



Arlington Conservation Commission

Date: Thursday, August 15, 2024
Time: 7:00 PM
Location: Conducted by Remote Participation.

Please register in advance for this meeting. Reference materials, instructions, and access information for this specific meeting will be available 48 hours prior to the meeting on the Commission's agenda and minutes page. This meeting will be conducted in a remote format consistent with Chapter 2 of the Acts of 2023, which further extends certain COVID-19 measures regarding remote participation in public meetings until March 31, 2025. Please note: Not all items listed may in fact be discussed and other items not listed may be brought up for discussion to the extent permitted by law. This agenda includes those matters which can be reasonably anticipated to be discussed at the meeting.

Agenda

1. Administrative
 - a. Review Meeting Minutes.
 - b. Correspondence Received.
All correspondence is available to the public. For a full list, contact the Conservation Agent at concomm@town.arlington.ma.us.
 - c. Administrative Report.
 - Symmes Conservation Restriction.
2. Discussion
 - a. Proposal for School Use of Meadowbrook Park.
 - b. Vote to Appropriate \$75 for Town Day Booth.
 - c. 5 Mystic Lake Drive Certificate of Compliance.
 - d. Water Bodies Working Group.
 - Spy Pond Coring.
 - e. Tree Committee Update.
 - f. CPA Committee Update.
 - g. Park & Recreation Commission Liaison.
3. Hearings

DEP #091-0356: Notice of Intent: Thorndike Place (Continued from 08/01/2024).

DEP #091-0356: Notice of Intent: Thorndike Place (Continued from 08/01/2024).

The Conservation Commission will hold a public hearing under the Wetlands Protection Act to consider a Notice of Intent for the construction of Thorndike Place, a multifamily development on Dorothy Road in Arlington. Areas to be altered include Buffer Zone to Bordering Vegetated Wetland and Bordering Land Subject to Flooding associated with Alewife Brook. The Commission is expected to continue this hearing to the meeting on September 5, 2024.

DEP #091-0363: Notice of Intent: Medford Boat Club (Continued from 08/01/2024).

DEP #091-0363: Notice of Intent: Medford Boat Club (Continued from 08/01/2024).

The Conservation Commission will hold a public hearing under the Wetlands Protection Act and Arlington Bylaw for Wetlands Protection to consider a Notice of Intent for an aquatic management program by the Medford Boat Club. The area to be altered includes Land Under Waterbodies associated with the Mystic Lakes.

DEP #091-0365: Notice of Intent: Menotomy Rocks Park (Continued from 08/01/2024).

DEP #091-0365: Notice of Intent: Menotomy Rocks Park (Continued from 08/01/2024).

The Conservation Commission will hold a public hearing under the Wetlands Protection Act and Arlington Bylaw for Wetlands Protection to consider a Notice of Intent for replacement of the playground at Menotomy Rocks Park in Arlington. Areas to be altered include Buffer Zone and Adjacent Upland Resource Area associated with an Isolated Vegetated Wetland.

DEP #091-0364: Notice of Intent: 103 Thorndike Street (Continued from 08/01/2024).

DEP #091-0364: Notice of Intent: 103 Thorndike Street (Continued from 08/01/2024).

The Conservation Commission will hold a public hearing under the Wetlands Protection Act and Arlington Bylaw for Wetlands Protection to consider a Notice of Intent for construction of a multifamily residence at 103 Thorndike Street in Arlington. The area to be altered includes Bordering Land Subject to Flooding associated with Alewife Brook.



Town of Arlington, Massachusetts

Correspondence Received.

Summary:

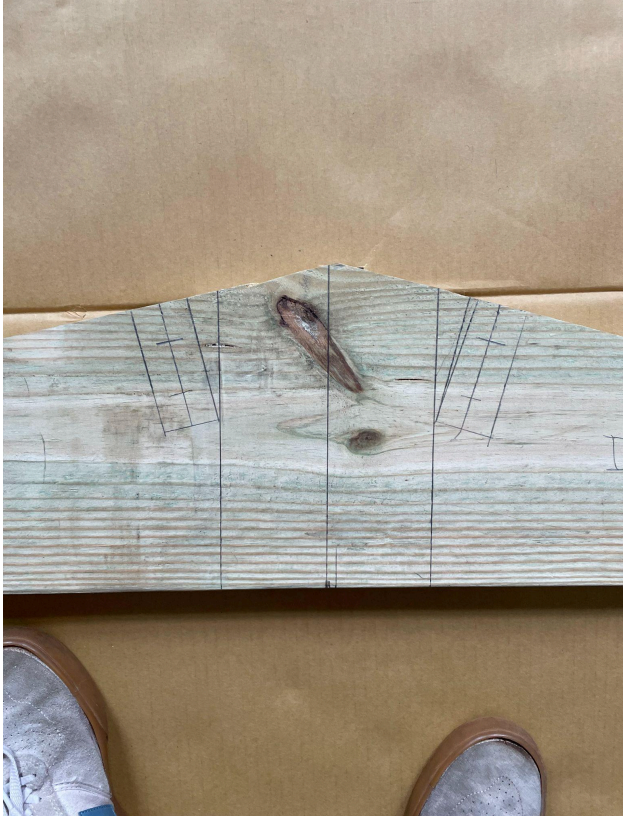
Correspondence Received.

All correspondence is available to the public. For a full list, contact the Conservation Agent at concomm@town.arlington.ma.us.

ATTACHMENTS:

Type	File Name	Description
▢ Reference Material	Correspondence_Received_-_Ben_Gregory_-_Eagle_Scout_Project_Photo_Documentation.pdf	Correspondence Received - Ben Gregory - Eagle Scout Project Photo Documentation.pdf
▢ Reference Material	Correspondence_Received_-_Susan_Chapnick_-_EPA_s_6PPD_Quinone_Levels.pdf	Correspondence Received - Susan Chapnick - EPA's 6PPD Quinone Levels.pdf
▢ Reference Material	Correspondence_Received_-_Thorndike_Place_-_Coalition_to_Save_the_Mugar_Wetlands.pdf	Correspondence Received - Thorndike Place - Coalition to Save the Mugar Wetlands.pdf

Ben Gregory - Eagle Scout Project Photo Documentation



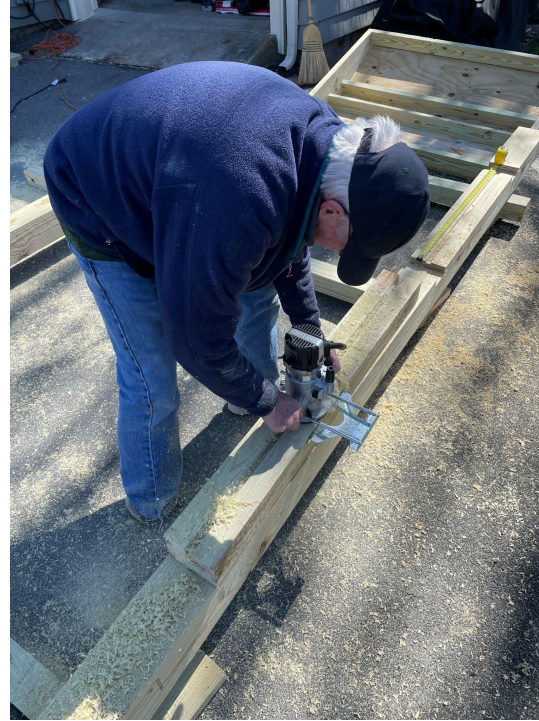
Pencil markings on the roof ends for where the cross support 2x4s would go and the 6x6 posts would go in the middle.



Setting up the ends of the roof and the screws to attach the 2x4 cross supports.



Roof skeleton with 2x4 cross supports attached.



Using the router tool to cut grooves in the 6x6 posts and the 6x4 horizontal beams for the plywood to fit into



Finished roof structure with plywood attached.



Assembling the kiosk in the driveway in order to drill pilot holes for attaching the roof and make sure the pieces fit together before the on site assembly.



Drilled pilot holes for attaching the roof to the 6x6 posts of the kiosk.



"FL" written on the 6x6 post to indicate that where the arrow is pointing is the front left side of the kiosk.



Drilled Pilot holes in one of the 4x4 posts to secure the "Arlington's Great Meadows" sign to the posts with carriage bolts, nuts, and washers.



Screwing together the frame of the plastic covering that would go over the

information board on the kiosk.



Helpers using rollers and brushes to paint the 6x6 posts, the plywood information board, and the underside of the roof.



The posts, roof, and sign drying after being painted.



Helpers using smaller brushes under brighter light to paint the routed grooves of the sign's letters white.



Nailing down the shingles onto the roof.



U-haul loaded up with all of the parts of the sign and the kiosk the night before the on-site assembly.



“Before” picture of the spot where the kiosk would be put in place.



“Before” picture of where the sign would be located.



U-haul backed up to the road entry point closest to the project site.



Helpers screwing the 6x6 posts, 4x6 cross beams, and plywood for the kiosk together while other helpers dig the holes for the 6x6 beams in the background.



Project site as a helper rakes out where the kiosk would go and other helpers transport materials from the U-Haul to the site.



Attaching the roof to the kiosk on the ground before it is tilted upward into place.



Tightening a nut on one of the carriage bolts that is holding the roof onto the 6x6 post.



Tilting the kiosk up into the holes with lots of helpers because it was very heavy.



Picking up the kiosk to tilt it up into the holes with the concrete tubes in the ground.





Mixing the concrete to pour into the holes once the posts were in them.



Helpers digging the holes for the “Arlington’s Great Meadows” sign.



Preparing to put the posts of the “Arlington’s Great Meadows” sign into the post holes.



Screwing the hinged plastic covering into the topside of the information board.



“Arlington’s Great Meadows” sign finished product picture with some of the helpers that dug the holes for the sign.



Picture of the finished product of the kiosk the day after the project execution. This was once the concrete had set and we removed the braces that we used to ensure the kiosk wouldn’t shift around while the concrete was drying.

EPA - Acute Freshwater Aquatic Life Screening Values for 6PPD and 6PPD-quinone

Susan D. Chapnick <s.chapnick@comcast.net>

Tue 7/16/2024 11:59 AM

To:ConComm <ConComm@town.arlington.ma.us>

Cc:Nathaniel Stevens <nstevens@McGregorLaw.com>

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Conservation Commission:

Please note that EPA has developed Acute Freshwater Aquatic Life Screening Values for 6PPD and 6PPD-quinone under the Clean Water Act, section 304(1)(2)(B), for the protection of aquatic life. These were published in the Federal Register on 6/13/2024.

The acute freshwater aquatic life screening values are:

6PPD = 8,900 ng/L

6PPD-quinone = 11 ng/L

Here is a link to the announcement:

<https://www.federalregister.gov/documents/2024/06/13/2024-13009/acute-aquatic-life-screening-values-for-6ppd-and-6ppd-quinone-in-freshwater>

Please forward this information to the Conservation Commission, the Arlington High School Building Committee, and save to the OOC file for DEP #091-0323.

Thank you.

Susan

Susan D. Chapnick, M.S.

Vice Chair, Arlington Conservation Commission

s.chapnick@comcast.net



July 22, 2024

To Members of the Conservation Commission:

Thank you for your time and your commitment to Arlington! We appreciate your efforts during this lengthy process.

Here is what we know about the Mugar site...

- Flooding has historically been a serious and ongoing issue documented by many photos, videos and personal references.
- The site consists of 17 acres, of which the majority is in or near the FEMA flood zone.
- Floodplains act as a sponge for nearby groundwater and storm water. If this “sponge” is paved over, the floodplain will no longer serve this essential purpose, and the water will flood into East Arlington neighborhoods.
- Thorndike Field complex, one of Arlington’s largest soccer and lacrosse fields, abuts the site and currently has high surface and groundwater. The proposed development will increase water levels and reduce the number of days the field can be used.
- Residents living between Lake Street, Mass. Ave. and Route 2 know that groundwater flow and absorption is already a major problem. However, the developers state, “groundwater is not our purview.”

In addition, as referenced in the recently published **Boston Globe article (July 10, 2024), As climate toll grows, FEMA imposes limits on building in flood plains**, *‘The Federal Emergency Management Agency will take new steps to ensure that the structures it funds — including schools, hospitals, police stations, libraries, sewage treatment plants, and bridges — are protected from flooding.*

The agency said Wednesday that projects constructed with FEMA money must be built in a way that prevents flood damage, whether by elevating them above the expected height of a flood or, if that’s not feasible, by building in a safer location. The rule also makes it clear that building decisions must reflect risks now and also in the future, as climate change makes flooding more frequent and severe’.

If these measures are being taken at the federal level to ensure building projects are protected from future flooding due to the effects of climate change, then the same should be done at the municipal level to protect its residents. **Continuous flooding of this vulnerable area is a clear indication of what we can expect in the future.**

WE NEED TO TAKE ACTION NOW! As we look ahead, we need to plan for the inevitable!

Thank you on Behalf of the Coalition to Save the Mugar Wetlands,

Jeanette Cummings, 32 Dorothy Rd.
Julie DiBiase, 29 Littlejohn St.

Cc: James Feeney, Arlington Town Manager
David Morgan, Environmental Planner/Conservation Agent
Ryan Clapp, Conservation Agent
Arlington Select Board
Arlington Land Trust



Town of Arlington, Massachusetts

Administrative Report.

Summary:

Administrative Report.

- Symmes Conservation Restriction.



Town of Arlington, Massachusetts

Proposal for School Use of Meadowbrook Park.

Summary:

Proposal for School Use of Meadowbrook Park.

ATTACHMENTS:

	Type	File Name	Description
▢	Reference Material	Request_for_School_Use_of_Meadowbrook_Park.pdf	Request for School Use of Meadowbrook Park.pdf

Inquiry from local outdoor school

Mary Jirmanus Saba <mary.jirmanus@gmail.com>

Sun 7/28/2024 4:00 PM

To:ConComm <ConComm@town.arlington.ma.us>

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear Arlington Conservation Board,

I hope you are staying cool and rested this summer. I am an artist, educator and parent based in Malden. Since 2022 I have been coordinating a small, cooperatively-run EEC license exempt outdoor program that focuses on children 3-8 and families with disabilities called [Mulberry Forest School](#). We have been based in Stoneham but are looking to relocate our home base closer to Medford/Arlington/Somerville. I am writing to inquire whether the Arlington Conservation Board would consider hosting us at any of your conservation sites, such as Meadowbrook Park, a place we love.

About our Ask : We are very low-profile (at the moment we are less than 6 children). We are outside 100% of the time. As our program centers accessibility, community care and natural stewardship, we prioritize respect for our human and non-human neighbors, and are a very low profile and positive force in our forest community. We would love to support the Conservation Board's work by organizing clean up days, and removing invasive plants (a practice we do regularly at our current location).

About us: We have a mixed cooperative structure. We currently operate from 9-12 M-F, and we're planning to extend some days until 2pm in the Fall. Our teachers have over a decade of combined experience in outdoor and early education. Mulberry Forest School is a project of [Access Culture](#), a Massachusetts-based non profit that bridges the gap between culture and nature.

Please do let me know if this is an ask you would consider, and we would love to present our program to the board.

Thank you very much in advance.

Warm regards,
Mary

--

Mary Jirmanus Saba

mjirmanus@berkeley.edu

+17817240752 | +96170129887



Town of Arlington, Massachusetts

Vote to Appropriate \$75 for Town Day Booth.

Summary:

Vote to Appropriate \$75 for Town Day Booth.

ATTACHMENTS:

	Type	File Name	Description
▢	Reference Material	Town_Day_Application.pdf	Town Day Application.pdf



OFFICE OF THE SELECT BOARD
 Town of Arlington
 730 Massachusetts Avenue
 Arlington, MA 02476 | 781-316-3020

**ARLINGTON TOWN DAY
 BOOTH AND DISPLAY INFORMATION
 September 21, 2024**

Application deadline with payment is August 1, 2024, 7:00 PM

Due to limited booth space and the large number of interested participants, applications will be reviewed and decided upon by the Town Day Committee. Applicants requesting a particular booth space should indicate it on the application. While every effort is made to accommodate the request of the applicant for a particular booth space, no guarantees will be made.

DISPLAY PARTICIPANT SCHEDULE	
8:00 am - 9:00 am	Participant arrival and drop off display materials at booth
9:15 AM	Massachusetts Avenue closed to traffic
8:00 am - 8:45 am	Display set up
10:30 am - 4:30 pm	Town Day activities open to the public
4:30 PM	Display areas close
4:30 pm - 5:15 pm	Display break down, display participant vehicles permitted
5:30 PM	Street cleaning
6:15 PM	Massachusetts Avenue reopens to traffic
Police will strictly enforce times of closing and reopening of Massachusetts Avenue. All transactions must end at 4:30 pm sharp.	

ADDITIONAL INFORMATION	
Application Review	All applications will be reviewed by the Town Day Committee. Neither application nor submission of check constitutes or guarantees a contract.
Permits	No one may participate in booth displays unless they have received a participant confirmation notification.
Payments	All fees of approved applications are non-refundable.
Booth Numbers	Booth numbers will be posted online 24-hours prior to the event at arlingtonma.gov/townday and at participant check-in on the morning of Town Day.
Booth Space	Each booth space is 10 x 10 and will accommodate an eight-foot table and tent. Booths should not project more than ten feet from the curb into the street. The table and tent are the responsibility of the booth participant.

ADDITIONAL INFORMATION

Electricity	Participants must supply a heavy-duty extension cord. One outlet per booth is available on a limited basis for a \$75 fee and are limited to one electrical device with a 3-4-amp capacity, such as an LCD projector or monitor. Applicant requests will be handled at the discretion of the Committee. Special requests are not granted due to electrical outlets being located in one designated area. INDIVIDUAL GENERATORS ARE NOT PERMITTED.
Exhibitors	Town of Arlington residents, businesses, and organizations have first preference. The Town Day Committee reserves the right to select and deny booth exhibitors. All booths must be attended by the applicant.
Activities	Booths will be restricted to such activities as craft exhibits, bake sales, educational displays, club membership information, games, food vendors and/or other such “fair type” activities. Excluded will be activities such as political campaigning, speech making, and/or any other subject or activity not suitable for viewing by people of all ages, as determined by the Town Day Committee and the Select Board.
Food	All food items must be specified on the food permit application contained in the packet. The permit requires a \$25 check made out to the Town of Arlington. Food vendors will be located at Mill St and Pleasant St along Massachusetts Avenue.
Grills, LPG, Open Flames	For grills, open flame heater/cookers, and LPG a permit must be obtained through Fire Prevention. Permit requires \$30 check made out to the Town of Arlington, submitted to Fire Prevention. A fully charged 10-pound dry chemical fire extinguisher must be within easy reach. Permits must be clearly displayed at the booth.
Signs	Each participant must have a large, easily readable sign stating their name, organization, or business. All non-profit applicants offering items for sale must identify the recipient of all proceeds. (“Proceeds to....Club”)
Not Permitted	No frisbees, water guns, dangerous toys, air horns, fireworks, snap cracks, spray glue objects, shaving cream, silly string or other items determined by the Police Department to be objectionable may be sold or distributed. Police Officers have the right to order the removal of such items and to retrieve an applicant’s booth permit if necessary.
Clean Up	All participants are required to clean up their booth area promptly at 4:30 pm. Participants will be held responsible for any litter, damage, etc. found in their assigned area.



**ARLINGTON TOWN DAY
APPLICATION FOR BOOTH SPACE
September 21, 2024**
Application Status: Submitted, not reviewed

Office Use Only
Fee: \$75 Paid:
Booth #

**Application deadline with payment is August 1, 2024, 7:00 PM.
You will be notified with your application review status by September 2, 2024.**

Organization Name	Conservation Commission						
Contact Person	David Morgan	Email address	dmorgan@town.arlington.ma.us				
Telephone (primary)	781-316-3012	Telephone (secondary)					
Mailing Address	730 Massachusetts Ave	City	Arlington	State	MA	Zip	02476
Website	http://						

Describe purpose of Booth (be specific)
Presentation of materials by Arlington's Conservation Commission
Describe any special location request (food vendors will be at either end of Mass. Ave.)

<i>PAYMENT SUMMARY (your application is not complete until you submit payment)</i>			
Item	Requested	Cost	Submit Payment To
Town Dept/Committee Non-Food Vendor	Yes	\$75	Select Board
	No	\$0	Select Board
Electrical Outlet	No	\$0	Select Board
Outdoor Cooking (requires additional application)	No	\$0	Apply at Fire Prevention
<i>TOTAL PAYMENT DUE</i>		<i>\$75</i>	
Make checks payable to Town of Arlington Mailing address: Select Board - Town Day, 730 Massachusetts Ave, Arlington, MA 02476			

<i>I have read and understand all rules and regulations</i>	
Signature: David Morgan	Date: Jul 26, 2024

**Application deadline with payment is August 1, 2024, 7:00 PM.
You will be notified with your application review status by September 2, 2024.**



Town of Arlington, Massachusetts

5 Mystic Lake Drive Certificate of Compliance.

Summary:

5 Mystic Lake Drive Certificate of Compliance.

ATTACHMENTS:

	Type	File Name	Description
▢	Reference Material	5_Mystic_Lake_Drive_COC_Submission.pdf	5 Mystic Lake Drive COC Submission.pdf

Salem Village Consulting, LLC

TO:
Arlington Conservation Commission
Town Hall
730 Mass. Ave.
Arlington, MA 02476

LETTER OF TRANSMITTAL	
DATE: 7/30/24	JOB NO.
ATTENTION:	
RE: 5 Mystic Lake Dr., Request for C.O.C.	

WE ARE SENDING YOU ATTACHED UNDER SEPARATE VIA _____ THE FOLLOWING ITEMS:

- SHOP DRAWINGS
 PRINTS
 PLANS
 SAMPLES
 SPECIFICATIONS
 COPY OF LETTER
 CHANGE ORDER
 CD's

COPIES	DATE	NO.	DESCRIPTION
1	7/30/24	1	Original WPA Form 8A and As-Built Plan

THESE ARE TRANSMITTED AS CHECKED BELOW:

- | | | |
|--|---|--|
| <input type="checkbox"/> FOR APPROVAL | <input type="checkbox"/> APPROVED AS SUBMITTED | <input type="checkbox"/> RESUBMIT ____ COPIES FOR APPROVAL |
| <input checked="" type="checkbox"/> FOR YOUR USE | <input type="checkbox"/> APPROVED AS NOTED | <input type="checkbox"/> SUBMIT ____ COPIES FOR DISTRIBUTION |
| <input type="checkbox"/> AS REQUESTED | <input type="checkbox"/> RETURNED FOR CORRECTIONS | <input type="checkbox"/> RETURN ____ CORRECTED PRINTS |
| <input type="checkbox"/> FOR REVIEW AND COMMENT | <input type="checkbox"/> | <input type="checkbox"/> PRINTS RETURNED AFTER LOAN TO US |
| <input type="checkbox"/> FOR BIDS DUE | | |

REMARKS: Please call with any questions.

COPY TO

SIGNED:

John Barrows

Salem Village Consulting, LLC
90 Pine St.
Danvers, Massachusetts 01923

Tel: (978) 204-2390
email: JohnBarrows_PE@yahoo.com

Salem Village Consulting, LLC

July 30, 2024

Mr. David Morgan
Arlington Conservation Administrator
Arlington Conservation Commission
Town Annex
730 Mass Ave
Arlington, MA 02476

RE: 5 Mystic Lake Drive., D.E.P. #91-0352, Certificate of Compliance

Mr. Morgan,

On behalf of the applicant; William Mahoney, I am submitting to you a request for a Certificate of Compliance for activities at the above-mentioned address.

Based on a site inspection on July 30th and the information depicted on the as-built plan prepared by Boston Survey dated; 7/29/24 , the site is stabilized and the work has been completed in substantial compliance with the approval in the Order of Conditions (D.E.P. #91-0352).

Enclosed for your use is a copy of the As-Built Plan and the WPA Form 8A.

Should you have any questions please do not hesitate to contact me.

