Littleton Conservation Commission
37 Shattuck Street / Room 303
Phone: 978 540-2428
Fax: 978 952-2321

Filing Procedure Summary

Submit this checklist with application
(rev December 20, 2021)

The following procedures must be followed when filing under M.G.L. c. 131, §40 or the Littleton Wetlands Protection, Chapter 171 for a wetland permit. The procedure applies to Notice of Intents, Abbreviated Notice of Intents, Request for Determinations, and Abbreviated Notice of Resource Area Determinations.

This summary is not to be considered all inclusive and in no way should an applicant misconstrue its contents to replace any part of M.G.L. c. 131, §40 or the Littleton Wetlands Protection, Chapter 171.

__X__ (1) one electronic file of complete submittal emailed to the Conservation Agent and 2 hard copies (with full sized, color plans) filed with the Conservation Commission hand delivered or mailed and received in the office before noon of filing deadline. Additional copies may be required of some projects. Please call ahead to determine meeting dates and filing deadlines.

__X__ (1) one complete copy of the application must be filed with Department of Environmental Protection at:
Department of Environmental Protection
8 New Bond Street
Worcester, Massachusetts 01608

During COVID Emergency Provisions, MADEP also requires an electronic file sent to CERO_NOI@mass.gov (underscore between CERO and NOI)
With the Subject line based on this format "LITTLETON –xxx-STREET ADDRESS – APPLICANT NAME. The "xxx" will be NOI, ANRAD or RDA

__X__ The applicant must include a certified list of abutters (including those in adjacent Towns) located within 100 feet of the property boundaries, according to the most recent records of the Town Assessors, or as determined by MADEP policy on abutter notification. If a Town line is within 300 feet of the Limit of Work, then that Town's Conservation Commission must also be notified.

__X__ The applicant, at the applicant's expense, shall post to each abutter (and owner if owner is not applicant) by Certificated Mail (Return Receipt Requested), or by hand delivery with signature of abutter a copy of the Abutter Notification Form. An Affidavit of Service of such notification shall also be provided. Abutters' signed acknowledgement of notification (ie, green Return Receipt cards) shall be provide at the first public meeting/hearing. See the Littleton Conservation Commission website for the Abutter Notification Form or call the Agent.

PROJECT NAME/ADDRESS: Reconstruction of Foster St. 238-305 Foster St, 221-241 Taylor St DATE: 9/19/2023

X At the applicant's expense, the Commission shall publish a legal notice in a newspaper of local circulation announcing the public hearing. The Notice will be published at least five (5) working days prior to the meeting and will include the date, time and location of the public hearing. The newspaper will bill the applicant directly. This bill must be paid before the legal notice will be published. **Please provide information on who will pay the newspaper (owner, applicant and/or representative) with the application.**

Name	Stephen Jahnle
Company (if applicable)	Town of Littleton DPW
Mailing Address	39 Ayer Rd, Littleton, MA 01460
E-mail	sjahnle@littletonma.org
Phone	978-540-2670

N/A (Town is the applicant) Filing fees for MADEP and Town of Littleton under the MA Wetlands Protection Act regulations, as well as the Littleton Wetlands Protection ByLaw filing fee.

PROJECT NAME/ADDRESS: Reconstruction of Foster St. 238-305 Foster St, 221-241 Taylor St DATE: 9/19/2023

Plans Checklist to accompany application for Notice of Intent (NOI). This is a Bylaw Supplemental form to aid you in submitting complete and appropriate information on your plans. These are suggested/expected items to be shown on the plans but will not necessarily be applicable to all projects. Note that the Commission generally requires a colored plan for presentation purposes.

All lines must be marked X or identified as Not Applicable ("N/A"), or noted as to where the information can be found.

(1) X North arrow X Locus insert X Bar scale (preferably 1 in = 20 to 40 ft.)

(2) Title Block with Following Information:

- X Plan Title
- X Applicant's Name(s), address & phone
- X Property Owner Name(s), address & phone
- X Location/street name & number
- X Assessor map, lot, Registry book, page on all lots w/activity
- X Plan preparer's name, title, stamp, company name, address phone & fax
- X Date plan prepared, last revised, and revision notes

(3) X Existing contours

(4) X Existing structure(s) with natural and man-made features, including stone walls and trails

(5) X Trees over 8-inch diameter breast height within resource areas and buffer zones

(6) X Property lines; clearly mark limits of review area if entire property is not under review

(7) X Existing utilities, rights-of-way, easements, ancient ways or other deeded ways

(8) X Name of wetland scientist responsible for identifying wetland boundaries

(9) X Date wetland was flagged (must be no more than 3 years prior to current date)

(10) X Wetland resource area boundaries with flag numbers

(11) X 100 foot buffer zone limits and 50-foot No Disturb limit

(12) X Notations identifying all wetland types and delineation methodology

(13) X Shortest distance to all resource areas from closest proposed structure (use arrow)

PROJECT NAME/ADDRESS: Reconstruction of Foster St. 238-305 Foster St, 221-241 Taylor St DATE: 9/19/2023

(14) _X_ Shortest distance to all resource areas from closest point of erosion control materials

(15) _X_ Proposed contours (one foot increments)

(16) _X_ Proposed location of utility lines

(17) _X_ Proposed structure(s) (including driveway work, septic components, etc)

(18) _X_ Existing and proposed stormwater management features (including temporary controls)

(19) _X_ Watersheds and drainage areas

(20) _X_ Test pit, boring holes and logs

(21) _X_ Conservation post detail and plaque detail

(22) _X_ Location of temporary stockpiles w/notation of content (e.g. excavated soils)

(23) _X_ Location of snow storage areas

(24) _X_ Location of dumpster(s)

(25) _X_ Cross-sections, particularly at key areas of slopes near wetland resource areas

(26) _X_ Mitigation plans as needed

(27) _X_ Construction sequencing

(28) _X_ Details as applicable, including type of erosion controls

One full sized color plans (and presentation plan) should be colored as follows.

Check if present	Feature	Line Type
x	Existing tree line	Green solid
x	Proposed tree line	Green dashed
x	Bordering Vegetated Wetlands*	Dark blue solid
x	Bank/Land Under Water	Light blue dashed
x	100 foot buffer from BVW and/or Bank	Yellow solid
x	50 foot No Disturb limit from BVW and/or Bank	Yellow dashed
x	Vernal Pool	Purple solid
x	Vernal Pool 100 foot	Purple dashed
x	Bordering Lands Subject to Flooding	Orange solid
x	Isolated Lands Subject to Flooding	Orange dashed
x	Mean Annual High Water	Light red solid
x	100 foot and 200 foot Riverfront Area	Light red dashed
x	Bank, Wetland, Land Under Water, Riverfront Area and Floodplain	Red solid with differentiated stippling/cross hatching
x	Mitigation Area	Red dashed line with differentiated stippling/cross hatching
x	Erosion controls	Brown dashed
x	Limit of work	Brown solid

*Note locations of any federal, non-state isolated vegetated wetlands

PROJECT NAME/ADDRESS: Reconstruction of Foster St. 238-305 Foster St, 221-241 Taylor St DATE: 9/19/2023

NOTICE OF INTENT

Submitted to the Town of Littleton, MA Conservation Commission for the Reconstruction of Foster Street Project in Littleton, MA

MassDOT Project #609054

September 11, 2023

Prepared for:
Town of Littleton
37 Shattuck Street, PO BOX 1305
Littleton, MA 01460

Prepared by:

FUSS & O'NEILL
1550 Main Street, Suite 400
Springfield, MA 01103

FUSS & O'NEILL

Table of Contents

Request for Determination of Applicability
Littleton, MA

End of Report

Figures

Appendices

1 MassDEP WPA Form 3

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

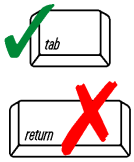
Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Littleton
City/Town

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



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

Foster Street — a. Street Address
Littleton — b. City/Town
01460 — c. Zip Code

Latitude and Longitude:
42.519123 — d. Latitude
-71.502669 — e. Longitude

1425 — f. Assessors Map/Plat Number
R10 2 1 — g. Parcel /Lot Number

2. Applicant:

Stephen — a. First Name
Jahnle — b. Last Name
Department of Public Works — c. Organization
39 Ayer Rd — d. Street Address
Littleton — e. City/Town
MA — f. State
01460 — g. Zip Code
978-540-2670 — h. Phone Number
i. Fax Number
sjahnle@littletonma.org — j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

Town of Littleton — a. First Name
b. Last Name
Town of Littleton-Department of Public Works — c. Organization
39 Ayer Rd — d. Street Address
Littleton — e. City/Town
MA — f. State
01460 — g. Zip Code
978-540-2670 — h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Dan — a. First Name
Delany, P.E. — b. Last Name
Fuss & O'Neill — c. Company
1550 Main Street, Suite 400 — d. Street Address
Springfield — e. City/Town
MA — f. State
01103 — g. Zip Code
800-286-2469 — h. Phone Number
i. Fax Number
ddelany@fando.com — j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

N/A — a. Total Fee Paid
N/A — b. State Fee Paid
N/A — c. City/Town Fee Paid

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Littleton
City/Town

A. General Information (continued)

6. General Project Description:

Work includes pavement reclamation and full depth reconstruction along Foster Street, construction of a 10 foot wide shared-use path, addition of curbing in select areas, installation of a new underground water main, new catch basins, realignment of the Grimes Lane & Foster Street intersection, and the addition of midblock crosswalks.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Commercial/Industrial
4. ☐ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☒ Transportation
9. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☒ Yes ☐ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

310 CMR 10.53(3)(f)
2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

NA (roadway right of way)
a. County

b. Certificate # (if registered land)

c. Book

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Littleton
City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	0 (1. linear feet)	0 (2. linear feet)
b. ☐ Bordering Vegetated Wetland	0 (1. square feet)	0 (2. square feet)
c. ☐ Land Under Waterbodies and Waterways	0 (1. square feet) 0 (3. cubic yards dredged)	0 (2. square feet)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced

f. ☐ Riverfront Area

1. Name of Waterway (if available) - **specify coastal or inland**

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Littleton
City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 3 – Notice of Intent
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Littleton
City/Town

C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ☒ No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

04/18/2023
b. Date of map

If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____ percentage/acreage

(b) outside Resource Area _____ percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 3 – Notice of Intent
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Littleton
City/Town

C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☒ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☒ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Littleton
City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☒ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☒ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☒ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Littleton
City/Town

D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

MassDOT # 609054 Plan and Profile of Foster St. Permitting Plan Set
a. Plan Title

Fuss & O'Neill
b. Prepared By

Dan Delany, PE
c. Signed and Stamped by

04/28/2023
d. Final Revision Date

1"=20'
e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☒ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Littleton
City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date: 9/5/23

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date: 9/18/23

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

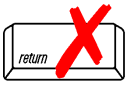
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

a. Street Address	b. City/Town
Foster Street	Littleton
c. Check number	d. Fee amount

2. Applicant Mailing Address:

a. First Name	b. Last Name
Stephen	Jahnle

c. Organization: Town of Littleton-Dept. of Public Works

d. Mailing Address: 39 Ayer Rd

e. City/Town	f. State	g. Zip Code
Littleton	MA	01460

h. Phone Number	i. Fax Number	j. Email Address
978-540-2670		

3. Property Owner (if different):

a. First Name	b. Last Name
Town of Littleton	

c. Organization: Town of Littleton-Department of Public Works

d. Mailing Address: 39 Ayer Rd

e. City/Town	f. State	g. Zip Code
Littleton	MA	01460

h. Phone Number	i. Fax Number	j. Email Address
978-540-2670		

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee:	N/A Fee exempt a. Total Fee from Step 5
State share of filing Fee:	N/A b. 1/2 Total Fee **less $**12.50
City/Town share of filling Fee:	N/A c. 1/2 Total Fee **plus** $12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

2 Executive Summary

Pursuant to the Massachusetts Wetland Protection Act, M.G.L.c. 131 § 40, 310 CMR. 10.00, the Town of Littleton is the applicant for this Notice of Intent (NOI) proposing a linear transportation improvement project that will redevelop Foster Street between Taylor Street and Balsam Lane, replace the surface of Taylor Street for 205 feet, and realign the intersection of Grimes Lane at Foster Street. A new 10-foot wide separated shared-use path will be created parallel to Foster Street while the road surface on Foster St will be narrowed by 4 feet. The project addresses vehicular, pedestrian, and bicycle safety. The project proposes an improved stormwater drainage system to the maximum extent practical for a redevelopment project. Upgrades are proposed to some existing catch basins. The project will also include the replacement of a 10 inch water main underneath Foster Street in an effort to 'dig once' and reduce disturbance to the corridor.

The project is eligible as a limited project under 10.53(3)(f):

> " Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems."

Because the project will not widen the road by the width of one lane the project is eligible as a redevelopment project for stormwater management therefore the Massaschusetts Stormwater Management Standards are proposed to be met to the maximum extent practicable.

The project proposes permanent and temporary impacts to the 100-ft Buffer Zone and the Town of Littleton 50-ft No Disturbance Zone. The applicant is requesting a Waiver from the Commission from the provisions of Section 4.2, 50-ft No Disturb Zone, under the relevant provisions of Section 1.4(2) of the Town of Littleton Wetland Protection Regulations.

3 Existing Conditions

3.1 Existing Site Description

The project is located on Foster Street in Littleton, MA between Taylor Street and Balsam Lane. A locus map of the project area is provided in the attached Figure 1.

The project is located in the Merrimack Watershed. The receiving waters for the project include Beaver Brook, a category 3 impaired waterway for bacteria/pathogens and Mill Pond, a freshwater lake and a category 5 impaired waterway for not supporting aesthetic, primary contact, or secondary contact due to macrophytes.

A sample of site photos along the corridor is attached in Appendix E. The dimensions of the project limits are:

- The project length on Foster Street is 3,936 ft (0.75 mi).
- The project length on Talyor Street is 205 ft extending north and south from the intersection with Foster Street.
- The project length on Grimes Lane is 145 ft extending southeast from the intersection with Foster Street.
- The total project length is therefore 4,286 ft (0.81 mi).
- The project area is traversed via an overhead bridge by Massachusetts State Route 2. No work is proposed on the bridge structure.
- The project area is also traversed at-grade by a 30 ft-wide double-track rail crossing of the MBTA Fitchburg Line. No work is proposed on the tracks.
- The total work area of the project limits sums to 5.37 acres within the limits of grading.

The Town of Littleton owns roadway right-of-way (ROW) layouts that vary between 40-70 feet wide in the project area on Foster Street and Taylor Street. On Grimes Lane however, the Town layout narrows to 20-40 feet in width.

The land surrounding the project area is part of the Boston Metropolitan Statistical Area (MSA) Large Urbanized Area. The surrounding land use is a variety of uses including industrial, commercial, single-family residential, and the I-495/Littleton commuter rail station owned by the MBTA. Several adjacent properties have maintained a rural historical character.

The existing pavement on Taylor Street is generally 44 ft wide consisting of two 12 ft wide lanes and 10 ft paved shoulders on each roadside. Taylor Street is classified as an urban collector road and has a speed limit of 35 mph. There are currently no bicycle or pedestrian facilities along Taylor Street in the project limits.

Existing drainage on Taylor Street is mostly conveyed by runoff infiltration from the edge of road to the adjacent vegetated areas. Taylor Street has two catch basins conveying closed stormwater drainage underneath Taylor Street exiting the project area to the north.

The existing pavement on Foster Street is generally 28 ft wide consisting of two 12 ft wide lanes and 2 ft paved shoulders on each side. Foster Street is classified as an urban collector and has a speed limit of 30 mph. There is currently a single 500 ft length sidewalk spanning from the MBTA station driveway to the Route 2 overpass on the north side of the road. There are no other bicycle or pedestrian facilities along Foster Street in the project limits.

Existing drainage on Foster Street is mostly conveyed by runoff infiltration from the edge of road to the adjacent vegetated areas. Foster Street also has a system of catch basins conveying closed stormwater drainage to open outfalls adjacent to the roadside.

The short section of Grimes Lane in the project area has neither pedestrian accommodations nor catch basins. The width of pavement on Grimes Lane at Foster Street is below current vehicular safety standards for two-way traffic, narrowing to just 10 feet. Grimes Lane is classified as a local road and has a speed limit of 25 mph.

There are two existing culvert crossings beneath Foster Street. The project plans included in Appendix B include a base topographical survey showing an 18 inch corrugated metal pipe Culvert running beneath and transverse to Foster Street at project Station 10+30, adjacent to the parcels of 295 Foster Street and 300 Foster Street. The culvert conveys stormwater drainage from Foster Street and connects an open body of water with an intermittent stream.

There is also a 48 inch Reinforced Concrete Pipe culvert at project station 24+85 conveying an intermittent stream underneath Foster Street located within the State-owned layout of Route 2.

On the frontage of the MBTA station parcel, there is an existing rip-rap swale with catch basins contained in the swale conveying water away from Foster Street and the MBTA parking area.

3.2 Resource Area Delineation

Inland resource areas were delineated in July and August of 2018 by Robin Casioppo, a wetland and soil scientist employed by Fuss & O'Neill, and by Josh Wilson, PWS, also employed by Fuss & O'Neill. The delineations were performed in accordance with methods developed by Massachusetts DEP and with respect to the Wetlands Protection Act. A wetland delineation report has been included in Appendix D.

The delineation found resource areas in the project area including Bank, Land Under Water, Buffer Zone, and Bordering Vegetated Wetland. The attached plans in Appendix B include delineation flags for the resource areas and buffer zone boundaries as part of the topographic survey base mapping underlying the proposed plans.

4 Proposed Conditions

4.1 Project Description

The project proposes the following work in the project area with an overall goal of improving safety for all modes of travel along the Foster Street corridor.

Upgrades to vehicular, pedestrian, and bicycle safety

- A Shared-use path for non-motorized travel use along the north side of Foster Street connecting Balsam Lane to Taylor Street and serving the frontage of the MBTA Commuter Rail Station.
- (4) Rectangular Rapid Flashing Beacons to alert drivers of pedestrian crossings with revised crosswalks for safer visibility and accessibility compliant pedestrian curb ramps.
    - (3) Located on Foster Street
    - (1) Located on Taylor Street
- New 10-foot wide pedestrian and bike sidewalk ramps on Taylor Street at the Foster Street intersection.
- New pavement markings with vehicle warning & regulatory signage for better driver visibility
- Full-depth pavement reconstruction on Foster Street.
- Re-alignment of Grimes Lane at Foster Street to increase safety at the rail crossing and sight distance for all users at the intersection. The improvements will bring the width of Grimes Lane into safety standards for a two-way road.
- Increased LED streetlighting coverage along Foster St.
- Replaced aging guard rail at steep road side embankments.

Drainage Improvements

Because curbing will be added to the road shoulder for all of the west side of Foster Street for the shared-use path and parts of the east side to improve pedestrian safety, the closed drainage system will be upgraded to provide improved treatment.

- (9) Existing catch basins on Foster Street replaced with new deep-sump (4ft) catch basins
- (3) New deep-sump catch basins on Foster Street
- (4) New leaching (impervious) catch basins on Foster Street to convey stormwater runoff into ground infiltration
- (7) Existing catch basins remodeled and repaired
- All other existing catch basins in the project limits remaining are to be cleaned at the completion of construction
- The rip-rap drainage swale on the frontage of MBTA property will be moved less than 5 feet to the north and rebuilt as having the same overall area as existing. The location of the swale is proposed to be shifted to fit the shared-use path.

Maintenance and Repair to Critical Town Infrastructure

- A new 10 inch water service main under Foster Street through the project limits. This asset upgrade seeks to leverage the opening of the road for pavement reconstruction as preventative maintenance and critical infrastructure upgrade.

Pavement Widening

- To implement the shared-use path on Foster Street to MassDOT design standards, overall impervious area widening was necessary. The existing paved cross section of Foster Street is 28 ft wide. The proposed road cross section will narrow the road pavement on Foster Street by 4 ft but will add a 10 ft wide paved shared-use path. This results in a new cross section containing a total of 34 ft in pavement width when the shared-use path is included. This is 6 ft more of total pavement width than the exiting condition on Foster Street.

Impervious Area

- The existing condition has a total of 2.930 acres of impervious area within the public layout work limits. The proposed condition has a total of 3.542 acres within the public layout work limits. The project proposes to create an additional 0.612 acres (26,612 SF) of impervious area within the project limits. The net new impervious area is distributed along the 0.75 mile long Foster Street corridor.

Layout Alteration and Easements

- The project stays within the existing road layout ROW for a large majority of the project. Where grading of slopes exceeds the layout boundaries or a utility pole must be moved to the edge of the layout boundary, layout alterations and easements are being proposed as part of the project. The temporary and permanent easements are shown on the plans in Appendix B.

Tree and Shrub Plantings

- Tree plantings are proposed at two locations. Five native species including red maple trees, Acer Rubrum, are proposed to be planted at the frontage of 305 Foster Street. The maple trees will replace a stand of 1 Pine and 2 Hawthorne on private property that must be removed for utility pole relocation. The ornamental shrub 'Mountain Fire Andromeda' is proposed to be planted at the frontage of 284 Foster Street in the public right of way where a slope is being cut back close to the boundary of a private lawn. The purpose of the shrub plantings is for visual screening.

4.2 Alternatives Analysis

The design was initiated in the Fall of 2017 and followed the multi-stage MassDOT project design and development process. The design process evaluated different alternatives for impacts and sought public and stakeholder involvement.

The preferred alternative for the design of Foster Street minimized impacts compared to a second viable alternative by reducing the width of pavement and providing a vegetated buffer between the path and road. Concept 2 below was not selected to continue past 25% design in part because Concept 1 achieved the same mobility and safety goals with a narrower width of pavement by 1ft.

Figure 1: An Early Concept Alternative for Foster Street that was Not Selected
Total Pavement Width is 35ft

Figure 2: The Preferred Alternative for Foster Street
Total Pavement Width is 34ft with a Vegetated Buffer Between Path and Edge of Road

The two concepts above were presented to the Littleton Board of Selectmen and community members at the Town Select Board meeting on January 14, 2019. Community members present at the meeting, including some who live on Foster Street, overwhelmingly favored the shared-use path concept. Those

in favor of the shared-use path believed it would not only benefit adjacent business office parks, but also local residents who would use it for recreational purposes. They preferred the proposed buffer separating vehicular traffic and pedestrians and cyclists. The majority of the Board members present at the meeting supported Concept 2 which included the shared-use path, as they appreciate the increased pedestrian and cyclist safety, as well as the decreased vehicular speeds expected as a result of the proposed road narrowing. With the support of its constituents, the Board passed a motion endorsing Concept 2.

The project design team presented at the Littleton Station Area Visioning Study Community Meeting listening session at Littleton Middle School on April 5, 2019 and the follow-up community visioning session on April 6, 2019. The event was hosted by The Town of Littleton Planning Department.

A required 25% design submission public hearing was hosted by MassDOT. The meeting took place virtually on May 28, 2020. MassDOT recorded the meeting and held an extended mail-in public comment period. The preferred alternative was selected after the conclusion of the design public hearing process.

After the design public hearing comment period, the design continued to be refined as MassDOT performed design reviews at 75% and 100% design stages.

4.3 Erosion and Sedimentation Control

The proposed project will enact erosion and sediment control during construction using the following methods.

- **Sediment Control Barriers**

Staked compost filter tubes or equivalent are proposed for sediment control barriers. The placement of sedimentation control barriers for the Project are shown on the Construction Plans section of the proposed project plans in Appendix B. The construction details section of the proposed plans includes a typical example of a compost filter tube installation. Silt fence is included as incidental to the item when required at sensitive resource areas.

- **SWPPP**

Sedimentation control for the proposed project will be implemented through the National Pollutant Discharge Elimination System (NDPES) required Storm Water Pollution and Protection Plan (SWPPP) which must be prepared by the contractor prior to the commencement of construction. The Plan will include the General Permit conditions and detailed descriptions of erosion and sedimentation controls to be implemented during construction. The SWPPP plan requires weekly inspection and monthly reporting of the condition of erosion controls. The Town will be included on the distribution list of the inspection forms and reports.

- **Silt Sacks**

Silt sacks shall be installed in retained existing catch basins and drop inlets within the project limits and as required by the MassDOT Resident Engineer to prevent sediment from entering existing catch basins during construction. The Contractor shall inspect the condition of silt sacks after each rainstorm and

during major rain events. Silt sacks shall be cleaned periodically to remove and dispose of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department. When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

4.4 Sequence of Construction Activities

The Project is proposed to be constructed in a single phase under the control and oversight of MassDOT who will provide on-site construction administrative and inspection services during the entire construction duration.

Although the contractor will have the ability to propose adjusting the sequence of work to optimize scheduling and efficiency, or may perform work simultaneously, a general sequence of construction is as follows:

- Creation of a Storm Water Pollution and Prevention Plan (SWPPP)
- Erosion and sedimentation control installation
- Establishment of contractor access and laydown areas outside of resource areas
- Work zone safety signage establishment including rail crossing location and temporary traffic guidance
- Removal of vegetation within the limit of work as needed for access
- Work on underground utilities including water main installation and storm drainage
- Work on overhead utilities
- Testing of new water main
- Excavation and grading to establish new sub-base of shared-use path and road
- Installation of curbing, sidewalk ramps, guardrail, fencing and new permanent traffic safety signage
- Full-depth paving of shared use path and road
- Establish plantings and loam/seed
- Installation of pavement markings
- Restoration of temporary work areas and removal of temp signage
- Removal of erosion and sedimentation controls

5 310 CMR 10.00 WPA Regulations Review

This section describes how the project conforms to the relevant provisions of 310 CMR 10.00, the Wetland Protection Act, enumerates the proposed project impacts to resource areas, and describes how the project meets performance standards under the Act.

5.1 Limited Project Status

Under 310 CMR 10.53, projects may be eligible as a limited project:

> "Notwithstanding the provisions of 310 CMR 10.54 through 10.58 and 10.60, the Issuing Authority may issue an Order of Conditions and impose such conditions as will contribute to the interests identified in M.G.L. c. 131, § 40 permitting the following limited projects (although no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59). In determining whether to exercise its discretion to approve the limited projects listed in 310 CMR 10.53(3), the Issuing Authority shall consider the following factors: the magnitude of the alteration and the significance of the project site to the interests identified in M.G.L. c. 131, § 40, the availability of reasonable alternatives to the proposed activity, the extent to which adverse impacts are minimized, and the extent to which mitigation measures, including replication or restoration, are provided to contribute to the protection of the interests identified in M.G.L. c. 131, § 40."

The project is eligible as a limited project under 310 CMR 10.53(3)(f) which stipulates that:

> "Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems."

The proposed widening of paved surface in the Foster Street Corridor is 6ft wide. This is less than the width of a single traffic lane, which has a typical minimum of 10ft wide. The widening on Foster Street is not providing an additional lane for motorized vehicle travel, but instead a non-motorized shared-use path.

5.2 Bank (310 CMR 10.54)

Bank was delineated in the project area as shown on the plans in Appendix B. Bank flags are found in the project area at the following locations:

- On the property of 300 Foster Street. Between project stations 9+00 and 10+75 on the east side of Foster Street. The flag series in the plans is A100-A116. There is an open freshwater body adjacent to a culvert located beneath Foster Street.

- On MassDOT property, between project stations 24+75 and 25+00, there is an intermittent stream flowing from a culvert underneath Foster Street. The flag series in the plans is F600-F602 (R&L) on the west side of Foster Street. On the east side of Foster Street the flag series are H800-803 and I900-901.

No temporary or permanent impacts to Bank are proposed by the project.

5.3 Bordering Vegetative Wetland (310 CMR 10.55)

BVW was delineated in the project area as shown on the plans in Appendix B. BVW flags are found in the project area at the following locations:

- On the east side of Foster Street at the property of 260 Foster Street. Between project stations 30+50 and 33+00. Flag series K200-K220.
- On the east side of Foster Street and adjacent to Grimes at the property of 260 Foster Street. Between project stations 26+50 and 30+25. Flag series L300-L326.
- On the west side of Foster Street at the property of 295 Foster Street. Between project stations 9+00 and 10+50. Flag series B200-B205.
- On the west side of Foster Street at the property of 295 Foster Street. Between project stations 10+40 and 10+45. Flag series C300-C309.
- On the west side of Foster Street at the property of 295 Foster Street. Between project stations 12+00 and 17+00. Flag series D400-D405.
- On the east side of Foster Street at the properties of 300 and 290 Foster Street. Between project stations 13+50 and 14+50. Flag series E500-E503.
- On the east side of Foster Street at the property of the Mass. Dept of Transportation. Between project stations 24+75 and 25+00. Flag series J100-104.

No temporary or permanent impacts to BVW are proposed by the project.

5.4 Land Under Water (310 CMR 10.56)

LUW is found in the project area at the locations described under Bank.
No temporary or permanent impacts to LUW are proposed by the project.

5.5 Land Subject to Flooding (310 CMR 10.57)

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) does not depict areas of potential flooding in the project limits. Bordering Land Subject to Flooding (BLSF) is not mapped as overlapping at the project site. BLSF is defined in 310 CMR 10.57 (2)(a)(1) as "an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetlands." No temporary or permanent impacts to BLSF

or ILSF are proposed by the project. The FEMA FIRM map panels for the project are provided in Appendix A.

5.6 Riverfront Area (310 CMR 10.58)

There is no Riverfront Area within the project limits. No temporary or permanent impacts to Riverfront Area are proposed by the project.

5.7 100-ft Buffer Zone (310 CMR 10.02(2)(b))

The project work limit area contains a total of 116,466 SF (2.67 AC) of 100-ft Buffer Zone measured from BVW and Bank. The existing impervious area within the 100-ft Buffer Zone is 50,517 SF (1.16 AC).

Permanent impacts are calculated as the area of new impervious surface from the shared use path or realignment of the road. Temporary impacts for the project are areas to be disturbed by construction activities, but ultimately returned to a vegetated cover with loam & seed. Table 1 summarizes the existing and proposed impacts to the 100-ft Buffer Zone.

Table 1: Buffer Zone Impacts

100-FT Buffer from BVW or Bank			
Description	**Area** (SF/ AC)	**Perm./Temp.**	**Cause/Descrip. Of Impacts**
Total Zone Area in Project Limit	116,466/ 2.67	-	-
Existing Impervious	50,517/ 1.16	Perm.	Road surface, Sidewalk
Net Change in Impervious	15,768/ 0.36	Perm.	Road surface, Shared-use path
Proposed Impervious	66,285/ 1.52	Perm.	Road surface, Shared-use path
Temp. Impacts	35,344/ 0.81	Temp.	Earthwork, grading, grubbing. To be restored with loam & seed

The net increase of proposed permanent impact to 100-ft Buffer Zone is 15,768 SF or 0.36 AC within the 5.37 AC and 0.81-mile-long project area.

The general provisions of 310 CMR 10.53 states that:

> "The Issuing Authority may consider the characteristics of the Buffer Zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on Resource Areas. Conditions may include limitations on the scope and location of work in the Buffer Zone as necessary to avoid alteration of Resource Areas. The Issuing Authority may require erosion and

> sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the Resource Area and/or other measures commensurate with the scope and location of the work within the Buffer Zone to protect the interests of M.G.L. c. 131, § 40. Where a Buffer Zone has already been developed, the Issuing Authority may consider the extent of existing development in its review of subsequent proposed work and, where prior development is extensive, may consider measures such as the restoration of natural vegetation adjacent to a Resource Area to protect the interest of M.G.L. c. 131, § 40."

As a linear transportation project in an existing corridor, the project was not able to avoid the Buffer Zone. The design alternatives analysis, described in Section 4.2, did select a preferred alternative that is 1ft narrower in total pavement width than the next alternate design. The impacted Buffer Zone is a previously developed road corridor. The project proposes an erosion and sediment control plan as described in Section 4.3 and shown on the plans. The project also proposes to revegetate the temporary impact areas within the Buffer Zone with loam & seed.

6 Stormwater Report

The project is located in the Merrimack Watershed. The receiving waters for the project include Beaver Brook, a category 3 impaired waterway for bacteria/pathogens. Also Mill Pond, a freshwater lake and a category 5 impaired waterway for not supporting aesthetic, primary contact, or secondary contact due to macrophytes.

The project is eligible as a redevelopment and a limited project under the Wetlands Protection Act. The following is a description of how the proposed project meets the stormwater standards to the maximum extent practicable in accordance with the Massachusetts Stormwater Handbook.

The project will result in a net increase of an additional 0.612 acres of impervious area within the project limits distributed along the 0.75 mile long linear Foster Street corridor. Upgrades to the storm water system are proposed to the maximum extent practicable.

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

No new stormwater point source discharges to the resource areas are proposed as part of the redevelopment project. Two existing discharge points will be improved upon with new flared ends and rip rap protection. All other existing discharge points will remain as is. Installation of rip rap protection at refurbished outfalls will provide erosion protection, which is an improvement to the existing condition. The project complies with Standard 1.

Standard 2: Peak Rate Attenuation

Attenuation improvement has been proposed to the maximum extent practical. The project proposes improved attenuation through:

- 4 new leaching catch basins with 3 feet of sump depth
- 9 existing non-deep sump catch basins on Foster Street to be replaced with deep sump catch basins. A deep-sump catch basin has 4 feet of sump depth compare to 2-3ft for a non-deep sump catch basin
- 3 new deep sump catch basin locations are proposed on Foster Street
- 7 existing catch basins will be remodeled and repaired
- All other remaining catch basins will be cleaned of debris and sediment there by restoring original sump capacity

No new detention areas for attenuation are proposed outside of the width of road as this is a linear transportation project corridor where impacts to adjacent property and trees have been intentionally minimized. The project is a redevelopment and meets the Stormwater Standard 2 to the maximum extent practicable.

Standard 3: Stormwater Recharge
Recharge has been proposed to the maximum extent practicable. In the existing condition, recharge is provided by a combination of sheet flow to the road shoulder where infiltration occurs and by discharge where the closed drainage system outfalls. The proposed condition will also provide recharge by a combination infiltration by sheetflow at the edges of the shared-use path and outfall at existing discharge points. Improvements to recharge are provided by:

- Four new leaching catch basins on Foster Street will convey stormwater runoff to ground infiltration
- A riprap swale at the frontage of the MBTA Station will be repaired and rebuilt 5 feet offset from the existing location to accommodate the proposed shared-use path

No new infiltration areas are proposed outside road and shared-use path as this is a linear transportation corridor where impacts to adjacent property and trees have been intentionally minimized. The project is a redevelopment project and meets the Stormwater Standard 3 to the maximum extent practicable.

Standard 4: Water Quality
Water quality will be maintained and improved by the following:

- 4 new leaching catch basins
- 9 existing non-deep sump catch basins on Foster Street to be replaced with deep sump catch basins. A deep-sump catch basin has 4 feet of sump depth compare to 2-3ft for a non-deep sump catch basin
- 3 new deep sump catch basin locations are proposed on Foster Street
- 7 existing catch basins will be remodeled and repaired
- All other remaining catch basins will be cleaned of debris and sediment there by restoring original sump capacity

The proposed post-construction operation and maintenance of the closed drainage sturcutres will maintain the treatment capability of the system. A suggested Long-term Operation and Maintenance Plan, including required maintenance activities and schedule of maintenance requirements is included in Appendix G. This is a redevelopment project and meets Stormwater Standard 4 to the maximum extent practicable. A TSS removal spread sheet for deep sump catch basins can be found in Appendix H. The deep sump catch basins will provide 25% TSS removal. The leaching catch basins will provide 25% TSS removal as they will be offline and not connected to a deep sum catch basin.

Standard #5: Land Uses with Higher Potential Pollutant Loads
Standard 5 does not apply to the project. The project does not contain any area of higher pollutant loads as defined by the Massachusetts Stormwater Handbook.

Standard #6: Critical Areas
Standard 6 does not apply to the project. This project does not contain any critical areas as defined by the Massachusetts Stormwater Handbook.

Standard #7: Redevelopment
This project is a redevelopment project. Standards 2, 3, and 4 are met to the maximum extent practicable. Standards 1, 8, 9, and 10 are met fully.

Standard #8: Construction Period Controls
It is anticipated that there will be no pollution created during the development of the site. Erosion and sedimentation controls will be implemented and maintained during construction until construction is complete and disturbed areas have been stabilized. This will be done in accordance with local, state, and federal requirements. Details of the erosion and sedimentation control measures are shown on the Site Plans located in Appendix B. The contractor will be responsible to ensure the correct implementation of the erosion and sedimentation controls. MassDOT will provide continuous on-site construction inspection to ensure contractor compliance with erosion and sedimentation controls.

The extent and schedule for the commencement of construction activities, grading, and soil stabilization measures will be recorded and maintained as part of the Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will be completed and provided by the contractor prior to the start of construction in accordance with the EPA NPDES General Permit for Discharge from Construction activities.

Standard #9: Operation and Maintenance Plan
A Construction Operation and Maintenance (O&M) Plan has been developed for the redevelopment of the site and is included in Appendix G. The contractor and Town of Littleton shall be responsible for the construction operation and maintenance of the site.

A suggested Long-term Operation and Maintenance Plan, including required maintenance activities and schedule of maintenance requirements is included in Appendix G. The Town of Littleton will be responsible for post construction operation and maintenance of the site.

Standard #10: Illicit Discharge to Drainage System
This project does not contain illicit discharges to Stormwater Management Systems as defined in the Massachusetts Stormwater Handbook. A copy of the Illicit Impact Statement can be found in Appendix I.

7 Town of Littleton Wetland Protection Regulation Review

The performance standards of the Town of Littleton Wetland Protection Regulations are described in this section.

7.1 The 50-ft No-Disturbance Zone

The Town of Littleton observes a 50-ft No-Disturbance Zone where:

> "No activities or work is permitted other than passive (foot or non-motorized vehicle) passage and removal of invasive vegetation if done in compliance with these Regulations. Except as noted, no vegetation may be disturbed, and the area should remain unchanged from its pre-project state."

The project work limit area contains a total of 45,253 SF (1.04 AC) of 50-ft No-Disturbance Zone measured from BVW or Bank. Existing impervious area within the 50-ft No-Disturb Zone totals 14,655 SF (0.34 AC). The construction of the shared-use path and shifting of the existing road alignment in some locations will result in an additional 7,499 SF (0.17 AC) of impervious area within the 50-ft-No-Disturbance Zone.

Permanent impacts are calculated as the area of new impervious surface. Temporary impacts are areas that will be disturbed by construction activities such as earthwork and then returned to a vegetated cover with loam & seed. Table 2 summarizes the impacts to the 50-ft No Disturb Zone.

Table 2: 50-ft No Disturbance Zone Impacts

50-FT No Disturb Zone from BVW or Bank			
Description	**Area** (SF/ AC)	**Perm./Temp.**	**Cause/Descrip. Of Impacts**
Total Zone Area in Project Limit	45,253 / 1.04	-	-
Existing Impervious	14,655 / 0.34	Perm.	Road surface, Sidewalk
Net Change in Impervious	7,499 / 0.17	Perm.	Road surface, Shared-use path
Proposed Impervious	22,154 / 0.50	Perm.	Road surface, Shared-use path
Temp. Impacts	14,355 / 0.33	Temp.	Earthwork, grading, grubbing. To be restored with loam & seed

Only projects meeting the eligibility for a waiver under Section 1.4 of the Town Regulations may be exempt. See Section 8.4 for more information on the project's eligibility for a waiver.

7.2 Performance Standards in the 100-ft Buffer Zone

The Town performance standards for work in the 100-Ft Buffer Zone (Section 4.3 of the Littleton Wetland Bylaw Regulations) state that:

> 'The activity shall not significantly impair the values and functions of the adjacent Areas Subject to Protection. The quantity and quality of resource values and functions, as well as pre-project conditions, such as ground slope, soil conditions, vegetation, and prior disturbance of the site should be considered explicitly in making this determination. Any offsetting mitigation provided shall also be considered, including the inclusion of pedestrian and bicycle access rights-of-way in the project (which can reduce the pollutant runoff and climate change contribution associated with the project)."

The project proposes pedestrian and bicycle access on Foster Street in a safe, dedicated and separate facility. The project is a potentially important step toward a larger more complete network of bicycle and pedestrian access for the Town of Littleton and the MBTA commuter rail station. The shared-use path will contribute to the reduction in vehicular trips and emissions as a non-motorized link to commuter rail service and as a new recreational trail for local residents

7.3 Other Resource Areas

•The project limits are not within an area of NHESP Estimated Habitats of Rare Wildlife or NHESP Priority Habitats of Rare Species.
•There are no state certified vernal pools within the project limits.
•The project is not within an Area of Critical Environmental Concern.
•The project does not discharge or drain to a waterbody designated as an Outstanding Resource Water. The nearest ORW is Nagog Pond in Acton located 5.4 miles east of the project area.

Attached Figure 2 shows the most recent NHESP Habitats map of the project area as accessed from MassMapper showing data from the most recent NHESP Atlas.

7.4 Eligibility for Waiver

Section 1.4(2) of the Town Regulation states that:

> "The Commission may also waive the provisions of Sections 4.2, 4.3, and/or 4.5, to permit any of the limited projects listed in 310 CMR 10.53(3)(a) through (t). In determining whether to exercise its discretion to approve a limited project, the Commission shall consider the following factors: the magnitude of the alteration, the significance of the project site to the

Interests Protected by the Bylaw, the availability of reasonable alternatives to the proposed activity, the extent to which adverse impacts are minimized, and the extent to which mitigation measures are provided to contribute to the protection of the Interests Protected by the Bylaw"

The magnitude of the alteration proposed by the project is small when compared to the overall project limits. The overall project limit totals 5.37 acres. The project area permanently impacting the 50-ft No-Disturb Zone is 0.16 acres, comprising a share of 3% of the total project area.

The significance of the project site to the interests protected by the Bylaw may be considered in context of roadside vegetation. The vegetated shoulders of Foster Street within the 50-ft No Disturb Zone have been in close proximity to the road and vehicular traffic with associated roadside mowing and stormwater runoff for many years. The project area does not contain NHESP priority or estimated habitats or vernal pools (see Figure 2 attached).

The availability of reasonable alternatives was evaluated as discussed in the Alternatives Analysis Section 5.2. The preferred alternative did reduce permanent impacts to the 50-ft- No-Disturb Zone by selecting a cross section with 1ft less of total new pavement width compared to an alternate design.

Impacts are proposed to be minimized via the sedimentation and erosion control measures proposed. All temporary impact areas will receive loam & seed to restore ground cover vegetation. A mitigating factor will be the creation of a new facility for non-motorized travel. The shared-use path may contribute to the reduction in vehicular trips and emissions as a link to commuter rail service and as a new recreational trail for local residents.

In summary, the applicant respectfully requests that the Littleton Conservation Commission find these measures adequately protective of the interests identified in the Town Bylaw and issue a waiver to the work described in this NOI and on the attached plans.

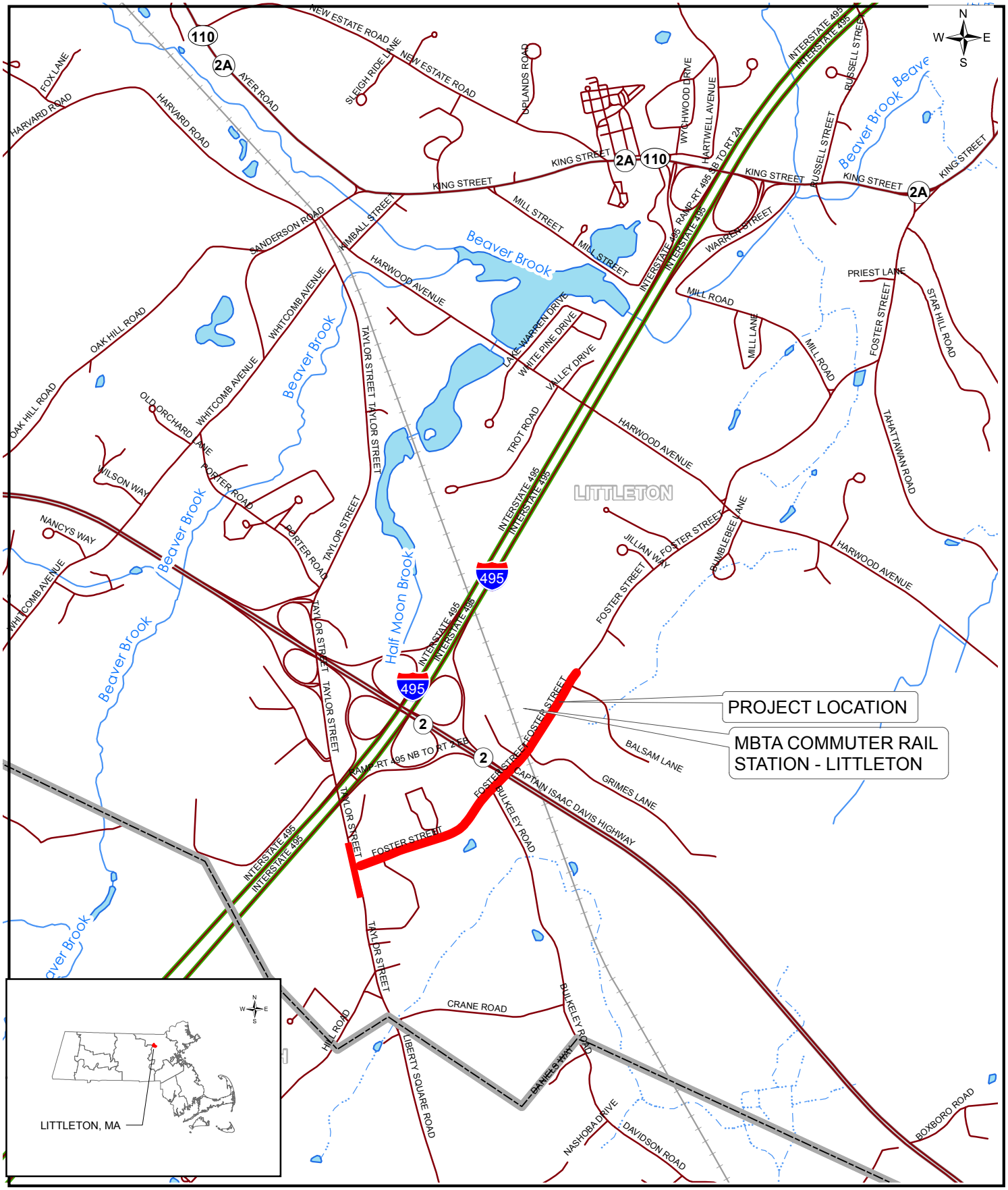
8 Conclusion

In Summary, the project proposes a new 10 foot wide separated shared-use path on Foster St while the road surface on Foster St will be narrowed by 4 feet. An unsafe intersection at Grimes Lane and Foster Street is proposed to be realigned. The project addresses vehicular, pedestrian, and bicycle safety. The project proposes an improved stormwater drainage system to the maximum extent practical including four new leaching catch basins and upgrades to some existing catch basins as described in Section 4. The project will also include the replacement of a 10 inch water main underneath Foster Street in an effort to 'dig once' and reduce sediment disturbance in the corridor.

Because the project area is an existing roadway and the project will not widen the road by the width of one lane, under 310 CMR, the project is eligible as a redevelopment project for stormwater management and also eligible as a limited project under 10.53(3)(f). The project proposes permanent and temporary impacts to 100-ft Buffer Zone and the Town of Littleton 50-ft No Disturbance Zone. All temporary impact areas will be revegetated with loam and grass seed. No other resource areas are proposed to be impacted. The applicant is requesting a Waiver from the Commission under the relevant provisions of Section 1.4(2) of the Town of Littleton Wetland Protection Regulations.

The applicant respectfully requests that the Littleton Conservation Commission find these measures adequately protective of the interests identified in the WPA and the Town Bylaw as presented in this NOI.

