iOS smartphone app
 - Configure and control lighting profiles
 - Adjust dusk and dawn thresholds
 - Motion sensing capabilities optimize performance based on usage

First Light Technologies Ltd. | www.firstlighttechnologies.com | info@firstlighttechnologies.com | 1.844.279.8754

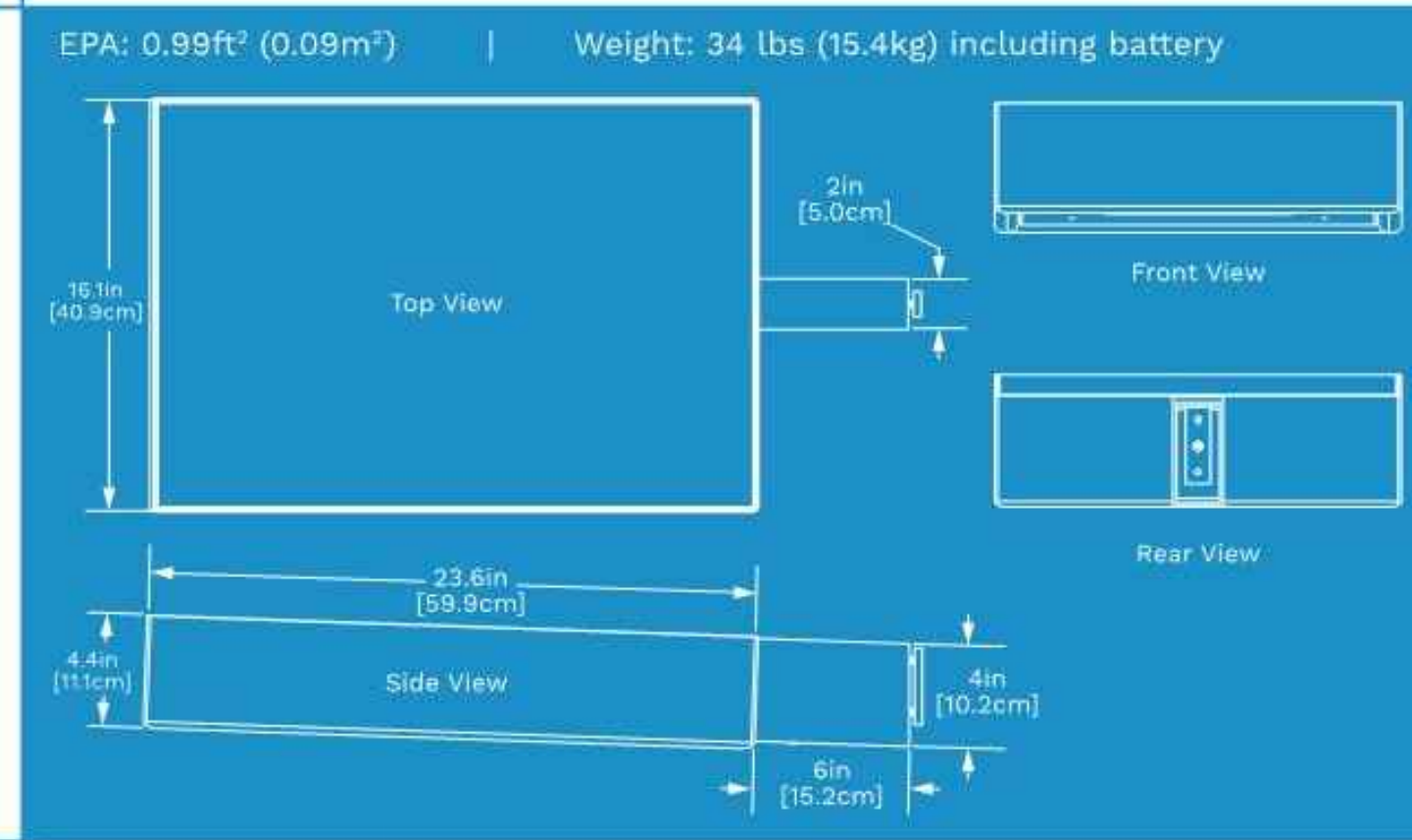
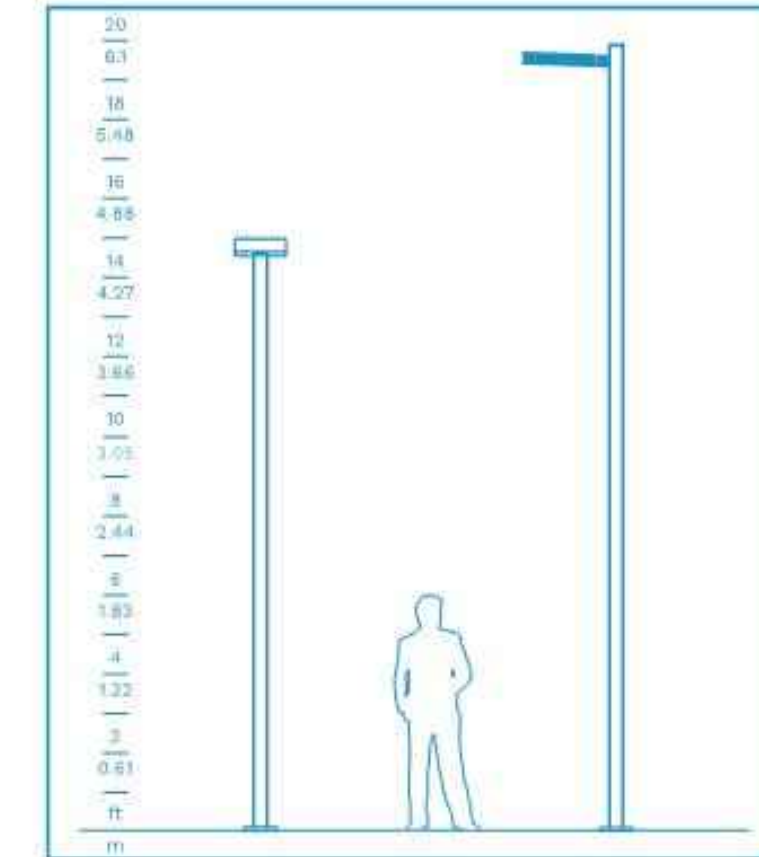
SCL2: 70-0038 10 January 2020

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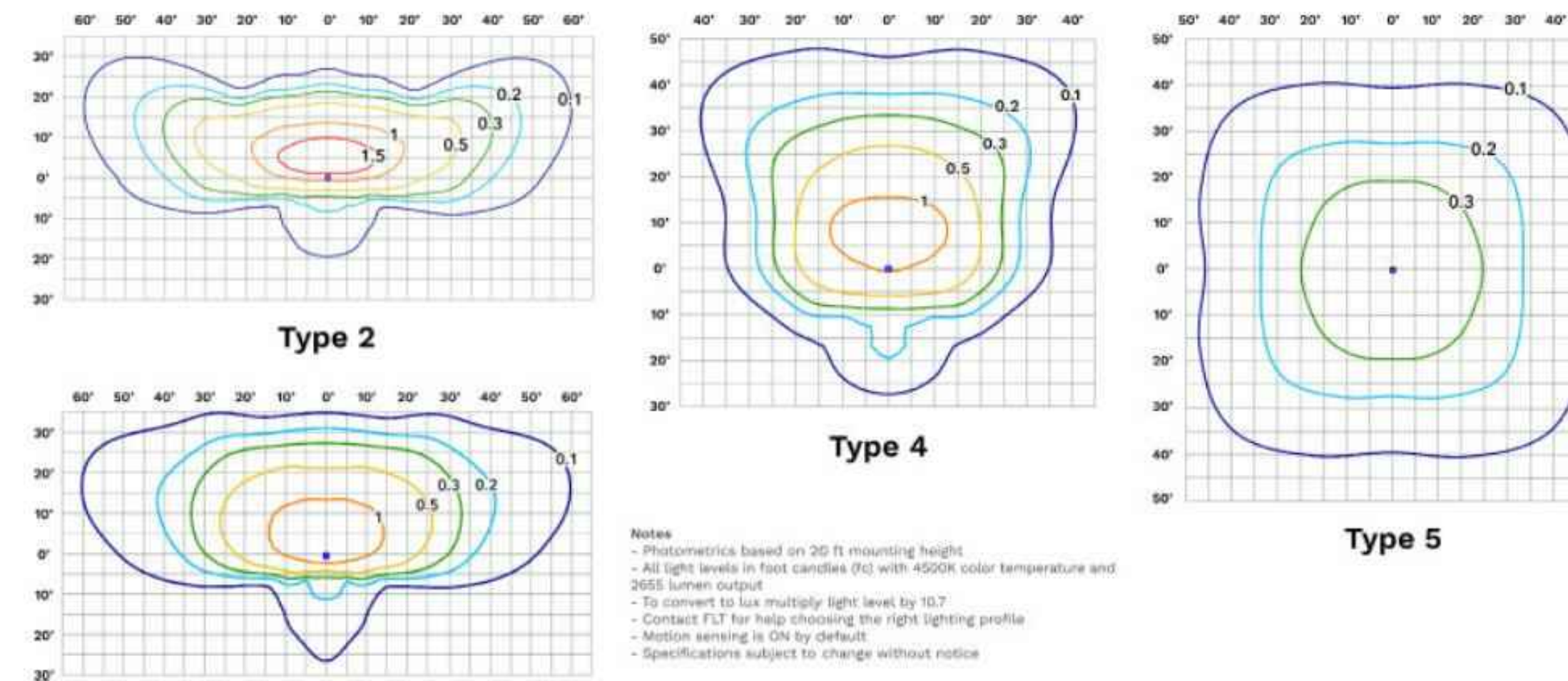


SCL2 Series

SOLAR LED INTEGRATED COMMERCIAL AREA LIGHT



PHOTOMETRICS (IES files available on our website)



ORDER MATRIX

Series	Mounting	Finish	Distribution	LED Color	Lighting Profiles (See Profile Sheet)	Options
SCL2	SPMS - Side Pole Mount Square	BK - Black	T2 - Type 2	WW - 3000K	D0 - Dusk till dawn	SEC - Security Fasteners MSO - Motion Sensor Off
	SPMR - Side Pole Mount Round	BZ - Bronze	T3 - Type 3	NW - 4000K	D9 - On at dusk, 100% for 3 hours, dim to 30%, brighten to 100% one hour before dawn, off at dawn (DEFAULT)	
	NMNT - No Mount	SV - Silver	T4 - Type 4			
		WH - White	T5 - Type 5			
		CC - Custom				
					TX0000 - On at dusk until time between 1800 & 0600. X = 0 (Off) or D (Dim). 0000 = time to dim or turn off.	

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SCL2: 70-0038 10 January 2020

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NEW CONSTRUCTION OF
 RETAIL CANNABIS
 DISPENSARY

164 GROVE STREET
 FRANKLIN, MA 02038

ISSUED FOR PERMITTING
 ONLY NOT FOR
 CONSTRUCTION

1 PLANNING BOARD REVIEW COMMENTS 08/20/2020

NO. DESCRIPTION DATE

DATE 05/08/2020

SCALE AS INDICATED

DRAWN NB

CHECKED DK

PROJECT NO. 6120-2

SEAL



SITE DETAILS

C5.2

Schedule

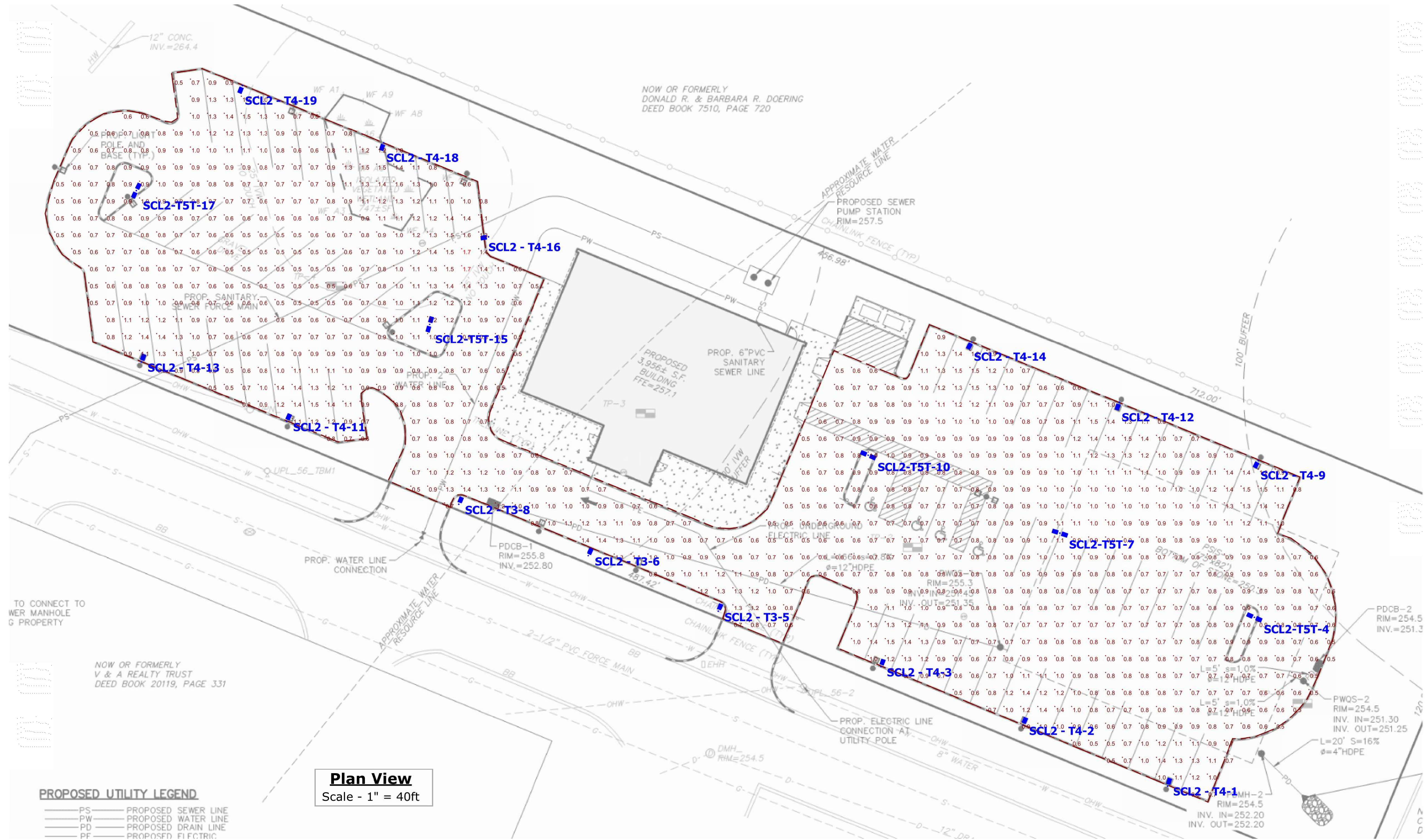
Symbol	Label	Quantity	Manufacturer	Light Loss Factor	Lumens Per Lamp	Wattage
	SCL2 - T4	11	First Light Technologies	0.9	2175	0
	SCL2 - T3	3	First Light Technologies	0.9	2150	0
	SCL2-T5T	5	First Light Technologies	0.9	2325	0

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking Lot	+	0.9 fc	1.7 fc	0.5 fc	3.4:1	1.8:1

Note

1. Mounting Height = 20 ft
2. Calculation zone = Ground
3. Grid Spacing = 6ft
4. Pole Spacing = As Shown
5. Profile = TD2100
6. LED Color Temp = 4000K



Pharmacann Dispensary
SCL2 Series Lights
First Light Technologies Ltd.

Designer	I Gillies
Date	2020-08-20
Scale	Not to Scale
Drawing No.	PD082020
Approved by	

September 3, 2020

Mr. Anthony Padula, Chairman
Franklin Planning Board
355 East Central Street
Franklin, MA 02038

**Re: 164 Grove Street
Site Plan Peer Review Update**

Dear Mr. Padula:

BETA Group, Inc. has reviewed revised documents for the proposed Site Plan Approval application, "**Permit Site Development Plans - 164 Grove Street, Franklin, Massachusetts.**" This letter is provided to update findings, comments, and recommendations.

BASIS OF REVIEW

BETA received the following items:

- **Site Plan & Special Permit Application**, including the following:
 - *Cover Letter*
 - *Application for Approval of a Site Plan and Special Permits*
 - *Exhibit 5: Special Permit Findings*
 - *Form P*
 - *Certificate of Ownership*
 - *Filing Fees*
- Plans (10 Sheets) entitled **Permit Site Development Plans** dated May 5, 2020, revised August 20, 2020 and prepared by Meridian Associates of Beverly, MA.
- **Stormwater Analysis and Calculations**, dated May 8, 2020, revised August 20, 2020, and prepared by Meridian Associates of Beverly, MA.

Review by BETA will include the above items along with the following, as applicable:

- Site Visit
- **Zoning Chapter 185 From the Code of the Town of Franklin**, current through October 2019
- **Zoning Map of the Town of Franklin, Massachusetts**, attested to April 30, 2019
- **Stormwater Management Chapter 153 From the Code of the Town of Franklin**, Adopted May 2, 2007
- **Subdivision Regulations Chapter 300 From the Code of the Town of Franklin**, current through January 1, 2016
- **Wetlands Protection Chapter 181 From the Code of the Town of Franklin**, dated August 20, 1997
- **Town of Franklin Best Development Practices Guidebook**, dated September 2016

INTRODUCTION

The project site consists of 164 Grove Street, a vacant lot developed with a small cleared area and gravel driveway (the "Site"). The parcel contains an area of 1.5 Acres and is located along the eastern side of Grove Street. The Town of Franklin Assessor's Office identifies the parcel as Map 306 Lot 4. The Site and all surrounding properties are located within the Industrial Zoning District.

The existing Site includes a gravel driveway connecting to Grove Street which extends into the center of the Site. This central area is an undeveloped area surrounded by small trees. A bar gate located along the driveway restricts access into the Site. A chain link fence connects to this gate and surrounds the perimeter of the Site. Topography at the Site is generally sloped towards the east, and grades are typically 4% or flatter with the exception of several steeper areas (10% +/-) on the western side of the Site.

The Applicant proposes to remove the existing fence, driveway, and vegetation and construct a new 4,150 sq. ft. Non-Medical Marijuana Retail Establishment. Associated site developments will include two new paved parking lots, two driveway aprons connecting to the existing driveway to the south, grading, utilities (water, sewer, underground electric), lighting, and landscaping. Stormwater management is proposed through deep sump catch basins, water quality units, and a subsurface infiltration system.

A portion of the project is located within an approved wellhead protection area (Zone II) and therefore the Water Resource District. No wetland resource areas are depicted within the project limits; however, the northeastern portion of the site is shown to be within the 100-foot buffer zone. The project is not located within a FEMA mapped 100-year flood zone or a NHESP mapped estimated habitat area of rare or endangered species. NRCS maps primarily indicate the presence of Sudbury fine sandy loam, rated in hydrologic soil group (HSG) B, at the site. A small area of Merrimac fine sandy loam (HSG A) is depicted along the west side of the site near Grove Street.

FINDINGS, COMMENTS AND RECOMMENDATIONS

GENERAL COMMENTS

- G1. Provide detail for proposed dumpster pad and enclosure (with screening). *MAI: A detail for the dumpster pad and enclosure has been added to the plan set, see Sheet C 5.1. BETA2: Details provided. BETA recommends that slats are provided for the chain link option, which is typically required by the Board.*
- G2. Confirm access rights and utility easements are being acquired from the adjacent property to the south. *MAI: Yes. We are in active discussions and negotiations with owner representative for Core Real Estate Holdings of 166 Grove Street as to mutually acceptable business terms and conditions to acquire the access rights and utility easements for the 164 Grove Street Project including the ability to address any improvements required to the access way by the Planning Board in connection with its review and consideration of the Special Permit for Shared Common Driveway. Attached are copies of the Deed into Core Real Estate Holdings as well as the existing Easement Agreement and plan between the owners of 166 Grove Street and 168 Grove Street concerning similar access and utility easements. BETA2: Information provided. BETA defers to the preference of the Board to require rights/easements as a condition of approval.*
- G3. Clarify the disposition of the existing fences and gate surrounding the property. *MAI: The existing fence around the perimeter of the site, that is located within the property lines, is to be removed.*

Refer to Sheet C 1.0. BETA2: Clarification provided. It is anticipated that any fence removal outside of the property line will be coordinate with the ongoing access and easement negotiations – issue resolved.

- G4. Recommend revising snow storage areas to maintain clear flow path within swale along the northerly property line. Consider providing additional snow storage along the southerly curb line. *MAI: The snow storage locations have been adjusted accordingly, refer to Sheet C 4.0. BETA2: Snow storage area revised – issue resolved.*
- G5. Provide a note to indicate that tree species shall be from the Town of Franklin Best Development Practices Guidebook. Also confirm the proposed plantings meet this requirement. **BETA2: No response provided – issue remains outstanding.**

ZONING

The Site is located within the Industrial (I) Zoning District and the Marijuana Use Overlay District. The proposed use of the Site is identified as Non-Medical Marijuana Retail Establishment. The proposed uses are allowed in the District via a Special Permit from the Planning Board.

SCHEDULE OF LOT, AREA, FRONTAGE, YARD AND HEIGHT REQUIREMENTS (§185 ATTACHMENT 9)

The project site will meet the requirements for lot area, frontage, lot depth, yards, height, and impervious coverage. The project does not meet the requirements for lot width; however, per §185-3 Lot Width C.(2) any lot shown on a recorded plan prior to May 21, 1998 is exempt from this definition. The Quitclaim Deed provided as part of the submission documents indicates the subject parcel is depicted on a plan of land recorded in the Norfolk Registry of Deeds, dated August 25, 1987 and is therefore exempt.

PARKING, LOADING AND DRIVEWAY REQUIREMENTS (§185-21)

The existing Site includes one access driveway from Grove Street to the west. The project proposes to remove this access route and construct two new paved access driveways (1 entrance, 1 exit) from the 166 Grove Street site to the south.

Section §185-21.B.(3) describes the number of parking spaces required for residential and nonresidential buildings in the Industrial Zoning District. The required parking for a retail use is one space per 200 sq. ft. of gross floor area plus one space per separate enterprise. For the proposed 4,150 sq. ft. building, the required parking is thus 21 spaces and a total of 66 spaces are proposed. With the understanding that retail marijuana uses have specific parking demands, additional commentary will be provided as part of the Traffic Review, to be provided under separate cover.

Proposed 90° parking spaces are depicted as 19' long and 9' wide. Proposed angled (60°) parking spaces are 18' long (usable stall) and 9' wide. Access route widths vary between 16 ft. and 24 ft, and all driveways are designated to be one-way. In accordance with Massachusetts Architectural Access Board (MAAB) requirements, four parking spaces have been designed to be handicap accessible, two of which are also van accessible.

In compliance with §185-21.C.(5), one tree must border the parking lot per every 10 parking spaces. A total of 31 trees, supplemented by shrubs, are proposed in the vicinity of the parking lot.

- P1. The angled parking layout conforms to industry standards; however, the usable stall length is only 18 feet. Revise the usable stall length to be 19 feet §185-21.C.(9)(a). *MAI: The length of the angled*

parking spaces has been revised accordingly, refer to Sheet C 2.0. BETA2: Stall length revised – issue resolved.

- P2. The accessible route is located within the 24' driveway aisle and vehicles backing out of spaces will encroach into the striped walkway. Evaluate alternatives to eliminate pedestrian/vehicle conflicts. *MAI: The location of the accessible route from the parking spaces to the building was chosen as it provides the most visibility for drivers while circulating through the parking lot. Additionally, the drive aisle width in this location is twenty-four (24) feet wide thus providing a nineteen (19) foot wide aisle for vehicles in which to safely travel throughout the parking lot. BETA2: BETA notes that while the location of the accessible route is not ideal, there does not appear to be a practicable solution that does not require significant redesign of the site.*
- P3. Clarify if additional parking/site layouts have been evaluated, such as relocating the proposed building to the west end of the site and providing a continuous parking area. The current layout requires vehicles to circulate in a “figure 8” pattern with a number of vehicle conflict points. *MAI: Many layouts for the site were considered. Ultimately the layout selected was preferred to move any potential traffic congestion away from Grove Street. Parking count was maximized beyond the minimum requirements to help avoid customers waiting for parking spots, and it was preferable to avoid one large parking lot with long walks for store customers. In addition, the entrance and exits are aligned with the existing curb cuts on the southern side of the access drive. BETA2: Information provided – refer to comment P4.*
- P4. Provide turning movements on Site Plan to demonstrate that passenger, delivery, and waste collection vehicles can safely maneuver throughout the site. It is anticipated that the Fire Chief will review turning movements for fire apparatus throughout the site. *MAI: A turning monument sketch has been provided and is submitted as a part of this comment response letter. BETA2: Also provide a turning movement for the passenger vehicle making a right-hand turn into and around the easterly parking area to demonstrate there will be no conflicts with the other passenger vehicle movements at the entrance. BETA also recommends to evaluate if the waste collection vehicle can make turns to use the site exit instead of backing into the common driveway.*
- P5. Confirm the number of trees provided in the Plant Schedule (31) vs. the Landscape Table (10). *MAI: The number of trees and shrubs depicted on the plans and listed in the plant schedule are consistent. BETA2: The number of trees provided is adequate – issue dismissed.*

SIDEWALKS (§185-28)

The project is located within the Industrial Zoning District and is not required to provide sidewalks along the street frontage. There are no existing sidewalks on Grove Street in proximity to the project.

CURBING (§185-29)

The project proposes the use of vertical granite curbing along paved areas.

- SI1. Clarify limits of vertical granite curb as it relates to the concrete walkway. The Concrete Walkway Detail depicts monolithic concrete curb. *MAI: The limits of the types of curbing have been clarified, refer to Sheet C 2.0. BETA2: Clarification provided – issue resolved.*

SITE PLAN REVIEW (§185-31)

The proposed development is subject to Site Plan Review and must comply with the requirements of this section.

- S1. Include abutting land uses and zoning information on the Locus Map (§185-31.C.(3)(d)). *MAI: The abutting land uses have been added to the plan set, refer to sheet C0.0. BETA2: Abutting land uses provided and it is understood that all abutting parcels are zoned as Industrial – issue resolved.*
- S2. Provide photometric plan (§185-31.C.(3)(l)). *MAI: A photometric plan has been added to the plan set, refer to sheet 6.0. BETA2: Plan provided indicating adequate illumination will be provided for safety and security. Expand limits of analysis to demonstrate there will be no nuisance or excessive light spillage onto adjacent properties in accordance with site plan and special permit review criteria.*
- S3. Depict proposed limits of clearing on the plans, as applicable, including areas of existing vegetation to be retained (§185-31.C.(3)(u)). *MAI: The limit of clearing / limit of work is shown on the Site Plan, refer to Sheet C 2.0 of the plan set. It has also been added to Sheet C 1.0. BETA2: Information provided – issue resolved.*

SCREENING (§185-35)

The project proposes outdoor parking for 10 or more cars, which must be screened from adjacent residential districts or uses from which they would otherwise be visible. The Site is surrounded by lots zoned as Industrial, and it does not appear that the project will be visible from any residential use; therefore, screening is likely unnecessary.

WATER RESOURCES DISTRICT (§185-40)

The Site is partially located within the Water Resources District due to the presence of a Zone II Wellhead Protection Area. This portion of the Site includes the eastern parking lot and the majority of the proposed building.

- WR1. Clarify if the proposed sewer force main will connect to an off-site sewage disposal system or Town Sewer. If necessary, confirm the estimated sewage flow for the existing sewage disposal system will not exceed 110 gallons per 10,000 sq. ft. of lot area if located within the Water Resources District (§185-40.D.(1)(i)). *MAI: The proposed wastewater will be directed to the Town of Franklin public sewer. Per Massachusetts Department of Environmental Protection, Title V design standards, a retail store will produce approximately two hundred (200) gallons of wastewater per day. This assumes that public restrooms are available, however, at this site, the restrooms will not be available to the public so the flows should be far less. BETA2: Connection to Town sewer confirmed – issue dismissed.*
- WR2. Section §185-40.D.(1)(l)(ii) requires that the proposed groundwater recharge efforts must be approved by a hydrogeologist; however, provided that the stormwater management system is revised to fully comply with the Massachusetts Stormwater Management Standards no adverse impacts to groundwater are anticipated as a result of the project. BETA defers to the preference of the Board to require approval by a hydrogeologist. *MAI: BETA2: No further comment.*
- WR3. Note that any fill placed in quantity greater than 15 yards must be certified in accordance with §185-40.E.(5). *MAI: MAI concurs with the above statement. BETA2: No further comment.*
- WR4. In conjunction with comment SW12, it is anticipated that minimal flow is directed from the project site to the paved area in proximity to DP2. BETA notes that to fully comply with (§185-40.E.(4)), all stormwater runoff from impervious surfaces must be recharged unless following consultation with, and approval from the Conservation Commission and the Building Inspector that recharge

is determined to be infeasible. *MAI: This project will be submitted to the Conservation Commission for review and approval. Runoff from the impervious area that connects the site to the existing access road is di minimus in scale and should not have any adverse impacts to the adjacent properties. This is reflected in the stormwater calculations. Note that runoff from all of the other impervious surfaces is directed to an infiltration system that provides ground water recharge.*

BETA2: Information provided – issue dismissed.

UTILITIES

Proposed utilities include drainage, electric, sanitary sewer, and domestic water services. Detailed review of water and sewer utilities is anticipated to be provided by the DPW and Fire Chief (e.g. for fire hydrants), as applicable.

U1. Provide a note that all water and sewer utility installations shall be done in accordance with the Town of Franklin Department of Public Works Standards for Sewer and Water Materials and Installation (Town Standards). Also note that where utility installation details conflict with the Town Standards that the Town Standards shall govern. *MAI: The above requested note has been added to the plan set, refer to Sheets C 2.0 and C 3.0. Notes have been added that show where utility installation details conflict with the Town Standards that the Town Standards shall govern.*

BETA2: Note provided – issue resolved.

U2. Provide size and material information for proposed sewer force main and water line(s). *MAI: The size and materials of the sewer and water lines have been added to the plan set, refer to Sheet C 3.0.* **BETA2: Information provided. In accordance with Town Specifications, revise material of water service line to copper if length is 100 feet or less (corporation stop to curb stop and curb stop to building) and HDPE otherwise.**

U3. Indicate how water for fire protection will be supplied, if at all. *MAI: There is no Automated Fire Sprinkler system. Per applicable State & Local Codes (IBC 2015 and CMR 780-9-903 local amendment, Automated Fire Sprinklers are not required for Group M and B occupancy under 12,000 sf and under 3 stories. Proposed building area is 3,930 sf and this is a one-story building.*

BETA2: Information provided – issue dismissed.

U4. Confirm the proposed solar lighting is capable of providing adequate illumination for the site throughout the night during adverse conditions (e.g. multiple cloudy/rainy days). *MAI: The solar area lights have an electronic smart controller that stores energy and adjusts light output for optimal performance up to 14 days. Light levels will be maintained per IES recommendations as shown on the attached photometric plan.* **BETA2: Information provided – issue resolved.**

STORMWATER MANAGEMENT

The project proposes to direct runoff from impervious areas into a new subsurface infiltration system via catch basin connections and proprietary water quality units (Contech CDS). Overflows from the proposed infiltration system will be directed into a low-lying basin area on the eastern side of the lot.

GENERAL

SW1. As part of the MS4 regulations, the Town is proposing revisions to Chapter 153, Stormwater Management. Once the revisions are approved (date not yet determined) they will be applicable to any project that is subject to the Bylaw and has not yet been approved. BETA recommends the

designer review the proposed Bylaw revisions to evaluate if additional stormwater provisions or treatment may be required. *MAI: MAI has reviewed the proposed bylaw revisions and has made changes to the design as required.* **BETA2: Information provided to demonstrate compliance with future requirements – issue resolved.**

- SW2. Provide a stamped Stormwater Management Checklist. *MAI: A stamped Stormwater Management Checklist has been provided in the stormwater report.* **BETA2: Checklist provided. Clarify reference to project being covered by the NPDES Multi-Sector General Permit, as the proposed use is not an industrial activity. The checklist should also reference that the project is located in a watershed with a TMDL (Charles River), has soils with rapid infiltration rates, and involves runoff from land uses with higher potential pollutant loads (>1,000 trips per traffic report).**
- SW3. Revise proposed HDPE pipe to be RCP. Where cover is less than 42" provide Class V RCP (§300-11.B.(2)(a)). BETA notes that with a waiver request, the Board may consider allowing the use of the 4" HDPE overflow from the subsurface infiltration system. *MAI: A waiver has been requested from (§300- 11.B.(2)(a)) to allow for a HDPE pipe, refer to Sheet C 0.0. HDPE is used industry wide where cover over the pipe is in excess of twenty-four (24) inches.* **BETA2: Waiver request provided; however, BETA notes that to date the Board has not granted this waiver on previous projects except for short connections directly to subsurface infiltration systems.**
- SW4. In coordination with the Town, provide an easement for the existing outfall at the northwest end of the site. *MAI: An easement for the town at the headwall has been depicted graphically on the plan set, refer to Sheet C 2.0.* **BETA2: Easement provided. BETA defers any additional comment to the DPW.**
- SW5. Revise the diameter of the proposed catch basins to a minimum of 5 feet to accommodate the proposed double grates. *MAI: The diameter of the catch basins have been revised accordingly, refer to Sheet C 5.0.* **BETA2: Diameter revised – issue resolved.**
- SW6. Consider providing periodic check dams in the northerly swale to minimize flow velocities and promote infiltration. *MAI: Check dams have been added to the plan set, refer to Sheet C 2.0.* **BETA2: Check dams provided – issue resolved.**
- SW7. Clarify where the Typical Level Spreader is proposed. *MAI: The location of the level spreader has been added to the plan set, refer to Sheet 2.0.* **BETA2: Clarification provided – issue resolved.**

MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS:

The proposed development will disturb greater than one acre and is subject to Chapter 153: Stormwater Management of the Town of Franklin Bylaws and MassDEP Stormwater Management Standards.

No untreated stormwater (Standard Number 1): *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

The project does not propose any new untreated stormwater discharges to wetlands. An outfall is proposed from the subsurface infiltration system which discharges to a low-lying area. A riprap apron is proposed for erosion control.

- SW8. Although the existing outfall at the northwest corner of the site is not the responsibility of the project proponent, it is recommended to provide a rip rap pad at the outlet. *MAI: A rip rap pad*

has been added to the existing outfall pipe, refer to Sheet C 2.0. BETA2: Rip rap pad provided – issue resolved.

Post-development peak discharge rates (Standard Number 2): Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

The project proposes an increase in impervious area and will use subsurface infiltration systems to mitigate increases in post-development peak discharge rates and total runoff volumes.

- SW9. Provide summary table comparing pre-development and post-development runoff volumes. Runoff volumes may not increase per §300-11.A.(3) and the Best Development Practices Guidebook. *MAI: A summary table comparing pre-development and post-develop runoff volumes has been added to the stormwater management report. BETA2: Table provided indicating a reduction in peak runoff volume – issue resolved.*
- SW10. Revise HydroCAD model to include subwatershed SC100, as depicted on the Post-Development Drainage Plan, and show the boundary between Watershed SC100 and SC200. *MAI: The HydroCAD model has been revised to exclude subwatershed SC100 and instead shows the eastern and western parking lots as subcatchment 200, which flows to the subsurface infiltration basin. Subwatershed SC101 is the runoff that is directed to Design Point #1. BETA2: Information provided – issue resolved.*
- SW11. Label the Post-Development subwatershed located in the south-central portion of the Site. *MAI: The Post-Development subwatershed located in the south-central portion of the site has been added on the drainage maps. BETA2: Information provided – issue resolved.*
- SW12. Based on a review of the site there appears to be a low-lying area on the east of the site in proximity to DP2. Additional spot grades from the initial survey should be provided on the plan to clarify this topography and if the low area is confirmed it should be included in the HydroCAD model as a pond. *MAI: The above referenced low-lying area is actually an elevated mound, not a depression, therefore there was no need to modify the HydroCAD model. BETA2: BETA revisited the site and confirmed that the referenced mound (approx. 6" to 1' high near the abutting Planet Fitness property line - refer to attached sketch) is likely to impound water and will minimize any flow directed to the adjacent site – issue remains outstanding.*
- SW13. Recommend including the proposed infiltration overflow area in the HydroCAD model as an additional infiltration area. *MAI: This area is likely to be used as a wetland replication area and vegetated with wetland species. It is anticipated that this area will provide infiltration, but it is not being modeled as such, therefore revisions to the HydroCAD model have not been made. BETA2: Information provided. In conjunction with comment SW12, the designer should demonstrate that the proposed overflow area provides an equivalent or greater storage volume than the existing impoundment, as the flow from the Town system is not included in the stormwater model.*
- SW14. Revise limits of watershed SC101. Based on the proposed grading, the majority of this area will drain to the western parking area (Design Point 2) instead of Design Point 1. *MAI: The limits of watershed SC101 have been revised accordingly. BETA2: Watershed limits revised – issue resolved.*

SW15. Clarify how roof runoff will be conveyed. Consider providing a direct connection from the roof leaders to the subsurface infiltration system. *MAI: Downspouts will be directed to a closed underground piping system that will connect directly to the 12" manifold at the subsurface infiltration basin. BETA2: Direction connection provided – issue resolved.*

Recharge to groundwater (Standard Number 3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable.*

NRCS maps indicate the presence of Sudbury fine sandy loam, rated in hydrologic soil group (HSG) B, primarily at the site. A small area of Merrimac fine sandy loam (HSG A) is depicted along the west side of the site near Grove Street. The infiltration systems have been designed to provide a recharge volume in excess of that required.

SW16. Clarify the Schematic Plan View of the Subsurface Infiltration Facility Details to indicate it is a typical layout and the dimensions are 20 rows of 11 chambers. Revise detail name, as necessary, to reflect the number of systems proposed. *MAI: The details of the Subsurface Infiltration Facility details have been revised accordingly, refer to Sheet C 5.0. BETA2: Details revised – issue resolved.*

SW17. The proposed bottom of the infiltration system is at elevation 250.30 and will not provide the required 2' minimum separation to groundwater based upon the soils analysis for Test Pit 2 (ESHGW @ 251.5). *MAI: The bottom elevation of the infiltration basin is two (2) feet above the groundwater encountered in Test Pit #1 (248.3), which is located adjacent to the infiltration system. BETA2: Information provided which indicates the eastern side of the proposed infiltration system has the required 2' separation to groundwater; however, the groundwater profile created by the additional test pit information cannot be discounted for the remainder of the system. Either revise the system to provide the required 2' separation throughout the system based on the groundwater profile or provide an additional test pit at the western side of the proposed system to demonstrate a consistent groundwater elevation.*

SW18. Revise the top elevation of the stone in the infiltration system on the Cross Section detail to be consistent with other elevations. *MAI: The top elevation of the stone in the infiltration system has been revised accordingly, refer to Sheet C 5.0. BETA2: Elevation revised – issue resolved.*

SW19. Provide mounding analysis for proposed infiltration systems as separation to groundwater is less than 4 feet. *MAI: Mounding calculations have been provided in the stormwater management report. BETA2: Analysis provided – issue resolved.*

SW20. Test pit data indicates pockets of sandy loam within the C layer of coarse sand and gravel, which are more restrictive than the design exfiltration rate of 8.27 in/hr. Provide additional clarification to justify the design exfiltration rate or lower the rate, if appropriate. *MAI: Per the Subsurface Infiltration Detail on sheet C 5.0, there is a note that states that all unsuitable materials are to be removed five (5) feet in all directions from around the proposed infiltration system, this includes the sandy loam. BETA2: Information provided – issue resolved.*

80% TSS Removal (Standard Number 4): *For new development, stormwater management systems must be designed to remove 80% of the annual load of Total Suspended Solids.*

The project proposes to direct runoff from new impervious areas to a treatment train consisting of deep sump catch basins with hoods, proprietary water quality units (Contech CDS), and a subsurface infiltration system. Calculations are provided that demonstrate the required 80% TSS removal and 1" Water Quality Volume can be provided with the deep sump catch basin and infiltration basin treatment train.

Higher Potential Pollutant Loads (Standard Number 5): *Stormwater discharges from Land Uses with Higher Potential Pollutant Loads require the use of specific stormwater management BMPs.*

SW21. Provide the total number of estimated trips per day for the site. If the number exceeds 1,000 the site is considered a high-intensity-use parking area and is therefore LUHPPL. *MAI: The site will generate, on average 800 - 1,000 trips per day and is therefore is not considered a LUHPPL. BETA2: The traffic report indicates the daily trips are 1,050; therefore, the site is considered a LUHPPL. BETA notes this classification is not anticipated to require any stormwater modifications.*

Critical Areas (Standard Number 6): *Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas.*

The project includes discharges to a Zone II Wellhead Protection Area, a critical area, and 44% pretreatment is required prior to infiltration. The proposed treatment trains are consistent with the recommendations of MassDEP for discharges to Zone II wellhead protection areas.

SW22. Revise narrative to correctly indicate the presence of a critical area. *MAI: The narrative has been revised accordingly. BETA2: Narrative revised – issue resolved.*

SW23. Provide calculation based upon MassDEP’s “Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practices” to demonstrate the Contech Structures are capable of treating the calculated discharge rate and will remove a minimum of 44% TSS prior to infiltration. *MAI: MAI has reached out to Contech to obtain the documentation required that demonstrates that the Contech structures are capable of treating the calculated discharge rate and will remove a minimum of 44% TSS prior to infiltration. That documentation can be found in the Appendix of this report. BETA2: The provided information does not appear to show the DEP calculated water quality flow rate compared to the maximum treatment rate provided by the Contech unit – issue remains outstanding.*

Redevelopment (Standard Number 7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable.*

The project does not qualify as redevelopment – not applicable.

SW24. Revise narrative to remove references to “70 Frank Mossberg Drive” and that the project qualifies as a redevelopment. *MAI: The narrative has been revised accordingly. BETA2: Narrative revised – issue resolved.*

Construction Period Erosion and Sediment Controls (Standard Number 8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

The project as currently depicted will disturb greater than one acre of land; therefore, a Notice of Intent with EPA and a Stormwater Pollution Prevention Plan (SWPPP) is required. The project plans indicate the use of a stabilized construction entrance, silt sacks, and perimeter erosion controls (Filtermitt).

SW25. Provide perimeter controls along the southwestern border of the Site (e.g. where existing flows are directed to DP1). *MAI: Perimeter erosion controls have been added to the plan set, refer to Sheets C 1.0 and C 2.0. BETA2: Perimeter controls provided – issue resolved.*

SW26. Revise Temporary Stabilized Construction Entrance Detail to be a continuous width of 20 feet as depicted on the Layout, Grading, and Erosion Control Plan. *MAI: The temporary Stabilized*

*Construction Entrance Detail has been revised to be a continuous width of 20 feet. **BETA2: Detail revised – issue resolved.***

Operations/maintenance plan (Standard Number 9): *A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

A Long-Term Operation and Maintenance (O&M) Plan has been provided.

SW27. Provide long-term maintenance measures for catch basins and Contech water quality units. *MAI: The Operation and Maintenance Plan has been revised accordingly. **BETA2: Information provided – issue resolved.***

SW28. Provide a plan that shows the location of all stormwater BMPs as part of the O&M Plan. *MAI: A plan that depicts the stormwater BMP's has been added to the O&M Plan. **BETA2: Plan provided – issue resolved.***

SW29. Provide an estimated O&M budget. *MAI: An estimated O&M Budget will be provided prior to construction. **BETA2: To avoid a condition of approval that would require this information to be provided in the future, it is recommended to estimate the O&M budget at this time with the understanding that it can be modified prior to construction, if necessary.***

Illicit Discharges (Standard Number 10): *All illicit discharges to the stormwater management systems are prohibited.*

The Stormwater Management Report indicates that no illicit discharges are proposed, and a signed Illicit Discharge Compliance Statement will be provided prior to construction.

SW30. Provide a signature on the Illicit Discharge Compliance Statement. *MAI: A signature has been added to the Illicit Discharge Compliance Statement. **BETA2: Signature provided – issue resolved.***

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



Matthew J. Crowley, PE
Project Manager



Stephen Borgatti
Staff Engineer

cc: Amy Love, Planner
Jen Delmore, Conservation Agent



TOWN OF FRANKLIN

DEPARTMENT OF PUBLIC WORKS

Franklin Municipal Building
257 Fisher Street
Franklin, MA 02038-3026

September 9, 2020

Mr. Anthony Padula, Chairman
Members of the Franklin Planning Board
355 East Central Street
Franklin, MA 02038

RE: Special Permit & Site Plan – 164 Grove St, Dispensary

Dear Mr. Chairman and Members:

We have reviewed the submitted materials for the subject project and offer the following comments:

1. The proposed project calls for site access and utility connections from the adjacent Planet Fitness site. While we don't have any issues with this configuration, the applicant should provide documentation that the adjacent property owner will provide an easement for this access.
2. There is an existing curb cut along Grove St for this property that will not be used. The existing berm along Grove St should be continued in order to close off the existing opening.
3. We note that the designer has taken the existing roadway drainage outfall into account in their design and will grade a swale to a drainage basin at the rear of the property. However, no design calculations have been provided for this basin as to its sizing or potential overflow.
4. We note that a proposed easement for the existing drainage outfall to be granted to the Town has been added to the plans.
5. Under the revised stormwater model, the peak elevation for the 100 yr storm is now over 2 feet above the top of the system.
6. The stormwater model also includes a 4" emergency overflow pipe on the infiltration system which we did not see detailed on plans.
7. The invert for the infiltration system outlet control varies between the plan view and detail view. The invert should be consistent although we note that in each case the invert is higher than the 100 yr elevation.

Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'M Maglio', written in a cursive style.

Michael Maglio, P.E.
Town Engineer



**FRANKLIN PLANNING & COMMUNITY
DEVELOPMENT**

355 EAST CENTRAL STREET, ROOM 120
FRANKLIN, MA 02038-1352
TELEPHONE: 508-520-4907

MEMORANDUM

DATE: September 9, 2020
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: 164 Grove Street – PharmaCann
Special Permit & Site Plan

The DPCD has reviewed the above referenced Special Permit & Site Plan Modification application for the Monday, September 14, 2020 Planning Board meeting and offers the following commentary:

General:

1. The site is approximately 1.5 acres and is located at 164 Grove Street in the Industrial Zoning and Marijuana Overlay District; Assessor's Map 306 Lot 004.
2. The Applicant is proposing to construct a 4,150 square foot building with 70 parking spaces. The main use of the building is for retail Marijuana. There will be no product manufacturing, testing or research operations at the Facility.
3. Applicant has filed for a Special Permit: To allow Non-medical retail marijuana facility under 185 Attachment 3, Part II Section 2.23.
4. Letters were received from the Fire Department, Town Engineer and BETA.
5. Applicant has filed with the Conservation Commission.

Records on File:

1. Application for Site Plan and Special Permit
2. Certificate of Ownership
3. Special Permit Criteria
4. Abutters certified mailing
5. Overview of Proposed project and Special Permit Findings
6. Site Plans
7. Stormwater Management Plans

Additional Information submitted by Applicant:

1. Applicant has filed for 2 additional Special Permits: To allow Medical retail marijuana facility under 185-49 Attachment 4, Section 4.2 (a) and Common Driveway for 2 plus lots under 185-21(F).
2. Certificate of Ownership and Deeds for properties located at 164, 166 and 168 Grove Street. (On File).

Comments from the July 27, 2020 Meeting:

1. Frontage Requirement – The Applicant has frontage on Grove Street and will access the site using a common driveway.
2. BETA is currently reviewing the Traffic study.
3. Fire Department should review the revised plans and provide a comment on the traffic flow through the site.
4. Will they operate as Appointment only, or will there be walk-ins accepted?
5. Traffic Concerns – Mr. Halligan requested a simple chart at the end of the applicant's report of the actual traffic counts for vehicles coming and going.
6. The applicant has not shown on the plans if there will be any signage on Grove Street or color renderings of the building. If any signage is installed, the Applicant is required to submit to Design Review Commission.

DPCD has no further comments.



August 20, 2020

Mr. Anthony Padula, Chairman
Franklin Planning Board
355 East Central Street
Franklin, MA 02038

**Re: 164 Grove Street
Site Plan Peer Review**

Dear Mr. Padula & Members of the Board:

Meridian Associates, Inc. (MAI) has received the peer review prepared by BETA Group, Inc. dated July 23, 2020 regarding the Site Plan Review submission and offer the following responses:

GENERAL COMMENTS

G1. Provide detail for proposed dumpster pad and enclosure (with screening).

MAI Response: A detail for the dumpster pad and enclosure has been added to the plan set, see Sheet C 5.1.

G2. Confirm access rights and utility easements are being acquired from the adjacent property to the south.

MAI Response: Yes. We are in active discussions and negotiations with owner representatives for Core Real Estate Holdings of 166 Grove Street as to mutually acceptable business terms and conditions to acquire the access rights and utility easements for the 164 Grove Street Project including the ability to address any improvements required to the access way by the Planning Board in connection with its review an consideration of the Special Permit for Shared Common Driveway. Attached are copies of the Deed into Core Real Estate Holdings as well as the existing Easement Agreement and plan between the owners of 166 Grove Street and 168 Grove Street concerning similar access and utility easements.

G3. Clarify the disposition of the existing fences and gate surrounding the property.

MAI Response: The existing fence around the perimeter of the site, that is located within the property lines, is to be removed. Refer to Sheet C 1.0

G4. Recommend revising snow storage areas to maintain clear flow path within swale along the northerly property line. Consider providing additional snow storage along the southerly curb line.

MAI Response: The snow storage locations have been adjusted accordingly, refer to Sheet C 4.0



- G5. Provide a note to indicate that tree species shall be from the Town of Franklin Best Development Practices Guidebook. Also confirm the proposed plantings meet this requirement.

ZONING

The Site is located within the Industrial (I) Zoning District and the Marijuana Use Overlay District. The proposed use of the Site is identified as Non-Medical Marijuana Retail Establishment. The proposed uses are allowed in the District via a Special Permit from the Planning Board.

SCHEDULE OF LOT, AREA, FRONTAGE, YARD AND HEIGHT REQUIREMENTS (§185 ATTACHMENT 9)

The project site will meet the requirements for lot area, frontage, lot depth, yards, height, and impervious coverage. The project does not meet the requirements for lot width; however, per §185-3 Lot Width C. (2) any lot shown on a recorded plan prior to May 21, 1998 is exempt from this definition. The Quitclaim Deed provided as part of the submission documents indicates the subject parcel is depicted on a plan of land recorded in the Norfolk Registry of Deeds, dated August 25, 1987 and is therefore exempt.

MAI Response: No response required.

PARKING, LOADING AND DRIVEWAY REQUIREMENTS (§185-21)

The existing Site includes one access driveway from Grove Street to the west. The project proposes to remove this access route and construct two new paved access driveways (1 entrance, 1 exit) from the 166 Grove Street site to the south.

Section §185-21.B.(3) describes the number of parking spaces required for residential and nonresidential buildings in the Industrial Zoning District. The required parking for a retail use is one space per 200 sq. ft. of gross floor area plus one space per separate enterprise. For the proposed 4,150 sq. ft. building, the required parking is thus 21 spaces and a total of 66 spaces are proposed. With the understanding that retail marijuana uses have specific parking demands, additional commentary will be provided as part of the Traffic Review, to be provided under separate cover.

Proposed 90° parking spaces are depicted as 19' long and 9' wide. Proposed angled (60°) parking spaces are 18' long (usable stall) and 9' wide. Access route widths vary between 16 ft. and 24 ft, and all driveways are designated to be one-way. In accordance with Massachusetts Architectural Access Board (MAAB) requirements, four parking spaces have been designed to be handicap accessible, two of which are also van accessible.

In compliance with §185-21.C.(5), one tree must border the parking lot per every 10 parking spaces. A total of 31 trees, supplemented by shrubs, are proposed in the vicinity of the parking lot.

P1. The angled parking layout conforms to industry standards; however, the usable stall length is only 18 feet. Revise the usable stall length to be 19 feet §185-21.C.(9)(a).

MAI Response: The length of the angled parking spaces has been revised accordingly, refer to Sheet C 2.0.



P2. The accessible route is located within the 24' driveway aisle and vehicles backing out of spaces will encroach into the striped walkway. Evaluate alternatives to eliminate pedestrian/vehicle conflicts.

MAI Response: The location of the accessible route from the parking spaces to the building was chosen as it provides the most visibility for drivers while circulating through the parking lot. Additionally, the drive aisle width in this location is twenty-four (24) feet wide thus providing a nineteen (19) foot wide aisle for vehicles in which to safely travel throughout the parking lot.

P3. Clarify if additional parking/site layouts have been evaluated, such as relocating the proposed building to the west end of the site and providing a continuous parking area. The current layout requires vehicles to circulate in a "figure 8" pattern with a number of vehicle conflict points.

MAI Response: Many layouts for the site were considered. Ultimately the layout selected was preferred to move any potential traffic congestion away from Grove Street. Parking count was maximized beyond the minimum requirements to help avoid customers waiting for parking spots, and it was preferable to avoid one large parking lot with long walks for store customers. In addition, the entrance and exits are aligned with the existing curb cuts on the southern side of the access drive.

P4. Provide turning movements on Site Plan to demonstrate that passenger, delivery, and waste collection vehicles can safely maneuver throughout the site. It is anticipated that the Fire Chief will review turning movements for fire apparatus throughout the site.

MAI Response: A turning movement sketch has been provided and is submitted as a part of this comment response letter.

P5. Confirm the number of trees provided in the Plant Schedule (31) vs. the Landscape Table (10).

MAI Response: The number of trees and shrubs depicted on the plans and listed in the plant schedule are consistent.

SIDEWALKS (§185-28)

The project is located within the Industrial Zoning District and is not required to provide sidewalks along the street frontage. There are no existing sidewalks on Grove Street in proximity to the project.

CURBING (§185-29)

The project proposes the use of vertical granite curbing along paved areas.

SI1. Clarify limits of vertical granite curb as it relates to the concrete walkway. The Concrete Walkway Detail depicts monolithic concrete curb.

MAI Response: The limits of the types of curbing have been clarified, refer to Sheet C 2.0.

SITE PLAN REVIEW (§185-31)

The proposed development is subject to Site Plan Review and must comply with the requirements of this section.



S1. Include abutting land uses and zoning information on the Locus Map (§185-31.C.(3)(d)).

MAI Response: The abutting land uses have been added to the plan set, refer to Sheet C 0.0.

S2. Provide photometric plan (§185-31.C.(3)(l)).

MAI Response: A photometric plan has been added to the plan set, refer to Sheet 6.0.

S3. Depict proposed limits of clearing on the plans, as applicable, including areas of existing vegetation to be retained (§185-31.C.(3)(u)).

MAI Response: The limit of clearing / limit of work is shown on the Site Plan, refer to Sheet C 2.0 of the plan set. It has also been added to Sheet C 1.0.

SCREENING (§185-35)

The project proposes outdoor parking for 10 or more cars, which must be screened from adjacent residential districts or uses from which they would otherwise be visible. The Site is surrounded by lots zoned as Industrial, and it does not appear that the project will be visible from any residential use; therefore, screening is likely unnecessary.

WATER RESOURCES DISTRICT (§185-40)

The Site is partially located within the Water Resources District due to the presence of a Zone II Wellhead Protection Area. This portion of the Site includes the eastern parking lot and the majority of the proposed building.

WR1. Clarify if the proposed sewer force main will connect to an off-site sewage disposal system of Town Sewer. If necessary, confirm the estimated sewage flow for the existing sewage disposal system will not exceed 110 gallons per 10,000 sq. ft. of lot area if located within the Water Resources District (§185-40.D.(1)(i)).

MAI Response: The proposed wastewater will be directed to the Town of Franklin public sewer. Per Massachusetts Department of Environmental Protection, Title V design standards, a retail store will produce approximately two hundred (200) gallons of wastewater per day. This assumes that public restrooms are available, however, at this site, the restrooms will not be available to the public so the flows should be far less.

WR2. Section §185-40.D.(1)(l)(ii) requires that the proposed groundwater recharge efforts must be approved by a hydrogeologist; however, provided that the stormwater management system is revised to fully comply with the Massachusetts Stormwater Management Standards no adverse impacts to groundwater are anticipated as a result of the project. BETA defers to the preference of the Board to require approval by a hydrogeologist.

WR3. Note that any fill placed in quantity greater than 15 yards must be certified in accordance with §185-40.E.(5).

MAI Response: MAI concurs with the above statement.



WR4. In conjunction with comment SW12, it is anticipated that minimal flow is directed from the project site to the paved area in proximity to DP2. BETA notes that to fully comply with (§185-40.E.(4)), all stormwater runoff from impervious surfaces must be recharged unless following consultation with, and approval from the Conservation Commission and the Building Inspector that recharge is determined to be infeasible.

MAI Response: This project will be submitted to the Conservation Commission for review and approval. Runoff from the impervious area that connects the site to the existing access road is di minimus in scale and should not have any adverse impacts to the adjacent properties. This is reflected in the stormwater calculations. Note that runoff from all of the other impervious surfaces is directed to an infiltration system that provides ground water recharge.

UTILITIES

Proposed utilities include drainage, electric, sanitary sewer, and domestic water services. Detailed review of water and sewer utilities is anticipated to be provided by the DPW and Fire Chief (e.g. for fire hydrants), as applicable.

U1. Provide a note that all water and sewer utility installations shall be done in accordance with the Town of Franklin Department of Public Works Standards for Sewer and Water Materials and Installation (Town Standards). Also note that where utility installation details conflict with the Town Standards that the Town Standards shall govern.

MAI Response: The above requested note has been added to the plan set, refer to Sheets C 2.0 and C 3.0. Notes have been added that show where utility installation details conflict with the Town Standards that the Town Standards shall govern.

U2. Provide size and material information for proposed sewer force main and water line(s).

MAI Response: The size and materials of the sewer and water lines have been added to the plan set, refer to Sheet C 3.0.

U3. Indicate how water for fire protection will be supplied, if at all.

MAI Response: There is no Automated Fire Sprinkler system. Per applicable State & Local Codes (IBC 2015 and CMR 780-9-903 local amendment, Automated Fire Sprinklers are not required for Group M and B occupancy under 12,000sf and under 3 stories. Proposed building area is 3,930 sf and this is a one-story building.

U4. Confirm the proposed solar lighting is capable of providing adequate illumination for the site throughout the night during adverse conditions (e.g. multiple cloudy/rainy days).

MAI Response: The solar area lights have an electronic smart controller that stores energy and adjusts light output for optimal performance up to 14 days. Light levels will be maintained per IES recommendations as shown on the attached photometric plan.



The fixtures have dimming and motion sensors for after-hours security illumination. Please refer to the *Site Lighting Plan* located in the *Site Plan* package.

STORMWATER MANAGEMENT

The project proposes to direct runoff from impervious areas into a new subsurface infiltration system via catch basin connections and proprietary water quality units (Contech CDS). Overflows from the proposed infiltration system will be directed into a low-lying basin area on the eastern side of the lot.

GENERAL

SW1. As part of the MS4 regulations, the Town is proposing revisions to Chapter 153, Stormwater Management. Once the revisions are approved (date not yet determined) they will be applicable to any project that is subject to the Bylaw and has not yet been approved. BETA recommends the designer review the proposed Bylaw revisions to evaluate if additional stormwater provisions or treatment may be required.

MAI Response: MAI has reviewed the proposed bylaw revisions and has made changes to the design as required.

SW2. Provide a stamped Stormwater Management Checklist.

MAI Response: A stamped Stormwater Management Checklist has been provided in the stormwater report.

SW3. Revise proposed HDPE pipe to be RCP. Where cover is less than 42" provide Class V RCP (§300-11.B.(2)(a)). BETA notes that with a waiver request, the Board may consider allowing the use of the 4" HDPE overflow from the subsurface infiltration system.

MAI Response: A waiver has been requested from (§300- 11.B.(2)(a)) to allow for a HDPE pipe, refer to Sheet C 0.0. HDPE is used industry wide where cover over the pipe is in excess of twenty-four (24) inches.

SW4. In coordination with the Town, provide an easement for the existing outfall at the northwest end of the site.

MAI Response: An easement for the town at the headwall has been depicted graphically on the plan set, refer to Sheet C 2.0.

SW5. Revise the diameter of the proposed catch basins to a minimum of 5 feet to accommodate the proposed double grates.

MAI Response: The diameter of the catch basins have been revised accordingly, refer to Sheet C 5.0.

SW6. Consider providing periodic check dams in the northerly swale to minimize flow velocities and promote infiltration.

MAI Response: Check dams have been added to the plan set, refer to Sheet C 2.0.



SW7. Clarify where the Typical Level Spreader is proposed.

MAI Response: *The location of the level spreader has been added to the plan set, refer to Sheet C 2.0.*

MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS:

The proposed development will disturb greater than one acre and is subject to Chapter 153: Stormwater Management of the Town of Franklin Bylaws and MassDEP Stormwater Management Standards.

No untreated stormwater (Standard Number 1): *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

The project does not propose any new untreated stormwater discharges to wetlands. An outfall is proposed from the subsurface infiltration system which discharges to a low-lying area. A riprap apron is proposed for erosion control.

SW8. Although the existing outfall at the northwest corner of the site is not the responsibility of the project proponent, it is recommended to provide a rip rap pad at the outlet.

MAI Response: *A rip rap pad has been added at the existing outfall pipe, refer to Sheet C 2.0.*

Post-development peak discharge rates (Standard Number 2): *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

The project proposes an increase in impervious area and will use subsurface infiltration systems to mitigate increases in post-development peak discharge rates and total runoff volumes.

SW9. Provide summary table comparing pre-development and post-development runoff volumes. Runoff volumes may not increase per §300-11.A.(3) and the Best Development Practices Guidebook.

MAI Response: *A summary table comparing pre-development and post-development runoff volumes has been added to the stormwater management report.*

SW10. Revise HydroCAD model to include subwatershed SC100, as depicted on the Post-Development Drainage Plan, and show the boundary between Watershed SC100 and SC200.

MAI Response: *The HydroCAD model has been revised to exclude subwatershed SC100 and instead shows the eastern and western parking lots as subcatchment 200, which flows to the subsurface infiltration basin. Subwatershed SC101 is the runoff that is directed to Design Point #1.*



SW11. Label the Post-Development subwatershed located in the south-central portion of the Site.

MAI Response: *The Post-Development subwatershed located in the south-central portion of the site has been added on the drainage maps.*

SW12. Based on a review of the site there appears to be a low-lying area on the east of the site in proximity to DP2. Additional spot grades from the initial survey should be provided on the plan to clarify this topography and if the low area is confirmed it should be included in the HydroCAD model as a pond.

MAI Response: *The above referenced low-lying area is actually an elevated mound, not a depression, therefore there was no need to modify the HydroCAD model.*

SW13. Recommend including the proposed infiltration overflow area in the HydroCAD model as an additional infiltration area.

MAI Response: *This area is likely to be used as a wetland replication area and vegetated with wetland species. It is anticipated that this area will provide infiltration, but it is not being modeled as such, therefore revisions to the HydroCAD model have not been made.*

SW14. Revise limits of watershed SC101. Based on the proposed grading, the majority of this area will drain to the western parking area (Design Point 2) instead of Design Point 1.

MAI Response: *The limits of watershed SC101 has been revised accordingly.*

SW15. Clarify how roof runoff will be conveyed. Consider providing a direct connection from the roof leaders to the subsurface infiltration system.

MAI Response: *Downspouts will be directed to a closed underground piping system that will connect directly to the 12" manifold at the subsurface infiltration basin.*

Recharge to groundwater (Standard Number 3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable.*

NRCS maps indicate the presence of Sudbury fine sandy loam, rated in hydrologic soil group (HSG) B, primarily at the site. A small area of Merrimac fine sandy loam (HSG A) is depicted along the west side of the site near Grove Street. The infiltration systems have been designed to provide a recharge volume in excess of that required.

SW16. Clarify the Schematic Plan View of the Subsurface Infiltration Facility Details to indicate it is a typical layout and the dimensions are 20 rows of 11 chambers. Revise detail name, as necessary, to reflect the number of systems proposed.

MAI Response: *The details of the Subsurface Infiltration Facility details have been revised accordingly, refer to Sheet C 5.0.*



SW17. The proposed bottom of the infiltration system is at elevation 250.30 and will not provide the required 2' minimum separation to groundwater based upon the soils analysis for Test Pit 2 (ESHGW @ 251.5)

MAI Response: *The bottom elevation of the infiltration basin is two (2) feet above the groundwater encountered in Test Pit #1 (248.3), which is located adjacent to the infiltration system.*

SW18. Revise the top elevation of the stone in the infiltration system on the Cross-Section detail to be consistent with other elevations.

MAI Response: *The top elevation of the stone in the infiltration system has been revised accordingly, refer to Sheet C 5.0.*

SW19. Provide mounding analysis for proposed infiltration systems as separation to groundwater is less than 4 feet.

MAI Response: *Mounding calculations have been provided in the stormwater management report.*

SW20. Test pit data indicates pockets of sandy loam within the C layer of coarse sand and gravel, which are more restrictive than the design exfiltration rate of 8.27 in/hr. Provide additional clarification to justify the design exfiltration rate or lower the rate, if appropriate.

MAI Response: *Per the Subsurface Infiltration Detail on sheet C 5.0, there is a note that states that all unsuitable materials are to be removed five (5) feet in all directions from around the proposed infiltration system, this includes the sandy loam.*

80% TSS Removal (Standard Number 4): *For new development, stormwater management systems must be designed to remove 80% of the annual load of Total Suspended Solids.*

The project proposes to direct runoff from new impervious areas to a treatment train consisting of deep sump catch basins with hoods, proprietary water quality units (Contech CDS), and a subsurface infiltration system. Calculations are provided that demonstrate the required 80% TSS removal and 1" Water Quality Volume can be provided with the deep sump catch basin and infiltration basin treatment train.

MAI Response: *No response required.*

Higher Potential Pollutant Loads (Standard Number 5): *Stormwater discharges from Land Uses with Higher Potential Pollutant Loads require the use of specific stormwater management BMPs.*

SW21. Provide the total number of estimated trips per day for the site. If the number exceeds 1,000 the site is considered a high-intensity-use parking area and is therefore LUHPPL.

MAI Response: *The site will generate, on average 800 - 1,000 trips per day and is therefore is not considered a LUHPPL.*



Critical Areas (Standard Number 6): *Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas.*

The project includes discharges to a Zone II Wellhead Protection Area, a critical area, and 44% pretreatment is required prior to infiltration. The proposed treatment trains are consistent with the recommendations of MassDEP for discharges to Zone II wellhead protection areas.

SW22. Revise narrative to correctly indicate the presence of a critical area.

MAI Response: *The narrative has been revised accordingly.*

SW23. Provide calculation based upon MassDEP's "Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practices" to demonstrate the Contech Structures are capable of treating the calculated discharge rate and will remove a minimum of 44% TSS prior to infiltration.

MAI Response: *MAI has reached out to Contech to obtain the documentation required that demonstrates that the Contech structures are capable of treating the calculated discharge rate and will remove a minimum of 44% TSS prior to infiltration. That documentation can be found in the Appendix of this report.*

Redevelopment (Standard Number 7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable.*

The project does not qualify as redevelopment – not applicable.

SW24. Revise narrative to remove references to "70 Frank Mossberg Drive" and that the project qualifies as a redevelopment.

MAI Response: *The narrative has been revised accordingly.*

Construction Period Erosion and Sediment Controls (Standard Number 8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.* The project as currently depicted will disturb greater than one acre of land; therefore, a Notice of Intent with EPA and a Stormwater Pollution Prevention Plan (SWPPP) is required. The project plans indicate the use of a stabilized construction entrance, silt sacks, and perimeter erosion controls (Filtermitt).

SW25. Provide perimeter controls along the southwestern border of the Site (e.g. where existing flows are directed to DP1).

MAI Response: *Perimeter erosion controls have been added to the plan set, refer to Sheets C 1.0 and C 2.0.*

SW26. Revise Temporary Stabilized Construction Entrance Detail to be a continuous width of 20 feet as depicted on the Layout, Grading, and Erosion Control Plan.



MAI Response: The temporary Stabilized Construction Entrance Detail has been revised to be a continuous width of 20 feet.

Operations/maintenance plan (Standard Number 9): *A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*
A Long-Term Operation and Maintenance (O&M) Plan has been provided.

SW27. Provide long-term maintenance measures for catch basins and Contech water quality units.

MAI Response: The Operation and Maintenance Plan has been revised accordingly.

SW28. Provide a plan that shows the location of all stormwater BMPs as part of the O&M Plan.

MAI Response: A plan that depicts the stormwater BMP's has been added to the O&M Plan.

SW29. Provide an estimated O&M budget.

MAI Response: An estimated O&M Budget will be provided prior to construction.

Illicit Discharges (Standard Number 10): *All illicit discharges to the stormwater management systems are prohibited.*

The Stormwater Management Report indicates that no illicit discharges are proposed, and a signed Illicit Discharge Compliance Statement will be provided prior to construction.

SW30. Provide a signature on the Illicit Discharge Compliance Statement.

MAI Response: A signature has been added to the Illicit Discharge Compliance Statement.

Please feel free to call with any questions.

Sincerely,

MERIDIAN ASSOCIATES, INC.

David S. Kelley, P.E.
Senior Project Manager

P:\6120_164 Grove Street, Franklin, MA\ADMIN\Letters_Memos\2020-08-20 Comment Response Letter #1.doc

RECEIVED AND RECORDED
NORFOLK COUNTY
REGISTRY OF DEEDS
DEDHAM, MA

N O **QUITCLAIM DEED**
A N A N
O F F I C I A L O F F I C I A L
C O P Y C O P Y

CERTIFY
William P. O'Donnell
WILLIAM P. O'DONNELL, REGISTER

ONE SIXTY-SIX GROVE STREET, INC., a Massachusetts corporation having a usual place of business at 166 Grove Street, Franklin, Norfolk County, Massachusetts, for consideration paid and in full consideration of One Million and Three Hundred Thousand (\$1,300,000.00) Dollars Grant to **CORE REAL ESTATE HOLDINGS, LLC**, a Massachusetts limited liability company having a usual place of business at 166 Grove Street, Franklin, Norfolk County, Massachusetts, with **QUITCLAIM COVENANTS**:

The land with the buildings thereon in Franklin, Norfolk County, Massachusetts, situated on the Easterly side of Grove Street and being shown as Lot 10A on a plan of land entitled "Plan of Land in Franklin, Mass." Date: July 25, 1996, Scale: 40 ft. to an inch by Guerriere & Halnon, Inc., Engineering & Land Surveying, 38 Pond St., Suite 205, Franklin, MA, said plan to be recorded herewith, to which plan may be referenced for a more particular description of said Lot 10A.

Said Lot 10A contains 283,410 +/- S.F. (6.51 +/- Acres) according to said plan.

Said premises are conveyed to Right of Way & Utility Easement as shown on said plan as granted in Norfolk Deeds, Book 7085, Page 335.

Said premises are conveyed with the benefit of Easements for Future Road as shown on said plan.

Said premises are conveyed subject to and with the benefit of a Special Permit from the Town of Franklin Zoning Board of Appeals as recorded in Norfolk Deeds, Book 11360, Page 384.

Said premises are conveyed subject to Massachusetts Electric and New England Telephone & Telegraph Company easement as recorded in Norfolk Deeds, Book 11338, Page 352.

Said premises are conveyed subject to Order of Conditions as recorded in Norfolk Deeds, Book 11318, Page 198.

Said premises are conveyed subject to and with the benefit of two easements in a Grant of Easements dated April 17, 2002 as recorded in Norfolk Deeds, Book 16509, Page 264.

Said premises are conveyed subject to two easements in a Grant of Easements dated April 17, 2002 as recorded in Norfolk Deeds, Book 16509, Page 266

Meaning and intending to convey and hereby conveying the same premises conveyed to this grantor in a Deed dated August 14, 1996 and recorded in Norfolk Deeds in Book 11478, Page 335.

This conveyance does not represent all or substantially all of the assets of the grantor in the Commonwealth of Massachusetts.

EXECUTED AS A ^{N O T} SEALED INSTRUMENT this ^{N O T} day of July, 2005.

O F F I C I A L O F F I C I A L
C O P Y C O P Y

ONE SIXTY-SIX GROVE STREET, INC.

John Colella, Jr.
John Colella, Jr., President

Joseph E. McGann
Joseph E. McGann, Treasurer

DEDHAM
DEEDS REG#17
NORFOLK

08/10/05 11:44 AM 01
000000 #1

FEE \$143.00

CASH \$143.00

DEDHAM
DEEDS REG#17
NORFOLK

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FEE \$5785.00

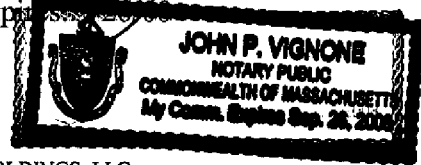
CASH \$5785.00

COMMONWEALTH OF MASSACHUSETTS

Norfolk, ss.

On this 21st day of July, 2005, before me, the undersigned notary public, personally appeared John Colella, Jr., President, and Joseph E. McGann, Treasurer, of ONE SIXTY-SIX GROVE STREET, INC., proved to me through satisfactory evidence of identification, being (check whichever applies): Driver's License or other state or federal governmental document bearing a photographic image, Oath or Affirmation of a credible witness known to me who knows the above signatory, or My Own personal knowledge of the identity of the signatory, to be the person(s) whose name(s) is/are signed on the preceding or attached document, and acknowledged to me that he/she/they signed it voluntarily for its stated purpose.

John P. Vignone
John P. Vignone, Notary Public
My commission expires




NON FINAL OF EASEMENTS

NON FINAL OF EASEMENTS

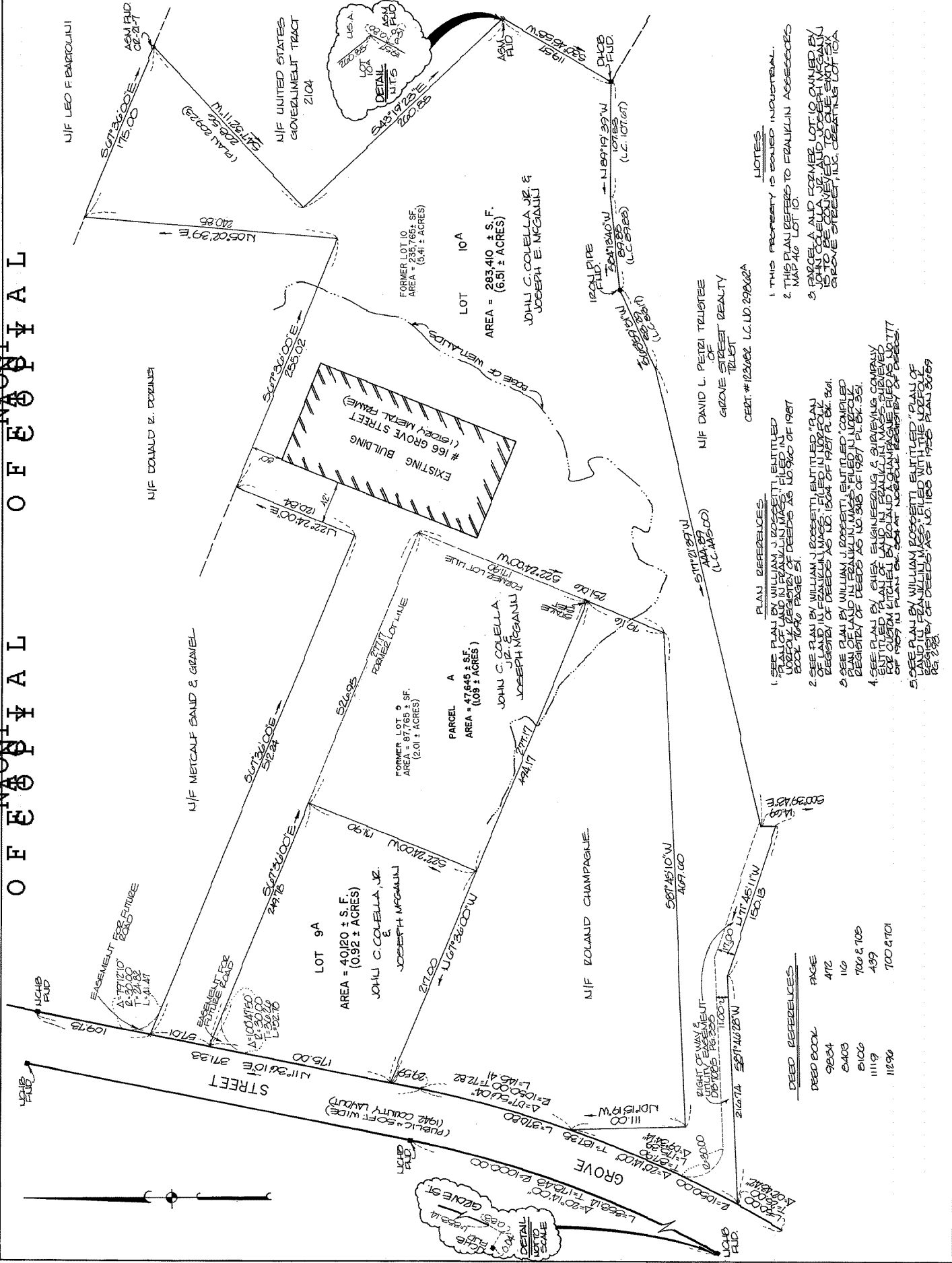
FOR REGISTRY USE ONLY
 Received Aug 14 19 96
 With Deed
 John C. Colella, Jr. et al. vs. One Sixty-Six Grove Street Tract
 Filed as No. 516 19 96
 Pl. Bk. 441
 Attest: [Signature] Register

APPROVAL UNDER THE SUPERVISION CONTROL LAW NOT REQUIRED
 FRANKLIN PLANNING BOARD
 [Signature]
 DATE July 29, 1996
 BENIGNA MAJORITY

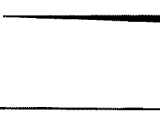
"I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS"
 [Signature]
 PROFESSIONAL LAND SURVEYOR
 DATE 7-26-96

REVISIONS
 DATE 7/26/96 REVISED ADDED OWNER NAMES TO 516-1996 PL. BK. 441, DEED LOT 9.
 PREPARED FOR
 JOHN C. COLELLA, JR.
 JOSEPH E. MCGAULI

Guerriere & Halton, Inc.
 Engineering & Land Surveying
 38 POND ST., SUITE 205 FRANKLIN, MA.

PLAN OF LAND IN
FRANKLIN, MASS.
 DATE JULY 28, 1996 SCALE 1" = 40' FT. TO AN INCH
 SHEET 1 OF 1 JOB NO. F-1695



- PLAN REFERENCES:
- SEE PLAN BY WILLIAM J. ROBERTI, ENTITLED "SUBDIVISION OF LAND IN FRANKLIN, MASS. FILED IN 1987 R.B. 200, BOOK 7096, PAGE 51."
 - SEE PLAN BY WILLIAM J. ROBERTI, ENTITLED "PLAN OF LAND IN FRANKLIN, MASS. FILED IN 1987 R.B. 201, BOOK 7096, PAGE 51."
 - SEE PLAN BY WILLIAM J. ROBERTI, ENTITLED "COMPILED PLAN OF LAND IN FRANKLIN, MASS. FILED IN 1987 R.B. 201, BOOK 7096, PAGE 51."
 - SEE PLAN BY SHEA ENGINEERING & SURVEYING COMPANY, ENTITLED "PLAN OF LAND IN FRANKLIN, MASS. FILED IN 1987 R.B. 201, BOOK 7096, PAGE 51."
 - SEE PLAN BY WILLIAM J. ROBERTI, ENTITLED "PLAN OF LAND IN FRANKLIN, MASS. FILED IN 1987 R.B. 201, BOOK 7096, PAGE 51."
- DEED REFERENCES:
- | DEED BOOK | PAGE |
|-----------|-----------|
| 9234 | 472 |
| 2403 | 116 |
| 2100 | 700 & 705 |
| 1119 | 499 |
| 11266 | 700 & 701 |
- NOTES:
- THIS PROPERTY IS BOUND INDUSTRIAL.
 - THIS PLAN REFERS TO FRANKLIN ADDRESSES MAP 46 LOT 10.
 - PARCEL A AND FORMER LOT 10 OWNED BY JOHN COLELLA, JR. AND JOSEPH MCGAULI IS TO BE CONVEYED TO ONE SIXTY-SIX GROVE STREET, LLC, CREATING LOT 10A.



RECEIVED AND RECORDED
NORFOLK COUNTY
REGISTRY OF DEEDS
DEDHAM, MA

20
20

N O T GRANT OF EASEMENTS N O T
A N A N

Paul D. Harold
PAUL D. HAROLD, REGISTER

One Sixty-Six Grove Street, Inc. A Massachusetts Corporation with its principal place of business at 166 Grove Street, Franklin Massachusetts. For consideration paid and in consideration of Less than One Hundred (\$100.00) Dollars, grants to John Colella, Jr. and Joseph McGann of Franklin, Massachusetts, as tenants in common, with Quitclaim Covenants:

Easement One

The perpetual right and easement to pass and repass, as streets and ways are commonly used in the Town of Franklin, with others legally entitled thereto, along that certain portion of Lot 10A shown on a plan entitled "Plan of Land in Franklin, Mass", dated July 25, 1996 and recorded in the Norfolk County Registry of Deeds as Plan No. 516 of 1996 in Plan Book 441, bounded and described as follows:

Beginning at a point on the northwesterly corner of Lot 9A at Grove Street;

Thence running S 67°36' 00" E 249.78 feet to a point at the northeast corner of Lot 9A;

Thence running northeasterly 57.01 feet more or less to the land now or formerly of Metcalf Sand & Gravel;

Thence running N 67°36'00" W 249.78 feet more or less to Grove Street;

Thence running S 11°36'10"W, along Grove Street, to the point of beginning.

Together with the perpetual right and easement to maintain, repair and plow the above described easement area.

Easement Two

The perpetual right to install, repair and maintain a drainage line from Lot 9A on the above reference plan under Lot 10A to an existing manhole located on Lot 10A on said plan. Said manhole being the existing manhole located closest to the northeasterly corner of Lot 9A.

Together with the perpetual right and easement to use said drainage line and existing drainage system connected thereto, in common with the owner of Lot 10A, for the purpose of drainage for the benefit of Lot 9A.

For grantor's title see Norfolk County Registry of Deeds Book 11478 Page 335

Locus: 166 & 168 Grove Street, Franklin

068691

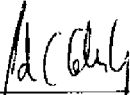
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Witness Our Hand and Seals this 17th day of April, 2002


N O T A N O T
A N A N
O F F I C I A L O F F I C I A L
C O P Y

One Sixty-Six Grove Street, Inc.

by:



John Colella, Jr.
President




Joseph E. McGann
Treasurer

Commonwealth of Massachusetts

Norfolk, ss

April 17, 2002

Then personally appeared the above named John Colella, Jr., President and Joseph E. McGann, Treasurer and acknowledged the foregoing instrument to be the free act and deed of One Sixty-Six Grove Street, Inc., before me.



John P. Vignone
Notary Public
My Commission Expires:
September 26, 2008

Carla M. Moynihan
617.646.2043
cmmoynihan@sherin.com
029783.00002

August 21, 2020

VIA EMAIL AND HAND DELIVERY

Franklin Planning Board
c/o Department of Public Works Building
257 Fisher Street
Franklin, MA 02038
Attention: Anthony Padula, Chair

Re: Supplemental Special Permit Application – 164 Grove Street, Franklin, MA

Chair Padula,

My office represents NLCP 164 Grove Street MA LLC, a Massachusetts limited liability company (“**Owner**”), the property owner of the approximately 1.5 acre parcel of vacant land located at 164 Grove Street, Franklin, Massachusetts 02038 (Map 306, Lot 4) (the “**Property**”) and PharmaCannis Massachusetts Inc., a Massachusetts corporation (“**Licensee**”). This letter is a follow up to my letter to the Town of Franklin Planning Board (the “**Board**”) dated June 29, 2020 (the “**First Letter**”) regarding a special permit for a proposed Non-Medical Marijuana Establishment to be located at the Property (the “**Non-Medical Marijuana Proposal**”) and to the Board’s public hearing regarding the Non-Medical Marijuana Proposal on July 23, 2020 (the “**First Public Hearing**”).

On behalf of Owner and Licensee and in response to the Board’s discussion at the First Public Hearing, please find enclosed an additional special permit application for: (A) a proposed Medical Marijuana Treatment Facility also to be located at the Property, and (B) use of a common driveway for more than 2 lots (collectively, together with the Non-Medical Marijuana Proposal, the “**Proposed Project**”).

As mentioned in the First Letter and reiterated at the First Public Hearing, based on preliminary discussions with Town of Franklin (the “**Town**”) officials, in order to avoid direct conflicts with customers accessing other Grove Street businesses, access for the Proposed Project would utilize an existing curb cut and common driveway over the adjacent property located at 166 Grove Street (the “**Common Driveway**”), owned by Core Real Estate Holdings and operated as a Planet Fitness, which also serves as access for Franklin Tile and Carpet located at 168 Grove Street, all as more particularly shown on the previously provided site plans (the “**Existing Easement**”). Access for the Proposed Project from the Common Driveway would extend the Existing Easement a bit further along its current 250 foot length to provide a left hand turn entrance into the Property. Owner is in direct communications and negotiations with

representatives of Core Real Estate Holdings in connection with the foregoing and, as stated at the First Public Hearing, understands that the Board’s approvals for the Proposed Project as currently designed would be conditioned upon securing the revised access easement.

In accordance with Sections 185-49 and 185-21(F) of the Town of Franklin Bylaws (the “Bylaws”), Owner and Licensee are requesting the Board grant additional Special Permits for both a Medical Marijuana Treatment Facility and use of a common driveway for more than 2 lots. The following documents are provided in support of the Proposed Project as submitted in electronic form as well as hard copy:

1. Application for Approval of Special Permits – 2 duplicates
2. Certificate of Ownership – 2 duplicate originals w/ Quitclaim Deed
3. Certified Abutter List – on file as obtained previously for 6/29/20 package
4. Special Permits Findings – set forth below and on a separate sheet
5. Operational Plan – 6 copies
6. Site Plans, prepared by Meridian Associates, dated May 8, 2020, as revised August 20, 2020 consisting of 10 sheets, including vehicular movement and site lighting plans
 - a. 17 sets of 11” x 17” prints of site plan set
 - b. 6 sets of 24” x 36” prints of site plan set (folded)
7. Stormwater Analysis and Calculations Report, prepared by Meridian Associates, dated May 8, 2020, as revised August 20, 2020 – 6 copies
8. Response Letter to BETA prepared by Meridian Associates, dated August 20, 2020
9. Traffic Study prepared by GPI, dated August 10, 2020 – 6 copies
10. Filing Fees payable to the Town – 2 additional separate checks
 - a. \$750.00 Special Permit Fee – Medical Marijuana Treatment Facility
 - b. \$750.00 Special Permit Fee – Common Driveway

SPECIAL PERMIT FINDINGS

The Board should grant the two additional Special Permits for the Proposed Project for the following reasons.

- a. Proposed project addresses or is consistent with neighborhood or Town need.

First, the Proposed Project is consistent with the neighborhood and Town’s needs. Chapter 185 of the Bylaws were enacted to, *inter alia*: (A) promote the health, safety, convenience, morals, and welfare of the inhabitants of the Town; (B) lessen the danger from fire and congestion; and (C) encourage the most appropriate use of land. *See* Bylaws, §185-1. The Proposed Project promotes health, safety, convenience, morals, and welfare by providing the Town’s residents with regulated access to medical marijuana in a safe environment as located within the Marijuana Use Overlay District Section 185-49 of the Bylaws enacted in 2013, and amended in 2017. The Proposed Project’s design, which consists of 1 principal building with

associated parking, is also intended to lessen the danger of fire (as the building is set far back from the property line and is not located next to other buildings) and congestion (as the Property will utilize the existing curb cuts onto the Common Driveway to ensure cars coming into and out of the Property will not backup Grove Street). Additionally, the Proposed Project will encourage the most appropriate use of the lot because it would improve a currently vacant parcel of land into a productive retail operation providing services to residents of the Town and an increased tax base to the Town. The Board's grant of the two additional Special Permits is consistent with the neighborhood and Town's needs.

b. Vehicular traffic flow, access and parking and pedestrian safety are properly addressed.

Second, vehicular traffic flow, access and parking, and pedestrian safety are properly addressed, with the utilization of the existing curb cuts onto the Common Driveway already serving two other businesses with no noticeable impact on the future traffic operations at nearby intersections. All customer access to the Property shall be regulated in such a manner so as no more than 100 vehicles are accessing the Property in any given hour. The Proposed Project's parking design, which includes 66 standard and 4 HC Accessible parking spaces, is more than sufficient to accommodate the required staff and customer parking on the Property. The traffic study for the Proposed Project further evidences the foregoing conclusions in greater detail.

c. Public roadways, drainage, utilities and other infrastructure are adequate or will be upgraded to accommodate development.

Third, public roadways, drainage, utilities, and other infrastructure are adequate or will be upgraded to accommodate development. The Proposed Project consists of using the curb cuts onto the Common Driveway that connects with Grove Street, which will be sufficient for retail operations at the Property. Owner is currently working with the Town and surrounding property owners to connect the Property's drainage and sewer system with the existing utility lines to connect the proposed Project's water, gas and electrical lines into the access way at 166 Grove Street at the existing gas, lateral water line and utility pole, respectively. The Board's grant of the two additional Special Permits will not materially impact the public roadways, drainage, utilities, or other infrastructure as they are currently adequate or are being upgraded to support the Proposed Project.

d. Neighborhood character and social structure will not be negatively impacted.

Fourth, the neighborhood character and social structure will not be negatively impacted. As mentioned above, the Property is located in an Industrial District and is surrounded by other retail operations. The Proposed Project is the same type of retail establishment that this area of the Town has been supporting and encouraging through its adoption of the Marijuana Use Overlay District. The Board's grant of the two additional Special Permits will not negatively impact any residential neighborhood or the Town's social structure.

e. The Project will not destroy or cause substantial damage to any environmentally significant natural resource, habitat, or feature or, if it will, proposed mitigation, remediation, replication, or compensatory measures are adequate.

Fifth, the Proposed Project will not destroy or cause substantial damage to any environmentally significant natural resource, habitat, or feature. To Owner's knowledge, there are not any natural resources, habitats, or features located on the Property that will be substantially damaged or destroyed during construction or operation of the Proposed Project. The Board's grant of the two additional Special Permits will not result in material environmental degradation.

f. Number, height, bulk, location and siting of building(s) and structure(s) will not result in abutting properties being deprived of light and fresh air circulation or being exposed to flooding or subjected to excessive noise, odor, light, vibrations, or airborne particulates.

Sixth, the number, height, bulk, location, and siting of the building and structures at the Property will not result in abutting properties being deprived of light or fresh air circulation or being exposed to flooding or subjected to excessive noise, odor, light, vibrations, or airborne particulates. The Proposed Project consists of 1 principal building and associated parking to be constructed on the currently vacant lot. The Proposed Project is consistent with the surrounding retail stores and properties. The Board's grant of the two additional Special Permits will not negatively impact the surrounding properties' light or fresh air circulation.

g. Water consumption and sewer use, taking into consideration current and projected future local water supply and demand and wastewater treatment capacity, will not be excessive.

Seventh, water consumption and sewer use, taking into consideration current and projected future local water supply and demand and wastewater treatment capacity, will not be excessive. The Proposed Project's water consumption and sewer usage will be consistent with normal retail stores similar to those located in the immediate vicinity. The Proposed Project intends to secure a similar access to the manhole that contains a pump station within the existing ROW easement alongside Grove Street, which Franklin Carpet and Tile is also utilizing. To Owner's knowledge such pump station has more than sufficient capacity to address the minimal increase associated with the Proposed Project's use – being only a small breakroom and 2 bathrooms for staff and customer use. The Board's grant of the two additional Special Permits will not materially impact water consumption or sewer usage in the neighborhood.

In conclusion, the Proposed Project's use will not have adverse effects which overbalance its beneficial effects on either the neighborhood or the Town, in view of the particular characteristics of the site and of the proposal in relation to that site. The Property is located in an Industrial District close to U.S. Interstate 495, directly abuts other retail stores, including, for example, a gym, tile and carpeting store, electrical supplies store, and brewery, and does not abut any residentially zoned properties. See Bylaws, Zoning Map. The Proposed Project is consistent

Franklin Planning Board
August 21, 2020
Page - 5 -

with and fits into the Town's planning of the surrounding neighborhood as an industrial zoned and primarily detached retail-oriented neighborhood. The Board's grant of the two additional Special Permits will not overbalance the beneficial effects on the surrounding neighborhood.

Pursuant to Section 185-36 of the Bylaws, Owner has provided the Board with documentation from a registered professional engineer to demonstrate the Proposed Project's compliance with the special permit criteria for impervious surface, as set forth in the Stormwater Analysis and Calculations Report, prepared by Meridian Associates, dated May 8, 2020, as revised August 20, 2020 including without limitation the following:

1. Stormwater runoff from the Property will not be increased following the development of the Proposed Project by more than 10% in a 20-year storm;
2. Soil loss rate from the Property will not be increased above the existing rate by more than 10% following development of the Proposed Project; and
3. Erosion control methods to be employed during construction of the Project will be adequate to prevent excessive soil loss.

For the above reasons and together with the First Letter and prior submissions, the Board should grant Owner and Licensee's initial and supplemental requests for the Site Plan and the Special Permits for the Proposed Project. Please do not hesitate to reach out should you have any questions.

Sincerely

Carla M. Moynihan

Enclosures

cc: Bryan Taberner, Director Planning & Community Development (btaberner@franklinma.gov)
Amy Love, Town Planner (alove@franklinma.gov)
Matthew Crowley, P.E., Town Project Manager (MCrowley@BETA-Inc.com & overnight)
Jaklyn Centracchio, BETA Inc. (JCentracchio@BETA-Inc.com)
Andrew Bradford, PharmaCann LLC
Shelley Stormo, PharmaCann LLC

TECHNICAL MEMORANDUM

REF: NEX-2020163.00

DATE: August 18, 2020

TO: Mr. David Kelley, P.E.
Meridian Associates, Inc.
500 Cummings Center, Suite 5950
Beverly, MA 01915

FROM: Ms. Rebecca L. Brown, P.E., Senior Project Manager
Mr. Douglas S. Halpert, P.E., Project Engineer

RE: Traffic Impact Assessment
Proposed Marijuana Dispensary
164 Grove Street – Franklin, Massachusetts



INTRODUCTION

Greenman-Pedersen, Inc. (GPI) has prepared this *Traffic Impact Assessment* (TIA) for a proposed marijuana dispensary to be located at 164 Grove Street in Franklin, Massachusetts. The existing site is currently vacant and the project consists of constructing a ±4,150 square foot (SF) marijuana dispensary. Access to the site is proposed via a connection to the adjacent Planet Fitness and Franklin Tile Carpet One Floor & Home (Franklin Tile) driveway. This TIA has been prepared to evaluate the operations and safety impacts associated with the proposed development on the adjacent roadway network.

The site is bounded by Franklin Grove Drive to the north, Planet Fitness & Franklin Tile driveway to the south, undeveloped land to the east, and Grove Street to the west. The site location in relation to the surrounding roadways is shown on the map on Figure 1.



Figure 1
Project Locus Map

EXISTING CONDITIONS

Study Area

Evaluation of the traffic impacts associated with the proposed project requires an evaluation of existing and projected traffic volumes on the adjacent streets, the volume of traffic expected to be generated by the project, and the impact that this traffic will have on the adjacent streets and nearby intersections. In preparing the TIA for the proposed site, the following intersections have been analyzed:

- West Central Street (Route 140) / Grove Street / West Central Street
- Grove Street / Planet Fitness & Franklin Tile Driveway
- Washington Street / Grove Street

Grove Street

Grove Street is classified as an urban minor arterial running in a north-south direction. Grove Street consists of one general purpose lane in each direction with turn lanes at intersections. The posted speed limit is 40 miles per hour (mph). No shoulder is provided along Grove Street for vehicles or bicycle accommodations. No pedestrian accommodations are provided along Grove Street. Land uses along Grove Street consist of a mix of mainly commercial and industrial uses, with residential developments located at the north and south ends of the roadway.

West Central Street (Route 140) / Grove Street / West Central Street

Grove Street and West Central Street intersect Route 140 from the south and north, respectively, to form a four-way, signalized intersection. The Route 140 eastbound approach provides an exclusive left-turn lane, an exclusive through lane, and a shared through / right-turn lane. The Route 140 westbound approach provides two exclusive left-turn lanes, two exclusive through lanes, and an exclusive right-turn lane. Directional travel along Route 140 is separated by a raised concrete median. The Grove Street northbound approach provides a shared left-turn / through lane and a channelized right-turn lane with directional travel separated by a striped double-yellow centerline. The West Central Street southbound approach provides an exclusive left-turn lane, an exclusive through lane, and a channelized right-turn lane with directional travel separated by a striped double-yellow centerline. A sidewalk is provided along the northerly side of Route 140 east of the intersection, which continues to the easterly side of West Central Street. There are no crosswalks or bicycle accommodations provided at the intersection.

Grove Street / Planet Fitness & Franklin Tile Driveway

The Planet Fitness and Franklin Tile Carpet One Floor & Home (Franklin Tile) [#166-168 Grove Street] driveway, intersects Grove Street from the east to form a three-way “T-shaped”, unsignalized intersection. The Planet Fitness & Franklin Tile Driveway is not striped, but is 24-feet wide, providing adequate width for a single lane in each direction. The Grove Street northbound and southbound approaches each provide a single general-purpose lane with directional travel separated by a striped double-yellow centerline. There are no pedestrian or bicycle accommodations provided at the intersection.

Washington Street / Grove Street

Grove Street intersects Washington Street from the north to form a three-way “T-shaped”, unsignalized intersection. The Washington Street eastbound approach provides an exclusive left-turn lane and an exclusive through lane with directional travel separated by a striped double-yellow centerline. The Washington Street westbound approach provides a shared left-turn / through lane with directional travel

separated by a striped double-yellow centerline. The Grove Street southbound approach provides an exclusive left-turn lane and an exclusive right-turn lane with directional travel separated by a striped double-yellow centerline. Sidewalks are provided along both sides of Washington Street with crosswalks provided across the Grove Street southbound and Washington Street eastbound approaches. There are no bicycle accommodations provided at the intersection.

Traffic Volumes

Base traffic conditions within the study area were developed by utilizing manual Turning Movement Counts (TMCs) and Automatic Traffic Recorder (ATR) counts collected in February 2020 at part of the traffic study for another development proposed on the adjacent property at 162 Grove Street by Tetra Tech.¹ The traffic-count data is provided in the Appendix.

The ATRs were collected along Grove Street just north of the proposed site driveway on Thursday, February 6 to Saturday, February 8, 2020. The TMCs were collected at the intersections of Grove Street with West Central Street (Route 140) and Washington Street during the weekday AM (7:00 AM – 9:00 AM) and weekday PM (4:00 PM – 6:00 PM) peak periods on Thursday, February 6, 2020 and during the Saturday afternoon (3:00 PM – 6:00 PM) peak period on Saturday, February 8, 2020.

Due to COVID-19 related restrictions, the Planet Fitness and Franklin Tile Carpet One Floor & Home (Franklin Tile) businesses were closed at the time that this TIA was completed. Therefore, the traffic volumes at the Planet Fitness & Franklin Tile Driveway were estimated using trip-generation rates published by the Institute of Transportation Engineers (ITE) *Trip Generation Manual*² for Land Use Code (LUC) 492 (Health/Fitness Club) and LUC 820 (Shopping Center) and were distributed to the adjacent roadway based on existing travel patterns along Grove Street from counts collected in February 2020 prior to the start of COVID-19 impacts on traffic patterns. The through volumes along Grove Street at the Planet Fitness & Franklin Tile Driveway were estimated by balancing with the counts collected as part of the #162 Grove Street Traffic Impact Study (TIS) at the Grove Street Business Center driveway.

Seasonal Adjustment

Traffic on a given roadway typically fluctuates throughout the year depending on the area and the type of roadway. To account for the seasonal fluctuation, MassDOT historical seasonal factors were reviewed for Factor Group U4-U7 (Minor arterial, major and minor collector, and local road) for the most recent three years of available data (2017-2019). This information revealed that February traffic volumes are typically 2.3 percent below average-month conditions. Therefore, the TMCs were further increased by 2.3% to reflect an average-month analysis condition. The MassDOT seasonal adjustment data is provided in the Appendix.

Table 1 summarizes the existing daily and peak-hour traffic volumes on Grove Street.

¹ *Traffic Impact Study – 162 Grove Street, Franklin, MA*; Tetra Tech, Inc.; July 13, 2020.

² *Trip Generation Manual, 10th Edition*; Institute of Transportation Engineers; Washington, DC; September 2017.

TABLE 1
Existing Traffic Volume Summary

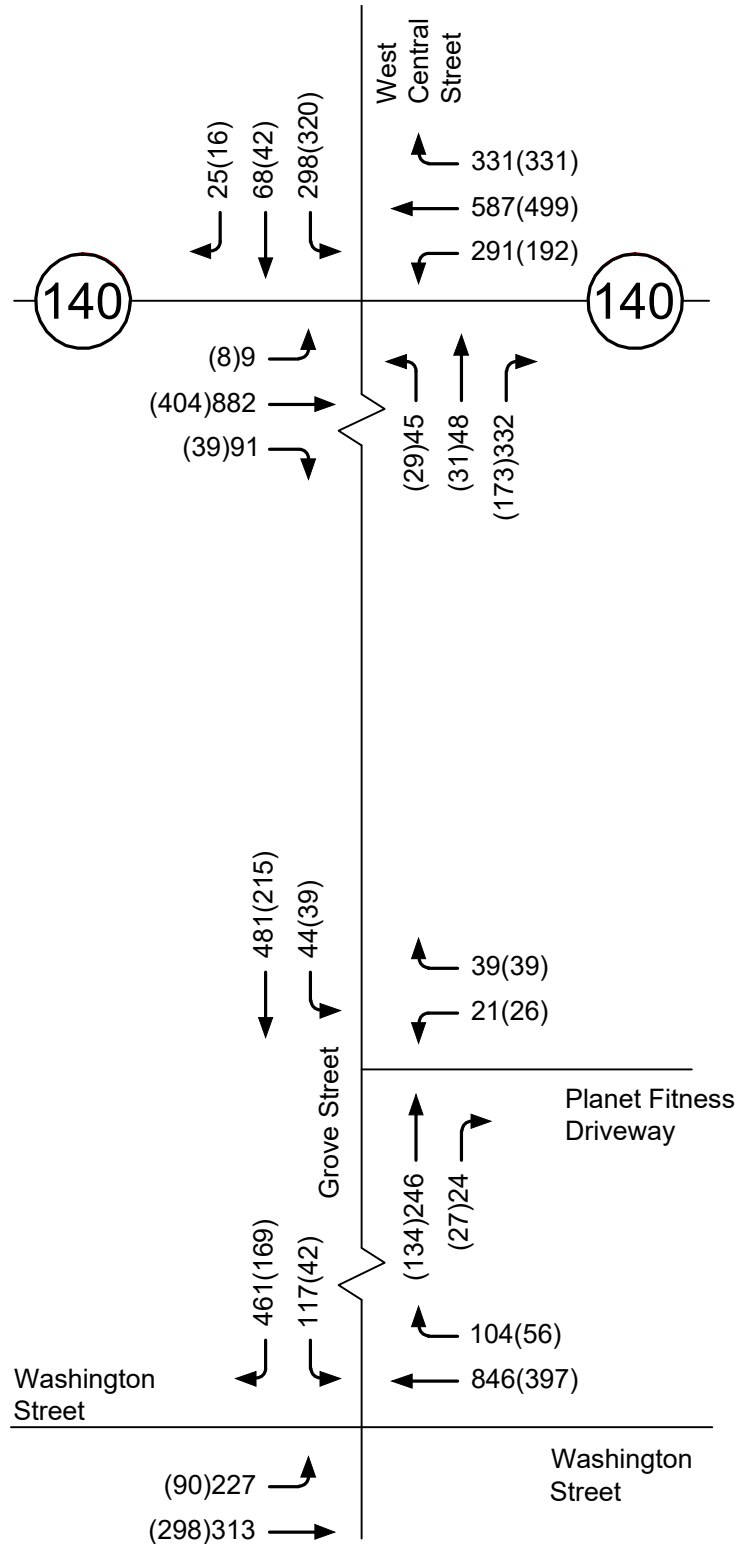
Location/Time Period	Daily Volume (vpd) ^a	Peak Hour Volume (vph) ^b	K Factor (%) ^c	Directional Distribution ^d
Grove Street, south of #162 Grove Street:				
Weekday Daily	7,270			
Weekday AM Peak Hour		695	9.6	79% NB
Weekday PM Peak Hour		760	10.5	67% SB
Saturday Daily	5,500			
Saturday Afternoon Peak Hour		585	10.6	51% SB

^a In vehicles per day.

^b In vehicles per hour.

^c Percentage of daily traffic occurring during the peak hour.

^d NB = northbound and SB = Southbound.



NOT TO SCALE

XX(XX) = Weekday PM(Saturday Afternoon)

Collisions

Collision data for the study area intersections were obtained from MassDOT for the latest complete five years available (2014-2018). A summary of the crashes at this intersection is provided in Table 2.

In addition to the collision summary, crash occurrence also should be compared to the volume of traffic through a particular intersection or on a particular classification of roadway to determine any significance. Accordingly, the crash rate was calculated for the study area intersections and compared with the statewide and district-wide averages. An intersection crash rate is a measure of the frequency of collisions compared to the volume of traffic through an intersection and is presented in crashes per million entering vehicles (c/mev). For signalized intersections, the statewide average is 0.78 c/mev and the District 3 average is 0.89 c/mev. For unsignalized intersections, the statewide average is 0.57 c/mev and the District 3 average is 0.61 c/mev. A comparison of the calculated crash rate to these averages can be used to establish the significance of collision occurrence and whether or not potential safety problems exist. All crash rate worksheets are provided in the Appendix.

Based on the collision data, only three (3) collisions occurred at #166 Grove Street, which corresponds to the Planet Fitness address. However, the crashes were geocoded on the MassDOT Crash Portal closer to #158 Grove Street driveway. Assuming that the crashes did indeed occur at the #166 Grove Street driveway, the intersection with Grove Street experienced an average of 0.60 collisions per year over the five-year study period. The crash rate for this intersection (0.17 c/mev) is lower than the statewide (0.57 c/mev) and District 3 average (0.61 c/mev) for unsignalized intersections.

All other study area intersections experienced crash rates below the state and District-wide averages, indicating no significant safety issue exists.

TABLE 2
Collision Summary

Location	Number of Collisions			Severity ^a				Collision Type ^b						Percent During	
	Total	Average per Year	Crash Rate ^c	PD	PI	F	NR	A	SS	RE	HO	FO / SV	U	Commuter Peak ^d	Wet/Icy Conditions ^e
Route 140 at Grove Street	28	5.6	0.47	21	4	--	3	9	9	7	2	1	--	36%	32%
Grove Street at Planet Fitness & Franklin Tile (#166 Grove St)	3	0.6	0.17	2	1	--	--	--	--	1	1	--	--	33%	0%
Washington Street at Grove Street	12	2.4	0.34	8	4	--	--	7	1	3	1	--	--	17%	42%

Source: MassDOT (2014-2018) for #166 Grove Street driveway and MassDOT (2013-2017) for all others.

^a PD = property damage only; PI = personal injury; F = fatality, NR = not reported.

^b A = angle; SS = sideswipe; RE = rear end; HO = head-on; FO = fixed object; SV = single vehicle; U = unknown.

^c Measured in crashes per million entering vehicles for intersections.

^d Percent of vehicle incidents that occurred during the weekday AM (7:00 AM-9:00 AM) and weekday PM (4:00 PM-6:00 PM) commuter peak periods.

^e Represents the percentage of only “known” collisions occurring during inclement weather conditions.

Vehicle Speeds

Vehicle speed measurements were conducted along Grove Street by measuring the elapsed time for vehicles traveling a short, pre-measured distance between two checkpoints. The travel times were recorded using ATRs and the speeds were derived by dividing the elapsed time into the measured distance between checkpoints. The primary use of this information is explained in the *Sight Distance* section where the speeds are correlated to sight distance measurements taken at the location of the site driveways to assure that adequate sight distances exist at the driveways to provide safe operation. The results of the speed measurements are summarized in Table 3.

**TABLE 3
Observed Travel Speeds**

Location/Direction	Enforced Speed Limit ^a	85 th Percentile Speed ^b
Grove Street adjacent to the site: <i>Northbound</i>	40	40
<i>Southbound</i>	40	41

^a In miles per hour (mph).

^b Speed at, or below which 85 percent of all observed vehicles travel.

As shown in Table 3, the 85th percentile speeds were found to be equal to or slightly higher than the enforced speed limits of 40 mph on Grove Street, adjacent to the site.

Sight Distance

To identify potential safety concerns associated with site access and egress, sight distances have been evaluated at the proposed site driveway location to determine if the available sight distances for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. The available sight distances were compared with minimum requirements, as established by the American Association of State Highway and Transportation Officials (AASHTO)³. AASHTO is the national standard by which vehicle sight distance is calculated, measured, and reported. The Massachusetts Executive Office of Transportation (EOT) and the Executive Office of Energy and Environmental Affairs (EEA) require the use of AASHTO sight distance standards when preparing traffic impact assessments and studies, as stated in their guidelines for traffic impact assessments.

Sight distance is the length of roadway ahead that is visible to the driver. Stopping Sight Distance (SSD) is the minimum distance required for a vehicle traveling at a certain speed to safely stop before reaching a stationary object in its path. The values are based on a driver perception and reaction time of 2.5 seconds and a braking distance calculated for wet, level pavements. When the roadway is either on an upgrade or downgrade, grade correction factors are applied. Stopping sight distance is measured from an eye height of 3.5 feet to an object height of 2 feet above street level, equivalent to the taillight height of a passenger car. The SSD is measured along the centerline of the traveled way of the major road.

³ *A Policy on Geometric Design of Highways and Streets*; American Association of State Highway and Transportation Officials (AASHTO); 2018.

Intersection sight distance (ISD) is provided on minor street approaches to allow the drivers of stopped vehicles a sufficient view of the major roadway to decide when to enter the major roadway. By definition, ISD is the minimum distance required for a motorist exiting a minor street to turn onto the major street, without being overtaken by an approaching vehicle reducing its speed from the design speed to 70 percent of the design speed. ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet above street level. The use of an object height equal to the driver eye height makes intersection sight distances reciprocal (i.e., if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle). When the minor street is on an upgrade that exceeds 3 percent, grade correction factors are applied.

SSD is generally more important as it represents the minimum distance required for safe stopping while ISD is based only upon acceptable speed reductions to the approaching traffic stream. The ISD, however, must be equal to or greater than the minimum required SSD in order to provide safe operations at the intersection. In accordance with the AASHTO manual, *“If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.”* Accordingly, ISD should be at least equal to the distance required to allow a driver approaching the minor road to safely stop.

The available SSD and ISD at the proposed site driveway were measured and compared to minimum requirements as established by AASHTO. Based on the enforced and observed speeds, the SSD and ISD requirements at these intersections were calculated. The required minimum sight distances for the driveway are compared to the available distances, as shown in Table 4.

As indicated in Table 4 below, available sight distances at the site driveway on Grove Street will exceed AASHTO recommendations for SSD and ISD, assuming some clearing vegetation along the property frontage. The proposed sight triangles required to meet AASHTO recommendations are graphically depicted within the Site Plans, included in the Appendix.

In addition, it is recommended that any proposed plantings, vegetation, landscaping, and signing along the site frontage be kept low to the ground (no more than 3.0 feet above street level) or set back sufficiently from Grove Street so as not to inhibit the available sight lines.

**TABLE 4
Sight Distance Summary**

Location/Direction	Stopping Sight Distance (feet)		Intersection Sight Distance (feet)		
	Measured	Minimum Required ^a	Measured	Minimum Required ^b	Desirable ^c
Grove Street at Planet Fitness Driveway:					
<i>North of intersection (SB)</i>	500+	320	540	320	540
<i>South of intersection (NB)</i>	500+	285	500+	285	430

^a Values based on AASHTO requirements for minimum SSD based on 85th percentile speeds; 40 mph for northbound travel and 41 mph for southbound travel on Grove Street.

^b Values based on AASHTO requirements for SSD.

^c Values based on AASHTO requirements for ISD for posted speed of 40 mph on Grove Street.

FUTURE CONDITIONS

To estimate the impact of site-generated traffic within the study area, existing traffic volumes were projected to the year 2027, representing a seven-year design horizon based on coordination with the Town of Franklin Town Planner. The proposed development is expected to be completed and fully operational well within this time frame. Traffic volumes on the roadway network at that time will include existing traffic and new traffic due to normal traffic growth. Consideration of these factors resulted in the development of 2027 No-Build traffic volumes, which assume that the proposed redevelopment is not built. The incremental impacts of the proposed project may then be determined by adding site-generated traffic volumes (Build conditions) and making comparisons to the No-Build conditions.

Traffic Growth

To develop the 2027 No-Build forecast volumes, two components of traffic growth were considered. First, an annual growth percentage was determined. Based on MassDOT historical traffic-volume data⁴ traffic volumes in the surrounding area have been growing at a rate of 0.5 percent per year. To provide a conservative (worse case) analysis condition and provide consistency with other studies recently completed for developments in the area, a 1.0 percent compounded annual growth rate was used to project traffic volumes to 2027 conditions.

Second, any planned or approved specific developments in the area that would generate a significant volume of traffic on study area roadways within the next five years were considered. The following projects were identified based on discussions with the Town of Franklin Town Planner:

- *160 Grove Street* – This project consists of constructing a 122,300 SF cultivation and production facility with 162 parking spaces.⁵
- *162 Grove Street* – This project consists of constructing a 3,856 SF Marijuana Dispensary, 7,584 SF of Warehousing, and 4,647 SF of general office building.⁶
- *176-210 Grove Street* – This project consists of constructing a 150,000 SF warehouse / distribution building with approximately 107 parking spaces, 33 loading docks, and 20 trailer spaces.⁷

The site-generated trips associated with each of these developments were obtained from their respective traffic impact studies. The detailed site-generated networks and calculations for each of these developments is provided in the Appendix.

⁴ *MassDOT Transportation Data Management System*; Station #3180 on I-495 at Medway Town Line (Medway) and Station #6125 on I-495 at Franklin Town Line (Bellingham).

⁵ *Traffic Assessment – Hennep Cultivation Facility 160 Grove Street, Franklin, MA*; Ron Muller & Associates; April 14, 2020.

⁶ *Traffic Impact Assessment – 162 Grove Street, Franklin, MA*; Tetra Tech, Inc. July 13, 2020.

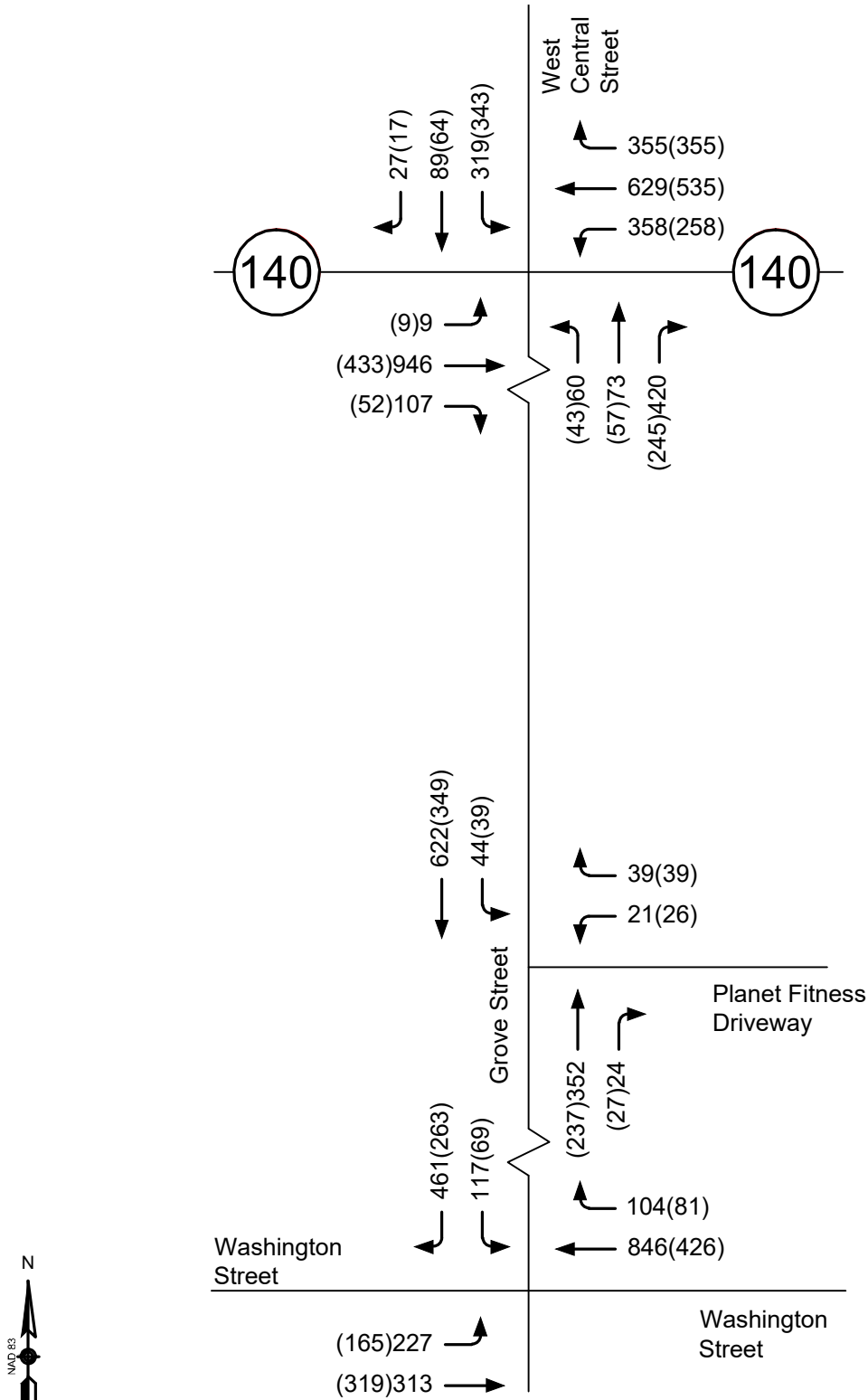
⁷ *Transportation Impact Assessment – Proposed Warehouse/Distribution Building 176-210 Grove Street, Franklin, MA*; Vanasse & Associates, Inc.; February 2020.

Planned Roadway Improvements

Based on discussions with the Town of Franklin Department of Public Works and Town's Engineering Construction Project website, there are no planned roadway improvement projects in the vicinity of the proposed project.

No-Build Conditions

The 2027 No-Build peak-hour traffic volumes were accordingly developed by applying a 1.0 percent compounded annual traffic growth rate (7.2 percent over seven years) to the 2020 Existing traffic volumes and adding traffic generated by the developments by others. The resulting 2027 No-Build traffic volumes are shown graphically on Figure 3 for the weekday PM and Saturday afternoon peak hours.



NOT TO SCALE

XX(X) = Weekday PM(Saturday Afternoon)



Engineering
Design
Planning
Construction Management

Greenman-Pedersen, Inc.
181 Ballardvale Street
Suite 202
Wilmington, MA 01887

Figure 3

2027 No-Build
Peak Hour Traffic Volumes

Trip Generation

As proposed, the development consists of constructing a ±4,150 SF marijuana dispensary. Traffic to be generated by the proposed marijuana dispensary was estimated based on trip rates contained in the Institute of Transportation Engineers (ITE) publication *Trip Generation Manual, 10th Edition*⁸ for LUC 882 (Marijuana Dispensary). The detailed calculations worksheets are included in the Appendix and the resulting trip generation is summarized in Table 5.

The Applicant currently operates a similar facility in Wareham, Massachusetts. Based on information provided by the Applicant, the Wareham facility experiences an average of 500 transactions per day, with an average of approximately 40 transactions occurring during the weekday PM peak hour and 60 transactions occurring during the Saturday afternoon peak hour. In addition, the facility in Wareham operates with approximately 25 employees, and the Applicant anticipates the proposed facility in Franklin will experience similar operations. GPI compared the site-generated trip estimate based on ITE trip rates to the information provided by the Applicant on daily transactions from the Wareham facility as shown in Table 5.

Although many patrons will travel to the site with more than one occupant per vehicle, to provide the most conservative (worse case) analysis, it was assumed that all patrons traveled in separate vehicles so that each transaction generated two vehicle trips (one entering and one exiting). In addition, although employees will be encouraged to carpool and utilize public transportation, each employee was assumed to travel in a separate vehicle. Therefore, each employee was assumed to generate two vehicle trips (one entering at the start of their shift and one exiting at the end of their shift).

**TABLE 5
Trip Generation Summary**

Time Period/Direction	Transaction Data ^a	LUC 882 ^b
Weekday Daily	1,050	1,048
Weekday PM Peak Hour:		
<i>Enter</i>	40	46
<i>Exit</i>	<u>40</u>	<u>45</u>
<i>Total</i>	80	91
Saturday Daily	1,050	1,076
Saturday Afternoon Peak Hour:		
<i>Enter</i>	60	76
<i>Exit</i>	<u>60</u>	<u>75</u>
<i>Total</i>	120	151

^a Trips based on Applicant provided transaction data.

^b ITE LUC 882 (Marijuana Dispensary) for 4,150 SF.

As shown in Table 5, the ITE trip rates for LUC 882 provide a similar estimate of site-generated vehicle trips as compared to the Applicant-provided data on number of employees and transactions per day. As the ITE

⁸ *Trip Generation Manual, 10th Edition*; Institute of Transportation Engineers; Washington, DC; 2017.

trip rates resulted in slightly higher estimates of site-generated trips, the ITE rates were utilized to represent site-generated vehicle trips to provide a more conservative (worse case) analysis condition. Therefore, the proposed development is expected to generate 91 *new* vehicle trips (46 entering and 45 exiting) during the weekday PM peak hour and 151 *new* trips (76 entering and 75 exiting) during the Saturday afternoon peak hour.

Trip Distribution

Having estimated project-generated vehicle trips, the next step is to determine the distribution of project traffic and assign these trips to the local roadway network. To assess the distribution of vehicles traveling to/from the site, a population gravity model was created based on 2010 U.S. Census data for municipalities within a 10-mile radius, which accounted for distance from the site and competing opportunities in the area. The detailed trip distribution calculations are provided in the Appendix. Table 6 summarizes the resulting trip distribution percentages.

**TABLE 6
Trip-Distribution Summary**

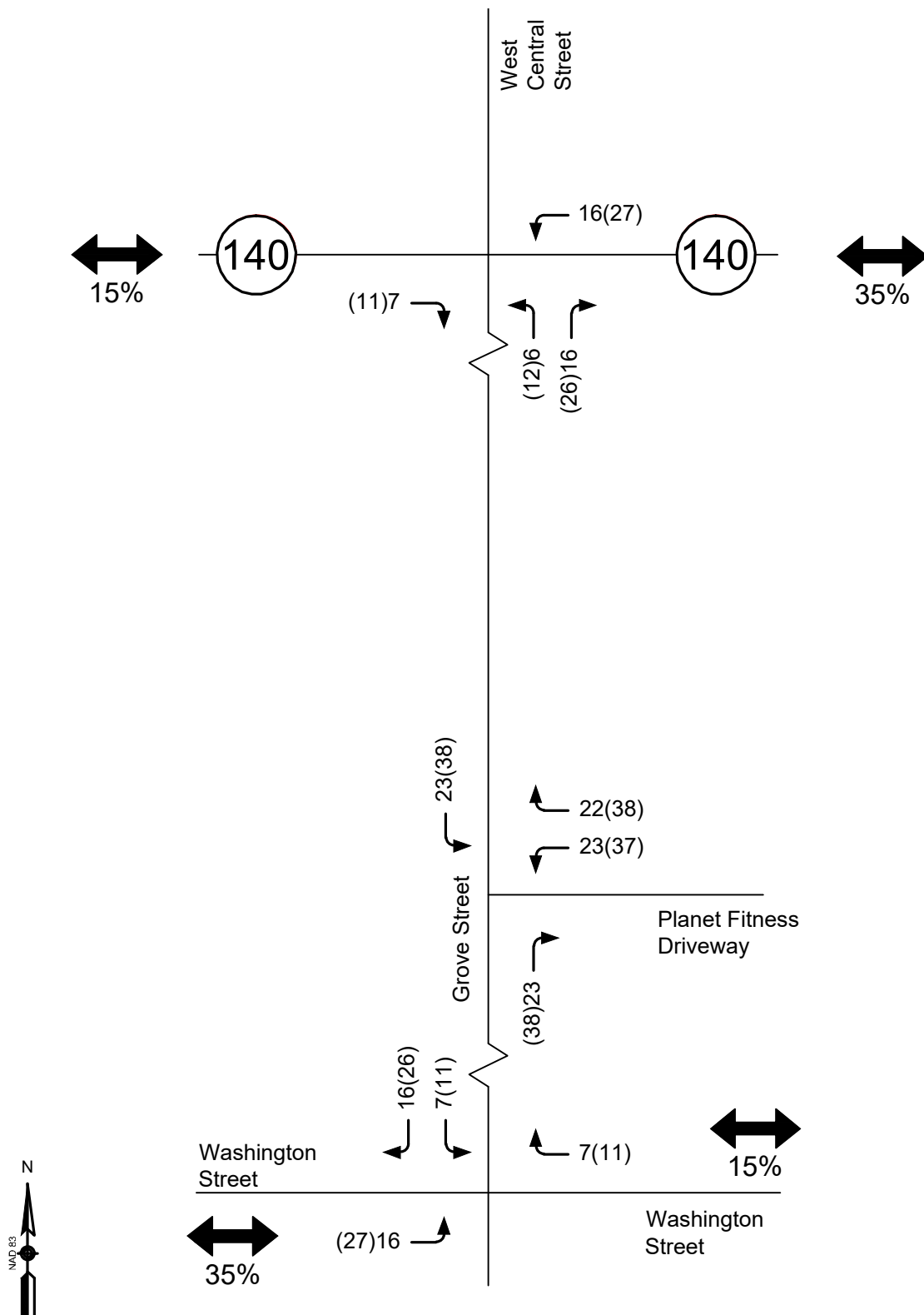
Direction	Percentage of Theater Trips to/from
Route 140 to/from East/North	35
Washington Street to/from East/South	15
Route 140 to/from West/North	15
Washington Street to/from / West/South	35
Total	100

Build Traffic Volumes

Based on the traffic generation and distribution estimates for this project, the traffic volumes associated with the proposed development were assigned to the roadway network. The site-generated traffic volumes are illustrated on Figure 4. The site-generated traffic volumes were then combined with the 2027 No-Build traffic volumes to develop the 2027 Build peak-hour traffic-volume networks. The 2027 Build weekday PM, and Saturday afternoon peak hour traffic volumes are illustrated on Figure 5.

Traffic Increases

The proposed development will result in increases in traffic on the study area roadways. As shown on Figure 4, traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 23 to 53 vehicles. These increases represent, on average, one additional vehicle approximately every one to 2.5 minutes during the peak hours.

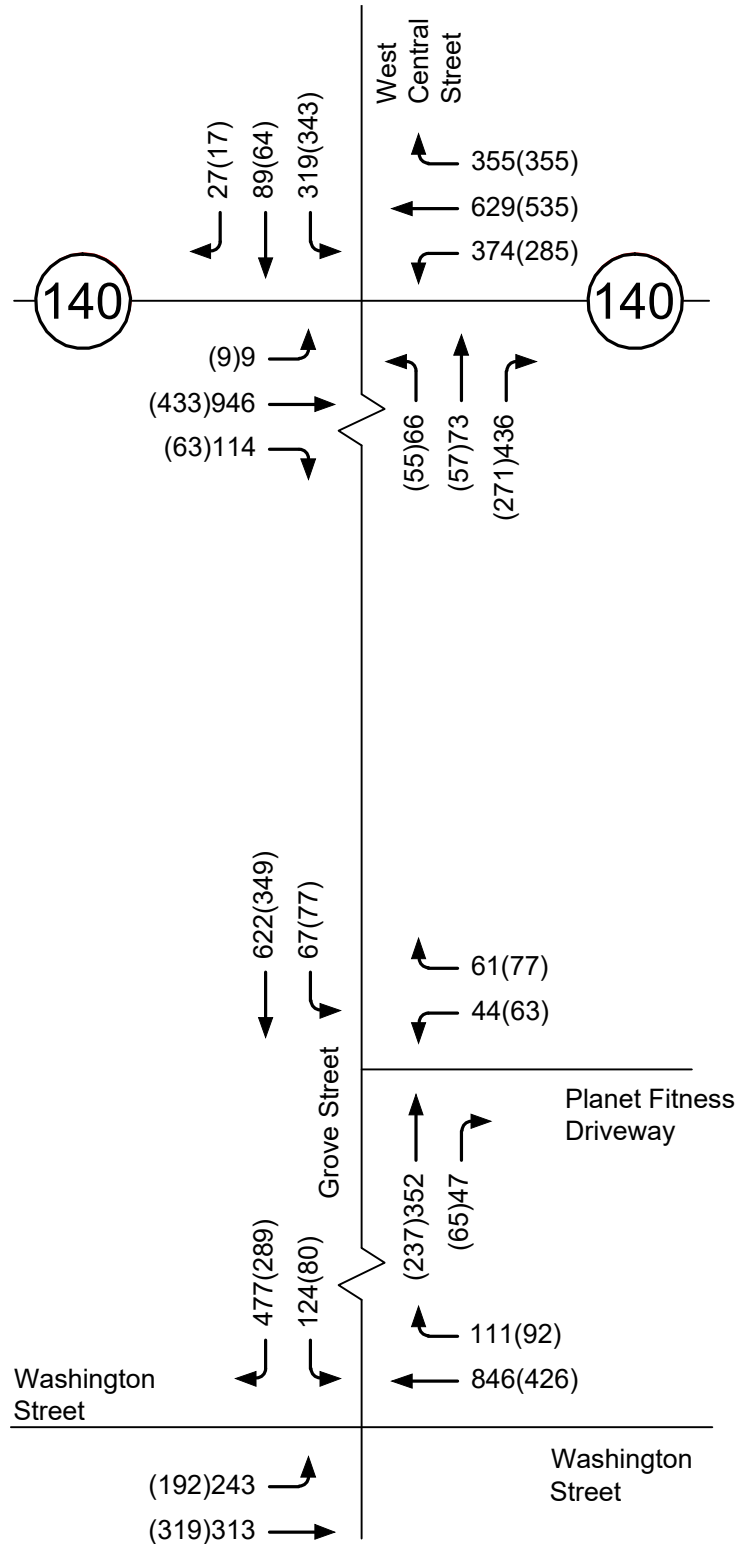


NOT TO SCALE

XX(X) = Weekday PM (Saturday Afternoon)

Figure 4

**Site Generated Trips
Peak Hour Traffic Volumes**



NOT TO SCALE

XX(XX) = Weekday PM(Saturday Afternoon)



Engineering
Design
Planning
Construction Management

Greenman-Pedersen, Inc.
181 Ballardvale Street
Suite 202
Wilmington, MA 01887

Figure 5

2027 Build
Peak Hour Traffic Volumes

CAPACITY AND QUEUE ANALYSIS

Capacity and queue analyses were conducted at all study area locations under 2020 Existing, 2027 No-Build, and 2027 Build traffic-volume conditions. The impact of site-generated traffic can be measured by comparing 2027 No-Build conditions to 2027 Build conditions.

Methodology

The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM)⁹ and is described in the Appendix. The TIA utilizes the HCM 6th Edition methodology as it is the most recently approved method by MassDOT.

For signalized intersections, the maximum back of queue during a typical (average) signal cycle and a 95th percentile signal cycle was calculated for each lane group during the peak periods studied. The back of queue is the length of a backup of vehicles from the stop line of a signalized intersection to the last vehicle in the queue that is required to stop, regardless of the signal indication. The length of this queue depends on a number of factors including signal timing, vehicle arrival patterns, and the saturation flow rate. For unsignalized intersections, the 95th percentile queue represents the length of queue 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). In this case, the queue length is a function of the capacity of the movement and the movement's degree of saturation.

Analysis Results

The results of the level-of-service (LOS) and queue analyses are shown in Table 7 and are discussed below. Capacity and queue analyses were conducted at the study area intersections utilizing *Synchro* software.¹⁰ The capacity and queue analysis worksheets for all conditions are provided in the Appendix.

West Central Street (Route 140) / Grove Street / West Central Street

As shown in Table 7, the Grove Street northbound right-turn movement is anticipated to operate at level-of-service (LOS) F under 2027 No-Build and Build conditions. However, the additional traffic generated by the proposed marijuana dispensary is not anticipated to increase delays on this movement by more than thirteen seconds or increase queues by more than one vehicle. All other movements at this intersection are anticipated to operate under capacity (V/C ratio less than 1.00) and at LOS E or better during all analysis time periods. The proposed development is not anticipated to increase delay on other movement by more than five seconds per vehicle or increase queues by more than one vehicle.

GPI notes that this intersection is operating as an actuated-uncoordinated signal and therefore the signal timings could be evaluated to improve operations without affecting adjacent signals. Alterations to the signal timing could reduce the delays and queues at the intersection under future year conditions. However, it should be noted that the analysis performed as part of this TIA was based on traffic volumes collected in February 2020, prior to COVID-19 impacting the United States, and projected to a seven-year design horizon using conservative (higher than expected) seasonal and annual growth rates. Traffic counts from local area count stations indicate that traffic volumes are currently 10 to 50 percent lower than pre-COVID-

⁹ *Highway Capacity Manual 6th Edition*, Transportation Research Board; Washington, D.C.; 2016.

¹⁰ *Synchro plus SimTraffic 10*; Trafficware LLC.; Sugar Land, TX; 2017.