Regards,



John A. Barrows, P.E.



90 Pine Street, Danvers, Massachusetts, 01923
978-204-2390
johnbarrows_pe@yahoo.com



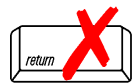
WPA Form 8A – Request for Certificate of Compliance

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

A. Project Information

Important:

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



Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

1. This request is being made by:

William Mahoney
Name
12 Dickson Avenue
Mailing Address
Arlington MA 02474
City/Town State Zip Code
781-953-3956
Phone Number

2. This request is in reference to work regulated by a final Order of Conditions issued to:

William Mahoney
Applicant
05-25-23 Dated 091-352 DEP File Number

3. The project site is located at:

5 Mystic Lake Drive
Street Address
48/1
Assessors Map/Plat Number
Arlington
City/Town
Parcel/Lot Number

4. The final Order of Conditions was recorded at the Registry of Deeds for:

Property Owner (if different)
Middlesex County 01593 Book 125 Page
280272
Certificate (if registered land)

5. This request is for certification that (check one):

- the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.
 the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).

- the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.



WPA Form 8A – Request for Certificate of Compliance

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

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

Yes If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order.

No

B. Submittal Requirements

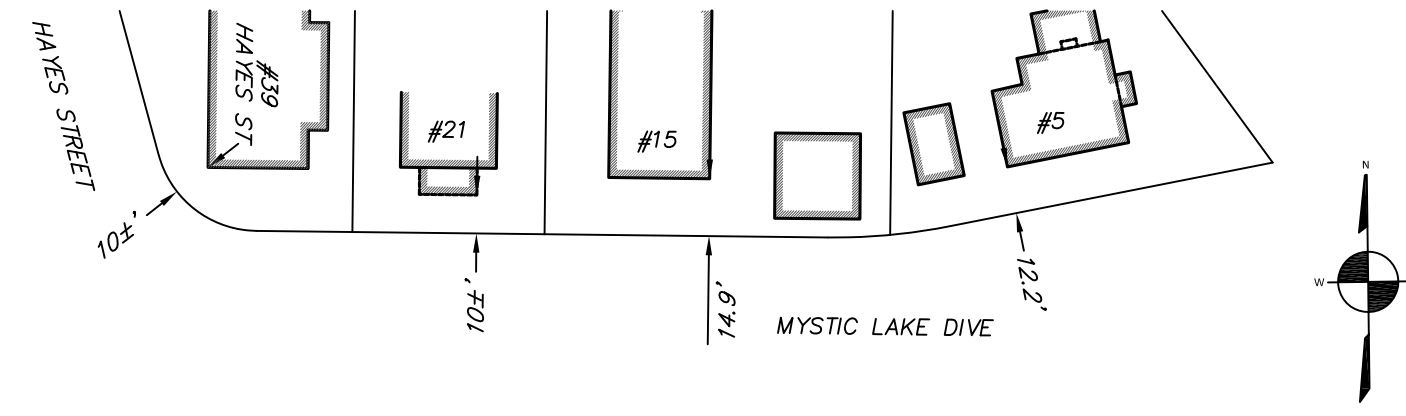
Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html>).

PREPARED FOR:
OWNER OF RECORD:
5 MYSTIC LAKE DRIVE, LLC
12 DICKSON AVENUE
ARLINGTON, MA 02474

REFERENCES:
DEED: C. 280272
LCC: 5195-A
5195-D
D. 1310497

BOSTON
SURVEY, INC.
UNIT C-4 SHIPWAY PLACE
CHARLESTOWN, MA 02129
(617) 242-1313

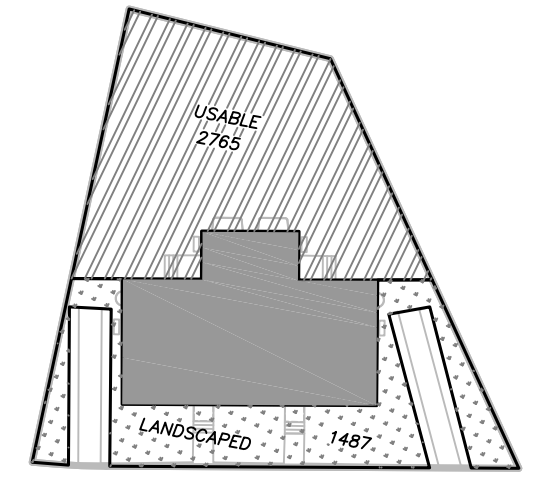
FIELD:	IMO
DRAFT:	RAP/SAP
CHECK:	GCC
DATE:	07/19/24
JOB #	22-00375



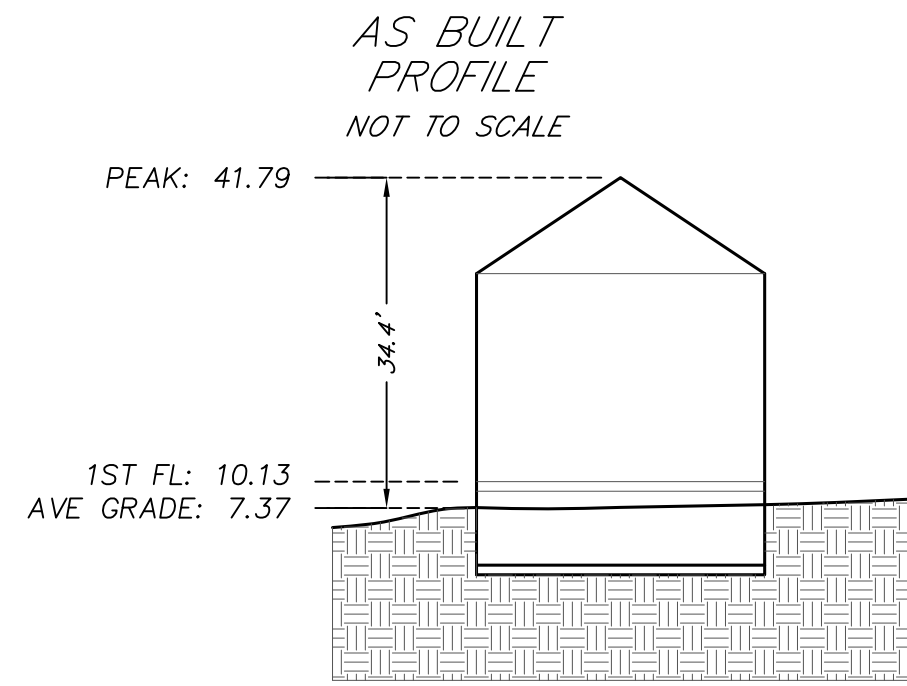
AVERAGE FRONT YARD SETBACK: 11.8'
SCALE: 1.0" = 40'
 $10 + 10 + 14.9 + 12.2 / 4 = 11.8$

SITE PLAN OF LAND
LOCATED AT
5 MYSTIC LAKE DRIVE
ARLINGTON, MA

DATE: JULY 29, 2024 SCALE: 1.0 INCH = 10.0 FEET



AS BUILT OPEN SPACE DIAGRAM
SCALE: 1.0" = 40'



ZONING: MBLU: 048.0-0001-0001.0 DISTRICT: R2

	REQUIRED	AS-BUILT
LOT SIZE (MIN.)	6,000 SF	6,418±SF
LOT FRONTAGE (MIN.)	60'	101.42'
FRONT SETBACK (MIN.)	20'	12.9'
SIDE SETBACK (MIN.)	10'	10.5'
REAR SETBACK (MIN.)	20'	36.7'
OPEN SPACE, LANDS (MIN.)	418±SF	1,487±SF
OPEN SPACE, USEABLE (MIN.)	1,255±SF	2,765±SF
LOT COVERAGE (MAX.)	35%	24.98%
HEIGHT, FEET (MAX.)	35'	34.4'
HEIGHT, STORIES (MAX.)	2.5	2

- NOTES
- * = EXISTING NON-CONFORMING
 - AS-BUILT GFA: 4,182±SF

I CERTIFY THAT THIS PLAN WAS MADE FROM AN INSTRUMENT SURVEY ON THE GROUND ON THE DATE OF JULY 26, 2024 AND ALL STRUCTURES ARE LOCATED AS SHOWN HEREON.

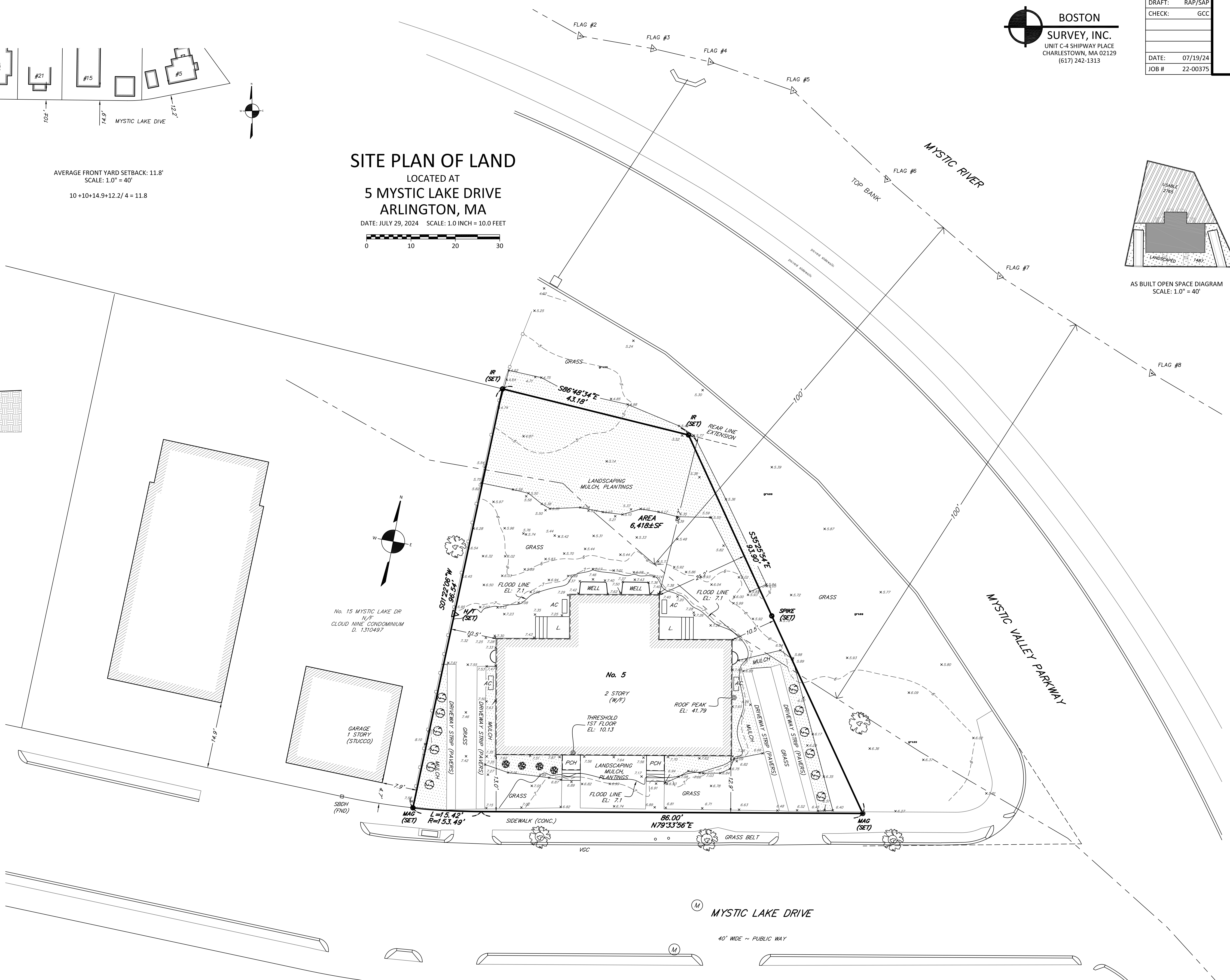
I HEREBY CERTIFY THAT THE PROPERTY LINES SHOWN ARE LINES DIVIDING EXISTING OWNERSHIP AND THE LINES OF STREETS AND WAYS ALREADY ESTABLISHED AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

VERTICAL DATUM
THE ELEVATIONS SHOWN ON THIS PLAN ARE RELATIVE TO NAVD88 AND WERE DETERMINED FROM A GPS OBSERVATION.

BENCHMARK
1) MAG SET IN UTILITY POLE
ELEVATION = 8.20'

UNDERGROUND UTILITIES ARE BASED UPON AN ACTUAL FIELD SURVEY AND INFORMATION OF RECORD. IT IS NOT WARRANTED THAT THEY ARE EXACTLY LOCATED, NOR THAT ALL UNDERGROUND CONDUITS OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY DIG SAFE PRIOR TO ANY EXCAVATIONS.

FEMA
ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) MAPS, THE MAJOR IMPROVEMENTS ON THIS PROPERTY FALL IN AN AREA DESIGNATED AS ZONE: AE
COMMUNITY PANEL: 25017C0417E
EFFECTIVE DATE: 06/04/2010





Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352
 MassDEP File #
 eDEP Transaction #
 Arlington
 City/Town

A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

Middlesex 269006 (Pnon)
 a. County b. Certificate Number (if registered land)

c. Book d. Page

7. Dates: a. Date Notice of Intent Filed b. Date Public Hearing Closed c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

a. Plan Title
 Salem Village Consulting LLC

b. Prepared By c. Signed and Stamped by
 John Barrows

d. Final Revision Date e. Scale
 02/27/2023

f. Additional Plan or Document Title g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

- a. Public Water Supply
- b. Land Containing Shellfish
- c. Prevention of Pollution
- d. Private Water Supply
- e. Fisheries
- f. Protection of Wildlife Habitat
- g. Groundwater Supply
- h. Storm Damage Prevention
- i. Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

- a. the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352
 MassDEP File # _____
 eDEP Transaction # _____
 Arlington
 City/Town

B. Findings (cont.)

Denied because:

- b. the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c. the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**
- 3. Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) _____ a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	_____ a. linear feet	_____ b. linear feet	_____ c. linear feet	_____ d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
6. <input type="checkbox"/> Land Under Waterbodies and Waterways	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
7. <input checked="" type="checkbox"/> Bordering Land Subject to Flooding	_____ e. c/y dredged	_____ f. c/y dredged		
	5,054	0		
Cubic Feet Flood Storage	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
	0	0		
8. <input type="checkbox"/> Isolated Land Subject to Flooding	_____ e. cubic feet	_____ f. cubic feet	_____ g. cubic feet	_____ h. cubic feet
Cubic Feet Flood Storage	_____ a. square feet	_____ b. square feet		
9. <input checked="" type="checkbox"/> Riverfront Area	_____ c. cubic feet	_____ d. cubic feet	_____ e. cubic feet	_____ f. cubic feet
	5,050	5,050		
Sq ft within 100 ft	_____ a. total sq. feet	_____ b. total sq. feet		
	550	550	1,000	1,000
Sq ft between 100-200 ft	_____ c. square feet	_____ d. square feet	_____ e. square feet	_____ f. square feet
	4,500	4,500		
	_____ g. square feet	_____ h. square feet	_____ i. square feet	_____ j. square feet



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352
 MassDEP File # _____
 eDEP Transaction # _____
 Arlington
 City/Town

B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input type="checkbox"/> Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input type="checkbox"/> Coastal Beaches	a. square feet	b. square feet	c. $\frac{\text{cu yd}}{\text{nourishment}}$	d. $\frac{\text{cu yd}}{\text{nourishment}}$
14. <input type="checkbox"/> Coastal Dunes	a. square feet	b. square feet	c. $\frac{\text{cu yd}}{\text{nourishment}}$	d. $\frac{\text{cu yd}}{\text{nourishment}}$
15. <input type="checkbox"/> Coastal Banks	a. linear feet	b. linear feet		
16. <input type="checkbox"/> Rocky Intertidal Shores	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	a. c/y dredged	b. c/y dredged		
21. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		
22. <input type="checkbox"/> Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352

 MassDEP File #

 eDEP Transaction #
 Arlington

 City/Town

B. Findings (cont.)

* #23. 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.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

23. Restoration/Enhancement *:

a. square feet of BVW _____

b. square feet of salt marsh _____

24. Stream Crossing(s):

a. number of new stream crossings _____

b. number of replacement stream crossings _____

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - a. The work is a maintenance dredging project as provided for in the Act; or
 - b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
 - c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on 05/22/2026 unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352
 MassDEP File #

eDEP Transaction #
 Arlington
 City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.
10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,

"Massachusetts Department of Environmental Protection" [or, "MassDEP"]
 "File Number 091-0352 "
11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
091-0352
MassDEP File #

eDEP Transaction #
Arlington
City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.
19. The work associated with this Order (the "Project")
- (1) is subject to the Massachusetts Stormwater Standards
- (2) is NOT subject to the Massachusetts Stormwater Standards

If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

- a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
- b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
- i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
 - ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
 - iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352
 MassDEP File #

eDEP Transaction #
 Arlington
 City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352
 MassDEP File #

 eDEP Transaction #
 Arlington
 City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

- g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

SEE ATTACHED CONDITIONS

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352
 MassDEP File #
 eDEP Transaction #
 Arlington
 City/Town

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? Yes No
2. The Arlington Conservation Commission hereby finds (check one that applies):

- a. that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

- b. that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

Arlington Bylaw for Wetlands Protection Title V,
 1. Municipal Ordinance or Bylaw _____ Article 8

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

SEE ATTACHED CONDITIONS



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091.0352
 MassDEP File #
 eDEP Transaction #
 Arlington
 City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

05-25-23

1. Date of Issuance

Please indicate the number of members who will sign this form.

4

This Order must be signed by a majority of the Conservation Commission.

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature *[Handwritten Signature]*

Printed Name Susan Chapnick

Signature *[Handwritten Signature]*

Printed Name David E White

Signature *[Handwritten Signature]*

Printed Name Paolo Hill

Signature *[Handwritten Signature]*

Printed Name Charles Thorne

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

Signature

Printed Name

by hand delivery on

by certified mail, return receipt requested, on

Date

Date 05-25-23



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
091-0352
MassDEP File #
eDEP Transaction #
Arlington
City/Town

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
 091-0352

 MassDEP File #

 eDEP Transaction #
 Arlington

 City/Town

G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Project Location

MassDEP File Number

Has been recorded at the Registry of Deeds of:

County

Book

Page

for: Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 5 Mystic Lake Drive (Parcel ID 48-1-1)
 MassDEP File # 091-0352
 UNDER THE WETLANDS PROTECTION ACT and ARLINGTON BYLAW FOR WETLANDS PROTECTION
 Redevelopment of a single-family house
 05/22/2023

DOCUMENTS REVIEWED

1. 5 Mystic Lake Drive NOI Submission prepared by Salem Village Consulting for the applicant, Willam Mahoney, dated February 27, 2023. Contents include:
 - a. WPA Form 3-Notice of Intent
 - b. NOI Wetland Fee Transmittal Form
 - c. Fee Calculation
 - d. Copy of Checks
 - e. Narrative
 - f. Site Photographs
 - g. USGS Site Locus
 - h. FEMA Flood Map
 - i. Letter of Map Amendment
 - j. Soils Information
 - k. Natural Heritage & Endangered Species Map
 - l. Botanist's Report
 - m. Certified Abutters list
 - n. Notification to Abutters
 - o. Project Plans
 - i. Existing Conditions (Boston Survey, Inc., one page, not stamped, 12/27/2022)
 - ii. Proposed site plan and construction details (Salem Village Consulting, two pages, stamped by John Barrows, 02/27/2023)

2. Revised 5 Mystic Lake Drive NOI Submission prepared by Salem Village Consulting for the applicant, Willam Mahoney, dated March 28, 2023. Revisions to the above materials include the size reduction of the proposed decks to be located outside of the buffer zone and flood hazard areas, additional narrative on riverfront redevelopment and climate change resiliency, tree protection details.
 - a. Planting Plan (Oxbow Associates, one page, not stamped, n.d.)

PROCEEDINGS

The complete Notice of Intent was filed on March 2, 2023. The Conservation Commission opened the public hearing for the Notice of Intent on March 16, 2023. The hearing was continued with the Applicant's consent to April 14, 2023, and again to May 4, 2023. The Commission voted 6-0 to close the public hearing on May 4, 2023, deliberated on conditions, and voted 6-0 to approve the Project with conditions under the Wetlands Protection Act (the "Act") and voted 6-0 to approve the Project with conditions under the Arlington Wetlands Protection Bylaw (the "Bylaw").

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 5 Mystic Lake Drive (Parcel ID 48-1-1)
 MassDEP File # 091-0352
UNDER THE WETLANDS PROTECTION ACT and ARLINGTON BYLAW FOR WETLANDS PROTECTION
 Redevelopment of a single-family house
 05/22/2023

FINDINGS OF FACT AND LAW
UNDER ARLINGTON WETLANDS PROTECTION BYLAW
AND WETLANDS PROTECTION ACT

- A. The project as approved involves redevelopment of the single-family home at 5 Mystic Lake Drive, including demolition of the old structure, construction of a new building, removal of old driveways, replacement of the driveways with permeable pavers, installation of a subsurface stormwater recharge system, planting 1,000 s.f mitigation area within the inner 100-foot riparian area and landscape revegetation.
- B. 5 Mystic Lake Drive is a 0.15± acre parcel in the R2 zoning district currently occupied by a single-family home. The project site is bordered by Mystic Valley Parkway to the north and east, and surrounded by residential development on all other sides. The Mystic River and Lower Mystic lake are opposite Mystic Valley Parkway.
- C. The project includes approximately 5,050 square feet of Riverfront Area. As approved, the project will alter 5,050 square feet of Riverfront Area, 550 square feet of which is within the first inner 100 feet, and 4,500 square feet of which is between 100 and 200 feet. Mitigation Restoration for the Redevelopment in the Riverfront Area includes planting of 18 shrubs and 3 trees within the inner 100-foot Riverfront Area.
- D. The following Resource Areas are present on the site or within 100 feet of the project area: Adjacent Upland Resource Area, Bordering Land Subject to Flooding Buffer Zone, Land Under Waterbodies and Waterways, Riverfront Area, and Bank. The subject site includes a Regulatory Floodway, but no work will be conducted in the Floodway.

CONCLUSION

Based on the testimony at the public hearings, and review of the application materials and the documents listed above submitted during the public hearings, the Commission concludes that the proposed Project as conditioned will not have significant or cumulative effects upon the interests of the Resource Area values of the Massachusetts Wetlands Protection Act (the Act) and the Arlington Bylaw for Wetlands Protection (Bylaw) when the conditions imposed herein are implemented to protect the Resource Area values. With these conditions contained, the Project meets the performance standards in the Act and Bylaw and implementing regulations.

For the foregoing reasons, the Commission approves this project under the Act and Bylaw with the conditions stated herein the applications for work at 5 Mystic Lake Drive.

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 5 Mystic Lake Drive (Parcel ID 48-1-1)
MassDEP File # 091-0352
UNDER THE WETLANDS PROTECTION ACT and ARLINGTON BYLAW FOR WETLANDS PROTECTION
Redevelopment of a single-family house
05/22/2023

ADDITIONAL SPECIAL CONDITIONS

In addition to the General Conditions (numbered 1 – 20 above), the Project is subject to the following Additional Special Conditions (under both the Act and Bylaw) only for those portions of the project within the Conservation Commission's jurisdiction:

Pre-construction

21. Before work begins, the Applicant shall submit to the Conservation Commission a site plan showing proposed elevations of the final site plan.
22. Before work begins, the Applicant shall submit to FEMA a copy of the No Rise Certificate and send proof of the submittal to the Conservation Agent.
23. Before installation, the Applicant shall confirm with the Town Engineer that the stormwater recharge system will function as designed. The Applicant shall return to the Conservation Commission for a new approval if the design is not confirmed by the Town Engineer or in the event that the system does not function as designed.
24. Work permitted by this Order and Permit shall conform to the Notice of Intent, the approved plans and documents (listed above), and oral representations (as recorded in hearing minutes) submitted or made by the Applicant and the Applicant's agents or representatives, as well as any plans and other data, information or representations submitted per these Conditions and approved by the Commission.
25. The provisions of this Order and Permit shall apply to and be binding upon the Applicant and Applicant's assignees, tenants, property management company, employees, contractors, and agents.
26. If there are conflicting conditions within this Order, the stricter condition(s) shall govern.
27. No work shall begin under this Order until: (a) all other required permits or approvals have been obtained and (b) the appeal period of ten (10) business days from the date of issue of this Order has expired without any appeal being filed, and (c) this Order has been recorded in the Registry of Deeds.
28. Prior to any work on the site, or within six (6) weeks of the date of this Order, whichever comes first, this Order of Conditions and relevant attachments shall be recorded at the Middlesex Registry of Deeds or Land Court, and notice filed with the Commission. Failure to do so shall be deemed cause to revoke this Order.

