GODDARD CONSULTING
Strategic Ecological Consulting

Notice of Intent

for

Heritage on Main

107-119 Main Street, 1 & 3 Elm Street, 0 & 26 Kelley Street
(Map 400, Lots 71-76; Map 48, Lots 46, 47-1, 47-2, 47-3; Map 49, Lots 1, 32 & 32-1)
Medway, MA 02053

DATE:
May 21th, 2026

ADDRESSED TO:
Medway Conservation Commission
155 Village Street
Medway, MA 02053

PREPARED BY:
Goddard Consulting, LLC
291 Main Street, Suite 8
Northborough, MA 01532

PREPARED FOR:
Rte. 85 Realty Corp.
P.O. Box 444
Mendon, MA 01756

GODDARD CONSULTING
Strategic Ecological Consulting

May 20th, 2026

Medway Conservation Commission
155 Village Street
Medway, MA 02053

Re: Notice of Intent (NOI)
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St.
Medway, MA 02053
(Parcel IDs: 40-076, 075, 074, 073, 072, 071 & 48-046, 47-1, 47, 47-2, 47-3 & 49-1)

Dear Medway Conservation Commission,

Goddard Consulting, LLC (Goddard) is pleased to submit this Notice of Intent (NOI) on behalf of the applicant, Rte. 85 Realty Corp, LLC, for the properties known as 107-119 Main Street, 1 & 3 Elm Street, and 0 & 26 Kelley Street in Medway (Parcel IDs: 40-076, 075, 074, 073, 072, 071 & 48-046, 47-1, 47, 47-2, 47-3 & 49-1). This Notice of Intent is for the removal of the existing buildings and parking lots on the properties from 107-119 Main Street, inclusive of several commercial businesses, a defunct post office, and an existing fast-food restaurant, with the proposed construction of a 267-unit apartment building, a bank, a fast-food restaurant, a convenience store and fueling station, and a commercial building to replace them, along with stormwater management. Connecting the new buildings, the applicant is proposing a driveway and parking lot spanning the entirety of the new development, with amenities including a play area and dog park to provide recreational value. The southern and western extent of the development, primarily consisting of parking lot, is proposed to be placed within the 100-foot Buffer Zone to Bordering Vegetated Wetland (BVW). In relation to the eastern-most portion of the proposed driveway, a small amount of fill totaling approximately 2,510 SF is proposed to be placed in a non-jurisdictional Isolated Vegetated Wetland. The applicant seeks an Order of Conditions that would allow the work to proceed. This NOI application is a joint filing under the MA Wetlands Protection Act (WPA) and the Town of Medway Wetlands Protection Bylaw (the Bylaw).

Enclosed are the WPA Form 3 and additional supporting documentation of the project for your review and approval.

If you have any questions, please feel free to contact Goddard Consulting LLC at (508) 393-3784.

Sincerely,
Goddard Consulting, LLC

CC: Rte. 85 Realty Corp., P.O. Box 444, Mendon, MA 01756
MassDEP Central Regional Office, Worcester, 8 New Bond Street, Worcester, MA 01606
Bohler Engineering, 352 Turnpike Road, Southborough, MA 01772

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Strategic Ecological Consulting

WPA FORM 3 AND CHECKS

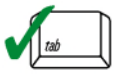
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

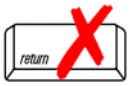
WPA Form 3 – Notice of Intent

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

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

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





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

A. General Information

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

107-119 Main St, 1&3 Elm St, 0&26 Kelley St — a. Street Address
Medway — b. City/Town
02053 — c. Zip Code

Latitude and Longitude:
42.14928 — d. Latitude
-71.41784 — e. Longitude

40 & 48 & 49 — f. Assessors Map/Plat Number
76, 75, 74,73,72,71 & 46,47-1,47,47-2,47-3 & 1 — g. Parcel /Lot Number

2. Applicant:

Tariq — a. First Name
Fayyad — b. Last Name
Rte. 85 Realty Corp. — c. Organization
P.O. Box 444 — d. Street Address
Mendon — e. City/Town
MA — f. State
01756 — g. Zip Code
(508) 422-1050 — h. Phone Number
i. Fax Number
ty@imperialcars.com — j. Email Address

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

Same as applicant — a. First Name
b. Last Name
c. Organization
d. Street Address
e. City/Town
f. State
g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Scott — a. First Name
Goddard — b. Last Name
Goddard Consulting, LLC. — c. Company
291 Main Street, Suite 8 — d. Street Address
Northborough — e. City/Town
MA — f. State
01532 — g. Zip Code
(508) 525-0726 — h. Phone Number
i. Fax Number
scott@goddardconsultingllc.com — j. Email address

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

$1,050 (+ Bylaw $2,000) — a. Total Fee Paid
$512.50 — b. State Fee Paid
$537.50 (+ Bylaw $2,000) — c. City/Town Fee Paid

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A. General Information (continued)

6. General Project Description:

The applicant is propsing the teardown of existing buildings from 119 to 107 Main Street, proposing construction of a 267-unit apartment building, a bank, a fast-food restaurant, a convenience store and fueling station, and a commercial building along with stormwater management. An extensive parking lot connects the buildings, with stormwater management. Work proposed in buffer zone to BVW.

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

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

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

1. ☐ Yes ☒ No

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

2. Limited Project Type

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

8. Property recorded at the Registry of Deeds for:

See attached sheet

a. County

b. Certificate # (if registered land)

c. Book

d. Page Number

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

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

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

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

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

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

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

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

4. Proposed alteration of the Riverfront Area:

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

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

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

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

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

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

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

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

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

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

4. ☐ Restoration/Enhancement

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

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

   a. ☐ Yes ☒ No

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

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

   b. Date of map

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

   c. Submit Supplemental Information for Endangered Species Review*

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

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

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

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

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

   (b) ☐ Photographs representative of the site

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

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

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

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

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

(d) ☐ Vegetation cover type map of site

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

(f) OR Check One of the Following

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

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

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

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

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

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

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

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

North Shore - Plymouth to New Hampshire border:

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

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

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

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

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

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

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

b. ACEC

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

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

a. ☐ Yes ☒ No

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

a. ☐ Yes ☒ No

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

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

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

2. ☐ A portion of the site constitutes redevelopment

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

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

1. ☐ Single-family house

2. ☐ Emergency road repair

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

D. Additional Information

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

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

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

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

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

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D. Additional Information (cont'd)

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

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

Heritage on Main - Mixed Use Development
a. Plan Title

Bohler Engineering
b. Prepared By

Timothy A. Hayes
c. Signed and Stamped by

4/15/2026
d. Final Revision Date

1":60'
e. Scale

Heritage on Main - Drainage Report
f. Additional Plan or Document Title

4/17/26
g. Date

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

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

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

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

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

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

9591, 9592
2. Municipal Check Number

5/20/26
3. Check date

9590
4. State Check Number

5/20/26
5. Check date

Rte 85 Realty Corporation
6. Payor name on check: First Name

7. Payor name on check: Last Name

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Provided by MassDEP:

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F. Signatures and Submittal Requirements

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

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

1. Signature of Applicant: Rte. 85 Realty

2. Date 05/20/2026

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative: Scott Goddard

6. Date 5/20/26

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

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

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

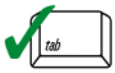
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

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NOI Wetland Fee Transmittal Form

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

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





A. Applicant Information

1. Location of Project:

107-119 Main St, 1&3 Elm St, 0&26 Kelley St	Medway
a. Street Address	b. City/Town
9590	$512.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Tariq		Fayyad
a. First Name		b. Last Name
Rte. 85 Realty Corp.		
c. Organization		
P.O. Box 444		
d. Mailing Address		
Mendon	MA	01756
e. City/Town	f. State	g. Zip Code
(508) 422-1050		ty@imperialcars.com
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

Same as applicant		
a. First Name		b. Last Name
c. Organization		
d. Mailing Address		
e. City/Town	f. State	g. Zip Code
h. Phone Number	i. Fax Number	j. Email Address

B. Fees

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

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

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

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

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

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

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

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

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NOI Wetland Fee Transmittal Form

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

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3b. Construction of Each Building, any associated activities	1	$1,050	$1,050
Bylaw Category 3b	1	$2,000	(+ Bylaw $2,000)

Step 5/Total Project Fee:

Step 6/Fee Payments:

Total Project Fee:	$1,050 (+ Bylaw $2,000)
State share of filing Fee:	$512.50 b. 1/2 Total Fee **less $**12.50
City/Town share of filling Fee:	$537.50 (+ Bylaw $2,000)

C. Submittal Requirements

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

Department of Environmental Protection
Box 4062
Boston, MA 02211

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

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

Book and Page Reference, from the Norfolk Registry of Deeds, are as follows:

119 Main Street – Book 36810, Page 81

117 Main Street – Book 36810, Page 56

115 A Main Street – Book 36928, Page 492

115 Main Street – Book 37564, Page 123

113 Main Street – Book 36810, Page 17

111 Main Street – Book 37138, Page 135

107 Main Street – Book 37138, Page 137

119 A Main Street – Book 39737, Page 101

119 B Main Street – Book 39737, Page 101

1 Elm Street – Book 39737, Page 101

3 Elm Street – Book 39737, Page 101

0 Kelley Street – Book 39788, Page 138

26 Kelley Street – Book 39788, Page 353

Commission Members
David Travalini, Chair
Dayna Gill, Vice Chair
Ken McKay
David Blackwell
Michael Narducci
Sean Green
James Dacier

Medway Town Hall
155 Village Street
Medway, MA 02053
Telephone (508) 533-3292
bgraziano@townofmedway.org

TOWN OF MEDWAY
COMMONWEALTH OF MASSACHUSETTS
CONSERVATION COMMISSION

FILING AN APPLICATION

The Medway Conservation Commission request that you file online with Massachusetts DEP and then also online through our Town Portal for all applications. The following forms and information should be included when filing with the Medway Conservation Commission.

1. Submit 2 hard copies of the application (if submitting through online portals), 3 copies if not submitting in portal

2. Email an electronic copy via email to the Conservation Commission

3. Mail a copy to DEP Central Region (8 New Bond Street, Worcester, MA 01606)

The application package **must** include the following:

__X__ One of the following application forms: WPA Form (WPA Form 1, 3, 4, 4A)

__X__ Plans, drafted by a MA Registered Land Surveyor and/or Professional Engineer

__X__ DEP + Medway local filing fees (State and local fees if paying with check, need to be 2 separate checks

__X__ Abutter Notification (form online)

__X__ Supporting documents for utilities, replication, drainage calculations, sewer system, grading etc. (if applicable)

__X__ Stormwater Calculations, as required under MA WPA and Medway Bylaw (if applicable)

____ Natural Heritage Notification (if applicable)

If applicant would like to file a Request for Certificate of Compliance, please submit the following;

____ WPA Form 8 A

____ As Built Plans stamped by a MA Registered Land Surveyor and/or Professional Engineer

____ Letter from the Professional Engineer and/or Wetland Scientist

INCOMPLETE FILINGS WILL DELAY THE PROCESS

FILING ONLINE

STATE

Instructions - https://www.mass.gov/info-details/edep-system-browser-requirements
Portal - https://edep.dep.mass.gov/eDEP/DEPLogin.aspx?ReturnUrl=%2feDEP%2f

MEDWAY LOCAL

Here is how to submit online through our portal. This must be completed and the above sent to our office and DEP office per the application requirements.

Here is how to file.

Options for application online. This is how we are accepting applications.

https://www.citizenserve.com/Portal/PortalController?Action=showDevelopmentApplications&ctzPagePrefix=Portal_&installationID=278&original_iid=278&original_contactID=34852072&srcFrom=SupportCenter

From there they'll need to press "Apply Online" and sign/register an account. Once you register an account setup a password so no additional pin will be needed.

GODDARD CONSULTING
Strategic Ecological Consulting

Notice of Intent – Regulatory Compliance Narrative

1.0 INTRODUCTION

This Notice of Intent (NOI) is submitted in accordance with the requirements of the Massachusetts Wetlands Protection Act and the Town of Medway Wetland Protection Bylaw (the Bylaw) to seek an Order of Conditions for the proposed removal of the existing structures on 107 through 119 Main Street and existing parking areas, with the construction of a 267-unit apartment building, a bank, fast-food restaurant, a convenience store and fueling station, and a separate, smaller commercial building all connected by an expanded parking area. The southern and western extents of the proposed parking lot are within the 100-foot Buffer Zone of Bordering Vegetated Wetlands (BVW).

2.0 EXISTING CONDITIONS

2.1 RESOURCE AREAS ON-SITE

The site's resource areas, as discussed below, were confirmed through the issuance of an Order of Resource Area Delineation (ORAD) issued by the Medway Conservation Commission. The ORAD was issued on 8/7/2023 under DEP File #216-1034 for 1 & 3 Elm Street, 107-119 Main Street, and 26 Kelley Street (See Parcel IDs above) and expires 8/7/2028 after receiving a two-year extension under Governor Healy's 2024 "Mass Leads Act". The ORAD permit is included with the filing of this Notice of Intent.

The project site is located south along Main Street in West Medway and is approximately 21.1 acres in size. The project area contains several existing commercial buildings along Main Street, totaling +/- 28,800 sf. Each existing building has separate parking lots that total +/- 161,220 sf, primarily limited to the perimeter of the existing buildings. South of Main Street and the existing structures, the properties known as 119A and 119B Main Street are currently undeveloped and forested, partially consisting of Bordering Vegetated Wetland (BVW) throughout the western half of the parcels. This BVW system extends south into 0 and 26 Kelley Street, which consist primarily of BVW. Additionally, another BVW system is present throughout the northwestern portion of 119B Main Street, extending south throughout the majority of the undeveloped parcels, 1 & 3 Elm Street. A non-jurisdictional Isolated Vegetated Wetland (IVW) is present on the southern-most portion of 107 Main Street, located partially onsite. The project site abuts developed land to the east, north, and west, with an undeveloped strip to the south consisting primarily of BVW (See Figure 1 below).



Figure 1. Aerial image of the locus site.

As approved under the ORAD (DEP File #216-1034), two Bordering Vegetated Wetland (BVW) systems are located partially onsite to the south and west of the existing development, and each cast a 100-foot Buffer Zone under the Wetlands Protection Act (WPA) and a 25-foot No Disturb Zone under the Town of Medway Wetlands Protection Bylaw (the Bylaw) onto the project area. An Isolated Vegetated Wetland (IVW) is located in the western-most portion of the locus site; however, due to its size of approximately 3,260 sf, it falls under the minimum size threshold to be considered jurisdictional and thus has no associated setbacks.



Figure 2: View of resource areas and existing conditions onsite.

According to the MassGIS data layers for NHESP, this site is not located within Estimated Habitat of Rare Wildlife or Priority Habitat of Rare Species. No mapped certified or potential vernal pools are located on the site or nearby. The site is not mapped within an Area of Critical Environmental Concern (ACEC) or Outstanding Resource Waters (ORW) Area. No FEMA Flood Zone is present onsite.

2.1.1 Bordering Vegetated Wetland (BVW)

Massachusetts WPA Regulations define Bordering Vegetated Wetlands as "freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps, and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetational community which occur in each type of freshwater wetland are specified in M.G.L. c. 131, § 40."

Bordering Vegetated Wetland was identified in the field and was confirmed through the site's ORAD. As outlined above, the Bordering Vegetated Wetland (BVW) system is partially on-site to the south and west. The total BVW on-site is approximately 6.6-acres or 286,150 sf. The BVW system was confirmed as state and locally jurisdictional BVW system, and its Buffer Zones added to the proposed plans.

2.1.2 Buffer Zone (100-foot)

Massachusetts WPA Regulations define Buffer Zone as "100-ft area horizontally (on a true lateral) landward of approved delineation of applicable wetland resource areas." The WPA further states that any activities undertaken within 100 feet of an area specified in 310 CMR 10.02(1)(a) (e.g., Bank, Bordering Vegetated Wetland) will be conducted per (310 CMR 10.02(2)(b)), "in a manner so as to reduce the potential for any adverse impacts to the resource area during construction, and with post-construction measures implemented to stabilize any disturbed areas."

The WPA Regulations [*310 CMR 10.02(2)(b)]* do not contain performance standards for Buffer Zone Alteration. The Medway Wetlands Protection Bylaw does not have performance standards for Buffer Zone Alteration. All reasonable efforts to avoid, minimize and mitigate adverse impacts on the Buffer Zone have been considered.

The site contains 100-foot Buffer Zone cast off from the BVW system. The total 100-foot Buffer Zone on-site is approximately 7.24-acres or 315,505 sf. The proposed structures have been laid out to maintain the furthest separation allowable and practicable from the on-site resource areas and buffer zones.

2.1.3 Isolated Vegetated Wetland (IVW)

Massachusetts WPA Regulations do not directly define IVWs, and they are considered non-jurisdictional. The Medway Conservation Commission states, "Said resource areas shall be protected whether or not they border surface waters. To be afforded protection, Isolated Vegetated Wetlands (not. including vernal pools) must encompass minimum surface areas of 5,000 square feet." As the IVW present is less than the 5,000-sf threshold, at a size of approximately 3,260 sf, it is considered non-jurisdictional. The IVW is located partially onsite at the easternmost portion of the project area.

The project proposes the filling of approximately 2,510 sf of the IVW to allow for the construction of parking lot and grading. Although not required under the Bylaw, this will partially be offset by the donation, and subsequent protection, of conservation land within the project area. See Section 2 below for more information on the conservation land donation.

2.1.4 25-foot No Disturbance Zone (Medway Conservation Commission Policy)

The Medway Conservation Commission administers a 25-foot No Disturbance Zone (NDZ) Policy to "establish a permanent vegetative buffer between wetland resource areas and developed areas." The commission states that within the NDZ, "no work shall be allowed within 25 feet of wetland resource areas identified in these rules and regulations (exclusive of the 100 foot buffer zone)" and that "No removal of vegetation will be permitted within this 25 foot setback except as specifically waived by the Commission under Section 29." (Rules and Regulations of the Town of Medway Conservation Commission, amended 2020).

The site contains 25-foot No Disturbance Zone cast off from the BVW systems. The total 25-foot No Disturbance Zone from BVW on-site is ± 2.05 acres or ± 89,355 sf. No work is proposed

within the NDZ. The proposed structures have been laid out to maintain the furthest separation allowable and practicable from the on-site resource areas and buffer zones.

2.0 PROPOSED PROJECT

The applicant proposes the removal of the existing structures and parking lots as outlined above, proposed to be replaced with the construction of a 267-unit apartment building, a bank, a fast-food restaurant, a convenience store and fueling station, and a commercial building. Associated with the apartment buildings, two amenity areas, inclusive of recreational space and native landscaping for use by the residents, is proposed north of the proposed parking lot, interior to the structure. Native landscaping is proposed in islands throughout the parking lot and along the proposed structures throughout the development, with several recreational areas inclusive of a playground and dog park for use by residents. Stormwater management, including an infiltration basin located northwest of the proposed parking lot, is proposed to manage runoff associated with the increase in impervious.

Of the proposed construction, only the western and southwestern extents of the proposed parking area fall within jurisdiction, located within the 100-foot Buffer Zone to Bordering Vegetated Wetland (BVW). Within the Limit of Disturbance (LOD) in relation to the western BVW, approximately 20,715 sf of parking lot is proposed, with approximately 44,340 sf of disturbance total, related primarily to the installation of a retaining wall, a dog park, sidewalk, landscaping and grading related to the proposed infiltration basin. Within the LOD related to the 100-foot Buffer Zone of the southern BVW system, approximately 12,250 sf of parking lot is proposed to be constructed, with approximately 33,190 sf of alteration total, primarily in the form of a retaining wall, landscaping areas featuring native vegetation, a trash and recycling area, side walk, and a portion of the play area. The total alteration within the 100-foot Buffer Zone totals approximately 32,425 sf of parking lot and approximately 77,530 sf of alteration in total. No work is proposed in the 25-foot No Disturb Zone.

Stormwater management is proposed in the form of deep-sump hooded catch basins and manholes along the western portion of the parking area, routing to an infiltration basin off the northwestern corner of the parking area. Regarding the apartment building, a series of catch basins, manholes, and downspouts redirect stormwater to a series of subsurface, SingleTrap stormwater infiltration systems. Similarly, the remaining structures, including the bank, fast-food restaurants, gas station, convenience store, and commercial building, are tied into two eight-row Cultec R-360HD infiltration systems. The proposed stormwater management will serve to capture additional stormwater generated through the increase of impervious surface, improving the existing conditions in which stormwater flows unmanaged downgradient towards the wetland. See the attached stormwater report for more information on the proposed stormwater management.

Related to the proposed parking lot expansion, 216 trees are proposed for removal within the 100-foot Buffer Zone, requiring the replacement of 461 trees per the Medway Tree Mitigation Bylaw. Throughout the project area, the applicant is proposing the planting of 102 trees to offset those proposed for removal. For more information on the proposed tree removal, please see the attached Tree Removal Permit application and associated Tree Removal plan.

Due to the inability to strictly meet the tree removal mitigation standards outlined by the Bylaw, the application is proposing the donation of two parcels within the project area to the Town of Medway as conservation land. The subject parcels are known as 0 & 26 Kelley Street (Parcel IDs: 49-32-1, 49-32), and are currently forested, undeveloped wetlands. This, along with the native plantings and seed mix proposed throughout the project area, will serve to mitigate for the trees removed, and ultimately offset the proposed development. For more information on the proposed native plantings through the development, refer to the Site Plans for additional information (Sheets L101-103).

Erosion control barriers (ECB) in the form of silt fence and compost filter tube will be installed along the limit of disturbance prior to any earth disturbance to limit the potential for any erosion or sedimentation to leave the work area and travel offsite or towards the Bordering Vegetated Wetlands (BVW). This ECB will demarcate the limit of work and will be located as shown on the attached site plans. Additionally, a stabilized construction entrance will be provided to limit the potential for vehicles or machines to track sediment offsite. After all soil disturbance is complete, any disturbed areas will be loamed and seeded to establish permanent stability.

The proposed project will result in an overall improvement to the existing conditions on-site through the creation of valuable housing inventory and the implementation of comprehensive stormwater management, ultimately protecting the downgradient resource areas.

3.0 REGULATORY COMPLIANCE WITH WETLANDS PROTECTION ACT

The work proposed in this project falls within the 100-foot Buffer Zone to Bordering Vegetated Wetland (BVW). The project has been designed to minimize Buffer Zone and resource area impacts to the maximum extent practicable. Table 1 below outlined impacts to the BVW and buffer zone on-site.

Table 1. This table lays out the total proposed disturbance within the 100-foot Buffer Zone and the 25-foot No Disturbance Zone (Local Policy).

Wetland Protection Act Impact Area Calculations Table (in square feet)

Area on 21.1 Ac/ 919,116 sf Development Site	**Existing Square Footage (+/-)**
SF of total BVW on site	286,150
SF of total 100' Buffer Zone on site	315,505
SF of total 25' No Disturbance Zone (Local Policy) on site	89,355
SF of existing impervious disturbance on site	190,100
Percentage of total existing impervious disturbance on site	20.7%

SF of existing impervious disturbance in the 100' Buffer Zone on site	0
SF of existing impervious disturbance in the 25' NDZ on site	0

100-foot BVW Buffer Zone Disturbance on 21.1 Ac/ 919,116 sf Development Site	**Proposed Square Footage (+/-)**
SF of total proposed impervious disturbance on site	365,800
Percentage of total proposed impervious disturbance on site	39.8%
Percentage difference from existing conditions for total impervious disturbance on site	(+) 19.1%
SF of total proposed impervious disturbance in the 100' Buffer Zone on site	41,125
SF of total proposed impervious disturbance in the 25' NDZ on site	0
SF of total proposed pervious disturbance in the 25' NDZ on site	0
Proposed non-jurisdictional IVW to be filled	2,510

Legend

- Project Site
- Limit of Disturbance (LOD)
- Bordering Vegetated Wetland (BVW)
- 25' No Disturb Zone
- 100' Buffer Zone
- Isolated Vegetated Wetland (IVW) - Non-Jurisdictional
- Land Proposed for Conservation Donation
- Proposed Structures
- Proposed Parking Lot
- Proposed Sidewalk/Crosswalk
- Proposed Infiltration Basin
- Proposed Landscaping/Seed Mix
- Proposed Amenity Areas



0 87.5 175 Feet

1" = 175'

71.416346°W, 42.1489988°N

Parcel ID: See NOI Form 3

Proposed Site Improvements

Heritage on Main
Medway, MA

GODDARD CONSULTING
Strategic Ecological Consulting

Date: 05/19/2026

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Legend

- Project Site
- Bordering Vegetated Wetland (BVW)
- 25' No Disturb Zone
- 100' Buffer Zone
- Proposed Parking Lot within BZ
- Proposed Sidewalk/Crosswalk within BZ
- Proposed Landscaping/Seed Mix within BZ
- Proposed Infiltration Basin within BZ

MAIN STREET (AKA MA ROUTE 109) (NO THROUGH TRAFFIC) (PUBLIC – VARIABLE WIDTH) (ASPHALT ROADWAY)

ELM STREET (PUBLIC – 36' WIDE) (TWO WAY TRAFFIC) (ASPHALT ROADWAY)

PROP BLDG A 74,540 SF±

AMENITY AREA A

AMENITY AREA B

SEATING AREA

MEMORIAL PLAZA

DOG RUN 2500 SF

PLAY AREA 3000 SF

GARAGE 1

GARAGE 2

GARAGE 3

PROP LOT 1

PROP ANR SUBDIVISION LINE

10' SIDE SETBACK

25' WETLAND BUFFER

100' WETLAND BUFFER

LOD

DRILL HOLE FOUND

N

S

E

W

0 50 100 Feet

1" = 100'

71.4174281°W, 42.149036°N

Parcel ID: See NOI Form 3

Proposed Site Improvements
Within Jurisdiction

Heritage on Main
Medway, MA

GODDARD CONSULTING
Strategic Ecological Consulting

Date: 05/19/2026

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5.0 CONCLUSION

In summary, Goddard Consulting believes that the proposed project will not have any adverse impacts on the interests identified in the Wetlands Protection Act or the Town of Medway Wetlands Protection Bylaw. The project has been designed with sensitivity to the resource areas on site. The proposed project meets all regulatory compliance standards under the Wetlands Protection Act and the Bylaw; therefore, Goddard Consulting respectfully requests that the Medway Conservation Commission issue an Order of Conditions approving the proposed project.

If you have any questions, please feel free to contact us at (508) 393-3784.

Sincerely,
Goddard Consulting, LLC

Scott Goddard, PWS, CWS
Principal

Jacob Crosson
Wetland Scientist

GODDARD CONSULTING
Strategic Ecological Consulting

Appendix A

Abutter Information

Notification to Abutters

By Hand Delivery, Certified Mail (return receipt requested), or Certificates of Mailing

This is a notification required by law. You are receiving this notification because you have been identified as the owner of land abutting another parcel of land for which certain activities are proposed. Those activities require a permit under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40).

In accordance with the second paragraph of the Massachusetts Wetlands Protection Act, and 310 CMR 10.05(4)(a) of the Wetlands Regulations, you are hereby notified that:

A. A Notice of Intent was filed with the Medway Conservation Commission on 5/21/26 seeking permission to remove, fill, dredge, or alter an area subject to protection under M.G.L. c. 131 §40. The following is a description of the proposed activity/activities:

This Notice of Intent is for the removal of the existing buildings and parking lots on the properties from 107-119 Main Street, inclusive of several commercial businesses, a defunct post office, and an existing fast-food restaurant, with the proposed construction of a 267-unit apartment building, a bank, a fast-food restaurant, a convenience store and fueling station, and a commercial building to replace them, along with stormwater management.

B. The name of the applicant is: Rte. 85 Realty

C. The address of the land where the activity is proposed is: 107-119 Main Street, 1 & 3 Elm Street, and 0 & 26 Kelly Street in Medway, MA

D. Copies of the Notice of Intent may be examined or obtained at the office of the Medway Conservation Commission, located at 155 Village Street in Medway, Ma. The regular business hours of the Commission are Monday 8am-5:30pm, Tuesday through Thursday 8am-4:30pm, and Friday 8am-12pm, and the Commission may be reached at (508) 533-3292.

E. Copies of the Notice of Intent may be obtained from the applicant or their representative by calling Goddard Consulting LLC. at (508) 393-3784. An administrative fee may be applied for providing copies of the NOI and plans.

F. Information regarding the date, time, and location of the public hearing regarding the Notice of Intent may be obtained from the Medway Conservation Commission. Notice of the public hearing will be published at least five business days in advance, in a newspaper in local circulation.

Notification provided pursuant to the above requirement does not automatically confer standing to the recipient to request Departmental Action for the underlying matter. See 310 CMR 10.05(7)(a)4.

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act
And the Medway Wetlands Bylaw

(to be submitted to the Massachusetts Department of Environmental Protection and the Conservation Commission)

I, Jacob Crosson hereby certify under the pains and penalties of perjury that on 5/21/2026 I gave notification to abutters in Compliance with the second paragraph of Massachusetts General Law Chapter 131, Section 40, and the DEP Guide to Abutter Notification dating April 8, 1994 in connection with the following matter:

A Notice of Intent was filed under the Massachusetts Wetlands Protection Act by Rte. 85 Realty with the Medway Conservation Commission on 5/21/2026 for property located at 107-119 Main Street, 1 & 3 Elm Street, and 0 & 26 Kelley Street, (Map 40, Lots 71-76; Map 48, Lots 46, 47-1, 47-2, 47-3; Map 49, Lots 1, 32 & 32-1) in Medway, MA for the removal of the existing buildings and parking lots on the properties from 107-119 Main Street, inclusive of several commercial businesses, a defunct post office, and an existing fast-food restaurant, with the proposed construction of a 267-unit apartment building, a bank, a fast-food restaurant, a fueling station, and a commercial building to replace them, along with stormwater management. within the buffer zone to Bordering Vegetated Wetland.

The form of the notification, and the list of abutters to whom it was given, and their addresses, are attached to this Affidavit of Service.



(Name)

5/21/2026
(Date)

GODDARD CONSULTING
Strategic Ecological Consulting

Appendix B

Wetland Information

Commission Members
David Travalini, Chair
Ken McKay
David Blackwell
Dayna Gill
Michael Narducci
Sean Green
James Dacier

Medway Town Hall
155 Village Street
Medway, MA 02053
Telephone (508) 533-3292
bgraziano@townofmedway.org

TOWN OF MEDWAY
COMMONWEALTH OF MASSACHUSETTS
CONSERVATION COMMISSION

August 7, 2023

Tariq Fayad
Rte 86 Realty Corp
PO Box 444
Mendon, MA 01756

Dear Mx. Fayad,

Enclosed is the wetland permit (Order of Area Resource Delineation) issued **August 7, 2022 DEP #216-1034**. The appeal period is 10 days. No work should be performed prior to the end of the 10-day appeal period.

Please carefully read the ORAD. This must be recorded at the Norfolk Registry of Deeds, you have to send a check to our office for $106.00. Therefore, after the 10-day appeal period our office can complete the recording on your behalf.

We thank you for the opportunity to review this work and trusts that it will be carried out in such a way that protects our wetland resources. The Order of Conditions DEP #216-1034 shall **expire August 7, 2026**. If you have any questions, please contact me at bgraziano@townofmedway.org .

Sincerely,

Bridget R Graziano

Bridget R. Graziano, Conservation Agent
Medway Conservation Commission

For Registry of Deeds Use Only

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 4B – Order of Resource Area Delineation

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

Provided by MassDEP:
216-1034
MassDEP File Number

eDEP Transaction Number

Medway
City/Town

A. General Information

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



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

From: Medway
1. Conservation Commission

2. This Issuance is for (check one):

a. ☒ Order of Resource Area Delineation

b. ☐ Amended Order of Resource Area Delineation

3. Applicant:

Tariq
a. First Name

Fayad
b. Last Name

Rte 86 Realty Corp
c. Organization

PO Box 444
d. Mailing Address

Mendon
e. City/Town

MA
f. State

01756
g. Zip Code

4. Property Owner (if different from applicant):

Kevin
a. First Name

Meehan
b. Last Name

Milford East Main Street LLC (OWNER: Map 40 Lot 073
c. Organization

60 Causeway Street
d. Mailing Address

Millis
e. City/Town

MA
f. State

01532
g. Zip Code

5. Project Location:

1, 3 Elm Street 107, 111, 115, 115A, 117 119, 119A, 119B Main Street, 26 Kelley Street
d. Assessors Map/Plat Number

Map 40, 48, 49 (respectively)

Medway
b. City/Town

02053
c. Zip Code

Lot 71, 72, 73, 74, 75, 76; 46, 47, 47-0001, 47-0002, 47-0003; 32, 32-0001

Latitude and Longitude (in degrees, minutes, seconds):

d m s
f. Latitude

d m s
g. Longitude

6. Dates:

May 25, 2023
a. Date ANRAD filed

July 27, 2023
b. Date Public Hearing Closed

August 7, 2023
c. Date of Issuance

A. General Information (cont.)

7. Title and Date (or Revised Date if applicable) of Final Plans and Other Documents:

Boundry, Topographic Utility Survey 107, 111, 113, 115, 117, 119 Main Street 1, 3 Elm Street 0 & 26 Kelley Street by Control Point Associates — c. Title

final 7/17/2023 — b. Date

d. Date

B. Order of Delineation

1. The Conservation Commission has determined the following (check whichever is applicable):

a. ☒ **Accurate**: The boundaries described on the referenced plan(s) above and in the Abbreviated Notice of Resource Area Delineation are accurately drawn for the following resource area(s):

1. ☒ Bordering Vegetated Wetlands
2. ☒ Other resource area(s), specifically:

a. as determined by approved plans and specified in etter from Eco Tec, Inc. titled, " Wetland Peer Review Results 1 & 3 Elm Street, 107, 111, 113, 115,115A, 117, 119, 119A and 119B Main Street, 0 & 26 Kelley Street, Medway, MA dated July 25, 2023.

b. ☐ **Modified**: The boundaries described on the plan(s) referenced above, as modified by the Conservation Commission from the plans contained in the Abbreviated Notice of Resource Area Delineation, are accurately drawn from the following resource area(s):

1. ☐ Bordering Vegetated Wetlands
2. ☐ Other resource area(s), specifically:

a.

c. ☒ **Inaccurate**: The boundaries described on the referenced plan(s) and in the Abbreviated Notice of Resource Area Delineation were found to be inaccurate and cannot be confirmed for the following resource area(s):

1. ☒ Bordering Vegetated Wetlands
2. ☐ Other resource area(s), specifically:

Wetland A and C, (specifically A-1 through A31, A50 through A54, and C1 through C11, as noted on letter from Eco Tec, Inc. titled, " Wetland Peer Review Results 1 & 3 Elm Street, 107, 111, 113, 115,115A, 117, 119, 119A and 119B Main Street, 0 & 26 Kelley Street, Medway, MA dated July 25, 2023.

B. Order of Delineation (cont.)

3. ☒ The boundaries were determined to be inaccurate because:

As the notes on the plan show an expired ORAD which have flags that are no longer valid. Additionally, applicant has chosen to not refresh/update the flags for Medway Conservation Commission review, therefore, the Commission is requiring these be flagged and reviewed under furture NOI applications.

C. Findings

This Order of Resource Area Delineation determines that the boundaries of those resource areas noted above, have been delineated and approved by the Commission and are binding as to all decisions rendered pursuant to the Massachusetts Wetlands Protection Act (M.G.L. c.131, § 40) and its regulations (310 CMR 10.00). This Order does not, however, determine the boundaries of any resource area or Buffer Zone to any resource area not specifically noted above, regardless of whether such boundaries are contained on the plans attached to this Order or to the Abbreviated Notice of Resource Area Delineation.

This Order must be signed by a majority of the Conservation Commission. The Order must be sent 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 DEP Regional Office (see http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html).

D. 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 DEP Regional Office to issue a Superseding Order of Resource Area Delineation. When requested to issue a Superseding Order of Resource Area Delineation, the Department's review is limited to the objections to the resource area delineation(s) stated in the appeal request. 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 of Resource Area Delineation 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 Determination, or providing written information to the Department prior to issuance of a Superseding Order or Determination.

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 bylaw or ordinance, and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 4B – Order of Resource Area Delineation

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

Provided by MassDEP:
216-1034
MassDEP File Number

eDEP Transaction Number

Medway
City/Town

E. Signatures

8/7/2023
Date of Issuance

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

4
1. Number of Signers

David A Travalini
Signature of Conservation Commission Member

Signature of Conservation Commission Member

James Dacier
Signature of Conservation Commission Member

David J. Blackwell
Signature of Conservation Commission Member

Signature of Conservation Commission Member

Michael Narducci
Signature of Conservation Commission Member

This Order is valid for three years from the date of issuance.

If this Order constitutes an Amended Order of Resource Area Delineation, this Order does not extend the issuance date of the original Final Order, which expires on unless extended in writing by the issuing authority.

This Order is issued to the applicant and the property owner (if different) as follows:

2. ☐ By hand delivery on

a. Date

3. ☒ By certified mail, return receipt requested on

8/7/2023
a. Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 4B – Order of Resource Area Delineation

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

Provided by MassDEP:

MassDEP File Number

eDEP Transaction Number

City/Town

Recording Information

Prior to commencement of work, this Order of Resource Area Delineation 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 Resource Area Delineation. The recording information on this page shall be submitted to the Conservation Commission listed below.

Medway
Conservation Commission

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

To:

Medway
Conservation Commission

Please be advised that the Order of Resource Area Delineation 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 Resource Area Delineation 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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

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

DEP File Number:

216-1034
Provided by DEP

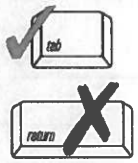
A. Request Information

1. Location of Project

a. Street Address | b. City/Town, Zip

c. Check number | d. Fee amount

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



2. Person or party making request (if appropriate, name the citizen group's representative):

Name

Mailing Address

City/Town | State | Zip Code

Phone Number | Fax Number (if applicable)

3. Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):

Name

Mailing Address

City/Town | State | Zip Code

Phone Number | Fax Number (if applicable)

4. DEP File Number:

216-1010

B. Instructions

1. When the Departmental action request is for (check one):

☐ Superseding Order of Conditions – Fee: $120.00 (single family house projects) or $245 (all other projects)

☐ Superseding Determination of Applicability – Fee: $120

☐ Superseding Order of Resource Area Delineation – Fee: $120

Send this form and check or money order, payable to the *Commonwealth of Massachusetts,* to:

Department of Environmental Protection
Box 4062
Boston, MA 02211

Request for Departmental Action Fee Transmittal Form

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

B. Instructions (cont.)

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see http://www.mass.gov/eea/agencies/massdep/about/contacts/).

4. 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.

April 30, 2023

Tariq Fayyad
Rte 85 Realty Corp.,
PO Box 444
Mendon, MA, 01756

Re: Wetland Border Report
1, 3 Elm Street, 107, 111, 113, 115, 115A, 117, 119, 119A, 119B Main Street, 0, 26 Kelley Street

Dear Mr. Fayyad,

During the month of October and November of 2022 and April 2023, the wetland resources were delineated on land located on or near the above listed site (refer to enclosed locus maps). The wetland border was flagged using the criteria in the most recent edition of MA Wetland Protection Act (WPA) and Regulations 310 CMR 10.00 et al and the local wetland bylaw. Hydric soil indicators, vegetation changes, hydrological indicators, and topography were all considered for delineation purposes.

Two Bordering Vegetated Wetlands and one Isolated Wetland were delineated in the field. BVW was delineated with series D5-71, E1-E43 J1-29 (J13-J15 not used in field) This wetland system is dominant in red maple, spice bush, highbush blueberry, muscle wood, moss and wetland ferns and is protected under the Act and local bylaw along with a corresponding 100-ft buffer zone. Department of Environmental Protection BVW field data forms were documented at wetland flag #D15 (see attached form). Wetlands under ORAD DEP #216-910 were not re-delineated, but D5 was connected to the C11 flag on the ORAD line.

The isolated wetland (F1-17) was delineated behind 107 Main Street and is 2,957 square feet in area. The area is under 5,000 SF and therefore is not jurisdictional under the Medway Wetlands Bylaw.

According to the Mass GIS data layers for NHESP, this site is not located within Estimated and/or Priority Habitat of Rare Wildlife and has no mapped potential or certified vernal pools. The site is not located in an ACEC or a regulated FEMA flood zone.

Very truly yours,
GODDARD CONSULTING, LLC



Scott Goddard,
Principal & PWS

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: _____ Prepared by: **Goddard Consulting LLC** Project location: **Main St, Medway** DEP File #: _____

Check all that apply:
- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☑ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: **D15** Transect Number: **Upgradient** Date of Delineation: **1-Oct-22**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
Tree Layer					
White Pine	*Pinus strobus*	36%	52.2%	Yes	FACU
American Beech	*Fagus grandifolia*	3%	4.3%	No	FACU
Red Oak	*Quercus rubra*	20%	29.0%	Yes	FACU
Red Maple	*Acer rubrum*	10%	14.5%	No	FAC*
Sapling Layer					
Red Oak	*Quercus rubra*				FACU
Shrub Layer					
Rambler rose	*Rosa multiflora*	3%	50.0%	Yes	FACU
European barberry	*Berberis vulgaris*	3%	50.0%	Yes	FACU
Climbing Woody Vine					
Ground Cover					
Cinnamon fern	*Osmundastrum cinnamomeum*	3%	100.0%	Yes	FACW*

Remarks: * An asterisk after common plant name indicates stunted growth; ** indicates extremely stunted growth

Morphological Adaptations: 0 **Description:** _____

* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FACW, or OBL.

Vegetation conclusion:

Number of dominant wetland indicator plants: 1 **Number of dominant non-wetland indicator plants: 4**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? no

If vegetation alone is presumes adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? ☑ yes ☐ no

title/date: **Soil Survey of Norfolk and Suffolk Counties - 1989**

map number:

soil type mapped: **Woodbridge**

hydric soil inclusions: **Ridgebury**

Are field observations consistent with soil survey? ☑ yes ☐ no

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottles Color or Texture
A	0-6	10YR2/2	
B	6-20	10YR5/4	

Remarks:

3. Other:

Conclusion: Is soil hydric? ☐ yes ☑ no

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated:
- ☐ Depth to free water in observation hole:
- ☐ Depth to soil saturation in observation hole:
- ☐ Water marks:
- ☐ Drift Lines:
- ☐ Sediment deposits:
- ☐ Drainage patterns in BVW:
- ☐ Oxidized rhizoshperes:
- ☐ Water-stained leaves:
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion for Upgradient of D15	**yes**	**no**
Number of wetland indicator plants >= number of non-wetland plants		**X**
Wetland hydrology present:		
hydric soils present		**X**
other indicators of hydrology present		**X**
Sample location is in a BVW		**X**

Submit this form with the Request for Determination of Applicability or Notice of Intent

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: _____ Prepared by: **Goddard Consulting LLC** Project location: **Main St, Medway** DEP File #: _____

Check all that apply:
- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☑ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: **D15** Transect Number: **Downgradient** Date of Delineation: **1-Oct-22**

Sample Layer and Plant Species	Scientific name	% Cover	% Dominance	Dominant Plant (yes or no)	Wetland Indicator Category*
Tree Layer					
Red Maple	*Acer rubrum*	63%	86.3%	Yes	FAC*
White pine	*Pinus strobus*	10%	13.7%	No	FACU
Sapling Layer					
Red Maple	*Acer rubrum*	20%	100.0%	Yes	FAC*
Shrub Layer					
Witch hazel	*Hamamelis virginiana*	3%	6.7%	No	FACU
European buckthorn	*Frangula alnus*	3%	6.7%	No	FAC*
Winterberry	*Ilex verticillata*	36%	80.0%	Yes	FACW*
Red Oak	*Quercus rubra*	3%	6.7%	No	FACU
Climbing Woody Vine					
Ground Cover					
Cinnamon fern	*Osmundastrum cinnamomeum*	20%	100.0%	Yes	FACW*

Remarks: * An asterisk after common plant name indicates stunted growth; ** indicates extremely stunted growth

Morphological Adaptations: 0 **Description:** _____

* An asterisk after indicator status denotes wetlands plants: plants listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; or plants listed as FAC, FACW, or OBL.

Vegetation conclusion:

Number of dominant wetland indicator plants: 4 **Number of dominant non-wetland indicator plants: 0**

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes

If vegetation alone is presumes adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? ☑ yes ☐ no

title/date: **Soil Survey of Norfolk and Suffolk Counties - 1989**

map number:

soil type mapped: **Woodbridge**

hydric soil inclusions: **Ridgebury**

Are field observations consistent with soil survey? ☑ yes ☐ no

Remarks:

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottles Color or Texture
O	0-10"	10YR2/2	
C	10-18	10YR6/2	10YR5/6

Remarks:

3. Other:

Conclusion: Is soil hydric? ☑ yes ☐ no

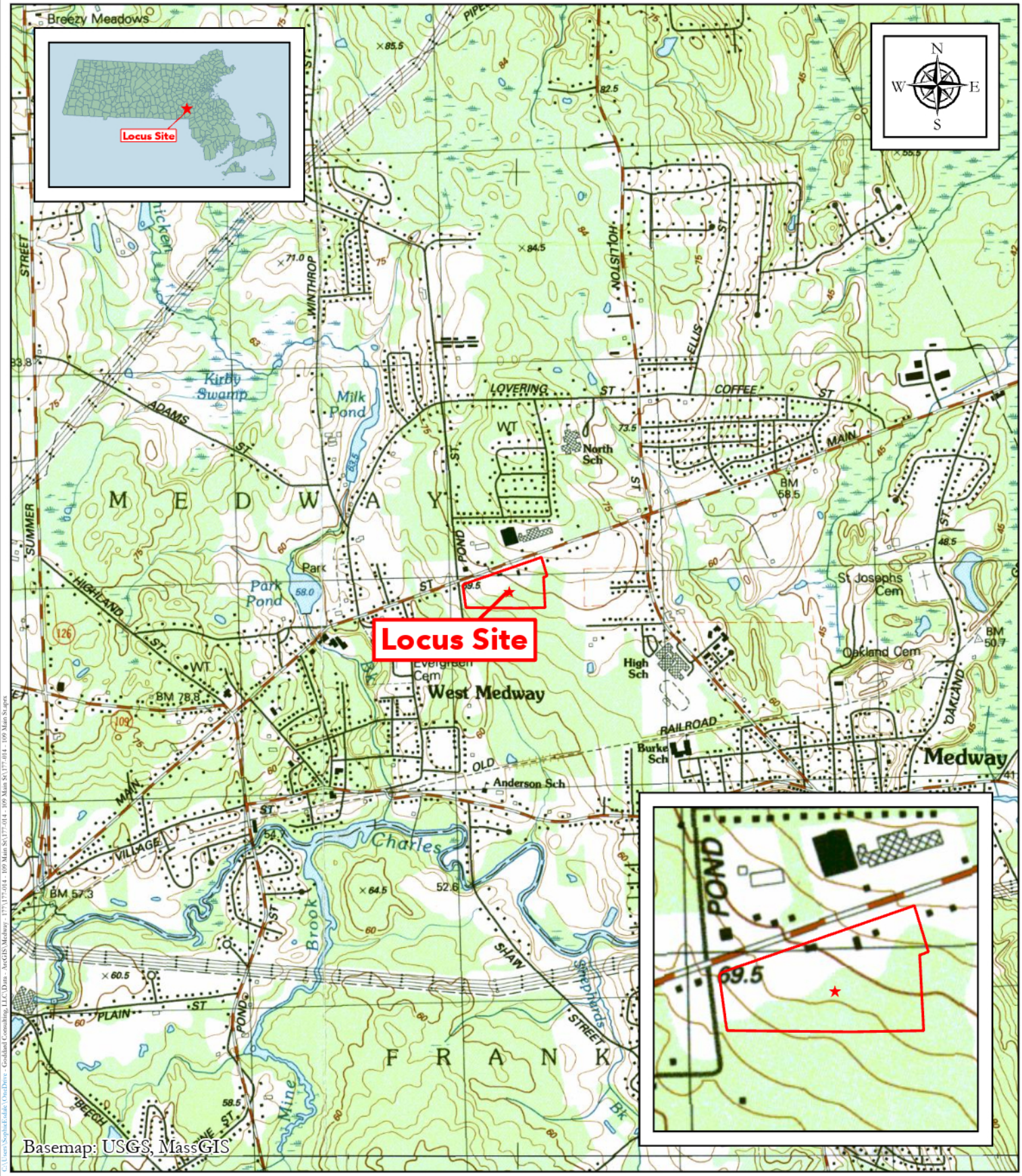
Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated:
- ☐ Depth to free water in observation hole:
- ☐ Depth to soil saturation in observation hole:
- ☐ Water marks:
- ☐ Drift Lines:
- ☐ Sediment deposits:
- ☑ Drainage patterns in BVW:
- ☑ Oxidized rhizoshperes: within 6 inches
- ☑ Water-stained leaves:
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other:

Vegetation and Hydrology Conclusion for Downgradient of D15

	yes	no
Number of wetland indicator plants >= number of non-wetland plants	X	
Wetland hydrology present:		
hydric soils present	X	
other indicators of hydrology present	X	
Sample location is in a BVW	X	

Submit this form with the Request for Determination of Applicability or Notice of Intent



GODDARD CONSULTING
Strategic Ecological Consulting

USGS of Locus Site

0 1,000 2,000 Feet

1" = 2,000'

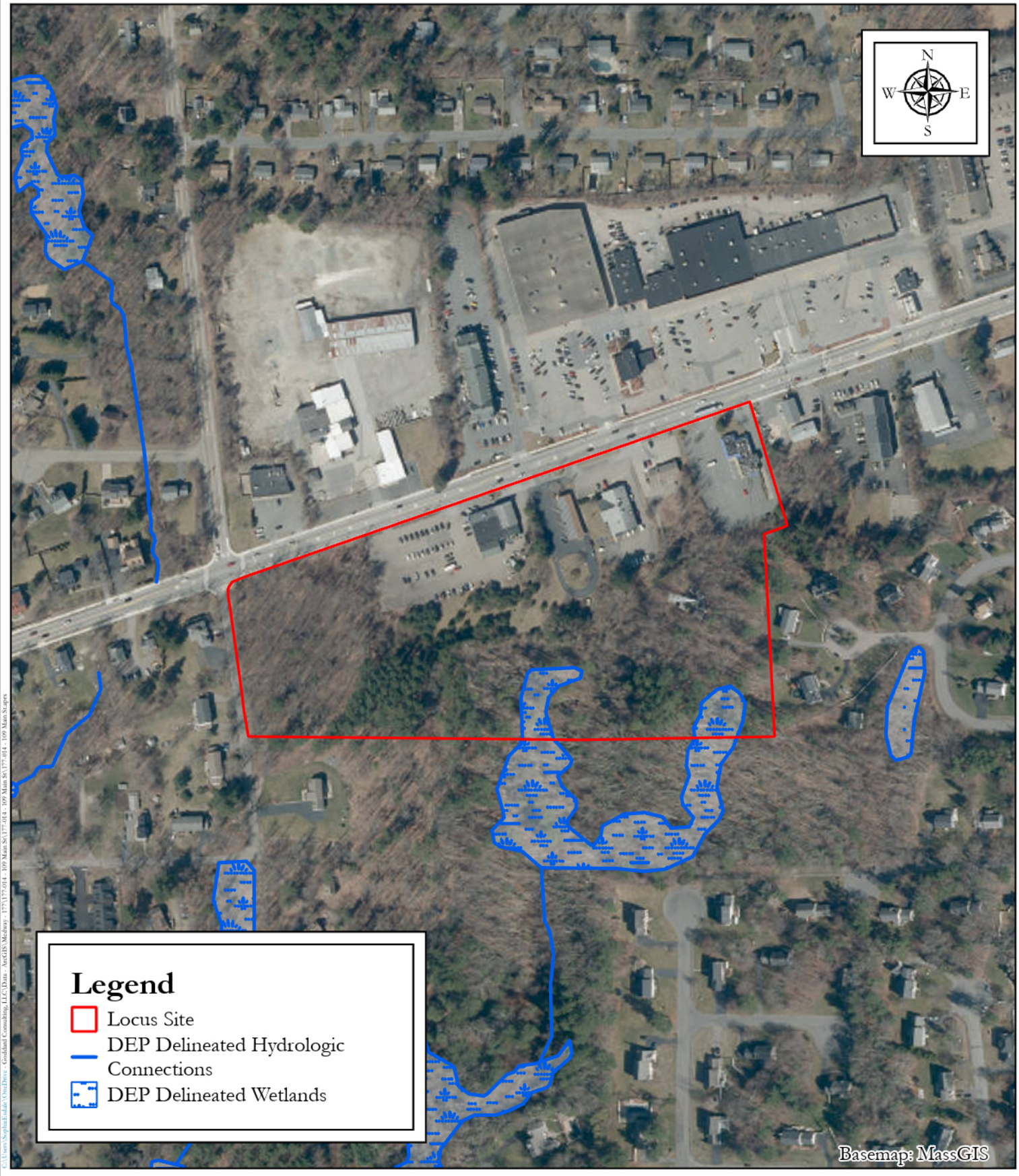
71.4163374°W, 42.1491163°N

Date: 12/10/2025

107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA 02053

Parcel ID: 40-076, 075, 074, 073, 072, 071 & 48-046, 47-1, 47, 47-2, 47-3, & 49-1

Figure 1



GODDARD CONSULTING
Strategic Ecological Consulting

Orthophoto of Locus Site

0 150 300 Feet

1" = 300'

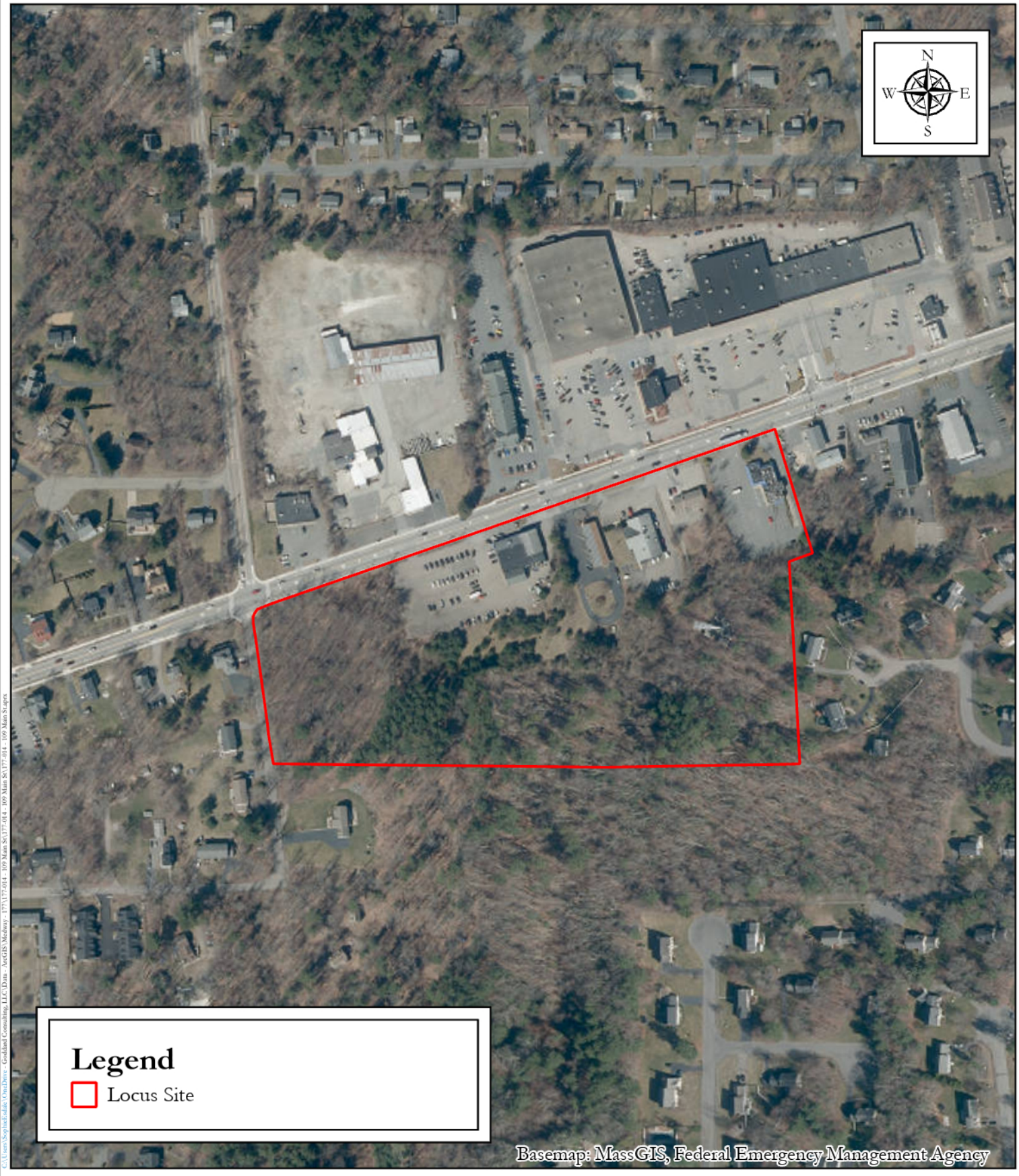
71.4168429°W, 42.1492375°N

Date: 12/10/2025

107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA 02053

Parcel ID: 40-076, 075, 074, 073, 072, 071 & 48-046, 47-1, 47, 47-2, 47-3, & 49-1

Figure 2



GODDARD CONSULTING
Strategic Ecological Consulting

FEMA Flood Map of Locus Site

0 150 300 Feet 1" = 300'

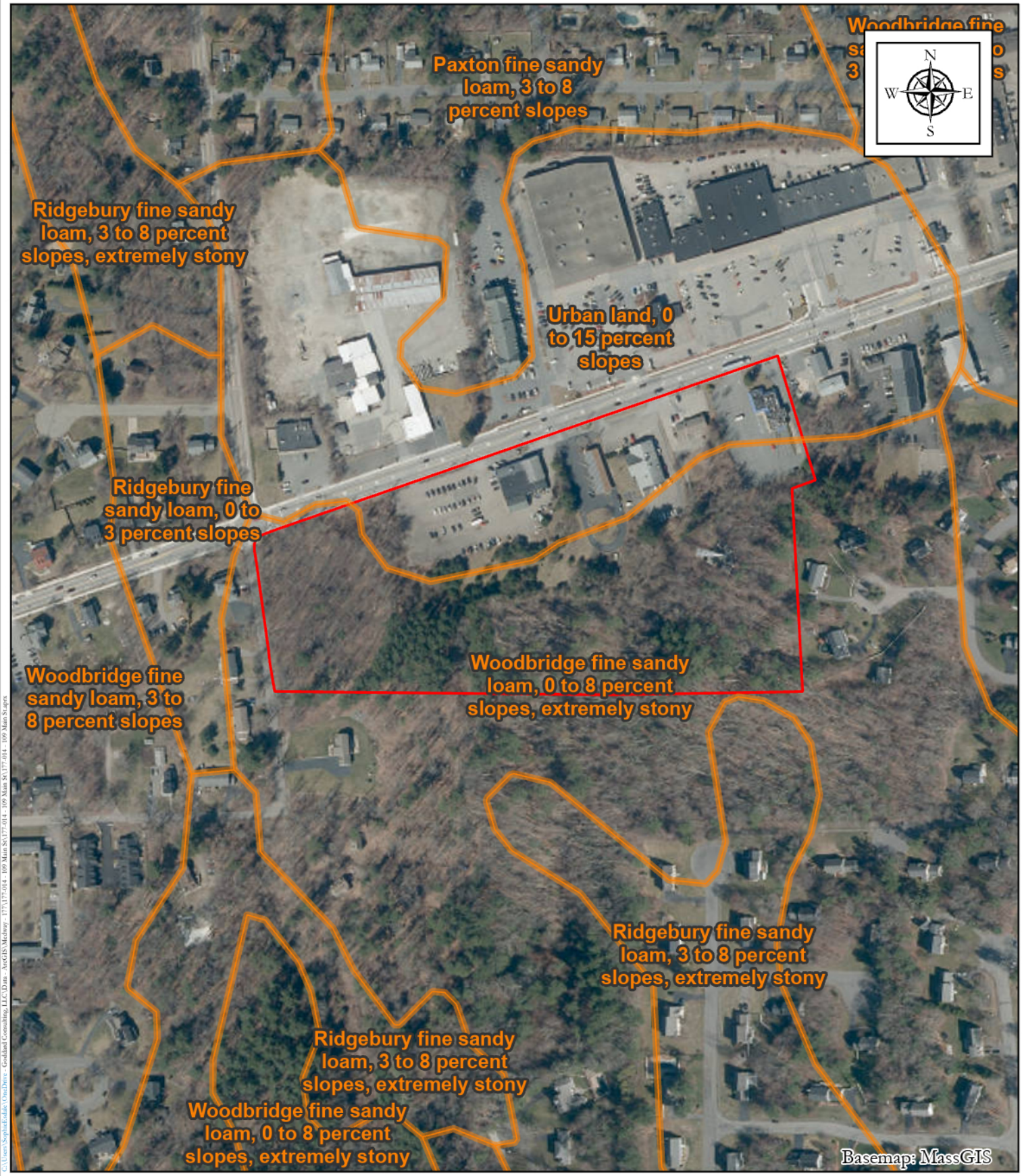
71.417058°W, 42.1494118°N

Date: 12/10/2025

107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St

Parcel ID: 40-076, 075, 074, 073,

Figure 3



GODDARD CONSULTING
Strategic Ecological Consulting

NRCS Soil Survey of Locus Site

0 150 300 Feet 1" = 300'

71.4170623°W, 42.1489385°N

Date: 12/10/2025

107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA 02053

Parcel ID: 40-076, 075, 074, 073, 072, 071 & 48-046, 47-1, 47, 47-2, 47-3, & 49-1

Figure 4

GODDARD CONSULTING
Strategic Ecological Consulting

Appendix C

Site Plans & Additional Materials

Docusign Envelope ID: 05FE0F6E-0582-8A38-83F1-218C2BFB2113

Conservation Commission

155 VILLAGE STREET
MEDWAY, MASSACHUSETTS 02053
PHONE (508) 533-3292
bgraziano@townofmedway.org

"Please complete this form, sign at the bottom and return by mail or fax to the address indicated above."

Date:

I, Tariq Fayyad of Rte. 85 Realty Corp. **hereby give the Medway Conservation Commission and/or it's Agent permission**
Name of Property Owner

to enter my property in order to complete the site visit which is required for the review of one of the following applications;

☒ **Notice of Intent**

☐ **Request for Determination of Applicability**

☐ **Other** _____

by the Medway Conservation Commission under Massachusetts General Laws, Ch. 131, sec. 40, and/or under Medway General Bylaws, Article XXI and its regulation . The request is made by - Rte. 85 Realty Corp. **, who is the applicant for this project and/or the rightful property owner.**

The request was submitted on: _____ **for work at:** 107-119 Main Street, 1 & 3 Elm Street, 0 & 26 Kelley Street
Date Received in Conservation Dept. **Location / Address of where work will be done**

Please be advised that you will be notified of the meeting date, once this application has been assigned to a Conservation Meeting Agenda.

I am the: ☒ **Property Owner**

Signed by:
Tariq Fayyad
BB9BAFE150B54E5...
(Signature)

5/21/2026
(Date)

DRAINAGE REPORT

For

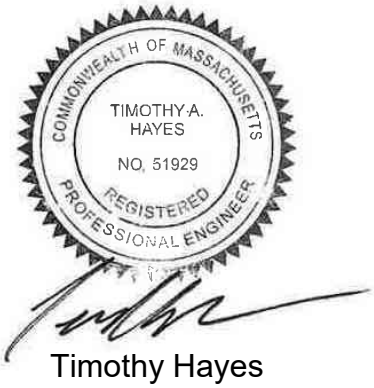
RTE. 85 REALTY CORP.

HERITAGE ON MAIN
Proposed Mixed-Use Development

107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Town of Medway, Massachusetts
Norfolk County

Prepared by:

BOHLER
45 Franklin Street, 5th Floor
Boston, MA 02110
(617) 849-8040 TEL.



Timothy Hayes
Massachusetts P.E. Lic. #51929

BOHLER

April 17, 2026
#MAA240482.00

BOHLER

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I. EXECUTIVE SUMMARY

This report examines the changes in drainage that can be expected as the result of the proposed mixed-use development project at 107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St (the "Project Site"). The Project Site is currently occupied by multiple retail storefronts including an automotive dealer, autobody repair, car wash, United States Postal Service (USPS) Office, fast food restaurant with drive through, gas station and other retailers. The remaining portion of the site consists of a mix of landscaped areas, wooded areas, and Bordering Vegetated Wetlands (BVWs) and an Isolated Vegetated Wetland (IVW).

Rte 85 Realty Corp. (the "Applicant") is proposing to redevelop the existing site with a residential building, one (1) restaurant with drive-through facilities, one (1) bank with drive-through facilities, and one (1) fueling station with a convenience store, along with paved parking areas, landscaping, and associated stormwater management system(s) and utilities. This report addresses a comparative analysis of the pre- and post-development site runoff conditions. Additionally, this report provides calculations documenting the design of the proposed stormwater conveyance/management system(s) as illustrated within the accompanying Site Development Plans prepared by Bohler. The Project will also provide erosion and sedimentation controls during the demolition and construction periods, as well as long term stabilization of the site.

For the purposes of this analysis the pre- and post-development drainage conditions were analyzed at five (5) "design points" where stormwater runoff currently drains to under existing conditions. These design points are described in further detail in **Section II** below. A summary of the existing and proposed conditions peak runoff rates for the 2-, 10-, 25-, and 100-year storms can be found in **Table 1.1** below. The stormwater management system has been designed to retain and infiltrate at least 1" of runoff from the project's total proposed impervious area. In addition, the project has been designed to meet or exceed the Massachusetts Stormwater Management Standards and Article 26 (Stormwater Management and Land Disturbance ordinance approved 11/13/2023) of the Town of Medway General Bylaws as detailed herein.

Table 1.1: Design Point Peak Runoff Rate Summary

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
DP1	5.56	3.41	**-2.15**	9.07	4.67	**-4.40**	11.84	5.64	**-6.20**	16.44	7.08	**-9.36**
DP2	6.60	3.31	**-3.29**	11.89	9.13	**-2.76**	16.23	12.03	**-4.20**	23.57	22.50	**-1.07**
DP3	2.60	2.15	**-0.45**	6.04	3.95	**-2.09**	8.98	5.42	**-3.56**	14.03	7.90	**-6.13**
DP4	4.60	2.80	**-1.80**	12.00	5.84	**-6.16**	17.10	11.94	**-5.16**	25.77	25.41	**-0.36**
DP5	1.33	0.81	**-0.52**	3.52	2.00	**-1.52**	4.98	2.84	**-2.14**	7.34	6.02	**-1.32**

**Flows are represented in cubic feet per second (cfs)*

II. EXISTING SITE CONDITIONS

Existing Site Description

The site consists of approximately 21.1 acres of land located at 107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St. The site is currently occupied by multiple retail storefronts including an automotive dealer, autobody repair, car wash, US Postal Service Office, fast food restaurant with drive through, gas station and other retailers. The remaining portion of the site consists of a mix of landscaping, wooded areas, as well as Bordering Vegetated Wetlands (BVW) and a non-jurisdictional Isolated Vegetated Wetlands (IVW). The IVW is less than 5,000-sf and is considered non-jurisdictional under the Definitions in Section 4 for the "Rules and Regulations of the Town of Medway Conservation Commission", amended June 25, 2020. The project Site is bound by Main Street and commercial properties to the north, Elm Street to the west, residential properties to the southwest, Kelley Street to the south, residential properties to the east, and commercial properties to the northeast.

On-Site Soil Information

Soils within the analyzed area consist of the following as classified by the Natural Resource Conservation Service (NRCS):

Table 2.1: Existing Soil Information

Soil Unit Symbol	Soil Name / Description	Hydrologic Soil Group (HSG)
602	Urban land	N/A
312B	Woodbridge fine sandy loam, extremely stony	C/D
71B	Ridgebury fine sandy loam, extremely stony	D

On-site soil testing was performed by Sanborn, Head & Associates, Inc. (Sanborn Head) in May 2023. Twelve test (12) pits were conducted throughout the site to obtain the preliminary soil data for the stormwater design using the United States Department of Agriculture (USDA) Textural Classification System. Additionally, five (5) soil samples were collected for laboratory sieve analysis which included hydrometer testing.

Per the testing data provided, the majority of the site is identified as Sandy Loam or Loamy Sand, HSG C, generally reflecting findings in the NRCS Soil Report. Groundwater was estimated between 2.1-ft to 14.2-ft below surface elevation and likely flows towards the on-site and off-site

BVWs. Sanborn Head generally recommends 1.02 in/hr for the infiltration rate for the lab test data and on-site evaluation of the soil conditions. Refer to **Appendix C** for additional information.

Existing Collection and Conveyance

Under existing conditions, the stormwater management system includes a limited number of on-site catch basins that appear to drain to the municipal storm drain system. Runoff not captured by the catch basins drain to the abutters or Bordering Vegetated Wetlands (BVW) generally to the south and west of the site. Some of the runoff flows overland flows to the municipal catch basins on Main Street. On-site elevations (NAVD88) range from 266 adjacent to Main Street at the northeast corner of the site to 219 at the southwest corner of the property.

Existing Watersheds and Design Point Information

For the purposes of this analysis, the pre- and post-development drainage conditions were analyzed at five (5) “design points” as described below where stormwater runoff currently drains to under existing conditions. The existing site was subdivided into subcatchments to analyze existing flow rates at each design point. The minimum time of concentration is calculated as 6 minutes (0.1 hr).

Design Point #1 (DP1) is the municipal storm drain system in Main Street. Portions of the existing development drain to on-site catch basins and/or flows overland to municipal catch basins before connecting to the municipal storm drain system.

Design Point #2 (DP2) is the on-site BVW located in the western portion of the Project Site.

Design Point #3 (DP3) is the abutting property (Parcel I.D. 48-48) located southwest of the Project Site.

Design Point #4 (DP4) is the on-site BVW located in the central portion of the Project Site.

Design Point #5 (DP5) are the abutting properties (Parcel I.D. 49-01, 49-04, 40-111, 40-113) located near the center of the Project Site. Per LiDAR data obtained on 02/22/2023 to review off-site drainage patterns, a majority of the runoff in the aforementioned abutting parcels eventually leads to the on-site BVW located in the central portion of the Project Site.

Refer to **Table 1.1 and 6.1** for the existing conditions peak rates of runoff. Refer to **Appendix D** and the Drainage Area Maps in the appendices of this report for a graphical representation of the existing drainage areas.

III. PROPOSED SITE CONDITIONS

Proposed Development Description

The project currently proposes to redevelop the existing site with a 74,540-sf± residential building, one (1) 2,000-sf± restaurant with drive-through facilities, one (1) 3,500-sf± bank with drive-through facilities, and one (1) fueling station with an associated 5,400-sf± convenience store, along with paved parking areas, landscaping, and associated stormwater management system(s) and utilities.

Proposed Development Collection and Conveyance

Generally, the site has been designed to drain to a mix of deep-sump, hooded catch basins, trench drains, or water quality inlets (hydrodynamic separators). The inlet structures will capture and convey stormwater runoff, via an underground pipe system, to infiltration systems or detention systems. Infiltration systems are composed of either subsurface chambers / structures or above-ground basins. The proposed detention systems are subsurface chambers / structures with Outlet Control Structures (OCS) to manage the outflow from their respective basins. Pretreatment of stormwater runoff will be provided by a combination of the deep-sump, hooded catch basins, hydrodynamic separators, and/or isolator rows within the subsurface infiltration system(s), prior to discharge into the proposed corresponding basins. Rooftop runoff has been designed to flow to the basins as well. Pipes are designed for the 25-year storm using the Rational Method. Pipes downstream of the proposed drainage basins are designed for the 100-yr storm as to not impede the functions of the basins.

The best management practices (BMPs) incorporated into the proposed stormwater management system have been designed to meets, or exceeds, the standards set forth in the Massachusetts Department of Environmental Protection (MADEP) Stormwater Management Standards. Additionally, the BMPs will meet, or exceed, the municipal standards for new developments as set forth in Article 26 (Stormwater Management and Land Disturbance ordinance approved 11/13/2023) of the Town of Medway General Bylaws. Refer to **Section V** for additional information.

Proposed Watersheds and Design Point Information

The project has been designed to maintain existing drainage watersheds to the greatest extent possible, with the same five (5) design points as described in **Section II** above. The minimum time of concentration for all proposed subcatchment is calculated as 6 minutes (0.1 hr).

Refer to **Table 1.1 and 6.1** for the calculated proposed conditions peak rates of runoff. For additional hydrologic information, refer to **Appendix E** and the Drainage Area Maps in the appendices of this report for a graphical representation of the proposed drainage areas.

IV. METHODOLOGY

Peak Flow Calculations

Methodology utilized to design the proposed stormwater management system includes compliance with the guidelines set forth in the latest edition of the MADEP Stormwater Management Standards. The pre- and post-development runoff rates being discharged from the site were computed using the HydroCAD computer program. The drainage area and outlet information were entered into the program, which routes storm flows based on NRCS TR-20 and TR-55 methods. The other components of the model were determined following standard NRCS procedures for Curve Numbers (CNs) and times of concentrations documented in the appendices of this report. The rainfall data utilized and listed below in **Table 4.1** below for stormwater calculations is based on NOAA Plus methodology, as required under local regulations, utilizing 90% of the upper bound of each recurrence interval. Refer to **Appendix F** for more information.

Table 4.1: NOAA+ Rainfall Intensities

Frequency	2 year	10 year	25 year	100 year
Rainfall* (inches)	3.84	6.06	7.81	10.71

*Values derived from NOAA ATLAS on 02/02/2026

The proposed stormwater management as designed will provide a decrease in peak rates of runoff from the proposed facility for the 2-, 10-, 25- and 100-year design storm events. Additionally, the proposed project meets, or exceeds, the MADEP Stormwater Management and municipal standards. Compliance with these standards is described further below.

V. STORMWATER MANAGEMENT STANDARDS

Standard #1: No New Untreated Discharges

The project has been designed so that the majority of proposed impervious areas (including the building roof and paved parking/driveway areas) shall be collected and passed through the proposed drainage system for treatment prior to discharge. Additionally, all proposed outfalls are design as to not cause erosion to the on-site wetlands. Please see Rip Rap Apron Sizing Calculations in **Appendix F**.

Standard #2: Peak Rate Attenuation

As outlined in **Table 1.1** and **Table 6.1**, the development of the site and the proposed stormwater management system, have been designed so that post-development peak rates of runoff are at or below pre-development conditions for the 2-, 10-, 25-, and 100-year storm events at all design points.

Standard #3: Recharge

A majority of the stormwater runoff from the project will be collected and diverted to a number of proposed infiltration systems. The Project as proposed will result in approximately 8.4± acres of impervious area, a net increase of approximately 4± acres over existing. Per the municipal stormwater regulations, the project is required to infiltrate 1.0-inch times the proposed impervious area for New Development projects which exceeds the requirements set in Standard 3. This amounts to 30,476 cubic feet of stormwater, which is adjusted to 36,354 cubic feet to compensate for impervious areas not captured by the infiltration system. The proposed infiltration basins will provide a combined 46,516 cubic feet of volume below the lowest outlet for groundwater recharge. Refer to **Appendix F** of this report for calculations documenting required and provided recharge volumes.

MADEP Stormwater Management Standards require that Infiltration BMPs drain completely within 72 hours of the end of the storm event. Calculations showing that each of the proposed infiltration systems will drain within 72 hours are included in **Appendix F** of this report.

Infiltration is not used as a peak rate mitigator therefore a ground water mounding analysis is not required.

Standard #4: Water Quality

In addition to the water quality requirements set forth under Standard 4, the Town of Medway requires projects to remove 90% of Total Suspended Solids (TSS) and 60% of Total Phosphorus (TP) post-construction for New Developments. Water quality treatment is provided via a combination of deep sump catch basins, hydrodynamic separators, isolator rows, and infiltration basins. TSS removal calculations are included in Appendix F of this report. The project will involve the creation of approximately 8.4± acres of proposed impervious area and is required to treat 30,476 cubic feet of water quality volume per the municipal stormwater regulations. The proposed infiltration basin provides 46,516 cubic feet of water quality volume below the lowest outlet for water quality treatment. Where feasible, impervious areas not directed to infiltration systems will be treated with hydrodynamic separators. Refer to **Appendix F** of this report for calculations documenting required and provided water quality volumes.

Surface runoff captured by deep sump catch basins are typically directed to an isolator row of an infiltration/detention BMP or a Water Quality Unit, i.e., a hydrodynamic separator, prior to discharge into the respective infiltration/detention BMP. Water Quality Inlets, i.e., inlet structures with hydrodynamic separators, are used where an inlet structure drains to the infiltration/detention BMP directly. Roof areas drain to the infiltration or detention BMP directly.

Standard #5: Land Use with Higher Potential Pollutant Loads

The northeast portion of the proposed project includes a fueling station and generates more than 1,000 trips a day, which would classify as “Land Uses with Higher Potential Pollutant Loads” or “LUHPPL”. Accordingly, the stormwater management system includes oil-grit separators prior to discharge. In addition, the project will already provide the minimum 44% TSS removal prior to infiltration and treat the 1.0 in water quality depth, as further illustrated in **Appendix E** of this report.

Standard #6: Critical Areas

Not Applicable for this project.

Standard #7: Redevelopment

Not Applicable for this project.

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

The proposed project will provide construction period erosion and sedimentation controls as indicated within the site plan set provided for this project. This includes a proposed construction exit, protection for stormwater inlets, protection around temporary material stock piles and various other techniques as outlined on the erosion and sediment control sheets. Additionally, the project is required to file a Notice of Intent with the US EPA and implement a Stormwater Pollution Prevention Plan (SWPPP) during the construction period. The SWPPP will be prepared prior to the start of construction and will be implemented by the site contractor under the guidance and responsibility of the project's proponent. Refer to **Appendix H**.

Standard #9: Operation and Maintenance Plan (O&M Plan)

An Operation and Maintenance (O&M) Plan for this site has been prepared and is included in **Appendix G** of this report. The O&M Plan outlines procedures and timetables for the long-term operation and maintenance of the proposed site stormwater management system, including initial inspections upon completion of construction, and periodic monitoring of the system components, in accordance with established practices and the manufacturer's recommendations. The O&M Plan includes a list of responsible parties for inspections and maintenance.

Standard #10: Prohibition of Illicit Discharges

The proposed stormwater system will only convey allowable non-stormwater discharges (firefighting waters, irrigation, air conditioning condensates, etc.) and will not contain any illicit discharges from prohibited sources. An Illicit Discharge Statement is included in **Appendix G** of this report.

VI. SUMMARY

In summary, the proposed stormwater management system illustrated on the drawings prepared by Bohler results in a reduction in peak rates of runoff from the subject site when compared to pre-development conditions for the 2-, 10-, 25- and 100-year storm frequencies. In addition, the proposed best management practices will result in an effective removal of total suspended solids from the post-development runoff. The pre-development versus post-development stormwater discharge comparisons are contained in **Table 6.1** below:

Table 6.1: Design Point Peak Runoff Rate Summary

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
DP1	5.56	3.41	**-2.15**	9.07	4.67	**-4.40**	11.84	5.64	**-6.20**	16.44	7.08	**-9.36**
DP2	6.60	3.31	**-3.29**	11.89	9.13	**-2.76**	16.23	12.03	**-4.20**	23.57	22.50	**-1.07**
DP3	2.60	2.15	**-0.45**	6.04	3.95	**-2.09**	8.98	5.42	**-3.56**	14.03	7.90	**-6.13**
DP4	4.60	2.80	**-1.80**	12.00	5.84	**-6.16**	17.10	11.94	**-5.16**	25.77	25.41	**-0.36**
DP5	1.33	0.81	**-0.52**	3.52	2.00	**-1.52**	4.98	2.84	**-2.14**	7.34	6.02	**-1.32**

**Flows are represented in cubic feet per second (cfs)*

APPENDIX A: CHECKLISTS

- *MASSACHUSETTS STORMWATER MANAGEMENT CHECKLIST*
- *MUNICIPAL LAND DISTURBANCE CHECKLIST*

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

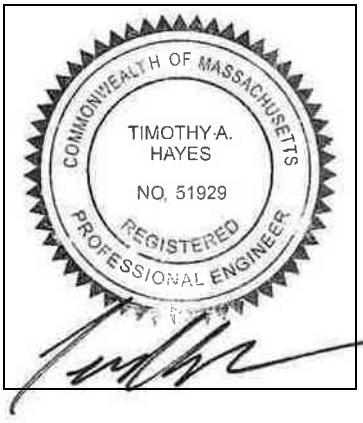
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



04/17/2026

Signature and Date

Checklist

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

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☐ Reduced Impervious Area (Redevelopment Only)

☐ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☐ Use of "country drainage" versus curb and gutter conveyance and pipe

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☐ Other (describe): _____

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

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

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☒ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☒ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

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

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☒ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

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

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

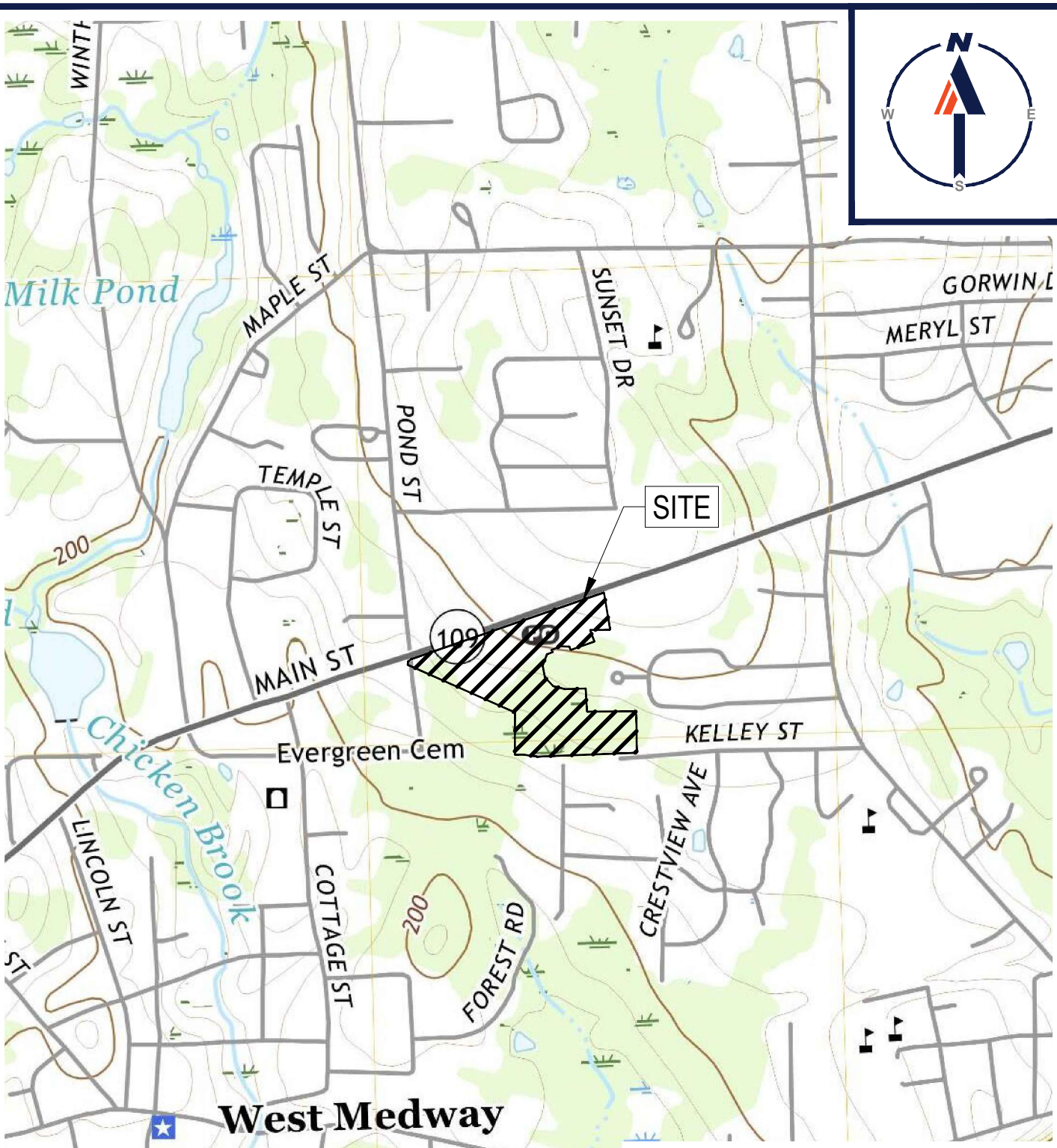
☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

APPENDIX B: PROJECT LOCATION MAPS

- *USGS MAP*
- *FEMA FIRMETTE*



USGS MAP

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST
MEDWAY, MASSACHUSETTS

PREPARED BY

BOHLER

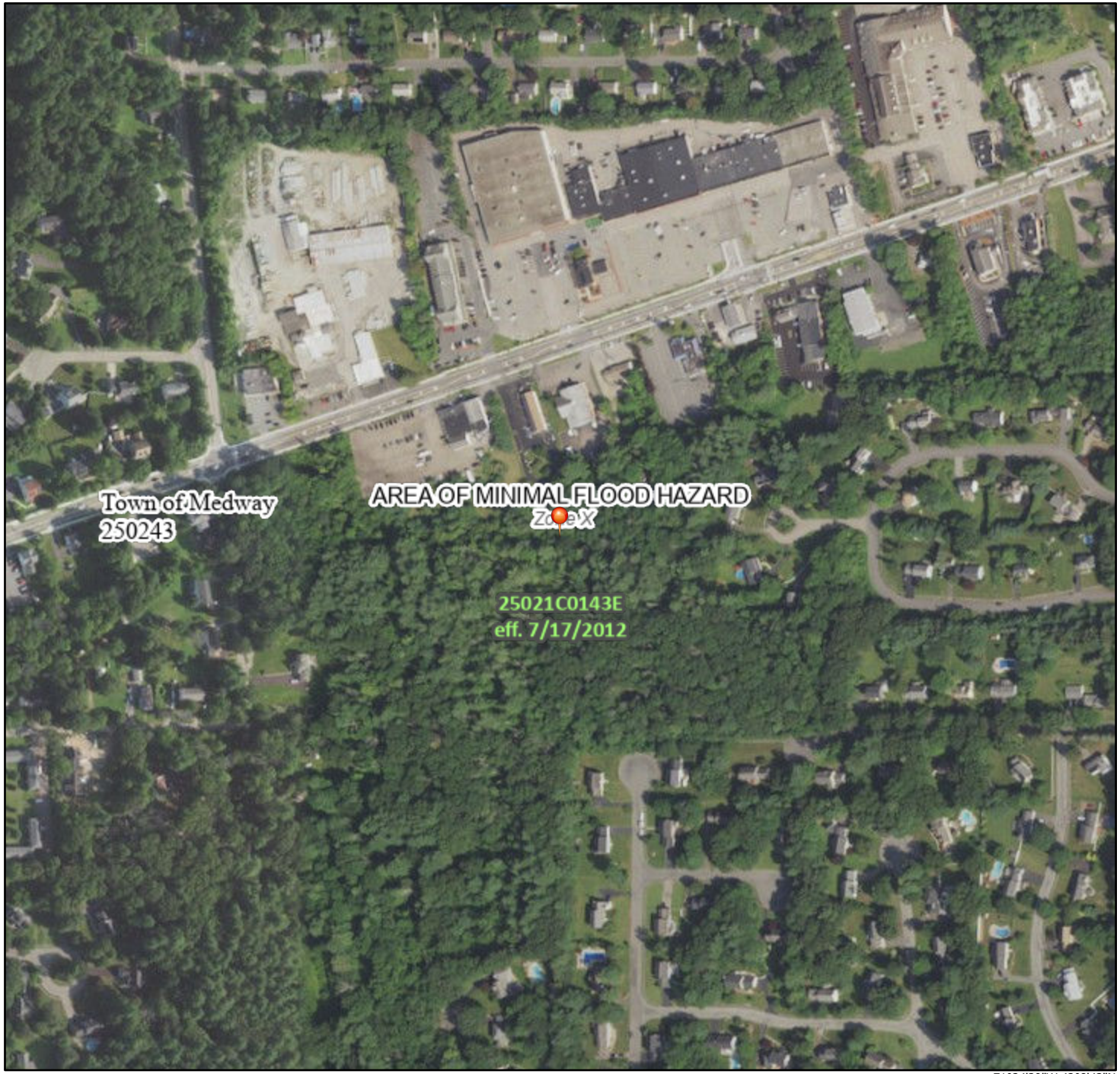
SCALE:1"=1000' DATE: 01/13/2025

P:\21\W211301\CAD\Drawings\Plan Sets\Civil Site Plans\W211301-SPPD-2c.dwg

National Flood Hazard Layer FIRMette

FEMA

71°25'17"W 42°9'9"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

71°24'39"W 42°8'42"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/1/2023 at 10:18 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

APPENDIX C: SOIL AND WETLAND INFORMATION

- *NCRS CUSTOM SOIL RESOURCE REPORT*
- *REPORT OF GEOTECHNICAL INVESTIGATION*
- *ORAD*

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Norfolk and Suffolk Counties, Massachusetts



February 4, 2026

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,650 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 21, Sep 5, 2025

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

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

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
70A	Ridgebury fine sandy loam, 0 to 3 percent slopes	0.1	0.3%
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	2.9	6.1%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	2.7	5.8%
312B	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	30.6	65.7%
602	Urban land, 0 to 15 percent slopes	10.3	22.1%
Totals for Area of Interest		**46.6**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Norfolk and Suffolk Counties, Massachusetts

70A—Ridgebury fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2w69f
Landscape: Glaciated uplands
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Ridgebury

Setting

Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins, Depressions, Drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions

Hydric soil rating: Yes

Minor Components

Woodbridge

Percent of map unit: 9 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Crest, base slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Whitman

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Hills, Drainageways, Drumlins, Ground moraines, Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Leicester

Percent of map unit: 1 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drainageways, Depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

71B—Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w69c
Landscape: Glaciated uplands
Elevation: 0 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury, extremely stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Drumlins, Depressions, Ground moraines, Hills, Drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Woodbridge, extremely stony

Percent of map unit: 10 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Whitman, extremely stony

Percent of map unit: 8 percent
Landscape: Glaciated uplands
Landform: Depressions

Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Paxton, extremely stony

Percent of map unit: 2 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

310B—Woodbridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t2ql
Landscape: Uplands
Elevation: 0 to 1,470 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodbridge, fine sandy loam, and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Fine Sandy Loam

Setting

Landscape: Uplands
Landform: Ground moraines, Drumlins, Hills
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 30 inches: fine sandy loam
Cd - 30 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to densic material

Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Minor Components

Paxton

Percent of map unit: 10 percent
Landscape: Uplands
Landform: Drumlins, Ground moraines, Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 8 percent
Landscape: Uplands
Landform: Depressions, Ground moraines, Hills, Drainageways
Landform position (two-dimensional): Toeslope, backslope, footslope
Landform position (three-dimensional): Base slope, head slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

312B—Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2t2qs
Landscape: Uplands
Elevation: 0 to 1,580 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge, extremely stony, and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Extremely Stony

Setting

Landscape: Uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 9 inches: fine sandy loam
Bw1 - 9 to 20 inches: fine sandy loam
Bw2 - 20 to 32 inches: fine sandy loam
Cd - 32 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 19 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C/D
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Minor Components

Paxton, extremely stony

Percent of map unit: 10 percent
Landscape: Uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 8 percent
Landscape: Uplands
Landform: Hills, Drainageways, Drumlins, Depressions, Ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

602—Urban land, 0 to 15 percent slopes

Map Unit Setting

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

Map Unit Composition

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

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Rock outcrops

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

SANBORN HEAD

Mr. Tariq H. Fayyad, M.S.
Real Estate Development & Acquisitions Manager
The Meehan Group
32 Hastings Street, P.O. Box 444
Mendon, Massachusetts 01756

January 29, 2026
File No. 5722.000

Re: Subsurface Information for Stormwater Design
Heritage on Main
119 Main Street
Medway, Massachusetts

Dear Mr. Fayyad:

This letter summarizes the results of subsurface explorations completed to support stormwater design for the proposed Heritage on Main development located at 119 Main Street in Medway, Massachusetts (Site) as shown on the Locus Plan in Figure 1.

This report has been prepared by Sanborn, Head & Associates, Inc. (Sanborn Head) on behalf of The Meehan Group (Meehan, Client) in accordance with our proposal dated February 21, 2023. This report is subject to the limitations stated in Attachment A.

SITE AND PROJECT DESCRIPTION

The Site comprises thirteen (13) adjacent parcels identified as 107, 111, 113, 115, 115A, 117, 119, 119A, and 119B Main Street, 1 and 3 Elm Street, and 0 and 26 Kelley Street. The parcels located along Main Street consist of commercial properties including a gasoline station, a restaurant, a dental office, a smoothie café, a U.S. Post Office, a car wash, a pool supply store, an auto repair, and a used car sales office and associated paved parking, driveways and landscaped areas. The southern portion of these parcels and the parcels located on Elm Street and Kelley Street generally consist of woodland and wetlands.

The Site elevation ranges between approximately elevation (El.) 267 feet and El. 220 feet and generally slopes down to the southwest, with a steep slope located within the wooded area to the west and south of the commercial properties. Wetlands are present in the western and southern Site areas.

The proposed development project will include the construction of four (4) buildings consisting of the following:

- **Bldg A**: A multi-story mixed-use residential/retail building
- **Bldg B and C**: One-story retail buildings
- **Bldg D**: One-story retail building with a fueling station

The development also includes associated drive aisles, parking lots and stormwater management features.

Referenced elevations are based on an existing conditions plan prepared by Control Point Associates, Inc. of Southborough, Massachusetts, dated April 14, 2023, and reproduced on Figure 2. Elevations in the report reference the North American Vertical Datum of 1988 (NAVD88).

Proposed stormwater management areas are shown on Figure 2, adapted from draft plans provided by Bohler on January 27, 2026.

SUBSURFACE EXPLORATION PROGRAM

Between May 23 and 25, 2023, Machine Time, LLC of Hudson, New Hampshire, excavated twelve (12) stormwater test pits designated SH-TP-1 through SH-TP-12. The test pits were completed to obtain preliminary soil data to aid with the stormwater design. The test pits were advanced under the observation of Sanborn Head to depths ranging between approximately 9.8 and 15.0 feet below ground surface (bgs). The approximate locations of the test pits are shown on Figure 2.

The explorations were observed by Sanborn Head personnel on a full-time basis. Logs of the subsurface explorations were prepared by a Soil Evaluator certified in Massachusetts. Soil samples were field classified based on visual estimates of grain size distribution and plasticity using the United States Department of Agriculture (USDA) Textural Classification System. USDA test pit logs are included in Attachment B.

To evaluate the soils at the Site, five (5) representative soil samples were collected from test pits and were submitted to a geotechnical laboratory for grain size distribution (sieve) analysis in accordance with ASTM D6913, and USDA Textural Classification which includes hydrometer testing in accordance with ASTM D7928. The soil laboratory tests were completed by GeoTesting Express, Inc. of Acton, MA and copies of the laboratory reports are included in Attachment C.

SUBSURFACE CONDITIONS

In the wooded areas, the explorations generally encountered a surface layer of organic topsoil and subsoil (also identified as soil horizon/layer A and B) to approximately 1.3 to 3.4 feet below ground surface, underlain by natural glacial till (also identified as soil horizon/layer C). The natural glacial till strata generally consists of fine to coarse sand with varying quantities of silt, gravel, cobbles, and boulders. The USDA Textural Classification for the natural glacial till in the observed stormwater test pit locations varies from Sandy Loam to Loamy Sand throughout the Site.

A layer of fill approximately 2.3 to 6.5 feet thick was encountered in test pits SH-TP-1, -3, -6, -7, -8 and -10, typically underlain by a buried topsoil and subsoil layer and the glacial till.

Weathered rock (also identified as soil horizon/layer Cr) was encountered in test pits SH-TP-4, -5, -7, -9, and -12 at depths between approximately 7.8 and 14.6 feet bgs, corresponding to approximate elevations El. 214.3 and 246.2 feet.

Groundwater was observed weeping from test pit sidewalls between approximately 2.1 to 14.2 feet bgs, corresponding to approximately El. 222.3 feet to 248.7 feet. Observed groundwater was generally interpreted as ESHGW.

PRELIMINARY DESIGN CONSIDERATIONS AND RECOMMENDATIONS

The following sections include our preliminary recommendations for the design and construction of the stormwater management areas to be constructed at the Site.

Soil Receiving Layer and Estimated Seasonal High Groundwater

We recommend that the natural glacial till layer be considered the receiving layer for proposed stormwater infiltration system(s). Based on the USDA Textual Classification and the geotechnical laboratory results, the glacial till is categorized as either Sandy Loam or Loamy Sand. Figure 3 shows the elevations of the glacial till and ESHGW at each test pit location.

The table below summarizes the USDA Textual Classification, hydrologic soil group, and infiltration rate of the receiving layer and the ESHGW at the proposed stormwater management areas. The recommended type of stormwater management is based on the depth to the receiving layer relative to ESHGW. Detention is recommended in areas where fill is present and the over-excavation and replacement of fill soil is likely not economical. Infiltration could be evaluated if additional infiltration is needed.

Stormwater Management Area	Test Pit ID [1]	Recommended Type	USDA Soil Texture[2]	Infiltration Rate[3,4] (in/hr)	ESHGW (feet)
IS-1	SH-TP-2	Infiltration	Sandy Loam	1.02	226.9
IS-2	SH-TP-5	Infiltration	Sandy Loam	1.02	222.3
IS-3	SH-TP-5	Infiltration	Sandy Loam	1.02	222.3
IS-4	SH-TP-1	Infiltration	Sandy Loam	1.02	234.5
DS-5	SH-TP-3 SH-TP-6	Detention	--	--	242.0
DS-6	SH-TP-6	Detention	--	--	242.0

[1] Recommendations for stormwater are based on a limited set of data. We recommend additional test pits be performed prior to finalizing the stormwater design.
[2] United Stated Department of Agriculture (USDA) Textual Classification are based on the textual triangle and particle-size limits; see USDA, 2007 National Soil Survey Handbook, Part 618, Exhibit 8.
[3] Infiltration rates are taken from the *Massachusetts Stormwater Handbook, Table 2.3.3.*
[4] Infiltration is not recommended in areas designated as "detention."

Stormwater Management Area	Test Pit ID [1]	Recommended Type	USDA Soil Texture[2]	Infiltration Rate[3,4] (in/hr)	ESHGW (feet)
IS-7	SH-TP-10	Infiltration	Sandy Loam	1.02	244.8
IS-8	SH-TP-12	Infiltration	Sandy Loam	1.02	248.7

We recommend additional explorations be conducted to fill in data gaps in the proposed stormwater management areas.

We trust this data report meets the current needs of the project. If you should have any questions, please call us at (978) 392-0900.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.

Quincy Pratt, P.E.
Project Director

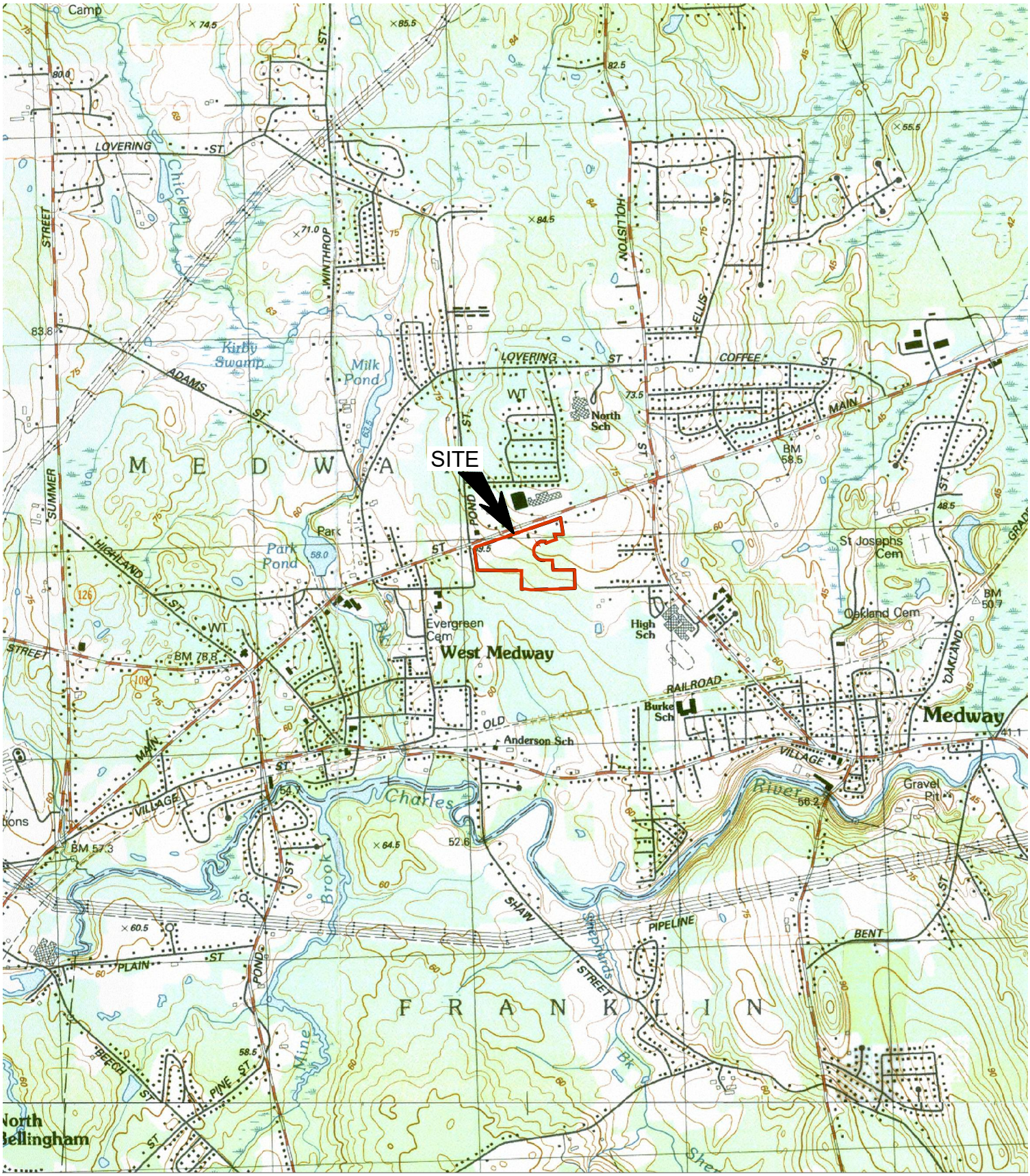
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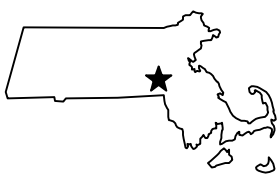
Encl. Figure 1 – Locus Plan
Figure 2 – Exploration Location Plan
Attachment A – Limitations
Attachment B – Subsurface Exploration Logs
Attachment C – Geotechnical Laboratory Results

Figures

File:P:\5700s\5722.00\Graphics Files\CAD\SW MEMO-JUN23\ELP.dwg Plot Date: 6-14-23

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NOTES:
Base map was taken from the "Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Information Technology Division"
7.5 minute USGS Quadrangle Maps: Hollistion, MA, REV: 1987

Drawn By: B. Daily
Designed By: Q. Pratt
Reviewed By: C. Disenhof
Project No: 5722.00
Date: January 2026

SCALE: 1:25,000

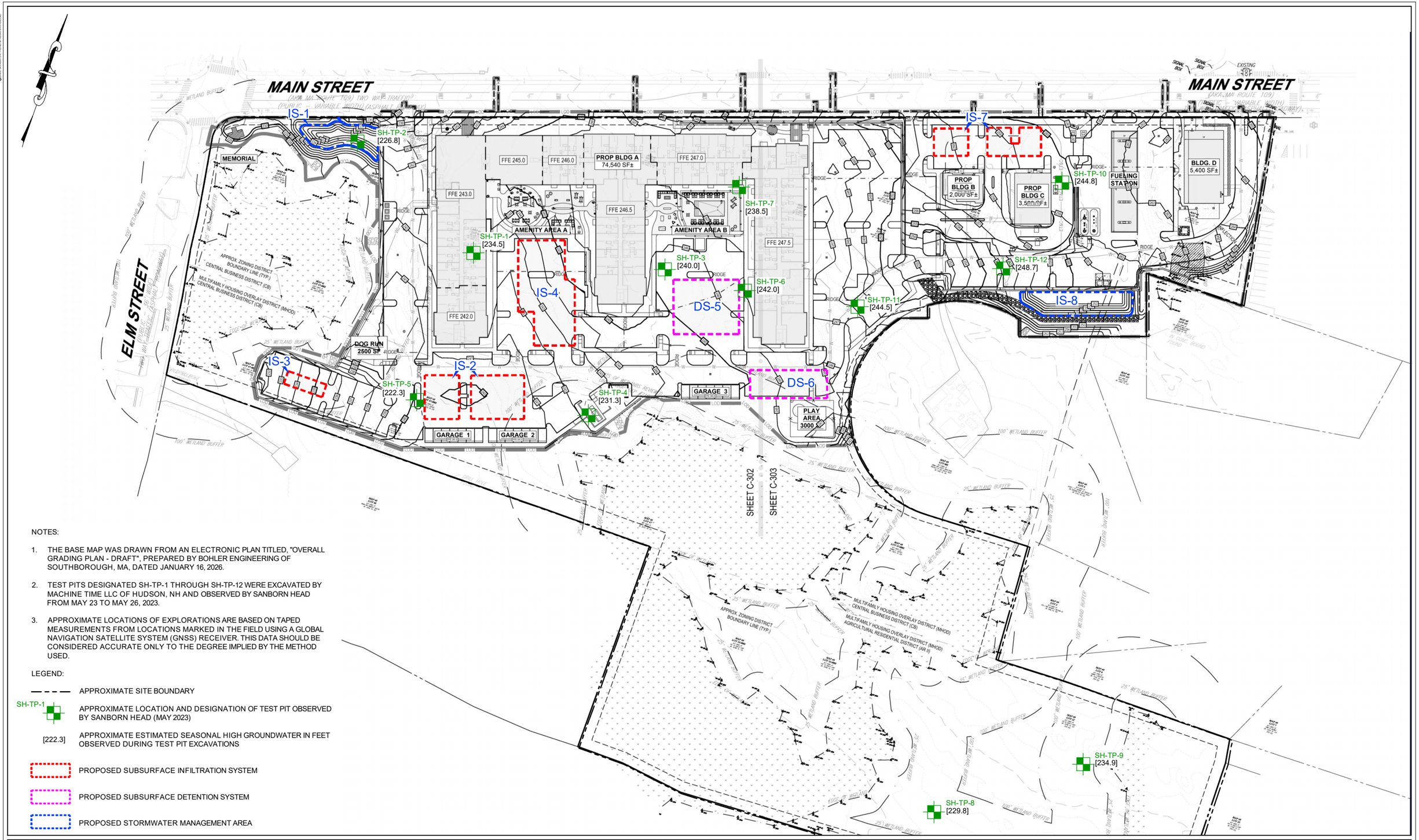
SANBORN HEAD

Figure 1

Locus Plan

Stormwater Design Letter

119 Main Street
Medway, Massachusetts



NOTES:

1. THE BASE MAP WAS DRAWN FROM AN ELECTRONIC PLAN TITLED, "OVERALL GRADING PLAN - DRAFT", PREPARED BY BOHLER ENGINEERING OF SOUTHBOROUGH, MA, DATED JANUARY 16, 2026.
2. TEST PITS DESIGNATED SH-TP-1 THROUGH SH-TP-12 WERE EXCAVATED BY MACHINE TIME LLC OF HUDSON, NH AND OBSERVED BY SANBORN HEAD FROM MAY 23 TO MAY 26, 2023.
3. APPROXIMATE LOCATIONS OF EXPLORATIONS ARE BASED ON TAPED MEASUREMENTS FROM LOCATIONS MARKED IN THE FIELD USING A GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) RECEIVER. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

LEGEND:

- APPROXIMATE SITE BOUNDARY
- SH-TP-1 — APPROXIMATE LOCATION AND DESIGNATION OF TEST PIT OBSERVED BY SANBORN HEAD (MAY 2023)
- [222.3] — APPROXIMATE ESTIMATED SEASONAL HIGH GROUNDWATER IN FEET OBSERVED DURING TEST PIT EXCAVATIONS
- PROPOSED SUBSURFACE INFILTRATION SYSTEM
- PROPOSED SUBSURFACE DETENTION SYSTEM
- PROPOSED STORMWATER MANAGEMENT AREA

SANBORN HEAD

GRAPHICAL SCALE
60' 30' 0' 60' 120'

NO.	DATE	DESCRIPTION	BY

DRAWN BY: B. DAILEY
DESIGNED BY: Q. PRATT
REVIEWED BY: Q. PRATT
PROJECT MGR: C. DISENHOF
PIC: Q. PRATT
DATE: JANUARY 2026

STORMWATER DESIGN LETTER
119 MAIN STREET
MEDWAY, MASSACHUSETTS

EXPLORATION LOCATION PLAN

PROJECT NUMBER: 5722.00

FIGURE NUMBER: 2

Attachment A

Limitations

ATTACHMENT A
LIMITATIONS

Explorations

1. The analyses, recommendations, and design submitted in this report are based in part on the data obtained from subsurface explorations by Sanborn Head. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.
2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretation of widely spaced explorations and samples; actual soil transitions may be more or less gradual than indicated. For specific information, refer to the subsurface exploration logs.
3. Water level readings have been made in the test pits at the times and under the conditions stated on the exploration logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors differing from those occurring at the time measurements were made.