Figures



File Path: K:\P2017\0044\A20\MXD\A20_Foster_Figure 1 Location.mxd Plotted: Monday, February 12, 2018

0 1,000 2,000
Feet

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

www.fando.com

FUSS & O'NEILL

78 INTERSTATE DRIVE WEST SPRINGFIELD, MA 01089 413.452.0445

RECONSTRUCTION OF FOSTER STREET (PHASE I)

SITE LOCATION MAP

MASSDOT PROJ. #609054

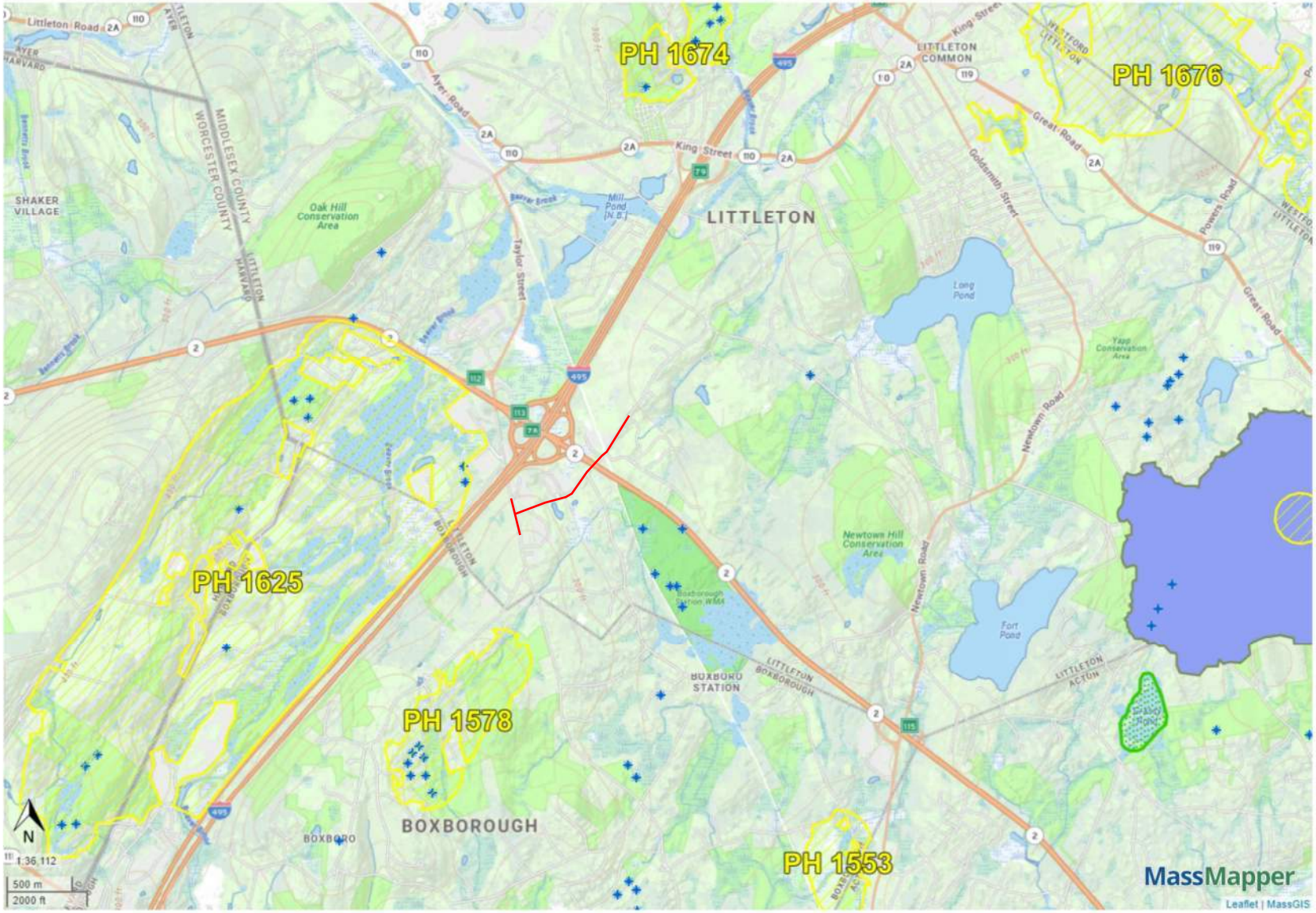
LITTLETON MASSACHUSETTS

PROJ. No. 20170044.A20

DATE: FEBRUARY 2018

FIG. 1

Figure2: Natural Resources Map



NHESP Natural Communities

NHESP Priority Habitats of Rare Species

NHESP Estimated Habitats of Rare Wildlife

NHESP Certified Vernal Pools

Outstanding Resource Waters

- ACEC
- Cape Cod National Seashore
- Protected Shoreline
- Public Water Supply Watershed
- Retired Public Water Supply
- Scenic/Protected River
- Wildlife Refuge

Project Extent

Accessed from https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html

by A.Keegan, PE on 4/18/2023

NHESP Data based on August 2021 NHESP Atlas

Appendix A

FEMA FIRM MAPS

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Massachusetts State Plane Mainland Zone (FIPS zone 2001). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from orthophotography provided by MassGIS at a scale of 1:500 from photography dated April 2008.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

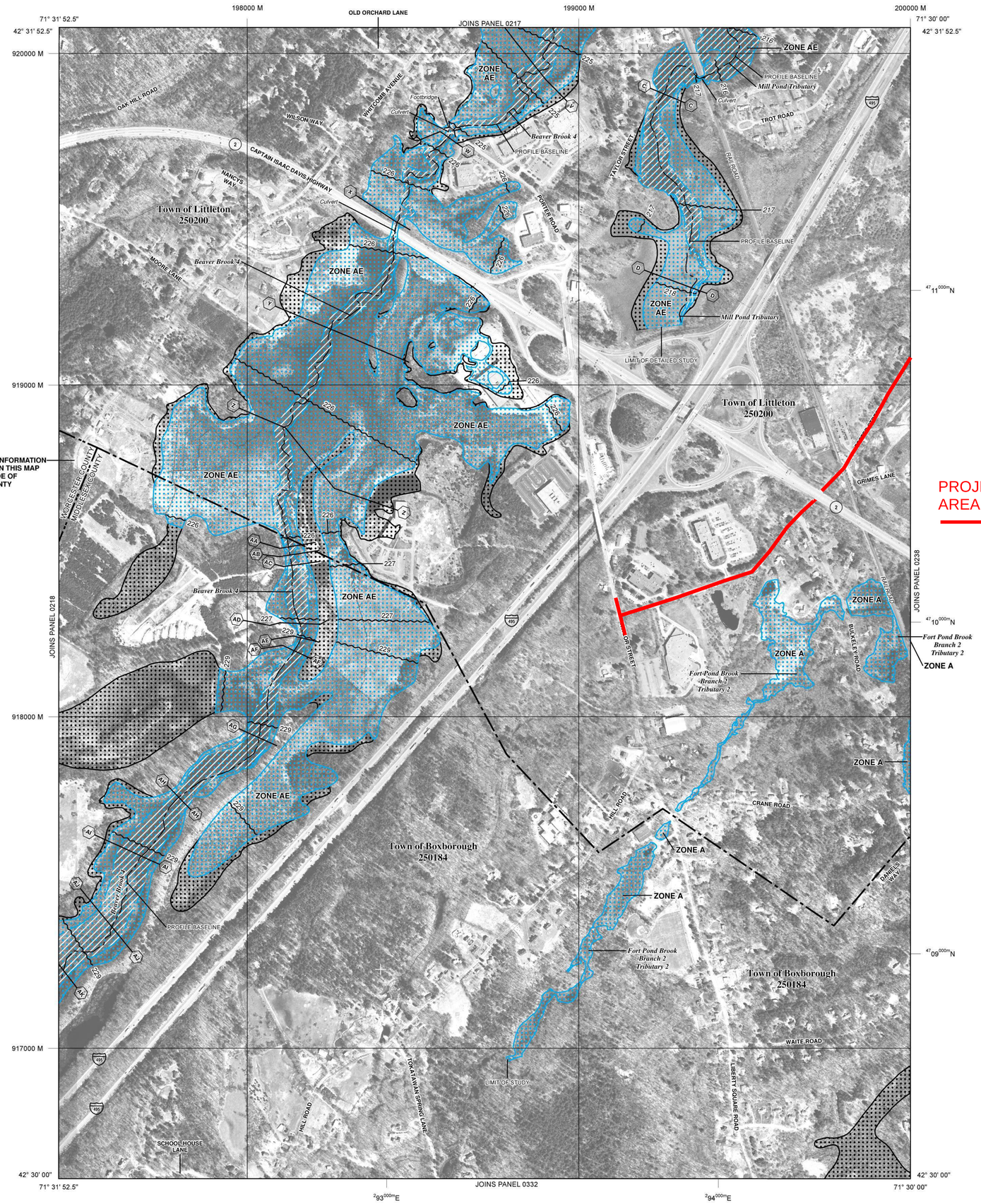
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 — 23	Transect line
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
4989000 M	1000-meter ticks: Massachusetts State Plane Mainland Zone (FIPS Zone 2001), Lambert Conformal Conic projection
$^{46}89^{000m}$N	1000-meter Universal Transverse Mercator grid values, zone 19
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 •	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 4, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

July 7, 2014 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0219F

FIRM

FLOOD INSURANCE RATE MAP

MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANEL 219 OF 656
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOXBOROUGH, TOWN OF	250184	0219	F
LITTLETON, TOWN OF	250200	0219	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
25017C0219F
MAP REVISED
JULY 7, 2014

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Massachusetts State Plane Mainland Zone (FIPS zone 2001). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from orthophotography provided by MassGIS at a scale of 1:500 from photography dated April 2008.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

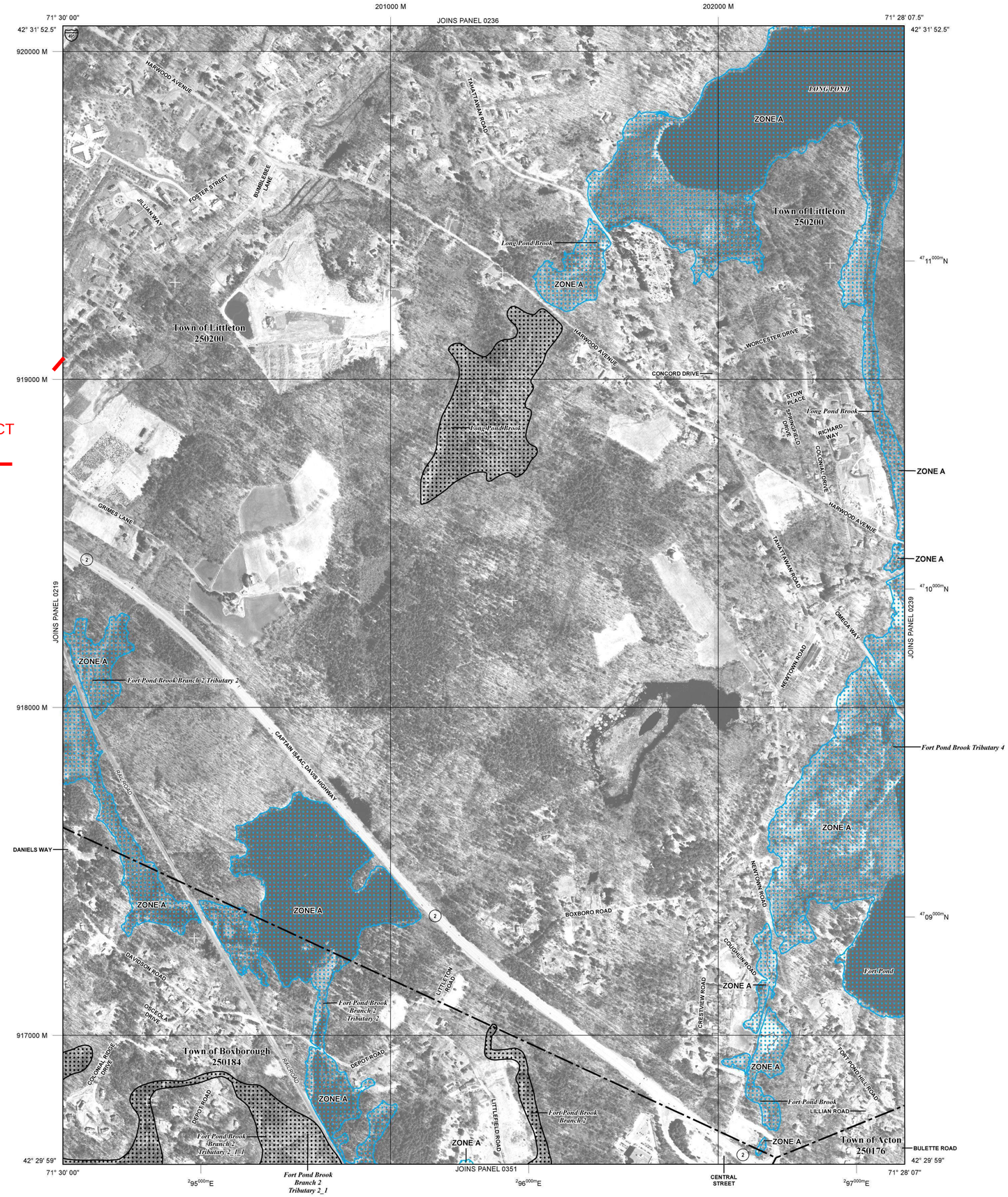
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



PROJECT AREA

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 — 23	Transect line
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
4989000 M	1000-meter ticks: Massachusetts State Plane Mainland Zone (FIPS Zone 2001), Lambert Conformal Conic projection
4689000m N	1000-meter Universal Transverse Mercator grid values, zone 19
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
June 4, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

July 7, 2014 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0238F

FIRM

FLOOD INSURANCE RATE MAP

MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANEL 238 OF 656
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ACTON, TOWN OF	250176	0238	F
BOXBOROUGH, TOWN OF	250184	0238	F
LITTLETON, TOWN OF	250200	0238	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
25017C0238F
MAP REVISED
JULY 7, 2014

Federal Emergency Management Agency

Appendix B

Project Plans

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	1	129
PROJECT FILE NO.	609054		

TITLE SHEET & INDEX

PLAN AND PROFILE OF

FOSTER STREET

(BRIDGE NO. L-13-017)

IN THE TOWN OF

LITTLETON

MIDDLESEX COUNTY

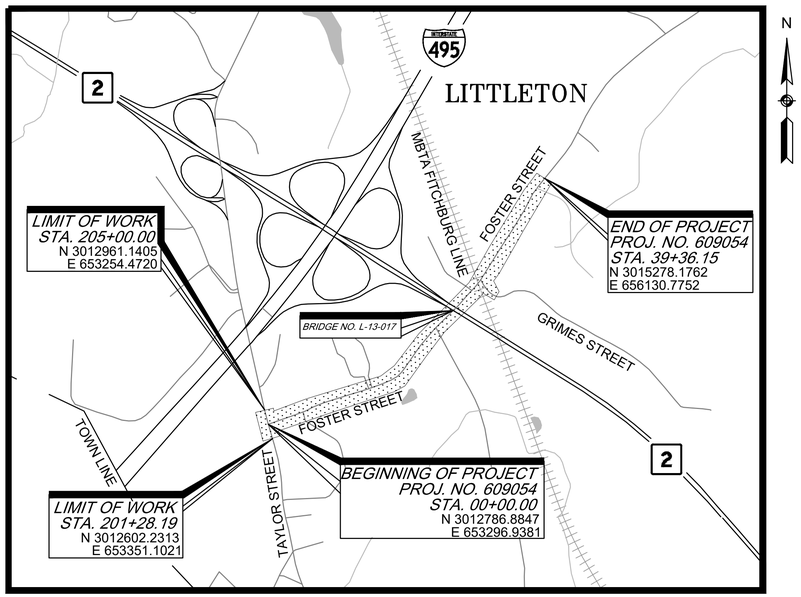
FEDERAL AID PROJECT NO. XXX-XXXX(XXX)X

PERMITTING PLAN SET
100% SUBMITTAL

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

INDEX

*NOT INCLUDED IN PERMITTING PLAN SET



LENGTH OF PROJECT = 3936.15 FEET = 0.745 MILES
(FOSTER STREET)

DESIGN DESIGNATION (FOSTER STREET)

DESIGN SPEED	35 MPH
ADT (2017)	2,100
ADT (2037)	2,562
K	12%
D	69% (NB)
T (PEAK HOUR)	0.9%
T (AVERAGE DAY)	5.5%
DHV	252
DDHV	174 (NB)
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR

NOT FOR CONSTRUCTION

DATE	DESCRIPTION	REV #
08-11-2023	NOI SUBMISSION	1
10-21-2022	100% SUBMISSION	1
11-18-2020	75% SUBMISSION	1
06-13-2019	25% SUBMISSION	1
03-14-2019	PRE-25% SUBMISSION	1

COMMONWEALTH OF MASSACHUSETTS
DANIEL F. DELANY
CIVIL
NO. 48477
REGISTERED PROFESSIONAL ENGINEER
5/22/2023

FUSS & O'NEILL
1550 MAIN STREET, SUITE 400
SPRINGFIELD, MA 01103
413.452.0445
www.fando.com

MassDOT Massachusetts Department of Transportation Highway Division

APPROVED

CHIEF ENGINEER _____ DATE _____

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER ON BRIDGE OR JERSEY BARRIER
CB		CATCH BASIN
CBCI		CATCH BASIN CURB INLET
LB		LEACHING BASIN
DI		DROP INLET
CONC. HDR		CONCRETE HEADWALL
STONE HDR		STONE HEADWALL
FP		FLAG POLE
GP		GAS PUMP
MB		MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL		WELL
EHH		ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C		CABLE MANHOLE
D		DRAINAGE MANHOLE
E		ELECTRIC MANHOLE
G		GAS MANHOLE
FT		MISC MANHOLE
S		SEWER MANHOLE
T		TELEPHONE MANHOLE
W		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY		TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB		UTILITY POLE W/ FIREBOX
UPDL		UTILITY POLE WITH DOUBLE LIGHT
ULT		UTILITY POLE W / 1 LIGHT
UPL		UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WF-#		WETLAND FLAG
WG	WG	WATER GATE
PM		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
100 99		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCE STONE WALL
		RETAINING WALL
		DOUBLE FACED WALL (CONCRETE OR MASONRY)
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
X	X	CHAIN LINK OR METAL FENCE
		WOOD FENCE (STOCKADE OR PICKET)
		WOOD RAIL FENCE
		EROSION CONTROL BARRIER
		TREE LINE OR LIMIT OF CLEARING AND GRUBBING
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
℄		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

TRAFFIC SIGNAL ABBREVIATIONS

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILE, ZOOM

TRAFFIC SIGNAL ABBREVIATIONS(cont.)

R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
OHW	OVERHEAD WIRE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	2	129
PROJECT FILE NO.	609054		

LEGEND & GENERAL NOTES

GENERAL NOTES:

1. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN SHOULD BE CONSIDERED APPROXIMATE. NO GUARANTEE TO THE ACCURACY OF THE EXISTING UTILITIES FACILITIES SHOWN IN THIS PROJECT IS EXPRESSED OR IMPLIED UNLESS OTHERWISE NOTED. CONTRACTOR SHALL CONTACT "Mass DIG-SAFE", 1-888-344-7233. CONTRACTOR SHALL MAINTAIN MARKINGS WHERE NEEDED DURING PROJECT. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION. THE CONTRACTOR SHALL VERIFY LOCATIONS OF UTILITIES AND SERVICE LATERALS PRIOR TO CONSTRUCTION. ANY CONFLICTS WITH LOCATIONS OF LIGHT POLES, TREES, ETC. SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION.
2. VERIZON UNDERGROUND TELEPHONE: THE PROPOSED UNDERGROUND TELEPHONE RELOCATIONS AS SHOWN ASSUMES INSUFFICIENT COVER DUE TO PROPOSED ROADWAY WORK. ACTUAL LIMITS OF PROPOSED UNDERGROUND TELEPHONE RELOCATIONS WILL BE DETERMINED IN THE FIELD BY TEST PITS. IF COVER CAN NOT BE ACHIEVED VERIZON PREFERS TO LOWER THE LINES IN PLACE.
3. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY LOCAL AND STATE APPROVALS AND PERMITS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF THE LOCAL AND STATE AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES REQUIRED FOR THIS WORK INCLUDING BUT NOT LIMITED TO TOWN SIDEWALK AND EXCAVATION PERMITS AND ASSOCIATED BONDING.
4. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES AND STRUCTURES. THOSE OF WHICH HAVE BEEN DAMAGED SHALL BE PROMPTLY REPAIRED TO EXISTING OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
5. THE ROADWAY IS TO BE GRADED SMOOTHLY AND EVENLY IN ACCORDANCE WITH THE GRADING AND TIE PLANS, PROFILE, AND CROSS SECTIONS. THE CONTRACTOR IS RESPONSIBLE FOR INSURING A POSITIVE DRAINAGE FLOW TO ALL CATCH BASINS WITHOUT CREATING ANY FLAT SPOTS THAT WILL RESULT IN STANDING WATER.
6. THE CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS TO REMOVE ANY PERSONAL ITEMS, PRIVATE SPRINKLER LINES/SYSTEMS, LANDSCAPING, PLANT BULBS, PAVERS LOCATED IN THE TEMPORARY EASEMENT, TOWN LAYOUT, AND MassDOT LAYOUT.
7. ANY PUBLIC OR PRIVATE PROPERTY DISTURBED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED AS QUICKLY AS POSSIBLE AND TO THE SATISFACTION OF THE ENGINEER.
8. RIM OR FRAME ELEVATIONS OF ALL UTILITY STRUCTURES SHALL BE ADJUSTED TO MEET FINISHED PAVED SURFACES. PRIVATE UTILITIES WHO ARE RESPONSIBLE FOR ADJUSTING THEIR OWN STRUCTURES SHALL BE NOTIFIED AT LEAST 2 WEEKS IN ADVANCE BY THE CONTRACTOR.
9. STAGING AREAS AND MATERIAL STOCK PILES SHALL BE LIMITED WITHIN THE SITE AND LOCATED SO AS NOT TO INTERFERE WITH PEDESTRIAN OR VEHICULAR TRAFFIC UNLESS APPROVED OTHERWISE BY THE MassDOT AND THE TOWN. THE CONTRACTOR SHALL PROVIDE SAFETY DEVICES (IF ORDERED BY THE ENGINEER) TO PROTECT STOCK PILES/WORK STAGING AREAS. IF THIS WORK IS SO ORDERED THERE WILL BE NO ADDITIONAL COMPENSATION MADE TO THE CONTRACTOR.
10. HOURS OF WORK SHALL BE DEFINED IN THE CONTRACT DOCUMENTS. THE MassDOT RESERVES THE RIGHT TO ADJUST THESE HOURS IN THE INTEREST OF PUBLIC SAFETY.
11. ACCESS TO PRIVATE PROPERTIES MUST BE MAINTAINED AT ALL TIMES. FOR SECURITY REASONS ALL PRIVATELY OWNED FENCING THAT IS TO BE REMOVED SHALL BE REPLACED WITHIN 72 HOURS OF REMOVAL.
12. INSTALL SEDIMENTATION AND EROSION CONTROL MEASURES PRIOR TO START OF CONSTRUCTION. EXISTING AND PROPOSED CATCH BASINS DOWNGRADE OF ALL WORK AREAS SHALL BE SURROUNDED BY EROSION CONTROL MEASURES DURING CONSTRUCTION.

ABBREVIATIONS (cont.)

GENERAL

PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE

ABBREVIATIONS (cont.)

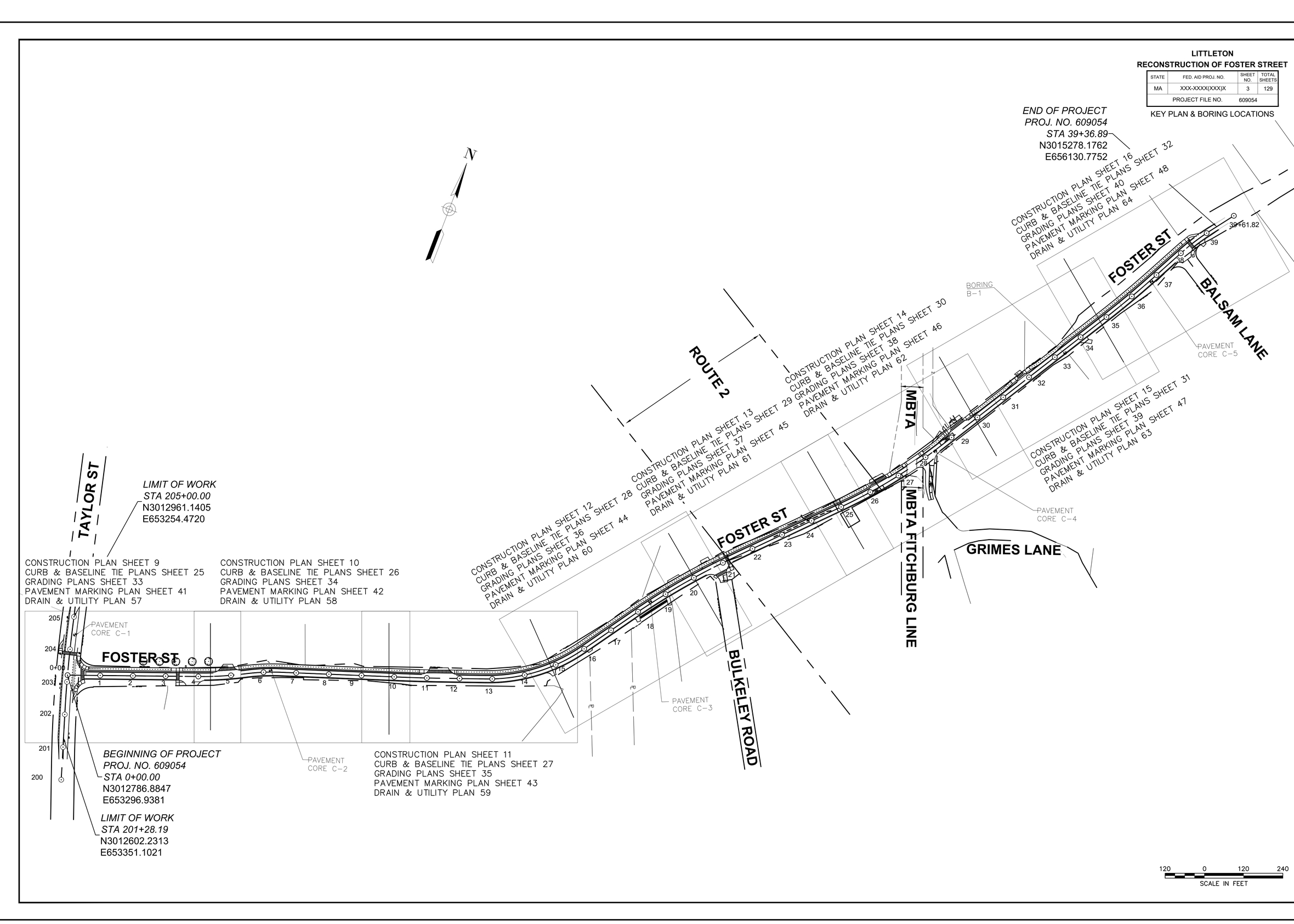
GENERAL

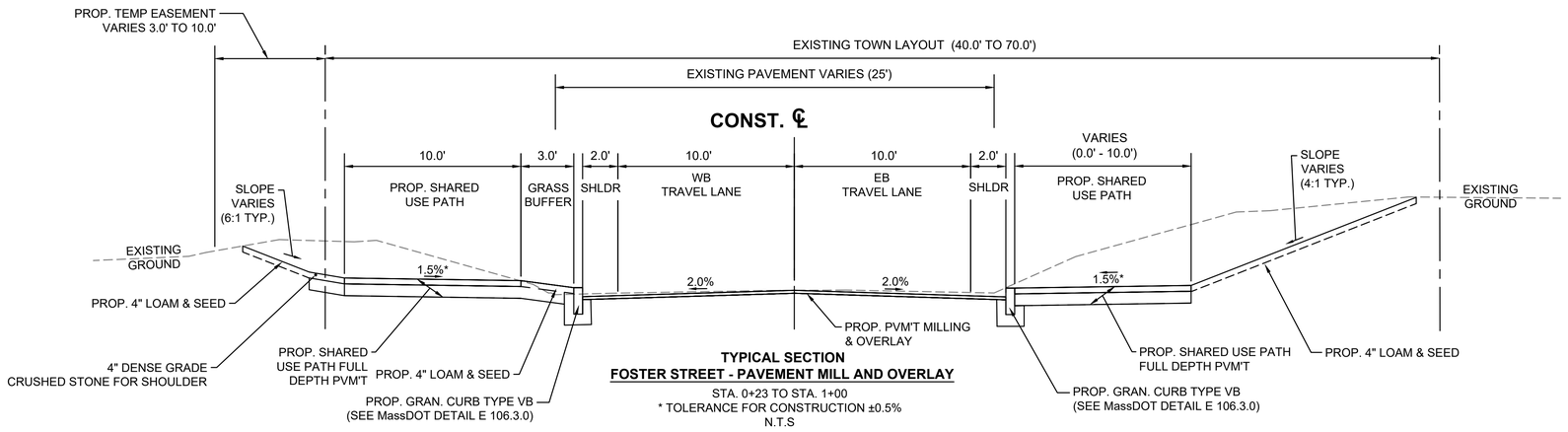
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

LITTLETON
RECONSTRUCTION OF FOSTER STREET

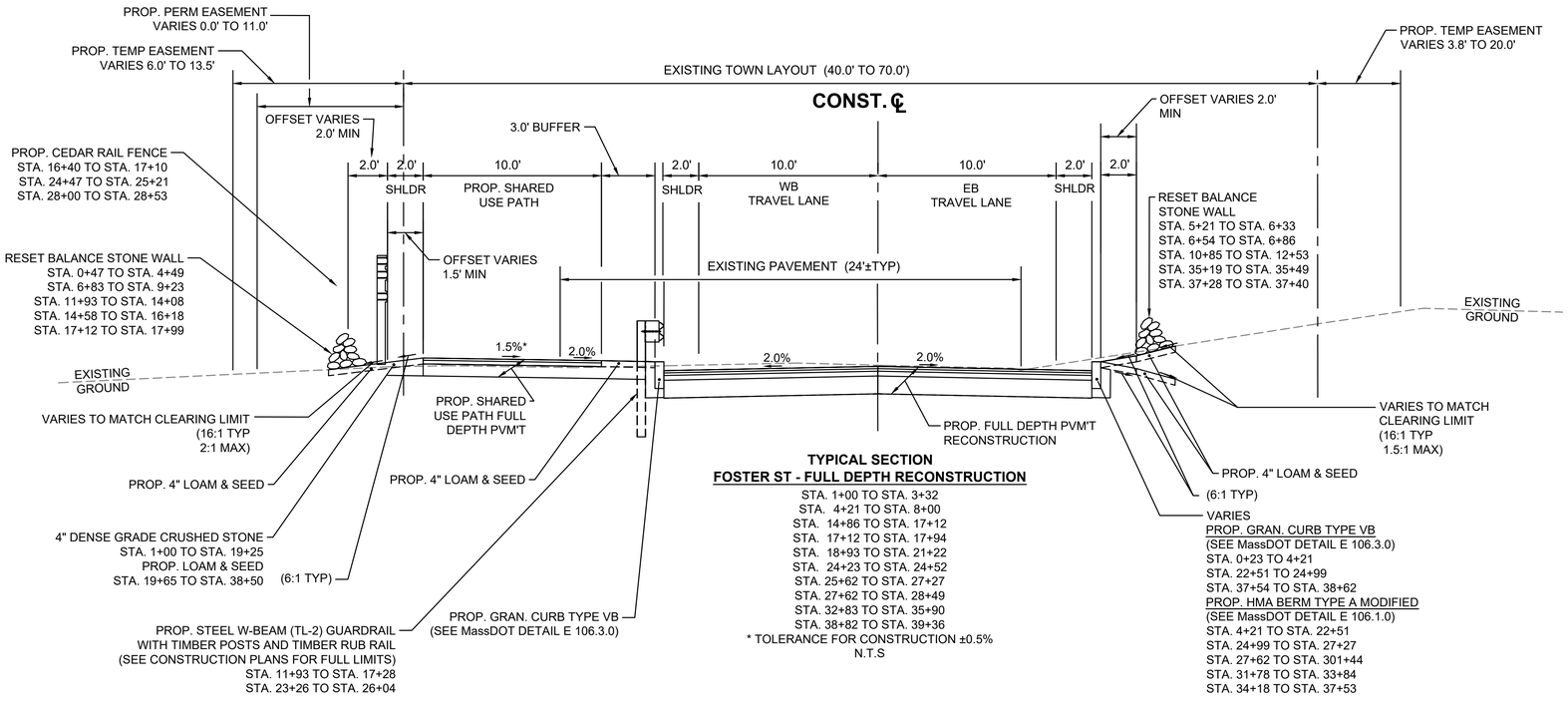
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	3	129
PROJECT FILE NO.	609054		

KEY PLAN & BORING LOCATIONS





TYPICAL SECTION
FOSTER STREET - PAVEMENT MILL AND OVERLAY
STA. 0+23 TO STA. 1+00
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 1+00 TO STA. 3+32
STA. 4+21 TO STA. 8+00
STA. 14+86 TO STA. 17+12
STA. 17+12 TO STA. 17+94
STA. 18+93 TO STA. 21+22
STA. 24+23 TO STA. 24+52
STA. 25+62 TO STA. 27+27
STA. 27+62 TO STA. 28+49
STA. 32+83 TO STA. 35+90
STA. 38+82 TO STA. 39+36
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	4	129
PROJECT FILE NO.	609054		

TYPICAL SECTIONS - FOSTER ST

PAVEMENT NOTES:

PROPOSED PAVEMENT MILLING AND OVERLAY - FOSTER STREET

1-1/2" PAVEMENT FINE MILLING
1-1/2" SUPERPAVE SURFACE COURSE - 9.5
MILLING TO BE VARIABLE DEPTH (INCREASING) AT PROJECT LIMITS TO MEET EXISTING GRADE ON TAYLOR ST
MILLING TO BE VARIABLE DEPTH (DECREASING) AT SAWCUT TRANSITION ON FOSTER ST EAST OF BALSAM LN

PROPOSED FULL DEPTH PAVEMENT RECONSTRUCTION

SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER
INTERMEDIATE: 1-3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 OVER
BASE: 4" SUPERPAVE BASE COURSE - 37.5 OVER
SUBBASE: 4" DENSE GRADED CRUSHED STONE
8 " GRAVEL BORROW, TYPE b

PROPOSED SHARED-USE PATH FULL DEPTH PAVEMENT

SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER
INTERMEDIATE: 2-1/2" SUPERPAVE INTERMEDIATE COURSE- 19.0 OVER
SUBBASE: 8" GRAVEL BORROW, TYPE b

PROPOSED HOT MIX ASPHALT SIDEWALK OR DRIVEWAY

SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER
2-1/2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5)
FOUNDATION: 8" GRAVEL BORROW, TYPE b.

PROPOSED CEMENT CONCRETE SIDEWALK

SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000psi, 3/4", 610
FOUNDATION: 8" GRAVEL BORROW, TYPE b.

PROPOSED CEMENT CONCRETE PEDESTRIAN CURB RAMP

SURFACE: 6" CEMENT CONCRETE
AIR ENTRAINED 4000psi, 3/4", 610
FOUNDATION: 8" GRAVEL BORROW, TYPE b.

NOTES: ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE APPLIED PER SECTION 450 QA OF THE SPECIAL PROVISIONS.

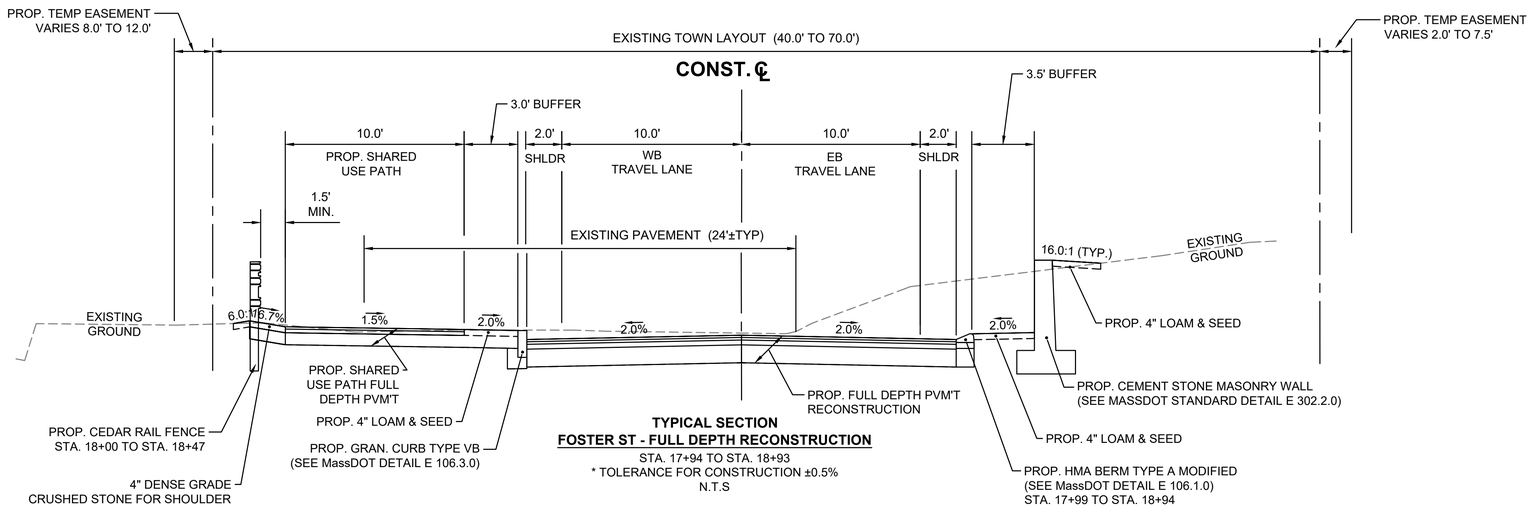
HMA FOR PATCHING SHALL BE USED FOR ALL PERMANENT, PARTIAL, AND FULL DEPTH PAVEMENT REPAIRS OF UNSOUND PAVEMENT PER SECTION 450 IN AREAS OUTSIDE OF PROPOSED FULL DEPTH RECLAMATION OR RECONSTRUCTION ROADWAY AREAS.

HMA FOR MISCELLANEOUS WORK SHALL BE USED FOR ALL TEMPORARY CONSTRUCTION, TAPER RAMPS, CURB CUT RAMPS, TEMPORARY TRENCH REPAIR, ETC.

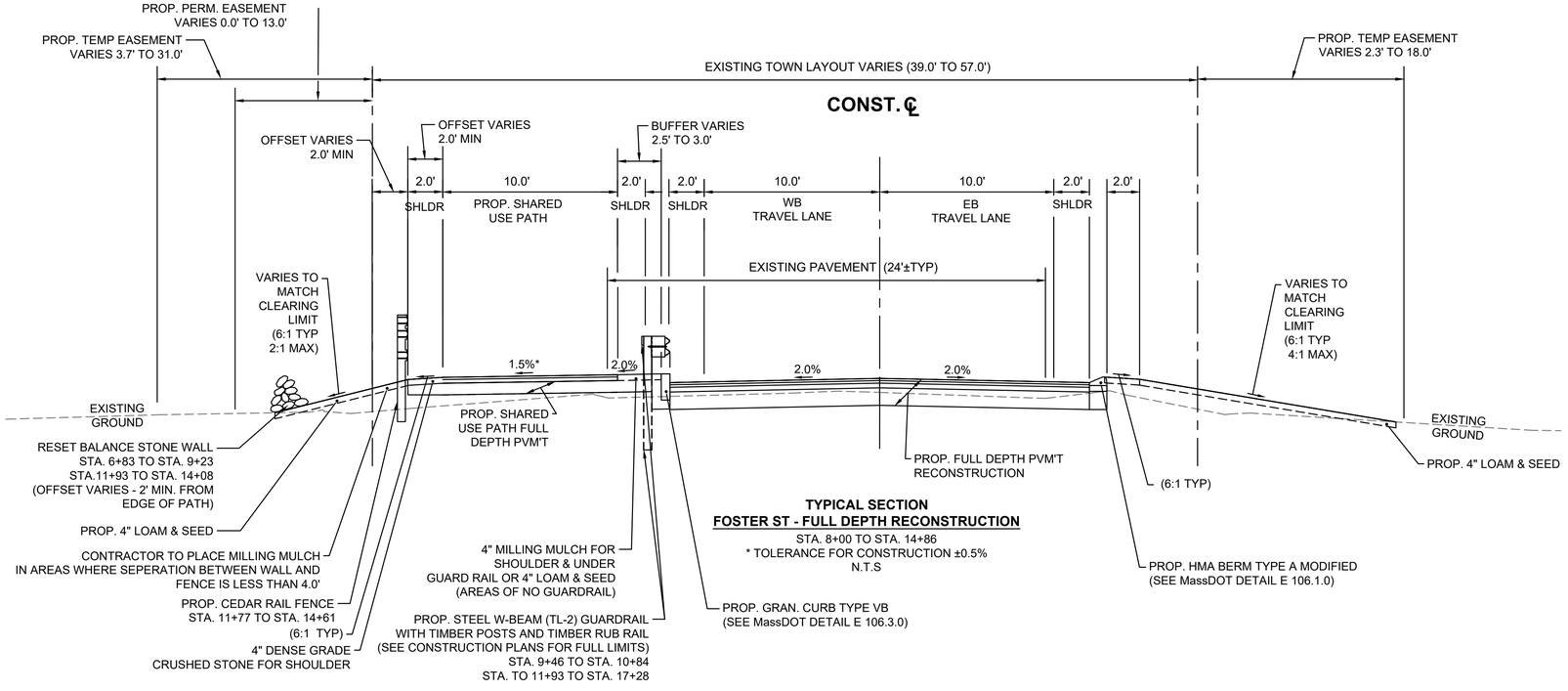
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	5	129
PROJECT FILE NO.	609054		

TYPICAL SECTIONS - FOSTER ST



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 17+94 TO STA. 18+93
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

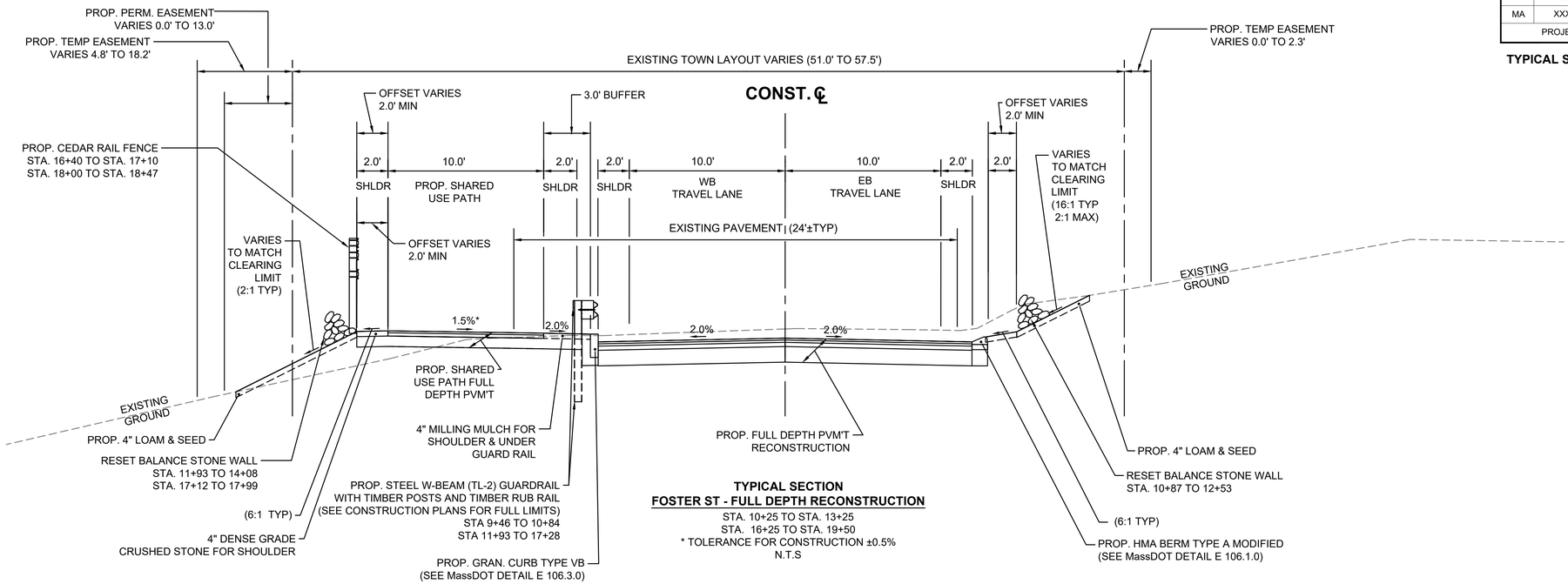


TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 8+00 TO STA. 14+86
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

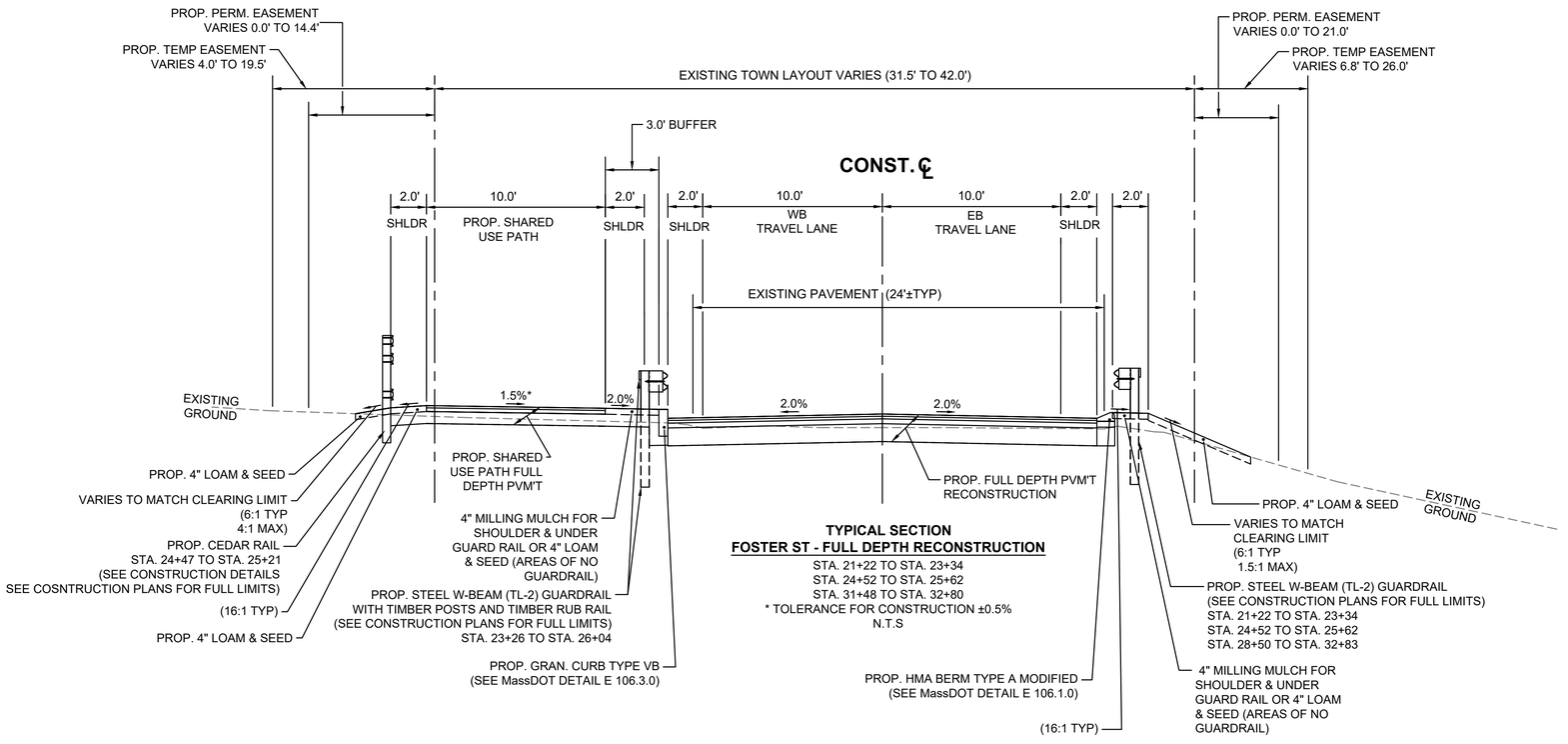
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	6	129
PROJECT FILE NO.	609054		

TYPICAL SECTIONS - FOSTER ST



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 10+25 TO STA. 13+25
STA. 16+25 TO STA. 19+50
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

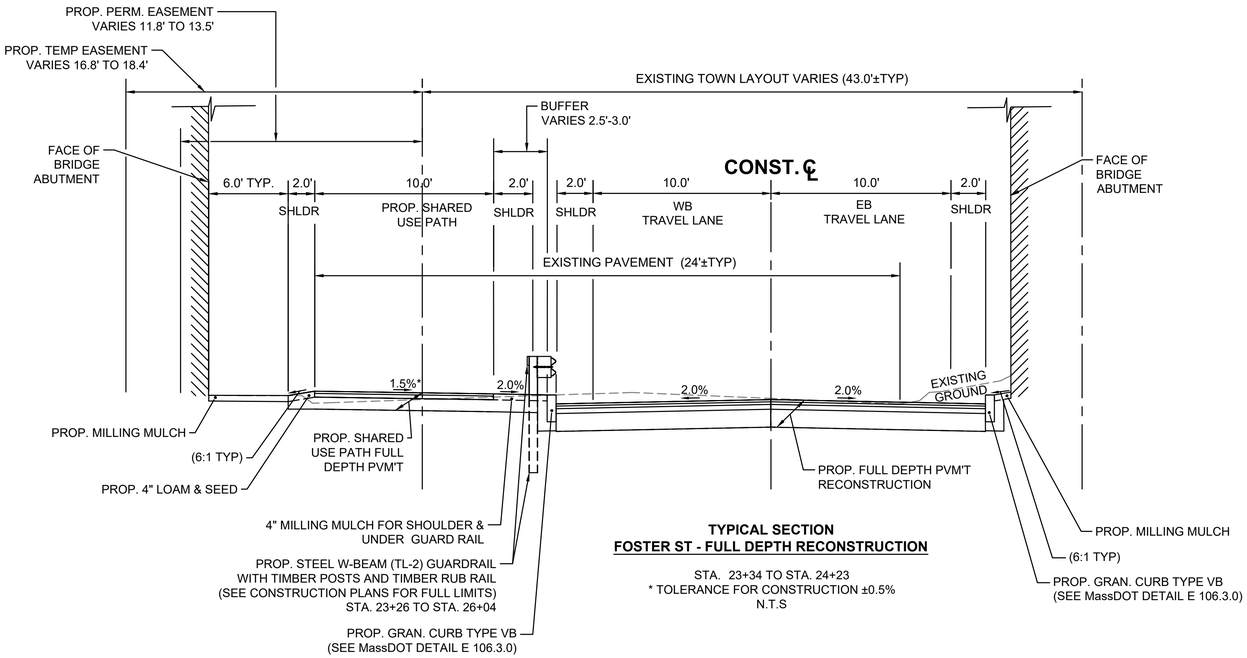


TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 21+22 TO STA. 23+34
STA. 24+52 TO STA. 25+62
STA. 31+48 TO STA. 32+80
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