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 5 Mystic Lake Drive (Parcel ID 48-1-1)
 MassDEP File # 091-0352
 UNDER THE WETLANDS PROTECTION ACT and ARLINGTON BYLAW FOR WETLANDS PROTECTION
 Redevelopment of a single-family house
 05/22/2023

29. The Applicant shall ensure that a copy of this Order of Conditions and Permit for work, with any referenced plans, is available on site at all times, and that all contractors, site managers, foremen, and sub-contractors understand its provisions.
30. Prior to starting work, the Applicant shall submit to the Commission the names and 24-hour phone numbers of project managers or the persons responsible for site work or mitigation.
31. Before work begins, erosion and sediment controls shall be installed at the limits of the work area. These will include a silt fence and minimum 12-inch mulch sock around the erosion control area designated on the final plan. Hay bales are not allowed.
32. Prior to any work commencing, a sign no less than 2 square feet or more than 3 square feet, visible from the street, shall be displayed reading “MA DEP File # 091-0352” and not placed on a living tree.
33. The contractor shall contact the Conservation Agent (concomm@town.arlington.ma.us; 781-316-3012) to arrange for a pre-construction meeting with the onsite project manager to walk through the Order of Conditions and walk the site to confirm the installation and placement of erosion controls prior to the start of any grading or construction work.
34. The contractor shall provide written Notice of the work start date to the Conservation Agent 48 hours prior to start of work.
35. The Commission, its employees, and its agents shall have the right of entry onto the site to inspect for compliance with the terms of this Order of Conditions and Permit until a Certificate of Compliance has been issued.

Post-construction

36. When requesting a Certificate of Compliance for this Order of Conditions, the Applicant must submit a written statement by a registered professional civil engineer certifying substantial compliance with this order of conditions and plans and setting forth what deviation, if any, exists from the plans approved in the permit shall accompany the Request for Certificate of Compliance.

During Construction

Dumpsters

37. No dumpsters shall be allowed within the 100-foot Buffer Zone or Adjacent Upland Resource Areas (“AURA”) or other Resource Areas.

Stockpiling

38. Any stockpile of soil, sand, or similar materials that is permitted within said areas shall be enclosed within a line of entrenched and staked erosion control mulch sock or silt fence in

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 5 Mystic Lake Drive (Parcel ID 48-1-1)
MassDEP File # 091-0352
UNDER THE WETLANDS PROTECTION ACT and ARLINGTON BYLAW FOR WETLANDS PROTECTION
Redevelopment of a single-family house
05/22/2023

addition to the perimeter erosion controls for the site. In the event that all earthwork ceases for more than 15 days or if inclement weather is imminent, all exposed stockpiled soils shall be stabilized with a temporary vegetative cover, tarp, or other erosion control acceptable to the Conservation Commission.

Erosion Control

39. Areas that are disturbed by construction and access activities shall as soon as possible be brought to final grade and reseeded and restabilized and shall be done so prior to the removal of the erosion control barrier. Erosion control measures shall be installed per the approved plans or as directed by the Conservation Agent.
40. The Commission and its Agent shall have the discretion to require additional erosion/siltation control methods during construction if necessary.
41. Upon completion of the project, the applicant shall remove and legally dispose of off-site all temporary erosion controls and other materials determined by the Agent to be detrimental to the resource areas if left in place permanently.

Equipment

42. No heavy equipment may be stored overnight within 150 feet of Mystic Lake and no refueling or maintenance of machinery shall be allowed within the 100-foot Buffer Zone, Adjacent Upland Resource Area, or within 150 feet of Mystic Lake

Sweeping and Dust Management

43. Any dirt or debris spilled or tracked onto any paved streets shall be swept up and removed daily.
44. The areas of construction shall remain in a stable condition at the close of each construction day.

Dewatering

45. Any dewatering operations shall conform to the following:
 - (a) Notify the Conservation Commission that dewatering is required.
 - (b) Any catch basins, drains, and outfalls to be used in dewatering operations shall be cleaned out before operations begin.
 - (c) Any water discharged as part of any dewatering operation shall be passed through filters, on-site settling basins, settling tank trucks, or other devices to ensure that no observable sediments or pollutants are carried into any Resource Area, street, drain, or adjacent property.
 - (d) Measures shall be taken to ensure that no erosion or scouring shall occur on public or private property, or on the banks or bottoms of water bodies, because of dewatering operations.

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 5 Mystic Lake Drive (Parcel ID 48-1-1)
MassDEP File # 091-0352
UNDER THE WETLANDS PROTECTION ACT and ARLINGTON BYLAW FOR WETLANDS PROTECTION
Redevelopment of a single-family house
05/22/2023

Plantings

46. All plantings shall be as specified in the planting plan and installed and maintained according to the standards of the American Association of Nurserymen (AAN). **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition.**
47. The Applicant shall protect new trees through installing tree stakes between 6-8 feet in length. The stakes shall be installed vertically such that one end is installed directly into the ground and firmly anchored. The tree stakes shall be removed after one full year of growth. Alternative protection measures must be approved by the Commission or its Agent.
48. All plantings within the jurisdictional area must be native and shall be monitored for ~~three~~ two full growing seasons. A survival rate of 100% of trees and 80% of other vegetation in the planting plan must be maintained and demonstrated.
49. A qualified professional shall submit a monitoring report annually in November to the Conservation Commission Agent for the two-year monitoring period and shall include the number and types of restoration plantings evaluated, condition of the plantings, and status of invasive plant removal. The monitoring report must include measures to remove invasive species if they are discovered.
50. The Applicant shall protect all area trees per the Town Wetlands Protection Regulations, Vegetation Removal and Replacement. The Commission may at its discretion supersede the requirements of the Vegetation Removal and Replacement section.
51. Any trees and other planting areas provided as mitigation shall be maintained in perpetuity. **This shall be a continuing condition that survives the expiration of this permit/Order and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**

Chemicals

52. To avoid adding excess nutrient runoff, the Applicant shall only treat existing lawn area with no phosphorous, low nitrogen, slow-release fertilizer and it shall be applied at the lowest rate necessary. Any application of phosphorus-containing fertilizers for new lawn must be first reviewed and approved by the Conservation Agent. Except for the establishment of vegetation in the first growing season, the Application of lawn fertilizer cannot occur in the summer, or before or after storm events. Lawn fertilizer shall at most be applied twice a year. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition.**

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 5 Mystic Lake Drive (Parcel ID 48-1-1)
MassDEP File # 091-0352
UNDER THE WETLANDS PROTECTION ACT and ARLINGTON BYLAW FOR WETLANDS PROTECTION
Redevelopment of a single-family house
05/22/2023

53. No pesticides or rodenticides shall be used to treat pest management issues. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition.**

Pervious Surfaces

54. Pervious surfaces shown on the project plans shall be maintained and not be replaced by impervious surfaces. **This shall be a continuing condition that survives the expiration of this permit /Order and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
55. All stormwater infrastructure, green infrastructure, and infiltration devices must be maintained per manufacturer specifications and an approved Operations and Maintenance plan, or Long-Term Pollution Protection Plan. The plan shall include inspection by the applicant no less than once every six months, and cleaning and maintenance as needed based on inspection. The approved Operations and Maintenance Plan shall be included in the Order of Conditions recorded at the Registry of Deeds. Records of said inspection and cleaning shall be maintained on site and made available to the Commission upon request.

Snow and Deicing

56. Dumping of snow into resource areas is prohibited and shall comply with the current Mass. DEP Bureau of Water Resources Snow Removal Guidance.
57. Deicing chemicals containing sodium, potassium, and calcium chloride are prohibited from use in the wetland resource area, the associated 100-foot buffer and the 200 foot riverfront area. An alternative deicing product such as magnesium chloride (MgCl) may be used as recommended in the Winter Parking Lot and Sidewalk Maintenance Manual published by the Minnesota Pollution Control Agency, <https://www.pca.state.mn.us/sites/default/files/p-tr1-10.pdf>. **This shall be a continuing condition that survives the expiration of this permit /Order and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**

Project Completion

58. Upon completion of the project or 60 days prior to the expiration of this Order of Conditions, the Applicant or a representative thereof shall file for a Certificate of Compliance as required in Condition #36.
59. In conjunction with the sale of any portion of the site covered by this Order of Conditions, the Applicant shall submit to the Commission a signed statement by the buyer that the new owner is aware of outstanding Orders of Conditions.

Doc 01940927

①

Southern Middlesex Land Court
Registry District

RECEIVED FOR REGISTRATION

DN: Jul 20, 2023 at 11:02A

Document Fee 105.00

Receipt Total: \$125.00

NOTED DN: CERT 280272 BK 01593 PG 125

ALSO NOTED DN:



Town of Arlington, Massachusetts

Water Bodies Working Group.

Summary:

Water Bodies Working Group.

- Spy Pond Coring.

ATTACHMENTS:

	Type	File Name	Description
▢	Reference Material	Spy_Pond_Coring_Project_Description.pdf	Spy Pond Coring Project Description.pdf

Re: Coring Study Spy Pond

Wyatt Oswald <wyatt_oswald@emerson.edu>

Tue 8/6/2024 6:10 PM

To: George Parsons <ghparsons@msn.com>

Cc: David Morgan <dmorgan@town.arlington.ma.us>; bradb@shore.net <bradb@shore.net>; Chuck Tirone <ctirone@ci.reading.ma.us>; Susan Chapnick <s.chapnick@comcast.net>

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi all,

Thanks George for starting this thread, and thanks all for the interesting conversation.

Brief introduction: I am a faculty member at Emerson College and a Research Associate at the Harvard Forest, Harvard's center for research and education in forest ecology and conservation, located in the town of Petersham in north-central Massachusetts. For the last ~20 years I've been working on lake-sediment records in New England. I live in Winchester, not too far from Spy Pond.

As this thread demonstrates, collecting a set of cores from Spy Pond could be useful in many ways: context for the mammoth tusk, questions about patterns of sedimentation, and interest in past environments. [My research](#) focuses in particular on past ecosystems, which I reconstruct by analyzing pollen grains preserved in sediments. I discussed the possibility of coring Spy Pond with my Dartmouth collaborator [Meredith Kelly](#); she was intrigued and thought it could be a good project to involve undergraduate or graduate students.

We collect sediments using a Livingstone sampler, which collects cores in 1-m lengths. We use a catamaran-style coring raft, with a wooden platform attached to either two canoes or inflatable pontoons. For a lake the size of Spy Pond, we drop 3-4 anchors, which is normally sufficient to keep the raft in place, even if conditions are windy. Ideally we'd collect the whole postglacial sequence in the center of the lake and in any other locations of interest; at each location we try to collect two parallel cores.

Brad mentioned that Curt Stager had been in touch earlier about coring Spy Pond. I don't know Curt personally but I have great respect for his work. I'd be happy to reach out to him if that seems appropriate.

Happy to continue this conversation, so please let me know if you have thoughts or questions. Many thanks, Wyatt

On Aug 6, 2024, at 7:03 AM, George Parsons <ghparsons@msn.com> wrote:

Wyatt

More information on Spy Pond

George

From: Brad Barber <bradb@shore.net>

Sent: Saturday, August 3, 2024 5:16 PM

To: David Morgan <dmorgan@town.arlington.ma.us>; George Parsons <ghparsons@msn.com>

Cc: Chuck Tirone <ctirone@ci.reading.ma.us>; Susan Chapnick <s.chapnick@comcast.net>

Subject: Re: Coring Study Spy Pond

Hi David and George,

The north edge along Pleasant Street reflects your hunch. I made three transects across Spy Pond west of Elizabeth Island, testing the water depth and sediment depth with a 20' rebar. The sediment flowed like water, leaving the water depth a fairly constant 6' or so deep. The rock footing of the north edge along Pleasant Street continues deep into Spy Pond, making the sediment much thicker there. The sediment is thin on the south shore along Sheraton Park and Spy Pond Pkwy were glacial deposits of sand extend far into the pond.

Sedimentation rate -- Often coring is done at the deepest part of the water body. There's little vegetation so the dominant inputs would be suspended silt and algae. Sediment from shallow areas can flow down the sides of the basins. John Durant of Tufts has studied both the north and south basins. He estimates 1 cm/year accumulation. Gerry Smith of Aquatic Control Technology reported a sedimentation rate of 2-3" per year for Lake Cidra, Puerto Rico (NALMS LakeLine, Mar. 1998, p. 44).

Spy Pond has been productive for years. The sediment on the sill may be accumulating faster than the sediment in the basins. The surrounding market farms were heavily manured in the late 1800s and early 1900s. During the 1800s, before sewers, there was septic systems along Pleasant Street, a popular hotel across from the condominiums, and ice harvesting with horses. In 1887 there was a complaint of "offensive conditions" and accumulated plant material to the Arlington Health Department.

--Brad

At 08:35 AM 07/26/2024, David Morgan wrote:

Brad is our resident pond expert, but I'd expect there's a fair amount of transport of sediment around the basin, plus varying depths of the glaciated substrate. Combined, those would probably result in thicker accumulations of peat in certain areas. This is only an educated guess—I'm not a fluvial geomorphologist, either. Brad, do your observations of the thickness track with what you know of the depth to bedrock/flows around the pond?

Cheers,

David

David Morgan | Environmental Planner + Conservation Agent | Department of Planning and Community Development | 781.316.3012

Arlington values equity, diversity, and inclusion. We are committed to building a community where everyone is heard, respected, and protected.

From: George Parsons <gparsons@msn.com>

51 of 126

Sent: Thursday, July 25, 2024 6:24 PM
To: David Morgan <dmorgan@town.arlington.ma.us>
Cc: Chuck Tirone <ctirone@ci.reading.ma.us>; Susan Chapnick <s.chapnick@comcast.net>; Brad Barber <bradb@shore.net>
Subject: Re: Coring Study Spy Pond

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.
David and Brad

Thanks for your prompt responses and interest in this project.

I have forwarded your emails to Wyatt Oswald to get some answers to your questions. He is doing some field work this week in northern Vermont so it may take a while.

Brad, I had the same question about how quickly peat accumulates in a pond in MA and a quick Google search suggests that it accumulates at the rate of 1 mm per year or 1 cm per decade. If we assume that the glaciers swept area pretty clean and retreated about 12,000 years ago, that rate of accumulation would generate a layer of peat almost 40 feet deep.

I am intrigued by the differing depths of peat in different areas of the pond. What would be the mechanism that would drive such a phenomenon. I am PhD chemist with a 40+ year career in medical immunodiagnostics (think pregnancy tests and PSA tests) so this is not my area of expertise.

Thanks

George

From: David Morgan <dmorgan@town.arlington.ma.us>
Sent: Thursday, July 25, 2024 3:45 PM
To: George Parsons <ghparsons@msn.com>
Cc: Chuck Tirone <ctirone@ci.reading.ma.us>; Susan Chapnick <s.chapnick@comcast.net>; Brad Barber <bradb@shore.net>
Subject: Re: Coring Study Spy Pond

Hi George,
Fascinating stuff, thanks for getting in touch to discuss. I'd like to know more about the cores and how they'll be obtained before I can advise on a permit. How large are the samples, and how many will be taken? Does the procedure involve any staging on the bed of the pond (e.g., anchors being set) or at the pond's edge? How deep does the core go, the full 40 feet? Chuck and Susan, if you have additional questions, please chime in.

You may want to talk with Spy Pond Committee about the work, so I'm copying Brad Barber here to make the connection.

Cheers,

David

David Morgan | Environmental Planner + Conservation Agent | Department of Planning and Community Development | 781.316.3012

Arlington values equity, diversity, and inclusion. We are committed to building a community where everyone is heard, respected, and protected.

From: George Parsons <ghparsons@msn.com>
Sent: Wednesday, July 24, 2024 12:32 PM
To: ConComm <ConComm@town.arlington.ma.us>
Subject: Coring Study Spy Pond

CAUTION: This email originated from outside your organization. Exercise caution when opening

attachments or clicking links, especially from unknown senders.
Dear Sirs

I am the past President of the Arlington Historical Society and we have been doing some exciting work on the tusk that was found in Spy Pond in 1959. It was thought to be 43,000 years old and was assumed to be a mastodon by the Museum of Science. Modern analysis of samples taken from the tusk has revealed that the tusk is 47,000 years old and is more likely to be mammoth rather than mastodon. We will know more this fall when the results of DNA testing on samples of the tusk become available.

One of the mysteries surrounding this tusk is how did a 40K+ tusk end up on the bottom of Spy Pond. It was found by someone fishing from shore so no excavation was involved. An older reference (see attached) suggests that 40 feet of peat separates the current bottom of Spy Pond from the original bottom left by the glaciers about 12,000 years ago. Note that ivory has a density significantly greater than water, so it is unlikely that the tusk somehow floated to the current bottom of the pond.

I have been in contact with a local scientist who is active in the field of paleoclimatology. His name is Wyatt and we have been talking about doing a coring at Spy Pond to see if there is anything unusual about the peat layers beneath the current pond bottom. I have attached a recent publication.

The corings would be done over a few days from a raft of two canoes by a team of scientists. The corings would be examined for C14 dating to establish the ages of the different layers and to pollen analysis to determine what plant species were present. The results would be published in the scientific literature and could be part of an exhibit at the Arlington Historical Society's museum. Funding is being sought and will be the subject of a CPA grant application later this year. Other funds may be sought as well.

Do we need a permit to do this work? Is there anyone else we should be talking with about this proposed study?

Thanks in advance for your time and consideration.

George Parsons
617 823 7259



Town of Arlington, Massachusetts

DEP #091-0356: Notice of Intent: Thorndike Place (Continued from 08/01/2024).

Summary:

DEP #091-0356: Notice of Intent: Thorndike Place (Continued from 08/01/2024).

The Conservation Commission will hold a public hearing under the Wetlands Protection Act to consider a Notice of Intent for the construction of Thorndike Place, a multifamily development on Dorothy Road in Arlington. Areas to be altered include Buffer Zone to Bordering Vegetated Wetland and Bordering Land Subject to Flooding associated with Alewife Brook. The Commission is expected to continue this hearing to the meeting on September 5, 2024.

ATTACHMENTS:

	Type	File Name	Description
▢	Reference Material	Thorndike_Place_-_GZA_Peer_Review.pdf	Thorndike Place - GZA Peer Review.pdf



Known for excellence.
Built on trust.

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION
MANAGEMENT

188 Valley Street
Suite 300
Providence, RI 02909
T: 401.421.4140
F: 401.751.8613
www.gza.com

August 1, 2024
File No. 03.0035410.00

David Morgan
Environmental Planner and Conservation Agent
Arlington Town Hall
730 Massachusetts Avenue
Arlington, Massachusetts 02467

Re: Peer Review of Stormwater Mound Evaluation and Design Groundwater Elevation
Proposed Thorndike Place Residential Development
Arlington, Massachusetts

Dear Mr. Morgan:

In accordance with your request, GZA GeoEnvironmental, Inc. (GZA) performed a peer review of groundwater monitoring and stormwater mounding analysis performed by the BSC Group (BSC) associated with the proposed Thorndike Place residential development in Arlington, Massachusetts (the "Site"). BSC performed their work on behalf of the Applicant (Arlington Land Realty, LLC). This letter report is subject to the Limitations provided in Appendix A.

BACKGROUND

Thorndike Place (the "Project") is a proposed multifamily development in Arlington located south of Dorothy Road. The Arlington Conservation Commission is reviewing a Wetlands Notice of Intent application (NOI) for the Project and is seeking a peer review of associated materials for compliance with Massachusetts Stormwater Standards No. 2 and No. 3, specifically regarding the stormwater groundwater mound analysis.

The proposed development includes 78,629 square feet (1.8 acres) of impervious paved and rooftop area within the 17.7-acre parcel of land. Most of the stormwater runoff will be directed to a large central stormwater infiltration system. That stormwater infiltration system is planned to be 196 feet long, 41.5 feet wide, with the bottom of the infiltration system located 2 feet above the seasonal high groundwater table.

The reported seasonal high "design" groundwater table is elevation 4.0 feet and the bottom of the stormwater infiltration system at elevation 6.0 feet. When the water level in the stormwater infiltration basin rises 1.5 feet (to elevation 7.5 feet) during large storm events it will begin to overflow through a stormwater outlet structure.

In addition, there are five smaller (driveway) stormwater infiltration areas (each with dimensions about 21 feet long and 14 feet wide) located just south of Dorothy Road.

The most recent BSC Site Plans and updated Stormwater Report are dated September 6, 2023. On behalf of the Conservation Commission, Hatch Associates Consultants Inc. (Hatch) peer reviewed those plans and report and provided comments. BSC responded with additional information in letters dated January 24, 2024, February 13, 2024, February 28, 2024, March 13, 2024, April 24, 2024, and June 10, 2024. BSC's June 10, 2024 letter provided additional information on soil testing and estimated seasonal high groundwater levels and an updated groundwater mound analysis.



On behalf of others, Scott Horsley from Water Resource Consultant (Horsley) provided a letter dated May 16, 2024 to the Conservation Commission expressing concerns regarding the seasonal high groundwater elevation and the stormwater groundwater mound analysis. Similarly, Michael Mobile from McDonald Morrissy Associates, LLC (MMA) provided letters dated April 26, 2024, and May 16, 2024, and a draft presentation dated May 2, 2024 expressing the same concerns.

A Hatch letter report dated May 28, 2024 agreed with the BSC design groundwater elevation of 4.0 feet, but expressed additional concern regarding the groundwater mound analysis and the required drawdown time for the smaller (driveway) infiltration systems.

SUBSURFACE CONDITIONS

A total of 13 test pits (TP-1 to TP-13) were performed on behalf of BSC to depths ranging from 6 to 11 feet below grade at the Site. The soil was generally comprised of a sandy loam fill to a depth of about 8 feet underlain by fine sandy loam. For design purposes Hydrologic Soil Group C (silt loam) was used.

DESIGN SEASONAL HIGH-WATER TABLE

The Massachusetts Stormwater Handbook states:

Seasonal high groundwater represents the highest groundwater elevation. Depth to seasonal high groundwater may be identified based on redox features in the soil. When redox features are not available, installation of temporary push point wells or piezometers should be considered. Ideally, such wells should be monitored in the spring when the groundwater is highest and the results compared to nearby groundwater wells monitored by the USGS to estimate whether regional groundwater is below normal, normal or above normal.

Redox features were observed in test pit TP-3 at elevation 3.6 feet and TP-5 at elevation 4.0 feet. These two test pits are located along Dorothy Road in the area where the five smaller (driveway) stormwater infiltration areas are planned. There were no redox features observed in the fill strata in the area planned for the large central stormwater infiltration system. As a result, water levels were measured by BSC in observation wells installed in this area at test pit TP-7 on April 1, 17, and 24, 2024 and test pit TP-9 on April 17 and 24, 2024. The groundwater levels peaked in both wells on April 17, 2024 at elevation 3.5 feet at TP-7 and elevation 4.0 feet at TP-9. Our review of the USGS historical groundwater elevation data at four Middlesex County wells (Wayland MA-WKW-2R, Concord MA-CTW-167R, Acton MA-ACW-158, and Wilmington MA-XMW-78) revealed that the April 2024 groundwater levels were the highest seasonal water levels observed over the past 10 years. Therefore, we conclude that the seasonal high water table elevation of 4.0 feet used by BSC is for “above normal” groundwater conditions and is suitable to be used for stormwater design for this project. As noted above, GZA’s opinion on design groundwater elevation findings are consistent with the opinion expressed by Hatch and BSC.