Review

4. In the event that any changes in the nature, design, or location of the proposed water storage tank are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by Sanborn Head.

Construction

5. It is recommended that this firm be retained to provide soil engineering services during the excavation and earthwork construction phases of the work. This is to observe compliance with the design concepts, specifications, or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Use of Report

6. This report has been prepared for the exclusive use of The Meehan Group for the proposed development at 119 Main Street in Medway, Massachusetts, in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.
7. This subsurface evaluation report has been prepared for this project by Sanborn Head for design purposes only. Contractors using this report to prepare a bid for site work, acknowledge that its scope is limited to design considerations only.

Attachment B

Subsurface Exploration Logs

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/24/2023
Site Address:	119 Main St, Medway, MA	Time:	10:30
Project No.:	5722.00		
Ground Surface Elev. (ft.):	243	Weather :	65°F, Sunny

Logged by: H. Child

Test Pit Number: SH-TP-1 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 6	A	7.5 YR 3/2	-	-	-	Gravelly Loamy Sand	15	< 5	Granular	Very Friable	
6 - 84	Fill	10 YR 4/3	-	-	-	Gravelly Sandy Loam	20	10	Massive	Very Friable	Note 1, Note 4
84 - 90	A_b	7.5 YR 2.5/1	84 - 90	2.5 YR 3/4	5	Sandy Loam	10	< 5	Granular	Firm	
90 - 102	B_W	7.5 YR 4/6	-	-	-	Sandy Loam	10	5	Massive	Friable	Note 2
102 - 180	C	10 YR 5/3	102 - 126	5 YR 4/6	35	Gravelly Loamy Sand	25	10	Massive	Firm	Note 3
			126 - 180	5 YR 4/6	5						
-											
-											

Test Pit Termination Depth (in 180 **Reason for Termination:** Excavator reach

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	132			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	174	Stabilization Time:	35 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	102	Basis for ESHGW:	Redoximorphic features	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Observed three approximately 3 to 4 foot dia. boulders
2. Observed four approximately 2 to 4 foot dia. boulders
3. Observed two approximately 2 to 3 foot dia. boulders
4. Observed metal debris in excavated soil

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/24/2023
Site Address:	119 Main St, Medway, MA	Time:	11:35
Project No.:	5722.00		
Ground Surface Elev. (ft.):	232	Weather :	60°F, Partly Cloudy

Logged by: H. Child

Test Pit Number: SH-TP-2 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 10	A	7.5 YR 3/2	-	-	-	Sandy Loam	5	-	Granular	Friable	
10 - 29	B_W	10 YR 5/4	-	-	-	Gravelly Sandy Loam	15	-	Massive	Friable	
29 - 173	C	5Y 6/2	29 - 52	7.5 YR 5/8	15	Sandy Loam	35	10	Massive	Firm	Note 1
-											
-											
-											
-											

Test Pit Termination Depth (in 173 **Reason for Termination:** Sidewall fall-in

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	63			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	14.3	Stabilization Time:	5 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	63	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Redoximorphic features not interpreted as evidence of ESHGW

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/24/2023
Site Address:	119 Main St, Medway, MA	Time:	10:00
Project No.:	5722.00		
Ground Surface Elev. (ft.):	246	Weather :	60°F, Partly Cloudy

Logged by: H. Child

Test Pit Number: SH-TP-3 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 11	A	10 YR 4/2	-	-	-	Sandy Loam	5	-	Granular	Very Friable	
11 - 72	Fill	7.5 YR 2.5/1	-	-	-	Gravelly Sandy Loam	20	5	Massive	Friable	Note 1
72 - 77	A_b	7.5 YR 2.5/1	-	-	-	Fine Sandy Loam	< 5	-	Massive	Firm	
77 - 88	B	2.5 Y 5/3	77 - 88	5 YR 4/6	< 5	Fine Sandy Loam	< 5	-	Massive	Friable	
88 - 167	C	2.5 Y 5/2	88 - 112	7.5 YR 4/6	50	Gravelly Sandy Loam	15	< 5	Massive	Firm	Note 2
			112 - 167	7.5 YR 4/6	5						
-											
-											

Test Pit Termination Depth (in 167 **Reason for Termination:** Sidewall fall-in

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	72			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	160	Stabilization Time:	5 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	72	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1 Observed three 1-foot dia. boulders and one 2-foot dia. boulder

2. Silt Loam seams throughout

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/25/2023
Site Address:	119 Main St, Medway, MA	Time:	10:20
Project No.:	5722.00		
Ground Surface Elev. (ft.):	234	Weather :	57°F, Partly Cloudy

Logged by: H. Child

Test Pit Number: SH-TP-4 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 12	A	7.5 YR 3/1	-	-	-	Fine Sandy Loam	5	< 5	Granular	Very Friable	
12 - 34	B_W	10 YR 4/4	-	-	-	Fine Sandy Loam	5	< 5	Massive	Very Friable	
34 - 168	C	2.5 Y 5/2	34 - 57	7.5 YR 5/8	20	Gravelly Sandy Loam	25	10	Massive	Firm	Note 1
-											
-											
-											
-											

Test Pit Termination Depth (in 168 **Reason for Termination:** Refusal on rock

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	32			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	167	Stabilization Time:	10 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	32	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Observed two 2-foot dia. boulders
2. Redoximorphic features not interpreted as evidence of ESHGW

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/25/2023
Site Address:	119 Main St, Medway, MA	Time:	9:00
Project No.:	5722.00		
Ground Surface Elev. (ft.):	229	Weather :	53°, Sunny

Logged by: H. Child

Test Pit Number: SH-TP-5 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 11	A	7.5 YR 3/2	-	-	-	Sandy Loam	5	< 5	Granular	Friable	
11 - 29	B_W	10 YR 4/4	-	-	-	Sandy Loam	10	< 5	Massive	Friable	
29 - 176	C	2.5 Y 5/2	32 - 48	7.5 YR 5/8	30	Sandy Loam	25	10	Massive	Firm	Note 1, 2, and 3
-											
-											
-											
-											

Test Pit Termination Depth (in 176 **Reason for Termination:** Refusal on rock

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	80			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	175	Stabilization Time:	5 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	80	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Observed five approximately 1-foot dia. boulders and two approximately 2-foot dia. boulders
2. Observed weeping groundwater between 32 and 48 inches in southern pit face, assumed to be perched groundwater
3. Redoximorphic features not interpreted as evidence of ESHGW

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/23/2023
Site Address:	119 Main St, Medway, MA	Time:	12:15
Project No.:	5722.00		
Ground Surface Elev. (ft.):	248	Weather :	66°F, Clear

Logged by: H. Child

Test Pit Number: SH-TP-6 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 5	A	7.5 YR 3/2	-	-	-	Sandy Loam	5	< 5	Granular	Very Friable	
5 - 72	Fill	2.5 Y 4/3	-	-	-	Gravelly Sandy Loam	15	< 5	Massive	Very Friable	Note 1
72 - 78	A_b	2.5 Y 2.5/1	72 - 78	2.5 YR 3/6	2	Silt Loam	< 5	< 5	Massive	Firm	
78 - 108	B_W	2.5 Y 5/4	78 - 108	5 YR 4/6	2	Silt Loam	< 5	-	Massive	Firm	
108 - 144	C	5 Y 6/2	108 - 144	10 YR 5/8	5	Sandy Loam	10	5	Massive	Friable	Note 2
-											
-											

Test Pit Termination Depth (in 144 **Reason for Termination:** Excavator reach and fall-in

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	72			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	139	Stabilization Time:	5 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	72	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Fill contained brick, concrete, plastic, and corrugated drainage pipe
2. Observed silty loam seams and one approximately 2-foot dia. boulder

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/24/2023
Site Address:	119 Main St, Medway, MA	Time:	12:30
Project No.:	5722.00		
Ground Surface Elev. (ft.):	247	Weather :	74°F, Sunny

Logged by: H. Child

Test Pit Number: SH-TP-7 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 2	Asphalt	-	-	-	-	-	-	-	-	-	
2 - 30	Fill	2.5 YR 2.5/1	-	-	-	Loamy Sand	10	< 5	Massive	Very Friable	Note 1 and 2
30 - 90	C_1	5 Y 6/1	30 - 90	10 YR 54/4	5	Fine Sandy Loam	10	5	Massive	Friable	Note 3
90 - 150	C_2	5 Y 5/2	90 - 150	10 YR 5/8	5	Sandy Loam	10	5	Massive	Friable	Note 3 and 4
150 - 156	C_R	7.5 YR 5/6	-	-	-	-	-	-	-	-	
-											
-											

Test Pit Termination Depth (in 156 **Reason for Termination: Refusal on rock**

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	102			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	152	Stabilization Time:	35 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	102	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Metal debris observed in excavated fill soil
2. Odor observed from excavated fill soils.
3. Boulders observed
4. Sheen observed on standing water in test pit.

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/26/2023
Site Address:	119 Main St, Medway, MA	Time:	7:22
Project No.:	5722.00		
Ground Surface Elev. (ft.):	232	Weather :	50°F, Clear

Logged by: H. Child

Test Pit Number: SH-TP-8 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 5	A	7.5 YR 3/2	-	-	-	Fine Sandy Loam	-	-	Granular	Friable	
5 - 15	B_W	10 YR 4/4	-	-	-	Fine Sandy Loam	-	-	Massive	Friable	
15 - 127	C	5 Y 5/2	15 - 127	10 YR 5/6	5	Very Gravelly Loamy Sand	35	15	Massive	Friable	Note 1, Note 2
-											
-											
-											
-											

Test Pit Termination Depth (in 127 **Reason for Termination:** Excavator reach

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	27			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	126	Stabilization Time:	5 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	27	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Observed three approximately 1-foot dia. boulders
2. Redoximorphic features not interpreted as evidence of ESHGW

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/26/2023
Site Address:	119 Main St, Medway, MA	Time:	9:00
Project No.:	5722.00		
Ground Surface Elev. (ft.):	237	Weather :	58°F, Clear

Logged by: H. Child

Test Pit Number: SH-TP-9 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 10	A	7.5 YR 3/1	-	-	-	Sandy Loam	-	-	Granular	Friable	
10 - 26	B_W	10 YR 4/4	-	-	-	Sandy Loam	< 5	-	Massive	Friable	
26 - 136	C	2.5 Y 5/3	26 - 136	7.5 YR 4/6	5	Gravelly Loamy Sand	20	10	Massive	Friable	Note 1
-											
-											
-											
-											

Test Pit Termination Depth (in 136 **Reason for Termination:** Refusal on rock

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	25			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	135	Stabilization Time:	10 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	25	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Observed three approximately 1-foor dia. boulders
2. Redoximorphic features not interpreted as evidence of ESHGW

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/23/2023
Site Address:	119 Main St, Medway, MA	Time:	7:27
Project No.:	5722.00		
Ground Surface Elev. (ft.):	259	Weather :	50°F, Lightly Overcast

Logged by: H. Child

Test Pit Number: SH-TP-10 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 2	Asphalt	-	-	-	-	-	-	-	-	-	
2 - 8	Fill 1	10 YR 5/4	-	-	-	Gravelly Loamy Sand	15	5	Massive	Very Friable	
8 - 44	Fill 2	2.5 Y 5/1	-	-	-	Gravelly Loamy Sand	20	10	Massive	Friable	Note 1
44 - 50	A_b	10 YR 3/1	-	-	-	Sandy Loam	< 5	-	Massive	Firm	Note 2
50 - 172	C	5 Y 5/1	50 - 172	2.5 Y 6/6	10	Sandy Loam	< 5	< 5	Massive	Firm	Note 3
-											
-											

Test Pit Termination Depth (in 174 **Reason for Termination:** Excavator reach

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	170			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	172	Stabilization Time:	5 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	170	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Observed ten approximately 1 to 2 foot dia. boulders. Observed roots
2. Observed roots, twigs, and leaves
3. Redoximorphic features not interpreted as evidence of ESHGW

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/23/2023
Site Address:	119 Main St, Medway, MA	Time:	10:45
Project No.:	5722.00		
Ground Surface Elev. (ft.):	248	Weather :	63°F, Clear

Logged by: H. Child

Test Pit Number: SH-TP-11 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 22	A	10 YR 2/2	-	-	-	Fine Sandy Loam	< 5	< 5	Granular	Very Friable	
22 - 41	B_W	10 YR 4/4	-	-	-	Fine Sandy Loam	< 5	< 5	Massive	Very Friable	
41 - 162	C	2.5 Y 5/3	41 - 162	7.5 YR 5/8	< 5	Gravelly Sandy Loam	20	10	Massive	Friable	Note 1, Note 2
-											
-											
-											
-											

Test Pit Termination Depth (in 162 **Reason for Termination:** Excavator reach

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	42			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	148	Stabilization Time:	5 min	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	42	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. Observed four approximately 1-foot dia. boulders and three approximately 2-foot dia. boulders
2. Observed Cr layer in northern side of pit only.

Deep Observation Hole

Site Name:	Medway Heritage on Main	Date:	5/23/2023
Site Address:	119 Main St, Medway, MA	Time:	9:27
Project No.:	5722.00		
Ground Surface Elev. (ft.):	254	Weather :	57°F, Clear

Logged by: H. Child

Test Pit Number: SH-TP-12 Reviewed by: Q. Pratt

Depth (inches)	Soil Horizon or Layer	Soil Matrix Color (Moist)	Redoximorphic Features			Soil Texture (NRCS)	Coarse Fragments (% by Volume)		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles			
0 - 8	A	7.5 YR 2.5/1	-	-	-	Sandy Loam	5	-	Granular	Very Friable	
8 - 28	B_W	10 YR 4/6	-	-	-	Sandy Loam	5	-	Massive	Very Friable	
28 - 94	C	5 Y 5/2	28 - 58	7.5 YR 5/6	5	Sandy Loam	10	< 5	Massive	Friable	
94 - 118	C_R	10 YR 8/2	-	-	-	-	-	-	Massive	Rigid	
-											
-											
-											

Test Pit Termination Depth (in 118 **Reason for Termination:** Refusal on rock

Groundwater Observations:				**In-Situ Testing:**			
Depth to water weeping from pit face (in.):	64			Percolation Test:	N/A	Depth (in.):	N/A
Depth to standing water in hole (in.):	NE	Stabilization Time:	N/A	Permeameter Test:	N/A	Depth (in.):	N/A
Depth to estimated seasonal high groundwater [ESHGW] (in.):	64	Basis for ESHGW:	Groundwater observed	Falling Head Test:	N/A	Depth (in.):	N/A
				Other Test:	N/A	Depth (in.):	N/A

Additional Notes:

1. No standing water observed prior to sidewall fall-in
2. Redoximorphic features not interpreted as evidence of ESHGW

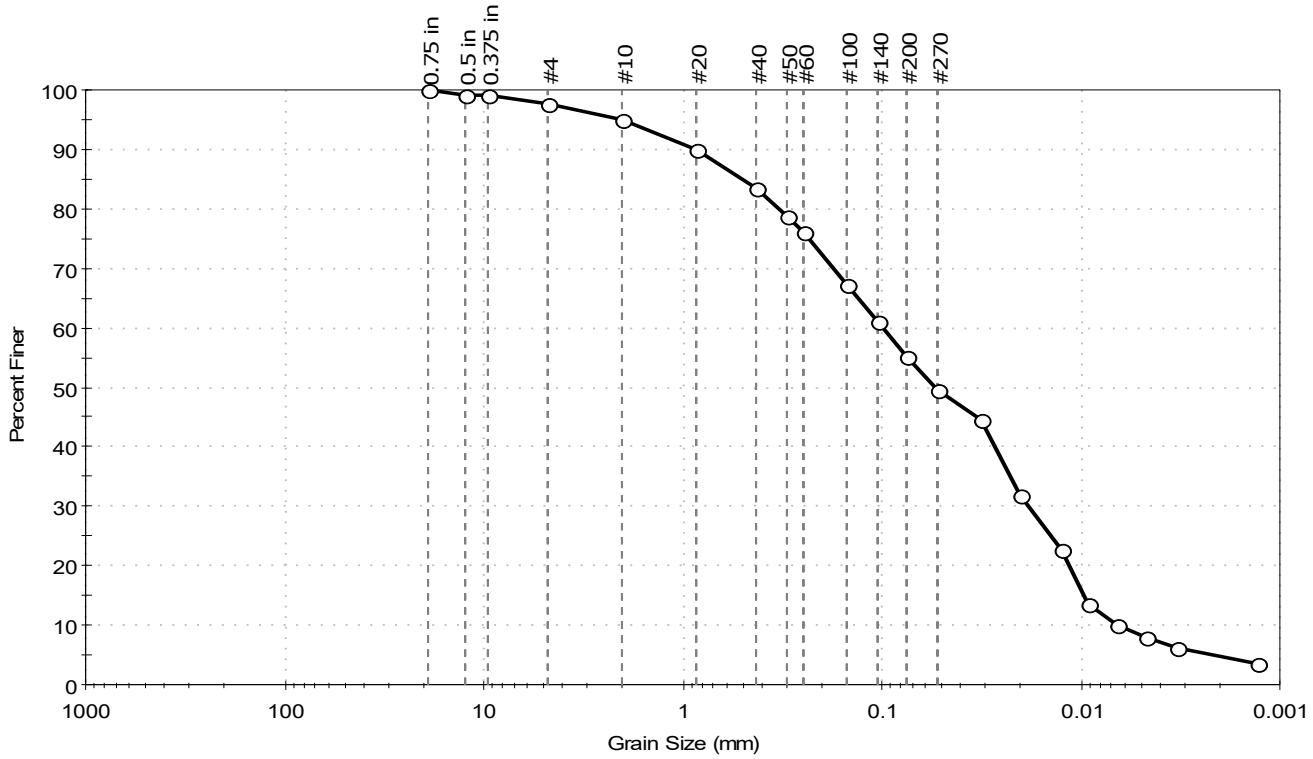
Attachment C

Geotechnical Laboratory Results

GeoTesting EXPRESS

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-10	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-10 C	Test Date:	06/12/23	Checked By:	ank
Depth :	50-172 inches	Test Id:	718933		
Test Comment:	---				
Visual Description:	Moist, gray sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	2.5	42.4	55.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	99		
0.375 in	9.50	99		
#4	4.75	98		
#10	2.00	95		
#20	0.85	90		
#40	0.42	84		
#50	0.30	79		
#60	0.25	76		
#100	0.15	67		
#140	0.11	61		
#200	0.075	55		
#270	0.053	50		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0321	45		
---	0.0201	32		
---	0.0127	23		
---	0.0092	14		
---	0.0066	10		
---	0.0047	8		
---	0.0033	6		
---	0.0013	4		

Coefficients

D_{85} = 0.4970 mm	D_{30} = 0.0183 mm
D_{60} = 0.0996 mm	D_{15} = 0.0097 mm
D_{50} = 0.0544 mm	D_{10} = 0.0066 mm
C_u = 15.091	C_c = 0.509

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

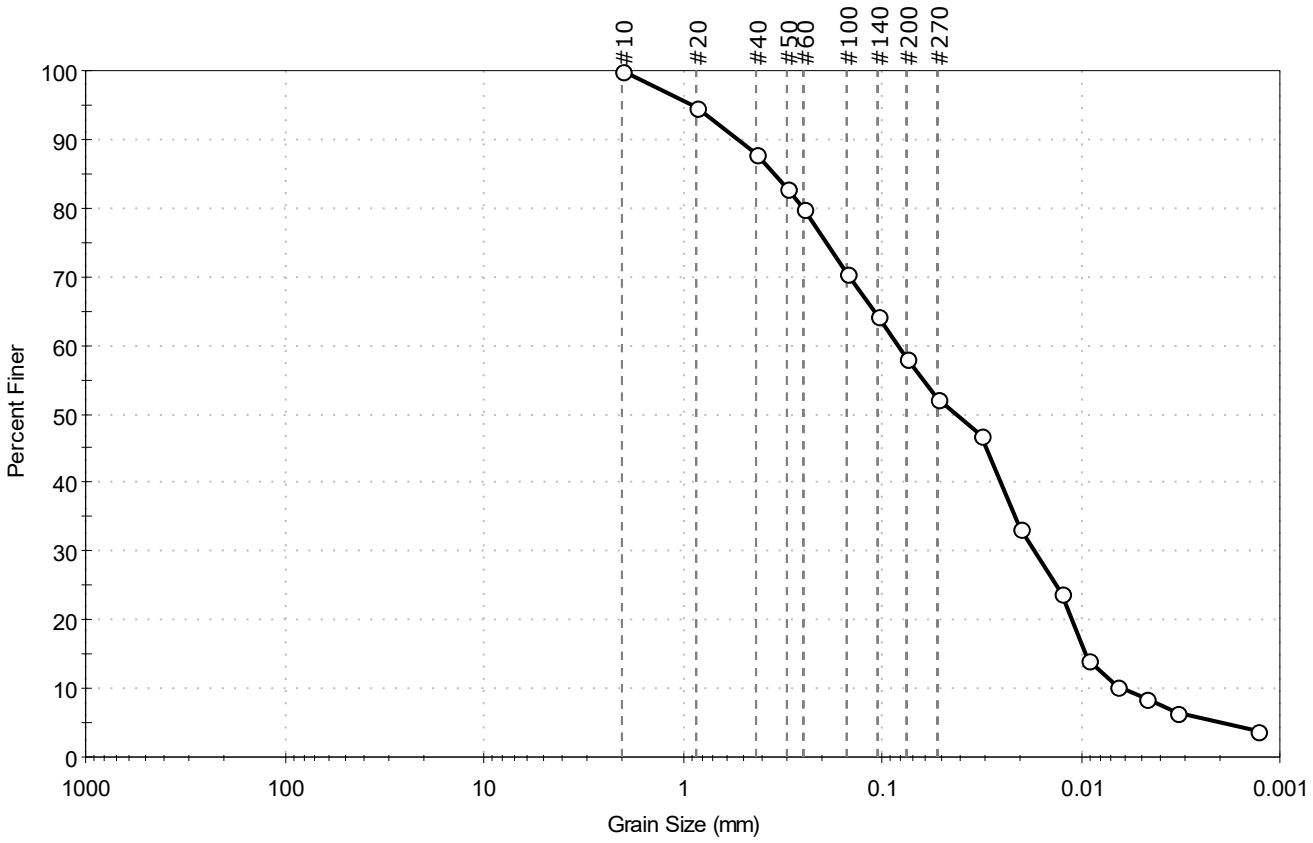
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-10	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-10 C	Test Date:	06/12/23	Checked By:	ank
Depth :	50-172 inches	Test Id:	718933		

Test Comment: ---
Visual Description: Moist, gray sandy silt
Sample Comment: Only minus No. 10 sieve for USDA classification

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	42.0	58.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#10	2.00	100		
#20	0.85	95		
#40	0.42	88		
#50	0.30	83		
#60	0.25	80		
#100	0.15	71		
#140	0.11	64		
#200	0.075	58		
#270	0.053	52		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0321	47		
---	0.0201	33		
---	0.0127	24		
---	0.0092	14		
---	0.0066	10		
---	0.0047	9		
---	0.0033	7		
---	0.0013	4		

Coefficients

D_{85} = 0.3477 mm D_{30} = 0.0170 mm
D_{60} = 0.0837 mm D_{15} = 0.0094 mm
D_{50} = 0.0432 mm D_{10} = 0.0061 mm
C_u = 13.721 C_c = 0.566

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-10	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-10 C	Test Date:	06/13/23	Checked By:	ank
Depth :	50-172 inches	Test Id:	718938		
Test Comment:	---				
Visual Description:	Moist, gray sandy silt				
Sample Comment:	---				

USDA Textural Classification

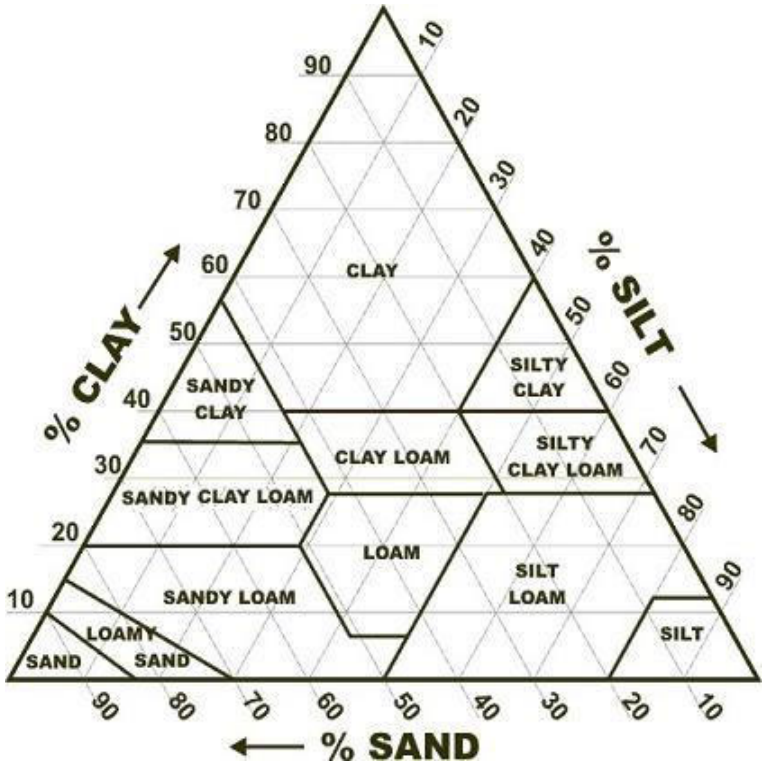
Boring ID	Sample ID	Depth	Sand, %	Silt, %	Clay, %	Classification
SH-TP-10	SH-TP-10 C	50-172 inches	49	46	5	Sandy Loam

Classifications based only on material passing the #10 sieve

Sand: material passing 2.0 mm and retained on 0.05 mm diameter

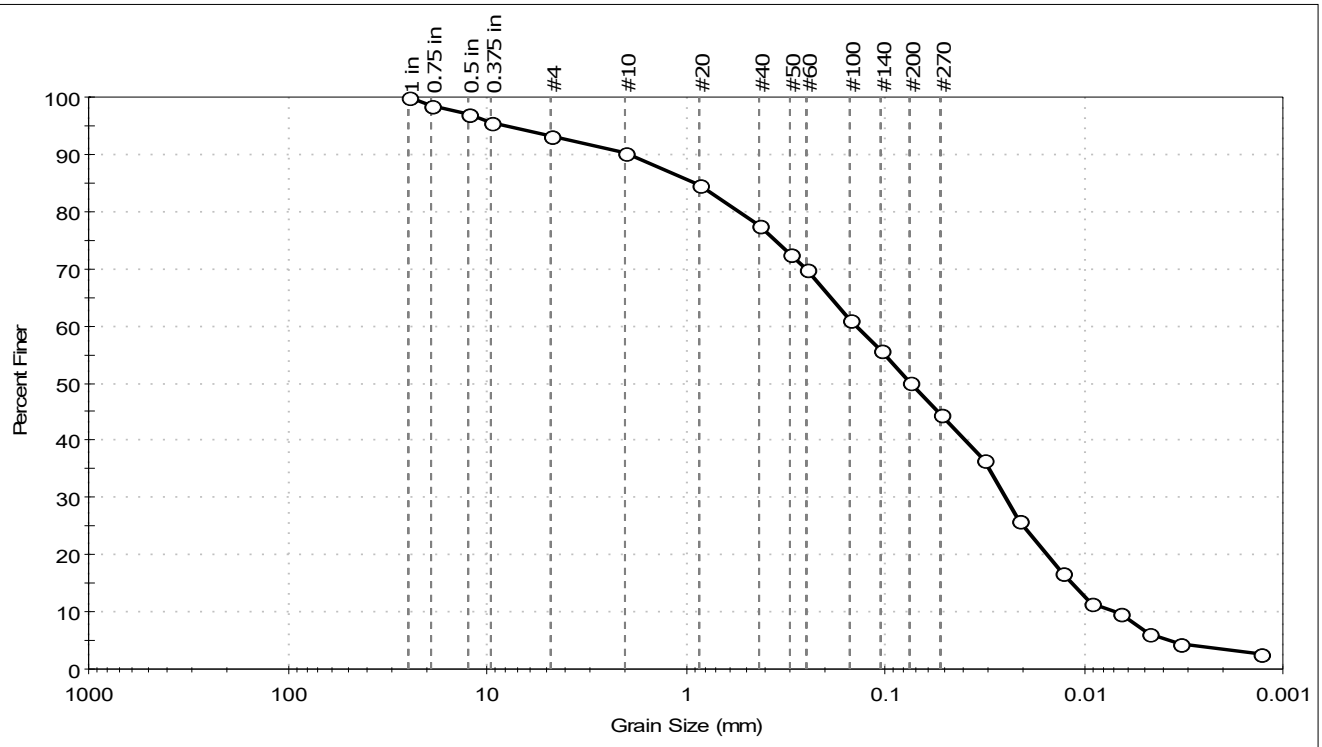
Silt: material passing 0.05 mm and retained on 0.002 mm diameter

Clay: material passing 0.002 mm diameter



Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-12	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-12 C	Test Date:	06/12/23	Checked By:	ank
Depth :	28-94 inches	Test Id:	718934		
Test Comment:	---				
Visual Description:	Moist, light olive brown sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	6.6	43.1	50.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	99		
0.5 in	12.50	97		
0.375 in	9.50	96		
#4	4.75	93		
#10	2.00	90		
#20	0.85	85		
#40	0.42	78		
#50	0.30	73		
#60	0.25	70		
#100	0.15	61		
#140	0.11	56		
#200	0.075	50		
#270	0.053	44		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0318	37		
---	0.0210	26		
---	0.0128	17		
---	0.0092	12		
---	0.0065	10		
---	0.0047	6		
---	0.0033	4		
---	0.0013	3		

Coefficients

D_{85} = 0.9015 mm D_{30} = 0.0247 mm
D_{60} = 0.1391 mm D_{15} = 0.0114 mm
D_{50} = 0.0738 mm D_{10} = 0.0068 mm
C_u = 20.456 C_c = 0.645

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

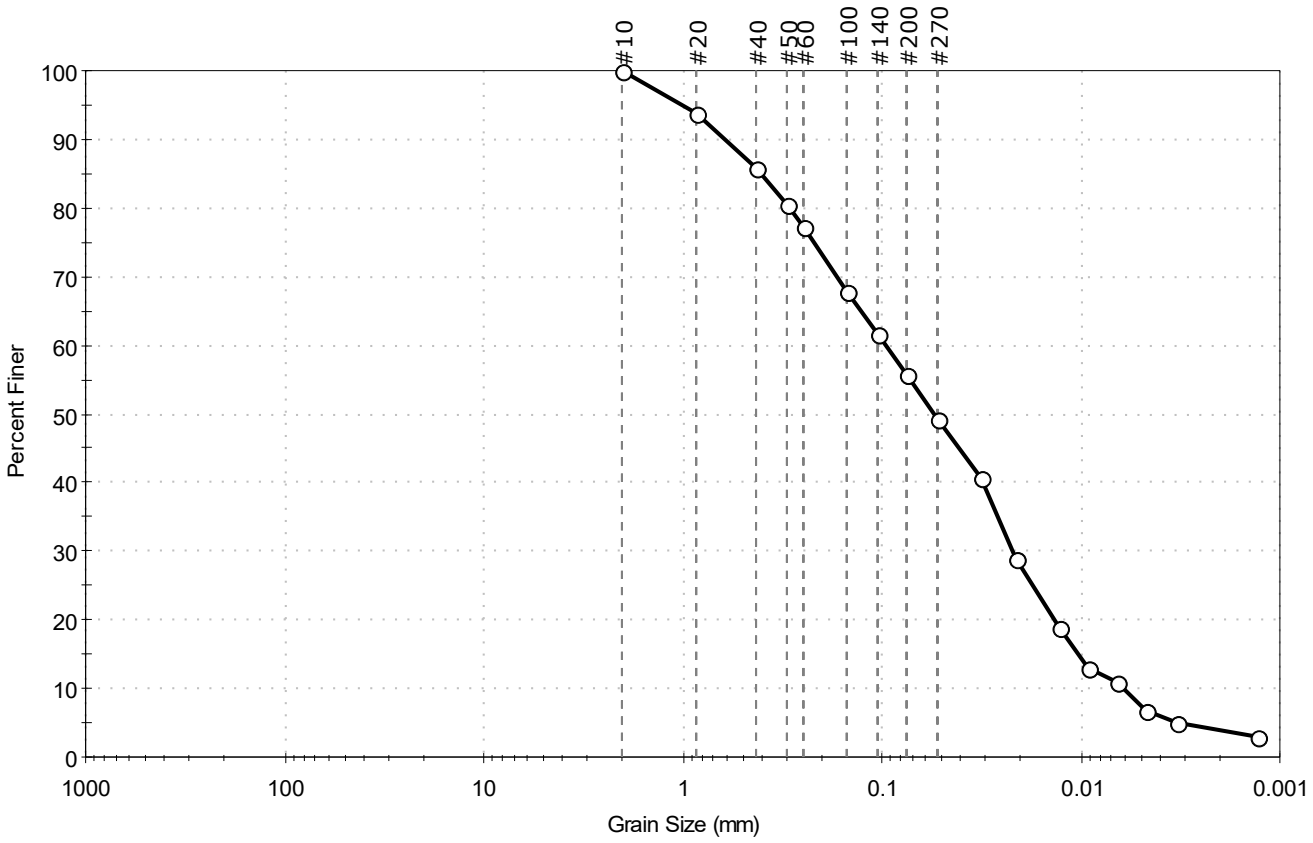
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-12	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-12 C	Test Date:	06/12/23	Checked By:	ank
Depth :	28-94 inches	Test Id:	718934		

Test Comment: ---
Visual Description: Moist, light olive brown sandy silt
Sample Comment: Only minus No. 10 sieve for USDA classification

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	44.3	55.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#10	2.00	100		
#20	0.85	94		
#40	0.42	86		
#50	0.30	80		
#60	0.25	77		
#100	0.15	68		
#140	0.11	62		
#200	0.075	56		
#270	0.053	49		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0318	41		
---	0.0210	29		
---	0.0128	19		
---	0.0092	13		
---	0.0065	11		
---	0.0047	7		
---	0.0033	5		
---	0.0013	3		

Coefficients

D_{85} = 0.4023 mm
D_{30} = 0.0219 mm
D_{60} = 0.0966 mm
D_{15} = 0.0104 mm
D_{50} = 0.0554 mm
D_{10} = 0.0061 mm
C_u = 15.836
C_c = 0.814

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-12	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-12 C	Test Date:	06/13/23	Checked By:	ank
Depth :	28-94 inches	Test Id:	718939		
Test Comment:	---				
Visual Description:	Moist, light olive brown sandy silt				
Sample Comment:	---				

USDA Textural Classification

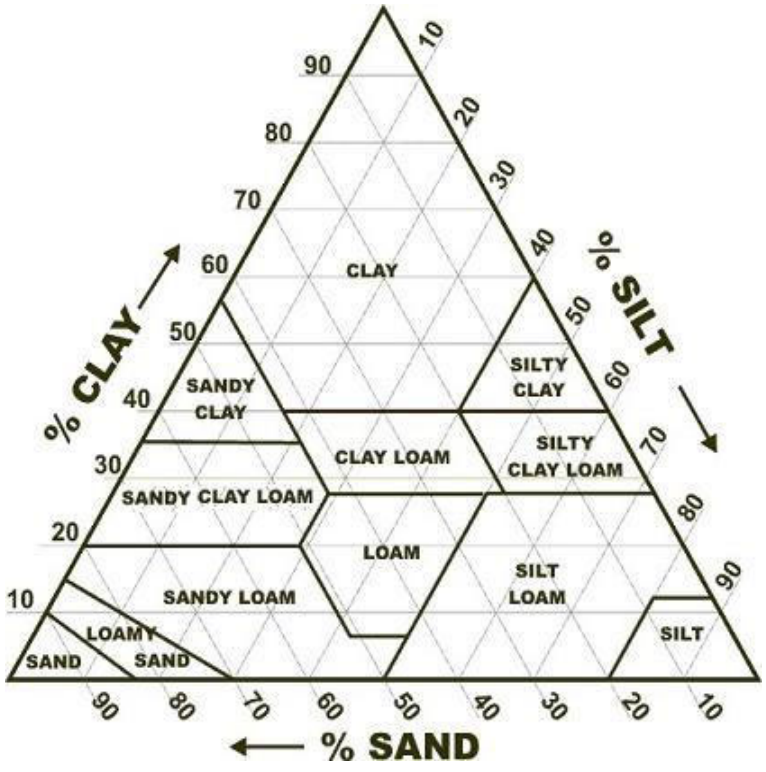
Boring ID	Sample ID	Depth	Sand, %	Silt, %	Clay, %	Classification
SH-TP-12	SH-TP-12 C	28-94 inches	52	45	3	Sandy Loam

Classifications based only on material passing the #10 sieve

Sand: material passing 2.0 mm and retained on 0.05 mm diameter

Silt: material passing 0.05 mm and retained on 0.002 mm diameter

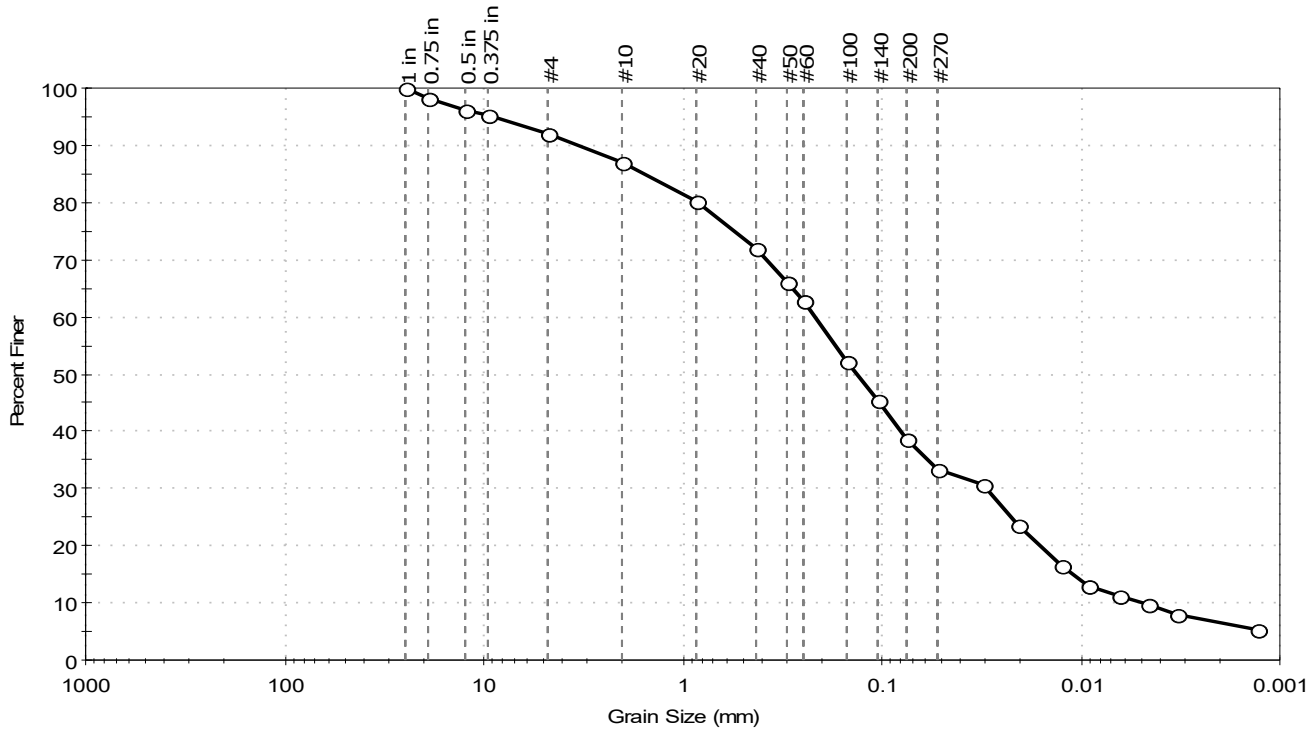
Clay: material passing 0.002 mm diameter



GeoTesting EXPRESS

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-2	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-2 C	Test Date:	06/12/23	Checked By:	ank
Depth :	29-173 inches	Test Id:	718930		
Test Comment:	---				
Visual Description:	Moist, light grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	7.8	53.5	38.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	98		
0.5 in	12.50	96		
0.375 in	9.50	95		
#4	4.75	92		
#10	2.00	87		
#20	0.85	80		
#40	0.42	72		
#50	0.30	66		
#60	0.25	63		
#100	0.15	52		
#140	0.11	45		
#200	0.075	39		
#270	0.053	33		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0311	31		
---	0.0206	24		
---	0.0127	17		
---	0.0092	13		
---	0.0064	11		
---	0.0046	10		
---	0.0033	8		
---	0.0013	5		

Coefficients

D_{85} = 1.5523 mm
D_{30} = 0.0297 mm
D_{60} = 0.2183 mm
D_{15} = 0.0109 mm
D_{50} = 0.1339 mm
D_{10} = 0.0050 mm
C_u = 43.660
C_c = 0.808

Classification

ASTM N/A

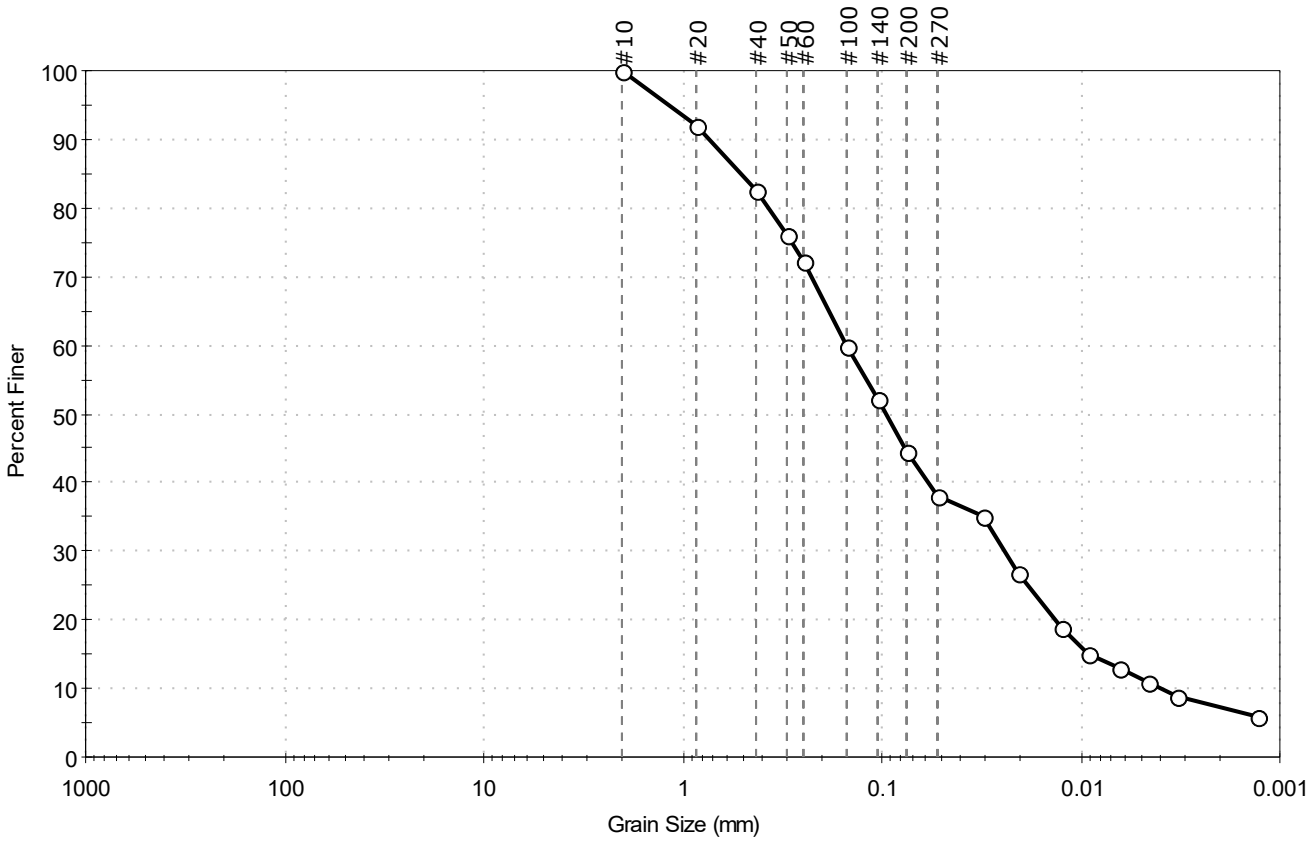
AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-2	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-2 C	Test Date:	06/12/23	Checked By:	ank
Depth :	29-173 inches	Test Id:	718930		
Test Comment:	---				
Visual Description:	Moist, light grayish brown silty sand				
Sample Comment:	Only minus No. 10 sieve for USDA classification				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	55.6	44.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#10	2.00	100		
#20	0.85	92		
#40	0.42	83		
#50	0.30	76		
#60	0.25	72		
#100	0.15	60		
#140	0.11	52		
#200	0.075	44		
#270	0.053	38		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0311	35		
---	0.0206	27		
---	0.0127	19		
---	0.0092	15		
---	0.0064	13		
---	0.0046	11		
---	0.0033	9		
---	0.0013	6		

Coefficients

D_{85} = 0.5065 mm	D_{30} = 0.0241 mm
D_{60} = 0.1499 mm	D_{15} = 0.0092 mm
D_{50} = 0.0961 mm	D_{10} = 0.0040 mm
C_u = 37.475	C_c = 0.969

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-2	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-2 C	Test Date:	06/13/23	Checked By:	ank
Depth :	29-173 inches	Test Id:	718935		
Test Comment:	---				
Visual Description:	Moist, light grayish brown silty sand				
Sample Comment:	---				

USDA Textural Classification

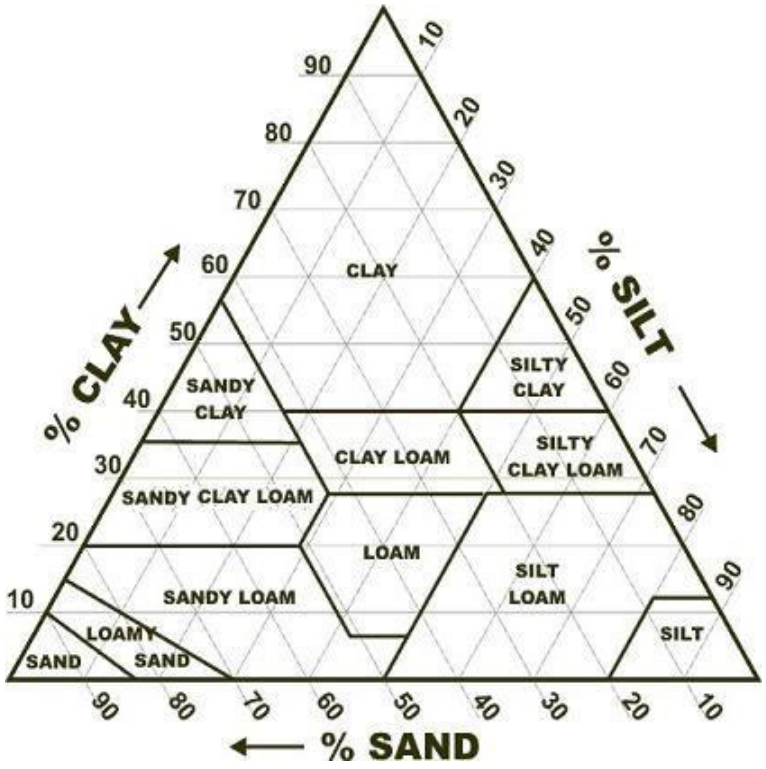
Boring ID	Sample ID	Depth	Sand, %	Silt, %	Clay, %	Classification
SH-TP-2	SH-TP-2 C	29-173 inches	63	31	6	Sandy Loam

Classifications based only on material passing the #10 sieve

Sand: material passing 2.0 mm and retained on 0.05 mm diameter

Silt: material passing 0.05 mm and retained on 0.002 mm diameter

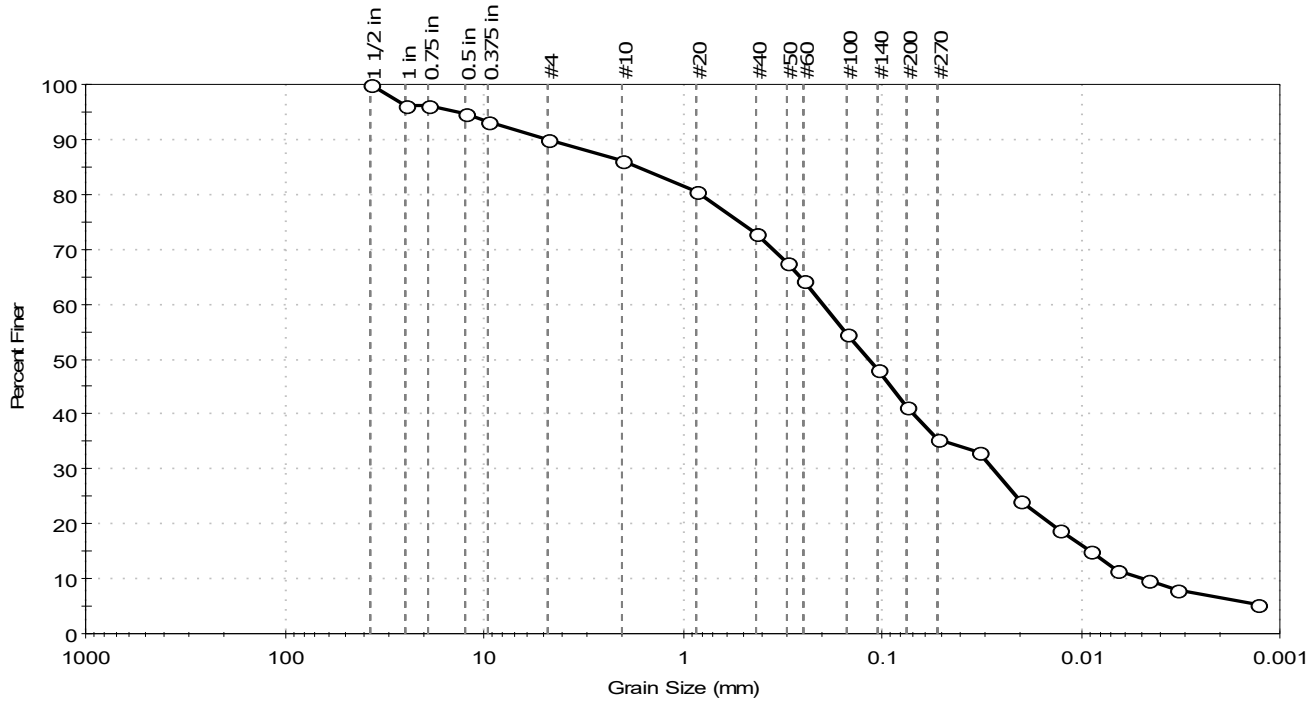
Clay: material passing 0.002 mm diameter



GeoTesting EXPRESS

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-5	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-5 C	Test Date:	06/12/23	Checked By:	ank
Depth :	29-176 inches	Test Id:	718931		
Test Comment:	---				
Visual Description:	Moist, light grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	9.9	48.8	41.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 1/2 in	37.50	100		
1 in	25.00	96		
0.75 in	19.00	96		
0.5 in	12.50	95		
0.375 in	9.50	93		
#4	4.75	90		
#10	2.00	86		
#20	0.85	80		
#40	0.42	73		
#50	0.30	67		
#60	0.25	64		
#100	0.15	54		
#140	0.11	48		
#200	0.075	41		
#270	0.053	35		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0325	33		
---	0.0203	24		
---	0.0127	19		
---	0.0091	15		
---	0.0065	12		
---	0.0047	10		
---	0.0033	8		
---	0.0013	5		

Coefficients

D_{85} = 1.6972 mm D_{30} = 0.0276 mm
D_{60} = 0.1993 mm D_{15} = 0.0090 mm
D_{50} = 0.1182 mm D_{10} = 0.0049 mm
C_u = 40.673 C_c = 0.780

Classification

ASTM N/A

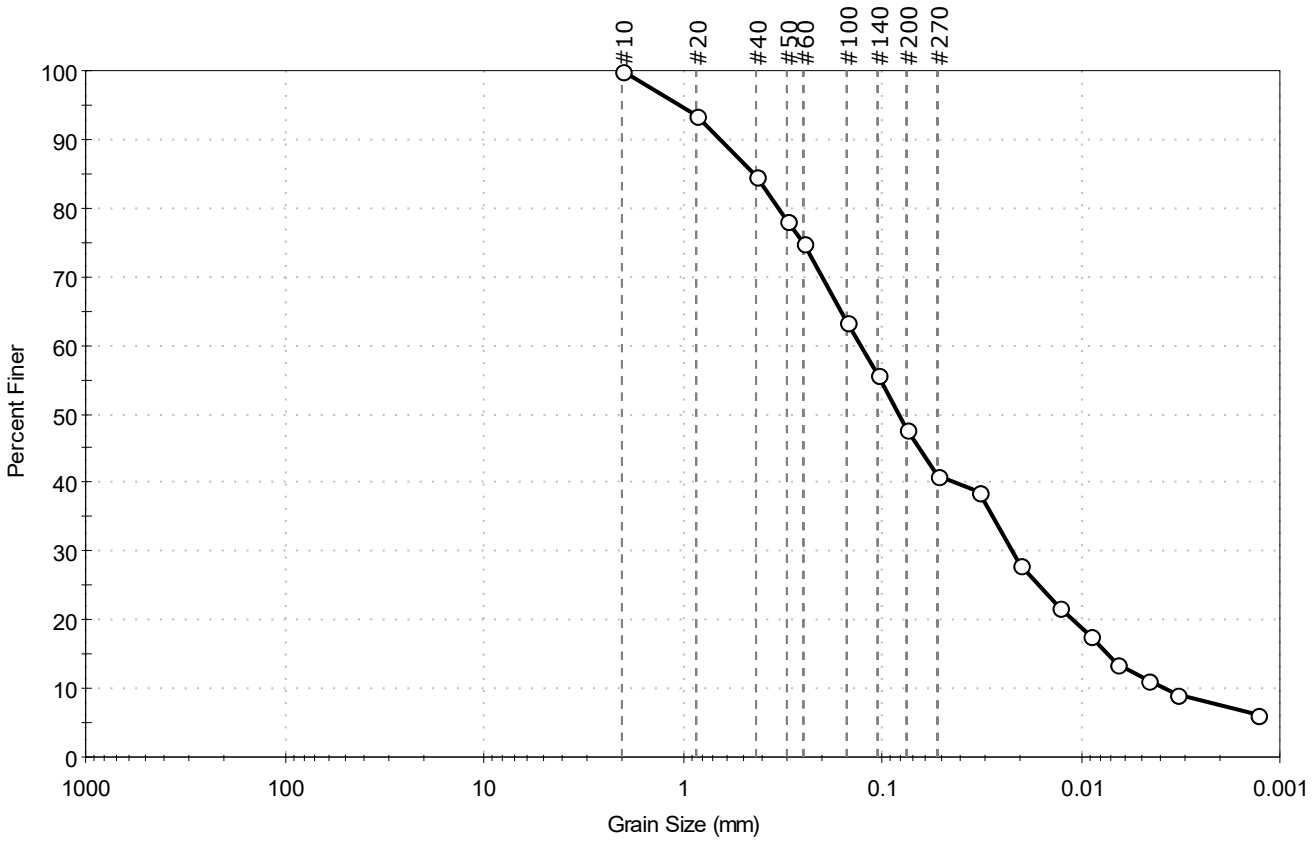
AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-5	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-5 C	Test Date:	06/12/23	Checked By:	ank
Depth :	29-176 inches	Test Id:	718931		
Test Comment:	---				
Visual Description:	Moist, light grayish brown silty sand				
Sample Comment:	Only minus No. 10 sieve for USDA classification				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	52.1	47.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#10	2.00	100		
#20	0.85	93		
#40	0.42	85		
#50	0.30	78		
#60	0.25	75		
#100	0.15	63		
#140	0.11	56		
#200	0.075	48		
#270	0.053	41		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0325	39		
---	0.0203	28		
---	0.0127	22		
---	0.0091	18		
---	0.0065	13		
---	0.0047	11		
---	0.0033	9		
---	0.0013	6		

Coefficients

D_{85} =0.4414 mm	D_{30} =0.0222 mm
D_{60} =0.1290 mm	D_{15} =0.0074 mm
D_{50} =0.0822 mm	D_{10} =0.0037 mm
C_u =34.865	C_c =1.033

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-5	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-5 C	Test Date:	06/13/23	Checked By:	ank
Depth :	29-176 inches	Test Id:	718936		
Test Comment:	---				
Visual Description:	Moist, light grayish brown silty sand				
Sample Comment:	---				

USDA Textural Classification

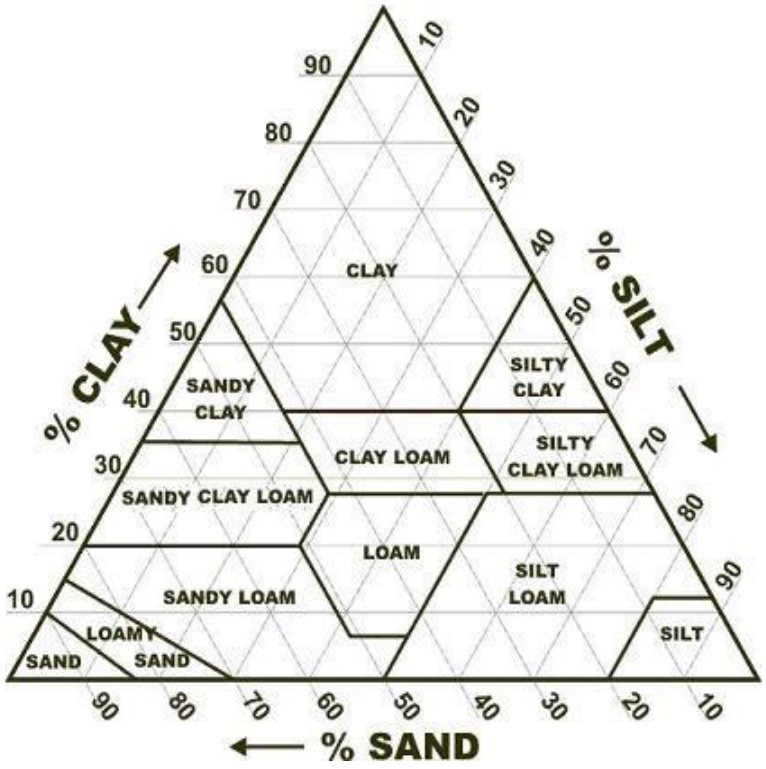
Boring ID	Sample ID	Depth	Sand, %	Silt, %	Clay, %	Classification
SH-TP-5	SH-TP-5 C	29-176 inches	60	34	6	Sandy Loam

Classifications based only on material passing the #10 sieve

Sand: material passing 2.0 mm and retained on 0.05 mm diameter

Silt: material passing 0.05 mm and retained on 0.002 mm diameter

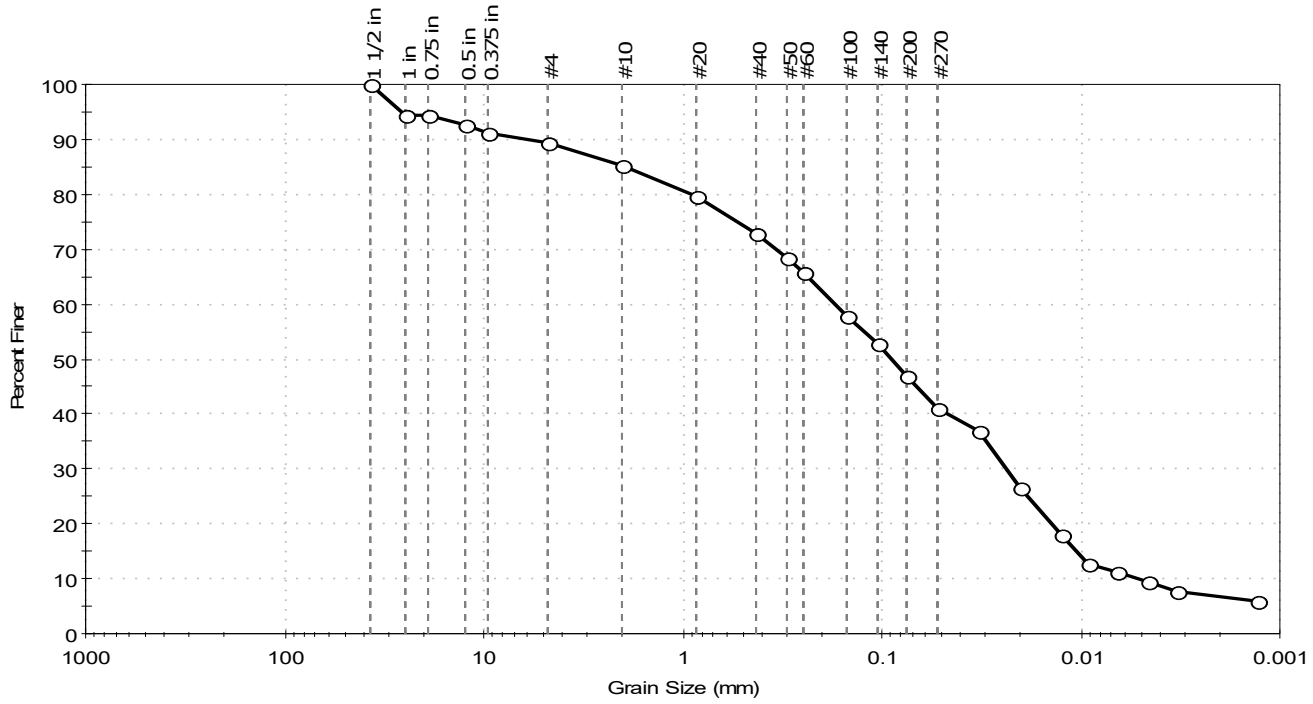
Clay: material passing 0.002 mm diameter



GeoTesting EXPRESS

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-7	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-7 C1	Test Date:	06/12/23	Checked By:	ank
Depth :	30-90 inches	Test Id:	718932		
Test Comment:	---				
Visual Description:	Moist, grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	10.7	42.4	46.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 1/2 in	37.50	100		
1 in	25.00	94		
0.75 in	19.00	94		
0.5 in	12.50	93		
0.375 in	9.50	91		
#4	4.75	89		
#10	2.00	85		
#20	0.85	80		
#40	0.42	73		
#50	0.30	68		
#60	0.25	66		
#100	0.15	58		
#140	0.11	53		
#200	0.075	47		
#270	0.053	41		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0322	37		
---	0.0204	27		
---	0.0125	18		
---	0.0091	13		
---	0.0065	11		
---	0.0046	9		
---	0.0033	8		
---	0.0013	6		

Coefficients

D_{85} = 1.9536 mm D_{30} = 0.0237 mm
D_{60} = 0.1712 mm D_{15} = 0.0105 mm
D_{50} = 0.0898 mm D_{10} = 0.0053 mm
C_u = 32.302 C_c = 0.619

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

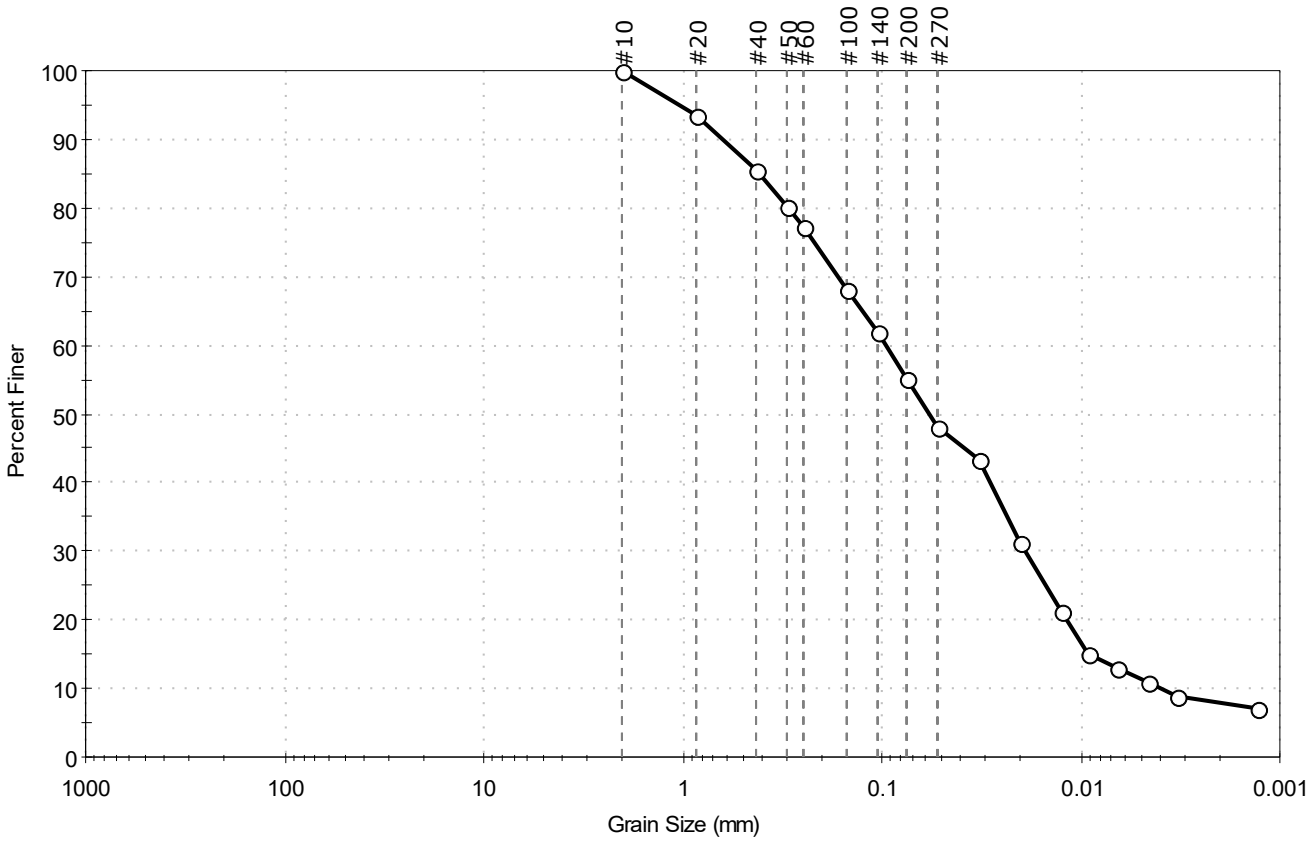
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-7	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-7 C1	Test Date:	06/12/23	Checked By:	ank
Depth :	30-90 inches	Test Id:	718932		
Test Comment:	---				
Visual Description:	Moist, grayish brown silty sand				
Sample Comment:	Only minus No. 10 sieve for USDA classification				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	44.8	55.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#10	2.00	100		
#20	0.85	94		
#40	0.42	86		
#50	0.30	80		
#60	0.25	77		
#100	0.15	68		
#140	0.11	62		
#200	0.075	55		
#270	0.053	48		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0322	43		
---	0.0204	31		
---	0.0125	21		
---	0.0091	15		
---	0.0065	13		
---	0.0046	11		
---	0.0033	9		
---	0.0013	7		

Coefficients

D_{85} = 0.4068 mm	D_{30} = 0.0192 mm
D_{60} = 0.0958 mm	D_{15} = 0.0091 mm
D_{50} = 0.0583 mm	D_{10} = 0.0039 mm
C_u = 24.564	C_c = 0.987

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Sanborn, Head & Associates, Inc.				
Project:	Heritage Medway				
Location:	Medway, MA			Project No:	GTX-317343
Boring ID:	SH-TP-7	Sample Type:	bag	Tested By:	ckg
Sample ID:	SH-TP-7 C1	Test Date:	06/13/23	Checked By:	ank
Depth :	30-90 inches	Test Id:	718937		
Test Comment:	---				
Visual Description:	Moist, grayish brown silty sand				
Sample Comment:	---				

USDA Textural Classification

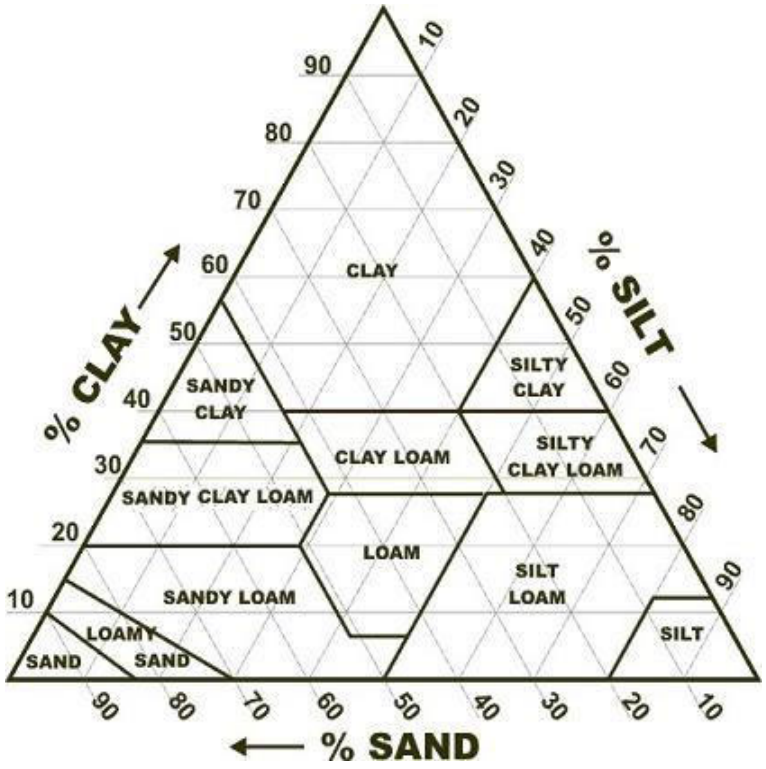
Boring ID	Sample ID	Depth	Sand, %	Silt, %	Clay, %	Classification
SH-TP-7	SH-TP-7 C1	30-90 inches	53	40	7	Sandy Loam

Classifications based only on material passing the #10 sieve

Sand: material passing 2.0 mm and retained on 0.05 mm diameter

Silt: material passing 0.05 mm and retained on 0.002 mm diameter

Clay: material passing 0.002 mm diameter



Commission Members
David Travalini, Chair
Ken McKay
David Blackwell
Dayna Gill
Michael Narducci
Sean Green
James Dacier

Medway Town Hall
155 Village Street
Medway, MA 02053
Telephone (508) 533-3292
bgraziano@townofmedway.org

TOWN OF MEDWAY
COMMONWEALTH OF MASSACHUSETTS
CONSERVATION COMMISSION

August 7, 2023

Tariq Fayad
Rte 86 Realty Corp
PO Box 444
Mendon, MA 01756

Dear Mx. Fayad,

Enclosed is the wetland permit (Order of Area Resource Delineation) issued **August 7, 2022 DEP #216-1034**. The appeal period is 10 days. No work should be performed prior to the end of the 10-day appeal period.

Please carefully read the ORAD. This must be recorded at the Norfolk Registry of Deeds, you have to send a check to our office for $106.00. Therefore, after the 10-day appeal period our office can complete the recording on your behalf.

We thank you for the opportunity to review this work and trusts that it will be carried out in such a way that protects our wetland resources. The Order of Conditions DEP #216-1034 shall **expire August 7, 2026**. If you have any questions, please contact me at bgraziano@townofmedway.org .

Sincerely,

Bridget R Graziano

Bridget R. Graziano, Conservation Agent
Medway Conservation Commission

For Registry of Deeds Use Only

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 4B – Order of Resource Area Delineation

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

Provided by MassDEP:
216-1034
MassDEP File Number

eDEP Transaction Number

Medway
City/Town

A. General Information

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



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

From: Medway
1. Conservation Commission

2. This Issuance is for (check one):

a. ☒ Order of Resource Area Delineation

b. ☐ Amended Order of Resource Area Delineation

3. Applicant:

Tariq
a. First Name

Fayad
b. Last Name

Rte 86 Realty Corp
c. Organization

PO Box 444
d. Mailing Address

Mendon
e. City/Town

MA
f. State

01756
g. Zip Code

4. Property Owner (if different from applicant):

Kevin
a. First Name

Meehan
b. Last Name

Milford East Main Street LLC (OWNER: Map 40 Lot 073
c. Organization

60 Causeway Street
d. Mailing Address

Millis
e. City/Town

MA
f. State

01532
g. Zip Code

5. Project Location:

1, 3 Elm Street 107, 111, 115, 115A, 117 119, 119A, 119B Main Street, 26 Kelley Street
d. Assessors Map/Plat Number

Map 40, 48, 49 (respectively)

Medway
b. City/Town

02053
c. Zip Code

Lot 71, 72, 73, 74, 75, 76; 46, 47, 47-0001, 47-0002, 47-0003; 32, 32-0001

Latitude and Longitude (in degrees, minutes, seconds):

d m s
f. Latitude

d m s
g. Longitude

6. Dates:

May 25, 2023
a. Date ANRAD filed

July 27, 2023
b. Date Public Hearing Closed

August 7, 2023
c. Date of Issuance

A. General Information (cont.)

7. Title and Date (or Revised Date if applicable) of Final Plans and Other Documents:

Boundry, Topographic Utility Survey 107, 111, 113, 115, 117, 119 Main Street 1, 3 Elm Street 0 & 26 Kelley Street by Control Point Associates — c. Title

final 7/17/2023 — b. Date

d. Date

B. Order of Delineation

1. The Conservation Commission has determined the following (check whichever is applicable):

a. ☒ **Accurate**: The boundaries described on the referenced plan(s) above and in the Abbreviated Notice of Resource Area Delineation are accurately drawn for the following resource area(s):

1. ☒ Bordering Vegetated Wetlands
2. ☒ Other resource area(s), specifically:

a. as determined by approved plans and specified in etter from Eco Tec, Inc. titled, " Wetland Peer Review Results 1 & 3 Elm Street, 107, 111, 113, 115,115A, 117, 119, 119A and 119B Main Street, 0 & 26 Kelley Street, Medway, MA dated July 25, 2023.

b. ☐ **Modified**: The boundaries described on the plan(s) referenced above, as modified by the Conservation Commission from the plans contained in the Abbreviated Notice of Resource Area Delineation, are accurately drawn from the following resource area(s):

1. ☐ Bordering Vegetated Wetlands
2. ☐ Other resource area(s), specifically:

a.

c. ☒ **Inaccurate**: The boundaries described on the referenced plan(s) and in the Abbreviated Notice of Resource Area Delineation were found to be inaccurate and cannot be confirmed for the following resource area(s):

1. ☒ Bordering Vegetated Wetlands
2. ☐ Other resource area(s), specifically:

Wetland A and C, (specifically A-1 through A31, A50 through A54, and C1 through C11, as noted on letter from Eco Tec, Inc. titled, " Wetland Peer Review Results 1 & 3 Elm Street, 107, 111, 113, 115,115A, 117, 119, 119A and 119B Main Street, 0 & 26 Kelley Street, Medway, MA dated July 25, 2023.

B. Order of Delineation (cont.)

3. ☒ The boundaries were determined to be inaccurate because:

As the notes on the plan show an expired ORAD which have flags that are no longer valid. Additionally, applicant has chosen to not refresh/update the flags for Medway Conservation Commission review, therefore, the Commission is requiring these be flagged and reviewed under furture NOI applications.

C. Findings

This Order of Resource Area Delineation determines that the boundaries of those resource areas noted above, have been delineated and approved by the Commission and are binding as to all decisions rendered pursuant to the Massachusetts Wetlands Protection Act (M.G.L. c.131, § 40) and its regulations (310 CMR 10.00). This Order does not, however, determine the boundaries of any resource area or Buffer Zone to any resource area not specifically noted above, regardless of whether such boundaries are contained on the plans attached to this Order or to the Abbreviated Notice of Resource Area Delineation.

This Order must be signed by a majority of the Conservation Commission. The Order must be sent 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 DEP Regional Office (see http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html).

D. 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 DEP Regional Office to issue a Superseding Order of Resource Area Delineation. When requested to issue a Superseding Order of Resource Area Delineation, the Department's review is limited to the objections to the resource area delineation(s) stated in the appeal request. 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 of Resource Area Delineation 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 Determination, or providing written information to the Department prior to issuance of a Superseding Order or Determination.

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 bylaw or ordinance, and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 4B – Order of Resource Area Delineation

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

Provided by MassDEP:
216-1034
MassDEP File Number

eDEP Transaction Number

Medway
City/Town

E. Signatures

8/7/2023
Date of Issuance

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

4
1. Number of Signers

David A Travalini
Signature of Conservation Commission Member

Signature of Conservation Commission Member

James Dacier
Signature of Conservation Commission Member

David J. Blackwell
Signature of Conservation Commission Member

Signature of Conservation Commission Member

Michael Narducci
Signature of Conservation Commission Member

This Order is valid for three years from the date of issuance.

If this Order constitutes an Amended Order of Resource Area Delineation, this Order does not extend the issuance date of the original Final Order, which expires on unless extended in writing by the issuing authority.

This Order is issued to the applicant and the property owner (if different) as follows:

2. ☐ By hand delivery on

a. Date

3. ☒ By certified mail, return receipt requested on

8/7/2023
a. Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 4B – Order of Resource Area Delineation

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

Provided by MassDEP:

MassDEP File Number

eDEP Transaction Number

City/Town

Recording Information

Prior to commencement of work, this Order of Resource Area Delineation 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 Resource Area Delineation. The recording information on this page shall be submitted to the Conservation Commission listed below.

Medway
Conservation Commission

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

To:

Medway
Conservation Commission

Please be advised that the Order of Resource Area Delineation 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 Resource Area Delineation 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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

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

DEP File Number:

216-1034
Provided by DEP

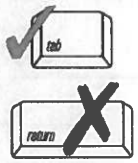
A. Request Information

1. Location of Project

a. Street Address | b. City/Town, Zip

c. Check number | d. Fee amount

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



2. Person or party making request (if appropriate, name the citizen group's representative):

Name

Mailing Address

City/Town | State | Zip Code

Phone Number | Fax Number (if applicable)

3. Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):

Name

Mailing Address

City/Town | State | Zip Code

Phone Number | Fax Number (if applicable)

4. DEP File Number:

216-1010

B. Instructions

1. When the Departmental action request is for (check one):

☐ Superseding Order of Conditions – Fee: $120.00 (single family house projects) or $245 (all other projects)

☐ Superseding Determination of Applicability – Fee: $120

☐ Superseding Order of Resource Area Delineation – Fee: $120

Send this form and check or money order, payable to the *Commonwealth of Massachusetts,* to:

Department of Environmental Protection
Box 4062
Boston, MA 02211

Request for Departmental Action Fee Transmittal Form

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

B. Instructions (cont.)

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see http://www.mass.gov/eea/agencies/massdep/about/contacts/).

4. 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.

APPENDIX D: EXISTING CONDITIONS HYDROLOGIC ANALYSIS

- *EXISTING CONDITIONS DRAINAGE MAP*
- *EXISTING CONDITIONS HYDROCAD COMPUTATIONS*



LEGEND

- DP# — DESIGN POINT
- EX# — EXISTING SUBCATCHMENT
- XX# — BASIN OR MODELED DRAINAGE STRUCTURE
- A/B/C/D — HYDROLOGIC SOIL GROUP RATING
- UNIT — NRCS SOIL MAP UNIT
- X-# — SWALE OR MODELED JUNCTION
- OVERALL ANALYSIS BOUNDARY
- SUBCATCHMENT BOUNDARY
- DEPRESSION / POND
- NRCS SOIL BOUNDARY
- TIME OF CONCENTRATION
- CONCRETE OR PAVEMENT
- ROOF
- SURFACE WATER (IMPERVIOUS)
- GRASS OR LANDSCAPED AREA
- UNIT PAVER OR GRAVEL (PERVIOUS)
- WOODS OR UNDEVELOPED AREA

80 40 20 0 80
1"= 80'

BOHLER
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LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL ENGINEERING
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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It's fast. It's free. It's the law.

PERMIT SET

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PROJECT No.:	W211301
DRAWN BY:	AP/BJ
CHECKED BY:	TH
DATE:	04/08/2024
CAD I.D.:	W211301-WATERSHED-MAP-4A

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP.
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST
TOWN OF MEDWAY,
NORFOLK COUNTY,
MASSACHUSETTS

BOHLER
45 FRANKLIN STREET, 5th FLOOR
BOSTON, MA 02110
Phone: (617) 849-8040
www.BohlerEngineering.com

SHEET TITLE:

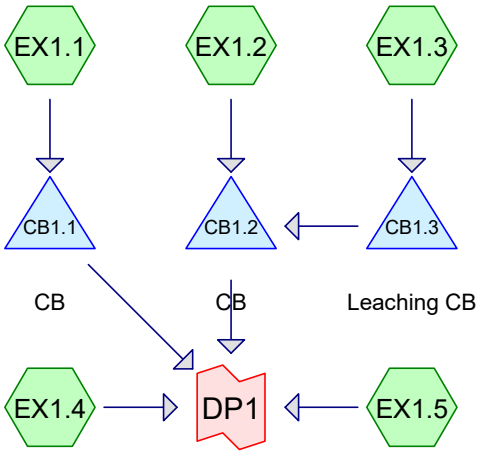
EXISTING CONDITIONS DRAINAGE AREA MAP

SHEET NUMBER:

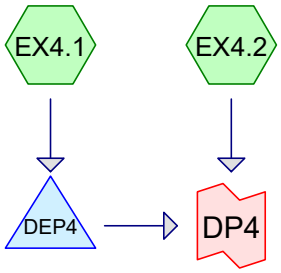
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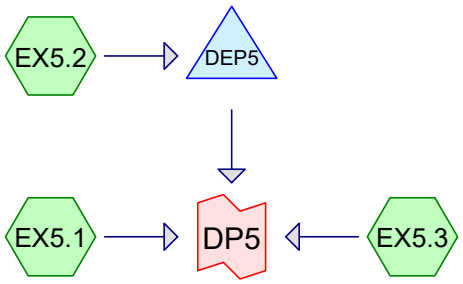
ORG. DATE - 04/08/2024

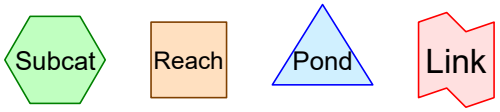
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AP











Routing Diagram for W211301_Pre-5a
Prepared by Bohler Engineering, PC, Printed 2/3/2026
HydroCAD® 10.20-7a s/n 03478 © 2025 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.776	79	50-75% Grass cover, Fair, HSG C (EX1.1, EX1.2, EX1.3, EX1.4, EX1.5, EX2.1, EX3.1, EX4.1, EX4.2, EX5.1, EX5.2, EX5.3)
0.025	89	Gravel roads, HSG C (EX4.2)
3.701	98	Paved parking, HSG C (EX1.1, EX1.2, EX1.3, EX1.4, EX1.5, EX2.1, EX3.1, EX4.1, EX4.2, EX5.1)
0.663	98	Roofs, HSG C (EX1.1, EX1.2, EX1.3, EX1.5, EX2.1, EX4.1, EX4.2, EX5.2)
0.058	98	Water Surface, HSG C (EX5.2)
5.937	70	Woods, Good, HSG C (EX2.1, EX3.1, EX4.1, EX4.2, EX5.1, EX5.2, EX5.3)
12.161	**82**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX1.1: Runoff Area=20,340 sf 82.79% Impervious Runoff Depth=3.30"
Tc=6.0 min CN=WQ Runoff=1.62 cfs 0.128 af

Subcatchment EX1.2: Runoff Area=21,080 sf 91.08% Impervious Runoff Depth=3.45"
Tc=6.0 min CN=WQ Runoff=1.74 cfs 0.139 af

Subcatchment EX1.3: Runoff Area=10,960 sf 67.34% Impervious Runoff Depth=3.03"
Tc=6.0 min CN=WQ Runoff=0.81 cfs 0.063 af

Subcatchment EX1.4: Runoff Area=1,140 sf 24.56% Impervious Runoff Depth=2.27"
Tc=6.0 min CN=WQ Runoff=0.07 cfs 0.005 af

Subcatchment EX1.5: Runoff Area=16,080 sf 92.29% Impervious Runoff Depth=3.47"
Tc=6.0 min CN=WQ Runoff=1.34 cfs 0.107 af

Subcatchment EX2.1: Runoff Area=161,730 sf 51.25% Impervious Runoff Depth=2.50"
Flow Length=264' Tc=20.4 min CN=WQ Runoff=6.60 cfs 0.773 af

Subcatchment EX3.1: Runoff Area=118,100 sf 0.93% Impervious Runoff Depth=1.38"
Flow Length=389' Tc=24.3 min CN=WQ Runoff=2.60 cfs 0.313 af

Subcatchment EX4.1: Runoff Area=24,350 sf 53.76% Impervious Runoff Depth=2.68"
Flow Length=245' Tc=9.6 min CN=WQ Runoff=1.42 cfs 0.125 af

Subcatchment EX4.2: Runoff Area=118,470 sf 17.74% Impervious Runoff Depth=1.73"
Flow Length=344' Tc=9.1 min CN=WQ Runoff=4.60 cfs 0.393 af

Subcatchment EX5.1: Runoff Area=19,100 sf 65.03% Impervious Runoff Depth=2.78"
Tc=6.0 min CN=WQ Runoff=1.28 cfs 0.102 af

Subcatchment EX5.2: Runoff Area=16,850 sf 21.13% Impervious Runoff Depth=1.86"
Tc=6.0 min CN=WQ Runoff=0.78 cfs 0.060 af

Subcatchment EX5.3: Runoff Area=1,520 sf 0.00% Impervious Runoff Depth=1.32"
Tc=6.0 min CN=WQ Runoff=0.05 cfs 0.004 af

Pond CB1.1: CB Inflow=1.62 cfs 0.128 af
Primary=1.62 cfs 0.128 af

Pond CB1.2: CB Inflow=2.54 cfs 0.200 af
Primary=2.54 cfs 0.200 af

Pond CB1.3: Leaching CB Peak Elev=260.00' Storage=121 cf Inflow=0.81 cfs 0.063 af
Discarded=0.00 cfs 0.000 af Primary=0.81 cfs 0.061 af Outflow=0.81 cfs 0.061 af

Pond DEP4: Peak Elev=247.34' Storage=2,126 cf Inflow=1.42 cfs 0.125 af
Discarded=0.05 cfs 0.090 af Primary=0.91 cfs 0.035 af Outflow=0.96 cfs 0.125 af

Pond DEP5: Peak Elev=258.09' Storage=1,288 cf Inflow=0.78 cfs 0.060 af
Outflow=0.22 cfs 0.032 af

Link DP1: Inflow=5.56 cfs 0.440 af
Primary=5.56 cfs 0.440 af

Link DP2: Inflow=6.60 cfs 0.773 af
Primary=6.60 cfs 0.773 af

Link DP3: Inflow=2.60 cfs 0.313 af
Primary=2.60 cfs 0.313 af

Link DP4: Inflow=4.60 cfs 0.427 af
Primary=4.60 cfs 0.427 af

Link DP5: Inflow=1.33 cfs 0.138 af
Primary=1.33 cfs 0.138 af

Total Runoff Area = 12.161 ac Runoff Volume = 2.211 af Average Runoff Depth = 2.18"
63.64% Pervious = 7.739 ac 36.36% Impervious = 4.422 ac

Summary for Subcatchment EX1.1:

Runoff = 1.62 cfs @ 12.08 hrs, Volume= 0.128 af, Depth= 3.30"
Routed to Pond CB1.1 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
460	98	Roofs, HSG C
16,380	98	Paved parking, HSG C
3,500	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
20,340		Weighted Average
3,500		17.21% Pervious Area
16,840		82.79% Impervious Area

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

Summary for Subcatchment EX1.2:

Runoff = 1.74 cfs @ 12.08 hrs, Volume= 0.139 af, Depth= 3.45"
Routed to Pond CB1.2 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
2,630	98	Roofs, HSG C
16,570	98	Paved parking, HSG C
1,880	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
21,080		Weighted Average
1,880		8.92% Pervious Area
19,200		91.08% Impervious Area

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

Summary for Subcatchment EX1.3:

Runoff = 0.81 cfs @ 12.08 hrs, Volume= 0.063 af, Depth= 3.03"
Routed to Pond CB1.3 : Leaching CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
2,660	98	Roofs, HSG C
4,720	98	Paved parking, HSG C
3,580	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
10,960		Weighted Average
3,580		32.66% Pervious Area
7,380		67.34% Impervious Area

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

Summary for Subcatchment EX1.4:

Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 2.27"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	98	Roofs, HSG C
280	98	Paved parking, HSG C
860	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,140		Weighted Average
860		75.44% Pervious Area
280		24.56% Impervious Area

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

Summary for Subcatchment EX1.5:

Runoff = 1.34 cfs @ 12.08 hrs, Volume= 0.107 af, Depth= 3.47"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
2,980	98	Roofs, HSG C
11,860	98	Paved parking, HSG C
1,240	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
16,080		Weighted Average
1,240		7.71% Pervious Area
14,840		92.29% Impervious Area

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

Summary for Subcatchment EX2.1:

Runoff = 6.60 cfs @ 12.27 hrs, Volume= 0.773 af, Depth= 2.50"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
10,610	98	Roofs, HSG C
72,280	98	Paved parking, HSG C
14,600	79	50-75% Grass cover, Fair, HSG C
64,240	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
161,730		Weighted Average
78,840		48.75% Pervious Area
82,890		51.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	50	0.0120	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	117	0.0094	0.48		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	18	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	79	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	264	Total			

Summary for Subcatchment EX3.1:

Runoff = 2.60 cfs @ 12.36 hrs, Volume= 0.313 af, Depth= 1.38"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	98	Roofs, HSG C
1,100	98	Paved parking, HSG C
26,740	79	50-75% Grass cover, Fair, HSG C
90,260	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
118,100		Weighted Average
117,000		99.07% Pervious Area
1,100		0.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0	68	0.0130	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	12	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	309	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.3	389	Total			

Summary for Subcatchment EX4.1:

Runoff = 1.42 cfs @ 12.13 hrs, Volume= 0.125 af, Depth= 2.68"
Routed to Pond DEP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
5,120	98	Roofs, HSG C
7,970	98	Paved parking, HSG C
7,030	79	50-75% Grass cover, Fair, HSG C
4,230	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
24,350		Weighted Average
11,260		46.24% Pervious Area
13,090		53.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0260	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.1	58	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	38	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	70	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	29	0.0660	1.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.6	245	Total			

Summary for Subcatchment EX4.2:

Runoff = 4.60 cfs @ 12.13 hrs, Volume= 0.393 af, Depth= 1.73"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
3,370	98	Roofs, HSG C
17,650	98	Paved parking, HSG C
13,980	79	50-75% Grass cover, Fair, HSG C
82,370	70	Woods, Good, HSG C
1,100	89	Gravel roads, HSG C
118,470		Weighted Average
97,450		82.26% Pervious Area
21,020		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0470	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.1	19	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	250	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	344	Total			

Summary for Subcatchment EX5.1:

Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.102 af, Depth= 2.78"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	98	Roofs, HSG C
12,420	98	Paved parking, HSG C
200	79	50-75% Grass cover, Fair, HSG C
6,480	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
19,100		Weighted Average
6,680		34.97% Pervious Area
12,420		65.03% Impervious Area

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

Summary for Subcatchment EX5.2:

Runoff = 0.78 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 1.86"
Routed to Pond DEP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
1,030	98	Roofs, HSG C
0	98	Paved parking, HSG C
3,530	79	50-75% Grass cover, Fair, HSG C
9,760	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
2,530	98	Water Surface, HSG C
16,850		Weighted Average
13,290		78.87% Pervious Area
3,560		21.13% Impervious Area

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

Summary for Subcatchment EX5.3:

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth= 1.32"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
230	79	50-75% Grass cover, Fair, HSG C
1,290	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,520		Weighted Average
1,520		100.00% Pervious Area

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

Summary for Pond CB1.1: CB

Inflow Area = 0.467 ac, 82.79% Impervious, Inflow Depth = 3.30" for 2-Year event
Inflow = 1.62 cfs @ 12.08 hrs, Volume= 0.128 af
Primary = 1.62 cfs @ 12.08 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.2: CB

Inflow Area = 0.736 ac, 82.96% Impervious, Inflow Depth = 3.26" for 2-Year event
Inflow = 2.54 cfs @ 12.09 hrs, Volume= 0.200 af
Primary = 2.54 cfs @ 12.09 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.3: Leaching CB

Inflow Area = 0.252 ac, 67.34% Impervious, Inflow Depth = 3.03" for 2-Year event
Inflow = 0.81 cfs @ 12.08 hrs, Volume= 0.063 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.061 af, Atten= 1%, Lag= 0.5 min
Discarded = 0.00 cfs @ 1.70 hrs, Volume= 0.000 af
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.061 af
Routed to Pond CB1.2 : CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 260.00' @ 12.09 hrs Surf.Area= 13 sf Storage= 121 cf

Plug-Flow detention time= 42.2 min calculated for 0.061 af (97% of inflow)
Center-of-Mass det. time= 21.8 min (791.2 - 769.4)

Volume	Invert	Avail.Storage	Storage Description
#1	251.89'	101 cf	**4.00'D x 8.00'H Vertical Cone/Cylinder**
#2	259.89'	157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		257 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.89	10	0	0
260.20	1,000	157	157

Device	Routing	Invert	Outlet Devices
#1	Discarded	251.89'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	259.90'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.00 cfs @ 1.70 hrs HW=251.97' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.80 cfs @ 12.09 hrs HW=260.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.80 cfs @ 0.80 fps)

Summary for Pond DEP4:

Inflow Area = 0.559 ac, 53.76% Impervious, Inflow Depth = 2.68" for 2-Year event
Inflow = 1.42 cfs @ 12.13 hrs, Volume= 0.125 af
Outflow = 0.96 cfs @ 12.25 hrs, Volume= 0.125 af, Atten= 32%, Lag= 7.2 min
Discarded = 0.05 cfs @ 12.25 hrs, Volume= 0.090 af
Primary = 0.91 cfs @ 12.25 hrs, Volume= 0.035 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 247.34' @ 12.25 hrs Surf.Area= 2,250 sf Storage= 2,126 cf

Plug-Flow detention time= 389.1 min calculated for 0.125 af (100% of inflow)
Center-of-Mass det. time= 388.5 min (1,169.9 - 781.4)

Volume	Invert	Avail.Storage	Storage Description
#1	244.70'	2,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.70	10	0	0
245.00	40	8	8
246.00	570	305	313
247.00	1,700	1,135	1,448
247.50	2,500	1,050	2,498

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.70'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	247.30'	**40.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.05 cfs @ 12.25 hrs HW=247.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.91 cfs @ 12.25 hrs HW=247.34' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.91 cfs @ 0.52 fps)

Summary for Pond DEP5:

Inflow Area = 0.387 ac, 21.13% Impervious, Inflow Depth = 1.86" for 2-Year event
Inflow = 0.78 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.22 cfs @ 12.46 hrs, Volume= 0.032 af, Atten= 71%, Lag= 22.3 min
Primary = 0.22 cfs @ 12.46 hrs, Volume= 0.032 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 258.09' @ 12.46 hrs Surf.Area= 2,326 sf Storage= 1,288 cf

Plug-Flow detention time= 250.1 min calculated for 0.032 af (54% of inflow)
Center-of-Mass det. time= 125.7 min (938.0 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	10	0	0
257.00	190	100	100
258.00	1,800	995	1,095
258.30	3,490	794	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	258.05'	**10.0' long Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.22 cfs @ 12.46 hrs HW=258.09' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.22 cfs @ 0.52 fps)

Summary for Link DP1:

Inflow Area = 1.598 ac, 84.11% Impervious, Inflow Depth = 3.31" for 2-Year event
Inflow = 5.56 cfs @ 12.09 hrs, Volume= 0.440 af
Primary = 5.56 cfs @ 12.09 hrs, Volume= 0.440 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.713 ac, 51.25% Impervious, Inflow Depth = 2.50" for 2-Year event
Inflow = 6.60 cfs @ 12.27 hrs, Volume= 0.773 af
Primary = 6.60 cfs @ 12.27 hrs, Volume= 0.773 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 2.711 ac, 0.93% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 2.60 cfs @ 12.36 hrs, Volume= 0.313 af
Primary = 2.60 cfs @ 12.36 hrs, Volume= 0.313 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 3.279 ac, 23.88% Impervious, Inflow Depth = 1.56" for 2-Year event
Inflow = 4.60 cfs @ 12.13 hrs, Volume= 0.427 af
Primary = 4.60 cfs @ 12.13 hrs, Volume= 0.427 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 0.860 ac, 42.65% Impervious, Inflow Depth = 1.92" for 2-Year event
Inflow = 1.33 cfs @ 12.09 hrs, Volume= 0.138 af
Primary = 1.33 cfs @ 12.09 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX1.1: Runoff Area=20,340 sf 82.79% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=WQ Runoff=2.65 cfs 0.213 af

Subcatchment EX1.2: Runoff Area=21,080 sf 91.08% Impervious Runoff Depth=5.64"
Tc=6.0 min CN=WQ Runoff=2.81 cfs 0.227 af

Subcatchment EX1.3: Runoff Area=10,960 sf 67.34% Impervious Runoff Depth=5.14"
Tc=6.0 min CN=WQ Runoff=1.36 cfs 0.108 af

Subcatchment EX1.4: Runoff Area=1,140 sf 24.56% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=WQ Runoff=0.12 cfs 0.009 af

Subcatchment EX1.5: Runoff Area=16,080 sf 92.29% Impervious Runoff Depth=5.66"
Tc=6.0 min CN=WQ Runoff=2.15 cfs 0.174 af

Subcatchment EX2.1: Runoff Area=161,730 sf 51.25% Impervious Runoff Depth=4.45"
Flow Length=264' Tc=20.4 min CN=WQ Runoff=11.89 cfs 1.378 af

Subcatchment EX3.1: Runoff Area=118,100 sf 0.93% Impervious Runoff Depth=3.08"
Flow Length=389' Tc=24.3 min CN=WQ Runoff=6.04 cfs 0.696 af

Subcatchment EX4.1: Runoff Area=24,350 sf 53.76% Impervious Runoff Depth=4.70"
Flow Length=245' Tc=9.6 min CN=WQ Runoff=2.50 cfs 0.219 af

Subcatchment EX4.2: Runoff Area=118,470 sf 17.74% Impervious Runoff Depth=3.50"
Flow Length=344' Tc=9.1 min CN=WQ Runoff=9.61 cfs 0.794 af

Subcatchment EX5.1: Runoff Area=19,100 sf 65.03% Impervious Runoff Depth=4.79"
Tc=6.0 min CN=WQ Runoff=2.21 cfs 0.175 af

Subcatchment EX5.2: Runoff Area=16,850 sf 21.13% Impervious Runoff Depth=3.66"
Tc=6.0 min CN=WQ Runoff=1.58 cfs 0.118 af

Subcatchment EX5.3: Runoff Area=1,520 sf 0.00% Impervious Runoff Depth=2.99"
Tc=6.0 min CN=WQ Runoff=0.12 cfs 0.009 af

Pond CB1.1: CB Inflow=2.65 cfs 0.213 af
Primary=2.65 cfs 0.213 af

Pond CB1.2: CB Inflow=4.15 cfs 0.333 af
Primary=4.15 cfs 0.333 af

Pond CB1.3: Leaching CB Peak Elev=260.04' Storage=139 cf Inflow=1.36 cfs 0.108 af
Discarded=0.00 cfs 0.000 af Primary=1.36 cfs 0.105 af Outflow=1.36 cfs 0.106 af

Pond DEP4: Peak Elev=247.38' Storage=2,218 cf Inflow=2.50 cfs 0.219 af
Discarded=0.05 cfs 0.105 af Primary=2.41 cfs 0.114 af Outflow=2.47 cfs 0.219 af

Pond DEP5: Peak Elev=258.19' Storage=1,545 cf Inflow=1.58 cfs 0.118 af
Outflow=1.34 cfs 0.091 af

Link DP1: Inflow=9.07 cfs 0.729 af
Primary=9.07 cfs 0.729 af

Link DP2: Inflow=11.89 cfs 1.378 af
Primary=11.89 cfs 1.378 af

Link DP3: Inflow=6.04 cfs 0.696 af
Primary=6.04 cfs 0.696 af

Link DP4: Inflow=12.00 cfs 0.907 af
Primary=12.00 cfs 0.907 af

Link DP5: Inflow=3.52 cfs 0.275 af
Primary=3.52 cfs 0.275 af

Total Runoff Area = 12.161 ac Runoff Volume = 4.120 af Average Runoff Depth = 4.07"
63.64% Pervious = 7.739 ac 36.36% Impervious = 4.422 ac

Summary for Subcatchment EX1.1:

Runoff = 2.65 cfs @ 12.08 hrs, Volume= 0.213 af, Depth= 5.46"
Routed to Pond CB1.1 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
460	98	Roofs, HSG C
16,380	98	Paved parking, HSG C
3,500	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
20,340		Weighted Average
3,500		17.21% Pervious Area
16,840		82.79% Impervious Area

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

Summary for Subcatchment EX1.2:

Runoff = 2.81 cfs @ 12.08 hrs, Volume= 0.227 af, Depth= 5.64"
Routed to Pond CB1.2 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
2,630	98	Roofs, HSG C
16,570	98	Paved parking, HSG C
1,880	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
21,080		Weighted Average
1,880		8.92% Pervious Area
19,200		91.08% Impervious Area

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

Summary for Subcatchment EX1.3:

Runoff = 1.36 cfs @ 12.08 hrs, Volume= 0.108 af, Depth= 5.14"
Routed to Pond CB1.3 : Leaching CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
2,660	98	Roofs, HSG C
4,720	98	Paved parking, HSG C
3,580	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
10,960		Weighted Average
3,580		32.66% Pervious Area
7,380		67.34% Impervious Area

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

Summary for Subcatchment EX1.4:

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 4.25"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	98	Roofs, HSG C
280	98	Paved parking, HSG C
860	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,140		Weighted Average
860		75.44% Pervious Area
280		24.56% Impervious Area

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

Summary for Subcatchment EX1.5:

Runoff = 2.15 cfs @ 12.08 hrs, Volume= 0.174 af, Depth= 5.66"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
2,980	98	Roofs, HSG C
11,860	98	Paved parking, HSG C
1,240	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
16,080		Weighted Average
1,240		7.71% Pervious Area
14,840		92.29% Impervious Area

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

Summary for Subcatchment EX2.1:

Runoff = 11.89 cfs @ 12.27 hrs, Volume= 1.378 af, Depth= 4.45"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
10,610	98	Roofs, HSG C
72,280	98	Paved parking, HSG C
14,600	79	50-75% Grass cover, Fair, HSG C
64,240	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
161,730		Weighted Average
78,840		48.75% Pervious Area
82,890		51.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	50	0.0120	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	117	0.0094	0.48		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	18	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	79	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	264	Total			

Summary for Subcatchment EX3.1:

Runoff = 6.04 cfs @ 12.34 hrs, Volume= 0.696 af, Depth= 3.08"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	98	Roofs, HSG C
1,100	98	Paved parking, HSG C
26,740	79	50-75% Grass cover, Fair, HSG C
90,260	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
118,100		Weighted Average
117,000		99.07% Pervious Area
1,100		0.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0	68	0.0130	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	12	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	309	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.3	389	Total			

Summary for Subcatchment EX4.1:

Runoff = 2.50 cfs @ 12.13 hrs, Volume= 0.219 af, Depth= 4.70"
Routed to Pond DEP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
5,120	98	Roofs, HSG C
7,970	98	Paved parking, HSG C
7,030	79	50-75% Grass cover, Fair, HSG C
4,230	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
24,350		Weighted Average
11,260		46.24% Pervious Area
13,090		53.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0260	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.1	58	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	38	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	70	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	29	0.0660	1.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.6	245	Total			

Summary for Subcatchment EX4.2:

Runoff = 9.61 cfs @ 12.13 hrs, Volume= 0.794 af, Depth= 3.50"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
3,370	98	Roofs, HSG C
17,650	98	Paved parking, HSG C
13,980	79	50-75% Grass cover, Fair, HSG C
82,370	70	Woods, Good, HSG C
1,100	89	Gravel roads, HSG C
118,470		Weighted Average
97,450		82.26% Pervious Area
21,020		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0470	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.1	19	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	250	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	344	Total			

Summary for Subcatchment EX5.1:

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 0.175 af, Depth= 4.79"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	98	Roofs, HSG C
12,420	98	Paved parking, HSG C
200	79	50-75% Grass cover, Fair, HSG C
6,480	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
19,100		Weighted Average
6,680		34.97% Pervious Area
12,420		65.03% Impervious Area

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

Summary for Subcatchment EX5.2:

Runoff = 1.58 cfs @ 12.09 hrs, Volume= 0.118 af, Depth= 3.66"
Routed to Pond DEP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
1,030	98	Roofs, HSG C
0	98	Paved parking, HSG C
3,530	79	50-75% Grass cover, Fair, HSG C
9,760	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
2,530	98	Water Surface, HSG C
16,850		Weighted Average
13,290		78.87% Pervious Area
3,560		21.13% Impervious Area

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

Summary for Subcatchment EX5.3:

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 2.99"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
230	79	50-75% Grass cover, Fair, HSG C
1,290	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,520		Weighted Average
1,520		100.00% Pervious Area

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

Summary for Pond CB1.1: CB

Inflow Area = 0.467 ac, 82.79% Impervious, Inflow Depth = 5.46" for 10-Year event
Inflow = 2.65 cfs @ 12.08 hrs, Volume= 0.213 af
Primary = 2.65 cfs @ 12.08 hrs, Volume= 0.213 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.2: CB

Inflow Area = 0.736 ac, 82.96% Impervious, Inflow Depth = 5.43" for 10-Year event
Inflow = 4.15 cfs @ 12.09 hrs, Volume= 0.333 af
Primary = 4.15 cfs @ 12.09 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.3: Leaching CB

Inflow Area = 0.252 ac, 67.34% Impervious, Inflow Depth = 5.14" for 10-Year event
Inflow = 1.36 cfs @ 12.08 hrs, Volume= 0.108 af
Outflow = 1.36 cfs @ 12.09 hrs, Volume= 0.106 af, Atten= 1%, Lag= 0.6 min
Discarded = 0.00 cfs @ 1.11 hrs, Volume= 0.000 af
Primary = 1.36 cfs @ 12.09 hrs, Volume= 0.105 af
Routed to Pond CB1.2 : CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 260.04' @ 12.09 hrs Surf.Area= 13 sf Storage= 139 cf

Plug-Flow detention time= 27.2 min calculated for 0.106 af (98% of inflow)
Center-of-Mass det. time= 14.7 min (776.6 - 761.9)

Volume	Invert	Avail.Storage	Storage Description
#1	251.89'	101 cf	**4.00'D x 8.00'H Vertical Cone/Cylinder**
#2	259.89'	157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		257 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.89	10	0	0
260.20	1,000	157	157

Device	Routing	Invert	Outlet Devices
#1	Discarded	251.89'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	259.90'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.00 cfs @ 1.11 hrs HW=251.98' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.35 cfs @ 12.09 hrs HW=260.04' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 1.35 cfs @ 0.96 fps)

Summary for Pond DEP4:

Inflow Area = 0.559 ac, 53.76% Impervious, Inflow Depth = 4.70" for 10-Year event
Inflow = 2.50 cfs @ 12.13 hrs, Volume= 0.219 af
Outflow = 2.47 cfs @ 12.15 hrs, Volume= 0.219 af, Atten= 1%, Lag= 0.9 min
Discarded = 0.05 cfs @ 12.15 hrs, Volume= 0.105 af
Primary = 2.41 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 247.38' @ 12.15 hrs Surf.Area= 2,314 sf Storage= 2,218 cf

Plug-Flow detention time= 264.0 min calculated for 0.219 af (100% of inflow)
Center-of-Mass det. time= 262.9 min (1,037.3 - 774.4)

Volume	Invert	Avail.Storage	Storage Description
#1	244.70'	2,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.70	10	0	0
245.00	40	8	8
246.00	570	305	313
247.00	1,700	1,135	1,448
247.50	2,500	1,050	2,498

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.70'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	247.30'	**40.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.05 cfs @ 12.15 hrs HW=247.38' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=2.41 cfs @ 12.15 hrs HW=247.38' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 2.41 cfs @ 0.72 fps)

Summary for Pond DEP5:

Inflow Area = 0.387 ac, 21.13% Impervious, Inflow Depth = 3.66" for 10-Year event
Inflow = 1.58 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.34 cfs @ 12.14 hrs, Volume= 0.091 af, Atten= 16%, Lag= 3.1 min
Primary = 1.34 cfs @ 12.14 hrs, Volume= 0.091 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 258.19' @ 12.14 hrs Surf.Area= 2,884 sf Storage= 1,545 cf

Plug-Flow detention time= 148.2 min calculated for 0.091 af (77% of inflow)
Center-of-Mass det. time= 62.1 min (864.2 - 802.0)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	10	0	0
257.00	190	100	100
258.00	1,800	995	1,095
258.30	3,490	794	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	258.05'	**10.0' long Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.34 cfs @ 12.14 hrs HW=258.19' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 1.34 cfs @ 0.94 fps)

Summary for Link DP1:

Inflow Area = 1.598 ac, 84.11% Impervious, Inflow Depth = 5.47" for 10-Year event
Inflow = 9.07 cfs @ 12.09 hrs, Volume= 0.729 af
Primary = 9.07 cfs @ 12.09 hrs, Volume= 0.729 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.713 ac, 51.25% Impervious, Inflow Depth = 4.45" for 10-Year event
Inflow = 11.89 cfs @ 12.27 hrs, Volume= 1.378 af
Primary = 11.89 cfs @ 12.27 hrs, Volume= 1.378 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 2.711 ac, 0.93% Impervious, Inflow Depth = 3.08" for 10-Year event
Inflow = 6.04 cfs @ 12.34 hrs, Volume= 0.696 af
Primary = 6.04 cfs @ 12.34 hrs, Volume= 0.696 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 3.279 ac, 23.88% Impervious, Inflow Depth = 3.32" for 10-Year event
Inflow = 12.00 cfs @ 12.13 hrs, Volume= 0.907 af
Primary = 12.00 cfs @ 12.13 hrs, Volume= 0.907 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 0.860 ac, 42.65% Impervious, Inflow Depth = 3.83" for 10-Year event
Inflow = 3.52 cfs @ 12.10 hrs, Volume= 0.275 af
Primary = 3.52 cfs @ 12.10 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX1.1: Runoff Area=20,340 sf 82.79% Impervious Runoff Depth=7.19"
Tc=6.0 min CN=WQ Runoff=3.46 cfs 0.280 af

Subcatchment EX1.2: Runoff Area=21,080 sf 91.08% Impervious Runoff Depth=7.37"
Tc=6.0 min CN=WQ Runoff=3.65 cfs 0.297 af

Subcatchment EX1.3: Runoff Area=10,960 sf 67.34% Impervious Runoff Depth=6.84"
Tc=6.0 min CN=WQ Runoff=1.81 cfs 0.143 af

Subcatchment EX1.4: Runoff Area=1,140 sf 24.56% Impervious Runoff Depth=5.88"
Tc=6.0 min CN=WQ Runoff=0.17 cfs 0.013 af

Subcatchment EX1.5: Runoff Area=16,080 sf 92.29% Impervious Runoff Depth=7.40"
Tc=6.0 min CN=WQ Runoff=2.79 cfs 0.228 af

Subcatchment EX2.1: Runoff Area=161,730 sf 51.25% Impervious Runoff Depth=6.07"
Flow Length=264' Tc=20.4 min CN=WQ Runoff=16.23 cfs 1.878 af

Subcatchment EX3.1: Runoff Area=118,100 sf 0.93% Impervious Runoff Depth=4.57"
Flow Length=389' Tc=24.3 min CN=WQ Runoff=8.98 cfs 1.031 af

Subcatchment EX4.1: Runoff Area=24,350 sf 53.76% Impervious Runoff Depth=6.36"
Flow Length=245' Tc=9.6 min CN=WQ Runoff=3.37 cfs 0.296 af

Subcatchment EX4.2: Runoff Area=118,470 sf 17.74% Impervious Runoff Depth=5.02"
Flow Length=344' Tc=9.1 min CN=WQ Runoff=13.86 cfs 1.139 af

Subcatchment EX5.1: Runoff Area=19,100 sf 65.03% Impervious Runoff Depth=6.44"
Tc=6.0 min CN=WQ Runoff=2.96 cfs 0.235 af

Subcatchment EX5.2: Runoff Area=16,850 sf 21.13% Impervious Runoff Depth=5.21"
Tc=6.0 min CN=WQ Runoff=2.26 cfs 0.168 af

Subcatchment EX5.3: Runoff Area=1,520 sf 0.00% Impervious Runoff Depth=4.46"
Tc=6.0 min CN=WQ Runoff=0.18 cfs 0.013 af

Pond CB1.1: CB Inflow=3.46 cfs 0.280 af
Primary=3.46 cfs 0.280 af

Pond CB1.2: CB Inflow=5.43 cfs 0.438 af
Primary=5.43 cfs 0.438 af

Pond CB1.3: Leaching CB Peak Elev=260.07' Storage=155 cf Inflow=1.81 cfs 0.143 af
Discarded=0.00 cfs 0.000 af Primary=1.79 cfs 0.141 af Outflow=1.79 cfs 0.141 af

Pond DEP4: Peak Elev=247.40' Storage=2,262 cf Inflow=3.37 cfs 0.296 af
Discarded=0.06 cfs 0.113 af Primary=3.28 cfs 0.183 af Outflow=3.33 cfs 0.295 af

Pond DEP5: Peak Elev=258.24' Storage=1,674 cf Inflow=2.26 cfs 0.168 af
Outflow=1.98 cfs 0.141 af

Link DP1: Inflow=11.84 cfs 0.958 af
Primary=11.84 cfs 0.958 af

Link DP2: Inflow=16.23 cfs 1.878 af
Primary=16.23 cfs 1.878 af

Link DP3: Inflow=8.98 cfs 1.031 af
Primary=8.98 cfs 1.031 af

Link DP4: Inflow=17.10 cfs 1.321 af
Primary=17.10 cfs 1.321 af

Link DP5: Inflow=4.98 cfs 0.389 af
Primary=4.98 cfs 0.389 af

Total Runoff Area = 12.161 ac Runoff Volume = 5.721 af Average Runoff Depth = 5.65"
63.64% Pervious = 7.739 ac 36.36% Impervious = 4.422 ac

Summary for Subcatchment EX1.1:

Runoff = 3.46 cfs @ 12.08 hrs, Volume= 0.280 af, Depth= 7.19"
Routed to Pond CB1.1 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
460	98	Roofs, HSG C
16,380	98	Paved parking, HSG C
3,500	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
20,340		Weighted Average
3,500		17.21% Pervious Area
16,840		82.79% Impervious Area

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

Summary for Subcatchment EX1.2:

Runoff = 3.65 cfs @ 12.08 hrs, Volume= 0.297 af, Depth= 7.37"
Routed to Pond CB1.2 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
2,630	98	Roofs, HSG C
16,570	98	Paved parking, HSG C
1,880	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
21,080		Weighted Average
1,880		8.92% Pervious Area
19,200		91.08% Impervious Area

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

Summary for Subcatchment EX1.3:

Runoff = 1.81 cfs @ 12.08 hrs, Volume= 0.143 af, Depth= 6.84"
Routed to Pond CB1.3 : Leaching CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
2,660	98	Roofs, HSG C
4,720	98	Paved parking, HSG C
3,580	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
10,960		Weighted Average
3,580		32.66% Pervious Area
7,380		67.34% Impervious Area

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

Summary for Subcatchment EX1.4:

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 5.88"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	98	Roofs, HSG C
280	98	Paved parking, HSG C
860	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,140		Weighted Average
860		75.44% Pervious Area
280		24.56% Impervious Area

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

Summary for Subcatchment EX1.5:

Runoff = 2.79 cfs @ 12.08 hrs, Volume= 0.228 af, Depth= 7.40"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
2,980	98	Roofs, HSG C
11,860	98	Paved parking, HSG C
1,240	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
16,080		Weighted Average
1,240		7.71% Pervious Area
14,840		92.29% Impervious Area

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

Summary for Subcatchment EX2.1:

Runoff = 16.23 cfs @ 12.27 hrs, Volume= 1.878 af, Depth= 6.07"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
10,610	98	Roofs, HSG C
72,280	98	Paved parking, HSG C
14,600	79	50-75% Grass cover, Fair, HSG C
64,240	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
161,730		Weighted Average
78,840		48.75% Pervious Area
82,890		51.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	50	0.0120	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	117	0.0094	0.48		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	18	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	79	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	264	Total			

Summary for Subcatchment EX3.1:

Runoff = 8.98 cfs @ 12.34 hrs, Volume= 1.031 af, Depth= 4.57"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	98	Roofs, HSG C
1,100	98	Paved parking, HSG C
26,740	79	50-75% Grass cover, Fair, HSG C
90,260	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
118,100		Weighted Average
117,000		99.07% Pervious Area
1,100		0.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0	68	0.0130	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	12	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	309	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.3	389	Total			

Summary for Subcatchment EX4.1:

Runoff = 3.37 cfs @ 12.13 hrs, Volume= 0.296 af, Depth= 6.36"
Routed to Pond DEP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
5,120	98	Roofs, HSG C
7,970	98	Paved parking, HSG C
7,030	79	50-75% Grass cover, Fair, HSG C
4,230	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
24,350		Weighted Average
11,260		46.24% Pervious Area
13,090		53.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0260	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.1	58	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	38	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	70	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	29	0.0660	1.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.6	245	Total			

Summary for Subcatchment EX4.2:

Runoff = 13.86 cfs @ 12.13 hrs, Volume= 1.139 af, Depth= 5.02"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
3,370	98	Roofs, HSG C
17,650	98	Paved parking, HSG C
13,980	79	50-75% Grass cover, Fair, HSG C
82,370	70	Woods, Good, HSG C
1,100	89	Gravel roads, HSG C
118,470		Weighted Average
97,450		82.26% Pervious Area
21,020		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0470	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.1	19	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	250	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	344	Total			

Summary for Subcatchment EX5.1:

Runoff = 2.96 cfs @ 12.08 hrs, Volume= 0.235 af, Depth= 6.44"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	98	Roofs, HSG C
12,420	98	Paved parking, HSG C
200	79	50-75% Grass cover, Fair, HSG C
6,480	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
19,100		Weighted Average
6,680		34.97% Pervious Area
12,420		65.03% Impervious Area

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

Summary for Subcatchment EX5.2:

Runoff = 2.26 cfs @ 12.09 hrs, Volume= 0.168 af, Depth= 5.21"
Routed to Pond DEP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
1,030	98	Roofs, HSG C
0	98	Paved parking, HSG C
3,530	79	50-75% Grass cover, Fair, HSG C
9,760	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
2,530	98	Water Surface, HSG C
16,850		Weighted Average
13,290		78.87% Pervious Area
3,560		21.13% Impervious Area

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

Summary for Subcatchment EX5.3:

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 4.46"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
230	79	50-75% Grass cover, Fair, HSG C
1,290	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,520		Weighted Average
1,520		100.00% Pervious Area

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

Summary for Pond CB1.1: CB

Inflow Area = 0.467 ac, 82.79% Impervious, Inflow Depth = 7.19" for 25-Year event
Inflow = 3.46 cfs @ 12.08 hrs, Volume= 0.280 af
Primary = 3.46 cfs @ 12.08 hrs, Volume= 0.280 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.2: CB

Inflow Area = 0.736 ac, 82.96% Impervious, Inflow Depth = 7.15" for 25-Year event
Inflow = 5.43 cfs @ 12.09 hrs, Volume= 0.438 af
Primary = 5.43 cfs @ 12.09 hrs, Volume= 0.438 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.3: Leaching CB

Inflow Area = 0.252 ac, 67.34% Impervious, Inflow Depth = 6.84" for 25-Year event
Inflow = 1.81 cfs @ 12.08 hrs, Volume= 0.143 af
Outflow = 1.79 cfs @ 12.09 hrs, Volume= 0.141 af, Atten= 1%, Lag= 0.6 min
Discarded = 0.00 cfs @ 0.88 hrs, Volume= 0.000 af
Primary = 1.79 cfs @ 12.09 hrs, Volume= 0.141 af
Routed to Pond CB1.2 : CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 260.07' @ 12.09 hrs Surf.Area= 13 sf Storage= 155 cf

Plug-Flow detention time= 21.2 min calculated for 0.141 af (98% of inflow)
Center-of-Mass det. time= 11.7 min (769.6 - 758.0)

Volume	Invert	Avail.Storage	Storage Description
#1	251.89'	101 cf	**4.00'D x 8.00'H Vertical Cone/Cylinder**
#2	259.89'	157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		257 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.89	10	0	0
260.20	1,000	157	157

Device	Routing	Invert	Outlet Devices
#1	Discarded	251.89'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	259.90'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.00 cfs @ 0.88 hrs HW=251.98' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.79 cfs @ 12.09 hrs HW=260.07' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 1.79 cfs @ 1.05 fps)

Summary for Pond DEP4:

Inflow Area = 0.559 ac, 53.76% Impervious, Inflow Depth = 6.36" for 25-Year event
Inflow = 3.37 cfs @ 12.13 hrs, Volume= 0.296 af
Outflow = 3.33 cfs @ 12.14 hrs, Volume= 0.295 af, Atten= 1%, Lag= 0.8 min
Discarded = 0.06 cfs @ 12.14 hrs, Volume= 0.113 af
Primary = 3.28 cfs @ 12.14 hrs, Volume= 0.183 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 247.40' @ 12.14 hrs Surf.Area= 2,344 sf Storage= 2,262 cf

Plug-Flow detention time= 213.0 min calculated for 0.295 af (100% of inflow)
Center-of-Mass det. time= 211.4 min (981.8 - 770.4)

Volume	Invert	Avail.Storage	Storage Description
#1	244.70'	2,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.70	10	0	0
245.00	40	8	8
246.00	570	305	313
247.00	1,700	1,135	1,448
247.50	2,500	1,050	2,498

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.70'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	247.30'	**40.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 12.14 hrs HW=247.40' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=3.27 cfs @ 12.14 hrs HW=247.40' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 3.27 cfs @ 0.80 fps)

Summary for Pond DEP5:

Inflow Area = 0.387 ac, 21.13% Impervious, Inflow Depth = 5.21" for 25-Year event
Inflow = 2.26 cfs @ 12.09 hrs, Volume= 0.168 af
Outflow = 1.98 cfs @ 12.13 hrs, Volume= 0.141 af, Atten= 12%, Lag= 2.6 min
Primary = 1.98 cfs @ 12.13 hrs, Volume= 0.141 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 258.24' @ 12.13 hrs Surf.Area= 3,125 sf Storage= 1,674 cf

Plug-Flow detention time= 119.0 min calculated for 0.141 af (84% of inflow)
Center-of-Mass det. time= 49.7 min (845.5 - 795.7)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	10	0	0
257.00	190	100	100
258.00	1,800	995	1,095
258.30	3,490	794	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	258.05'	**10.0' long Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.98 cfs @ 12.13 hrs HW=258.24' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.98 cfs @ 1.07 fps)

Summary for Link DP1:

Inflow Area = 1.598 ac, 84.11% Impervious, Inflow Depth = 7.20" for 25-Year event
Inflow = 11.84 cfs @ 12.09 hrs, Volume= 0.958 af
Primary = 11.84 cfs @ 12.09 hrs, Volume= 0.958 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.713 ac, 51.25% Impervious, Inflow Depth = 6.07" for 25-Year event
Inflow = 16.23 cfs @ 12.27 hrs, Volume= 1.878 af
Primary = 16.23 cfs @ 12.27 hrs, Volume= 1.878 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 2.711 ac, 0.93% Impervious, Inflow Depth = 4.57" for 25-Year event
Inflow = 8.98 cfs @ 12.34 hrs, Volume= 1.031 af
Primary = 8.98 cfs @ 12.34 hrs, Volume= 1.031 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 3.279 ac, 23.88% Impervious, Inflow Depth = 4.84" for 25-Year event
Inflow = 17.10 cfs @ 12.13 hrs, Volume= 1.321 af
Primary = 17.10 cfs @ 12.13 hrs, Volume= 1.321 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 0.860 ac, 42.65% Impervious, Inflow Depth = 5.42" for 25-Year event
Inflow = 4.98 cfs @ 12.10 hrs, Volume= 0.389 af
Primary = 4.98 cfs @ 12.10 hrs, Volume= 0.389 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX1.1: Runoff Area=20,340 sf 82.79% Impervious Runoff Depth=10.06"
Tc=6.0 min CN=WQ Runoff=4.81 cfs 0.391 af

Subcatchment EX1.2: Runoff Area=21,080 sf 91.08% Impervious Runoff Depth=10.26"
Tc=6.0 min CN=WQ Runoff=5.04 cfs 0.414 af

Subcatchment EX1.3: Runoff Area=10,960 sf 67.34% Impervious Runoff Depth=9.69"
Tc=6.0 min CN=WQ Runoff=2.54 cfs 0.203 af

Subcatchment EX1.4: Runoff Area=1,140 sf 24.56% Impervious Runoff Depth=8.66"
Tc=6.0 min CN=WQ Runoff=0.25 cfs 0.019 af

Subcatchment EX1.5: Runoff Area=16,080 sf 92.29% Impervious Runoff Depth=10.28"
Tc=6.0 min CN=WQ Runoff=3.85 cfs 0.316 af

Subcatchment EX2.1: Runoff Area=161,730 sf 51.25% Impervious Runoff Depth=8.82"
Flow Length=264' Tc=20.4 min CN=WQ Runoff=23.57 cfs 2.729 af

Subcatchment EX3.1: Runoff Area=118,100 sf 0.93% Impervious Runoff Depth=7.17"
Flow Length=389' Tc=24.3 min CN=WQ Runoff=14.03 cfs 1.621 af

Subcatchment EX4.1: Runoff Area=24,350 sf 53.76% Impervious Runoff Depth=9.15"
Flow Length=245' Tc=9.6 min CN=WQ Runoff=4.82 cfs 0.426 af

Subcatchment EX4.2: Runoff Area=118,470 sf 17.74% Impervious Runoff Depth=7.67"
Flow Length=344' Tc=9.1 min CN=WQ Runoff=21.11 cfs 1.739 af

Subcatchment EX5.1: Runoff Area=19,100 sf 65.03% Impervious Runoff Depth=9.22"
Tc=6.0 min CN=WQ Runoff=4.23 cfs 0.337 af

Subcatchment EX5.2: Runoff Area=16,850 sf 21.13% Impervious Runoff Depth=7.88"
Tc=6.0 min CN=WQ Runoff=3.40 cfs 0.254 af

Subcatchment EX5.3: Runoff Area=1,520 sf 0.00% Impervious Runoff Depth=7.05"
Tc=6.0 min CN=WQ Runoff=0.29 cfs 0.020 af

Pond CB1.1: CB Inflow=4.81 cfs 0.391 af
Primary=4.81 cfs 0.391 af

Pond CB1.2: CB Inflow=7.54 cfs 0.614 af
Primary=7.54 cfs 0.614 af

Pond CB1.3: Leaching CB Peak Elev=260.11' Storage=183 cf Inflow=2.54 cfs 0.203 af
Discarded=0.00 cfs 0.000 af Primary=2.52 cfs 0.201 af Outflow=2.52 cfs 0.201 af

Pond DEP4: Peak Elev=247.43' Storage=2,329 cf Inflow=4.82 cfs 0.426 af
Discarded=0.06 cfs 0.120 af Primary=4.72 cfs 0.305 af Outflow=4.78 cfs 0.425 af

Pond DEP5: Peak Elev=258.29' Storage=1,868 cf Inflow=3.40 cfs 0.254 af
Outflow=3.02 cfs 0.227 af

Link DP1: Inflow=16.44 cfs 1.341 af
Primary=16.44 cfs 1.341 af

Link DP2: Inflow=23.57 cfs 2.729 af
Primary=23.57 cfs 2.729 af

Link DP3: Inflow=14.03 cfs 1.621 af
Primary=14.03 cfs 1.621 af

Link DP4: Inflow=25.77 cfs 2.044 af
Primary=25.77 cfs 2.044 af

Link DP5: Inflow=7.34 cfs 0.584 af
Primary=7.34 cfs 0.584 af

Total Runoff Area = 12.161 ac Runoff Volume = 8.469 af Average Runoff Depth = 8.36"
63.64% Pervious = 7.739 ac 36.36% Impervious = 4.422 ac

Summary for Subcatchment EX1.1:

Runoff = 4.81 cfs @ 12.08 hrs, Volume= 0.391 af, Depth=10.06"
Routed to Pond CB1.1 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
460	98	Roofs, HSG C
16,380	98	Paved parking, HSG C
3,500	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
20,340		Weighted Average
3,500		17.21% Pervious Area
16,840		82.79% Impervious Area

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

Summary for Subcatchment EX1.2:

Runoff = 5.04 cfs @ 12.08 hrs, Volume= 0.414 af, Depth=10.26"
Routed to Pond CB1.2 : CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
2,630	98	Roofs, HSG C
16,570	98	Paved parking, HSG C
1,880	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
21,080		Weighted Average
1,880		8.92% Pervious Area
19,200		91.08% Impervious Area

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

Summary for Subcatchment EX1.3:

Runoff = 2.54 cfs @ 12.08 hrs, Volume= 0.203 af, Depth= 9.69"
Routed to Pond CB1.3 : Leaching CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
2,660	98	Roofs, HSG C
4,720	98	Paved parking, HSG C
3,580	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
10,960		Weighted Average
3,580		32.66% Pervious Area
7,380		67.34% Impervious Area

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

Summary for Subcatchment EX1.4:

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 8.66"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	98	Roofs, HSG C
280	98	Paved parking, HSG C
860	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,140		Weighted Average
860		75.44% Pervious Area
280		24.56% Impervious Area

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

Summary for Subcatchment EX1.5:

Runoff = 3.85 cfs @ 12.08 hrs, Volume= 0.316 af, Depth=10.28"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
2,980	98	Roofs, HSG C
11,860	98	Paved parking, HSG C
1,240	79	50-75% Grass cover, Fair, HSG C
0	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
16,080		Weighted Average
1,240		7.71% Pervious Area
14,840		92.29% Impervious Area

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

Summary for Subcatchment EX2.1:

Runoff = 23.57 cfs @ 12.26 hrs, Volume= 2.729 af, Depth= 8.82"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
10,610	98	Roofs, HSG C
72,280	98	Paved parking, HSG C
14,600	79	50-75% Grass cover, Fair, HSG C
64,240	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
161,730		Weighted Average
78,840		48.75% Pervious Area
82,890		51.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	50	0.0120	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	117	0.0094	0.48		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	18	0.4400	3.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	79	0.0770	1.39		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	264	Total			

Summary for Subcatchment EX3.1:

Runoff = 14.03 cfs @ 12.34 hrs, Volume= 1.621 af, Depth= 7.17"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	98	Roofs, HSG C
1,100	98	Paved parking, HSG C
26,740	79	50-75% Grass cover, Fair, HSG C
90,260	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
118,100		Weighted Average
117,000		99.07% Pervious Area
1,100		0.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0	68	0.0130	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	12	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	309	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.3	389	Total			

Summary for Subcatchment EX4.1:

Runoff = 4.82 cfs @ 12.13 hrs, Volume= 0.426 af, Depth= 9.15"
Routed to Pond DEP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
5,120	98	Roofs, HSG C
7,970	98	Paved parking, HSG C
7,030	79	50-75% Grass cover, Fair, HSG C
4,230	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
24,350		Weighted Average
11,260		46.24% Pervious Area
13,090		53.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	50	0.0260	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.1	58	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	38	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	70	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	29	0.0660	1.28		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.6	245	Total			

Summary for Subcatchment EX4.2:

Runoff = 21.11 cfs @ 12.12 hrs, Volume= 1.739 af, Depth= 7.67"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
3,370	98	Roofs, HSG C
17,650	98	Paved parking, HSG C
13,980	79	50-75% Grass cover, Fair, HSG C
82,370	70	Woods, Good, HSG C
1,100	89	Gravel roads, HSG C
118,470		Weighted Average
97,450		82.26% Pervious Area
21,020		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0470	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.1	19	0.0160	2.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	250	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	344	Total			

Summary for Subcatchment EX5.1:

Runoff = 4.23 cfs @ 12.08 hrs, Volume= 0.337 af, Depth= 9.22"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	98	Roofs, HSG C
12,420	98	Paved parking, HSG C
200	79	50-75% Grass cover, Fair, HSG C
6,480	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
19,100		Weighted Average
6,680		34.97% Pervious Area
12,420		65.03% Impervious Area

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

Summary for Subcatchment EX5.2:

Runoff = 3.40 cfs @ 12.09 hrs, Volume= 0.254 af, Depth= 7.88"
Routed to Pond DEP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
1,030	98	Roofs, HSG C
0	98	Paved parking, HSG C
3,530	79	50-75% Grass cover, Fair, HSG C
9,760	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
2,530	98	Water Surface, HSG C
16,850		Weighted Average
13,290		78.87% Pervious Area
3,560		21.13% Impervious Area

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

Summary for Subcatchment EX5.3:

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.020 af, Depth= 7.05"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
230	79	50-75% Grass cover, Fair, HSG C
1,290	70	Woods, Good, HSG C
0	89	Gravel roads, HSG C
1,520		Weighted Average
1,520		100.00% Pervious Area

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

Summary for Pond CB1.1: CB

Inflow Area = 0.467 ac, 82.79% Impervious, Inflow Depth = 10.06" for 100-Year event
Inflow = 4.81 cfs @ 12.08 hrs, Volume= 0.391 af
Primary = 4.81 cfs @ 12.08 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.2: CB

Inflow Area = 0.736 ac, 82.96% Impervious, Inflow Depth = 10.02" for 100-Year event
Inflow = 7.54 cfs @ 12.09 hrs, Volume= 0.614 af
Primary = 7.54 cfs @ 12.09 hrs, Volume= 0.614 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Summary for Pond CB1.3: Leaching CB

Inflow Area = 0.252 ac, 67.34% Impervious, Inflow Depth = 9.69" for 100-Year event
Inflow = 2.54 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.52 cfs @ 12.09 hrs, Volume= 0.201 af, Atten= 1%, Lag= 0.7 min
Discarded = 0.00 cfs @ 0.66 hrs, Volume= 0.000 af
Primary = 2.52 cfs @ 12.09 hrs, Volume= 0.201 af
Routed to Pond CB1.2 : CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 260.11' @ 12.09 hrs Surf.Area= 13 sf Storage= 183 cf

Plug-Flow detention time= 15.6 min calculated for 0.201 af (99% of inflow)
Center-of-Mass det. time= 8.7 min (762.1 - 753.3)

Volume	Invert	Avail.Storage	Storage Description
#1	251.89'	101 cf	**4.00'D x 8.00'H Vertical Cone/Cylinder**
#2	259.89'	157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		257 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.89	10	0	0
260.20	1,000	157	157

Device	Routing	Invert	Outlet Devices
#1	Discarded	251.89'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	259.90'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.00 cfs @ 0.66 hrs HW=251.98' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.51 cfs @ 12.09 hrs HW=260.11' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 2.51 cfs @ 1.18 fps)

Summary for Pond DEP4:

Inflow Area = 0.559 ac, 53.76% Impervious, Inflow Depth = 9.15" for 100-Year event
Inflow = 4.82 cfs @ 12.13 hrs, Volume= 0.426 af
Outflow = 4.78 cfs @ 12.14 hrs, Volume= 0.425 af, Atten= 1%, Lag= 0.7 min
Discarded = 0.06 cfs @ 12.14 hrs, Volume= 0.120 af
Primary = 4.72 cfs @ 12.14 hrs, Volume= 0.305 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 247.43' @ 12.14 hrs Surf.Area= 2,390 sf Storage= 2,329 cf

Plug-Flow detention time= 159.3 min calculated for 0.425 af (100% of inflow)
Center-of-Mass det. time= 157.9 min (923.3 - 765.4)

Volume	Invert	Avail.Storage	Storage Description
#1	244.70'	2,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.70	10	0	0
245.00	40	8	8
246.00	570	305	313
247.00	1,700	1,135	1,448
247.50	2,500	1,050	2,498

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.70'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	247.30'	**40.0' long Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.06 cfs @ 12.14 hrs HW=247.43' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=4.72 cfs @ 12.14 hrs HW=247.43' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 4.72 cfs @ 0.90 fps)

Summary for Pond DEP5:

Inflow Area = 0.387 ac, 21.13% Impervious, Inflow Depth = 7.88" for 100-Year event
Inflow = 3.40 cfs @ 12.09 hrs, Volume= 0.254 af
Outflow = 3.02 cfs @ 12.13 hrs, Volume= 0.227 af, Atten= 11%, Lag= 2.5 min
Primary = 3.02 cfs @ 12.13 hrs, Volume= 0.227 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 258.29' @ 12.13 hrs Surf.Area= 3,457 sf Storage= 1,868 cf

Plug-Flow detention time= 92.2 min calculated for 0.227 af (89% of inflow)
Center-of-Mass det. time= 40.2 min (827.9 - 787.7)

Volume	Invert	Avail.Storage	Storage Description
#1	256.00'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
256.00	10	0	0
257.00	190	100	100
258.00	1,800	995	1,095
258.30	3,490	794	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	258.05'	**10.0' long Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.02 cfs @ 12.13 hrs HW=258.29' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 3.02 cfs @ 1.24 fps)

Summary for Link DP1:

Inflow Area = 1.598 ac, 84.11% Impervious, Inflow Depth = 10.07" for 100-Year event
Inflow = 16.44 cfs @ 12.09 hrs, Volume= 1.341 af
Primary = 16.44 cfs @ 12.09 hrs, Volume= 1.341 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.713 ac, 51.25% Impervious, Inflow Depth = 8.82" for 100-Year event
Inflow = 23.57 cfs @ 12.26 hrs, Volume= 2.729 af
Primary = 23.57 cfs @ 12.26 hrs, Volume= 2.729 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 2.711 ac, 0.93% Impervious, Inflow Depth = 7.17" for 100-Year event
Inflow = 14.03 cfs @ 12.34 hrs, Volume= 1.621 af
Primary = 14.03 cfs @ 12.34 hrs, Volume= 1.621 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 3.279 ac, 23.88% Impervious, Inflow Depth = 7.48" for 100-Year event
Inflow = 25.77 cfs @ 12.13 hrs, Volume= 2.044 af
Primary = 25.77 cfs @ 12.13 hrs, Volume= 2.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 0.860 ac, 42.65% Impervious, Inflow Depth = 8.15" for 100-Year event
Inflow = 7.34 cfs @ 12.10 hrs, Volume= 0.584 af
Primary = 7.34 cfs @ 12.10 hrs, Volume= 0.584 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

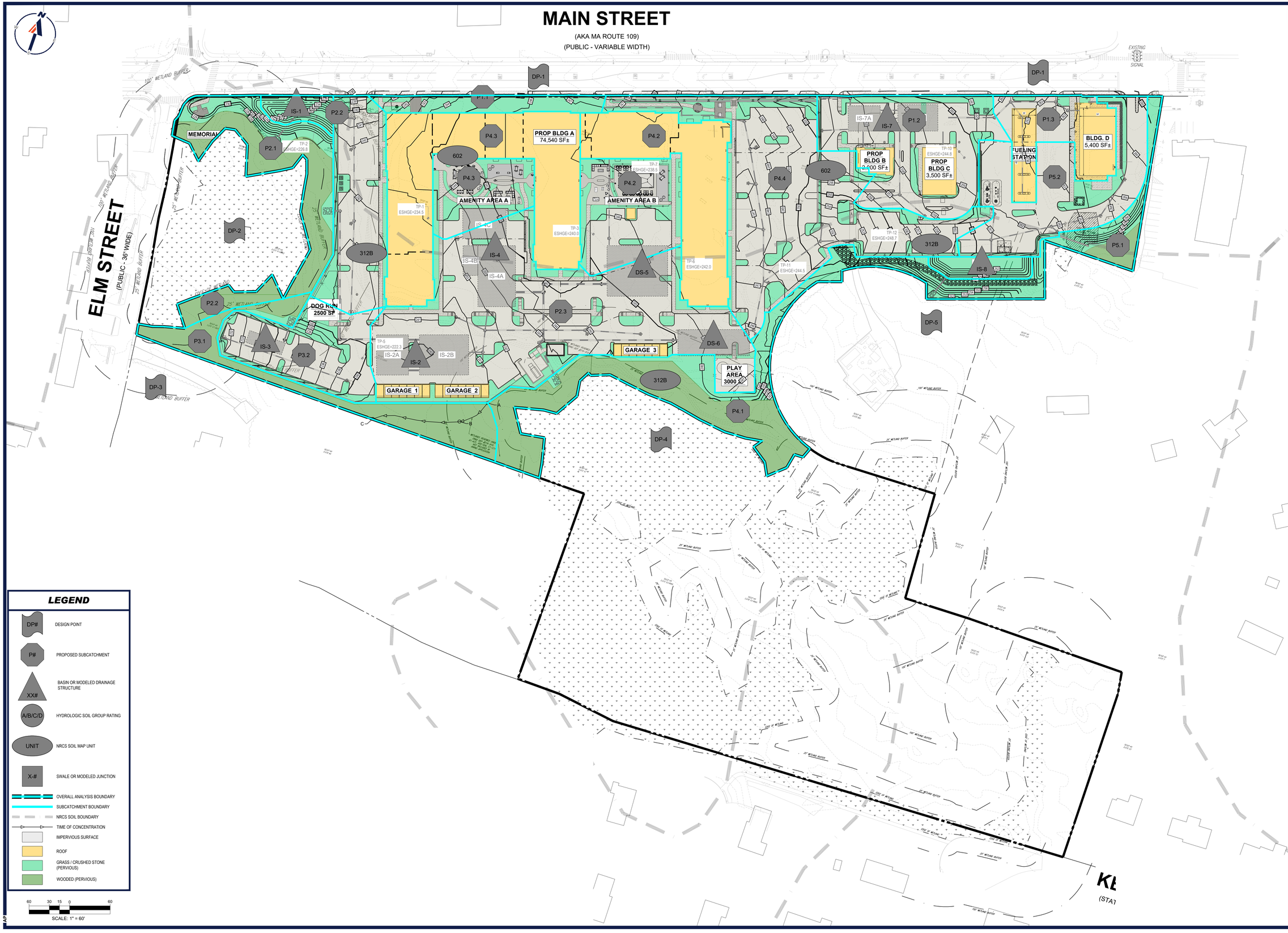
APPENDIX E: PROPOSED CONDITIONS HYDROLOGIC ANALYSIS

- *PROPOSED CONDITIONS DRAINAGE MAP*
- *PROPOSED CONDITIONS HYDROCAD CALCULATIONS*

MAIN STREET

(AKA MA ROUTE 109)

(PUBLIC - VARIABLE WIDTH)



LEGEND

- DP# — DESIGN POINT
- P# — PROPOSED SUBCATCHMENT
- XX# — BASIN OR MODELED DRAINAGE STRUCTURE
- A/B/C/D — HYDROLOGIC SOIL GROUP RATING
- UNIT — NRCS SOIL MAP UNIT
- X-# — SWALE OR MODELED JUNCTION
- OVERALL ANALYSIS BOUNDARY
- SUBCATCHMENT BOUNDARY
- NRCS SOIL BOUNDARY
- TIME OF CONCENTRATION
- IMPERVIOUS SURFACE
- ROOF
- GRASS / CRUSHED STONE (PERVIOUS)
- WOODED (PERVIOUS)

60 30 15 0 60

SCALE: 1" = 60'

M:\MA\2024\MA240482.00\CAD\DRAWINGS\EXHIBITS\GENERAL EXHIBIT\P-GNRE-HYDR-MAA240482.00-0B-----LAYOUT: EX-PS PSDM

APR 02, 2026 - 2:39pm

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CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-GNRE-HYDR

PROJECT:

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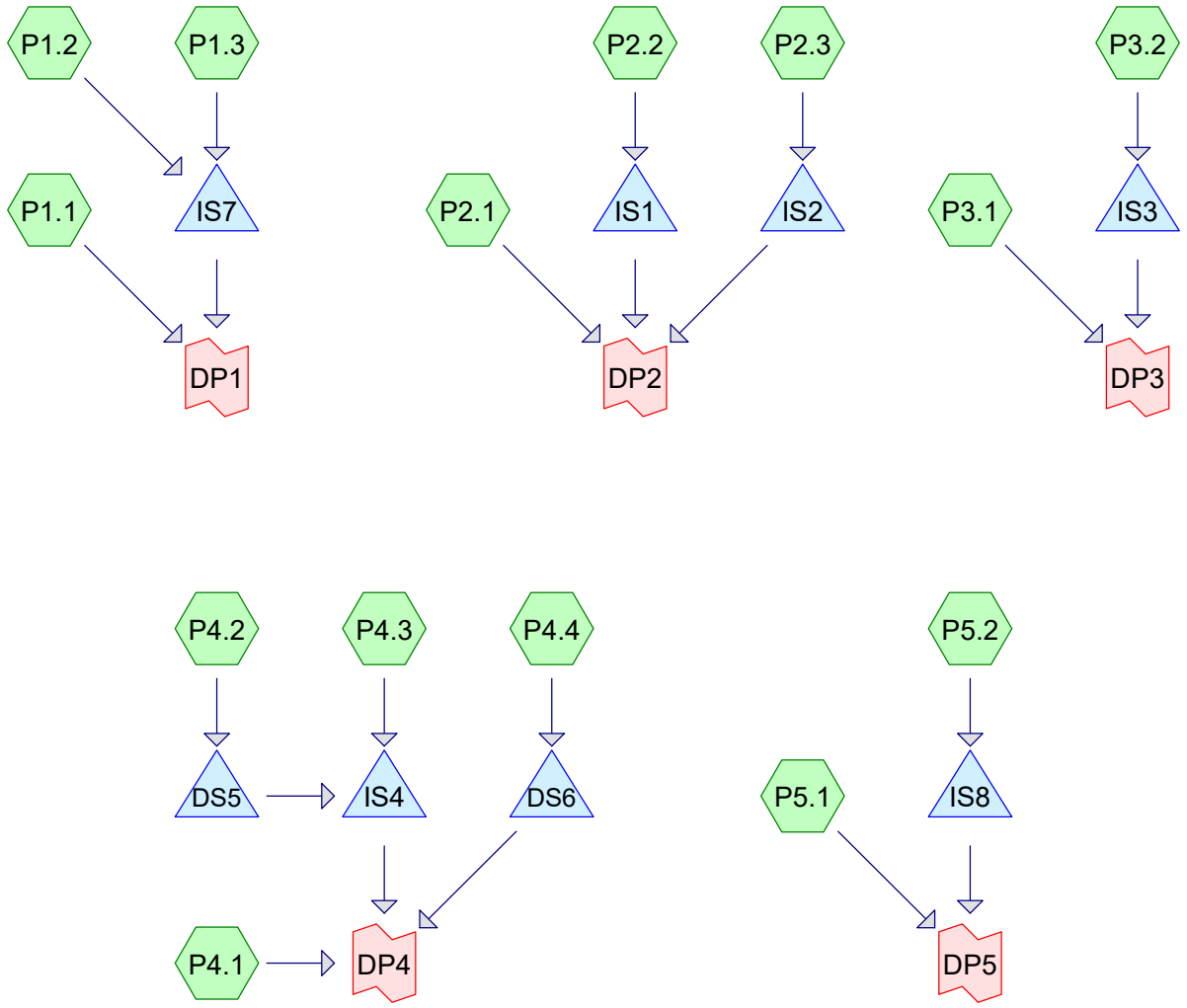
SHEET TITLE:

OVERALL GRADING PLAN

SHEET NUMBER:

EX-PS

ORG. DATE - 02/02/2026



Subcat Reach Pond Link

Routing Diagram for W211301_Post-5d
Prepared by Bohler Engineering, PC, Printed 2/3/2026
HydroCAD® 10.20-7a s/n 03478 © 2025 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.349	79	50-75% Grass cover, Fair, HSG C (P1.1, P1.2, P1.3, P2.1, P2.2, P2.3, P3.1, P3.2, P4.1, P4.2, P4.3, P4.4, P5.1, P5.2)
6.319	98	Paved parking, HSG C (P1.1, P1.2, P1.3, P2.1, P2.2, P2.3, P3.2, P4.2, P4.3, P4.4, P5.1, P5.2)
2.076	98	Roofs, HSG C (P1.2, P1.3, P4.2, P4.3)
1.416	70	Woods, Good, HSG C (P2.1, P3.1, P4.1, P5.1)
12.161	**91**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1.1: Runoff Area=10,270 sf 22.20% Impervious Runoff Depth=2.23"
Tc=6.0 min CN=WQ Runoff=0.59 cfs 0.044 af

Subcatchment P1.2: Runoff Area=37,050 sf 86.83% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=WQ Runoff=3.00 cfs 0.239 af

Subcatchment P1.3: Runoff Area=18,020 sf 96.45% Impervious Runoff Depth=3.54"
Tc=6.0 min CN=WQ Runoff=1.52 cfs 0.122 af

Subcatchment P2.1: Runoff Area=28,080 sf 2.31% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=WQ Runoff=1.06 cfs 0.078 af

Subcatchment P2.2: Runoff Area=32,350 sf 68.87% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=WQ Runoff=2.41 cfs 0.189 af

Subcatchment P2.3: Runoff Area=92,640 sf 89.30% Impervious Runoff Depth=3.42"
Tc=6.0 min CN=WQ Runoff=7.59 cfs 0.605 af

Subcatchment P3.1: Runoff Area=20,480 sf 0.00% Impervious Runoff Depth=1.35"
Flow Length=180' Tc=12.4 min CN=WQ Runoff=0.58 cfs 0.053 af

Subcatchment P3.2: Runoff Area=22,420 sf 75.33% Impervious Runoff Depth=3.17"
Tc=6.0 min CN=WQ Runoff=1.72 cfs 0.136 af

Subcatchment P4.1: Runoff Area=37,470 sf 0.00% Impervious Runoff Depth=1.44"
Tc=6.0 min CN=WQ Runoff=1.40 cfs 0.103 af

Subcatchment P4.2: Runoff Area=50,120 sf 90.38% Impervious Runoff Depth=3.44"
Tc=6.0 min CN=WQ Runoff=4.13 cfs 0.329 af

Subcatchment P4.3: Runoff Area=60,510 sf 95.32% Impervious Runoff Depth=3.52"
Tc=6.0 min CN=WQ Runoff=5.09 cfs 0.408 af

Subcatchment P4.4: Runoff Area=67,980 sf 83.63% Impervious Runoff Depth=3.32"
Tc=6.0 min CN=WQ Runoff=5.43 cfs 0.431 af

Subcatchment P5.1: Runoff Area=17,110 sf 0.58% Impervious Runoff Depth=1.78"
Tc=6.0 min CN=WQ Runoff=0.81 cfs 0.058 af

Subcatchment P5.2: Runoff Area=35,240 sf 89.10% Impervious Runoff Depth=3.41"
Tc=6.0 min CN=WQ Runoff=2.89 cfs 0.230 af

Pond DS5: Peak Elev=239.54' Storage=9,224 cf Inflow=4.13 cfs 0.329 af
Outflow=0.95 cfs 0.124 af

Pond DS6: Peak Elev=240.05' Storage=5,621 cf Inflow=5.43 cfs 0.431 af
Outflow=1.73 cfs 0.431 af

Pond IS1: Peak Elev=232.90' Storage=2,441 cf Inflow=2.41 cfs 0.189 af
Outflow=2.27 cfs 0.141 af

Pond IS2: Peak Elev=235.53' Storage=16,066 cf Inflow=7.59 cfs 0.605 af
Outflow=1.48 cfs 0.313 af

Pond IS3: Peak Elev=229.26' Storage=1,975 cf Inflow=1.72 cfs 0.136 af
Outflow=1.68 cfs 0.095 af

Pond IS4: Peak Elev=239.54' Storage=19,904 cf Inflow=5.93 cfs 0.531 af
Outflow=0.15 cfs 0.082 af

Pond IS7: Peak Elev=252.27' Storage=6,773 cf Inflow=4.53 cfs 0.361 af
Outflow=2.94 cfs 0.239 af

Pond IS8: Peak Elev=254.49' Storage=6,618 cf Inflow=2.89 cfs 0.230 af
Outflow=0.24 cfs 0.113 af

Link DP1: Inflow=3.41 cfs 0.283 af
Primary=3.41 cfs 0.283 af

Link DP2: Inflow=3.31 cfs 0.532 af
Primary=3.31 cfs 0.532 af

Link DP3: Inflow=2.15 cfs 0.148 af
Primary=2.15 cfs 0.148 af

Link DP4: Inflow=2.80 cfs 0.616 af
Primary=2.80 cfs 0.616 af

Link DP5: Inflow=0.81 cfs 0.171 af
Primary=0.81 cfs 0.171 af

Total Runoff Area = 12.161 ac Runoff Volume = 3.026 af Average Runoff Depth = 2.99"
30.96% Pervious = 3.766 ac 69.04% Impervious = 8.396 ac

Summary for Subcatchment P1.1:

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.044 af, Depth= 2.23"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
7,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
2,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
10,270		Weighted Average
7,990		77.80% Pervious Area
2,280		22.20% Impervious Area

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

Summary for Subcatchment P1.2:

Runoff = 3.00 cfs @ 12.08 hrs, Volume= 0.239 af, Depth= 3.37"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,880	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
26,670	98	Paved parking, HSG C
5,500	98	Roofs, HSG C
37,050		Weighted Average
4,880		13.17% Pervious Area
32,170		86.83% Impervious Area

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

Summary for Subcatchment P1.3:

Runoff = 1.52 cfs @ 12.08 hrs, Volume= 0.122 af, Depth= 3.54"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
640	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
6,970	98	Paved parking, HSG C
5,010	98	Roofs, HSG C
5,400	98	Roofs, HSG C
18,020		Weighted Average
640		3.55% Pervious Area
17,380		96.45% Impervious Area

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

Summary for Subcatchment P2.1:

Runoff = 1.06 cfs @ 12.09 hrs, Volume= 0.078 af, Depth= 1.46"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
19,200	70	Woods, Good, HSG C
8,230	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
650	98	Paved parking, HSG C
0	98	Roofs, HSG C
28,080		Weighted Average
27,430		97.69% Pervious Area
650		2.31% Impervious Area

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

Summary for Subcatchment P2.2:

Runoff = 2.41 cfs @ 12.08 hrs, Volume= 0.189 af, Depth= 3.05"
Routed to Pond IS1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
10,070	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
22,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
32,350		Weighted Average
10,070		31.13% Pervious Area
22,280		68.87% Impervious Area

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

Summary for Subcatchment P2.3:

Runoff = 7.59 cfs @ 12.08 hrs, Volume= 0.605 af, Depth= 3.42"
Routed to Pond IS2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
9,910	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
82,730	98	Paved parking, HSG C
0	98	Roofs, HSG C
92,640		Weighted Average
9,910		10.70% Pervious Area
82,730		89.30% Impervious Area

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

Summary for Subcatchment P3.1:

Runoff = 0.58 cfs @ 12.18 hrs, Volume= 0.053 af, Depth= 1.35"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
16,190	70	Woods, Good, HSG C
4,290	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
20,480		Weighted Average
20,480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	50	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.7	130	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.4	180	Total			

Summary for Subcatchment P3.2:

Runoff = 1.72 cfs @ 12.08 hrs, Volume= 0.136 af, Depth= 3.17"
Routed to Pond IS3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
5,530	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,890	98	Paved parking, HSG C
0	98	Roofs, HSG C
22,420		Weighted Average
5,530		24.67% Pervious Area
16,890		75.33% Impervious Area

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

Summary for Subcatchment P4.1:

Runoff = 1.40 cfs @ 12.09 hrs, Volume= 0.103 af, Depth= 1.44"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
24,480	70	Woods, Good, HSG C
12,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
37,470		Weighted Average
37,470		100.00% Pervious Area

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

Summary for Subcatchment P4.2:

Runoff = 4.13 cfs @ 12.08 hrs, Volume= 0.329 af, Depth= 3.44"
Routed to Pond DS5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,820	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,360	98	Paved parking, HSG C
28,940	98	Roofs, HSG C
50,120		Weighted Average
4,820		9.62% Pervious Area
45,300		90.38% Impervious Area

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

Summary for Subcatchment P4.3:

Runoff = 5.09 cfs @ 12.08 hrs, Volume= 0.408 af, Depth= 3.52"
Routed to Pond IS4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
2,830	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
12,080	98	Paved parking, HSG C
45,600	98	Roofs, HSG C
60,510		Weighted Average
2,830		4.68% Pervious Area
57,680		95.32% Impervious Area

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

Summary for Subcatchment P4.4:

Runoff = 5.43 cfs @ 12.08 hrs, Volume= 0.431 af, Depth= 3.32"
Routed to Pond DS6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
11,130	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
56,850	98	Paved parking, HSG C
0	98	Roofs, HSG C
67,980		Weighted Average
11,130		16.37% Pervious Area
56,850		83.63% Impervious Area

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

Summary for Subcatchment P5.1:

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.058 af, Depth= 1.78"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
1,820	70	Woods, Good, HSG C
15,190	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
100	98	Paved parking, HSG C
0	98	Roofs, HSG C
17,110		Weighted Average
17,010		99.42% Pervious Area
100		0.58% Impervious Area

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

Summary for Subcatchment P5.2:

Runoff = 2.89 cfs @ 12.08 hrs, Volume= 0.230 af, Depth= 3.41"
Routed to Pond IS8 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.84"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
3,840	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
31,400	98	Paved parking, HSG C
0	98	Roofs, HSG C
35,240		Weighted Average
3,840		10.90% Pervious Area
31,400		89.10% Impervious Area

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

Summary for Pond DS5:

Inflow Area = 1.151 ac, 90.38% Impervious, Inflow Depth = 3.44" for 2-Year event
Inflow = 4.13 cfs @ 12.08 hrs, Volume= 0.329 af
Outflow = 0.95 cfs @ 12.14 hrs, Volume= 0.124 af, Atten= 77%, Lag= 3.2 min
Primary = 0.95 cfs @ 12.14 hrs, Volume= 0.124 af
Routed to Pond IS4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 239.54' @ 18.66 hrs Surf.Area= 6,713 sf Storage= 9,224 cf

Plug-Flow detention time= 242.2 min calculated for 0.124 af (38% of inflow)
Center-of-Mass det. time= 84.4 min (841.5 - 757.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.00'	0 cf	**89.63'W x 74.90'L x 4.50'H Field A** 30,206 cf Overall - 30,206 cf Embedded = 0 cf x 40.0% Voids
#2A	238.00'	23,891 cf	**StormTrap SingleTrap 4-0** x 36 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 36 Chambers in 9 Rows 76.31' x 61.58' Core + 6.66' Border = 89.63' x 74.90' System
		23,891 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	241.40'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 4	239.60'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 4	238.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	238.00'	**15.0" Round Culvert** L= 140.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.00' / 237.00' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.95 cfs @ 12.14 hrs HW=238.76' TW=238.50' (Dynamic Tailwater)
└**4=Culvert** (Passes 0.95 cfs of 0.95 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.95 cfs @ 2.42 fps)

Pond DS5: - Chamber Wizard Field A

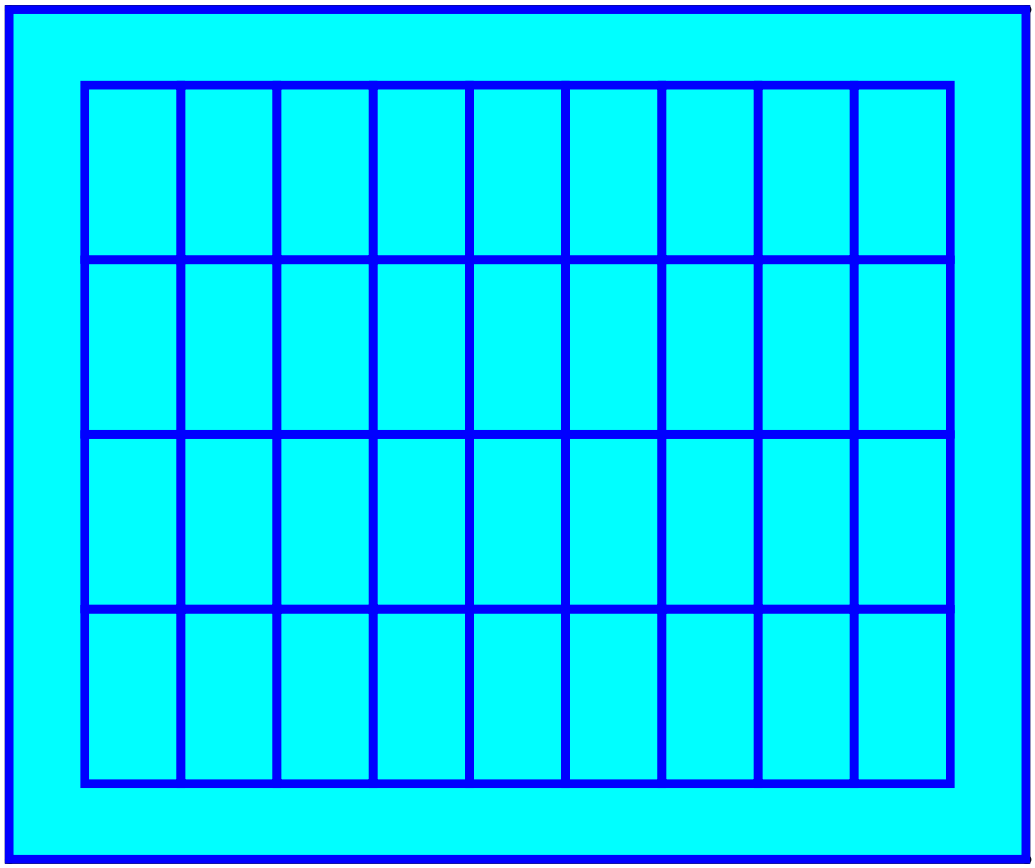
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

4 Chambers/Row x 15.40' Long = 61.58' Row Length +79.9" Border x 2 = 74.90' Base Length
9 Rows x 101.7" Wide + 79.9" Side Border x 2 = 89.63' Base Width
54.0" Chamber Height = 4.50' Field Height

36 Chambers x 470.3 cf + 6,961.4 cf Border = 23,891.2 cf Chamber Storage
36 Chambers x 587.4 cf + 9,058.3 cf Border = 30,206.4 cf Displacement

Chamber Storage = 23,891.2 cf = 0.548 af
Overall Storage Efficiency = 79.1%
Overall System Size = 74.90' x 89.63' x 4.50'

36 Chambers (plus border)
1,118.8 cy Field





Summary for Pond DS6:

Inflow Area = 1.561 ac, 83.63% Impervious, Inflow Depth = 3.32" for 2-Year event
Inflow = 5.43 cfs @ 12.08 hrs, Volume= 0.431 af
Outflow = 1.73 cfs @ 12.38 hrs, Volume= 0.431 af, Atten= 68%, Lag= 17.9 min
Primary = 1.73 cfs @ 12.38 hrs, Volume= 0.431 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 240.05' @ 12.38 hrs Surf.Area= 4,095 sf Storage= 5,621 cf

Plug-Flow detention time= 69.3 min calculated for 0.431 af (100% of inflow)
Center-of-Mass det. time= 68.2 min (828.6 - 760.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.50'	0 cf	**38.75'W x 105.69'L x 5.50'H Field A** 22,525 cf Overall - 22,525 cf Embedded = 0 cf x 40.0% Voids
#2A	238.50'	18,191 cf	**StormTrap SingleTrap 5-0** x 18 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 18 Chambers in 3 Rows 25.44' x 92.38' Core + 6.66' Border = 38.75' x 105.69' System
		18,191 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 5	243.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 5	242.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 5	239.10'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 5	238.50'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Primary	238.50'	**18.0" Round Culvert** L= 240.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.50' / 233.50' S= 0.0208 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.73 cfs @ 12.38 hrs HW=240.05' TW=0.00' (Dynamic Tailwater)
└**5=Culvert** (Passes 1.73 cfs of 6.69 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 0.74 cfs @ 4.25 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.99 cfs @ 5.65 fps)

Pond DS6: - Chamber Wizard Field A

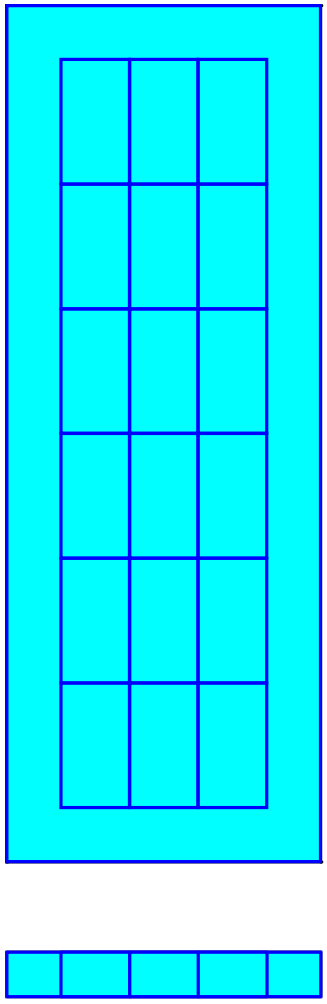
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

6 Chambers/Row x 15.40' Long = 92.38' Row Length +79.9" Border x 2 = 105.69' Base Length
3 Rows x 101.7" Wide + 79.9" Side Border x 2 = 38.75' Base Width
66.0" Chamber Height = 5.50' Field Height

18 Chambers x 590.2 cf + 7,568.2 cf Border = 18,191.5 cf Chamber Storage
18 Chambers x 718.0 cf + 9,600.8 cf Border = 22,524.6 cf Displacement

Chamber Storage = 18,191.5 cf = 0.418 af
Overall Storage Efficiency = 80.8%
Overall System Size = 105.69' x 38.75' x 5.50'

18 Chambers (plus border)
834.2 cy Field



Summary for Pond IS1:

Inflow Area = 0.743 ac, 68.87% Impervious, Inflow Depth = 3.05" for 2-Year event
Inflow = 2.41 cfs @ 12.08 hrs, Volume= 0.189 af
Outflow = 2.27 cfs @ 12.11 hrs, Volume= 0.141 af, Atten= 6%, Lag= 1.7 min
Primary = 2.27 cfs @ 12.11 hrs, Volume= 0.141 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 232.90' @ 12.11 hrs Surf.Area= 1,884 sf Storage= 2,441 cf

Plug-Flow detention time= 162.6 min calculated for 0.141 af (75% of inflow)
Center-of-Mass det. time= 73.9 min (842.4 - 768.4)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	4,940 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	710	0	0
232.00	1,310	1,010	1,010
233.00	1,950	1,630	2,640
234.00	2,650	2,300	4,940

Device	Routing	Invert	Outlet Devices
#1	Device 2	232.70'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Primary	229.20'	**18.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 229.20' / 229.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.27 cfs @ 12.11 hrs HW=232.90' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 2.27 cfs of 12.89 cfs potential flow)
↑**1=Grate** (Weir Controls 2.27 cfs @ 1.45 fps)

Summary for Pond IS2:

Inflow Area = 2.127 ac, 89.30% Impervious, Inflow Depth = 3.42" for 2-Year event
Inflow = 7.59 cfs @ 12.08 hrs, Volume= 0.605 af
Outflow = 1.48 cfs @ 12.52 hrs, Volume= 0.313 af, Atten= 80%, Lag= 25.9 min
Primary = 1.48 cfs @ 12.52 hrs, Volume= 0.313 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 235.53' @ 12.52 hrs Surf.Area= 7,134 sf Storage= 16,066 cf

Plug-Flow detention time= 317.5 min calculated for 0.313 af (52% of inflow)
Center-of-Mass det. time= 194.4 min (951.9 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1B	233.00'	0 cf	**47.23'W x 59.50'L x 5.50'H Field A** 15,456 cf Overall - 15,456 cf Embedded = 0 cf x 40.0% Voids
#2B	233.00'	12,474 cf	**StormTrap SingleTrap 5-0** x 12 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 12 Chambers in 4 Rows 33.92' x 46.19' Core + 6.66' Border = 47.23' x 59.50' System
#3C	233.00'	0 cf	**72.67'W x 59.50'L x 5.50'H Field B** 23,780 cf Overall - 23,780 cf Embedded = 0 cf x 40.0% Voids
#4C	233.00'	19,254 cf	**StormTrap SingleTrap 5-0** x 21 Inside #3 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 21 Chambers in 7 Rows 59.35' x 46.19' Core + 6.66' Border = 72.67' x 59.50' System
		31,728 cf	Total Available Storage

Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	237.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 3	235.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	233.00'	**24.0" Round Culvert** L= 250.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 233.00' / 231.00' S= 0.0080 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.48 cfs @ 12.52 hrs HW=235.53' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Passes 1.48 cfs of 16.52 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**2=Orifice/Grate** (Orifice Controls 1.48 cfs @ 2.48 fps)

Pond IS2: - Chamber Wizard Field A

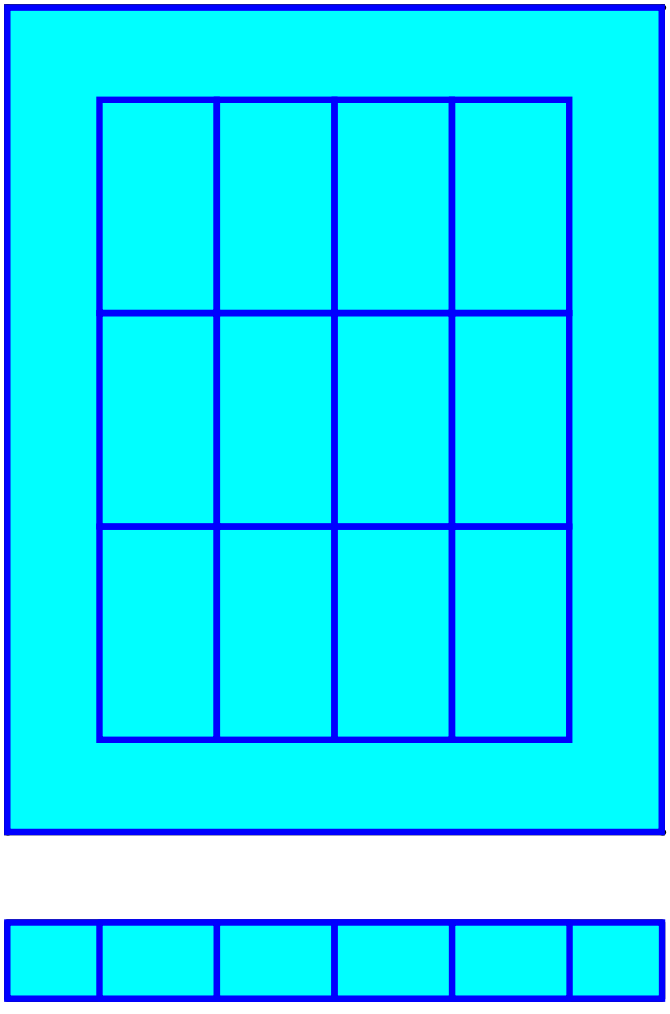
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width
66.0" Chamber Height = 5.50' Field Height

12 Chambers x 590.2 cf + 5,391.8 cf Border = 12,474.0 cf Chamber Storage
12 Chambers x 718.0 cf + 6,839.9 cf Border = 15,455.7 cf Displacement

Chamber Storage = 12,474.0 cf = 0.286 af
Overall Storage Efficiency = 80.7%
Overall System Size = 59.50' x 47.23' x 5.50'

12 Chambers (plus border)
572.4 cy Field



Pond IS2: - Chamber Wizard Field B

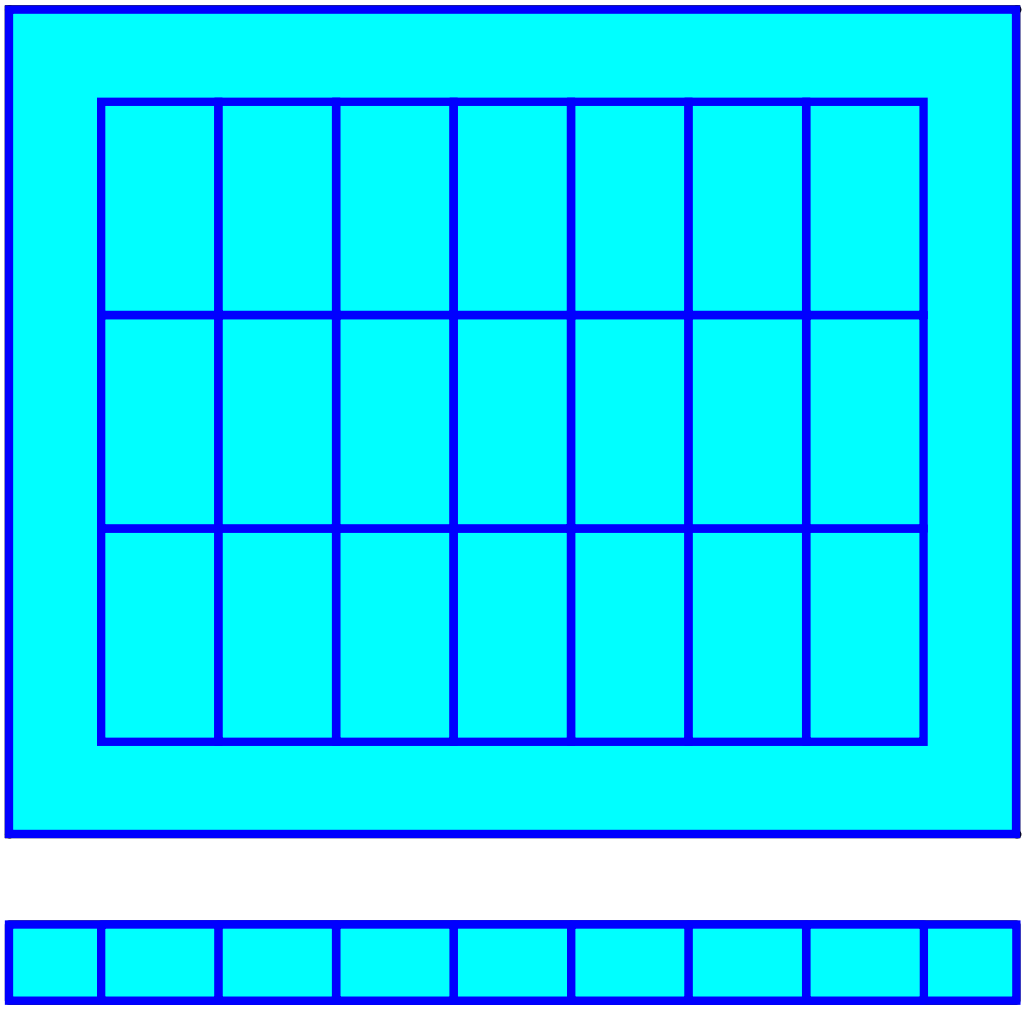
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
7 Rows x 101.7" Wide + 79.9" Side Border x 2 = 72.67' Base Width
66.0" Chamber Height = 5.50' Field Height

21 Chambers x 590.2 cf + 6,860.0 cf Border = 19,253.8 cf Chamber Storage
21 Chambers x 718.0 cf + 8,702.4 cf Border = 23,780.2 cf Displacement

Chamber Storage = 19,253.8 cf = 0.442 af
Overall Storage Efficiency = 81.0%
Overall System Size = 59.50' x 72.67' x 5.50'

21 Chambers (plus border)
880.7 cy Field



Summary for Pond IS3:

Inflow Area = 0.515 ac, 75.33% Impervious, Inflow Depth = 3.17" for 2-Year event
Inflow = 1.72 cfs @ 12.08 hrs, Volume= 0.136 af
Outflow = 1.68 cfs @ 12.10 hrs, Volume= 0.095 af, Atten= 3%, Lag= 1.1 min
Primary = 1.68 cfs @ 12.10 hrs, Volume= 0.095 af
Routed to Link DP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 229.26' @ 12.10 hrs Surf.Area= 1,033 sf Storage= 1,975 cf

Plug-Flow detention time= 179.2 min calculated for 0.095 af (70% of inflow)
Center-of-Mass det. time= 82.6 min (847.3 - 764.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	1,022 cf	**18.50'W x 55.83'L x 4.00'H Field A** 4,132 cf Overall - 1,578 cf Embedded = 2,554 cf x 40.0% Voids
#2A	227.00'	1,578 cf	**Cultec R-360HD** x 42 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 42 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		2,599 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	229.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	227.00'	**15.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 227.00' / 225.50' S= 0.0375 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.67 cfs @ 12.10 hrs HW=229.26' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 1.67 cfs of 6.66 cfs potential flow)
↑**1=Sharp-Crested Rectangular Weir** (Weir Controls 1.67 cfs @ 1.65 fps)

Pond IS3: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

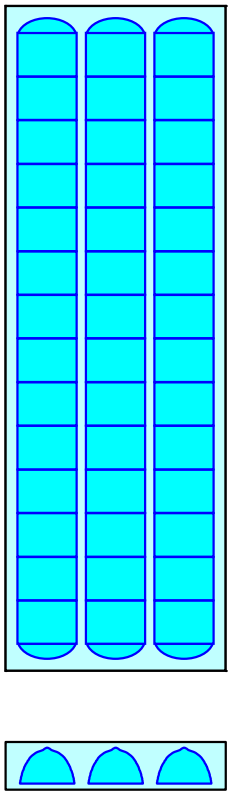
14 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 53.83' Row Length +12.0" End Stone x 2 = 55.83' Base Length
3 Rows x 60.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 18.50' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

42 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 3 Rows = 1,577.8 cf Chamber Storage

4,131.7 cf Field - 1,577.8 cf Chambers = 2,553.8 cf Stone x 40.0% Voids = 1,021.5 cf Stone Storage

Chamber Storage + Stone Storage = 2,599.4 cf = 0.060 af
Overall Storage Efficiency = 62.9%
Overall System Size = 55.83' x 18.50' x 4.00'

42 Chambers
153.0 cy Field
94.6 cy Stone



Summary for Pond IS4:

Inflow Area = 2.540 ac, 93.09% Impervious, Inflow Depth = 2.51" for 2-Year event
Inflow = 5.93 cfs @ 12.09 hrs, Volume= 0.531 af
Outflow = 0.15 cfs @ 18.66 hrs, Volume= 0.082 af, Atten= 98%, Lag= 394.4 min
Primary = 0.15 cfs @ 18.66 hrs, Volume= 0.082 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 239.54' @ 18.66 hrs Surf.Area= 8,822 sf Storage= 19,904 cf

Plug-Flow detention time= 790.5 min calculated for 0.082 af (15% of inflow)
Center-of-Mass det. time= 488.4 min (1,263.3 - 775.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	237.00'	0 cf	**55.71'W x 90.29'L x 3.50'H Field A** 17,605 cf Overall - 17,605 cf Embedded = 0 cf x 40.0% Voids
#2A	237.00'	13,440 cf	**StormTrap SingleTrap 3-0** x 25 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 25 Chambers in 5 Rows 42.40' x 76.98' Core + 6.66' Border = 55.71' x 90.29' System
#3C	237.00'	0 cf	**21.79'W x 44.10'L x 3.50'H Field B** 3,364 cf Overall - 3,364 cf Embedded = 0 cf x 40.0% Voids
#4C	237.00'	2,527 cf	**StormTrap SingleTrap 3-0** x 2 Inside #3 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 8.48' x 30.79' Core + 6.66' Border = 21.79' x 44.10' System
#5B	237.00'	0 cf	**64.19'W x 44.10'L x 4.50'H Field C** 12,739 cf Overall - 12,739 cf Embedded = 0 cf x 40.0% Voids
#6B	237.00'	10,016 cf	**StormTrap SingleTrap 4-0** x 12 Inside #5 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 12 Chambers in 6 Rows 50.88' x 30.79' Core + 6.66' Border = 64.19' x 44.10' System
		25,984 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	239.50'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	237.50'	**24.0" Round Culvert** L= 220.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 237.50' / 234.00' S= 0.0159 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.15 cfs @ 18.66 hrs HW=239.54' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 0.15 cfs of 13.63 cfs potential flow)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.15 cfs @ 0.68 fps)

Pond IS4: - Chamber Wizard Field A

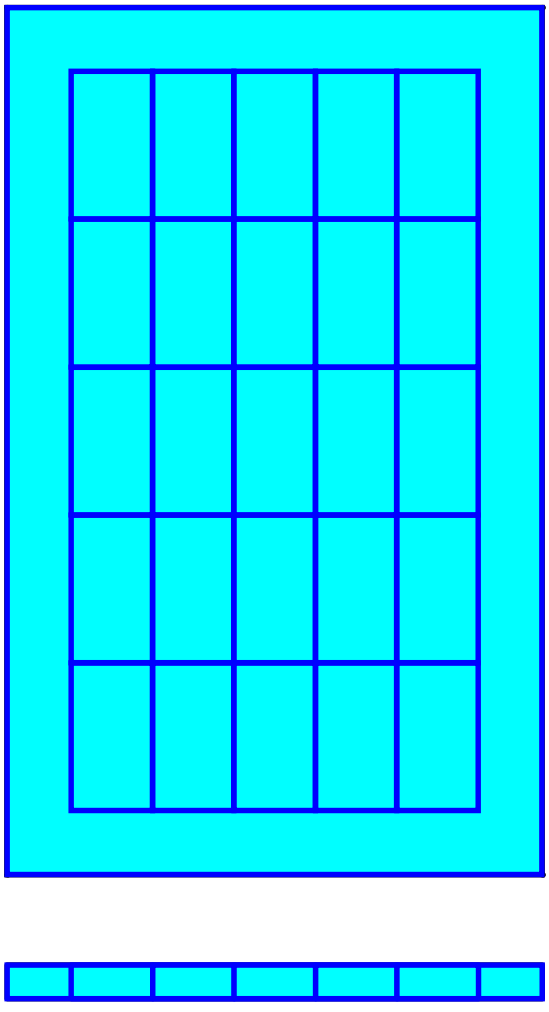
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

5 Chambers/Row x 15.40' Long = 76.98' Row Length +79.9" Border x 2 = 90.29' Base Length
5 Rows x 101.7" Wide + 79.9" Side Border x 2 = 55.71' Base Width
42.0" Chamber Height = 3.50' Field Height

25 Chambers x 354.0 cf + 4,590.6 cf Border = 13,440.4 cf Chamber Storage
25 Chambers x 456.9 cf + 6,182.4 cf Border = 17,605.0 cf Displacement

Chamber Storage = 13,440.4 cf = 0.309 af
Overall Storage Efficiency = 76.3%
Overall System Size = 90.29' x 55.71' x 3.50'

25 Chambers (plus border)
652.0 cy Field



Pond IS4: - Chamber Wizard Field B

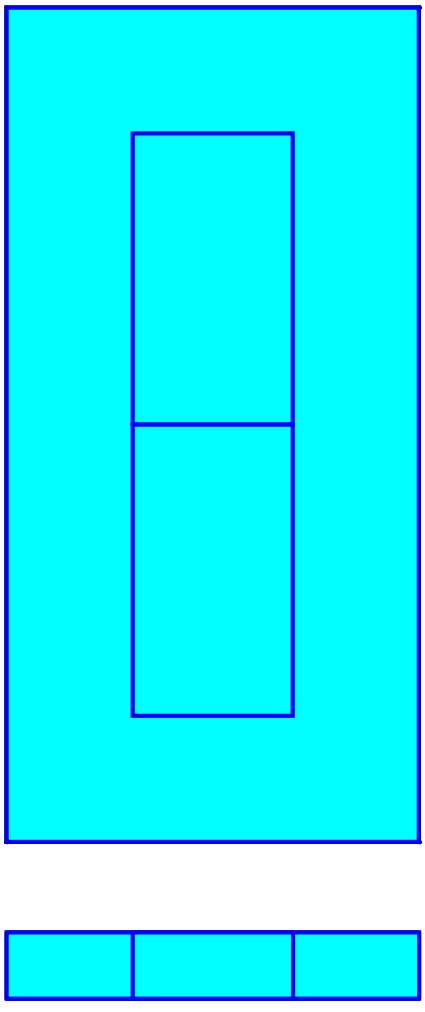
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
1 Rows x 101.7" Wide + 79.9" Side Border x 2 = 21.79' Base Width
42.0" Chamber Height = 3.50' Field Height

2 Chambers x 354.0 cf + 1,819.2 cf Border = 2,527.2 cf Chamber Storage
2 Chambers x 456.9 cf + 2,450.1 cf Border = 3,363.9 cf Displacement

Chamber Storage = 2,527.2 cf = 0.058 af
Overall Storage Efficiency = 75.1%
Overall System Size = 44.10' x 21.79' x 3.50'

2 Chambers (plus border)
124.6 cy Field



Pond IS4: - Chamber Wizard Field C

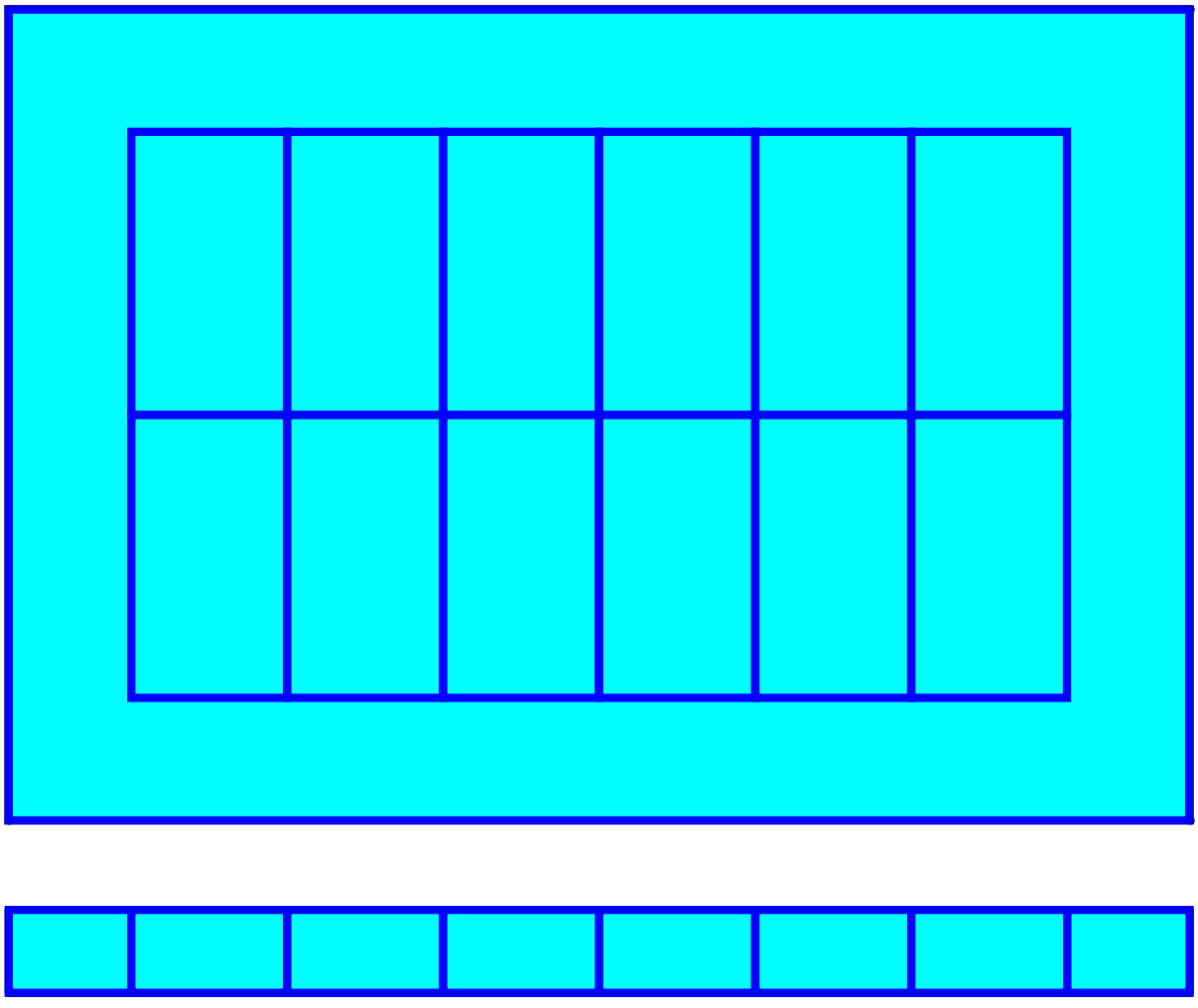
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
6 Rows x 101.7" Wide + 79.9" Side Border x 2 = 64.19' Base Width
54.0" Chamber Height = 4.50' Field Height

12 Chambers x 470.3 cf + 4,372.7 cf Border = 10,016.0 cf Chamber Storage
12 Chambers x 587.4 cf + 5,689.8 cf Border = 12,739.2 cf Displacement

Chamber Storage = 10,016.0 cf = 0.230 af
Overall Storage Efficiency = 78.6%
Overall System Size = 44.10' x 64.19' x 4.50'

12 Chambers (plus border)
471.8 cy Field



Summary for Pond IS7:

Inflow Area = 1.264 ac, 89.98% Impervious, Inflow Depth = 3.43" for 2-Year event
Inflow = 4.53 cfs @ 12.08 hrs, Volume= 0.361 af
Outflow = 2.94 cfs @ 12.17 hrs, Volume= 0.239 af, Atten= 35%, Lag= 5.4 min
Primary = 2.94 cfs @ 12.17 hrs, Volume= 0.239 af
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 252.27' @ 12.17 hrs Surf.Area= 4,083 sf Storage= 6,773 cf

Plug-Flow detention time= 200.5 min calculated for 0.239 af (66% of inflow)
Center-of-Mass det. time= 100.2 min (857.5 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	250.00'	1,738 cf	**47.25'W x 37.50'L x 4.00'H Field A** 7,088 cf Overall - 2,742 cf Embedded = 4,346 cf x 40.0% Voids
#2A	250.50'	2,742 cf	**Cultec R-360HD** x 72 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 72 Chambers in 8 Rows Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf
#3B	249.75'	3,372 cf	**59.25'W x 39.00'L x 5.75'H Field B** 13,287 cf Overall - 4,856 cf Embedded = 8,431 cf x 40.0% Voids
#4B	250.50'	4,856 cf	**Cultec R-902HD v2** x 72 Inside #3 Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 72 Chambers in 8 Rows Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf
		12,708 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	251.80'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	251.00'	**12.0" Round Culvert** L= 210.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 251.00' / 247.80' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.94 cfs @ 12.17 hrs HW=252.27' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 2.94 cfs @ 3.74 fps)
└**1=Sharp-Crested Rectangular Weir** (Passes 2.94 cfs of 4.18 cfs potential flow)

Pond IS7: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

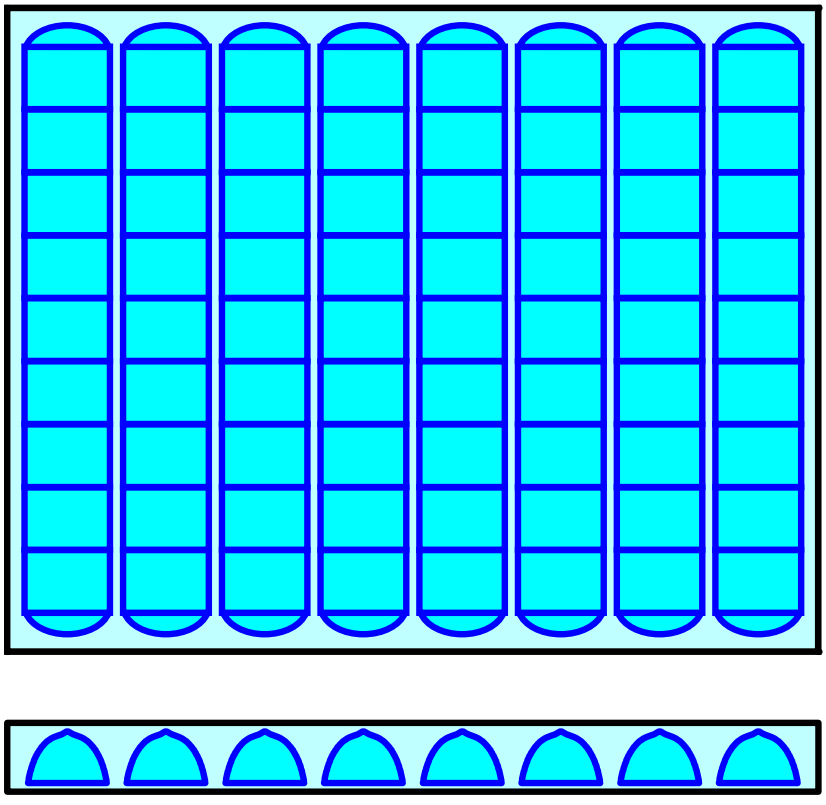
9 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 35.50' Row Length +12.0" End Stone x 2 = 37.50' Base Length
8 Rows x 60.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 47.25' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

72 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 8 Rows = 2,741.8 cf Chamber Storage

7,087.5 cf Field - 2,741.8 cf Chambers = 4,345.7 cf Stone x 40.0% Voids = 1,738.3 cf Stone Storage

Chamber Storage + Stone Storage = 4,480.1 cf = 0.103 af
Overall Storage Efficiency = 63.2%
Overall System Size = 37.50' x 47.25' x 4.00'

72 Chambers
262.5 cy Field
161.0 cy Stone



Pond IS7: - Chamber Wizard Field B

Chamber Model = Cultec R-902HD v2 (Cultec Recharger® 902HD v2)
Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

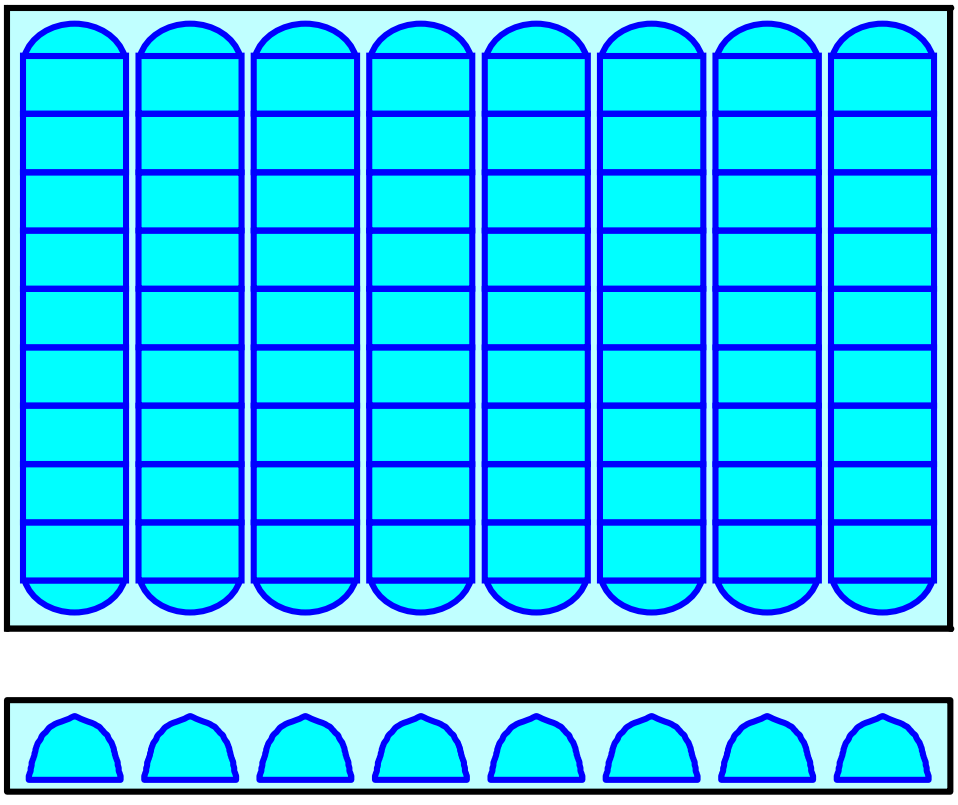
9 Chambers/Row x 3.67' Long +2.00' Cap Length x 2 = 37.00' Row Length +12.0" End Stone x 2 = 39.00' Base Length
8 Rows x 78.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 59.25' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

72 Chambers x 63.4 cf + 18.0 cf Cap Volume x 2 x 8 Rows = 4,856.2 cf Chamber Storage

13,286.8 cf Field - 4,856.2 cf Chambers = 8,430.6 cf Stone x 40.0% Voids = 3,372.3 cf Stone Storage

Chamber Storage + Stone Storage = 8,228.4 cf = 0.189 af
Overall Storage Efficiency = 61.9%
Overall System Size = 39.00' x 59.25' x 5.75'

72 Chambers
492.1 cy Field
312.2 cy Stone



Summary for Pond IS8:

Inflow Area = 0.809 ac, 89.10% Impervious, Inflow Depth = 3.41" for 2-Year event
Inflow = 2.89 cfs @ 12.08 hrs, Volume= 0.230 af
Outflow = 0.24 cfs @ 13.03 hrs, Volume= 0.113 af, Atten= 92%, Lag= 56.7 min
Primary = 0.24 cfs @ 13.03 hrs, Volume= 0.113 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 254.49' @ 13.03 hrs Surf.Area= 3,289 sf Storage= 6,618 cf

Plug-Flow detention time= 379.7 min calculated for 0.113 af (49% of inflow)
Center-of-Mass det. time= 251.5 min (1,009.2 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	252.00'	16,620 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.00	2,060	0	0
253.00	2,530	2,295	2,295
254.00	3,030	2,780	5,075
255.00	3,560	3,295	8,370
256.00	4,120	3,840	12,210
257.00	4,700	4,410	16,620

Device	Routing	Invert	Outlet Devices
#1	Device 3	256.30'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Device 3	254.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	252.40'	**18.0" Round Culvert** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 252.40' / 252.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.24 cfs @ 13.03 hrs HW=254.49' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert** (Passes 0.24 cfs of 8.69 cfs potential flow)
  ├─**1=Grate** (Controls 0.00 cfs)
  └─**2=Orifice/Grate** (Orifice Controls 0.24 cfs @ 2.73 fps)

Summary for Link DP1:

Inflow Area = 1.500 ac, 79.32% Impervious, Inflow Depth = 2.27" for 2-Year event
Inflow = 3.41 cfs @ 12.13 hrs, Volume= 0.283 af
Primary = 3.41 cfs @ 12.13 hrs, Volume= 0.283 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.514 ac, 69.03% Impervious, Inflow Depth > 1.82" for 2-Year event
Inflow = 3.31 cfs @ 12.11 hrs, Volume= 0.532 af
Primary = 3.31 cfs @ 12.11 hrs, Volume= 0.532 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 0.985 ac, 39.37% Impervious, Inflow Depth = 1.80" for 2-Year event
Inflow = 2.15 cfs @ 12.11 hrs, Volume= 0.148 af
Primary = 2.15 cfs @ 12.11 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 4.961 ac, 73.97% Impervious, Inflow Depth > 1.49" for 2-Year event
Inflow = 2.80 cfs @ 12.11 hrs, Volume= 0.616 af
Primary = 2.80 cfs @ 12.11 hrs, Volume= 0.616 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 1.202 ac, 60.17% Impervious, Inflow Depth > 1.71" for 2-Year event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.171 af
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1.1: Runoff Area=10,270 sf 22.20% Impervious Runoff Depth=4.20"
Tc=6.0 min CN=WQ Runoff=1.11 cfs 0.082 af

Subcatchment P1.2: Runoff Area=37,050 sf 86.83% Impervious Runoff Depth=5.55"
Tc=6.0 min CN=WQ Runoff=4.87 cfs 0.393 af

Subcatchment P1.3: Runoff Area=18,020 sf 96.45% Impervious Runoff Depth=5.75"
Tc=6.0 min CN=WQ Runoff=2.43 cfs 0.198 af

Subcatchment P2.1: Runoff Area=28,080 sf 2.31% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=WQ Runoff=2.38 cfs 0.171 af

Subcatchment P2.2: Runoff Area=32,350 sf 68.87% Impervious Runoff Depth=5.17"
Tc=6.0 min CN=WQ Runoff=4.05 cfs 0.320 af

Subcatchment P2.3: Runoff Area=92,640 sf 89.30% Impervious Runoff Depth=5.60"
Tc=6.0 min CN=WQ Runoff=12.27 cfs 0.992 af

Subcatchment P3.1: Runoff Area=20,480 sf 0.00% Impervious Runoff Depth=3.04"
Flow Length=180' Tc=12.4 min CN=WQ Runoff=1.35 cfs 0.119 af

Subcatchment P3.2: Runoff Area=22,420 sf 75.33% Impervious Runoff Depth=5.31"
Tc=6.0 min CN=WQ Runoff=2.86 cfs 0.228 af

Subcatchment P4.1: Runoff Area=37,470 sf 0.00% Impervious Runoff Depth=3.16"
Tc=6.0 min CN=WQ Runoff=3.17 cfs 0.226 af

Subcatchment P4.2: Runoff Area=50,120 sf 90.38% Impervious Runoff Depth=5.62"
Tc=6.0 min CN=WQ Runoff=6.66 cfs 0.539 af

Subcatchment P4.3: Runoff Area=60,510 sf 95.32% Impervious Runoff Depth=5.72"
Tc=6.0 min CN=WQ Runoff=8.15 cfs 0.663 af

Subcatchment P4.4: Runoff Area=67,980 sf 83.63% Impervious Runoff Depth=5.48"
Tc=6.0 min CN=WQ Runoff=8.87 cfs 0.713 af

Subcatchment P5.1: Runoff Area=17,110 sf 0.58% Impervious Runoff Depth=3.65"
Tc=6.0 min CN=WQ Runoff=1.68 cfs 0.120 af

Subcatchment P5.2: Runoff Area=35,240 sf 89.10% Impervious Runoff Depth=5.59"
Tc=6.0 min CN=WQ Runoff=4.67 cfs 0.377 af

Pond DS5: Peak Elev=239.90' Storage=11,332 cf Inflow=6.66 cfs 0.539 af
Outflow=1.03 cfs 0.333 af

Pond DS6: Peak Elev=241.11' Storage=9,510 cf Inflow=8.87 cfs 0.713 af
Outflow=2.46 cfs 0.712 af

Pond IS1: Peak Elev=232.98' Storage=2,600 cf Inflow=4.05 cfs 0.320 af
Outflow=3.87 cfs 0.272 af

Pond IS2: Peak Elev=236.56' Storage=22,563 cf Inflow=12.27 cfs 0.992 af
Outflow=3.72 cfs 0.699 af

Pond IS3: Peak Elev=229.36' Storage=2,045 cf Inflow=2.86 cfs 0.228 af
Outflow=2.80 cfs 0.186 af

Pond IS4: Peak Elev=239.79' Storage=21,846 cf Inflow=8.35 cfs 0.996 af
Outflow=2.54 cfs 0.547 af

Pond IS7: Peak Elev=252.84' Storage=8,435 cf Inflow=7.31 cfs 0.591 af
Outflow=3.86 cfs 0.470 af

Pond IS8: Peak Elev=255.52' Storage=10,294 cf Inflow=4.67 cfs 0.377 af
Outflow=0.49 cfs 0.260 af

Link DP1: Inflow=4.67 cfs 0.552 af
Primary=4.67 cfs 0.552 af

Link DP2: Inflow=9.13 cfs 1.143 af
Primary=9.13 cfs 1.143 af

Link DP3: Inflow=3.95 cfs 0.305 af
Primary=3.95 cfs 0.305 af

Link DP4: Inflow=5.84 cfs 1.485 af
Primary=5.84 cfs 1.485 af

Link DP5: Inflow=2.00 cfs 0.379 af
Primary=2.00 cfs 0.379 af

Total Runoff Area = 12.161 ac Runoff Volume = 5.141 af Average Runoff Depth = 5.07"
30.96% Pervious = 3.766 ac 69.04% Impervious = 8.396 ac

Summary for Subcatchment P1.1:

Runoff = 1.11 cfs @ 12.09 hrs, Volume= 0.082 af, Depth= 4.20"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
7,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
2,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
10,270		Weighted Average
7,990		77.80% Pervious Area
2,280		22.20% Impervious Area

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

Summary for Subcatchment P1.2:

Runoff = 4.87 cfs @ 12.08 hrs, Volume= 0.393 af, Depth= 5.55"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,880	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
26,670	98	Paved parking, HSG C
5,500	98	Roofs, HSG C
37,050		Weighted Average
4,880		13.17% Pervious Area
32,170		86.83% Impervious Area

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

Summary for Subcatchment P1.3:

Runoff = 2.43 cfs @ 12.08 hrs, Volume= 0.198 af, Depth= 5.75"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
640	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
6,970	98	Paved parking, HSG C
5,010	98	Roofs, HSG C
5,400	98	Roofs, HSG C
18,020		Weighted Average
640		3.55% Pervious Area
17,380		96.45% Impervious Area

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

Summary for Subcatchment P2.1:

Runoff = 2.38 cfs @ 12.09 hrs, Volume= 0.171 af, Depth= 3.18"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
19,200	70	Woods, Good, HSG C
8,230	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
650	98	Paved parking, HSG C
0	98	Roofs, HSG C
28,080		Weighted Average
27,430		97.69% Pervious Area
650		2.31% Impervious Area

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

Summary for Subcatchment P2.2:

Runoff = 4.05 cfs @ 12.08 hrs, Volume= 0.320 af, Depth= 5.17"
Routed to Pond IS1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
10,070	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
22,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
32,350		Weighted Average
10,070		31.13% Pervious Area
22,280		68.87% Impervious Area

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

Summary for Subcatchment P2.3:

Runoff = 12.27 cfs @ 12.08 hrs, Volume= 0.992 af, Depth= 5.60"
Routed to Pond IS2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
9,910	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
82,730	98	Paved parking, HSG C
0	98	Roofs, HSG C
92,640		Weighted Average
9,910		10.70% Pervious Area
82,730		89.30% Impervious Area

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

Summary for Subcatchment P3.1:

Runoff = 1.35 cfs @ 12.17 hrs, Volume= 0.119 af, Depth= 3.04"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
16,190	70	Woods, Good, HSG C
4,290	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
20,480		Weighted Average
20,480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	50	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.7	130	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.4	180	Total			

Summary for Subcatchment P3.2:

Runoff = 2.86 cfs @ 12.08 hrs, Volume= 0.228 af, Depth= 5.31"
Routed to Pond IS3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
5,530	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,890	98	Paved parking, HSG C
0	98	Roofs, HSG C
22,420		Weighted Average
5,530		24.67% Pervious Area
16,890		75.33% Impervious Area

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

Summary for Subcatchment P4.1:

Runoff = 3.17 cfs @ 12.09 hrs, Volume= 0.226 af, Depth= 3.16"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
24,480	70	Woods, Good, HSG C
12,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
37,470		Weighted Average
37,470		100.00% Pervious Area

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

Summary for Subcatchment P4.2:

Runoff = 6.66 cfs @ 12.08 hrs, Volume= 0.539 af, Depth= 5.62"
Routed to Pond DS5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,820	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,360	98	Paved parking, HSG C
28,940	98	Roofs, HSG C
50,120		Weighted Average
4,820		9.62% Pervious Area
45,300		90.38% Impervious Area

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

Summary for Subcatchment P4.3:

Runoff = 8.15 cfs @ 12.08 hrs, Volume= 0.663 af, Depth= 5.72"
Routed to Pond IS4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
2,830	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
12,080	98	Paved parking, HSG C
45,600	98	Roofs, HSG C
60,510		Weighted Average
2,830		4.68% Pervious Area
57,680		95.32% Impervious Area

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

Summary for Subcatchment P4.4:

Runoff = 8.87 cfs @ 12.08 hrs, Volume= 0.713 af, Depth= 5.48"
Routed to Pond DS6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
11,130	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
56,850	98	Paved parking, HSG C
0	98	Roofs, HSG C
67,980		Weighted Average
11,130		16.37% Pervious Area
56,850		83.63% Impervious Area

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

Summary for Subcatchment P5.1:

Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.120 af, Depth= 3.65"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
1,820	70	Woods, Good, HSG C
15,190	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
100	98	Paved parking, HSG C
0	98	Roofs, HSG C
17,110		Weighted Average
17,010		99.42% Pervious Area
100		0.58% Impervious Area

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

Summary for Subcatchment P5.2:

Runoff = 4.67 cfs @ 12.08 hrs, Volume= 0.377 af, Depth= 5.59"
Routed to Pond IS8 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=6.06"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
3,840	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
31,400	98	Paved parking, HSG C
0	98	Roofs, HSG C
35,240		Weighted Average
3,840		10.90% Pervious Area
31,400		89.10% Impervious Area

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

Summary for Pond DS5:

Inflow Area = 1.151 ac, 90.38% Impervious, Inflow Depth = 5.62" for 10-Year event
Inflow = 6.66 cfs @ 12.08 hrs, Volume= 0.539 af
Outflow = 1.03 cfs @ 12.63 hrs, Volume= 0.333 af, Atten= 85%, Lag= 32.7 min
Primary = 1.03 cfs @ 12.63 hrs, Volume= 0.333 af
Routed to Pond IS4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 239.90' @ 12.57 hrs Surf.Area= 6,713 sf Storage= 11,332 cf

Plug-Flow detention time= 205.5 min calculated for 0.333 af (62% of inflow)
Center-of-Mass det. time= 97.1 min (846.7 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.00'	0 cf	**89.63'W x 74.90'L x 4.50'H Field A** 30,206 cf Overall - 30,206 cf Embedded = 0 cf x 40.0% Voids
#2A	238.00'	23,891 cf	**StormTrap SingleTrap 4-0** x 36 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 36 Chambers in 9 Rows 76.31' x 61.58' Core + 6.66' Border = 89.63' x 74.90' System
		23,891 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	241.40'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 4	239.60'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 4	238.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	238.00'	**15.0" Round Culvert** L= 140.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.00' / 237.00' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.03 cfs @ 12.63 hrs HW=239.89' TW=239.78' (Dynamic Tailwater)
└**4=Culvert** (Passes 1.03 cfs of 1.49 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 1.63 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.64 cfs @ 1.63 fps)

Pond DS5: - Chamber Wizard Field A

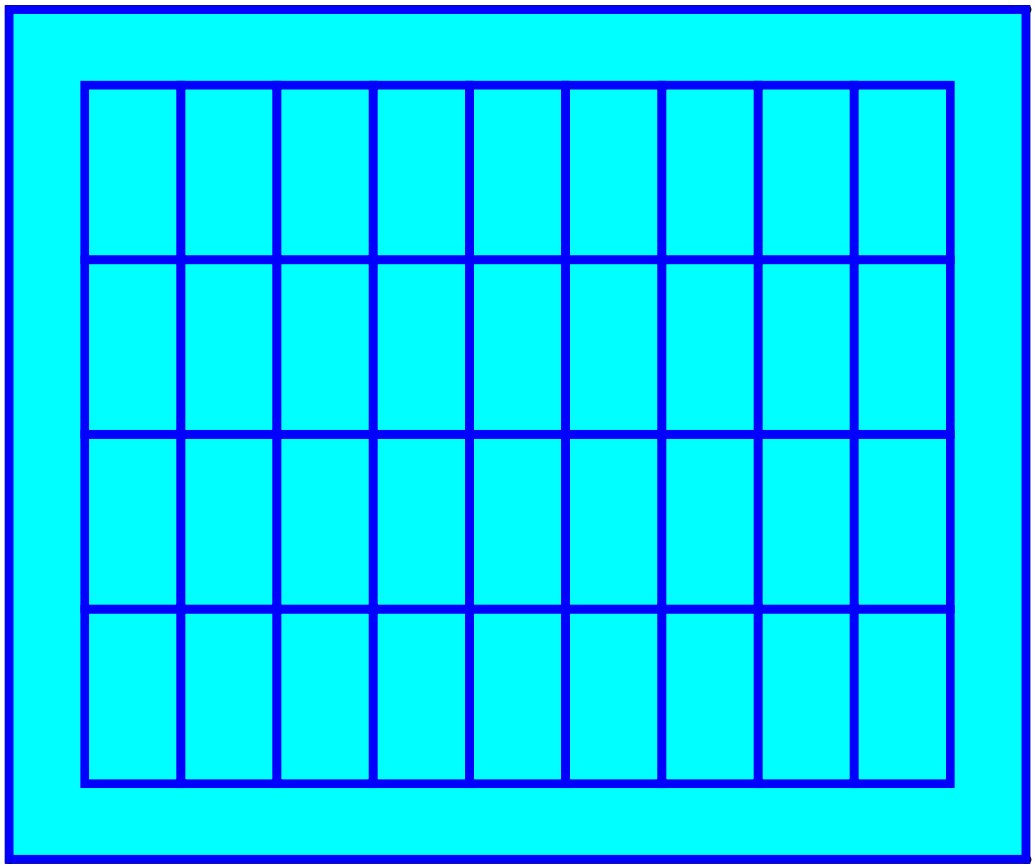
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

4 Chambers/Row x 15.40' Long = 61.58' Row Length +79.9" Border x 2 = 74.90' Base Length
9 Rows x 101.7" Wide + 79.9" Side Border x 2 = 89.63' Base Width
54.0" Chamber Height = 4.50' Field Height

36 Chambers x 470.3 cf + 6,961.4 cf Border = 23,891.2 cf Chamber Storage
36 Chambers x 587.4 cf + 9,058.3 cf Border = 30,206.4 cf Displacement

Chamber Storage = 23,891.2 cf = 0.548 af
Overall Storage Efficiency = 79.1%
Overall System Size = 74.90' x 89.63' x 4.50'

36 Chambers (plus border)
1,118.8 cy Field





Summary for Pond DS6:

Inflow Area = 1.561 ac, 83.63% Impervious, Inflow Depth = 5.48" for 10-Year event
Inflow = 8.87 cfs @ 12.08 hrs, Volume= 0.713 af
Outflow = 2.46 cfs @ 12.43 hrs, Volume= 0.712 af, Atten= 72%, Lag= 20.5 min
Primary = 2.46 cfs @ 12.43 hrs, Volume= 0.712 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 241.11' @ 12.43 hrs Surf.Area= 4,095 sf Storage= 9,510 cf

Plug-Flow detention time= 65.2 min calculated for 0.712 af (100% of inflow)
Center-of-Mass det. time= 64.8 min (817.7 - 752.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.50'	0 cf	**38.75'W x 105.69'L x 5.50'H Field A** 22,525 cf Overall - 22,525 cf Embedded = 0 cf x 40.0% Voids
#2A	238.50'	18,191 cf	**StormTrap SingleTrap 5-0** x 18 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 18 Chambers in 3 Rows 25.44' x 92.38' Core + 6.66' Border = 38.75' x 105.69' System
		18,191 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 5	243.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 5	242.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 5	239.10'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 5	238.50'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Primary	238.50'	**18.0" Round Culvert** L= 240.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.50' / 233.50' S= 0.0208 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.46 cfs @ 12.43 hrs HW=241.11' TW=0.00' (Dynamic Tailwater)
└─**5=Culvert** (Passes 2.46 cfs of 10.25 cfs potential flow)
  ├─**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  ├─**3=Orifice/Grate** (Orifice Controls 1.14 cfs @ 6.54 fps)
  └─**4=Orifice/Grate** (Orifice Controls 1.31 cfs @ 7.53 fps)

Pond DS6: - Chamber Wizard Field A

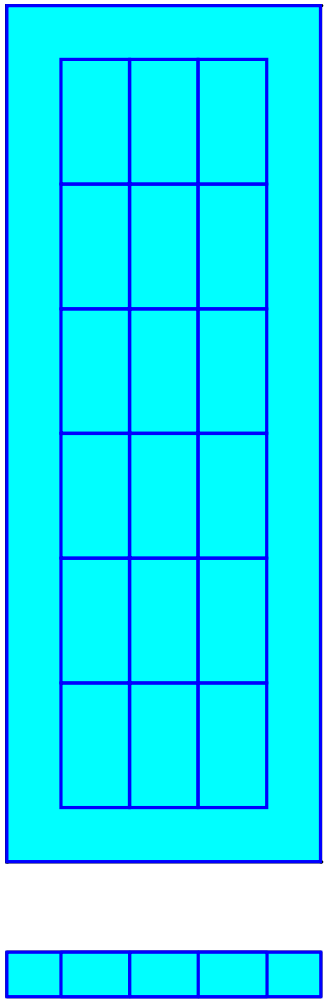
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

6 Chambers/Row x 15.40' Long = 92.38' Row Length +79.9" Border x 2 = 105.69' Base Length
3 Rows x 101.7" Wide + 79.9" Side Border x 2 = 38.75' Base Width
66.0" Chamber Height = 5.50' Field Height

18 Chambers x 590.2 cf + 7,568.2 cf Border = 18,191.5 cf Chamber Storage
18 Chambers x 718.0 cf + 9,600.8 cf Border = 22,524.6 cf Displacement

Chamber Storage = 18,191.5 cf = 0.418 af
Overall Storage Efficiency = 80.8%
Overall System Size = 105.69' x 38.75' x 5.50'

18 Chambers (plus border)
834.2 cy Field



Summary for Pond IS1:

Inflow Area = 0.743 ac, 68.87% Impervious, Inflow Depth = 5.17" for 10-Year event
Inflow = 4.05 cfs @ 12.08 hrs, Volume= 0.320 af
Outflow = 3.87 cfs @ 12.11 hrs, Volume= 0.272 af, Atten= 4%, Lag= 1.5 min
Primary = 3.87 cfs @ 12.11 hrs, Volume= 0.272 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 232.98' @ 12.11 hrs Surf.Area= 1,937 sf Storage= 2,600 cf

Plug-Flow detention time= 122.1 min calculated for 0.272 af (85% of inflow)
Center-of-Mass det. time= 56.6 min (817.6 - 761.0)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	4,940 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	710	0	0
232.00	1,310	1,010	1,010
233.00	1,950	1,630	2,640
234.00	2,650	2,300	4,940

Device	Routing	Invert	Outlet Devices
#1	Device 2	232.70'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Primary	229.20'	**18.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 229.20' / 229.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.87 cfs @ 12.11 hrs HW=232.98' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 3.87 cfs of 13.07 cfs potential flow)
└**1=Grate** (Weir Controls 3.87 cfs @ 1.73 fps)

Summary for Pond IS2:

Inflow Area = 2.127 ac, 89.30% Impervious, Inflow Depth = 5.60" for 10-Year event
Inflow = 12.27 cfs @ 12.08 hrs, Volume= 0.992 af
Outflow = 3.72 cfs @ 12.40 hrs, Volume= 0.699 af, Atten= 70%, Lag= 18.7 min
Primary = 3.72 cfs @ 12.40 hrs, Volume= 0.699 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 236.56' @ 12.40 hrs Surf.Area= 7,134 sf Storage= 22,563 cf

Plug-Flow detention time= 232.9 min calculated for 0.699 af (70% of inflow)
Center-of-Mass det. time= 138.1 min (888.2 - 750.1)

Volume	Invert	Avail.Storage	Storage Description
#1B	233.00'	0 cf	**47.23'W x 59.50'L x 5.50'H Field A** 15,456 cf Overall - 15,456 cf Embedded = 0 cf x 40.0% Voids
#2B	233.00'	12,474 cf	**StormTrap SingleTrap 5-0** x 12 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 12 Chambers in 4 Rows 33.92' x 46.19' Core + 6.66' Border = 47.23' x 59.50' System
#3C	233.00'	0 cf	**72.67'W x 59.50'L x 5.50'H Field B** 23,780 cf Overall - 23,780 cf Embedded = 0 cf x 40.0% Voids
#4C	233.00'	19,254 cf	**StormTrap SingleTrap 5-0** x 21 Inside #3 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 21 Chambers in 7 Rows 59.35' x 46.19' Core + 6.66' Border = 72.67' x 59.50' System
		31,728 cf	Total Available Storage

Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	237.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 3	235.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	233.00'	**24.0" Round Culvert** L= 250.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 233.00' / 231.00' S= 0.0080 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.72 cfs @ 12.40 hrs HW=236.56' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Passes 3.72 cfs of 21.34 cfs potential flow)
  └**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**2=Orifice/Grate** (Orifice Controls 3.72 cfs @ 5.32 fps)

Pond IS2: - Chamber Wizard Field A

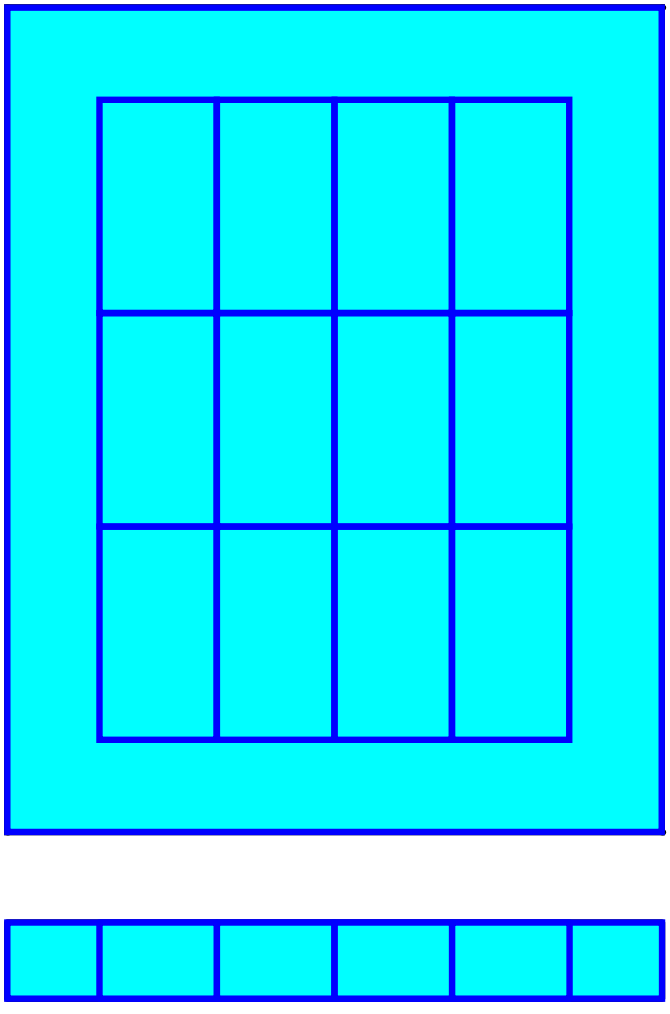
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width
66.0" Chamber Height = 5.50' Field Height

12 Chambers x 590.2 cf + 5,391.8 cf Border = 12,474.0 cf Chamber Storage
12 Chambers x 718.0 cf + 6,839.9 cf Border = 15,455.7 cf Displacement

Chamber Storage = 12,474.0 cf = 0.286 af
Overall Storage Efficiency = 80.7%
Overall System Size = 59.50' x 47.23' x 5.50'

12 Chambers (plus border)
572.4 cy Field



Pond IS2: - Chamber Wizard Field B

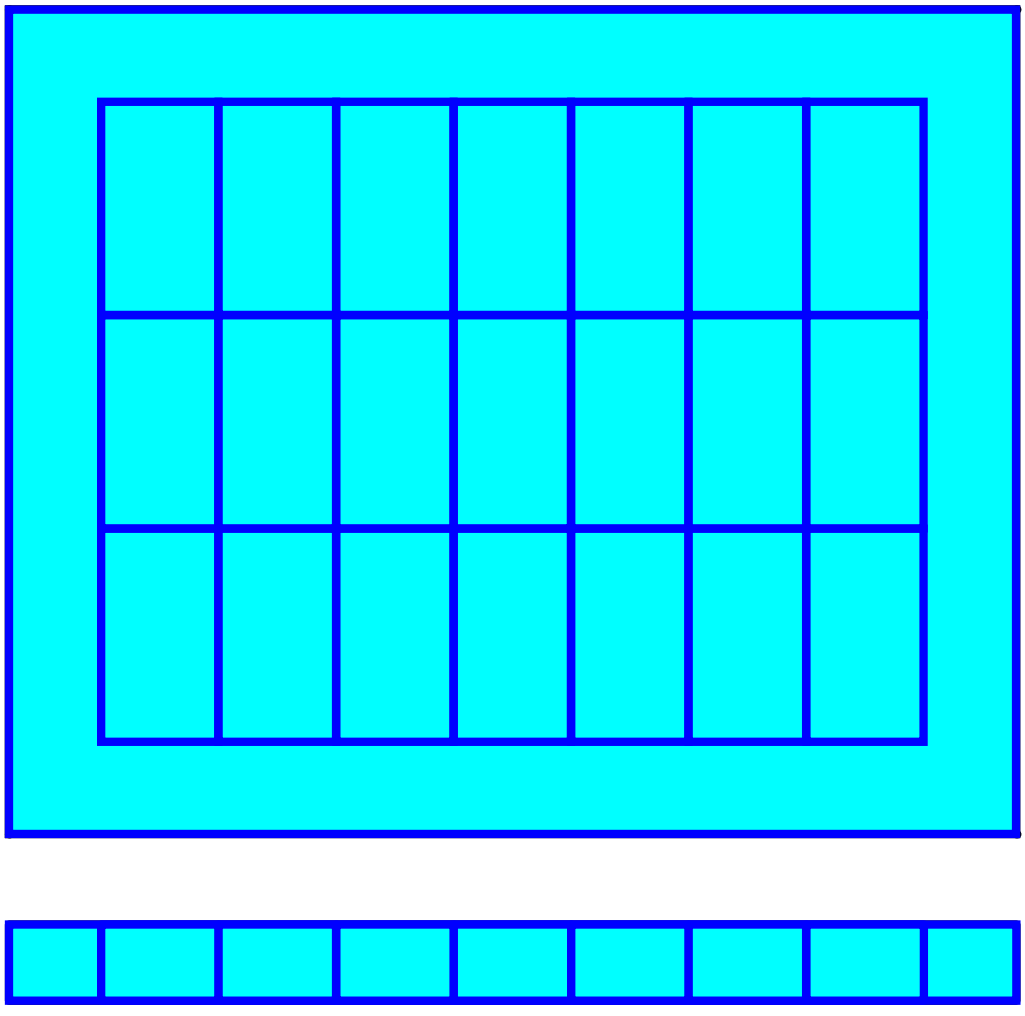
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
7 Rows x 101.7" Wide + 79.9" Side Border x 2 = 72.67' Base Width
66.0" Chamber Height = 5.50' Field Height

21 Chambers x 590.2 cf + 6,860.0 cf Border = 19,253.8 cf Chamber Storage
21 Chambers x 718.0 cf + 8,702.4 cf Border = 23,780.2 cf Displacement

Chamber Storage = 19,253.8 cf = 0.442 af
Overall Storage Efficiency = 81.0%
Overall System Size = 59.50' x 72.67' x 5.50'

21 Chambers (plus border)
880.7 cy Field



Summary for Pond IS3:

Inflow Area = 0.515 ac, 75.33% Impervious, Inflow Depth = 5.31" for 10-Year event
Inflow = 2.86 cfs @ 12.08 hrs, Volume= 0.228 af
Outflow = 2.80 cfs @ 12.10 hrs, Volume= 0.186 af, Atten= 2%, Lag= 1.0 min
Primary = 2.80 cfs @ 12.10 hrs, Volume= 0.186 af
Routed to Link DP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 229.36' @ 12.10 hrs Surf.Area= 1,033 sf Storage= 2,045 cf

Plug-Flow detention time= 136.6 min calculated for 0.186 af (82% of inflow)
Center-of-Mass det. time= 63.0 min (820.4 - 757.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	1,022 cf	**18.50'W x 55.83'L x 4.00'H Field A** 4,132 cf Overall - 1,578 cf Embedded = 2,554 cf x 40.0% Voids
#2A	227.00'	1,578 cf	**Cultec R-360HD** x 42 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 42 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		2,599 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	229.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	227.00'	**15.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 227.00' / 225.50' S= 0.0375 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.80 cfs @ 12.10 hrs HW=229.36' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 2.80 cfs of 6.87 cfs potential flow)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.80 cfs @ 1.97 fps)

Pond IS3: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

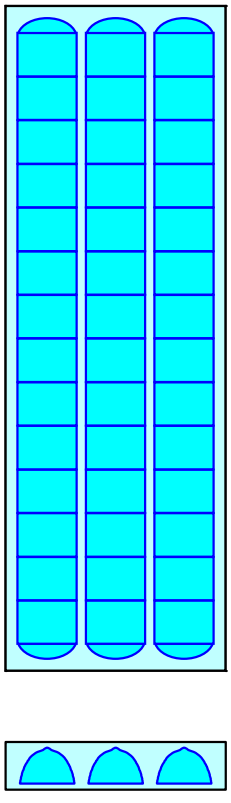
14 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 53.83' Row Length +12.0" End Stone x 2 = 55.83' Base Length
3 Rows x 60.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 18.50' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

42 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 3 Rows = 1,577.8 cf Chamber Storage

4,131.7 cf Field - 1,577.8 cf Chambers = 2,553.8 cf Stone x 40.0% Voids = 1,021.5 cf Stone Storage

Chamber Storage + Stone Storage = 2,599.4 cf = 0.060 af
Overall Storage Efficiency = 62.9%
Overall System Size = 55.83' x 18.50' x 4.00'

42 Chambers
153.0 cy Field
94.6 cy Stone



Summary for Pond IS4:

Inflow Area = 2.540 ac, 93.09% Impervious, Inflow Depth = 4.71" for 10-Year event
Inflow = 8.35 cfs @ 12.08 hrs, Volume= 0.996 af
Outflow = 2.54 cfs @ 12.52 hrs, Volume= 0.547 af, Atten= 70%, Lag= 25.9 min
Primary = 2.54 cfs @ 12.52 hrs, Volume= 0.547 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 239.79' @ 12.52 hrs Surf.Area= 8,822 sf Storage= 21,846 cf

Plug-Flow detention time= 301.5 min calculated for 0.547 af (55% of inflow)
Center-of-Mass det. time= 159.1 min (939.5 - 780.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	237.00'	0 cf	**55.71'W x 90.29'L x 3.50'H Field A** 17,605 cf Overall - 17,605 cf Embedded = 0 cf x 40.0% Voids
#2A	237.00'	13,440 cf	**StormTrap SingleTrap 3-0** x 25 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 25 Chambers in 5 Rows 42.40' x 76.98' Core + 6.66' Border = 55.71' x 90.29' System
#3C	237.00'	0 cf	**21.79'W x 44.10'L x 3.50'H Field B** 3,364 cf Overall - 3,364 cf Embedded = 0 cf x 40.0% Voids
#4C	237.00'	2,527 cf	**StormTrap SingleTrap 3-0** x 2 Inside #3 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 8.48' x 30.79' Core + 6.66' Border = 21.79' x 44.10' System
#5B	237.00'	0 cf	**64.19'W x 44.10'L x 4.50'H Field C** 12,739 cf Overall - 12,739 cf Embedded = 0 cf x 40.0% Voids
#6B	237.00'	10,016 cf	**StormTrap SingleTrap 4-0** x 12 Inside #5 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 12 Chambers in 6 Rows 50.88' x 30.79' Core + 6.66' Border = 64.19' x 44.10' System
		25,984 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	239.50'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	237.50'	**24.0" Round Culvert** L= 220.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 237.50' / 234.00' S= 0.0159 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.54 cfs @ 12.52 hrs HW=239.79' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 2.54 cfs of 15.17 cfs potential flow)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.54 cfs @ 1.76 fps)

Pond IS4: - Chamber Wizard Field A

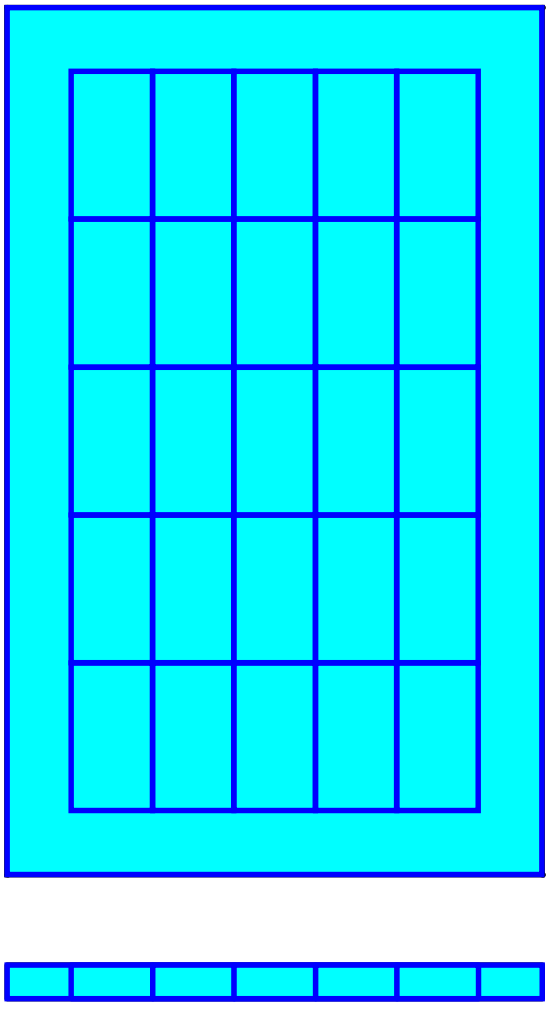
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

5 Chambers/Row x 15.40' Long = 76.98' Row Length +79.9" Border x 2 = 90.29' Base Length
5 Rows x 101.7" Wide + 79.9" Side Border x 2 = 55.71' Base Width
42.0" Chamber Height = 3.50' Field Height

25 Chambers x 354.0 cf + 4,590.6 cf Border = 13,440.4 cf Chamber Storage
25 Chambers x 456.9 cf + 6,182.4 cf Border = 17,605.0 cf Displacement

Chamber Storage = 13,440.4 cf = 0.309 af
Overall Storage Efficiency = 76.3%
Overall System Size = 90.29' x 55.71' x 3.50'

25 Chambers (plus border)
652.0 cy Field



Pond IS4: - Chamber Wizard Field B

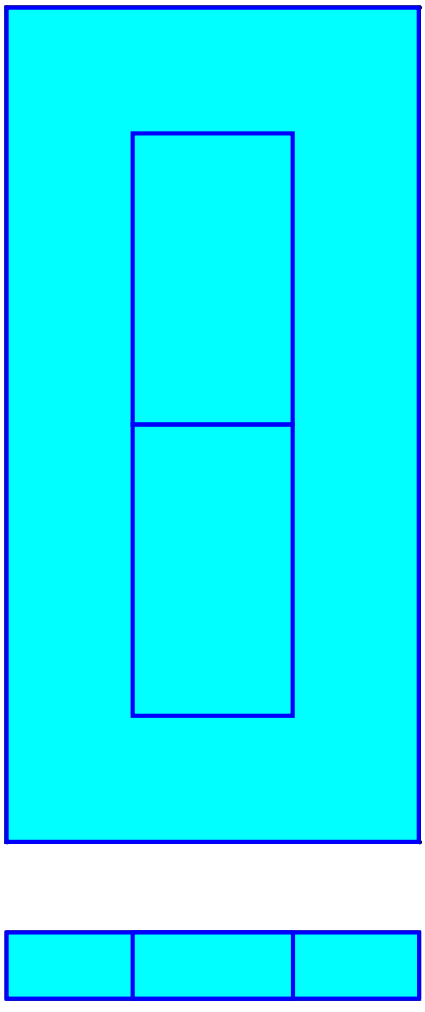
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
1 Rows x 101.7" Wide + 79.9" Side Border x 2 = 21.79' Base Width
42.0" Chamber Height = 3.50' Field Height

2 Chambers x 354.0 cf + 1,819.2 cf Border = 2,527.2 cf Chamber Storage
2 Chambers x 456.9 cf + 2,450.1 cf Border = 3,363.9 cf Displacement

Chamber Storage = 2,527.2 cf = 0.058 af
Overall Storage Efficiency = 75.1%
Overall System Size = 44.10' x 21.79' x 3.50'

2 Chambers (plus border)
124.6 cy Field



Pond IS4: - Chamber Wizard Field C

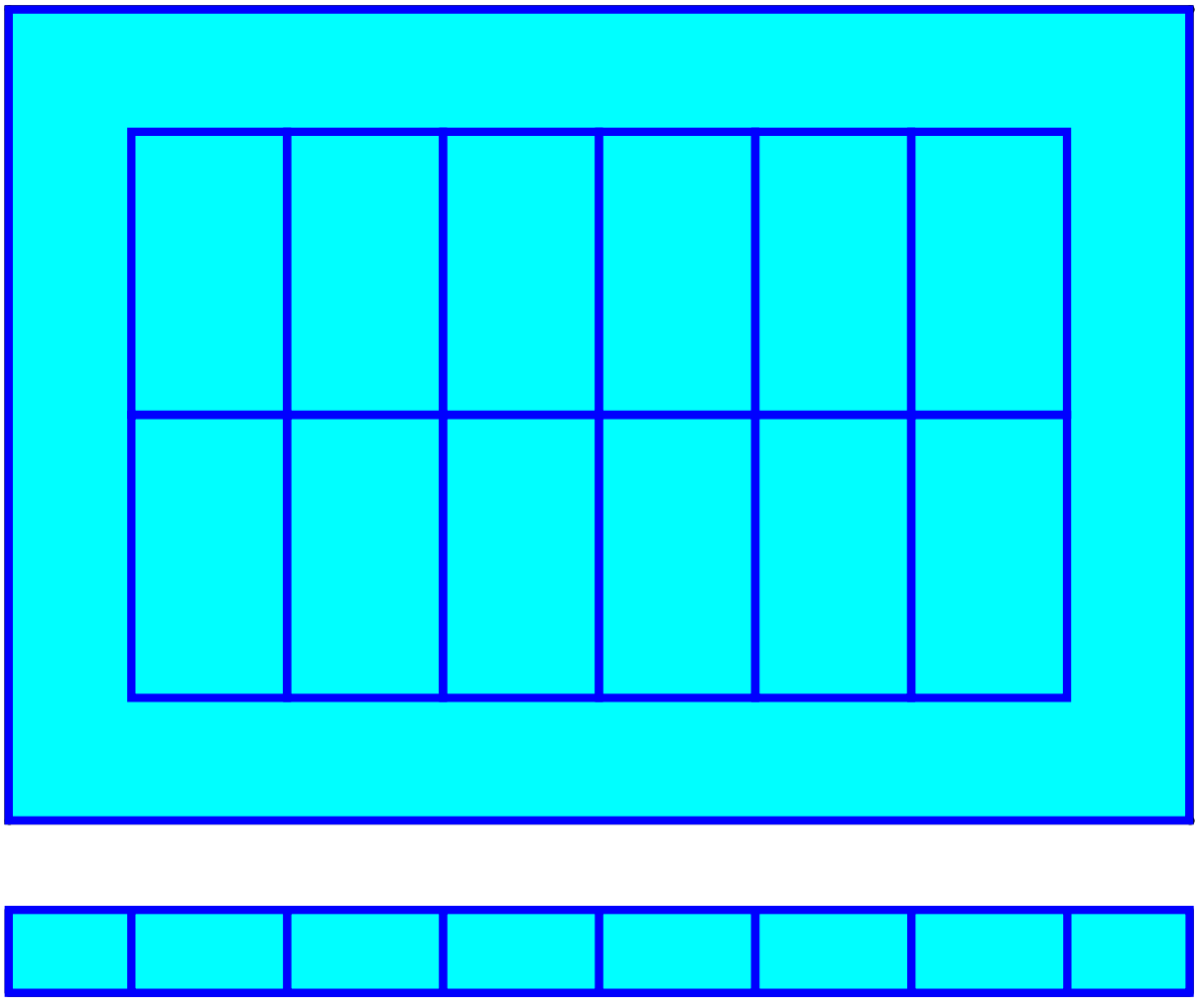
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
6 Rows x 101.7" Wide + 79.9" Side Border x 2 = 64.19' Base Width
54.0" Chamber Height = 4.50' Field Height

12 Chambers x 470.3 cf + 4,372.7 cf Border = 10,016.0 cf Chamber Storage
12 Chambers x 587.4 cf + 5,689.8 cf Border = 12,739.2 cf Displacement

Chamber Storage = 10,016.0 cf = 0.230 af
Overall Storage Efficiency = 78.6%
Overall System Size = 44.10' x 64.19' x 4.50'

12 Chambers (plus border)
471.8 cy Field



Summary for Pond IS7:

Inflow Area = 1.264 ac, 89.98% Impervious, Inflow Depth = 5.61" for 10-Year event
Inflow = 7.31 cfs @ 12.08 hrs, Volume= 0.591 af
Outflow = 3.86 cfs @ 12.21 hrs, Volume= 0.470 af, Atten= 47%, Lag= 7.7 min
Primary = 3.86 cfs @ 12.21 hrs, Volume= 0.470 af
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 252.84' @ 12.21 hrs Surf.Area= 4,083 sf Storage= 8,435 cf

Plug-Flow detention time= 158.8 min calculated for 0.470 af (79% of inflow)
Center-of-Mass det. time= 79.8 min (829.5 - 749.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	250.00'	1,738 cf	**47.25'W x 37.50'L x 4.00'H Field A** 7,088 cf Overall - 2,742 cf Embedded = 4,346 cf x 40.0% Voids
#2A	250.50'	2,742 cf	**Cultec R-360HD** x 72 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 72 Chambers in 8 Rows Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf
#3B	249.75'	3,372 cf	**59.25'W x 39.00'L x 5.75'H Field B** 13,287 cf Overall - 4,856 cf Embedded = 8,431 cf x 40.0% Voids
#4B	250.50'	4,856 cf	**Cultec R-902HD v2** x 72 Inside #3 Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 72 Chambers in 8 Rows Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf
		12,708 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	251.80'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	251.00'	**12.0" Round Culvert** L= 210.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 251.00' / 247.80' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.86 cfs @ 12.21 hrs HW=252.84' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Inlet Controls 3.86 cfs @ 4.92 fps)
↑**1=Sharp-Crested Rectangular Weir** (Passes 3.86 cfs of 13.15 cfs potential flow)

Pond IS7: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

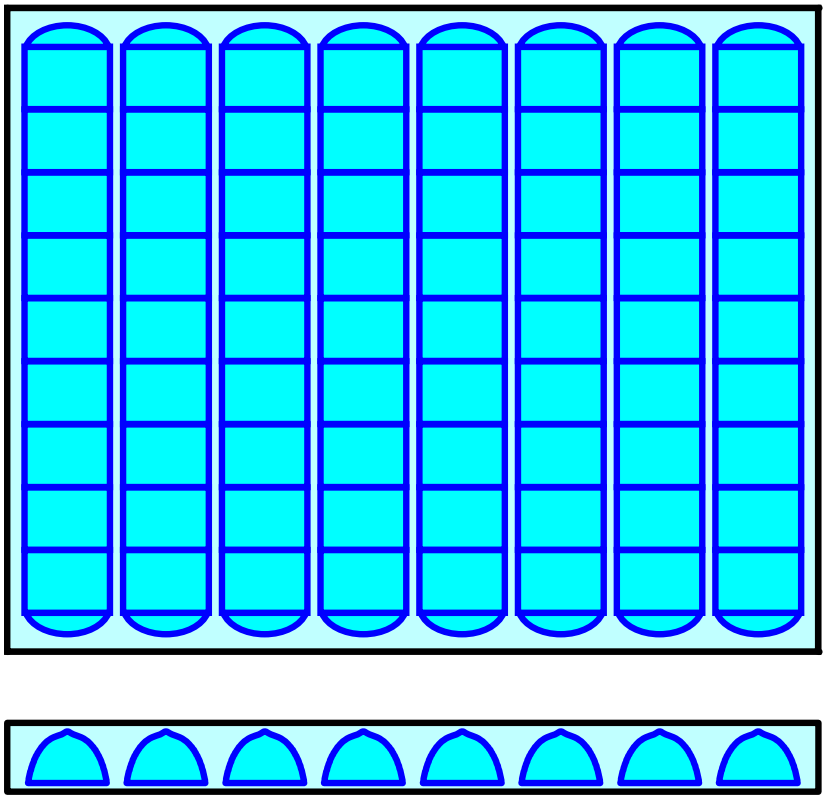
9 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 35.50' Row Length +12.0" End Stone x 2 = 37.50' Base Length
8 Rows x 60.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 47.25' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

72 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 8 Rows = 2,741.8 cf Chamber Storage

7,087.5 cf Field - 2,741.8 cf Chambers = 4,345.7 cf Stone x 40.0% Voids = 1,738.3 cf Stone Storage

Chamber Storage + Stone Storage = 4,480.1 cf = 0.103 af
Overall Storage Efficiency = 63.2%
Overall System Size = 37.50' x 47.25' x 4.00'

72 Chambers
262.5 cy Field
161.0 cy Stone



Pond IS7: - Chamber Wizard Field B

Chamber Model = Cultec R-902HD v2 (Cultec Recharger® 902HD v2)
Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

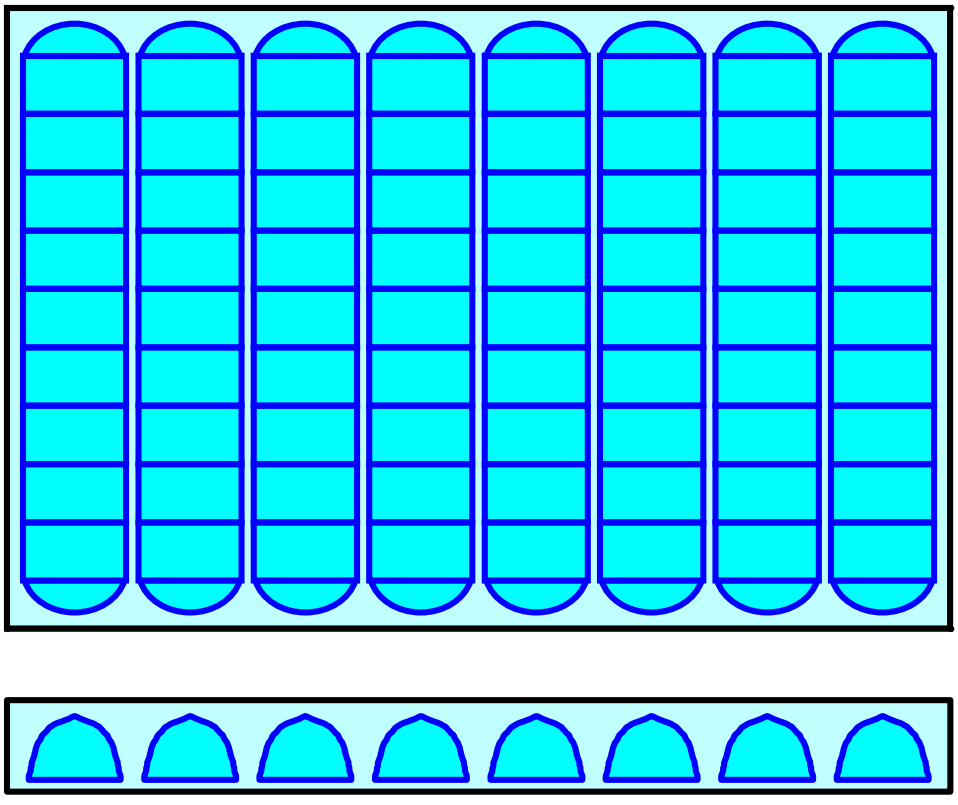
9 Chambers/Row x 3.67' Long +2.00' Cap Length x 2 = 37.00' Row Length +12.0" End Stone x 2 = 39.00' Base Length
8 Rows x 78.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 59.25' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

72 Chambers x 63.4 cf + 18.0 cf Cap Volume x 2 x 8 Rows = 4,856.2 cf Chamber Storage

13,286.8 cf Field - 4,856.2 cf Chambers = 8,430.6 cf Stone x 40.0% Voids = 3,372.3 cf Stone Storage

Chamber Storage + Stone Storage = 8,228.4 cf = 0.189 af
Overall Storage Efficiency = 61.9%
Overall System Size = 39.00' x 59.25' x 5.75'

72 Chambers
492.1 cy Field
312.2 cy Stone



Summary for Pond IS8:

Inflow Area = 0.809 ac, 89.10% Impervious, Inflow Depth = 5.59" for 10-Year event
Inflow = 4.67 cfs @ 12.08 hrs, Volume= 0.377 af
Outflow = 0.49 cfs @ 12.79 hrs, Volume= 0.260 af, Atten= 90%, Lag= 42.4 min
Primary = 0.49 cfs @ 12.79 hrs, Volume= 0.260 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 255.52' @ 12.79 hrs Surf.Area= 3,851 sf Storage= 10,294 cf

Plug-Flow detention time= 328.7 min calculated for 0.260 af (69% of inflow)
Center-of-Mass det. time= 230.9 min (981.1 - 750.2)

Volume	Invert	Avail.Storage	Storage Description
#1	252.00'	16,620 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.00	2,060	0	0
253.00	2,530	2,295	2,295
254.00	3,030	2,780	5,075
255.00	3,560	3,295	8,370
256.00	4,120	3,840	12,210
257.00	4,700	4,410	16,620

Device	Routing	Invert	Outlet Devices
#1	Device 3	256.30'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Device 3	254.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	252.40'	**18.0" Round Culvert** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 252.40' / 252.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.49 cfs @ 12.79 hrs HW=255.52' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert** (Passes 0.49 cfs of 11.56 cfs potential flow)
  ├─**1=Grate** (Controls 0.00 cfs)
  └─**2=Orifice/Grate** (Orifice Controls 0.49 cfs @ 5.60 fps)

Summary for Link DP1:

Inflow Area = 1.500 ac, 79.32% Impervious, Inflow Depth = 4.42" for 10-Year event
Inflow = 4.67 cfs @ 12.13 hrs, Volume= 0.552 af
Primary = 4.67 cfs @ 12.13 hrs, Volume= 0.552 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.514 ac, 69.03% Impervious, Inflow Depth = 3.90" for 10-Year event
Inflow = 9.13 cfs @ 12.11 hrs, Volume= 1.143 af
Primary = 9.13 cfs @ 12.11 hrs, Volume= 1.143 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 0.985 ac, 39.37% Impervious, Inflow Depth = 3.72" for 10-Year event
Inflow = 3.95 cfs @ 12.11 hrs, Volume= 0.305 af
Primary = 3.95 cfs @ 12.11 hrs, Volume= 0.305 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 4.961 ac, 73.97% Impervious, Inflow Depth = 3.59" for 10-Year event
Inflow = 5.84 cfs @ 12.44 hrs, Volume= 1.485 af
Primary = 5.84 cfs @ 12.44 hrs, Volume= 1.485 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 1.202 ac, 60.17% Impervious, Inflow Depth > 3.79" for 10-Year event
Inflow = 2.00 cfs @ 12.09 hrs, Volume= 0.379 af
Primary = 2.00 cfs @ 12.09 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1.1: Runoff Area=10,270 sf 22.20% Impervious Runoff Depth=5.83"
Tc=6.0 min CN=WQ Runoff=1.53 cfs 0.115 af

Subcatchment P1.2: Runoff Area=37,050 sf 86.83% Impervious Runoff Depth=7.28"
Tc=6.0 min CN=WQ Runoff=6.35 cfs 0.516 af

Subcatchment P1.3: Runoff Area=18,020 sf 96.45% Impervious Runoff Depth=7.49"
Tc=6.0 min CN=WQ Runoff=3.15 cfs 0.258 af

Subcatchment P2.1: Runoff Area=28,080 sf 2.31% Impervious Runoff Depth=4.68"
Tc=6.0 min CN=WQ Runoff=3.51 cfs 0.251 af

Subcatchment P2.2: Runoff Area=32,350 sf 68.87% Impervious Runoff Depth=6.87"
Tc=6.0 min CN=WQ Runoff=5.35 cfs 0.425 af

Subcatchment P2.3: Runoff Area=92,640 sf 89.30% Impervious Runoff Depth=7.33"
Tc=6.0 min CN=WQ Runoff=15.97 cfs 1.299 af

Subcatchment P3.1: Runoff Area=20,480 sf 0.00% Impervious Runoff Depth=4.52"
Flow Length=180' Tc=12.4 min CN=WQ Runoff=2.02 cfs 0.177 af

Subcatchment P3.2: Runoff Area=22,420 sf 75.33% Impervious Runoff Depth=7.02"
Tc=6.0 min CN=WQ Runoff=3.76 cfs 0.301 af

Subcatchment P4.1: Runoff Area=37,470 sf 0.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=WQ Runoff=4.68 cfs 0.334 af

Subcatchment P4.2: Runoff Area=50,120 sf 90.38% Impervious Runoff Depth=7.35"
Tc=6.0 min CN=WQ Runoff=8.66 cfs 0.705 af

Subcatchment P4.3: Runoff Area=60,510 sf 95.32% Impervious Runoff Depth=7.47"
Tc=6.0 min CN=WQ Runoff=10.55 cfs 0.864 af

Subcatchment P4.4: Runoff Area=67,980 sf 83.63% Impervious Runoff Depth=7.20"
Tc=6.0 min CN=WQ Runoff=11.58 cfs 0.937 af

Subcatchment P5.1: Runoff Area=17,110 sf 0.58% Impervious Runoff Depth=5.23"
Tc=6.0 min CN=WQ Runoff=2.38 cfs 0.171 af

Subcatchment P5.2: Runoff Area=35,240 sf 89.10% Impervious Runoff Depth=7.33"
Tc=6.0 min CN=WQ Runoff=6.07 cfs 0.494 af

Pond DS5: Peak Elev=240.37' Storage=14,180 cf Inflow=8.66 cfs 0.705 af
Outflow=2.35 cfs 0.500 af

Pond DS6: Peak Elev=242.02' Storage=12,805 cf Inflow=11.58 cfs 0.937 af
Outflow=2.94 cfs 0.936 af

Pond IS1: Peak Elev=233.09' Storage=2,816 cf Inflow=5.35 cfs 0.425 af
Outflow=4.69 cfs 0.378 af

Pond IS2: Peak Elev=237.22' Storage=26,806 cf Inflow=15.97 cfs 1.299 af
Outflow=6.00 cfs 1.006 af

Pond IS3: Peak Elev=229.44' Storage=2,093 cf Inflow=3.76 cfs 0.301 af
Outflow=3.70 cfs 0.260 af

Pond IS4: Peak Elev=240.06' Storage=23,627 cf Inflow=11.02 cfs 1.364 af
Outflow=6.68 cfs 0.914 af

Pond IS7: Peak Elev=253.39' Storage=9,887 cf Inflow=9.50 cfs 0.774 af
Outflow=4.59 cfs 0.652 af

Pond IS8: Peak Elev=256.26' Storage=13,295 cf Inflow=6.07 cfs 0.494 af
Outflow=0.61 cfs 0.377 af

Link DP1: Inflow=5.64 cfs 0.767 af
Primary=5.64 cfs 0.767 af

Link DP2: Inflow=12.03 cfs 1.635 af
Primary=12.03 cfs 1.635 af

Link DP3: Inflow=5.42 cfs 0.437 af
Primary=5.42 cfs 0.437 af

Link DP4: Inflow=11.94 cfs 2.185 af
Primary=11.94 cfs 2.185 af

Link DP5: Inflow=2.84 cfs 0.548 af
Primary=2.84 cfs 0.548 af

Total Runoff Area = 12.161 ac Runoff Volume = 6.848 af Average Runoff Depth = 6.76"
30.96% Pervious = 3.766 ac 69.04% Impervious = 8.396 ac

Summary for Subcatchment P1.1:

Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.115 af, Depth= 5.83"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
7,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
2,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
10,270		Weighted Average
7,990		77.80% Pervious Area
2,280		22.20% Impervious Area

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

Summary for Subcatchment P1.2:

Runoff = 6.35 cfs @ 12.08 hrs, Volume= 0.516 af, Depth= 7.28"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,880	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
26,670	98	Paved parking, HSG C
5,500	98	Roofs, HSG C
37,050		Weighted Average
4,880		13.17% Pervious Area
32,170		86.83% Impervious Area

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

Summary for Subcatchment P1.3:

Runoff = 3.15 cfs @ 12.08 hrs, Volume= 0.258 af, Depth= 7.49"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
640	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
6,970	98	Paved parking, HSG C
5,010	98	Roofs, HSG C
5,400	98	Roofs, HSG C
18,020		Weighted Average
640		3.55% Pervious Area
17,380		96.45% Impervious Area

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

Summary for Subcatchment P2.1:

Runoff = 3.51 cfs @ 12.09 hrs, Volume= 0.251 af, Depth= 4.68"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
19,200	70	Woods, Good, HSG C
8,230	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
650	98	Paved parking, HSG C
0	98	Roofs, HSG C
28,080		Weighted Average
27,430		97.69% Pervious Area
650		2.31% Impervious Area

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

Summary for Subcatchment P2.2:

Runoff = 5.35 cfs @ 12.08 hrs, Volume= 0.425 af, Depth= 6.87"
Routed to Pond IS1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
10,070	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
22,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
32,350		Weighted Average
10,070		31.13% Pervious Area
22,280		68.87% Impervious Area

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

Summary for Subcatchment P2.3:

Runoff = 15.97 cfs @ 12.08 hrs, Volume= 1.299 af, Depth= 7.33"
Routed to Pond IS2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
9,910	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
82,730	98	Paved parking, HSG C
0	98	Roofs, HSG C
92,640		Weighted Average
9,910		10.70% Pervious Area
82,730		89.30% Impervious Area

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

Summary for Subcatchment P3.1:

Runoff = 2.02 cfs @ 12.17 hrs, Volume= 0.177 af, Depth= 4.52"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
16,190	70	Woods, Good, HSG C
4,290	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
20,480		Weighted Average
20,480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	50	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.7	130	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.4	180	Total			

Summary for Subcatchment P3.2:

Runoff = 3.76 cfs @ 12.08 hrs, Volume= 0.301 af, Depth= 7.02"
Routed to Pond IS3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
5,530	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,890	98	Paved parking, HSG C
0	98	Roofs, HSG C
22,420		Weighted Average
5,530		24.67% Pervious Area
16,890		75.33% Impervious Area

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

Summary for Subcatchment P4.1:

Runoff = 4.68 cfs @ 12.09 hrs, Volume= 0.334 af, Depth= 4.66"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
24,480	70	Woods, Good, HSG C
12,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
37,470		Weighted Average
37,470		100.00% Pervious Area

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

Summary for Subcatchment P4.2:

Runoff = 8.66 cfs @ 12.08 hrs, Volume= 0.705 af, Depth= 7.35"
Routed to Pond DS5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,820	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,360	98	Paved parking, HSG C
28,940	98	Roofs, HSG C
50,120		Weighted Average
4,820		9.62% Pervious Area
45,300		90.38% Impervious Area

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

Summary for Subcatchment P4.3:

Runoff = 10.55 cfs @ 12.08 hrs, Volume= 0.864 af, Depth= 7.47"
Routed to Pond IS4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
2,830	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
12,080	98	Paved parking, HSG C
45,600	98	Roofs, HSG C
60,510		Weighted Average
2,830		4.68% Pervious Area
57,680		95.32% Impervious Area

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

Summary for Subcatchment P4.4:

Runoff = 11.58 cfs @ 12.08 hrs, Volume= 0.937 af, Depth= 7.20"
Routed to Pond DS6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
11,130	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
56,850	98	Paved parking, HSG C
0	98	Roofs, HSG C
67,980		Weighted Average
11,130		16.37% Pervious Area
56,850		83.63% Impervious Area

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

Summary for Subcatchment P5.1:

Runoff = 2.38 cfs @ 12.09 hrs, Volume= 0.171 af, Depth= 5.23"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
1,820	70	Woods, Good, HSG C
15,190	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
100	98	Paved parking, HSG C
0	98	Roofs, HSG C
17,110		Weighted Average
17,010		99.42% Pervious Area
100		0.58% Impervious Area

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

Summary for Subcatchment P5.2:

Runoff = 6.07 cfs @ 12.08 hrs, Volume= 0.494 af, Depth= 7.33"
Routed to Pond IS8 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=7.81"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
3,840	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
31,400	98	Paved parking, HSG C
0	98	Roofs, HSG C
35,240		Weighted Average
3,840		10.90% Pervious Area
31,400		89.10% Impervious Area

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

Summary for Pond DS5:

Inflow Area = 1.151 ac, 90.38% Impervious, Inflow Depth = 7.35" for 25-Year event
Inflow = 8.66 cfs @ 12.08 hrs, Volume= 0.705 af
Outflow = 2.35 cfs @ 12.50 hrs, Volume= 0.500 af, Atten= 73%, Lag= 25.2 min
Primary = 2.35 cfs @ 12.50 hrs, Volume= 0.500 af
Routed to Pond IS4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 240.37' @ 12.43 hrs Surf.Area= 6,713 sf Storage= 14,180 cf

Plug-Flow detention time= 181.9 min calculated for 0.500 af (71% of inflow)
Center-of-Mass det. time= 86.7 min (832.7 - 746.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.00'	0 cf	**89.63'W x 74.90'L x 4.50'H Field A** 30,206 cf Overall - 30,206 cf Embedded = 0 cf x 40.0% Voids
#2A	238.00'	23,891 cf	**StormTrap SingleTrap 4-0** x 36 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 36 Chambers in 9 Rows 76.31' x 61.58' Core + 6.66' Border = 89.63' x 74.90' System
		23,891 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	241.40'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 4	239.60'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 4	238.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	238.00'	**15.0" Round Culvert** L= 140.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.00' / 237.00' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.35 cfs @ 12.50 hrs HW=240.36' TW=239.98' (Dynamic Tailwater)
└**4=Culvert** (Passes 2.35 cfs of 2.74 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Orifice Controls 1.17 cfs @ 2.99 fps)
  └**3=Orifice/Grate** (Orifice Controls 1.17 cfs @ 2.99 fps)

Pond DS5: - Chamber Wizard Field A

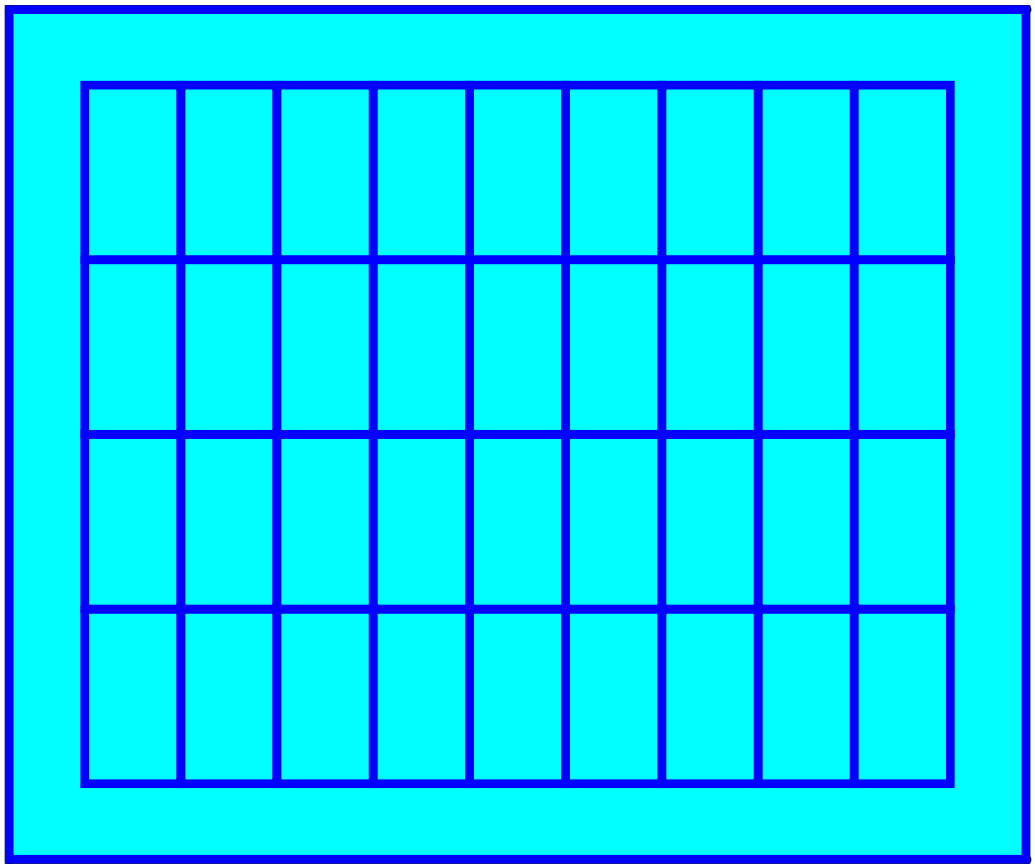
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

4 Chambers/Row x 15.40' Long = 61.58' Row Length +79.9" Border x 2 = 74.90' Base Length
9 Rows x 101.7" Wide + 79.9" Side Border x 2 = 89.63' Base Width
54.0" Chamber Height = 4.50' Field Height

36 Chambers x 470.3 cf + 6,961.4 cf Border = 23,891.2 cf Chamber Storage
36 Chambers x 587.4 cf + 9,058.3 cf Border = 30,206.4 cf Displacement

Chamber Storage = 23,891.2 cf = 0.548 af
Overall Storage Efficiency = 79.1%
Overall System Size = 74.90' x 89.63' x 4.50'

36 Chambers (plus border)
1,118.8 cy Field





Summary for Pond DS6:

Inflow Area = 1.561 ac, 83.63% Impervious, Inflow Depth = 7.20" for 25-Year event
Inflow = 11.58 cfs @ 12.08 hrs, Volume= 0.937 af
Outflow = 2.94 cfs @ 12.45 hrs, Volume= 0.936 af, Atten= 75%, Lag= 22.0 min
Primary = 2.94 cfs @ 12.45 hrs, Volume= 0.936 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 242.02' @ 12.45 hrs Surf.Area= 4,095 sf Storage= 12,805 cf

Plug-Flow detention time= 65.8 min calculated for 0.936 af (100% of inflow)
Center-of-Mass det. time= 65.2 min (814.6 - 749.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.50'	0 cf	**38.75'W x 105.69'L x 5.50'H Field A** 22,525 cf Overall - 22,525 cf Embedded = 0 cf x 40.0% Voids
#2A	238.50'	18,191 cf	**StormTrap SingleTrap 5-0** x 18 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 18 Chambers in 3 Rows 25.44' x 92.38' Core + 6.66' Border = 38.75' x 105.69' System
		18,191 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 5	243.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 5	242.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 5	239.10'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 5	238.50'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Primary	238.50'	**18.0" Round Culvert** L= 240.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.50' / 233.50' S= 0.0208 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.94 cfs @ 12.45 hrs HW=242.02' TW=0.00' (Dynamic Tailwater)
└**5=Culvert** (Passes 2.94 cfs of 12.49 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.48 fps)
  ├**3=Orifice/Grate** (Orifice Controls 1.39 cfs @ 7.99 fps)
  └**4=Orifice/Grate** (Orifice Controls 1.54 cfs @ 8.82 fps)

Pond DS6: - Chamber Wizard Field A

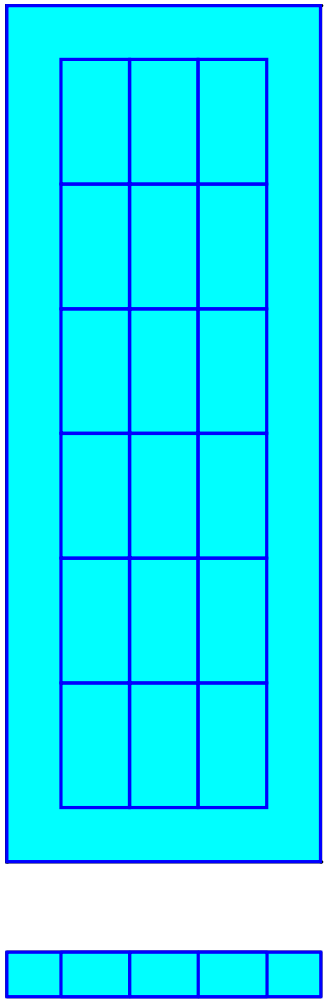
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

6 Chambers/Row x 15.40' Long = 92.38' Row Length +79.9" Border x 2 = 105.69' Base Length
3 Rows x 101.7" Wide + 79.9" Side Border x 2 = 38.75' Base Width
66.0" Chamber Height = 5.50' Field Height

18 Chambers x 590.2 cf + 7,568.2 cf Border = 18,191.5 cf Chamber Storage
18 Chambers x 718.0 cf + 9,600.8 cf Border = 22,524.6 cf Displacement

Chamber Storage = 18,191.5 cf = 0.418 af
Overall Storage Efficiency = 80.8%
Overall System Size = 105.69' x 38.75' x 5.50'

18 Chambers (plus border)
834.2 cy Field



Summary for Pond IS1:

Inflow Area = 0.743 ac, 68.87% Impervious, Inflow Depth = 6.87" for 25-Year event
Inflow = 5.35 cfs @ 12.08 hrs, Volume= 0.425 af
Outflow = 4.69 cfs @ 12.13 hrs, Volume= 0.378 af, Atten= 12%, Lag= 2.6 min
Primary = 4.69 cfs @ 12.13 hrs, Volume= 0.378 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 233.09' @ 12.13 hrs Surf.Area= 2,012 sf Storage= 2,816 cf

Plug-Flow detention time= 103.2 min calculated for 0.378 af (89% of inflow)
Center-of-Mass det. time= 48.7 min (805.8 - 757.1)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	4,940 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	710	0	0
232.00	1,310	1,010	1,010
233.00	1,950	1,630	2,640
234.00	2,650	2,300	4,940

Device	Routing	Invert	Outlet Devices
#1	Device 2	232.70'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Primary	229.20'	**18.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 229.20' / 229.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.69 cfs @ 12.13 hrs HW=233.09' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 4.69 cfs of 13.30 cfs potential flow)
└**1=Grate** (Orifice Controls 4.69 cfs @ 3.00 fps)

Summary for Pond IS2:

Inflow Area = 2.127 ac, 89.30% Impervious, Inflow Depth = 7.33" for 25-Year event
Inflow = 15.97 cfs @ 12.08 hrs, Volume= 1.299 af
Outflow = 6.00 cfs @ 12.32 hrs, Volume= 1.006 af, Atten= 62%, Lag= 14.1 min
Primary = 6.00 cfs @ 12.32 hrs, Volume= 1.006 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 237.22' @ 12.32 hrs Surf.Area= 7,134 sf Storage= 26,806 cf

Plug-Flow detention time= 206.8 min calculated for 1.006 af (77% of inflow)
Center-of-Mass det. time= 124.0 min (870.5 - 746.5)

Volume	Invert	Avail.Storage	Storage Description
#1B	233.00'	0 cf	**47.23'W x 59.50'L x 5.50'H Field A** 15,456 cf Overall - 15,456 cf Embedded = 0 cf x 40.0% Voids
#2B	233.00'	12,474 cf	**StormTrap SingleTrap 5-0** x 12 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 12 Chambers in 4 Rows 33.92' x 46.19' Core + 6.66' Border = 47.23' x 59.50' System
#3C	233.00'	0 cf	**72.67'W x 59.50'L x 5.50'H Field B** 23,780 cf Overall - 23,780 cf Embedded = 0 cf x 40.0% Voids
#4C	233.00'	19,254 cf	**StormTrap SingleTrap 5-0** x 21 Inside #3 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 21 Chambers in 7 Rows 59.35' x 46.19' Core + 6.66' Border = 72.67' x 59.50' System
		31,728 cf	Total Available Storage

Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	237.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 3	235.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	233.00'	**24.0" Round Culvert** L= 250.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 233.00' / 231.00' S= 0.0080 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.00 cfs @ 12.32 hrs HW=237.22' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Passes 6.00 cfs of 23.61 cfs potential flow)
  └**1=Sharp-Crested Rectangular Weir** (Weir Controls 1.37 cfs @ 1.55 fps)
  └**2=Orifice/Grate** (Orifice Controls 4.62 cfs @ 6.62 fps)

Pond IS2: - Chamber Wizard Field A

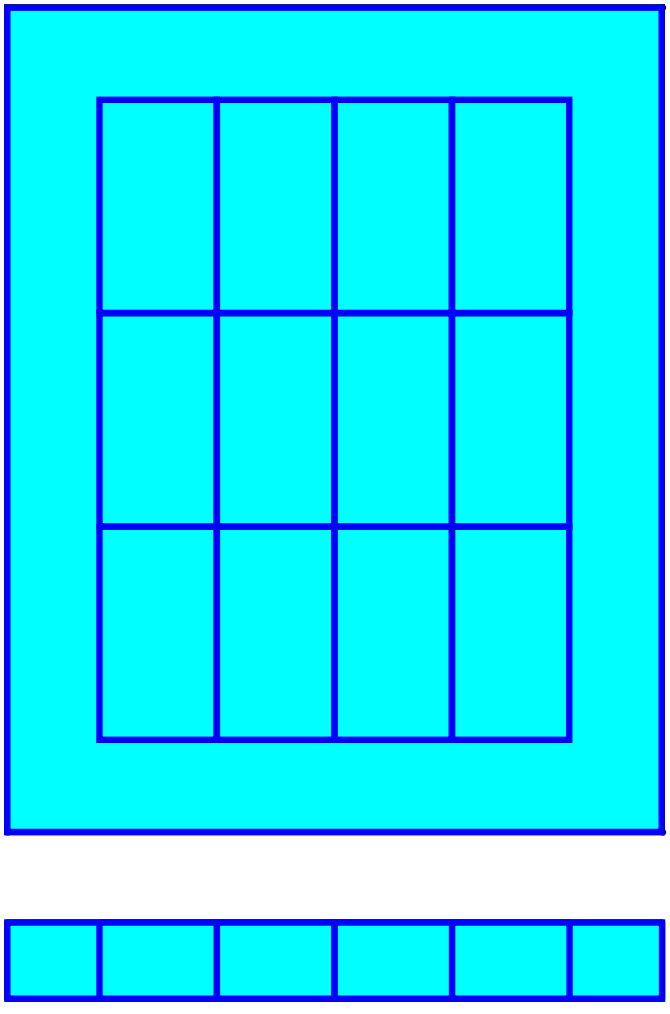
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width
66.0" Chamber Height = 5.50' Field Height

12 Chambers x 590.2 cf + 5,391.8 cf Border = 12,474.0 cf Chamber Storage
12 Chambers x 718.0 cf + 6,839.9 cf Border = 15,455.7 cf Displacement

Chamber Storage = 12,474.0 cf = 0.286 af
Overall Storage Efficiency = 80.7%
Overall System Size = 59.50' x 47.23' x 5.50'

12 Chambers (plus border)
572.4 cy Field



Pond IS2: - Chamber Wizard Field B

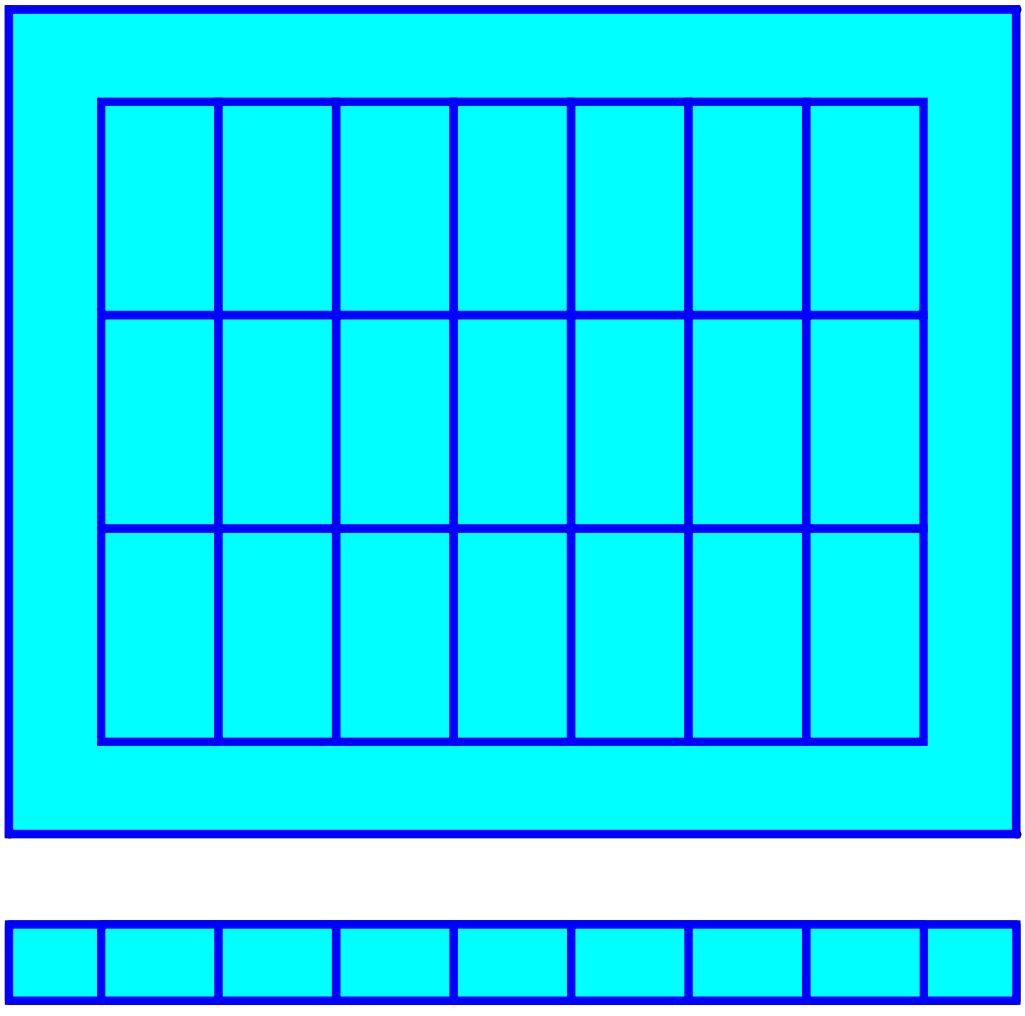
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
7 Rows x 101.7" Wide + 79.9" Side Border x 2 = 72.67' Base Width
66.0" Chamber Height = 5.50' Field Height

21 Chambers x 590.2 cf + 6,860.0 cf Border = 19,253.8 cf Chamber Storage
21 Chambers x 718.0 cf + 8,702.4 cf Border = 23,780.2 cf Displacement

Chamber Storage = 19,253.8 cf = 0.442 af
Overall Storage Efficiency = 81.0%
Overall System Size = 59.50' x 72.67' x 5.50'

21 Chambers (plus border)
880.7 cy Field



Summary for Pond IS3:

Inflow Area = 0.515 ac, 75.33% Impervious, Inflow Depth = 7.02" for 25-Year event
Inflow = 3.76 cfs @ 12.08 hrs, Volume= 0.301 af
Outflow = 3.70 cfs @ 12.10 hrs, Volume= 0.260 af, Atten= 1%, Lag= 0.9 min
Primary = 3.70 cfs @ 12.10 hrs, Volume= 0.260 af
Routed to Link DP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 229.44' @ 12.10 hrs Surf.Area= 1,033 sf Storage= 2,093 cf

Plug-Flow detention time= 116.5 min calculated for 0.260 af (86% of inflow)
Center-of-Mass det. time= 54.5 min (808.2 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	1,022 cf	**18.50'W x 55.83'L x 4.00'H Field A** 4,132 cf Overall - 1,578 cf Embedded = 2,554 cf x 40.0% Voids
#2A	227.00'	1,578 cf	**Cultec R-360HD** x 42 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 42 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		2,599 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	229.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	227.00'	**15.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 227.00' / 225.50' S= 0.0375 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.69 cfs @ 12.10 hrs HW=229.44' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 3.69 cfs of 7.02 cfs potential flow)
└**1=Sharp-Crested Rectangular Weir** (Weir Controls 3.69 cfs @ 2.16 fps)

Pond IS3: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

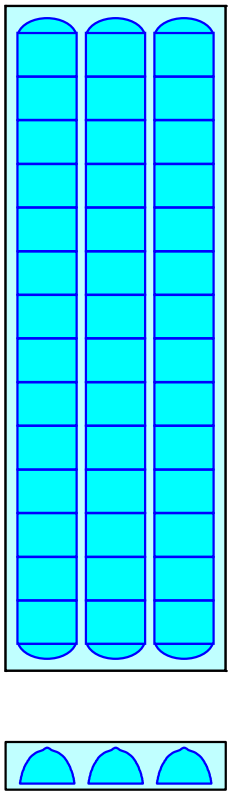
14 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 53.83' Row Length +12.0" End Stone x 2 = 55.83' Base Length
3 Rows x 60.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 18.50' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

42 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 3 Rows = 1,577.8 cf Chamber Storage

4,131.7 cf Field - 1,577.8 cf Chambers = 2,553.8 cf Stone x 40.0% Voids = 1,021.5 cf Stone Storage

Chamber Storage + Stone Storage = 2,599.4 cf = 0.060 af
Overall Storage Efficiency = 62.9%
Overall System Size = 55.83' x 18.50' x 4.00'

42 Chambers
153.0 cy Field
94.6 cy Stone



Summary for Pond IS4:

Inflow Area = 2.540 ac, 93.09% Impervious, Inflow Depth = 6.44" for 25-Year event
Inflow = 11.02 cfs @ 12.09 hrs, Volume= 1.364 af
Outflow = 6.68 cfs @ 12.24 hrs, Volume= 0.914 af, Atten= 39%, Lag= 8.8 min
Primary = 6.68 cfs @ 12.24 hrs, Volume= 0.914 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 240.06' @ 12.24 hrs Surf.Area= 8,822 sf Storage= 23,627 cf

Plug-Flow detention time= 230.7 min calculated for 0.914 af (67% of inflow)
Center-of-Mass det. time= 117.9 min (894.1 - 776.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	237.00'	0 cf	**55.71'W x 90.29'L x 3.50'H Field A** 17,605 cf Overall - 17,605 cf Embedded = 0 cf x 40.0% Voids
#2A	237.00'	13,440 cf	**StormTrap SingleTrap 3-0** x 25 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 25 Chambers in 5 Rows 42.40' x 76.98' Core + 6.66' Border = 55.71' x 90.29' System
#3C	237.00'	0 cf	**21.79'W x 44.10'L x 3.50'H Field B** 3,364 cf Overall - 3,364 cf Embedded = 0 cf x 40.0% Voids
#4C	237.00'	2,527 cf	**StormTrap SingleTrap 3-0** x 2 Inside #3 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 8.48' x 30.79' Core + 6.66' Border = 21.79' x 44.10' System
#5B	237.00'	0 cf	**64.19'W x 44.10'L x 4.50'H Field C** 12,739 cf Overall - 12,739 cf Embedded = 0 cf x 40.0% Voids
#6B	237.00'	10,016 cf	**StormTrap SingleTrap 4-0** x 12 Inside #5 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 12 Chambers in 6 Rows 50.88' x 30.79' Core + 6.66' Border = 64.19' x 44.10' System
		25,984 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	239.50'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	237.50'	**24.0" Round Culvert** L= 220.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 237.50' / 234.00' S= 0.0159 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.67 cfs @ 12.24 hrs HW=240.06' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 6.67 cfs of 16.66 cfs potential flow)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 6.67 cfs @ 2.44 fps)

Pond IS4: - Chamber Wizard Field A

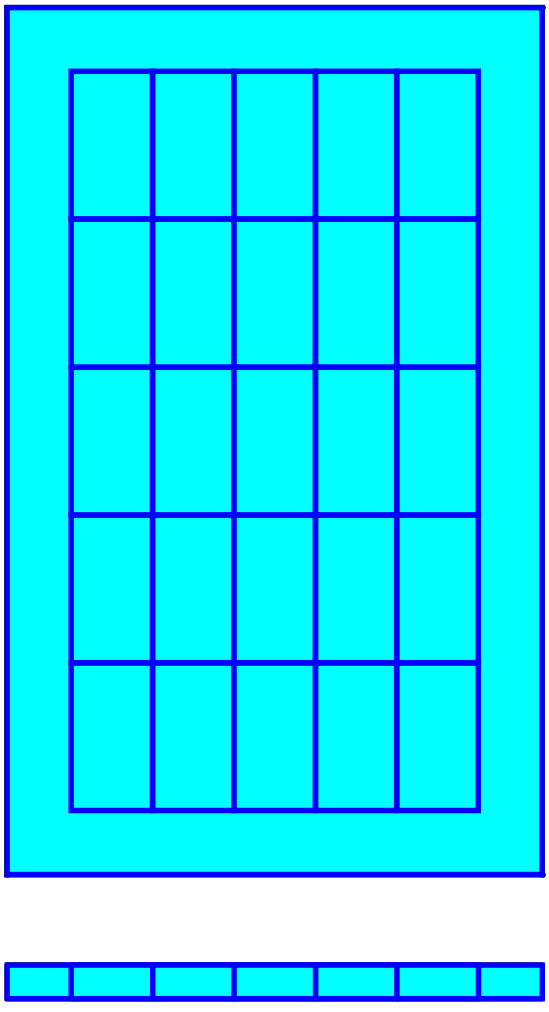
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

5 Chambers/Row x 15.40' Long = 76.98' Row Length +79.9" Border x 2 = 90.29' Base Length
5 Rows x 101.7" Wide + 79.9" Side Border x 2 = 55.71' Base Width
42.0" Chamber Height = 3.50' Field Height

25 Chambers x 354.0 cf + 4,590.6 cf Border = 13,440.4 cf Chamber Storage
25 Chambers x 456.9 cf + 6,182.4 cf Border = 17,605.0 cf Displacement

Chamber Storage = 13,440.4 cf = 0.309 af
Overall Storage Efficiency = 76.3%
Overall System Size = 90.29' x 55.71' x 3.50'

25 Chambers (plus border)
652.0 cy Field



Pond IS4: - Chamber Wizard Field B

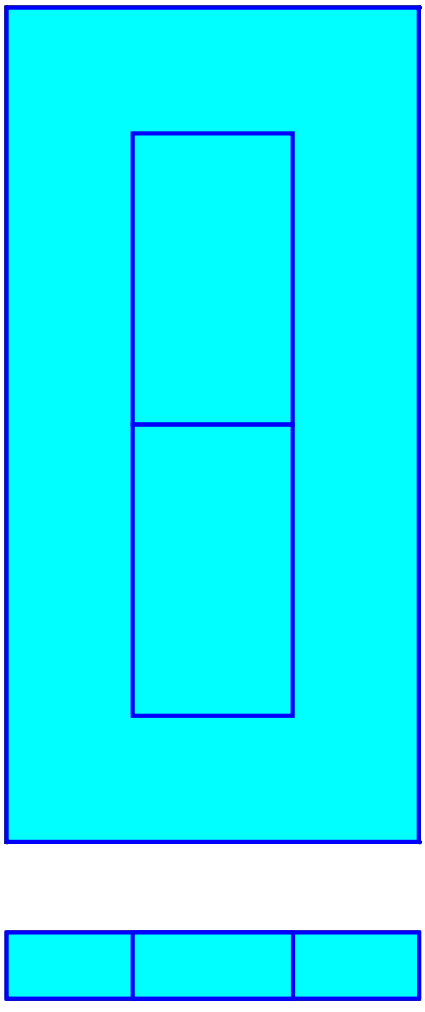
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
1 Rows x 101.7" Wide + 79.9" Side Border x 2 = 21.79' Base Width
42.0" Chamber Height = 3.50' Field Height

2 Chambers x 354.0 cf + 1,819.2 cf Border = 2,527.2 cf Chamber Storage
2 Chambers x 456.9 cf + 2,450.1 cf Border = 3,363.9 cf Displacement

Chamber Storage = 2,527.2 cf = 0.058 af
Overall Storage Efficiency = 75.1%
Overall System Size = 44.10' x 21.79' x 3.50'

2 Chambers (plus border)
124.6 cy Field



Pond IS4: - Chamber Wizard Field C

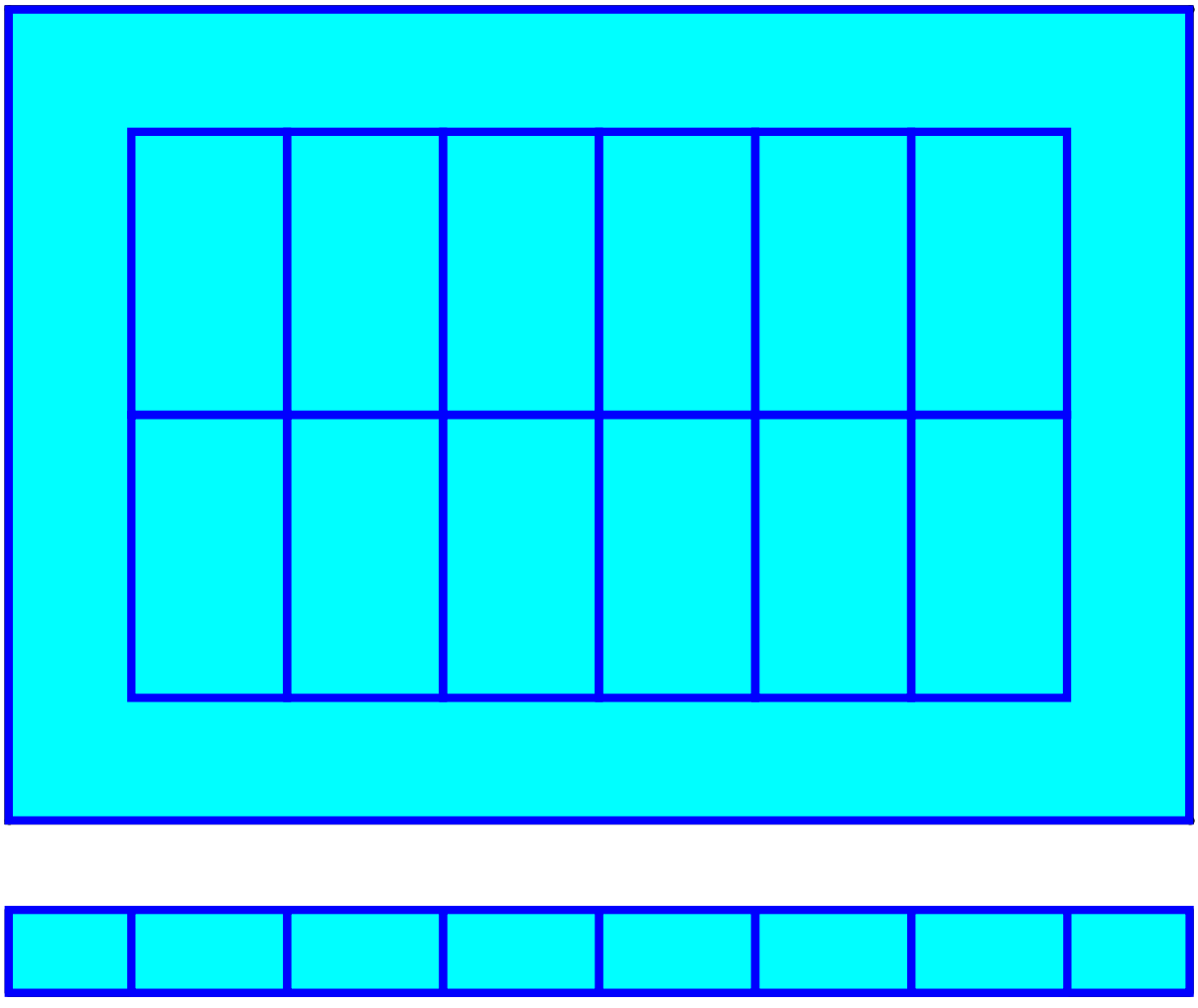
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
6 Rows x 101.7" Wide + 79.9" Side Border x 2 = 64.19' Base Width
54.0" Chamber Height = 4.50' Field Height

12 Chambers x 470.3 cf + 4,372.7 cf Border = 10,016.0 cf Chamber Storage
12 Chambers x 587.4 cf + 5,689.8 cf Border = 12,739.2 cf Displacement

Chamber Storage = 10,016.0 cf = 0.230 af
Overall Storage Efficiency = 78.6%
Overall System Size = 44.10' x 64.19' x 4.50'

12 Chambers (plus border)
471.8 cy Field



Summary for Pond IS7:

Inflow Area = 1.264 ac, 89.98% Impervious, Inflow Depth = 7.35" for 25-Year event
Inflow = 9.50 cfs @ 12.08 hrs, Volume= 0.774 af
Outflow = 4.59 cfs @ 12.23 hrs, Volume= 0.652 af, Atten= 52%, Lag= 9.0 min
Primary = 4.59 cfs @ 12.23 hrs, Volume= 0.652 af
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 253.39' @ 12.23 hrs Surf.Area= 4,083 sf Storage= 9,887 cf

Plug-Flow detention time= 139.1 min calculated for 0.652 af (84% of inflow)
Center-of-Mass det. time= 71.6 min (817.8 - 746.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	250.00'	1,738 cf	**47.25'W x 37.50'L x 4.00'H Field A** 7,088 cf Overall - 2,742 cf Embedded = 4,346 cf x 40.0% Voids
#2A	250.50'	2,742 cf	**Cultec R-360HD** x 72 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 72 Chambers in 8 Rows Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf
#3B	249.75'	3,372 cf	**59.25'W x 39.00'L x 5.75'H Field B** 13,287 cf Overall - 4,856 cf Embedded = 8,431 cf x 40.0% Voids
#4B	250.50'	4,856 cf	**Cultec R-902HD v2** x 72 Inside #3 Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 72 Chambers in 8 Rows Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf
		12,708 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	251.80'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	251.00'	**12.0" Round Culvert** L= 210.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 251.00' / 247.80' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.59 cfs @ 12.23 hrs HW=253.39' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 4.59 cfs @ 5.85 fps)
└**1=Sharp-Crested Rectangular Weir** (Passes 4.59 cfs of 24.21 cfs potential flow)

Pond IS7: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

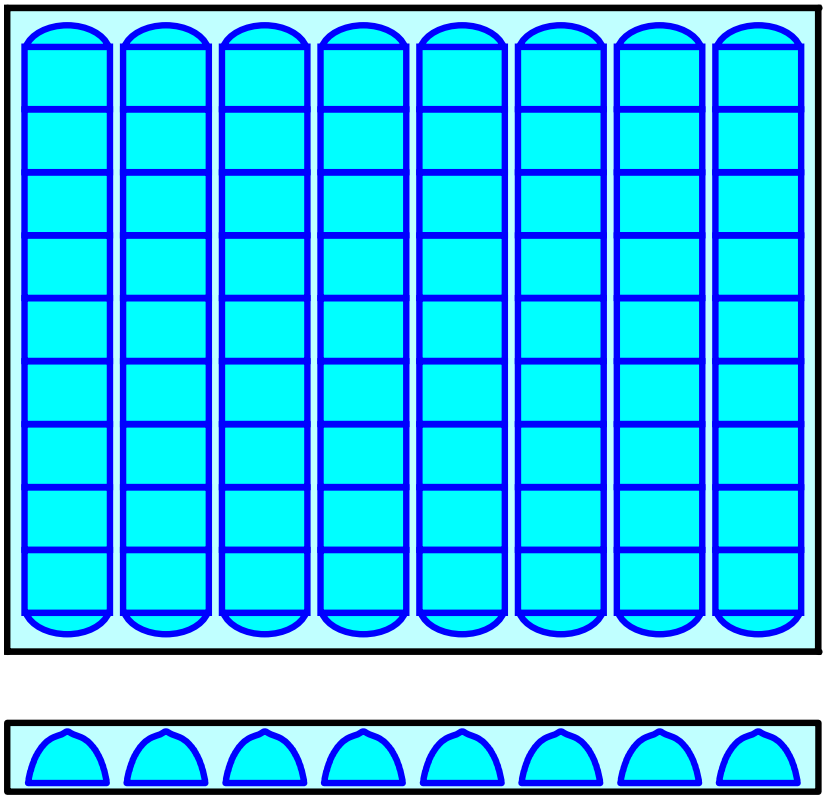
9 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 35.50' Row Length +12.0" End Stone x 2 = 37.50' Base Length
8 Rows x 60.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 47.25' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

72 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 8 Rows = 2,741.8 cf Chamber Storage

7,087.5 cf Field - 2,741.8 cf Chambers = 4,345.7 cf Stone x 40.0% Voids = 1,738.3 cf Stone Storage

Chamber Storage + Stone Storage = 4,480.1 cf = 0.103 af
Overall Storage Efficiency = 63.2%
Overall System Size = 37.50' x 47.25' x 4.00'

72 Chambers
262.5 cy Field
161.0 cy Stone



Pond IS7: - Chamber Wizard Field B

Chamber Model = Cultec R-902HD v2 (Cultec Recharger® 902HD v2)
Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

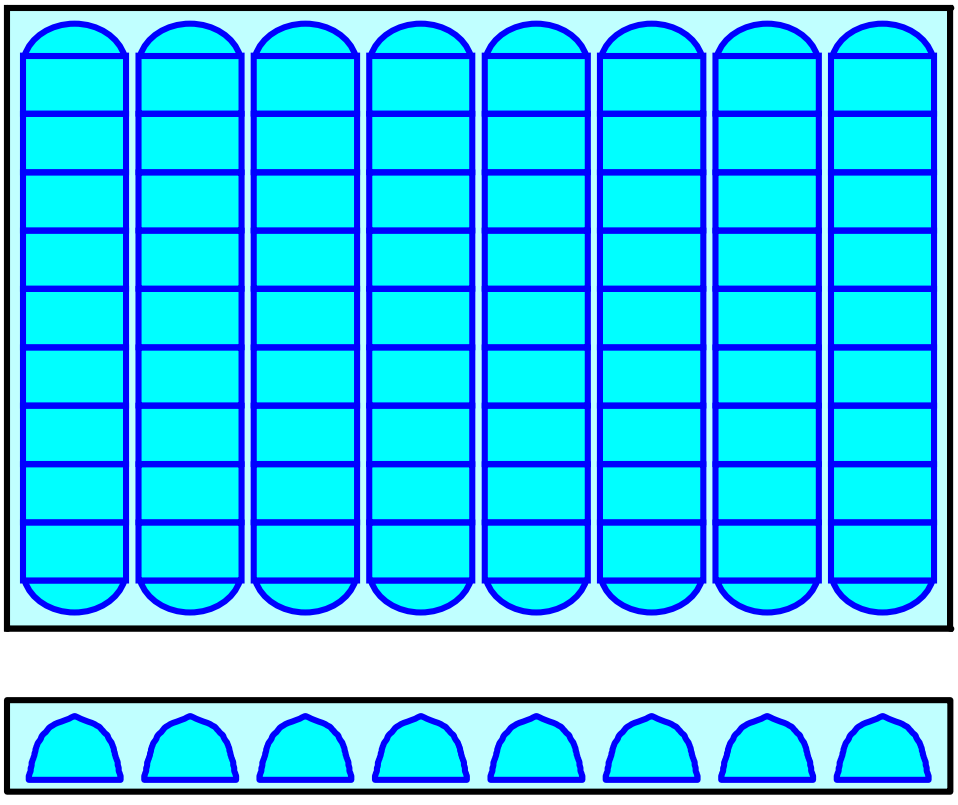
9 Chambers/Row x 3.67' Long +2.00' Cap Length x 2 = 37.00' Row Length +12.0" End Stone x 2 = 39.00' Base Length
8 Rows x 78.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 59.25' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

72 Chambers x 63.4 cf + 18.0 cf Cap Volume x 2 x 8 Rows = 4,856.2 cf Chamber Storage

13,286.8 cf Field - 4,856.2 cf Chambers = 8,430.6 cf Stone x 40.0% Voids = 3,372.3 cf Stone Storage

Chamber Storage + Stone Storage = 8,228.4 cf = 0.189 af
Overall Storage Efficiency = 61.9%
Overall System Size = 39.00' x 59.25' x 5.75'

72 Chambers
492.1 cy Field
312.2 cy Stone



Summary for Pond IS8:

Inflow Area = 0.809 ac, 89.10% Impervious, Inflow Depth = 7.33" for 25-Year event
Inflow = 6.07 cfs @ 12.08 hrs, Volume= 0.494 af
Outflow = 0.61 cfs @ 12.83 hrs, Volume= 0.377 af, Atten= 90%, Lag= 45.1 min
Primary = 0.61 cfs @ 12.83 hrs, Volume= 0.377 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 256.26' @ 12.83 hrs Surf.Area= 4,270 sf Storage= 13,295 cf

Plug-Flow detention time= 332.4 min calculated for 0.377 af (76% of inflow)
Center-of-Mass det. time= 246.7 min (993.4 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	252.00'	16,620 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.00	2,060	0	0
253.00	2,530	2,295	2,295
254.00	3,030	2,780	5,075
255.00	3,560	3,295	8,370
256.00	4,120	3,840	12,210
257.00	4,700	4,410	16,620

Device	Routing	Invert	Outlet Devices
#1	Device 3	256.30'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Device 3	254.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	252.40'	**18.0" Round Culvert** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 252.40' / 252.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.61 cfs @ 12.83 hrs HW=256.26' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert** (Passes 0.61 cfs of 13.24 cfs potential flow)
  ├─**1=Grate** (Controls 0.00 cfs)
  └─**2=Orifice/Grate** (Orifice Controls 0.61 cfs @ 6.96 fps)

Summary for Link DP1:

Inflow Area = 1.500 ac, 79.32% Impervious, Inflow Depth = 6.13" for 25-Year event
Inflow = 5.64 cfs @ 12.13 hrs, Volume= 0.767 af
Primary = 5.64 cfs @ 12.13 hrs, Volume= 0.767 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.514 ac, 69.03% Impervious, Inflow Depth = 5.58" for 25-Year event
Inflow = 12.03 cfs @ 12.11 hrs, Volume= 1.635 af
Primary = 12.03 cfs @ 12.11 hrs, Volume= 1.635 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 0.985 ac, 39.37% Impervious, Inflow Depth = 5.32" for 25-Year event
Inflow = 5.42 cfs @ 12.11 hrs, Volume= 0.437 af
Primary = 5.42 cfs @ 12.11 hrs, Volume= 0.437 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 4.961 ac, 73.97% Impervious, Inflow Depth = 5.28" for 25-Year event
Inflow = 11.94 cfs @ 12.22 hrs, Volume= 2.185 af
Primary = 11.94 cfs @ 12.22 hrs, Volume= 2.185 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 1.202 ac, 60.17% Impervious, Inflow Depth > 5.47" for 25-Year event
Inflow = 2.84 cfs @ 12.09 hrs, Volume= 0.548 af
Primary = 2.84 cfs @ 12.09 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1.1: Runoff Area=10,270 sf 22.20% Impervious Runoff Depth=8.60"
Tc=6.0 min CN=WQ Runoff=2.24 cfs 0.169 af

Subcatchment P1.2: Runoff Area=37,050 sf 86.83% Impervious Runoff Depth=10.15"
Tc=6.0 min CN=WQ Runoff=8.80 cfs 0.720 af

Subcatchment P1.3: Runoff Area=18,020 sf 96.45% Impervious Runoff Depth=10.38"
Tc=6.0 min CN=WQ Runoff=4.33 cfs 0.358 af

Subcatchment P2.1: Runoff Area=28,080 sf 2.31% Impervious Runoff Depth=7.30"
Tc=6.0 min CN=WQ Runoff=5.42 cfs 0.392 af

Subcatchment P2.2: Runoff Area=32,350 sf 68.87% Impervious Runoff Depth=9.72"
Tc=6.0 min CN=WQ Runoff=7.51 cfs 0.602 af

Subcatchment P2.3: Runoff Area=92,640 sf 89.30% Impervious Runoff Depth=10.21"
Tc=6.0 min CN=WQ Runoff=22.08 cfs 1.810 af

Subcatchment P3.1: Runoff Area=20,480 sf 0.00% Impervious Runoff Depth=7.12"
Flow Length=180' Tc=12.4 min CN=WQ Runoff=3.16 cfs 0.279 af

Subcatchment P3.2: Runoff Area=22,420 sf 75.33% Impervious Runoff Depth=9.88"
Tc=6.0 min CN=WQ Runoff=5.25 cfs 0.424 af

Subcatchment P4.1: Runoff Area=37,470 sf 0.00% Impervious Runoff Depth=7.28"
Tc=6.0 min CN=WQ Runoff=7.24 cfs 0.522 af

Subcatchment P4.2: Runoff Area=50,120 sf 90.38% Impervious Runoff Depth=10.24"
Tc=6.0 min CN=WQ Runoff=11.96 cfs 0.982 af

Subcatchment P4.3: Runoff Area=60,510 sf 95.32% Impervious Runoff Depth=10.36"
Tc=6.0 min CN=WQ Runoff=14.54 cfs 1.199 af

Subcatchment P4.4: Runoff Area=67,980 sf 83.63% Impervious Runoff Depth=10.08"
Tc=6.0 min CN=WQ Runoff=16.09 cfs 1.310 af

Subcatchment P5.1: Runoff Area=17,110 sf 0.58% Impervious Runoff Depth=7.96"
Tc=6.0 min CN=WQ Runoff=3.56 cfs 0.260 af

Subcatchment P5.2: Runoff Area=35,240 sf 89.10% Impervious Runoff Depth=10.21"
Tc=6.0 min CN=WQ Runoff=8.40 cfs 0.688 af

Pond DS5: Peak Elev=241.23' Storage=19,298 cf Inflow=11.96 cfs 0.982 af
Outflow=3.92 cfs 0.776 af

Pond DS6: Peak Elev=243.10' Storage=16,748 cf Inflow=16.09 cfs 1.310 af
Outflow=5.59 cfs 1.310 af

Pond IS1: Peak Elev=233.34' Storage=3,351 cf Inflow=7.51 cfs 0.602 af
Outflow=6.03 cfs 0.554 af

Pond IS2: Peak Elev=237.72' Storage=29,971 cf Inflow=22.08 cfs 1.810 af
Outflow=12.95 cfs 1.517 af

Pond IS3: Peak Elev=229.55' Storage=2,163 cf Inflow=5.25 cfs 0.424 af
Outflow=5.19 cfs 0.382 af

Pond IS4: Peak Elev=240.48' Storage=24,686 cf Inflow=16.15 cfs 1.975 af
Outflow=15.28 cfs 1.526 af

Pond IS7: Peak Elev=255.45' Storage=12,659 cf Inflow=13.14 cfs 1.078 af
Outflow=5.64 cfs 0.956 af

Pond IS8: Peak Elev=256.56' Storage=14,610 cf Inflow=8.40 cfs 0.688 af
Outflow=4.12 cfs 0.571 af

Link DP1: Inflow=7.08 cfs 1.125 af
Primary=7.08 cfs 1.125 af

Link DP2: Inflow=22.50 cfs 2.463 af
Primary=22.50 cfs 2.463 af

Link DP3: Inflow=7.90 cfs 0.661 af
Primary=7.90 cfs 0.661 af

Link DP4: Inflow=25.41 cfs 3.357 af
Primary=25.41 cfs 3.357 af

Link DP5: Inflow=6.02 cfs 0.831 af
Primary=6.02 cfs 0.831 af

Total Runoff Area = 12.161 ac Runoff Volume = 9.715 af Average Runoff Depth = 9.59"
30.96% Pervious = 3.766 ac 69.04% Impervious = 8.396 ac

Summary for Subcatchment P1.1:

Runoff = 2.24 cfs @ 12.08 hrs, Volume= 0.169 af, Depth= 8.60"
Routed to Link DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
7,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
2,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
10,270		Weighted Average
7,990		77.80% Pervious Area
2,280		22.20% Impervious Area

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

Summary for Subcatchment P1.2:

Runoff = 8.80 cfs @ 12.08 hrs, Volume= 0.720 af, Depth=10.15"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,880	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
26,670	98	Paved parking, HSG C
5,500	98	Roofs, HSG C
37,050		Weighted Average
4,880		13.17% Pervious Area
32,170		86.83% Impervious Area

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

Summary for Subcatchment P1.3:

Runoff = 4.33 cfs @ 12.08 hrs, Volume= 0.358 af, Depth=10.38"
Routed to Pond IS7 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
640	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
6,970	98	Paved parking, HSG C
5,010	98	Roofs, HSG C
5,400	98	Roofs, HSG C
18,020		Weighted Average
640		3.55% Pervious Area
17,380		96.45% Impervious Area

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

Summary for Subcatchment P2.1:

Runoff = 5.42 cfs @ 12.09 hrs, Volume= 0.392 af, Depth= 7.30"
Routed to Link DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
19,200	70	Woods, Good, HSG C
8,230	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
650	98	Paved parking, HSG C
0	98	Roofs, HSG C
28,080		Weighted Average
27,430		97.69% Pervious Area
650		2.31% Impervious Area

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

Summary for Subcatchment P2.2:

Runoff = 7.51 cfs @ 12.08 hrs, Volume= 0.602 af, Depth= 9.72"
Routed to Pond IS1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
10,070	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
22,280	98	Paved parking, HSG C
0	98	Roofs, HSG C
32,350		Weighted Average
10,070		31.13% Pervious Area
22,280		68.87% Impervious Area

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

Summary for Subcatchment P2.3:

Runoff = 22.08 cfs @ 12.08 hrs, Volume= 1.810 af, Depth=10.21"
Routed to Pond IS2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
9,910	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
82,730	98	Paved parking, HSG C
0	98	Roofs, HSG C
92,640		Weighted Average
9,910		10.70% Pervious Area
82,730		89.30% Impervious Area

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

Summary for Subcatchment P3.1:

Runoff = 3.16 cfs @ 12.17 hrs, Volume= 0.279 af, Depth= 7.12"
Routed to Link DP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
16,190	70	Woods, Good, HSG C
4,290	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
20,480		Weighted Average
20,480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	50	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.7	130	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.4	180	Total			

Summary for Subcatchment P3.2:

Runoff = 5.25 cfs @ 12.08 hrs, Volume= 0.424 af, Depth= 9.88"
Routed to Pond IS3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
5,530	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,890	98	Paved parking, HSG C
0	98	Roofs, HSG C
22,420		Weighted Average
5,530		24.67% Pervious Area
16,890		75.33% Impervious Area

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

Summary for Subcatchment P4.1:

Runoff = 7.24 cfs @ 12.09 hrs, Volume= 0.522 af, Depth= 7.28"
Routed to Link DP4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
24,480	70	Woods, Good, HSG C
12,990	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
0	98	Paved parking, HSG C
0	98	Roofs, HSG C
37,470		Weighted Average
37,470		100.00% Pervious Area

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

Summary for Subcatchment P4.2:

Runoff = 11.96 cfs @ 12.08 hrs, Volume= 0.982 af, Depth=10.24"
Routed to Pond DS5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
4,820	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
16,360	98	Paved parking, HSG C
28,940	98	Roofs, HSG C
50,120		Weighted Average
4,820		9.62% Pervious Area
45,300		90.38% Impervious Area

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

Summary for Subcatchment P4.3:

Runoff = 14.54 cfs @ 12.08 hrs, Volume= 1.199 af, Depth=10.36"
Routed to Pond IS4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
2,830	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
12,080	98	Paved parking, HSG C
45,600	98	Roofs, HSG C
60,510		Weighted Average
2,830		4.68% Pervious Area
57,680		95.32% Impervious Area

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

Summary for Subcatchment P4.4:

Runoff = 16.09 cfs @ 12.08 hrs, Volume= 1.310 af, Depth=10.08"
Routed to Pond DS6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
11,130	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
56,850	98	Paved parking, HSG C
0	98	Roofs, HSG C
67,980		Weighted Average
11,130		16.37% Pervious Area
56,850		83.63% Impervious Area

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

Summary for Subcatchment P5.1:

Runoff = 3.56 cfs @ 12.09 hrs, Volume= 0.260 af, Depth= 7.96"
Routed to Link DP5 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
1,820	70	Woods, Good, HSG C
15,190	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
100	98	Paved parking, HSG C
0	98	Roofs, HSG C
17,110		Weighted Average
17,010		99.42% Pervious Area
100		0.58% Impervious Area

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

Summary for Subcatchment P5.2:

Runoff = 8.40 cfs @ 12.08 hrs, Volume= 0.688 af, Depth=10.21"
Routed to Pond IS8 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=10.71"

Area (sf)	CN	Description
0	70	Woods, Good, HSG C
3,840	79	50-75% Grass cover, Fair, HSG C
0	89	Gravel roads, HSG C
31,400	98	Paved parking, HSG C
0	98	Roofs, HSG C
35,240		Weighted Average
3,840		10.90% Pervious Area
31,400		89.10% Impervious Area

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

Summary for Pond DS5:

Inflow Area = 1.151 ac, 90.38% Impervious, Inflow Depth = 10.24" for 100-Year event
Inflow = 11.96 cfs @ 12.08 hrs, Volume= 0.982 af
Outflow = 3.92 cfs @ 12.47 hrs, Volume= 0.776 af, Atten= 67%, Lag= 23.2 min
Primary = 3.92 cfs @ 12.47 hrs, Volume= 0.776 af
Routed to Pond IS4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 241.23' @ 12.37 hrs Surf.Area= 6,713 sf Storage= 19,298 cf

Plug-Flow detention time= 163.9 min calculated for 0.776 af (79% of inflow)
Center-of-Mass det. time= 83.5 min (825.7 - 742.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.00'	0 cf	**89.63'W x 74.90'L x 4.50'H Field A** 30,206 cf Overall - 30,206 cf Embedded = 0 cf x 40.0% Voids
#2A	238.00'	23,891 cf	**StormTrap SingleTrap 4-0** x 36 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 36 Chambers in 9 Rows 76.31' x 61.58' Core + 6.66' Border = 89.63' x 74.90' System
		23,891 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	241.40'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 4	239.60'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 4	238.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	238.00'	**15.0" Round Culvert** L= 140.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.00' / 237.00' S= 0.0071 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.92 cfs @ 12.47 hrs HW=241.20' TW=240.12' (Dynamic Tailwater)
└**4=Culvert** (Passes 3.92 cfs of 4.59 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Orifice Controls 1.96 cfs @ 5.00 fps)
  └**3=Orifice/Grate** (Orifice Controls 1.96 cfs @ 5.00 fps)