LITTLETON
RECONSTRUCTION OF FOSTER STREET

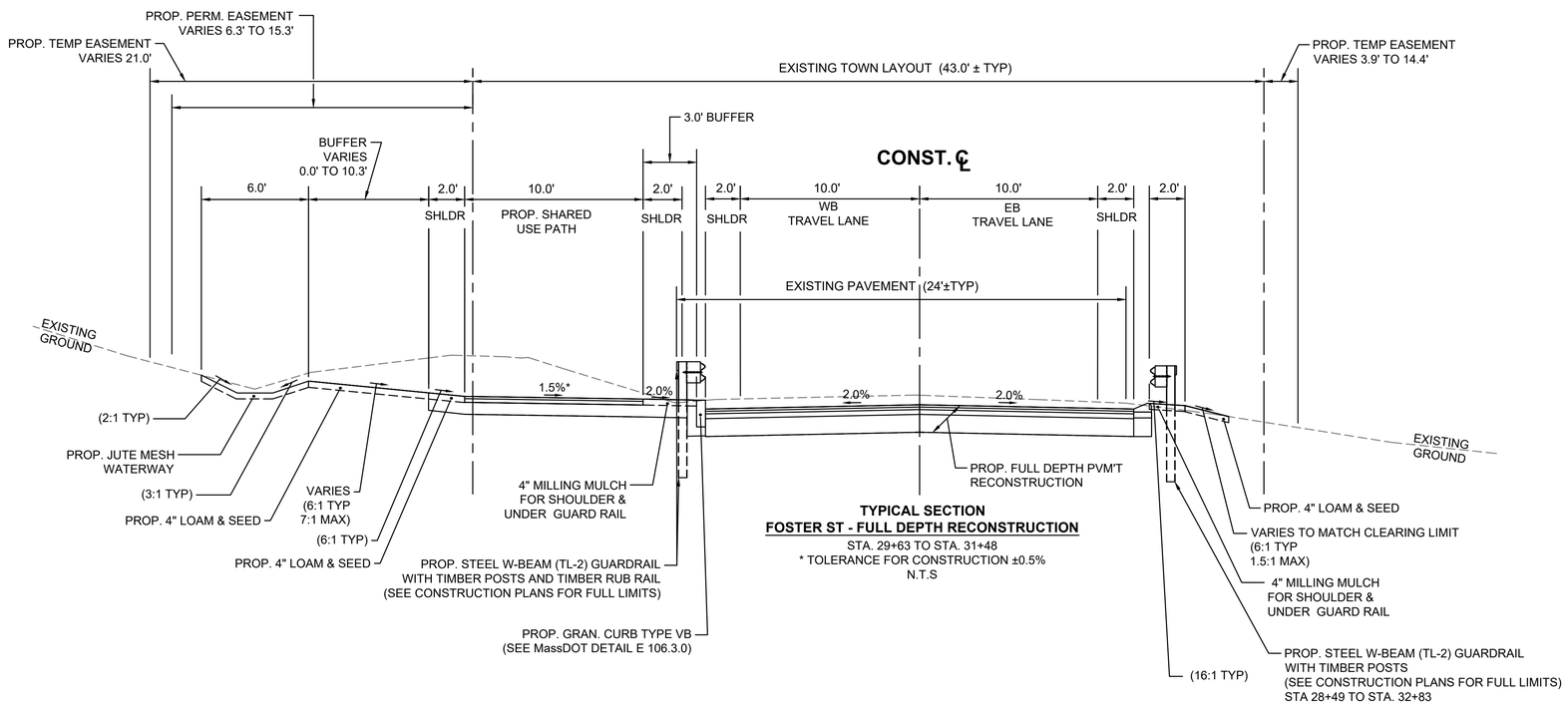
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	7	129
PROJECT FILE NO.	609054		

TYPICAL SECTIONS - FOSTER ST



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION

STA. 23+34 TO STA. 24+23
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



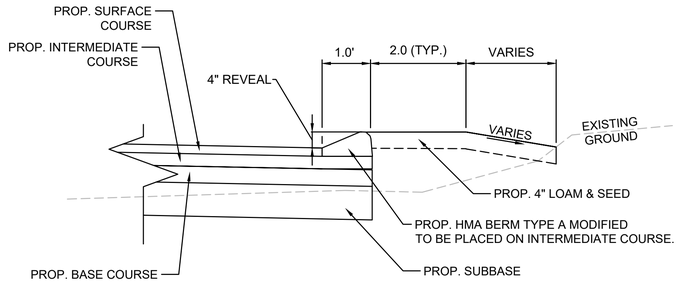
TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION

STA. 29+63 TO STA. 31+48
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

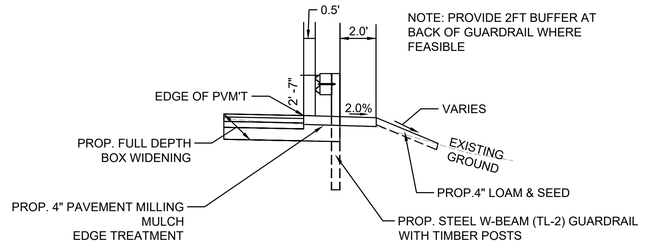
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	8	129
PROJECT FILE NO.	609054		

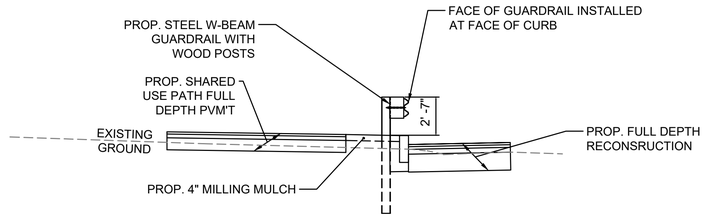
TYPICAL SECTIONS - FOSTER ST



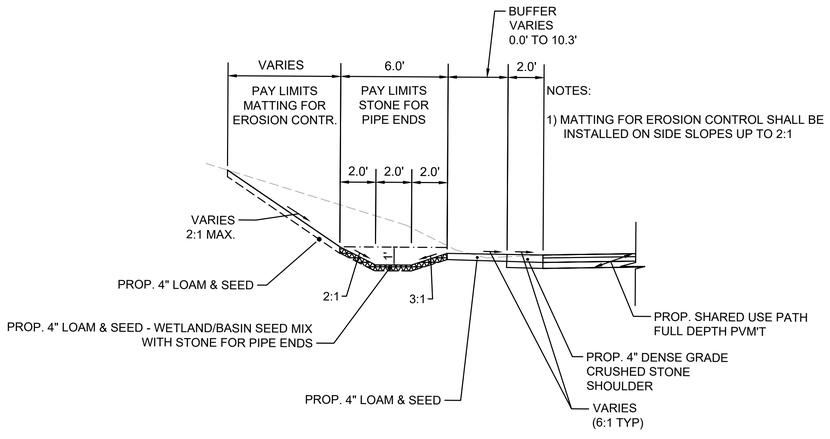
PROP. HMA BERM TYPE A MODIFIED PLACEMENT
SCALE: NTS



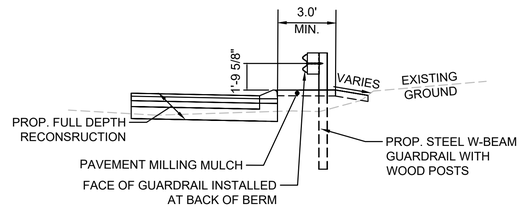
TYPICAL GUARDRAIL PLACEMENT
SCALE: NTS



TYPICAL GAURDRAIL PLACEMENT
AT GRANITE CURB TYPE VB
SCALE: NTS



GRASS SWALE WITH MODIFIED ROCK FILL
SCALE: NTS



TYPICAL GAURDRAIL PLACEMENT
AT HMA BERM TYPE A MODIFIED
SCALE: NTS

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

PROPOSED DRIVEWAY TYPE # DR#-#

NOTES:

1. ALL EXISTING GRANITE CURB WITHIN PROJECT LIMITS SHALL BE REMOVED & DISCARDED UNLESS OTHERWISE NOTED ON THE PLAN
2. FOR GUARDRAIL DETAILS REFER TO STANDARD DETAILS 400.1.2, 400.1.3, 400.1.4, 400.1.5, 400.1.6, AND 400.5.1
3. ALL PROPOSED GRANITE CURB SHALL BE TYPE VB.
4. PRIOR TO CONSTRUCTION ACTIVITIES, A SITE WALK SHALL BE CONDUCTED WITH CONTRACTOR, ENGINEER, AND LANDSCAPE ARCHITECT TO DETERMINE SELECTIVE CLEARING AND THINNING OF TREES.
5. ALL PROPOSED CLEARING AND GRUBBING IS SHOWN WITH THE PROPOSED SLOPE LINE UNLESS OTHERWISE SHOWN

LITTLETON

RECONSTRUCTION OF FOSTER STREET

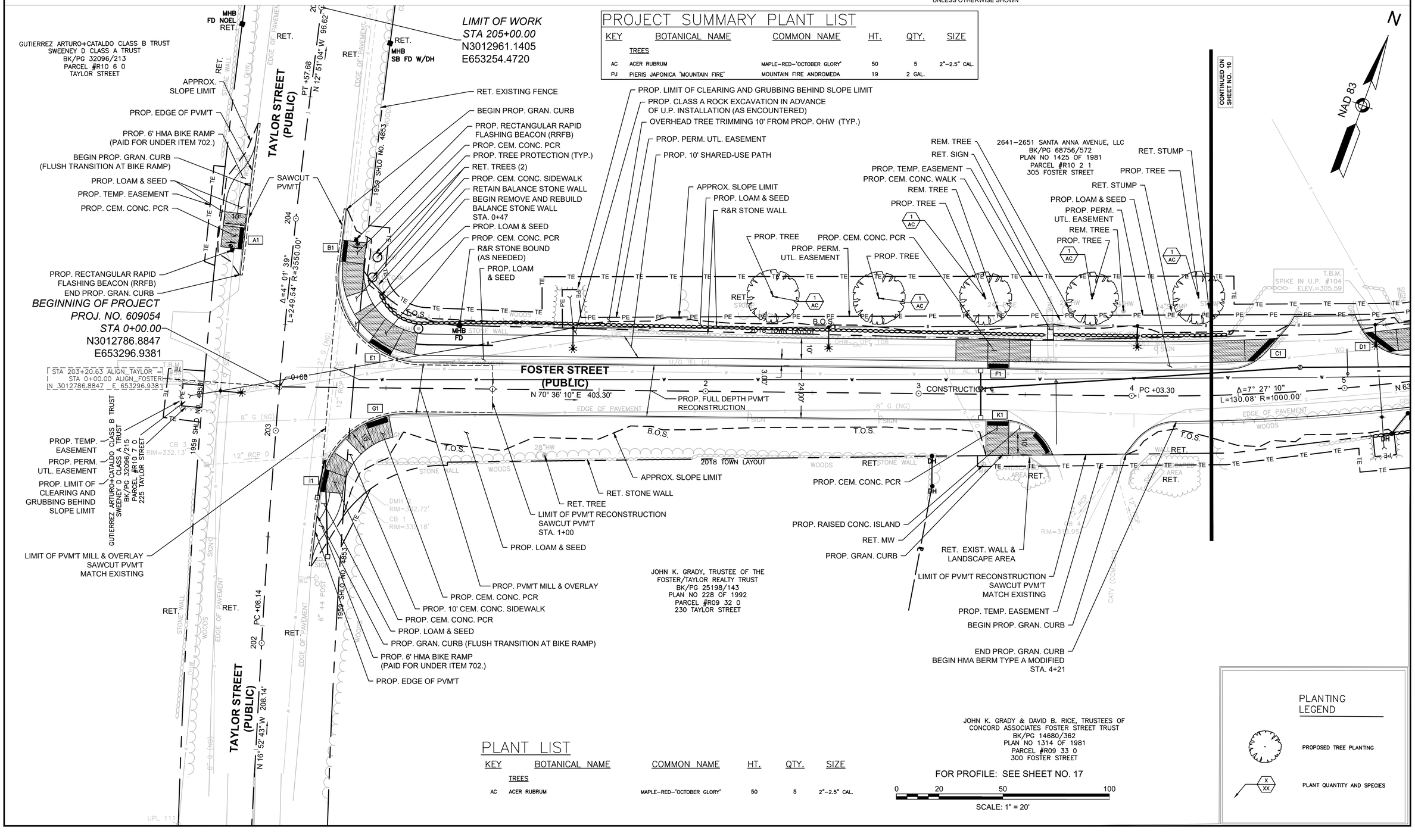
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	9	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS

20170044A21_HPN01.DWG Plotted on 19-Apr-2023 1:48 AM

PROJECT SUMMARY PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	HT.	QTY.	SIZE
	TREES				
AC	ACER RUBRUM	MAPLE-RED-'OCTOBER GLORY'	50	5	2"-2.5" CAL.
PJ	PIERIS JAPONICA 'MOUNTAIN FIRE'	MOUNTAIN FIRE ANDROMEDA	19	2 GAL.	



PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	HT.	QTY.	SIZE
	TREES				
AC	ACER RUBRUM	MAPLE-RED-'OCTOBER GLORY'	50	5	2"-2.5" CAL.

PLANTING LEGEND

PROPOSED TREE PLANTING

X
XX
PLANT QUANTITY AND SPECIES

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 9+46 LT TO TANGENT END STA 10+84 LT

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

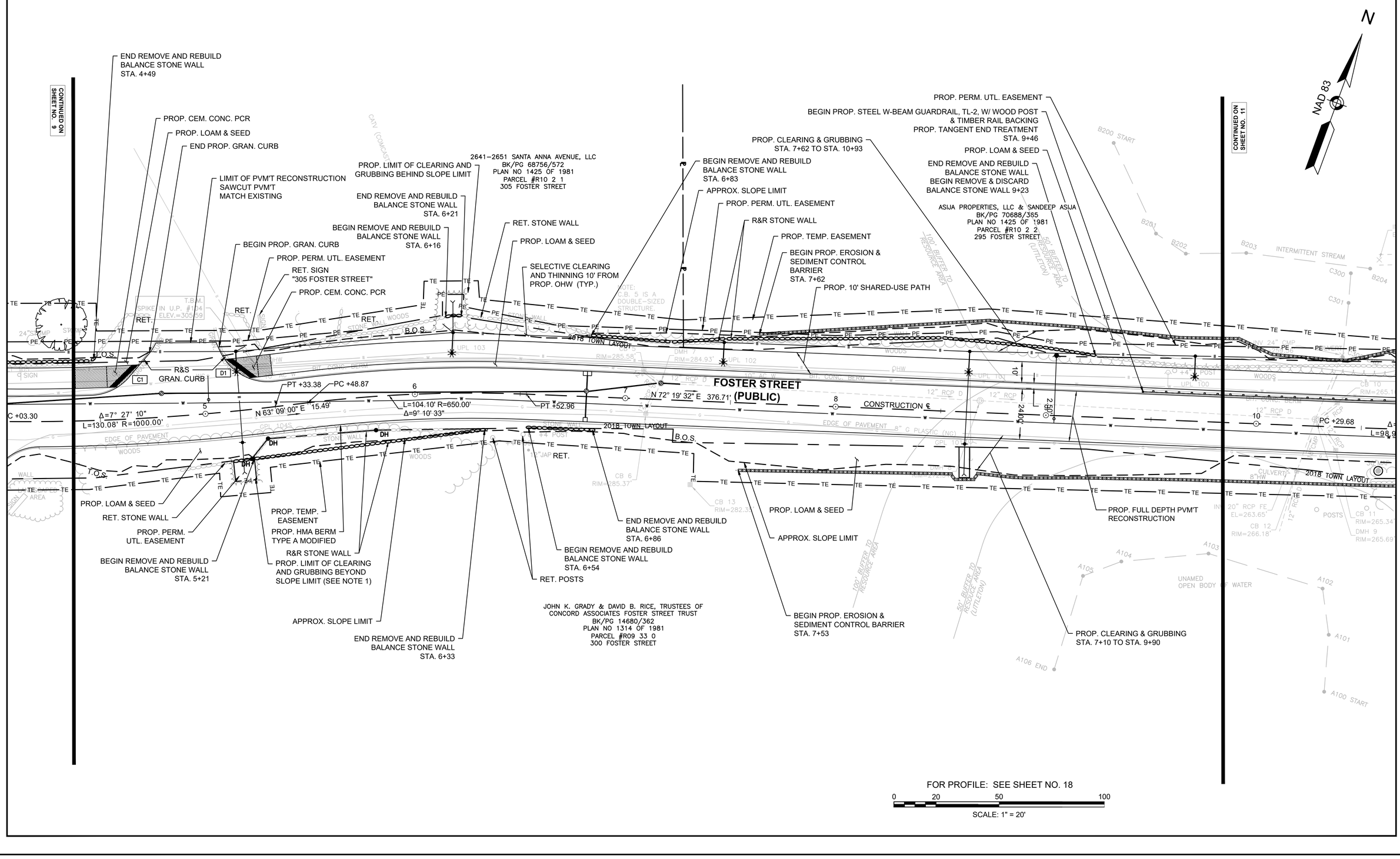
PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

PROPOSED DRIVEWAY TYPE # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	10	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



FOR PROFILE: SEE SHEET NO. 18

0 20 50 100

SCALE: 1" = 20'

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 9+46 LT TO TANGENT END STA 10+84 LT

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 11+94 LT TO TANGENT END STA 17+28 LT

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

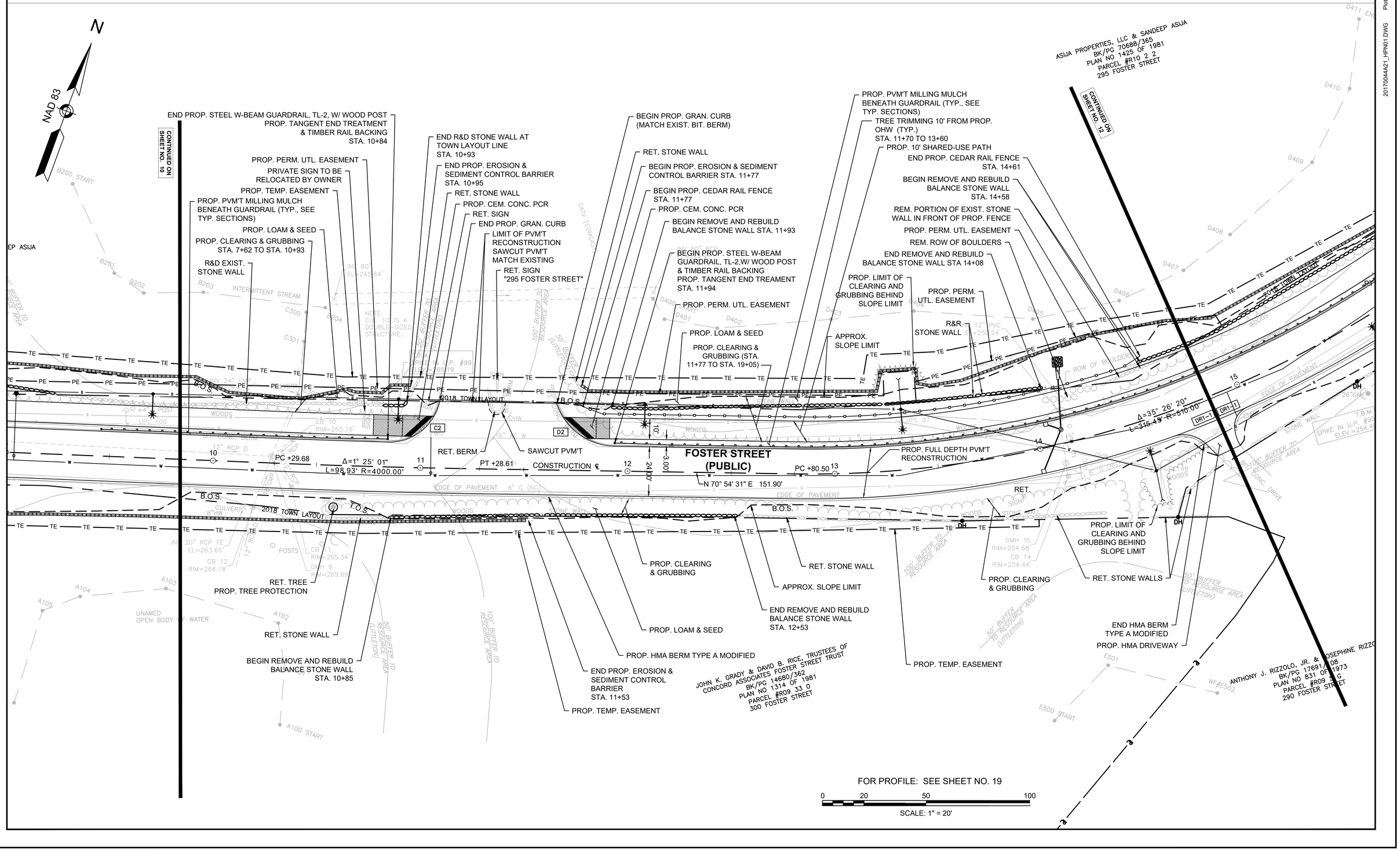
PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

PROPOSED DRIVEWAY TYPE # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	11	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



FOR PROFILE: SEE SHEET NO. 19

0 20 50 100

SCALE: 1" = 20'

HIGHWAY GUARD DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 11+94 TO TANGENT END STA 17+28	NONE	SEE SHEET 57-64	SEE SHEET NOS. 65-67

LEGEND:

PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

PROPOSED DRIVEWAY TYPE # DR#

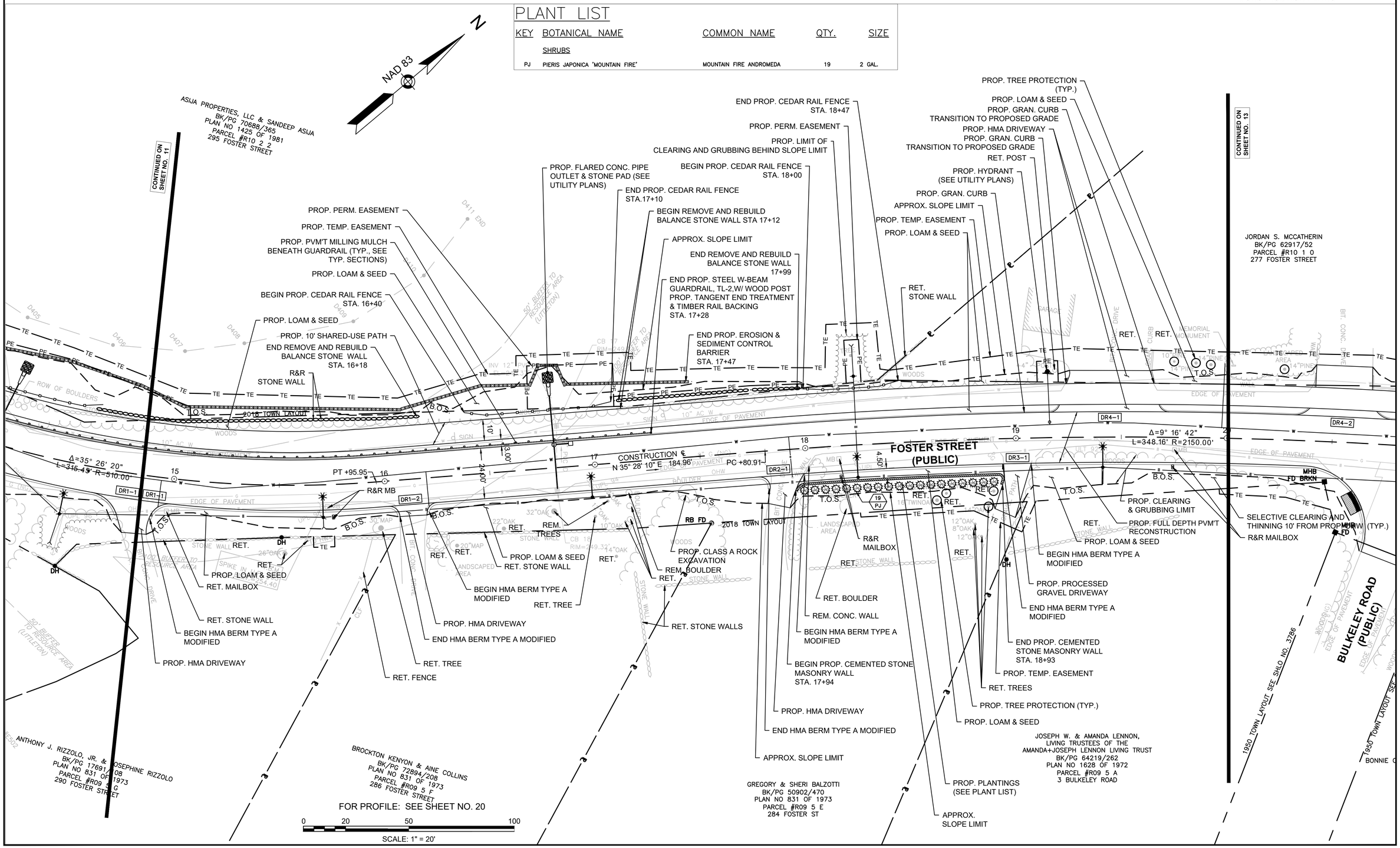
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	12	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE
	SHRUBS			
PJ	PIERIS JAPONICA 'MOUNTAIN FIRE'	MOUNTAIN FIRE ANDROMEDA	19	2 GAL.



HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 21+22 RT TO CONCRETE ABUTMENT STA 23+34 RT

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 23+26 LT TO TANGENT END STA 26+04 LT

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 24+52 RT TO TANGENT END STA 25+62 RT

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

TRAFFIC SIGNAL CONDUIT

NONE

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

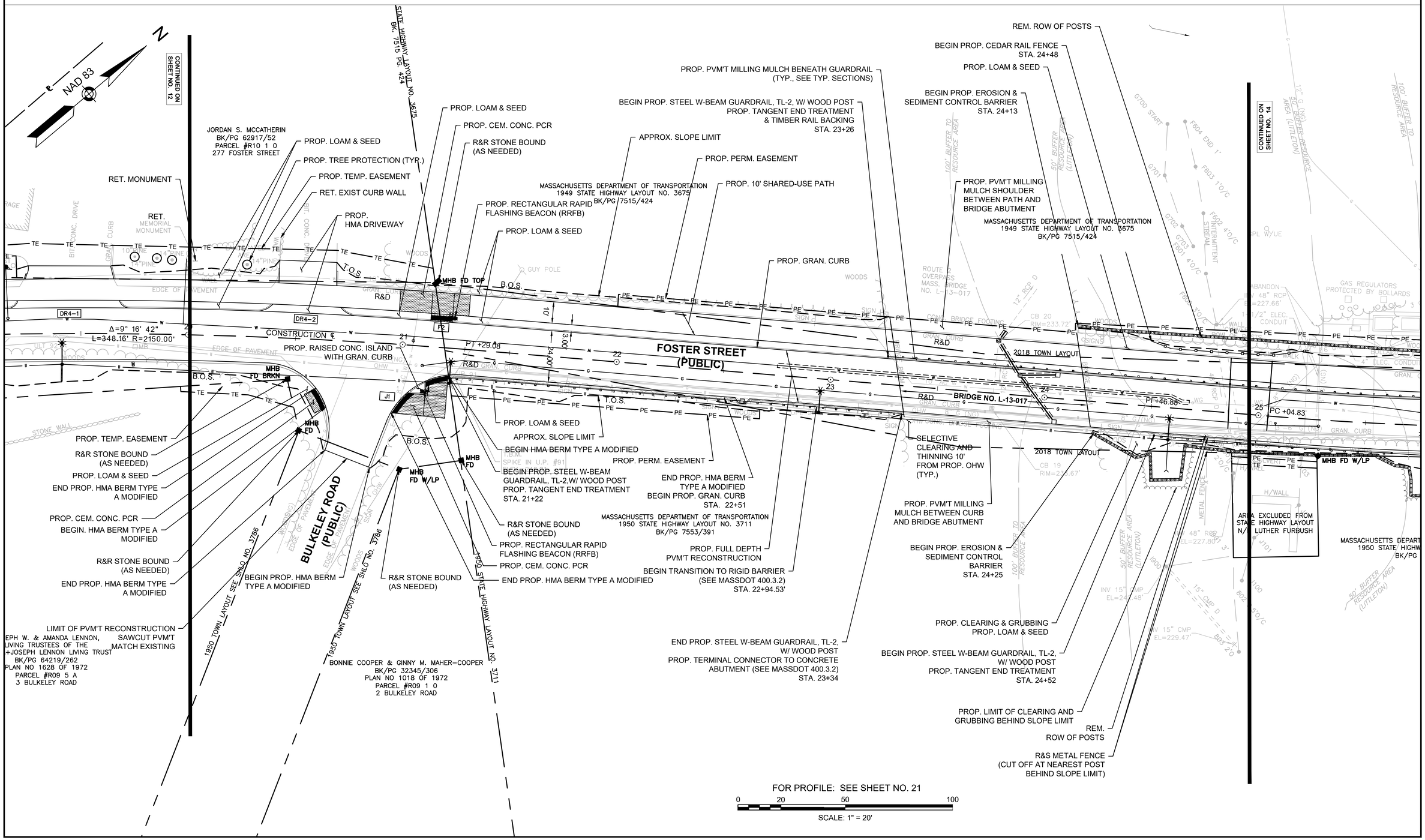
PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

PROPOSED DRIVEWAY TYPE # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	13	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 23+26 LT TO TANGENT END STA 26+04 LT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 24+52 RT TO TANGENT END STA 25+62 RT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 28+49 RT TO FLARED END STA 32+83 RT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 301+41 LT TO TANGENT END STA 300+48 LT

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

TRAFFIC SIGNAL CONDUIT

NONE

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

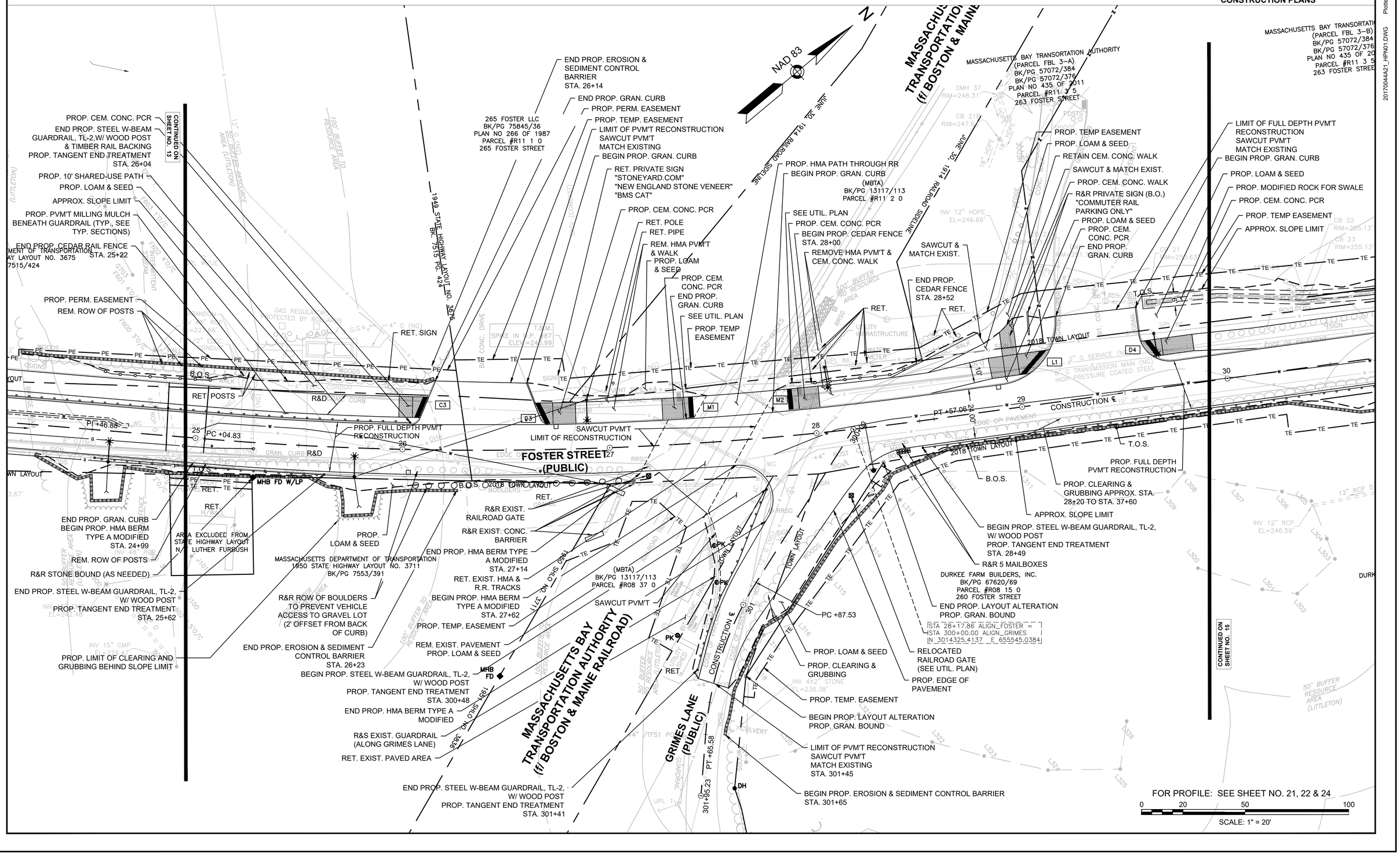
PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

PROPOSED DRIVEWAY TYPE # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	14	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 28+49 RT TO FLARED END STA 32+83 RT

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

TRAFFIC SIGNAL CONDUIT

NONE

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

PROPOSED DRIVEWAY TYPE # DR#

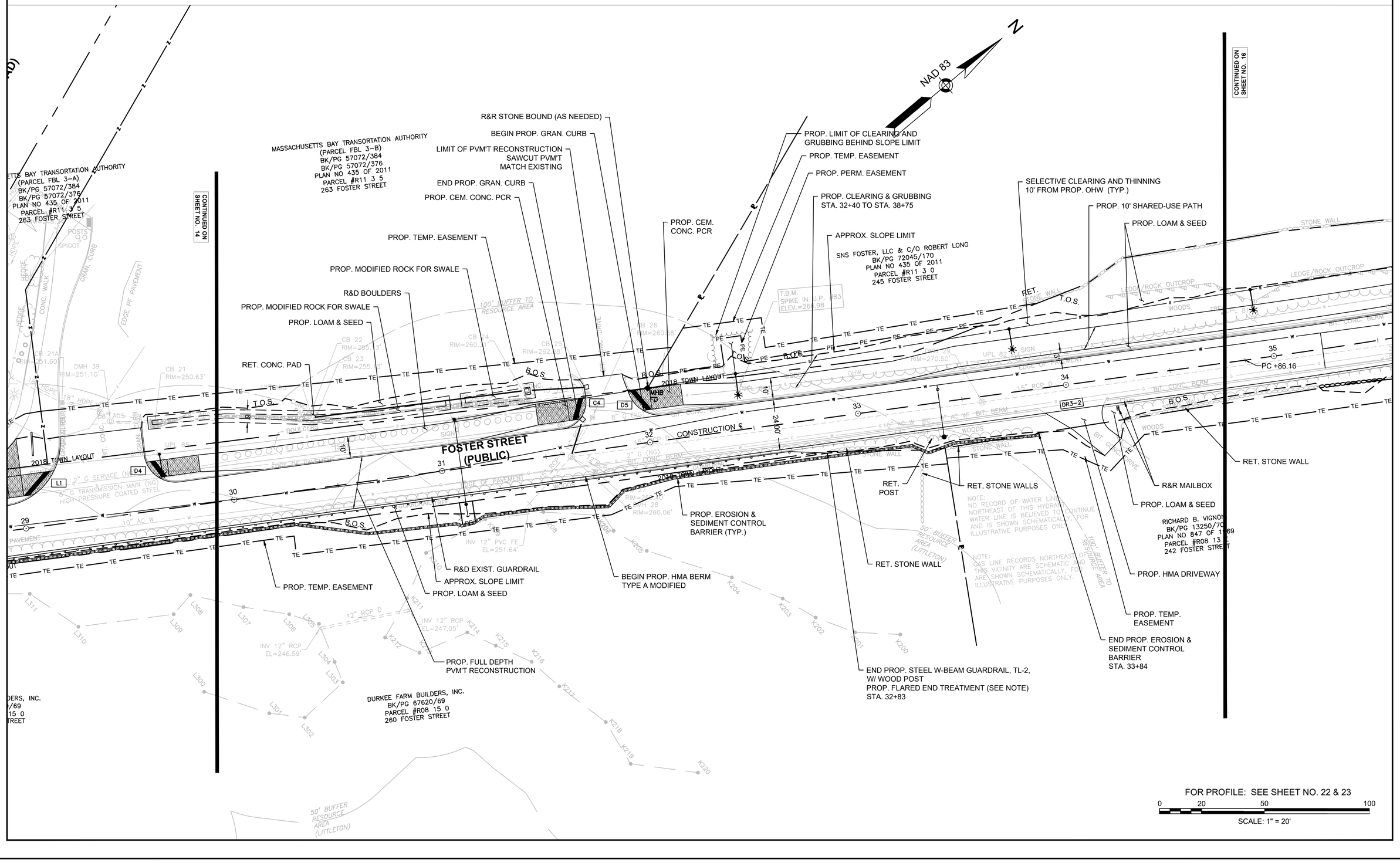
LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	15	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS

20170044A21_HPN01.DWG Plotted on 19-Apr-2023 1:49 AM



FOR PROFILE: SEE SHEET NO. 22 & 23

0 20 50 100

SCALE: 1" = 20'

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 35+90 RT

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

PROPOSED PEDESTRIAN CURB RAMP DETAIL # X#

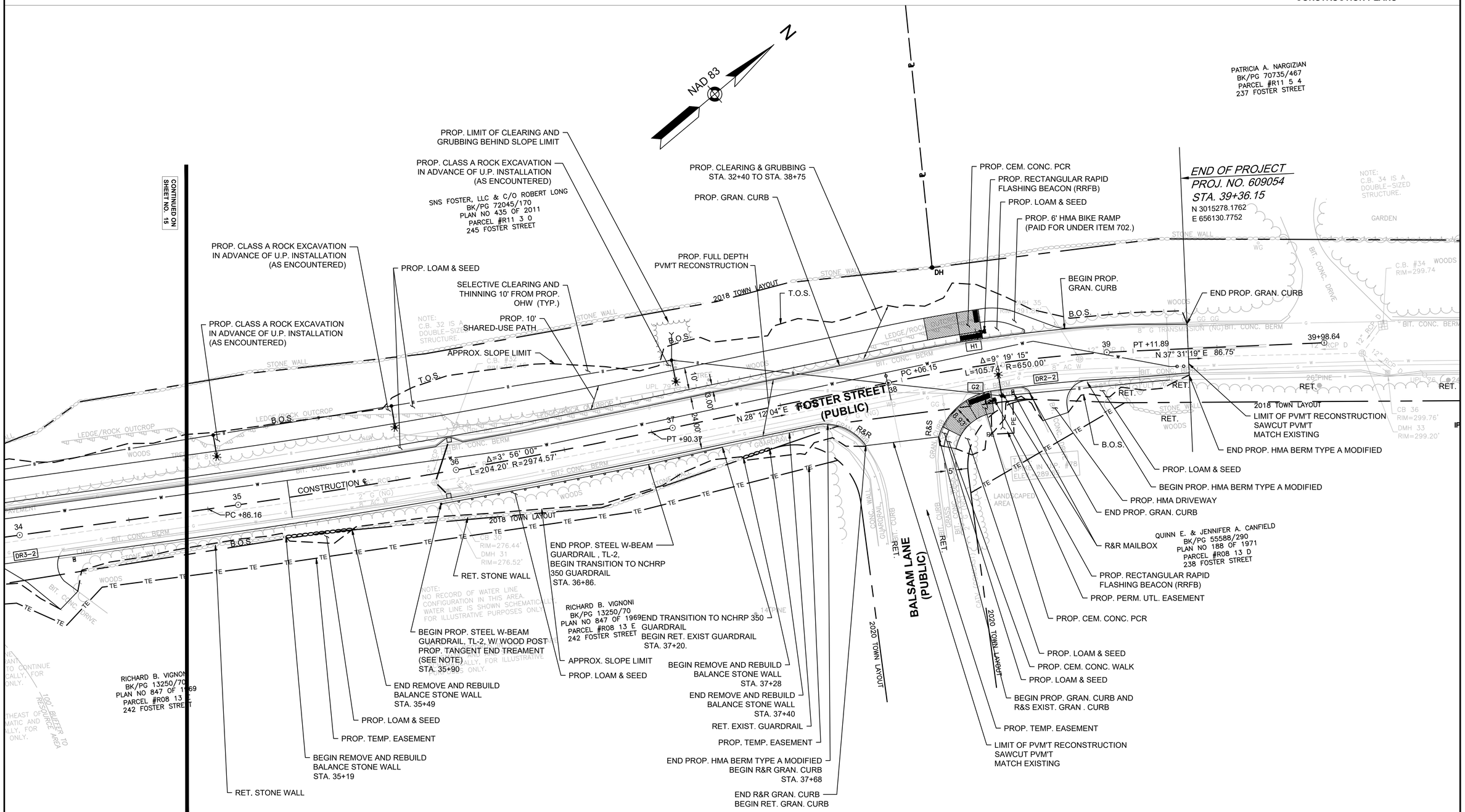
PROPOSED DRIVEWAY TYPE # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	16	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS

20170044A21_HPN01.DWG Plotted on 19-Apr-2023 1:49 AM



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E1	129
	PROJECT FILE NO. 609054		

ENVIRONMENTAL PLANS

20170044A21_HPN01 RDA SET.DWG Plotted on 19-Apr-2023 2:50 AM

LIMIT OF WORK
STA 205+00.00
N3012961.1405
E653254.4720

BEGINNING OF PROJECT
PROJ. NO. 609054
STA 0+00.00
N3012786.8847
E653296.9381

STA 203+20.63 ALIGN_TAYLOR = STA 0+00.00 ALIGN_FOSTER
N 3012786.8847 E 653296.9381

PROJECT SUMMARY PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	HT.	QTY.	SIZE
	TREES				
AC	ACER RUBRUM	MAPLE–RED–'OCTOBER GLORY'	50	5	2"–2.5" CAL.
PJ	PIERIS JAPONICA 'MOUNTAIN FIRE'	MOUNTAIN FIRE ANDROMEDA	19	2 GAL.	

ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK
- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

GUTIERREZ ARTURO+CATALDO CLASS B TRUST
SWEENEY D CLASS A TRUST
BK/PG 32096/213
PARCEL #R10 6 0
TAYLOR STREET

2641–2651 SANTA ANNA AVENUE, LLC
BK/PG 68756/572
PLAN NO 1425 OF 1981
PARCEL #R10 2 1
305 FOSTER STREET

JOHN K. GRADY, TRUSTEE OF THE
FOSTER/TAYLOR REALTY TRUST
BK/PG 25198/143
PLAN NO 228 OF 1992
PARCEL #R09 32 0
230 TAYLOR STREET

GUTIERREZ ARTURO+CATALDO CLASS B TRUST
SWEENEY D CLASS A TRUST
BK/PG 32096/215
PARCEL #R10 7 0
225 TAYLOR STREET

JOHN K. GRADY & DAVID B. RICE, TRUSTEES OF
CONCORD ASSOCIATES FOSTER STREET TRUST
BK/PG 14680/362
PLAN NO 1314 OF 1981
PARCEL #R09 33 0
300 FOSTER STREET

CONTINUED ON SHEET NO. 10

FOR PROFILE: SEE SHEET NO. 17

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	HT.	QTY.	SIZE
	TREES				
AC	ACER RUBRUM	MAPLE–RED–'OCTOBER GLORY'	50	5	2"–2.5" CAL.