19 conditions due to Work From Home (WFH) operations, closures and reduced occupancy of businesses, and travel restrictions due to COVID-19. It is currently unknown what long-term changes may result due to companies shifting to remote operations, telecommuting, etc. Therefore, the volumes projected for 2027 future conditions may never be realized. GPI recommends conducting a post-occupancy, post COVID-19 monitoring study to assess whether any modifications to signal timings are necessary based on actual traffic patterns.

Grove Street at Planet Fitness & Franklin Tile Driveway

All approaches to the intersection are anticipated to operate at LOS C or better with queues of two vehicles or less under all analysis conditions. The additional traffic generated by the proposed development is not anticipated to increase delays on any movement by more than seven seconds per vehicle or increase queues by more than one vehicle.

Washington Street / Grove Street

Although the Grove Street southbound left-turn is anticipated to operate at LOS F during the Saturday afternoon peak hour, the delay on this movement is only estimated to be slightly over the threshold of LOS F. In addition, the volume-to-capacity (V/C) ratio will be well below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes, and the queues are not expected to exceed three vehicles. All other movements are anticipated to operate at LOS C or better with queues of less than four vehicles.

During the weekday PM peak hour, the Grove Street southbound left- and right-turn movements currently operate near capacity at LOS F. Under 2027 No-Build and Build conditions, these movements are expected to operate over capacity (V/C ratio over 1.00) with long delays and queues. A traffic signal warrant analysis was prepared as part of the TIS for the #162 Grove Street development by Tetra Tech, which revealed that installation of a traffic signal is currently warranted at the Washington Street / Grove Street intersection based on Warrant 3 – Peak Hour applied to February 2020 Existing traffic volumes. However, as previously noted, this analysis is based on volumes collected prior to impacts from COVID-19. As post COVID-19 traffic patterns are currently unpredictable, GPI recommends that a post-occupancy, post COVID-19 monitoring study be prepared to assess whether future traffic volumes meet the warrants for installation of a traffic signal. This warrant analysis should consider all three volume-related warrants (Warrant 1 – Eight Hour Vehicular Volume, Warrant 2 – Four-Hour Vehicular Volume, and Warrant 3 – Peak Hour).

As described in the *Traffic Growth* section of this report, there are numerous developments by others proposed along Grove Street, which are likely to increase traffic volumes through this intersection. The Applicant for the #162 Grove Street development has committed to providing a fair-share contribution toward future signalization or other geometric improvements at this intersection. The Proponent for the #164 Grove Street development also commits to providing a fair share contribution toward completion of the post-occupancy, post COVID-19 monitoring study, as well as toward the implementation of geometric improvements and/or signalization of the intersection, proportional to the percentage increase in traffic volumes through the intersection.

TABLE 7
Intersection Capacity Analysis Summary

Intersection/Peak Hour/Lane Group	2020 Existing				2027 No-Build				2027 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
Route 140 / Grove Street / West Central Street												
<i>Weekday PM:</i>												
Route 140 EB left-turn	0.37	50.7	D	<25/<25	0.38	52.7	D	<25/<25	0.38	52.8	D	<25/<25
Route 140 EB through/right-turn	0.89	41.0	D	278/398	0.94	51.8	D	316/454	0.94	52.9	D	320/458
Route 140 WB left-turn	0.79	45.0	D	87/136	0.85	52.7	D	111/190	0.89	57.3	E	117/202
Route 140 WB through	0.42	17.3	B	95/178	0.43	16.9	B	106/193	0.43	16.8	B	106/193
Route 140 WB right-turn	0.51	18.5	B	<25/50	0.52	18.2	B	<25/52	0.51	18.1	B	<25/52
Grove Street NB left-turn/through	0.34	34.7	C	53/105	0.52	38.9	D	79/168	0.55	39.8	D	82/180
Grove Street NB right-turn	0.88	50.6	D	174/273	1.07	96.3	F	238/412	1.11	109.6	F	251/435
W. Central Street SB left-turn	0.76	34.2	C	147/231	0.93	60.8	E	160/280	0.95	64.9	E	160/286
W. Central Street SB through/right-turn	0.11	19.3	B	31/68	0.15	21.4	C	43/85	0.15	21.5	C	43/85
Overall Intersection	0.57	33.9	C	--/--	0.63	46.9	D	--/--	0.64	50.1	D	--/--
<i>Saturday Afternoon:</i>												
Route 140 EB left-turn	0.36	37.3	D	<25/<25	0.36	36.9	D	<25/<25	0.36	39.9	D	<25/<25
Route 140 EB through/right-turn	0.66	26.3	C	82/127	0.74	30.5	C	91/153	0.76	31.7	C	93/157
Route 140 WB left-turn	0.62	28.8	C	38/75	0.81	39.9	D	52/111	0.90	51.5	D	58/126
Route 140 WB through	0.55	18.6	B	71/170	0.59	19.5	B	77/188	0.59	19.5	B	77/188
Route 140 WB right-turn	0.78	27.9	C	<25/60	0.84	33.5	C	<25/62	0.84	33.5	C	<25/62
Grove Street NB left-turn/through	0.25	25.3	C	<25/58	0.43	27.1	C	39/111	0.49	27.7	C	44/127
Grove Street NB right-turn	0.59	24.5	C	53/103	0.83	39.9	D	80/146	0.92	54.8	D	91/163
W. Central Street SB left-turn	0.63	18.9	B	90/161	0.71	21.8	C	98/188	0.73	22.6	C	98/189
W. Central Street SB through/right-turn	0.06	11.1	B	<25/29	0.09	11.3	B	<25/39	0.09	11.3	B	<25/39
Overall Intersection	0.51	23.3	C	--/--	0.59	28.5	C	--/--	0.62	32.1	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Average/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

TABLE 7 (Continued)
Intersection Capacity Analysis Summary

Intersection/Peak Hour/Lane Group	2020 Existing				2027 No-Build				2027 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
Grove Street at Planet Fitness Driveway												
<i>Weekday PM:</i>												
Site Driveway WB	0.13	13.5	B	--/ <25	0.18	17.0	C	--/ <25	0.38	23.8	C	--/43
Grove Street SB	0.04	7.9	A	--/ <25	0.04	8.3	A	--/ <25	0.07	8.4	A	--/ <25
<i>Saturday Afternoon:</i>												
Site Driveway WB	0.10	10.8	B	--/ <25	0.13	12.7	B	--/ <25	0.34	16.9	C	--/38
Grove Street SB	0.03	7.7	A	--/ <25	0.03	7.9	A	--/ <25	0.07	8.1	A	--/ <25
Washington Street / Grove Street												
<i>Weekday PM:</i>												
Washington Street EB	0.21	10.8	B	--/ <25	0.32	12.3	B	--/35	0.34	12.6	B	--/38
Grove Street SBL	0.73	93.8	F	--/100	1.69	462.4	F	--/258	1.96	586.3	F	--/293
Grove Street SBR	0.98	76.1	F	--/280	1.39	223.6	F	--/593	1.44	245.4	F	--/638
<i>Saturday Afternoon:</i>												
Washington Street EB	0.09	8.6	A	--/ <25	0.17	9.2	A	--/ <25	0.20	9.4	A	--/ <25
Grove Street SBL	0.17	21.5	C	--/ <25	0.42	39.7	E	--/48	0.55	53.4	F	--/70
Grove Street SBR	0.29	13.3	B	--/30	0.48	16.9	C	--/65	0.54	18.3	C	--/80

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Average/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

PARKING

Based on Section 185-21.B.3.b.ii of the Town of Franklin Zoning Bylaw, retail establishments like the proposed marijuana dispensary require one parking space per 200 square feet of gross floor area. Therefore, a total of 21 parking spaces would be required on the site to meet zoning requirements. As part of the project, a total of 70 parking spaces (including four accessible spaces) will be provided on the site. Therefore, the number of parking spaces provided exceeds zoning requirements.

GPI also estimated the parking demand generated by the proposed marijuana dispensary based on ITE parking demand generation rates contained in the *Parking Generation, 5th Edition*¹¹ for LUC 882 (Marijuana Dispensary). The detailed parking demand calculations are provided in the Appendix and indicate that the proposed dispensary is anticipated to generate a peak parking demand of 48 parking spaces during the Saturday midday peak period. Therefore, the proposed parking supply will be adequate to accommodate the peak parking demand.

TRAFFIC DEMAND MANAGEMENT (TDM) MEASUREMENTS

The Applicant also intends to implement several Transportation Demand Management (TDM) measures to reduce vehicles trips to the site and parking demand to minimize impacts in the surrounding area. The following summarizes these measures:

- **Partnership with MassRIDES and NuRide.** The Applicant will partner with MassRIDES and NuRide to develop and evaluate a comprehensive TDM program, and encourage employees to make greener trips by walking, biking, carpooling, and using public transportation. NuRide provides assistance to employees with finding ride-share matches and public transportation options and offers incentives like discounts to area businesses and attractions for every “green” trip made. New employees would be registered with NuRide as part of their orientation.
- **Employee Shuttle.** To enhance the connection to existing public transportation services, an employee shuttle will be provided between the site and the Massachusetts Bay Transportation Authority (MBTA) station at Forge Park / 495 and Franklin Depot which provides connections to Greater Attleboro Taunton Regional Transit Authority (GATRA) bus routes.
- **Employee Incentives.** Offer incentives to employees who carpool, walk, bike, or use public transportation to travel to work such as preferential shift selection, gift cards or discounts on food, bonuses, or other rewards.
- **Guaranteed Ride Home.** The Applicant will implement a Guaranteed Ride Home program for employees using alternative travel means to get to work to eliminate the fear of being stranded in an emergency situation. This could be accomplished through partnership with NuRide, who offers a reimbursement for taxi rides and transit tickets for anyone traveling to work via alternative means that needs to leave for an emergency or poor weather condition.
- **Employee Information.** The Applicant will provide employees with information regarding public transportation services available in the area during orientation and maintain maps/schedules on-site.

¹¹ *Parking Generation Manual, 5th Edition*; Institute of Transportation Engineers; Washington, DC; 2017.

- **Employee Shifts.** The Applicant is committed to providing flexible working hours and staggered shift times for employees to minimize impacts during peak commute hours.
- **Bicycle Racks.** The Applicant will provide a secure bicycle rack on-site to encourage Green commuting by employees.
- **Parking Attendant(s).** Provide an on-site parking attendant to manage parking during peak hours of operation, particularly during opening conditions. The parking attendants will be members of the on-site security staff who will confirm reservations, direct customers to designated parking, prevent loitering, surveil restricted areas, and patrol the property.
- **Reservations.** The facility will open under a reservation system, in which patrons will reserve a time online to visit the facility in order to manage customer flow. Reservation times will be tailored to maximize a consistent flow through the store without generating congestion, remaining mindful of adjacent businesses and capacity on the area roadways.
- **Online Ordering.** Provide online advance ordering and rapid pick-up service to patrons to reduce transaction times.
- **Delivery Services.** Provide delivery services to patrons to reduce trips to the site.
- **Dedicated Ride Share Spaces.** Provided dedicated parking spaces on-site, close to the entrances for ride share services, such as Uber and Lyft.

CONCLUSIONS

Existing and future conditions in the study area have been described, analyzed, and evaluated with respect to traffic operations and the impact of the proposed redevelopment. Conclusions of this effort are presented below.

- The existing site is currently vacant and the project consists of constructing a ±4,150 square foot (SF) marijuana dispensary. Access to the site is proposed via a connection to the adjacent Planet Fitness & Franklin Tile driveway.
- All study area intersections experienced crash rates below the state and District-wide averages, indicating no significant safety issue exists.
- Available sight distances at the site driveway on Grove Street exceed the minimum SSD and ISD requirements for safe operation. In addition, it is recommended that any proposed plantings, vegetation, landscaping, and signing along the site frontage be kept low to the ground (no more than 3.0 feet above street level) or set back sufficiently from Grove Street so as not to inhibit the available sight lines.
- The proposed development is expected to generate 91 *new* vehicle trips (46 entering and 45 exiting) during the weekday PM peak hour and 151 *new* trips (76 entering and 75 exiting) during the Saturday afternoon peak hour.
- The proposed development will result in traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 23 to 53 vehicles. These increases represent, on average, one additional vehicle approximately every one to 2.5 minutes during the peak hours.
- The Proponent has committed to implementing a Transportation Demand Management (TDM) program to further reduce single-occupant vehicle trips and parking demand. The TDM program will include such measures as:
 - On-site parking attendant
 - Online ordering
 - Reservation program
 - Delivery services
 - Dedicated Uber/Lyft parking
 - Employee incentives for use of public transit, carpool, and rideshare programs
 - Employee shuttle to nearby transit services
 - On-site bicycle racks
- Based on ITE parking generation rates for LUC 882 (Marijuana Dispensary), the proposed dispensary is anticipated to generate a peak parking demand of 48 spaces. Therefore, the proposed parking supply of 70 spaces will be adequate to accommodate the peak parking demand.
- The Grove Street northbound right-turn movement at the West Central Street (Route 140) / Grove Street intersection is anticipated to operate at level-of-service (LOS) F under 2027 No-Build and Build conditions. However, the additional traffic generated by the proposed marijuana dispensary is not anticipated to increase delays on this movement by more than 13 seconds or increase queues by more than one vehicle. All other movements at this intersection are anticipated to operate under capacity (V/C ratio less than 1.00) and at LOS E or better during all analysis time periods. The proposed development is not anticipated to increase delay on other movement by more than five seconds per vehicle or increase queues by more than one vehicle. Signal timing modifications could

be made at this location to optimize signal operations and reduce queues and delays through the intersection.

- All approaches to the Grove Street / Planet Fitness & Franklin Tile Driveway intersection are anticipated to operate at LOS C or better with queues of two vehicles or less under all analysis conditions. The additional traffic generated by the proposed development is not anticipated to increase delays on any movement by more than seven seconds per vehicle or increase queues by more than one vehicle.
- Although the Grove Street southbound left-turn at the intersection with Washington Street is anticipated to operate at LOS F during the Saturday afternoon peak hour, the delay on this movement is only estimated to be slightly over the threshold of LOS F. In addition, the volume-to-capacity (V/C) ratio will be well below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes, and the queues are not expected to exceed three vehicles. All other movements are anticipated to operate at LOS C or better with queues of less than four vehicles.

During the weekday PM peak hour, the Grove Street southbound left- and right-turn movements currently operate near capacity at LOS F. Under 2027 No-Build and Build conditions, these movements are expected to operate over capacity (V/C ratio over 1.00) with long delays and queues.

A traffic signal warrant analysis was prepared as part of the TIS for the #162 Grove Street development by Tetra Tech, which revealed that installation of a traffic signal is currently warranted at the Washington Street / Grove Street intersection based on Warrant 3 – Peak Hour applied to February 2020 Existing traffic volumes.

- It should be noted that the analysis performed as part of this TIA was based on traffic volumes collected in February 2020, prior to COVID-19 impacting the United States, and projected to a seven-year design horizon using conservative (higher than expected) seasonal and annual growth rates. Traffic counts from local area count stations indicate that traffic volumes are currently 10 to 50 percent lower than pre-COVID-19 conditions due to Work From Home (WFH) operations, closures and reduced occupancy of businesses, and travel restrictions due to COVID-19. It is currently unknown what long-term changes may result due to companies shifting to remote operations, telecommuting, etc. Therefore, the volumes projected for 2027 future conditions may never be realized. As a result GPI recommends conducting a post-occupancy, post COVID-19 monitoring study to evaluate whether improvements are warranted at the intersections of Grove Street with West Central Street (Route 140) and Washington Street to address future operational deficiencies. This monitoring study should include the following:
 - Collection of new vehicle turning movement counts once travel restrictions and business operations restrictions related to COVID-19 have been lifted and at least six month following occupancy of the proposed development at the following intersections:
 - West Central Street (Route 140) / Grove Street
 - Washington Street / Grove Street
 - Preparation of capacity and queue analyses to assess the delay and queue during the weekday AM, weekday PM, and Saturday afternoon peak hours and assess whether any improvements are necessary to address apparent deficiencies in operation (LOS F or V/C ratio greater than 1.00).

- Evaluation of traffic signal warrants for the Washington Street / Grove Street intersection to assess whether any of the volume-related warrant thresholds are exceeded based on post-occupancy, post COVID-19 traffic volumes.
- There are numerous developments by others proposed along Grove Street, which are likely to increase traffic volumes through the study area intersections and impact whether improvements are needed to address operational deficiencies. Therefore, GPI recommends that the Town of Franklin commission a post-occupancy, post COVID-19 monitoring study to evaluate the collective impacts of these projects and resulting future traffic volumes. The Proponent agrees to provide a monetary contribution toward the funding of this monitoring study.
- In addition, the Proponent also agrees to provide a fair share contribution toward implementation of improvements at the Grove Street intersections with West Central Street (Route 140) and Washington Street, proportional to the percentage increase in traffic generated by the proposed development through these intersections. Improvements at these intersections may include signal timing modifications to optimize operations, geometry modifications to increase capacity, or installation of a new traffic control signal.

- APPENDIX

- *Traffic Count Data*
- *Existing Trip Generation Calculations*
 - *Seasonal Adjustment Data*
 - *MassDOT Crash Data Worksheets*
 - *Developments by Others*
 - *Trip Generation Calculations*
 - *Trip Distribution Calculations*
 - *Capacity Analysis Methodology*
- *Capacity and Queue Analysis Worksheets*
 - *Parking Demand Calculations*
- *Site Plans / Sight Distance Triangles*

TRAFFIC-COUNT DATA



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

Grove Street
south of # 162 Driveway
City, State: Franklin, MA
Client: TetraTech/ S. Wood
Site Code: 143-276845-20002

PDI File #: 207444 ATR-A

Count Date:
Thursday, February 6, 2020

Volume

SB					NB					Combined							
Start Time:	15 min	60 min	15 min	60 min	Start Time:	15 min	60 min	15 min	60 min	Start Time:	15 min	60 min	15 min	60 min			
12:00 AM	4		12:00 PM	56	12:00 AM	3		12:00 PM	45	12:00 AM	7		12:00 PM	101			
12:15 AM	4		12:15 PM	52	12:15 AM	2		12:15 PM	35	12:15 AM	6		12:15 PM	87			
12:30 AM	7		12:30 PM	39	12:30 AM	3		12:30 PM	43	12:30 AM	10		12:30 PM	82			
12:45 AM	5	20	12:45 PM	51	198	12:45 AM	1	9	12:45 PM	72	195	12:45 AM	6	29	12:45 PM	123	393
1:00 AM	4		1:00 PM	26		1:00 AM	0		1:00 PM	60		1:00 AM	4		1:00 PM	86	
1:15 AM	3		1:15 PM	44		1:15 AM	1		1:15 PM	40		1:15 AM	4		1:15 PM	84	
1:30 AM	1		1:30 PM	41		1:30 AM	1		1:30 PM	45		1:30 AM	2		1:30 PM	86	
1:45 AM	1	9	1:45 PM	58	169	1:45 AM	1	3	1:45 PM	41	186	1:45 AM	2	12	1:45 PM	99	355
2:00 AM	0		2:00 PM	61		2:00 AM	3		2:00 PM	53		2:00 AM	3		2:00 PM	114	
2:15 AM	0		2:15 PM	85		2:15 AM	1		2:15 PM	28		2:15 AM	1		2:15 PM	113	
2:30 AM	1		2:30 PM	73		2:30 AM	7		2:30 PM	53		2:30 AM	8		2:30 PM	126	
2:45 AM	1	2	2:45 PM	65	284	2:45 AM	5	16	2:45 PM	54	188	2:45 AM	6	18	2:45 PM	119	472
3:00 AM	4		3:00 PM	94		3:00 AM	1		3:00 PM	42		3:00 AM	5		3:00 PM	136	
3:15 AM	2		3:15 PM	86		3:15 AM	3		3:15 PM	54		3:15 AM	5		3:15 PM	140	
3:30 AM	4		3:30 PM	97		3:30 AM	2		3:30 PM	38		3:30 AM	6		3:30 PM	135	
3:45 AM	8	18	3:45 PM	82	359	3:45 AM	4	10	3:45 PM	51	185	3:45 AM	12	28	3:45 PM	133	544
4:00 AM	3		4:00 PM	130		4:00 AM	6		4:00 PM	51		4:00 AM	9		4:00 PM	181	
4:15 AM	3		4:15 PM	100		4:15 AM	15		4:15 PM	63		4:15 AM	18		4:15 PM	163	
4:30 AM	4		4:30 PM	126		4:30 AM	12		4:30 PM	72		4:30 AM	16		4:30 PM	198	
4:45 AM	18	28	4:45 PM	118	474	4:45 AM	11	44	4:45 PM	65	251	4:45 AM	29	72	4:45 PM	183	725
5:00 AM	5		5:00 PM	139		5:00 AM	13		5:00 PM	55		5:00 AM	18		5:00 PM	194	
5:15 AM	9		5:15 PM	112		5:15 AM	21		5:15 PM	57		5:15 AM	30		5:15 PM	169	
5:30 AM	8		5:30 PM	81		5:30 AM	31		5:30 PM	53		5:30 AM	39		5:30 PM	134	
5:45 AM	11	33	5:45 PM	89	421	5:45 AM	40	105	5:45 PM	52	217	5:45 AM	51	138	5:45 PM	141	638
6:00 AM	15		6:00 PM	84		6:00 AM	53		6:00 PM	45		6:00 AM	68		6:00 PM	129	
6:15 AM	19		6:15 PM	55		6:15 AM	70		6:15 PM	34		6:15 AM	89		6:15 PM	89	
6:30 AM	20		6:30 PM	71		6:30 AM	100		6:30 PM	42		6:30 AM	120		6:30 PM	113	
6:45 AM	31	85	6:45 PM	43	253	6:45 AM	135	358	6:45 PM	32	153	6:45 AM	166	443	6:45 PM	75	406
7:00 AM	26		7:00 PM	63		7:00 AM	145		7:00 PM	42		7:00 AM	171		7:00 PM	105	
7:15 AM	29		7:15 PM	35		7:15 AM	151		7:15 PM	37		7:15 AM	180		7:15 PM	72	
7:30 AM	49		7:30 PM	40		7:30 AM	121		7:30 PM	20		7:30 AM	170		7:30 PM	60	
7:45 AM	37	141	7:45 PM	30	168	7:45 AM	122	539	7:45 PM	23	122	7:45 AM	159	680	7:45 PM	53	290
8:00 AM	42		8:00 PM	48		8:00 AM	91		8:00 PM	10		8:00 AM	133		8:00 PM	58	
8:15 AM	47		8:15 PM	38		8:15 AM	92		8:15 PM	18		8:15 AM	139		8:15 PM	56	
8:30 AM	41		8:30 PM	25		8:30 AM	78		8:30 PM	15		8:30 AM	119		8:30 PM	40	
8:45 AM	40	170	8:45 PM	28	139	8:45 AM	94	355	8:45 PM	9	52	8:45 AM	134	525	8:45 PM	37	191
9:00 AM	33		9:00 PM	19		9:00 AM	70		9:00 PM	11		9:00 AM	103		9:00 PM	30	
9:15 AM	32		9:15 PM	22		9:15 AM	48		9:15 PM	9		9:15 AM	80		9:15 PM	31	
9:30 AM	39		9:30 PM	26		9:30 AM	43		9:30 PM	10		9:30 AM	82		9:30 PM	36	
9:45 AM	24	128	9:45 PM	8	75	9:45 AM	47	208	9:45 PM	13	43	9:45 AM	71	336	9:45 PM	21	118
10:00 AM	34		10:00 PM	21		10:00 AM	41		10:00 PM	8		10:00 AM	75		10:00 PM	29	
10:15 AM	34		10:15 PM	14		10:15 AM	34		10:15 PM	6		10:15 AM	68		10:15 PM	20	
10:30 AM	36		10:30 PM	5		10:30 AM	35		10:30 PM	4		10:30 AM	71		10:30 PM	9	
10:45 AM	38	142	10:45 PM	5	45	10:45 AM	43	153	10:45 PM	4	22	10:45 AM	81	295	10:45 PM	9	67
11:00 AM	34		11:00 PM	5		11:00 AM	48		11:00 PM	3		11:00 AM	82		11:00 PM	8	
11:15 AM	42		11:15 PM	5		11:15 AM	25		11:15 PM	2		11:15 AM	67		11:15 PM	7	
11:30 AM	38		11:30 PM	0		11:30 AM	44		11:30 PM	1		11:30 AM	82		11:30 PM	1	
11:45 AM	38	152	11:45 PM	5	15	11:45 AM	40	157	11:45 PM	0	6	11:45 AM	78	309	11:45 PM	5	21
Total	928		2600			Total	1957		1620			Total	2885		4220		
Percent	26.30%		73.70%			Percent	54.71%		45.29%			Percent	40.61%		59.39%		
Day Total			3528			Day Total			3577			Day Total			7105		
Peak Hour	11:45 AM		4:30 PM			Peak Hour	6:45 AM		4:15 PM			Peak Hour	6:45 AM		4:30 PM		
Volume	185		495			Volume	552		255			Volume	687		744		
P.H.F.	0.826		0.890			P.H.F.	0.914		0.885			P.H.F.	0.954		0.939		

Grove Street
south of # 162 Driveway
City, State: Franklin, MA
Client: TetraTech/ S. Wood
Site Code: 143-276845-20002



PRECISION
DATA
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

PDI File #: 207444 ATR-A

Count Date:

Friday, February 7, 2020

Volume

SB					NB					Combined							
Start Time:	15 min	60 min	15 min	60 min	Start Time:	15 min	60 min	15 min	60 min	Start Time:	15 min	60 min	15 min	60 min			
12:00 AM	4		12:00 PM	65	12:00 AM	4		12:00 PM	51	12:00 AM	8		12:00 PM	116			
12:15 AM	2		12:15 PM	58	12:15 AM	5		12:15 PM	54	12:15 AM	7		12:15 PM	112			
12:30 AM	8		12:30 PM	47	12:30 AM	1		12:30 PM	47	12:30 AM	9		12:30 PM	94			
12:45 AM	7	21	12:45 PM	44	214	12:45 AM	3	13	12:45 PM	58	210	12:45 AM	10	34	12:45 PM	102	424
1:00 AM	1		1:00 PM	60		1:00 AM	2		1:00 PM	62		1:00 AM	3		1:00 PM	122	
1:15 AM	5		1:15 PM	56		1:15 AM	0		1:15 PM	37		1:15 AM	5		1:15 PM	93	
1:30 AM	2		1:30 PM	54		1:30 AM	3		1:30 PM	52		1:30 AM	5		1:30 PM	106	
1:45 AM	2	10	1:45 PM	45	215	1:45 AM	0	5	1:45 PM	47	198	1:45 AM	2	15	1:45 PM	92	413
2:00 AM	3		2:00 PM	55		2:00 AM	2		2:00 PM	46		2:00 AM	5		2:00 PM	101	
2:15 AM	0		2:15 PM	80		2:15 AM	2		2:15 PM	40		2:15 AM	2		2:15 PM	120	
2:30 AM	1		2:30 PM	67		2:30 AM	4		2:30 PM	58		2:30 AM	5		2:30 PM	125	
2:45 AM	3	7	2:45 PM	74	276	2:45 AM	6	14	2:45 PM	45	189	2:45 AM	9	21	2:45 PM	119	465
3:00 AM	0		3:00 PM	92		3:00 AM	4		3:00 PM	46		3:00 AM	4		3:00 PM	138	
3:15 AM	3		3:15 PM	93		3:15 AM	1		3:15 PM	64		3:15 AM	4		3:15 PM	157	
3:30 AM	1		3:30 PM	121		3:30 AM	2		3:30 PM	50		3:30 AM	3		3:30 PM	171	
3:45 AM	5	9	3:45 PM	89	395	3:45 AM	2	9	3:45 PM	55	215	3:45 AM	7	18	3:45 PM	144	610
4:00 AM	3		4:00 PM	105		4:00 AM	4		4:00 PM	62		4:00 AM	7		4:00 PM	167	
4:15 AM	7		4:15 PM	82		4:15 AM	6		4:15 PM	77		4:15 AM	13		4:15 PM	159	
4:30 AM	6		4:30 PM	97		4:30 AM	11		4:30 PM	68		4:30 AM	17		4:30 PM	165	
4:45 AM	13	29	4:45 PM	100	384	4:45 AM	11	32	4:45 PM	71	278	4:45 AM	24	61	4:45 PM	171	662
5:00 AM	10		5:00 PM	117		5:00 AM	19		5:00 PM	48		5:00 AM	29		5:00 PM	165	
5:15 AM	13		5:15 PM	98		5:15 AM	17		5:15 PM	46		5:15 AM	30		5:15 PM	144	
5:30 AM	11		5:30 PM	83		5:30 AM	22		5:30 PM	59		5:30 AM	33		5:30 PM	142	
5:45 AM	19	53	5:45 PM	93	391	5:45 AM	37	95	5:45 PM	56	209	5:45 AM	56	148	5:45 PM	149	600
6:00 AM	14		6:00 PM	79		6:00 AM	54		6:00 PM	42		6:00 AM	68		6:00 PM	121	
6:15 AM	25		6:15 PM	55		6:15 AM	79		6:15 PM	56		6:15 AM	104		6:15 PM	111	
6:30 AM	12		6:30 PM	64		6:30 AM	85		6:30 PM	43		6:30 AM	97		6:30 PM	107	
6:45 AM	31	82	6:45 PM	47	245	6:45 AM	141	359	6:45 PM	37	178	6:45 AM	172	441	6:45 PM	84	423
7:00 AM	32		7:00 PM	41		7:00 AM	135		7:00 PM	29		7:00 AM	167		7:00 PM	70	
7:15 AM	44		7:15 PM	43		7:15 AM	131		7:15 PM	32		7:15 AM	175		7:15 PM	75	
7:30 AM	41		7:30 PM	49		7:30 AM	129		7:30 PM	31		7:30 AM	170		7:30 PM	80	
7:45 AM	36	153	7:45 PM	30	163	7:45 AM	121	516	7:45 PM	32	124	7:45 AM	157	669	7:45 PM	62	287
8:00 AM	45		8:00 PM	39		8:00 AM	81		8:00 PM	12		8:00 AM	126		8:00 PM	51	
8:15 AM	46		8:15 PM	32		8:15 AM	89		8:15 PM	20		8:15 AM	135		8:15 PM	52	
8:30 AM	45		8:30 PM	23		8:30 AM	82		8:30 PM	12		8:30 AM	127		8:30 PM	35	
8:45 AM	41	177	8:45 PM	22	116	8:45 AM	86	338	8:45 PM	20	64	8:45 AM	127	515	8:45 PM	42	180
9:00 AM	33		9:00 PM	17		9:00 AM	84		9:00 PM	22		9:00 AM	117		9:00 PM	39	
9:15 AM	40		9:15 PM	11		9:15 AM	56		9:15 PM	3		9:15 AM	96		9:15 PM	14	
9:30 AM	31		9:30 PM	25		9:30 AM	51		9:30 PM	3		9:30 AM	82		9:30 PM	28	
9:45 AM	39	143	9:45 PM	28	81	9:45 AM	57	248	9:45 PM	5	33	9:45 AM	96	391	9:45 PM	33	114
10:00 AM	41		10:00 PM	21		10:00 AM	48		10:00 PM	10		10:00 AM	89		10:00 PM	31	
10:15 AM	45		10:15 PM	10		10:15 AM	51		10:15 PM	4		10:15 AM	96		10:15 PM	14	
10:30 AM	53		10:30 PM	15		10:30 AM	53		10:30 PM	16		10:30 AM	106		10:30 PM	31	
10:45 AM	42	181	10:45 PM	10	56	10:45 AM	54	206	10:45 PM	3	33	10:45 AM	96	387	10:45 PM	13	89
11:00 AM	73		11:00 PM	5		11:00 AM	56		11:00 PM	4		11:00 AM	129		11:00 PM	9	
11:15 AM	60		11:15 PM	7		11:15 AM	58		11:15 PM	2		11:15 AM	118		11:15 PM	9	
11:30 AM	59		11:30 PM	9		11:30 AM	44		11:30 PM	2		11:30 AM	103		11:30 PM	11	
11:45 AM	74	266	11:45 PM	5	26	11:45 AM	54	212	11:45 PM	3	11	11:45 AM	128	478	11:45 PM	8	37
Total	1131			2562		Total	2047			1742		Total	3178			4304	
Percent	30.63%			69.37%		Percent	54.02%			45.98%		Percent	42.48%			57.52%	
Day Total				3693		Day Total				3789		Day Total				7482	
Peak Hour	11:00 AM			4:30 PM		Peak Hour	6:45 AM			4:00 PM		Peak Hour	6:45 AM			4:00 PM	
Volume	266			412		Volume	536			278		Volume	684			662	
P.H.F.	0.899			0.880		P.H.F.	0.950			0.903		P.H.F.	0.977			0.968	



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

Grove Street

south of # 162 Driveway

City, State: Franklin, MA

Client: TetraTech/ S. Wood

Site Code: 143-276845-20002

PDI File #: 207444 ATR-A

Count Date:

Saturday, February 8, 2020

Volume

SB					NB					Combined							
Start Time:	15 min	60 min	15 min	60 min	Start Time:	15 min	60 min	15 min	60 min	Start Time:	15 min	60 min	15 min	60 min			
12:00 AM	2		12:00 PM	82	12:00 AM	1		12:00 PM	72	12:00 AM	3		12:00 PM	154			
12:15 AM	5		12:15 PM	75	12:15 AM	2		12:15 PM	74	12:15 AM	7		12:15 PM	149			
12:30 AM	6		12:30 PM	69	12:30 AM	1		12:30 PM	71	12:30 AM	7		12:30 PM	140			
12:45 AM	3	16	12:45 PM	67	293	12:45 AM	2	6	12:45 PM	62	279	12:45 AM	5	22	12:45 PM	129	572
1:00 AM	3		1:00 PM	58		1:00 AM	0		1:00 PM	53		1:00 AM	3		1:00 PM	111	
1:15 AM	1		1:15 PM	60		1:15 AM	1		1:15 PM	62		1:15 AM	2		1:15 PM	122	
1:30 AM	2		1:30 PM	58		1:30 AM	2		1:30 PM	37		1:30 AM	4		1:30 PM	95	
1:45 AM	2	8	1:45 PM	49	225	1:45 AM	2	5	1:45 PM	41	193	1:45 AM	4	13	1:45 PM	90	418
2:00 AM	2		2:00 PM	58		2:00 AM	2		2:00 PM	44		2:00 AM	4		2:00 PM	102	
2:15 AM	0		2:15 PM	61		2:15 AM	1		2:15 PM	54		2:15 AM	1		2:15 PM	115	
2:30 AM	1		2:30 PM	64		2:30 AM	0		2:30 PM	52		2:30 AM	1		2:30 PM	116	
2:45 AM	0	3	2:45 PM	56	239	2:45 AM	0	3	2:45 PM	73	223	2:45 AM	0	6	2:45 PM	129	462
3:00 AM	4		3:00 PM	78		3:00 AM	2		3:00 PM	39		3:00 AM	6		3:00 PM	117	
3:15 AM	4		3:15 PM	62		3:15 AM	3		3:15 PM	54		3:15 AM	7		3:15 PM	116	
3:30 AM	0		3:30 PM	55		3:30 AM	2		3:30 PM	31		3:30 AM	2		3:30 PM	86	
3:45 AM	0	8	3:45 PM	56	251	3:45 AM	2	9	3:45 PM	46	170	3:45 AM	2	17	3:45 PM	102	421
4:00 AM	1		4:00 PM	47		4:00 AM	1		4:00 PM	28		4:00 AM	2		4:00 PM	75	
4:15 AM	3		4:15 PM	61		4:15 AM	7		4:15 PM	44		4:15 AM	10		4:15 PM	105	
4:30 AM	5		4:30 PM	56		4:30 AM	3		4:30 PM	43		4:30 AM	8		4:30 PM	99	
4:45 AM	3	12	4:45 PM	50	214	4:45 AM	4	15	4:45 PM	50	165	4:45 AM	7	27	4:45 PM	100	379
5:00 AM	3		5:00 PM	52		5:00 AM	5		5:00 PM	37		5:00 AM	8		5:00 PM	89	
5:15 AM	4		5:15 PM	42		5:15 AM	6		5:15 PM	41		5:15 AM	10		5:15 PM	83	
5:30 AM	4		5:30 PM	48		5:30 AM	12		5:30 PM	35		5:30 AM	16		5:30 PM	83	
5:45 AM	5	16	5:45 PM	32	174	5:45 AM	19	42	5:45 PM	41	154	5:45 AM	24	58	5:45 PM	73	328
6:00 AM	7		6:00 PM	41		6:00 AM	20		6:00 PM	26		6:00 AM	27		6:00 PM	67	
6:15 AM	3		6:15 PM	40		6:15 AM	22		6:15 PM	34		6:15 AM	25		6:15 PM	74	
6:30 AM	5		6:30 PM	35		6:30 AM	37		6:30 PM	28		6:30 AM	42		6:30 PM	63	
6:45 AM	13	28	6:45 PM	20	136	6:45 AM	32	111	6:45 PM	32	120	6:45 AM	45	139	6:45 PM	52	256
7:00 AM	19		7:00 PM	20		7:00 AM	29		7:00 PM	24		7:00 AM	48		7:00 PM	44	
7:15 AM	22		7:15 PM	28		7:15 AM	25		7:15 PM	17		7:15 AM	47		7:15 PM	45	
7:30 AM	20		7:30 PM	22		7:30 AM	32		7:30 PM	13		7:30 AM	52		7:30 PM	35	
7:45 AM	14	75	7:45 PM	24	94	7:45 AM	57	143	7:45 PM	18	72	7:45 AM	71	218	7:45 PM	42	166
8:00 AM	20		8:00 PM	27		8:00 AM	34		8:00 PM	21		8:00 AM	54		8:00 PM	48	
8:15 AM	33		8:15 PM	23		8:15 AM	47		8:15 PM	11		8:15 AM	80		8:15 PM	34	
8:30 AM	20		8:30 PM	20		8:30 AM	35		8:30 PM	8		8:30 AM	55		8:30 PM	28	
8:45 AM	32	105	8:45 PM	17	87	8:45 AM	63	179	8:45 PM	11	51	8:45 AM	95	284	8:45 PM	28	138
9:00 AM	39		9:00 PM	17		9:00 AM	46		9:00 PM	9		9:00 AM	85		9:00 PM	26	
9:15 AM	35		9:15 PM	26		9:15 AM	68		9:15 PM	7		9:15 AM	103		9:15 PM	33	
9:30 AM	45		9:30 PM	13		9:30 AM	53		9:30 PM	9		9:30 AM	98		9:30 PM	22	
9:45 AM	50	169	9:45 PM	11	67	9:45 AM	50	217	9:45 PM	2	27	9:45 AM	100	386	9:45 PM	13	94
10:00 AM	46		10:00 PM	12		10:00 AM	52		10:00 PM	3		10:00 AM	98		10:00 PM	15	
10:15 AM	38		10:15 PM	17		10:15 AM	38		10:15 PM	9		10:15 AM	76		10:15 PM	26	
10:30 AM	43		10:30 PM	13		10:30 AM	47		10:30 PM	12		10:30 AM	90		10:30 PM	25	
10:45 AM	72	199	10:45 PM	9	51	10:45 AM	49	186	10:45 PM	5	29	10:45 AM	121	385	10:45 PM	14	80
11:00 AM	63		11:00 PM	19		11:00 AM	74		11:00 PM	5		11:00 AM	137		11:00 PM	24	
11:15 AM	54		11:15 PM	11		11:15 AM	57		11:15 PM	3		11:15 AM	111		11:15 PM	14	
11:30 AM	60		11:30 PM	4		11:30 AM	36		11:30 PM	2		11:30 AM	96		11:30 PM	6	
11:45 AM	56	233	11:45 PM	6	40	11:45 AM	49	216	11:45 PM	4	14	11:45 AM	105	449	11:45 PM	10	54
Total	872			1871		Total	1132			1497		Total	2004			3368	
Percent	31.79%			68.21%		Percent	43.06%			56.94%		Percent	37.30%			62.70%	
Day Total				2743		Day Total				2629		Day Total				5372	
Peak Hour	11:45 AM			12:00 PM		Peak Hour	11:45 AM			12:00 PM		Peak Hour	11:45 AM			12:00 PM	
Volume	282			293		Volume	266			279		Volume	548			572	
P.H.F.	0.860			0.893		P.H.F.	0.899			0.943		P.H.F.	0.890			0.929	

Grove Street
south of # 162 Driveway
City, State: Franklin, MA
Client: TetraTech/ S. Wood
Site Code: 143-276845-20002
Count Date: Thursday, February 6, 2020



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

PDI File #: 207444 ATR-A

Speed (60-minute)

NB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 +	Total	85th %ile	Ave Speed
12:00 AM	0	0	1	1	1	5	1	0	0	0	0	0	0	9	38.8	34.3
1:00 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	3	36.7	35.7
2:00 AM	0	0	0	1	7	8	0	0	0	0	0	0	0	16	36.8	34.0
3:00 AM	0	0	1	1	3	4	1	0	0	0	0	0	0	10	38.7	34.1
4:00 AM	0	0	5	5	14	10	8	2	0	0	0	0	0	44	40.6	33.6
5:00 AM	0	2	4	3	26	53	15	2	0	0	0	0	0	105	40.0	35.5
6:00 AM	2	0	13	32	142	135	32	2	0	0	0	0	0	358	38.0	33.9
7:00 AM	0	1	10	36	136	299	51	5	0	0	0	0	1	539	39.0	35.2
8:00 AM	1	0	13	33	97	167	43	1	0	0	0	0	0	355	39.0	34.8
9:00 AM	0	0	13	29	51	79	33	2	1	0	0	0	0	208	40.0	34.3
10:00 AM	0	1	13	8	29	72	28	2	0	0	0	0	0	153	40.0	35.2
11:00 AM	0	1	17	22	30	62	20	5	0	0	0	0	0	157	40.0	34.0
12:00 PM	0	0	24	23	36	76	31	4	0	0	0	0	1	195	40.0	34.5
1:00 PM	2	0	5	26	34	72	42	5	0	0	0	0	0	186	40.3	35.3
2:00 PM	0	0	19	23	30	82	33	1	0	0	0	0	0	188	40.0	34.3
3:00 PM	0	0	6	13	35	93	31	7	0	0	0	0	0	185	40.0	36.0
4:00 PM	0	3	19	38	43	104	42	2	0	0	0	0	0	251	40.0	34.3
5:00 PM	0	1	30	35	54	76	18	3	0	0	0	0	0	217	38.0	32.5
6:00 PM	0	0	26	21	39	48	14	3	2	0	0	0	0	153	39.0	32.6
7:00 PM	0	1	16	30	28	39	7	1	0	0	0	0	0	122	37.0	31.5
8:00 PM	0	0	8	16	8	16	4	0	0	0	0	0	0	52	38.4	31.3
9:00 PM	0	1	11	3	7	13	7	1	0	0	0	0	0	43	40.0	32.3
10:00 PM	0	0	3	3	5	6	4	1	0	0	0	0	0	22	41.9	33.6
11:00 PM	0	0	0	1	1	3	1	0	0	0	0	0	0	6	40.3	37.0
Total	5	11	257	403	857	1524	466	49	3	0	0	0	2	3577	39.0	34.3
Percent	0.14%	0.31%	7.18%	11.27%	23.96%	42.61%	13.03%	1.37%	0.08%	0.00%	0.00%	0.00%	0.06%			
AM Peak	6:00 AM	5:00 AM	11:00 AM	7:00 AM	6:00 AM	7:00 AM	7:00 AM	7:00 AM	9:00 AM				7:00 AM	7:00 AM		
Volume	2	2	17	36	142	299	51	5	1	0	0	0	1	539		
PM Peak	1:00 PM	4:00 PM	5:00 PM	4:00 PM	5:00 PM	4:00 PM	1:00 PM	3:00 PM	6:00 PM				12:00 PM	4:00 PM		
Volume	2	3	30	38	54	104	42	7	2	0	0	0	1	251		

15th Percentile:	27.0 MPH	Average Speed:	34.3 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	1723
85th Percentile:	39.0 MPH	Number in Pace:	2529	Percent of Vehicles > 35 MPH:	48.2%
95th Percentile:	42.0 MPH	Percent in Pace:	70.7%		

Grove Street
south of # 162 Driveway
City, State: Franklin, MA
Client: TetraTech/ S. Wood
Site Code: 143-276845-20002
Count Date: Friday, February 7, 2020



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

PDI File #: 207444 ATR-A

Speed (60-minute)

NB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 +	Total	85th %ile	Ave Speed
12:00 AM	0	2	1	1	4	5	0	0	0	0	0	0	0	13	37.2	30.8
1:00 AM	0	0	0	0	0	3	1	0	1	0	0	0	0	5	44.8	40.0
2:00 AM	0	0	0	0	1	11	2	0	0	0	0	0	0	14	38.1	36.9
3:00 AM	0	0	0	1	2	3	2	1	0	0	0	0	0	9	41.8	37.4
4:00 AM	0	0	1	4	6	12	7	2	0	0	0	0	0	32	41.1	36.5
5:00 AM	0	1	4	9	21	32	26	2	0	0	0	0	0	95	41.0	35.6
6:00 AM	1	1	9	21	93	181	49	4	0	0	0	0	0	359	39.0	35.4
7:00 AM	0	1	17	44	124	250	77	2	1	0	0	0	0	516	40.0	35.1
8:00 AM	0	0	17	22	73	169	50	7	0	0	0	0	0	338	40.0	35.6
9:00 AM	2	2	26	23	53	97	42	3	0	0	0	0	0	248	40.0	34.1
10:00 AM	0	1	27	19	37	93	27	2	0	0	0	0	0	206	39.0	33.9
11:00 AM	2	0	23	28	31	85	39	4	0	0	0	0	0	212	40.0	34.2
12:00 PM	1	3	17	31	38	82	36	2	0	0	0	0	0	210	40.0	34.0
1:00 PM	1	2	17	24	44	71	36	3	0	0	0	0	0	198	40.0	34.1
2:00 PM	0	1	12	18	29	84	42	3	0	0	0	0	0	189	41.0	35.7
3:00 PM	0	1	18	16	31	99	44	6	0	0	0	0	0	215	41.0	35.5
4:00 PM	0	0	16	31	39	128	62	2	0	0	0	0	0	278	41.0	35.5
5:00 PM	1	0	17	25	58	68	38	2	0	0	0	0	0	209	40.0	34.0
6:00 PM	0	3	16	29	49	57	24	0	0	0	0	0	0	178	39.0	33.0
7:00 PM	0	0	9	15	26	55	17	1	1	0	0	0	0	124	39.6	34.5
8:00 PM	0	0	9	10	10	28	4	3	0	0	0	0	0	64	38.0	32.8
9:00 PM	0	0	7	2	7	11	5	1	0	0	0	0	0	33	40.4	33.2
10:00 PM	0	0	1	2	5	9	14	2	0	0	0	0	0	33	43.0	37.5
11:00 PM	0	0	1	0	5	2	2	1	0	0	0	0	0	11	40.0	34.7
Total	8	18	265	375	786	1635	646	53	3	0	0	0	0	3789	40.0	34.8
Percent	0.21%	0.48%	6.99%	9.90%	20.74%	43.15%	17.05%	1.40%	0.08%	0.00%	0.00%	0.00%	0.00%			
AM Peak	9:00 AM	12:00 AM	10:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	1:00 AM						7:00 AM	
Volume	2	2	27	44	124	250	77	7	1	0	0	0	0	516		
PM Peak	12:00 PM	12:00 PM	3:00 PM	12:00 PM	5:00 PM	4:00 PM	4:00 PM	3:00 PM	7:00 PM						4:00 PM	
Volume	1	3	18	31	58	128	62	6	1	0	0	0	0	278		

15th Percentile:	28.0 MPH	Average Speed:	34.8 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	32 to 41 MPH	Number of Vehicles > 35 MPH:	2026
85th Percentile:	40.0 MPH	Number in Pace:	2636	Percent of Vehicles > 35 MPH:	53.5%
95th Percentile:	42.0 MPH	Percent in Pace:	69.6%		

Grove Street
south of # 162 Driveway
City, State: Franklin, MA
Client: TetraTech/ S. Wood
Site Code: 143-276845-20002
Count Date: Saturday, February 8, 2020



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

PDI File #: 207444 ATR-A

Speed (60-minute)

NB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 +	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	1	4	1	0	0	0	0	0	0	6	39.5	37.7
1:00 AM	0	0	0	0	1	3	0	0	1	0	0	0	0	5	44.6	39.4
2:00 AM	0	0	0	0	2	0	1	0	0	0	0	0	0	3	38.9	35.7
3:00 AM	0	0	0	1	4	0	0	4	0	0	0	0	0	9	46.8	38.0
4:00 AM	0	0	0	2	3	3	7	0	0	0	0	0	0	15	43.0	36.9
5:00 AM	0	1	0	1	8	17	9	5	0	1	0	0	0	42	43.0	38.0
6:00 AM	1	0	1	3	27	37	38	4	0	0	0	0	0	111	42.0	37.6
7:00 AM	0	2	4	16	18	60	32	10	1	0	0	0	0	143	42.7	36.6
8:00 AM	1	0	13	17	18	64	60	6	0	0	0	0	0	179	42.0	36.2
9:00 AM	0	0	21	20	19	79	68	9	1	0	0	0	0	217	43.0	36.4
10:00 AM	1	1	20	22	15	74	44	7	2	0	0	0	0	186	42.0	35.3
11:00 AM	0	0	15	27	30	81	58	4	1	0	0	0	0	216	41.0	35.5
12:00 PM	3	2	27	32	38	122	47	7	1	0	0	0	0	279	40.3	34.7
1:00 PM	1	0	20	15	24	88	37	8	0	0	0	0	0	193	41.0	35.4
2:00 PM	0	0	15	28	32	86	59	2	1	0	0	0	0	223	41.0	35.6
3:00 PM	1	1	18	24	31	58	30	7	0	0	0	0	0	170	41.0	34.0
4:00 PM	0	0	11	14	30	57	45	8	0	0	0	0	0	165	42.0	36.0
5:00 PM	0	1	8	13	41	61	27	3	0	0	0	0	0	154	40.0	35.0
6:00 PM	0	1	7	12	37	43	17	2	1	0	0	0	0	120	40.0	34.4
7:00 PM	0	0	7	9	8	29	17	2	0	0	0	0	0	72	40.4	34.9
8:00 PM	0	0	0	3	14	18	13	1	2	0	0	0	0	51	43.0	37.3
9:00 PM	0	0	0	1	4	18	4	0	0	0	0	0	0	27	39.1	36.2
10:00 PM	0	0	0	1	10	11	6	1	0	0	0	0	0	29	40.8	36.3
11:00 PM	0	0	0	1	1	6	5	1	0	0	0	0	0	14	43.1	38.6
Total	8	9	187	262	416	1019	625	91	11	1	0	0	0	2629	41.0	35.6
Percent	0.30%	0.34%	7.11%	9.97%	15.82%	38.76%	23.77%	3.46%	0.42%	0.04%	0.00%	0.00%	0.00%			
AM Peak	6:00 AM	7:00 AM	9:00 AM	11:00 AM	11:00 AM	11:00 AM	9:00 AM	7:00 AM	10:00 AM	5:00 AM						9:00 AM
Volume	1	2	21	27	30	81	68	10	2	1	0	0	0	217		
PM Peak	12:00 PM	12:00 PM	12:00 PM	12:00 PM	5:00 PM	12:00 PM	2:00 PM	1:00 PM	8:00 PM						12:00 PM	
Volume	3	2	27	32	41	122	59	8	2	0	0	0	0	279		

15th Percentile:	28.0 MPH	Average Speed:	35.6 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	37.0 MPH	10 MPH Pace:	33 to 42 MPH	Number of Vehicles > 35 MPH:	1563
85th Percentile:	41.0 MPH	Number in Pace:	1721	Percent of Vehicles > 35 MPH:	59.5%
95th Percentile:	44.0 MPH	Percent in Pace:	65.5%		

Grove Street
south of # 162 Driveway
City, State: Franklin, MA
Client: TetraTech/ S. Wood
Site Code: 143-276845-20002
Count Date: Thursday, February 6, 2020



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

PDI File #: 207444 ATR-A

Speed (60-minute)

SB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 +	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	1	3	10	5	0	0	0	1	0	0	20	42.0	38.7
1:00 AM	0	0	0	1	4	3	1	0	0	0	0	0	0	9	38.6	34.0
2:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	2	33.7	30.5
3:00 AM	0	0	2	6	6	3	1	0	0	0	0	0	0	18	35.5	30.5
4:00 AM	0	1	6	8	7	6	0	0	0	0	0	0	0	28	36.0	28.8
5:00 AM	0	1	5	13	11	3	0	0	0	0	0	0	0	33	33.2	28.6
6:00 AM	0	1	6	17	31	24	6	0	0	0	0	0	0	85	37.0	32.3
7:00 AM	0	0	3	20	44	54	20	0	0	0	0	0	0	141	39.0	34.3
8:00 AM	0	1	6	23	46	64	28	2	0	0	0	0	0	170	40.0	34.6
9:00 AM	0	0	6	20	26	50	22	3	1	0	0	0	0	128	40.0	35.1
10:00 AM	1	0	7	16	32	59	25	2	0	0	0	0	0	142	40.0	34.8
11:00 AM	0	0	5	22	28	57	36	4	0	0	0	0	0	152	41.0	35.5
12:00 PM	1	0	2	23	52	69	48	2	1	0	0	0	0	198	41.0	35.6
1:00 PM	0	1	1	13	49	67	35	3	0	0	0	0	0	169	40.0	35.5
2:00 PM	0	0	5	12	55	128	66	17	1	0	0	0	0	284	41.0	36.9
3:00 PM	0	0	1	32	71	158	87	9	1	0	0	0	0	359	41.0	36.5
4:00 PM	0	5	7	31	108	239	79	4	0	1	0	0	0	474	40.0	35.6
5:00 PM	2	5	15	74	126	164	32	2	1	0	0	0	0	421	38.0	33.3
6:00 PM	0	4	12	42	71	102	18	3	1	0	0	0	0	253	38.2	33.5
7:00 PM	0	0	4	25	39	77	20	3	0	0	0	0	0	168	39.0	34.5
8:00 PM	0	1	2	15	44	52	22	3	0	0	0	0	0	139	40.3	34.9
9:00 PM	0	0	1	5	20	42	5	1	1	0	0	0	0	75	39.0	35.5
10:00 PM	0	0	0	3	11	20	8	2	1	0	0	0	0	45	41.4	36.8
11:00 PM	0	0	0	0	5	4	5	1	0	0	0	0	0	15	41.9	37.8
Total	4	20	96	423	889	1456	569	61	8	1	1	0	0	3528	40.0	34.9
Percent	0.11%	0.57%	2.72%	11.99%	25.20%	41.27%	16.13%	1.73%	0.23%	0.03%	0.03%	0.00%	0.00%			
AM Peak	10:00 AM	4:00 AM	10:00 AM	8:00 AM	8:00 AM	8:00 AM	11:00 AM	11:00 AM	9:00 AM		12:00 AM					8:00 AM
Volume	1	1	7	23	46	64	36	4	1	0	1	0	0			170
PM Peak	5:00 PM	4:00 PM	5:00 PM	5:00 PM	5:00 PM	4:00 PM	3:00 PM	2:00 PM	12:00 PM	4:00 PM						4:00 PM
Volume	2	5	15	74	126	239	87	17	1	1	0	0	0			474

15th Percentile:	29.0 MPH	Average Speed:	34.9 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 35 MPH:	1824
85th Percentile:	40.0 MPH	Number in Pace:	2437	Percent of Vehicles > 35 MPH:	51.7%
95th Percentile:	42.0 MPH	Percent in Pace:	69.1%		



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

Grove Street
south of # 162 Driveway
City, State: Franklin, MA
Client: TetraTech/ S. Wood
Site Code: 143-276845-20002
Count Date: Friday, February 7, 2020



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

PDI File #: 207444 ATR-A

Speed (60-minute)

SB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 +	Total	85th %ile	Ave Speed
12:00 AM	2	2	0	2	5	4	5	0	1	0	0	0	0	21	40.0	32.1
1:00 AM	2	0	0	2	0	4	1	1	0	0	0	0	0	10	41.0	32.3
2:00 AM	0	0	0	0	3	4	0	0	0	0	0	0	0	7	37.0	34.7
3:00 AM	0	0	0	2	1	3	2	1	0	0	0	0	0	9	41.8	36.1
4:00 AM	0	0	2	10	12	2	2	1	0	0	0	0	0	29	35.6	31.3
5:00 AM	0	0	6	11	11	18	5	2	0	0	0	0	0	53	39.0	33.1
6:00 AM	0	0	5	16	18	31	8	4	0	0	0	0	0	82	39.0	34.1
7:00 AM	1	2	8	31	32	46	32	1	0	0	0	0	0	153	40.2	33.8
8:00 AM	0	1	4	32	48	58	30	4	0	0	0	0	0	177	40.0	34.7
9:00 AM	0	0	2	12	31	70	26	2	0	0	0	0	0	143	40.0	35.9
10:00 AM	1	1	3	21	37	86	29	2	1	0	0	0	0	181	40.0	35.3
11:00 AM	0	0	3	27	69	104	52	10	1	0	0	0	0	266	41.0	36.0
12:00 PM	1	1	4	23	50	82	42	11	0	0	0	0	0	214	41.0	35.8
1:00 PM	0	0	2	24	55	66	62	6	0	0	0	0	0	215	41.0	35.9
2:00 PM	1	1	4	28	51	110	66	15	0	0	0	0	0	276	41.0	36.3
3:00 PM	0	2	4	20	91	167	98	12	1	0	0	0	0	395	41.0	36.6
4:00 PM	0	2	3	15	97	142	112	12	0	1	0	0	0	384	41.0	36.9
5:00 PM	0	8	16	42	91	179	53	2	0	0	0	0	0	391	39.0	34.5
6:00 PM	0	0	8	28	62	117	30	0	0	0	0	0	0	245	39.0	34.7
7:00 PM	0	0	1	21	39	81	19	2	0	0	0	0	0	163	39.0	35.3
8:00 PM	0	1	0	7	28	55	24	1	0	0	0	0	0	116	41.0	36.2
9:00 PM	0	0	2	2	17	33	24	3	0	0	0	0	0	81	41.0	36.7
10:00 PM	0	0	0	1	6	23	23	3	0	0	0	0	0	56	42.0	38.8
11:00 PM	0	0	0	0	5	7	11	2	1	0	0	0	0	26	42.3	39.3
Total	8	21	77	377	859	1492	756	97	5	1	0	0	0	3693	41.0	35.6
Percent	0.22%	0.57%	2.09%	10.21%	23.26%	40.40%	20.47%	2.63%	0.14%	0.03%	0.00%	0.00%	0.00%			
AM Peak	12:00 AM	12:00 AM	7:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	12:00 AM						11:00 AM	
Volume	2	2	8	32	69	104	52	10	1	0	0	0	0	266		
PM Peak	12:00 PM	5:00 PM	5:00 PM	5:00 PM	4:00 PM	5:00 PM	4:00 PM	2:00 PM	3:00 PM	4:00 PM					3:00 PM	
Volume	1	8	16	42	97	179	112	15	1	1	0	0	0	395		

15th Percentile:	30.0 MPH	Average Speed:	35.6 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	36.0 MPH	10 MPH Pace:	32 to 41 MPH	Number of Vehicles > 35 MPH:	2106
85th Percentile:	41.0 MPH	Number in Pace:	2546	Percent of Vehicles > 35 MPH:	57.0%
95th Percentile:	43.0 MPH	Percent in Pace:	68.9%		

Grove Street
 south of # 162 Driveway
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Saturday, February 8, 2020



PRECISION
 D A T A
 INDUSTRIES, LLC
 46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

PDI File #: 207444 ATR-A

Speed (60-minute)

SB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 +	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	1	2	8	4	1	0	0	0	0	0	16	43.5	37.4
1:00 AM	0	0	0	0	2	3	2	1	0	0	0	0	0	8	41.0	37.9
2:00 AM	0	0	0	1	1	1	0	0	0	0	0	0	0	3	36.3	32.7
3:00 AM	0	0	0	4	1	3	0	0	0	0	0	0	0	8	37.0	31.5
4:00 AM	0	0	0	1	4	4	2	1	0	0	0	0	0	12	41.1	36.4
5:00 AM	0	0	1	1	4	4	5	0	1	0	0	0	0	16	43.0	36.9
6:00 AM	0	1	2	4	9	6	4	2	0	0	0	0	0	28	40.0	33.7
7:00 AM	0	2	1	8	19	21	21	3	0	0	0	0	0	75	41.0	35.7
8:00 AM	0	0	5	14	30	33	16	6	1	0	0	0	0	105	41.0	34.7
9:00 AM	0	0	2	10	42	45	60	9	1	0	0	0	0	169	43.0	37.4
10:00 AM	0	1	1	10	43	79	54	9	2	0	0	0	0	199	42.0	37.1
11:00 AM	1	1	5	15	45	76	73	16	1	0	0	0	0	233	42.0	37.0
12:00 PM	0	1	5	24	53	107	91	11	1	0	0	0	0	293	42.0	37.0
1:00 PM	0	2	1	17	40	94	58	13	0	0	0	0	0	225	42.0	36.8
2:00 PM	0	2	4	18	47	94	64	10	0	0	0	0	0	239	42.0	36.6
3:00 PM	0	1	4	10	41	108	79	6	2	0	0	0	0	251	41.0	37.3
4:00 PM	0	1	1	6	29	94	70	12	1	0	0	0	0	214	42.1	38.1
5:00 PM	0	1	4	16	38	65	44	6	0	0	0	0	0	174	41.0	36.1
6:00 PM	0	1	3	11	24	76	20	1	0	0	0	0	0	136	39.8	35.5
7:00 PM	0	1	2	3	23	49	14	1	1	0	0	0	0	94	40.0	36.1
8:00 PM	0	0	0	2	14	53	14	3	1	0	0	0	0	87	41.0	37.0
9:00 PM	0	0	0	1	15	29	20	2	0	0	0	0	0	67	41.0	37.2
10:00 PM	0	0	0	1	15	18	11	5	1	0	0	0	0	51	44.0	37.6
11:00 PM	0	0	0	1	5	18	11	4	1	0	0	0	0	40	43.2	38.7
Total	1	15	41	179	546	1088	737	122	14	0	0	0	0	2743	42.0	36.8
Percent	0.04%	0.55%	1.49%	6.53%	19.91%	39.66%	26.87%	4.45%	0.51%	0.00%	0.00%	0.00%	0.00%			
AM Peak	11:00 AM	7:00 AM	8:00 AM	11:00 AM	11:00 AM	10:00 AM	11:00 AM	11:00 AM	10:00 AM							11:00 AM
Volume	1	2	5	15	45	79	73	16	2	0	0	0	0	233		
PM Peak		1:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM	12:00 PM	1:00 PM	3:00 PM							12:00 PM
Volume	0	2	5	24	53	108	91	13	2	0	0	0	0	293		

15th Percentile:	31.0 MPH	Average Speed:	36.8 MPH	Posted Speed Limit:	35 MPH
50th Percentile:	37.0 MPH	10 MPH Pace:	33 to 42 MPH	Number of Vehicles > 35 MPH:	1779
85th Percentile:	42.0 MPH	Number in Pace:	1900	Percent of Vehicles > 35 MPH:	64.9%
95th Percentile:	44.0 MPH	Percent in Pace:	69.3%		

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	4	2	17	0	23	30	131	37	0	198	49	3	6	0	58	8	178	0	0	186	465
7:15 AM	0	2	28	0	30	27	154	50	0	231	87	8	7	0	102	12	187	0	0	199	562
7:30 AM	0	3	32	0	35	60	163	47	0	270	80	21	11	0	112	13	152	0	0	165	582
7:45 AM	1	3	32	0	36	42	196	74	0	312	67	6	25	0	98	9	149	0	0	158	604
Total	5	10	109	0	124	159	644	208	0	1011	283	38	49	0	370	42	666	0	0	708	2213
8:00 AM	0	2	35	0	37	24	131	61	1	217	72	6	12	0	90	24	181	0	0	205	549
8:15 AM	0	3	32	0	35	34	141	55	0	230	61	10	13	0	84	12	133	0	0	145	494
8:30 AM	2	2	30	0	34	33	135	63	0	231	60	2	19	0	81	18	154	0	0	172	518
8:45 AM	1	5	34	0	40	32	153	52	0	237	62	11	17	0	90	12	129	4	0	145	512
Total	3	12	131	0	146	123	560	231	1	915	255	29	61	0	345	66	597	4	0	667	2073
Grand Total	8	22	240	0	270	282	1204	439	1	1926	538	67	110	0	715	108	1263	4	0	1375	4286
Approach %	3.0	8.1	88.9	0.0		14.6	62.5	22.8	0.1		75.2	9.4	15.4	0.0		7.9	91.9	0.3	0.0		
Total %	0.2	0.5	5.6	0.0	6.3	6.6	28.1	10.2	0.0	44.9	12.6	1.6	2.6	0.0	16.7	2.5	29.5	0.1	0.0	32.1	
Exiting Leg Total	353					2042					569					1322					4286
Cars	7	21	229	0	257	273	1131	413	1	1818	494	66	97	0	657	99	1127	2	0	1228	3960
% Cars	87.5	95.5	95.4	0.0	95.2	96.8	93.9	94.1	100.0	94.4	91.8	98.5	88.2	0.0	91.9	91.7	89.2	50.0	0.0	89.3	92.4
Exiting Leg Total	341					1851					533					1235					3960
Heavy Vehicles	1	1	11	0	13	9	73	26	0	108	44	1	13	0	58	9	136	2	0	147	326
% Heavy Vehicles	12.5	4.5	4.6	0.0	4.8	3.2	6.1	5.9	0.0	5.6	8.2	1.5	11.8	0.0	8.1	8.3	10.8	50.0	0.0	10.7	7.6
Exiting Leg Total	12					191					36					87					326

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:15 AM	0	2	28	0	30	27	154	50	0	231	87	8	7	0	102	12	187	0	0	199	562
7:30 AM	0	3	32	0	35	60	163	47	0	270	80	21	11	0	112	13	152	0	0	165	582
7:45 AM	1	3	32	0	36	42	196	74	0	312	67	6	25	0	98	9	149	0	0	158	604
8:00 AM	0	2	35	0	37	24	131	61	1	217	72	6	12	0	90	24	181	0	0	205	549
Total Volume	1	10	127	0	138	153	644	232	1	1030	306	41	55	0	402	58	669	0	0	727	2297
% Approach Total	0.7	7.2	92.0	0.0		14.9	62.5	22.5	0.1		76.1	10.2	13.7	0.0		8.0	92.0	0.0	0.0		
PHF	0.250	0.833	0.907	0.000	0.932	0.638	0.821	0.784	0.250	0.825	0.879	0.488	0.550	0.000	0.897	0.604	0.894	0.000	0.000	0.887	0.951
Cars	1	9	121	0	131	148	610	221	1	980	274	40	47	0	361	53	589	0	0	642	2114
Cars %	100.0	90.0	95.3	0.0	94.9	96.7	94.7	95.3	100.0	95.1	89.5	97.6	85.5	0.0	89.8	91.4	88.0	0.0	0.0	88.3	92.0
Heavy Vehicles	0	1	6	0	7	5	34	11	0	50	32	1	8	0	41	5	80	0	0	85	183
Heavy Vehicles %	0.0	10.0	4.7	0.0	5.1	3.3	5.3	4.7	0.0	4.9	10.5	2.4	14.5	0.0	10.2	8.6	12.0	0.0	0.0	11.7	8.0
Cars Enter Leg	1	9	121	0	131	148	610	221	1	980	274	40	47	0	361	53	589	0	0	642	2114
Heavy Enter Leg	0	1	6	0	7	5	34	11	0	50	32	1	8	0	41	5	80	0	0	85	183
Total Entering Leg	1	10	127	0	138	153	644	232	1	1030	306	41	55	0	402	58	669	0	0	727	2297
Cars Exiting Leg	188					985					283					658					2114
Heavy Exiting Leg	6					118					17					42					183
Total Exiting Leg	194					1103					300					700					2297

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Cars

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	3	2	16	0	21	28	125	37	0	190	45	3	6	0	54	7	163	0	0	170	435
7:15 AM	0	2	28	0	30	25	150	45	0	220	76	8	7	0	91	11	164	0	0	175	516
7:30 AM	0	3	31	0	34	60	149	44	0	253	75	20	9	0	104	10	132	0	0	142	533
7:45 AM	1	2	27	0	30	41	190	71	0	302	61	6	22	0	89	9	132	0	0	141	562
Total	4	9	102	0	115	154	614	197	0	965	257	37	44	0	338	37	591	0	0	628	2046
8:00 AM	0	2	35	0	37	22	121	61	1	205	62	6	9	0	77	23	161	0	0	184	503
8:15 AM	0	3	31	0	34	32	132	50	0	214	57	10	12	0	79	11	117	0	0	128	455
8:30 AM	2	2	29	0	33	33	128	59	0	220	60	2	17	0	79	16	139	0	0	155	487
8:45 AM	1	5	32	0	38	32	136	46	0	214	58	11	15	0	84	12	119	2	0	133	469
Total	3	12	127	0	142	119	517	216	1	853	237	29	53	0	319	62	536	2	0	600	1914
Grand Total	7	21	229	0	257	273	1131	413	1	1818	494	66	97	0	657	99	1127	2	0	1228	3960
Approach %	2.7	8.2	89.1	0.0		15.0	62.2	22.7	0.1		75.2	10.0	14.8	0.0		8.1	91.8	0.2	0.0		
Total %	0.2	0.5	5.8	0.0	6.5	6.9	28.6	10.4	0.0	45.9	12.5	1.7	2.4	0.0	16.6	2.5	28.5	0.1	0.0	31.0	
Exiting Leg Total	341					1851					533					1235					3960

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:15 AM	0	2	28	0	30	25	150	45	0	220	76	8	7	0	91	11	164	0	0	175	516
7:30 AM	0	3	31	0	34	60	149	44	0	253	75	20	9	0	104	10	132	0	0	142	533
7:45 AM	1	2	27	0	30	41	190	71	0	302	61	6	22	0	89	9	132	0	0	141	562
8:00 AM	0	2	35	0	37	22	121	61	1	205	62	6	9	0	77	23	161	0	0	184	503
Total Volume	1	9	121	0	131	148	610	221	1	980	274	40	47	0	361	53	589	0	0	642	2114
% Approach Total	0.8	6.9	92.4	0.0		15.1	62.2	22.6	0.1		75.9	11.1	13.0	0.0		8.3	91.7	0.0	0.0		
PHF	0.250	0.750	0.864	0.000	0.885	0.617	0.803	0.778	0.250	0.811	0.901	0.500	0.534	0.000	0.868	0.576	0.898	0.000	0.000	0.872	0.940
Entering Leg	1	9	121	0	131	148	610	221	1	980	274	40	47	0	361	53	589	0	0	642	2114
Exiting Leg	188					985					283					658					2114
Total	319					1965					644					1300					4228

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	1	0	1	0	2	2	6	0	0	8	4	0	0	0	4	1	15	0	0	16	30
7:15 AM	0	0	0	0	0	2	4	5	0	11	11	0	0	0	11	1	23	0	0	24	46
7:30 AM	0	0	1	0	1	0	14	3	0	17	5	1	2	0	8	3	20	0	0	23	49
7:45 AM	0	1	5	0	6	1	6	3	0	10	6	0	3	0	9	0	17	0	0	17	42
Total	1	1	7	0	9	5	30	11	0	46	26	1	5	0	32	5	75	0	0	80	167
8:00 AM	0	0	0	0	0	2	10	0	0	12	10	0	3	0	13	1	20	0	0	21	46
8:15 AM	0	0	1	0	1	2	9	5	0	16	4	0	1	0	5	1	16	0	0	17	39
8:30 AM	0	0	1	0	1	0	7	4	0	11	0	0	2	0	2	2	15	0	0	17	31
8:45 AM	0	0	2	0	2	0	17	6	0	23	4	0	2	0	6	0	10	2	0	12	43
Total	0	0	4	0	4	4	43	15	0	62	18	0	8	0	26	4	61	2	0	67	159
Grand Total	1	1	11	0	13	9	73	26	0	108	44	1	13	0	58	9	136	2	0	147	326
Approach %	7.7	7.7	84.6	0.0		8.3	67.6	24.1	0.0		75.9	1.7	22.4	0.0		6.1	92.5	1.4	0.0		
Total %	0.3	0.3	3.4	0.0	4.0	2.8	22.4	8.0	0.0	33.1	13.5	0.3	4.0	0.0	17.8	2.8	41.7	0.6	0.0	45.1	
Exiting Leg Total	12					191					36					87					326
Buses	0	1	1	0	2	1	9	2	0	12	3	0	0	0	3	3	5	0	0	8	25
% Buses	0.0	100.0	9.1	0.0	15.4	11.1	12.3	7.7	0.0	11.1	6.8	0.0	0.0	0.0	5.2	33.3	3.7	0.0	0.0	5.4	7.7
Exiting Leg Total	1					9					6					9					25
Single-Unit Trucks	1	0	9	0	10	7	41	13	0	61	36	1	12	0	49	6	82	2	0	90	210
% Single-Unit	100.0	0.0	81.8	0.0	76.9	77.8	56.2	50.0	0.0	56.5	81.8	100.0	92.3	0.0	84.5	66.7	60.3	100.0	0.0	61.2	64.4
Exiting Leg Total	10					127					19					54					210
Articulated Trucks	0	0	1	0	1	1	23	11	0	35	5	0	1	0	6	0	49	0	0	49	91
% Articulated	0.0	0.0	9.1	0.0	7.7	11.1	31.5	42.3	0.0	32.4	11.4	0.0	7.7	0.0	10.3	0.0	36.0	0.0	0.0	33.3	27.9
Exiting Leg Total	1					55					11					24					91

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:15 AM	0	0	0	0	0	2	4	5	0	11	11	0	0	0	11	1	23	0	0	24	46
7:30 AM	0	0	1	0	1	0	14	3	0	17	5	1	2	0	8	3	20	0	0	23	49
7:45 AM	0	1	5	0	6	1	6	3	0	10	6	0	3	0	9	0	17	0	0	17	42
8:00 AM	0	0	0	0	0	2	10	0	0	12	10	0	3	0	13	1	20	0	0	21	46
Total Volume	0	1	6	0	7	5	34	11	0	50	32	1	8	0	41	5	80	0	0	85	183
% Approach Total	0.0	14.3	85.7	0.0		10.0	68.0	22.0	0.0		78.0	2.4	19.5	0.0		5.9	94.1	0.0	0.0		
PHF	0.000	0.250	0.300	0.000	0.292	0.625	0.607	0.550	0.000	0.735	0.727	0.250	0.667	0.000	0.788	0.417	0.870	0.000	0.000	0.885	0.934
Buses	0	1	0	0	1	1	7	0	0	8	2	0	0	0	2	2	4	0	0	6	17
Buses %	0.0	100.0	0.0	0.0	14.3	20.0	20.6	0.0	0.0	16.0	6.3	0.0	0.0	0.0	4.9	40.0	5.0	0.0	0.0	7.1	9.3
Single-Unit Trucks	0	0	6	0	6	3	16	6	0	25	26	1	7	0	34	3	55	0	0	58	123
Single-Unit %	0.0	0.0	100.0	0.0	85.7	60.0	47.1	54.5	0.0	50.0	81.3	100.0	87.5	0.0	82.9	60.0	68.8	0.0	0.0	68.2	67.2
Articulated Trucks	0	0	0	0	0	1	11	5	0	17	4	0	1	0	5	0	21	0	0	21	43
Articulated %	0.0	0.0	0.0	0.0	0.0	20.0	32.4	45.5	0.0	34.0	12.5	0.0	12.5	0.0	12.2	0.0	26.3	0.0	0.0	24.7	23.5
Buses	0	1	0	0	1	1	7	0	0	8	2	0	0	0	2	2	4	0	0	6	17
Single-Unit Trucks	0	0	6	0	6	3	16	6	0	25	26	1	7	0	34	3	55	0	0	58	123
Articulated Trucks	0	0	0	0	0	1	11	5	0	17	4	0	1	0	5	0	21	0	0	21	43
Total Entering Leg	0	1	6	0	7	5	34	11	0	50	32	1	8	0	41	5	80	0	0	85	183
Buses	1					6					3					7					17
Single-Unit Trucks	4					87					9					23					123
Articulated Trucks	1					25					5					12					43
Total Exiting Leg	6					118					17					42					183

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Buses

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total					
	from North					from East					from South					from West										
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total						
7:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	9
7:45 AM	0	1	0	0	1	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5
Total	0	1	1	0	2	1	7	0	0	8	1	0	0	0	1	1	4	0	0	5	0	0	0	0	0	16
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	2	2	0	4	2	0	0	0	2	2	1	0	0	3	0	0	0	0	0	9
Grand Total	0	1	1	0	2	1	9	2	0	12	3	0	0	0	3	3	5	0	0	8	0	0	0	0	0	25
Approach %	0.0	50.0	50.0	0.0		8.3	75.0	16.7	0.0		100.0	0.0	0.0	0.0		37.5	62.5	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	4.0	4.0	0.0	8.0	4.0	36.0	8.0	0.0	48.0	12.0	0.0	0.0	0.0	12.0	12.0	20.0	0.0	0.0	32.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	1					9					6					9					25					

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total					
	from North					from East					from South					from West										
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total						
7:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	9
7:45 AM	0	1	0	0	1	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total Volume	0	1	0	0	1	1	8	1	0	10	1	0	0	0	1	2	5	0	0	7	0	0	0	0	0	19
% Approach Total	0.0	100.0	0.0	0.0		10.0	80.0	10.0	0.0		100.0	0.0	0.0	0.0		28.6	71.4	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.250	0.400	0.250	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.500	0.417	0.000	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.528
Entering Leg	0	1	0	0	1	1	8	1	0	10	1	0	0	0	1	2	5	0	0	7	0	0	0	0	0	19
Exiting Leg	1					6					4					8					19					
Total	2					16					5					15					38					

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Single-Unit Trucks

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	1	0	0	0	1	2	5	0	0	7	4	0	0	0	4	1	6	0	0	7	19
7:15 AM	0	0	0	0	0	2	0	2	0	4	9	0	0	0	9	1	16	0	0	17	30
7:30 AM	0	0	1	0	1	0	4	3	0	7	5	1	2	0	8	2	12	0	0	14	30
7:45 AM	0	0	5	0	5	0	4	1	0	5	4	0	3	0	7	0	11	0	0	11	28
Total	1	0	6	0	7	4	13	6	0	23	22	1	5	0	28	4	45	0	0	49	107
8:00 AM	0	0	0	0	0	1	8	0	0	9	8	0	2	0	10	0	16	0	0	16	35
8:15 AM	0	0	1	0	1	2	5	2	0	9	3	0	1	0	4	1	9	0	0	10	24
8:30 AM	0	0	1	0	1	0	3	2	0	5	0	0	2	0	2	1	8	0	0	9	17
8:45 AM	0	0	1	0	1	0	12	3	0	15	3	0	2	0	5	0	4	2	0	6	27
Total	0	0	3	0	3	3	28	7	0	38	14	0	7	0	21	2	37	2	0	41	103
Grand Total	1	0	9	0	10	7	41	13	0	61	36	1	12	0	49	6	82	2	0	90	210
Approach %	10.0	0.0	90.0	0.0		11.5	67.2	21.3	0.0		73.5	2.0	24.5	0.0		6.7	91.1	2.2	0.0		
Total %	0.5	0.0	4.3	0.0	4.8	3.3	19.5	6.2	0.0	29.0	17.1	0.5	5.7	0.0	23.3	2.9	39.0	1.0	0.0	42.9	
Exiting Leg Total	10					127					19					54					210

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:15 AM	0	0	0	0	0	2	0	2	0	4	9	0	0	0	9	1	16	0	0	17	30
7:30 AM	0	0	1	0	1	0	4	3	0	7	5	1	2	0	8	2	12	0	0	14	30
7:45 AM	0	0	5	0	5	0	4	1	0	5	4	0	3	0	7	0	11	0	0	11	28
8:00 AM	0	0	0	0	0	1	8	0	0	9	8	0	2	0	10	0	16	0	0	16	35
Total Volume	0	0	6	0	6	3	16	6	0	25	26	1	7	0	34	3	55	0	0	58	123
% Approach Total	0.0	0.0	100.0	0.0		12.0	64.0	24.0	0.0		76.5	2.9	20.6	0.0		5.2	94.8	0.0	0.0		
PHF	0.000	0.000	0.300	0.000	0.300	0.375	0.500	0.500	0.000	0.694	0.722	0.250	0.583	0.000	0.850	0.375	0.859	0.000	0.000	0.853	0.879
Entering Leg	0	0	6	0	6	3	16	6	0	25	26	1	7	0	34	3	55	0	0	58	123
Exiting Leg	4					87					9					23					123
Total	10					112					43					81					246

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Articulated Trucks

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total					
	from North					from East					from South					from West										
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total						
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	9	0	0	9	10					
7:15 AM	0	0	0	0	0	0	4	3	0	7	1	0	0	0	1	0	7	0	0	7	15					
7:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	10					
7:45 AM	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	5	0	0	5	9					
Total	0	0	0	0	0	0	10	5	0	15	3	0	0	0	3	0	26	0	0	26	44					
8:00 AM	0	0	0	0	0	1	2	0	0	3	1	0	1	0	2	0	4	0	0	4	9					
8:15 AM	0	0	0	0	0	0	3	2	0	5	1	0	0	0	1	0	6	0	0	6	12					
8:30 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	0	7	0	0	7	12					
8:45 AM	0	0	1	0	1	0	5	2	0	7	0	0	0	0	0	0	6	0	0	6	14					
Total	0	0	1	0	1	1	13	6	0	20	2	0	1	0	3	0	23	0	0	23	47					
Grand Total	0	0	1	0	1	1	23	11	0	35	5	0	1	0	6	0	49	0	0	49	91					
Approach %	0.0	0.0	100.0	0.0		2.9	65.7	31.4	0.0		83.3	0.0	16.7	0.0		0.0	100.0	0.0	0.0							
Total %	0.0	0.0	1.1	0.0	1.1	1.1	25.3	12.1	0.0	38.5	5.5	0.0	1.1	0.0	6.6	0.0	53.8	0.0	0.0	53.8						
Exiting Leg Total						1					55					11					24					91

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total					
	from North					from East					from South					from West										
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total						
8:00 AM	0	0	0	0	0	1	2	0	0	3	1	0	1	0	2	0	4	0	0	4	9					
8:15 AM	0	0	0	0	0	0	3	2	0	5	1	0	0	0	1	0	6	0	0	6	12					
8:30 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	0	7	0	0	7	12					
8:45 AM	0	0	1	0	1	0	5	2	0	7	0	0	0	0	0	0	6	0	0	6	14					
Total Volume	0	0	1	0	1	1	13	6	0	20	2	0	1	0	3	0	23	0	0	23	47					
% Approach Total	0.0	0.0	100.0	0.0		5.0	65.0	30.0	0.0		66.7	0.0	33.3	0.0		0.0	100.0	0.0	0.0							
PHF	0.000	0.000	0.250	0.000	0.250	0.250	0.650	0.750	0.000	0.714	0.500	0.000	0.250	0.000	0.375	0.000	0.821	0.000	0.000	0.821	0.839					
Entering Leg	0	0	1	0	1	1	13	6	0	20	2	0	1	0	3	0	23	0	0	23	47					
Exiting Leg						1					26					6					14					47
Total						2					46					9					37					94

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	0							0							0							0							0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg	0							0							0							0							0
Total	0							0							0							0							0

PDI File #: **207444 A**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Pedestrians

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total	0							0							0							0							0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg	0							0							0							0							0
Total	0							0							0							0							0

PDI File #: **207444 AA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	4	12	58	0	74	62	106	60	0	228	89	8	9	0	106	24	207	2	0	233	641
4:15 PM	4	7	47	0	58	70	124	76	1	271	66	6	13	0	85	15	152	4	0	171	585
4:30 PM	9	12	58	0	79	82	130	74	0	286	86	12	11	0	109	22	217	2	0	241	715
4:45 PM	5	24	91	0	120	75	127	63	0	265	79	9	12	0	100	30	188	2	1	221	706
Total	22	55	254	0	331	289	487	273	1	1050	320	35	45	0	400	91	764	10	1	866	2647
5:00 PM	7	12	66	0	85	70	162	70	0	302	93	7	15	0	115	21	261	2	0	284	786
5:15 PM	3	18	76	0	97	97	155	76	1	329	67	19	6	0	92	16	196	0	2	214	732
5:30 PM	5	8	63	0	76	63	148	68	1	280	82	17	6	0	105	14	185	2	0	201	662
5:45 PM	6	31	100	0	137	71	108	72	0	251	66	8	6	0	80	15	141	4	0	160	628
Total	21	69	305	0	395	301	573	286	2	1162	308	51	33	0	392	66	783	8	2	859	2808
Grand Total	43	124	559	0	726	590	1060	559	3	2212	628	86	78	0	792	157	1547	18	3	1725	5455
Approach %	5.9	17.1	77.0	0.0		26.7	47.9	25.3	0.1		79.3	10.9	9.8	0.0		9.1	89.7	1.0	0.2		
Total %	0.8	2.3	10.2	0.0	13.3	10.8	19.4	10.2	0.1	40.5	11.5	1.6	1.4	0.0	14.5	2.9	28.4	0.3	0.1	31.6	
Exiting Leg Total	694					2737					840					1184					5455
Cars	42	123	556	0	721	587	988	528	3	2106	616	84	73	0	773	156	1488	18	3	1665	5265
% Cars	97.7	99.2	99.5	0.0	99.3	99.5	93.2	94.5	100.0	95.2	98.1	97.7	93.6	0.0	97.6	99.4	96.2	100.0	100.0	96.5	96.5
Exiting Leg Total	689					2663					807					1106					5265
Heavy Vehicles	1	1	3	0	5	3	72	31	0	106	12	2	5	0	19	1	59	0	0	60	190
% Heavy Vehicles	2.3	0.8	0.5	0.0	0.7	0.5	6.8	5.5	0.0	4.8	1.9	2.3	6.4	0.0	2.4	0.6	3.8	0.0	0.0	3.5	3.5
Exiting Leg Total	5					74					33					78					190

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	9	12	58	0	79	82	130	74	0	286	86	12	11	0	109	22	217	2	0	241	715
4:45 PM	5	24	91	0	120	75	127	63	0	265	79	9	12	0	100	30	188	2	1	221	706
5:00 PM	7	12	66	0	85	70	162	70	0	302	93	7	15	0	115	21	261	2	0	284	786
5:15 PM	3	18	76	0	97	97	155	76	1	329	67	19	6	0	92	16	196	0	2	214	732
Total Volume	24	66	291	0	381	324	574	283	1	1182	325	47	44	0	416	89	862	6	3	960	2939
% Approach Total	6.3	17.3	76.4	0.0		27.4	48.6	23.9	0.1		78.1	11.3	10.6	0.0		9.3	89.8	0.6	0.3		
PHF	0.667	0.688	0.799	0.000	0.794	0.835	0.886	0.931	0.250	0.898	0.874	0.618	0.733	0.000	0.904	0.742	0.826	0.750	0.375	0.845	0.935
Cars	24	66	290	0	380	324	537	273	1	1135	319	47	42	0	408	89	828	6	3	926	2849
Cars %	100.0	100.0	99.7	0.0	99.7	100.0	93.6	96.5	100.0	96.0	98.2	100.0	95.5	0.0	98.1	100.0	96.1	100.0	100.0	96.5	96.9
Heavy Vehicles	0	0	1	0	1	0	37	10	0	47	6	0	2	0	8	0	34	0	0	34	90
Heavy Vehicles %	0.0	0.0	0.3	0.0	0.3	0.0	6.4	3.5	0.0	4.0	1.8	0.0	4.5	0.0	1.9	0.0	3.9	0.0	0.0	3.5	3.1
Cars Enter Leg	24	66	290	0	380	324	537	273	1	1135	319	47	42	0	408	89	828	6	3	926	2849
Heavy Enter Leg	0	0	1	0	1	0	37	10	0	47	6	0	2	0	8	0	34	0	0	34	90
Total Entering Leg	24	66	291	0	381	324	574	283	1	1182	325	47	44	0	416	89	862	6	3	960	2939
Cars Exiting Leg	377					1438					428					606					2849
Heavy Exiting Leg	0					41					10					39					90
Total Exiting Leg	377					1479					438					645					2939

PDI File #: **207444 AA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Cars

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	4	12	57	0	73	60	94	52	0	206	84	8	8	0	100	23	202	2	0	227	606
4:15 PM	3	7	46	0	56	69	112	71	1	253	65	6	13	0	84	15	145	4	0	164	557
4:30 PM	9	12	58	0	79	82	115	68	0	265	85	12	11	0	108	22	203	2	0	227	679
4:45 PM	5	24	91	0	120	75	119	62	0	256	79	9	12	0	100	30	181	2	1	214	690
Total	21	55	252	0	328	286	440	253	1	980	313	35	44	0	392	90	731	10	1	832	2532
5:00 PM	7	12	65	0	84	70	154	69	0	293	91	7	13	0	111	21	255	2	0	278	766
5:15 PM	3	18	76	0	97	97	149	74	1	321	64	19	6	0	89	16	189	0	2	207	714
5:30 PM	5	8	63	0	76	63	142	62	1	268	82	16	5	0	103	14	176	2	0	192	639
5:45 PM	6	30	100	0	136	71	103	70	0	244	66	7	5	0	78	15	137	4	0	156	614
Total	21	68	304	0	393	301	548	275	2	1126	303	49	29	0	381	66	757	8	2	833	2733
Grand Total	42	123	556	0	721	587	988	528	3	2106	616	84	73	0	773	156	1488	18	3	1665	5265
Approach %	5.8	17.1	77.1	0.0		27.9	46.9	25.1	0.1		79.7	10.9	9.4	0.0		9.4	89.4	1.1	0.2		
Total %	0.8	2.3	10.6	0.0	13.7	11.1	18.8	10.0	0.1	40.0	11.7	1.6	1.4	0.0	14.7	3.0	28.3	0.3	0.1	31.6	
Exiting Leg Total	689					2663					807					1106					5265

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	9	12	58	0	79	82	115	68	0	265	85	12	11	0	108	22	203	2	0	227	679
4:45 PM	5	24	91	0	120	75	119	62	0	256	79	9	12	0	100	30	181	2	1	214	690
5:00 PM	7	12	65	0	84	70	154	69	0	293	91	7	13	0	111	21	255	2	0	278	766
5:15 PM	3	18	76	0	97	97	149	74	1	321	64	19	6	0	89	16	189	0	2	207	714
Total Volume	24	66	290	0	380	324	537	273	1	1135	319	47	42	0	408	89	828	6	3	926	2849
% Approach Total	6.3	17.4	76.3	0.0		28.5	47.3	24.1	0.1		78.2	11.5	10.3	0.0		9.6	89.4	0.6	0.3		
PHF	0.667	0.688	0.797	0.000	0.792	0.835	0.872	0.922	0.250	0.884	0.876	0.618	0.808	0.000	0.919	0.742	0.812	0.750	0.375	0.833	0.930
Entering Leg	24	66	290	0	380	324	537	273	1	1135	319	47	42	0	408	89	828	6	3	926	2849
Exiting Leg	377					1438					428					606					2849
Total	757					2573					836					1532					5698

PDI File #: 207444 AA
 Location: N: W Central Street S: Grove Street
 Location: E: W Central Street (Route 140) W: W Central Street (Route 140)
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Thursday, February 6, 2020
 Start Time: 4:00 PM
 End Time: 6:00 PM
 Class: Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdilic.com

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	1	0	1	2	12	8	0	22	5	0	1	0	6	1	5	0	0	6	35
4:15 PM	1	0	1	0	2	1	12	5	0	18	1	0	0	0	1	0	7	0	0	7	28
4:30 PM	0	0	0	0	0	0	15	6	0	21	1	0	0	0	1	0	14	0	0	14	36
4:45 PM	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	0	7	0	0	7	16
Total	1	0	2	0	3	3	47	20	0	70	7	0	1	0	8	1	33	0	0	34	115
5:00 PM	0	0	1	0	1	0	8	1	0	9	2	0	2	0	4	0	6	0	0	6	20
5:15 PM	0	0	0	0	0	0	6	2	0	8	3	0	0	0	3	0	7	0	0	7	18
5:30 PM	0	0	0	0	0	0	6	6	0	12	0	1	1	0	2	0	9	0	0	9	23
5:45 PM	0	1	0	0	1	0	5	2	0	7	0	1	1	0	2	0	4	0	0	4	14
Total	0	1	1	0	2	0	25	11	0	36	5	2	4	0	11	0	26	0	0	26	75
Grand Total	1	1	3	0	5	3	72	31	0	106	12	2	5	0	19	1	59	0	0	60	190
Approach %	20.0	20.0	60.0	0.0		2.8	67.9	29.2	0.0		63.2	10.5	26.3	0.0		1.7	98.3	0.0	0.0		
Total %	0.5	0.5	1.6	0.0	2.6	1.6	37.9	16.3	0.0	55.8	6.3	1.1	2.6	0.0	10.0	0.5	31.1	0.0	0.0	31.6	
Exiting Leg Total	5					74					33					78					190
Buses	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Exiting Leg Total	0					0					0					2					2
Single-Unit Trucks	1	1	2	0	4	2	44	19	0	65	7	2	2	0	11	0	38	0	0	38	118
% Single-Unit	100.0	100.0	66.7	0.0	80.0	66.7	61.1	61.3	0.0	61.3	58.3	100.0	40.0	0.0	57.9	0.0	64.4	0.0	0.0	63.3	62.1
Exiting Leg Total	4					47					20					47					118
Articulated Trucks	0	0	1	0	1	1	26	12	0	39	5	0	3	0	8	1	21	0	0	22	70
% Articulated	0.0	0.0	33.3	0.0	20.0	33.3	36.1	38.7	0.0	36.8	41.7	0.0	60.0	0.0	42.1	100.0	35.6	0.0	0.0	36.7	36.8
Exiting Leg Total	1					27					13					29					70

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	1	0	1	2	12	8	0	22	5	0	1	0	6	1	5	0	0	6	35
4:15 PM	1	0	1	0	2	1	12	5	0	18	1	0	0	0	1	0	7	0	0	7	28
4:30 PM	0	0	0	0	0	0	15	6	0	21	1	0	0	0	1	0	14	0	0	14	36
4:45 PM	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	0	7	0	0	7	16
Total Volume	1	0	2	0	3	3	47	20	0	70	7	0	1	0	8	1	33	0	0	34	115
% Approach Total	33.3	0.0	66.7	0.0		4.3	67.1	28.6	0.0		87.5	0.0	12.5	0.0		2.9	97.1	0.0	0.0		
PHF	0.250	0.000	0.500	0.000	0.375	0.375	0.783	0.625	0.000	0.795	0.350	0.000	0.250	0.000	0.333	0.250	0.589	0.000	0.000	0.607	0.799
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	1	0	2	0	3	2	31	13	0	46	5	0	1	0	6	0	21	0	0	21	76
Single-Unit %	100.0	0.0	100.0	0.0	100.0	66.7	66.0	65.0	0.0	65.7	71.4	0.0	100.0	0.0	75.0	0.0	63.6	0.0	0.0	61.8	66.1
Articulated Trucks	0	0	0	0	0	1	16	7	0	24	2	0	0	0	2	1	12	0	0	13	39
Articulated %	0.0	0.0	0.0	0.0	0.0	33.3	34.0	35.0	0.0	34.3	28.6	0.0	0.0	0.0	25.0	100.0	36.4	0.0	0.0	38.2	33.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	1	0	2	0	3	2	31	13	0	46	5	0	1	0	6	0	21	0	0	21	76
Articulated Trucks	0	0	0	0	0	1	16	7	0	24	2	0	0	0	2	1	12	0	0	13	39
Total Entering Leg	1	0	2	0	3	3	47	20	0	70	7	0	1	0	8	1	33	0	0	34	115
Buses	0					0					0					0					0
Single-Unit Trucks	2					28					13					33					76
Articulated Trucks	1					14					8					16					39
Total Exiting Leg	3					42					21					49					115

PDI File #: **207444 AA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Buses

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Approach %	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0					0					0					0					2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0					0					0					0					0
Total	0					0					0					0					0

PDI File #: **207444 AA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Single-Unit Trucks

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	1	0	1	2	9	3	0	14	4	0	1	0	5	0	4	0	0	4	24
4:15 PM	1	0	1	0	2	0	8	3	0	11	1	0	0	0	1	0	4	0	0	4	18
4:30 PM	0	0	0	0	0	0	10	6	0	16	0	0	0	0	0	0	7	0	0	7	23
4:45 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	6	0	0	6	11
Total	1	0	2	0	3	2	31	13	0	46	5	0	1	0	6	0	21	0	0	21	76
5:00 PM	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	0	5	0	0	5	11
5:15 PM	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	0	3	0	0	3	7
5:30 PM	0	0	0	0	0	0	4	3	0	7	0	1	1	0	2	0	5	0	0	5	14
5:45 PM	0	1	0	0	1	0	3	1	0	4	0	1	0	0	1	0	4	0	0	4	10
Total	0	1	0	0	1	0	13	6	0	19	2	2	1	0	5	0	17	0	0	17	42
Grand Total	1	1	2	0	4	2	44	19	0	65	7	2	2	0	11	0	38	0	0	38	118
Approach %	25.0	25.0	50.0	0.0		3.1	67.7	29.2	0.0		63.6	18.2	18.2	0.0		0.0	100.0	0.0	0.0		
Total %	0.8	0.8	1.7	0.0	3.4	1.7	37.3	16.1	0.0	55.1	5.9	1.7	1.7	0.0	9.3	0.0	32.2	0.0	0.0	32.2	
Exiting Leg Total	4					47					20					47					118

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	1	0	1	2	9	3	0	14	4	0	1	0	5	0	4	0	0	4	24
4:15 PM	1	0	1	0	2	0	8	3	0	11	1	0	0	0	1	0	4	0	0	4	18
4:30 PM	0	0	0	0	0	0	10	6	0	16	0	0	0	0	0	0	7	0	0	7	23
4:45 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	6	0	0	6	11
Total Volume	1	0	2	0	3	2	31	13	0	46	5	0	1	0	6	0	21	0	0	21	76
% Approach Total	33.3	0.0	66.7	0.0		4.3	67.4	28.3	0.0		83.3	0.0	16.7	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.000	0.500	0.000	0.375	0.250	0.775	0.542	0.000	0.719	0.313	0.000	0.250	0.000	0.300	0.000	0.750	0.000	0.000	0.750	0.792
Entering Leg	1	0	2	0	3	2	31	13	0	46	5	0	1	0	6	0	21	0	0	21	76
Exiting Leg	2					28					13					33					76
Total	5					74					19					54					152

PDI File #: **207444 AA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Articulated Trucks

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
4:00 PM	0	0	0	0	0	0	3	5	0	8	1	0	0	0	1	1	1	0	0	2	11	
4:15 PM	0	0	0	0	0	1	4	2	0	7	0	0	0	0	0	0	3	0	0	3	10	
4:30 PM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	7	0	0	7	13	
4:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5	
Total	0	0	0	0	0	1	16	7	0	24	2	0	0	0	2	1	12	0	0	13	39	
5:00 PM	0	0	1	0	1	0	3	0	0	3	1	0	2	0	3	0	1	0	0	1	8	
5:15 PM	0	0	0	0	0	0	3	1	0	4	2	0	0	0	2	0	4	0	0	4	10	
5:30 PM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	0	4	0	0	4	9	
5:45 PM	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	0	0	0	0	4	
Total	0	0	1	0	1	0	10	5	0	15	3	0	3	0	6	0	9	0	0	9	31	
Grand Total	0	0	1	0	1	1	26	12	0	39	5	0	3	0	8	1	21	0	0	22	70	
Approach %	0.0	0.0	100.0	0.0		2.6	66.7	30.8	0.0		62.5	0.0	37.5	0.0		4.5	95.5	0.0	0.0			
Total %	0.0	0.0	1.4	0.0	1.4	1.4	37.1	17.1	0.0	55.7	7.1	0.0	4.3	0.0	11.4	1.4	30.0	0.0	0.0	31.4		
Exiting Leg Total						1					27					13					29	70

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	0	3	5	0	8	1	0	0	0	1	1	1	0	0	2	11
4:15 PM	0	0	0	0	0	1	4	2	0	7	0	0	0	0	0	0	3	0	0	3	10
4:30 PM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	7	0	0	7	13
4:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Total Volume	0	0	0	0	0	1	16	7	0	24	2	0	0	0	2	1	12	0	0	13	39
% Approach Total	0.0	0.0	0.0	0.0		4.2	66.7	29.2	0.0		100.0	0.0	0.0	0.0		7.7	92.3	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.800	0.350	0.000	0.750	0.500	0.000	0.000	0.000	0.500	0.250	0.429	0.000	0.000	0.464	0.750
Entering Leg	0					1					2					1					39
Exiting Leg	1					14					8					16					39
Total	1					38					10					29					78

PDI File #: **207444 AA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	0							0							0							0							0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg	0							0							0							0							0
Total	0							0							0							0							0

PDI File #: **207444 AA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Pedestrians

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total	0							0							0							0							0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg	0							0							0							0							0
Total	0							0							0							0							0

PDI File #: **207444 AAA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
3:00 PM	6	11	84	0	101	81	125	49	0	255	62	8	8	0	78	15	107	2	0	124	558
3:15 PM	5	8	74	0	87	80	122	42	2	246	44	9	9	0	62	8	109	1	0	118	513
3:30 PM	2	5	57	0	64	69	114	44	0	227	30	5	8	0	43	12	91	2	0	105	439
3:45 PM	3	17	98	0	118	94	127	48	3	272	33	8	3	0	44	3	96	3	0	102	536
Total	16	41	313	0	370	324	488	183	5	1000	169	30	28	0	227	38	403	8	0	449	2046
4:00 PM	1	9	70	0	80	77	118	40	0	235	31	2	15	0	48	7	135	5	0	147	510
4:15 PM	3	13	64	0	80	84	115	50	0	249	34	10	7	0	51	7	95	2	0	104	484
4:30 PM	4	6	77	0	87	77	105	31	2	215	48	8	7	0	63	3	117	3	0	123	488
4:45 PM	3	5	57	0	65	89	106	32	1	228	40	5	5	0	50	2	106	2	0	110	453
Total	11	33	268	0	312	327	444	153	3	927	153	25	34	0	212	19	453	12	0	484	1935
5:00 PM	2	13	61	0	76	80	102	29	0	211	28	9	6	0	43	4	103	0	0	107	437
5:15 PM	1	6	66	0	73	62	119	37	1	219	35	4	4	0	43	7	104	0	0	111	446
5:30 PM	3	3	65	0	71	54	84	24	0	162	40	6	9	0	55	9	125	1	0	135	423
5:45 PM	7	6	57	0	70	70	77	26	0	173	31	8	1	0	40	4	138	0	0	142	425
Total	13	28	249	0	290	266	382	116	1	765	134	27	20	0	181	24	470	1	0	495	1731
Grand Total	40	102	830	0	972	917	1314	452	9	2692	456	82	82	0	620	81	1326	21	0	1428	5712
Approach %	4.1	10.5	85.4	0.0		34.1	48.8	16.8	0.3		73.5	13.2	13.2	0.0		5.7	92.9	1.5	0.0		
Total %	0.7	1.8	14.5	0.0	17.0	16.1	23.0	7.9	0.2	47.1	8.0	1.4	1.4	0.0	10.9	1.4	23.2	0.4	0.0	25.0	
Exiting Leg Total	1020					2621					635					1436					5712
Cars	40	102	828	0	970	912	1244	437	9	2602	453	81	80	0	614	81	1292	21	0	1394	5580
% Cars	100.0	100.0	99.8	0.0	99.8	99.5	94.7	96.7	100.0	96.7	99.3	98.8	97.6	0.0	99.0	100.0	97.4	100.0	0.0	97.6	97.7
Exiting Leg Total	1014					2582					620					1364					5580
Heavy Vehicles	0	0	2	0	2	5	70	15	0	90	3	1	2	0	6	0	34	0	0	34	132
% Heavy Vehicles	0.0	0.0	0.2	0.0	0.2	0.5	5.3	3.3	0.0	3.3	0.7	1.2	2.4	0.0	1.0	0.0	2.6	0.0	0.0	2.4	2.3
Exiting Leg Total	6					39					15					72					132

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
3:00 PM	6	11	84	0	101	81	125	49	0	255	62	8	8	0	78	15	107	2	0	124	558
3:15 PM	5	8	74	0	87	80	122	42	2	246	44	9	9	0	62	8	109	1	0	118	513
3:30 PM	2	5	57	0	64	69	114	44	0	227	30	5	8	0	43	12	91	2	0	105	439
3:45 PM	3	17	98	0	118	94	127	48	3	272	33	8	3	0	44	3	96	3	0	102	536
Total Volume	16	41	313	0	370	324	488	183	5	1000	169	30	28	0	227	38	403	8	0	449	2046
% Approach Total	4.3	11.1	84.6	0.0		32.4	48.8	18.3	0.5		74.4	13.2	12.3	0.0		8.5	89.8	1.8	0.0		
PHF	0.667	0.603	0.798	0.000	0.784	0.862	0.961	0.934	0.417	0.919	0.681	0.833	0.778	0.000	0.728	0.633	0.924	0.667	0.000	0.905	0.917
Cars	16	41	313	0	370	323	460	179	5	967	168	30	26	0	224	38	395	8	0	441	2002
Cars %	100.0	100.0	100.0	0.0	100.0	99.7	94.3	97.8	100.0	96.7	99.4	100.0	92.9	0.0	98.7	100.0	98.0	100.0	0.0	98.2	97.8
Heavy Vehicles	0	0	0	0	0	1	28	4	0	33	1	0	2	0	3	0	8	0	0	8	44
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.3	5.7	2.2	0.0	3.3	0.6	0.0	7.1	0.0	1.3	0.0	2.0	0.0	0.0	1.8	2.2
Cars Enter Leg	16	41	313	0	370	323	460	179	5	967	168	30	26	0	224	38	395	8	0	441	2002
Heavy Enter Leg	0	0	0	0	0	1	28	4	0	33	1	0	2	0	3	0	8	0	0	8	44
Total Entering Leg	16	41	313	0	370	324	488	183	5	1000	169	30	28	0	227	38	403	8	0	449	2046
Cars Exiting Leg	361					881					258					502					2002
Heavy Exiting Leg	1					9					4					30					44
Total Exiting Leg	362					890					262					532					2046

PDI File #: **207444 AAA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Cars

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
3:00 PM	6	11	84	0	101	81	112	49	0	242	62	8	8	0	78	15	106	2	0	123	544
3:15 PM	5	8	74	0	87	80	120	40	2	242	44	9	9	0	62	8	105	1	0	114	505
3:30 PM	2	5	57	0	64	68	105	43	0	216	29	5	6	0	40	12	90	2	0	104	424
3:45 PM	3	17	98	0	118	94	123	47	3	267	33	8	3	0	44	3	94	3	0	100	529
Total	16	41	313	0	370	323	460	179	5	967	168	30	26	0	224	38	395	8	0	441	2002
4:00 PM	1	9	70	0	80	77	114	39	0	230	30	2	15	0	47	7	132	5	0	144	501
4:15 PM	3	13	64	0	80	80	105	49	0	234	33	9	7	0	49	7	94	2	0	103	466
4:30 PM	4	6	77	0	87	77	99	27	2	205	48	8	7	0	63	3	115	3	0	121	476
4:45 PM	3	5	56	0	64	89	100	32	1	222	40	5	5	0	50	2	104	2	0	108	444
Total	11	33	267	0	311	323	418	147	3	891	151	24	34	0	209	19	445	12	0	476	1887
5:00 PM	2	13	61	0	76	80	98	27	0	205	28	9	6	0	43	4	98	0	0	102	426
5:15 PM	1	6	65	0	72	62	113	36	1	212	35	4	4	0	43	7	100	0	0	107	434
5:30 PM	3	3	65	0	71	54	79	24	0	157	40	6	9	0	55	9	121	1	0	131	414
5:45 PM	7	6	57	0	70	70	76	24	0	170	31	8	1	0	40	4	133	0	0	137	417
Total	13	28	248	0	289	266	366	111	1	744	134	27	20	0	181	24	452	1	0	477	1691
Grand Total	40	102	828	0	970	912	1244	437	9	2602	453	81	80	0	614	81	1292	21	0	1394	5580
Approach %	4.1	10.5	85.4	0.0		35.0	47.8	16.8	0.3		73.8	13.2	13.0	0.0		5.8	92.7	1.5	0.0		
Total %	0.7	1.8	14.8	0.0	17.4	16.3	22.3	7.8	0.2	46.6	8.1	1.5	1.4	0.0	11.0	1.5	23.2	0.4	0.0	25.0	
Exiting Leg Total	1014					2582					620					1364					5580

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
3:00 PM	6	11	84	0	101	81	112	49	0	242	62	8	8	0	78	15	106	2	0	123	544
3:15 PM	5	8	74	0	87	80	120	40	2	242	44	9	9	0	62	8	105	1	0	114	505
3:30 PM	2	5	57	0	64	68	105	43	0	216	29	5	6	0	40	12	90	2	0	104	424
3:45 PM	3	17	98	0	118	94	123	47	3	267	33	8	3	0	44	3	94	3	0	100	529
Total Volume	16	41	313	0	370	323	460	179	5	967	168	30	26	0	224	38	395	8	0	441	2002
% Approach Total	4.3	11.1	84.6	0.0		33.4	47.6	18.5	0.5		75.0	13.4	11.6	0.0		8.6	89.6	1.8	0.0		
PHF	0.667	0.603	0.798	0.000	0.784	0.859	0.935	0.913	0.417	0.905	0.677	0.833	0.722	0.000	0.718	0.633	0.932	0.667	0.000	0.896	0.920
Entering Leg	16	41	313	0	370	323	460	179	5	967	168	30	26	0	224	38	395	8	0	441	2002
Exiting Leg	361					881					258					502					2002
Total	731					1848					482					943					4004

PDI File #: **207444 AAA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



46 Morton Street, Framingham, MA 01702
 Office: 508-875-0100 Fax: 508-875-0118
 Email: datarequests@pdillic.com

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	1	0	0	1	14
3:15 PM	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	0	4	0	0	4	8
3:30 PM	0	0	0	0	0	1	9	1	0	11	1	0	2	0	3	0	1	0	0	1	15
3:45 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	2	0	0	2	7
Total	0	0	0	0	0	1	28	4	0	33	1	0	2	0	3	0	8	0	0	8	44
4:00 PM	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	0	3	0	0	3	9
4:15 PM	0	0	0	0	0	4	10	1	0	15	1	1	0	0	2	0	1	0	0	1	18
4:30 PM	0	0	0	0	0	0	6	4	0	10	0	0	0	0	0	0	2	0	0	2	12
4:45 PM	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	0	2	0	0	2	9
Total	0	0	1	0	1	4	26	6	0	36	2	1	0	0	3	0	8	0	0	8	48
5:00 PM	0	0	0	0	0	0	4	2	0	6	0	0	0	0	0	0	5	0	0	5	11
5:15 PM	0	0	1	0	1	0	6	1	0	7	0	0	0	0	0	0	4	0	0	4	12
5:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	9
5:45 PM	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	5	0	0	5	8
Total	0	0	1	0	1	0	16	5	0	21	0	0	0	0	0	0	18	0	0	18	40
Grand Total	0	0	2	0	2	5	70	15	0	90	3	1	2	0	6	0	34	0	0	34	132
Approach %	0.0	0.0	100.0	0.0		5.6	77.8	16.7	0.0		50.0	16.7	33.3	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	1.5	0.0	1.5	3.8	53.0	11.4	0.0	68.2	2.3	0.8	1.5	0.0	4.5	0.0	25.8	0.0	0.0	25.8	
Exiting Leg Total	6					39					15					72					132
Buses	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	1	0	0	1	6
% Buses	0.0	0.0	0.0	0.0	0.0	20.0	5.7	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.9	4.5
Exiting Leg Total	1					1					0					4					6
Single-Unit Trucks	0	0	2	0	2	3	39	13	0	55	3	1	2	0	6	0	25	0	0	25	88
% Single-Unit	0.0	0.0	100.0	0.0	100.0	60.0	55.7	86.7	0.0	61.1	100.0	100.0	100.0	0.0	100.0	0.0	73.5	0.0	0.0	73.5	66.7
Exiting Leg Total	4					30					13					41					88
Articulated Trucks	0	0	0	0	0	1	27	2	0	30	0	0	0	0	0	0	8	0	0	8	38
% Articulated	0.0	0.0	0.0	0.0	0.0	20.0	38.6	13.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	23.5	0.0	0.0	23.5	28.8
Exiting Leg Total	1					8					2					27					38

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:15 PM	0	0	0	0	0	4	10	1	0	15	1	1	0	0	2	0	1	0	0	1	18
4:30 PM	0	0	0	0	0	0	6	4	0	10	0	0	0	0	0	0	2	0	0	2	12
4:45 PM	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	0	2	0	0	2	9
5:00 PM	0	0	0	0	0	0	4	2	0	6	0	0	0	0	0	0	5	0	0	5	11
Total Volume	0	0	1	0	1	4	26	7	0	37	1	1	0	0	2	0	10	0	0	10	50
% Approach Total	0.0	0.0	100.0	0.0		10.8	70.3	18.9	0.0		50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.250	0.650	0.438	0.000	0.617	0.250	0.250	0.000	0.000	0.250	0.000	0.500	0.000	0.000	0.500	0.694
Buses	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Buses %	0.0	0.0	0.0	0.0	0.0	25.0	3.8	0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	6.0
Single-Unit Trucks	0	0	1	0	1	2	18	6	0	26	1	1	0	0	2	0	7	0	0	7	36
Single-Unit %	0.0	0.0	100.0	0.0	100.0	50.0	69.2	85.7	0.0	70.3	100.0	100.0	0.0	0.0	100.0	0.0	70.0	0.0	0.0	70.0	72.0
Articulated Trucks	0	0	0	0	0	1	7	1	0	9	0	0	0	0	0	0	2	0	0	2	11
Articulated %	0.0	0.0	0.0	0.0	0.0	25.0	26.9	14.3	0.0	24.3	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	20.0	22.0
Buses	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Single-Unit Trucks	0	0	1	0	1	2	18	6	0	26	1	1	0	0	2	0	7	0	0	7	36
Articulated Trucks	0	0	0	0	0	1	7	1	0	9	0	0	0	0	0	0	2	0	0	2	11
Total Entering Leg	0	0	1	0	1	4	26	7	0	37	1	1	0	0	2	0	10	0	0	10	50
Buses	1					1					0					1					3
Single-Unit Trucks	3					9					6					18					36
Articulated Trucks	1					2					1					7					11
Total Exiting Leg	5					12					7					26					50

PDI File #: **207444 AAA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Buses

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	1	0	0	1	6
Approach %	0.0	0.0	0.0	0.0		20.0	80.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	16.7	66.7	0.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	16.7	
Exiting Leg Total						1						1						0	4	6	

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
Exiting Leg						0						0						0	3	4	
Total						0						4						0	4	8	

PDI File #: **207444 AAA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Single-Unit Trucks

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6
3:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	3	0	0	3	5
3:30 PM	0	0	0	0	0	1	3	1	0	5	1	0	2	0	3	0	1	0	0	1	9
3:45 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	1	0	0	1	6
Total	0	0	0	0	0	1	12	4	0	17	1	0	2	0	3	0	6	0	0	6	26
4:00 PM	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	0	2	0	0	2	6
4:15 PM	0	0	0	0	0	2	7	1	0	10	1	1	0	0	2	0	0	0	0	0	12
4:30 PM	0	0	0	0	0	0	5	4	0	9	0	0	0	0	0	0	2	0	0	2	11
4:45 PM	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	6
Total	0	0	1	0	1	2	19	6	0	27	2	1	0	0	3	0	4	0	0	4	35
5:00 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	5	0	0	5	7
5:15 PM	0	0	1	0	1	0	3	1	0	4	0	0	0	0	0	0	3	0	0	3	8
5:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
5:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	4	0	0	4	6
Total	0	0	1	0	1	0	8	3	0	11	0	0	0	0	0	0	15	0	0	15	27
Grand Total	0	0	2	0	2	3	39	13	0	55	3	1	2	0	6	0	25	0	0	25	88
Approach %	0.0	0.0	100.0	0.0		5.5	70.9	23.6	0.0		50.0	16.7	33.3	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	2.3	0.0	2.3	3.4	44.3	14.8	0.0	62.5	3.4	1.1	2.3	0.0	6.8	0.0	28.4	0.0	0.0	28.4	
Exiting Leg Total	4					30					13					41					88

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:15 PM	0	0	0	0	0	2	7	1	0	10	1	1	0	0	2	0	0	0	0	0	12
4:30 PM	0	0	0	0	0	0	5	4	0	9	0	0	0	0	0	0	2	0	0	2	11
4:45 PM	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	5	0	0	5	7
Total Volume	0	0	1	0	1	2	18	6	0	26	1	1	0	0	2	0	7	0	0	7	36
% Approach Total	0.0	0.0	100.0	0.0		7.7	69.2	23.1	0.0		50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.250	0.643	0.375	0.000	0.650	0.250	0.250	0.000	0.000	0.250	0.000	0.350	0.000	0.000	0.350	0.750
Entering Leg	0	0	1	0	1	2	18	6	0	26	1	1	0	0	2	0	7	0	0	7	36
Exiting Leg	3					9					6					18					36
Total	4					35					8					25					72

PDI File #: **207444 AAA**
 Location: **N: W Central Street S: Grove Street**
 Location: **E: W Central Street (Route 140) W: W Central Street (Route 140)**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Articulated Trucks

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total				
	from North					from East					from South					from West									
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total					
3:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	8				
3:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3				
3:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5				
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1				
Total	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	2	0	0	2	17				
4:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3				
4:15 PM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	5				
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1				
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2				
Total	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	0	3	0	0	3	11				
5:00 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	3				
5:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4				
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1				
5:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2				
Total	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	0	3	0	0	3	10				
Grand Total	0	0	0	0	0	1	27	2	0	30	0	0	0	0	0	0	8	0	0	8	38				
Approach %	0.0	0.0	0.0	0.0		3.3	90.0	6.7	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0						
Total %	0.0	0.0	0.0	0.0	0.0	2.6	71.1	5.3	0.0	78.9	0.0	0.0	0.0	0.0	0.0	0.0	21.1	0.0	0.0	21.1					
Exiting Leg Total						1						8						2						27	38

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	W Central Street					W Central Street (Route 140)					Grove Street					W Central Street (Route 140)					Total				
	from North					from East					from South					from West									
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total					
3:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	8				
3:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3				
3:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5				
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1				
Total Volume	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	2	0	0	2	17				
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0					
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.469	0.000	0.000	0.469	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.531				
Entering Leg	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	2	0	0	2	17				
Exiting Leg						0						2						0						15	17
Total						0						17						0						17	34

PDI File #: 207444 AAA
 Location: N: W Central Street S: Grove Street
 Location: E: W Central Street (Route 140) W: W Central Street (Route 140)
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Saturday, February 8, 2020
 Start Time: 3:00 PM
 End Time: 6:00 PM
 Class:



Bicycles (on Roadway and Crosswalks)

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	0							0							0							0							0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg	0							0							0							0							0
Total	0							0							0							0							0

PDI File #: 207444 AAA
 Location: N: W Central Street S: Grove Street
 Location: E: W Central Street (Route 140) W: W Central Street (Route 140)
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Saturday, February 8, 2020
 Start Time: 3:00 PM
 End Time: 6:00 PM
 Class:



Pedestrians

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg Total	0							0							0							0							0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	W Central Street							W Central Street (Route 140)							Grove Street							W Central Street (Route 140)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Exiting Leg	0							0							0							0							0
Total	0							0							0							0							0

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	16	7	0	23	40	35	0	75	176	121	0	297	395
7:15 AM	18	6	0	24	40	51	0	91	166	97	0	263	378
7:30 AM	32	5	0	37	19	57	0	76	178	107	0	285	398
7:45 AM	24	7	0	31	25	52	0	77	202	101	0	303	411
Total	90	25	0	115	124	195	0	319	722	426	0	1148	1582
8:00 AM	19	7	0	26	19	56	0	75	160	53	0	213	314
8:15 AM	26	19	0	45	33	95	0	128	159	55	0	214	387
8:30 AM	23	7	0	30	30	51	0	81	144	51	0	195	306
8:45 AM	23	8	1	32	28	83	0	111	129	55	0	184	327
Total	91	41	1	133	110	285	0	395	592	214	0	806	1334
Grand Total	181	66	1	248	234	480	0	714	1314	640	0	1954	2916
Approach %	73.0	26.6	0.4		32.8	67.2	0.0		67.2	32.8	0.0		
Total %	6.2	2.3	0.0	8.5	8.0	16.5	0.0	24.5	45.1	21.9	0.0	67.0	
Exiting Leg Total				875				1380				661	2916
Cars	172	56	1	229	223	458	0	681	1285	626	0	1911	2821
% Cars	95.0	84.8	100.0	92.3	95.3	95.4	0.0	95.4	97.8	97.8	0.0	97.8	96.7
Exiting Leg Total				850				1341				630	2821
Heavy Vehicles	9	10	0	19	11	22	0	33	29	14	0	43	95
% Heavy Vehicles	5.0	15.2	0.0	7.7	4.7	4.6	0.0	4.6	2.2	2.2	0.0	2.2	3.3
Exiting Leg Total				25				39				31	95

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	16	7	0	23	40	35	0	75	176	121	0	297	395
7:15 AM	18	6	0	24	40	51	0	91	166	97	0	263	378
7:30 AM	32	5	0	37	19	57	0	76	178	107	0	285	398
7:45 AM	24	7	0	31	25	52	0	77	202	101	0	303	411
Total Volume	90	25	0	115	124	195	0	319	722	426	0	1148	1582
% Approach Total	78.3	21.7	0.0		38.9	61.1	0.0		62.9	37.1	0.0		
PHF	0.703	0.893	0.000	0.777	0.775	0.855	0.000	0.876	0.894	0.880	0.000	0.947	0.962
Cars	85	18	0	103	119	184	0	303	710	420	0	1130	1536
Cars %	94.4	72.0	0.0	89.6	96.0	94.4	0.0	95.0	98.3	98.6	0.0	98.4	97.1
Heavy Vehicles	5	7	0	12	5	11	0	16	12	6	0	18	46
Heavy Vehicles %	5.6	28.0	0.0	10.4	4.0	5.6	0.0	5.0	1.7	1.4	0.0	1.6	2.9
Cars Enter Leg	85	18	0	103	119	184	0	303	710	420	0	1130	1536
Heavy Enter Leg	5	7	0	12	5	11	0	16	12	6	0	18	46
Total Entering Leg	90	25	0	115	124	195	0	319	722	426	0	1148	1582
Cars Exiting Leg				539				728				269	1536
Heavy Exiting Leg				11				19				16	46
Total Exiting Leg				550				747				285	1582

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Cars

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	16	5	0	21	39	32	0	71	170	119	0	289	381
7:15 AM	17	6	0	23	37	50	0	87	166	95	0	261	371
7:30 AM	30	2	0	32	19	54	0	73	174	105	0	279	384
7:45 AM	22	5	0	27	24	48	0	72	200	101	0	301	400
Total	85	18	0	103	119	184	0	303	710	420	0	1130	1536
8:00 AM	18	7	0	25	17	56	0	73	152	51	0	203	301
8:15 AM	25	17	0	42	33	89	0	122	156	53	0	209	373
8:30 AM	23	7	0	30	30	49	0	79	139	50	0	189	298
8:45 AM	21	7	1	29	24	80	0	104	128	52	0	180	313
Total	87	38	1	126	104	274	0	378	575	206	0	781	1285
Grand Total	172	56	1	229	223	458	0	681	1285	626	0	1911	2821
Approach %	75.1	24.5	0.4		32.7	67.3	0.0		67.2	32.8	0.0		
Total %	6.1	2.0	0.0	8.1	7.9	16.2	0.0	24.1	45.6	22.2	0.0	67.7	
Exiting Leg Total	850				1341				630				2821

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	16	5	0	21	39	32	0	71	170	119	0	289	381
7:15 AM	17	6	0	23	37	50	0	87	166	95	0	261	371
7:30 AM	30	2	0	32	19	54	0	73	174	105	0	279	384
7:45 AM	22	5	0	27	24	48	0	72	200	101	0	301	400
Total Volume	85	18	0	103	119	184	0	303	710	420	0	1130	1536
% Approach Total	82.5	17.5	0.0		39.3	60.7	0.0		62.8	37.2	0.0		
PHF	0.708	0.750	0.000	0.805	0.763	0.852	0.000	0.871	0.888	0.882	0.000	0.939	0.960
Entering Leg	85	18	0	103	119	184	0	303	710	420	0	1130	1536
Exiting Leg	539				728				269				1536
Total	642				1031				1399				3072

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	0	2	0	2	1	3	0	4	6	2	0	8	14
7:15 AM	1	0	0	1	3	1	0	4	0	2	0	2	7
7:30 AM	2	3	0	5	0	3	0	3	4	2	0	6	14
7:45 AM	2	2	0	4	1	4	0	5	2	0	0	2	11
Total	5	7	0	12	5	11	0	16	12	6	0	18	46
8:00 AM	1	0	0	1	2	0	0	2	8	2	0	10	13
8:15 AM	1	2	0	3	0	6	0	6	3	2	0	5	14
8:30 AM	0	0	0	0	0	2	0	2	5	1	0	6	8
8:45 AM	2	1	0	3	4	3	0	7	1	3	0	4	14
Total	4	3	0	7	6	11	0	17	17	8	0	25	49
Grand Total	9	10	0	19	11	22	0	33	29	14	0	43	95
Approach %	47.4	52.6	0.0		33.3	66.7	0.0		67.4	32.6	0.0		
Total %	9.5	10.5	0.0	20.0	11.6	23.2	0.0	34.7	30.5	14.7	0.0	45.3	
Exiting Leg Total				25				39				31	95
Buses	1	2	0	3	5	3	0	8	3	7	0	10	21
% Buses	11.1	20.0	0.0	15.8	45.5	13.6	0.0	24.2	10.3	50.0	0.0	23.3	22.1
Exiting Leg Total				12				5				4	21
Single-Unit Trucks	6	8	0	14	5	15	0	20	21	6	0	27	61
% Single-Unit	66.7	80.0	0.0	73.7	45.5	68.2	0.0	60.6	72.4	42.9	0.0	62.8	64.2
Exiting Leg Total				11				29				21	61
Articulated Trucks	2	0	0	2	1	4	0	5	5	1	0	6	13
% Articulated	22.2	0.0	0.0	10.5	9.1	18.2	0.0	15.2	17.2	7.1	0.0	14.0	13.7
Exiting Leg Total				2				5				6	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	2	3	0	5	0	3	0	3	4	2	0	6	14
7:45 AM	2	2	0	4	1	4	0	5	2	0	0	2	11
8:00 AM	1	0	0	1	2	0	0	2	8	2	0	10	13
8:15 AM	1	2	0	3	0	6	0	6	3	2	0	5	14
Total Volume	6	7	0	13	3	13	0	16	17	6	0	23	52
% Approach Total	46.2	53.8	0.0		18.8	81.3	0.0		73.9	26.1	0.0		
PHF	0.750	0.583	0.000	0.650	0.375	0.542	0.000	0.667	0.531	0.750	0.000	0.575	0.929
Buses	1	1	0	2	0	3	0	3	2	2	0	4	9
Buses %	16.7	14.3	0.0	15.4	0.0	23.1	0.0	18.8	11.8	33.3	0.0	17.4	17.3
Single-Unit Trucks	4	6	0	10	2	7	0	9	12	3	0	15	34
Single-Unit %	66.7	85.7	0.0	76.9	66.7	53.8	0.0	56.3	70.6	50.0	0.0	65.2	65.4
Articulated Trucks	1	0	0	1	1	3	0	4	3	1	0	4	9
Articulated %	16.7	0.0	0.0	7.7	33.3	23.1	0.0	25.0	17.6	16.7	0.0	17.4	17.3
Buses	1	1	0	2	0	3	0	3	2	2	0	4	9
Single-Unit Trucks	4	6	0	10	2	7	0	9	12	3	0	15	34
Articulated Trucks	1	0	0	1	1	3	0	4	3	1	0	4	9
Total Entering Leg	6	7	0	13	3	13	0	16	17	6	0	23	52
Buses				2				3				4	9
Single-Unit Trucks				5				18				11	34
Articulated Trucks				2				3				4	9
Total Exiting Leg				9				24				19	52

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Buses

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	0	1	0	1	0	0	0	0	1	2	0	3	4
7:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
7:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	0	1	0	2	0	2	0	0	0	0	3
Total	1	2	0	3	1	2	0	3	1	2	0	3	9
8:00 AM	0	0	0	0	0	0	0	0	2	2	0	4	4
8:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	4	0	0	4	0	3	0	3	7
Total	0	0	0	0	4	1	0	5	2	5	0	7	12
Grand Total	1	2	0	3	5	3	0	8	3	7	0	10	21
Approach %	33.3	66.7	0.0		62.5	37.5	0.0		30.0	70.0	0.0		
Total %	4.8	9.5	0.0	14.3	23.8	14.3	0.0	38.1	14.3	33.3	0.0	47.6	
Exiting Leg Total				12				5				4	21

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	0	0	0	0	0	0	0	0	2	2	0	4	4
8:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	4	0	0	4	0	3	0	3	7
Total Volume	0	0	0	0	4	1	0	5	2	5	0	7	12
% Approach Total	0.0	0.0	0.0		80.0	20.0	0.0		28.6	71.4	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.313	0.250	0.417	0.000	0.438	0.429
Entering Leg	0	0	0	0	4	1	0	5	2	5	0	7	12
Exiting Leg				9				2				1	12
Total				9				7				8	24

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Single-Unit Trucks

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	0	1	0	1	1	2	0	3	5	0	0	5	9
7:15 AM	1	0	0	1	2	1	0	3	0	2	0	2	6
7:30 AM	1	3	0	4	0	2	0	2	4	1	0	5	11
7:45 AM	2	1	0	3	1	2	0	3	1	0	0	1	7
Total	4	5	0	9	4	7	0	11	10	3	0	13	33
8:00 AM	0	0	0	0	1	0	0	1	6	0	0	6	7
8:15 AM	1	2	0	3	0	3	0	3	1	2	0	3	9
8:30 AM	0	0	0	0	0	2	0	2	3	1	0	4	6
8:45 AM	1	1	0	2	0	3	0	3	1	0	0	1	6
Total	2	3	0	5	1	8	0	9	11	3	0	14	28
Grand Total	6	8	0	14	5	15	0	20	21	6	0	27	61
Approach %	42.9	57.1	0.0		25.0	75.0	0.0		77.8	22.2	0.0		
Total %	9.8	13.1	0.0	23.0	8.2	24.6	0.0	32.8	34.4	9.8	0.0	44.3	
Exiting Leg Total				11				29				21	61

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	1	3	0	4	0	2	0	2	4	1	0	5	11
7:45 AM	2	1	0	3	1	2	0	3	1	0	0	1	7
8:00 AM	0	0	0	0	1	0	0	1	6	0	0	6	7
8:15 AM	1	2	0	3	0	3	0	3	1	2	0	3	9
Total Volume	4	6	0	10	2	7	0	9	12	3	0	15	34
% Approach Total	40.0	60.0	0.0		22.2	77.8	0.0		80.0	20.0	0.0		
PHF	0.500	0.500	0.000	0.625	0.500	0.583	0.000	0.750	0.500	0.375	0.000	0.625	0.773
Entering Leg	4	6	0	10	2	7	0	9	12	3	0	15	34
Exiting Leg				5				18				11	34
Total				15				27				26	68

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Articulated Trucks

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	1	0	1	0	1	2
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	2	0	2	1	1	0	2	4
8:00 AM	1	0	0	1	1	0	0	1	0	0	0	0	2
8:15 AM	0	0	0	0	0	2	0	2	2	0	0	2	4
8:30 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
8:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	2	0	0	2	1	2	0	3	4	0	0	4	9
Grand Total	2	0	0	2	1	4	0	5	5	1	0	6	13
Approach %	100.0	0.0	0.0		20.0	80.0	0.0		83.3	16.7	0.0		
Total %	15.4	0.0	0.0	15.4	7.7	30.8	0.0	38.5	38.5	7.7	0.0	46.2	
Exiting Leg Total				2				5				6	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	1	0	1	0	1	0	1	2
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
8:00 AM	1	0	0	1	1	0	0	1	0	0	0	0	2
8:15 AM	0	0	0	0	0	2	0	2	2	0	0	2	4
Total Volume	1	0	0	1	1	3	0	4	3	1	0	4	9
% Approach Total	100.0	0.0	0.0		25.0	75.0	0.0		75.0	25.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.250	0.375	0.000	0.500	0.375	0.250	0.000	0.500	0.563
Entering Leg	1	0	0	1	1	3	0	4	3	1	0	4	9
Exiting Leg				2				3				4	9
Total				3				7				8	18

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0						0						0						0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0
Total	0						0						0						0

PDI File #: **207444 D**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:



Pedestrians

	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg Total	0						0						0						0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0
Total	0						0						0						0

PDI File #: **207444 DD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	98	15	0	113	17	203	0	220	66	27	0	93	426
4:15 PM	68	17	0	85	12	165	0	177	89	37	0	126	388
4:30 PM	94	16	0	110	24	193	0	217	62	41	0	103	430
4:45 PM	92	19	0	111	19	175	0	194	86	44	0	130	435
Total	352	67	0	419	72	736	0	808	303	149	0	452	1679
5:00 PM	82	20	0	102	18	197	0	215	63	36	0	99	416
5:15 PM	81	25	0	106	17	206	0	223	74	32	0	106	435
5:30 PM	57	14	0	71	10	191	0	201	75	29	0	104	376
5:45 PM	72	13	0	85	15	150	0	165	62	14	0	76	326
Total	292	72	0	364	60	744	0	804	274	111	0	385	1553
Grand Total	644	139	0	783	132	1480	0	1612	577	260	0	837	3232
Approach %	82.2	17.8	0.0		8.2	91.8	0.0		68.9	31.1	0.0		
Total %	19.9	4.3	0.0	24.2	4.1	45.8	0.0	49.9	17.9	8.0	0.0	25.9	
Exiting Leg Total				392				716				2124	3232
Cars	636	136	0	772	125	1461	0	1586	571	254	0	825	3183
% Cars	98.8	97.8	0.0	98.6	94.7	98.7	0.0	98.4	99.0	97.7	0.0	98.6	98.5
Exiting Leg Total				379				707				2097	3183
Heavy Vehicles	8	3	0	11	7	19	0	26	6	6	0	12	49
% Heavy Vehicles	1.2	2.2	0.0	1.4	5.3	1.3	0.0	1.6	1.0	2.3	0.0	1.4	1.5
Exiting Leg Total				13				9				27	49