Pond DS5: - Chamber Wizard Field A

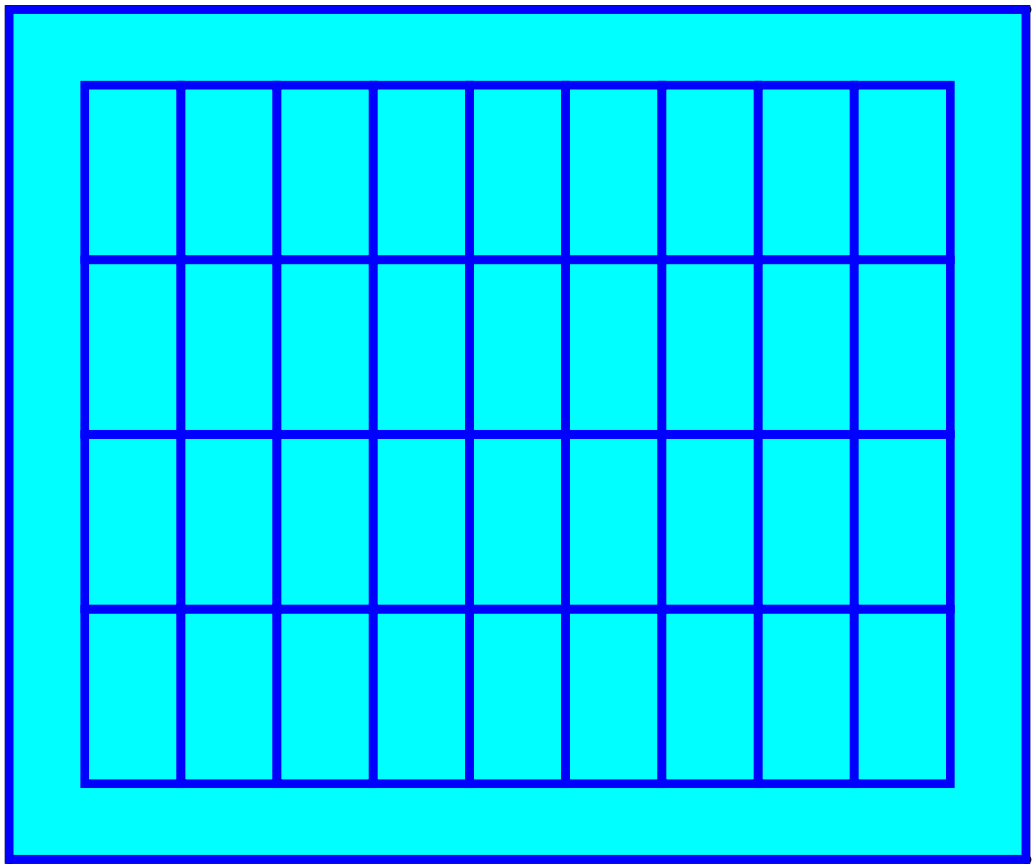
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

4 Chambers/Row x 15.40' Long = 61.58' Row Length +79.9" Border x 2 = 74.90' Base Length
9 Rows x 101.7" Wide + 79.9" Side Border x 2 = 89.63' Base Width
54.0" Chamber Height = 4.50' Field Height

36 Chambers x 470.3 cf + 6,961.4 cf Border = 23,891.2 cf Chamber Storage
36 Chambers x 587.4 cf + 9,058.3 cf Border = 30,206.4 cf Displacement

Chamber Storage = 23,891.2 cf = 0.548 af
Overall Storage Efficiency = 79.1%
Overall System Size = 74.90' x 89.63' x 4.50'

36 Chambers (plus border)
1,118.8 cy Field





Summary for Pond DS6:

Inflow Area = 1.561 ac, 83.63% Impervious, Inflow Depth = 10.08" for 100-Year event
Inflow = 16.09 cfs @ 12.08 hrs, Volume= 1.310 af
Outflow = 5.59 cfs @ 12.35 hrs, Volume= 1.310 af, Atten= 65%, Lag= 15.8 min
Primary = 5.59 cfs @ 12.35 hrs, Volume= 1.310 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 243.10' @ 12.35 hrs Surf.Area= 4,095 sf Storage= 16,748 cf

Plug-Flow detention time= 61.7 min calculated for 1.309 af (100% of inflow)
Center-of-Mass det. time= 61.5 min (806.9 - 745.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	238.50'	0 cf	**38.75'W x 105.69'L x 5.50'H Field A** 22,525 cf Overall - 22,525 cf Embedded = 0 cf x 40.0% Voids
#2A	238.50'	18,191 cf	**StormTrap SingleTrap 5-0** x 18 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 18 Chambers in 3 Rows 25.44' x 92.38' Core + 6.66' Border = 38.75' x 105.69' System
		18,191 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 5	243.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 5	242.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 5	239.10'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 5	238.50'	**4.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Primary	238.50'	**18.0" Round Culvert** L= 240.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 238.50' / 233.50' S= 0.0208 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.59 cfs @ 12.35 hrs HW=243.10' TW=0.00' (Dynamic Tailwater)
└**5=Culvert** (Passes 5.59 cfs of 14.74 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.43 cfs @ 1.05 fps)
  ├**2=Orifice/Grate** (Orifice Controls 1.75 cfs @ 4.45 fps)
  ├**3=Orifice/Grate** (Orifice Controls 1.65 cfs @ 9.43 fps)
  └**4=Orifice/Grate** (Orifice Controls 1.77 cfs @ 10.14 fps)

Pond DS6: - Chamber Wizard Field A

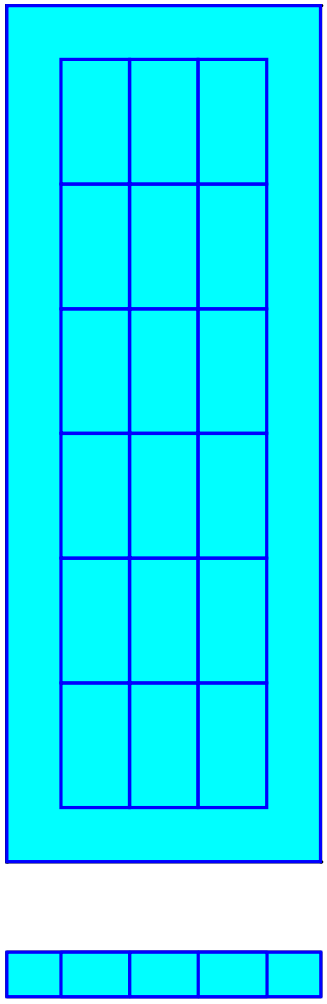
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

6 Chambers/Row x 15.40' Long = 92.38' Row Length +79.9" Border x 2 = 105.69' Base Length
3 Rows x 101.7" Wide + 79.9" Side Border x 2 = 38.75' Base Width
66.0" Chamber Height = 5.50' Field Height

18 Chambers x 590.2 cf + 7,568.2 cf Border = 18,191.5 cf Chamber Storage
18 Chambers x 718.0 cf + 9,600.8 cf Border = 22,524.6 cf Displacement

Chamber Storage = 18,191.5 cf = 0.418 af
Overall Storage Efficiency = 80.8%
Overall System Size = 105.69' x 38.75' x 5.50'

18 Chambers (plus border)
834.2 cy Field



Summary for Pond IS1:

Inflow Area = 0.743 ac, 68.87% Impervious, Inflow Depth = 9.72" for 100-Year event
Inflow = 7.51 cfs @ 12.08 hrs, Volume= 0.602 af
Outflow = 6.03 cfs @ 12.14 hrs, Volume= 0.554 af, Atten= 20%, Lag= 3.5 min
Primary = 6.03 cfs @ 12.14 hrs, Volume= 0.554 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 233.34' @ 12.14 hrs Surf.Area= 2,190 sf Storage= 3,351 cf

Plug-Flow detention time= 82.7 min calculated for 0.554 af (92% of inflow)
Center-of-Mass det. time= 40.2 min (792.8 - 752.5)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	4,940 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	710	0	0
232.00	1,310	1,010	1,010
233.00	1,950	1,630	2,640
234.00	2,650	2,300	4,940

Device	Routing	Invert	Outlet Devices
#1	Device 2	232.70'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Primary	229.20'	**18.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 229.20' / 229.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.03 cfs @ 12.14 hrs HW=233.34' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 6.03 cfs of 13.83 cfs potential flow)
↑**1=Grate** (Orifice Controls 6.03 cfs @ 3.86 fps)

Summary for Pond IS2:

Inflow Area = 2.127 ac, 89.30% Impervious, Inflow Depth = 10.21" for 100-Year event
Inflow = 22.08 cfs @ 12.08 hrs, Volume= 1.810 af
Outflow = 12.95 cfs @ 12.19 hrs, Volume= 1.517 af, Atten= 41%, Lag= 6.4 min
Primary = 12.95 cfs @ 12.19 hrs, Volume= 1.517 af
Routed to Link DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 237.72' @ 12.19 hrs Surf.Area= 7,134 sf Storage= 29,971 cf

Plug-Flow detention time= 174.1 min calculated for 1.517 af (84% of inflow)
Center-of-Mass det. time= 105.1 min (847.8 - 742.7)

Volume	Invert	Avail.Storage	Storage Description
#1B	233.00'	0 cf	**47.23'W x 59.50'L x 5.50'H Field A** 15,456 cf Overall - 15,456 cf Embedded = 0 cf x 40.0% Voids
#2B	233.00'	12,474 cf	**StormTrap SingleTrap 5-0** x 12 Inside #1 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 12 Chambers in 4 Rows 33.92' x 46.19' Core + 6.66' Border = 47.23' x 59.50' System
#3C	233.00'	0 cf	**72.67'W x 59.50'L x 5.50'H Field B** 23,780 cf Overall - 23,780 cf Embedded = 0 cf x 40.0% Voids
#4C	233.00'	19,254 cf	**StormTrap SingleTrap 5-0** x 21 Inside #3 Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf 21 Chambers in 7 Rows 59.35' x 46.19' Core + 6.66' Border = 72.67' x 59.50' System
		31,728 cf	Total Available Storage

Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 3	237.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Device 3	235.00'	**8.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	233.00'	**24.0" Round Culvert** L= 250.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 233.00' / 231.00' S= 0.0080 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.95 cfs @ 12.19 hrs HW=237.72' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert** (Passes 12.95 cfs of 24.97 cfs potential flow)
  ├─**1=Sharp-Crested Rectangular Weir** (Weir Controls 7.75 cfs @ 2.78 fps)
  └─**2=Orifice/Grate** (Orifice Controls 5.20 cfs @ 7.44 fps)

Pond IS2: - Chamber Wizard Field A

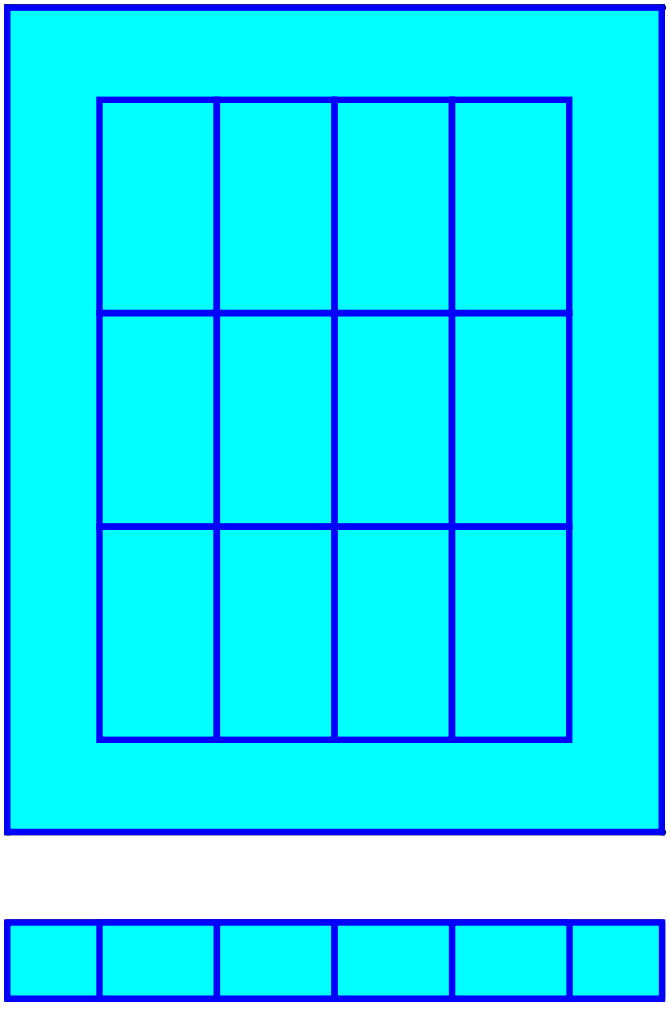
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width
66.0" Chamber Height = 5.50' Field Height

12 Chambers x 590.2 cf + 5,391.8 cf Border = 12,474.0 cf Chamber Storage
12 Chambers x 718.0 cf + 6,839.9 cf Border = 15,455.7 cf Displacement

Chamber Storage = 12,474.0 cf = 0.286 af
Overall Storage Efficiency = 80.7%
Overall System Size = 59.50' x 47.23' x 5.50'

12 Chambers (plus border)
572.4 cy Field



Pond IS2: - Chamber Wizard Field B

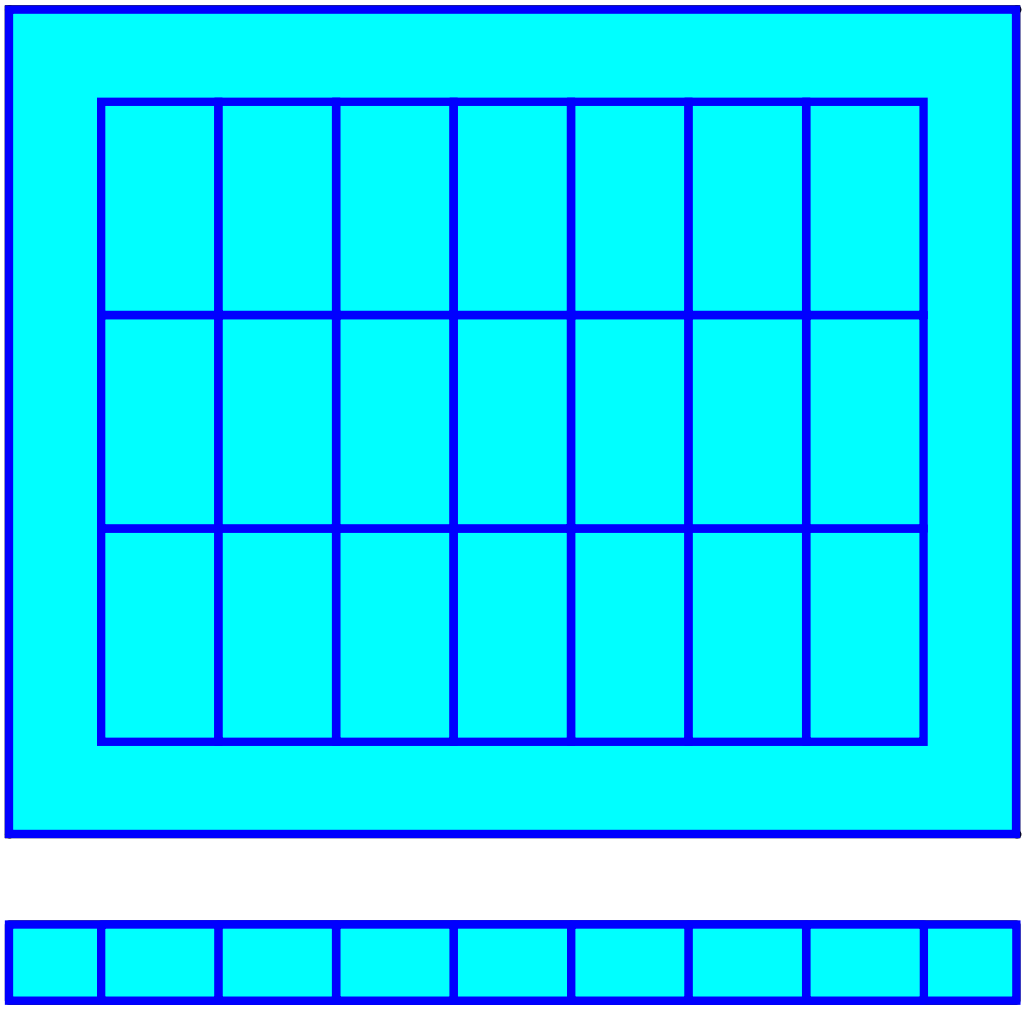
Chamber Model = StormTrap SingleTrap 5-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 60.0"H => 38.33 sf x 15.40'L = 590.2 cf
Outside= 101.7"W x 66.0"H => 46.64 sf x 15.40'L = 718.0 cf

3 Chambers/Row x 15.40' Long = 46.19' Row Length +79.9" Border x 2 = 59.50' Base Length
7 Rows x 101.7" Wide + 79.9" Side Border x 2 = 72.67' Base Width
66.0" Chamber Height = 5.50' Field Height

21 Chambers x 590.2 cf + 6,860.0 cf Border = 19,253.8 cf Chamber Storage
21 Chambers x 718.0 cf + 8,702.4 cf Border = 23,780.2 cf Displacement

Chamber Storage = 19,253.8 cf = 0.442 af
Overall Storage Efficiency = 81.0%
Overall System Size = 59.50' x 72.67' x 5.50'

21 Chambers (plus border)
880.7 cy Field



Summary for Pond IS3:

Inflow Area = 0.515 ac, 75.33% Impervious, Inflow Depth = 9.88" for 100-Year event
Inflow = 5.25 cfs @ 12.08 hrs, Volume= 0.424 af
Outflow = 5.19 cfs @ 12.10 hrs, Volume= 0.382 af, Atten= 1%, Lag= 0.7 min
Primary = 5.19 cfs @ 12.10 hrs, Volume= 0.382 af
Routed to Link DP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 229.55' @ 12.10 hrs Surf.Area= 1,033 sf Storage= 2,163 cf

Plug-Flow detention time= 94.3 min calculated for 0.382 af (90% of inflow)
Center-of-Mass det. time= 45.1 min (794.4 - 749.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	226.50'	1,022 cf	**18.50'W x 55.83'L x 4.00'H Field A** 4,132 cf Overall - 1,578 cf Embedded = 2,554 cf x 40.0% Voids
#2A	227.00'	1,578 cf	**Cultec R-360HD** x 42 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 42 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		2,599 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	229.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	227.00'	**15.0" Round Culvert** L= 40.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 227.00' / 225.50' S= 0.0375 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.18 cfs @ 12.10 hrs HW=229.55' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 5.18 cfs of 7.23 cfs potential flow)
↑**1=Sharp-Crested Rectangular Weir** (Weir Controls 5.18 cfs @ 2.42 fps)

Pond IS3: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

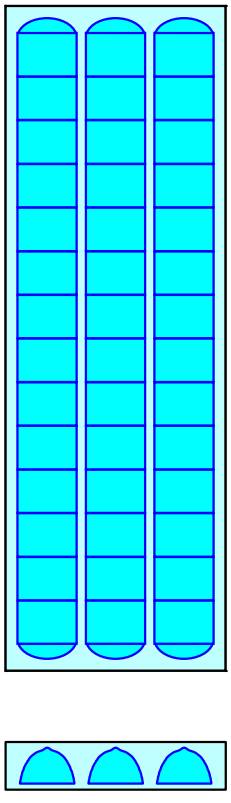
14 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 53.83' Row Length +12.0" End Stone x 2 = 55.83' Base Length
3 Rows x 60.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 18.50' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

42 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 3 Rows = 1,577.8 cf Chamber Storage

4,131.7 cf Field - 1,577.8 cf Chambers = 2,553.8 cf Stone x 40.0% Voids = 1,021.5 cf Stone Storage

Chamber Storage + Stone Storage = 2,599.4 cf = 0.060 af
Overall Storage Efficiency = 62.9%
Overall System Size = 55.83' x 18.50' x 4.00'

42 Chambers
153.0 cy Field
94.6 cy Stone



Summary for Pond IS4:

Inflow Area = 2.540 ac, 93.09% Impervious, Inflow Depth = 9.33" for 100-Year event
Inflow = 16.15 cfs @ 12.09 hrs, Volume= 1.975 af
Outflow = 15.28 cfs @ 12.12 hrs, Volume= 1.526 af, Atten= 5%, Lag= 1.9 min
Primary = 15.28 cfs @ 12.12 hrs, Volume= 1.526 af
Routed to Link DP4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 240.48' @ 12.12 hrs Surf.Area= 8,822 sf Storage= 24,686 cf

Plug-Flow detention time= 179.4 min calculated for 1.525 af (77% of inflow)
Center-of-Mass det. time= 91.4 min (865.1 - 773.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	237.00'	0 cf	**55.71'W x 90.29'L x 3.50'H Field A** 17,605 cf Overall - 17,605 cf Embedded = 0 cf x 40.0% Voids
#2A	237.00'	13,440 cf	**StormTrap SingleTrap 3-0** x 25 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 25 Chambers in 5 Rows 42.40' x 76.98' Core + 6.66' Border = 55.71' x 90.29' System
#3C	237.00'	0 cf	**21.79'W x 44.10'L x 3.50'H Field B** 3,364 cf Overall - 3,364 cf Embedded = 0 cf x 40.0% Voids
#4C	237.00'	2,527 cf	**StormTrap SingleTrap 3-0** x 2 Inside #3 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 8.48' x 30.79' Core + 6.66' Border = 21.79' x 44.10' System
#5B	237.00'	0 cf	**64.19'W x 44.10'L x 4.50'H Field C** 12,739 cf Overall - 12,739 cf Embedded = 0 cf x 40.0% Voids
#6B	237.00'	10,016 cf	**StormTrap SingleTrap 4-0** x 12 Inside #5 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 12 Chambers in 6 Rows 50.88' x 30.79' Core + 6.66' Border = 64.19' x 44.10' System
		25,984 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	239.50'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	237.50'	**24.0" Round Culvert** L= 220.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 237.50' / 234.00' S= 0.0159 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.27 cfs @ 12.12 hrs HW=240.48' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 15.27 cfs of 18.79 cfs potential flow)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 15.27 cfs @ 3.24 fps)

Pond IS4: - Chamber Wizard Field A

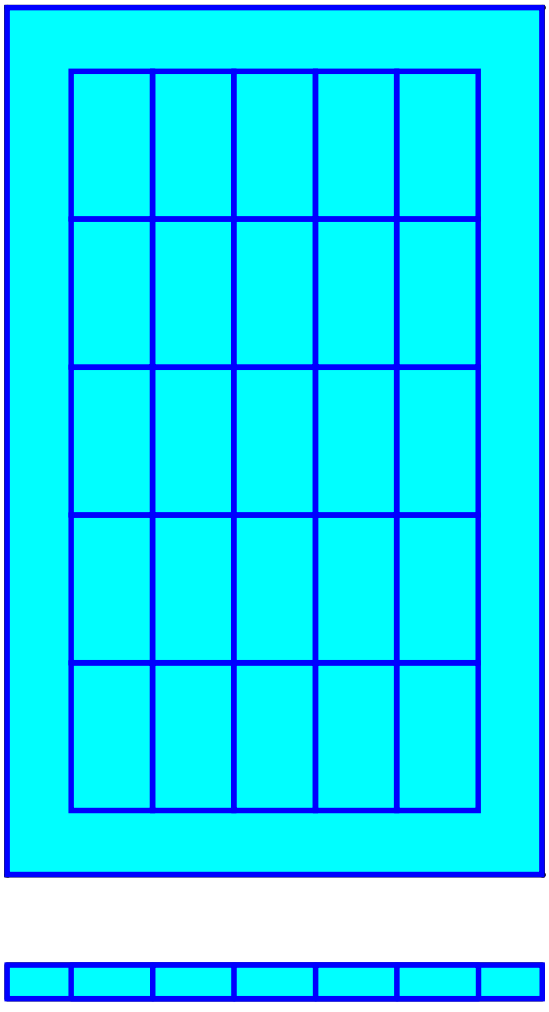
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

5 Chambers/Row x 15.40' Long = 76.98' Row Length +79.9" Border x 2 = 90.29' Base Length
5 Rows x 101.7" Wide + 79.9" Side Border x 2 = 55.71' Base Width
42.0" Chamber Height = 3.50' Field Height

25 Chambers x 354.0 cf + 4,590.6 cf Border = 13,440.4 cf Chamber Storage
25 Chambers x 456.9 cf + 6,182.4 cf Border = 17,605.0 cf Displacement

Chamber Storage = 13,440.4 cf = 0.309 af
Overall Storage Efficiency = 76.3%
Overall System Size = 90.29' x 55.71' x 3.50'

25 Chambers (plus border)
652.0 cy Field



Pond IS4: - Chamber Wizard Field B

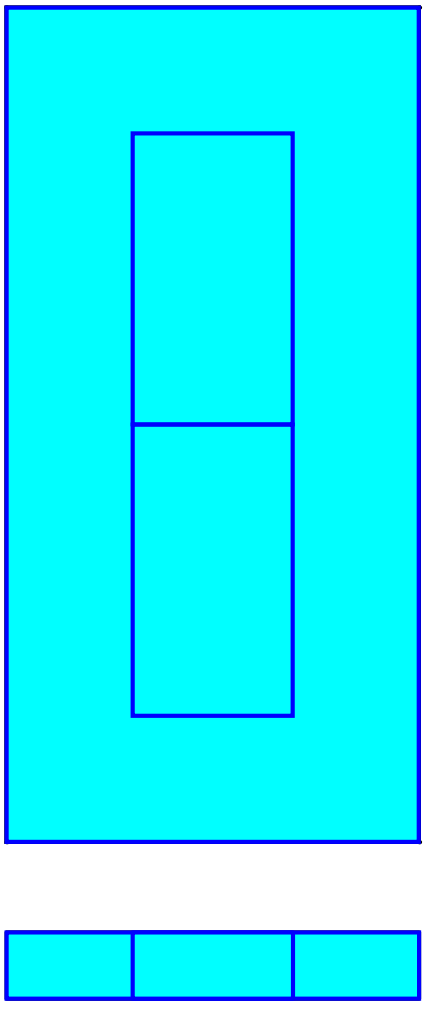
Chamber Model = StormTrap SingleTrap 3-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf
Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
1 Rows x 101.7" Wide + 79.9" Side Border x 2 = 21.79' Base Width
42.0" Chamber Height = 3.50' Field Height

2 Chambers x 354.0 cf + 1,819.2 cf Border = 2,527.2 cf Chamber Storage
2 Chambers x 456.9 cf + 2,450.1 cf Border = 3,363.9 cf Displacement

Chamber Storage = 2,527.2 cf = 0.058 af
Overall Storage Efficiency = 75.1%
Overall System Size = 44.10' x 21.79' x 3.50'

2 Chambers (plus border)
124.6 cy Field



Pond IS4: - Chamber Wizard Field C

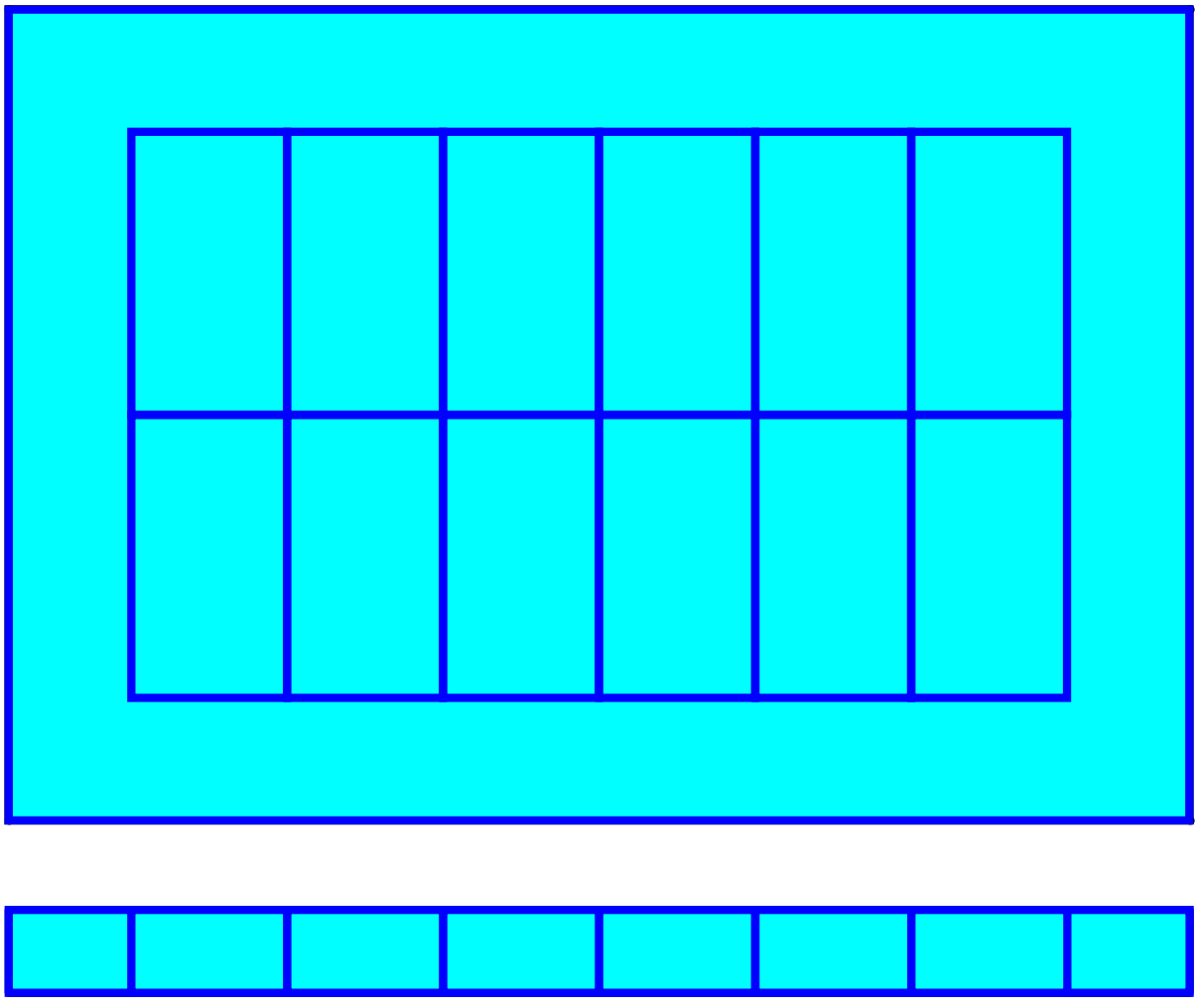
Chamber Model = StormTrap SingleTrap 4-0 (StormTrap SingleTrap® Type II+IV)
Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf
Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length
6 Rows x 101.7" Wide + 79.9" Side Border x 2 = 64.19' Base Width
54.0" Chamber Height = 4.50' Field Height

12 Chambers x 470.3 cf + 4,372.7 cf Border = 10,016.0 cf Chamber Storage
12 Chambers x 587.4 cf + 5,689.8 cf Border = 12,739.2 cf Displacement

Chamber Storage = 10,016.0 cf = 0.230 af
Overall Storage Efficiency = 78.6%
Overall System Size = 44.10' x 64.19' x 4.50'

12 Chambers (plus border)
471.8 cy Field



Summary for Pond IS7:

Inflow Area = 1.264 ac, 89.98% Impervious, Inflow Depth = 10.23" for 100-Year event
Inflow = 13.14 cfs @ 12.08 hrs, Volume= 1.078 af
Outflow = 5.64 cfs @ 12.27 hrs, Volume= 0.956 af, Atten= 57%, Lag= 11.2 min
Primary = 5.64 cfs @ 12.27 hrs, Volume= 0.956 af
Routed to Link DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 255.45' @ 12.27 hrs Surf.Area= 4,083 sf Storage= 12,659 cf

Plug-Flow detention time= 117.6 min calculated for 0.956 af (89% of inflow)
Center-of-Mass det. time= 62.9 min (805.3 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	250.00'	1,738 cf	**47.25'W x 37.50'L x 4.00'H Field A** 7,088 cf Overall - 2,742 cf Embedded = 4,346 cf x 40.0% Voids
#2A	250.50'	2,742 cf	**Cultec R-360HD** x 72 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 72 Chambers in 8 Rows Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf
#3B	249.75'	3,372 cf	**59.25'W x 39.00'L x 5.75'H Field B** 13,287 cf Overall - 4,856 cf Embedded = 8,431 cf x 40.0% Voids
#4B	250.50'	4,856 cf	**Cultec R-902HD v2** x 72 Inside #3 Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 72 Chambers in 8 Rows Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf
		12,708 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	251.80'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	251.00'	**12.0" Round Culvert** L= 210.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 251.00' / 247.80' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.64 cfs @ 12.27 hrs HW=255.45' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Barrel Controls 5.64 cfs @ 7.18 fps)
↑**1=Sharp-Crested Rectangular Weir** (Passes 5.64 cfs of 74.47 cfs potential flow)

Pond IS7: - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= 6.5 cf x 2 x 8 rows = 103.4 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

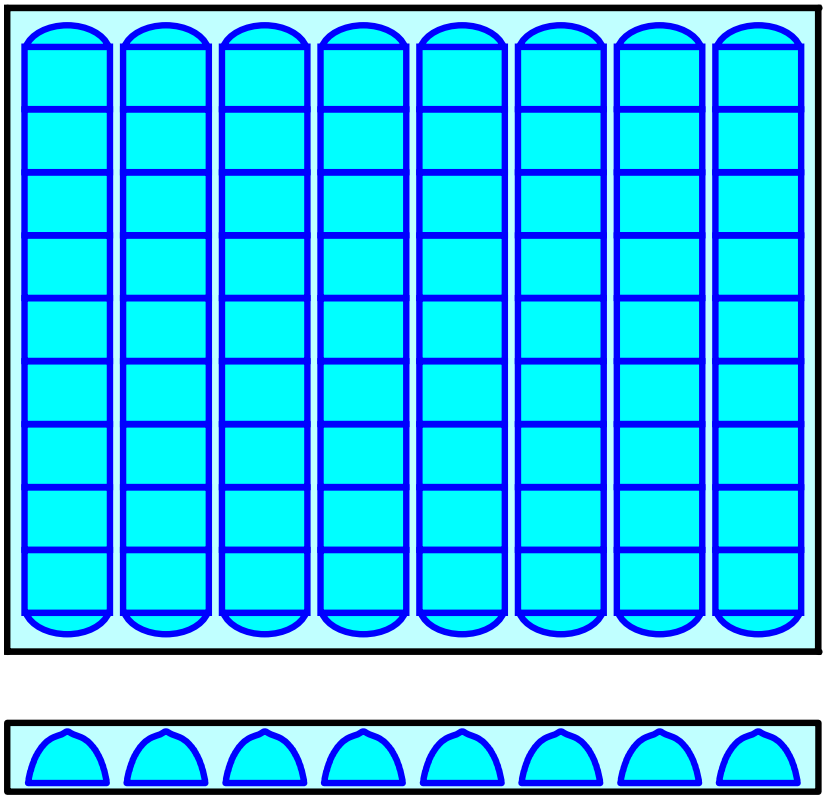
9 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 35.50' Row Length +12.0" End Stone x 2 = 37.50' Base Length
8 Rows x 60.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 47.25' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

72 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 8 Rows = 2,741.8 cf Chamber Storage

7,087.5 cf Field - 2,741.8 cf Chambers = 4,345.7 cf Stone x 40.0% Voids = 1,738.3 cf Stone Storage

Chamber Storage + Stone Storage = 4,480.1 cf = 0.103 af
Overall Storage Efficiency = 63.2%
Overall System Size = 37.50' x 47.25' x 4.00'

72 Chambers
262.5 cy Field
161.0 cy Stone



Pond IS7: - Chamber Wizard Field B

Chamber Model = Cultec R-902HD v2 (Cultec Recharger® 902HD v2)
Effective Size= 69.1"W x 48.0"H => 17.30 sf x 3.67'L = 63.4 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= 18.0 cf x 2 x 8 rows = 288.3 cf

78.0" Wide + 9.0" Spacing = 87.0" C-C Row Spacing

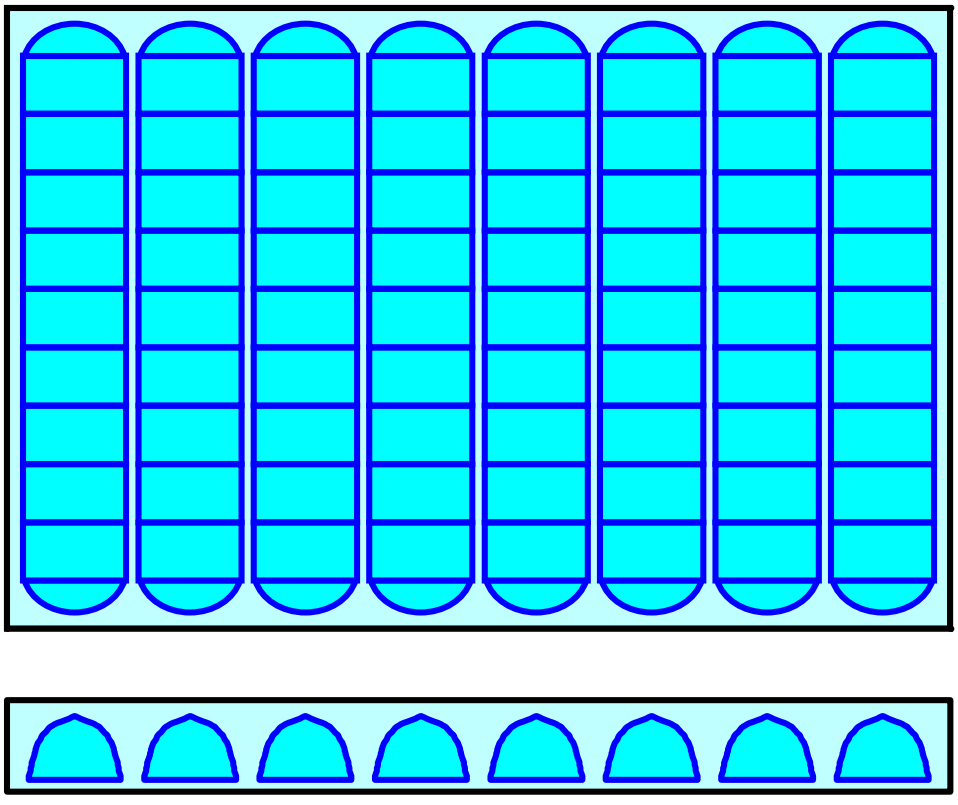
9 Chambers/Row x 3.67' Long +2.00' Cap Length x 2 = 37.00' Row Length +12.0" End Stone x 2 = 39.00' Base Length
8 Rows x 78.0" Wide + 9.0" Spacing x 7 + 12.0" Side Stone x 2 = 59.25' Base Width
9.0" Stone Base + 48.0" Chamber Height + 12.0" Stone Cover = 5.75' Field Height

72 Chambers x 63.4 cf + 18.0 cf Cap Volume x 2 x 8 Rows = 4,856.2 cf Chamber Storage

13,286.8 cf Field - 4,856.2 cf Chambers = 8,430.6 cf Stone x 40.0% Voids = 3,372.3 cf Stone Storage

Chamber Storage + Stone Storage = 8,228.4 cf = 0.189 af
Overall Storage Efficiency = 61.9%
Overall System Size = 39.00' x 59.25' x 5.75'

72 Chambers
492.1 cy Field
312.2 cy Stone



Summary for Pond IS8:

Inflow Area = 0.809 ac, 89.10% Impervious, Inflow Depth = 10.21" for 100-Year event
Inflow = 8.40 cfs @ 12.08 hrs, Volume= 0.688 af
Outflow = 4.12 cfs @ 12.23 hrs, Volume= 0.571 af, Atten= 51%, Lag= 8.7 min
Primary = 4.12 cfs @ 12.23 hrs, Volume= 0.571 af
Routed to Link DP5 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 256.56' @ 12.23 hrs Surf.Area= 4,445 sf Storage= 14,610 cf

Plug-Flow detention time= 278.0 min calculated for 0.571 af (83% of inflow)
Center-of-Mass det. time= 206.7 min (949.5 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1	252.00'	16,620 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.00	2,060	0	0
253.00	2,530	2,295	2,295
254.00	3,030	2,780	5,075
255.00	3,560	3,295	8,370
256.00	4,120	3,840	12,210
257.00	4,700	4,410	16,620

Device	Routing	Invert	Outlet Devices
#1	Device 3	256.30'	**2.5" x 2.5" Horiz. Grate X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads
#2	Device 3	254.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	252.40'	**18.0" Round Culvert** L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 252.40' / 252.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.12 cfs @ 12.23 hrs HW=256.56' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert** (Passes 4.12 cfs of 13.86 cfs potential flow)
  ├─**1=Grate** (Weir Controls 3.47 cfs @ 1.67 fps)
  └─**2=Orifice/Grate** (Orifice Controls 0.65 cfs @ 7.45 fps)

Summary for Link DP1:

Inflow Area = 1.500 ac, 79.32% Impervious, Inflow Depth = 9.00" for 100-Year event
Inflow = 7.08 cfs @ 12.11 hrs, Volume= 1.125 af
Primary = 7.08 cfs @ 12.11 hrs, Volume= 1.125 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP2:

Inflow Area = 3.514 ac, 69.03% Impervious, Inflow Depth = 8.41" for 100-Year event
Inflow = 22.50 cfs @ 12.16 hrs, Volume= 2.463 af
Primary = 22.50 cfs @ 12.16 hrs, Volume= 2.463 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP3:

Inflow Area = 0.985 ac, 39.37% Impervious, Inflow Depth = 8.06" for 100-Year event
Inflow = 7.90 cfs @ 12.11 hrs, Volume= 0.661 af
Primary = 7.90 cfs @ 12.11 hrs, Volume= 0.661 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP4:

Inflow Area = 4.961 ac, 73.97% Impervious, Inflow Depth = 8.12" for 100-Year event
Inflow = 25.41 cfs @ 12.12 hrs, Volume= 3.357 af
Primary = 25.41 cfs @ 12.12 hrs, Volume= 3.357 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link DP5:

Inflow Area = 1.202 ac, 60.17% Impervious, Inflow Depth = 8.30" for 100-Year event
Inflow = 6.02 cfs @ 12.20 hrs, Volume= 0.831 af
Primary = 6.02 cfs @ 12.20 hrs, Volume= 0.831 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

APPENDIX F: STORMWATER CALCULATIONS

- *NOAA+ RAINFALL DATA*
- *MA STANDARD #3 – RECHARGE AND DRAWDOWN TIME*
- *MA STANDARD #4 – WATER QUALITY AND TSS REMOVAL*
- *TOTAL PHOSPHOROUS REMOVAL CALCULATIONS*

NOAA Atlas 14, Volume 10, Version 3
Location name: Medway, Massachusetts, USA*
Latitude: 42.1494°, Longitude: -71.4162°
Elevation: 250 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.328 (0.251-0.427)	0.396 (0.303-0.517)	0.508 (0.387-0.663)	0.600 (0.455-0.789)	0.728 (0.536-1.00)	0.824 (0.596-1.16)	0.925 (0.651-1.34)	1.04 (0.695-1.54)	1.19 (0.773-1.84)	1.32 (0.836-2.08)
10-min	0.465 (0.356-0.605)	0.561 (0.429-0.732)	0.719 (0.548-0.940)	0.851 (0.645-1.12)	1.03 (0.760-1.42)	1.17 (0.844-1.64)	1.31 (0.922-1.90)	1.47 (0.983-2.18)	1.69 (1.09-2.60)	1.87 (1.18-2.94)
15-min	0.547 (0.419-0.712)	0.661 (0.505-0.861)	0.847 (0.646-1.11)	1.00 (0.759-1.32)	1.21 (0.894-1.67)	1.37 (0.994-1.93)	1.54 (1.08-2.24)	1.73 (1.16-2.57)	1.99 (1.29-3.06)	2.20 (1.39-3.46)
30-min	0.748 (0.573-0.974)	0.905 (0.692-1.18)	1.16 (0.886-1.52)	1.37 (1.04-1.81)	1.66 (1.23-2.28)	1.88 (1.36-2.64)	2.11 (1.49-3.07)	2.37 (1.59-3.52)	2.73 (1.76-4.20)	3.02 (1.91-4.74)
60-min	0.950 (0.727-1.24)	1.15 (0.879-1.50)	1.47 (1.12-1.93)	1.74 (1.32-2.29)	2.12 (1.56-2.90)	2.40 (1.73-3.36)	2.69 (1.89-3.90)	3.01 (2.02-4.48)	3.47 (2.24-5.34)	3.84 (2.43-6.02)
2-hr	1.22 (0.939-1.58)	1.48 (1.14-1.92)	1.91 (1.46-2.48)	2.26 (1.72-2.96)	2.75 (2.04-3.77)	3.11 (2.27-4.36)	3.50 (2.50-5.11)	3.96 (2.66-5.87)	4.66 (3.02-7.14)	5.25 (3.33-8.20)
3-hr	1.41 (1.09-1.82)	1.72 (1.32-2.22)	2.22 (1.70-2.87)	2.63 (2.01-3.42)	3.20 (2.38-4.37)	3.62 (2.65-5.06)	4.07 (2.92-5.95)	4.63 (3.12-6.83)	5.49 (3.56-8.37)	6.23 (3.96-9.68)
6-hr	1.81 (1.40-2.32)	2 (1.7	2.84 (2.19-3.66)	3 (2.5	4 (3.0	4.64 (3.42-6.47)	(3.1	5.97 (03-8.75)	7.11 (4.63-10.8)	8.10 (5.16-12.5)
12-hr	2.29 (1.78-2.91)	2.79 (2.17-3.55)	3.60 (2.80-4.61)	4.28 (3.30-5.50)	5.21 (3.92-7.04)	5.90 (4.36-8.16)	6.64 (4.81-9.60)	7.57 (5.13-11.0)	9.00 (5.88-13.6)	10.2 (6.55-15.7)
24-hr	2.74 (2.14-3.46)	3.37 (2.64-4.27)	4.41 (3.44-5.60)	5.27 (4.08-6.73)	6.45 (4.88-8.68)	7.32 (5.44-10.1)	8.28 (6.03-11.9)	9.47 (6.44-13.7)	11.3 (7.43-17.0)	13.0 (8.32-19.8)
2-day	3.11 (2.44-3.90)	3.89 (3.06-4.90)	5.18 (4.05-6.53)	6.24 (4.86-7.92)	7.70 (5.86-10.3)	8.78 (6.57-12.1)	9.96 (7.32-14.4)	11.5 (7.84-16.6)	14.0 (9.17-20.8)	16.1 (10.4-24.5)
3-day	3.39 (2.68-4.25)	4.24 (3.34-5.31)	5.62 (4.42-7.07)	6.77 (5.29-8.56)	8.35 (6.36-11.1)	9.50 (7.13-13.0)	10.8 (7.94-15.5)	12.4 (8.50-17.8)	15.1 (9.95-22.4)	17.5 (11.3-26.4)
4-day	3.66 (2.90-4.57)	4.54 (3.58-5.67)	5.97 (4.70-7.49)	7.16 (5.60-9.03)	8.80 (6.72-11.7)	9.99 (7.51-13.6)	11.3 (8.35-16.2)	13.0 (8.92-18.6)	15.8 (10.4-23.3)	18.2 (11.7-27.4)
7-day	4.41 (3.50-5.48)	5.33 (4.23-6.63)	6.85 (5.41-8.54)	8.10 (6.37-10.2)	9.83 (7.53-13.0)	11.1 (8.35-15.0)	12.5 (9.20-17.7)	14.2 (9.79-20.3)	17.0 (11.2-25.0)	19.4 (12.5-29.1)
10-day	5.12 (4.07-6.34)	6.08 (4.83-7.53)	7.64 (6.05-9.50)	8.93 (7.04-11.2)	10.7 (8.21-14.1)	12.0 (9.06-16.2)	13.5 (9.89-18.9)	15.2 (10.5-21.6)	17.9 (11.9-26.2)	20.2 (13.1-30.2)
20-day	7.23 (5.78-8.89)	8.25 (6.59-10.2)	9.92 (7.90-12.3)	11.3 (8.95-14.0)	13.2 (10.1-17.1)	14.7 (11.0-19.4)	16.2 (11.8-22.1)	17.8 (12.4-25.1)	20.2 (13.5-29.4)	22.2 (14.4-33.0)
30-day	8.97 (7.20-11.0)	10.0 (8.04-12.3)	11.8 (9.41-14.5)	13.2 (10.5-16.4)	15.2 (11.7-19.6)	16.8 (12.6-21.9)	18.3 (13.3-24.8)	19.9 (13.8-27.8)	22.1 (14.8-32.0)	23.8 (15.5-35.2)
45-day	11.1 (8.96-13.6)	12.3 (9.85-15.0)	14.1 (11.3-17.3)	15.6 (12.4-19.2)	17.7 (13.6-22.5)	19.3 (14.5-25.1)	20.9 (15.1-27.9)	22.4 (15.6-31.2)	24.3 (16.3-35.1)	25.7 (16.8-37.9)
60-day	13.0 (10.4-15.8)	14.1 (11.4-17.2)	16.0 (12.8-19.5)	17.6 (14.0-21.6)	19.7 (15.2-25.0)	21.4 (16.1-27.7)	23.0 (16.6-30.6)	24.5 (17.1-33.9)	26.2 (17.6-37.6)	27.3 (17.9-40.2)

3.84 6.06 7.81 10.71

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

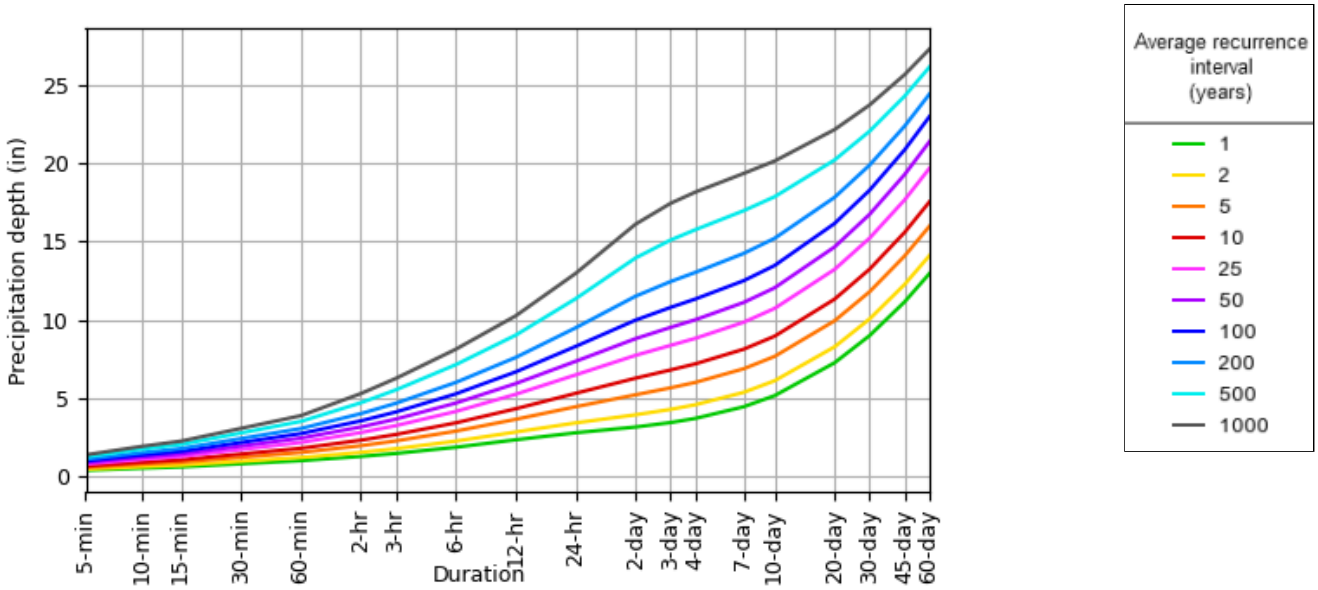
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

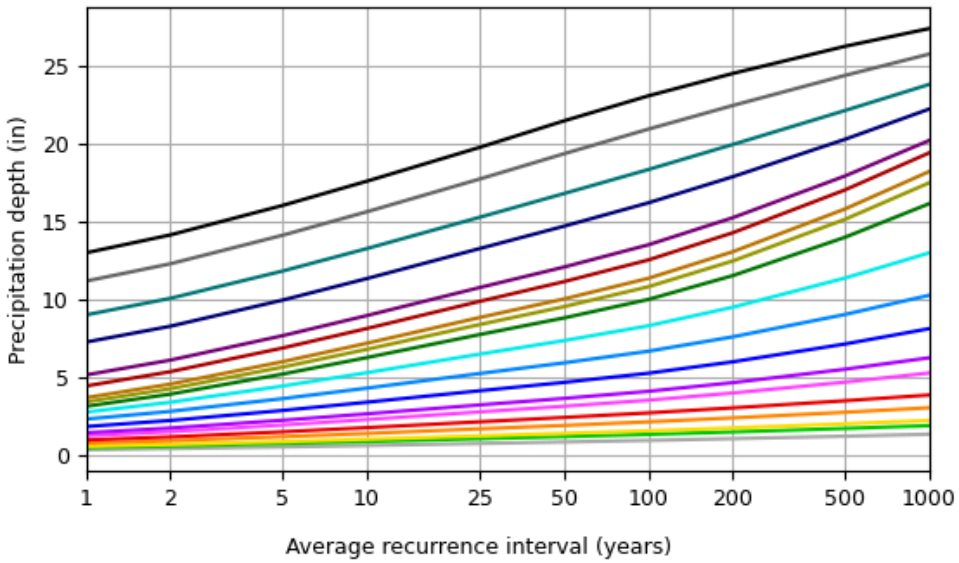
Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 42.1494°, Longitude: -71.4162°





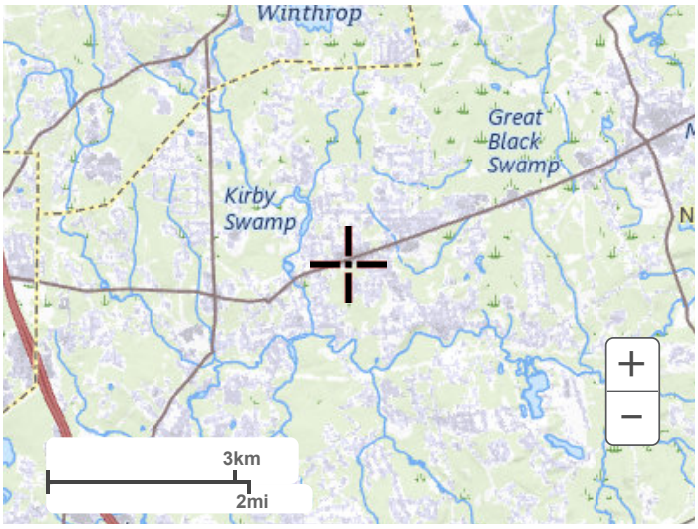
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Mon Feb 2 22:38:10 2026

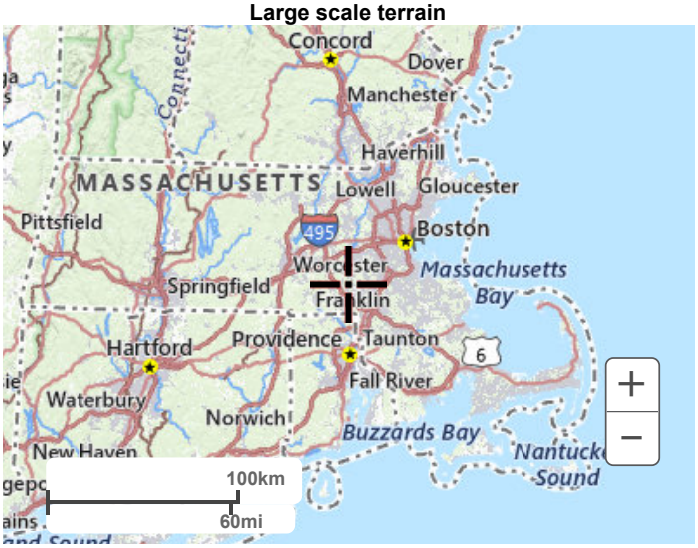
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Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Heritage on Main
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA
Bohler Job Number: W211301
February 4, 2026

MA DEP Standard 3: Recharge Volume Calculations

Required Recharge Volume - Municipal Standards (1.0 in.)	
Proposed Site Impervious Area (ac)	8.396
Recharge Volume Required (cf)	**30,476**

Total Recharge Volume Required (cf)	**30,476**

Recharge Volume Adjustment Factor	
Impervious Area Directed to Infiltration BMP (ac)	**7.038**
%Impervious Directed to Infiltration BMP	84%
Adjustment Factor	1.19
Adjusted Total Recharge Volume Required (cf)	**36,354**

Provided Recharge Volume*	
IS-1	2,084
IS-2	12,691
IS-3	1,797
IS-4	19,566
IS-7	5,303
IS-8	5,075
Total Recharge Volume Provided (cf)	**46,516**

Provided greater than or Equal to Required

*Volume provided below lowest outlet in cubic feet (cf)

Prepared By:
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Heritage on Main
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA
Bohler Job Number: W211301
January 19, 2026

MA DEP Standard 3: Drawdown Time Calculations

Drawdown Time - IS-1	
Volume below outlet pipe (Rv) (cf)	2,084
Soil Type	Loamy Sand - B
Infiltration rate (K)*	1.02
Bottom Area (sf)	710
Drawdown time (Hours)*	**34.5**

Drawdown Time - IS-2	
Volume below outlet pipe (Rv) (cf)	12,691
Soil Type	Loamy Sand - B
Infiltration rate (K)*	1.02
Bottom Area (sf)	6,613
Drawdown time (Hours)**	**22.6**

Drawdown Time - IS-3	
Volume below outlet pipe (Rv) (cf)	1,797
Soil Type	Loamy Sand - B
Infiltration rate (K)*	1.02
Bottom Area (sf)	1,033
Drawdown time (Hours)**	**20.5**

Drawdown Time - IS-4	
Volume below outlet pipe (Rv) (cf)	19,566
Soil Type	Loamy Sand - B
Infiltration rate (K)*	1.02
Bottom Area (sf)	8,822
Drawdown time (Hours)**	**26.1**

Drawdown Time - IS-7	
Volume below outlet pipe (Rv) (cf)	5,303
Soil Type	Loamy Sand - B
Infiltration rate (K)*	1.02
Bottom Area (sf)	4,410
Drawdown time (Hours)**	**14.1**

Drawdown Time - IS-8	
Volume below outlet pipe (Rv) (cf)	5,075
Soil Type	Loamy Sand - B
Infiltration rate (K)*	1.02
Bottom Area (sf)	2,060
Drawdown time (Hours)**	**29.0**

*Infiltration Rates taken from Rawls Table
**Drawdown time = Rv / (K) x (bottom area)

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MA DEP Standard 4: Water Quality Volume Calculations

Water Quality Volume Required	
Water Quality Volume runoff (in.)*	1.0
Total Post Development Impervious Area (sf)	365,710
Required Water Quality Volume (cf)	**30,476**
*Water Quality volume runoff is equal to 1.0 inches of runoff times the total impervious area of the post development project site.	

Water Quality Volume Provided*	
IS-1	2,084
IS-2	12,691
IS-3	1,797
IS-4	19,566
IS-7	5,303
IS-8	5,075
Total Provided Water Quality Volume (cf)	**46,516**

Required Recharge Provided

*Volume provided below lowest outlet pipe in cubic feet (cf)

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MA DEP Standard 4: TSS Removal Calculation Worksheet

BMP Treatment Train: #1 - Deep Sump Catch Basin -> Hydrodynamic Separator -> Subsurface Infiltration Chambers w/ isolator rows

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump Catch Basin	**0.25**	**1.00**	**0.25**	**0.75**
Hydrodynamic Separator	**0.80**	**0.75**	**0.60**	**0.15**
Subsurface Infiltration Chambers w/ isolator rows	**1.00**	**0.15**	**0.15**	**0.00**
		Total TSS Removal =	**100%**	

*Equals remaining load from previous BMP (E) which enters BMP

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MA DEP Standard 4: TSS Removal Calculation Worksheet

BMP Treatment Train: #2 - Hydrodynamic Separator (Inlet) -> Infiltration Basin / Chambers

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Hydrodynamic Separator (Inlet)	**0.80**	**1.00**	**0.80**	**0.20**
Subsurface Infiltration Chambers w/ isolator rows	**1.00**	**0.20**	**0.20**	**0.00**
		Total TSS Removal =	**100%**	

*Equals remaining load from previous BMP (E) which enters BMP
**Hydrodynamic Separator to act as adequate pre-treatment for the Infiltration System

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January 19, 2026

MA DEP Standard 4: TSS Removal Calculation Worksheet

BMP Treatment Train: #3 - Deep Sump Catch Basin -> Hydrodynamic Separator -> Detention System

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump Catch Basin	**0.25**	**1.00**	**0.25**	**0.75**
Hydrodynamic Separator	**0.80**	**0.75**	**0.60**	**0.15**
Detention Sytstem	**0.00**	**0.15**	**0.00**	**0.15**
		Total TSS Removal =	**85%**	

*Equals remaining load from previous BMP (E) which enters BMP

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January 19, 2026

MA DEP Standard 4: Weighted TSS Removal Rate

Design Point - Treatment Train Description(s)	TSS Removal (%)	Impervious Area* (ac)	Total Area
Treatment Train #1	100%	9.313	9.313
Treatment Train #2	100%	1.491	1.491
Treatment Train #3	85%	1.305	1.305
Untreated (runoff from impervious not captured by system)	0%	0.052	0.052
Weighted TSS Removal Rate	**98%**		

*Excludes roof runoff

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Bohler Job Number: W211301
January 19, 2026

Rip Rap Sizing Calculations

Design Period Storm: 25 Year

Rip Rap Apron Sizing Calculations

Location	Pipe Size (in.)	Pipe Size (ft.)	Q (cfs)	TW (ft.)	V (fps)	W1 (ft.)	La (ft.)	W2 (ft.)	W3 (ft.)	Apron Type	Rip Rap Type
A-10	18	1.5	4.69	0.00	3.13	4.50	6.2	9	NA	A	Modified
B-10	18	1.5	5.35	0.00	3.57	4.50	5.4	8	NA	A	Modified
O-10	18	1.5	6.00	0.00	4.00	4.50	6.6	9	NA	A	Modified
G-10	15	1.3	3.70	0.00	2.96	3.75	7.6	9	NA	A	Modified
P-10	30	2.5	9.78	0.00	3.91	7.50	12	16	NA	A	Modified
M-10	18	1.5	0.61	0.00	0.41	4.50	2.9	7	NA	A	Modified
K-10	18	1.5	6.07	0.00	4.05	4.50	10.2	12	NA	A	Modified

Based ConnDOT Drainage Manual - Type A, B, and C Riprap Aprons

Outlet Velocity (fps)
0-8 - Modified
8-10 - Intermediate
10-14 - Standard

Scour Hole Sizing Calculations

Location	Pipe Size/ Span (in)	Pipe Size/ Span (ft)	Q (cfs)	TW (ft.)	Scour Hole Type	D_{50} (ft)	F (ft)	C (ft)	B (ft)	Rip Rap Type
FES 4	24	2.0	2.00	0.50	Type 1	0.03	1.00	12	10	Modified

Based on ConnDOT Drainage Manual - Type 1 and 2 Scour Holes

D_{50} < 0.42 ft - Modified
0.42 ft < D_{50} < 0.67 ft - Intermediate
0.67 ft < D_{50} < 1.25 ft - Standard
1.25 ft < D_{50} - Special Design

Riprap Type D_{50} (inches)
Modified - 5
Intermediate - 8
Standard - 15

Prepared By: Bohler
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APPENDIX G: OPERATION AND MAINTENANCE

- *STORMWATER OPERATION AND MAINTENANCE PLAN*
- *INSPECTION REPORT*
- *INSPECTION AND MAINTENANCE LOG FORM*
- *LONG-TERM POLLUTION PREVENTION PLAN*
- *ILLICIT DISCHARGE STATEMENT*
- *SPILL PREVENTION*
- *PROPOSED OPERATION AND MAINTENANCE MAP*
- *MANUFACTURER'S INSPECTION AND MAINTENANCE MANUALS*

STORMWATER OPERATION AND MAINTENANCE PLAN

Heritage on Main
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Medway, MA

RESPONSIBLE PARTY DURING CONSTRUCTION:

RTE. 85 REALTY CORP.
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

RESPONSIBLE PARTY POST CONSTRUCTION:

RTE. 85 REALTY CORP.
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

Construction Phase

During the construction phase, all erosion control devices and measures shall be maintained in accordance with the final record plans, local/state approvals and conditions, the EPA Construction General Permit and the Stormwater Pollution Prevention Plan (SWPPP) if applicable. Additionally, the maintenance of all erosion / siltation control measures during construction shall be the responsibility of the general contractor. Contact information of the OWNER and CONTRACTOR shall be listed in the SWPPP for this site. The SWPPP also includes information regarding construction period allowable and illicit discharges, housekeeping and emergency response procedures. Upon proper notice to the property owner, the Town/City or its authorized designee shall be allowed to enter the property at a reasonable time and in a reasonable manner for the purposes of inspection.

Post Development Controls

Once construction is completed, the post development stormwater controls are to be operated and maintained in compliance with the following permanent procedures (note that the continued implementation of these procedures shall be the responsibility of the Owner or its assignee):

1. Parking lots: Sweep at least four (4) times per year and on a more frequent basis depending on sanding operations. Swept areas shall include all parking, drive aisles, and access aisles All resulting sweepings shall be collected and properly disposed of offsite in accordance with MADEP and other applicable requirements.

2. Roadways: Sweep at least four (4) times per year and on a more frequent basis depending on sanding operations. All resulting sweepings shall be collected and properly disposed of off site in accordance with MADEP and other applicable requirements.

3. Catch basins, yard drains, trench drains, manholes and piping: Inspect four (4) times per year and at the end of foliage and snow-removal seasons. These features shall be cleaned four (4) times per year. or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the catch basin or

underground system. Accumulated sediment and hydrocarbons present must be removed and properly disposed of off-site in accordance with MADEP and other applicable requirements.

4. Riprap apron / Scour Hole: Riprap and scour holes should be checked at least annually and after every major storm event (generally equal or greater to 3.0 inches in 24 hours) for displaced stones, slumping, and erosion at edges, especially downstream or downslope. If the riprap is damaged, it should be repaired before further damage can take place. Note and repair any erosion, stone displacement or low spots in the areas. Woody vegetation should be removed from the riprap annually.

5. Water Quality Unit (Proprietary Separator): Follow manufacturer's recommendations (attached).

6. Infiltration Basin: Preventative maintenance after every major storm event during the first three (3) months of operation and at least twice per year thereafter. Inspect structure and pretreatment BMP to ensure proper operation after every major storm event (generally equal or greater to 3.0 inches in 24 hours) for the first three months. Mow the buffer area, side slopes and basin bottom if grassed floor, rake if stone or sand bottom, remove trash and debris, remove grass clippings and accumulated organic matter. Any sediment removed shall be disposed of in accordance with MADEP and other applicable requirements.

7. Underground Infiltration & Detention Basins: Preventative maintenance after every major storm event during the first three (3) months of operation and at least twice per year thereafter. Inspect structure and pretreatment BMP to ensure proper operation after every major storm event (generally equal or greater to 3.0 inches in 24 hours) for the first three months. The outlet of the basin, if any, shall be inspected for erosion and sedimentation, and rip-rap shall be promptly repaired in the case of erosion. Sediment collecting in the bottom of the basin shall be inspected twice annually, and removal shall commence any time the sediment reaches a depth of six inches anywhere in the basin. Any sediment removed shall be disposed of in accordance with MADEP and other applicable requirements.

All components of the stormwater system will be accessible by the owner or their assignee.

STORMWATER MANAGEMENT SYSTEM

POST-CONSTRUCTION INSPECTION REPORT

LOCATION:

Heritage on Main
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

RESPONSIBLE PARTY:

RTE. 85 REALTY CORP.
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

NAME OF INSPECTOR:	INSPECTION DATE:
Note Condition of the Following (sediment depth, debris, standing water, damage, etc.):	
Catch Basins:	
Discharge Points/ Flared End Sections / Rip Rap:	
Infiltration Basin:	
Underground Infiltration & Detention Basin(s):	
Water Quality Units:	

Other:
Note Recommended Actions to be taken on the Following (sediment and/or debris removal, repairs, etc.):
Catch Basins:
Discharge Points/ Flared End Sections / Rip Rap:
Infiltration Basin:
Underground Infiltration & Detention Basin(s):
Water Quality Units:
Other:

Comments:

STORMWATER INSPECTION AND MAINTENANCE LOG FORM			
Heritage on Main ***107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St, Medway, MA***			
Stormwater Management Practice	Responsible Party	Date	Maintenance Activity Performed

LONG-TERM POLLUTION PREVENTION PLAN

Heritage on Main
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

RESPONSIBLE PARTY DURING CONSTRUCTION:

RTE. 85 REALTY CORP.
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

RESPONSIBLE PARTY POST CONSTRUCTION:

RTE. 85 REALTY CORP.
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

For this site, the Long-Term Pollution Prevention Plan will consist of the following:

- The property owner shall be responsible for "good housekeeping" including proper periodic maintenance of building and pavement areas, curbing, landscaping, etc.
- Proper storage and removal of solid waste (dumpsters).
- Sweeping of parking lots, drive aisles and access aisles a minimum of twice per year with a commercial cleaning unit. Any sediment removed shall be disposed of in accordance with applicable local and state requirements.
- Sweeping of roadways a minimum of four times per year with a commercial cleaning unit. Any sediment removed shall be disposed of in accordance with applicable local and state requirements.
- Regular inspections and maintenance of Stormwater Management System as noted in the "O&M Plan".
- Snow removal shall be the responsibility of the property owner. Snow shall not be plowed, dumped and/or placed in forebays, infiltration basins or similar stormwater controls. Salting and/or sanding of pavement / walkway areas during winter conditions shall only be done in accordance with all state/local requirements and approvals.

- Trash and other debris shall be removed from all areas of the site at least twice yearly.

- Reseed any bare areas as soon as they occur. Erosion control measures shall be installed in these areas to prevent deposits of sediment from entering the drainage system.

- Grass shall be maintained at a minimum blade height of two to three inches and only 1/3 of the plant height shall be removed at a time. Clippings shall not be disposed of within stormwater management areas or adjacent resource areas.

- Plants shall be pruned as necessary.

- Pet waste shall be disposed of in accordance with local regulations. Pet waste shall not be disposed of in a storm drain or catch basin.

- Snow piles shall be located adjacent to or on pervious surfaces in upland areas. This will allow snow melt water to filter into the soil, leaving behind sand and debris which can be removed in the springtime.

- In no case shall snow be disposed of or stored in resource areas (wetlands, floodplain, streams, or other water bodies).

- In no case shall snow be disposed of or stored in the detention basins, infiltration basins or bioretention areas.

- If necessary, stockpiled snow will be removed from the Site and disposed of at an off-site location in accordance with all local, state and federal regulations.

- The amount of sand and deicing chemicals shall be kept at the minimum amount required to provide safe pedestrian and vehicle travel.

- Deicing chemicals are recommended as a pretreatment to storm events to minimize the amount of applied sand.

- Sand and deicing chemicals should be stockpiled under covered storage facilities that prevent precipitation and adjacent runoff from coming in contact with the deicing materials. Stockpile areas shall be located outside resource areas.

- The primary agents used for deicing at parking lots, sidewalks and the access roads shall consist of salt alternatives such as calcium carbonate ($CaCO_3$) or potassium chloride (KCl) or sodium chloride.

- Deliveries shall be monitored by owner or owner’s representative to ensure proper delivery and in the event that a spillage occurs it shall be contained and cleaned up immediately in accordance with the spill prevention program for the project.

- Recycle materials whenever possible. Provide separate containers for recycle materials. Recycling products will be removed by a certified waste hauler.

OPERATON AND MAINTENANCE TRAINING PROGRAM

The Owner will coordinate an annual in-house training session to discuss the Operations and Maintenance Plan, the Long-Term Pollution Prevention Plan, and the Spill Prevention Plan and response procedures. Annual training will include the following:

Discuss the Operations and Maintenance Plan

- Explain the general operations of the stormwater management system and its BMPs
- Identify potential sources of stormwater pollution and measures / methods of reducing or eliminating that pollution
- Emphasize good housekeeping measures

Discuss the Spill Prevention and Response Procedures

- Explain the process in the event of a spill
- Identify potential sources of spills and procedures for cleanup and /or reporting and notification
- Complete a yearly inventory or Materials Safety Data sheets of all tenants and confirm that no potentially harmful chemicals are in use.

ILLICIT DISCHARGE STATEMENT

Certain types of non-stormwater discharges are allowed under the U.S. Environmental Protection Agency Construction General Permit. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this LTPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. Any existing illicit discharges, if discovered during the course of the work, will be reported to MassDEP and the local DPW, as applicable, to be addressed in accordance with their respective policies. No illicit discharges will be allowed in conjunction with the proposed improvements.

Duly Acknowledged:

_____

Name & Title Date

SPILL PREVENTION AND RESPONSE PROCEDURES (POST CONSTRUCTION)

In order to prevent or minimize the potential for a spill of Hazardous Substances or Oil or come into contact with stormwater, the following steps will be implemented:

1. All Hazardous Substances or Oil (such as pesticides, petroleum products, fertilizers, detergents, acids, paints, paint solvents, cleaning solvents, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.

2. The minimum practical quantity of all such materials will be kept on site.

3. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided on site.

4. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

5. It is the OWNER's responsibility to ensure that all Hazardous Waste on site is disposed of properly by a licensed hazardous material disposal company. The OWNER is responsible for not exceeding Hazardous Waste storage requirements mandated by the EPA or state and local authorities.

In the event of a spill of Hazardous Substances or Oil, the following procedures should be followed:

1. All measures should be taken to contain and abate the spill and to prevent the discharge of the Hazardous Substance or Oil to stormwater or off-site. (The spill area should be kept well ventilated and personnel should wear appropriate protective clothing to prevent injury from contact with the Hazardous Substances.)

2. For spills of less than five (5) gallons of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.

3. For spills greater than five (5) gallons of material immediately contact the MADEP at the toll-free 24-hour statewide emergency number: **1-888-304-1133**, the local fire department (**9-1-1**) and an approved emergency response contractor. Provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill to the emergency response contractor or coordinator, and proceed with prevention, containment and/or clean-up if so desired. (Use the form provided, or similar).

4. If there is a Reportable Quantity (RQ) release, then the National Response Center should be notified immediately at (800) 424-8802; within 14 days a report should be submitted to the EPA regional office describing the release, the date and circumstances of the release and the steps taken to prevent another release. This Pollution Prevention Plan should be updated to reflect any such steps or actions taken and measures to prevent the same from reoccurring.

SPILL PREVENTION CONTROL AND COUNTERMEASURE FORM

Heritage on Main
107-119 Main St, 1 & 3 Elm St, 0 & 26 Kelley St
Medway, MA

Where a release containing a hazardous substance occurs, the following steps shall be taken by the facility manager and/or supervisor:

1. Immediately notify The Town Fire Department (at **9-1-1**)

2. All measures must be taken to contain and abate the spill and to prevent the discharge of the pollutant(s) to off-site locations, receiving waters, wetlands and/or resource areas.

3. Notify the Town Health Department at (508) 533-3206 and the Town Conservation Commission at (508) 321-4890.

4. Provide documentation from licensed contractor showing disposal and cleanup procedures were completed as well as details on chemicals that were spilled to the Town Health Department and Conservation Commission.

Date of spill:_____ Time:_____ Reported By:_____

Weather Conditions:_____

Material Spilled	**Location of Spill**	**Approximate Quantity of Spill (in gallons)**	**Agency(s) Notified**	**Date of Notification**

Cause of Spill: _____

_____

Measures Taken to Clean up Spill: _____

_____

Type of equipment: _____ Make: _____ Size: _____

License or S/N: _____

Location and Method of Disposal _____

_____

Procedures, method, and precautions instituted to prevent a similar occurrence from recurring: _____

_____

_____

Additional Contact Numbers:

- DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) EMERGENCY PHONE: 1-888-304-1133
- NATIONAL RESPONSE CENTER PHONE: (800) 424-8802
- U.S. ENVIRONMENTAL PROTECTION AGENCY PHONE: (888) 372-7341

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP.

PROPOSED

MIXED USE DEVELOPMENT

LOCATION OF SITE

107-119 MAIN STREET, 1 & 3 ELM STREET,

0 & 26 KELLEY STREET,

TOWN OF MEDWAY, NORFOLK COUNTY, MASSACHUSETTS

MAP 40, LOTS 71-76; MAP 48, LOTS 46, 47-1, 47-2, 47-3;

MAP 49, LOTS 1, 32 & 32-1

PROPERTY OWNERS

ADDRESS	PARCEL #	ZONING DISTRICT	OWNER	OWNER ADDRESS
107 MAIN ST	40-076	CENTRAL BUSINESS	85 REALTY CORP	P.O. BOX 2440
111 MAIN ST	40-075	CENTRAL BUSINESS	85 REALTY CORP	P.O. BOX 2440
113 MAIN ST	40-074	CENTRAL BUSINESS	85 REALTY CORP	P.O. BOX 2440
115 MAIN ST	40-073	CENTRAL BUSINESS	MILFORD EAST MAIN STREET, LLC	60 CAUSEWAY
115 MAIN ST	40-072	CENTRAL BUSINESS	85 REALTY CORP	P.O. BOX 2440
117 MAIN ST	40-071	CENTRAL BUSINESS	85 REALTY CORP	P.O. BOX 2440
119 MAIN ST	48-046	CENTRAL BUSINESS	85 REALTY CORP	P.O. BOX 2440
119 MAIN ST	48-047-0001	CENTRAL BUSINESS AND MULTIFAMILY HOUSING OVERLAY DISTRICT	85 REALTY CORP	P.O. BOX 2440
119 MAIN ST	48-047	CENTRAL BUSINESS AND MULTIFAMILY HOUSING OVERLAY DISTRICT	85 REALTY CORP	P.O. BOX 2440
1 ELM ST	48-047-002	CENTRAL BUSINESS AND MULTIFAMILY HOUSING OVERLAY DISTRICT	85 REALTY CORP	P.O. BOX 2440
3 ELM ST	48-047-003	CENTRAL BUSINESS AND MULTIFAMILY HOUSING OVERLAY DISTRICT	85 REALTY CORP	P.O. BOX 2440
0 KELLEY ST	49-032-001	AGRICULTURAL RESIDENTIAL 2 AND MULTIFAMILY HOUSING OVERLAY DISTRICT	85 REALTY CORP	P.O. BOX 2440
26 KELLEY ST	49-032	AGRICULTURAL RESIDENTIAL 2 AND MULTIFAMILY HOUSING OVERLAY DISTRICT	85 REALTY CORP	P.O. BOX 2440

REFERENCES

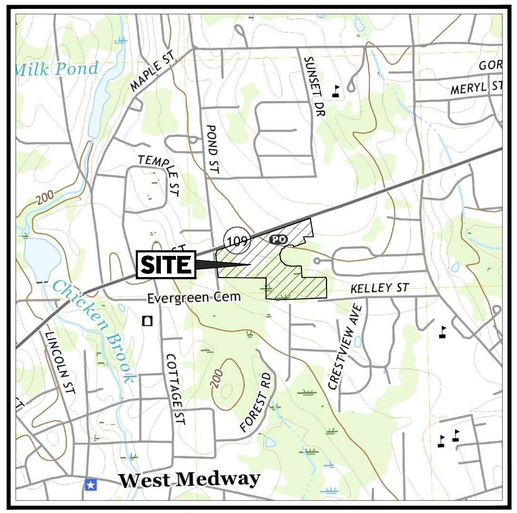
BOUNDARY & TOPOGRAPHIC SURVEY:
CONTROL POINT ASSOCIATES
352 TURNPIKE ROAD,
SOUTHBOROUGH, MA 01722
DATE: 05/24/2022
REVISED:05/23/2023

ARCHITECTURAL PLAN:
HARRISON FRENCH & ASSOCIATES
31 HAYWARD STREET, STE. E-1,
FRANKLIN, MA 02038
DATE: 09/25/2023

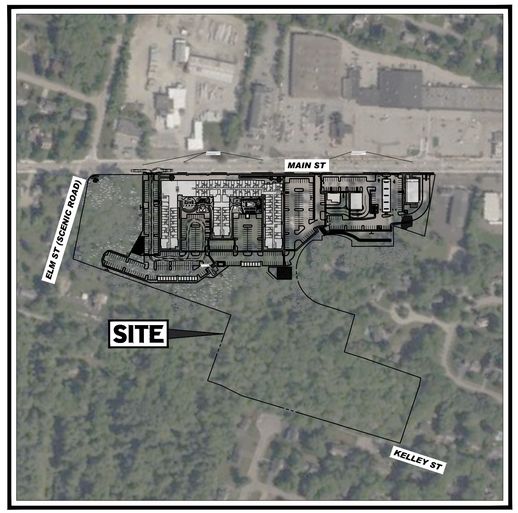
TRANSPORTATION IMPACT ASSESSMENT:
VANASSE & ASSOCIATES INC.
35 NEW ENGLAND BUSINESS CENTER DRIVE,
SUITE 140,
ANDOVER, MA 01810
DATE: 08/28/2023

ORDER OF AREA DELINEATION:
DEP# 216-1034
TOWN OF MEDWAY CONSERVATION COMMISSION
155 VILLAGE STREET, MEDWAY, MA 02053
DATE: 08/07/2023

* THE ABOVE REFERENCED DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THESE PLANS, HOWEVER, BOHLER ENGINEERING DOES NOT CERTIFY THE ACCURACY OF THE WORK REFERENCED OR DERIVED FROM THESE DOCUMENTS, BY OTHERS.



USGS MAP
SCALE: 1" = 1,000'
SOURCE: USGS HOLLISTON QUADRANGLE



AERIAL MAP
SCALE: 1" = 300'
SOURCE: © 2023 MICROSOFT CORPORATION © 2023 MAXAR ©CNES (2023) DISTRIBUTION AIRBUS DS

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APPROVAL BLOCK

PLANNING BOARD APPROVAL
APPROVED BY THE PLANNING BOARD OF THE TOWN OF MEDWAY, MA

DATE

DATE

DATE

PREPARED BY

BOHLER

CONTACT:

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES
THE INFORMATION, DESIGN AND CONTENT OF THESE PLANS ARE PROPRIETARY AND SHALL NOT BE LOANED, USED OR DISCLOSED FOR ANY PURPOSE, WITHOUT THE WRITTEN AUTHORIZATION FROM BOHLER. ONLY APPROVED PLANS IN THE CONSTRUCTION SET SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES. © BOHLER, INC.

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	MAA240482.00-0A
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-CNDS

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

C-101

ORG. DATE - 04/15/2026

I:\BOHLER\NJ\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-MAA240482.00-0A-----LAYOUT1 C-101 COVR
SR

GENERAL NOTES

(Rev. 1/2023)

1. THESE PLANS ARE SOLELY BASED ON INFORMATION THE OWNER AND OTHERS PROVIDED TO BOHLER ENGINEERING MA, LLC (HEREIN "BOHLER") (HEREIN "BOHLER") PRIOR TO THE DATE ON WHICH THE PROFESSIONAL OF RECORD AND BOHLER PREPARED THESE PLANS. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING CONDITIONS AND IMMEDIATELY NOTIFY BOHLER, IN WRITING, IF ANY ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THESE PLANS, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.
2. THE CONTRACTOR MUST STRICTLY COMPLY WITH THESE NOTES AND ALL SPECIFICATIONS/REPORTS CONTAINED HEREIN. THE CONTRACTOR MUST ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS, THESE NOTES, AND THE REQUIREMENTS ARTICULATED IN THE NOTES CONTAINED IN ALL THE OTHER DRAWINGS THAT COMPRISE THE PLAN SET OF DRAWINGS. ADDITIONAL NOTES AND SPECIFICATIONS MAY BE FOUND ON THE INDIVIDUAL PLANS. THESE GENERAL NOTES APPLY TO THIS ENTIRE DOCUMENT PACKAGE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE, PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST CONFIRM WITH THE PROFESSIONAL OF RECORD AND BOHLER THAT THE LATEST EDITION OF THE DOCUMENTS AND/OR REPORTS REFERENCED WITHIN THE PLAN REFERENCES ARE BEING USED FOR CONSTRUCTION. THIS IS THE CONTRACTOR'S SOLE AND COMPLETE RESPONSIBILITY.
4. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION WORK SHALL BE PERFORMED UNTIL THOROUGHLY REVIEWING AND UNDERSTANDING THE CONDITIONS OF APPROVAL TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES AND HAS ALSO CONFIRMED THAT ALL NECESSARY AND REQUIRED PERMITS HAVE BEEN OBTAINED. THE CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.
5. THE CONTRACTOR MUST ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS/REPORTS AND CONDITIONS OF APPROVAL AND ALL APPLICABLE REQUIREMENTS, RULES, REGULATIONS, STATUTORY REQUIREMENTS, CODES, LAWS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES WITH JURISDICTION OVER THIS PROJECT, AND ALL PROVISIONS IN AND CONDITIONS OF THE CONSTRUCTION CONTRACT WITH THE OWNER/DEVELOPER INCLUDING ALL EXHIBITS, ATTACHMENTS AND ADDENDA TO SAME.
6. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT BY CAREFULLY REVIEWING THE MOST CURRENT ARCHITECTURAL, CIVIL AND STRUCTURAL CONSTRUCTION DOCUMENTS (INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLANS, WHERE APPLICABLE). THE CONTRACTOR MUST IMMEDIATELY NOTIFY OWNER, ARCHITECT AND PROFESSIONAL OF RECORD AND BOHLER, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR AMBIGUITIES WHICH EXIST BETWEEN THESE PLANS AND ANY OTHER PLANS THAT COMPRISE THE CONSTRUCTION DOCUMENTS.
7. CONTRACTOR MUST REFER TO AND ENSURE COMPLIANCE WITH THE APPROVED ARCHITECTURAL/BUILDING PLANS OF RECORD FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.
8. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR MUST IMMEDIATELY NOTIFY PROFESSIONAL OF RECORD AND BOHLER, IN WRITING, IF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE RE-DONE OR REMOVED DUE TO DIMENSIONAL MEASUREMENTS OR GRADES BEING INCORRECT ON THESE PLANS PRIOR TO BOTH (A) THE CONTRACTOR GIVING PROFESSIONAL OF RECORD AND BOHLER WRITTEN NOTIFICATION OF SAME AND (B) PROFESSIONAL OF RECORD AND BOHLER, THEREAFTER, PROVIDING THE CONTRACTOR WITH WRITTEN AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.
9. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND MEASUREMENTS INCLUDED ON DESIGN DOCUMENTS HEREIN AND MUST NOT SCALE OFF THE DRAWINGS DUE TO POTENTIAL PRINTING INACCURACIES. ALL DIMENSIONS AND MEASUREMENTS ARE TO FACE OF CONCRETE UNLESS NOTED OTHERWISE. THE GENERAL CONTRACTOR PRIOR TO PREPARATION OF SHOP DRAWINGS, FABRICATION/ORDERING OF PARTS AND MATERIALS AND COMMENCEMENT OF SITE WORK, SITE PLAN DRAWINGS ARE NOT INTENDED AS SURVEY DOCUMENTS. DIMENSIONS SUPERSEDE GRAPHICAL REPRESENTATIONS. THE CONTRACTOR MUST MAKE CONTRACTOR'S OWN MEASUREMENTS FOR LAYOUT OF IMPROVEMENTS.
10. THE OWNER AND CONTRACTOR MUST BE FAMILIAR WITH AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
11. WHEN INCLUDED AS ONE OF THE REFERENCED DOCUMENTS, THE GEOTECHNICAL REPORT, SPECIFICATIONS AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND, IN CASE OF CONFLICT, DISCREPANCY OR AMBIGUITY, THE MORE STRINGENT REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN: (A) THE PLANS; AND (B) THE GEOTECHNICAL REPORT AND RECOMMENDATIONS, MUST TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR MUST NOTIFY THE PROFESSIONAL OF RECORD AND BOHLER, IN WRITING, OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORT AND PLANS AND SPECIFICATIONS, PRIOR TO PROCEEDING WITH ANY FURTHER WORK. IF A GEOTECHNICAL REPORT WAS NOT CREATED, THEN THE CONTRACTOR MUST FOLLOW AND COMPLY WITH THE SAME ON-SITE REQUIREMENTS OF ANY AND ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE SPECIFICATIONS WHICH HAVE JURISDICTION OVER THIS PROJECT.
12. PROFESSIONAL OF RECORD AND BOHLER ARE NEITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS AND FURTHER, HAS NO LIABILITY FOR ANY HAZARDOUS MATERIAL, HAZARDOUS SUBSTANCES OR POLLUTANTS ON, ABOUT OR UNDER THE PROPERTY.
13. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN AND WHERE SHORING IS REQUIRED AND FOR INSTALLING ALL SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT, NEARBY OR CONTIGUOUS STRUCTURES AND PROPERTIES. ALL OF THIS WORK IS TO BE PERFORMED AT CONTRACTOR'S SOLE COST AND EXPENSE.
14. THE CONTRACTOR IS RESPONSIBLE FOR EXTREME CAUTION WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.
15. DEBRIS MUST NOT BE BURIED ON THE SUBJECT SITE. ALL DEMOLITION AND CONSTRUCTION WASTES, UNSUITABLE EXCAVATED MATERIAL, EXCESS SOIL AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF ANY AND ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES WHICH HAVE JURISDICTION OVER THIS PROJECT OR OVER THE CONTRACTOR.
16. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN RECORDS TO DEMONSTRATE PROPER AND FULLY COMPLIANT DISPOSAL ACTIVITIES, TO BE PROMPTLY PROVIDED TO THE OWNER UPON REQUEST.
17. THE CONTRACTOR IS RESPONSIBLE FOR REPAIR, AT CONTRACTOR'S SOLE COST, ALL DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME TO INCLUDE, BUT NOT BE LIMITED TO, REDESIGN, RE-SURVEY, RE-PERMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAGE, INTERCONNECTION CABLE, WIRING CONDUITS, AND ANY APPURTENANCES AND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION AND/OR PROPERTY TO A CONDITION EQUIVALENT OR EQUAL TO THAT EXISTING PRIOR TO THE START OF CONSTRUCTION.
18. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES AND MATERIALS COMPLY WITH AND CONFORM TO THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH APPLICABLE CODES, LAWS, RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. THE CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST, PROMPTLY, DOCUMENT ALL EXISTING DAMAGE AND NOTIFY, IN WRITING, THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
19. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR AND HAVE NO CONTRACTUAL, LEGAL OR OTHER RESPONSIBILITIES FOR JOB SITE SAFETY JOB SITE SUPERVISION, OR ANYTHING RELATED TO SAME. THE PROFESSIONAL OF RECORD AND BOHLER HAVE NOT BEEN RETAINED TO PERFORM OR TO BE RESPONSIBLE FOR JOB SITE SAFETY, SAME BEING WHOLLY OUTSIDE OF PROFESSIONAL OF RECORD'S AND BOHLER SERVICES AS RELATED TO THE PROJECT. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE TO IDENTIFY OR REPORT ANY JOB SITE SAFETY ISSUES OR ANY JOB SITE CONDITIONS, AT ANY TIME.
20. THE CONTRACTOR MUST IMMEDIATELY IDENTIFY IN WRITING THE PROFESSIONAL OF RECORD AND BOHLER , ANY DISCREPANCIES THAT MAY OR COULD AFFECT THE PUBLIC SAFETY, HEALTH OR GENERAL WELFARE, OR PROJECT COST. IF THE CONTRACTOR PROCEEDS WITH CONSTRUCTION WITHOUT PROVIDING PROPER WRITTEN NOTIFICATION AS DESCRIBED ABOVE, IT WILL BE AT THE CONTRACTOR'S OWN RISK AND, FURTHER, THE CONTRACTOR MUST INDEMNIFY, DEFEND AND HOLD HARMLESS THE PROFESSIONAL OF RECORD AND BOHLER FOR ANY AND ALL DAMAGES, COSTS, INJURIES, ATTORNEY'S FEES AND THE LIKE WHICH RESULT FROM OR ARE IN ANY WAY RELATED TO SAME INCLUDING, BUT NOT LIMITED TO, ANY THIRD PARTY AND FIRST PARTY CLAIMS.
21. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR ANY INJURY OR DAMAGES RESULTING FROM THE CONTRACTOR'S FAILURE TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH THE APPROVED PLANS, AND CURRENT CODES, RULES, STATUTES AND THE LIKE. IF THE CONTRACTOR AND/OR OWNER FAIL TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH APPROVED PLANS, RULES, STATUTES, CODES AND THE LIKE, THE CONTRACTOR AND/OR OWNER AGREE TO AND MUST JOINTLY, INDEPENDENTLY, SEPARATELY, AND SEVERALLY INDEMNIFY AND HOLD THE PROFESSIONAL OF RECORD AND BOHLER HARMLESS FOR AND FROM ALL INJURIES, CLAIMS AND DAMAGES THAT PROFESSIONAL OF RECORD AND BOHLER SUFFER AND ANY AND ALL COSTS THAT PROFESSIONAL OF RECORD AND BOHLER INCUR AS RELATED TO SAME.
22. ALL CONTRACTORS MUST CARRY AT LEAST THE MINIMUM AMOUNT OF THE SPECIFIED AND COMMERCIALLY REASONABLE STATUTORY WORKER'S COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND COMMERCIAL GENERAL LIABILITY INSURANCE (CGL) INCLUDING ALSO ALL UMBRELLA COVERAGES. ALL CONTRACTORS MUST HAVE ENDORSED TO NAME BOHLER AS ADDITIONAL INSURED ON THEIR POLICIES. THE OWNER, PROFESSIONAL OF RECORD, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AS ADDITIONAL NAMED INSUREDS AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE (DEFEND, IF APPLICABLE) AND HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED AND AGREED TO BY THE CONTRACTOR HEREIN. ALL CONTRACTORS MUST FURNISH BOHLER WITH CERTIFICATIONS OF INSURANCE OR CERTIFICATES OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE COVERAGES PRIOR TO COMMENCING ANY WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION AND FOR TWO YEARS AFTER THE COMPLETION OF CONSTRUCTION AND AFTER ALL PERMITS ARE ISSUED, WHICHEVER DATE IS LATER. IN ADDITION, ALL CONTRACTORS AGREE THAT TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, INDEMNIFY, DEFEND AND HOLD HARMLESS BOHLER AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS FROM AND AGAINST ANY AND ALL CLAIMS, CAUSES OF ACTION, LOSSES, DAMAGES, PENALTIES, EXPENSES, PUNITIVE DAMAGES, TORT DAMAGES, STATUTORY CLAIMS, STATUTORY CAUSES OF ACTION, LOSSES, CAUSES OF ACTION, LIABILITIES OR COSTS, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH OR TO THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTOR(S), ALL CLAIMS BY THIRD PARTIES AND ALL CLAIMS RELATED TO THE PROJECT. THE CONTRACTOR MUST NOTIFY PROFESSIONAL OF RECORD, IN WRITING, AT LEAST THIRTY (30) DAYS PRIOR TO ANY TERMINATION, SUSPENSION OR CHANGE OF ITS INSURANCE HEREUNDER.
23. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR CONSTRUCTION METHODS, MEANS, TECHNIQUES OR PROCEDURES, GENERALLY OR FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES FOR COMPLETION OF WORK DIRECTED BELOW IN THESE PLANS, AND FOR ANY CONFLICTS IN SCOPE AND REVISIONS THAT RESULT FROM SAME. THE CONTRACTOR IS FULLY AND SOLELY RESPONSIBLE FOR DETERMINING THE MEANS AND METHODS FOR COMPLETION OF THE WORK, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
24. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER, NOR THE PRESENCE OF BOHLER AND/OR ITS PERSONNEL AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE (WHERE APPLICABLE), SHALL RELIEVE THE CONTRACTOR OF AND FROM CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, OVERSEEING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND COMPLIANCE WITH ANY HEALTH AND SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES HAVING JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER PARTIES HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER (OR ANY RESPONSIBILITY FOR) ANY CONSTRUCTION, INCLUDING SAFETY CONDITIONS ON THE JOBSITE, BECAUSE ALL HEALTH AND SAFETY PROGRAMS OR PROCEDURES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR MUST INDEMNIFY, DEFEND, PROTECT AND HOLD HARMLESS BOHLER PARTIES FOR AND FROM ANY LIABILITY TO BOHLER PARTIES RESULTING FROM THE CONTRACTOR'S WORK, SERVICES AND/OR VIOLATIONS OF THIS NOTE. THESE NOTES OR ANY PART THEREOF SHALL NOT BE CONSTRUED AS MAKING THE CONTRACTOR MUST NAME BOHLER AS AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE.
25. WHEN IT IS CLEARLY AND SPECIFICALLY WITHIN BOHLER'S SCOPE OF SERVICES CONTRACT WITH THE OWNER/DEVELOPER, BOHLER WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF EVALUATING CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER'S REVIEW SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR OF ANY RESPONSIBILITY FOR SAME. BOHLER WILL PERFORM ITS SHOP DRAWING REVIEW WITH REASONABLE PROMPTNESS, AS CONDITIONS PERMIT. ANY DOCUMENT, DOCUMENTING BOHLER'S REVIEW OF A SPECIFIC ITEM OR LIMITED SCOPE, MUST NOT INDICATE THAT BOHLER HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR MUST, IN WRITING, PROMPTLY AND IMMEDIATELY BRING ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS TO BOHLER'S ATTENTION. BOHLER IS NOT REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
26. IF THE CONTRACTOR DEVIATES FROM THESE PLANS AND/OR SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE PROFESSIONAL OF RECORD AND BOHLER FOR ALL DEVIATIONS WITHIN PROFESSIONAL OF RECORD'S SCOPE, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK PERFORMED WHICH DEVIATES FROM THE PLANS, ALL FINES AND/OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM. CONTRACTOR MUST DEFEND, INDEMNIFY, PROTECT, AND HOLD HARMLESS THE PROFESSIONAL OF RECORD AND BOHLER PARTIES TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, FOR AND FROM ALL FEES, ATTORNEYS' FEES, DAMAGES, COSTS, JUDGMENTS, CLAIMS, INJURIES, PENALTIES AND THE LIKE RELATED TO SAME.
27. THE CONTRACTOR IS RESPONSIBLE FOR A MAINTAINING AND PROTECTING THE TRAFFIC CONTROL PLAN AND ELEMENTS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS, FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE RIGHT OF WAY OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE AND IS THE CONTRACTOR'S SOLE RESPONSIBILITY.
28. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS IN STRICT ACCORDANCE WITH THE PROFESSIONAL OF RECORD AND BOHLER FOR ALL DEVIATIONS WITHIN PROFESSIONAL OF RECORD'S SCOPE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND/OR DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS, OWNER AGREES TO INDEMNIFY AND HOLD THE PROFESSIONAL OF RECORD AND BOHLER PARTIES, HARMLESS FOR ALL INJURIES, DAMAGES AND COSTS THAT PROFESSIONAL OF RECORD AND BOHLER INCUR AS A RESULT OF SAID FAILURE OR FAILURE TO PRESERVE.
29. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES AND MATERIALS COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS, LAWS, ORDINANCES, AND CODES, AND ALL APPLICABLE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 ET SEQ.) AS AMENDED, AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.
30. THE CONTRACTOR MUST STRICTLY COMPLY WITH THE LATEST AND CURRENT OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION OVER EXCAVATION AND TRENCHING PROCEDURES. PROFESSIONAL OF RECORD AND BOHLER HAS NO RESPONSIBILITY FOR OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES AND WORK.
31. THE CONTRACTOR AND THE OWNER MUST INSTALL ALL ELEMENTS AND COMPONENTS IN STRICT COMPLIANCE WITH AND IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDED INSTALLATION CRITERIA AND SPECIFICATIONS. IF THE CONTRACTOR AND/OR OWNER FAIL TO DO SO, THEY AGREE TO JOINTLY, INDEPENDENTLY, SEPARATELY, COLLECTIVELY, AND SEVERALLY INDEMNIFY, DEFEND, PROTECT AND HOLD PROFESSIONAL OF RECORD AND BOHLER PARTIES HARMLESS FOR ALL INJURIES AND DAMAGES THAT PROFESSIONAL OF RECORD SUFFERS AND COSTS THAT PROFESSIONAL OF RECORD INCURS AS A RESULT OF SAID FAILURE.
32. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS OR LOCAL GOVERNING AGENCY FOR SITES WHERE ONE (1) ACRE OR MORE IS DISTURBED BY CONSTRUCTION ACTIVITIES (UNLESS THE LOCAL JURISDICTION REQUIRES A DIFFERENT THRESHOLD). THE CONTRACTOR MUST ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF ALL SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP. INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE AND FURTHER, THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR FAILING TO DO SO.
33. AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED DOCUMENTS PREPARED BY THE PROFESSIONAL OF RECORD AND BOHLER, THE USE OF THE WORDS 'CERTIFY' OR 'CERTIFICATION' CONSTITUTE(S) AN EXPRESSION ONLY OF PROFESSIONAL OPINION REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE PROFESSIONAL OF RECORD'S AND BOHLER KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON AND ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE OF ANY NATURE OR TYPE, EITHER EXPRESSED OR IMPLIED, UNDER ANY CIRCUMSTANCES.

DEMOLITION NOTES

(Rev. 1/2023)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. THE CONTRACTOR MUST CONDUCT DEMOLITION/REMOVALS ACTIVITIES IN SUCH A MANNER AS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND ALL OTHER ADJACENT FACILITIES. THE CONTRACTOR MUST OBTAIN ALL APPLICABLE PERMITS FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY(IES) PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION OR DEMOLITION ACTIVITIES IN OR ADJACENT TO THE RIGHT-OF-WAY.
3. WHEN DEMOLITION-RELATED ACTIVITIES IMPACT ROADWAYS AND/OR ROADWAY RIGHT-OF-WAY, THE CONTRACTOR MUST PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH THE CURRENT FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND THE FEDERAL, STATE, AND LOCAL REGULATIONS.
4. THE DEMOLITION (AND/OR REMOVALS) PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION AND TO IDENTIFY ONLY CONDITIONS REGARDING ITEMS TO BE DEMOLISHED, REMOVED, AND/OR TO REMAIN.
   A. THE CONTRACTOR MUST ALSO REVIEW ALL CONSTRUCTION DOCUMENTS AND INCLUDE WITHIN THE DEMOLITION ACTIVITIES ALL INCIDENTAL WORK NECESSARY TO ACCOMPLISH THE WORK SHOWN ON THE PLANS.
   B. THIS PLAN IS NOT INTENDED TO AND DOES NOT PROVIDE DIRECTION REGARDING THE MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE EMPLOYED TO ACCOMPLISH THE WORK. ALL MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE EMPLOYED TO ACCOMPLISH THE WORK SHALL COMPLY WITH ALL OSHA AND OTHER FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR MUST COMPLY WITH ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE FOR THE CONTRACTOR AND THE PUBLIC.
5. THE CONTRACTOR MUST PROVIDE ALL "METHODS AND MEANS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE. THE CONTRACTOR, AT THE CONTRACTOR'S SOLE COST, MUST REPAIR ALL DAMAGE TO ALL ITEMS AND FEATURES THAT ARE TO REMAIN. CONTRACTOR MUST USE NEW MATERIAL FOR ALL REPAIRS. CONTRACTOR'S REPAIRS MUST INCLUDE THE RESTORATION OF ALL ITEMS AND FEATURES DAMAGED BY THE PRE-DEMOLITION CONDITION, OR BETTER. CONTRACTOR MUST PERFORM ALL REPAIRS AT THE CONTRACTOR'S SOLE EXPENSE.
6. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. THE CONTRACTOR MUST PROCEED WITH THE DEMOLITION IN A METHODIC AND PROGRESSIVE MANNER IN ACCORDANCE WITH ALL OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONTRACTOR SAFETY AND SAFETY TO ALL PROPERTY ON THE SITE OR ADJACENT OR TRANSFERRED TO THE SAME.
7. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY, WHICH MUST INCLUDE, BUT IS NOT LIMITED TO, THE INSTALLATION AND MAINTENANCE OF BARRIERS, FENCING, OTHER APPROPRIATE AND/OR NECESSARY SAFETY FEATURES AND ITEMS NECESSARY TO PROTECT THE PUBLIC FROM DANGEROUS AREAS OF CONSTRUCTION AND DEMOLITION ACTIVITIES. THE CONTRACTOR MUST SAFEGUARD THE SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE ENTRY OF UNAUTHORIZED PERSONS AT ANY TIME DURING THE DEMOLITION PROCESS.
8. PRIOR TO THE COMMENCEMENT OF ANY SITE ACTIVITY AND ANY DEMOLITION ACTIVITY, THE CONTRACTOR MUST, IN WRITING, RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS AND/OR SPECIFICATIONS, ALL CONCERNS OR QUESTIONS REGARDING THE AP

MASSACHUSETTS DEMOLITION NOTES

(Rev. 10/2025)

1. THE CONTRACTOR MUST LOCATE AND CLEARLY DEFINE VERTICALLY AND HORIZONTALLY ALL ACTIVE AND INACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED AND/OR REMAIN. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.
2. CONTRACTOR MUST FIELD LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION AND IF REQUIRED, DIG EXPLORATORY TEST PITS TO CONFIRM EXACT LOCATION AND DEPTH OF UTILITIES. CONTRACTOR MUST NOTIFY DESIGN ENGINEER WITH ANY CONFLICTS AS NEEDED TO COORDINATE FINAL LOCATION OF ALL PROPOSED IMPROVEMENTS.
3. CONTRACTOR MUST INSPECT ALL EXISTING UTILITY STRUCTURES THAT ARE TO REMAIN FOR THE PROJECTS RE-USE TO VERIFY SUITABILITY FOR SAME. IF STRUCTURES CAN NOT BE REUSED THEN THE CONTRACTOR MUST PROVIDE A NEW STRUCTURE. THE CONTRACTOR MUST COORDINATE SUCH WORK WITH THE APPLICABLE UTILITY PROVIDER.
4. CONTRACTOR TO REMOVE ANY BUILDING FOUNDATION REMAINS OR ASSOCIATED IMPROVEMENTS, DELETERIOUS MATERIALS, AND/OR DEBRIS THAT IMPEDE THE WORK SHOWN ON THESE PLANS.
5. THE CONTRACTOR MUST REVIEW THE PLANS VERSUS THE LOCATION OF EXISTING STRUCTURES, UTILITIES AND APPURTENANCES IN THE FIELD TO CONFIRM ACCURACY OF SAME AND VERIFY ITEMS TO BE REMOVED. THE CONTRACTOR MUST CARRY COSTS FOR REMOVAL OF ANY EXISTING STRUCTURES, APPURTENANCES, AND UNDERGROUND UTILITIES, INCLUDING BUT NOT LIMITED TO, DRAIN, WATER, SEWER, STEAM, IRRIGATION, GAS, TELECOM AND ELECTRIC.
6. THE CONTRACTOR MUST MAINTAIN, ADJUST OR ABANDON EXISTING MONITORING WELLS IN ACCORDANCE WITH THE DIRECTION OF THE ENVIRONMENTAL CONSULTANT (TYP).
7. WHERE THE LIMIT OF WORK COINCIDES WITH PROPERTY LINE, TREE LINE, PROPOSED SAWCUT OR COMBINATION THEREOF IT IS SHOWN ADJACENT TO THESE FEATURES FOR GRAPHICAL CLARITY.
8. EXISTING TREES TO REMAIN ARE TO BE PROTECTED DURING CONSTRUCTION UNLESS CLEARLY INDICATED OTHERWISE. REASONABLE CARE AND CAUTION MUST BE TAKEN DURING CONSTRUCTION TO PREVENT DAMAGE AND SELECTIVE PRUNING MAY BE REQUIRED TO ENSURE THAT TREES DO NOT CONFLICT WITH THE DEVELOPMENT.
9. CONTRACTOR MUST REPAIR/REPLACE ANY TRAFFIC LOOP DETECTORS THAT ARE DAMAGED DURING CONSTRUCTION WITHIN EXISTING OR PROPOSED RIGHTS OF WAYS. ANY SUCH WORK MUST BE PERFORMED BY A LICENSED / DOT APPROVED SIGNAL CONTRACTOR. ANY DAMAGED LOOPS OR OTHER SIGNAL EQUIPMENT MUST BE REPAIRED IMMEDIATELY AFTER THE WORK IS COMPLETE. THE SIGNAL CONTRACTOR MUST BE AVAILABLE TO MAKE ANY TEMPORARY SIGNAL CHANGES IF REQUESTED BY DOT AND/OR THE MUNICIPALITY.
10. THE CONTRACTOR MUST FIELD LOCATE LOCATIONS WHERE PROPOSED UTILITIES CROSS EXISTING UNDERGROUND UTILITIES BY USING A TEST PIT TO DETERMINE THE EXACT SIZE, DEPTH AND LOCATION, PRIOR TO COMMENCEMENT OF CONSTRUCTION.
11. CONTRACTOR MUST LOCATE ANY EXISTING UTILITY SERVICES THAT ARE TO BE TERMINATED AT THE EXISTING MAIN AND/OR PROPERTY LINE. THESE SERVICES ARE TO BE TERMINATED IN ACCORDANCE WITH MUNICIPAL / STATE TRANSPORTATION DEPARTMENT REQUIREMENTS.

