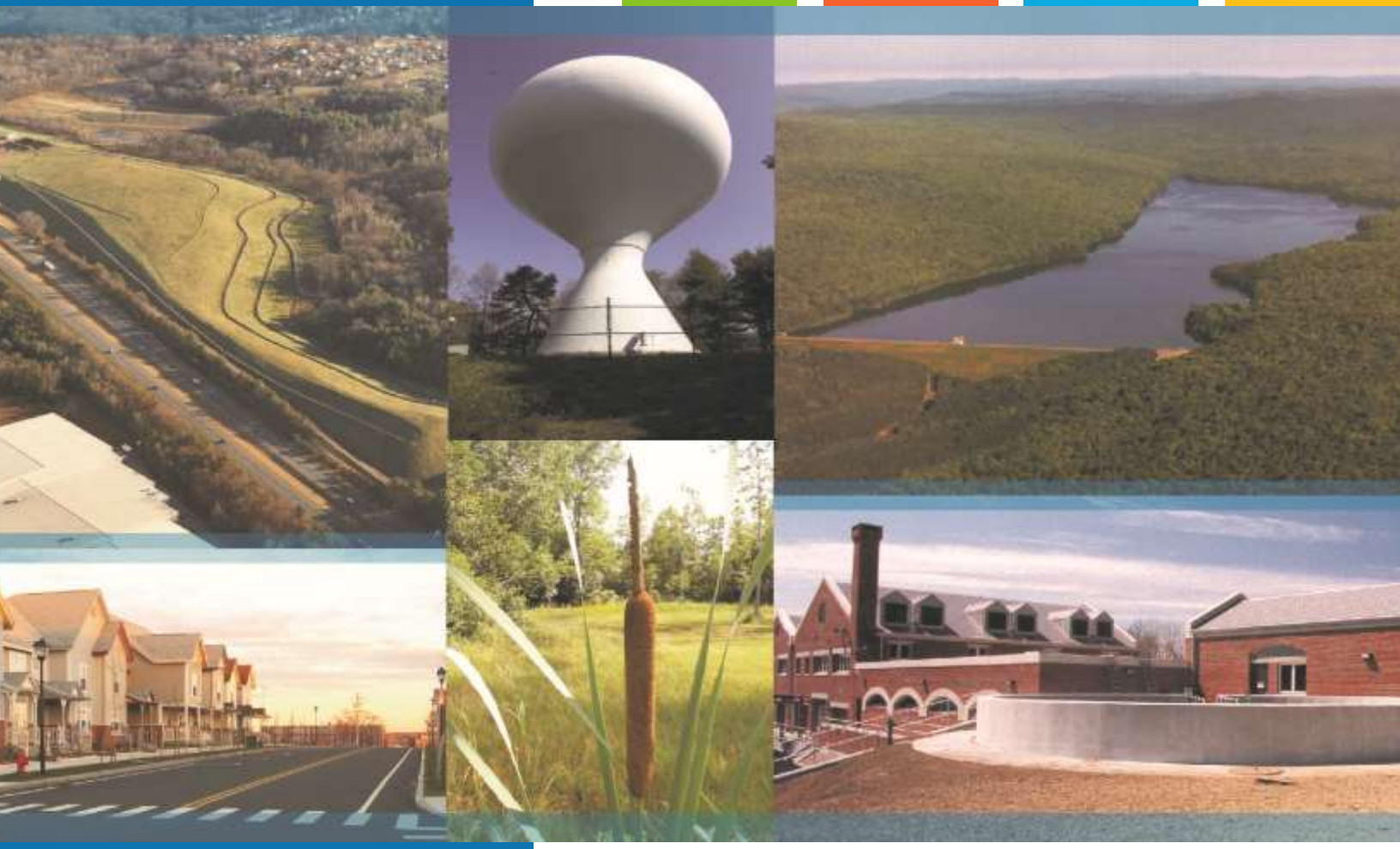


Water Transmission Main Replacement Project
Sherbert Road Extension and North Ashburnham Road

REQUEST FOR DETERMINATION OF APPLICABILITY

Town of Winchendon
Department of Public Works

October 2022

Tighe&Bond

100% Recyclable

W-1157-091
October 21, 2022

Matthew Marro, Conservation Agent
Winchendon Conservation Commission
109 Front Street
Winchendon, MA 01475

Re: **Request for Determination of Applicability**
Water Transmission Main Replacement Project
Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Dear Mr. Marro and Members of the Commission:

On behalf of the Town of Winchendon Department of Public Works (DPW), Tighe & Bond is submitting this Request for Determination of Applicability (RDA) for the proposed Water Transmission Main Replacement Project in Winchendon, Massachusetts. The work involves replacing the existing water main and associated infrastructure within the public road right-of-ways of Sherbert Road Extension and North Ashburnham Road in Winchendon, Massachusetts. Refer to the Site Location Map (Figure 1) in Attachment B for the location of the proposed work.

This RDA is being filed because portions of the proposed work will occur within the 100-foot Buffer Zone to inland Bank and Bordering Vegetated Wetlands (BVW), regulated under the Massachusetts Wetlands Protection Act (MA WPA, M.G.L. c. 131 §40) and the Winchendon Wetlands Protection Bylaw. Much of the proposed work meets the conditions of two exemptions from the MA WPA. One of the exemptions is 310 CMR 10.02 (2)2, which exempts, "*activities conducted to maintain, repair, or replace, but not substantially change or enlarge, an existing and lawfully located structure or facility used in the service of the public to provide electric, gas, water, telephone, telegraph or other telecommunication services*." The Winchendon Bylaw also includes a similar exemption for the replacement of public utilities. Additionally, 310 CMR 10.02 (2)(b)(2)(i) exempts the "*installation of underground utilities (e.g., electric, gas, water) within existing paved or unpaved roadways and private roadways/driveways, provided that all work is conducted within the road*" in Buffer Zone. Some parts of the proposed work such as hydrants, meters, and service connections may not meet these exemptions; therefore, we are submitting this RDA for your review.

Site Conditions

The proposed work will occur within the unpaved public road right-of-way of Sherbert Road Extension and North Ashburnham Road. The surrounding land use is mostly forested, with a few residential properties.

Wetland Resource Areas

Wetland resource areas within the project locus were delineated by Tighe & Bond wetland scientists on October 15, November 4, and November 8, 2021 in accordance with Massachusetts Department of Environmental Protection (MassDEP) guidelines, 310 CMR 10.00, and the Winchendon Wetlands Protection Bylaw (Article 29). The resource area boundaries were surveyed using an Arrow 100® Global Positioning System (GPS) unit with submeter accuracy.

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for the Town of Winchendon (Community-Panel Number 2503480017B/19B, Effective Date: June 15, 1982) confirmed that the Project Site is not located within the limits of 100-year flooding. Copies of the FEMA FIRM are provided in Attachment B.

Resource areas identified along the project limits are summarized in Table 1.

TABLE 1
Summary of Jurisdictional Resource Area Flagging

Flag Series	Flag Numbers	Resource Area	Resource Area Description
16	16A-1 to 16A-9[1]	BVW	PFO
17	17A-1 to 17A-13[1]	BVW	PFO
18	18A-1 to 18A-6[1]	Bank	Intermittent Stream
19	19A-1 to 19A-12[1]	BVW	PEM/PSS
20	20A-1 to 20A-11	BVW	PEM/PSS
21	21A-1 to 21A-5[1]	BVW	PFO
22	22A-1 to 22A-5[1]	BVW	PFO
23	23A-1 to 23A-2[1]	Bank	Intermittent Stream
	23B-1 to 23B-2[1]	Bank	Intermittent Stream
24	24A-1 to 24A-7	BVW	PFO
	25A-1 to 25A-3[1]	Bank	Intermittent Stream
25	25B-1 to 25B-3	BVW	PFO
	25C-1 to 25C-4[1]	BVW	PFO
26	26A-1 to 26A-8[1]	BVW	PFO/PSS

[1] Resource area continues beyond the flags placed in the field

Inland Bank

Inland Bank is defined in 310 CMR 10.54(2)(a) 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 floodplain, or, in the absence of these, it occurs between a water body and an upland."*

Bank was delineated at the first observable break in slope between bodies of water and the adjacent landform. Banks were delineated in the Project Site for three unnamed intermittent streams. The water for all three streams flowed from east to west.

Bordering Vegetated Wetlands

Bordering Vegetated Wetlands (BVW) are defined in 310 CMR 10.55(2)(a) as *"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."*

Multiple BVW were delineated along North Asburnham Road. Most of them are classified as palustrine forested (PFO) or shrub scrub (PSS) wetlands, except for two BVWs classified as palustrine emergent (PEM) as they were delineated within a maintained power line utility right-of-way. Vegetation observed in each BVW included red maple (*Acer rubrum*, FAC),

yellow birch (*Betula alleghaniensis*; FAC), eastern hemlock (*Tsuga canadensis*; FACU), winterberry holly (*Ilex verticillata*; FACW), highbush blueberry (*Vaccinium corymbosum*; FACW), cinnamon fern (*Osmundastrum cinnamomeum*; FACW), and skunk-cabbage (*Symplocarpus foetidus*; OBL).

Rare Species

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas (August 1, 2021) and MassGIS online (August 2021) were consulted during the preparation of this RDA. According to these sources, neither *Priority Habitats of Rare Species* nor *Estimated Habitats of Rare Wildlife* occur within or adjacent to the project area.

Proposed Activities

The proposed activities include the replacement of approximately 3,400 linear feet (LF) of a 12-inch diameter unlined cast iron water main with a new 12-inch diameter ductile iron water main. The existing water main was installed in the early 1950's and is the sole transmission water main providing water to the Town of Winchendon. A portion of the water main's existing layout traverses a section of heavily vegetated forest and is difficult to access for repairs. The project intends to abandon that area of the water main and reroute it to follow the roadway of Sherbert Road Extension and North Ashburnham Road. A water meter in a vault will also be installed near the Ashburnham town line in Winchendon on Sherbert Road Extension.

The new water main will be placed approximately six feet below grade and bedded with sand. The rest of the trench will be backfilled with native soil, compacted, topped with eight inches of processed gravel, and covered with four inches of crushed stone to match the existing finish grade. Associated with the new water main, the work will also include the installation of hydrants and reconnect the existing water service connections.

Protective Measures

Erosion and sedimentation control measures consisting of straw wattles will be installed according to the project drawings where necessary. Silt sack inserts will also be installed in any catch basins along the route of the proposed water main. Following construction, areas of exposed soil will be loamed and seeded. The erosion control measures will stay in place until the work is completed and the areas of exposed soil have been stabilized.

Summary

We look forward to having the opportunity to discuss this project at the Conservation Commission’s next public meeting. We anticipate these materials are sufficient for the Commission to issue a Negative Determination, confirming that an NOI will not be required for the proposed work.

Should you have any questions regarding this application or require any additional information, please do not hesitate to contact me at (508) 471-9631, or via email at rcanavan@tighebond.com. If the Commission would like to conduct a site visit, we respectfully ask that it be scheduled in advance of the meeting.

Very truly yours,

TIGHE & BOND, INC.

Richard Canavan, PhD, PWS
Principal Environmental Scientist

Copy: MassDEP – Central Regional Office (CERO) Division of Wetlands and Waterways
Brian Croteau, Director, DPW

Attachments

A Request for Determination of Applicability (WPA Form 1)
B Figures
- 1 – Site Location
- 2 – Priority Resources
- 3 – Orthophotograph
- 4 – Site Plan
- FEMA FIRMette

C Project Drawings
D Site Photographs

Tighe&Bond

ATTACHMENT A

WPA Form 1

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

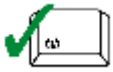
Winchendon
City/Town

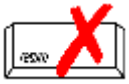
WPA Form 1- Request for Determination of Applicability

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

A. General Information

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





1. Applicant:

Brian Croteau, Director, Winchendon DPW
Name

bcroteau@townofwinchendon.com
E-Mail Address

109 Front Street, Department 4
Mailing Address

Winchendon
City/Town

MA
State

01475
Zip Code

(978) 297-5411
Phone Number

Fax Number (if applicable)

2. Representative (if any):

Tighe & Bond, Inc.
Firm

Richard Canavan
Contact Name

rcanavan@tighebond.com
E-Mail Address

120 Front Street, Suite 700
Mailing Address

Worcester
City/Town

MA
State

01608
Zip Code

(508) 471-9631
Phone Number

Fax Number (if applicable)

B. Determinations

1. I request the Winchendon (Conservation Commission) make the following determination(s). Check any that apply:

☐ a. whether the **area** depicted on plan(s) and/or map(s) referenced below is an area subject to jurisdiction of the Wetlands Protection Act.

☐ b. whether the **boundaries** of resource area(s) depicted on plan(s) and/or map(s) referenced below are accurately delineated.

☒ c. whether the **work** depicted on plan(s) referenced below is subject to the Wetlands Protection Act.

☒ d. whether the area and/or work depicted on plan(s) referenced below is subject to the jurisdiction of any **municipal wetlands ordinance** or **bylaw** of:

Winchendon
Name of Municipality

☐ e. whether the following **scope of alternatives** is adequate for work in the Riverfront Area as depicted on referenced plan(s).

C. Project Description

1. a. Project Location (use maps and plans to identify the location of the area subject to this request):

Sherbert Road Extension/North Ashburnham Road	Winchendon
Street Address	City/Town
Assessors Map/Plat Number	Parcel/Lot Number

b. Area Description (use additional paper, if necessary):

The proposed activities will take place within the public right-of-way along Sherbert Road Extension and North Ashburnham Road, in Winchendon, Massachusetts. The roads are unpaved and surrounded by forest on both sides.

c. Plan and/or Map Reference(s):

Site Location	10/18/2022
Title	Date
Priority Resources	10/18/2022
Title	Date
Orthophotograph	10/18/2022
Title	Date

2. a. Work Description (use additional paper and/or provide plan(s) of work, if necessary):

The proposed activities include the replacement of approximately 3,400 linear feet (LF) of a 12-inch diameter unlined cast iron water main with a new 12-inch diameter ductile iron water main. The existing water main was installed in the early 1950's and is the sole transmission water main providing water to the Town of Winchendon. A portion of the water main's existing layout traverses a section of heavily vegetated forest and is difficult to access for repairs. The project intends to abandon that area of the water main and reroute it to follow the roadway of Sherbert Road Extension and North Ashburnham Road.

C. Project Description (cont.)

b. Identify provisions of the Wetlands Protection Act or regulations which may exempt the applicant from having to file a Notice of Intent for all or part of the described work (use additional paper, if necessary).

310 CMR 10.02(2)(b)(2)(i) - Installation of underground utilities (e.g., electric, gas, water) within existing paved or unpaved roadways and private roadways/driveways, provided that all work is conducted within the road

3. a. If this application is a Request for Determination of Scope of Alternatives for work in the Riverfront Area, indicate the one classification below that best describes the project.

☐ Single family house on a lot recorded on or before 8/1/96

☐ Single family house on a lot recorded after 8/1/96

☐ Expansion of an existing structure on a lot recorded after 8/1/96

☐ Project, other than a single-family house or public project, where the applicant owned the lot before 8/7/96

☐ New agriculture or aquaculture project

☐ Public project where funds were appropriated prior to 8/7/96

☐ Project on a lot shown on an approved, definitive subdivision plan where there is a recorded deed restriction limiting total alteration of the Riverfront Area for the entire subdivision

☐ Residential subdivision; institutional, industrial, or commercial project

☐ Municipal project

☐ District, county, state, or federal government project

☐ Project required to evaluate off-site alternatives in more than one municipality in an Environmental Impact Report under MEPA or in an alternatives analysis pursuant to an application for a 404 permit from the U.S. Army Corps of Engineers or 401 Water Quality Certification from the Department of Environmental Protection.

b. Provide evidence (e.g., record of date subdivision lot was recorded) supporting the classification above (use additional paper and/or attach appropriate documents, if necessary.)

D. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Request for Determination of Applicability and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge.

I further certify that the property owner, if different from the applicant, and the appropriate DEP Regional Office were sent a complete copy of this Request (including all appropriate documentation) simultaneously with the submittal of this Request to the Conservation Commission.

Failure by the applicant to send copies in a timely manner may result in dismissal of the Request for Determination of Applicability.

Name and address of the property owner:

Town of Winchendon
Name

109 Front Street
Mailing Address

Winchendon
City/Town

MA
State

01475
Zip Code

Signatures:

I also understand that notification of this Request will be placed in a local newspaper at my expense in accordance with Section 10.05(3)(b)(1) of the Wetlands Protection Act regulations.