Note that we did not use USGS well Lexington MA-LTW-104 (which was used by MMA and Horsley) in our analysis because that well is in a sand and gravel aquifer with a very shallow water table. Those conditions are not present at the Site. In addition, that USGS well is more effected by individual rainfall events than by seasonal variations of the groundwater table, which is not typical of other USGS wells in the area.

GROUNDWATER MOUND EVALUATION

The Massachusetts Stormwater Handbook states:



Mounding analysis is required when the vertical separation from the bottom of an exfiltration system to seasonal high groundwater is less than four (4) feet and the recharge system is proposed to attenuate the peak discharge from a 10-year or higher 24-hour storm (e.g., 10-year, 25 year, or 100-year 24- hour storm). In such cases, the mounding analysis must demonstrate that the Required Recharge Volume (e.g., infiltration basin storage) is fully dewatered with 72 hours (so the next storm can be stored for exfiltration).

The proposed bottom of the exfiltration system is 2 feet from the seasonal high groundwater table and the system is designed to attenuate the peak discharge from the 10, 25, and 100 year 24- hour storms, therefore a groundwater mounding analysis is required.

The groundwater mound that will develop beneath the stormwater infiltration system is dependent on the horizontal hydraulic conductivity of the aquifer (Kh), the thickness of the aquifer (H), the specific yield of the aquifer (S), the length and width of the infiltration area, the applied recharge rate to the infiltration area, and the duration of discharge.

BSC's latest groundwater mound evaluations are provided in their June 10, 2024 letter report. They used a Kh of 5.4 feet per day, which was based on a Rawls vertical hydraulic conductivity (Kv) of 0.54 feet per day (i.e., 0.27-inches per hour) for silt loam and assuming an anisotropic ratio of 10 to 1 (i.e., Kh to Kv). They also assumed that the initial saturated thickness of the aquifer was 5 feet. The transmissivity (T) of the aquifer is Kh times the saturated thickness, which would be 27 feet squared per day. It is GZA's opinion that the assumed transmissivity (T) of 27 feet squared per day used by BSC is a reasonable value to be used in the groundwater mound evaluation for the soil conditions at this Site. BSC assumed a specific yield (S) of 0.08, which again GZA believes is reasonable for the soil conditions encountered at the Site.

The large main stormwater infiltration system is planned to be about 196 feet long and 41.5 feet wide. Per BSC's Stormwater Report the Required Recharge Volume for the Hydrologic Soil Group C is 1,638 cubic feet. The bottom area of the large stormwater infiltration system is 8,134 square feet. Dividing the required recharge volume of 1,638 by the bottom area of 8,134 results in a static water height of 0.2014 feet (or 2.42-inches).

If the stormwater infiltration system was instantaneously filled with the required recharge volume of 1,638 cubic feet and then discharged out of the system at the Kv design rate of 0.27-inches per hour (0.54 feet per day), it would take 8.96 hours to drain (i.e., 0.374 days). GZA's initial groundwater mound analysis using the Hantush method and the values listed above (Large Infiltration System V-1) is provided in Appendix B and indicates that maximum groundwater mound would be 2.27 feet.

However, it is more likely that the required recharge volume would flow out of the infiltration basin over the duration of one day. GZA's second groundwater mound analysis (Large Infiltration System V-2) assumed the same conditions as the Large Infiltration System V-1 except the duration was one day and the applied recharge was 0.2014 feet per day. The resulting maximum groundwater mound would be 1.85 feet (see Appendix B).

It is GZA's opinion that the Required Recharge Volume of 1,638 cubic feet can be infiltrated into the ground, without causing excessive groundwater mounding. However, for stormwater volumes larger than 1,638 cubic feet the rate of groundwater infiltration will decrease significantly, and the groundwater mound will extend into the bottom of the infiltration system.

When the groundwater mound is below the bottom of the infiltration system the water flows out at a vertical hydraulic gradient of 1.0 feet per foot, which allows flow out at the Rawls Kv rate of 0.54 feet per day (0.27-inches per hour). With the bottom area of 8,134 square feet, the flow out of the infiltration system would be 3.05 cubic feet per minute. However, once the groundwater mound extends into the bottom of the infiltration bed (i.e., after about 1,638 cubic



feet of discharge), the hydraulic gradient forcing flow vertically out of the infiltration system will decrease by about an order of magnitude (10 to 1 ratio), resulting in flow out of the infiltration system of about 0.3 cubic feet per minute. At that point the flow rate will be similar to flow out of a large diameter well. An example calculation of the decrease in flow rate is provided in Appendix B, assuming a K_h of 5.4 feet per day, initial saturated thickness of 5 feet, a 2-foot separation from the bottom of the infiltration system to the seasonal high groundwater table and a radius of influence of 120 feet.

The BSC Stormwater report indicates that for storms with a 2-year frequency, or larger, the stormwater infiltration system will store up to 10,497 cubic feet of water within the basin (between the stormwater outfall invert elevation of 7.5 feet and the bottom of the infiltration basin at 6.0 feet). Due to the decrease in exfiltration flow rate associated with stormwater mounding (described above), the stormwater infiltration chamber will not empty within the required 72-hour period. Assuming the flow rate decreases to about 0.3 cubic feet per minute, only about 1,300 cubic feet of additional water would drain in the 72-hour period. Also, many of the smaller stormwater events would not exfiltrate within the 72-hour period.

The Massachusetts Stormwater Handbook has a footnote 21 in Volume 3, Chapter 1, page 25 with respect to the “Drawdown within 72 hours” requirement that states:

In some cases, the infiltration structure may be designed to treat the Required Water Quality Volume and/or to attenuate peak discharges in addition to infiltrating the Required Recharge Volume. In that event, the storage volume of the structure must be used in the formula for determining drawdown time in place of the Required Recharge Volume.

As noted above, the Required Recharge Volume is 1,638 cubic feet, but the main stormwater infiltration system has a storage volume of 10,497 cubic feet. It is GZA’s opinion that the large main stormwater infiltration system would need to be redesigned to allow drainage of the system within 72-hours to meet the requirements of the MassDEP Stormwater Handbook, and to account for the impacts of groundwater mounding during storm events which result in greater than 1638 cubic feet of stormwater runoff. The redesign should also address peak flow rates that discharge to the stormwater outfall control system.

The five smaller (driveway) stormwater infiltration areas are planned to be 21 feet long and 14 feet wide. Per BSC’s Stormwater Report the recharge volume during the 100-year storm event for these systems is up to 883 cubic feet. Dividing that recharge volume by the bottom area of 294 feet results in a water height of 3.0 feet (or 36-inches). Using the K_v design rate of 0.27-inches per hour, it would take 133.3 hours (i.e., 5.55 days) to drain the recharge basin. This exceeds the MassDEP Stormwater Handbook requirement of draining within 72 hours. These smaller infiltration systems would need to be redesigned and then a groundwater mound analysis should be performed to redesign these stormwater management systems.

CONCLUSIONS

GZA agrees with BSC and Hatch that the design seasonal high groundwater elevation for the stormwater infiltrations systems should be 4.0 feet.

Although GZA believes the Required Recharge Volume of 1,638 cubic feet can be infiltrated into the ground without causing excessive groundwater mounding, larger volumes of storm water runoff will not drain within the required 72-hour period. It is GZA’s opinion that for stormwater volumes larger than the Required Recharge Volume, the rate of groundwater infiltration will decrease significantly, and the groundwater mound will extend into the bottom of the large main infiltration system. In GZA’s opinion both the large main stormwater infiltration system and the smaller



driveway stormwater infiltrations systems would need to be redesigned to account for the impacts of groundwater mounding during large storm events and to meet the MassDEP Stormwater Manual's maximum allowable drainage standard of 72-hours.

We trust this information satisfies your current needs. If you have any questions or comments, please feel free to contact the undersigned at (401) 374-2317 or via email at anthony.urbano@gza.com.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Handwritten signature of Anthony B. Urbano in blue ink.

Anthony B. Urbano, P.E.
Senior Project Manager

Handwritten signature of Steven T. D'Ambrosio in blue ink.

Steven T. D'Ambrosio, P.E.
Consultant/Reviewer

Handwritten signature of Todd Greene in black ink.

Todd Greene, P.E. ^(RI)
Principal

Attachments: Attachment A – Limitations
Attachment B – Calculations

Jobs/env/35410.ABU/reports/35410-letter-report.docx



ATTACHMENT A

LIMITATIONS



USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

SUBSURFACE CONDITIONS

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
6. Water level readings have been made, as described in this Report, in and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, tidal fluctuations, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.

COMPLIANCE WITH CODES AND REGULATIONS

7. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.



SCREENING AND ANALYTICAL TESTING

8. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.
9. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.
10. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

INTERPRETATION OF DATA

11. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

ADDITIONAL INFORMATION

12. In the event that the Client or others authorized to use this report obtain additional information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.



ATTACHMENT B

CALCULATIONS

Large Infiltration System V-1

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

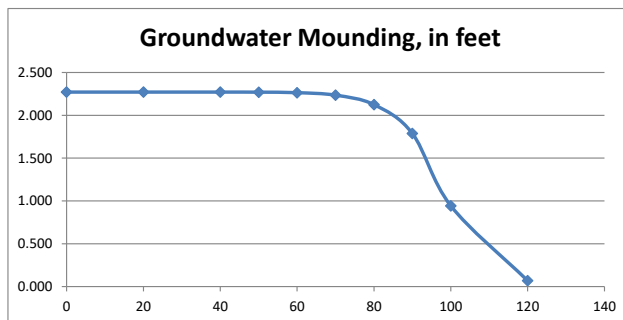
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. **The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed** otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

Input Values				Conversion Table		
				inch/hour	feet/day	
0.5400	R	Recharge (infiltration) rate (feet/day)		0.67	1.33	
0.080	Sy	Specific yield, Sy (dimensionless, between 0 and 1)				
5.40	K	Horizontal hydraulic conductivity, Kh (feet/day)*		2.00	4.00	In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).
98.000	x	1/2 length of basin (x direction, in feet)	hours	days		
20.750	y	1/2 width of basin (y direction, in feet)				
0.374	t	duration of infiltration period (days)		36	1.50	
5.000	hi(0)	initial thickness of saturated zone (feet)				
7.271	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)				
2.271	Δh(max)	maximum groundwater mounding (beneath center of basin at end of infiltration period)				
Ground- water Mounding, in feet	Distance from center of basin in x direction, in feet					



Re-Calculate Now

2.271	0
2.271	20
2.271	40
2.270	50
2.264	60
2.235	70
2.125	80
1.788	90
0.943	100
0.069	120



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Large Infiltration System V-2

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0)), height of the water table if the bottom of the aquifer is the datum. For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

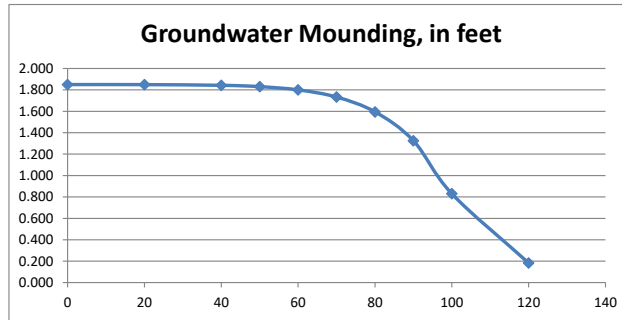
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. **The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed** otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

Input Values		Conversion Table	
0.2014	R	inch/hour	feet/day
0.080	Sy	0.67	1.33
5.40	K	2.00	4.00
98.000	x	hours	days
20.750	y	36	1.50
1.000	t		
5.000	hi(0)		
			In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).
6.850	h(max)		
1.850	Δh(max)		

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.850	0
1.849	20
1.843	40
1.830	50
1.800	60
1.733	70
1.595	80
1.325	90
0.830	100
0.183	120



Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Project Thorndike Place
Arlington, MA

Date: 7/24/2024
Sheet 1 of 1
By: ABU

File No. 35410.00

Estimate steady state flow to a well extracting ground water from a water table aquifer,

- $H_w := 7$ Static head from bottom of aquifer (Ft)
- $h_w := 5$ Depth of water in a fully penetrating extraction well (Ft)
- $k := 5.4$ Hydraulic Conductivity (Ft/Day)
- $R_w := 120$ Radius, or cone of influence (Ft/Day)
- $R_w := 51$ Radius of extraction well (Ft)
- Q_w Ground water extraction rate (Cubic Ft/Day)

$$Q_w := \frac{\pi \cdot k \cdot (H^2 - h_w^2)}{\ln\left(\frac{R}{R_w}\right)} \quad \text{Theim-Dupuit Equation}^1$$

$$Q_w = 475.829 \quad \text{Cubic Ft/Day} \quad Q_{gpm} := Q_w \cdot \frac{7.5}{1440} \quad Q_{gpm} = 2.48 \quad \text{GPM}$$

$$r := R_w, 13..R$$

$$s_w(r) := -(H - h_w) + \frac{Q_w \cdot \ln\left(\frac{r}{R_w}\right)}{\pi \cdot k \cdot (H + h_w)}$$

1. Ground Water Manual, U.S. Department of the Interior, Revised edition 1981, P.30



Town of Arlington, Massachusetts

DEP #091-0365: Notice of Intent: Menotomy Rocks Park (Continued from 08/01/2024).

Summary:

DEP #091-0365: Notice of Intent: Menotomy Rocks Park (Continued from 08/01/2024).

The Conservation Commission will hold a public hearing under the Wetlands Protection Act and Arlington Bylaw for Wetlands Protection to consider a Notice of Intent for replacement of the playground at Menotomy Rocks Park in Arlington. Areas to be altered include Buffer Zone and Adjacent Upland Resource Area associated with an Isolated Vegetated Wetland.

ATTACHMENTS:

Type	File Name	Description
▢ Reference Material	Menotomy_Rocks_Park_Supplemental_Materials.pdf	Menotomy Rocks Park Supplemental Materials.pdf



234 Congress Street
3rd Floor
Boston, MA 02110
COPLEY-WOLFF.COM

Notice of Intent - Addendum

Under the Wetlands Protection Act (M.G.L. c. 131, §40) and its accompanying Regulations (310 CMR 10.00) and the Town of Arlington's Wetlands Bylaw (Title V-Article 8) and the Arlington Wetlands Protection Regulations

MENOTOMY ROCKS PLAY AND PICNIC AREA

DEP FILE # 091-0365

0-Lot Jason Street
Arlington, MA 02476

Prepared for:

TOWN OF ARLINGTON
730 Mass Ave.
Arlington, MA 02476

Prepared by:

COPLEY WOLFF
234 Congress Street
3rd Floor
Boston, MA 02110

August 15, 2024

Notice of Intent - Addendum

Under the Wetlands Protection Act (M.G.L. c. 131, §40) and its accompanying Regulations (310 CMR 10.00) and the Town of Arlington's Wetlands Bylaw (Title V-Article 8) and the Arlington Wetlands Protection Regulations

MENOTOMY ROCKS PLAY AND PICNIC AREA

DEP FILE # 091-0365

0-Lot Jason Street
Arlington, MA 02476

Prepared for:

TOWN OF ARLINGTON

730 Mass Ave.
Arlington, MA 02476

On behalf of the Applicant, the Town of Arlington, Copley Wolff is filing the enclosed Notice of Intent (NOI) Addendum under the Wetlands Protection Act and with the Arlington Conservation Commission for the proposed picnic and play area, which are partially located within the jurisdictional wetland buffer areas (subsequently referred to as the "Project"). The purpose of this NOI Application and NOI Addendum is to seek an Order of Conditions from the Arlington Conservation Commission approving the proposed project under the Wetlands Protection Act (M.G.L. c. 131, §40), and their Regulations (310 CMR 10.00), and the Town of Arlington's Wetland Bylaw (Title V-Article 8) and the Arlington Wetlands Protection Regulations.

The NOI was presented at a public hearing with the Arlington Conservation Commission on August 1st, 2024 and the following revisions and clarifications were requested by the Commission:

- Provide an Operations and Maintenance (O&M) Manual for the Playground Area
 - Engineered Wood Fiber Safety Surfacing with Temporary Rubber Mats
 - Timber Edging
 - Wood Play Equipment
- Habitat Enhancement in Resource Areas
 - Replace lawn planting with mitigation planting seed mix
 - Including diversity of planting (layers of groundcovers, shrubs, trees)
 - Trees must be native to Arlington/Site
 - Tree size 1.5" DBH
 - Include maintenance plan for trees/planting and invasive species control
- Provide a specification for the Rip Rap at the level spreader
 - Stone size greater than 2" and less than 10"

Prepared by:

COPLEY WOLFF
234 Congress Street
3rd Floor
Boston, MA 02110

Table of Contents

SECTION 1 OPERATIONS AND MAINTENANCE MANUAL - PLAYGROUND AREAS	5
Engineered Wood Fiber Safety Surfacing with Temporary Rubber Mats	
Timber Edging	
Wood Play Equipment	
SECTION 2 HABITAT ENHANCEMENT IN RESOURCE AREAS	20
Planting Plan Updates	
Landscape Maintenance Specification	
O&M Manual for Planting	
Invasive Species Control	
SECTION 3 RIP RAP SPECIFICATION	46
Clarification to Size of Rip Rap at Level Spreader	
SECTION 4 FIGURES	48

Section 1 - Operations and Maintenance Manual - Playground Areas

ENGINEERED WOOD FIBER SAFETY SURFACING WITH TEMPORARY
RUBBER MATS

TIMBER EDGING

WOOD PLAY EQUIPMENT

O&M - ENGINEERED WOOD FIBER SAFETY SURFACING WITH TEMPORARY RUBBER MATS

Engineered wood fiber (EWF) safety surfacing is a loose fill material that compacts over time due to use and requires maintenance since it can become displaced with use. Per Consumer Product Safety Guidelines Handbook for Public Playground Safety (2015), loose fill materials should be checked frequently to ensure the proper depth. Play equipment will be marked with the ideal surfacing depth to ensure replacement EWF is filled and raked to the proper depth. The wooden landscape timbers around the play area will ensure the majority of the EWF remains in the play space and the underdrainage system will help keep the EWF area draining and preventing ponding/stagnant water. Any displaced EWF can be raked into place and the temporary black rubber mats will help hold the EWF in place and allow for accessibility. The temporary black rubber mats should be checked annually to make sure the fasteners are in place and any missing fasteners shall be replaced.

The Town is currently working on a Public Land Management Plan Addendum which will include a section, "Management of Playground Surfacing, Courts, and Irrigation Systems." The maintenance for the Menotomy Rocks play area will adhere to the guidelines established in the forthcoming report, including schedules for maintenance inspections, repairs, and maintaining surfacing.

O&M - TIMBER EDGING

Timber edging should be checked periodically for splinters and any deterioration in the wood pieces. The metal stakes that secure the edgers in place should also be visually inspected to ensure they are flush or recessed below the tops of the timber so they do not present a tripping hazard.

O&M - WOOD PLAY EQUIPMENT

The play equipment is primarily robinia wood, metal fasteners and chains, and net elements. The wood is untreated and will naturally age to a silver gray color. Per the vendor's maintenance guide, robinia is a natural and organic material that will have knots, minor cracks and patinas on the surface, which are considered part of the character of the play equipment and are not defects. The wood should be checked for splintering pieces and sanded smooth. Any damage or vandalism shall be reported to the Town and shall be coordinated with the play equipment vendor for replacement parts. The Town will be provided with product cutsheets for all equipment, including part numbers, for easy coordination. Repairs shall be done in accordance with the manufacturer's guidelines.

Maintenance Manual

KOMPAN outdoor products

Congratulations on your selection of a KOMPAN play structure

You have chosen a high quality product that will withstand many years of use with proper maintenance. KOMPAN carefully designs and manufactures its play structures with safety features in compliance with all current standards.

The owner is responsible to maintain the structure and its surroundings to ensure the play structure remains safe.

In order to protect children's safety, KOMPAN recommends all play structures and the surrounding resilient surfaces to be inspected and maintained to ensure the play area remains safe and trouble-free.

Please visit the KOMPAN website to see the general warranty valid for our products.

If you have any questions or in other ways need assistance, please feel free to contact your Sales Representative or back office:

KOMPAN International Sales
C.F. Tietgens Boulevard 32C
5220 Odense SØ
Denmark

Phone: +45 63 62 12 50
E-mail: export@kompan.com
Website: www.kompan.com

WARNING!

Failure to follow these inspection and maintenance instructions could result in unsafe conditions on and around the play structure and possibly lead to serious physical injury during use. KOMPAN A/S will not be responsible for any injuries or damages that are the result of a failure to follow these instructions.

Following our maintenance instructions are also necessary for the products to be covered by the KOMPAN General warranty.

Inspections and maintenance of play structures should be scheduled on a daily/weekly, monthly/seasonal, and an annual basis. If your play structure is used heavily, or is located where the climate is severe, it may require more frequent attention than this manual recommends.

On the next pages of this document you'll find our general maintenance instruction specifying how to inspect and if necessary, maintain your product.

Occasionally, parts may need to be replaced due to breakage or wear. Parts should be replaced immediately to avoid dangerous conditions. Repairs should be completed in accordance with this maintenance manual and the installation instructions.

Information about replacement parts and copies of installation instructions can be obtained through your KOMPAN sales consultant or on **KOMPAN Master** (See next page).

If any repairs cannot be performed immediately, action must be taken to restrict access to that portion of the play structure or the whole structure if necessary.

Disposal and Recycling:

All KOMPAN products are as far as possible designed to be disassembled and recycled after a long life on the playground.

Recycling must be done according to local procedures and recommendations:

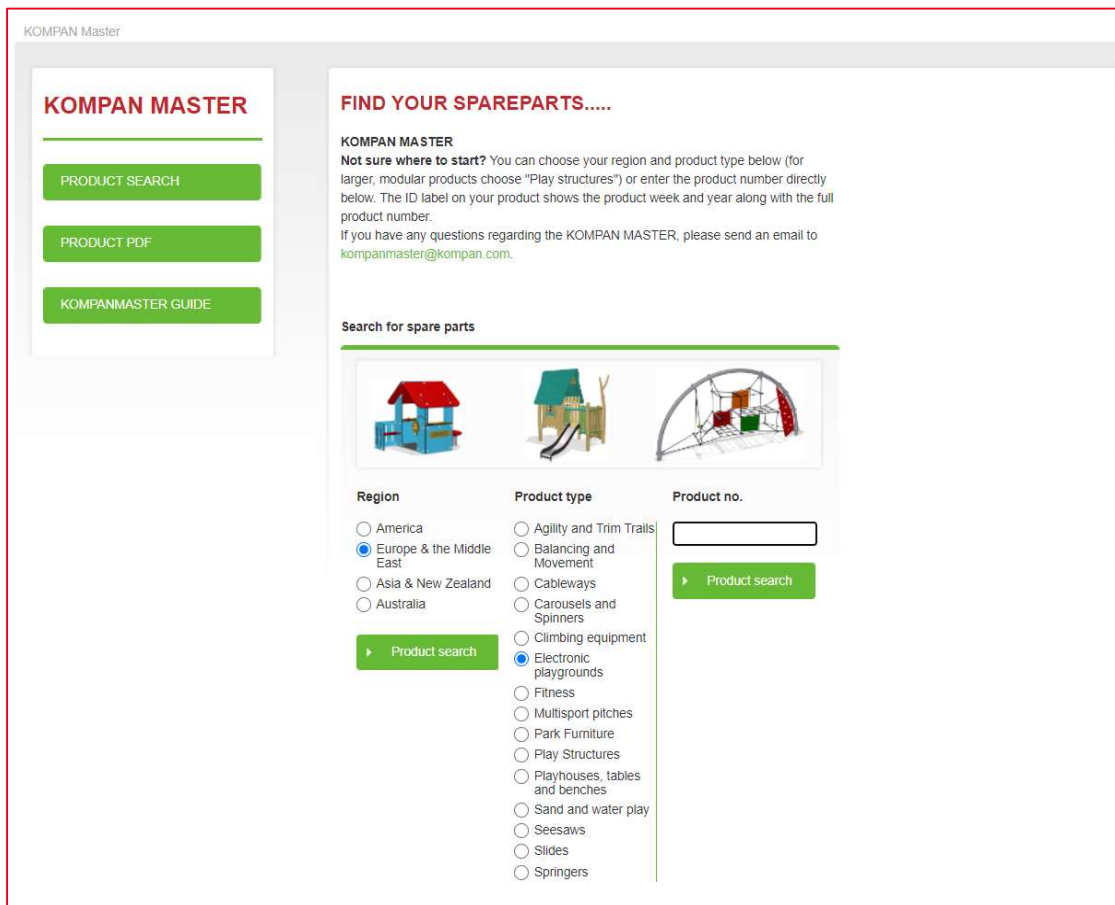
- Metal components can be recycled directly.
- Plastic components are in general marked with type of material and can be recycled accordingly.
- Wood must be disposed according to local regulations.
- Electrical parts must be disposed for recycling.