MASSACHUSETTS SITE NOTES

(Rev. 10/2025)

1. WHEN APPLICABLE, OWNER/ OPERATOR MUST FILE THE NOI FOR NPDES PERMITS AT APPROPRIATE AND/OR REQUIRED TIME FRAMES BASED UPON THE DESIRED START OF CONSTRUCTION. LAND DISTURBING ACTIVITIES MUST NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED FROM GOVERNING AUTHORITIES (INCLUDING STORMWATER POLLUTION PREVENTION PLAN). THE CONTRACTOR MUST STRICTLY ADHERE TO THE APPROVED SWPPP PLAN DURING CONSTRUCTION OPERATIONS (IF PROVIDED).
2. ALL CONCRETE MUST BE AIR ENTRAINED AND INCLUDE THE MINIMUM COMPRESSIVE STRENGTH OF JURISDICTIONAL STANDARD PSI AT 28 DAYS (OR 4,000 PSI) UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND/OR GEOTECHNICAL REPORT. IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLANS, DETAILS AND GEOTECHNICAL REPORT THEN THE GEOTECHNICAL REPORT MUST GOVERN.
3. THE CONTRACTOR MUST FILE SITE SIGNAGE APPLICATION OR PERMIT UNDER SEPARATE APPLICATION UNLESS DONE SO AS PART OF JURISDICTIONAL PERMITTING PROCEDURES.
4. THE CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT THE CONTRACTOR'S SOLE COST AND EXPENSE, ALL SIDEWALKS, CURBS, PAVEMENT MARKINGS, AND PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES WHETHER SPECIFIED ON THIS PLAN OR NOT.
5. WORK WITHIN THE RIGHT-OF-WAY MUST BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS AND STANDARDS OF THE DEPARTMENT OF PUBLIC WORKS, ENGINEERING DEPARTMENT, HIGHWAY DIVISION, AND/OR STATE DOT HIGHWAY DEPARTMENT.
6. WHERE RETAINING WALLS ARE IDENTIFIED ON THE PLANS, TOP AND BOTTOM OF WALL WIDTHS DO NOT REPRESENT THE ACTUAL WIDTH OF THE PROPOSED WALL, RATHER THEY ARE AN ASSUMPTION BASED ON WALL TYPE AND WALL HEIGHT. WALL FOOTINGS AND /OR FOUNDATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET/DETERMINED BY THE CONTRACTOR OR WALL DESIGNER, AND MUST BE SET BASED UPON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE CONTRACTOR MUST ENSURE THAT AN APPROPRIATELY LICENSED PROFESSIONAL DESIGNS ALL WALLS SHOWN HEREON AND PRIOR TO CONSTRUCTION. REFER TO GRADING NOTES REGARDING RETAINING WALL DESIGN.
7. CONTRACTOR IS CAUTIONED OF EXISTING UTILITY SERVICES TO REMAIN IN PROXIMITY TO PROPOSED BOLLARDS AND SIGNS. CONTRACTOR MUST PROVIDE FIELD MODIFICATION LOCATIONS OF BOLLARDS AND BOLLARDS WITH SIGNAGE AS NEEDED TO AVOID CONFLICTS WITH EXISTING UTILITY SERVICES TO REMAIN.

MASSACHUSETTS ACCESSIBILITY DESIGN GUIDELINES

(Rev. 10/2025)

1. IN ADDITION TO THE ACCESSIBILITY DESIGN GUIDELINES ON SHEET C-102, THE CONTRACTOR MUST ALSO ENSURE THAT ALL ACCESSIBLE COMPONENTS AND ACCESSIBLE ROUTES ARE CONSTRUCTED IN STRICT ACCORDANCE WITH THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (AAB) REGULATIONS 521 CMR. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IN WRITING, OF ANY DISCREPANCIES BETWEEN THE "AMERICANS WITH DISABILITIES ACT" (ADA) CODE, AAB, AND STATE BUILDING CODE AS IT RELATES TO ANY ACCESSIBLE IMPROVEMENTS BEING CONSTRUCTED PRIOR TO COMMENCING THE WORK.

MASSACHUSETTS GRADING NOTES

(Rev. 10/2025)

1. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY SIX (6) INCHES ABOVE PAVEMENT GRADE UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR MUST CONFIRM AND ENSURE THAT AS CONSTRUCTED IMPROVEMENTS CREATE THE FOLLOWING MINIMUM SLOPES (EXCEPT WHERE ADA REQUIREMENTS LIMIT THEM): 1.0% ON ALL CONCRETE SURFACES, 1.5% ON ASPHALT SURFACES, 1.5% IN LANDSCAPED AREAS AND 0.75% SLOPE AGAINST ALL ISLANDS, GUTTERS, AND CURBS TO PROVIDE POSITIVE DRAINAGE.
3. WHERE RETAINING WALLS ARE IDENTIFIED ON THE PLANS, TOP AND BOTTOM OF WALL ELEVATIONS (GH & GL) REPRESENT THE PROPOSED FINISHED GRADE AT THE FACE OF THE TOP AND THE BOTTOM OF THE WALL AND DO NOT REPRESENT THE OVERALL HEIGHT OF THE WALL TO ITS EXTENTS (I.E. ANY CAP UNITS OR COURSES BELOW GRADE INCLUDING FOOTINGS ARE EXCLUDED). WALL FOOTINGS/FOUNDATION ELEVATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET/DETERMINED BY THE CONTRACTOR OR WALL DESIGNER, AND MUST BE SET BASED UPON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE CONTRACTOR MUST ENSURE THAT THERE ARE NO UTILITIES ON THE PASSIVE SIDE OF THE RETAINING WALL. NO EXCAVATION MAY BE PERFORMED ON THE PASSIVE SIDE OF THE RETAINING WALL WITHOUT APPROPRIATELY AND SAFELY SUPPORTING THE WALL IN ACCORDANCE WITH THE STANDARD OF CARE AND ALL APPLICABLE RULES, REGULATIONS, CODES, ORDINANCES, LAWS AND STATUTES.
4. MSE OR GRAVITY BLOCK WALLS MUST BE CONSTRUCTED SUCH THAT UPON COMPLETION OF CONSTRUCTION THERE IS NO UNFINISHED SURFACE OR LIFTING RINGS VISIBLE (E.G. USE OF FINISHED TOP BLOCK OR CAP STONES)
5. STORMWATER RUNOFF WITHIN PROPERTY MUST BE COLLECTED ON-SITE WITH NO OVERLAND RUNOFF ONTO THE RIGHT-OF-WAY OR ADJACENT PROPERTIES TO THE MAXIMUM EXTENT POSSIBLE OR IN THE MANNER SHOWN ON THE CONSTRUCTION DRAWINGS. STORMWATER RUNOFF ONTO ADJACENT PROPERTIES MUST BE CONTROLLED AS TO NOT ADVERSELY IMPACT SAID PROPERTIES.
6. BEFORE COMMENCING GRADING WORK, CONTRACTOR MUST SUBMIT SAMPLES OF ALL NATIVE AND IMPORTED MATERIALS WITH THEIR INTENDED FOR STRUCTURAL USES TO THE GEOTECHNICAL ENGINEER OF RECORD.
7. REFER TO GENERAL NOTES SHEET FOR ADDITIONAL ADA GUIDELINES AND REQUIREMENTS.
8. FOR ALL RETAINING WALLS FOUR (4) FEET OR GREATER IN HEIGHT (HEIGHT AS DEFINED IN INTERNATIONAL BUILDING CODE AND STATE BUILDING CODE):
   A. THE OWNER OR THE OWNER'S CONTRACTOR IS TO PROVIDE A SITE-SPECIFIC RETAINING WALL DESIGN PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED (E.G. STRUCTURAL ENGINEER) IN THE STATE WHERE THE CONSTRUCTION OCCURS. SOIL TYPES, WATER TABLE ELEVATION, EXISTING & PROPOSED SURROUNDING IMPROVEMENTS/CONDITIONS (INCLUDING BUT NOT LIMITED TO SLOPES, DRIVE AISLES, ROADS, FENCING, GUIDERAILS, UTILITIES, DRAINAGE FACILITIES, STRUCTURES, FOUNDATIONS), LIVE LOADS AND OTHER SITE AMENITIES THAT COULD HAVE AN INFLUENCE OR IMPACT ON THE RETAINING WALL(S) CONSTRUCTABILITY AND/OR LONGEVITY MUST BE CONSIDERED AND INCORPORATED INTO THE RETAINING WALL DESIGN AS WELL AS THE GLOBAL STABILITY ANALYSIS.
   B. PEER REVIEW AND GLOBAL STABILITY ANALYSIS OF THE RETAINING WALL DESIGN MUST BE COMPLETED BY THE OWNER'S GEOTECHNICAL ENGINEER TO CERTIFY THE DESIGN MEETS INDUSTRY STANDARDS FOR FACTOR OF SAFETY. SOIL TYPES, WATER TABLE ELEVATION AND DESIGN PROPERTIES AS NOTED ABOVE MUST BE FIELD CONFIRMED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO WALL CONSTRUCTION.
9. CONTRACTOR MUST INSTALL CURB ALONG FACE OF BUILDING / WALL AS SHOWN TO PROVIDE CONSISTENT WIDTH ALONG LENGTH OF PROPOSED ACCESSIBLE RAMP AND RAMP LANDING TO MEET ADA/AAB REQUIREMENTS.
10. CONTRACTOR MUST REVIEW RETAINING WALL LOCATIONS VERSUS APPLICABLE STATE AND LOCAL CODES AND PROVIDE FALL PROTECTION (E.G. FENCING OR RAILING) IN ACCORDANCE WITH SAID CODE.
11. CONTRACTOR MUST COORDINATE WITH OWNER/OPERATOR TO REVIEW EXISTING DEPRESSIONS WITHIN EXISTING PAVEMENT AREAS TO REMAIN AND MUST CONFIRM THAT THE SCOPE OF WORK MUST PROVIDE POSITIVE DRAINAGE BY FIXING ANY EXISTING AREAS OF PONDING.

MASSACHUSETTS DRAINAGE NOTES

(Rev. 10/2025)

1. WHEN THESE PLANS INVOLVE MULTIPLE BUILDINGS, SOME OF WHICH MAY BE BUILT AT A LATER DATE, THE CONTRACTOR MUST EXTEND ALL UTILITY SERVICES, INCLUDING BUT NOT LIMITED TO STORM, SANITARY, UTILITIES, AND IRRIGATION LINES, TO A POINT AT LEAST FIVE (5) FEET BEYOND THE PAVED AREAS FOR WHICH THE CONTRACTOR IS RESPONSIBLE. THE CONTRACTOR MUST CAP ENDS OF INSTALLED UTILITIES AS APPROPRIATE, MARK UTILITY ENDS WITH MAGNETIC TRACER TAPE, MARK TERMINUS LOCATIONS WITH A 2 IN X4 FT STAKE, AND MUST NOTE THE LOCATION OF ALL UTILITY STUBS ON A CLEAN COPY OF THE PLAN. THIS RECORD DOCUMENT MUST BE PREPARED IN A NEAT AND WORKMAN-LIKE MANNER AND TURNED OVER TO THE OWNER/DEVELOPER UPON COMPLETION OF THE WORK, ALL OF WHICH IS AT THE CONTRACTOR'S SOLE COST.
2. STORM AND SANITARY PIPE LENGTHS INDICATED ARE NOMINAL AND ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE UNLESS INDICATED ON THE PLANS OTHERWISE.
3. UNLESS CLEARLY INDICATED OTHERWISE, ALL STORM PIPE MUST BE REINFORCED CONCRETE PIPE (RCP) CLASS III WITH SILT/SOIL TIGHT JOINTS. WHEN HIGH-DENSITY POLYETHYLENE PIPE (HDPE) IS CALLED FOR ON THE PLANS, IT MUST CONFORM TO AASHTO M252 FOR PIPES 4" TO 10" AND TO AASHTO M294 FOR PIPES 12" TO 60" AND TYPE S (SMOOTH INTERIOR WITH ANGULAR CORRUGATIONS) WITH GASKET FOR SILT/SOIL TIGHT JOINT. PIPE FOR ROOF DRAIN CONNECTION MUST BE SDR 26 PVC OR SCHEDULE 40 UNLESS INDICATED OTHERWISE. HDPE PIPE JOINT GASKETS MUST BE PROVIDED AND CONFORM TO ASTM F477. DRAIN PIPE INSTALLED WITH OVER TEN (10) FEET OVER COVER AND/OR IN HIGH GROUNDWATER CONDITIONS SHALL BE SANITITE HP POLYPROPYLENE PIPE (PP), OR APPROVED EQUIVALENT.

MASSACHUSETTS UTILITY NOTES

(Rev. 10/2025)

1. THE CONTRACTOR'S PRICE FOR WATER AND SEWER SERVICE INSTALLATIONS MUST INCLUDE ALL FEES, COSTS, AND APPURTENANCES REQUIRED BY THE UTILITY PROVIDER (AND OTHER AGENCIES HAVING JURISDICTION OVER THE WORK) TO PROVIDE FULL AND COMPLETE WORKING SERVICE, INCLUDING (BUT NOT LIMITED TO) NECESSARY FEES, TESTING, DISINFECTING, INSPECTIONS, ROAD OPENING & BACKFILL REQUIREMENTS, TRAFFIC CONTROL AND SURETY BONDS AS DEFINED BY THE PROVIDER (AND OTHER AGENCIES HAVING JURISDICTION OVER THE WORK).
2. ALL WORK ASSOCIATED WITH UTILITY POLES, OVERHEAD WIRES AND ANY/ALL APPURTENANCES MUST BE COORDINATED BY THE CONTRACTOR WITH THE LOCAL UTILITY COMPANIES PRIOR TO THE ORDERING OF ANY MATERIALS. THIS MAY INCLUDE BUT IS NOT LIMITED TO THE REMOVAL, INSTALLATION, RELOCATION OR PROTECTION OF ANY BRACING, GUY WIRES, OVERHEAD WIRES, ETC. AS MAY BE REQUIRED TO ACCOMMODATE THE PROJECT.
3. SEWERS CONVEYING SANITARY FLOW, OR INDUSTRIAL FLOW MUST BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST TEN (10) FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES MUST, AT A MINIMUM, BE IN SEPARATE TRENCHES WITH THE AT LEAST 18 INCHES OF VERTICAL SEPARATION FROM THE BOTTOM OF THE WATER MAIN TO THE TOP OF THE SEWER LINE. WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER MUST BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST TEN (10) FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SANITARY SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SANITARY SEWER MUST BE PROVIDED. ALL CROSSINGS MUST BE IN ACCORDANCE WITH JURISDICTIONAL PERMITTING/UTILITY AUTHORITIES REGULATIONS.
4. WHEN THESE PLANS INVOLVE MULTIPLE BUILDINGS, SOME OF WHICH MAY BE BUILT AT A LATER DATE, THE CONTRACTOR MUST EXTEND ALL UTILITY SERVICES, INCLUDING BUT NOT LIMITED TO STORM, SANITARY, UTILITIES, AND IRRIGATION LINES, TO A POINT AT LEAST FIVE (5) FEET BEYOND THE PAVED AREAS FOR WHICH THE CONTRACTOR IS RESPONSIBLE. THE CONTRACTOR MUST CAP ENDS OF INSTALLED UTILITIES AS APPROPRIATE, MARK UTILITY ENDS WITH MAGNETIC TRACER TAPE, MARK TERMINUS LOCATIONS WITH A 2 IN X 4 FT STAKE, AND MUST NOTE THE LOCATION OF ALL UTILITY STUBS ON A CLEAN COPY OF THE PLAN. THIS RECORD DOCUMENT MUST BE PREPARED IN A NEAT AND WORKMAN-LIKE MANNER AND TURNED OVER TO THE OWNER/DEVELOPER UPON COMPLETION OF THE WORK, ALL OF WHICH IS AT THE CONTRACTOR'S SOLE COST.
5. UNLESS INDICATED OTHERWISE, ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC., MUST BE INSTALLED UNDERGROUND. ALL NEW UTILITY SERVICES MUST BE INSTALLED IN ACCORDANCE WITH THE UTILITY SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.
6. SANITARY PIPE MUST BE POLYVINYL CHLORIDE (PVC) SDR 35 EXCEPT WHERE CLEARLY INDICATED OTHERWISE. SANITARY LATERAL(S) MUST BE PVC SDR 26 UNLESS CLEARLY INDICATED OTHERWISE.
7. UNLESS CLEARLY INDICATED OTHERWISE ALL SANITARY PIPE MUST BE:
   A. FOR PIPES LESS THAN TWELVE (12) FEET DEEP: POLYVINYL CHLORIDE (PVC) SDR 35 PER ASTM D3034.
   B. FOR PIPES GREATER THAN TWELVE (12) FEET DEEP: POLYVINYL CHLORIDE (PVC) SDR 26 PER ASTM D3034.
   C. UNLESS LOCAL OR STATE BUILDING / PLUMBING CODE CLEARLY SPECIFIES DIFFERENTLY, SANITARY LATERALS MUST BE PVC SDR 26.
   D. FOR ALL UTILITY PIPING (INCLUDING DRAIN) WITHIN TEN (10) FEET OF A BUILDING, PIPE MATERIAL MUST COMPLY WITH APPLICABLE LOCAL OR STATE BUILDING AND PLUMBING CODES. CONTRACTOR MUST REFER TO PLUMBING ENGINEERING PLANS AND VERIFY PIPE MATERIAL WITH LOCAL OFFICIAL PRIOR TO ORDERING OF MATERIALS.
   E. CONTRACTOR MUST VERIFY THE CONNECTION OF EXTERIOR PIPING TO ANY FIXTURES (SUCH AS AN EXTERIOR GREASE INTERCEPTOR) OR OTHER DRAINAGE SYSTEMS WITH LOCAL OFFICIALS FOR COMPLIANCE WITH APPLICABLE LOCAL OR STATE BUILDING AND PLUMBING CODES PRIOR TO ORDERING OF MATERIALS.
8. WATER MAIN PIPING MUST BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE LOCAL WATER COMPANY. IN THE ABSENCE OF SUCH REQUIREMENTS, WATER MAIN PIPING MUST BE CEMENT-LINED DUCTILE IRON (DIP) MINIMUM CLASS 52 THICKNESS. ALL PIPE AND APPURTENANCES MUST COMPLY WITH THE APPLICABLE AWWA STANDARDS IN EFFECT AT THE TIME OF APPLICATION.
9. GAS METERS MUST BE PROTECTED AS REQUIRED BY THE JURISDICTIONAL GAS PROVIDER.
10. TRANSFORMERS AND SWITCH GEARS: GC MUST PROVIDE ALL APPURTENANCES IN ACCORDANCE WITH UTILITY COMPANY SPECIFICATIONS AND CARRY SAME IN BASE BID. APPURTENANCES MUST INCLUDE, BUT NOT BE LIMITED TO, THE CONCRETE PAD, SECONDARY SPILL CONTAINMENT AREAS (IF REQUIRED), BOLLARD / VEHICULAR PROTECTION, AND OTHER ITEMS AS MAY BE REQUIRED BY THE UTILITY PROVIDER FOR INSTALLATION OF THE TRANSFORMER AND SWITCH GEAR (IF REQUIRED). GC MUST COORDINATE ALL ASPECTS OF INSTALLATION WITH UTILITY PROVIDER PRIOR TO ORDERING OF MATERIALS AND NOTIFY DESIGN ENGINEER OF ANY CONFLICTS IN WRITING.

I:\BOHLERENG_NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-MAA240482.00-0A-----LAYOUT C-103 JURS

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PROJECT No.:	MAA240482.00-0A
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-CNDS

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

JURISDICTIONAL NOTES

SHEET NUMBER:

C-103

ORG. DATE - 04/15/2026

MAIN STREET
(AKA MA ROUTE 109)
(PUBLIC - VARIABLE WIDTH)
TWO WAY TRAFFIC
(ASPHALT ROADWAY)

ELM STREET
(PUBLIC - 36' WIDE)
TWO WAY TRAFFIC
(ASPHALT ROADWAY)

KELLEY STREET
(STATUS UNDETERMINED - VARIABLE WIDTH)
TWO WAY TRAFFIC
(ASPHALT ROADWAY)

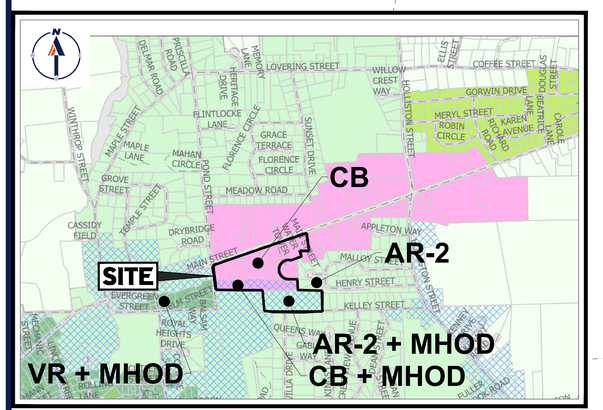
MAP-39 LOT-28 N/F LANDS OF JOSCELIO BELO DE BARROS (PER GIS)
MAP-39 LOT-29 N/F LANDS OF CHERYL AND ROBERT HAMILTON (PER GIS)
MAP-39 LOT-31 N/F LANDS OF TINA AND RICHARD DIAZ (PER GIS)
MAP-39 LOT-30 N/F LANDS OF ELMO N. TOUDE (PER GIS)
MAP-39 LOT-70 N/F LANDS OF DUFFEY AND SONS LLC (PER GIS)
MAP-39 LOT-69 N/F LANDS OF 120 MAIN STREET REALTY TRUST (PER GIS)
MAP-40 LOT-58 N/F LANDS OF LONGBRANCH REALTY LLC (PER GIS)
MAP-40 LOT-57 N/F LANDS OF MEDWAY REALTY LLC (PER GIS)
MAP-40 LOT-56 N/F LANDS OF MEDWAY REALTY LLC (PER GIS)
MAP-40 LOT-55 N/F LANDS OF MEDWAY REALTY LLC (PER GIS)
MAP-40 LOT-54 N/F LANDS OF COUBA ENTERPRISES LLC (PER GIS)
MAP-48 LOT-35 N/F LANDS OF RACHEL AND SAMUEL HOPPERSTAD (PER GIS)
MAP-48 LOT-36 N/F LANDS OF J.P. PROPERTIES LLC (PER GIS)
MAP-48 LOT-37 N/F LANDS OF CHERYL AND BLAIR HAMILTON (PER GIS)
MAP-48 LOT-38 N/F LANDS OF MELISSA AND PLINIO DA SILVA (PER GIS)
MAP-48 LOT-42 N/F LANDS OF KRISTINA AND WALLACE LONG (PER GIS)
MAP-48 LOT-41 N/F LANDS OF JEFFREY ADAMS (PER GIS)
MAP-48 LOT-39 N/F LANDS OF JOANNE KAMEI (PER GIS)
MAP-48 LOT-40 N/F LANDS OF MARILYN COBAN (PER GIS)
MAP-48 LOT-43 N/F LANDS OF BRIAN AND EMERIT GALOSO (PER GIS)
MAP-48 LOT-44 N/F LANDS OF BROOKSIDE REALTY TRUST (PER GIS)
MAP-48 LOT-47 N/F LANDS OF THOMAS J. STEVES (PER GIS)
MAP-48 LOT-47-1 N/F LANDS OF THOMAS J. STEVES BK. 13870, PG. 228
MAP-48 LOT-45 N/F LANDS OF THOMAS J. STEVES BK. 13870, PG. 228
MAP-48 LOT-46 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 81
MAP-48 LOT-42-2 N/F LANDS OF THOMAS J. STEVES BK. 13870, PG. 228
MAP-48 LOT-42-3 N/F LANDS OF THOMAS J. STEVES BK. 13870, PG. 228
MAP-48 LOT-42-4 N/F LANDS OF THOMAS A. STEVES BK. 13870, PG. 228
MAP-40 LOT-27 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 81
MAP-40 LOT-27-1 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 36
MAP-40 LOT-27-2 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 492
MAP-40 LOT-23 N/F LANDS OF MILFORD CAST IRON 1 LLC BK. 27564, PG. 123
MAP-40 LOT-24 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 17
MAP-40 LOT-25 N/F LANDS OF RTE. 85 REALTY CORP BK. 37158, PG. 135
MAP-40 LOT-76 N/F LANDS OF RTE. 85 REALTY CORP BK. 37158, PG. 137
MAP-40 LOT-77 N/F LANDS OF THE REARDON MAIN STREET LIMITED PARTNERSHIP BK. 14626, PG. 316
MAP-40 LOT-78 N/F LANDS OF BE MIDWAY LLC (PER GIS)
MAP-40 LOT-109 N/F LANDS OF DANA AND RITA K HAWTHORNE (PER GIS)
MAP-40 LOT-110 N/F LANDS OF LAURA AND MICHAEL MONAHAN (PER GIS)
MAP-40 LOT-113 N/F LANDS OF FLERA LEVCHAK BK. 17604, PG. 237
MAP-49 LOT-1 N/F LANDS OF BETH AND LEE OSTASZEWSKI (PER GIS)
MAP-49 LOT-4 N/F LANDS OF KERRY J. ST. CLAIR, AS TRUSTEE OF THE GRICHARD RE REALTY TRUST BK. 21521, PG. 262
MAP-49 LOT-5 N/F LANDS OF LISA V. AND RICHARD J. MCSOM JR BK. 34406, PG. 168
MAP-49 LOT-6 N/F LANDS OF DIANNE T. BROSSETTE BK. 19185, PG. 306 (PER GIS)
MAP-49 LOT-7 N/F LANDS OF DEMS DK MEDWAY BK. 33578, PG. 619 (PER GIS)
MAP-49 LOT-21 N/F LANDS OF EILEEN AND GERALD RAFFERTY (PER GIS)
MAP-49 LOT-20 N/F LANDS OF MARYANN AND LEONARD UZIELL (PER GIS)
MAP-49 LOT-19 N/F LANDS OF LYNNE AND JOHN CHERS (PER GIS)
MAP-49 LOT-1 N/F LANDS OF IRVING AND GLADYS FINKELSTEIN TRUSTEES OF G&G 2014 REALTY TRUST BK. 4363, PG. 191
MAP-49 LOT-100 N/F LANDS OF EMILY AND JAMES MOXLEY (PER GIS)
MAP-49 LOT-99 N/F LANDS OF THOMAS DREER (PER GIS)
MAP-49 LOT-106 N/F LANDS OF ARPPANA GEORGE AND ANIL SIMON (PER GIS)
MAP-49 LOT-105 N/F LANDS OF CAROLINE AND DAVID PAUL (PER GIS)
MAP-49 LOT-108 N/F LANDS OF KRISTEN AND WILLIAM MCHUGH (PER GIS)
MAP-49 LOT-109 N/F LANDS OF ELIZABETH WHITMAN AND JERRY MEMERHAN (PER GIS)
MAP-49 LOT-110 N/F LANDS OF CHRISTINE DRESCH AND CRAIG CAMPBELL (PER GIS)
MAP-49 LOT-123 N/F LANDS OF TRUSTEE ELISABETH AND BRIAN LANGLEY (PER GIS)
MAP-49 LOT-122 N/F LANDS OF SUSAN AND WILLIAM CAME (PER GIS)
MAP-49 LOT-124 N/F LANDS OF ELIZABETH AND CRAIC HEWS (PER GIS)
MAP-49 LOT-125 N/F LANDS OF LANE AND NICHOLAS WALKOWICZ (PER GIS)
MAP-49 LOT-126 N/F LANDS OF LEANE HARSCH-VARGEZ AND TIMOTHY HARRIS (PER GIS)
MAP-49 LOT-127 N/F LANDS OF TRUSTEE MAUREEN AND ANTHONY BURKS (PER GIS)
MAP-49 LOT-132 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 353 (PER GIS)
MAP-49 LOT-133 N/F LANDS OF TRUSTEE DORIS AND RICHARD COMLEY (PER GIS)
MAP-49 LOT-4 N/F LANDS OF KERRY J. ST. CLAIR, AS TRUSTEE OF THE GRICHARD RE REALTY TRUST BK. 21521, PG. 262
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MAP-49 LOT-53 N/F LANDS OF RTE. 85 REALTY CORP BK. 27564, PG. 21 (PER GIS)
MAP-49 LOT-52 N/F LANDS OF LISA AND CHRISTOPHER UMNO (PER GIS)
MAP-49 LOT-51 N/F LANDS OF BRIDGIA AND THOMAS FITZGERALD (PER GIS)

APPROX LOC OF TELEPHONE EASEMENT (PER REF #2)
APPROX LOC OF 25' WIDE RIGHT OF WAY (PER REF #9)
APPROX LOC OF 8' WIDE WAY (PER REF #11)
APPROX. ZONING DISTRICT BOUNDARY LINE (TYP.)
CENTRAL BUSINESS DISTRICT (CB)
MULTI-FAMILY HOUSING OVERLAY DISTRICT (MHOD)
AGRICULTURAL RESIDENTIAL DISTRICT AR II
LIMITS OF WETLANDS REVIEWED UNDER DHAU DEP #16-910
WETLANDS REVIEWED UNDER DHAU DEP #16-910, A17-11, ASF-454, 21-011 NOT INCLUDED IN DHAU DEP #16-1034
S10°03'50"E 276.28' (S) 300.00' (R)
S10°03'50"E 213.40' (S) 213.14' (R)

SEE EXISTING CONDITIONS PLAN (ENCLOSED WITHIN) FOR MORE DETAILS

80 40 20 0 80
1"= 80'

ZONING MAP



SCALE: 1" = 1,000'
SOURCE: TOWN OF MEDWAY

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

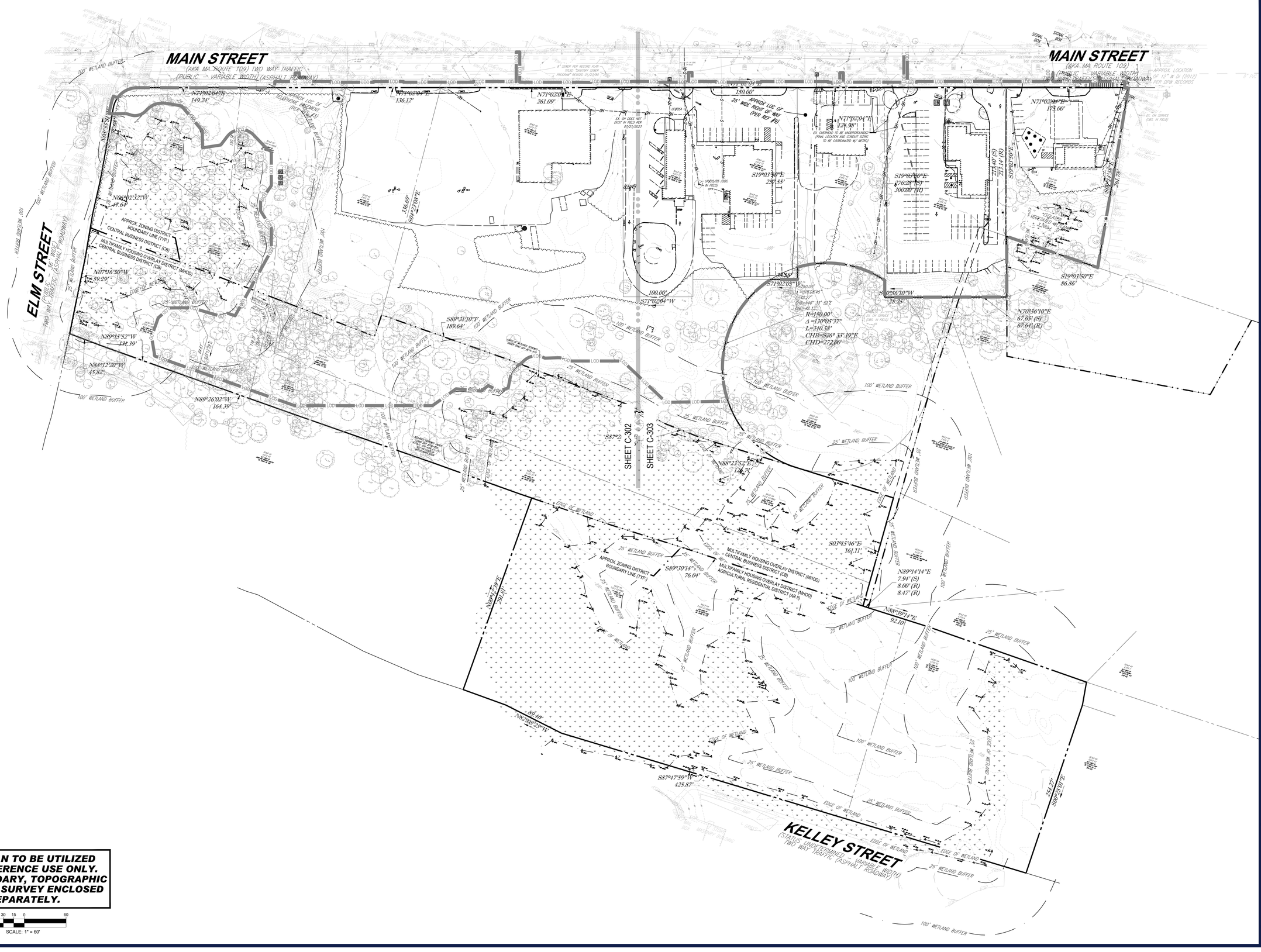
SITE CONTEXT PLAN

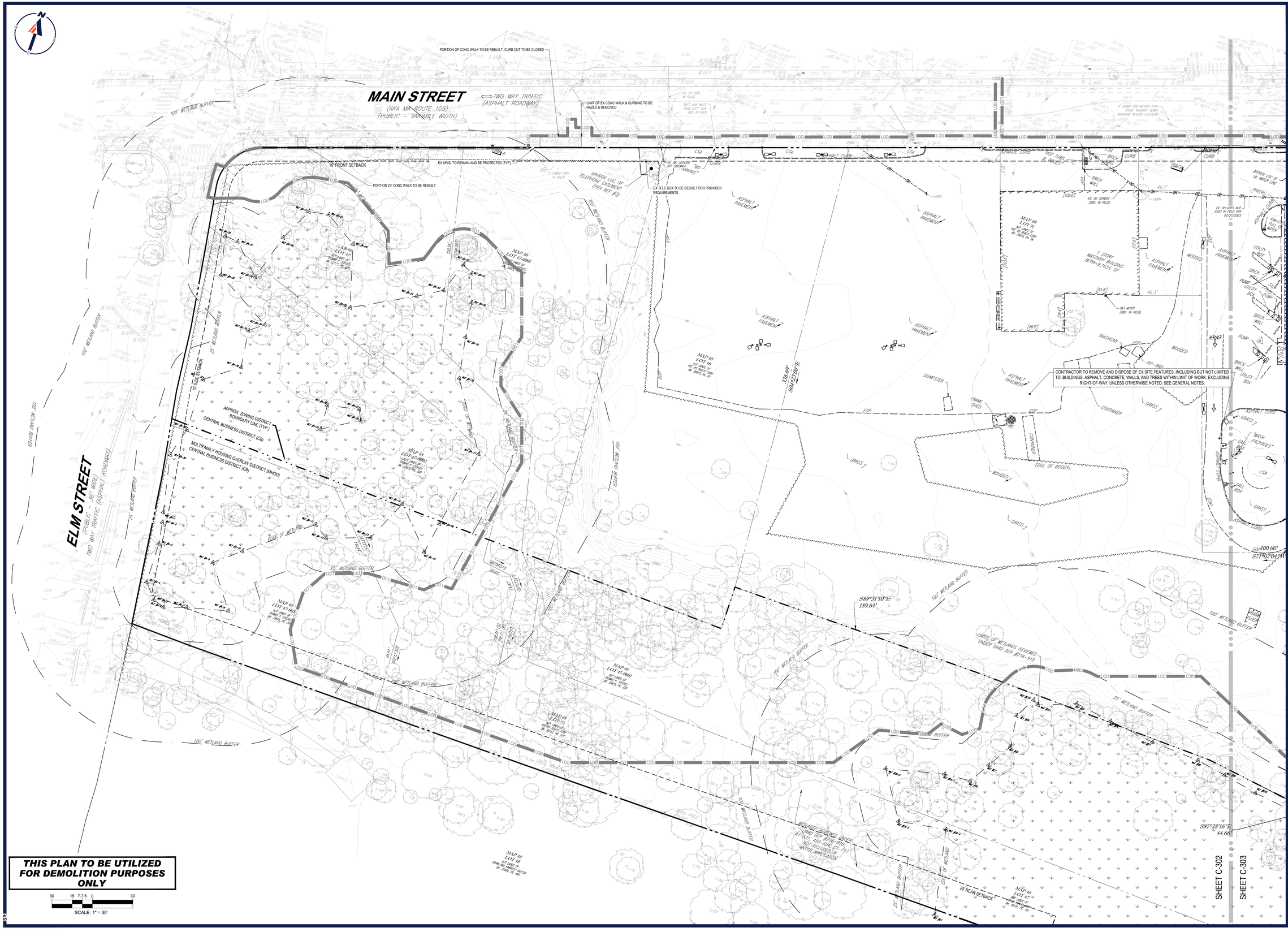
SHEET NUMBER:

C-104

ORG. DATE - 04/15/2026

I:\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-MAA240482.00-0A-----LAYOUT: C-104 SITE_CONTEXT
SRT


MAIN STREET
(AKA MA ROUTE 109) TWO WAY TRAFFIC
(PUBLIC – VARIABLE WIDTH) (ASPHALT ROADWAY)
MAIN STREET
(AKA MA ROUTE 109)
(PUBLIC – VARIABLE WIDTH)
TWO WAY TRAFFIC (ASPHALT ROADWAY)
ELM STREET
(PUBLIC – 16' WIDE)
TWO WAY TRAFFIC (ASPHALT ROADWAY)
KELLEY STREET
(STATE LAYOUT UNDETERMINED) (PUBLIC – VARIABLE WIDTH)
TWO WAY TRAFFIC (ASPHALT ROADWAY)
SHEET C-302
SHEET C-303
N71°02'04"E
149.24'
N71°02'04"E
136.12'
N71°02'04"E
261.09'
N71°02'04"E
150.00'
N71°02'04"E
124.98'
N71°02'04"E
175.00'
N19°03'50"E
257.55'
S19°03'50"E
276.28' (S)
300.00' (R)
S19°03'50"E
213.40' (S)
213.14' (R)
S19°03'50"E
86.86'
S19°03'50"E
207.78'
S71°02'04"W
100.00'
S71°02'05"W
S71°02'04"W
136.69'
S0°21'08"E
N0°05'53"W
N0°12'32"W
47.64'
N07°16'50"W
59.20'
N89°15'52"W
137.39'
N88°12'20"W
45.82'
N89°26'02"W
164.39'
S89°31'10"E
189.64'
S87°2
N88°23'52"E
124.71'
S03°15'46"E
161.11'
N89°14'14"E
7.94' (S)
8.80' (R)
8.47' (R)
N88°19'14"E
92.10'
S0°56'10"W
28.25'
N70°56'10"E
67.85' (S)
67.64' (R)
S0°21'07"E
284.27'
N0°05'53"W
90.10'
S8.40'
N8°58'25"W
S87°47'59"W
425.87'
APPROX LOC OF 25' WIDE RIGHT OF WAY (PER REF #3)
APPROX LOC OF TELEPHONE EASEMENT (PER REF #3)
EX. OH DOES NOT EXIST IN FIELD PER 05/21/2021 SURVEY
EX. OVERHEAD TO BE UNDERGROUNDED (FINAL LOCATION AND CONDUIT SIZING TO BE COORDINATED W/ MEPA)
APPROX LOCATION OF 12" W DI (3012) PER DPW RECORDS
EX. DH SERVICES (DBS. IN FIELD
UP/EL/TEL CBS. IN FIELD
EX. UP/EL/TEL POLE #3
EX. UP/EL/TEL POLE #4
EX. UP/EL/TEL POLE #5
EX. UP/EL/TEL POLE #6
EX. UP/EL/TEL POLE #7
EX. UP/EL/TEL POLE #8
EX. UP/EL/TEL POLE #9
EX. UP/EL/TEL POLE #10
EX. UP/EL/TEL POLE #11
EX. UP/EL/TEL POLE #12
EX. UP/EL/TEL POLE



THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY

30 15 7.5 0 30

SCALE: 1" = 30'

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PROJECT No.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-PROP

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

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COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

EXISTING CONDITIONS/ DEMOLITION PLAN A

SHEET NUMBER:

C-202

ORG. DATE - 04/15/2026

I:\BOHLER\ENG NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROP-MAA240482.00-1D-----LAYOUT\ C-202 EXISM A SR

GC TO FIELD LOCATE ALL EX WATER SERVICE(S) TO PROJECT SITE AND COORDINATE CUT/CAP AT MAIN WITH MUNICIPALITY (TYP)

GC TO FIELD LOCATE ALL EX SAN SERVICE(S) TO PROJECT SITE AND COORDINATE CUT/CAP AT MAIN WITH MUNICIPALITY (TYP)

EX UP(S) IN ROW TO REMAIN AND BE PROTECTED (TYP)

EX CONC WALK TO BE REBUILT. SEE SITE PLANS (TYP.)

PROP CROSSWALK (TYP)

GC TO FIELD LOCATE ALL EX GAS SERVICE(S) TO PROJECT SITE AND COORDINATE CUT/CAP ACCORDING TO EVERSOURCE REQUIREMENTS (TYP)

CONTRACTOR TO REMOVE AND DISPOSE OF EX SITE FEATURES, INCLUDING BUT NOT LIMITED TO, BUILDINGS, ASPHALT, CONCRETE, WALLS, AND TREES WITHIN LIMIT OF WORK, EXCLUDING RIGHT-OF-WAY, UNLESS OTHERWISE NOTED. SEE GENERAL NOTES.

EX MEMORIAL BENCHES TO BE PROTECTED AND RELOCATED PER PROP SITE PLANS

MAIN STREET
(AKA MA ROUTE 109)
(PUBLIC – VARIABLE WIDTH)
TWO WAY TRAFFIC (ASPHALT ROADWAY)

APPROX LOC OF 25' WIDE RIGHT OF WAY (PER REF #9)

APPROX LOCATION OF 12" W IN (2012) PER DPW RECORDS

EX. OH CBS. NOT IN FIELD 01/31/2023

EX. OH CONDS. NOT EXIST IN FIELD PER 01/31/2023

EX. OVERHEAD TO BE UNDERGROUNDED (FINAL LOCATION AND CONDUIT SIZING TO BE COORDINATED W/ MCTRC)

"RESERVED PARKING" YELLOW STRIPING

"NO VEHICLES BEHIND THIS POINT"

"DO NOT ENTER"

"STATE INSPECTION"

"ENTER"

"EXIT"

"STOP"

"WASH PACKAGES"

N71°02'04"E	150.00'		
N71°02'04"E	124.68'		
S19°03'50"E	257.55'		
S19°03'50"E	276.28' (S) 300.00' (R)		
N71°02'04"E	175.00'		
S19°03'50"E	215.40' (S) 213.14' (R)		
S19°03'50"E	86.86'		
N70°56'10"E	67.65' (S) 67.64' (R)		
S70°56'10"W	38.25'		
S71°02'05"W	38.39'		
S87°28'16"E	44.66'		
N88°23'52"E	126.71'		
S71°02'04"W	100.00'		

R=150.00'
Δ=130°05'37"
L=340.58'
CHB=S26° 33' 19"E
CHD=272.00'

R=150.00'
Δ=016°08'45"
L=42.27'
CHB=N46° 33' 53"E
CHD=42.13'

MAP 49 LOT 76
N/F LAND OF RTE. 85 REALTY CORP
BK. 31,182/Pg. 127

MAP 49 LOT 75
N/F LAND OF RTE. 85 REALTY CORP
BK. 31,182/Pg. 127

MAP 49 LOT 73
N/F LAND OF MILLBURY PLUMBING, INC. ET UX
BK. 37,961/Pg. 183

MAP 49 LOT 72
N/F LAND OF MILLBURY PLUMBING, INC. ET UX
BK. 37,961/Pg. 183

MAP 49 LOT 71
N/F LAND OF MILLBURY PLUMBING, INC. ET UX
BK. 37,961/Pg. 183

MAP 49 LOT 111
N/F LAND OF THE SUSAN AND ALAN GRANT 1998 REVOCABLE TRUST
BK. 34,625/Pg. 164

MAP 49 LOT 110
N/F LAND OF
BK. 37,961/Pg. 183

MAP 49 LOT 109
N/F LAND OF
BK. 37,961/Pg. 183

MAP 49 LOT 1
N/F LAND OF
ADAM J. & DEANNA M. BENTI TRUST
BK. 31,631/Pg. 282

MAP 49 LOT 00
N/F LAND OF
ADAM J. & DEANNA M. BENTI TRUST
BK. 31,631/Pg. 282

ISOLATED VEGETATED WETLAND 3,269± S.F.

EDGE OF WETLAND

100' WETLAND BUFFER

25' WETLAND BUFFER

SHEET C-302

SHEET C-303

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30 15 7.7.5 0 30
SCALE: 1" = 30'

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DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-PROP

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

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TIMOTHY A. HAYES
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REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

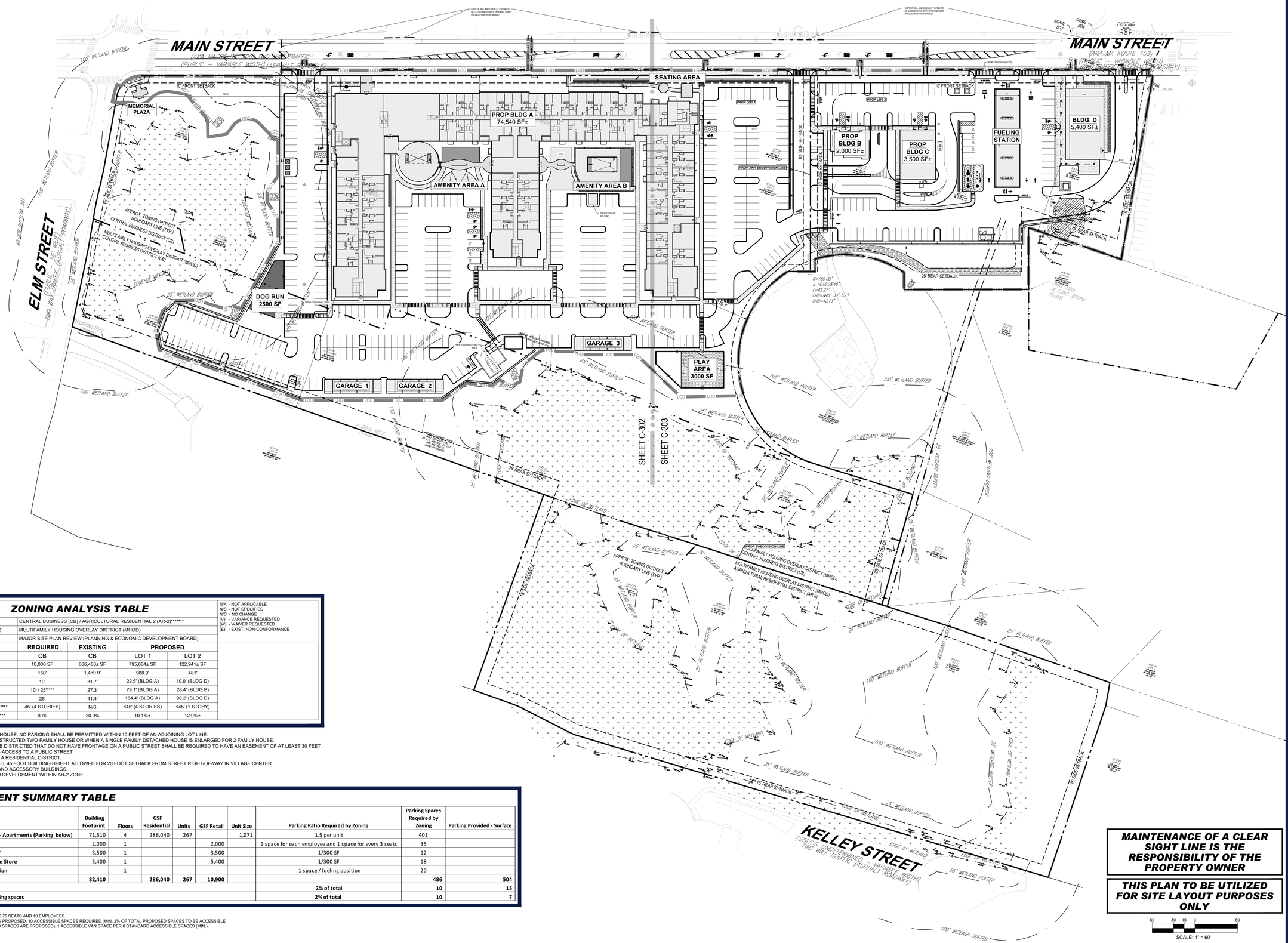
EXISTING CONDITIONS/ DEMOLITION PLAN B

SHEET NUMBER:

C-203

ORG. DATE - 04/15/2026

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ZONING ANALYSIS TABLE

ZONING DISTRICT	CENTRAL BUSINESS (CB) / AGRICULTURAL RESIDENTIAL 2 (AR-2)*******			
OVERLAY DISTRICT	MULTIFAMILY HOUSING OVERLAY DISTRICT (MHOD)			
REQUIRED PERMIT	MAJOR SITE PLAN REVIEW (PLANNING & ECONOMIC DEVELOPMENT BOARD)			
ZONE CRITERIA	**REQUIRED**	**EXISTING**	**PROPOSED**	
	CB	CB	LOT 1	LOT 2
MIN. LOT AREA	10,000 SF	666,403± SF	795,604± SF	122,941± SF
MIN. LOT FRONTAGE	150'	1,469.9'	988.9'	481'
MIN. FRONT SETBACK	10'	31.7'	22.5' (BLDG A)	10.0' (BLDG D)
MIN. SIDE SETBACK	10' / 25'*****	27.3'	79.1' (BLDG A)	28.4' (BLDG B)
MIN. REAR SETBACK	25'	41.4'	164.4' (BLDG A)	98.2' (BLDG D)
MAX. BUILDING HEIGHT*****	45' (4 STORIES)	N/S	<45' (4 STORIES)	<45' (1 STORY)
MAX. LOT COVERAGE******	80%	20.9%	10.1%±	12.9%±

N/A - NOT APPLICABLE
N/S - NOT SPECIFIED
N/C - NO CHANGE
(V) - VARIANCE REQUESTED
(W) - WAIVER REQUESTED
(E) - EXIST. NON-CONFORMANCE

(1) *FOR A TWO FAMILY HOUSE. NO PARKING SHALL BE PERMITTED WITHIN 10 FEET OF AN ADJOINING LOT LINE.
(2) **FOR A NEWLY CONSTRUCTED TWO-FAMILY HOUSE OR WHEN A SINGLE FAMILY DETACHED HOUSE IS ENLARGED FOR 2 FAMILY HOUSE.
(3) *** PROPERTIES IN CB DISTRICTED THAT DO NOT HAVE FRONTAGE ON A PUBLIC STREET SHALL BE REQUIRED TO HAVE AN EASEMENT OF AT LEAST 30 FEET IN WIDTH PROVIDING ACCESS TO A PUBLIC STREET.
(4) **** WHEN ABUTTING A RESIDENTIAL DISTRICT.
(5) ***** PER TABLE 9 3.B.6, 45 FOOT BUILDING HEIGHT ALLOWED FOR 20 FOOT SETBACK FROM STREET RIGHT-OF-WAY IN VILLAGE CENTER.
(5) ****** FOR PRIMARY AND ACCESSORY BUILDINGS.
(6) ******* NO PROPOSED DEVELOPMENT WITHIN AR-2 ZONE.

DEVELOPMENT SUMMARY TABLE

Key	Description	Building Footprint	Floors	GSF Residential	Units	GSF Retail	Unit Size	Parking Ratio Required by Zoning	Parking Spaces Required by Zoning	Parking Provided - Surface
A	Residential - Apartments (Parking below)	71,510	4	286,040	267		1,071	1.5 per unit	401	
B	Bank	2,000	1			2,000		1 space for each employee and 1 space for every 3 seats	35	
C	Restaurant*	3,500	1			3,500		1/300 SF	12	
D	Convenience Store	5,400	1			5,400		1/300 SF	18	
E	Fueling Station		1			-		1 space / fueling position	20	
TOTAL		82,410		286,040	267	10,900			486	504
Accessible spaces								2% of total	10	15
EV charging stations Parking spaces								2% of total	10	7

NOTES:
* RESTAURANT ASSUMES 75 SEATS AND 10 EMPLOYEES.
(1) 15 ACCESSIBLE SPACES PROPOSED. 10 ACCESSIBLE SPACES REQUIRED (MIN. 2% OF TOTAL PROPOSED SPACES TO BE ACCESSIBLE SPACES WHEN 501-1000 SPACES ARE PROPOSED). 1 ACCESSIBLE VAN SPACE PER 6 STANDARD ACCESSIBLE SPACES (MIN.).

MAINTENANCE OF A CLEAR SIGHT LINE IS THE RESPONSIBILITY OF THE PROPERTY OWNER

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

60 30 15 0 60
SCALE: 1" = 60'

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BSR

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DRAWN BY: AP, JK, SW
CHECKED BY: TH, MM
DATE: 02/02/2026
CAD I.D.: P-CIVIL-PROP

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

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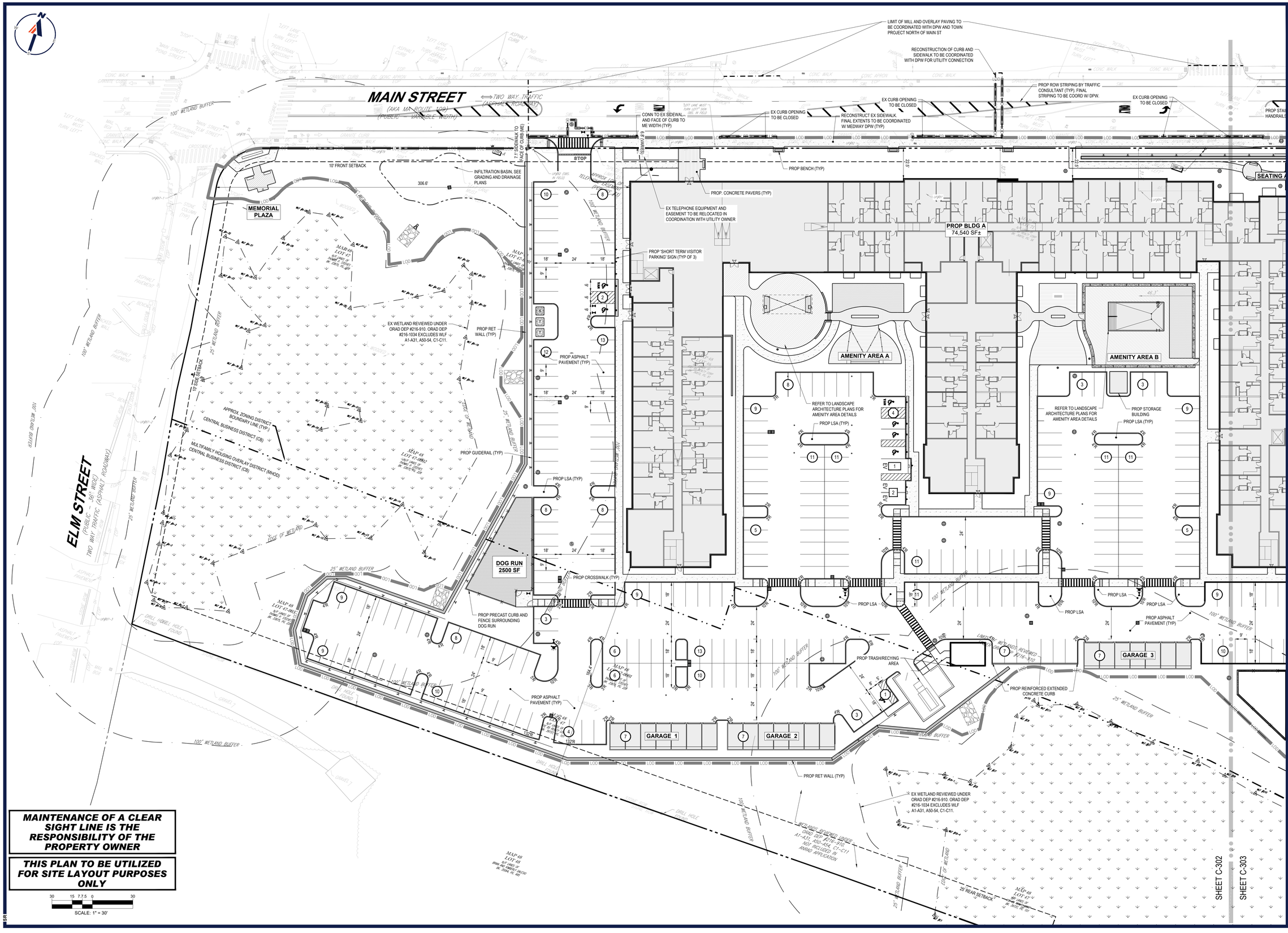
SHEET TITLE:

OVERALL SITE PLAN

SHEET NUMBER:

C-301

ORG. DATE - 04/15/2026



MAINTENANCE OF A CLEAR SIGHT LINE IS THE RESPONSIBILITY OF THE PROPERTY OWNER

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30 15 7.5 0 30

SCALE: 1" = 30'

I:\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROP-MAA240482.00-1D-----LAYOUT: C-302 SITE A

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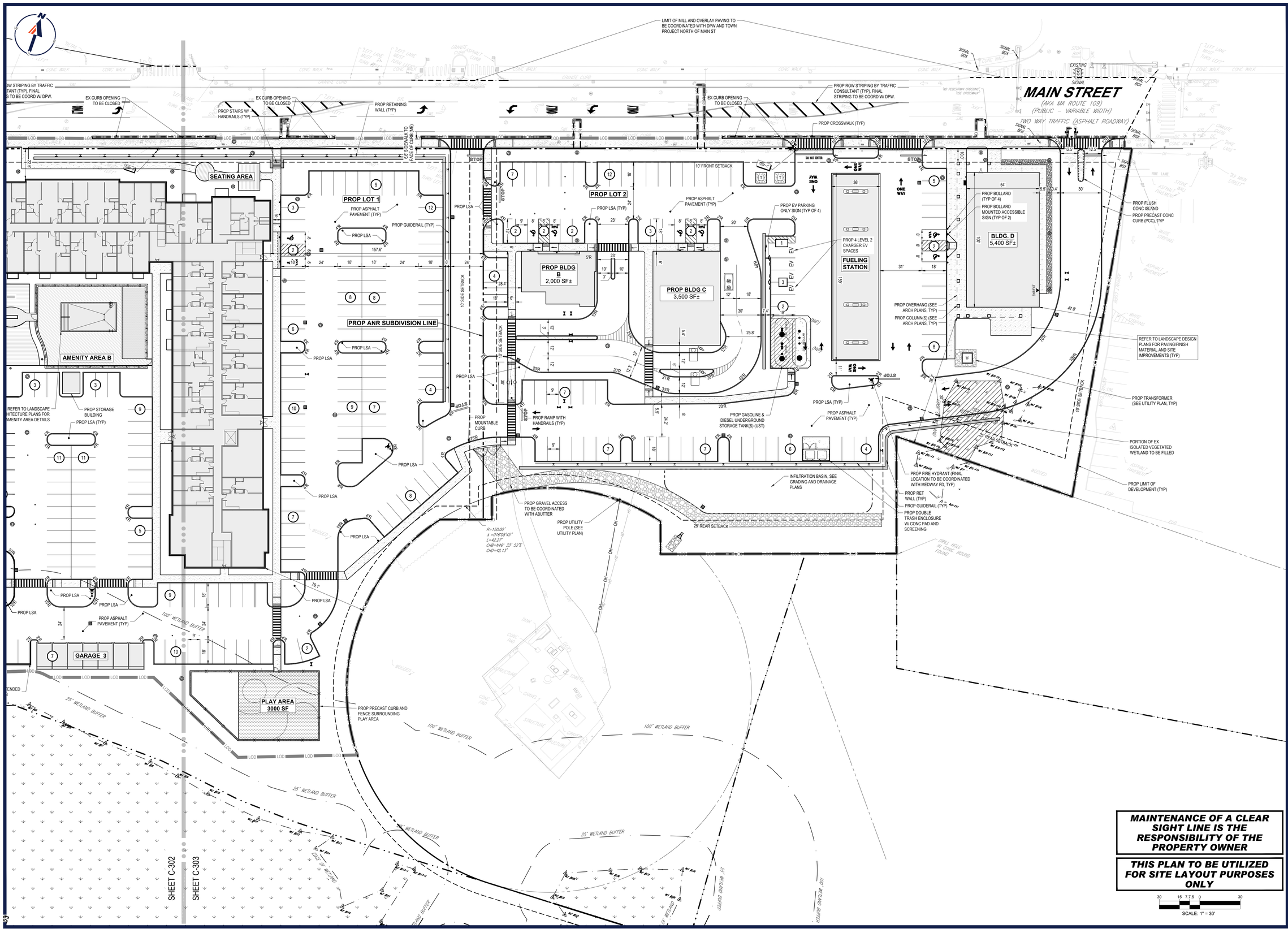
SHEET TITLE:

SITE PLAN A

SHEET NUMBER:

C-302

ORG. DATE - 04/15/2026



MAINTENANCE OF A CLEAR SIGHT LINE IS THE RESPONSIBILITY OF THE PROPERTY OWNER

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

30 15 7.5 0 30
SCALE: 1" = 30'

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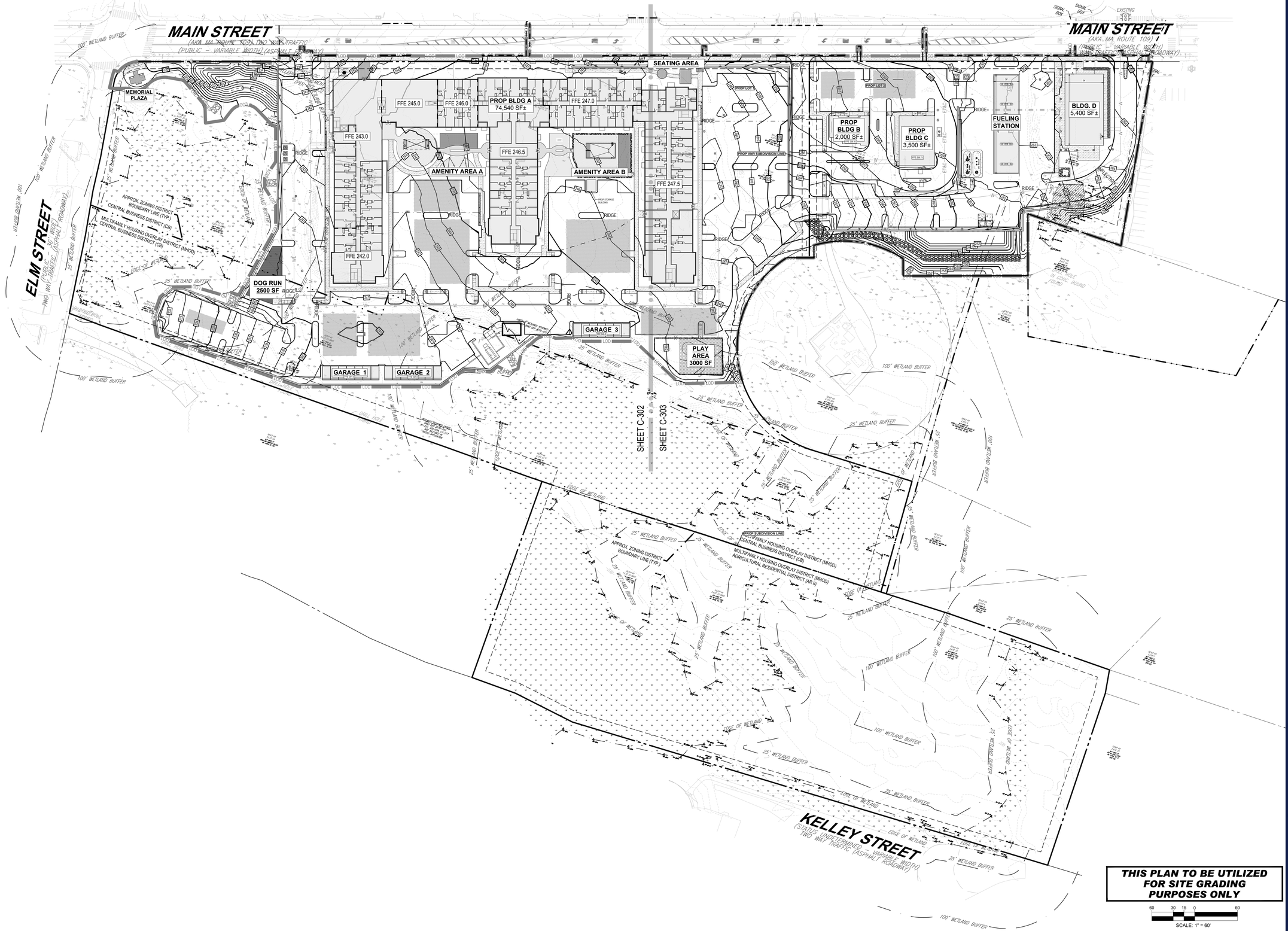
SHEET TITLE:

SITE PLAN B

SHEET NUMBER:

C-303

ORG. DATE - 04/15/2026



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SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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PROJECT NO.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-PROP

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

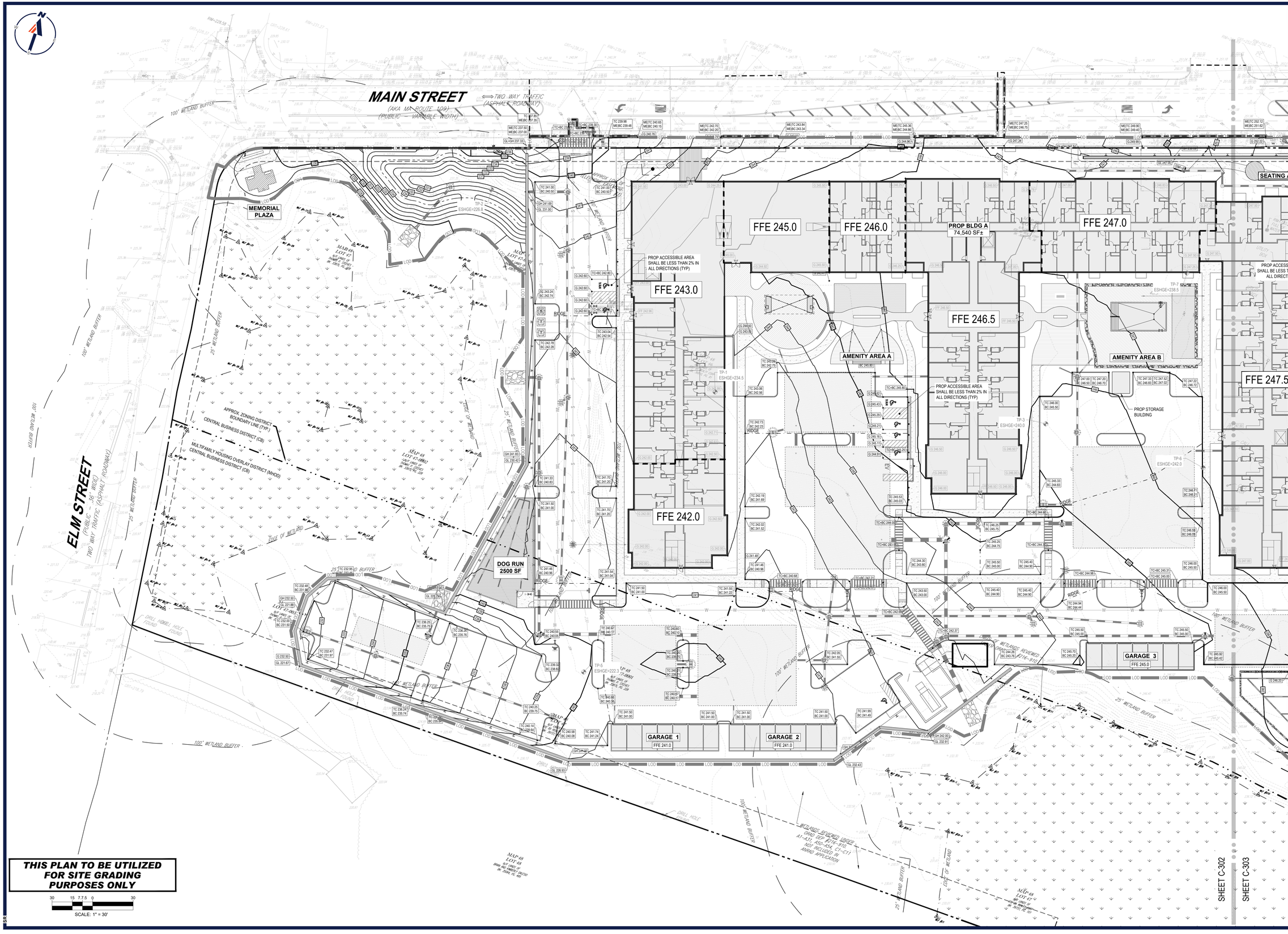
OVERALL GRADING PLAN

SHEET NUMBER:

C-401

ORG. DATE - 04/15/2026

I:\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROP-MAA240482.00-1D-----LAYOUT: C-401 GRAD
SK



THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

30 15 7.7.5 0 30

SCALE: 1" = 30'

I:\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROP-MAA240482.00-1D-----LAYOUT C-402 GRAD A

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CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-PROP

PROJECT:

HERITAGE ON MAIN

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RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED
MIXED-USE DEVELOPMENT

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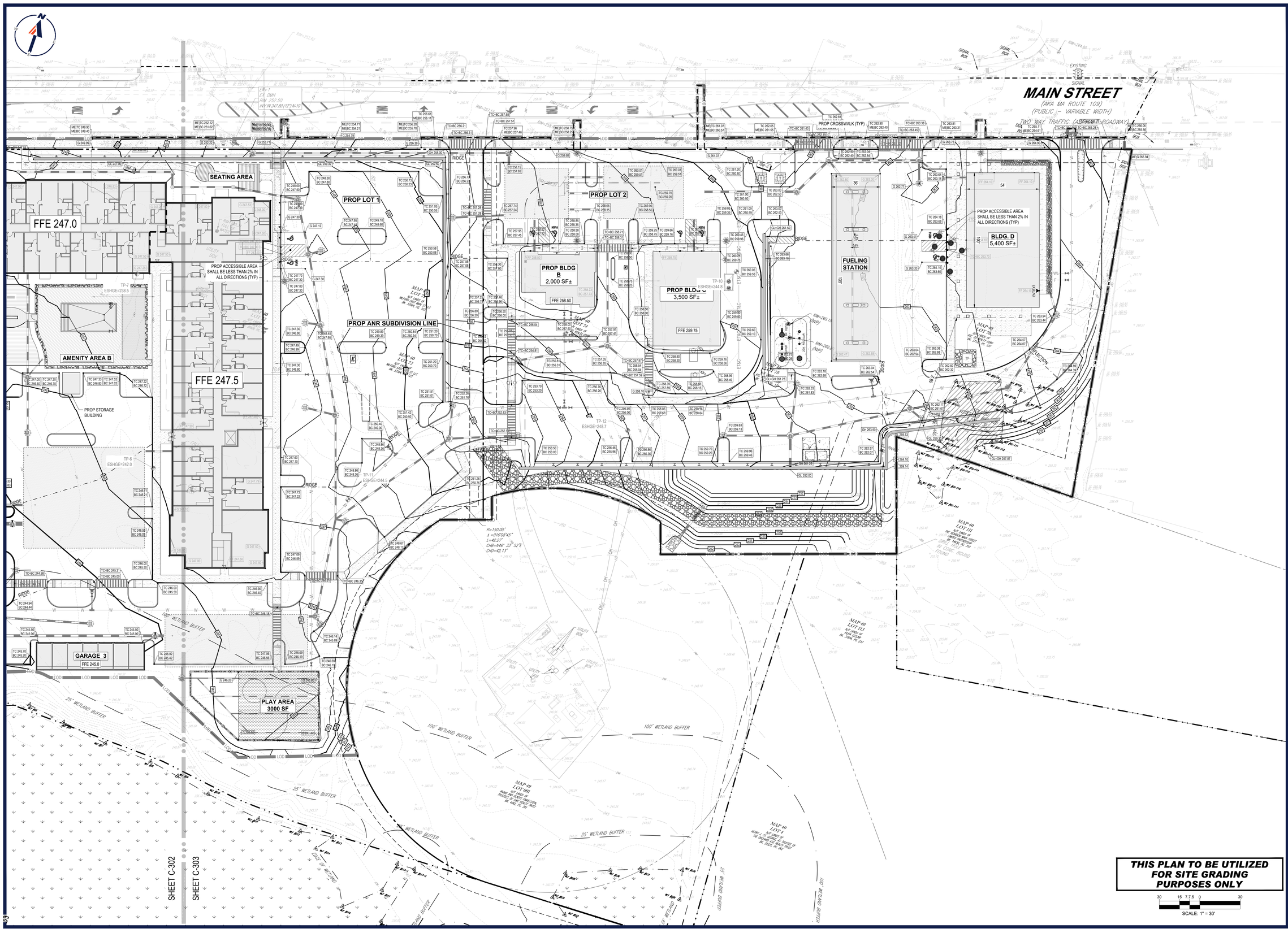
SHEET TITLE:

GRADING PLAN A

SHEET NUMBER:

C-402

ORG. DATE - 04/15/2026



\\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROP-MAA240482.00-1D-----LAYOUT: C-403 GRAD B

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DRAWN BY:	AP, JK, SW
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CAD I.D.:	P-CIVL-PROP

PROJECT:

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FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

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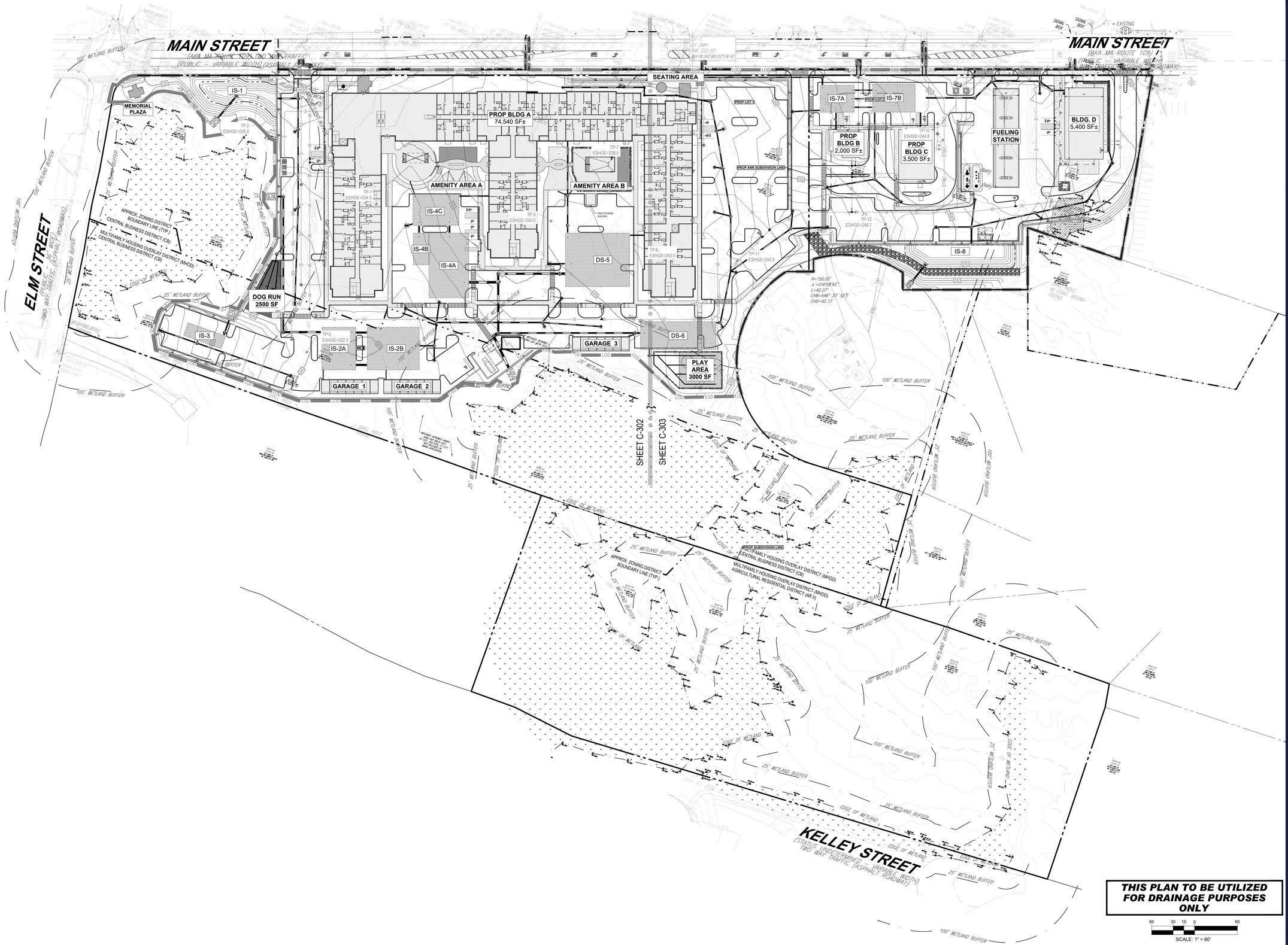
SHEET TITLE:

GRADING PLAN B

SHEET NUMBER:

C-403

ORG. DATE - 04/15/2026



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PROJECT:

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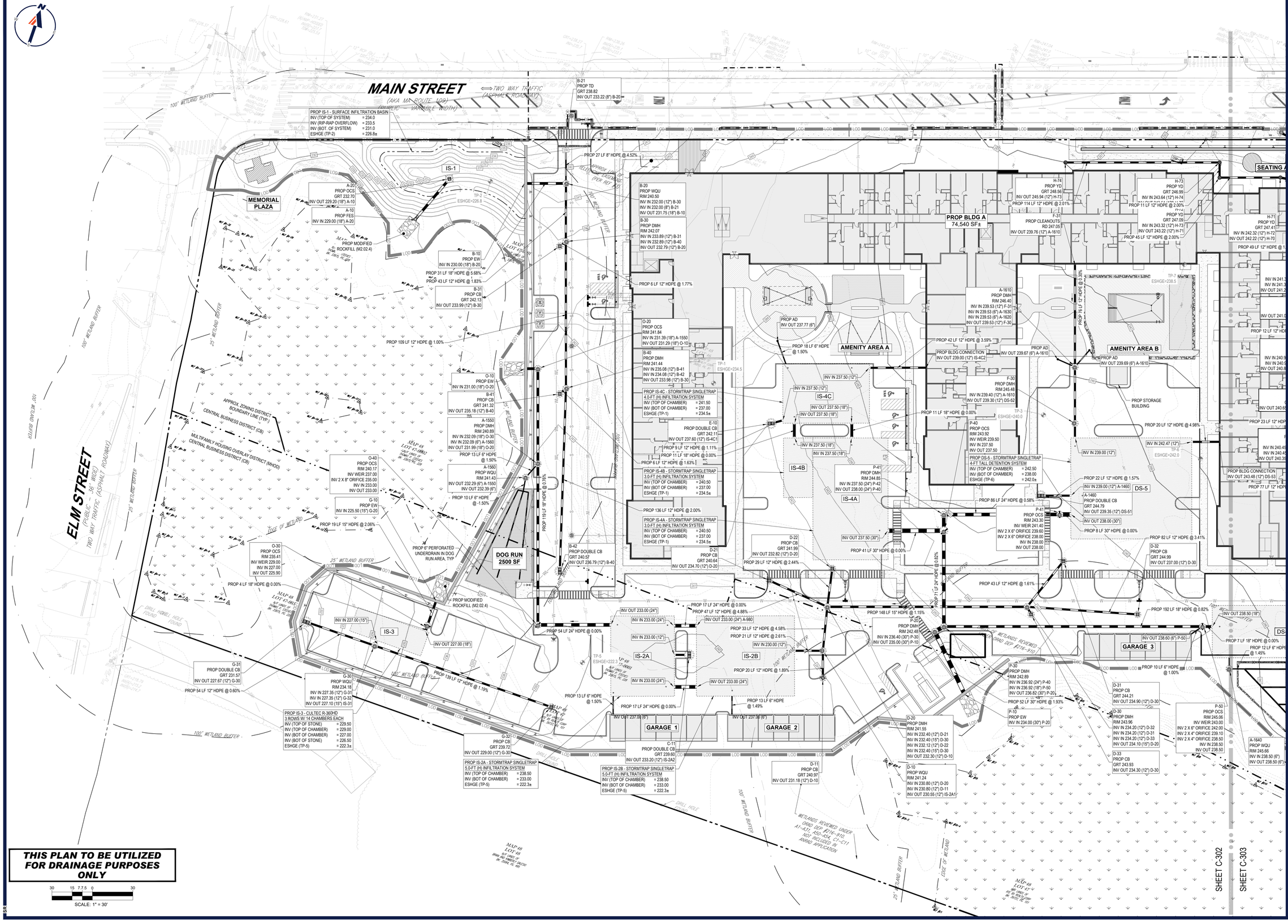
OVERALL DRAINAGE PLAN

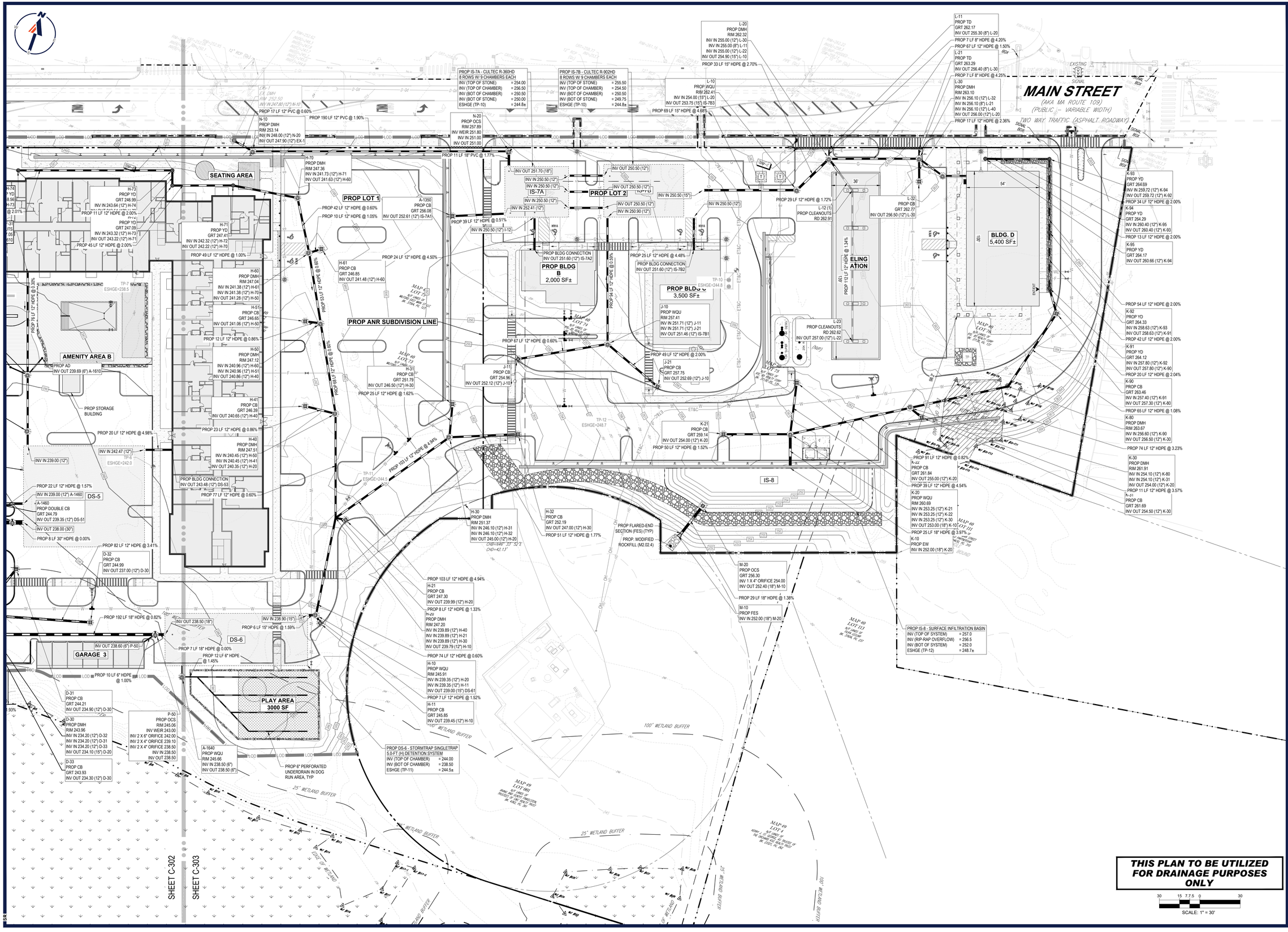
SHEET NUMBER:

C-404

ORG. DATE - 04/15/2026

I:\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROP-MAA240482.00-1D-----LAYOUT: C-404 DWG
SK


MAIN STREET
(AKA MA ROUTE 109)
⟺ TWO WAY TRAFFIC
(ASPHALT ROADWAY)
(PUBLIC - VARIABLE WIDTH)
ELM STREET
(PUBLIC - 26' WIDE)
TWO WAY TRAFFIC (ASPHALT ROADWAY)
MEMORIAL PLAZA
SEATING A
PROP BLDG A
74,540 SF±
AMENITY AREA A
AMENITY AREA B
GARAGE 1
GARAGE 2
GARAGE 3
DOG RUN
2500 SF
PROP STORAGE BUILDING
IS-1
IS-2A
IS-2B
IS-3
IS-4A
IS-4B
IS-4C
DS-5
100' WETLAND BUFFER
25' WETLAND BUFFER
EDGE OF WETLAND
PROP IS-1 - SURFACE INFILTRATION BASIN
INV (TOP OF SYSTEM) = 234.0
INV (RIP-RAP OVERFLOW) = 233.5
INV (BOT. OF SYSTEM) = 231.0
ESHGE (TP-2) = 226.8±
PROP IS-3 - CULTEC R-360HD
3 ROWS W/ 14 CHAMBERS EACH
INV (TOP OF STONE) = 229.50
INV (TOP OF CHAMBER) = 229.00
INV (BOT OF CHAMBER) = 227.00
INV (BOT OF STONE) = 226.50
ESHGE (TP-5) = 222.3±
PROP IS-2A - STORMTRAP SINGLETRAP
5.0-FT (H) INFILTRATION SYSTEM
INV (TOP OF CHAMBER) = 238.50
INV (BOT OF CHAMBER) = 233.00
ESHGE (TP-5) = 222.3±
PROP IS-2B - STORMTRAP SINGLETRAP
5.0-FT (H) INFILTRATION SYSTEM
INV (TOP OF CHAMBER) = 238.50
INV (BOT OF CHAMBER) = 233.00
ESHGE (TP-5) = 222.3±
PROP IS-4A - STORMTRAP SINGLETRAP
3.0-FT (H) INFILTRATION SYSTEM
INV (TOP OF CHAMBER) = 240.50
INV (BOT OF CHAMBER) = 237.00
ESHGE (TP-1) = 234.5±
PROP IS-4B - STORMTRAP SINGLETRAP
3.0-FT (H) INFILTRATION SYSTEM
INV (TOP OF CHAMBER) = 240.50
INV (BOT OF CHAMBER) = 237.00
ESHGE (TP-1) = 234.5±
PROP IS-4C - STORMTRAP SINGLETRAP
4.0-FT (H) INFILTRATION SYSTEM
INV (TOP OF CHAMBER) = 241.50
INV (BOT OF CHAMBER) = 237.00
ESHGE (TP-1) = 234.5±
PROP DS-5 - STORMTRAP SINGLETRAP
4-FT TALL DETENTION SYSTEM
INV (TOP OF CHAMBER) = 242.50
INV (BOT OF CHAMBER) = 238.00
ESHGE (TP-6) = 242.0±
PROP 109 LF 12" HDPE @ 1.00%
PROP 139 LF 12" HDPE @ 1.19%
PROP 54 LF 12" HDPE @ 0.60%
PROP 54 LF 24" HDPE @ 0.00%
PROP 4 LF 18" HDPE @ 0.00%
PROP 19 LF 15" HDPE @ 2.06%
PROP 10 LF 6" HDPE @ 1.50%
PROP 19 LF 18" HDPE @ 0.78%
PROP 27 LF 8" HDPE @ 4.52%
PROP 6 LF 12" HDPE @ 1.77%
PROP 31 LF 18" HDPE @ 5.68%
PROP 43 LF 12" HDPE @ 1.83%
PROP 6 LF 12" HDPE @ 1.63%
PROP 9 LF 12" HDPE @ 1.11%
PROP 11 LF 18" HDPE @ 0.00%
PROP 136 LF 12" HDPE @ 2.00%
PROP 17 LF 24" HDPE @ 0.00%
PROP 47 LF 12" HDPE @ 4.88%
PROP 33 LF 12" HDPE @ 4.58%
PROP 21 LF 12" HDPE @ 2.61%
PROP 20 LF 12" HDPE @ 1.89%
PROP 13 LF 6" HDPE @ 1.50%
PROP 13 LF 6" HDPE @ 1.49%
PROP 17 LF 24" HDPE @ 0.00%
PROP 148 LF 15" HDPE @ 1.15%
PROP 18 LF 6" HDPE @ 1.50%
PROP 42 LF 12" HDPE @ 3.59%
PROP 11 LF 18" HDPE @ 0.00%
PROP 86 LF 24" HDPE @ 0.58%
PROP 41 LF 30" HDPE @ 0.00%
PROP 29 LF 12" HDPE @ 2.44%
PROP 114 LF 12" HDPE @ 2.01%
PROP 111 LF 12" HDPE @ 2.00%
PROP 45 LF 12" HDPE @ 2.00%
PROP 49 LF 12" HDPE @ 1.
PROP 24 LF 12" HDPE @ 3.06%
PROP 12 LF 12" HDP
PROP 20 LF 12" HDPE @ 4.98%
PROP 23 LF 12" HDP
PROP 22 LF 12" HDPE @ 1.57%
PROP 82 LF 12" HDPE @ 3.41%
PROP 43 LF 12" HDPE @ 1.61%
PROP 192 LF 18" HDPE @ 0.82%
PROP 7 LF 18" HDPE @ 0.00%
PROP 12 LF 6" HDPE @ 1.45%
PROP 52 LF 30" HDPE @ 1.93%
PROP 10 LF 6" HDPE @ 1.00%
PROP 22 LF 12" HDPE @ 1.57%
PROP 86 LF 24" HDPE @ 0.58%
PROP 7 LF 12" HDP
PROP 17 LF 12" HDPE @ 0.82%
PROP 17 LF 24" HDPE @ 0.00%
PROP 41 LF 30" HDPE @ 0.00%
PROP 29 LF 12" HDPE @ 2.44%
PROP 148 LF 15" HDPE @ 1.15%
PROP 42 LF 12" HDPE @ 3.59%
PROP 11 LF 18" HDPE @ 0.00%
PROP 136 LF 12" HDPE @ 2.00%
PROP 6 LF 12" HDPE @ 1.63%
PROP 9 LF 12" HDPE @ 1.11%
PROP 11 LF 18" HDPE @ 0.00%
PROP 10 LF 6" HDPE @ 1.50%
PROP 19 LF 18" HDPE @ 0.78%
PROP 27 LF 8" HDPE @ 4.52%
PROP 6 LF 12" HDPE @ 1.77%
PROP 31 LF 18" HDPE @ 5.68%
PROP 43 LF 12" HDPE @ 1.83%
PROP 109 LF 12" HDPE @ 1.00%
PROP 139 LF 12" HDPE @ 1.19%
PROP 54 LF 12" HDPE @ 0.60%
PROP 54 LF 24" HDPE @ 0.00%
PROP 4 LF 18" HDPE @ 0.00%
PROP 19 LF 15" HDPE @ 2.06



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DATE:	02/02/2026
CAD I.D.:	P-CIVIL-PROP

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

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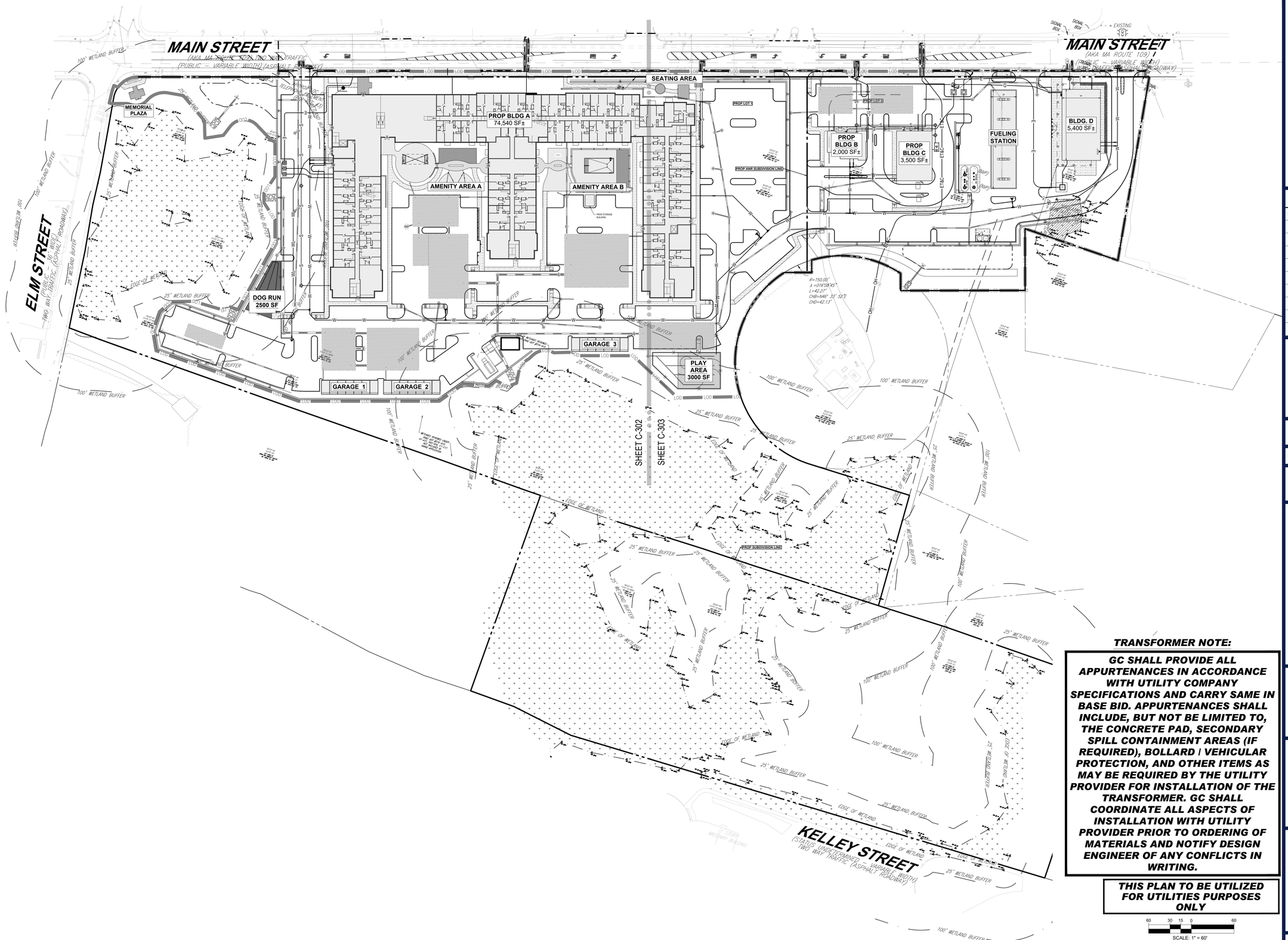
DRAINAGE PLAN B

SHEET NUMBER:

C-406

ORG. DATE - 04/15/2026

I:\BOHLER\ENG_NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROP-MAA240482.00-1D-----LAYOUT C-406 DRNG B



TRANSFORMER NOTE:

GC SHALL PROVIDE ALL APPURTENANCES IN ACCORDANCE WITH UTILITY COMPANY SPECIFICATIONS AND CARRY SAME IN BASE BID. APPURTENANCES SHALL INCLUDE, BUT NOT BE LIMITED TO, THE CONCRETE PAD, SECONDARY SPILL CONTAINMENT AREAS (IF REQUIRED), BOLLARD / VEHICULAR PROTECTION, AND OTHER ITEMS AS MAY BE REQUIRED BY THE UTILITY PROVIDER FOR INSTALLATION OF THE TRANSFORMER. GC SHALL COORDINATE ALL ASPECTS OF INSTALLATION WITH UTILITY PROVIDER PRIOR TO ORDERING OF MATERIALS AND NOTIFY DESIGN ENGINEER OF ANY CONFLICTS IN WRITING.

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60 30 15 0 60

SCALE: 1" = 60'

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CAD I.D.:	P-CIVL-PROP

PROJECT:

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P.O. BOX 2440

PROPOSED
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SHEET TITLE:

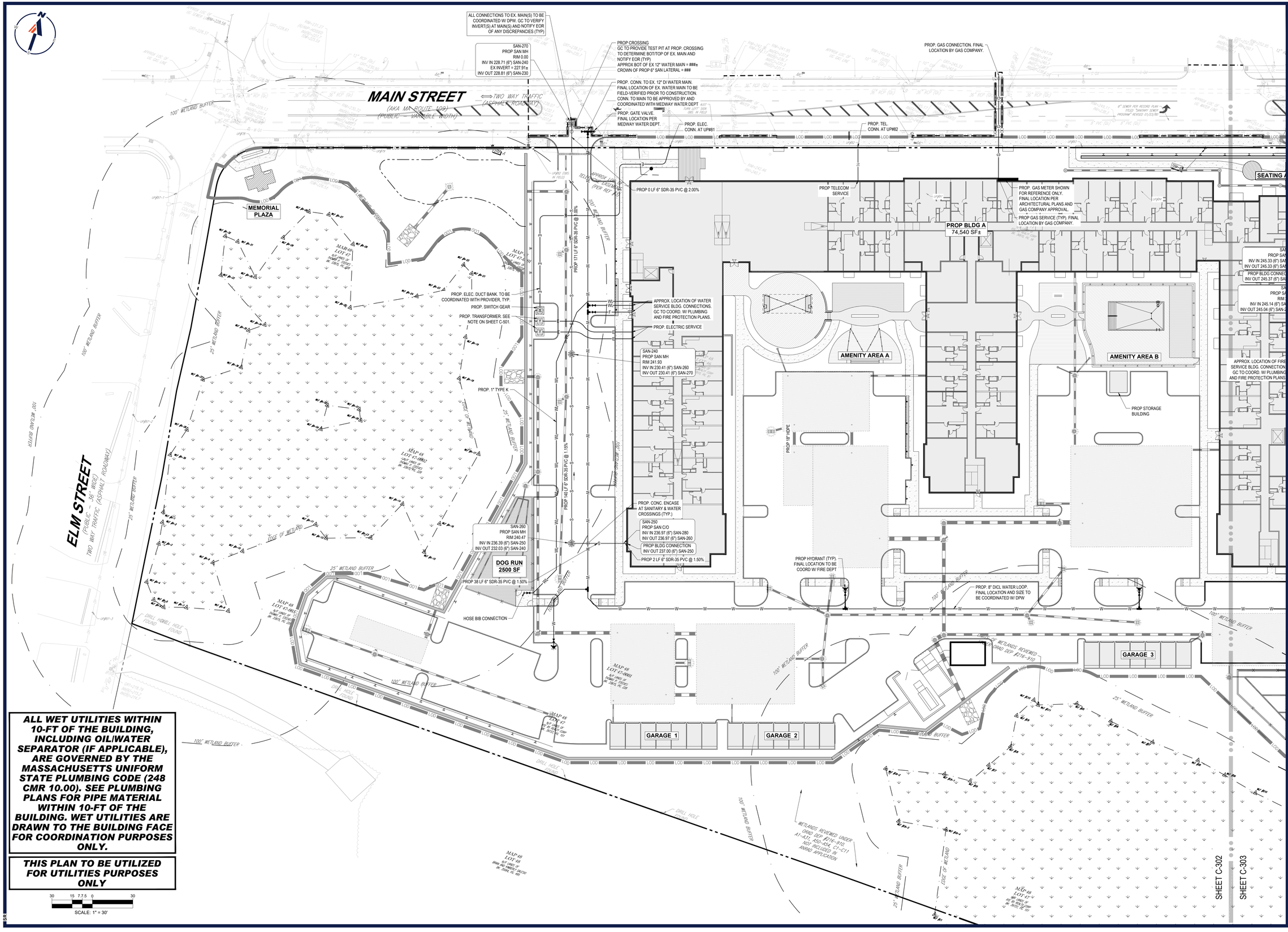
OVERALL UTILITY PLAN

SHEET NUMBER:

C-501

ORG. DATE - 04/15/2026

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ALL WET UTILITIES WITHIN 10-FT OF THE BUILDING, INCLUDING OIL/WATER SEPARATOR (IF APPLICABLE), ARE GOVERNED BY THE MASSACHUSETTS UNIFORM STATE PLUMBING CODE (248 CMR 10.00). SEE PLUMBING PLANS FOR PIPE MATERIAL WITHIN 10-FT OF THE BUILDING. WET UTILITIES ARE DRAWN TO THE BUILDING FACE FOR COORDINATION PURPOSES ONLY.