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	94	16	0	110	24	193	0	217	62	41	0	103	430
4:45 PM	92	19	0	111	19	175	0	194	86	44	0	130	435
5:00 PM	82	20	0	102	18	197	0	215	63	36	0	99	416
5:15 PM	81	25	0	106	17	206	0	223	74	32	0	106	435
Total Volume	349	80	0	429	78	771	0	849	285	153	0	438	1716
% Approach Total	81.4	18.6	0.0		9.2	90.8	0.0		65.1	34.9	0.0		
PHF	0.928	0.800	0.000	0.966	0.813	0.936	0.000	0.952	0.828	0.869	0.000	0.842	0.986
Cars	344	77	0	421	76	764	0	840	282	151	0	433	1694
Cars %	98.6	96.3	0.0	98.1	97.4	99.1	0.0	98.9	98.9	98.7	0.0	98.9	98.7
Heavy Vehicles	5	3	0	8	2	7	0	9	3	2	0	5	22
Heavy Vehicles %	1.4	3.8	0.0	1.9	2.6	0.9	0.0	1.1	1.1	1.3	0.0	1.1	1.3
Cars Enter Leg	344	77	0	421	76	764	0	840	282	151	0	433	1694
Heavy Enter Leg	5	3	0	8	2	7	0	9	3	2	0	5	22
Total Entering Leg	349	80	0	429	78	771	0	849	285	153	0	438	1716
Cars Exiting Leg				227				359				1108	1694
Heavy Exiting Leg				4				6				12	22
Total Exiting Leg				231				365				1120	1716

PDI File #: **207444 DD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Cars

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	97	15	0	112	15	197	0	212	65	27	0	92	416
4:15 PM	66	17	0	83	12	160	0	172	87	35	0	122	377
4:30 PM	91	14	0	105	24	189	0	213	61	41	0	102	420
4:45 PM	91	18	0	109	19	174	0	193	85	44	0	129	431
Total	345	64	0	409	70	720	0	790	298	147	0	445	1644
5:00 PM	82	20	0	102	17	196	0	213	63	34	0	97	412
5:15 PM	80	25	0	105	16	205	0	221	73	32	0	105	431
5:30 PM	57	14	0	71	8	191	0	199	75	27	0	102	372
5:45 PM	72	13	0	85	14	149	0	163	62	14	0	76	324
Total	291	72	0	363	55	741	0	796	273	107	0	380	1539
Grand Total	636	136	0	772	125	1461	0	1586	571	254	0	825	3183
Approach %	82.4	17.6	0.0		7.9	92.1	0.0		69.2	30.8	0.0		
Total %	20.0	4.3	0.0	24.3	3.9	45.9	0.0	49.8	17.9	8.0	0.0	25.9	
Exiting Leg Total				379				707				2097	3183

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	91	14	0	105	24	189	0	213	61	41	0	102	420
4:45 PM	91	18	0	109	19	174	0	193	85	44	0	129	431
5:00 PM	82	20	0	102	17	196	0	213	63	34	0	97	412
5:15 PM	80	25	0	105	16	205	0	221	73	32	0	105	431
Total Volume	344	77	0	421	76	764	0	840	282	151	0	433	1694
% Approach Total	81.7	18.3	0.0		9.0	91.0	0.0		65.1	34.9	0.0		
PHF	0.945	0.770	0.000	0.966	0.792	0.932	0.000	0.950	0.829	0.858	0.000	0.839	0.983
Entering Leg	344	77	0	421	76	764	0	840	282	151	0	433	1694
Exiting Leg				227				359				1108	1694
Total				648				1199				1541	3388

PDI File #: **207444 DD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	1	0	0	1	2	6	0	8	1	0	0	1	10
4:15 PM	2	0	0	2	0	5	0	5	2	2	0	4	11
4:30 PM	3	2	0	5	0	4	0	4	1	0	0	1	10
4:45 PM	1	1	0	2	0	1	0	1	1	0	0	1	4
Total	7	3	0	10	2	16	0	18	5	2	0	7	35
5:00 PM	0	0	0	0	1	1	0	2	0	2	0	2	4
5:15 PM	1	0	0	1	1	1	0	2	1	0	0	1	4
5:30 PM	0	0	0	0	2	0	0	2	0	2	0	2	4
5:45 PM	0	0	0	0	1	1	0	2	0	0	0	0	2
Total	1	0	0	1	5	3	0	8	1	4	0	5	14
Grand Total	8	3	0	11	7	19	0	26	6	6	0	12	49
Approach %	72.7	27.3	0.0		26.9	73.1	0.0		50.0	50.0	0.0		
Total %	16.3	6.1	0.0	22.4	14.3	38.8	0.0	53.1	12.2	12.2	0.0	24.5	
Exiting Leg Total				13				9				27	49
Buses	0	0	0	0	0	3	0	3	1	0	0	1	4
% Buses	0.0	0.0	0.0	0.0	0.0	15.8	0.0	11.5	16.7	0.0	0.0	8.3	8.2
Exiting Leg Total				0				1				3	4
Single-Unit Trucks	8	2	0	10	5	10	0	15	3	4	0	7	32
% Single-Unit	100.0	66.7	0.0	90.9	71.4	52.6	0.0	57.7	50.0	66.7	0.0	58.3	65.3
Exiting Leg Total				9				5				18	32
Articulated Trucks	0	1	0	1	2	6	0	8	2	2	0	4	13
% Articulated	0.0	33.3	0.0	9.1	28.6	31.6	0.0	30.8	33.3	33.3	0.0	33.3	26.5
Exiting Leg Total				4				3				6	13

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	1	0	0	1	2	6	0	8	1	0	0	1	10
4:15 PM	2	0	0	2	0	5	0	5	2	2	0	4	11
4:30 PM	3	2	0	5	0	4	0	4	1	0	0	1	10
4:45 PM	1	1	0	2	0	1	0	1	1	0	0	1	4
Total Volume	7	3	0	10	2	16	0	18	5	2	0	7	35
% Approach Total	70.0	30.0	0.0		11.1	88.9	0.0		71.4	28.6	0.0		
PHF	0.583	0.375	0.000	0.500	0.250	0.667	0.000	0.563	0.625	0.250	0.000	0.438	0.795
Buses	0	0	0	0	0	2	0	2	1	0	0	1	3
Buses %	0.0	0.0	0.0	0.0	0.0	12.5	0.0	11.1	20.0	0.0	0.0	14.3	8.6
Single-Unit Trucks	7	2	0	9	2	8	0	10	2	2	0	4	23
Single-Unit %	100.0	66.7	0.0	90.0	100.0	50.0	0.0	55.6	40.0	100.0	0.0	57.1	65.7
Articulated Trucks	0	1	0	1	0	6	0	6	2	0	0	2	9
Articulated %	0.0	33.3	0.0	10.0	0.0	37.5	0.0	33.3	40.0	0.0	0.0	28.6	25.7
Buses	0	0	0	0	0	2	0	2	1	0	0	1	3
Single-Unit Trucks	7	2	0	9	2	8	0	10	2	2	0	4	23
Articulated Trucks	0	1	0	1	0	6	0	6	2	0	0	2	9
Total Entering Leg	7	3	0	10	2	16	0	18	5	2	0	7	35
Buses				0				1				2	3
Single-Unit Trucks				4				4				15	23
Articulated Trucks				0				3				6	9
Total Exiting Leg				4				8				23	35

PDI File #: **207444 DD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Buses

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0	2	1	0	0	1	3
5:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	3	0	3	1	0	0	1	4
Approach %	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	75.0	0.0	75.0	25.0	0.0	0.0	25.0	
Exiting Leg Total	0				1				3				4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	2	0	2	1	0	0	1	3
% Approach Total	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.250	0.000	0.000	0.250	0.375
Entering Leg	0				2				1				3
Exiting Leg	0				1				2				3
Total	0				3				3				6

PDI File #: **207444 DD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Single-Unit Trucks

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	1	0	0	1	2	1	0	3	0	0	0	0	4
4:15 PM	2	0	0	2	0	3	0	3	2	2	0	4	9
4:30 PM	3	2	0	5	0	3	0	3	0	0	0	0	8
4:45 PM	1	0	0	1	0	1	0	1	0	0	0	0	2
Total	7	2	0	9	2	8	0	10	2	2	0	4	23
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	1	0	0	1	1	1	0	2	1	0	0	1	4
5:30 PM	0	0	0	0	1	0	0	1	0	1	0	1	2
5:45 PM	0	0	0	0	1	1	0	2	0	0	0	0	2
Total	1	0	0	1	3	2	0	5	1	2	0	3	9
Grand Total	8	2	0	10	5	10	0	15	3	4	0	7	32
Approach %	80.0	20.0	0.0		33.3	66.7	0.0		42.9	57.1	0.0		
Total %	25.0	6.3	0.0	31.3	15.6	31.3	0.0	46.9	9.4	12.5	0.0	21.9	
Exiting Leg Total				9				5				18	32

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	1	0	0	1	2	1	0	3	0	0	0	0	4
4:15 PM	2	0	0	2	0	3	0	3	2	2	0	4	9
4:30 PM	3	2	0	5	0	3	0	3	0	0	0	0	8
4:45 PM	1	0	0	1	0	1	0	1	0	0	0	0	2
Total Volume	7	2	0	9	2	8	0	10	2	2	0	4	23
% Approach Total	77.8	22.2	0.0		20.0	80.0	0.0		50.0	50.0	0.0		
PHF	0.583	0.250	0.000	0.450	0.250	0.667	0.000	0.833	0.250	0.250	0.000	0.250	0.639
Entering Leg	7	2	0	9	2	8	0	10	2	2	0	4	23
Exiting Leg				4				4				15	23
Total				13				14				19	46

PDI File #: **207444 DD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Thursday, February 6, 2020**
 Start Time: **4:00 PM**
 End Time: **6:00 PM**
 Class:



Articulated Trucks

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	4	0	4	0	0	0	0	4
4:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	0	1	0	1	0	0	0	0	1	0	0	0	1
Total	0	1	0	1	0	6	0	6	2	0	0	2	9
5:00 PM	0	0	0	0	1	0	0	1	0	1	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	1	0	1	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	2	0	0	2	0	2	0	2	4
Grand Total	0	1	0	1	2	6	0	8	2	2	0	4	13
Approach %	0.0	100.0	0.0		25.0	75.0	0.0		50.0	50.0	0.0		
Total %	0.0	7.7	0.0	7.7	15.4	46.2	0.0	61.5	15.4	15.4	0.0	30.8	
Exiting Leg Total	4				3				6				13

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	0	0	0	0	0	4	0	4	0	0	0	0	4
4:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	0	1	0	1	0	0	0	0	1	0	0	0	1
Total Volume	0	1	0	1	0	6	0	6	2	0	0	2	9
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.375	0.000	0.375	0.500	0.000	0.000	0.500	0.563
Entering Leg	0	1	0	1	0	6	0	6	2	0	0	2	9
Exiting Leg	0				3				6				9
Total	1				9				8				18

PDI File #: 207444 DD
 Location: N: Grove Street
 Location: E: Washington Street W: Washington Street
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Thursday, February 6, 2020
 Start Time: 4:00 PM
 End Time: 6:00 PM



Bicycles (on Roadway and Crosswalks)

	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0						0						0						0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0
Total	0						0						0						0

PDI File #: 207444 DD
 Location: N: Grove Street
 Location: E: Washington Street W: Washington Street
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Thursday, February 6, 2020
 Start Time: 4:00 PM
 End Time: 6:00 PM
 Class:



Pedestrians

	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg Total	0						0						0						0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0
Total	0						0						0						0

PDI File #: **207444 DDD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:00 PM	48	16	0	64	10	75	0	85	68	14	0	82	231
3:15 PM	37	16	0	53	13	99	0	112	76	30	0	106	271
3:30 PM	43	13	0	56	10	86	0	96	67	14	0	81	233
3:45 PM	35	14	0	49	15	88	0	103	77	21	0	98	250
Total	163	59	0	222	48	348	0	396	288	79	0	367	985
4:00 PM	41	11	0	52	10	102	0	112	71	13	0	84	248
4:15 PM	45	9	0	54	14	91	0	105	65	25	0	90	249
4:30 PM	43	13	0	56	14	100	0	114	78	25	0	103	273
4:45 PM	36	8	0	44	17	95	0	112	77	25	0	102	258
Total	165	41	0	206	55	388	0	443	291	88	0	379	1028
5:00 PM	33	10	0	43	11	71	0	82	80	26	0	106	231
5:15 PM	42	6	0	48	10	88	0	98	67	32	0	99	245
5:30 PM	32	11	0	43	13	78	0	91	63	20	0	83	217
5:45 PM	20	8	0	28	9	87	0	96	64	22	0	86	210
Total	127	35	0	162	43	324	0	367	274	100	0	374	903
Grand Total	455	135	0	590	146	1060	0	1206	853	267	0	1120	2916
Approach %	77.1	22.9	0.0		12.1	87.9	0.0		76.2	23.8	0.0		
Total %	15.6	4.6	0.0	20.2	5.0	36.4	0.0	41.4	29.3	9.2	0.0	38.4	
Exiting Leg Total				413				988				1515	2916
Cars	452	135	0	587	141	1054	0	1195	843	264	0	1107	2889
% Cars	99.3	100.0	0.0	99.5	96.6	99.4	0.0	99.1	98.8	98.9	0.0	98.8	99.1
Exiting Leg Total				405				978				1506	2889
Heavy Vehicles	3	0	0	3	5	6	0	11	10	3	0	13	27
% Heavy Vehicles	0.7	0.0	0.0	0.5	3.4	0.6	0.0	0.9	1.2	1.1	0.0	1.2	0.9
Exiting Leg Total				8				10				9	27

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:00 PM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	41	11	0	52	10	102	0	112	71	13	0	84	248
4:15 PM	45	9	0	54	14	91	0	105	65	25	0	90	249
4:30 PM	43	13	0	56	14	100	0	114	78	25	0	103	273
4:45 PM	36	8	0	44	17	95	0	112	77	25	0	102	258
Total Volume	165	41	0	206	55	388	0	443	291	88	0	379	1028
% Approach Total	80.1	19.9	0.0		12.4	87.6	0.0		76.8	23.2	0.0		
PHF	0.917	0.788	0.000	0.920	0.809	0.951	0.000	0.971	0.933	0.880	0.000	0.920	0.941
Cars	165	41	0	206	54	386	0	440	287	88	0	375	1021
Cars %	100.0	100.0	0.0	100.0	98.2	99.5	0.0	99.3	98.6	100.0	0.0	98.9	99.3
Heavy Vehicles	0	0	0	0	1	2	0	3	4	0	0	4	7
Heavy Vehicles %	0.0	0.0	0.0	0.0	1.8	0.5	0.0	0.7	1.4	0.0	0.0	1.1	0.7
Cars Enter Leg	165	41	0	206	54	386	0	440	287	88	0	375	1021
Heavy Enter Leg	0	0	0	0	1	2	0	3	4	0	0	4	7
Total Entering Leg	165	41	0	206	55	388	0	443	291	88	0	379	1028
Cars Exiting Leg				142				328				551	1021
Heavy Exiting Leg				1				4				2	7
Total Exiting Leg				143				332				553	1028

PDI File #: **207444 DDD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Cars

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:00 PM	48	16	0	64	10	75	0	85	68	14	0	82	231
3:15 PM	36	16	0	52	11	98	0	109	73	29	0	102	263
3:30 PM	43	13	0	56	10	86	0	96	67	14	0	81	233
3:45 PM	33	14	0	47	14	87	0	101	76	21	0	97	245
Total	160	59	0	219	45	346	0	391	284	78	0	362	972
4:00 PM	41	11	0	52	10	102	0	112	70	13	0	83	247
4:15 PM	45	9	0	54	14	90	0	104	64	25	0	89	247
4:30 PM	43	13	0	56	13	99	0	112	77	25	0	102	270
4:45 PM	36	8	0	44	17	95	0	112	76	25	0	101	257
Total	165	41	0	206	54	386	0	440	287	88	0	375	1021
5:00 PM	33	10	0	43	10	71	0	81	79	24	0	103	227
5:15 PM	42	6	0	48	10	88	0	98	66	32	0	98	244
5:30 PM	32	11	0	43	13	77	0	90	63	20	0	83	216
5:45 PM	20	8	0	28	9	86	0	95	64	22	0	86	209
Total	127	35	0	162	42	322	0	364	272	98	0	370	896
Grand Total	452	135	0	587	141	1054	0	1195	843	264	0	1107	2889
Approach %	77.0	23.0	0.0		11.8	88.2	0.0		76.2	23.8	0.0		
Total %	15.6	4.7	0.0	20.3	4.9	36.5	0.0	41.4	29.2	9.1	0.0	38.3	
Exiting Leg Total				405				978				1506	2889

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:00 PM	41	11	0	52	10	102	0	112	70	13	0	83	247
4:15 PM	45	9	0	54	14	90	0	104	64	25	0	89	247
4:30 PM	43	13	0	56	13	99	0	112	77	25	0	102	270
4:45 PM	36	8	0	44	17	95	0	112	76	25	0	101	257
Total Volume	165	41	0	206	54	386	0	440	287	88	0	375	1021
% Approach Total	80.1	19.9	0.0		12.3	87.7	0.0		76.5	23.5	0.0		
PHF	0.917	0.788	0.000	0.920	0.794	0.946	0.000	0.982	0.932	0.880	0.000	0.919	0.945
Entering Leg	165	41	0	206	54	386	0	440	287	88	0	375	1021
Exiting Leg				142				328				551	1021
Total				348				768				926	2042

PDI File #: **207444 DDD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	1	0	0	1	2	1	0	3	3	1	0	4	8
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	2	0	0	2	1	1	0	2	1	0	0	1	5
Total	3	0	0	3	3	2	0	5	4	1	0	5	13
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:15 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
4:30 PM	0	0	0	0	1	1	0	2	1	0	0	1	3
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	1	2	0	3	4	0	0	4	7
5:00 PM	0	0	0	0	1	0	0	1	1	2	0	3	4
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	1	2	0	3	2	2	0	4	7
Grand Total	3	0	0	3	5	6	0	11	10	3	0	13	27
Approach %	100.0	0.0	0.0		45.5	54.5	0.0		76.9	23.1	0.0		
Total %	11.1	0.0	0.0	11.1	18.5	22.2	0.0	40.7	37.0	11.1	0.0	48.1	
Exiting Leg Total	8				10				9				27
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0				0				0				0
Single-Unit Trucks	3	0	0	3	5	6	0	11	9	3	0	12	26
% Single-Unit	100.0	0.0	0.0	100.0	100.0	100.0	0.0	100.0	90.0	100.0	0.0	92.3	96.3
Exiting Leg Total	8				9				9				26
Articulated Trucks	0	0	0	0	0	0	0	0	1	0	0	1	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	7.7	3.7
Exiting Leg Total	0				1				0				1

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	Grove Street				Washington Street				Washington West				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:15 PM	1	0	0	1	2	1	0	3	3	1	0	4	8
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	2	0	0	2	1	1	0	2	1	0	0	1	5
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	3	0	0	3	3	2	0	5	5	1	0	6	14
% Approach Total	100.0	0.0	0.0		60.0	40.0	0.0		83.3	16.7	0.0		
PHF	0.375	0.000	0.000	0.375	0.375	0.500	0.000	0.417	0.417	0.250	0.000	0.375	0.438
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	3	0	0	3	3	2	0	5	5	1	0	6	14
Single-Unit %	100.0	0.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	3	0	0	3	3	2	0	5	5	1	0	6	14
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	3	0	0	3	3	2	0	5	5	1	0	6	14
Buses	0				0				0				0
Single-Unit Trucks	4				5				5				14
Articulated Trucks	0				0				0				0
Total Exiting Leg	4				5				5				14

PDI File #: **207444 DDD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Buses

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0					0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0					0
Total				0				0					0

PDI File #: **207444 DDD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Single-Unit Trucks

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	1	0	0	1	2	1	0	3	3	1	0	4	8
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	2	0	0	2	1	1	0	2	1	0	0	1	5
Total	3	0	0	3	3	2	0	5	4	1	0	5	13
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	1	1	0	2	1	0	0	1	3
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	1	2	0	3	3	0	0	3	6
5:00 PM	0	0	0	0	1	0	0	1	1	2	0	3	4
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	1	2	0	3	2	2	0	4	7
Grand Total	3	0	0	3	5	6	0	11	9	3	0	12	26
Approach %	100.0	0.0	0.0		45.5	54.5	0.0		75.0	25.0	0.0		
Total %	11.5	0.0	0.0	11.5	19.2	23.1	0.0	42.3	34.6	11.5	0.0	46.2	
Exiting Leg Total	8				9				9				26

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:15 PM	1	0	0	1	2	1	0	3	3	1	0	4	8
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	2	0	0	2	1	1	0	2	1	0	0	1	5
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	3	0	0	3	3	2	0	5	5	1	0	6	14
% Approach Total	100.0	0.0	0.0		60.0	40.0	0.0		83.3	16.7	0.0		
PHF	0.375	0.000	0.000	0.375	0.375	0.500	0.000	0.417	0.417	0.250	0.000	0.375	0.438
Entering Leg	3	0	0	3	3	2	0	5	5	1	0	6	14
Exiting Leg	4				5				5				14
Total	7				10				11				28

PDI File #: **207444 DDD**
 Location: **N: Grove Street**
 Location: **E: Washington Street W: Washington Street**
 City, State: **Franklin, MA**
 Client: **TetraTech/ S. Wood**
 Site Code: **143-276845-20002**
 Count Date: **Saturday, February 8, 2020**
 Start Time: **3:00 PM**
 End Time: **6:00 PM**
 Class:



Articulated Trucks

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	0	1	1
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	
Exiting Leg Total				0				1				0	1

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	Grove Street				Washington Street				Washington Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	0	0	1	0	0	1	1
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	1	0	0	1	1
Exiting Leg				0				1				0	1
Total				0				1				1	2

PDI File #: 207444 DDD
 Location: N: Grove Street
 Location: E: Washington Street W: Washington Street
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Saturday, February 8, 2020
 Start Time: 3:00 PM
 End Time: 6:00 PM



Bicycles (on Roadway and Crosswalks)

	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0						0						0						0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

	Grove Street						Washington Street						Washington Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0
Total	0						0						0						0

PDI File #: 207444 DDD
 Location: N: Grove Street
 Location: E: Washington Street W: Washington Street
 City, State: Franklin, MA
 Client: TetraTech/ S. Wood
 Site Code: 143-276845-20002
 Count Date: Saturday, February 8, 2020
 Start Time: 3:00 PM
 End Time: 6:00 PM
 Class:



Pedestrians

	Grove Street						Washington Street						Washington Street						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg Total	0						0						0						0	

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Grove Street						Washington Street						Washington Street						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0	
Total	0						0						0						0	

EXISTING TRIP GENERATION CALCULATIONS

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 492 - Health/Fitness Club

General Urban/Suburban

Average Vehicle Trips Ends vs: 1000 Sq. Feet Gross Floor Area

Independent Variable (X): 22.501

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 1.31 * (X)$$

$$T = 1.31 * 22.501$$

$$T = 29.48$$

$$T = 29 \text{ vehicle trips}$$

with 51% (15 vph) entering and 49% (14 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 3.45 * (X)$$

$$T = 3.45 * 22.501$$

$$T = 77.63$$

$$T = 78 \text{ vehicle trips}$$

with 57% (44 vph) entering and 43% (34 vph) exiting.

SATURDAY PEAK HOUR OF GENERATOR

$$T = 3.19 * (X)$$

$$T = 3.19 * 22.501$$

$$T = 71.78$$

$$T = 72 \text{ vehicle trips}$$

with 49% (35 vph) entering and 51% (37 vph) exiting.

Institute of Transportation Engineers (ITE)
Land Use Code (LUC) 820 - Shopping Center
General Urban/Suburban

Average Vehicle Trips Ends vs: 1000 Sq. Ft. Gross Floor Area
Independent Variable (X): 13.144

AVERAGE WEEKDAY DAILY

$T = 37.75 * (X)$
 $T = 37.75 * 13.144$
 $T = 496.19$
 $T = 496$ vehicle trips
with 50% (248 vpd) entering and 50% (248 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$T = 0.94 * (X)$
 $T = 0.94 * 13.144$
 $T = 12.36$
 $T = 12$ vehicle trips
with 62% (7 vph) entering and 38% (5 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$T = 3.81 * (X)$
 $T = 3.81 * 13.144$
 $T = 50.08$
 $T = 50$ vehicle trips
with 48% (24 vph) entering and 52% (26 vph) exiting.

SATURDAY DAILY

$T = 46.12 * (X)$
 $T = 46.12 * 13.144$
 $T = 606.20$
 $T = 606$ vehicle trips
with 50% (303 vpd) entering and 50% (303 vpd) exiting.

SATURDAY PEAK HOUR OF GENERATOR

$T = 4.50 * (X)$
 $T = 4.50 * 13.144$
 $T = 59.15$
 $T = 59$ vehicle trips
with 52% (31 vph) entering and 48% (28 vph) exiting.

SEASONAL ADJUSTMENT DATA

Massachusetts Highway Department
 Statewide Traffic Data Collection
 2017 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.30	1.23	1.21	1.04	0.98	0.92	0.86	0.81	0.95	0.99	1.03	1.10	0.80
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.05	1.01	1.04	0.99	0.94	0.93	0.91	0.92	0.96	0.94	1.01	1.03	0.97
R4-R7	1.10	1.07	1.09	1.00	0.95	0.89	0.88	0.87	0.92	0.95	1.04	1.09	0.93
U1-Boston	1.01	1.04	0.99	0.94	0.93	0.92	0.96	0.93	0.94	0.93	0.95	0.98	0.95
U1-Essex	1.04	1.05	1.00	0.96	0.93	0.89	0.90	0.90	0.93	0.93	0.98	1.03	0.90
U1-Southeast	1.07	1.05	1.02	0.97	0.95	0.90	0.89	0.88	0.92	0.94	0.98	1.01	0.97
U1-West	1.00	0.96	0.94	0.92	0.93	0.92	0.95	0.93	0.92	0.92	0.97	0.97	0.89
U1-Worcester	1.10	1.10	1.04	0.97	0.95	0.94	0.93	0.91	0.95	0.96	0.98	1.04	0.89
U2	1.01	1.03	0.98	0.95	0.93	0.91	0.94	0.92	0.95	0.95	0.95	0.97	0.98
U3	1.03	1.05	1.01	0.95	0.92	0.90	0.94	0.93	0.93	0.92	0.96	0.99	0.96
U4-U7	1.06	1.05	1.02	0.96	0.92	0.89	0.95	0.95	0.92	0.92	0.98	1.03	0.98
Rec - East	1.18	1.17	1.08	1.03	0.95	0.87	0.83	0.83	0.97	0.98	1.19	1.19	0.98
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.95

Round off:

0-999 = 10

>1000 = 100

U = Urban

R = Rural

1 - Interstate

2 - Freeway and Expressway

3 - Other Principal Arterial

4 - Minor Arterial

5 - Major Collector

6 - Minor Collector

7 - Local Road and Street

Recreational - East Group - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket.

Recreational - West Group - Continuous Stations 2 and 189 including stations

1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114,1116,2196,2197 and 2198.

Massachusetts Highway Department
 Statewide Traffic Data Collection
 2018 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.37	1.26	1.30	1.08	0.97	0.93	0.87	0.83	0.96	0.98	1.05	1.13	0.78
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.15	1.06	1.07	1.00	0.89	0.88	0.89	0.89	0.95	0.92	1.02	1.01	0.98
R4-R7	1.10	1.07	1.03	1.00	0.90	0.92	0.94	0.94	0.96	0.94	1.03	1.02	0.93
U1-Boston	1.05	0.98	1.01	0.93	0.92	0.91	0.95	0.93	0.94	0.92	0.96	0.99	0.96
U1-Essex	1.05	1.01	1.04	0.93	0.92	0.89	0.90	0.90	0.94	0.93	0.98	1.01	0.91
U1-Southeast	1.11	1.05	1.07	0.99	0.93	0.89	0.88	0.87	0.93	0.95	1.01	1.05	0.98
U1-West	1.15	1.08	1.07	0.98	0.94	0.92	0.92	0.88	0.92	0.91	1.00	1.06	0.83
U1-Worcester	1.18	1.11	1.09	0.99	0.95	0.94	0.95	0.91	0.97	0.97	1.01	1.05	0.87
U2	1.04	0.99	0.99	0.94	0.92	0.90	0.93	0.91	0.94	0.92	0.96	0.98	0.99
U3	0.99	1.00	1.02	0.96	0.91	0.89	0.92	0.90	0.95	0.92	1.01	0.97	0.97
U4-U7	1.03	1.02	0.97	0.95	0.88	0.89	0.96	0.93	0.94	0.93	1.00	1.00	0.99
Rec - East	1.22	1.15	1.09	1.12	0.90	0.89	0.82	0.83	0.92	0.98	1.06	1.08	0.99
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.97

Round off:

0-999 = 10

>1000 = 100

U = Urban

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Recreational - East Group - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket.

Recreational - West Group - Continuous Stations 2 and 189 including stations

1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114,1116,2196,2197 and 2198.

Massachusetts Highway Department
Statewide Traffic Data Collection
2019 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.22	1.14	1.12	1.06	1.00	0.96	0.87	0.85	0.96	0.99	1.04	1.12	0.85
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.15	1.06	1.07	1.00	0.89	0.88	0.89	0.89	0.95	0.92	1.02	1.01	0.97
R4-R7	1.09	1.09	1.11	1.02	0.96	0.92	0.89	0.89	0.99	0.98	1.09	1.13	0.98
U1-Boston	1.03	1.01	0.98	0.94	0.94	0.92	0.95	0.93	0.94	0.94	0.97	1.04	0.96
U1-Essex	1.09	1.06	1.03	0.99	0.94	0.90	0.88	0.86	0.93	0.94	0.99	1.06	0.93
U1-Southeast	1.06	1.05	1.01	0.97	0.95	0.93	0.93	0.90	0.94	0.94	0.98	1.04	0.98
U1-West	1.19	1.14	1.09	0.95	0.92	0.89	0.89	0.86	0.91	0.95	0.97	1.07	0.84
U1-Worcester	1.02	1.04	0.97	0.94	0.93	0.91	0.95	0.91	0.93	0.92	0.95	1.10	0.88
U2	1.01	1.00	0.94	0.93	0.91	0.89	0.93	0.90	0.90	0.91	0.94	1.02	0.99
U3	1.06	1.03	0.98	0.94	0.93	0.91	0.95	0.91	0.92	0.93	0.97	1.00	0.98
U4-U7	1.01	1.00	0.95	0.92	0.88	0.86	0.92	0.91	0.92	0.94	0.99	1.04	0.99
Rec - East	1.04	1.16	1.12	0.98	0.92	0.88	0.77	0.81	0.94	1.02	1.08	1.12	0.99
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.98

Round off:

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Recreational - West Group - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114,1116,2196,2197 and 2198.

MASSDOT CRASH DATA WORKSHEETS



INTERSECTION CRASH RATE WORKSHEET

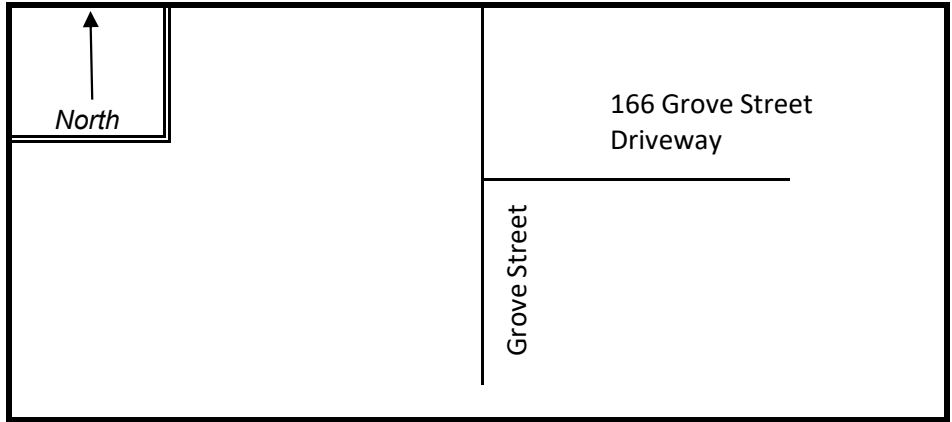
CITY/TOWN : Franklin COUNTY : _____ COUNT DATE : Jul-20

DISTRICT : 3 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Grove Street

MINOR STREET(S) : 166 Grove Street Driveway



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :		0	285	525		810

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

CRASH RATE CALCULATION : RATE =
$$\frac{(A * 1,000,000)}{(V * 365)}$$

Comments : K-value calculated by ATR collected along Grove Street
 Project Title & Date: NEX-2020163.00 - Proposed Marijuana Dispensary

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Hit and Run	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	School Bus Related	Speed Limit	Work Zone Related	Street Number	Roadway
04/22/2015	Wednesday	Property damage only (none injured)	8:27 AM	2	D1: (Inattention), (Disregarded traffic signs, signals, road markings) / D2: (No improper driving)	Daylight	Head-on	Dry	0	0	V1: Turning left / V2: Slowing or stopped in traffic	V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Passenger car)	V1: E / V2: W	Clear	No hit and run	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	No, school bus not involved		No	166	GROVE
08/05/2015	Wednesday	Non-fatal injury	6:21 PM	1		Daylight	Single vehicle crash	Dry	0	1	V1: Travelling straight ahead	V1: (Motorcycle)	V1: N	Clear	No hit and run	V1:(Overturn/ rollover)	None	No, school bus not involved	40	No	166	GROVE
09/05/2017	Tuesday	Property damage only (none injured)	2:15 PM	2	D1: (No improper driving) / D2: (, (Followed too closely)	Daylight	Rear-end	Dry	0	0	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: S / V2: S	Clear	No hit and run	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	No, school bus not involved		No	166	GROVE

TRIP-GENERATION CALCULATIONS

**Proposed Marijuana Dispensary
162 Grove Street - Franklin, MA**

**Traffic Projection Model
PM Peak Hour**

NAME	MOVEMENT	VOLUME	2020 Raw	Seasonal Growth	2020 Existing	176-210 Grove	160 Grove	164 Grove	2027 No Build	Entering	Exiting	Project In	Project Out	Entering	Exiting	Total Project Trips	2027 Build
Grove Street/West Central Street & Route 140				1.00	1.01							160	175				
	EBL	6	6	1.03	6				6					0	0	0	6
	EBT	905	862		888				952					0	0	0	952
	EBR	93	89		92	1	0	2	102	5%				8	0	8	110
	WBL	297	283		291	4	2	11	329	25%				40	0	40	369
	WBT	603	574		591				634					0	0	0	634
	WBR	340	324		334				358					0	0	0	358
	NWL	46	44		45	1	2	2	53		5%			0	9	9	62
	NWT	49	47		48	1	4	5	61		10%			0	17	17	78
	NWR	341	325		335	9	11	11	390		25%			0	44	44	434
	SEL	306	291		300				322					0	0	0	322
	SET	69	66		68	0	0	5	78	10%				16	0	16	94
	SER	25	24		25				27					0	0	0	27
Grove Street & Beaver Street	NBT	339	323		323	11	17	18	392		40%			0	70	70	462
	NBR	130	124		124		7	7	147		15%			0	26	26	173
	SBL	74	70		70				75					0	0	0	75
	SBT	360	343		343	5	2	18	393	40%				64	0	64	457
	SWL	141	134		134		1	7	152	15%				24	0	24	176
	SWR	85	81		81				87					0	0	0	87
Washington Street & Grove Street	SBL	84	80		80	7	4	5	102		10%			0	18	18	120
	SBR	366	349		349	2	15	16	407		35%			0	61	61	468
	EBL	161	153		153	1	2	16	183	35%				56	0	56	239
	EBT	299	285		285				306					0	0	0	306
	WBT	810	771		771				827					0	0	0	827
	WBR	82	78		78	2	0	4	90	10%				16	0	16	106
Grove Street & Business Park	NBL	2	2		2				2					0	0	0	2
	NBT	291	277		277	11		25	333		55%			0	96	96	429
	NBR	0	0		0		2		2					0	0	0	2
	SBL	0	0		0		3		3					0	0	0	3
	SBT	530	505		505	5		25	571	55%				88	0	88	659
	SBR	3	3		3				3					0	0	0	3
	EBL	9	9		9				10					0	0	0	10
	EBT	0	0		0				0					0	0	0	0
	EBR	8	8		8				9					0	0	0	9
	WBL	0	0		0		19		19					0	0	0	19
	WBT	0	0		0		0		0					0	0	0	0
	WBR	0	0		0		24		24					0	0	0	24
Grove Street & Site Drive	NBT	293	279		279	11	2	25	337					0	0	0	337
	NBR	0	0		0				0	45%				72	0	72	72
	SBL	0	0		0				0	55%				88	0	88	88
	SBT	539	513		513	5	19	25	599					0	0	0	599
	WBL	0	0		0				0		45%			0	79	79	79
	WBR	0	0		0				0		55%			0	96	96	96

**Proposed Marijuana Dispensary
162 Grove Street - Franklin, MA**

**Traffic Projection Model
Saturday Peak Hour**

NAME	MOVEMENT	VOLUME	2020 Raw	Seasonal Growth	2020 Existing	176-210 Grove	160 Grove	164 Grove	2027 No Build	Entering	Exiting	Project In	Project Out	Entering	Exiting	Total Project Trips	2027 Build
Grove Street/West Central Street & Route 140				1.00	1.01							194	209				
	EBL	8	8	1.03	8				9					0	0	0	9
	EBT	403	403		415				445					0	0	0	445
	EBR	38	38		39		0	4	46	5%				10	0	10	56
	WBL	183	183		188	3	1	19	225	25%				49	0	49	274
	WBT	488	488		503				539					0	0	0	539
	WBR	324	324		334				358					0	0	0	358
	NWL	28	28		29		1	4	36		5%			0	11	11	47
	NWT	30	30		31		3	7	43		10%			0	21	21	64
	NWR	169	169		174	2	6	19	214		25%			0	52	52	266
	SEL	313	313		322				345					0	0	0	345
	SET	41	41		42		0	8	53	10%				19	0	19	72
	SER	16	16		16				17					0	0	0	17
Grove Street & Beaver Street																	
	NBT	127	127		127	2	10	30	178		40%			0	84	84	262
	NBR	64	64		64		4	11	84		15%			0	31	31	115
	SBL	51	51		51				55					0	0	0	55
	SBT	168	168		168	3	1	31	215	40%				78	0	78	293
	SWL	91	91		91		1	11	110	15%				29	0	29	139
	SWR	46	46		46				49					0	0	0	49
Washington Street & Grove Street																	
	SBL	41	41		41	1	2	8	55		10%			0	21	21	76
	SBR	165	165		165		9	26	212		35%			0	73	73	285
	EBL	88	88		88		1	27	122	35%				68	0	68	190
	EBT	291	291		291				312					0	0	0	312
	WBT	388	388		388				416					0	0	0	416
	WBR	55	55		55	2	0	7	68	10%				19	0	19	87
Grove Street & Business Park																	
	NBL	2	2		2				2					0	0	0	2
	NBT	167	167		167	2		41	222		55%			0	115	115	337
	NBR	0	0		0		1		1					0	0	0	1
	SBL	0	0		0		2		2					0	0	0	2
	SBT	248	248		248	3		42	311	55%				107	0	107	418
	SBR	3	3		3				3					0	0	0	3
	EBL	0	0		0				0					0	0	0	0
	EBT	0	0		0				0					0	0	0	0
	EBR	0	0		0				0					0	0	0	0
	WBL	0	0		0		11		11					0	0	0	11
	WBT	0	0		0		0		0					0	0	0	0
	WBR	0	0		0		14		14					0	0	0	14
Grove Street & Site Drive																	
	NBT	169	169		169	2	1	41	225					0	0	0	225
	NBR	0	0		0				0	45%				87	0	87	87
	SBL	0	0		0				0	55%				107	0	107	107
	SBT	248	248		248	3	11	42	322					0	0	0	322
	WBL	0	0		0				0		45%			0	94	94	94
	WBR	0	0		0				0		55%			0	115	115	115

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 882 - Marijuana Dispensary

General Urban/Suburban

Average Vehicle Trips Ends vs: 1,000 Sq. Ft. Gross Floor Area
Independent Variable (X): 4.150

AVERAGE WEEKDAY DAILY

$$T = 252.70 * (X)$$

$$T = 252.70 * 4.150$$

$$T = 1048.71$$

$$T = 1,048 \text{ vehicle trips}$$

with 50% (524 vpd) entering and 50% (524 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 10.44 * (X)$$

$$T = 10.44 * 4.150$$

$$T = 43.33$$

$$T = 43 \text{ vehicle trips}$$

with 56% (24 vph) entering and 44% (19 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 21.83 * (X)$$

$$T = 21.83 * 4.150$$

$$T = 90.59$$

$$T = 91 \text{ vehicle trips}$$

with 50% (46 vph) entering and 50% (45 vph) exiting.

SATURDAY DAILY

$$T = 259.31 * (X)$$

$$T = 259.31 * 4.150$$

$$T = 1076.14$$

$$T = 1,076 \text{ vehicle trips}$$

with 50% (538 vpd) entering and 50% (538 vpd) exiting.

SATURDAY PEAK HOUR OF GENERATOR

$$T = 36.43 * (X)$$

$$T = 36.43 * 4.150$$

$$T = 151.18$$

$$T = 151 \text{ vehicle trips}$$

*with 50% (76 vph) entering and 50% (75 vph) exiting.

**(same distribution split as the Weekday Evening peak hour of adjacent street traffic)*

TRIP DISTRIBUTION CALCULATIONS

Gravity Model of 10 Mile Radius from Project (Census 2010)

Municipality	Population	Distance Factor	Competing Opportunities	Adjusted Population		Entering / Exiting				Entering / Exiting				
						To/From East/North	To/From East/South	To/From West/North	To/From West/South	To/From East/North	To/From East/South	To/From West/North	To/From West/South	
						Route 140	Washington Street	Route 140	Washington Street	Route 140	Washington Street	Route 140	Washington Street	
Attleboro, MA	43,593	0.50	0.75	16,347	5.60%		100%			0.0	16347.4	0.0	0.0	
Woonsocket, RI	41,186	1.00	1.00	41,186	14.12%				100%	0.0	0.0	0.0	41186.0	
Cumberland, RI	33,506	1.00	1.00	33,506	11.49%				100%	0.0	0.0	0.0	33506.0	
Franklin, MA	31,635	1.00	1.00	31,635	10.84%	60%	30%	5%	5%	18981.0	9490.5	1581.8	1581.8	
North Attleboro, MA	28,712	0.50	0.50	7,178	2.46%		50%		50%	0.0	3589.0	0.0	3589.0	
Milford, MA	27,000	1.00	1.00	27,000	9.26%	70%		30%		18900.0	0.0	8100.0	0.0	
Mansfield, MA	23,184	0.50	0.50	5,796	1.99%		100%			0.0	5796.0	0.0	0.0	
Lincoln, RI	21,105	0.50	1.00	10,553	3.62%				100%	0.0	0.0	0.0	10552.5	
Bellingham, MA	16,322	1.00	1.00	16,322	5.60%	30%		70%		4896.6	0.0	11425.4	0.0	
Burrillville, RI	15,955	0.50	1.00	7,978	2.73%			70%	30%	0.0	0.0	5584.3	2393.3	
Holliston, MA	13,547	0.50	1.00	6,774	2.32%	100%				6773.5	0.0	0.0	0.0	
Uxbridge, MA	13,457	0.50	1.00	6,729	2.31%			70%	30%	0.0	0.0	4710.0	2018.6	
Medway, MA	12,752	1.00	1.00	12,752	4.37%	100%				12752.0	0.0	0.0	0.0	
North Smithfield, RI	11,967	0.50	1.00	5,984	2.05%				100%	0.0	0.0	0.0	5983.5	
Norfolk, MA	11,227	1.00	1.00	11,227	3.85%	70%	30%			7858.9	3368.1	0.0	0.0	
Wrentham, MA	10,955	1.00	0.75	8,216	2.82%	45%	45%		10%	3697.3	3697.3	0.0	821.6	
Blackstone, MA	9,026	1.00	1.00	9,026	3.09%			30%	70%	0.0	0.0	2707.8	6318.2	
Plainville, MA	8,264	1.00	0.25	2,066	0.71%		100%			0.0	2066.0	0.0	0.0	
Millis, MA	7,891	0.50	1.00	3,946	1.35%	100%				3945.5	0.0	0.0	0.0	
Upton, MA	7,542	0.50	1.00	3,771	1.29%	70%		30%		2639.7	0.0	1131.3	0.0	
Medfield, MA	6,483	0.50	1.00	3,242	1.11%	100%				3241.5	0.0	0.0	0.0	
Walpole, MA	5,918	0.50	1.00	2,959	1.01%	100%				2959.0	0.0	0.0	0.0	
Hopedale, MA	5,911	1.00	1.00	5,911	2.03%	50%		50%		2955.5	0.0	2955.5	0.0	
Mendon, MA	5,839	1.00	1.00	5,839	2.00%	70%		30%		4087.3	0.0	1751.7	0.0	
Foxborough, MA	5,625	0.50	0.75	2,109	0.72%	30%	70%			632.8	1476.6	0.0	0.0	
Sherborn, MA	4,119	0.50	1.00	2,060	0.71%	100%				2059.5	0.0	0.0	0.0	
Millville, MA	3,190	0.50	1.00	1,595	0.55%			50%	50%	0.0	0.0	797.5	797.5	
	425,911			291,704	100.00%					96380.1	45830.9	40745.2	108747.9	
										33.0%	15.7%	14.0%	37.3%	
										SAY:	35%	15%	15%	35%

Distance Factors: (1.00 = Within 5.0 miles, 0.50 = Between 5 - 10 Miles)

Competing dispensary in Plainville, MA

Medicinal marijuana is legal in Rhode Island

CAPACITY ANALYSIS METHODOLOGY

CAPACITY ANALYSIS METHODOLOGY

A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM).¹² 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 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 best operating conditions and LOS F the worst. 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 describes conditions with little to no delay to motorists.
- LOS B represents a desirable level with relatively low delay to motorists.
- LOS C describes conditions with average delays to motorists.
- LOS D describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- LOS E represents operating conditions with high delay values. This level is considered by many agencies to be the limit of acceptable delay.
- LOS F is considered to be unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.

Unsignalized Intersections

Levels of service for unsignalized intersections are calculated using the operational analysis methodology of the HCM. The procedure accounts for lane configuration on both the minor and major street approaches, conflicting traffic stream volumes, and the type of intersection control (STOP, YIELD, or all-way STOP control). The definition of level of service for unsignalized intersections is a function of average *control* delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for unsignalized intersections are shown in Table A-1.

Signalized Intersections

Levels of service for signalized intersections are also calculated using the operational analysis methodology of the HCM. The methodology for signalized intersections assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on average *control* delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Table A-1 summarizes the relationship between level of service and average control delay.

¹² *Highway Capacity Manual 6th Edition*, Transportation Research Board; Washington, D.C.; 2016.

**Table A-1
LEVEL-OF-SERVICE CRITERIA FOR INTERSECTIONS**

Level of Service	Unsignalized Intersection Criteria	Signalized Intersection Criteria
	Average Control Delay (Seconds per Vehicle)	Average Control Delay (Seconds per Vehicle)
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 or v/c >1.0	>80 or v/c >1.0

Source: *Highway Capacity Manual 6th Edition*, Transportation Research Board; Washington, D.C.; 2016. Pages 19-16, 20-6, and 21-9.

For signalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to the entire intersection. For unsignalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups or to individual intersection approaches.

CAPACITY AND QUEUE ANALYSIS WORKSHEETS

Lanes, Volumes, Timings
1: Grove Street/W. Central Street & Route 140

2020 Existing
Timing Plan: Weekday PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	882	91	291	587	331	45	48	332	298	68	25
Future Volume (vph)	9	882	91	291	587	331	45	48	332	298	68	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	11	12	12	12	12	12	12
Storage Length (ft)	125		0	200		150	0		200	100		0
Storage Lanes	1		0	2		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986				0.850			0.850		0.959	
Flt Protected	0.950			0.950				0.976		0.950		
Satd. Flow (prot)	1745	3435	0	3255	3406	1561	0	1811	1583	1805	1822	0
Flt Permitted	0.950			0.950				0.796		0.380		
Satd. Flow (perm)	1745	3435	0	3255	3406	1561	0	1477	1583	722	1822	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		13				352					22	
Link Speed (mph)		40			35			40			30	
Link Distance (ft)		700			700			500			500	
Travel Time (s)		11.9			13.6			8.5			11.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	4%	6%	0%	5%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases						6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	7	4	
Switch Phase												
Minimum Initial (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	12.0	18.0		12.0	18.0	18.0	11.0	11.0	12.0	12.0	12.0	
Total Split (s)	12.0	37.0		18.0	43.0	43.0	17.0	17.0	18.0	18.0	35.0	
Total Split (%)	13.3%	41.1%		20.0%	47.8%	47.8%	18.9%	18.9%	20.0%	20.0%	38.9%	
Maximum Green (s)	6.0	31.0		12.0	37.0	37.0	12.0	12.0	12.0	12.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		5.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	

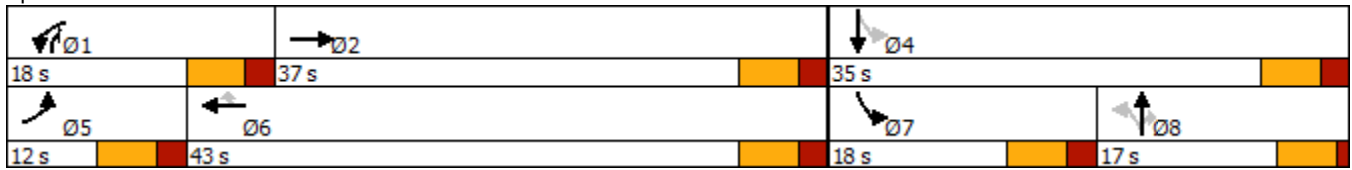
Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 83.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated

Lanes, Volumes, Timings
 1: Grove Street/W. Central Street & Route 140










2020 Existing
 Timing Plan: Weekday PM

Splits and Phases: 1: Grove Street/W. Central Street & Route 140



Queues
1: Grove Street/W. Central Street & Route 140

2020 Existing
Timing Plan: Weekday PM

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	1035	310	624	352	99	353	317	99
v/c Ratio	0.08	0.87	0.65	0.34	0.35	0.56	0.77	0.86	0.18
Control Delay	40.9	35.5	43.1	13.4	2.9	49.8	39.2	50.2	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	35.5	43.1	13.4	2.9	49.8	39.2	50.2	18.7
Queue Length 50th (ft)	5	278	87	95	0	53	174	147	31
Queue Length 95th (ft)	22	#398	#136	178	50	105	273	#231	68
Internal Link Dist (ft)		620		620		420			420
Turn Bay Length (ft)	125		200		150		200	100	
Base Capacity (vph)	127	1305	475	1827	1000	215	460	368	658
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.79	0.65	0.34	0.35	0.46	0.77	0.86	0.15






















Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: Grove Street/W. Central Street & Route 140

2020 Existing
Timing Plan: Weekday PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	882	91	291	587	331	45	48	332	298	68	25
Future Volume (veh/h)	9	882	91	291	587	331	45	48	332	298	68	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1841	1811	1900	1826	1900	1870	1900	1900	1900
Adj Flow Rate, veh/h	10	938	97	310	624	352	48	51	353	317	72	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	4	6	0	5	0	2	0	0	0
Cap, veh/h	27	1060	110	390	1484	694	150	139	401	420	658	
Arrive On Green	0.01	0.33	0.33	0.11	0.43	0.43	0.14	0.14	0.14	0.14	0.35	0.00
Sat Flow, veh/h	1810	3199	331	3401	3441	1610	635	1005	1585	1810	1900	0
Grp Volume(v), veh/h	10	513	522	310	624	352	99	0	353	317	72	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1781	1700	1721	1610	1641	0	1585	1810	1900	0
Q Serve(g_s), s	0.5	24.0	24.0	7.7	10.9	13.8	2.4	0.0	12.0	12.0	2.2	0.0
Cycle Q Clear(g_c), s	0.5	24.0	24.0	7.7	10.9	13.8	4.5	0.0	12.0	12.0	2.2	0.0
Prop In Lane	1.00		0.19	1.00		1.00	0.48		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	27	579	590	390	1484	694	289	0	401	420	658	
V/C Ratio(X)	0.37	0.89	0.89	0.79	0.42	0.51	0.34	0.00	0.88	0.76	0.11	
Avail Cap(c_a), veh/h	125	626	637	471	1484	694	289	0	401	420	658	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.3	27.4	27.4	37.4	17.1	17.9	34.0	0.0	31.1	26.6	19.2	0.0
Incr Delay (d2), s/veh	8.4	13.6	13.4	7.6	0.2	0.6	0.7	0.0	19.5	7.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	11.4	11.6	3.5	4.1	4.8	1.9	0.0	8.8	6.2	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	41.0	40.8	45.0	17.3	18.5	34.7	0.0	50.6	34.2	19.3	0.0
LnGrp LOS	D	D	D	D	B	B	C	A	D	C	B	
Approach Vol, veh/h		1045			1286			452			389	A
Approach Delay, s/veh		41.0			24.3			47.1			31.5	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	34.7		36.0	7.3	43.4	18.0	18.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	* 6				
Max Green Setting (Gmax), s	12.0	31.0		29.0	6.0	37.0	12.0	* 12				
Max Q Clear Time (g_c+I1), s	9.7	26.0		4.2	2.5	15.8	14.0	14.0				
Green Ext Time (p_c), s	0.3	2.7		0.3	0.0	5.5	0.0	0.0				

Intersection Summary










HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 3: Grove Street & Planet Fitness Driveway

2020 Existing
 Timing Plan: Weekday PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	39	246	24	44	481
Future Volume (vph)	21	39	246	24	44	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.913		0.988			
Flt Protected	0.983					0.996
Satd. Flow (prot)	1672	0	1840	0	0	1855
Flt Permitted	0.983					0.996
Satd. Flow (perm)	1672	0	1840	0	0	1855
Link Speed (mph)	20		40			40
Link Distance (ft)	478		359			344
Travel Time (s)	16.3		6.1			5.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

HCM 6th TWSC
3: Grove Street & Planet Fitness Driveway

2020 Existing
Timing Plan: Weekday PM

Intersection

Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	39	246	24	44	481
Future Vol, veh/h	21	39	246	24	44	481
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	42	267	26	48	523












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	899	280	0	0	293
Stage 1	280	-	-	-	-
Stage 2	619	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	309	759	-	-	1269
Stage 1	767	-	-	-	-
Stage 2	537	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	293	759	-	-	1269
Mov Cap-2 Maneuver	293	-	-	-	-
Stage 1	767	-	-	-	-
Stage 2	509	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	488	1269
HCM Lane V/C Ratio	-	-	0.134	0.038
HCM Control Delay (s)	-	-	13.5	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Lanes, Volumes, Timings
4: Washington Street & Grove Street

2020 Existing
Timing Plan: Weekday PM

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	157	292	789	80	82	357
Future Volume (vph)	157	292	789	80	82	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	12	12
Storage Length (ft)	150			0	0	50
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.988			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1668	1818	1793	0	1736	1599
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1668	1818	1793	0	1736	1599
Link Speed (mph)		40	40		40	
Link Distance (ft)		500	500		500	
Travel Time (s)		8.5	8.5		8.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	1%	1%	3%	4%	1%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 6th TWSC
4: Washington Street & Grove Street

2020 Existing
Timing Plan: Weekday PM

Intersection

Int Delay, s/veh 20.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗		↘	↗
Traffic Vol, veh/h	157	292	789	80	82	357
Future Vol, veh/h	157	292	789	80	82	357
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	50
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	3	4	1
Mvmt Flow	159	295	797	81	83	361

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	878	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.11	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.209	-	-
Pot Cap-1 Maneuver	774	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	774	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	79.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	774	-	-	-	114	368
HCM Lane V/C Ratio	0.205	-	-	-	0.727	0.98
HCM Control Delay (s)	10.8	-	-	-	93.8	76.1
HCM Lane LOS	B	-	-	-	F	F
HCM 95th %tile Q(veh)	0.8	-	-	-	4	11.2

Lanes, Volumes, Timings
1: Grove Street/W. Central Street & Route 140

2020 Existing
Timing Plan: Saturday MIDDAY

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	404	39	192	499	331	29	31	173	320	42	16
Future Volume (vph)	8	404	39	192	499	331	29	31	173	320	42	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	11	12	12	12	12	12	12
Storage Length (ft)	125		0	200		150	0		200	100		0
Storage Lanes	1		0	2		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987				0.850			0.850		0.960	
Flt Protected	0.950			0.950				0.976		0.950		
Satd. Flow (prot)	1745	3499	0	3319	3406	1561	0	1794	1599	1805	1824	0
Flt Permitted	0.950			0.950				0.814		0.357		
Satd. Flow (perm)	1745	3499	0	3319	3406	1561	0	1496	1599	678	1824	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		15				360						17
Link Speed (mph)		40			35			40				30
Link Distance (ft)		700			700			500				500
Travel Time (s)		11.9			13.6			8.5				11.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	6%	0%	7%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases						6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	7	4	
Switch Phase												
Minimum Initial (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	18.0		12.0	18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	12.0	18.0		12.0	18.0	18.0	12.0	12.0	12.0	18.0	30.0	
Total Split (%)	20.0%	30.0%		20.0%	30.0%	30.0%	20.0%	20.0%	20.0%	30.0%	50.0%	
Maximum Green (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	12.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min	Min	Min	Min	None	None	Min	

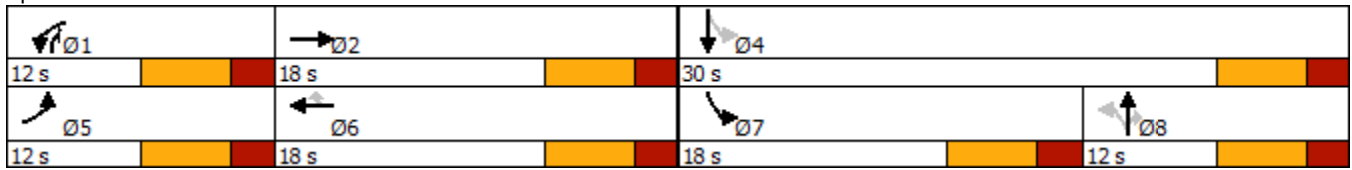
Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 59.8
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated

Lanes, Volumes, Timings
 1: Grove Street/W. Central Street & Route 140










2020 Existing
 Timing Plan: Saturday MIDDAY

Splits and Phases: 1: Grove Street/W. Central Street & Route 140



Queues
1: Grove Street/W. Central Street & Route 140

2020 Existing
Timing Plan: Saturday MIDDAY

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	9	481	209	542	360	66	188	348	63
v/c Ratio	0.05	0.67	0.63	0.44	0.45	0.44	0.39	0.71	0.09
Control Delay	25.2	26.8	35.6	18.2	4.7	35.3	19.6	23.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	26.8	35.6	18.2	4.7	35.3	19.6	23.3	9.3
Queue Length 50th (ft)	3	82	38	71	0	23	53	90	10
Queue Length 95th (ft)	14	127	#75	#170	60	#58	103	#161	29
Internal Link Dist (ft)		620		620		420			420
Turn Bay Length (ft)	125		200		150		200	100	
Base Capacity (vph)	175	714	332	1231	794	150	481	495	742
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.67	0.63	0.44	0.45	0.44	0.39	0.70	0.08






















Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: Grove Street/W. Central Street & Route 140

2020 Existing
Timing Plan: Saturday MIDDAY

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	404	39	192	499	331	29	31	173	320	42	16
Future Volume (veh/h)	8	404	39	192	499	331	29	31	173	320	42	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1811	1900	1796	1900	1885	1900	1900	1900
Adj Flow Rate, veh/h	9	439	42	209	542	360	32	34	188	348	46	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0	2	6	0	7	0	1	0	0	0
Cap, veh/h	25	663	63	338	985	461	150	110	318	552	753	
Arrive On Green	0.01	0.20	0.20	0.10	0.29	0.29	0.10	0.10	0.10	0.19	0.40	0.00
Sat Flow, veh/h	1810	3279	312	3456	3441	1610	593	1085	1598	1810	1900	0
Grp Volume(v), veh/h	9	237	244	209	542	360	66	0	188	348	46	0
Grp Sat Flow(s),veh/h/ln	1810	1777	1814	1728	1721	1610	1677	0	1598	1810	1900	0
Q Serve(g_s), s	0.3	7.3	7.4	3.4	7.9	12.2	0.6	0.0	6.0	9.5	0.9	0.0
Cycle Q Clear(g_c), s	0.3	7.3	7.4	3.4	7.9	12.2	2.0	0.0	6.0	9.5	0.9	0.0
Prop In Lane	1.00		0.17	1.00		1.00	0.48		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	25	359	367	338	985	461	260	0	318	552	753	
V/C Ratio(X)	0.36	0.66	0.66	0.62	0.55	0.78	0.25	0.00	0.59	0.63	0.06	
Avail Cap(c_a), veh/h	183	359	367	350	985	461	260	0	318	567	769	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.0	21.8	21.8	25.7	17.9	19.5	24.8	0.0	21.6	16.7	11.1	0.0
Incr Delay (d2), s/veh	8.3	4.4	4.5	3.1	0.7	8.4	0.5	0.0	2.9	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.1	3.2	1.5	2.9	5.0	0.8	0.0	2.3	3.9	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	26.2	26.3	28.8	18.6	27.9	25.3	0.0	24.5	18.9	11.1	0.0
LnGrp LOS	D	C	C	C	B	C	C	A	C	B	B	
Approach Vol, veh/h		490			1111			254			394	A
Approach Delay, s/veh		26.4			23.5			24.7			18.0	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	18.0		29.5	6.8	23.0	17.5	12.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	12.0		24.0	6.0	12.0	12.0	6.0				
Max Q Clear Time (g_c+I1), s	5.4	9.4		2.9	2.3	14.2	11.5	8.0				
Green Ext Time (p_c), s	0.0	0.7		0.1	0.0	0.0	0.1	0.0				

Intersection Summary










HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 3: Grove Street & Planet Fitness Driveway

2020 Existing
 Timing Plan: Saturday MIDDAY

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	39	134	27	39	215
Future Volume (vph)	26	39	134	27	39	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.978			
Flt Protected	0.980					0.992
Satd. Flow (prot)	1678	0	1822	0	0	1879
Flt Permitted	0.980					0.992
Satd. Flow (perm)	1678	0	1822	0	0	1879
Link Speed (mph)	20		40			40
Link Distance (ft)	478		359			496
Travel Time (s)	16.3		6.1			8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
3: Grove Street & Planet Fitness Driveway

2020 Existing
Timing Plan: Saturday MIDDAY

Intersection

Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	39	134	27	39	215
Future Vol, veh/h	26	39	134	27	39	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	0
Mvmt Flow	28	42	146	29	42	234












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	479	161	0	0	175
Stage 1	161	-	-	-	-
Stage 2	318	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	545	884	-	-	1401
Stage 1	868	-	-	-	-
Stage 2	738	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	526	884	-	-	1401
Mov Cap-2 Maneuver	526	-	-	-	-
Stage 1	868	-	-	-	-
Stage 2	713	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	695	1401
HCM Lane V/C Ratio	-	-	0.102	0.03
HCM Control Delay (s)	-	-	10.8	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

Lanes, Volumes, Timings
 4: Washington Street & Grove Street

2020 Existing
 Timing Plan: Saturday MIDDAY

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	298	397	56	42	169
Future Volume (vph)	90	298	397	56	42	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	12	12
Storage Length (ft)	150			0	0	50
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.983			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1685	1818	1785	0	1805	1615
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1685	1818	1785	0	1805	1615
Link Speed (mph)		40	40		40	
Link Distance (ft)		500	500		500	
Travel Time (s)		8.5	8.5		8.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

HCM 6th TWSC
4: Washington Street & Grove Street

2020 Existing
Timing Plan: Saturday MIDDAY

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗		↘	↗
Traffic Vol, veh/h	90	298	397	56	42	169
Future Vol, veh/h	90	298	397	56	42	169
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	50
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	1	1	2	0	0
Mvmt Flow	96	317	422	60	45	180

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	482	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1091	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1091	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1091	-	-	-	262	612
HCM Lane V/C Ratio	0.088	-	-	-	0.171	0.294
HCM Control Delay (s)	8.6	-	-	-	21.5	13.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6	1.2

Lanes, Volumes, Timings
1: Grove Street/W. Central Street & Route 140

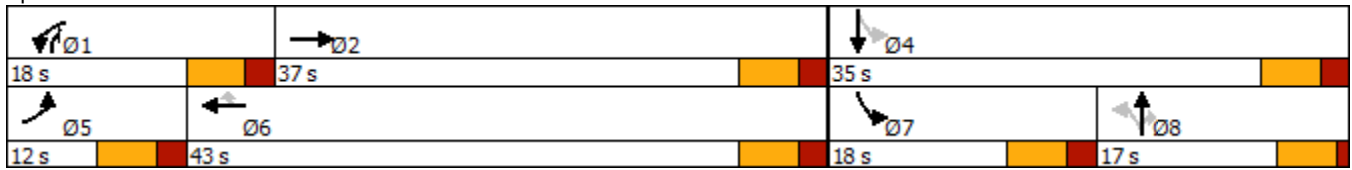
2027 No-Build
Timing Plan: Weekday PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	946	107	358	629	355	60	73	420	319	89	27
Future Volume (vph)	9	946	107	358	629	355	60	73	420	319	89	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	11	12	12	12	12	12	12
Storage Length (ft)	125		0	200		150	0		200	100		0
Storage Lanes	1		0	2		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985				0.850			0.850		0.965	
Flt Protected	0.950			0.950				0.978		0.950		
Satd. Flow (prot)	1745	3433	0	3255	3406	1561	0	1817	1583	1805	1834	0
Flt Permitted	0.950			0.950				0.796		0.337		
Satd. Flow (perm)	1745	3433	0	3255	3406	1561	0	1479	1583	640	1834	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		15				378						18
Link Speed (mph)		40			35			40				30
Link Distance (ft)		700			700			500				500
Travel Time (s)		11.9			13.6			8.5				11.4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	4%	6%	0%	5%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases						6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	7	4	
Switch Phase												
Minimum Initial (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	18.0		12.0	18.0	18.0	11.0	11.0	12.0	12.0	12.0	12.0
Total Split (s)	12.0	37.0		18.0	43.0	43.0	17.0	17.0	18.0	18.0	35.0	35.0
Total Split (%)	13.3%	41.1%		20.0%	47.8%	47.8%	18.9%	18.9%	20.0%	20.0%	38.9%	38.9%
Maximum Green (s)	6.0	31.0		12.0	37.0	37.0	12.0	12.0	12.0	12.0	29.0	29.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		5.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	None

Intersection Summary










Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 88.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Grove Street/W. Central Street & Route 140



Queues
1: Grove Street/W. Central Street & Route 140

2027 No-Build
Timing Plan: Weekday PM

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	1120	381	669	378	142	447	339	124
v/c Ratio	0.09	0.94	0.87	0.38	0.38	0.76	0.89	0.94	0.21
Control Delay	41.2	44.2	59.3	14.5	3.0	63.6	50.6	63.6	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	44.2	59.3	14.5	3.0	63.6	50.6	63.6	20.0
Queue Length 50th (ft)	6	316	111	106	0	79	238	160	43
Queue Length 95th (ft)	22	#454	#190	193	52	#168	#412	#280	85
Internal Link Dist (ft)		620		620		420			420
Turn Bay Length (ft)	125		200		150		200	100	
Base Capacity (vph)	117	1207	439	1771	993	199	504	360	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.93	0.87	0.38	0.38	0.71	0.89	0.94	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: Grove Street/W. Central Street & Route 140

2027 No-Build
 Timing Plan: Weekday PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	946	107	358	629	355	60	73	420	319	89	27
Future Volume (veh/h)	9	946	107	358	629	355	60	73	420	319	89	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1841	1811	1900	1826	1900	1870	1900	1900	1900
Adj Flow Rate, veh/h	10	1006	114	381	669	378	64	78	447	339	95	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	4	6	0	5	0	2	0	0	0
Cap, veh/h	27	1071	121	448	1567	733	141	132	419	364	629	
Arrive On Green	0.01	0.34	0.34	0.13	0.46	0.46	0.13	0.13	0.13	0.13	0.33	0.00
Sat Flow, veh/h	1810	3166	359	3401	3441	1610	628	998	1585	1810	1900	0
Grp Volume(v), veh/h	10	555	565	381	669	378	142	0	447	339	95	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1776	1700	1721	1610	1625	0	1585	1810	1900	0
Q Serve(g_s), s	0.5	27.9	27.9	9.9	11.9	15.1	5.9	0.0	12.0	12.0	3.2	0.0
Cycle Q Clear(g_c), s	0.5	27.9	27.9	9.9	11.9	15.1	7.4	0.0	12.0	12.0	3.2	0.0
Prop In Lane	1.00		0.20	1.00		1.00	0.45		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	27	592	601	448	1567	733	273	0	419	364	629	
V/C Ratio(X)	0.38	0.94	0.94	0.85	0.43	0.52	0.52	0.00	1.07	0.93	0.15	
Avail Cap(c_a), veh/h	120	599	608	451	1567	733	273	0	419	364	629	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.2	29.1	29.1	38.4	16.7	17.6	37.2	0.0	33.3	30.8	21.3	0.0
Incr Delay (d2), s/veh	8.5	22.7	22.6	14.3	0.2	0.6	1.8	0.0	63.0	30.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	14.6	14.8	4.9	4.4	5.2	3.0	0.0	16.0	4.6	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	51.8	51.7	52.7	16.9	18.2	38.9	0.0	96.3	60.8	21.4	0.0
LnGrp LOS	D	D	D	D	B	B	D	A	F	E	C	
Approach Vol, veh/h		1130			1428			589			434	A
Approach Delay, s/veh		51.7			26.8			82.5			52.2	
Approach LOS		D			C			F			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.9	36.6		36.0	7.3	47.2	18.0	18.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	* 6				
Max Green Setting (Gmax), s	12.0	31.0		29.0	6.0	37.0	12.0	* 12				
Max Q Clear Time (g_c+I1), s	11.9	29.9		5.2	2.5	17.1	14.0	14.0				
Green Ext Time (p_c), s	0.0	0.7		0.4	0.0	5.8	0.0	0.0				

Intersection Summary










HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 3: Grove Street & Planet Fitness Driveway

2027 No-Build
 Timing Plan: Weekday PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	39	352	24	44	622
Future Volume (vph)	21	39	352	24	44	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.913		0.991			
Flt Protected	0.983					0.997
Satd. Flow (prot)	1672	0	1846	0	0	1857
Flt Permitted	0.983					0.997
Satd. Flow (perm)	1672	0	1846	0	0	1857
Link Speed (mph)	20		40			40
Link Distance (ft)	478		359			344
Travel Time (s)	16.3		6.1			5.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

HCM 6th TWSC
 3: Grove Street & Planet Fitness Driveway

2027 No-Build
 Timing Plan: Weekday PM

Intersection

Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	21	39	352	24	44	622
Future Vol, veh/h	21	39	352	24	44	622
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	42	383	26	48	676












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1168	396	0	0	409
Stage 1	396	-	-	-	-
Stage 2	772	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	214	653	-	-	1150
Stage 1	680	-	-	-	-
Stage 2	456	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	200	653	-	-	1150
Mov Cap-2 Maneuver	200	-	-	-	-
Stage 1	680	-	-	-	-
Stage 2	425	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	364	1150
HCM Lane V/C Ratio	-	-	0.179	0.042
HCM Control Delay (s)	-	-	17	8.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

Lanes, Volumes, Timings
 4: Washington Street & Grove Street

2027 No-Build
 Timing Plan: Weekday PM

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	227	313	846	104	117	461
Future Volume (vph)	227	313	846	104	117	461
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	12	12
Storage Length (ft)	150			0	0	50
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.985			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1668	1818	1787	0	1736	1599
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1668	1818	1787	0	1736	1599
Link Speed (mph)		40	40		40	
Link Distance (ft)		500	500		500	
Travel Time (s)		8.5	8.5		8.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	1%	1%	3%	4%	1%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

Intersection

Int Delay, s/veh 77.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗		↘	↗
Traffic Vol, veh/h	227	313	846	104	117	461
Future Vol, veh/h	227	313	846	104	117	461
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	50
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	3	4	1
Mvmt Flow	229	316	855	105	118	466

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	960	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.11	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.209	-	-
Pot Cap-1 Maneuver	721	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	721	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	5.2	0	271.9
HCM LOS			F






















Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	721	-	-	-	70	335
HCM Lane V/C Ratio	0.318	-	-	-	1.688	1.39
HCM Control Delay (s)	12.3	-	-	-	462.4	223.6
HCM Lane LOS	B	-	-	-	F	F
HCM 95th %tile Q(veh)	1.4	-	-	-	10.3	23.7

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
 1: Grove Street/W. Central Street & Route 140

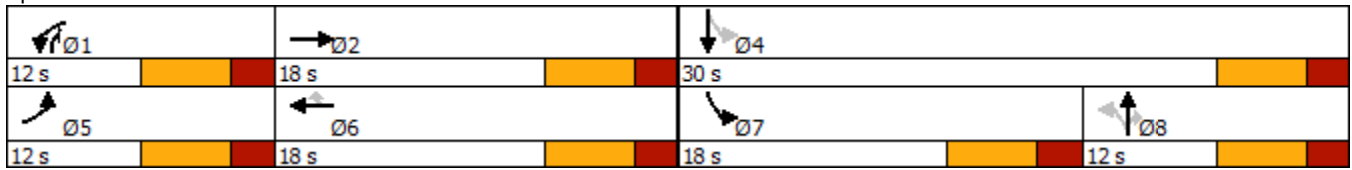
2027 No-Build
 Timing Plan: Saturday Midday

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	433	52	258	535	355	43	57	245	343	64	17
Future Volume (vph)	9	433	52	258	535	355	43	57	245	343	64	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	11	12	12	12	12	12	12
Storage Length (ft)	125		0	200		150	0		200	100		0
Storage Lanes	1		0	2		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850			0.850		0.969	
Flt Protected	0.950			0.950				0.979		0.950		
Satd. Flow (prot)	1745	3490	0	3319	3406	1561	0	1806	1599	1805	1841	0
Flt Permitted	0.950			0.950				0.820		0.343		
Satd. Flow (perm)	1745	3490	0	3319	3406	1561	0	1512	1599	652	1841	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		19				386						18
Link Speed (mph)		40			35			40				30
Link Distance (ft)		700			700			500				500
Travel Time (s)		11.9			13.6			8.5				11.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	6%	0%	7%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases						6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	7	4	
Switch Phase												
Minimum Initial (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	18.0		12.0	18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	12.0	18.0		12.0	18.0	18.0	12.0	12.0	12.0	18.0	30.0	
Total Split (%)	20.0%	30.0%		20.0%	30.0%	30.0%	20.0%	20.0%	20.0%	30.0%	50.0%	
Maximum Green (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	12.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min		None	Min	Min	Min	Min	None	None	Min	

Intersection Summary










Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 60
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Grove Street/W. Central Street & Route 140



Queues
1: Grove Street/W. Central Street & Route 140

2027 No-Build
Timing Plan: Saturday MIDDAY


























									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	528	280	582	386	109	266	373	88
v/c Ratio	0.06	0.74	0.85	0.47	0.48	0.72	0.56	0.76	0.12
Control Delay	25.3	29.3	52.1	19.1	4.8	56.0	22.9	26.4	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	29.3	52.1	19.1	4.8	56.0	22.9	26.4	10.0
Queue Length 50th (ft)	3	91	52	77	0	39	80	98	15
Queue Length 95th (ft)	15	#153	#111	#188	62	#111	146	#188	39
Internal Link Dist (ft)		620		620		420			420
Turn Bay Length (ft)	125		200		150		200	100	
Base Capacity (vph)	174	713	331	1227	809	151	479	491	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.74	0.85	0.47	0.48	0.72	0.56	0.76	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: Grove Street/W. Central Street & Route 140

2027 No-Build
 Timing Plan: Saturday Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 							
Traffic Volume (veh/h)	9	433	52	258	535	355	43	57	245	343	64	17
Future Volume (veh/h)	9	433	52	258	535	355	43	57	245	343	64	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1811	1900	1796	1900	1885	1900	1900	1900
Adj Flow Rate, veh/h	10	471	57	280	582	386	47	62	266	373	70	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0	2	6	0	7	0	1	0	0	0
Cap, veh/h	28	639	77	346	979	458	146	106	320	522	760	
Arrive On Green	0.02	0.20	0.20	0.10	0.28	0.28	0.10	0.10	0.10	0.20	0.40	0.00
Sat Flow, veh/h	1810	3193	385	3456	3441	1610	597	1061	1598	1810	1900	0
Grp Volume(v), veh/h	10	261	267	280	582	386	109	0	266	373	70	0
Grp Sat Flow(s),veh/h/ln	1810	1777	1801	1728	1721	1610	1658	0	1598	1810	1900	0
Q Serve(g_s), s	0.3	8.3	8.3	4.8	8.7	13.5	2.9	0.0	6.0	10.4	1.4	0.0
Cycle Q Clear(g_c), s	0.3	8.3	8.3	4.8	8.7	13.5	3.7	0.0	6.0	10.4	1.4	0.0
Prop In Lane	1.00		0.21	1.00		1.00	0.43		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	28	355	360	346	979	458	252	0	320	522	760	
V/C Ratio(X)	0.36	0.73	0.74	0.81	0.59	0.84	0.43	0.00	0.83	0.71	0.09	
Avail Cap(c_a), veh/h	181	355	360	346	979	458	252	0	320	522	760	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.2	22.5	22.5	26.4	18.5	20.2	25.9	0.0	23.0	17.2	11.2	0.0
Incr Delay (d2), s/veh	7.7	7.7	7.9	13.5	1.0	13.3	1.2	0.0	16.9	4.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.8	3.9	2.5	3.2	6.0	1.4	0.0	4.7	4.5	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	30.2	30.5	39.9	19.5	33.5	27.1	0.0	39.9	21.8	11.3	0.0
LnGrp LOS	D	C	C	D	B	C	C	A	D	C	B	
Approach Vol, veh/h		538			1248			375			443	A
Approach Delay, s/veh		30.5			28.4			36.2			20.1	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	18.0		30.0	6.9	23.1	18.0	12.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	12.0		24.0	6.0	12.0	12.0	6.0				
Max Q Clear Time (g_c+I1), s	6.8	10.3		3.4	2.3	15.5	12.4	8.0				
Green Ext Time (p_c), s	0.0	0.5		0.3	0.0	0.0	0.0	0.0				

Intersection Summary










HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 3: Grove Street & Planet Fitness Driveway

2027 No-Build
 Timing Plan: Saturday MIDDAY

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	39	237	27	39	349
Future Volume (vph)	26	39	237	27	39	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.986			
Flt Protected	0.980					0.995
Satd. Flow (prot)	1678	0	1837	0	0	1887
Flt Permitted	0.980					0.995
Satd. Flow (perm)	1678	0	1837	0	0	1887
Link Speed (mph)	20		40			40
Link Distance (ft)	478		359			496
Travel Time (s)	16.3		6.1			8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
 3: Grove Street & Planet Fitness Driveway

2027 No-Build
 Timing Plan: Saturday MIDDAY

Intersection

Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		B			A
Traffic Vol, veh/h	26	39	237	27	39	349
Future Vol, veh/h	26	39	237	27	39	349
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	0
Mvmt Flow	28	42	258	29	42	379












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	736	273	0	0	287
Stage 1	273	-	-	-	-
Stage 2	463	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	386	766	-	-	1275
Stage 1	773	-	-	-	-
Stage 2	634	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	370	766	-	-	1275
Mov Cap-2 Maneuver	370	-	-	-	-
Stage 1	773	-	-	-	-
Stage 2	607	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	536	1275
HCM Lane V/C Ratio	-	-	0.132	0.033
HCM Control Delay (s)	-	-	12.7	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Lanes, Volumes, Timings
 4: Washington Street & Grove Street

2027 No-Build
 Timing Plan: Saturday MIDDAY

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	165	319	426	81	69	263
Future Volume (vph)	165	319	426	81	69	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	12	12
Storage Length (ft)	150			0	0	50
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.978			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1685	1818	1776	0	1805	1615
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1685	1818	1776	0	1805	1615
Link Speed (mph)		40	40		40	
Link Distance (ft)		500	500		500	
Travel Time (s)		8.5	8.5		8.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

HCM 6th TWSC
4: Washington Street & Grove Street

2027 No-Build
Timing Plan: Saturday MIDDAY

Intersection

Int Delay, s/veh 6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↘		↘	↗
Traffic Vol, veh/h	165	319	426	81	69	263
Future Vol, veh/h	165	319	426	81	69	263
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	50
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	1	1	2	0	0
Mvmt Flow	176	339	453	86	73	280

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	539	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1040	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1040	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	21.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1040	-	-	-	175	578
HCM Lane V/C Ratio	0.169	-	-	-	0.419	0.484
HCM Control Delay (s)	9.2	-	-	-	39.7	16.9
HCM Lane LOS	A	-	-	-	E	C
HCM 95th %tile Q(veh)	0.6	-	-	-	1.9	2.6

Lanes, Volumes, Timings
1: Grove Street/W. Central Street & Route 140

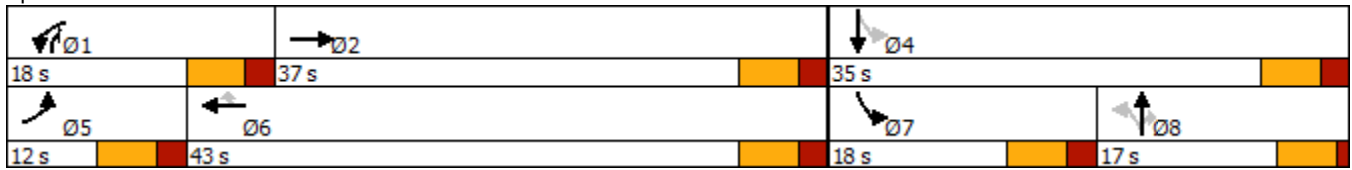
2027 Build
Timing Plan: Weekday PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	946	114	374	629	355	66	73	436	319	89	27
Future Volume (vph)	9	946	114	374	629	355	66	73	436	319	89	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	11	12	12	12	12	12	12
Storage Length (ft)	125		0	200		150	0		200	100		0
Storage Lanes	1		0	2		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984				0.850			0.850		0.965	
Flt Protected	0.950			0.950				0.977		0.950		
Satd. Flow (prot)	1745	3430	0	3255	3406	1561	0	1813	1583	1805	1834	0
Flt Permitted	0.950			0.950				0.788		0.323		
Satd. Flow (perm)	1745	3430	0	3255	3406	1561	0	1463	1583	614	1834	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		16				378					18	
Link Speed (mph)		40			35			40			30	
Link Distance (ft)		700			700			500			500	
Travel Time (s)		11.9			13.6			8.5			11.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	4%	6%	0%	5%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases						6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	7	4	
Switch Phase												
Minimum Initial (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	12.0	18.0		12.0	18.0	18.0	11.0	11.0	12.0	12.0	12.0	
Total Split (s)	12.0	37.0		18.0	43.0	43.0	17.0	17.0	18.0	18.0	35.0	
Total Split (%)	13.3%	41.1%		20.0%	47.8%	47.8%	18.9%	18.9%	20.0%	20.0%	38.9%	
Maximum Green (s)	6.0	31.0		12.0	37.0	37.0	12.0	12.0	12.0	12.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		5.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	

Intersection Summary










Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 89.2
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Grove Street/W. Central Street & Route 140



Queues
1: Grove Street/W. Central Street & Route 140

2027 Build
Timing Plan: Weekday PM

























									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	1127	398	669	378	148	464	339	124
v/c Ratio	0.09	0.94	0.91	0.38	0.38	0.79	0.92	0.95	0.21
Control Delay	41.2	44.9	65.1	14.5	3.0	67.5	55.5	66.7	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	44.9	65.1	14.5	3.0	67.5	55.5	66.7	20.0
Queue Length 50th (ft)	6	320	117	106	0	82	251	160	43
Queue Length 95th (ft)	22	#458	#202	193	52	#180	#435	#286	85
Internal Link Dist (ft)		620		620		420			420
Turn Bay Length (ft)	125		200		150		200	100	
Base Capacity (vph)	117	1202	438	1771	993	197	504	355	608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.94	0.91	0.38	0.38	0.75	0.92	0.95	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: Grove Street/W. Central Street & Route 140

2027 Build
 Timing Plan: Weekday PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 							
Traffic Volume (veh/h)	9	946	114	374	629	355	66	73	436	319	89	27
Future Volume (veh/h)	9	946	114	374	629	355	66	73	436	319	89	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1841	1811	1900	1826	1900	1870	1900	1900	1900
Adj Flow Rate, veh/h	10	1006	121	398	669	378	70	78	464	339	95	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	4	6	0	5	0	2	0	0	0
Cap, veh/h	27	1065	128	450	1571	735	147	124	419	358	628	
Arrive On Green	0.01	0.34	0.34	0.13	0.46	0.46	0.13	0.13	0.13	0.13	0.33	0.00
Sat Flow, veh/h	1810	3143	378	3401	3441	1610	671	936	1585	1810	1900	0
Grp Volume(v), veh/h	10	559	568	398	669	378	148	0	464	339	95	0
Grp Sat Flow(s),veh/h/ln	1810	1749	1773	1700	1721	1610	1606	0	1585	1810	1900	0
Q Serve(g_s), s	0.5	28.2	28.3	10.4	11.9	15.1	6.7	0.0	12.0	12.0	3.2	0.0
Cycle Q Clear(g_c), s	0.5	28.2	28.3	10.4	11.9	15.1	7.9	0.0	12.0	12.0	3.2	0.0
Prop In Lane	1.00		0.21	1.00		1.00	0.47		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	27	593	601	450	1571	735	271	0	419	358	628	
V/C Ratio(X)	0.38	0.94	0.94	0.89	0.43	0.51	0.55	0.00	1.11	0.95	0.15	
Avail Cap(c_a), veh/h	120	597	605	450	1571	735	271	0	419	358	628	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.3	29.2	29.2	38.7	16.6	17.5	37.5	0.0	33.4	31.0	21.4	0.0
Incr Delay (d2), s/veh	8.5	23.7	23.7	18.6	0.2	0.6	2.3	0.0	76.2	33.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	14.9	15.1	5.4	4.4	5.2	3.2	0.0	17.5	4.9	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	52.9	52.8	57.3	16.8	18.1	39.8	0.0	109.6	64.9	21.5	0.0
LnGrp LOS	D	D	D	E	B	B	D	A	F	E	C	
Approach Vol, veh/h		1137			1445			612			434	A
Approach Delay, s/veh		52.9			28.3			92.7			55.4	
Approach LOS		D			C			F			E	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	36.8		36.0	7.3	47.4	18.0	18.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	* 6				
Max Green Setting (Gmax), s	12.0	31.0		29.0	6.0	37.0	12.0	* 12				
Max Q Clear Time (g_c+I1), s	12.4	30.3		5.2	2.5	17.1	14.0	14.0				
Green Ext Time (p_c), s	0.0	0.5		0.4	0.0	5.8	0.0	0.0				

Intersection Summary










HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 3: Grove Street & Planet Fitness Driveway

2027 Build
 Timing Plan: Weekday PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	61	352	47	67	622
Future Volume (vph)	44	61	352	47	67	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922		0.984			
Flt Protected	0.979					0.995
Satd. Flow (prot)	1681	0	1833	0	0	1853
Flt Permitted	0.979					0.995
Satd. Flow (perm)	1681	0	1833	0	0	1853
Link Speed (mph)	20		40			40
Link Distance (ft)	478		359			344
Travel Time (s)	16.3		6.1			5.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

HCM 6th TWSC
3: Grove Street & Planet Fitness Driveway

2027 Build
Timing Plan: Weekday PM

Intersection

Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	44	61	352	47	67	622
Future Vol, veh/h	44	61	352	47	67	622
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	66	383	51	73	676












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1231	409	0	0	434
Stage 1	409	-	-	-	-
Stage 2	822	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	196	642	-	-	1126
Stage 1	671	-	-	-	-
Stage 2	432	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	176	642	-	-	1126
Mov Cap-2 Maneuver	176	-	-	-	-
Stage 1	671	-	-	-	-
Stage 2	387	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.8	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	304	1126
HCM Lane V/C Ratio	-	-	0.375	0.065
HCM Control Delay (s)	-	-	23.8	8.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.7	0.2

Lanes, Volumes, Timings
 4: Washington Street & Grove Street

2027 Build
 Timing Plan: Weekday PM

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	243	313	846	111	124	477
Future Volume (vph)	243	313	846	111	124	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	12	12
Storage Length (ft)	150			0	0	50
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.984			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1668	1818	1785	0	1736	1599
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1668	1818	1785	0	1736	1599
Link Speed (mph)		40	40		40	
Link Distance (ft)		500	500		500	
Travel Time (s)		8.5	8.5		8.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	1%	1%	3%	4%	1%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

Intersection

Int Delay, s/veh	91.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	243	313	846	111	124	477
Future Vol, veh/h	243	313	846	111	124	477
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	50
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	1	1	1	3	4	1
Mvmt Flow	245	316	855	112	125	482

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	967	0	-	0	1717
Stage 1	-	-	-	-	911
Stage 2	-	-	-	-	806
Critical Hdwy	4.11	-	-	-	6.44
Critical Hdwy Stg 1	-	-	-	-	5.44
Critical Hdwy Stg 2	-	-	-	-	5.44
Follow-up Hdwy	2.209	-	-	-	3.536
Pot Cap-1 Maneuver	716	-	-	-	~ 98
Stage 1	-	-	-	-	389
Stage 2	-	-	-	-	436
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	716	-	-	-	~ 64
Mov Cap-2 Maneuver	-	-	-	-	~ 64
Stage 1	-	-	-	-	256
Stage 2	-	-	-	-	436

Approach	EB	WB	SB
HCM Control Delay, s	5.5	0	\$ 315.7
HCM LOS			F





















Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	716	-	-	-	64	334
HCM Lane V/C Ratio	0.343	-	-	-	1.957	1.443
HCM Control Delay (s)	12.6	-	-	-	\$ 586.3	245.4
HCM Lane LOS	B	-	-	-	F	F
HCM 95th %tile Q(veh)	1.5	-	-	-	11.7	25.5

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
1: Grove Street/W. Central Street & Route 140

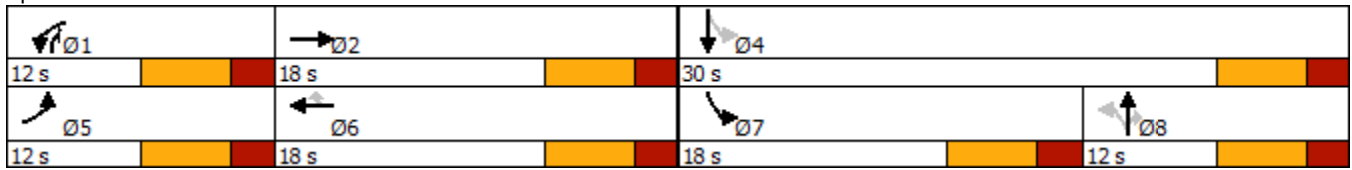
2027 Build
Timing Plan: Saturday Midday

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	433	63	285	535	355	55	57	271	343	64	17
Future Volume (vph)	9	433	63	285	535	355	55	57	271	343	64	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	11	12	12	12	12	12	12
Storage Length (ft)	125		0	200		150	0		200	100		0
Storage Lanes	1		0	2		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981				0.850			0.850		0.969	
Flt Protected	0.950			0.950				0.976		0.950		
Satd. Flow (prot)	1745	3481	0	3319	3406	1561	0	1793	1599	1805	1841	0
Flt Permitted	0.950			0.950				0.799		0.339		
Satd. Flow (perm)	1745	3481	0	3319	3406	1561	0	1468	1599	644	1841	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		24				386					18	
Link Speed (mph)		40			35			40			30	
Link Distance (ft)		700			700			500			500	
Travel Time (s)		11.9			13.6			8.5			11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	2%	6%	0%	7%	0%	1%	0%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov	pm+pt	NA	
Protected Phases	5	2		1	6			8	1	7	4	
Permitted Phases						6	8		8	4		
Detector Phase	5	2		1	6	6	8	8	1	7	4	
Switch Phase												
Minimum Initial (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	18.0		12.0	18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	12.0	18.0		12.0	18.0	18.0	12.0	12.0	12.0	18.0	30.0	
Total Split (%)	20.0%	30.0%		20.0%	30.0%	30.0%	20.0%	20.0%	20.0%	30.0%	50.0%	
Maximum Green (s)	6.0	12.0		6.0	12.0	12.0	6.0	6.0	6.0	12.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min		None	Min	Min	Min	Min	None	None	Min	

Intersection Summary










Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 60
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Grove Street/W. Central Street & Route 140



Queues
1: Grove Street/W. Central Street & Route 140

2027 Build
Timing Plan: Saturday MIDDAY






















									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	539	310	582	386	122	295	373	88
v/c Ratio	0.06	0.75	0.94	0.47	0.48	0.84	0.62	0.76	0.12
Control Delay	25.3	29.8	66.5	19.1	4.8	72.7	24.6	26.7	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	29.8	66.5	19.1	4.8	72.7	24.6	26.7	10.0
Queue Length 50th (ft)	3	93	58	77	0	44	91	98	15
Queue Length 95th (ft)	15	#157	#126	#188	62	#127	163	#189	39
Internal Link Dist (ft)		620		620		420			420
Turn Bay Length (ft)	125		200		150		200	100	
Base Capacity (vph)	174	715	331	1227	809	146	479	489	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.75	0.94	0.47	0.48	0.84	0.62	0.76	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: Grove Street/W. Central Street & Route 140

2027 Build
 Timing Plan: Saturday Midday

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	433	63	285	535	355	55	57	271	343	64	17
Future Volume (veh/h)	9	433	63	285	535	355	55	57	271	343	64	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1811	1900	1796	1900	1885	1900	1900	1900
Adj Flow Rate, veh/h	10	471	68	310	582	386	60	62	295	373	70	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0	2	6	0	7	0	1	0	0	0
Cap, veh/h	28	624	90	346	979	458	161	89	320	510	760	
Arrive On Green	0.02	0.20	0.20	0.10	0.28	0.28	0.10	0.10	0.10	0.20	0.40	0.00
Sat Flow, veh/h	1810	3119	448	3456	3441	1610	716	893	1598	1810	1900	0
Grp Volume(v), veh/h	10	267	272	310	582	386	122	0	295	373	70	0
Grp Sat Flow(s),veh/h/ln	1810	1777	1790	1728	1721	1610	1609	0	1598	1810	1900	0
Q Serve(g_s), s	0.3	8.5	8.6	5.3	8.7	13.5	3.9	0.0	6.0	10.4	1.4	0.0
Cycle Q Clear(g_c), s	0.3	8.5	8.6	5.3	8.7	13.5	4.4	0.0	6.0	10.4	1.4	0.0
Prop In Lane	1.00		0.25	1.00		1.00	0.49		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	28	355	358	346	979	458	250	0	320	510	760	
V/C Ratio(X)	0.36	0.75	0.76	0.90	0.59	0.84	0.49	0.00	0.92	0.73	0.09	
Avail Cap(c_a), veh/h	181	355	358	346	979	458	250	0	320	510	760	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.2	22.6	22.6	26.7	18.5	20.2	26.2	0.0	23.5	17.3	11.2	0.0
Incr Delay (d2), s/veh	7.7	8.7	9.1	24.8	1.0	13.3	1.5	0.0	31.3	5.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.0	4.1	3.2	3.2	6.0	1.6	0.0	6.4	4.6	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	31.3	31.7	51.5	19.5	33.5	27.7	0.0	54.8	22.6	11.3	0.0
LnGrp LOS	D	C	C	D	B	C	C	A	D	C	B	
Approach Vol, veh/h		549			1278			417			443	A
Approach Delay, s/veh		31.6			31.5			46.9			20.8	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	18.0		30.0	6.9	23.1	18.0	12.0				
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0				
Max Green Setting (Gmax), s	6.0	12.0		24.0	6.0	12.0	12.0	6.0				
Max Q Clear Time (g_c+I1), s	7.3	10.6		3.4	2.3	15.5	12.4	8.0				
Green Ext Time (p_c), s	0.0	0.5		0.3	0.0	0.0	0.0	0.0				

Intersection Summary










HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lanes, Volumes, Timings
 3: Grove Street & Planet Fitness Driveway

2027 Build
 Timing Plan: Saturday MIDDAY

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	77	237	65	77	349
Future Volume (vph)	63	77	237	65	77	349
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.925		0.971			
Flt Protected	0.978					0.991
Satd. Flow (prot)	1685	0	1809	0	0	1876
Flt Permitted	0.978					0.991
Satd. Flow (perm)	1685	0	1809	0	0	1876
Link Speed (mph)	20		40			40
Link Distance (ft)	478		359			496
Travel Time (s)	16.3		6.1			8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC
3: Grove Street & Planet Fitness Driveway

2027 Build
Timing Plan: Saturday MIDDAY

Intersection

Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	63	77	237	65	77	349
Future Vol, veh/h	63	77	237	65	77	349
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	0
Mvmt Flow	68	84	258	71	84	379












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	841	294	0	0	329
Stage 1	294	-	-	-	-
Stage 2	547	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	335	745	-	-	1231
Stage 1	756	-	-	-	-
Stage 2	580	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	306	745	-	-	1231
Mov Cap-2 Maneuver	306	-	-	-	-
Stage 1	756	-	-	-	-
Stage 2	530	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	453	1231
HCM Lane V/C Ratio	-	-	0.336	0.068
HCM Control Delay (s)	-	-	16.9	8.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.5	0.2

Lanes, Volumes, Timings
 4: Washington Street & Grove Street

2027 Build
 Timing Plan: Saturday MIDDAY

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	192	319	426	92	80	289
Future Volume (vph)	192	319	426	92	80	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	12	12
Storage Length (ft)	150			0	0	50
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.976			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1685	1818	1772	0	1805	1615
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1685	1818	1772	0	1805	1615
Link Speed (mph)		40	40		40	
Link Distance (ft)		500	500		500	
Travel Time (s)		8.5	8.5		8.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized

Intersection

Int Delay, s/veh 8.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑	↗		↘	↗
Traffic Vol, veh/h	192	319	426	92	80	289
Future Vol, veh/h	192	319	426	92	80	289
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	50
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	1	1	2	0	0
Mvmt Flow	204	339	453	98	85	307

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	551	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1029	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1029	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	25.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1029	-	-	-	155	573
HCM Lane V/C Ratio	0.198	-	-	-	0.549	0.537
HCM Control Delay (s)	9.4	-	-	-	53.4	18.3
HCM Lane LOS	A	-	-	-	F	C
HCM 95th %tile Q(veh)	0.7	-	-	-	2.8	3.2

PARKING DEMAND CALCULATIONS

Institute of Transportation Engineers (ITE)
5th Edition Parking Generation
Land Use Code (LUC) 882 - Marijuana Dispensary

Independent Variable (X): 4.150 / 1000 Sq. Feet Gross Floor Area (GFA)
 Weekday Demand
 Average Peak Demand 7.19 vehicles per 1,000 Sq. Feet GFA
 = 30 vehicles

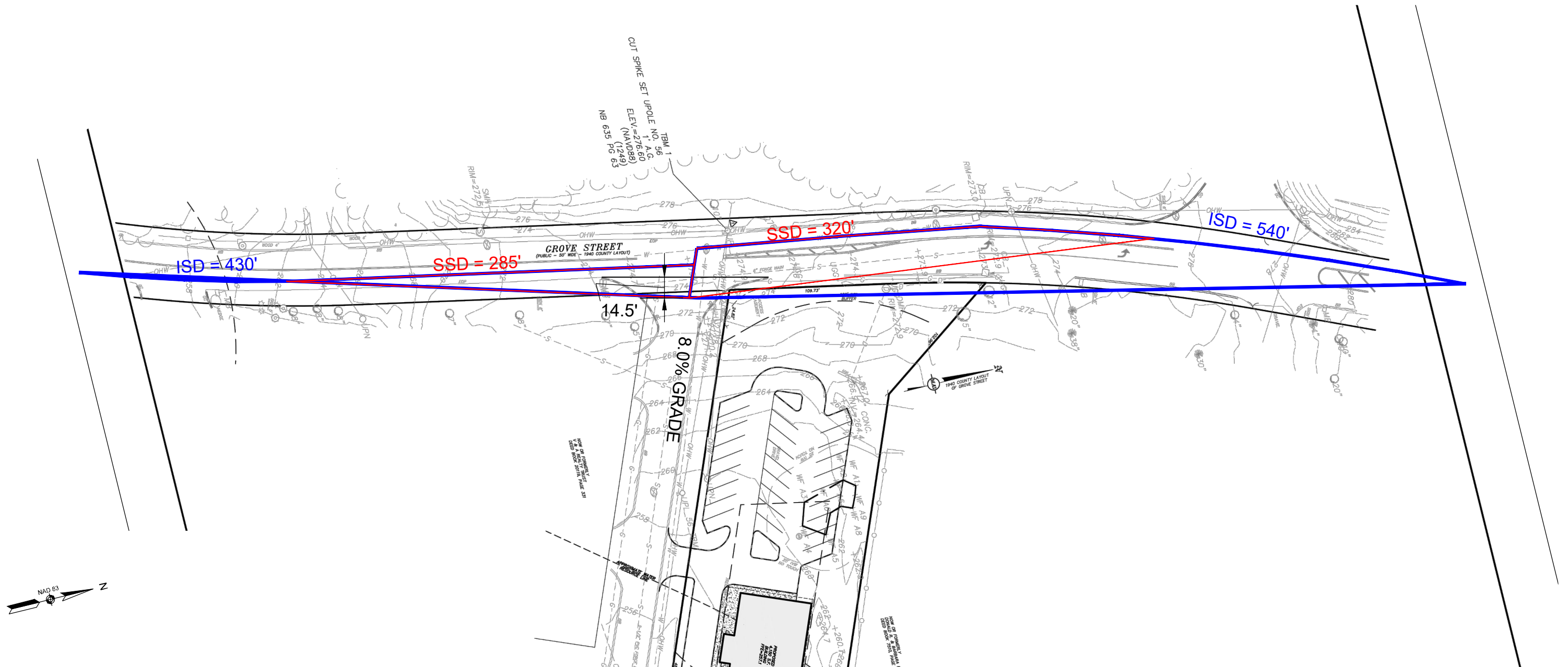
Saturday Demand
 Average Peak Demand 11.50 vehicles per 1,000 Sq. Feet GFA
 = 48 vehicles

Based on Vehicles per 1,000 Sq. Feet GFA	Weekday		Saturday	
	Percent of Peak Period	Number of Vehicles	Percent of Peak Period	Number of Vehicles
Hours Beginning				
12:00 - 4:00 AM		0		0
5:00 AM		0		0
6:00 AM	2%	1	2%	1
7:00 AM	8%	2	8%	4
8:00 AM	35%	11	35%	17
9:00 AM	47%	14	47%	23
10:00 AM	67%	20	67%	32
11:00 AM	82%	25	82%	39
12:00 PM	88%	26	88%	42
1:00 PM	90%	27	90%	43
2:00 PM	100%	30	100%	48
3:00 PM	80%	24	80%	38
4:00 PM	88%	26	88%	42
5:00 PM	84%	25	84%	40
6:00 PM	86%	26	86%	41
7:00 PM	35%	11	35%	17
8:00 PM	4%	1	4%	2
9:00 PM	2%	1	2%	1
10:00 PM		0		0
11:00 PM		0		0

Notes: ITE trip gen data shows that the SAT midday peak hour is approx. 60% higher than Weekday PM peak hour. Therefore, the average and 85th percentile demand were increased by 60%. The distribution of demand throughout the day were assumed to be consistent.

SITE PLANS / SIGHT DISTANCE TRIANGLES

NOTE:
EXISTING CONDITIONS AND SITE
INFORMATION PREPARED BY
MERIDIAN ASSOCIATES, INC.



September 10, 2020

Mr. Anthony Padula, Chairman
355 East Central Street
Franklin, MA 02038

Re: 164 Grove Street
Traffic Peer Review

Dear Mr. Padula:

BETA Group, Inc. (BETA) has reviewed the traffic related documents provided by the applicant for the proposed Site Plan Approval application, "*Permit Site Development Plans - 164 Grove Street, Franklin, Massachusetts.*" This letter is provided to outline findings, comments, and recommendations.

BASIS OF REVIEW

The following documents were received by BETA and formed the basis of the review:

- Plans (10 Sheets) entitled *Permit Site Development Plans* dated May 5, 2020, revised August 20, 2020 and prepared by Meridian Associates of Beverly, MA.
- *Traffic Impact Assessment*, dated August 18, 2020 and prepared by Greenman-Pederson, Inc., Wilmington, MA.

INTRODUCTION

The project site consists of 164 Grove Street, a vacant lot developed with a small cleared area and gravel driveway (the "Site"). The parcel contains an area of 1.5 Acres and is located along the eastern side of Grove Street. The Site and all surrounding properties are located within the Industrial Zoning District.

The existing Site includes a gravel driveway connecting to Grove Street which extends into the center of the Site. This central area is an undeveloped area surrounded by small trees. A bar gate located along the driveway restricts access into the Site. A chain link fence connects to this gate and surrounds the perimeter of the Site.

The Applicant proposes to remove the existing fence, driveway, and vegetation and construct a new 4,150 sq. ft. Non-Medical Marijuana Retail Establishment. Associated site developments will include two new paved parking lots, and two driveway aprons connecting to the existing driveway to the south adjacent to Planet Fitness and Franklin Tile which leads to Grove Street.

FINDINGS, COMMENTS AND RECOMMENDATIONS

The study area includes the following intersections.

- Grove Street at Site/Planet Fitness/Franklin Tile Driveway (unsignalized)
- Grove Street at Route 140/West Central Street (signalized)

- Grove Street at Washington Street (unsignalized)

BETA finds the study area to be acceptable.

Existing traffic conditions were determined by using manual turning movement counts (TMCs) and automatic traffic recorder (ATR) data from the traffic study for 162 Grove Street conducted by Tetra Tech. TMC data was collected on Thursday, February 6th, 2020 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, and Saturday, February 8th, 2020 from 3:00 PM to 6:00 PM. ATR data was collected on Grove Street, south of 162 Grove Street, over a 72-hour period between Thursday, February 6th, 2020 and Saturday, February 8th, 2020.

Historical traffic count data collected by MassDOT were reviewed for the years 2017-2019 to determine the need for a seasonal adjustment. Traffic volumes in February were found to be 2.3% below average-month conditions. As a result, the volumes were increased by 2.3% to reflect average-month condition baseline volumes. Based on the three years of seasonal factor data, the month of February does not appear to have lower than average months for U4-U7 roadways.

- T1. Verify the 2.3% seasonal adjustment average for February.

The existing traffic at the Grove Street at Site/Planet Fitness/Franklin Tile Driveway is atypical due to the COVID-19 related restrictions. To account for the vehicle movements into and out of the existing driveway, volumes were estimated using the Institute of Transportation Engineers (ITE) *Trip General Manual* land use code (LUC) 492 – Health/Fitness club and LUC 820 Shopping Center. BETA finds this approach to be reasonable.

Crash data were obtained from the MassDOT database for the most recent five-year period from 2014 to 2018. All crash rates were calculated to be less than the district and statewide averages. Crash data backup worksheets were not provided for the intersections of Grove Street at Route 140/West Central Street and Grove Street at Washington Street.

- T2. For completeness of the Appendix, provide the backup crash rate worksheets for the intersections of Grove Street at Route 140/West Central Street and Grove Street at Washington Street.

Vehicle speeds were measured via ATR along Grove Street. The posted speed limit on Grove Street is 40 miles per hour (mph). The 85th percentile speeds were measured at 40 mph northbound and 41 mph southbound, which are acceptable for a posted 40 mph roadway.

The available intersection (ISD) and stopping sight distance (SSD) at the Grove Street driveway were measured and found to exceed the minimum required SSD based on measured vehicle speeds. Additionally, a Sight Distance Plan was provided. BETA concurs with the sight distance analysis.

Background development-related traffic growth that may increase traffic within the study area was identified. The following proposed projects were included in the background development:

- 160 Grove Street
- 162 Grove Street
- 176-210 Grove Street

It should be noted that the 162 Grove Street trip generation data utilized in this report is reflective of the proposed trips prior to the change to a Reserve Ahead Only type facility. The Reserve Ahead Only

facility generates significantly lower peak hour trips. Therefore, the trips applied to the traffic volumes in the TIA provides more conservative traffic volumes.

No-Build traffic volumes were determined by applying a 1 percent per year growth rate over a seven-year period to 2027. This growth rate is consistent with studies prepared for recent developments in Franklin.

Project-generated traffic volumes were determined by utilizing trip-generation statistics published by the Institute of Transportation Engineers (ITE) for LUC 882 – Marijuana Dispensary. Based on the Institute of Transportation Engineers (ITE) for LUC 882 – Marijuana Dispensary, the site would generate a total of 1,048 new trips on an average weekday and with 91 (46 entering, 45 exiting) during the weekday afternoon peak hour. The Saturday daily trips of 1,076 and afternoon peak trips are 151 (76 entering, 75 exiting).

T3. Clarify if the facility will be open during the morning peak period. If it will be open, then provide trip data for the morning peak period.

T4. The TIA states that “each employee was assumed to generate two vehicle trips” but it is unclear whether those trips were allocated during the peak periods or if those trips were included at all. Please clarify.

Additionally, empirical trip data collected at a similar facility in Wareham were provided. The empirical data shows less peak hour trips are generated than the ITE data. Therefore, the proponent utilized the ITE data to provide a more conservative condition.

T5. Clarify how many registers will be provided in the proposed Franklin facility and at the existing Wareham facility.

New trips were distributed based on 2010 U.S. Census data with 50 percent of traffic heading to and from Washington Street and the remaining 50 percent heading to and from Route 140. BETA finds this distribution reasonable.

Traffic operations analysis was performed with Synchro software based on the HCM 6th Edition methodologies. The site driveway would experience a LOS C or better during the Build conditions.

During the weekday PM Peak Hour, the Grove Street northbound right-turn movement onto Route 140 would degrade from a LOS D during the Existing conditions to LOS F during the Build conditions.

The analysis results indicate that the Grove Street southbound movement at Washington Street would experience LOS F delays during the Build condition. The Synchro analysis modeled the Grove Street southbound approach to Washington Street as a two-lane approach, which does not accurately reflect the Grove Street lane configuration at the intersection. If the intersection were reanalyzed to accurately reflect the field conditions, the results would reveal even more significant delays and queue lengths.

The TIA indicates that the number of parking spaces anticipated for the peak period is 48 parking spaces based on parking generation rates provided in the ITE *Parking Generation Manual*. There are currently 70 proposed parking spaces.

T6. If available, empirical data of 15-minute interval parking demands for a similar facility, such as the Wareham location, should be provided to further support the proposed parking supply.

The TIA indicates that a six-month post-occupancy traffic monitoring program should be conducted to evaluate whether improvements are warranted at the Grove Street and Washington Street and Grove Street and Route 140 intersections post COVID-19 traffic volume changes. The proponent agrees to provide a monetary contribution towards funding the monitoring study.

T7. For clarification purposes, does the proponent intend on funding the entire post-occupancy study or a portion of the study?

T8. BETA recommends that the intersection of Grove Street and Site/Planet Fitness/Franklin Tile Driveway be included in the post-occupancy data collection effort.

T9. BETA suggests that the proponent also collect the driveway data prior to opening and when the driveway businesses are fully operational as a baseline.

Additionally, the proponent agrees to provide a fair share contribution towards implementation of improvements at the intersections proportional to the percentage increase in traffic generated by the development.

T10. Clarify if a "Reserve Ahead Only" option was considered for the proposed facility in order to control the amount of traffic generated on the adjacent roadways during peak periods and on site?

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



Jaklyn Centracchio, PE, PTOE
Senior Project Engineer

cc: Amy Love, Planner
Job No: 4830-65

Operational Plan

Verilife Franklin Ma – Adult Use Transition

August 17, 2020

Dual-Function Security

Verilife Internal Security

- On-Site Security (“OSS”) Program
- Minimum of 2 OSS assigned per location during operational hours
- Scan and validate ID’s prior to gaining access
- Provide for the safety, security and well-being of our customers, team, and community

Third Party Perimeter Security

- Licensed Independent Contractor (“LIC”) Security Program
- Minimum of 2 LIC agents assigned during operational hours
- Maintain the safety and security of the perimeter of our facility and community
 - Confirm reservations
 - Direct Customers to designated parking
 - Prevent loitering
 - Surveil restricted access areas
 - Patrol property

Security

- Digital Security Platform
- Each dispensary has advanced digital security surveillance equipment on the interior and exterior of the building; monitored 24/7
- Emergency call stations throughout linked directly to law enforcement
- Access to our security system is granted to regulators and state and local police departments to surveil the dispensary at will
- Verilife security equipment is inspected every 30 days and tested each year; the testing is conducted by an approved outside agency
- Verilife is one of the only dispensaries to require a second ID check at the point of sale

Verilife Franklin Employees



High Quality and highly compensated management positions



General Manager with 4 Managers reporting to them



We expect to have 25 FT Employees

Living wage positions

Full time

Benefit eligible positions



Our Peak business

Thursday thru Saturday
12:30pm – 4:30pm



We would expect to have 8 -12 employees on during our peak periods; our employees schedule is variable and aligned with our customer flow

Receiving

Verilife Product Delivery

Receiving and Delivery

Receiving

- Product is delivered to a secure, limited access receiving area
- Product is delivered prior to the dispensary being open for business
- The delivery area is monitored by surveillance equipment and access to the receiving area is limited to specific employees
- Inventory is routinely audited for accuracy

Delivery

- Couriers deliver product in an unmarked vehicle like a Mini Van

Couriers:

- Deliver in pairs. One courier always remains in the vehicle while the other facilitates the receipt of product
- Product manifest is provided prior to the product arriving on site
- Information such as the couriers' ID, product being delivered, and mileage of the vehicle are all recorded

Queuing

Maintaining Good Neighbor Relationships

Queuing

At Verilife, we utilize technology and improved dispensary design to ensure we are being a good neighbor while contributing to the communities we serve

- 10 POS dedicated to Adult Use Sales –
- We will have the capacity to process 180 transactions per hour
- Estimate to process **~70 transactions per hour** during peak times
- Our process is built for max “throughput” while minimizing lines and congestion, allowing us to “turn the room” or serve up to 40 customers per 15 minutes

Technology

ROPIS and Digital Payment

Frictionless Transactions

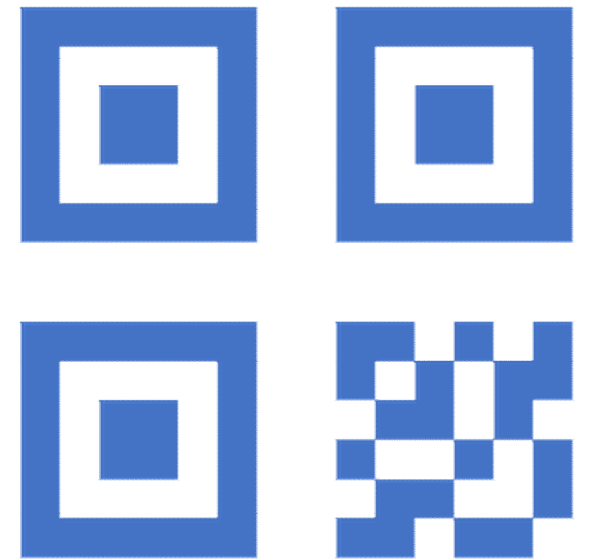
Reserve Online → Pick Up In Store

- In addition to an improved dispensary design we are using reservations to manage customer flow through our store
- Dispensary will open with a **Reservation System in place**
- We would suggest our Customers make a reservation to gain access
- Delivery is encouraged where permissible
- We tailor our reservations to maximize consistent customer flow without generating lines or congestion, remaining mindful of adjacent businesses and the surrounding capacity

- Order Online
- In combination with reservations customers, will be required to pre-order product selections online
- Similar to “Starbucks Mobile Order” our customers will make their selections from our menu and reserve those selections
- A reservation time is selected, the order is picked and waiting for the customers arrival

Frictionless Transactions

- Digital Payment
- Reducing the time to collect payment is a key factor in reducing transaction time
- We have developed an electronic payment app, similar to “Apple Pay,” that will provide a fast and efficient customer experience at our POS
- Our customers simply download the App, we scan their QR code at the POS, and the transaction is complete
- We believe our reliance on cash transactions will be reduced by 50%



Parking

Access Over Congestion

Congestion/Parking Mitigation

Parking is monitored by 3rd party security

Enroll all employees in NuRide at the time of orientation

Verilife will provide a bike rack to encourage Green commuting

We will provide shuttle service to and from public transportation

Provide access to Ride Share services along with designated Ride Share parking spaces

Designate specific parking spaces (*farthest away from the dispensary as employee parking; not to exceed 10 spaces*)

PROPOSED DEVELOPMENT CENTRAL SQUARE

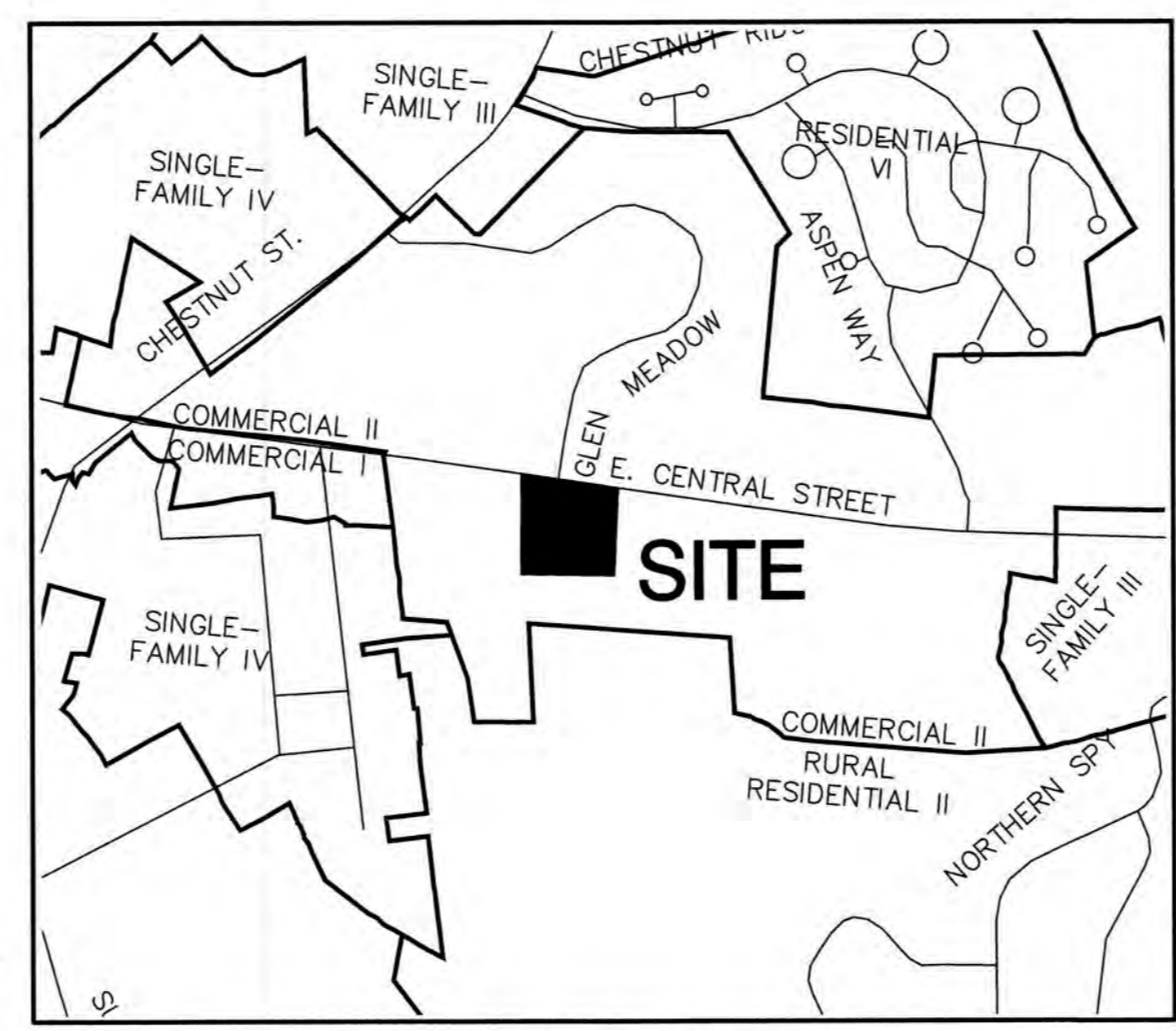
TAX MAP 285 AND LOT NUMBER 009 340 EAST CENTRAL STREET, FRANKLIN, MA

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
---	---	PROPERTY LINES
---	---	SETBACK LINES
---	---	CENTERLINE
---	---	FRESHWATER WETLANDS LINE
---	---	TIDAL WETLANDS LINE
---	---	STREAM CHANNEL
---	---	TREE LINE
---	---	STONEWALL
---	---	BARBED WIRE
---	---	FENCE
---	---	STOCKADE FENCE
---	---	SOIL BOUNDARY
---	---	AQUIFER PROTECTION LINE
---	---	FLOOD PLAIN LINE
---	---	ZONELINE
---	---	EASEMENT
---	---	MAJOR CONTOUR
---	---	MINOR CONTOUR
---	---	EDGE OF PAVEMENT
---	---	VERTICAL GRANITE CURB
---	---	SLOPE GRANITE CURB
---	---	CAPE COD BERM
---	---	POURED CONCRETE CURB
---	---	SILT FENCE
---	---	DRAINAGE LINE
---	---	SEWER LINE
---	---	SEWER FORCE MAIN
---	---	GAS LINE
---	---	WATER LINE
---	---	WATER SERVICE
---	---	OVERHEAD ELECTRIC
---	---	UNDERGROUND ELECTRIC
---	---	GUARDRAIL
---	---	UNDERDRAIN
---	---	FIRE PROTECTION LINE
---	---	THRUST BLOCK
---	---	IRON PIPE/IRON ROD
---	---	DRILL HOLE
---	---	IRON ROD/DRILL HOLE
---	---	STONE/GRAVITE BOUND
---	---	SPOT GRADE
---	---	PAVEMENT SPOT GRADE
---	---	CURB SPOT GRADE
---	---	BENCHMARK (TBM)
---	---	DOUBLE POST SIGN
---	---	SINGLE POST SIGN
---	---	WELL
---	---	TEST PIT
---	---	FAILED TEST PIT
---	---	MONITORING WELL
---	---	PERC TEST
---	---	PHOTO LOCATION
---	---	TREES AND BUSHES
---	---	UTILITY POLE
---	---	LIGHT POLES
---	---	DRAIN MANHOLE
---	---	SEWER MANHOLE
---	---	HYDRANT
---	---	WATER GATE
---	---	WATER SHUT OFF
---	---	REDUCER
---	---	SINGLE GRATE CATCH BASIN
---	---	DOUBLE GRATE CATCH BASIN
---	---	TRANSFORMER
---	---	CULVERT W/WINGWALLS
---	---	CULVERT W/FLARED END SECTION
---	---	CULVERT W/STRAIGHT HEADWALL
---	---	STONE CHECK DAM
---	---	DRAINAGE FLOW DIRECTION
---	---	PATIO AREA
---	---	WETLAND IMPACT
---	---	VEGETATED FILTER STRIP
---	---	RIPRAP
---	---	OPEN WATER
---	---	FRESHWATER WETLANDS
---	---	TIDAL WETLANDS
---	---	STABILIZED CONSTRUCTION ENTRANCE
---	---	CONCRETE
---	---	GRAVEL
---	---	SNOW STORAGE
---	---	RETAINING WALL

SHEET INDEX

CS	COVER SHEET
C1	EXISTING CONDITIONS PLAN
C1-1	DEMOLITION PLAN
C2	SITE PLAN
C3	DRAINAGE PLAN
C3-1	GRADING PLAN
C4	UTILITY PLAN
L-01	LANDSCAPE PLAN
L2	LIGHTING PLAN
D1-D8	DETAIL SHEETS
E1-E2	EROSION AND SEDIMENT CONTROL DETAILS
A1-A2	COMMERCIAL BUILDING ELEVATIONS
T1 01	APARTMENT BUILDING RENDERINGS



LOCUS MAP
SCALE 1" = 80'

PERMITS

TYPE OF PERMIT	STATUS	TYPE OF PERMIT	STATUS
MASSDOT DRIVEWAY PERMIT: DISTRICT SIX 185 KNEELAND STREET BOSTON, MA 02111 (857) 368-6100 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: PERMIT NO. DATED: EXPIRATION:	FRANKLIN SITE PLAN APPROVAL: TOWN OF FRANKLIN PLANNING BOARD 355 EAST CENTRAL STREET FRANKLIN, MA (508) 520-4907 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.	SUBMITTED: APPROVED:
USEPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT, NOTICE OF INTENT (NOI), AND NOTICE OF TERMINATION (NOT) TO BE FILED IN ACCORDANCE WITH FEDERAL AND LOCAL REGULATIONS PRIOR TO AND FOLLOWING CONSTRUCTION: EPA STORMWATER NOTICE PROCESSING CENTER MAIL CODE 4203M, US EPA 1200 PENNSYLVANIA AVENUE, NW WASHINGTON, DC 20460 RESPONSIBLE CONSULTANT: JONES & BEACH ENGINEERS, INC.			

F:\Land Projects\3153-FRANKLIN-300-EAST-CENTRAL-STREET-TOPFIELD-ASSOCIATES\3153-PLAN.dwg 1/26/2017 9:04:12 AM EST

APPLICANT / DEVELOPER
340 EAST CENTRAL STREET LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

CIVIL ENGINEER
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: WAYNE MORRILL
EMAIL: WMORRILL@JONESANDBEACH.COM

LANDSCAPE ARCHITECT
TERRAIN PLANNING AND DESIGN LLC,
311 KAST HILL ROAD
HOPKINTON, NH 03229
(603) 491-2322
CONTACT: ERIC BUCK

TRAFFIC ENGINEER
VANASSE & ASSOCIATES, INC.
10 N.E. BUSINESS CTR. DRIVE, SUITE 314
ANDOVER, MA 01810-1066
(978) 474-8800 X30
CONTACT: JEFFREY DIRK

SURVEYOR
GUERRIERE & HALNON, INC
55 WEST CENTRAL DRIVE
FRANKLIN, MA 02038
(508) 528-3221

ELECTRIC
NATIONAL GRID
BAY STATE NORTH
1101 TURNPIKE STREET
NORTH ANDOVER, MA 01845
(978) 725-2215
CONTACT: STEVE HALL

TOWN ENGINEER
MIKE MAGLIO, P.E.
DPW ADMINISTRATION BUILDING
257 FISHER STREET
FRANKLIN, MA 02038
(508) 520-4910

WATER & SEWER DEPARTMENT
PUBLIC WORKS GARAGE
25 PUBLIC WORKS WAY
FRANKLIN, MA 02038
(508) 520-4910
CONTACT: LAURIE RUSZALA, P.E.

POLICE DEPARTMENT
911 PANTHER WAY
FRANKLIN, MA 02038
(508) 528-1212
CONTACT: CHIEF STEPHAN H. SEMERIJAN

FIRE DEPARTMENT
FRANKLIN FIRE DEPARTMENT
40 WEST CENTRAL STREET
FRANKLIN, MA 02038
(508) 528-2323
CONTACT: CHIEF GARY B. MCCARRAHER

PROJECT PARCEL
TOWN OF FRANKLIN, MA
TAX MAP 285, LOT 009

APPLICANT
340 EAST CENTRAL STREET LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
283,394± SQ. FT.
6.50± ACRES

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE: _____

Design: WGM	Draft: RMK	Date: 05/06/20
Checked: WGM	Scale: AS NOTED	Project No.: 13153
Drawing Name: 13153-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.



REV.	DATE	REVISION	BY
3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
2	08/19/20	REVISED PER REVIEW ENGINEER COMMENTS 2	EMP
1	07/31/20	REVISED PER REVIEW ENGINEER COMMENTS	EMP
0	05/06/20	ISSUED FOR REVIEW	EMP

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	COVER SHEET
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No.

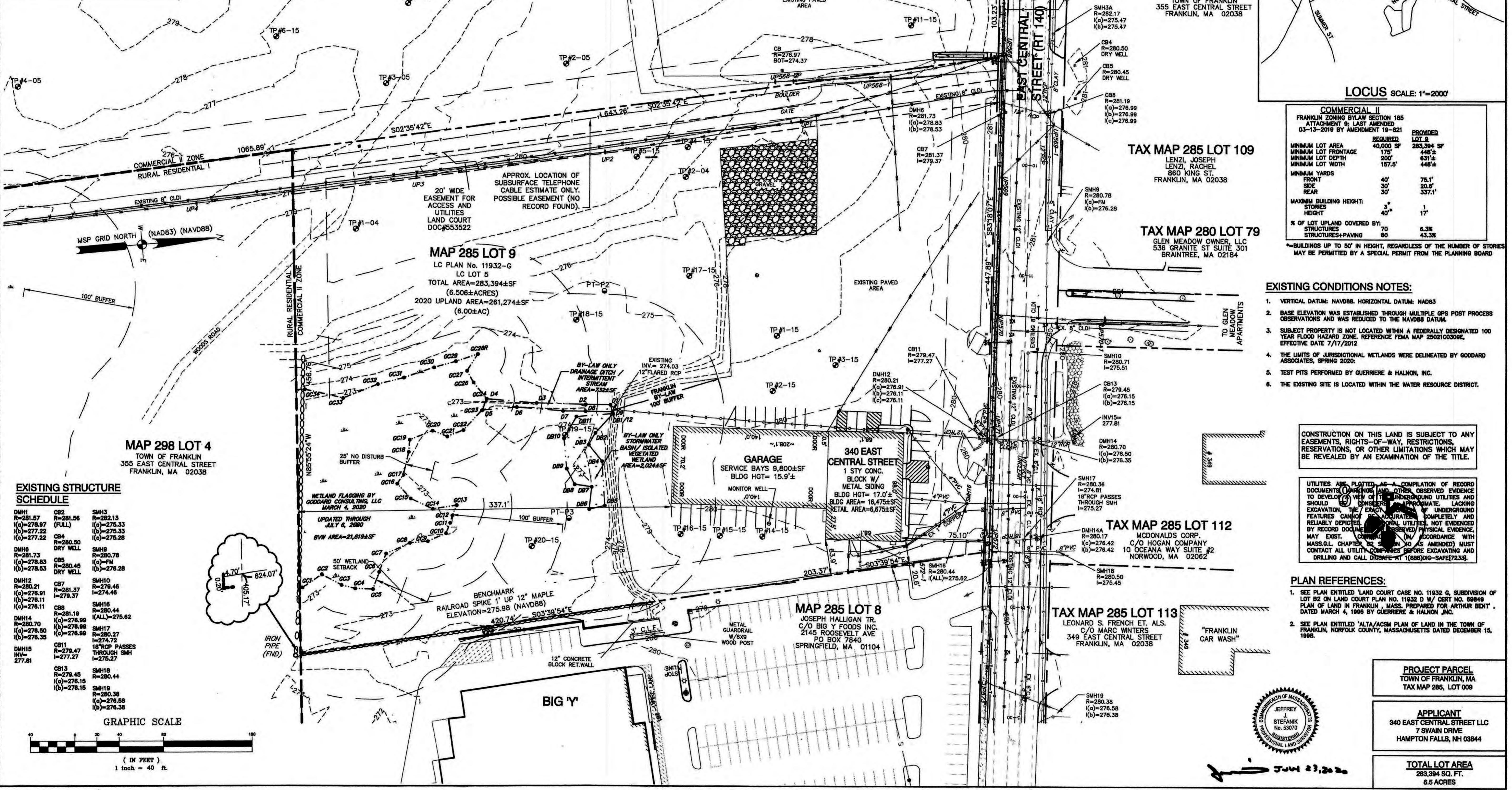
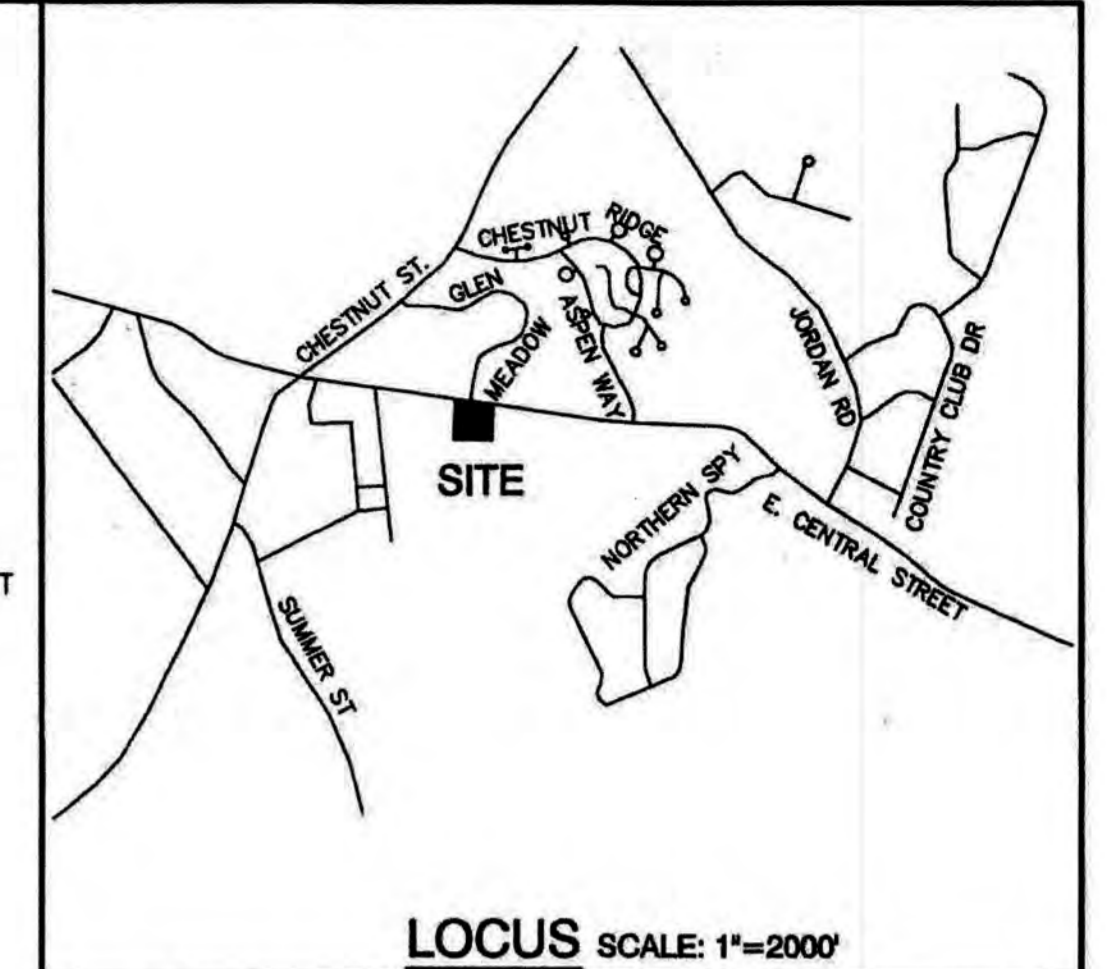
CS

SHEET 1 OF 19
JBE PROJECT NO. 13153

CENTRAL STREET FRANKLIN
JOB # 13153

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE: _____



COMMERCIAL II
FRANKLIN ZONING BYLAW SECTION 185
ATTACHMENT 8: LAST AMENDED
03-13-2019 BY AMENDMENT 19-821

REQUIRED	PROVIDED
MINIMUM LOT AREA	40,000 SF
MINIMUM LOT FRONTAGE	175'
MINIMUM LOT DEPTH	200'
MINIMUM LOT WIDTH	157.5'
MINIMUM YARDS	
FRONT	40'
SIDE	30'
REAR	30'
MAXIMUM BUILDING HEIGHT:	
STORIES	3*
HEIGHT	40'
% OF LOT UPLAND COVERED BY:	
STRUCTURES	70
STRUCTURES+PAVING	80
	6.3%
	43.3%

*BUILDINGS UP TO 50' IN HEIGHT, REGARDLESS OF THE NUMBER OF STORIES MAY BE PERMITTED BY A SPECIAL PERMIT FROM THE PLANNING BOARD

- EXISTING CONDITIONS NOTES:**
- VERTICAL DATUM: NAVD83. HORIZONTAL DATUM: NAD83
 - BASE ELEVATION WAS ESTABLISHED THROUGH MULTIPLE GPS POST PROCESS OBSERVATIONS AND WAS REDUCED TO THE NAVD83 DATUM.
 - SUBJECT PROPERTY IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA MAP 2502C0308E, EFFECTIVE DATE 7/17/2012
 - THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY GODDARD ASSOCIATES, SPRING 2020.
 - TEST PITS PERFORMED BY GUERRIERE & HALNON, INC.
 - THE EXISTING SITE IS LOCATED WITHIN THE WATER RESOURCE DISTRICT.