PLANTING LEGEND

- PROPOSED TREE PLANTING
- PLANT QUANTITY AND SPECIES

SCALE: 1" = 20'

ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK

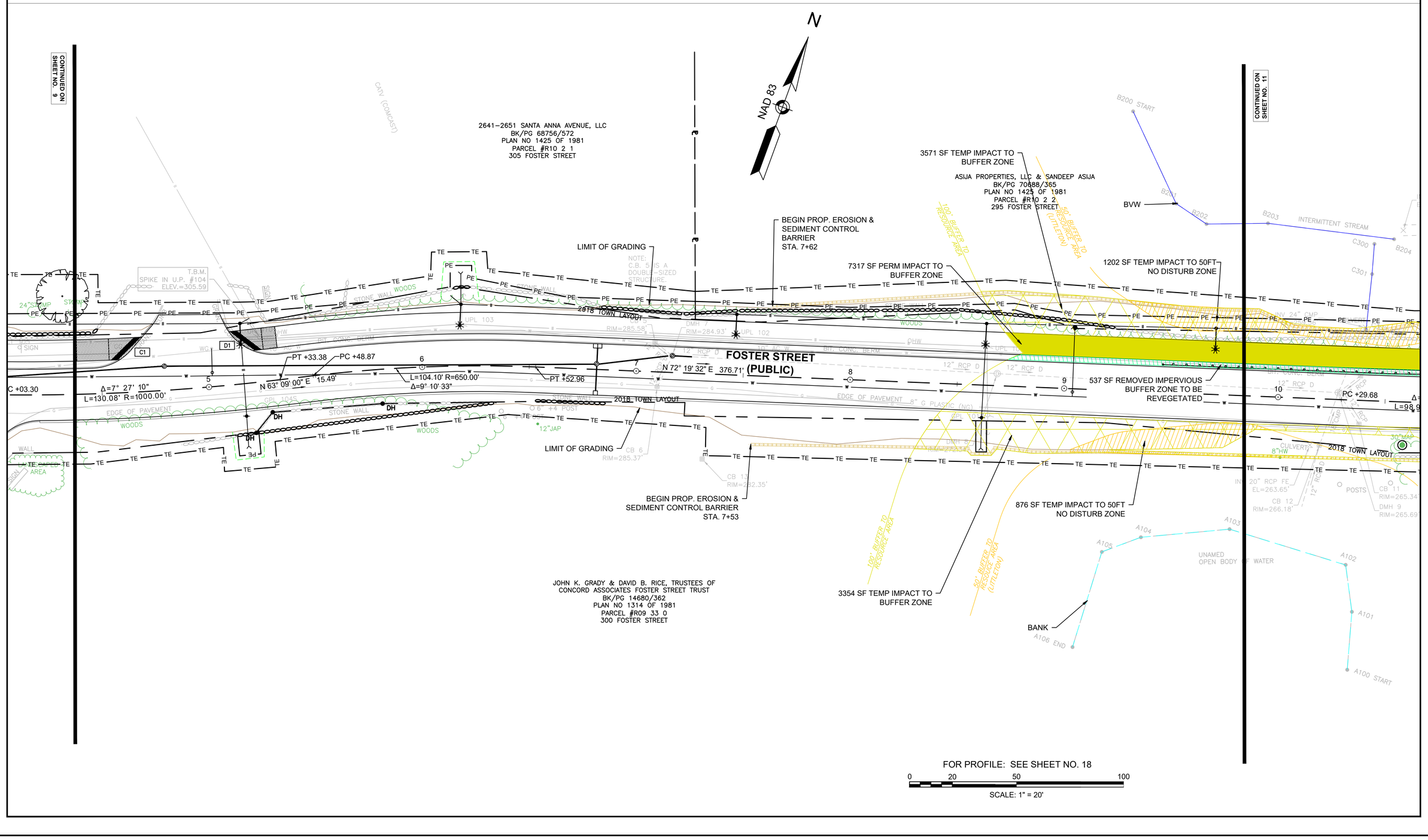
- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E2	129
PROJECT FILE NO.	609054		

ENVIRONMENTAL PLANS

20170044A21_HPN01 RDA SET.DWG Plotted on 19-Apr-2023 2:50 AM



ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK
- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E3	129
PROJECT FILE NO.		609054	

ENVIRONMENTAL PLANS

Plotted on 19-Apr-2023 2:50 AM
2017004A21_HPN01 RDA SET.DWG

N
NAD 83
CONTINUED ON SHEET NO. 10
CONTINUED ON SHEET NO. 12
ASIJA PROPERTIES, BK/PG 70688/ PLAN NO 1425 OF 1981 PARCEL #R10 2 2 295 FOSTER STREET
EP ASIJA
B200 START
BVW
INTERMITTENT STREAM
3571 SF TEMP IMPACT TO BUFFER ZONE
1202 SF TEMP IMPACT TO 50FT NO DISTURB ZONE
END PROP. EROSION & SEDIMENT CONTROL BARRIER STA. 10+95
7317 SF PERM IMPACT TO BUFFER ZONE
BEGIN PROP. EROSION & SEDIMENT CONTROL BARRIER STA. 11+77
8030 SF TEMP IMPACT TO BUFFER ZONE
5612 SF TEMP IMPACT TO 50FT NO DISTURB ZONE
333 SF PERM IMPACT TO 50FT NO DISTURB ZONE
LIMIT OF GRADING
1769 SF PERM IMPACT TO 50FT NO DISTURB ZONE
356 SF REMOVED IMPERVIOUS 50FT NO DISTURB ZONE TO BE REVEGETATED
2018 TOWN LAYOUT
2015 TOWN LAYOUT
537 SF REMOVED IMPERVIOUS BUFFER ZONE TO BE REVEGETATED
Δ=1° 25' 01" L=98.93' R=4000.00'
PT +28.61
7317 SF PERM IMPACT TO BUFFER ZONE
FOSTER STREET (PUBLIC)
PC +80.50
N 70° 54' 31" E 151.90'
611 SF REMOVED IMPERVIOUS BUFFER ZONE TO BE REVEGETATED
Δ=35° 26' 20" L=315.45' R=510.00'
EDGE OF PAVEMENT
STONE WALL
WOODS
876 SF TEMP IMPACT TO 50FT NO DISTURB ZONE
3354 SF TEMP IMPACT TO BUFFER ZONE
END PROP. EROSION & SEDIMENT CONTROL BARRIER STA. 11+53
2762 SF TEMP IMPACT TO BUFFER ZONE
LIMIT OF GRADING
BANK
UNAMED OPEN BODY OF WATER
50' BUFFER TO RESOURCE AREA (LITTLETON)
100' BUFFER TO RESOURCE AREA
JOHN K. GRADY & DAVID B. RICE, TRUSTEES OF CONCORD ASSOCIATES FOSTER STREET TRUST BK/PG 14680/362 PLAN NO 1314 OF 1981 PARCEL #R09 33 0 300 FOSTER STREET
ANTHONY J. RIZZOLO, JR. & JOSEPHINE RIZZOLO BK/PG 17691/ PLAN NO 831 OF 1973 PARCEL #R09 G 290 FOSTER STREET
BVW
E500 START

FOR PROFILE: SEE SHEET NO. 19

0 20 50 100
SCALE: 1" = 20'

ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK
- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

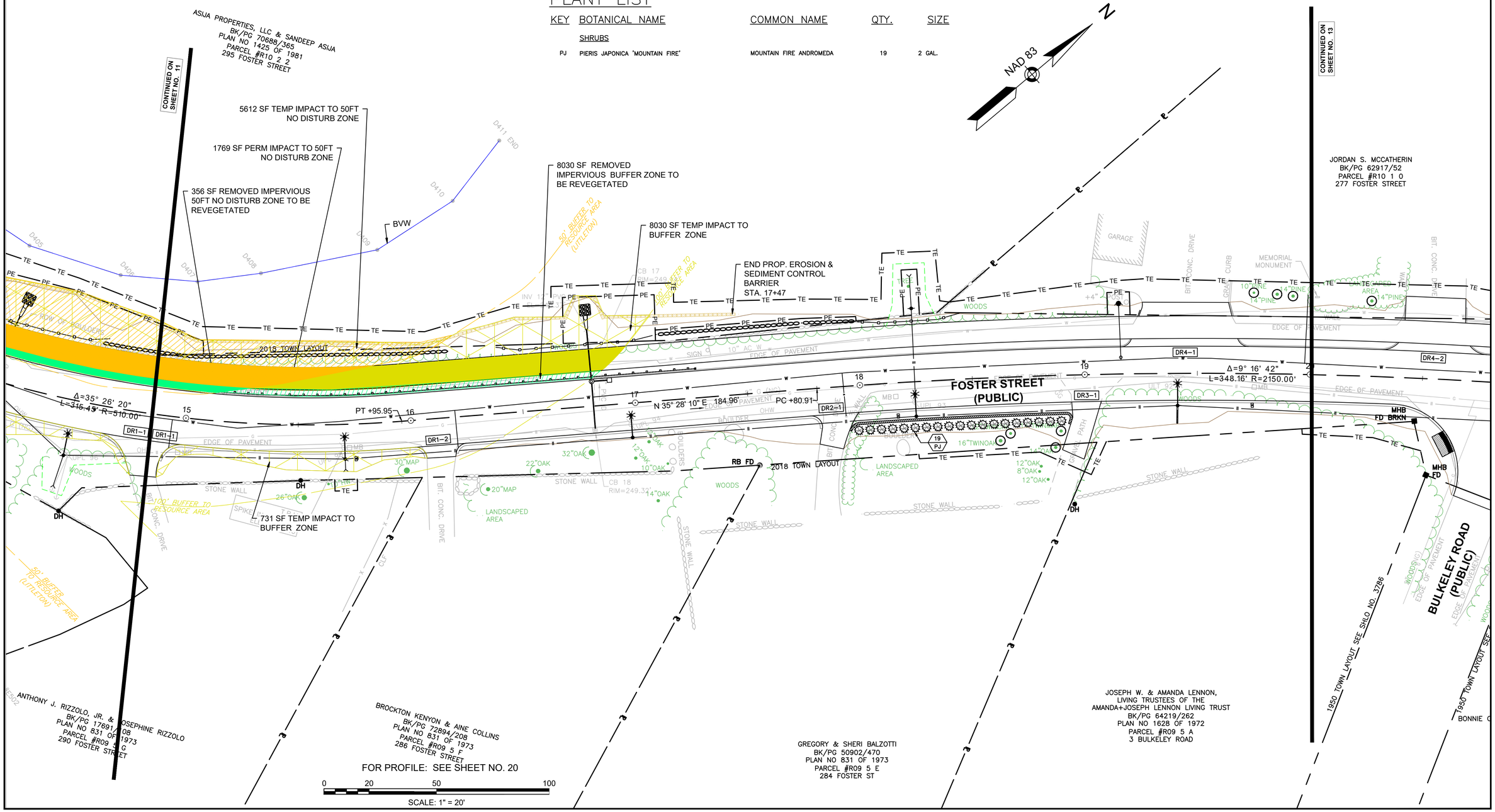
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E4	129
PROJECT FILE NO.	609054		

ENVIRONMENTAL PLANS

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE
	SHRUBS			
PJ	PIERIS JAPONICA 'MOUNTAIN FIRE'	MOUNTAIN FIRE ANDROMEDA	19	2 GAL.



20170044A21_HPN01 RDA SET.DWG Plotted on 19-Apr-2023 2:50 AM

ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK

- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E5	129
PROJECT FILE NO.	609054		

ENVIRONMENTAL PLANS

CONTINUED ON SHEET NO. 12

NAD 83

JORDAN S. MCCATHERIN
BK/PG 62917/52
PARCEL #R10 1 0
277 FOSTER STREET

HIGHWAY LAYOUT NO. 3675
BK. 7515 PG. 424

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
1949 STATE HIGHWAY LAYOUT NO. 3675
BK/PG 7515/424

LIMIT OF GRADING

MHB FD TOP

BEGIN PROP. EROSION & SEDIMENT CONTROL BARRIER STA. 24+13

2156SF TEMP IMPACT TO BUFFER ZONE

2288SF PERM IMPACT TO BUFFER ZONE

151SF REMOVED IMPERVIOUS BUFFER ZONE TO BE REVEGETATED

Δ=9° 16' 42"
L=348.16' R=2150.00'

PT +29.08

FOSTER STREET (PUBLIC)

MHB FD BRKN

MHB FD

MHB FD W/LP

J1

LIMIT OF GRADING

T.B.M.
SPIKE IN U.P. #91
ELEV.=246.01

1378SF PERM IMPACT TO BUFFER ZONE

398SF REMOVED IMPERVIOUS 50FT NO DISTURB ZONE TO BE REVEGETATED

BEGIN PROP. EROSION & SEDIMENT CONTROL BARRIER STA. 24+25

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
1950 STATE HIGHWAY LAYOUT NO. 3711
BK/PG 7553/391

BULKELEY ROAD (PUBLIC)

1950 TOWN LAYOUT SEE SHLO NO. 3786

1950 STATE HIGHWAY LAYOUT NO. 3711

EPH W. & AMANDA LENNON,
LIVING TRUSTEES OF THE
+JOSEPH LENNON LIVING TRUST
BK/PG 64219/262
PLAN NO 1628 OF 1972
PARCEL #R09 5 A
3 BULKELEY ROAD

BONNIE COOPER & GINNY M. MAHER-COOPER
BK/PG 32345/306
PLAN NO 1018 OF 1972
PARCEL #R09 1 0
2 BULKELEY ROAD

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
1949 STATE HIGHWAY LAYOUT NO. 3675
BK/PG 7515/424

401SF TEMP IMPACT TO 50FT NO DISTURB ZONE

1199SF PERM IMPACT TO 50FT NO DISTURB ZONE

BRIDGE NO. L-13-017

PT +46.86

2018 TOWN LAYOUT

780SF PERM IMPACT TO 50FT NO DISTURB ZONE

1293SF TEMP IMPACT TO 50FT NO DISTURB ZONE

PC +04.83

MHB FD W/LP

AREA EXCLUDED FROM STATE HIGHWAY LAYOUT N/F LUTHER FURBUSH

MASSACHUSETTS DEPART
1950 STATE HIGHW
BK/PG

CONTINUED ON SHEET NO. 14

FOR PROFILE: SEE SHEET NO. 21

0 20 50 100
SCALE: 1" = 20'

ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK
- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E6	129
PROJECT FILE NO.	609054		

ENVIRONMENTAL PLANS

NAD 83

265 FOSTER LLC
BK/PG 75845/36
PLAN NO 266 OF 1987
PARCEL #R11 1 0
265 FOSTER STREET

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
(PARCEL FBL 3-A)
BK/PG 57072/384
BK/PG 57072/376
PLAN NO 435 OF 2011
PARCEL #R11 3 5
263 FOSTER STREET

(MBTA)
BK/PG 13117/113
PARCEL #R11 2 0

1949 STATE HIGHWAY LAYOUT NO. 3675
BK/PG 7515/424

JUNE 30, 1914 RAILROAD SIDELINE

CONTINUED ON SHEET NO. 13

2156SF TEMP IMPACT TO BUFFER ZONE

401SF TEMP IMPACT TO 50FT NO DISTURB ZONE

1199SF PERM IMPACT TO 50FT NO DISTURB ZONE

2288SF PERM IMPACT TO BUFFER ZONE

END PROP. EROSION & SEDIMENT CONTROL BARRIER
STA. 26+14

LIMIT OF GRADING

375SF TEMP IMPACT TO BUFFER ZONE

588SF PERM IMPACT TO BUFFER ZONE

220SF PERM IMPACT TO 50FT NO DISTURB ZONE

94SF REMOVED IMPERVIOUS BUFFER ZONE

72SF REMOVED IMPERVIOUS 50FT NO DISTURB ZONE

2018 TOWN LAYOUT

LIMIT OF GRADING

1293SF TEMP IMPACT TO 50FT NO DISTURB ZONE

780SF PERM IMPACT TO 50FT NO DISTURB ZONE

1378SF PERM IMPACT TO BUFFER ZONE

2031SF PERM IMPACT TO BUFFER ZONE

END PROP. EROSION & SEDIMENT CONTROL BARRIER
STA. 26+23

LIMIT OF GRADING

3069SF PERM IMPACT TO 50FT NO DISTURB ZONE / BUFFER ZONE

DURKEE FARM BUILDERS, INC.
BK/PG 67620/69
PARCEL #R08 15 0
260 FOSTER STREET

PC +87.53

4570SF TEMP IMPACT TO 50FT NO DISTURB ZONE / BUFFER ZONE

BEGIN PROP. EROSION & SEDIMENT CONTROL BARRIER
STA. 301+65

CONTINUED ON SHEET NO. 15

FOSTER STREET
(PUBLIC)

GRIMES LANE
(PUBLIC)

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
(f/ BOSTON & MAINE RAILROAD)

1950 SHLO NO. 3711

1951 SHLO NO. 3836

PC +04.83

PT +46.88

PT +65.58

301+95.23

100' BUFFER TO RESOURCE AREA

50' BUFFER RESOURCE AREA (LITTLETON)

FOR PROFILE: SEE SHEET NO. 21, 22 & 24

0 20 50 100

SCALE: 1" = 20'

ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK
- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E7	129
PROJECT FILE NO.	609054		

ENVIRONMENTAL PLANS

20170044A21_HPN01 ROA SET.DWG Plotted on 19-Apr-2023 2:50 AM

NAD 83 N

CONTINUED ON SHEET NO. 14

CONTINUED ON SHEET NO. 16

MASSACHUSETTS BAY TRANSORTATION AUTHORITY
(PARCEL FBL 3-A)
BK/PG 57072/384
BK/PG 57072/376
PLAN NO 435 OF 2011
PARCEL #R11 3 5
263 FOSTER STREET

MASSACHUSETTS BAY TRANSORTATION AUTHORITY
(PARCEL FBL 3-B)
BK/PG 57072/384
BK/PG 57072/376
PLAN NO 435 OF 2011
PARCEL #R11 3 5
263 FOSTER STREET

SNS FOSTER, LLC & C/O ROBERT LONG
BK/PG 72045/170
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET

RICHARD B. VIGNON
BK/PG 13250/70
PLAN NO 847 OF 1969
PARCEL #R08 13
242 FOSTER STREET

DURKEE FARM BUILDERS, INC.
BK/PG 67620/69
PARCEL #R08 15 0
260 FOSTER STREET

FOSTER STREET
(PUBLIC)

90SF REMOVED IMPERVIOUS 50 FT NO DISTURB ZONE
562SF PERM IMPACT TO 50FT NO DISTURB ZONE
84SF REMOVED IMPERVIOUS BUFFER ZONE
614 SF TEMP IMPACT TO BUFFER ZONE
841 SF PERM IMPACT TO BUFFER ZONE
3497SF TEMP IMPACT TO BUFFER ZONE
1991SF PERM IMPACT TO BUFFER ZONE
LIMIT OF GRADING
100' BUFFER TO RESOURCE AREA
473SF PERM IMPACT TO 50FT NO DISTURB ZONE / BUFFER ZONE
425 SF TEMP IMPACT TO BUFFER ZONE
839 SF PERM IMPACT TO BUFFER ZONE
END PROP. EROSION & SEDIMENT CONTROL BARRIER STA. 33+84
3069SF PERM IMPACT TO 50FT NO DISTURB ZONE / BUFFER ZONE
4570SF TEMP IMPACT TO 50FT NO DISTURB ZONE / BUFFER ZONE
LIMIT OF GRADING
BVW
50' BUFFER RESOURCE AREA (LITTLETON)
100' BUFFER TO RESOURCE AREA

NOTE: NO RECORD OF WATER LINE NORTHEAST OF THIS HYDRANT. WATER LINE IS BELIEVED TO CONTINUE AND IS SHOWN SCHEMATICALLY, FOR ILLUSTRATIVE PURPOSES ONLY.

NOTE: GAS LINE RECORDS NORTHEAST OF THIS VICINITY ARE SCHEMATIC AND ARE SHOWN SCHEMATICALLY, FOR ILLUSTRATIVE PURPOSES ONLY.

T.B.M. SPIKE IN U.P. #83

2018 TOWN LAYOUT

PC +86.16

FOR PROFILE: SEE SHEET NO. 22 & 23

0 20 50 100
SCALE: 1" = 20'

ENVIRONMENTAL PLANS LEGEND

- EXISTING TREE LINE
- PROPOSED TREE LINE
- BORDERING VEGETATED WETLANDS
- BANK/LAND UNDER WATER
- 100FT BUFFER from BVW or BANK
- 50FT NO DISTURB LIMIT from BVW or BANK
- EROSION CONTROLS
- LIMIT OF WORK
- PERM IMPACT TO BUFFER ZONE
- TEMP IMPACT TO BUFFER ZONE
- PERM IMPACT TO 50-FT NO DISTURB
- TEMP IMPACT TO 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM 50-FT NO DISTURB
- IMPERVIOUS REMOVED FROM BUFFER ZONE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	E8	129
PROJECT FILE NO.	609054		

ENVIRONMENTAL PLANS

CONTINUED ON SHEET NO. 19

NAD 83

PATRICIA A. NARGIZIAN
BK/PG 70735/467
PARCEL #R11 5 4
237 FOSTER STREET

SNS FOSTER, LLC & C/O ROBERT LONG
BK/PG 72045/170
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET

END OF PROJECT
PROJ. NO. 609054
STA. 39+36.15
N 3015278.1762
E 656130.7752

FOSTER STREET (PUBLIC)

BALSAM LANE (PUBLIC)

2018 TOWN LAYOUT

2020 TOWN LAYOUT

LIMIT OF GRADING

PC +86.16

PC +06.15

PT +90.37

PT +11.89

N 28° 12' 04" E

Δ=3° 56' 00"
L=204.20' R=2974.57'

Δ=9° 19' 15"
L=105.74' R=650.00'

N 37° 31' 19" E 86.75'

39+98.64

QUINN E. & JENNIFER A. CANFIELD
BK/PG 55588/290
PLAN NO 188 OF 1971
PARCEL #R08 13 D
238 FOSTER STREET

RICHARD B. VIGNONI
BK/PG 13250/70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

RICHARD B. VIGNONI
BK/PG 13250/70
PLAN NO 847 OF 1969
PARCEL #R08 13 ...
242 FOSTER STREET

NOTE:
C.B. 32 IS A DOUBLE-SIZED STRUCTURE.

NOTE:
C.B. 34 IS A DOUBLE-SIZED STRUCTURE.

NOTE:
NO RECORD OF WATER LINE CONFIGURATION IN THIS AREA. WATER LINE IS SHOWN SCHEMATICALLY, FOR ILLUSTRATIVE PURPOSES ONLY.

NOTE:
GAS LINE RECORDS IN THIS AREA ARE SCHEMATIC AND ARE SHOWN SCHEMATICALLY, FOR ILLUSTRATIVE PURPOSES ONLY.

100' BUFFER TO RESOURCE AREA

FOR PROFILE: SEE SHEET NO. 23

0 20 50 100

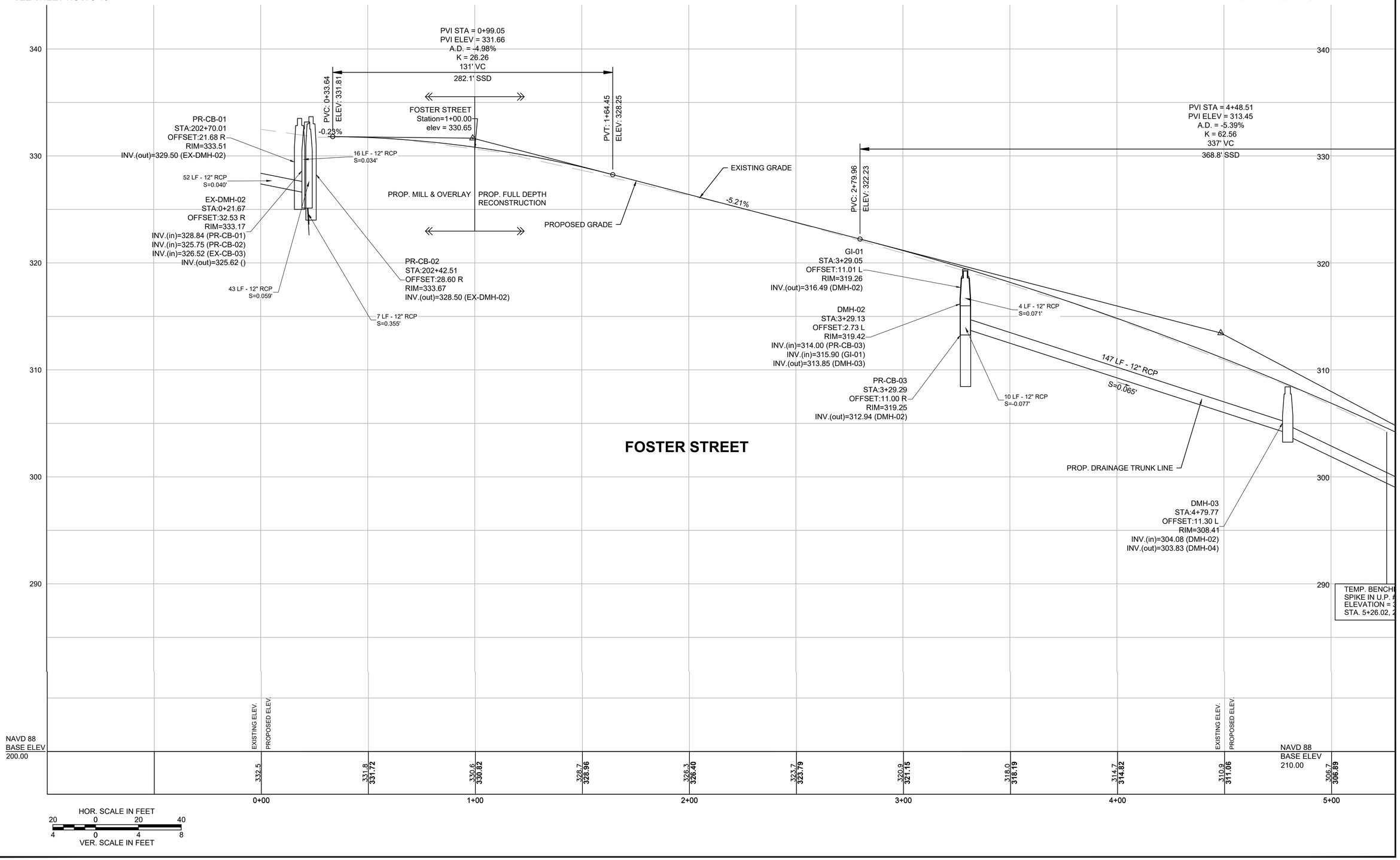
SCALE: 1" = 20'

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	17	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET



FOSTER STREET

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	18	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

NE
DMH-03
STA:4+79.77
OFFSET:11.30 L
RIM=308.41
04.08 (DMH-02)
03.83 (DMH-04)
TEMP. BENCHMARK:
SPIKE IN U.P. #104
ELEVATION = 305.59'
STA. 5+26.02, 21.03' LT
199 LF - 12" RCP
S=0.096'
-10.60%
PVC: 6+91.60
ELEV: 287.68
PVI STA = 8+58.14
PVI ELEV = 270.02
A.D. = 8.23%
K = 40.45
333' VC
216.1' HSD
PVT: 10+24.67
ELEV: 266.08
PROP. DRAINAGE TRUNK LINE
5 LF - 12" RCP
S=0.046'
PR-CBDB-1
STA:6+81.56
OFFSET:11.00 L
RIM=288.52
INV.(out)=284.39 (DMH-04)
PR-CB-04
STA:6+81.35
OFFSET:11.00 R
RIM=288.54
INV.(out)=282.58 (DMH-04)
10 LF - 12" RCP
S=0.037'
PROP DRAIN
CONCRETE PIPE
I=282.17
PROPOSED GRADE
DMH-05
STA:7+16.60
OFFSET:7.83 L
RIM=284.95
INV.(in)=280.69 (DMH-04)
INV.(out)=280.43 ()
7 LF - 12" RCP
S=-0.005'
32 LF - 12" RCP
S=0.032'
EXISTING GRADE
DMH-04
STA:6+81.54
OFFSET:2.46 L
RIM=288.70
INV.(in)=284.00 (PR-CBDB-1)
INV.(in)=284.52 (DMH-03)
INV.(in)=282.08 (PR-CB-04)
INV.(out)=281.83 (DMH-05)
-2.37%
TEMP. B
SPIKE IN
ELEVAT
STA. 10+
FOSTER STREET
300
290
280
270
260
250
EXISTING ELEV.
PROPOSED ELEV.
NAVD 88
BASE ELEV
210.00
310.9 311.06
306.7 306.89
301.9 302.33
297.0 297.37
291.9 292.09
286.7 286.80
281.8 281.91
277.3 277.64
273.7 273.99
270.7 270.96
268.5 268.54
266.7 266.74
265.2 265.49
5+00
6+00
7+00
8+00
9+00
10+00
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

Plotted on 19-Apr-2023 1:50 AM

20170044A21_HWD01.DWG

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	19	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

PVI STA = 11+54.78
PVI ELEV = 263.01
A.D. = -1.78%
K = 71.36
127' VC
670.5' SSD

PVI STA = 13+05.09
PVI ELEV = 256.78
A.D. = 2.82%
K = 39.98
113' VC
333.9' HSD

PVI STA = 15+15.07
PVI ELEV = 254.00
A.D. = -1.26%
K = 31.31
39' VC
877.9' SSD

PVC: 10+91.36
ELEV: 264.51

PVT: 12+18.20
ELEV: 260.38

PVC: 12+48.70
ELEV: 259.11

PVT: 13+61.47
ELEV: 256.03

PVC: 14+95.39
ELEV: 254.26

PVT: 15+34.75
ELEV: 253.49

PVC: 15+79.55
ELEV: 252.34

-2.37%
-4.14%
-1.32%
-2.58%

PROPOSED GRADE
EXISTING GRADE

TEMP. BENCHMARK:
SPIKE IN U.P. #99
ELEVATION = 265.19'
STA. 10+88.83, 23.04' LT

TEMP. BENCHMARK:
SPIKE IN U.P. #95
ELEVATION = 254.40'
STA. 15+69.90, 10.34' RT

FOSTER STREET

18 LF - 12" RCP
S=0.008'

PR-CB-05
STA:13+99.37
OFFSET:10.97 R
RIM=255.31
INV.(out)=250.85 (DMH-06)

PR-CB-06
STA:14+05.22
OFFSET:11.03 L
RIM=255.23
INV.(out)=250.94 (DMH-06)

DMH-06
STA:14+11.89
OFFSET:6.83 L
RIM=255.23
INV.(in)=250.67 (PR-CB-06)
INV.(in)=250.67 (PR-CB-05)

24 LF - 12" RCP
S=0.020'

FE-01
STA:14+16.61
OFFSET:30.50 L
RIM=251.75
INV.(in)=250.08 ()

4 LF - 12" RCP
S=0.035'

PROP DRAIN
CONCRETE PIPE
I=250.74

270
260
250
240
230
220

	10+00	11+00	12+00	13+00	14+00	15+00	16+00
EXISTING ELEV.	266.7	263.8	262.3	260.9	259.0	257.2	255.9	255.0	254.3	254.0	253.0	251.5
PROPOSED ELEV	266.74	264.30	262.88	261.11	259.06	257.32	256.20	255.52	254.86	254.20	253.10	251.85

NAVD 88
BASE ELEV
210.00

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

20170044A21_HWD01.DWG Plotted on 19-Apr-2023 1:50 AM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	20	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

LOW POINT ELEV = 250.73
LOW POINT STA = 17+04.17
PVI STA = 16+85.00
PVI ELEV = 249.62
A.D. = 4.37%
K = 48.30
211' VC
252.0' HSD

HIGH POINT ELEV = 253.05
HIGH POINT STA = 19+02.32
PVI STA = 19+62.16
PVI ELEV = 254.57
A.D. = -7.83%
K = 28.13
220' VC
247.9' SSD

PVT: 15+34.75
ELEV: 253.49

PVC: 15+79.55
ELEV: 252.34

PVT: 17+90.45
ELEV: 251.50

PVC: 18+52.07
ELEV: 252.60

PVT: 20+72.26
ELEV: 247.92

-2.58%

1.79%

-6.04%

PROPOSED GRADE

EXISTING GRADE

TEMP. BENCHMARK:
SPIKE IN U.P. #95
ELEVATION = 254.40'
STA. 15+69.90, 10.34' RT

DMH-07
STA:16+81.45
OFFSET:10.98 L
RIM=250.56
INV.(in)=245.67 (EX-CB-18)
INV.(in)=245.67 (PR-CB-07)
INV.(out)=245.57 (FE-02)

PR-CB-07
STA:16+89.33
OFFSET:10.95 L
RIM=250.53
INV.(out)=245.77 (DMH-07)

18 LF - 12" RCP
S=0.005'

21 LF - 12" RCP
S=0.009'

4 LF - 12" RCP
S=0.013'

FE-02
STA:16+80.98
OFFSET:34.28 L
RIM=247.04
INV.(in)=245.37 (DMH-07)

EX-CB-18
STA:16+81.36
OFFSET:10.96 R
RIM=250.56
INV.(out)=245.77 (DMH-07)

PROP DRAIN
CONCRETE PIPE
I=245.72

TEMP. BENCHMARK:
SPIKE IN U.P. #91
ELEVATION = 246.01'
STA. 21+24.99, 12.68' RT

FOSTER STREET

BULKELEY
ROAD

	16+00	17+00	18+00	19+00	20+00	21+00
EXISTING ELEV.	253.0	250.0	249.9	250.5	251.6	252.7	252.8	252.3	251.1	248.8	246.2	243.0
PROPOSED ELEV	**253.10**	**251.03**	**250.73**	**250.95**	**251.67**	**252.56**	**253.05**	**252.65**	**251.35**	**249.17**	**246.24**	**243.22**
NAVD 88 BASE ELEV 210.00	251.5 **251.85**											

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	21	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

20170044A21_HWD01.DWG Plotted on 19-Apr-2023 1:50 AM

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

260
250
240
230
220

LOW POINT ELEV = 233.88
LOW POINT STA = 24+03.31
PVI STA = 23+77.18
PVI ELEV = 229.49
A.D. = 10.48%
K = 32.67
342' VC
184.8' HSD

PVC: 22+05.94
ELEV: 239.84

PVT: 25+48.42
ELEV: 237.10

ROUTE 2 OVERPASS
HEIGHT = 14'-1"

-6.04%

PROPOSED GRADE

4.44%

EXISTING GRADE

PVI STA = 26+70.00
PVI ELEV = 242.50
A.D. = -2.75%
K = 29.07
80' VC
432.1' SSD

PVC: 26+30
ELEV: 240.72

PVT: 27+10
ELEV: 243.18

1.69%

MBTA AT-GRADE CROSSIN

?. BENCHMARK:
E IN U.P. #91
ATION = 246.01'
21+24.99, 12.68' RT

LB-01
STA:22+59.74
OFFSET:13.32 R
RIM=236.93

17 LF - 12" RCP
S=0.005'

GI-02
STA:24+05.37
OFFSET:11.00 R
RIM=233.66
INV.(out)=231.06 (DMH-10)

23 LF - 12" RCP
S=0.056'

PR-CB-10
STA:24+05.36
OFFSET:10.98 L
RIM=233.66
INV.(out)=229.16 (DMH-10)

PROP DRAIN
CONCRETE PIPE
I=230.24

8 LF - 12" RCP
S=0.005'

DMH-10
STA:23+87.77
OFFSET:9.31 L
RIM=233.73
INV.(in)=229.55 (GI-02)
INV.(in)=229.02 (PR-CB-10)
INV.(out)=228.92 ()

14 LF - 12" RCP
S=0.008'

FOSTER STREET

TEMP. BENCHMARK:
SPIKE IN U.P. #87
ELEVATION = 243.99'
STA. 26+89.40, 19.39' LT

	EXISTING ELEV.	PROPOSED ELEV.										
NAVD 88 BASE ELEV 210.00	243.0	**243.22**	240.2	**240.20**	237.7	**237.47**	235.8	**235.51**	234.4	**234.31**	234.0	**233.88**
	234.2	**234.21**	235.1	**235.31**	236.8	**237.17**	238.9	**239.39**	241.0	**241.54**	243.0	**242.99**
NAVD 88 BASE ELEV 210.00	243.9	**243.85**										

22+00 23+00 24+00 25+00 26+00 27+00

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	22	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

PVI ELEV = 268.75
A.D. = -3.89%
K = 36.03
140' VC
347.7' SSD

PVI STA = 31+00.00
PVI ELEV = 256.00
A.D. = 2.30%
K = 43.40
100' VC
564.0' HSD

PVI STA = 28+55.00
PVI ELEV = 245.63
A.D. = 2.54%
K = 39.31
100' VC
409.7' HSD

PVC: 32+25
ELEV: 264.17

PVT: 33+65
ELEV: 270.61

PVC: 30+50
ELEV: 253.88

PVT: 31+50
ELEV: 259.27

PVC: 28+05
ELEV: 244.78

PVT: 29+05
ELEV: 247.74

MBTA AT-GRADE CROSSING

ELEV: 240.10

1.69%

4.23%

6.54%

EXISTING GRADE

PROPOSED GRADE

99 LF - 15" RCP
S=0.027'

15 LF - 12" RCP
S=0.011'

24 LF - 15" RCP
S=0.018'

13 LF - 12" RCP
S=0.003'

196 LF - 15" RCP
S=0.055'

28 LF - 15" RCP
S=0.000'

EX_CBDB 22_23
STA:30+42.39
OFFSET:33.72 L
RIM=256.60
INV.(in)=251.60 (PR-CB-12)
INV.(out)=251.54 (EX-CB-21)

PR-CB-12
STA:31+45.23
OFFSET:32.50 L
RIM=260.51
INV.(in)=257.00 (PR-CB-15)
INV.(out)=254.37 (EX_CBDB 22_23)

PR-CB-15
STA:31+73.61
OFFSET:30.26 L
RIM=262.22
INV.(out)=257.45 (PR-CB-12)

EX-CB-16
STA:31+72.28
OFFSET:10.22 R
RIM=260.63

PR-CB-13
STA:31+69.74
OFFSET:15.24 L
RIM=260.43
INV.(out)=254.88 (EX-DMH-12)

EX-DMH-12
STA:31+61.92
OFFSET:1.66 R
RIM=260.02
INV.(in)=254.68 (PR-CB-13)
INV.(out)=251.46 ()

LB-04
STA:28+90.00
OFFSET:10.41 L
RIM=246.73

STA. 28+20.24 ALIGN_FOSTER =
STA. 300+00.00 ALIGN_GRIMES
N:3014329.9564 E:655543.5938

GRIMES LANE

TEMP. BENCHMARK:
SPIKE IN U.P. #83
ELEVATION = 266.98'
STA. 32+44.53, 15.90' LT

FOSTER STREET

280
270
260
250
240
230

	EXISTING ELEV.	PROPOSED ELEV.										
NAVD 88 BASE ELEV 210.00	243.9	**243.85**	244.7	**244.70**	246.1	**245.80**	248.0	**247.64**	250.1	**249.65**	252.1	**251.77**
	254.2	**253.88**	256.6	**256.29**	259.5	**259.27**	262.6	**262.54**	266.1	**265.72**	268.5	**268.30**
NAVD 88 BASE ELEV 210.00	270.3	**270.18**										

28+00 29+00 30+00 31+00 32+00 33+00

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

Plotted on 19-Apr-2023 1:50 AM
20170044A21_HWD01.DWG

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	23	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

Plotted on 19-Apr-2023 1:50 AM
20170044A21_HWD01.DWG

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

300
290
280
270
260
250

PVI STA = 36+55.00
PVI ELEV = 278.30
A.D. = 3.11%
K = 57.84
180' VC
351.3' HSD

PROPOSED GRADE

EXISTING GRADE

PVC: 35+65
ELEV: 275.91

PVT: 37+45
ELEV: 283.49

PVT: 33+65
ELEV: 270.61

2.65%

5.76%

227 LF - 15" RCP
S=0.020'

17 LF - 12" RCP
S=0.108'

125 LF - 12" RCP
S=0.049'

FOSTER STREET
Station=39+36.88
elev = 294.55

PROP. FULL DEPTH
RECONSTRUCTION

GI-04
STA:35+99.26
OFFSET:13.95 L
RIM=276.60
INV.(out)=274.50 (EX-DMH-31)

EX-DMH-35
STA:38+87.45
OFFSET:2.11 R
RIM=292.70
INV.(in)=288.37 (EX-DMH-33)
INV.(out)=287.17 (EX-DMH-31)

TEMP. BENCHMARK:
SPIKE IN U.P. #78
ELEVATION = 289.65'
STA. 38+38.16, 12.47' RT

EX-DMH-31
STA:35+89.75
OFFSET:3.85 R
RIM=276.55
INV.(in)=272.32 (GI-04)
INV.(in)=272.32 (EX-DMH-35)
INV.(out)=270.52 (EX-DMH-29)
INV.(out)=272.22 (PR-CB-16)

EX-DMH-29
STA:33+59.34
OFFSET:2.64 R
RIM=270.40
INV.(in)=266.00 (EX-DMH-31)
INV.(out)=265.90 ()

BALSAM LANE

FOSTER STREET

	EXISTING ELEV.	PROPOSED ELEV.										
NAVD 88 BASE ELEV 210.00	270.3	**270.18**	271.7	**271.54**	273.2	**272.86**	274.5	**274.19**	275.7	**275.51**	277.0	**276.95**
	278.6	**278.79**	280.7	**281.07**	283.6	**283.78**	286.6	**286.66**	289.8	**289.54**	292.6	**292.42**
NAVD 88 BASE ELEV 210.00	295.2											

34+00 35+00 36+00 37+00 38+00 39+00

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

THIS PLAN IS BASED ON FIELD SURVEY CONDUCTED BY:
SHERMAN & FRYDRYK, LLC.
FIELD DATA WAS COLLECTED BETWEEN 8/14/18 & 9/17/18

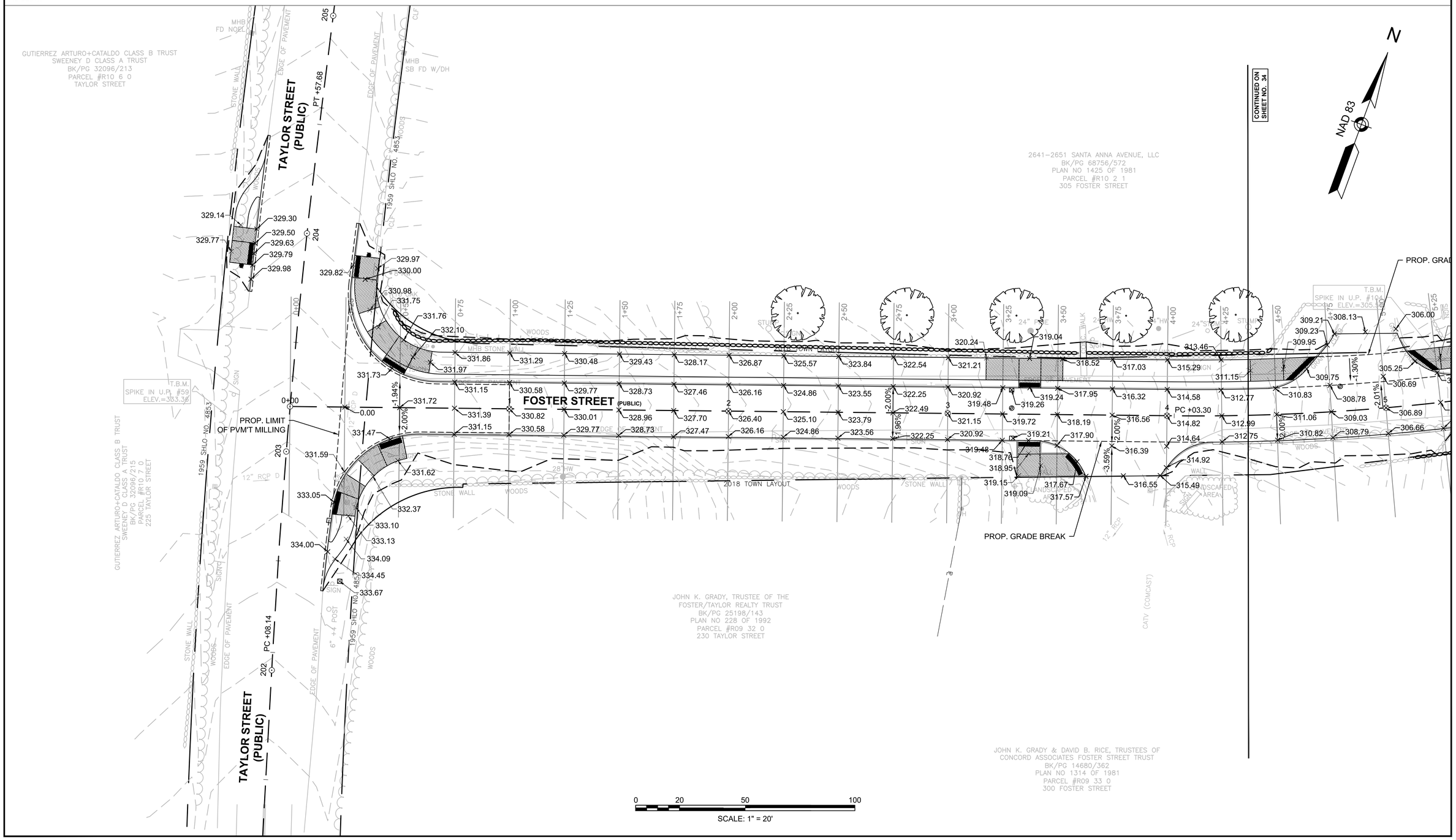
HORIZONTAL CONTROL IS BASED ON VALUES PROVIDED BY MEANS OF GLOBAL POSITION SYSTEM METHODS, AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD-1093) MASSACHUSETTS STATE PLANE COORDINATE SYSTEM MAINLAND ZONE. OR PER SURVEY NOTE: HORIZONTAL DATUM IS BASED ON THE 1983 N.A.D. SYSTEM USING SURVEY GPS CONTROL POINTS SET BY THE CITY OF LITTLETON ENGINEERING DEPARTMENT. GPS CONTROL STATION CORS_IS-HAMP, PID-DE9093

VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988, (NAVD-1988). OR VERTICAL DATUM IS BASED ON THE 1988 N.G.V.D. SYSTEM USING SURVEY GPS CONTROL POINTS SET BY THE CITY OF LITTLETON ENGINEERING DEPARTMENT, GPS CONTROL STATION: CORS_ID-HAMP, PID-DE8093

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	33	129
PROJECT FILE NO.	609054		

GRADING PLAN



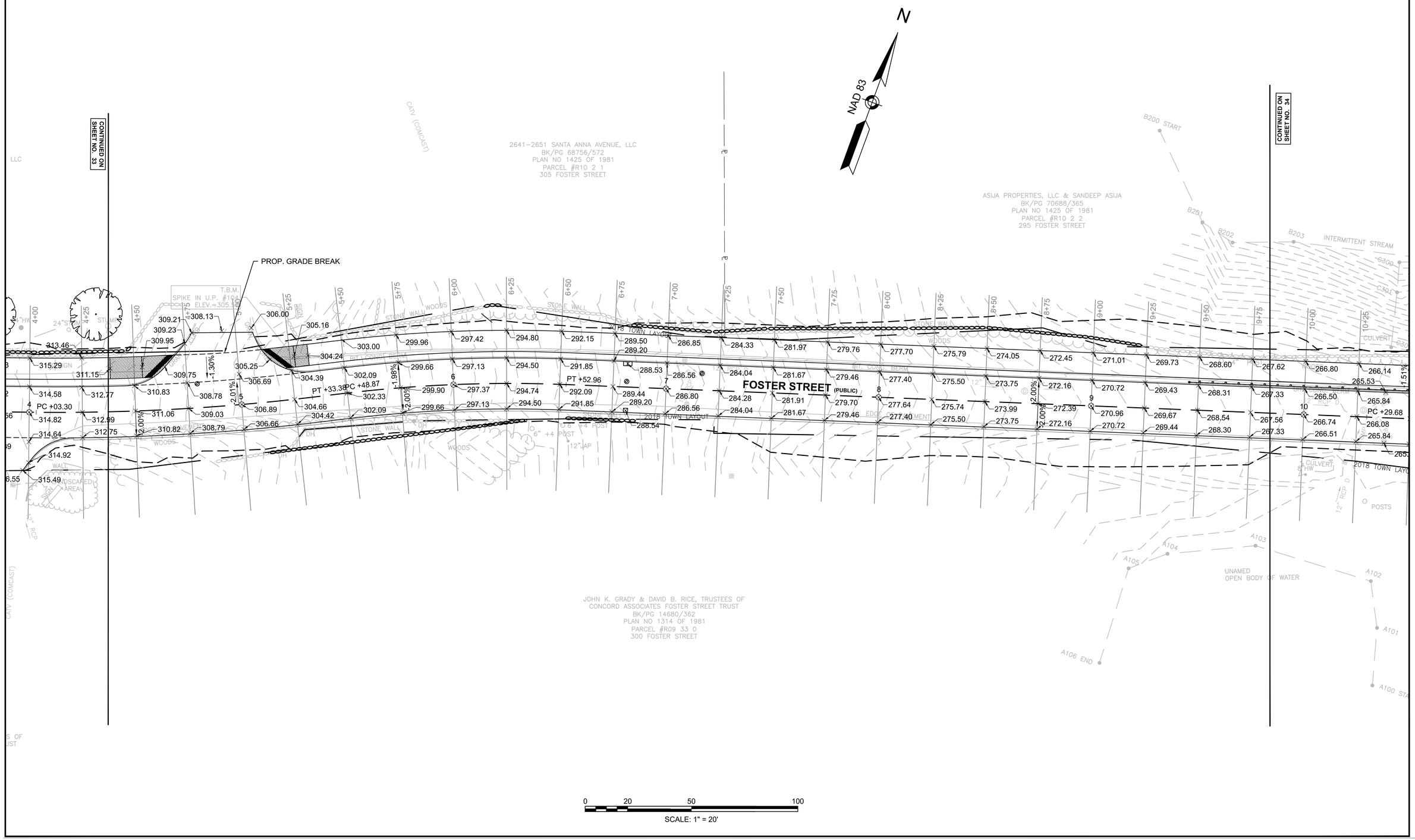
20170044A21_GRA01.DWG Plotted on 19-Apr-2023 1:52 AM

File Path: J:\DWG\P2017\00044\A21\Civil\Plan\20170044A21_GRA01.dwg Layout: GRA01 Plotted: Wed, April 19, 2023 - 1:52 AM User: akeegan
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: MADOT-D.STB
MS VIEW:- LAYER STATE:-

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	34	129
PROJECT FILE NO.	609054		

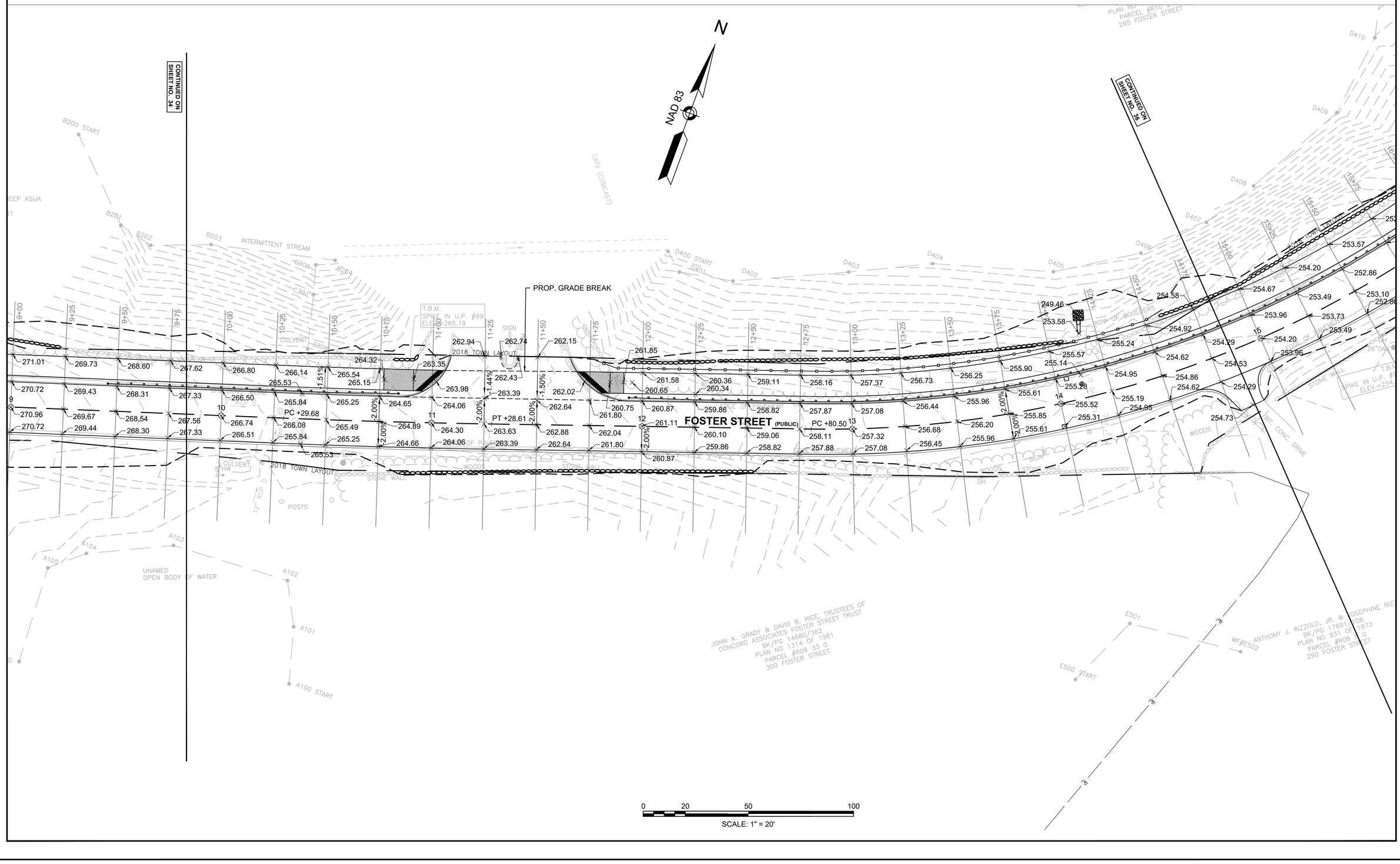
GRADING PLAN



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	35	129
PROJECT FILE NO.	609054		