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

30 15 7.5 0 30
SCALE: 1" = 30'

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SR1

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www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

UTILITY PLAN A

SHEET NUMBER:

C-502

ORG. DATE - 04/15/2026

SEATING AREA

AMENITY AREA B

PROP STORAGE BUILDING

GARAGE 3

PROP LOT 1

PROP LOT 2

PROP ANR SUBDIVISION LINE

PROP BLDG B 2,000 SF±

PROP BLDG C 3,500 SF±

FUELING STATION

BLDG. D 5,400 SF±

PLAY AREA 3000 SF

SAN-270 (1)
PROP SAN MH
RIM 244.89
INV IN 243.87 (6") SAN-210
EX INVERT = 243.37±

PROP CONN TO EX 8" SAN MAIN
PROP INV = 250.04 (SADDLE)
EX INVERT = 249.3±

PROP. GAS CONNECTION. FINAL LOCATION BY GAS COMPANY.

PROP. ELEC. & TEL. CONN. AT UP#88 FOR BACKFEED OF ABUTTER. TO BE COORDINATED WITH UTILITY AND ABUTTER.

EX HYDRANT TO BE RELOCATED. FINAL LOCATION PER MEDWAY WATER DEPT.

PROP. TRANSFORMER. SEE NOTE ON SHEET C-501.

ALL CONNECTIONS TO EX. MAIN(S) TO BE COORDINATED W/ DPW. GC TO VERIFY INVERT(S) AT MAIN(S) AND NOTIFY EOR OF ANY DISCREPANCIES (TYP.)

PROP CONN TO EX 8" SAN MAIN
PROP INV = 255.31 (SADDLE)
EX INVERT = 254.81±

PROP CROSSING
GC TO PROVIDE TEST PIT AT PROP. CROSSING TO DETERMINE BOT/TOP OF EX. MAIN AND NOTIFY EOR (TYP)
APPROX BOT OF EX 12" WATER MAIN = 257.7-258.9±
CROWN OF PROP 6" SAN LATERAL = 255.97

PROP 20 LF 6" SDR-35 PVC @ 2.00%

SAN-30
PROP SAN MH
RIM 264.22
INV IN 255.82 (6") SAN-40
INV OUT 255.72 (6") SAN-130

PROP 12 LF 6" SDR-35 PVC @ 2.00%

SAN-40
PROP SAN C/O
INV IN 256.06 (6") SAN-190
INV OUT 256.06 (6") SAN-30

PROP 22 LF 8" SDR-35 PVC @ 1.50%

SAN-80
PROP SAN MH
RIM 258.95
INV IN 253.44 (8") SAN-70
INV OUT 249.63 (8") SAN-150

PROP. ELEC. CONN. AT UP#89

PROP CROSSWALK (TYP.)

PROP. TEL. CONN. AT UP#87

PROP 65 LF 8" SDR-35 PVC @ 1.50%

SAN-70
PROP SAN MH
RIM 258.25
INV IN 254.85 (6") SAN-90
INV IN 254.52 (6") SAN-50
INV OUT 254.42 (8") SAN-80

PROP 117 LF 6" SDR-35 PVC @ 1.00%

PROP 111 LF 6" @ 1.00%

PROP. ELEC. & TELECOM. DUCT BANK. TO BE COORDINATED WITH PROVIDER AND ABUTTER, TYP.

SAN-50
PROP SAN MH
RIM 259.72
INV IN 255.73 (6") SAN-60
INV OUT 255.63 (6") SAN-70

PROP 14 LF 6" SDR-35 PVC @ 1.50%

PROP. ELEC. DUCT BANK. TO BE COORDINATED WITH PROVIDER, TYP.

PROP 8 LF 6" SDR-35 PVC @ 1.50%

PROP. ELEC. SERVICE

SAN-90
PROP SAN C/O
INV IN 254.98 (6") SAN-140
INV OUT 254.98 (6") SAN-70

PROP 2 LF 8" SDR-35 PVC @ 1.50%

SAN-140
PROP SAN MH
RIM 254.90
INV OUT 255.00 (6") SAN-90

PROP. ELEC. SERVICE

PROP GAS SERVICE (TYP). FINAL LOCATION BY GAS COMPANY.

SAN-60
PROP SAN MH
RIM 259.53
INV IN 255.68 (6") SAN-100
INV IN 256.04 (6")
INV OUT 255.94 (6") SAN-50

PROP. CHARGING STATION(S). TO BE COORDINATED WITH PROVIDER, TYP.

GT-1
PROP GREASE TRAP
RIM IN 259.30
INV IN 256.20 (6")
INV OUT 256.10 (6")

SAN-200
PROP SAN C/O
INV IN 245.33 (6") SAN-220
INV OUT 245.33 (6") SAN-210

PROP BLDG CONNECTION
INV OUT 245.37 (6") SAN-200

SAN-210
PROP SAN MH
RIM 247.21
INV IN 245.14 (6") SAN-200
INV OUT 245.04 (8") SAN-270 (1)

APPROX. LOCATION OF FIRE SERVICE BLDG. CONNECTION. GC TO COORD. W/ PLUMBING AND FIRE PROTECTION PLANS.

APPROX. LOCATION OF WATER SERVICE BLDG. CONNECTIONS. GC TO COORD. W/ PLUMBING AND FIRE PROTECTION PLANS.

APPROX. LOCATION OF WATER SERVICE BLDG. CONNECTIONS. GC TO COORD. W/ PLUMBING AND FIRE PROTECTION PLANS.

PROP BLDG CONNECTION
INV OUT 256.11 (6") SAN-40

PROP. GAS METER SHOWN FOR REFERENCE ONLY. FINAL LOCATION PER ARCHITECTURAL PLANS AND GAS COMPANY APPROVAL.

FIRST 10-FT OF ALL PIPE(S) EXITING THE BUILDING TO COMPLY WITH BUILDING CODE (TYP.)

APPROX. LOCATION OF WATER SERVICE BLDG. CONNECTIONS. GC TO COORD. W/ PLUMBING AND FIRE PROTECTION PLANS.

PROP HYDRANT (TYP). FINAL LOCATION TO BE COORD W/ FIRE DEPT

PROP. TEL. CONN. AT UP#20/90

PROP 3 LF 6" SDR-35 PVC @ 2.02%

PROP. CONN. TO EX. 12" DI WATER MAIN. FINAL LOCATION OF EX. WATER MAIN TO BE FIELD-VERIFIED PRIOR TO CONSTRUCTION. CONN. TO MAIN TO BE APPROVED BY AND COORDINATED WITH MEDWAY WATER DEPT

PROP. GATE VALVE. FINAL LOCATION PER MEDWAY WATER DEPT.

PROP. DICL WATER LOOP. FINAL LOCATION AND SIZE TO BE COORDINATED W/ DPW

PROP. TRANSFORMER. SEE NOTE ON SHEET C-501.

PROP. UTILITY POLE FOR BACKFEED OF ABUTTER. TO BE COORDINATED WITH UTILITY AND ABUTTER.

R=150.00'
Δ =01°08'45"
L=42.27'
CHB=N46° 33' 52"E
CHD=42.13'

100' WETLAND BUFFER

25' WETLAND BUFFER

EDGE OF WETLAND

MAP 40 LOT 73
N/F LAND OF MILLENNIUM PARK 17 LLC
BK. 37906, PG. 322

MAP 40 LOT 74
N/F LAND OF RTE 85 REALTY CORP
BK. 37906, PG. 328

MAP 40 LOT 75
N/F LAND OF RTE 85 REALTY CORP
BK. 37906, PG. 328

MAP 40 LOT 111
N/F DAVID P. LAMOTHE, TRUSTEE OF THE LAMOTHE REAL ESTATE NOMINEE TRUST
BK. 34626, PG. 109

MAP 40 LOT 10
N/F LAND OF PLAIN FIELD LLC
BK. 37906, PG. 317

MAP 49 LOT 9A
N/F DAVID J. & DEBORAH L. ENGLISTEIN
BK. 4482, PG. 167

MAP 49 LOT 4
N/F LAND OF DAVID P. LAMOTHE, TRUSTEE OF THE LAMOTHE REAL ESTATE NOMINEE TRUST
BK. 33331, PG. 90

SHEET C-302

SHEET C-303

ALL WET UTILITIES WITHIN 10-FT OF THE BUILDING, INCLUDING OIL/WATER SEPARATOR (IF APPLICABLE), ARE GOVERNED BY THE MASSACHUSETTS UNIFORM STATE PLUMBING CODE (248 CMR 10.00). SEE PLUMBING PLANS FOR PIPE MATERIAL WITHIN 10-FT OF THE BUILDING. WET UTILITIES ARE DRAWN TO THE BUILDING FACE FOR COORDINATION PURPOSES ONLY.

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

30 15 7.7.5 0 30

SCALE: 1" = 30'

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
INDUSTRIAL ENGINEERING
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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PROJECT No.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-PROP

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER

352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900

www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

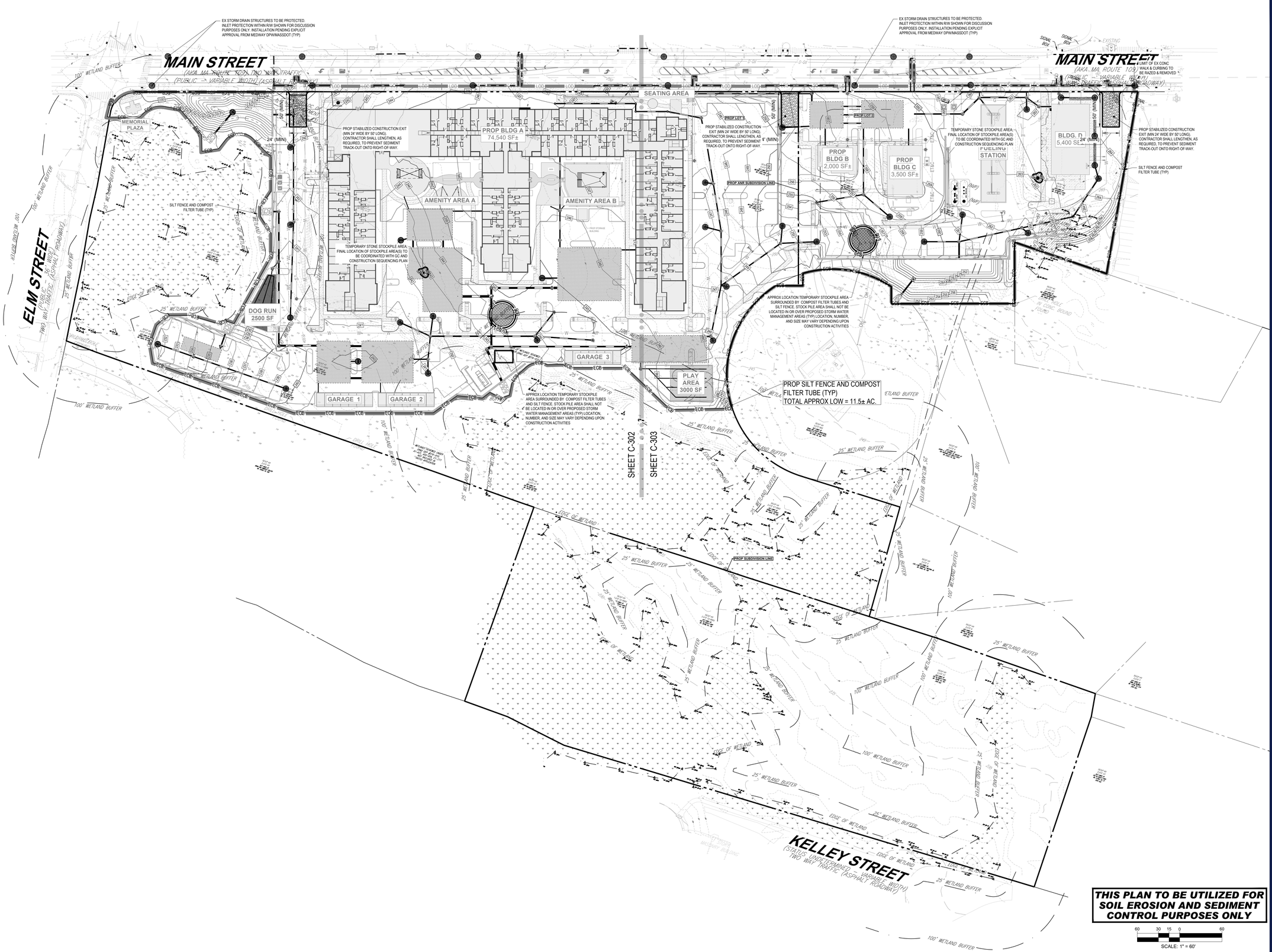
UTILITY PLAN B

SHEET NUMBER:

C-503

ORG. DATE - 04/15/2026

\\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROP-MAA240482.00-1D----3-LAYOUT- C-503 UTIL B
SR



BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
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PROJECT No.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
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COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

SOIL EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER:

C-801

ORG. DATE - 04/15/2026

\\BOHLERENG.NET\PROJECTS\MA2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROP-MAA240482.00-1D----\LAYOUT\ C-801 EROS

EROSION AND SEDIMENT CONTROL NOTES

1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
2. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. AT A MINIMUM, AREAS SHALL BE PERMANENTLY STABILIZED ACCORDING TO THE CURRENT EDITION OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), OR IN THE ABSENCE OF A SWPPP, THEY SHALL BE PERMANENTLY STABILIZED WITHIN 14 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
3. SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 8%.
4. INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
5. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED. FOR SEDIMENT CONTROL DEVICES THAT ARE WITHIN AREAS SUBJECT TO CONSERVATION COMMISSION JURISDICTION, THE DEVICES SHALL REMAIN IN PLACE AND BE REMOVED IN ACCORDANCE WITH THE ORDER OF CONDITIONS.
6. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1) UNLESS OTHERWISE INDICATED ON THE PLANS. SLOPE PROTECTION FOR SLOPES GREATER THAN 2:1 SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER.
7. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
8. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
9. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL STANDARDS.
10. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
    - 10.1. SIX INCHES, OR DEPTH SPECIFIED ON THE LANDSCAPE PLAN, OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
    - 10.2. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER1,000 SF).
    - 10.3. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUE-GRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS: SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN. QUALITY SOD MAY BE SUBSTITUTED FOR SEED WHERE SLOPES DO NOT EXCEED 2:1, SOD ON SLOPES STEEPER THAN 3:1 SHOULD BE PEGGED.
    - 10.4. STRAW MULCH AT THE RATE OF 70-90 LBS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE NON-TOXIC BINDER WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS 70% STABILIZED. FOR EROSION CONTROL MEASURES THAT ARE WITHIN AREAS SUBJECT TO CONSERVATION COMMISSION JURISDICTION, THE MEASURES SHALL REMAIN IN PLACE AND BE REMOVED IN ACCORDANCE WITH THE ORDER OF CONDITIONS.
12. WETLANDS WILL BE PROTECTED WITH BARRIERS CONSISTING OF STRAW BALES, COMPOST TUBES, SILT FENCE OR A COMBINATION THEREOF.
13. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
14. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED:

LOCATION	MULCH	MULCH RATE (1000 SF)
PROTECTED AREA	STRAW	100 POUNDS
WINDY AREA	SHREDDED OR CHOPPED CORNSTALKS STRAW (ANCHORED)*	185-275 POUNDS 100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1	JUTE MESH OR EXCELSIOR MAT	AS REQUIRED
GREATER THAN 3:1	(REFER TO GEOTECHNICAL REPORT FOR FINAL DESIGN REQUIREMENT)	

* A HYDRO-APPLICATION OF WOOD OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE NON-TOXIC BINDER SHALL BE USED TO ADDITIONAL WIND CONTROL.

* MULCH ANCHORING: ANCHOR MULCH WITH PEG AND TWINE (1 SQ. YD/BLOCK); MULCH NETTING (AS PER MANUFACTURER); WOOD CELLULOSE FIBER (750 LBS/ACRE); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); USE OF A SERRATED STRAIGHT DISK. WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

15. PROPOSED LOCATIONS OF SURFACE STORMWATER MANAGEMENT BASINS CAN BE UTILIZED AS A TEMPORARY SEDIMENT TRAP DURING CONSTRUCTION.SEDIMENT TRAPS SHALL BE SIZED AND CONSTRUCTED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REQUIREMENTS.
    - 15.1. TEMPORARY SEDIMENT TRAPS SHALL BE SIZED PER THE CURRENT EDITION OF THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS" AND PROVIDE A MINIMUM OF 1,800 CF PER ACRE OF TRIBUTARY AREA WITH A MAXIMUM TRIBUTARY AREA OF 5 ACRES, MAINTAIN A 2:1 LENGTH TO WIDTH RATIO, AND NOT EXCEED 5 FT IN HEIGHT. UPON SITE STABILIZATION, ACCUMULATED SEDIMENT SHALL BE REMOVED AND THE TEMPORARY SEDIMENT TRAP EXCAVATED TO 1 FOOT BELOW THE TRAP. THE AREA SHALL THEN BE SCARIFIED TO PREVENT COMPACTION AND PROMOTE INFILTRATION, AND GRADED AND STABILIZED IN ACCORDANCE WITH THE GRADING AND LANDSCAPE PLANS.
16. STOCKPILING OF MATERIALS (DIRT, WOOD, CONSTRUCTION MATERIALS, ETC.) MUST REMAIN COVERED AT ALL TIMES TO MINIMIZE ANY DUST PROBLEMS THAT MAY OCCUR WITH ADJACENT PROPERTIES AND TO PROVIDE MAXIMUM PROTECTION AGAINST EROSION RUNOFF.
17. EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.
18. THE CONTRACTOR MUST PERFORM DEWATERING (IF REQUIRED), IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND PAY FOR THE COSTS ASSOCIATED WITH ANY AND ALL NECESSARY DISCHARGE PERMITS ASSOCIATED WITH SAME.
19. THE CONTRACTOR MUST LOCATE CONSTRUCTION WASTE MATERIAL STORAGE AREAS TO MINIMIZE EXPOSURE TO STORMWATER. THE CONTRACTOR MUST IMMEDIATELY PLACE CONSTRUCTION WASTE IN ON-SITE STORAGE CONTAINERS UNTIL THAT CONSTRUCTION WASTE IS READY FOR OFF-SITE DISPOSAL. THE CONTRACTOR MUST MAINTAIN SPILL PREVENTION AND RESPONSE EQUIPMENT AND MAKE SAME CONTINUOUSLY AVAILABLE ON-SITE FOR USE BY THE CONTRACTOR'S EMPLOYEES WHO MUST BE PROPERLY TRAINED IN THE APPLICATION OF SPILL PREVENTION AND RESPONSE PROCEDURES.
20. EROSION CONTROL NOTES DURING WINTER CONSTRUCTION
21. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
22. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT THE AMOUNT OF AREA OPEN AT ONE TIME IS MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE AND IN CONFORMANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN SUCH THAT ADEQUATE PROVISIONS ARE EMPLOYED TO CONTROL STORMWATER RUNOFF.
23. CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
24. AN AREA SHALL BE CONSIDERED TO HAVE BEEN TEMPORARILY STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.
25. FOR AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR A PERIOD EXCEEDING 14 DAYS BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED. IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 200-300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED AS APPLICABLE. SLOPES SHALL NOT BE LEFT UNSTABILIZED OVER THE WINTER OR IN AREAS WHERE WORK HAS CEASED FOR MORE THAN 14 DAYS UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF SEDIMENT BARRIERS OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
26. MULCHING REQUIREMENTS:
    - 26.1. BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.
    - 26.2. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
    - 26.3. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
27. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE STORMWATER PREVENTION PLAN.
28. DURING THE WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. EROSION CONTROL MEASURES MUST CONFORM TO THE STATE, LOCAL, AND FEDERAL GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL UNLESS OTHERWISE NOTED, OR UNLESS THE PROFESSIONAL OF RECORD CLEARLY AND SPECIFICALLY, IN WRITING, DIRECTS OTHERWISE. INSTALLATION OF EROSION CONTROL, CLEARING, AND SITE WORK MUST BE PERFORMED EXACTLY AS INDICATED IN THE EROSION CONTROL CONSTRUCTION NOTES.
3. THE DISTURBED LAND AREA OF THIS SITE IS APPROXIMATELY XXX.XX ACRES.
4. THE FOLLOWING EROSION CONTROL MEASURES ARE PROPOSED FOR THIS SITE:

A. STABILIZED CONSTRUCTION ENTRANCE/ EXIT - A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT IS TO BE INSTALLED AT THE DESIGNATED LOCATION SHOWN ON THE PLAN. THIS AREA MUST BE GRADED SO THAT RUNOFF WATER IS RETAINED ON-SITE.

B. SEDIMENT FENCE - INSTALL SILT FENCE(S) AND/OR SILT SOCK AROUND ALL OF THE DOWNSLOPE PERIMETERS OF THE SITE, TEMPORARY FILL AND SOIL STOCKPILES.

C. INSTALL FILTER FABRIC DROP INLET PROTECTION AROUND EACH DRAINAGE INLET AS DRAINAGE STRUCTURES ARE INSTALLED TO REDUCE THE QUANTITY OF SEDIMENT. INSTALL TEMPORARY INLET PROTECTION ON INLETS DOWNSLOPE FROM DISTURBANCE, WHICH MAY BE BEYOND THE LIMITS OF DISTURBED AREA.

5. INSTALLATION OF EROSION CONTROL DEVICES MUST BE IN ACCORDANCE WITH ALL OF THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR MUST INSPECT EROSION CONTROL MEASURES WEEKLY. THE CONTRACTOR MUST REMOVE ANY SILT DEPOSITS GREATER THAN 6 INCHES OR HALF THE EROSION CONTROL BARRIER'S HEIGHT COLLECTED ON THE FILTER FABRIC AND/OR SILT SOCK BARRIERS AND EXCAVATE AND REMOVE ANY SILT FROM DROP INLET PROTECTION.
7. THE CONTRACTOR MUST APPLY TEMPORARY SEED AND MULCH TO ALL DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINISHED GRADE AND VEGETATED WITHIN 7 DAYS. WHEN AREAS ARE DISTURBED AFTER THE GROWING SEASON, THE CONTRACTOR MUST STABILIZE SAME WITH GEOTEXTILE FABRIC AND MAINTAIN SAME IN STRICT ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
8. THE CONTRACTOR MUST INSTALL ADDITIONAL EROSION CONTROL MEASURES IF THE PROFESSIONAL OF RECORD SO REQUIRES, TO PREVENT ANY, INCLUDING THE INCIDENTAL, DISCHARGE OF SILT-LADEN RUNOFF FROM EXITING THE SITE.
9. THE CONTRACTOR MUST BE RESPONSIBLE FOR INSPECTING AND MAINTAINING ALL EROSION CONTROL MEASURES ON THE SITE UNTIL PERMANENT PAVING AND TURF/LANDSCAPING IS ESTABLISHED. THE COSTS OF INSTALLING AND MAINTAINING THE EROSION CONTROL MEASURES MUST BE INCLUDED IN THE BID PRICE FOR THE SITE WORK AND THE CONTRACTOR IS RESPONSIBLE FOR ALL SUCH COSTS.
10. THE CONTRACTOR MUST CONTINUE TO MAINTAIN ALL EROSION CONTROL MEASURES UNTIL THE COMPLETION OF CONSTRUCTION AND THE ESTABLISHMENT OF VEGETATION.
11. THE CONTRACTOR MUST REMOVE EROSION CONTROL MEASURES, SILT AND DEBRIS AFTER ESTABLISHING PERMANENT VEGETATION COVER OR OTHER INSTALLING A DIFFERENT, SPECIFIED METHOD OF STABILIZATION.
12. THIS PLAN REPRESENTS THE MINIMUM LEVEL OF IMPLEMENTATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROL FACILITIES, MEASURES AND STRUCTURES. ADDITIONAL FACILITIES, MEASURES AND STRUCTURES MUST BE INSTALLED WHERE NECESSARY TO COMPLY WITH ALL APPLICABLE CODES AND STANDARDS AND/OR TO PREVENT ANY, INCLUDING THE INCIDENTAL DISCHARGE OF SILT-LADEN RUNOFF FROM EXITING THE SITE.
13. THE CONTRACTOR MUST PROTECT ALL EXISTING TREES AND SHRUBS. THE CONTRACTOR MUST REFER TO THE LANDSCAPE AND/OR DEMOLITION PLAN(S) FOR TREE PROTECTION, FENCE LOCATIONS AND DETAILS.
14. THE CONTRACTOR MUST REFER TO GRADING PLANS FOR ADDITIONAL INFORMATION.
15. THE CONTRACTOR MUST CLEAN EXISTING AND PROPOSED DRAINAGE STRUCTURES AND INTERCONNECTING PIPES ON OR OFF-SITE AS THE JURISDICTIONAL AGENCY REQUIRES, BOTH AT THE TIME OF SITE STABILIZATION AND AT END OF PROJECT.
16. SOIL EROSION CONTROL MEASURES MUST BE ADJUSTED OR RELOCATED BY THE CONTRACTOR AS IDENTIFIED DURING SITE OBSERVATION IN ORDER TO MAINTAIN THE COMPLETE EFFECTIVENESS OF ALL CONTROL MEASURES.
17. THE CONTRACTOR MUST IDENTIFY, ON THE PLAN, THE LOCATION OF WASTE CONTAINERS, FUEL STORAGE TANKS, CONCRETE WASHOUT AREAS AND ANY OTHER LOCATIONS WHERE HAZARDOUS MATERIALS ARE STORED.

THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

-INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCE/EXIT (AS SHOWN)

-INSTALLATION OF EROSION CONTROL BARRIER (STRAW BALES AND SILT FENCE) (AS SHOWN)

-INSTALLATION OF INLET PROTECTION IN STREET (AS SHOWN)

-DEMOLITION OF EXISTING SITE STRUCTURES (SEE DEMOLITION PLAN)

-DEMOLITION OF EXISTING SITE PAVEMENT AND AMENITIES (SEE DEMOLITION PLAN)

-CLEARING AND GRUBBING

-INSTALLATION OF TEMPORARY SWALES AND SEDIMENT BASINS

-EARTHWORK AND EXCAVATION/FILLING AS NECESSARY

-CONSTRUCTION OF UTILITIES

-STABILIZE PERMANENT LAWN AREAS AND SLOPES WITH TEMPORARY SEEDING

-INSTALLATION OF INLET PROTECTION OF ON-SITE UTILITIES (AS SHOWN)

-CONSTRUCTION OF BUILDINGS

-CONSTRUCTION OF ALL CURBING AND LANDSCAPE ISLANDS AS INDICATED ON THE PLANS

-SPREAD TOPSOIL ON SLOPED AREAS AND SEED AND MULCH

-FINAL GRADING OF ALL SLOPED AREAS

-PLACE 6" TOPSOIL ON SLOPES AFTER FINAL GRADING COMPLETED. FERTILIZE, SEED, AND MULCH SEED MIXTURE TO BE INSTALLED AS REQUIRED.

-REMOVAL OF THE TEMPORARY SEDIMENT BASINS

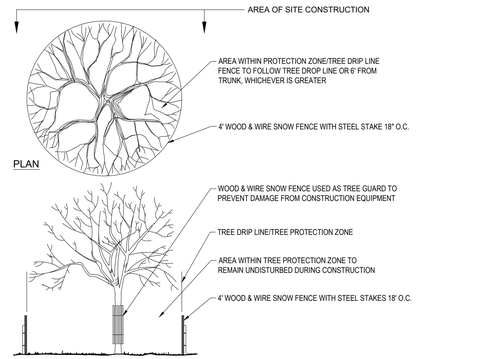
-PAVE PARKING LOT

-LANDSCAPING PER LANDSCAPING PLAN

-REMOVE EROSION CONTROLS AS DISTURBED AREAS BECOME STABILIZED TO 70% STABILIZATION OR GREATER

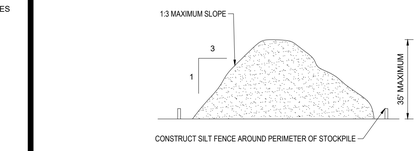
RECOMMENDED CONSTRUCTION SEQUENCE

N.T.S.



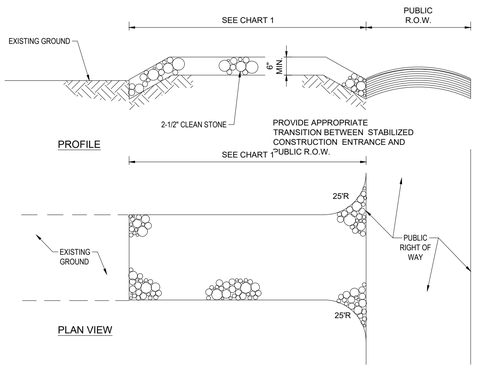
TREE PROTECTION DURING SITE CONSTRUCTION

N.T.S.



TEMPORARY STOCKPILE

N.T.S.



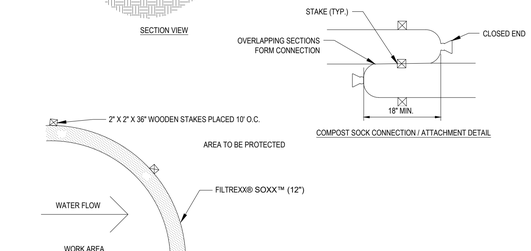
PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2% TO 5%	100 FT	200FT
>5%	ENTIRE ENTRANCE STABILIZED WITH FABC BASE COURSE (1)	

(1) AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

CHART 1

STABILIZED CONSTRUCTION ENTRANCE

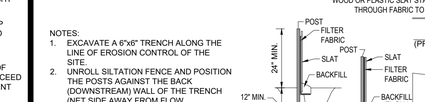
N.T.S.



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

COMPOST FILTER TUBE

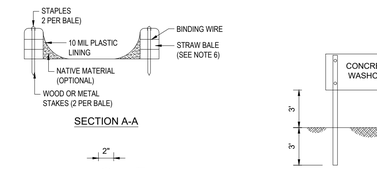
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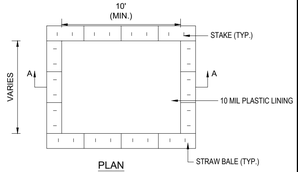
NOTES:
1. EXCAVATE A 6"x6" TRENCH ALONG THE LINE OF EROSION CONTROL OF THE SITE.
2. UNROLL SILTATION FENCE AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH (NET SIDE AWAY FROM FLOW DIRECTION).
3. DRIVE THE POST INTO THE GROUND UNTIL THE NETTING IS LAYING ACROSS THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF THE FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH. BACKFILL ALSO BE ACCOMPLISHED BY LAYING FABRIC FLAP ON UNDISTURBED GROUND AND PILING & TAMPING FILL AT THE BASE.

TYP. SILTATION FENCE

N.T.S.

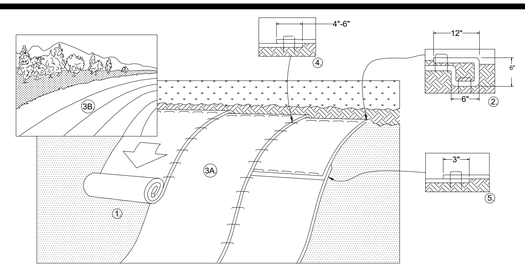


NOTES:
1. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50 FT. FROM STORM DRAIN INLETS.
2. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE SHOULD BE BROKEN UP, REMOVED, AND DISPOSED OF OFF-SITE. CONTRACTOR TO DISPOSE OF HARDENED CONCRETE ON A REGULAR BASIS.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
4. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
5. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.
6. STRAW BALE AND STAPLES MAY BE SUBSTITUTED WITH ALTERNATE SECURING MEASURES SUCH AS CONCRETE BLOCK.



CONCRETE WASTE MANAGEMENT AREA

N.T.S.

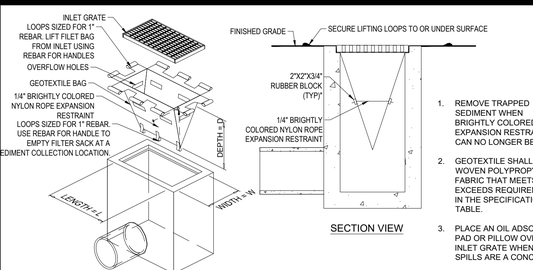


1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH AS SHOWN IN DETAIL 2. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURES RECOMMENDATION.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MINIMUM 6" OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
6. PLACE STAPLES/STAKES PER MANUFACTURER'S RECOMMENDATION FOR THE APPROPRIATE SLOPE BEING APPLIED.

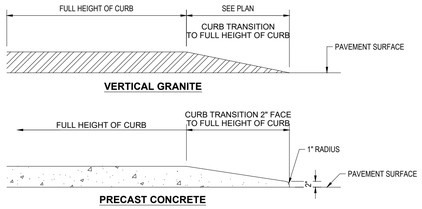
NOTES:
1. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
2. FOLLOW EROSION CONTROL TECHNOLOGY COUNCIL SPECIFICATION FOR PRODUCT SELECTION.

EROSION CONTROL BLANKET 2:1 SLOPES (SLOPE INSTALLATION)

N.T.S.

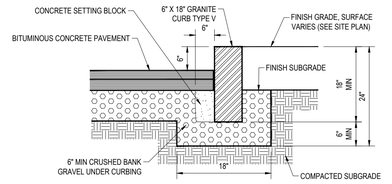


LOW TO MODERATE FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC $^{-1}$
MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE		
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90%
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/



TRANSITION CURB

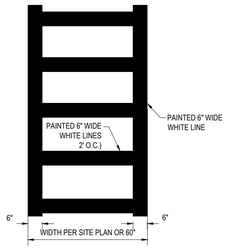
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NOTE: INSTALL WITHIN ALL PUBLIC WAYS, CORNERS, AND RADIUS SECTIONS

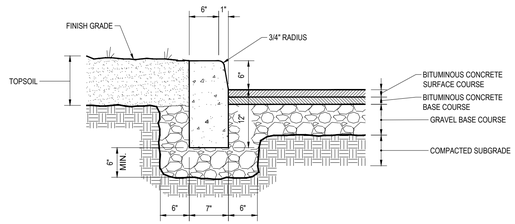
VERTICAL GRANITE CURB

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CROSSWALK MARKINGS

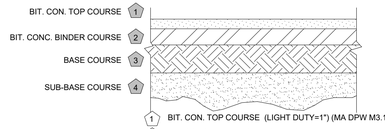
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NOTE:
1. CURB SHALL CONSIST OF 4,000 PSI AIR ENTRAINED CONCRETE, EXPOSED EDGES TO HAVE RUBBED FINISH AND SURFACE SHALL BE TREATED WITH A CONCRETE PENETRANT/SEALER.
2. THE ENDS OF CURB SECTIONS SHALL BE CHAMFERED 1/4 INCH.
3. THE CORNERS OF CURB SECTIONS SHALL MATCH THE ADJACENT CURB IN SIZE, COLOR AND FINISH.
4. CURBS, CURB CORNERS OR EDGING SHALL BE FITTED TOGETHER AS CLOSELY AS POSSIBLE.
5. EXPANSION JOINTS SHALL BE INSTALLED AT A MAXIMUM OF TWENTY FEET (20') ON CENTER USING PREFORMED EXPANSION JOINT FILLER HAVING A THICKNESS OF 1/2 INCH.

PRECAST CONCRETE CURB

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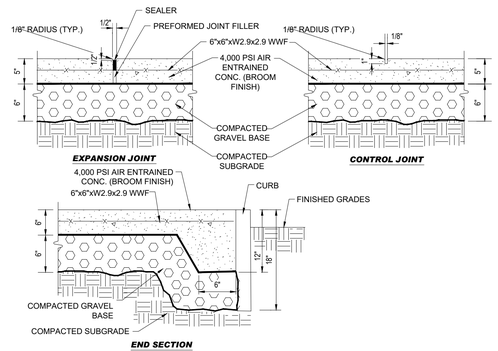


1. BIT. CON. TOP COURSE (LIGHT DUTY=1") (MA DPW M3.11.03)
2. BIT. CONC. BINDER COURSE (LIGHT DUTY=2")(MA DPW M3.11.03)
3. DENSE GRADED CRUSHED STONE BASE COURSE (HEAVY DUTY=6") (LIGHT DUTY=4") (MA DPW M2.01.7)
4. GRAVEL BORROW SUB-BASE COURSE (HEAVY DUTY AND LIGHT DUTY=8") (MA DPW M1.03.1)

NOTE:
1. PAVEMENT BASE AND SUBBASE COURSES TO CONFORM TO STATE DEPARTMENT OF TRANSPORTATION
2. GC TO REFER TO GEOTECHNICAL REPORT FOR PAVEMENT SPECIFICATIONS.

PAVEMENT SECTION

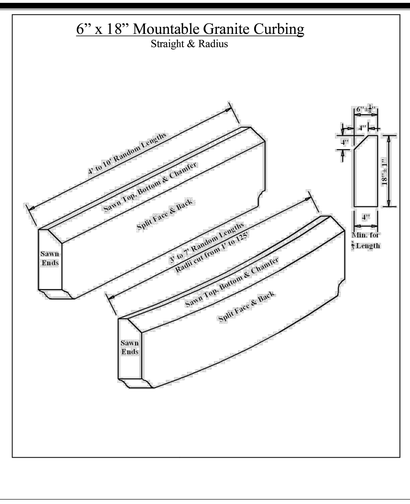
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NOTES: TO BE USED FOR BUILDING SURROUND AND OTHER CONCRETE WALKS. USE CHAIRS TO SUPPORT REINFORCING STEEL DURING POUR. VARIES SEE PLAN
1. SEE SITE PLAN FOR WIDTH AND GRADES
2. PROVIDE MINIMUM 1/8"/FT. CROSS-SLOPE
3. PROVIDE CONTROL JOINTS 5'-0" O.C. MIN.
4. PROVIDE EXPANSION JOINTS 20'-0" O.C. MIN.

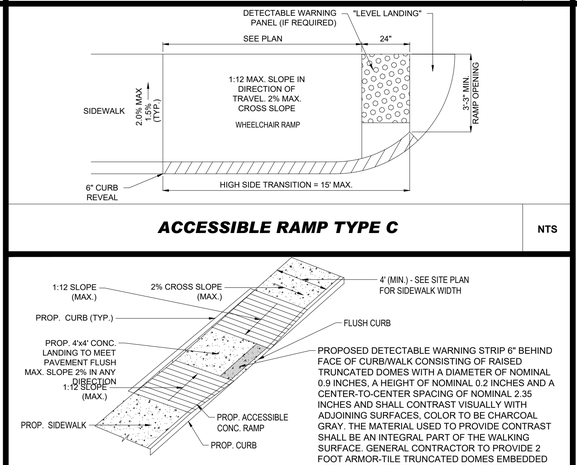
CONCRETE SIDEWALK

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6" X 18" MOUNTABLE GRANITE CURB

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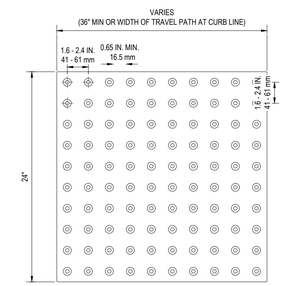


ACCESSIBLE RAMP TYPE C

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ACCESSIBLE RAMP TYPE E

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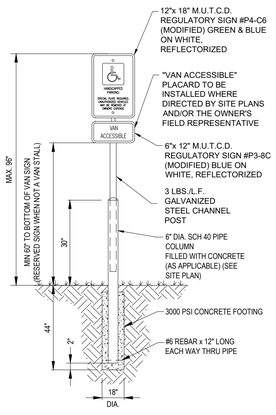


NOTE:
1. TRUNCATED DOME SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT.
2. CONTRACTOR TO INSTALL DETECTABLE WARNINGS WHEN SIDEWALK INTERSECTS A HAZARDOUS VEHICULAR AREA.
3. DOMES SHALL HAVE A BASE DIAMETER OF 0.9 IN (23 mm) MIN. TO 1.4 IN (36 mm) MAX, AND A TOP DIA. OF 50% TO 65% MAX. OF THE BASE DIA.
4. TRUNCATED DOMES SHALL HAVE A HEIGHT OF 0.2" (5.1 mm).
5. TRUNCATED DOMES SHALL HAVE A CENTER TO
6. CENTER SPACING OF 1.6 IN (41 MM) MIN. AND 2.4 (61 mm) MAX. AND A BASE TO BASE SPACING OF 0.65 IN. (16.5 mm) MIN., MEASURED BETWEEN THE MOST ADJACENT DOMES ON THE GRID.

NOTE TO DESIGNER:
IF A WALK CROSSES OR ADJOINS A VEHICULAR WAY WHERE THE WALKING SURFACE AND PAVEMENT ARE NOT SEPERATED BY CURBS, RAILING OR OTHER ELEMENTS, THE BOUNDARY BETWEEN THE AREA SHALL BE DEFINED BY A CONTINUOUS DETECTABLE WARNING WHICH IS MIN. 36" WIDE (ADA ACCESSIBLE GUIDELINES PRINTED 11-4-06) AND MIN. 24" DEPTH.

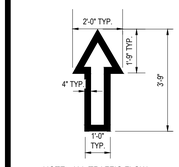
DETECTABLE WARNING

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ACCESSIBLE PARKING SIGN ON CONCRETE BOLLARD

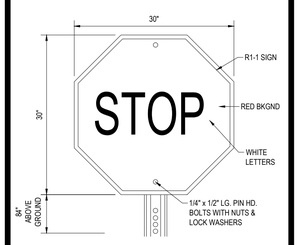
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NOTE: ALL TRAFFIC FLOW ARROWS TO BE REFLECTIVE WHITE PAINT PER SPECS.

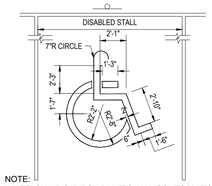
TRAFFIC FLOW ARROW

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STOP SIGN

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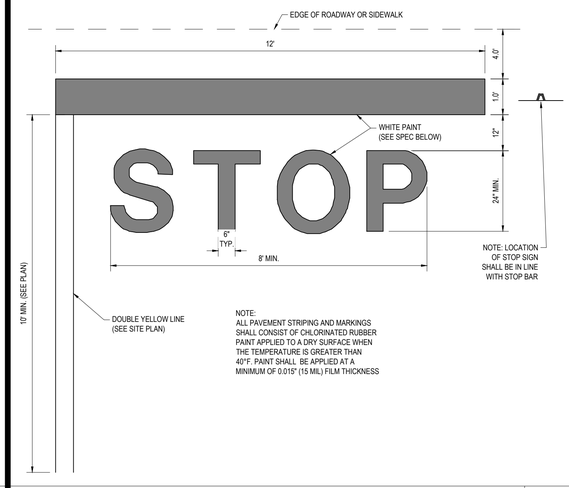


NOTE:
WHEELCHAIR SYMBOL PAINT SHALL CONFORM TO THE STRIPING PAINT SPECIFIED AND SYMBOL SHALL BE CENTERED IN THE STALL

1. 12"x18", 5' TO BOTTOM OF SYMBOL
2. LOCATED SO THAT IT CANNOT BE OBSCURED BY A CAR PARKED IN THE SPACE (2' BEHIND CURB OR 2' BEHIND WALK, AS APPLICABLE)
3. CONFORM TO LOCAL CODES

ACCESSIBLE PARKING SYMBOL

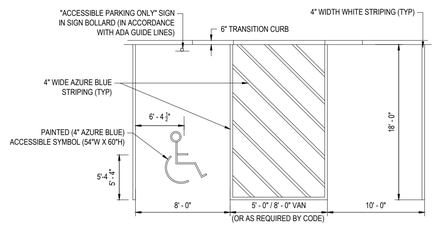
NTS



NOTE:
ALL PAVEMENT STRIPING AND MARKINGS SHALL CONSIST OF CHLORINATED RUBBER PAINT APPLIED TO A DRY SURFACE WHEN THE TEMPERATURE IS GREATER THAN 40°F. PAINT SHALL BE APPLIED AT A MINIMUM OF 0.015" (15 MIL) FILM THICKNESS

STOP BAR

NTS



NOTE: ALL PAVEMENT STRIPING AND MARKINGS SHALL CONSIST OF CHLORINATED RUBBER PAINT APPLIED TO A DRY SURFACE WHEN THE TEMPERATURE IS GREATER THAN 40°F. PAINT SHALL BE APPLIED AT A MINIMUM OF 0.015" (15 MIL) FILM THICKNESS

ACCESSIBLE PARKING STALL MARKINGS

NTS

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

THE BOHLER CIVIL DESIGN AND CONTENT OF THESE PLANS, SPECIFICATIONS AND DETAILS, MUST BE EXPRESSLY STATED FOR ANY PURPOSE, WITHOUT THE WRITTEN AUTHORIZATION FROM BOHLER. ONLY APPROVED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES. © BOHLER, INC.

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

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PROJECT No.:	MAA240482.00-0A
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-CNDS

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

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352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
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NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

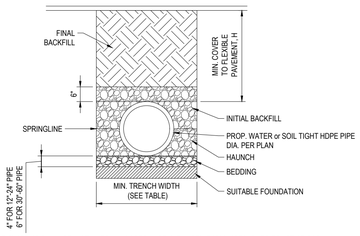
DETAILS

SHEET NUMBER:

C-901

ORG. DATE - 04/15/2026

I:\BOHLER\ENG\NETPROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-MAA240482.00-0A-----LAYOUT: C-901 DETL_MS



RECOMMENDED MIN. TRENCH WIDTH	
PIPE DIA.	MIN. TRANCH WIDTH
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
48"	80"
60"	96"

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION.

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

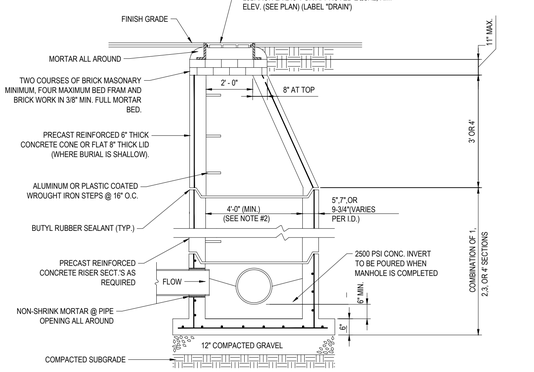
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

HDPE STORM DRAINAGE TRENCH

NTS



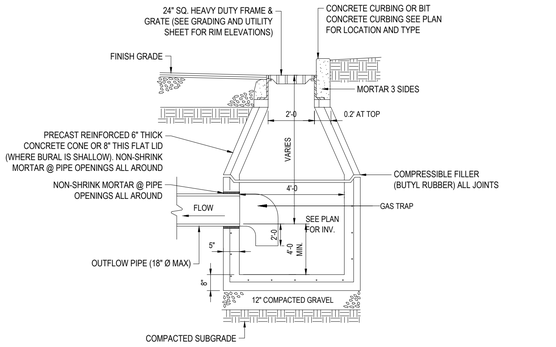
NOTES:

1. ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.

2. CONTRACTOR SHALL SIZE MANHOLE AS NECESSARY TO ACCOMMODATE THE PIPE SIZING AND ORIENTATION USING THE GEOMETRY SHOWN ON THE GRADING AND DRAINAGE PLANS.

PRECAST CONCRETE STORM DRAIN MANHOLE

NTS

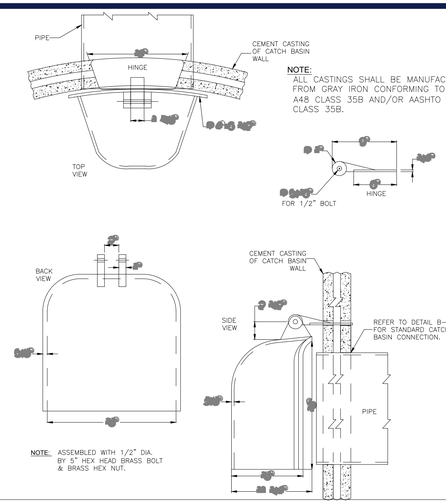


NOTES:

1. ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.
2. USE PRECAST FLAT SLAB TOP FOR SHALLOW INVERT APPLICATIONS

PRECAST CONCRETE DEEP SUMP CATCH BASIN

NTS

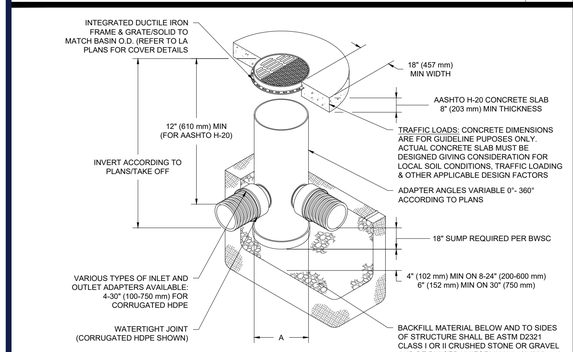


NOTE: ALL CASTINGS SHALL BE MANUFACTURED FROM GRAY IRON CONFORMING TO ASTM A48 CLASS 35B AND/OR AASHTO M105 CLASS 35B.

NOTE: ASSEMBLED WITH 1/2" DIA. BY 5" HEX HEAD BRASS BOLT & BRASS HEX NUT.

CATCH BASIN HOOD

NTS

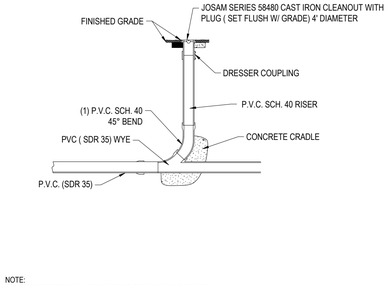


NOTES

1. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC

AREA DRAIN

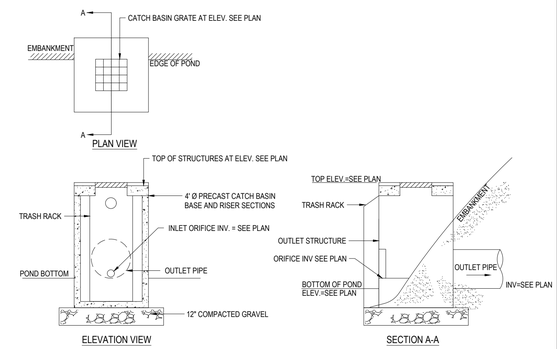
NTS



NOTE:
ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.

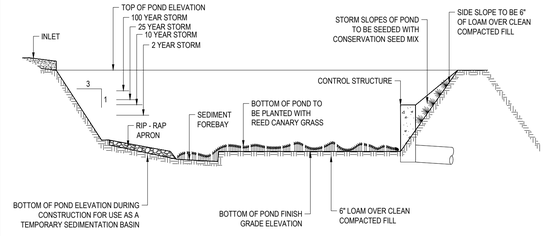
CLEANOUT

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STORMWATER BASIN OUTLET CONTROL STRUCTURE

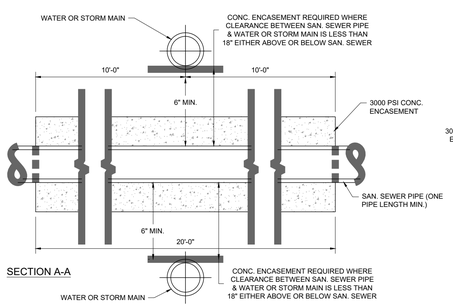
NTS



NOTE:
THE SIDE SLOPES OF THE DETENTION POND SHALL BE PLANTED WITH A SEED MIX CONSISTING OF CREEPING RED FESCUE, TALL FESCUE, AND LADINO CLOVER.

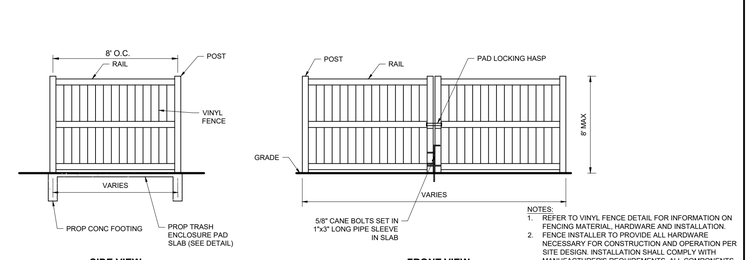
DETENTION POND BASIN

NTS



CONCRETE ENCASEMENT

NTS



NOTES:

1. REFER TO VINYL FENCE DETAIL FOR INFORMATION ON FENCING MATERIAL, HARDWARE AND INSTALLATION.
2. FENCE INSTALLER TO PROVIDE ALL HARDWARE NECESSARY FOR CONSTRUCTION AND OPERATION PER SITE DESIGN. INSTALLATION SHALL COMPLY WITH MANUFACTURER'S REQUIREMENTS. ALL COMPONENTS TO BE COMMERCIAL GRADE UNLESS NOTED OTHERWISE ON THE PLAN.
3. BOLLARD PROTECTION SHALL BE PROVIDED AT LOCATIONS AS INDICATED ON THE SITE PLAN.

TRASH ENCLOSURE WITH VINYL FENCE

(NE-S100302 - 09/2023)

NOT TO SCALE

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE SOLUTIONS
PERMITTING SERVICES
TRANSPORTATION SERVICES

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PROJECT No.:	MAA240482.00-0A
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-CNDS

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY A. HAYES
NO. 51929
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

DETAILS

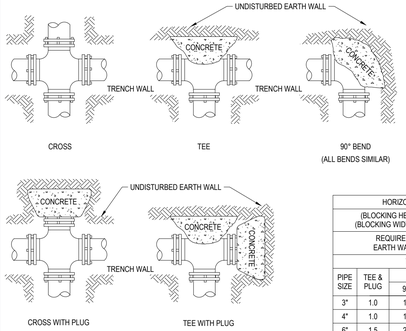
SHEET NUMBER:

C-902

ORG. DATE - 04/15/2026

\\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-CNDS-MAA240482.00-0A-----LAYOUT: C-902 DETL_MS

SR

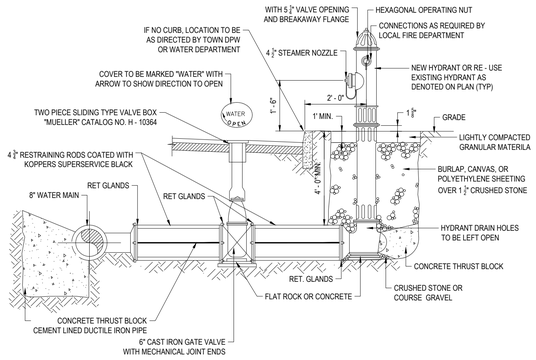


HORIZONTAL THRUST BLOCKING					
(BLOCKING HEIGHT GREATER THAN PIPE O.D.) (BLOCKING WIDTH BETWEEN 1 & 2 TIMES HEIGHT)					
REQUIRED SQ. FT. OF UNDISTURBED EARTH WALL FOR REACTION BACKING					
TYPE OF FITTINGS					
PIPE SIZE	TEE & PLUG	BENDS			
		90°	45°	22 1/2°	11 1/4°
3"	1.0	1.0	1.0	1.0	1.0
4"	1.0	1.0	1.0	1.0	1.0
6"	1.5	2.0	1.0	1.0	1.0
8"	2.5	3.5	1.8	1.0	1.0
10"	4.0	5.5	2.8	1.5	1.0
12"	6.0	8.0	4.0	2.0	1.5

NOTE:
1. DO NOT COVER BELLS OR FLANGES WITH CONCRETE
2. WRAP ALL FITTINGS WITH VISQUEEN.
3. BACK ALL TEES ACCORDING TO SIZE OF BRANCH.
4. BACKING FUTURE LINE EXTENSIONS SHALL BE SUCH THAT LATER REMOVAL IS POSSIBLE.
5. ALL BENDS WHERE FITTINGS ARE USED, BOTH HORIZONTAL OR VERTICAL SHALL BE BACKED.
6. REACTION BACKING TABLE IS BASED ON 100 P.S.I. AND SOIL BEARING PRESSURE OF 2000 lb./sq.ft. ADDITIONAL BACKING MAY BE REQUIRED IN SOME AREAS AS DIRECTED BY ENGINEERS.
7. ALL CONCRETE SHALL BE 2500 P.S.I.
8. 18" AND LARGER REQUIRES SPECIFIC ANTI-THRUST DESIGN.

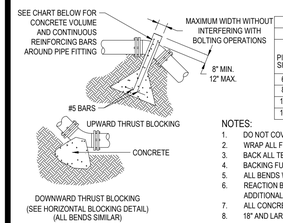
HORIZONTAL THRUST BLOCKING

NTS



HYDRANT AND VALVE INSTALLATION

NTS

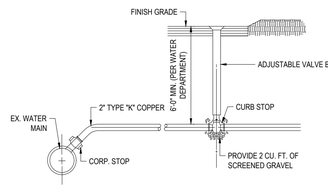


UPWARD THRUST BLOCKING (REQUIRED REINFORCING BARS & CUBIC YARDS OF P.C. CONCRETE											
	90° BEND			45° BEND			22 1/2° BEND			11 1/4°BEND		
PIPE SIZE	CONC. C.Y.	REINF QTY.	REINF SIZE	CONC. C.Y.	REINF QTY.	REINF SIZE	CONC. C.Y.	REINF QTY.	REINF SIZE	CONC. C.Y.	REINF QTY.	REINF SIZE
6"	1.5	3	5	1.5	3	5	1.25	2	5	1.25	2	5
8"	2	3	5	2	3	5	1.5	2	5	1.5	2	5
10"	2.5	3	5	2.5	3	5	2	3	5	2	3	5
12"	3	3	5	3	3	5	2.5	3	5	2.5	3	5

NOTES:
1. DO NOT COVER BELLS OR FLANGES WITH CONCRETE
2. WRAP ALL FITTINGS WITH VISQUEEN.
3. BACK ALL TEES ACCORDING TO SIZE OF BRANCH.
4. BACKING FUTURE LINE EXTENSIONS SHALL BE SUCH THAT LATER REMOVAL IS POSSIBLE.
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7. ALL CONCRETE SHALL BE 2500 P.S.I.
8. 18" AND LARGER REQUIRES SPECIFIC ANTI-THRUST DESIGN.

VERTICAL THRUST BLOCKING

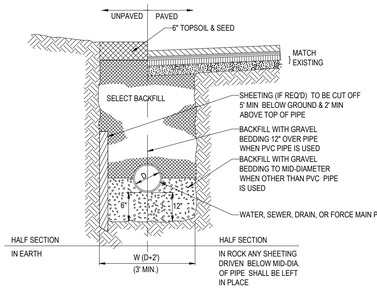
NTS



(DETAIL FOR GENERAL PURPOSES. GC TO COORDINATE CONNECTION W/ WATER COMPANY)

WATER SERVICE CONSTRUCTION

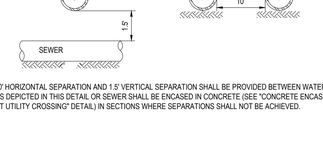
NTS



NOTES:
1. SEWER PIPE SHALL BE BED IN SCREENED GRAVEL, 8 INCHES ON BOTTOM, AROUND THE PIPE, AND 12 INCHES ON TOP.

TYPICAL UTILITY TRENCH

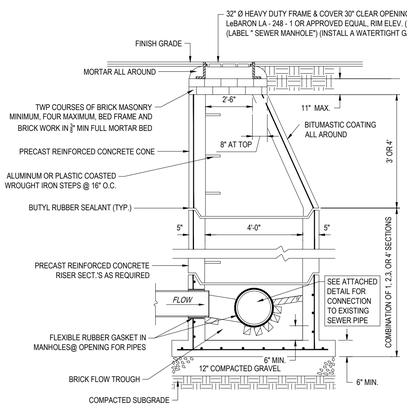
NTS



NOTE:
10' HORIZONTAL SEPARATION AND 1.5' VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER AND SEWER AS DEPICTED IN THIS DETAIL OR SEWER SHALL BE ENCASED IN CONCRETE (SEE "CONCRETE ENCASEMENT DETAIL AT UTILITY CROSSING" DETAIL) IN SECTIONS WHERE SEPARATIONS SHALL NOT BE ACHIEVED.

UTILITY CROSSING (WATER & SEWER)

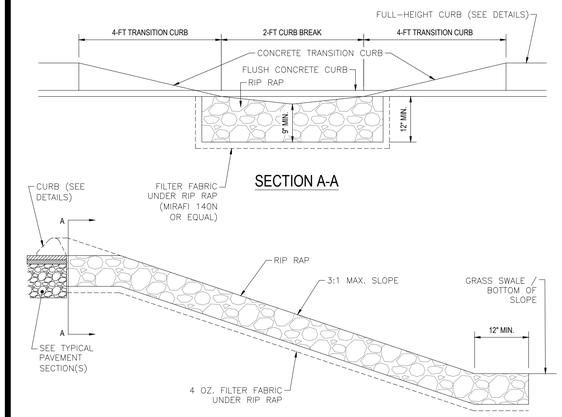
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NOTE: ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C478.

PRECAST CONCRETE SANITARY MANHOLE

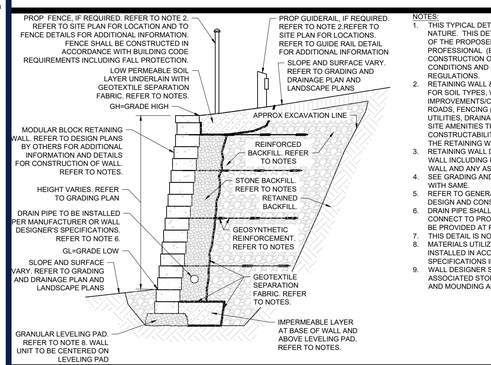
NTS



RIP-RAP SHALL BE SOUND, DURABLE ROCK WHICH IS ANGULAR IN SHAPE, ROUNDED STONES, BOULDERS, SANDSTONE OR SIMILAR STONE OR RELATIVELY THIN SLABS WILL NOT BE ACCEPTABLE. EACH STONE SHALL WEIGH NOT LESS THAN 50 POUNDS NOT MORE THAN 125 POUNDS AND AT LEAST 75 % OF THE VOLUME SHALL CONSIST OF STONES WEIGHING NOT LESS THAN 75 POUNDS EACH. THE REMAINDER OF THE STONES SHALL BE SO GRADED THAT WHEN PLACED WITH THE LARGER STONES THE ENTIRE MASS WILL BE COMPACT.

RIP RAP CURB INLET

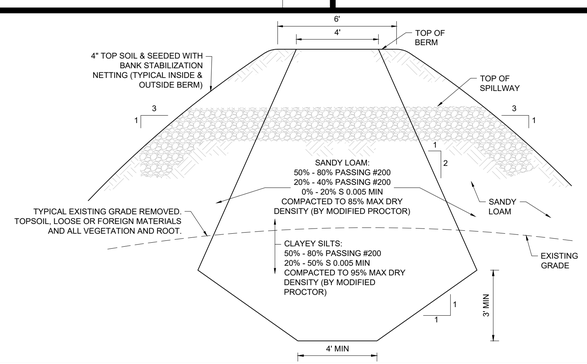
N.T.S.



NOTES:
1. THIS TYPICAL DETAIL IS NOT FOR CONSTRUCTION AND IS PRELIMINARY AND CONCEPTUAL IN NATURE. THIS DETAIL IS PROVIDED FOR GRAPHICAL REFERENCE PURPOSES ONLY. DESIGN OF THE PROPOSED RETAINING WALL(S) SHALL BE PREPARED BY THE APPROPRIATE PROFESSIONAL (E.G. STRUCTURAL ENGINEER) LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE PROFESSIONAL SHALL BE FAMILIAR WITH THE ACTUAL SITE CONDITIONS AND MATERIALS AS WELL AS APPLICABLE, LOCAL, STATE AND FEDERAL REGULATIONS.
2. RETAINING WALL & ANY ASSOCIATED REINFORCEMENT SHALL BE DESIGNED ACCOUNTING FOR SOIL TYPES, WATER TABLE ELEVATION, EXISTING & PROPOSED SURROUNDING IMPROVEMENTS/CONDITIONS (INCLUDING BUT NOT LIMITED TO SLOPES, DRIVE AISLES, ROADS, FENCING (INCLUDING WIND LOAD), GUIDERAILS (INCLUDING COLLISION LOADING), UTILITIES, DRAINAGE FACILITIES, STRUCTURES, FOUNDATIONS), LIVE LOADS AND OTHER SITE AMENITIES THAT COULD HAVE AN INFLUENCE OR IMPACT ON THE RETAINING WALL(S) CONSTRUCTABILITY AND/OR LONGEVITY SHALL BE CONSIDERED AND INCORPORATED INTO THE RETAINING WALL DESIGN AS WELL AS THE GLOBAL STABILITY ANALYSIS.
3. RETAINING WALL DESIGNER SHALL ACCOUNT FOR MULTIPLE STORM STRUCTURES BEHIND WALL INCLUDING PARALLEL STORM PIPE THAT MAY INTERFERE WITH THE DESIGN OF THE WALL AND ANY ASSOCIATED REINFORCEMENT.
4. SEE GRADING AND DRAINAGE PLAN FOR PROPOSED ELEVATIONS AND SLOPES ASSOCIATED WITH SAME.
5. REFER TO GENERAL GRADING NOTES ON SHEET C-102 FOR ADDITIONAL NOTES REGARDING DESIGN AND CONSTRUCTION OF RETAINING WALLS.
6. DRAIN PIPE SHALL DISCHARGE TO CRUSHED STONE PAD AT GRADE (I.E. DAYLIGHT) OR CONNECT TO PROP DRAINAGE SYSTEM IF UNABLE TO DAYLIGHT. A RODENT SCREEN SHALL BE PROVIDED AT PIPE END WHERE PIPE DAYLIGHTS.
7. THIS DETAIL IS NOT APPLICABLE FOR WALLS UTILIZED TO RETAIN WATER.
8. MATERIALS UTILIZED IN CONSTRUCTION OF THE RETAINING WALL SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S AND WALL DESIGNER'S SPECIFICATIONS INCLUDING ANY REQUIRED COMPACTION AND TESTING.
9. WALL DESIGNER SHALL ACCOUNT FOR PROXIMITY OF DRAINAGE SYSTEMS AND ANY ASSOCIATED STORMWATER INFILTRATION INCLUDING PREPARATION OF GLOBAL STABILITY AND MOUNDING ANALYSES.

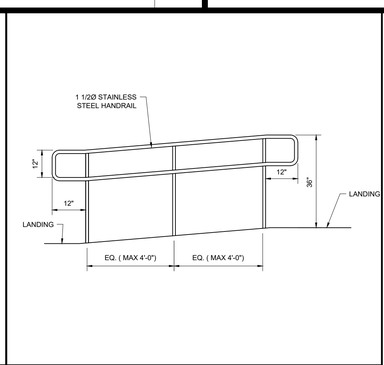
REINFORCED SEGMENTAL BLOCK RETAINING WALL

(NE-S110501 - 02/2024) NOT TO SCALE



DETENTION BASIN BERM

(NE-G010202 - 09/2023) NOT TO SCALE



RAILING AT CURB WALL OR SIDEWALK

(NE-S030601 - 09/2023) NOT TO SCALE

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
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PROJECT No.:	MAA240482.00-0A
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-CNDS

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS — TIMOTHY A. HAYES — NO. 51929 — REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

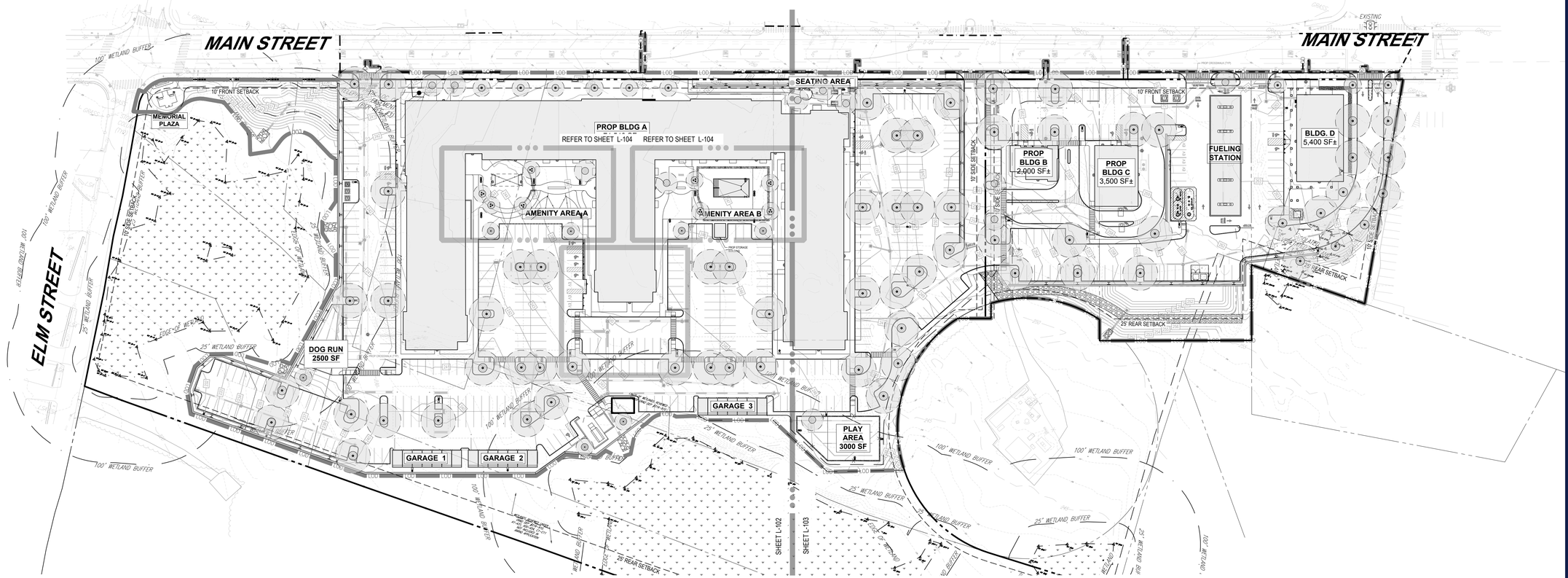
DETAILS

SHEET NUMBER:

C-903

ORG. DATE - 04/15/2026

\\BOHLERENG.NET\PROJECTS\MA\2024\MAA240482.00\CADD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVL-CNDS_MAA240482.00-0A-----LAYOUT: C-903 DETL_MS



TOWN OF MEDWAY, MASSACHUSETTS LANDSCAPE REQUIREMENTS

SECTION	REQUIREMENT	CALCULATIONS / PROPOSED
§ 10.2.D.2	PARKING AREA PLANTINGS: IN PARKING AREAS CONTAINING THIRTY OR MORE SPACES, A MINIMUM OF ONE DECIDUOUS TREE AND TWO SHRUBS EXCLUSIVE OF ANY REQUIRED PERIMETER PLANTINGS MUST BE PLANTED FOR EVERY THREE-THOUSAND SQUARE FEET OF PARKING AREAS. WHEN PLANTED, DECIDUOUS TREES MUST BE A MINIMUM HEIGHT OF TEN FEET AND/OR TWO AND ONE HALF INCHES IN CALIPER. PLANTING AREAS MUST EACH CONTAIN NOT LESS THAN FIFTY SQUARE FEET OF UNPAVED SOIL AREA. TREES AND SOIL PLOTS SHALL BE SO LOCATED AS TO PROVIDE VISUAL RELIEF AND WIND INTERRUPTION WITHIN THE PARKING AREA, AND TO ASSURE SAFE PATTERNS OF INTERNAL CIRCULATION.	TOTAL PARKING AREA: 208400 SF PARKING AREA TREES: 1 TREE / 3000 SF OF PARKING AREA REQUIRED / PROVIDED : 70 PARKING AREA SHRUBS: 2 SHRUBS /3000 SF OF PARKING AREA REQUIRED / PROVIDED: 140
§ 10.2.D.2	INTERNAL PEDESTRIAN ACCESS: IN PARKING AREAS WITH MORE THAN SEVENTY-FIVE SPACES, THE EXPANSE OF PAVEMENT SHALL BE INTERRUPTED BY SEPARATING ROWS OF PARKING SPACES FROM EACH OTHER WITH A COMBINED PLANTING STRIP AND SIDEWALK AT LEAST EIGHT FEET IN WIDTH. DESIGN OF THESE PLANTING STRIPS/SIDEWALKS SHALL TAKE INTO ACCOUNT THE NEED TO STORE SNOW, LOCATE LIGHT POLES, INSTALL DECIDUOUS TREES, AND ALLOW SAFE PEDESTRIAN MOVEMENT.	WAIVER REQUESTED
§ 10.2.E.2	GENERAL STANDARDS. LANDSCAPING SHALL COMPLY WITH THE PLANNING AND ECONOMIC DEVELOPMENT BOARD RULES AND REGULATIONS, CHAPTER 200 - SITE PLANS – RULES & REGULATIONS FOR SUBMISSION AND REVIEW OF SITE PLANS, SECTION 205-9. IN THE EVENT OF ANY CONFLICT BETWEEN THE PROVISIONS OF THIS BYLAW AND THE PROVISIONS OF SAID REGULATIONS, THE PROVISIONS OF THIS BYLAW SHALL APPLY.	
§ 10.2.E.2	STREET TREES: DECIDUOUS STREET TREES MAY BE INSTALLED IN THE BUILDING FRONTAGE ZONE THAT COMPLIMENT STREET TREES WITHIN THE STREET RIGHT-OF-WAY. TREES SHALL BE A MINIMUM OF THREE AND ONE-HALF INCH CALIPER AT LEAST FOUR FEET ABOVE GRADE AND OF NATIVE SPECIES COMMON TO THE AREA. THE TREES SHOULD BE DROUGHT AND SALT TOLERANT. THEY SHOULD BE REGULARLY TRIMMED TO PROVIDE CLEAR VISIBILITY INTO THE SITE FROM THE STREET AND PROVIDE SHADE OVER THE WALKWAY. STREET TREE PLANTER DESIGN STANDARDS TREE SPACING: 30-60' TREE PIT WIDTH: 5' TREE PIT LENGTH: 10' RECOMMENDED SOIL VOLUME: 600 CUBIC FEET (SMALL TREE), 1000 CUBIC FEET (LARGE TREE) MIN. SOIL SURFACE AREA FOR ALTERNATE TREE PIT DIMENSIONS: >50 SF	FASTIGIATE TREES PROVIDED WITHIN PLANTING BED ALONG BUILDING FACADE / ROW . TREES ARE SPACED AT APPROX. 45'O.C.

TOWN OF MEDWAY, MASSACHUSETTS LANDSCAPE REQUIREMENTS

SECTION	REQUIREMENT	CALCULATIONS / PROPOSED
§ 10.2.E.2	GROUND COVER: LOW LYING AND LOW MAINTENANCE GRASSES, SHRUBS, BUSHES, FLOWERS, AND SIMILAR VEGETATIVE GROUND COVER MAY BE PLANTED ADJACENT TO THE STREET RIGHT-OF-WAY LINE. ALL GROUND COVER MUST BE MAINTAINED AT A HEIGHT OF NO MORE THAN THIRTY INCHES TO AVOID BLOCKING VISIBILITY FOR DRIVERS ENTERING OR EXITING THE SITE.	SHRUBS, GROUNDCOVER, PERENNIALS AND GRASSES ARE PROVIDED ALONG ROW LINE.
§ 10.2.E.3	TRANSITIONAL BUFFER REQUIREMENTS: TRANSITIONAL BUFFERS ARE REQUIRED BETWEEN PROPERTIES IN THE CENTRAL BUSINESS DISTRICT AND ABUTTING PROPERTIES IN RESIDENTIAL DISTRICTS TO CREATE A COMPATIBLE TRANSITION WITH THE SURROUNDING NEIGHBORHOODS. TRANSITIONAL BUFFERS MAY INCLUDE ANY COMBINATION OF NATURAL OR LANDSCAPED SCREENING AND FENCING THAT PROVIDES AN OPAQUE VISUAL BARRIER TO A MINIMUM HEIGHT OF EIGHT FEET ABOVE THE GROUND INSTALLED ALONG THE PROPERTY BOUNDARY LINE. WHERE TRANSITIONAL BUFFERS ARE REQUIRED, ALL BUILDINGS, ACCESSORY STRUCTURES, AND LOADING AREAS SHALL BE SET BACK A MINIMUM OF SEVENTY-FIVE FEET, AND PARKING SHALL BE SET BACK A MINIMUM OF FIFTY FEET, FROM THE PROPERTY LINE WHERE THE TRANSITIONAL BUFFER IS TO BE INSTALLED.	COMBINATION OF NATURAL AND LANDSCAPED SCREENING IS PROVIDED. WAIVER REQUESTED FOR THE PARKING SETBACK REQUIREMENT MENTIONED IN THIS SECTION.
§ 10.2.E.5	TRASH AND SERVICE AREAS: A. ALL SERVICE, LOADING, TRASH, AND RECYCLING STORAGE AREAS VIEWABLE FROM A PUBLIC RIGHT OF WAY OR FROM AN ADJACENT RESIDENTIAL DISTRICT SHALL BE SCREENED BY ONE OR A COMBINATION OF MASONRY, A WOOD SCREEN, OR EVERGREEN PLANTINGS TO REDUCE THEIR VISUAL IMPACT. B. LOADING AND SERVICE AREAS SHALL NOT BE VISIBLE FROM ANY PUBLIC STREET OR ANY PROPERTY IN A RESIDENTIAL DISTRICT UNLESS NO OTHER LOCATION IS FEASIBLE. SUFFICIENT LANDSCAPING AND SCREENING OF LOADING AND SERVICE AREAS SHALL BE REQUIRED. C. GARAGE DOORS AND LOADING SPACES ARE PROHIBITED ON THE STREET FACING FACADE OF ANY COMMERCIAL, MIXED-USE, OR MULTI-FAMILY BUILDING UNLESS NO OTHER LOCATION IS FEASIBLE.	PROVIDED
§ 10.2.F	OUTDOOR AMENITY SPACE THE AMOUNT OF OUTDOOR AMENITY SPACE PROVIDED WITHIN A SITE DEVELOPMENT SHALL BE AT LEAST FIFTEEN PERCENT OF THE LOT OR DEVELOPMENT SITE. UP TO FIFTY PERCENT OF THE REQUIRED MINIMUM AMOUNT OF OPEN SPACE REQUIRED IN SECTION 6, TABLE 2 – DIMENSIONAL AND DENSITY REGULATIONS MAY BE USED FOR OUTDOOR AMENITY SPACES. OUTDOOR AMENITY SPACE SHALL NOT INCLUDE TRANSITIONAL BUFFER AREAS, LANDSCAPING WITHIN PARKING AREAS, OR GENERAL LANDSCAPING ALONGSIDE YARD SETBACKS.	PROVIDED TO THE EXTENT POSSIBLE - INCLUDES 1. COURTYARD 2. PLAYGROUND 3. DOG PARK
§ 7.2.4	LANDSCAPING IS REQUIRED AROUND THE BASE OF ALL FREESTANDING SIGNS AND A LANDSCAPING PLAN SHALL BE PROVIDED WITH THE SIGN PERMIT APPLICATION. THE MINIMUM LANDSCAPED AREA SHALL EXTEND AT LEAST THREE FEET BEYOND ALL SIGN FACES OR SUPPORTING STRUCTURES IN ALL DIRECTIONS.	PROVIDED

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
TREES					
ARA	3	ACER RUBRUM `ARMSTRONG`	ARMSTRONG RED MAPLE	2.5"-3" CAL.	B&B
AROG	12	ACER RUBRUM `OCTOBER GLORY`	OCTOBER GLORY RED MAPLE	2.5"-3" CAL.	B&B
ASB	9	ACER SACCHARUM `BONFIRE`	BONFIRE SUGAR MAPLE	2.5"-3" CAL.	B&B
CBF	6	CARPINUS BETULUS `FASTIGIATA`	PYRAMIDAL HORNBEAN	3-3.5" CAL .	B&B
GTIS	14	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER`	SHADEMASTER HONEY LOCUST	2.5"-3" CAL.	B&B
LS	12	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	2.5"-3" CAL.	B&B
LT	6	LIRIODENDRON TULIPIFERA	TULIP TREE	2.5"-3" CAL.	B&B
QP	9	QUERCUS PALUSTRIS	PIN OAK	2.5"-3" CAL.	B&B
QR	5	QUERCUS RUBRA	NORTHERN RED OAK	2.5"-3" CAL.	B&B
EVERGREEN TREES					
AB	4	ABIES BALSAMEA	BALSAM FIR	6-8`	B&B
JV	2	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	6-8`	B&B
PPG	1	PICEA PUNGENS `GLAUCA`	COLORADO BLUE SPRUCE	6-8`	B&B
ORNAMENTAL TREES					
AC	1	AMELANCHIER CANADENSIS	MULTI-STEM SHADBLOW SERVICEBERRY	8-10`	B&B
BND	8	BETULA NIGRA `BNMTF`	MULTI-STEM DURA HEAT RIVER BIRCH	8-10`	B&B
CC	8	CERCIS CANADENSIS	EASTERN REDBUD	3-3.5" CAL .	B&B
CF	2	CORNUS FLORIDA	EASTERN DOGWOOD	8-10`	B&B
SHRUBS					
AL2	39	ARONIA MELANOCARPA `UCONNAM165`	LOW SCAPE MOUNDB BLACK CHOKEBERRY	1 GAL.	CONTAINER
CAS	3	CLETHRA ALNIFOLIA `SIXTEEN CANDLES`	SIXTEEN CANDLES SUMMERSWEET	18-24"	CONTAINER
CSF	41	CORNUS STOLONIFERA `FARROW`	ARCTIC FIRE RED TWIG DOGWOOD	24-36"	CONTAINER
HQM	33	HYDRANGEA QUERCIFOLIA `MUNCHKIN`	MUNCHKIN OAKLEAF HYDRANGEA	24-30"	CONTAINER
HQP	25	HYDRANGEA QUERCIFOLIA `PEE WEE`	PEE WEE OAKLEAF HYDRANGEA	20-24"	CONTAINER
IGC	51	ILEX GLABRA `COMPACTA`	COMPACT INKBERRY	24-30"	CONTAINER
IS	16	ILEX CRENATA `SKY PENCIL`	SKY PENCIL JAPANESE HOLLY	3-4`	CONTAINER
IVH	10	ITEA VIRGINICA `HENRY`S GARNET`	HENRY`S GARNET SWEETSPIRE	24-30"	CONTAINER
IVJD	2	ILEX VERTICILLATA `JIM DANDY`	JIM DANDY WINTERBERRY	30-36"	CONTAINER
IVRS	19	ILEX VERTICILLATA `RED SPRITE`	RED SPRITE WINTERBERRY	18-24"	CONTAINER
KLO	23	KALMIA LATIFOLIA `OLYMPIC FIRE`	OLYMPIC FIRE MOUNTAIN LAUREL	30-36"	CONTAINER
PSN	60	PINUS STROBUS `NANA`	DWARF WHITE PINE	18-24"	CONTAINER
RDW	54	RHODODENDRON AZALEA `DELAWARE VALLEY WHITE`	DELAWARE VALLEY WHITE` AZALEA	18-24"	CONTAINER
TMD	11	TAXUS X MEDIA `DENSIFORMIS`	DENSE YEW	24-30"	CONTAINER
GRASSES					
CAKF	34	CALAMAGROSTIS X ACUTIFLORA `KARL FOERSTER`	FEATHER REED GRASS	1 GAL.	CONTAINER
MSM	11	MISCANTHUS SINENSIS `MORNING LIGHT`	MORNING LIGHT EULALIA GRASS	1 GAL.	CONTAINER
PVHM	29	PANICUM VIRGATUM `HEAVY METAL`	BLUE SWITCH GRASS	1 GAL.	CONTAINER
GROUNDCOVER					
AU	53	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	15-18" SPRD	CONTAINER
JHB	146	JUNIPERUS HORIZONTALIS `BAR HARBOR`	BAR HARBOR CREEPING JUNIPER	15-18" SPRD	CONTAINER
RG3	86	RHUS AROMATICA `GRO-LOW`	GRO-LOW FRAGRANT SUMAC	15-18" SPRD	CONTAINER
GROUND COVERS					
BJ	38	BRUNNERA MACROPHYLLA `JACK FROST`	JACK FROST SIBERIAN BUGLOSS	1 GAL.	CONTAINER
CP2	138	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	1 GAL.	CONTAINER
PERENNIALS					
ACWG	13	ASARUM CANADENSE	WILD GINGER	1 GAL.	CONTAINER
HBM	6	HOSTA X `BLUEBERRY MUFFIN`	BLUEBERRY MUFFIN HOSTA	1 GAL.	CONTAINER
HHR	43	HEMEROCALLIS X `HAPPY RETURNS`	HAPPY RETURNS DAYLILY	1 GAL.	CONTAINER
NW	71	NEPETA X `WALKER'S LOW`	WALKER'S LOW CATMINT	1 GAL.	CONTAINER
RFL	173	RUDBECKIA FULGIDA `LITTLE GOLDSTAR`	LITTLE GOLDSTAR CONEFLOWER	1 GAL.	CONTAINER

KEY

CANOPY WIDTH AT MATURITY (APPROX)

CANOPY WIDTH AT THE TIME OF PLANTING (APPROX)

OWNER MAINTENANCE RESPONSIBILITIES

UPON OWNER'S (OR OWNER CONTRACTOR'S) COMPLETION OF LANDSCAPING WORK, THE OWNER IS FULLY RESPONSIBLE FOR ALL FUTURE MAINTENANCE, CARE, UPKEEP, WATERING, AND TRIMMING OF ALL INSTALLED VEGETATION, PLANTS, TREE, BUSHES, SHRUBS, GRASSES, GRASS, ORNAMENTAL PLANTS AND FLOWERS, FLOWERS, GROUND COVER, AND LANDSCAPING, INCLUDING ALL LANDSCAPE ISLANDS AND AREAS ADJACENT OR PART OF THE LANDSCAPED AREAS. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- TREES ADJACENT TO WALKWAYS AND AREAS OF PEDESTRIAN TRAFFIC MUST BE MAINTAINED TO ASSURE THAT ANY BRANCHES MUST BE LIMBED UP TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PEDESTRIAN SURFACES) OR PRUNED BACK TO AVOID ANY INTERFERENCE WITH THE TYPICAL PATH OF TRAVEL.
- TREES WITHIN VEHICULAR SIGHT LINES, AS ILLUSTRATED ON THE LANDSCAPE PLAN, ARE TO BE TRIMMED TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PAVED, TRAVELED SURFACES), OR AS OTHERWISE INDICATED ON THE PLANS.
- VEGETATIVE GROUND COVER, SHRUBS AND ORNAMENTAL PLANTS AND GRASSES MUST BE TRIMMED SO THAT NO PORTION OF THE PLANT EXCEEDS 30 INCHES ABOVE GRADE (OF ALL PAVED, TRAVEL SURFACES) ALONG AND WITHIN THE SIGHT LINES OF PARKING LOTS AND INGRESS-EGRESS WAYS.
- FALLEN PLANT FLOWERS, FRUIT, SEEDS AND DEBRIS DROPPINGS ARE TO BE REMOVED IMMEDIATELY FROM VEHICULAR AND PEDESTRIAN TRAFFIC AREAS TO PREVENT TRIPPING, SLIPPING OR ANY OTHER HAZARDS.

THESE REQUIREMENTS DO NOT AFFECT THE PLANT LIFE GUARANTEES THE LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE.

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

REFER LANDSCAPE NOTES & DETAILS SHEET FOR LANDSCAPE NOTES AND DETAILS

REFER SHEETS L-102 & L-10S FOR PLANTING LABELS

60 30 15 0 60

1"= 60'

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PROJECT No.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVIL-LSCP

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
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COMMONWEALTH OF MASSACHUSETTS — TIMOTHY J. HOWE — NO. 12417 — REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

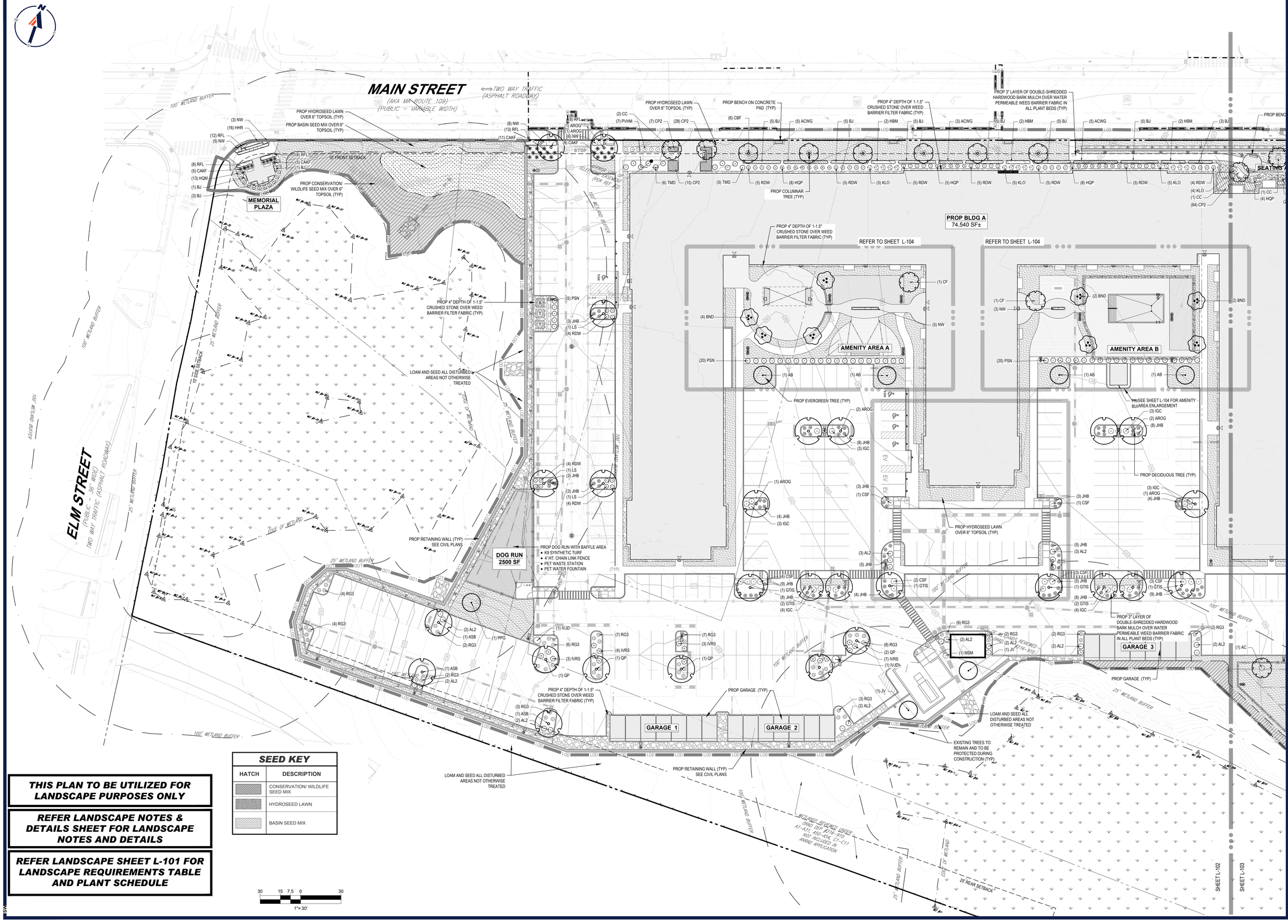
OVERALL LANDSCAPE PLAN

SHEET NUMBER:

L-101

ORG. DATE - 04/15/2026

\\BOHLERENG.NET\SHARES\MA PROJECTS\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LSCP-MAA240482.00-1D---LAYOUT L-101 LAND OVERALL
BSW



SEED KEY

HATCH	DESCRIPTION
	CONSERVATION/ WILDLIFE SEED MIX
	HYDROSEED LAWN
	BASIN SEED MIX

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REFER LANDSCAPE SHEET L-101 FOR LANDSCAPE REQUIREMENTS TABLE AND PLANT SCHEDULE

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PROJECT:

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P.O. BOX 2440

PROPOSED
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SHEET TITLE:

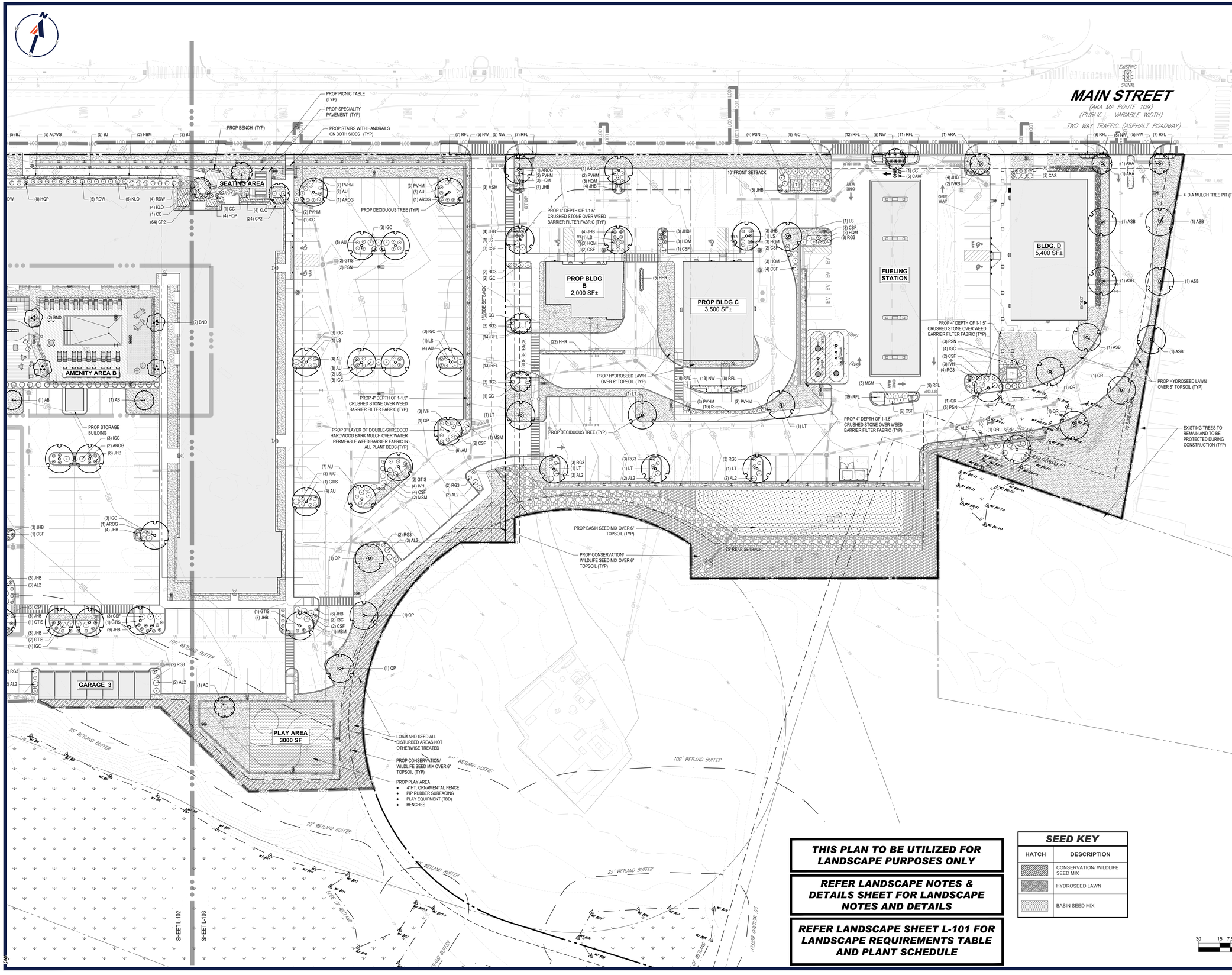
LANDSCAPE PLAN A

SHEET NUMBER:

L-102

ORG. DATE - 04/15/2026

I:\BOHLER\ENG-NET\SHARES\MA-PROJECTS\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LSCP-MAA240482.00-1D-----LAYOUT\ L-102 LAND A
SWED, 2/2/2026 10:39:47 AM, JKOSTOS



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SEED KEY

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	CONSERVATION/ WILDLIFE SEED MIX
	HYDROSEED LAWN
	BASIN SEED MIX

30 15 7.5 0 30
1"= 30'

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JESSICA L. CHRISTIE
REGISTERED LANDSCAPE ARCHITECT
NO. 1241
REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

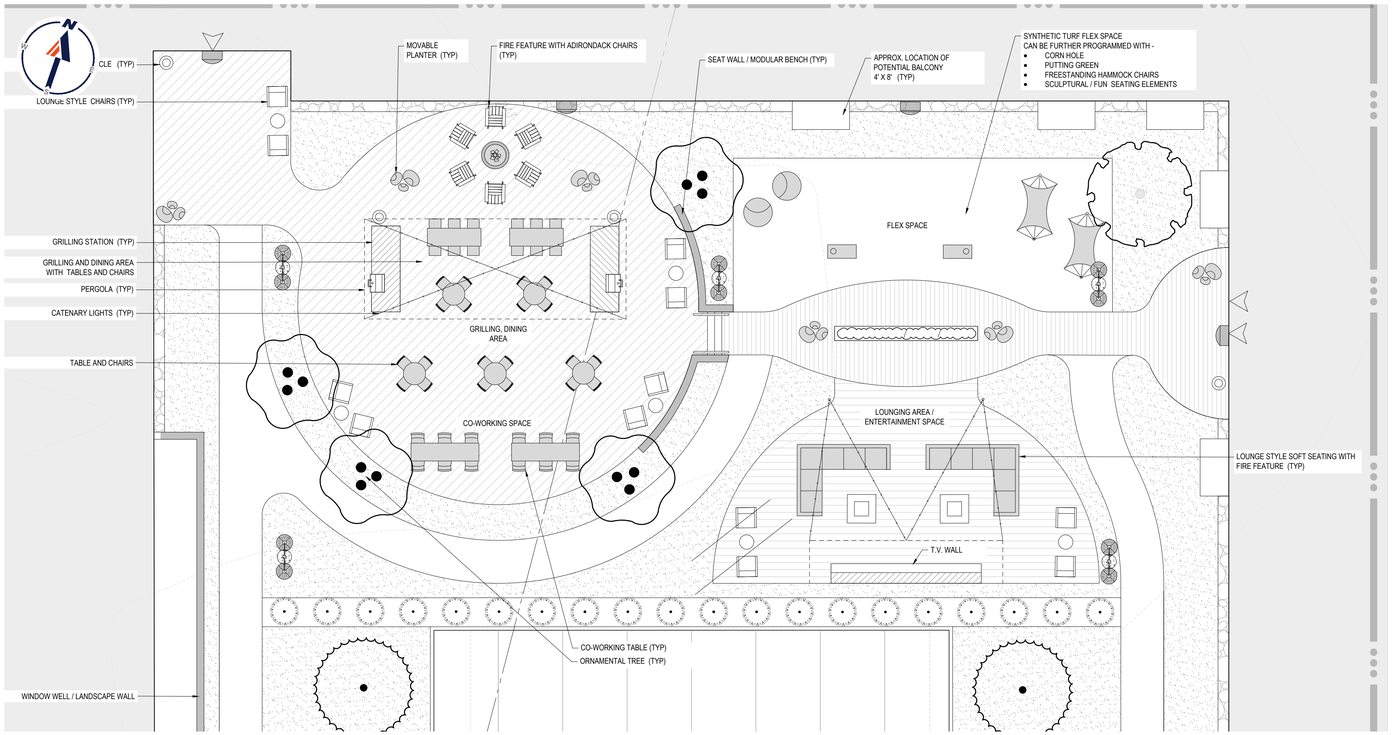
LANDSCAPE PLAN B

SHEET NUMBER:

L-103

ORG. DATE - 04/15/2026

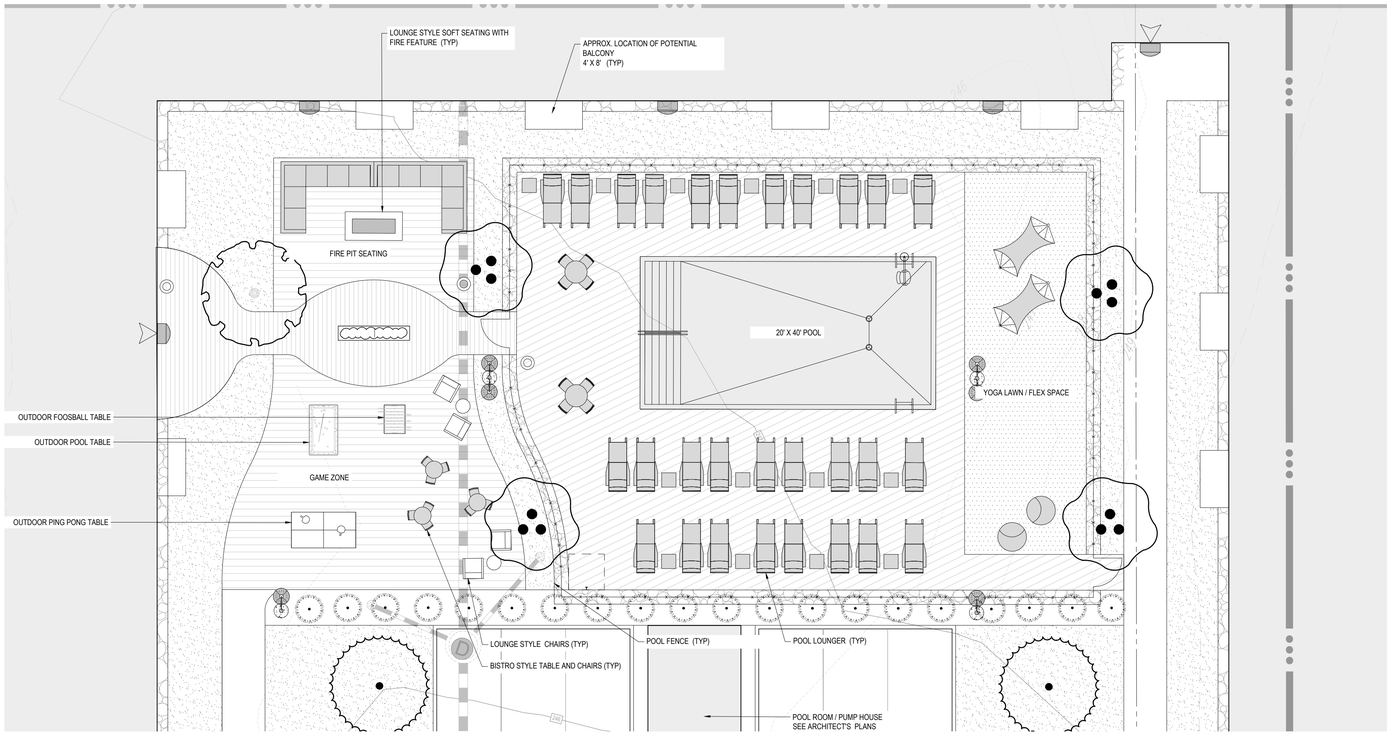
\\BOHLERENG.NET\SHARES\MA-PROJECTS\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-LSCP-MAA240482.00-1D----LAYOUT: L-103 LAND B



AMENITY AREA 'A' ENLARGEMENT

10 5 2.5 0 10

1"= 10'



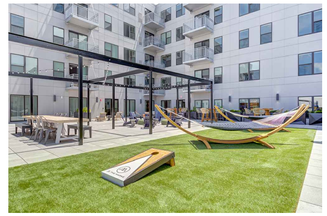
AMENITY AREA 'B' ENLARGEMENT

10 5 2.5 0 10

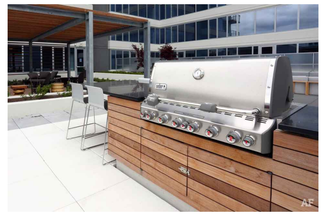
1"= 10'



TABLES, CHAIRS, SURFACE MATERIAL & PERGOLA



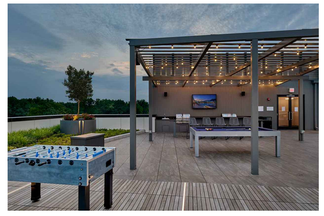
SYNTHETIC TURF FLEX SPACE



GRILLING / DINING ISLANDS



FIRE PIT SEATING



OUTDOOR GAME TABLES

PRECEDENT IMAGES

NOTE: PRECEDENT IMAGES ARE FOR CONCEPTUAL PURPOSES ONLY

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CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-LSCP

PROJECT:

HERITAGE ON MAIN

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COMMONWEALTH OF MASSACHUSETTS · MATTHEW J. MORAN · NO. 12,417 · REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

AMENITY AREA LANDSCAPE PLAN

SHEET NUMBER:

L-104

ORG. DATE - 04/15/2026

I:\BOHLERENG\.NET\SHARES\MA-PROJECTS\2024\MAA240482.00-1D\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LSCP-MAA240482.00-1D---LAYOUT L-104 AMENITY ENLARGEMENT
SW

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:

1.1. THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS

2.1. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

2.2. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

2.3. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM 6" THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED ON THE LANDSCAPE PLAN

2.3.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.

2.3.2. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

2.4. MULCH - ALL PLANTING BEDS SHALL BE MULCHED WITH A 3" THICK LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN AND/OR LANDSCAPE PLAN NOTES /DETAILS.

2.5. FERTILIZER

2.5.1. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.

2.5.2. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

2.6. PLANT MATERIAL

2.6.1. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION (FORMERLY THE AMERICAN ASSOCIATION OF NURSERYMEN).

2.6.2. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.

2.6.3. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.

2.6.4. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1¼", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.

2.6.5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.

2.6.6. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.

2.6.7. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.

2.6.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES

3.1. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

3.2. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS

4.1. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

4.2. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE BRANCH COLLAR. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

4.3. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION

5.1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

5.2. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

5.3. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

5.4. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS

6.1. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

6.2. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

6.3. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.

6.3.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.

6.3.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.

6.3.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING

7.1. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

7.2. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).