Signature of Applicant

10-21-22
Date

Signature of Representative (if any)

10/21/2022
Date

Tighe&Bond

ATTACHMENT B

Figures

Legend

- Existing Water Main
- Proposed Water Main

Tighe&Bond

Based on USGS Topographic Map for Ashburnham, MA Revised 1988.
Contour Interval Equals 3m.
Circles indicate 500-foot and half-mile radii

1:12,000

0 500 1,000

Feet

N

FIGURE 1
SITE LOCATION

Water Transmission Main
Replacement Project
Sherbert Road Extension/North
Ashburnham Road
Winchendon, Massachusetts

October 2022

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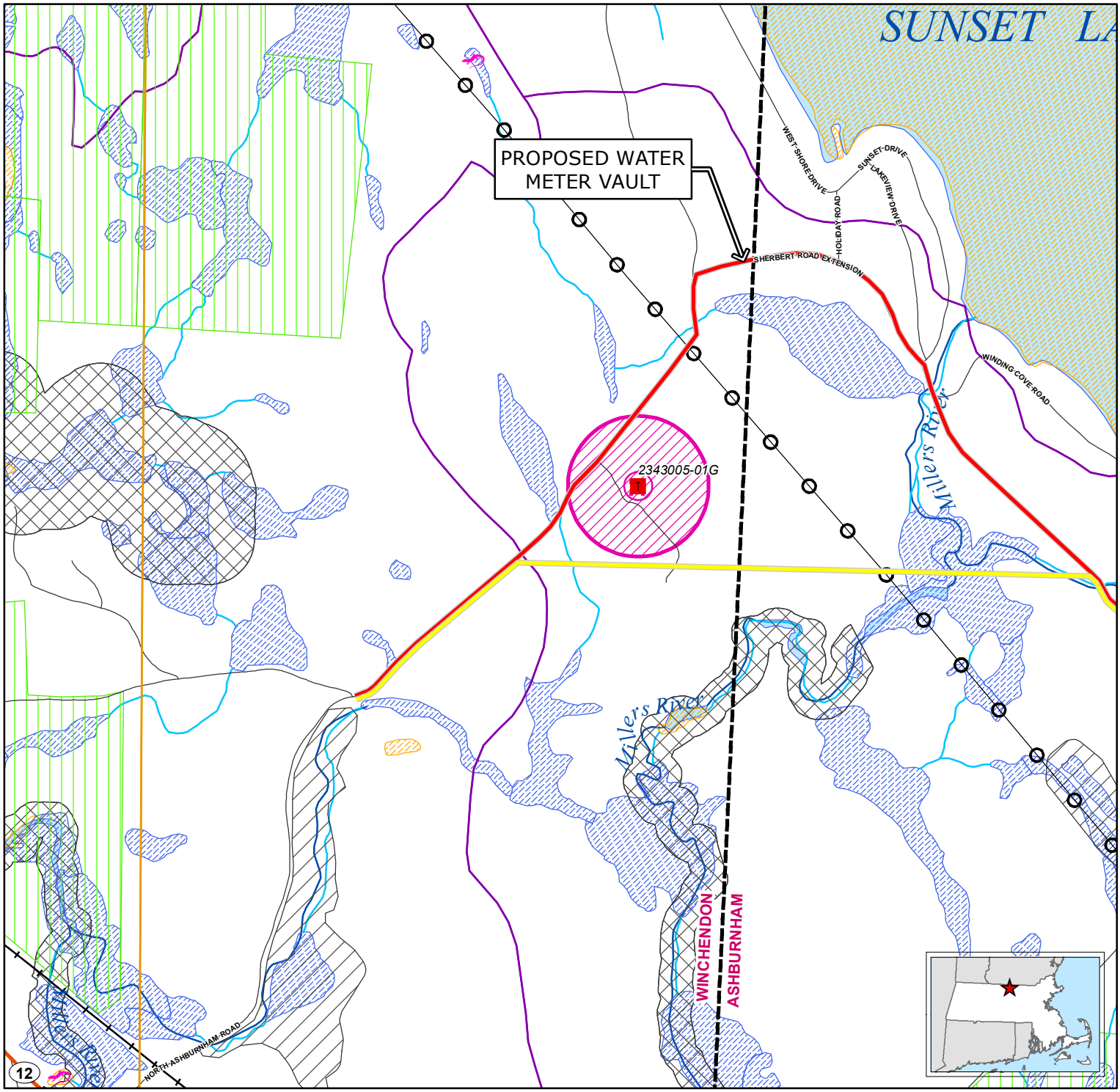
W-1157



Legend

- NHESP Certified Vernal Pools
- NHESP Potential Vernal Pools
- Non-Landfill Solid Waste Sites
- Proposed Well
- Emergency Surface Water
- Community Public Water Supply - Surface Water
- Community Public Water Supply - Groundwater
- Non-Community Non-Transient Public Water Supply
- Non-Community Transient Public Water Supply
- Limited Access Highway
- Multi-Lane Highway, NOT Limited Access
- Other Numbered Route
- Major Road - Arterials and Collectors
- Minor Street or Road
- Aqueducts
- Hydrologic Connections
- Stream/Intermittent Stream
- Powerline
- Pipeline
- Track or Trail
- Trains
- Public Surface Water Supply Protection Area (Zone A)
- DEP Approved Wellhead Protection Area (Zone I)
- DEP Approved Wellhead Protection Area (Zone II)
- DEP Interim Wellhead Protection Area (IWPA)
- Protected and Recreational Open Space
- Solid Waste Landfill
- Area of Critical Environmental Concern (ACEC)
- NHESP Priority Habitats for Rare Species
- NHESP Estimated Habitats for Rare Wildlife
- EPA Designated Sole Source Aquifer
- Major Drainage Basin
- Sub Drainage Basin
- MassDEP Open Water
- MassDEP Inland Wetlands
- MassDEP Coastal Wetlands
- MassDEP Not Interpreted Wetlands
- Public Surface Water Supply (PSWS)
- Water Bodies
- Non-Potential Drinking Water Source Area - High Yield
- Non-Potential Drinking Water Source Area - Medium Yield
- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer
- County Boundary
- Municipal Boundary
- USGS Quadrangle Sheet Boundary
- Existing Water Main
- Proposed Water Main

1:12,000

0 500 1,000

Feet

N

FIGURE 2
PRIORITY RESOURCES

Water Transmission Main
Replacement Project
Sherbert Road Extension/North
Ashburnham Road
Winchendon, Massachusetts

Data source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology
Circles indicate 500-foot and half-mile radii.
Data valid as of October 2022.

October 2022

Tighe&Bond

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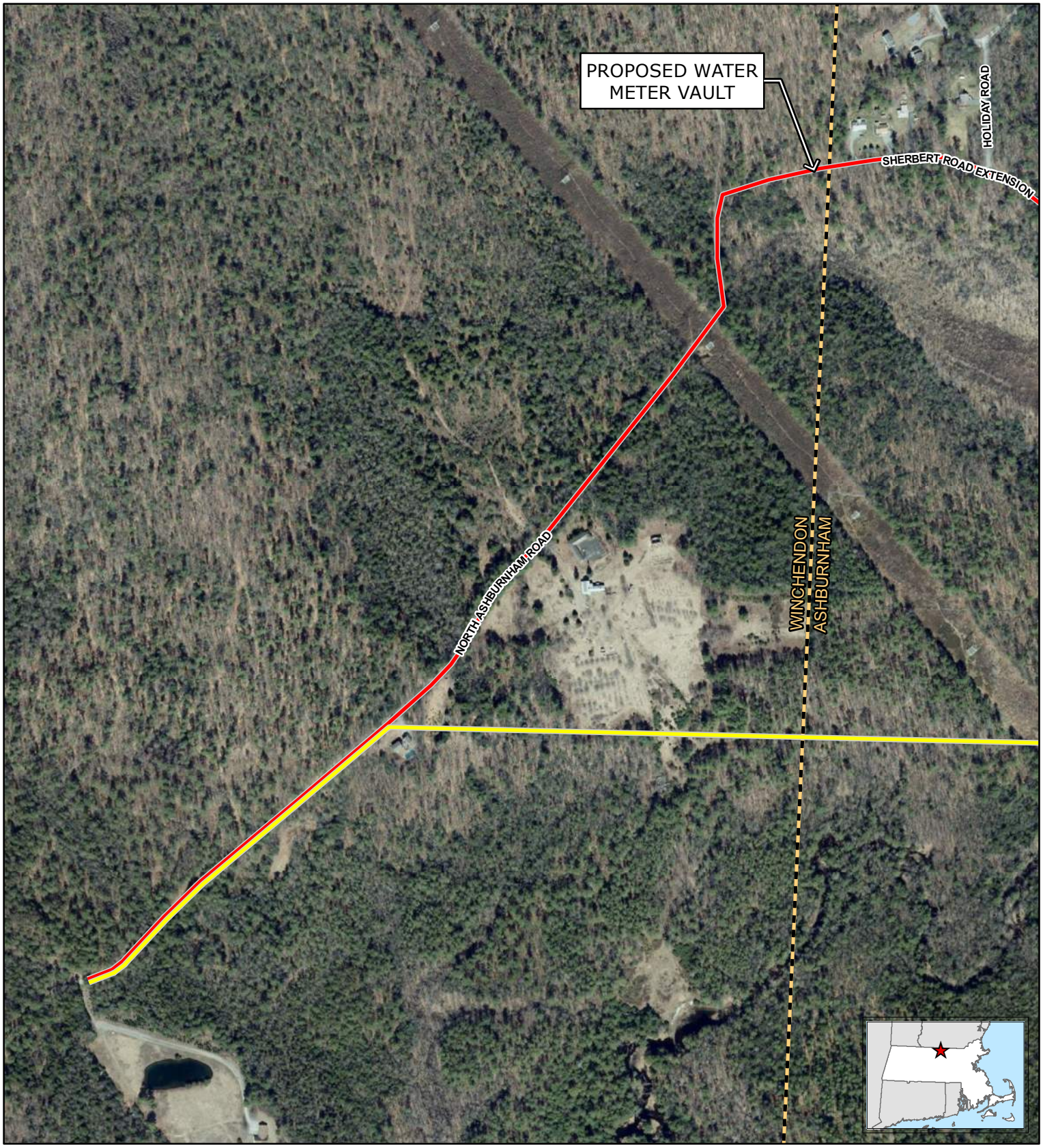

Legend

- Existing Water Main
- Proposed Water Main
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)

1:6,000

0 250 500

Feet

N

FIGURE 3
ORTHOPHOTOGRAPH

Water Transmission Main
Replacement Project
Sherbert Road Extension/North
Ashburnham Road
Winchendon, Massachusetts

October 2022

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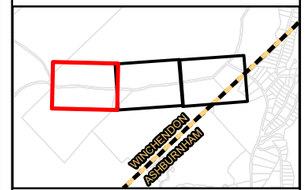
W-1157

FIGURE 4
SITE PLAN

LEGEND

- Culvert
- Existing Water Main
- Proposed Water Main
- Bank
- 50-Foot No Disturb Zone
- 75-Foot No Build Zone
- 100-foot Buffer Zone
- 200-foot Riverfront
- Delineated Wetland
- Approximate Parcel Boundary
- Town Boundary

LOCUS MAP



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NOTES

1. Based on MassGIS Color Orthophotography (2019)

Water Transmission Main Replacement Project
Sherbert Road Extension
North Ashburnham Road
Winchendon, Massachusetts

October 2022

Tighe&Bond

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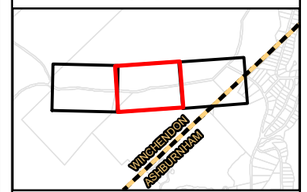
W-1157

FIGURE 4
SITE PLAN

LEGEND

- Culvert
- Existing Water Main
- Proposed Water Main
- Bank
- 50-Foot No Disturb Zone
- 75-Foot No Build Zone
- 100-foot Buffer Zone
- 200-foot Riverfront
- Delineated Wetland
- Approximate Parcel Boundary
- Town Boundary

LOCUS MAP



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NOTES

1. Based on MassGIS Color Orthophotography (2019)

Water Transmission Main Replacement Project
Sherbert Road Extension
North Ashburnham Road
Winchendon, Massachusetts

October 2022

Tighe&Bond

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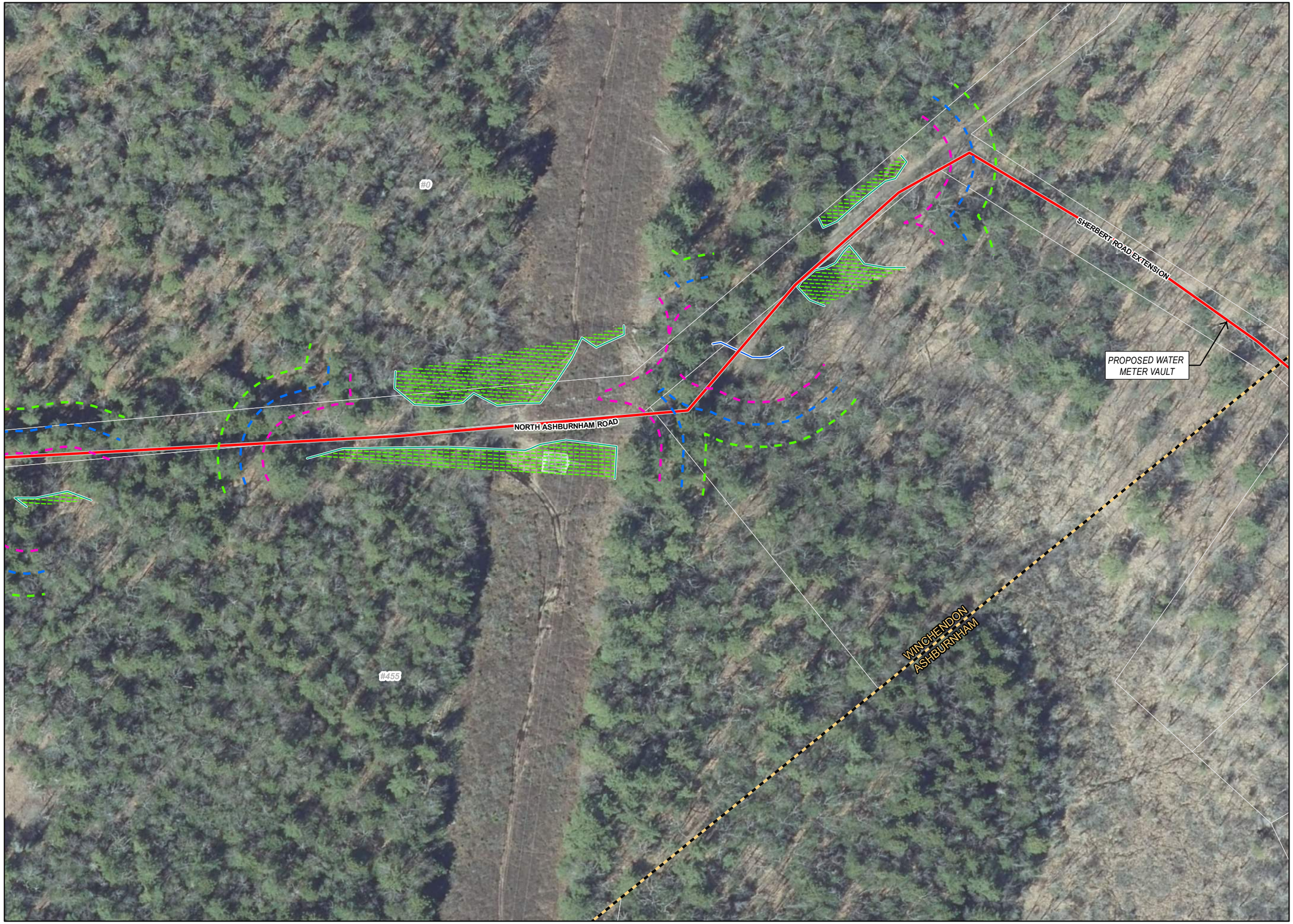
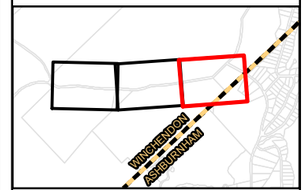
FIGURE 4
SITE PLAN



LEGEND

- Culvert
- Existing Water Main
- Proposed Water Main
- Bank
- 50-Foot No Disturb Zone
- 75-Foot No Build Zone
- 100-foot Buffer Zone
- 200-foot Riverfront
- Delineated Wetland
- Approximate Parcel Boundary
- Town Boundary

LOCUS MAP



0 50 100
Feet
1:1,200

NOTES

1. Based on MassGIS Color Orthophotography (2019)

Water Transmission Main Replacement Project
Sherbert Road Extension
North Ashburnham Road
Winchendon, Massachusetts

October 2022

Tighe&Bond

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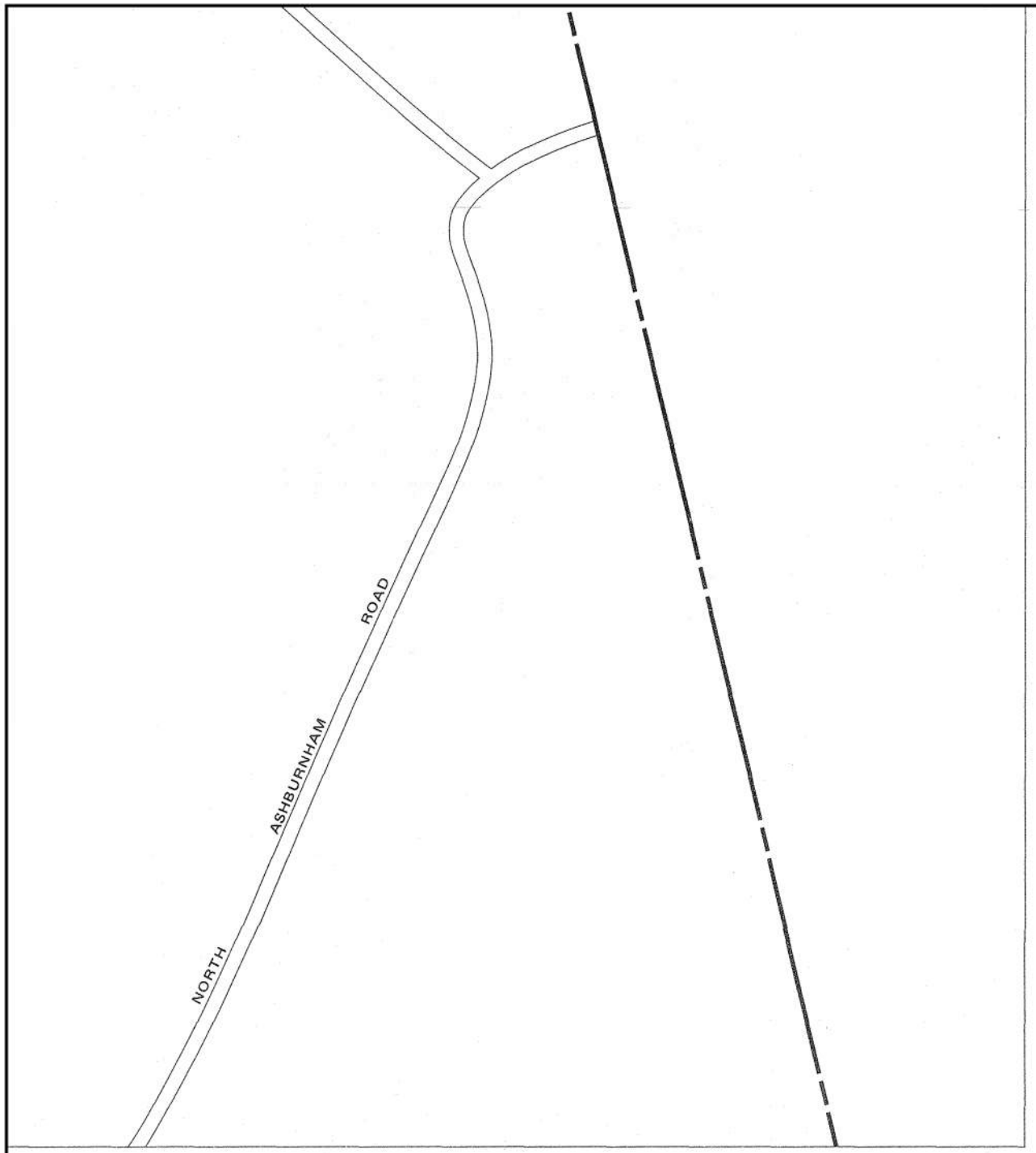


APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

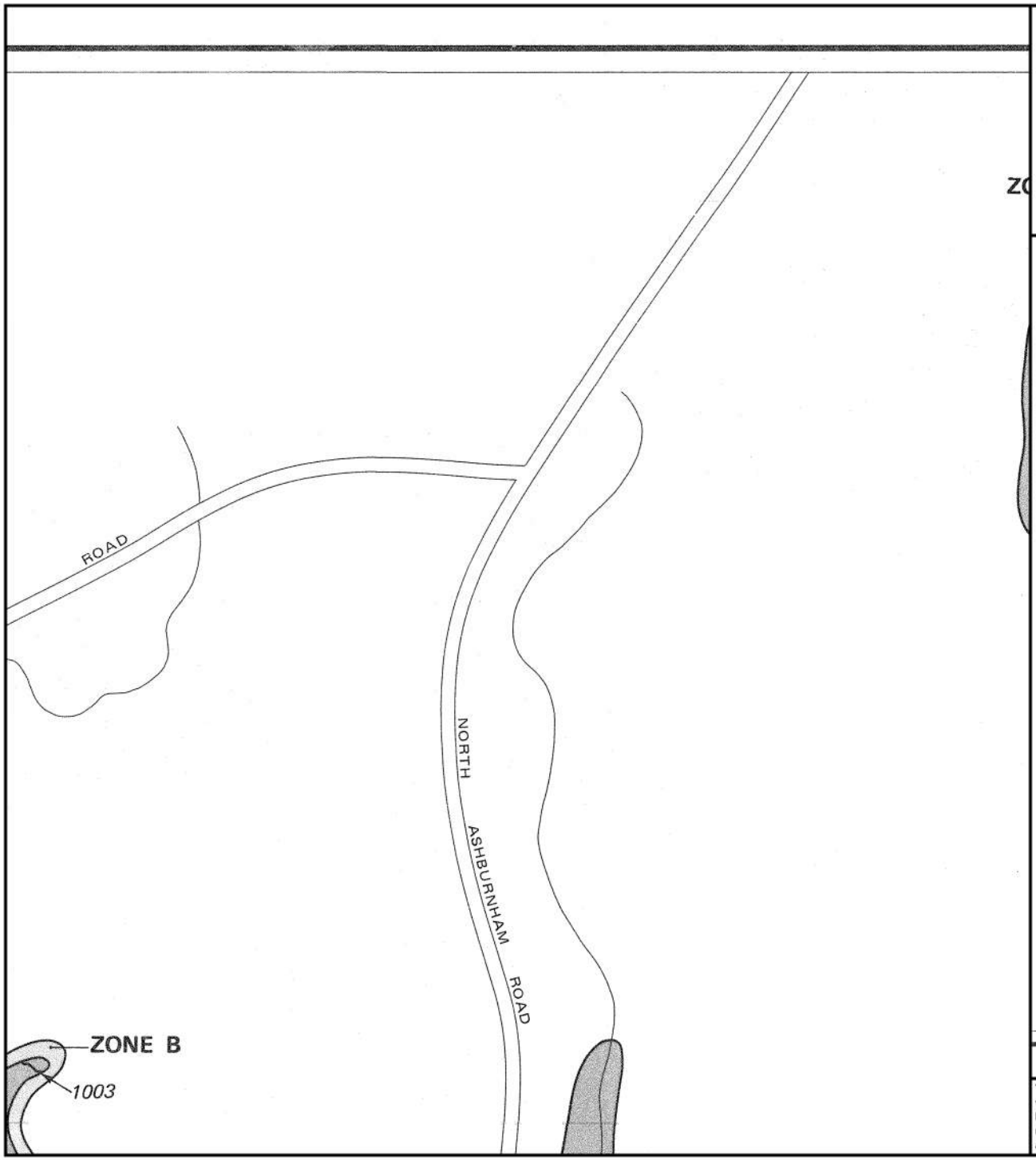
TOWN OF
WINCHENDON,
MASSACHUSETTS
WORCESTER
COUNTY

PANEL 17 OF 30
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
250348 0017 B

EFFECTIVE DATE:
JUNE 15, 1982

Federal Emergency Management Agency



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
WINCHENDON,
MASSACHUSETTS
WORCESTER
COUNTY

PANEL 19 OF 30
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
250348 0019 B

EFFECTIVE DATE:
JUNE 15, 1982

Federal Emergency Management Agency

Tighe&Bond

ATTACHMENT C

Project Drawings

WATER TRANSMISSION MAIN REPLACEMENT PROJECT

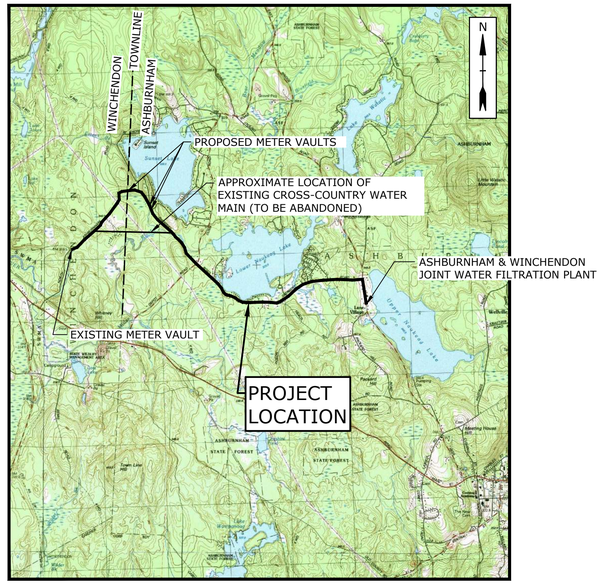
LOCATION: ASHBURNHAM AND WINCHENDON, MASSACHUSETTS
OWNER: TOWN OF WINCHENDON, MASSACHUSETTS

OCTOBER 2022

Drawing Sheets depicting work in Ashburnham are excluded from this permit application.

LIST OF DRAWINGS		
SHEET NO.	DRAWING NO.	DRAWING TITLE
1	G-001	COVER SHEET AND LIST OF DRAWINGS
2	G-002	GENERAL NOTES
3	G-003	LEGEND AND ABBREVIATIONS
4	G-004	SHEET LAYOUT - OVERALL PROJECT PLAN
~~5~~	~~C-101~~	~~LAKE ROAD WATER MAIN - STA 0+00 TO STA 10+00~~
~~6~~	~~C-102~~	~~SHERBERT ROAD WATER MAIN - STA 10+00 TO STA 28+00~~
~~7~~	~~C-103~~	~~SHERBERT ROAD WATER MAIN - STA 28+00 TO STA 48+00~~
~~8~~	~~C-104~~	~~SHERBERT ROAD WATER MAIN - STA 48+00 TO STA 68+00~~
~~9~~	~~C-105~~	~~SHERBERT ROAD WATER MAIN - STA 68+00 TO STA 89+00~~
~~10~~	~~C-106~~	~~SHERBERT ROAD WATER MAIN - STA 89+00 TO STA 109+00~~
~~11~~	~~C-107~~	~~SHERBERT ROAD WATER MAIN - STA 109+00 TO STA 130+00~~
~~12~~	~~C-108~~	~~SHERBERT ROAD WATER MAIN - STA 130+00 TO STA 149+50~~
13	C-109	SHERBERT ROAD AND SHERBERT ROAD EXT WATER MAIN - STA 139+50 TO STA 170+00
14	C-110	NORTH ASHBURNHAM ROAD WATER MAIN - STA 170+00 TO STA 189+00
15	C-111	NORTH ASHBURNHAM ROAD WATER MAIN - STA 189+00 TO STA 209+72
16	C-112	WATER SERVICE TO #455 NORTH ASHBURNHAM ROAD
~~17~~	~~C-113~~	~~HDD PROFILES AT CULVERTS AND BRIDGE CROSSINGS - 1~~
~~18~~	~~C-114~~	~~HDD PROFILES AT CULVERTS AND BRIDGE CROSSINGS - 2~~
19	C-115	MISCELLANEOUS DETAILS - 1
20	C-116	MISCELLANEOUS DETAILS - 2
21	C-117	MISCELLANEOUS DETAILS - 3
22	C-118	ROADWAY RESTORATION PLAN
23	C-119	TRAFFIC MANAGEMENT PLAN
24	C-120	TEMPORARY TRAFFIC CONTROL/DETOUR PLAN
~~25~~	~~M-101~~	~~WATER METER VAULT PLAN AND DETAILS - WINDING COVE ROAD~~
26	M-102	WATER METER VAULT PLAN AND DETAILS - TOWN LINE
~~27~~	~~E-101~~	~~ELECTRICAL WATER METER VAULT WINDING COVE ROAD~~
~~28~~	~~E-102~~	~~ELECTRICAL WATER METER VAULT TOWN LINE~~

PERMIT SET - NOT FOR CONSTRUCTION



LOCATION MAP
SCALE: 1" = 2000'

PREPARED BY:

Tighe&Bond

PREPARED FOR:
TOWN OF WINCHENDON
JUSTIN SULTZBACH - TOWN MANAGER

DEPARTMENT OF PUBLIC WORKS
BRIAN CROTEAU - DIRECTOR

COMPLETE SET 28 SHEETS

BASE PLAN NOTES

1. THE EXISTING CONDITIONS INFORMATION SHOWN ON THE DRAWINGS IS BASED ON THE FOLLOWING:
   - SURVEY DRAWINGS PROVIDED BY GPR, INC. TITLED "W1157-091 FinSurv_2 03 2022" AND DATED 2-3-2022
   - DRAWINGS PROVIDED BY LOCAL UTILITY COMPANIES
   - THE RESOURCE AREA BOUNDARIES DEPICTED ON THE DRAWINGS WERE DELINEATED BY TIGHE & BOND, INC. IN OCTOBER AND NOVEMBER 2021
   - GIS INFORMATION FOR PROPERTY LINES AND BUILDINGS DATED 11-29-2021
2. UTILITY LOCATIONS SHOWN WERE PLOTTED FROM INFORMATION SUPPLIED BY RESPECTIVE UTILITY COMPANIES AND DATA OBTAINED FROM FIELD SURVEYS AND AS BUILT DRAWINGS. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION SHOWN ON THESE DRAWINGS IS NOT GUARANTEED. DETERMINE THE LOCATIONS AND ELEVATIONS OF ALL UTILITIES WHICH MAY AFFECT CONSTRUCTION OPERATIONS.
3. SUB-SURFACE EXPLORATIONS WERE PERFORMED BY MARTIN GEO-ENVIRONMENTAL IN APRIL 2017 AND PAVEMENT CORES WERE PERFORME BY MARTIN GEO-ENVIRONMENTAL IN NOVEMBER 2021. GEOPROBE AND PAVEMENT CORE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND GEOPROBE INFORMATION IS NOT GUARANTEED IN ANY WAY TO REPRESENT EXISTING CONDITIONS. GEOPROBE AND PAVEMENT CORE LOGS ARE INCLUDED IN THE PROJECT MANUAL FOR THE CONTRACTOR'S INFORMATION ONLY.
4. THE DRAWINGS ARE BASED ON THE FOLLOWING DATUMS: HORIZONTAL-NAD83 ; VERTICAL-NAVD1988
5. THE EXISTING CONDITIONS SHOWN ARE APPROXIMATE. FIELD VERIFY EXISTING CONDITIONS.
6. THE PROPERTY LINES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND ARE NOT BASED ON DEED OR PLAN RESEARCH.

WATER SYSTEM IMPROVEMENTS NOTES

1. PROPOSED WATER MAINS SHALL BE PROVIDED IN ACCORDANCE WITH THE OWNER'S STANDARDS, AS SPECIFIED, AND AS SHOWN ON THE DRAWINGS. WHERE THERE IS A CONFLICT BETWEEN THE OWNER'S STANDARDS AND THE DRAWINGS AND SPECIFICATIONS, THE OWNER'S STANDARDS SHALL GOVERN.
2. HORIZONTAL AND VERTICAL LOCATION OF WATER MAINS MAY BE MODIFIED TO FIT EXISTING FIELD CONDITIONS, UPON APPROVAL OF THE ENGINEER.
3. WORKING PRESSURE OF WATER MAIN IN PROJECT AREA IS 140 PSI.
4. MINIMUM DEPTH OF COVER OVER PROPOSED WATER MAIN SHALL BE 5 FEET, UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER.
5. ALL BELOW GRADE VALVES AND FITTINGS SHALL HAVE MECHANICAL JOINT (MJ) ENDS. RESTRAIN ALL VALVE AND FITTING JOINTS WITH RETAINER GLANDS. IN ADDITION, PROVIDE CONCRETE THURST BLOCKS AT ALL TEES, BENDS, HYDRANTS, CAPS, AND PLUGS.
6. WHERE A COUPLING IS CALLED FOR ON THE DRAWINGS TO CONNECT A PROPOSED WATER MAIN TO AN EXISTING WATER MAIN PROVIDE A SOLID SLEEVE, IF POSSIBLE. RESTRAIN SOLID SLEEVE TO PIPES WITH RETAINER GLANDS. IF OUTSIDE DIAMETER OF EXISTING WATER MAIN DOES NOT ALLOW INSTALLATION OF SOLID SLEEVE, PROVIDE RESTRAINING TYPE TRANSITION COUPLING.
7. SLEEVES, NIPPLES, AND ACCESSORIES NECESSARY FOR CONNECTION BETWEEN EXISTING AND PROPOSED PIPES MAY NOT BE SHOWN ON THE DRAWINGS. PROVIDE ITEMS NECESSARY FOR CONNECTING TO EXISTING MAINS AND MAKE CONNECTIONS AS INDICATED IN THE CONTRACT DOCUMENTS.
8. RESTRAIN PIPE JOINTS IN ACCORDANCE WITH "MINIMUM RESTRAINED LENGTHS FOR DI PIPE" TABLE ON THE DRAWINGS.
9. MAINTAIN A MINIMUM HORIZONTAL DISTANCE OF 10 FEET BETWEEN THE PROPOSED WATER MAIN AND ANY EXISTING OR PROPOSED SANITARY SEWER OR STORM DRAIN. WHEN CONDITIONS PREVENT THIS, A LESSER DISTANCE WILL BE ALLOWED IF: A.) THE WATER MAIN IS IN A SEPARATE TRENCH OR B.) THE PROPOSED WATER MAIN IS LOCATED IN THE SAME TRENCH TO ONE SIDE ON A BENCH OF UNDISTURBED EARTH WITH AT LEAST 12 INCHES, AND PREFERABLY 18 INCHES, HORIZONTAL SEPARATION BETWEEN THE EDGES OF THE SEWER/DRAIN PIPE AND THE WATER MAIN. IN EITHER CASE, THE BOTTOM OF THE WATER MAIN SHALL BE 18 INCHES ABOVE THE CROWN OF THE SEWER/DRAIN PIPE.
10. WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. IT IS PREFERRED THAT THE WATER MAIN CROSS ABOVE THE SEWER. AT CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.
11. IN SITUATIONS WHEN A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.
12. OPERATION OF EXISTING VALVES SHALL BE BY THE WATER DISTRIBUTION SYSTEM OWNER, UNLESS OTHERWISE AUTHORIZED. COORDINATE OPERATION OF VALVES WITH THE WATER DISTRIBUTION SYSTEM OWNER.
13. THE WATER DISTRIBUTION SYSTEM OWNER DOES NOT GUARANTEE A TIGHT SHUTDOWN OF ITS EXISTING VALVES. THE CONTRACTOR IS RESPONSIBLE FOR CONTROL OF LEAKAGE AND DISPOSAL OF WATER UP TO 100 GALLONS PER MINUTE.
14. COORDINATE THE ACTIVATION AND DEACTIVATION OF WATER MAINS WITH THE WATER DISTRIBUTION SYSTEM OWNER.
15. WHERE WATER MAINS ARE BEING REPLACED, RECONNECT ALL EXISTING WATER SERVICES TO THE PROPOSED WATER MAINS, UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING UNINTERRUPTED WATER SERVICE TO ALL CUSTOMERS IN THE PROJECT AREA DURING CONSTRUCTION, UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER.
16. FOR EACH PROPOSED WATER SERVICE, PROVIDE NEW CORPORATION AT THE MAIN, NEW WATER SERVICE PIPING, AND NEW CURB STOP AND BOX. PROPOSED WATER SERVICES SHALL BE INSTALLED FROM THE PROPOSED WATER MAIN TO THE PROPERTY LINE FOR EACH PROPERTY IDENTIFIED AS REQUIRING A WATER SERVICE ON THE DRAWINGS. CONNECT PROPOSED WATER SERVICE TO EXISTING WATER SERVICE PIPING AT PROPERTY LINE. PROVIDE ALL COMPONENTS NECESSARY TO CONNECT PROPOSED WATER SERVICE TO EXISTING WATER SERVICE. EXISTING SERVICE PIPING TO BE ABANDONED SHALL BE CAPPED/CRIMPED ONCE SERVICE HAS BEEN TRANSFERRED TO THE NEW WATER MAIN.
17. THE SIZE OF THE PROPOSED WATER SERVICE TO A PROPERTY FROM THE PROPOSED WATER MAIN SHALL MATCH THE SIZE OF THE EXISTING WATER SERVICE FROM THE BUILDING ON THAT PROPERTY, UNLESS NOTED OTHERWISE.
18. WHERE A PROPOSED UTILITY CROSSES BELOW AN EXISTING ASBESTOS CEMENT (AC) WATERMAIN, REPLACE THE AC WATER MAIN ABOVE THE CROSSING AND 10 FEET ON EACH SIDE OF THE CROSSING WITH NEW DI PIPE. HANDLE, REMOVE, TRANSPORT AND DISPOSE OF AC PIPE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
19. REMOVE AND DISPOSE OF VALVE BOXES ON WATER MAIN TO BE ABANDONED, UNLESS DIRECTED OTHERWISE.
20. COVER EACH FIRE HYDRANT TAKEN OUT OF SERVICE WITH A NON-DEGRADABLE BAG SECURELY TIED. IMMEDIATELY NOTIFY FIRE DEPARTMENT WHEN HYDRANTS ARE TAKEN OUT OF SERVICE.
21. WATER MAINS TO BE ABANDONED SHALL BE CAPPED/PLUGGED AS SPECIFIED OR NOTED ON THE DRAWINGS.