GRADING PLAN



File Path: J:\DWG\P2017\00044\A21\Civil\Plan\20170044A21_GRA01.dwg Layout: GRA03 Plotted: Wed, April 19, 2023 - 1:52 AM User: akeegan
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: MADOT-D.STB
MS VIEW: - LAYER STATE: -

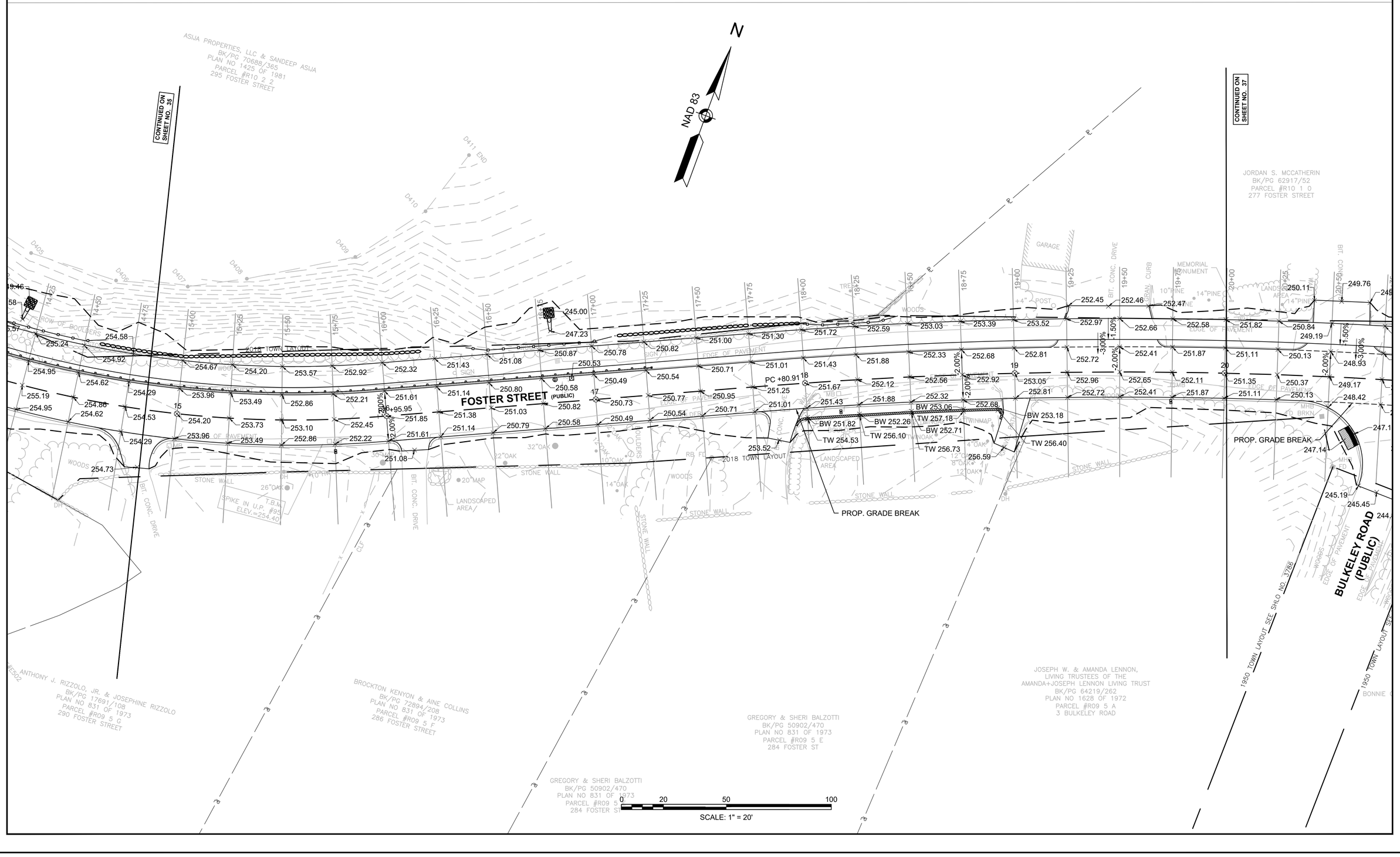
Plotted on 19-Apr-2023 1:52 AM
20170044A21_GRA01.DWG

BW = FINISHED GRADE AT BOTTOM OF WALL
TW = FINISHED GRADE AT TOP OF WALL
SEE CONSTRUCTION DETAILS FOR WALL SPECIFICATIONS

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	36	129
PROJECT FILE NO.	609054		

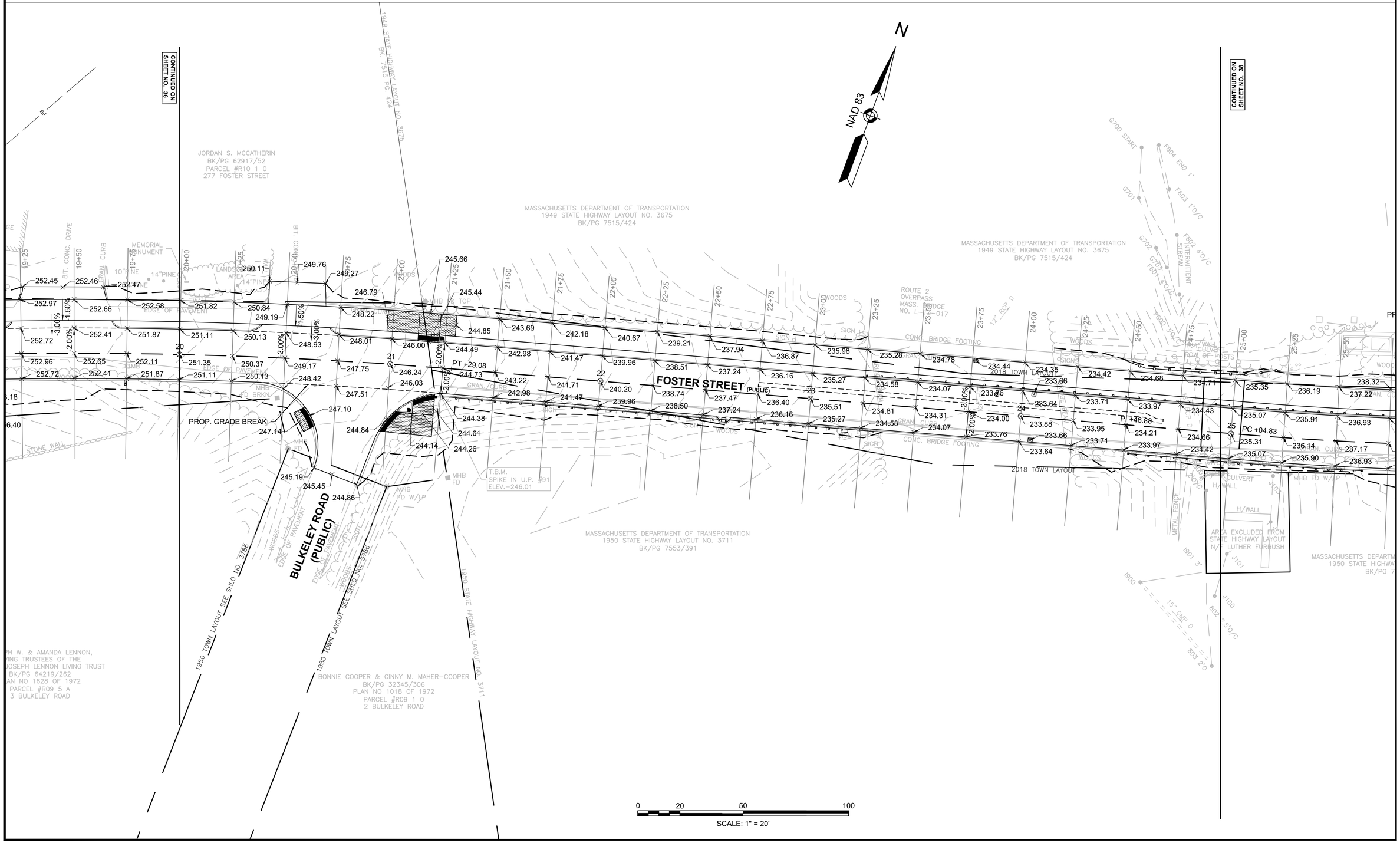
GRADING PLAN



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	37	129
PROJECT FILE NO.	609054		

GRADING PLAN



LITTLETON
RECONSTRUCTION OF FOSTER STREET

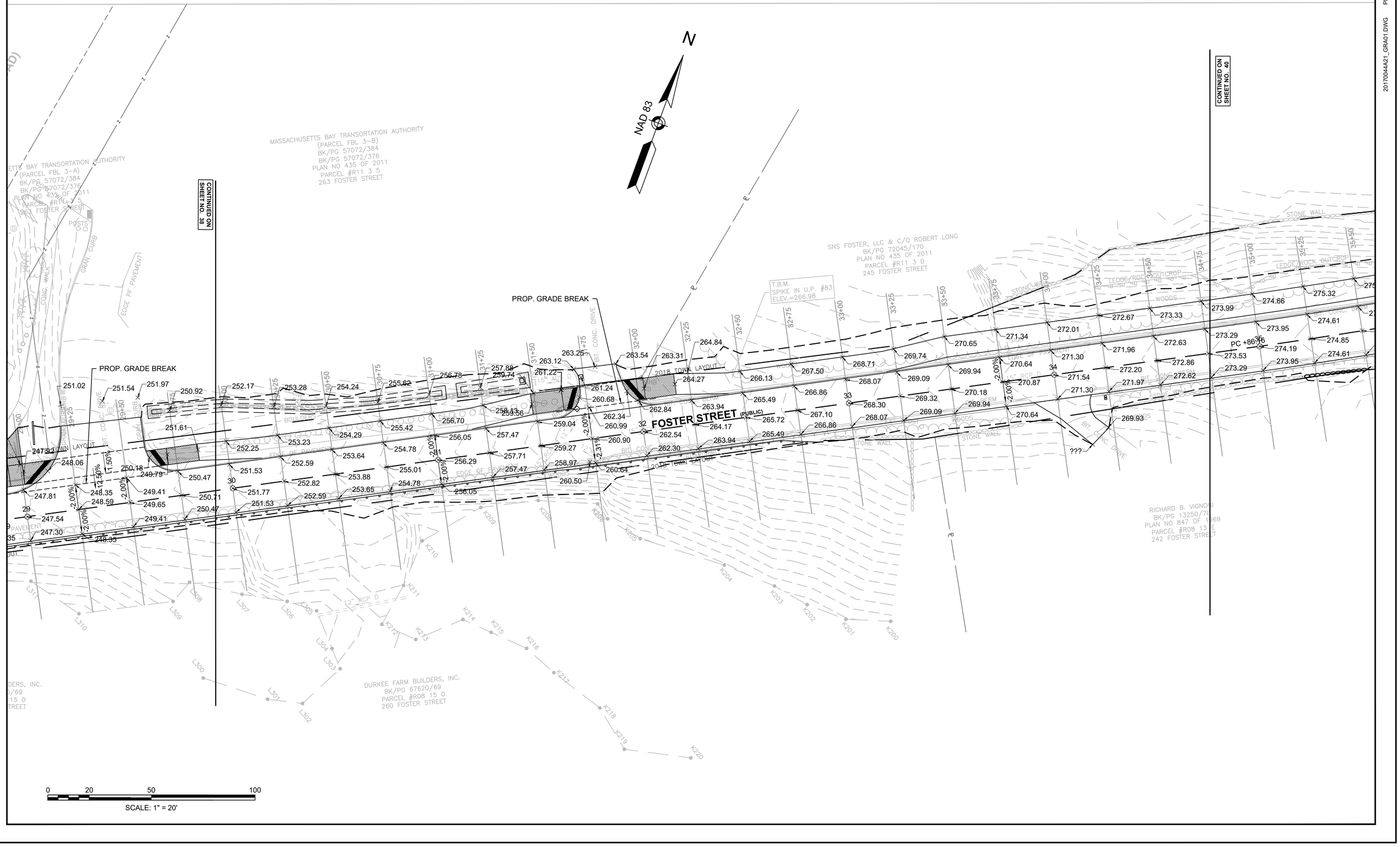
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	38	129
PROJECT FILE NO.		609054	

GRADING PLAN

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	39	129
PROJECT FILE NO.	609054		

GRADING PLAN



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	40	129
	PROJECT FILE NO. 609054		

GRADING PLAN

File Path: J:\DWG\P2017\00044\A21\Civil\Plan\20170044A21_GRA01.dwg Layout: GRA08 Plotted: Wed, April 19, 2023 - 1:53 AM User: akeegan
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: MADOT-D.STB
MS VIEW: - LAYER STATE: -
20170044A21_GRA01.DWG Plotted on 19-Apr-2023 1:53 AM

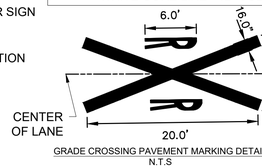
NOTES:

1. ALL EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED ON PLANS
2. ALL PROPOSED PAVEMENT MARKING LINES ON ROADWAYS SHALL BE WET REFLECTORIZED RECESSED THERMOPLASTIC. ALL MARKINGS SHALL BE 6" WIDE, EXCEPT STOP BARS WHICH SHALL BE 12" WIDE.
3. ALL PROPOSED PAVEMENT MARKING LINES ON SHARED-USE PATH SHALL BE PAINTED. ALL MARKINGS SHALL BE 4" WIDE, EXCEPT STOP BARS WHICH SHALL BE 12" WIDE.
4. ANY SIGN LABELED WITH AN " * " SHALL BE MOUNTED ON A SIGN SUPPORT FOR SHARED-USE PATH. THE SUPPORTS SHALL BE 4"x4" PRESSURE TREATED WOOD POSTS AND PLACED AS SHOWN ON THE "TYPICAL SIGN PLACEMENT DETAIL" IN THE CONSTRUCTION DETAILS.
5. ANY OTHER SIGN SHALL BE MOUNTED ON A STANDARD P-5 POST FACTORY COATED GLOSS BLACK AT STANDARD MUTCD HEIGHT UNLESS OTHERWISE SHOWN ON PLANS.
6. ALL R7 SERIES SIGNS (NO PARKING) SHALL BE INSTALLED AT 45 DEGREE ANGLE RELATIVE TO THE ROADWAY. REFER TO THE SIGN SYMBOLS PLACED ON PLANS
7. SEE SIGN SUMMARY ON SHEET 49 FOR SIGN DETAILS

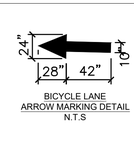
XXXX PROPOSED SIGN DESIGNATION

XXXX EXISTING SIGN DESIGNATION

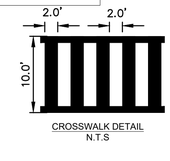
MARKING LEGEND	
	PROPOSED SIGN
SL	PROPOSED 12" WHITE STOP LINE / 24" AT RAILROAD CROSSING
CW	PROPOSED 24" WHITE CROSS WALK
SWL	PROPOSED 6" SINGLE WHITE LINE
SYL	PROPOSED 4" SINGLE SOLID YELLOW LINE
BYCL	PROPOSED 4" BROKEN YELLOW CENTER LINE (3' MARK - 9' SKIP)
DBYL	PROPOSED 6" DOUBLE YELLOW LINE
DWLEx	PROPOSED 6" DOTTED WHITE LANE EXTENSION LINE (2' MARK - 6' SKIP)
DYLEx	PROPOSED 6" DOTTED YELLOW LANE EXTENSION LINE (2' MARK -6' SKIP)
WGL	WHITE GORE LINE - 12" SOLID WHITE LINE



GRADE CROSSING PAVEMENT MARKING DETAIL
N.T.S



BICYCLE LANE ARROW MARKING DETAIL
N.T.S



CROSSWALK DETAIL
N.T.S

BICYCLE LANE MARKING DETAIL
N.T.S

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	41	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

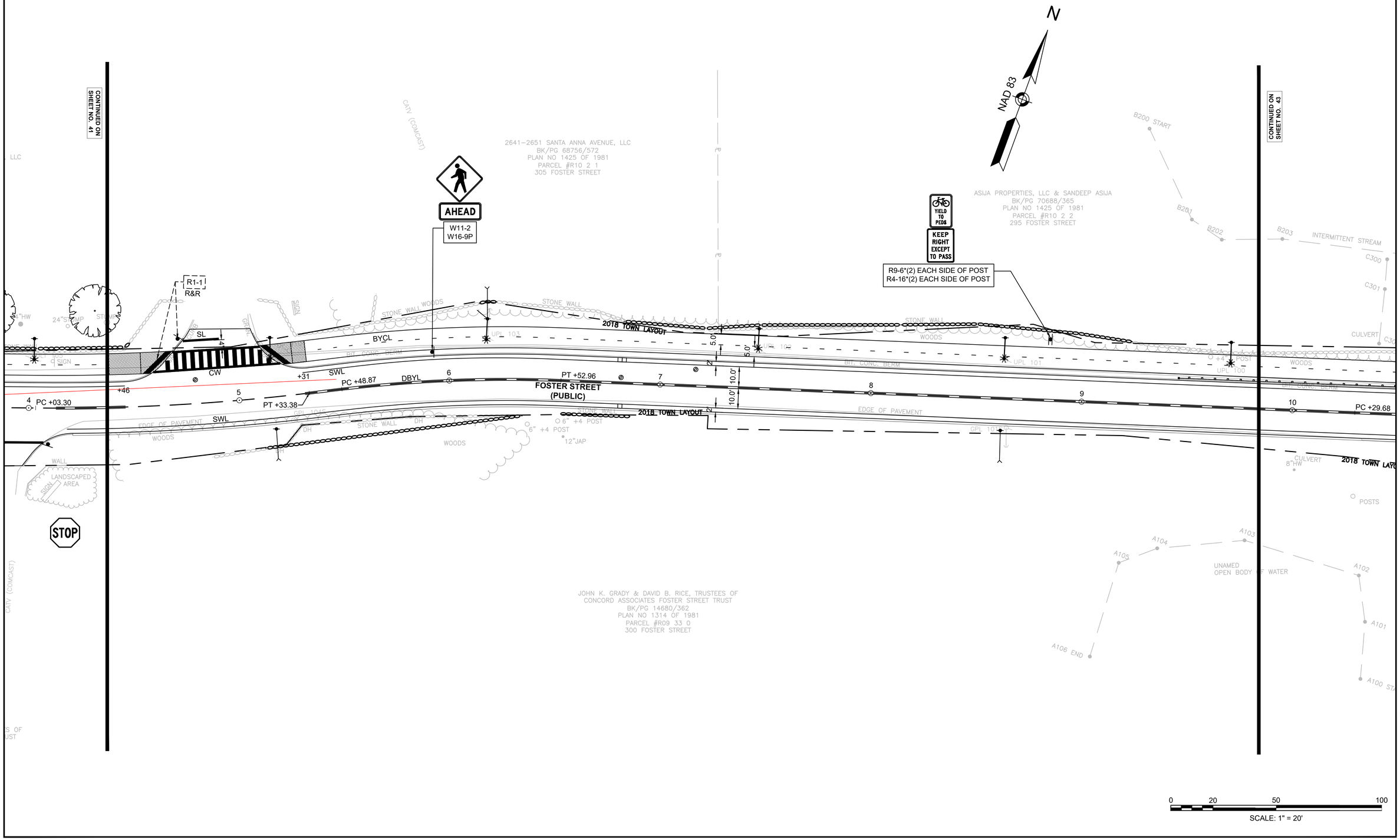
20170044A21_PVT01.DWG Plotted on 19-Apr-2023 1:54 AM

SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	42	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN



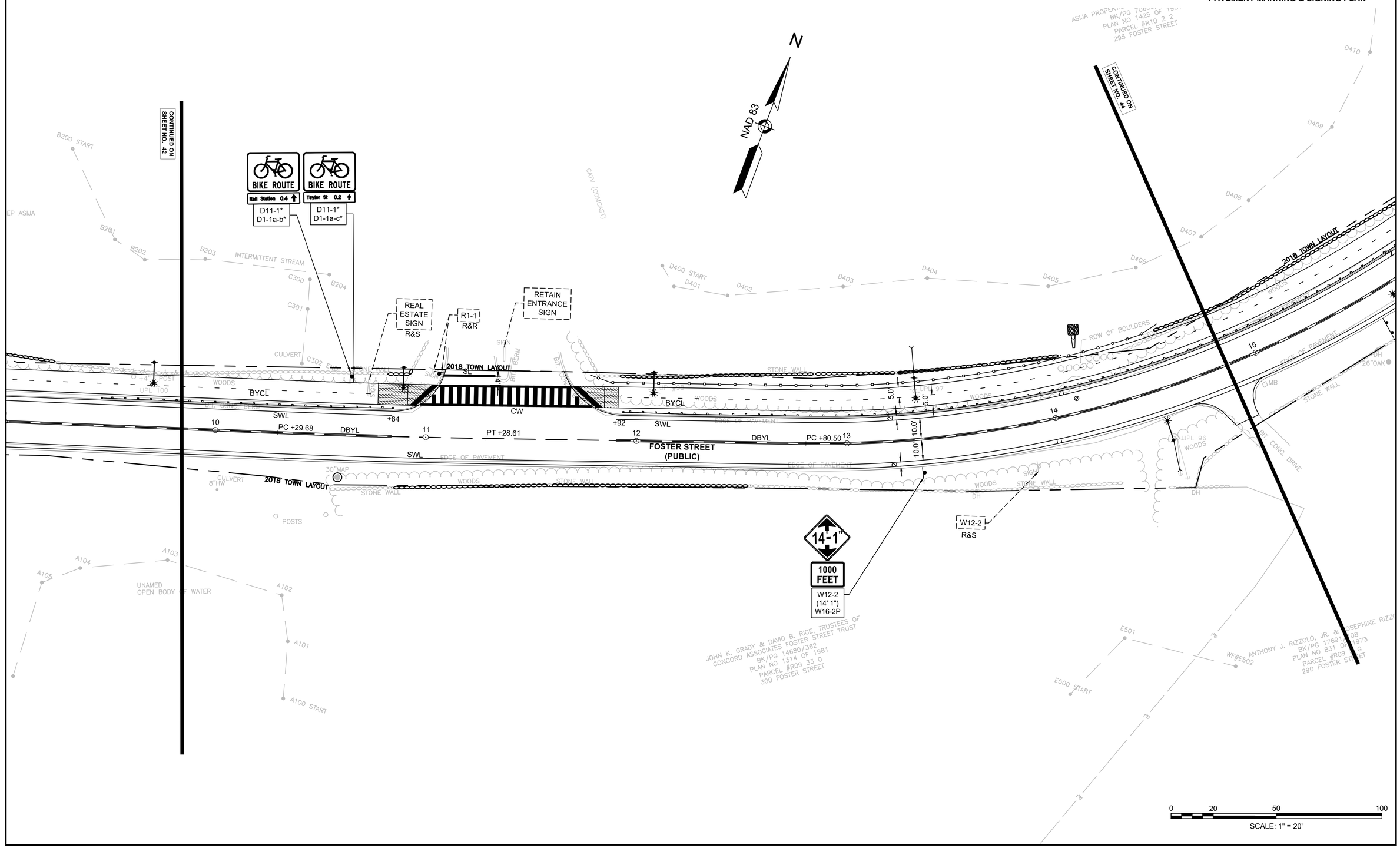
SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	43	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 19-Apr-2023 1:55 AM



SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	44	129
	PROJECT FILE NO.	609054	

PAVEMENT MARKING & SIGNING PLAN

Plotted on 19-Apr-2023 1:55 AM

2017044A21_PVT01.DWG

NAD 83
N
CONTINUED ON SHEET NO. 43
CONTINUED ON SHEET NO. 45
ASIJA PROPERTIES, LLC & SANDEEP ASIJA BK/PG 70688/365 PLAN NO 1425 OF 1981 PARCEL #R10 2 2 295 FOSTER STREET
JORDAN S. MCCATHERIN BK/PG 62917/52 PARCEL #R10 1 0 277 FOSTER STREET
YIELD TO PEDS
KEEP RIGHT EXCEPT TO PASS
R9-6* (2) EACH SIDE OF POST
R4-16* (2) EACH SIDE OF POST
R7-11 R&S
R7-201 R&S
2018 TOWN LAYOUT
FOSTER STREET (PUBLIC)
PC +80.91
PT +95.95
SWL
DBYL
BYCL
EDGE OF PAVEMENT
Littleton/Rte 495 Sta
MA-D1-5a(T)-c
AHEAD
W11-2
W16-9P
14'-1"
400 FEET
W12-2 (14' 1") W16-2P
BULKELEY ROAD (PUBLIC)
1950 TOWN LAYOUT SEE SHLO NO. 3786
ANTHONY J. RIZZOLO, JR. & JOSEPHINE RIZZOLO BK/PG 17691/208 PLAN NO 831 OF 1973 PARCEL #R09 5 G 290 FOSTER STREET
BROCKTON KENYON & AINE COLLINS BK/PG 72894/208 PLAN NO 831 OF 1973 PARCEL #R09 5 F 286 FOSTER STREET
GREGORY & SHERI BALZOTTI BK/PG 50902/470 PLAN NO 831 OF 1973 PARCEL #R09 5 E 284 FOSTER ST
JOSEPH W. & AMANDA LENNON, LIVING TRUSTEES OF THE AMANDA+JOSEPH LENNON LIVING TRUST BK/PG 64219/262 PLAN NO 1628 OF 1972 PARCEL #R09 5 A 3 BULKELEY ROAD
0 20 50 100
SCALE: 1" = 20'

SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	45	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 19-Apr-2023 1:55 AM

CONTINUED ON SHEET NO. 44

CONTINUED ON SHEET NO. 46

NAD 83

N

1949 STATE HIGHWAY LAYOUT NO. 3675
BK/PG 7515/424

JORDAN S. MCCATHERIN
BK/PG 62917/52
PARCEL #R10 1 0
277 FOSTER STREET

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
1949 STATE HIGHWAY LAYOUT NO. 3675
BK/PG 7515/424

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
1950 STATE HIGHWAY LAYOUT NO. 3711
BK/PG 7553/391

RRFB
W11-2 (2)
W16-7pL
W16-7pR

BIKE ROUTE
Rail Station 0.2

D11-1*
D1-1a-d*

BIKE ROUTE
Taylor St 0.4

D11-1*
D1-1a-e*

AHEAD
W11-2
W16-9P

NO PARKING ANY TIME
R7-1D

R7-1
R&S

OM-3L

OM-3L
R&S

14 FT 1 IN
W12-2a
MOUNTED ON
BRIDGE BEAM

ROUTE 2
OVERPASS
MASS. BRIDGE
NO. L-13-017

14 FT 1 IN
W12-2a
MOUNTED ON
BRIDGE BEAM

OM-3R
R&S

OM-3R

W12-2
R&S

NO PARKING ANY TIME
R7-1D

R7-201
R&S

RRFB
W11-2 (2)
W16-7pL
W16-7pR

NO PARKING ANY TIME
R7-1D

SPEED LIMIT 30
R2-1(30)

R2-1(30)
R&S

W12-2
R&S

OM-3R
R&S

OM-3R

OM-3L
R&S

OM-3L

R1-1
MA-D3-1b
R&S

STOP
R1-1

Foster St
Bulkeley Rd

MA-D3-1a (2 MOUNTED BACK TO BACK)
MA-D3-1b (2 MOUNTED BACK TO BACK)

FOSTER STREET
(PUBLIC)

BULKELEY ROAD
(PUBLIC)

1950 TOWN LAYOUT SEE SHLO NO. 3786

1950 TOWN LAYOUT SEE SHLO NO. 3786

1950 STATE HIGHWAY LAYOUT NO. 3711

2018 TOWN LAYOUT

2018 TOWN LAYOUT

BONNIE COOPER & GINNY M. MAHER-COOPER
BK/PG 32345/306
PLAN NO 1018 OF 1972
PARCEL #R09 1 0
2 BULKELEY ROAD

EPH W. & AMANDA LENNON,
IVING TRUSTEES OF THE
-JOSEPH LENNON LIVING TRUST
BK/PG 64219/262
LAN NO 1628 OF 1972
PARCEL #R09 5 A
3 BULKELEY ROAD

ARIA EXCLUDED FROM
STATE HIGHWAY LAYOUT
N/F LUTHER FURBUSH

MASSACHUSETTS DEPART
1950 STATE HIGHWA
BK/PC

0 20 50 100
SCALE: 1" = 20'

SEE SHEET 41 FOR MARKING & SIGNING NOTES

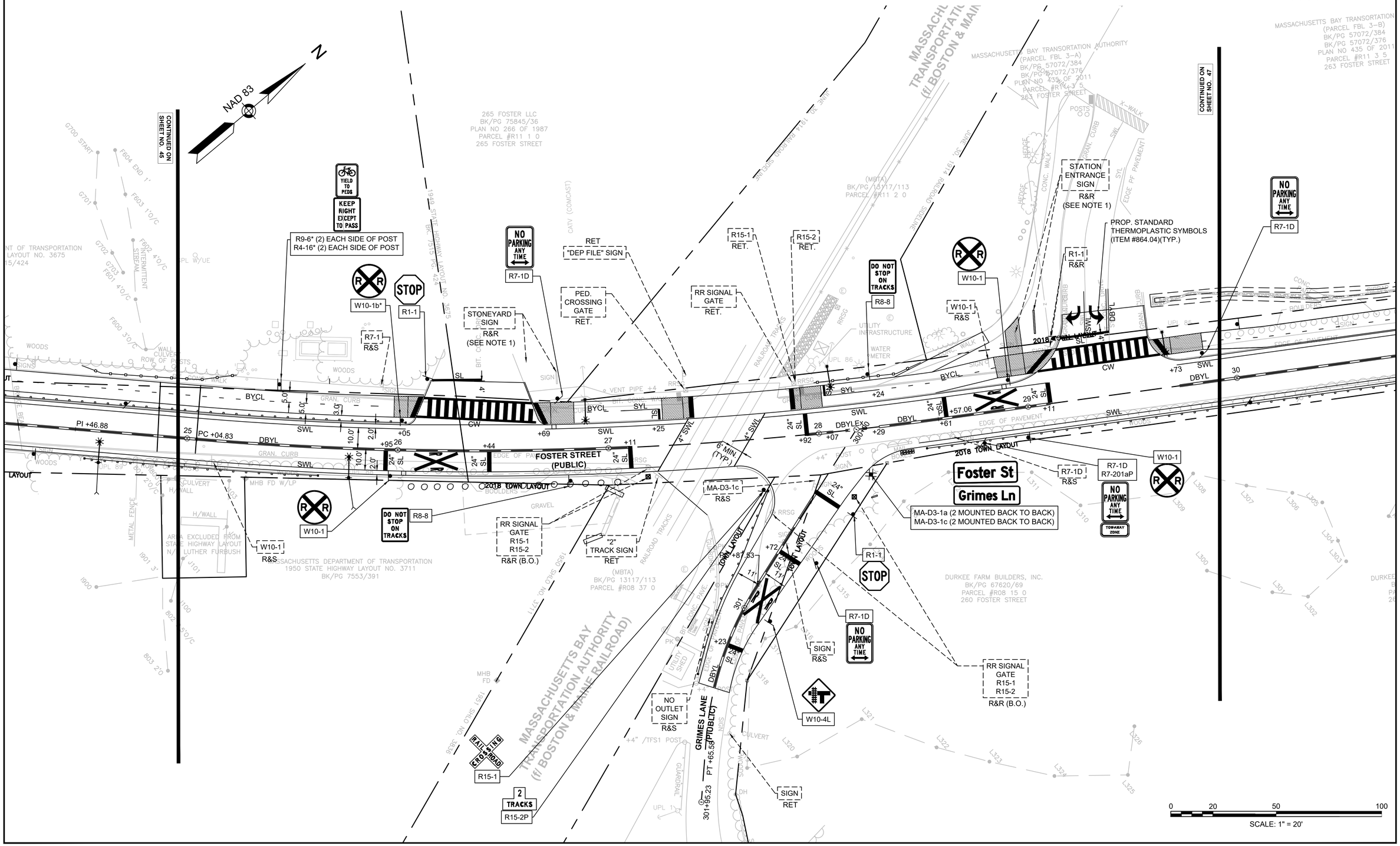
NOTES
1. REMOVE AND RESET OF THESE SIGNS SHALL BE PAID FOR UNDER ITEM 874.85

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	46	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 19-Apr-2023 1:55 AM

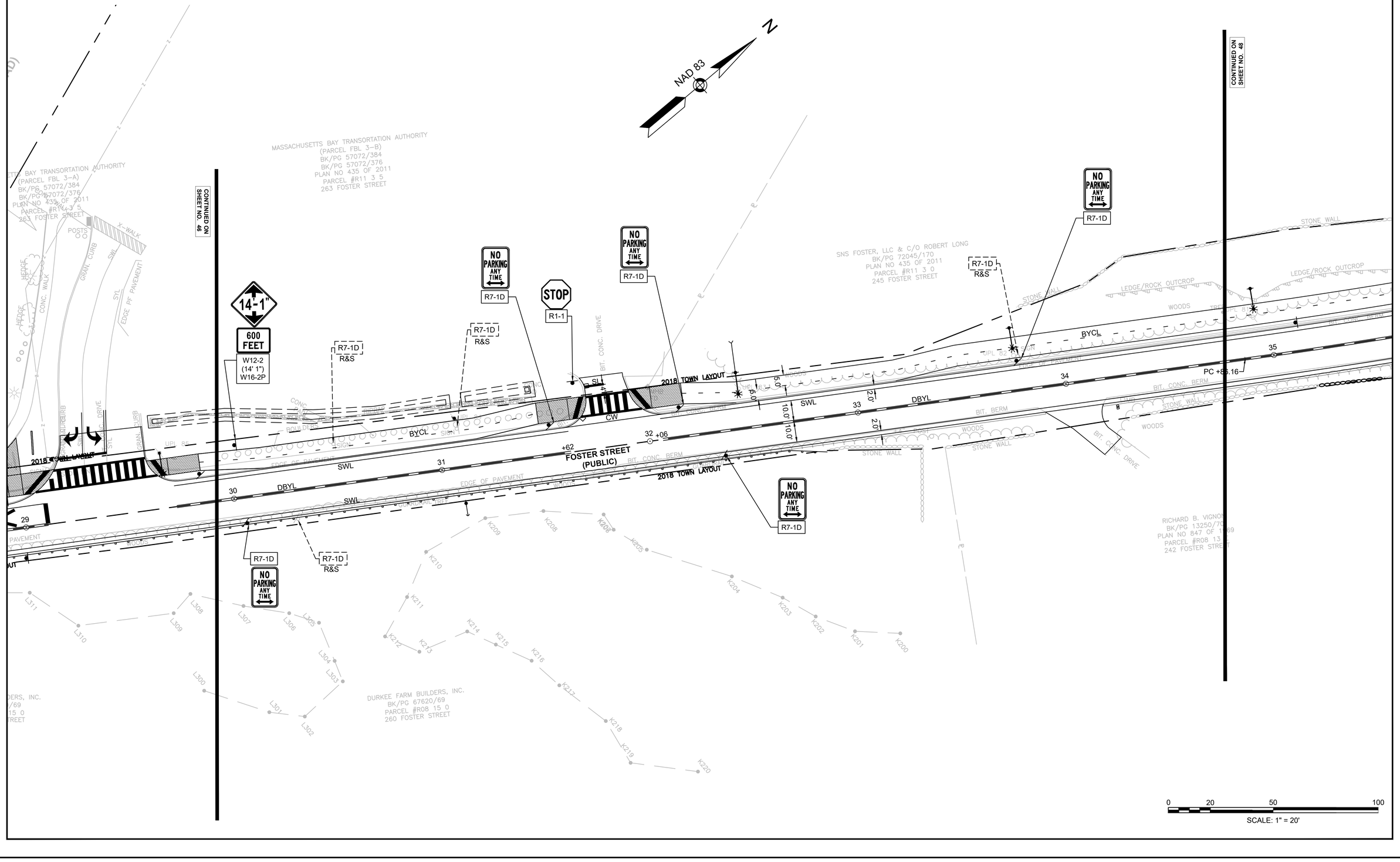


SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	47	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN



SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	48	129
	PROJECT FILE NO. 609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 19-Apr-2023 1:55 AM

NAD 83 N

CONTINUED ON SHEET NO. 47

SPEED LIMIT 30
R2-1(30)

BIKE ROUTE
Rail Station 0.1
Taylor St 0.7
D11-1*
D1-2a*

BIKE ROUTE
END
USE PED SIGNAL
D11-1*
M4-6*
R9-5*

NO MOTOR VEHICLES
R5-3*

YIELD TO PEDS
KEEP RIGHT EXCEPT TO PASS
R9-6*
R4-16*

RRFB
W11-2 (2)
W16-7pR
W16-7pL

BIKE ROUTE
D11-1
M6-1R

Littleton/Rte 495 Sta
MA-D1-5a(T)-c

AHEAD
W11-2
W16-9p

AHEAD
W11-2
W16-9P

ON ROADWAY
W11-1
MA-W16-19P

RRFB
W11-2 (2)
W16-7pR
W16-7pL

R1-1
MA-D3-1
(BALSAM LN)
R&R

END OF PROJECT
PROJ. NO. 609054
STA. 39+36.15
N 3015278.1762
E 656130.7752

MATCH EXISTING MARKINGS

2018 TOWN LAYOUT

2020 TOWN LAYOUT

FOSTER STREET (PUBLIC)

BALSAM LANE (PUBLIC)

PC +85.16
PT +90.37
PC +06.15
PT +11.89
39+98.64

SNS FOSTER, LLC & C/O ROBERT LONG
BK/PG 72045/170
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET

PATRICIA A. NARGIZIAN
BK/PG 70735/467
PARCEL #R11 5 4
237 FOSTER STREET

RICHARD B. VIGNONI
BK/PG 13250/70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

QUINN E. & JENNIFER A. CANFIELD
BK/PG 55588/290
PLAN NO 188 OF 1971
PARCEL #R08 13 D
238 FOSTER STREET

LEDGE/ROCK OUTCROP
STONE WALL
WOODS
BIT. CONC. BERM
BIT. CONC. DRIVE
GUARDRAIL
CONC. WALL
BIT. CURB
GRASS
BIT. CONC. WALK
LANDSCAPED AREA
CATV (COMCAST)
GARDEN
26"PINE
14"PINE

0 20 50 100
SCALE: 1" = 20'

GENERAL NOTES:

1. IF EXISTING PIPES SHOWN TO BE REMOVED ARE WITHIN THE LIMITS OF NEW PIPE TRENCH EXCAVATION, THEN THE REMOVAL COST OF THE OLD PIPES SHALL BE INCLUDED IN THE UNIT COST FOR THE NEW PIPE THAT IS BEING INSTALLED. IF PIPES SHOWN TO BE REMOVED ARE OUTSIDE THE LIMITS OF NEW PIPE TRENCH (AS DETERMINED BY THE ENGINEER), THEN REMOVAL COST SHALL BE PAID UNDER ITEM 141. CLASS A TRENCH EXCAVATION.
2. ALL PROPOSED (NEW) CATCH BASINS SHALL HAVE 4' SUMPS.
3. ALL CATCH BASINS WITHIN THE PAVED ROADWAY SHALL HAVE CASCADE STYLE/BICYCLE SAFE GRATES UNLESS OTHERWISE NOTED ON THE PLANS.
4. ALL ELEVATIONS, STATIONS, AND OFFSETS FOR ALL CATCH BASINS AND DRAINAGE MANHOLES COME FROM CENTER OF COVER OR GRATE.
5. CONTRACTOR SHALL USE APPROPRIATELY SIZED RCP TO MATCH INTO EXISTING PIPES AS SHOWN.

ELECTRICAL NOTES:

1. CONTRACTOR SHALL COORDINATE WITH LITTLETON LIGHT AND ELECTRIC DEPT. (LELD) ON THE TIMING OF TRANSFER FOR PRIMARY RISER AT UTILITY POLES #78, 99, 104, AND 105. DISRUPTION TO COMMERCIAL PROPERTIES SHALL BE MINIMIZED BY WEEKEND WORK OR THE USE OF GENERATORS.

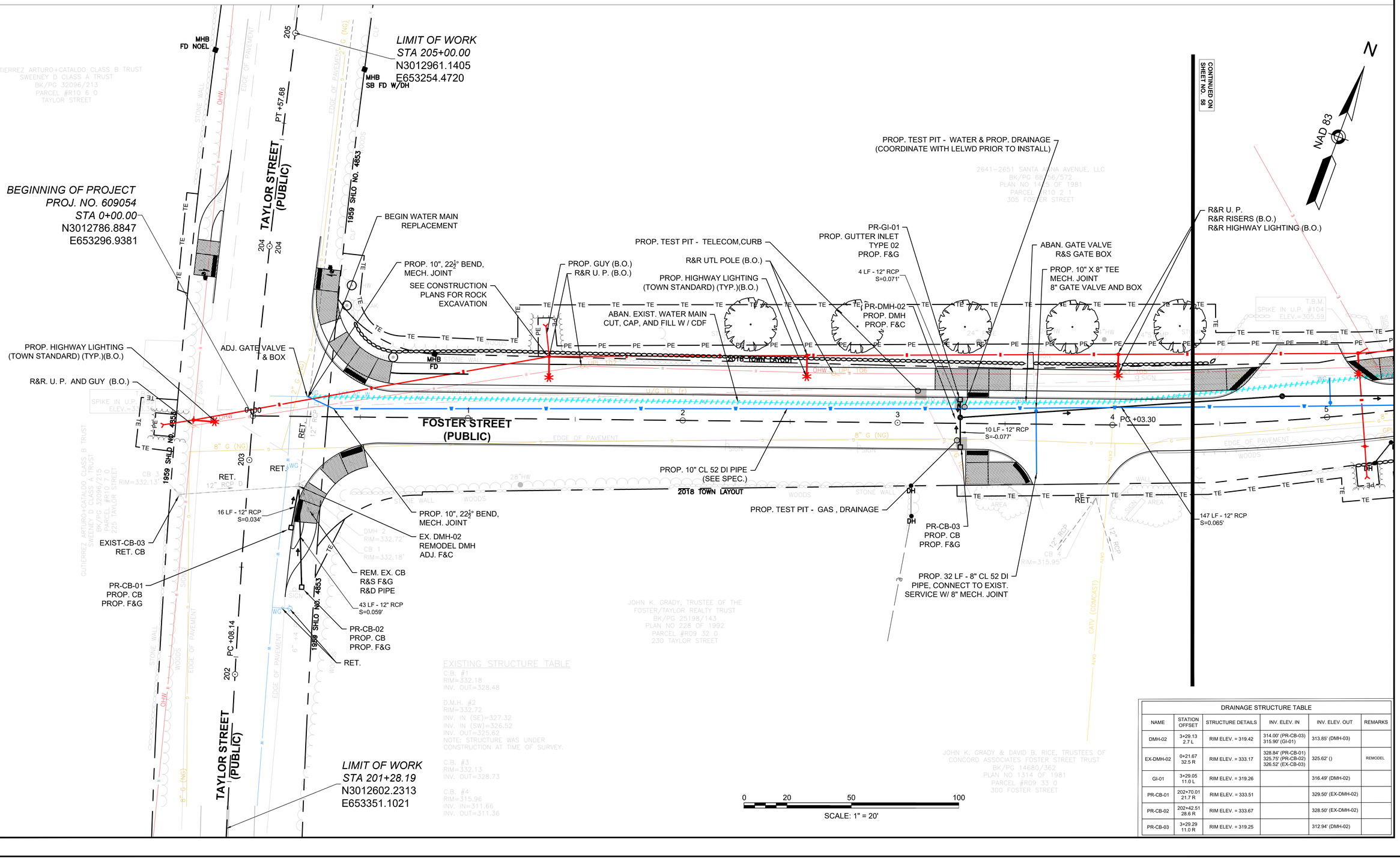
TREE TRIMMING NOTES:

1. LIMITS OF SELECTIVE CLEARING AND THINNING SHALL BE 10FT OFFSET BACK FROM ANY RESET OHW OR AS SHOWN ON CONSTRUCTION PLANS.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	57	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022



EXISTING STRUCTURE TABLE

C.B. #1
RIM=332.18
INV. OUT=328.48

D.M.H. #2
RIM=332.72
INV. IN (SE)=327.32
INV. IN (SW)=326.52
INV. OUT=325.62
NOTE: STRUCTURE WAS UNDER CONSTRUCTION AT TIME OF SURVEY.