7.3. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

7.4. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING

8.1. CONTRACTOR SHALL PROVIDE A 6" THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

8.2. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

8.3. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

8.4. ALL LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA - FOR BID PURPOSES ONLY [SEE SPECIFICATION 6.A.]):

8.4.1. 20 POUNDS 'GRO-POWER' OR APPROVED SOIL CONDITIONER/FERTILIZER

8.4.2. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP OR APPROVED NITROGEN FERTILIZER

8.5. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING

9.1. INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

9.2. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

9.3. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

9.4. ALL PLANTING CONTAINERS, BASKETS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

9.5. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

9.6. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:

9.6.1. PLANTS: MARCH 15 TO DECEMBER 15

9.6.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

9.6.3. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

9.7. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:

ACER RUBRUM	PLATANUS X ACERIFOLIA
BETULA VARIETIES	POPULUS VARIETIES
CARPINUS VARIETIES	PRUNUS VARIETIES
CRATAEGUS VARIETIES	PYRUS VARIETIES
KOELREUTERIA	QUERCUS VARIETIES
LIQUIDAMBAR STYRACIFLUA	TILIA TOMENTOSA
LIRIODENDRON TULIPIFERA	ZELKOVA VARIETIES

9.8. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:

9.8.1. 1 PART PEAT MOSS

9.8.2. 1 PART COMPOSTED COW MANURE BY VOLUME

9.8.3. 3 PARTS TOPSOIL BY VOLUME

9.8.4. 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:

9.8.4.1. 2 TABLETS PER 1 GALLON PLANT

9.8.4.2. 3 TABLETS PER 5 GALLON PLANT

9.8.4.3. 4 TABLETS PER 15 GALLON PLANT

9.8.4.4. LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK

9.9. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

9.10. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

9.11. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

9.12. GROUND COVER AREAS SHALL RECEIVE A ¼" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

9.13. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

9.14. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

9.15. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)

10.1. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

10.2. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

10.3. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

10.4. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

10.5. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

10.6. F TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING

11.1. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

11.2. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

11.3. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE

12.1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF 1 YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

12.2. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

12.3. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

12.4. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP

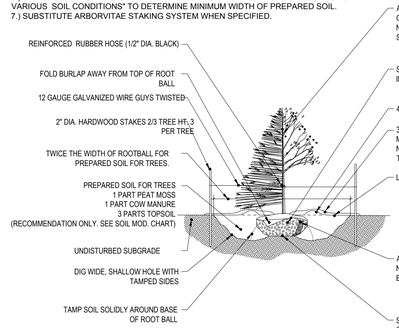
13.1. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

13.2. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

14. MAINTENANCE (ALTERNATIVE BID):

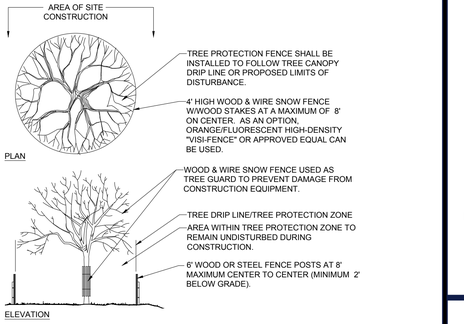
14.1. A 90 DAY MAINTENANCE PERIOD SHALL COMMENCE AT THE END OF ALL LANDSCAPE INSTALLATION OPERATIONS. THE 90 DAY MAINTENANCE PERIOD ENSURES TO THE OWNER/OPERATOR THAT THE NEWLY INSTALLED LANDSCAPING HAS BEEN MAINTAINED AS SPECIFIED ON THE APPROVED LANDSCAPE PLAN. ONCE THE INITIAL 90 DAY MAINTENANCE PERIOD HAS EXPIRED, THE OWNER/OPERATOR MAY REQUEST THAT BIDDERS SUBMIT AN ALTERNATE MAINTENANCE BID FOR A MONTHLY MAINTENANCE CONTRACT. THE ALTERNATE MAINTENANCE CONTRACT WILL ENCOMPASS ANY WORK THAT IS CONSIDERED APPROPRIATE TO ENSURE THAT PLANT AND LAWN AREAS ARE HEALTHY AND MANICURED TO THE APPROVAL OF THE OWNER/OPERATOR.

NOTES:
1.) NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2.) REMOVE ALL NON-BIODEGRADABLE MATERIAL AND ROPE FROM TRUNK & TOP OF ROOT BALL. FOLD BURLAP BACK 1/3 FROM ROOT BALL.
3.) PLANTING DEPTH SHALL BE THE SAME AS GROWN IN NURSERY.
4.) THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH
AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
5.) THE BOTTOM OF PLANTING PIT EXCAVATIONS SHOULD BE ROUGH TO AVOID MATTING OF SOIL LAYERS AS
NEW SOIL IS ADDED. IT IS PREFERABLE TO TILL THE FIRST LIFT (2 TO 3 IN.) OF PLANTING SOIL INTO THE SUBSOIL.
6.) REFER TO THE CHART "GENERAL RANGE OF SOIL MODIFICATIONS & VOLUMES FOR VARIOUS SOIL CONDITIONS" TO DETERMINE MINIMUM WIDTH OF PREPARED SOIL.
7.) SUBSTITUTE ARBORVITAE STAKING SYSTEM WHEN SPECIFIED.



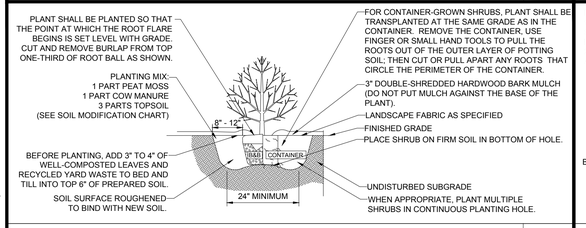
TREE PLANTING DETAIL

N.T.S.



TREE PROTECTION DURING SITE CONSTRUCTION

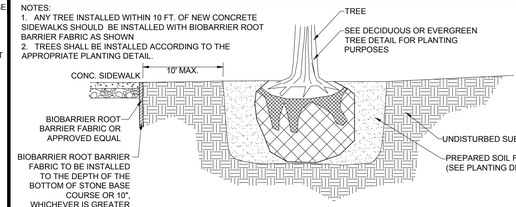
N.T.S.



SHRUB PLANTING DETAIL

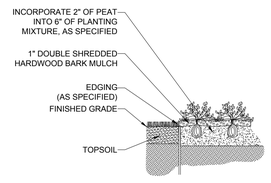
N.T.S.

NOTES:
1. ANY TREE INSTALLED WITHIN 10 FT. OF NEW CONCRETE SIDEWALKS SHOULD BE INSTALLED WITH BIOBARRIER ROOT BARRIER FABRIC AS SHOWN
2. TREES SHALL BE INSTALLED ACCORDING TO THE APPROPRIATE PLANTING DETAIL.



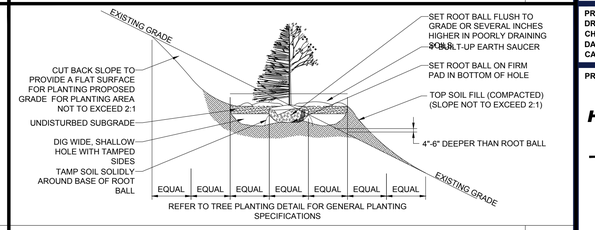
BIOBARRIER ROOT BARRIER DETAIL

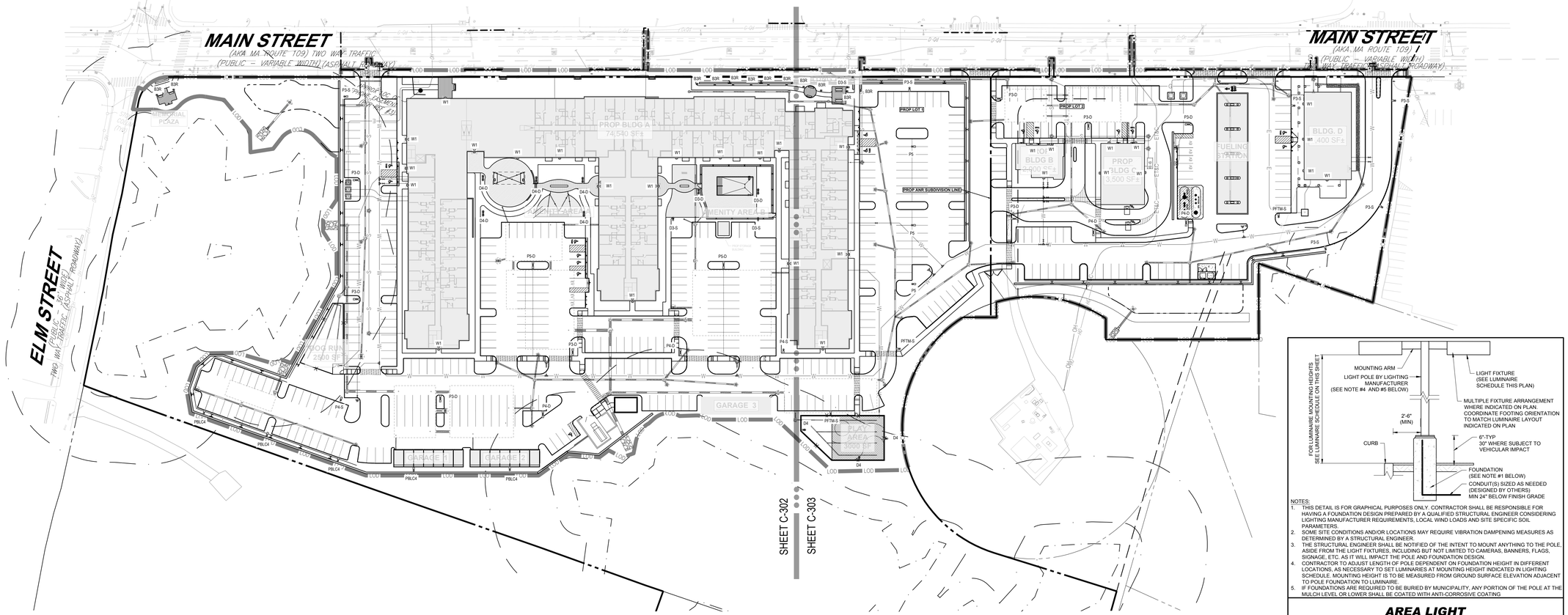
N.T.S.



GROUNDCOVER PLANTING

N.T.S.


EXISTING GRADE
CUT BACK SLOPE TO PROVIDE A FLAT SURFACE FOR PLANTING PROPOSED GRADE FOR PLANTING AREA NOT TO EXCEED 2:1
UNDISTURBED SUBGRADE
DIG WIDE, SHALLOW HOLE WITH TAMPED SIDES
TAMP SOIL SOLIDLY AROUND BASE OF ROOT BALL
SET ROOT BALL FLUSH TO GRADE OR SEVERAL INCHES HIGHER IN POORLY DRAINING SOILS.
4" BUILT-UP EARTH SAUCER
SET ROOT BALL ON FIRM PAD IN BOTTOM OF HOLE
TOP SOIL FILL (COMPACTED) (SLOPE NOT TO EXCEED 2:1)
4"-6" DEEPER THAN ROOT BALL
EXISTING GRADE
EQUAL EQUAL EQUAL EQUAL EQUAL EQUAL EQUAL
REFER TO TREE PLANT



NOTES:
1. THIS DETAIL IS FOR GRAPHICAL PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING A FOUNDATION DESIGN PREPARED BY A QUALIFIED STRUCTURAL ENGINEER CONSIDERING LIGHTING MANUFACTURER REQUIREMENTS, LOCAL WIND LOADS AND SITE SPECIFIC SOIL PARAMETERS.
2. SOME SITE CONDITIONS AND/OR LOCATIONS MAY REQUIRE VIBRATION DAMPENING MEASURES AS DETERMINED BY A STRUCTURAL ENGINEER.
3. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED OF THE INTENT TO MOUNT ANYTHING TO THE POLE, ASIDE FROM THE LIGHT FIXTURES, INCLUDING BUT NOT LIMITED TO CAMERAS, BANNERS, FLAGS, SIGNAGE, ETC. AS IT WILL IMPACT THE POLE AND FOUNDATION DESIGN
4. CONTRACTOR TO ADJUST LENGTH OF POLE DEPENDENT ON FOUNDATION HEIGHT IN DIFFERENT LOCATIONS, AS NECESSARY TO SET LUMINARIES AT MOUNTING HEIGHT INDICATED IN LIGHTING SCHEDULE. MOUNTING HEIGHT IS TO BE MEASURED FROM GROUND SURFACE ELEVATION ADJACENT TO POLE FOUNDATION TO LUMINAIRE.
5. IF FOUNDATIONS ARE REQUIRED TO BE BURIED BY MUNICIPALITY, ANY PORTION OF THE POLE AT THE MULCH LEVEL OR LOWER SHALL BE COATED WITH ANTI-CORROSIVE COATING

AREA LIGHT

NOT TO SCALE (NE-L020101 - 11/2025)

TOWN OF MEDWAY, MASSACHUSETTS LIGHTING REQUIREMENTS

SECTION	REQUIREMENT	PROPOSED
ZONING BYLAWS: SECTION 7 - GENERAL REGULATIONS	**§7.1.2 OUTDOOR LIGHTING** D. REQUIREMENT FOR LIGHTING PLAN. WHEREVER OUTSIDE LIGHTING IS PROPOSED, THE APPLICANT FOR A BUILDING PERMIT, SPECIAL PERMIT, SITE PLAN REVIEW, OR VARIANCE, OR AN ELECTRICAL PERMIT, SHALL SUBMIT A LIGHTING PLAN TO THE APPLICABLE APPROVAL AUTHORITY WHICH SHALL INCLUDE THE FOLLOWING INFORMATION:	PROVIDED
	1. LOCATION, ORIENTATION, TYPE AND HEIGHT OF ALL PROPOSED OUTDOOR LUMINAIRES INCLUDING THOSE AROUND ALL STRUCTURES, DRIVEWAYS, DRIVEWAY ENTRANCES, WALKWAYS, PATHWAYS AND PARKING AREAS;	PROVIDED
	2. LUMINAIRE MANUFACTURER'S SPECIFICATION DATA, INCLUDING LUMEN OUTPUT AND PHOTOMETRIC DATA SHOWING CUTOFF ANGLES	PROVIDED
	3. THE TYPE OF LAMP SUCH AS METAL HALIDE, COMPACT FLUORESCENT, HIGH PRESSURE SODIUM, LED, ETC	PROVIDED
	4. A PHOTOMETRIC PLAN SHOWING THE INTENSITY OF ILLUMINATION, EXPRESSED IN FOOT CANDLES, AT GROUND LEVEL IN THE INTERIOR OF THE PROPERTY AND AT THE PROPERTY BOUNDARIES.	PROVIDED
	E. STANDARDS FOR THE CONTROL OF GLARE AND LIGHT TRESPASS. 1. LIGHTING SHALL MEET THE REQUIREMENTS OF THE BUILDING CODE FOR ENERGY EFFICIENCY CHAPTER 13 OR CURRENT REQUIREMENT. LIGHT TRESPASS ONTO ANY STREET OR ABUTTING LOT IS NOT PERMITTED. LIGHTING SHALL BE DIRECTED ONTO THE SITE. FOOT-CANDLE READINGS AT PROPERTY LINES BETWEEN RESIDENTIAL AND NON-RESIDENTIAL PROPERTIES SHALL NOT EXCEED 0.01 FOOT CANDLES AT ANY ELEVATION.	PROVIDED WHERE FEASIBLE SOME LIGHT TRESPASS REQUIRED AT INTERSECTIONS FOR SAFETY
	2. ANY OUTDOOR LUMINAIRE SUBJECT TO THESE PROVISIONS WITH A LAMP OR LAMPS RATED AT A TOTAL OF MORE THAN 2,000 LUMENS SHALL BE FULLY SHIELDED AND SHALL NOT EMIT ANY DIRECT LIGHT ABOVE A HORIZONTAL PLANE PASSING THROUGH THE LOWEST PART OF THE LIGHT-EMITTING LUMINARY.	PROVIDED WHERE FEASIBLE
	4. LIGHTING SHALL BE PROVIDED AT THE LOWEST BRIGHTNESS AND INTENSITY LEVELS POSSIBLE TO ALLOW FOR EMERGENCY NIGHTTIME ACCESS.	PROVIDED
CH 200 SITE PLANS - RULES & REGULATIONS	**§207-18 OUTDOOR LIGHTING.** A. OUTDOOR LIGHTING SHALL COMPLY WITH SECTION 7.1.2 OF THE ZONING BYLAW. C. LIGHT FIXTURE DESIGN SHOULD COMPLY WITH THE MEDWAY DESIGN REVIEW GUIDELINES.	PROVIDED
	10) THE PROJECT'S IMPACT ON ABUTTING RESIDENTIAL NEIGHBORHOODS HAS BEEN ADEQUATELY MITIGATED WITH VARIOUS ON-SITE AND OFF-SITE MEASURES. ADJACENT AND NEIGHBORING PROPERTIES ARE PROTECTED FROM NUISANCE AND HARMFUL EFFECTS CAUSED BY THE GLARE OF HEADLIGHTS AND OTHER LIGHT SOURCES GENERATED BY USES ON THE DEVELOPMENT SITE.	PROVIDED

LUMINAIRE SCHEDULE

LABEL	QTY	MOUNTING HEIGHT	ARRANGEMENT	LLF	LUM. LUMENS	DESCRIPTION
P5-D	2	25'-0" AFG	BACK-BACK	0.900	9939	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 5W, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-T5W)
B3R	13	3'-6" AFG	SINGLE	0.900	2398	STERNBERG RT4XX RALTA LED BOLLARD (RT4xx-26L-40-T3R-MDL02-SV2)
D4	3	12'-0" AFG	SINGLE	0.900	5785	STERNBERG OMEGA 1527 LED MEDIUM POST-TOP LUMINAIRE, ZERO UP-LIGHT (1527LED-12L40T4-MDL018-SV1)
P-BLC4	5	25'-0" AFG	SINGLE	0.900	7036	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE BLC4, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-BLC4)
D4-D	5	12'-0" AFG	BACK-BACK	0.900	5785	STERNBERG OMEGA 1527 LED MEDIUM POST-TOP LUMINAIRE, TYPE 4, ZERO UP-LIGHT (1527LED-12L40T4-MDL018-SV1)
D3-D	2	12'-0" AFG	BACK-BACK	0.900	5791	STERNBERG OMEGA 1527 LED MEDIUM POST-TOP LUMINAIRE, TYPE 3, ZERO UP-LIGHT (1527LED-12L40T4-MDL018-SV1)
D3-S	3	12'-0" AFG	SINGLE	0.900	4344	STERNBERG OMEGA 1527 LED MEDIUM POST-TOP LUMINAIRE, TYPE 3, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (1527LED-12L40T4-MDL018-SV1)
P4-S	2	25'-0" AFG	SINGLE	0.900	8179	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 4M, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-T4M-HS)
W1	30	10'-0" AFF*	SINGLE	0.900	1537	LITHONIA LED WALL PACK, ZERO UP-LIGHT (WPX1-LED-P1-30K-x)
PFTM-S	3	25'-0" AFG	SINGLE	0.900	8028	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE FTM, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-TFTM-HS)
P4-D	4	25'-0" AFG	BACK-BACK	0.900	9507	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 4M, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-T4M)
P3M-D	8	25'-0" AFG	BACK-BACK	0.900	9367	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3M, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-T3M)
P3M-S	6	25'-0" AFG	SINGLE	0.900	8119	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3M, WITH HOUSE-SIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-T3M-HS)
P5	3	25'-0" AFG	SINGLE	0.900	9939	LITHONIA D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 5W, ZERO UP-LIGHT (DSX1-LED-P2-30K-70CRI-T5W)

*REFER TO ARCHITECTURAL PLANS FOR FINAL MOUNTING HEIGHTS AND LOCATIONS

CALCULATION SUMMARY

LABEL	CALC TYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
ALL POINTS	ILLUMINANCE	FC	0.43	12.5	0.0	N.A.	N.A.
EAST PROPERTY LINE (ALONG RESIDENTIAL)	ILLUMINANCE	FC	0.00	0.0	0.0	N.A.	N.A.
SOUTH PROPERTY LINE (ALONG RESIDENTIAL)	ILLUMINANCE	FC	0.00	0.0	0.0	N.A.	N.A.
WEST PROPERTY LINE (ALONG RESIDENTIAL)	ILLUMINANCE	FC	0.00	0.0	0.0	N.A.	N.A.
BUILDING B AND C PARKING COURT	ILLUMINANCE	FC	1.46	3.5	0.7	2.09	5.00
BUILDING A PARKING COURT	ILLUMINANCE	FC	1.12	2.8	0.3	3.73	9.33
FUEL STATION PARKING COURT	ILLUMINANCE	FC	1.11	2.5	0.5	2.78	6.25
MAIN ENTRANCE DRIVE	ILLUMINANCE	FC	1.05	2.2	0.3	3.50	7.33

GENERAL LIGHTING NOTES:

1. THE GENERAL NOTES, FOUND ON THE NOTES PAGE OF THIS PLAN SET, MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE ELECTRICAL CONTRACTOR MUST BECOME FAMILIAR WITH, REFER TO AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY.
2. THE ELECTRICAL CONTRACTOR MUST COMPLY WITH ALL APPLICABLE CONTRACTOR REQUIREMENTS INDICATED IN THIS LIGHTING PLAN, INCLUDING BUT NOT LIMITED TO GENERAL NOTES, GRADING AND UTILITY NOTES, SITE SAFETY; AND ALL APPLICABLE AGENCY AND GOVERNMENTAL REGULATIONS. THE LIGHTING PLAN DEPICTS PROPOSED, SUSTAINED ILLUMINATION LEVELS CALCULATED USING DATA PROVIDED BY THE NOTED MANUFACTURER(S). ACTUAL, SUSTAINED SITE ILLUMINATION LEVELS AND PERFORMANCE OF LUMINAIRES MAY DIFFER FROM THE VALUES DEPICTED ON THIS PLAN DUE TO VARIATIONS IN WEATHER, ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, MAINTENANCE, THE SERVICE LIFE OF EQUIPMENT AND LUMINAIRES, EXISTING AMBIENT LIGHT SOURCE ON AND OFF SITE, AND OTHER RELATED VARIABLE FIELD CONDITIONS.
3. THE LIGHTING VALUES AND CALCULATION POINTS DEPICTED ON THIS PLAN ARE ANALYZED ON A HORIZONTAL GEOMETRIC PLANE AT GROUND LEVEL UNLESS OTHERWISE NOTED. ILLUMINATION LEVELS ARE SHOWN IN FOOTCANDLES (FC).
4. THE LIGHTING PLAN IS INTENDED TO SHOW THE LOCATIONS AND TYPE OF LUMINAIRES. POWER SYSTEM, CONDUITS, WIRING, CONTROLS, AND OTHER ELECTRICAL COMPONENTS ARE SOLELY THE ARCHITECT'S, ELECTRICAL ENGINEER'S AND/OR ELECTRICAL CONTRACTOR'S RESPONSIBILITY, AS INDICATED IN THE CONSTRUCTION CONTRACT DOCUMENTS. THE CONTRACTOR MUST COORDINATE WITH THE PROJECT ARCHITECT AND/OR ELECTRICAL ENGINEER REGARDING ANY AND ALL POWER SOURCES AND TIMING DEVICES NECESSARY TO MEET THE DESIGN INTENT. THESE ITEMS MUST BE INSTALLED AS REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF LIGHTING FIXTURES AND APPURTENANCES IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) AND ALL APPLICABLE BUILDING AND LOCAL ELECTRICAL CODES.
5. THE ELECTRICAL CONTRACTOR MUST BRING IMMEDIATELY, IN WRITING, ANY LIGHT LOCATIONS THAT CONFLICT WITH DRAINAGE, UTILITIES, OR OTHER STRUCTURE(S) TO THE PROFESSIONAL OF RECORD'S ATTENTION, PRIOR TO THE START OF CONSTRUCTION.
6. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL LIGHTING IS INSTALLED PER THIS LIGHTING PLAN, INCLUDING THE LOCATION, ORIENTATION, SHIELDING, AND/OR ROTATED OPTICS IN ORDER TO ACHIEVE THE LIGHTING LEVELS DEPICTED ON THIS PLAN. EXISTING POLES AND FOUNDATIONS ARE NOT TO BE REUSED.
7. UPON OWNER'S ACCEPTANCE OF THE COMPLETED PROJECT, THE OWNER SHALL BE RESPONSIBLE FOR ALL MAINTENANCE, SERVICING, REPAIR AND INSPECTION OF THE LIGHTING SYSTEM AND ALL OF ITS COMPONENTS AND RELATED SYSTEMS. THE LUMINAIRES, LAMPS AND LENSES MUST BE REGULARLY INSPECTED/MAINTAINED TO ENSURE THAT THEY FUNCTION PROPERLY. THIS WORK SHOULD INCLUDE, BUT IS NOT LIMITED TO, VISUAL OBSERVATION, CLEANING OF LENSES, AND OTHER MAINTENANCE SPECIFIED BY THE MANUFACTURER. FAILURE TO FOLLOW THE ABOVE STEPS COULD RESULT IN IMPROPER LIGHT DISTRIBUTION AND FAILURE TO COMPLY WITH THE APPROVED DESIGN.
8. THE LIGHT LOSS FACTORS (LLF) DEPICTED IN THE LUMINAIRE SCHEDULE ON THIS PLAN ARE BASED ON DATA PROVIDED BY THE MANUFACTURER FOLLOWING IES LM-80-21 TESTING (OR MOST RECENT EDITION). THE LIGHT LEVELS DEPICTED ON THIS PLAN WERE CALCULATED BASED ON THE LLF LISTED IN THE LUMINAIRE SCHEDULE.
9. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE SUBMITTALS TO BOHLER FOR REVIEW AND APPROVAL. SUBSTITUTION REQUESTS MUST BE ACCOMPANIED BY A HORIZONTAL PHOTOMETRIC STUDY DEMONSTRATING THAT THE LUMINAIRE(S) IN QUESTION WILL MEET THE DESIGN INTENT OF THIS PLAN. SUBSTITUTION REQUESTS WITHOUT A PHOTOMETRIC STUDY WILL BE REJECTED.
10. LIGHT POLE FOUNDATIONS ARE SHOWN ON THE PLAN IN THE INTENDED LOCATION BASED ON THE LIGHTING CALCULATIONS, UNLESS OTHERWISE NOTED. LIGHT SYMBOLS ARE SHOWN LARGER THAN ACTUAL SIZE, HOWEVER FOUNDATION SIZE IS SHOWN AT ACTUAL SIZE.

THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

REFER TO LIGHTING NOTES & DETAILS SHEET FOR LIGHTING NOTES AND DETAILS

60 30 15 0 60
1"= 60'

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PROJECT No.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-LGHT

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS
JOSHUA A. CHISSUS
NO. 12,17
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:

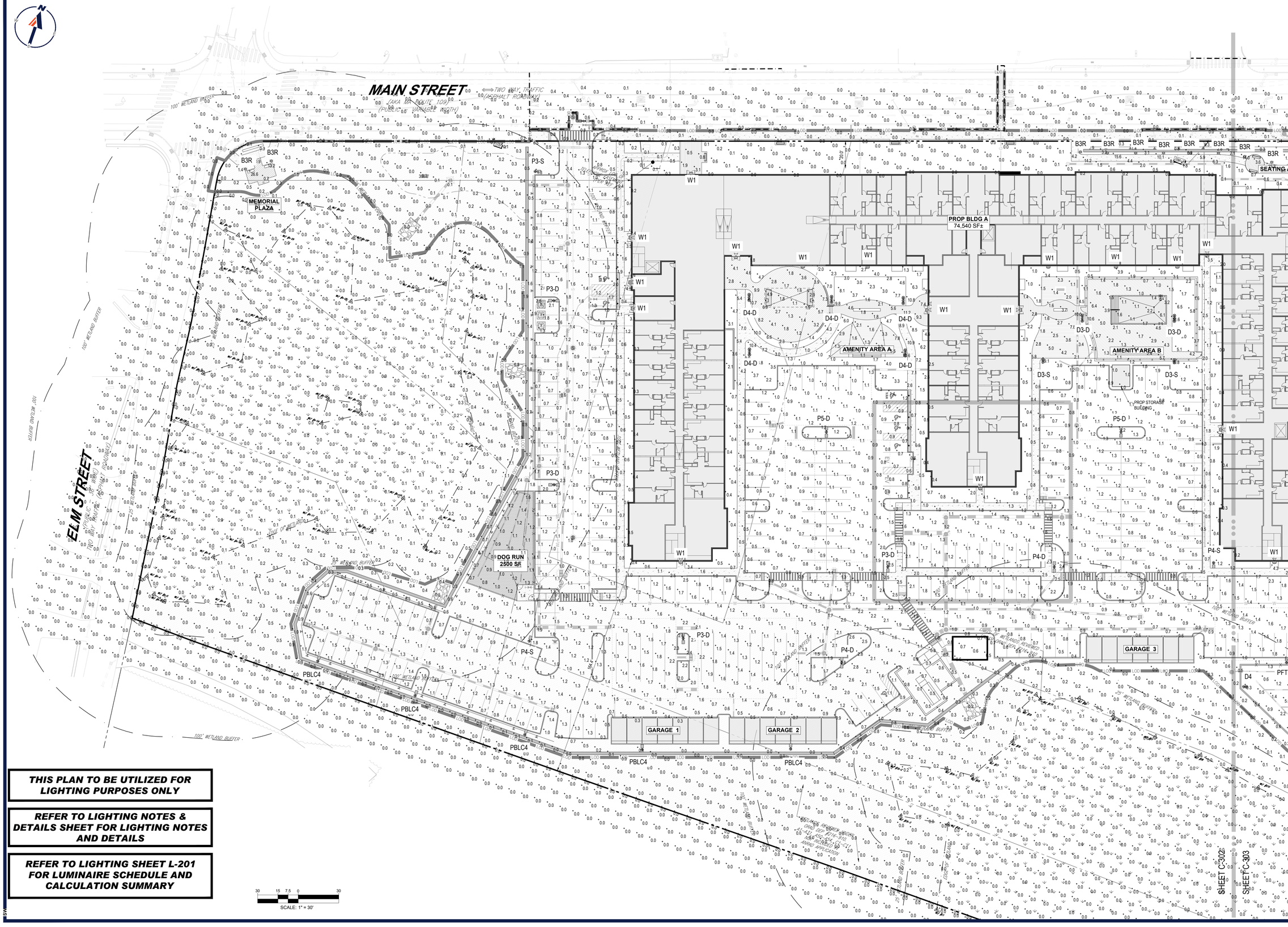
OVERALL LIGHTING PLAN

SHEET NUMBER:

L-201

ORG. DATE - 04/15/2026

\\BOHLERENG.NET\SHARES\MA PROJECTS\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-LGHT MAA240482.00-1D-----LAYOUT L-201 OVERALL LIGHT SW



THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

REFER TO LIGHTING NOTES & DETAILS SHEET FOR LIGHTING NOTES AND DETAILS

REFER TO LIGHTING SHEET L-201 FOR LUMINAIRE SCHEDULE AND CALCULATION SUMMARY

30 15 7.5 0 30
SCALE: 1" = 30'

I:\BOHLERENG.NET\SHARES\MA-PROJECTS\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-LGHT-MAA240482.00-1D-----LAYOUT(L-202 LIGHT A

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PROJECT No.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-LGHT

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED
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MASSACHUSETTS

BOHLER
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SOUTHBOROUGH, MA 01772
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www.BohlerEngineering.com

JOSHUA CHRISTIAN MICHAEL MATTHEW, 57482, REGISTERED PROFESSIONAL ENGINEER, 02/02/2026

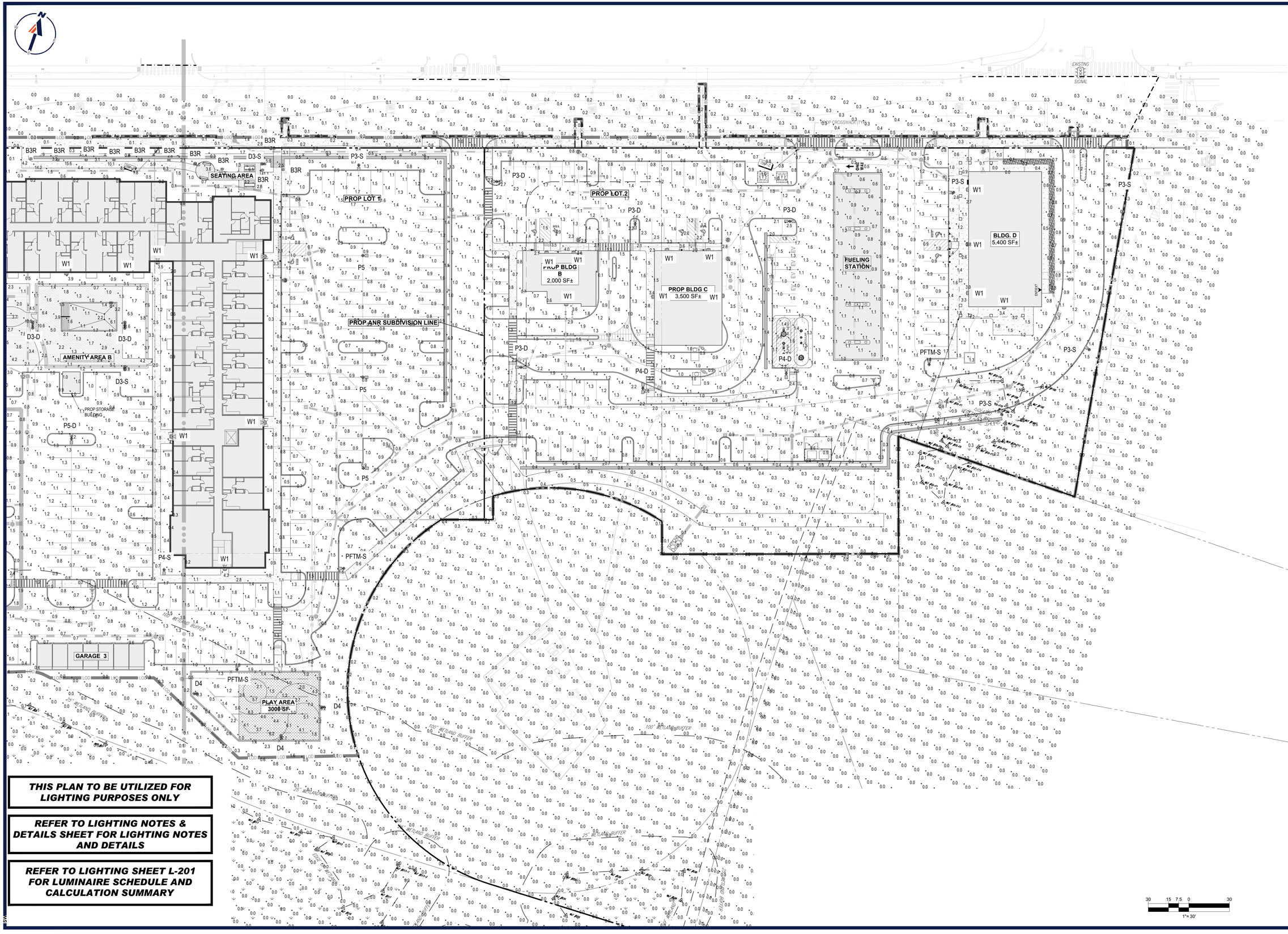
SHEET TITLE:

LIGHTING PLAN A

SHEET NUMBER:

L-202

ORG. DATE - 04/15/2026



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DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-LGHT

PROJECT:

HERITAGE ON MAIN

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SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900

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MASSACHUSETTS
MATTHEW J. MANSFIELD
NO. 12,17
REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

LIGHTING PLAN B

SHEET NUMBER:

L-203

ORG. DATE - 04/15/2026

I:\BOHLERENG.NET\SHARES\MA-PROJECTS\2024\MAA240482.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-LGHT-MAA240482.00-1D---LAYOUT- L-203 LGHT B SW

WPX LED
Wall Packs



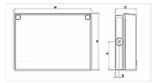
Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications



Front View Side View

Luminaire	Height (H)	Width (W)	Depth (D)	Side Conduit Location A	Side Conduit Location B	Weight
WPX1	6.1" (20.6 cm)	11.1" (28.1 cm)	3.2" (8.1 cm)	4.0" (10.3 cm)	0.6" (1.6 cm)	6.1 lbs (2.8kg)
WPX2	9.1" (23.1 cm)	12.3" (31.1 cm)	4.1" (10.5 cm)	4.5" (11.5 cm)	0.7" (1.7 cm)	8.2 lbs (3.7kg)
WPX3	9.5" (24.1 cm)	13.0" (33.0 cm)	5.3" (13.7 cm)	4.7" (12.0 cm)	0.7" (1.7 cm)	11.0 lbs (5.0kg)

Introduction

The WPX LED wall packs are energy-efficient, cost-effective, and aesthetically appealing solutions for both HID wall pack replacement and new construction opportunities. Available in three sizes, the WPX family delivers 1,550 to 9,200 lumens with a wide, uniform distribution.

The WPX full cut-off solutions fully cover the footprint of the HID glass wall packs that they replace, providing a neat installation and an upgraded appearance. Reliable IP66 construction and excellent LED lumen maintenance ensure a long service life. Photocell and emergency egress battery options make WPX ideal for every wall mounted lighting application.

Ordering Information

EXAMPLE: WPX2 LED 40K MVOLT DDBXD

Series	Color Temperature	Voltage	Options	Finish
WPX1 LED P1 1,550 Lumens, 11W [1]	30K 3000K	MVOLT 120V - 277V	(blank) None	DDBXD Dark bronze
WPX1 LED P2 2,900 Lumens, 24W	40K 4000K	347 347V [1]	E4WH Emergency battery backup, CEC compliant (4W, 0°C min) [2]	DWHXD White
WPX2 LED 6,000 Lumens, 47W	50K 5000K		E14WC Emergency battery backup, CEC compliant (14W, -20°C min) [2]	DBLXD Black
WPX3 LED 9,200 Lumens, 69W			PE Photocell [3]	Note : For other options, consult factory.

Note: The lumen output and input power shown in the ordering tree are average representations of all configuration options. Specific values are available on request.

NOTES
1. All WPX wall packs come with 6kV surge protection standard, except WPX1 LED P1 package which comes with 2.5kV surge protection standard. Add SPD6KV option to get WPX1 LED P1 with 6kV surge protection.
   Sample nomenclature: WPX1 LED P1 40K MVOLT SPD6KV DDBXD
2. Battery pack options only available on WPX1 and WPX2.
3. Battery pack options not available with 347V or PE options.

FEATURES & SPECIFICATIONS

INTENDED USE
The WPX LED wall packs are designed to provide a cost-effective, energy-efficient solution for the one-to-one replacement of existing HID wall packs. The WPX1, WPX2 and WPX3 are ideal for retrofitting up to 150W, 250W, and 400W HID luminaires respectively. WPX luminaires deliver a uniform, wide distribution. WPX is rated for -40°C to 40°C.

CONSTRUCTION
WPX features a die-cast aluminum main body with optimal thermal management that both enhances LED efficacy and extends component life. The luminaires are IP66 rated, and sealed against moisture or environmental contaminants.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs and LED lumen maintenance of L90/100,000 hours. Color temperature (CCT) options of 3000K, 4000K and 5000K with minimum CRI of 70. Electronic drivers ensure system power factor >90% and THD <20%. All luminaires have 6kV surge protection (Note: WPX1 LED P1 package comes with a standard surge protection rating of 2.5kV. It can be ordered with an optional 6kV surge protection).
All photocell (PE) operate on MVOLT (120V - 277V) input.

Note: The standard WPX LED wall pack luminaires come with field-adjustable drive current feature. This feature allows tuning the output current of the LED drivers to adjust the lumen output (to dim the luminaire).

INSTALLATION
WPX can be mounted directly over a standard electrical junction box. Three 1/2 inch conduit ports on three sides allow for surface conduit wiring. A port on the back surface allows poke-through conduit wiring on surfaces that don't have an electrical junction box. Wiring can be made in the integral wiring compartment in all cases. WPX is only recommended for installations with LEDs facing downwards. The WPX is intended for installation on flat wall surfaces. Other applications may void warranty

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. IP66 Rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL, to confirm which versions are qualified. International Dark Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.

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D-Series Size 1
LED Area Luminaire



d*series

Catalog Number

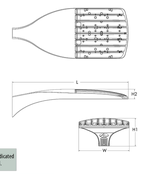
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA: 0.69 ft² (0.06 m²)
Length: 32.71" (83.1 cm)
Width: 14.26" (36.2 cm)
Height H1: 7.88" (20.0 cm)
Height H2: 2.72" (6.9 cm)
Weight: 34 lbs (15.4 kg)



Design Select options indicated by this color background.

Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature [1]	Color Rendering Index [1]	Distribution	Voltage	Mounting
DSX1 LED	Forward optics: P1 P6, P2 P7, P3 P8, P4 P9, P5	(this section 70CRI only): 30K 3000K, 40K 4000K, 50K 5000K	70CRI, 70CRI, 70CRI	AFR Automotive front row; TFTM Forward throw medium; T1S Type I short; T2M Type II medium; T3M Type III medium; T3LG Type III low glare [2]; T4M Type IV medium; T4LG Type IV low glare [2]; T5M Type V medium; T5LG Type V low glare; T5W Type V wide; BLC3 Type III backlight control [3]; BLC4 Type IV backlight control [3]; LCCO Left corner cutoff [3]; RCCO Right corner cutoff [3]	MVOLT (120V-277V) [4,5]; HVOLT (347V-480V) [4,5]; XVOLT (277V - 480V) [4,5]; 120 [6,7]; 208 [6,7]; 240 [6,7]; 277 [6,7]; 347 [6,7]; 480 [6,7]	Shipped included: SPA Square pole mounting (#8 drilling); RPA Round pole mounting (#8 drilling); SPA5 Square pole mounting (#5 drilling [8]; RPA5 Round pole mounting (#5 drilling [8]; SPANN Square narrow pole mounting (#8 drilling); WBA Wall bracket [9]; MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)
	Rotated optics: P10 P12, P11 P13	27K 2700K, 30K 3000K, 35K 3500K, 40K 4000K, 50K 5000K	80CRI, 80CRI, 80CRI, 80CRI			

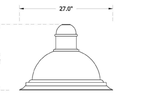
Control options	Other options	Finish (required)
Shipped installed: NLTAIR2 PIRHN (NLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc [10,11,12]); PIR (High/low, motion/ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc [10,11]); PER (NEMA twist-lock receptacle only (controls ordered separately) [13]); PER7 (Seven-pin receptacle only (controls ordered separately) [14]); FAO (Field adjustable output [15]); BL30 (Bi-level switched dimming, 30%) [16]; BL50 (Bi-level switched dimming, 50%) [16]; DMG (0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)); DS (Dual switching [16,17]); PERS (Five-pin receptacle only (controls ordered separately) [14])	Shipped installed: SPD20KV (20kV surge protection); HS (Houseside shield (black finish standard) [2]); L90 (Left rotated optics [1]); R90 (Right rotated optics [1]); CCE (Coastal Construction [2]); HA (50°C ambient operation [2]); BAA (Buy America(n) Act and/or Build America Buy America Qualified); SF (Single fuse (120, 277, 347V) [4]); DF (Double fuse (208, 240, 480V) [4]); Shipped separately: EGSR (External Glare Shield (reversible, field install required, matches housing finish)); BSOB (Bird Spikes (field install required))	DDBXD Dark Bronze; DBLXD Black; DNAXD Natural Aluminum; DWHXD White; DDBTXD Textured dark bronze; DBLBXD Textured black; DNATXD Textured natural aluminum; DWHGXD Textured white

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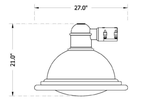
Specification Sheet **Omega™** 1527LED Medium

Project Name _____ Qty _____
Type _____ Catalog / Part Number _____





1527LED-F-FG



1527LEDSM-R-SG

Certifications

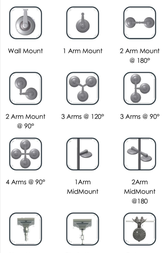
cULus LISTED; DLC LISTED; IP65

Description

The 1527LED Omega™ is a decorative and energy efficient downlight fixtures with a spun aluminum bell styled dome. The luminaire has a gasketed hinged door for tool-less driver and LED access. Offered in a variety of mounting configurations, wattages, CCT's and distribution types makes this product the premier option for any Urban, Roadway or Area-Light application.

EPA: .93 (ft²) | WEIGHT: 38 LBS

Mounting Configuration



Features

Mounting Configuration
1W: Wall Mount
1A: 1 Arm Mount
2A: 2 Arm Mount @ 180°
2A90: 2 Arm Mount @ 90°
3A: 3 Arms @ 120°
3A90: 3 Arms @ 90°
4A: 4 Arms @ 90°
1AM: 1Arm MidMount
2AM: 2Arm MidMount @180
SH46: Stem Hung
CH46: Chain Hung
CAT: Catenary

Fixture
1527LED: 27" Omega, Top Mount
1527LEDSM: 27" Omega, Side Mount

Shade Style
R: Round Edge **F:** Flared Edge

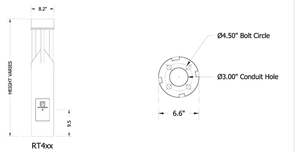
Lens
FG: Flat Glass
SG: Sag Glass
FSG: Frosted Sag Glass
SV1: Flat SoftVue™ Light Diffused Acrylic
SV2: Flat SoftVue™ Moderate Diffused Acrylic
SV4: Flat SoftVue™ Maximum Diffused Acrylic

Optional Control Receptacle
R7: 7-Pin control receptacle only

Specification Sheet **Rialta®** RT4xx Bollard

Project Name _____ Qty _____
Type _____ Catalog / Part Number _____





RT4xx

Certifications

cULus LISTED; DLC LISTED

Finish



Black Textured; Urban Gun Metal Textured; Urban Gun Metal Matte; Urban Bronze Textured; Urban Bronze Matte; Urban Silver Textured; Urban Silver Matte; Urban White Textured; Urban White Matte; Custom Match

Distribution Type



Type 2; Type 3; Type 3R; Type 4; Type 5

CCT - Color Temp (K)



2,700K; 3,000K; 4,000K; 5,000K

Description

The RT4xx Rialta® Bollard is a one-piece, cylindrical, three legged, open cage ground mounted luminaire designed to bring ambiance to any project by providing a performance lighting package in a vertical form. The 8" cast aluminum cage cylinder adds a luminous element that adds visual interest by illuminating from the top casting and giving the effect of moon light from within its cage form. The RT4xx can be configured with a choice of Clear Acrylic (CA) or Softvue (SV2) lenses, and IES types 5, 4, 3, 3R and 2 distribution with high efficiency and low wattage consumption.
Available in heights: 36", 42" and 48"

Features

Model	**RT4:** 8" Rialta, Open Body
Overall Height (in inches)	36", 42", 48"
Lens	**CA:** Clear Acrylic **SV2:** Flat SoftVue™ Moderate Diffused Acrylic
Optional Photocell	**PCD:** Electronic Button Photocontrol, mounted on an access door (120V-277V) **PCD4:** Electronic Button Photocontrol, mounted on an access door (480V)
Optional Fuse	**FHD:** Double Fuse and Holder
Optional Receptacle	**GFI LP1UC:** 120V, 15 Amp Duplex GFCI receptacles with a low-profile in-use cover **USB LP1UC:** 120V, 15 Amp Duplex USB/ Receptacle combo with a low-profile in-use cover (NON-GFCI)
Optional Fixed Dimming Resistor Board	**FDRB:** Fixed Dimming Resistor Board

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

811 Know what's below. Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

PERMIT SET

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	MAA240482.00-1D
DRAWN BY:	AP, JK, SW
CHECKED BY:	TH, MM
DATE:	02/02/2026
CAD I.D.:	P-CIVL-LGHT

PROJECT:

HERITAGE ON MAIN

FOR

RTE. 85 REALTY CORP
P.O. BOX 2440

PROPOSED MIXED-USE DEVELOPMENT

107-119 MAIN ST, 1 & 3 ELM ST, 0 & 26 KELLEY ST, NORFOLK COUNTY, TOWN OF MEDWAY, MASSACHUSETTS

BOHLER
352 TURNPIKE ROAD, 3rd FLOOR
SOUTHBOROUGH, MA 01772
Phone: (508) 480-9900
www.BohlerEngineering.com

COMMONWEALTH OF MASSACHUSETTS TIMOTHY J. HAUN NO. 52417 REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

LIGHTING NOTES & DETAILS

SHEET NUMBER:

L-204

ORG. DATE - 04/15/2026

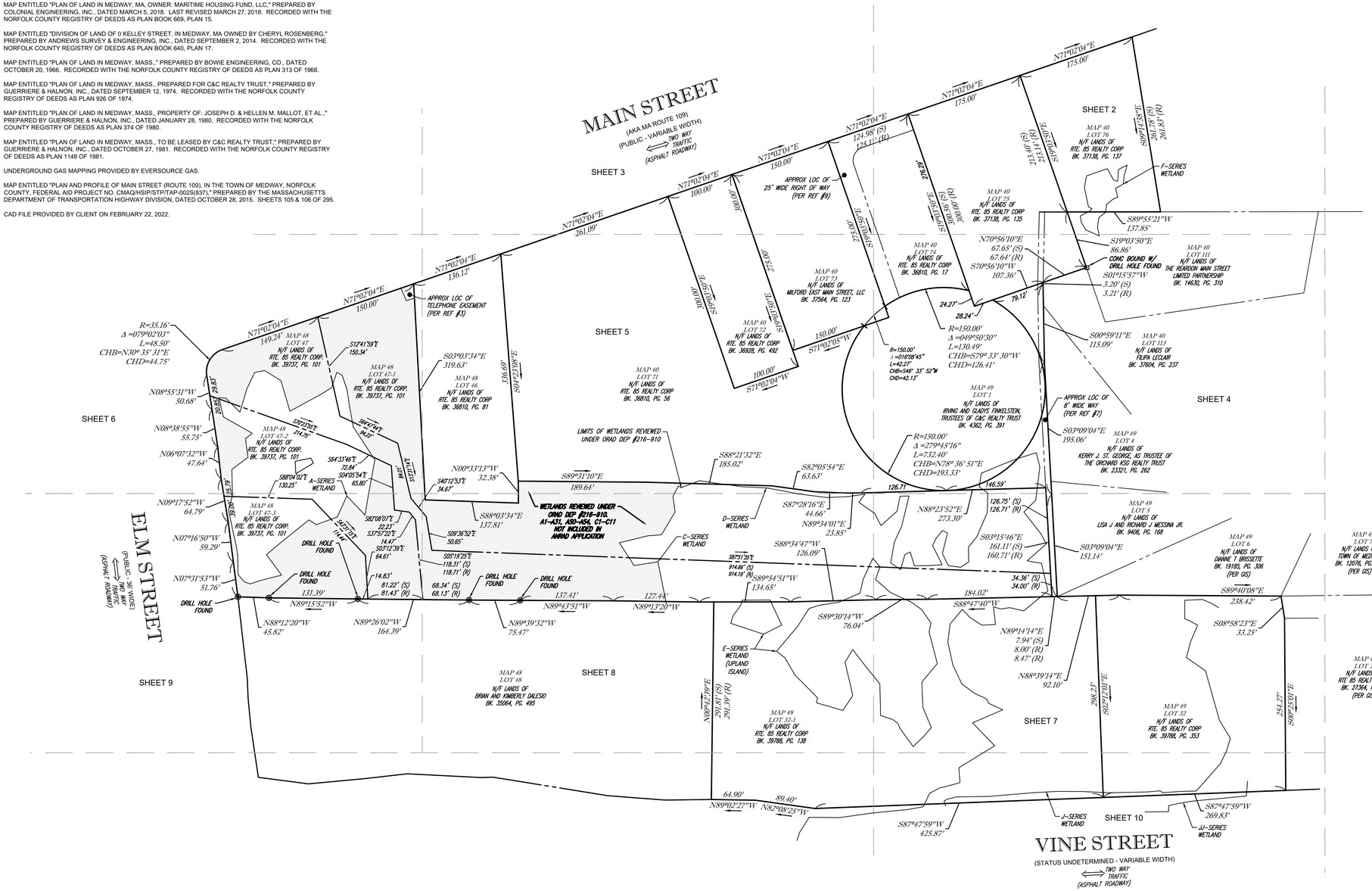
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SW

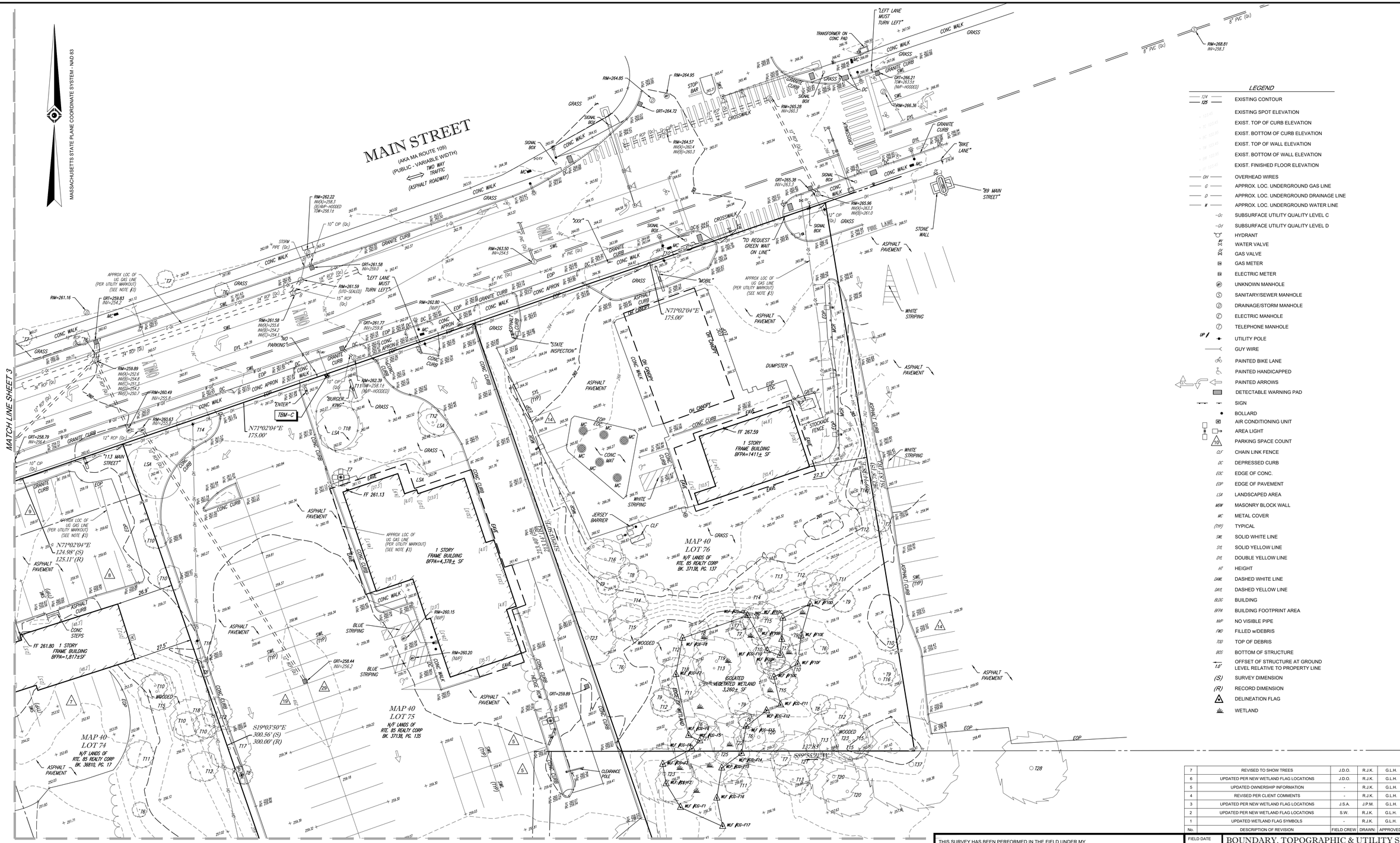
REFERENCES:

1. THE TAX ASSESSOR'S MAP OF MEDWAY, NORFOLK COUNTY, MAPS 40, 48 & 49.
2. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, NORFOLK COUNTY, MASSACHUSETTS (ALL JURISDICTIONS) PANEL 143 OF 430," MAP NUMBER 25021C0143E, MAP EFFECTIVE DATE: JULY 17, 2012.
3. MAP ENTITLED "PLAN OF LAND IN MEDWAY, MA, PROPERTY OF: REGINA M. SHERMAN," PREPARED BY GUERRIERE & HALNON, INC. DATED FEBRUARY 23, 1999. RECORDED WITH THE NORFOLK COUNTY REGISTRY OF DEEDS AS PLAN 128 OF 1999.
4. MAP ENTITLED "PLAN OF LAND IN MEDWAY, MA, OWNER: MARITIME HOUSING FUND, LLC," PREPARED BY COLONIAL ENGINEERING, INC., DATED MARCH 5, 2018. LAST REVISED MARCH 27, 2018. RECORDED WITH THE NORFOLK COUNTY REGISTRY OF DEEDS AS PLAN BOOK 669, PLAN 15.
5. MAP ENTITLED "DIVISION OF LAND OF 0 KELLEY STREET, IN MEDWAY, MA OWNED BY CHERYL ROSENBERG," PREPARED BY ANDREWS SURVEY & ENGINEERING, INC., DATED SEPTEMBER 2, 2014. RECORDED WITH THE NORFOLK COUNTY REGISTRY OF DEEDS AS PLAN BOOK 640, PLAN 17.
6. MAP ENTITLED "PLAN OF LAND IN MEDWAY, MASS.," PREPARED BY BOWIE ENGINEERING, CO., DATED OCTOBER 20, 1966. RECORDED WITH THE NORFOLK COUNTY REGISTRY OF DEEDS AS PLAN 313 OF 1968.
7. MAP ENTITLED "PLAN OF LAND IN MEDWAY, MASS., PREPARED FOR C&C REALTY TRUST," PREPARED BY GUERRIERE & HALNON, INC., DATED SEPTEMBER 12, 1974. RECORDED WITH THE NORFOLK COUNTY REGISTRY OF DEEDS AS PLAN 926 OF 1974.
8. MAP ENTITLED "PLAN OF LAND IN MEDWAY, MASS., PROPERTY OF: JOSEPH D. & HELLEN M. MALLOT, ET AL.," PREPARED BY GUERRIERE & HALNON, INC., DATED JANUARY 28, 1980. RECORDED WITH THE NORFOLK COUNTY REGISTRY OF DEEDS AS PLAN 374 OF 1980.
9. MAP ENTITLED "PLAN OF LAND IN MEDWAY, MASS., TO BE LEASED BY C&C REALTY TRUST," PREPARED BY GUERRIERE & HALNON, INC., DATED OCTOBER 27, 1981. RECORDED WITH THE NORFOLK COUNTY REGISTRY OF DEEDS AS PLAN 1148 OF 1981.
10. UNDERGROUND GAS MAPPING PROVIDED BY EVERSOURCE GAS.
11. MAP ENTITLED "PLAN AND PROFILE OF MAIN STREET (ROUTE 109), IN THE TOWN OF MEDWAY, NORFOLK COUNTY, FEDERAL AID PROJECT NO. CMAQ/HSIP/STP/TAP-002S(837)," PREPARED BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION, DATED OCTOBER 28, 2015. SHEETS 105 & 106 OF 295.
12. CAD FILE PROVIDED BY CLIENT ON FEBRUARY 22, 2022.

LEGEND

(S)	SURVEY DIMENSION
(R)	RECORD DIMENSION


MAIN STREET
(AKA MA ROUTE 109)
(PUBLIC - VARIABLE WIDTH)
TWO WAY TRAFFIC
(ASPHALT ROADWAY)
ELM STREET
(PUBLIC - 26' WIDE)
TWO WAY TRAFFIC
(ASPHALT ROADWAY)
VINE STREET
(STATUS UNDETERMINED - VARIABLE WIDTH)
TWO WAY TRAFFIC
(ASPHALT ROADWAY)
SHEET 2
SHEET 3
SHEET 4
SHEET 5
SHEET 6
SHEET 7
SHEET 8
SHEET 9
SHEET 10
APPROX LOC OF 25' WIDE RIGHT OF WAY (PER REF #9)
APPROX LOC OF TELEPHONE EASEMENT (PER REF #3)
APPROX LOC OF 8' WIDE WAY (PER REF #7)
LIMITS OF WETLANDS REVIEWED UNDER ORAD DEP #216-910
WETLANDS REVIEWED UNDER ORAD DEP #216-910. A1-A31, ASD-A54, C1-C11 NOT INCLUDED IN ANRAD APPLICATION
F-SERIES WETLAND
C-SERIES WETLAND
D-SERIES WETLAND
A-SERIES WETLAND
C-SERIES WETLAND (UPLAND ISLAND)
J-SERIES WETLAND
U-SERIES WETLAND
DRILL HOLE FOUND
CONC BOUND W/ DRILL HOLE FOUND
MAP 40 LOT 76 N/F LANDS OF RTE. 85 REALTY CORP BK. 37138, PG. 137
MAP 40 LOT 75 N/F LANDS OF RTE. 85 REALTY CORP BK. 37138, PG. 135
MAP 40 LOT 74 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 17
MAP 40 LOT 73 N/F LANDS OF MILFORD EAST MAIN STREET, LLC BK. 37564, PG. 123
MAP 40 LOT 72 N/F LANDS OF RTE. 85 REALTY CORP BK. 36928, PG. 492
MAP 40 LOT 71 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 56
MAP 40 LOT 131 N/F LANDS OF THE REARDON MAIN STREET LIMITED PARTNERSHIP BK. 14630, PG. 310
MAP 40 LOT 113 N/F LANDS OF FILIPA LEZAUR BK. 37604, PG. 237
MAP 48 LOT 47 N/F LANDS OF RTE. 85 REALTY CORP. BK. 39737, PG. 101
MAP 48 LOT 47-1 N/F LANDS OF RTE. 85 REALTY CORP. BK. 39737, PG. 101
MAP 48 LOT 47-2 N/F LANDS OF RTE. 85 REALTY CORP. BK. 39737, PG. 101
MAP 48 LOT 46 N/F LANDS OF RTE. 85 REALTY CORP BK. 36810, PG. 81
MAP 48 LOT 48 N/F LANDS OF BRIAN AND KIMBERLY DALESIO BK. 35064, PG. 485
MAP 49 LOT 1 N/F LANDS OF IRVING AND GLADYS FINKELSTEIN, TRUSTEES OF C&C REALTY TRUST BK. 4362, PG. 391
MAP 49 LOT 4 N/F LANDS OF KERRY J. ST. GEORGE, AS TRUSTEE OF THE ORCHARD KSC REALTY TRUST BK. 23321, PG. 262
MAP 49 LOT 5 N/F LANDS OF LISA J AND RICHARD J MESSINA JR. BK. 9406, PG. 168
MAP 49 LOT 6 N/F LANDS OF DIANNE T BRISSETTE BK. 19185, PG. 306 (PER GIS)
MAP 49 LOT 7 N/F LANDS OF TOWN OF MEDWAY BK. 12076, PG. 619 (PER GIS)
MAP 49 LOT 32-1 N/F LANDS OF RTE. 85 REALTY CORP BK. 39788, PG. 138
MAP 49 LOT 33 N/F LANDS OF RTE. 85 REALTY CORP BK. 39788, PG. 353
MAP 49 LOT 33 N/F LANDS OF RTE. 85 REALTY CORP BK. 23364, PG. 21 (PER GIS)
R=35.16'
Δ=079°02'03"
L=48.50'
CHB=N39° 35' 31"E
CHD=44.75'
R=150.00'
Δ=049°50'30"
L=130.49'
CHB=S79° 33' 30"W
CHD=126.41'
R=150.00'
Δ=279°45'16"
L=732.40'
CHB=N78° 36' 51"E
CHD=193.33'
R=150.00'
Δ=016°58'45"
L=42.27'
CHB=S46° 33' 52"W
CHD=42.13'
N71°02'04"E 261.09'
N71°02'04"E 136.12'
N71°02'04"E 150.00'
N71°02'04"E 149.24'
N71°02'04"E 100.00'
N71°02'04"E 124.98' (S)
N71°02'04"E 175.00'
S71°02'05"W 150.00'
S71°02'04"W 100.00'
S04°21'08"E 136.69'
S03°03'34"E 319.63'
S12°41'59"E 150.34'
S03°09'04"E 195.06'
S03°09'04"E 151.14'
S89°55'21"W 137.85'
S19°03'50"E 86.86'
S01°15'57"W 3.20' (S) 3.21' (R)
S00°59'11"E 115.09'
S89°40'08"E 238.42'
S08°58'23"E 33.25'
S87°47'59"W 269.83'
S87°47'59"W 425.87'
N09°17'52"W 64.79'
N07°16'50"W 59.29'
N07°31'53"W 51.76'
N08°55'31"W 50.68'
N08°38'55"W 55.75'
N06°07'32"W 47.64'
N89°15'52"W 131.39'
N88°12'20"W 45.82'
N89°26'02"W 164.39'
N89°39'32"W 75.47'
N89°43'51"W 137.41'
N89°13'20"W 127.44'
N00°33'13"W 32.38'
S89°31'10"E 189.64'
S88°21'32"E 185.02'
S82°05'54"E 63.63'
S87°28'16"E 44.66'
S89°34'01"E 23.85'
S88°34'47"W 126.09'
S89°54'51"W 134.65'
S89°30'14"W 76.04'
S88°47'40"W 184.02'
N89°14'14"E 7.94' (S) 8.00' (R) 8.47' (R)
N88°39'14"E 92.10'
N89°02'27"W 64.90'
N89°18'25"W 89.40'
N09°42'39"E 291.81' (S) 291.39' (R)
S02°12'10"E 298.33'
S09°25'10"E 254.27'
S88°23'52"E 273.30'
S03°15'46"E 161.11' (S) 160.71' (R)
S15°30'10"E 213.40' (S) 213.11' (R)
S09°04'38"E 261.53' (S) 261.63' (R)
S70°56'10"W 67.65' (S) 67.64' (R) 107.36'
N70°56'10"E 67.65' (S) 67.64' (R)
S87°51'35"E 914.66' (S) 914.19' (R)
S88°03'34"E 137.81'
S05°19'25"E 118.31' (S) 118.71' (R)
S05°36'52"E 50.65'
S07°13'39"E 64.61'
S20°08'07"E 22.23'
S37°57'22"E 14.07'
S64°33'46"E 72.84'
S04°05'54"E 65.80'
S89°04'02"E 130.25'
S89°34'27"E 144.71'
S00°34'27"E 274.26'
S00°34'27"E 34.25'
S00°34'27"E 3.00'
S00°34'27"E 3.00'
S00°34'27"E 3.00



LEGEND

124 / 125	EXISTING CONTOUR
125.00	EXISTING SPOT ELEVATION
TC=125.00	EXIST. TOP OF CURB ELEVATION
BC=125.00	EXIST. BOTTOM OF CURB ELEVATION
TW=125.00	EXIST. TOP OF WALL ELEVATION
BW=125.00	EXIST. BOTTOM OF WALL ELEVATION
FF=125.00	EXIST. FINISHED FLOOR ELEVATION
OH	OVERHEAD WIRES
G	APPROX. LOC. UNDERGROUND GAS LINE
D	APPROX. LOC. UNDERGROUND DRAINAGE LINE
W	APPROX. LOC. UNDERGROUND WATER LINE
QC	SUBSURFACE UTILITY QUALITY LEVEL C
QD	SUBSURFACE UTILITY QUALITY LEVEL D
	HYDRANT
	WATER VALVE
GV	GAS VALVE
GM	GAS METER
EM	ELECTRIC METER
UP	UNKNOWN MANHOLE
S	SANITARY/SEWER MANHOLE
D	DRAINAGE/STORM MANHOLE
E	ELECTRIC MANHOLE
T	TELEPHONE MANHOLE
UP	UTILITY POLE
	GUY WIRE
	PAINTED BIKE LANE
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	PAINTED ARROWS
	DETECTABLE WARNING PAD
	SIGN
	BOLLARD
AC	AIR CONDITIONING UNIT
	AREA LIGHT
10	PARKING SPACE COUNT
CLF	CHAIN LINK FENCE
DC	DEPRESSED CURB
EOC	EDGE OF CONC.
EOP	EDGE OF PAVEMENT
LSA	LANDSCAPED AREA
MSW	MASONRY BLOCK WALL
MC	METAL COVER
(TYP)	TYPICAL
SWL	SOLID WHITE LINE
SYL	SOLID YELLOW LINE
DYL	DOUBLE YELLOW LINE
HT	HEIGHT
DAWL	DASHED WHITE LINE
DAYL	DASHED YELLOW LINE
BLDG	BUILDING
BFPA	BUILDING FOOTPRINT AREA
NVP	NO VISIBLE PIPE
FWD	FILLED w/DEBRIS
TOD	TOP OF DEBRIS
BOS	BOTTOM OF STRUCTURE
1.0'	OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
(S)	SURVEY DIMENSION
(R)	RECORD DIMENSION
	DELINEATION FLAG
	WETLAND

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
7	REVISED TO SHOW TREES	J.D.O.	R.J.K.	G.L.H.	12-29-2025
6	UPDATED PER NEW WETLAND FLAG LOCATIONS	J.D.O.	R.J.K.	G.L.H.	7-17-2023
5	UPDATED OWNERSHIP INFORMATION	-	R.J.K.	G.L.H.	5-23-2023
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GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211
12-29-2025
DATE

FIELD DATE	4-14-2022
FIELD BOOK NO.	21-16 MA
FIELD BOOK PG.	107-110
FIELD CREW	B.S.B.
DRAWN:	E.G.F.
REVIEWED:	R.J.K.

BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY
107, 111, 113, 115A, 117 & 119 MAIN STREET
1 & 3 ELM STREET, 0 & 26 KELLEY STREET
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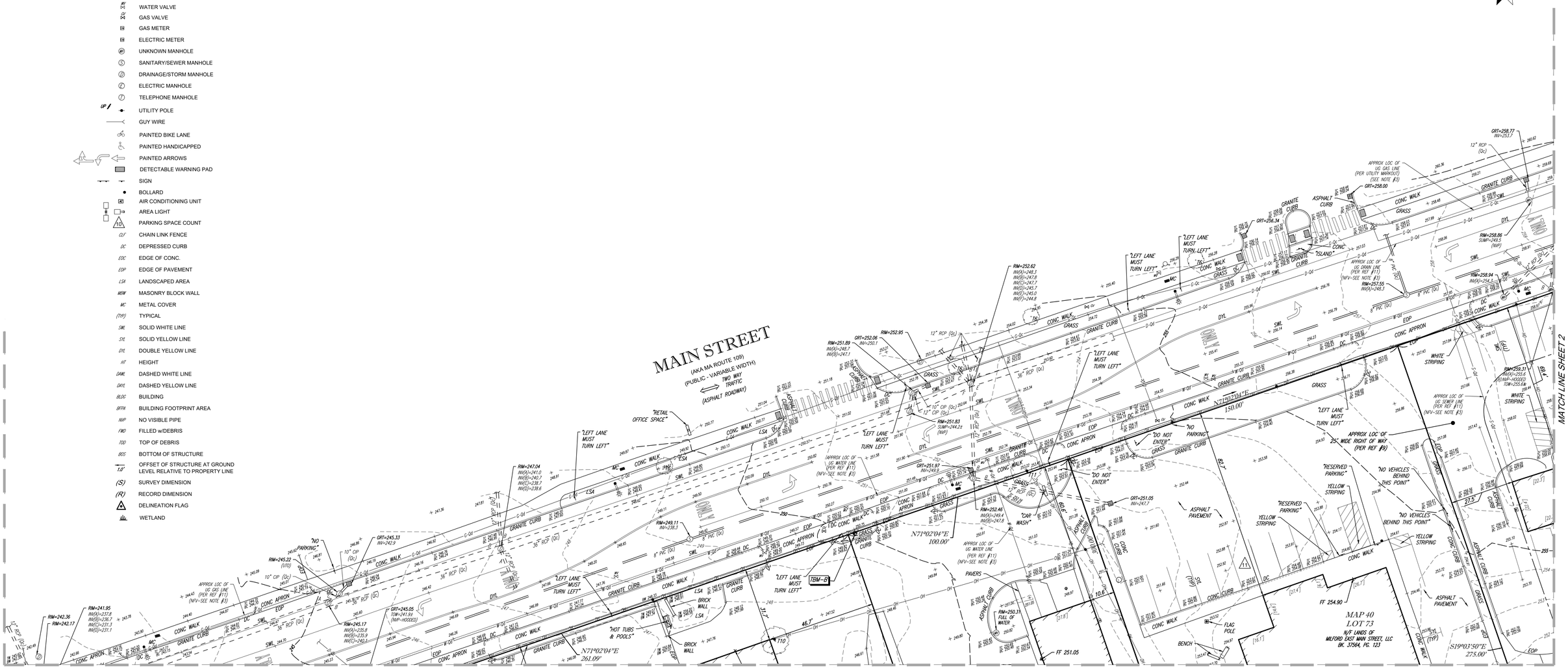
APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	5-24-2022	1"=20'	03-210573-00	2 OF 10

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- EXIST. TOP OF CURB ELEVATION
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- (S) SURVEY DIMENSION
- (R) RECORD DIMENSION
- DELINEATION FLAG
- WETLAND

MASSACHUSETTS STATE PLANE COORDINATE SYSTEM - NAD 83



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
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MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

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FIELD CREW	B.S.B.
DRAWN:	E.G.F.
REVIEWED:	R.J.K.

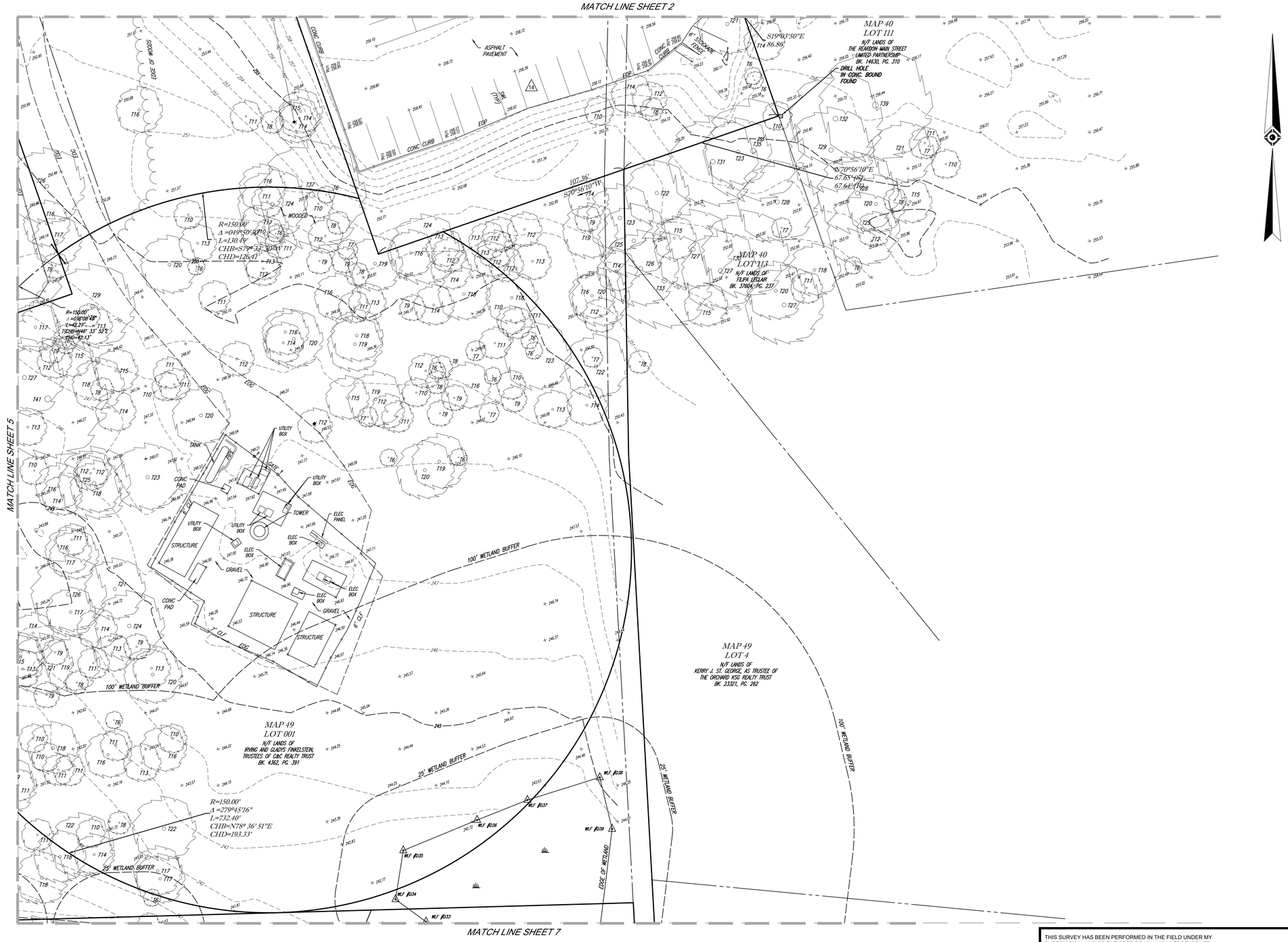
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APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	5-24-2022	1"=20'	03-210573-00	3 OF 10

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MASSACHUSETTS STATE PLANE COORDINATE SYSTEM - NAD 83

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1	UPDATED WETLAND FLAG SYMBOLS	-	R.J.K.	G.L.H.	5-27-2022

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 4-14-2022
FIELD BOOK NO.: 21-16 MA
FIELD BOOK PG.: 107-110
FIELD CREW: B.S.B.
DRAWN: E.G.F.
REVIEWED: R.J.K.

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107, 111, 113, 115A, 117 & 119 MAIN STREET
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G.L.H.	5-24-2022	1"=20'	03-210573-00	4 OF 10

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LEGEND

124 / 125	EXISTING CONTOUR	W	APPROX. LOC. UNDERGROUND WATER LINE	E	ELECTRIC MANHOLE	AC	AIR CONDITIONING UNIT
123.45	EXISTING SPOT ELEVATION	-UC-	SUBSURFACE UTILITY QUALITY LEVEL C	T	TELEPHONE MANHOLE	AL	AREA LIGHT
TC 123.45	EXIST. TOP OF CURB ELEVATION	-UD-	SUBSURFACE UTILITY QUALITY LEVEL D	UP	UTILITY POLE	10	PARKING SPACE COUNT
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SWL	SOLID WHITE LINE	1.0'	OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
SYL	SOLID YELLOW LINE	BOS	BOTTOM OF STRUCTURE
DYL	DOUBLE YELLOW LINE	(S)	SURVEY DIMENSION
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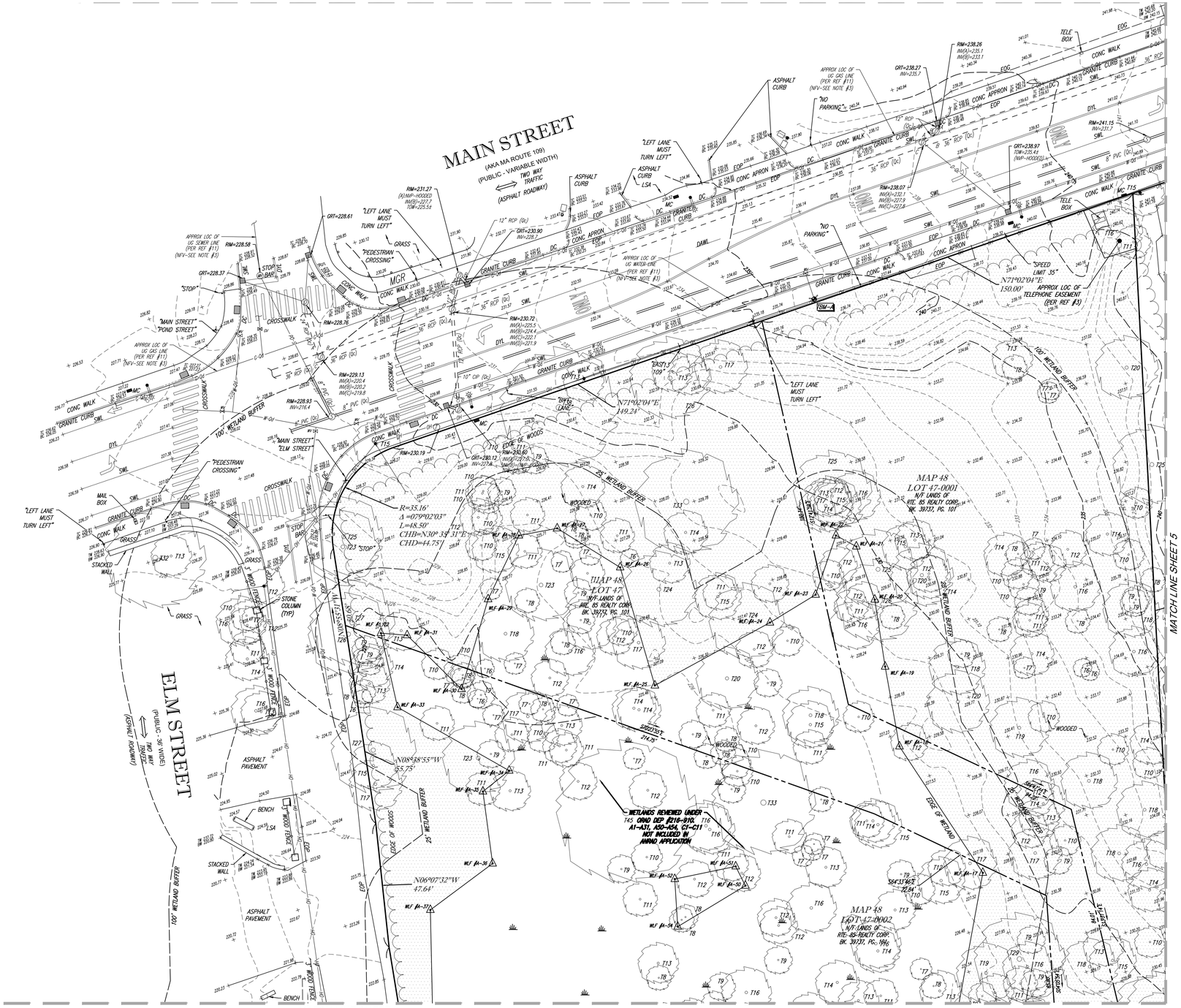
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MASSACHUSETTS STATE PLANE COORDINATE SYSTEM - NAD 83



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THE PURPOSE ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF CONTROL POINT ASSOCIATES, INC. IS PROHIBITED.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN:	APPROVED:	DATE
7	REVISED TO SHOW TREES	J.D.O.	R.J.K.	G.L.H.	12-29-2025
6	UPDATED PER NEW WETLAND FLAG LOCATIONS	J.D.O.	R.J.K.	G.L.H.	7-17-2023
5	UPDATED OWNERSHIP INFORMATION	-	R.J.K.	G.L.H.	5-23-2023
4	REVISED PER CLIENT COMMENTS	-	R.J.K.	G.L.H.	5-18-2023
3	UPDATED PER NEW WETLAND FLAG LOCATIONS	J.S.A.	J.P.M.	G.L.H.	5-8-2023
2	UPDATED PER NEW WETLAND FLAG LOCATIONS	S.W.	R.J.K.	G.L.H.	7-8-2022
1	UPDATED WETLAND FLAG SYMBOLS	-	R.J.K.	G.L.H.	5-27-2022

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12-29-2025
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 4-14-2022
FIELD BOOK NO.: 21-16 MA
FIELD BOOK PG.: 107-110
FIELD CREW: B.S.B.
DRAWN: E.G.F.
REVIEWED: R.J.K.

BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY
107, 111, 113, 115A, 117 & 119 MAIN STREET
1 & 3 ELM STREET, 0 & 26 KELLEY STREET
MAP 40, LOTS 71-76; MAP 48, LOTS 46, 47-1, 47-2, 47-3;
MAP 49, LOTS 1, 32 & 32-1
TOWN OF MEDWAY, NORFOLK COUNTY
COMMONWEALTH OF MASSACHUSETTS

CONTROL POINT ASSOCIATES, INC.
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
508.948.3000 - 508.948.3003 FAX
ALBANY, NY 518-217-5010
CHALFONT, PA 215-712-9800
HAUPPAUGE, NY 631-580-2645
MANHATTAN, NY 646-780-0411
MT LAUREL, NJ 609-857-2099
WARREN, NJ 908-668-0099

APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	5-24-2022	1"=20'	03-210573-00	6 OF 10

MATCH LINE SHEET 4

MATCH LINE SHEET 8

MATCH LINE SHEET 10

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

MASSACHUSETTS STATE PLANE COORDINATE SYSTEM - NAD 83

MAP 48
LOT 47.0001
N/F LANDS OF
RTE. 85 REALTY CORP.
BK. 39737, PG. 101

MAP 49
LOT 5
N/F LANDS OF
LISA J AND RICHARD J MESSINA JR.
BK. 9406, PG. 168

MAP 49
LOT 6
N/F LANDS OF
DIANNE T. BRISSETTE
BK. 19185, PG. 306
(PER GIS)

MAP 49
LOT 7
N/F LANDS OF
TOWN OF MEDWAY
BK. 12076, PG. 619
(PER GIS)

MAP 49
LOT 32-0001
N/F LANDS OF
RTE. 85 REALTY CORP
BK. 39788, PG. 138

MAP 49
LOT 32
N/F LANDS OF
RTE 85 REALTY CORP
BK. 39788, PG. 353

MAP 49
LOT 33
N/F LANDS OF
RTE. 85 REALTY CORP
BK. 21764, PG. 21
(PER GIS)

N88°23'52"E
273.30'

S03°15'46"E
161.11' (S)
160.71' (R)

N89°14'14"E
7.94' (S)
8.00' (R)
8.47' (R)

N88°39'14"E
92.10'

S89°40'08"E
238.42'

S88°47'40"W
184.02'

S89°30'14"W
76.04'

S08°58'23"E
33.25'

S00°20'01"E
290.23'

S00°25'01"E
254.27'

25' WETLAND BUFFER

100' WETLAND BUFFER

EDGE OF WETLAND

UNDELINEATED/
UNDETERMINED
WETLAND AREA

UPLAND
ISLAND

WOODED

LEGEND

EXISTING CONTOUR	APPROX. LOC. UNDERGROUND WATER LINE	ELECTRIC MANHOLE	AIR CONDITIONING UNIT	(TYP)	TYPICAL
EXISTING SPOT ELEVATION	SUBSURFACE UTILITY QUALITY LEVEL C	TELEPHONE MANHOLE	AREA LIGHT	SWL	SOLID WHITE LINE
EXIST. TOP OF CURB ELEVATION	SUBSURFACE UTILITY QUALITY LEVEL D	UTILITY POLE	PARKING SPACE COUNT	SYL	SOLID YELLOW LINE
EXIST. BOTTOM OF CURB ELEVATION	HYDRANT	GUY WIRE	CLF CHAIN LINK FENCE	DYL	DOUBLE YELLOW LINE
EXIST. TOP OF WALL ELEVATION	WATER VALVE	PAINTED BIKE LANE	DC DEPRESSED CURB	HT	HEIGHT
EXIST. BOTTOM OF WALL ELEVATION	GAS VALVE	PAINTED HANDICAPPED	EOC EDGE OF CONC.	DWL	DASHED WHITE LINE
EXIST. FINISHED FLOOR ELEVATION	GAS METER	PAINTED ARROWS	EOP EDGE OF PAVEMENT	DYL	DASHED YELLOW LINE
OVERHEAD WIRES	ELECTRIC METER	DETECTABLE WARNING PAD	LSA LANDSCAPED AREA	BLDG	BUILDING
APPROX. LOC. UNDERGROUND GAS LINE	UNKNOWN MANHOLE	SIGN	MBW MASONRY BLOCK WALL	BFPA	BUILDING FOOTPRINT AREA
APPROX. LOC. UNDERGROUND DRAINAGE LINE	SANITARY/SEWER MANHOLE	BOLLARD	MC METAL COVER	NVP	NO VISIBLE PIPE
	DRAINAGE/STORM MANHOLE				

FWD	FILLED w/DEBRIS	(S)	SURVEY DIMENSION
TOD	TOP OF DEBRIS	(R)	RECORD DIMENSION
BOS	BOTTOM OF STRUCTURE		DELINEATION FLAG
1.0'	OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE		WETLAND

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED	DATE
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12-29-2025
DATE

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

FIELD DATE: 4-14-2022
FIELD BOOK NO.: 21-16 MA
FIELD BOOK PG.: 107-110
FIELD CREW: B.S.B.
DRAWN: E.G.F.
REVIEWED: R.J.K.

BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY
107, 111, 113, 115A, 117 & 119 MAIN STREET
1 & 3 ELM STREET, 0 & 26 KELLEY STREET
MAP 40, LOTS 71-76; MAP 48, LOTS 46, 47-1, 47-2, 47-3;
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COMMONWEALTH OF MASSACHUSETTS

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352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
508.948.3000 - 508.948.3003 FAX

APPROVED: G.L.H. | DATE: 5-24-2022 | SCALE: 1"=20' | FILE NO.: 03-210573-00 | DWG. NO.: 7 OF 10

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MATCH LINE SHEET 5

MATCH LINE SHEET 9

MATCH LINE SHEET 7

MAP 48
LOT 47-0001
N/F LANDS OF
RTE. 85 REALTY CORP.
BK. 39737, PG. 101

MAP 48
LOT 47
N/F LANDS OF
RTE. 85 REALTY CORP.
BK. 39737, PG. 101

MAP 48
LOT 48
N/F LANDS OF
BRIAN AND KIMBERLY DALESIO
BK. 35084, PG. 495

MAP 49
LOT 32-0001
N/F LANDS OF
RTE. 85 REALTY CORP
BK. 39788, PG. 138

S88°03'44"E
137.81'

S89°54'51"W
134.65'

S88°34'47"W
126.09'

S87°51'35"E
914.66' (S)
914.19' (R)

N89°43'51"W
137.41'

N89°30'32"W
75.47'

N89°13'20"W
127.44'

N89°34'01"E
23.85'

S87°08'16"E
14.06'

N10°42'59"E
291.51' (S)
291.39' (R)

DRILL HOLE FOUND

STONE ROW

WOODED

EDGE OF WETLAND

SMALL UPLAND ISLAND

UPLAND ISLAND

WETLANDS REVIEWED UNDER ORAD DEP #216-916, A1-A31, ASD-A24, C1-C11 NOT INCLUDED IN ANRAD APPLICATION

50' WETLAND BUFFER

100' WETLAND BUFFER

25' WETLAND BUFFER

WLF #C1 WLF #C2 WLF #C2-1 WLF #C2-2 WLF #C3 WLF #C4 WLF #C5 WLF #C6 WLF #C6-1 WLF #C6-2 WLF #C7 WLF #C8 WLF #C9 WLF #C10 WLF #C11 WLF #C12 WLF #C13 WLF #C14 WLF #C15 WLF #C16 WLF #C17 WLF #C18 WLF #C19 WLF #E1 WLF #E2 WLF #E3 WLF #E4 WLF #E5 WLF #E6 WLF #E7 WLF #E8 WLF #E9 WLF #E10 WLF #E11 WLF #E12 WLF #E13 WLF #E14 WLF #E15 WLF #E16 WLF #E17 WLF #E18 WLF #E19 WLF #E40 WLF #E40A WLF #E40B WLF #E40C WLF #E41 WLF #E42 WLF #E43

LEGEND

124	EXISTING CONTOUR	CLF	CHAIN LINK FENCE
125	EXISTING SPOT ELEVATION	DC	DEPRESSED CURB
x 124.42	EXIST. TOP OF CURB ELEVATION	EOC	EDGE OF CONC.
x 123.92	EXIST. BOTTOM OF CURB ELEVATION	EOP	EDGE OF PAVEMENT
x 124.42	EXIST. TOP OF WALL ELEVATION	LSA	LANDSCAPED AREA
x 123.92	EXIST. BOTTOM OF WALL ELEVATION	MSW	MASONRY BLOCK WALL
x 124.42	EXIST. FINISHED FLOOR ELEVATION	MC	METAL COVER
OH	OVERHEAD WIRES	(TYP.)	TYPICAL
G	APPROX. LOC. UNDERGROUND GAS LINE	SWL	SOLID WHITE LINE
D	APPROX. LOC. UNDERGROUND DRAINAGE LINE	SYL	SOLID YELLOW LINE
W	APPROX. LOC. UNDERGROUND WATER LINE	DYL	DOUBLE YELLOW LINE
UC	SUBSURFACE UTILITY QUALITY LEVEL C	HT	HEIGHT
UD	SUBSURFACE UTILITY QUALITY LEVEL D	DWL	DASHED WHITE LINE
	HYDRANT	DYL	DASHED YELLOW LINE
W	WATER VALVE	BLDG	BUILDING
G	GAS VALVE	BFPA	BUILDING FOOTPRINT AREA
G	GAS METER	NVP	NO VISIBLE PIPE
E	ELECTRIC METER	FWD	FILLED w/DEBRIS
UM	UNKNOWN MANHOLE	TOD	TOP OF DEBRIS
S	SANITARY/SEWER MANHOLE	BOS	BOTTOM OF STRUCTURE
D	DRAINAGE/STORM MANHOLE	1.0'	OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
E	ELECTRIC MANHOLE	(S)	SURVEY DIMENSION
T	TELEPHONE MANHOLE	(R)	RECORD DIMENSION
UP	UTILITY POLE		DELINEATION FLAG
	GUY WIRE		WETLAND
	PAINTED BIKE LANE		PAINTED HANDICAPPED
			PAINTED ARROWS
			DETECTABLE WARNING PAD
			SIGN
			BOLLARD
			AIR CONDITIONING UNIT
			AREA LIGHT
		10	PARKING SPACE COUNT

MASSACHUSETTS STATE PLANE COORDINATE SYSTEM - NAD 83

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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FIELD DATE: 4-14-2022
FIELD BOOK NO.: 21-16 MA
FIELD BOOK PG.: 107-110
FIELD CREW: B.S.B.
DRAWN: E.G.F.
REVIEWED: R.J.K.

BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY
107, 111, 113, 115A, 117 & 119 MAIN STREET
1 & 3 ELM STREET, 0 & 26 KELLEY STREET
MAP 40, LOTS 71-76; MAP 48, LOTS 46, 47-1, 47-2, 47-3;
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APPROVED: G.L.H. | DATE: 5-24-2022 | SCALE: 1"=20' | FILE NO.: 03-210573-00 | DWG. NO.: 8 OF 10

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LEGEND

124 / 125	EXISTING CONTOUR
123.45	EXISTING SPOT ELEVATION
TC 123.45	EXIST. TOP OF CURB ELEVATION
BC 123.45	EXIST. BOTTOM OF CURB ELEVATION
TW 123.45	EXIST. TOP OF WALL ELEVATION
BW 123.45	EXIST. BOTTOM OF WALL ELEVATION
FF 123.45	EXIST. FINISHED FLOOR ELEVATION
OH	OVERHEAD WIRES
G	APPROX. LOC. UNDERGROUND GAS LINE
D	APPROX. LOC. UNDERGROUND DRAINAGE LINE
W	APPROX. LOC. UNDERGROUND WATER LINE
SQc	SUBSURFACE UTILITY QUALITY LEVEL C
SQd	SUBSURFACE UTILITY QUALITY LEVEL D
	HYDRANT
WV	WATER VALVE
GV	GAS VALVE
	GAS METER
EM	ELECTRIC METER
UM	UNKNOWN MANHOLE
S	SANITARY/SEWER MANHOLE
D	DRAINAGE/STORM MANHOLE
E	ELECTRIC MANHOLE
T	TELEPHONE MANHOLE
UP	UTILITY POLE
	GUY WIRE
	PAINTED BIKE LANE
	PAINTED HANDICAPPED
	PAINTED ARROWS
	DETECTABLE WARNING PAD
	SIGN
	BOLLARD
AC	AIR CONDITIONING UNIT
	AREA LIGHT
10	PARKING SPACE COUNT
CLF	CHAIN LINK FENCE
DC	DEPRESSED CURB
EOC	EDGE OF CONC.
EOP	EDGE OF PAVEMENT
LSA	LANDSCAPED AREA
MSW	MASONRY BLOCK WALL
MC	METAL COVER
(TYP)	TYPICAL
SWL	SOLID WHITE LINE
SYL	SOLID YELLOW LINE
DYL	DOUBLE YELLOW LINE
HT	HEIGHT
DWL	DASHED WHITE LINE
DYL	DASHED YELLOW LINE
BLDG	BUILDING
BFPA	BUILDING FOOTPRINT AREA
NVP	NO VISIBLE PIPE
FWD	FILLED w/DEBRIS
TOD	TOP OF DEBRIS
BOS	BOTTOM OF STRUCTURE
1.0'	OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
(S)	SURVEY DIMENSION
(R)	RECORD DIMENSION
	DELINEATION FLAG
	WETLAND

MASSACHUSETTS STATE PLANE COORDINATE SYSTEM - NAD 83



GRAPHIC SCALE

20 0 10 20 40 80

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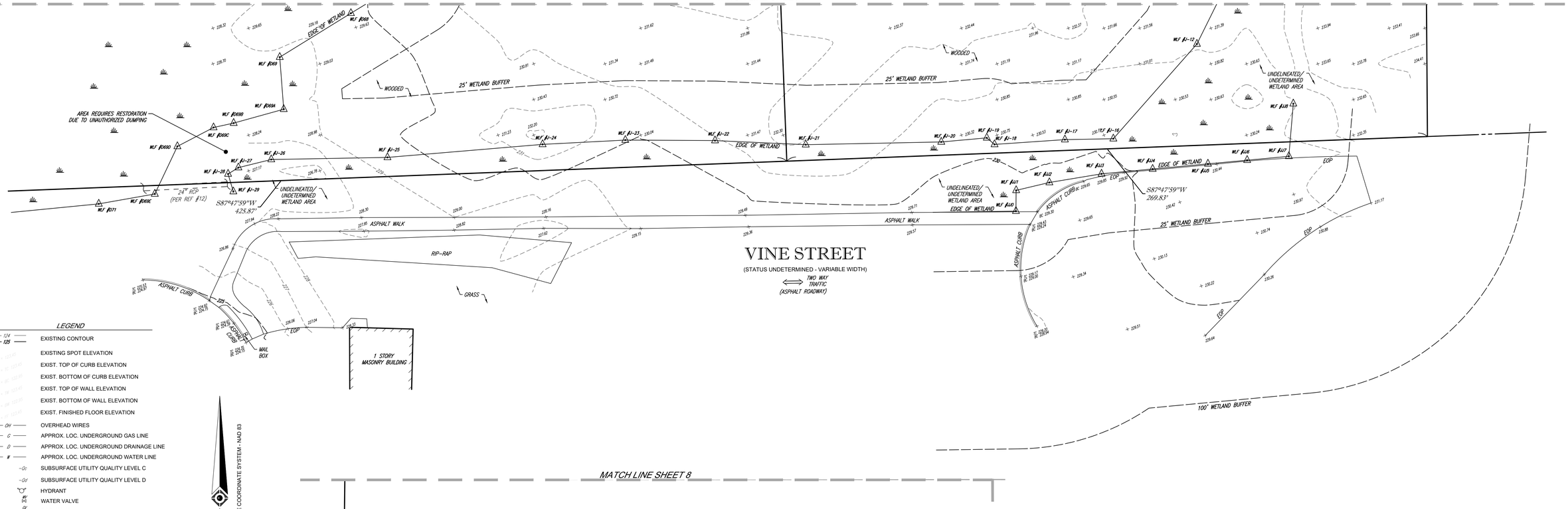
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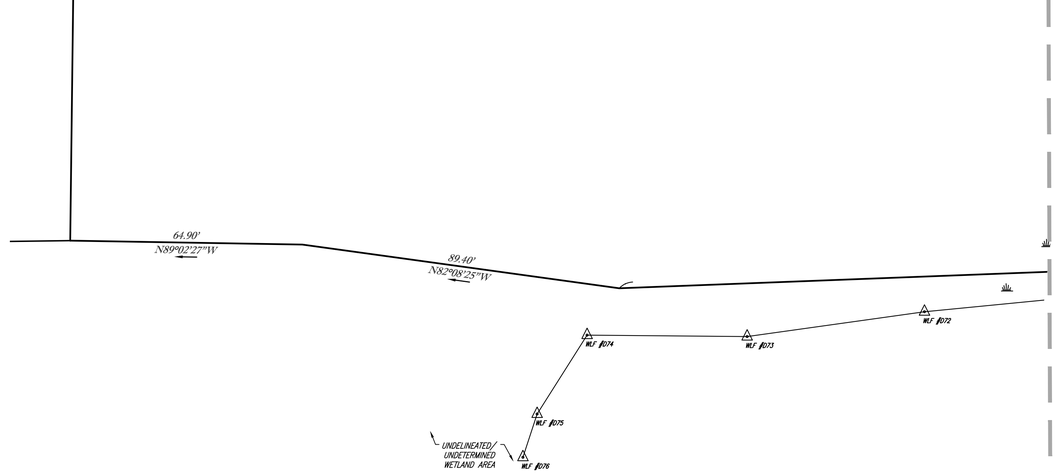
APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
G.L.H.	5-24-2022	1"=20'	03-210573-00	9 OF 10

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MATCH LINE SHEET 7



MATCH LINE SHEET 8



LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- EXIST. TOP OF CURB ELEVATION
- EXIST. BOTTOM OF CURB ELEVATION
- EXIST. TOP OF WALL ELEVATION
- EXIST. BOTTOM OF WALL ELEVATION
- EXIST. FINISHED FLOOR ELEVATION
- OVERHEAD WIRES
- APPROX. LOC. UNDERGROUND GAS LINE
- APPROX. LOC. UNDERGROUND DRAINAGE LINE
- APPROX. LOC. UNDERGROUND WATER LINE
- SUBSURFACE UTILITY QUALITY LEVEL C
- SUBSURFACE UTILITY QUALITY LEVEL D
- HYDRANT
- WATER VALVE
- GAS VALVE
- GAS METER
- ELECTRIC METER
- UNKNOWN MANHOLE
- SANITARY/SEWER MANHOLE
- DRAINAGE/STORM MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- UTILITY POLE
- GUY WIRE
- PAINTED BIKE LANE
- PAINTED HANDICAPPED
- PAINTED ARROWS
- DETECTABLE WARNING PAD
- SIGN
- BOLLARD
- AIR CONDITIONING UNIT
- AREA LIGHT
- PARKING SPACE COUNT
- CLF CHAIN LINK FENCE
- DC DEPRESSED CURB
- EOC EDGE OF CONC.
- EOP EDGE OF PAVEMENT
- LSA LANDSCAPED AREA
- MSW MASONRY BLOCK WALL
- MC METAL COVER
- (TYP) TYPICAL
- SWL SOLID WHITE LINE
- SYL SOLID YELLOW LINE
- DYL DOUBLE YELLOW LINE
- HT HEIGHT
- DAWL DASHED WHITE LINE
- DAYL DASHED YELLOW LINE
- BLDG BUILDING
- BFPA BUILDING FOOTPRINT AREA
- NVP NO VISIBLE PIPE
- FWD FILLED w/DEBRIS
- TOD TOP OF DEBRIS
- BOS BOTTOM OF STRUCTURE
- OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
- (S) SURVEY DIMENSION
- (R) RECORD DIMENSION
- DELINEATION FLAG
- WETLAND

MASSACHUSETTS STATE PLANE COORDINATE SYSTEM - NAD 83

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED:	DATE
7	REVISED TO SHOW TREES	J.D.O.	R.J.K.	G.L.H.	12-29-2025
6	UPDATED PER NEW WETLAND FLAG LOCATIONS	J.D.O.	R.J.K.	G.L.H.	7-17-2023
5	UPDATED OWNERSHIP INFORMATION	-	R.J.K.	G.L.H.	5-23-2023
4	REVISED PER CLIENT COMMENTS	-	R.J.K.	G.L.H.	5-18-2023
3	UPDATED PER NEW WETLAND FLAG LOCATIONS	J.S.A.	J.P.M.	G.L.H.	5-8-2023
2	UPDATED PER NEW WETLAND FLAG LOCATIONS	S.W.	R.J.K.	G.L.H.	7-8-2022
1	UPDATED WETLAND FLAG SYMBOLS	-	R.J.K.	G.L.H.	5-27-2022

THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH CURRENTLY ACCEPTED ACCURACY STANDARDS.

NOT A VALID ORIGINAL DOCUMENT UNLESS EMBOSSED WITH RAISED IMPRESSION OR STAMPED WITH A BLUE INK SEAL

GERRY L. HOLDRIGHT, PLS
MASSACHUSETTS PROFESSIONAL LAND SURVEYOR #49211

12-29-2025
DATE

BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY
107, 111, 113, 115A, 117 & 119 MAIN STREET
1 & 3 ELM STREET, 0 & 26 KELLEY STREET
MAP 40, LOTS 71-76; MAP 48, LOTS 46, 47-1, 47-2, 47-3;
MAP 49, LOTS 1, 32 & 32-1
TOWN OF MEDWAY, NORFOLK COUNTY
COMMONWEALTH OF MASSACHUSETTS

FIELD DATE	FIELD BOOK NO.	FIELD BOOK PG.	FIELD CREW	DRAWN:
4-14-2022	21-16 MA	107-110	B.S.B.	E.G.F.

CONTROL POINT ASSOCIATES, INC.
ALBANY, NY 518-217-5010
CHALFONT, PA 215-712-9800
HAUPPAUGE, NY 631-580-2645
MANHATTAN, NY 646-780-0411
MT LAUREL, NJ 609-857-2099
WARREN, NJ 908-668-0099
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
508.948.3000 - 508.948.3003 FAX

REVIEWED:	APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
R.J.K.	G.L.H.	5-24-2022	1"=20'	03-210573-00	10 OF 10

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