EROSION CONTROL AND RESOURCE AREA PROTECTION NOTES

1. PROVIDE ALL EROSION CONTROL MEASURES SHOWN, SPECIFIED, REQUIRED BY PERMIT, AND/OR REQUIRED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION OR IMMEDIATELY UPON REQUEST. MAINTAIN SUCH CONTROL MEASURES UNTIL FINAL SURFACE TREATMENTS ARE IN PLACE AND/OR UNTIL PERMANENT VEGETATION IS ESTABLISHED. INSPECT AFTER EACH RAINSTORM AND DURING MAJOR STORM EVENTS TO CONFIRM THAT ALL SEDIMENTATION AND EROSION CONTROL MEASURES REQUIRED ARE IN PLACE AND EFFECTIVE.
2. INSTALL SILT SACKS OR OTHER APPROVED SEDIMENTATION BARRIERS IN/AT ALL CATCH BASINS IN THE PROJECT AREA.
3. COMPACT, STABILIZE, AND LOAM AND SEED SIDE SLOPES, SHOULDER AREAS AND DISTURBED VEGETATED AREAS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND AS REQUIRED BY PERMITS. GRADE SIDE SLOPES, SHOULDER AREAS AND DISTURBED VEGETATED AREAS TO A MAXIMUM SLOPE OF 3 HORIZONTAL TO 1 VERTICAL (3H:1V), WHERE POSSIBLE. PROVIDE BIODEGRADABLE, NETLESS EROSION CONTROL BLANKETS TO PREVENT EROSION WHERE SLOPES ARE STEEPER THAN 3H:1V.
4. SETTLE OR FILTER ALL SILT-LADEN WATER FROM DEWATERING ACTIVITIES IN A SEDIMENTATION OR FILTER BAG TO REMOVE SEDIMENTS PRIOR TO RELEASE USING A SEDIMENTATION OR FILTER BAG LOCATED DOWN-GRADIENT OF THE DEWATERED AREA.
5. REMOVE AND PROPERLY DISPOSE OF SILT TRAPPED AT BARRIERS IN UPLAND AREAS OUTSIDE BUFFER ZONES. REMOVE MATERIALS DEPOSITED IN ANY TEMPORARY SETTLING BASINS AT THE COMPLETION OF THE PROJECT. RESTORE ALL DISTURBED AREAS TO THEIR PRECONSTRUCTION CONDITION.
6. SWEEP, COLLECT, REMOVE AND DISPOSE OF ANY SEDIMENT TRACKED ONTO PUBLIC RIGHT-OF-WAYS AT THE END OF EACH DAY.
7. LOAM AND SEED ALL DISTURBED VEGETATED AREAS TO ESTABLISH COVER AND STABILIZATION AS SOON AS POSSIBLE FOLLOWING DISTURBANCE.
8. MAINTAIN AN ADDITIONAL SUPPLY OF EROSION CONTROL MEASURES ON-SITE FOR EMERGENCY REPAIRS.
9. STORE FUEL, OIL, PAINT, OR OTHER HAZARDOUS MATERIALS IN A SECONDARY CONTAINER AND REMOVE TO A SECURE LOCKED AND COVERED AREA DURING NON-WORK HOURS.
10. PROVIDE A SUPPLY OF ABSORBENT SPILL RESPONSE MATERIALS SUCH AS BOOMS, BLANKETS, AND OIL ABSORBENT MATERIALS AT THE CONSTRUCTION SITE AT ALL TIMES TO CLEAN UP POTENTIAL SPILLS OF HAZARDOUS MATERIALS. IMMEDIATELY REPORT SPILLS OF HAZARDOUS MATERIALS TO THE STATE ENVIRONMENTAL AGENCY AND THE MUNICIPALITY WHERE THE WORK IS OCCURRING.

GENERAL NOTES

1. NOTIFY DIGSAFE AT 1-888-344-7233 AND OTHER UTILITY OWNERS IN THE AREA NOT ON THE DIGSAFE LIST AT LEAST 72 HOURS PRIOR TO ANY DIGGING, TRENCHING, ROCK REMOVAL, DEMOLITION, BORING, BACKFILLING, GRADING, LANDSCAPING, OR ANY OTHER EARTH MOVING OPERATIONS.
2. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IN ADDITION, SOME UTILITIES MAY NOT BE SHOWN. DETERMINE THE EXACT LOCATION OF UTILITIES BY TEST PIT OR OTHER METHODS, AS NECESSARY TO PREVENT DAMAGE TO UTILITIES AND/OR INTERRUPTIONS IN UTILITY SERVICE. PERFORM TEST PIT EXCAVATIONS AND OTHER INVESTIGATIONS TO LOCATE UTILITIES, AND PROVIDE THIS INFORMATION TO THE ENGINEER, PRIOR TO CONSTRUCTING THE PROPOSED IMPROVEMENTS. LOCATE ALL EXISTING UTILITIES TO BE CROSSED BY HAND EXCAVATION.
3. NOT ALL OF THE UTILITY SERVICES TO BUILDINGS ARE SHOWN. THE CONTRACTOR SHALL ANTICIPATE THAT EACH PROPERTY HAS SERVICE CONNECTIONS FOR THE VARIOUS UTILITIES.
4. BOLD TEXT AND LINES INDICATE PROPOSED WORK. LIGHT TEXT AND LINES INDICATE APPROXIMATE EXISTING CONDITIONS.
5. TIGHE & BOND ASSUMES NO RESPONSIBILITY FOR ANY ISSUES, LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM TIGHE & BOND.
6. EXCAVATE ADDITIONAL TEST PITS TO LOCATE EXISTING UTILITIES AS DIRECTED OR APPROVED BY THE ENGINEER.
7. NOTIFY THE ENGINEER OF ANY UTILITIES IDENTIFIED DURING CONSTRUCTION THAT ARE NOT SHOWN ON THE DRAWINGS OR THAT DIFFER IN SIZE OR MATERIAL.
8. THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY; COORDINATION WITH THE OWNER, ALL SUBCONTRACTORS, AND WITH OTHER CONTRACTORS WORKING WITHIN THE LIMITS OF WORK, THE MEANS AND METHODS OF CONSTRUCTING THE PROPOSED WORK.
9. OBTAIN, PAY FOR AND COMPLY WITH PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK. ARRANGE AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE JURISDICTIONAL AUTHORITIES.
10. SHORE UTILITY TRENCHES WHERE FIELD CONDITIONS DICTATE AND/OR WHERE REQUIRED BY LOCAL, STATE AND FEDERAL HEALTH AND SAFETY CODES.
11. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS ARE OBSERVED THAT VARY SIGNIFICANTLY FROM THOSE SHOWN ON THE DRAWINGS, IMMEDIATELY NOTIFY THE ENGINEER IN WRITING FOR RESOLUTION OF THE CONFLICTING INFORMATION.
12. PROTECT AND MAINTAIN ALL UTILITIES IN THE AREAS UNDER CONSTRUCTION DURING THE WORK. LEAVE ALL PIPES AND STRUCTURES WITHIN THE LIMITS OF THE CONTRACT IN A CLEAN AND OPERABLE CONDITION AT THE COMPLETION OF THE WORK. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SAND AND SILT FROM DISTURBED AREAS FROM ENTERING THE DRAINAGE SYSTEM.
13. NOTIFY THE ENGINEER IN WRITING OF ANY CONFLICT, ERROR, AMBIGUITY, OR DISCREPANCY WITH THE PLANS OR BETWEEN THE PLANS AND ANY APPLICABLE LAW, REGULATION, CODE, STANDARD SPECIFICATION, OR MANUFACTURER'S INSTRUCTIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORT OF EXISTING UTILITIES AND REPAIR OR REPLACEMENT COSTS OF UTILITIES DAMAGED DURING CONSTRUCTION, WHETHER ABOVE OR BELOW GRADE. REPLACE DAMAGED UTILITIES IMMEDIATELY AT NO ADDITIONAL COST TO THE OWNER AND AT NO COST TO THE PROPERTY OWNER.
15. TAKE NECESSARY MEASURES AND PROVIDE CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE, AND STRENGTH TO PREVENT ACCESS TO ALL WORK AND STAGING AREAS AT THE COMPLETION OF EACH DAYS WORK.
16. NO OPEN TRENCHES WILL BE ALLOWED OVER NIGHT. THE USE OF ROAD PLATES TO PROTECT THE EXCAVATION WILL BE CONSIDERED UPON REQUEST, BUT BACKFILLING IS PREFERRED.
17. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY TRAFFIC CONTROL/SAFETY DEVICES TO ENSURE SAFE VEHICULAR AND PEDESTRIAN ACCESS THROUGH THE WORK AREA, OR FOR SAFELY IMPLEMENTING DETOURS AROUND THE WORK AREA. PERFORM TRAFFIC CONTROL IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED TRAFFIC CONTROL PLAN.
18. MAINTAIN EMERGENCY ACCESS TO ALL PROPERTIES WITHIN THE PROJECT AREA AT ALL TIMES DURING CONSTRUCTION.
19. WHEN WORKING IN THE ROAD, PROVIDE THE OWNER AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES A DETAILED PLAN OF APPROACH INDICATING METHODS OF PROPOSED TRAFFIC ROUTING ON A DAILY BASIS. PROVIDE COORDINATION TO ENSURE COMMUNICATION AND COORDINATION BETWEEN THE OWNER, CONTRACTOR AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES THROUGHOUT THE CONSTRUCTION PERIOD.
20. REMOVE AND DISPOSE OF ALL CONSTRUCTION-RELATED WASTE MATERIALS AND DEBRIS IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS.
21. THE TERM "DEMOLISH" USED ON THE DRAWINGS MEANS TO REMOVE AND DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
22. THE TERM "ABANDON" USED ON THE DRAWINGS MEANS TO LEAVE IN PLACE AND TAKE APPROPRIATE MEASURES TO DECOMMISSION AS SPECIFIED OR NOTED ON THE DRAWINGS.
23. ALL PROPOSED WORK MAY BE ADJUSTED IN THE FIELD BY THE OWNER'S PROJECT REPRESENTATIVE TO MEET EXISTING CONDITIONS.

SURFACE RESTORATION NOTES

1. ALL PAVEMENT DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. PROTECT PROJECT FEATURES (E.G., WALLS, FENCES, MAIL BOXES, SIGNS, SIDEWALKS, CURBING, STAIRS, WALKWAYS, TREES, ETC.) FROM DAMAGE DURING CONSTRUCTION, INCLUDING PROVIDING TEMPORARY SUPPORTS, WHEN APPROPRIATE.
3. IF REMOVAL OF PROJECT FEATURES IS REQUIRED IN ORDER TO PERFORM THE PROPOSED WORK, REMOVE THOSE SITE FEATURES ONLY UPON APPROVAL OF ENGINEER. REPLACE ALL REMOVED PROJECT FEATURES; NEW ITEMS SHALL BE EQUAL OR BETTER IN QUALITY AND CONDITION TO THE ITEMS REMOVED.
4. EXISTING SURVEY MONUMENTS DISTURBED BY THE CONTRACTOR SHALL BE REPLACED BY A LAND SURVEYOR LICENSED IN THE STATE IN WHICH THE WORK IS PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
5. COORDINATE THE ADJUSTMENT OF EXISTING UTILITY STRUCTURES WITH EACH RESPONSIBLE UTILITY OWNER PRIOR TO RECONSTRUCTION AND/OR PAVING OPERATIONS. RAISE ALL STRUCTURES TO FINISHED GRADES PRIOR TO THE END OF THE CONSTRUCTION SEASON AND PRIOR TO FINISHED PAVING.
6. REPAIR DISTURBED PAVED SURFACES AT THE END OF EACH WORK WEEK, UNLESS OTHERWISE APPROVED/REQUIRED BY THE OWNER.
7. PLACE TEMPORARY BITUMINOUS CONCRETE PAVEMENT AT DISTURBED DRIVEWAYS AT THE END OF EACH WORK WEEK, UNLESS OTHERWISE APPROVED/REQUIRED BY THE OWNER.
8. TRANSFER ALL TEMPORARY BENCHMARKS, AS NECESSARY.
9. RESTORE ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE PAYLINE LIMITS TO ORIGINAL CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
10. REGRADE ALL UNPAVED AREAS DISTURBED BY THE WORK AS REQUIRED. REPAIR/REPLACE PAVED SURFACES DISTURBED BY THE WORK IN-KIND, UNLESS OTHERWISE NOTED. RESTORE SURFACES TO EXISTING OR PROPOSED CONDITIONS AS INDICATED ON THE DRAWINGS.
11. PROVIDE A SMOOTH, FLUSH TRANSITION BETWEEN ALL NEW AND EXISTING PAVEMENTS AND WALKING SURFACES.

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 G-002 & G-003.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

GENERAL NOTES

SCALE: NO SCALE

G-002

LEGEND

EXISTING DRAIN MANHOLE
EXISTING CATCH BASIN
EXISTING HEADWALL
EXISTING STORM DRAIN LINE
EXISTING GAS VALVE
EXISTING GAS LINE
EXISTING WATER GATE
EXISTING HYDRANT
EXISTING WATER LINE
EXISTING ELECTRIC MANHOLE
EXISTING ELECTRIC TRANSFORMER
EXISTING UTILITY POLE
EXISTING UTILITY POLE WITH GUY
EXISTING STREET LIGHT
EXISTING OVERHEAD ELECTRIC
EXISTING ELECTRICAL LINE
EXISTING TELECOMM MANHOLE
EXISTING TELEPHONE LINE
EXISTING TV MANHOLE
EXISTING CABLE TELEVISION LINE
EXISTING PIPE PREVIOUSLY ABANDONED IN PLACE
EXISTING PIPE/STRUCTURE/UTILITY TO BE DEMOLISHED
EXISTING PIPE TO BE ABANDONED IN PLACE
EXISTING EDGE OF PAVEMENT
EXISTING EDGE OF GRAVEL ROAD
EXISTING CONCRETE, GRANITE OR BITUMINOUS CURBING
EXISTING MAILBOX
EXISTING LIGHT
EXISTING TRAFFIC STRUCTURES
EXISTING STREET SIGN
EXISTING WIRE OR CHAIN LINK FENCE
EXISTING STONE WALL
EXISTING RETAINING WALL
EXISTING RAILROAD TRACKS
EXISTING DECIDUOUS TREE
EXISTING CONIFEROUS TREE
EXISTING TREELINE / EDGE OF WOODED AREA
EXISTING HEDGES
EXISTING SPOT ELEVATION — 361.3
EXISTING 1' CONTOUR — 102
EXISTING 5' CONTOUR — 100
EXISTING BUILDING
EXISTING BORING LOCATION — B–
EXISTING PAVEMENT CORE LOCATION — C–
EXISTING SURVEY MONUMENT/ MAG NAIL
EXISTING STREET BOUND
CONCRETE BOUND FOUND — C.B. FD.
REBAR FOUND — R.B. FD.
IRON PIN FOUND — I.P. FD.
PROPERTY LINE
EASEMENT LINE
BORDERING VEGETATED WETLANDS (BVW)
TOP OF BANK
MEAN ANNUAL HIGH WATER (MAHW)
BORDERING LAND SUBJECT TO FLOODING
50-FOOT NO DISTURB ZONE
75-FOOT NO BUILD ZONE
100-FOOT BUFFER ZONE
200-FOOT RIVERFRONT AREA

PROPOSED CAP, CONCRETE PLUG OR CRIMP (SMALL DIA WS)
PROPOSED WATER COUPLING/SOLID SLEEVE
PROPOSED WATER REDUCER
PROPOSED WATER GATE
PROPOSED HYDRANT
PROPOSED WATER LINE — PW
WATER SHUTOFF (CURB STOP & BOX) — WSO
TEST PIT REQUIRED
PROPOSED EROSION CONTROL BARRIER
PROPOSED WATER SERVICE STUB

ABBREVIATIONS

APPROXIMATE	APPROX
ASBESTOS CEMENT	AC
BITUMINOUS CONCRETE	BC
BITUMINOUS CONCRETE SIDEWALK	BCW
BITUMINOUS CURB	BCC
BORDERING VEGETATED WETLANDS	BVW
CATCH BASIN	CB
CAST IRON	CI
CONCRETE	CONC
CONCRETE CURB	CC
CORPORATION	CORP
CORRUGATED METAL PIPE	CMP
CUBIC FEET	CF
DIAMETER	DIA
DUCTILE IRON	DI
ELEVATION	EL
EXTENSION	EXT
FOOT	FT
GRANITE CURB	GC
HIGH DENSITY POLYETHYLENE	HDPE
HYDRANT	HYD
INVERT	INV
LINEAR FEET	LF
LIGHT POLE	LP
LAND UNDER WATERBODIES & WATERWAYS	LUWW
MAILBOX	MB
MANUFACTURER	MFR
MASSACHUSETTS ELECTRIC COMPANY	MECO
MEAN ANNUAL HIGH WATER LINE	MAHW
MECHANICAL JOINT	MJ
MANHOLE	MH
MAXIMUM	MAX
MINIMUM	MIN
NATIONAL GRID	NG
NEW ENGLAND TELEPHONE	NET
NOW/FORMERLY	N/F
NO CURB	NC
OVERHEAD ELECTRIC	OE
POLYETHYLENE	PE
POUNDS PER SQUARE FOOT	PSF
POUNDS PER SQUARE INCH	PSI
PUBLIC WATER	PW
POLYVINYL CHLORIDE	PVC
REINFORCED CONCRETE PIPE	RCP
REQUIRED	REQD
STATION	STA
TOP OF BENCHMARK	TBM
TYPICAL	TYP
UNKNOWN	UNK
UTILITY POLE	UP
WETLAND FLAG	WF