CONSTRUCTION ON THIS LAND IS SUBJECT TO ANY EASEMENTS, RIGHTS-OF-WAY, RESTRICTIONS, RESERVATIONS, OR OTHER LIMITATIONS WHICH MAY BE REVEALED BY AN EXAMINATION OF THE TITLE.

UTILITIES ARE PLATTED AS A COMPILATION OF RECORD DOCUMENTS (DRAWINGS AND OTHER OBSERVED EVIDENCE TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES AND SHOULD BE CONSIDERED AS APPROXIMATE. LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE DETERMINED. COMPLETELY AND RELIABLY DEPICTED. UTILITIES NOT EVIDENCED BY RECORD DOCUMENTS OR OBSERVED PHYSICAL EVIDENCE, MAY EXIST. CONSTRUCTION ACCORDANCE WITH MASS.G.L. CHAPTER 82, SECTION 8A (AS AMENDED) MUST CONTACT ALL UTILITY COMPANIES BEFORE EXCAVATING AND DRILLING AND CALL DIGSAFE AT 1(888)DIGSAFE(7233).

- PLAN REFERENCES:**
- SEE PLAN ENTITLED 'LAND COURT CASE NO. 11932 G, SUBDIVISION OF LOT B2 ON LAND COURT PLAN NO. 11932 D W/ CERT NO. 69849' PLAY OF LAND IN FRANKLIN, MASS. PREPARED FOR ARTHUR BENT, DATED MARCH 4, 1998 BY GUERRIERE & HALNON, INC.
 - SEE PLAN ENTITLED 'ALTA/ACSM PLAN OF LAND IN THE TOWN OF FRANKLIN, NORFOLK COUNTY, MASSACHUSETTS DATED DECEMBER 15, 1998.

PROJECT PARCEL
TOWN OF FRANKLIN, MA
TAX MAP 285, LOT 008

APPLICANT
340 EAST CENTRAL STREET LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

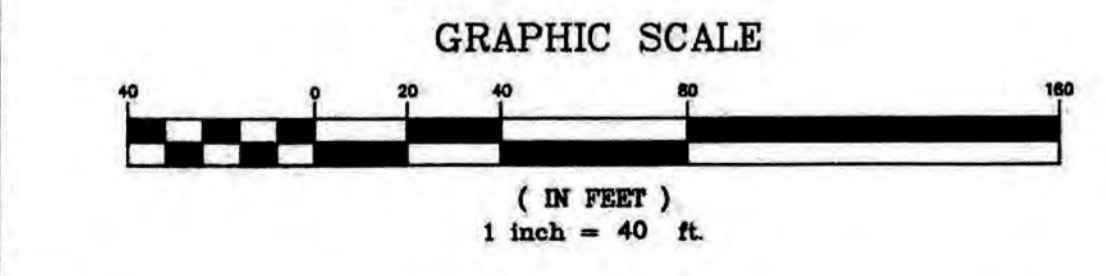
TOTAL LOT AREA
283,394 SQ. FT.
6.5 ACRES



JUN 23, 2020

EXISTING STRUCTURE SCHEDULE

DMH1 R=281.57 (a)=278.97 (b)=277.22 (c)=277.22	CB2 R=281.56 (FULL)	SMH3 R=282.13 (a)=275.33 (b)=275.33 (c)=275.28
DMH6 R=281.73 (a)=278.83 (b)=278.53	CB5 R=280.45 (a)=278.53	SMH9 R=280.78 (a)=276.26
DMH12 R=280.21 (a)=276.91 (b)=276.11 (c)=276.11	CB7 R=281.37 (a)=279.37	SMH10 R=280.71 (a)=275.51
DMH14 R=280.70 (a)=276.50 (b)=276.35	CB8 R=281.19 (a)=276.99 (b)=276.99	SMH11 R=280.44 (ALL)=275.62
DMH15 R=279.47 (a)=277.27	CB9 R=280.45 (a)=276.15 (b)=276.15	SMH16 R=280.44 (ALL)=275.62
DMH16 R=280.21 (a)=276.91 (b)=276.11 (c)=276.11	CB10 R=279.47 (a)=277.27	SMH17 R=280.27 (a)=274.72
DMH17 R=280.36 (a)=274.81 (b)=275.27	CB11 R=279.47 (a)=277.27	SMH18 R=280.44 (ALL)=275.62
DMH18 R=280.36 (a)=274.81 (b)=275.27	CB12 R=281.56 (FULL)	SMH19 R=280.36 (a)=276.58 (b)=276.38



Design: WGM Draft: GPC Date: 03/20/2020
Checked: WGM Scale: AS-NOTED Project No.: 13153
Drawing Name: 13153-EX-CONDITIONS.dwg

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE & G&H). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE OR G&H.



REV.	DATE	REVISION	BY
1	07/16/20	REVISED PER FRANKLIN CONSERVATION COMMISSION	BWG
0	04/23/20	ISSUED FOR REVIEW	EMP



Guerriere & Halnon, Inc.
Engineering & Land Surveying

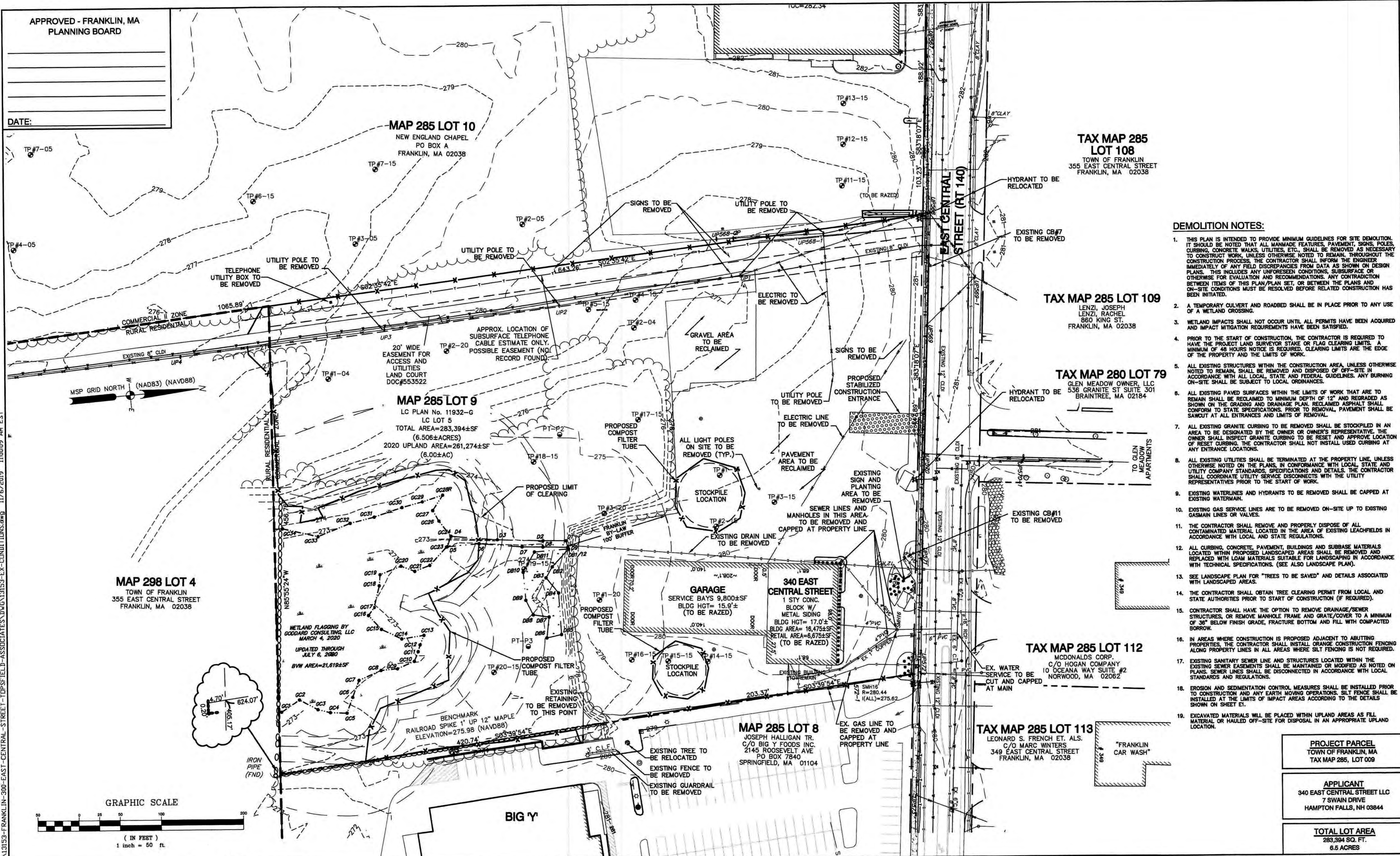
Ph. (508) 528-3221 55 WEST CENTRAL STREET
Fx. (508) 528-7921 FRANKLIN, MASS. 02038
www.gandhengineering.com

Plan Name:	EXISTING CONDITIONS PLAN
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No.
C1
SHEET 2 OF 18
JBE PROJECT NO. 13153

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE:



- DEMOLITION NOTES:**
- THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR SITE DEMOLITION. IT SHOULD BE NOTED THAT ALL MANMADE FEATURES, PAVEMENT, SIGNS, POLES, CURBING, CONCRETE WALKS, UTILITIES, ETC., SHALL BE REMOVED AS NECESSARY TO CONSTRUCT WORK, UNLESS OTHERWISE NOTED TO REMAIN, THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCIES FROM DATA AS SHOWN ON DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
 - A TEMPORARY CULVERT AND ROADBED SHALL BE IN PLACE PRIOR TO ANY USE OF A WETLAND CROSSING.
 - WETLAND IMPACTS SHALL NOT OCCUR UNTIL ALL PERMITS HAVE BEEN ACQUIRED AND IMPACT MITIGATION REQUIREMENTS HAVE BEEN SATISFIED.
 - PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED. CLEARING LIMITS ARE THE EDGE OF THE PROPERTY AND THE LIMITS OF WORK.
 - ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION AREA, UNLESS OTHERWISE NOTED TO REMAIN, SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES. ANY BURNING ON-SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
 - ALL EXISTING PAVED SURFACES WITHIN THE LIMITS OF WORK THAT ARE TO REMAIN SHALL BE DESIGNATED BY THE OWNER OR OWNER'S REPRESENTATIVE. THE OWNER SHALL INSPECT GRANITE CURBING TO BE RESET AND APPROVE LOCATION OF RESET CURBING. THE CONTRACTOR SHALL NOT INSTALL USED CURBING AT ANY ENTRANCE LOCATIONS.
 - ALL EXISTING GRANITE CURBING TO BE REMOVED SHALL BE STOCKPILED IN AN AREA TO BE DESIGNATED BY THE OWNER OR OWNER'S REPRESENTATIVE. THE OWNER SHALL INSPECT GRANITE CURBING TO BE RESET AND APPROVE LOCATION OF RESET CURBING. THE CONTRACTOR SHALL NOT INSTALL USED CURBING AT ANY ENTRANCE LOCATIONS.
 - ALL EXISTING UTILITIES SHALL BE TERMINATED AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS, IN CONFORMANCE WITH LOCAL, STATE AND UTILITY COMPANY STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES PRIOR TO THE START OF WORK.
 - EXISTING WATERLINES AND HYDRANTS TO BE REMOVED SHALL BE CAPPED AT EXISTING WATERMAIN.
 - EXISTING GAS SERVICE LINES ARE TO BE REMOVED ON-SITE UP TO EXISTING GASMAIN LINES OR VALVES.
 - THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONTAMINATED MATERIAL LOCATED IN THE AREA OF EXISTING LEACHFIELDS IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
 - ALL CURBING, CONCRETE, PAVEMENT, BUILDINGS AND SUBBASE MATERIALS LOCATED WITHIN PROPOSED LANDSCAPED AREAS SHALL BE REMOVED AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPING IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS. (SEE ALSO LANDSCAPE PLAN).
 - SEE LANDSCAPE PLAN FOR "TREES TO BE SAVED" AND DETAILS ASSOCIATED WITH LANDSCAPED AREAS.
 - THE CONTRACTOR SHALL OBTAIN TREE CLEARING PERMIT FROM LOCAL AND STATE AUTHORITIES PRIOR TO START OF CONSTRUCTION (IF REQUIRED).
 - CONTRACTOR SHALL HAVE THE OPTION TO REMOVE DRAINAGE/SEWER STRUCTURES, OR REMOVE MANHOLE FRAME AND GRATE/COVER TO A MINIMUM OF 36" BELOW FINISH GRADE, FRACTURE BOTTOM AND FILL WITH COMPACTED BORROW.
 - IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
 - EXISTING SANITARY SEWER LINE AND STRUCTURES LOCATED WITHIN THE EXISTING SEWER EASEMENTS SHALL BE MAINTAINED OR MODIFIED AS NOTED ON PLANS. SEWER LINES SHALL BE DISCONNECTED IN ACCORDANCE WITH LOCAL STANDARDS AND REGULATIONS.
 - EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND ANY EARTH MOVING OPERATIONS. SILT FENCE SHALL BE INSTALLED AT THE LIMITS OF IMPACT AREAS ACCORDING TO THE DETAILS SHOWN ON SHEET E1.
 - EXCAVATED MATERIALS WILL BE PLACED WITHIN UPLAND AREAS AS FILL MATERIAL OR HAULED OFF-SITE FOR DISPOSAL IN AN APPROPRIATE UPLAND LOCATION.

MAP 298 LOT 4
TOWN OF FRANKLIN
355 EAST CENTRAL STREET
FRANKLIN, MA 02038

MAP 285 LOT 10
NEW ENGLAND CHAPEL
PO BOX A
FRANKLIN, MA 02038

MAP 285 LOT 9
LC PLAN No. 11932-G
LC LOT 5
TOTAL AREA=283,394±SF
(6.506±ACRES)
2020 UPLAND AREA=261,274±SF
(6.00±AC)

MAP 285 LOT 8
JOSEPH HALLIGAN TR.
C/O BIG Y FOODS INC.
2145 ROOSEVELT AVE
PO BOX 7840
SPRINGFIELD, MA 01104

TAX MAP 285 LOT 108
TOWN OF FRANKLIN
355 EAST CENTRAL STREET
FRANKLIN, MA 02038

TAX MAP 285 LOT 109
LENZI, JOSEPH
LENZI, RACHEL
850 KING ST
FRANKLIN, MA 02038

TAX MAP 280 LOT 79
GLEN MEADOW OWNER, LLC
536 GRANITE ST SUITE 301
BRAintree, MA 02184

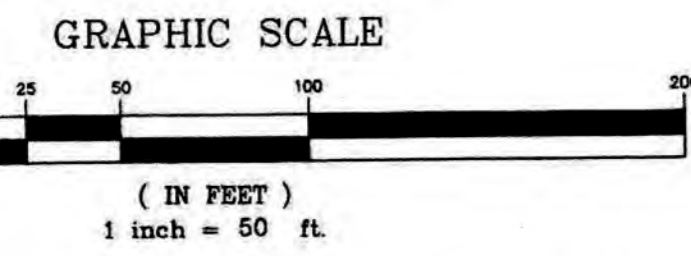
TAX MAP 285 LOT 112
MCDONALDS CORP.
C/O HOGAN COMPANY
10 OCEANA WAY SUITE #2
NORWOOD, MA 02062

TAX MAP 285 LOT 113
LEONARD S. FRENCH ET. ALS.
C/O MARC WINTERS
349 EAST CENTRAL STREET
FRANKLIN, MA 02038

PROJECT PARCEL
TOWN OF FRANKLIN, MA
TAX MAP 285, LOT 009

APPLICANT
340 EAST CENTRAL STREET LLC
7 SWAIN DRIVE
HAMPTON FALLS, NH 03844

TOTAL LOT AREA
283,394 SQ. FT.
6.5 ACRES



Design: WGM	Draft: GPC	Date: 03/20/2020
Checked: WGM	Scale: AS-NOTED	Project No.: 13153
Drawing Name: 13153-EX-CONDITIONS.dwg		
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REV.	DATE	REVISION	BY
1	07/16/20	REVISED PER FRANKLIN CONSERVATION COMMISSION	BWG
0	04/23/20	ISSUED FOR REVIEW	EMP

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

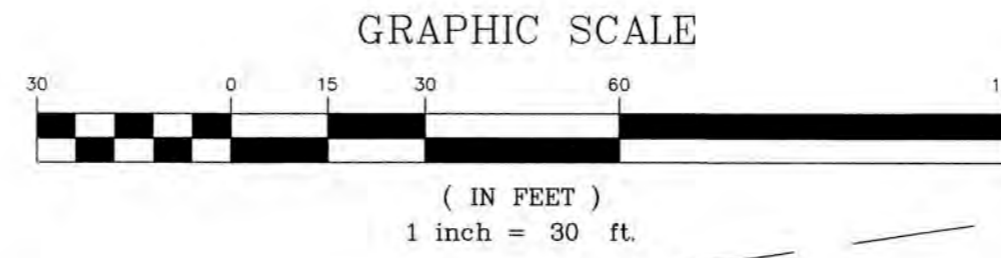
603-772-4748
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	DEMOLITION PLAN
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

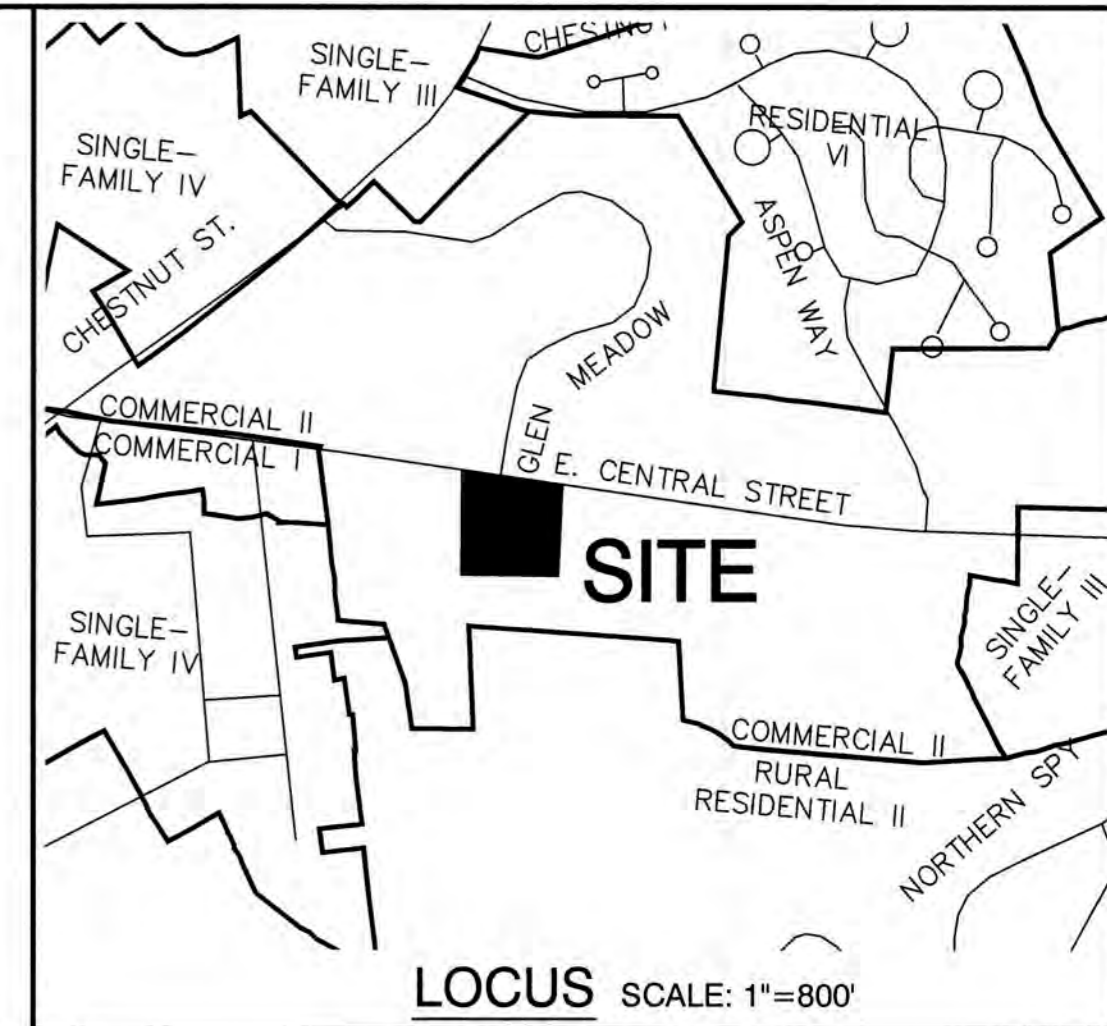
DRAWING No.
C1-1
SHEET 3 OF 19
JBE PROJECT NO. 13153

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE:



EAST CENTRAL STREET (RT 140)



TAX MAP 258 LOT 9

TOTAL AREA = 283,394± SF
= 6.506± AC.
TOTAL UPLAND AREA =
261,274± SF = 6.00± AC.
WETLAND FLAGGING BY
GODDARD CONSULTING, LLC
MARCH 4, 2020
UPDATED THROUGH
JULY 6, 2020
BVW AREA=21,619±SF

- SITE NOTES:**
- THE INTENT OF THIS PLAN IS TO DEPICT THE CONCEPTUAL REDEVELOPMENT OF THE CITY OF FRANKLIN, MA, TAX MAP 285 / LOT 009.
 - ZONING DISTRICT: COMMERCIAL II
LOT AREA MINIMUM = 40,000 SF
LOT FRONTAGE MINIMUM = 175'
BUILDING SETBACKS (MINIMUM):
FRONT SETBACK = 40'
SIDE SETBACK = 30'
REAR SETBACK = 30'
WETLAND BUFFER = 100'
MAX. BUILDING HEIGHT = 40'
MAX. IMPERVIOUS COVERAGE (UPLAND) = 80%
MAX. STRUCTURE COVERAGE (UPLAND) = 70%
*SPECIAL PERMIT REQUIRED
 - PARKING CALCULATIONS (COMMERCIAL):
TOTAL SQUARE FOOTAGE = 15,219 S.F. (RETAIL)
PARKING REQUIRED = 1 SPACE / 200 S.F. (+1 PER ENTERPRISE) = 77 (+6) = 83 SPACES
TOTAL NUMBER OF SEATS = 60 SEATS (RESTAURANT)
PARKING REQUIRED = 1 SPACE / 2.5 SEATS (RESTAURANT) = 24 SPACES
PARKING CALCULATIONS (RESIDENTIAL):
PARKING REQUIRED = 2 SPACES / UNIT (1.5 SPACES / UNIT)*
= 104 UNITS = 208 SPACES (156 SPACES)*
TOTAL REQUIRED = 315 SPACES (263 SPACES)*
TOTAL PROVIDED = 271 SPACES
* = PARKING CALCULATIONS PER WAIVER REQUEST
 - THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ON-SITE OR OFF-SITE TO ENSURE SAFETY AND OBEY THE LAW.
 - ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND MASSDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
 - SUBJECT PROPERTY IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL.
 - ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.). THIS DOCUMENT IS TO BE KEPT ON-SITE AT ALL TIMES AND UPDATED AS REQUIRED.
 - PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
 - ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE TOWN ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED. A SIGN PERMIT AND APPROVAL FROM THE TOWN DESIGN REVIEW COMMISSION MUST BE OBTAINED PRIOR TO SIGN INSTALLATION.
 - ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND MASSDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.
 - ALL PARKING STALLS SHALL BE SEPARATED USING 4" WIDE SOLID STRIPES. STRIPING SHALL HAVE TWO COATS OF PAINT, ALKYLID BIAS SYNTHETIC RESIN, FEDERAL SPECIFICATION TTP-115 TYPE 1, IN A COLOR OF WHITE.
 - ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.
 - ALL CURBING SHALL BE CONSTRUCTED WITH A MINIMUM RADIUS OF 2', UNLESS OTHERWISE NOTED.
 - ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.
 - SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS.
 - ROOF TOP HEATING AND AIR CONDITIONING UNITS (RTU'S) SHALL BE DESIGNED TO VENT UPWARDS AND AIR INTAKES SHALL BE DIRECTED AWAY FROM ADJUTING NEIGHBORS.
 - NO OVERNIGHT TRACTOR TRAILER PARKING SHALL BE ALLOWED ON THE PREMISES. NO TRUCK HORN BLOWING SHALL BE ALLOWED ON THE PREMISES.
 - NO DELIVERIES BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM
 - ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
 - DUMPSTERS ARE NOT TO BE PICKED UP BETWEEN 7:00 PM AND 7:00 AM.
 - PLACING MORE THAN 15 CU.YD. OF FILL WITHIN THE ZONE II WATER RESOURCE DISTRICT REQUIRED A CERTIFICATION TO BE PRESENTED TO THE BOARD OF APPEALS OR ITS DESIGNATED AGENT, THAT THE FILL DOES NOT EXCEED MCF STANDARDS.
 - IN THE EVENT ON SITE SNOW STORAGE IS EXCEEDED BY A LARGE SNOW EVENT, A SNOW MELTER SHALL BE USED ON SITE TO DISPOSE OF EXCESS SNOW. SNOW MELTING MUST BE CONDUCTED ADJACENT TO A CATCH BASIN TO ENSURE TREATMENT WILL OCCUR.

E:\Land Projects\313153-FRANKLIN-300-EAST-CENTRAL-STREET-TOPSFIELD-ASSOCIATES.dwg 1/26/2017 9:04:12 AM EST

Design: WGM	Draft: RMK	Date: 05/06/20
Checked: WGM	Scale: AS-NOTED	Project No.: 13153
Drawing Name: 13153-PLAN.dwg		
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REV.	DATE	REVISION	BY
3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
2	08/19/20	REVISED PER REVIEW ENGINEER COMMENTS 2	EMP
1	07/31/20	REVISED PER REVIEW ENGINEER COMMENTS	EMP
0	05/06/20	ISSUED FOR REVIEW	EMP
		REVISION	BY

Designed and Produced in NH

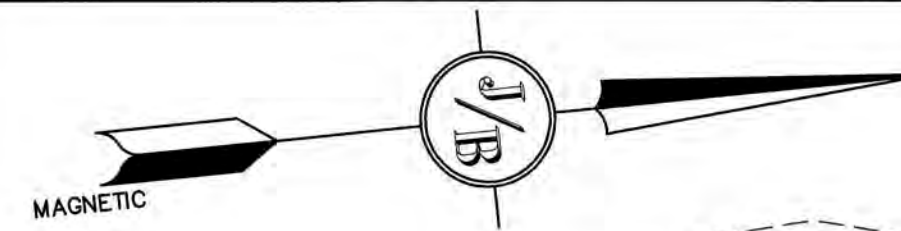
J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	SITE PLAN	DRAWING No.	C2
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA	SHEET 4 OF 19	JBE PROJECT NO. 13153
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576		



DATE:

GRADING AND DRAINAGE NOTES:

1. GRADING AND DRAINAGE NOTES ARE LOCATED ON SHEET C3-1.

DRAINAGE STRUCTURE TABLE	DRAINAGE STRUCTURE TABLE	DRAINAGE STRUCTURE TABLE	DRAINAGE STRUCTURE TABLE	DRAINAGE STRUCTURE TABLE	DRAINAGE STRUCTURE TABLE
DMH-502 RIM=281.90 INVin=277.95 (P-203) INVin=277.95 (P-214) INVin=277.85 (P-204)	DMH-519 RIM=279.50 INVin=275.90 (P-234) INVin=275.90 (P-235) INVin=275.80 (P-233)	DMH-531 (OS #3)** RIM=279.50 INVin=274.95 (HDR) INVin=274.95 (HDR) INVin=274.85 (P-254)	OWS #5 3,000 GALLONS INVin=274.70 INVin=274.65 (P-257)	P-224 34'-12" CL5 RCP S=0.006 FT/FT	P-225 31'-24" CL5 RCP S=0.006 FT/FT
DMH-503 RIM=281.65 INVin=277.70 (P-204) INVin=277.70 (P-205) INVin=277.70 (P-206) INVin=277.80 (P-210)	DMH-520* RIM=279.10 INVin=274.80 (P-230) INVin=274.50 (P-229) INVin=274.50 (HDR) INVin=274.50 (HDR)	DMH-533 RIM=278.90 INVin=274.10 (P-251) INVin=274.00 (P-252)	P-204 21'-18" CL5 RCP S=0.007 FT/FT	P-226 35'-12" CL5 RCP S=0.006 FT/FT	P-227 35'-12" CL5 RCP S=0.006 FT/FT
DMH-504* RIM=282.10 INVin=277.50 (P-210) INVin=277.40 (P-211) INVin=277.40 (P-212)	DMH-522* RIM=278.80 INVin=274.80 (P-236) INVin=274.80 (P-237) INVin=274.70 (P-238) INVin=274.70 (P-239)	DMH-534 (OS #2)** RIM=279.15 INVin=274.50 (HDR) INVin=274.50 (HDR) INVin=274.50 (HDR)	P-205 23'-12" CL5 RCP S=0.007 FT/FT	P-228 20'-12" PVC S=0.006 FT/FT	P-229 14'-12" PVC S=0.006 FT/FT
DMH 505 RIM=281.95 INVin=277.15 (HDR) INVin=277.15 (HDR)	DMH-523* RIM=279.05 INVin=274.50 (P-238) INVin=274.50 (P-240) INVin=274.50 (HDR) INVin=274.50 (HDR)	CB 101 RIM=281.75 INVin=278.80 (P-201)	P-208 18'-12" CL5 RCP S=0.006 FT/FT	P-230 22'-24" CL5 RCP S=0.005 FT/FT	P-231 22'-12" PVC S=0.005 FT/FT
DMH-506* RIM=282.25 INVin=277.25 (P-211) INVin=277.25 (P-212) INVin=277.15 (HDR) INVin=277.15 (HDR)	DMH-524* RIM=279.00 INVin=274.50 (P-242) INVin=274.50 (P-243) INVin=274.50 (HDR) INVin=274.50 (HDR)	CB 102 RIM=281.25 INVin=278.70 (P-202)	P-210 12'-18" CL5 RCP S=0.008 FT/FT	P-232 22'-12" CL5 RCP S=0.006 FT/FT	P-233 11'-12" PVC S=0.005 FT/FT
DMH-513 RIM=278.90 INVin=275.85 (P-219) INVin=275.85 (P-220) INVin=275.55 (P-221)	DMH-525** RIM=278.50 INVin=274.80 (P-245) INVin=274.80 (P-246) INVin=274.70 (P-242) INVin=274.70 (P-244)	CB 113 RIM=278.90 INVin=275.25 (P-232)	P-211 27'-18" CL5 RCP S=0.005 FT/FT	P-234 11'-12" PVC S=0.005 FT/FT	P-235 11'-12" PVC S=0.005 FT/FT
DMH-514 RIM=280.15 INVin=275.15 (P-221) INVin=275.15 (P-224) INVin=275.05 (P-225)	DMH-526 RIM=278.35 INVin=275.25 (P-247) INVin=275.25 (P-248) INVin=275.25 (P-249) INVin=275.35 (P-244)	CB 121 RIM=277.95 INVin=275.40 (P-247)	P-212 8'-12" PVC S=0.006 FT/FT	P-236 11'-12" PVC S=0.005 FT/FT	P-237 11'-12" PVC S=0.005 FT/FT
DMH-518* RIM=279.45 INVin=275.50 (P-232) INVin=275.50 (P-233) INVin=275.40 (P-231) INVin=275.40 (P-238)	DMH-527 RIM=281.15 INVin=275.35 (RD) INVin=275.25 (P-255) INVin=275.25 (P-256)	OWS #1 3,000 GALLONS INVin=277.35 (P-212) INVin=277.35 (P-212)	P-219 53'-18" CL5 RCP S=0.006 FT/FT	P-238 11'-12" PVC S=0.005 FT/FT	P-239 11'-12" PVC S=0.005 FT/FT
DMH-529 RIM=279.50 INVin=274.95 (HDR) INVin=274.95 (HDR)	DMH-528 RIM=281.15 INVin=274.65 (P-244) INVin=274.65 (P-243)	OWS #2 3,000 GALLONS INVin=274.65 (P-228) INVin=274.60 (P-229)	P-220 14'-12" CL5 RCP S=0.005 FT/FT	P-240 11'-12" CL5 RCP S=0.008 FT/FT	P-241 11'-12" CL5 RCP S=0.008 FT/FT
	DMH-529 RIM=279.50 INVin=274.95 (HDR) INVin=274.95 (HDR)	OWS #3 3,000 GALLONS INVin=274.65 (P-239) INVin=274.60 (P-240)	P-221 47'-18" CL5 RCP S=0.005 FT/FT	P-242 11'-12" CL5 RCP S=0.006 FT/FT	P-243 11'-12" CL5 RCP S=0.006 FT/FT
		OWS #4 3,000 GALLONS INVin=274.65 (P-244) INVin=274.60 (P-243)	P-222 44'-12" CL5 RCP S=0.006 FT/FT	P-244 11'-12" PVC S=0.011 FT/FT	P-245 11'-12" PVC S=0.011 FT/FT

*SEE DETAIL SHEET D6
**SEE DETAIL SHEET D7

WETLAND CONSTRUCTION NOTES:

- ALL WORK FOR CONSTRUCTED WETLAND SHALL BE SUPERVISED BY A WETLAND SCIENTIST.
- BERM TO BE CONSTRUCTED AROUND EX. RED MAPLES.
- UNDER WETLAND SCIENTIST SUPERVISION, INTERIOR OF CONSTRUCTED WETLAND, OUTSIDE EROSION AND INTERIOR TO BERM WILL BE HAND CLEARED OF WHITE PINES CUT FLUSH TO GRADE.
- REMOVAL OF INVASIVE SPECIES BY PULLING PLANTS WITH ROOT SYSTEM.

9/3/2020

Design: WGM	Draft: RMK	Date: 05/06/20
Checked: WGM	Scale: AS-NOTED	Project No.: 13153
Drawing Name: 13153-PLAN.dwg		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.		



REV.	DATE	REVISION	BY
3	08/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
2	08/19/20	REVISED PER REVIEW ENGINEER COMMENTS 2	EMP
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0	05/06/20	ISSUED FOR REVIEW	EMP

Designed and Produced in NH

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Civil Engineering Services

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FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

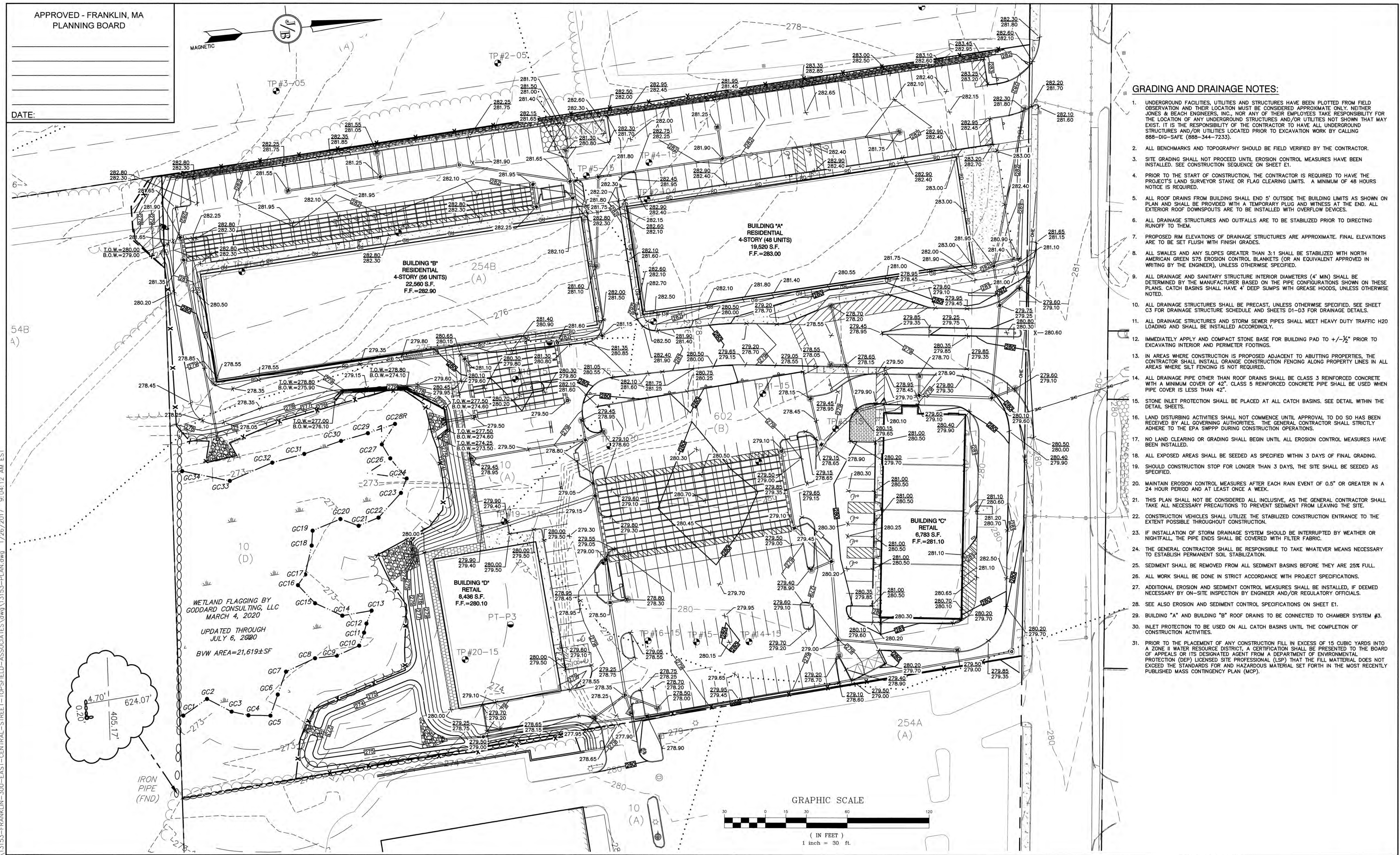
Plan Name:	DRAINAGE PLAN
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No.	C3
SHEET 5 OF 19	JBE PROJECT NO. 13153

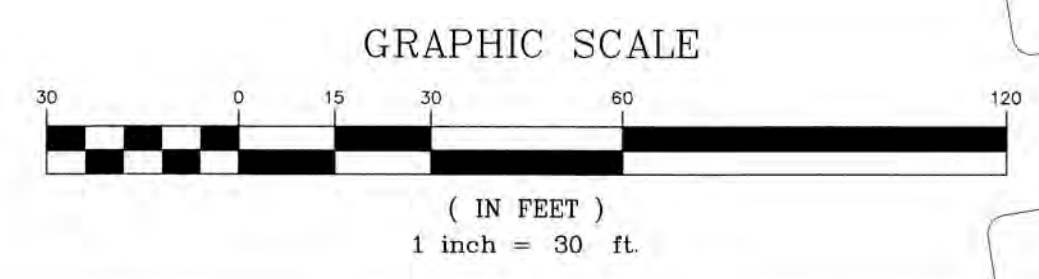
APPROVED - FRANKLIN, MA
PLANNING BOARD



DATE:



- GRADING AND DRAINAGE NOTES:**
- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
 - ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
 - SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
 - PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
 - ALL ROOF DRAINS FROM BUILDING SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLAN AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT THE END. ALL EXTERIOR ROOF DOWNSPOUTS ARE TO BE INSTALLED WITH OVERFLOW DEVICES.
 - ALL DRAINAGE STRUCTURES AND OUTFALLS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
 - PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
 - ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
 - ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 4' DEEP SUMP WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
 - ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED. SEE SHEET C3 FOR DRAINAGE STRUCTURE SCHEDULE AND SHEETS D1-D3 FOR DRAINAGE DETAILS.
 - ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
 - IMMEDIATELY APPLY AND COMPACT STONE BASE FOR BUILDING PAD TO +/- 1/2" PRIOR TO EXCAVATING INTERIOR AND PERIMETER FOOTINGS.
 - IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
 - ALL DRAINAGE PIPE OTHER THAN ROOF DRAINS SHALL BE CLASS 3 REINFORCED CONCRETE WITH A MINIMUM COVER OF 42". CLASS 5 REINFORCED CONCRETE PIPE SHALL BE USED WHEN PIPE COVER IS LESS THAN 42".
 - STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
 - LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
 - NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
 - ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
 - SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
 - MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
 - THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
 - CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
 - IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
 - THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
 - SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
 - ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
 - ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
 - SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.
 - BUILDING "A" AND BUILDING "B" ROOF DRAINS TO BE CONNECTED TO CHAMBER SYSTEM #3.
 - INLET PROTECTION TO BE USED ON ALL CATCH BASINS UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES.
 - PRIOR TO THE PLACEMENT OF ANY CONSTRUCTION FILL IN EXCESS OF 15 CUBIC YARDS INTO A ZONE II WATER RESOURCE DISTRICT, A CERTIFICATION SHALL BE PRESENTED TO THE BOARD OF APPEALS OR ITS DESIGNATED AGENT FROM A DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) LICENSED SITE PROFESSIONAL (LSP) THAT THE FILL MATERIAL DOES NOT EXCEED THE STANDARDS FOR AND HAZARDOUS MATERIAL SET FORTH IN THE MOST RECENTLY PUBLISHED MASS CONTINGENCY PLAN (MCP).



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WETLAND FLAGGING BY
GODDARD CONSULTING, LLC
MARCH 4, 2020
UPDATED THROUGH
JULY 6, 2020
BVW AREA=21,619±SF



REV.	DATE	REVISION	BY
3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
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		REVISION	BY

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **GRADING PLAN**

Project: **PROPOSED CENTRAL SQUARE
340 E CENTRAL STREET, FRANKLIN, MA**

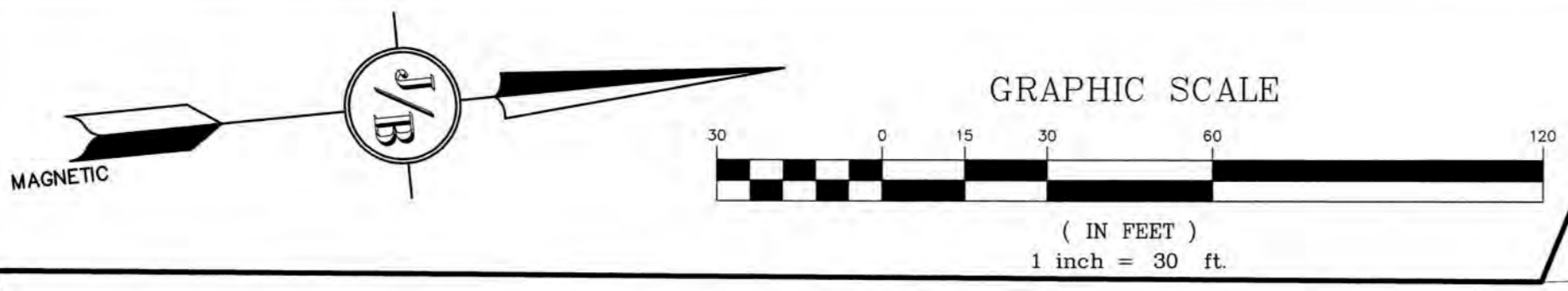
Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190578

DRAWING No.

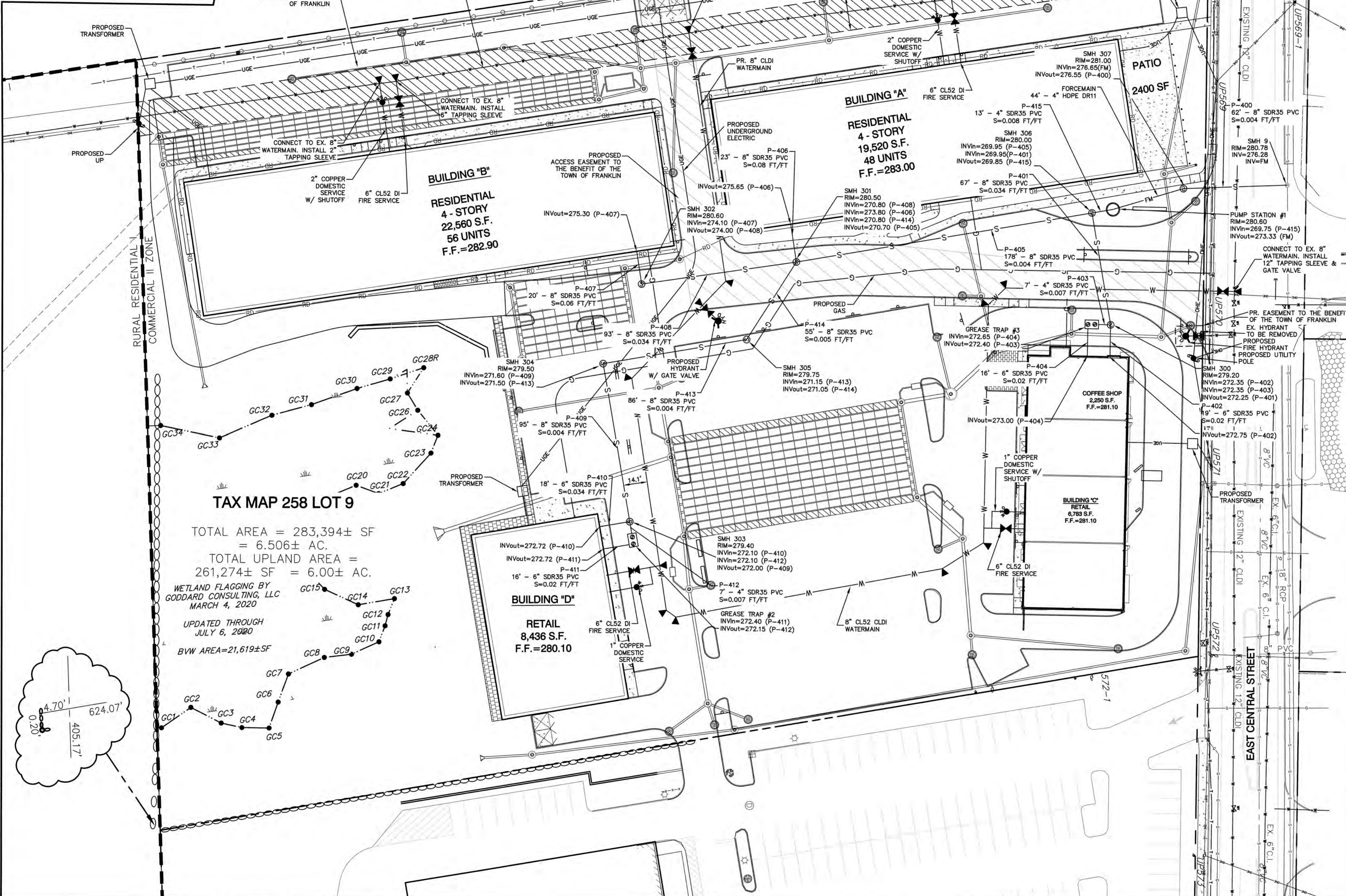
C3-1

SHEET 6 OF 19
JBE PROJECT NO. 13153

APPROVED - FRANKLIN, MA
PLANNING BOARD



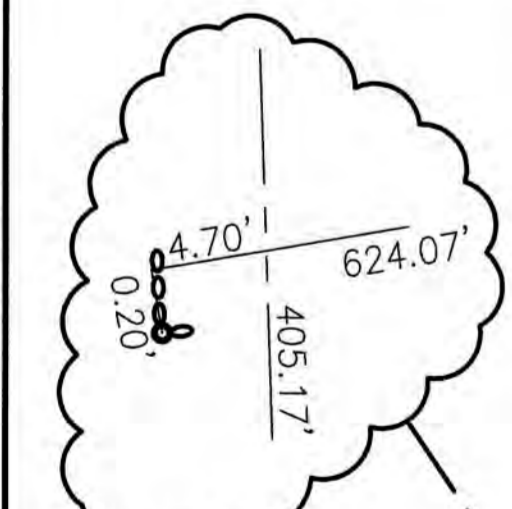
DATE:



TAX MAP 258 LOT 9

TOTAL AREA = 283,394± SF
= 6.506± AC.
TOTAL UPLAND AREA =
261,274± SF = 6.00± AC.

WETLAND FLAGGING BY
GODDARD CONSULTING, LLC
MARCH 4, 2020
UPDATED THROUGH
JULY 6, 2020
BVW AREA=21,619±SF



UTILITY NOTES:

- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
- THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
- THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
- A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
- ALL CONSTRUCTION SHALL CONFORM TO THE TOWN STANDARDS AND REGULATIONS, AND MASSDEP STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
- ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
- BUILDINGS TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
- THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
- AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
- CONTRACTOR TO PROVIDE UNDERDRAIN, AS NECESSARY, AT DISCRETION OF THE PROJECT ENGINEER.
- INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
- FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA. CLEAR OPENING. THE WORD "SEWER" OR "DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
- SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING 120 LBS.
- CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
- ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4" MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
- PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
- ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
- WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMANS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICHEVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMANS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
- ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
- IF THE BUILDING IS REQUIRED TO HAVE A SPRINKLER SYSTEM, A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR, OWNER, ARCHITECT AND THE LOCAL FIRE DEPARTMENT PRIOR TO THE INSTALLATION.
- THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND FIRE HYDRANTS.
- DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
- REFER TO FIRE PROTECTION SHEETS OF THE ARCHITECTURAL PLANS FOR LOCATION AND DETAIL OF FIRE LINE LEAD IN TO BUILDING.
- FIRE LINE SHALL BE STUBBED UP 1' ABOVE FINISH FLOOR ELEVATION IN SPRINKLER ROOM.
- AN APPROVED AUTOMATIC SPRINKLER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH 101 LIFE SAFETY CODE/NFPA 1 AND LOCAL REGULATIONS. FIRE DEPARTMENT CONNECTION SHALL BE FIELD VERIFIED BY LOCAL FIRE DEPARTMENT TO ENSURE OPTIMUM PLACEMENT.
- THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
- CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
- EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
- ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
- ALL GRAVITY SEWER PIPE, MANHOLES, AND FORCE MAINS SHALL BE TESTED ACCORDING TO MASSDEP SEWER SYSTEM EXTENSION AND CONNECTION PROGRAM, 314 CMR 7.00.
- SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES.
- SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED.
- SEWER AND WATER INFRASTRUCTURE ON PRIVATE PROPERTY IS TO REMAIN PRIVATE, HOWEVER, THE TOWN RESERVES THE RIGHT TO ENTER THE PROPERTY IN ORDER TO INSPECT, REPAIR AND/OR TERMINATE INDIVIDUAL SEWER OR WATER SERVICES (AT OWNER'S EXPENSE).
- ALL FIRE HYDRANTS SHALL BE PROVIDED WITH AN APPROVED GATE VALVE A MAXIMUM OF 5'-0" FROM HYDRANT.
- THE CONTRACTOR SHALL MINIMIZE THE DISRUPTIONS TO THE EXISTING SEWER FLOWS AND THOSE INTERRUPTIONS SHALL BE LIMITED TO FOUR (4) HOURS OR LESS AS DESIGNATED BY THE TOWN SEWER DEPARTMENT.
- THE CONTRACTOR SHALL MAINTAIN WATER SERVICE TO USERS AT ALL TIMES. REQUIREMENTS BY THE TOWN WATER DEPARTMENT REGARDING NOTIFICATION FOR INTERRUPTION OF SERVICE SHOULD BE INCLUDED (TYPICALLY 24 HOURS) AND ALLOWABLE INTERRUPTION DURATION, WATER TESTING AND DISINFECTION REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH TOWN AND MASSDEP REGULATIONS.
- ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
- ALL WATER AND SEWER INSTALLATION ARE TO BE DONE IN ACCORDANCE WITH TOWN OF FRANKLIN REGULATIONS.
- MECHANICALS ON TOP OF THE COMMERCIAL BUILDINGS WILL BE SCREENED.
- ALL WATER AND SEWER UTILITY INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF FRANKLIN DEPARTMENT OF PUBLIC WORKS STANDARDS FOR SEWER AND WATER MATERIALS AND INSTALLATION.

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Design: WGM	Draft: RMK	Date: 05/06/20
Checked: WGM	Scale: AS-NOTED	Project No.: 13153
Drawing Name: 13153-PLAN.dwg		
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Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

Civil Engineering Services

603-772-4746 FAX: 603-772-0227 E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **UTILITY PLAN**

Project: **PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA**

Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

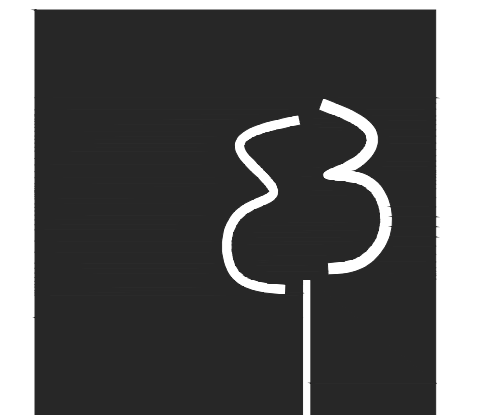
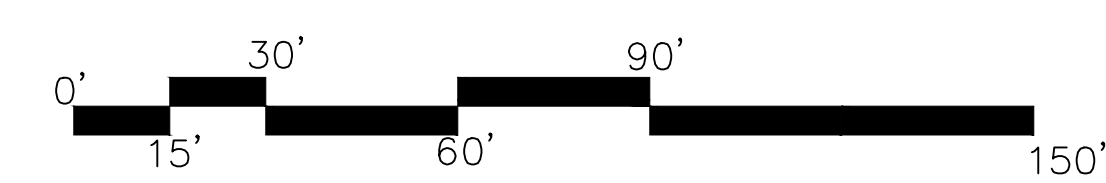
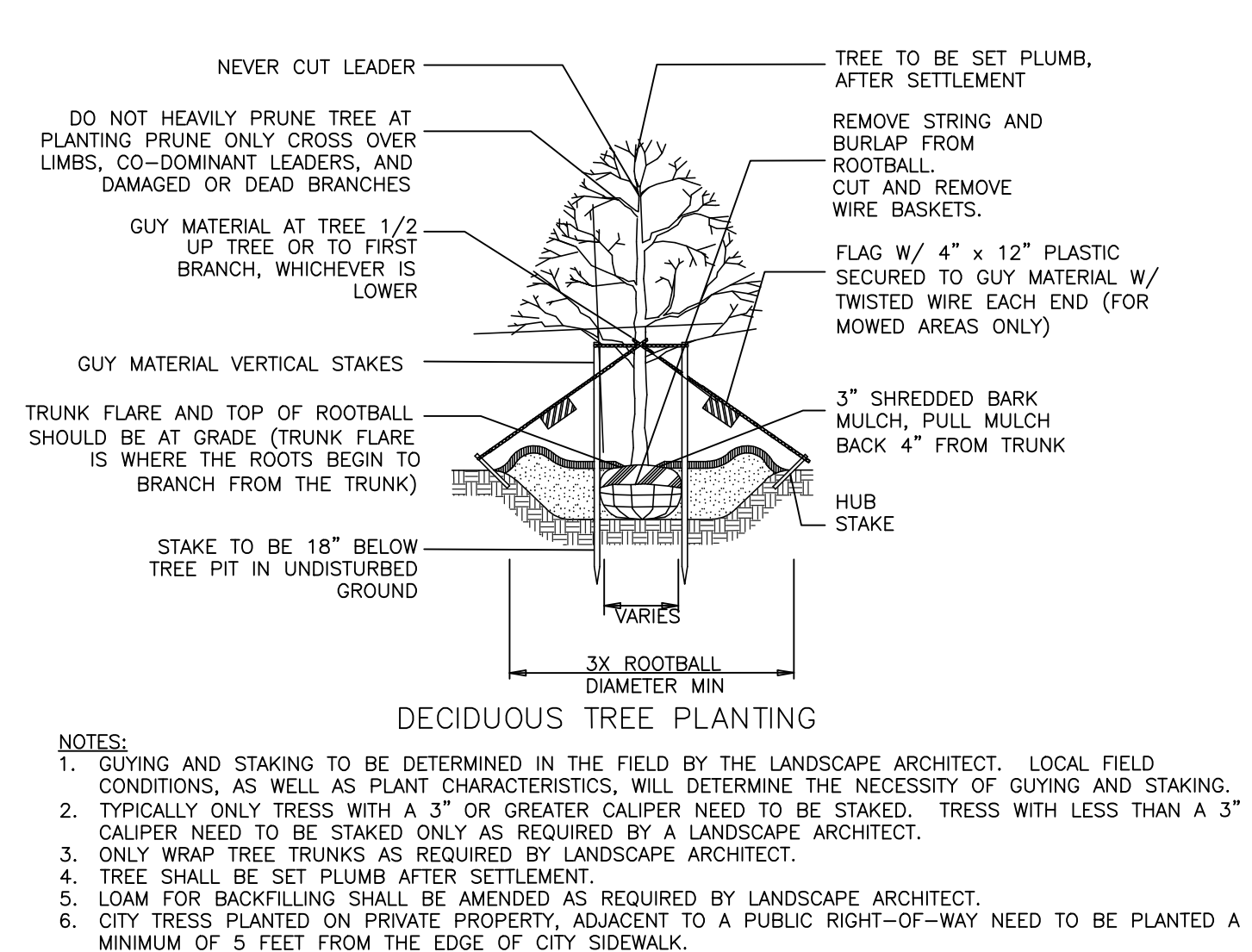
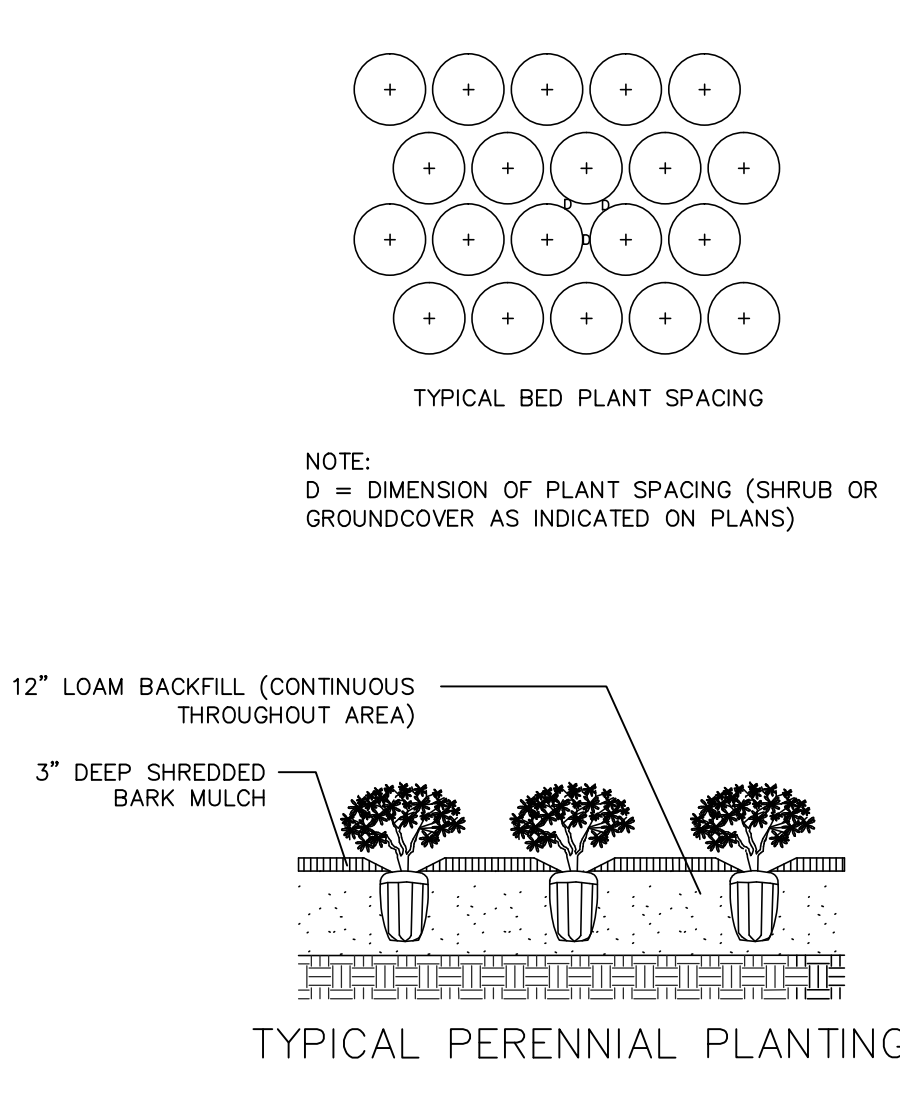
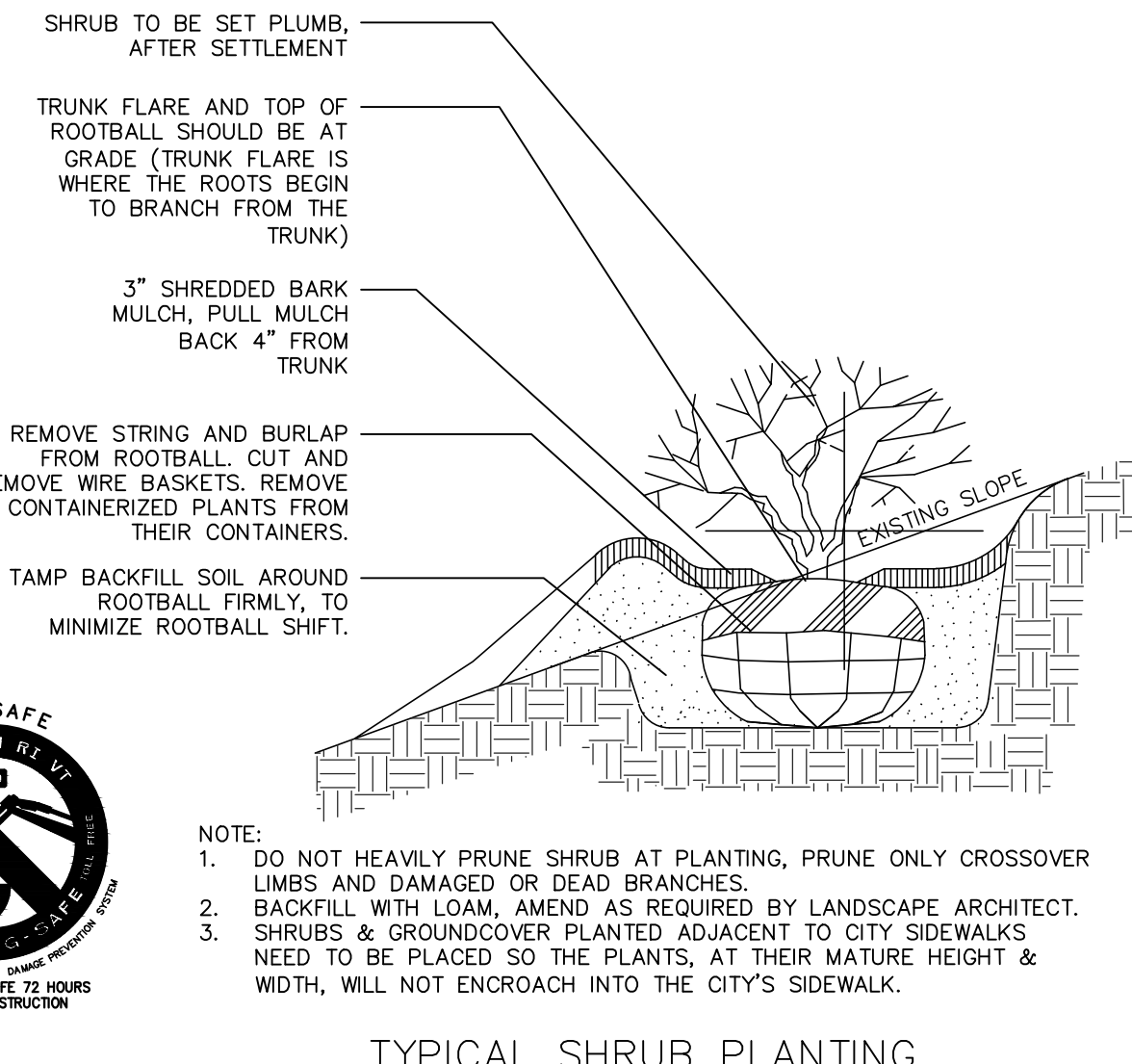
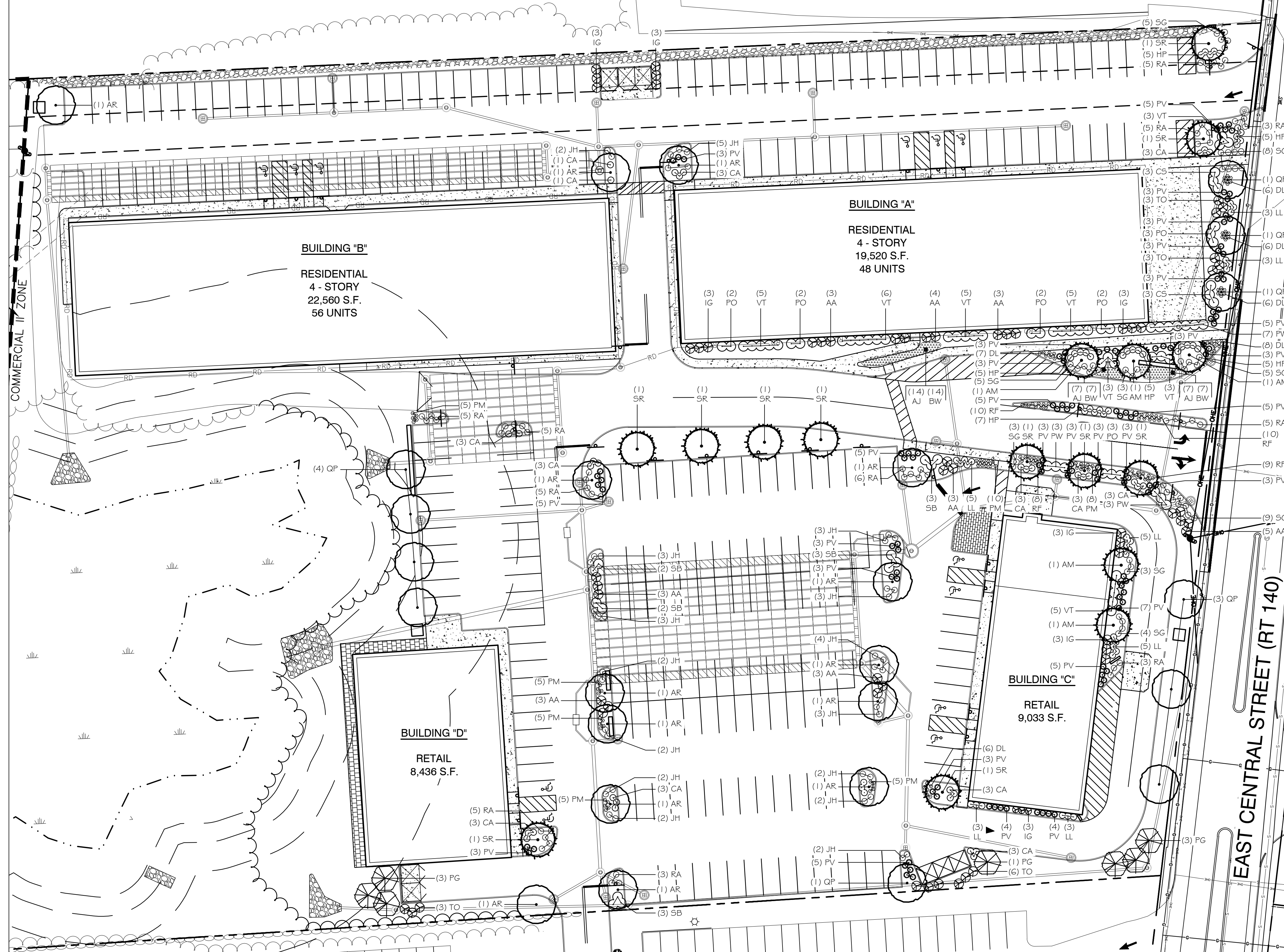
DRAWING No. **C4**

SHEET 7 OF 19
JBE PROJECT NO. 13153

- GENERAL NOTES:**
1. BASE PLAN DEVELOPED FROM INFORMATION PROVIDED BY JONES & BEACH ENGINEERS, INC., DRAWING TITLE, "SITE PLAN, PROPOSED CENTRAL SQUARE, 340 E CENTRAL STREET, FRANKLIN, MA" DATED 01-23-20.
 2. VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS IN THE FIELD, PRIOR TO CONSTRUCTION. VERIFY FIELD CONDITIONS RELATING TO WORK TO BE INSTALLED. NOTIFY LANDSCAPE ARCHITECT OF ANY UNUSUAL OR DIFFICULT CONDITIONS IN A TIMELY FASHION PRIOR TO CONSTRUCTION CONCERNING THE CONDITION IN QUESTION.
 3. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE TOWN OF FRANKLIN AND STATE OF MASSACHUSETTS. NOTIFY APPROPRIATE AGENCIES AT LEAST 48 HOURS PRIOR TO PERFORMING THE WORK UNDER THEIR JURISDICTION.
 4. CONTRACTOR IS RESPONSIBLE FOR SECURING AND PAYING FOR ALL CONSTRUCTION PERMITS AND LICENSES REQUIRED TO COMPLETE SITE WORK. CONTRACTOR IS RESPONSIBLE FOR ALL APPROPRIATE INSPECTIONS OF HIS/HER WORK.
 5. ALL WORK SHALL BE OF WORKMANLIKE QUALITY AND IN CONFORMANCE WITH ALL APPLICABLE CODES. CONTRACTOR SHALL READ ALL ZONING AND ENVIRONMENTAL PERMITS WHICH PERTAIN TO THE PROJECT AND SHALL COMPLY WITH ALL THE CONDITIONS THEREIN.
 6. NOTIFY LANDSCAPE ARCHITECT AT LEAST 72 HOURS PRIOR TO ANY ROUTINE REQUIRED FIELD OBSERVATION. OBTAIN LANDSCAPE ARCHITECT'S APPROVAL OF THE LAYOUT OF ALL IMPROVEMENTS PRIOR TO CONSTRUCTION.
 7. CONTRACTOR IS RESPONSIBLE FOR REPAIR OF DAMAGE OR DISTURBANCE TO OTHER AREAS WHICH MAY OCCUR AS THE RESULT OF HIS/HER WORK WHETHER WITHIN OR OUTSIDE OF THE CONTRACT LIMIT LINES.
 8. CONSTRUCTION SHALL FOLLOW THE SEQUENCES AND CONDITIONS ESTABLISHED IN THE SPECIFICATIONS AND PERMITS.
 9. IT IS INTENDED THAT THE WORK BE EXECUTED IN ACCORDANCE WITH THE BEST CUSTOMARY BUILDING PRACTICES. IF WORK IS REQUIRED IN A MANNER TO MAKE IT IMPOSSIBLE TO PRODUCE FIRST-CLASS WORK OR IF ERRORS, CONFLICTS OR DISCREPANCIES APPEAR AMONG THE CONTRACT DOCUMENTS, INFORM THE LANDSCAPE ARCHITECT IMMEDIATELY AND REQUEST INTERPRETATION BEFORE PROCEEDING WITH THE WORK.
 10. IF CONTRACTOR FAILS TO MAKE SUCH A STATEMENT AND REQUEST, NO EXCUSE WILL THEREAFTER BE ENTERTAINED, NOR ADDITIONAL EXPENSE BE ACCEPTED, FOR FAILURE TO CARRY OUT WORK IN A SATISFACTORY MANNER. SHOULD CONFLICT OCCUR IN OR BETWEEN DRAWINGS AND SPECIFICATIONS, CONTRACTOR IS DEEMED TO HAVE ESTIMATED ON THE MORE EXPENSIVE WAY OF DOING WORK UNLESS HE/SHE SHALL HAVE OBTAINED A WRITTEN DECISION, BEFORE SUBMITTING HIS BID, AS TO WHICH METHOD OR MATERIALS WILL BE REQUIRED.
 11. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIALS AND EQUIPMENT STORED AT SITE.
 12. EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY WORK.
 13. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT FOR DIRECTION AND RESOLUTION PRIOR TO ANY FURTHER WORK.
 14. VISIBLE EXISTING CONDITIONS WHERE FIELD LOCATED, AND UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. SITE SUBCONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS, DIMENSIONS, AND GRADES. PRIOR TO START OF ANY FOUNDATION OR UTILITY WORK.
 15. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN CASE OF CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION.
 16. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY TERRAIN PLANNING & DESIGN LLC, DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR, ENGINEER OR LANDSCAPE ARCHITECT HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
 17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH THE SITE AND ALL EXISTING CONDITIONS SURROUNDING IT AND THEREON. THE CONTRACTOR SHALL ADVISE THE APPROPRIATE AUTHORITY OF HIS INTENTIONS AT LEAST 48 HOURS IN ADVANCE.
 18. THESE PLANS WERE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL LANDSCAPE ARCHITECT. TERRAIN PLANNING & DESIGN LLC ASSUMES NO LIABILITY AS A RESULT OF ANY CHANGES OR NON-COMFORMANCE WITH THESE PLANS EXCEPT UPON THE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT OF RECORD.
 19. TERRAIN PLANNING & DESIGN LLC ASSUMES NO LIABILITY FOR WORK PERFORMED WITHOUT AN ACCEPTABLE PROGRAM OF TESTING AND INSPECTION AS APPROVED BY THE LANDSCAPE ARCHITECT OF RECORD.
 20. BASE PREPARATION UNDER ALL HARD SURFACES TO BE COMPACTED TO 98% STANDARD PROCTOR DENSITY.
 21. SITE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE PRIOR TO ANY EXCAVATION, 1-888-DIG-SAFE.

- PLANTING NOTES:**
1. CONTRACTOR SHALL OBTAIN APPROVAL FROM LANDSCAPE ARCHITECT PRIOR TO PURCHASING AND/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.
 2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY LANDSCAPE ARCHITECT. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.
 3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY LANDSCAPE ARCHITECT ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.
 4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.
 5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY AND FLOURISHING CONDITION FOR ONE YEAR FROM THE DATE OF FINAL INSTALLATION APPROVAL BY LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE LANDSCAPE ARCHITECT. REPLACEMENT PLANTS SHALL BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY LANDSCAPE ARCHITECT.
 6. ALL BEDS TO BE MULCHED WITH 4" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.
 7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.
 8. THE MAJORITY OF PLANTINGS SHALL COME FROM THE BEST DEVELOPMENT PRACTICES GUIDEBOOK.

Plant Schedule					
Botanical Name/ Common Name	Size	Label	Quantity	Mature Height	
Trees					
<i>Acer rubrum</i> 'October Glory' / October Glory Red Maple	2-2.5" CAL.	AR	14	40-60'	
<i>Amelanchier x grandiflora</i> 'Autumn Brilliance' / Autumn Brilliance Serviceberry	2-2.5" CAL.	AM	5	20-30'	
<i>Picea glauca</i> / White Spruce	5-6" B&B	PG	7	40-60'	
<i>Quercus palustris</i> / Pin Oak	2-2.5" CAL.	QP	11	60+	
<i>Syringa reticulata</i> / Japanese Lilac Tree	2-2.5" CAL.	SR	11	20-30'	
<i>Thuja occidentalis</i> 'Smaragd' / Emerald Green Arborvitae	4-5" B&B	TO	15	15-20'	
Shrubs					
<i>Azalea atlanticum</i> 'Marydel' / Marydel Azalea	#3 Gal.	AA	27	4-5'	
<i>Clethra alnifolia</i> 'Compacta' / Compact Summersweet	#3 Gal.	CA	35	3-4'	
<i>Cornus sericea</i> 'Arctic Fire' / Arctic Fire Red-Osier Dogwood	#5 Gal.	CS	6	5-6'	
<i>Hydrangea paniculata</i> 'Bobo' / Bobo Panicle Hydrangea	#3 Gal.	HP	32	2-3'	
<i>Hydrangea paniculata</i> 'Little Lime' / Little Lime Panicle Hydrangea	#3 Gal.	LL	27	3-4'	
<i>Hydrangea paniculata</i> 'Pinky Winky' / Pinky Winky Panicle Hydrangea	#5 Gal.	PW	13	6-8'	
<i>Ilex glabra</i> 'Compacta' / Compact Inkberry	#5 Gal.	IG	21	5-6'	
<i>Physocarpus opulifolius</i> 'Amber Jubilee' / Amber Jubilee Ninebark	#5 Gal.	PO	14	5-6'	
<i>Spiraea bumalda</i> 'Anthony Waterer' / Anthony Waterer Spirea	#3 Gal.	SB	13	3-4'	
<i>Spiraea bumalda</i> 'Goldflame' / Goldflame Spirea	#3 Gal.	SG	40	2-3'	
<i>Viburnum trilobum</i> 'Compacta' / Compact American Cranberry Viburnum	#5 Gal.	VT	35	5-6'	
Grasses					
<i>Panicum virgatum</i> 'Shenandoah' / Shenandoah Switch Grass	#2 Gal.	PV	109	3-4'	
Perennials					
<i>Hemerocallis</i> 'Happy Returns' / Happy Returns Daylily	#1 Gal.	DL	39	18-24"	
<i>Hemerocallis</i> 'Pardon Me' / Pardon Me Daylily	#1 Gal.	PM	43	18-24"	
<i>Nepeta</i> 'Blue Wonder' / Blue Wonder Catmint	#1 Gal.	BW	28	12"	
<i>Rudbeckia fulgida</i> 'Goldsturm' / Goldsturm Black-Eyed Susan	#1 Gal.	RF	37	2'	
<i>Sedum spectabile</i> 'Autumn Joy' / Autumn Joy Stonecrop	#1 Gal.	AJ	28	18-24"	
Groundcovers					
<i>Juniperus horizontalis</i> 'Bar Harbor' / Bar Harbor Juniper	#1 Gal.	JH	40	6-12"	
<i>Rhus aromatica</i> 'Grow Low' / Grow Low Fragrant Sumac	#1 Gal.	RA	50	18-24"	



terrain
planning & design llc

311 kast hill road
hopkinton nh 03229
603. 746. 3512
terrainplanning.com

**PROPOSED
CENTRAL SQUARE**

Site Location:
340 E. Central Street
Franklin, MA 02038
Tax Map: 285
Lot #: 9

Prepared For:
Jones & Beach Engineering,
Inc.
85 Portsmouth Avenue
Stratham, NH 03885

**LANDSCAPE
PLAN**

DATE: 04 - 01 - 2020

SCALE: 1" = 30'

PROJECT #: 2016

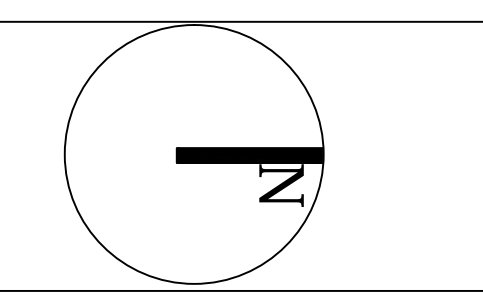
Drawn By: RNM

Checked By: ERB

REVISIONS:	DATE:
Revised per Client	06/10/2020
Revised per Client	06/22/2020
Revised per Client	07/30/2020
Revised per Client	08/18/2020

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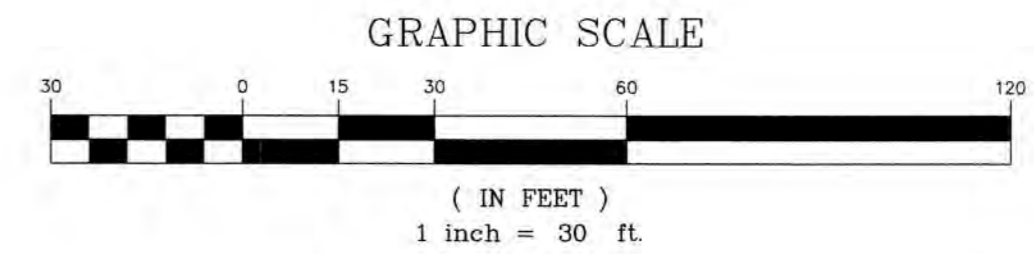
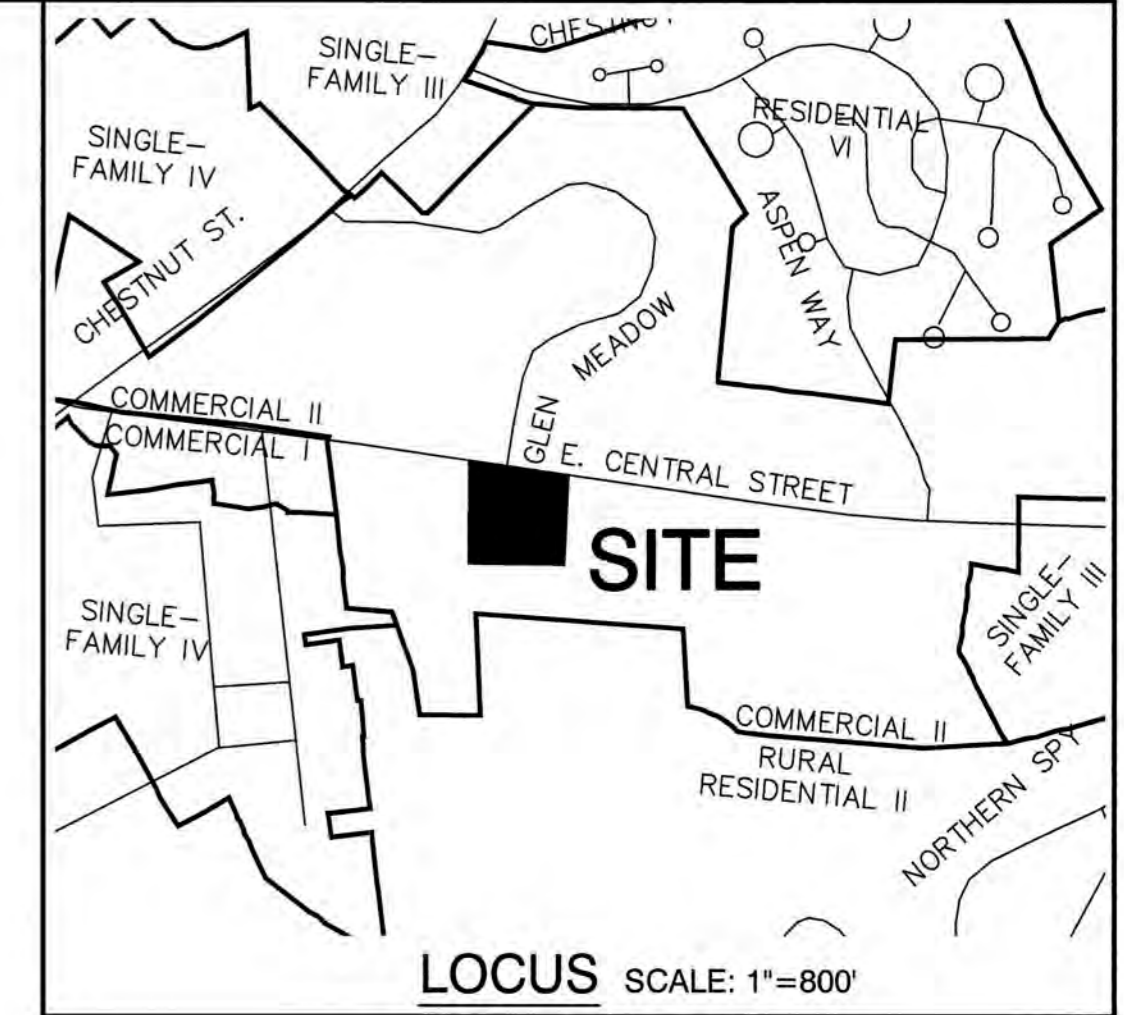
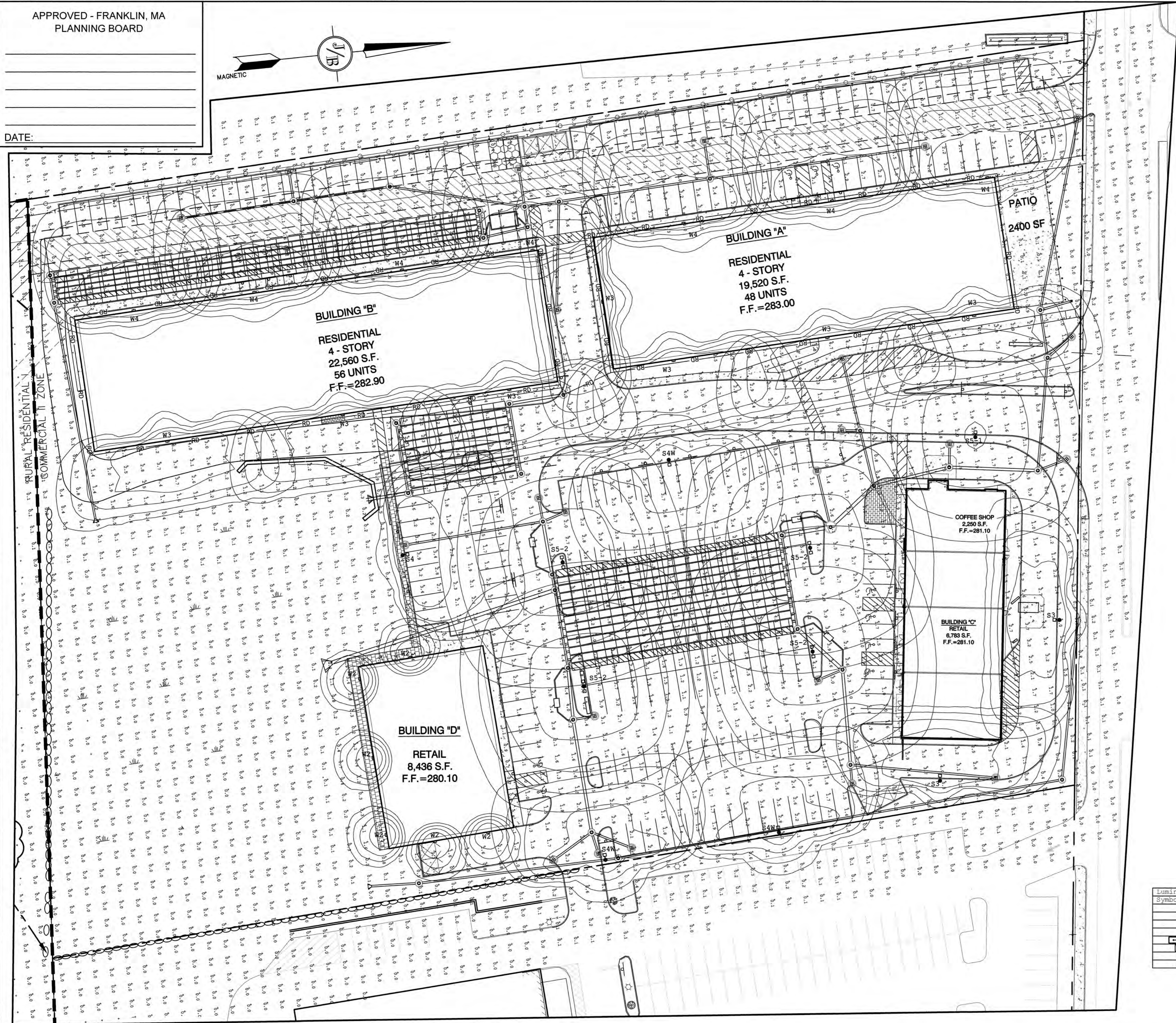
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APPROVED - FRANKLIN, MA
PLANNING BOARD



DATE:



LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
2. CONTRACTOR SHALL INSTALL PROPOSED LIGHT POLES ACCORDING TO TOWN REGULATIONS.
3. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER TOWN REGULATIONS.
4. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
5. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL LLF OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDELES.
6. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
7. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT, UNLESS OTHERWISE NOTED.
8. SEE DETAIL SHEET D3 FOR LIGHTING DETAILS.
9. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.

StatArea 1 RESIDENTIAL PARKING LOTS Illuminance (Fc) Average = 1.54 Maximum = 4.1 Minimum = 0.3 Avg/Min Ratio = 5.13 Max/Min Ratio = 13.67	StatArea 2 RETAIL PARKING LOTS Illuminance (Fc) Average = 2.33 Maximum = 5.1 Minimum = 0.6 Avg/Min Ratio = 3.88 Max/Min Ratio = 8.50
StatArea 3 TRAVEL LANE OF RESIDENTIAL PARKING AREA Illuminance (Fc) Average = 1.43 Maximum = 2.5 Minimum = 0.8 Avg/Min Ratio = 1.79 Max/Min Ratio = 3.13	

Symbol	Qty	Label	Arrangement	Description
[Symbol]	2	S3	SINGLE	GLEON-AF-02-LED-E1-SL3/ SSS4A20SFN1 (20' AFG)
[Symbol]	1	S4	SINGLE	GLEON-AF-02-LED-E1-SL4/ SSS4A20SFN1 (20' AFG)
[Symbol]	3	S4W	SINGLE	GLEON-AF-02-LED-E1-T4W/ SSS4A20SFN1 (20' AFG)
[Symbol]	1	S5-1	SINGLE	GLEON-AF-02-LED-E1-SW0/ SSS4A20SFN1 (20' AFG)
[Symbol]	4	S5-2	BACK-BACK	2-GLEON-AF-02-LED-E1-SW0/ SSS4A20SFN2 (20' AFG)
[Symbol]	6	W2	SINGLE	XTOR1B/ WAL MTD 12' AFG
[Symbol]	7	W3	SINGLE	GWC-AF-02-LED-E1-SL3/ WALL MTD 20' AFG
[Symbol]	7	W4	SINGLE	GWC-AF-02-LED-E1-SL4/ WALL MTD 20' AFG

E:\Land_Proj\13153-FRANKLIN-300-EAST-CENTRAL-STREET-TOPSFIELD-ASSOCIATES.dwg\13153-PLAN.dwg 1/26/2017 9:04:12 AM EST

Design: WGM Draft: RMK Date: 05/06/20
Checked: WGM Scale: AS-NOTED Project No.: 13153
Drawing Name: 13153-PLAN.dwg
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

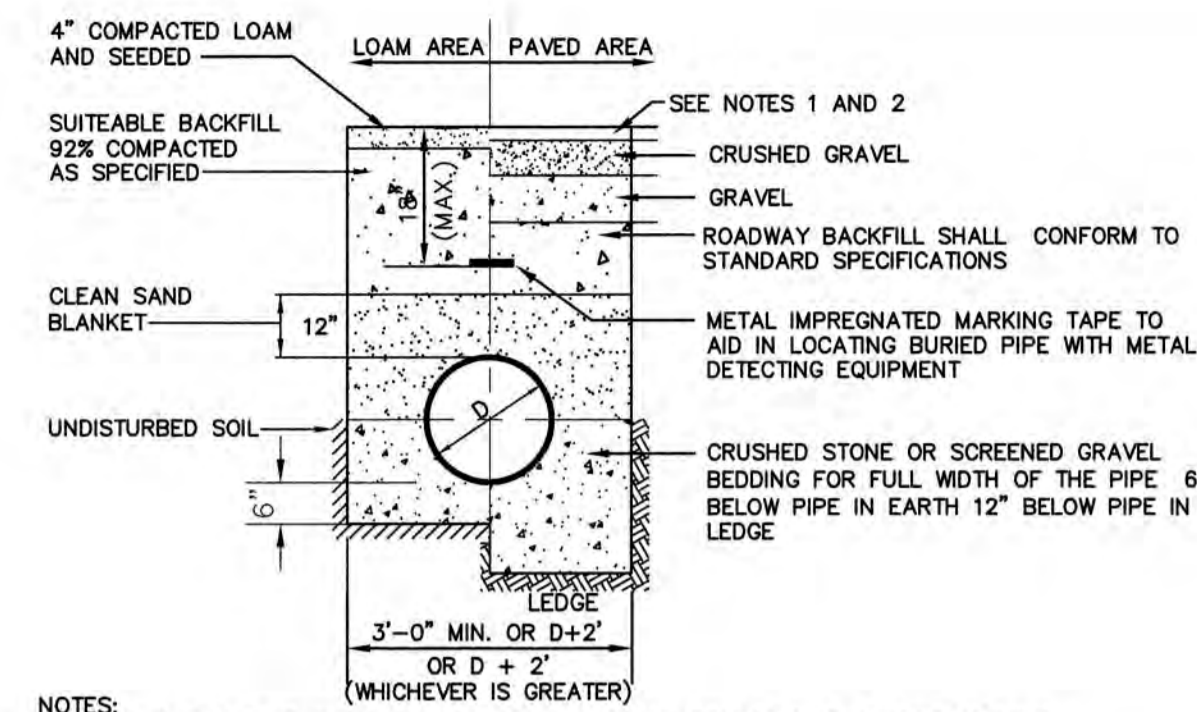


REV.	DATE	REVISION	BY
3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
2	08/19/20	REVISED PER REVIEW ENGINEER COMMENTS 2	EMP
1	07/31/20	REVISED PER REVIEW ENGINEER COMMENTS	EMP
0	05/06/20	ISSUED FOR REVIEW	EMP
		REVISION	

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

Plan Name: **LIGHTING PLAN**
Project: **PROPOSED CENTRAL SQUARE
340 E CENTRAL STREET, FRANKLIN, MA**
Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190578

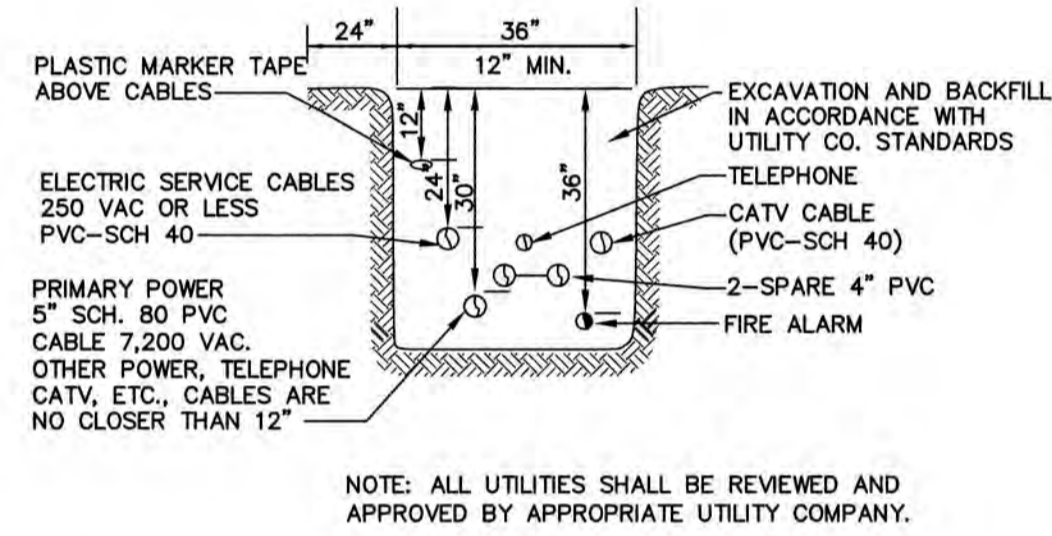
DRAWING No. **L2**
SHEET 9 OF 19
JBE PROJECT NO. 13153



- NOTES:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
 2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
 3. GAPS BETWEEN SECTIONS OF INSULATION TO BE COVERED WITH 2" x 2" x 2" PIECE OF INSULATION OVER GAP.
 4. RIGID FOAM INSULATION TO BE PROVIDED WHERE COVER IN THE ROADWAY IS LESS THAN 5' AND CROSS COUNTRY IS LESS THAN 4'.

SEWER TRENCH

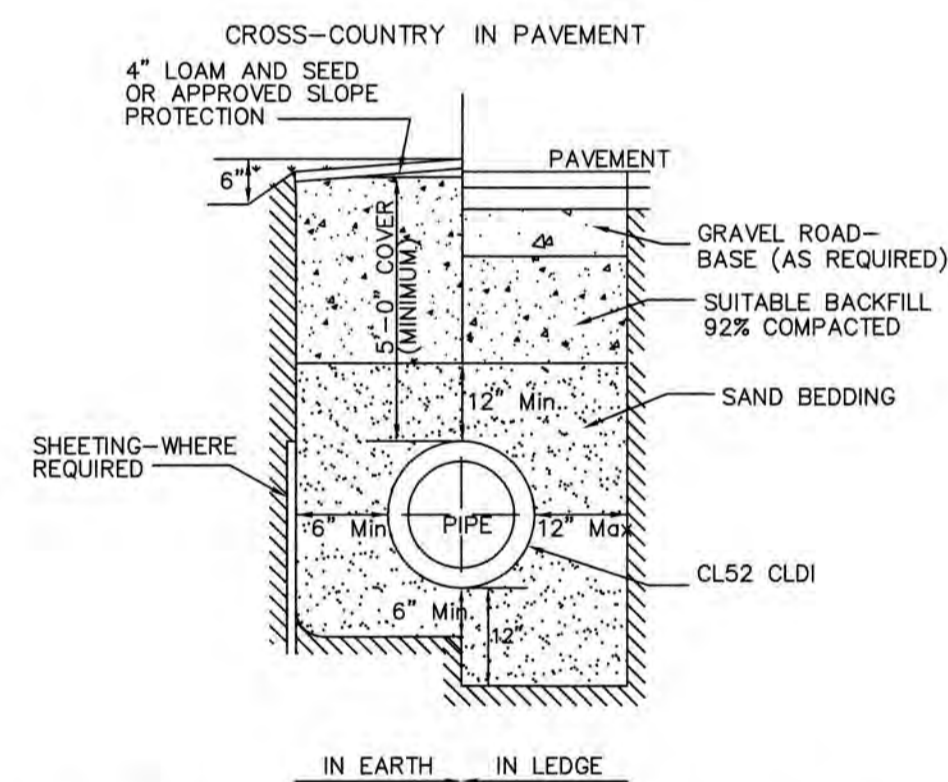
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NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

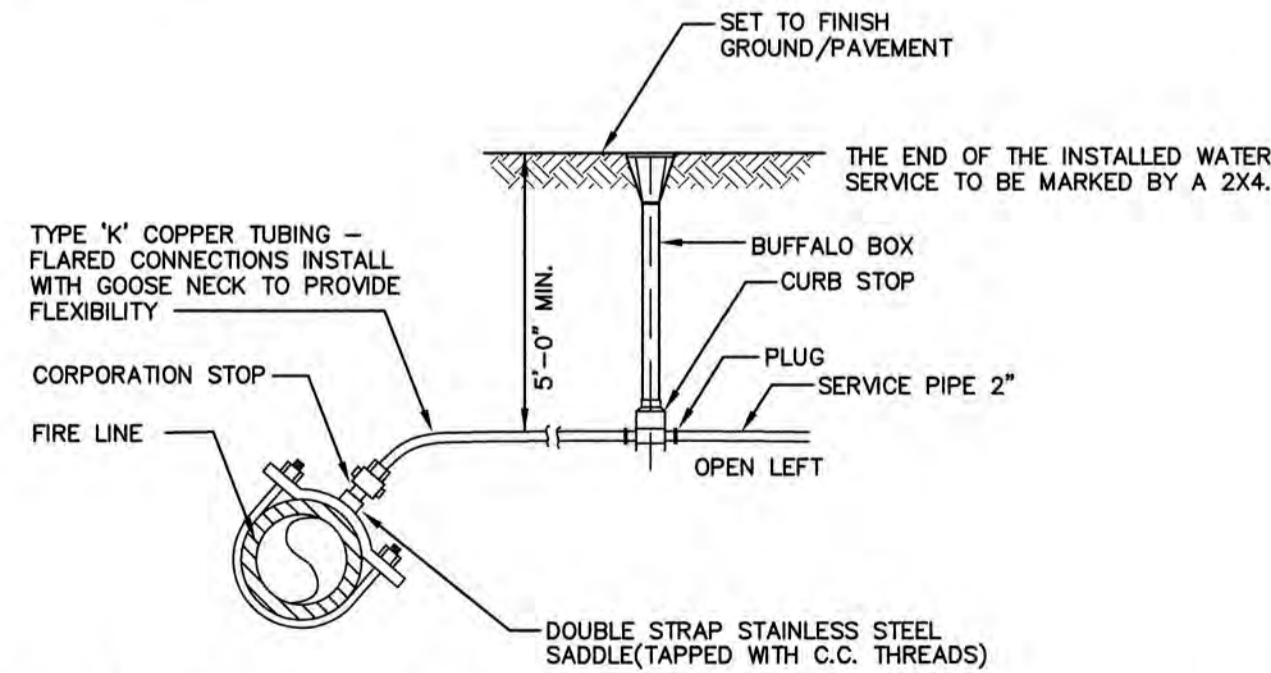
UTILITY TRENCH DETAIL

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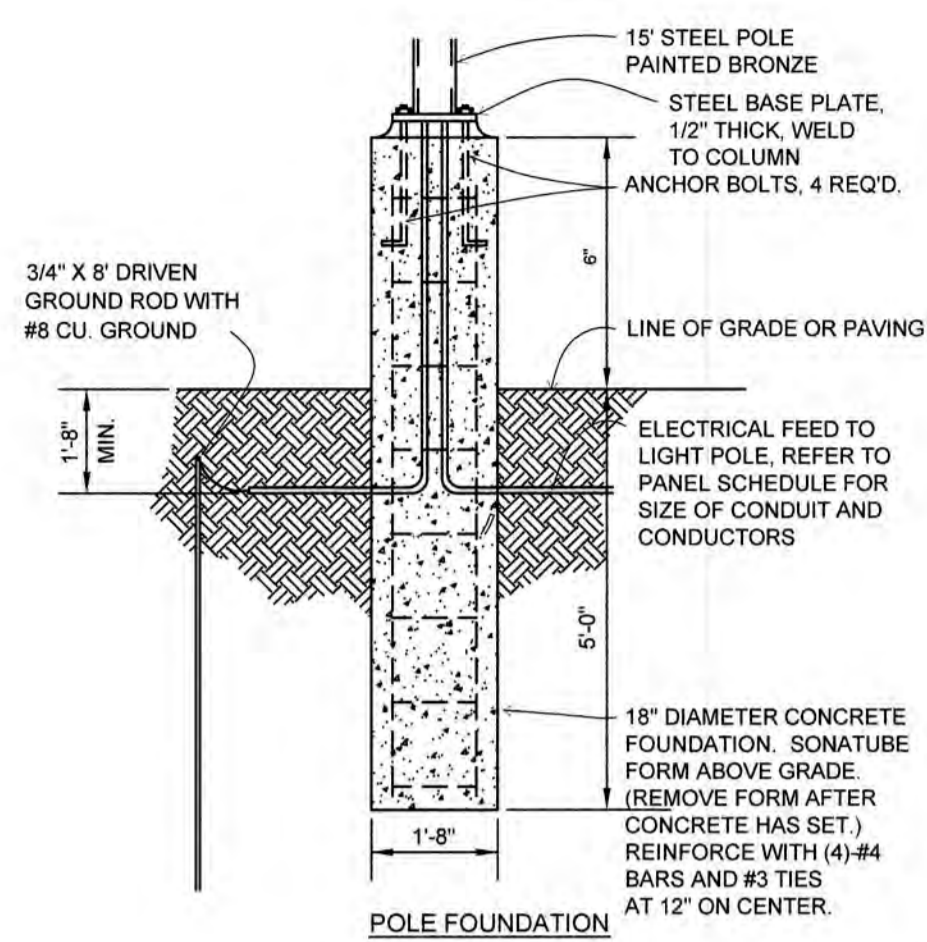
WATER LINE TRENCH DETAIL (RETAIL FIRE LINE)

NOT TO SCALE



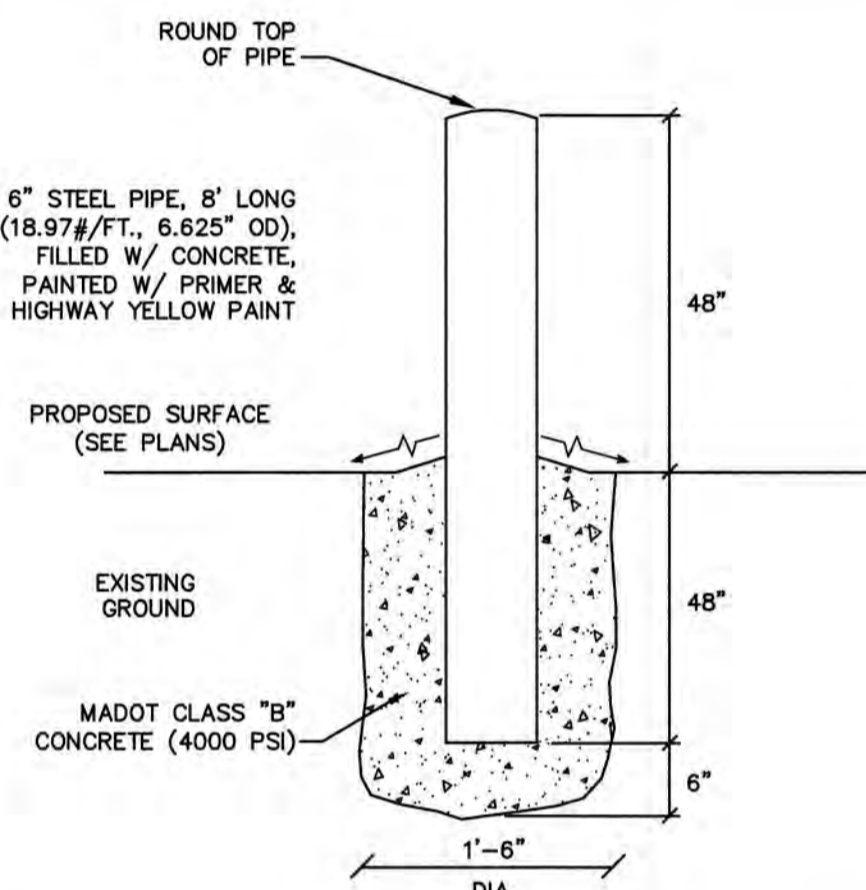
WATER SERVICE CONNECTION (DOMESTIC)

NOT TO SCALE



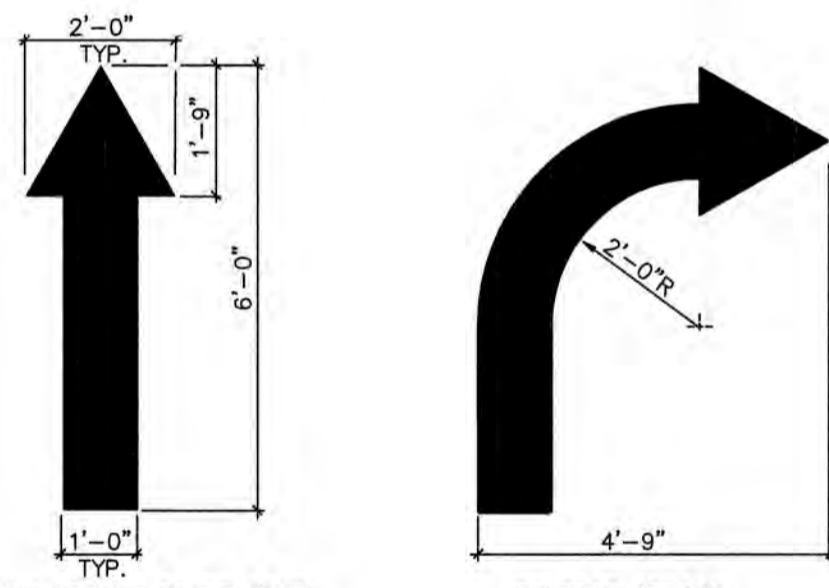
PARKING LOT LIGHTPOLE BASE

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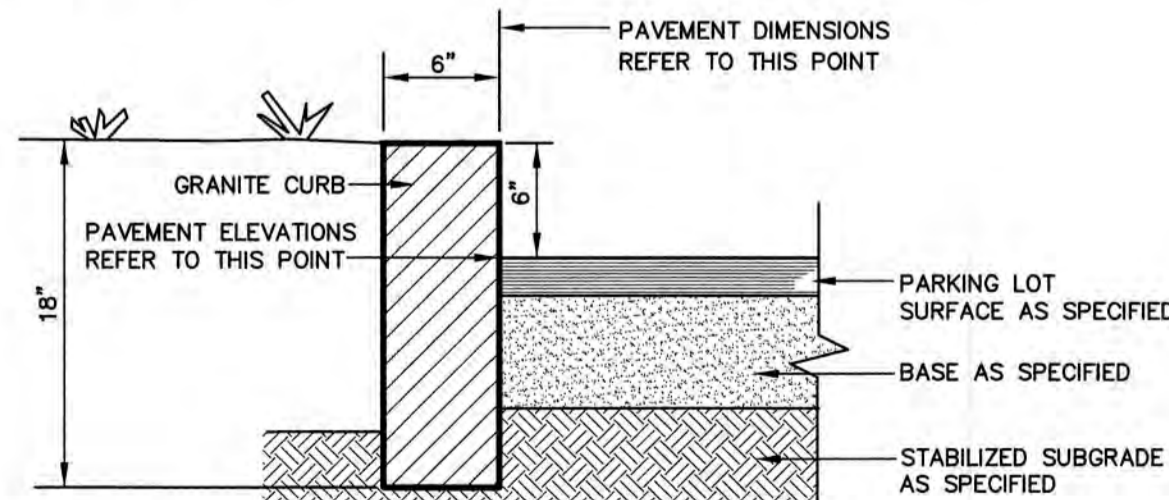
BOLLARD DETAIL

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PAINTED TRAFFIC ARROWS

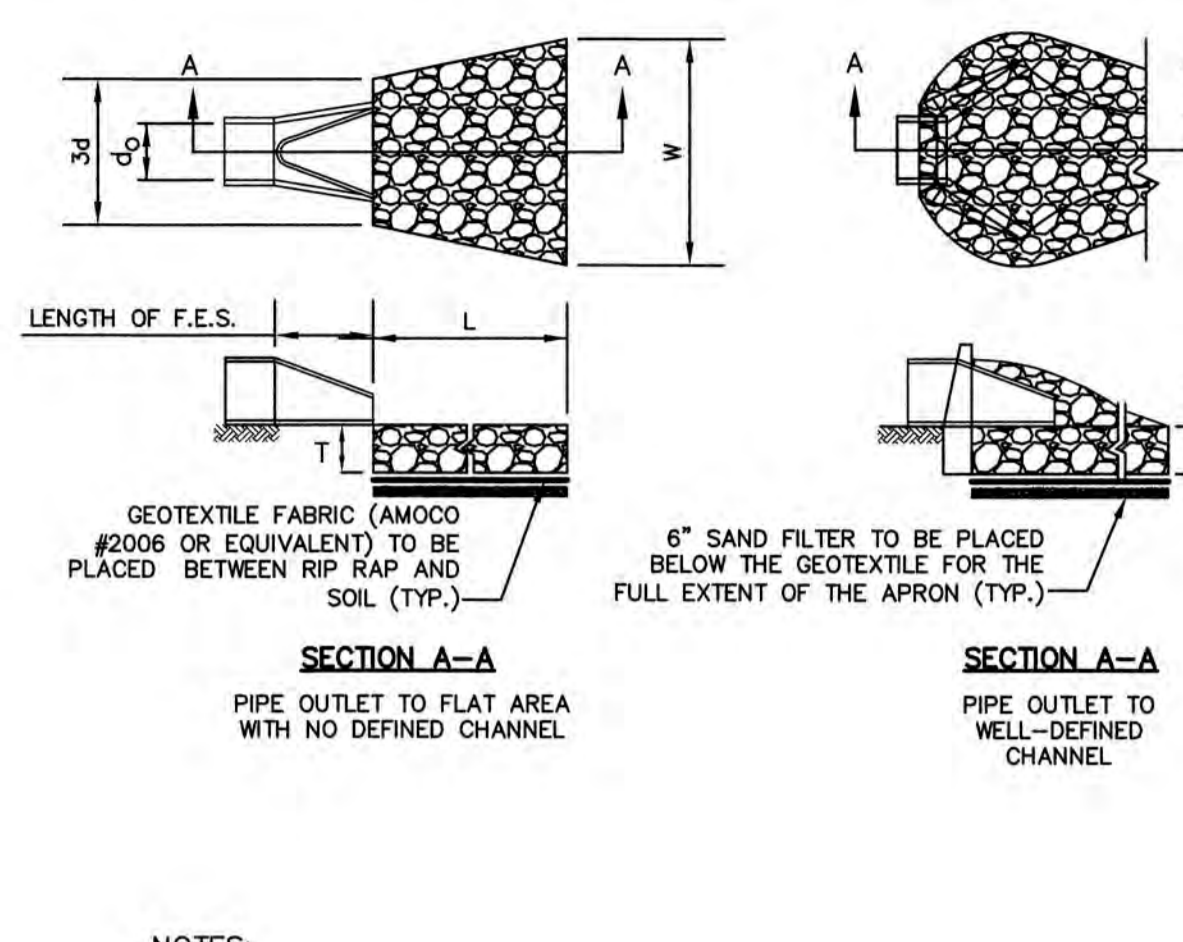
NOT TO SCALE



- NOTES:
1. JOINTS BETWEEN STONES SHALL BE MORTARED.
 2. EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.

VERTICAL GRANITE CURB

NOT TO SCALE

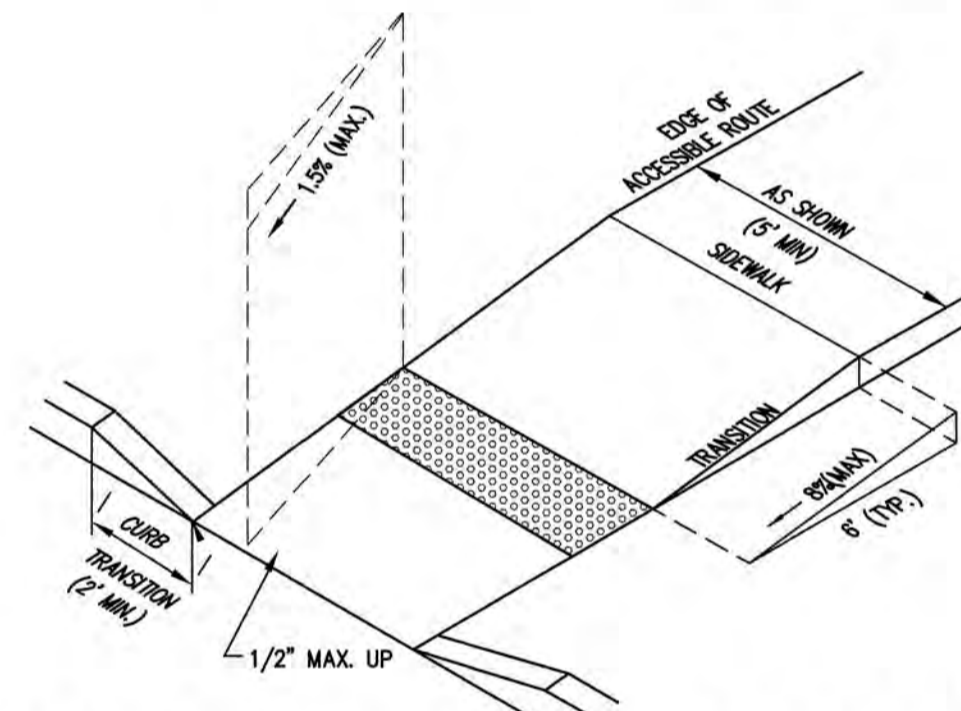


NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

RIP RAP OUTLET PROTECTION APRON

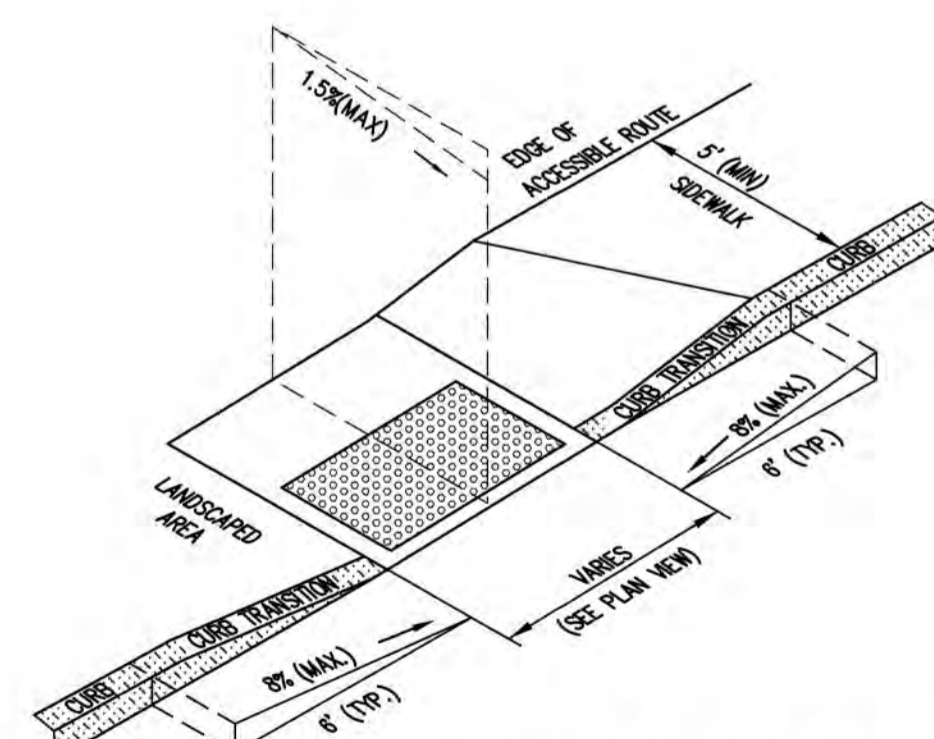
NOT TO SCALE



- NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
 2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
 3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
 4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
 5. CURB TREATMENT VARIES. SEE PLANS FOR CURB TYPE.
 6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
 7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.

ACCESSIBLE CURB RAMP (TYPE 'B')

NOT TO SCALE



- NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
 2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
 3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
 4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
 5. CURB TREATMENT VARIES. SEE PLANS FOR CURB TYPE.
 6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
 7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.

ACCESSIBLE CURB RAMP (TYPE 'I')

NOT TO SCALE

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES

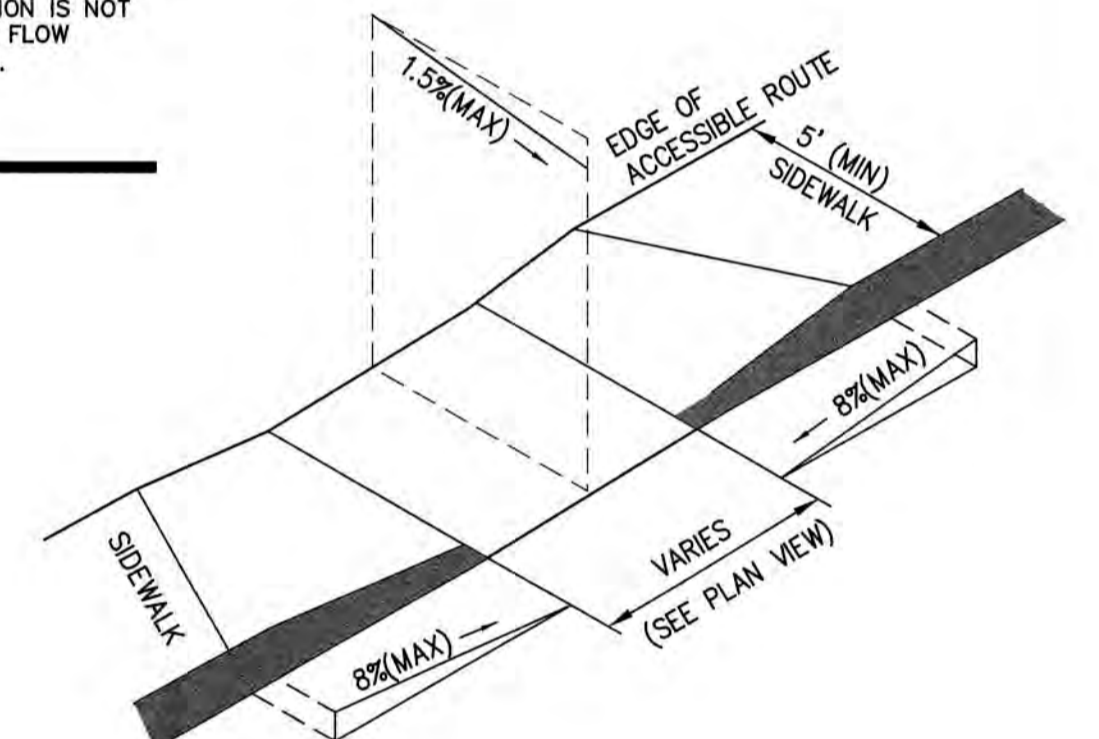
THICKNESS OF RIP RAP = 1.5 FEET

d50 SIZE=	FEET	6 INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	FROM	TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES

THICKNESS OF RIP RAP = 3.0 FEET

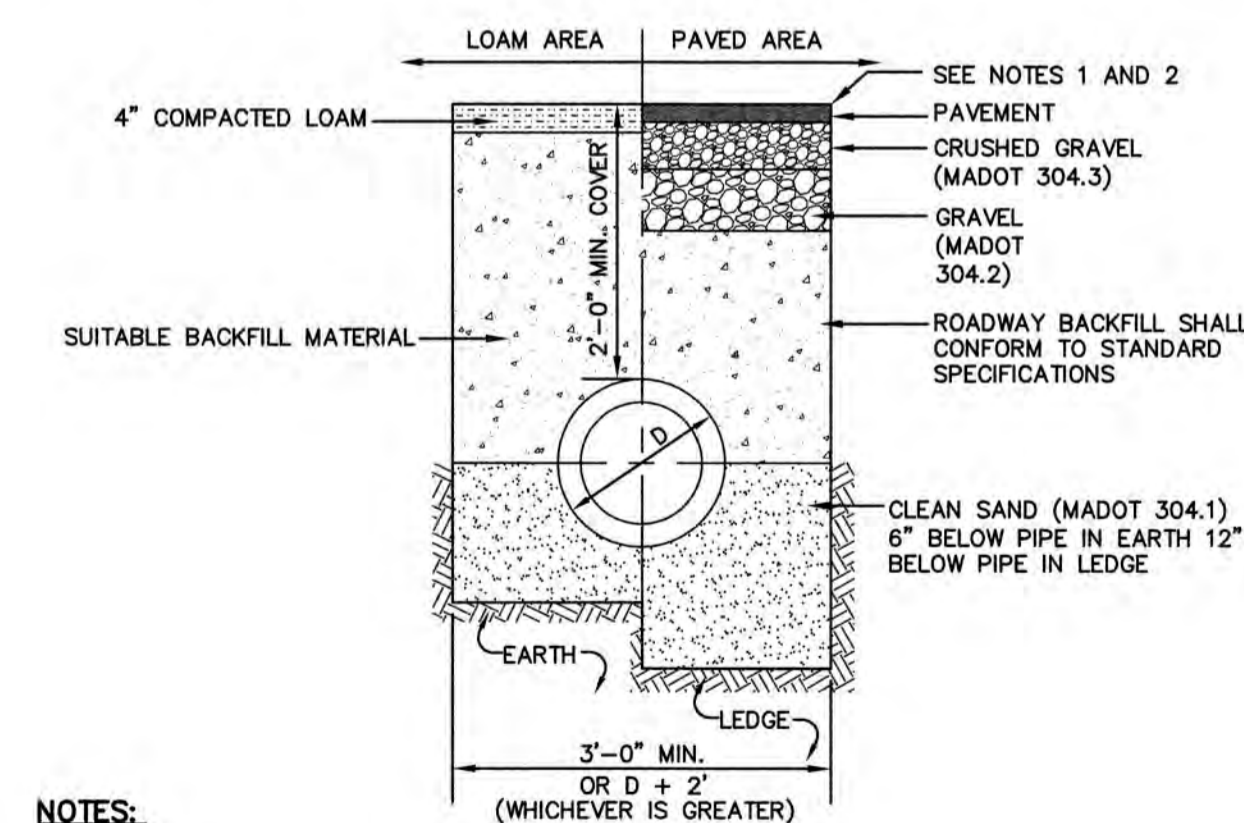
d50 SIZE=	FEET	12 INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	FROM	TO
100%	18	24
85%	16	22
50%	12	18
15%	4	6



- NOTES:
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
 2. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
 3. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE (SIDEWALK) CURB RAMPS SHALL BE 8%.
 4. A MINIMUM OF 4 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (i.e., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
 5. CURB TREATMENT VARIES. SEE PLANS FOR CURB TYPE.
 6. BASE OF RAMP SHALL BE GRADED TO PREVENT PONDING.
 7. SEE TYPICAL SECTION FOR RAMP CONSTRUCTION.