C.B. #3
RIM=332.13
INV. OUT=328.73

C.B. #4
RIM=315.96
INV. IN=311.66
INV. OUT=311.36

DRAINAGE STRUCTURE TABLE

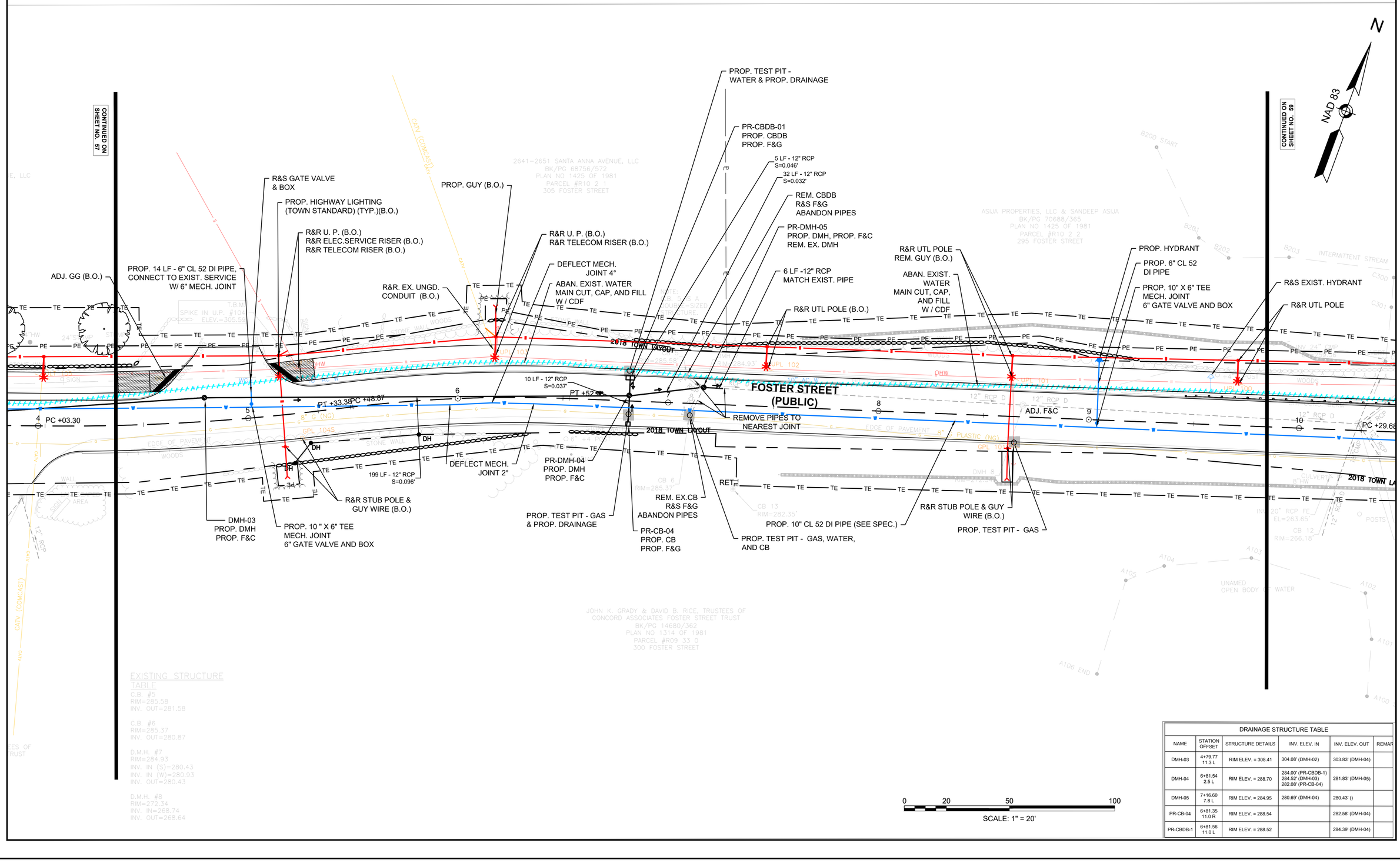
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-02	3+29.13 2.7 L	RIM ELEV. = 319.42	314.00' (PR-CB-03) 315.90' (GI-01)	313.85' (DMH-03)	
EX-DMH-02	0+21.67 32.5 R	RIM ELEV. = 333.17	328.84' (PR-CB-01) 325.75' (PR-CB-02) 326.52' (EX-CB-03)	325.62' ()	REMODEL
GI-01	3+29.05 11.0 L	RIM ELEV. = 319.26		316.49' (DMH-02)	
PR-CB-01	202+70.01 21.7 R	RIM ELEV. = 333.51		329.50' (EX-DMH-02)	
PR-CB-02	202+42.51 28.6 R	RIM ELEV. = 333.67		328.50' (EX-DMH-02)	
PR-CB-03	3+29.29 11.0 R	RIM ELEV. = 319.25		312.94' (DMH-02)	

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	58	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022



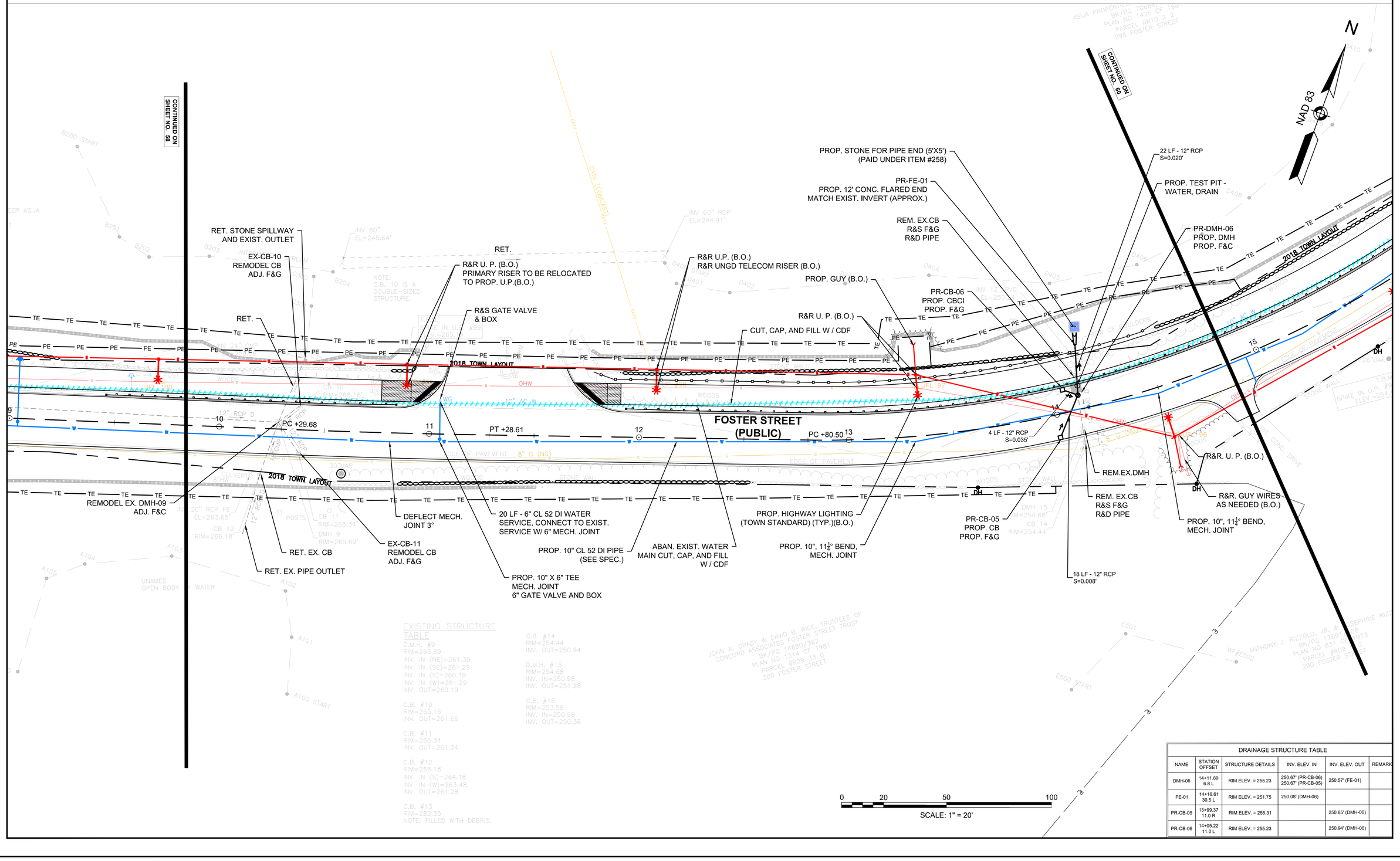
DRAINAGE STRUCTURE TABLE					
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMAR
DMH-03	4+79.77 11.3 L	RIM ELEV. = 308.41	304.08' (DMH-02)	303.83' (DMH-04)	
DMH-04	6+81.54 2.5 L	RIM ELEV. = 288.70	284.00' (PR-CBDB-1) 284.52' (DMH-03) 282.08' (PR-CB-04)	281.83' (DMH-05)	
DMH-05	7+16.60 7.8 L	RIM ELEV. = 284.95	280.69' (DMH-04)	280.43' ()	
PR-CB-04	6+81.35 11.0 R	RIM ELEV. = 288.54		282.58' (DMH-04)	
PR-CBDB-1	6+81.56 11.0 L	RIM ELEV. = 288.52		284.39' (DMH-04)	

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	59	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022



0 20 50 100
SCALE: 1" = 20'

EXISTING STRUCTURE TABLE

D.M.H. #9
RIM=265.69
INV. IN (NE)=261.39
INV. IN (SE)=261.29
INV. IN (S)=260.19
INV. IN (W)=261.29
INV. OUT=260.19

C.B. #10
RIM=265.16
INV. OUT=261.66

C.B. #11
RIM=265.34
INV. OUT=261.34

C.B. #12
RIM=266.18
INV. IN (S)=264.18
INV. IN (W)=263.48
INV. OUT=261.28

C.B. #13
RIM=282.35
NOTE: FILLED WITH DEBRIS.

C.B. #14
RIM=254.44
INV. OUT=250.94

D.M.H. #15
RIM=254.68
INV. IN=250.98
INV. OUT=251.28

C.B. #16
RIM=253.58
INV. IN=250.98
INV. OUT=250.38

DRAINAGE STRUCTURE TABLE

NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARK
DMH-06	14+11.89 6.8 L	RIM ELEV. = 255.23	250.67' (PR-CB-06) 250.67' (PR-CB-05)	250.57' (FE-01)	
FE-01	14+16.61 30.5 L	RIM ELEV. = 251.75	250.08' (DMH-06)		
PR-CB-05	13+99.37 11.0 R	RIM ELEV. = 255.31		250.85' (DMH-06)	
PR-CB-06	14+05.22 11.0 L	RIM ELEV. = 255.23		250.94' (DMH-06)	

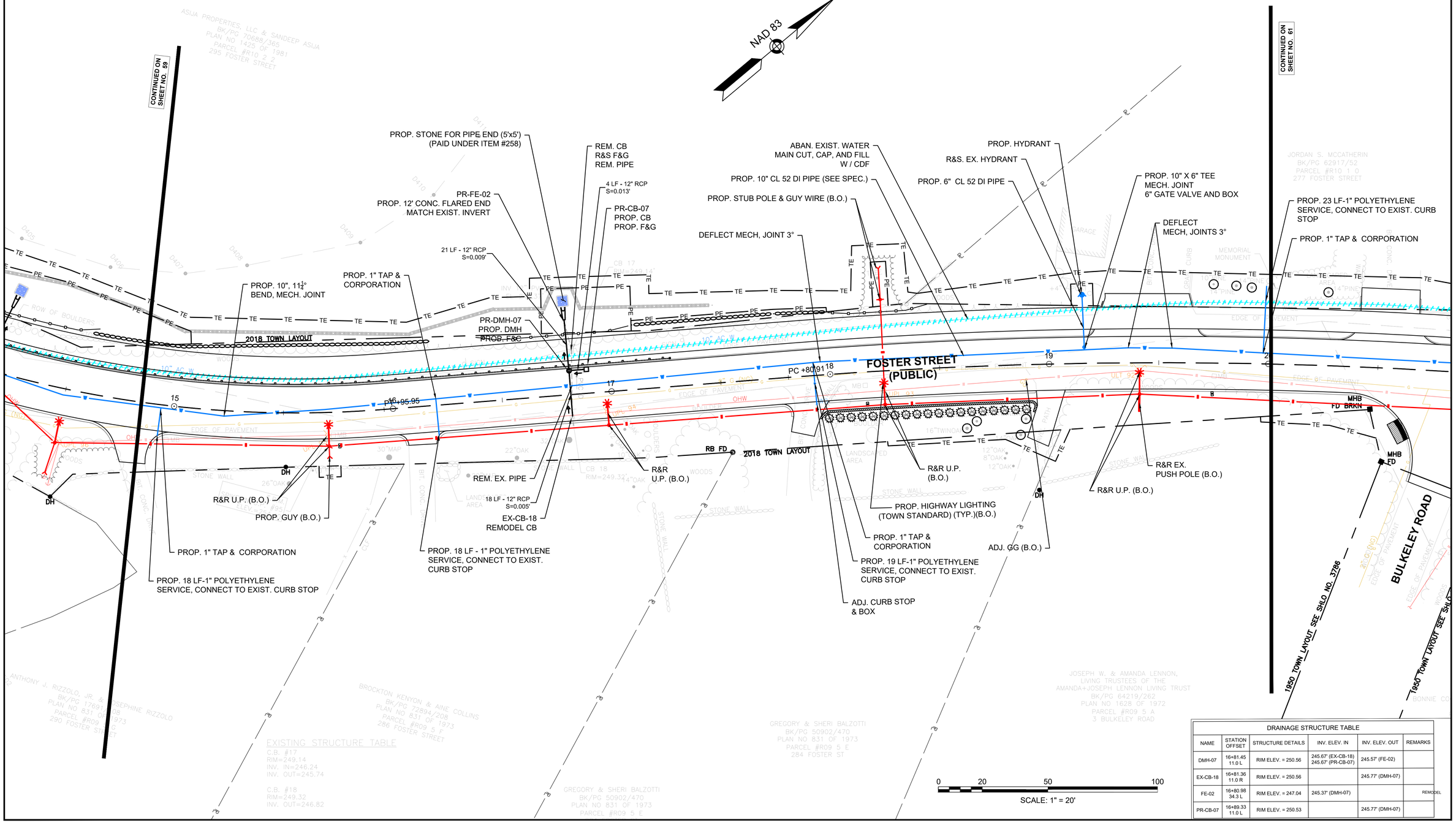
Plotted on 19-Apr-2023 1:56 AM
20170044A21_COLOR_UTL01.DWG

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	60	129
	PROJECT FILE NO. 609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022



DRAINAGE STRUCTURE TABLE

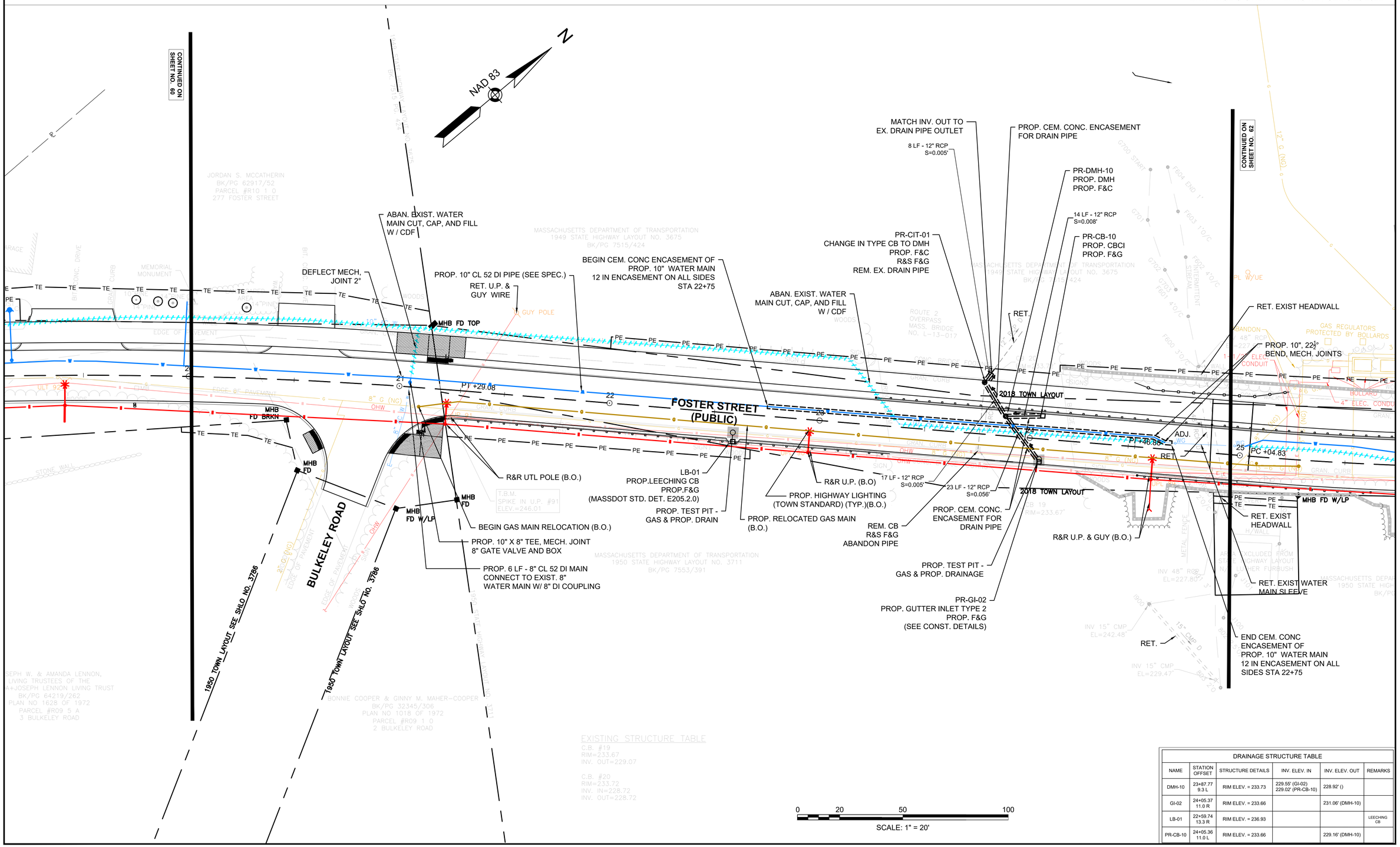
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-07	16+81.45 11.0 L	RIM ELEV. = 250.56	245.67' (EX-CB-18) 245.67' (PR-CB-07)	245.57' (FE-02)	
EX-CB-18	16+81.36 11.0 R	RIM ELEV. = 250.56		245.77' (DMH-07)	
FE-02	16+80.98 34.3 L	RIM ELEV. = 247.04	245.37' (DMH-07)		REMODEL
PR-CB-07	16+89.33 11.0 L	RIM ELEV. = 250.53		245.77' (DMH-07)	

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	61	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022



DRAINAGE STRUCTURE TABLE					
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-10	23+87.77 9.3 L	RIM ELEV. = 233.73	229.55' (GI-02) 229.02' (PR-CB-10)	228.92' ()	
GI-02	24+05.37 11.0 R	RIM ELEV. = 233.66		231.06' (DMH-10)	
LB-01	22+59.74 13.3 R	RIM ELEV. = 236.93			LEECHING CB
PR-CB-10	24+05.36 11.0 L	RIM ELEV. = 233.66		229.16' (DMH-10)	

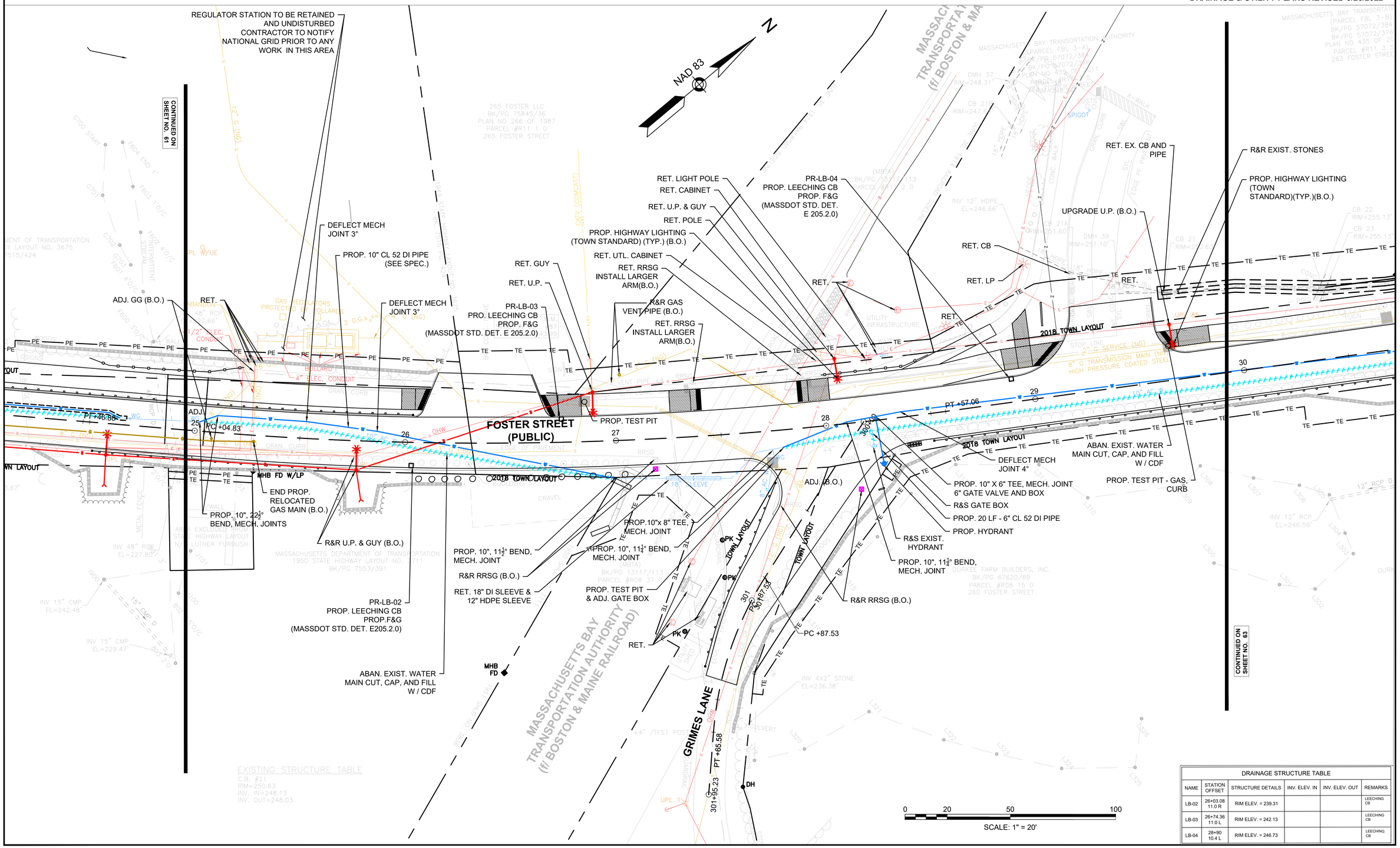
NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	62	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022

20170044A21_COLOR_UTL01.DWG Plotted on 19-Apr-2023 1:57 AM



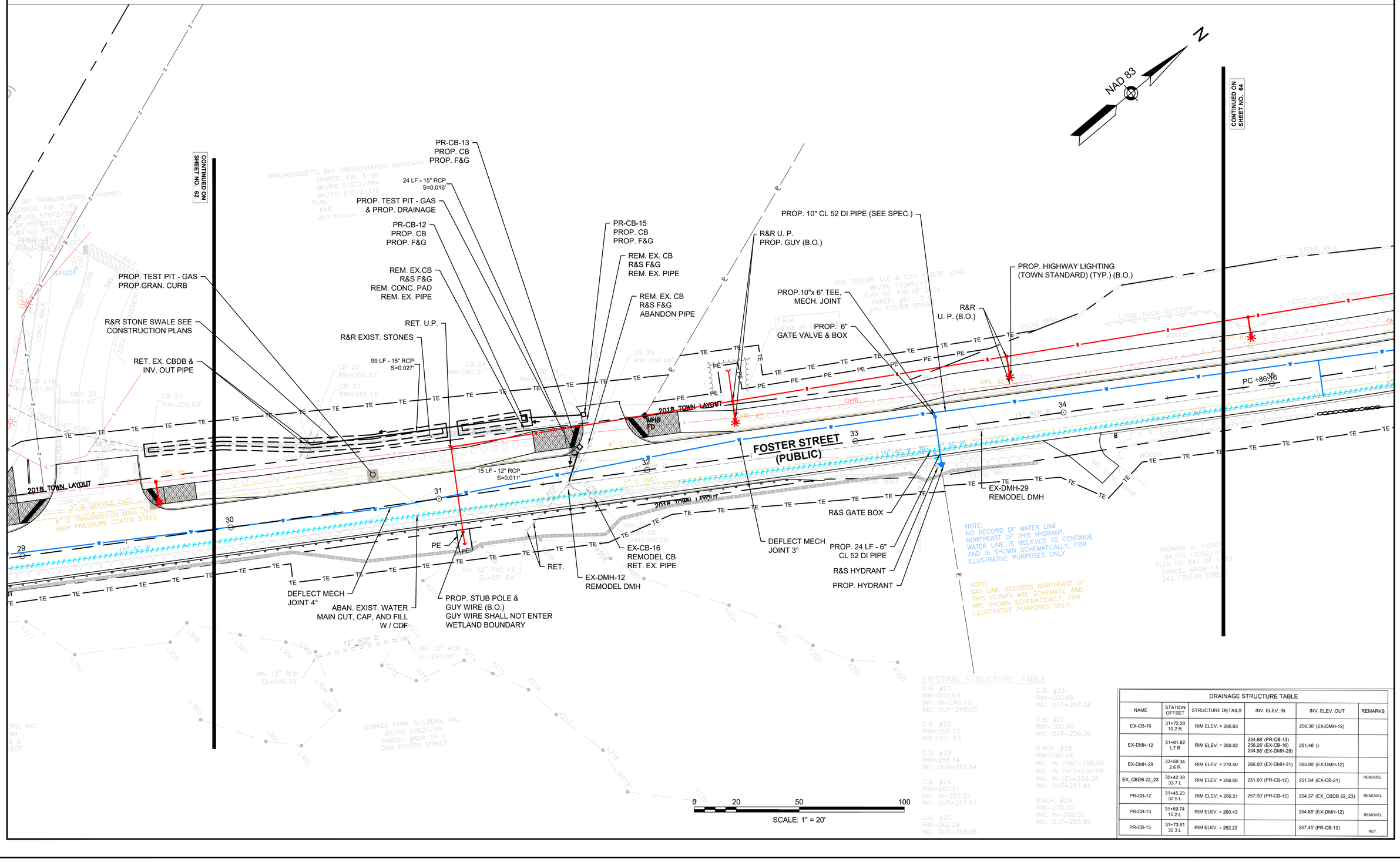
DRAINAGE STRUCTURE TABLE					
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
LB-02	26+03.08 11.0 R	RIM ELEV. = 239.31			LEECHING CB
LB-03	26+74.36 11.0 L	RIM ELEV. = 242.13			LEECHING CB
LB-04	28+90 10.4 L	RIM ELEV. = 246.73			LEECHING CB

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	63	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022



EXISTING STRUCTURE TABLE

C.B. #21
RIM=250.63
INV. IN=248.13
INV. OUT=248.03

C.B. #22
RIM=255.13
INV.=251.53

C.B. #23
RIM=255.14
INV. OUT=251.54

C.B. #24
RIM=260.31
INV. IN=257.51
INV. OUT=257.51

C.B. #25
RIM=262.28
INV. OUT=258.98

C.B. #26
RIM=260.68
INV. OUT=257.38

C.B. #27
RIM=260.40
INV. OUT=256.30

D.M.H. #28
RIM=260.06
INV. IN (NW)=256.06
INV. IN (NE)=254.96
INV. IN (E)=256.26
INV. OUT=251.46

D.M.H. #29
RIM=270.50
INV. IN=266.00
INV. OUT=265.90

DRAINAGE STRUCTURE TABLE

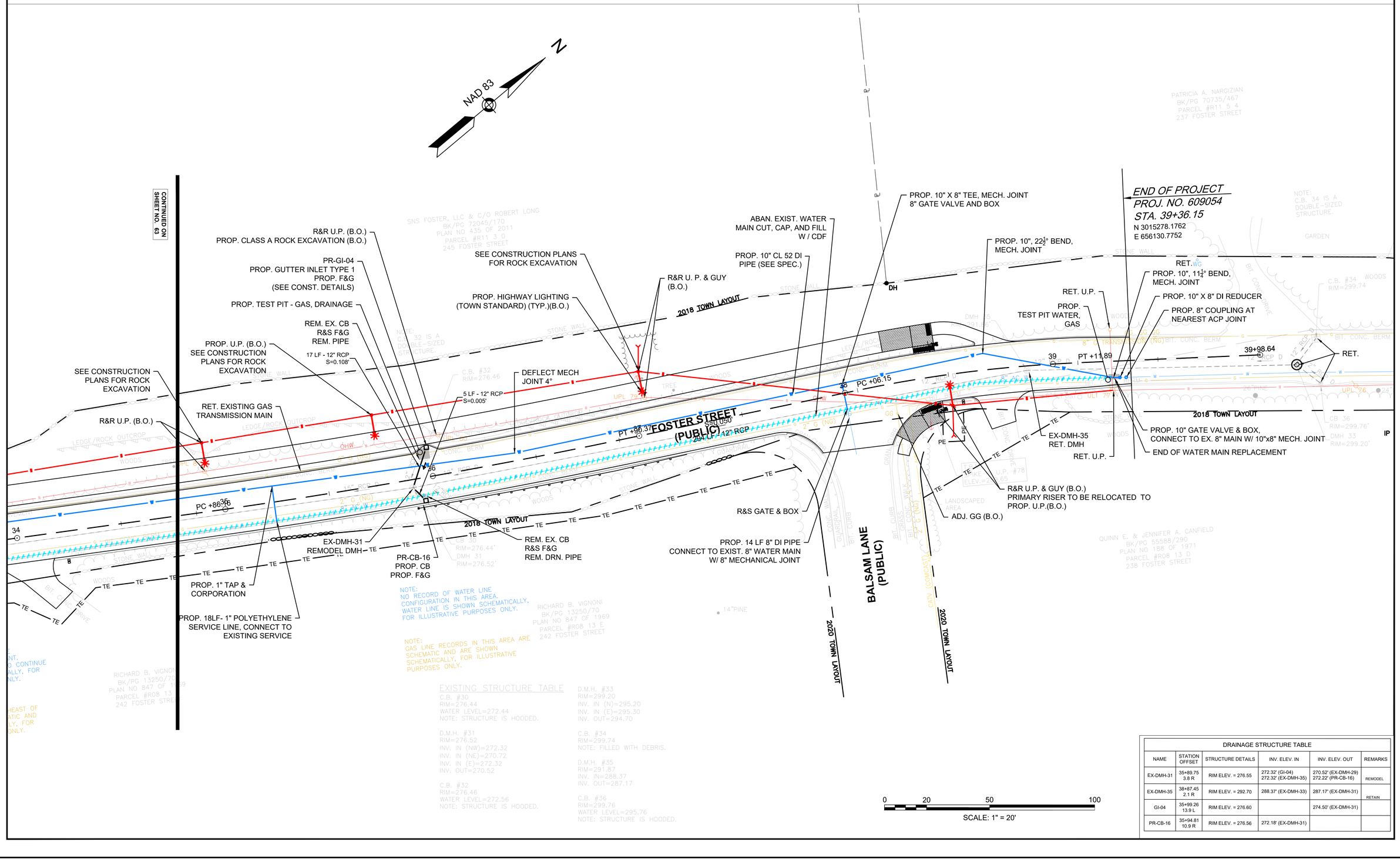
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
EX-CB-16	31+72.28 10.2 R	RIM ELEV. = 260.63		256.30' (EX-DMH-12)	
EX-DMH-12	31+61.92 1.7 R	RIM ELEV. = 260.02	254.68' (PR-CB-13) 256.26' (EX-CB-16) 254.96' (EX-DMH-29)	251.46' ()	
EX-DMH-29	33+59.34 2.6 R	RIM ELEV. = 270.40	266.00' (EX-DMH-31)	265.90' (EX-DMH-12)	
EX_CBDB 22_23	30+42.39 33.7 L	RIM ELEV. = 256.60	251.60' (PR-CB-12)	251.54' (EX-CB-21)	REMODEL
PR-CB-12	31+45.23 32.5 L	RIM ELEV. = 260.51	257.00' (PR-CB-15)	254.37' (EX_CBDB 22_23)	REMODEL
PR-CB-13	31+69.74 15.2 L	RIM ELEV. = 260.43		254.88' (EX-DMH-12)	REMODEL
PR-CB-15	31+73.61 30.3 L	RIM ELEV. = 262.22		257.45' (PR-CB-12)	RET.

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	64	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS REVISED 5/26/2022



DRAINAGE STRUCTURE TABLE

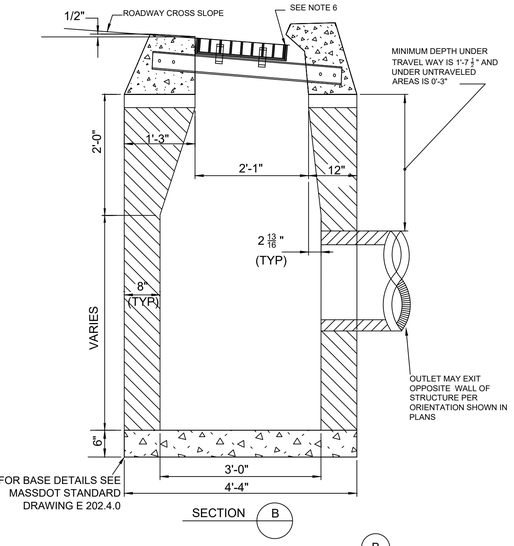
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
EX-DMH-31	35+89.75 3.8 R	RIM ELEV. = 276.55	272.32' (GI-04) 272.32' (EX-DMH-35)	270.52' (EX-DMH-29) 272.22' (PR-CB-16)	REMODEL
EX-DMH-35	38+87.45 2.1 R	RIM ELEV. = 292.70	288.37' (EX-DMH-33)	287.17' (EX-DMH-31)	RETAIN
GI-04	35+99.26 13.9 L	RIM ELEV. = 276.60		274.50' (EX-DMH-31)	
PR-CB-16	35+94.81 10.9 R	RIM ELEV. = 276.56	272.18' (EX-DMH-31)		

LITTLETON
RECONSTRUCTION OF FOSTER STREET

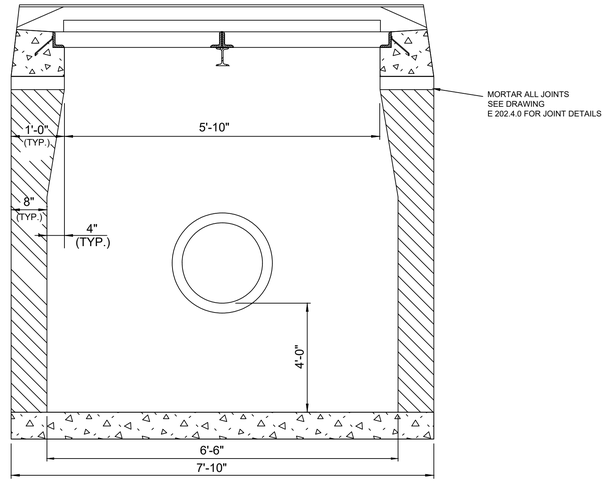
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	65	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY DETAILS

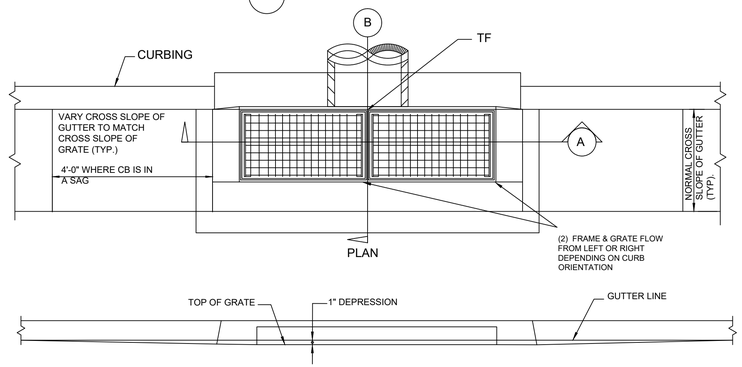
20170044A21_DET01.DWG 19-Apr-2023



SECTION B

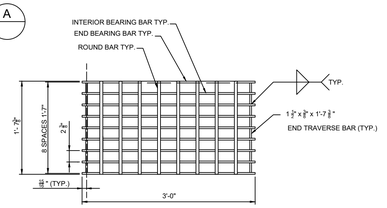


SECTION A

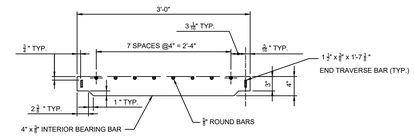


FOR CATCH BASINS IN A LINE OF 6" CONCRETE OR STONE CURBING

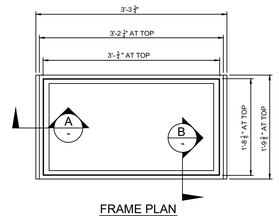
DETAILS OF DEPRESSED GUTTER STRIP



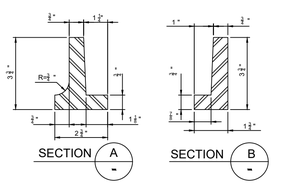
GRATE PLAN VIEW



GRATE ELEVATION-INTERIOR BEARING BAR



FRAME PLAN



SECTION A — SECTION B

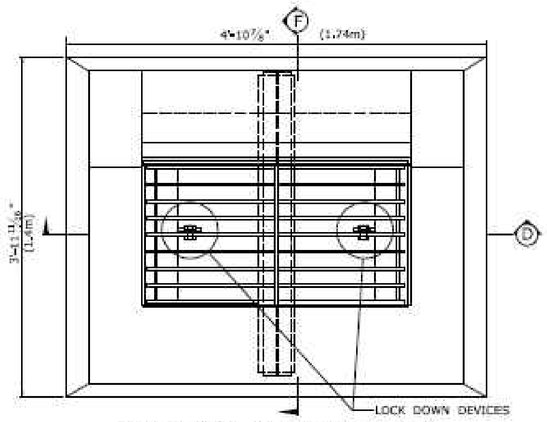
CAST IRON FRAME

CATCH BASIN NOTES:
1. INVERTS AND PIPE DIAMETERS PER UTILITY PLANS
2. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON MASSDOT STANDARD DETAIL 201.3.0
3. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE
4. FOR DESCRIPTION OF MATERIALS AND CONSTRUCTION METHOD, SEE STANDARD MASSDOT SPECIFICATIONS SECTION 200
5. ALL CONCRETE TO BE AIR ENTRAINED
6. TOP OF FRAME ELEVATION SHALL BE MEASURED IN THE CENTER OF THE GRATE AT GUTTER LINE

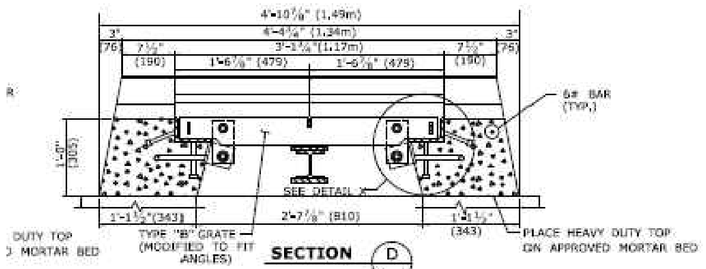
FRAME AND GRATE NOTES:
1. DIMENSIONAL TOLERANCE SHALL BE + 1/16"
2. ALL STEEL BARS SHALL BE WELDED AT ALL INTERSECTIONS
3. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS STRUCTURAL WELDING CODE, D1.1
4. STEEL AND CAST IRON MATERIALS SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 200

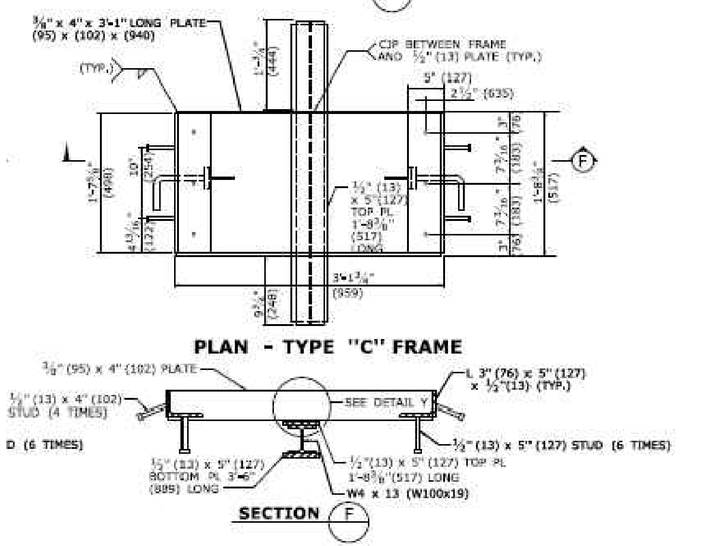
1 DOUBLE CATCH BASIN WITH CURB INLET

SCALE: N.T.S.

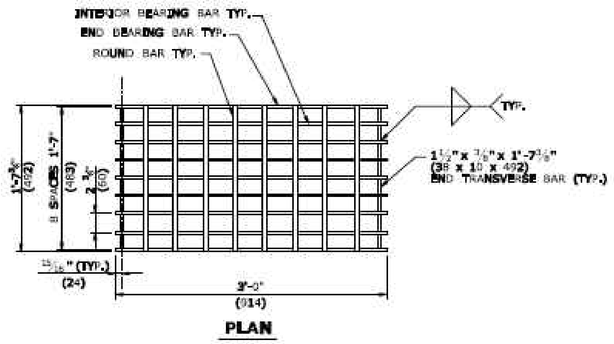


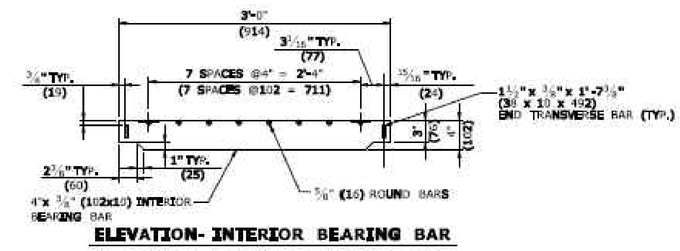
PLAN-TYPE "C" HEAVY DUTY CATCH BASIN TOP

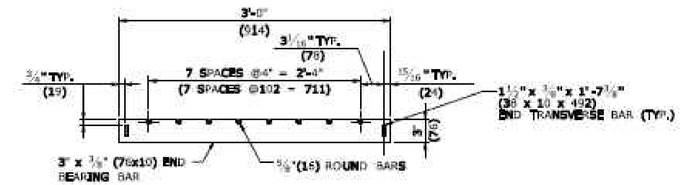




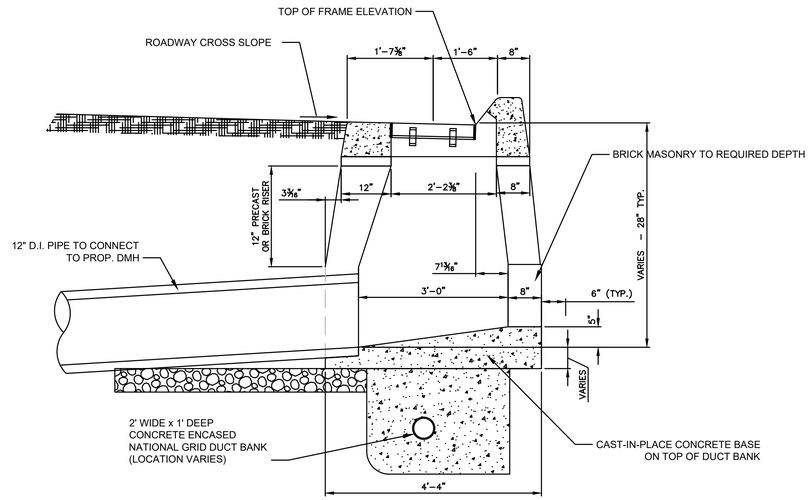
2 DOUBLE CATCH BASIN FRAME
SCALE: N.T.S.







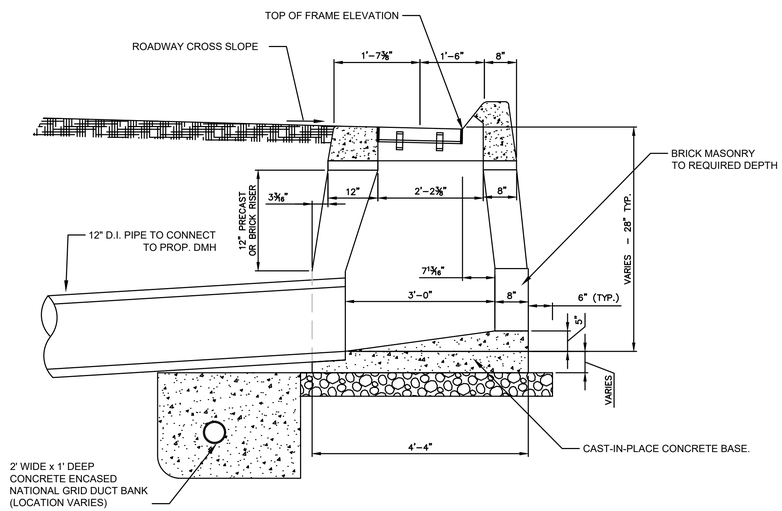
3 DOUBLE CATCH BASIN GRATE
SCALE: N.T.S.



GUTTER INLET - SPECIAL TYPE 1 GENERAL NOTES

1. IF CONCRETE MASONRY UNITS ARE REQUIRED, THE BASIN SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE OVER ALL DIMENSIONS SHOWN HERE. CORBELLING WILL BE ALLOWED AT A MAXIMUM OF 1" PER BLOCK, TURN TOP COURSE 90° TO FRONT AND SIDE WALLS ONLY. RED BRICK IS NOT TO BE USED.
2. END OF PIPE SHALL EXTEND TO AND BE CUT FLUSH WITH INSIDE FACE OF FACE OF GUTTER INLET WALL.
3. MINIMUM CONCRETE COMPRESSIVE STRENGTH OF F'c = 4000 PSI SHALL BE OBTAINED PRIOR TO SHIPPING.
4. ALL KNOCKOUTS IN PRECAST UNITS SHALL BE MADE FLUSH WITH EXTERIOR / INTERIOR OF UNITS USING CONCRETE, BRICKS AND MORTAR.
5. LATEST MASSDOT STANDARD SPECIFICATIONS AND SUPPLEMENTALS SHALL GOVERN.

4 GUTTER INLET – SPECIAL TYPE 1
SCALE: N.T.S.



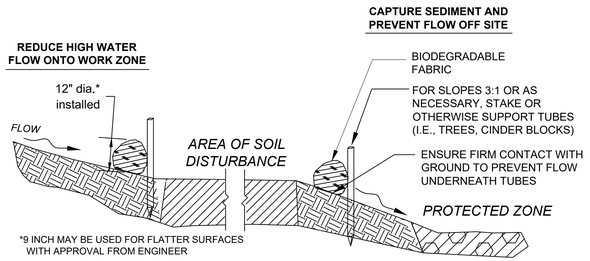
5 GUTTER INLET – SPECIAL TYPE 2
SCALE: N.T.S.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

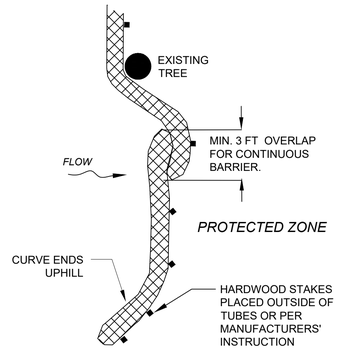
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	67	129
	PROJECT FILE NO.	609054	

CONSTRUCTION DETAILS

20170044A21_DET01.DWG 19-Apr-2023



SECTION



PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

PLACE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

PLAN VIEW

SEDIMENT BARRIER - COMPOST FILTER TUBES

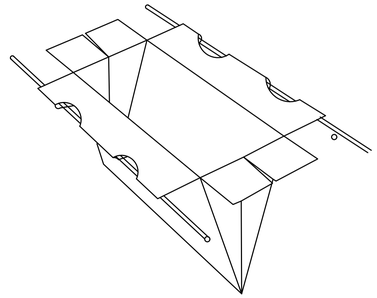
NOT TO SCALE

COMPOST FILTER TUBE

NOT TO SCALE

6 SEDIMENT BARRIERS – COMPOST FILTER TUBES

SCALE: N.T.S.

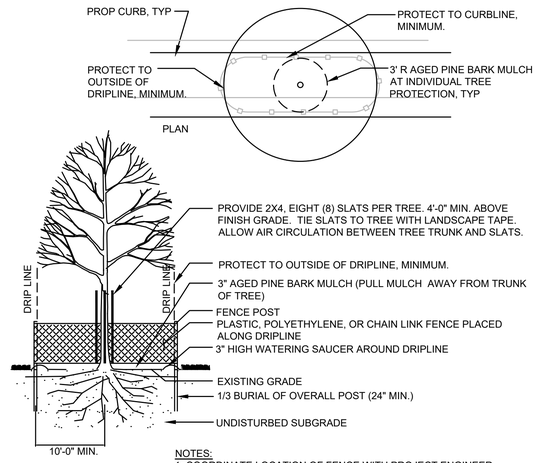


NOTES:

1. SIZED TO FIT ANY SIZE OR SHAPE CATCH BASIN.
2. ALL SEAMS DOUBLE STITCHED.
3. PERMEABILITY - REGULAR FLOW SILTSACK - 40 gal./min./sq. ft.
   HI - FLOW SILTSACK - 200 gal./min./sq. ft.

7 CATCH BASIN SILT SACK

SCALE: N.T.S.

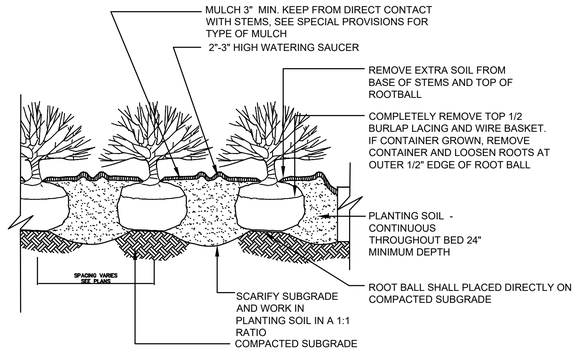


NOTES:
1. COORDINATE LOCATION OF FENCE WITH PROJECT ENGINEER.
2. IF EXCAVATION OCCURS WITHIN DRIPLINE, EXISTING ROOTS SHALL BE CLEANLY CUT PRIOR TO EXCAVATION BY A CERTIFIED ARBORIST AND TREES SHALL BE WATERED.

8 INDIVIDUAL TREE PROTECTION

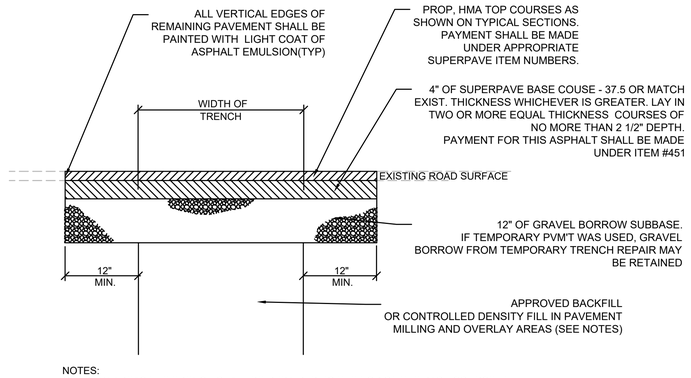
SCALE: N.T.S.

NOTES:
1. TOPSOIL SHALL HAVE A PH RANGE OF 5.5 TO 7 WITH A MINIMUM 2 PERCENT ORGANIC MATERIAL CONTENT. AMEND WITH SOIL AMENDMENTS AS NECESSARY.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE ENGINEER.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. PLANTS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE ROOTBALL IS 1"-2" ABOVE FINSHED GRADE.
5. COORDINATE PLANTING WITH RESIDENT ENGINEER PRIOR TO INSTALLATION.



9 SHRUB AND PERENNIAL PLANTING

SCALE: N.T.S.