ALIGNMENT/DIRECTION

EAST	E
LENGTH	L
NORTH	N
NORTHEAST	NE
NORTHWEST	NW
ON CENTER	OC
SOUTH	S
SOUTHEAST	SE
SOUTHWEST	SW
WEST	W

UTILITY CONTACTS

CABLE (WINCHENDON & ASHBURNHAM)	COMCAST	WENDY BROWN, 978-848-5163
TELEPHONE (WINCHENDON & ASHBURNHAM)	VERIZON	KAREN MEALEY, 774-409-3160
ELECTRIC (WINCHENDON)	NATIONAL GRID	SANDRA ANNIS, 413-582-7424
LIGHT (ASHBURNHAM)	ASHBURNHAM MUNICIPAL LIGHT PLANT	JEFF SCHERECKE, 978-827-4423
WATER-SEWER-DRAIN (WINCHENDON)	WINCHENDON DPW	BRIAN CROTEAU, 978-297-0170
WATER-SEWER-DRAIN (ASHBURNHAM)	ASHBURNHAM DPW	RANDY WILLIAMS, 978-827-4100 EXT 5
WATER FILTRATION PLANT OPERATIONS	VEOLIA	ADAM TESTAGROSSA, 978-827-5386

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

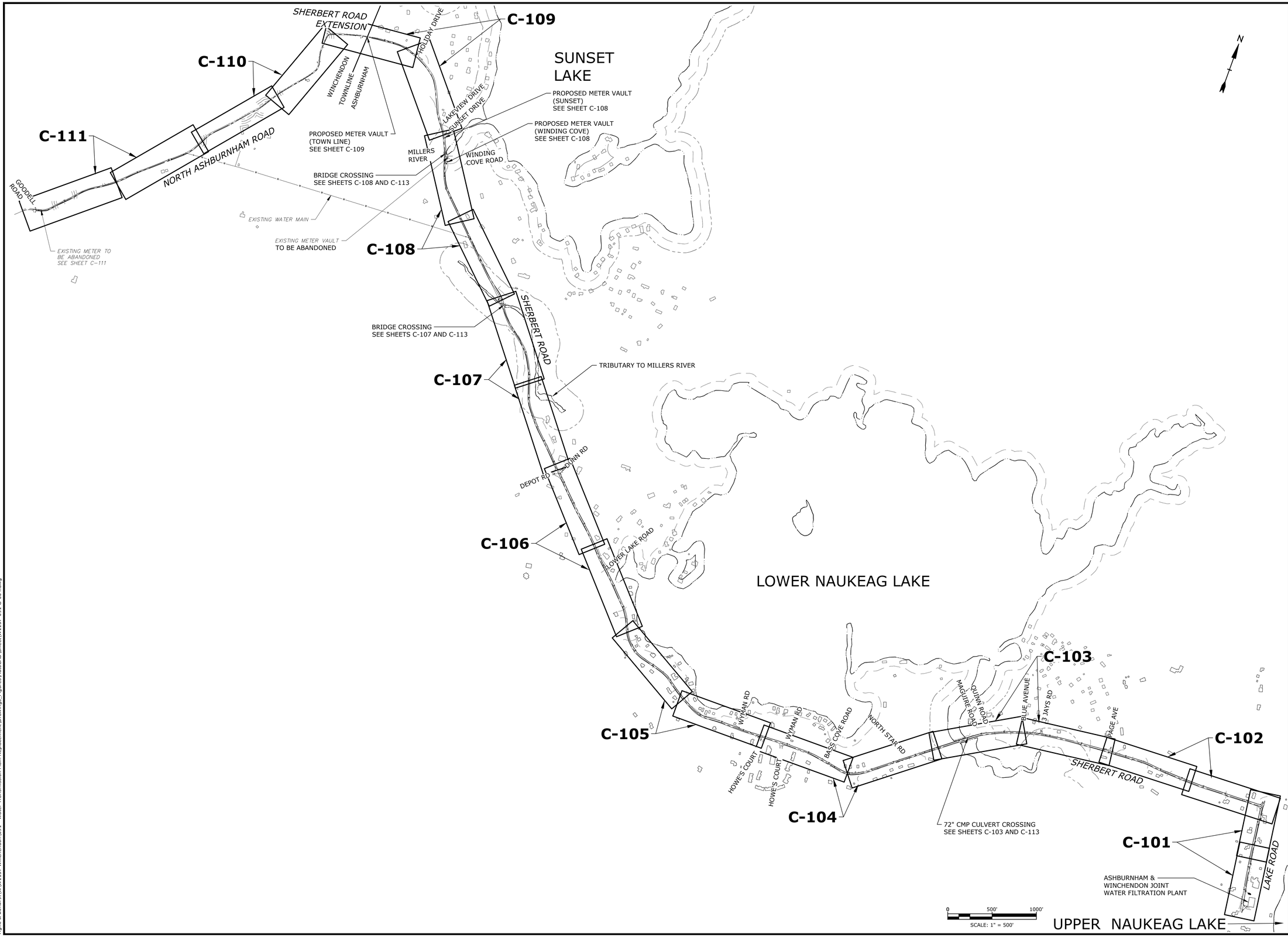
PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 G-002 & G-003.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

LEGEND AND ABBREVIATIONS

SCALE: NO SCALE

G-003

Last Saved: 6/7/2022
Plotted On: Sep 12, 2022-9:26am By: KChan
Tighe & Bond: J:\W\W1157 Winchendon\091 - Water Transmission Main Replacement\Drawings_Figures\AutoCAD\Sheet\W1157-091 G-002 & G-003.dwg



Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 G-004.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

SHEET LAYOUT- OVERALL PROJECT PLAN

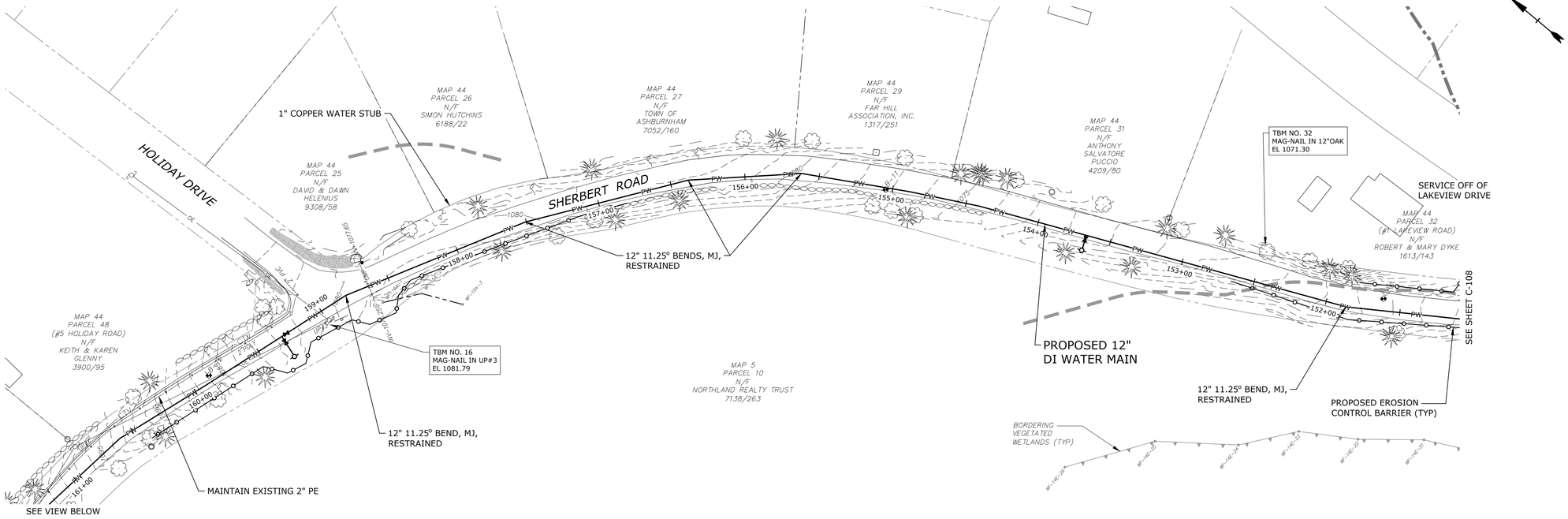
SCALE: 1"=500'

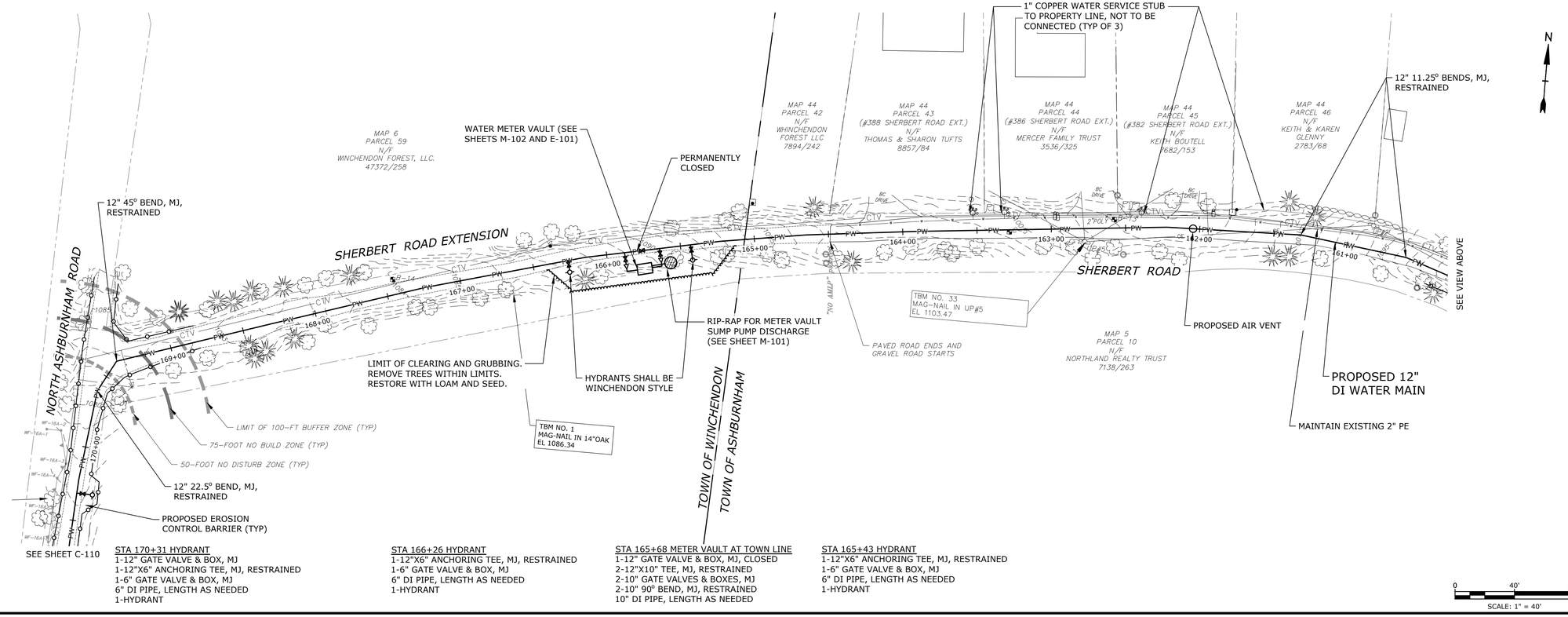
G-004

Last Saved: 6/1/2022
Plotted: Sep 12, 2022-9:28am By: KChan
Tighe & Bond: J:\W\W1157 Winchendon\091 - Water Transmission Main Replacement\Drawings_Figures\AutoCAD\Sheet\W1157-091 G-004.dwg

STA 159+31 HYDRANT
1-12" GATE VALVE & BOX, MJ
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

STA 153+67 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT





STA 170+31 HYDRANT
1-12" GATE VALVE & BOX, MJ
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

STA 166+26 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

STA 165+68 METER VAULT AT TOWN LINE
1-12" GATE VALVE & BOX, MJ, CLOSED
2-12"X10" TEE, MJ, RESTRAINED
2-10" GATE VALVES & BOXES, MJ
2-10" 90° BEND, MJ, RESTRAINED
10" DI PIPE, LENGTH AS NEEDED

STA 165+43 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

0 40' 80'
SCALE: 1" = 40'

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 Planshts.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

SHERBERT ROAD & SHERBERT ROAD EXT WATER MAIN STA 149+50 TO STA 170+00

SCALE: 1"=40'

C-109

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STA 176+31 HYDRANT
1-12" GATE VALVE & BOX, MJ
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

MAP 6
PARCEL 61
N/F
WINCHENDON FOREST, LLC.
47372/258

SEE VIEW BELOW

PROPOSED EROSION CONTROL BARRIER (TYP)

TBM NO. 3
MAG-NAIL IN 30"PINE
EL 1094.54

12" 22.5° BEND, MJ, RESTRAINED

12" 11.25° BEND, MJ, RESTRAINED

12" 11.25° BEND, MJ, RESTRAINED

TBM NO. 2
MAG-NAIL IN 12"MAPLE
EL 1077.07

SEE SHEET C-109

NORTH ASHBURNHAM ROAD

PROPOSED 12" DI WATER MAIN

CONTRACTOR TO COORDINATE AS NEEDED WITH UTILITY FOR WORK WITHIN POWERLINE EASEMENT

ELECTRIC POWER

MAP 6
PARCEL 93
(#455 NORTH ASHBURNHAM ROAD)
N/F
A. EDWARD ROSS
WINCHENDON REALTY TRUST
7991/248

BORDERING VEGETATED WETLANDS (TYP)

MAP 6
PARCEL 60
N/F
WINCHENDON FOREST, LL
47372/258

TOP OF BANK (TYP)

MAP 6
PARCEL 92
N/F
WINCHENDON FOREST, LLC.
47372/258

MAP 6
PARCEL 92
N/F
WINCHENDON FOREST, LLC.
47372/258

12" 11.25° BEND, MJ, RESTRAINED

TBM NO. 5
MAG-NAIL IN 20"OAK
EL 1108.37

1" COPPER WATER SERVICE (SEE SHEET C-112 FOR DETAILS)

SEE SHEET C-111

12" 11.25° BEND, MJ, RESTRAINED

GRAVEL ROAD ENDS AND PAVED ROAD STARTS

PROPOSED 12" DI WATER MAIN

MAP 6
PARCEL 93
(#455 NORTH ASHBURNHAM ROAD)
N/F
A. EDWARD ROSS
WINCHENDON REALTY TRUST
7991/248

TBM NO. 4
MAG-NAIL IN 12"PINE
EL 1103.31

50-FOOT NO DISTURB ZONE (TYP)

75-FOOT NO BUILD ZONE (TYP)

LIMIT OF 100-FOOT BUFFER ZONE (TYP)

BORDERING VEGETATED WETLANDS (TYP)

PROPOSED EROSION CONTROL BARRIER (TYP)

SEE VIEW ABOVE

SEE SHEET C-112 FOR SERVICE TO #455 NORTH ASHBURNHAM ROAD

STA 186+27 HYDRANT
1-12" GATE VALVE & BOX, MJ
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

STA 181+42 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

0 40' 80'
SCALE: 1" = 40'

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

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DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

NORTH ASHBURNHAM ROAD
WATER MAIN
STA 170+00 TO STA 189+00

SCALE: 1"=40'

C-110

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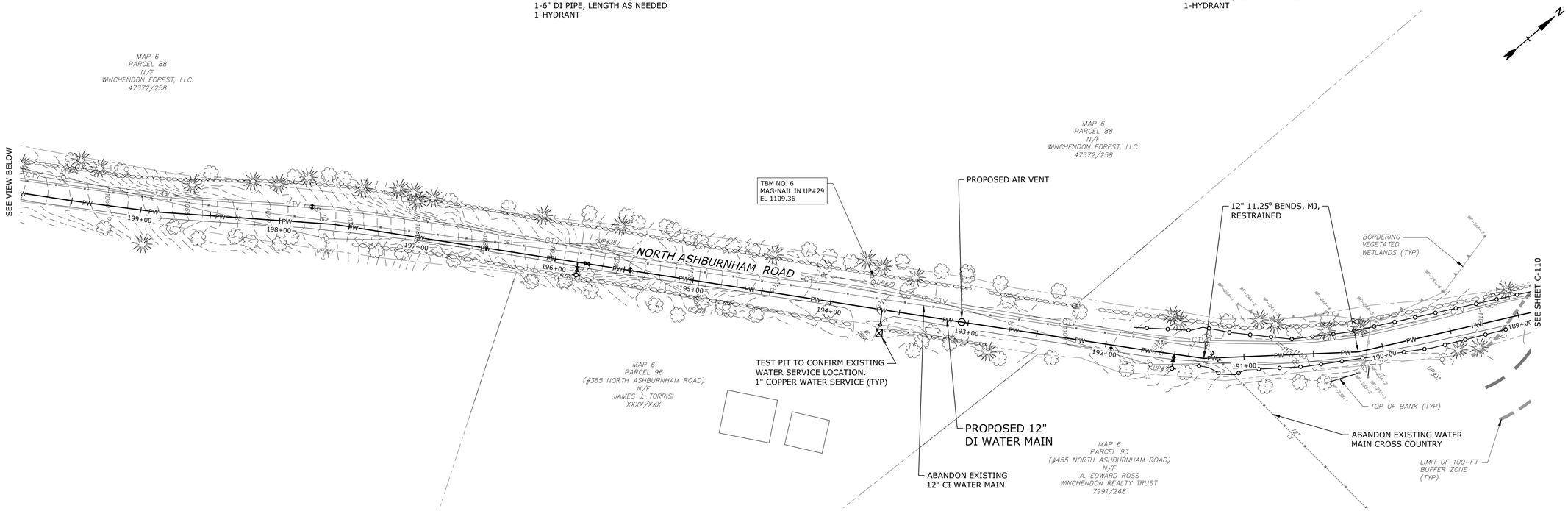
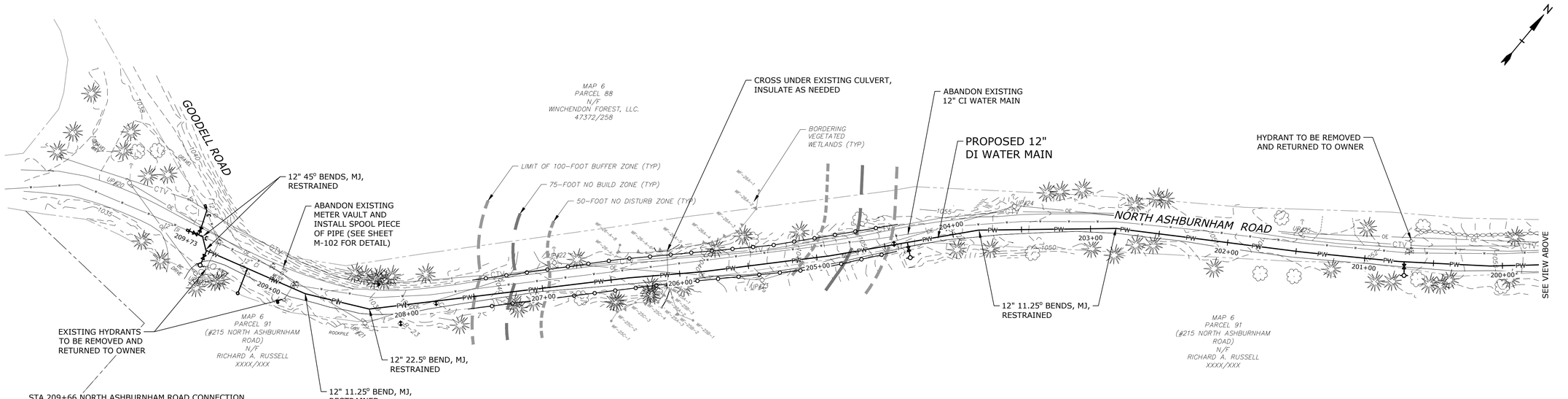
STA 195+84 HYDRANT
1-12" GATE VALVE & BOX, MJ
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
1-6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