ACCESSIBLE CURB RAMP (TYPE 'A')

NOT TO SCALE



- NOTES:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
 2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
 3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

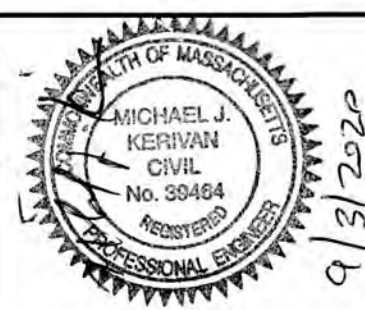
DRAINAGE TRENCH

NOT TO SCALE

F:\Land Projects\13153-FRANKLIN-300-EAST-CENTRAL-STREET-TOPSFIELD-ASSOCIATES\13153-PLAN.dwg 1/26/2017 9:04:12 AM EST

Design: WGM Draft: RMK Date: 05/06/20
 Checked: WGM Scale: AS NOTED Project No.: 13153
 Drawing Name: 13153-PLAN.dwg

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REV.	DATE	REVISION	BY
3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
2	08/19/20	REVISED PER REVIEW ENGINEER COMMENTS 2	EMP
1	07/31/20	REVISED PER REVIEW ENGINEER COMMENTS	EMP
0	05/06/20	ISSUED FOR REVIEW	EMP
		REVISION	

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

Civil Engineering Services

603-772-4746 FAX: 603-772-0227 E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **DETAIL SHEET**

Project: **PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA**

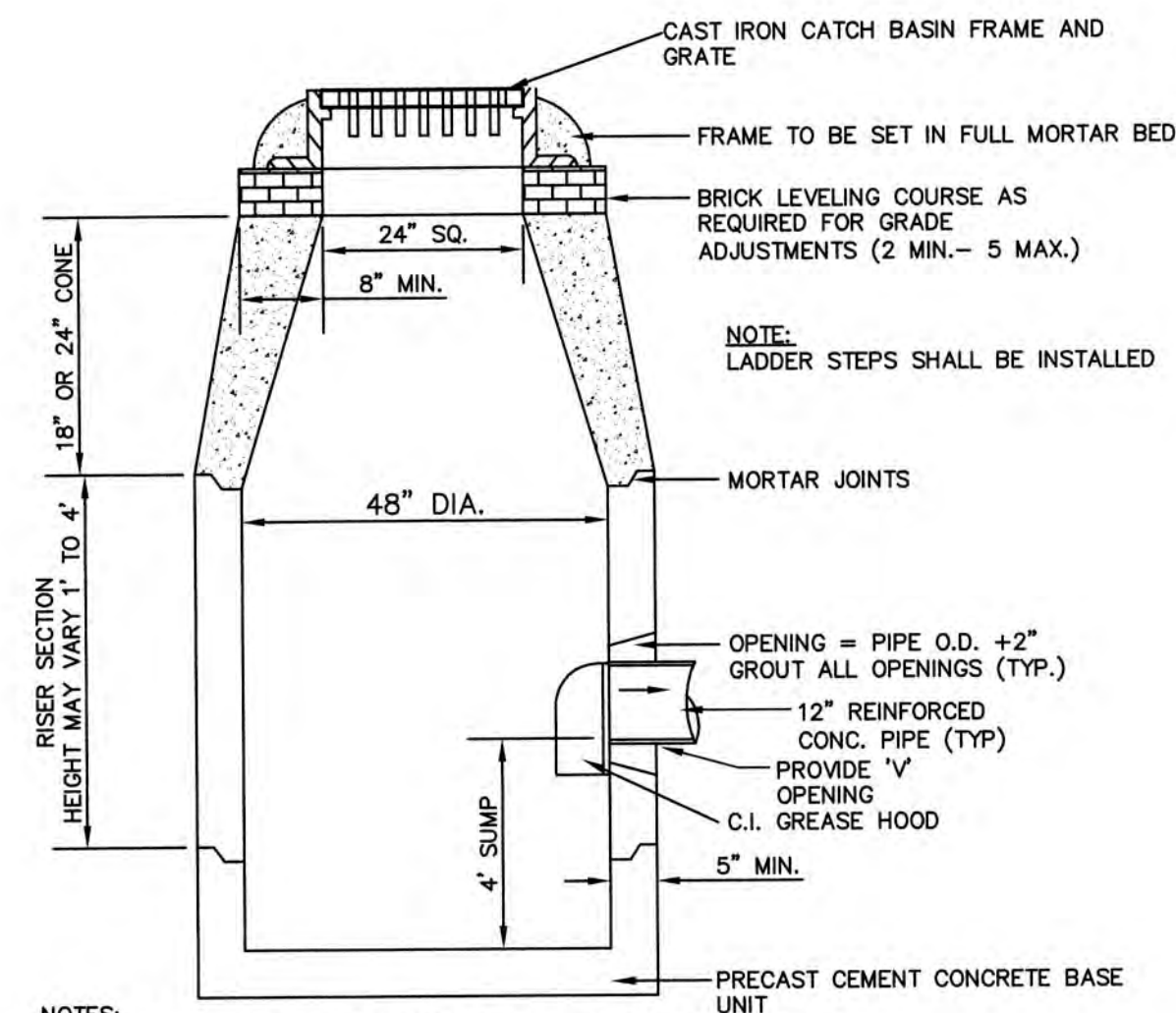
Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No. **D1**

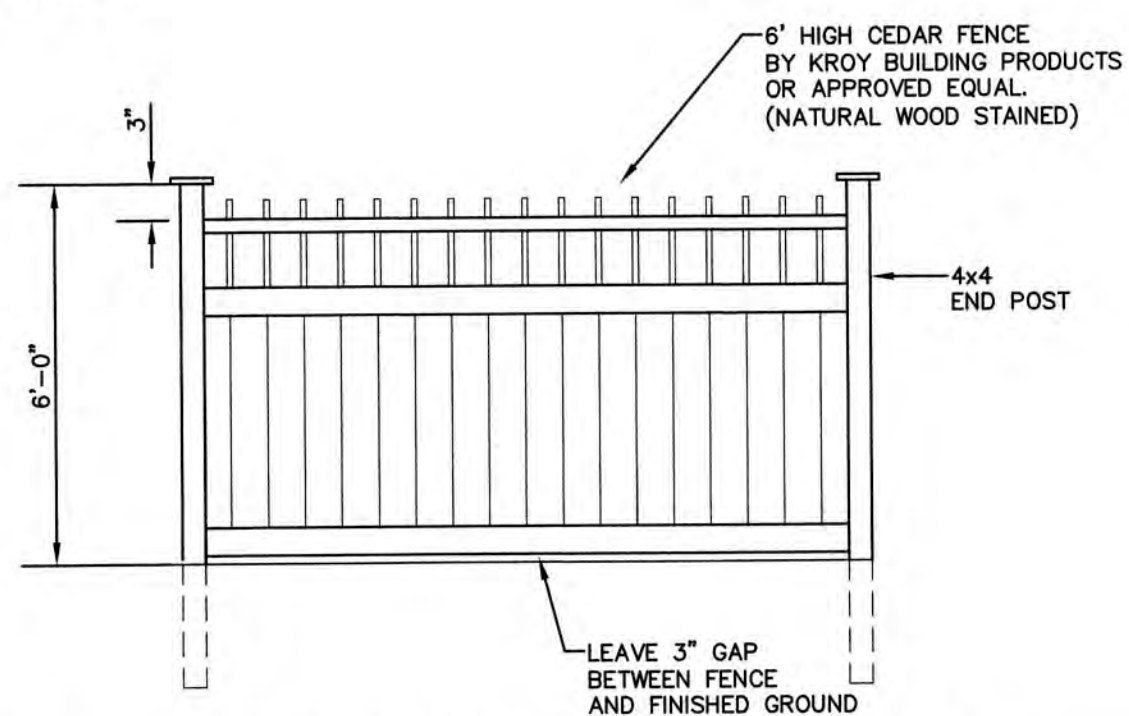
SHEET 10 OF 19
 JBE PROJECT NO. 13153

APPROVED - FRANKLIN, MA PLANNING BOARD

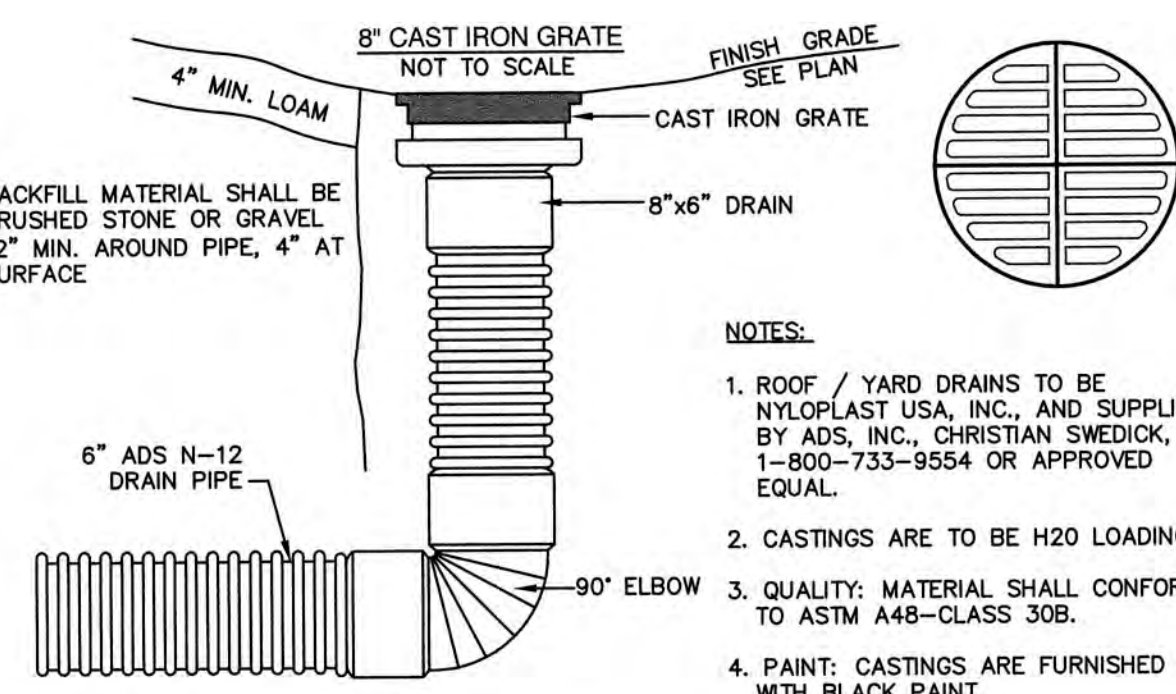
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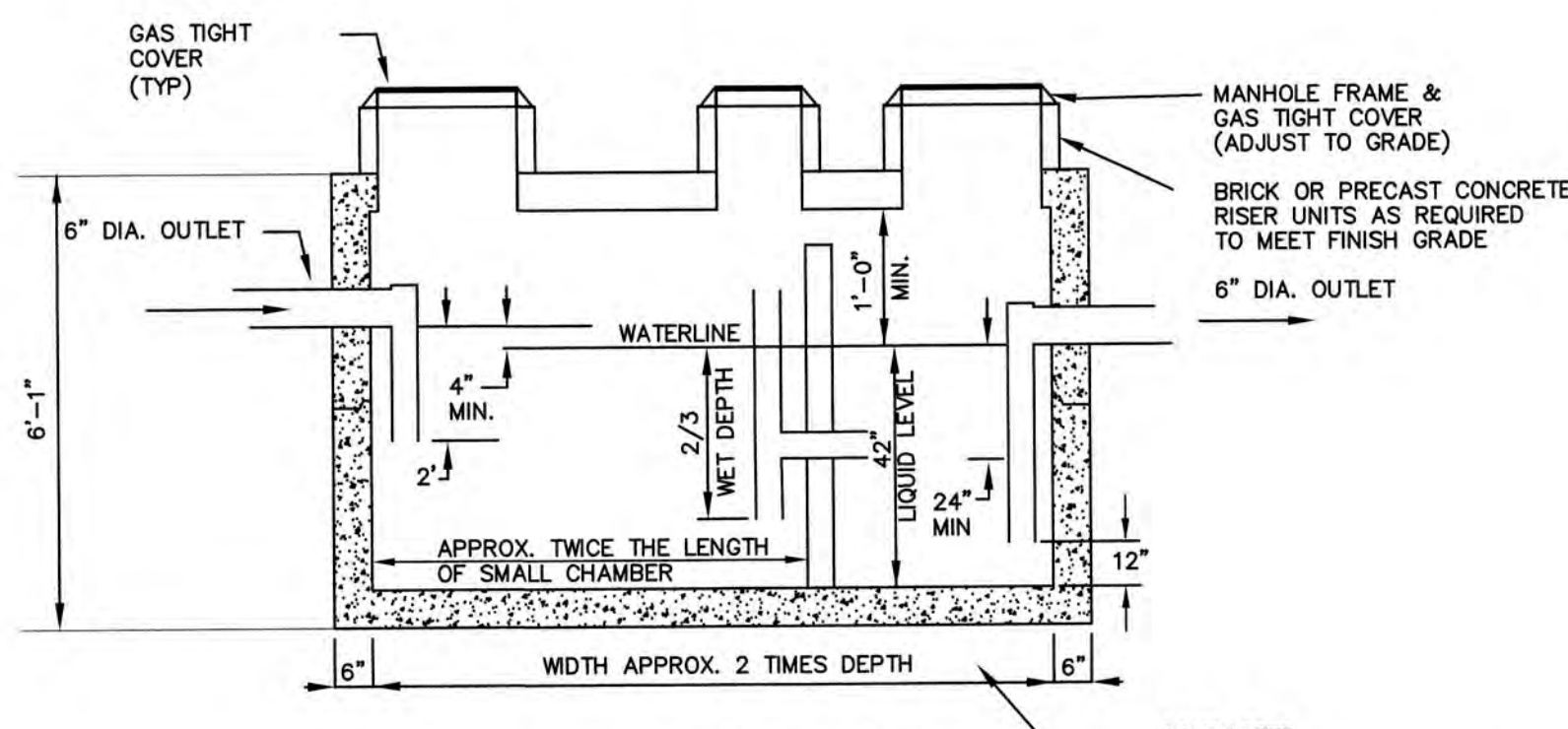
CATCH BASIN (MA)
NOT TO SCALE



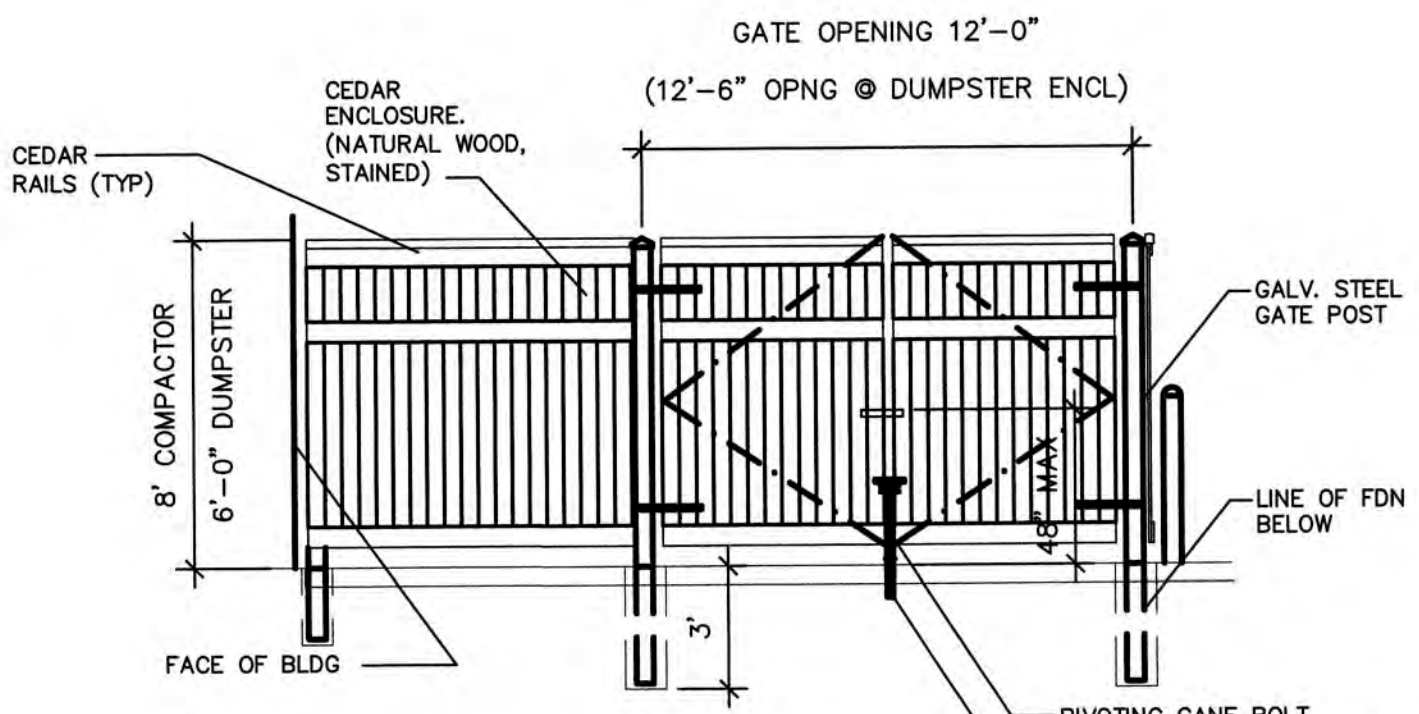
RETAINING WALL FENCE (OPEN BALUSTER TOP)
NOT TO SCALE



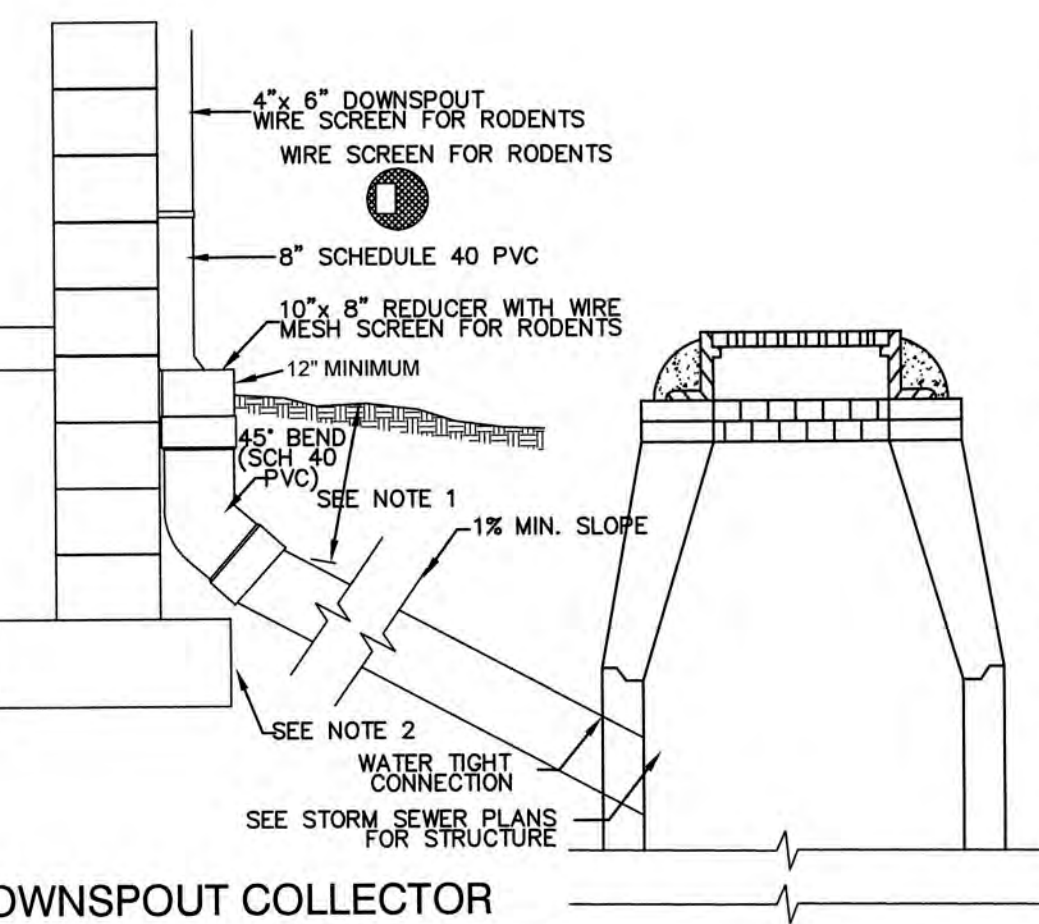
ADS N-12 YARD DRAIN
NOT TO SCALE



1,500 GALLON GREASE TRAP (H-20)
NOT TO SCALE

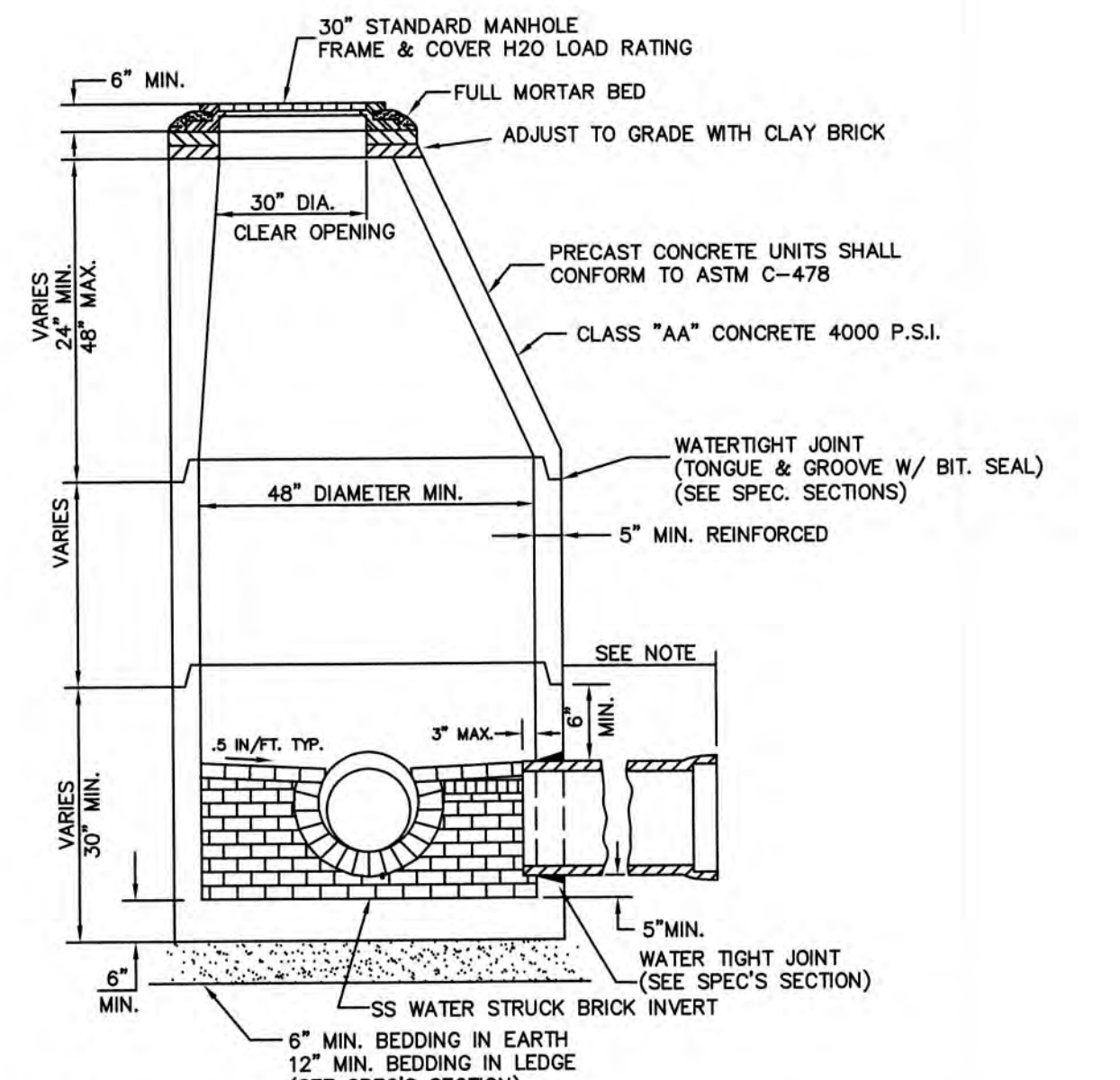


GATE ELEVATION
NOT TO SCALE

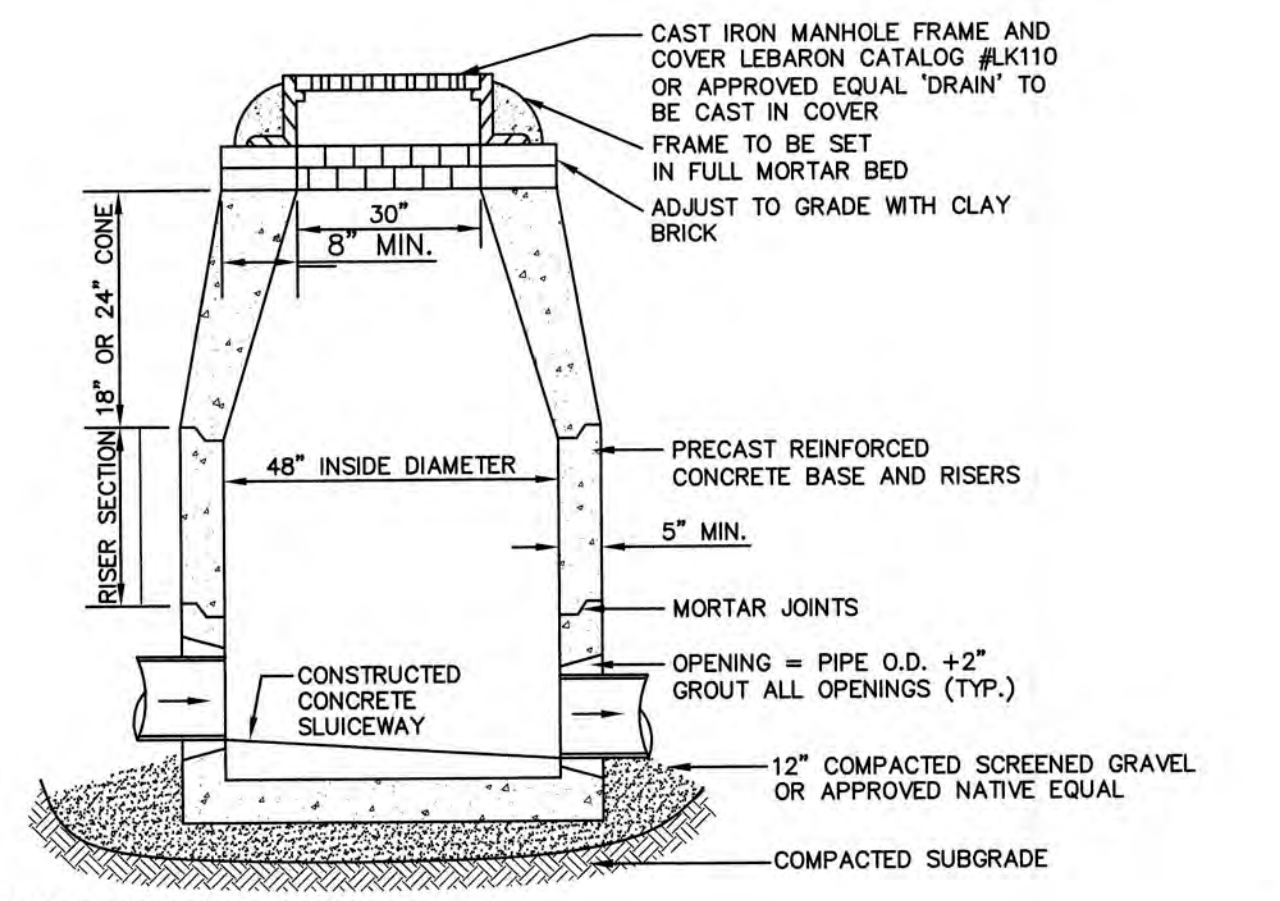


DOWNSPOUT COLLECTOR
NOT TO SCALE

- FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
- A WATER-TIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
- THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.



SEWER MANHOLE DETAIL
NOT TO SCALE



DRAIN MANHOLE (MA)
NOT TO SCALE

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE:

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Design: WGM	Draft: RMK	Date: 05/06/20
Checked: WGM	Scale: AS NOTED	Project No.: 13153
Drawing Name: 13153-PLAN.dwg		



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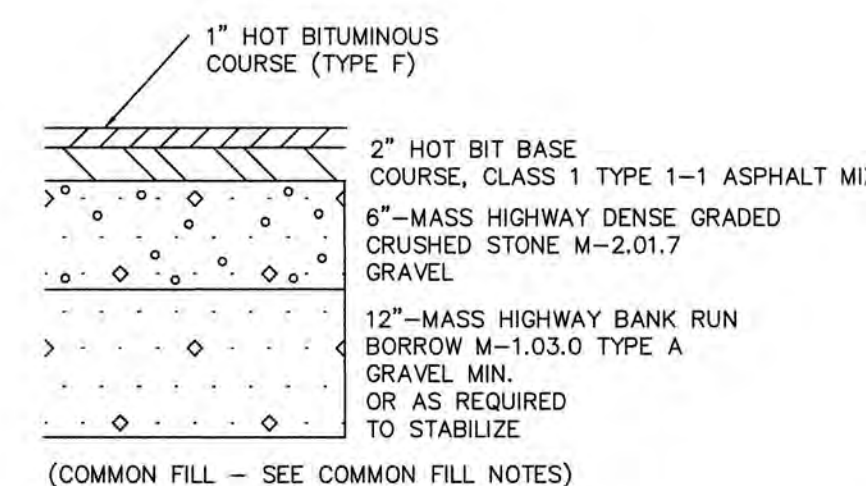
Plan Name:	DETAIL SHEET
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No.

D2

SHEET 11 OF 19
JBE PROJECT NO. 13153

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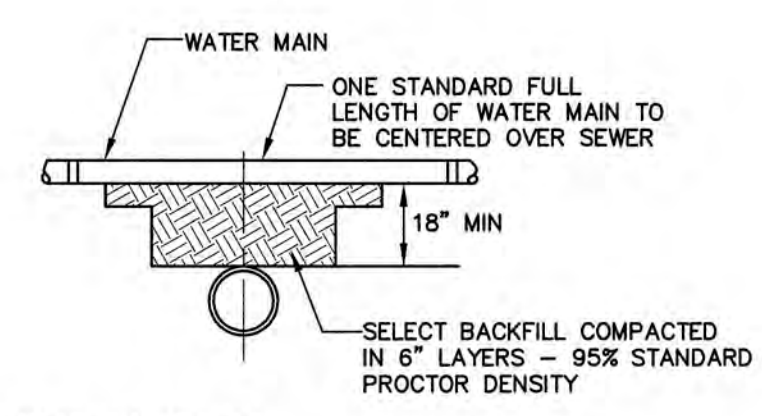


COMMON FILL	
SIEVE SIZE	PERCENT PASSING BY WEIGHT
6-INCH	100
3/4-INCH	60-100
No. 4	20-85
No. 200	0-25

- NOTES:**
- FOR USE AS COMMON/SUBGRADE FILL IN PARKING AREAS AND ROADWAY EMBANKMENTS.
 - FOR USE AS FOUNDATION WALL BACKFILL IF USED IN CONJUNCTION WITH A BOND BREAK AND SIZED/SCREENED TO 3-INCH MINUS.
 - PLACE IN LIFTS NOT EXCEEDING 12 INCHES.
 - MAXIMUM STONE SIZE SHOULD NOT EXCEED 1/2 THE ACTUAL LIFT THICKNESS.
 - COMPACT TO AT LEAST 92% RELATIVE COMPACTION PER ASTM D1557 WHEN PLACED AS SUBGRADE FILL IN PARKING AREAS OR ROADWAY EMBANKMENTS.
 - COMPACT TO AT LEAST 95% RELATIVE COMPACTION PER ASTM D1557 WHEN PLACED AS FOUNDATION WALL BACKFILL IN CONJUNCTION WITH A BOND BREAK.
 - COMPACT EFFORTS SHOULD BE VERIFIED BY FIELD DENSITY TESTING.
 - MATERIAL SECTION SHALL BE REVIEWED BY THE GEOTECHNICAL ENGINEER AND MATERIAL SECTION TO BE CONSTRUCTED PER THEIR RECOMMENDATIONS.

TYPICAL PAVEMENT SECTION

NOT TO SCALE

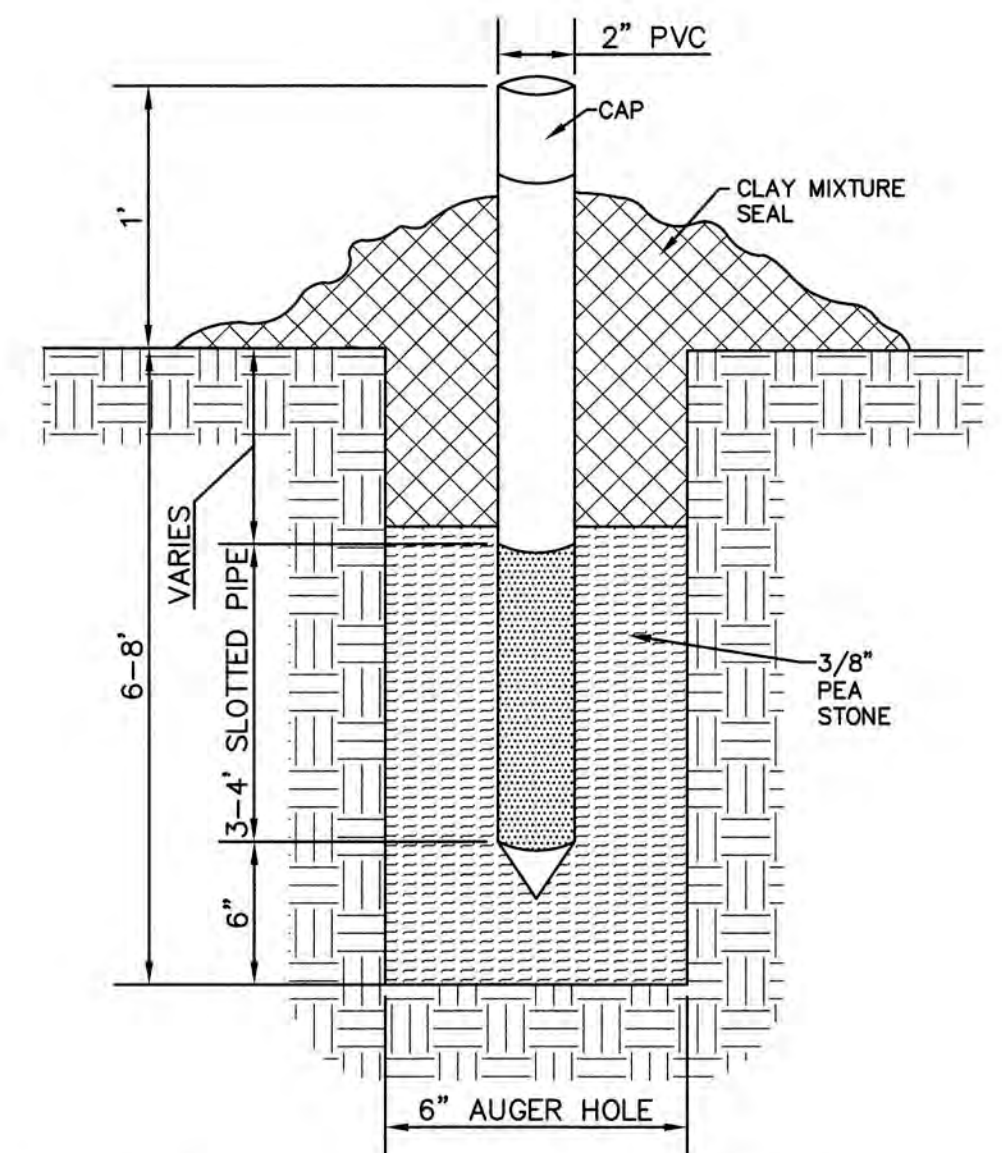


SEPARATION NOTES:

- WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWERS. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
- WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN PIPES. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER MAIN.

TYPICAL WATER / SEWER SEPARATION

NOT TO SCALE



SHALLOW MONITORING WELL DETAIL

NOT TO SCALE

McGraw-Edison

DESCRIPTION	Catalog #	Type
The Galleon™ Wall LED luminaire's appearance is complementary with the Galleon area and site luminaire bringing a modern architectural style to lighting applications. Flexible mounting options accommodate wall surfaces in both an upward and downward configuration. The Galleon family of LED products deliver exceptional performance with patented, high-efficiency AccuLED Optics™, providing uniform and energy conscious lighting for parking lots, building and security lighting applications.		

DESCRIPTION
The Galleon™ Wall LED luminaire's appearance is complementary with the Galleon area and site luminaire bringing a modern architectural style to lighting applications. Flexible mounting options accommodate wall surfaces in both an upward and downward configuration. The Galleon family of LED products deliver exceptional performance with patented, high-efficiency AccuLED Optics™, providing uniform and energy conscious lighting for parking lots, building and security lighting applications.

CONSTRUCTION
Driver enclosure thermally isolated from optics for optimal thermal performance. Heavy wall aluminum housing die-cast with integral external heat sink to provide superior structural rigidity and an IP68 rated housing. Overall construction passes a 15g vibration test to ensure mechanical integrity. LPLIGHTING. Specify with the LPL option for inverted mount upright housing with additional protections to maintain IP rating.

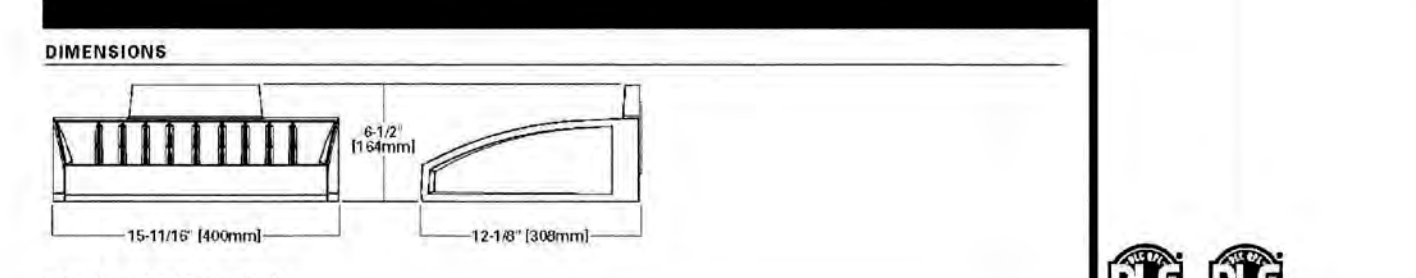
Optics
Choice of thirteen patented, high-efficiency AccuLED Optics. The optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K, 5000K and 6000K CCT. Greater than 90%.

Electrical
LED drivers are mounted for ease of maintenance. 120-277V 50/60Hz, 347V or 480V 60Hz operation. 480V Wye systems only. Drivers are provided standard with 0-10V dimming. An optional Eaton proprietary surge protection module is available and designed to withstand 10kV of transient line surge. The Galleon Wall LED luminaire is suitable for operation in -40°C to 42°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Emergency egress options for -20°C ambient environments and occupancy sensor available.

Mounting
Gasketed and zinc plated rigid mounting attachment fits directly to 4" boxes or wall with the Galleon Wall "Hook-N-Lock" mechanism for quick installation. Secured with two captive corrosion resistant black oxide coated allen head set screws which are concealed but accessible from bottom of fixture.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.

Warranty
Five-year warranty.



BATTERY BACKUP AND THRU-BRANCH BACK BOX

McGraw-Edison

DESCRIPTION	Catalog #	Type
The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP68 rated and UL/ULC Listed for wet locations.		

CONSTRUCTION
Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum and cage enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested and rated. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP68 rated.

Optics
Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT to 70 CRI. Optional 3000K, 5000K and 6000K CCT.

Electrical
LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 50Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with Eaton proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 42°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP68 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 800mA, 800mA and 1200mA drive currents (nominal).

Mounting
STANDARD ARM MOUNT: Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during mounting. When mounting two or more luminaires at 30° and 120° apart, the EA extended arm may be required. Refer to the arm mounting requirement table. Round pole adapter included. For wall mounting, specify wall mount bracket option. QUICK MOUNT ARM: Adapter is bolted directly to the pole. Quick mount arm slide into place on the adapter and is secured via two screws, facilitating quick and easy installation. The versatile, patent pending, quick mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the quick mount arm enables wiring of the fixture without having to access the driver compartment. A knock-out enables round pole mounting.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty
Five-year warranty.



CERTIFICATION DATA
UL/ULC Wet Location Listed
IMPS I/Mark Compliant
RHS Compliant
ADA Compliant
NEMA Compliant Models
IP68 Ingress Protection Rated
T56-24 Compliant
DesignLights Consortium® Qualified*

ENERGY DATA
Electronics LED Driver
100/120V
-20% Total Harmonic Distortion
120/277V 50/60Hz
347V & 480V 60Hz
40°C Max. Temperature
60°C Max. Temperature
50°C Max. Temperature (9A Option)

DRILLING PATTERN

TYPE "M"
1-1/2" (38mm) Diameter Holes
1-3/8" (35mm) Diameter Holes
1-1/2" (38mm) Diameter Holes

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° or a single pole. 2. EPA calculated with outdoor ambient.

Lumark

DESCRIPTION	Catalog #	Type
The patented Lumark Crosstour™ LED Wall Pack Series of luminaires provides an architectural style with super bright, energy efficient LEDs. The low-profile, rugged die-cast aluminum construction, universal back box, stainless steel hardware along with a sealed and gasketed optical compartment make the Crosstour impervious to contaminants. The Crosstour wall luminaire is ideal for wall surface, inverted mount for facade/awning illumination, post/bollard, site lighting, floodlight and low level pathway illumination including stairs. Typical applications include building entrances, multi-use facilities, apartment buildings, institutions, schools, stairways and loading docks etc.		

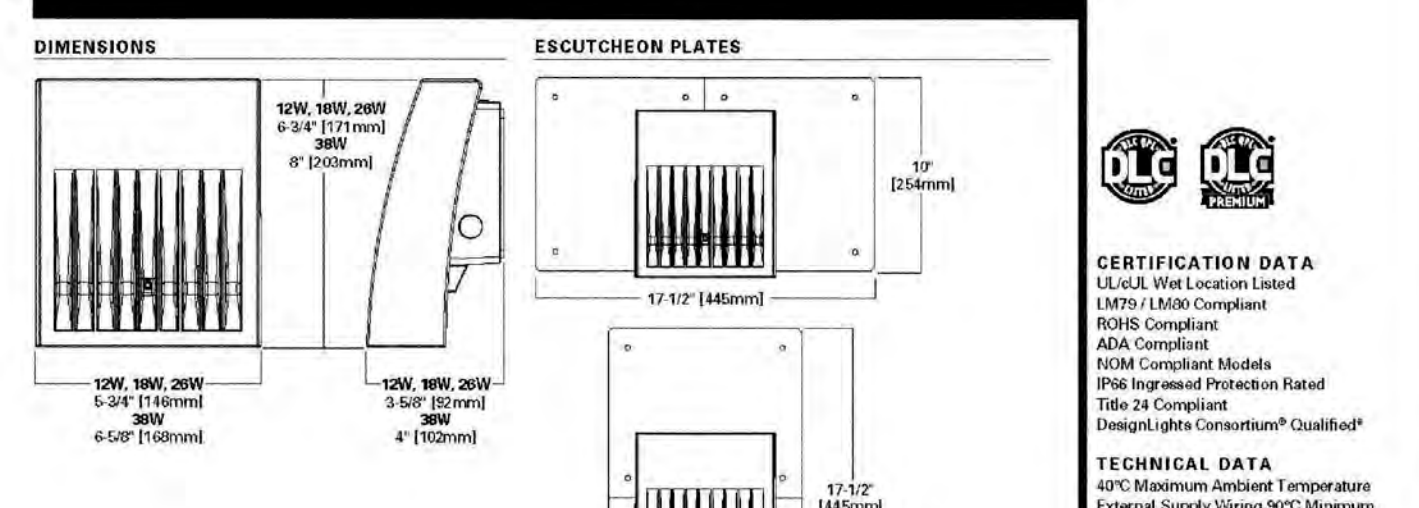
CONSTRUCTION
Slim, low-profile LED design with rugged one-piece, die-cast aluminum hinged removable door and back box. Matching housing style incorporates both a small and medium design. The small housing is available in 12W, 18W and 29W. The medium housing is available in the 38W model. Patented secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes three half-inch, NPT threaded entry points. The universal back box supports both the small and medium forms and mounts to standard 3-1/2" to 4" round and octagonal, 4" square, single gang and masonry junction boxes. Key hole gasket allows for adaptation to junction box or wall. External IP design extracts heat from the fixture surfaces. One-piece silicone gasket seal door and back box. Minimum 6" wide pole for site lighting application. Not recommended for car wash applications.

Optical
Silicone sealed optical LED chamber incorporates a custom engineered mirrored anodized reflector providing high-efficiency illumination. Optical assembly includes impact-resistant tempered glass and meets IESNA requirements for full cutoff compliance. Available in seven lumen packages: 5000K, 4000K and 3000K CCT.

Electrical
LED driver is mounted to the die-cast housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 12W, 18W, 29W and 38W series operate in -40°C to 40°C ambient temperature. High ambient 50°C models available. Crosstour luminaires maintain greater than 80% of initial light output after 72,000 hours of operation. Three half-inch NPT threaded conduit entry points allow for three branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz or 347V 50Hz models.

Finish
Crosstour is protected with a Super durable TGIC carbon bronze or summit white polyester powder coat paint. Super durable TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed fixture.

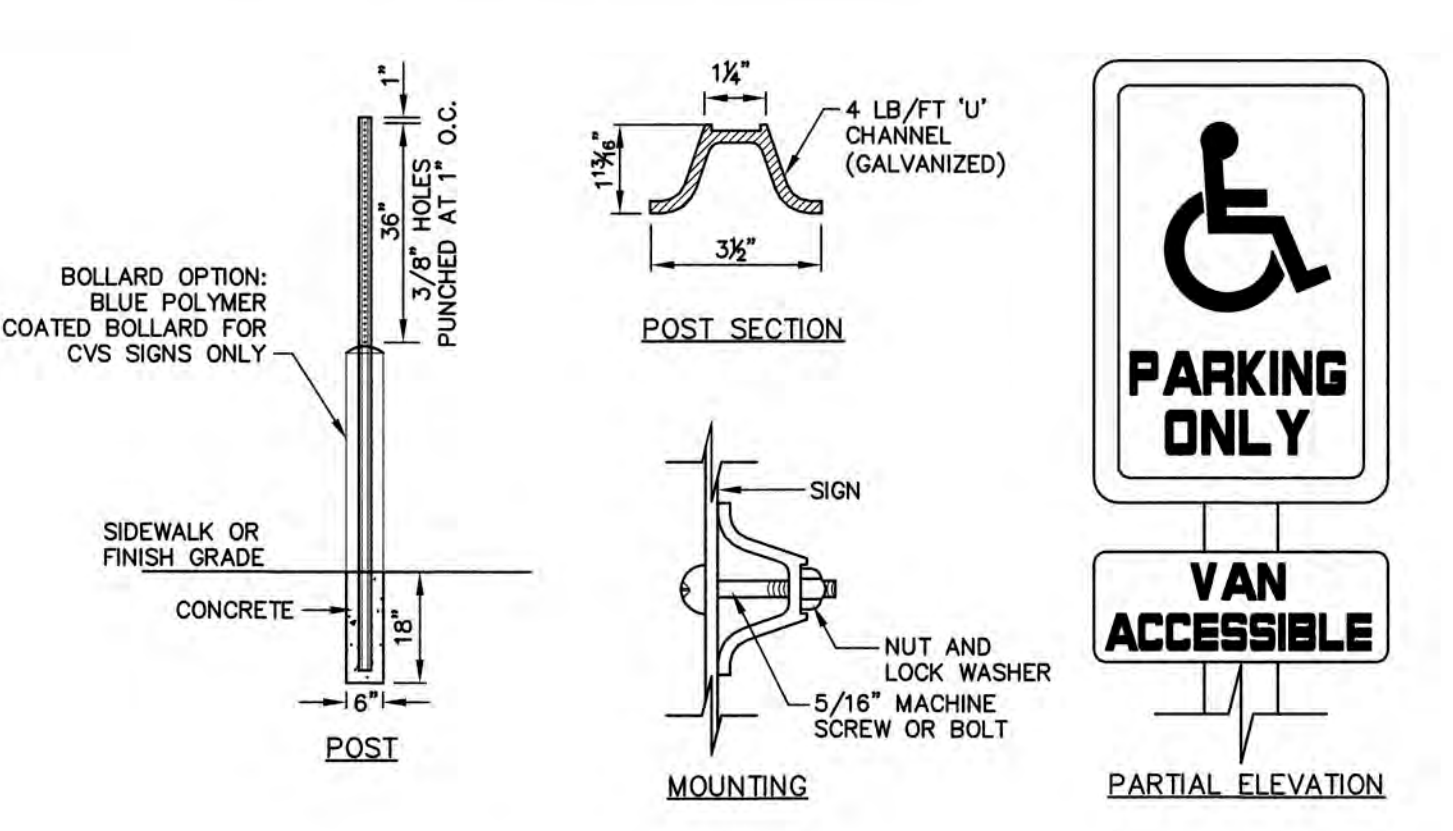
Warranty
Five-year warranty.



CERTIFICATION DATA
UL/ULC Listed
IMPS I/Mark Compliant
RHS Compliant
ADA Compliant
NEMA Compliant Models
IP68 Ingress Protection Rated
T56-24 Compliant
DesignLights Consortium® Qualified*

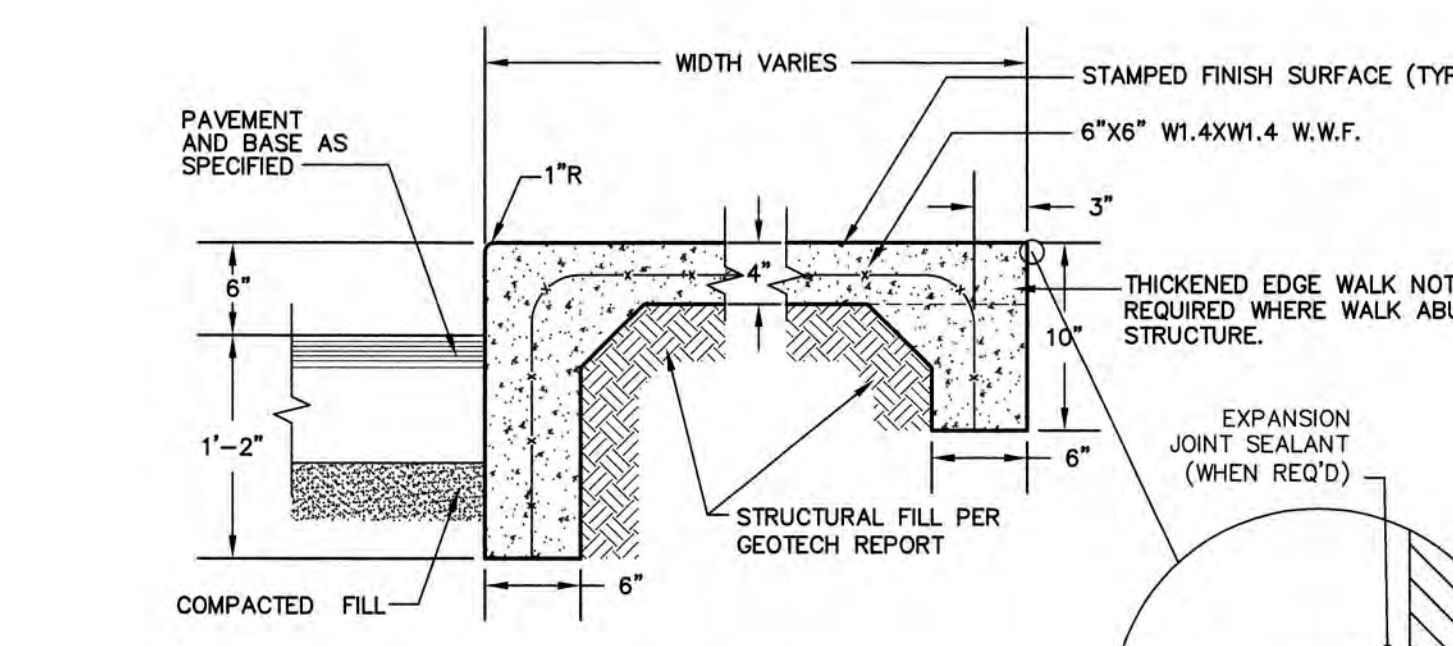
ENERGY DATA
Electronics LED Driver
100/120V
-20% Total Harmonic Distortion
120/277V 50/60Hz
347V & 480V 60Hz
40°C Max. Temperature
60°C Max. Temperature (H/A Option)

SHIPPING DATA
Approximate Net Weight
27 lbs. (12.2 kgs.)



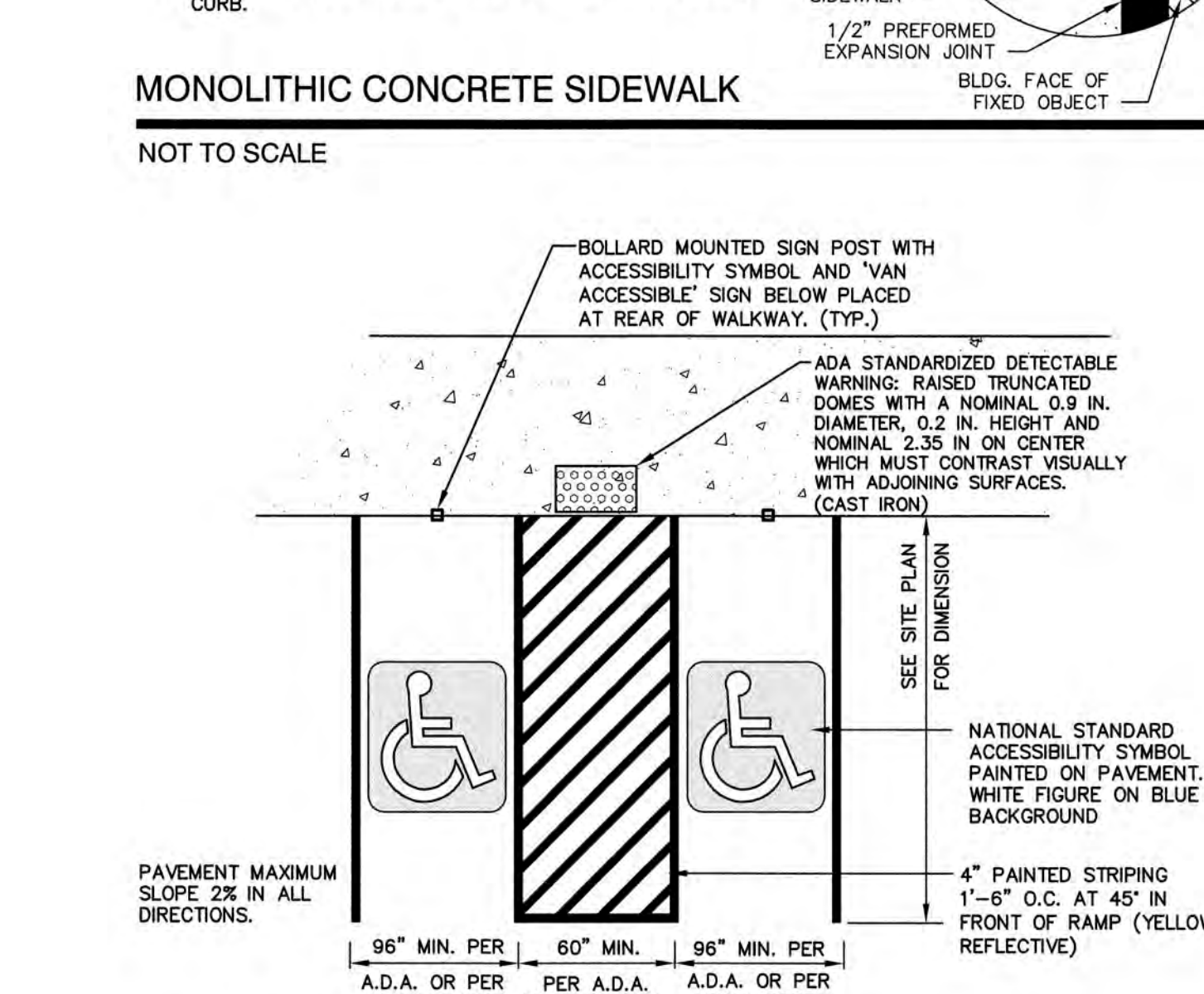
HANDICAP SIGN DETAILS

NOT TO SCALE



MONOLITHIC CONCRETE SIDEWALK

NOT TO SCALE



HANDICAP PARKING LAYOUT

NOT TO SCALE

APPROVED - FRANKLIN, MA PLANNING BOARD

DATE: _____

Design: WGM Draft: RMK Date: 05/06/20
Checked: WGM Scale: AS NOTED Project No.: 13153
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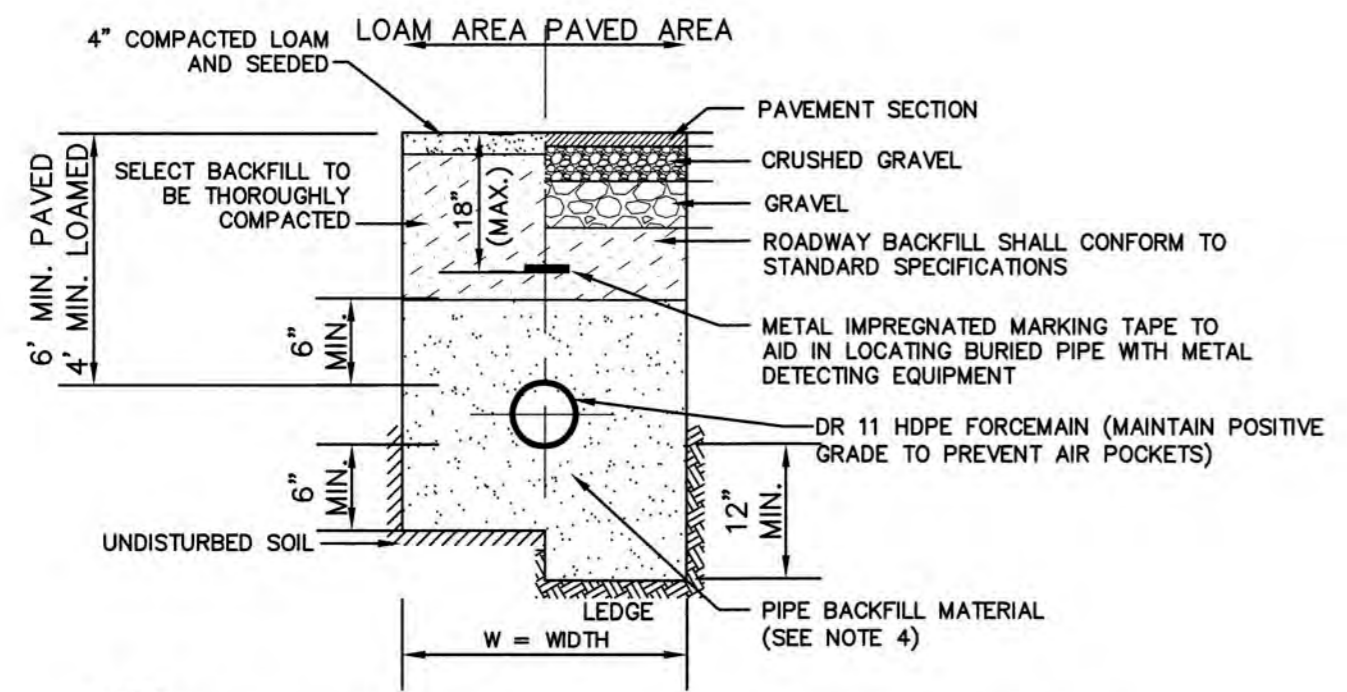
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Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

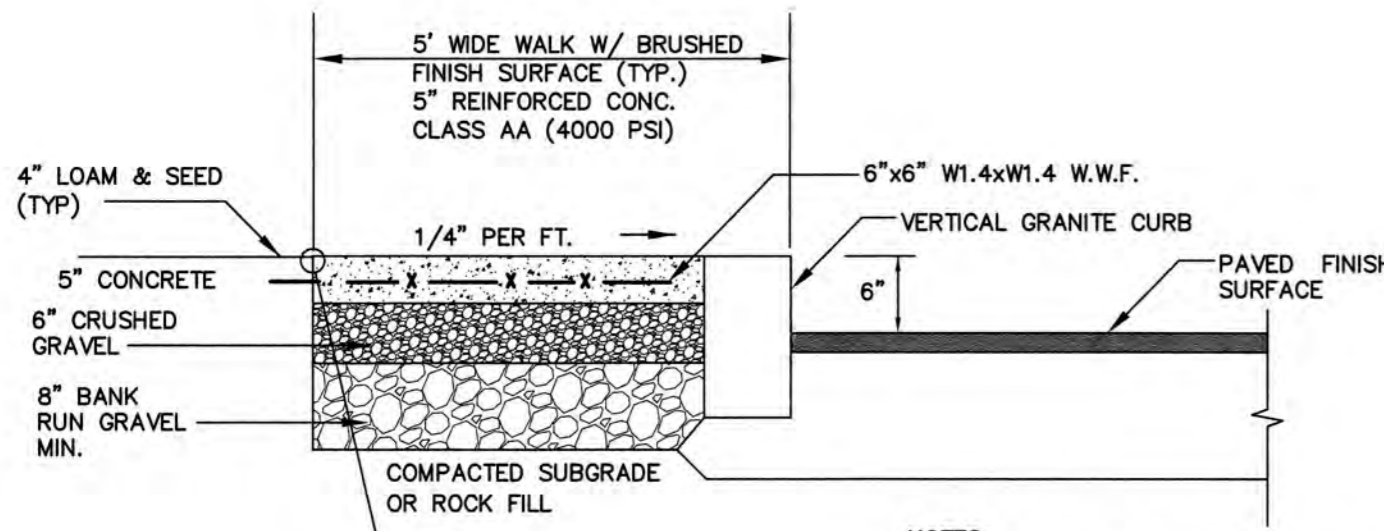
DRAWING NO. **D3**

SHEET 12 OF 19
JBE PROJECT NO. 13153



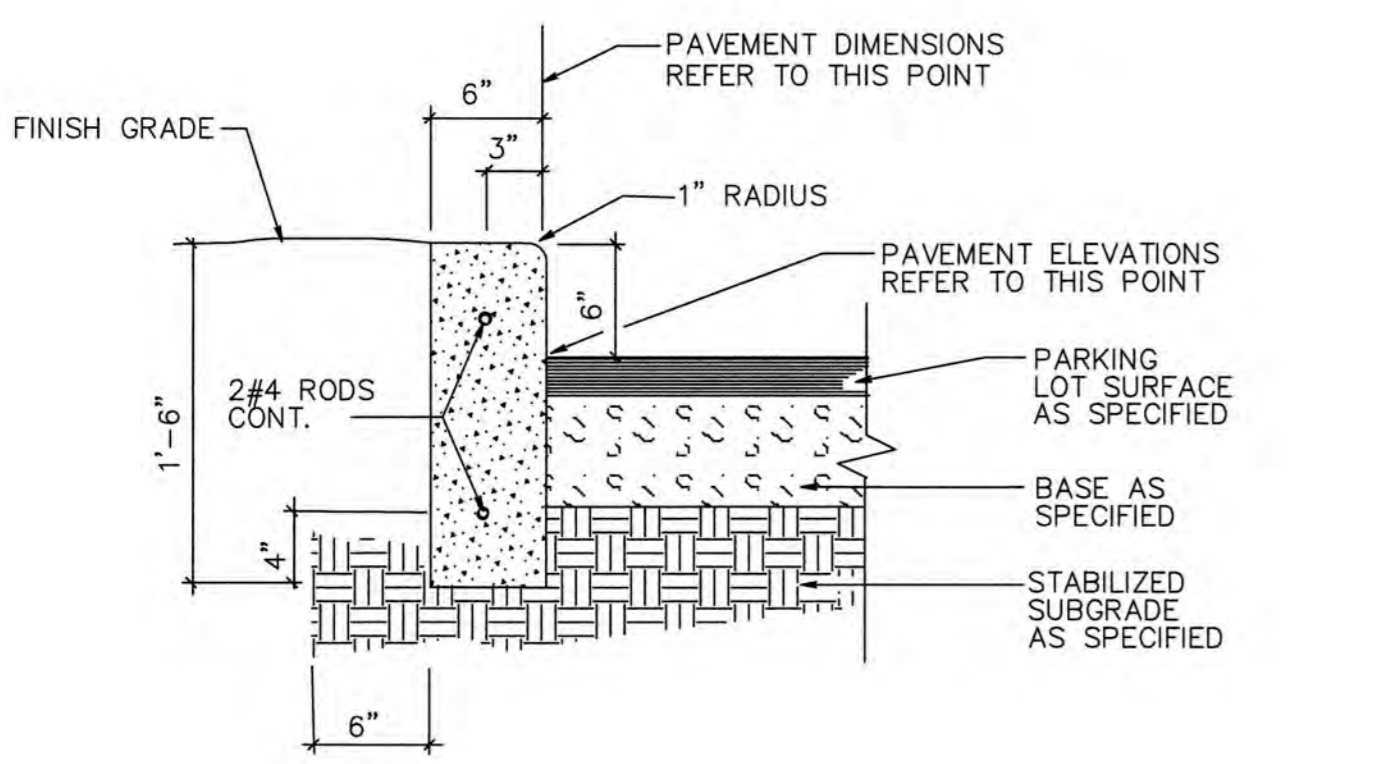
- NOTES:**
- PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
 - NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
 - W=MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12" INCHES ABOVE THE PIPE. W SHALL BE NO MORE THAN 36"
 - SAND BEDDING AND BLANKET SHALL BE CLEAN SAND FREE FROM ORGANIC MATTER, SO GRADED THAT 90-100% PASSES A 1/2" INCH SIEVE AND NO MORE THAN 15% WILL PASS A #200 SIEVE.

FORCE MAIN SEWER TRENCH
NOT TO SCALE



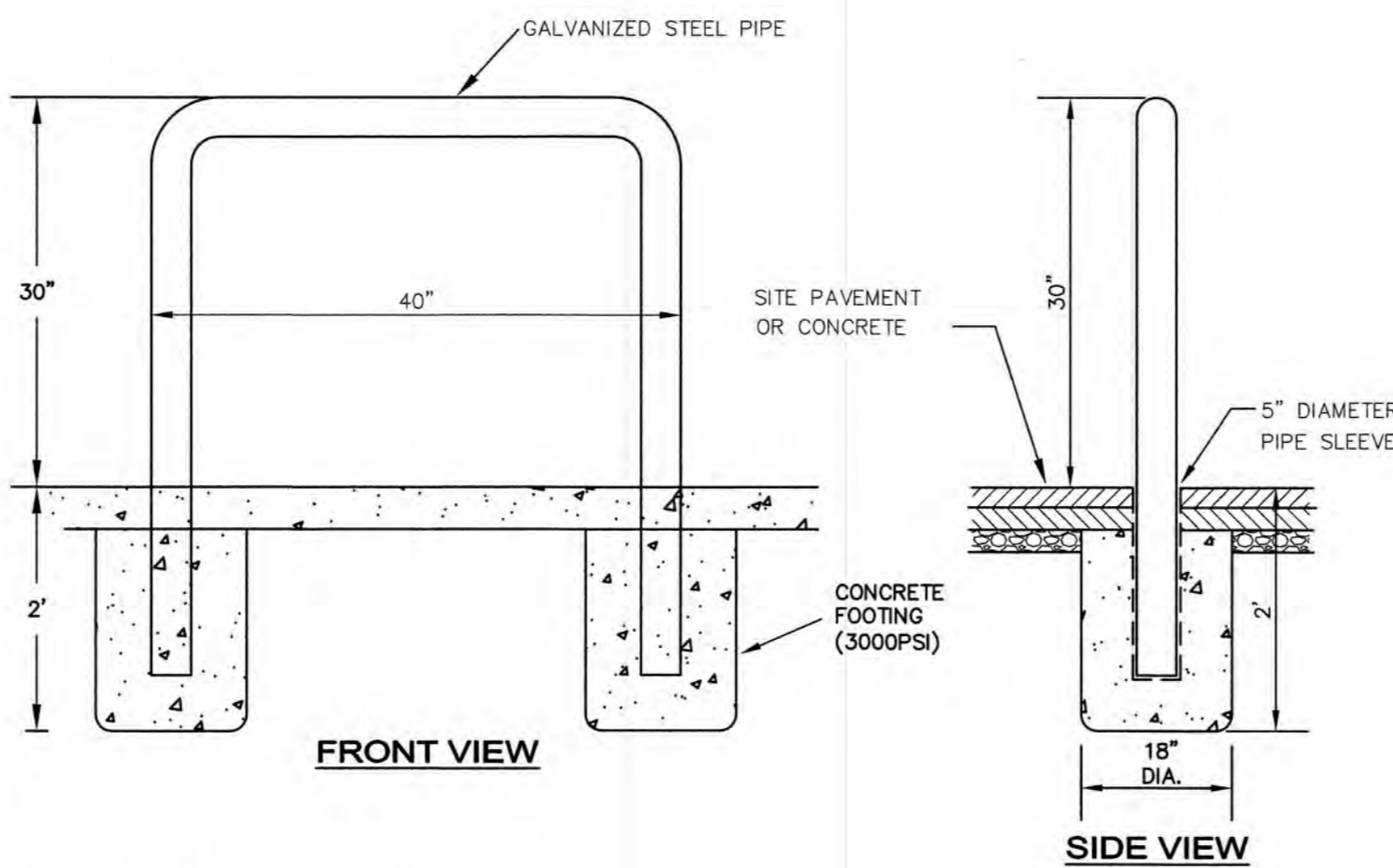
- NOTES:**
- CONCRETE TO BE 4000 PSI.
 - CONTRACTION JOINTS SPACE TO BE EQUAL TO SIDEWALK WIDTH.
 - ALL JOINTS SEALED PER SPECIFICATIONS.
 - PROVIDE A 1/2" NON-EXTRUDING EXPANSION JOINT AGAINST STRUCTURE AND EVERY 16' ALONG SIDEWALK.
 - PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
 - MATERIAL SECTION SHALL BE REVIEWED BY THE GEOTECHNICAL ENGINEER AND MATERIAL SECTION TO BE CONSTRUCTED PER THEIR RECOMMENDATIONS.

CONCRETE SIDEWALK W/ VERTICAL GRANITE CURB (ROADWAY)
NOT TO SCALE

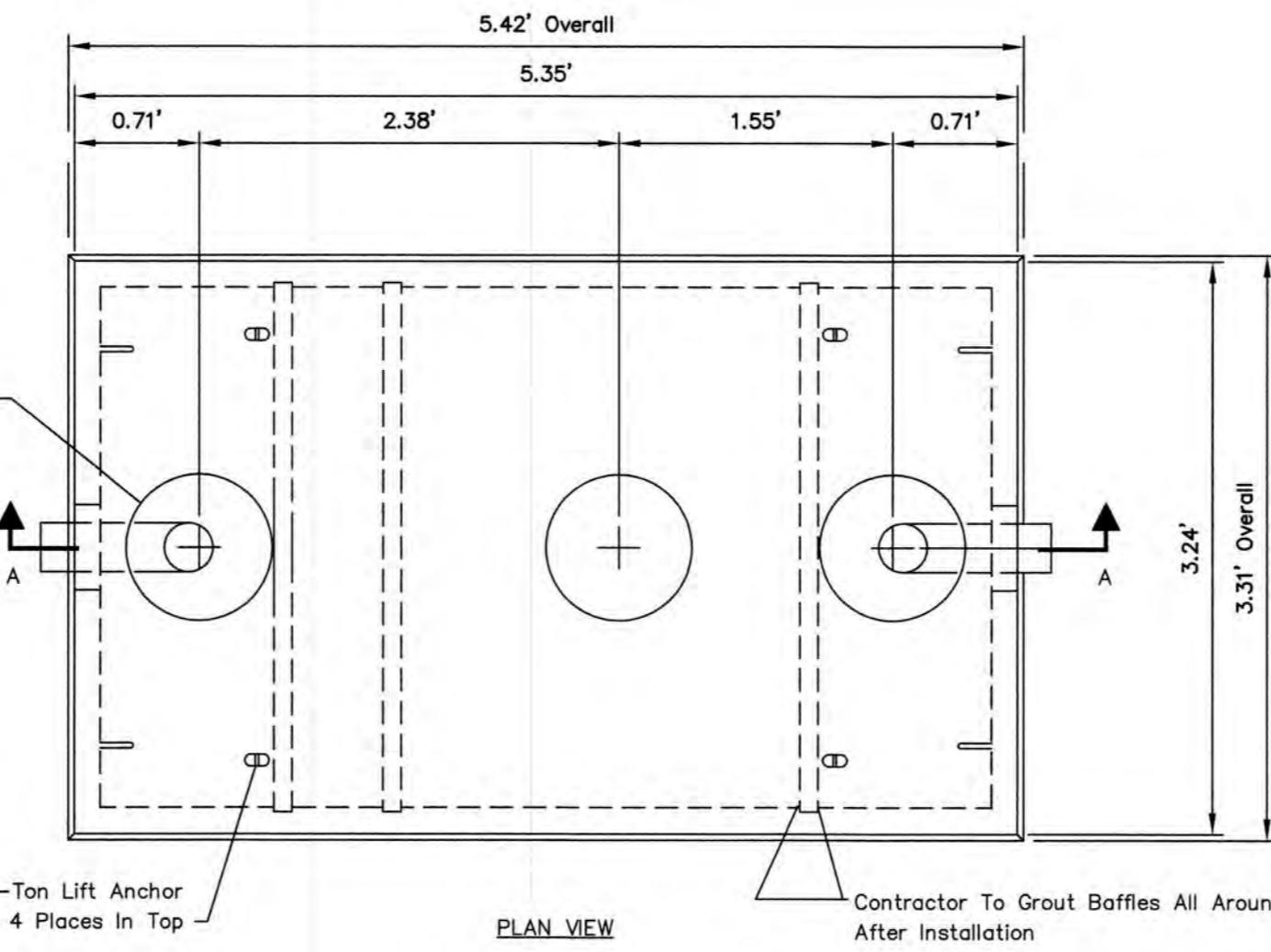


NOTE:
ALL CURBING TO BE 3000PSI 28-DAY CONCRETE

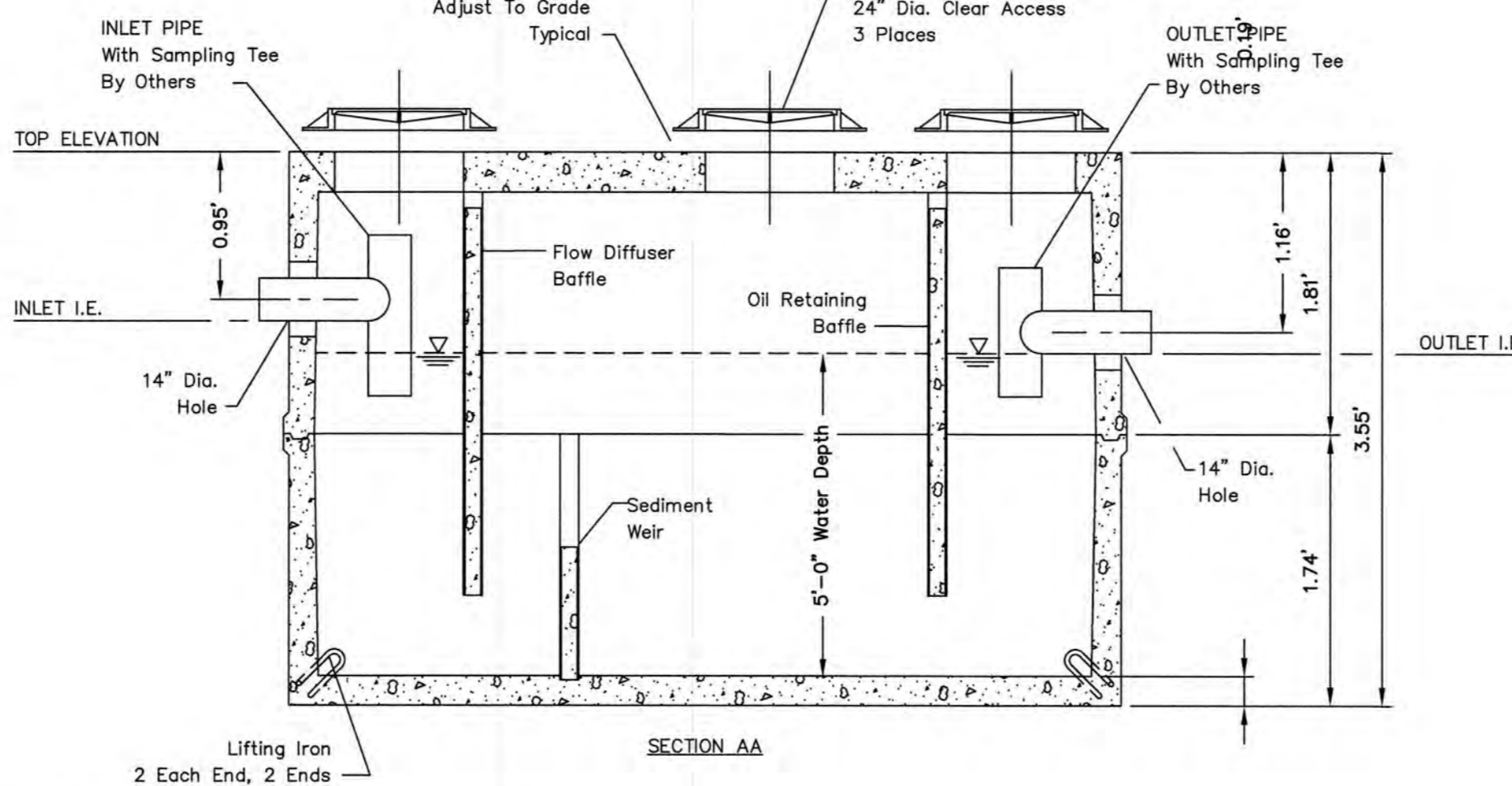
VERTICAL CONCRETE CURB
NOT TO SCALE



U-SHAPED BOLLARD
NOT TO SCALE



3,000 GAL OIL / WATER SEPARATOR
NOT TO SCALE

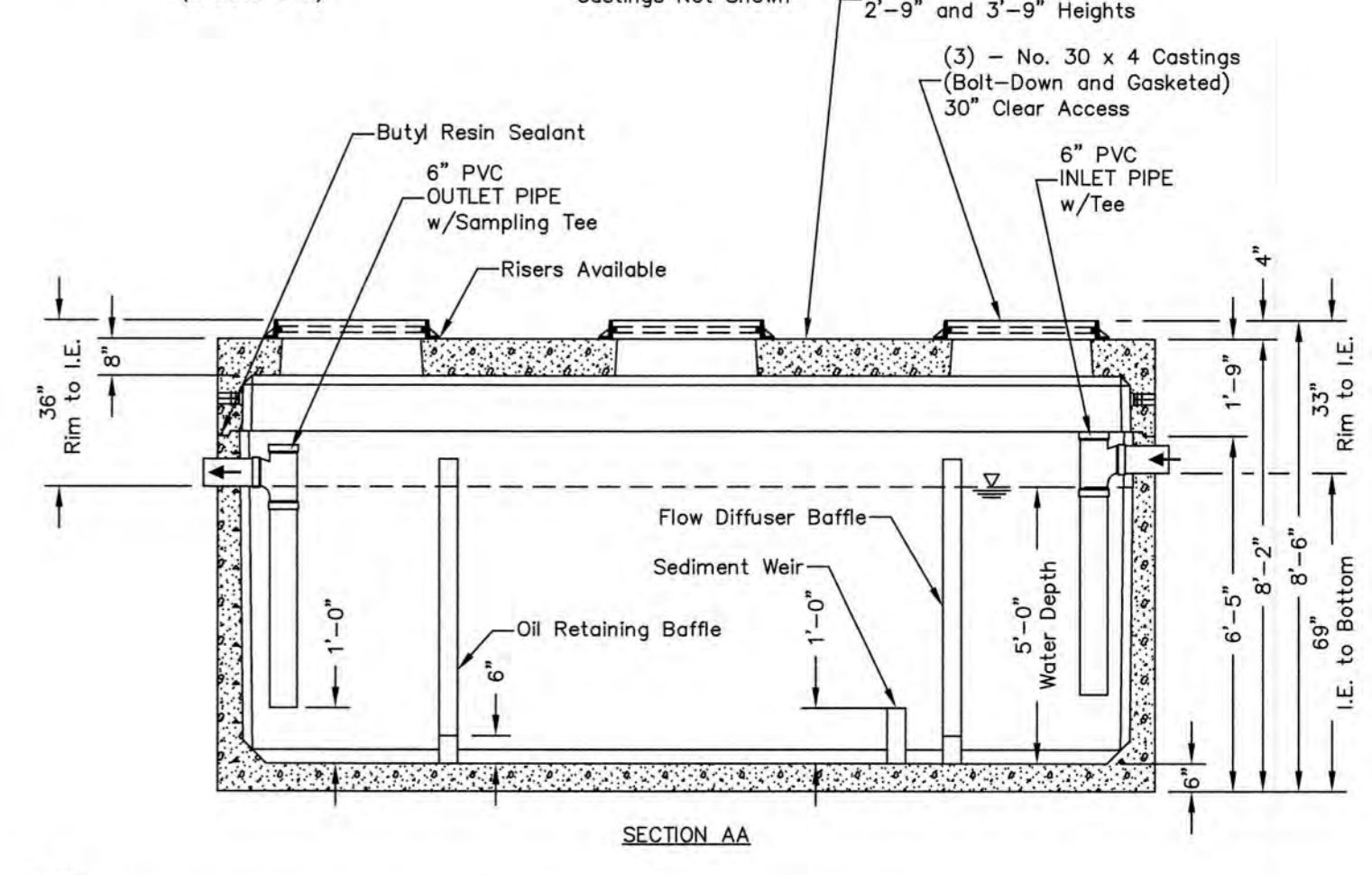
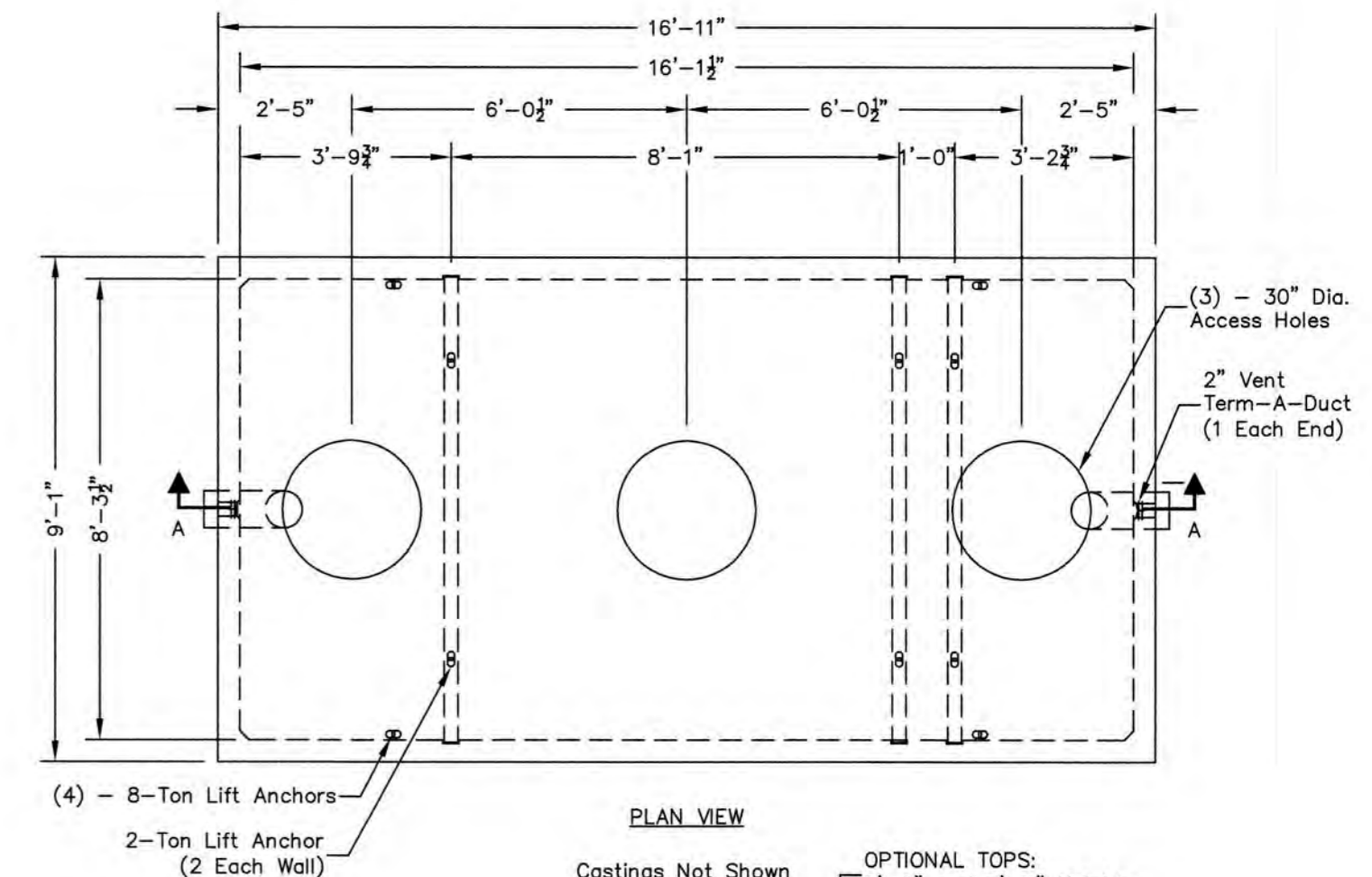


- STRUCTURAL NOTES:**
- Concrete: 28 Day Compressive Strength $f'_c = 7000$ psi
 - Rebar: ASTM A-615 Grade 60
 - Mesh: ASTM A-185 Grade 65
 - Design: ACI-318-05 Building Code
ASTM C-890 "Minimum Structural Design Loading For Underground Precast Concrete Water and Wastewater Structures"
 - Loads: HS-20 Truck Wheel w/ 30% Impact Per AASHTO
- GENERAL NOTES:**
- All Baffles and Weirs To Be Precast Concrete
 - Contractor to:
Supply and Install All Piping & Sampling Tees
Grout In All Pipes
Fill With Clean Water Prior To "Start-Up" Of System
Verify All Blockout Sizes and Locations

3,000 GAL OIL / WATER SEPARATOR
NOT TO SCALE

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE: _____

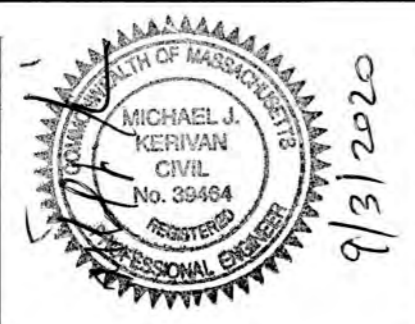


- Notes:**
- Designed in accordance with ASTM C 890 for AASHTO HS20-44 vehicle loading
 - Flow Rate 333 GPM based on 15 min. retention time.
 - Manufacturer's recommendations:
- Ventilate each end to open atmosphere.
 - Prior to "Start Up" of System, fill with clean water to bottom of outlet pipe (approx. one foot deep).
 - For best results, fill to flow line.
 - Follow Regular Inspection, Cleaning, & Maintenance Schedule (See Clean Out & Maintenance).

5,000 GAL OIL / WATER SEPARATOR
NOT TO SCALE

Design: WGM Draft: RMK Date: 05/06/20
Checked: WGM Scale: AS NOTED Project No.: 13153
Drawing Name: 13153-PLAN.dwg

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3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
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1	07/31/20	REVISED PER REVIEW ENGINEER COMMENTS	EMP
0	05/06/20	ISSUED FOR REVIEW	EMP

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **DETAIL SHEET**

Project: **PROPOSED CENTRAL SQUARE
340 E CENTRAL STREET, FRANKLIN, MA**

Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No. **D4**

SHEET 13 OF 19
JBE PROJECT NO. 13153

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE:

**ACCEPTABLE FILL MATERIALS
STORMTECH SC-310 AND SC-740 CHAMBER SYSTEMS**

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	AASHTO M145 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
(D) PAVEMENT SUBGRADE, DEPTH(S) PER SPECIFICATIONS	PAVEMENT SUBGRADE MATERIALS PER SPECIFICATIONS	N/A	N/A	PREPARE PER SPECIFICATIONS AND PLANS. PAVED INSTALLATIONS HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
(C) FILL MATERIAL FROM 1.50' ABOVE CHAMBERS TO BOTTOM OF PAVEMENT SUBGRADE	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	A-1 A-2 A-3	COMPACT IN 6" LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY. ROLLER (GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS.
(B) EMBEDMENT STONE SURROUNDING AND TO A 1.50' ELEVATION ABOVE CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 1/4" - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	NO COMPACTION REQUIRED
(A) 6" FOUNDATION STONE BELOW CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 1/4" - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY

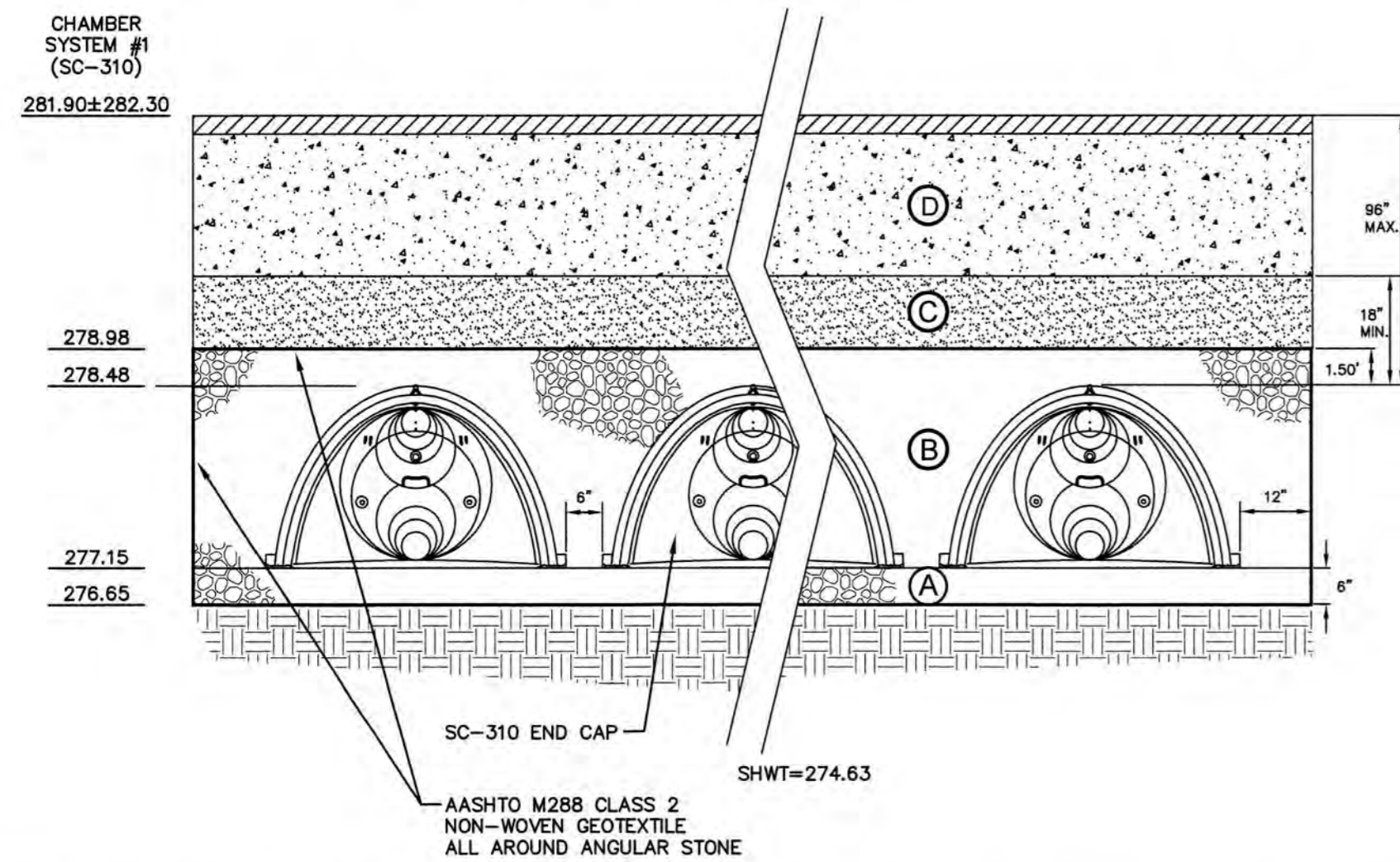
PLEASE NOTE: THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE WASHED CRUSHED ANGULAR. FOR EXAMPLE, THE STONE MUST BE SPECIFIED AS WASHED, CRUSHED, ANGULAR NO. 4 STONE.

NOTES:

- SC-310 AND SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 AND SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

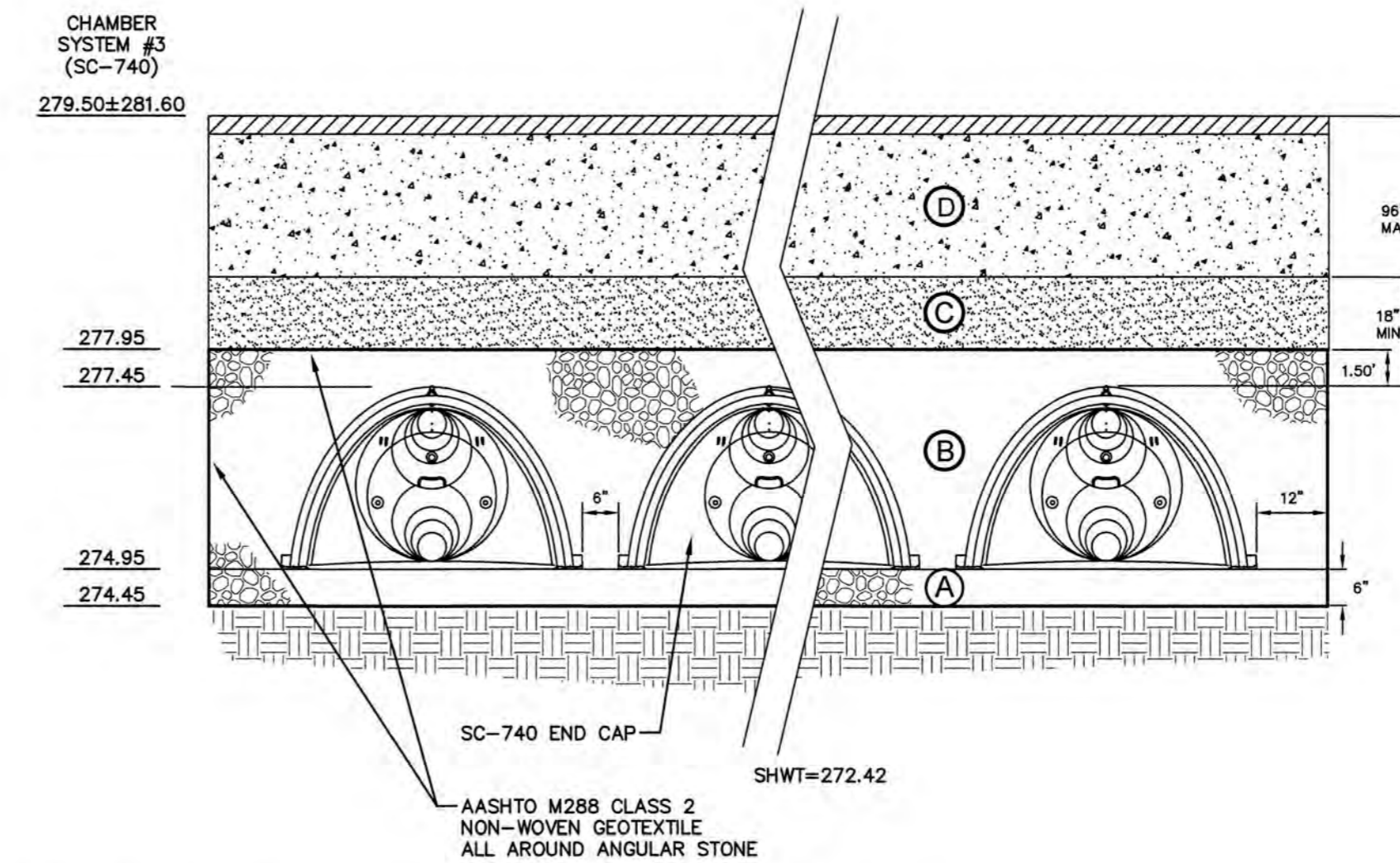
TRAFFIC CONTROL SCHEDULE							
SIGN NUMBER	SIGN	SIZE OF SIGN WIDTH	HEIGHT	DESCRIPTION	MOUNT TYPE	MOUNT HEIGHT	REMARKS
R1-1	STOP	30"	30"	WHITE ON RED	CHANNEL	7'-0"	REFLECTORIZED SIGN
R5-1	DO NOT ENTER	30"	30"	RED / SILVER	CHANNEL	7'-0"	REFLECTORIZED SIGN
R7-8	TRUCKS ONLY	12"	24"	BLUE & GREEN ON WHITE	CHANNEL	7'-0"	REFLECTORIZED SIGN
R7-8A	VAN	12"	6"	BLUE & GREEN ON WHITE	CHANNEL	5'-0"	REFLECTORIZED SIGN
RES-1	RESERVED ONLY	12"	18"	BLACK / WHITE	FENCE	5'-0"	REFLECTORIZED SIGN
R6-2	ONE WAY	24"	30"	BLACK / WHITE	CHANNEL	7'-0"	REFLECTORIZED SIGN
R5-2A	NO TRUCKS	24"	24"	BLACK / WHITE	CHANNEL	7'-0"	REFLECTORIZED SIGN

SIGN LEGEND			
R1-1	STOP	R3-5R	ONLY
R3-2	NO LEFT TURN	R4-7	ONLY
R3-1	NO RIGHT TURN	R5-1	DO NOT ENTER
R3-7L	LEFT LANE MUST TURN LEFT	R6-1	ONE WAY
R4-4	BEGIN RIGHT TURN LANE YIELD TO BIKES		
R3-8b			ONLY



TYPICAL SC-310 CROSS-SECTION (CHAMBER SYSTEM #1)

NOT TO SCALE

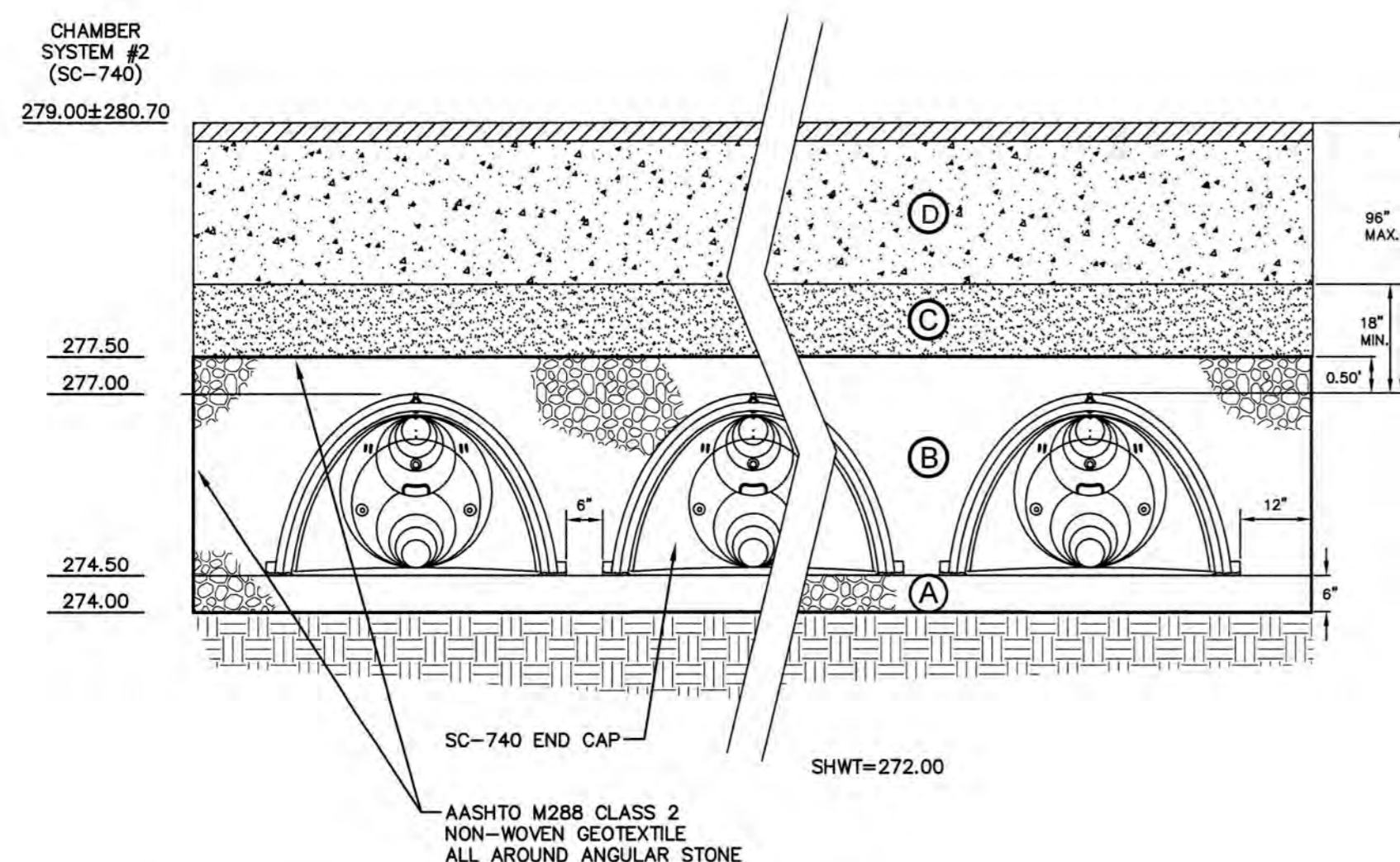


TYPICAL SC-740 CROSS-SECTION (CHAMBER SYSTEM #3)

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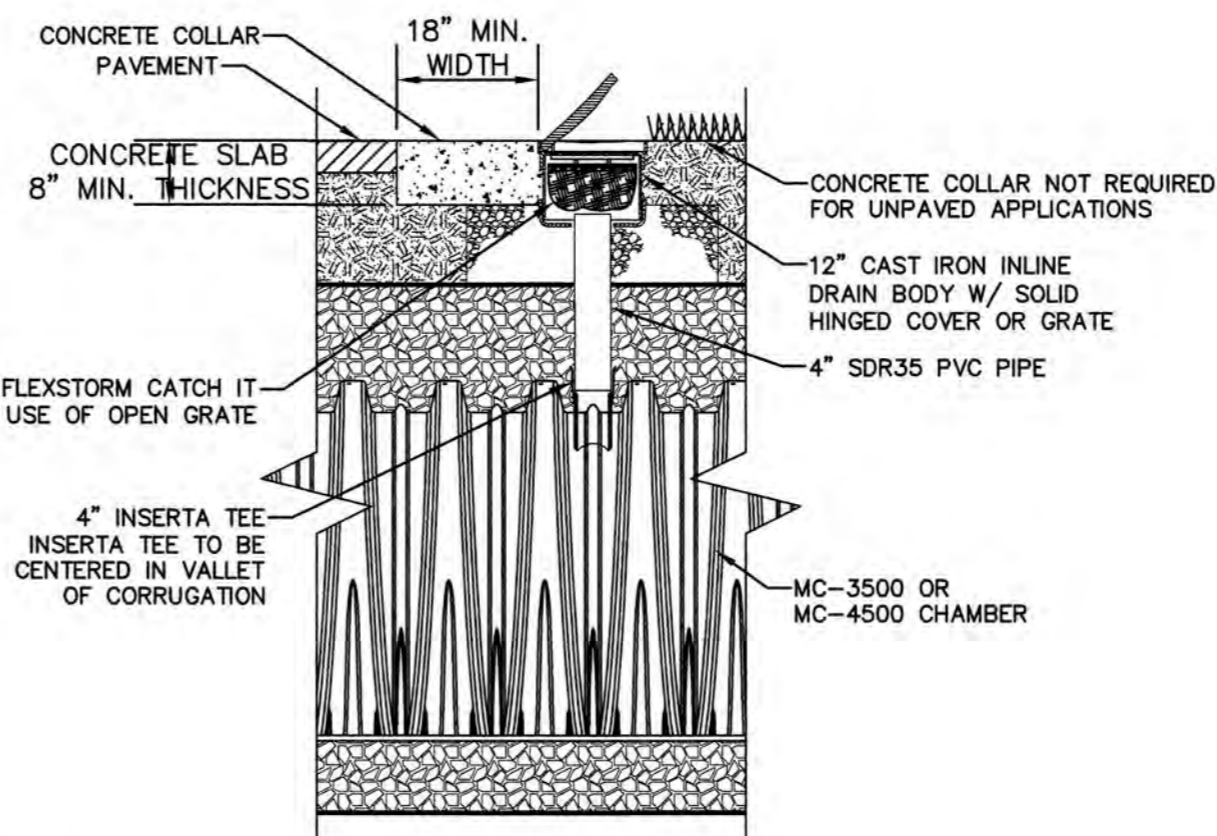
STORMTECH GENERAL NOTES

- STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
- STORMTECH OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICE DEPARTMENT OR LOCAL STORMTECH REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 860-529-8188 TO SPEAK TO A TECHNICAL SERVICE REPRESENTATIVE OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.
- STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 24 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 6.5 FEET INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 6.5 FEET.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
- AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
- STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: WWW.STORMTECH.COM. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
- THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
- STORMTECH PRODUCT WARRANTY IS LIMITED. CONTACT STORMTECH FOR WARRANTY INFORMATION.



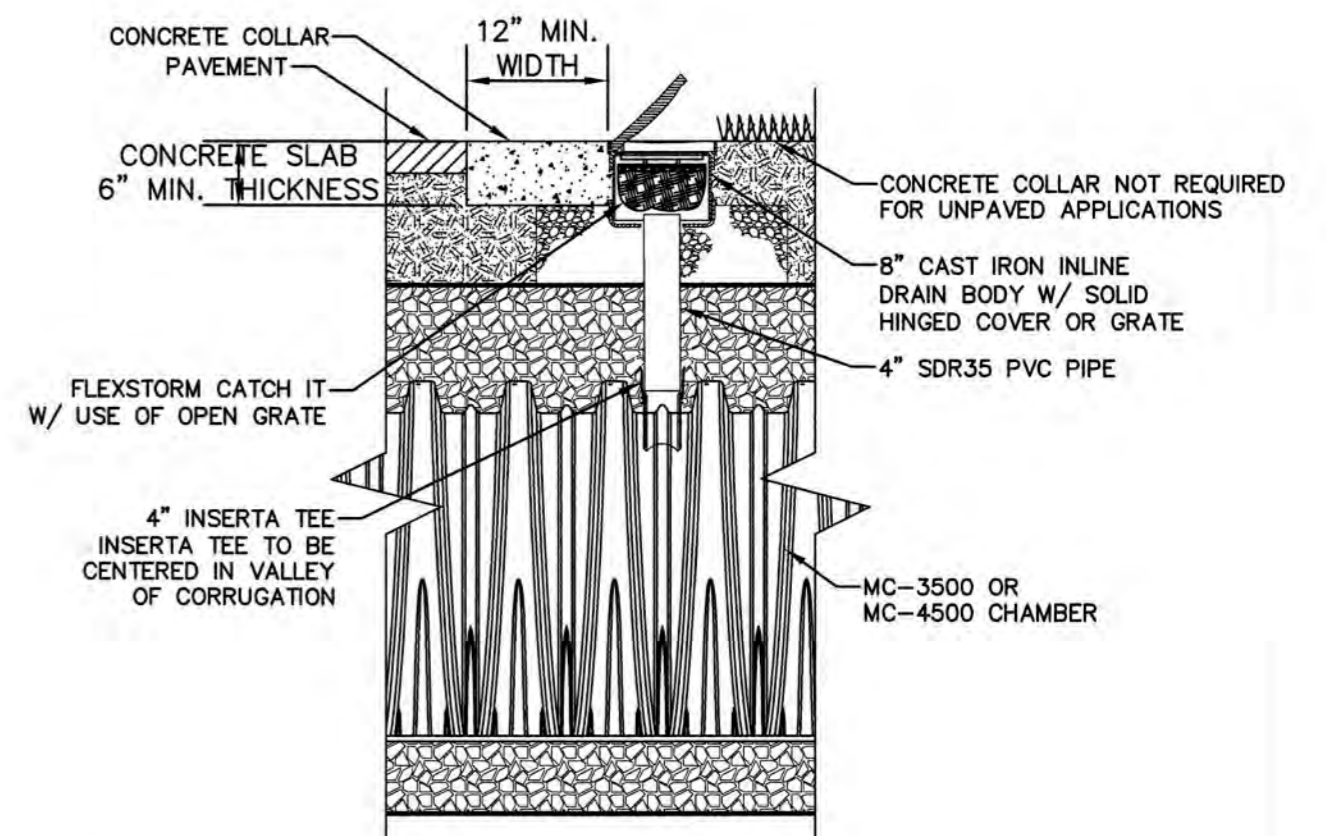
TYPICAL SC-740 CROSS-SECTION (CHAMBER SYSTEM #2)

NOT TO SCALE



TYPICAL SC-740 4" INSPECTION PORT

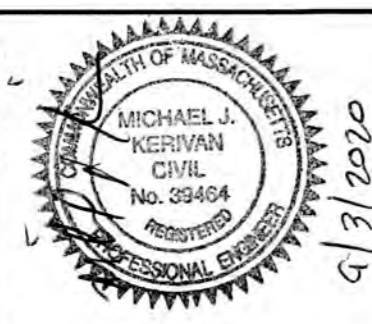
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TYPICAL SC-310 4" INSPECTION PORT

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Design: WGM | Draft: RMK | Date: 05/06/20
Checked: WGM | Scale: AS NOTED | Project No.: 13153
Drawing Name: 13153-PLAN.dwg
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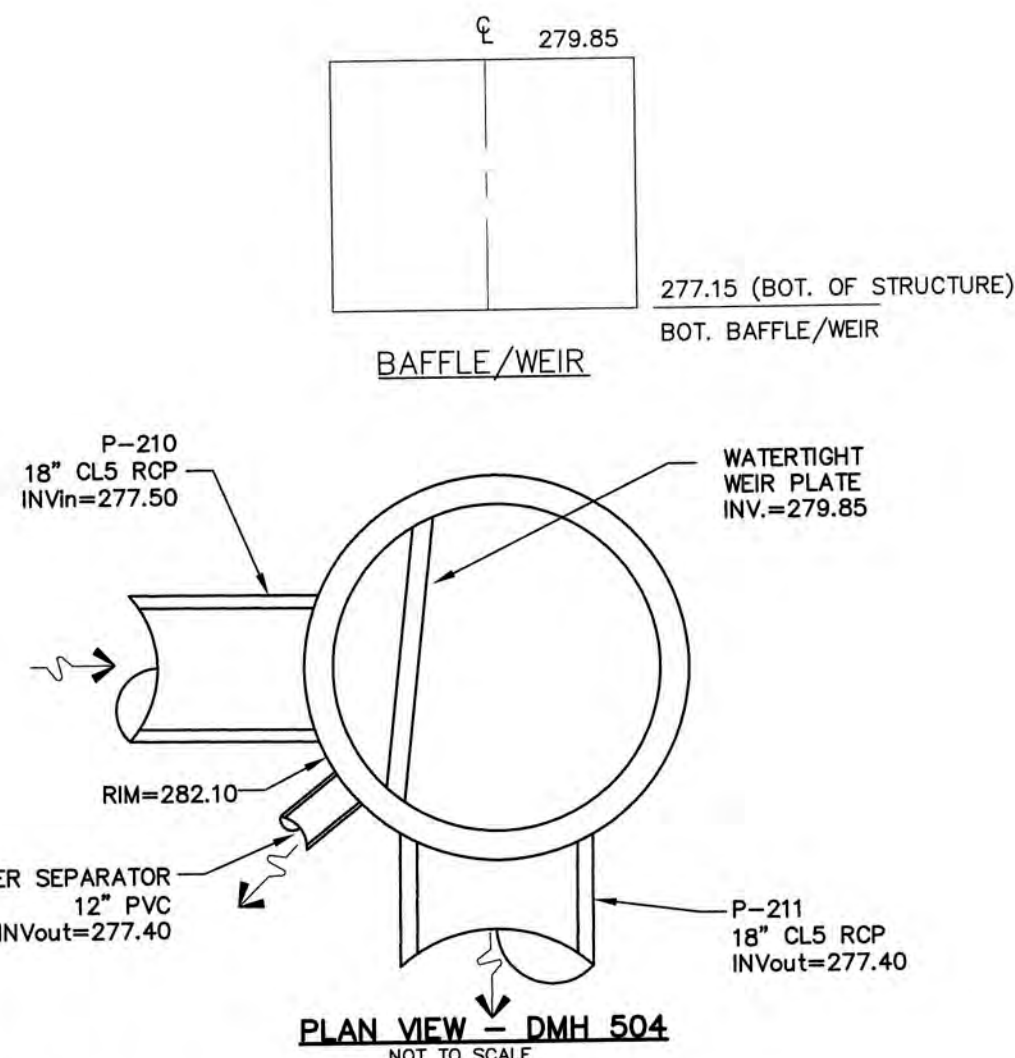
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Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

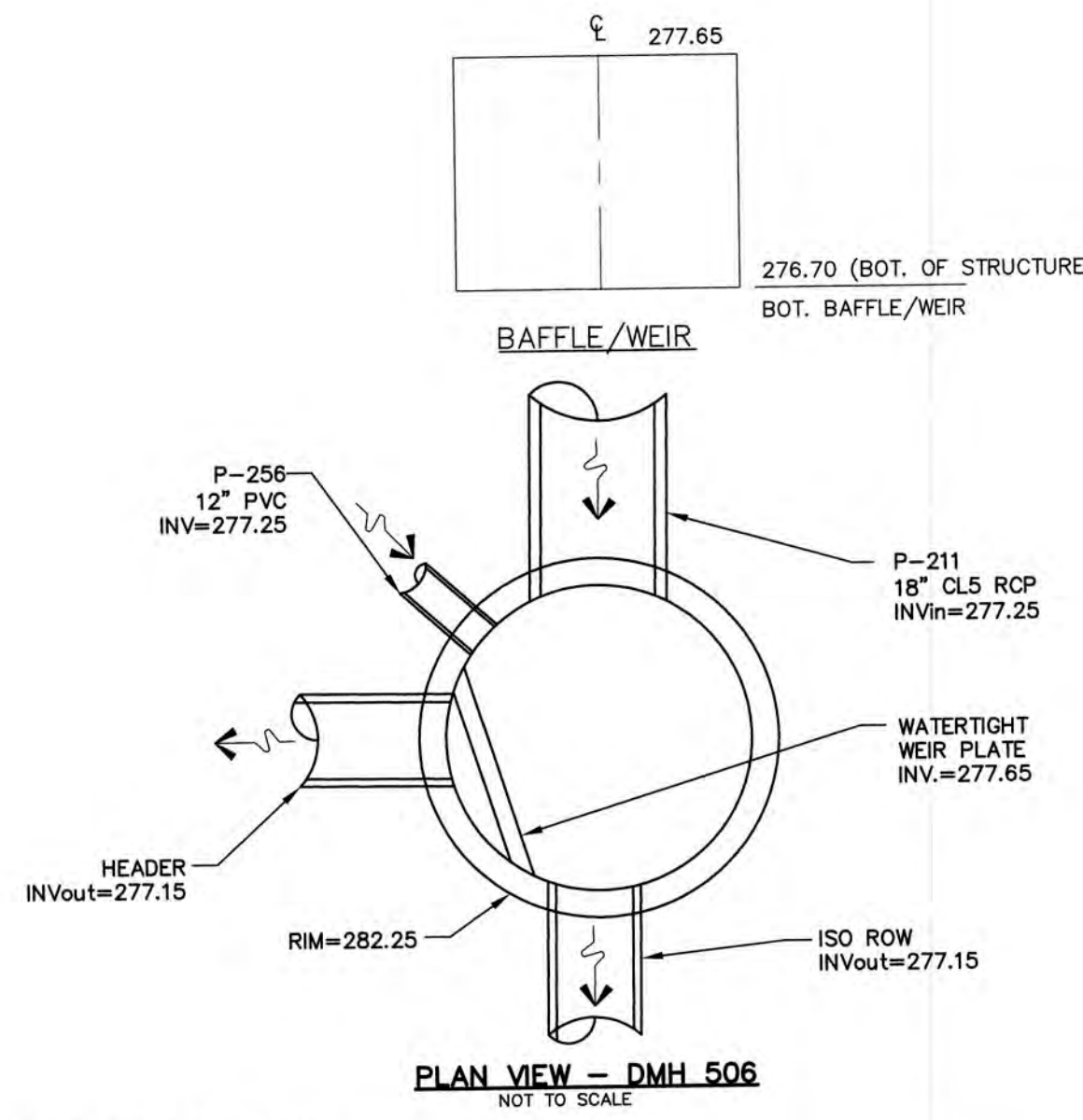
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Project: **PROPOSED CENTRAL SQUARE
340 E CENTRAL STREET, FRANKLIN, MA**
Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No. **D5**
SHEET 14 OF 19
JBE PROJECT NO. 13153

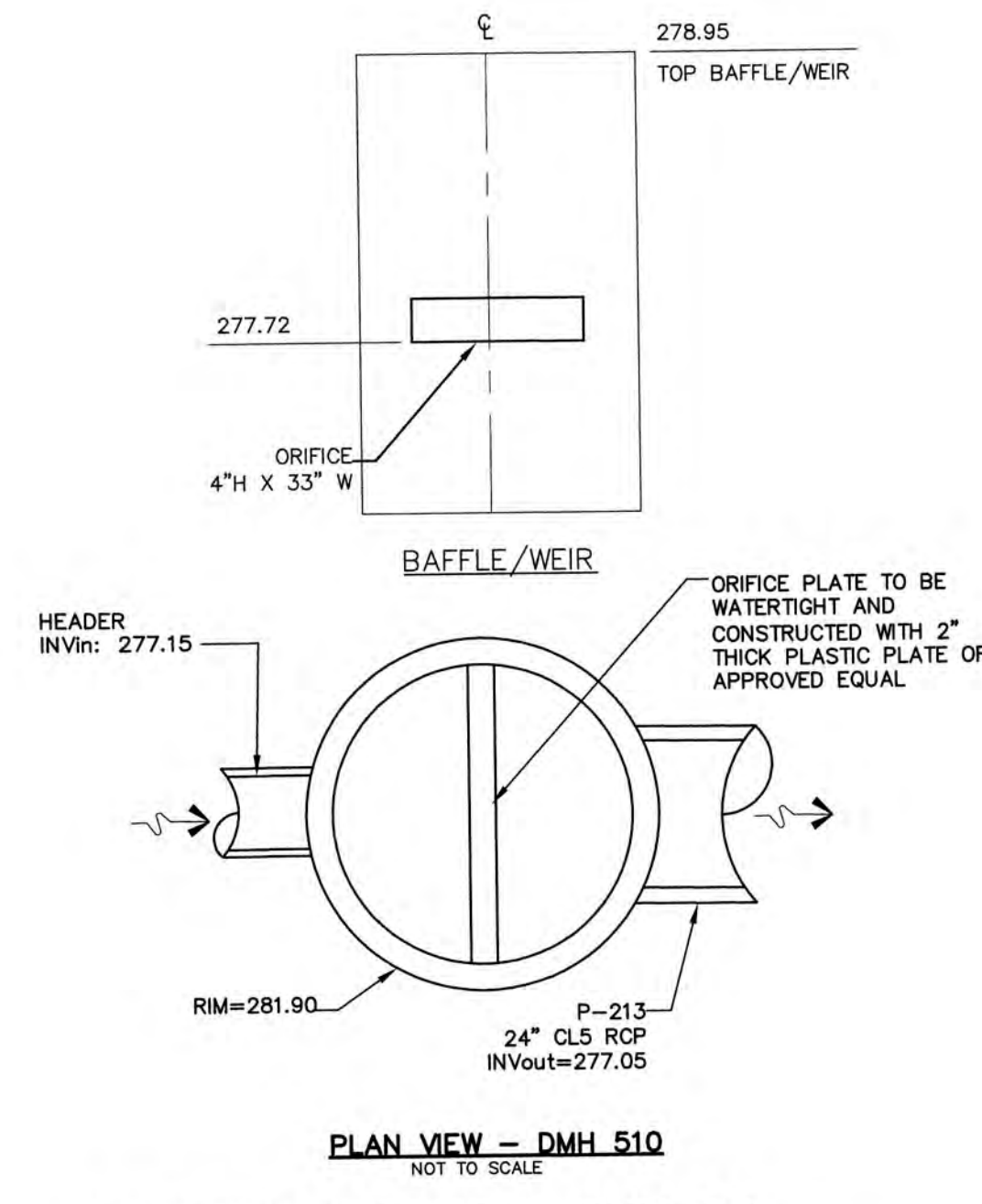
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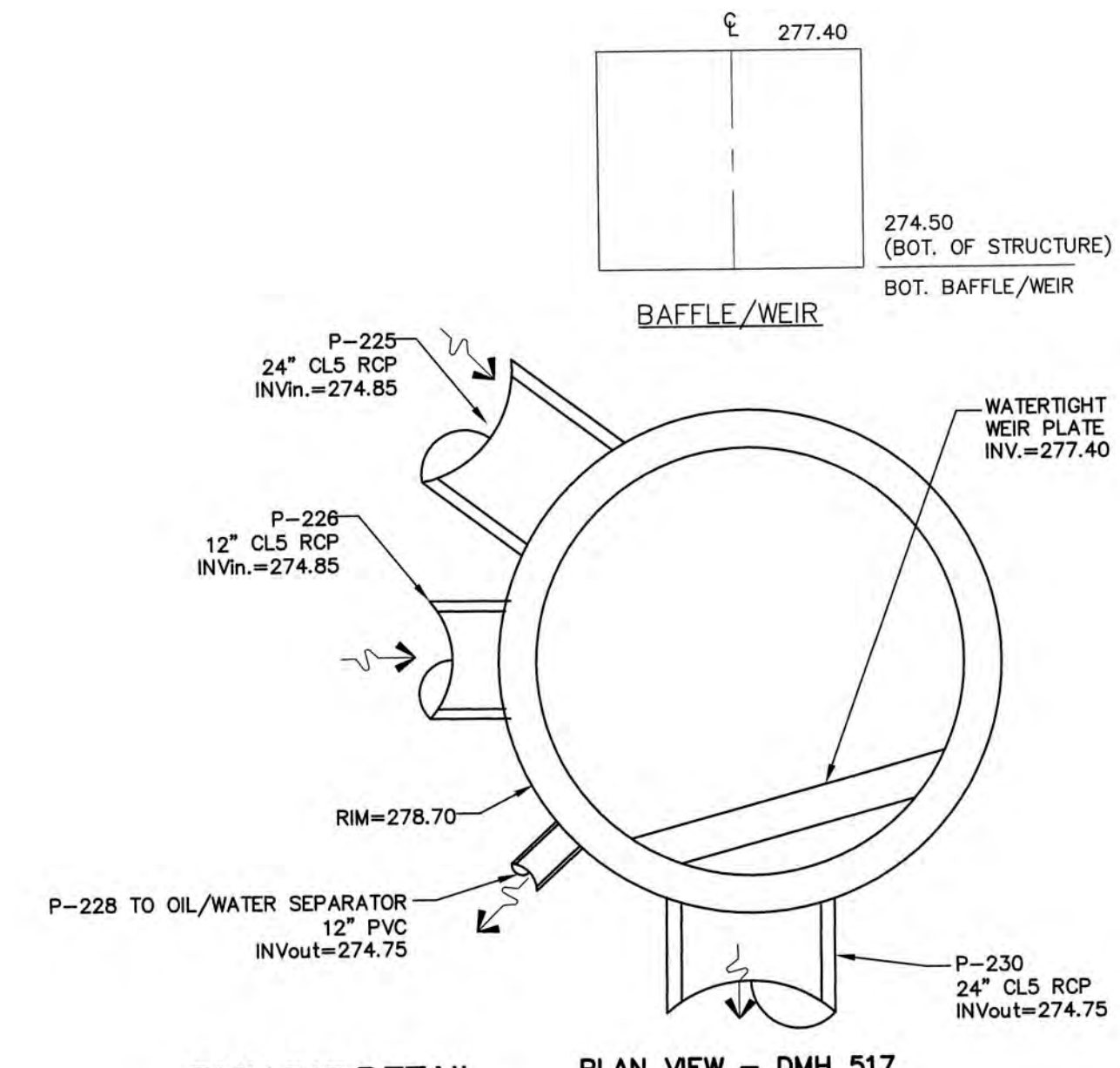
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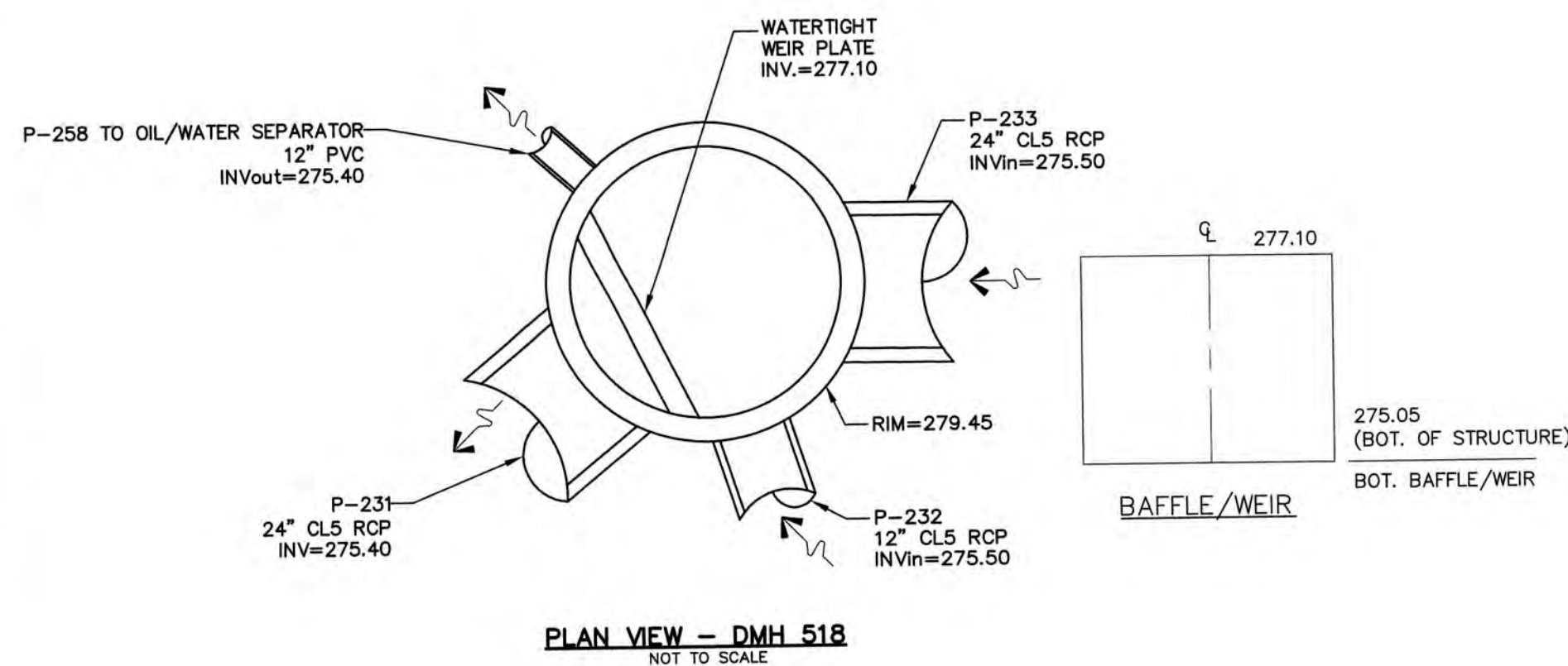
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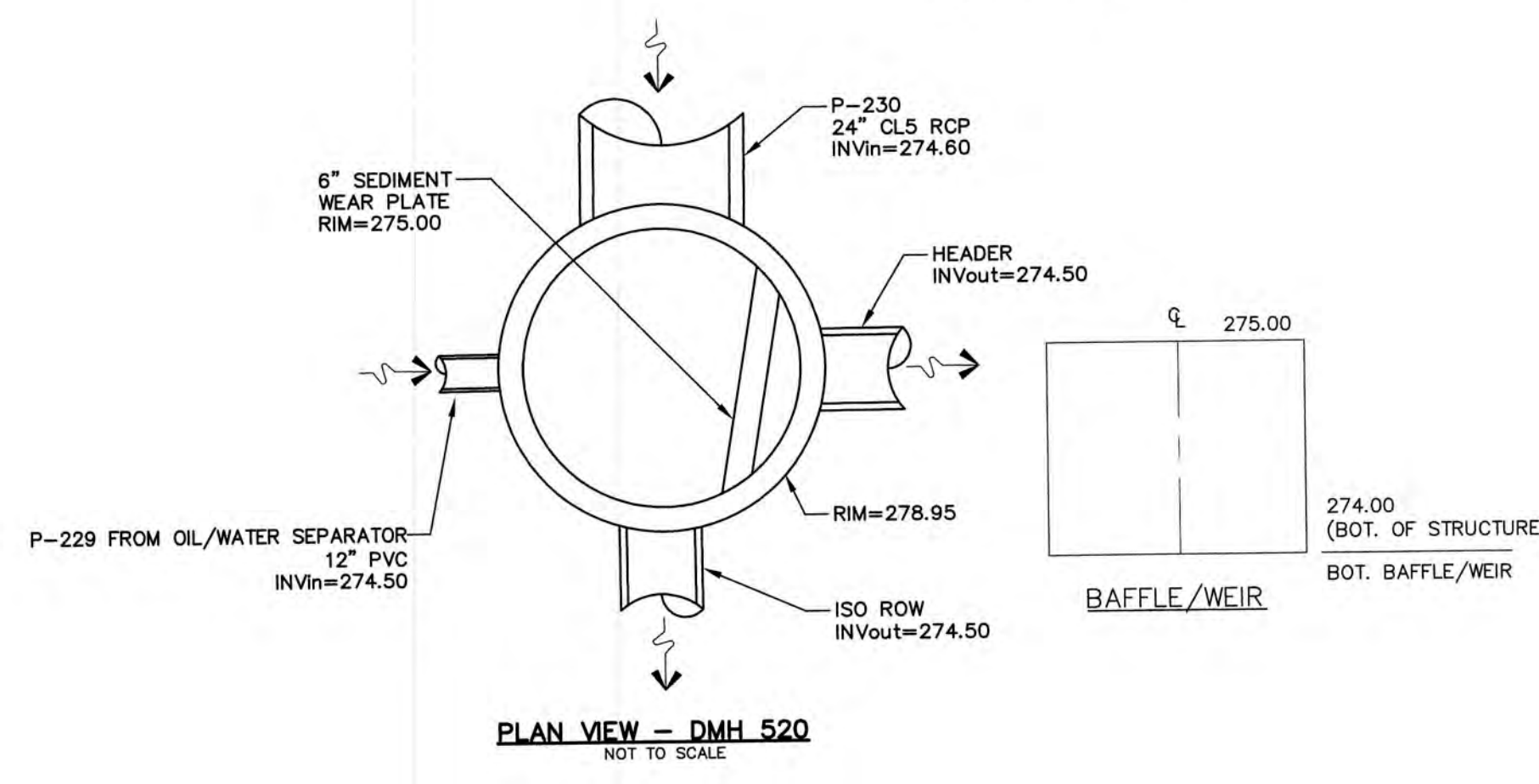
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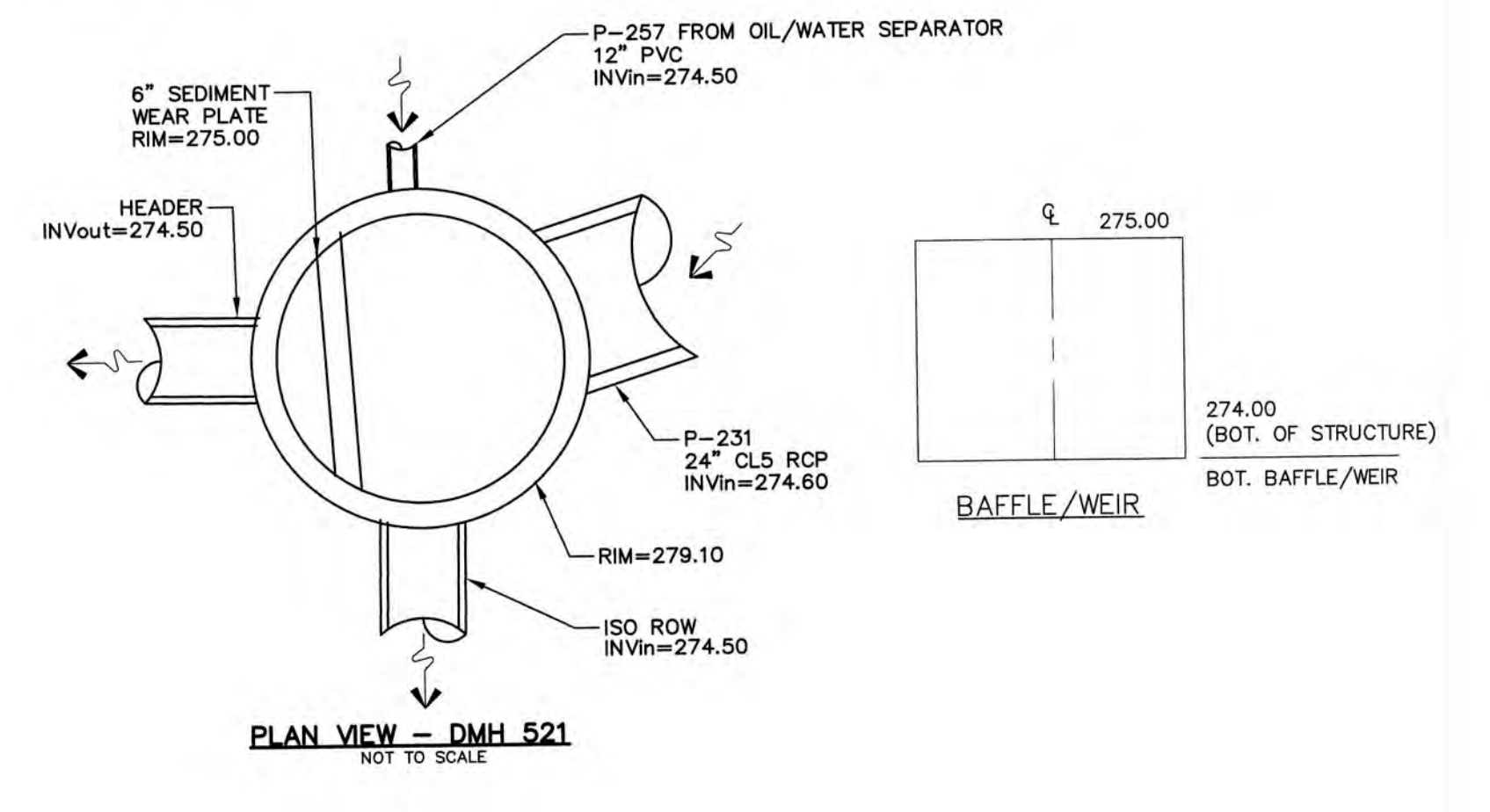
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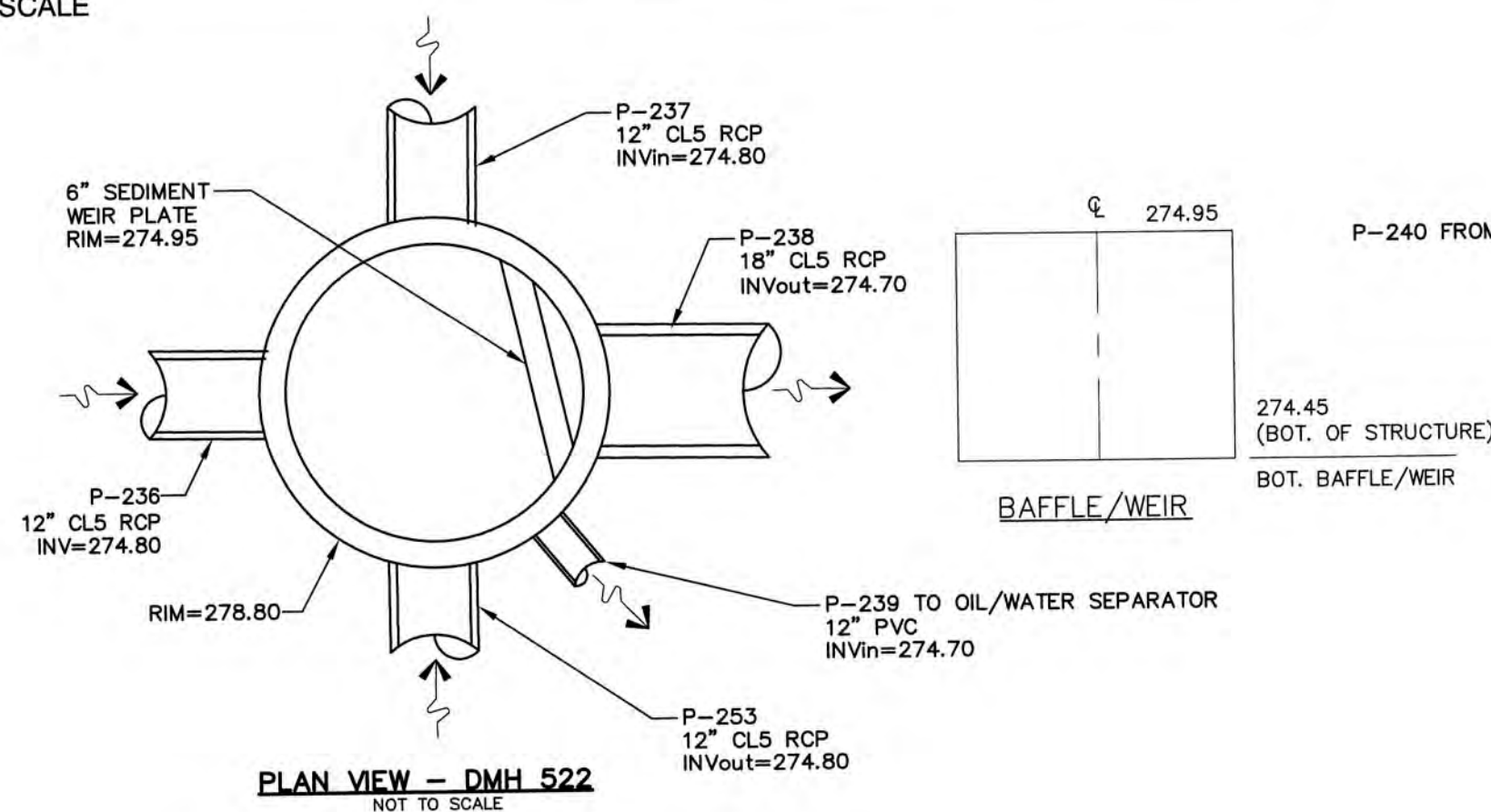
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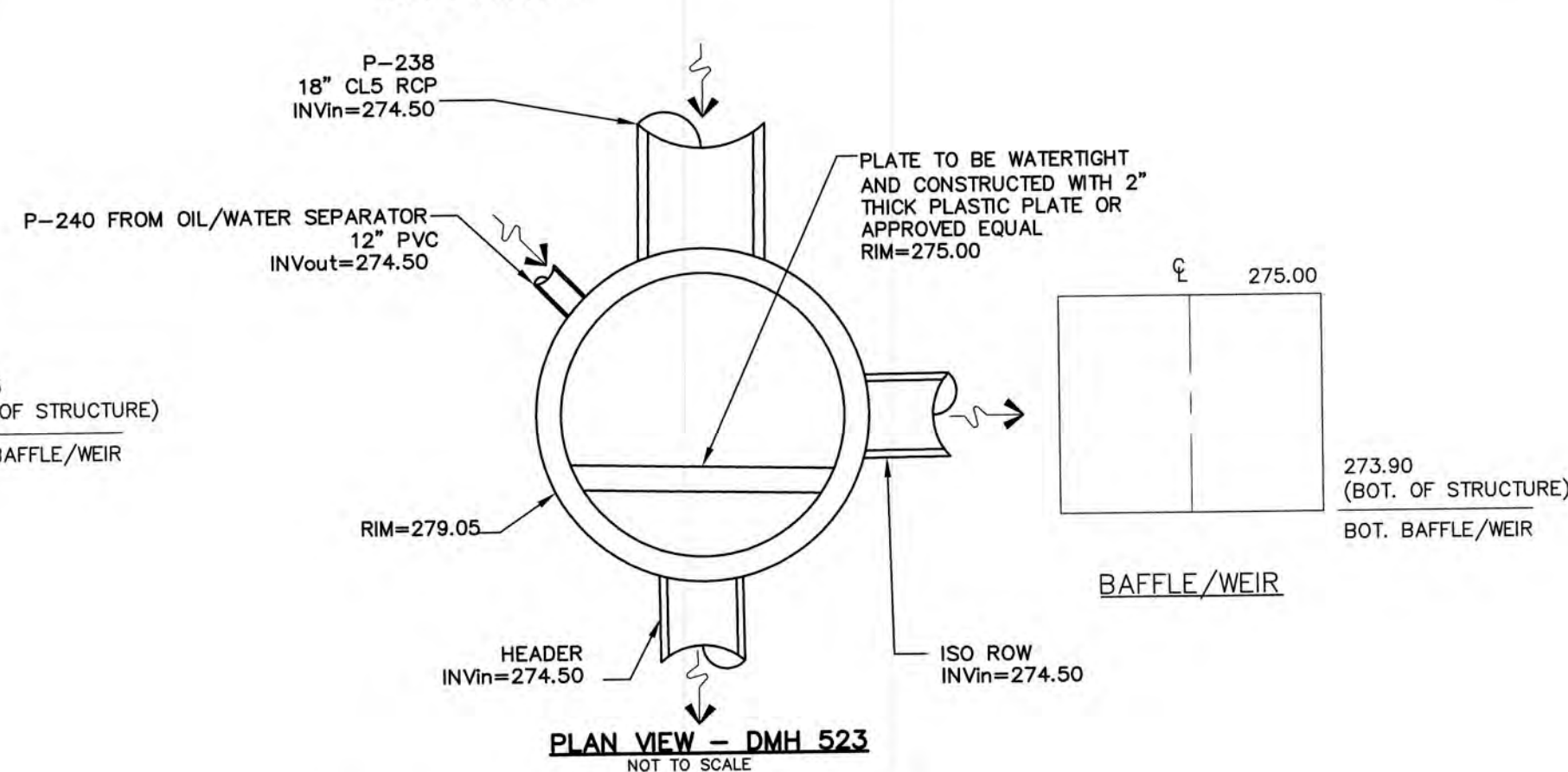
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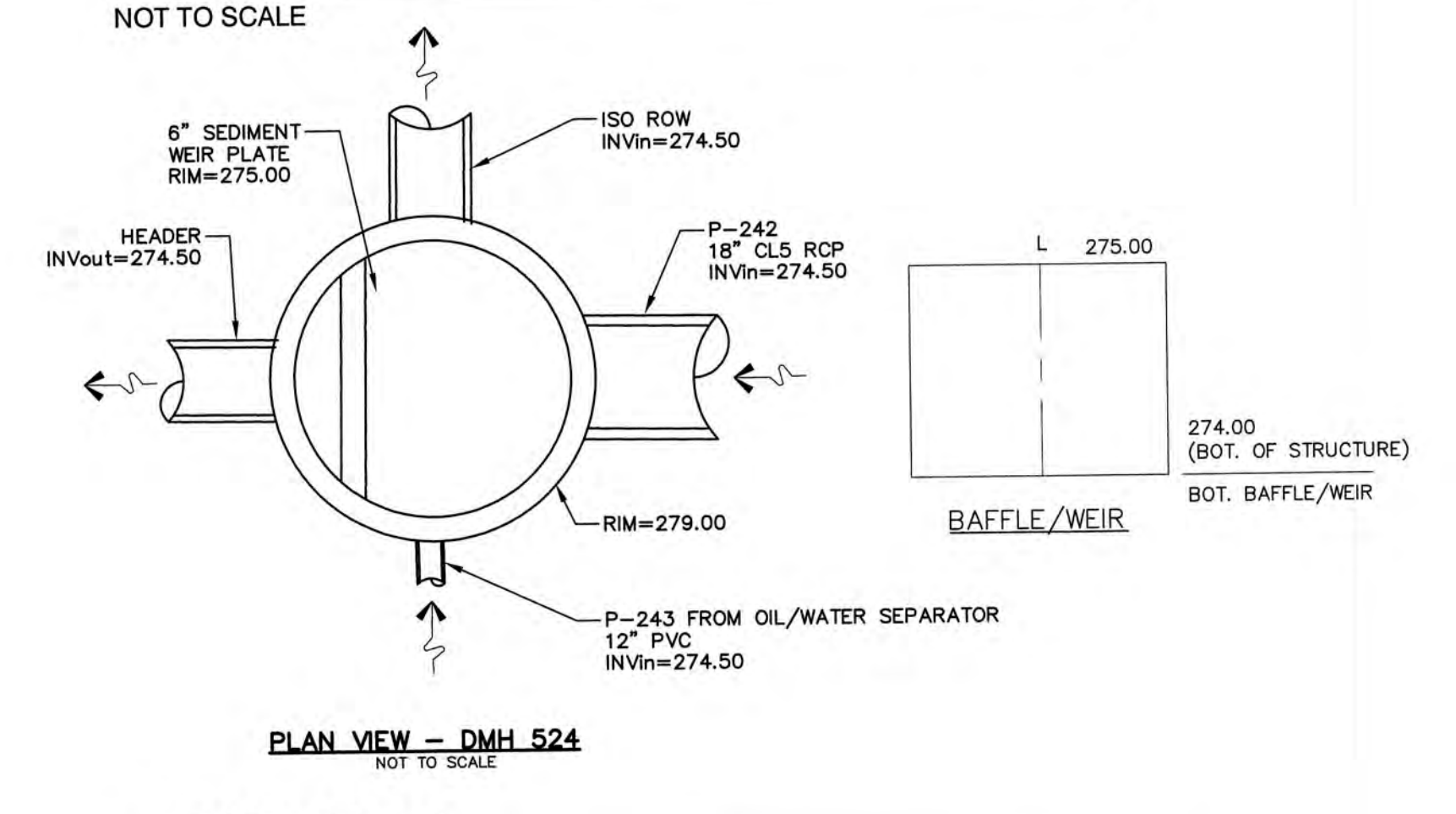
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DMH 522 DETAIL
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DMH-523 DETAIL
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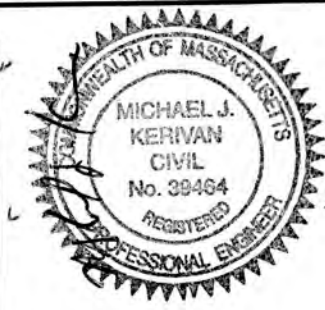