KOMPAN Master

On KOMPAN Master you can find a lot of relevant information. Most important is the installation instructions. These were provided with the product, but we know they often disappear or are damaged during installation. Installation instructions are also the key to identifying spare parts.

Below are the steps to access the instructions:

1. Open the webpage: <http://www.master.kompan.com/KompanMaster>
2. Scroll towards the bottom of your screen and in the product number box, enter the number of your product, and click on “Product search”
3. Once the correct product is found, enter the purchase date and foundation type for your product and click the arrow, and then click on the “Find Spare Parts” button.
4. Now you can open the instructions directly or download a full package of every instruction you would have received with the product.
5. You can have more information how to use KOMPAN Master in the KOMPAN Master Guide found in the left side menu.



Identification of product

All KOMPAN products come with two identification Do-Nut labels to be placed inside two Do-Nut caps according to specification.

The following information appears from the ID-labels:

No. 1 – Product ID

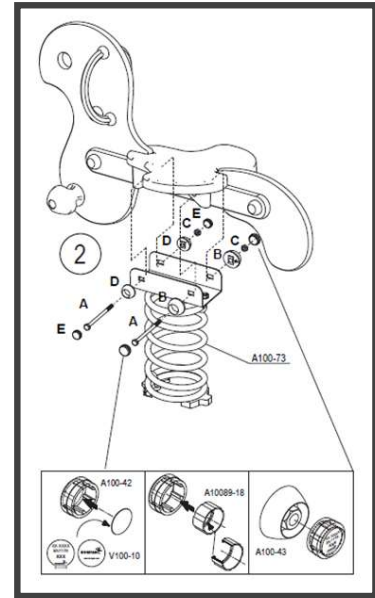
Production week and year

Product ID

No. 2 – Supplier ID

KOMPAN address (subsidiary or importer) in the country concerned.

It is of vital importance that the information from the ID-labels is given when making a complaint or ordering spare parts.



In case the ID label is not in place and you do not have the ID information from your invoice or other documents provided with the product - we recommend you take a couple of photos and ask your local KOMPAN office for assistance.

Inspections

Daily/weekly inspections can be performed visually to identify developing problems. However, the results of the monthly/seasonal inspections should be recorded into your maintenance log. Further, a comprehensive annual report should be written and entered into a file with all other documentation regarding the play structure.

We recommend the owner/operator establish a file for the play structure or entire playground. This file should contain at least the following.

- Maintenance instruction.
- Installation instructions.
- Sales and warranty documentation.
- Maintenance logs.
- Comprehensive annual inspection reports.

Templates for maintenance inspections can be downloaded from www.kompanmaster.com

Spare parts

It is important for warranty and safety conditions to use only original KOMPAN spare parts. Part numbers can be identified on the installation instructions – which can be found on KOMPAN Master (see page 3).

Robinia

Robinia, like any other species of wood, is a natural and organic material

Robinia will potentially have a number of knots, cracks and other patinas on the surface. The appearance of Robinia wood changes according to the weather conditions and humidity. These are not necessarily imperfections; they are completely natural and give our playground equipment the benefit of an organic and adventurous design.



The tension in Robinia causes openings in the ends as well as along the sides of the posts

These do not affect the strength of the structure and do not carry any additional risk of rot or fungus. This is just a natural reaction that might happen with Robinia and is normally not a safety or a quality issue.

During routine inspections and maintenance, severe deformation must be addressed if it appears on vital areas of the play structure. For example, if an opening appears near a play element that has forced movement (slides, fireman's pole, etc.) the issue of the openings and Cracks/checkings needs to be addressed in accordance with current safety standards in the specific market. If a deformation in the wood does not conflict with the current safety standards, it is considered beneficial characteristics provided by the organic wood Robinia!

To see more specific maintenance instructions, see worksheet 4 on page 11, for Robinia and other wooden product.



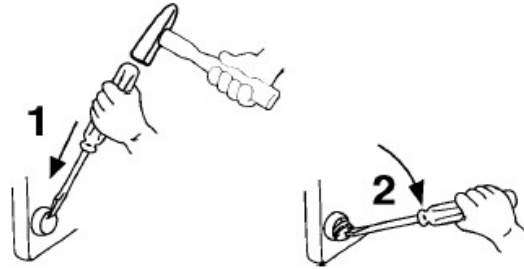
Fastener Maintenance

Over time, some bolts may become loose through heavy use, and result in play events that are loose or wobbly. Loose components on play structures can cause dangerous pinch, crush, or shear points as well as excessive wear. It is therefore important that all nuts, bolts, and screws be checked periodically.

Do-Nut/Bolt Inspection and Maintenance

Do-Nuts are used in various versions throughout KOMPAN products to cover bolt heads and potentially sharp bolt threads:

1. To check bolts covered by Do-Nuts, try to rotate them. If the Do-Nut rotates, then the bolt it covers should be tightened.
2. To access the bolt, the Do-Nut cap needs to be removed. Remove the cap by gently tapping a screwdriver through the cap and pry the cap loose.



WARNING! - Always use safety glasses when removing Do-Nut cap

<p>IMAGINATOR products (GSP)</p> <p>Be aware to use a tool on both screw and nut when screw is tightened on your IMAGINATOR product:</p>	<p>Rivet Inspection and maintenance</p> <p>Remember to check that drive rivet is intact. If rivet is loose or missing - install new rivet.</p>
<p>Follow the link to see video of the procedure to retighten our PCM connectors:</p>	

IMPORTANT! Inspection should always be done according to this instruction in combination with the installation instruction for the particular products. Remember that there might be a general instruction for the product line as well.

Work Sheet 1

GENERAL

Area	Inspectiton	Maintenance	1	2	3	4
Cleanliness		Remove soil, leaves and debris on or around equipment.	X	X	X	
		Cleaning down with fresh water for salt and sand		X*	X	
Broken or missing parts	Check for broken, loose or missing parts.	Replace or tighten if necessary.	X	X	X	
Covers	Check for missing covers	Replace if necessary		X	X	
Added parts	Check for items tied or added to products (ropes, clothing etc.)	Remove	X	X	X	
Connections	Check all bolt connections are tight. Check rivets are not loose or broken.	Tighten connections or replace with new hardware if necessary. Use installation instructions for products with specified torque. You may have to remove bolt covers – if damaged replace with new.		X	X	
	Check for gaps around slides, fireman’s poles, roofs or bannister bars where clothing may get caught	Re-tighten loose or dislocated items. If this is not enough a non-entanglement devise may be able to solve the issue. This can be supplied from your local KOMPAN representative.		X	X	
Moving parts	Check rotating or moving parts for function and wear.	Replace if necessary.		X*	X	
	Check protective covers are undamaged and in place.	Replace if necessary.		X	X	
	Examples of moving parts:					
	Suspension elements	Replace parts if worn more than 50%, if they show cracks or other sign of deterioration.		X*	X	
	Bearings Rotating items and swing suspension	Replace parts if movement is partly or fully prevented or unsmooth.		X*	X	
	Springs and rubber elements:	Tighten connections if necessary. Replace or repair in case of corrosion.		X*	X	
	Rotating rings e.g. Supernova	Replace parts if movement is partly or fully prevented or unsmooth.		X*	X	
Re-install or replace if rubber gasket is loose or missing.				X*	X	

- 1 Visual Routine Inspection, Daily to Weekly
- 2 Operational Inspection, Every 1 to 3 months. *every 1 month in foreshore installations. ** only applicable for foreshore
- 3 Main Inspection, Annual or half year
- 4 Additional to main inspection, 5 year

Work Sheet 2

GENERAL						
Area	Inspection	Maintenance	1	2	3	4
Ropes	Inspect rope parts for wear.	Steel wire may be visible but when steel wire starts to fray the rope must be replaced.		X*	X	
Chains	Check chains for damage or wear.	When worn more than 50% they must be replaced.		X*	X	
Cables for Cableways	Check cables for wear damage or corrosion.	If cable starts to fray or show signs of damage it must be replaced.		X*	X	
	Check tension	Adjust according to installation instruction if necessary.			X	
Plastic and rubber	Check plastic and rubber parts for wear, damage or cracks	Replace if necessary.		X*	X	
Plywood panels	Check plywood panels for excessive wear and deterioration	Replace or repair if necessary.		X*	X	
HPL Panels	Check for excessive wear and sharp edges due to vandalism or other damages	Replace if necessary.		X	X	
Metal parts in general	Check for sharp edges. Check welds for fractures or separations	Repair or replace if necessary.		X	X	
Painted steel	Check for scratches, wear and initial corrosion.	Repair paint by removing all corrosion and add a proper coating or replace parts if necessary.		X*	X	
Galvanized	Check for scratches, wear and initial corrosion. Small scratches will repair themselves – larger damages may result in corrosion if not repaired.	Repair galvanizing by removing all corrosion and add a zinc spray or replace parts if necessary.		X**	X	
Aluminum	Check for damage or wear.	Replace if necessary.		X*	X	
Electronics (ICON)	Inspection must be carried out by ICON professional according to ICON Maintenance Instruction.	Maintenance must be carried out by ICON professional according to ICON Maintenance Instruction.		X	X	
Jumper	Check for damage or wear to springs or membrane.	Replace if necessary		X	X	
	Check if area under the membrane is free from items or debris that can prevent a proper operation of the jumper	Remove if necessary. Instruction how to remove springs can be found in the installation instruction		X	X	
Corocord	Follow this general Maintenance Instruction but be aware additional inspections and maintenance might be prescribed in the installation instruction for the specific product.					

1 Visual Routine Inspection, Daily to Weekly

2 Operational Inspection, Every 1 to 3 months *every 1 month in foreshore installations. ** only applicable for foreshore

3 Main Inspection, Annual or half year

4 Additional to main inspection, 5 year

Work Sheet 3

FOUNDATIONS

Area	Inspection	Maintenance	1	2	3	4
Foundations	Check all foundations are stable and sharp edges and concrete is covered by surfacing.	Stabilize foundation and reinstate surfacing.		X	X	

PRODUCTS RELYING ON ONE POST ONLY

Area	Inspection	Maintenance	1	2	3	4
Remove surfacing to inspect the conditions of the post where concreted in.						
Galvanized posts.	Check if zinc layer is complete and there is no visual indications of corrosion to steel – rust. Minor scratches Major corrosion weakening the post	In case of minor scratches repair by use of spray zinc. In case of corrosion weakening the post – replace the post.				X
Robinia Posts	Check by use of pointed tool like an awl or small screwdriver if the wood is deteriorating.	Replace post when more than 20% of the cross section is deteriorated				X
If installed with wet pour rubber surfacing the rubber can be removed and re-instated by: <ul style="list-style-type: none"> • Cut away the rubber around the post and glue the pieces back in after inspection. • Remove the rubber and re-instate with new material by use of the Flexotop repair kit. Note that only trained Flexotop installers are supposed to do this.						

- 1 Visual Routine Inspection, Daily to Weekly
- 2 Operational Inspection, Every 1 to 3 months *every 1 month in foreshore installations. ** only applicable for foreshore
- 3 Main Inspection, Annual or half year
- 4 Additional to main inspection, 5 year

Work Sheet 4

ROBINIA PRODUCTS – AND OTHER WOODEN PRODUCTS

Area	Inspection	Maintenance	1	2	3	4
Checking and Cracking	Check if cracks have occurred.					
	Large cracks preventing bolts or other connections to be tightened.	Take photos and seek guidance by your local distributor.		X	X	
	Cracks creating a non-compliance with safety standards. Eg. Cracks near slides and other areas with forced movement.			X	X	
	Minor cracks not affecting structural integrity	Sand down edges to prevent splinters and sharp edges. If visual appearance is diminished cracks can be repaired by use of our repair kit. Ask your local distributor for advice.		X	X	
Rot	Check by use of pointed tool like an awl or small screwdriver if the wood is deteriorating.					
	Structural parts If more than 30% of the cross section is deteriorated	Post is to be replaced. Contact your local distributor for advice.		X	X	
	Nonstructural parts and ends If more than 30% of the cross section is deteriorated over a length of 100mm or more.	Post is to be replaced. Contact your local distributor for advice.		X	X	
Knots	Loose knots	Repair loose knots by use of repair kit. Unrepaired knots may lead to rot which might not be covered if caused by a knot.		X	X	
Cleaning		Remove dirt, algae or mold by use of power washer.			X	
Paint	Paint on robinia is visual only	We recommend touch up paint to maintain the appearance			X	

- 1 Visual Routine Inspection, Daily to Weekly
- 2 Operational Inspection, Every 1 to 3 months *every 1 month in foreshore installations. ** only applicable for foreshore
- 3 Main Inspection, Annual or half year
- 4 Additional to main inspection, 5 year

Work Sheet 5

SURFACING

Area	Inspection	Maintenance	1	2	3	4
Loose fill surfacing	Check loose fill according to basic level marks on products.	Reinstate if necessary. Special attention must be paid to heavily used areas like under swings and in the run out area for slides.	X	X	X	
	Check for unintended items in the loose fill surfacing or sand and gravel on rubber surfacing.	Remove if necessary	X	X	X	
	Check depth of loose fill according to: Table 4 of EN1176-1:2017 Table 3 of EN16630:2015.	Reinstate if necessary		X	X	
Flexotop	For more details see page 10					
	Cleaning	Remove sand, gravel, debris and other unwanted items	X	X	X	
	Check for standing water	Clean for improvement of porosity and drainage	X	X	X	
	Check for algae, moss weeds or fungus	Remove by brush or power washer		X	X	
	Check joints between colors and shapes and surface around posts etc.	Repair if necessary. See instruction for repair work of Flexotop			X	
	Check for damages and wear.				X	
Rubber tiles	Check rubber tiles are even and do not present tripping hazards	Re-instate if necessary			X	
	Check maintenance instruction from supplier for further instructions				X	
Grass mats	If grass mats are regarded impact surfacing the holes must be kept free from sand or soil.	Re-instate if necessary.		X	X	
Other impact materials	Check maintenance instruction from supplier for further instructions					

- 1 Visual Routine Inspection, Daily to Weekly
- 2 Operational Inspection, Every 1 to 3 months *every 1 month in foreshore installations. ** only applicable for foreshore
- 3 Main Inspection, Annual or half year
- 4 Additional to main inspection, 5 year

Work Sheet 6

SIGNAGE					
Area	Inspection	Maintenance	1	2	3
General:	Check product marking, for information about product ID, manufacturer or distributor ID, reference to safety standard if required.	Replace if missing.			X
Fitness equipment:	Check the site has a sign informing about: <ul style="list-style-type: none"> • How to use equipment • Age or height limitations • Assurance about medical safety • Emergency phone number • Contact info for maintenance • Address of facility 	Replace if missing.			X

- 1 Visual Routine Inspection, Daily to Weekly
- 2 Operational Inspection, Every 1 to 3 months *every 1 month in foreshore installations. ** only applicable for foreshore
- 3 Main Inspection, Annual or half year

Section 2 - Habitat Enhancement in Resource Areas

PLANTING PLAN UPDATES

LANDSCAPE MAINTENANCE SPECIFICATION

O&M MANUAL FOR PLANTING

INVASIVE SPECIES CONTROL

LANDSCAPE MAINTENANCE SPECIFICATION

Refer to attached landscape specification for maintenance which will be issued as an Addendum to the project bid.

SECTION 32 93 90

LANDSCAPE MAINTENANCE

PART 1 - GENERAL

1.1 SUMMARY

- A This Section includes landscape Maintenance consisting of providing continuous Landscape Maintenance, complete and as specified during progress of the work, after installation, for Preliminary Review and for the 90 day Maintenance Period. Also included is the Warranty Period Close Out and Final Inspection for Landscape Planting.
- B Related work includes the following:
 - 1 Soil Preparation - Section 329113
 - 2 Turf and Grasses - Section 329200
 - 3 Planting - Section 329300
- C References
 - 1 "Arboriculture: Care of Trees, Shrubs and Vines in the Landscape" by Richard W. Harris, Prentice-Hall, Inc. 1983.

1.2 DEFINITIONS

- A References to Landscape Architect shall mean Architect or the Architect's designated representative.

1.3 SUBMITTALS

- A Materials Submittals
 - 1 Organic Fertilizer for Lawns, manufacturer's product analysis and applicable data.
- B Quality Control Submittals
 - 1 Schedule of Maintenance Operations and Monthly Status Report: Including list of equipment, materials proposed for the job and watering schedule.
 - 2 Licenses, permits and insurance required by the Town, City, County, State and Federal government pertaining to maintenance work.
 - 3 Monthly Record: All materials used for the project. State when used and for what purpose and the rate(s) of application and the time(s) of application.
 - 4 Monthly record of all watering for the project.
- C Personnel Qualification Submittals:

1 See Item 1.4 QUALITY ASSURANCE below:

a Registered Arborist

D Project Close-out Submittal: Include in a single, 3-ring binder a landscape maintenance manual containing an indexed collection of all schedules, records and permits listed above, as well as a documentation of accepted condition of Planting and Lawns at Final Acceptance.

1.4 QUALITY ASSURANCE

A Qualifications

1 Experience: The landscape contractor and or maintenance subcontractor shall have one of the full-time employees of his assigned to the job as foreman as needed for the duration of the contract. He/she shall have a minimum of four (4) years experience in landscape maintenance supervision, with experience or training in (turf management), entomology, pest control, soils, fertilizers and plant identification.

a Registered Arborist: There shall be a registered Arborist for the state within which this project is located who has at least 5 years experience for all pruning and disease diagnoses. Submit qualifications and a copy of the state registration certificate.

2 Labor Force: The landscape maintenance labor force shall be thoroughly familiar with, and trained in, the work to be accomplished and shall perform the task in a competent, efficient manner acceptable to the Owner.

B Requirements

1 Supervision: The foreman shall directly supervise the work force at all times. Notify the Landscape Architect of all changes in supervision.

2 Identification: Provide proper identification at all times for landscape maintenance firm's vehicles and labor force. Be uniformly dressed in a manner satisfactory to the Owner.

1.5 PROJECT/SITE CONDITIONS

A Site Visit: At beginning of maintenance period, visit and walk the site with the Owner's representative to clarify scope of work and understand existing project/site conditions.

B Documentation of Conditions: Document general condition of existing trees, shrubs, vines, groundcovers, perennials, ferns, sedums, and lawn recording all plant materials which are healthy, thriving, damaged, dead or dying.

1.6 SEQUENCING AND SCHEDULING

A Perform all maintenance during hours mutually agreed upon between Owner and Contractor.

- B Work force shall be present at the project site at least once a week and as often as necessary to perform specified maintenance in accordance with the approved maintenance schedule.

1.7 PRELIMINARY REVIEW

- A Preliminary Review: As soon as all lawns and plantings are completed per Contract Documents, the Contractor shall request in writing Preliminary Review to determine the condition of the work in the affected Sections listed below:

- 1 Affected Sections:
 - a Section – 329200 Turf and Grasses
 - 1) Refer to Section 329200 – Lawns for grass coverage requirements and other requirements necessary to attain an acceptable PRELIMINARY REVIEW. PRELIMINARY REVIEW acceptance initiates the beginning of the one-full year maintenance period
 - 2) The lawn Warranty Period coincides with the one-full year.
 - b Section – 329300 Planting
- 2 Within 10 days of the receipt of the written request, the Owner's Representative, the Contractor and the Landscape Architect will review the work completed for conformance to the Contract Documents.
- 3 Corrective Work:
 - a Work requiring corrective action or replacement shall be performed within ten (10) calendar days of the review(s).
 - b Perform corrective work and materials replacement in accordance with the drawings and specifications and shall be made by the Contractor at no cost to the Owner.
 - c Continue maintenance of all landscaped areas until such time as all corrective measures have been completed and accepted for Preliminary Review.
- 4 Pruning: All pruning shall be done during the Preliminary Review unless otherwise required by the Landscape Architect.

1.8 90 DAY - MAINTENANCE PERIOD FOR LAWNS AND PLANTINGS

- A Beginning of the One-full year - Maintenance Period – Lawns and Plantings
 - 1 The date on which the Landscape Architect issues a letter of Preliminary Review Acceptance to the Contractor shall be the date of the beginning of the One-full year Maintenance Period.

- a If the Maintenance Period covers the months of December, January, February, and March, it shall be extended automatically in order that the One-full year Maintenance Period day count will pick up again April 1, and all plants maintenance and lawn cutting maintenance will be for an actual One-full year of active growth. All other aspects of the Maintenance requirements will remain in effect through December, January, February, and March and until the end of the automatically extended the One-full year Maintenance Period at no additional cost to the Owner.
 - 1) All plants not meeting these conditions shall be replaced at this time if within an acceptable planting season, otherwise within the next planting season. A new One-full year Maintenance Period will be commenced for such plants.

- B One-full Year Lawn Maintenance and Warranty
 - 1 Lawns: Section 329200 - The Warranty is for the duration of the One-full year Maintenance Period. The Warranty Ends at acceptance of the One-full year Maintenance Period. See 329200 – 1.7.D for acceptance criteria.

- C One Year Replacement Plant Warranty for all Plants
 - 1 Refer to Section 32 9300 for specific Warranty requirements.
 - 2 Planting: Warranty Begins at the acceptance of the Maintenance Period and ends at the Acceptance of the Final Acceptance of Landscape Maintenance.

- D Maintenance During the One-full Year Maintenance Period:
 - 1 Turf and Grasses Maintenance - Section 329200
 - a The Contractor's Maintenance of Lawns stops at the date of the Landscape Architect 's Letter of Acceptance of the Maintenance Period.
 - b The Owner's Maintenance of Lawns shall begin the date the Landscape Architect issues a Letter of Acceptance of the One-full Year Maintenance Period.
 - 2 Plant Maintenance - Section 329300
 - a The Contractor's Maintenance of all plants shall stop at the date of the Landscape Architects letter of Acceptance of the 90 Day Maintenance Period.
 - b The Owner's maintenance of all plants shall begin at the date the Landscape Architect issues a letter of Acceptance of the 90 Day Maintenance Period.