STA 191+50 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
1-6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT





STA 209+66 NORTH ASHBURNHAM ROAD CONNECTION
1-12"x12" TEE, MJ, RESTRAINED
1-12" GATE VALVE & BOX, MJ
1-12" DI PIPE, LENGTH AS NEEDED
1-12" COUPLING, MJ, RESTRAINED
1-12" DI PIPE, LENGTH AS NEEDED
1-12" CAP, MJ, BLOCKED

STA 209+66 (NORTH OF TEE)
GOODELL ROAD CONNECTION
1-12" GATE VALVE & BOX, MJ
1-12" DI PIPE, LENGTH AS NEEDED
1-12" 45° BEND, MJ, RESTRAINED
1-12" DI PIPE, LENGTH AS NEEDED
1-12" COUPLING, MJ, RESTRAINED
1-12" CAP, MJ, BLOCKED

STA 209+52 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
1-6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

STA 204+33 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
1-6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

STA 200+71 HYDRANT
1-12"X6" ANCHORING TEE, MJ, RESTRAINED
1-6" GATE VALVE & BOX, MJ
1-6" DI PIPE, LENGTH AS NEEDED
1-HYDRANT

0 40' 80'
SCALE: 1" = 40'

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

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DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

NORTH ASHBURNHAM ROAD WATER MAIN
STA 189+00 TO STA 209+72

SCALE: 1"=40'

C-111

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NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING WATER SERVICE.
2. CONTRACTOR TO PROVIDE 24 HOUR NOTICE (MIN) TO PRIVATE PROPERTY OWNER BEFORE ENTERING PRIVATE PROPERTY AND COORDINATE WITH THE OWNER FOR ACCESS.
3. CONTRACTOR SHALL RESTORE OR REPLACE ALL PRIVATE PROPERTY FEATURES IMPACTED BY CONSTRUCTION IN-KIND.

0 40' 80'

SCALE: 1" = 40'

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

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PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 Serv Conn.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

WATER SERVICE TO #455 NORTH ASHBURNHAM ROAD

SCALE: 1"=40'

C-112
SHEET X OF

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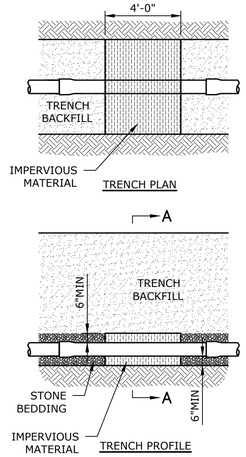
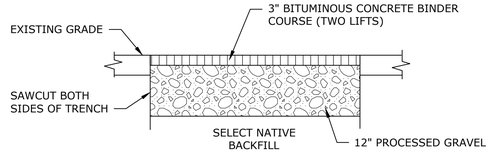


NOTES:
1. IMPERVIOUS MATERIAL SHALL HAVE A COEFFICIENT OF PERMEABILITY NOT TO EXCEED 10^{-6}CM/SEC

2. IMPERVIOUS TRENCH DAMS SHALL BE INSTALLED AT 100' O.C.

IMPERVIOUS TRENCH DAMS
NO SCALE



NOTE:

1. PLACE WEEKLY PRIOR TO THE START OF THE WEEKEND.

2. MAINTAIN EXISTING SLOPE FOR DRIVEWAY REPAIRS.

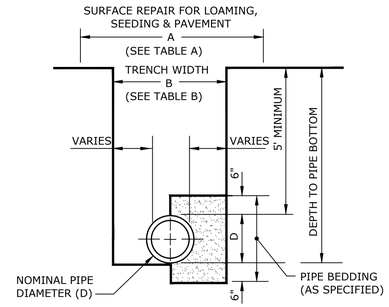
TRENCH REPAIR
(PAVED ROADWAYS AND DRIVEWAYS)
NO SCALE

TABLE A - MAXIMUM SURFACE REPAIR PAY WIDTHS (SEE NOTE)	
NOMINAL PIPE DIAMETER 0 - 24"	
PAVEMENT TEMPORARY 6'-6" MAX. PERMANENT 8'-6" MAX.	LOAMING & SEEDING 8'-6" MAX.
TABLE B - MAXIMUM TRENCH EXCAVATION PAY WIDTHS (SEE NOTE)	
NOMINAL PIPE DIAMETER 0 - 24"	
5'-0"	

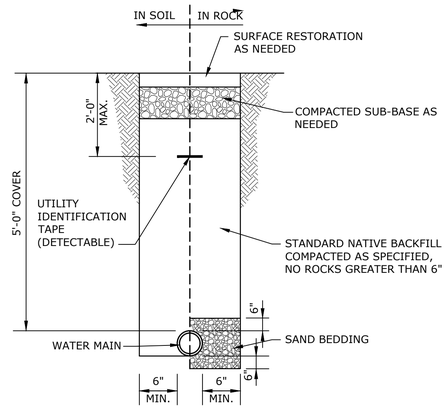
NOTES:

1. THE PAYLINE DIMENSIONS SHOWN REPRESENT THE MAXIMUM PAYLINE LIMITS TO BE PAID. WHEN THE ACTUAL SURFACE REPAIR OR TRENCH WIDTH IS LESS, THE ACTUAL WIDTH SHALL BE PAID FOR AT THE APPLICABLE UNIT PRICE.

TRENCH PAYLINES



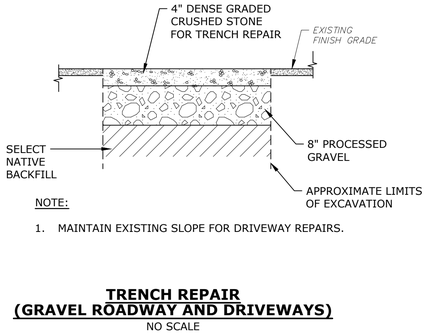
TYPICAL TRENCH SECTION
NO SCALE



NOTES:

1. SEE TRENCH EXCAVATION AND SURFACE REPAIR PAYLINES DETAIL.

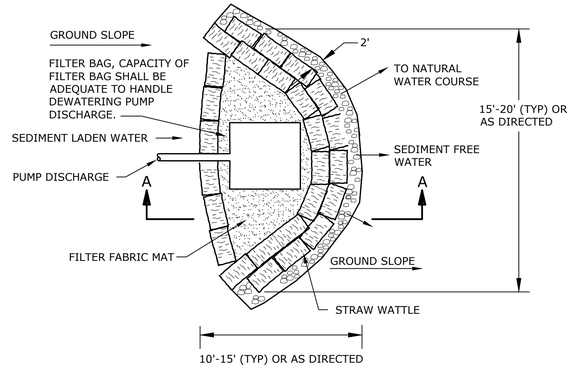
TYPICAL WATER MAIN TRENCH
NO SCALE



NOTE:

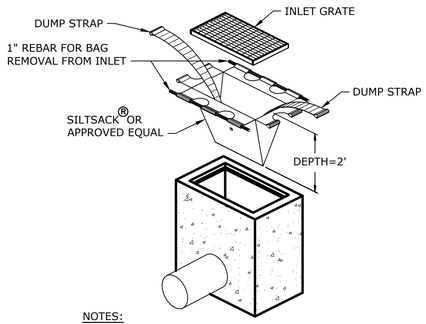
1. MAINTAIN EXISTING SLOPE FOR DRIVEWAY REPAIRS.

TRENCH REPAIR
(GRAVEL ROADWAY AND DRIVEWAYS)
NO SCALE



NOTE:
THE GROUNDWATER DISCHARGE FILTER SHALL BE INSTALLED FOR ANY DEWATERING ACTIVITY LOCATED WITHIN THE 100' WETLAND REGULATED AREA. A FILTER BAG IS REQUIRED FOR DEWATERING ACTIVITIES LOCATED OUTSIDE OF THE REGULATED AREA.

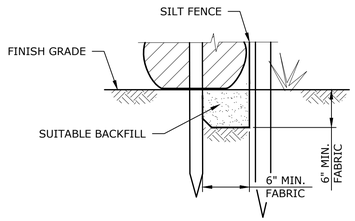
DEWATERING DISCHARGE FILTER
NO SCALE



NOTES:

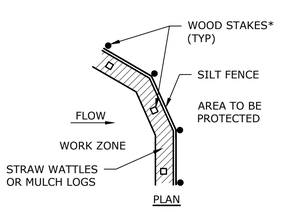
1. SILTSACKS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS, INC. OR EQUAL.
2. SILTSACKS FOR TRENCH GRATE WILL MATCH OPENING LENGTH AS REQUIRED.
3. SILTSACKS SHALL BE CLEANED OUT AND MAINTAINED IN GOOD WORKING ORDER PER MFR RECOMMENDATIONS.

CATCH BASIN SEDIMENTATION CONTROL
NO SCALE

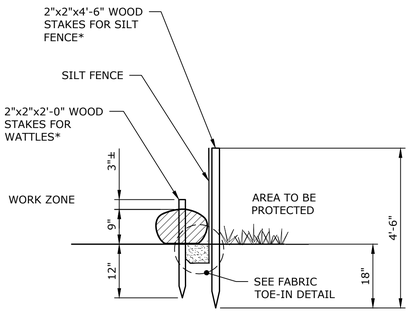


FABRIC TOE-IN DETAIL

*-STAKES TO BE SPACED AT 4'-5' O.C. STAGGER STAKES BETWEEN STRAW WATTLES AND SILT FENCE



PLAN



SECTION

EROSION CONTROL
AND SILTATION FENCE DETAIL
NO SCALE

Tighe&Bond

PERMIT SET
NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	W1157-091
DATE:	09/09/2022
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DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

MISCELLANEOUS DETAILS - 1

SCALE: AS SHOWN

C-115

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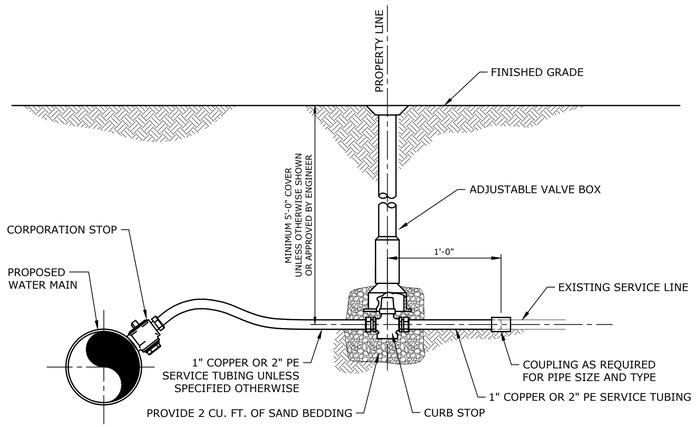


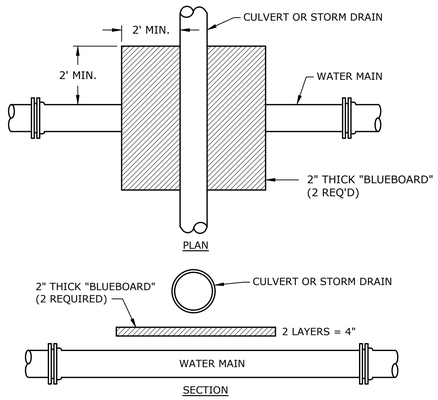
ELEVATION

NOTES:

1. EXISTING WATER SERVICE TO BE FIELD VERIFIED.
2. PROVIDE NEW WATER SERVICES TO ALL PROPERTIES SHOWN ON THE DRAWINGS UNLESS OTHERWISE DIRECTED BY THE OWNER. LOCATIONS OF NEW WATER SERVICES AND CURB STOPS SHALL BE FIELD LOCATED PER THE OWNER'S DIRECTION.
3. WHEN WATER SERVICES ARE BEING TRANSFERRED FROM AN EXISTING WATER MAIN TO A NEW WATER MAIN, THE EXISTING WATER SERVICE SHALL BE ABANDONED AT THE EXISTING WATER MAIN PER THE OWNER'S DIRECTION.
4. POSITION CORPORATION STOP VALVE OPERATOR OPPOSITE FROM DIRECTION OF COPPER SERVICE PIPE AT MAIN.
5. INSTALL CURB STOP SO THAT IT IS OFFSET A MINIMUM OF 2' FROM ANY OBSTRUCTION PREVENTING THE USE OF CURB STOP WRENCH (E.G., FENCE, RETAINING WALL, ETC.)
6. PROVIDE NEW CURB STOP AND BOX WHERE NOTED/SHOWN ON THE DRAWINGS.

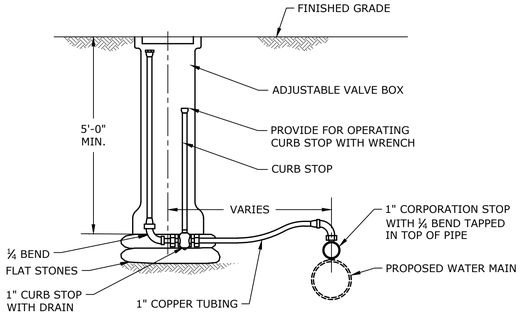
WATER SERVICE CONNECTION

NO SCALE



WATER MAIN INSULATION DETAIL

NO SCALE



TYPICAL INSTALLATION-TRAVEL WAY FOR AIR VENT OR CHLORINATION INJECTION

NOT TO SCALE

SIZE (IN.)	FITTING	MINIMUM RESTRAINED LENGTH, FT.
8"	90° BEND	26
8"	45° BEND	11
8"	22 1/2° BEND	6
8"	11 1/4° BEND	3
8"	DEAD END	65
8"	45° VERTICAL UP BEND	11
8"	45° VERTICAL DOWN BEND	27
8"	8" TEE	44
	8"X6" REDUCER	28
	8"X6" TEE	23
6"	90° BEND	20
6"	45° BEND	8
6"	22 1/2° BEND	4
6"	11 1/4° BEND	2
6"	DEAD END	50
6"	45° VERTICAL UP BEND	8
6"	45° VERTICAL DOWN BEND	21
6"	6" TEE	16

SIZE (IN.)	FITTING	MINIMUM RESTRAINED LENGTH, FT.
12"	90° BEND	36
12"	45° BEND	15
12"	22 1/2° BEND	7
12"	11 1/4° BEND	4
12"	DEAD END	92
12"	45° VERTICAL UP BEND	15
12"	45° VERTICAL DOWN BEND	38
12"	12" TEE	56
	12"X10" REDUCER	27
	12"X8" REDUCER	49
	12"X8" TEE	33
	12"X6" TEE	10

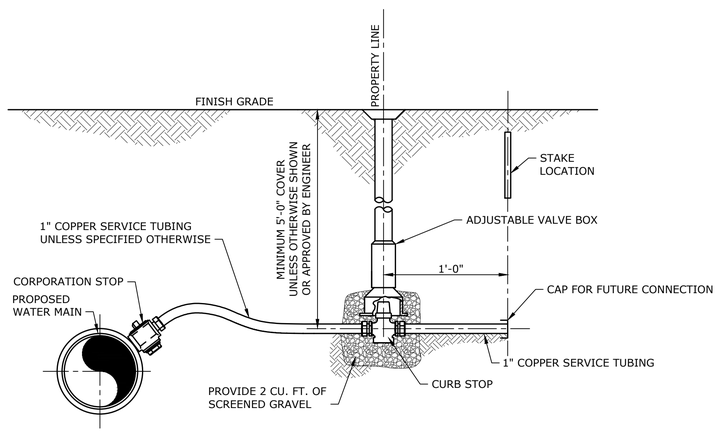
NOTES:

1. MINIMUM RESTRAINED LENGTH BASED ON DIPRA, RESTRAINED LENGTH CALCULATOR, LATEST EDITION.
2. THE FOLLOWING CONDITIONS APPLY:
   SOIL TYPE: SAND SILT
   MAX. PRESSURE: 200psi
   TRENCH TYPE 4
   BURIED DEPTH: 5'
3. TABLE SUBJECT TO RECALCULATIONS BASED ON OBSERVED FIELD CONDITIONS.