DMH 524 DETAIL
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Design: WGM Draft: RMK Date: 05/06/20
Checked: WGM Scale: AS NOTED Project No.: 13153
Drawing Name: 13153-PLAN.dwg

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85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

Civil Engineering Services

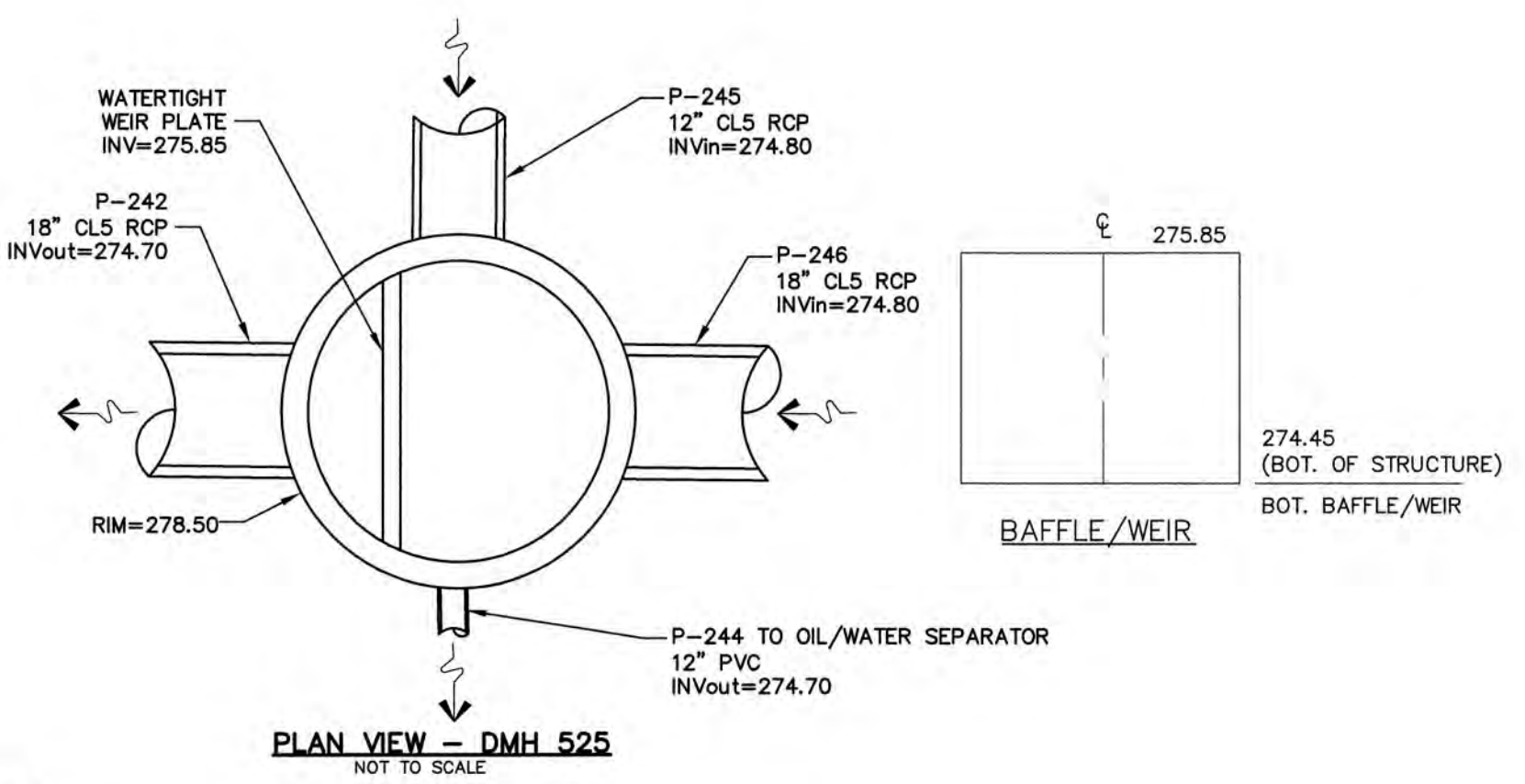
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

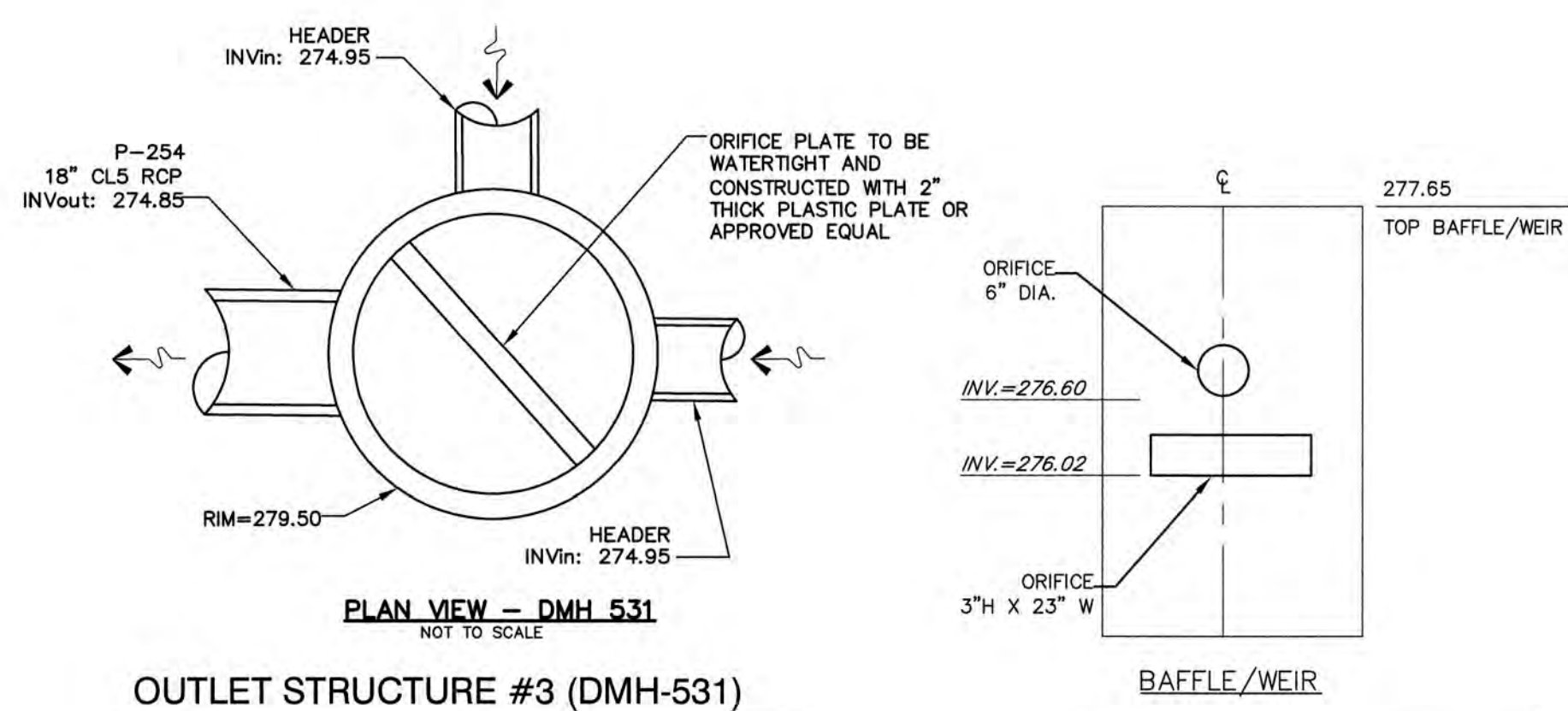
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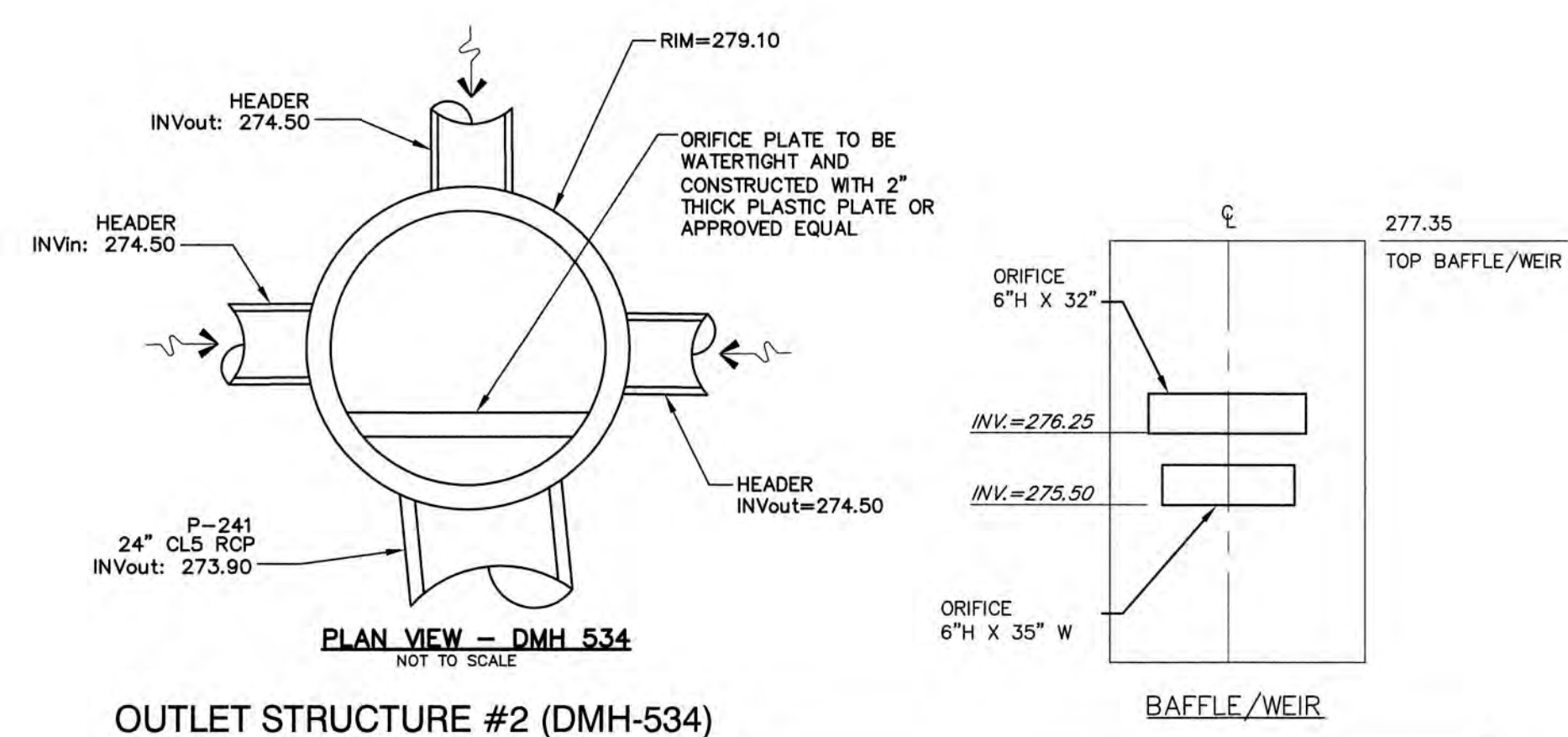
SHEET 15 OF 19
JBE PROJECT NO. 13153



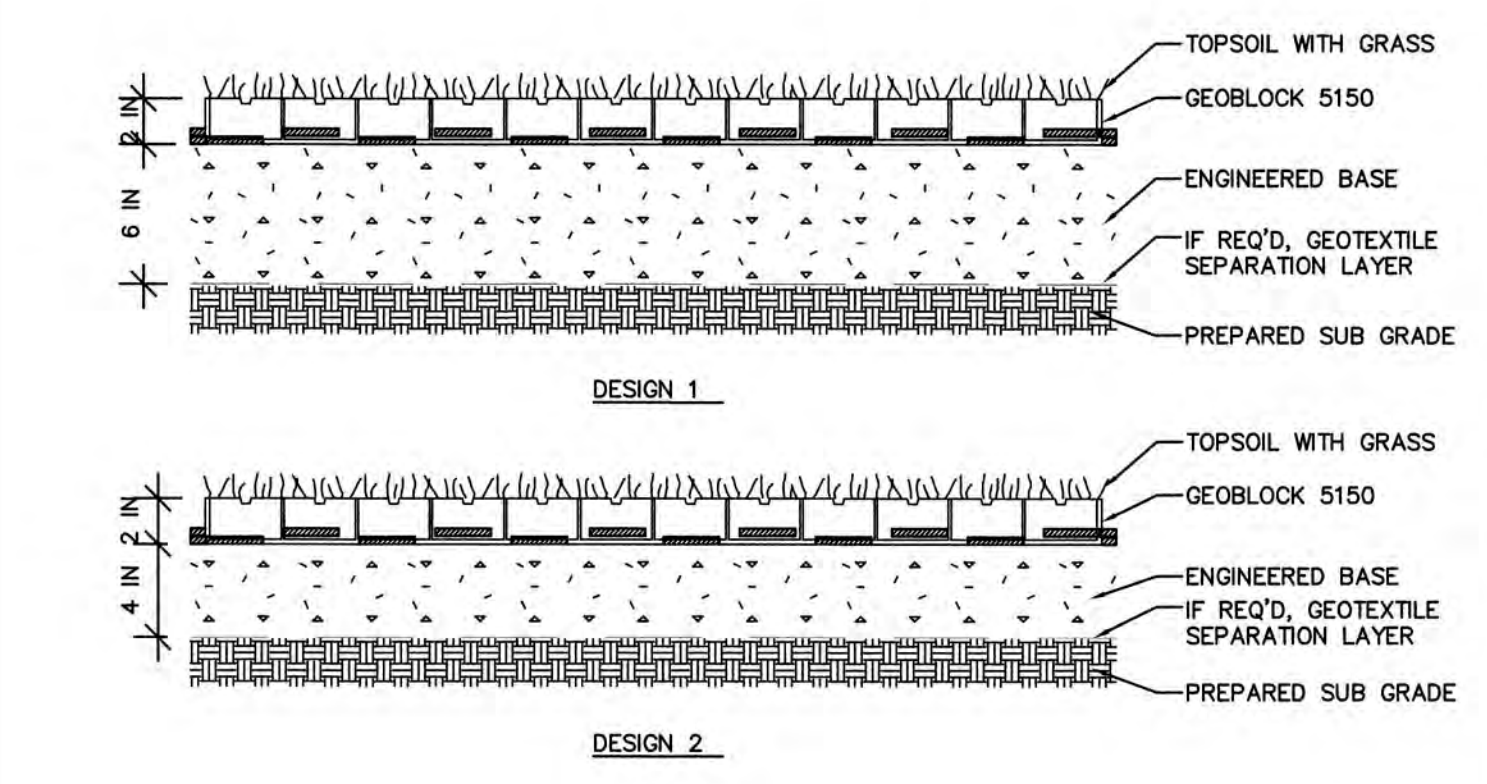
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OUTLET STRUCTURE #3 (DMH-531)
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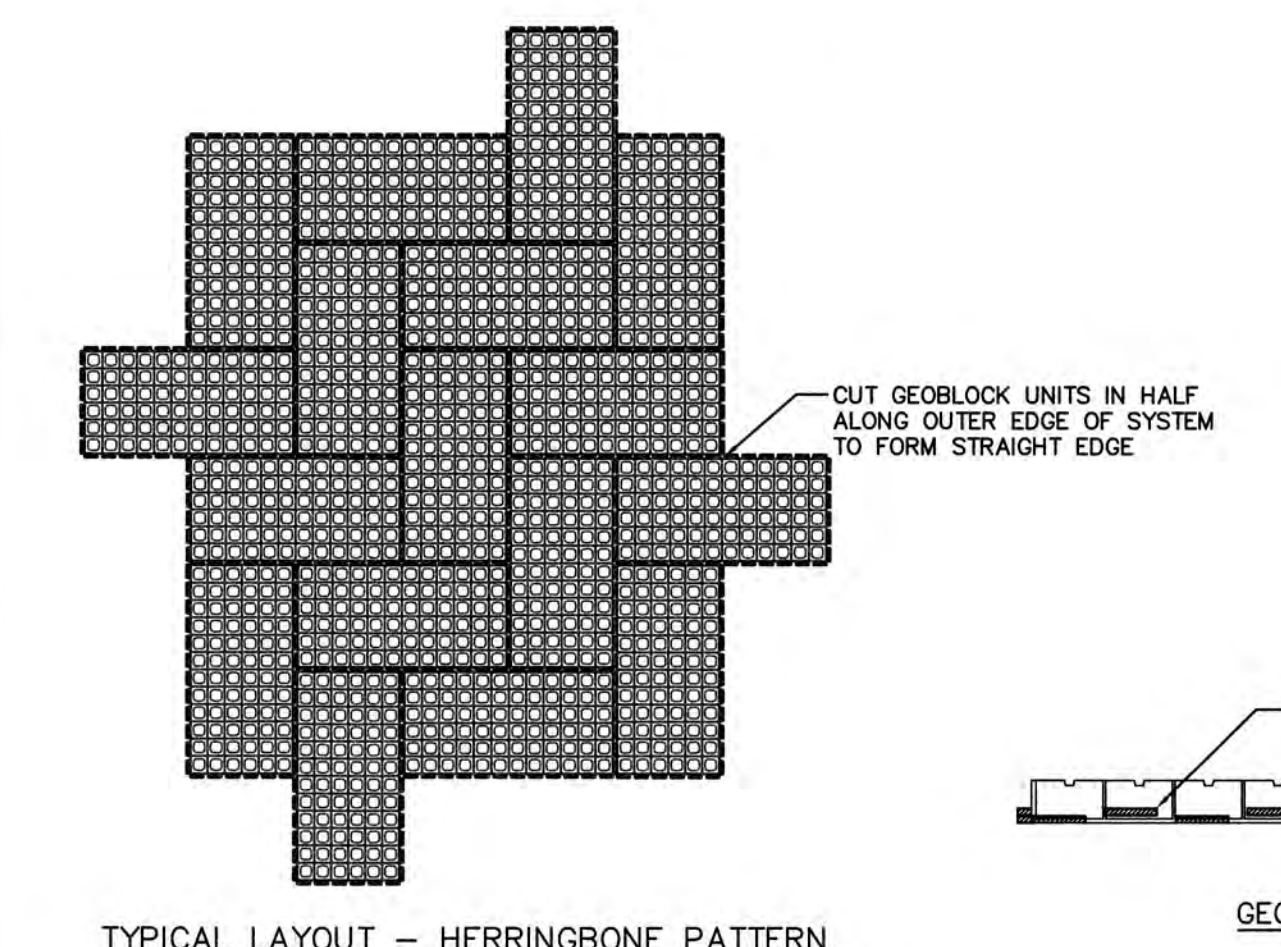
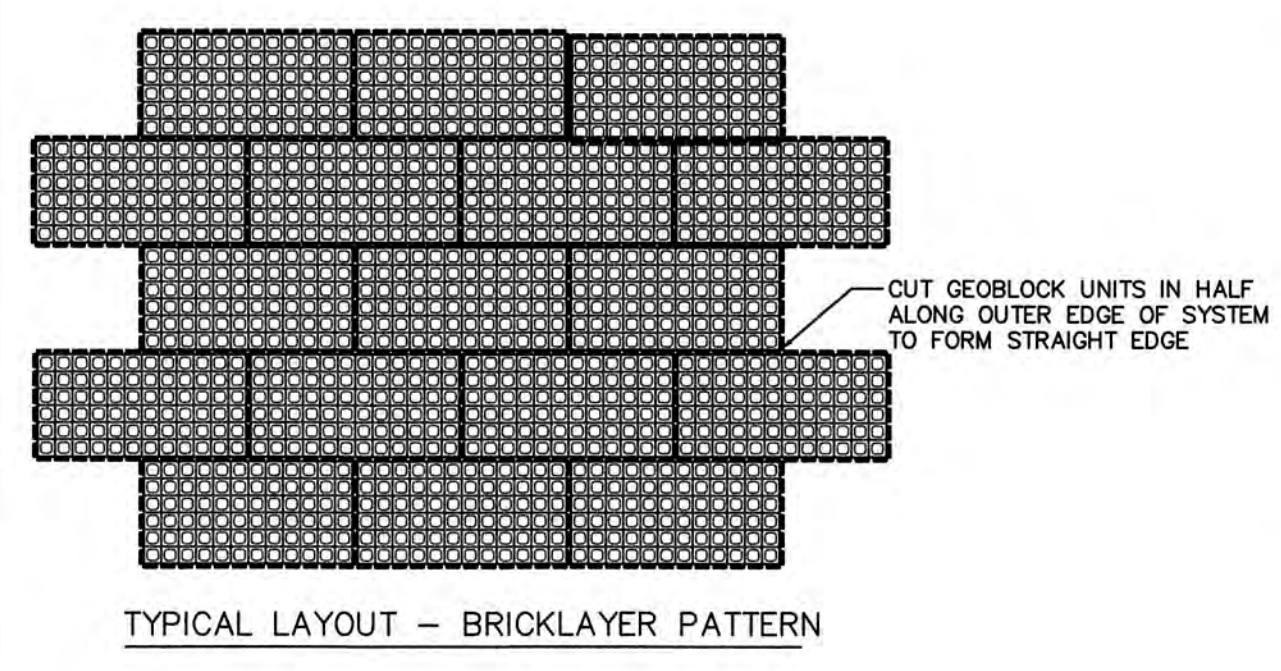


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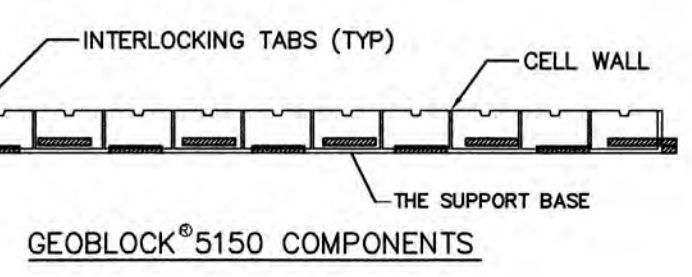
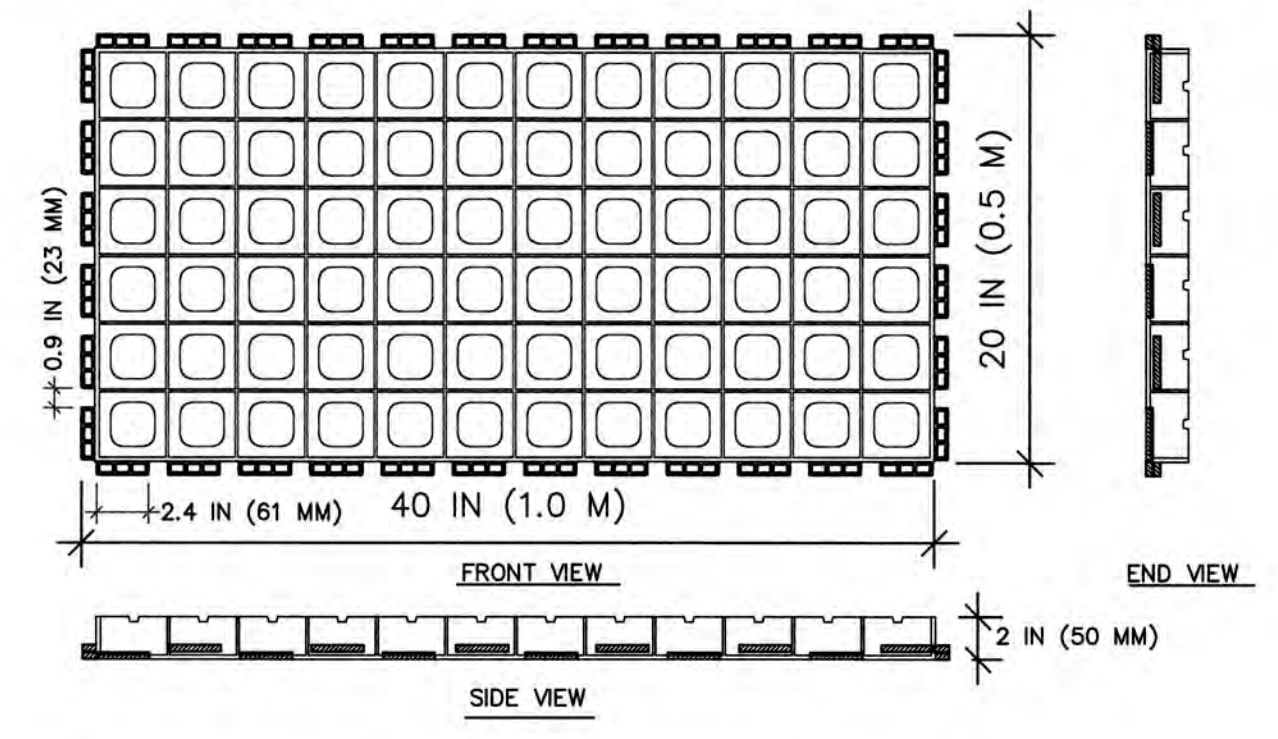
DESIGN GUIDELINES		
LOAD DESCRIPTION	CBR 2 - 4%	CBR > 4%
Heavy Fire Truck Access & H/HS-20 loading. Typical 110 psi (758 kPa) tire pressure. Single axle loadings of 32 kips (145 kN), tandem axle loadings of 48 kips (220 kN). Gross vehicle weight of 80,000 lbs (36.3 MT). Infrequent passes.	Design 1 - 6" Base	Design 2 - 4" Base
Light Fire Truck Access & H/HS-15 loading. Typical 85 psi (586 kPa) tire pressure. Single axle loadings of 24 kips (110 kN). Gross vehicle loads of 60,000 lbs (27.2 MT). Infrequent passes.	Design 2 - 4" Base	Design 3 - 2" Base
Utility & Delivery Truck Access & H/HS-10 loading. Typical 60 psi (414 kPa) tire pressure. Single axle loadings of 16 kips (75 kN). Gross vehicle loads of 40,000 lbs (18.1 MT). Infrequent passes.	Design 3 - 2" Base	Design 3 - 2" Base
Care & Pick-up Truck Access. Typical 45 psi (310 kPa) tire pressure. Single axle loadings of 4 kips (18 kN). Gross vehicle loads of 8,000 lbs (3.6 MT). Infrequent passes.	Design 4 - No Base	Design 4 - No Base
Trail Use. Loading for pedestrian, wheelchair, equestrian, bicycle, motorcycle and ATV traffic.	Design 4 - No Base	Design 4 - No Base

- Notes:
- This information is based on the use of Geoblock 5150 manufactured by Presto Products Co. All rights reserved. Any use of this information for any rigid porous paver product other than that manufactured by Presto is strictly prohibited and makes this information invalid.
 - Engineered base is a homogenous mixture consisting of open graded crushed aggregate having an AASHTO # 5 or similar designation blended with pulverized topsoil and a void component generally containing air and/or water. This homogenous mixture will promote vegetative growth and provide required structural support. The aggregate portion shall have a particle range from 9.5 mm to 25 mm (0.375 to 1.0 in) with a D50 of 13 mm (0.5 in). The percentage void-space of the aggregate portion when compacted shall be at least 30%. The pulverized topsoil portion shall equal 33% +/- of the total volume and be added and blended to produce a homogenous mixture prior to placement.
 - If required, provide a non-woven geotextile separation layer and install in accordance with Manufacturer recommendations including overlaps based on sub grade CBR.
 - Connect Geoblock 5150 panels with the interlocking offset tab so that adjacent sections have horizontally level profiles.
 - Refer to the Geoblock 5150 Design and Construction Overview for a complete description of the design and construction methods.



GEOBLOCK 5150
NOT TO SCALE

GEOBLOCK 5150 MATERIAL SPECIFICATION	
MATERIAL	UP TO 100% RECYCLED POLYETHYLENE
COLOR	RANGES DARK SHADES GRAY TO BLACK
CHEMICAL RESISTANCE	SUPERIOR
CARBON BLACK FOR UV STABILIZATION, %	1.5 TO 2.0%
UNIT MIN CRUSH STRENGTH - EMPTY @ 70F (21C)	420 PSI (2,900 KPa)
UNIT MIN CRUSH STRENGTH - SAND FILLED @ 70F (21C)	7,058 PSI (48,734 KPa)
FLEXURAL MODULUS @ 73F (21C)	35,000 PSI (240,000 KPa)
NOMINAL DIMENSIONS - WIDTH X LENGTH	20 X 40 IN (0.5 X 1.0 M)
NOMINAL UNIT DEPTH	2 IN (50 MM)
NOMINAL AREA	5.3 SQFT (0.5 SQMTR)
CELLS PER UNIT	72
CELL SIZE	3.1 X 3.2 IN (79 X 81 MM)
TOP OPEN AREA PER UNIT	87%
BOTTOM OPEN AREA PER UNIT	41%
INTERLOCKING OFFSET SHEAR TRANSFER PINS	12 TABS PER 40 IN (PER 1 M)
NOMINAL WEIGHT PER UNIT	8.7 LBS (4.0 KG)
RUNOFF COEFFICIENT @ 2.5 IN/HR (64 MM) RAIN	0.15
UNITS PER PALLET	50



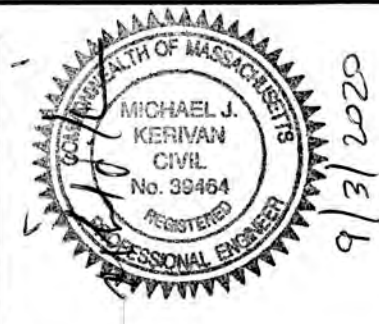
APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE:

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Design: WGM Draft: RMK Date: 05/06/20
Checked: WGM Scale: AS NOTED Project No.: 13153
Drawing Name: 13153-PLAN.dwg

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Civil Engineering Services

603-772-4746 FAX: 603-772-0227 E-Mail: JBE@JONESANDBEACH.COM

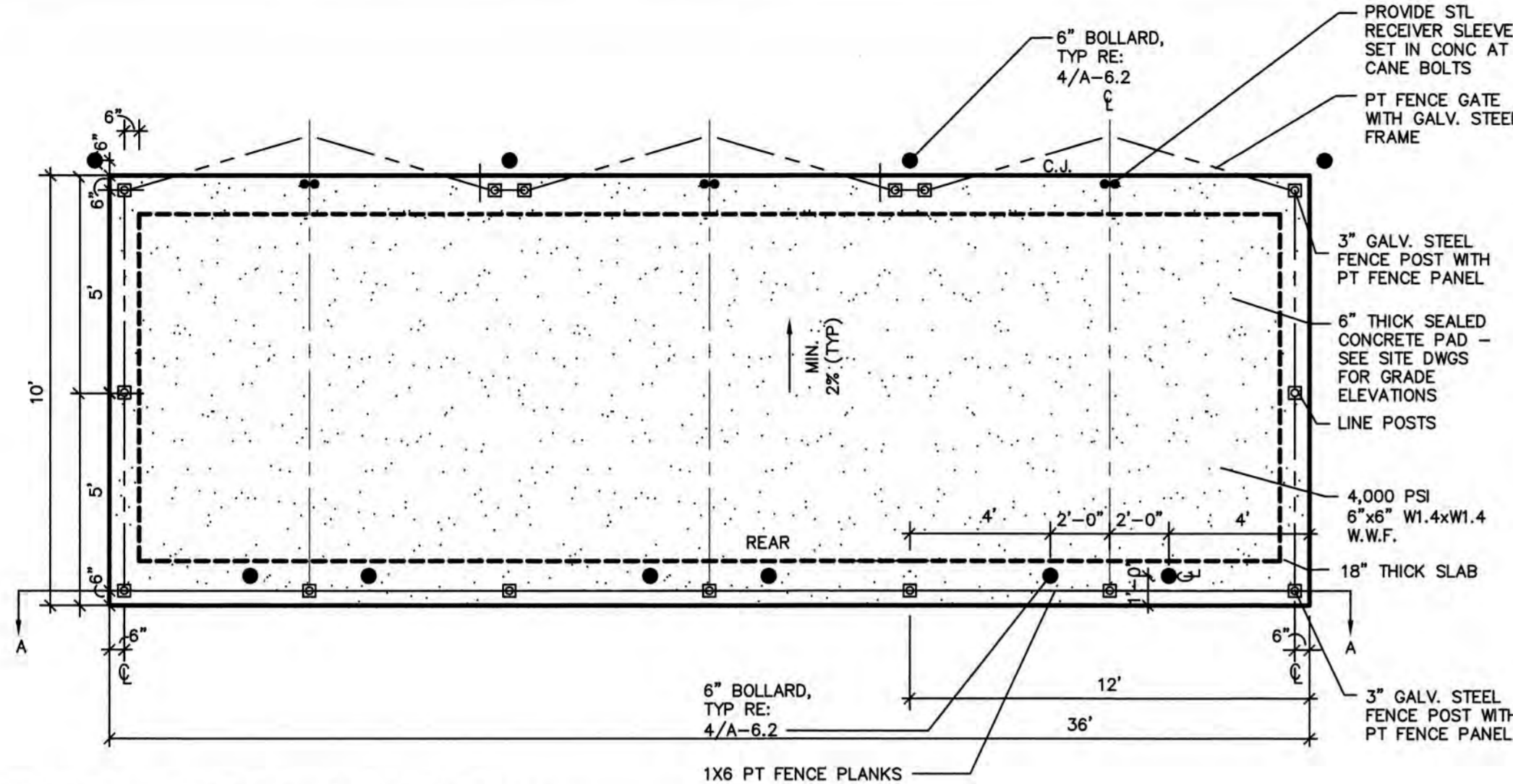
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Project: **PROPOSED CENTRAL SQUARE
340 E CENTRAL STREET, FRANKLIN, MA**

Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

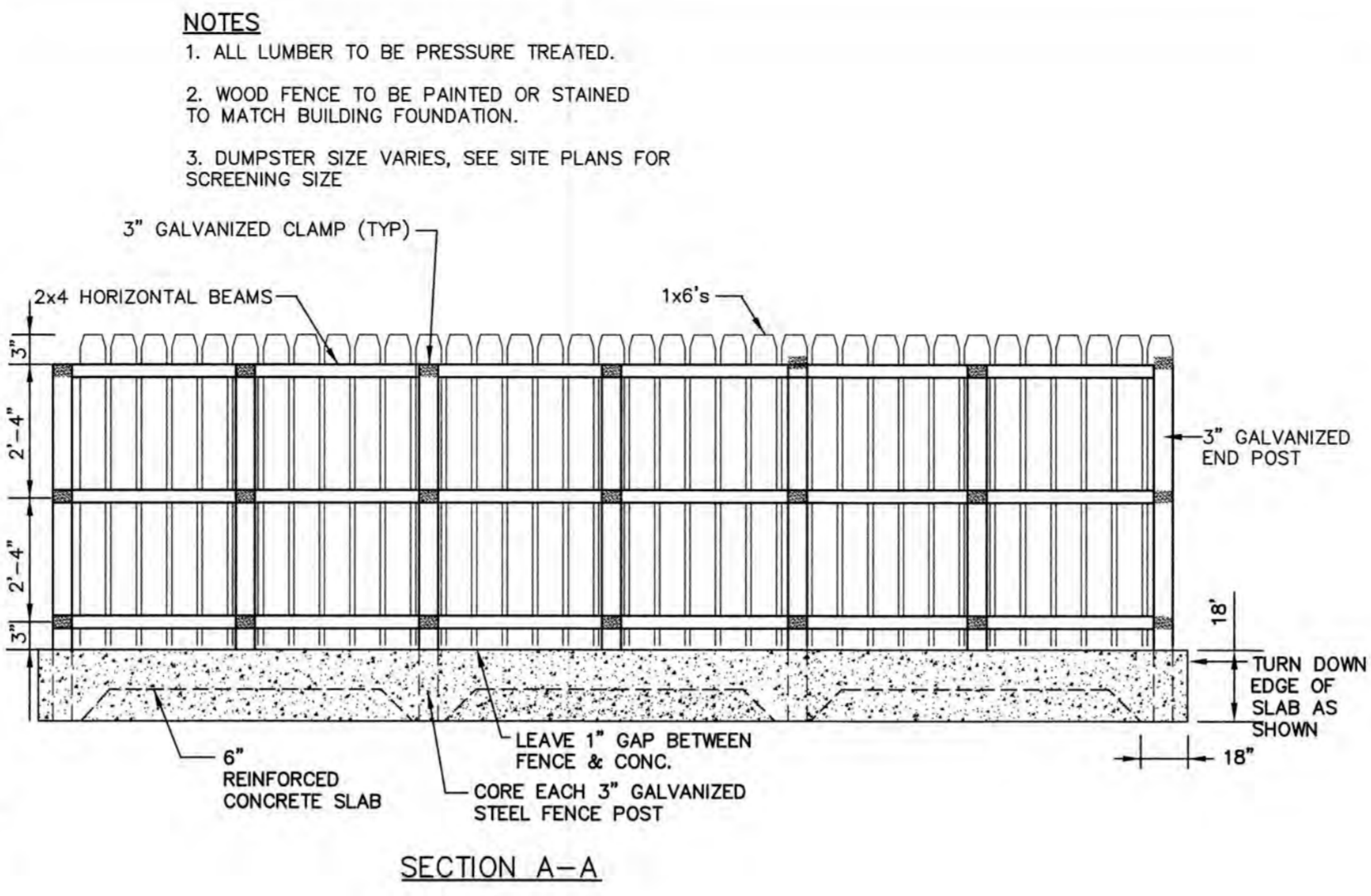
DRAWING No. **D7**

SHEET 16 OF 19
JBE PROJECT NO. 13153

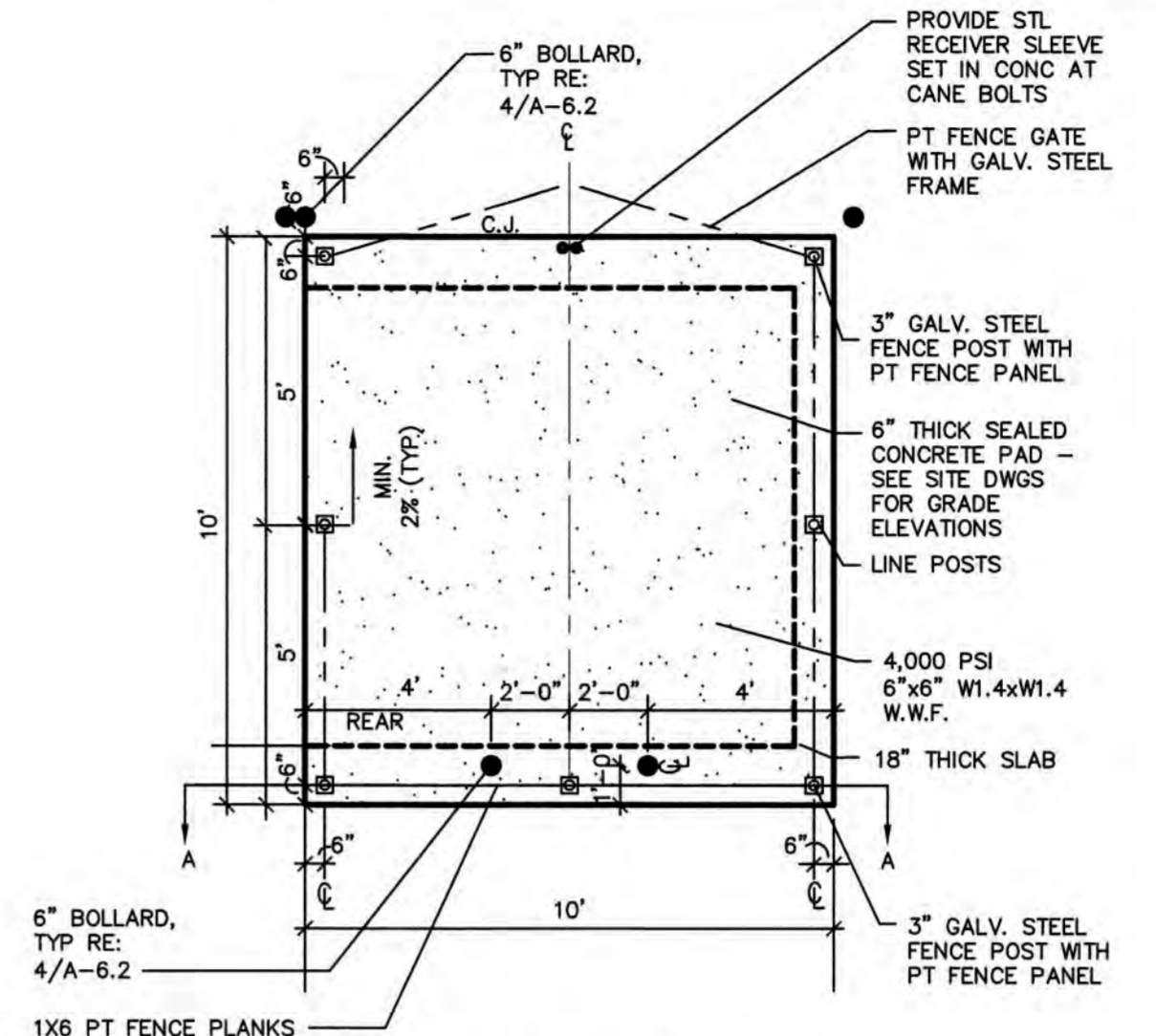


TRIPLE DUMPSTER ENCLOSURE PLAN

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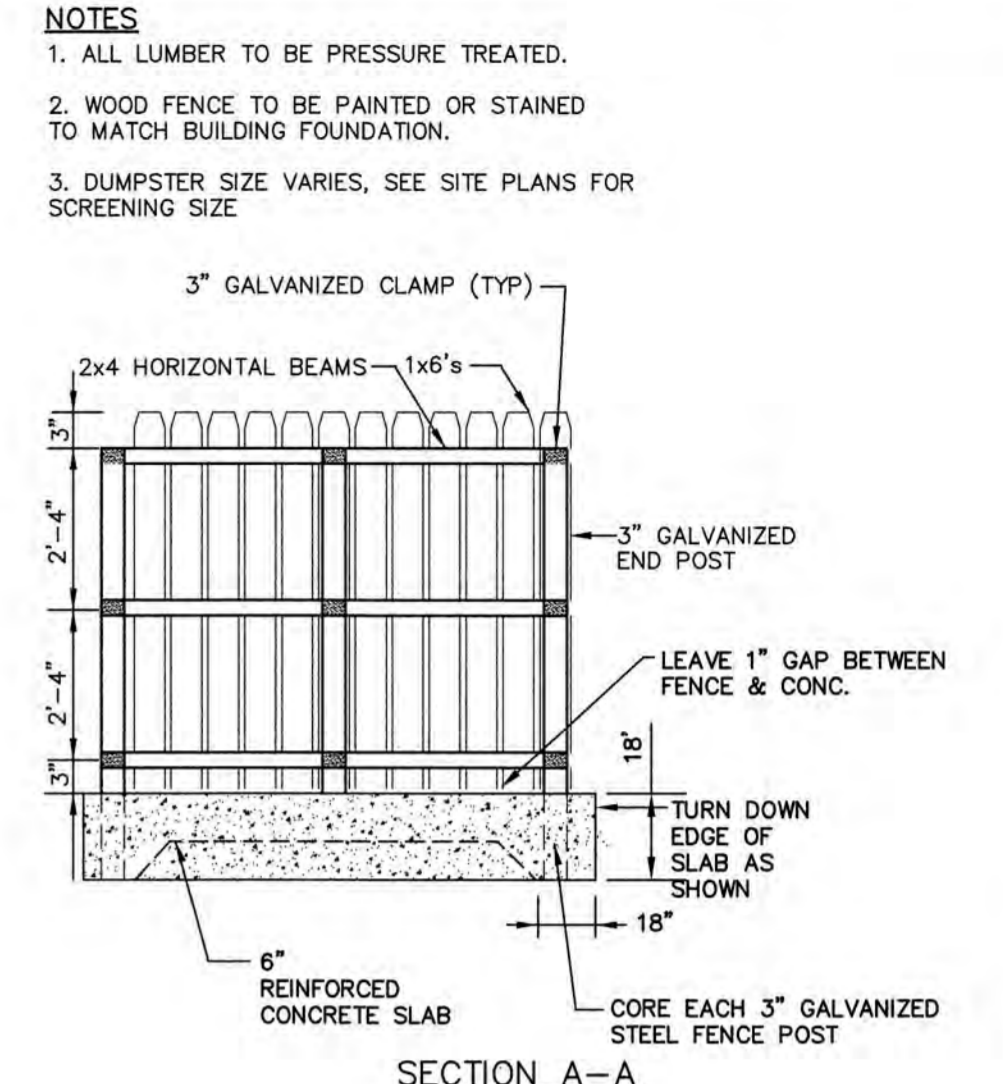


SECTION A-A

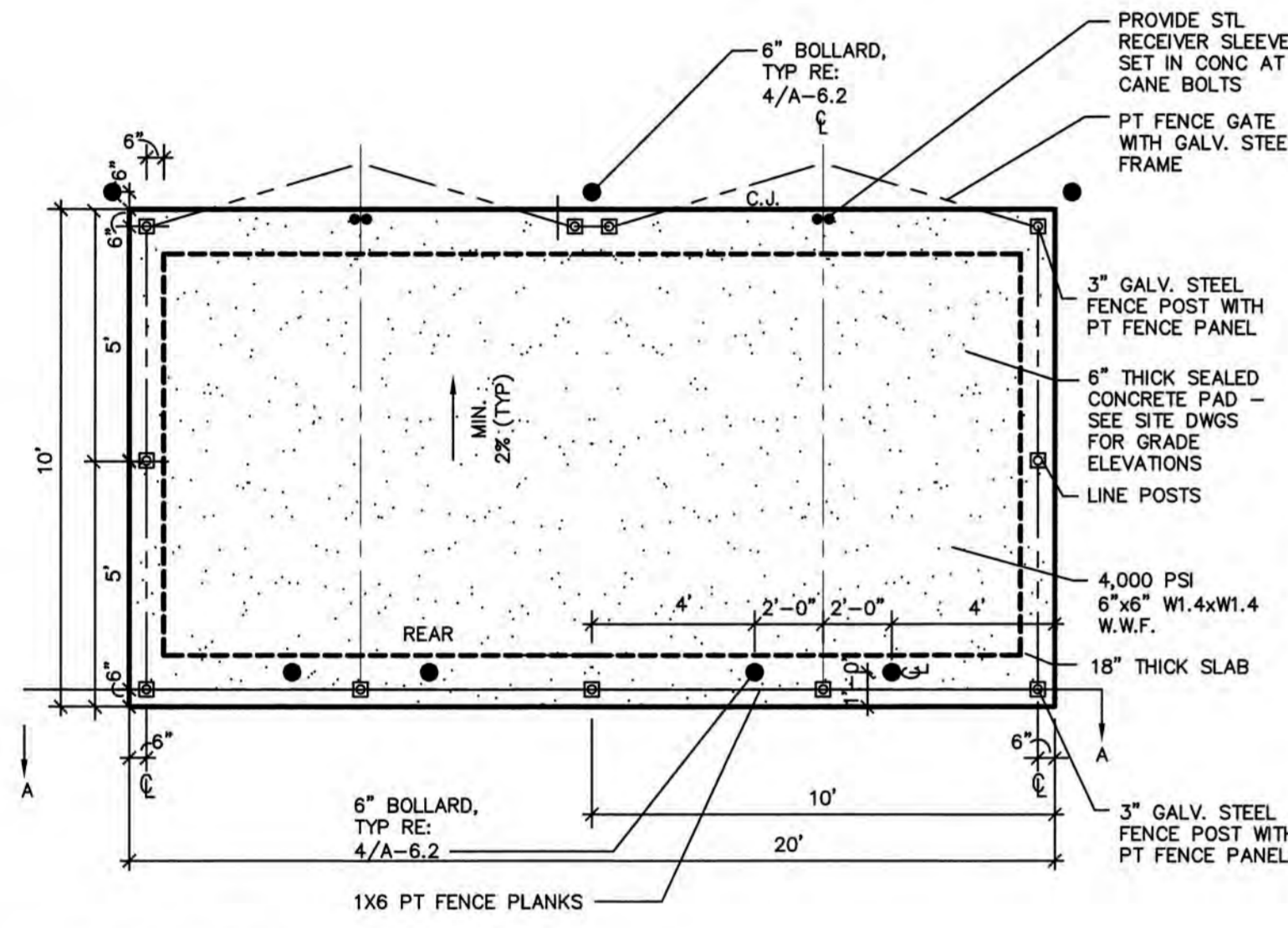


SINGLE DUMPSTER ENCLOSURE PLAN

NOT TO SCALE

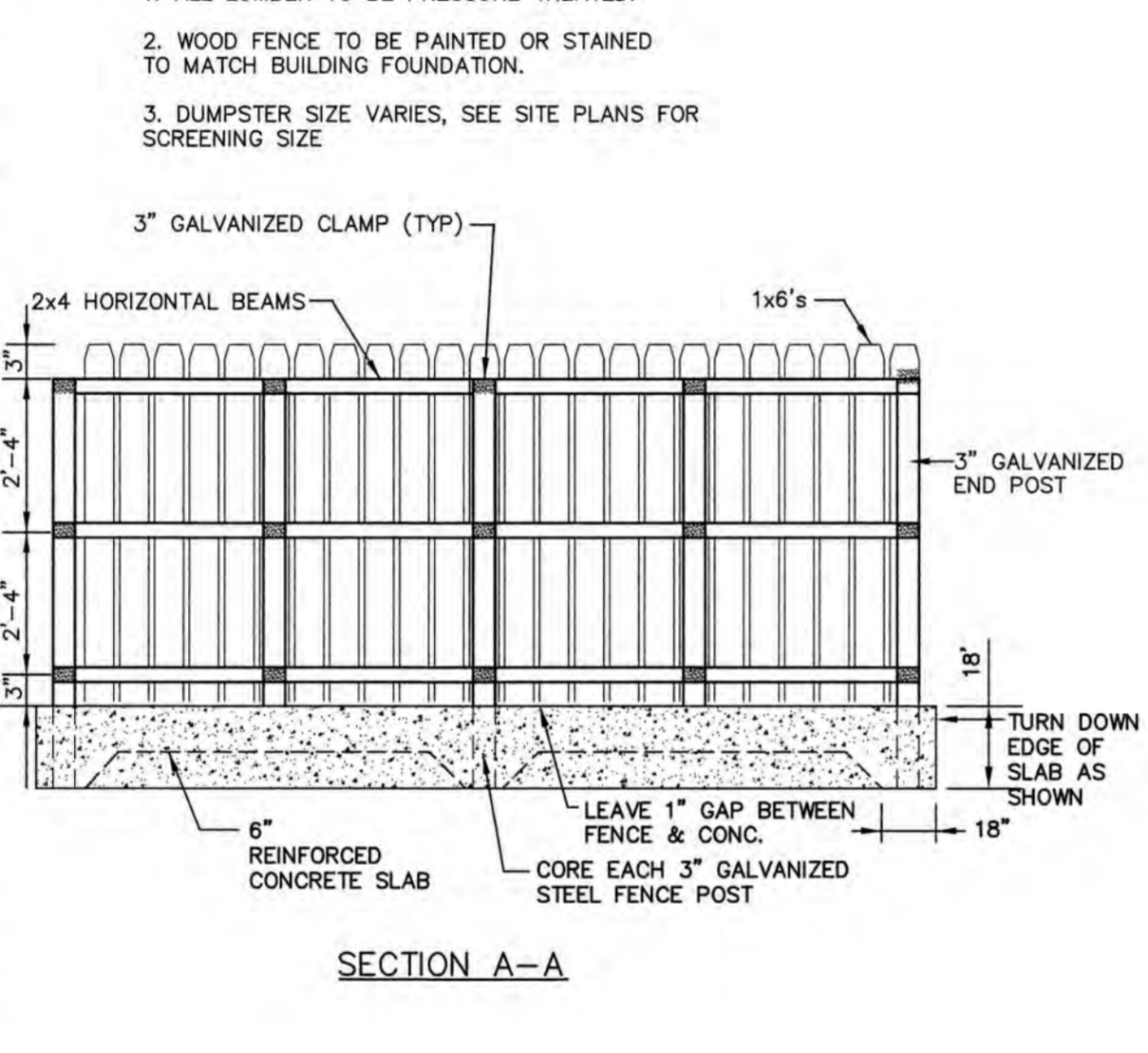


SECTION A-A

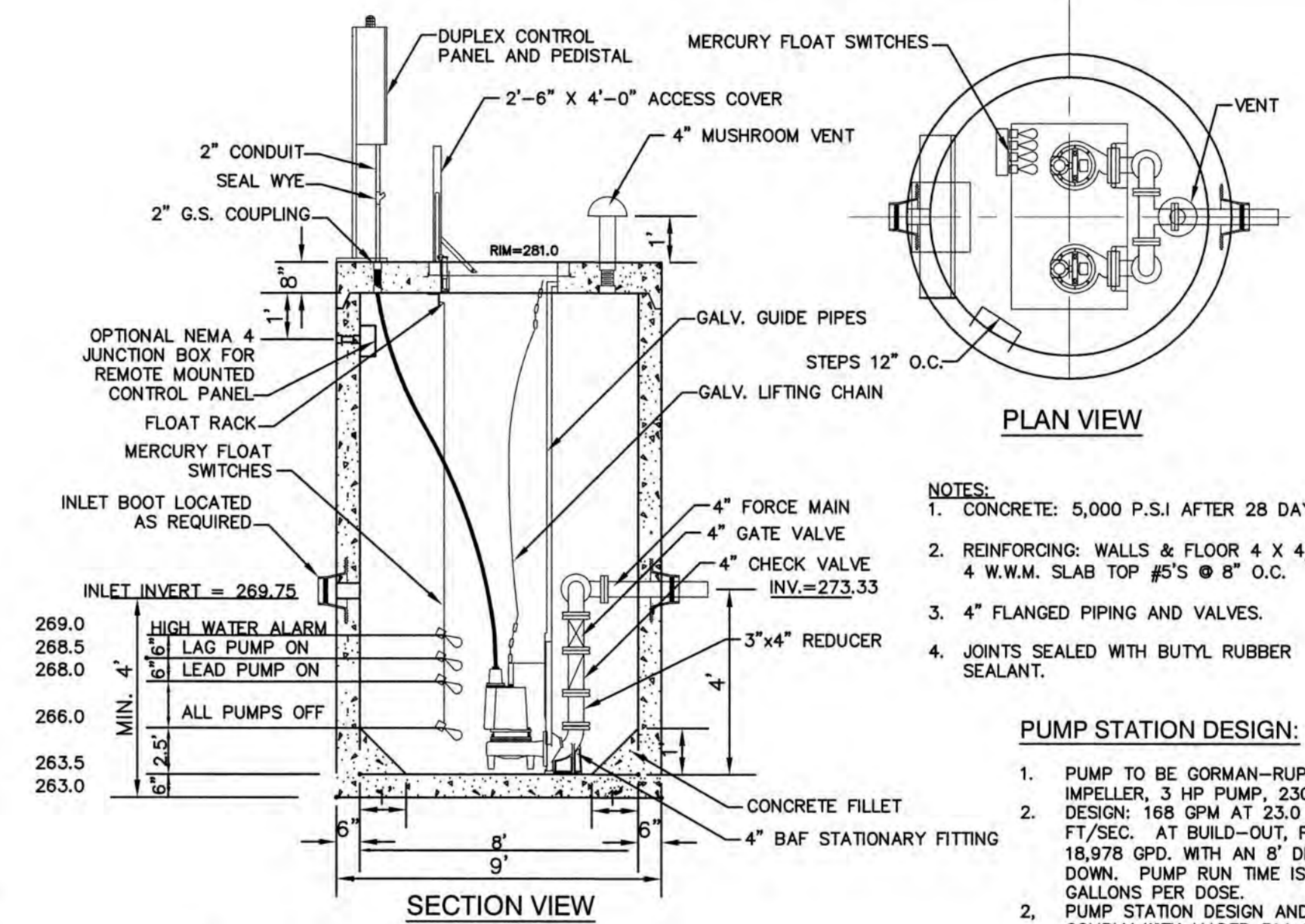


DOUBLE DUMPSTER ENCLOSURE PLAN

NOT TO SCALE

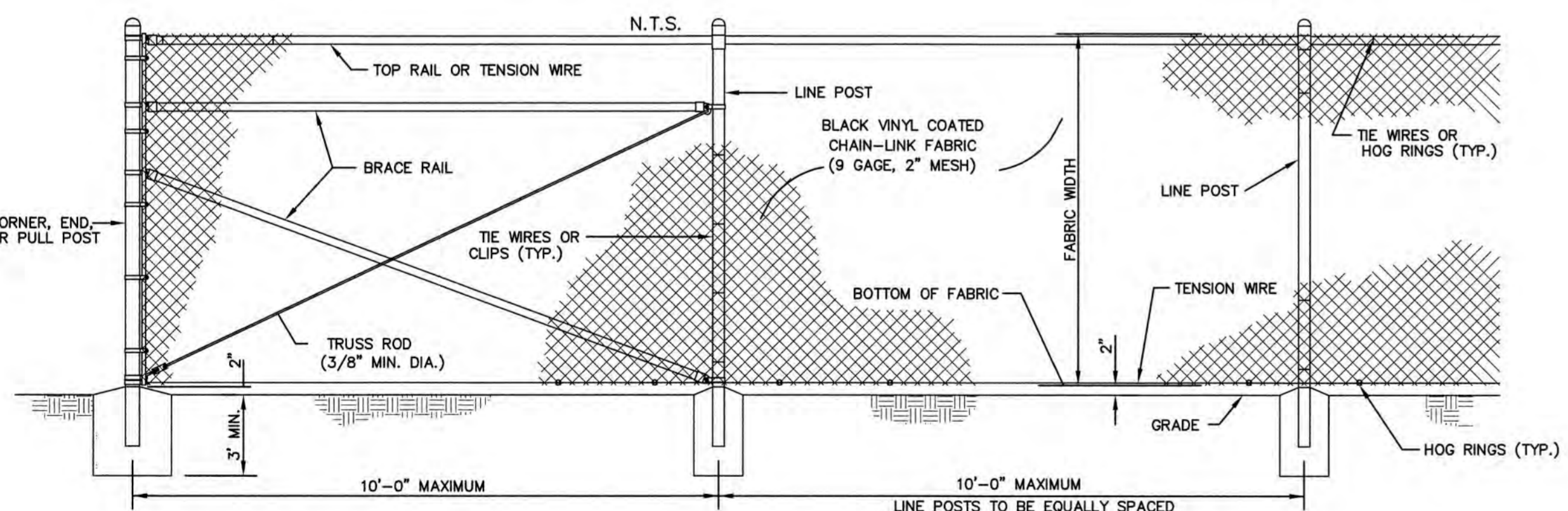


SECTION A-A



SEWER PUMP STATION #1

NOT TO SCALE

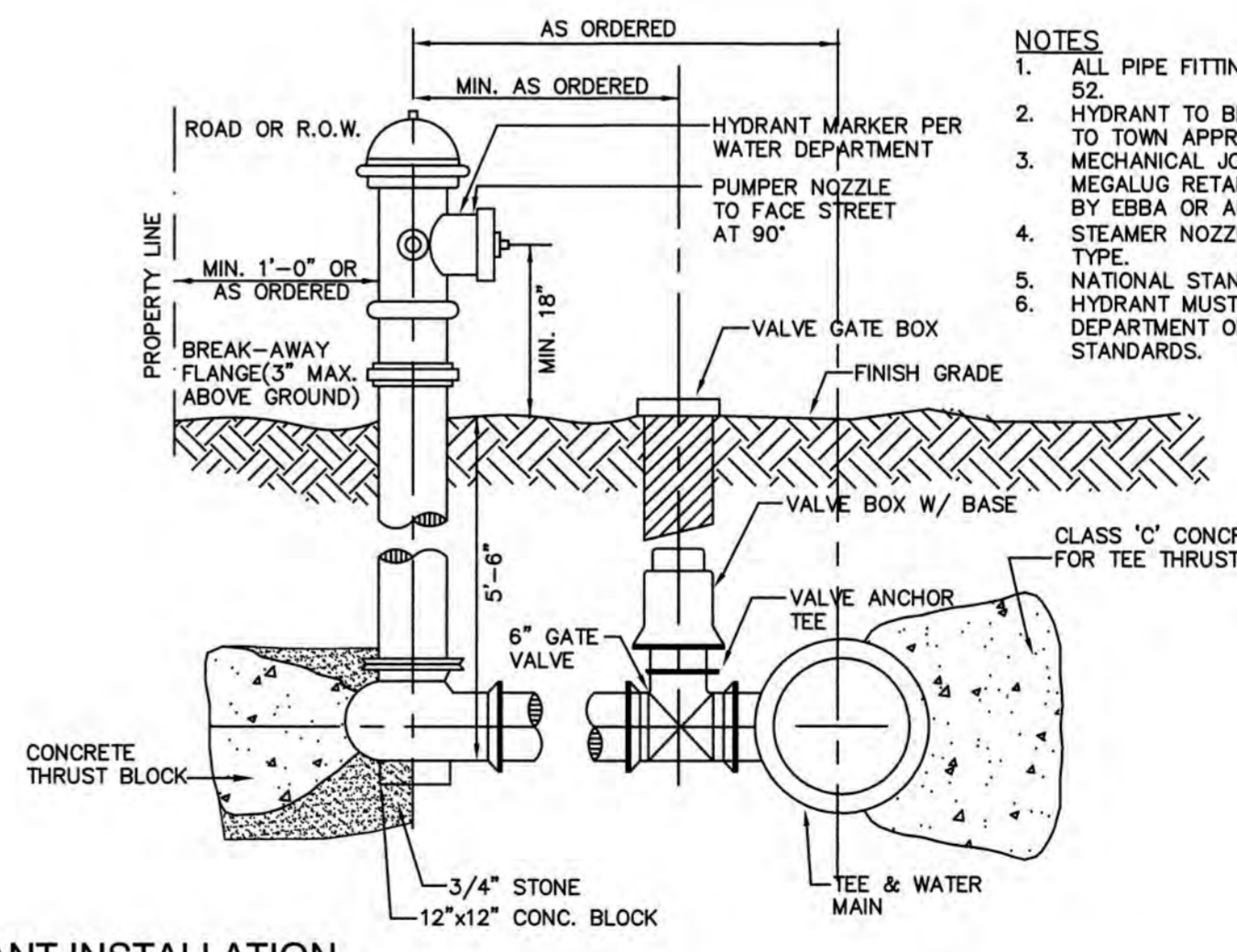


PUMP STATION DESIGN:

1. BLACK SLAT LATTICE TO BE INTERWOVEN IN CHAIN LINK FENCE TO PROVIDE SCREENING.
2. DEPTH OF POST AT INSERTION POINT TO BE EQUAL TO TWICE THE HEIGHT OF 1:1 SLOPE AT EACH POST LOCATION.

6' HIGH BLACK VINYL CHAIN-LINK FENCE

NOT TO SCALE



HYDRANT INSTALLATION

NOT TO SCALE

APPROVED - FRANKLIN, MA
PLANNING BOARD

DATE: _____

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Design: WGM	Draft: RMK	Date: 05/06/20
Checked: WGM	Scale: AS NOTED	Project No.: 13153
Drawing Name: 13153-PLAN.dwg		

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REV.	DATE	REVISION	BY
3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
2	08/19/20	REVISED PER REVIEW ENGINEER COMMENTS 2	EMP
1	07/31/20	REVISED PER REVIEW ENGINEER COMMENTS	EMP
0	05/06/20	ISSUED FOR REVIEW	EMP
		REVISION	BY

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

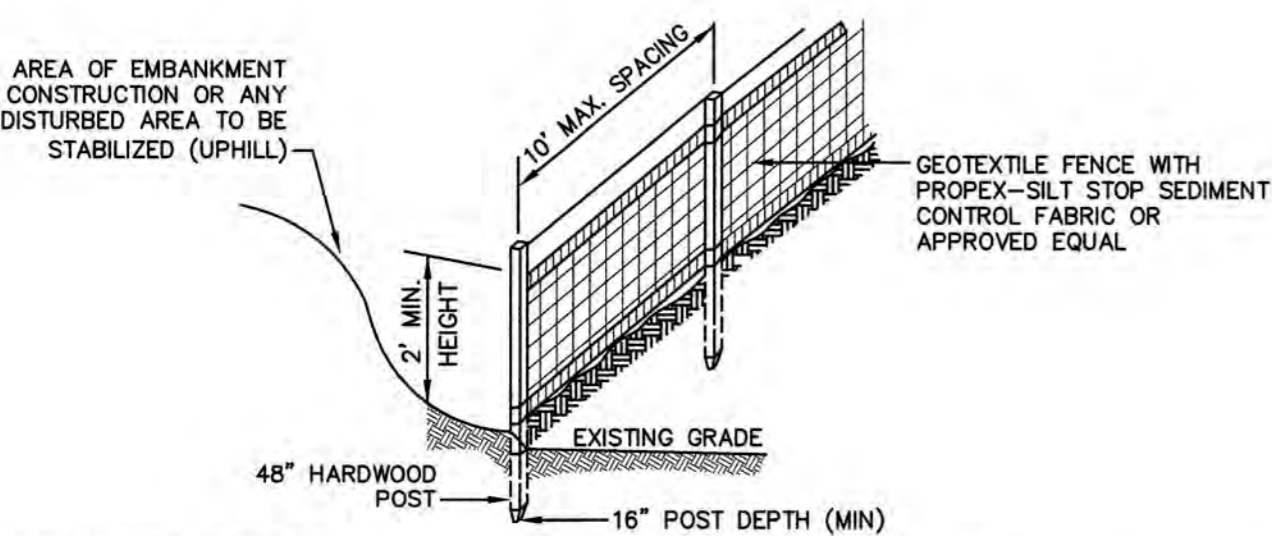
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

DRAWING No.

D8

SHEET 17 OF 19
JBE PROJECT NO. 13153

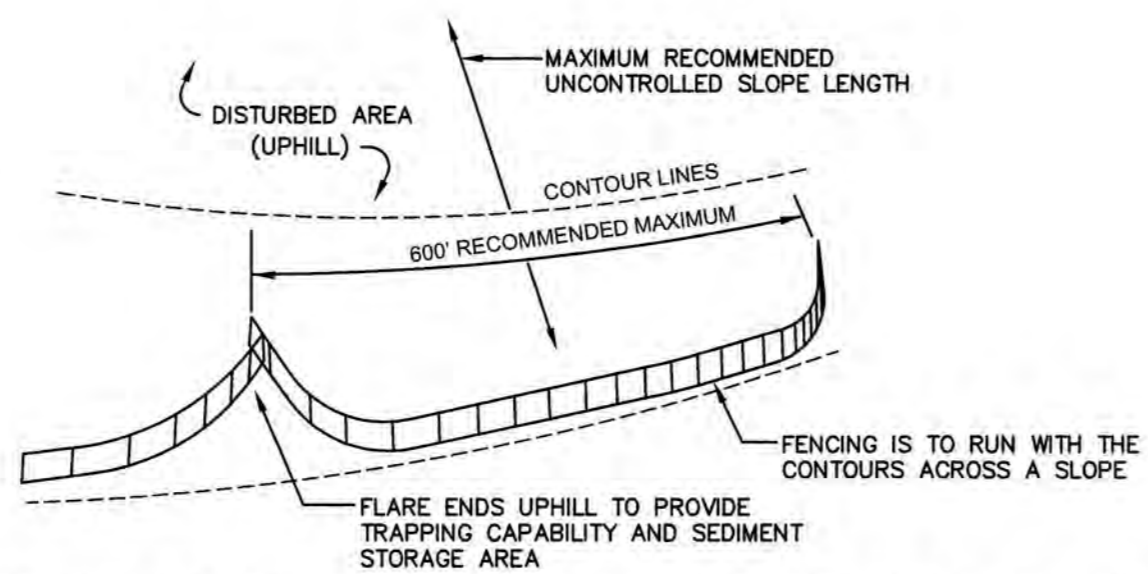


CONSTRUCTION SPECIFICATIONS:

- WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
- THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
- PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
- SILT FENCE SHALL REMAIN IN PLACE FOR 24 MONTHS.

SILT FENCE

NOT TO SCALE

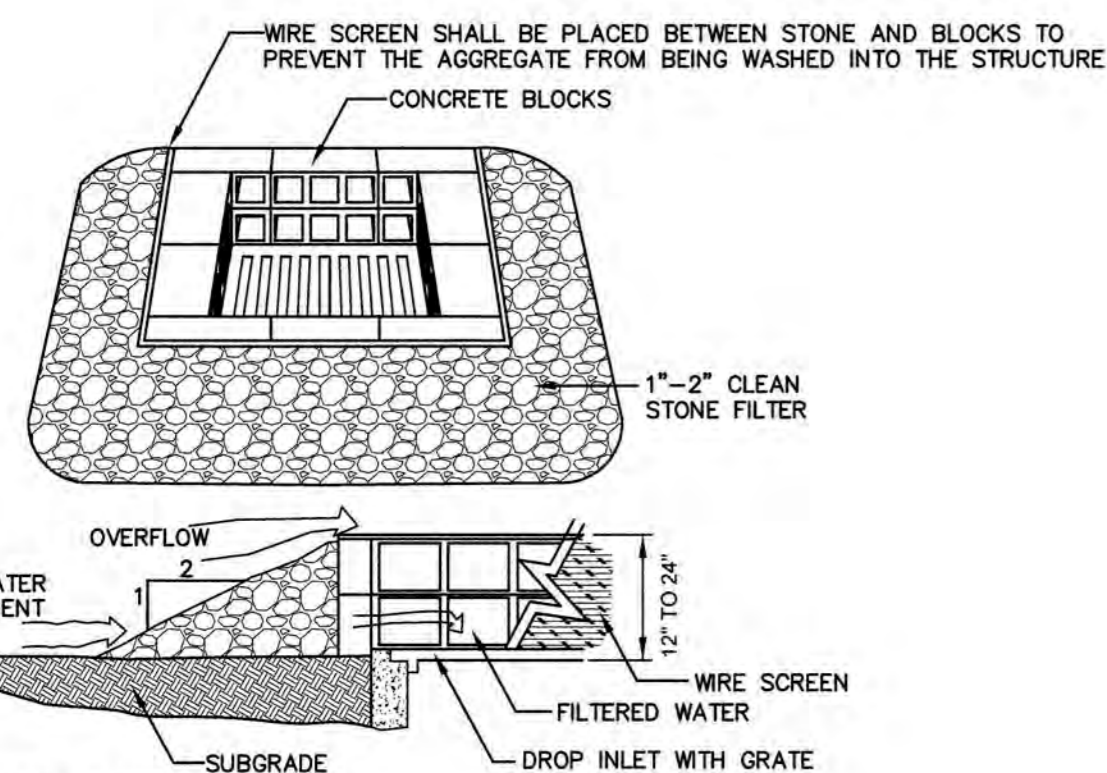


SEEDING SPECIFICATIONS

- GRADING AND SHAPING**
 - SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
 - WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
- SEEDBED PREPARATION**
 - SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
 - STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
- ESTABLISHING A STAND**
 - LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
 - AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
 - NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
 - PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
 - POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
 - (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
 - SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH 25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
 - REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFILOID AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
 - WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20TH OR FROM AUGUST 10TH TO SEPTEMBER 1ST.
- MULCH**
 - HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
 - MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
- MAINTENANCE TO ESTABLISH A STAND**
 - PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
 - FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
 - IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

TEMPORARY EROSION CONTROL NOTES

- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF THAT REQUIRED FOR CONSTRUCTION BE EXPOSED.
- EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED OR DIRECTED BY THE ENGINEER.
- ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
- COMPOST FILTER TUBE AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND REVEGETATED.
- AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL.
- ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE. SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER MASSDOT ITEM 304.3.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- IN ORDER TO ENSURE THE STABILITY OF THE SITE AND EFFECTIVE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED IN THE PLANS FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE IN STRICT COMPLIANCE WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS IN ADDITION TO THOSE CALLED FOR IN THE SWPPP:
 - A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL OR A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS ("MONITOR") SHALL BE EMPLOYED TO INSPECT THE SITE FROM THE START OF EARTH MOVING ACTIVITIES UNTIL THE SITE IS STABLE.
 - DURING THIS PERIOD, THE MONITOR SHALL INSPECT THE SUBJECT SITE AT LEAST ONCE A WEEK, AND IF POSSIBLE, DURING ANY 1/2 INCH OR GREATER RAIN EVENT (I.E. 1/2 INCH OF PRECIPITATION OR MORE WITHIN A 24 HOUR PERIOD). IF UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THIS EVENT.
 - THE MONITOR SHALL PROVIDE TECHNICAL ASSISTANCE AND RECOMMENDATIONS TO THE CONTRACTOR ON THE APPROPRIATE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROLS REQUIRED TO MEET THE REQUIREMENTS OF ALL APPLICABLE DES PERMIT CONDITIONS.

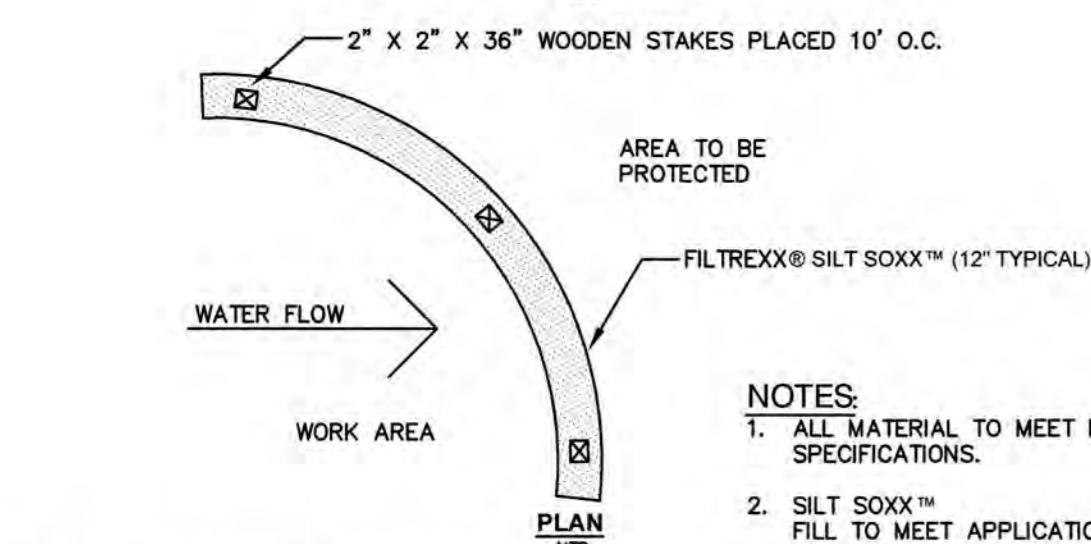
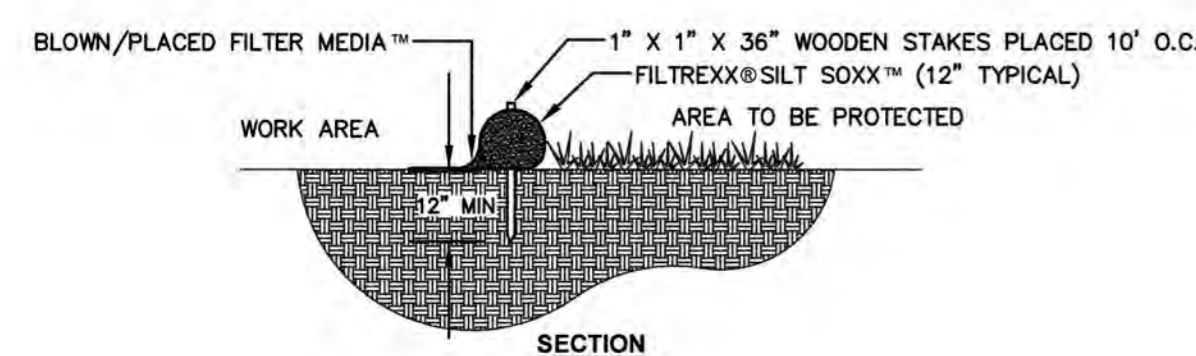


MAINTENANCE NOTE:

- ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

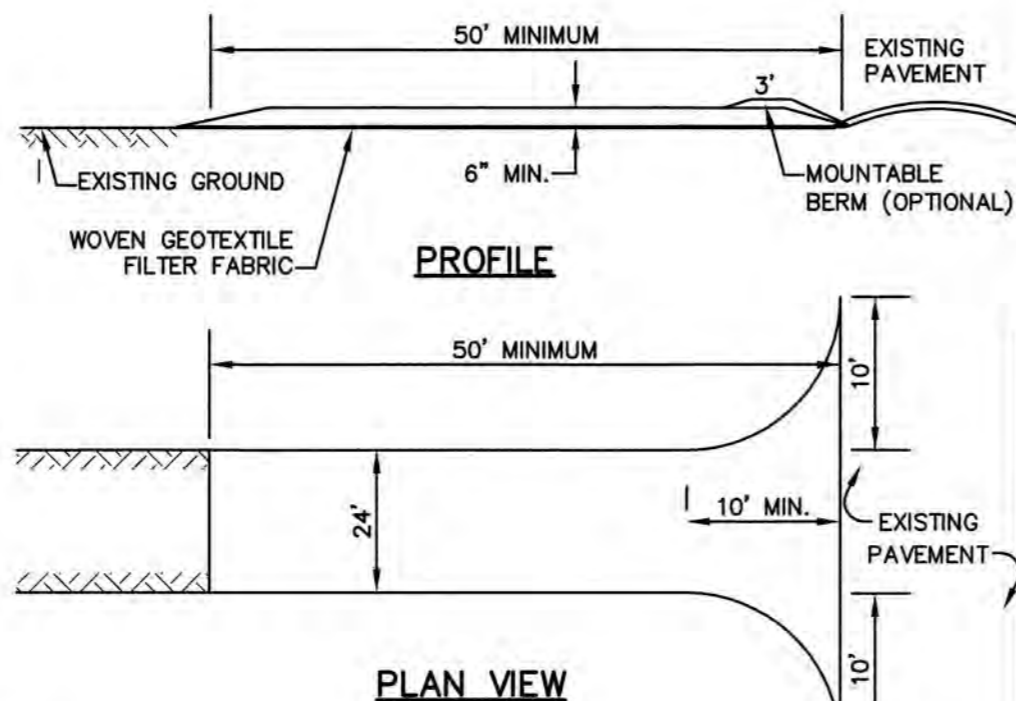
TEMPORARY CATCH BASIN INLET PROTECTION (Block and Gravel Drop Inlet Sediment Filter)

NOT TO SCALE



FILTREXX® SILT SOXX™

NOT TO SCALE



NOTES:

- STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
- THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
- THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
- THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
- GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
- ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSINGS WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	GOOD
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	F	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.
1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.
A. TALL FESCUE	20	0.45
CREeping RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREeping RED FESCUE	10	0.25
CROWN VETCH OR FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C. TALL FESCUE	20	0.45
CREeping RED FESCUE	20	0.45
BIRDS FOOT TREFILOID	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREeping RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/2	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES

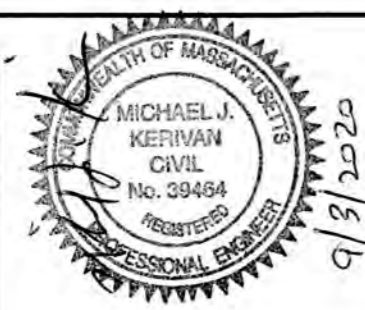
APPROVED - FRANKLIN, MA PLANNING BOARD

DATE:

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Design: WGM Draft: RMK Date: 05/06/20
 Checked: WGM Scale: AS NOTED Project No.: 13153
 Drawing Name: 13153-PLAN.dwg

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0	05/06/20	ISSUED FOR REVIEW	EMP

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. PO Box 219 Stratham, NH 03888

Civil Engineering Services

603-772-4746
 FAX: 603-772-0227
 E-Mail: JBE@JONESANDBEACH.COM

Plan Name: **EROSION AND SEDIMENT CONTROL DETAILS**

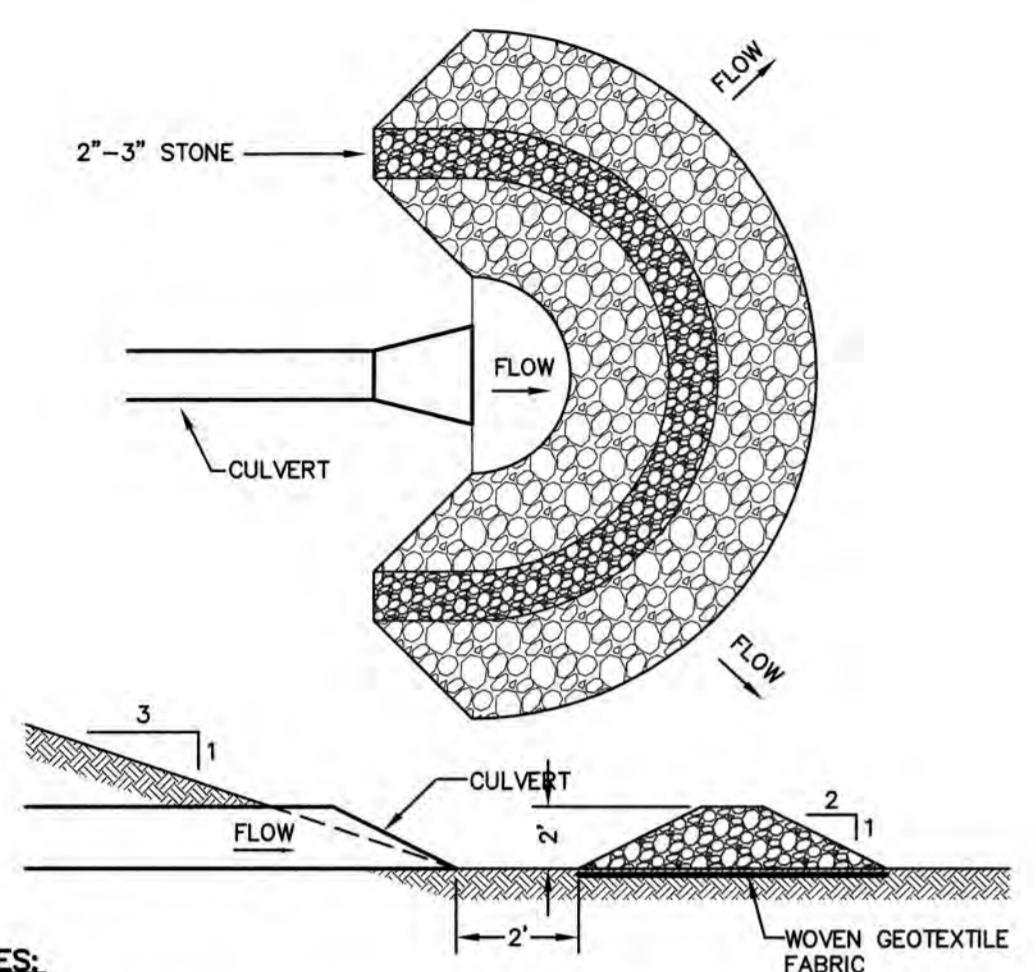
Project: **PROPOSED CENTRAL SQUARE
 340 E CENTRAL STREET, FRANKLIN, MA**

Owner of Record: 340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190578

DRAWING No. **E1**

SHEET 18 OF 19
 JBE PROJECT NO. 13153

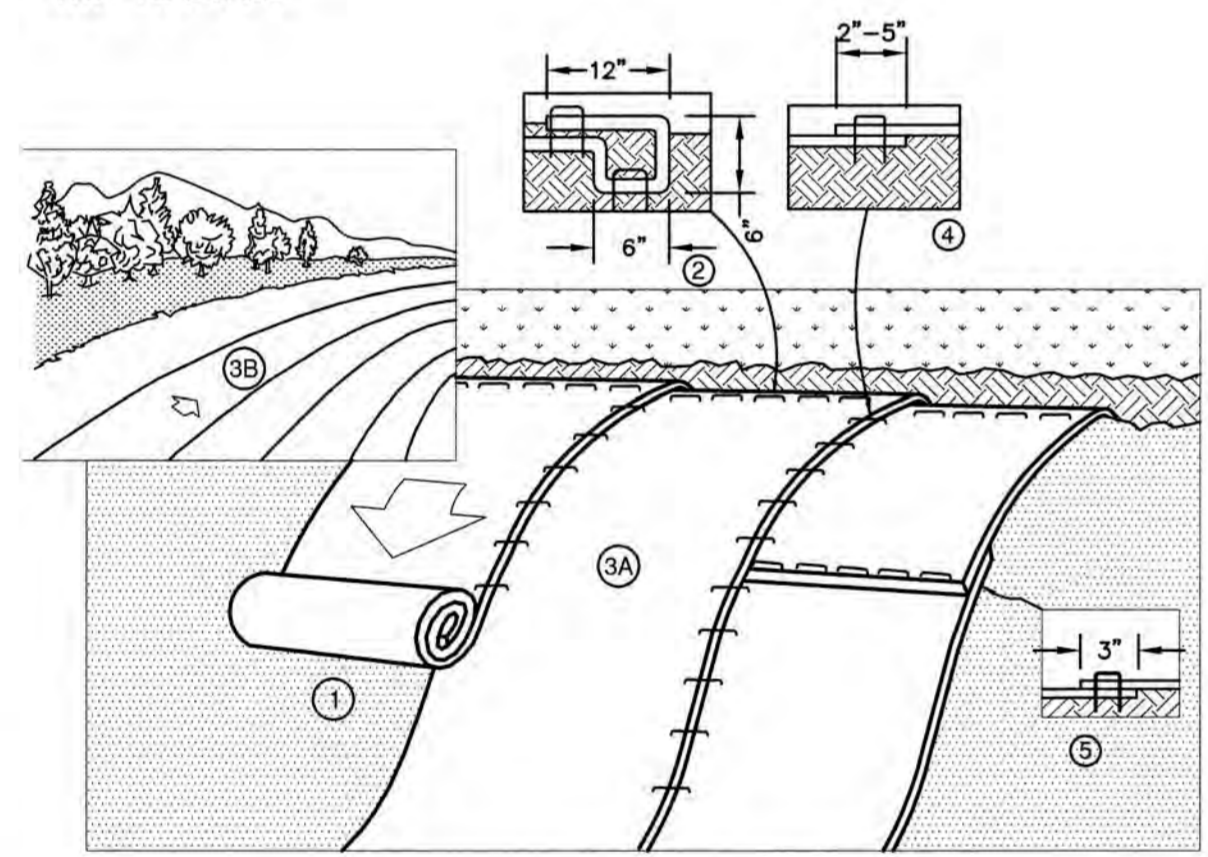
DATE:



- NOTES:**
1. TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2-3" STONE OVER WOVEN GEOTEXTILE FABRIC.
 2. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
 3. STRUCTURE SHALL BE REMOVED WHEN THE SITE IS STABILIZED WITH THE PROPOSED RIP RAP FIELD. AREAS OUTSIDE THE RIP RAP FIELD ARE TO BE VEGETATED AND SMOOTHED.

TEMPORARY CULVERT OUTLET PROTECTION CHECK DAM

NOT TO SCALE

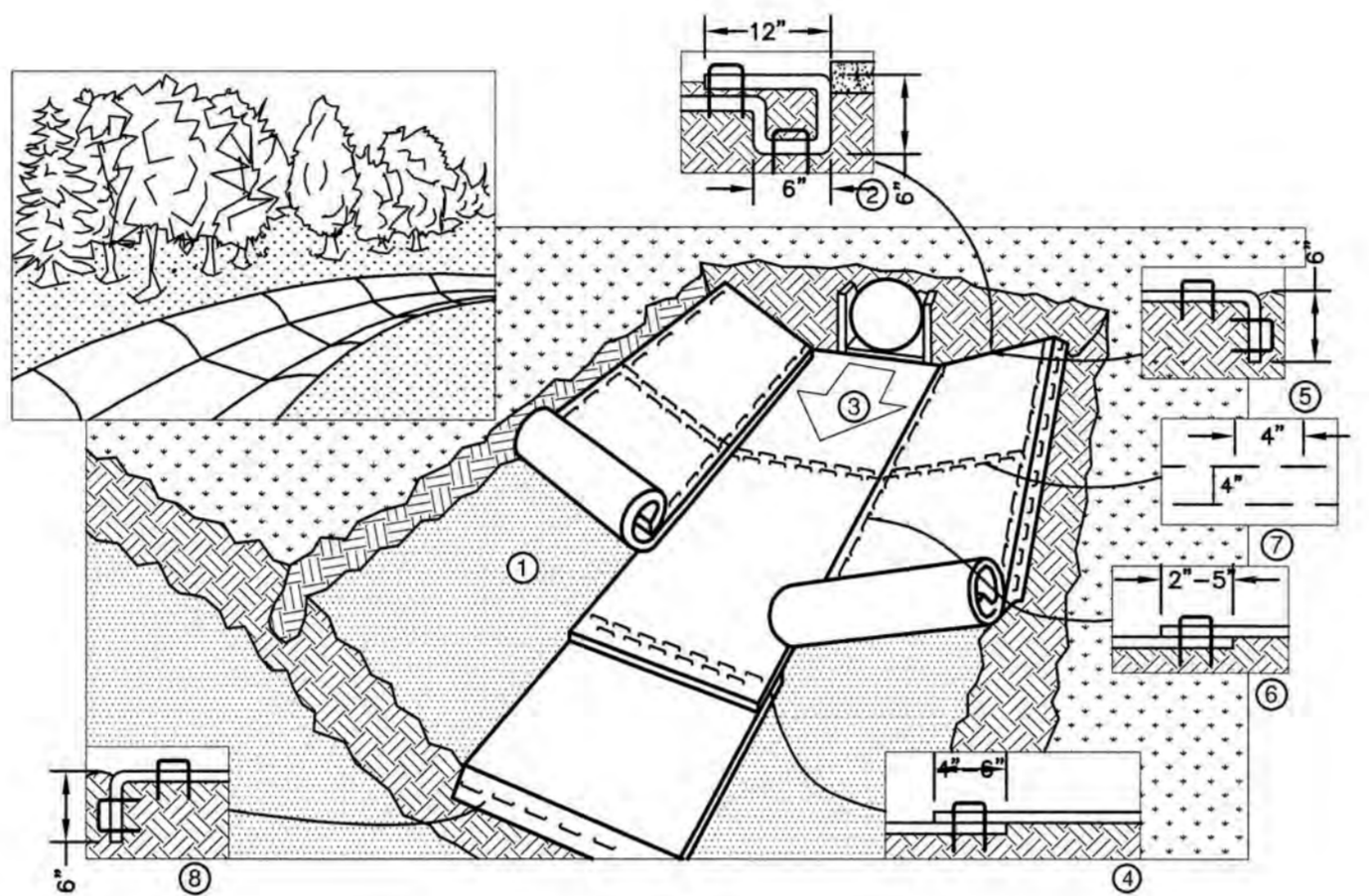


- NOTES:**
1. EROSION CONTROL BLANKET SHALL BE BIONET S75 AS PRODUCED BY NORTH AMERICAN GREEN (OR AN EQUIVALENT NATURAL MATERIAL MATTING APPROVED IN WRITING BY THE ENGINEER).
 2. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
 3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
 4. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 5. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
 6. CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040

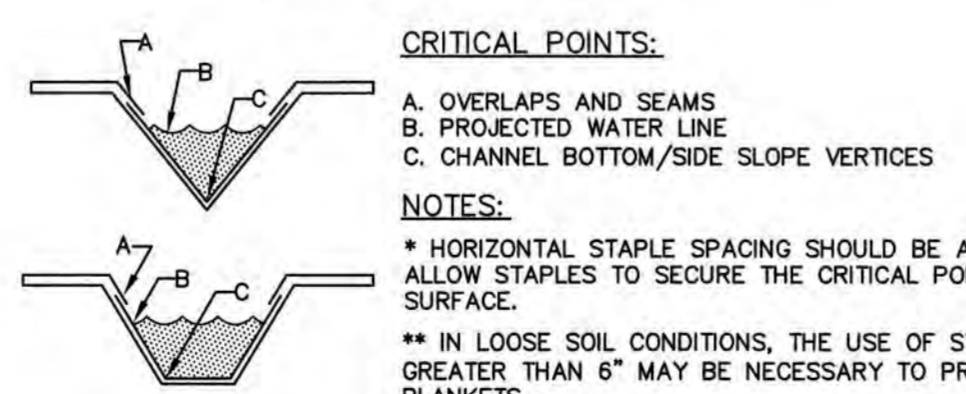
EROSION CONTROL BLANKET SLOPE INSTALLATION

NOT TO SCALE



- NOTES:**
1. EROSION CONTROL BLANKET SHALL BE BIONET S75 AS PRODUCED BY NORTH AMERICAN GREEN (OR AN EQUIVALENT NATURAL MATERIAL MATTING APPROVED IN WRITING BY THE ENGINEER).
 2. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
 3. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
 4. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 5. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
 6. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 7. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (DEPENDING ON BLANKET TYPE) AND STAPLED. TO INSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
 8. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
 9. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

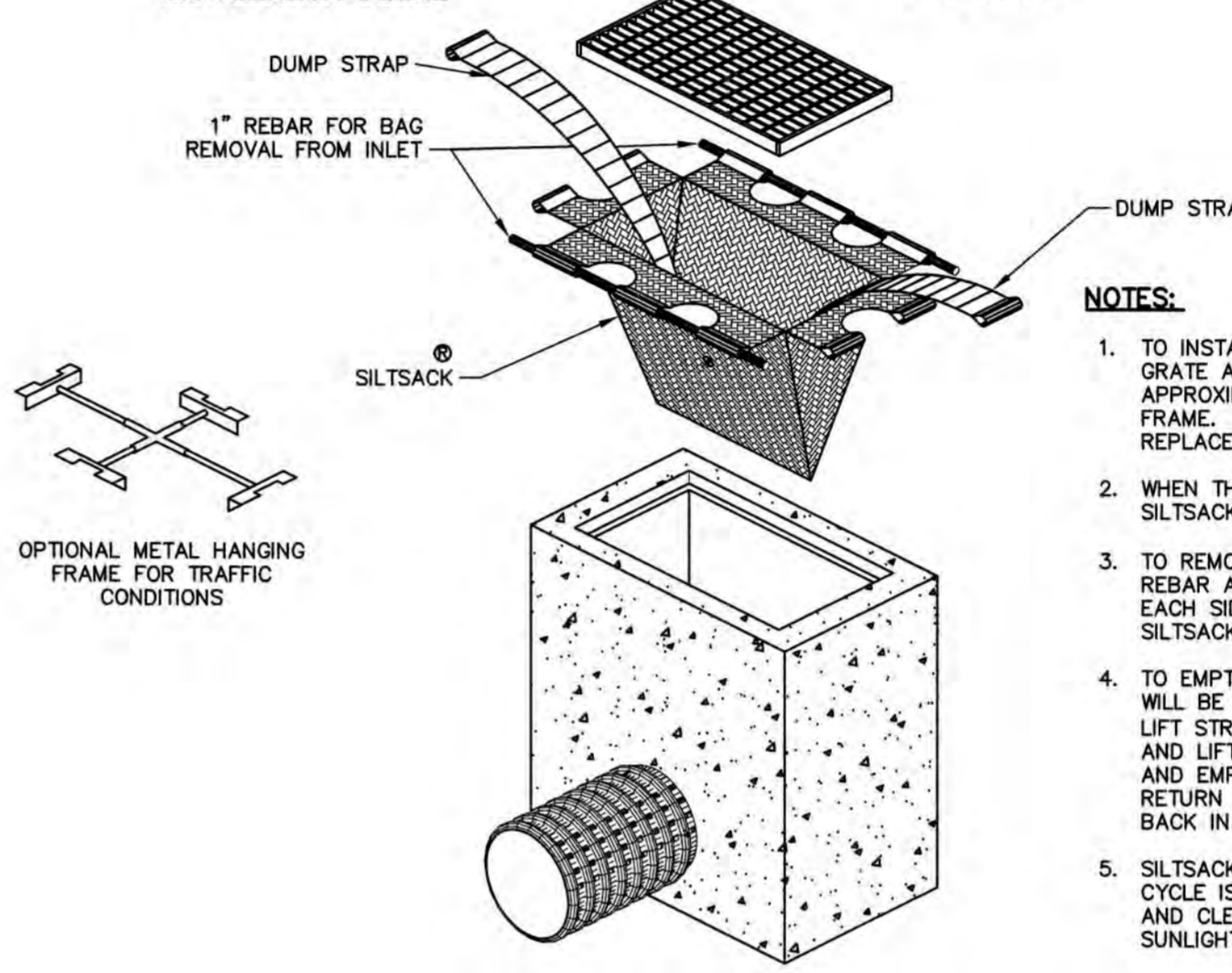
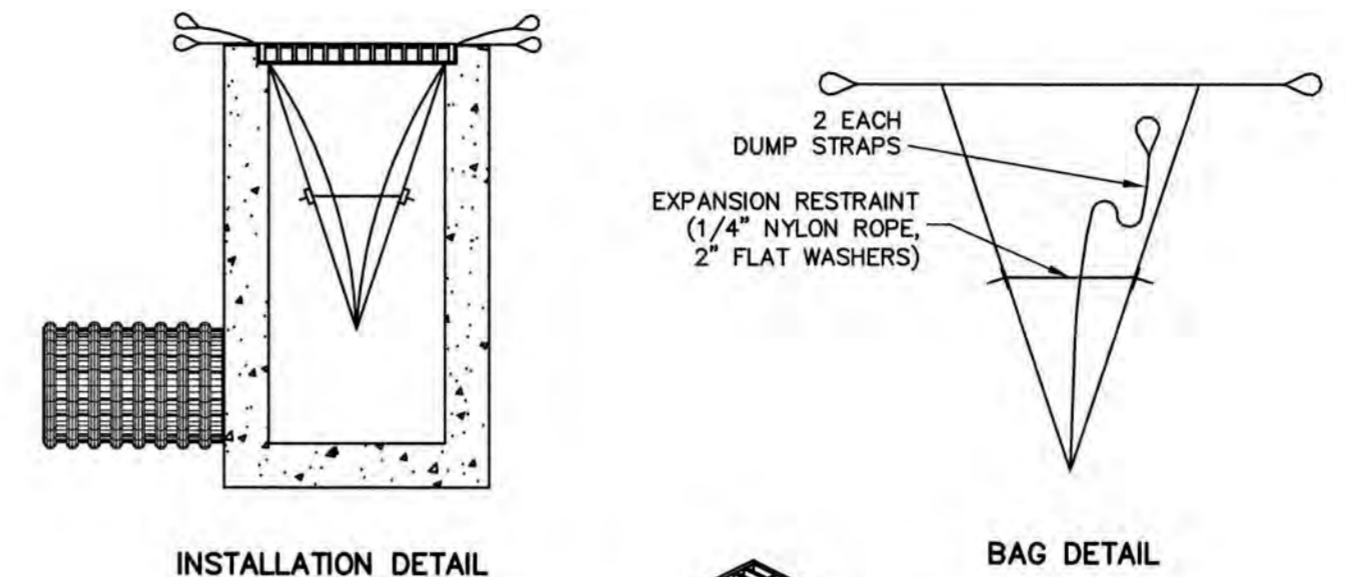
NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH
EVANSVILLE, INDIANA 47725
1-800-772-2040



EROSION CONTROL BLANKET SWALE INSTALLATION

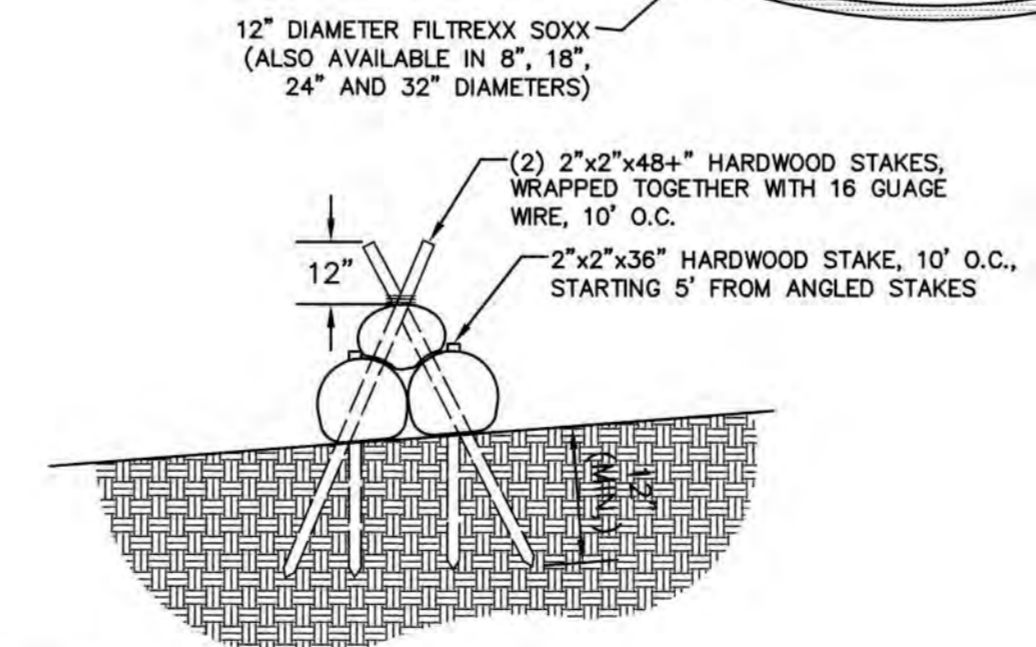
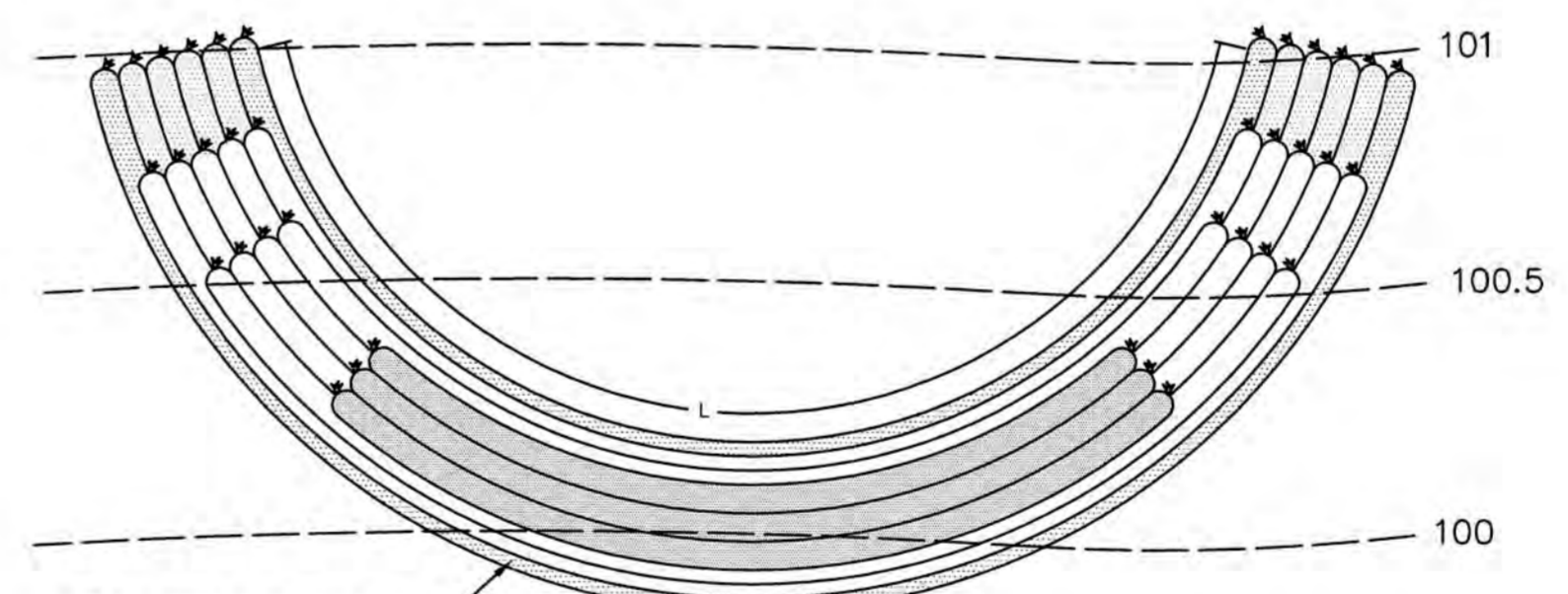
(North American Green)

NOT TO SCALE



SILTSACK INLET SEDIMENT CONTROL DEVICE
TYPE A - WITHOUT CURB DEFLECTOR

NOT TO SCALE



FILTREXX SEDIMENT TRAP DETAIL

NOT TO SCALE

- NOTES:**
1. FILTREXX SEDIMENT TRAP MUST BE INSTALLED BY FILTREXX CERTIFIED INSTALLER.
 2. FILTREXX SEDIMENT TRAP MUST BE COMPLY WITH ALL FILTREXX STANDARD SPECIFICATIONS.
 3. FILTREXX SEDIMENT TRAP MUST USE FILTREXX FILTERMEDIA.
 4. FILTREXX SEDIMENT TRAP BARRIER FACE SIZING SHALL USE $Q/0.98CFM(PER SF OF AREA FACE) = A (Q=SL/SEC/SQ.M)$
 5. FILTREXX SEDIMENT TRAP BARRIER FACE SHALL BE MEASURED AS $A=L*W$.
 6. FILTREXX SEDIMENT TRAP SHALL BE CONSTRUCTED SO THAT THE MINIMUM BASE WIDTH IS EQUIVALENT TO THE HEIGHT (1H:1V). SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/2 THE HEIGHT OF THE BARRIER.
 8. FILTREXX SEDIMENT TRAP SHALL BE INSPECTED AND MAINTAINED AFTER STORM EVENTS.
 9. SOXX SHALL BE OF LARGER DIAMETER AT THE BASE OF THE SEDIMENT TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS.
 10. ENDS OF THE SEDIMENT TRAP SHALL BE A MINIMUM 1 FT (30 CM) HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE AT THE LOWEST ELEVATION.
 11. BOTTOM LAYER OF SOXX SHALL BE STAKED WITH 2X2X36" WOODEN STAKES. SUCCESSIVE LAYERS SHALL BE STAKED WITH 1/2" REBAR AT A 45 DEGREE ANGLE.

- GENERAL NOTES:**
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
 2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
 3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
 4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER, AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
 5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
 6. THE TRAP SHALL BE CLEANED WHEN 50% OF THE ORIGINAL VOLUME IS FILLED.
 7. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OFF AND STABILIZED.

Design: WGM	Draft: RMK	Date: 05/06/20
Checked: WGM	Scale: AS NOTED	Project No.: 13153
Drawing Name: 13153-PLAN.dwg		

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REV.	DATE	REVISION	BY
3	09/03/20	REVISED PER PLANNING BOARD COMMENTS	EMP
2	08/19/20	REVISED PER REVIEW ENGINEER COMMENTS 2	EMP
1	07/31/20	REVISED PER REVIEW ENGINEER COMMENTS	EMP
0	05/06/20	ISSUED FOR REVIEW	EMP
		ISSUED FOR REVIEW	BY

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Civil Engineering Services

603-772-4746
FAX: 603-772-0227
E-Mail: JBE@JONESANDBEACH.COM

Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	PROPOSED CENTRAL SQUARE 340 E CENTRAL STREET, FRANKLIN, MA
Owner of Record:	340 EAST CENTRAL. EPK PROPERTIES, LLC. LAND COURT CERTIFICATE 190576

E:\Land Projects\13153-FRANKLIN-300-EAST-CENTRAL-STREET-TOPSEFIELD-ASSOCIATES.dwg 1/26/2017 9:04:12 AM EST

TAJ ESTATES of FRANKLIN Building A

03-CONTRACT DOCUMENTS
TAJ ESTATES OF FRANKLIN
J20013

PROJECT INFORMATION

00002 - PROJECT DIRECTORY

OWNER/ DEVELOPER/ CONTRACTOR:
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1779 Central Street
Stoughton, MA
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FAX: -
Cell: 508-962-1928
E-mail: miraj.amed@yahoo.com

ARCHITECT:
ARCHITECTSstudio, Incorporated
Principal Architect: Jerome R. Dixon, Architect, AIA NCARB C61
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North Easton, MA 02356
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FAX: (508) 219-4493
Contact: Karen S
Phone: (508) 230-9684
E-mail: TAJKare@aol.com

STRUCTURAL ENGINEER:
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E-mail: jspink@gmail.com

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Phone: -
FAX: -
E-mail: -

SOIL ENGINEER
ALLEN AND MAJORS
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Phone: -
FAX: -
E-mail: -

LUMBER SUPPLIER:
NATIONAL LUMBER
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Phone: 508-339-8020
Cell: 508-509-9234
E-mail: rharris@national-lumber.com

TRUSS SUPPLIER:
RELIABLE TRUSS AND COMPONENTS INC.
Contact: -
Phone: (603) 736-2131 ext 1113
200 Welby Road
New Bedford, MA 02745
Cell: 603-552-0523
E-mail: -

FIRE PROTECTION:
FIRE INSPECTIONAL SERVICES INC.
Contact: -
Phone: -
FAX: -
E-mail: -

SITE LIGHTING DESIGN
Contact: -
Phone: -
Phone: -
FAX: -

LIST OF DRAWINGS

ARCHITECTURAL

NO.	DESCRIPTION	REV	DATE
T101	Key Plans Project Information, Code Compliance & Gen. Requirements Wall, Floor, and Ceiling Assemblies		
A100			
A101	Typical 2-Bed Apartment Unit Plans		
A102	Typical 2-Bed Townhouse Unit Plans		
A103	Typical 2-Bed Townhouse Unit Plans		
A111	First Floor Plan		
A112	Second Floor Plan		
A113	Third Floor Plan		
A114	Fourth Floor Plan		
A115	Mezzanine Floor Plan		
A116	Roof Floor Plan		
A132	Stair A Plans & Sections		
A133	Stair B Plans & Sections		
A134	Loft Staircase		
A151	Interior Elevations		
A152	Interior Elevations		
A211	Exterior Elevations		
A212	Exterior Elevations		
A300	Building Section		
A301	Exterior Wall sections		
A302	Exterior Wall sections		
A310	Wall Types & Floor/ Ceiling Assembly		
A301	Exterior Openings Sections		
S000	Building 2 General Structural Notes		
S100	Building 2 Foundation Plan Bolt Plan Elevations		

GENERAL REQUIREMENTS

The Contractor and all Subcontractors shall perform their Work according to the following:
0100 SUMMARY OF WORK
Included in the Work are the following:
a. Multi-Family Apartment Building

0105 SUBSTITUTIONS AND CHANGE ORDERS
a. DO NOT substitute materials, equipment or methods unless such substitution is first discussed with the Architect and has been approved specifically in writing by the Owner.
b. Notify the Architect immediately by telephone of any hidden, unforeseen conditions and any requirements. Confirm all notifications and action required in writing within 24 hours of the event.
c. Milestone date changes must be made in writing by Owner.

0104 COORDINATION
a. The Contractor and each Subcontractor shall be thoroughly familiar with the Work shown on the drawings and on the other Contract Documents.
b. Each Subcontractor shall coordinate their Work with that of others and be aware of all Related Work to be performed by others, via the Contractor.

01050 EXISTING CONDITIONS
a. Prior to submitting bid proposals, the Contractor and each Subcontractor shall visit the proposed site and make themselves familiar with all existing conditions, take field measurements and record all information needed to provide a complete scope of Work.
b. Notify the Architect immediately of conditions which may contribute to unnecessary, excessive costs.
c. No additional compensation will be paid by the Owner for disputes which result from a lack of familiarity with the existing conditions.

01060 REGULATORY REQUIREMENTS
Comply with all applicable national, state and local codes.

01100 SPECIAL REQUIREMENTS AND PROCEDURES
a. Maintain a written daily journal.
b. The Owner shall provide a phone on site.
c. Designate a superintendent for the duration of the Project and submit his/her name to the Architect.
d. Work shall be completed in a timely manner, consistent with the approved construction schedule.
e. The Contractor shall be responsible for receiving and maintaining in good condition all millwork, fixtures and equipment up to the Date of Substantial Completion.

f. All Owners' material delivered to the Project shall be checked against the Owners' material list by the Contractor at the time of delivery. All discrepancies shall be noted in the Receiving Report and in the Daily Journal, and the Contractor shall immediately notify the Owner of same. All shortages occurring after the receipt of goods shall be charged back to the Contractor.
g. Note on all Bills of Lading, "CASES NOT INSPECTED FOR CONCEALED DAMAGES AND SHORTAGES"

01000 SUBMITTALS
a. Product samples, manufacturer's data and shop drawings shall be submitted to the Architect for review.

01000 CONTRACT CLOSEOUT
a. Substantial Completion is the date certified by the Architect on which the Work or designated portion thereof is sufficiently complete so the Owner may occupy the same for the intended purpose.
b. Provide the following for closeout:
1-Daily Journal
2-Operation and Maintenance Data
3-Keys
4-Spare Parts, Materials and Stock
5-Certificate of Inspection/Occupancy
6-Certificate of Insurance
7-Evidence of Payment and Release of Liens
8-List of Subcontractors, Vendors and Suppliers
9-Final Statement of Account

01010 CLEANING
a. Each Subcontractor shall clean his/her Work and remove all trash, debris, packing, etc. resulting from that Work.
b. Final cleaning shall be done by a professional cleaner.