NOTES:
OVERLAY AREAS:THE TRENCH SHALL BE REPAIRED TO THE TOP OF THE BASE COURSE. THE TOP COURSES SHALL BE PLACED WITH OVERLAY OF THE ROADWAY

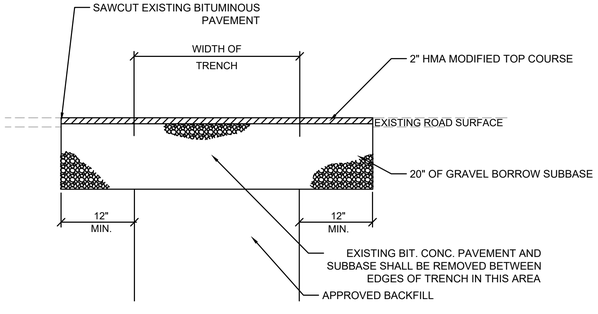
ROADWAY TRENCHING OUTSIDE OF FULL DEPTH AND OVERLAY: THE TRENCH SHALL BE REPAIRED WITH TOP COURSES INSTALLED WITH THE BASE COURSE.

CONTROLLED DENSITY FILL MAY BE USED IN LIEU OF APPROVED BACKFILL IN PAVEMENT MILLING AND OVERLAY AREAS WHERE NORMAL BACKFILL CANNOT PLACED OR TO REDUCE AMOUNT OF TIME NEED TO BACKFILL THE TRENCH. USE OF CONTROLLED DENSITY FILL TO BACKFILL TRENCHES SHALL BE APPROVED BY ENGINEER.

PERMANENT ASHPALT SHALL BE PAID FOR UNDER ITEM #451.

10 PERMANENT PAVEMENT TRENCH REPAIR IN ROADWAYS

SCALE: N.T.S.

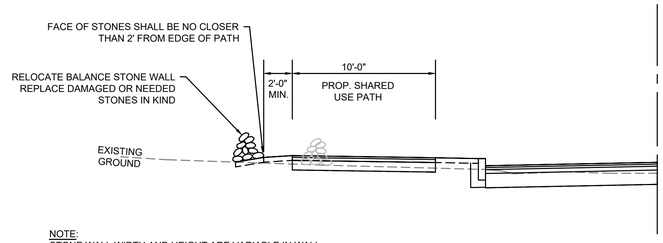


NOTES:
THE TEMPORARY PAVEMENT TRENCH REPAIR SHALL BE USED DURING THE TIME BETWEEN COMPLETION OF THE UTILITY CONSTRUCTION AND CONSTRUCTION OF THE PROPOSED ROADWAY PAVEMENT STRUCTURE OR PERMANENT PAVEMENT TRENCH REPAIR.

TEMPORARY ASHPALT SHALL BE PAID FOR UNDER ITEM #472

11 TEMPORARY PAVEMENT TRENCH REPAIR

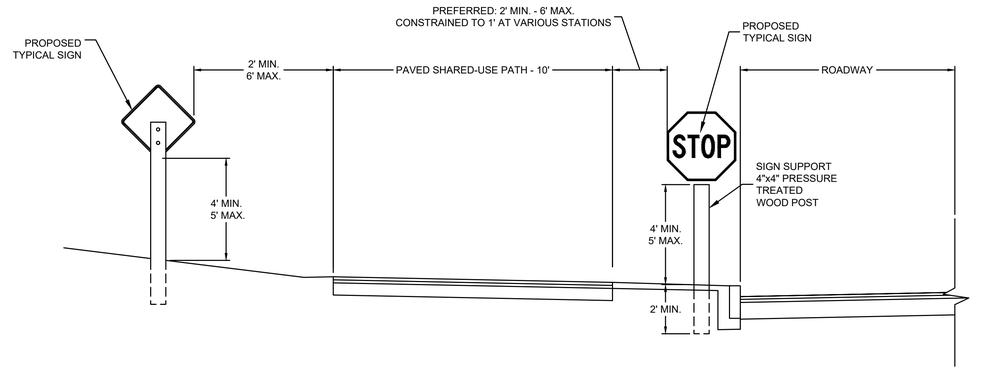
SCALE: N.T.S.



NOTE:
STONE WALL WIDTH AND HEIGHT ARE VARIABLE IN WALL REPLACEMENT AREAS. REPLACE IN KIND AT LOCATIONS SHOWN ON THE CONSTRUCTION PLANS.

12 BALANCE STONE WALL REMOVED AND REBUILT, DRY

SCALE: N.T.S.



13 SHARED–USE PATH TYPICAL SIGN PLACEMENT

SCALE: N.T.S.

NOTES:
1. ALL HARDWARE SHALL BE GALVANIZED.

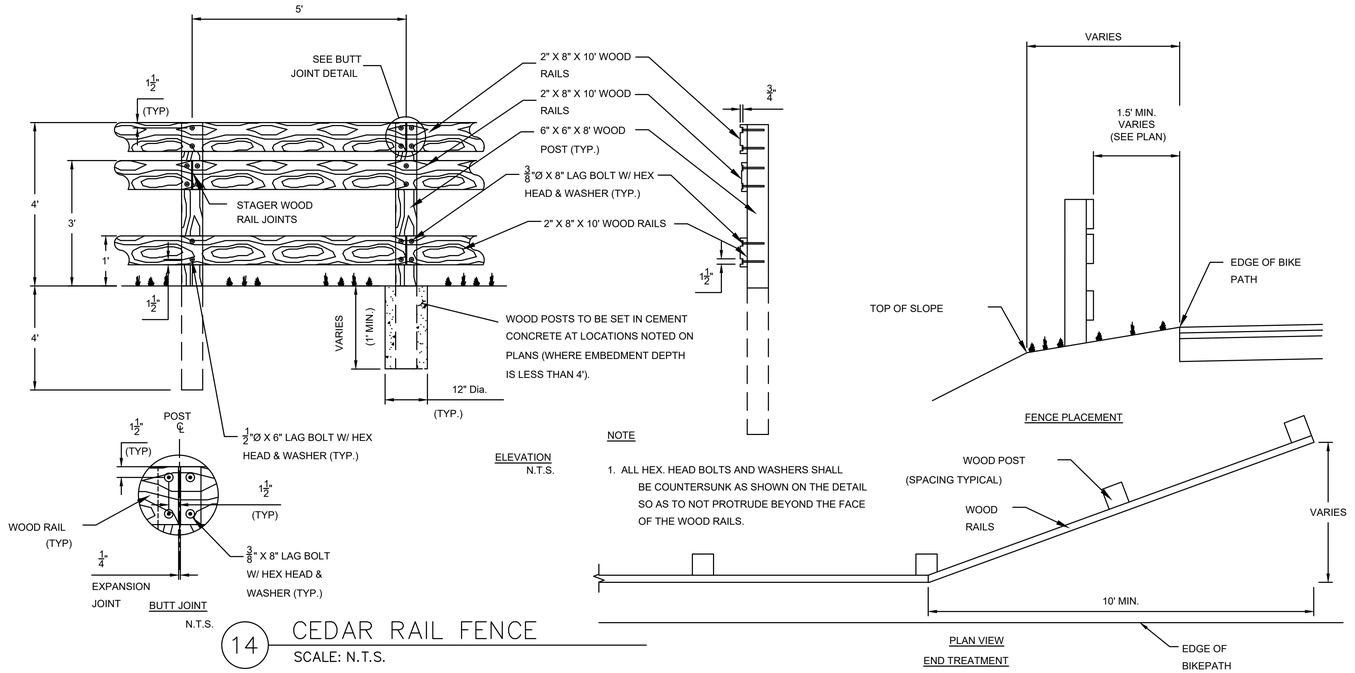
2. WOOD POSTS SHALL BE PAID FOR UNDER ITEM 847.11*.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	69	129
PROJECT FILE NO.	609054		

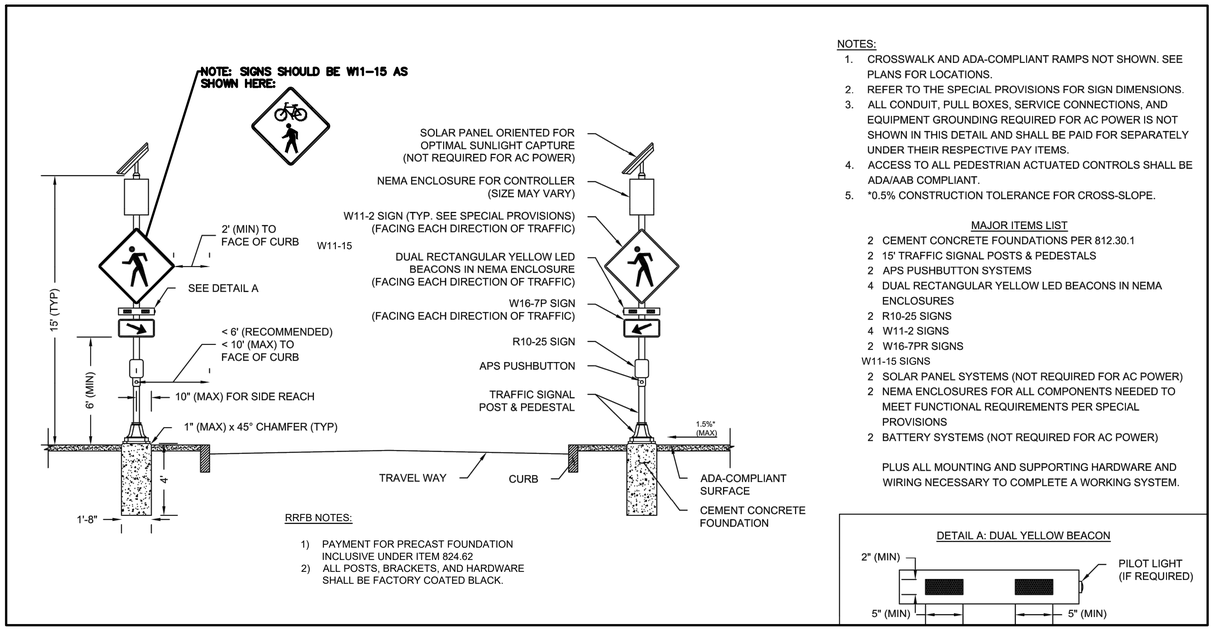
CONSTRUCTION DETAILS

20170044A21_DET01.DWG 19-Apr-2023



14 CEDAR RAIL FENCE
SCALE: N.T.S.

OPERATIONAL TIME BETWEEN ACTIVATION		
LOCATION #	STATION/ ROADWAY	MINIMUM ALLOWABLE TIME BETWEEN ACTUATION
1	203+87 TAYLOR ST	18s
2	36+45 FOSTER ST	12s
3	21+15 FOSTER ST	12s



RRFB NOTES:
1) PAYMENT FOR PRECAST FOUNDATION INCLUSIVE UNDER ITEM 824.62
2) ALL POSTS, BRACKETS, AND HARDWARE SHALL BE FACTORY COATED BLACK.

NOTES:
1. CROSSWALK AND ADA-COMPLIANT RAMPS NOT SHOWN. SEE PLANS FOR LOCATIONS.
2. REFER TO THE SPECIAL PROVISIONS FOR SIGN DIMENSIONS.
3. ALL CONDUIT, PULL BOXES, SERVICE CONNECTIONS, AND EQUIPMENT GROUNDING REQUIRED FOR AC POWER IS NOT SHOWN IN THIS DETAIL AND SHALL BE PAID FOR SEPARATELY UNDER THEIR RESPECTIVE PAY ITEMS.
4. ACCESS TO ALL PEDESTRIAN ACTUATED CONTROLS SHALL BE ADA/AAB COMPLIANT.
5. *0.5% CONSTRUCTION TOLERANCE FOR CROSS-SLOPE.

MAJOR ITEMS LIST
- 2 CEMENT CONCRETE FOUNDATIONS PER 812.30.1
- 2 15' TRAFFIC SIGNAL POSTS & PEDESTALS
- 2 APS PUSHBUTTON SYSTEMS
- 4 DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES
- 2 R10-25 SIGNS
- 4 W11-2 SIGNS
- 2 W16-7PR SIGNS
- W11-15 SIGNS
- 2 SOLAR PANEL SYSTEMS (NOT REQUIRED FOR AC POWER)
- 2 NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS
- 2 BATTERY SYSTEMS (NOT REQUIRED FOR AC POWER)

PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.

DETAIL A: DUAL YELLOW BEACON

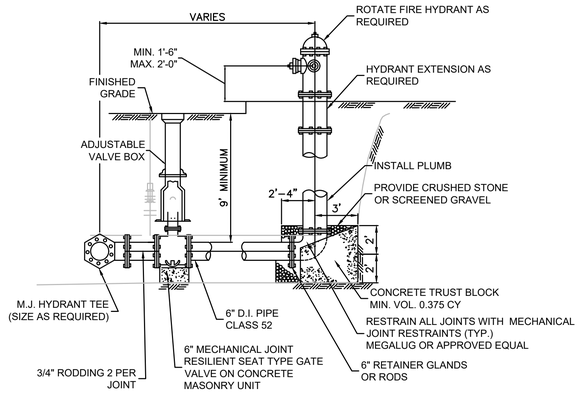
15 RECTANGULAR RAPID FLASHING BEACON (RRFB)
SCALE: N.T.S.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	70	129
PROJECT FILE NO.	609054		

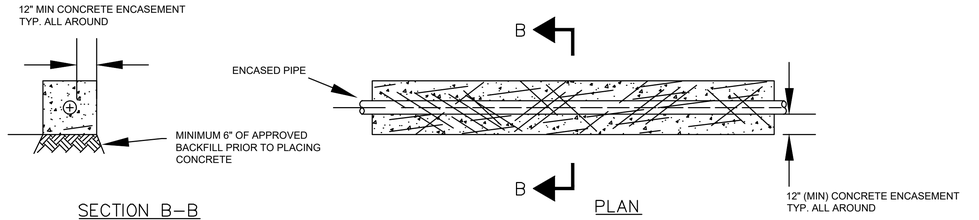
CONSTRUCTION DETAILS

20170044A21_DET01.DWG 19-Apr-2023



HYDRANT AND VALVE DETAIL
1) HYDRANT SHALL BE YELLOW
2) HYDRANT OPENS TO THE LEFT
3) LEAVE HYDRANT DRAINS OPEN

16 HYDRANT AND VALVE DETAIL
SCALE: N.T.S.



NOTE:
USE 3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE PER MASSDOT STANDARD MATERIAL SPEC.

17 CEM. CONCRETE PIPE ENCASEMENT
SCALE: N.T.S.

Appendix C

Notice To Abutters

NOTIFICATION TO ABUTTERS

Modified for Covid-19 Emergency Response

Notice of Intent or abbreviated Notice of Resource Area Delineation

Under MA Wetlands Protection Act and Littleton Wetlands Protection ByLaw (Chapter 171), this form must be completed and mailed, certified mail return receipt requested, to all abutters at their mailing addresses shown on the most recent Town Assessor's records as well as the owner (if not applicant).

In accordance with the MA Wetlands Protection Act and Littleton Wetlands Protection ByLaw Chapter 171-2D, you are hearby notified of a public hearing on the matter described below:

A. The applicant has filed a Notice of Intent with the Littleton Conservation Commission for work in an area subject to protection under the Massachusetts Wetlands Protection Act and Littleton Wetlands Protection ByLaw.

B. The name of the applicant is Stephen Jahnle

C. The address of the land where the activity is proposed is Foster Street from Taylor St to Balsam Ln

D. The work proposed is
Road reconstruction, shared-use path construction, water main replacement, catch basin replacement on Foster Street from Taylor Street to Balsam Lane, Intersection of Taylor Street and Foster Street, and Intersection of Grimes Lane and Foster Street

E. Due to the Commonwealth and Town of Littleton's Covid-19 Emergency Response, it is anticipated that paper copies of the Notice of Intent will not be available for inspection. Copies of the Notice of Intent may be examined at the Conservation Commission webpage at https://www.littletonma.org/conservation, under "Conservation Calendar" at least 48 hours before the meeting. If you click on the day of the meeting in the Calendar, you will be lead to a link showing posted project information. If you have questions you can contact the Littleton Conservation Commission (contact information at the end of this notice).

F. Due to the Commonwealth and Town of Littleton's Covid-19 Emergency Response, it is anticipated that paper copies of the Notice of Intent will not be available for distribution. Copies of the Notice of Intent may be obtained electronically from (check one) the ☐ applicant or ☑ the applicant's representative by calling 413-452-0445 during the following times: Fuss & O'Neill, Inc.

G. The public hearing will be held on TBD. Information regarding the date and time of the public hearing may be obtained from the Littleton Conservation Commission (see contact info at the end of this notice).

H. Notice of the public hearing, including date, will be published at least five business days in advance in a paper of local circulation. The agenda, noting times will be posted at Town Hall and at https://www.littletonma.org/conservation under "Conservation Calendar" at least 48 hours in advance of the meeting. It is currently anticipated that this meeting will be held entirely remotely, pursuant to Governor Baker's March 12, 2020 Order Suspending Certain Provisions of the Open Meeting Law and Governor Baker's March 15, 2020 Order imposing strict limitations on the number of people that may gather in one place. If the meeting is held remotely, instructions for remote viewing of, and participation in, the meeting will be included in the agenda and may also be obtained from the Littleton Conservation Commission.

You may contact the Littleton Conservation Commission Coordinator (Amy Green; agreen@littletonma.org; 978-540-2428), or the Massachusetts Department of Environmental Protection/ Central Region (508-792-7650) at 8 New Bond Street, Worcester, MA 01606) for information about this application

TOWN OF LITTLETON
BOARD OF ASSESSORS
P.O. BOX 1305
LITTLETON, MA 01460
(978) 540-2410
FAX: (978) 952-2321

Date: June 21, 2023

Re: Certified List of Abutters Conservation Commission

Applicant: Aaron Keegan
Name of Firm: Fuss & O'Neill, Inc.
Mailing Address 1550 Main Street Suite 400

Subject Parcel Location: Roadway; Foster Street 238-305 & Taylor Street 221-241
Subject Parcel No.: Roadway
Subject Owner Name: Town of Littleton

M.G.L. Chapter 131: Section 40 ..... "Any person filing a notice of intention with a conservation commission shall at the same time give written notification thereof, by delivery in hand or certified mail, return receipt requested, to all abutters within one hundred feet of the property line of the land where the activity is proposed, but not limited to, owners of land directly opposite said proposed activity on any public or private street or way, and in another municipality or across a body of water. When a notice of intent proposes activities on land under water bodies and waterways or on a tract of land greater than 50 acres, written notification shall be given to all abutters within 100 feet of the proposed project site. For the purposes of this action, "project site" shall mean lands where the following activities are proposed to take place: dredging, excavating, filling, grading, the erection, reconstruction or expansion of a building or structure, the driving of pilings, the construction or improvement of roads or other ways and the installation of drainage, sewerage and water systems, and "land under water bodies and waterways" shall mean the bottom of, or land under, the surface of the ocean or an estuary, creek, river stream, pond or lake. When a notice of intent proposes activity on a linear shaped project site longer than 1,000 feet in length, notification shall be given to all abutters within 1,000 feet of the proposed project site. If the linear project site takes place wholly within an easement through another person's land, notice shall also be given to the landowner. Said notification shall be at the applicant's expense, and shall state where copies of the notice of intention may be examined and obtained and where information regarding the date, time and place of the public hearing may be obtained. Proof of such notification, with a copy of the notice mailed or delivered, shall be filed with the conservation commission."…….

I hereby certify the attached list of abutter (s) as stated in the M.G.L. Chapter 131, Section 40.

Number of Abutter (s) ***161***

Certified by:

April Iannacone, Assistant Assessor

RTE 2 R06 2 0
LUC: 911
COMMONWEALTH OF MASSACHUSETTS
MASS DOT
10 PARK PLAZA-REAL ESTATE DEPT
BOSTON, MA 02116

212 FOSTER ST R08 11 0
LUC: 101
JOURIS WILLIAM E INV TRUST
JOURIS MARION E INV TRUST
212 FOSTER ST
LITTLETON, MA 01460

216 FOSTER ST R08 12 0
LUC: 101
RAUSA PAUL A/K/A RAUSA PAUL W
RAUSA REBECCA A/K/A REBECCA R
216 FOSTER ST
LITTLETON, MA 01460

FIR LN R08 13 0
LUC: 930
TOWN OF LITTLETON
PO BOX 1305
LITTLETON, MA 01460

5 FIR LN R08 13 2
LUC: 101
LAFERTY CRAIG WILLIAM JR
LAFERTY KRISTIN MELENEY
5 FIR LN
LITTLETON, MA 01460

3 FIR LN R08 13 3
LUC: 101
BELIN EVGENI
KUKLINA POLINA
3 FIR LN
LITTLETON, MA 01460

1 FIR LN R08 13 4
LUC: 101
TODD & JENNIFER SHULMAN REV TR
SHULMAN TODD L, TRUSTEE
1 FIR LN
LITTLETON, MA 01460

1 DOUGLAS RD R08 13 5
LUC: 101
GE JIJUN
SUN YUQING
1 DOUGLAS RD
LITTLETON, MA 01460

220 FOSTER ST R08 13 A
LUC: 101
CYNTHIA G DUBE REV TRUST
DUBE GREGORY P & CYNTHIA G TRS
220 FOSTER ST
LITTLETON, MA 01460

224 FOSTER ST R08 13 B
LUC: 101
BLANCHARD JOHN
BLANCHARD TERESA
224 FOSTER STREET
LITTLETON, MA 01460

234 FOSTER ST R08 13 C
LUC: 101
2021 JACOBS-ANDERSON FAMILY TR
TRUSTEE JACOBS DEBORAH
234 FOSTER ST
LITTLETON, MA 01460

238 FOSTER ST R08 13 D
LUC: 101
CANFIELD QUINN E
CANFIELD JENNIFER A
238 FOSTER ST
LITTLETON, MA 01460

242 FOSTER ST R08 13 E
LUC: 101
VIGNONI RICHARD B
242 FOSTER ST
LITTLETON, MA 01460

230 FOSTER ST R08 14 0
LUC: 101
BAUCOM ALLAN
230 FOSTER ST
LITTLETON, MA 01460

260 FOSTER ST R08 15 0
LUC: 101
DURKEE FARM BUILDERS INC
487 GROTON RD
WESTFORD, MA 01886

31 GRIMES LN R08 15 1
LUC: 101
BRANDON & KARA GUSTAFSON 2021
GUSTAFSON BRANDON FORD
31 GRIMES LN
LITTLETON, MA 01460

6 FRASER ST R08 15 10
LUC: 101
KARNATI V V REDDY 2017 REV TR
KARNATI KAVITHA 2017 REV TR
6 FRASER ST
LITTLETON, MA 01460

8 FRASER ST R08 15 11
LUC: 101
ROTHLEUTNER KRISTOFFER BRICE
ROTHLEUTNER LAURIE ANN
8 FRASER ST
LITTLETON, MA 01460

10 FRASER ST R08 15 12
LUC: 101
ZHANG YULIAN
10 FRASER ST
LITTLETON, MA 01460

12 FRASER ST R08 15 13
LUC: 101
ZHENG MINXING
CHAN LAI SIM
12 FRASER ST
LITTLETON, MA 01460

14 FRASER ST R08 15 14
LUC: 101
RIZZA MEGAN A
RIZZA CHRISTOPHER D
14 FRASER ST
LITTLETON, MA 01460

16 FRASER ST R08 15 15
LUC: 101
RICHARD MATTHEW J
RICHARD CATHERINE E
16 FRASER ST
LITTLETON, MA 01460

1 FRASER ST R08 15 16
LUC: 101
XIA WENYU
SHEN LINMING
1 FRASER ST
LITTLETON, MA 01460

3 FRASER ST R08 15 17
LUC: 101
KOSINSKI-COLLINS MELISSA S
COLLINS JOHN A IV
3 FRASER ST
LITTLETON, MA 01460

5 FRASER ST R08 15 18
LUC: 101
STEVENS CLIFFORD S
STEVENS TIFFANY D
5 FRASER ST
LITTLETON, MA 01460

7 FRASER ST R08 15 19
LUC: 101
SHARMA MANOJ K
SHARMA PUJA
7 FRASER ST
LITTLETON, MA 01460

BALSAM LN R08 15 2
LUC: 930
LITTLETON TOWN OF
37 SHATTUCK ST
LITTLETON, MA 01460

8 SPRUCE ST R08 15 20
LUC: 101
CROAL SEAN C
CROAL KATHLEEN A
8 SPRUCE ST
LITTLETON, MA 01460

6 SPRUCE ST R08 15 21
LUC: 101
AHUJA NEERAJ S
AHUJA KIRAN N
6 SPRUCE ST
LITTLETON, MA 01460

4 SPRUCE ST R08 15 22
LUC: 101
PEDDI SRINIVASA
PEDDI PRASUNA
4 SPRUCE ST
LITTLETON, MA 01460

2 SPRUCE ST R08 15 23
LUC: 101

ALLA PAVAN KUMAR
JAVVADI SAI SWETHA
2 SPRUCE ST
LITTLETON, MA 01460

3 SPRUCE ST R08 15 24
LUC: 101

DEVIREDDY NARAYAN
DEVIREDDY APARNA S
3 SPRUCE ST
LITTLETON, MA 01460

5 SPRUCE ST R08 15 25
LUC: 101

SANMARCO CARLOS A CANDIOTTI
ANDRADE DE VASCONCELOS D A
5 SPRUCE ST
LITTLETON, MA 01460

7 SPRUCE ST R08 15 26
LUC: 101

LU JIANHONG
NI QUANHONG
7 SPRUCE ST
LITTLETON, MA 01460

9 SPRUCE ST R08 15 27
LUC: 101

KRUPNIK ERIC F
BEAUDOIN JENNIFER A
9 SPRUCE ST
LITTLETON, MA 01460

11 SPRUCE ST R08 15 28
LUC: 101

MORRISON JODY
MORRISON KAREN
11 SPRUCE ST
LITTLETON, MA 01460

BALSAM LN R08 15 3
LUC: 930

LITTLETON TOWN OF
37 SHATTUCK ST
LITTLETON, MA 01460

27 GRIMES LN R08 15 36
LUC: 101

LODER FAMILY TRUST
TRUSTEE LODER CORY R
27 GRIMES LN
LITTLETON, MA 01460

23 GRIMES LN R08 15 37
LUC: 101

ARMSTRONG WILLIAM
ARMSTRONG ASHLEY
23 GRIMES LN
LITTLETON, MA 01460

19 GRIMES LN R08 15 38
LUC: 101

ARUMUGASAMY JEEVANANDAM
JEEVANANDAM VAIJAYANTHIMALA
19 GRIMES LN
LITTLETON, MA 01460

15 GRIMES LN R08 15 39
LUC: 101

GALLO JOSEPH MICHAEL
GALLO ALEXANDRA A
15 GRIMES LN
LITTLETON, MA 01460

FRASER ST R08 15 4
LUC: 930

LITTLETON TOWN OF
37 SHATTUCK ST
LITTLETON, MA 01460

11 GRIMES LN R08 15 40
LUC: 101

POPE CAREY NAT
POPE JING LIU
11 GRIMES LN
LITTLETON, MA 01460

7 GRIMES LN R08 15 41
LUC: 101

KELA AMITKUMAR B
KACHOLIYA MOUSHMI
7 GRIMES LN
LITTLETON, MA 01460

3 GRIMES LN R08 15 42
LUC: 101

ROSHAN RAKESH
PANKAJ SWARNICA
3 GRIMES LN
LITTLETON, MA 01460

GRIMES LN R08 15 5
LUC: 930

LITTLETON TOWN OF
37 SHATTUCK ST
LITTLETON, MA 01460

GRIMES LN R08 15 6
LUC: 930

LITTLETON TOWN OF
37 SHATTUCK ST
LITTLETON, MA 01460

7 BALSAM LN R08 15 7
LUC: 101

MITCHELL ANDREW JAMES
LEEDO DESIREE MARIE
7 BALSAM LN
LITTLETON, MA 01460

9 BALSAM LN R08 15 8
LUC: 101

ANDERSEN MARK A
ANDERSEN JULIE
9 BALSAM LN
LITTLETON, MA 01460

2 FRASER ST R08 15 9
LUC: 101

FORSBERG JAMES M
FORSBERG MEGAN
2 FRASER ST
LITTLETON, MA 01460

FRASER ST R08 15 A
LUC: 132

DURKEE FARM BUILDERS INC
487 GROTON RD
WESTFORD, MA 01886

264 FOSTER ST R08 37 0
LUC: 901

BOSTON & MAINE RAILROAD
C/O GUILFORD TRANSPORTATION
IRON HORSE PARK
TAX DEPT 67 HIGH ST
NO BILLERICA, MA 01862

196 FOSTER ST R08 8 0
LUC: 101

TIERNAN JANELLE S
196 FOSTER ST
LITTLETON, MA 01460

198 FOSTER ST R08 8 1
LUC: 101

GRANT ANDREW F
GRANT LORI G
198 FOSTER STREET
LITTLETON, MA 01460

202 FOSTER ST R08 9 0
LUC: 101

VIRTUE-STRACKE FAMILY TRUST
TRUSTEE STRACKE JOHN
202 FOSTER ST
LITTLETON, MA 01460

204 FOSTER ST R08 9 2
LUC: 930

LITTLETON TOWN OF
PO BOX 1305
LITTLETON, MA 01460

206 FOSTER ST R08 9 3
LUC: 930

LITTLETON TOWN OF
PO BOX 1305
LITTLETON, MA 01460

208 FOSTER ST R08 9 A
LUC: 101

SULLIVAN CONOR
SULLIVAN SAMANTHA
208 FOSTER ST
LITTLETON, MA 01460

2 BULKELEY RD R09 1 0
LUC: 101

COOPER BONNIE
MAHER-COOPER GINNY M
2 BULKELEY RD
LITTLETON, MA 01460

6 BULKELEY RD R09 1 A
LUC: 101

HORNE ALEXANDER C
MCLEOD SAMANTHA
6 BULKELEY RD
LITTLETON, MA 01460

10 BULKELEY RD — R09 2 0 — LUC: 105

WHEELER JOHN L + KAREN L CO-TR
OF THE J + K REALTY TRUST
63 JUNIPER CREEK BLVD
PINEHURST, NC 28374

12 BULKELEY RD — R09 2 1 — LUC: 101

CLARK KEVIN J
CLARK LAN
12 BULKELEY RD
LITTLETON, MA 01460

15 CRANE RD — R09 24 0 — LUC: 101

PALERMO JR PAUL A
PALERMO CARRIE J
15 CRANE RD
LITTLETON, MA 01460

13 CRANE RD — R09 25 2 — LUC: 106

MEUNIER JONATHAN P
MEUNIER KATELYN R
34 BAY DR
SUDBURY, MA 01776

8 CRANE RD — R09 28 0 — LUC: 101

ARMSTRONG JOANNIE L
STORMWIND BRIAN L
8 CRANE ROAD
LITTLETON, MA 01460

253 TAYLOR ST — R09 29 0 — LUC: 101

PARTHASARATHY VIJAYAN
NAGENDRA BHAVANA
253 TAYLOR ST
LITTLETON, MA 01460

4 LIBERTY SQ — R09 29 A — LUC: 101

CANNISTRARO CHANG FAM TR
CANNISTRARO DD & CHANG JC-TRS
4 LIBERTY SQUARE
LITTLETON, MA 01460

1247 HILL RD — R09 29 C — LUC: 101

MCHUTCHEON JOHN P+ELIZABETH TR
JOHN/ELIZABETH MCHUTCHEON LVG
1247 HILL RD
LITTLETON, MA 01460-2000

BULKELEY RD — R09 3 0 — LUC: 950

LITTLETON CONSERVATION TRUST
P O BOX 594
LITTLETON, MA 01460

LIBERTY SQ — R09 30 0 — LUC: 930

LITTLETON TOWN OF
PARK DEPARTMENT
PO BOX 1305
LITTLETON, MA 01460

238 TAYLOR ST — R09 31 0 — LUC: 101

MACLEOD DOUGLAS S
MACLEOD LOLA F
238 TAYLOR ST
LITTLETON, MA 01460

236 TAYLOR ST — R09 31 1 — LUC: 101

CURRAN JAMES P
RIGALI YOLANDA M
236 TAYLOR ST
LITTLETON, MA 01460

240 TAYLOR ST — R09 31 2 — LUC: 101

SCULLY KATHLEEN K
240 TAYLOR ST
LITTLETON, MA 01460

242 TAYLOR ST — R09 31 3 — LUC: 101

DRINKWATER LAURA J
242 TAYLOR ST
LITTLETON, MA 01460

244 TAYLOR ST — R09 31 4 — LUC: 101

MOHLENHOFF BENJAMIN A
MOHLENHOFF BROOKE E
244 TAYLOR ST
LITTLETON, MA 01460

230 TAYLOR ST — R09 32 0 — LUC: 441

GRADY JOHN K TRUSTEE OF
FOSTER/TAYLOR REALTY TRUST
CONCORD ASSC- 323 WEST MAIN ST
AYER, MA 01432

232 TAYLOR ST — R09 32 A — LUC: 403

GRADY J, D RICE TRUSTEES OF
CONCORD ASSOC FOSTER ST TRUST
323 WEST MAIN STREET
AYER, MA 01432

300 FOSTER ST — R09 33 0 — LUC: 404

GRADY JOHN K, RICE DAVID B
OF CONCORD ASSCS FOSTER ST TR
323 WEST MAIN STREET
AYER, MA 01432

234 TAYLOR ST — R09 34 0 — LUC: 400

PREMIER HEALTHCARE GROUP, LLC
234 TAYLOR ST
LITTLETON, MA 01460

OFF BULKELEY RD — R09 4 0 — LUC: 901

BOSTON & MAINE RAILROAD
C/O GUILFORD TRANSPORTATION
IRON HORSE PARK
TAX DEPT 67 HIGH ST
NO BILLERICA, MA 01862

BULKELEY RD — R09 5 0 — LUC: 601

WEBSTER LYLE D
WEBSTER GRETCHEN O
33 BULKELEY RD
LITTLETON, MA 01460

17 BULKELEY RD — R09 5 2 — LUC: 101

GRAY DANA C
GRAY KARIN M
17 BULKELEY ROAD
LITTLETON, MA 01460

33 BULKELEY RD — R09 5 3 — LUC: 101

WEBSTER LYLE D
WEBSTER GRETCHEN O
33 BULKELEY RD
LITTLETON, MA 01460

19 BULKELEY RD — R09 5 4 — LUC: 101

PRATAPA RADHA K
PUTCHA VEENA S
19 BULKELEY RD
LITTLETON, MA 01460

23 BULKELEY RD — R09 5 5 — LUC: 101

PAVLOVIC DRAGANA
KARLSSON JONAS
23 BULKELEY ROAD
LITTLETON, MA 01460

21 BULKELEY RD — R09 5 6 — LUC: 101

THE FENTON FAMILY TRUST
TRUSTEE FENTON JAMES T
21 BULKELEY RD
LITTLETON, MA 01460

25 BULKELEY RD — R09 5 7 — LUC: 016

WEBSTER LYLE D
WEBSTER GRETCHEN O
33 BULKELEY RD
LITTLETON, MA 01460

3 BULKELEY RD — R09 5 A — LUC: 101

LENNON JOSEPH W+AMANDA TRS OF
AMANDA+JOSEPH LENNON LIVING TR
3 BULKELEY RD
LITTLETON, MA 01460

7 BULKELEY RD — R09 5 B — LUC: 101

WARD KEITH A
7 BULKELEY RD
LITTLETON, MA 01460

11 BULKELEY RD — R09 5 C — LUC: 101

WALSH JR VANCE J V
11 BULKELEY RD
LITTLETON, MA 01460

15 BULKELEY RD — R09 5 D — LUC: 101

CROWLEY JENNIFER L TRUSTEE OF
15 BULKELEY ROAD REALTY TRUST
15 BULKELEY ROAD
LITTLETON, MA 01460

284 FOSTER ST — R09 5 E — LUC: 101

BALZOTTI GREGORY
BALZOTTI SHERI
284 FOSTER STREET
LITTLETON, MA 01460

286 FOSTER ST — R09 5 F — LUC: 101

KENYON BROCKTON
COLLINS AINE
286 FOSTER ST
LITTLETON, MA 01460

290 FOSTER ST — R09 5 G — LUC: 101

RIZZOLO ANTHONY J
RIZZOLO JOSEPHINE
290 FOSTER ST
LITTLETON, MA 01460

14 CRANE RD — R09 6 0 — LUC: 101

SLUYSKI KRISTEN L
14 CRANE RD
LITTLETON, MA 01460

16 CRANE RD — R09 6 A — LUC: 101

HILSINGER NANCY L TRUSTEE OF
NANCY L HILSINGER INVSTMT TR
16 CRANE RD
LITTLETON, MA 01460

20 CRANE RD — R09 6 B — LUC: 101

STALL ROBERT A
20 CRANE RD
LITTLETON, MA 01460

24 CRANE RD — R09 6 C — LUC: 101

MCCURDY III ALEXANDER S
MCCURDY BRENDA M
24 CRANE ROAD
LITTLETON, MA 01460

28 CRANE RD — R09 6 D — LUC: 101

DIMASE JOHN F W
DIMASE LOIS B
28 CRANE ROAD
LITTLETON, MA 01460

12 CRANE RD — R09 6 N — LUC: 101

GARBERO PETRA V
12 CRANE RD
LITTLETON, MA 01460

10 CRANE RD — R09 6 P — LUC: 101

BERTOLINO VINCENT & MELISSA H
10 CRANE RD
LITTLETON, MA 01460

14 BULKELEY RD — R09 7 2 — LUC: 101

MURPHY JOHN E
14 BULKELEY RD
LITTLETON, MA 01460

20 BULKELEY RD — R09 7 4 — LUC: 101

KUMAR SUMIT
KUMAR ANGELINE G
20 BULKELEY RD
LITTLETON, MA 01460

277 FOSTER ST — R10 1 0 — LUC: 104

MCCATHERIN JORDAN S
277-279 FOSTER ST
LITTLETON, MA 01460

215 TAYLOR ST — R10 10 0 — LUC: 104

CHB LITTLETON LLC
20 GARDEN ST
DANVERS, MA 01923

205 TAYLOR ST — R10 11 0 — LUC: 316

CMH LITTLETON LLC
20 GARDEN ST
DANVERS, MA 01923

153 TAYLOR ST — R10 14 0 — LUC: 930

LITTLETON WATER DEPARTMENT
39 AYER RD
LITTLETON, MA 01460

151 TAYLOR ST — R10 14 1 — LUC: 401

LML LITTLETON LLC
401 EDGEWATER PLACE, SUITE 265
WAKEFIELD, MA 01880

MONARCH DR — R10 16 B — LUC: 440

VMD INDUSTRIAL V LLC
733 TURNPIKE ST, ROUTE 114
NORTH ANDOVER, MA 01845

200 TAYLOR ST — R10 18 0 — LUC: 410

FLETCHER JOHN L /JAMES L TR
FLETCHER TRUST NO 1
192 DEPOT RD
PO BOX 401
EAST TEMPLETON, MA 01438-0401

1250 HILL RD — R10 19 0 — LUC: 101

SONI DEEPAK
DHILLON SHUBHLAKHAN KAUR
1250 HILL RD
LITTLETON, MA 01460

305 FOSTER ST — R10 2 1 — LUC: 404

2641-2651 SANTA ANNA AVE LLC
80 ERDMAN WAY SUITE 301
LEOMINSTER, MA 01453

295 FOSTER ST — R10 2 2 — LUC: 404

ASIJA PROPERTIES LLC
C/O SANDEEP ASIJA
440 CENTRAL STREET
ACTON, MA 01720

1252 HILL RD — R10 20 0 — LUC: 101

KLOCK JAMES
CAMPBELL-KLOCK PRISCILLA
1252 HILL RD
LITTLETON, MA 01460

1254 HILL RD — R10 21 0 — LUC: 101

MARRESE CHRISTOPHER R
MARRESE NANCY A
1254 HILL RD
LITTLETON, MA 01460

1256 HILL RD — R10 22 0 — LUC: 101

MORRISON BRUCE A
MORRISON NANCY L
1256 HILL RD
LITTLETON, MA 01460

247 TAYLOR ST — R10 23 0 — LUC: 101

SHIMMEL GARY A + KATHLEEN M
TRUSTEES OF ATS REALTY TRUST
456 NEWTOWN RD
LITTLETON, MA 01460-2206

3 WESTVIEW RD — R10 3 0 — LUC: 440

GUTIERREZ ARTURO+CATALDO CLASS
B TRS, SWEENEY D CLASS A TR
C/O THE GUTIERREZ COMPANY
200 WHEELER ROAD
BURLINGTON, MA 01803

1 WESTVIEW RD — R10 3 1 — LUC: 440

GUTIERREZ ARTURO+CATALDO CLASS
B TRS, SWEENEY D CLASS A TR
C/O THE GUTIERREZ COMPANY
200 WHEELER ROAD
BURLINGTON, MA 01803

2 WESTVIEW RD — R10 3 2 — LUC: 440

GUTIERREZ ARTURO+CATALDO CLASS
B TRS, SWEENEY D CLASS A TR
C/O THE GUTIERREZ COMPANY
200 WHEELER ROAD
BURLINGTON, MA 01803

11 WESTVIEW RD R10 3 3
LUC: 440
GUTIERREZ ARTURO+CATALDO CLASS
B TRS, SWEENEY D CLASS A TR
C/O THE GUTIERREZ COMPANY
200 WHEELER ROAD
BURLINGTON, MA 01803

MONARCH DR R10 4 0
LUC: 601
HARVARD SPORTSMENS CLUB INC
P.O.BOX 114
HARVARD, MA 01451

241 TAYLOR ST R10 5 0
LUC: 014
MORRISON BRUCE AL
241 TAYLOR ST
LITTLETON, MA 01460

TAYLOR ST R10 6 0
LUC: 440
GUTIERREZ ARTURO+CATALDO CLASS
B TRS, SWEENEY D CLASS A TR
C/O THE GUTIERREZ COMPANY
200 WHEELER ROAD
BURLINGTON, MA 01803

225 TAYLOR ST R10 7 0
LUC: 440
GUTIERREZ ARTURO+CATALDO CLASS
B TRS, SWEENEY D CLASS A TR
C/O THE GUTIERREZ COMPANY
200 WHEELER ROAD
BURLINGTON, MA 01803

219 TAYLOR ST R10 8 0
LUC: 101
FOSS WILLIAM R, FOSS JANICE M
CHARLTON ELIZABETH A
219 TAYLOR ST
LITTLETON, MA 01460

265 FOSTER ST R11 1 0
LUC: 401
VAF I 265 FOSTER LLC
14241 DALLAS PKWY, SUITE 650
DALLAS, TX 75254

REAR FOSTER ST R11 1 2
LUC: 441
VAF I 265 FOSTER LLC
14241 DALLAS PKWY, SUITE 650
DALLAS, TX 75254

REAR FOSTER ST R11 1 3
LUC: 441
VAF I 265 FOSTER LLC
14241 DALLAS PKWY, SUITE 650
DALLAS, TX 75254

191 FOSTER ST R11 11 0
LUC: 304
NASHOBA VALLEY SNF REAL ESTATE
INVESTORS LLC
3570 KEITH ST
NW CLEVELAND, TN 37312

193 FOSTER ST R11 11 1
LUC: 109
CARROLL KEITH S
CARROLL LISA M
193 FOSTER ST
LITTLETON, MA 01460

FOSTER ST R11 2 0
LUC: 901
BOSTON & MAINE RAILROAD
C/O GUILFORD TRANSPORTATION
IRON HORSE PARK
TAX DEPT 67 HIGH ST
NO BILLERICA, MA 01862

18 TROT RD R11 23 16
LUC: 932
LITTLETON TOWN OF
CONSERVATION COMMISSION
PO BOX 1305
LITTLETON, MA 01460

6 TROT RD R11 23 2
LUC: 101
HELMAN TIMOTHY
6 TROT ROAD
LITTLETON, MA 01460

8 TROT RD R11 23 3
LUC: 101
GRANT JONATHAN H
GRANT KATE M
8 TROT ROAD
LITTLETON, MA 01460

10 TROT RD R11 23 4
LUC: 101
ABETZ WENDY
10 TROT ROAD
LITTLETON, MA 01460

12 TROT RD R11 23 5
LUC: 101
KINGSLEY SCOTT M + CASSONDRA L
CO-TR SCOTT+CASSONDRA KINGSLEY
12 TROT ROAD
LITTLETON, MA 01460

14 TROT RD R11 23 6
LUC: 101
HIGGINS FAMILY 2021 REVOCABLE
HIGGINS KENNETH E, TRUSTEE
14 TROT ROAD
LITTLETON, MA 01460

16 TROT RD R11 23 7
LUC: 101
16 TROT ROAD NOMINEE REALTY TR
ANDERSON ERIC, TRUSTEE
16 TROT RD
LITTLETON, MA 01460

OFF TAYLOR ST R11 26 0
LUC: 950
LITTLETON CONSERVATION TRUST
PO BOX 594
LITTLETON, MA 01460

134 TAYLOR ST R11 27 0
LUC: 410
TAYLOR STREET HOLDINGS LLC
53 MIDLAND DR
WALTHAM, MA 02451

245 FOSTER ST R11 3 0
LUC: 441
SNS FOSTER LLC
C/O ROBERT LONG
30 HARWOOD AV
LITTLETON, MA 01460

215 FOSTER ST R11 3 1
LUC: 101
AQUINO KENNETH C
BETEAU WANDA JANE
215 FOSTER ST
LITTLETON, MA 01460

217 FOSTER ST R11 3 2
LUC: 101
HORN KRISTIN H
LAUFFENBURGER CHRISTOPHER J
217 FOSTER ST
LITTLETON, MA 01460

219 FOSTER ST R11 3 3
LUC: 101
TJIONAS GEORGE A
BOUMITRI MICHELLE M
219 FOSTER ST
LITTLETON, MA 01460

221 FOSTER ST R11 3 4
LUC: 101
GRACE JULIE DAHLBERG
GRACE FRANK P
221 FOSTER ST
LITTLETON, MA 01460

263 FOSTER ST R11 3 5
LUC: 972
MASS BAY TRANS AUTHORITY
TEN PARK PLAZA
BOSTON, MA 02116

150 TAYLOR ST R11 30 0
LUC: 950
NEW ENGLAND FORESTRY FNDTN INC
PO BOX 1346
LITTLETON, MA 01460

N/W OF 495 R11 31 0
LUC: 950
LITTLETON CONSERVATION TRUST
P O BOX 594
LITTLETON, MA 01460

237 FOSTER ST R11 5 4
LUC: 101
NARGIZIAN PATRICIA A
P.O. BOX 1003
LITTLETON, MA 01460-1003

233 FOSTER ST — R11 6 0
LUC: 101

CAREW MICHAEL J
WEINER MICHELLE B
233 FOSTER ST
LITTLETON, MA 01460

225 FOSTER ST — R11 7 0
LUC: 101

KIERNAN KAREN A
KIERNAN TODD D
225 FOSTER ST
LITTLETON, MA 01460

211 FOSTER ST — R11 8 0
LUC: 101

RICHARDSON TODD P
RICHARDSON MEREDITH K
211 FOSTER ST
LITTLETON, MA 01460

201 FOSTER ST — R11 9 0
LUC: 101

CONLON MARK D
SCHOPF-CONLON LISA R
201 FOSTER ST
LITTLETON, MA 01460

203 FOSTER ST — R11 9 1
LUC: 101

MCDONALD MICHAEL ADAM
MACISAAC KELLY ANN
203 FOSTER STREET
LITTLETON, MA 01460

3 JILLIAN WAY — R11 9 2
LUC: 101

SCHOFIELD FRANK B
SCHOFIELD MAURA C
3 JILLIAN WAY
LITTLETON, MA 01460

5 JILLIAN WAY — R11 9 3
LUC: 101

VASUDEVAN MADHUSUDHANAN
MADHUSUDHAN SRIVIDYA
5 JILLIAN WAY
LITTLETON, MA 01460

4 JILLIAN WAY — R11 9 4
LUC: 101

ASLAM SAMI
AZAM SEEMA
4 JILLIAN WAY
LITTLETON, MA 01460

2 JILLIAN WAY — R11 9 5
LUC: 101

YOUNG FAMILY REALTY TRUST
TRUSTEE YOUNG BRIAN S
2 JILLIAN WAY
LITTLETON, MA 01460

1 JILLIAN WAY — R11 9 B
LUC: 101

FRIEDMAN MICHAEL P
LEE SOYOUNG
1 JILLIAN WY
LITTLETON, MA 01460

1 HARWOOD AV — U41 23 0
LUC: 901

BOSTON & MAINE RAILROAD
C/O GUILFORD TRANSPORTATION
IRON HORSE PARK
67 HIGH ST
NO BILLERICA, MA 01862

Appendix D

Wetland Delineation Report

Massachusetts Inland Resource Area Delineation Report

Report Date: September 11, 2018

Prepared For: Mr. Chris Stoddard, P.E., Director of Public Works, Highway Department
P.O. Box 1305
39 Ayer Road (Rte. 2A)
Littleton, MA 01460

Site Address/Location: Foster Street, Littleton, MA
42.518314°N, 71.503733°W

Inspection Date(s): July 19, 2018

Regulated Inland Wetland Resource Areas:

- ☒ Bank
- ☒ Land Under Water Bodies and Waterways
- ☐ Riverfront Area
- ☒ Buffer Zone
- ☐ Vernal Pool (Certified and/or Potential)
- ☒ Bordering Vegetated Wetland (BVW)
- ☐ Land Subject to Flooding (BLSF/ILSF)
- ☐ Isolated Vegetated Wetland
- ☐ Estimated Habitats of Rare Wildlife
- ☐ Priority Habitats of Rare Species

Delineated Resource Area Field Numbering Sequence [as depicted on the attached Resource Map]:

Bank/LUWW: A100-116, F600-602 (R&L)
BVW: B200-205, C300-309, D400-405, E500-503

Inland resource areas were delineated in accordance with applicable local, state and federal statutes, as detailed within the Resource Area Description attachment. This delineation does not constitute an official wetland boundary until such time as it is accepted and approved by local, state or federal regulatory agencies.