MINIMUM RESTRAINED LENGTHS FOR DI PIPE

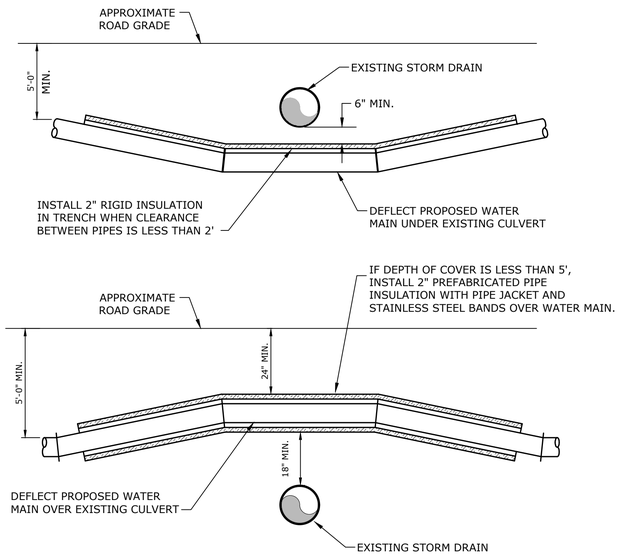
TYPICAL WATER MAIN ABANDONMENT DETAIL (FOR PIPES NOT SUBJECT TO PRESSURE)

NO SCALE



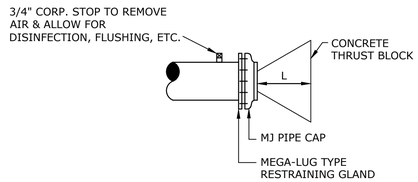
WATER SERVICE STUB TO PROPERTY LINE

NO SCALE



STORM DRAIN CROSSING

NOT TO SCALE



WATER MAIN CAPPING DETAIL (FOR PIPES SUBJECT TO PRESSURE)

NO SCALE

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

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CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

MISCELLANEOUS DETAILS - 2

SCALE: AS SHOWN

C-116

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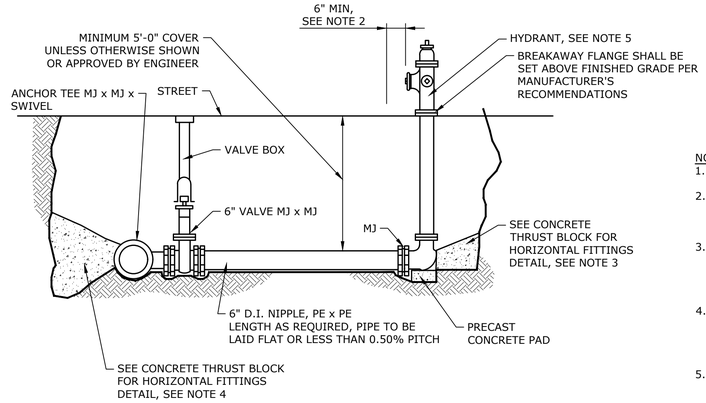
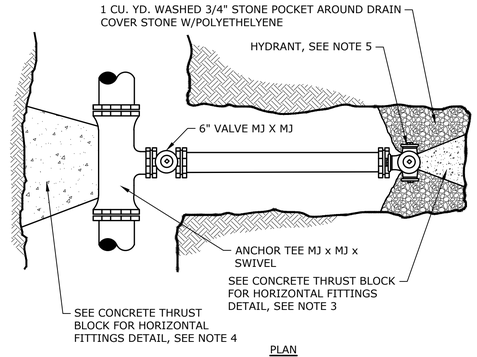
Tighe & Bond: J:\W\W1157 Winchendon\091 - Water Transmission Main Replacement\Drawings_Figures\AutoCAD\Sheet\W1157-091 Details.dwg



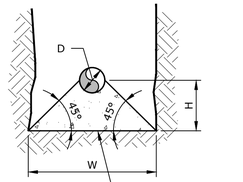
ELEVATION

NOTES:
1. ALL MJ JOINTS SHALL HAVE RETAINER GLANDS.
2. HYDRANT OFFSET DISTANCES TO EXISTING SURFACE FEATURES SHALL BE FIELD COORDINATED WITH THE OWNER AND AS DIRECTED BY THE ENGINEER.
3. CARE SHALL BE TAKEN TO SHIELD HYDRANT BASE DRAIN HOLES DURING PLACEMENT OF THE CONCRETE THRUST BLOCK. DRAIN HOLES SHALL BE VERIFIED AS OPEN AND FREE OF OBSTRUCTIONS PRIOR TO BACKFILLING.
4. CARE SHALL BE TAKEN TO SHIELD ALL MECHANICAL JOINT GLANDS AND BOLTS DURING PLACEMENT OF CONCRETE THRUST BLOCK. ALL BOLTS AND GLANDS SHALL BE FREE AND UNOBSTRUCTED BEFORE BACKFILLING.
5. HYDRANT SHALL BE SET PLUMB. VERTICAL HYDRANT EXTENSIONS SHALL BE USED AS NECESSARY TO PROPERLY LOCATE THE BREAKAWAY FLANGE PER MANUFACTURER'S RECOMMENDATIONS.

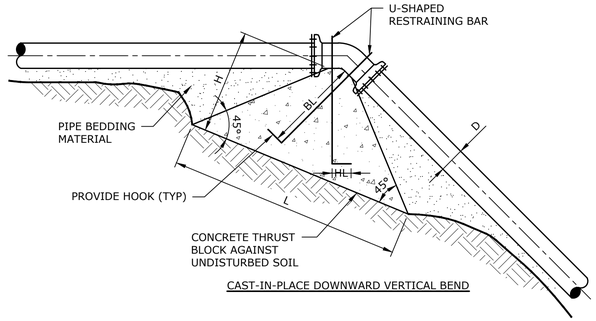


PLAN

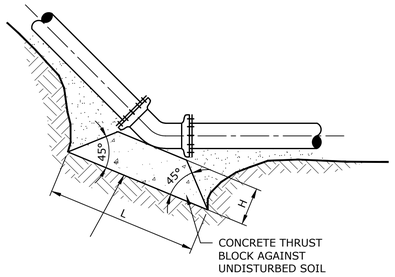
HYDRANT ASSEMBLY
NO SCALE



CAST-IN-PLACE SECTION



CAST-IN-PLACE DOWNWARD VERTICAL BEND



PRECAST UPWARD VERTICAL BEND

PRECAST SECTION

PRECAST UPWARD VERTICAL BENDS				
D	BEARING AREA (SF)	"L"	"H"	"W"*
6"	2.9	2.0'	1.4'	5'
8"	4.9	2.7'	1.8'	5'
12"	10.5	4.0'	2.6'	5'

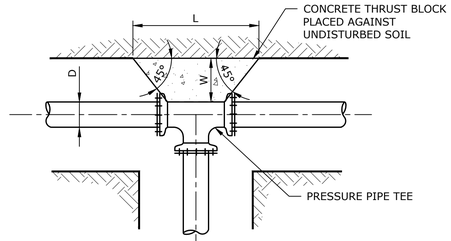
* "W" IS BASED ON AN ASSUMED TRENCH WIDTH OF 5 FEET.

CAST-IN-PLACE DOWNWARD VERTICAL BENDS								
D	VOLUME (CF)	BEARING AREA (SF)	"L"	"H"	"W"*	RESTRAINING BAR SIZE	BAR LENGTH "BL"	HOOK LENGTH "HL"
6"	52.9	0.7	4.6'	2.3'	5'	2-#4	11.0"	8.0"
8"	90.9	1.3	6.0'	3.0'	5'	2-#4	11.0"	8.0"
12"	193.5	2.7	8.8'	4.4'	5'	2-#6	17.0"	12.0"

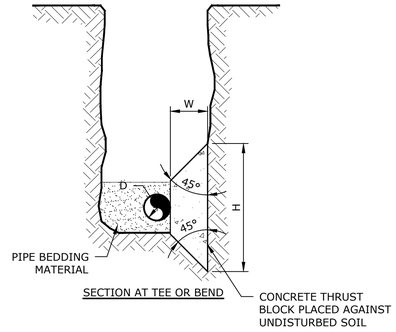
* "W" IS BASED ON AN ASSUMED TRENCH WIDTH OF 5 FEET.

NOTES:
1. THE THRUST BLOCK DIMENSIONS SHOWN WERE CALCULATED BASED ON A 200 PSI INTERNAL PIPE PRESSURE, A SOIL BEARING STRENGTH OF 3,000 PSF, AND A 45° BEND.
2. CONCRETE THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
3. DIMENSIONS L, H, & W MAY BE ADJUSTED TO MEET FIELD CONDITIONS, PROVIDED THE BEARING AREA REMAINS UNCHANGED, UPON APPROVAL BY ENGINEER.
4. DOWNWARD VERTICAL BENDS SHALL BE RESTRAINED BY CAST-IN-PLACE CONCRETE THRUST BLOCKS OR OTHER RESTRAINING METHOD AS APPROVED BY ENGINEER.
   - RESTRAINING BARS SHALL BE ASTM A615 GRADE 60 REINFORCING STEEL.
   - THE PORTION OF THE RESTRAINING BARS EXPOSED TO SOIL SHALL BE PROVIDED WITH TWO COATS OF BITUMASTIC MATERIAL.
   - POLYETHYLENE SHEETING (MIN. THICKNESS OF 4 MILS) SHALL BE PLACED OVER MJ FITTINGS TO PREVENT DIRECT CONTACT BETWEEN CONCRETE AND THE FITTING.

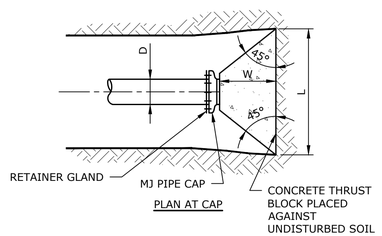
PRECAST & CAST-IN-PLACE CONCRETE THRUST BLOCK FOR VERTICAL BENDS
NO SCALE



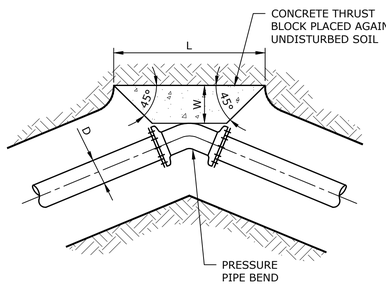
PLAN AT TEE



SECTION AT TEE OR BEND



PLAN AT CAP



PLAN AT BEND

PRECAST CONCRETE THRUST BLOCK																
	45° BEND				22½° BEND				11 ¼° BEND				TEE/END			
D	BEARING AREA (SF)	"L"	"H"	"W"	BEARING AREA (SF)	"L"	"H"	"W"	BEARING AREA (SF)	"L"	"H"	"W"	BEARING AREA (SF)	"L"	"H"	"W"
6"	2.9	2.0'	1.4'	0.7'	1.5	1.5'	1.0'	0.5'	0.7	1.0'	0.7'	0.4'	2.3	2.3'	1.6'	0.8'
8"	4.9	2.7'	1.8'	0.9'	2.5	1.9'	1.3'	0.7'	1.3	1.4'	0.9'	0.5'	3.1	3.1'	2.1'	1.1'
12"	10.5	4.0	2.2'	1.3'	5.3	2.8'	1.9'	1.0'	2.7	2.1'	1.3'	0.7'	13.7	4.6'	3.0'	1.5'

NOTES:
1. THE THRUST BLOCK DIMENSIONS SHOWN WERE CALCULATED BASED ON A 200 PSI INTERNAL PIPE PRESSURE AND A SOIL BEARING STRENGTH OF 3,000 PSF.
2. CONCRETE THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED SOIL.
3. DIMENSIONS L, H, & W MAY BE ADJUSTED TO MEET FIELD CONDITIONS, PROVIDED THE BEARING AREA REMAINS UNCHANGED, UPON APPROVAL OF ENGINEER.
4. THE HEIGHT OF THE BLOCK (H) SHALL BE LESS THAN OR EQUAL TO HALF THE TRENCH DEPTH BUT NOT LESS THAN THE PIPE DIAMETER.

PRECAST CONCRETE THRUST BLOCK FOR HORIZONTAL FITTINGS
NO SCALE

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

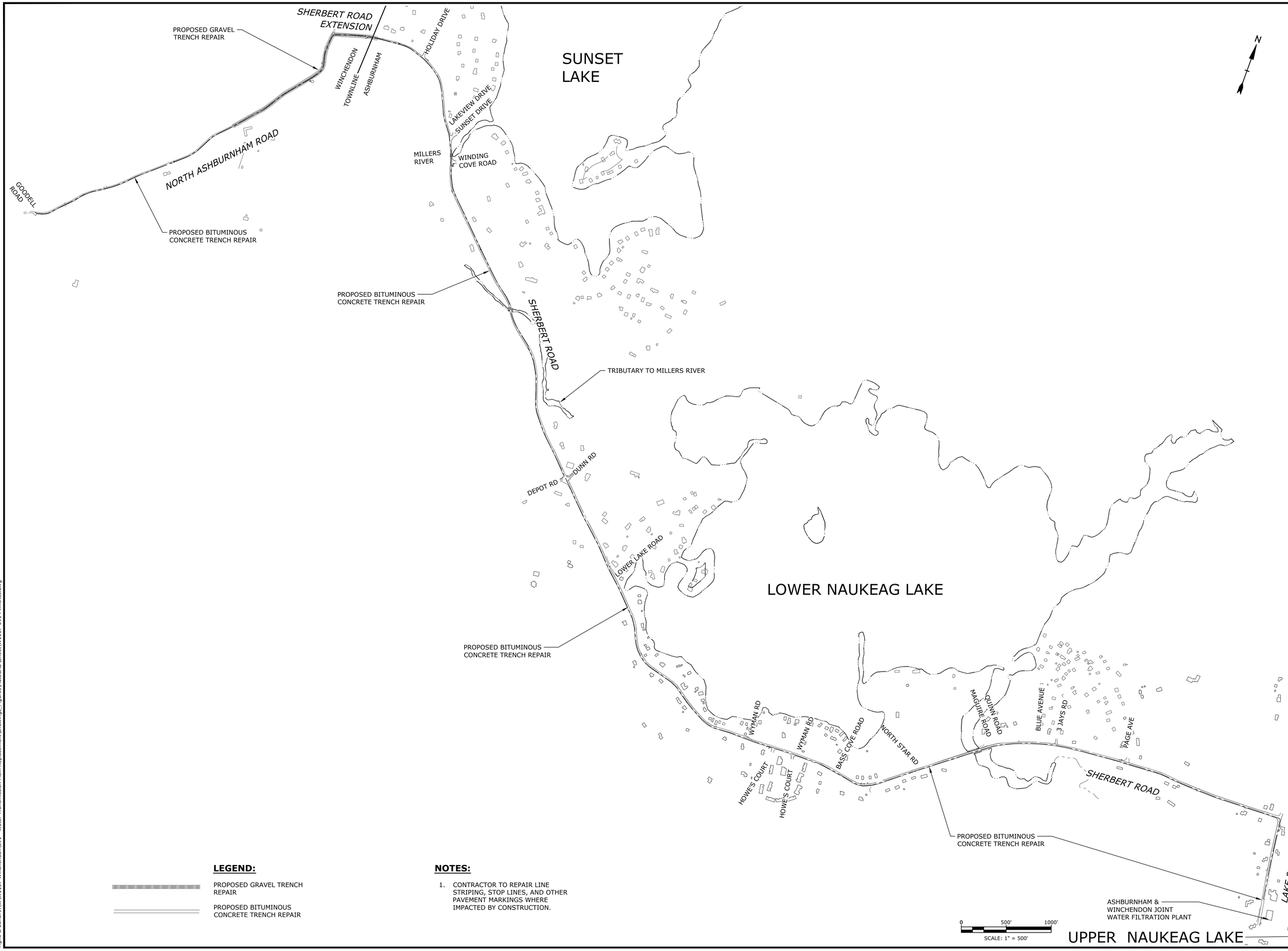
PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 Details.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

MISCELLANEOUS DETAILS - 3

SCALE: AS SHOWN

C-117

Last Saved: 9/26/2022
Plotted On: Sep 12, 2022-9:35am By: KChan
Tighe & Bond:J:\W\W1157 Winchendon\091 - Water Transmission Main Replacement\Drawings_Figures\AutoCAD\Sheet\W1157-091 Details.dwg



LEGEND:

PROPOSED GRAVEL TRENCH REPAIR

PROPOSED BITUMINOUS CONCRETE TRENCH REPAIR

NOTES:

1. CONTRACTOR TO REPAIR LINE STRIPING, STOP LINES, AND OTHER PAVEMENT MARKINGS WHERE IMPACTED BY CONSTRUCTION.

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 PvmtRes.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

ROADWAY RESTORATION PLAN

SCALE: 1"=500'

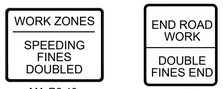
C-118

GENERAL NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7. THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS.
8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
10. MINIMUM LANE WIDTH IS TO BE 10 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
11. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
12. SIGN MA-R2-10a AND MA-R2-10e SHALL BE LOCATED AT THE PROJECT LIMITS FOR THE DURATION OF THE WORK.