SYMBOLS AND ABBREVIATIONS Key to Symbols

	CSI SPECIFICATION DIVISION NUMBER
	ITEM, NOTE OR LINE NUMBER
	ELEVATION KEY NUMBER
	SHEET NUMBER
	DETAIL OR SECTION KEY NUMBER
	SHEET NUMBER
	WINDOW KEY
	DOOR KEY
	NOTE KEY
	KEY TO WALLS AND PARTITION SCHEDULE
	DUPLEX OUTLET
	WEATHER-PROOF
	GROUND-FAULT INTERRUPTED
	FLOOR DRAIN
	220 VOLT RECEPTACLE
	CEILING-MOUNTED LIGHT
	RECESSED
	PENDENT
	WALL-MOUNTED LIGHT
	SMOKE DETECTOR
	HEAT DETECTOR
	THERMOSTAT
	DIMMER
	PARTITION SCHEDULE
	CABLE
	TELEPHONE
	CEILING FAN
	DOORBELL
	RECESSED EXHAUST FAN
	RECESSED EXHAUST FAN WITH HEAT
	RECESSED EXHAUST FAN WITH LIGHT
	RECESSED EXHAUST FAN WITH LIGHT AND HEAT
	FINISHED FLOOR
	ABOVE FINISHED FLOOR
	DIMMER
	THERMOSTAT
	GROUND-FAULT
	WEATHER-PROOF
	RECESSED CHANDELIER
	FLUORESCENT
	FENDANT
	EYEBALL
	DOWNSPOUT

	COMBINATION SMOKE & CARBON MONOXIDE DETECTOR
	HEAT DETECTOR
	PULL STATION
	MINI AUDIO/VISUAL DEVICE
	FIRE EXTINGUISHER
	EMERGENCY LIGHT
	EXIT SIGN
	EXIT SIGN WITH EMERGENCY LIGHT
	FIRE ALARM CONTROL PANEL
	MASTER FIRE CONTROL PANEL
	EMERGENCY EXIT LIGHT
	BATHROOM EXHAUST FAN

Key to wall types

	EXTERIOR INSULATED WALL 2x6 @ 16" O.C.
	INTERIOR INSULATED WALL 2x4 @ 16" O.C.
	INTERIOR WET WALL WITH SOUND BATTS 2x8 @ 16" O.C.
	INTERIOR WALL WITH SOUND BATTS 2x4 @ 16" O.C.
	INTERIOR WALL 2x4 @ 16" O.C.
	E and F Sheet A00

SIGNATURES
BY: _____ DATE: _____
OWNER: _____

REVISION HISTORY	
	06/10/2020 Issued for Presentation

TAJ Estates of Franklin
340 E Central Square
FRANKLIN, MA



ARCHITECTS' STUDIO
Jerome R. Dixon, Architect

ARCHITECTURE
PLANNING
INTERIOR DESIGN

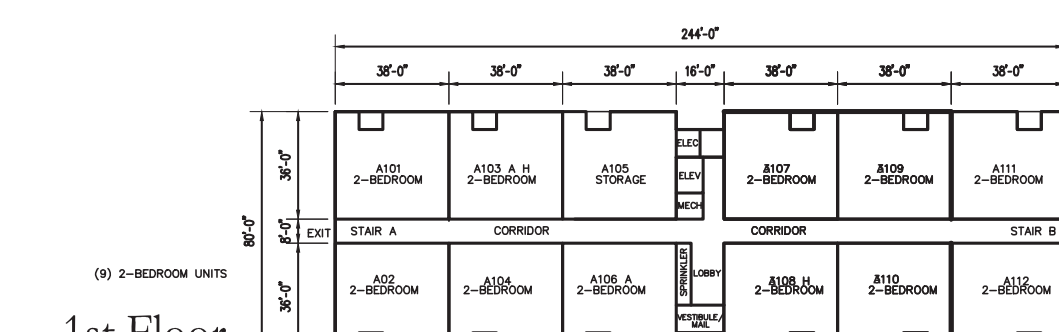
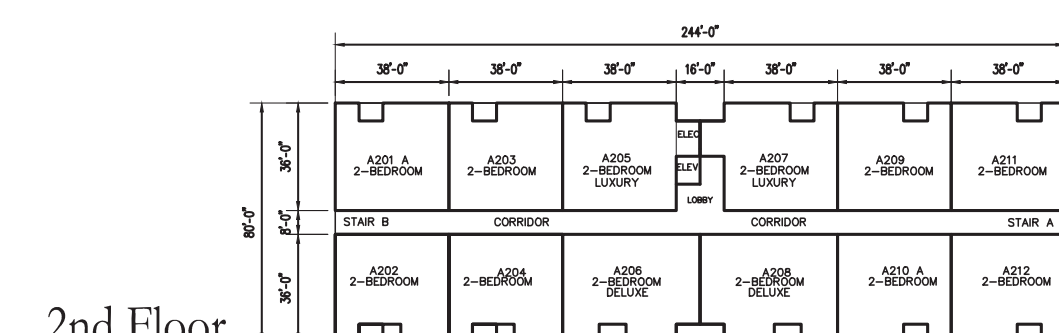
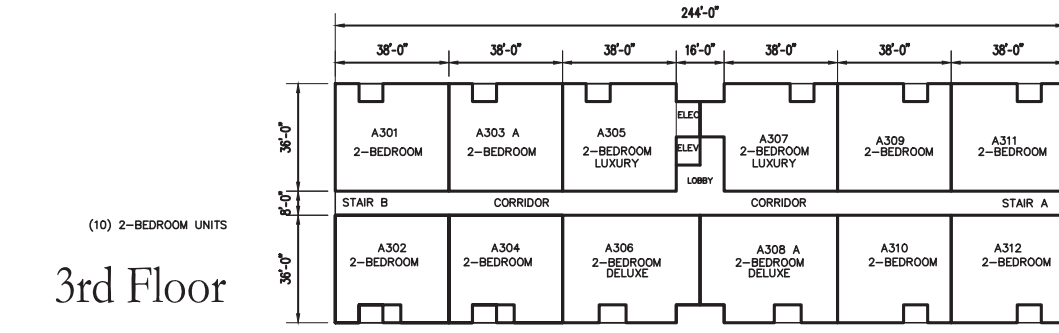
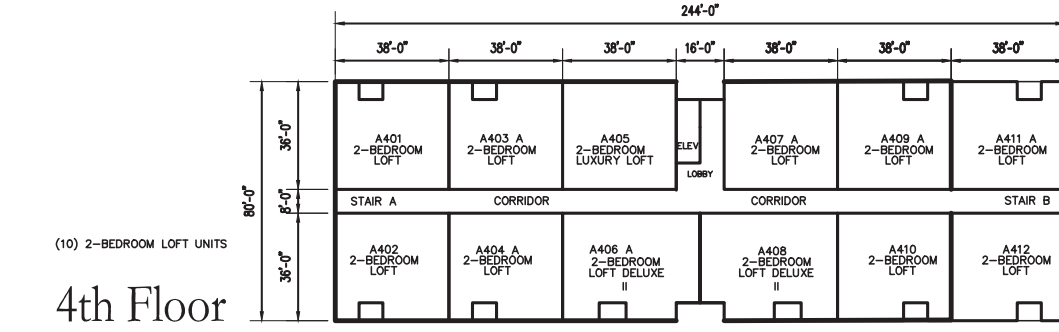
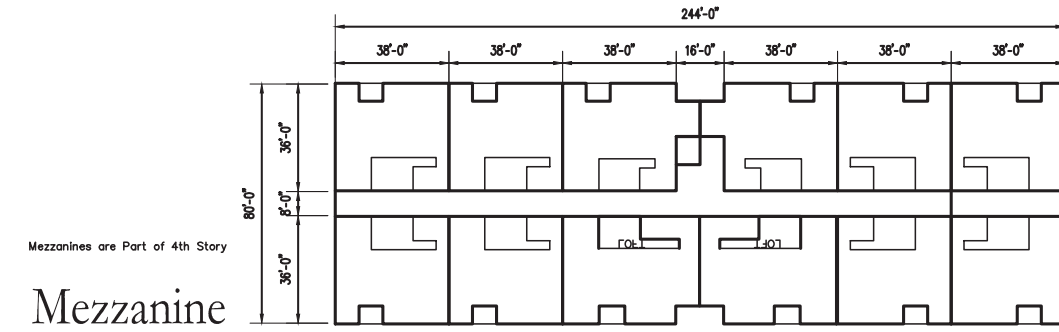
50 Oliver Street
Studio W7
Easton, MA 02356

PHONE: 508.230.9684
FAX: 508.219.4693
E-Mail: ARCHITECT77@AOL.COM
WWW.ARCHITECTSSTUDIO1.COM

Building A
Project
Information

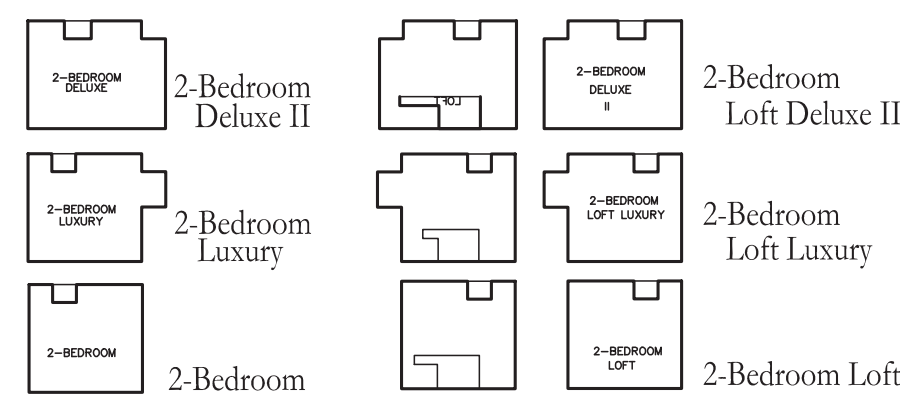
DATE: Rev 0 April 26, 2020
DRAWN BY: JRD
CHECKED BY: JRD
ARCHITECTS' PROJECT NUMBER: 20013

T101



BUILDING B

Use R-2 Multi-family Apartment Building
Building Area 19,520 SF
4 Stories above grade
1st Floor is a slab at grade
Building Height 50 feet
Construction Type VA (Protected)
NFPA 13 Sprinklers



A: AFFORDABLE
H: ACCESSIBLE

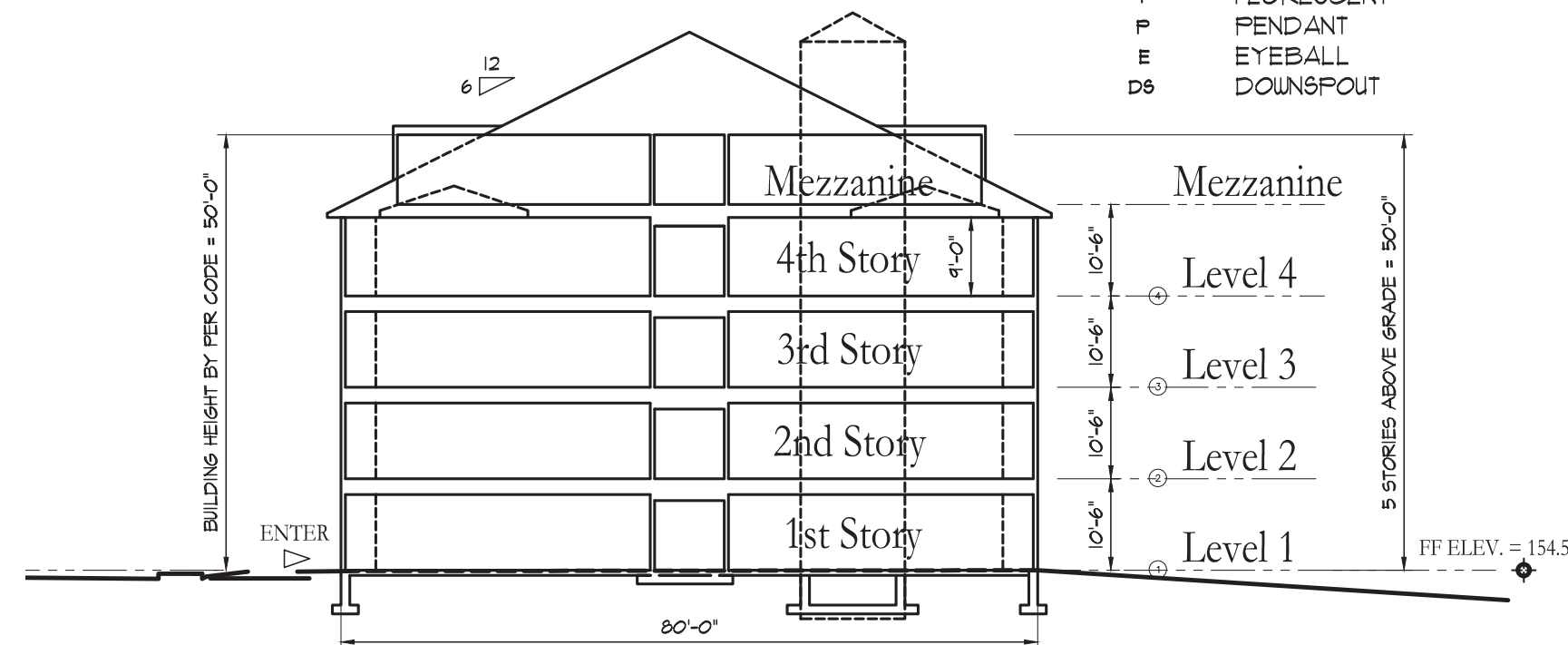
Key to Unit Types



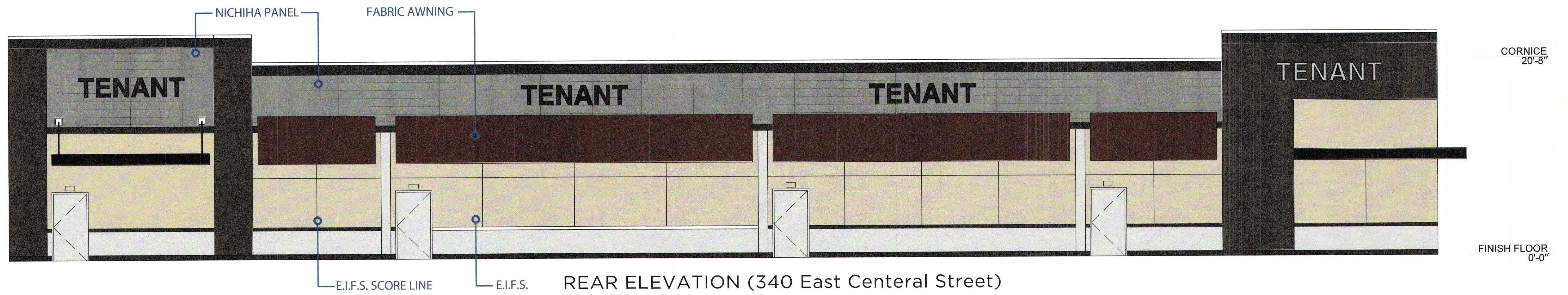
CODE COMPLIANCE

BASE CODE:	180 MASSACHUSETTS STATE BUILDING CODE 8th Edition Amendments to INTERNATIONAL BUILDING CODE 2009 (IBC 2009) 521 CMR ARCHITECTURAL ACCESS BOARD 248 CMR PLUMBING AND GAS 521 CMR FIRE PREVENTION† where items are not addressed, defer to IFC and/or IMC INTERNATIONAL ENERGY CONSERVATION CODE 2012 (IECC2012) 271 CMR DUCTWORK AND SHEETMETAL
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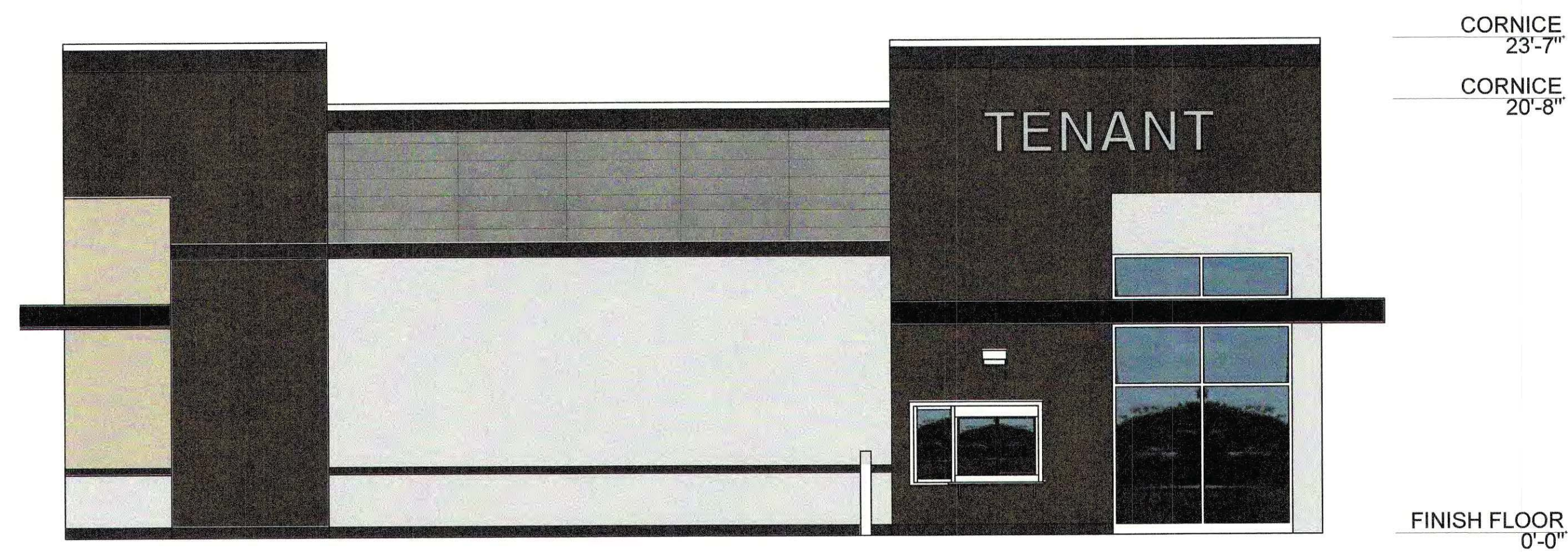
		REFERENCE
OCCUPANCY CLASSIFICATION	R-2 RESIDENTIAL (APARTMENT BUILDING) C LOW-HAZARD STORAGE ENCLOSED	SECTION 310.1
SPECIAL REQUIREMENTS	GROUP R-2 SEPARATION WALLS FIRE PARTITIONS 1-Hr Min. FIRE RESISTANCE EXCEPTION: 1/2-Hr W/ SPRINKLER SYSTEM	SECTION 420 SECTION 420.2 SECTION 109 SECTION 109.3
CONSTRUCTION CLASSIFICATION	TYPE VA COMBUSTIBLE, PROTECTED	CHAPTER 6
MINIMUM FIRE RESISTANCE OF STRUCTURAL ELEMENTS EXTERIOR WALLS	0	TABLE 601
BUILDING AREA	1000 ALLOWED 21000 SF ALLOWED WITH AUTOMATIC SPRINKLER SYSTEM XXXXX SF PROPOSED GROSS AREA	TABLE 503 TABLE 506.3 SECTION 502.1
BUILDING HEIGHT NUMBER OF STORIES	2 STORIES ABOVE GRADE PLANE WITH BASEMENT, 1 STORY BELOW GRADE PLANE ALLOWED WITH SPRINKLERS	TABLE 503 (2308.2)
SPRINKLERED	YES	SECTION 903.3.11



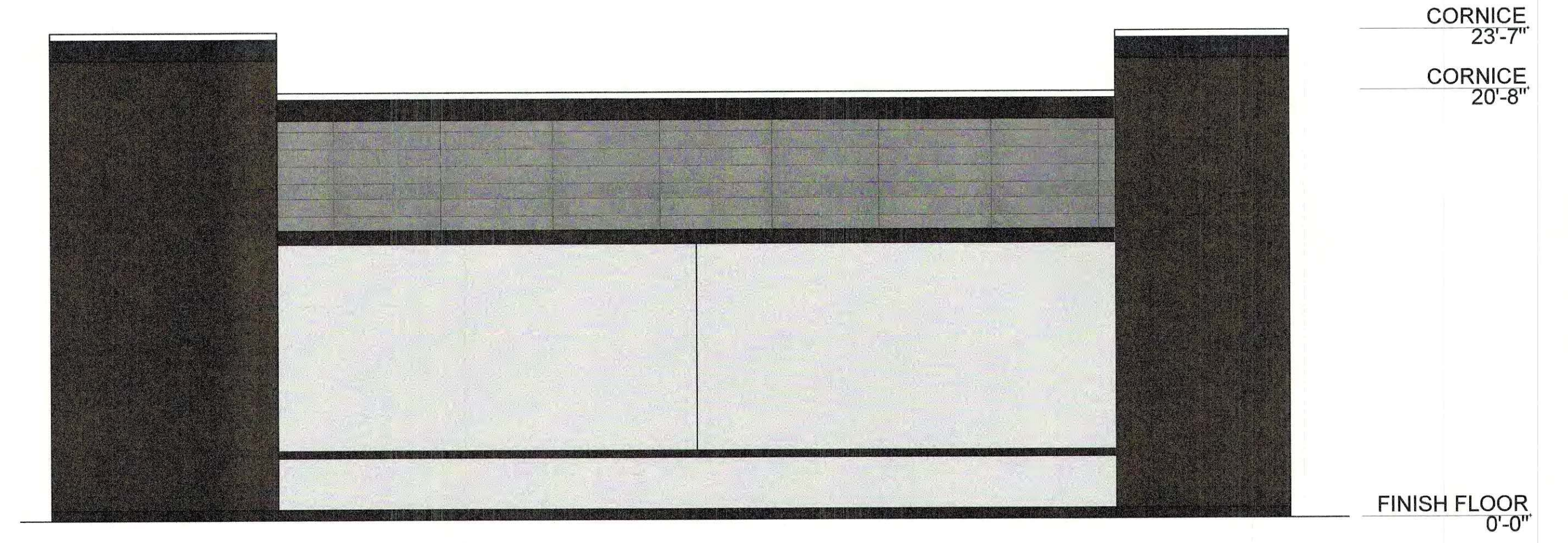
Section



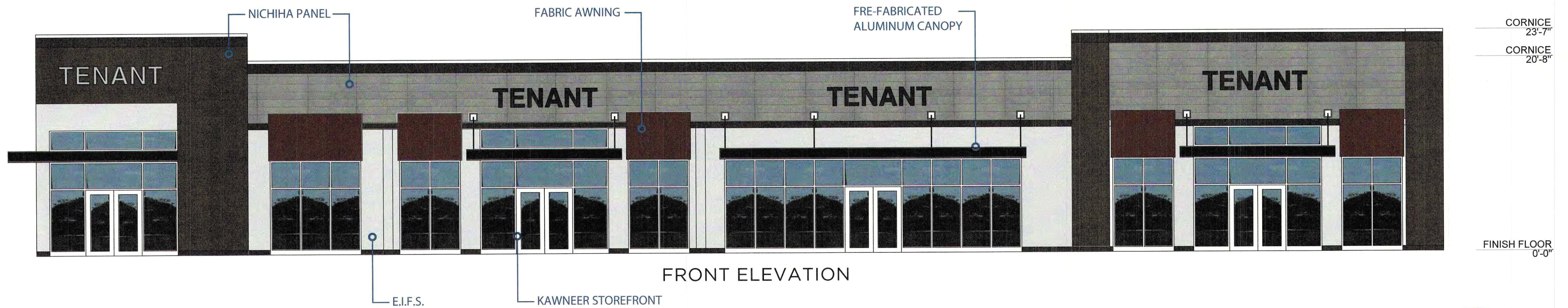
REAR ELEVATION (340 East Central Street)



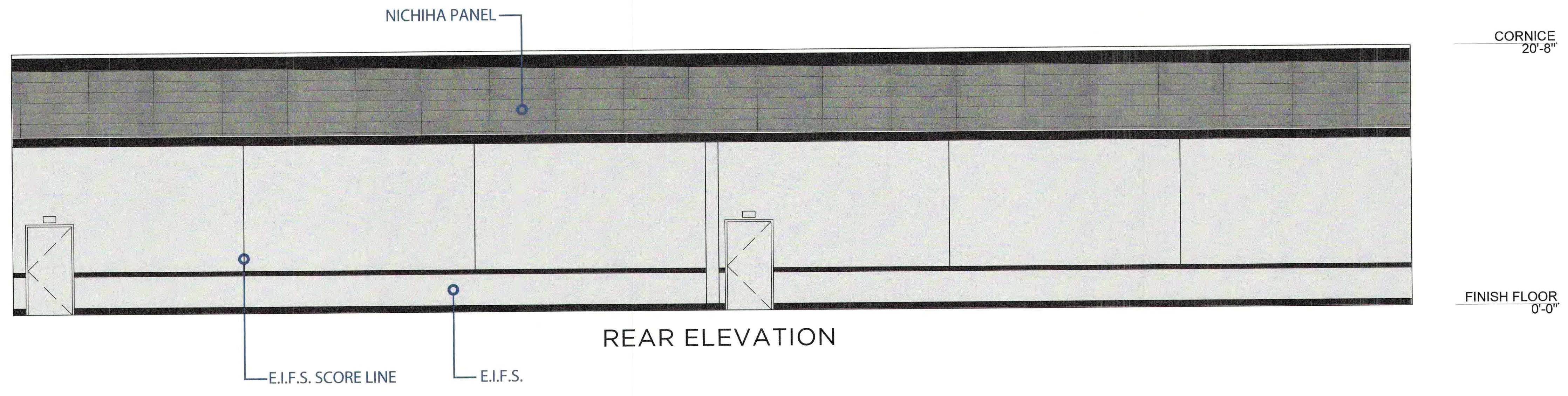
LEFT SIDE ELEVATION



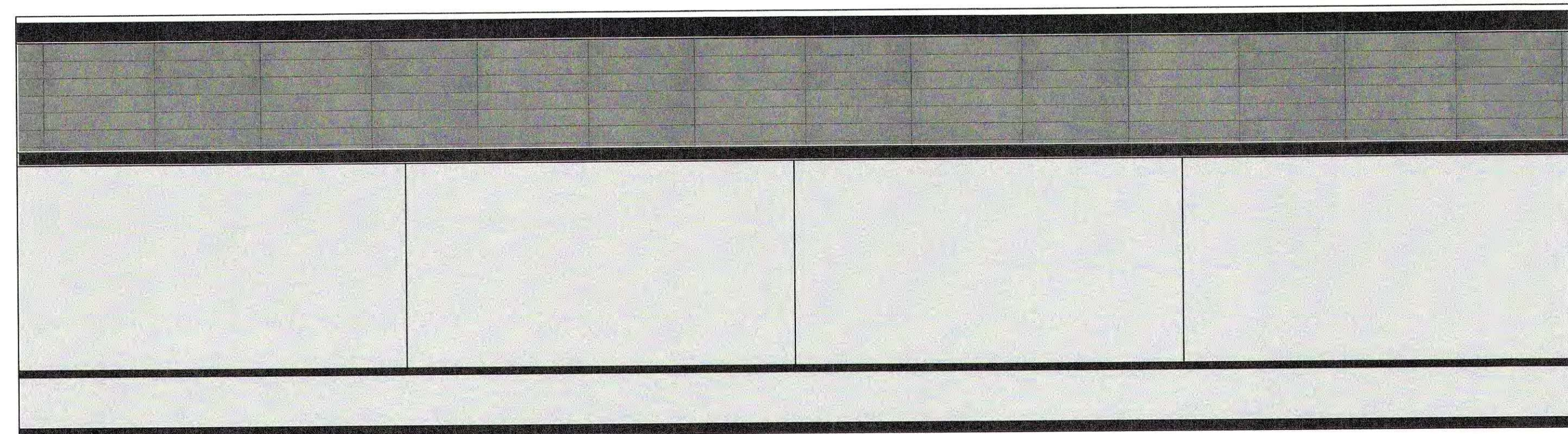
RIGHT SIDE ELEVATION



FRONT ELEVATION



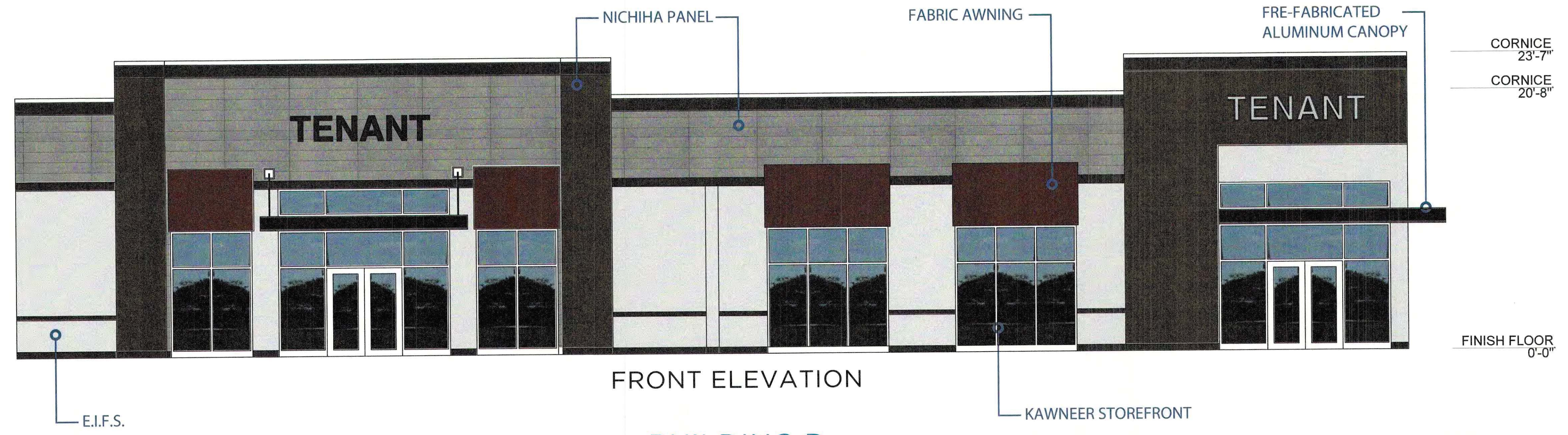
REAR ELEVATION



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



FRONT ELEVATION



1 FRONT ELEVATION
A20



2 BACK ELEVATION
A20



3 RIGHT ELEVATION
A20



4 LEFT ELEVATION
A20

KEY TO ELEVATIONS

- 1 ROOF SYSTEM: ARCHITECTURAL SHINGLES EQUAL TO GAF TIMBERLINE
COLOR: CHORCOAL
- 2 FIBER CEMENTITIOUS SIDING EQUAL TO HARDIE PLANK MANUFACTURED
COLOR: PEARL GRAY
PATTERN: HORIZONTAL
- 3 TRIM AND ACCENT PANELS: PVC
COLOR: WHITE
- 4 FIBER CEMENTITIOUS SIDING EQUAL TO HARDIE PLANK MANUFACTURED
COLOR: SIMULATED WOOD (KHAKI BROWN)
PATTERN: VERTICAL
- 5 FIBER CEMENTITIOUS SIDING EQUAL TO HARDIE PLANK MANUFACTURED
COLOR: SIMULATED WOOD (WOODSTOCK BROWN)
PATTERN: VERTICAL

TAJ ESTATES
340 E Central Squa
Franklin, MA



ARCHITECTS' 1
STUDIO 1
Jerome R. Dixon, Architect

ARCHITECTURE
PLANNING
INTERIOR DESIGN

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Conceptual
Architectural
Elevations Building /

DATE: 06-29-2020
DRAWN BY: LP
CHECKED BY: JRD
ARCHITECT'S PROJECT NO: J20013

3/32"=1'-0" 1/4"
0 3 6 12 24 FEET

A20

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TAJ ESTATES of FRANKLIN Building B

03-CONTRACT DOCUMENTS
TAJ ESTATES OF FRANKLIN
J20013

PROJECT INFORMATION

00002 - PROJECT DIRECTORY

OWNER/ DEVELOPER/ CONTRACTOR:
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1775 Central Street
Stoughton, MA
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Cell: 508-962-1928
E-mail: mirajahmed@yahoo.com

ARCHITECT:
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Principal Architect: Jerome R. Dixon, Architect, AIA NCARB CSI
50 Oliver Street Studio W7
North Easton, MA 02356
Phone: (508) 230-9684
FAX: (508) 219-4493
Contact: Karen S
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JOHN SPINK Structural Engineer
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Phone: 714-766-0544-353-5888
E-mail: jspink@gmail.com

SITE SURVEY/ CIVIL ENGINEERS:
ALLEN AND MAJORS
Contact: -
Phone: -
FAX: -
E-mail: -

SOIL ENGINEER
ALLEN AND MAJORS
Contact: -
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FAX: -
E-mail: -

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Contact: -
Phone: (603) 796-2131 ext 1713
Cell: 603-552-0523
E-mail: -

FIRE PROTECTION:
FIRE INSPECTORIAL SERVICES INC.
Contact: -
Phone: -
FAX: -
E-mail: -

SITE LIGHTING DESIGN
Contact: -
Phone: -
FAX: -
E-mail: -

CODE COMPLIANCE

BASE CODE: 780 MASSACHUSETTS STATE BUILDING CODE 8th Edition
Amendments to INTERNATIONAL BUILDING CODE 2009 (IBC 2009)
521 CMR ARCHITECTURAL ACCESS BOARD
248 CMR PLUMBING AND GAS
521 CMR FIRE PREVENTION: Where Items are not addressed, defer to IFC and/or IMC
INTERNATIONAL ENERGY CONSERVATION CODE 2012 (IECC2012)
211 CMR DUCTWORK AND SHEETMETAL

		REFERENCE
OCCUPANCY CLASSIFICATION	R-2 RESIDENTIAL (APARTMENT BUILDING) C LOW-HAZARD STORAGE ENCLOSED	SECTION 3101
SPECIAL REQUIREMENTS	GROUP R-2 SEPARATION WALLS FIRE PARTITIONS 1-Hr Min. FIRE RESISTANCE EXCEPTION: 1/2-Hr W/ SPRINKLER SYSTEM	SECTION 420 SECTION 420.2 SECTION 709 SECTION 709.3
CONSTRUCTION CLASSIFICATION	TYPE VA COMBUSTIBLE, PROTECTED	CHAPTER 6
MINIMUM FIRE RESISTANCE OF STRUCTURAL ELEMENTS EXTERIOR WALLS	0	TABLE 601
BUILDING AREA	7,000 ALLOWED 21,000 SF ALLOWED WITH AUTOMATIC SPRINKLER SYSTEM XXXXX SF PROPOSED GROSS AREA	TABLE 503 TABLE 506.3 SECTION 502.1
BUILDING HEIGHT NUMBER OF STORIES	2 STORIES ABOVE GRADE PLANE WITH BASEMENT, 1 STORY BELOW GRADE PLANE ALLOWED WITH SPRINKLERS	TABLE 503 (2308.2)
SPRINKLERED	YES	SECTION 903.3.11

LIST OF DRAWINGS

ARCHITECTURAL

NO.	DESCRIPTION	REV	DATE
T101	Key Plans		
	Project Information, Code Compliance & Gen. Requirements		
A100	Wall, Floor, and Ceiling Assemblies		
A101	Typical 2-Bed Apartment Unit Plans		
A102	Typical 2-Bed Townhouse Unit Plans		
A103	Typical 2-Bed Townhouse Unit Plans		
A111	First Floor Plan		
A112	Second Floor Plan		
A113	Third Floor Plan		
A114	Fourth Floor Plan		
A115	Mezzanine Floor Plan		
A116	Roof Floor Plan		
A132	Stair A Plans & Sections		
A133	Stair B Plans & Sections		
A134	Loft Staircase		
A151	Interior Elevations		
A152	Interior Elevations		
A211	Exterior Elevations		
A212	Exterior Elevations		
A300	Building Section		
A301	Exterior Wall sections		
A302	Exterior Wall sections		
A303	Wall Types & Floor/Ceiling Assembly		
A304	Exterior Openings Sections		
S000	Building 2 General Structural Notes		
S100	Building 2 Foundation Plan		
	. Bolt Plan		
	. Elevations		

GENERAL REQUIREMENTS

The Contractor and all Subcontractors shall perform their Work according to the following:
0100 SUMMARY OF WORK
Included in the Work are the following:
a. Multi-Family Apartment Building

0105 SUBSTITUTIONS AND CHANGE ORDERS
a. DO NOT substitute materials, equipment or methods unless such substitution is first discussed with the Architect and has been approved specifically in writing by the Owner.
b. Notify the Architect immediately by telephone of any hidden, unforeseen conditions and any requirements Confirm all notifications and action required in writing within 24 hours of the event.
c. Milestone date changes must be made in writing by Owner.

0104 COORDINATION
a. The Contractor and each Subcontractor shall be thoroughly familiar with the Work shown on the drawings and on the other Contract Documents.
b. Each Subcontractor shall coordinate their Work with that of others and be aware of all Related Work to be performed by others, via the Contractor.

0105 EXISTING CONDITIONS
a. Prior to submitting bid proposals, the Contractor and each Subcontractor shall visit the proposed site and make themselves familiar with all existing conditions, take field measurements and record all information needed to provide a complete scope of Work.
b. Notify the Architect immediately of conditions which may contribute to unnecessary, excessive costs.
c. No additional compensation will be paid by the Owner for disputes which result from a lack of familiarity with the existing conditions.

0106 REGULATORY REQUIREMENTS
Comply with all applicable national, state and local codes.

0100 SPECIAL REQUIREMENTS AND PROCEDURES
a. Maintain a written daily journal.
b. The Owner shall provide a phone on site.
c. Designate a superintendent for the duration of the Project and submit his/her name to the Architect.
d. Work shall be completed in a timely manner, consistent with the approved construction schedule.
e. The Contractor shall be responsible for receiving and maintaining in good condition all millwork, fixtures and equipment up to the Date of Substantial Completion.
f. All Owners' material delivered to the Project shall be checked against the Owners' material list by the Contractor at the time of delivery. All discrepancies shall be noted in the Receiving Report and in the Daily Journal, and the Contractor shall immediately notify the Owner of same. All shortages occurring after the receipt of goods shall be charged back to the Contractor.
g. Note on all Bills of Lading, "CASES NOT INSPECTED FOR CONCEALED DAMAGES AND SHORTAGES"

0100 SUBMITTALS
a. Product samples, manufacturer's data and shop drawings shall be submitted to the Architect for review.

0100 CONTRACT CLOSEOUT
a. Substantial Completion is the date certified by the Architect on which the Work or designated portion thereof is sufficiently complete so the Owner may occupy the same for the intended purpose.
b. Provide the following for closeout:
1-Daily Journal
2-Operation and Maintenance Data
3-Keys
4-Spare Parts, Materials and Stock
5-Certificate of Inspection/Occupancy
6-Certificate of Insurance
7-Evidence of Payment and Release of Liens
8-List of Subcontractors, Vendors and Suppliers
9-Final Statement of Account

0110 CLEANING
a. Each Subcontractor shall clean his/her Work and remove all trash, debris, packing, etc., resulting from that Work.
b. Final cleaning shall be done by a professional cleaner.

SYMBOLS AND ABBREVIATIONS Key to Symbols

CS1	CSI SPECIFICATION DIVISION NUMBER	SC	COMBINATION SMOKE & CARBON MONOXIDE DETECTOR
IT	ITEM, NOTE OR LINE NUMBER	HD	HEAT DETECTOR
ELEVATION KEY NUMBER		P	PULL STATION
SHEET NUMBER		F	MINI AUDIO/VISUAL DEVICE
DETAIL OR SECTION KEY NUMBER		FE	FIRE EXTINGUISHER
SHEET NUMBER		EL	EMERGENCY LIGHT
WINDOW KEY		EXIT	EXIT SIGN
DOOR KEY		EXIT	EXIT SIGN WITH EMERGENCY LIGHT
NOTE KEY		FACP	FIRE ALARM CONTROL PANEL
KEY TO WALLS AND PARTITION SCHEDULE		MFCP	MASTER FIRE CONTROL PANEL
		EL	EMERGENCY EXIT LIGHT
		BE	BATHROOM EXHAUST FAN

Key to wall types

[Symbol]	EXTERIOR INSULATED WALL 2x6 @ 16" O.C.
[Symbol]	INTERIOR INSULATED WALL 2x4 @ 16" O.C.
[Symbol]	INTERIOR WET WALL WITH SOUND BATTS 2x8 @ 16" O.C.
[Symbol]	INTERIOR WALL W/ SOUND BATTS 2x4 @ 16" O.C.
[Symbol]	INTERIOR WALL 2x4 @ 16" O.C.
[Symbol]	E and F Sheet A00

SIGNATURES
BY _____ DATE _____

REVISION HISTORY

NO.	DATE	DESCRIPTION
1	06/10/2020	Issued for Presentation

TAJ ESTATES
340 E Central Square
Franklin, MA



ARCHITECTS' STUDIO
Jerome R. Dixon, Architect

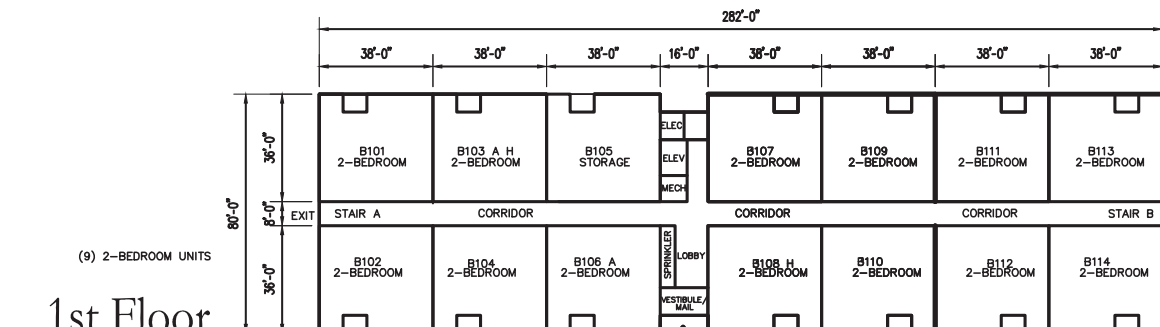
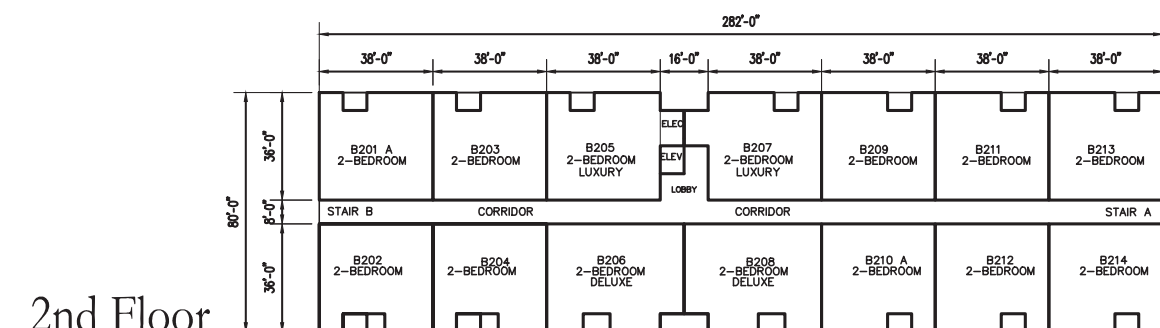
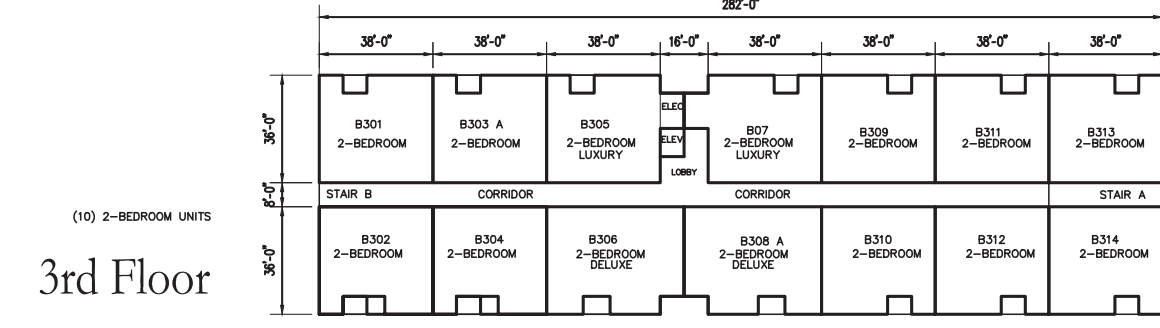
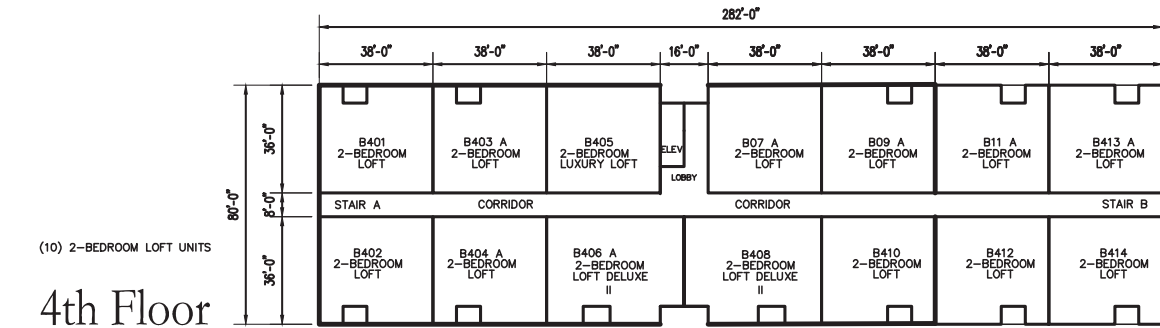
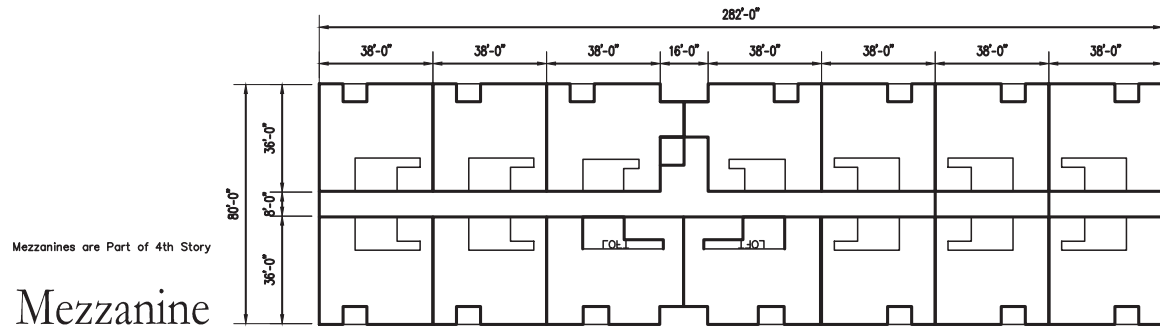
ARCHITECTURE
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INTERIOR DESIGN

50 Oliver Street
Studio W7
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PHONE: 508.230.9684
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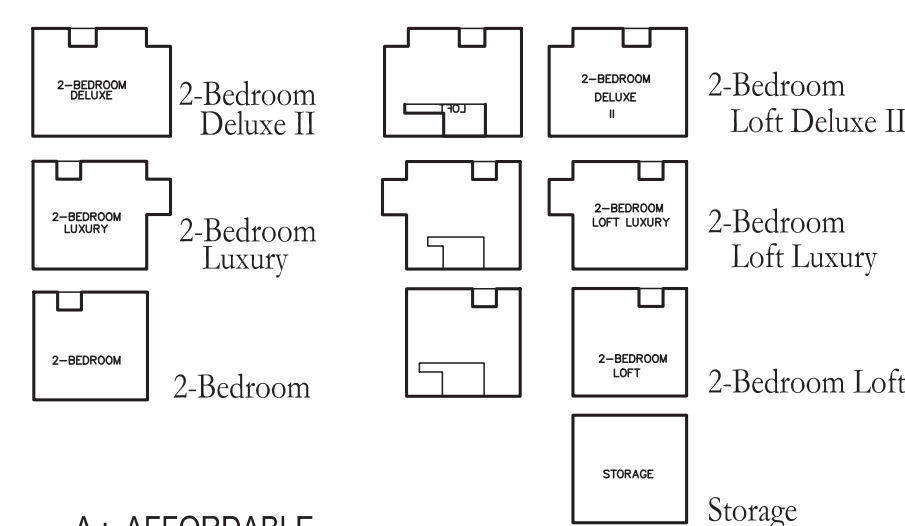
Building B
Project
Information

DATE: Rev 0 April 26, 2020
DRAWN BY: K.S.
CHECKED BY: J.R.P.
ARCHITECT'S PROJECT NUMBER: 20013



BUILDING B

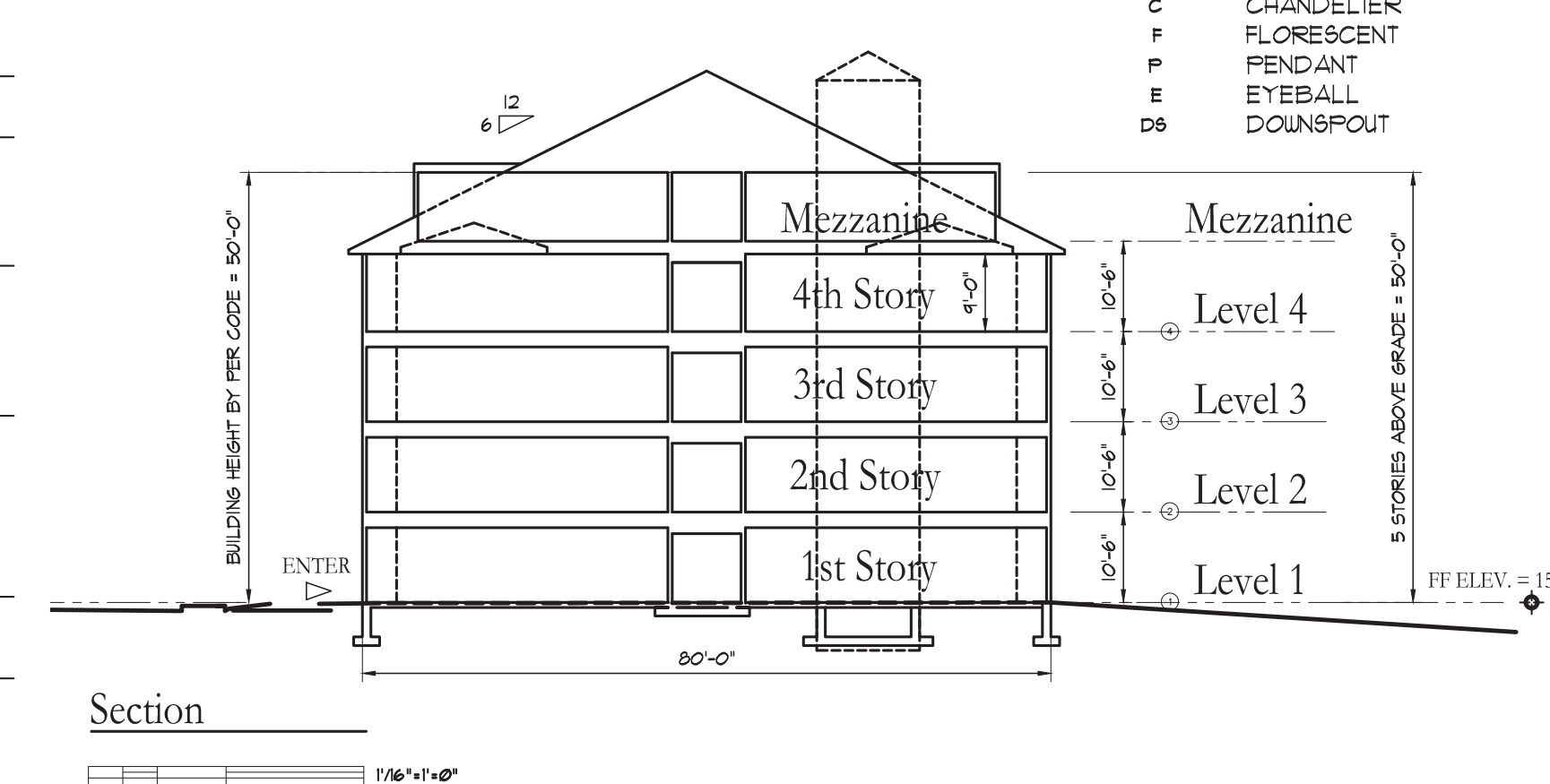
Use R-2 Multi-Family Apartment Building
Building Area 22,560 SF
4 Stories above grade
1st Floor is a slab at grade
Building Height 50 feet
Construction Type VA (Protected)
NFPA 13 Sprinklers



Key to Unit Types

A: AFFORDABLE
H: ACCESSIBLE

1"=40' 1/4"=80'



Section

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TAJ ESTATES
340 E Central Square
Franklin, MA



ARCHITECTS' STUDIO
Jerome R. Dizion, Architect

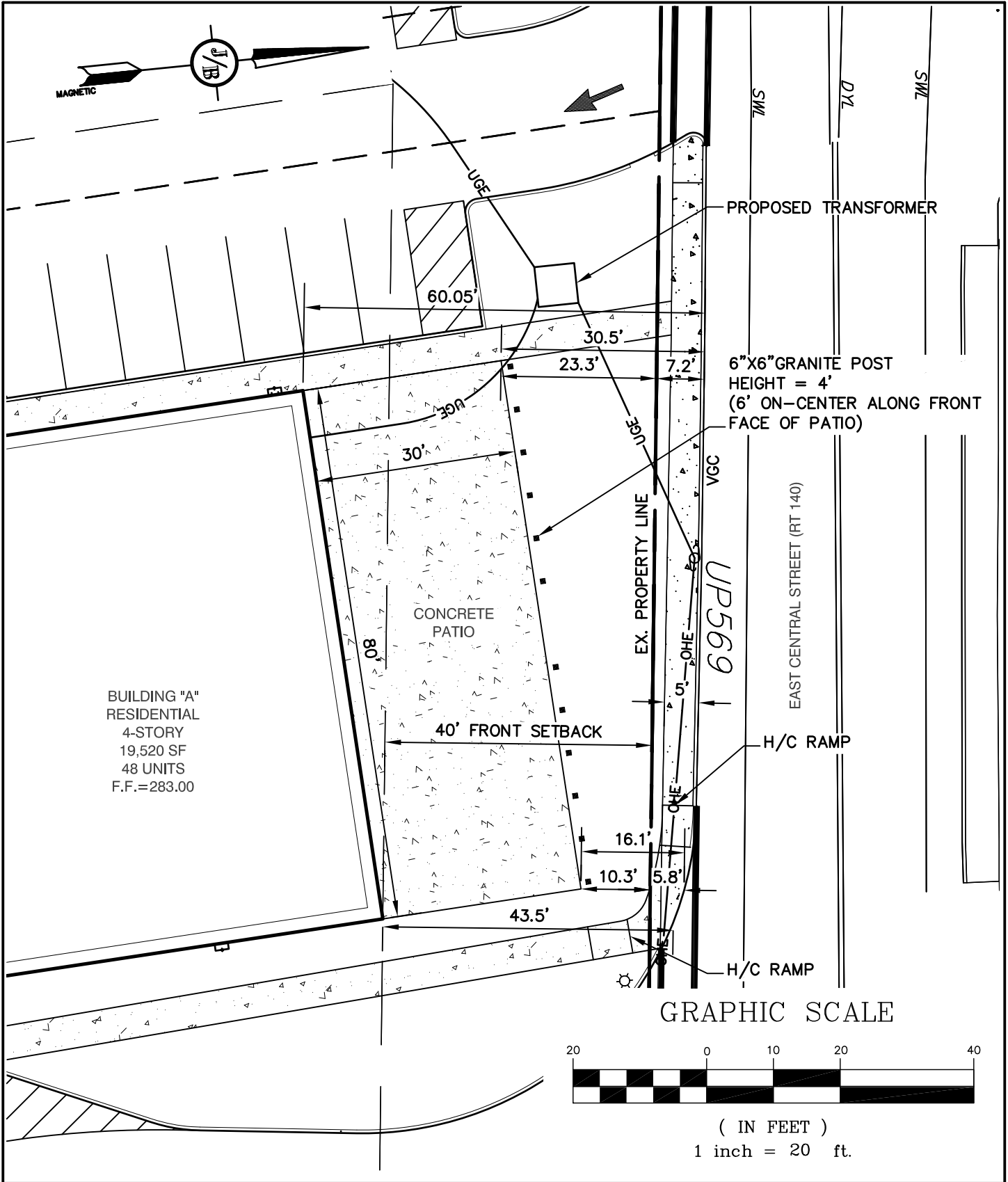
ARCHITECTURE
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3D RENDERS

DATE: Rev 0 April 26, 2020
DRAWN BY: KCS
CHECKED BY: JRD
ARCHITECT'S PROJECT NUMBER: 20013



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

Drawing Name: **PATIO SKETCH PLAN**
 Project: **CENTRAL SQUARE**
 340 EAST CENTRAL, EPK PROPERTIES LLC
 Owner of Record: **LAND COURT CERT. 190576**

DRAWING No.
SK1
 SHEET 1 OF 1
 JBE PROJECT
 No. 13153

September 10, 2020

Mr. Anthony Padula, Chairman
355 East Central Street
Franklin, MA 02038

**Re: 340 East Central Street
Site Plan Peer Review Update**

Dear Mr. Padula:

BETA Group, Inc. has reviewed revised documents for the proposed Site Plan Approval application, ***“Proposed Development Central Square” located at 340 East Central Street Franklin, Massachusetts.*** This letter is provided to update findings, comments, and recommendations.

BASIS OF REVIEW

BETA received the following items:

- ***Site Plan & Special Permit Application***, including the following:
 - *Cover Letter*
 - *Form P*
 - *Certificate of Ownership*
 - *Memorandum in support of application within the Commercial II District*
 - *Waiver Request Letter*
 - *Abutter Information*
- Site Planset (26 Sheets) entitled ***Proposed Development Central Square***, revised September 3, 2020 and prepared by Jones & Beach Engineers, Inc. of Stratham, NH.
- ***Drainage Analysis***, revised July 29, 2020 and prepared by Jones & Beach Engineers, Inc. of Stratham, NH.
- ***Transportation Impact Assessment Central Square Mixed-Use Development 340 East Central Street (Route 140) Franklin, Massachusetts, dated May 2020, prepared by Vanasse & Associates, Inc., Andover, MA***

Review by BETA included the above items along with the following, as applicable:

- Site Visit
- ***Zoning Chapter 185 From the Code of the Town of Franklin***, current through October 2019
- ***Zoning Map of the Town of Franklin, Massachusetts***, attested to April 30, 2019
- ***Stormwater Management Chapter 153 From the Code of the Town of Franklin***, Adopted May 2, 2007
- ***Subdivision Regulations Chapter 300 From the Code of the Town of Franklin***, current through January 1, 2016
- ***Wetlands Protection Chapter 181 From the Code of the Town of Franklin***, dated August 20, 1997
- ***Town of Franklin Best Development Practices Guidebook***, dated September 2016

INTRODUCTION

The project site consists of 340 East Central Street, a previously developed parcel formerly used as an auto service facility (the "Site"). The parcel contains an area of 6.506 Acres and is located along the southern side of East Central Street. The Town of Franklin Assessor's Office identifies the parcel as Map 285 Lot 9. The Site is located within the Commercial II Zoning District. Properties to the north, east, and west are also within this district, while parcels to the south are within the Rural Residential I district.

The existing Site includes a 116,475± sq. ft. 1-story building and a 9,800± sq. ft. garage. Associated site features include paved parking areas, utilities (drainage, water, sewer, and electric). The western portion of the Site includes a 20' wide easement used for access and utilities. A paved driveway within this easement begins at East Central Street and continues south beyond the Site.

Topography at the Site generally slopes towards the south. Grades within the paved areas are typically 3% - 5%. The southern portion of the parcel is an area of vegetated wetlands.

The applicant proposes to demolish the existing buildings and redevelop the Site with two retail buildings and two residential buildings. Associated site developments will include paved parking areas and driveways, lighting, utilities, and landscaping. Stormwater management is proposed through deep sump catch basins, oil/water separators, and several subsurface infiltration systems.

The project is located within an approved wellhead protection area (Zone II) and the Water Resource District. Wetland resource areas are located within the project limits and work is proposed within the buffer zone which will require obtaining an Order of Conditions from the Franklin Conservation Commission. The project is not located within a FEMA mapped 100-year flood zone or a NHESP mapped estimated habitat of rare or endangered species. NRCS maps indicate the presence of Merrimac fine sandy loam, rated in hydrologic soil group (HSG) A, Scarboro and Birdsall soils (HSG A/D), and Urban Land (unrated).

FINDINGS, COMMENTS AND RECOMMENDATIONS

GENERAL COMMENTS

- G1. The existing easement for utilities and access will be partially blocked by proposed curbing, reducing the usable access width to 15 feet and will be located in a one-way traffic area. Provide accommodations or additional easement area for egress from the site. *JBE: An easement will be provided to ensure the town has access to and from the site. A proposed access easement can be seen on Sheet C4. The existing 20' easement for the existing waterline is being proposed to be shifted to better align with the drive lane.* **BETA2: Easement provided. BETA defers any additional comment to the DPW.**
- G2. Clarify if there will be any easements or rights of entry granted for the proposed connection to the parcel to the east. *JBE: As part of the town approval, an easement will be developed with the abutter to utilize the proposed cross connection.* **BETA2: Information provided – issue resolved.**
- G3. Provide typical details for proposed light poles and luminaires. *JBE: The light pole detail is located on Sheet D1, and the light fixture details have been added to sheet D3.* **BETA2: Details provided – issue resolved.**

ZONING

The Site is located within the Commercial II (CII) Zoning District. The proposed use of the Site is identified as residential, retail, and a coffee shop with associated vehicle service establishment. General retail uses and coffee shops (restaurant) are permitted as of right and require a special permit from the Board of Appeals only if the project results in an increase in estimated water consumption of more than 15,000 gallons per day. The proposed vehicle service establishment associated with coffee shop also requires a special permit, which has been requested. Multi-family residential uses are not permitted within the district; however, the project narrative indicates the Board of Appeals has granted a variance, dated January 9, 2020, for this proposed use.

- Z1. Provide the estimated water consumption for retail and coffee shop uses to confirm a special permit by the Board of Appeals is not required. *JBE: Per Chapter 185 Attachment 3 "Use Regulations Schedule" Retail and restaurant uses are permitted by right in the CH district, provided they do not result in an increase of more than 15,000 GPD, otherwise a special permit is required.*

BETA2: Information provided confirming that no special permit is required – issue resolved.

SCHEDULE OF LOT, AREA, FRONTAGE, YARD AND HEIGHT REQUIREMENTS (§185 ATTACHMENT 9)

The project site will meet the requirements for lot area, frontage, lot depth, lot width, front and side yards, and impervious coverage. The project does not comply with the requirement for rear yard; however, the narrative indicates the Board of Appeals has granted a variance, dated January 9, 2020, for the proposed 26' rear yard setback. The project does not comply with building height requirements by right (40') and the applicant has submitted a special permit requesting a height of up to 50' as outlined in §185 Attachment 9. Greater than one principal building is permitted on a single lot in accordance with §185-11.

- SCH1. Clarify the proposed building height, noted as 50' on the Site Plan and as 51' – 2" on the Architectural Plans. Buildings greater than 50' in height are not permitted in the CII Zoning District. Also confirm that the exterior wall height at the gable does not exceed the permitted building height by more than 10 feet in accordance with the Building Height definition (§185-3). *JBE: These items will be reflected on the architectural drawings.* **BETA2: Information provided. BETA defers final interpretation of the building height to the Building Commissioner at the time a building permit is filed.**

PARKING, LOADING AND DRIVEWAY REQUIREMENTS (§185-21)

The existing Site includes three paved access driveways. The project proposes to modify the westerly access drive (to a one-way entrance) and remove the easterly access driveways. A new curb cut will also be provided directly across from Glen Meadow Road and will service as the entrance for the non-residential uses and will be the primary egress from the site. An additional connection will be made to the commercial parcel to the east.

Section §185-21.B.(2) describes the number of parking spaces required for residential and nonresidential buildings in the CII Zoning District. For residential buildings, two spaces are required for each dwelling unit. For retail, one space is required per 200 feet of gross floor area (GFA), plus one space per separate enterprise. For restaurants, one space is required per 2.5 fixed seats or one space per 60 square feet if seats are not fixed. According to provided parking calculations, 104 dwelling units are proposed and require 208 spaces; 15,219 sq. ft. of retail GFA is proposed and requires 76 spaces; and 40 restaurant seats are proposed and require 16 spaces. A total of 301 parking spaces are required for the site where 268 are

proposed and the applicant has requested that the Planning Board reduce the required number of parking spaces as outlined in §185-21.D.(4).

Proposed parking spaces are depicted as 19' long and 9' wide, except for accessible parking spaces which are 8' in width in accordance with Massachusetts Architectural Access Board (MAAB) requirements. Associated parking area aisles are a minimum of 24' wide. Twelve spaces are designated as accessible and meet MAAB requirements for number, markings, and signage.

It is anticipated that the Fire Chief will review turning movements for fire equipment throughout the site as well as the proposed materials for the fire lane

- P1. Clarify how many separate enterprises are proposed within the retail buildings. Each enterprise must be provided one additional parking space. *JBE: The Two retail buildings will be separated into 6 separate enterprises; these additional parking spaces have been added to the calculations.*
BETA2: Calculation revised – issue resolved.
- P2. Clarify if the parking calculations include the outdoor patio area associated with the restaurant. *JBE: An additional 20 seats have been added to the restaurant parking calculation to accommodate the patio seating.*
BETA2: Calculation revised – issue resolved.
- P3. Confirm that a waste collection vehicle can adequately access the most northerly restaurant-use dumpster. *JBE: A waste collection vehicle can adequately access the most northerly restaurant-use dumpster. A truck turning plan (Sheet T1) has been included with our resubmission package.*
BETA2: A turning movement plan has been provided and shows access to the dumpster area in general but not the most northerly dumpster. Unless the dumpsters are intended to the roll out type it does not appear the truck can access it. *JBE2: Truck Turning Plan #3 has been included with this response packing depicting these turning movements.*
BETA3: Following discussion with the design engineer, minor adjustments are being made to the dumpster area, which will allow adequate access to the dumpsters and will be incorporated into the final plan set – issue resolved.
- P4. Clarify where residential parking will be provided. Plans indicate 117 spaces located to the north of the residential buildings; however, the Waiver Request Letter indicates that 1.5 spaces per unit (150 total) will be sufficient for site operations. *JBE: The sections of parking to the East of the residential buildings have been given adequate signage indicating they are for residential parking only. A sufficient amount of parking has been allocated for residential units to comply with the parking requested within the waiver.*
BETA2: Residential parking designated – issue resolved.
- P5. Provide background information and/or empirical data to confirm that the proposed parking, including shared-use, and visitor parking is adequate for the site and is justified to be below that required by the Bylaw. *JBE: Commercial Zone I is located 600' West of our site and allows parking at 1.5 spaces / unit. The Downtown Commercial District to the West also allows for 1.5 spaces / unit. We feel these districts are of similar character to our site and this reduction in parking is sufficient to serve the site. In addition, we have integrated a bus stop into the design which will provide a further reduction to parking needs on site. A waiver is before the planning board to allow for this reduction.*
BETA2: Given the project's proximity to the Commercial Zone I district this waiver request is not unreasonable. BETA notes that on-street parking is not available in this area and ultimately the residential development will be responsible for allocating spaces for individual units as needed.

- P6. Confirm that all residential parking spaces will be located within 300 feet of the building entrances (§185-21.C.(6)). *JBE: All parking that is designated as residential parking is located within 300' of either of the entrances on the residential buildings.* **BETA2: Information provided – issue resolved.**
- P7. Clarify if any of the dwelling units will be accessible. Per 521 CMR 10.3, parking spaces for dwelling unit occupants must be capable of complying with 521 CMR 23.2 through 521 CMR 23.8. Demonstrate that additional accessible spaces can be provided for occupants, if necessary. *JBE: Following approval of the waiver request for the parking of residential units to be 1.5 spaces / unit, there will be an excess of 8 spaces on site. Therefore, in the event accessible units are constructed, accommodations can be made to provide parking spaces.* **BETA2: Information provided – issue resolved.**
- P8. Although the number of trees proposed throughout the site exceeds that required by (§185-21.C(5)), consideration should be given to relocating or adding trees in the parking lot serving the residential units. *JBE: A 6' high screening fence has been proposed along the west property line.* **BETA2: Fence provided. BETA defers to the preference of the Board to determine if this meets their preference for screening. BETA3: At the previous public hearing the Board indicated they were satisfied with the proposed fence – issue dismissed.**
- P9. Recommend revising the location of or eliminating the first several parking spaces west of the one-way residential entrance. The spaces will require vehicles to back into them and their view will be obstructed by the proposed transformer and landscaping adjacent to East Central Street, creating a potential conflict with entering vehicles. *JBE: A stripped turn around space has been added to each row of parking to allow space to turn. Landscaping in the Northwest corner will be reduced to ground cover species only so as to not interfere with sight lines for traffic. The transformer has been relocated to the other side of the entrance road to provide additional sight lines to traffic.* **BETA2: Spaces eliminated – issue resolved.**
- P10. Additional comments regarding site circulation, parking layout, signing/stripping, and pedestrian accommodations will be provided under separate cover as part of the traffic review. *JBE: We have coordinated with Vanasse & Associates Inc. regarding these comments.* **BETA2: No further comment.**

SIDEWALKS (§185-28)

The project is located within the Commercial III Zoning District and is required to provide 6' wide sidewalks along the street frontage. An existing 5' wide sidewalk, located within the State right-of-way, is present along the frontage's length. The applicant proposes to retain this sidewalk and provide handicap ramps at proposed and retained driveways.

CURBING (§185-29)

The project proposes the use of vertical granite curbing within the East Central Street right-of-way and along the majority of parking areas. Monolithic concrete curb is proposed along sidewalks in front of new buildings.

- C1. Clarify proposed location of Type "F" granite curb depicted on Mountable Stamped Concrete Detail. *JBE: This detail is no longer needed and has been removed.* **BETA2: Detail removed – issue resolved.**

SITE PLAN REVIEW (§185-31)

The proposed development is subject to Site Plan Review and must comply with the requirements of this section.

- S1. Include abutting land uses and zoning information on the Locus Map (§185-31.C.(3)(d)). *JBE: The locus map has been updated to the required scale, and zoning information has been included. BETA2: Information provided – issue resolved.*
- S2. Indicate proposed snow storage locations on the plans (§185-31.C.(3)(i)). *JBE: Snow storage is depicted on the site plan. BETA2: Snow storage locations provided; however, they are limited and are primarily coincident with heavily landscaped areas. Mechanical removal of snow from the site will be required during snow events. JBE2: In the event no further snow can be stored on site, snow will either be trucked off site or a snow-melter will be used. Landscaping on site has been chosen by the landscape architect to be urban tolerant. It has been reviewed by the landscape architect and they find these areas to be acceptable. BETA3: Information provided on landscaped areas. BETA defers to the preference of the Board on general snow operations.*
- S3. Provide note indicating that all proposed plantings shall come from the Best Development Practices Guidebook (§185-31.C.(3)(k)). *JBE: The landscaping plans have been updated accordingly. BETA2: Note provided – issue resolved.*
- S4. Provide sight line information, including intersection sight distance, at the proposed driveway egress (§185-31.C.(3)(t)). *JBE: A site distance plan has been included with the submission documents. See Sheet H1. BETA2: Information provided. Adequacy of sight distance will be evaluated as part of traffic review to be provided under separate cover. BETA3: Stopping sight distance was evaluated and was determined to be sufficient – issue resolved.*
- S5. Evaluate if there will be any odor issues resulting from the two restaurant dumpsters proposed approximately 5 to 10 feet from the easterly property line. *JBE: The dumpster is proposed to be enclosed and emptied on a regular basis. The dumpsters are located near parking fields only, and are not anticipated to cause odor issues to any structures. BETA2: Information provided – issue dismissed.*

SCREENING (§185-35)

The project proposes outdoor parking for 10 or more cars, which must be screened from adjacent residential districts or uses from which they would otherwise be visible. Although the abutting parcel to the south is within the Rural Residential 1 Zoning District, it is a Town-owned lot that is unlikely to be developed due to the presence of a well head; therefore, screening appears to be unnecessary.

WATER RESOURCES DISTRICT (§185-40)

The Site is located within the Water Resources District due to the presence of a Zone II Wellhead Protection Area. All new impervious surfaces are directed to on-site recharge systems, as required by §185-40.E.(4) and will recharge a volume in excess of that required by DEP.

- WR1. Section §185-40.D.(1)(l)(ii) requires that the proposed groundwater recharge efforts must be approved by a hydrogeologist; however, provided that the stormwater management system is revised to fully comply with the Massachusetts Stormwater Management Standards no adverse impacts to groundwater are anticipated as a result of the project. BETA defers to the preference

of the Board to require approval by a hydrogeologist. *JBE: We also defer to the preference of the board to require approval by a hydrologist.* **BETA2: No further comment.**

- WR2. Note that any fill placed in quantity greater than 15 yards must be certified in accordance with §185-40.E.(5). *JBE: Note 31 on Sheet C3-1 has been added to comply with this regulation.* **BETA2: Note provided – issue resolved.**

UTILITIES

Proposed utilities include sewer, electric, gas, and domestic and fire water services. Detailed review of water and sewer utilities is anticipated to be provided by the DPW and Fire Chief (e.g. for fire hydrants), as applicable.

- U1. Provide sizing calculations for proposed grease traps in accordance with Title V regulations per DPW policy. If tenants/uses are unknown at this time, calculation must be provided prior to construction. *JBE: Sizing for the proposed grease traps will be provided to the town prior to construction.* **BETA2: BETA finds this acceptable.**
- U2. Clarify the need for a grease trap at Building D, which is labeled for retail use. *JBE: Although the current use is intended to be retail, the developer wants the flexibility to change to a restaurant use at some time in the future. If this were to occur the developer would have to return to the town for review.* **BETA2: Information provided – issue resolved.**
- U3. Provide a note that all water and sewer utility installations shall be done in accordance with the Town of Franklin Department of Public Works Standards for Sewer and Water Materials and Installation (Town Standards). Also note that where utility installation details conflict with the Town Standards that the Town Standards shall govern. *JBE: Note 40 on Sheet C4 has been added to this affect.* **BETA2: Note provided – issue resolved.**
- U4. Consult the DPW to determine if the proposed water system should be looped back to an existing water main. *JBE: The Water / Sewer Division of the town of Franklin has requested that we loop the water main back to East Central Street. This has been done, and is depicted on Sheet C4.* **BETA2: Loop provided. BETA defers to the DPW for any additional comment.**
- U5. Recommend to provide the size and material of the existing water and sewer lines. *JBE: The size and type of the existing utilities have been added to Sheet C4.* **BETA2: Information provided – issue resolved.**
- U6. Consult the DPW to confirm that the proposed 4" sewer services from Buildings C and D are of acceptable size. *JBE: After consultation with the DPW, the sewer services have been increased to 6" sewer services.* **BETA2: Information provided – issue resolved.**
- U7. Clarify if any easements are needed for the new fire hydrant and utility pole located just east of the proposed site entrance. *JBE: An easement is proposed for the hydrant to the benefit of the town of Franklin. Coordination with National Grid will take place prior to construction.* **BETA2: Easement provided – issue resolved.**
- U8. Revise note 2 on Hydrant Installation Detail to indicate that hydrant shall be factory painted in Town colors. Also remove references to "non-draining" and "hydrant drain to be plugged" unless confirmed to be acceptable by the DPW. *JBE: The Detail has been updated per DPW standards, see Sheet D8. A note has been added to the detail requiring the hydrant comply with DPW standards, per request by the DPW.* **BETA2: Remove reference to American Darling model. This**

is no longer the Town standard. *JBE2: The detail has been updated per DPW standards, see Sheet D8. A note has been added to the detail requiring the hydrant comply with DPW standards per request by the DPW.* **BETA3: Reference removed – issue resolved.**

U9. Resolve discrepancy of sewer force main material between Utility Plan and Force Main Sewer Trench detail. Town Specifications require SDR 21 PVC, DR11 HDPE, or ductile iron. *JBE: The detail has been updated to require DR11 HDPE, see Sheet D4.* **BETA2: Material updated. Remove reference to Town of Exeter testing requirements.** *JBE2: This note has been removed from the detail.* **BETA3: Note removed – issue resolved.**

U10. Coordinate with the DPW and indicate how the existing utility services will be capped. Water services are typically required to be capped at the main. *JBE: Per direction from the DPW, the sewers are to be capped at the property line and the water service are to be capped at the main. This is reflected on the demo plan, Sheet Cl-I.* **BETA2: Information provided – issue resolved.**

STORMWATER MANAGEMENT

The project proposes to direct runoff from impervious areas into new closed drainage systems comprised of roof leaders, deep sump catch basins with hoods, oil/water separators, and subsurface infiltration systems. Runoff from impervious surfaces will be directed to one of three new subsurface infiltration systems. Overflows from the proposed systems will be directed into the wetland buffer zone in the southern portion of the Site.

GENERAL

SW1. Provide a stamped Stormwater Management Checklist. *JBE: A Stormwater Management Checklist has been provided in the updated Drainage Analysis.* **BETA2: Checklist provided – issue resolved.**

SW2. Recommend replacing the curb break, rip rap, swale, and sidewalk scupper with a conventional catch basin and pipe. *JBE: The curb brake system has been modified to a conventional catch basin.* **BETA2: Design modified as recommended – issue resolved.**

SW3. Provide an easement for the relocated drainage line that carries flow from East Central Street. Since this portion of East Central Street is a State Highway, confirm that required coordination with MassDOT is being conducted. *JBE: We are in communication with MassDOT regarding this drainage pipe and are working with them to provide an easement for the related pipe.* **BETA2: Information provided – issue resolved.**

SW4. Review structure rim, weir, and outlet elevations (e.g. DMHs 517, 518, and 525, etc.) to ensure consistency between plans, details, and HydroCAD model. *JBE: The plans and drainage analysis have been reviewed for consistency following the updates.* **BETA2: BETA spot checked several of drainage structures for consistency and found them to be correct – issue resolved.**

SW5. Revise drain manhole detail to specify clay brick for invert in accordance with Subdivision Regulations. *JBE: The drain manhole detail on Sheet D2 has been updated to use clay bricks.* **BETA2: The drain manhole detail proposes a concrete invert. BETA finds this acceptable; however, we note that the Board may require brick in accordance with Town regulations.** *JBE2: Noted.* **BETA3: Note further comment.**

SW6. Remove reference to “hook lock grates” on Catch Basin (MA) detail. *JBE: This has been removed per your request.* **BETA2: Note removed – issue resolved.**

- SW7. Request waiver to allow the installation of PVC pipe as part of the drainage systems at oil/water separators. *The previously provided waiver letter has been updated to include a waiver for the use of PVC pipe.* **BETA2: BETA defers to the preference of the Board to grant this waiver. Recommend providing cleanouts at bends.** *JBE2: These proposed pipes have been increased to 12" PVC to reduce the chance of clogging.* **BETA3: The combination of pipe size and bend angles limited to 45° are anticipated to be sufficient to minimize clogging potential – issue resolved.**
- SW8. Provide a detail for rip rap outlet protection and note required dimensions at each outfall. Recommend including a layer of filter fabric for permanent erosion control beneath stone. *JBE: A rip rap outlet protection detail has been to Sheet D1. Dimensional information has been added to the plans for each outfall.* **BETA2: Detail provided – issue resolved.**

MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS:

The proposed development will disturb greater than one acre and is located in proximity to wetland resources; therefore, the project is subject to Chapter 153: Stormwater Management of the Town of Franklin Bylaws and MassDEP Stormwater Management Standards.

No untreated stormwater (Standard Number 1): *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

The project does not propose any new untreated stormwater discharges to wetlands. Four new outfalls are proposed which discharge into wetland buffer zones. Riprap aprons are proposed at the end of these outfalls to mitigate erosion potential.

Post-development peak discharge rates (Standard Number 2): *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

The project proposes an increase in impervious area and will use subsurface infiltration systems to mitigate increases in post-development peak discharge rates and total runoff volumes.

- SW9. Revise HydroCAD model (i.e. finer routing) to eliminate oscillations, which may render the output data invalid. *JBE: The hydraulic analysis has been reviewed, and the system has been revised to the best extent practical to reduce oscillations. Oscillations are found to be in acceptable tolerances for the analysis to be valid.* **BETA2: Following discussion with the designer, supplemental information has been provided to resolve oscillations in the chamber systems – issue resolved.**
- SW10. Clarify use of HSG D for areas located in areas mapped by NRCS as HSG A/D in the existing conditions model. There is an approximate 0.82-acre reduction in Woods Good HSG D in the proposed conditions and is presumed to be new impervious area. While it is anticipated that some of the soils in proximity to the wetlands will be saturated HSG D soils, it is also anticipated there will be upland areas located in unsaturated HSG A soils. *JBE: After review of the test pits done within this area, we have reduced the HSG D soils to the boundary of the wetland to the rear of the property. The remaining soil area will be classified as HSG A.* **BETA2: HSG revised – issue resolved.**
- SW11. Revise Time of Concentration (TOC) to a minimum of 5 minutes for subwatersheds where the grass portion is minimal in comparison to the paved area (e.g. 210S and 219S). *JBE: The watersheds with minimal grass areas have been updated to a minimum 5-minute time of concentration.* **BETA2: TOC revised – issue resolved.**

SW12. Remove Reaches 1, 2, and 3 from the proposed conditions model, which appear to significantly reduce peak flow rate from the outfalls. These reaches are not included in the existing conditions model. *JBE: The hydrocad models have been modified to use the wetland line as the analysis point. This adjustment will allow the discharge to the analysis point in both the existing and proposed conditions to happen immediately and remove the need for the reach.* **BETA2: Reaches removed – issue resolved.**

SW13. Recommend providing pipe sizing calculations utilizing the rational method. *JBE: A pipe sizing table has been provided with this submission.* **BETA2: Calculations provided – issue resolved.**

SW13A. Confirm the area of “Wetland Pond Area” P2 used in the HydroCAD model. Also, clarify who will be responsible for maintenance (site owner or MassDOT) and if the pond is intended to be a constructed stormwater wetland, detention basin, or wetland replication area. Wetland replication will be provided under separate cover as part of the NOI review; however, it is BETA’s general understanding that wetlands are typically not used for the control of stormwater. *JBE: The Constructed Wetland Area (Node P2) was added with coordination from Goddard Consulting LLC as a part of our NOI submission to the Conservation Commission. It was designed with their guidance. Although this area is designed as a pond, the detention provided is not needed to meet pre/post conditions from stormflow. A summary for Analysis Point #1 from a version of the model with the Constructed Wetland Area not apart of the design is included.* **BETA2: Information provided confirming that the constructed wetland is not required for stormwater control. BETA defers additional commentary to the wetlands reviewer; however, operation and maintenance procedures and construction details must be included in the final stormwater report and plans. BETA: Remaining commentary regarding the wetland replication area and operation and maintenance will be provided as part of the Conservation Commission review.**

Recharge to groundwater (Standard Number 3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable.*

NRCS soil maps indicate the presence of Merrimac fine sandy loam with a Hydrologic Soil Group (HSG) rating of A (high infiltration potential), Scarboro and Birdsail soils with HSG A/D (very low infiltration potential when saturated) and Urban Land, with no associated HSG rating. Test pit logs indicate the presence of sand, loamy sand, and sandy loam throughout the Site. The infiltration systems have been designed to provide a recharge volume in excess of that required and will drain within 72 hrs.

SW14. Review calculations for required recharge volume. The on-site impervious areas used in these calculations are significantly lower than the total impervious area of the post-development site. The stormwater narrative indicates the project is being designed as a new development. *JBE: There is an increase of 1.73 acres of impervious area due to the proposed development. The proposed infiltration systems treat a total of 4.38 acres of impervious area.* **BETA2: Calculation revised – issue resolved.**

SW15. Depict location of hydraulic conductivity tests on the plans. *JBE: The locations of the amoomezemeter tests done on site are located on the existing conditions plan, and are designed at PT-P#.* **BETA2: Information provided – issue resolved.**

SW16. Provide test pit logs for TP #1-04 and TP #18-15, which are in the footprints of Chamber Systems #1 and #3, respectively. *JBE: The requested test pit logs have been added to the test pit logs within the drainage report.* **BETA2: Information provided – issue resolved.**

SW17. Identify basis for using HSG D in recharge calculations. It appears the project can easily meet the required recharge volume assuming the more conservative HSG A soils. *JBE: Per on site test pit data, the HSG D soils on site has been reduced to the wetland line. The recharge calculations have been updated to account for the additional HSG A soils.* **BETA2: Calculation revised – issue resolved.**

SW18. Revise subsurface recharge systems to provide the minimum required 2' separation to groundwater. Details provided on Sheet D5 generally indicate approximately 1.5' of separation. A mounding analysis will be required where separation to groundwater is less than 4 feet. *JBE: The separation of ground water for the underground systems on site have been modified to provide 2'.*

There are typically two main concerns regarding groundwater mounding. The impact of groundwater mounding on basements and its adverse effects on drawdown time. The state requires drawdown to occur within 72 hours. As all structures on site are slab on grade there are no anticipated issues regarding groundwater impacts to basements.

The draw down times for the three systems per stormwater handbook calculations are between 3-12 hours. A mounding analysis is as conducted on a previous design in 2016 (see attached mounding report). Within that analysis Pond #2 was reviewed. This pond has very similar soil characteristics and is of far greater size then the ponds currently proposed. This pond saw a drawdown of approximately 30 hours while accounting for groundwater mounding. Given this information, Jones and Beach believes there is sufficient evidence to conclude that groundwater mounding will not adversely affect the site or the ponds from functioning properly. **BETA2: Required separation provided – issue resolved.**

SW19. Evaluate the estimated seasonal high groundwater elevation at Chamber System 2. TP #2-15 (approx. Elevation 279.5) indicates mottling 78" below the surface (elevation 273) and is only 0.5'± below the system bottom. *JBE: The test pit logs attached did not have Don Neilson notes which provide vital additional information. These logs have been attached to the resubmission drainage analysis. These logs indicate the elevation at the location of the test pit site. All underground systems onsite have been updated to provide a minimum of 2' of separation to the bottom of gravel.* **BETA2: Information provided – issue resolved.**

SW20. In consideration that only a single test pit has been conducted within the limits of Chamber System 2, provide an additional test pit near the southeast corner of system to confirm soil texture and groundwater elevations. BETA notes that if loamy sand is confirmed an increased exfiltration rate to 2.41 in/hr would be justified. *JBE: Additional test pits have been provided within the drainage report for this location. There are loamy sands present, but there is a mix of construction fill as well, given our close proximity to the existing building. We feel that holding to the current infiltration rate of 1.020" is an appropriate rate in order to be conservative.* **BETA2: Information provided – issue resolved.**

80% TSS Removal (Standard Number 4): *For new development, stormwater management systems must be designed to remove 80% of the annual load of Total Suspended Solids.*

The project proposes to direct runoff from roofs and new parking areas to new subsurface infiltration systems. The proposed treatment train typically includes deep sump catch basins, oil water separators, and subsurface isolator row prior to infiltration. As the Site is within a Zone II Wellhead Protection Area and qualifies as a Land Use with Higher Potential Pollutant Load, 44% pretreatment has been provided prior to infiltration.

SW21. Review calculations for required water quality volume. The on-site impervious areas used in these calculations are significantly lower than the total impervious area of the post-development site. The stormwater narrative indicates the project is being designed as a new development. *JBE: The proposed site causes an increase in impervious 011.730 acres. The three proposed infiltration storm—tech units treat a total of 4.378 acres. This is less than the total impervious area in the proposed hydro-cad model due to the fact that there is some off—site watershed that were modeled. These watersheds are off site and are not going to be disturbed by the proposed project. Thus, no treatment is proposed. For example, the watersheds associated with the drainage pipe that currently discharges to the rear of the property. We are rerouting that pipe, but are not planning to provide treatment. All proposed impervious will be treated prior to discharge.*

*The detention basin at the outfall oi the existing pipe has 942 cu. ft. of storage. The proposed storm volume to the wetland system is sufficiently less then the existing conditions to account for the loss of the existing storage. **BETA2: Information provided – issue resolved.***

SW22. Revise oil/water separator to pass the 2-year storm without interference, as indicated in the Stormwater Handbook. Currently, the 1” storm calculations show bypass over the weir in the upstream DMH. *JBE: The oil/water seperators have been modified to pass a 2-year storm without interference. **BETA2: Design revised – issue resolved.***

SW23. Provide detailed long-term pollution prevention plan (LTPPP), including measures outlined in the Stormwater Handbook. Recommend incorporating the LTPPP into the Operation and Maintenance Plan. *JBE: Spill prevention information is included in the operation and maintenance manual. Sheet E2. has been added to the plan set which provided additional erosion control information. Prior to the start of construction, a SW’PPP Manual will be submitted to the town. These additions to the submission materials we feel constitute an adequate LTPPP. **BETA2: In consideration of the project’s proximity to the Town’s well and the residential use, the LTPPP should be updated to include management of pet waste, use of fertilizers, and vehicle washing. JBE2: Management information regarding pet waste, fertilizers, and vehicle washing has been added to the Operations and Maintenance Manual. **BETA3: Include provisions for the use of fertilizers (e.g. frequency and slow release). Although provisions regarding vehicle washing have been provided the practice should be prohibited for any commercial vehicles or equipment, as runoff would be considered an illicit discharge. It is also recommended to prohibit residential vehicle washing to minimize pollutants within the water resource district. A commercial vehicle wash is available in immediate proximity to the project site.*****

Higher Potential Pollutant Loads (Standard Number 5): *Stormwater discharges from Land Uses with Higher Potential Pollutant Loads require the use of specific stormwater management BMPs.*

The project qualifies as a Land Use with Higher Potential Pollutant Load (LUHPPL) under the definition of a parking lot with high-intensity use (1,000 vehicle trips per day or more). The proposed treatment trains are consistent with the recommendations of MassDEP for LUHPPL areas, including the use of oil/grit separators for areas subject to higher pollutant loads of oil and grease and providing 44% TSS pretreatment prior to infiltration.

Critical Areas (Standard Number 6): *Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas.*

The project includes discharges to a Zone II Wellhead Protection Area, a critical area. The proposed treatment trains are consistent with the recommendations of MassDEP for discharges to Zone II wellhead

protection areas. The required 44% pretreatment prior to discharge to infiltration structures is also provided.

Redevelopment (Standard Number 7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable.*

The project has been designed as a new development – not applicable.

Construction Period Erosion and Sediment Controls (Standard Number 8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

The project as currently depicted will disturb in excess of one acre of land; therefore, a Notice of Intent with EPA and a Stormwater Pollution Prevention Plan (SWPPP) are required. The project plans indicate the use of perimeter compost filter tube, stabilized construction entrance, catch basin inlet protection, and temporary seeding/stabilization. A basic spill / pollution prevention plan narrative has been provided.

SW24. Recommend replacing the block and gravel catch basin inlet protection with a filter insert, such as a silt sack. *JBE: An inlet protection detail has been added to Sheet E2. BETA2: Detail revised – issue resolved.*

SW25. Depict location of construction entrance and inlet protection on the plans. *JBE: The construction entrance has been added to the plans, see Sheet C1-1. Note 30 has been added to Sheet C3-1 indicating inlet protection must be used on all catch basins. BETA2: Locations/notes provided – issue resolved.*

SW26. Revise location of proposed erosion controls to be coincident with limits of clearing and work (e.g. rip rap for flared end sections), as applicable. *JBE: The limit of clearing has been reviewed and complies with rip rap and FES sections. BETA2: Location revised – issue resolved.*

Operations/maintenance plan (Standard Number 9): *A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

A Long-Term Operation and Maintenance (O&M) Plan has been provided.

SW27. Provide an estimated O&M budget. *JBE: This has been provided in the Operation and Maintenance Manual. BETA2: Budget provided – issue resolved.*

SW28. Revise inspection/maintenance frequency of catch basins and oil/water separators to a minimum of twice per year. *JBE: The inspection frequency of these features has been updated on the operation and maintenance manual. BETA2: CB maintenance has not been updated – issue remains outstanding. JBE2: Catch Basin and Drain Manholes have been updated within the narrative to be inspected twice per year. BETA3: Maintenance frequency revised – issue resolved.*

Illicit Discharges (Standard Number 10): *All illicit discharges to the stormwater management systems are prohibited.*

The Stormwater Management Report indicates that no illicit discharges are proposed.

SW29. Provide a signed Illicit Discharge Compliance statement. *JBE: Within our stamped and signed Drainage Analysis Report included section 2.5.10; “No illicit discharges are proposed for this project. BETA2: Information provided – issue resolved.*

Mr. Anthony Padula, Chairman

September 10, 2020

Page 14 of 14

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



Matthew J. Crowley, PE
Project Manager



Stephen Borgatti
Staff Engineer

cc: Amy Love, Planner



TOWN OF FRANKLIN

DEPARTMENT OF PUBLIC WORKS

Franklin Municipal Building
257 Fisher Street
Franklin, MA 02038-3026

September 9, 2020

Mr. Anthony Padula, Chairman
Members of the Franklin Planning Board
355 East Central Street
Franklin, MA 02038

RE: Site Plan and Special Permit – 340 East Central St, Central Square

Dear Mr. Chairman and Members:

We have reviewed the revised materials for the subject project and all of our previous comments have been addressed. We have no further comments at this time.

Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Michael Maglio, P.E.
Town Engineer



**FRANKLIN PLANNING & COMMUNITY
DEVELOPMENT**

355 EAST CENTRAL STREET, ROOM 120
FRANKLIN, MA 02038-1352
TELEPHONE: 508-520-4907

MEMORANDUM

DATE: September 9, 2020
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: 340 East Central St
Special Permit & Site Plan

The DPCD has reviewed the above referenced Site Plan application for the Monday, September 14, 2020 Planning Board meeting and offers the following commentary:

General:

- The site is approximately 6.5 acres and is located at 340 East Central Street. The property is within the Commercial II Zoning District and Water Resource District, Assessor's Map 285 Lot 009.
- The applicant seeks approval to construct a 42,080+/- sq/ft of residential, 15,219+/-sq/ft of retail and 2,250+/- for a coffee shop.
- The Applicant is seeking the following Special Permits: Four stories and fifty feet building height under the Chapter 185 Attachment 9, Maximum Height of Building and Chapter 185 Attachment 3, Part II 2.16 to allow the use of a Vehicle Service Establishment.
- Applicant has their first public hearing with the Conservation Commission on August 27, 2020.

ZBA Variances Granted

1. Minimum rear yard setback of 26 feet where 30 feet is required 185 Attachment 9
2. Allow for Multi-Family or apartment residential use in the Commercial II district which is otherwise prohibited 185 Attachment 7

Waiver Request:

1. Chapter 185-21 (B) – To Allow 268 parking spaces where as 301 is required
2. Chapter 300 Section 11(B)(2)(a) – Minimum cover is 42 inches above the top of the pipe
3. Chapter 300 Section 11(B)(2)(a) – To allow HDPE be allowed for oil/water separator

Comments from August 24, 2020 meeting:

1. Building Height – Current Zoning allows the height of the building to be 50 feet. From ground level to the top of the roof the building is 62 feet. The definition of building height for gable, hip and gambrel is measured “the mean height between the eaves and ridge”.
 - a. From the ridge line to the top, it is 20 feet. The first 4 floors make up 42 feet. This only leaves 8 feet for the mean. It appears the building height is at 52 feet. The Board expressed concern at the last meeting and the applicant has not addressed the height of the building.
2. The Board requested additional plantings be installed along the West of the property line. No additional plantings have been submitted.
3. The Board expressed concern about the building and patio being so close to the roadway. Applicant has provided a sketch plan showing the distances in feet.
4. The Board inquired about deliveries and access around the Building D.

Suggested Special Conditions:

1. All units will be 1 or 2 bedrooms.
2. Color renderings and landscape plan shall be included in the endorsed set.
3. Any signage for the property will need to be submitted to Design Review Commission.

Records on File:

1. Application for Site Plan and Special Permit
2. Certificate of Ownership
3. Special Permit Criteria
4. Abutters certified mailing
5. Overview of Proposed project and Special Permit Findings
6. Site Plans
7. Traffic Study
8. Stormwater Management Plans

ROLE CALL VOTE:

This determination shall be in addition to the following specific findings:

Special Permit VOTE for USE: §185 Attachment 9, Maximum Height of Building and §185 Attachment 3 Part II 2.16, to allow the use of a Vehicle Service Establishment

If you vote NO on any of the following, please state reason why you are voting NO:

(a) Proposed project addresses or is consistent with neighborhood or Town need.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

(b) Vehicular traffic flow, access and parking and pedestrian safety are properly addressed.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

(c) Public roadways, drainage, utilities and other infrastructure are adequate or will be upgraded to accommodate development.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

(d) Neighborhood character and social structure will not be negatively impacted.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

(e) Project will not destroy or cause substantial damage to any environmentally-significant natural resource, habitat, or feature or, if it will, proposed mitigation, remediation, replication or compensatory measures are adequate.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

(f) Number, height, bulk, location and siting of building(s) and structure(s) will not result in abutting properties being deprived of light or fresh air circulation or being exposed to flooding or subjected to excessive noise, odor, light, vibrations, or airborne particulates.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

(g) Water consumption and sewer use, taking into consideration current and projected future local water supply and demand and wastewater treatment capacity, will not be excessive.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

The proposed use will not have adverse effects which overbalance its beneficial effects on either the neighborhood or the Town, in view of the particular characteristics of the site and of the proposal in relation to that site.

Anthony Padula	YES	NO	William David	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO

STANDARD CONDITIONS OF APPROVAL

1. This Special Permit shall not be construed to run with the land and shall run with the Site Plan as endorsed by the Planning Board. A new Special Permit shall be required from the Planning Board if any major change of use or major change to the site plan is proposed.
2. This Special Permit shall lapse if a substantial use or construction has not begun, except for good cause, within twenty four (24) months of approval, unless the Board grants an extension.- No final Certificate of Occupancy shall be issued until all requirements of the Special Permit have been completed to the satisfaction of the Board unless the applicant has submitted a Partial Certificate of Completion for the remainder of the required improvements and received approval by the Planning Board. The applicant's engineer or surveyor, upon completion of all required improvements, shall submit a Certificate of Completion. The Board or its agent(s) shall complete a final inspection of the site upon filing of the Certificate of Completion by the applicant. Said inspection is further outlined in condition #4.
3. Construction or operations under this Special Permit shall conform to any subsequent amendment of the Town of Franklin Zoning Bylaw (§185) unless the use or construction is commenced within a period of six (6) months after the issuance of this Special Permit and, in cases involving construction, unless such construction is continued through to completion as continuously and expeditiously as is reasonable.
4. **The Planning Board will use outside consultant services to complete construction inspections upon the commencement of construction.** The Franklin Department of Public Works Director, directly and through employees of the Department of Public Works and outside consultant services shall act as the Planning Board's inspector to assist the Board with inspections necessary to ensure compliance with all relevant laws, regulations and Planning Board approved plan specifications. Such consultants shall be selected and retained upon a majority vote of the Board.
5. Actual and reasonable costs of inspection consulting services shall be paid by the owner/applicant before or at the time of the pre-construction meeting. Should additional inspections be required beyond the original scope of work, the owner/applicant shall be required to submit fees prior to the issuance of a Final Certificate of Completion by the Planning Board (Form H). Said inspection is further outlined in condition #4.
6. No alteration of the Special Permit and the plans associated with it shall be made or affected other than by an affirmative vote of the members of the Board at a duly posted meeting and upon the issuance of a written amended decision.
7. All applicable laws, by-laws, rules, regulations, and codes shall be complied with, and all necessary licenses, permits and approvals shall be obtained by the owner/applicant.
8. Prior to the endorsement of the site plan, the following shall be done:
 - The owner/applicant shall make a notation on the site plan that references the Special Permit and the conditions and dates of this Certificate of Vote.
 - A notation shall be made on the plans that all erosion mitigation measures shall be in place prior to major construction or soil disturbance commencing on the site.

- All outstanding invoices for services rendered by the Town's Engineers and other reviewing Departments of the Town relative to their review of the owner/applicant's application and plans shall have been paid in full.
 - The owner/applicant shall submit a minimum of six copies of the approved version of the plan.
9. Prior to any work commencing on the subject property, the owner/applicant shall provide plans to limit construction debris and materials on the site. In the event that debris is carried onto any public way, the owner/applicant and his assigns shall be responsible for all cleanup of the roadway. All cleanups shall occur within twenty-four (24) hours after first written notification to the owner/applicant by the Board or its designee. Failure to complete such cleanup may result in suspension of construction of the site until such public way is clear of debris.
 10. The owner/applicant shall install erosion control devices as necessary and as directed by the Town's Construction Inspector.
 11. **Prior to construction activities, there shall be a pre-construction meeting with the owner/applicant, and his contractor(s), the Department of Public Works and the Planning Board's Inspector.**
 12. Any signage requires the Applicant to file with the Design Review Commission.
 13. Prior to the endorsement, the Certificate of Vote and Order of Conditions shall be added to the Site Plans.



September 8, 2020

Mr. Anthony Padula, Chairman
355 East Central Street
Franklin, MA 02038

Re: 340 East Central Street
Traffic Peer Review Update

Dear Mr. Padula:

BETA Group, Inc. (BETA) has reviewed the revised documents for the traffic related comments for proposed Site Plan Approval application, "*Proposed Development Central Square*" located at 340 East Central Street Franklin, Massachusetts. This letter is provided to outline findings, comments, and recommendations.

BASIS OF REVIEW

The following documents were received by BETA and formed the basis of the review:

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INTRODUCTION

The project site consists of 340 East Central Street, a previously developed parcel formerly used as an auto service facility (the "Site"). The parcel contains an area of 6.506 Acres and is located along the southern side of East Central Street. The Town of Franklin Assessor's Office identifies the parcel as Map 285 Lot 9.

The Site is located within the Commercial II Zoning District. Properties to the north, east, and west are also within this district, while parcels to the south are within the Rural Residential I district.

The existing Site includes a 116,475± sq. ft. 1-story building and a 9,800± sq. ft. garage.

The applicant proposes to demolish the existing buildings and redevelop the Site with two retail buildings and two residential buildings.

FINDINGS, COMMENTS AND RECOMMENDATIONS

Access to the site will be provided via two driveways on East Central Street, and one full access driveway via an access easement to the Big Y parking lot. One access on East Central Street would be right-turn in only from the west and the other would be a full access driveway aligned with the Glen Meadow Road consisting of an exclusive left-turn lane and a shared through/right-turn lane exiting the site.

The study area includes the following intersections.

- Route 140 (East Central Street) at King Street/Chestnut Street (signalized)
- Route 140 (East Central Street) at CVS/Horace Mann Plaza (signalized)
- Route 140 (East Central Street) at Big Y/Franklin Municipal Building (signalized)
- Route 140 (East Central Street) at Glen Meadow Road (unsignalized)
- Route 140 (East Central Street) at Right-Turn In (unsignalized)

The study area was found to be adequate, and the study methodology follows MassDOT Transportation Impact Assessment (TIA) guidelines.

Manual turning movement counts (TMCs) were collected on Thursday, March 5th, 2020 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, and Saturday, March 7th, 2020 from 11:00 AM to 2:00 PM. These time periods were chosen because they are representative of the peak traffic volume period for the development. Traffic volume data were also collected via automatic traffic recorder (ATR) on East Central Street (Route 140), west of Glen Meadow Road, over a 72-hour period between Thursday, March 5th, 2020 and Saturday, March 7th, 2020. The data collection dates occurred prior to the decrease in traffic patterns related to COVID-19. BETA concurs with the traffic data collection time periods.

Historical traffic count data collected by MassDOT were reviewed to determine the need for a seasonal adjustment. Traffic volumes in March were found to be lower than average-month conditions. As a result, volumes were increased by 7 percent to provide the baseline existing volumes. BETA finds this methodology acceptable.

Crash data were obtained from the MassDOT database for the most recent five-year period from 2013 to 2017. The highest crash rate, quantified as crashes per million entering vehicles, for the signalized intersections was found to be 0.68 MEV which is lower than both the 0.89 MEV district average and 0.78 MEV statewide average crash rates for signalized intersections.

The proponent found that based on the Highway Safety Improvement Program (HSIP) eligible database, none of the study area intersections were found to be HSIP clusters. BETA reviewed the database and verified that no HSIP clusters were within the study area.

Vehicle speeds were measured via ATR along East Central Street. The posted speed limit on East Central Street is 40 miles per hour (mph). The 85th percentile speeds were measured at 34 mph eastbound and 29 mph westbound, which are acceptable for a posted 40 mph roadway.

Background development-related traffic growth that may increase traffic within the study area was identified. The Chestnut Senior Village was identified as a new development.

MassDOT permanent count station data indicated that traffic volumes have fluctuated from a 3.0 percent decrease to an increase of 2.7 percent, with an average of a 0.42 percent growth rate. No-Build traffic volumes were determined by applying a 1 percent per year growth rate over a seven-year period to 2027 to account for traffic growth, the Chestnut Senior Village, and other unforeseen developments. This growth rate is consistent with studies prepared for recent developments in Franklin.

The base/unadjusted project-generated traffic volumes were determined by utilizing trip-generation statistics published by the Institute of Transportation Engineers (ITE) for Land Use Code (LUC) 221 Multifamily Housing (Mid-Rise), 820 Shopping Center, and 937 Coffee Shop with Drive-Through Window. The land uses are consistent with industry standards considering the tenants of the retail are unknown currently.

A multi-use (internal) trip credit was applied to each of the proposed uses to account for those patrons that may visit more than one of the uses on the site.

T1. BETA concurs that the project program will generate internal trip activity, though it is unclear how internal trip percentages were estimated in the TIA. Clarify the methodology of estimating internal trip capture. *VAI: The internal trip calculations for the Project were derived using the multi-use trip-generation calculation methodology promulgated by the Institute of Transportation Engineers (ITE). The detailed internal trip calculations for the Project are attached.* BETA2: While internal capture calculation sheets were appended, they could not be verified with percentages presented in Table 5R. The appended worksheets combine Retail and the Coffee Shop use. A newer version of Internal Capture includes a dedicated Restaurant category that can be compared independently with Retail and Residential. This is important, particularly in the Weekday Morning Peak Hour when internal capture between Residential and the Coffee Shop (Restaurant) is more probable than with Retail. Note that internal capture represents trips between two or more land uses. As such, if one land use receives a credit for internal trips (e.g. the Coffee Shop), it is expected that another use would receive a similar credit (e.g. Residential). With all this said, the percentages utilized in Table 5R are lower than projected in the Internal Capture worksheets. This represents a conservative analysis and is therefore acceptable. No further action required.

Pass-by trip credits were applied to the unadjusted retail and coffee shop project-generated trips to account for vehicles already travelling along Route 140 for other purposes but would patronize the project site on their way to their original destination. Based on data presented in the ITE *Trip Generation Handbook*, up to 34 percent of the trips generated by a retail and up to 89 percent generated by a coffee shop with drive-through may consist of pass-by trips. BETA finds this to be acceptable and in conformance with standard traffic engineering practice.

The project site is estimated to generate a total of 1,596 new trips on an average weekday and with 161 (93 entering, 68 exiting) during the weekday morning peak hour, and 115 (60 entering, 55 exiting) during the weekday afternoon peak hour. The Saturday mid-day peak trips are 143 (73 entering, 70 exiting).

- T2. Provide the estimated Saturday daily trips. *VAI: Table SR summarizes the trip-generation calculations for the Project and has been expended (from Table 5 of the May 2020 TIA) to include the Saturday daily trip calculations.* BETA2: The provided Saturday Daily Trip Generation was found to be adequate. No further comment.

New trips were distributed differently per land use. The residential component was based on Journey-to-Work data and then refined by existing traffic patterns. The commercial use was based on existing traffic patterns out of the driveway and within the study area. Overall, the two distribution schemes are similar. The commercial distribution differs by shifting 5% of trips from King Street to Route 140 East. Residential trips were all distributed as entering via the western "Right-In" driveway. Commercial trips were distributed to the primary all-access driveway. The provided distributions are acceptable.

The available stopping sight distance (SSD) at the site driveway was measured by the proponent and found to exceed the minimum required SSD based on the 40-mph posted speed limit. Under existing conditions, the SSD is reasonable, however, under the proposed conditions additional vegetation will be provided along the frontage of the property, potentially obstructing the sight lines.

- T3. Verify the sight lines will be sufficient under proposed conditions. *VAI: As documented in the May 2020 TIA, the existing sight lines to and from the Project site driveway intersections with Route 140 exceed 650 feet, which exceeds the recommended minimum distance for the driveways to function in a safe and efficient manner based on a 40 mile per hour (mph) approach speed along Route 140 (constant with the posted speed limit 40 mph and 6 to 1 mph above the measured 85th percentile vehicle travel speeds approaching the driveways (34/29 mph)). As recommended in the May 2020 TIA, the sight triangle areas of the Project site driveways will be kept clear of signs, landscaping or other features that would inhibit sight lines.* BETA2: Information provided – issue resolved

Traffic operations analysis was performed with Synchro software based on the 2000 Highway Capacity Manual methodologies. The Project was not found to change overall Level of Service (LOS) when compared to the No-Build conditions. However, several individual approaches do increase in delays and queues. The analysis methodology was found to be acceptable.

BETA notes significant delays and queues in the weekday evening peak hour for the Route 140 Westbound and Chestnut Street southbound signalized approaches at King Street. These approaches were found to operate over capacity (v/c greater than 1.0). While not reported, the high delays cause the overall intersection to operate over capacity and therefore experience LOS F conditions, despite delays in the LOS E range. A similar condition is experienced for the Route 140 Westbound approach in the Saturday mid-day peak hour.

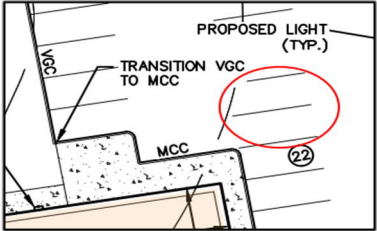
Increased volumes at the Site driveway were found to operate with LOS F conditions and high delays (± 800 seconds/vehicle) in the 2027 Build conditions.

- T4. A traffic monitoring program is proposed post-development. In addition to what is proposed as part of the monitoring program BETA recommends that signal warrant analysis should be performed for the main site driveway to determine whether or not the main site driveway

meets traffic signal warrants for signalization. *VAI: The Traffic Monitoring Program presented in the May 2020 TIA will be expanded to include the following:*

- 1) *Performing a detailed Traffic Signal Warrants Analysis (TSA) at the full access Project site roadway intersection with Route 140 and Glen Meadow Road in accordance with methodology defined in the MUCTD, including performing a 12-hour (7 AM - 7 PM) manual turning movement count at the intersection on an average weekday (i.e., Tuesday, Wednesday, or Thursday).*
- BETA2: Information provided – issue resolved.

SITE PLAN

- T5. Visitor parking is provided on the southwest corner of the site adjacent to Building “B”. Clarify if separate visitor spaces will be provided closer to Building “A.” *VAI: Visitor parking spaces will be added closer to Building “A.”* BETA2: Information provided – issue resolved.
- T6. One-way signs were provided in the Sign Legend on sheet D4 and also mentioned in the TIA but they were not shown on the Site Plan. Show proposed locations of the one-way signs on the plans. *VAI: The one-way signs will be added to the Site Plan.* BETA2: Information provided – issue resolved.
- T7. The parking aisle on the west side of Building “D” would provide a “dead-end” when the circled parking spaces are occupied (See image). Consider removing the spaces circled to provide a connection, improve circulation, and eliminate the “Dead-end.” *VAI: This section of the parking lot will be reserved for resident parking only and is conducive to the current parking layout.* BETA2: Information provided – issue resolved.
- 
- T8. It appears that the aisle to the west of Building “A” is bi-directional. Clarify how vehicles would turnaround heading northbound towards the right-turn in only access. *VAI: A turnaround area will be provided for vehicles approaching Route 140.* BETA2: Information provided – issue resolved.
- T9. Clarify where the additional residential parking spaces will be provided within the commercial parking. *VAI: Residential parking areas will be indicated on the Site Plan and signs will be added to indicate the location of resident parking.* BETA2: Information provided – issue resolved.
- T10. Provide centerline pavement markings along the 30-foot-wide main entrance between Building “A” and Building “C” to delineate the bi-directional movement more clearly. *VAI: A double-yellow centerline will be added as requested.* BETA2: Information provided – issue resolved.
- T11. Consider providing a pedestrian path from Building “B” to the commercial parking area, especially if the additional residential parking will be located in that parking area. *VAI: The main entrances to the residential buildings are located along the west side of the buildings. A marked crosswalk and ADA compliant wheelchair ramps are proposed for the residents of Building “B” to access the path provided along Building “A” which leads to the commercial uses.* BETA2: Several resident spaces are proposed in between Building “B” and Building “D.” It is unlikely that residents would travel north across the parking lot to cross at the proposed marked crosswalk and ramps across the driveway east of Building “A.” Consideration should be given to providing an accessible

Mr. Anthony Padula, Chairman

September 8, 2020

Page 6 of 6

pedestrian path to access and egress Building "B" to and from this area of resident parking. BETA3: Accessible path provided – issue resolved.

T12. The TIA recommends a minimum of six Electric Vehicle (EV) charging stations or outlets, four of which should be installed within the residential area and two within the commercial area. In addition, six spaces should be "EV ready." The plans show four EV stations. Either provide additional EV spaces or clarify the reduction in EV spaces as recommended in the TIA. *VAI: An additional EV charging station will be added to the residential parking area and two (2) additional EV charging stations will be provided in the commercial parking area.* BETA2: Information provided – issue resolved.

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



Jaklyn Centracchio, PE, PTOE
Senior Project Engineer

cc: Amy Love, Planner
Job No: 4830-63



September 3, 2020

Mr. Anthony Padula, Chairman
355 East Central Street
Franklin, MA 02038

Re: 340 East Central Street
Traffic Peer Review Update

Dear Mr. Padula:

BETA Group, Inc. (BETA) has reviewed the revised documents for the traffic related comments for proposed Site Plan Approval application, "*Proposed Development Central Square*" located at 340 East Central Street Franklin, Massachusetts. This letter is provided to outline findings, comments, and recommendations.

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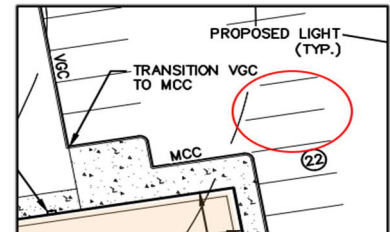
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Mr. Anthony Padula, Chairman

September 3, 2020

Page 6 of 6

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Very truly yours,
BETA Group, Inc.



Jaklyn Centracchio, PE, PTOE
Senior Project Engineer

cc: Amy Love, Planner
Job No: 4830-63



**FRANKLIN PLANNING & COMMUNITY
DEVELOPMENT**

355 EAST CENTRAL STREET, ROOM 120
FRANKLIN, MA 02038-1352
TELEPHONE: 508-520-4907

MEMORANDUM

DATE: September 10, 2020
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: 162 Grove Street – NETA
Special Permit & Site Plan Modification

General:

1. The site is approximately 4 acres and is located at 162 Grove Street in the Industrial Zoning and Marijuana Overlay District; Assessor's Map 306 Lot 003.
2. Applicant has filed for a Special Permit: To allow Non-medical marijuana facility under 185 Attachment 3, Part II Section 2.23
3. The footprint of the existing buildings is approximately 12,421 square feet. NETA proposes to expand the existing buildings, as shown on the proposed Site Plans and to convert the existing buildings into approximately 3,856 square feet of retail space, approximately 4,647 square feet of office space, and approximately 7,584 square feet of warehouse space. There will be no product manufacturing, testing or research operations at the Facility.
4. Letters were received from the Fire Department, Town Engineer and BETA.
5. Applicant has been approved by the Conservation Commission.
6. Applicant has received recommendation from Design Review.

Comments from the August 17 Meeting:

1. The Planning Board requested that the Town or Applicant commit to off-site improvements. The Board requests that something be proposed at this meeting.

Suggested Special Conditions based on the last Meeting:

1. The proposed facility will operate as a Reserve Ahead-only dispensary, which would require customers and patients to place an order in advance and select a scheduled pick up time to retrieve the product.
2. The Transportation Demand Management Plan, submitted by the applicant, shall be included with the Certificate of Vote.
3. Design Review color recommendations shall be included in the endorsed set of plans.

Records on File:

1. Application for Site Plan and Special Permit
2. Certificate of Ownership

3. Special Permit Criteria
4. Abutters certified mailing
5. Overview of Proposed project and Special Permit Findings
6. Site Plans
7. Traffic Study
8. Stormwater Management Plans

ROLE CALL VOTE:

This determination shall be in addition to the following specific findings:

If you vote NO on any of the following, please state reason why you are voting NO:

(1) Special Permit: To allow retail marijuana in the Marijuana use overlay district.

(a) Proposed project addresses or is consistent with neighborhood or Town need.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

(b) Vehicular traffic flow, access and parking and pedestrian safety are properly addressed.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

(c) Public roadways, drainage, utilities and other infrastructure are adequate or will be upgraded to accommodate development.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

(d) Neighborhood character and social structure will not be negatively impacted.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

(e) Project will not destroy or cause substantial damage to any environmentally-significant natural resource, habitat, or feature or, if it will, proposed mitigation, remediation, replication or compensatory measures are adequate.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

(f) Number, height, bulk, location and siting of building(s) and structure(s) will not result in abutting properties being deprived of light or fresh air circulation or being exposed to flooding or subjected to excessive noise, odor, light, vibrations, or airborne particulates.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

(g) Water consumption and sewer use, taking into consideration current and projected future local water supply and demand and wastewater treatment capacity, will not be excessive.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

The proposed use will not have adverse effects which overbalance its beneficial effects on either the neighborhood or the Town, in view of the particular characteristics of the site and of the proposal in relation to that site.

Anthony Padula	YES	NO	Joseph Halligan	YES	NO
Rick Power	YES	NO	Gregory Rondeau	YES	NO
William David	YES	NO			

STANDARD CONDITIONS OF APPROVAL

1. This Special Permit shall not be construed to run with the land and shall run with the Site Plan as endorsed by the Planning Board. A new Special Permit shall be required from the Planning Board if any major change of use or major change to the site plan is proposed.
2. This Special Permit shall lapse if a substantial use or construction has not begun, except for good cause, within twenty four (24) months of approval, unless the Board grants an extension. No final Certificate of Occupancy shall be issued until all requirements of the Special Permit have been completed to the satisfaction of the Board unless the applicant has submitted a Partial Certificate of Completion for the remainder of the required improvements and received approval by the Planning Board. The applicant's engineer or surveyor, upon completion of all required improvements, shall submit a Certificate of Completion. The Board or its agent(s) shall complete a final inspection of the site upon filing of the Certificate of Completion by the applicant. Said inspection is further outlined in condition #4.
3. Construction or operations under this Special Permit shall conform to any subsequent amendment of the Town of Franklin Zoning Bylaw (§185) unless the use or construction is commenced within a period of six (6) months after the issuance of this Special Permit and, in cases involving construction, unless such construction is continued through to completion as continuously and expeditiously as is reasonable.
4. **The Planning Board will use outside consultant services to complete construction inspections upon the commencement of construction.** The Franklin Department of Public Works Director, directly and through employees of the Department of Public Works and outside consultant services shall act as the Planning Board's inspector to assist the Board with inspections necessary to ensure compliance with all relevant laws, regulations and Planning Board approved plan specifications. Such consultants shall be selected and retained upon a majority vote of the Board.
5. Actual and reasonable costs of inspection consulting services shall be paid by the owner/applicant before or at the time of the pre-construction meeting. Should additional inspections be required beyond the original scope of work, the owner/applicant shall be required to submit fees prior to the issuance of a Final Certificate of Completion by the Planning Board (Form H). Said inspection is further outlined in condition #4.
6. No alteration of the Special Permit and the plans associated with it shall be made or affected other than by an affirmative vote of the members of the Board at a duly posted meeting and upon the issuance of a written amended decision.

7. All applicable laws, by-laws, rules, regulations, and codes shall be complied with, and all necessary licenses, permits and approvals shall be obtained by the owner/applicant.
8. Prior to the endorsement of the site plan, the following shall be done:
 - The owner/applicant shall make a notation on the site plan that references the Special Permit and the conditions and dates of this Certificate of Vote.
 - A notation shall be made on the plans that all erosion mitigation measures shall be in place prior to major construction or soil disturbance commencing on the site.
 - All outstanding invoices for services rendered by the Town's Engineers and other reviewing Departments of the Town relative to their review of the owner/applicant's application and plans shall have been paid in full.
 - The owner/applicant shall submit a minimum of six copies of the approved version of the plan.
9. Prior to any work commencing on the subject property, the owner/applicant shall provide plans to limit construction debris and materials on the site. In the event that debris is carried onto any public way, the owner/applicant and his assigns shall be responsible for all cleanup of the roadway. All cleanups shall occur within twenty-four (24) hours after first written notification to the owner/applicant by the Board or its designee. Failure to complete such cleanup may result in suspension of construction of the site until such public way is clear of debris.
10. The owner/applicant shall install erosion control devices as necessary and as directed by the Town's Construction Inspector.
11. **Prior to construction activities, there shall be a pre-construction meeting with the owner/applicant, and his contractor(s), the Department of Public Works and the Planning Board's Inspector.**
12. Any signage requires the Applicant to file with the Design Review Commission.
13. Prior to the endorsement, the Certificate of Vote and Order of Conditions shall be added to the Site Plans.

PLAN 348 OF 1987

SITE PLAN 162 GROVE STREET

ZONING:

162 GROVE STREET SITE IS LOCATED WITHIN AN INDUSTRIAL ZONE.

INDUSTRIAL ZONE	REQUIREMENTS:	EXISTING	PROPOSED
AREA:	40,000 S.F.	174,351± S.F.	174,351± S.F.
FRONTAGE:	175'	175.00'	175.00'
DEPTH:	200'	757'	757'
HEIGHT:	3 STORIES *6	2 STORIES	2 STORIES
WIDTH:	157.5'	220'	220'

COVERAGE - STRUCTURES:	70%	8.1%	9.8%
STRUC. & PAVING:	80%	31.5%	50.0%

SETBACKS-		69.1'	69.1'
FRONT:	40'	69.1'	69.1'
RIGHT SIDE:	30' *5	107.1'	85.3'
LEFT SIDE:	30' *5	31.7'	31.7'
REAR:	30' *5	476.9'	476.9'

*5 - INCREASE BY THE COMMON BUILDING HEIGHT OF THE STRUCTURE, WHEN ABUTTING A RESIDENTIAL USE
*6 - BUILDINGS UP TO 60 FEET IN HEIGHT MAY BE PERMITTED BY A SPECIAL PERMIT FROM THE PLANNING BOARD.

LOT COVERAGE CALCULATION AREA BASED ON UPLAND AREA

A PORTION OF THE PROPERTY IS LOCATED WITHIN A FRANKLIN WATER RESOURCE DISTRICT. THE SITE AREA PROPOSED FOR DEVELOPMENT IS LOCATED IN A ZONE X BASED ON FEMA FIRM MAP 25021C0308E DATED JULY 17, 2012.

AREA WITHIN THE WATER RESOURCE DISTRICT - 94,477± SQ. FT.
UPLAND AREA WITHIN THE WATER RESOURCE DISTRICT - 72,907± SQ. FT.
IMPERVIOUS AREA WITHIN THE WATER RESOURCE DISTRICT - 21,764± SQ. FT.
COVERAGE WITHIN THE WATER RESOURCE DISTRICT - 21,764 / 72,907 = 29.9%

162 GROVE STREET:
EXISTING BUILDING USE TRUCK TERMINAL.
PROPOSED BUILDING USE MEDICAL AND NON MEDICAL MARIJUANA DISPENSARY.

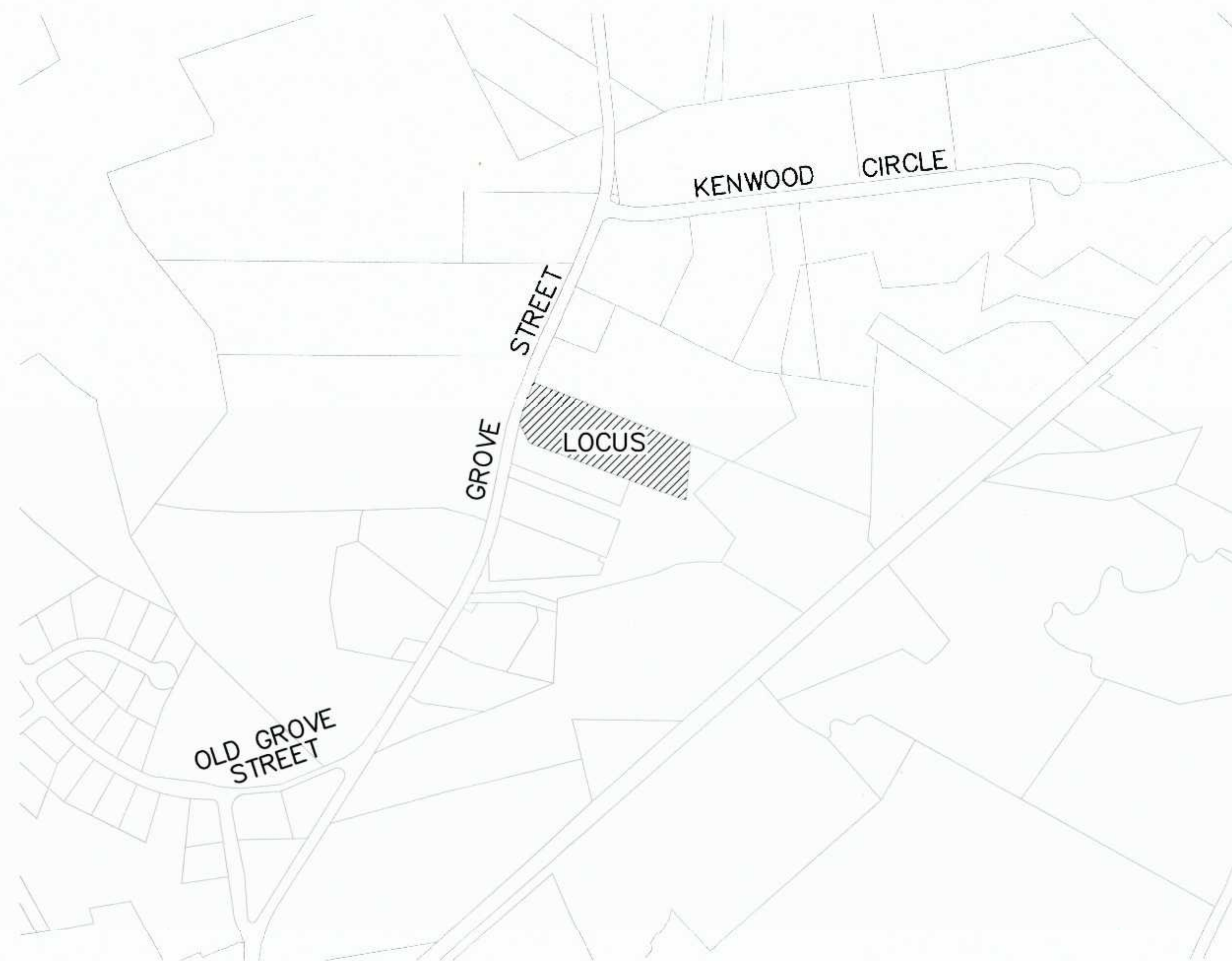
DRAWING INDEX:

1. COVER SHEET
2. EXISTING CONDITIONS PLAN
3. SITE LAYOUT PLAN
4. SITE GRADING AND UTILITY PLAN
5. SITE PLANTING PLAN
6. EROSION CONTROL PLAN
7. CONSTRUCTION DETAILS - 1
8. CONSTRUCTION DETAILS - 2
9. CONSTRUCTION DETAILS - 3
- SITE LIGHTING-LIGHTING PLAN, PHOTOMETRICS AND SCHEDULES BY SK & ASSOCIATES



Carlos A. Quintal
CARLOS A. QUINTAL P.E. #30812

REFERENCES:
ASSESSORS MAP 306 PARCEL 3
DEED BOOK 35681 PAGE 179
PLAN 348 OF 1987
PLAN 1364 OF 1987
PLAN 516 OF 1996
PLANS 620 - 622 OF 1940
SITE PLAN MODIFICATION AND CHANGE OF USE SITE PLAN BY GUERRIERE AND HALNON, INC LAST REVISED OCTOBER 18, 2018



LOCUS MAP
SCALE: 1" = 400'

VICINITY MAP
SCALE: 1" = 100'

- WAIVER REQUESTS:**
1. TO ALLOW LESS THAN 42" OF COVER OVER THE RCP DRAIN PIPE. PROPOSED CLASS V RCP.
 2. TO ALLOW THE USE OF HDPE PIPE FOR THE MANIFOLDS AND POND 10 AND POND 11. EXISTING ROOF PIPING IS 8" PVC.
 3. TO ALLOW MINIMAL LIGHT SPILLAGE ONTO THE ABUTTING PROPERTIES.

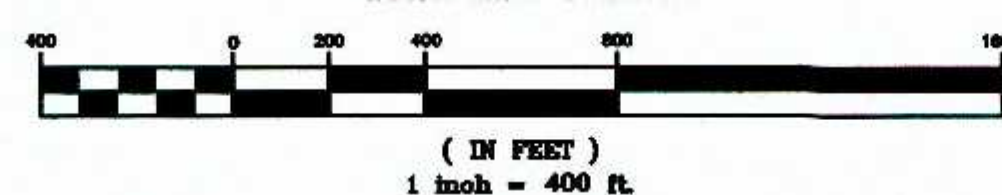
- ALL EROSION CONTROL MITIGATION MEASURES SHALL BE IN PLACE PRIOR TO MAJOR CONSTRUCTION OR SOIL DISTURBANCE COMMENCING ON THE SITE.

SITE PLAN
COVER SHEET
162 GROVE STREET
FRANKLIN, MASSACHUSETTS
PREPARED FOR
NEW ENGLAND TREATMENT ACCESS, LLC
5 FORGE PARKWAY
FRANKLIN, MASSACHUSETTS
MAY 21, 2020
SCALE: 1" = 400'

SITE PLAN APPROVAL
REQUIRED
FRANKLIN PLANNING BOARD

DATE

GRAPHIC SCALE



NO.	DATE	DESCRIPTION	BY
1	7/8/20	REVIEW COMMENTS	RRG

DATE	FIELD BY:	INT.
4/20	RRG	BL
5/20	CALCS BY:	RRG
5/20	DESIGNED BY:	RRG
5/20	DRAWN BY:	COMP
5/20	CHECKED BY:	CAQ

**UNITED
CONSULTANTS
INC.**
850 FRANKLIN STREET SUITE 11D
WRENTHAM, MASSACHUSETTS 02093
508-384-8560 FAX 508-384-8568

DATE	MAY 21, 2020
SCALE	1" = 400'
PROJECT	UC1435
SHEET	1 of 9

NOTES:
 1. ELEVATIONS DATUM NAVD 1988.
 2. EXISTING CONDITIONS SURVEY WAS COMPLETED BETWEEN APRIL 6, 2020 AND APRIL 16, 2020.
 3. SOIL TYPES TAKEN FROM SOILS MAP OF NORFOLK COUNTY.

EXISTING DRAINAGE STRUCTURE SCHEDULE

XCB-1 RIM=265.1 INV=262.4	XDMH-1 RIM = 264.3 INV IN = 261.3 INV OUT = 260.9
XCB-2 RIM=265.1 INV=263.0	XDMH-2 RIM = 261.4 INV IN = 256.4 INV OUT = 255.9
XCB-3 RIM=261.7 INV=257.3	XDMH-3 RIM = 264.1 INV IN = 259.5 CB INV IN = 259.3 8" PVC INV OUT = 259.0
XCB-4 RIM=263.4 INV=259.9	XDMH-4 RIM = 259.8 INV IN = 253.8 INV OUT = 253.55
XCB-5 RIM=259.9 INV=254.2	

MAP 306 PARCEL 2
 160 GROVE STREET
 N/F HENNEP PROPERTIES, LLC
 BOOK 37525 PAGE 499
 ZONE - INDUSTRIAL
 USE - WAREHOUSE

REFERENCES:
 ASSESSORS MAP 306 PARCEL 3
 DEED BOOK 35681 PAGE 179
 PLAN 348 OF 1987
 PLAN 1364 OF 1987
 PLAN 516 OF 1996
 PLANS 620 - 622 OF 1940
 SITE PLAN MODIFICATION AND CHANGE OF USE SITE PLAN
 BY GUERRIERE AND HALNON, INC LAST REVISED OCTOBER 18, 2018

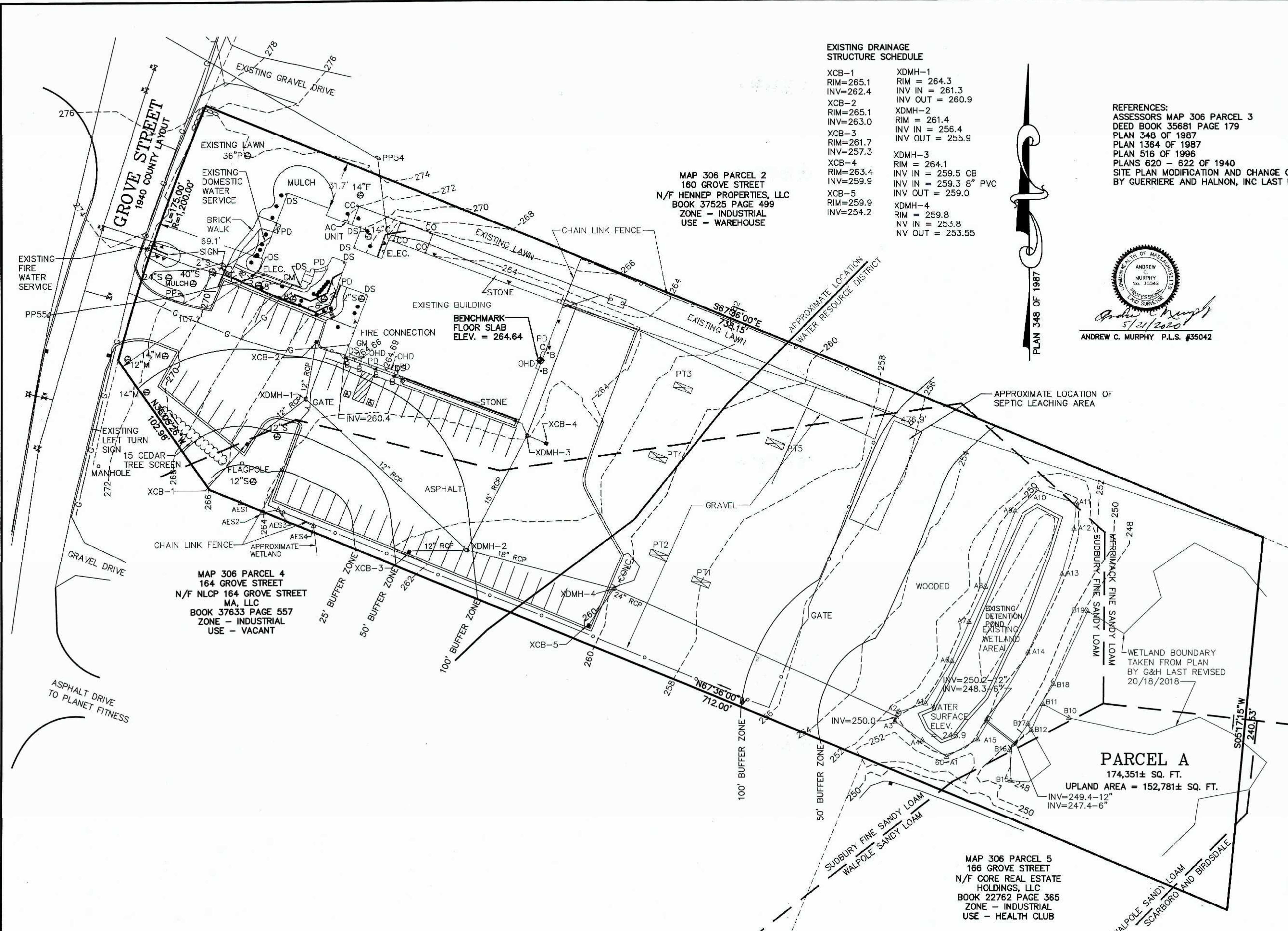
LEGEND:

- DHSB DRILL HOLE STONE BOUND
- 300 --- EXISTING COUNTOUR
- 297 --- PROPOSED COUNTOUR
- x274.3 SPOT GRADE - PROPOSED
- x274.3EX SPOT GRADE - EXISTING
- 48M EXIST. TREE - DIAMETER - SPECIES
- WB PROPOSED. TREE - SPECIES
- UP4-1 UTILITY POLE
- OHW OVERHEAD WIRES
- GAS GATE
- WATER CURB STOP
- WATER GATE
- FIRE HYDRANT
- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- D DUMPSTER
- VCC VERTICAL CONCRETE CURBING
- CCB CAPE COD BERM
- HANDICAP PARKING SPACE
- BUILDING MOUNTED LIGHT
- POLE MOUNTED LIGHT
- EXISTING POST LIGHT
- EXISTING BUILDING MOUNTED LIGHT
- B BOLLARD
- CO CLEANOUT
- DS DOWNSPOUT
- PD PERSON DOOR
- OHD OVERHEAD DOOR



Andrew C. Murphy
 5/21/2020
 ANDREW C. MURPHY, P.L.S. #35042

PLAN 348 OF 1987



MAP 306 PARCEL 4
 164 GROVE STREET
 N/F NLCP 164 GROVE STREET
 MA, LLC
 BOOK 37633 PAGE 557
 ZONE - INDUSTRIAL
 USE - VACANT

PARCEL A
 174,351± SQ. FT.
 UPLAND AREA = 152,781± SQ. FT.

MAP 306 PARCEL 5
 166 GROVE STREET
 N/F CORE REAL ESTATE
 HOLDINGS, LLC
 BOOK 22762 PAGE 365
 ZONE - INDUSTRIAL
 USE - HEALTH CLUB

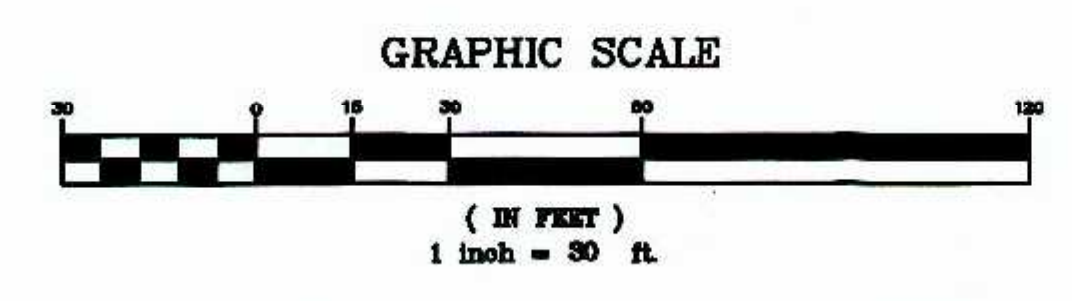
OWNER:
 CHARLEY2017, LCC
 7 MYRTLE STREET
 NORFOLK, MASSACHUSETTS

APPLICANT:
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS

SITE PLAN
 EXISTING CONDITIONS PLAN
 162 GROVE STREET
 FRANKLIN, MASSACHUSETTS
 PREPARED FOR
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS
 MAY 21, 2020
 SCALE: 1" = 30'

SITE PLAN APPROVAL REQUIRED
FRANKLIN PLANNING BOARD

DATE	

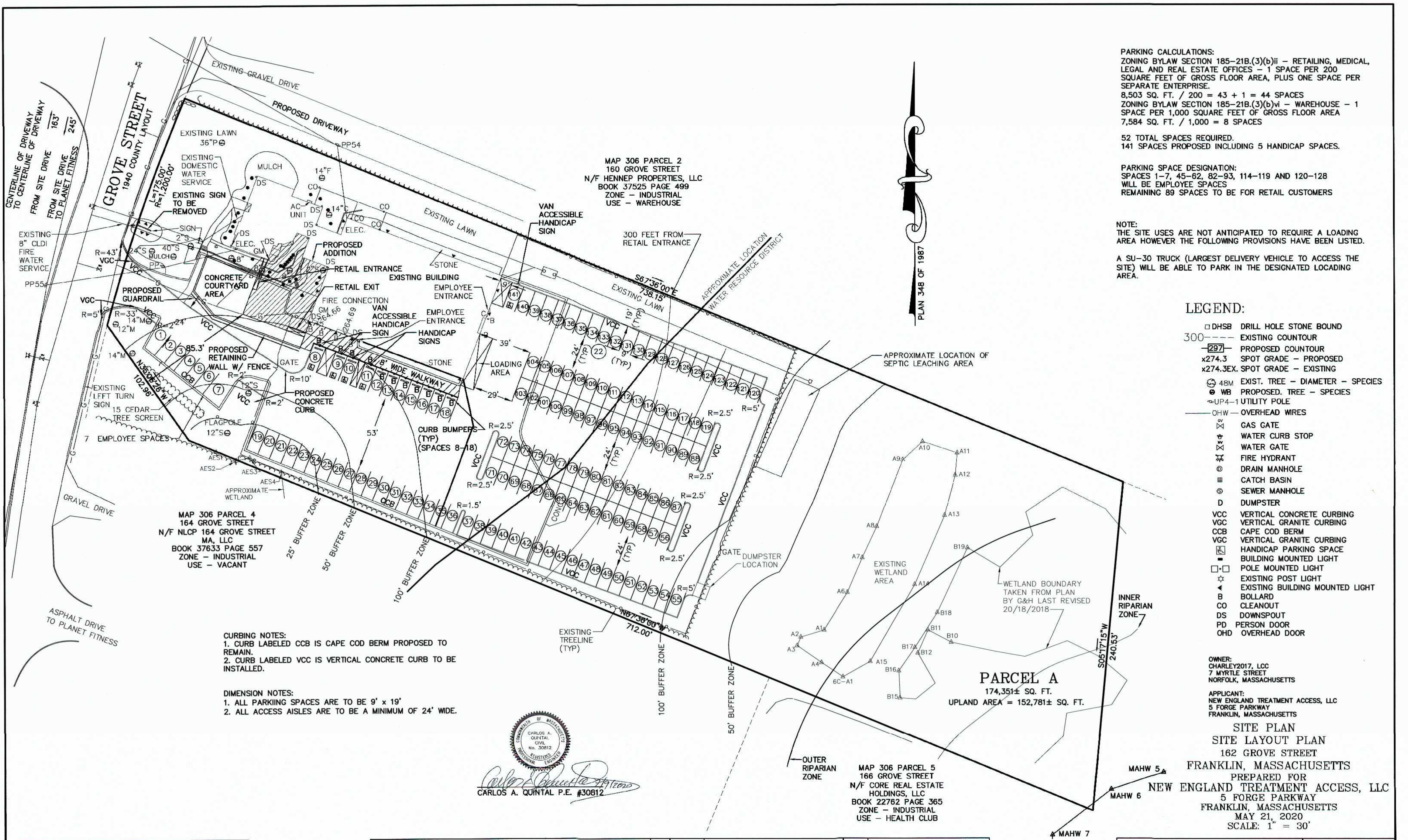


NO.	DATE	DESCRIPTION	BY

DATE	FIELD BY:	INT.
4/20	FIELD BOOK	BL
5/20	CALCS BY:	RRG
5/20	DESIGNED BY:	RRG
5/20	DRAWN BY:	COMP
5/20	CHECKED BY:	CAQ

UNITED CONSULTANTS INC.
 850 FRANKLIN STREET SUITE 11D
 WRENTHAM, MASSACHUSETTS 02093
 508-384-6560 FAX 508-384-6566

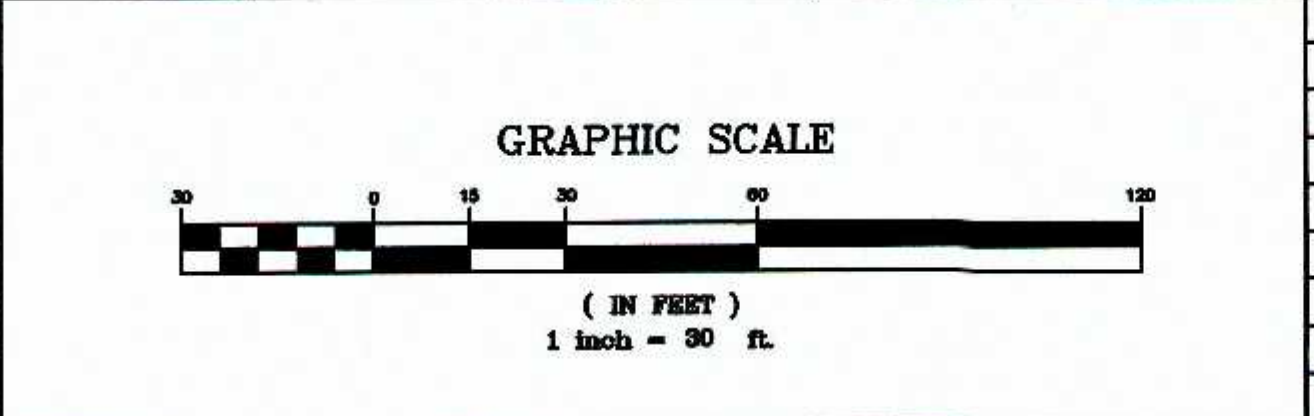
DATE	MAY 21, 2020
SCALE	1" = 30'
PROJECT	UC1435
SHEET	2 of 9



CARLOS A. QUINTAL P.E. #30812

SITE PLAN APPROVAL
REQUIRED
FRANKLIN PLANNING BOARD

DATE _____



NO.	DATE	DESCRIPTION	BY
1	7/8/20	REVIEW COMMENTS	RRG

DATE	FIELD BY:	INT.
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BK#	FIELD BOOK	PG#
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UNITED CONSULTANTS INC.
850 FRANKLIN STREET SUITE 11D
WRENTHAM, MASSACHUSETTS 02093
508-384-8560 FAX 508-384-8568

DATE
MAY 21, 2020

SCALE
1" = 30'

PROJECT
UC1435

SHEET
3 of 9



MAP 306 PARCEL 2
160 GROVE STREET
N/F HENNEP PROPERTIES, LLC
BOOK 37525 PAGE 499
ZONE - INDUSTRIAL
USE - WAREHOUSE

MAP 306 PARCEL 4
164 GROVE STREET
N/F NLCP 164 GROVE STREET
MA, LLC
BOOK 37633 PAGE 557
ZONE - INDUSTRIAL
USE - VACANT

**EXISTING DRAINAGE
STRUCTURE SCHEDULE**

XCB-1 RIM=265.1 INV=262.4	XDMH-1 RIM = 264.3 INV IN = 261.3 INV OUT = 260.9
XCB-2 RIM=265.1 INV=263.0	XDMH-2 RIM = 261.4 INV IN = 256.4 INV OUT = 255.9
XCB-3 RIM=261.7 INV=257.3	XDMH-3 RIM = 264.1 INV IN = 259.5 CB INV OUT = 259.0
XCB-4 RIM=263.4 INV=259.9	XDMH-4 RIM = 259.8 INV IN = 253.8 INV OUT = 253.55
XCB-5 RIM=259.9 INV=254.2	

**PROPOSED DRAINAGE
STRUCTURE SCHEDULE**

CB-10 RIM=264.0 INV=261.24	XDMH-1 RIM = 264.3 INV IN = 261.3 INV OUT = 260.9
CB-11 STORMCEPTOR 450I RIM=259.3 INV=256.3	XDMH-3 RIM = 264.1 INV IN = 259.5 CB INV OUT = 259.0
CB-12 DOUBLE GRATE RIM=258.0 INV=253.9	DMH 10 RIM = 260.4 12" IN = 255.44 12" OUT = 255.34

FILL NOTE:
FILL PLACED IN QUANTITY GREATER THAN 15 CUBIC YARDS MUST BE CERTIFIED IN ACCORDANCE WITH BYLAW SECTION 185-40.E.(5)

SNOW AND ICE NOTE:
NO DISPOSAL AND OR STOCKPILING OF SNOW AND ICE THAT CONTAINS DEICING CHEMICALS SHALL BE BROUGHT TO THE SITE FORM OUTSIDE THE DISTRICT. SEE ZONING BYLAW SECTION 185-40.D.(1)(f)

- NOTES:**
- CONTRACTOR TO CONTACT DIGSAFE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 - CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UTILITIES ANY REPORT ANY DISCREPANCIES TO UNITED CONSULTANTS, INC.
 - ALL WORK SHALL CONFORM TO THE TOWN OF FRANKLIN DPW STANDARDS.
 - MAINTAIN A MINIMUM OF 10' SEPARATION FROM THE WATER SERVICE TO THE SEWER SERVICE.