- E Acceptance of the One-full Year Maintenance Period

- 1 The Contractor shall submit a written request to the Landscape Architect for the review for Acceptance at least five (5) working days prior to the anticipated review date, which would be the end of the Maintenance Period's Date.
- 2 Within 10 days of the receipt of the written request, the Owner's Representative, the Contractor and the Landscape Architect will review the work completed for conformance to the Contract documents.
- 3 Work included in the Maintenance Period will be accepted by the Landscape Architect upon satisfactory completion of the Maintenance Work; however, it will be exclusive of the Final Acceptance of the Plant Materials which are still under Warranty until Final Acceptance of Landscape Maintenance.
- 4 Conditions for Acceptance of the Work
 - a Each plant and the lawn shall be alive and thriving, showing signs of growth and no signs of stress. For additional conditions of acceptance, see the respective sections below:
 - 1) Section 329200 – Turf and Grasses
 - 2) Section 329300 - Planting
- 5 Replacements
 - a See the Respective Sections below:
 - 1) Section 329200 – Turf and Grasses
 - 2) Section 329300 - Planting

1.9 ONE YEAR LANDSCAPE PLANTING WARRANTY

- A Planting: Warranty begins on the date of the Landscape Architects acceptance of the One-full Year Maintenance Period and ends on the date of the Landscape Architects Final Acceptance for Landscape Planting One Year Warranty – **THIS MUST BE IDENTIFIED CLEARLY IN WRITING TO THE LANDSCAPE ARCHITECT WHO WILL REPLY IN WRITING THAT THE WARRANTY PERIOD HAS BEGUN.**

1.10 FINAL ACCEPTANCE FOR THE LANDSCAPE PLANTING'S ONE-YEAR PLANT WARRANTY

- A The Contractor shall request in writing Final Acceptance Review at the end of the Warranty Period for Planting.
- 1 Within 10 days of the receipt of the written request, the Owner's Representative, the Contractor and the Landscape Architect will review the work completed for conformance to the Contract documents.
 - 2 Landscape Maintenance Manual: Submit binder to Owner during the Final Acceptance Review with all documentation and records required and utilized during the maintenance period for Soil Preparation, Lawns and Grasses, Planting and Replacement Trees.

- 3 Corrective Work
 - a Work requiring corrective action or replacement shall be performed within ten (10) calendar days of the review(s).
 - b Perform corrective work and materials replacement in accordance with the drawings and specifications, and shall be made by the Contractor at no cost to the Owner.
 - c Continue maintenance of all landscaped areas until such time as all corrective measures have been completed and accepted at Final Acceptance.
- B Remove and dispose of all tree stakes and tree guys from all deciduous trees just before Final Acceptance Review.
- C Final Acceptance
 - 1 After all necessary replacements and corrective work have been reviewed and accepted by the Landscape Architect, and if terms of Warranty (as specified in the respective section(s) are complete and acceptable in the judgment of the Landscape Architect, the Landscape Architect will issue a written Final Acceptance of the Landscape Maintenance Work specified in this Section.
 - 2 Keys and Identification: Return all keys and identification materials, if any, supplied by the Owner for the purpose of site access.

PART 2 - PRODUCTS

2.1 MATERIALS

- A General: All materials and equipment, shall be provided by the Contractor, except as specified below.
- B Water: Clean, potable and fresh, as available from Owner
- C Fertilizers
 - 1 Refer to Confirmatory Soils Testing and Amending in Section 329113 – Soil Preparation for these items.
- D Lawns Match accepted materials. Refer to Section 329200.
- E Planting Materials: Tree Guys, Stakes, Ties, Wires and all other plant related materials: Match originally accepted existing materials on the site. Refer to Section 329300.
- F Landscape soil and backfill mix: Match Accepted Materials for lawns and plants. Refer to Section 329113 Soil Preparation.

G Mulch: Match the accepted material. Refer to Section 329300 – Planting.

2.2 REPLACEMENT PLANTS, LAWNS AND GRASSES

A Match approved plants.

B Match approved Lawn.

2.3 EQUIPMENT

A General: Use only the proper tool for each job. Maintain all tools in sharp, properly functioning condition. Clean and sterilize pruning tools prior to usage.

B Insect/Disease Prevention: Take all measures to prevent introduction of insect or disease-laden materials onto the site. Planting - Section 329300.

PART 3 - EXECUTION

3.1 REMOVAL, REPAIR AND REPLACEMENT OF DAMAGED WORK

A Remove, repair and replace any work in Section – 329200 - Turf and Grasses, and Section 3293 00 - Planting or any of the Owner's Existing Property or any Work in the Contract which has been damaged by Maintenance work to match the requirements of the damaged work at no additional cost to the Owner.

3.2 PLANTING MAINTENANCE PREPARATION

A Protection:

- 1 Protect all new planting areas from damage of all kinds from beginning of work until the Acceptance of the 90 Day Maintenance.
- 2 Provide temporary protection fences, barriers and signs as required for protection.

B Replacements

- 1 Immediately treat or replace all plants that become damaged or injured as a result of Contractor's operations or negligence, as directed by Landscape Architect, at no cost to Owner.
- 2 Replacement plants shall match size, condition and variety of plants replaced.

C Repair any damage done as a result of any maintenance work to Lawns or the Work of any other Section of the Specification to match the work specified therein.

3.3 PLANTING MAINTENANCE FOR TREES, SHRUBS, AND VINES

A Watering

- 1 Water shall be applied by the Contractor in sufficient quantities to keep the plants in a healthy thriving condition. Care shall be taken not to over water plants.
- 2 Watering Basins
 - a Maintain all watering basins around plants so that enough water can be applied to establish moisture through major root zones.
 - b For supplemental hand watering of watering basins, use a water wand to break the water force. Do not permit use of "jet" type watering equipment. Do not permit crown roots to become exposed to air through dislodging of soil and mulch.
 - c Maintain originally called for depth of mulch to reduce evaporation and frequency of watering.
 - d In a rainy season, open basins to allow surface drainage away from the root crown where excess water may accumulate. Restore watering basins at end of rainy season.
- 3 The Contractor shall review the plant rootballs and adjacent soil(s) and the plants for watering requirements and deficiency or excessive watering symptoms.
 - a If sufficient water is found to be retained in the plants rootball, and/or adjacent soil, the watering may be reduced.
 - 1) The Contractor shall excavate and examine the rootballs and adjacent soil(s) with an acceptable moisture sensing device designed for this purpose and also make his own professional review and additional sampling and testing as necessary to determine the adequacy of the watering.
 - b The Contractor shall also review the plants for determination of over or under watering needs and symptoms.
- B Resetting: Reset plants to proper grades and upright position using the specified materials.
- C Weed Control
 - 1 All areas between plants, including plant beds and watering basins, shall be weed free at all times.
 - 2 Avoid frequent soil cultivation that destroys shallow roots.
- D Tree and Shrub Pruning: All persons performing pruning operations shall possess a current Arborist License or be directly supervised by and individual who does for the state in which this project is located.
 - 1 Prune trees and shrubs to select and develop permanent scaffold branches that are smaller in diameter than the trunk or branch to which they are attached. In

reference to trees, prune branches that have vertical spacing of 18 in. to 48 in. and radial orientation so as not to overlay onto one another.

- 2 Prune trees and shrubs to eliminate diseased or damaged growth, and narrow V-shaped branch forks that lack strength. Reduce toppling and wind damage by thinning out crowns.
- 3 Prune trees and shrubs to maintain growth within space limitations, maintaining a natural appearance and balancing crown with roots.
- 4 No stripping of lower branches ("raising up") of young trees or shrubs will be permitted.
- 5 Retain lower branches in a "tipped back" or pinched condition to promote caliper trunk growth (tapered trunk). Do not cut back to fewer than six buds or leaves on such branches. Only cut lower branches flush with the trunk after the tree is able to stand erect without staking or other support.
- 6 Thin out and shape evergreen trees when necessary to prevent wind and storm damage. Do primary pruning of deciduous trees during the dormant season. Do not permit any pruning of trees prone to excessive "bleeding" during growth season.
- 7 Prune damaged trees or shrubs or those that constitute health or safety hazards at any time of year as required.
- 8 Make all cuts clean and close to the trunk, without cutting into the branch collar. "Stubbing" will not be permitted. Cut smaller branches flush with trunk or lateral branch. Make larger cuts (1 in. in diameter or larger) parallel to shoulder rings, with the top edge of the cut at the trunk or lateral branch.
- 9 Branches too heavy to handle shall be precut in three or more stages to prevent splitting or peeling of bark. Make the first two cuts 18 in. or more from the trunk to remove the branch. Make the third cut at the trunk to remove the resulting stub.
- 10 Do not prune or clip shrubs into balled or boxed forms unless specifically called for by design.
- 11 Hedge Pruning – Review plants that are noted in the plant list to be pruned into hedges with the Landscape Architect for shaping requirements.
- 12 Take extreme care to avoid transmitting disease from one infected plant to another. Properly sterilize pruning tools before going from one infected plant to all other plants.

E Staking and Guying of Trees

- 1 Inspect stakes and guying at least once a month to check for rubbing that causes bark wounds.
 - a Remove tree stakes guys at completion of Warranty Period.

- F Remove all vine stakes and ties at the completion of the warranty period.
- G Plant Disease(s)
 - 1 Treat any plants that are diseased.
 - a If the plants which are diseased do not respond to treatment in the opinion of the Landscape Architect, they shall be removed and replaced with matching healthy plants, at no Additional cost to the Owner.
- H Shovel Cut Bed Edging: Redo as necessary to keep shape.
- I Remove all dead plants immediately. Replace as soon as possible within the planting season.
- J Mulch: Apply mulch as necessary to restore beds to accepted condition.
- K Plant fertilization and amending: apply fertilizers and amendments as provided per Confirmatory Soils Testing and Amending in Section – 329113 – Soil Preparation.

3.4 GROUNDCOVER AND PERENNIAL MAINTENANCE

- A Water to maintain the plants in a healthy and flourishing condition.
- B Watering
 - 1 Check for moisture penetration throughout the root zone at least twice a month and more frequently as weather conditions require.
 - 2 Water as frequently as necessary to maintain healthy growth of plants.
- C Weed Control
 - 1 Control weeds and remove all weeds.
 - 2 Minimize hoeing of weeds in order to avoid plant root damage.
- D Fertilization
 - 1 Do not use fertilizers unless soil test shows specific nutrient deficiencies.
 - a Notify the Landscape Architect of any soil testing need for review and approval prior to testing.
 - 1) Sampling and testing shall be as specified in Section 329113 Soil Preparation unless otherwise required by the Landscape Architect.
- E Edging

- 1 Edge groundcovers to keep in bounds. Trim top growth as necessary to achieve an overall even appearance.
 - 2 Shovel Cut Bed Edging: Redo as necessary to keep shape.
- F Remove dead plants immediately and replace dead or missing plants as soon as possible within the planting season.
- G Plant Disease(s)
- 1 Treat any plants that are diseased.
 - a If the plants which are diseased do not respond to treatment in the opinion of the Landscape Architect, they shall be removed and replaced with matching healthy plants, at no Additional cost to the Owner.
- H Mulch: Apply mulch as necessary to restore beds to accepted condition.
- 3.5 LAWN MAINTENANCE UNTIL ACCEPTANCE OF THE 90 DAY MAINTENANCE PERIOD
- A Watering
- 1 Watering for all lawns shall be daily for the first week after installation unless site or weather conditions require adjustment of watering or as directed by the Landscape Architect.
 - 1 General Watering: Water lawns at such frequency as weather conditions require to replenish soil moisture and keep the lawns in a flourishing thriving condition.
 - 3 Care shall be taken not to over water lawns since adjacent plants or plants in lawn areas might be damaged by over watering.
- B Weed Control
- 1 Control broadleaf weeds and remove.
 - 2 Control and remove all crabgrass and weeds and replace and re-hydroseed lawn areas within the specified planting season(s).
 - 3 Control thatch buildup of lawns.
- C Mowing
- 1 Hydroseeded Lawns
 - a The first mowing shall take place when the grass is (4) inches tall and shall result in a height of (3) inches tall.
 - b Subsequent mowing shall take place when the grass is (4) inches tall. The final cut height shall be no lower than (2-1/2) inches tall.

- c Each cutting shall result in a stand of evenly mowed grass. Immediately following cutting, neatly trim around all interfaces such as walls, signs, plant beds etc
 - 1) Do not girdle trees with weed whackers or other trimmers.
 - d Mowing along Shrub, Groundcover, perennial and/or fern bed edges: Shovel cut or mechanically trim lawn bed edges at least twice a month or as needed for neat appearance. Vacuum clippings and dispose legally off site.
- D Fertilization and Amending of Lawns and Hydroseeded Grass during the 90 – Day Maintenance Period shall be based upon Confirmatory Testing, if done.
- 1 Add Fertilizers and amendments only if required by Confirmatory Soils Testing: Apply fertilizers and amendments as provided per Confirmatory Soils Testing and Amending in Section 32 9113 – Soil Preparation.
 - a Apply fertilizer when grass is dry and preferably after mowing. Do not apply during hot weather or when grass is under stress. Water immediately after application.
- E Plant Disease(s)
- 1 Treat any plants that are diseased.
 - a If the plants which are diseased do not respond to treatment in the opinion of the Landscape Architect, they shall be removed and replaced with matching healthy plants, at no Additional cost to the Owner.
- F Replace any damaged, washed out or diseased hydroseeded lawns with the specified grasses for the areas.
- 3.6 MULCH AREAS MAINTENANCE
- A Replace any disturbed mulch as soon as possible.
- 3.7 CLEANING
- A Dispose of all pruned materials, vacuum all lawn clippings and leaves, sweep all walkways and rake smooth all mulch areas.
 - B Remove from the site all containers and evidence of maintenance activities.

END OF SECTION 329390

O&M MANUAL FOR PLANTING

The contractor shall be responsible for preparing planting soils and/or amending existing soils, seeding the plant mixes and installing the shrubs and trees. The contractor shall be responsible for plant establishment and warranty one year following plant acceptance by the Town and Landscape Architect. Any plants that are in poor condition will be removed and replaced by the contractor. The contractor will be responsible for the final O&M manual during project close out. Refer to attached O&M template.

INVASIVE SPECIES CONTROL

The Town will coordinate periodic reviews of invasive species. The Friends of Menotomy Rocks Park is an excellent resource for more frequent informal inspections and includes a group of members who organize invasive plant removal working sessions. The working sessions have included removal of garlic mustard, burning bush, buckthorn, multiflora rose, loosestrife, oriental bittersweet, Japanese knotweed, swallowwort and others. Potential partnerships with the Friends Group will help prevent the spread of invasive species control. All removal shall be done by hand or with small tools, no chemical removal due to the sensitive resource area.

General Maintenance Recommendations for Trees & Shrubs:

Properly caring for trees and shrubs will enhance the aesthetic appearance and value of your property. Here are a few suggestions for what you can do to grow and maintain beautiful, healthy trees and shrubs.

- Learn to identify and understand the growth habits of your plant materials. This may take several seasons, but you will be able to notice any unusual changes and take action to correct problems before they become severe.
- When adding or replacing trees and / or shrubs in the landscape, choose pest-resistant varieties that have been suggested for your area by a local nursery or County Cooperative Extension agent.
- Avoid damaging a tree's bark with lawn mowers, trimmers or other gardening tools. A mulch ring around trees and shrubs will help protect them damage by creating a buffer zone around them.
- Keep old leaves picked up during the entire season — they are often the source of infection for various diseases and offer a safe hiding place for many damaging insects (especially over the winter months).
- Keep pruning shears clean and sharp and use them correctly. Bark tears easily and heals slowly. Many insects and diseases will attack only if there is an opening in the bark. Learn the proper pruning techniques to avoid undo damage to your trees.
- It is important to remove and control weeds regularly, before they offer competition to surrounding plants, especially in the first year of growth.
- Practice a thorough cleanup before winter sets in. Remove debris and other likely homes for over-wintering insects and diseases.

Watering Trees, Shrubs & Ornamentals:

Generally speaking, trees and shrubs only need to be watered when they are planted, and while they adapt to their new homes. Once established, rain will provide all the water necessary.

Observe plants for signs of water need.

- Curling leaves are usually the first indication of stress. The surface area of the plant is being reduced to cut down on transpiration (loss of water from the leaves).
- Normally shiny leaves grow dull. Bright green leaves take on a blue or gray-green appearance.
- New growth wilts or droops and older leaves turn brown, dry up, and fall off.
- Flowers fade quickly and drop prematurely.

In most cases, these symptoms signal a lack of water, and the plant will recover if watered soon enough.

Watering Shrubs:

If a shrub has been well chosen to suit its site, then it demands little care beyond watering during the first few months to one year after planting. Make sure new shrubs receive sufficient amounts of water during the first summer of their first growing season. During this time, on a weekly basis, shrubs should receive 5gal of water. Established shrubs seldom need to be watered, except in arid parts of the country or during an extreme drought. When you do water, remember to water slowly over a long period of time to allow the water to soak deep into the soil. Avoid frequent light watering as this leads to a shallow, weak root system.

Watering trees:

How much water is available to a particular tree depends on the depth and spread of its roots. Watch trees closely to determine when they need water. Signs of water stress include wilting, a change in leaf color (from shiny to dull, or from dark green to gray green) and premature leaf fall. Adjustments can be made for rainfall and soil type. Your tree may need water quite often in very sandy soil, less often in heavier soil. Always dig down a few inches into the soil first to see if watering is necessary. Trees in a lawn area should have a deep soaking (approximately 10gal of water per tree) about twice a summer in addition to normal lawn watering.

Watering Methods:

There are a number of ways to water efficiently: basins, furrows, sprinklers, soakers or drip irrigation systems. The most important goals are to eliminate runoff, to confine water inside the dripline of branches, and to apply water uniformly.

Pruning Trees & Shrubs:

Reasons for Pruning

Regular and correct pruning keeps shrubs and trees healthy and vigorous and prevents potential problems. Properly pruned fruit trees will bear larger crops and ward off diseases better. Carefully pruned flowering shrubs not only blossom profusely year after year, but also remain a desirable size. When a tree is grown in a home landscape rather than in a natural woodland, pruning can guide its branch structure so that when it's mature, the branches are strong and resist storm damage.

Pruning to Increase Vigor

Regular pruning of shrubs by a technique called gradual renewal pruning can keep a landscape young, vigorous and healthy. Yearly pruning encourages old growth to give way to new wood, which flowers more profusely and is more resistant to disease and insects. Even neglected and overgrown shrubs can be renewed gradually by removing the oldest and tallest branches over several years.

Removing branches also allows the sun to penetrate deep into the interior of the plant. When exposed to sun, foliage expands to its fullest, maximizing photosynthesis — the process whereby plants produce food energy to power their growth. Regular pruning spreads the regrowth and rejuvenation effect throughout the entire plant.

Pruning to Repair Storm Damage

Snowstorms, hurricanes, tornadoes, and thunderstorms can damage even properly pruned trees. Of course, trees that have weak limbs or a poor branching structure are more susceptible to storm damage than ones trained to have sturdy branches and a more open canopy. When severe weather causes tree limbs to snap, the damage can often be repaired and the tree saved with the proper pruning techniques. The techniques are similar to those used for removing large healthy branches.

When severe winds break or damage branches high in a tree, there is little recourse other than to seek professional tree-care help. These branches are often hazardous to remove and may require roping to lower them safely to the ground. After pruning a severely damaged tree, increase its vigor by giving the tree extra care. Consider irrigating, supporting the tree with guy wires, fertilizing, mulching, and controlling pests to help the tree recover.

Pruning Techniques:

The cuts you use to prune result in different growth patterns. The differences lie in where the cuts are made on the stem in relation to dormant buds and side branches.

Thinning — Cutting off a shrub or tree branch where it originates on the parent branch. These cuts can also shorten branches by cutting to a crotch, where the branch forms a Y. The terminal bud of the remaining branch assumes dominance and stops other dormant buds from growing into branches. Drop catching is thinning the major branches of a tree. This maintains the tree's natural shape while dramatically reducing its size.

Thinning shrubs reduces their size without stimulating excessive growth. The plant is controlled and rejuvenated for a healthier, stronger and more vigorous shrub.

Heading — This involves cutting a branch to a stub, lateral bud or lateral branch with a small diameter. Heading a large branch is referred to as stubbing. Since this process removes the terminal bud, dominance is lost. Under the cut location, many vigorous new shoots develop from existing buds. Buds lower on the branch may not sprout. Fruit trees can be headed to encourage branching and counter their natural tendency to produce very few side branches. Trees are often headed under utility wires to remove interfering branches. This typically destroys the tree's natural shape as well as spurring a resultant rush of new growth.

Pinching — Pinching off the tip of a succulent stem spurs growth, much like heading on branches or deadheading on annuals or perennials. By pinching 1 to 2 inches of new growth, you can encourage the branching of the terminal, or leader, shoots of young trees. You must thin the resultant growth as branches start to grow, or they will compete with the main leader.

By understanding how plants respond to pruning and by using good judgment, it is possible to prune lightly almost any time of the year without harming the plant. The vigor of many flowering shrubs won't suffer if pruned just after flowering, especially if leaves have not fully developed. Limit late-summer pruning, however, because it stimulates the growth of new shoots, which can be injured by cold winter temperatures.

Pruning Styles:

Informal Pruning:

Today's garden styles tend to be more informal, with an emphasis on a naturalistic look. Gardeners appreciate the natural shapes of plants; many garden designers emphasize plants in groups or masses reflecting natural, free-form styles. In an informal setting, shrubs are not pruned into rigid shapes but are thinned as needed to emphasize their layers of tiered branches, gracefully cascading limbs, or irregular outlines. Informal pruning should be inspired by the plant's normal growth habit. Pruned naturally, a shrub or tree maintains its usual habit and growth rate; only a little attention is required each year to maintain the desired size and shape.

Pruning Hedges:

Different pruning techniques make a hedge either a formal, uniform green wall or an informal row of closely planted shrubs with softer edges. Informally pruned hedges, on the other hand, may only need pruning once a year to keep them looking good and within bounds.

Pruning Clump Forming Shrubs vs. Suckering:

When pruning a natural clump forming shrub, pruning from the crown should be selective. It should only be done to remove dead branches, or to provide rejuvenation. Shrubs and trees that spawn suckers, or *new* shoots growing off the lower stems or truck, should have the suckers pruned off. It is more aesthetically appealing and will also reroute the plant's energy back into the main growth.

When to Prune:

In general, the best time to prune any woody plant is just before new growth starts. Pruning in late winter or early spring while a plant is dormant won't adversely affect its vigor; but pruning at other times can rob it of stored food energy. Severe pruning during or just after active growth in spring only wastes stored energy.

New growth can be directed by pruning in late winter or early spring before leaves appear. It is easy at this time of year to examine the structural arrangement of the branches of deciduous trees and shrubs and plan pruning strategies. Dormant season pruning is good for the plant and the gardener. It is a time when few other garden chores make demands, and the outdoor activity is excellent exercise.

However, there are cases in which pruning should be done during the growing season. If spring-flowering shrubs are pruned in winter, the flower buds will be removed and the plants won't blossom that spring. The spring-flowering trees and shrubs that bloom on the previous season's growth should be pruned immediately after flowering, but before leaves fully expand. Summer-blooming plants, which usually bloom on the current-season's growth, can be pruned in winter without danger of removing flower buds; in fact, dormant-season pruning will stimulate more flowers.

Midsummer pruning has a dwarfing effect on plants. Removing summer foliage reduces photosynthesis, resulting in less food reserves for the following spring's growth. Summer pruning is appropriate for slowing the vigorous growth of an immature fruit tree so that it will begin bearing. Dwarf fruit trees especially are subjected to frequent light pruning during the summer. This controls their shape and avoids overly vigorous spring growth.

Summer pruning will prevent an extremely vigorous tree from responding to heavy pruning with a burst of water sprouts and suckers. Summer pruning is also recommended for restricting growth of a tree or shrub that has reached a desired height and spread. However, because wounds will not callus over as rapidly as during the late dormant season, it's best to keep summer pruning cuts small and save heavy shaping for winter.

The worst time to prune is right after leaves emerge in spring. Stored energy has powered the initiation and expansion of the new foliage, but the leaves have not yet begun to accumulate food to replenish the supply. Bud break in spring is also the time of greatest root growth, another heavy drain on stored reserves. Until food manufacture equals or surpasses food utilization, the plant can ill afford to lose foliage. In addition, the tissue beneath the bark is soft during the spring growth; it is easy to tear the bark when pruning.

With judgment and moderation, some pruning can be done at any time. Dead and dying branches, suckers, and water sprouts should be removed anytime they become apparent. Pinching and small cuts guide growth without removing very much plant material and can be done any time the plant is growing. And, of course, removing a few stragglers or branches that are out of line during the growing season won't do any harm.