LEGEND

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- P/F POLICE/FLAGGER DETAIL
- TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ARROW BOARD
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN



WORK ZONE LIMIT SIGNS
SEE NOTE 12

SPEED LIMIT (S)	TAPER LENGTH (L) FEET
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	L = WS

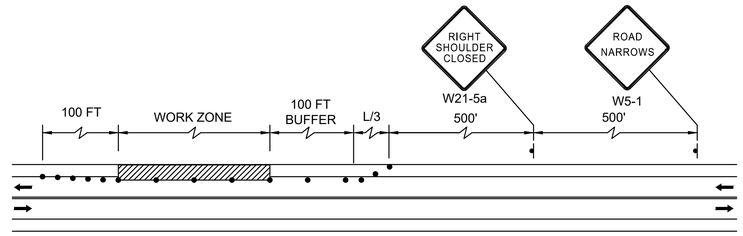
WHERE:

L = TAPER LENGTH IN FEET

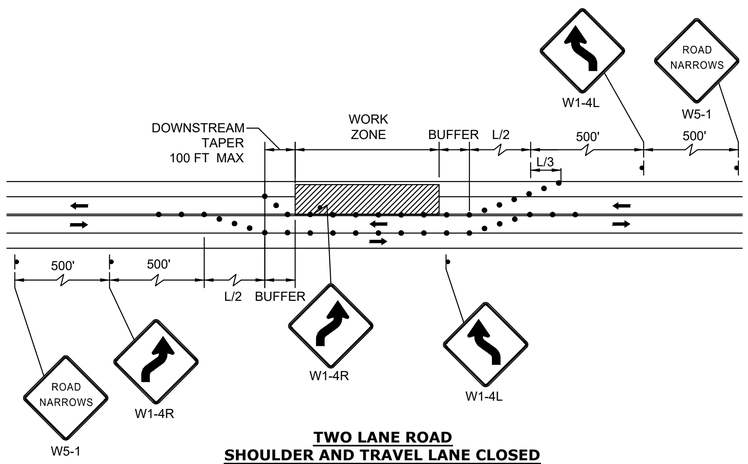
W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

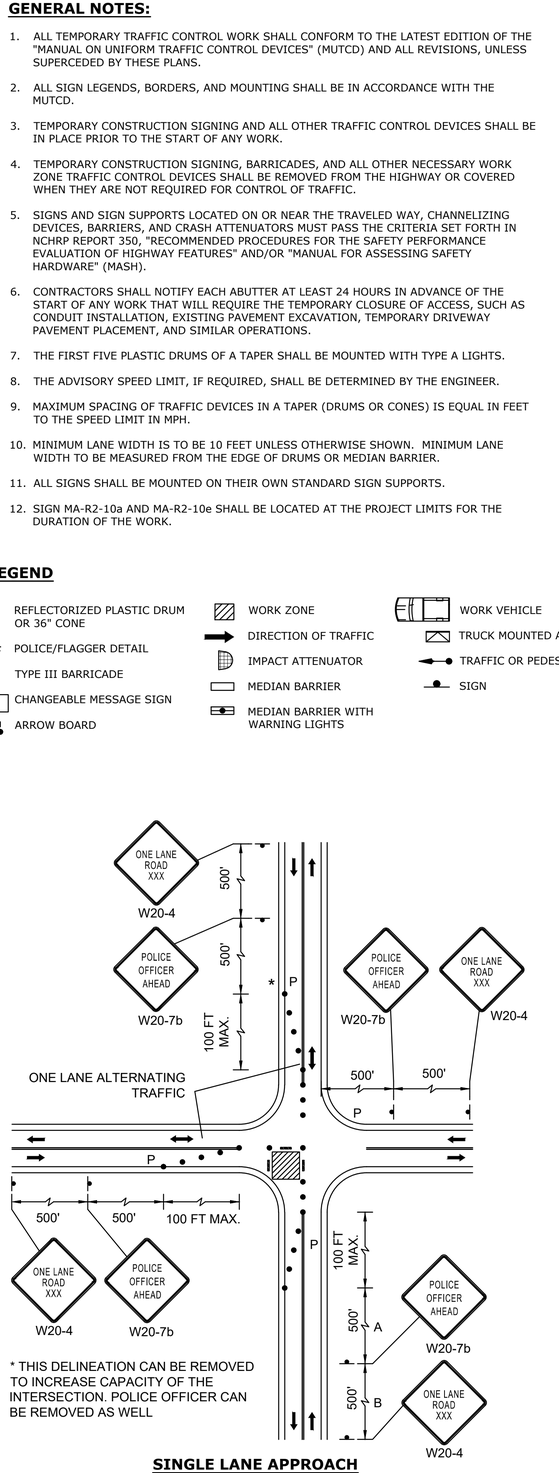
FORMULAS FOR DETERMINING TAPER LENGTHS



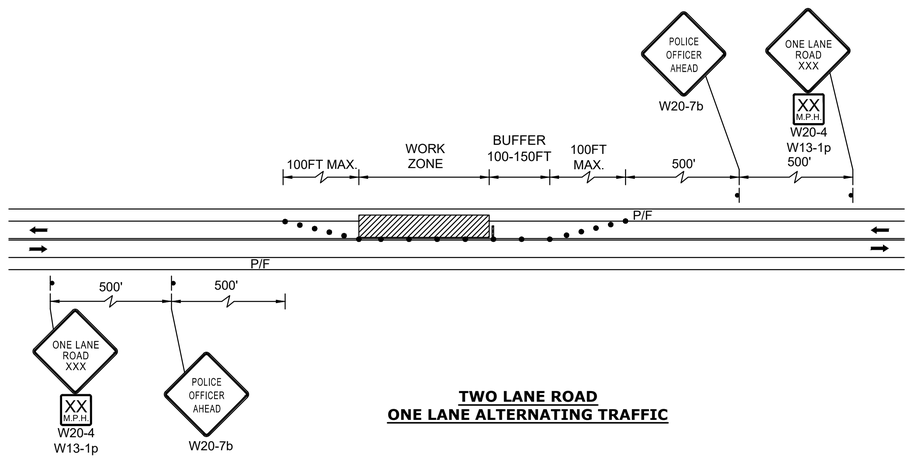
TWO LANE ROAD SHOULDER CLOSED



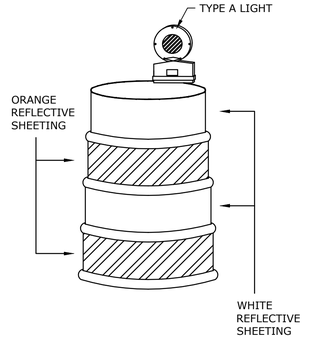
TWO LANE ROAD SHOULDER AND TRAVEL LANE CLOSED



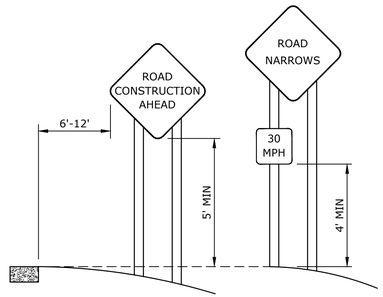
SINGLE LANE APPROACH ONE QUADRANT CLOSURE



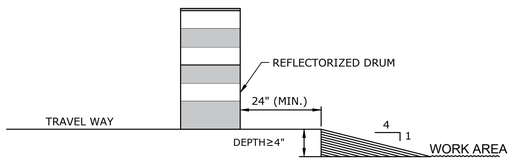
TWO LANE ROAD ONE LANE ALTERNATING TRAFFIC



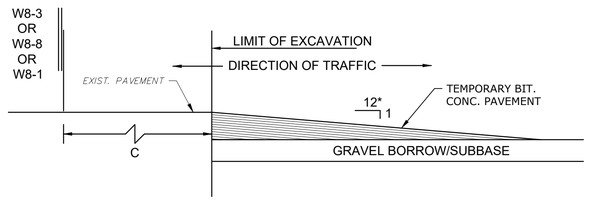
NOTES:
1. DRUM DESIGN AND APPLICATION SHALL BE AS PER THE CURRENT EDITION OF THE MUTCD.
2. DRUMS SHALL BE APPROXIMATELY 36" IN HEIGHT, HAVING A MINIMUM WALL THICKNESS OF 3/32" AND A MINIMUM DIAMETER OF 18" REGARDLESS OF ORIENTATION.
3. DRUM MATERIAL MUST BE APPROVED UV RESISTANT, LOW DENSITY, IMPACT RESISTANT, LINEAR POLYETHYLENE (OR APPROVED EQUIVALENT).
4. SHEETING SHALL BE APPROVED ORANGE AND WHITE TYPE IV REFLECTORIZED SHEETING CONFORMING TO M.9.30.0.
5. ALL DRUMS SHALL BE WELL MAINTAINED INCLUDING REMOVAL OF DUST OR ROAD FILM, SO AS NOT TO REDUCE REFLECTIVE EFFICIENCY. WHEN A DRUM LOSES TARGET VALUE IT SHALL BE REPLACED.
6. STORE UNUSED DRUMS IN ONE LOCATION, AWAY FROM ALL TRAFFIC, OR REMOVE FROM SITE ENTIRELY.



TYPICAL INSTALLATION OF PROJECT SIGNS



LATERAL DROP-OFF DETAIL
NO SCALE



LONGITUDINAL DROP-OFF DETAIL
NO SCALE

* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 TMP.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

TRAFFIC MANAGEMENT PLAN

SCALE: AS SHOWN

C-119

Last Saved: 5/19/2022
Plotted: Oct 12, 2022-9:35am By: KChan
Tighe & Bond:J:\W\W1157 Winchendon\091 - Water Transmission Main Replacement\Drawings, Figures\AutoCAD\Sheet\W1157-091 TMP.dwg

N

GENERAL NOTES:

1. CONTRACTOR TO FINALIZE AND SUBMIT DETOUR PLAN FOR APPROVAL.
2. CONTRACTOR TO IMPLEMENT PROPER CONTROLS AND SIGNAGE TO PROVIDE ADVANCED NOTICE FOR DETOURS.
3. CONTRACTOR SHALL PROVIDE FINAL TRAFFIC MANAGEMENT PLANS WITH SIGNAGE FOR WORK IN EACH SECTION OF PROJECT AREA.
4. NOTIFY ENGINEER OF WORK LOCATIONS AND ANTICIPATED DETOURS EVERY THURSDAY FOR THE FOLLOWING WEEK'S WORK.
5. EXAMPLE DETOUR SIGNAGE SHOWN BELOW.

LEGEND:

WORK ZONE

DETOUR ROUTE

DETOUR
M4-10 (L/R)

ROAD CLOSED LOCAL TRAFFIC ONLY
R11-3a

DETOUR
M4-9V

0 1000' 2000'
SCALE: 1" = 1000'

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

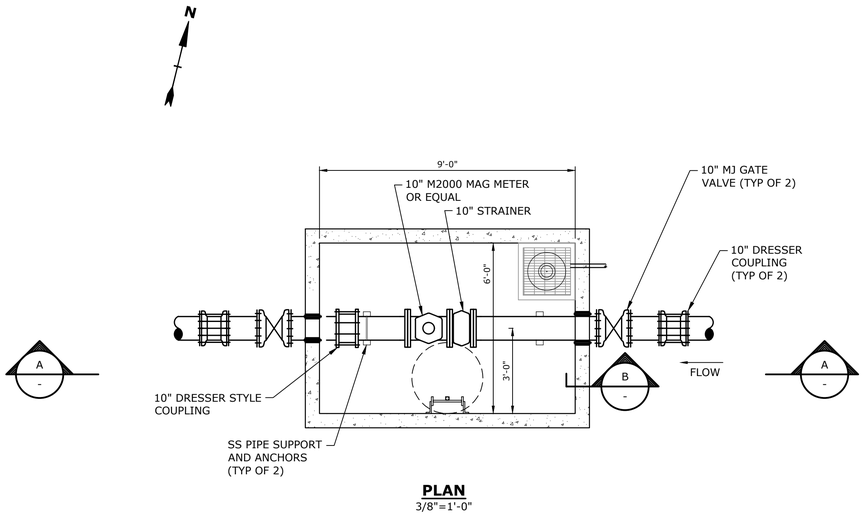
PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 Detour.dwg
DRAWN BY:	CFY, TMP, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

TEMPORARY TRAFFIC CONTROL/DETOUR PLAN

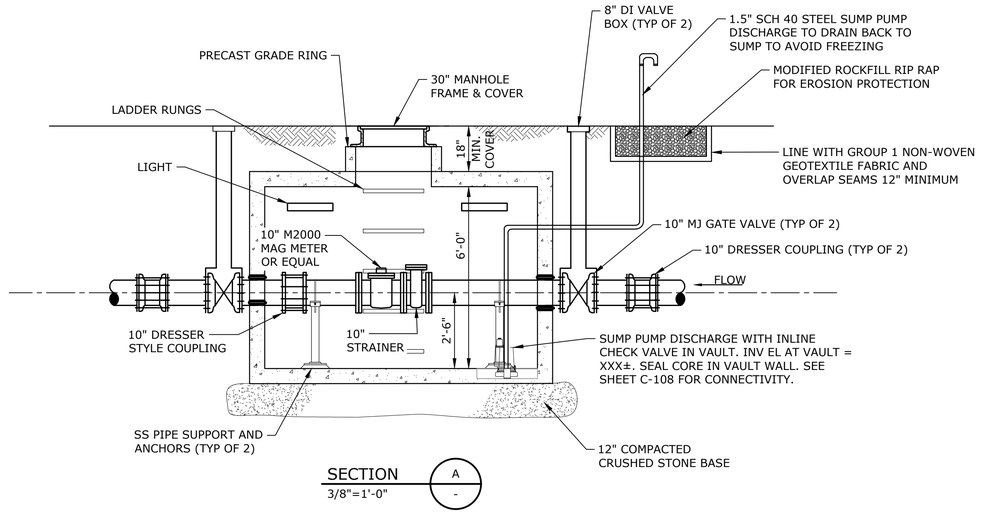
SCALE: AS SHOWN

C-120

Last Saved: 9/12/2022
Plotted On: Sep 14, 2022 - 12:09pm By: KChan
Tighe & Bond: J:\W\W1157 Winchendon\091 - Water Transmission Main Replacement\Drawings_Figures\AutoCAD\Sheet\W1157-091 Detour.dwg



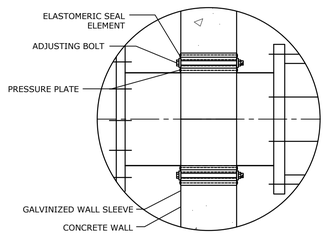
PLAN
3/8"=1'-0"



SECTION A
3/8"=1'-0"

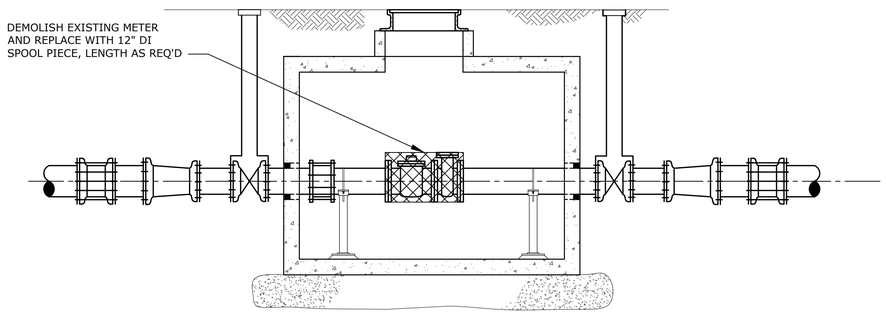
WATER METER VAULT - TOWN LINE
(SHEET C-109)

NOTE:
1. PRECAST STRUCTURE MUST BE DESIGNED TO SUPPORT AN H-20 LOAD.

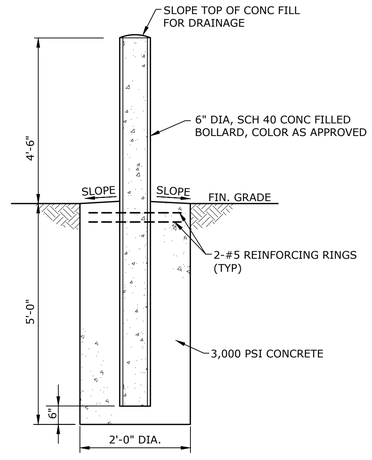


DETAILED VIEW OF THRU-WALL WATERTIGHT LINK SEAL

SECTION B
NO SCALE



ABANDON EXISTING METERING VAULT AT GOODELL ROAD
(SHEET C-111)
NO SCALE



6" DIAMETER STEEL BOLLARD
NO SCALE

Tighe&Bond

PERMIT SET NOT FOR CONSTRUCTION

Water Transmission Main Replacement Project

Department of Public Works

Winchendon, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	W1157-091
DATE:	09/09/2022
FILE:	W1157-091 M-101 & M-102.dwg
DRAWN BY:	CFY, KSC
CHECKED BY:	CLL
APPROVED BY:	PMV, JAF

WATER METER VAULT PLAN AND DETAILS - TOWN LINE

SCALE: AS SHOWN

M-102

Tighe&Bond

ATTACHMENT D

Photographic Log

Attachment D - Photographic Log

Client: Town of Winchendon Department of Public Works **Job Number:** W-1157-091
Water Transmission Main Replacement Project
Site: Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Photograph No.: 1	**Date:** 11/4/2021	**Direction Taken:** West

Description: View of BVW 16A.

Photograph No.: 2	**Date:** 11/4/2022	**Direction Taken:** East

Description: View of BVW 17A.

Attachment D - Photographic Log

Client: Town of Winchendon Department of Public Works **Job Number:** W-1157-091
Water Transmission Main Replacement Project
Site: Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Photograph No.: 3	**Date:** 11/4/2021	**Direction Taken:** West
Description: View of the intermittent stream associated with flag series 18A.		

Photograph No.: 4	**Date:** 11/4/2021	**Direction Taken:** Northwest
Description: View of BVW 19A.		

Attachment D - Photographic Log

Client: Town of Winchendon Department of Public Works **Job Number:** W-1157-091
Water Transmission Main Replacement Project
Site: Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Photograph No.: 5	**Date:** 11/4/2021	**Direction Taken:** Northeast
Description: View of BVW 20A.		

Photograph No.: 6	**Date:** 11/4/2021	**Direction Taken:** Southeast
Description: View of BVW 21A.		

Client: Town of Winchendon Department of Public Works **Job Number:** W-1157-091
Water Transmission Main Replacement Project
Site: Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Photograph No.: 7	**Date:** 11/4/2021	**Direction Taken:** Northwest

Description: View of BVW 22A.

Photograph No.: 8	**Date:** 11/4/2021	**Direction Taken:** Southeast

Description: View of the intermittent stream associated with flag series 23A and 23B.

Attachment D - Photographic Log

Client: Town of Winchendon Department of Public Works **Job Number:** W-1157-091
Water Transmission Main Replacement Project
Site: Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Photograph No.: 9	**Date:** 11/4/2021	**Direction Taken:** Northwest

Description: View of BVW 24A.

Photograph No.: 10	**Date:** 11/8/2021	**Direction Taken:** Southeast

Description: View of intermittent stream associated with flag series 25A.

Client: Town of Winchendon Department of Public Works **Job Number:** W-1157-091
Water Transmission Main Replacement Project
Site: Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Photograph No.: 11	**Date:** 11/8/2021	**Direction Taken:** East
Description: View of BVW 25B.		

Photograph No.: 12	**Date:** 11/8/2021	**Direction Taken:** South
Description: View of BVW 25C.		

Client: Town of Winchendon Department of Public Works **Job Number:** W-1157-091
Water Transmission Main Replacement Project
Site: Sherbert Road Extension and North Ashburnham Road, Winchendon, Massachusetts

Photograph No.: 13	**Date:** 11/8/2021	**Direction Taken:** North
Description: View of BVW 26A.		

Photograph No.: 14	**Date:** 11/8/2021	**Direction Taken:** Northwest
Description: View of BVW 26A.		

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