- UTILITY NOTES:**
- DOMESTIC WATER SUPPLY SHALL BE BASED ON PLUMBING ENGINEERS CALCULATIONS. USE EXISTING WATER SERVICE OR REPLACE AS MAY BE NECESSARY IN SAME LOCATION.
 - FIRE CONNECTION TO BE RELOCATED AS SHOWN. FINAL LOCATIONS TO BE DESIGNED BY PLUMBING ENGINEER AND APPROVED BY FIRE DEPARTMENT.
 - ELECTRIC, TELEPHONE AND CABLE TV LOCATIONS TO BE DETERMINED BY THE APPROPRIATE UTILITY COMPANIES.
 - GAS SERVICE TO BE RELOCATED AS SHOWN. FINAL LOCATION TO BE APPROVED BY THE GAS COMPANY.
 - THE DESIGN ENGINEER SHALL INSPECT THE EXCAVATION OF THE STORMWATER INFILTRATOR POND PRIOR TO ANY FILL OR STONE BEING PLACED.
- SEPTIC SYSTEM NOTES:**
- REFERENCE A PLAN ENTITLED "DOERING EQUIPMENT COMPANY SEWERAGE DISPOSAL SYSTEM" DATED MAY 20, 1987.
PLAN INDICATES A DESIGN FLOW OF 750 GALLONS PER DAY.

PROPOSED USE OF 162 GROVE STREET BUILDING INCLUDING ADDITION

RETAIL - 3,856 SQ. FT. @ 50 GALLONS PER DAY (GPD) PER 1,000 SQ. FT.
OFFICE - 4,647 SQ. FT. @ 75 GALLONS PER DAY PER 1,000 SQ. FT.
WAREHOUSE - 7,584 SQ. FT. @ 15 GALLONS PER DAY PER EMPLOYEE

3,856 / 1,000 x 50 = 192.8 GPD
4,647 / 1,000 x 75 = 348.5 GPD
10 WAREHOUSE EMPLOYEES x 15 = 150 GPD

TOTAL PROPOSED FLOW IS 691.4 GPD

WATER RESOURCE DISTRICT: 185-40.D.(1)(i) PROHIBITS FLOW FROM EXCEEDING 110 GALLONS PER 10,000 SQ. FT.
EXISTING DESIGN FLOW = 750 GALLONS
LAND AREA = 174,351 SQ. FT
750 / 110 = 6.818 x 10,000 = 68,181 SQ. FT OF LAND AREA REQUIRED

NOTE: RETAIL AREA INCLUDES ROOM 101 - 109 AND 115-116.

- STORMWATER SYSTEM CONSTRUCTION NOTES:**
- EXISTING CATCH BASIN 2 TO BE REMOVED AND THE 12" INLET OPENING INTO EXISTING DRAIN MANHOLE 1 SHALL BE BRICKED AND MORTARED.
 - EXISTING CATCH BASIN 4 TO BE REMOVED.
 - THE 15" DRAIN PIPE FROM X-DMH 3 TO X-DMH 2 SHALL BE ABANDONED AND BRICK AND MORTARED AT EACH END WITHIN THE DRAIN MANHOLES.
 - FOR CONNECTIONS OF 12" RCP PIPE TO 12" HDPE PIPE USE A MARMAC COUPLER.
 - ALL EXISTING CATCH BASINS TO BE CLEANED AND THE OIL SEPARATOR HOODS SHALL BE INSPECTED AND REPAIRED OR REPLACED AS NECESSARY.
 - ALL PROPOSED 12" RCP PIPE TO BE CLASS V.
 - INSTALL TWO ROOF LEADERS (SOUTH SIDE OF BUILDING) AND CONNECT TO THE EXISTING 8" PVC DRAIN PIPE.
 - CONTRACTOR TO EXCAVATE 3 TEST PITS IN THE EXISTING STONE TRENCH TO A DEPTH OF THE EXISTING PIPE AT LOCATIONS TO BE DETERMINED AND IN THE PRESENCE OF THE DESIGN ENGINEER. IF THE STONE IS DEEMED UNSUITABLE CONTRACTOR TO EXCAVATE A 3" WIDE TRENCH TO THE BOTTOM OF THE EXISTING PIPE FOR THE ENTIRE LENGTH OF THE NORTH SIDE OF THE BUILDING (120± FEET) AND INSTALL FILTER FABRIC AND DOUBLE WASHED STONE.

WETLAND BUFFER ZONE DISTURBANCES:

0 - 25' BUFFER ZONE = 0 SQ. FT.
25' - 50' BUFFER ZONE = 32 SQ. FT.
50' - 100' BUFFER ZONE = 6,662 SQ. FT.

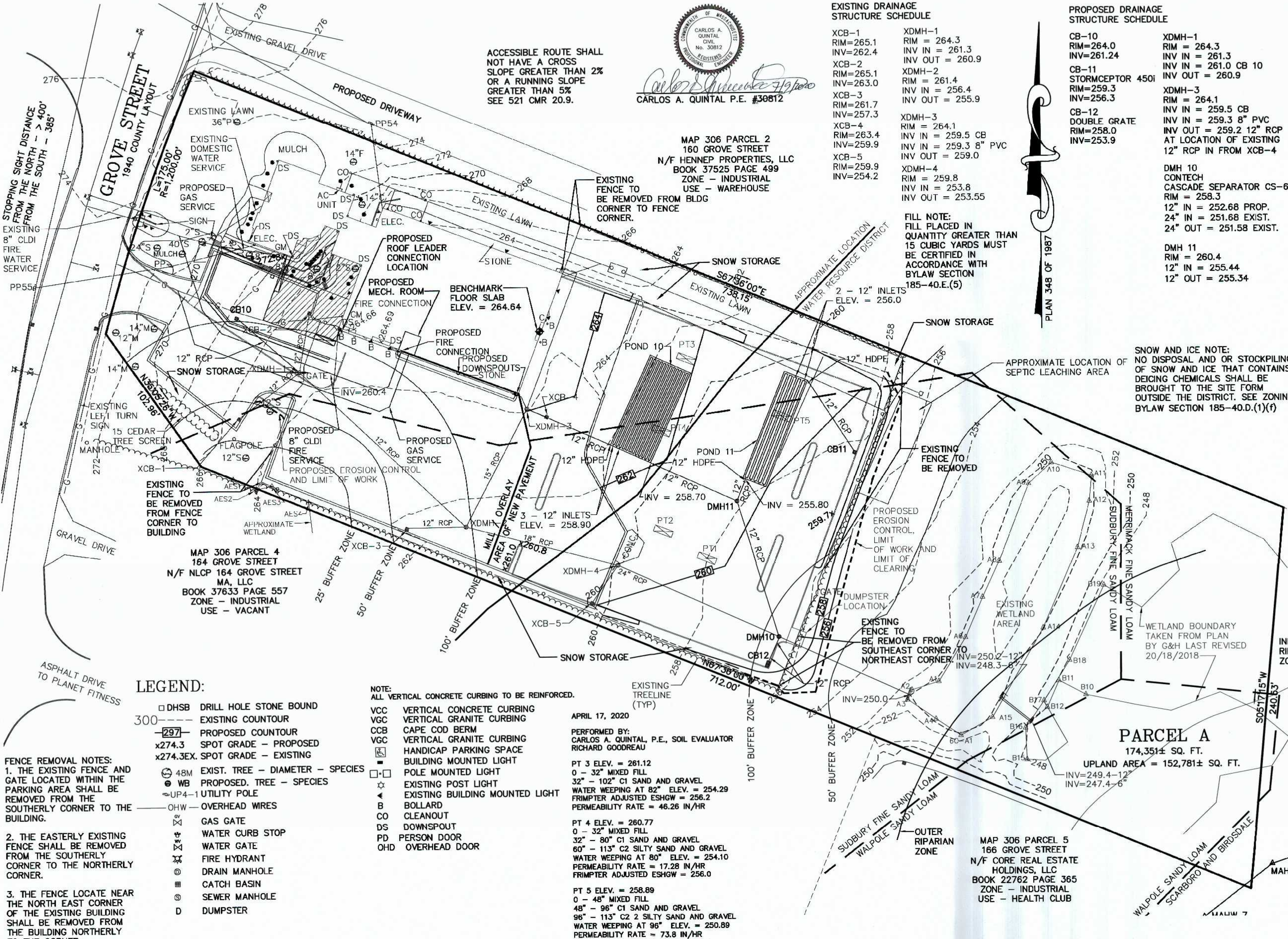
THERE ARE NOT ANY VERNAL POOLS WITHIN 100 FEET OF ANY PROPOSED WORK.

OWNER:
CHARLEY2017, LLC
7 MYRTLE STREET
NORFOLK, MASSACHUSETTS

APPLICANT:
NEW ENGLAND TREATMENT ACCESS, LLC
5 FORGE PARKWAY
FRANKLIN, MASSACHUSETTS

**SITE PLAN
GRADING & UTILITY PLAN**
162 GROVE STREET
FRANKLIN, MASSACHUSETTS
PREPARED FOR
NEW ENGLAND TREATMENT ACCESS, LLC
5 FORGE PARKWAY
FRANKLIN, MASSACHUSETTS
MAY 21, 2020
SCALE: 1" = 30'

ACCESSIBLE ROUTE SHALL NOT HAVE A CROSS SLOPE GREATER THAN 2% OR A RUNNING SLOPE GREATER THAN 5% SEE 521 CMR 20.9.



LEGEND:

- DHSB DRILL HOLE STONE BOUND
- 300 --- EXISTING COUNTOUR
- 297- PROPOSED COUNTOUR
- x274.3 SPOT GRADE - PROPOSED
- x274.3EX SPOT GRADE - EXISTING
- 48M EXIST. TREE - DIAMETER - SPECIES
- WB PROPOSED. TREE - SPECIES
- UP4-1 UTILITY POLE
- OHW OVERHEAD WIRES
- GAS GATE
- WATER CURB STOP
- WATER GATE
- FIRE HYDRANT
- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- D DUMPSTER

- NOTE:**
ALL VERTICAL CONCRETE CURBING TO BE REINFORCED.
- VCC VERTICAL CONCRETE CURBING
 - VGC VERTICAL GRANITE CURBING
 - CCB CAPE COD BERM
 - VGC VERTICAL GRANITE CURBING
 - HANDICAP PARKING SPACE
 - BUILDING MOUNTED LIGHT
 - POLE MOUNTED LIGHT
 - EXISTING POST LIGHT
 - EXISTING BUILDING MOUNTED LIGHT
 - B BOLLARD
 - CO CLEANOUT
 - DS DOWNSPOUT
 - PD PERSON DOOR
 - OHD OVERHEAD DOOR

APRIL 17, 2020

PERFORMED BY:
CARLOS A. QUINTAL, P.E., SOIL EVALUATOR
RICHARD GOODREAU

PT 3 ELEV. = 261.12
0 - 32" MIXED FILL
32" - 102" C1 SAND AND GRAVEL
WATER WEEPING AT 82" ELEV. = 254.29
FRIMPTER ADJUSTED ESHGW = 256.2
PERMEABILITY RATE = 46.26 IN/HR

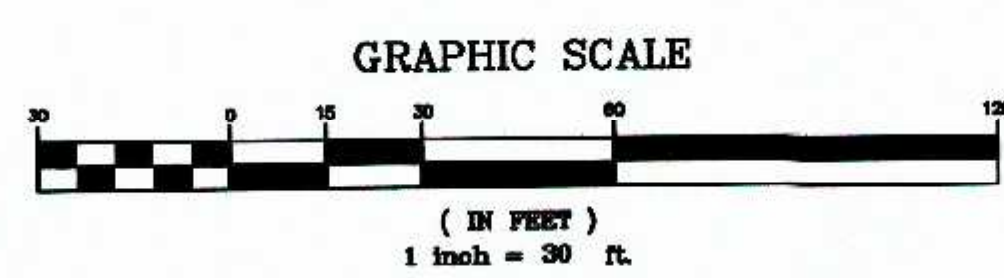
PT 4 ELEV. = 260.77
0 - 32" MIXED FILL
32" - 80" C1 SAND AND GRAVEL
60" - 113" C2 SILTY SAND AND GRAVEL
WATER WEEPING AT 80" ELEV. = 254.10
PERMEABILITY RATE = 17.28 IN/HR
FRIMPTER ADJUSTED ESHGW = 256.0

PT 5 ELEV. = 258.89
0 - 48" MIXED FILL
48" - 96" C1 SAND AND GRAVEL
96" - 113" C2 2 SILTY SAND AND GRAVEL
WATER WEEPING AT 96" ELEV. = 250.89
PERMEABILITY RATE = 73.8 IN/HR
FRIMPTER ADJUSTED ESHGW = 252.8

- FENCE REMOVAL NOTES:**
- THE EXISTING FENCE AND GATE LOCATED WITHIN THE PARKING AREA SHALL BE REMOVED FROM THE SOUTHERLY CORNER TO THE BUILDING.
 - THE EASTERLY EXISTING FENCE SHALL BE REMOVED FROM THE SOUTHERLY CORNER TO THE NORTHERLY CORNER.
 - THE FENCE LOCATE NEAR THE NORTH EAST CORNER OF THE EXISTING BUILDING SHALL BE REMOVED FROM THE BUILDING NORTHERLY TO THE CORNER.

**SITE PLAN APPROVAL
REQUIRED
FRANKLIN PLANNING BOARD**

DATE



NO.	DATE	DESCRIPTION	BY
1	7/8/20	REVIEW COMMENTS	RRG

DATE	FIELD BY:	INT.
4/20	FIELD BOOK	BL
5/20	CALCS	RRG
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5/20	CHECKED BY:	CAQ

**UNITED
CONSULTANTS
INC.**

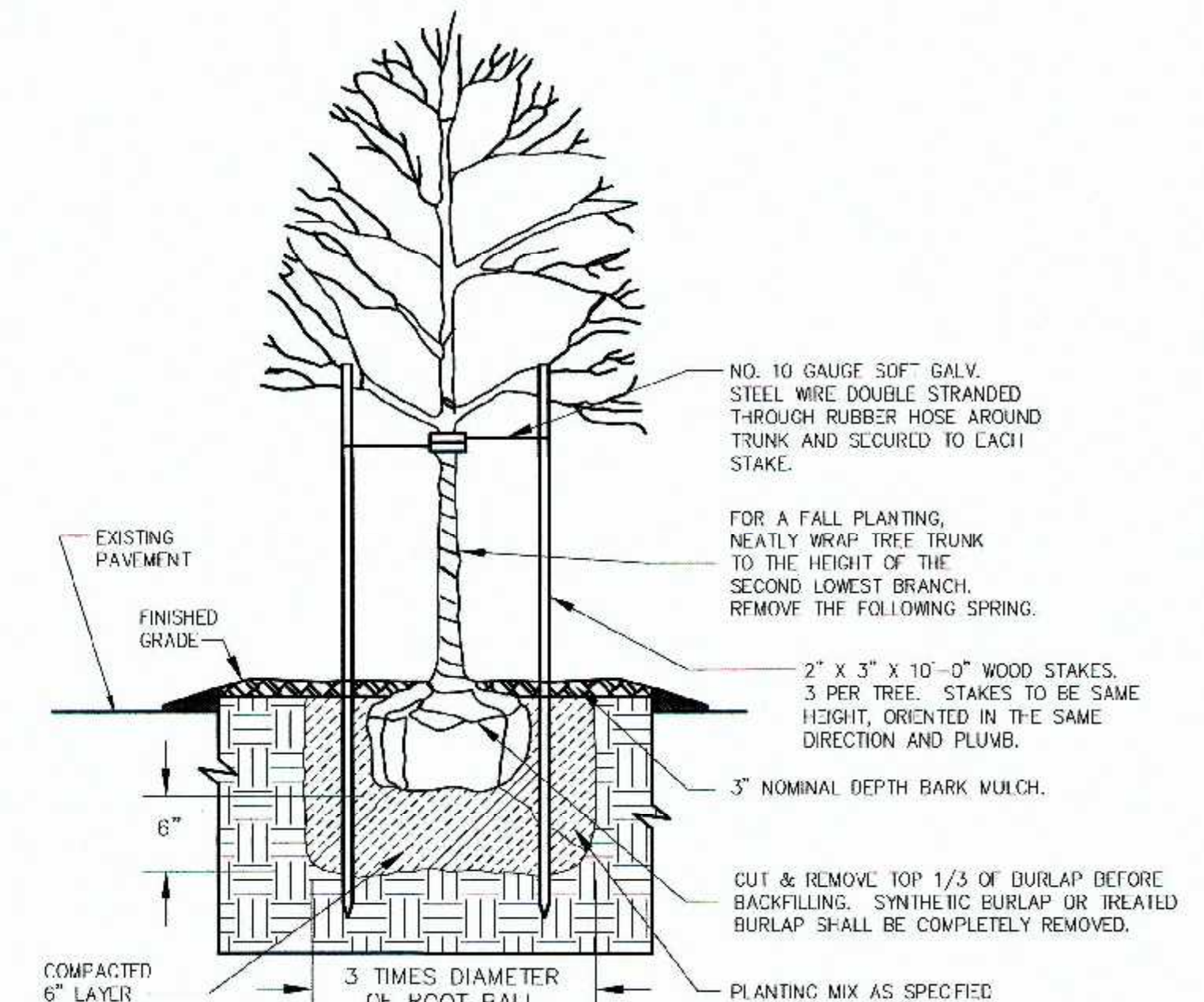
850 FRANKLIN STREET SUITE 11D
WRENTHAM, MASSACHUSETTS 02093
508-384-8580 FAX 508-384-8588

DATE	SCALE	PROJECT	SHEET
MAY 21, 2020	1" = 30'	UC1435	4 of 9

PLANTING SCHEDULE

NUMBER	COMMON NAME	SCIENTIFIC NAME	SIZE	CONDITION
5	AMERICAN ELM - AE	ULMUS AMERICANA	2 - 2 1/2"	B&B
5	RED MAPLE - RM	ACER RUBRUM	2 - 2 1/2"	B&B
5	WHITE BIRCH - WB	BETULA Papyrifera	4 - 6 FEET	B&B

- PER SECTION 185-21C(5) PROVIDE 1 TREE PER 10 PARKING SPACES.
 141 TOTAL PARKING SPACES / 10 = 15 TREES
 15 TREES PROVIDED.
 - ALL PLANTINGS ARE IN ACCORDANCE WITH THE TOWN OF FRANKLIN BEST DEVELOPMENT PRACTICES GUIDEBOOK.



DECIDUOUS TREE PLANTING

GENERAL NOTES

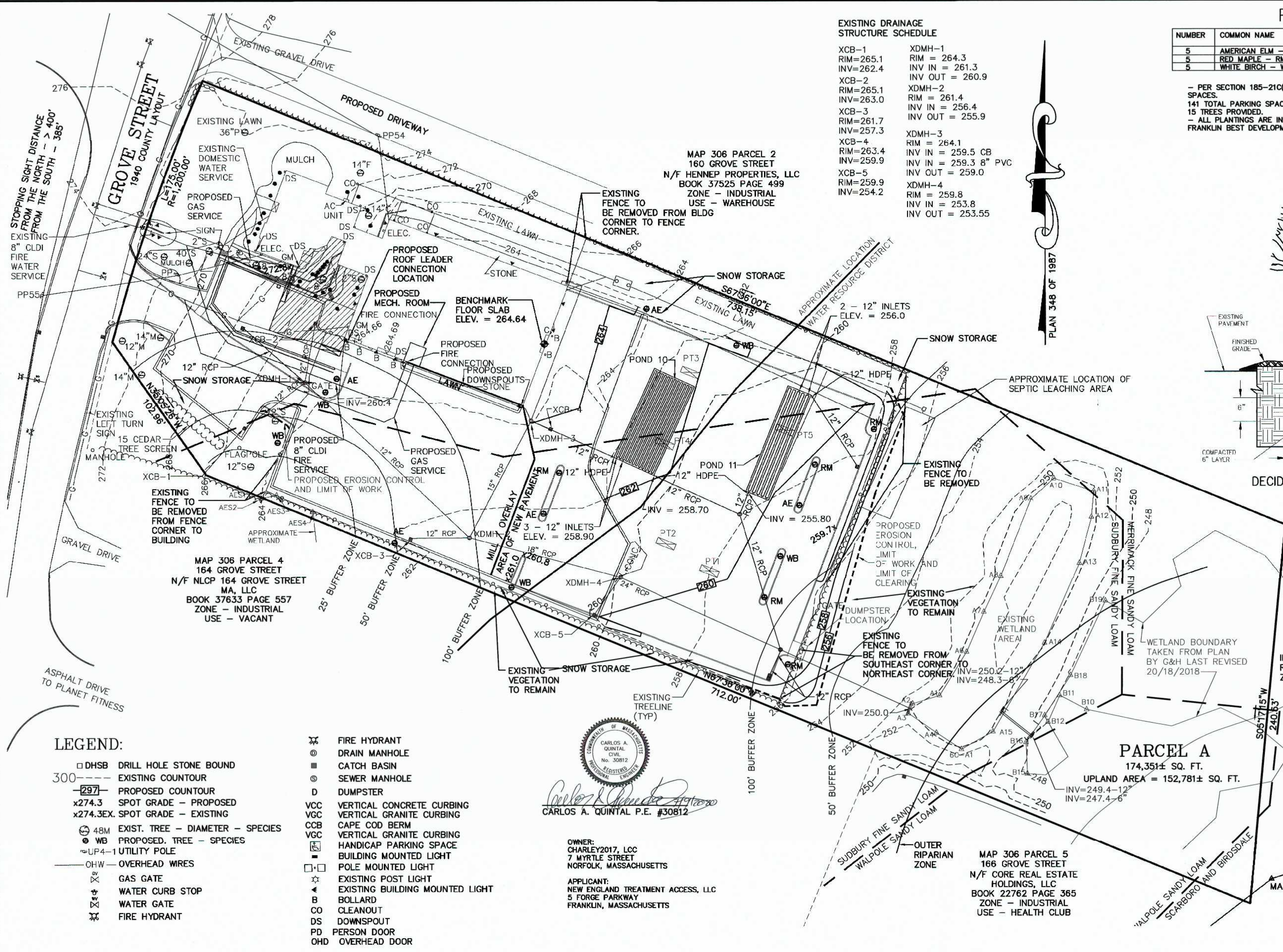
1. PLANTING HOLE SHALL BE THREE TIMES ROOT BALL DIAMETER.
2. ALL INSTALLED PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE (TOP OF PLANTING SOIL MIX), AS IT BORE TO THE NURSERY OR FIELD GRADE.
3. THE PLANTING HOLE DEPTH SHALL PROVIDE FOR A SIX INCH DEPTH OF PLANTING SOIL MIX BELOW THE ANTICIPATED ROOT BALL BOTTOM.
4. NOTWITHSTANDING THE REQUIREMENTS OF NOTES 1 & 3 ABOVE, NO PLANTING HOLE FOR TREES SHALL HAVE LESS THAN ONE CUBIC YARD OF PLANTING SOIL MIX.
5. PLANTING SOIL MIX SHALL BE A LOAM OR SANDY LOAM, AS DEFINED BY THE U.S.D.A. THE FIRST (BOTTOM) SIX INCH LAYER IN THE PRE-EXCAVATED PLANTING HOLE SHALL BE FIRMLY TAMPED TO PREVENT SETTLEMENT OF THE ROOT BALL POSITIONED THEREON. SUBSEQUENT LIFTS TO FINISH GRADE SHALL BE IN SIX INCH LOOSE LIFTS, EACH SETTLED BY THOROUGH SOAKING.
6. UPON ATTAINMENT OF FINISH GRADE WITHIN EACH PLANTING BED, THE GROUND SURFACE SHALL RECEIVE AN EVEN APPLICATION OF ORGANIC NON-PHOSPHORUS FERTILIZER APPLIED PER THE MANUFACTURERS RECOMMENDATIONS.
7. COVERED WITH A THREE INCH NOMINAL DEPTH OF SHREDDED CEDAR BARK (OR APPROVED EQUIVALENT), MAINTAINING A ONE INCH MINIMUM DEPTH AT THE BERM EDGE, AND IMMEDIATELY RISING TO A THREE INCH DEPTH ACROSS THE PLANTING BED OR LANDSCAPE ISLAND. (SEE DETAIL)

SITE PLAN
 PLANTING PLAN
 162 GROVE STREET
 FRANKLIN, MASSACHUSETTS
 PREPARED FOR
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS
 MAY 21, 2020
 SCALE: 1" = 30'

EXISTING DRAINAGE STRUCTURE SCHEDULE

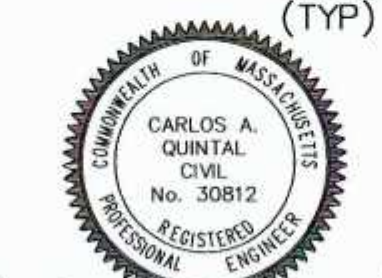
XCB-1	XDMH-1
RIM=265.1	RIM = 264.3
INV=262.4	INV IN = 261.3
XCB-2	INV OUT = 260.9
RIM=265.1	XDMH-2
INV=263.0	RIM = 261.4
XCB-3	INV IN = 256.4
RIM=261.7	INV OUT = 255.9
INV=257.3	XDMH-3
XCB-4	RIM = 264.1
RIM=263.4	INV IN = 259.5 CB
INV=259.9	INV IN = 259.3 8" PVC
XCB-5	INV OUT = 259.0
RIM=259.9	XDMH-4
INV=254.2	RIM = 259.8
	INV IN = 253.8
	INV OUT = 253.55

PLAN 348 OF 1987



LEGEND:

- DHSB DRILL HOLE STONE BOUND
- 300 --- EXISTING COUNTOUR
- 297- PROPOSED COUNTOUR
- x274.3 SPOT GRADE - PROPOSED
- x274.3EX SPOT GRADE - EXISTING
- 48M EXIST. TREE - DIAMETER - SPECIES
- WB PROPOSED. TREE - SPECIES
- UP4-1 UTILITY POLE
- OHW OVERHEAD WIRES
- ✕ GAS GATE
- ⊕ WATER CURB STOP
- ⊕ WATER GATE
- ✕ FIRE HYDRANT
- ⊕ FIRE HYDRANT
- ⊕ DRAIN MANHOLE
- ⊕ CATCH BASIN
- ⊕ SEWER MANHOLE
- D DUMPSTER
- VCC VERTICAL CONCRETE CURBING
- VGC VERTICAL GRANITE CURBING
- CCB CAPE COD BERM
- VGC VERTICAL GRANITE CURBING
- ⊕ HANDICAP PARKING SPACE
- ⊕ BUILDING MOUNTED LIGHT
- ⊕ POLE MOUNTED LIGHT
- ⊕ EXISTING POST LIGHT
- ⊕ EXISTING BUILDING MOUNTED LIGHT
- B BOLLARD
- CO CLEANOUT
- DS DOWNSPOUT
- PD PERSON DOOR
- OHD OVERHEAD DOOR



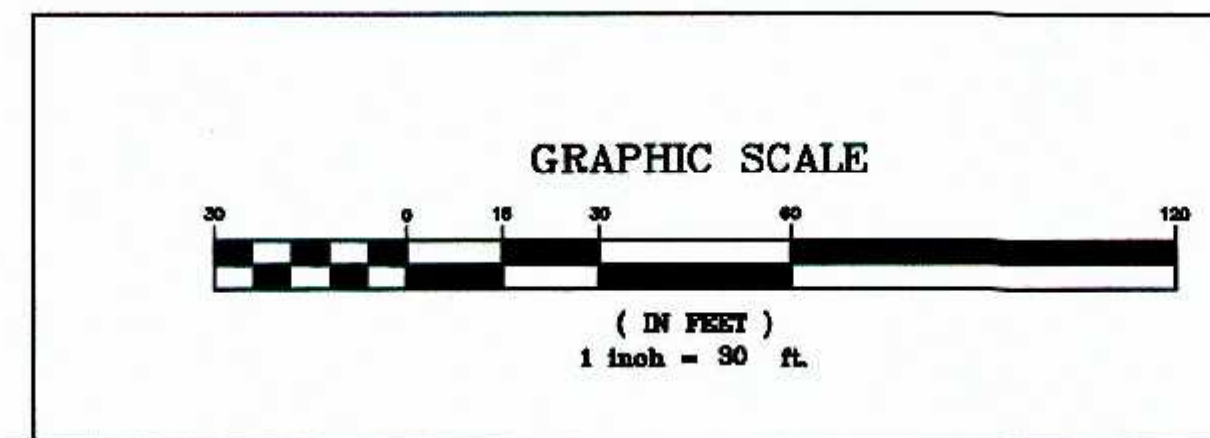
CARLOS A. QUINTAL P.E. #30812

OWNER:
 CHARLEY2017, LLC
 7 MYRTLE STREET
 NORFOLK, MASSACHUSETTS

APPLICANT:
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS

SITE PLAN APPROVAL REQUIRED
 FRANKLIN PLANNING BOARD

DATE

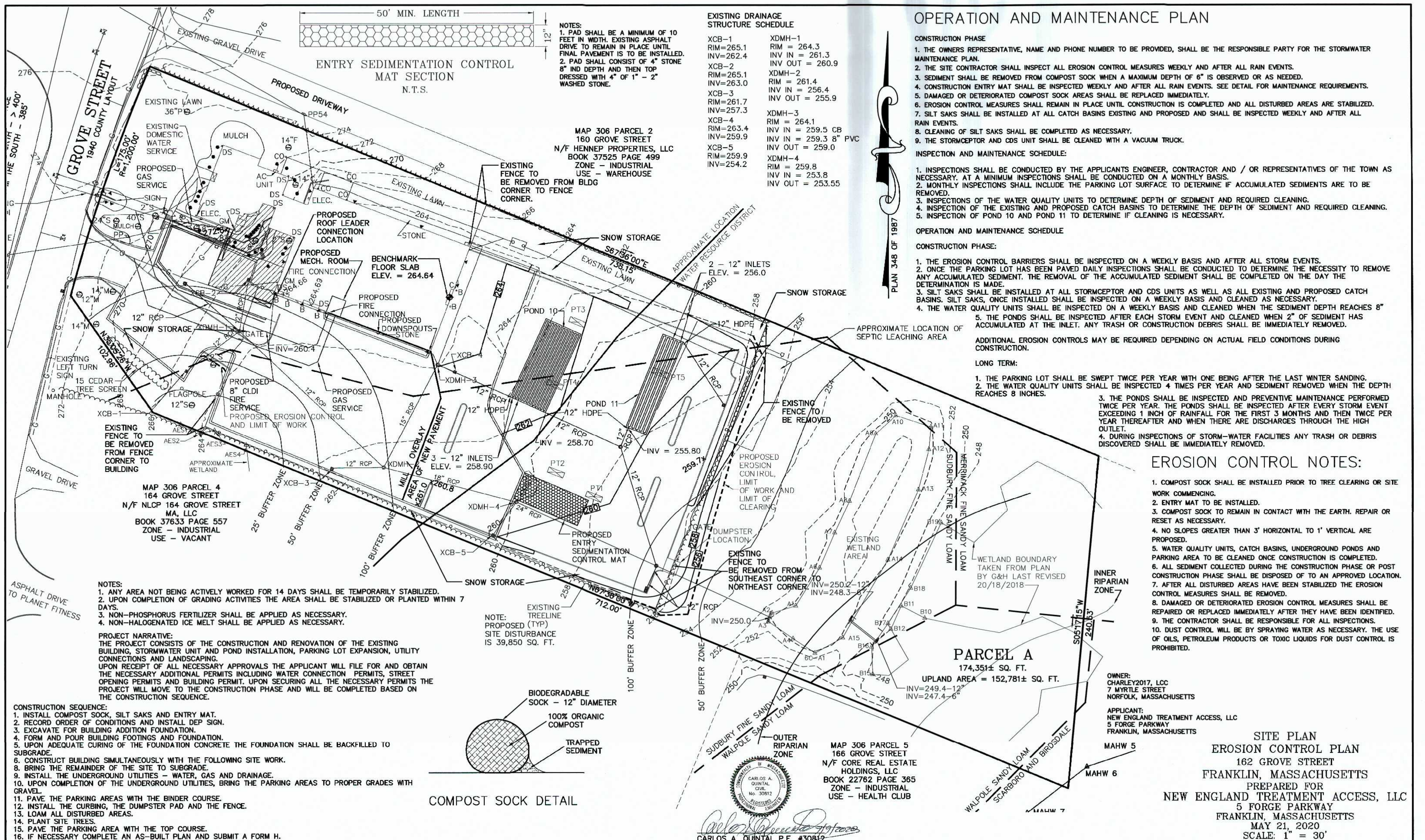


NO.	DATE	DESCRIPTION	BY
1	7/8/20	REVIEW COMMENTS	RRG

DATE	FIELD BY:	INT.
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5/20	CALCS BY:	RRG
5/20	DESIGNED BY:	RRG
5/20	DRAWN BY:	COMP
5/20	CHECKED BY:	CAQ

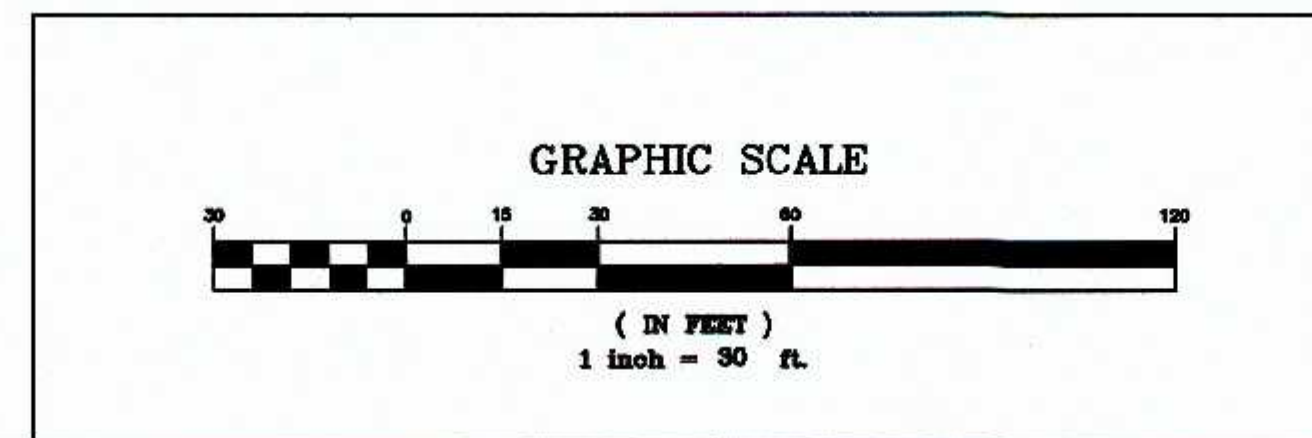
UNITED CONSULTANTS INC.
 850 FRANKLIN STREET SUITE 11D
 WRENTHAM, MASSACHUSETTS 02093
 508-384-8660 FAX 508-384-8666

DATE	SCALE	PROJECT	SHEET
MAY 21, 2020	1" = 30'	UC1435	5 of 9



SITE PLAN APPROVAL REQUIRED
FRANKLIN PLANNING BOARD

DATE	

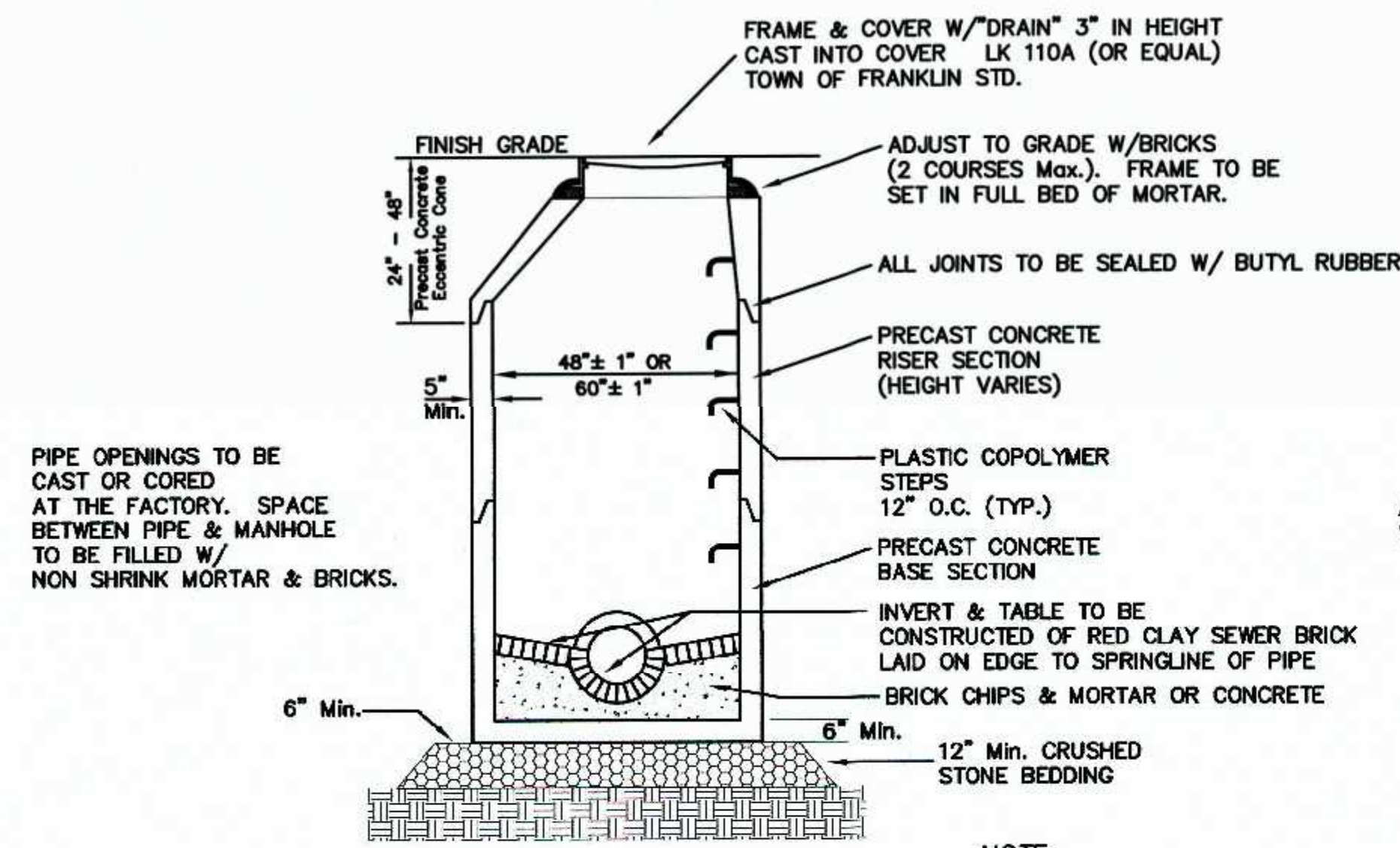


NO.	DATE	REVIEW COMMENTS	RRG	BY
1	7/8/20		RRG	

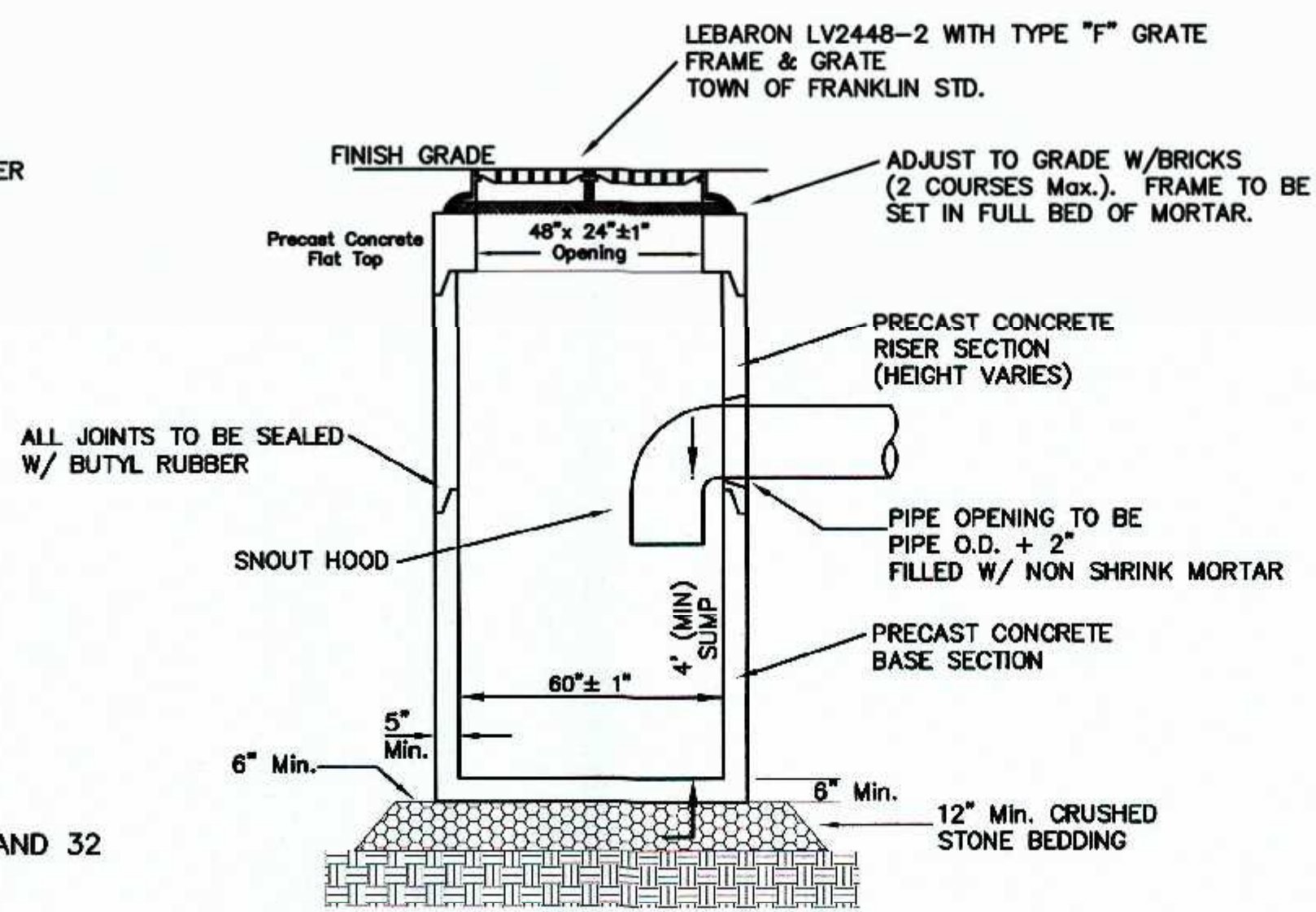
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4/20	BL	
5/20	RRG	
5/20	RRG	
5/20	COMP	
5/20	CAQ	

UNITED CONSULTANTS INC.
 850 FRANKLIN STREET SUITE 11D
 WRENTHAM, MASSACHUSETTS 02093
 508-384-8660 FAX 508-384-8666

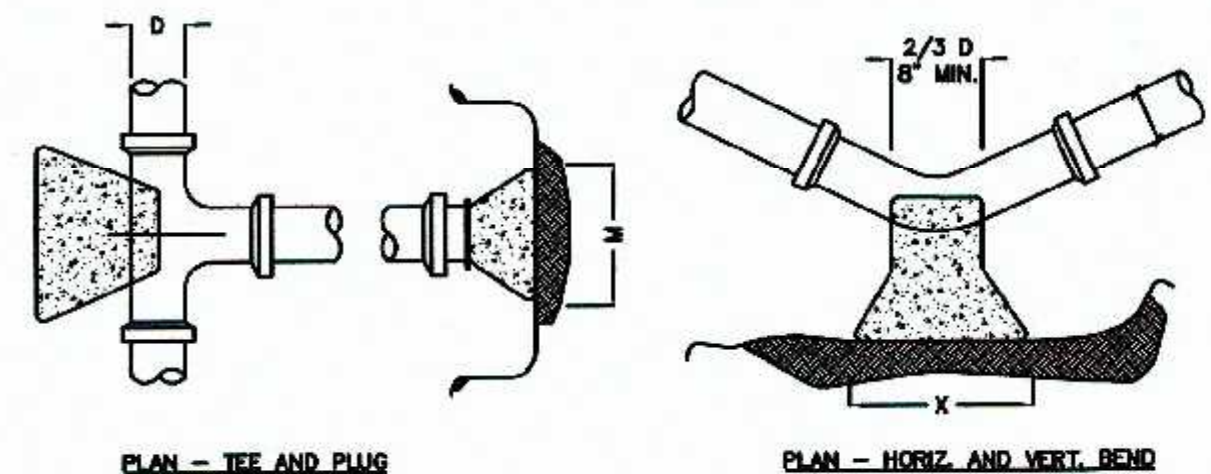
DATE	MAY 21, 2020
SCALE	1" = 30'
PROJECT	UC1435
SHEET	6 of 9



PRECAST DRAIN MANHOLE



DOUBLE GRATE PRECAST CATCH BASIN W/ DEEP SUMP

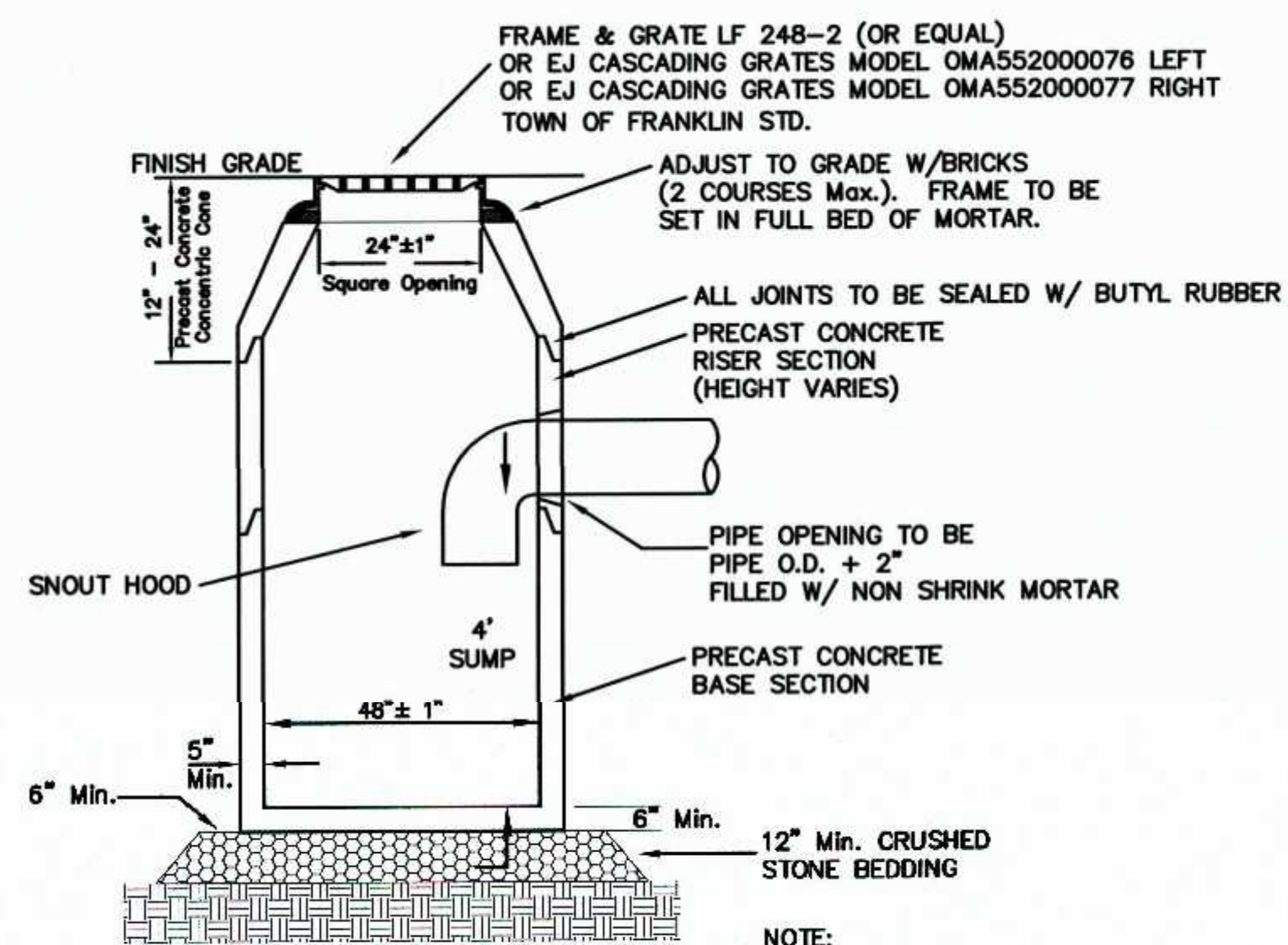


NOTES:
 1. CONTRACTOR TO CONTACT DIGSAFE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UTILITIES ANY REPORT ANY DISCREPANCIES TO UNITED CONSULTANTS, INC.
 3. ALL WORK SHALL CONFORM TO THE TOWN OF FRANKLIN DPW STANDARDS.
 4. MAINTAIN A MINIMUM OF 10' SEPARATION FROM THE WATER SERVICE TO THE SEWER SERVICE.

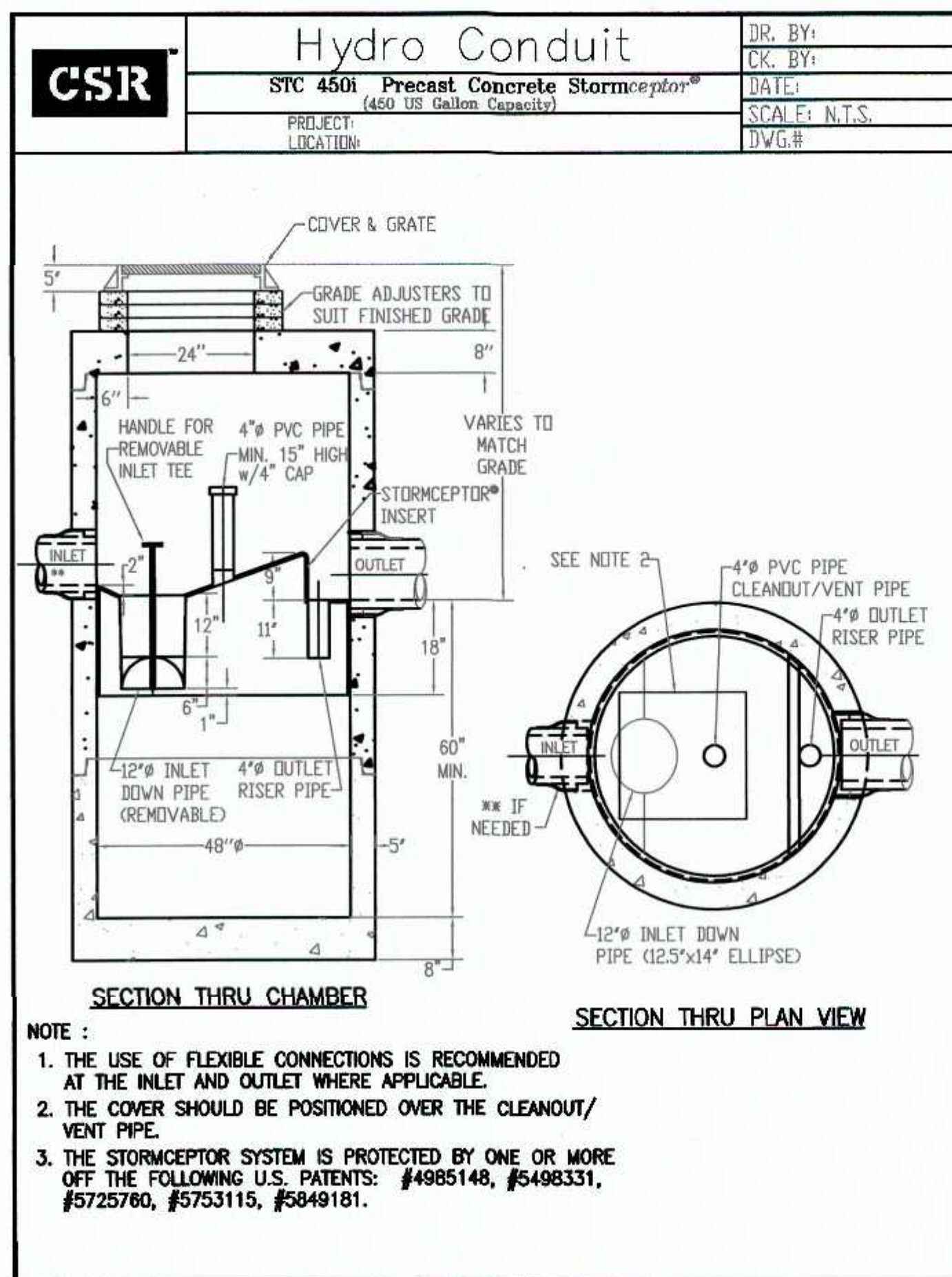
SIZE OF BRANCH	J	K	L	M	N	O
4" TO 6"	10"	10"	1'-0"	2'-0"	1'-6"	10"
10" TO 16"	1'-0"	1'-6"	1'-6"	3'-10"	2'-10"	1'-6"
24"	1'-4"	2'-0"	2'-6"	5'-0"	3'-6"	1'-8"

TEES AND PLUGS	
90 & 45 BENDS	22 1/2 & 11 1/4
D 4" TO 6"	10" TO 16"
X 1'-6"	3'-4"
Y 1'-2"	1'-8"

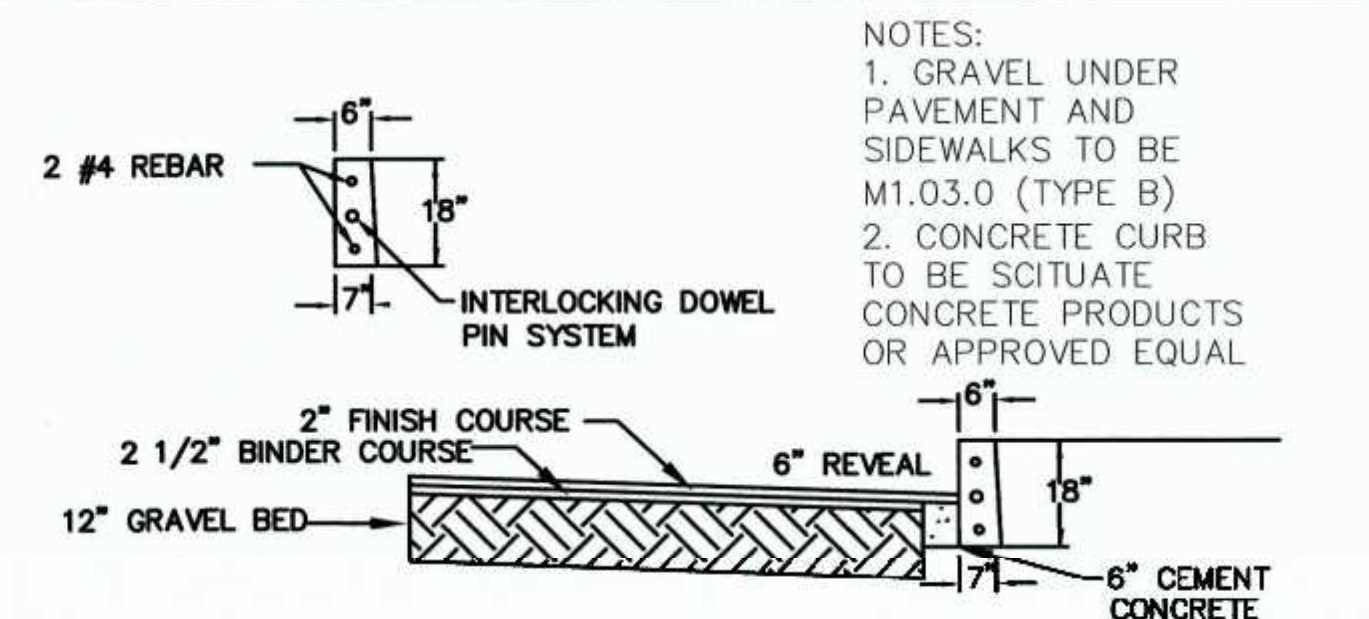
THRUST BLOCK DETAILS



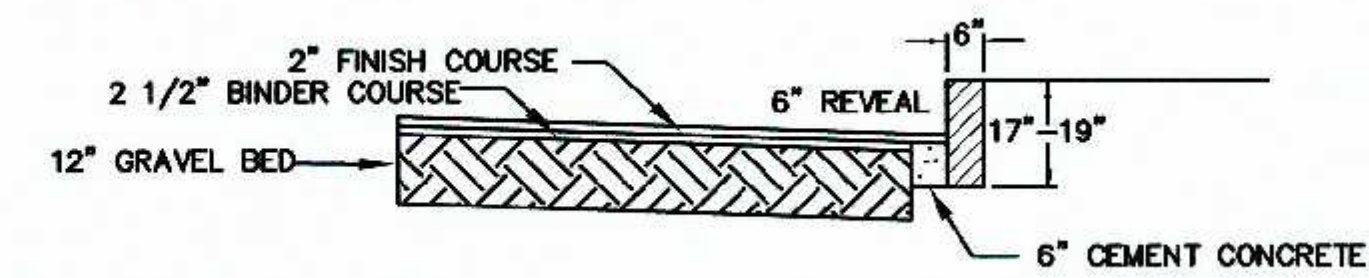
PRECAST CATCH BASIN



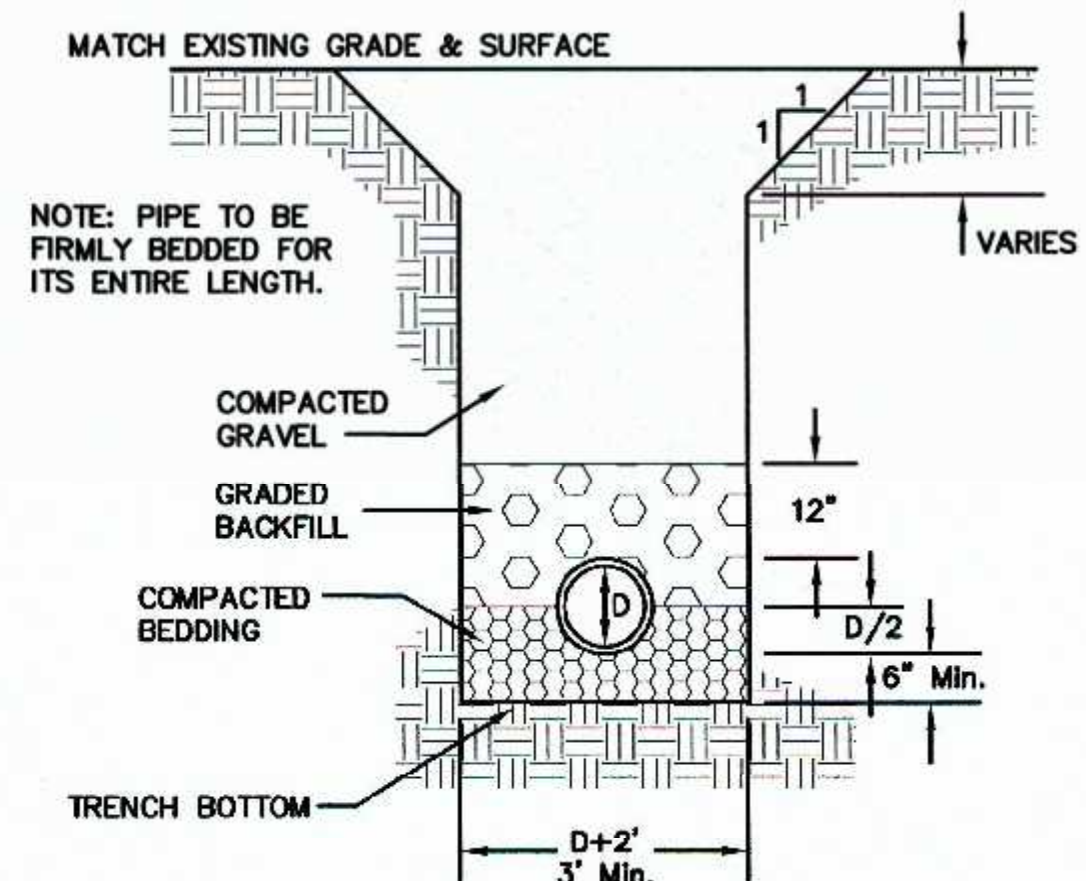
NOTE:
 1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
 2. THE COVER SHOULD BE POSITIONED OVER THE CLEANOUT/ VENT PIPE.
 3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725780, #5753115, #5849181.



PAVEMENT AND VERTICAL CONCRETE CURBING

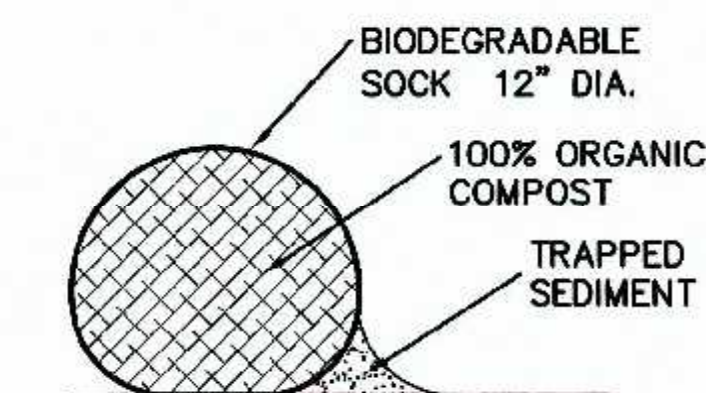


PAVEMENT AND VA-4 VERTICAL GRANITE CURBING

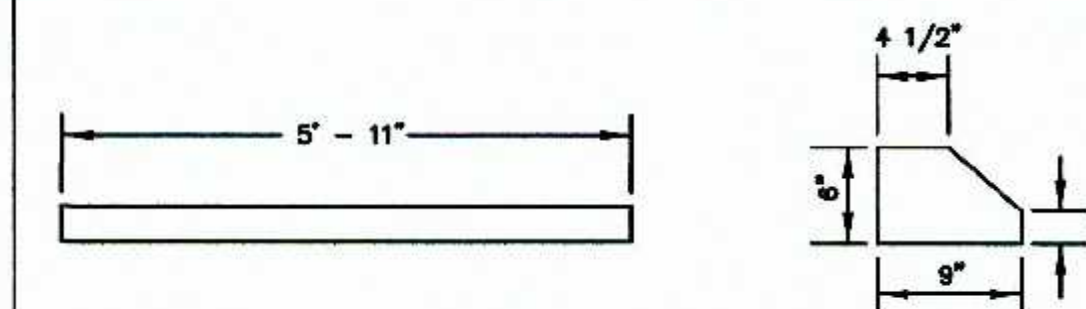
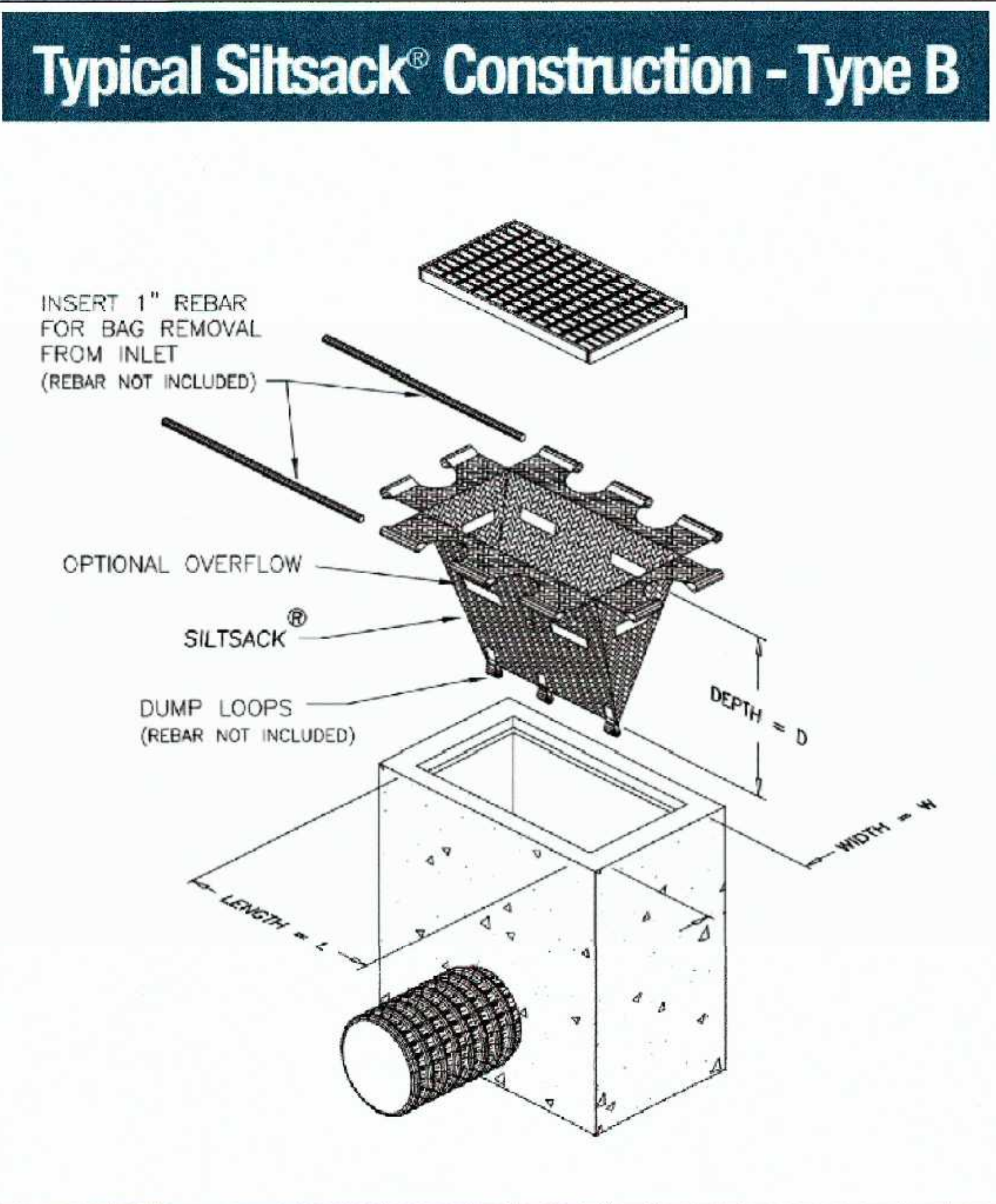


TYPE OF PIPE	RCP DRAIN	OLDI WATER	PVC SEWER	D.I. SEWER
BEDDING MATERIAL	PROC. GRAVEL	SAND	3/4" STONE	3/8" STONE
BACKFILL MATERIAL	ORD. FILL	SAND	3/4" STONE	3/8" STONE

UTILITY TRENCH DETAIL



COMPOST SOCK DETAIL



BUMPER CURB DETAIL

BUMPER CURB SHALL BE E.F. SHEA ITEM NO. B-BBSF OR APPROVED EQUAL.



OWNER:
 CHARLEY2017, LLC
 7 MYRTLE STREET
 NORFOLK, MASSACHUSETTS

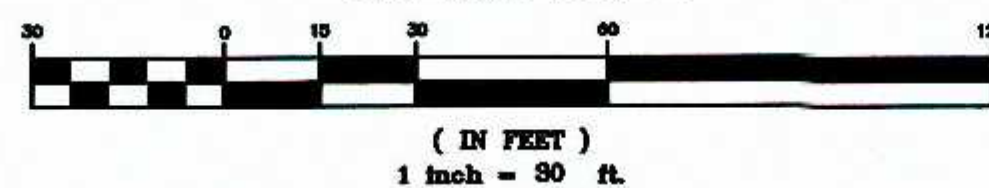
APPLICANT:
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS

SITE PLAN
 CONSTRUCTION DETAIL - 1
 162 GROVE STREET
 FRANKLIN, MASSACHUSETTS
 PREPARED FOR
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS
 MAY 21, 2020
 SCALE: 1" = 30'

SITE PLAN APPROVAL
 REQUIRED
 FRANKLIN PLANNING BOARD

DATE

GRAPHIC SCALE

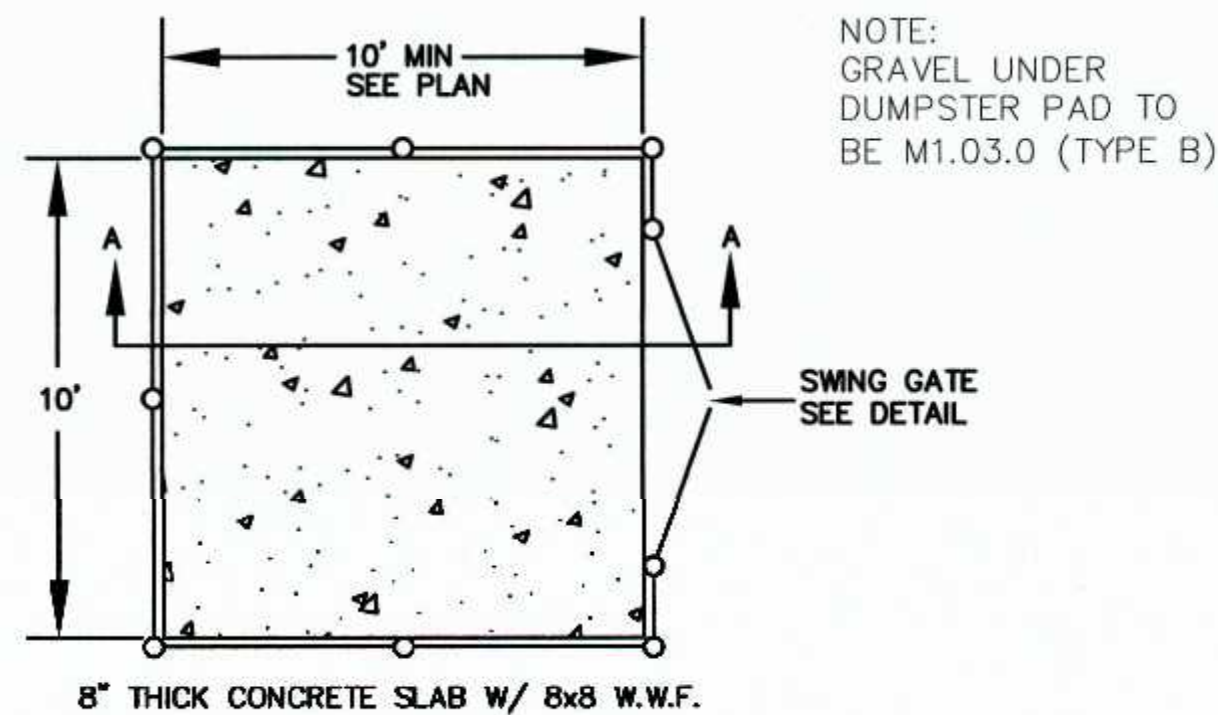


NO.	DATE	DESCRIPTION	BY
1	7/8/20	REVIEW COMMENTS	RRG

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5/20	FIELD BOOK	PG#
5/20	CALCS BY:	RRG
5/20	DESIGNED BY:	RRG
5/20	DRAWN BY:	COMP
5/20	CHECKED BY:	CAQ

UNITED CONSULTANTS INC.
 850 FRANKLIN STREET SUITE 11D
 WRENTHAM, MASSACHUSETTS 02083
 508-384-6560 FAX 508-384-6566

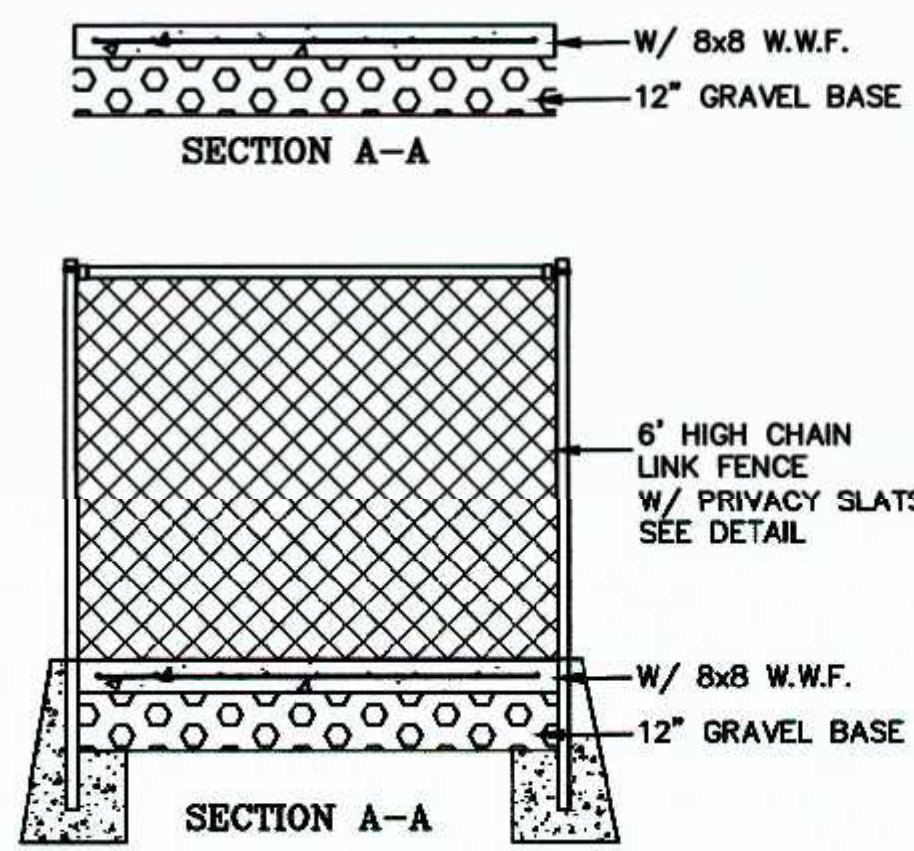
DATE	MAY 21, 2020
SCALE	1" = 30'
PROJECT	UC1435
SHEET	7 of 9



CONCRETE DUMPSTER PAD

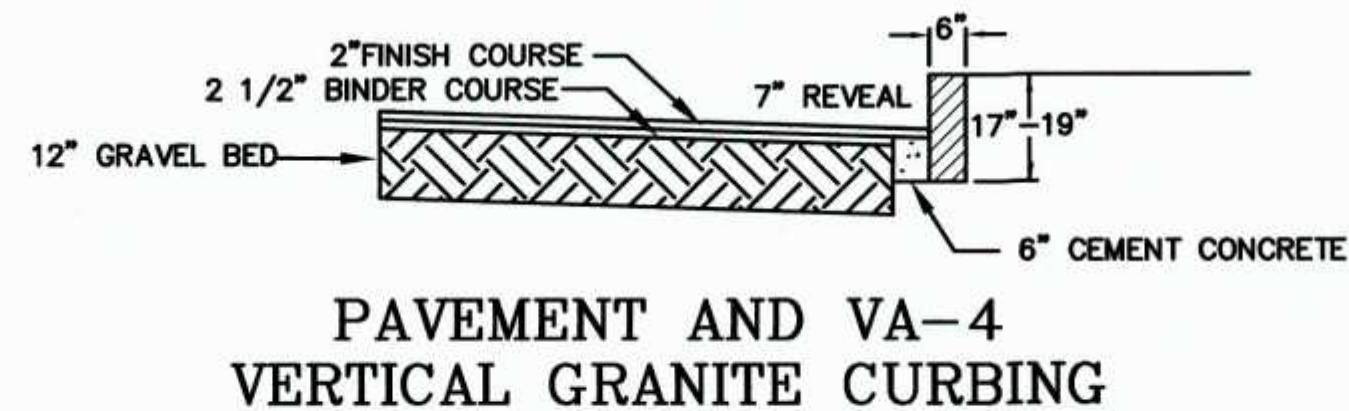
NOTE: DUMPSTER PAD AT BUILDING 1 WILL HAVE THE FENCE CONNECT TO THE RETAINING WALL. NO FENCE IS PROPOSED TO THE REAR OF THE DUMPSTER PAD.

NOTE: GRAVEL UNDER DUMPSTER PAD TO BE M1.03.0 (TYPE B)

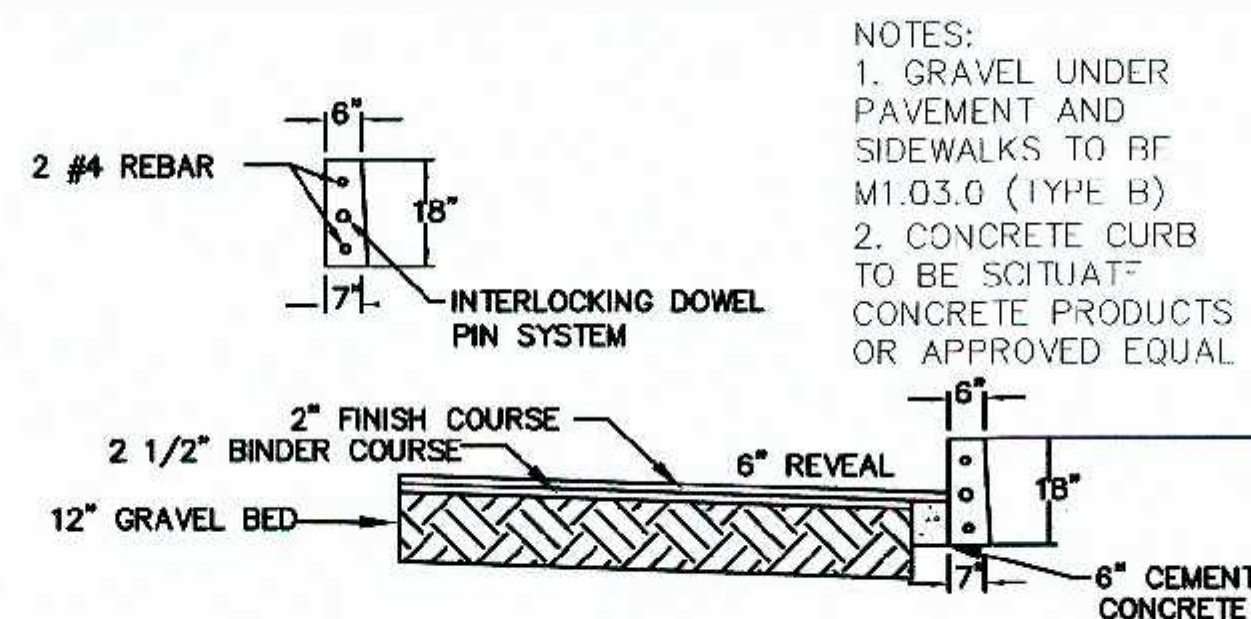


DUMPSTER AREA FENCE

NOTES:
 1. CONTRACTOR TO CONTACT DIGSAFE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 2. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UTILITIES ANY REPORT ANY DISCREPANCIES TO UNITED CONSULTANTS, INC.
 3. ALL WORK SHALL CONFORM TO THE TOWN OF FRANKLIN DPW STANDARDS.
 4. MAINTAIN A MINIMUM OF 10' SEPARATION FROM THE WATER SERVICE TO THE SEWER SERVICE.

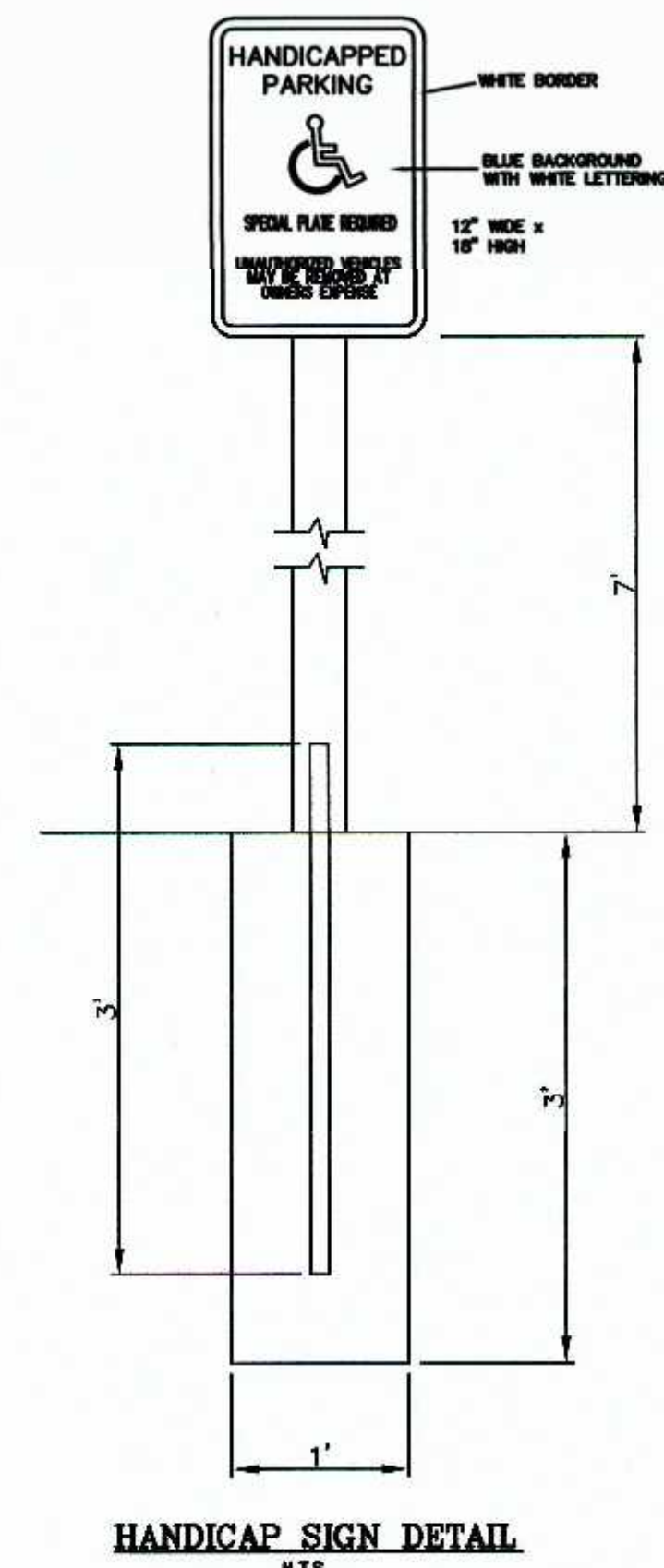


PAVEMENT AND VA-4 VERTICAL GRANITE CURBING

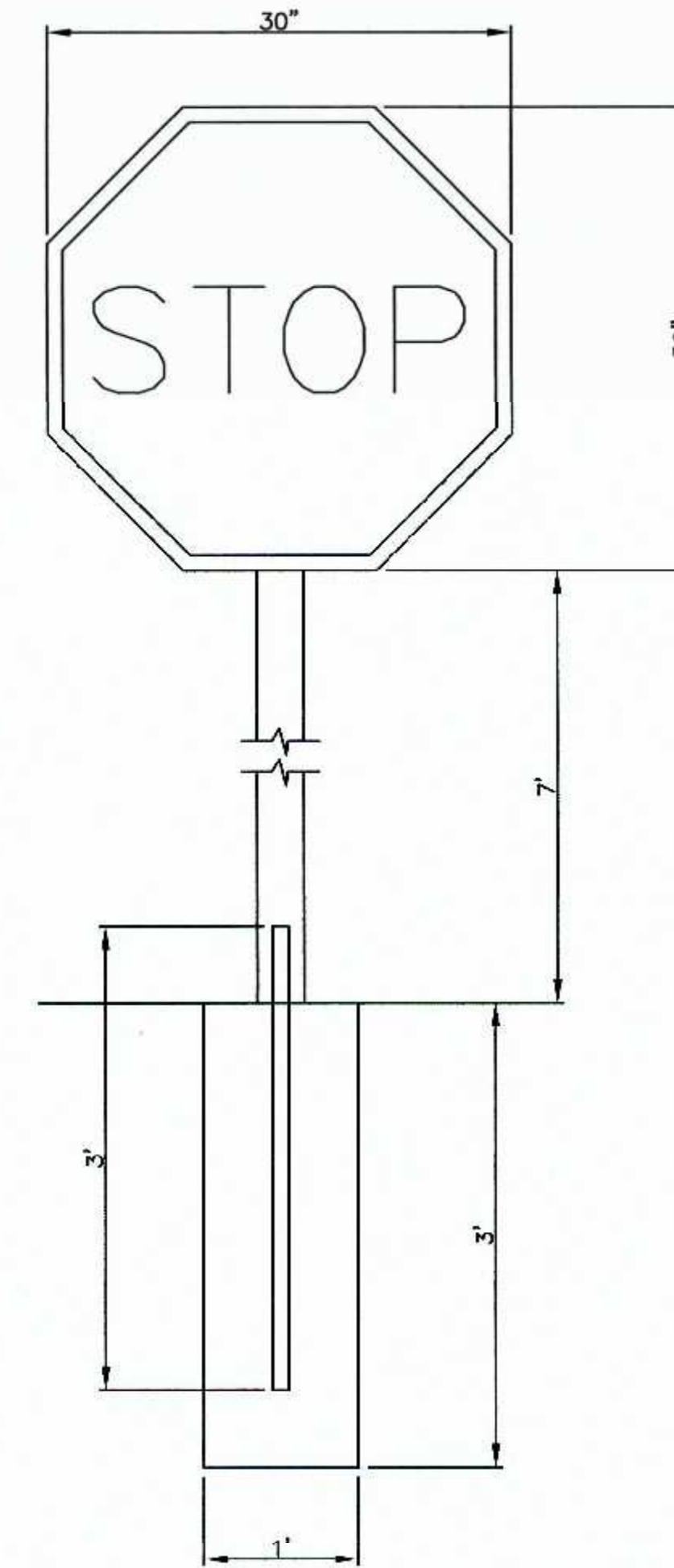


PAVEMENT AND VERTICAL CONCRETE CURBING

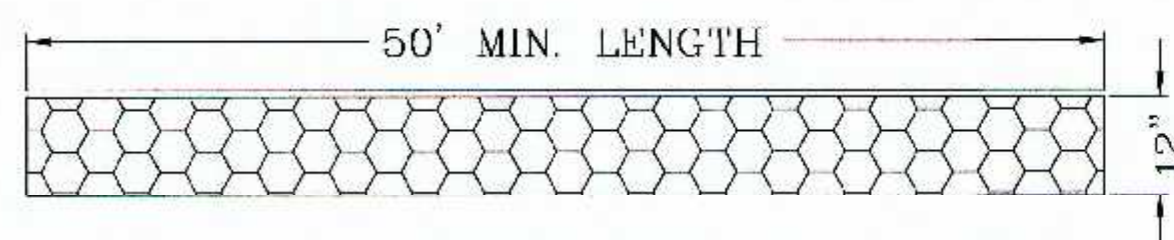
NOTES:
 1. GRAVEL UNDER PAVEMENT AND SIDEWALKS TO BE M1.03.0 (TYPE B)
 2. CONCRETE CURB TO BE SITUATED CONCRETE PRODUCTS OR APPROVED EQUAL



HANDICAP SIGN DETAIL
N.T.S.

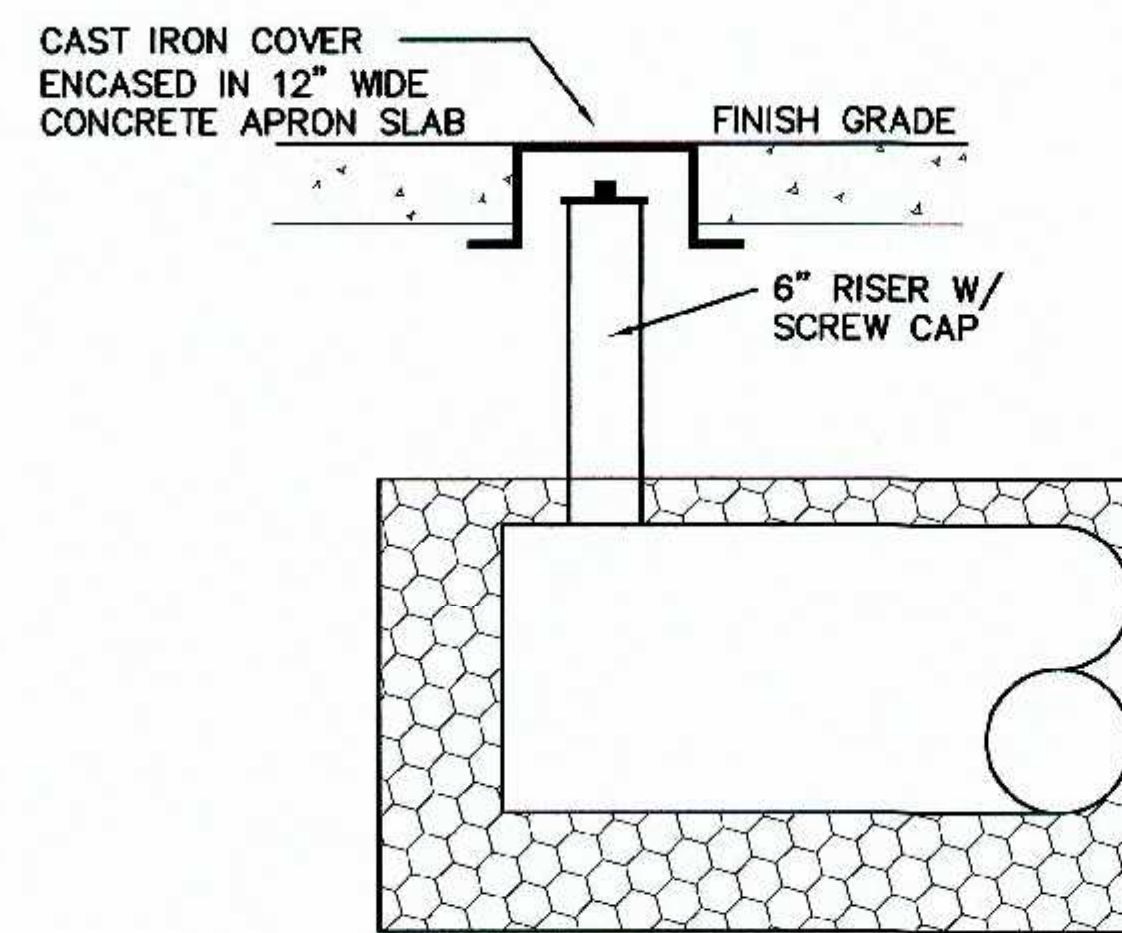


STOP SIGN DETAIL
N.T.S.

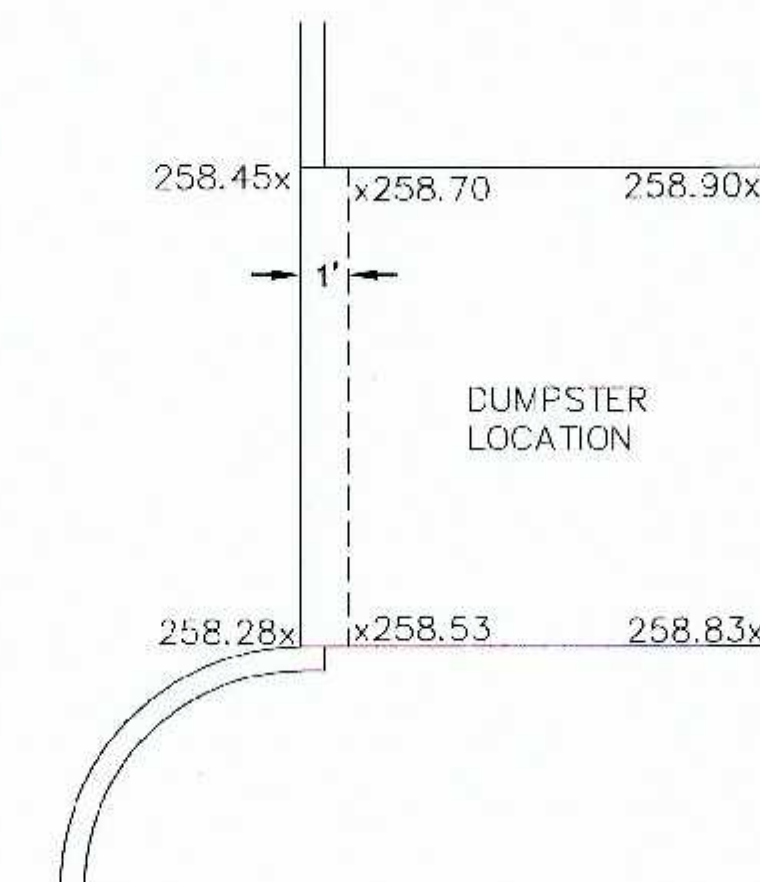


ENTRY SEDIMENTATION CONTROL MAT SECTION
N.T.S.

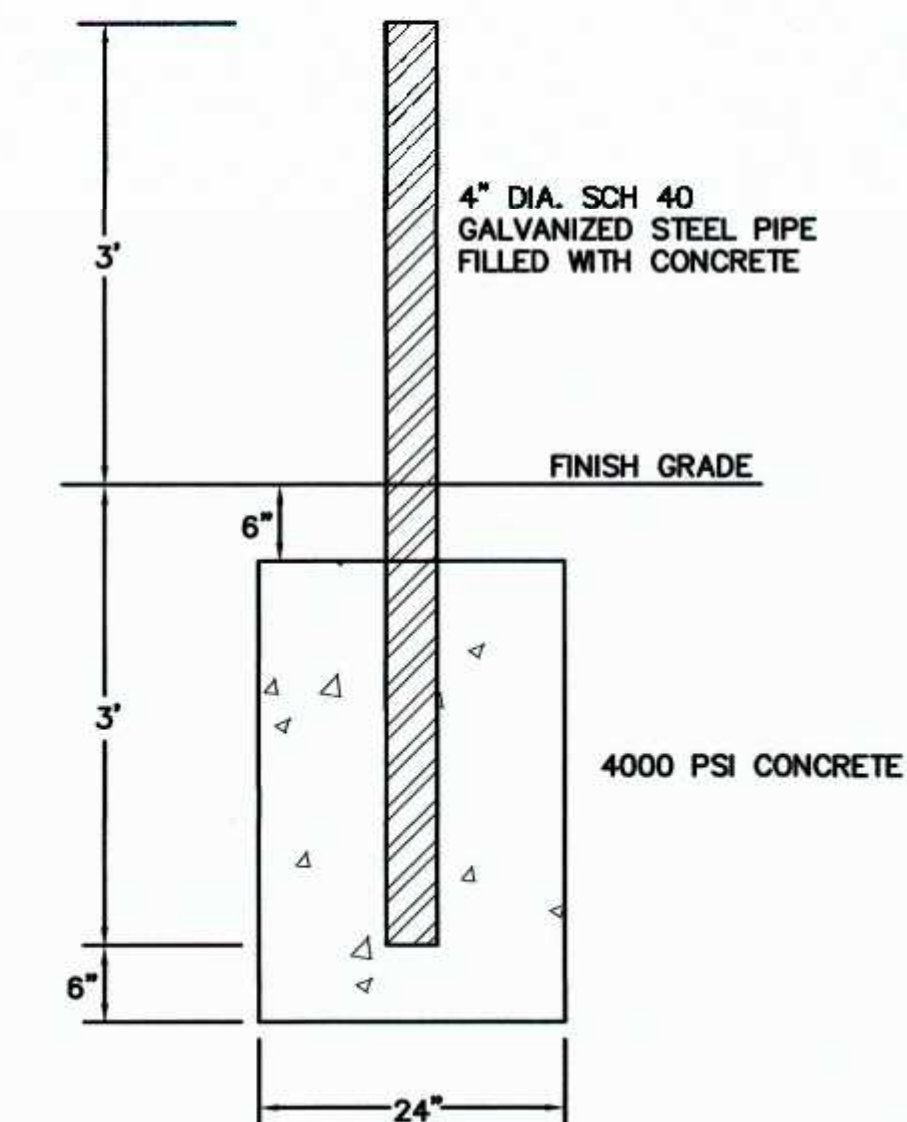
NOTES:
 1. PAD SHALL BE A MINIMUM OF 20 FEET IN WIDTH.
 2. PAD SHALL CONSIST OF 4\"/>



INSPECTION PORT DETAIL DRAINAGE INFILTRATION AREAS
N.T.S.



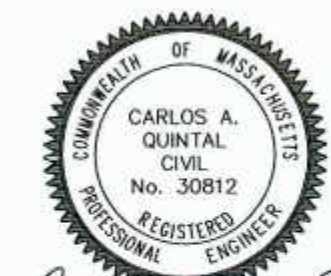
DUMPSTER AREA GRADING DETAIL
N.T.S.



BOLLARD DETAIL

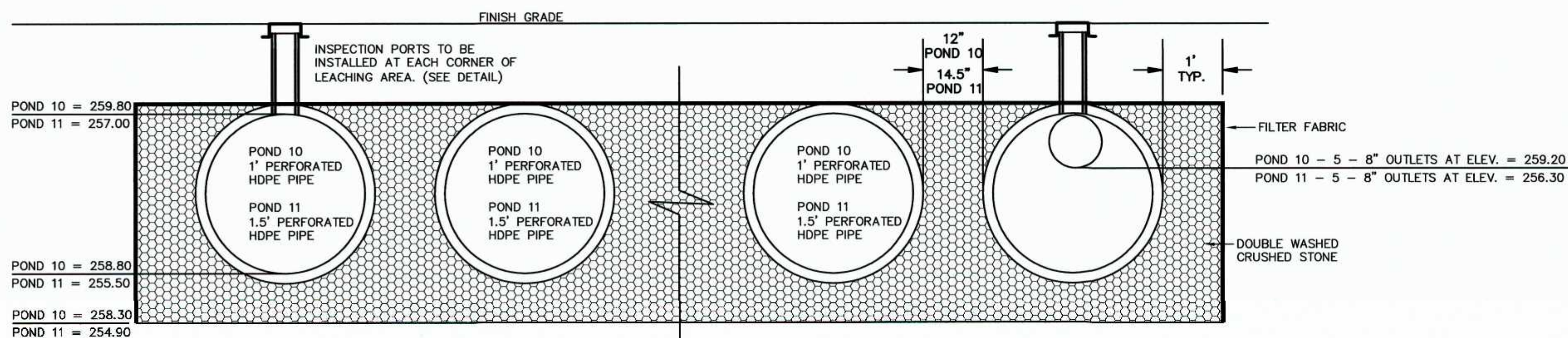
OWNER:
 CHARLEY2017, LCC
 7 MYRTLE STREET
 NORFOLK, MASSACHUSETTS

APPLICANT:
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS



CARLOS A. QUINTAL P.E. #30812

SITE PLAN
 CONSTRUCTION DETAIL - 2
 162 GROVE STREET
 FRANKLIN, MASSACHUSETTS
 PREPARED FOR
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS
 MAY 21, 2020
 SCALE: 1" = 30'



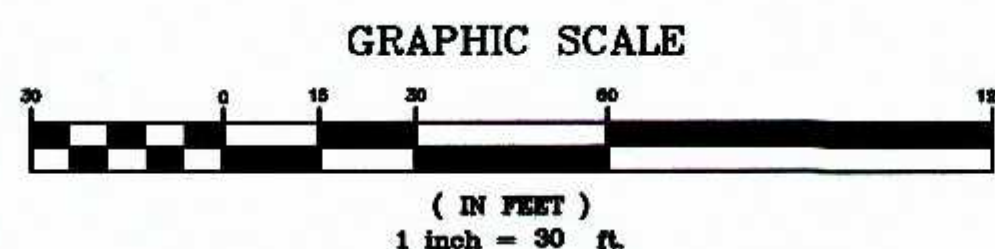
INFILTRATION PONDS 10 AND 11

NOTE:
 INFILTRATION POND 10 CONSISTS OF 12 ROWS OF 1\"/>

NOTE:
 INFILTRATION POND 11 CONSISTS OF 5 ROWS OF 1.5\"/>

SITE PLAN APPROVAL
 REQUIRED
 FRANKLIN PLANNING BOARD

DATE



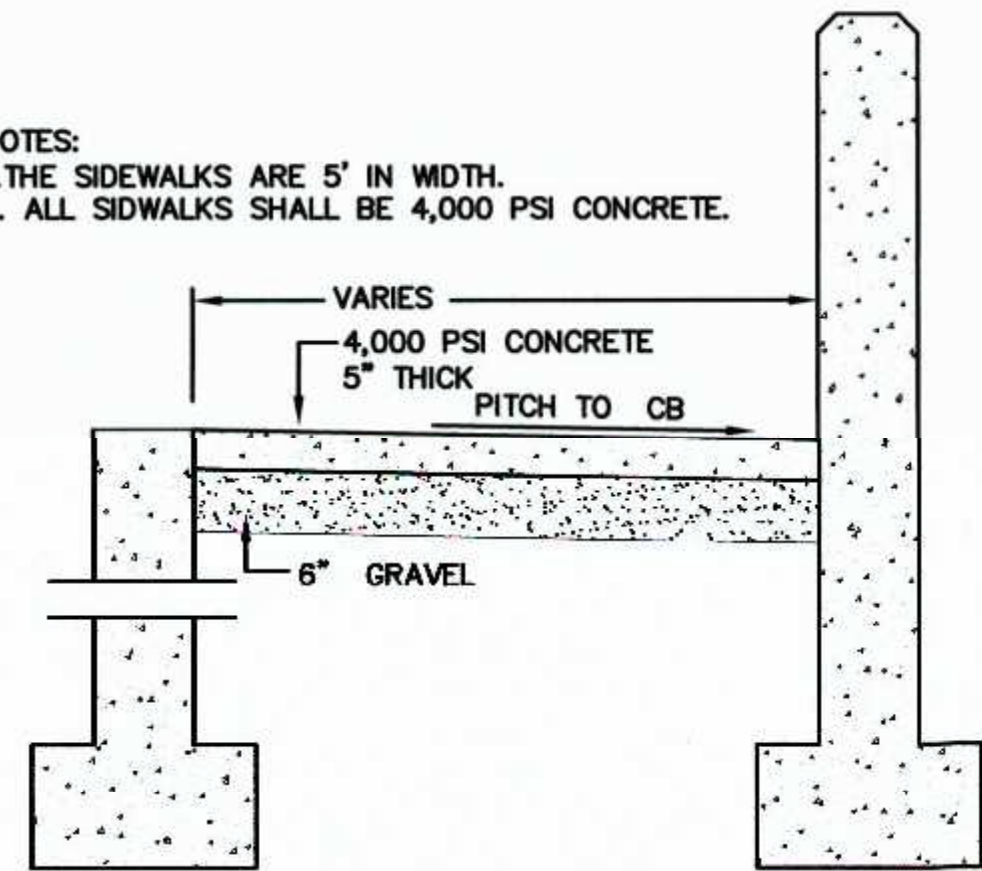
NO.	DATE	DESCRIPTION	BY
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DATE	FIELD BY:	INT.
4/20		BL
BK#	FIELD BOOK	PG#
5/20	CALCS BY:	RRG
5/20	DESIGNED BY:	RRG
5/20	DRAWN BY:	COMP
5/20	CHECKED BY:	CAQ

UNITED CONSULTANTS INC.
 850 FRANKLIN STREET SUITE 11D
 WRENTHAM, MASSACHUSETTS 02093
 508-384-8560 FAX 508-384-8568

DATE
MAY 21, 2020
SCALE
1" = 30'
PROJECT
UC1435
SHEET
8 of 9

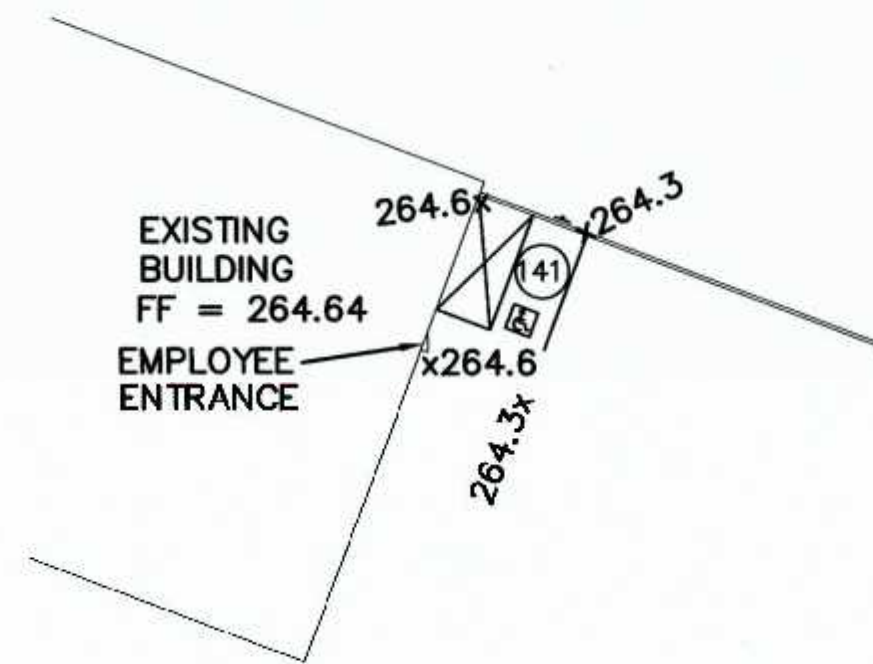
NOTES:
 1. THE SIDEWALKS ARE 5' IN WIDTH.
 2. ALL SIDEWALKS SHALL BE 4,000 PSI CONCRETE.



COURTYARD AREA DETAIL

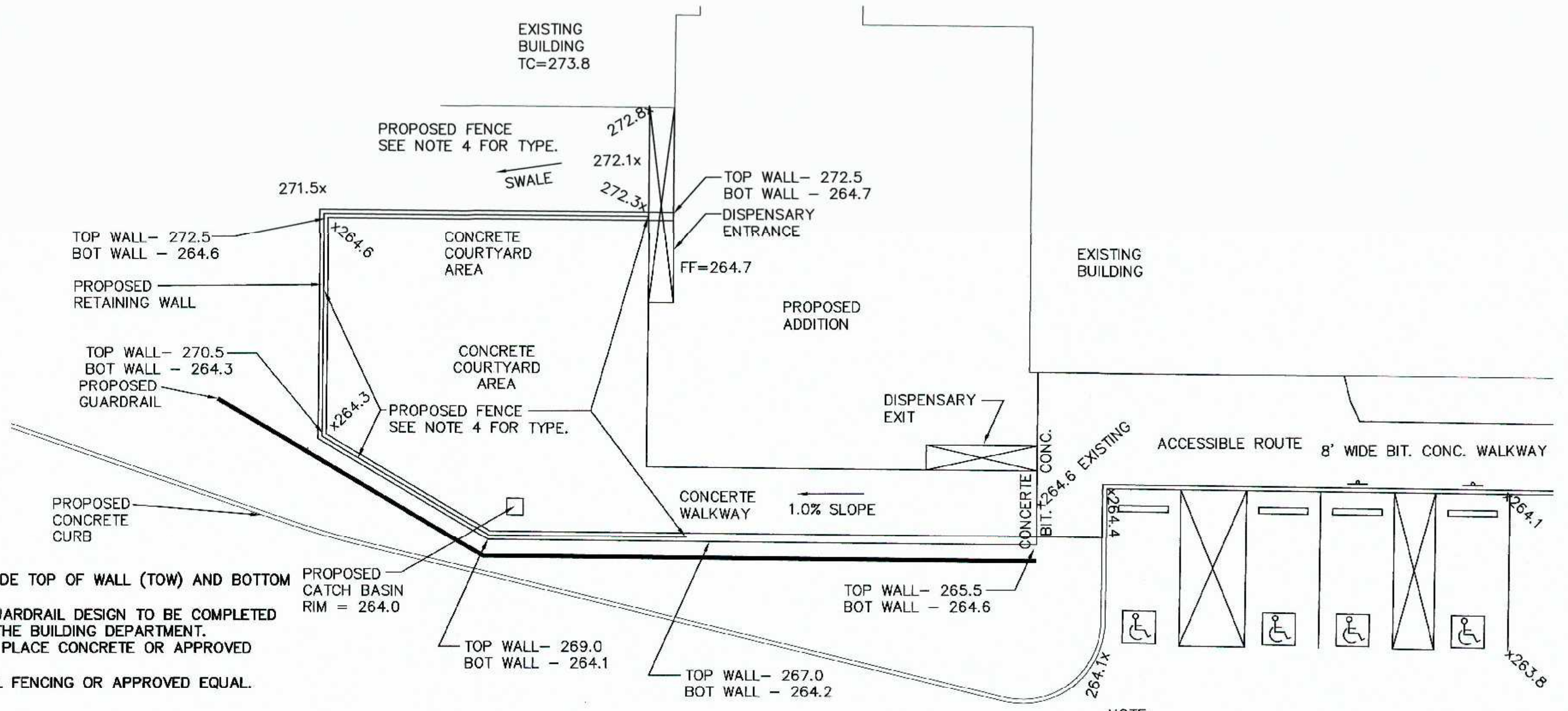
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NOTE:
 GRAVEL UNDER PAVEMENT AND SIDEWALKS TO BE M1.C3.0 (TYPE B)

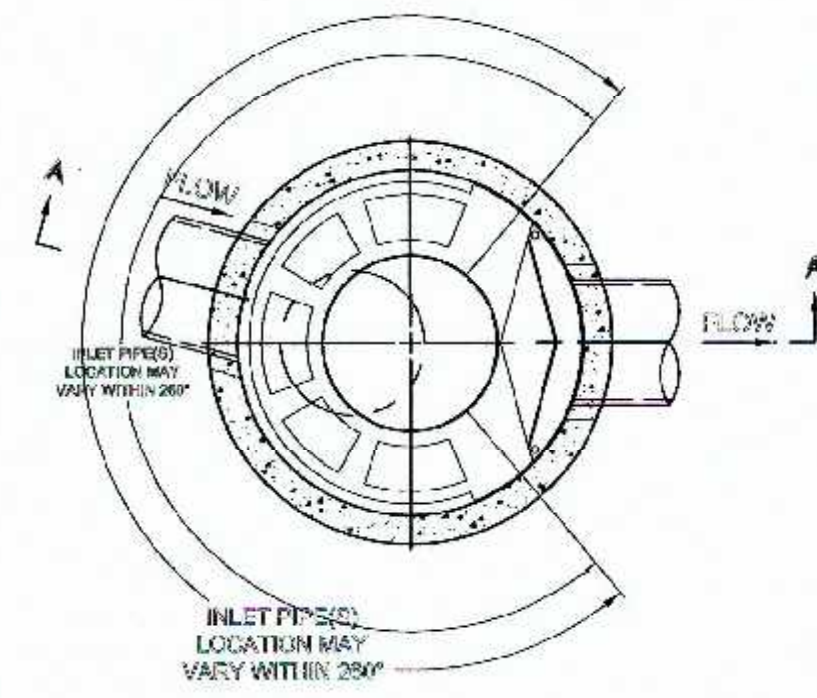


ACCESSIBLE ROUTE GRADING UPPER LEVEL
 SCALE: 1" = 40'

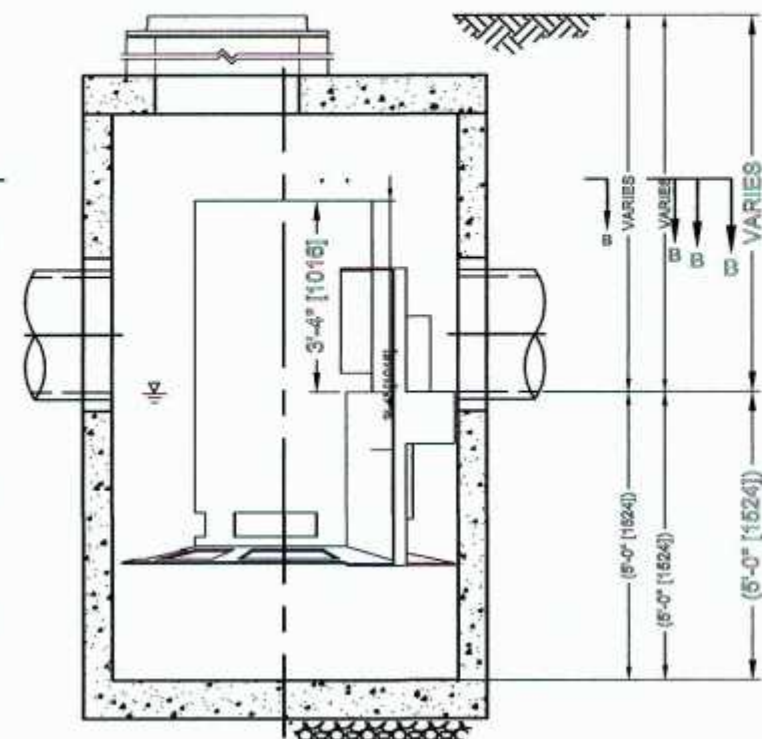
PROPOSED RETAINING WALL NOTES:
 1. PROPOSED RETAINING WALL SHOWN TO PROVIDE TOP OF WALL (TOW) AND BOTTOM OF WALL (BOW) ELEVATIONS.
 2. FINAL WALL DESIGNS, FENCE DESIGN AND GUARDRAIL DESIGN TO BE COMPLETED BY A STRUCTURAL ENGINEER AND FILED WITH THE BUILDING DEPARTMENT.
 3. PROPOSED RETAINING WALLS TO BE POURED IN PLACE CONCRETE OR APPROVED EQUAL.
 4. FENCE TO BE WAYFAIR 4' x 6' TEXAS METAL FENCING OR APPROVED EQUAL.



NOTE:
 GRIND AND SHIM EXISTING PAVEMENT AS NECESSARY TO PROVIDE A MAXIMUM SLOPE OF 2 PERCENT WITHIN THE HANDICAP PARKING SPACES AND ACCESS ISLES.



PLAN VIEW B-B
 NOT TO SCALE



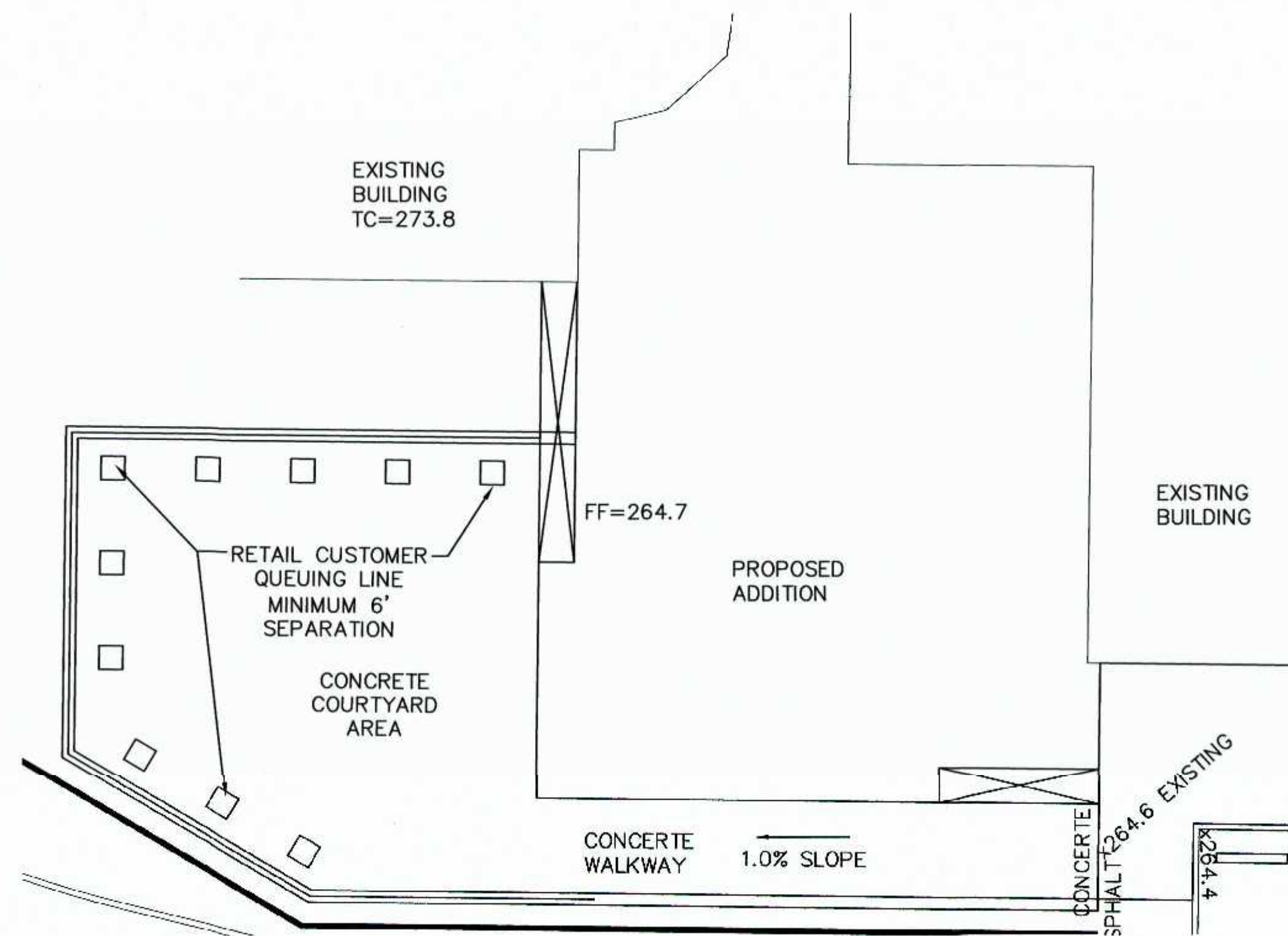
ELEVATION A-A
 NOT TO SCALE

CONTECH CASCADE SEPARATOR DETAIL

N.T.S.



FRAME AND COVER
 (DIAMETER VARIES)
 NOT TO SCALE

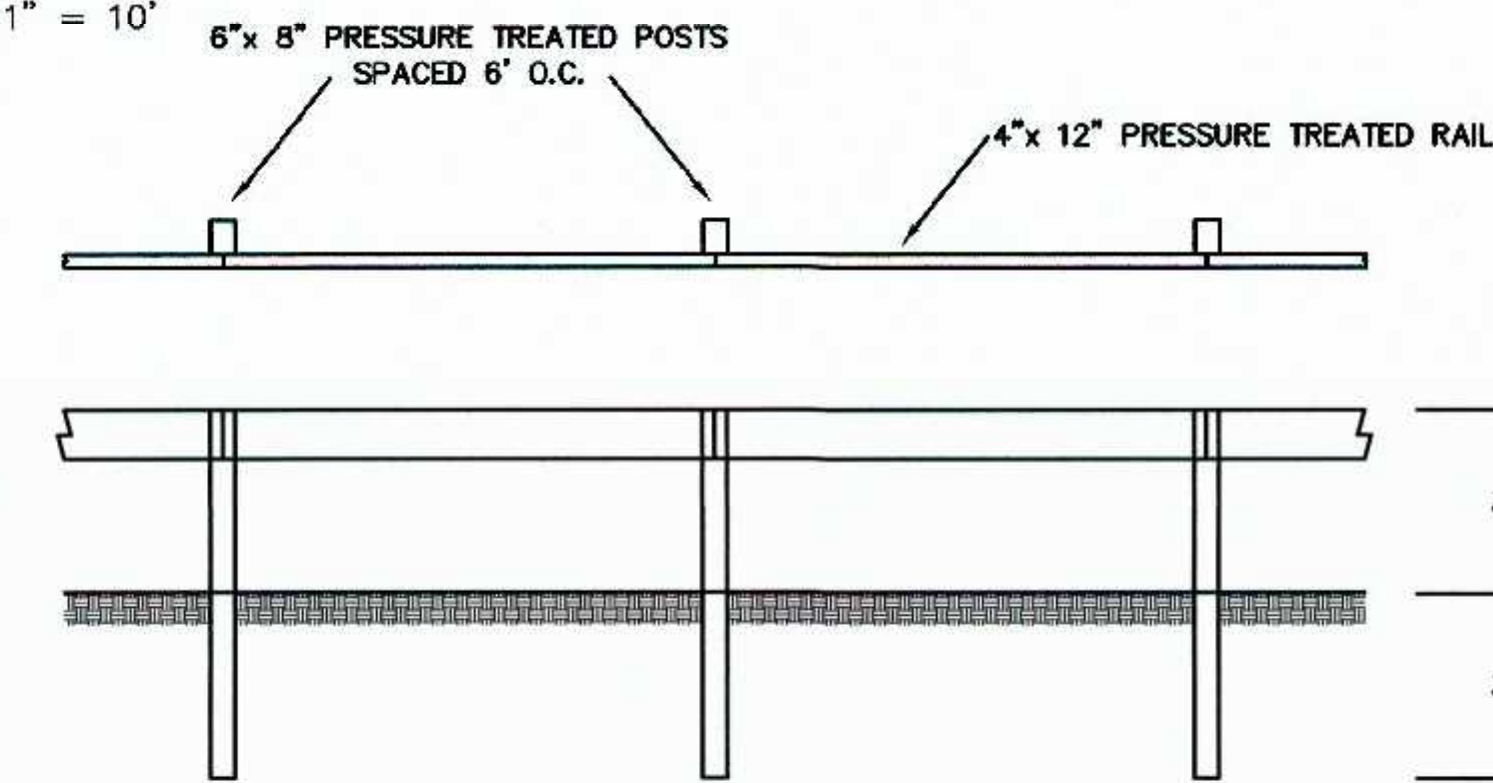


ENTRY QUEUING DETAIL

SCALE: 1" = 10'

ADDITION ENTRY AND ACCESSIBLE ROUTE DETAIL

SCALE: 1" = 10'



WOODEN GUARDRAIL DETAIL
 N.T.S.



CARLOS A. QUINTAL P.E. #30812

OWNER:
 CHARLEY2017, LLC
 7 MYRTLE STREET
 NORFOLK, MASSACHUSETTS

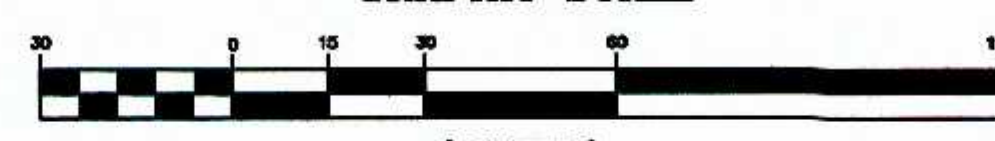
APPLICANT:
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS

SITE PLAN
CONSTRUCTION DETAIL - 3
 162 GROVE STREET
 FRANKLIN, MASSACHUSETTS
 PREPARED FOR
 NEW ENGLAND TREATMENT ACCESS, LLC
 5 FORGE PARKWAY
 FRANKLIN, MASSACHUSETTS
 MAY 21, 2020
 SCALE: 1" = 30'

SITE PLAN APPROVAL
 REQUIRED
 FRANKLIN PLANNING BOARD

DATE

GRAPHIC SCALE



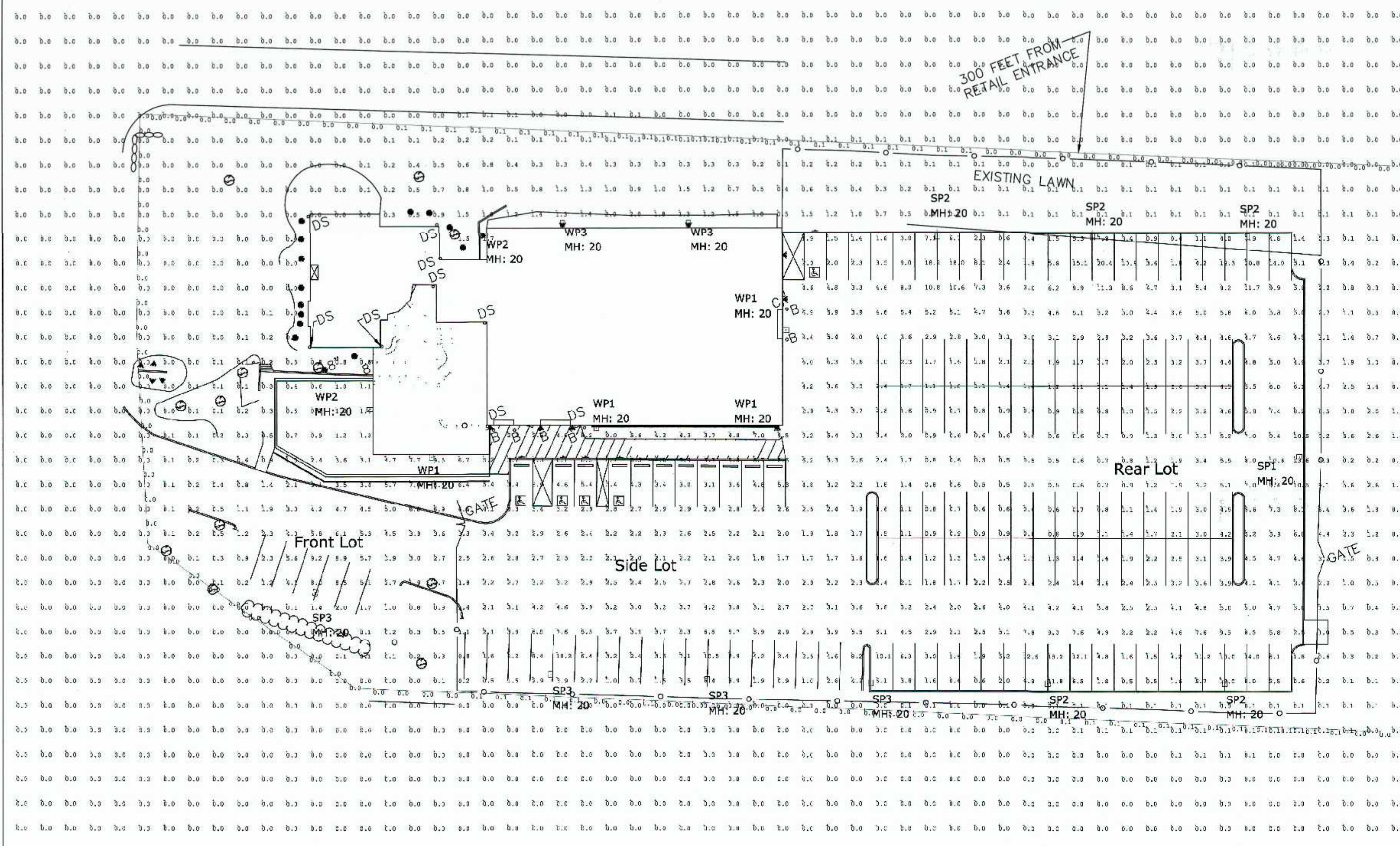
(IN FEET)
 1 inch = 30 ft.

NO.	DATE	DESCRIPTION	BY
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UNITED CONSULTANTS INC.
 850 FRANKLIN STREET SUITE 11D
 WRENTHAM, MASSACHUSETTS 02093
 508-384-6560 FAX 508-384-6566

DATE	MAY 21, 2020
SCALE	1" = 30'
PROJECT	UC1435
SHEET	9 of 9



1 Photometric Layout and Calculations

SCALE: 1:30

Luminaire Schedule						
Symbol	Qty	Label	Description	LLF	Lum. Lumens	Lum. Watts
	1	SP1	Visionaire - VMX-II-T4-55L-4K-UNV-AM-BZ-DIM ON -SNTS-4S-11-20-9BC-343-S1-BZ POLE	0.900	49881	400
	5	SP2	Visionaire - VMX-II-T4-55L-4K-UNV-AM-BZ-DIM-HS ON -SNTS-4S-11-20-9BC-343-S1-BZ POLE	0.900	21756	400
	4	SP3	Visionaire - VMX-II-T5LS-55L-4K-UNV-AM-BZ-DIM-HS ON -SNTS-4S-11-20-9BC-343-S1-BZ POLE	0.900	15400	400
	4	WP1	Visionaire - VMS-1-T4-96LC-5-4K-BZ-DIM-BP	0.900	19653	157
	2	WP2	Visionaire VSC-II-T4-16LC-5-4K-UNV-WM-BZ-DIM-BP	0.900	3093	26
	2	WP3	Visionaire VSC-II-T2-16LC-5-4K-UNV-WM-BZ-DIM-BP	0.900	3135	26

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Property Line	Iluminance	Fc	0.03	0.1	0.0	N.A.	N.A.
Site Calculations	Iluminance	Fc	0.96	20.8	0.0	N.A.	N.A.
Front Lot	Iluminance	Fc	4.02	9.2	0.9	4.47	10.22
Rear Lot	Iluminance	Fc	3.92	20.8	0.4	9.80	52.00
Side Lot	Iluminance	Fc	3.37	10.5	0.5	6.74	21.00

- NOTES:**
- A. A LIGHT LOSS FACTOR OF 0.900 HAS BEEN APPLIED TO FIXTURES UNLESS OTHERWISE NOTED. REFER TO LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR AND LUMEN INFORMATION.
 - B. SEE "MH" ON LIGHTING FIXTURE TAG LOCATED ON PLAN FOR MOUNTING HEIGHT INFORMATION.
 - C. CALCULATION POINTS ARE TAKEN AT GRADE.
 - D. CALCULATION RESULTS ARE BASED ON IES STANDARDS UNLESS OTHERWISE REQUESTED.

VMS LED Specifications

Ordering Information

MODEL	OFFICE	SOURCE	CUMPLET	WELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS
VMS1	T1	ABLD	4K	5K	UNV	AM	BZ	DIM ON
	T2	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T3	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T4	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T5	ABLD	4K	5K	UNV	AM	BZ	DIM HS

2 Fixture Specification- Visionaire VMS

VSC LED Specifications

Ordering Information

MODEL	OFFICE	SOURCE	CUMPLET	WELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS
VSD-1	T1	ABLD	4K	5K	UNV	AM	BZ	DIM ON
	T2	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T3	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T4	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T5	ABLD	4K	5K	UNV	AM	BZ	DIM HS

3 Fixture Specification- Visionaire VSC

VMX ARRAY LED Specifications

Ordering Information

MODEL	OFFICE	SOURCE	CUMPLET	WELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS
VMX-1	T1	ABLD	4K	5K	UNV	AM	BZ	DIM ON
	T2	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T3	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T4	ABLD	4K	5K	UNV	AM	BZ	DIM HS
	T5	ABLD	4K	5K	UNV	AM	BZ	DIM HS

4 Fixture Specification- Visionaire VMX

SNTS Specifications

Ordering Information

MODEL	SHAFT SIZE	GAUGE	HEIGHT	BASE	ANCHORAGE	MOUNTING	FINISH	OPTIONS
SNTS	45	11	10"	8BC	845	81	82	83
	45	11	12"	12BC	126	121	122	123
	45	11	14"	14BC	146	141	142	143
	45	11	16"	16BC	166	161	162	163
	45	11	18"	18BC	186	181	182	183
	45	11	20"	20BC	206	201	202	203

5 Fixture Specification- Visionaire SNTS

DATE:	REVISIONS:	DESCRIPTION:	DATE:
May 20, 2020	1		
PROJECT NUMBER: 20094	2		
DRAWN BY: AM	3		
CHECKED BY: TJ	4		
APPROVED BY: GD	5		
SCALE: AS NOTED	6		
	7		