Fertilizing Trees & Shrubs:

Just like all living things, plants must receive nutrients to survive. In addition to light and water, they need a regular diet of minerals and other elements. Grass, flowers, trees and even weeds all compete to absorb nutrients. By applying plant food to your plants on a regular basis, you replenish those nutrients so the plants can continue to grow and produce foliage, flowers and fruit.

Most soils provide many, but not all, of the nutrients required by plants. In nature, only plants adapted to each soil thrive on that soil. Gardeners, however, wish to grow a variety of plants adapted to all sorts of soils. This is best accomplished by supplementing the mineral nutrients in the soil with fertilizers.

All fertilizers, whether natural or synthesized, contain some or all of the nutrient elements essential for plant growth. These elements are what make a fertilizer a fertilizer.

In spite of all the technical information on fertilizer labels and in this guide, fertilizing garden soil is no more complicated than adding nutrients that are missing from the soil. Plant nutrients are the same in all fertilizers. They are just packaged differently, with the nutrients in different chemical formulations to be applied differently. The differences between fertilizers lie in the mix of nutrients they contain and the way they are formulated.

Fertilizer Components:

The three essential nutrients in plant food are nitrogen (N), phosphorus (P) and potassium (K). Each plays a role in building healthy plants. Nitrogen encourages growth of leaves and stems while phosphorus and potassium increase flowering and root growth. Most plant foods also have trace elements, small amounts of other nutrients that are needed to grow healthy, beautiful plants.

Plant foods are labeled according to the percentages of each of the ingredients they contain, always in the same order: N–P–K. The label indicates the relative amounts of the three essential nutrients with an analysis formula (for example: 15-30-15, 18-24-16, or some other combination).

Types of Fertilizer:

There are several types of plant fertilizers. Some gardeners use more than one so that they can feed their plants most appropriately. Select what is right for your flower gardens by comparing the features and benefits of each and considering how you plan to maintain your garden. Many gardeners get excellent results using a single all-purpose plant food on every plant in their garden.

Organic Fertilizer

- Scatter on the surface or incorporate into the soil.
- Contains a mix of instantly-available and controlled-release nutrients.
- Often formulated for specific plants.
- Water after spreading.

Generally, shrubs demand little fertilizer compared to the amount required by lawns or vegetables. Light applications of fertilizer at regular intervals greatly increase growth and stimulate flower production. When planting and nurturing a new tree or shrub, you may want to use a water-soluble plant food to help it thrive in its new home. Once established, most trees and shrubs thrive with the application of a controlled-release plant food.

When to Fertilize:

In most cases, you should feed trees and shrubs in the early spring or in the fall. However, you should feed spring-flowering shrubs and trees again after blooming to encourage better blooming next spring.

In most soils, mature trees need little or no feeding as long as they have good leaf color and grow reasonably well. If additional nutrients are needed to maintain health and vigor, choose a fertilizer that is 50 percent nitrogen in slow-release form. Because nitrogen is transient, apply the necessary amount in spring and in the fall. Keep the fertilizer at least 6 inches away from the trunk to avoid injuring the tree. After application, sprinkle the area with water to wash the fertilizer into the soil. Let the trees and shrubs be your guide. If leaf color is pale, increase the rate. If growth is excessive on young plants, cut back the amount of fertilizer used or stop fertilizing altogether. As plants mature, fertilizer is seldom, if ever, needed.

Mulching:

Mulching is one of gardening's oldest techniques. Mulches imitate the layer of fallen leaves and dead plants that cover the ground in wild settings. They insulate the soil from the temperature changes and drying of the atmosphere. Without a mulch, the soil surface gets very cold on spring and fall nights and very hot during hot weather. It loses its water rapidly to the dry air and becomes inhospitable to plants. During hot weather, plant roots growing in the top few inches of soil exposed to the sun die from overheating and drought.

The soil under a few inches of mulch, remains at near the same temperature day and night. Because the mulch traps dead air above it, that air quickly becomes saturated, preventing further evaporation. With moisture and agreeable temperatures, plant roots can utilize the soil right to the surface. Sometimes they even grow into the mulch. For this reason, adding a few inches of mulch has the effect of giving your plants deeper soil to grow in.

Choosing and using a mulch is a great way to improve your garden, keeping soil moist and cool to help encourage healthy plants.

Benefits of Mulching:

- **Weed control.** Since they will be denied light, weed seedlings will not grow.
- **Temperature control.** Mulches insulate plants from drastic temperature changes.
- **Attractive appearance.** Mulches provide a neat, uniform look to your landscaping.
- **Moisture retention.** Mulches reduce the speed of water evaporation while keeping an even supply of water on the upper levels of the soil.
- **Prevention of compaction.** Mulches break the fall of water drops, which can cause the soil to compact and inhibit plant growth.
- **Soil texture improvement.** The soil underneath the mulch benefits as well. For example, clay soils get improved aeration, and sandy soils retain water better.

When deciding on a mulch for your lawn or garden, remember these mulch recommendations:

- Mulch should be long-lasting and not easily washed away by rain.
- Mulch should have a loose structure that allows water to pass through it quickly.
- Mulches and barks differ in texture and color. Choose what's best for you.
- Pebbles, rocks and gravel can make useful and attractive mulches. However, they do not shut out light entirely, so weed seeds may germinate beneath them.

Applying Mulch

- Late spring is the best time to apply mulch. This will help reduce soil temperature and save water. An early spring application will slow the natural warming process of the soil.
- Fine mulches should be applied 1 to 2 inches deep. Coarse or fluffy mulches should be put on 2 to 3 inches deep.
- Apply the mulch evenly. Level it with a rake or your hands. Don't pack it down.
- After application, wet the mulch thoroughly, then pull it back a few inches from the stem or trunk. This allows adequate air circulation to the base of the plant and prevents rot at the crown.

Integrated Pest Management for Weeds, Insects & Diseases

In general, ornamental plantings should be inspected and monitored monthly for weeds, insect infestation, and disease. There should be no chemical treatment for plant material due to the sensitive nature of the resource area. Any pests or diseases found should be managed with the least possible hazard to people and the environment. Not all insects are detrimental to plant growth.

- **Weeds:** Plant beds should be inspected monthly for weed growth. Especially during the first growing season, weeds should be removed promptly.
- **Insects:** Plant beds should be inspected and monitored monthly for pests. If a monitored pest is found to be detrimental to the plant growth, the pest should first be identified. The form of control selected should be appropriate for the specific pest found and the situation encountered.
- **Disease:** Plant beds should be inspected and monitored monthly for disease. If a disease is found, it should be identified. The form of control selected should be appropriate for the specific disease found and the situation encountered.

Section 3 - Rip Rap Specification

CLARIFICATION TO SIZE OF RIP RAP AT LEVEL SPREADER

CLARIFICATION TO SIZE OF RIP RAP AT LEVEL SPREADER

The rip rap stone at the level spreader shall be a mix of stones ranging from 3" - 5" in size. The contractor shall provide the Landscape Architect, Civil Engineer and Town a 1 gallon sample of stone for review. The stone shall be an angular, crushed granite stone, native to New England and shall be a mix of colors (tan, gray).

Section 4 - Figures

FULL SIZE DRAWING (30" X 42") PROVIDED FOR REFERENCE

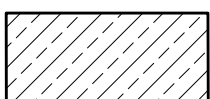
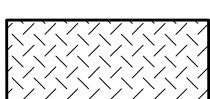
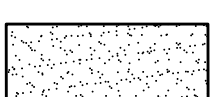
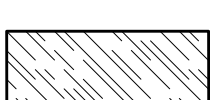
Number	Title	Scale	Drawn By
L-5.0	Planting Plan (MRP)	1"=10'	Copley Wolff

Note: Landscape drawing dated 08/06/2024



FOR PLANTING NOTES: SEE L-0.1

PLANTING LEGEND

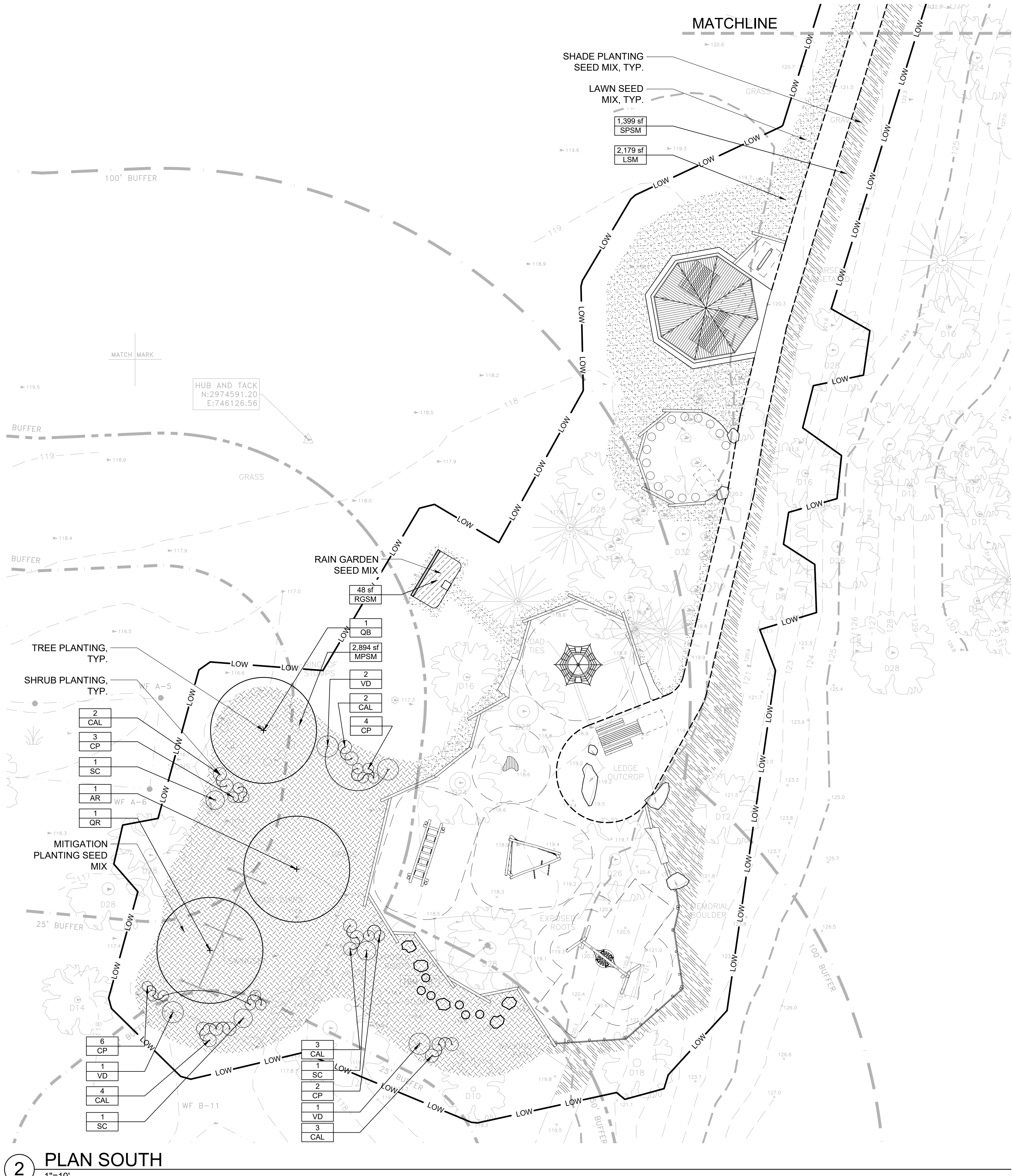
-  RAIN GARDEN SEED MIX
-  MITIGATION PLANTING SEED MIX
-  SEEDED LAWN
-  SHADE PLANTING SEED MIX

PLANTING SCHEDULE

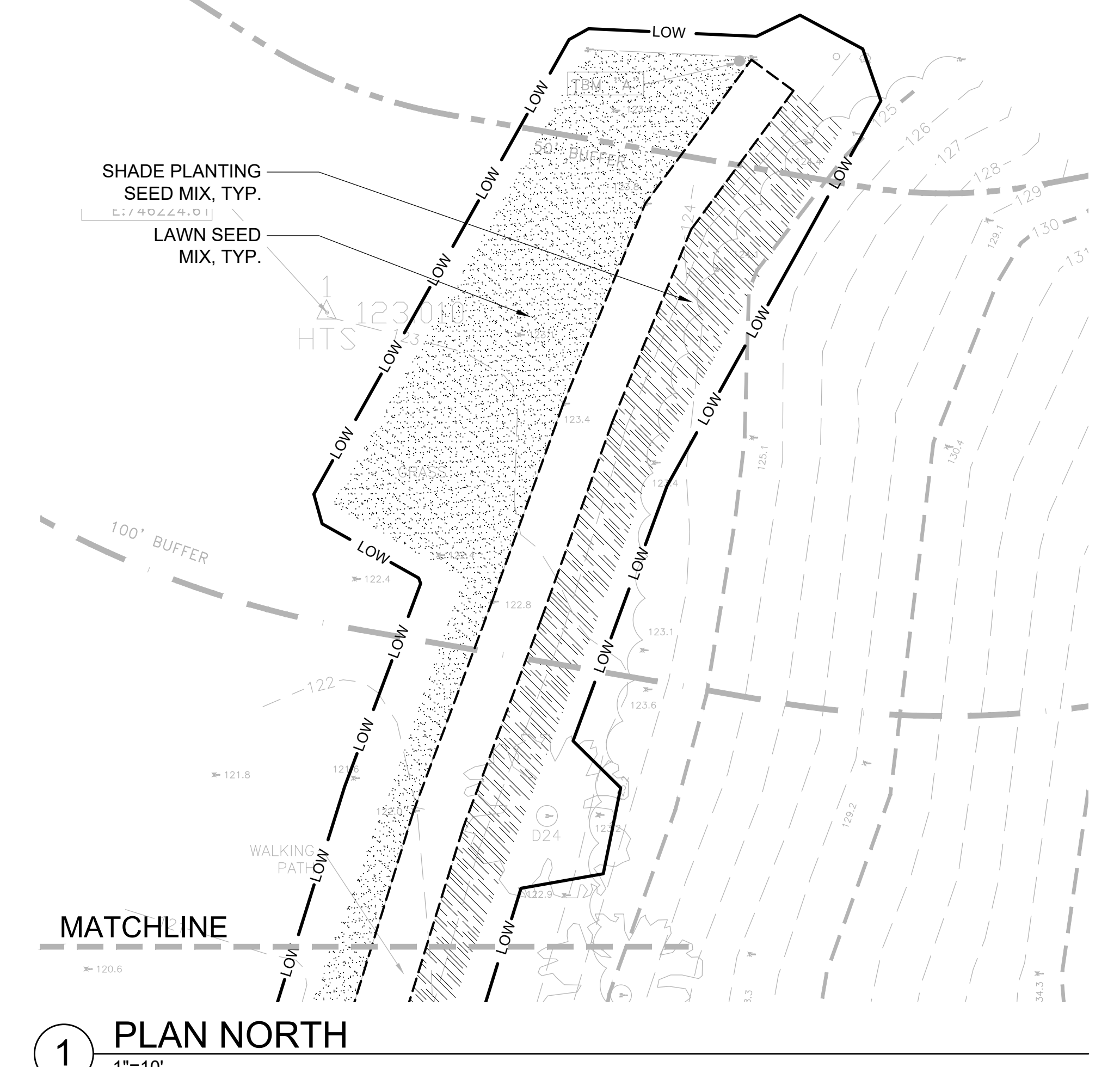
SYM	QTY	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
SEED MIXES					
LSM	2,179 sf	Lawn Seed Mix	Lawn Seed Mix	seed	SEE SPECS
MPSM	2,894 sf	Mitigation Planting Seed Mix	Mitigation Planting Seed Mix	seed	SEE SPECS
RGSM	48 sf	Rain Garden Seed Mix	Rain Garden Seed Mix	seed	SEE SPECS
SFSM	1,399 sf	Shade Planting Seed Mix	Shade Planting Seed Mix	seed	SEE SPECS

PLANTING SCHEDULE - CON COM PLANTING

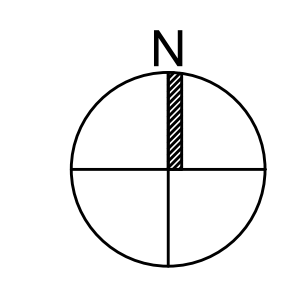
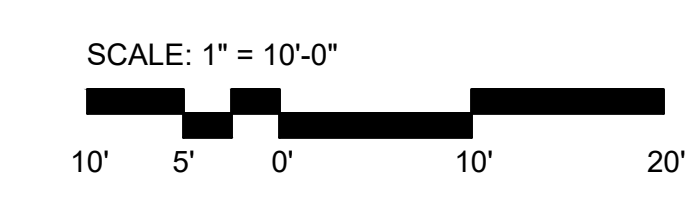
SYM	QTY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	COMMENTS
DECIDUOUS TREES						
AR	1	Acer rubrum	Red Maple	1.5" x 2" cal.	AS SHOWN	B&B, single stem, matched, straight central leader, full branches, limb to 7'
QB	1	Quercus bicolor	Swamp White Oak	1.5" x 2" cal.	AS SHOWN	B&B, single stem, matched, straight central leader, full branches, limb to 7'
QR	1	Quercus rubra	Red Oak	1.5" x 2" cal.	AS SHOWN	B&B, single stem, matched, straight central leader, full branches, limb to 7'
SHRUBS						
CAL	14	Clethra alnifolia	Summersweet	#3 cont., 24" ht. min.	30" O.C.	full and rounded, staggered rows
CP	15	Comptonia peregrina	Sweet Fern	#3 cont., 18" ht. min.	24" O.C.	full and rounded, staggered rows
SC	3	Sambucus canadensis	American Elderberry	#3 cont., 36" ht. min.	42" O.C.	full and rounded, staggered rows
VD	4	Viburnum dentatum	Viburnum	#3 cont., 42" ht. min.	48" O.C.	full and rounded, staggered rows



2 PLAN SOUTH
1"=10'



1 PLAN NORTH
1"=10'





Town of Arlington, Massachusetts

DEP #091-0364: Notice of Intent: 103 Thorndike Street (Continued from 08/01/2024).

Summary:

DEP #091-0364: Notice of Intent: 103 Thorndike Street (Continued from 08/01/2024).

The Conservation Commission will hold a public hearing under the Wetlands Protection Act and Arlington Bylaw for Wetlands Protection to consider a Notice of Intent for construction of a multifamily residence at 103 Thorndike Street in Arlington. The area to be altered includes Bordering Land Subject to Flooding associated with Alewife Brook.

ATTACHMENTS:

Type	File Name	Description
▢ Reference Material	103_Thorndike_Street_Supplemental_Materials.pdf	103 Thorndike Street Supplemental Materials.pdf
▢ Reference Material	103_Thorndike_Street_Photos.pdf	103 Thorndike Street Photos.pdf
▢ Reference Material	103_Thorndike_Site_Visit_Notes.pdf	103 Thorndike Site Visit Notes.pdf

CONSTRUCTION NOTES

- CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO ORIGINAL CONDITION.
- CONTRACTOR TO MEET ALL TOWN OF ARLINGTON REQUIREMENTS FOR AS-BUILT CERTIFICATION.
- NOTIFY DIG-SAFE AT 1-888-DIG-SAFE 72 HOURS PRIOR TO EXCAVATION TO INFORM UTILITY COMPANIES OF ANY EXCAVATION NEAR EXISTING UTILITIES.
- CONTRACTOR SHOULD IMPLEMENT EROSION AND SEDIMENTATION CONTROL IF NECESSARY TO PREVENT STORMWATER POLLUTION ONTO THE CITY DRAINAGE SYSTEM.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CITY PERMITS TO PERFORM THE WORK.

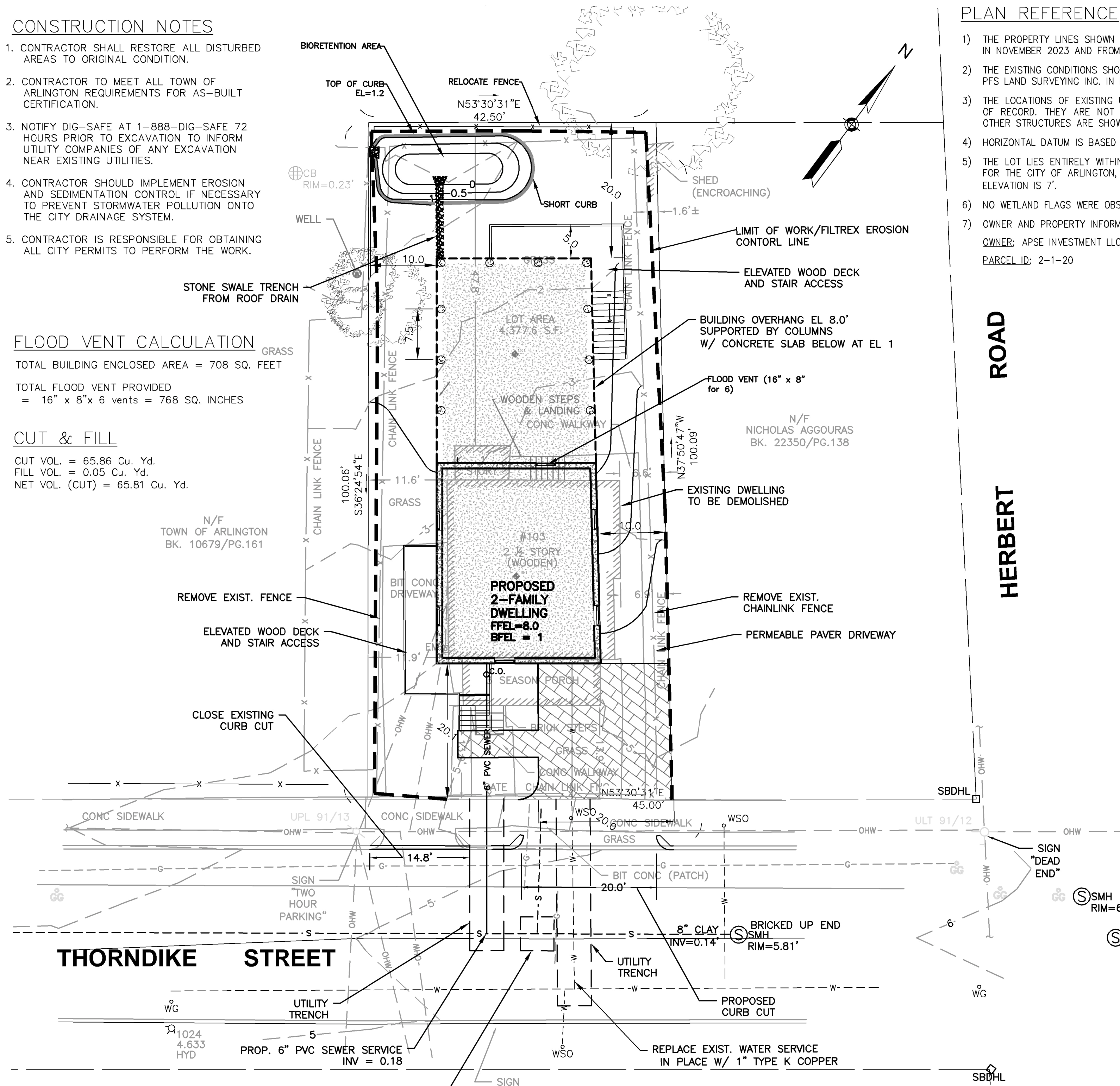
FLOOD VENT CALCULATION

TOTAL BUILDING ENCLOSED AREA = 708 SQ. FEET
 TOTAL FLOOD VENT PROVIDED = 16" x 8" x 6 vents = 768 SQ. INCHES

CUT & FILL

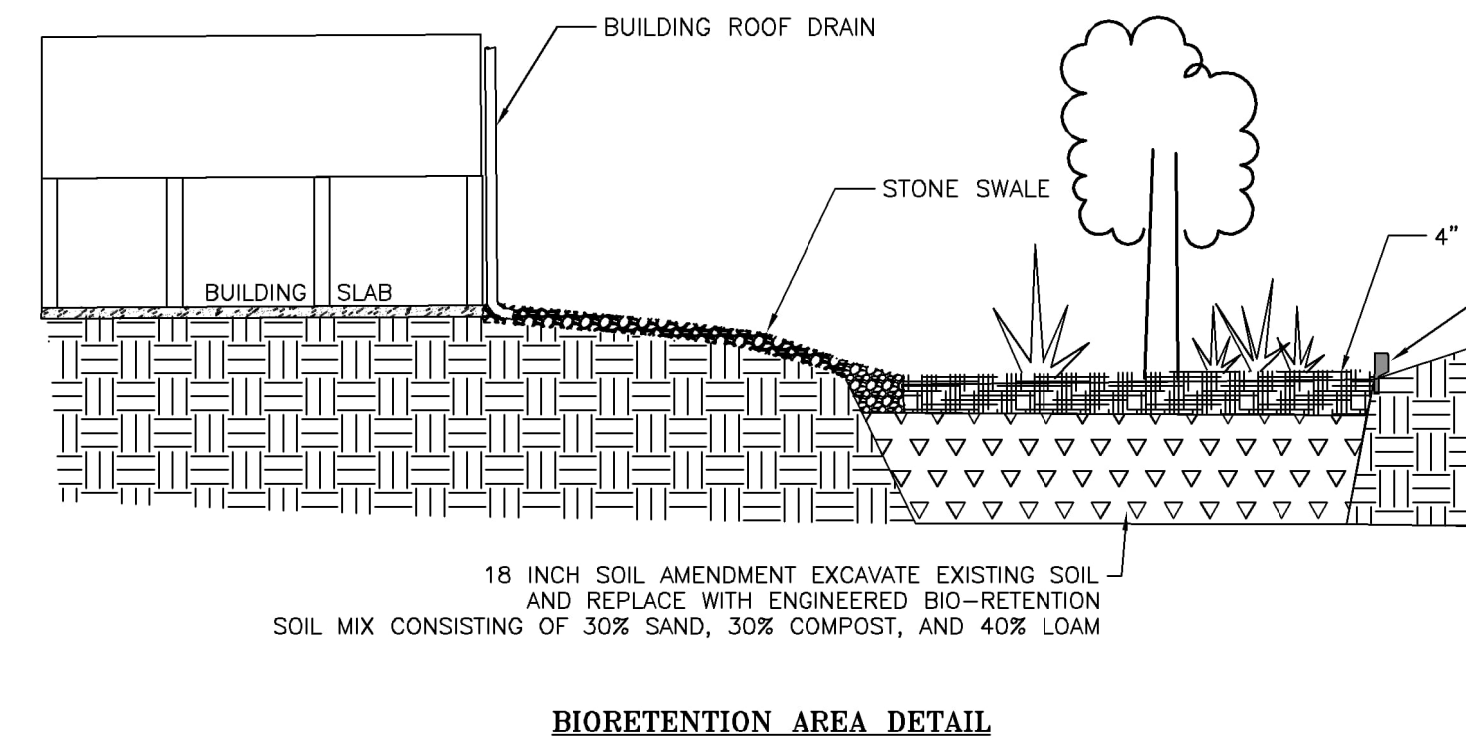
CUT VOL. = 65.86 Cu. Yd.
 FILL VOL. = 0.05 Cu. Yd.
 NET VOL. (CUT) = 65.81 Cu. Yd.