146 Hartford Road
Manchester, CT
06040
t 860.646.2469
800.286.2469
f 860.533.5143

www.fando.com

Connecticut
Massachusetts
Rhode Island
South Carolina

The wetlands delineation was conducted by:

Robin Casioppo
Wetland Scientist/Soil Scientist

ATTACHMENTS

- Resource Area Description
- DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Forms
- NRCS Soil Map and Soil Report
- Resource Area Sketch Map
- MassGIS: OLIVER generated FEMA Map

FUSS & O'NEILL

Massachusetts Inland Resource Area Delineation Report
Resource Area Description

Introduction

Fuss & O'Neill Inc. performed a wetland resource area field inspection and delineation at Foster Street ("Site") located off Taylor Street in Littleton, Massachusetts. The field inspection and delineation occurred on July 19, 2018. The purpose of the delineation was to locate the jurisdictional limits of areas regulated under the Wetlands Protection Act (M.G.L. c. 131 sec. 40) and associated Wetlands Protection Act Regulations (310 CMR 10).

Bank and Vegetated Bordering Wetlands (BVW) inland wetland resource areas were identified and delineated during the field investigation. Consecutively numbered flags were placed in the field to demarcate these resource area boundaries. Regulated Buffer Zone on the Property is measured horizontally from the boundaries of BVWs and intermittent watercourse Banks.

Maps retrieved from MassGIS were used to determine if specific regulated inland wetland resources have been mapped and/or documented on the Property. MassGIS maps do not depict Massachusetts Natural Heritage and Endangered Species Program (NHESP) Priority Habitats of Rare Species, Certified Vernal Pools, Potential Vernal Pools or Bordering Land Subject to Flooding (see additional details regarding FEMA Flood Zones below) on the Site. A detailed description of each regulated resource area present on the Site is provided below.

Resource Areas

Bank: Regulatory Framework and Delineation Methodology

Bank is defined under 310 CMR 10.54(2)(c) as "the portion of the land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland." Fuss & O'Neill Inc. performed a delineation of Bank within the area of interest using consecutively numbered flags placed in the field to demarcate the Bank of an intermittent stream, as well as the Bank of a small unnamed pond and its associated downstream channel.

Bank: Resource Description

Bank was located in the field by the first observable break in topography between water bodies and the adjacent BVW or upland. Water bodies on the property include the small unnamed pond and the associated downstream intermittent stream. The delineated Bank along the intermittent watercourses coincided with the Mean Annual High-Water Line (MAHWL)/bankfull, as defined under 310 CMR 10.58 (2)(a)(2). No evidence of riverine characteristics was noted along the pond bank during the inspection (i.e., no discernible direction of flow, no evidence of scour, etc.).

Land under Water Bodies and Waterways (LUWW)

LUWW is defined under 310 CMR 10.56 (2)(a) as "the land beneath any creek, river, stream, pond or lake. Said land may be composed of organic muck or peat, fine sediments, rocks or bedrock." The boundary of LUWW is defined as the mean annual low water level (310 CMR 10.56 (2)(c). LUWW was not specifically field delineated. For the intents and purposes of this resource area delineation, the delineated Banks of the pond and intermittent watercourse are analogous to the limits of LUWW.

Bordering Vegetated Wetlands (BVW): Regulatory Framework and Delineation Methodology

As stated in 310 CMR (2)(a), "Bordering Vegetated Wetlands are freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetation community which occur in each type of freshwater wetland are specified in M.G.L. c 131 sec. 40."

Fuss & O'Neill Inc. inspected the Site for bordering vegetated wetlands in accordance with methodology provided in the Massachusetts DEP handbook, Delineating Bordering Vegetated Wetlands under the Massachusetts Wetlands Protection Act, (March 1995), the 1987 Corps of Engineers Wetlands Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region (Version 2.0. January 2012). Data regarding vegetation, soils, and hydrology was gathered to complete the required MassDEP BVW delineation field forms. Wetlands are categorized in accordance with Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et.al. 1979).

Hydric soil determinations were made in accordance with Field Indicators for Identifying Hydric Soils in New England (NEIWPCC, 2018). The Wetland Indicator Status for plant species was ascertained using the USACE Northcentral and Northeast 2014 Regional Wetland Plant List (Lichvar et al., 2014).

BVW: Resource Area Description

Vegetation

Six (6) BVWs were identified on the Site. Four of the six BVWs on the Site are classified as palustrine forested wetlands. Common vegetation identified within forested BVWs includes [common name/scientific name (indicator status)]: Red Maple/Acer rubrum (FAC), highbush blueberry/Vaccinium corymbosum (FACW), bittersweet/Celastrus orbiculatus (UPL), poison ivy/Toxicodendron radicans (FAC), silky dogwood/Swida amomum (FACW), gray dogwood/Swida racemosa (FAC), glossy false buckthorn/Frangula alnus (FAC), arrowwood/Viburnum dentatum (FACW), elderberry/Sambucus nigra (FACW),

spicebush/Lindera benzoin (FACW), sweet pepperbush/Clethra alnifolia (FAC), multiflora rose/Rosa multiflora (FACU), cinnamon fern/Osmundastrum cinnamomeum (FACW), sensitive fern/onoclea sensibilis (FACW), Jack-in-the-pulpit/Arisaema triphyllum (FAC), skunk-cabbage/Symplocarpus foetidus (OBL), false hellebore/Veratrum viride (FACW), and jewelweed/Impatiens capensis (FACW).

The remaining two BVWs are classified as palustrine emergent wet meadows. Common vegetation identified within emergent wet meadow BVWs includes [common name/scientific name (indicator status)]: arrowwood, silky dogwood, poison ivy, sensitive fern, cinnamon fern, jewelweed, royal fern/Osmunda regalis (OBL), soft rush/Juncus effusus(OBL), tall meadow rue/Thalictrum pubescens (FACW), and blue flag iris/Iris versicolor (OBL).

Hydrology

The BVWs identified on the southern portion of the site are hydrologically connected to the on-site pond and another small pond adjacent to the Site. The intermittent stream associated with the on-site pond flows north from the pond and is conveyed through a culvert beneath Foster Street. The stream leads to a wetland system north of Foster Street. Two BVWs on the central portion of the site are hydrologically connected to an intermittent stream that runs parallel to Route 2. The remaining two BVWs are hydrologically connected to one another via a culvert and are supported by an intermittent stream that enters the site from the east. Evidence of surface water and soil saturation include: direct observation of surface water, water stained leaves and tree trunks, sediment deposition, free water in test holes, saturated soils, and hydric soils.

Soils

The Natural Resource Conservation Service (NRCS) mapped soil types on the Property include: Canton, Paxton, Urban Land, Udorthents, Swansea muck, Charlton, and Hollis series. Detailed information regarding each of these soil series is included within the NRCS Soil Map and Soil Report attachment. Results of the detailed field analyses of soils on the Property were generally consistent with the published NRCS soil mapping.

Buffer Zone

Buffer Zone is defined in 310 CMR 10.04 as "that area of land extending 100 feet horizontally outward from the boundary of any area specified in 310 CMR 10.02(1)(a)." Buffer Zone within the area of interest is associated with BVW and Bank. The buffer zone on the Property contains upland forested areas, residential and commercial properties, and various municipal roads. Common vegetation within the Buffer Zone includes: beech/Fagus grandifolia (FACU), red maple, red oak/Quercus rubra (FACU), eastern white pine/Pinus strobus (FACU), gray birch/Betula populifolia (FAC), Virginia creeper/Parthenocissus quinquefolia (FACU), poison ivy, grape/Vitis labrusca (FACU), bittersweet, multiflora rose, sassafras/Sassafras albidum (FACU),

staghorn sumac/Rhus hirta (UPL), brambles/Rubus spp., greenbriar/Smilax rotundifolia (FAC), tatarian honeysuckle/Lonicera tatarica (FACU), whorled bedstraw/Galium mollugo (UPL), sensitive fern, and Canada mayflower/Maianthemum canadense (FACU).

FEMA Flood Zones

The MassGIS National Flood Hazard Layer provided by the Federal Emergency Management Agency (FEMA) does not depict areas of potential flooding on the Property. Bordering Land Subject to Flooding (BLSF) is not mapped for the Site: BLSF is defined in 310 CMR 10.57 (2)(a)(1) as "an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetlands."

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Forms

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Littleton Prepared by: Robin Casioppo, Fuss & O'Neill, Inc. Project location: Littleton, MA DEP File #:_____
Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ❑ Vegetation and other indicators of hydrology usedto delineateBVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:B1W1		Transect Number:1	Date of Delineation:7/19/18
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Woody Vines				
Virginia Creeper/ Parthenocissus quinquefolia	2	100	yes	FACU
Shrubs				
Gray dogwood/Swida racemosa*	80	100	yes	FAC
Herbs				
Sensitive fern/Onoclea sensibilis*	10	100	yes	FACW

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 2 Number of dominant non-wetland indicator plants: 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **yes** no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Littleton Prepared by: Robin Casioppo, Fuss & O'Neill, Inc. Project location: Littleton, MA DEP File #:_____
Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ❑ Vegetation and other indicators of hydrology usedto delineateBVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:D1W1		Transect Number:1	Date of Delineation:7/19/2018
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
American elm/Ulmus Americana*	15	43	yes	FACW
Red maple/Acer rubrum*	20	57	yes	FAC
Shrubs				
Gray dogwood/Swida racemosa*	5	100	yes	FAC
Herbs				
Sensitive fern/Onoclea sensibilis*	25	33	yes	FACW
Jewelweed/Impatiens capensis*	50	67	yes	FACW
Woody vines				
Virginia creeper/ Parthenocissus quinquefolia	5	100	yes	FACU

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 5 Number of dominant non-wetland indicator plants: 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **yes** no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Littleton Prepared by: Robin Casioppo, Fuss & O'Neill, Inc. Project location: Littleton, MA DEP File #:_____
Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ❑ Vegetation and other indicators of hydrology usedto delineateBVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:E1W1		Transect Number:1	Date of Delineation:7/19/2018
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Shrubs				
Gray dogwood/Swida racemosa*	90	100	yes	FAC
Herbs				
Jewelweed/Impatiens capensis*	15	100	yes	FACW
Woody vines				
Virginia creeper/ Parthenocissus quinquefolia	5	100	yes	FACU

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 2 Number of dominant non-wetland indicator plants: 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **yes** no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Littleton Prepared by: Robin Casioppo, Fuss & O'Neill, Inc. Project location: Littleton, MA DEP File #:_____
Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ❑ Vegetation and other indicators of hydrology usedto delineateBVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:G1W1		Transect Number:1	Date of Delineation:7/19/2018
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
Red maple/Acer rubrum*	15	79	yes	FAC
Eastern cottonwood/ Populus deltoides*	2	10.5	no	FACW
Ash species/Fraxinus sp.	2	10.5	no	UNK
Herbs				
Skunk cabbage/ Symplocarpus foetidus*	25	48	yes	OBL
Royal fern/Osmunda regalis	5	10	no	OBL
Cinnamon fern/ Osmundastrum cinnamomeum	5	10	no	FACW
Purple loosestrife/Lythrum salicaria*	2	3	no	OBL
Smooth goldenrod/Solidago gigantea*	5	10	no	FACW
Fowl bluegrass/Poa palustris*	10	19	no	FACW

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 2 Number of dominant non-wetland indicator plants: 0

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **yes** no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Littleton Prepared by: Robin Casioppo, Fuss & O'Neill, Inc. Project location: Littleton, MA DEP File #:_____
Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ❑ Vegetation and other indicators of hydrology usedto delineateBVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:J1W1		Transect Number:1	Date of Delineation:7/19/2018
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees				
Red maple/Acer rubrum*	50	83	yes	FAC
American elm/Ulmus americana*	10	17	no	FACW
Shrubs				
Gray dogwood/Swida amomum*	5	50	yes	FAC
Winterberry holly/Ilex verticillata*	5	50	yes	FACW
Woody vines				
Poison ivy/Toxicodendron radicans*	50	100	yes	FAC
Herbs				
Skunk cabbage/ Symplocarpus foetidus*	7	47	yes	OBL
Royal fern/Osmunda regalis*	3	20	yes	OBL
Sensitive fern/Onoclea sensibilis*	3	20	yes	OBL
Cinnamon fern/ Osmundastrum cinnamomeum*	2	13	no	FACW

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 7 Number of dominant non-wetland indicator plants: 0

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **yes** no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Littleton Prepared by: Robin Casioppo, Fuss & O'Neill, Inc. Project location: Littleton, MA DEP File #:_____
Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ❑ Vegetation and other indicators of hydrology usedto delineateBVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number:L1W1		Transect Number:1	Date of Delineation:7/19/2018
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (or basal Area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Herbs				
Purple loosestrife/ Lythrum salicaria*	25	28	yes	OBL
Bur-reed species/Sparganeum sp.*	20	22	yes	OBL
Wrinkle-leaf goldenrod/ Solidago rugosa*	20	22	yes	FAC
Wool grass/Scirpus cyperinus*	5	6	no	OBL
Reed canary grass/ Phalaris arundinacea*	10	11	no	FACW
Joe-pye-weed species/ Eutrochium sp.	10	11	no	UNK

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 3 Number of dominant non-wetland indicator plants: 0

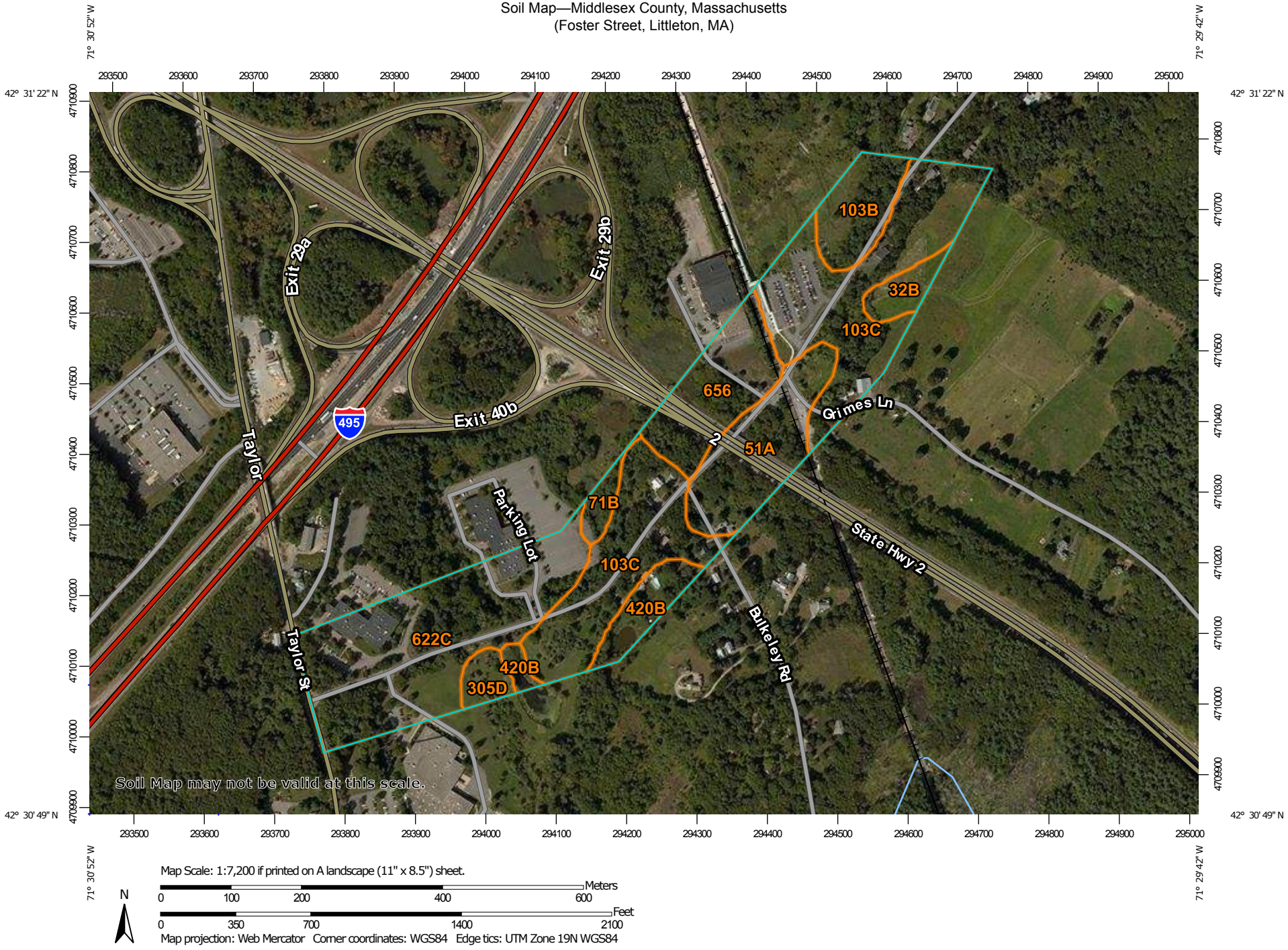
Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? **yes** no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

FUSS & O'NEILL

NRCS Soil Map and Soil Report

Soil Map—Middlesex County, Massachusetts
(Foster Street, Littleton, MA)



Map Scale: 1:7,200 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 17, Oct 6, 2017

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

Date(s) aerial images were photographed: Sep 12, 2014—Sep 28, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

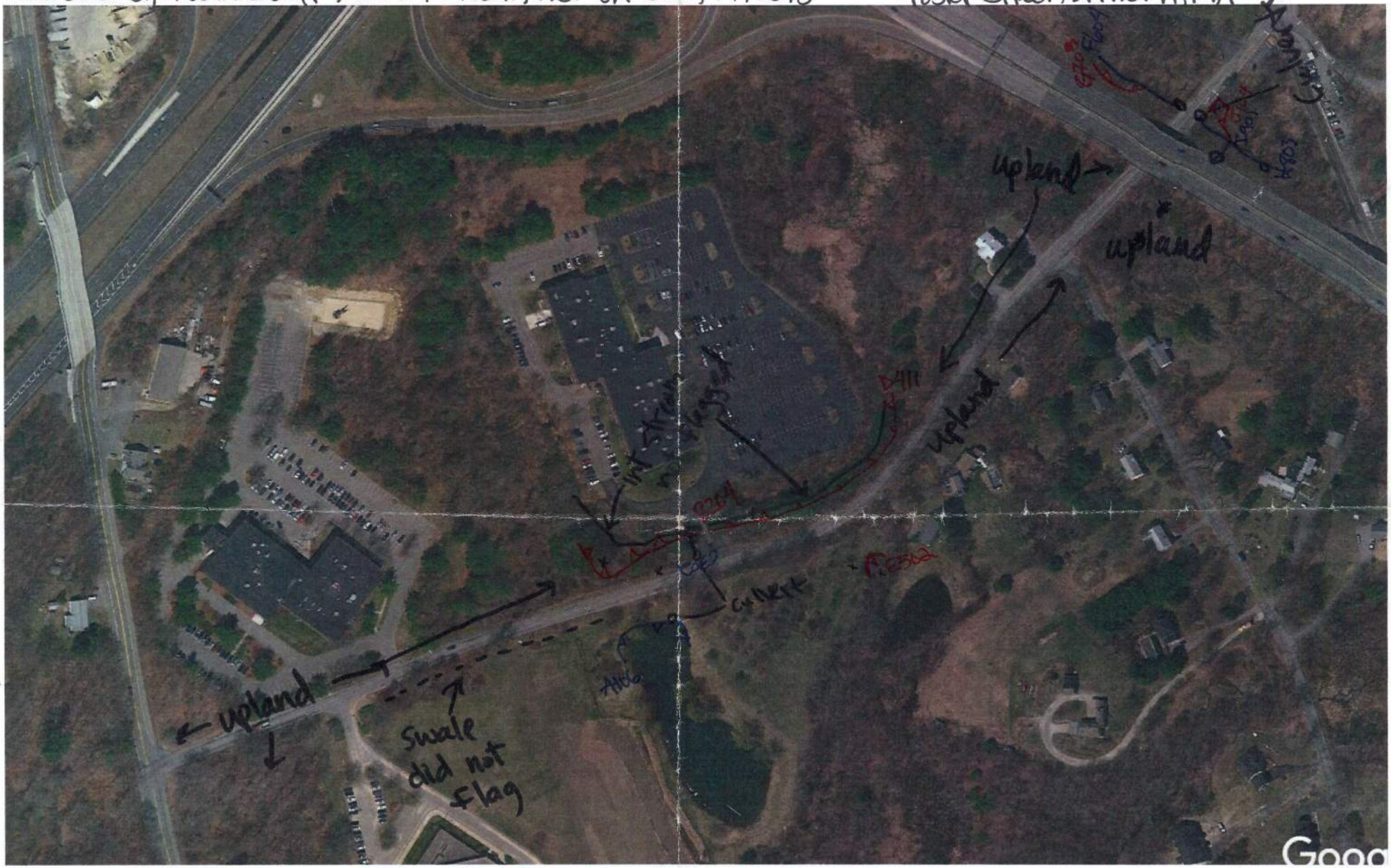
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
32B	Wareham loamy fine sand, 0 to 5 percent slopes	1.4	2.5%
51A	Swansea muck, 0 to 1 percent slopes	6.6	11.4%
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	0.9	1.6%
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	3.5	6.0%
103C	Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes	20.4	35.2%
305D	Paxton fine sandy loam, 15 to 25 percent slopes	1.2	2.0%
420B	Canton fine sandy loam, 3 to 8 percent slopes	2.7	4.7%
622C	Paxton-Urban land complex, 3 to 15 percent slopes	15.4	26.6%
656	Udorthents-Urban land complex	5.8	10.1%
Totals for Area of Interest		**58.1**	**100.0%**

FUSS & O'NEILL

Wetland Sketch Map

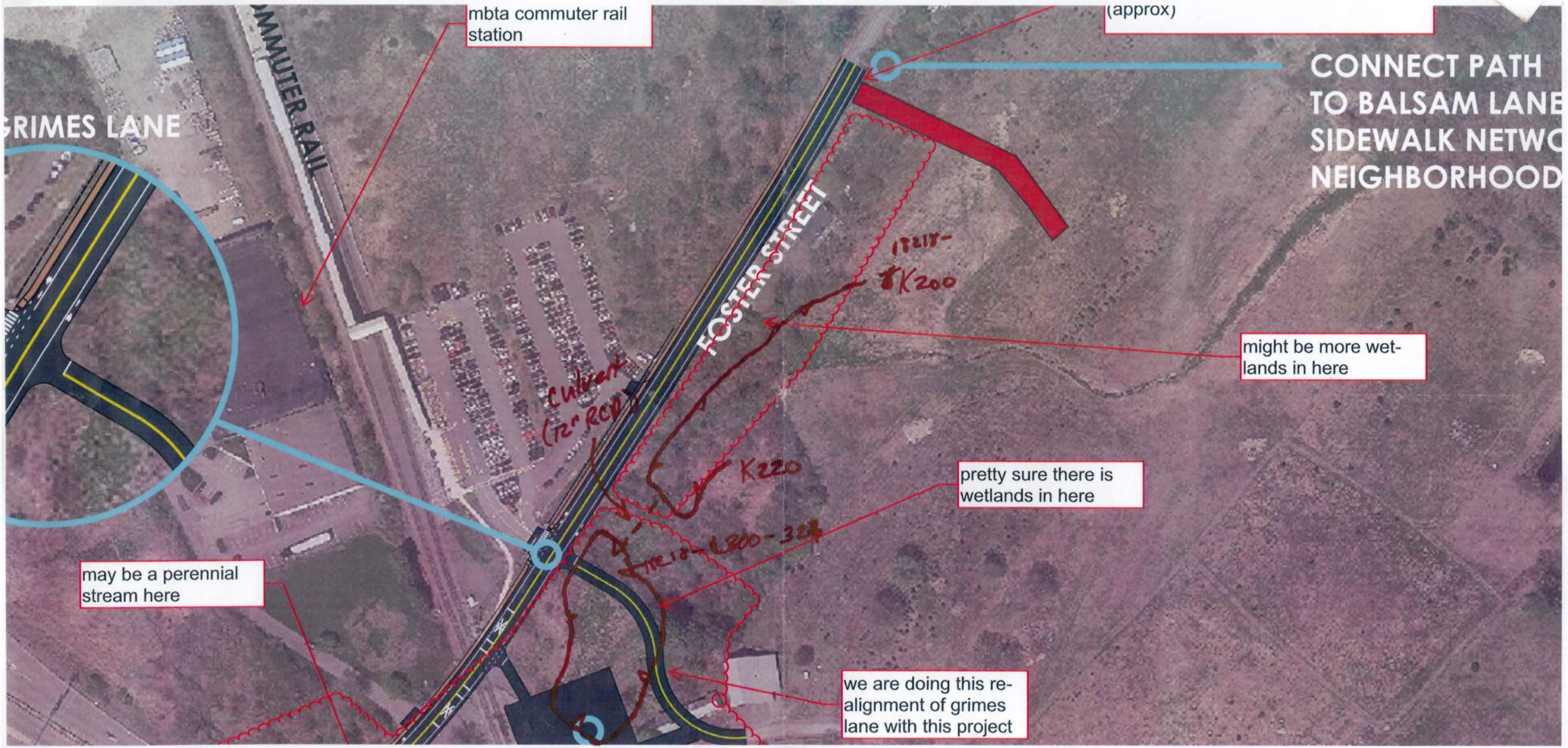
Delineated by: Robin Casioppo, Fuss & O'Neill, Inc. on July 19, 2018 Foster Street, Littleton, MA



A100-106, B200-204, C300-302, D400-411, E500-502, F600-604, G700-703, H800-803, I900-901, J100-104

Red line = pink flags
Blue line = blue flags

Wetland Sketch



Josh Wilson, PWS
Wetland sketch
8/7/18

Littleton, MA

Flags 18218-K200-K220, L300-L326

2017004 A21 8/7/18

Foster St. Reconstruction
Littleton, MA
Resource delineation

0700	Lv home
0915	Ar @ site
1300	Lv. site
1510	Ar @ home

12218-
K200-K220 (21)
L300-L327 (28)

~~O~~ L325 wet

0-6 10YR3/1 fsl
6-12 10YR5/2 fsl
7.5YR4/6 20m-c

Lythrum sal.	25
Sparganium	20
S. rugosa	20
Cyp (wool grass)	5
RC grass	10
Sp. JPW	10

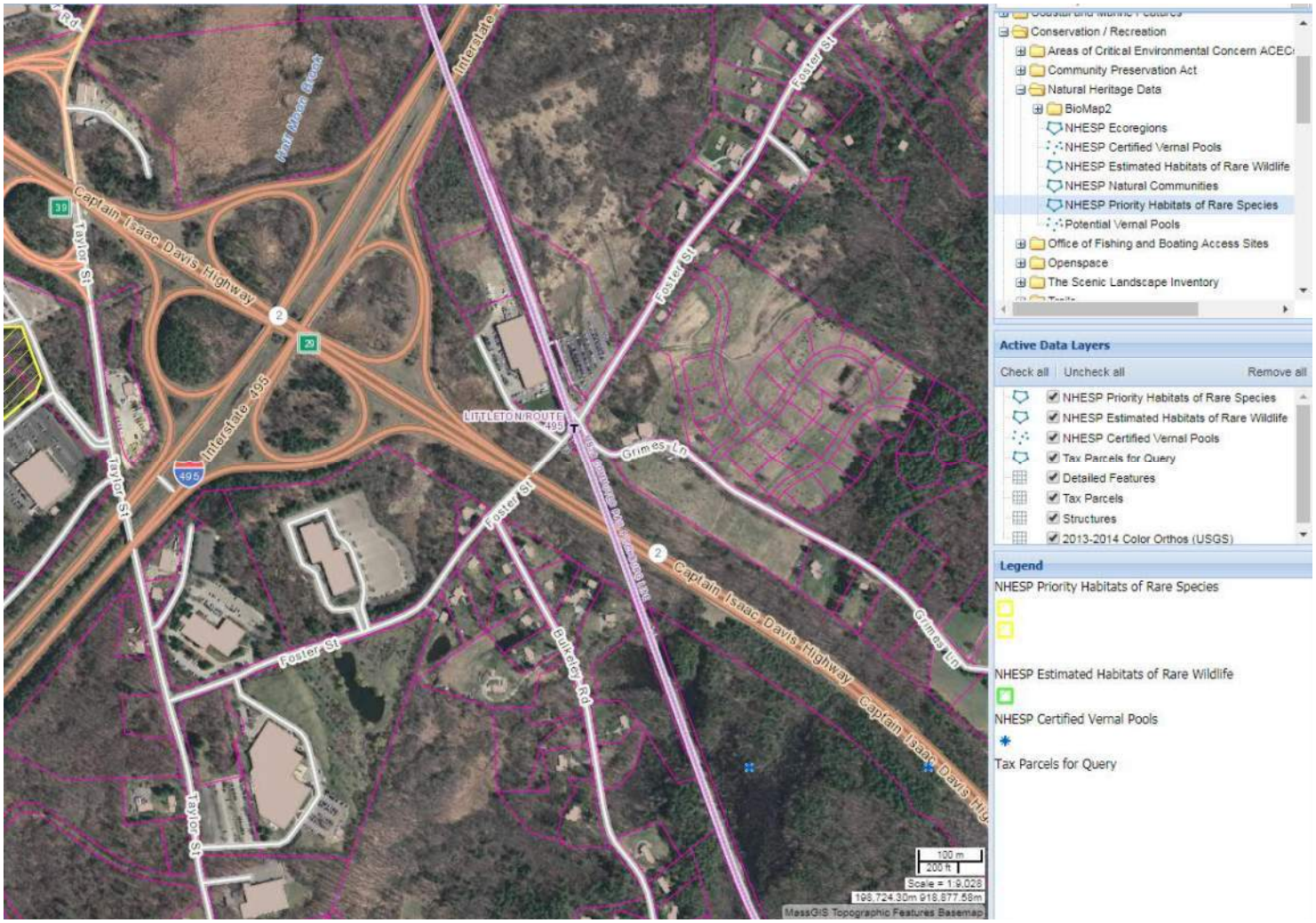
up

0-8 10YR 3/2 fsl
8-18 ~~10YR 4/4~~ 2.5Y5/4 sl
18-24 10YR6/6 sl

P strobus	70
A rach.	10
Lonicera m.	10
C cnum	10
PI	30
quinq.	20
C orbic	10

FUSS & O'NEILL

MassGIS Maps



OLIVER MassGIS
Foster Street, Littleton, MA
20170044.A21

Appendix E

Site Photos

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST
Existing Site Condition Photos
MassDOT Proj. #609054

TOP: Looking east on Taylor St toward the intersection with Foster St from STA 0+00.
BOTTOM LEFT: Looking west on Foster St at the intersection with Taylor St from STA 1+00.
BOTTOM RIGHT: Looking east on Foster St from STA 1+00.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST

Existing Site Condition Photos

MassDOT Proj. #609054

TOP LEFT: Looking west on Foster St from STA 4+00.
TOP RIGHT: Looking east on Foster St from STA 4+00. The entrance to the office park at 305 Foster St is visible.
BOTTOM: Looking south from Foster St at the entrance to the office park at 300 Foster St STA 4+00. Employees walking along Foster St during lunch break are visible.

CULVERT CROSSING UNDERNEATH FOSTER ST AT CENTERLINE STA 10+30

TOP LEFT: Looking south at the culvert outlet on the north side of Foster St at STA 10+40 LT 40.
TOP RIGHT: Looking at the Culvert outlet headwall at the north side of Foster St STA 10+40 LT 40.
BOTTOM LEFT: Looking south into the culvert outlet at STA 10+40 LT 40. The culvert inlet is located at STA 10+16 RT 20 near an open body of water on the south side of Foster St. The length of culvert is 60ft.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST

Existing Site Condition Photos

MassDOT Proj. #609054

TOP LEFT: Looking west from STA 10+80 on Foster St.
TOP RIGHT: Looking south from STA 10+20 toward a body of open water on the south side of Foster St. The body of water is unnamed on all available maps.
BOTTOM LEFT: Looking east from STA 10+20 on Foster St. The driveway to the office park at 295 Foster St is visible.
BOTTOM RIGHT: Looking south from STA 10+00 toward the body of water on the south side of Foster St.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST
Existing Site Condition Photos
MassDOT Proj. #609054

LEFT: Looking west on Foster St at STA 14+25.
RIGHT: Looking east on Foster St at STA 14+25.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST

Existing Site Condition Photos

MassDOT Proj. #609054

LEGEND:

TOP LEFT: Looking west on Foster St from STA 17+00.

TOP RIGHT: Looking east on Foster St from STA 14+00 showing catch basins.

BOTTOM LEFT: Looking west on Foster St from STA 21+00 at the historic South School.

BOTTOM RIGHT: Looking east on Foster St at STA 19+10 at the historic South School.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST
Existing Site Condition Photos
MassDOT Proj. #609054

ROUTE 2 OVERPASS BRIDGE OVER FOSTER ST AT STA 24+55

TOP LEFT: Looking east on Foster St at STA 23+00 at Route 2 overpass.
TOP RIGHT: Looking west on Foster St at STA 23+00.
BOTTOM LEFT: Looking east on Foster St at STA 24+50 at rail crossing approach.
BOTTOM RIGHT: Looking west on Foster St and Route 2 overpass at STA 26+50.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST
Existing Site Condition Photos
MassDOT Proj. #609054

CULVERT CROSSING AT FOSTER ST STA 24+80

LEGEND:
TOP LEFT- Looking north on Foster St at bollards demarcating the culvert location at STA 24+80.
TOP RIGHT- Looking south on Foster St at bollards demarcating the culvert location at STA 24+80.
BOTTOM LEFT- Culvert inlet at the south side of Foster St at STA 24+80 RT 21.
BOTTOM MIDDLE- Culvert outlet and crushed stone lined spillway on the north side of Foster St at STA 24+80 LT 41. The culvert is 63ft in length.
BOTTOM RIGHT- Looking north downstream of the culvert outlet on the north side of Foster St at STA 24+80 LT 41.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST
Existing Site Condition Photos
MassDOT Proj. #609054

RAIL CROSSING AT FOSTER ST AND GRIMES LN STA 27+40

LEGEND:
TOP- Looking northeast at STA 27+40 the commuter rail lot and station are visible.
LEFT MIDDLE- Looking west at STA 27+60 the rail crossing and Route 2 overpass are visible.
RIGHT MIDDLE- Looking east at STA 27+00 the rail crossing is visible.
BOTTOM- Looking south at STA 27+40 the Grimes Lane intersection is visible.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST
Existing Site Condition Photos
MassDOT Proj. #609054

LEFT- Looking west from STA 29+00 the overflow commuter parking on the north side of Foster St is visible.
RIGHT- Looking east from STA 29+00 the overflow commuter parking on the north side of Foster St is visible.

FUSS & O'NEILL

RECONSTRUCTION OF FOSTER ST
Existing Site Condition Photos
MassDOT Proj. #609054

LEGEND:
TOP LEFT- Looking west on Foster St from STA 39+00 at the intersection with Balsam Ln.
TOP RIGHT- Looking east on Foster St from STA 39+00 viewing the eastern project limit.
BOTTOM- Looking south at the Balsam Ln retaining wall at from STA 37+75.

Appendix F

Littleton Waiver Request Form

Littleton Conservation Commission

37 Shattuck Street / Room 303

Phone: 978 540-2428
Fax: 978 952-2321

Littleton Wetland Protection Regulations

Waiver Request Requirement Information (Section 1.4)

Date: 5/19/2023 Applicant/Owner: Town of Littleton DPW

Map/Lot: 1425 Project Address: Roadway; 238-305 Foster St & 221-241 Taylor St

In order request a waiver, the following provides a guidance for required information (attach additional text, plans, photos or graphics if needed):

Project purpose and need: The Project will reconstruct Foster Street between Taylor Street and Balsam Lane. A new 10 ft separated shared-use path will be furnished throughout the project while the road surface on Foster St will be narrowed slightly. The project addresses vehicular, pedestrian, and bicycle safety. The project proposes an improved storm water drainage system to the maximum extent practical. . The project will also include the replacement of a 10" water main underneath Foster Street in an effort to 'dig once' and reduce disturbance to the corridor.

What specific action(s) is the Waiver being asked for?

A Waiver from the provisions in Section 4.2, 50-ft No Disturb Zone, of the Town Bylaw Regulation for a limited project qualifying under 310 CMR 10.53 (3)(f), "Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems."

How is the action(s) in the public interest, necessary to avoid a taking, necessary to prevent a safety hazard or water dependent?

The project will include construction a new shared-use path for non-motorized travel connecting to a commuter rail station on Foster St. The drinking water main underneath Foster St will be replaced during reconstruction of the road.

How is the action(s) consistent with the intent and purpose of the Bylaw?

The shared-use path for bicycles and pedestrians is a mitigating factor because it will expand the Town's non-motorized travel network to a public transit station. This will contribute to lowering vehicle exhaust emissions, a much needed step toward reducing climate change.

Existing and proposed site conditions (ie, impervious, lawn & disturbed areas) (square feet; show on plan):

Project area is 5.4 acres along a linear road corridor. Total length of road is 0.81 miles. Existing impervious is 2.93 acres in the project area from road surface, driveways, and some sidewalks.

Existing and proposed distances of land uses from wetland resource areas (show on plan):

Foster St will be shifted up to 4ft in some locations to the south side. A new 10ft wide shared-use path will be constructed on the west side of the road. The total paved cross section of the road and path will change from 28ft wide in the existing condition to 34ft wide in the proposed condition. The environmental impact plans show proposed permanent and temporary impacts to 50-ft No Disturb Zone and 100-ft Buffer Zone. There are no other proposed direct impacts to any other wetland resource area.

Analysis of less environmentally damaging practicable alternative:

An alternative that reconstructs Foster St as the same design as existing condition would avoid Buffer Zone and 50-FT No Disturb impacts. However, there would be no accommodation of safe and separated walking or biking in the corridor thus continuing an unsafe condition that encourages driving over non-motorized travel for short local trips.

Proposed short term and long term protection of wetland resource areas:

As shown in plans, erosion controls including sediment barriers and catch basin silt sacks will be installed during the full length of the project construction for short term protection of wetland resources. Long-term protection will be provided by an upgraded storm drainage system including new deep-sump catch basins, leaching catch basins, and cleaned/repaired existing catch basins.

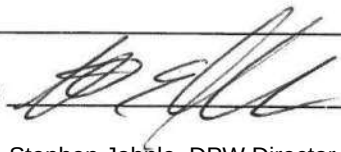
Is the site in a Zone I, II or III (groundwater) or Zone A, B or C (surface water) water supply area: The project limits are not within any of the above water supply areas.

Are there critical, unique or sensitive resource areas in the area (ie, NHESP mapped habitat, vernal pools, unusual wetland types, cold water fisheries, outstanding resource waters, Core Habitat, Conservation land, etc); show on plan:

There are no critical resource areas in the project limits nor nearby adjacent.

Other factors for consideration:

The final preferred alternative for the project chose a road design that had 1ft less width of pavement compared to a competing alternative which called for bike lanes and sidewalks on both sides of the road instead of the shared-use path in the preferred alternative.

Signature: 

Stephen Jahnle, DPW Director

Project: Reconstruction of Foster St. between Taylor St. and Balsam Lane including Foster St. intersections with Taylor St. and Grimes Ln.

Appendix G

Operation and Maintenance Plans

FUSS & O'NEILL

M E M O R A N D U M

TO: Town of Littleton, MA

FROM: Fuss & O'Neill, Inc.

DATE: April 18, 2023

RE: Construction Operation and Maintenance Plan
Foster Street Reconstruction
Littleton, MA

Responsible Party: Town of Littleton
Department of Public Works
39 Ayer Rd
Littleton, MA 01460

Property Owner shall be responsible for the operation and maintenance of the site during reconstruction Foster Street. Reconstruction of Foster Street includes full depth pavement replacement, replacement of existing stormwater drainage system, installation of a stormwater treatment structure, addition of a multi-use path and replacement of sidewalks. A suggested operation and maintenance activities and proposed schedule for during construction is as follows:

1. No earthwork activities shall commence until silt fence has been installed. Silt fence shall be installed as shown on the drawings.

2. Areas left exposed to erosion for more than seven days shall be rough graded and temporarily stabilized. Areas disturbed but inactive for more than thirty days shall be temporarily seeded.

3. Erosion and sedimentation controls shall be maintained initial successful establishment of ground cover.

4. No staging of materials or lay down areas shall be located within the resource areas.

5. Paved areas shall be kept free of sediment, and shall be cleaned periodically as required by construction activities.

6. Catch basins shall be periodically inspected for the accumulation of sediment. Catch basins within the project and downstream of work shall have catch basin protection installed and shall be cleaned at the end of the project.

7. Temporary soil stockpiles shall be located within areas consisting of formerly paved or developed surfaces, and will be moved as necessary to accommodate ongoing work.

8. Sediment stockpiles shall have a side slope of no greater than 2:1. Stockpiles shall be rough graded or maintain a roughened surface to prevent erosion. Stockpiles that are not to be used within 7 days shall be seeded after formation of stockpile as to prevent erosion. Straw bale barrier and silt fence shall be installed around stockpile area approximately 10 feet from toe of slope.

9. The contractor is responsible to inspect and repair erosion and sedimentation control measures as required to prevent damage or sedimentation.

10. Upon completion of construction and establishment of permanent ground cover, remove and dispose of temporary erosion control measures. Clean sediment and debris from temporary measures and from permanent storm drain and sanitary sewer systems.

Inspections shall be completed a minimum of every seven (7) calendar days and within 24 hours of the end of a storm event of 0.25 inches or greater. Attached is an example Inspection and Maintenance Report Form.

FUSS & O'NEILL

INPSECTION AND MAINTENANCE REPORT FORM

Reconstruction of Foster Street, Littleton, MA

To be completed every 7 calendar days and within 24 hours of the end of a storm event of 0.25 inches or greater

Inspector: _____ Date: _____

Inspector's Title and Qualifications: _____

_____

Summary of Previous 7-day Rainfall:

Date	Friday Date	Saturday Date	Sunday Date	Monday Date	Tuesday Date	Wednesday Date	Thursday Date
Total Daily Rainfall (in.)							

Stabilization Measures:

Area	Disturbed (Yes/No)	Stabilized (Yes/No)	Stabilized With	Condition

Detention Basin #1

Depth of Infiltration Basin	Condition of Side Slopes	Evidence of Overtopping of Embankments	Condition of Outfall

Construction Site & Adjacent Areas:

General condition: _____

_____

_____

FUSS & O'NEILL

INPSECTION AND MAINTENANCE REPORT FORM

Reconstruction of Foster Street, Littleton, MA

Is sediment being tracked on to road? _____

_____

_____

Maintenance required? _____

_____

Changes Required to the Pollution Prevention Plan:

_____

_____

_____

Reasons for Changes:

_____

_____

_____

_____

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

FUSS & O'NEILL

M E M O R A N D U M

TO: Town of Littleton

FROM: Fuss & O'Neill, Inc.

DATE: April 18, 2023

RE: Long Term Operation and Maintenance Plan
Foster Street, Taylor Street, and Grimes Lane Reconstruction

This Long Term Operation and Maintenance Plan (O&M) is developed for the reconstruction of Foster Street. This O&M has been prepared in accordance the Massachusetts Stormwater Handbook and the Town of Littleton Regulations.

Responsible Party: Town of Littleton
Department of Public Works
39 Ayer Rd
Littleton, MA 01460

It will be the responsibility of the Town of Littleton to comply with this Long Term Operation and Maintenance Plan. Responsibility includes financing, maintenance and emergency repairs. Should the property or any portion of the property be transferred to another owner, that new owner will be notified of the presence of this Long Term Operation and Maintenance Plan and be held responsible for the implementation of this plan and financing as it pertains to their property.

Operation and Maintenance Plan

The post construction operation and maintenance plan outlined hereafter provides recommendations for periodic inspection and maintenance activities for the stormwater management system. This Long-Term Operation and Maintenance Plan will ensure that the stormwater management system functions as designed throughout the life of the system.

- The stormwater collection systems will be inspected a minimum of four (4) times per year to maintain proper operation. Sediment and debris shall be removed from structures and pipes. Sedimentation will be removed from each deep sump catch basin a minimum of four (4) times a year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe. Deep sump catch basins shall be cleaned at the end of the foliage and snow removal seasons.

- Paved surfaces will be swept twice annually, April and October, to remove sand and debris following winter months.

- Stormwater structures and pipes will be inspected twice annually, April and November, for accumulation of sediment and debris. Clean as required.

FUSS & O'NEILL

Location and Access of Stormwater Management System

All components of the stormwater management system are located within Wisdom Way, River Street, and Mill Street. The attached Site Plans provide the location and access for the stormwater management system.

Records of Maintenance and Repair Activities

The responsible parties shall keep records of installation, maintenance and repairs of the stormwater management facilities. These records shall be retained for the most recent five years be provided to the Conservation Commission annually and upon request. An example Operation and Maintenance Log Form is attached.

Attachments: O&M Log Form

FUSS & O'NEILL

Post-Construction Operation and Maintenance Log Form

Foster Street, Taylor Street, and Grimes Lane
Littleton, Massachusetts

Project/Location: _____

"As Built" Plans Available? _____

Date/Time: _____

Days Since Previous Rainfall and Rainfall Amount: _____

Inspector: _____

Maintenance Item	Satisfactory	Unsatisfactory	Comments
1. Street Sweeping - Paved Parking Areas			
• evidence of work performed			
Action to be Taken:			
Date to be Completed by:			
2. Deep Sump Catch Basins			
• Sump clean of all sedimentation			
Action to be Taken:			
Date to be Completed by:			

Source: Adapted from Watershed Management Institute, Inc. 1997. *Operation, Maintenance, and Management of Stormwater Management Systems.* In cooperation with U.S. Environmental Protection Agency, Office of Water. Washington, D.C.

Appendix H

TSS Removal Calculations for Deep Sump Catch Basins

FUSS & O'NEILL

Project:	Foster Street	**Prepared By:**	ATB
Site Location:	Foster Street Littleton, MA	**Date:**	08/11/2023
Project Number:	20170044.A21		
Outfall Location:	Resource Areas		

BMP	TSS Removal Efficiency	Starting TSS Load	TSS Removed	TSS Remaining
deep sump hooded catch basins	25%	1.00	0.25	0.75

Total TSS Removal Efficiency=	**25%**

FUSS & O'NEILL

Project:	Foster Street	**Prepared By:**	ATB
Site Location:	Foster Street Littleton, MA	**Date:**	09/14/2023
Project Number:	20170044.A21		
Outfall Location:	**No Outfall**		

BMP	TSS Removal Efficiency	Starting TSS Load	TSS Removed	TSS Remaining
Leaching Catch Basin Off line	25%	1.00	0.25	0.75

Total TSS Removal Efficiency=	**25%**

Appendix I

Illicit Impact Statement

FUSS & O'NEILL

Illicit Discharge Statement
Foster Street, Taylor Street, and Grimes Lane
Roadway Reconstruction

No illicit discharges are proposed to enter the redeveloped stormwater system located within Foster Street, Taylor Street, and Grimes Lane. Inspection procedures outline in the Long-Term Operation and Maintenance Plan will be strictly followed to contaminations do not enter the stormwater system. Illicit discharge detection and elimination procedures will be implemented routinely by visual inspections to prevent illicit discharges into the stormwater system. Town of Littleton DPW personal are informed of the illicit discharge detection and elimination procedures and that no illicit discharges are allowed to enter the stormwater system.

Appendix J

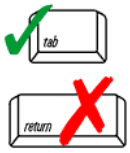
Stormwater Checklist

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

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

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

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

---

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

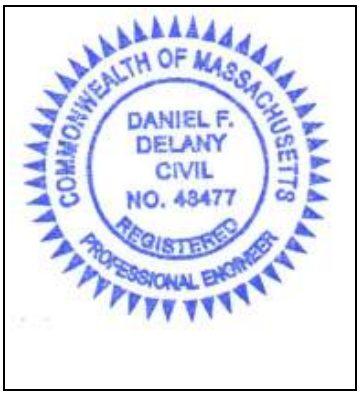
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



9/18/23

Signature and Date

Checklist

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

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☐ Reduced Impervious Area (Redevelopment Only)

☐ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☐ Use of "country drainage" versus curb and gutter conveyance and pipe

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☐ Other (describe): _____

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☐ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

---

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

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

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☐ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

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

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☒ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☒ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

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

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☐ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.