N/F TOWN OF ARLINGTON Bk. 10679/PG.161



Plant Schedule

Symbol	Common Name	Botanical Name	Quantity
☀️	Red Maple	Acer Rubrum	1
🌸	Flowering Dogwood	Cornus Florida	1
🍃	Winterberry	Ilex Verticillata	2
🌿	Switch Grass	Panicum Virgatum	8



BIORETENTION AREA DETAIL N.T.S.

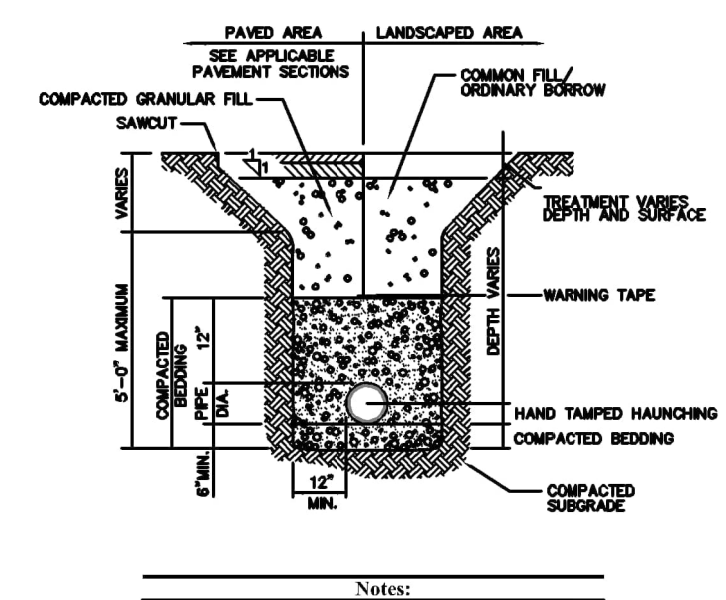
PLAN REFERENCE

- THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL FIELD SURVEY CONDUCTED BY PFS LAND SURVEYING INC. IN NOVEMBER 2023 AND FROM DEEDS AND PLANS OF RECORD.
- THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY PFS LAND SURVEYING INC. IN NOVEMBER 2023.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.
- HORIZONTAL DATUM IS BASED ON MAGNETIC NORTH. ELEVATIONS SHOWN ON THIS PLAN REFER TO NAVD OF 1988.
- THE LOT LIES ENTIRELY WITHIN ZONE AE (WITHOUT BASE FLOOD ELEVATION) (BFE) AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE CITY OF ARLINGTON, MASSACHUSETTS, COMMUNITY PANEL NUMBER 25017C0419E, EFFECTIVE DATE JUNE 4, 2010. THE FLOOD ELEVATION IS 7'.
- NO WETLAND FLAGS WERE OBSERVED ON SITE AT THE TIME OF THE SURVEY.
- OWNER AND PROPERTY INFORMATION:
 OWNER: APSE INVESTMENT LLC
 PARCEL ID: 2-1-20

ROAD HERBERT

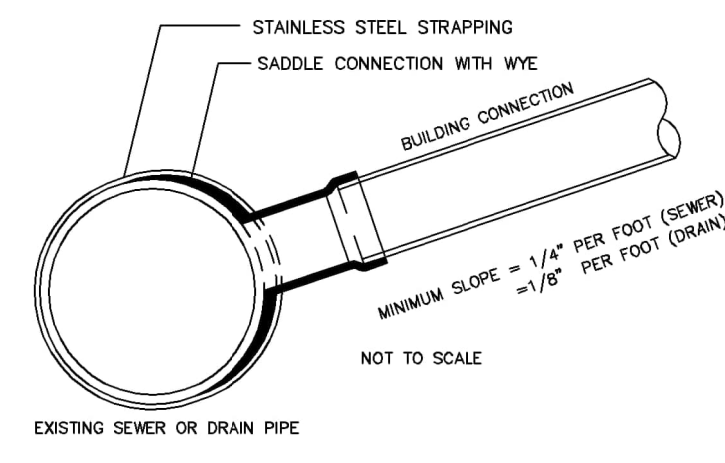


TREE PROTECTION EXAMPLE N.T.S.



UTILITY TRENCH N.T.S.

NOTE: USE THIS DETAIL ONLY IF EXISTING WYE BRANCH IS NOT FOUND IN THE FIELD.



SEWER CONNECTION DETAIL NOT TO SCALE

SADDLE CONNECTION DETAIL N.T.S.

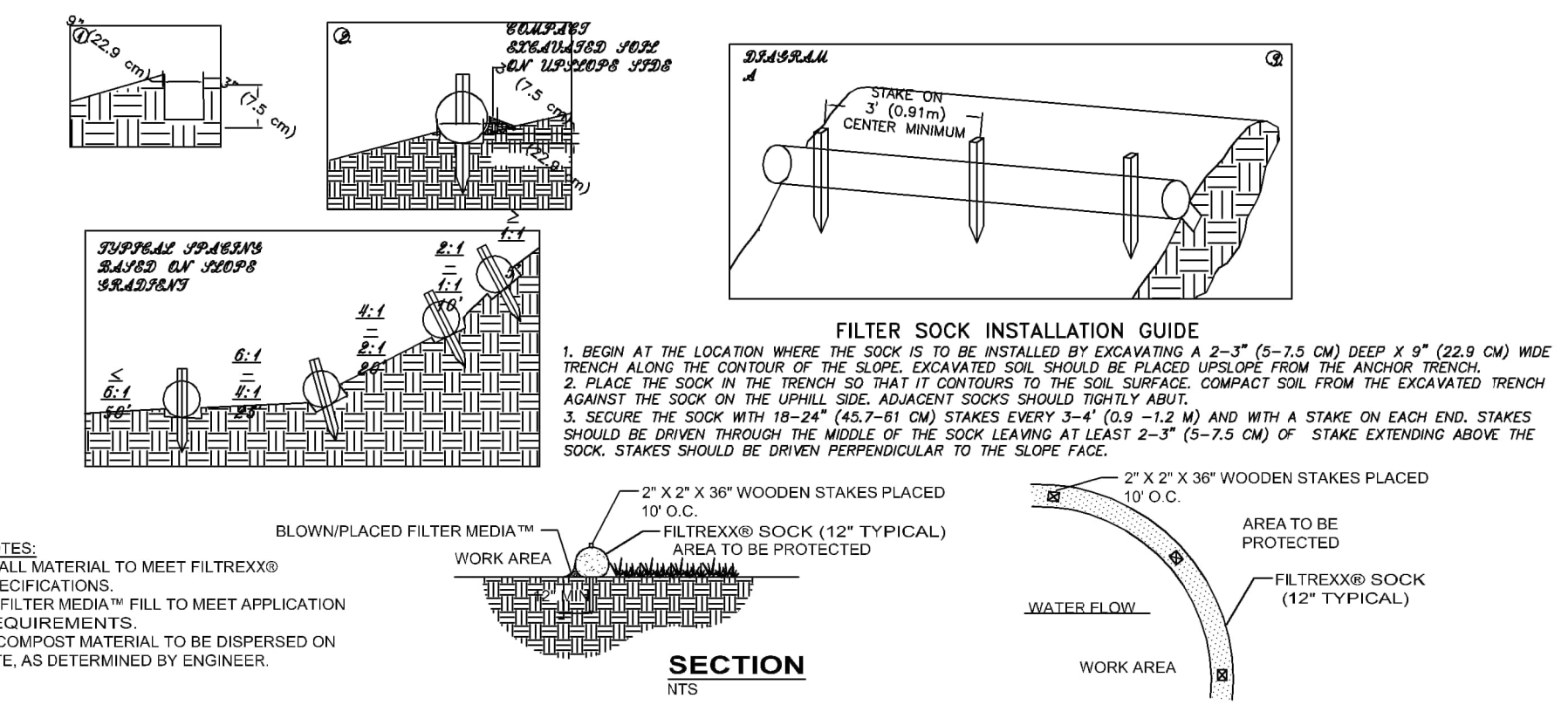
FLOOD STORAGE VOLUME EL 7'

	EXISTING	PROPOSED
EL -1-0	0	68
EL 0-1	192.2	260.2
EL 1-2	1,200.5	1,961.5
EL 2-3	2,025.5	2,375
EL 3-4	2,672.5	2,740.4
EL 4-5	3,320.5	3,329.6
EL 5-6	3,676.6	3,677.6
EL 6-7	3,676.6	3,677.6

DIMENSIONAL REQUIREMENTS

ZONING R-2	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA	6,000 SF	4,377 SF	4,377 SF
MIN. LOT AREA PER D.U.	---	N/A	N/A
MIN. LOT FRONTAGE	60 FT	45* FT	45* FT
MIN. YARD - FRONT	20 FT	13.9 FT	20.0 FT
MIN. YARD - SIDE	10 FT	6.9 FT	10.0 FT
MIN. YARD - REAR	20 FT	47.8 FT	20.0 FT
MAX. BUILDING HEIGHT	35FT/2.5ST	2.5 ST	2.5 ST
MAX. FLOOR AREA RATIO	---	N/A	N/A
MIN. LANDSCAPE OPEN SPACE	10%	76.4%	48.4%
MIN. USABLE OPEN SPACE	30%	76.4%	68.7%
MAX. LOT COV. (BUILDING & DRIVE)	35%	23.6%	32.2%

* EXISTING NONCONFORMING

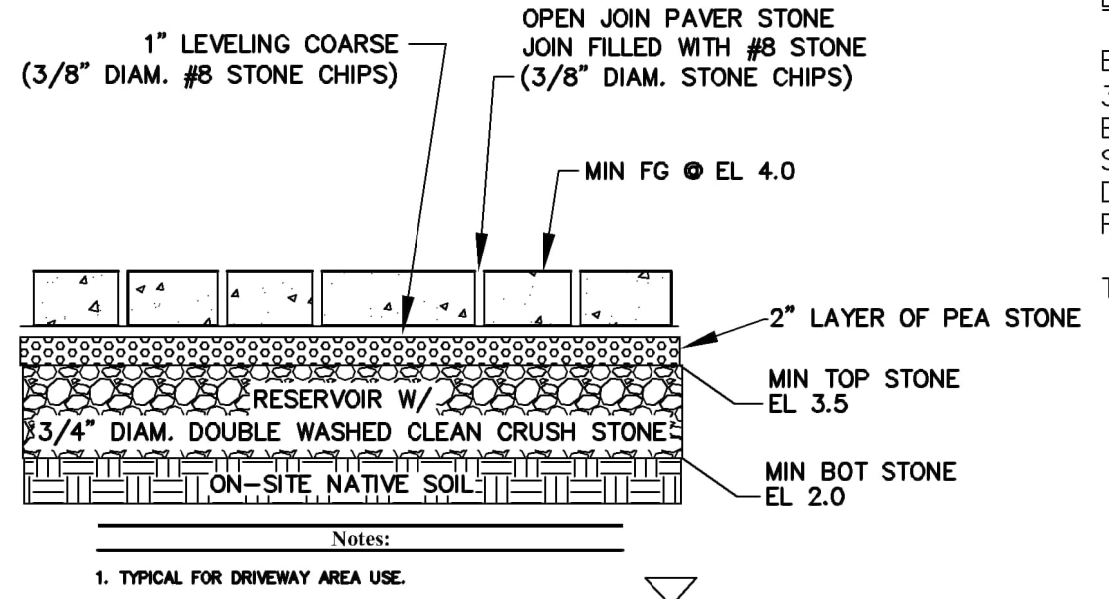


FILTER SOCK INSTALLATION GUIDE

- BEGIN AT THE LOCATION WHERE THE SOCK IS TO BE INSTALLED BY EXCAVATING A 2'-3" (5-7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
- PLACE THE SOCK IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE SOCK ON THE UPSLOPE SIDE. ADJACENT SOCKS SHOULD TIGHTLY ADJUT.
- SECURE THE SOCK WITH 18-24" (45.7-61 CM) STAKES EVERY 3'-4" (0.9-1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE SOCK LEAVING AT LEAST 2-3" (5-7.5 CM) OF STAKE EXTENDING ABOVE THE SOCK. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.

NOTES:
 1. ALL MATERIAL TO MEET FILTERSOX® SPECIFICATIONS.
 2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
 3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

Permeable Pavers Pavement Section

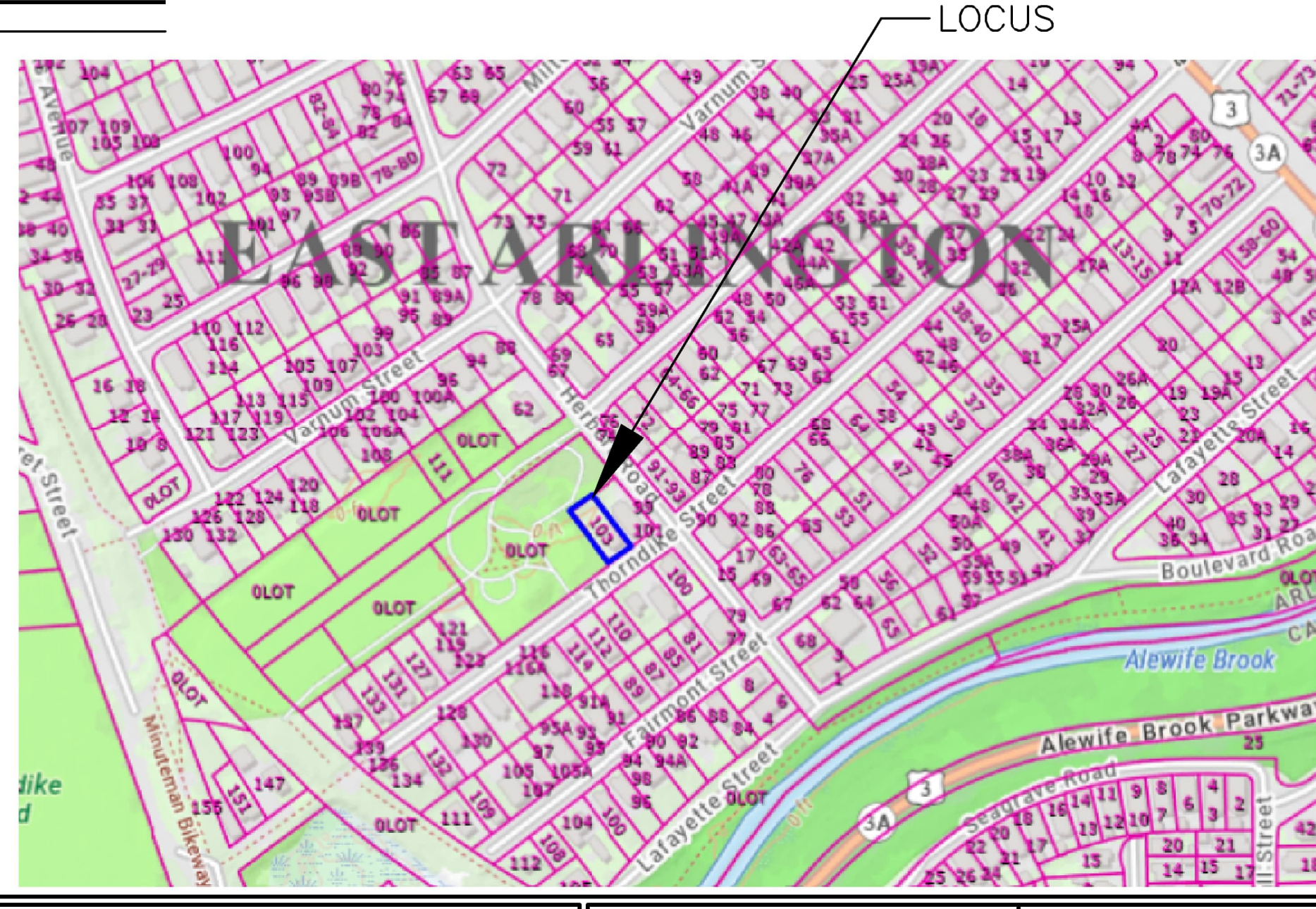


PERMEABLE PAVERS PAVEMENT SECTION N.T.S.

- TYPICAL FOR DRIVEWAY AREA USE.
- BRAND AND PRODUCT DETERMINED BY CLIENT.

DRAINAGE AREAS

	EXISTING	PROPOSED	
BUILDING	665 SF	BUILDING	1410 SF
3 SEASON PORCH	139 SF	BACK PORCH	40 SF
BACK PORCH	40 SF	DRIVEWAY (PERM. PAVERS)	850 SF
SIDE WALKWAY	207 SF		
DRIVEWAY	369 SF		
FRONT WALKWAY	79 SF		
TOTAL IMPERVIOUS	1,499	TOTAL IMPERVIOUS	1410 SF



08/07/2024

REVISIONS:

NO.	COMMENTS:	DATE:

SITE LAYOUT PLAN
 103 THORNDIKE STREET
 ARLINGTON, MASSACHUSETTS

DRAWN BY: ZLD
 DESIGNED BY: CYM
 CHECKED BY: CYM

DATE: 6-10-2024

HARDY + MAN DESIGN GROUP, PC
 CIVIL ENGINEERING & LAND DEVELOPMENT CONSULTING

1285 WASHINGTON STREET
 WEYMOUTH, MA
 (781) 335-1464

PREPARED FOR:
 CONSERVATION COMM.

SHEET
 C-1

Sunday's site visit pictures 2

Tirone, Charles <ctirone@readingma.gov>

Mon 8/12/2024 7:06 AM

To:David Morgan <dmorgan@town.arlington.ma.us>;'Susan Chapnick' <schapnick@neh-inc.com>

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.









Chuck Tirone
Conservation Administrator
16 Lowell Street
Reading, Ma 01867
p: 781-942-6616
f: 781-942-9071

ctirone@ci.reading.ma.us
Town Hall is closed on Friday
Office Hours: Mon- Wed - Thurs 8:00 - 5:30
Tuesday 8:00- 7:00

Reading is updating its Open Space and Recreational Plan! Help us understand your issues and concerns about the Town's open space and recreational areas. Visit www.readingopenspaceandrec.com to learn more about the plan and the update process.

Sundays site visits pictures

Tirone, Charles <ctirone@readingma.gov>

Mon 8/12/2024 7:05 AM

To:David Morgan <dmorgan@town.arlington.ma.us>;Susan Chapnick <s.chapnick@comcast.net>

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.







Chuck Tirone
Conservation Administrator
16 Lowell Street
Reading, Ma 01867
p: 781-942-6616
f: 781-942-9071

ctirone@ci.reading.ma.us
Town Hall is closed on Friday
Office Hours: Mon- Wed - Thurs 8:00 - 5:30
Tuesday 8:00- 7:00

Reading is updating its Open Space and Recreational Plan! Help us understand your issues and concerns about the Town's open space and recreational areas. Visit www.readingopenspaceandrec.com to learn more about the plan and the update process.

Re: Sunday's site visit pictures 2

Susan D. Chapnick <s.chapnick@comcast.net>

Mon 8/12/2024 10:27 AM

To:Tirone, Charles <ctirone@readingma.gov>;David Morgan <dmorgan@town.arlington.ma.us>;Susan Chapnick <schapnick@neh-inc.com>

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

A few site notes:

Site Visit 8/11/24

Present: Chi Man for the Applicant

Chuck Tirone, Chair

Susan Chapnick, Vice-Chair

Brian McBride, Commissioner

- Construction involves Regrading in back to remove ~ 1 foot to level out the yard.
- Raingarden / Bioswale location is currently lowest point in the yard - back left facing Magnolia Park. Suitable location. Trees, shrubs proposed are natives.
- Manhole on Town land adjacent to where the raingarden will go would take any surface overflow (as it does now).
- Large mature Oak tree (partly on Town property) will have tree protection during construction; Chuck suggested additional tree root protocols during cutting / grading near the tree drip-line.
- Other mature trees (including a large willow) that have branches hanging over property may be trimmed not more than 20%.
- Plan removal of existing old chain-link fencing around property and replacement.
- Recommended wood replacement of fence in back of property and allow spacing for wildlife.
- Recommended reaching out to Park & Rec about:
 1. tree trimming and tree protection
 2. fencing removal and replacement

Chuck / Brian - please add anything that I missed.

Thanks,
Susan

Susan D. Chapnick, M.S.

Vice-Chair, Arlington Conservation Commission

s.chapnick@comcast.net

On 08/12/2024 7:06 AM EDT Tirone, Charles <ctirone@readingma.gov> wrote: