Bureau of Resource Protection - Wetlands

Form 3 – Notice of Intent
Reading Wetland Protection Bylaw, Section 7.1

Softball Field Improvements

Austin Preparatory School
Reading, MA

Submitted to:
Reading Conservation Commission
16 Lowell Street
Reading, MA 01867

Prepared for:
Austin Preparatory School
101 Willow Street
Reading, MA 01867

Prepared by:
Epsilon Associates, Inc.
3 Mill & Main Place, Suite 250
Maynard, MA 01754

May 14, 2025

Epsilon ASSOCIATES INC.

25-0144/Austin Prep, NOI

May 14, 2025

Reading Conservation Commission
Attn: Charles Tirone, Conservation Administrator
Town of Reading
16 Lowell Street
Reading, MA 01867

Subject: NOTICE OF INTENT: Softball Field Improvement Project, Austin Preparatory School, 101 Willow Street, Reading, MA.

Dear Commissioners:

On behalf of the property owner, Austin Preparatory School (the "Applicant"), Epsilon Associates, Inc. ("Epsilon") is pleased to submit this Notice of Intent ("NOI") to the Reading Conservation Commission. The NOI was prepared in accordance with Section 7.1 of the Reading General Bylaws ("Bylaw") and implementing Wetlands Protection Regulations ("Regulations").

As described in further detail below, the Applicant is proposing to improve the existing softball facility, upgrade the stormwater management system, conduct landscaping improvements, and add additional parking areas on the campus of Austin Preparatory School at 101 Willow Street in Reading, MA. Collectively, these activities comprise the "Project". Please note that the parking area improvements are outside of jurisdictional areas of the Bylaw. Activities proposed within the 100-foot Buffer Zone to an Isolated Vegetated Wetland ("IVW"), include the reconfiguration of a stormwater basin, construction of a concrete walkway, and grading activities associated with the stormwater basin and softball field improvements. There will be no direct impacts to any other resource areas, including the 25-foot No Disturbance Zone, 35-foot No Build Zone and Vernal Pool Habitat associated with a Certified Vernal Pool. In addition, no tree clearing is anticipated within the 100-foot Buffer Zone. Additional information describing the Project and how the proposed work has been designed to comply with applicable performance standards in the Bylaw is provided in the enclosed NOI.

We have enclosed two (2) copies of the NOI, Site Plans, and Stormwater Report. We understand that the Commission will prepare the public notice and submit to Epsilon for publication in the local newspaper at least five days prior to the hearing date and that the Applicant is responsible for the publication fee.

This NOI is being submitted for the Commission's review at the **May 28, 2025,** public hearing. If the Commission would like to conduct a site walk prior to that date or has any questions regarding this

NOI, please do not hesitate to contact me directly at (978) 461-6218 or via email at ghochmuth@epsilonassociates.com.

Sincerely,

EPSILON ASSOCIATES, INC.

Greg J. Hochmuth, PWS, CWS, RS
Senior Scientist

Encl.
CC: John F. Weber, CFO, Austin Preparatory School
Christian Huntress, Huntress Associates, Inc.
John Barrows, Marchionda & Associates, LP

NOTICE OF INTENT

Under the Reading Wetland Protection Bylaw (Section 7.1)

Austin Preparatory School
Softball Field Improvement Project

Applicant:

Austin Preparatory School
101 Willow Street
Reading, MA 01867

Prepared By:

Epsilon Associates, Inc.
3 Mill and Main Place, Suite 250
Maynard, MA 01754

May 14, 2025

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WPA Form 3 – Notice of Intent

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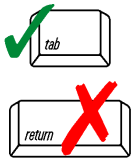
Under the Reading Wetland Protection Bylaw (Section 7.1) only

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Reading
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):

101 Willow Street — a. Street Address
Reading — b. City/Town
01867 — c. Zip Code

Latitude and Longitude:
42.52869 — d. Latitude
-71.12618 — e. Longitude

20-311, 26-74, & 25-45 — f. Assessors Map/Plat Number
g. Parcel /Lot Number

2. Applicant:

John F. — a. First Name
Weber — b. Last Name
Austin Preparatory School — c. Organization
101 Willow Street — d. Street Address
Reading — e. City/Town
MA — f. State
01867 — g. Zip Code
781-944-4900 — h. Phone Number
i. Fax Number
jweber@austinprep.org — j. Email Address

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

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):

Greg J. — a. First Name
Hochmuth — b. Last Name
Epsilon Associates, Inc. — c. Company
3 Mill & Main Place, Suite 250 — d. Street Address
Maynard — e. City/Town
MA — f. State
01754 — g. Zip Code
978-461-6218 — h. Phone Number
i. Fax Number
ghochmuth@epsilonassociates.com — j. Email address

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

$2,250.00 (Bylaw Fee) — a. Total Fee Paid
NA Bylaw Only — b. State Fee Paid
$2,250.00 (Bylaw Fee) — c. City/Town Fee Paid

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A. General Information (continued)

6. General Project Description:

To conduct grading and drainage improvements associated with a softball field improvement project within 100 feet of an isolated vegetated wetland.

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:

a. County	b. Certificate # (if registered land)
Middlesex South	
c. Book	**d. Page Number**
16627	429

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

08/2021
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.

Austin Preparatory School - Softball Field Improvements
a. Plan Title

Huntress Associates, Inc.
b. Prepared By

Christian C. Huntress, R.L.A.
c. Signed and Stamped by

May 12, 2025
d. Final Revision Date

Varies
e. Scale

f. Additional Plan or Document Title

g. Date

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

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

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

8. ☐ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

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

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

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name

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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	2. Date: 5.12.25
3. Signature of Property Owner (if different)	4. Date
5. Signature of Representative (if any)	6. Date: 5/8/2025

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.

Attachment A

Project Narrative

ATTACHMENT A – PROJECT NARRATIVE

1.0 Introduction

On behalf of Austin Preparatory School (the "Applicant"), Epsilon Associates, Inc. ("Epsilon") is pleased to submit this Notice of Intent ("NOI") to the Reading Conservation Commission (the "Commission") for work associated with improvements to an existing softball facility. This NOI was prepared in accordance with the Reading Wetlands Protection Bylaw ("Bylaw") and Implementing Regulations. Please note this NOI focuses only on activities within jurisdictional areas of the Bylaw.

The Applicant seeks to improve an existing softball facility, upgrade the stormwater management system, conduct landscaping improvements, and add additional parking areas on the campus of Austin Preparatory School at 101 Willow Street in Reading, MA (the "Project"). Please note that the parking area improvements are outside of jurisdictional areas of the Bylaw. Activities proposed within the 100-foot Buffer Zone to an Isolated Vegetated Wetland ("IVW"), include the reconfiguration of a stormwater basin, construction of a concrete walkway, and grading activities associated with the stormwater basin and softball field improvements. There will be no direct impacts to any other resource areas, including the 25-foot No Disturbance Zone, 35-foot No Build Zone and Vernal Pool Habitat associated with a Certified Vernal Pool. In addition, no tree clearing is anticipated within the 100-foot Buffer Zone. Additional information describing the Project and how the proposed work has been designed to comply with applicable performance standards in the Bylaw is provided in the balance of this narrative.

2.0 Existing Site Conditions

The Project is located on the campus of Austin Preparatory School at 101 Willow Street, Reading, Massachusetts. The Austin Prep campus is comprised of three (3) parcels that total approximately 38 acres and is located west of Willow Street, south of the Aberjona River, and north of West Road. The Project Area is located southeast of the main school building, just south of a paved parking lot, and is comprised of existing maintained lawn areas, a softball field, and small stormwater management area. An IVW was identified in the wooded area, east of the softball field, and south of the main driveway entering the school. The IVW is surrounded by a variable width wooded area that extends along the eastern side of the softball field. Figure 2 in Attachment B shows an aerial photo that includes the location of the softball field in relation to the approximate location of the IVW described above.

According to the current Natural Heritage & Endangered Species Program ("NHESP") (Natural Heritage Atlas, dated August 2021), there are no mapped Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife. There is one potential Vernal Pool ("PVP"), and one certified

Vernal Pool ("CVP") east of the Project Area. An Environmental Constraints map is provided in Figure 3 of Attachment B that includes the approximate location of the PVP &CVP. No activities are proposed within the PVP, CVP, or Vernal Pool habitat associated with the CVP.

According to the Federal Emergency Management Agency – Flood insurance Rate Map (FEMA-FIRM) (community panel number 25017C0294E effective 6/4/2010), a Zone AE, 100-year floodplain exists northeast of the Project Area, with a base flood elevation of 83 feet NAVD88. Refer to Figure 4 in Attachment B. This area of the floodplain includes a mapped regulatory floodway and is associated with the Aberjona River. The Zone AE would be classified as Bordering Land Subject to Flooding ("BLSF") under the Massachusetts Wetlands Protection Act and Bylaw. No activities are proposed within BLSF.

According to the NRCS Web Soil Survey, soils within the Study Area are mapped as Udorthents, Canton-Chalton-Urban land complex, Montauk fine sandy loam, and Udorthents-Urban land complex. Field observations made by Epsilon during the wetland resource area delineation confirm this mapping.

3.0 Wetland Resource Areas and Buffer Zones

Wetland resource areas within or adjacent to the Project Area were delineated by Epsilon on March 25th, 2025. Wetland resource areas were delineated in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (USACE, 1987), the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0" (2012), the Massachusetts Wetlands Protection Act ("WPA") and implementing Regulations (310 CMR 10.00), Massachusetts Department of Environmental Protection ("MassDEP"), Massachusetts Handbook for Delineation of Bordering Vegetated Wetlands (MassDEP, 2nd Edition, September 2022); and the Town of Reading Conservation Commission Wetlands Protection Regulations (Revised December, 2023). The local, state, and federal delineation methodologies generally prescribe a multi-parameter approach, where hydrophytic vegetation, hydrology and hydric soils are reviewed in conjunction with one another to demarcate the wetland – upland boundary.

3.1 Bordering Vegetated Wetlands

BVW is defined at 310 CMR 10.55 and, BVWs generally include freshwater wetlands that border on creeks, rivers, streams, ponds, and lakes. Types of freshwater wetlands include wet meadows, marshes, swamps, and bogs. BVWs 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 plant community that occur in each type of freshwater wetland are specified in the Act. The boundary of BVW is the line within which 50 percent or more of the plant community, based on visual inspection, consists of wetland indicator plants and saturated and inundated conditions exist. Pursuant to the WPA, there is a 100-foot buffer zone associated with BVW. The Bylaw prescribes a 25-foot minimum Zone of Natural Vegetation (ZNV). Bordering Wetlands within the vicinity of the Project Area include:

BVW Series B (Flags B-1 to B-11)

BVW series B is a palustrine forested wetland that borders on the Aberjona River, found west of Willow Street and north of the driveway for the Austin Preparatory School. Vegetation species observed include red maple (*Acer rubrum*), highbush blueberry (*Vaccinium corymbosum*), silky dogwood (*Swida amomum*), speckled alder (*Alnus incana*), skunk cabbage (*Symplocarpus foetidus*), sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmundastrum cinnamomeum*), tussock sedge (*Carex stricta*) cattail (*Typha latifolia*), and phragmites (*Phragmites australis*).

3.2 Isolated Vegetated Wetlands

The Bylaw protects IVW's provided that they are 500 or more square feet in area, and they meet all of the other criteria of 310 CMR 10.55 with the exception of connection to water bodies. IVW's within the vicinity of the Project Area include:

IVW Series A (Flags A-1 to A-37)

Wetland Series A is an IVW located east of the Project Area that extends to Willow Street. Epsilon classified the IVW as a palustrine scrub-shrub wetland. An outlet control structure exists on the eastern edge of the IVW, just off the shoulder of Willow Street that appears to allow water to drain during major flooding events. Because there is no continuous hydraulic connection to a waterbody, or adjacent wetland, this wetland is classified as an IVW. Vegetation species observed include red maple, American elm (*Ulmus americana*), highbush blueberry, silky dogwood, skunk cabbage, cinnamon fern, and sensitive fern.

3.3 Vernal Pools

Epsilon delineated the mean high water associated with the CVP. Flags 100-1 to 100-22 delineate the edge of the CVP (CVP 298). A second isolated confined basis depression was identified within the A-Series IVW; however, it was only 6-inches deep and does not appear to have a long enough hydroperiod to function as a vernal pool.

4.0 Project Description

4.1 Softball Field Renovations

The existing natural grass softball field is proposed to be replaced with a synthetic grass field. A small portion of the outfield falls within the 100-foot Buffer Zone to the IVW. The improvements to the softball field include the excavation and removal of most of the existing fields top-soils and the placement of a gravel drainage layer, panel drains, and an infiltration bed. The drainage components will allow for stormwater to be infiltrated into the courser sub-soils. More details on the fields drainage system are included below in section 4.2.

Other improvements related to the softball field improvement project located within the Buffer Zone include the installation of a portion of a concrete walkway, fence, grading, rain garden and landscaping improvements.

No activity is proposed within 25 feet of the IVW, no structures are proposed within 35 feet of the IVW, and no trees are anticipated to be removed within the 100-foot Buffer Zone. All activities within the 100-foot Buffer Zone are proposed within existing maintained lawn and/or landscaped areas.

Landscaping Improvements

Native plantings proposed within the Buffer Zone include a planting area that will be located between the corner of the right field of the softball field and the existing paved parking lot to the north. In addition, a rain garden is proposed between the vegetated natural buffer that surrounds the IVW and the proposed softball field, which will contain a robust grouping of native species, see sheet L10 of the plan set for more details. All other altered areas within the Buffer Zone will be loamed and seeded.

It is important to note that the overall project proposes substantial landscape plantings throughout the campus; however, this NOI is focusing only on activities proposed within jurisdictional areas of the Bylaw.

4.2 Stormwater Management System Upgrades

The Project is considered a mix of new development and redevelopment. The proposed stormwater management system has been designed to comply with the MassDEP stormwater management standards and the Town of Reading Stormwater Regulations to the maximum extent practicable.

The limit of work for the Project is approximately 4 acres. The existing area is made up of bituminous parking areas, softball field, open space grass areas, and a small amount of woods and brush. The existing slopes are generally slight and fall off from higher elevations at the southern boundary falling off to the wetland at the eastern side of the property. Refer to the existing conditions plan in Attachment G set for specific information on the existing topography and features of the site.

An on-site soil evaluation conducted by the Project engineer confirmed the presence of very well drained sands and gravels formed by outwash glaciofluvial deposits. Information on the site's soil conditions has been included in the Stormwater Report in Attachment H.

The proposed stormwater design prevents the generation of stormwater and non-point source pollution by disconnecting flow paths, treating, and infiltrating stormwater at its source, and protecting natural processes. The new stormwater systems have been designed to model natural hydrologic features, including promoting infiltration throughout the site.

More specifically, the proposed stormwater management system has been designed to meet or exceed the referenced standards including but not limited to; 80% suspended solid ("TSS") removal; phosphorus treatment; required groundwater recharge volumes; and erosion and sediment control measures are provided to control construction-related impacts until the Project site is stabilized.

The proposed design utilizes multiple Stormwater Control Measures ("SCMs") to provide stormwater quality and attenuation. These BMPs, include rain garden/bio-retention areas and groundwater recharge areas.

A comprehensive Operations and Maintenance ("O&M") and Long-Term Pollution Prevent Plan has also been developed for the proposed stormwater management system.

The proposed SCMs are depicted on the enclosed permit drawing set and described in further detail in the accompanying Stormwater Management Report provided in Attachment H.

5.0 Summary of Proposed Mitigation Measures

5.1 Erosion and Sediment Controls

Erosion and sedimentation control measures will be in place prior to the beginning of the site work and will remain in place until the site work is complete and the final ground cover is established. Mulch sock with siltation barrier will be installed as shown on the design plans. Stockpiles will be surrounded by silt fencing. Catch basins within the Project Area will be protected with typical inlet protection measures. Erosion controls cleaned/repaired as needed throughout all phases of construction.

5.2 Stockpiles and Staging

Woody debris and loam will be removed and disposed of off-site in accordance with all federal, state, and local requirements during site clearing. Removed topsoil will be temporarily stockpiled for use on-site. Stockpiles shall be surrounded by silt fencing.

5.3 Construction Access

Construction access to the site will be through the current entrance to the campus. This entrance will be lined with coarse aggregate and maintained in a condition which will prevent tracking or flowing of sediment outside the parcel. Construction entrance shall be inspected weekly. Any sediment that is tracked into the public roadway will be removed immediately.

5.4 Spill Prevention and Containment

During construction, a spill containment kit will be kept on site at all times. Personnel will be available to respond quickly in the event of a leak or spill. Equipment will be kept in a condition that prevents leakage or discharge of pollutants. Fuel, oil, hydraulic fluids, petroleum products and/or other chemicals will be stored in water-tight containers to minimize their exposure to

precipitation and storm water. In the event that there is an accidental release of petroleum product during construction, the Reading Conservation Commission will be notified after the appropriate emergency response agencies.

5.5 Dewatering Protocols

The discharge of turbid groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, or other similar points of accumulation is prohibited, unless such waters are first effectively managed by appropriate controls, including, but not limited to, sediment basins or traps, sediment socks, dewatering (frac) tanks, and other Best Management Practice ("BMPs") that are designed to remove sediment. To the extent dewatering is determined to be necessary, the type of dewatering BMP will be selected by the site contractor at the time of construction based on site specific factors and the volume of water to be collected and treated. The site contractor will also be required to adhere to the following minimum performance standards:

- Do not discharge visible floating solids,
- Do not discharge directly into adjacent wetlands (or catch basins that in turn discharge into adjacent wetlands), and
- Velocity dissipation devices (e.g., check dams, riprap) shall be used as necessary to provide a non-erosive flow velocity at any outlet where dewatering water is discharged.

6.0 Compliance with Town of Reading Wetlands Protection Bylaw (Section 7.1)

All activities within the Buffer Zone are proposed within existing maintained lawn and/or landscaped areas. No trees within the buffer zone are anticipated to be removed, and no activity is proposed within the 25-foot Zone of Natural Vegetation ("ZNV"). In addition, no new structures or fixtures are proposed within 10 feet of the ZNV. The closest activity proposed to the IVW is the installation of a rain garden withing an existing lawn area, 50 feet from the edge of the IVW. Permanent markers are proposed to be installed and maintained along the existing limit of clearing, between the Project and the IVW that will result in a variable width ZNV greater than 25 feet in width.

All side slopes within 100 feet of the IVW will have a finish grade the is flatter than 3:1 and be stabilized with loam and seed.

7.0 Conclusions

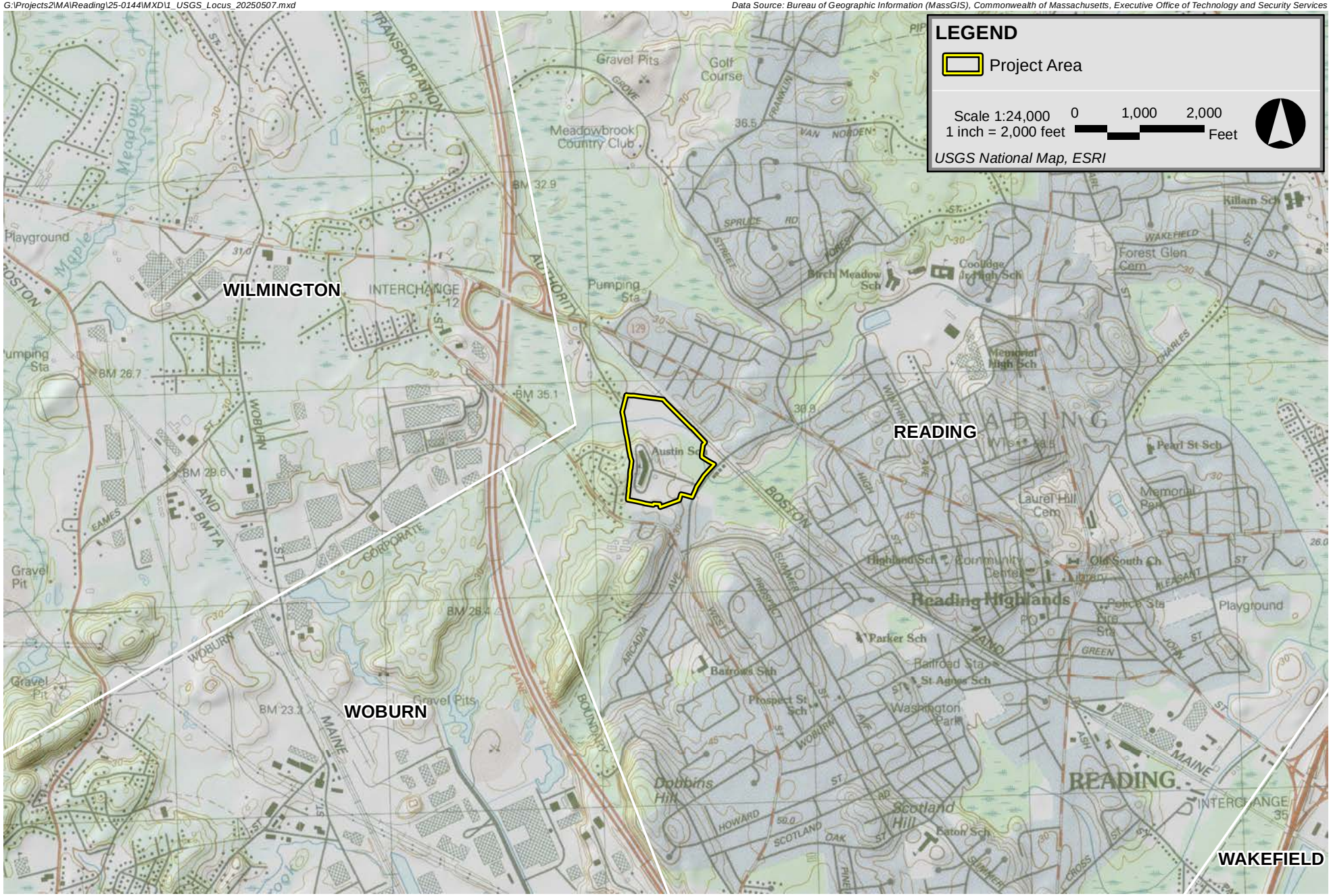
The information presented in this NOI and the accompanying site plans describe the site, proposed work, mitigation measures, and effort to protect the interest of the Bylaw. The Applicant therefore respectfully requests that the Commission issue an Order of Conditions approving the Project with appropriate conditions to protect the interests identified in the Bylaw.

Attachment B

Figures

G:\Projects2\MA\Reading\25-0144\MXD\1_USGS_Locus_20250507.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



Austin Preparatory School Reading, Massachusetts

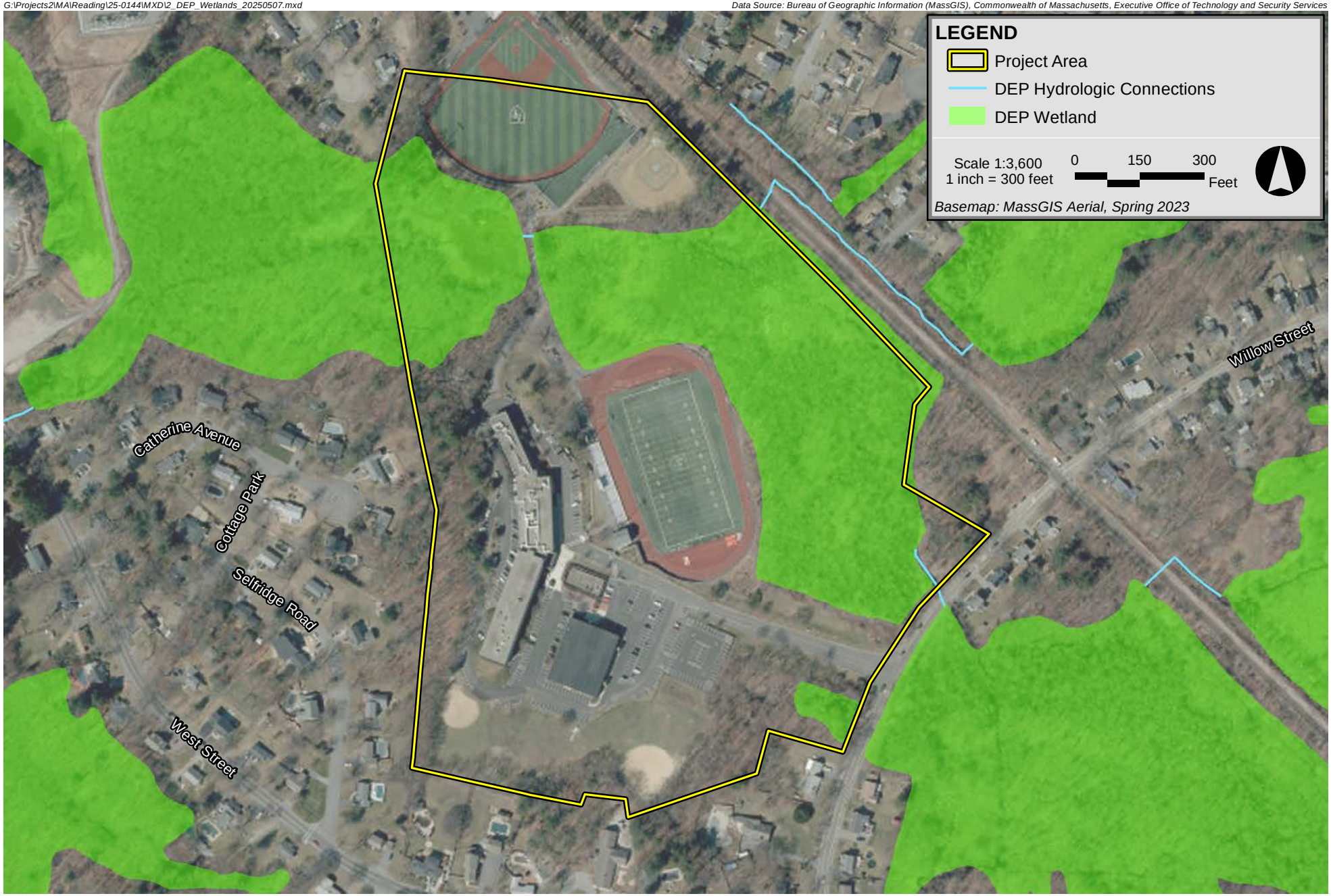
Epsilon Associates Inc.

Figure 1

USGS Locus Map

G:\Projects2\MA\Reading\25-0144\MXD\2_DEP_Wetlands_20250507.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



Austin Preparatory School Reading, Massachusetts

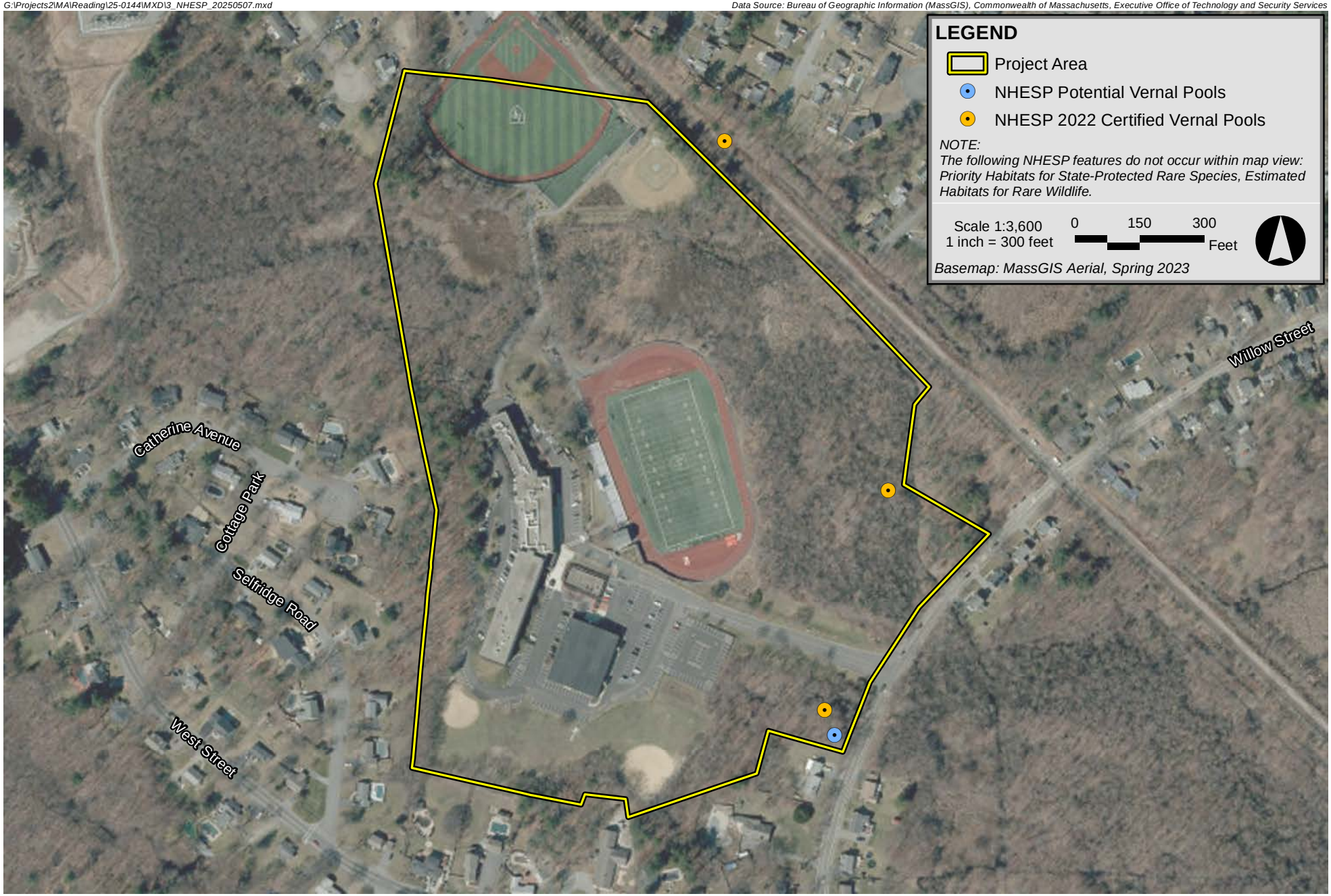
Epsilon Associates Inc.

Figure 2

MassGIS Wetlands & Hydrologic Connections Map

G:\Projects2\MA\Reading\25-0144\MXD\3_NHESP_20250507.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



Austin Preparatory School Reading, Massachusetts

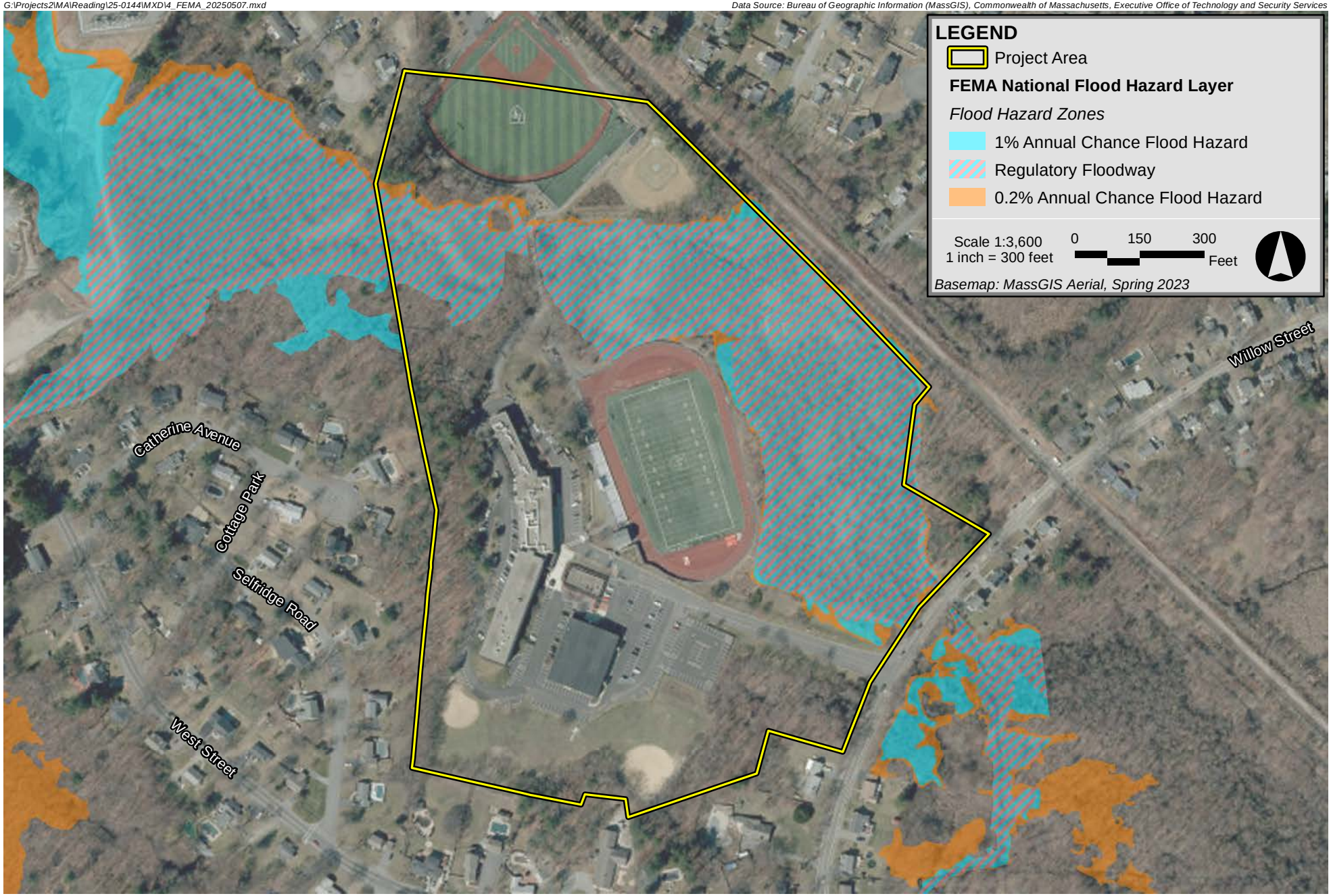
Epsilon Associates Inc.

Figure 3

Natural Heritage and Endangered Species Program

G:\Projects2\MA\Reading\25-0144\MXD\4_FEMA_20250507.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



Austin Preparatory School Reading, Massachusetts

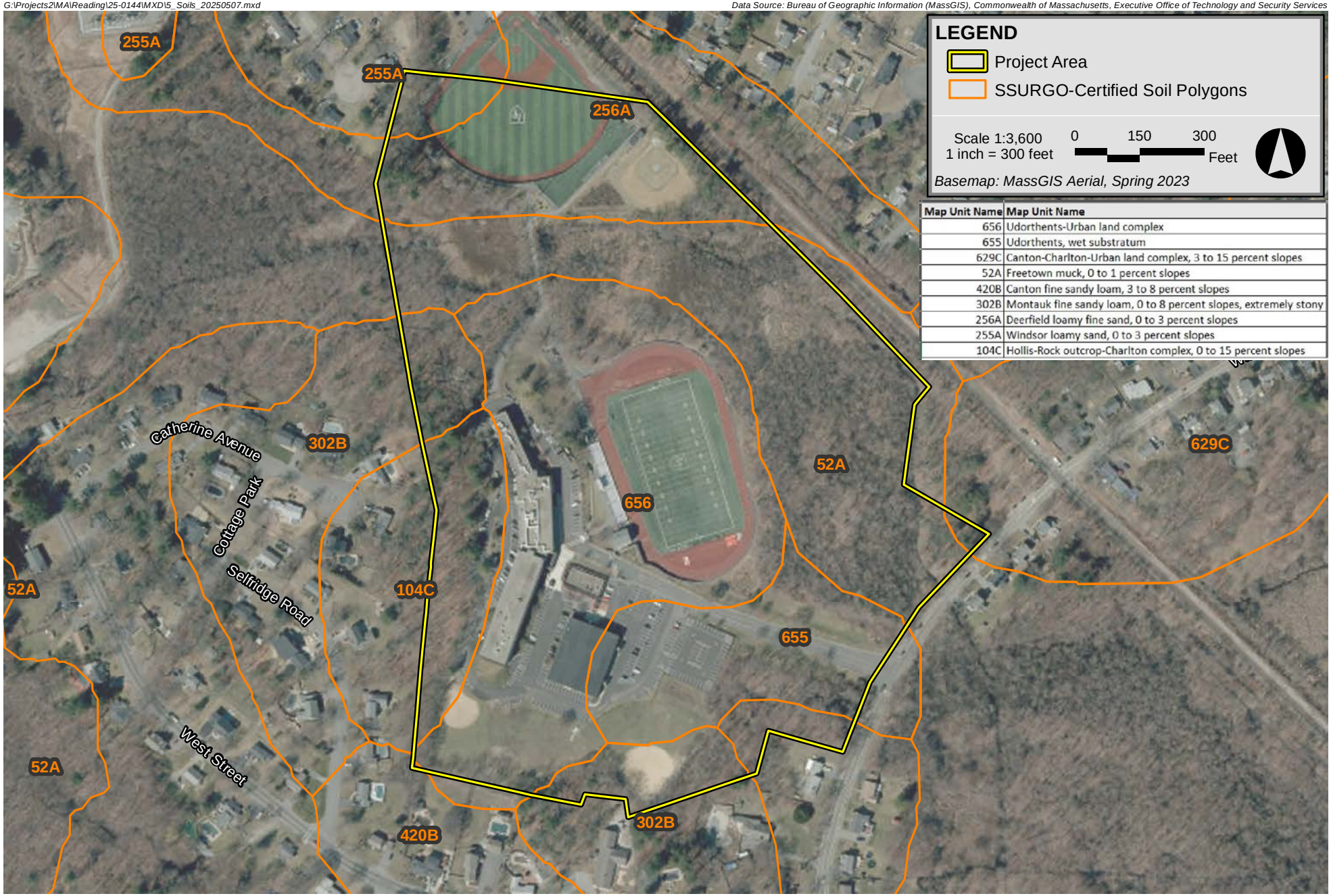
Epsilon Associates Inc.

Figure 4

FEMA Flood Hazard Zones

G:\Projects2\MA\Reading\25-0144\MXD\5_Soils_20250507.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



Map Unit Name	Map Unit Name
656	Udorthents-Urban land complex
655	Udorthents, wet substratum
629C	Canton-Charlton-Urban land complex, 3 to 15 percent slopes
52A	Freetown muck, 0 to 1 percent slopes
420B	Canton fine sandy loam, 3 to 8 percent slopes
302B	Montauk fine sandy loam, 0 to 8 percent slopes, extremely stony
256A	Deerfield loamy fine sand, 0 to 3 percent slopes
255A	Windsor loamy sand, 0 to 3 percent slopes
104C	Hollis-Rock outcrop-Charlton complex, 0 to 15 percent slopes

Austin Preparatory School Reading, Massachusetts

Epsilon Associates Inc.

Figure 5

SSURGO-Certified Soils (NRCS)

Attachment C

Abutter Information

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

(To be submitted to the Conservation Commission when filing a Notice of Intent

I, Greg J. Hochmuth, Epsilon Associates, Inc., hereby certify under the
(Name of person making the Affidavit)

pains and penalties of perjury that on May 14, 2025 I gave notification to abutters
(Date)

in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent filed under the Massachusetts Wetlands Protection Act by

Austin Preparatory School with the Reading
(Name of Applicant) (Name of Municipality)

Conservation Commission on May 14, 2025 for property located at
(Date)

101 Willow Street, Austin Preparatory School
(Address of land where work is proposed)

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

Greg Hochmuth

(Name)

May 14, 2025

(Date)

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 Reading Wetland Protection Bylaw (Section 7.1).

In accordance with the Town of Reading Wetlands Protection Regulations, you are hereby notified that:

A. A Notice of Intent was filed with the Reading Conservation Commission on May 14, 2025, seeking permission to remove, fill, dredge, or alter an area subject to protection under the Reading Wetland Protection Bylaw. The following is a description of the proposed activity/activities:

Activities within the 100-foot wetland buffer zone include the reconfiguration of a stormwater basin, small portions of a walkway and regrading activities within the softball field on the campus of Austin Preparatory School in Reading, MA.

B. The name of the applicant is: Austin Preparatory School

C. The address of the land where the activity is proposed is: 101 Willow St., Reading, MA, 01867.

D. Copies of the Notice of Intent may be examined or obtained at the office of the Reading Conservation Commission, located at 16 Lowell Street Reading, MA, 01867. The regular business hours of the Commission are Monday, Wednesday and Thursday, 7:30 AM to 5:30 PM, Tuesday 7:30 AM to 7 PM, and is closed on Friday. The Commission may be reached at 781-942-6616. Copies of the Notice of Intent may also be obtained from the applicant or their representative by calling Greg Hochmuth at 978.461.6218. An administrative fee may be applied for providing copies of the NOI and plans.

E. Information regarding the date, time, and location of the public hearing regarding the Notice of Intent may be obtained from the Reading Conservation Commission. Notice of the public hearing will be published at least five business days in advance, in the Daily Times Chronicle.

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.

TOWN OF READING

REQUEST FOR CERTIFIED ABUTTERS LIST

RECEIVED
MAY 06 2025
By

SUBJECT PROPERTY:

ADDRESS: 0 Willow St., Reading, MA

Assessors' Map Number: 20 Lot Number: 311

APPLICANT/AGENT:

Name: Greg Hochmuth

Address: 3 Mill & Main, Maynard, MA, 01754

Telephone: 978-590-6416 Email: ghochmuth@epsilonassociates.com

Board or Commission for which this request is made (check all that are applicable):

Community Planning and Development Commission:

- ☐ Site Plan Review (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Subdivision (300 feet)

Conservation Commission:

- ☐ Request for Determination (300 feet)
- ☐ Abbreviated Notice of Resource Area Delineation (300 feet)
- ☑ Notice of Intent (300 feet)

Zoning Board of Appeals:

- ☐ Appeal (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Variance (300 feet)

- ☐ **Building Department: Immediate Abutters**
- ☐ **Health Department: Immediate Abutters**
- ☐ **Historic District Commission** (300 feet)
- ☐ **Historical Commission** (300 feet)
- ☐ **Other:** _____

Brief description of request: Abutters list for an upcoming filing with conservation.

Applicant/Agent Signature: Gregory J Hochmuth Digitally signed by Gregory J Hochmuth Date: 2025.05.06 16:14:54 -04'00' Date: 5/6/2025

The Assessors' Office may require up to three weeks in order to process and approve this request.

Authorized Signature: _____ Date: 5/6/2025

Must be signed by the Public Services Department

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
TEL.: 781-942-9027
FAX: 781-942-9037

January 2025

To whom it may concern:

In an effort to streamline our business practices and desire to decrease turnaround time for taxpayers and other municipal departments, please be advised that effective this date, we the Board of Assessors for the Town of Reading hereby delegate to the Town Chief Assessor of the Assessing Department signatory authority of all Certified Abutters Lists as compiled by the department.

Sincerely,

Reading Board of Assessors

Michael E. Golden **Brendan Zarechian** **Jean Paul Plouffe**

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
781-942-9027
FAX: 781-942-9037

ABUTTERS LIST

CERTIFICATION

FOR BOARD OF ASSESSORS

VICTOR P. SANTANIELLO, CHIEF ASSESSOR	**DATE**
MKeohan	5/7/25
MICHELE L. KEOHAN, ASSISTANT ASSESSOR	**DATE**

Patriot Properties

Reading

05/07/2025

8:42:08AM

Abutters List

Filter Used: DataProperty.AccountNumber in (3383,3378,3380,3681,3771,3684,3379,3685,3770,3769,3340,3339,3686,5029,3381,5102,3766,3680,5005)

Reading
Abutters List

Subject Parcel ID: ***0 WILLOW ST REPORT***

Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
019.0-0000-0034.0	454 WEST ST	VANASSE JONATHAN	JENNIFER R VANASSE	454 WEST ST	READING	MA	01867
019.0-0000-0035.0	4 WEST HILL CIR	BAREMORE MARILYN	TORRES FABIAN JTROS	4 WEST HILL CIR	READING	MA	01867
019.0-0000-0073.0	441 WEST ST	LACEY PLUMLEY COLLEEN	LACEY PLUMLEY AMY TE	14 WALSH STREET	STONEHAM	MA	02180
019.0-0000-0074.0	443 WEST ST	BECKSTROM ERIK D	BECKSTROM SELMIRA TE	443 WEST ST	READING	MA	01867
019.0-0000-0075.0	453 WEST ST	MONTESSORI CHILDRENS HOUSE	OF MIDDLESEX, INC.	453 WEST ST	READING	MA	01867
019.0-0000-0076.0	461 WEST ST	RAMBO SARAH E		461 WEST ST	READING	MA	01867
019.0-0000-0078.0	467 WEST ST	EISENMAN STEVEN A	EISENMAN ELAINE J TE	467 WEST ST	READING	MA	01867
020.0-0000-0219.0	130 WILLOW ST	DAVIDSON MATTHEW J	SCHOEN HOLLY A TE	130 WILLOW STREET	READING	MA	01867
020.0-0000-0220.0	28 SUMMER AVE	FORISTALL JOHN E	KRISTIN FORISTALL	28 SUMMER AVE	READING	MA	01867
020.0-0000-0223.0	124 WILLOW ST	PELLERIN ERIC D	LUIZA C PELLERIN	124 WILLOW ST	READING	MA	01867
020.0-0000-0224.0	118 WILLOW ST	SELLITTO SABATO NINO	MARIANNE SELLITTO	118 WILLOW ST	READING	MA	01867
020.0-0000-0225.0	114 WILLOW ST	DILEO RENATO TRUSTEE (1/2)	DILEO MARTHA M TRUSTEE	114 WILLOW ST	READING	MA	01867
020.0-0000-0306.0	131 WILLOW ST	MURPHY MARIE E TRUSTEE ETAL	CHARLES MARIE MURPHY F	131 WILLOW STREET	READING	MA	01867
020.0-0000-0309.0	121 WILLOW ST	DODGE MICHAEL D	DODGE DEANNA B	121 WILLOW STREET	READING	MA	01867
020.0-0000-0310.0	115 WILLOW ST	CRAWFORD JAMES J	CRAWFORD ANN JT	115 WILLOW ST	READING	MA	01867
020.0-0000-0311.0	WILLOW ST	AUSTIN PREPARATORY SCHOOL		101 WILLOW STREET	READING	MA	01867
025.0-0000-0045.0	OFF WEST ST	AUGUSTINIAN H.S.OF READING		10 WILLOW ST	READING	MA	01867
026.0-0000-0001.0	WILLOW ST	TOWN OF READING	CONS.	16 LOWELL ST	READING	MA	01867
026.0-0000-0074.0	101 WILLOW ST	AUSTIN PREP SCHOOL		101 WILLOW ST	READING	MA	01867

Parcel Count: **19**

End of Report

020.0	0000	0311.0		1 of 1
Map	Lot	Sub	Sublot	CARD

Reading

	Total Card	/	Total Parcel
APPRAISED:	21,200	/	21,200
USE VALUE:	21,200	/	21,200
ASSESSED:	21,200	/	21,200

PROPERTY LOCATION

No	Alt No	Direction/Street/City
		WILLOW ST, READING

OWNERSHIP

Unit #:

Owner 1:	AUSTIN PREPARATORY SCHOOL
Owner 2:	
Owner 3:	
Street 1:	101 WILLOW STREET
Street 2:	
Twn/City:	READING
St/Prov:	MA Cntry: Own Occ:
Postal:	01867 Type:

PREVIOUS OWNER

Owner 1:	
Owner 2:	
Street 1:	
Twn/City:	
St/Prov:	Cntry
Postal:	

NARRATIVE DESCRIPTION

This Parcel contains 1.76 ACRES of land mainly classified as EDUPRVT SCDY

OTHER ASSESSMENTS

Code	Descrip/No	Amount	Com. Int

PROPERTY FACTORS

Item	Code	Description	%	Item	Code	Description
Z	S20	SINGLE FA	100	water		
o				Sewer		
n				Electri		
Census:				Exmpt		
Flood Haz:						
D	READ	READ	100	Topo		
s				Street	P	PAVED
t				Gas:	M	MEDIUM

IN PROCESS APPRAISAL SUMMARY

Use Code	Land Size	Building Value	Yard Items	Land Value	Total Value
941	1.760			21,200	21,200
Total Card	1.760			21,200	21,200
Total Parcel	1.760			21,200	21,200

Source: Market Adj Cost | Total Value per SQ unit /Card: N/A | /Parcel: N/A

Legal Description

Entered Lot Size	
Total Land:	1.76
Land Unit Type:	AC

User Acct: 098000000014C

GIS Ref:

GIS Ref:

Insp Date: 07/26/06

!3771!

Patriot Properties Inc.

PREVIOUS ASSESSMENT

Parcel ID: 020.0-0000-0311.0

Tax Yr	Use	Cat	Bldg Value	Yrd Items	Land Size	Land Value	Total Value	Asses'd Value	Notes	Date
2025	941	FV		0	1.76	21,200	21,200		Year End	12/11/2024
2024	941	FV		0	1.76	20,400	20,400		Year end	1/10/2024
2024	941	PTCH		0	1.76	18,400	18,400	18,400	patch	4/27/2023
2023	941	FV		0	1.76	18,400	18,400	18,400	Year end	1/9/2023
2022	941	FV		0	1.76	16,700	16,700	16,700	Year end	12/20/2021
2021	941	FV		0	1.76	20,600	20,600	20,600	Year End Roll	12/15/2020
2020	941	FV		0	1.76	19,900	19,900	19,900	Year End Roll	12/17/2019
2019	941	FV		0	1.76	18,900	18,900	18,900	YER	12/12/2018

PRINT

Date	Time
05/07/25	08:45:06

LAST REV

Date	Time
06/08/16	10:11:27

apro

SALES INFORMATION

TAX DISTRICT:

PAT ACCT.: 3771

Grantor	Legal Ref	Type	Date	Sale Code	Sale Price	V	Tst	Verif	Notes
	16621-0429		12/10/1985		1	No	No		

USER DEFINED

Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
ASR Map:	
Fact Dist:	
Reval Dist:	
Year:	
LandReason:	
BldReason:	
CivilDistrict:	
Ratio:	

BUILDING PERMITS

Date	Number	Descrip	Amount	C/O	Last Visit	Fed Code	F. Descrip	Comment

ACTIVITY INFORMATION

Date	Result	By	Name
7/26/2006	COMPLETE-INS	PAS	PAS
7/26/2006	COMPLETE-INS	PAS	PAS

Sign: VERIFICATION OF VISIT NOT DATA __/__/__

LAND SECTION (First 7 lines only)

Use Code	Description	LUC Fact	No of Units	Depth / PriceUnits	Unit Type	Land Type	LT Factor	Base Value	Unit Price	Adj	Neigh	Neigh Influ	Neigh Mod	Infl 1	%	Infl 2	%	Infl 3	%	Appraised Value	Alt Class	%	Spec Land	J Code	Fact	Use Value	Notes
941	EDUPRVT SC		1.76		ACRES	UNDEVELOPA	1.0	0	10,000.	1.21	XA	1.27				WETLAN	-5			21,234						21,200	LAND-LOCKED

Total AC/HA:	1.76000	Total SF/SM:	76666	Parcel LUC:	941	EDUPRVT SCDY	Prime NB Desc:	TRAF AV	Total:	21,234	Spl Credit		Total:	21,200

EXTERIOR INFORMATION

Type:	
Sty Ht:	
(Liv) Units:	Total:
Foundation:	
Frame:	
Prime Wall:	
Sec Wall:	%
Roof Struct:	
Roof Cover:	
Color:	
View / Desir:	

BATH FEATURES

Full Bath		Rating:	
A Bath:		Rating:	
3/4 Bath:		Rating:	
A 3QBth		Rating:	
1/2 Bath:		Rating:	
A HBth:		Rating:	
OthrFix:		Rating:	

OTHER FEATURES

Kits:		Rating:	
A Kits:		Rating:	
Frpl:		Rating:	
WSFlue:		Rating:	

COMMENTS

Main File/246/110.0-0000-0005.0=101 Willow Street Buildings, Gym & other amenities. This file is LAND only. .

SKETCH

RESIDENTIAL GRID

1st Res Grid	Desc:	# Units	

Level	FY	LR	DR	D	K	FR	RR	BR	FB	HB	L	O
Other												
Upper												
Lvl 2												
Lvl 1												
Lower												

Totals	RMs:		BRs:		Baths:		HB	

GENERAL INFORMATION

Grade:			
Year Blt:		Eff Yr Blt:	
Alt LUC:		Alt %:	
Jurisdict:		Fact:	.
Const Mod:			
Lump Sum Adj:			

CONDO INFORMATION

Location:	
Total Units:	
Floor:	
% Own:	
Name:	

REMODELING

Exterior:	
Interior:	
Additions:	
Kitchen:	
Baths:	
Plumbing:	
Electric:	
Heating:	
General:	

RES BREAKDOWN

No Unit	RMS	BRS	FL
Totals			

INTERIOR INFORMATION

Avg Ht/FL:			
Prim Int Wall			
Sec Int Wall:			%
Partition:			
Prim Floors:			
Sec Floors:			%
Bsmnt Flr:			
Subfloor:			
Bsmnt Gar:			
Electric:			
Insulation:			
Int vs Ext:			
Heat Fuel:			
Heat Type:			
# Heat Sys:			
% Heated:		% AC:	
Solar HW:		Central Vac:	
% Com Wall		% Sprinkled:	

DEPRECIATION

Phys Cond:	AV - Average	0.0	%
Functional:			%
Economic:			%
Special:			%
Override:			%
Total:		0	%

CALC SUMMARY

Basic $ / SQ:	
Size Adj.:	1.00000000
Const Adj.:	8.00000000
Adj $ / SQ:	
Other Features:	0
Grade Factor:	
NBHD Inf:	1.26999998
NBHD Mod:	
LUC Factor:	1.00
Adj Total:	0
Depreciation:	0
Depreciated Total:	0

COMPARABLE SALES

Rate	Parcel ID	Typ	Date	Sale Price

WtAv$/SQ:		AvRate:		Ind.Val	
Juris. Factor:			Before Depr:	0.00	
Special Features:	0		Val/Su Net:		
Final Total:	0		Val/Su SzAd		

SUB AREA

Code	Description	Area - SQ	Rate - AV	Undepr Value

Net Sketched Area:		Total:	
Size Ad		Gross Are	FinArea

SUB AREA DETAIL

Sub Area	% Usbl	Descrip	% Type	Qu	# Ten

IMAGE

AssessPro Patriot Properties, Inc

MOBILE HOME

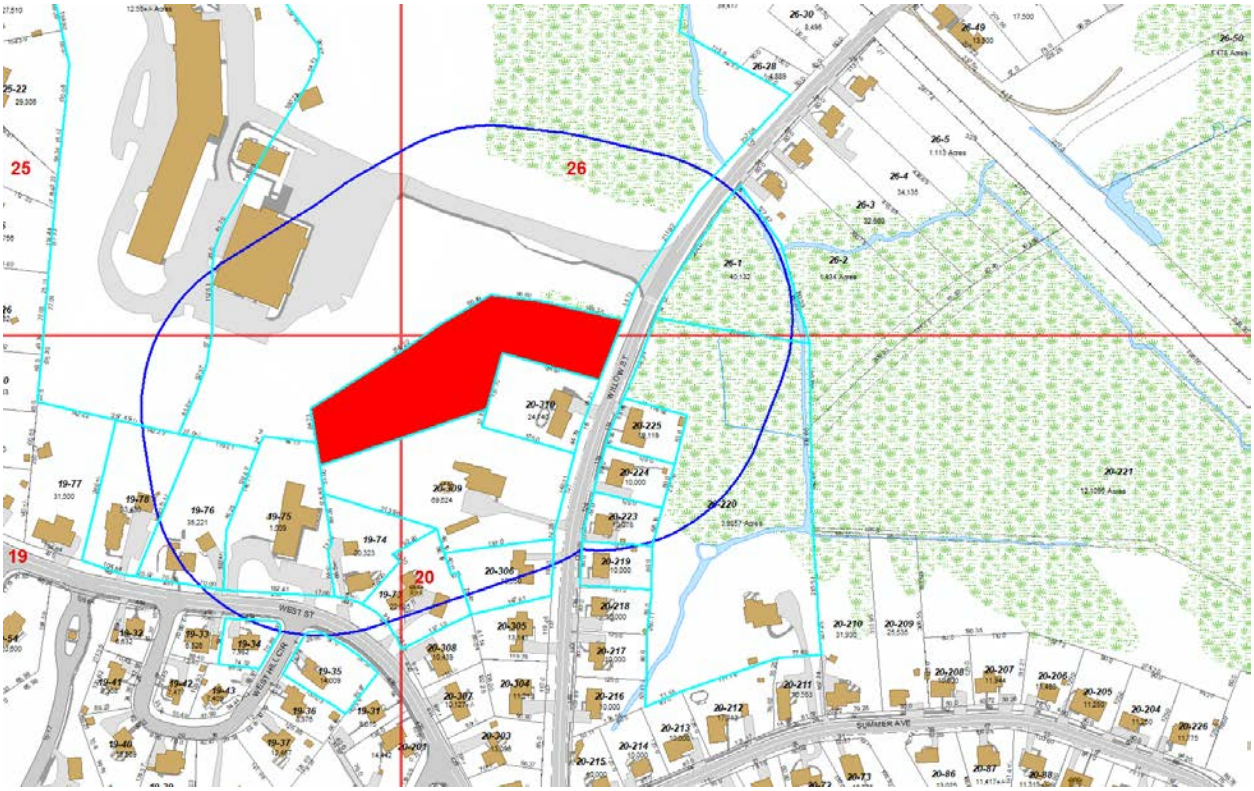
Make:		Model:		Serial #:		Year:		Color:	

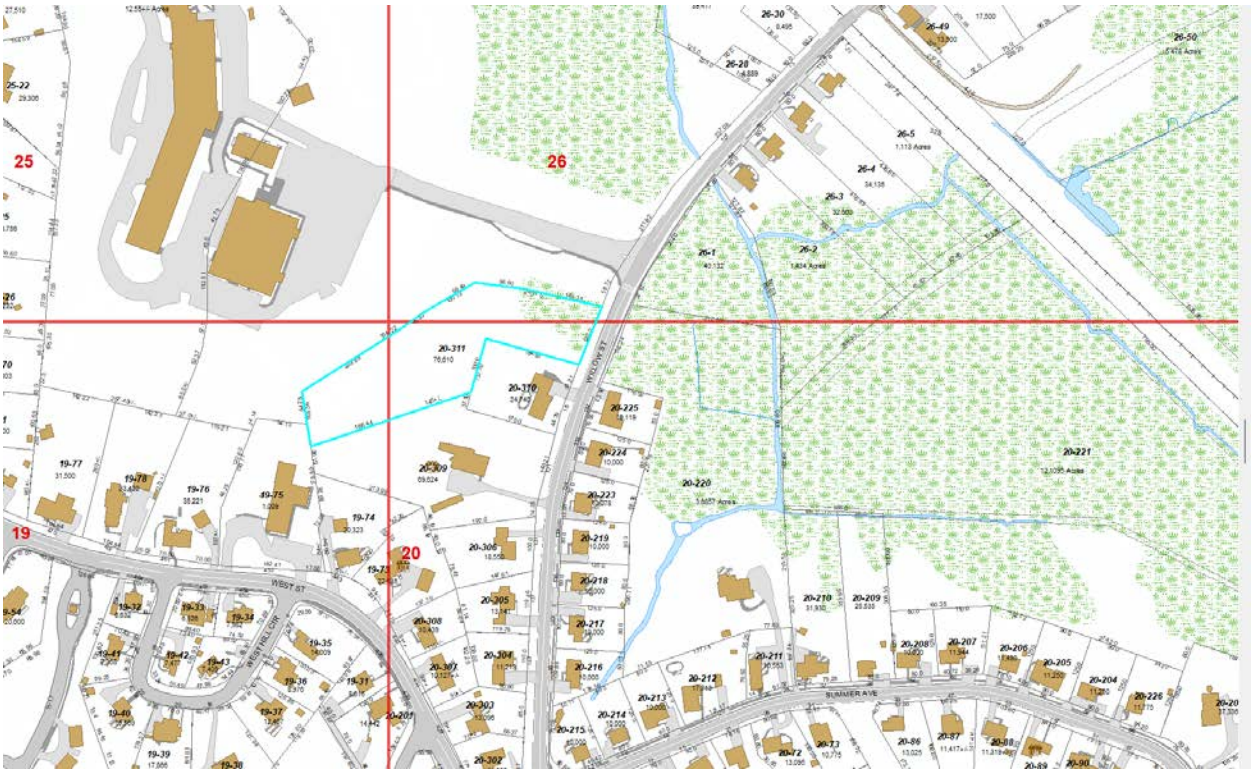
SPEC FEATURES/YARD ITEMS

PARCEL ID 020.0-0000-0311.0

Code	Description	A	Y/S	Qty	Size/Dim	Qual	Con	Year	Unit Price	D/S	Dep	LUC	Fact	NB Fa	Appr Value	JCod	JFact	Juris. Value

More:	N	Total Yard Items:		Total Special Featues:		Total:	


25
26
19
20
WEST ST
WILLOW ST
SUMMER AVE


25
26
19
20
WILSON ST
WEST ST
BRENTHELOW
SUMMER AVE

AUGUSTINIAN H.S.OF READING
10 WILLOW ST
READING. MA 01867

AUSTIN PREP SCHOOL
101 WILLOW ST
READING. MA 01867

AUSTIN PREPARATORY SCHOOL
101 WILLOW STREET
READING. MA 01867

BAREMORE MARILYN
TORRES FABIAN JTROS
4 WEST HILL CIR
READING. MA 01867

BECKSTROM ERIK D
BECKSTROM SELMIRA TE
443 WEST ST
READING. MA 01867

CRAWFORD JAMES J
CRAWFORD ANN JT
115 WILLOW ST
READING. MA 01867

DAVIDSON MATTHEW J
SCHOEN HOLLY A TE
130 WILLOW STREET
READING. MA 01867

DILEO RENATO TRUSTEE (1/2)
DILEO MARTHA M TRUSTEE (1/2)
114 WILLOW ST
READING. MA 01867

DODGE MICHAEL D
DODGE DEANNA B
121 WILLOW STREET
READING. MA 01867

EISENMAN STEVEN A
EISENMAN ELAINE J TE
467 WEST ST
READING. MA 01867

FORISTALL JOHN E
KRISTIN FORISTALL
28 SUMMER AVE
READING. MA 01867

LACEY PLUMLEY COLLEEN
LACEY PLUMLEY AMY TE
14 WALSH STREET
STONEHAM . MA 02180

MONTESSORI CHILDRENS HOUSE
OF MIDDLESEX, INC.
453 WEST ST
READING. MA 01867

MURPHY MARIE E TRUSTEE ETAL
CHARLES MARIE MURPHY FAM TRUST
131 WILLOW STREET
READING. MA 01867

PELLERIN ERIC D
LUIZA C PELLERIN
124 WILLOW ST
READING. MA 01867

RAMBO SARAH E
461 WEST ST
READING. MA 01867

SELLITTO SABATO NINO
MARIANNE SELLITTO
118 WILLOW ST
READING. MA 01867

TOWN OF READING
CONS.
16 LOWELL ST
READING. MA 01867

VANASSE JONATHAN
JENNIFER R VANASSE
454 WEST ST
READING. MA 01867

STONEHAM PLANNING BOARD	35 CENTRAL ST	STONEHAM	MA	02180
WAKEFIELD PLANNING BOARD	1 LAFAYETTE STREET	WAKEFIELD	MA	01880
LYNNFIELD PLANNING BOARD	55 SUMMER STREET	LYNNFIELD	MA	01940
MASS DEPT OF HOUSING & COM. DEV.	100 CAMBRIDGE STREET, SUITE 300	BOSTON	MA	02114
WILMINGTON PLANNING BOARD	121 GLEN ROAD	WILMINGTON	MA	01887
NORTH READING PLANNING BOARD	235 NORTH STREET	NORTH READING	MA	01864
WOBURN PLANNING BOARD	10 COMMON STREET	WOBURN	MA	01801
METRO AREA PLANNING COUNCIL	60 TEMPLE PLACE	BOSTON	MA	02111

TOWN OF READING

REQUEST FOR CERTIFIED ABUTTERS LIST

RECEIVED
MAY 01 2025
By

SUBJECT PROPERTY:

ADDRESS: 101 Willow St., Reading, MA

Assessors' Map Number: S-20 Lot Number: 026.0-0000-0074.0

APPLICANT/AGENT:

Name: Robert Brewer

Address: 3 Mill & Main, Maynard, MA, 01754

Telephone: 508-933-5461 Email: rbrewer@epsilonassociates.com

Board or Commission for which this request is made (check all that are applicable):

Community Planning and Development Commission:

- ☐ Site Plan Review (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Subdivision (300 feet)

Conservation Commission:

- ☐ Request for Determination (300 feet)
- ☐ Abbreviated Notice of Resource Area Delineation (300 feet)
- ☑ Notice of Intent (300 feet)

Zoning Board of Appeals:

- ☐ Appeal (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Variance (300 feet)

- ☐ **Building Department: Immediate Abutters**
- ☐ **Health Department: Immediate Abutters**
- ☐ **Historic District Commission** (300 feet)
- ☐ **Historical Commission** (300 feet)
- ☐ **Other:** _____

Brief description of request: Seeking certified abutter's list to complete NOI for improvements to an existing softball facility, landscaping, and parking areas on the campus of Austin Preparatory School.

Applicant/Agent Signature: Robert Brewer Digitally signed by Robert Brewer Date: 2025.05.01 14:08:17 -04'00' Date: 5/1/2025

The Assessors' Office may require up to three weeks in order to process and approve this request.

Authorized Signature: _____ Date: 5/1/2025

Must be signed by the Public Services Department

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
TEL.: 781-942-9027
FAX: 781-942-9037

January 2025

To whom it may concern:

In an effort to streamline our business practices and desire to decrease turnaround time for taxpayers and other municipal departments, please be advised that effective this date, we the Board of Assessors for the Town of Reading hereby delegate to the Town Chief Assessor of the Assessing Department signatory authority of all Certified Abutters Lists as compiled by the department.

Sincerely,

Reading Board of Assessors

Michael E. Golden **Brendan Zarechian** **Jean Paul Plouffe**

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
781-942-9027
FAX: 781-942-9037

ABUTTERS LIST

CERTIFICATION

FOR BOARD OF ASSESSORS

VICTOR P. SANTANIELLO, CHIEF ASSESSOR	**DATE**
MKeohan	5/5/25
MICHELE L. KEOHAN, ASSISTANT ASSESSOR	**DATE**

Patriot Properties

Reading

05/05/2025

9:10:22AM

Abutters List

Filter Used: DataProperty.AccountNumber in (5134,5193,5125,3383,5192,5203,3378,5024,5020,5077,3380,4983,5195,5133,5031,9272,5056,3681,4986,3771,3379,3685,5204,3770,5057,4985,3769,5132,5194,3686,3375,5078..

Reading
Abutters List

Subject Parcel ID: ***101 WILLOW ST REPORT***

Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
019.0-0000-0067.0	479 WEST ST	HANLEY KAREN L	BRIGID A MCNIFF	479 WEST ST	READING	MA	01867
019.0-0000-0070.0	11 SELFRIDGE RD	NESTOR BRIAN J TRUSTEE	PETER E NESTOR IRREVOC	11 SELFRIDGE RD	READING	MA	01867
019.0-0000-0071.0	7 SELFRIDGE RD	WILLIAMS BARBARA J		7 SELFRIDGE RD	READING	MA	01867
019.0-0000-0073.0	441 WEST ST	LACEY PLUMLEY COLLEEN	LACEY PLUMLEY AMY TE	14 WALSH STREET	STONEHAM	MA	02180
019.0-0000-0074.0	443 WEST ST	BECKSTROM ERIK D	BECKSTROM SELMIRA TE	443 WEST ST	READING	MA	01867
019.0-0000-0075.0	453 WEST ST	MONTESSORI CHILDRENS HOUSE	OF MIDDLESEX, INC.	453 WEST ST	READING	MA	01867
019.0-0000-0076.0	461 WEST ST	RAMBO SARAH E		461 WEST ST	READING	MA	01867
019.0-0000-0077.0	475 WEST ST	THAYER SCOTT E TRUSTEE	SC THAYER FAMILY TRUST	475 WEST ST	READING	MA	01867
019.0-0000-0078.0	467 WEST ST	EISENMAN STEVEN A	EISENMAN ELAINE J TE	467 WEST ST	READING	MA	01867
020.0-0000-0220.0	28 SUMMER AVE	FORISTALL JOHN E	KRISTIN FORISTALL	28 SUMMER AVE	READING	MA	01867
020.0-0000-0224.0	118 WILLOW ST	SELLITTO SABATO NINO	MARIANNE SELLITTO	118 WILLOW ST	READING	MA	01867
020.0-0000-0225.0	114 WILLOW ST	DILEO RENATO TRUSTEE (1/2)	DILEO MARTHA M TRUSTEE	114 WILLOW ST	READING	MA	01867
020.0-0000-0309.0	121 WILLOW ST	DODGE MICHAEL D	DODGE DEANNA B	121 WILLOW STREET	READING	MA	01867
020.0-0000-0310.0	115 WILLOW ST	CRAWFORD JAMES J	CRAWFORD ANN JT	115 WILLOW ST	READING	MA	01867
020.0-0000-0311.0	WILLOW ST	AUSTIN PREPARATORY SCHOOL		101 WILLOW STREET	READING	MA	01867
025.0-0000-0023.0	45 CATHERINE AVE	SHEVLIN CHARLES	SHEVLIN JENNIFER	45 CATHERINE AVE	READING	MA	01867
025.0-0000-0025.0	25 SELFRIDGE RD	GARRITY DONALD P III	JESSICA M DEMBOWSKI	25 SELFRIDGE RD	READING	MA	01867
025.0-0000-0026.0	17 SELFRIDGE RD	O`MEARA CATHERINE P	MICHAEL F O`MEARA	17 SELFRIDGE ROAD	READING	MA	01867
025.0-0000-0043.0	W OF LOWELL ST	AUGUSTINIAN H.S. OF READING		10 WILLOW STREET	READING	MA	01867
025.0-0000-0045.0	OFF WEST ST	AUGUSTINIAN H.S.OF READING		10 WILLOW ST	READING	MA	01867
025.0-0000-0046.0	80 CAUSEWAY RD	ANTONIO BIASELLA TRUST	BIASELLA ANTONIO TRUSTE	80 CAUSEWAY RD	READING	MA	01867
025.0-0000-0047.0	74 CAUSEWAY RD	CULLERS HARRY R	CULLERS MARCIA W	74 CAUSEWAY RD	READING	MA	01867
025.0-0000-0055.0	81 CAUSEWAY RD	RUTTER MATTHEW FARNSWORTH	RUTTER MORGAN LEIGH TE	81 CAUSEWAY ROAD	READING	MA	01867
025.0-0000-0060.0	6 PILGRIM RD	JAGELSKY JONATHAN	JAGELSKY MEGAN TE	6 PILGRIM ROAD	READING	MA	01867
025.0-0000-0061.0	10 PILGRIM RD	KESLER ANDREW S	KESLER MEREDITH L	10 PILGRIM RD	READING	MA	01867
025.0-0000-0065.0	1 BARROWS RD	EICHELBERGER WILLIAM J	KAREN A EICHELBERGER	1 BARROWS RD	READING	MA	01867
026.0-0000-0001.0	WILLOW ST	TOWN OF READING	CONS.	16 LOWELL ST	READING	MA	01867
026.0-0000-0002.0	84 WILLOW ST	MONAHAN JENNIFER	QUILLINAN BRENDAN TE	84 WILLOW ST	READING	MA	01867
026.0-0000-0003.0	80 WILLOW ST	DABNEY ELIJAH T	BARBOSA AMANDA A JTROS	80 WILLOW ST	READING	MA	01867
026.0-0000-0004.0	76 WILLOW ST	GOODFELLOW JOHN J TSTEE ETA	KELLEY GOODFELLOW FAM	76 WILLOW ST	READING	MA	01867
026.0-0000-0005.0	72 WILLOW ST	DP HOGAN FAMILY TRUST	HOGAN DANIEL W IV TR	72 WILLOW ST	READING	MA	01867
026.0-0000-0028.0	WILLOW ST	TOWN OF READING	WATER DEPT	16 LOWELL STREET	READING	MA	01867
026.0-0000-0029.0	WILLOW ST	TOWN OF READING	WATER DEPT	16 LOWELL STREET	READING	MA	01867
026.0-0000-0030.0	WILLOW ST	TOWN OF READING	WATER DEPT	16 LOWELL STREET	READING	MA	01867
026.0-0000-0049.0	60 WILLOW ST	RICHARDSON ANDREW TRUSTEE	THE RINDONE IRREVOC TR	60 WILLOW ST	READING	MA	01867
026.0-0000-0050.0	62 WILLOW ST	TOWN OF READING		16 LOWELL STREET	READING	MA	01867
026.0-0000-0074.0	101 WILLOW ST	AUSTIN PREP SCHOOL		101 WILLOW ST	READING	MA	01867
026.0-0000-0075.0	59 WILLOW ST	SOCCORSO ELIZABETH ANN		59 WILLOW ST	READING	MA	01867
026.0-0000-0097.0	LOWELL ST	TOWN OF READING	CONSERVATION	16 LOWELL ST	READING	MA	01867

Subject Parcel ID: ***101 WILLOW ST REPORT***

Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
026.0-0000-0103.0	28 PLYMOUTH RD	RANDALL BROOKE		28 PLYMOUTH RD	READING	MA	01867
026.0-0000-0104.0	34 PLYMOUTH RD	GREENYER LUCY M TRUSTEE	LUCY M GREENYER REVOC	34 PLYMOUTH RD	READING	MA	01867
026.0-0000-0105.0	35 PLYMOUTH RD	NOLTY CHRISTOPHER T	ANNE MARIE HUNTER	35 PLYMOUTH RD	READING	MA	01867
026.0-0000-0106.0	33 PLYMOUTH RD	TIERNEY JR JOHN T TRUSTEE ET/	KJ TIERNEY FAMILY TRUST	33 PLYMOUTH RD	READING	MA	01867
026.0-0000-0107.0	27 PLYMOUTH RD	OBRIEN JOANNE & PATRICIA ETAI		27 PLYMOUTH RD	READING	MA	01867
026.0-0000-0164.0	24 DUSTIN RD	FITZPATRICK THOMAS J		24 DUSTIN RD	READING	MA	01867
026.0-0000-0165.0	27 DUSTIN RD	HANSON LINDA		27 DUSTIN ROAD	READING	MA	01867
026.0-0000-0166.0	23 DUSTIN RD	TAURO LISAMARIE	VASANTHAKUMAR ANTHON	23 DUSTIN RD	READING	MA	01867
026.0-0000-0167.0	19 DUSTIN RD	SUNDERWIRTH KEENAN	HERLITZ STEFAN TE	19 DUSTIN RD	READING	MA	01867
026.0-0000-0175.0	7 PILGRIM RD	SCHANCK WAYNE C	ERIN L CODE	7 PILGRIM RD	READING	MA	01867
026.0-0000-0176.0	3 PILGRIM RD	MIRASOLO STEVEN E	MIRASOLO AMY B	3 PILGRIM RD	READING	MA	01867
026.0-0000-0180.0	OFF DUSTIN RD	BOSTON GAS COMPANY	D/B/A NATIONAL GRID	40 SYLVAN RD - PROPERTY	WALTHAM	MA	02451
026.0-0000-0238.0	20 COAKLEY WAY	MURRAY ALLISON K	TOBIN TAYLOR A JTROS	20 COAKLEY WAY	READING	MA	01867

Parcel Count: **52**

End of Report

026.0	0000	0074.0		1 of 2	COMMERCIAL
Map	Lot	Sub	Sublot	CARD	*Reading*

	Total Card	/	Total Parcel
APPRAISED:	52,926,600	/	63,569,200
USE VALUE:	52,926,600	/	63,569,200
ASSESSED:	52,926,600	/	63,569,200

PROPERTY LOCATION

No	Alt No	Direction/Street/City
101		WILLOW ST, READING

OWNERSHIP

Unit #:

Owner 1:	AUSTIN PREP SCHOOL
Owner 2:	
Owner 3:	
Street 1:	101 WILLOW ST
Street 2:	
Twn/City:	READING
St/Prov:	MA Cntry: Own Occ:
Postal:	01867 Type:

PREVIOUS OWNER

Owner 1:	
Owner 2:	
Street 1:	
Twn/City:	
St/Prov:	Cntry
Postal:	

NARRATIVE DESCRIPTION

This parcel contains 23.944 ACRES of land mainly classified as EDUPRVT SCDY with a SCHOOL Building built about 1962, having primarily BRICK Exterior and 284832 Square Feet, with 0 Unit, 0 Bath, 0 3/4 Bath, 0 HalfBath, 0 Rooms, and 0 Bdrm.

OTHER ASSESSMENTS

Code	Descrip/No	Amount	Com. Int

PROPERTY FACTORS

Item	Code	Description	%	Item	Code	Description
Z	S20	SINGLE FA	100	water		
o				Sewer		
n				Electri		
Census:				Exmpt		
Flood Haz:						
D	READ	READ	100	Topo		
s				Street	P	PAVED
t				Gas:	M	MEDIUM

IN PROCESS APPRAISAL SUMMARY

Use Code	Land Size	Building Value	Yard Items	Land Value	Total Value
941	23.944	42,243,800	112,400	10,570,400	52,926,600
Total Card	23.944	42,243,800	112,400	10,570,400	52,926,600
Total Parcel	23.944	52,886,400	112,400	10,570,400	63,569,200

Source: Market Adj Cost | Total Value per SQ unit /Card: 185.82 | /Parcel: 154.3

Legal Description

Entered Lot Size	
Total Land:	23.944
Land Unit Type:	AC

User Acct	1100000000050
GIS Ref	
GIS Ref	
Insp Date	01/27/20

!5102!

PREVIOUS ASSESSMENT

Parcel ID: 026.0-0000-0074.0

Tax Yr	Use	Cat	Bldg Value	Yrd Items	Land Size	Land Value	Total Value	Asses'd Value	Notes	Date
2025	941	FV	52,886,400	112400	23.944	10,570,400	63,569,200		Year End	12/11/2024
2024	941	FV	50,805,200	112400	23.944	10,154,200	61,071,800		Year end	1/10/2024
2024	941	PTCH	45,810,300	112400	23.944	9,155,500	55,078,200	55,078,200	patch	4/27/2023
2023	941	FV	45,810,300	112400	23.944	9,155,500	55,078,200	55,078,200	Year end	1/9/2023
2022	941	FV	41,647,900	112400	23.944	8,323,100	50,083,400	50,083,400	Year end	12/20/2021
2021	941	FV	46,698,100	106500	23.944	7,866,700	54,671,300	54,671,300	Year End Roll	12/15/2020
2020	941	FV	45,180,000	103600	23.944	7,610,900	52,894,500	52,894,500	Year End Roll	12/17/2019
2019	941	FV	42,903,000	103600	23.944	7,227,100	50,233,700	50,233,700	YER	12/12/2018

PRINT

Date	Time
05/05/25	09:13:00

LAST REV

Date	Time
03/19/25	10:26:25
jc	

SALES INFORMATION

TAX DISTRICT:

PAT ACCT.: 5102

Grantor	Legal Ref	Type	Date	Sale Code	Sale Price	V	Tst	Verif	Notes

USER DEFINED

Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
ASR Map:	
Fact Dist:	
Reval Dist:	
Year:	
LandReason:	
BldReason:	
CivilDistrict:	
Ratio:	

BUILDING PERMITS

Date	Number	Descrip	Amount	C/O	Last Visit	Fed Code	F. Descrip	Comment
2/4/2025	B2550	MANUAL	389,900	C				Toilet room renova
7/22/2024	B24495	MANUAL	5,000	C				AUSTIN PREP SCHOOL
7/19/2023	B23570	REMOD	136,225	C				AUSTIN PREP AUGUST
5/22/2023	B23456	MANUAL	360,000	C				REMOVE EXISTING AC
6/29/2022	B22575	REMOD	256,000	C				AUSTIN PREP. CREAT
6/9/2022	B22544	REMOD	41,000	C				AUSTIN PREP CHAPEL
3/31/2021	B21251	REMOD	32,772	C				4TH FLOOR OFFICE R
3/9/2020	B20166	ADDN	120,000	C				2 DUGOUTS 10X50, E
3/5/2020	B20162	ADDN		C				INSTALL GRANDSTAND
2/13/2020	B20105	ADDN	76,000	C				TENNIS TOILET PAVI

ACTIVITY INFORMATION

Date	Result	By	Name
1/27/2020	PERMIT VISIT	PC	PC
8/9/2016	PERMIT VISIT	PC	PC
3/3/2016	PERMIT VISIT	PC	PC
7/26/2006	COMPLETE-INS	PAS	PAS
7/26/2006	COMPLETE-INS	PAS	PAS

Sign: VERIFICATION OF VISIT NOT DATA __/__/__

LAND SECTION (First 7 lines only)

Use Code	Description	LUC Fact	No of Units	Depth / PriceUnits	Unit Type	Land Type	LT Factor	Base Value	Unit Price	Adj	Neigh	Neigh Influ	Neigh Mod	Infl 1	%	Infl 2	%	Infl 3	%	Appraised Value	Alt Class	%	Spec Land	J Code	Fact	Use Value	Notes
941	EDUPRVT SC		1043001		SQ FEET	PRIMARY	1.0	0	9.5	1.07	XA	1.27								10,570,398						10,570,400	

Total AC/HA:	23.94401	Total SF/SM:	1043001	Parcel LUC:	941	EDUPRVT SCDY	Prime NB Desc:	TRAF AV	Total:	10,570,400	Spl Credit		Total:	10,570,400

EXTERIOR INFORMATION

Type:	58 - SCHOOL
Sty Ht:	4 - 4
(Liv) Units:	Total: 0
Foundation:	
Frame:	C - CLASS-C
Prime Wall:	7 - BRICK
Sec Wall:	%
Roof Struct:	4 - FLAT
Roof Cover:	11 - MEMBRANE
Color:	
View / Desir:	

GENERAL INFORMATION

Grade:	B - GOOD		
Year Blt:	1962	Eff Yr Blt:	
Alt LUC:		Alt %:	
Jurisdict:		Fact:	.
Const Mod:			
Lump Sum Adj:			

INTERIOR INFORMATION

Avg Ht/FL:	12		
Prim Int Wall			
Sec Int Wall:	%		
Partition:	T - TYPICAL		
Prim Floors:	5 - LINO/VINYL		
Sec Floors:	3 - HARDWOO	13 %	
Bsmnt Flr:			
Subfloor:			
Bsmnt Gar:			
Electric:			
Insulation:			
Int vs Ext:			
Heat Fuel:			
Heat Type:	3 - FORCED H/W		
# Heat Sys:			
% Heated:	100	% AC:	
Solar HW:	NO	Central Vac:	NO
% Com Wall		% Sprinkled:	

BATH FEATURES

Full Bath		Rating:	
A Bath:		Rating:	
3/4 Bath:		Rating:	
A 3QBth		Rating:	
1/2 Bath:		Rating:	
A HBth:		Rating:	
OthrFix:		Rating:	

OTHER FEATURES

Kits:		Rating:	
A Kits:		Rating:	
Frpl:		Rating:	
WSFlue:		Rating:	

CONDO INFORMATION

Location:	
Total Units:	
Floor:	
% Own:	
Name:	

DEPRECIATION

Phys Cond:	GD - Good	33.	%
Functional:			%
Economic:			%
Special:			%
Override:			%
	Total:	33.2	%

CALC SUMMARY

Basic $ / SQ:	167.00
Size Adj.:	0.80351084
Const Adj.:	1.01109540
Adj $ / SQ:	135.675
Other Features:	0
Grade Factor:	1.30
NBHD Inf:	1.26999998
NBHD Mod:	
LUC Factor:	1.00
Adj Total:	63239104
Depreciation:	20995383
Depreciated Total:	42243721

COMMENTS

AUSTIN PREP.SCHOOL-2006-Contact Duane Sandler @ Main # 781-944-4900 x 32 Duane Sandler cel # l=781-264-2035. .

RESIDENTIAL GRID

1st Res Grid	Desc:	# Units	

Level	FY	LR	DR	D	K	FR	RR	BR	FB	HB	L	O
Other												
Upper												
Lvl 2												
Lvl 1												
Lower												

Totals	RMs:	BRs:	Baths:	HB

REMODELING

Exterior:	
Interior:	
Additions:	
Kitchen:	
Baths:	
Plumbing:	
Electric:	
Heating:	
General:	

RES BREAKDOWN

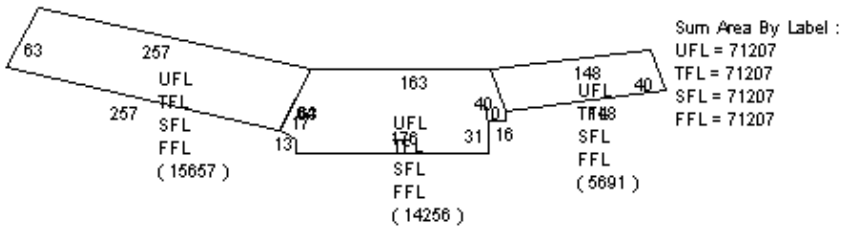
No Unit	RMS	BRS	FL
Totals			

COMPARABLE SALES

Rate	Parcel ID	Typ	Date	Sale Price

WtAv$/SQ:		AvRate:	Ind.Val
Juris. Factor:		Before Depr:	223.14
Special Features:	100	Val/Su Net:	148.31
Final Total:	42243800	Val/Su SzAd	148.31

SKETCH



SUB AREA

Code	Description	Area - SQ	Rate - AV	Undepr Value
FFL	1ST FLOOR	71,208	135.680	9,661,157
SFL	2ND FLOOR	71,208	135.680	9,661,157
TFL	3RD FLOOR	71,208	135.680	9,661,157
UFL	UPPR FLOOR	71,208	132.960	9,467,933

Net Sketched Area:	284,832		Total:	38,451,404	
Size Ad	284832	Gross Are	284832	FinArea	284832

SUB AREA DETAIL

Sub Area	% Usbl	Descrip	% Type	Qu	# Ten
UFL	100		2	A	

IMAGE

AssessPro Patriot Properties, Inc

MOBILE HOME

Make:		Model:		Serial #:		Year:		Color:	

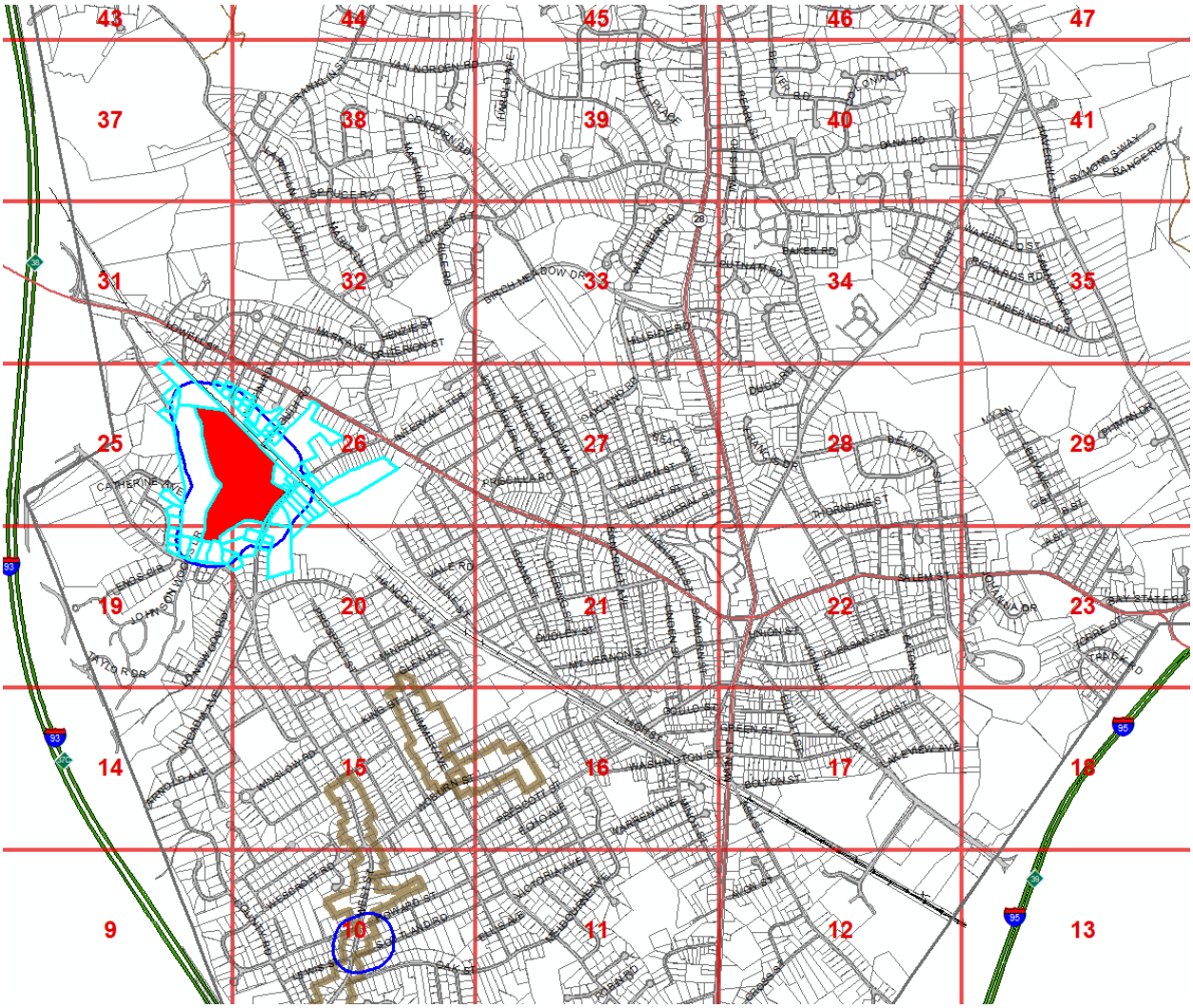
PARCEL ID

026.0-0000-0074.0

SPEC FEATURES/YARD ITEMS

Code	Description	A	Y/S	Qty	Size/Dim	Qual	Con	Year	Unit Price	D/S	Dep	LUC	Fact	NB Fa	Appr Value	JCod	JFact	Juris. Value
41	IMP SHD	D	Y	1	2800	A	AV	1982	3.15	T	39	941			5,400			5,400
120	FIRE ALARM	M	S	1	1	A	AV	1978	100.00	B	33.2	941			100			100
41	IMP SHD	D	Y	1	72	A	AV	1982	7.50	T	39	941			300			300
27	TENNIS C	D	Y	8	1	A	AV	1982	18,000.00	T	39	941			87,800			87,800
3	GARAGE	D	Y	1	990	A	AV	1982	22.78	T	29.2	941			16,000			16,000
242	RETAING-WALL	D	Y	1	50X10	A	AV	2019		T	0	941						
41	IMP SHD	D	Y	1	6X12	A	AV	2019	7.50	T	5	941			500			500
41	IMP SHD	D	Y	1	16X36	A	AV	2019	4.44	T	5	941			2,400			2,400

More:	N	Total Yard Items:	112,400	Total Special Featues:	100	Total:	112,500


43
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13
93
95
CATHERINE ST
FRANKLIN ST
SPRUCE RD
BIRCH MEADOW DR
BAKER RD
DUTTON RD
HUSSEY RD
DUSTY RD
OAK ST
PROSPECT ST
SUMMER AVE
WASHINGTON ST
UNION ST
ESSEX ST
SALEM ST
BOLTON ST
MAIN ST
WATER ST
PARK ST
GREEN ST
PLEASANT ST
MILL ST
SCHOOL ST
CHURCH ST
HIGH ST
LINCOLN ST
WILLOW ST
ELM ST
PINE ST
CEDAR ST
MAPLE ST
WALNUT ST
BROADWAY
FOREST ST
RAILROAD AVE
RAILROAD ST
MAIN ST
SUTTON RD
OXFORD RD
DOUGLAS RD
DUDLEY RD
STURBRIDGE RD
CHARLTON RD
SOUTHBRIDGE RD
WORCESTER RD
GRAFTON RD
MILLBURY ST
WEST BOYLSTON ST
WEST MAIN ST
PLEASANT VALLEY ST
MILLBROOK RD
GOLDEN HILL RD
HOPE AVE
PROVIDENCE RD
MENDON RD
UXBRIDGE RD
DOUGLAS AVE
WEBSTER ST
MILLVILLE RD
WEST RIVER ST
WEST RIVER DR
WEST RIVER TER
WEST RIVER CIR
WEST RIVER RD
WEST RIVER
WEST RIVER


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16
17
Summer Avenue Historic District
West Street Historic District
Woburn Street National Register District

ANTONIO BIASELLA TRUST
BIASELLA ANTONIO TRUSTEE
80 CAUSEWAY RD
READING. MA 01867

AUGUSTINIAN H.S. OF READING
10 WILLOW STREET
READING. MA 01867

AUGUSTINIAN H.S.OF READING
10 WILLOW ST
READING. MA 01867

AUSTIN PREP SCHOOL
101 WILLOW ST
READING. MA 01867

AUSTIN PREPARATORY SCHOOL
101 WILLOW STREET
READING. MA 01867

BECKSTROM ERIK D
BECKSTROM SELMIRA TE
443 WEST ST
READING. MA 01867

BOSTON GAS COMPANY
D/B/A NATIONAL GRID
40 SYLVAN RD - PROPERTY TAX DEPT
WALTHAM. MA 02451

CRAWFORD JAMES J
CRAWFORD ANN JT
115 WILLOW ST
READING. MA 01867

CULLERS HARRY R
CULLERS MARCIA W
74 CAUSEWAY RD
READING. MA 01867

DABNEY ELIJAH T
BARBOSA AMANDA A JTROS
80 WILLOW ST
READING. MA 01867

DILEO RENATO TRUSTEE (1/2)
DILEO MARTHA M TRUSTEE (1/2)
114 WILLOW ST
READING. MA 01867

DODGE MICHAEL D
DODGE DEANNA B
121 WILLOW STREET
READING. MA 01867

DP HOGAN FAMILY TRUST
HOGAN DANIEL W IV TR
72 WILLOW ST
READING. MA 01867

EICHELBERGER WILLIAM J
KAREN A EICHELBERGER
1 BARROWS RD
READING. MA 01867

EISENMAN STEVEN A
EISENMAN ELAINE J TE
467 WEST ST
READING. MA 01867

FITZPATRICK THOMAS J
24 DUSTIN RD
READING. MA 01867

FORISTALL JOHN E
KRISTIN FORISTALL
28 SUMMER AVE
READING. MA 01867

GARRITY DONALD P III
JESSICA M DEMBOWSKI
25 SELFRIDGE RD
READING. MA 01867

GOODFELLOW JOHN J TSTEE ETAL
KELLEY GOODFELLOW FAMILY TRUST
76 WILLOW ST
READING. MA 01867

GREENYER LUCY M TRUSTEE
LUCY M GREENYER REVOC TRUST
34 PLYMOUTH RD
READING. MA 01867

HANLEY KAREN L
BRIGID A MCNIFF
479 WEST ST
READING. MA 01867

HANSON LINDA
27 DUSTIN ROAD
READING. MA 01867

JAGELSKY JONATHAN
JAGELSKY MEGAN TE
6 PILGRIM ROAD
READING. MA 01867

KESLER ANDREW S
KESLER MEREDITH L
10 PILGRIM RD
READING. MA 01867

LACEY PLUMLEY COLLEEN
LACEY PLUMLEY AMY TE
14 WALSH STREET
STONEHAM . MA 02180

MIRASOLO STEVEN E
MIRASOLO AMY B
3 PILGRIM RD
READING. MA 01867

MONAHAN JENNIFER
QUILLINAN BRENDAN TE
84 WILLOW ST
READING. MA 01867

MONTESSORI CHILDRENS HOUSE
OF MIDDLESEX, INC.
453 WEST ST
READING. MA 01867

MURRAY ALLISON K
TOBIN TAYLOR A JTROS
20 COAKLEY WAY
READING. MA 01867

NESTOR BRIAN J TRUSTEE
PETER E NESTOR IRREVOC TRUST
11 SELFRIDGE RD
READING. MA 01867

NOLTY CHRISTOPHER T
ANNE MARIE HUNTER
35 PLYMOUTH RD
READING. MA 01867

O`MEARA CATHERINE P
MICHAEL F O`MEARA
17 SELFRIDGE ROAD
READING. MA 01867

OBRIEN JOANNE & PATRICIA ETAL
27 PLYMOUTH RD
READING. MA 01867

RAMBO SARAH E
461 WEST ST
READING. MA 01867

RANDALL BROOKE
28 PLYMOUTH RD
READING. MA 01867

RICHARDSON ANDREW TRUSTEE
THE RINDONE IRREVOC TRUST LE
60 WILLOW ST
READING. MA 01867

RUTTER MATTHEW FARNSWORTH
RUTTER MORGAN LEIGH TE
81 CAUSEWAY ROAD
READING. MA 01867

SCHANCK WAYNE C
ERIN L CODE
7 PILGRIM RD
READING. MA 01867

SELLITTO SABATO NINO
MARIANNE SELLITTO
118 WILLOW ST
READING. MA 01867

SHEVLIN CHARLES
SHEVLIN JENNIFER
45 CATHERINE AVE
READING. MA 01867

SOCCORSO ELIZABETH ANN
59 WILLOW ST
READING. MA 01867

SUNDERWIRTH KEENAN
HERLITZ STEFAN TE
19 DUSTIN RD
READING. MA 01867

TAURO LISAMARIE
VASANTHAKUMAR ANTHONY TE
23 DUSTIN RD
READING. MA 01867

THAYER SCOTT E TRUSTEE
SC THAYER FAMILY TRUST
475 WEST ST
READING. MA 01867

TIERNEY JR JOHN T TRUSTEE ETAL
KJ TIERNEY FAMILY TRUST
33 PLYMOUTH RD
READING. MA 01867

TOWN OF READING
CONS.
16 LOWELL ST
READING. MA 01867

TOWN OF READING
WATER DEPT
16 LOWELL STREET
READING. MA 01867

TOWN OF READING
WATER DEPT
16 LOWELL STREET
READING. MA 01867

TOWN OF READING
WATER DEPT
16 LOWELL STREET
READING. MA 01867

TOWN OF READING
16 LOWELL STREET
READING. MA 01867

TOWN OF READING
CONSERVATION
16 LOWELL ST
READING. MA 01867

WILLIAMS BARBARA J
7 SELFRIDGE RD
READING. MA 01867

TOWN OF READING

REQUEST FOR CERTIFIED ABUTTERS LIST

RECEIVED
MAY 05 2025
By

SUBJECT PROPERTY:

ADDRESS: 101 Willow St., Reading, MA

Assessors' Map Number: S-20 Lot Number: 026.0-0000-0074.0 and Map 25 Lot 45

APPLICANT/AGENT:

Name: Robert Brewer

Address: 3 Mill & Main, Maynard, MA, 01754

Telephone: 508-933-5461 Email: rbrewer@epsilonassociates.com

Board or Commission for which this request is made (check all that are applicable):

Community Planning and Development Commission:

- ☐ Site Plan Review (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Subdivision (300 feet)

Conservation Commission:

- ☐ Request for Determination (300 feet)
- ☐ Abbreviated Notice of Resource Area Delineation (300 feet)
- ☑ Notice of Intent (300 feet)

Zoning Board of Appeals:

- ☐ Appeal (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Variance (300 feet)

- ☐ **Building Department: Immediate Abutters**
- ☐ **Health Department: Immediate Abutters**
- ☐ **Historic District Commission** (300 feet)
- ☐ **Historical Commission** (300 feet)
- ☐ **Other:** _____

Brief description of request: Seeking certified abutter's list to complete NOI for improvements to an existing softball facility, landscaping, and parking areas on the campus of Austin Preparatory School.

Applicant/Agent Signature: Robert Brewer Digitally signed by Robert Brewer Date: 2025.05.01 14:08:17 -04'00' Date: 5/1/2025

The Assessors' Office may require up to three weeks in order to process and approve this request.

Authorized Signature: _____ Date: 5/5/2025

Must be signed by the Public Services Department

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
TEL.: 781-942-9027
FAX: 781-942-9037

January 2025

To whom it may concern:

In an effort to streamline our business practices and desire to decrease turnaround time for taxpayers and other municipal departments, please be advised that effective this date, we the Board of Assessors for the Town of Reading hereby delegate to the Town Chief Assessor of the Assessing Department signatory authority of all Certified Abutters Lists as compiled by the department.

Sincerely,

Reading Board of Assessors

Michael E. Golden **Brendan Zarechian** **Jean Paul Plouffe**

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
781-942-9027
FAX: 781-942-9037

ABUTTERS LIST

CERTIFICATION

FOR BOARD OF ASSESSORS

VICTOR P. SANTANIELLO, CHIEF ASSESSOR	**DATE**
MKeohan	5/5/25
MICHELE L. KEOHAN, ASSISTANT ASSESSOR	**DATE**

Patriot Properties

Reading

05/05/2025

9:32:20AM

Abutters List

Filter Used: DataProperty.AccountNumber in (5004,3383,3374,4984,5008,4994,4978,3380,4983,4987,4988,4986,3771,3379,3373,4995,4985,4979,3769,4981,3375,4980,3376,5003,3381,5007,4982,5102,5006,3382,3354,5015..

Reading
Abutters List

Subject Parcel ID: ***101 WILLOW ST MAP25 LOT 45 REPORT***

Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
019.0-0000-0049.0	490 WEST ST	ZURCHER MARK P	JENNIFER N ZURCHER	490 WEST ST	READING	MA	01867
019.0-0000-0053.0	480 WEST ST	ENOS CLARENCE W	ENOS HELEN	480 WEST ST	READING	MA	01867
019.0-0000-0067.0	479 WEST ST	HANLEY KAREN L	BRIGID A MCNIFF	479 WEST ST	READING	MA	01867
019.0-0000-0068.0	495 WEST ST	SAVINO DOMENIC	JULIE M SULLIVAN-SAVINO	495 WEST ST	READING	MA	01867
019.0-0000-0069.0	503 WEST ST	SEVIGNY GERARD O		503 WEST ST	READING	MA	01867
019.0-0000-0070.0	11 SELFRIDGE RD	NESTOR BRIAN J TRUSTEE	PETER E NESTOR IRREVOC	11 SELFRIDGE RD	READING	MA	01867
019.0-0000-0071.0	7 SELFRIDGE RD	WILLIAMS BARBARA J		7 SELFRIDGE RD	READING	MA	01867
019.0-0000-0074.0	443 WEST ST	BECKSTROM ERIK D	BECKSTROM SELMIRA TE	443 WEST ST	READING	MA	01867
019.0-0000-0075.0	453 WEST ST	MONTESSORI CHILDRENS HOUSE	OF MIDDLESEX, INC.	453 WEST ST	READING	MA	01867
019.0-0000-0076.0	461 WEST ST	RAMBO SARAH E		461 WEST ST	READING	MA	01867
019.0-0000-0077.0	475 WEST ST	THAYER SCOTT E TRUSTEE	SC THAYER FAMILY TRUST	475 WEST ST	READING	MA	01867
019.0-0000-0078.0	467 WEST ST	EISENMAN STEVEN A	EISENMAN ELAINE J TE	467 WEST ST	READING	MA	01867
020.0-0000-0309.0	121 WILLOW ST	DODGE MICHAEL D	DODGE DEANNA B	121 WILLOW STREET	READING	MA	01867
020.0-0000-0311.0	WILLOW ST	AUSTIN PREPARATORY SCHOOL		101 WILLOW STREET	READING	MA	01867
025.0-0000-0018.0	28 CATHERINE AVE	WALSH THOMAS E	STEFANIE P WALSH	28 CATHERINE AVE	READING	MA	01867
025.0-0000-0019.0	32 CATHERINE AVE	CULLEN LANCE E		32 CATHERINE AVE	READING	MA	01867
025.0-0000-0020.0	40 CATHERINE AVE	LONG JEFFREY L ETAL TRUSTEE	JEFFREY L LONG FAMILY TF	40 CATHERINE AVE	READING	MA	01867
025.0-0000-0021.0	44 CATHERINE AVE	BACKER GENEVIEVE		44 CATHERINE AVE	READING	MA	01867
025.0-0000-0022.0	46 CATHERINE AVE	GUPTILL NICHOLAS J	RUANE FRANCIS X JTROS	46 CATHERINE AVE	READING	MA	01867
025.0-0000-0023.0	45 CATHERINE AVE	SHEVLIN CHARLES	SHEVLIN JENNIFER	45 CATHERINE AVE	READING	MA	01867
025.0-0000-0024.0	31 SELFRIDGE RD	NEAL KEVIN		31 SELFRIDGE RD	READING	MA	01867
025.0-0000-0025.0	25 SELFRIDGE RD	GARRITY DONALD P III	JESSICA M DEMBOWSKI	25 SELFRIDGE RD	READING	MA	01867
025.0-0000-0026.0	17 SELFRIDGE RD	O`MEARA CATHERINE P	MICHAEL F O`MEARA	17 SELFRIDGE ROAD	READING	MA	01867
025.0-0000-0027.0	18 SELFRIDGE RD	LINDMARK BRIAN	ANDREA LINDMARK	18 SELFRIDGE RD	READING	MA	01867
025.0-0000-0028.0	30 SELFRIDGE RD	SVENSSON ROBERT	LOMBARDO PORTIA TE	30 SELFRIDGE RD	READING	MA	01867
025.0-0000-0034.0	39 SELFRIDGE RD	HANRAHAN MARK	MAUREEN HANRAHAN	39 SELFRIDGE RD	READING	MA	01867
025.0-0000-0035.0	37 CATHERINE AVE	BROWN MARY ELIZABETH	NORTHRUP APRIL TE	37 CATHERINE AVE	READING	MA	01867
025.0-0000-0043.0	W OF LOWELL ST	AUGUSTINIAN H.S. OF READING		10 WILLOW STREET	READING	MA	01867
025.0-0000-0044.0	OFF WEST ST	AUGUSTINIAN HS OFREADING		OFF WEST ST	READING	MA	01867
025.0-0000-0045.0	OFF WEST ST	AUGUSTINIAN H.S.OF READING		10 WILLOW ST	READING	MA	01867
025.0-0000-0046.0	80 CAUSEWAY RD	ANTONIO BIASELLA TRUST	BIASELLA ANTONIO TRUSTE	80 CAUSEWAY RD	READING	MA	01867
025.0-0000-0047.0	74 CAUSEWAY RD	CULLERS HARRY R	CULLERS MARCIA W	74 CAUSEWAY RD	READING	MA	01867
025.0-0000-0048.0	66 CAUSEWAY RD	CHAPMAN STEPHEN A	CHAPMAN CAROL A	66 CAUSEWAY ROAD	READING	MA	01867
025.0-0000-0053.0	65 CAUSEWAY RD	DRAGONFLY REVOCABLE TRUST	JONES SHERYL S TRUSTEE	65 CAUSEWAY RD	READING	MA	01867
025.0-0000-0054.0	73 CAUSEWAY RD	KERMAN JILLIAN	KERMAN MAXWELL	73 CAUSEWAY RD	READING	MA	01867
025.0-0000-0055.0	81 CAUSEWAY RD	RUTTER MATTHEW FARNSWORTH	RUTTER MORGAN LEIGH TE	81 CAUSEWAY ROAD	READING	MA	01867
026.0-0000-0074.0	101 WILLOW ST	AUSTIN PREP SCHOOL		101 WILLOW ST	READING	MA	01867

Subject Parcel ID: ***101 WILLOW ST MAP25 LOT 45 REPORT***

Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip

Parcel Count: **37**

End of Report

025.0	0000	0045.0		1 of 1	*Reading*
Map	Lot	Sub	Sublot	CARD	

	Total Card	/	Total Parcel
APPRAISED:	159,400	/	159,400
USE VALUE:	159,400	/	159,400
ASSESSED:	159,400	/	159,400

PROPERTY LOCATION

No	Alt No	Direction/Street/City
OFF		WEST ST, READING

OWNERSHIP

Unit #:

Owner 1:	AUGUSTINIAN H.S.OF READING	
Owner 2:		
Owner 3:		
Street 1:	10 WILLOW ST	
Street 2:		
Twn/City:	READING	
St/Prov:	MA	Cntry: / Own Occ:
Postal:	01867	Type:

PREVIOUS OWNER

Owner 1:	
Owner 2:	
Street 1:	
Twn/City:	
St/Prov:	Cntry:
Postal:	

NARRATIVE DESCRIPTION

This Parcel contains 12.551 ACRES of land mainly classified as EDUPRVT SCDY

OTHER ASSESSMENTS

Code	Descrip/No	Amount	Com. Int

PROPERTY FACTORS

Item	Code	Description	%	Item	Code	Description
Z	S20	SINGLE FA	100	water		
o				Sewer		
n				Electri		
Census:				Exmpt		
Flood Haz:						
D	READ	READ	100	Topo		
s				Street	N	NONE
t				Gas:	N	NONE

IN PROCESS APPRAISAL SUMMARY

Use Code	Land Size	Building Value	Yard Items	Land Value	Total Value
941	12.551			159,400	159,400
Total Card	12.551			159,400	159,400
Total Parcel	12.551			159,400	159,400

Source: Market Adj Cost | Total Value per SQ unit /Card: N/A | /Parcel: N/A

Legal Description

User Acct 1100000000040

GIS Ref

GIS Ref

Insp Date

Entered Lot Size	
Total Land:	12.551
Land Unit Type:	AC

PREVIOUS ASSESSMENT

Parcel ID: 025.0-0000-0045.0

!5005!

Tax Yr	Use	Cat	Bldg Value	Yrd Items	Land Size	Land Value	Total Value	Asses'd Value	Notes	Date
2025	941	FV		0	12.551	159,400	159,400		Year End	12/11/2024
2024	941	FV		0	12.551	153,100	153,100		Year end	1/10/2024
2024	941	PTCH		0	12.551	138,100	138,100	138,100	patch	4/27/2023
2023	941	FV		0	12.551	138,100	138,100	138,100	Year end	1/9/2023
2022	941	FV		0	12.551	125,500	125,500	125,500	Year end	12/20/2021
2021	941	FV		0	12.551	154,400	154,400	154,400	Year End Roll	12/15/2020
2020	941	FV		0	12.551	149,400	149,400	149,400	Year End Roll	12/17/2019
2019	941	FV		0	12.551	141,800	141,800	141,800	YER	12/12/2018

PRINT

Date	Time
05/05/25	09:34:57

LAST REV

Date	Time
06/07/16	14:35:25
apro	

SALES INFORMATION

TAX DISTRICT:

PAT ACCT.: 5005

Grantor	Legal Ref	Type	Date	Sale Code	Sale Price	V	Tst	Verif	Notes
	10064-0232		6/1/1961		64,000	No	No		

BUILDING PERMITS

Date	Number	Descrip	Amount	C/O	Last Visit	Fed Code	F. Descrip	Comment

ACTIVITY INFORMATION

Date	Result	By	Name
12/4/2023	CYCLICAL	PC	PC

Sign: VERIFICATION OF VISIT NOT DATA __/__/__

USER DEFINED

Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
Prior Id # 1:	
Prior Id # 2:	
Prior Id # 3:	
ASR Map:	
Fact Dist:	
Reval Dist:	
Year:	
LandReason:	
BldReason:	
CivilDistrict:	
Ratio:	

LAND SECTION (First 7 lines only)

Use Code	Description	LUC Fact	No of Units	Depth / PriceUnits	Unit Type	Land Type	LT Factor	Base Value	Unit Price	Adj	Neigh	Neigh Influ	Neigh Mod	Infl 1	%	Infl 2	%	Infl 3	%	Appraised Value	Alt Class	%	Spec Land	J Code	Fact	Use Value	Notes
941	EDUPRVT SC		12.551		ACRES	UNDEVELOPA	1.0	0	10,000.	1.27	XA	1.27								159,398						159,400	

Total AC/HA:	12.55100	Total SF/SM:	546722	Parcel LUC:	941	EDUPRVT SCDY	Prime NB Desc:	TRAF AV	Total:	159,398	Spl Credit		Total:	159,400

EXTERIOR INFORMATION

Type:			
Sty Ht:			
(Liv) Units:		Total:	
Foundation:			
Frame:			
Prime Wall:			
Sec Wall:			%
Roof Struct:			
Roof Cover:			
Color:			
View / Desir:			

GENERAL INFORMATION

Grade:			
Year Blt:		Eff Yr Blt:	
Alt LUC:		Alt %:	
Jurisdict:		Fact:	.
Const Mod:			
Lump Sum Adj:			

INTERIOR INFORMATION

Avg Ht/FL:			
Prim Int Wall			
Sec Int Wall:			%
Partition:			
Prim Floors:			
Sec Floors:			%
Bsmnt Flr:			
Subfloor:			
Bsmnt Gar:			
Electric:			
Insulation:			
Int vs Ext:			
Heat Fuel:			
Heat Type:			
# Heat Sys:			
% Heated:		% AC:	
Solar HW:		Central Vac:	
% Com Wall		% Sprinkled:	

BATH FEATURES

Full Bath		Rating:	
A Bath:		Rating:	
3/4 Bath:		Rating:	
A 3QBth		Rating:	
1/2 Bath:		Rating:	
A HBth:		Rating:	
OthrFix:		Rating:	

OTHER FEATURES

Kits:		Rating:	
A Kits:		Rating:	
Frpl:		Rating:	
WSFlue:		Rating:	

CONDO INFORMATION

Location:	
Total Units:	
Floor:	
% Own:	
Name:	

DEPRECIATION

Phys Cond:	AV - Average	0.0	%
Functional:			%
Economic:			%
Special:			%
Override:			%
Total:		0	%

CALC SUMMARY

Basic $ / SQ:	
Size Adj.:	1.00000000
Const Adj.:	8.00000000
Adj $ / SQ:	
Other Features:	0
Grade Factor:	
NBHD Inf:	1.26999998
NBHD Mod:	
LUC Factor:	1.00
Adj Total:	0
Depreciation:	0
Depreciated Total:	0

COMMENTS

RESIDENTIAL GRID

1st Res Grid	Desc:		# Units

Level	FY	LR	DR	D	K	FR	RR	BR	FB	HB	L	O
Other												
Upper												
Lvl 2												
Lvl 1												
Lower												

Totals	RMs:		BRs:		Baths:		HB	

REMODELING

Exterior:	
Interior:	
Additions:	
Kitchen:	
Baths:	
Plumbing:	
Electric:	
Heating:	
General:	

RES BREAKDOWN

No Unit	RMS	BRS	FL
Totals			

SKETCH

COMPARABLE SALES

Rate	Parcel ID	Typ	Date	Sale Price

WtAv$/SQ:		AvRate:		Ind.Val	

Juris. Factor:		Before Depr:	0.00
Special Features:	0	Val/Su Net:	
Final Total:	0	Val/Su SzAd	

SUB AREA

Code	Description	Area - SQ	Rate - AV	Undepr Value

Net Sketched Area:		Total:		
Size Ad		Gross Are		FinArea

SUB AREA DETAIL

Sub Area	% Usbl	Descrip	% Type	Qu	# Ten

IMAGE

AssessPro Patriot Properties, Inc

MOBILE HOME

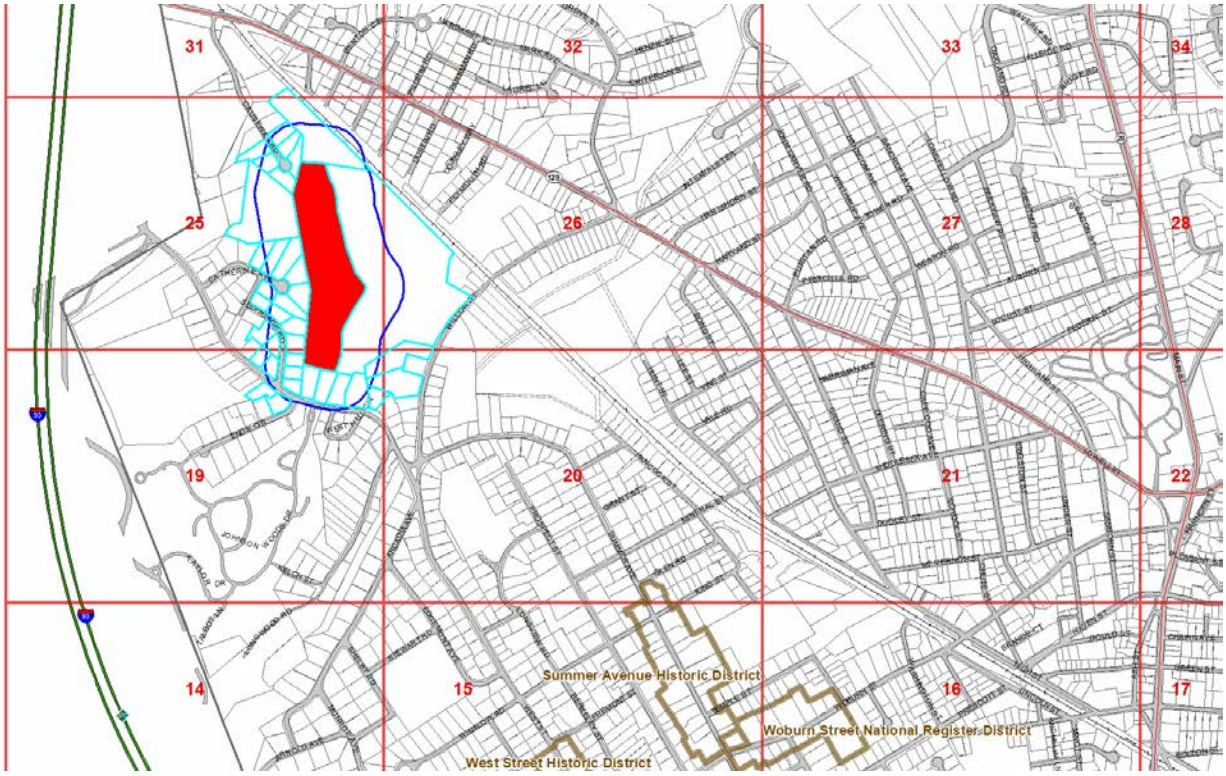
Make:		Model:		Serial #:		Year:		Color:	

SPEC FEATURES/YARD ITEMS

PARCEL ID 025.0-0000-0045.0

Code	Description	A	Y/S	Qty	Size/Dim	Qual	Con	Year	Unit Price	D/S	Dep	LUC	Fact	NB Fa	Appr Value	JCod	JFact	Juris. Value

More:	N	Total Yard Items:		Total Special Featues:		Total:	


31
32
33
34
25
26
27
28
19
20
21
22
14
15
16
17
Summer Avenue Historic District
Woburn Street National Register District
West Street Historic District


31
32
33
25
26
27
19
20
21
14
15
16
Summer Avenue Historic District
Woburn Street National Register District

ANTONIO BIASELLA TRUST
BIASELLA ANTONIO TRUSTEE
80 CAUSEWAY RD
READING. MA 01867

AUGUSTINIAN H.S. OF READING
10 WILLOW STREET
READING. MA 01867

AUGUSTINIAN H.S.OF READING
10 WILLOW ST
READING. MA 01867

AUGUSTINIAN HS OFREADING
OFF WEST ST
READING. MA 01867

AUSTIN PREP SCHOOL
101 WILLOW ST
READING. MA 01867

AUSTIN PREPARATORY SCHOOL
101 WILLOW STREET
READING. MA 01867

BACKER GENEVIEVE
44 CATHERINE AVE
READING. MA 01867

BECKSTROM ERIK D
BECKSTROM SELMIRA TE
443 WEST ST
READING. MA 01867

BROWN MARY ELIZABETH
NORTHRUP APRIL TE
37 CATHERINE AVE
READING. MA 01867

CHAPMAN STEPHEN A
CHAPMAN CAROL A
66 CAUSEWAY ROAD
READING. MA 01867

CULLEN LANCE E
32 CATHERINE AVE
READING. MA 01867

CULLERS HARRY R
CULLERS MARCIA W
74 CAUSEWAY RD
READING. MA 01867

DODGE MICHAEL D
DODGE DEANNA B
121 WILLOW STREET
READING. MA 01867

DRAGONFLY REVOCABLE TRUST
JONES SHERYL S TRUSTEE
65 CAUSEWAY RD
READING. MA 01867

EISENMAN STEVEN A
EISENMAN ELAINE J TE
467 WEST ST
READING. MA 01867

ENOS CLARENCE W
ENOS HELEN
480 WEST ST
READING. MA 01867

GARRITY DONALD P III
JESSICA M DEMBOWSKI
25 SELFRIDGE RD
READING. MA 01867

GUPTILL NICHOLAS J
RUANE FRANCIS X JTROS
46 CATHERINE AVE
READING. MA 01867

HANLEY KAREN L
BRIGID A MCNIFF
479 WEST ST
READING. MA 01867

HANRAHAN MARK
MAUREEN HANRAHAN
39 SELFRIDGE RD
READING. MA 01867

KERMAN JILLIAN
KERMAN MAXWELL
73 CAUSEWAY RD
READING. MA 01867

LINDMARK BRIAN
ANDREA LINDMARK
18 SELFRIDGE RD
READING. MA 01867

LONG JEFFREY L ETAL TRUSTEES
JEFFREY L LONG FAMILY TRUST
40 CATHERINE AVE
READING. MA 01867

MONTESSORI CHILDRENS HOUSE
OF MIDDLESEX, INC.
453 WEST ST
READING. MA 01867

NEAL KEVIN
31 SELFRIDGE RD
READING. MA 01867

NESTOR BRIAN J TRUSTEE
PETER E NESTOR IRREVOC TRUST
11 SELFRIDGE RD
READING. MA 01867

O`MEARA CATHERINE P
MICHAEL F O`MEARA
17 SELFRIDGE ROAD
READING. MA 01867

RAMBO SARAH E
461 WEST ST
READING. MA 01867

RUTTER MATTHEW FARNSWORTH
RUTTER MORGAN LEIGH TE
81 CAUSEWAY ROAD
READING. MA 01867

SAVINO DOMENIC
JULIE M SULLIVAN-SAVINO
495 WEST ST
READING. MA 01867

SEVIGNY GERARD O
503 WEST ST
READING. MA 01867

SHEVLIN CHARLES
SHEVLIN JENNIFER
45 CATHERINE AVE
READING. MA 01867

SVENSSON ROBERT
LOMBARDO PORTIA TE
30 SELFRIDGE RD
READING. MA 01867

THAYER SCOTT E TRUSTEE
SC THAYER FAMILY TRUST
475 WEST ST
READING. MA 01867

WALSH THOMAS E
STEFANIE P WALSH
28 CATHERINE AVE
READING. MA 01867

WILLIAMS BARBARA J
7 SELFRIDGE RD
READING. MA 01867

ZURCHER MARK P
JENNIFER N ZURCHER
490 WEST ST
READING. MA 01867

Attachment D

Filing Fee

Reading Wetlands Protection Bylaw Fee Calculation Form

Type of Activity	NOI Filing Fee	Calculated Fee
A. Each addition to or accessory use activity Associated with an existing single-family or Multi-family residential dwelling, including but not limited to driveways, sheds, swimming pools, athletic courts, additions to existing houses, grading, and landscaping	$125.00 plus all applicable fees listed in lines F though K	
B. Each new single-family dwelling, including associated driveway, utilities, grading, landscaping, and drainage structures	$600.00 plus all applicable fees listed in lines F though K	
C. Each new multi-family dwelling	$600.00 plus $125.00 per unit located in any Resource Area or Buffer Zone, plus all applicable fees listed in lines F though K	
D. Each subdivision roadway, or other roadway, or driveway (other than for a single-family dwelling), and all associated drainage structures, utilities, grading, curbing, landscaping, and other associated work exclusive of dwellings	$1,000.00 plus $600.00 per house, plus all applicable fees listed in lines F though K	
E. Each commercial, industrial, institutional or other non-residential project	$1,000.00 , plus all applicable fees listed in lines F though K	$1,000.00
F. Boundary delineation for any Resource Area	$1.25 per linear foot of Resource Area boundary, up to a maximum of $125 for a single-family lot and $1,250 for any other lot.	$1,250.00
G. Temporary and /or permanent alteration of land within the Buffer Zone	$1.25 per square foot of Buffer Zone altered for any temporary or permanent alteration within 25 feet of a Resource Area or any permanent structure within 35 feet of a Resource Area	
H. Work in Floodplain	$1.25 per square foot of Floodplain temporarily or permanently altered outside of any other Resource Area and Buffer Zone	
I. Work in Vernal Pool habitat	$11.00 per square foot of Vernal Pool habitat temporarily or permanently altered.	
J. Work in Freshwater Wetland, Wet Meadow, Bog, Swamp, Marsh, Creek, River, Stream, Pond, Lake, Land Under Waterbody	$11.00 per square foot of Resource Area temporarily or permanently altered	
K. Work in Bank	$11.00 per linear foot of Bank temporarily or permanently altered	
	Total Fee Calculated	$ $2,250.00

Attachment E

Bordering Vegetated Wetland Determination Forms

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 101 Willow Street City/Town: Reading Sampling Date: 3/25/2025

Applicant/Owner: Austin Prep Sampling Point or Zone: A-Series Upland

Investigator(s): Greg Hochmuth, PWS, CWS Latitude / Longitude: 42.52915 / -71.12502

Soil Map Unit Name: 655, Udorthents NWI or DEP Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks)

Are Vegetation [ ], Soil [ ] , or Hydrology [ ] significantly disturbed? (If yes, explain in Remarks)

Are Vegetation [ ], Soil [ ] , or Hydrology [ ] naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc.

Wetland vegetation criterion met?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soils criterion met?	Yes [ ]	No [✓]	
Wetlands hydrology present?	Yes [ ]	No [✓]	

Remarks, Photo Details, Flagging, etc.:

HYDROLOGY

Field Observations:			
Surface Water Present?	Yes [ ]	No [✓]	Depth (inches)_____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches)_____
Saturation Present (including capillary fringe)?	Yes [ ]	No [✓]	Depth (inches)_____

Wetland Hydrology Indicators

Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
[ ] Water-stained leaves	[ ] Hydrological records	[ ] Direct observation of inundation
[ ] Evidence of aquatic fauna	[ ] Free water in a soil test hole	[ ] Drainage patterns
[ ] Iron deposits	[ ] Saturated soil	[ ] Drift lines
[ ] Algal mats or crusts	[ ] Water marks	[ ] Scoured areas
[ ] Oxidized rhizospheres/pore linings	[ ] Moss trim lines	[ ] Sediment deposits
[ ] Thin muck surfaces	[ ] Presence of reduced iron	[ ] Surface soil cracks
[ ] Plants with air-filled tissue (aerenchyma)	[ ] Woody plants with adventitious roots	[ ] Sparsely vegetated concave surface
[ ] Plants with polymorphic leaves	[ ] Trees with shallow root systems	[ ] Microtopographic relief
[ ] Plants with floating leaves	[ ] Woody plants with enlarged lenticels	[ ] Geographic position (depression, toe of slope, fringing lowland
[ ] Hydrogen sulfide odor		

Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

Form Revised July 2023

VEGETATION – Use both common and scientific names of plants.

Tree Stratum Plot size 1,000 s.f.

Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1. Red Oak	Quarcus rubra	FACU	38.0	Yes	No
2. Red Maple	Acer rubrum	FAC	20.5	Yes	Yes
3. Black Cherry	Prunus serotina	FACU	10.5	No	
4.					
5.					
6.					
7.					
8.					
9.					

69.0 = Total Cover

Shrub/Sapling Stratum Plot size 1,000 s.f.

Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1. Beaked Hazelnut	Corylus americana	FACU	38.0	Yes	No
2. Black Cherry	Prunus serotina	FACU	38.0	Yes	No
3. Multiflora Rose	Rosa multiflora	FACU	20.5	Yes	No
4.					
5.					
6.					
7.					
8.					
9.					

96.5 = Total Cover

Herb Stratum Plot size 1,000 s.f.

Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1. Canada Mayflower	Mainthemum canadensis	FACU	20.5	Yes	No
2. Partridgeberry	Mitchella repens	FACU	20.5	Yes	No
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

41.0 = Total Cover

VEGETATION – continued.

Woody Vine Stratum Plot size 1,000 s.f.

Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1. Asiatic Bittersweet	Celastrus orbiculatus	UPL	20.5	Yes	No
2.					
3.					
4.					
		20.5 = Total Cover			

Rapid Test: Do all dominant species have an indicator status of OBL or FACW? Yes ☐ No ☑

Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants	Do wetland indicator plants make up ≥ 50% of dominant plant species?
	8	1	Yes ☐ No ☑

Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species	0	X 1	= 0.00
	FACW species	0	X 2	= 0.00
	FAC species	0	X 3	= 0.00
	FACU species	0	X 4	= 0.00
	UPL species	0	X 5	= 0.00
	Column Totals	(A) 0		(B) 0
Prevalence Index		B/A = 0.00		Is the Prevalence Index ≤ 3.0? Yes ☐ No ☐

Wetland vegetation criterion met? Yes ☐ No ☑

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height

Shrub / Sapling - Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall

Herb - All herbaceous (non-woody plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall

Woody vines - All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.0 %
6-15 %	10.5 %
15-25 %	20.5 %
26-50 %	38.0 %
51-75 %	63.0 %
76-95 %	85.5 %
96-100 %	98.0 %

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type[1]	Location[2]		
0-8	10YR3/2	100.00	-				Sandy Loam	
8-18+	10YR5/6	100.00	-				Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		**Indicators for Problematic Hydric Soils**
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)	☐ 5 cm Mucky Peat or Peat (S3)
☐ Black Histic (A3)	☐ Loamy Gleyed Matrix (F2)	☐ Iron-Manganese Masses (F12)
☐ Hydrogen Sulfide (A4)	☐ Depleted Matrix (F3)	☐ Mesic Spodic (A17)
☐ Stratified Layers (A5)	☐ Redox Dark Surface (F6)	☐ Red Parent Material (F21)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Very Shallow Dark Surface (F22)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☐ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		
☐ Sandy Redox (S5)		☐ Other (Include Explanation in Remarks)
☐ Stripped Matrix (S6)		
☐ Dark Surface (S7)		

Restrictive Layer (if observed) Type: _____ Depth (inches): _____

Remarks:

Hydric Soils criterion met? **Yes** ☐ **No** ☑

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 101 Willow Street City/Town: Reading Sampling Date: 3/25/2025

Applicant/Owner: Austin Prep Sampling Point or Zone: A-Series Wetland

Investigator(s): Greg Hochmuth, PWS, CWS Latitude / Longitude: 42.52915 / -71.12502

Soil Map Unit Name: 655, Udorthents NWI or DEP Classification: PSS1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? (If yes, explain in Remarks)

Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc.

Wetland vegetation criterion met?	Yes [✓] No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soils criterion met?	Yes [✓] No [ ]	
Wetlands hydrology present?	Yes [✓] No [ ]	

Remarks, Photo Details, Flagging, etc.:

HYDROLOGY

Field Observations:			
Surface Water Present?	Yes [ ]	No [✓]	Depth (inches) ____
Water Table Present?	Yes [✓]	No [ ]	Depth (inches) 11.00
Saturation Present (including capillary fringe)?	Yes [✓]	No [ ]	Depth (inches) 8.00

Wetland Hydrology Indicators

Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
[✓] Water-stained leaves	[ ] Hydrological records	[ ] Direct observation of inundation
[ ] Evidence of aquatic fauna	[✓] Free water in a soil test hole	[ ] Drainage patterns
[ ] Iron deposits	[✓] Saturated soil	[ ] Drift lines
[ ] Algal mats or crusts	[ ] Water marks	[ ] Scoured areas
[ ] Oxidized rhizospheres/pore linings	[ ] Moss trim lines	[ ] Sediment deposits
[ ] Thin muck surfaces	[ ] Presence of reduced iron	[ ] Surface soil cracks
[ ] Plants with air-filled tissue (aerenchyma)	[ ] Woody plants with adventitious roots	[ ] Sparsely vegetated concave surface
[ ] Plants with polymorphic leaves	[ ] Trees with shallow root systems	[ ] Microtopographic relief
[ ] Plants with floating leaves	[ ] Woody plants with enlarged lenticels	[ ] Geographic position (depression, toe of slope, fringing lowland
[ ] Hydrogen sulfide odor		

Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

Form Revised July 2023

VEGETATION – Use both common and scientific names of plants.

Tree Stratum Plot size 1,000 s.f.

Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1. American Elm	Ulmus americana	FACW	20.5	Yes	Yes
2. Red Maple	Acer rubrum	FAC	38.0	Yes	Yes
3.					
4.					
5.					
6.					
7.					
8.					
9.					

58.5 = Total Cover

Shrub/Sapling Stratum Plot size 1,000 s.f.

Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1. Highbush Blueberry	Vaccinium corymbosum	FACW	20.5	Yes	Yes
2. Silky Dogwood	Cornus amomum	FACW	20.5	Yes	Yes
3. Red Maple	Acer rubrum	FAC	20.5	Yes	Yes
4. Beaked Hazelnut	Corylus cornuta	FACU	10.5	No	
5.					
6.					
7.					
8.					
9.					

72.0 = Total Cover

Herb Stratum Plot size 1,000 s.f.

Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1. Skunk Cabbage	Symplocarpus foetidus	OBL	10.5	Yes	Yes
2. Poison Ivy	Toxicodendron radicanss	FAC	10.5	Yes	Yes
3. Cinnamon Fern	Osmunda cinnamomea	FACW	20.5	Yes	Yes
4. Sensitive Fern	Onoclea sensibilis	FACW	10.5	Yes	Yes
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

52.0 = Total Cover

VEGETATION – continued.

Woody Vine Stratum	Plot size 1,000 s.f.				
Common name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)
1.					
2.					
3.					
4.					
			0.0 = Total Cover		

Rapid Test: Do all dominant species have an indicator status of OBL or FACW?				Yes ☐ No ☑
Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants		Do wetland indicator plants make up ≥ 50% of dominant plant species? Yes ☑ No ☐
	10	10		
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species	0	X 1	= 0.00
	FACW species	0	X 2	= 0.00
	FAC species	0	X 3	= 0.00
	FACU species	0	X 4	= 0.00
	UPL species	0	X 5	= 0.00
	Column Totals	(A) 0		(B) 0
Prevalence Index		B/A = 0.00		Is the Prevalence Index ≤ 3.0? Yes ☐ No ☐
Wetland vegetation criterion met?		**Yes** ☑	**No** ☐	

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height

Shrub / Sapling - Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall

Herb - All herbaceous (non-woody plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall

Woody vines - All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.0 %
6-15 %	10.5 %
15-25 %	20.5 %
26-50 %	38.0 %
51-75 %	63.0 %
76-95 %	85.5 %
96-100 %	98.0 %

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type[1]	Location[2]		
0-6	2.5Y2.5/1	100.00	-				FSL	
6-18	2.5Y5/2	85.00	10YR5/8	15.00	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		**Indicators for Problematic Hydric Soils**
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)	☐ 5 cm Mucky Peat or Peat (S3)
☐ Black Histic (A3)	☑ Loamy Gleyed Matrix (F2)	☐ Iron-Manganese Masses (F12)
☐ Hydrogen Sulfide (A4)	☐ Depleted Matrix (F3)	☐ Mesic Spodic (A17)
☐ Stratified Layers (A5)	☐ Redox Dark Surface (F6)	☐ Red Parent Material (F21)
☑ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Very Shallow Dark Surface (F22)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☐ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		
☐ Sandy Redox (S5)		☐ Other (Include Explanation in Remarks)
☐ Stripped Matrix (S6)		
☐ Dark Surface (S7)		

Restrictive Layer (if observed) Type: _____ Depth (inches): _____

Remarks:

Hydric Soils criterion met? **Yes** ☑ **No** ☐

Attachment F

Photo Attachment

Photo 1: Looking west towards school from B-Series BVW

Photo 2: Isolated depression within A-Series IVW

Photo 3: Looking at 100-Series Certified Vernal Pool from Willow Street

Photo 4: Looking north towards school driveway across 100-series Certified Vernal Pool

Photo 5: Looking north along northern edge of A-Series IVW

Photo 6: Looking south into A-Series IVW from driveway

Attachment G

Permit Drawings

PERMITTING DOCUMENTS

Austin Preparatory School - Parking & Softball Improvements

Reading, Massachusetts

MAY 12, 2025

OWNER:
Austin Preparatory School
101 Willow Street
Reading, Massachusetts 01867

Austin Prep

LIST OF DRAWINGS:

Locus Plan

SCALE: 1" = 650'

LANDSCAPE ARCHITECT:
Huntress Associates, Inc.
17 Tewksbury Street
Andover, Massachusetts 01810
978.470.8882

CIVIL ENGINEER:
Marchionda & Associates, LP
62 Montvale Ave
Stoneham, MA 02180
781.438.6121

WETLAND SCIENTISTS
Epsilon Associates, Inc.
3 Mill & Main Place
Maynard, MA 01754
978.897.7100

ELECTRICAL ENGINEER
Shepard Engineering, Inc.
1308 Grafton Street
Worcester, MA 01604
508.757.7793

NOTES

1. TOPOGRAPHIC FEATURES BASED UPON A FIELD SURVEY BY MARCHIONDA & ASSOCIATES, L.P PERFORMED IN MARCH OF 2019 AND APRIL OF 2022.
2. THE LOCATION OF EXISTING PIPES, CONDUITS, AND OTHER UNDERGROUND UTILITIES ARE NOT WARRANTED TO BE CORRECT OR COMPLETE AND ARE BASED UPON VISIBLE OBSERVATION AND THE BEST APPROXIMATION OF THE ACTUAL LOCATION FROM A FIELD SURVEY.
3. THIS PLAN DOES NOT SHOW ALL UNDERGROUND UTILITIES THAT MAY EXIST ON THE SITE.
4. CONTRACTORS SHALL VERIFY ALL UNDERGROUND UTILITIES, CONDUITS, PIPES, ETC, AND NOTIFY DIGSAFE PRIOR TO ANY EXCAVATIONS ON THE SITE.
5. PROPERTY LINES SHOWN ON THIS PLAN ARE TO BE CONSIDERED APPROXIMATE AND ARE NOT THE RESULT OF A FIELD SURVEY BY MARCHIONDA & ASSOCIATES, L.P.
6. HORIZONTAL DATUM IS MASSACHUSETTS STATE COORDINATE SYSTEM (NAD 83).
7. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988.
8. WETLANDS DELINEATED BY EPSILON ASSOCIATES AND FIELD LOCATED BY BY MARCHIONDA & ASSOCIATES, L.P. ON MARCH 28, 2025.
9. AQUIFER PROTECTION DISTRICT LINE TRACED FROM TOWN OF READING GIS.

COMMONWEALTH OF MASSACHUSETTS
STEPHEN M. MELESCIUC
No. 39049
REGISTERED LAND SURVEYOR

CHK:			
DSG:			DESCRIPTION
DRW:			REV.

EXISTING CONDITIONS PLAN

AUSTIN PREPARATORY SCHOOL
101 WILLOW STREET
READING, MA

PREPARED FOR
HUNTRESS ASSOCIATES
17 TEWKSBURY STREET
ANDOVER, MA 01810

Marchionda & Associates, L.P.
Engineering and Planning Consultants
62 Montvale Avenue
Suite I
Stoneham, MA 02180
TEL: (781) 438-6121
FAX: (781) 438-9654
Email: engineering@marchionda.com
Website: www.marchionda.com

MARCH 28, 2025
670-26/TOPO/AUSTIN PREP EXISTING CONDITIONS3-28-25.dwg
M. & A. NO.: 670-26 | SCALE: 1"=40'
SHEET 1 OF 1

LIMIT OF WORK (TYP)

SAWCUT EXISTING ASPHALT (TYP)

LIMIT OF WORK (TYP)

PROTECT & MAINTAIN EXISTING ASPHALT SURFACES TO REMAIN (TYP)

PROTECT & MAINTAIN EXISTING ASPHALT SURFACES TO REMAIN (TYP)

LIMIT OF WORK (TYP)

PROVIDE, INSTALL & MAINTAIN CATCH BASIN FILTER (TYP)

SAWCUT EXISTING ASPHALT (TYP)

CONSTRUCTION VEHICLE ENTRANCE (TYP)

DEMO & REMOVE EXISTING 12" HDPE PIPE. MAINTAIN EXISTING DRAINAGE & SEDIMENT CONTROL THROUGHOUT CONSTRUCTION (TYP)

PROTECT & MAINTAIN EXISTING DRAINAGE MANHOLES, PIPES & INTEDED TO REMAIN (TYP) REVIEW DRAINAGE PLAN FOR LIMITS

SILT FENCE (TYP) & STRAW WATTLE AT LIMIT OF WORK (TYP)

PROTECT & MAINTAIN EXISTING CURBING INTENDED TO REMAIN (TYP)

DEMO & REMOVE EXISTING ASPHALT PAVING AS REQUIRED FOR NEW IMPROVEMENTS (TYP)

PROTECT & MAINTAIN EXISTING HYDRANT TO REMAIN. RESET/REPLACE EXISTING WATER GATE VALVE AS REQUIRED FOR NEW IMPROVEMENTS.

REGRADE AS REQUIRED FOR NEW IMPROVEMENTS (TYP)

DEMO & REMOVE EXISTING CURBINS NOT REQUIRED FOR NEW IMPROVEMENTS (TYP)

PROTECT & MAINTAIN EXISTING SUBSURFACE CHAMBERS TO REMAIN (TYP)

PROTECT & MAINTAIN EXISTING SUBSURFACE CHAMBERS TO REMAIN (TYP)

DEMO & REMOVE EXISTING OUTFIELD FENCE (TYP)

MODIFY GRADES AS REQUIRED FOR NEW IMPROVEMENTS (TYP)

CLEAR & GRUB EXISTING VEGETATION WITHIN LIMIT OF WORK

EXISTING TREES TO REMAIN (TYP)

30' SIDE YARD SETBACK

CLEAR & GRUB EXISTING VEGETATION WITHIN LIMIT OF GRADING

CLEAR & GRUB EXISTING INFIELD WITHIN LIMIT OF WORK

DEMO & REMOVE EXISTING CHAIN LINK FENCE (TYP)

REMOVE & DISPOSE OF EXISTING BENCHES (TYP)

DEMO & REMOVE EXISTING LEDGE AS REQUIRED FOR NEW IMPROVEMENTS (TYP)

EXISTING TREES TO REMAIN (TYP)

DEMO & REMOVE EXISTING CHAIN LINK FENCE (TYP)

REMOVE & DISPOSE OF EXISTING BENCH (TYP)

SILT FENCE (TYP) & STRAW WATTLE AT LIMIT OF WORK (TYP)

REMOVE & DISPOSE OF TOPSOIL AS REQUIRED FOR NEW IMPROVEMENTS TO LIMITS SHOWN

DEMO & REMOVE EXISTING IRRIGATION THROUGHOUT LIMIT OF WORK (TYP)

MODIFY GRADES AS REQUIRED FOR NEW IMPROVEMENTS (TYP)

CLEAR & GRUB EXISTING VEGETATION WITHIN LIMIT OF WORK

LIMIT OF TREE CLEARING (TYP)

SILT FENCE (TYP) & STRAW WATTLE AT LIMIT OF WORK (TYP)

LIMIT OF WORK (TYP)

EXISTING TREES TO REMAIN (TYP)

0' 15' 30' 60'

Huntress Associates, Inc.

Landscape Architecture & Land Planning

17 Tewksbury Street
Andover, Massachusetts 01810
978 470 8882 FAX 978 470 8890

Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Site Preparation

COMMONWEALTH OF MASSACHUSETTS · CHRISTOPHER C. HUNTRESS · NO. 1178 · REGISTERED LANDSCAPE ARCHITECT

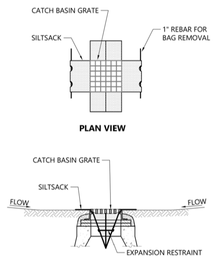
Revision	Date

Scale:	1" = 30'
Date:	5.12.25
Job:	00-107
File:	PR-det
Drawn:	CCH
Checked:	--

Drawing No.

Sp1

of 1



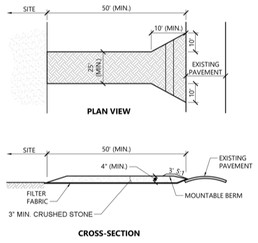
NOTES

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

1 CATCH BASIN FILTER DETAIL

SP-CBFIL

SCALE: NTS



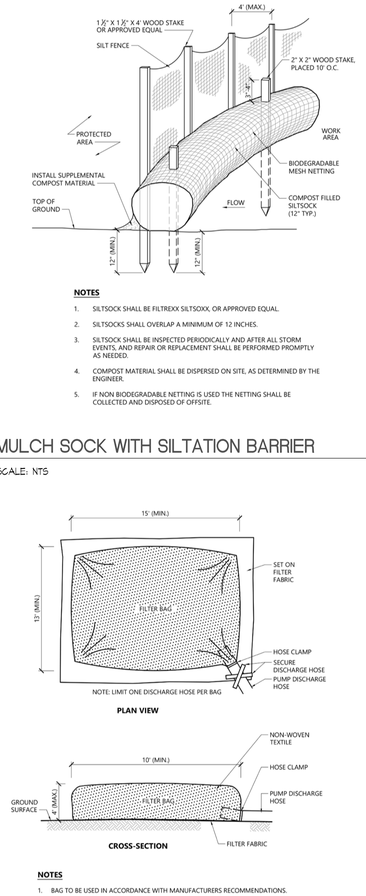
NOTES

1. EXIT WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.
4. CONTRACTOR TO LOCATE IN THE FIELD.

2 MULCH SOCK WITH SILTATION BARRIER

SP-HBSL2

SCALE: NTS



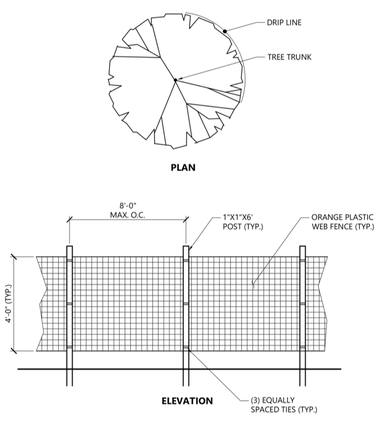
NOTES

1. SILTSOCK SHALL BE FILTREXX SILTSOXX, OR APPROVED EQUAL.
2. SILTSOCKS SHALL OVERLAP A MINIMUM OF 12 INCHES.
3. SILTSOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
5. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

3 CONSTRUCTION VEHICLE ENTRANCE

SP-HBSL2

SCALE: NTS



NOTES

1. INSTALL TREE PROTECTION FENCE AT THE DRIP LINE OF EXISTING TREES TO REMAIN.

4 DEWATER - FILTER SACK

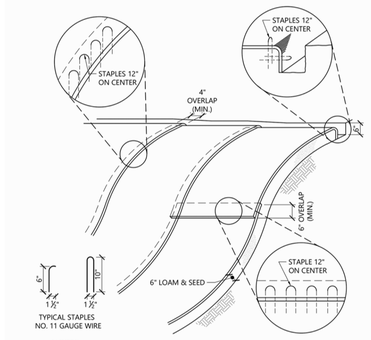
SCALE: NTS

NOTES

1. BAG TO BE USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

5 TREE PROTECTION

SCALE: NTS



NOTES

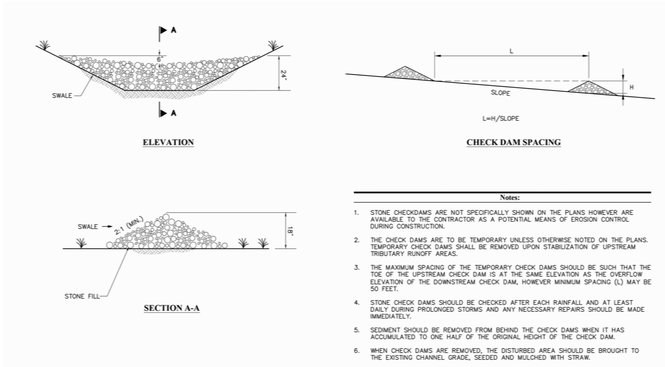
1. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH BACKFILL AND COMPACT TRENCH AFTER STAPLING.
2. ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW.
3. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
4. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE UPPER BLANKET END OVER LOWER END WITH 6 INCH (MIN.) OVERLAP AND STAPLE BOTH TOGETHER.
5. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
6. EROSION CONTROL BLANKETS SHALL BE USED IN ALL AREAS WHERE SLOPES EXCEED 3:1.

6 EROSION CONTROL BLANKETS

SCALE: NTS

7 EROSION CONTROL - CHECK DAMS

SCALE: NTS



Notes:

1. STONE CHECKDAMS ARE NOT SPECIFICALLY SHOWN ON THE PLANS HOWEVER ARE AVAILABLE TO THE CONTRACTOR AS A POTENTIAL MEANS OF EROSION CONTROL DURING CONSTRUCTION.
2. THE CHECK DAMS ARE TO BE TEMPORARY UNLESS OTHERWISE NOTED ON THE PLANS. TEMPORARY CHECK DAMS SHALL BE REMOVED UPON STABILIZATION OF UPSTREAM TRIBUTARY RUNOFF AREAS.
3. THE MAXIMUM SPACING OF THE TEMPORARY CHECK DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM CHECK DAM IS AT THE SAME ELEVATION AS THE OVERFLOW ELEVATION OF THE DOWNSTREAM CHECK DAM, HOWEVER MINIMUM SPACING (L) MAY BE 50 FEET.
4. STONE CHECK DAMS SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED STORMS AND ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY.
5. SEDIMENT SHOULD BE REMOVED FROM BEHIND THE CHECK DAMS WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE CHECK DAM.
6. WHEN CHECK DAMS ARE REMOVED, THE DISTURBED AREA SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE, SEEDED AND MULCHED WITH STRAW.

SITE PREPARATION NOTES

1. EXISTING CONDITIONS INFORMATION IS REPRODUCED FROM THE SURVEY PREPARED BY MARCHIONDA ASSOCIATES, LLP OF STONEHAM, MASSACHUSETTS - DATED MARCH 28, 2025.
2. WITHIN THE LIMIT OF THE WORK LINE AS NOTED ON THE SITE PREPARATION PLANS, REMOVE AND DISCARD ALL CONCRETE PAVEMENT, BITUMINOUS CONCRETE PAVEMENT, BRICK PAVEMENT, TOP SOIL, MULCH, TRASH, DEAD TREES AND STUMPS, SHRUBBERY, CHAIN LINK FENCE POSTS, RAILS, FABRIC, GATES, FOOTINGS AND ALL APPURTENANCES, BOLLARDS, POSTS, CONCRETE FOOTINGS AND FOUNDATIONS, WALLS AND CURBS UNLESS OTHERWISE NOTED.
3. THE ARCHITECT SHALL BE CONSULTED AND WILL REVIEW THE WORK ON SITE WITH THE CONTRACTOR BEFORE ANY WORK SHALL COMMENCE.
4. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE ARCHITECT PRIOR TO STARTING WORK.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING CONDITIONS TO REMAIN THAT ARE DUE TO CONTRACTOR OPERATIONS AND WHICH ARE INSIDE OR OUTSIDE THE LIMIT OF DEMOLITION.
6. ALL ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR DELIVERED TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
7. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY. THE CONTRACTOR SHALL CONTACT DIGSAFE AND THE PROPER LOCAL AUTHORITIES OR RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR EFFORTS OF THE DEMOLITION WITH ALL TRADES.
9. THE CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADE AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS LIGHT POLES, SIGN POLES, MAN HOLES, CATCH BASINS, HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED OR DIRECTED BY THE OWNER'S REPRESENTATIVE.
10. THE CONTRACTOR SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
11. NO STOCKPILING OF MATERIALS OR CONSTRUCTION EQUIPMENT ALLOWED WITH THE 100' WETLAND BUFFER LIMITS.
12. THE CONTRACTOR SHALL DEMO AND CAP EXISTING IRRIGATION SYSTEM IN PREPARATION OF NEW SYSTEM.
13. THE CONTRACTOR SHALL HYDRO-JET & CLEAN ALL DRAINAGE LINES TO REMAIN WITHIN LIMIT OF WORK.
14. PROVIDE, INSTALL & MAINTAIN SILT SACKS IN ALL CATCH BASINS TO REMAIN WITHIN 200' OF THE LIMIT OF WORK.

LAYOUT AND MATERIAL NOTES

1. PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT BOTH ON AND OFF SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED
2. CONTRACTOR(s) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
3. ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
4. ALL DIMENSIONS ARE TAKEN TO THE FIELD CENTERLINE, EXCEPT WHERE OTHERWISE NOTED.
5. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND/OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND/OR CAPPED OR DEMOLISHED AS REQUIRED.

GRADING & UTILITY NOTES

1. WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
2. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL ATHLETIC FIELDS
3. MAXIMUM SLOPE IN DISTURBED AREAS SHALL NOT EXCEED 3:1, UNLESS OTHERWISE NOTED.
4. ENSURE ALL EXISTING (TO REMAIN), AND PROPOSED MANHOLE COVERS PROPERLY IDENTIFY UTILITY SERVICED.
5. CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
6. BITUMINOUS CONCRETE ELEVATIONS AT CATCH BASINS TO BE 1/4 INCH ABOVE RIM ELEVATION SHOWN FOR CATCH.
7. CONTRACTOR TO ADJUST UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE (CLEAN-OUTS, UTILITY MANHOLES, CATCH BASINS, INLETS, ETC) THAT IS AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT.
8. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND/OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND/OR CAPPED OR DEMOLISHED AS REQUIRED.

Huntress Associates, Inc.

Landscape Architecture & Land Planning

17 Tewksbury Street
Andover, Massachusetts 01810
978 470 8882 FAX 978 470 8890

Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Site Preparation

MASSACHUSETTS HUNTRESS ASSOCIATES REGISTERED LANDSCAPE ARCHITECT NO. 1178

Revision	Date

Scale:	1" = 30'
Date:	5.12.25
Job:	00-107
File:	PR-det
Drawn:	CCH
Checked:	--

Drawing No.

Sp2

of **2**

McLaughlin Hall

Richard J. Meelia Hall

RETAINING WALL (TYP) 9/L5

SITE LIGHTING (TYP) 3/L6

HC PARKING 5/L7

CONCRETE WALKWAY (TYP) 8/L5

RETAINING WALL (TYP) 9/L5

SITE LIGHTING (TYP) 3/L6

LANDSCAPE AREA

CROSSWALK 4/L10

VERTICAL GRANITE CURB (TYP) 1/L7

STORAGE BUILDING 1/L11

NEA PARKING IMPROVEMENTS
94 NEA PARKING SPACES (NET)

CROSSWALK (TYP) 4/L10

CONCRETE WALKWAY (TYP) 8/L5 3/L10

LANDSCAPE AREA

30' SIDE YARD SETBACK

VERTICAL GRANITE CURB (TYP) 1/L7

LIGHTING FIXTURE LEGEND

SYMBOL	FIXTURE TYPE	HEIGHT	QUANTITY
	DOUBLE LUMINAIRE	20'	2
	SINGLE LUMINAIRE	20'	15
	SINGLE LUMINAIRE	12'	5
	SPORTS LIGHTING	70'	4

SOFTBALL SCOREBOARD SPORTS LIGHTING (TYP)

12' DOUBLE GATE (TYP)

SOFTBALL FIELD IMPROVEMENTS

DUGOUT

DUGOUT

STORAGE SHED (16'x36')

30' SIDE YARD SETBACK

6/L9 RETAINING WALL (TYP)

FLAGPOLE 2/L6

HC PARKING 5/L7

AQUIFER PROTECTION DISTRICT

100' BUFFER

50' BUFFER

125' BUFFER

RECORD LOCATION OF UNDERGROUND DETENTION AREA/ INFILTRATION TRENCH AND ROOF DRAINS PIPES

0' 15' 30' 60'

PLOT @ 1"=30'-0"

Huntress Associates, Inc.

Landscape Architecture & Land Planning

17 Tewksbury Street
Andover, Massachusetts 01810
978 470 8882 FAX 978 470 8890

Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Layout & Materials

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER C. HUNTRESS
NO. 1178
REGISTERED LANDSCAPE ARCHITECT

Revision	Date

Scale:	1" = 30'
Date:	5.12.25
Job:	00-107
File:	PR-det
Drawn:	CCH
Checked:	--

Drawing No.

L-1

of

11

McLaughlin Hall

Richard J. Meelia Hall

PROPOSED GRADES TO MATCH EXISTING IN ASPHALT PARKING AREA

TOW: 110.00
BOW: 108.00

TC: 107.5
BC: 107.00

TOW: 108.50
BOW: 106.50

TOW: 111.50
BOW: 111.00

TOW: 108.00
BOW: 106.00

TC: 105.5
BC: 105.0

TOW: 108.00
BOW: 106.00

LIMIT OF CULTEC CHAMBER SYSTEM BOTTOM OF STONE: 99.50

LIMIT OF RAIN GARDEN (TYP)

12" HDPE

8" HDPE (TYP.)

4" PERF. HDPE

CB #1
RIM: 106.00
INV OUT: 103.00

CB #2
RIM: 105.20
INV IN: 102.20
INV OUT: 102.10

CB #3
RIM: 104.00
INV IN: 101.25
INV OUT: 101.25

DMH #1
RIM: 104.80
INV IN: 101.00 (2)
INV OUT: 100.90

DMH #2
RIM: 103.80
INV IN: 100.75
INV OUT: 100.65

CB #4
RIM: 103.25
INV OUT: 101.25

10" RCP

CB #5
RIM: 102.95
INV OUT: 100.95

TC: 102.70
BC: 101.47

TW 117.68

30' SIDE YARD SETBACK

HDPE PANEL DRAIN (TYP) 25' O.C. (TYP)

TC: 100.00
BC: 100.00

INFILTRATION BED (5000 S.F.) BOTTOM OF STONE: 95.85

DMH #5
RIM: 98.55
INV IN: 96.55
(A) OUT: 96.65
(B) OUT: 96.65
(C) OUT: 97.00

DMH #6
RIM: 98.35
INV IN: 96.85
(A) OUT: 97.00
(B) OUT: 96.85

DMH #4
RIM: 99.10
INV IN: 97.60
(A) OUT: 98.85
(B) OUT: 98.85

OUTFALL #1
INV: 95.00
(10" HDPE)

OUTFALL #2
INV: 95.00
(10" HDPE)

STORMWATER BASIN

10" HDPE (PERF)

TW 101.64
BW 99.64

TW 101.54
BW 99.54

FFE 101.75

TW 101.90
BW 99.90

101.70

DMH #3
RIM: 99.70
INV OUT: 98.20

TW 102.46
BW 100.46

TW 102.10
BW 100.10

101.90

TW 102.68
BW 100.68

TW 102.78
BW 100.78

TW 102.56
BW 100.56

102.26

30' SIDE YARD SETBACK

284.45'

N05°16'22"E
25.11'

N04°51'50"E
24.89'

N19°04'
24.14'

N20°30'24"E

S81°47'15"E

S78°42'58"E

6' VINYL FENCE

DENSE TREES

0' 15' 30' 60'

PLOT @ 1"=__'

Huntress Associates, Inc.

Landscape Architecture & Land Planning

17 Tewksbury Street
Andover, Massachusetts 01810
978 470 8882 FAX 978 470 8890

Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Grading & Drainage

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER C. HUNTRESS
NO. 1178
REGISTERED LANDSCAPE ARCHITECT

Revision	Date

Scale:	1" = 30'
Date:	5.12.25
Job:	00-107
File:	PR-det
Drawn:	CCH
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McLaughlin Hall

Richard J. Meelia Hall

STREETSCAPE & BUFFER PLANT LIST

SYMBOL	QTY	ROOTS	SIZE	PLANT NAME
STREET TREE TYPE 'C'	12	B+B	3.5" CAL. MIN.	AMERICAN ELM - ULMUS AMERICANA 'PRINCETON'
	6	B+B	3.5" CAL. MIN.	RED MAPLE - ACER RUBRUM
	3	B+B	3.5" CAL. MIN.	RED OAK - QUERCUS RUBRA
	3	B+B	3.5" CAL. MIN.	GALLERY PEAR - PYRUS CALLERYANA 'BRADFORD'
ORNAMENTAL TREES	48	B+B	12' HT. MIN.	BIRCH VARIETIES (RIVER, HIMALAYAN, HERITAGE), CHERRY VARIETIES (SARGENT, SAND, ACCOLADE, KOREAN, AUTUMN FLOWERING, CANADY SELECT RED), CRAB APPLE VARIETIES (JAP. FLOWERING, PINK SPIRE, RED JADE, SARGENT, RED SPLENDOR, ZUMI) SUGAR TYME), EASTERN REDBUD, THORNLESS HAWTHORN, TOBA HAWTHORN, KOUSA DOGWOOD, JAPANESE TREE LILAC, MAPLE VARIETIES (HEDGE, AMUR, RED, JAP. TATARIEN) OAK VARIETIES (WHITE, SCARLET, BURR, ENGLISH, RED), PYRUS VARIETIES (ARISTOCRAT, CLEVELAND, SELECT, REDSPIRE), SERVICEBERRY ALLEGHANY, SERVICEBERRY SHADBLOW
EVERGREEN TREES	40	B+B	10'-12' HEIGHT	DOUGLASS FIR, WHITE FIR, SPRUCE VARIETIES (NORWAY, WHITE, SIBERIAN, COLORADO BLUE), PINE VARIETIES (AUSTRIAN, PONDEROSA, RED, EASTERN WHITE, SCOTCH), EASTERN RED CEDAR.

EXISTING PARKING TO REMAIN (TYP)

LOAM & SEED

RAIN GARDEN (TYP) REFER TO SHEET L-10

30' SIDE YARD SETBACK

EVERGREEN TREES (TYP)

ORNAMENTAL TREES (TYP)

0' 15' 30' 60'

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Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Landscape Plan

MASSACHUSETTS REGISTERED LANDSCAPE ARCHITECT NO. 1178

Revision	Date

Scale: 1" = 30'
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Job: 00-107
File: PR-det
Drawn: CCH
Checked: --

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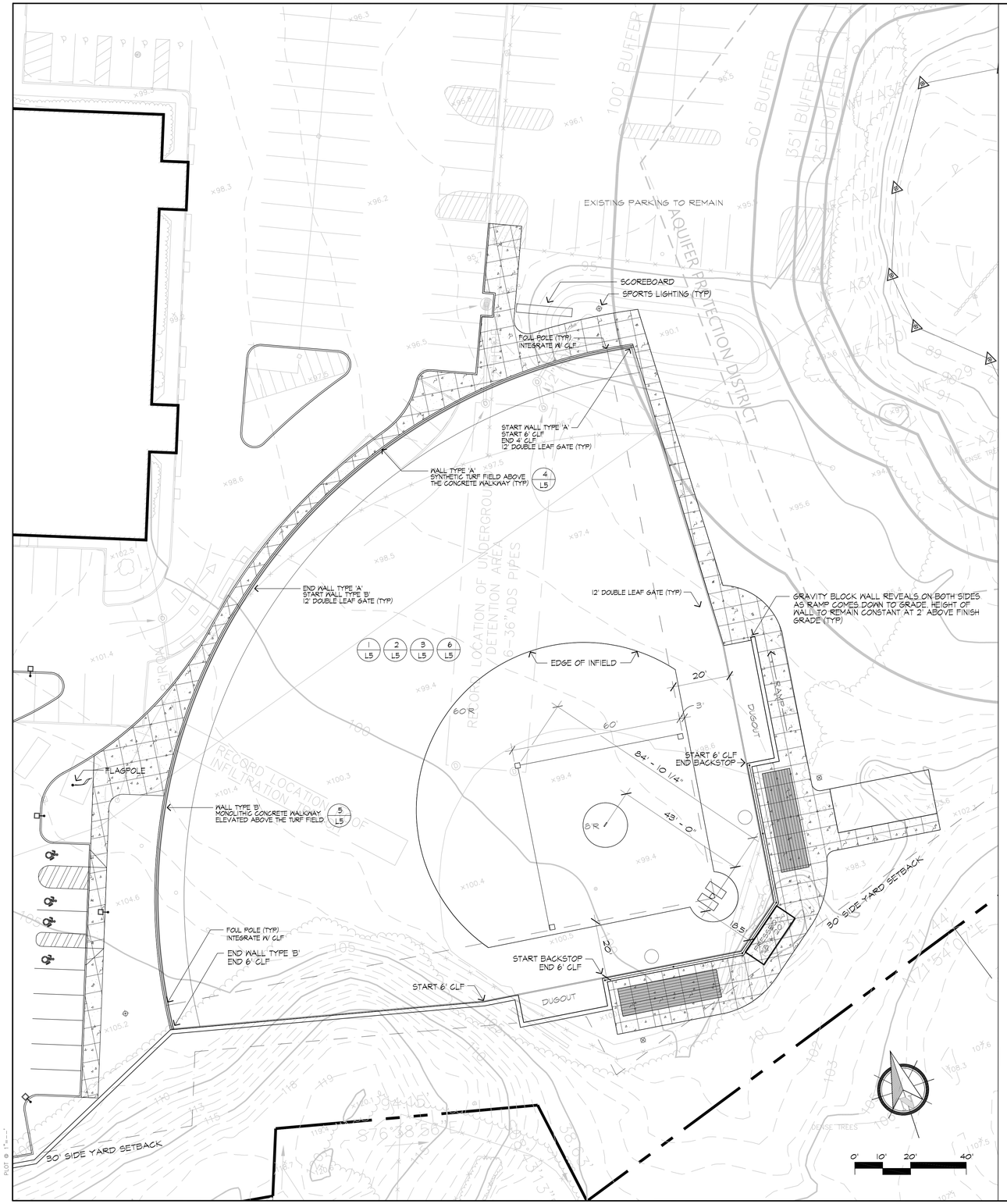
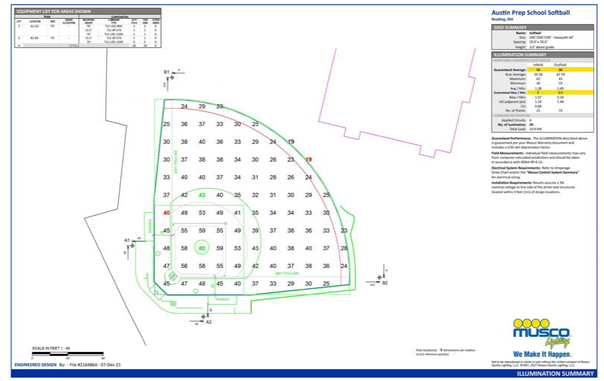
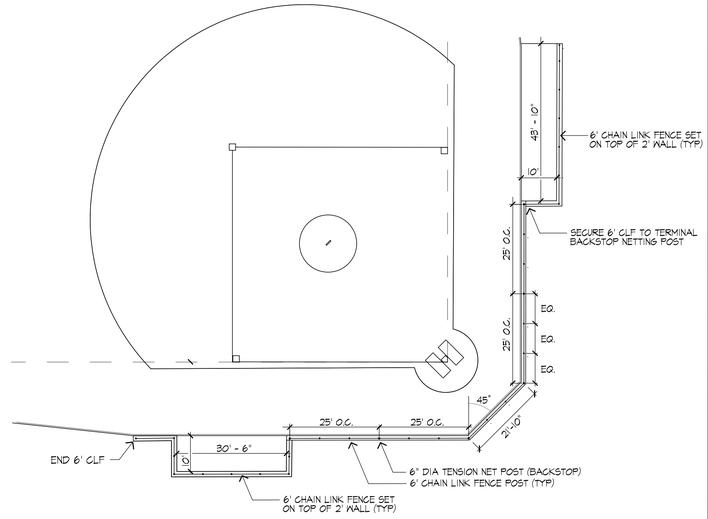




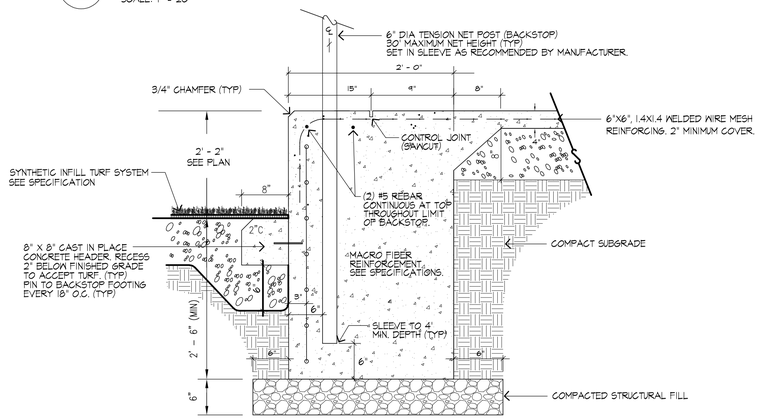
1 SPORTS LIGHTING LAYOUT

SCALE: NTS



2 DUGOUT AND BACKSTOP FENCE/ NETTING LAYOUT DETAIL

SCALE: 1" = 20'



3 RETAINING WALL / SOFTBALL BACKSTOP FOOTING DETAIL

SCALE: NTS

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Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Softball Field Enlargement Plan

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File:	PR-det
Drawn:	CCH
Checked:	--

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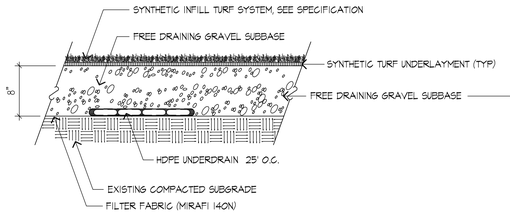
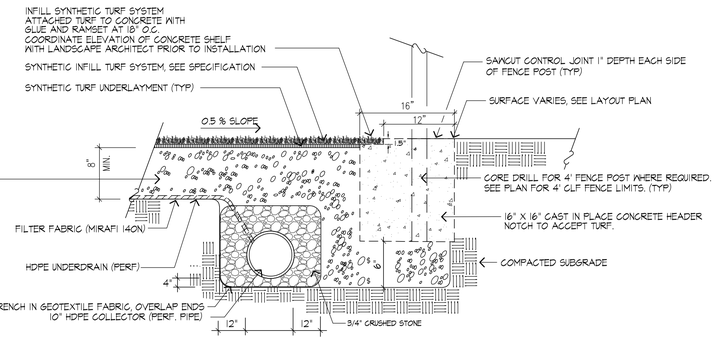


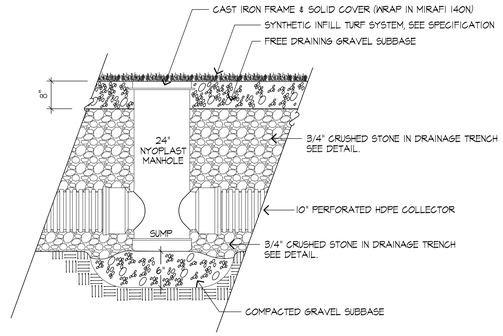
1 TYPICAL INFILLED SYNTHETIC TURF SYSTEM

SCALE: 1" = 1'



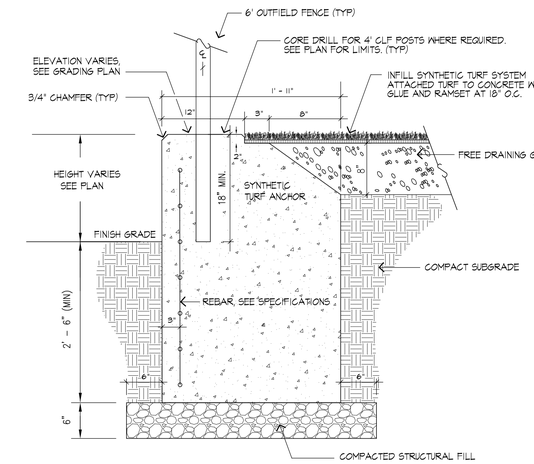
2 EDGE OF SYNTHETIC TURF

SCALE: 1" = 1'



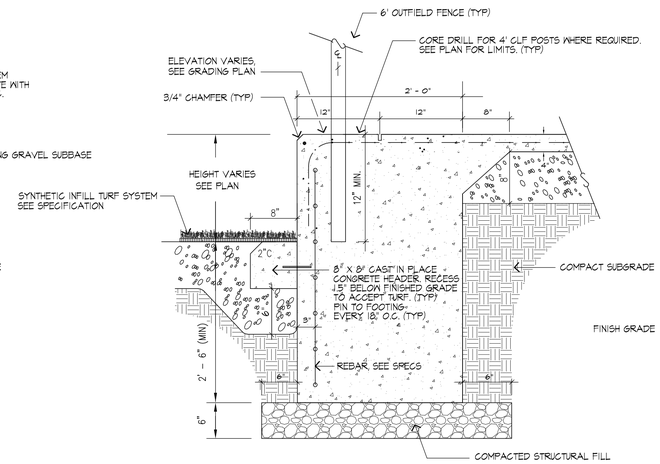
3 NYOPLAST TURF MANHOLE

SCALE: NTS



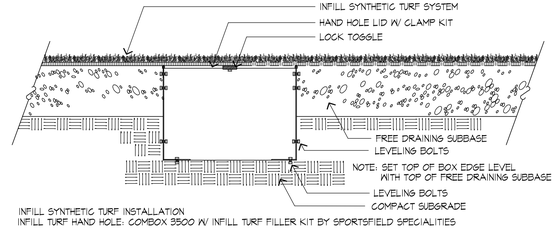
4 RETAINING WALL / TURF ANCHOR DETAIL (TYPE A)

SCALE: NTS



5 RETAINING WALL / MONOLITHIC WALKWAY (TYPE B)

SCALE: NTS

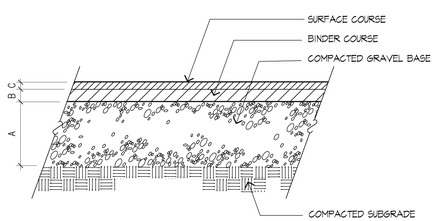


INFILL SYNTHETIC TURF INSTALLATION
INFILL TURF HAND HOLE: COMBOX 3500 W/ INFILL TURF FILLER KIT BY SPORTSFIELD SPECIALITIES

6 HANDHOLE BOX DETAIL

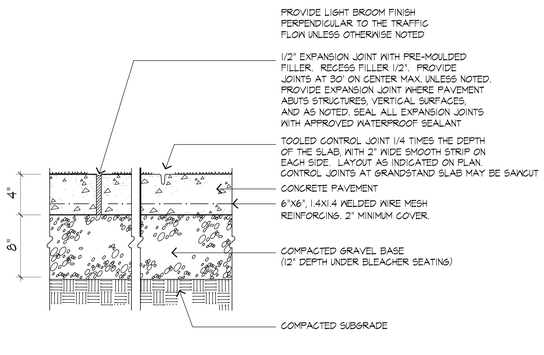
SCALE: NTS

	A	B	C
WALKWAYS	8"	1.5"	1.5"
PARKING & ROADWAYS	12"	2.5"	1.5"



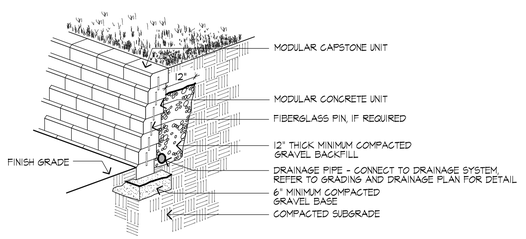
7 BITUMINOUS CONCRETE PAVEMENT

SCALE: NTS



8 CONCRETE WALKWAY

SCALE: NTS



NOTE:
CONCRETE BLOCK AS MANUFACTURED BY VERSA-LOK (603) 883-3042, OR EQUAL.
BLOCK TO BE MOSAIC, WEATHERED, OWNER TO SELECT COLOR.

9 CONCRETE BLOCK WALL DETAIL - TYPE 'A' (TYP)

SCALE: NTS

PLOT @ 1"=---'

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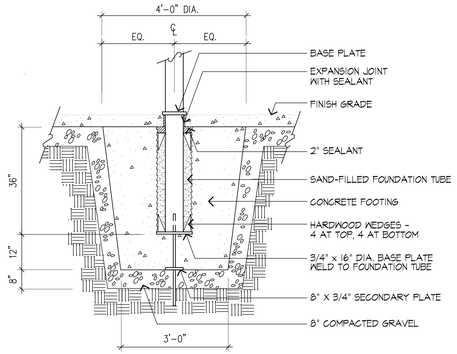
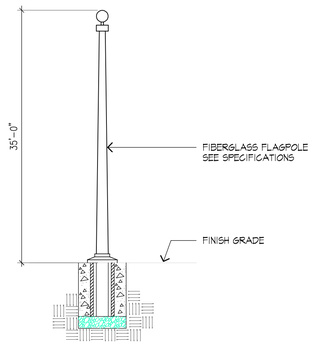


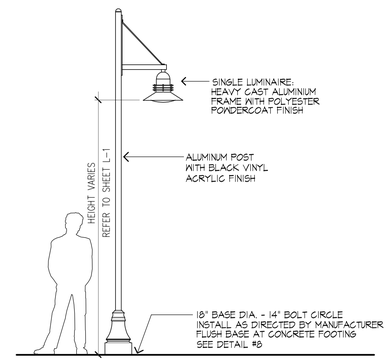
1 FLAGPOLE FOOTING

SCALE: 1/2" = 1'-0"



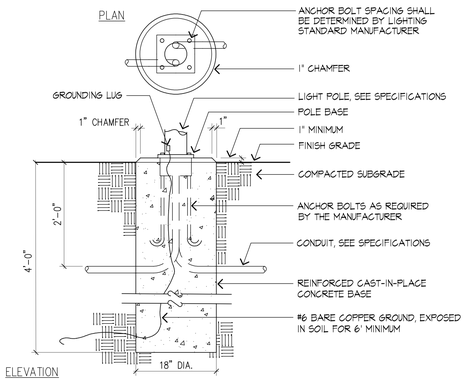
2 FLAGPOLE

SCALE: N.T.S.



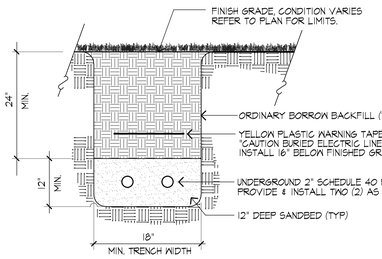
3 POST LIGHT FIXTURE

SCALE: NTS



4 PRECAST LIGHT POLE BASE

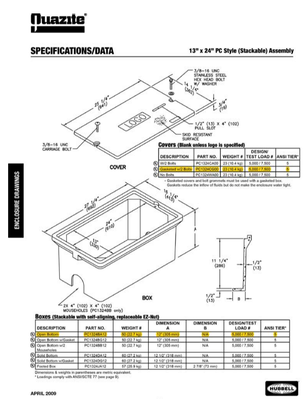
SCALE: 3/4" = 1'-0"



NOTES:
1. EXCAVATION, SAND BED, AND CLEAN BACKFILL BY GENERAL CONTRACTOR
2. EXACT ROUTING OF THE SITE LIGHTING RACEWAY SHALL BE COORDINATED IN THE FIELD BY THE ELCTRICAL CONTRACTOR PRIOR TO ROUGHING.
3. ALL SPARE CONDUITS BE INSTALLED WITH PULL ROPES (TYP)
4. PROVIDE & INSTALL 6" MIN DEPTH TOPSOIL WHEN IN LAWN AREA CONDITIONS.

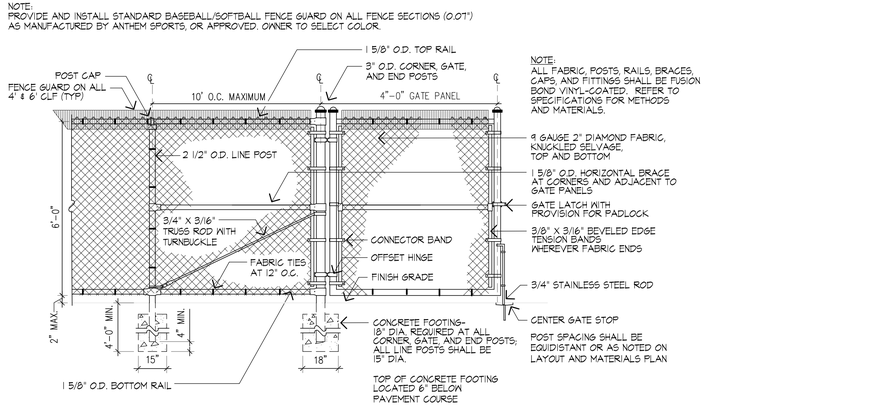
5 ELECTRICAL SERVICE RACEWAY DETAIL

SCALE: NTS



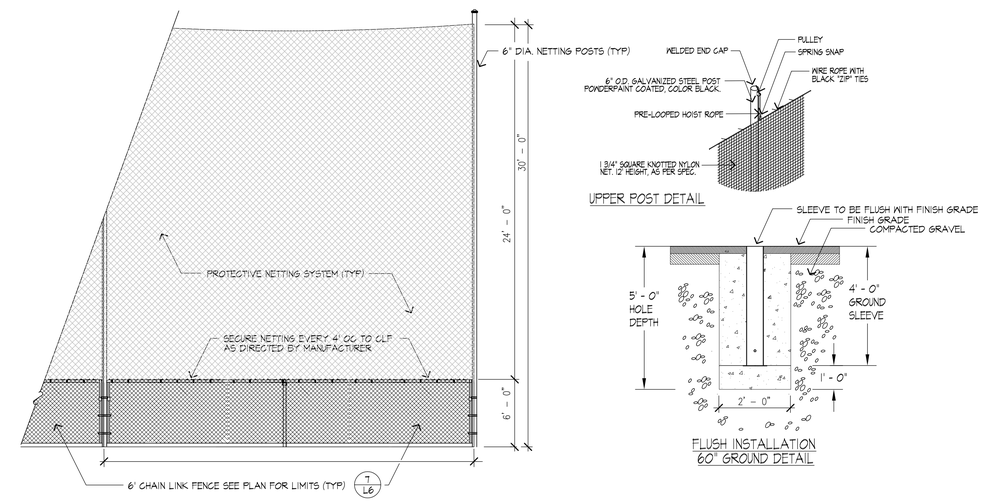
6 QUAZITE HANDHOLE

SCALE: NTS



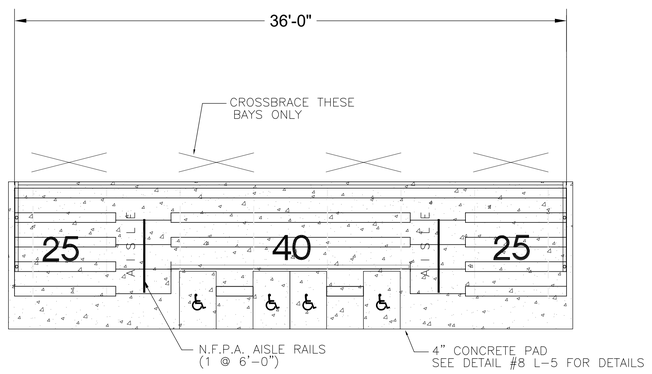
7 6'-0" FUSION BOND CHAIN LINK FENCE AND GATE

SCALE: N.T.S.



8 PROTECTIVE NETTING - BACKSTOP ELEVATION

SCALE: N.T.S.



SEATING PLAN
SCALE: 3/16"=1'-0"

36'-0" O.A.L UNIT/5-ROW/NON-ELEVATED
8:24 RISE:RUN
2-AISLES W/N.F.P.A. AISLE RAILS
4- HANDICAP SPACES 4-COMPANION SEATS
94-NET SEATS

9 NON-ELEVATED BLEACHER - SEATING LAYOUT

SCALE: N.T.S.

PLOT @ 1"=1'-0"

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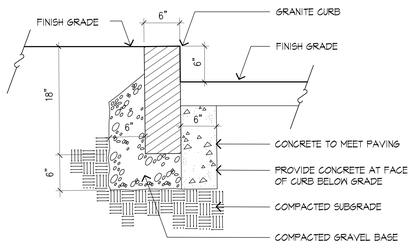
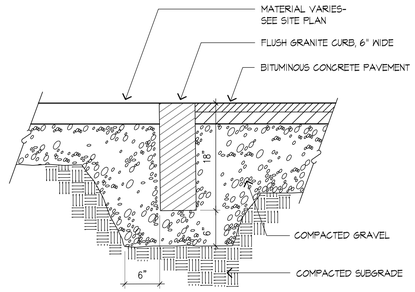


1 VERTICAL GRANITE CURB

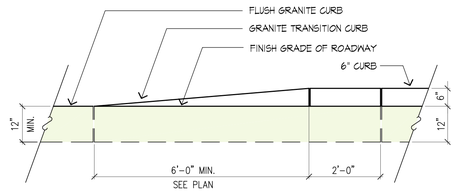
SCALE: 1" = 1'-0"

C-GRANIT



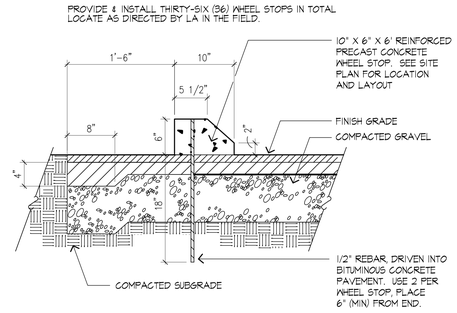
2 FLUSH GRANITE CURB

SCALE: 1" = 1'-0"



3 TRANSITION CURB

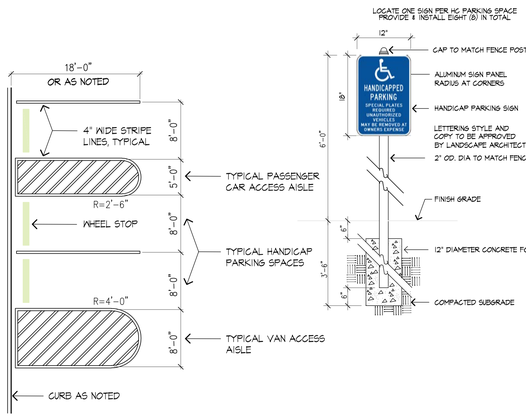
SCALE: 1/2" = 1'-0"



4 PRECAST CONCRETE WHEEL STOP

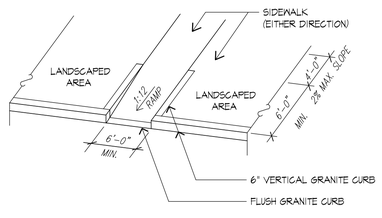
SCALE: N.T.S.

C-WHSTOP



5 HANDICAP PARKING SPACE AND SIGN DETAIL

SCALE: 1" = 10'-0"

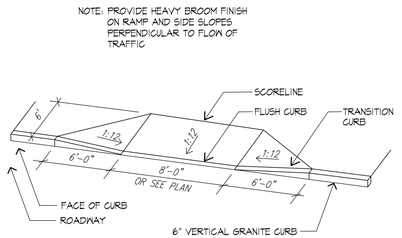


NOTE:

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
2. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. REQUIREMENTS.
3. FOR CURB MATERIAL AND PAVEMENT MATERIAL, SEE LAYOUT & MATERIALS PLAN.
4. PROVIDE HEAVY BROOM FINISH ON RAMP.
5. PROVIDE & INSTALL 24" X 8' TACTILE WARNING STRIP (COLOR: DARK GREEN)

6 CURB CUT WITH RETURNED CURB - TYPE A

SCALE: N.T.S.

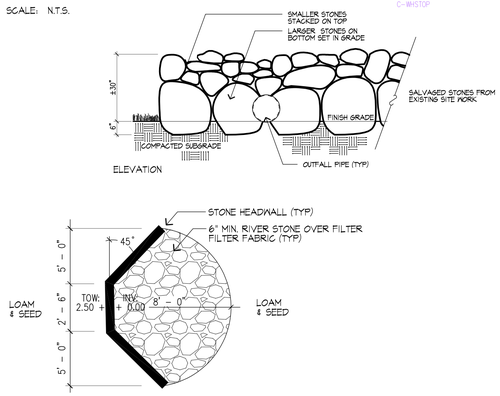


NOTES:

1. DIMENSIONS SHOWN AT EDGE OF ROAD ARE FIXED.
2. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
3. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. REQUIREMENTS.
4. PROVIDE & INSTALL 24" X 8' TACTILE WARNING STRIP (COLOR: DARK GREEN)

7 CURB CUT AND RAMP - TYPE B

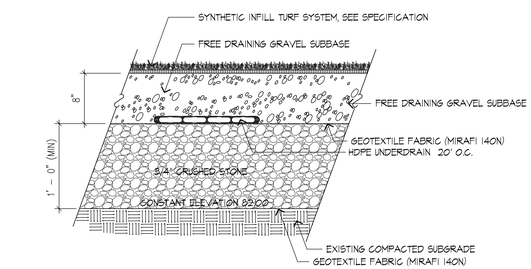
SCALE: N.T.S.



ELEVATION

8 6" PERF PIPE HEADWALL + DISSAPATOR

SCALE: N.T.S.

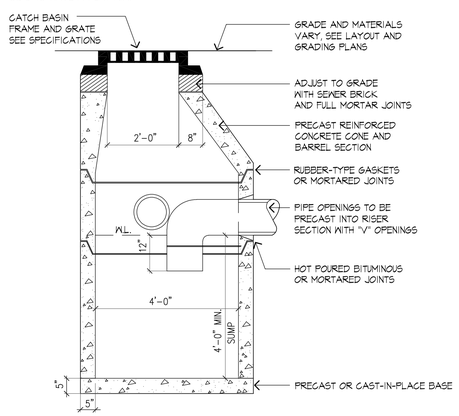


9 INFILTRATION BED DETAIL

SCALE: 1" = 1'-0"

DR-PVC

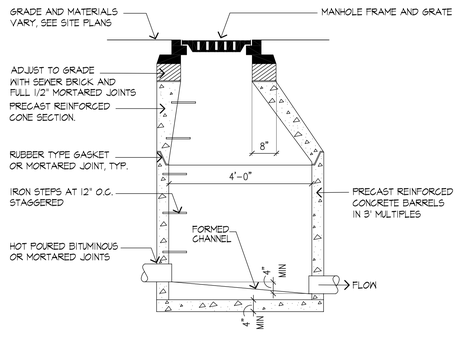
CB 1, 2, 3 & 4 TO HAVE A DOMED RIM.
CB 5 TO HAVE A FLAT RIM.



10 GAS TRAP CATCH BASIN

SCALE: 1/2" = 1'-0"

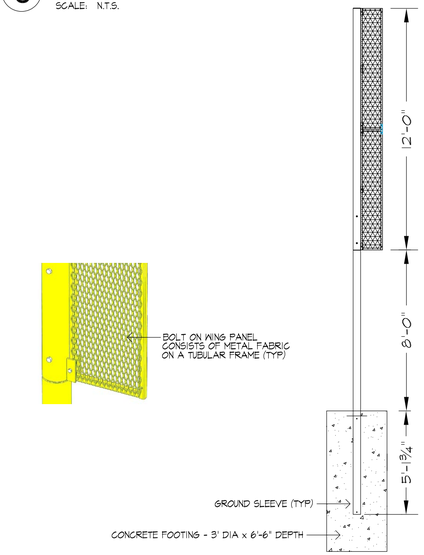
DR-CATCH



11 MANHOLE

SCALE: 1/2" = 1'-0"

DR-MANHO



12 FOUL POLE DETAIL

SCALE: N.T.S.

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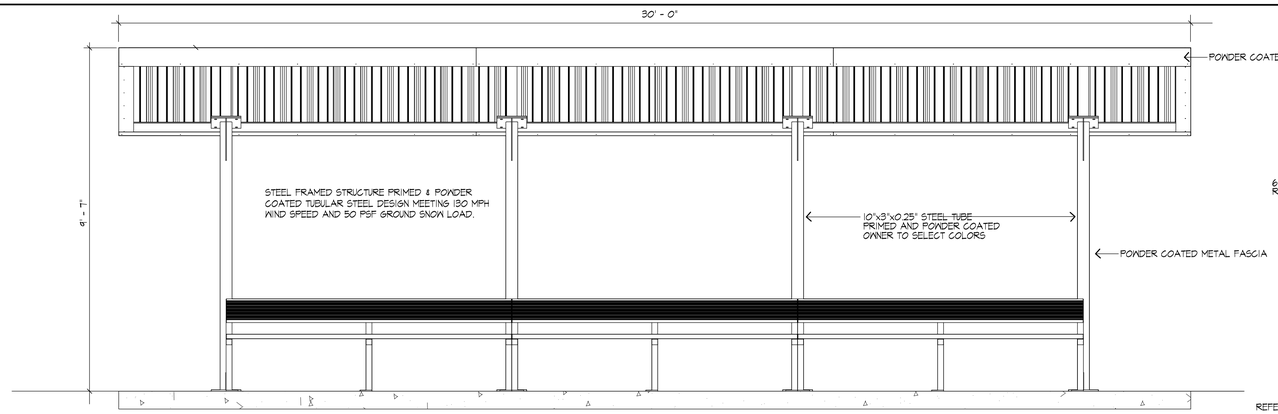
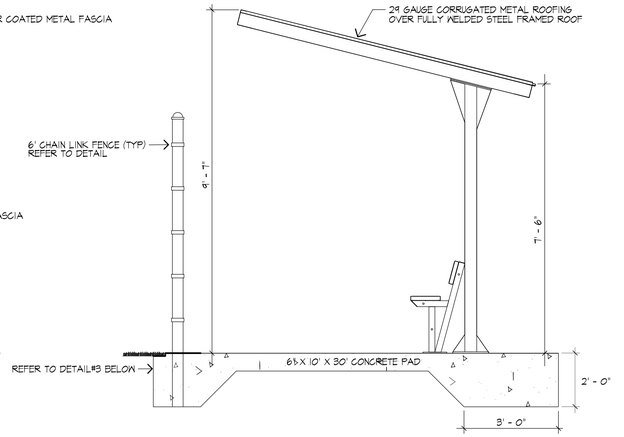
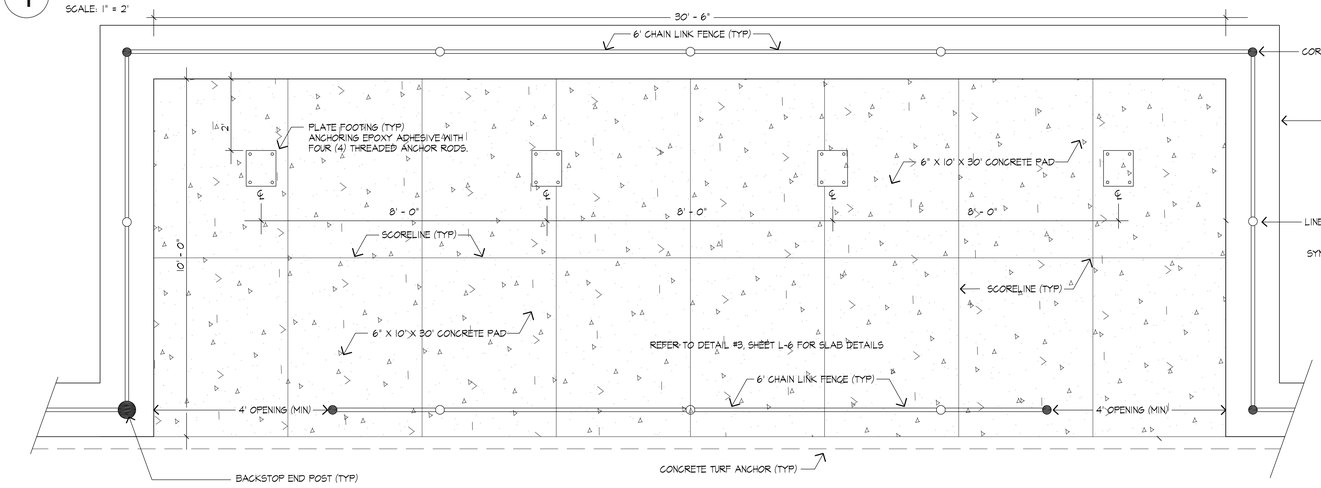




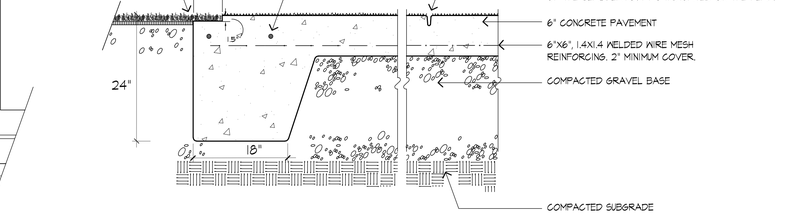
1 DUGOUT ELEVATION + SECTION

SCALE: 1" = 2'



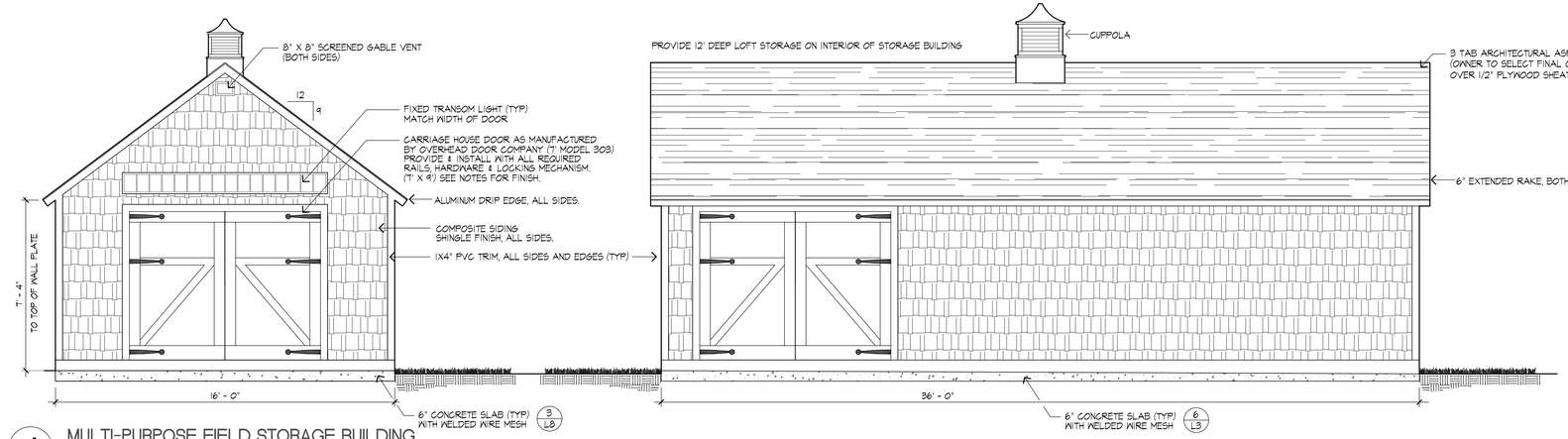
2 DUGOUT AND SLAB LAYOUT

SCALE: 1" = 2'



3 CONCRETE DUGOUT SLAB

SCALE: 1" = 1'



STORAGE BUILDING NOTES:

1. GC RESPONSIBLE FOR ANY REQUIRED BUILDING PERMIT.
2. CONCRETE SLAB TO SERVE AS FLOOR
3. 2"X4" WALL CONSTRUCTION 16" O.C., DOUBLE TOP PLATE
4. 2X6" ROOF RAFTERS 16" O.C.
5. ALL INTERIOR WALLS TO RECIEVE 5/8" PLYWOOD
6. EXTERIOR COLORS:
   SHINGLE - IRON GRAY
   TRIM - WHITE
   GARAGE DOORS - WHITE
7. ALL EXTERIOR PAINTED SURFACES TO RECEIVE PRIMER AND TWO (2) COATS OF PAINT, AS RECOMMENDED BY MANUFACTURER.
8. COORDINATE SIZE OF CUPOLAS PRIOR TO FABRICATION.

COMPOSITE SIDING NOTES:
APPROVED PRODUCTS: HARDI-PLANK

4 MULTI-PURPOSE FIELD STORAGE BUILDING

SCALE: NTS 16' X 36' LEXINGTON SHED AS MANUFACTURED BY POST WOODWORKERS, OR APPROVED EQUAL. (866) 794-7433 - SUBMIT SHOP DRAWING FOR APPROVAL PRIOR TO INSTALLATION.

Huntress Associates, Inc.
Landscape Architecture & Land Planning
17 Tewksbury Street
Andover, Massachusetts 01810
978 470 8882 FAX 978 470 8890

Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Construction Details

MASSACHUSETTS CHRISTOPHER C. HUNTRESS NO. 1178 REGISTERED LANDSCAPE ARCHITECT

Revision	Date

Scale:	AS NOTED	Drawing No.	
Date:	5.12.25		L-8
Job:	00-107		
File:	PR-det		
Drawn:	CCH	of	11
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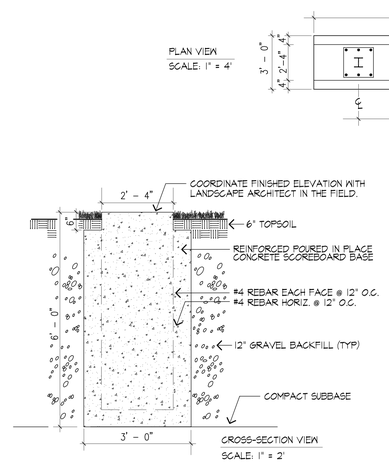
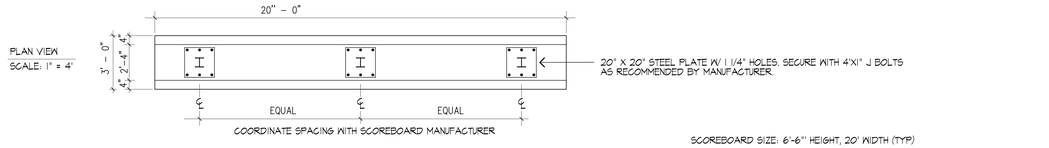
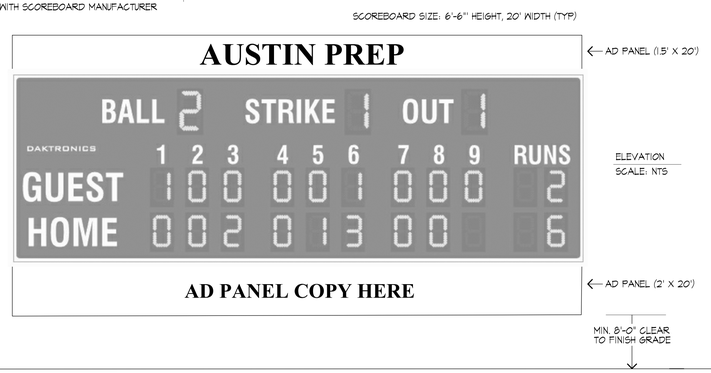


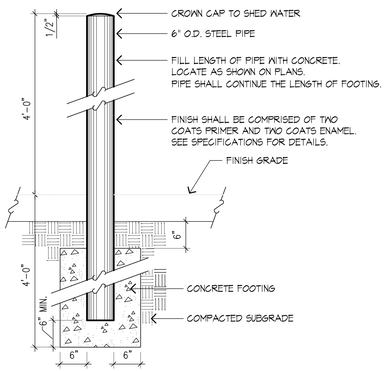




1 SCOREBOARD DETAILS

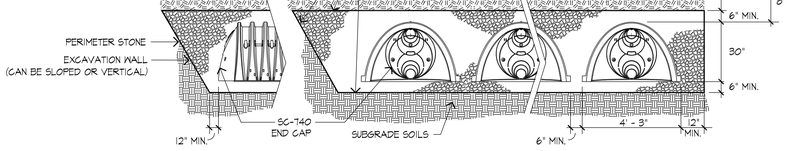
SCALE: NTS

PROVIDE & INSTALL ONE (1) SCOREBOARD
REFER TO ELECTRICAL DRAWINGS FOR DETAIL.



2 6" DIAMETER STEEL BOLLARDS

SCALE: 3/4" = 1'

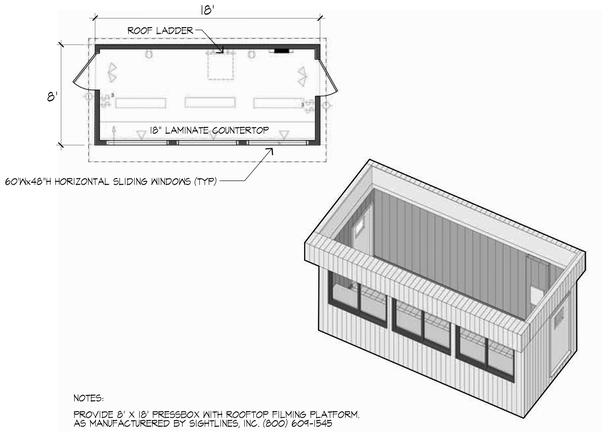


NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73½ F / 23½ C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

3 STORMTECH SC 740 DRAINAGE CHAMBERS

SCALE: N.T.S.



NOTES:

PROVIDE 8' X 18' PRESSBOX WITH ROOFTOP FILMING PLATFORM. AS MANUFACTURERED BY SIGHTLINES, INC. (800) 604-1545

PROVIDE RAMP AND LANDING FOR ACCESSIBLE EGRESS TO ONE (1) DOOR. COORDINATE LOCATION AND DETAIL W/ LA PRIOR TO FABRICATION.

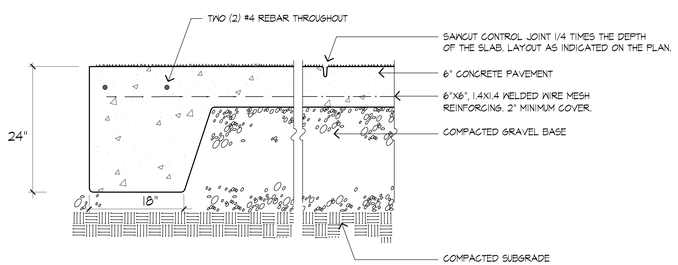
4 NON-ELEVATED MODULAR PRESSBOX (8'X18')

SCALE: N.T.S.

NOTE:

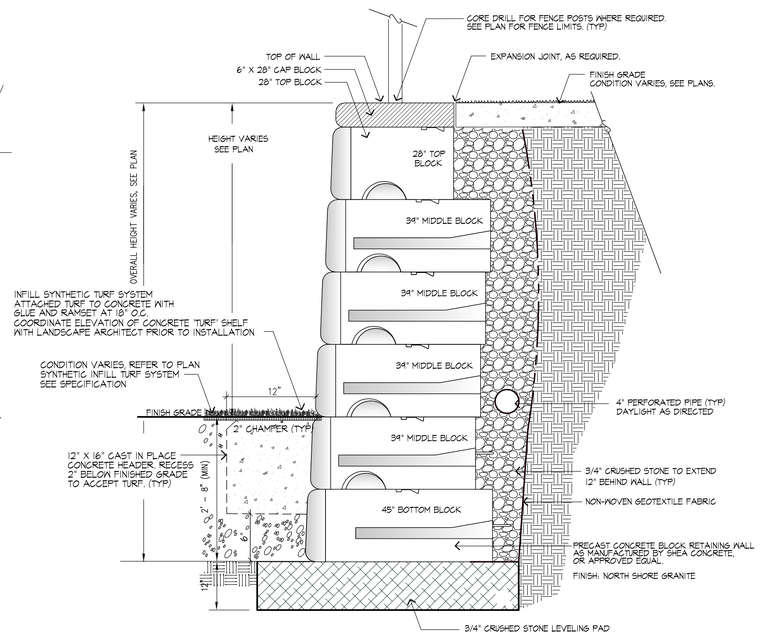
PROVIDE 8' X 18' PRESSBOX SLAB WITH A 24" HAUNCH ON ALL FOUR SIDES. MAINTAIN POSITIVE DRAINAGE AWAY FROM PRESSBOX.

PROVIDE LIGHT BROOM FINISH PERPENDICULAR TO THE TRAFFIC FLOW UNLESS OTHERWISE NOTED



5 CONCRETE PRESSBOX SLAB

SCALE: 1" = 1'



6 CONCRETE BLOCK WALL DETAIL - TYPE 'B' (TYP)

SCALE: NTS

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Landscape Architecture & Land Planning

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Andover, Massachusetts 01810
978 470 8882 FAX 978 470 8890

Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Construction Details

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Checked:	--

Drawing No.

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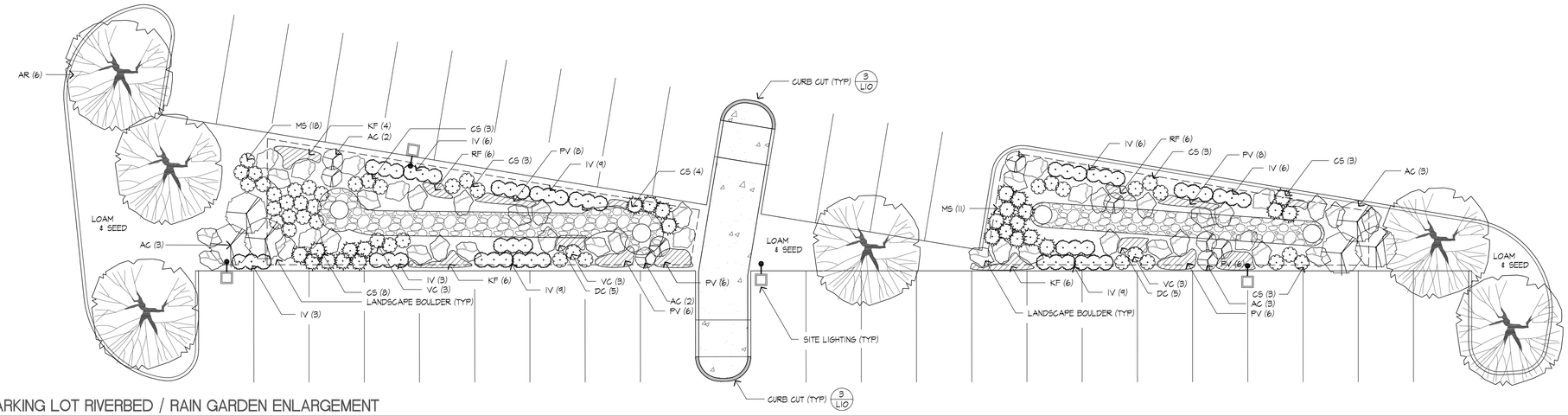


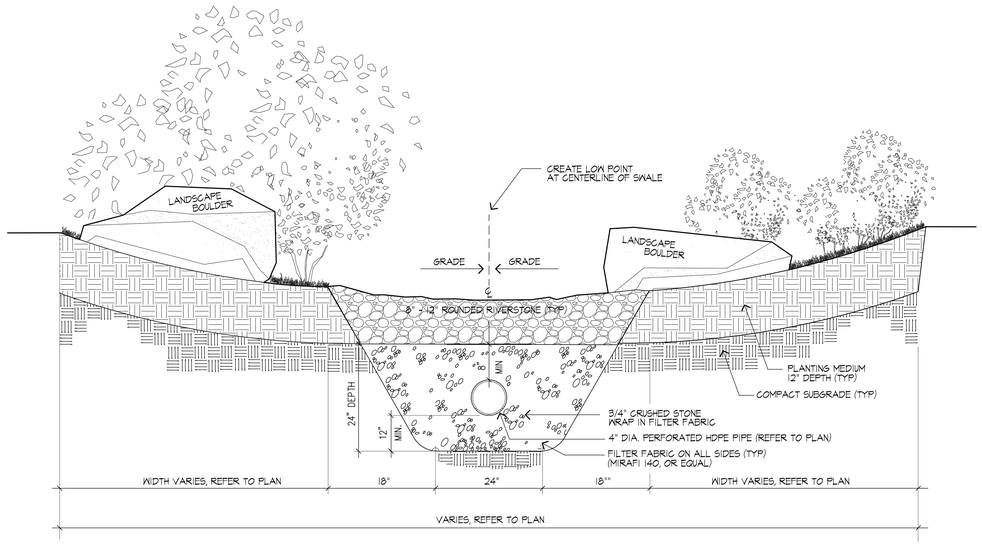
1 PARKING LOT RIVERBED / RAIN GARDEN ENLARGEMENT

SCALE: 1" = 10'

BIORETENTION / RAIN GARDEN PLANT LIST

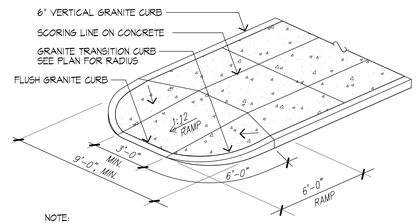
1. ALL PLANT MATERIAL SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

PLANT MATERIAL	SIZE	QUANTITY
TREES:		
(AR) ACER RUBRUM - RED MAPLE	2.5-3" CAL.	6
(AC) AMELANCHIER CANADENSIS - SHADBLOW	4-5' HGT.	19
SHRUBS		
(CS) CORNUS SERICEA - RED OSIER DOGWOOD	2-3 GAL.	27
(IV) ILEX VERTICILLATA - WINTERBERRY	2-3 GAL.	39
(VC) VACCINUM CORYMBOSUM - HIGHBUSH BLUEBERRY	2-3 GAL.	6
GRASSES		
(KF) CALMAGROSTIS X ACUTIFOLIA - FEATHER GRASS	2 GAL.	13
(PV) PENNISETUM VILLOSUM - WHITE FOUNTAIN GRASS	2 GAL.	23
(DC) DESCHAMPSIA CAESPITOSA - TUFTED HAIR SEDGE	2 GAL.	5
(PA) PHALARIS ARUNDINACEA - RIBBON GRASS	2 GAL.	20
(MS) MISCANTHUS SINENSIS 'SILBERFEDER'	2 GAL.	26
(RF) RUDBECKIA FULGILDA - BLACK EYED SUSAN	1 GAL.	22



2 RIVERBED RAIN GARDEN CROSS-SECTION

SCALE: NTS

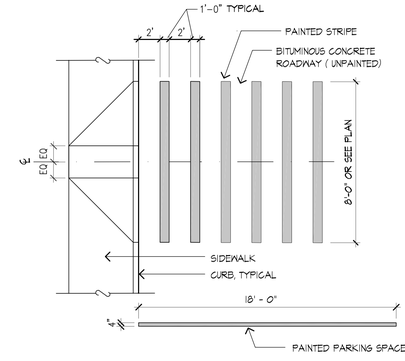


NOTE:

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
2. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. REQUIREMENTS.
3. FOR CURB MATERIAL AND PAVEMENT MATERIAL, SEE LAYOUT & MATERIALS PLAN.
4. PROVIDE HEAVY BROOM FINISH ON RAMP AND SIDE SLOPES PERPENDICULAR TO FLOW OF TRAFFIC
4. PROVIDE & INSTALL 24" X 3' TACTILE WARNING STRIP (COLOR: DARK GREEN)

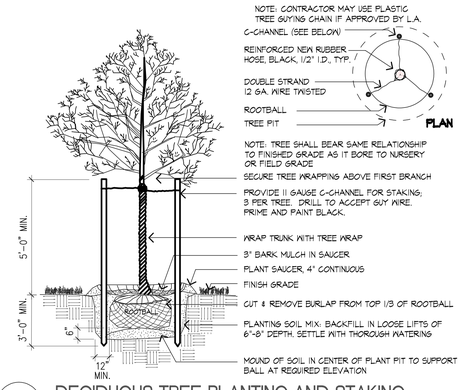
3 CURB RAMP - TYPE C

SCALE: NTS



4 PAINTED CROSSWALK / PARKING SPACE STRIPE

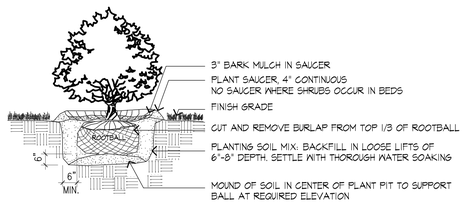
SCALE: NTS



5 DECIDUOUS TREE PLANTING AND STAKING

SCALE: NTS

PL-TREDP



6 TYPICAL SHRUB PLANTING

SCALE: NTS

PL-SHR

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17 Tewksbury Street
Andover, Massachusetts 01810
978 470 8882 FAX 978 470 8890

Austin Prep

Project:

Austin Prep Parking & Softball Improvements

Reading, Massachusetts

Drawing Title:

Construction Details

COMMONWEALTH OF MASSACHUSETTS — CHRISTOPHER C. HUNTRESS — NO. 3178 — REGISTERED LANDSCAPE ARCHITECT

Revision	Date

Scale:	AS NOTED	Drawing No.	
Date:	5.12.25		L10
Job:	00-107		
File:	PR-det		
Drawn:	CCH	of	11
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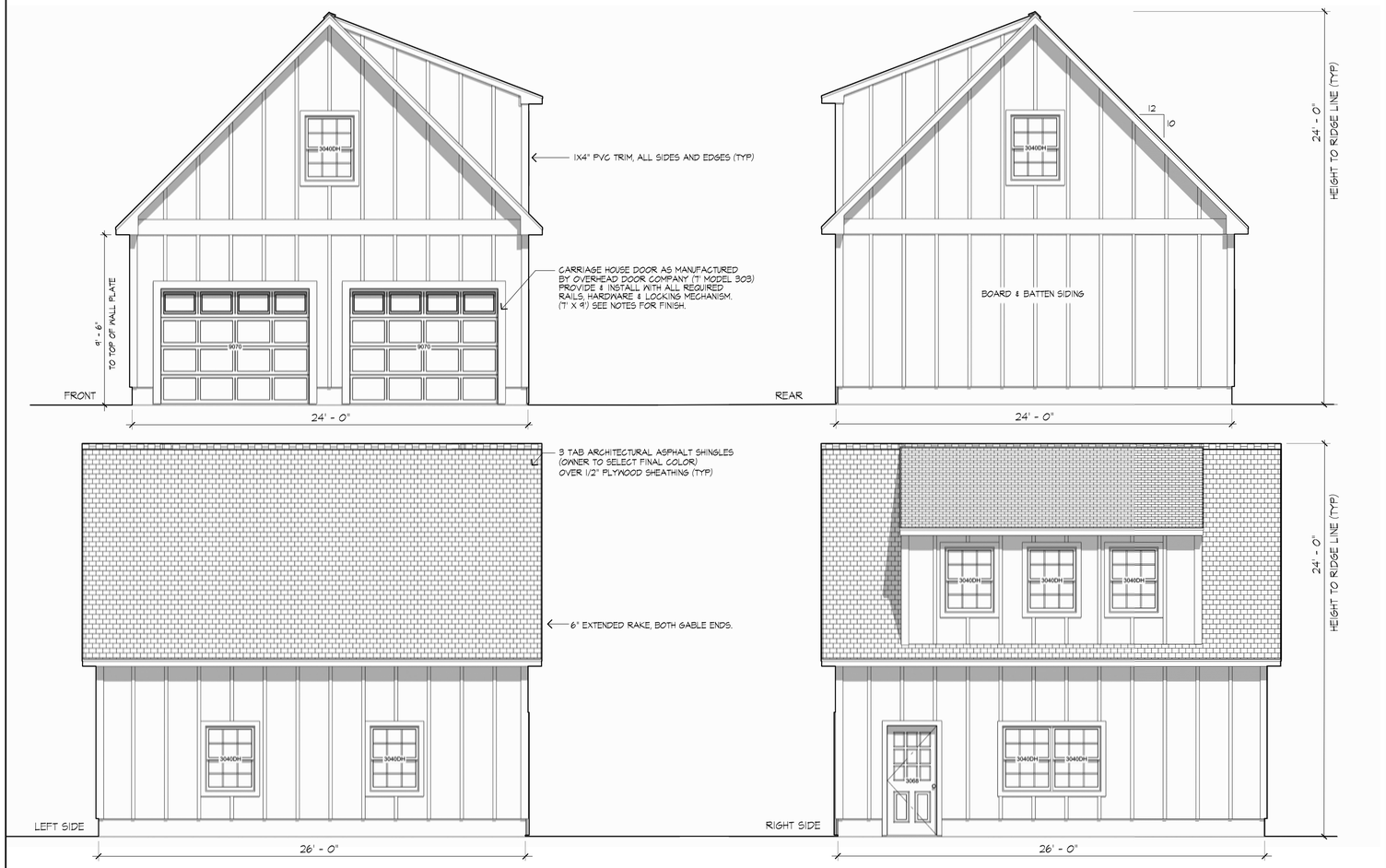
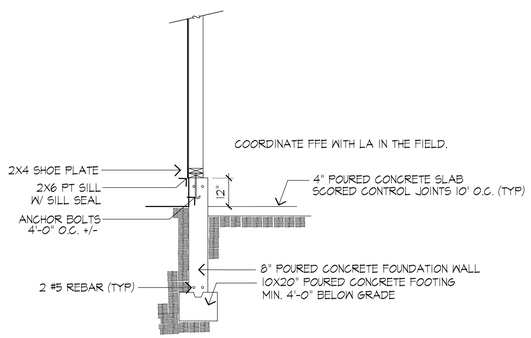


1 STORAGE BUILDING - FRONT AND SIDE ELEVATIONS

SCALE: 1" = 4'



2 TYPICAL FOUNDATION DETAIL

SCALE: NTS

STORAGE BUILDING NOTES:

1. GC RESPONSIBLE FOR ANY REQUIRED BUILDING PERMIT.
2. CONCRETE SLAB TO SERVE AS FLOOR
3. 2"X4" WALL CONSTRUCTION 16" O.C., DOUBLE TOP PLATE
4. 2X6" ROOF RAFTERS 16" O.C.
5. ALL INTERIOR WALLS TO RECIEVE 5/8" PLYWOOD
6. EXTERIOR COLORS:
   - BOARD & BATTEN - WHITE
   - TRIM - WHITE
   - GARAGE DOORS - WHITE
7. ALL EXTERIOR PAINTED SURFACES TO RECEIVE PRIMER AND TWO (2) COATS OF PAINT, AS RECOMMENDED BY MANUFACTURER.

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Austin Prep

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Reading, Massachusetts

Drawing Title:

Construction Details

MASSACHUSETTS — NO. 1175 — REGISTERED LANDSCAPE ARCHITECT

Revision	Date

Scale:	AS NOTED
Date:	5.12.25
Job:	00-107
File:	PR-det
Drawn:	CCH
Checked:	--

Drawing No. **L11**

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Attachment H

Stormwater Report

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.

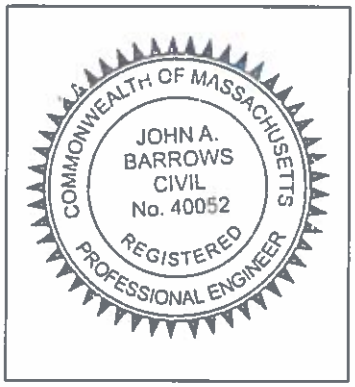
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



5/12/25

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): Groundwater Recharge Systems

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.

STORMWATER REPORT

AUSTIN PREP
SOFTBALL FIELD IMPROVEMENTS
READING MASSACHUSETTS

Prepared For:
HUNTRESS ASSOCIATES, INC.

Prepared By:
MARCHIONDA & ASSOCIATES, LP

May 12, 2025

AUSTIN PREP – SOFTBALL FIELD
STORMWATER REPORT

MAY 12, 2025

TABLE OF CONTENTS

STORMWATER REPORT NARRATIVE

Austin Preparatory School
Softball Field Improvements

May 12, 2025

Introduction:

Marchionda & Associates, L.P. has completed a storm water analysis for the *Softball Field Improvements* proposed at the Austin Preparatory School located off of Willow Street in Reading, Massachusetts (refer to Figure 1: Locus Map). The purpose of this report is to offer a comparative analysis of the stormwater characteristics of the site in its existing and post development condition and the project's compliance with the requirements of the Massachusetts Department of Environmental Protection's (DEP's) Stormwater Policy and the applicable Town of Reading Stormwater Regulations.

For additional information regarding the site's existing conditions and the project's stormwater management system reference is made to the following plans;

> ***Permitting Documents, Softball Field Improvements***
> ***Prepared for; Austin Preparatory School***
> ***Prepared by; Huntress Associates Inc.***
> ***Dated; May 12, 2025***

Existing Conditions:

The site is located in the southwest portion of the school's campus. It abuts private residential properties to the south and west. The subject area is the present site of two natural grass softball fields and a portion of the school's parking area.

The limit of work for the project will be approximately 4 acres. The existing area is made up of bituminous parking areas, softball field, open space grass areas, and a small amount of woods and brush. The existing slopes are generally slight and fall off from higher elevations at the southern boundary falling off to the wetland at the eastern side of the property. Refer to the existing conditions plan in project site plan set for specific information on the existing topography and features of the site.

An on-site soil evaluation has confirmed the presence of very well drained sands and gravels formed by outwash glaciofluvial deposits. Information on the site's soil conditions has been included in appendix of the report.

Project Description:

The project consists of the removal of the existing natural grass softball field and replacement with a synthetic grass field and the addition of a 108-space parking area. The project will also require the re-alignment and the renovation of an existing parking area and access drive. Other improvements include dugouts, access walks, and a storage shed. As a result of the improvements there will be approximately 1.25 acres of new impervious surfaces. A storm water management system will be incorporated into the site design to manage the impacts of the additional storm water runoff that will be generated by the improvements.

The construction of the improvements will require the excavation and removal of most of the existing fields top-soils. The area of the proposed synthetic field will be replaced with a gravel drainage layer, panel drains, and an infiltration bed. The drainage components proposed will allow for stormwater to be infiltrated into the coarser sub-soils found on the site. Along with the new field's drainage system there will be a subsurface groundwater recharge drainage system to manage stormwater from the new parking area. Run-off from this area will be treated and conveyed to the recharge system through two rain gardens and deep sump catch basins.

Refer to the project's site plans for detailed information on the construction proposed on the site.

Project Type:

Portions of the project will take place in areas previously developed. For purposes of stormwater management standards, the project has been considered a mix of new development and redevelopment.

LID Measures:

When possible environmental sensitive site design has been used in the planning of the project.

A large portion of the proposed construction has been designed in areas previously disturbed by the pre-existing sports fields.

The project also includes a number of BMP's to manage stormwater generated from the development. The BMP's include rain garden/bio-retention areas and groundwater recharge areas.

Stormwater Management Standards Compliance:

A description of how this project has been designed to meet the Town of Reading and Mass. DEP Stormwater Standards, along with supporting documentation, is provided herein:

Standard 1: *No New Untreated Stormwater Discharges*

The project has been designed to treat the stormwater prior to discharge, as further described and documented under Standards 4 through 6.

Standard 2: *No Increase in the Post-Development Peak Discharge Rate*

Peak flow rates were studied under existing and proposed conditions for 2-year, 10-year, 25-year, and 100-year, 24-hour Type III storm events. A total of four study points (1, 2, 3, and 4) as shown in Figures 2 and 3 and as described below were developed to analyze runoff rates and affects from the proposed project. The sub-catchment watersheds to each of the study points were then delineated for the pre- and post-development conditions as described below.

As shown in the Pre-Development Sub-catchment Plan (Figure 2), there were five sub-catchments analyzed in the pre-development condition (E-1, E-2, E-3, E-4 and E-5).

Sub-catchment E-1 is made up of the existing southeast portions of the development area. This sub-catchment is approximately 0.7 acres with a curve number of 62 and a time of concentration of 17 minutes. This area is presently made up of a combination of grass field areas and over grown brush and woods. Stormwater flows from this area flows south towards abutting residential homes (Study Point 1).

Sub-catchment E-2 is made up of the existing northern portions of the development area. This sub-catchment is approximately 2.6 acres with a curve number of 80 and a time of concentration of 20 minutes. This area is made up of an existing drive, parking areas, grass softball field, and an area of woods.

Stormwater flows from this area flows east towards catch basins that drain to an existing underground groundwater recharge system (Study Point 2).

Sub-catchment E-3 is made up of the existing northeast portions of the development area. This sub-catchment is approximately 0.6 acres with a curve number of 98 and a time of concentration of 6 minutes. This area is made up of a bituminous concrete parking area. Stormwater flows from this area flows east towards the wetland area.

Sub-catchment E-4 is made up of the portion of the development area that drains to the existing stormwater detention area. This sub-catchment is approximately 1.1 acres with a curve number of 69 and a time of concentration of 12 minutes. This area is made up of the existing softball field and undeveloped woods. Stormwater flows from this area northeast towards the detention area.

Sub-catchment E-5 is made up of the existing northeast portions of the development area. This sub-catchment is approximately 2.7 acres with a curve number of 73 and a time of concentration of 16 minutes. This area is made up of the existing softball field, undeveloped woods, and a bituminous concrete parking area. Stormwater flows from this area east towards the wetlands at the Willow Street entrance.

As shown in the Post Development Sub-catchment Plan (Figure 3), there were eight sub-catchments analyzed in the pre-development condition (P-1, P-2, P-3, P-4, P-5, P-6, P-7, and P-8).

Sub-catchment P-1 is made up of flows from northwestern portions of the proposed development area. This area will be made up of areas of the existing over grown brush and woods as well as newly landscaped areas. Stormwater flows from this area flows northwest towards the abutting residential properties (Study Point 1). This sub-catchment is approximately 0.11 acres with a curve number of 59 and a time of concentration of 12 minutes.

Sub-catchment P-2 is made up of flows from northern portions of the proposed development area. This area will be made up of areas of the existing parking and open space areas that will be renovated and re-aligned to facilitate the new parking areas. Stormwater flows from this area flow northeast to a set of existing catch basins that convey stormwater to the existing underground recharge system. (Study Point 2). This sub-catchment is approximately 1.20 acres with a curve number of 91 and a time of concentration of 7 minutes.

Sub-catchment P-3 is made up of flows from the northeast portions of the proposed development area. This area will be made up of an existing bituminous concrete parking area and will remain as a parking area. Stormwater flows from

this area flow northeast towards a catch basin that conveys stormwater to a wetland area located north of the school's access drive. (Study Point 3). This sub-catchment is approximately 0.59 acres with a curve number of 98 and a time of concentration of 6 minutes.

Sub-catchment P-4 represents flows from the southern portions of the development area that will ultimately drain to the proposed groundwater recharge system. This area will be made up of open space landscaping and impervious surfaces that will be created with the new parking area. Stormwater from this area will be captured by the proposed rain garden/bio-retention areas and deep-sump catch basins and will be conveyed to the new recharge system. This sub-catchment is approximately 2.38 acres with a curve number of 83 and a time of concentration of 12 minutes.

Sub-catchment P-5 represents flows from the eastern portions of the development area. This area will be made up of areas of undisturbed over grown brush, woods, and an existing parking area. The majority of this area will remain in its pre-development condition. A small amount of area adjacent to the proposed field and detention area will be regraded and landscaped. Stormwater flows generated from this area will flow to the wetland area south the schools access drive (Study Point 4). This sub-catchment is approximately 1.05 acres with a curve number of 72 and a time of concentration of 7 minutes.

Sub-catchment P-6 represents flows from southeast portions of the proposed development area. This sub-catchment will be made up primarily of the area of the proposed synthetic softball field along with some off-site areas of brush and woods that drain on the field area. Stormwater flows generated from this area will flow into the field's drainage system which includes a panel underdrain system that drains to crushed stone infiltration bed to be located under the northeast corner of the field. Stormwater flows by-passing this bed will outlet into a proposed detention area adjacent to the field and ultimately to the wetlands. (Study Point 4). This sub-catchment is approximately 1.02 acres with a curve number of 73 and a time of concentration of 9 minutes.

Sub-catchment P-7 represents flows from southeast portions of the proposed development area. This sub-catchment will be made up of the proposed walkways and dugout that will be constructed as part of the softball field improvements. These impervious surfaces along with some off-site areas of brush and woods will drain to the proposed detention area adjacent to the field and ultimately to the wetlands (Study Point 4). This sub-catchment is approximately 1.26 acres with a curve number of 77 and a time of concentration of 14 minutes.

Detailed information on the specifications and characteristics of the storm water system components have been included in the Appendix and in the site plans.

In terms of the modeling methodology, Technical Release 55 (TR-55) was utilized to obtain weighted curve numbers (CNs) for each of the pre- and post-development subcatchment areas. Inputs for obtaining the weighted CNs were based on ground cover type and hydrologic soil groups (HSGs). TR-55 was also utilized to obtain times of concentration (TCs) for each of the pre- and post-development subcatchment areas. Flow paths were generally broken into segments of sheet flow and shallow concentrated flow. Refer to attached TR-55 TC data (Appendix 1).

CNs and TCs obtained from TR-55 were input into the *Hydraflow*® Hydrographs software package, which utilizes the National Resources Conservation Service (NRCS) method to generate and route hydrographs.

Tables 1 summarizes the peak runoff rates at each of the design points. As you can see the peak runoff rates at each design point for all storm events is equal to or less than the predevelopment rates.

TABLE 1: PEAK RUNOFF RATES FROM THE SITE AT EACH STUDY POINT

Study Point	2-yr storm event (3.3"/24-hr)		10-yr storm event (5.2"/24-hr)		25-yr storm event (6.4"/24-hr)		100-yr storm event (8.2"/24-hr)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
1	***0.2***	***0.0***	***0.8***	***0.1***	***1.3***	***0.1***	***2.1***	***0.3***
2	***3.1***	***3.0***	***6.5***	***5.3***	***8.7***	***6.7***	***12.1***	***8.8***
3	***1.8***	***1.8***	***2.7***	***2.7***	***3.8***	***3.8***	***4.9***	***4.9***
4	***2.3***	***1.1***	***5.7***	***2.7***	***8.2***	***5.5***	***16.3***	***10.4***

<u>Standard 3</u>: *Loss of Annual Recharge*

DEP's *Stormwater Management Handbook* prescribes an infiltration volume based on the hydrologic soil group over which impervious area will be constructed as follows:

- HSG A – 0.60 inches of runoff
- HSG B – 0.35 inches of runoff
- HSG C – 0.25 inches of runoff
- HSG D – 0.10 inches of runoff

As detailed in the attached calculations (Appendix 2), the hydrologic soil groups were determined based on published soils data in accordance with the procedures outlined in the *Massachusetts Stormwater Management Handbook.*

Standard 4: *80% Total Suspended Solids Removal & Pollution Prevention Plan*

The project has been designed to provide the required 80% removal of the average annual post-construction load of total suspended solids (TSS) for the proposed bituminous pavement parking area and drives. Pre-existing areas that are proposed to re-developed will meet this standard to the extent practical.

In order to calculate TSS removal, the site was divided up based on the BMP series or "treatment train" treating the runoff for each portion of the site. As detailed in the attached calculations (Appendix 3), TSS removal will be achieved through the implementation of several Best Management Practices (BMPs) including:

- Deep Sump Hooded Catch Basins
- Rain Garden/Bio-Retention Areas
- Groundwater Infiltration Basin

A *Long-Term Stormwater Operation and Maintenance Plan & Pollution Prevention Plan* (Appendix 4) has been developed for the project to comply with this requirement and the requirements of Standard 9.

Standard 5: *Land Uses with Higher Potential Pollutant Loads*

Not applicable – this project does not propose a land use with a higher potential pollutant load.

Standard 6: *Discharges within a Zone II or Interim Wellhead Protection Area*

Not applicable – this project does not lie within a Zone II or Interim Wellhead Protection Area according to a review of Mass GIS data.

Standard 7: *Redevelopment*

Portions of the project will take place in areas previously developed. For purposes of stormwater management standards, only the portions of the project that are being renovated are considered a redevelopment.

Standard 8: *Construction-Related Impacts*

A Construction Period *Erosion & Sedimentation Control Plan* has been developed for the project and is included as part of the Definitive Plans. In addition to this plan, the project is subject to the National Pollutant Discharge Elimination System (NPDES) program of the United States Environmental Protection Agency, as it will involve greater than one acre of land disturbance. As such, coverage under the NPDES *General Permit for Stormwater Discharges from Construction Activities* will be required along with a Stormwater Pollution Prevention Plan (SWPPP) prior to land disturbance.

Standard 9: *Long-Term Operation and Maintenance*

A *Long-Term Stormwater Operation and Maintenance Plan & Pollution Prevention Plan* (Appendix 4) has been developed for the project to comply with this requirement and the requirements of Standard 4.

Standard 10: *Illicit Discharges*

DEP does not permit illicit discharges, defined by 310 CMR 10.04 as follows, to the stormwater management system:

"Illicit discharge means a discharge that is not entirely comprised of stormwater. Notwithstanding the foregoing, an illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated ground water, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing and water used to clean residential buildings without detergents."

Prior to the discharge of stormwater runoff to the post-construction stormwater BMPs, it shall be the project owner's responsibility to prepare an Illicit Discharge Compliance Statement in accordance with Standard 10 certifying that no illicit discharges exist on the site.

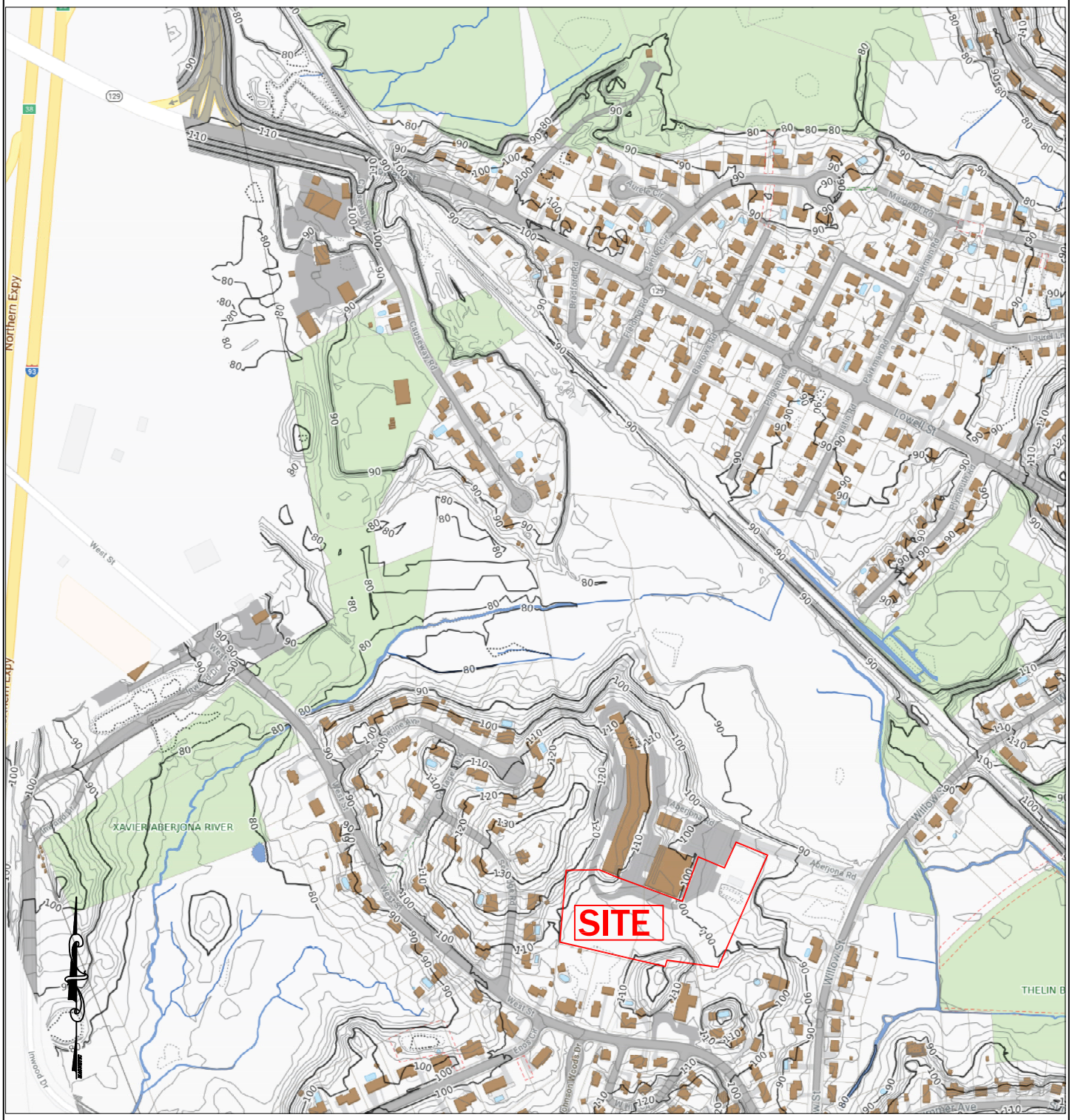


FIGURE 1: LOCUS MAP

AUSTIN PREP - SOFTBALL FIELD IMPROVEMENTS

READING, MASSACHUSETTS

HUNTRESS ASSOCIATES, INC.

MAY 2025

SCALE: 1"=500'±

Marchionda & Associates, L.P.
Engineering and Planning Consultants
62 Montvale Avenue
Suite I
Stoneham, MA 02180
TEL: (781) 438-6121
FAX: (781) 438-9654
Email: engineering@marchionda.com
Website: www.marchionda.com

STUDY POINT #3

STUDY POINT #2

STUDY POINT #4

STUDY POINT #1

LIMIT OF SUBCAT

LIMIT OF STUDY AREA

Tc FLOW PATH (Typ.)

E-1

E-2

E-3

E-4

E-5

NOTES

1. TOPOGRAPHIC FEATURES BASED UPON A FIELD SURVEY BY MARCHIONDA & ASSOCIATES, L.P PERFORMED IN MARCH OF 2019 AND APRIL OF 2022.

2. THE LOCATION OF EXISTING PIPES, CONDUITS, AND OTHER UNDERGROUND UTILITIES ARE NOT WARRANTED TO BE CORRECT OR COMPLETE AND ARE BASED UPON VISIBLE OBSERVATION AND THE BEST APPROXIMATION OF THE ACTUAL LOCATION FROM A FIELD SURVEY.

3. THIS PLAN DOES NOT SHOW ALL UNDERGROUND UTILITIES THAT MAY EXIST ON THE SITE.

4. CONTRACTORS SHALL VERIFY ALL UNDERGROUND UTILITIES, CONDUITS, PIPES, ETC, AND NOTIFY DIGSAFE PRIOR TO ANY EXCAVATIONS ON THE SITE.

5. PROPERTY LINES SHOWN ON THIS PLAN ARE TO BE CONSIDERED APPROXIMATE AND ARE NOT THE RESULT OF A FIELD SURVEY BY MARCHIONDA & ASSOCIATES, L.P.

6. HORIZONTAL DATUM IS MASSACHUSETTS STATE COORDINATE SYSTEM (NAD 83).

7. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988.

8. WETLANDS DELINEATED BY EPSILON ASSOCIATES ON 3-22-2022 AND FIELD LOCATED BY AN INSTRUMENT SURVEY BY MARCHIONDA & ASSOCIATES, L.P.

9. AQUIFER PROTECTION DISTRICT LINE TRACED FROM TOWN OF READING GIS.

40 20 0 40 80

CIVIL:

SURVEYOR:

DSG: CHK: DRW: DESCRIPTION BY REV.

PRE-DEVELOPMENT WATERSHEDS

AUSTIN PREPARATORY SCHOOL
101 WILLOW STREET
READING, MA

PREPARED FOR

HUNTRESS ASSOCIATES
17 TEWKSBURY STREET
ANDOVER, MA 01810

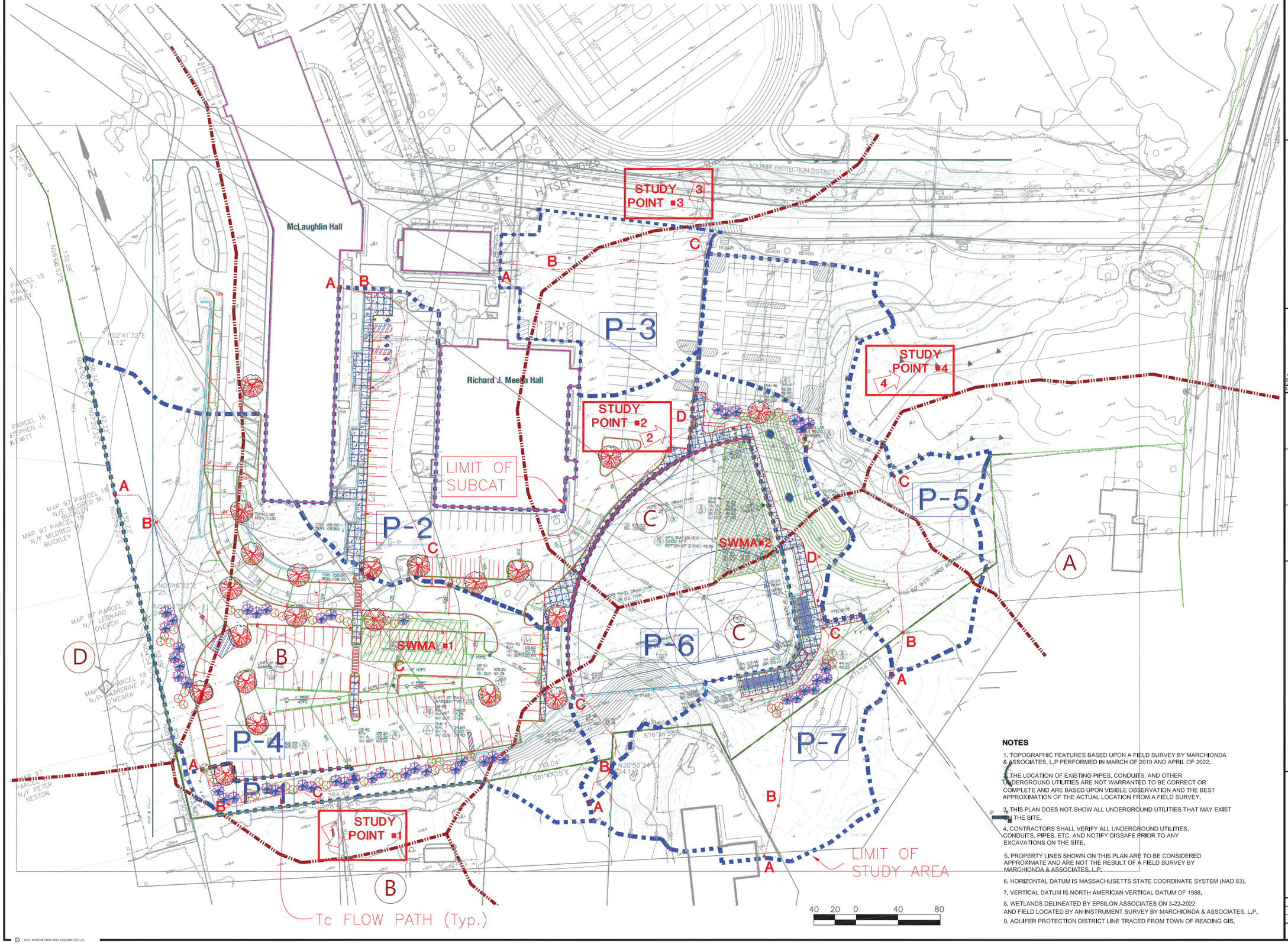
Marchionda & Associates, L.P.
Engineering and Planning Consultants
62 Montvale Avenue
Suite I
Stoneham, MA 02180
TEL: (781) 438-6121
FAX: (781) 438-9654
Email: engineering@marchionda.com
Website: www.marchionda.com

APRIL 11, 2025

\670-26 ...\2022\Drainage\Pre-Dev Existing Conditions.dwg

M. & A. NO.: 670-26 SCALE: 1"=40'

FIGURE 2



NOTES

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4. CONTRACTORS SHALL VERIFY ALL UNDERGROUND UTILITIES, CONDUITS, PIPES, ETC. AND NOTIFY DIGSAFE PRIOR TO ANY EXCAVATIONS ON THE SITE.
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6. HORIZONTAL DATUM IS MASSACHUSETTS STATE COORDINATE SYSTEM (NAD 83).
7. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988.
8. WETLANDS DELINEATED BY EPSILON ASSOCIATES ON 3-22-2022 AND FIELD LOCATED BY AN INSTRUMENT SURVEY BY MARCHIONDA & ASSOCIATES, L.P.
9. AQUIFER PROTECTION DISTRICT LINE TRACED FROM TOWN OF READING GIS.

CIVIL:
SURVEYOR:

DRW:	DSG:	CHK:	DESCRIPTION	DATE

POST DEVELOPMENT WATERSHEDS

AUSTIN PREPARATORY SCHOOL
101 WILLOW STREET
READING, MA

PREPARED FOR
HUNTRESS ASSOCIATES
17 TEWKSBURY STREET
ANDOVER, MA 01810

Marchionda & Associates, L.P.
Engineering and Planning Consultants
62 Montvale Avenue
Suite I
Stoneham, MA 02180
TEL: (781) 438-6121
FAX: (781) 438-9654
Email: engineering@marchionda.com
Website: www.marchionda.com

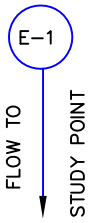
May 12, 2025
\670-26 ...\2022\Drainage\PostDev-Parking Lot 030725.dwg
M. & A. NO.: 670-26 SCALE: 1"=40'

FIGURE 3

APPENDIX 1

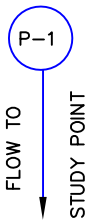
Standard 2 (Peak Flow)

PRE-DEVELOPMENT SEQUENCING



PT #1

POST-DEVELOPMENT SEQUENCING



PT #1

MARCHIONDA & ASSOC.,L.P.
ENGINEERING AND PLANNING CONSULTANTS

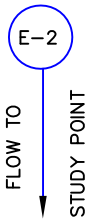
62 MONTVALE AVE. SUITE I
STONEHAM, MA. 02180
(617) 438-6121

HYDROLOGY SEQUENCING

AUSTIN PREP
READING, MA

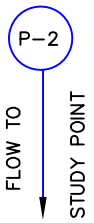
SCALE: NONE | DATE: 4/11/25 | **FIG. A**

PRE-DEVELOPMENT SEQUENCING



PT #2

POST-DEVELOPMENT SEQUENCING



PT #2

MARCHIONDA & ASSOC.,L.P.
ENGINEERING AND PLANNING CONSULTANTS

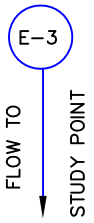
62 MONTVALE AVE. SUITE I
STONEHAM, MA. 02180
(617) 438-6121

HYDROLOGY SEQUENCING

AUSTIN PREP
READING, MA

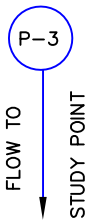
SCALE: NONE | DATE: 4/11/25 | **FIG. B**

PRE-DEVELOPMENT SEQUENCING



PT #3

POST-DEVELOPMENT SEQUENCING



PT #3

MARCHIONDA & ASSOC.,L.P.
ENGINEERING AND PLANNING CONSULTANTS

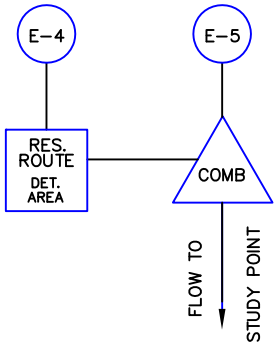
62 MONTVALE AVE. SUITE I
STONEHAM, MA. 02180
(617) 438-6121

HYDROLOGY SEQUENCING

AUSTIN PREP
READING, MA

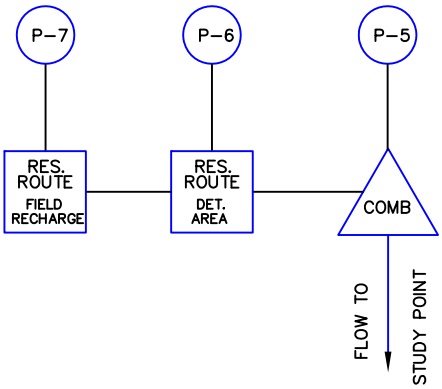
SCALE: NONE	DATE: 4/11/25	**FIG. C**

PRE-DEVELOPMENT SEQUENCING



PT #4

POST-DEVELOPMENT SEQUENCING



PT #4

MARCHIONDA & ASSOC.,L.P.
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62 MONTVALE AVE. SUITE I
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(617) 438-6121

HYDROLOGY SEQUENCING

AUSTIN PREP
READING, MA

SCALE: NONE	DATE: 4/11/25	**FIG. D**

SOILS INFORMATION

Map Scale: 1:2,420 if printed on A landscape (11" x 8.5") sheet.

N

0 35 70 140 210 Meters

0 100 200 400 600 Feet

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 Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 22, Sep 9, 2022

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
52A	Freetown muck, 0 to 1 percent slopes	B/D	0.0	0.0%
104C	Hollis-Rock outcrop-Charlton complex, 0 to 15 percent slopes	D	2.4	13.5%
302B	Montauk fine sandy loam, 0 to 8 percent slopes, extremely stony	C	2.8	15.8%
420B	Canton fine sandy loam, 3 to 8 percent slopes	B	0.8	4.6%
629C	Canton-Charlton-Urban land complex, 3 to 15 percent slopes	A	1.7	9.5%
655	Udorthents, wet substratum		4.4	25.1%
656	Udorthents-Urban land complex		5.5	31.5%
Totals for Area of Interest			**17.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Middlesex County, Massachusetts

104C—Hollis-Rock outcrop-Charlton complex, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w69p
Elevation: 0 to 1,270 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

Hollis, extremely stony, and similar soils: 35 percent
Rock outcrop: 25 percent
Charlton, extremely stony, and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hollis, Extremely Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
Bw - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 0 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 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: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Charlton, Extremely Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 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: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges, hills
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 79 inches: bedrock

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Canton, extremely stony

Percent of map unit: 7 percent
Landform: Moraines, hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Chatfield, extremely stony

Percent of map unit: 6 percent
Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Montauk, extremely stony

Percent of map unit: 1 percent
Landform: Hills, recessionial moraines, ground moraines, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Scituate, extremely stony

Percent of map unit: 1 percent
Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex

Hydric soil rating: No

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 22, Sep 9, 2022

Middlesex County, Massachusetts

302B—Montauk fine sandy loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w80t
Elevation: 30 to 1,120 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

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

Description of Montauk, Extremely Stony

Setting

Landform: Ground moraines, drumlins, recessionial moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 6 inches: fine sandy loam
Bw1 - 6 to 28 inches: fine sandy loam
Bw2 - 28 to 36 inches: sandy loam
2Cd - 36 to 74 inches: gravelly loamy sand

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: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 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 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Scituate, extremely stony

Percent of map unit: 8 percent
Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Canton, extremely stony

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 2 percent
Landform: 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
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 22, Sep 9, 2022

Middlesex County, Massachusetts

420B—Canton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81b
Elevation: 0 to 1,180 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

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

Description of Canton

Setting

Landform: Hills, moraines, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Scituate
Percent of map unit: 10 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Montauk
Percent of map unit: 5 percent
Landform: Moraines, ground moraines, hills, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Charlton
Percent of map unit: 4 percent
Landform: Ridges, ground moraines, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Swansea
Percent of map unit: 1 percent
Landform: Marshes, depressions, bogs, swamps, kettles
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 22, Sep 9, 2022

Middlesex County, Massachusetts

629C—Canton-Charlton-Urban land complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9959
Elevation: 0 to 1,000 feet
Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 110 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton and similar soils: 40 percent
Charlton and similar soils: 30 percent
Urban land: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable loamy eolian deposits over friable sandy basal till derived from granite and gneiss

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 21 inches: fine sandy loam
H3 - 21 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 18 to 30 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landform: Ground moraines, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable loamy eolian deposits over friable loamy basal till derived from granite and gneiss

Typical profile

H1 - 0 to 5 inches: fine sandy loam
H2 - 5 to 22 inches: sandy loam
H3 - 22 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Excavated and filled land

Minor Components

Montauk

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Head slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Scituate

Percent of map unit: 2 percent
Landform: Hillslopes, depressions
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Udorthents, loamy

Percent of map unit: 1 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 22, Sep 9, 2022

GEOTECHNICAL REPORT

AUSTIN PREPARATORY SCHOOL FIELD IMPROVEMENTS
READING, MASSACHUSETTS

February 6, 2019

GSI Project No. 218268

Prepared for:

Mr. Chris Huntress
Huntress Sports
17 Tewksbury Street
Andover, MA 01810

Prepared by:

Geotechnical Services, Inc.
55 North Stark Highway
Weare, NH 03281

Geotechnical Services Inc.
Geotechnical Engineering ◣ Environmental Studies ◣ Materials Testing ◣ Construction Monitoring

GEOTECHNICAL SERVICES INC.
Geotechnical Engineering ◢ Environmental Studies ◢ Materials Testing ◢ Construction Monitoring

February 6, 2019

Mr. Chris Huntress
Huntress Sports
17 Tewksbury Street
Andover, MA 01810

Advanced via Email: chris@huntressassociates.com

RE: Geotechnical Investigation Report
Austin Preparatory School Athletic Field Improvements
Reading, Massachusetts
GSI Project No. 217268

Dear Mr. Huntress:

Geotechnical Services, Inc. (GSI) is pleased to submit this report as part of a Master Plan study for the Austin Preparatory School Athletic Fields Improvements located in Reading, MA. The work has been undertaken in accordance with our proposal letter, dated December 4, 2018 and your subsequent authorization. The content of this report is subject to the **Limitations** stated in Appendix A.

PROJECT UNDERSTANDING

The project is located on the campus of the Austin Preparatory School in Reading, MA (See Figure 1). Based on our review of the drawing titled **"Athletic Campus Master Plan, Austin Preparatory School, Reading, MA,"** prepared by Huntress Sports, undated, we understand that the planned development involves the following:

- Replacing the existing grass fields located in the northern limits of the school campus (Northern Fields) with a new synthetic turf baseball field and multi-purpose athletic field. The improvements will also include new structures which will include: lighting poles, bleachers, storage building, and a grandstand,
- New tennis courts and tennis court building located in an undeveloped area located just Northwest of the Northern Fields,
- Two new softball fields and new parking spaces in the area of the existing softball fields and tennis court located in the southern boundary of the school campus.

SUBSURFACE EXPLORATION

Thirty-two (32) soil probes, designated as G-1 to G-31, were drilled at the site during the period of January 15 and 16, 2019 by New England Boring Contractors located in Derry, NH. The soil probes were conducted using a Geoprobe soil probing machine which collects continuous 5-ft long soil samples. Soil samples were collected in lengths ranging from 10 to 15-ft below the existing grade. The probes were observed by a GSI engineer and the soils encountered were classified in accordance with the Burmister Classification system. The approximate locations of the geoprobes are shown on Figure 2, Exploration Location Plan (Northern Fields and Planned Tennis Courts) and Figure 3, Exploration Location Plan (Proposed Softball Fields and Parking Lots). The finalized logs for the Geoprobes are included as Appendix B.

SUBSURFACE CONDITIONS

1. Northern Athletic Fields Area

Soil probes designated G-1 to G-13, and G-17 where drilled within the Northern Athletic Fields area. The subsurface conditions encountered in the investigation indicate that the site is underlain by the following soil units/deposits, described in order of increasing depth:

Topsoil: Topsoil was encountered at the ground surface in the soil probes. The topsoil is generally 3-in. to 15-in in thickness.

Fill: The Fill soils were encountered in G-8, G-12, and G-13. The thickness of the Fill soils varies from about 1-ft (G-8) to about 5-ft (G-12). The Fill soils generally consist of brown silty fine to medium SAND with varying amounts of gravel, and coarse sand. **Bricks** were encountered in G-13 between 3.5 to 5-ft below the existing grade. The Fill soils appear to be reworked Sand Deposits soils.

Buried Topsoil: Buried Topsoil was encountered in encountered in G-8, G-12, and G-13 directly beneath the Fill soils. The thickness of the buried topsoil layer was about 1-ft.

Sand Deposits: The Sand Deposits were encountered in all the soil probes. The Sand Deposits generally consist of brown to gray (with depth), fine to medium SAND or silty fine to medium SAND with varying amounts of gravel and coarse sand. All the probes, with the exception of G-1, were terminated within this soil unit at a depth of 10-ft below the existing grade.

Organic Soils: Organic Soils consisting of brown PEAT were encountered within G-1 between 8 to about 11-ft below the existing grade.

Silt Deposits: Brown, SILT and Fine SAND was encountered beneath the Organic Soils encountered in G-1. The soil probe was terminated within this soil unit at a depth of 15-ft below the existing grade.

Groundwater: Groundwater levels were measured upon completion of the soil probes and are noted on the individual geoprobe logs. In general, groundwater was encountered at depths ranging from about 2-ft (G-1) to about 6-ft below the existing grade. The majority of the soil probes encountered the groundwater between 5 and 6-ft below the existing grade. Groundwater levels should be expected to vary with season, precipitation, snowmelt, and other factors. As a result, groundwater levels encountered during construction may differ from those encountered in the explorations.

2. Proposed Tennis Courts

Soil probes designated G-14 to G-16, where drilled within the planned tennis court area. The subsurface conditions encountered in the investigation indicate that the site is underlain by the following soil units/deposits, described in order of increasing depth:

Topsoil/Forest Mat: Topsoil and Forest Mat material (decomposing leaves) were encountered at the ground surface in all three soil probes. The topsoil/forest mat material is generally 3-in. to 8-in in thickness.

Sand Deposits: The Sand Deposits were encountered in all three soil probes. The Sand Deposits generally consist of brown, fine to medium SAND with varying amounts of gravel and coarse sand. All three probes were terminated within this soil unit at a depth of 10-ft below the existing grade.

Groundwater: Groundwater levels were measured upon completion of the soil probes and are noted on the individual geoprobe logs. In general, groundwater was encountered at depths ranging from about 5-ft to about 6-ft below the existing grade. Groundwater levels should be expected to vary with season, precipitation, snowmelt, and other factors. As a result, groundwater levels encountered during construction may differ from those encountered in the explorations.

3. Planned Softball Fields and Additional Parking Lots

Soil probes designated G-18 to G-32, where drilled within the planned softball fields and new parking lot area on the southern boundary of the school campus. The subsurface conditions encountered in the investigation indicate that the site is underlain by the following soil units/deposits, described in order of increasing depth:

Surface Deposits: Topsoil was encountered at the ground surface in all the soil probes except G-18 and G-26. The thickness of the topsoil varies from about 7-in. to 11 in. Brown Clay and a light brown silty fine SAND were encountered within the infield areas in G-18 and G-26, respectively. The Clay was about 6-in. in thickness and the Silty Fine Sand was about 1.8-ft in thickness.

Fill: Fill soils were encountered in G-21, G-23, and in G-30 to G-32. The thickness of the Fill soils varies from about 4-ft in G-32 to 10-ft in G-30. The Fill soils are generally described as a brown or gray silty fine SAND with varying amounts of gravel and medium to coarse sand. The Fill soils appear to be reworked Glacial Deposit soils. A trace amount of coal ash was encountered in G-21.

Buried Topsoil: Buried Topsoil was encountered in G-21 and G-23. The buried topsoil thickness was about 6-in. The buried topsoil was encountered at about 5-ft below the existing grade in both soil probes.

Glacial Deposits: The Glacial Deposits were encountered in all the soil probes, except G-30. The Glacial Deposits generally consist of brown or gray, silty fine SAND with varying amounts of gravel and medium to coarse sand.

Refusal: Refusal was encountered in G-18 to G-20, G-22, and in G-25 to G-28. The depth to refusal varies from about 2.7-ft below the existing grade in G-18 to about 9.5-ft below existing grade in G-20. The refusal is likely due to shallow bedrock.

Groundwater: Groundwater levels were measured upon completion of the soil probes and are noted on the individual geoprobe logs. Groundwater was encountered in G-20, G-21, G-29, G-30 and G-31 at a depth of about 8-ft below the existing grade. Groundwater was not encountered in the remaining soil probes conducted in this area. Groundwater levels should be expected to vary with season, precipitation, snowmelt, and other factors. As a result, groundwater levels encountered during construction may differ from those encountered in the explorations.

PRELIMINARY GEOTECHNICAL DESIGN RECOMMENDATIONS

General

As a general guideline, foundation design and construction must conform to the applicable provisions of the Massachusetts Building Code, 9th Edition (Building Code).

1. Northern Athletic Fields Area

Field Subgrades

We anticipate that the construction of the new synthetic turf fields will involve the following; stripping off the existing Topsoil, removing/relocating any existing utilities (drainage pipe, electric utilities and any other utilities), removing grading the field to the planned rough grade, proof-rolling the subgrade, and constructing the synthetic turf system. The Fill and Sand Deposits are suitable for support of the synthetic turf system provided the subgrade is prepared using the recommendations provided herein. The buried topsoil and deeper Organic soils encountered in some of the soil probes should not impact the performance of the planned fields provided that the proof-rolling activities indicate the materials to be firm and stable. If the proof-rolling activities indicate weak soil conditions in these areas, GSI recommends excavating and replacing an additional 8-in. beneath the planned subgrade and replacing the material with compacted Granular Fill.

Grandstand and Sports Lighting Pole Foundations

It is anticipated that the foundations will bear upon/within the prepared natural Sand Deposits or Silt deposits which are suitable for support. Final design recommendations for the grand stand, bleachers, and lighting pole foundations will be provided once the location of the structures are finalized and test borings investigation is completed.

2. Proposed Tennis Courts

Court Subgrades

We anticipate that the construction of the tennis courts will involve the following; stripping off the existing Topsoil and Forest Mat materials, grading the court subgrade to the planned rough grade, proof-rolling the subgrade, and constructing the courts. The Sand Deposits are suitable for support of the courts provided the subgrade is prepared using the recommendations provided herein.

Tennis Court Building Foundation

It is anticipated that the foundations will bear within the prepared natural Sand Deposits which are suitable for support. Final design recommendations for the tennis court building will be provided once the location of the structure is finalized and a test boring investigation is completed.

3. Planned Softball Fields and Additional Parking Lots

Field and Pavement Subgrades

We anticipate that the construction of the new fields will involve the following; stripping off the existing Topsoil, removing/relocating any existing utilities (existing tennis court structure, drainage pipe, electric utilities and any other utilities), grading the fields to the planned rough grade, proof-rolling the subgrade and constructing the new field. A significant amount of Fill will likely be required for Softball Field No. 1 to fill in the existing drainage basin and create an embankment for the right field area. The backfill material should consist of compacted Granular Fill. The Fill and Glacial Deposits are suitable for support of the new fields provided the subgrade is prepared using the recommendation provided herein.

We anticipate that the construction of the parking lots will involve the following; stripping off the existing Topsoil, removing/relocating any existing utilities (existing tennis court structure, drainage pipe, electric utilities and any other utilities), grading the parking lots to the planned rough grade, proof-rolling the subgrade and constructing the new field. The Fill and Glacial Deposits are suitable for support of the new parking lot provided the subgrade is prepared using the recommendation provided herein.

CONSTRUCTION CONSIDERATIONS

General

In general, all excavation, dewatering, and other construction activities should conform to the requirements of OSHA and all other applicable regulations. The site soils would typically be classified as Type C based on OSHA 29 CFR 1926.

Excavation

We anticipate that the excavation for the planned construction and site grading can be accomplished with conventional earth-moving equipment. Some cobbles should be anticipated.

Temporary cut soil slopes should, typically, be stable if constructed no steeper than about 1.5H:1V. Some sloughing and raveling should be anticipated in temporary earth slopes.

Construction Dewatering

Based on the available subsurface data it is anticipated that during the general site work, no significant dewatering measures will be necessary to conduct the construction "in-the-dry." Groundwater and surface water must be controlled as necessary to enable all final excavation and foundation construction to be conducted in-the-dry.

The Contractor should take measures to prevent groundwater and storm water to enter into excavated areas, and be prepared to remove ponded surface water by means of localized sumps and pumps. The Contractor should select whichever dewatering procedures may be effective to maintain dry, stable excavation bottoms. Dewatering, including its discharge, should be performed in accordance with all local, state, and federal regulations.

Preparation and Protection of Bearing Surfaces

Final excavation should be conducted in a manner that minimizes disturbance to the subgrade soils. As noted above, all final excavations should be conducted in-the-dry. We recommend that the exposed subgrade soils be observed in the field by a geotechnical engineer to confirm the assumed soil bearing conditions. It may be necessary to over-excavate and replace weak, disturbed or otherwise unacceptable foundation bearing materials.

Filling and Backfilling

Filling and backfilling will be required during construction of Softball Field No. 1. We recommend that Structural Fill be used as fill.

Placement of compacted soil fills should not be conducted when air temperatures are low enough (approximately 30 degrees F, or below) to cause freezing of the moisture in the fill during or before placement. Fill materials should not be placed on snow, ice or uncompacted frozen soil. Compacted fill should not be placed on frozen soil. No fill should be allowed to freeze prior to compaction. At the end of each day's operations, the last lift of fill, after compaction, should be rolled by a smooth-wheeled roller to eliminate ridges of uncompacted soil.

Compaction

Minimum compaction requirements refer to percentages of the maximum dry density determined in accordance with ASTM D1557. Typical recommended compaction requirements are as follows:

Location	Minimum Compaction Requirements
Beneath and around footings, beneath slabs	95 %
Parking, roadways and sidewalks	92 % up to 3 ft below finished grade 95 % in the upper 3 ft
Landscaped areas	90 % nominal compaction

Fill and Backfill Materials

A. Common Fill

Common fill should consist of mineral sandy soil, free from organic matter, plastic, metal, wood, ice, snow or other deleterious material and should have the characteristic that it can be readily placed and compacted. Common fill imported to the site should have a maximum of 80 percent passing the No. 40 sieve and a maximum of 30 percent finer than the No. 200 sieve. The largest particle size for common fill should not exceed 2/3 of the lift thickness. Silty common fill soils may require moisture control during placement and compaction. Common Fill should be placed and compacted in the manner described in "Filling and Backfilling."

B. Granular Fill

Granular Fill should consist of clean, sand and gravel, free of organic material, snow ice, or other objectionable materials and should be well-graded within the following limits:

Sieve Size	Percent Finer by Weight
6 in.	100
No. 4	30 – 90
No. 40	10 – 50
No. 200	0-10

Granular Fill should be placed in 9-inch loose lift thickness, unless otherwise specified. Cobbles exceeding 6 inch in size should be screened and removed prior to compaction. Compaction equipment should be selected to meet the requirements of that particular location in earthwork operation, thus the Contractor should provide both vibratory and static rollers, as well as hand-guided vibratory plate compactors. Where vibratory plate compactor is used the loose lift thickness should not exceed 6 inch. A minimum of four systematic passes of the compaction equipment should be implemented to compact each lift.

SPECIFICATIONS AND PLAN REVIEW

We recommend that GSI be provided the opportunity to review the final plans and specifications in order to confirm that the recommendations made in this report were interpreted and implemented as intended.

CLOSURE

GSI appreciates the opportunity to serve you on this project, and we look forward for its successful completion. In the meantime, if you have any questions on the content of this report or any related matter, please do not hesitate to contact us.

Very truly yours,
GEOTECHNICAL SERVICES, INC.

Glen V. Zoladz, P.E.
Project Manager

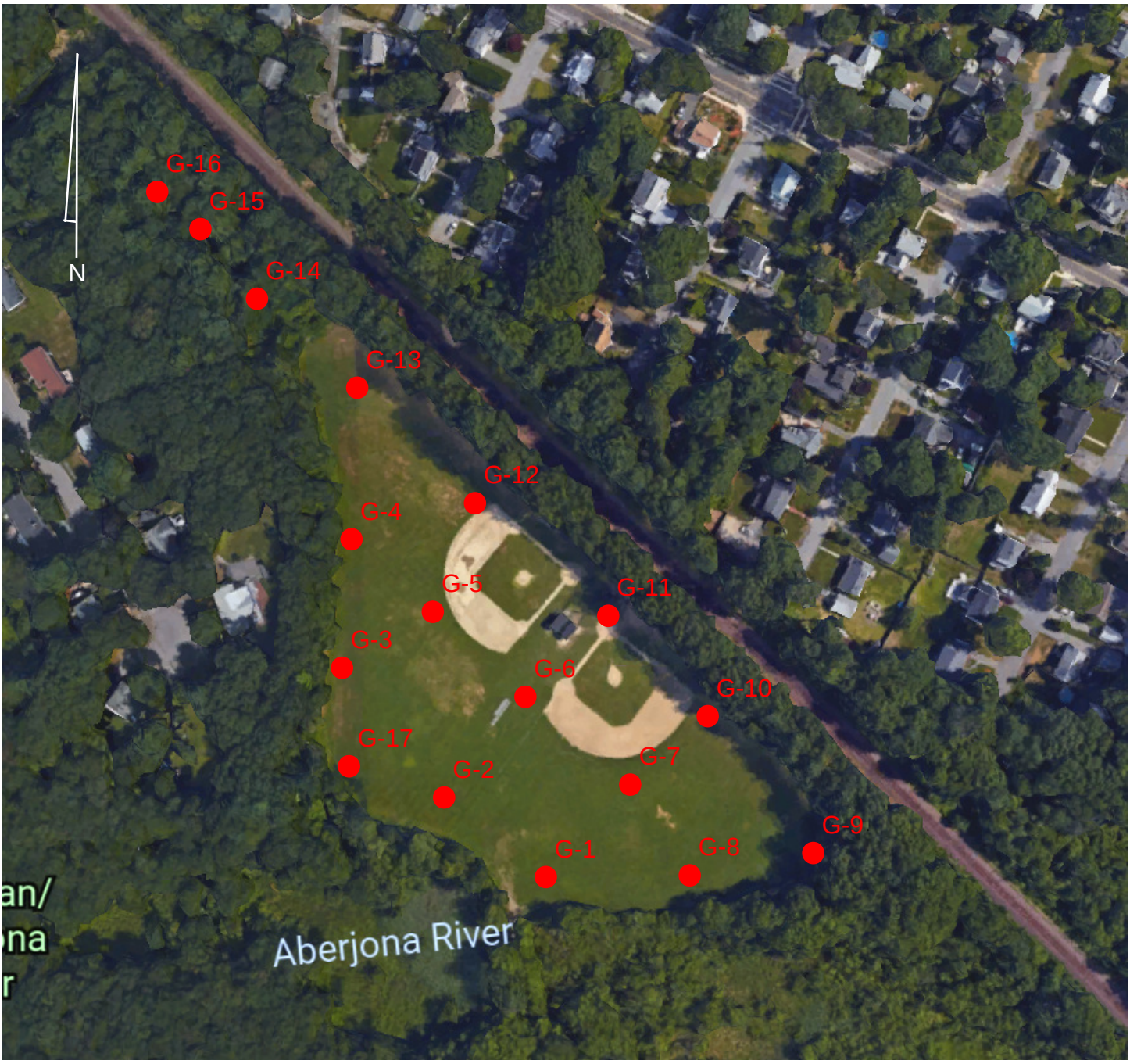
Harry K. Wetherbee, P.E.
Principal Engineer

Figure 1. Locus Map
Figure 2. Exploration Location Plan (Northern Fields and Tennis Courts)
Figure 3. Exploration Location Plan (Softball Fields and Parking Lots)

Appendix A. Limitations
Appendix B. Geoprobe Logs

FIGURE 1–PROJECT LOCUS

AUSTIN PREP. ATHLETIC FIELDS
READING, MA
GSI PROJECT NO. 218268



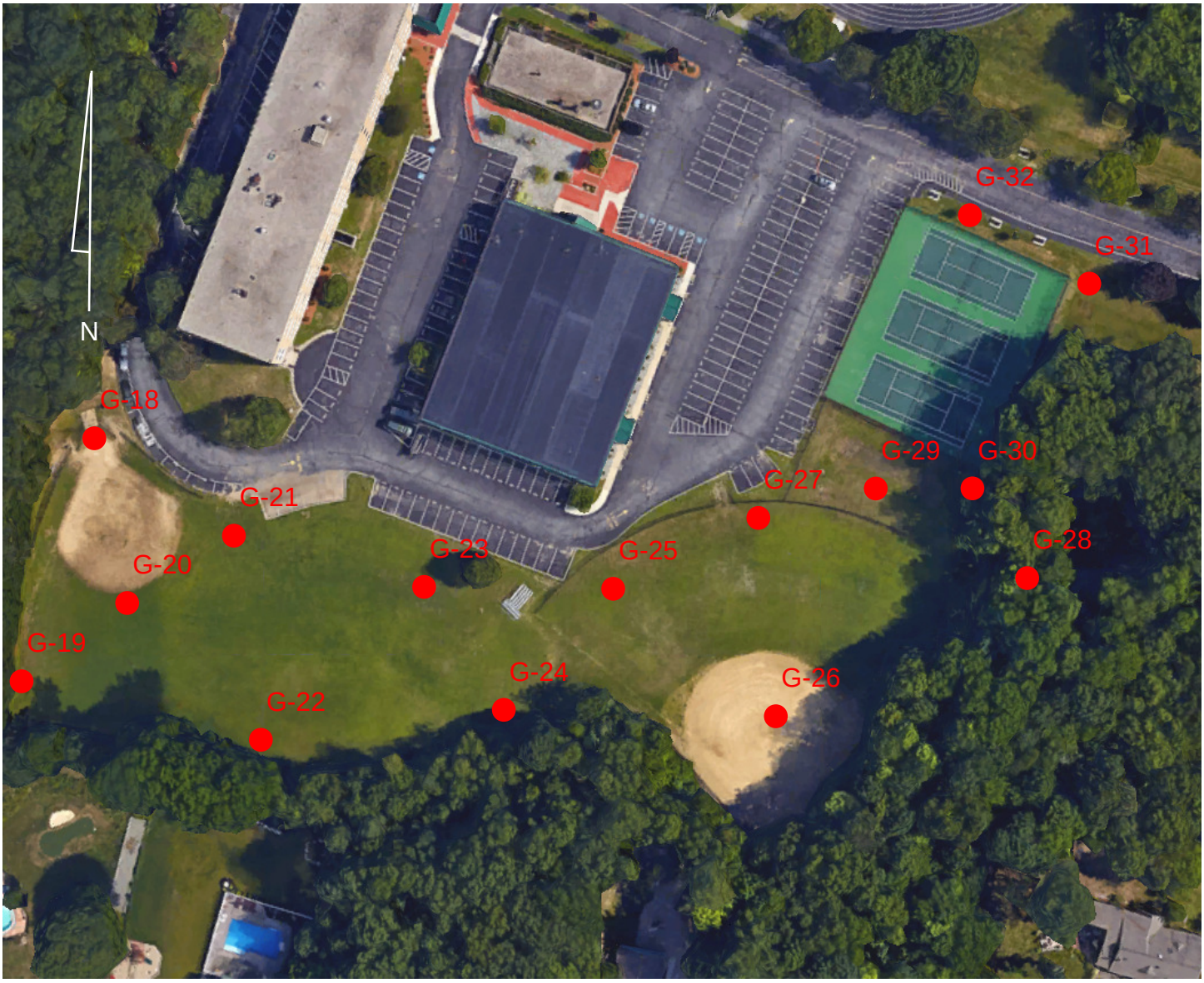
SCALE: NOT TO SCALE

LEGEND:

G-1
SOIL PROBE I.D. AND APPROXIMATE LOCATION

FIGURE 2–EXPLORATION LOCATION PLAN

AUSTIN PREP. ATHLETIC FIELDS
READING, MA
GSI PROJECT NO. 218268



SCALE: NOT TO SCALE

LEGEND:

G-18

SOIL PROBE I.D. AND APPROXIMATE LOCATION

FIGURE 3–EXPLORATION LOCATION PLAN

AUSTIN PREP. ATHLETIC FIELDS
READING, MA
GSI PROJECT NO. 218268

APPENDIX A

LIMITATIONS

LIMITATIONS

Explorations

1. The analyses, recommendations and designs submitted in this report are based in part upon the data obtained from preliminary subsurface explorations. 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 are probably more gradual. For specific information, refer to the individual test pit and/or boring logs.

3. Water level readings have been made in the test pits and/or test borings under conditions stated on the 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 the time the measurements were made.

Review

4. It is recommended that this firm be given the opportunity to review final design drawings and specifications to evaluate the appropriate implementation of the recommendations provided herein.

5. In the event that any changes in the nature, design, or location of the proposed areas 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 Geotechnical Services, Inc.

Construction

6. It is recommended that this firm be retained to provide geotechnical engineering services during the earthwork phases of the work. This is to observe compliance with the design concepts, specifications, and 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

7. This report has been prepared for the exclusive use of Huntress Sports in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

8. This report has been prepared for this project by Geotechnical Services, Inc. This report was completed for preliminary design purposes and may be limited in its scope to complete an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to evaluation considerations only.

APPENDIX B

GEOPROBE LOGS

TEST BORING LOG

Boring No. G-1

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	41					6-in. Topsoil
									Brown, f/m SAND, tr. Gravel, c-sand
									-SAND DEPOSITS-
5		G2	5-10	41					Brown, f/m SAND, little to tr. gravel, c-sand
								~8	Brown, PEAT
									-ORGANIC DEPOSITS-
10		G3	10-15	18					Brown, PEAT
								~11	Brown, SILT and fine SAND
									-SILT DEPOSITS-
15									Bottom of Exploration at 15-ft
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~2

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-1

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TEST BORING LOG

Boring No. G-2

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	49					12-in. Topsoil
									Brown, silty f/m SAND, little gravel, c-sand
									-SAND DEPOSITS-
5		G2	5-10	51					Brown to gray, silty fine SAND
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-2

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TEST BORING LOG

Boring No. G-3

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	42					15-in. Topsoil
									Brown, f/m SAND
									-SAND DEPOSITS-
5		G2	5-10	38					Brown, f/m SAND, little c-sand
								~8	
									Brown, fine SAND and SILT
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-3

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TEST BORING LOG

Boring No. G-4

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	50					13-in. Topsoil
									Brown, f/m SAND
									-SAND DEPOSITS-
5		G2	5-10	60					Brown, fine SAND and SILT
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5.5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-4

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TEST BORING LOG

Boring No. G-5

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	40					13-in. Topsoil
									Brown, f/m SAND, little c-sand
									-SAND DEPOSITS-
5		G2	5-10	51					Brown, f/m SAND, little c-sand
								~7	Brown to gr., fine SAND
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5.5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-5

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TEST BORING LOG

Boring No. G-6

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	47					14-in. Topsoil
									Brown, fine SAND, little c-sand
									-SAND DEPOSITS-
5		G2	5-10	38					Brown, f/m SAND, little c-sand, tr. Gravel
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-6

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TEST BORING LOG

Boring No. G-7

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	40					11-in. Topsoil
									Brown to orange, fine SAND, tr. m-sand
									-SAND DEPOSITS-
5		G2	5-10	60					Brown to gray, fine SAND, little m-sand
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-7

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TEST BORING LOG

Boring No. G-8

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	48					12-in. Topsoil
								~2	Brown, fine SAND, little silt **-FILL-**
								~3	Buried Topsoil **-BURIED TOPSOIL-**
									Brown, silty fine SAND, tr. m-sand **-SAND DEPOSITS-**
5		G2	5-10	26					Gray, silty fine SAND
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~3

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-8

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TEST BORING LOG

Boring No. **G-9**

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	41					12-in. Topsoil
									Brown, fine SAND, little m-sand
									-SAND DEPOSITS-
5		G2	5-10	46					Brown, f/m SAND, little to trace c-sand
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-9

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TEST BORING LOG

Boring No. G-10

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	40					9-in. Topsoil
									Brown, f/m SAND, tr. c-sand
									-SAND DEPOSITS-
5		G2	5-10	51					Brown to gray, f/c SAND
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-10

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TEST BORING LOG

Boring No. G-11

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	42					13-in. Topsoil
									Brown, f/m SAND, tr. c-sand, tr. gravel
									-SAND DEPOSITS-
5		G2	5-10	46					Brown, f/m SAND, little c-sand
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~6

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-11

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TEST BORING LOG

Boring No. G-12

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	48					8-in. Topsoil
									Brown, f/m SAND, little gravel
									-FILL-
									(Note: encountered Wood and 48-in. below grade)
5		G2	5-10	32					Brown, f/m SAND
								~6	Buried Topsoil
								~7	**-BURIED TOPSOIL-**
									Gray, f/m SAND
									-SAND DEPOSITS-
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~6

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-12

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TEST BORING LOG

Boring No. G-13

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	33					6-in. Topsoil
									Br., silty fine SAND, little gravel, c-sand
									-FILL-
								~3.5	Bricks
									-FILL-
5		G2	5-10	23				~5	Buried Topsoil, Wood
								~6	**-BURIED TOPSOIL-**
									Gray, fine SAND, little m-sand
									-SAND DEPOSITS-
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~6

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-13

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TEST BORING LOG

Boring No. G-14

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	26					3-in. Topsoil
									Brown, fine SAND, little c-sand, tr. gravel
									-SAND DEPOSITS-
5		G2	5-10	25					Brown, fine SAND, trace silt
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~6

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-14

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TEST BORING LOG

Boring No. G-15

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	21					8-in. Topsoil and Forest Mat
									Orange/brown, f/m SAND, tr. c-sand
									-SAND DEPOSITS-
5		G2	5-10	31					Br., f/m SAND, little c-sand
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-15

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TEST BORING LOG

Boring No. G-16

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	28					8-in. Topsoil and Forest Mat
									Orange/brown, f/m SAND, little m-sand
									-SAND DEPOSITS-
5		G2	5-10	35					Br., f/m SAND, little c-sand, tr. gravel
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~6

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-17

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/15/2019
Contractor	NEBC	Checked By	-	Finish	1/15/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	44					7-in. Topsoil
									Brown to gray silty f/c SAND
									-SAND DEPOSITS-
5		G2	5-10	36					Gray, fine SAND, little m/c SAND
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
15-Jan				~5

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-18

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-2.7	24					6-in. Clay
								~2.7	Gr./br., silty fine SAND, little m/c sand **-GLACIAL DEPOSITS-**
5									Probe refusal on probable bedrock at 2.7-ft. Second attempt encountered refusal at 2.8-ft Bottom of Exploration at 2.7-ft No groundwater encountered
10									
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-18

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TEST BORING LOG

Boring No. G-19

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-4.2	36					11-in. Topsoil
									Gray, fine SAND, little m/c sand, tr. gravel
									-GLACIAL DEPOSITS-
								~4.2	
5									Probe refusal on probable bedrock at 4.2-ft. Second attempt encountered refusal at 4.2-ft Bottom of Exploration at 4.2-ft
									No groundwater encountered
10									
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-20

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	33					11-in. Topsoil
									Gray, silty fine SAND, little gravel, c-sand
									-GLACIAL DEPOSITS-
5		G2	5-9.5	38					Gray, silty fine SAND, some gravel, little m/c sand
								~9.5	
10									Probe refusal on probable bedrock at 9.5-ft. Second attempt encountered refusal at 9.5-ft Bottom of Exploration at 9.5-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				~8

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. **G-21**

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Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	31					8-in. Topsoil Br., silty fine sAND, little gravel, c-sand, trace coal ash **-FILL-**
5		G2	5-10	34				~5 ~5.5	Buried Topsoil Br., silty fine SAND, little gravel, c-sand **-GLACIAL DEPOSITS-**
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				~8

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-22

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	36					8-in. Topsoil Gray, silty fine SAND, some gravel, little m/c sand **-GLACIAL DEPOSITS-**
5		G2	5-5						Probe refusal on probable bedrock at 5-ft. Second attempt encountered refusal at 5-ft Bottom of Exploration at 5-ft No groundwater encountered.
10									
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

TEST BORING LOG

Boring No. G-23

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	24					8-in. Topsoil Br./or., silty fine SAND, little gravel, c-sand **-FILL-**
5		G2	5-10	46					8-in. buried topsoil layer Gray to brown, silty fine SAND, little gravel, c-sand **-GLACIAL DEPOSITS-**
10									Bottom of Exploration at 10-ft No groundwater encountered.
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-24

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	32					7-in. Topsoil Gray to brown, silty fine SAND, little gravel, c-sand
									-GLACIAL DEPOSITS-
5		G2	5-10	33					Gray to brown, silty fine SAND, little gravel, c-sand
									-GLACIAL DEPOSITS-
10									Bottom of Exploration at 10-ft
									No groundwater encountered.
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-25

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Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	49					8-in. Topsoil brown, silty fine SAND, little gravel, c-sand
									-GLACIAL DEPOSITS-
5		G2	5-7.6	28					Gray, silty fine SAND, little gravel, c-sand
10									Refusal at 7.6-ft on Probable Bedrock Bottom of Exploration at 7.6-ft No groundwater encountered.
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-26

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Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	43					Light Br., silty fine SAND
								~1.8	Gray to Brown, silty fine SAND, little gravel, c-sand, occasional cobbles
									-GLACIAL DEPOSITS-
5		G2	5-5.4	0					Gray, silty fine SAND, little gravel, c-sand
									Refusal at 5.4-ft on Probable Bedrock Bottom of Exploration at 5.4-ft No groundwater encountered.
10									
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-26

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TEST BORING LOG

Boring No. G-27

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Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	40					8-in. Topsoil Gray to Brown, silty fine SAND, little gravel, c-sand, occasional cobbles **-GLACIAL DEPOSITS-**
5		G2	5-8.3	19					Gray, silty fine SAND, little gravel, m/c sand, occasional cobbles
10									Refusal at 8.3-ft on Probable Bedrock Bottom of Exploration at 8.3-ft No groundwater encountered.
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-28

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	23					8-in. Topsoil Brown, silty fine SAND, little gravel, m/c sand
									-GLACIAL DEPOSITS-
5		G2	5-7	12					Gray, silty fine SAND, little gravel, m/c sand
10									Refusal at 7-ft on Probable Bedrock Bottom of Exploration at 7-ft No groundwater encountered.
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-28

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TEST BORING LOG

Boring No. G-29

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	42					7-in. Topsoil Gray, silty fine SAND, little gravel, m/c sand
									-GLACIAL DEPOSITS-
5		G2	5-7	16					Gray, silty fine SAND, little gravel, m/c sand
								~8	
10									Brown, f/c SAND Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				~8

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-29

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TEST BORING LOG

Boring No. G-30

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	25					10-in. Topsoil Gray, silty fine SAND, little gravel, m/c sand **-FILL-**
5		G2	5-7	10					Brown, f/m SAND, little c-sand
10									Bottom of Exploration at 10-ft No groundwater encountered
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				-

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

G-30

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TEST BORING LOG

Boring No. G-31

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	33					10-in. Topsoil Brown, silty fine SAND, little gravel, c-sand **-FILL-**
5		G2	5-7	37				~8	Brown, fine SAND, some to little gravel, little bricks Gray, silty fine SAND, little gravel, m/c sand **-GLACIAL TILL-**
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				~8

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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TEST BORING LOG

Boring No. G-32

Page 1 of 1

Project	Austin Prep. School	Project No.	218268	Elevation	N/A
Location	Reading, MA	Inspector	G. Zoladz	Datum	N/A
Client	Huntress Sports	Project Manager	G. Zoladz	Start	1/16/2019
Contractor	NEBC	Checked By	-	Finish	1/16/2019
Driller	C. Downing	Drill Rig	Geoprobe	Model	-

Item:	Auger	Casing	Sampler	Core Barrel
Type	-	-	-	-
Inside Diameter (in.)	-	-	-	-
Hammer Weight (lb)	-	-	-	
Hammer Fall (in.)	-	-	-	

☐ Truck ☐ Skid
☑ Track ☐ ATV
☐ Bomb. ☑ Geoprobe
☐ Tripod ☐ Other

Hammer Type:
☐ Safety Hammer
☐ Doughnut
☐ Automatic

☐ Winch ☐ Cat Head ☐ Roller Bit ☐ Cutting Head

Depth (ft)	Casing (Blows/ft)	Sample Data: No.	Depth (ft)	Rec. (in.)	SPT (Blows/ 6-in.)	Rock RQD (%)	PID Rdg. (ppm)	Stratum Change (ft)	Soil-Rock Visual Classification and Description (Soils - Burmister System) (Rock - U.S. Corps of Engineers System)
0		G1	0-5	38					7-in. Topsoil Brown, f/m SAND, some silt, tr. Gravel
								~4	**-FILL-**
5		G2	5-7	31					Brown, silty, f/m SAND, little gravel, occasional cobbles **-GLACIAL TILL-**
10									Bottom of Exploration at 10-ft
15									
20									
25									

Water Level Data

Date	Time	Depth (ft) to: Bott. of Casing	Bott. of Hole	Water
16-Jan				~8

Sample Identification
O = Open Ended
U = Undisturbed
S = Split Spoon
C = Rock Core
G = Geoprobe

Cohesive Soils N-Value
0 to 2: Very Soft
2 to 4: Soft
4 to 8: Medium Stiff
8 to 15: Stiff
15 to 30 Very Stiff
Over 30: Hard

Granular Soils N- Value
0 to 4: Very Loose
4 to 10: Loose
11 to 30: Medium Dense
31 to 50: Dense
Over 50: Very Dense

Trace (0 to 5%), Little (10 to 20%), Some (20 to 35%), And (35 to 50%)

Notes:

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Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Wastewater Permitting Program

Form 11 - Soil Suitability Assessment

AUSTIN PREP
Site Address or Map/Lot Number
READING

Deep Observation Hole Deep Hole Number: 1-25

Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
34	A	10YR 3/3	–			S.L.	<5	<5	GRAN.	V.F.	FILL?
55	B_W	7.5 6/8	–			S.L.	5	5	MASS.	V.F.	
88	C-1	2.5 7/2	–			L.S.	10	10	GRAN	LOOSE	BOULDER OR LEDGE @ WEST END

Additional Notes HOLE OBSERVED BY: J. BARROWS, MA SE# 84, DATE: 3/25/25
PARENT MATERIAL: OUTWASH
NO OBSVD G.W., ESHWT @ 88"

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Wastewater Permitting Program
Form 11 - Soil Suitability Assessment

AUSTIN PREP
Site Address or Map/Lot Number
READING

Deep Observation Hole Deep Hole Number: 2-25

Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
34	—	FILL	COVERED			BY TOPSOIL			—	—	
50	A	10YR 3/3	-			S.L.	<5	<5	GRAN.	V.F.	PARTIALLY FILLED
60	B_W	10YR 6/2	-			S.L.	5	5	GRAN.	V.F.	
119	C-1	2.5Y 7/4	-			S	5	10	S.G.	LOOSE	

Additional Notes HOLE OBSERVED BY: J. BARROWS, MA SE# 84, DATE: 3/25/25
PARENT MATERIAL: OUTWASH
NO OBSVD G.W., ESHWT @ 119"

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Wastewater Permitting Program

Form 11 - Soil Suitability Assessment

AUSTIN PREP
Site Address or Map/Lot Number
READING

Deep Observation Hole Deep Hole Number: 3-25

Depth (In.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
48	~	~	FILL COVERED BY TOP SOIL						~		
60	A	10YR 3/3	-			SL,	<5	<5	GRAN.	V.F.	
75	Bw	7.5YR 5/6	-			SL,	5	5	GRAN.	V.F,	
112	C1	2.5Y 7/3	-			S	5	5	S.G.	LOOSE	

Additional Notes HOLE OBSERVED BY: J. BARROWS, MA SE# 84, DATE: 3/25/25
PARENT MATERIAL: OUTWASH
No obsvd G.W., ESHWT @ 112"

CURVE NUMBER COMPUTATIONS

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location READING	**Checked**	**Date**

Check one: ☑ Present ☐ Developed "E-1"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
D	WOODS (GOOD)	77			0.05	3.85
D	OPEN SPACE (GOOD)	80			0.02	1.60
B	WOODS (GOOD)	55			0.08	4.40
B	OPEN SPACE (GOOD)	61			0.53	32.33
					Totals ➡	0.68 / 42.18

[1] Use only one CN source per line

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{42.18}{0.68} = 62.0$; Use CN ➡ **62**

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location READING	**Checked**	**Date** Rev. 3/20/25

Check one: ☑ Present ☐ Developed "E-2"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
	IMPERVIOUS	98			1.10	107.80
D	WOODS (GOOD)	77			0.41	31.57
D	OPEN SPACE (GOOD)	80			0.11	8.80
B	OPEN SPACE (GOOD)	61			0.93	56.73
					Totals ➡	2.55 / 204.90

[1] Use only one CN source per line

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{204.9}{2.55} = 80.4$; Use CN ➡ **80**

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location READING	**Checked**	**Date**

Check one: ☑ Present ☐ Developed "E-3"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
	IMPERVIOUS	98			0.59	

[1] Use only one CN source per line

Totals ➡ 0.59

CN (weighted) = $\frac{\text{total product}}{\text{total area}}$ = _____ = _____ ; Use CN ➡ 98

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location READING	**Checked**	**Date**

Check one: ☑ Present ☐ Developed "E-4"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
C	WOODS (GOOD)	70			0.28	19.60
B	WOODS (GOOD)	55			0.03	1.65
B	OPEN SPACE (GOOD)	61			0.29	17.69
C	OPEN SPACE (GOOD)	74			0.54	39.96
					Totals ➡	1.14 78.90

[1] Use only one CN source per line

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{78.90}{1.14} = 69.2$

Use CN ➡ 69

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location	**Checked**	**Date**
READING		REV. 3/20/25

Check one: ☑ Present ☐ Developed "E-5"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
	IMPERVIOUS	98			0.40	39.2
A	WOODS (GOOD)	30			0.18	5.40
C	OPEN SPACE (GOOD)	74			0.84	62.16
C	WOODS (GOOD)	70			1.23	86.10

[1] Use only one CN source per line

Totals ➡ 2.65 | 192.86

CN (weighted) = total product / total area = 192.86 / 2.65 = 72.8

Use CN ➡ 73

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location	**Checked**	**Date**
READING		Rev. 3/20/25

Check one: ☐ Present ☑ Developed "P-1"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi^2 ☐ %	Product of CN x area
B	WOODS (GOOD)	55			0.04	2.20
B	OPEN SPACE (GOOD)	61			0.07	4.27
[1] Use only one CN source per line				Totals ➡	0.11	6.47

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{6.47}{0.11} = 58.8$; Use CN ➡ **59**

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location	**Checked**	**Date**
READING		REV. 3/20/25

Check one: ☐ Present ☑ Developed "P-2"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
	IMPERVIOUS	98			0.96	94.08
B	OPEN SPACE (GOOD)	61			0.20	12.20
C	OPEN SPACE (GOOD)	74			0.04	2.96
					Totals ➡	1.20 / 109.24

[1] Use only one CN source per line

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{109.24}{1.20} = 91.0$; Use CN ➡ 91

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location	**Checked**	**Date**
READING		REV. 3/20/25

Check one: ☐ Present ☑ Developed "P-3"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi^2 ☐ %	Product of CN x area
	IMPERVIOUS	98			0.59	

[1] Use only one CN source per line

Totals ➡ 0.59

CN (weighted) = $\frac{\text{total product}}{\text{total area}}$ = _____ = _____ ; Use CN ➡ 98

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location READING	**Checked**	**Date** Rev. 3/20/25

Check one: ☐ Present ☑ Developed "P-4"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
	IMPERVIOUS	98			1.18	115.64
B	OPEN SPACE (GOOD)	61			0.47	28.67
C	OPEN SPACE (GOOD)	74			0.04	2.96
D	OPEN SPACE (GOOD)	80			0.13	10.40
C	WOODS (GOOD)	70			0.15	10.50
D	WOODS (GOOD)	77			0.36	27.72
B	WOODS (GOOD)	55			0.05	2.75
				Totals ➡	2.38	198.64

[1] Use only one CN source per line

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{198.64}{2.38} = 83.4$ Use CN ➡ **83**

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location	**Checked**	**Date**
READING		Rev. 3/29/23

Check one: ☐ Present ☑ Developed "P-5"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
	IMPERVIOUS	98			0.32	31.36
C	OPEN SPACE (GOOD)	74			0.16	11.84
A	WOODS (GOOD)	30			0.18	5.40
C	WOODS (GOOD)	70			0.39	27.30

[1] Use only one CN source per line

Totals ➡ 1.05 | 75.90

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{75.90}{1.05} = 72.3$

Use CN ➡ 72

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location READING	**Checked**	**Date** Rev. 3/20/25

Check one: ☐ Present ☑ Developed "P-6"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
C	TURF FIELD	74			0.88	65.12
C	WOODS (GOOD)	70			0.14	9.80
					Totals ➡	1.02 74.92

[1] Use only one CN source per line

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{74.92}{1.02} = 73.4$; Use CN ➡ 73

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall, P (24-hour)	in			
Runoff, Q	in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

Worksheet 2: Runoff curve number and runoff

Project	By	Date
AUSTIN PREP (S.B. FIELD)	JB.	2/24/23
Location	**Checked**	**Date**
READING		Rev. 3/20/25

Check one: ☐ Present ☑ Developed "P-7"

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN [1] Table 2-2	CN [1] Figure 2-3	CN [1] Figure 2-4	Area ☑ acres ☐ mi² ☐ %	Product of CN x area
	IMPERVIOUS	98			0.28	27.44
C	OPEN SPACE (GOOD)	74			0.39	28.86
C	WOODS (GOOD)	70			0.59	41.30
	Totals ➡				1.26	97.60

[1] Use only one CN source per line

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{97.60}{1.26} = 77.4$; Use CN ➡ **77**

2. Runoff

	Storm #1	Storm #2	Storm #3
Frequency ..... yr			
Rainfall, P (24-hour) ..... in			
Runoff, Q ..... in			

(Use P and CN with table 2-1, figure 2-1, or equation 2-3 and 2-4)

TIME OF CONCENTRATION

CALCULATIONS

TR55 Tc Worksheet

Hyd. No. 1

E-1

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	70.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	3.80		0.00		0.00		
Travel Time (min)	**=**	**8.43**	**+**	**0.00**	**+**	**0.00**	**=**	**8.43**
Shallow Concentrated Flow								
Flow length (ft)	=	200.00		384.00		0.00		
Watercourse slope (%)	=	1.30		0.30		0.00		
Surface description	=	Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=	1.84		0.88		0.00		
Travel Time (min)	**=**	**1.81**	**+**	**7.24**	**+**	**0.00**	**=**	**9.05**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 17.49 min

TR55 Tc Worksheet

Hyd. No. 2

E-2

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	63.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	0.50		0.00		0.00		
Travel Time (min)	**=**	**17.44**	**+**	**0.00**	**+**	**0.00**	**=**	**17.44**
Shallow Concentrated Flow								
Flow length (ft)	=	113.00		301.00		0.00		
Watercourse slope (%)	=	1.50		2.70		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	1.98		3.34		0.00		
Travel Time (min)	**=**	**0.95**	**+**	**1.50**	**+**	**0.00**	**=**	**2.45**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 19.90 min

TR55 Tc Worksheet

Hyd. No. 4

E-4

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	53.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	1.70		0.00		0.00		
Travel Time (min)	**=**	**9.31**	**+**	**0.00**	**+**	**0.00**	**=**	**9.31**
Shallow Concentrated Flow								
Flow length (ft)	=	372.00		0.00		0.00		
Watercourse slope (%)	=	2.60		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	2.60		0.00		0.00		
Travel Time (min)	**=**	**2.38**	**+**	**0.00**	**+**	**0.00**	**=**	**2.38**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 11.69 min

TR55 Tc Worksheet

Hyd. No. 5

E-5

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	0.50		0.00		0.00		
Travel Time (min)	**=**	**14.50**	**+**	**0.00**	**+**	**0.00**	**=**	**14.50**
Shallow Concentrated Flow								
Flow length (ft)	=	381.00		0.00		0.00		
Watercourse slope (%)	=	4.10		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.27		0.00		0.00		
Travel Time (min)	**=**	**1.94**	**+**	**0.00**	**+**	**0.00**	**=**	**1.94**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 16.44 min

TR55 Tc Worksheet

Hyd. No. 6

P-1

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.400		0.011		0.011		
Flow length (ft)	=	42.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	1.80		0.00		0.00		
Travel Time (min)	**=**	**11.37**	**+**	**0.00**	**+**	**0.00**	**=**	**11.37**
Shallow Concentrated Flow								
Flow length (ft)	=	89.00		0.00		0.00		
Watercourse slope (%)	=	1.90		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	2.22		0.00		0.00		
Travel Time (min)	**=**	**0.67**	**+**	**0.00**	**+**	**0.00**	**=**	**0.67**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 12.04 min

TR55 Tc Worksheet

Hyd. No. 7

P-2

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.400		0.011		0.011		
Flow length (ft)	=	24.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	13.00		0.00		0.00		
Travel Time (min)	**=**	**3.29**	**+**	**0.00**	**+**	**0.00**	**=**	**3.29**
Shallow Concentrated Flow								
Flow length (ft)	=	286.00		305.00		0.00		
Watercourse slope (%)	=	1.40		2.80		0.00		
Surface description	=	Paved		Paved		Paved		
Average velocity (ft/s)	=	2.41		3.40		0.00		
Travel Time (min)	**=**	**1.98**	**+**	**1.49**	**+**	**0.00**	**=**	**3.48**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 6.77 min

TR55 Tc Worksheet

Hyd. No. 9

P-4

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.400		0.011		0.011		
Flow length (ft)	=	54.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	3.70		0.00		0.00		
Travel Time (min)	**=**	**10.42**	**+**	**0.00**	**+**	**0.00**	**=**	**10.42**
Shallow Concentrated Flow								
Flow length (ft)	=	136.00		152.00		0.00		
Watercourse slope (%)	=	9.00		2.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	4.84		2.87		0.00		
Travel Time (min)	**=**	**0.47**	**+**	**0.88**	**+**	**0.00**	**=**	**1.35**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 11.77 min

TR55 Tc Worksheet

Hyd. No. 10

P-5

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.400		0.011		0.011		
Flow length (ft)	=	42.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	7.10		0.00		0.00		
Travel Time (min)	**=**	**6.57**	**+**	**0.00**	**+**	**0.00**	**=**	**6.57**
Shallow Concentrated Flow								
Flow length (ft)	=	155.00		0.00		0.00		
Watercourse slope (%)	=	10.30		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	5.18		0.00		0.00		
Travel Time (min)	**=**	**0.50**	**+**	**0.00**	**+**	**0.00**	**=**	**0.50**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 7.07 min

TR55 Tc Worksheet

Hyd. No. 11

P-6

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.400		0.011		0.011		
Flow length (ft)	=	39.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	4.00		0.00		0.00		
Travel Time (min)	**=**	**7.78**	**+**	**0.00**	**+**	**0.00**	**=**	**7.78**
Shallow Concentrated Flow								
Flow length (ft)	=	86.00		87.00		0.00		
Watercourse slope (%)	=	17.40		2.30		0.00		
Surface description	=	Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=	6.73		2.45		0.00		
Travel Time (min)	**=**	**0.21**	**+**	**0.59**	**+**	**0.00**	**=**	**0.81**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 8.59 min

TR55 Tc Worksheet

Hyd. No. 12

P-7

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.400		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. (in)	=	3.10		0.00		0.00		
Land slope (%)	=	2.00		0.00		0.00		
Travel Time (min)	**=**	**12.53**	**+**	**0.00**	**+**	**0.00**	**=**	**12.53**
Shallow Concentrated Flow								
Flow length (ft)	=	109.00		71.00		0.00		
Watercourse slope (%)	=	3.40		3.80		0.00		
Surface description	=	Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=	2.98		3.15		0.00		
Travel Time (min)	**=**	**0.61**	**+**	**0.38**	**+**	**0.00**	**=**	**0.99**
Channel Flow								
X sectional flow area (sqft)	=	0.00		0.00		0.00		
Wetted perimeter (ft)	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 13.52 min

HYDROGRAPHS

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	-------	0.220	-------	-------	0.841	1.318	-------	2.134	E-1
2	SCS Runoff	-------	-------	3.072	-------	-------	6.451	8.656	-------	12.10	E-2
3	SCS Runoff	-------	-------	1.957	-------	-------	3.113	3.831	-------	4.939	E-3
4	SCS Runoff	-------	-------	0.862	-------	-------	2.399	3.494	-------	5.285	E-4
5	SCS Runoff	-------	-------	2.322	-------	-------	5.728	8.059	-------	11.82	E-5
6	SCS Runoff	-------	-------	0.026	-------	-------	0.127	0.208	-------	0.349	P-1
7	SCS Runoff	-------	-------	3.047	-------	-------	5.276	6.650	-------	8.757	P-2
8	SCS Runoff	-------	-------	1.957	-------	-------	3.113	3.831	-------	4.939	P-3
9	SCS Runoff	-------	-------	3.822	-------	-------	7.569	9.955	-------	13.65	P-4
10	SCS Runoff	-------	-------	1.073	-------	-------	2.714	3.842	-------	5.658	P-5
11	SCS Runoff	-------	-------	1.067	-------	-------	2.633	3.703	-------	5.418	P-6
12	SCS Runoff	-------	-------	1.449	-------	-------	3.240	4.432	-------	6.314	P-7
13	Reservoir	4	-------	0.000	-------	-------	0.209	1.609	-------	4.513	Ex. Det Area Outflow
14	Combine	5, 13	-------	2.322	-------	-------	5.728	8.240	-------	16.31	Ex. Flow to SP 4
15	Reservoir	9	-------	0.000	-------	-------	0.000	0.000	-------	3.364	Infil System Outflow
16	Combine	7, 15	-------	3.047	-------	-------	5.276	6.650	-------	8.757	Flow to SP 2
17	Reservoir	12	-------	0.000	-------	-------	1.084	3.088	-------	5.309	Field Outflow
18	Combine	11, 17	-------	1.067	-------	-------	2.633	5.681	-------	10.24	Flow to Pr. Det. Pond
19	Reservoir	12	-------	0.000	-------	-------	1.499	3.585	-------	5.983	Pr. Det. Pond Outflow
20	Combine	10, 19	-------	1.073	-------	-------	2.714	5.496	-------	10.40	Pr. Flow to SP 4

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.220	1	739	1,280	----	------	------	E-1
2	SCS Runoff	3.072	1	734	13,693	----	------	------	E-2
3	SCS Runoff	1.957	1	724	6,774	----	------	------	E-3
4	SCS Runoff	0.862	1	729	3,523	----	------	------	E-4
5	SCS Runoff	2.322	1	733	10,201	----	------	------	E-5
6	SCS Runoff	0.026	1	736	162	----	------	------	P-1
7	SCS Runoff	3.047	1	725	9,990	----	------	------	P-2
8	SCS Runoff	1.957	1	724	6,774	----	------	------	P-3
9	SCS Runoff	3.822	1	729	14,386	----	------	------	P-4
10	SCS Runoff	1.073	1	726	3,688	----	------	------	P-5
11	SCS Runoff	1.067	1	727	3,878	----	------	------	P-6
12	SCS Runoff	1.449	1	731	5,872	----	------	------	P-7
13	Reservoir	0.000	1	1420	0	4	91.79	1,605	Ex. Det Area Outflow
14	Combine	2.322	1	733	10,201	5, 13	------	------	Ex. Flow to SP 4
15	Reservoir	0.000	1	708	0	9	100.27	3,568	Infil System Outflow
16	Combine	3.047	1	725	9,990	7, 15	------	------	Flow to SP 2
17	Reservoir	0.000	1	762	0	12	96.72	1,435	Field Outflow
18	Combine	1.067	1	727	3,878	11, 17	------	------	Flow to Pr. Det. Pond
19	Reservoir	0.000	1	724	0	12	93.86	2,908	Pr. Det. Pond Outflow
20	Combine	1.073	1	726	3,688	10, 19	------	------	Pr. Flow to SP 4

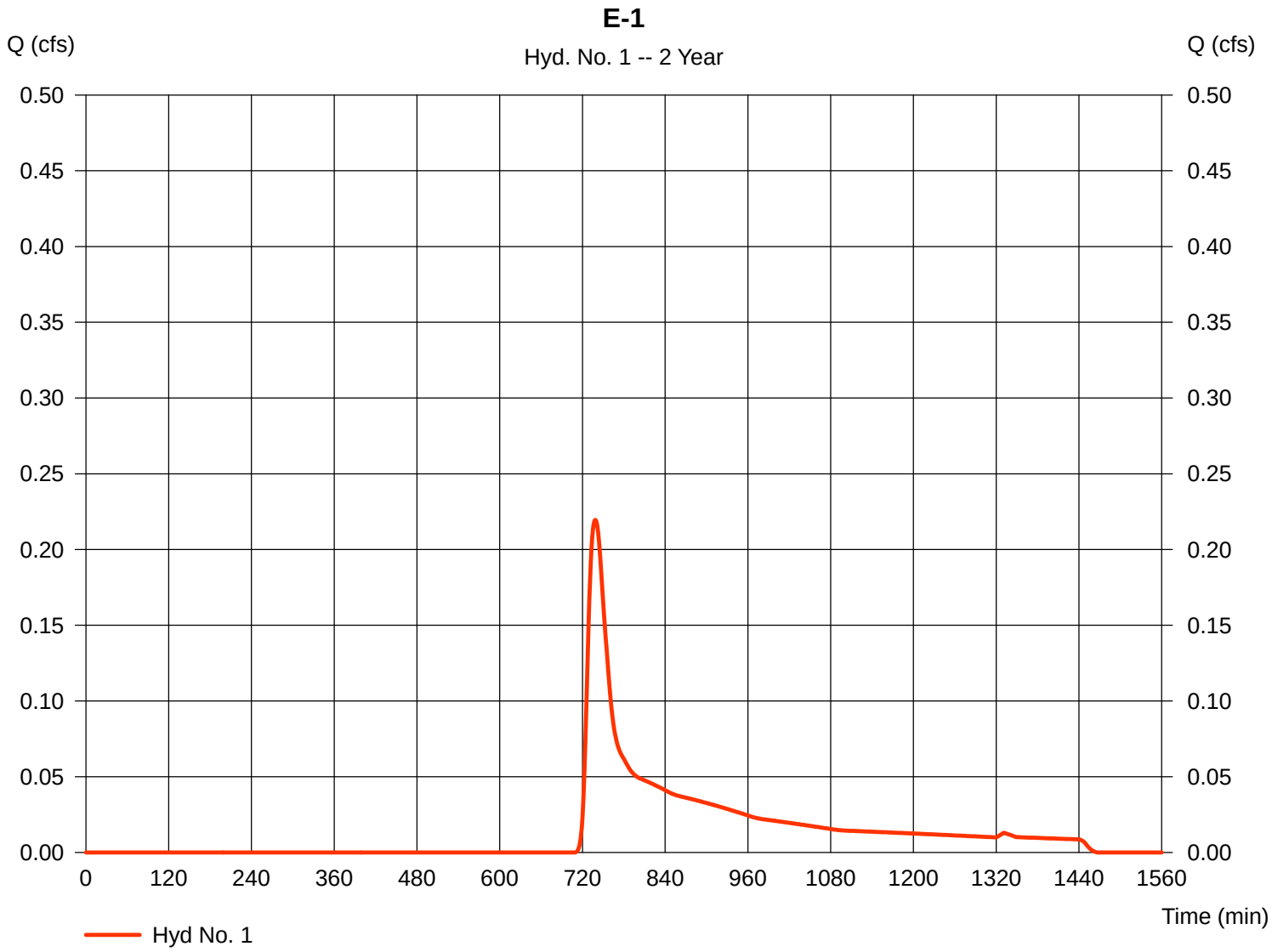
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 1

E-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.220 cfs
Storm frequency	=	2 yrs	Time to peak	=	739 min
Time interval	=	1 min	Hyd. volume	=	1,280 cuft
Drainage area	=	0.680 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.49 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



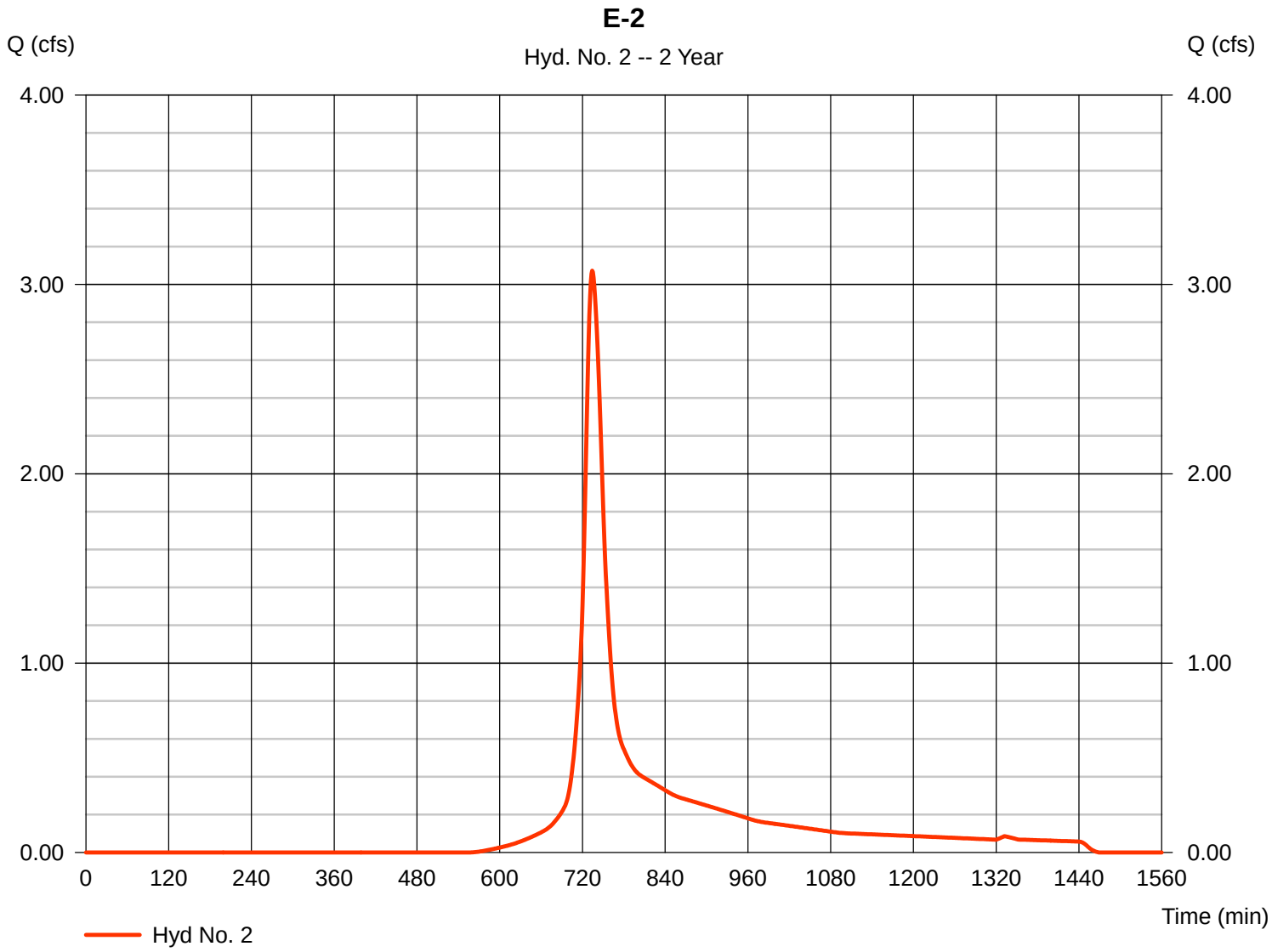
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 2

E-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.072 cfs
Storm frequency	=	2 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	13,693 cuft
Drainage area	=	2.550 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.90 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



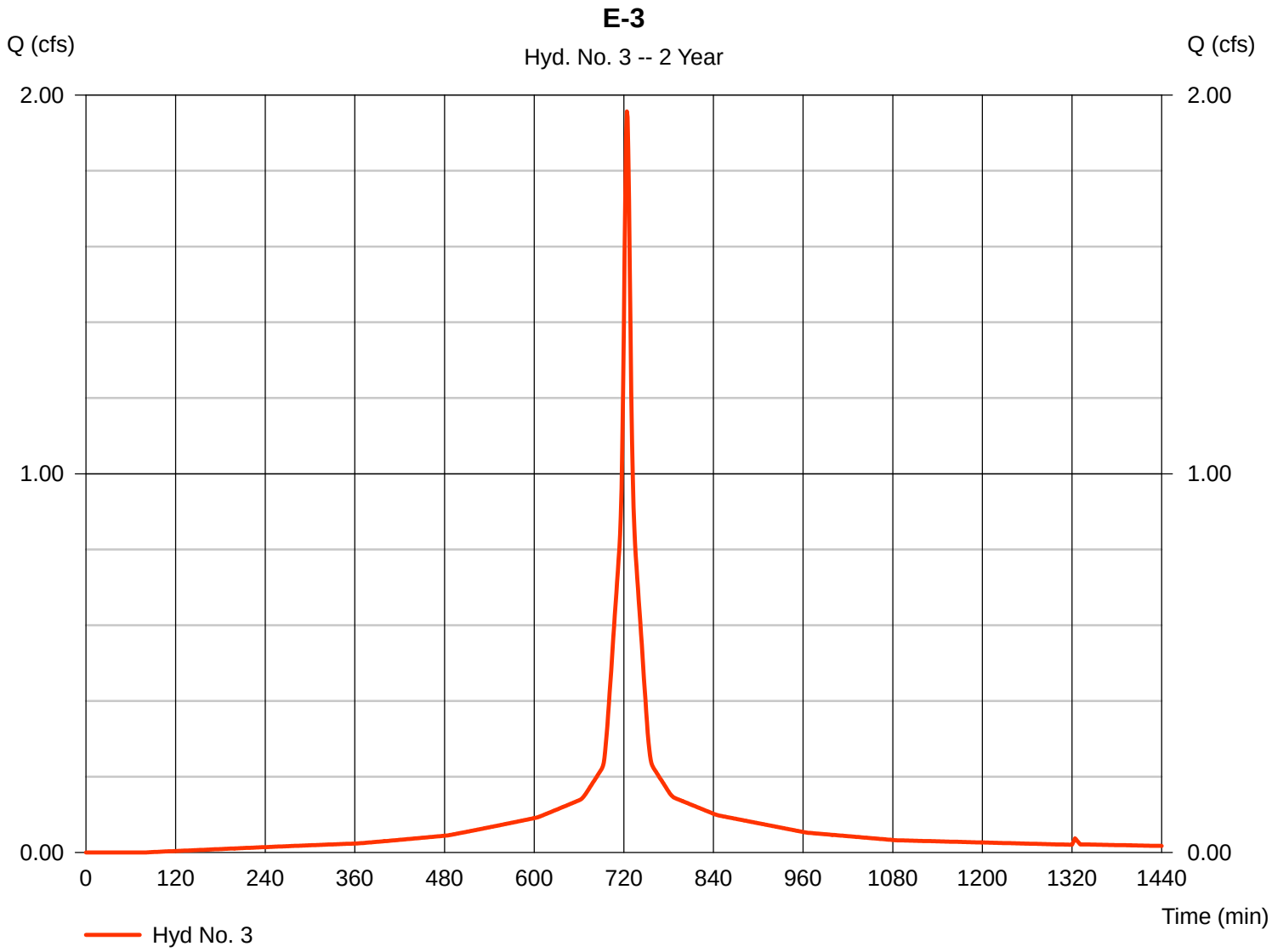
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 3

E-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.957 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	6,774 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



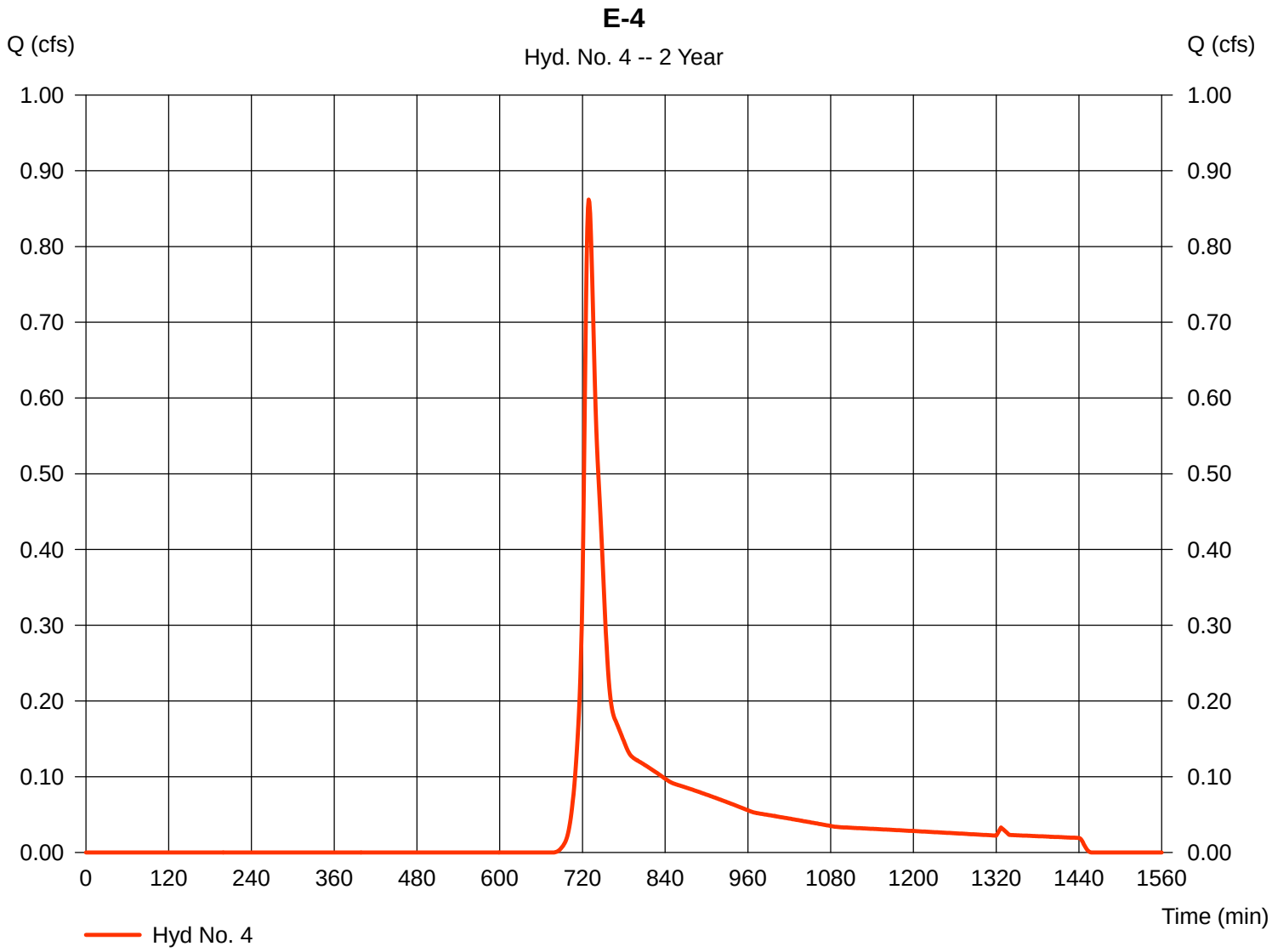
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 4

E-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.862 cfs
Storm frequency	=	2 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	3,523 cuft
Drainage area	=	1.140 ac	Curve number	=	69
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.69 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



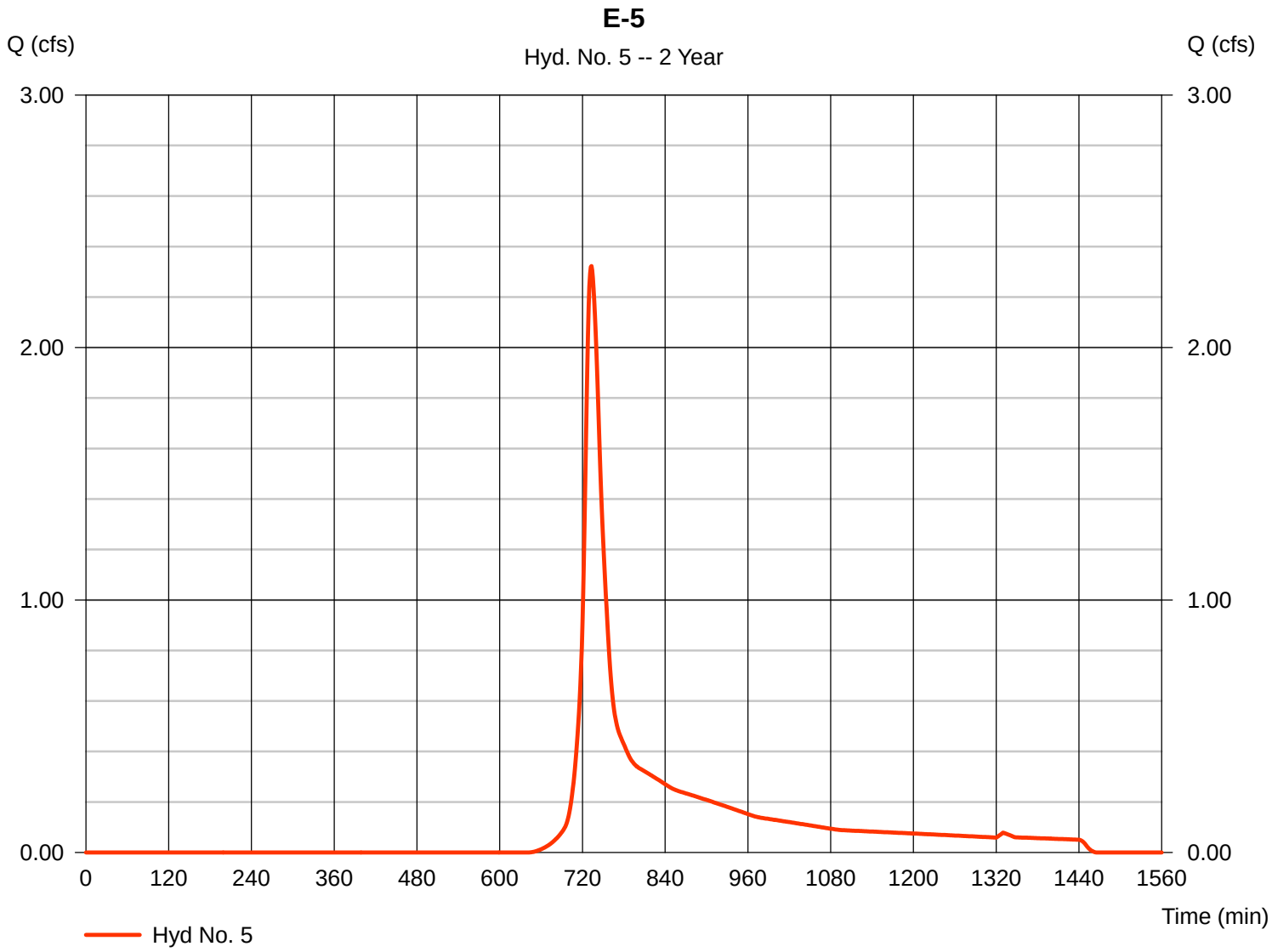
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 5

E-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.322 cfs
Storm frequency	=	2 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	10,201 cuft
Drainage area	=	2.650 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.40 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



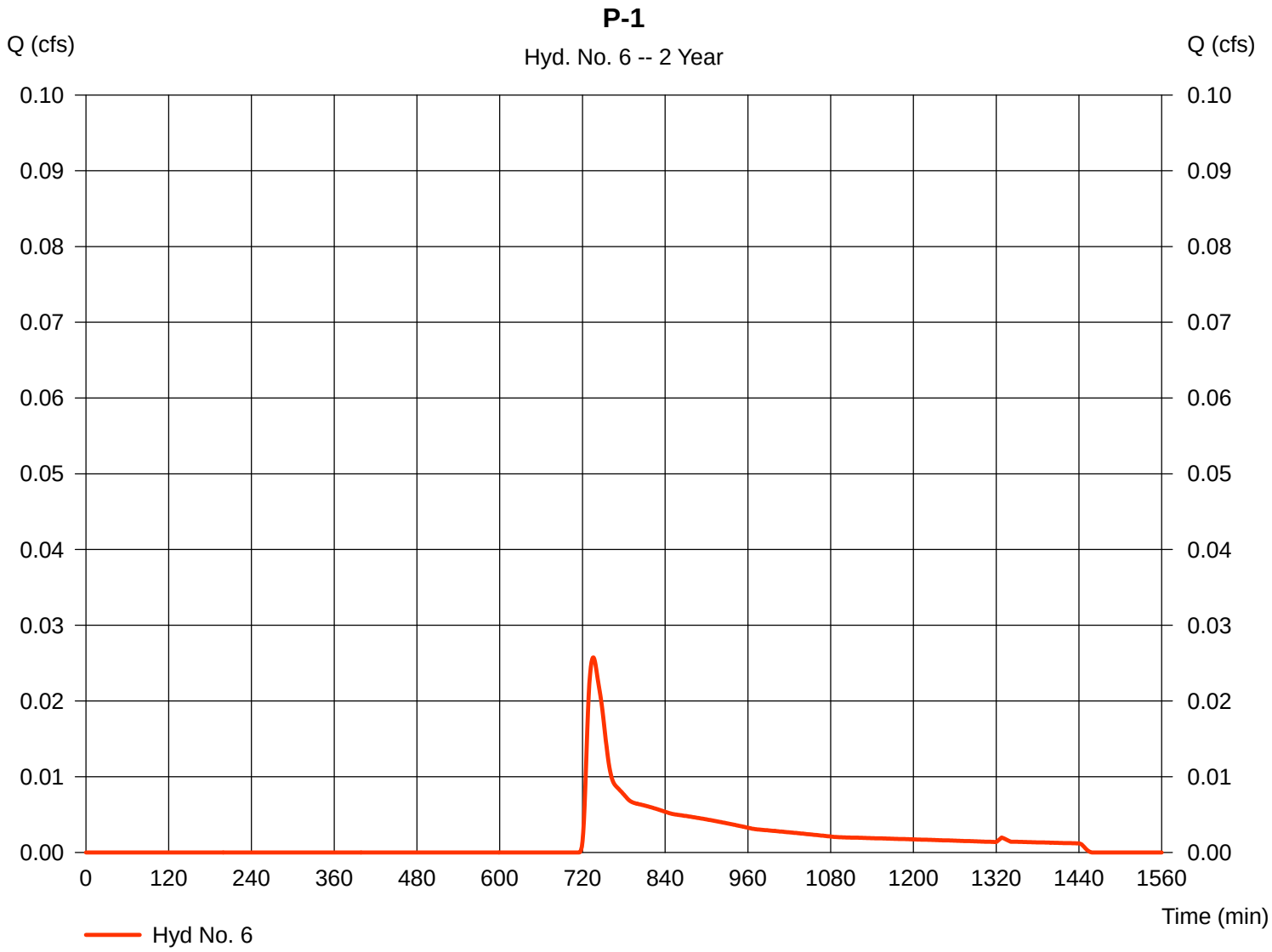
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 6

P-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.026 cfs
Storm frequency	=	2 yrs	Time to peak	=	736 min
Time interval	=	1 min	Hyd. volume	=	162 cuft
Drainage area	=	0.110 ac	Curve number	=	59
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.04 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



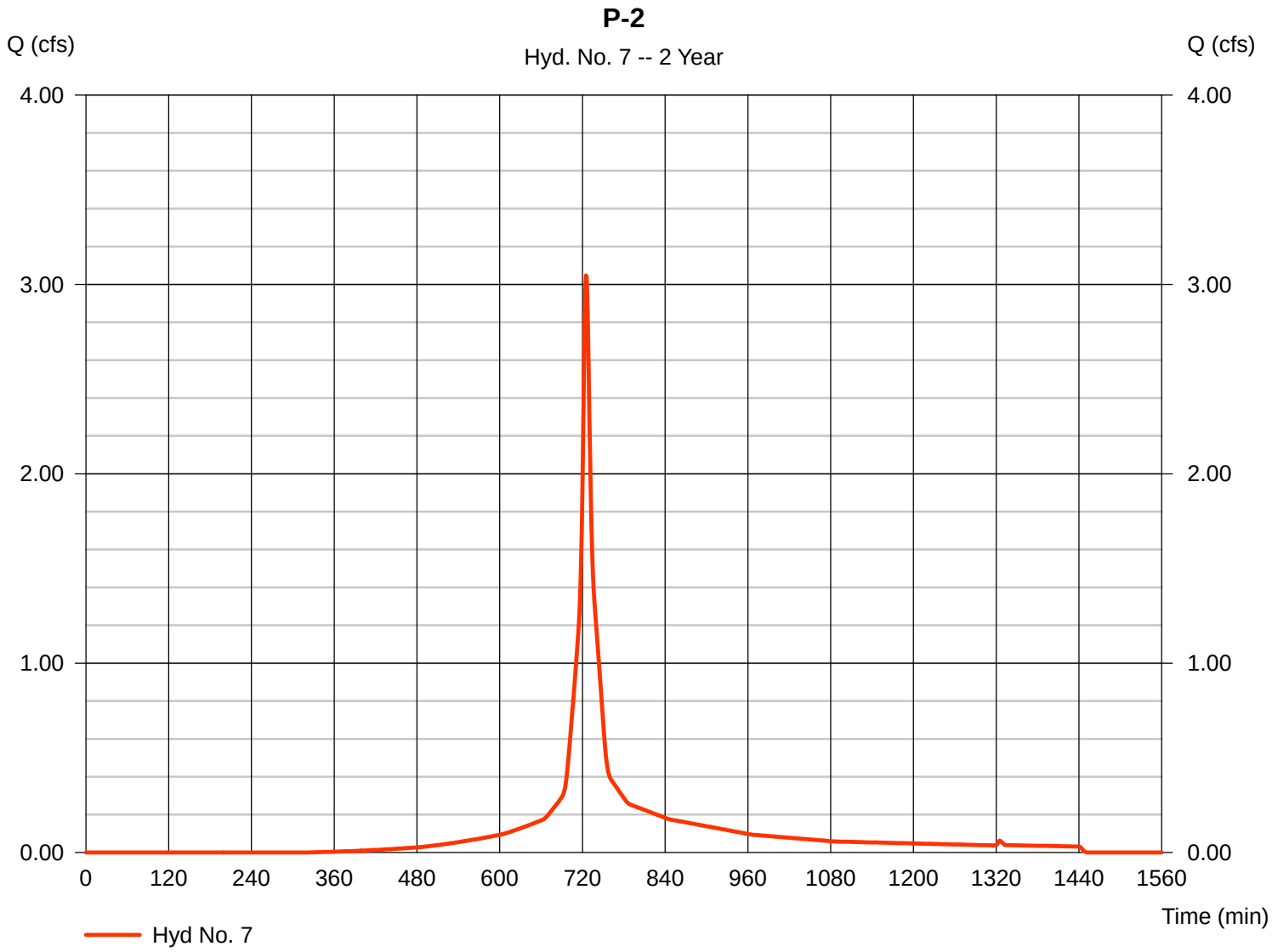
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 7

P-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.047 cfs
Storm frequency	=	2 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	9,990 cuft
Drainage area	=	1.200 ac	Curve number	=	91
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.77 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



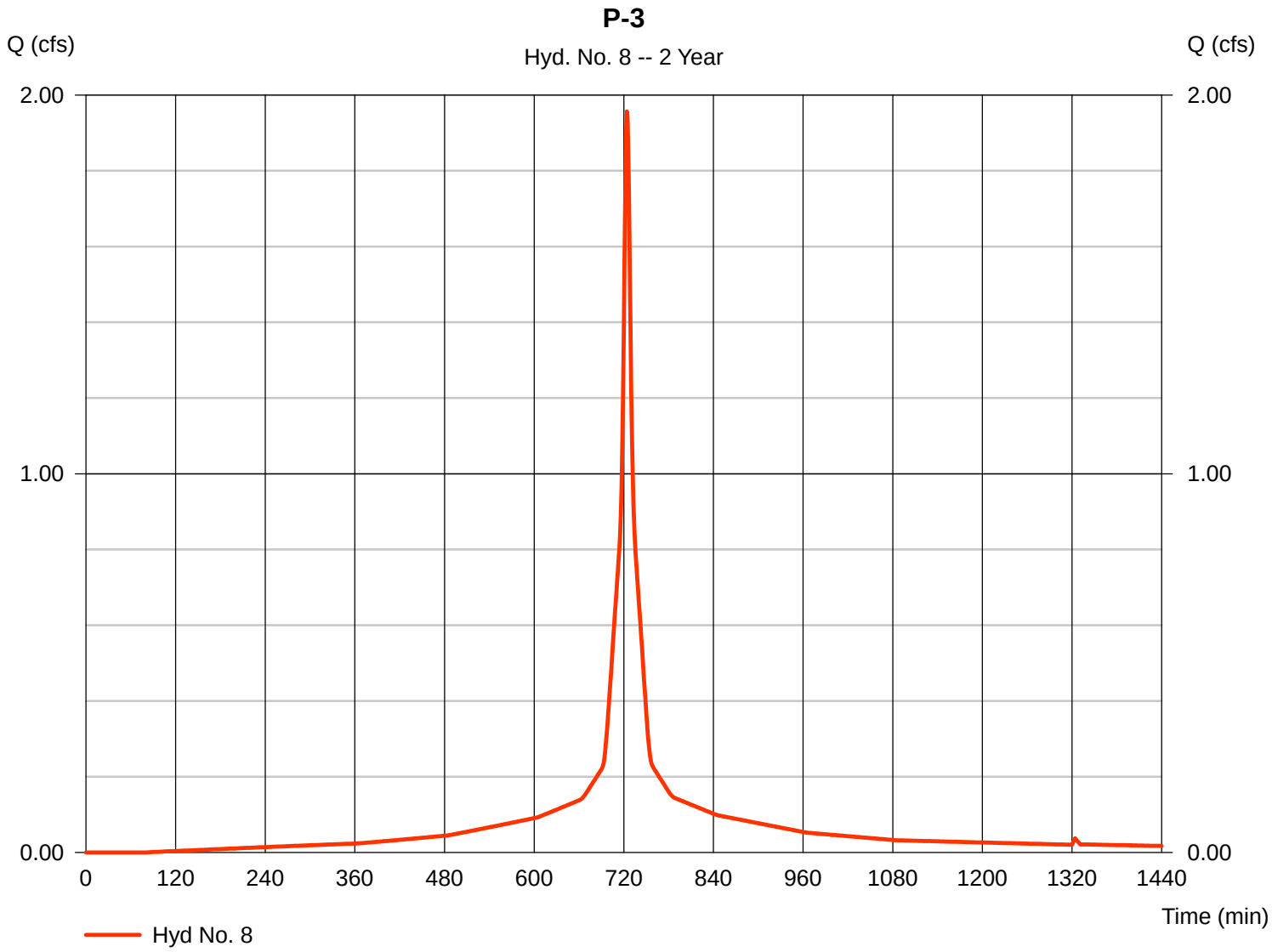
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 8

P-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.957 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	6,774 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



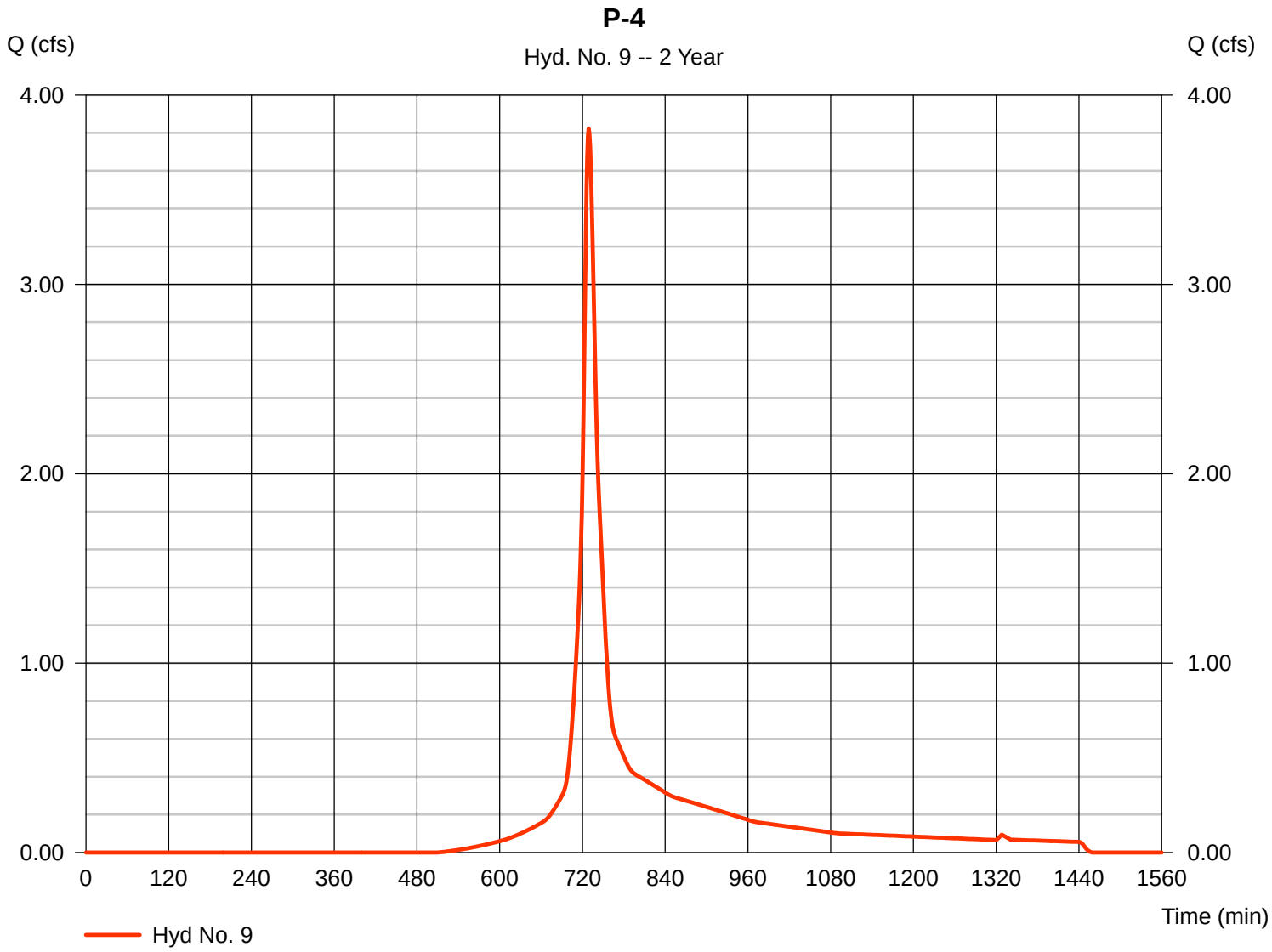
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 9

P-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.822 cfs
Storm frequency	=	2 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	14,386 cuft
Drainage area	=	2.380 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.77 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



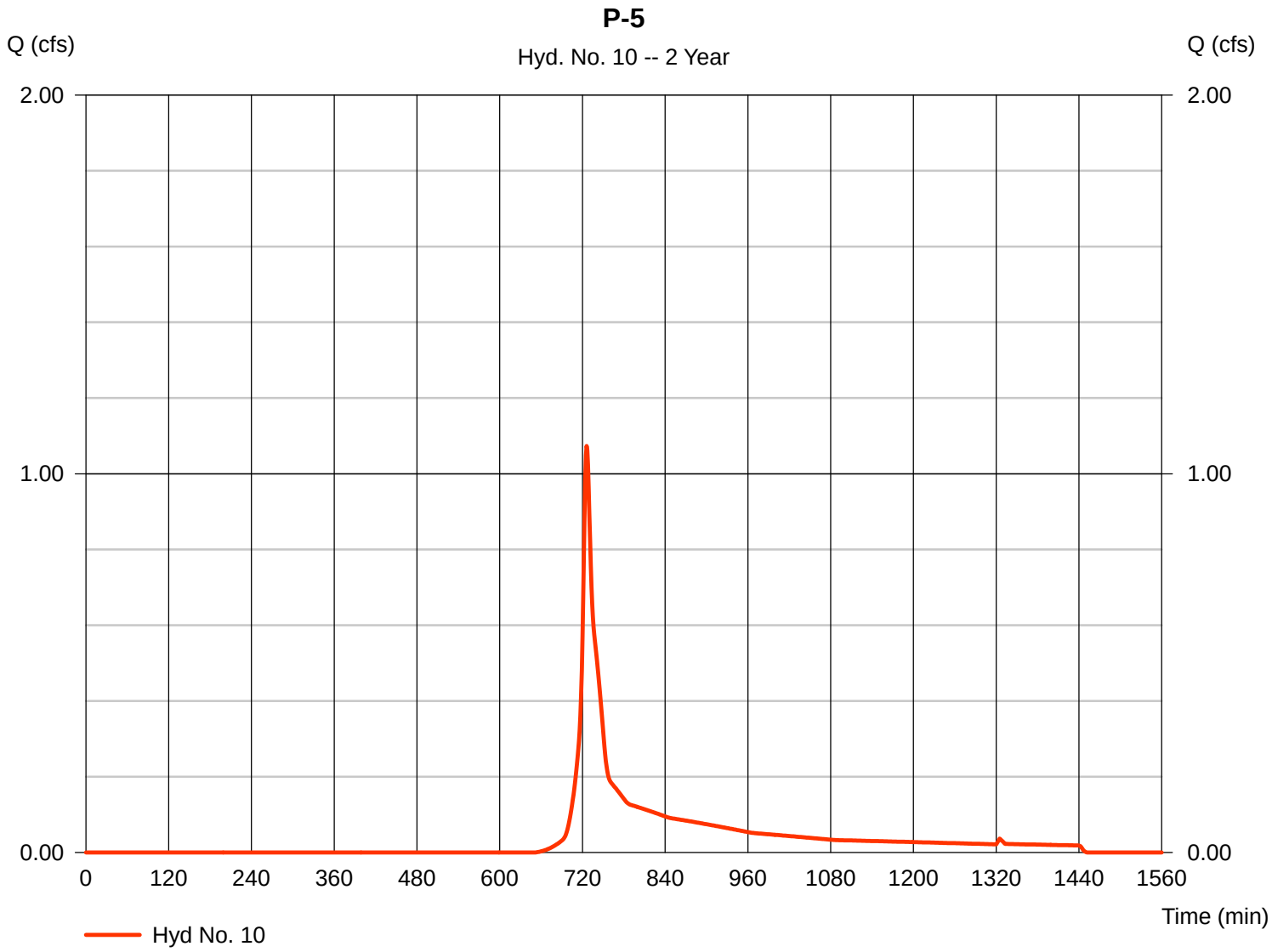
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 10

P-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.073 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	3,688 cuft
Drainage area	=	1.050 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.10 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



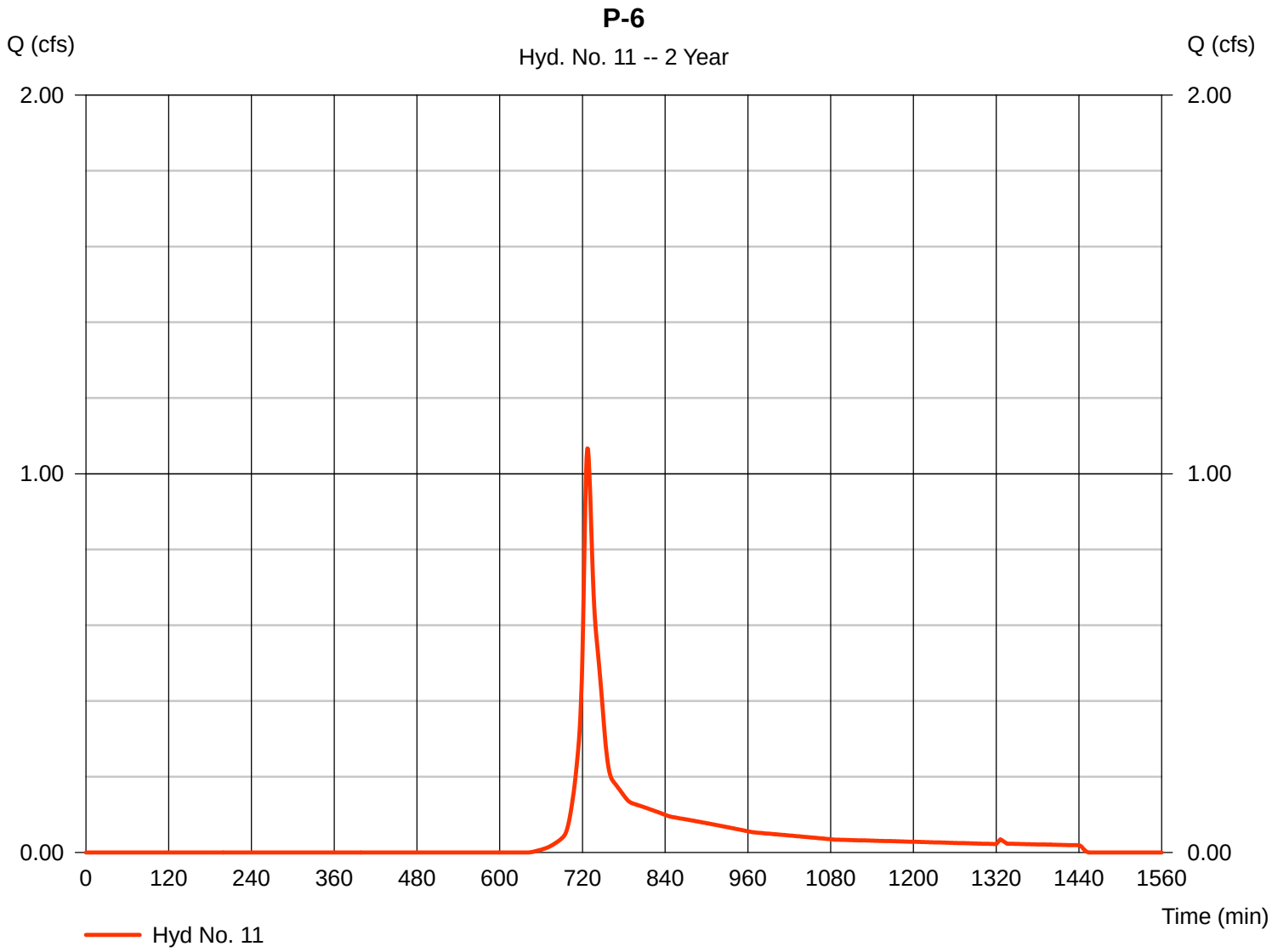
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 11

P-6

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.067 cfs
Storm frequency	=	2 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	3,878 cuft
Drainage area	=	1.020 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.59 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



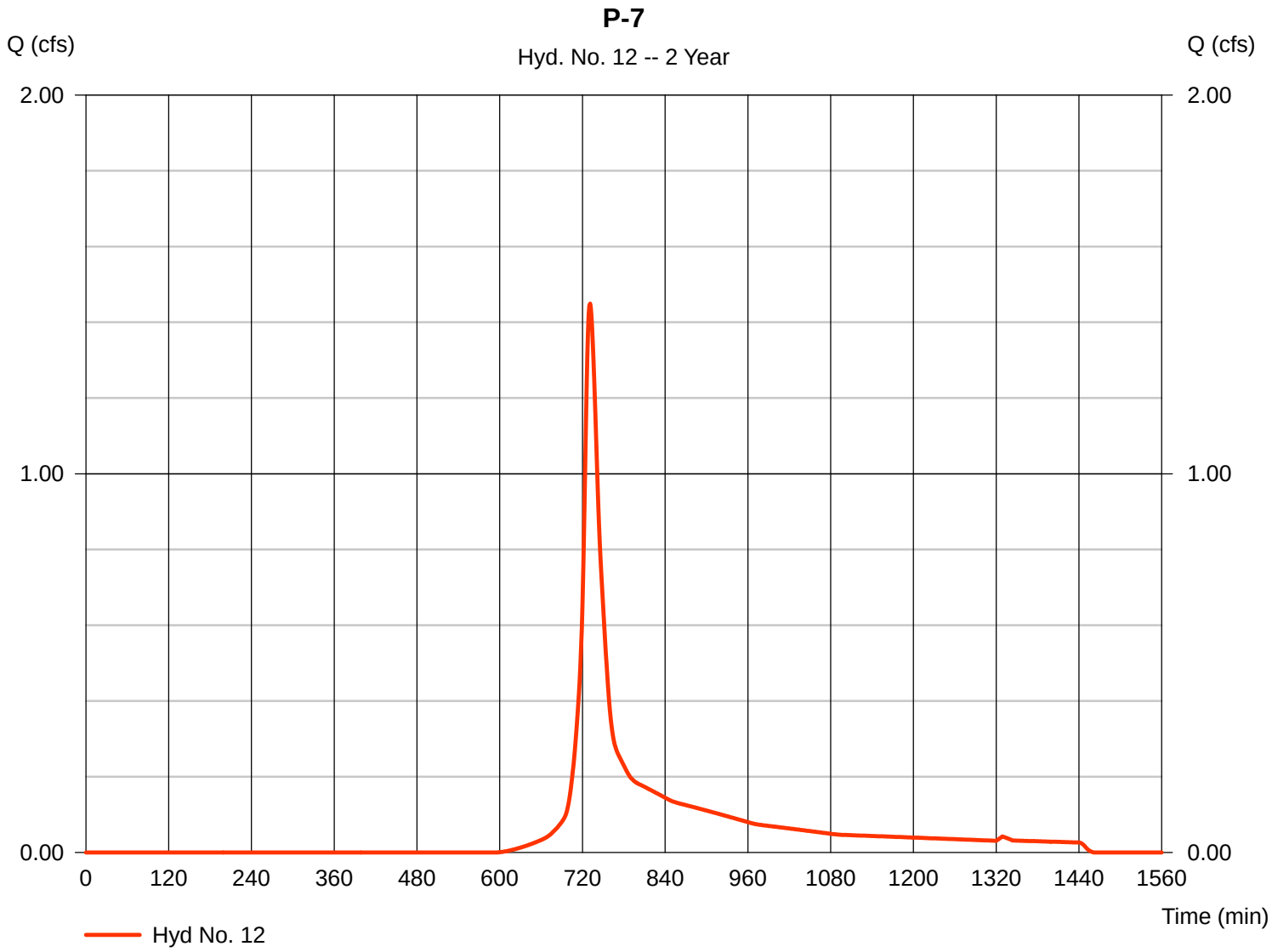
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 12

P-7

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.449 cfs
Storm frequency	=	2 yrs	Time to peak	=	731 min
Time interval	=	1 min	Hyd. volume	=	5,872 cuft
Drainage area	=	1.260 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.52 min
Total precip.	=	3.30 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

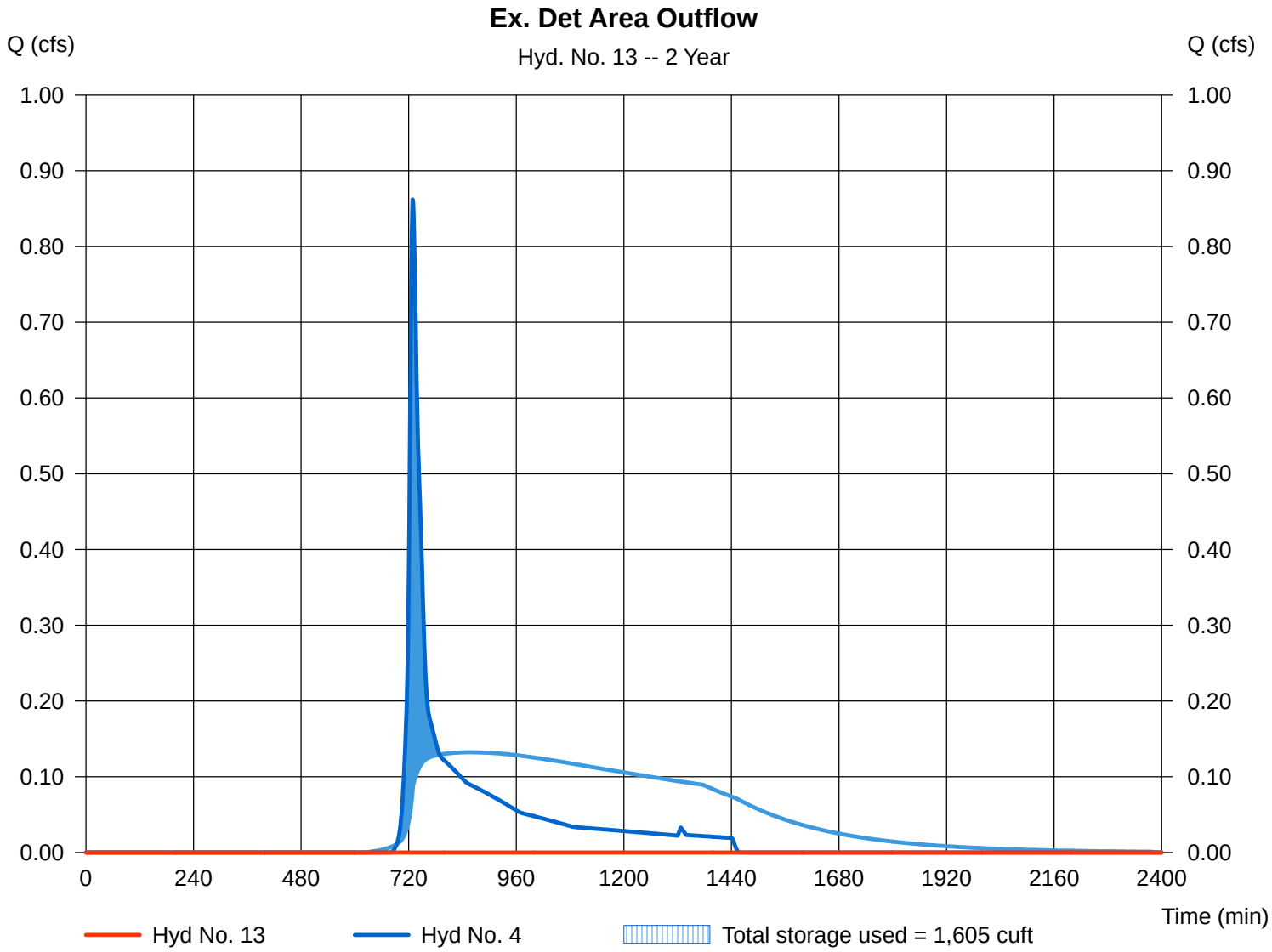
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 13

Ex. Det Area Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	1420 min
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	4 - E-4	Max. Elevation	=	91.79 ft
Reservoir name	=	Ex. Det. Pond	Max. Storage	=	1,605 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Pond No. 3 - Ex. Det. Pond

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 90.20 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	90.20	600	0	0
0.80	91.00	990	629	629
1.80	92.00	1,510	1,241	1,870
2.80	93.00	2,125	1,809	3,679
3.80	94.00	3,000	2,550	6,229

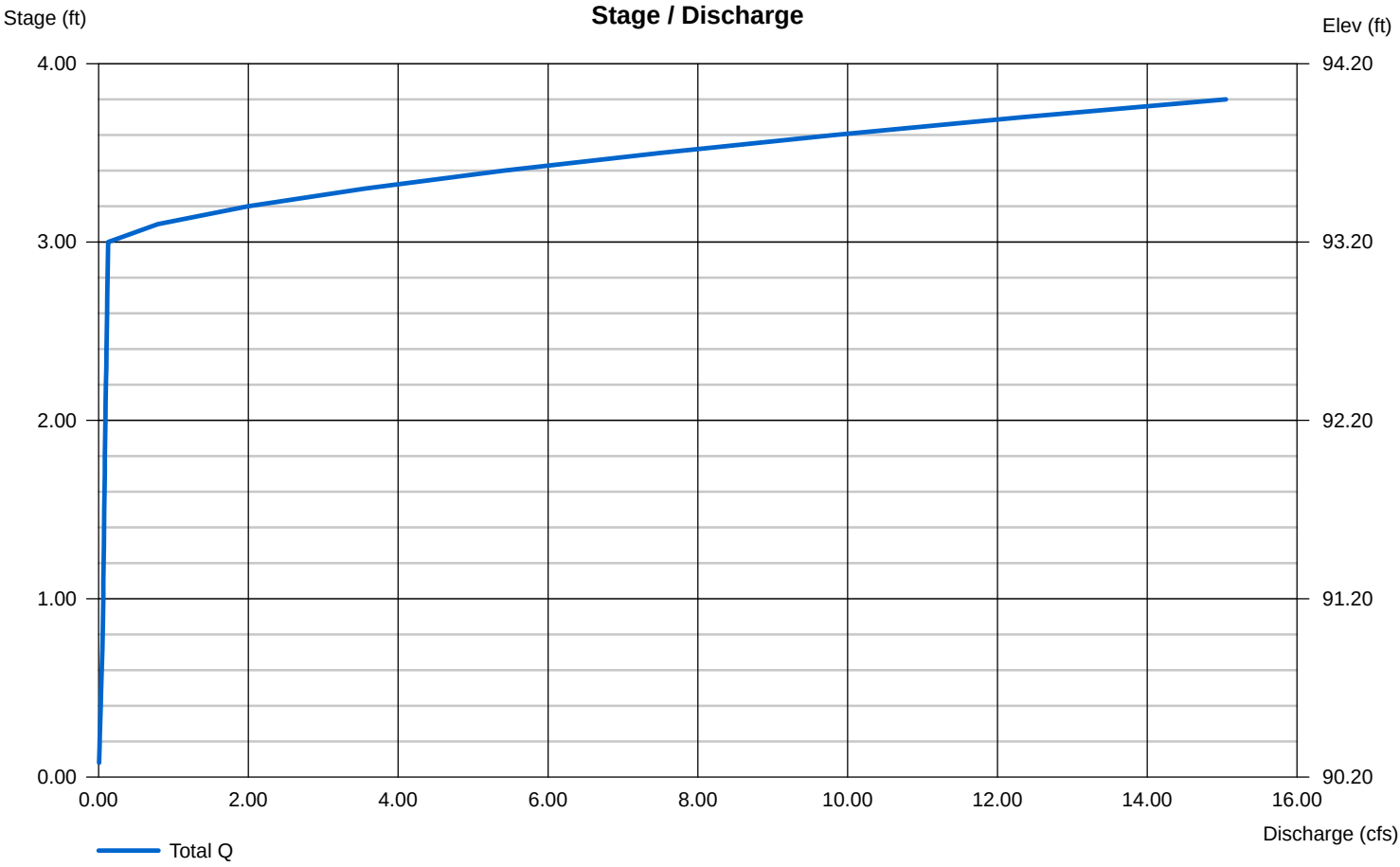
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	0.00	0.00	0.00
Crest El. (ft)	= 93.20	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 2.410 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



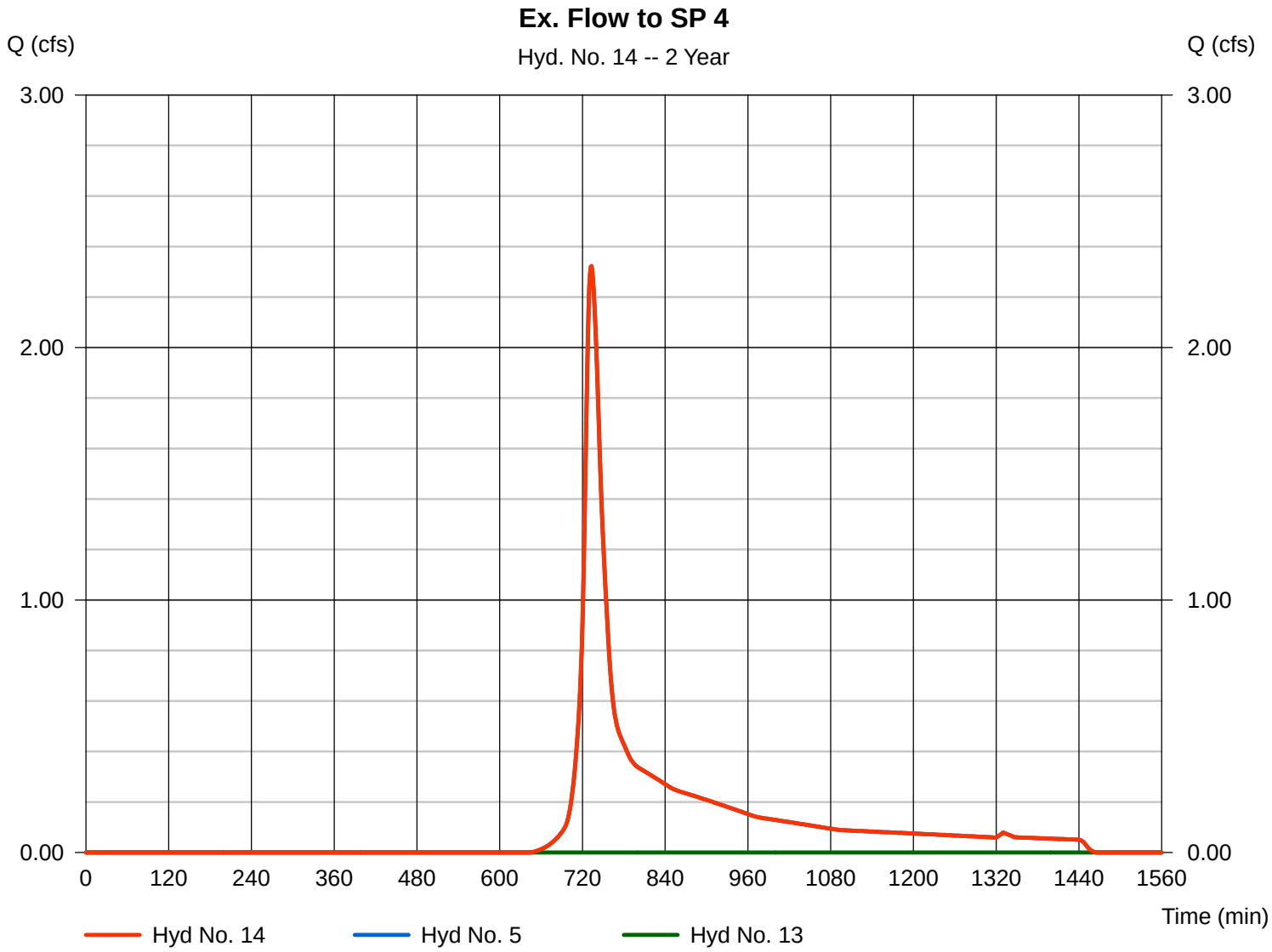
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 14

Ex. Flow to SP 4

Hydrograph type	= Combine	Peak discharge	= 2.322 cfs
Storm frequency	= 2 yrs	Time to peak	= 733 min
Time interval	= 1 min	Hyd. volume	= 10,201 cuft
Inflow hyds.	= 5, 13	Contrib. drain. area	= 2.650 ac



Hydrograph Report

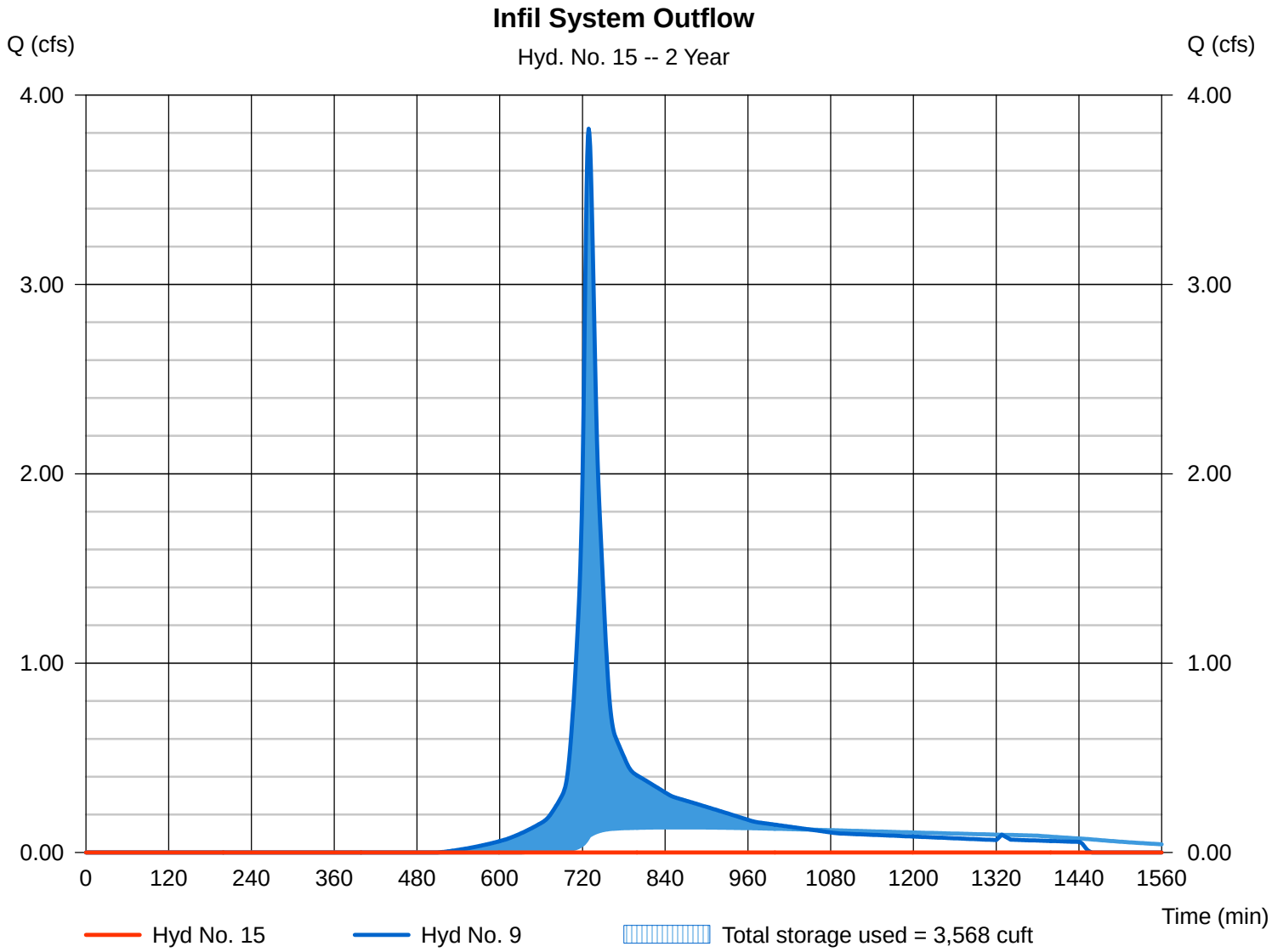
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 15

Infil System Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	708 min
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	9 - P-4	Max. Elevation	=	100.27 ft
Reservoir name	=	GW Recharge System	Max. Storage	=	3,568 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Pond No. 1 - GW Recharge System

Pond Data

UG Chambers - Invert elev. = 100.00 ft, Rise x Span = 2.50 x 4.33 ft, Barrel Len = 98.00 ft, No. Barrels = 8, Slope = 0.00%, Headers = Yes
Encasement - Invert elev. = 99.50 ft, Width = 5.33 ft, Height = 4.00 ft, Voids = 100.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	99.50	n/a	0	0
0.40	99.90	n/a	1,854	1,854
0.80	100.30	n/a	1,854	3,707
1.20	100.70	n/a	1,854	5,561
1.60	101.10	n/a	1,854	7,415
2.00	101.50	n/a	1,854	9,268
2.40	101.90	n/a	1,854	11,122
2.80	102.30	n/a	1,854	12,975
3.20	102.70	n/a	1,854	14,829
3.60	103.10	n/a	1,854	16,683
4.00	103.50	n/a	1,854	18,536

Culvert / Orifice Structures

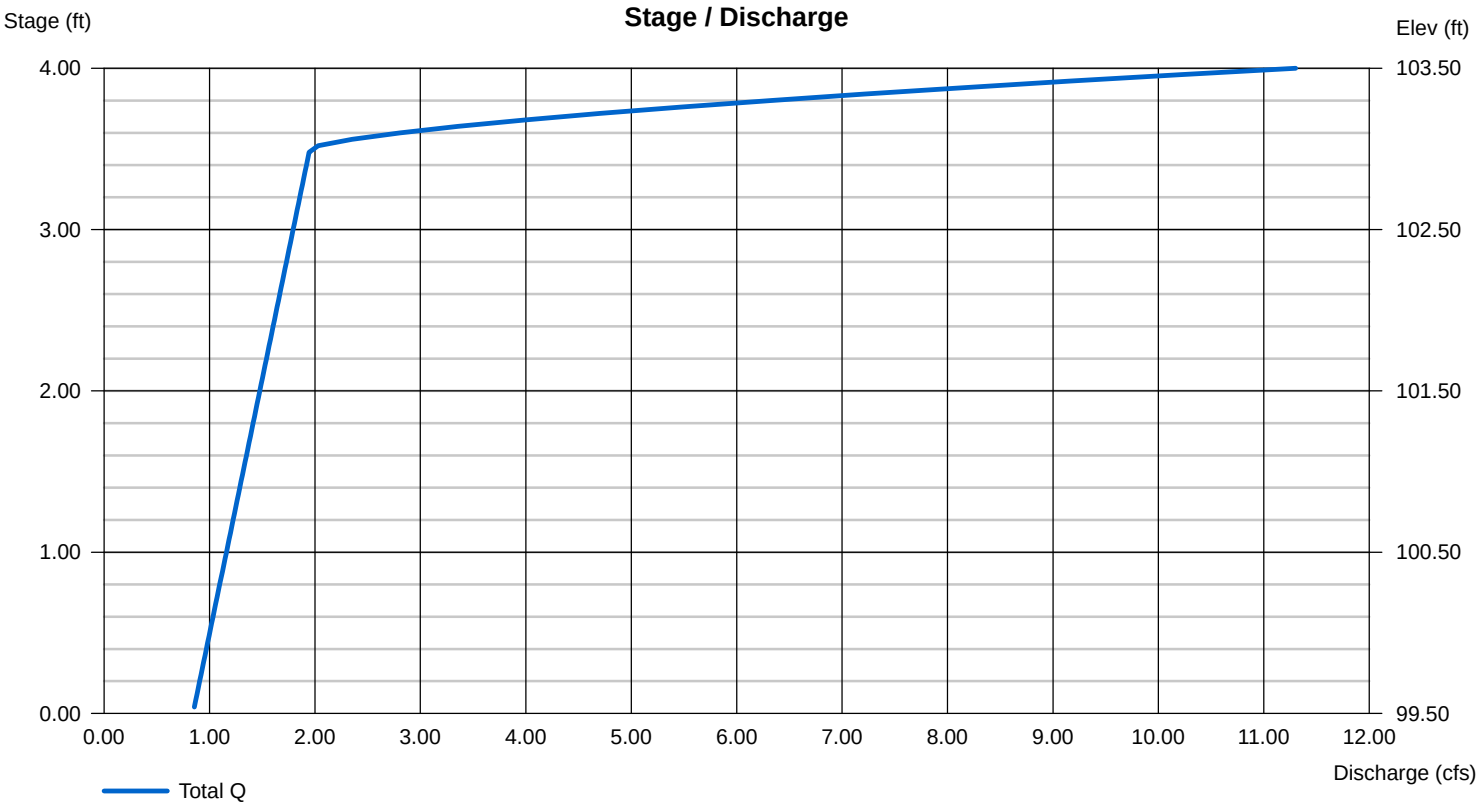
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.00	0.00	0.00	0.00
Crest El. (ft)	= 103.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 8.270 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



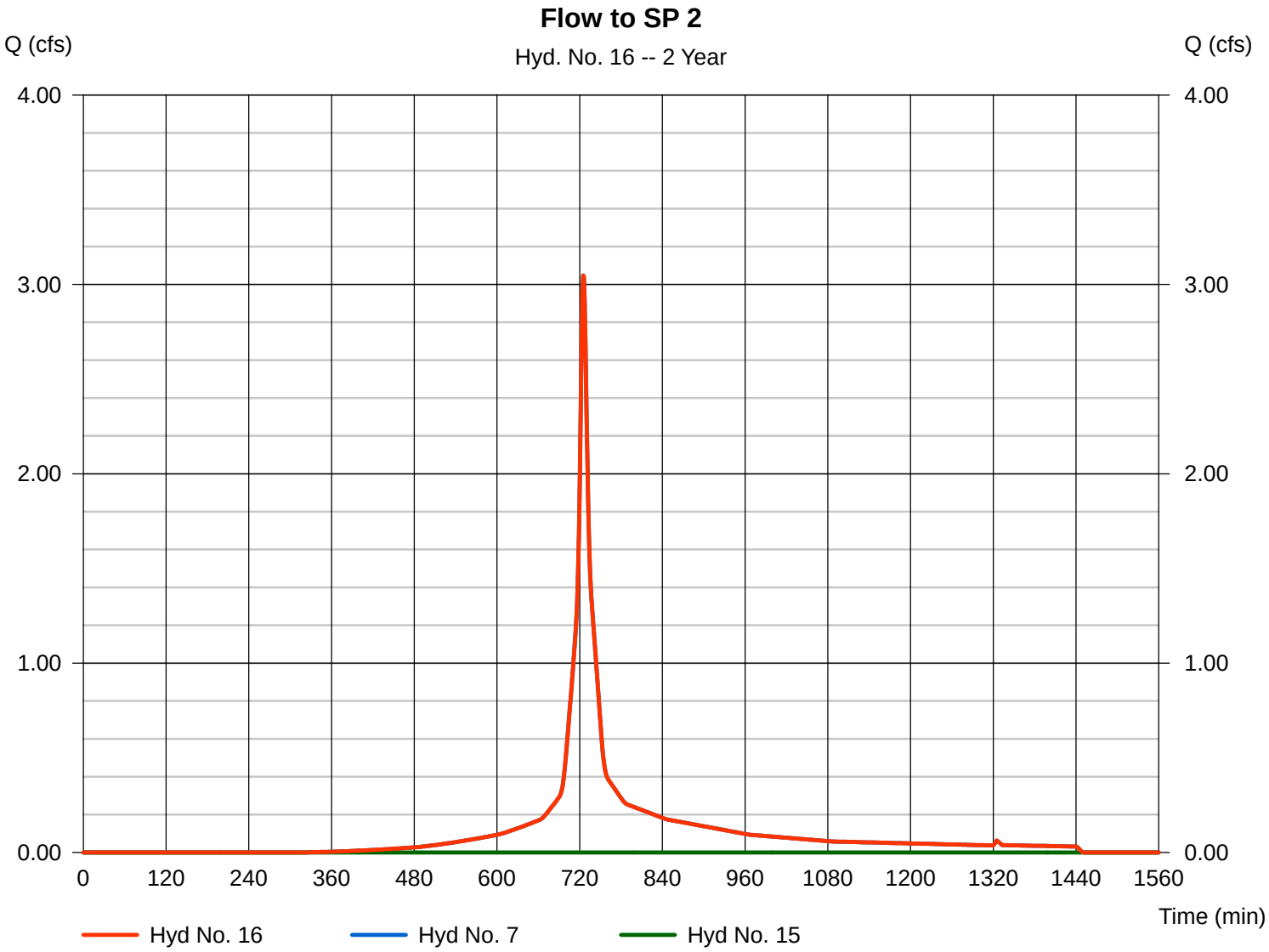
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 16

Flow to SP 2

Hydrograph type	=	Combine	Peak discharge	=	3.047 cfs
Storm frequency	=	2 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	9,990 cuft
Inflow hyds.	=	7, 15	Contrib. drain. area	=	1.200 ac



Hydrograph Report

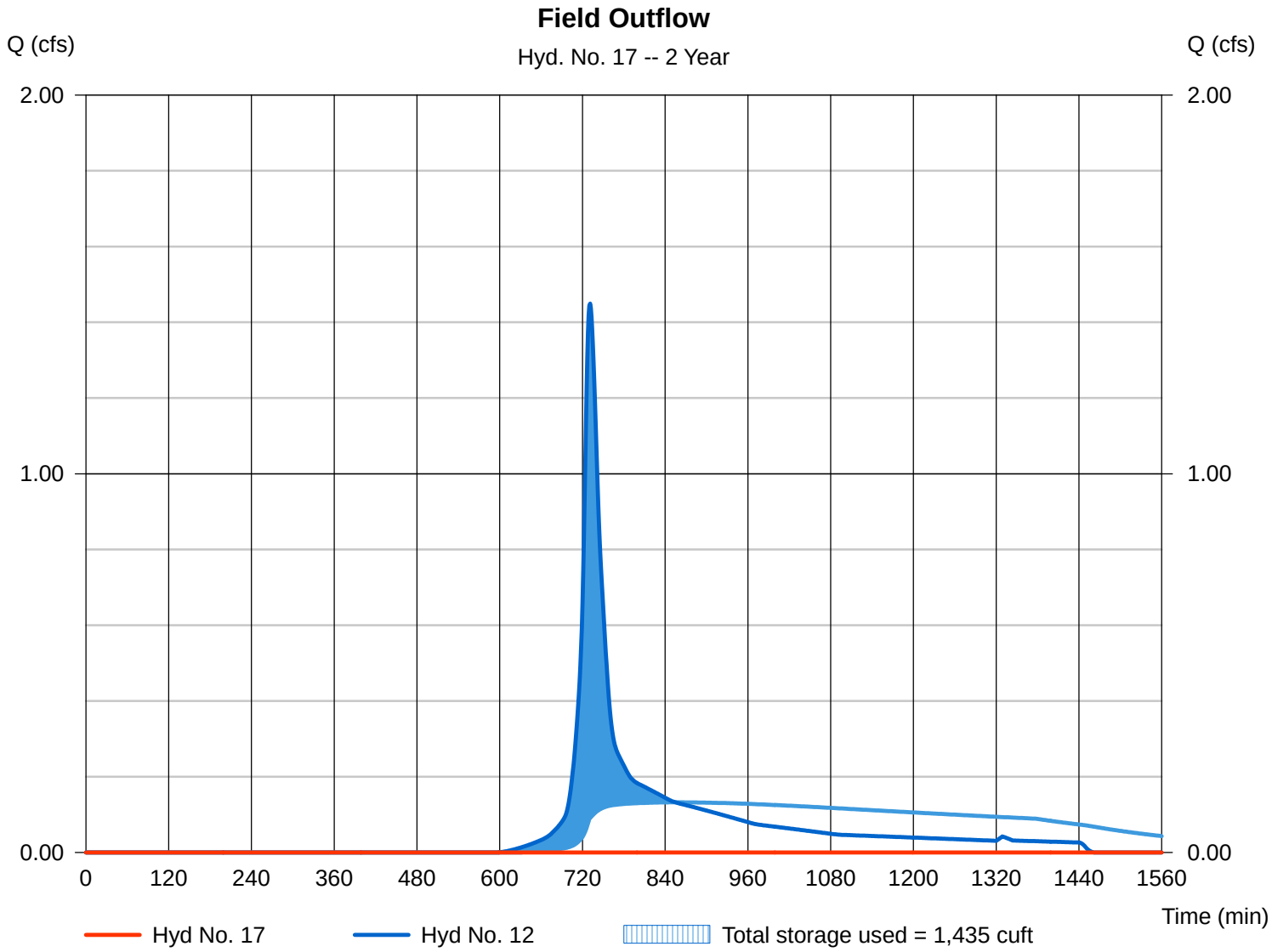
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 17

Field Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	762 min
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	96.72 ft
Reservoir name	=	Syn Field	Max. Storage	=	1,435 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Pond No. 2 - Syn Field

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 95.85 ft. Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	96.00	5,000	0	0
1.00	97.00	5,000	2,000	2,000
2.00	98.00	5,000	2,000	4,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 10.00	0.00	0.00	0.00
Span (in)	= 10.00	0.00	0.00	0.00
No. Barrels	= 2	0	0	0
Invert El. (ft)	= 97.00	0.00	0.00	0.00
Length (ft)	= 20.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

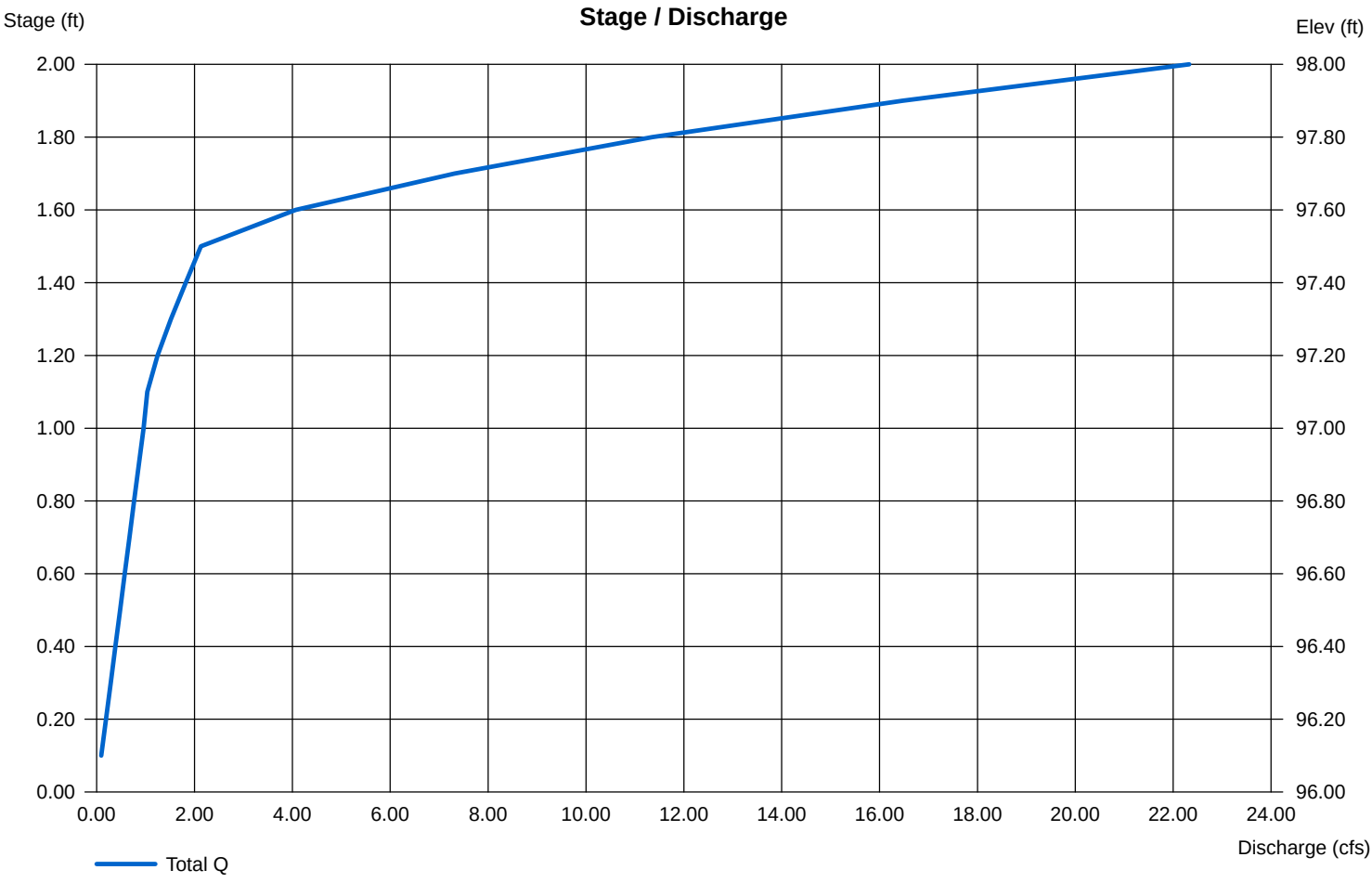
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	0.00	0.00	0.00
Crest El. (ft)	= 97.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 8.270 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



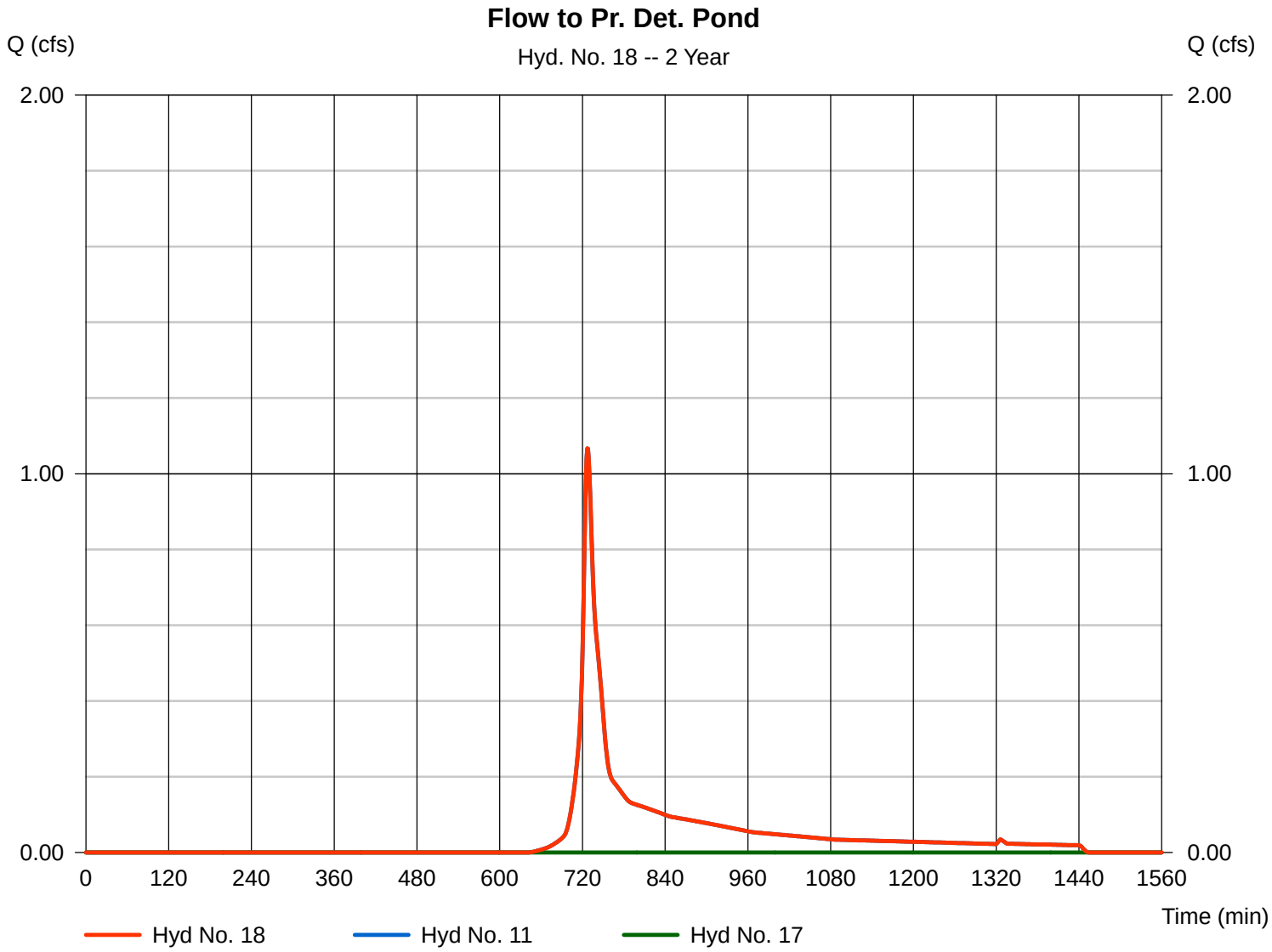
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 18

Flow to Pr. Det. Pond

Hydrograph type	=	Combine	Peak discharge	=	1.067 cfs
Storm frequency	=	2 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	3,878 cuft
Inflow hyds.	=	11, 17	Contrib. drain. area	=	1.020 ac



Hydrograph Report

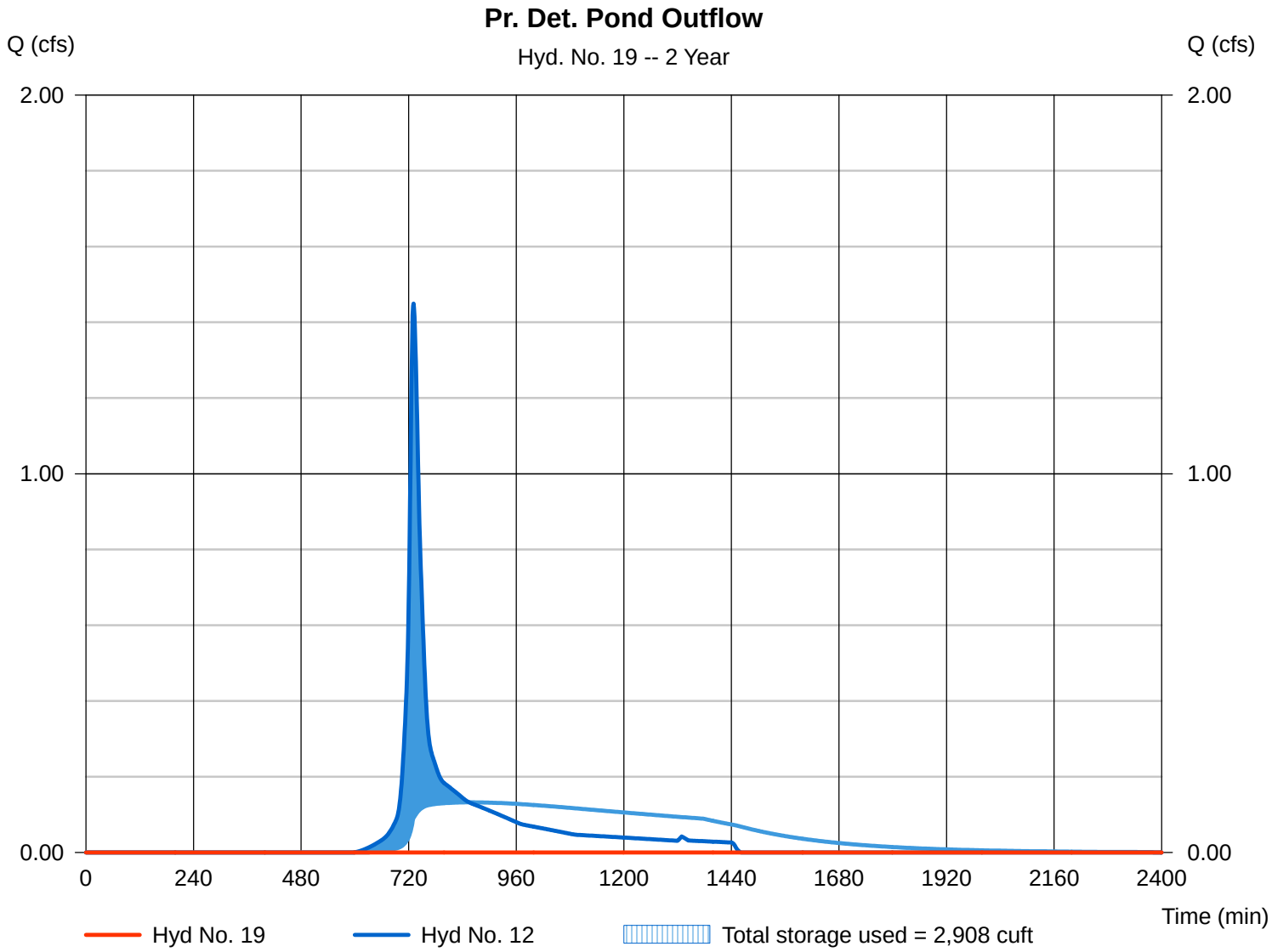
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 19

Pr. Det. Pond Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	93.86 ft
Reservoir name	=	Pr. Det. Pond	Max. Storage	=	2,908 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Pond No. 4 - Pr. Det. Pond

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 92.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	92.00	780	0	0
1.00	93.00	1,600	1,166	1,166
2.00	94.00	2,500	2,033	3,199
3.00	95.00	3,400	2,938	6,137

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

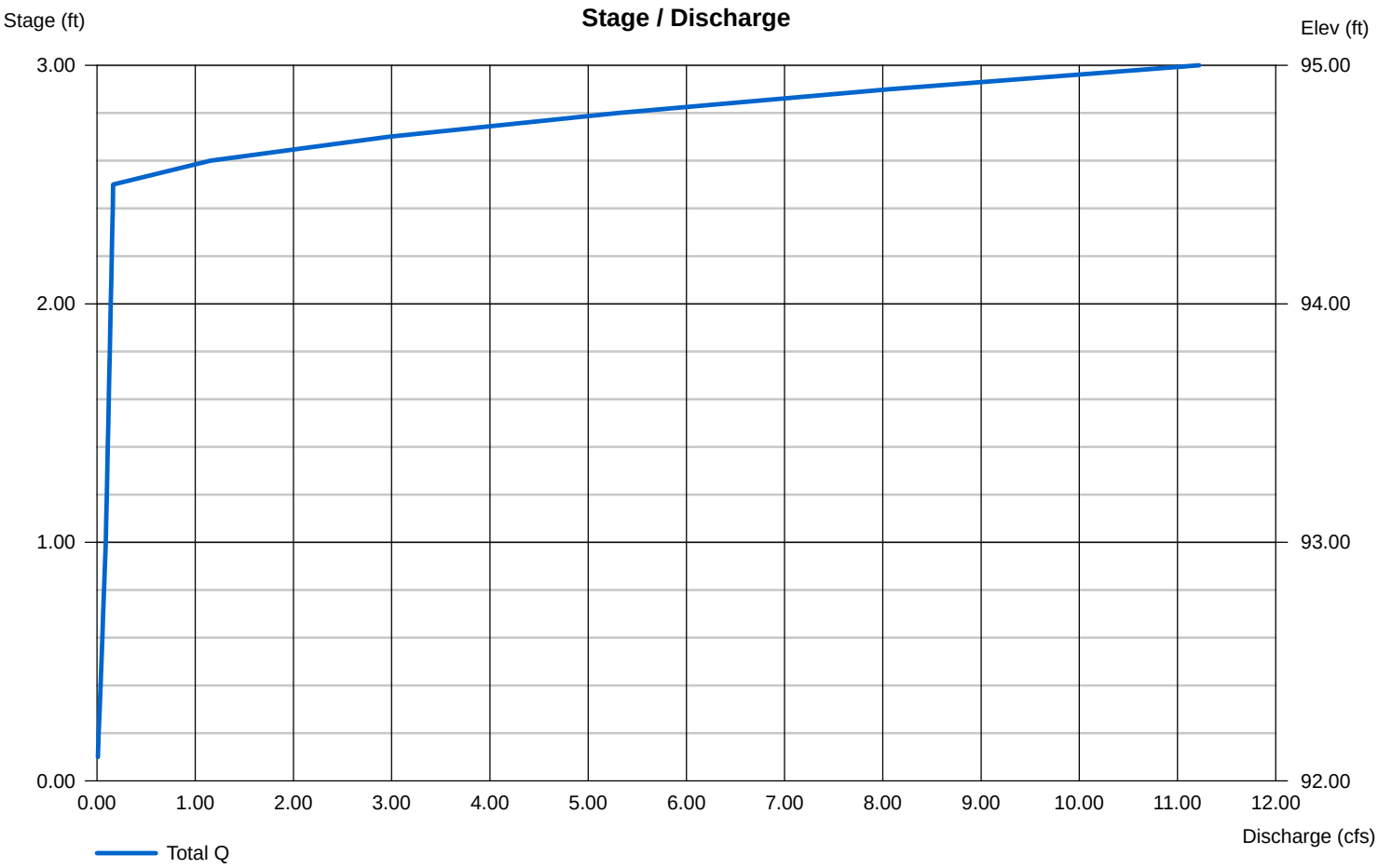
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 94.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 2.410 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



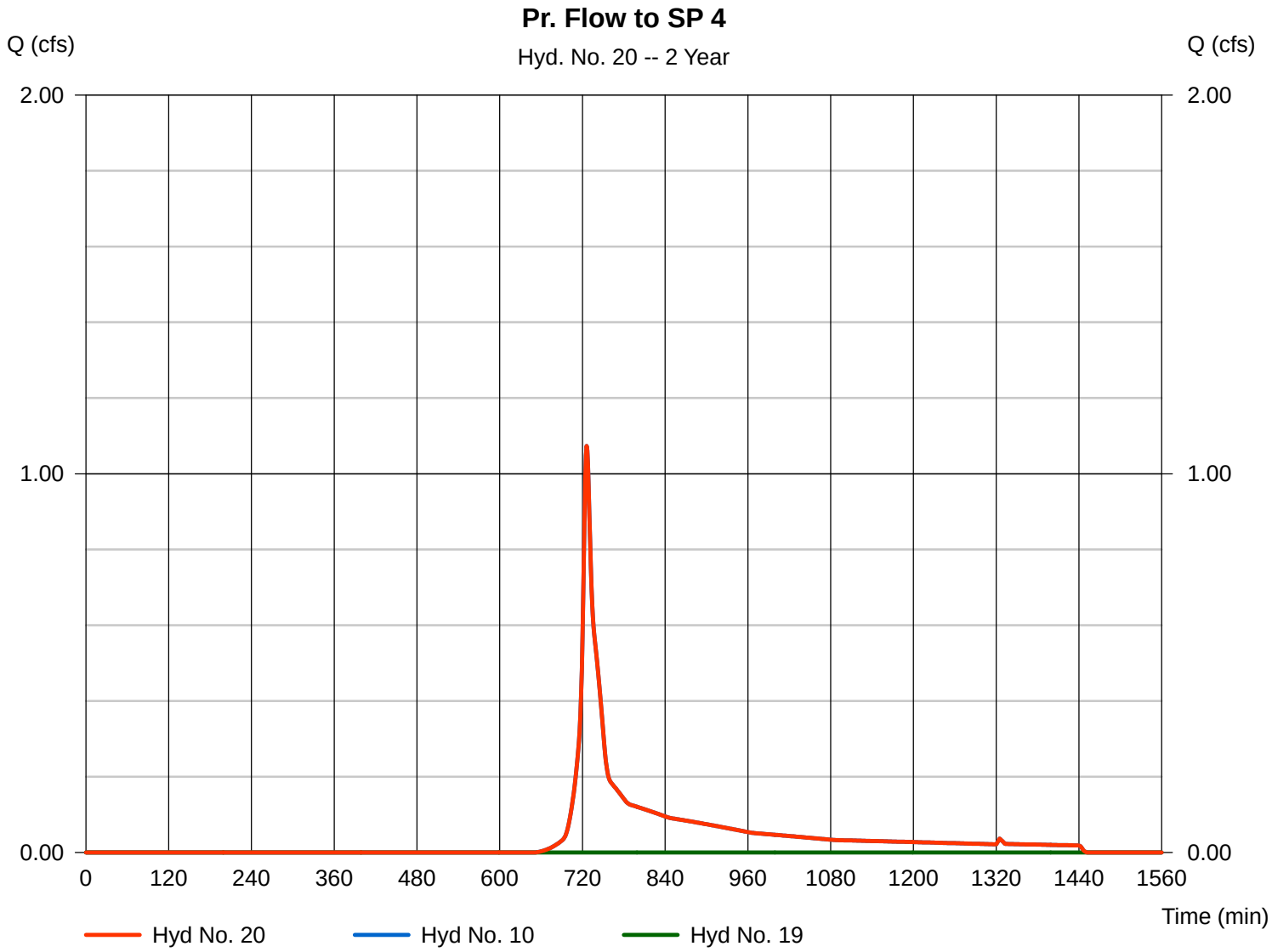
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 20

Pr. Flow to SP 4

Hydrograph type	=	Combine	Peak discharge	=	1.073 cfs
Storm frequency	=	2 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	3,688 cuft
Inflow hyds.	=	10, 19	Contrib. drain. area	=	1.050 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.841	1	734	3,830	----	------	------	E-1
2	SCS Runoff	6.451	1	734	28,481	----	------	------	E-2
3	SCS Runoff	3.113	1	724	10,983	----	------	------	E-3
4	SCS Runoff	2.399	1	728	8,893	----	------	------	E-4
5	SCS Runoff	5.728	1	732	23,826	----	------	------	E-5
6	SCS Runoff	0.127	1	730	533	----	------	------	P-1
7	SCS Runoff	5.276	1	725	17,779	----	------	------	P-2
8	SCS Runoff	3.113	1	724	10,983	----	------	------	P-3
9	SCS Runoff	7.569	1	729	28,615	----	------	------	P-4
10	SCS Runoff	2.714	1	726	8,773	----	------	------	P-5
11	SCS Runoff	2.633	1	727	9,058	----	------	------	P-6
12	SCS Runoff	3.240	1	730	12,805	----	------	------	P-7
13	Reservoir	0.209	1	779	946	4	93.23	4,270	Ex. Det Area Outflow
14	Combine	5.728	1	732	24,772	5, 13	------	------	Ex. Flow to SP 4
15	Reservoir	0.000	1	998	0	9	101.52	9,360	Infil System Outflow
16	Combine	5.276	1	725	17,779	7, 15	------	------	Flow to SP 2
17	Reservoir	1.084	1	742	1,491	12	97.47	2,941	Field Outflow
18	Combine	2.633	1	727	10,549	11, 17	------	------	Flow to Pr. Det. Pond
19	Reservoir	1.499	1	745	3,126	12	94.63	5,045	Pr. Det. Pond Outflow
20	Combine	2.714	1	726	11,899	10, 19	------	------	Pr. Flow to SP 4

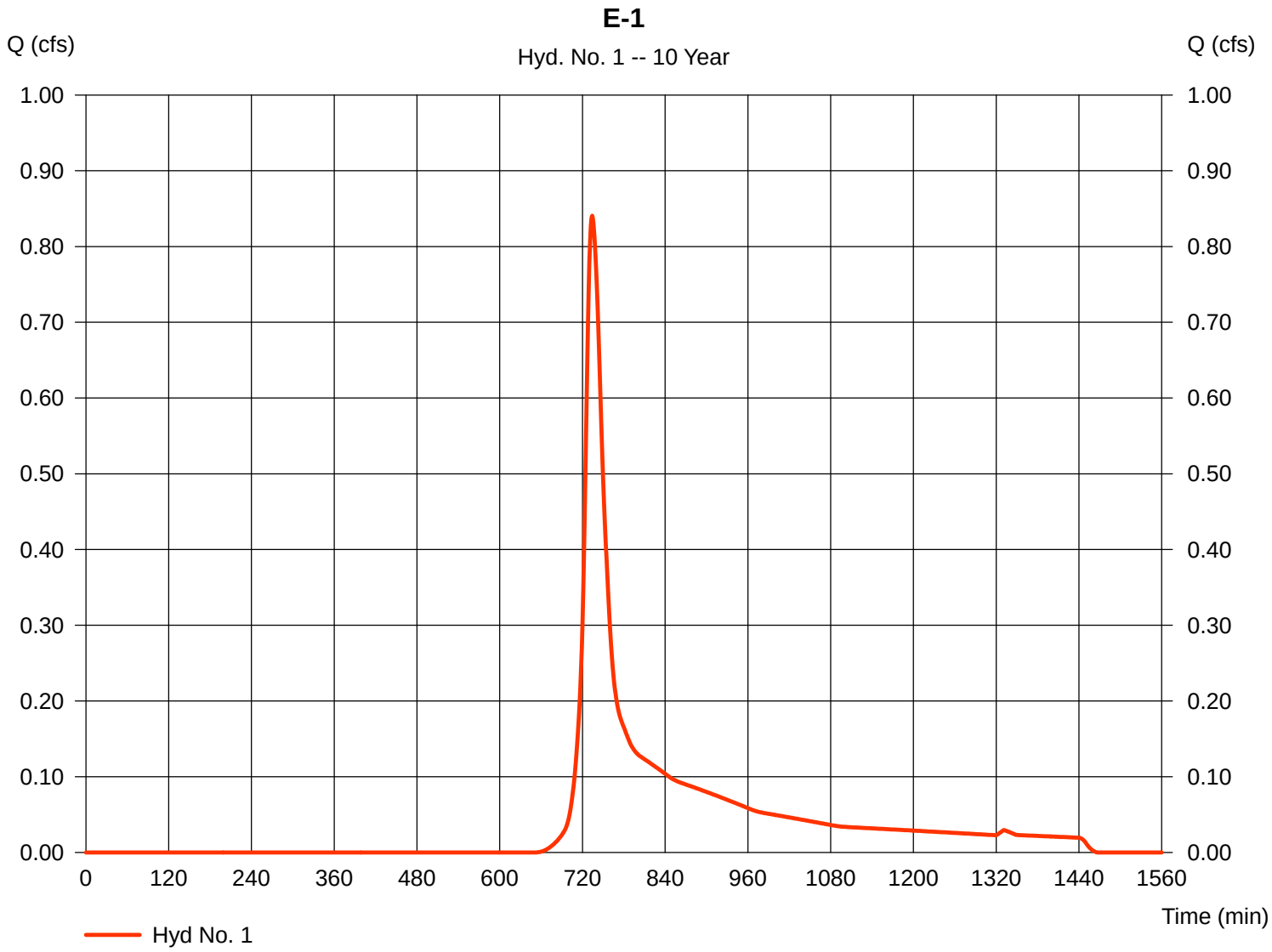
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 1

E-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.841 cfs
Storm frequency	=	10 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	3,830 cuft
Drainage area	=	0.680 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.49 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



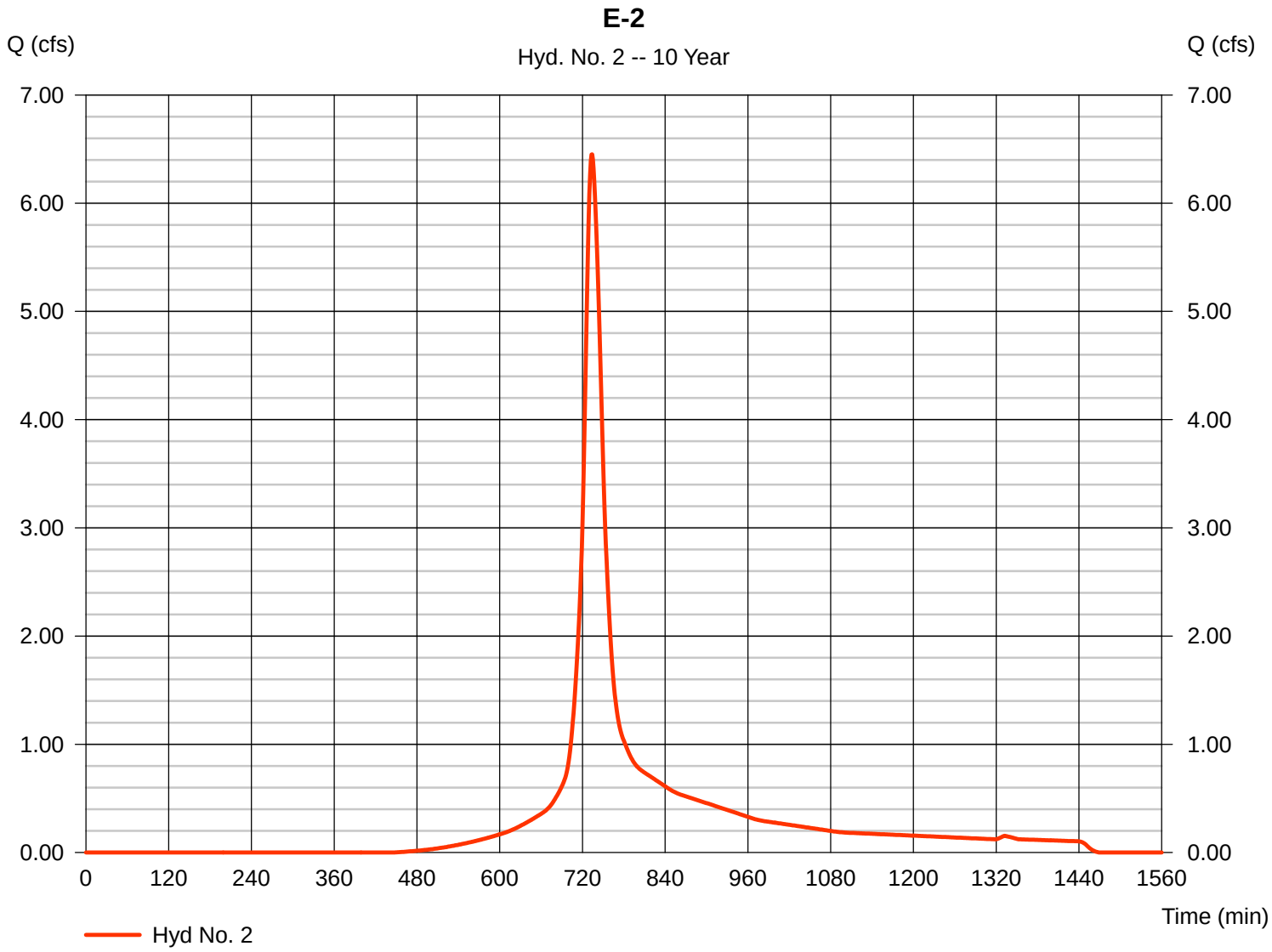
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 2

E-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.451 cfs
Storm frequency	=	10 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	28,481 cuft
Drainage area	=	2.550 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.90 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



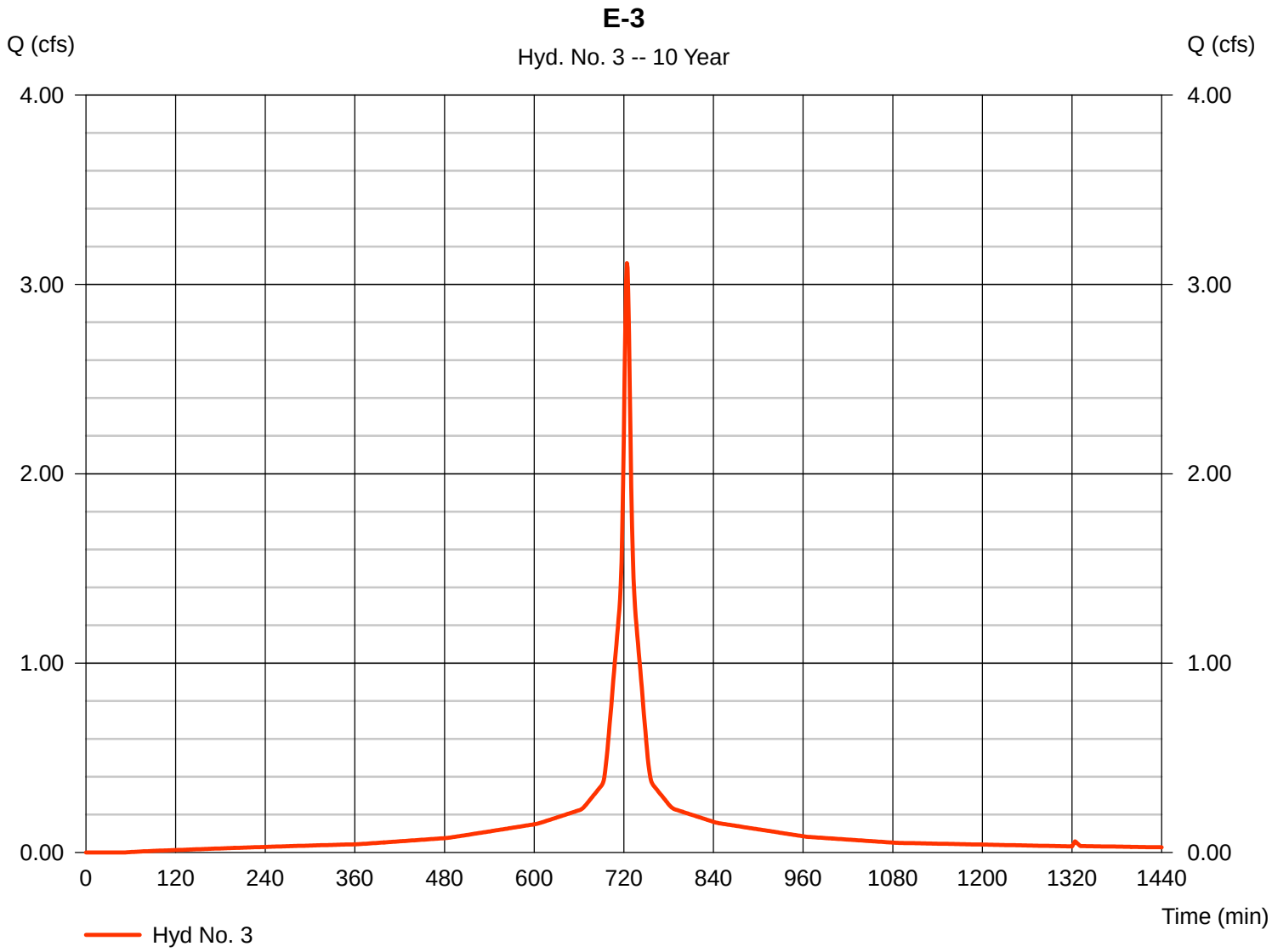
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 3

E-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.113 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	10,983 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



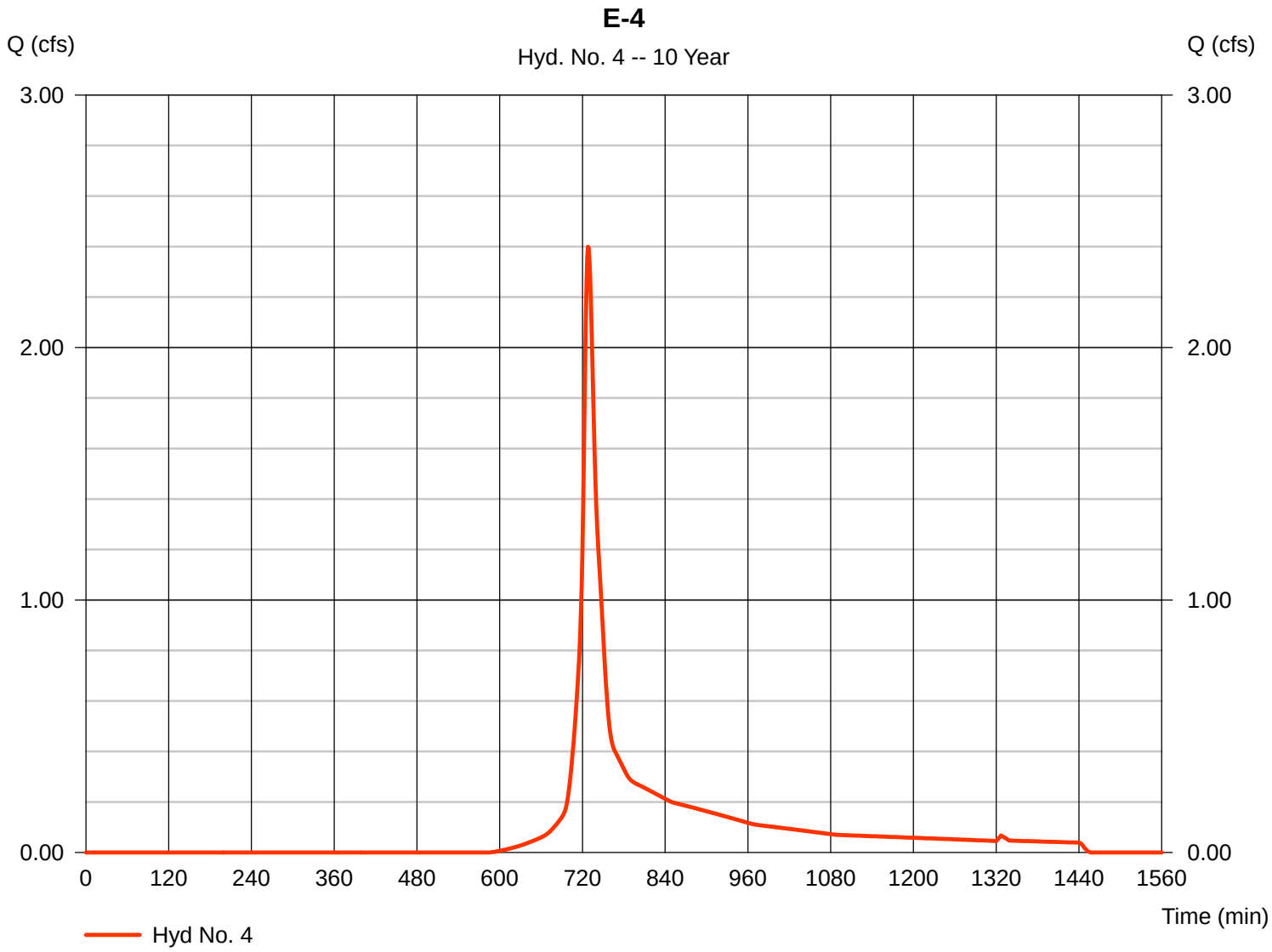
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 4

E-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.399 cfs
Storm frequency	=	10 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	8,893 cuft
Drainage area	=	1.140 ac	Curve number	=	69
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.69 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



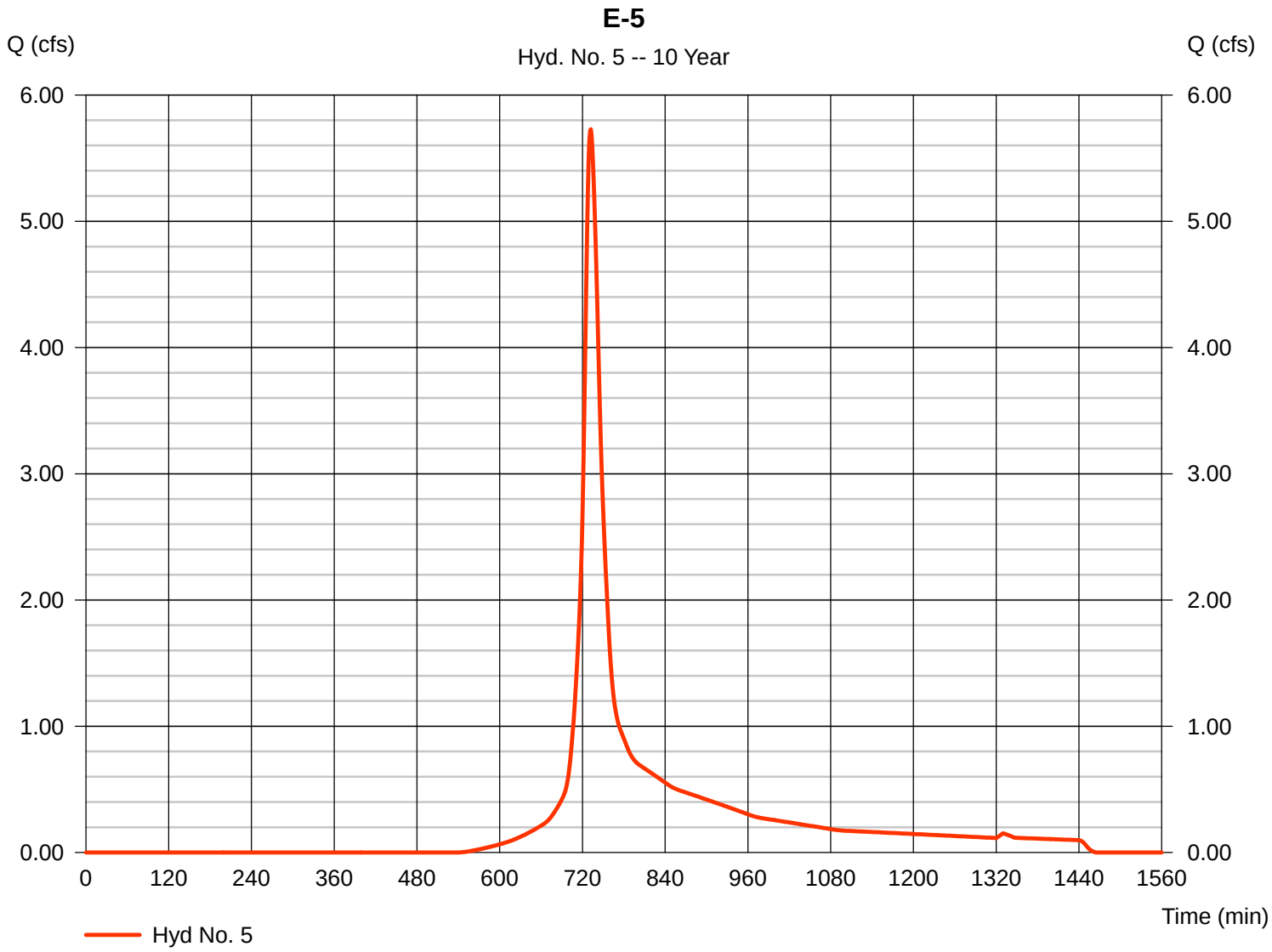
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 5

E-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.728 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	1 min	Hyd. volume	=	23,826 cuft
Drainage area	=	2.650 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.40 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



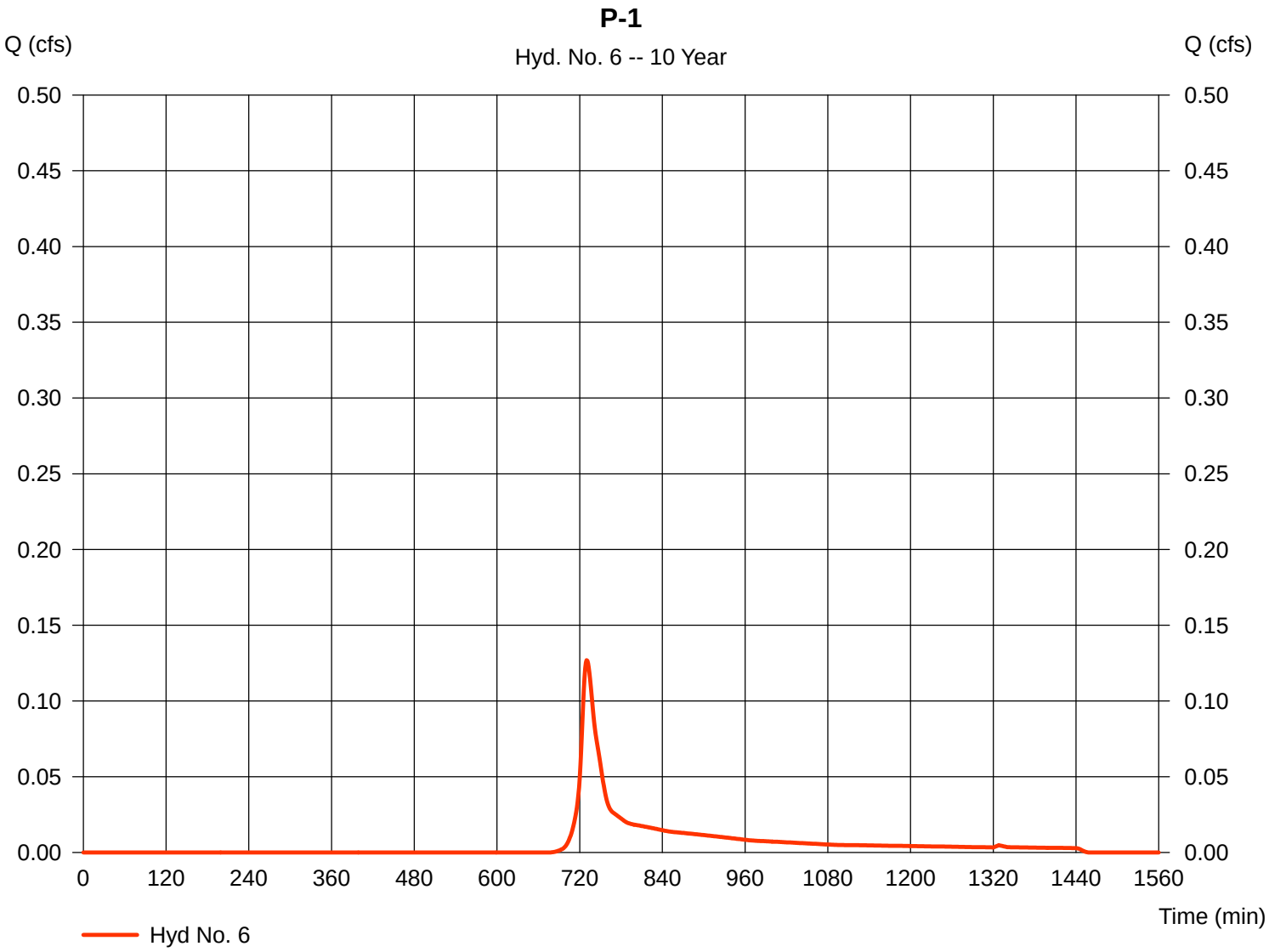
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 6

P-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.127 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	1 min	Hyd. volume	=	533 cuft
Drainage area	=	0.110 ac	Curve number	=	59
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.04 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



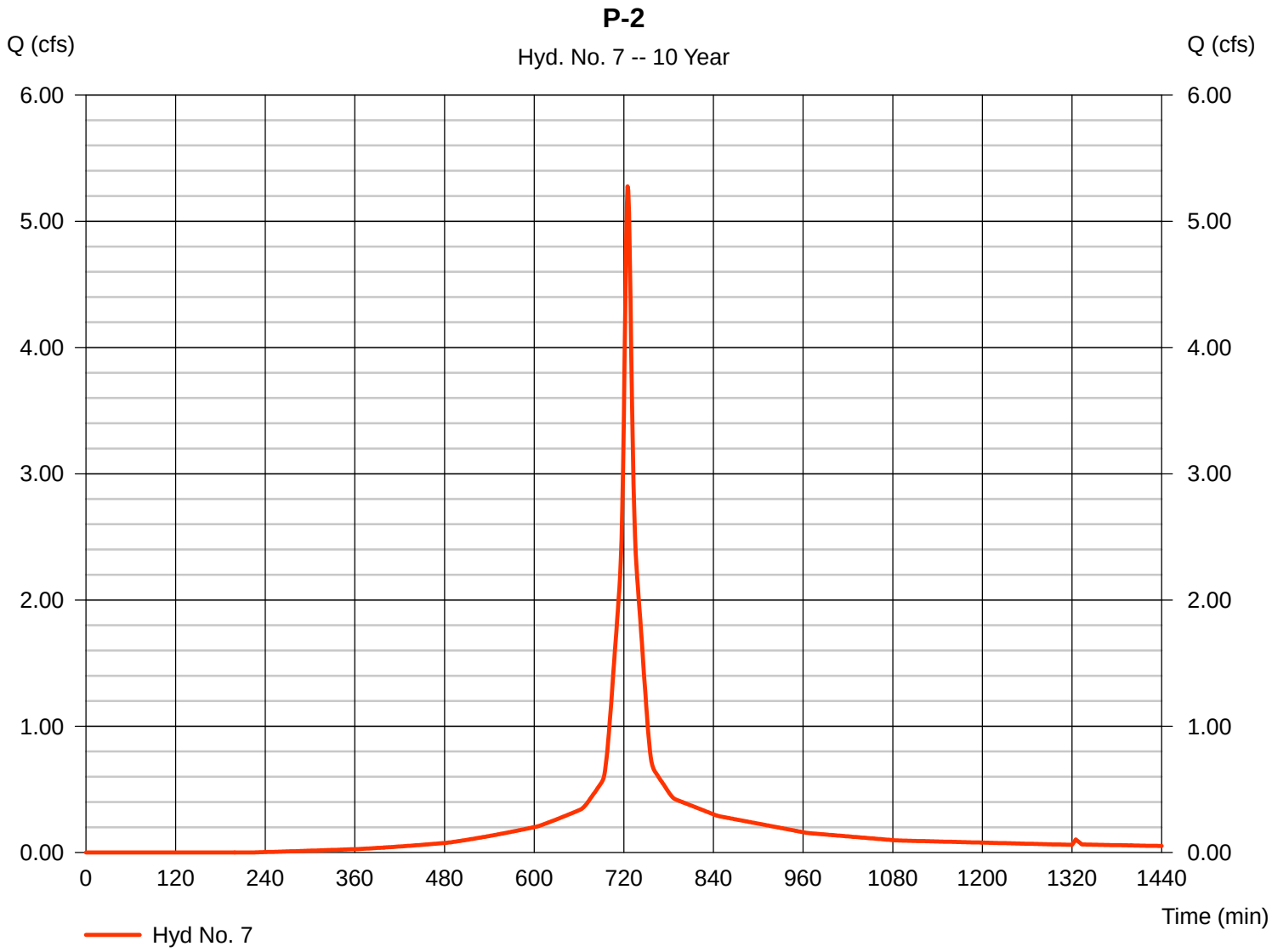
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 7

P-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.276 cfs
Storm frequency	=	10 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	17,779 cuft
Drainage area	=	1.200 ac	Curve number	=	91
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.77 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



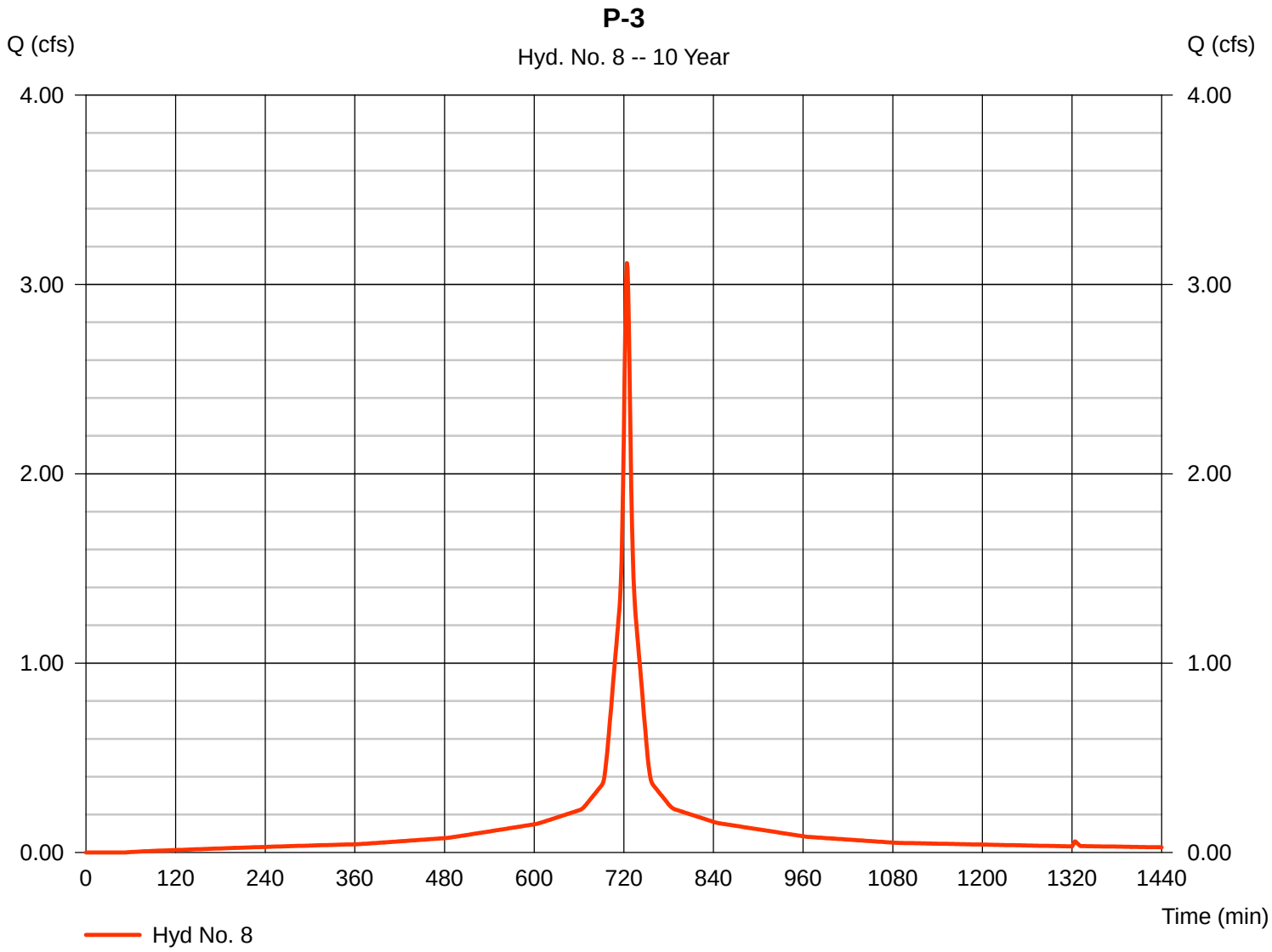
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 8

P-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.113 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	10,983 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



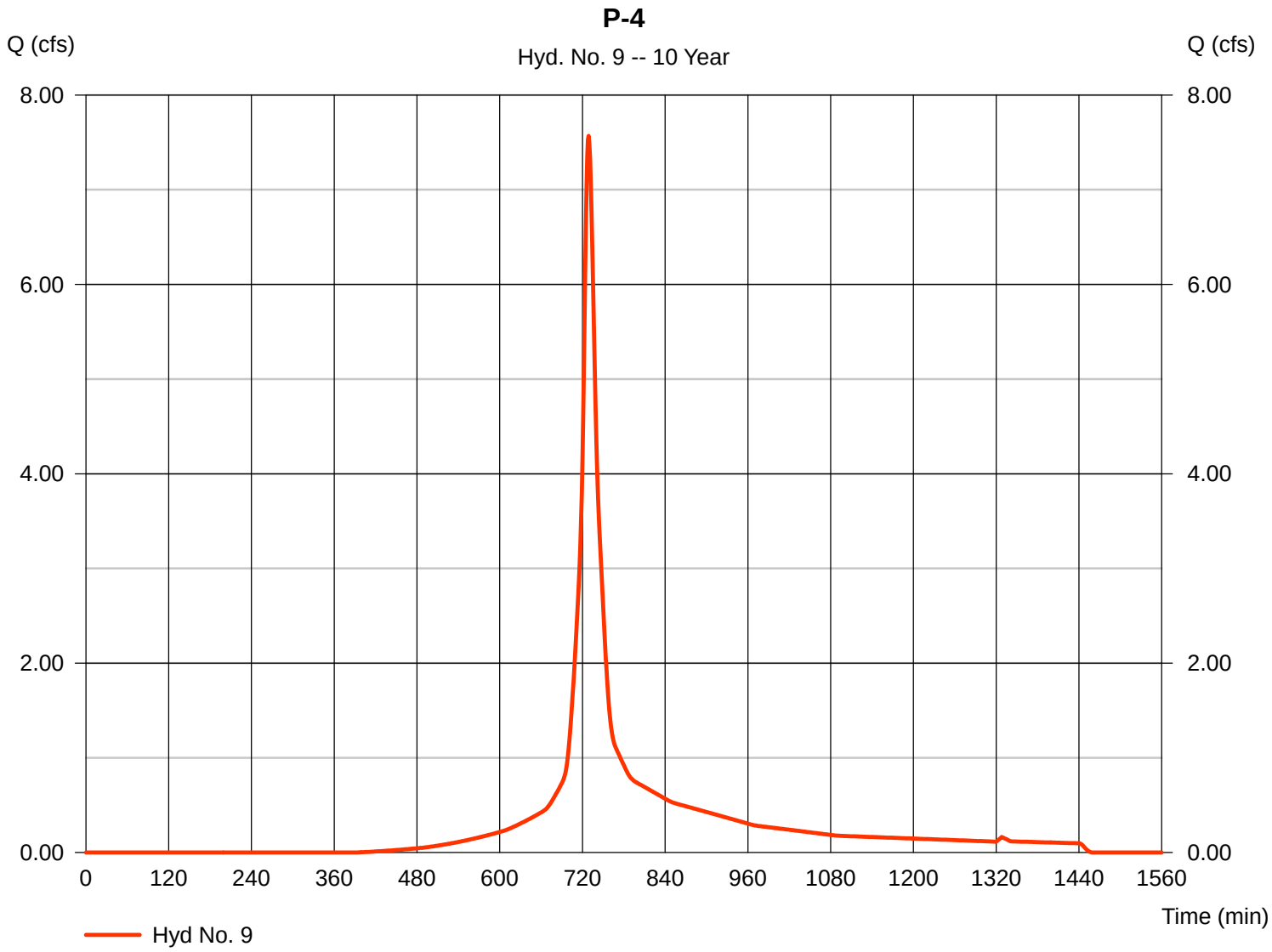
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 9

P-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.569 cfs
Storm frequency	=	10 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	28,615 cuft
Drainage area	=	2.380 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.77 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



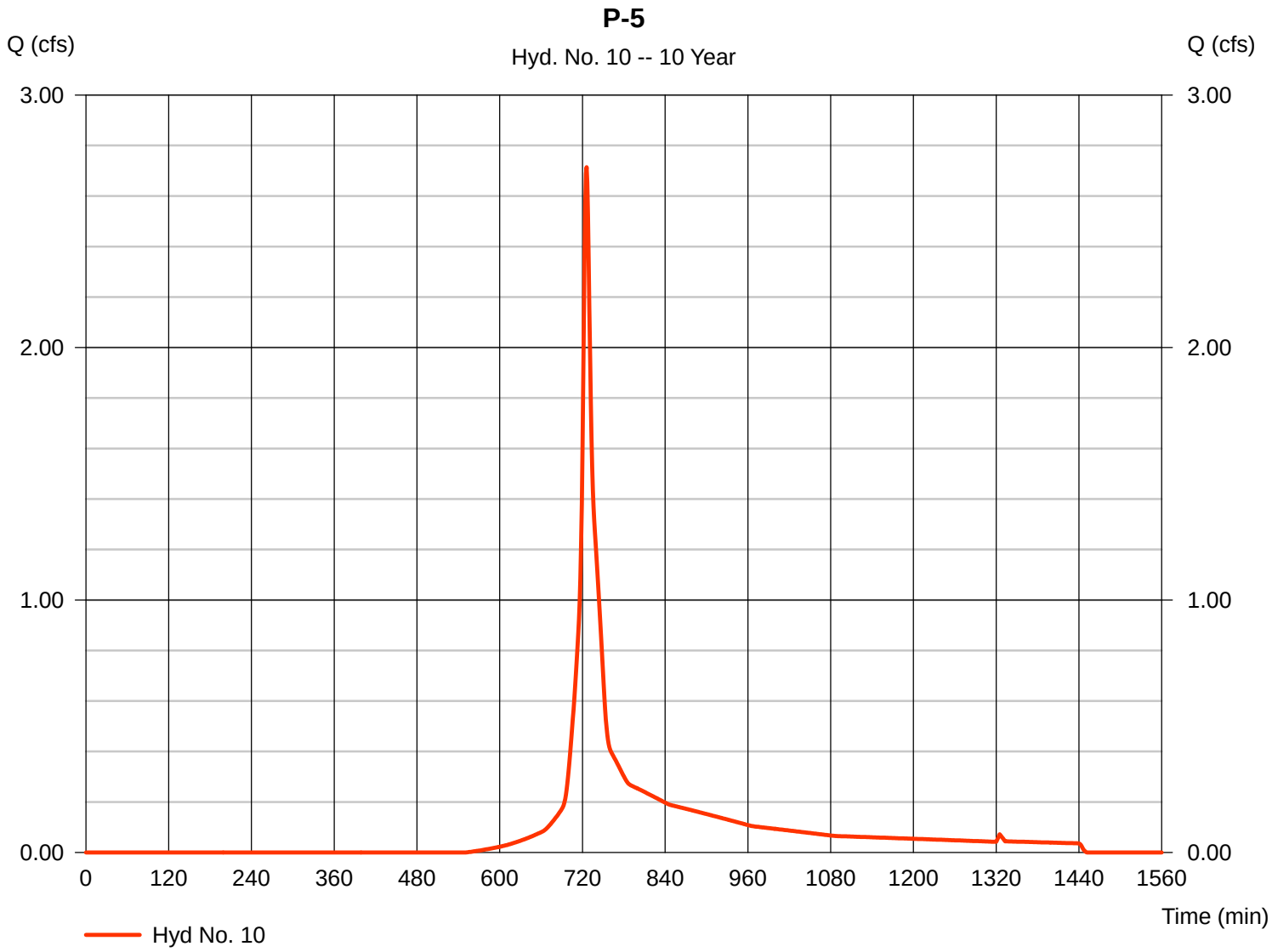
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 10

P-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.714 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	8,773 cuft
Drainage area	=	1.050 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.10 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



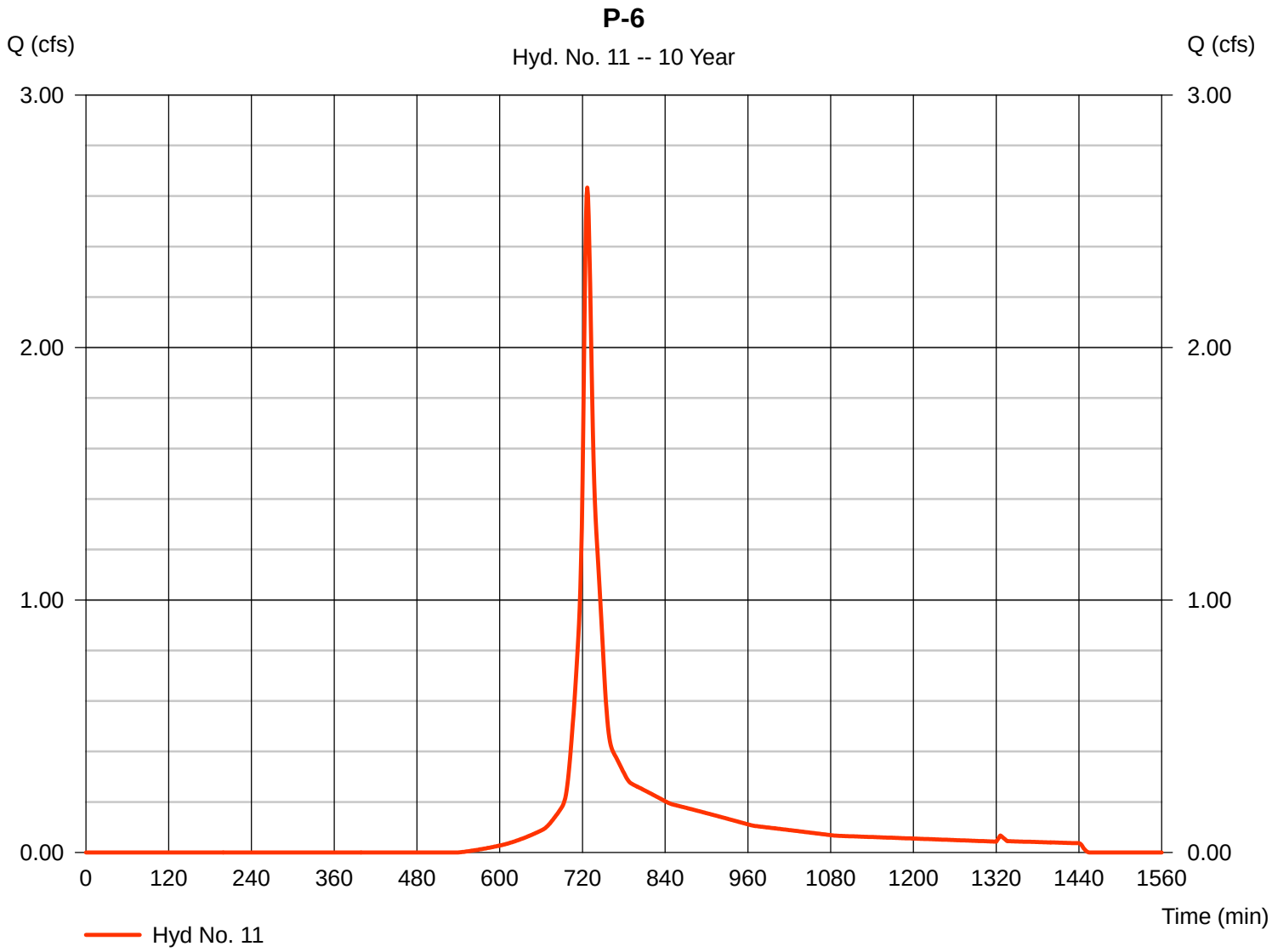
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 11

P-6

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.633 cfs
Storm frequency	=	10 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	9,058 cuft
Drainage area	=	1.020 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.59 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



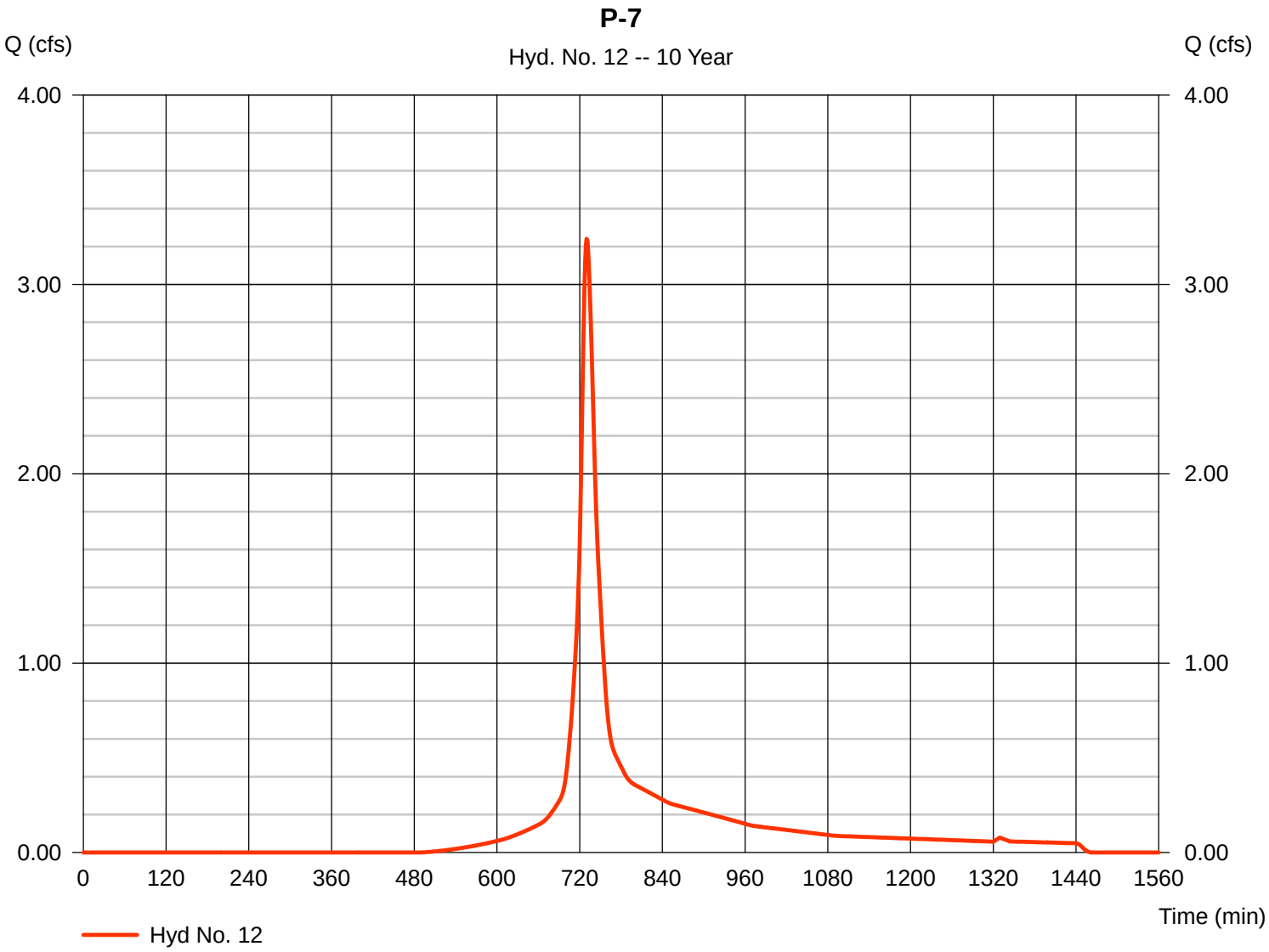
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 12

P-7

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.240 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	1 min	Hyd. volume	=	12,805 cuft
Drainage area	=	1.260 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.52 min
Total precip.	=	5.21 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

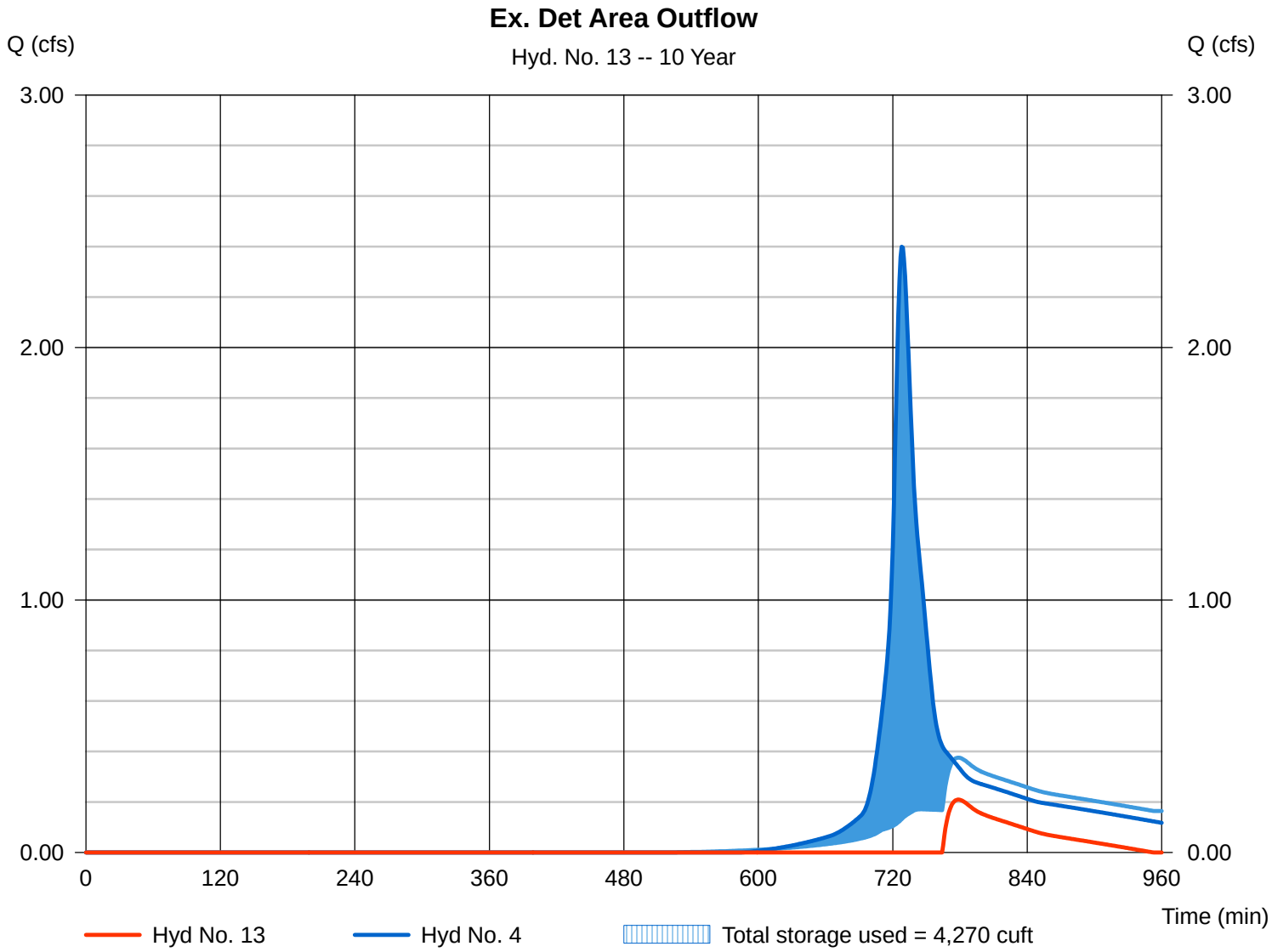
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 13

Ex. Det Area Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.209 cfs
Storm frequency	=	10 yrs	Time to peak	=	779 min
Time interval	=	1 min	Hyd. volume	=	946 cuft
Inflow hyd. No.	=	4 - E-4	Max. Elevation	=	93.23 ft
Reservoir name	=	Ex. Det. Pond	Max. Storage	=	4,270 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



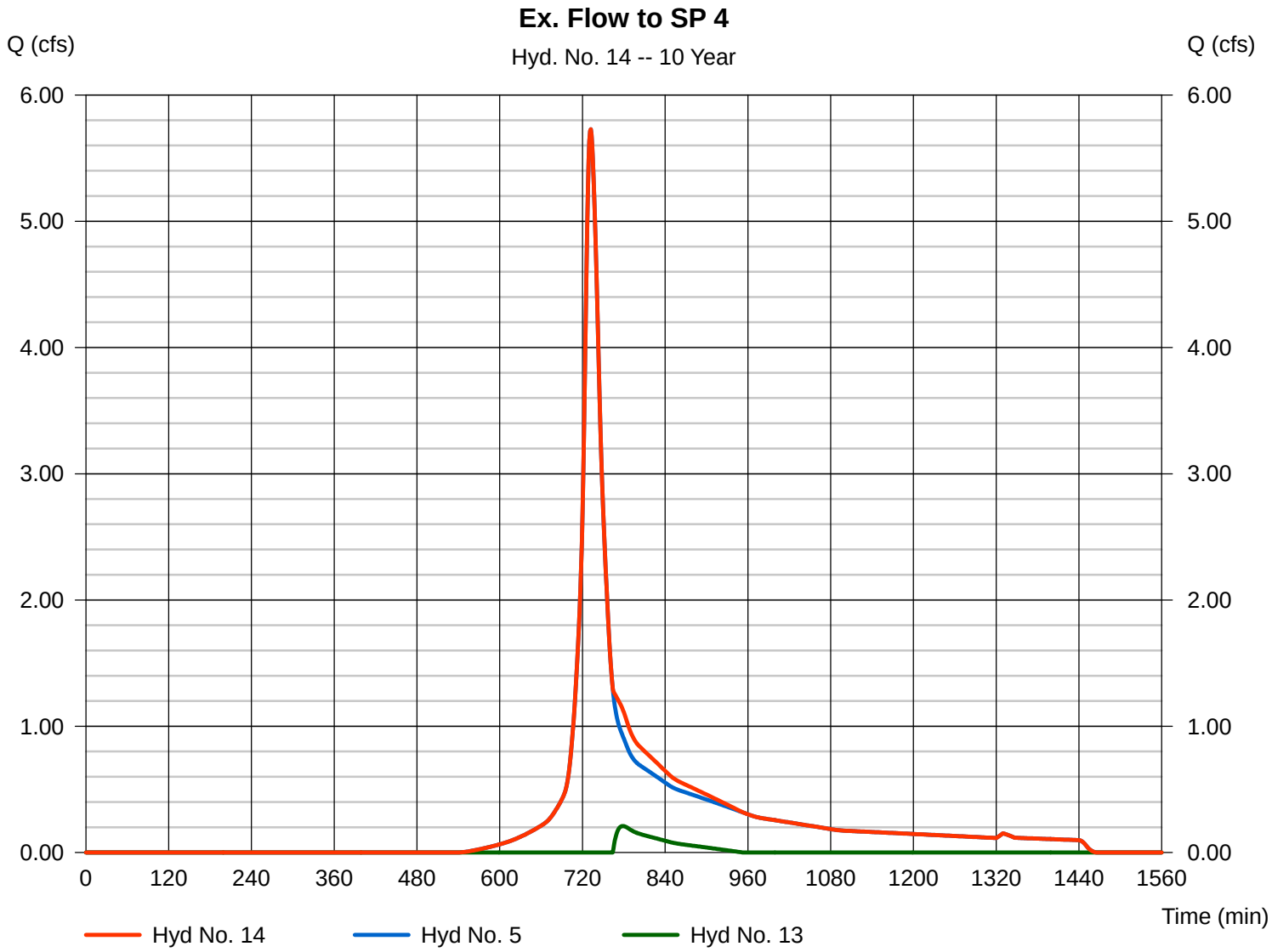
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 14

Ex. Flow to SP 4

Hydrograph type	=	Combine	Peak discharge	=	5.728 cfs
Storm frequency	=	10 yrs	Time to peak	=	732 min
Time interval	=	1 min	Hyd. volume	=	24,772 cuft
Inflow hyds.	=	5, 13	Contrib. drain. area	=	2.650 ac



Hydrograph Report

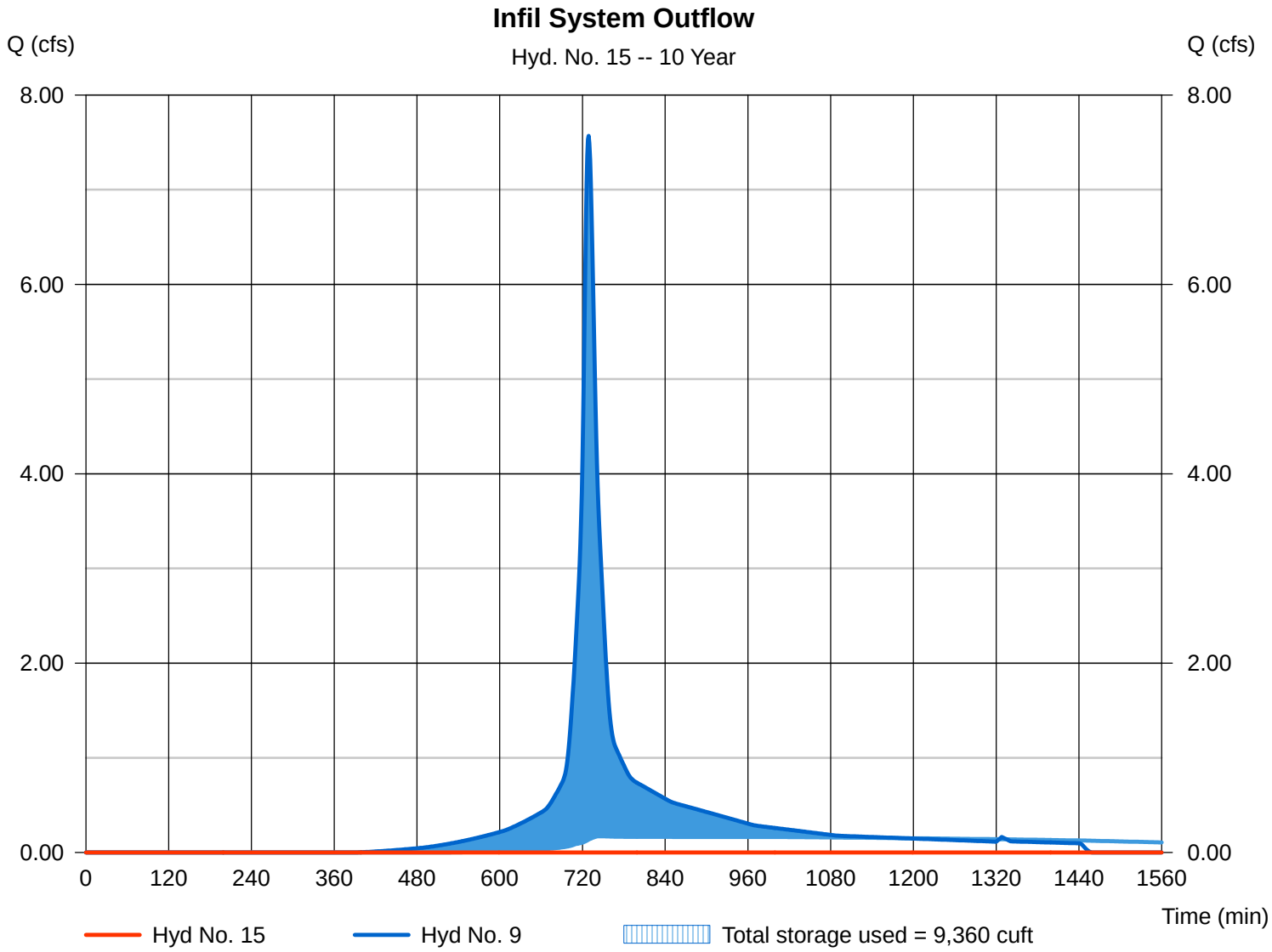
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 15

Infil System Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	10 yrs	Time to peak	=	998 min
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	9 - P-4	Max. Elevation	=	101.52 ft
Reservoir name	=	GW Recharge System	Max. Storage	=	9,360 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



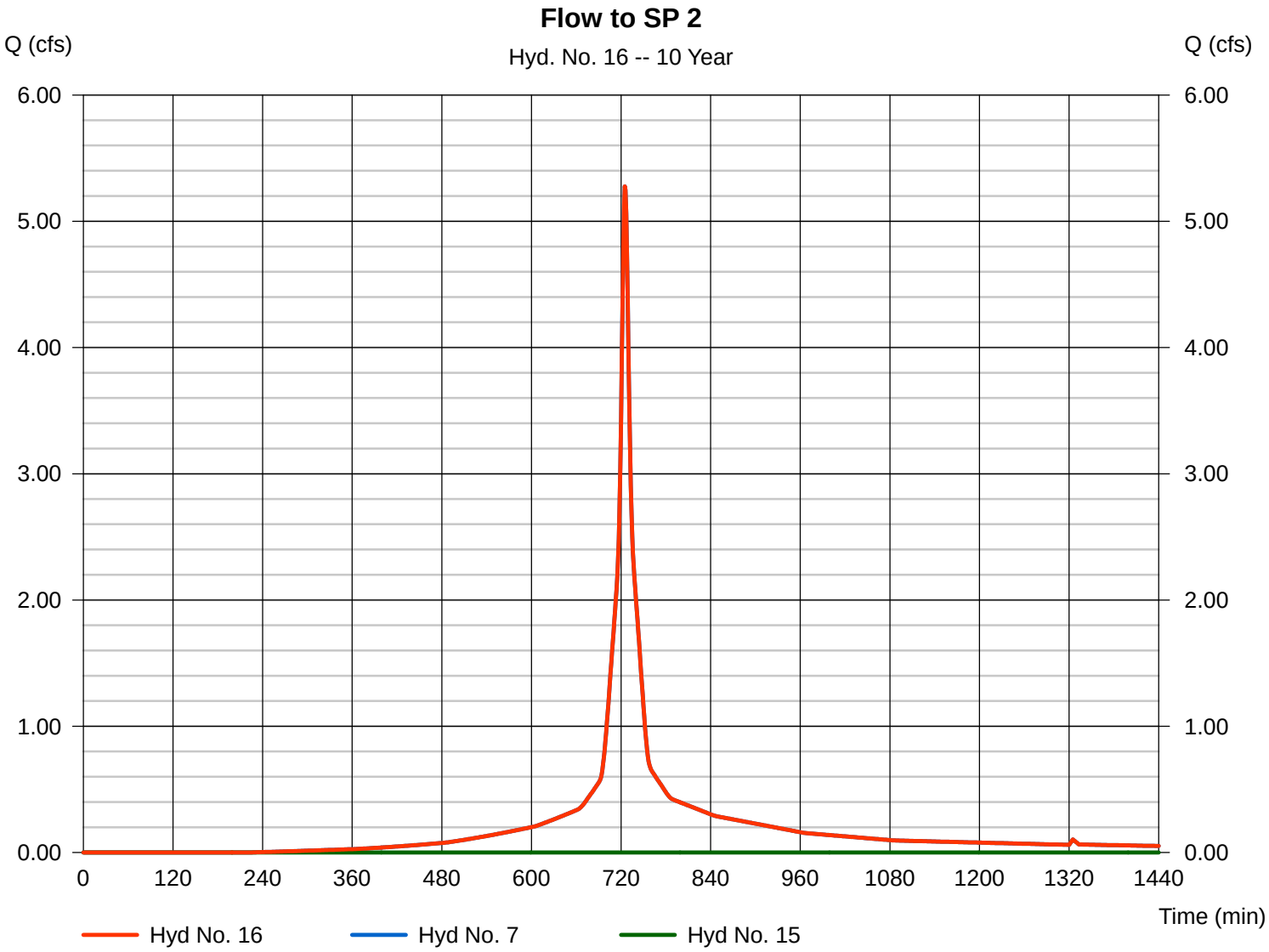
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 16

Flow to SP 2

Hydrograph type	=	Combine	Peak discharge	=	5.276 cfs
Storm frequency	=	10 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	17,779 cuft
Inflow hyds.	=	7, 15	Contrib. drain. area	=	1.200 ac



Hydrograph Report

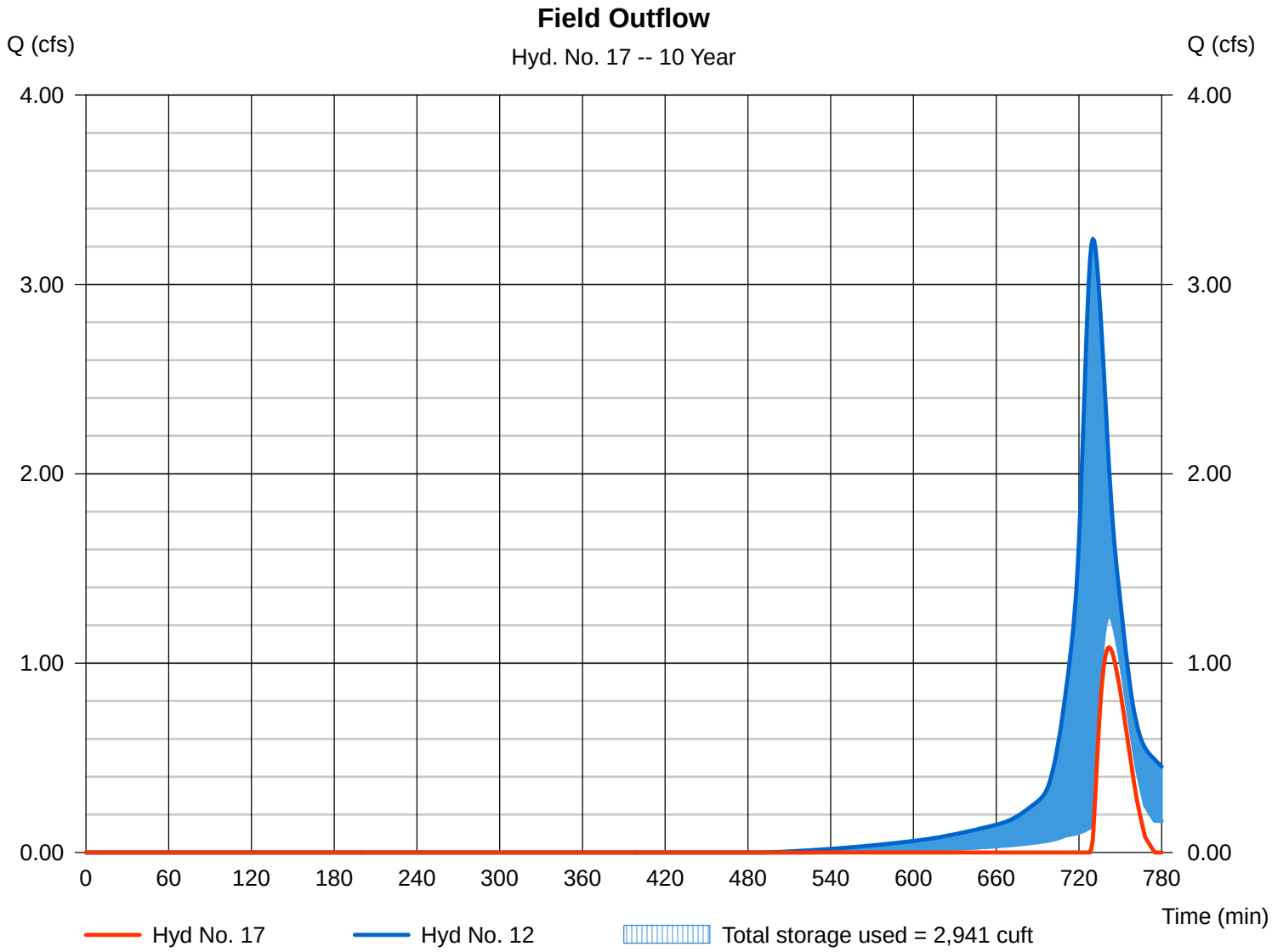
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 17

Field Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.084 cfs
Storm frequency	=	10 yrs	Time to peak	=	742 min
Time interval	=	1 min	Hyd. volume	=	1,491 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	97.47 ft
Reservoir name	=	Syn Field	Max. Storage	=	2,941 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



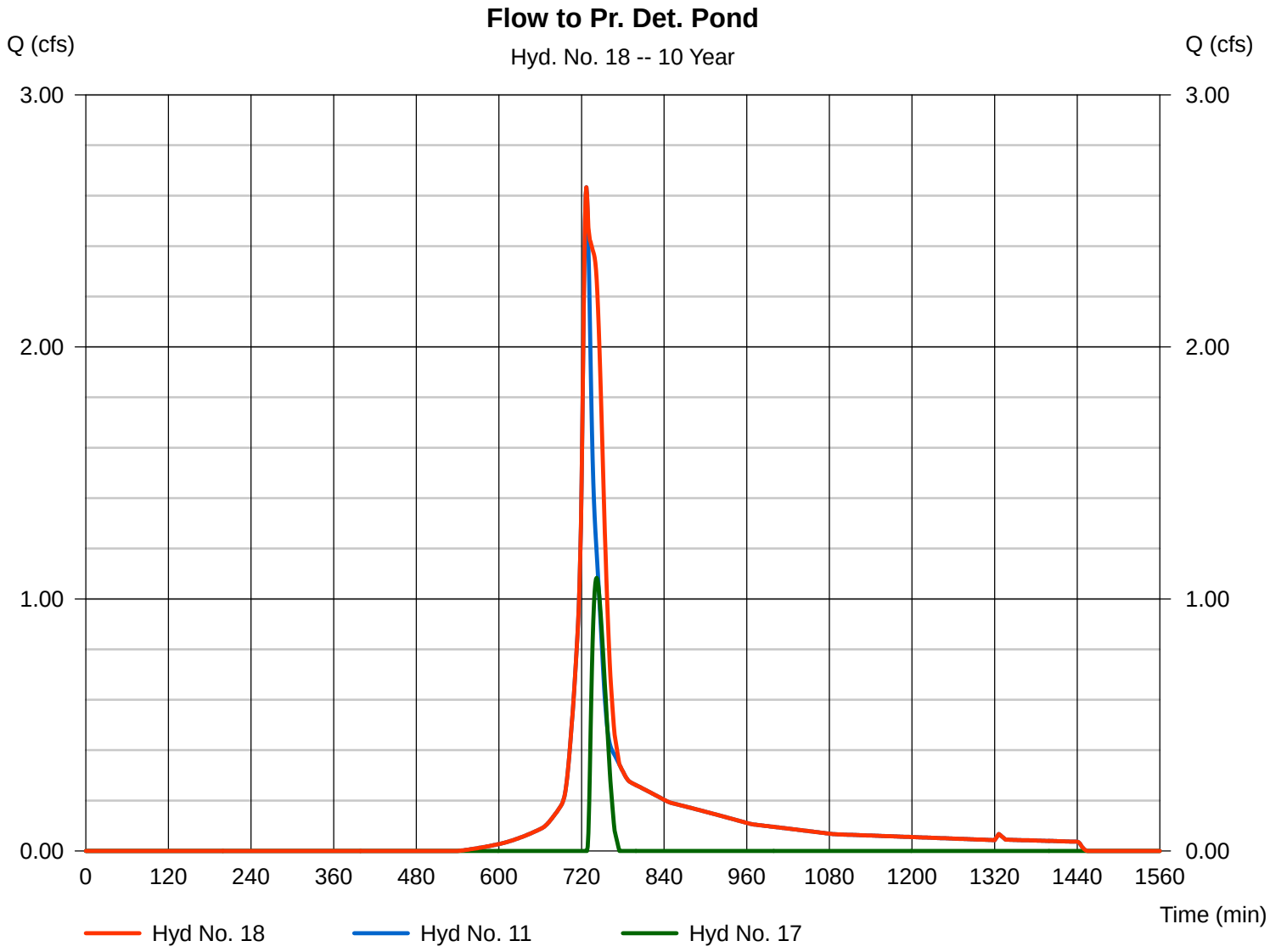
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 18

Flow to Pr. Det. Pond

Hydrograph type	=	Combine	Peak discharge	=	2.633 cfs
Storm frequency	=	10 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	10,549 cuft
Inflow hyds.	=	11, 17	Contrib. drain. area	=	1.020 ac



Hydrograph Report

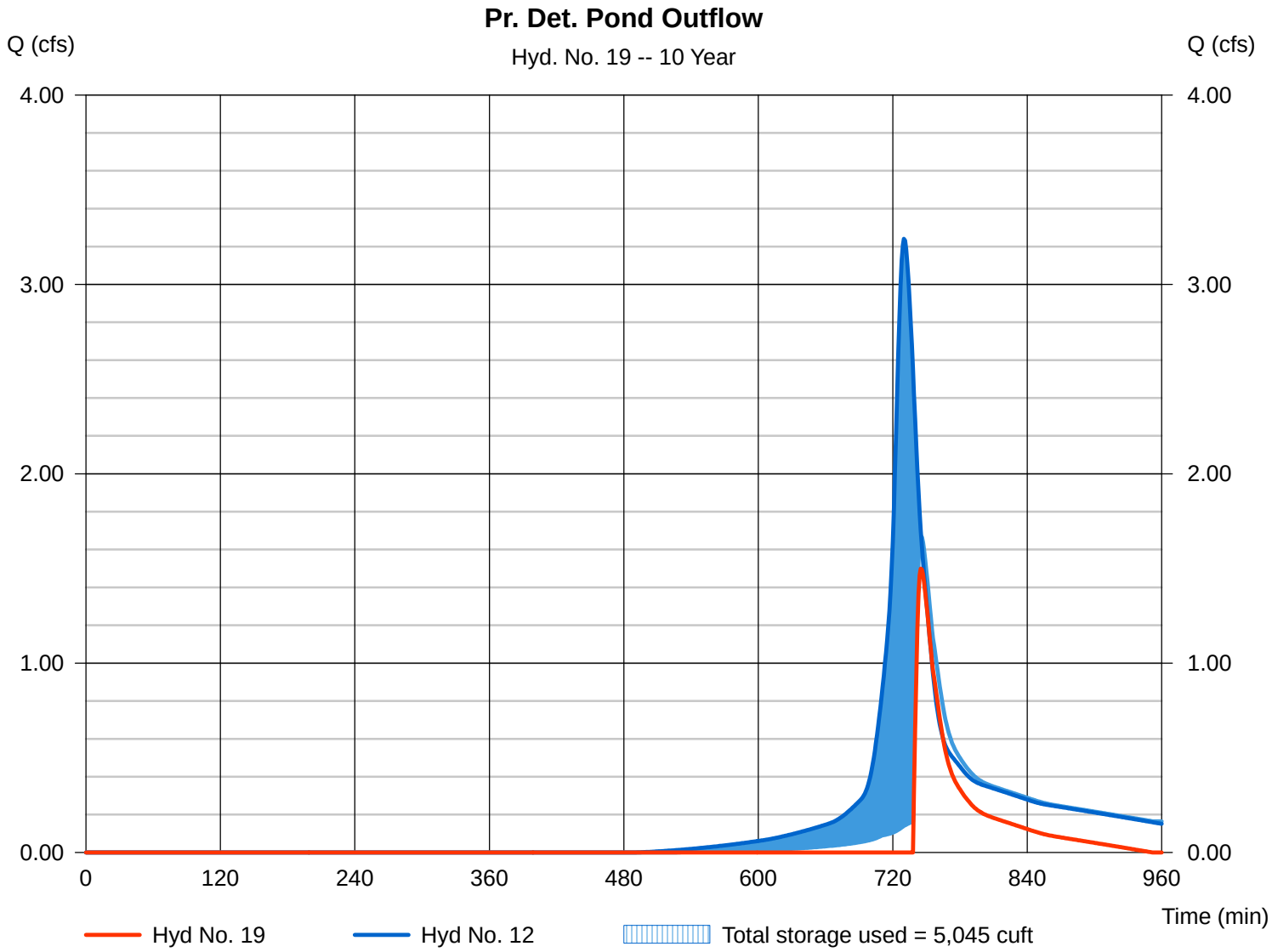
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 19

Pr. Det. Pond Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.499 cfs
Storm frequency	=	10 yrs	Time to peak	=	745 min
Time interval	=	1 min	Hyd. volume	=	3,126 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	94.63 ft
Reservoir name	=	Pr. Det. Pond	Max. Storage	=	5,045 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



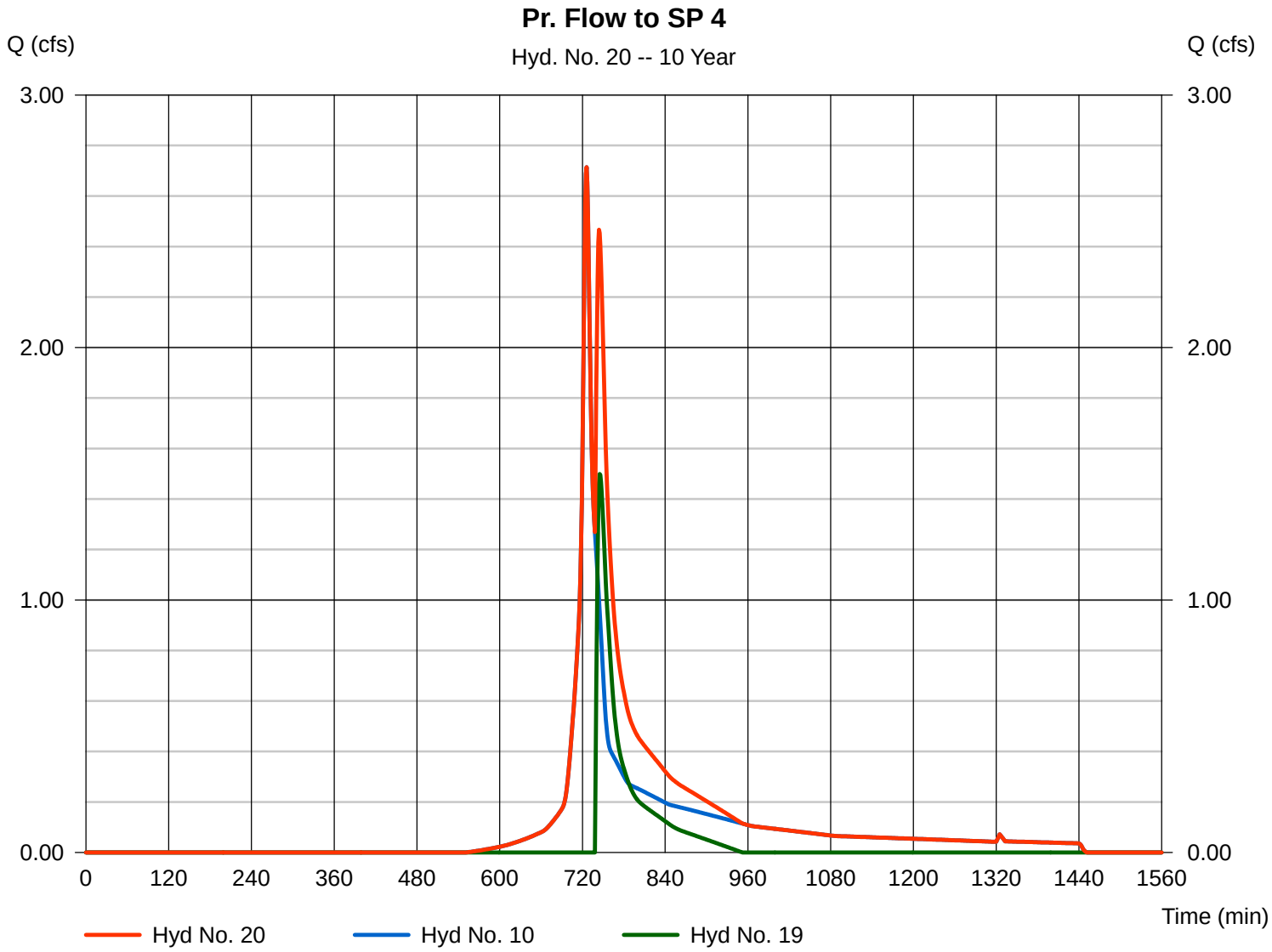
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 20

Pr. Flow to SP 4

Hydrograph type	=	Combine	Peak discharge	=	2.714 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	11,899 cuft
Inflow hyds.	=	10, 19	Contrib. drain. area	=	1.050 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	1.318	1	733	5,780	----	------	------	E-1
2	SCS Runoff	8.656	1	733	38,359	----	------	------	E-2
3	SCS Runoff	3.831	1	724	13,608	----	------	------	E-3
4	SCS Runoff	3.494	1	728	12,756	----	------	------	E-4
5	SCS Runoff	8.059	1	731	33,342	----	------	------	E-5
6	SCS Runoff	0.208	1	730	825	----	------	------	P-1
7	SCS Runoff	6.650	1	725	22,719	----	------	------	P-2
8	SCS Runoff	3.831	1	724	13,608	----	------	------	P-3
9	SCS Runoff	9.955	1	729	37,964	----	------	------	P-4
10	SCS Runoff	3.842	1	726	12,351	----	------	------	P-5
11	SCS Runoff	3.703	1	727	12,675	----	------	------	P-6
12	SCS Runoff	4.432	1	730	17,521	----	------	------	P-7
13	Reservoir	1.609	1	742	4,049	4	93.38	4,645	Ex. Det Area Outflow
14	Combine	8.240	1	738	37,391	5, 13	------	------	Ex. Flow to SP 4
15	Reservoir	0.000	1	678	0	9	102.37	13,304	Infil System Outflow
16	Combine	6.650	1	725	22,719	7, 15	------	------	Flow to SP 2
17	Reservoir	3.088	1	734	3,627	12	97.60	3,197	Field Outflow
18	Combine	5.681	1	733	16,303	11, 17	------	------	Flow to Pr. Det. Pond
19	Reservoir	3.585	1	736	6,922	12	94.73	5,355	Pr. Det. Pond Outflow
20	Combine	5.496	1	735	19,273	10, 19	------	------	Pr. Flow to SP 4

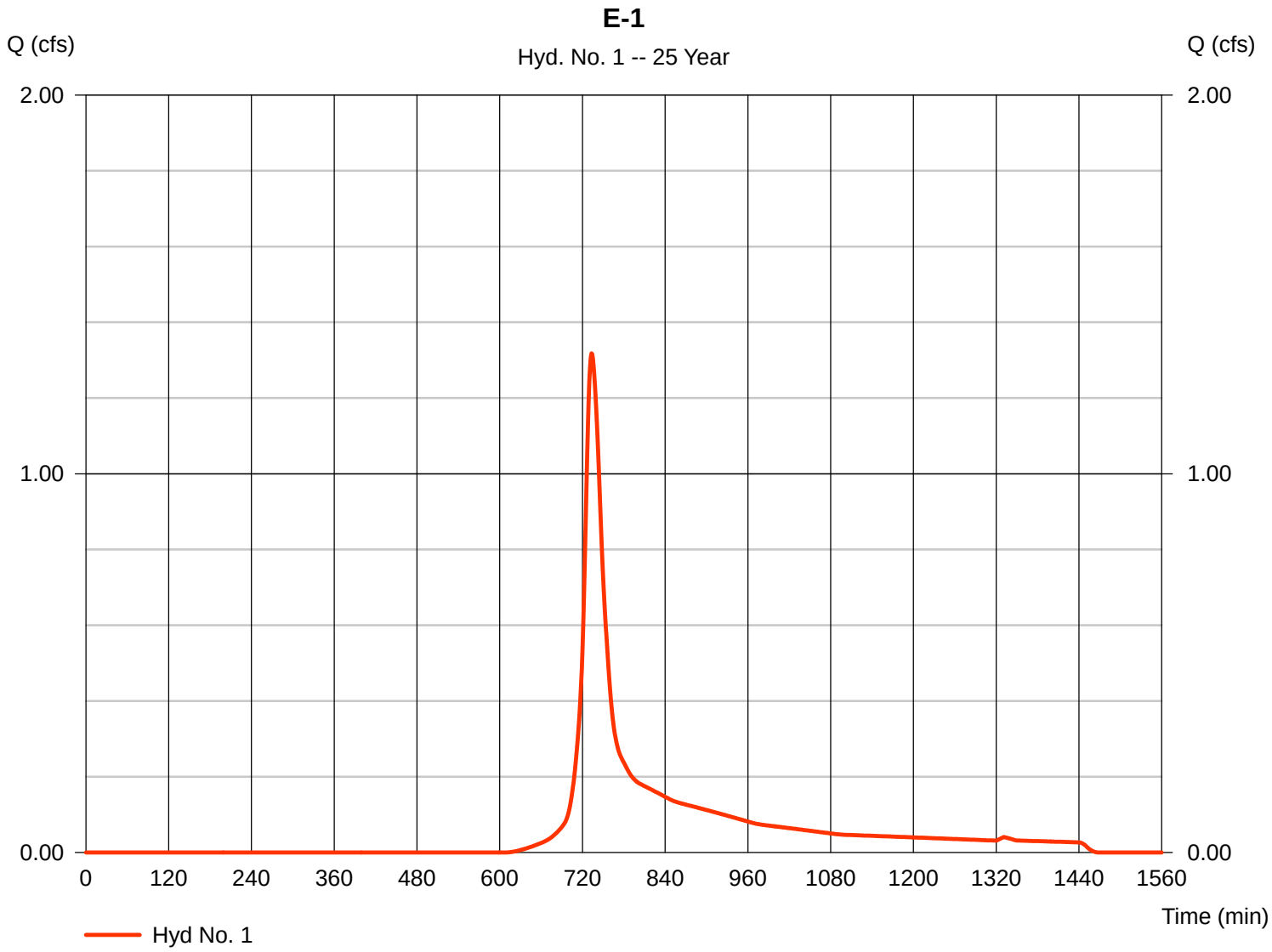
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 1

E-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.318 cfs
Storm frequency	=	25 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	5,780 cuft
Drainage area	=	0.680 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.49 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



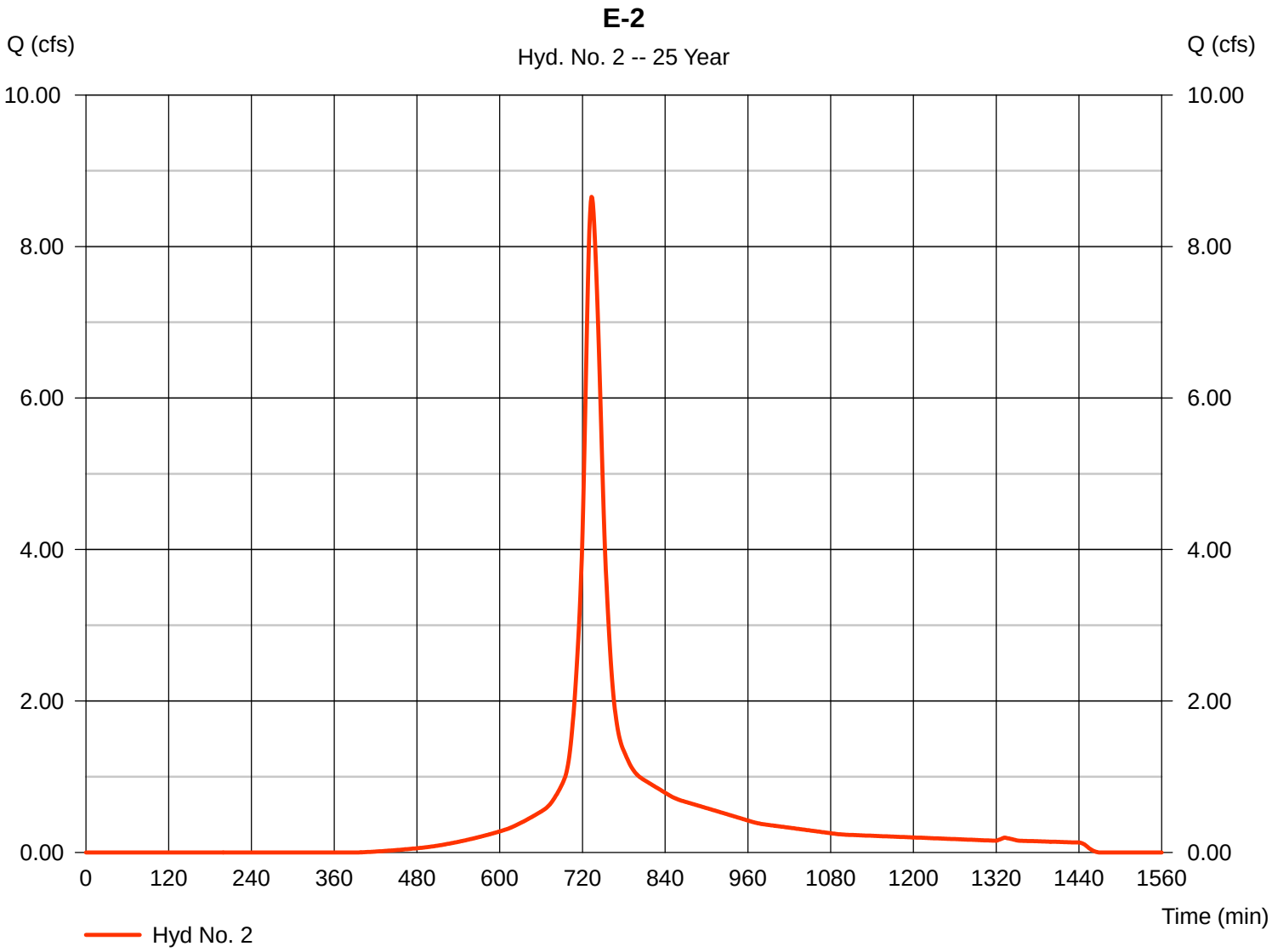
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 2

E-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.656 cfs
Storm frequency	=	25 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	38,359 cuft
Drainage area	=	2.550 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.90 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



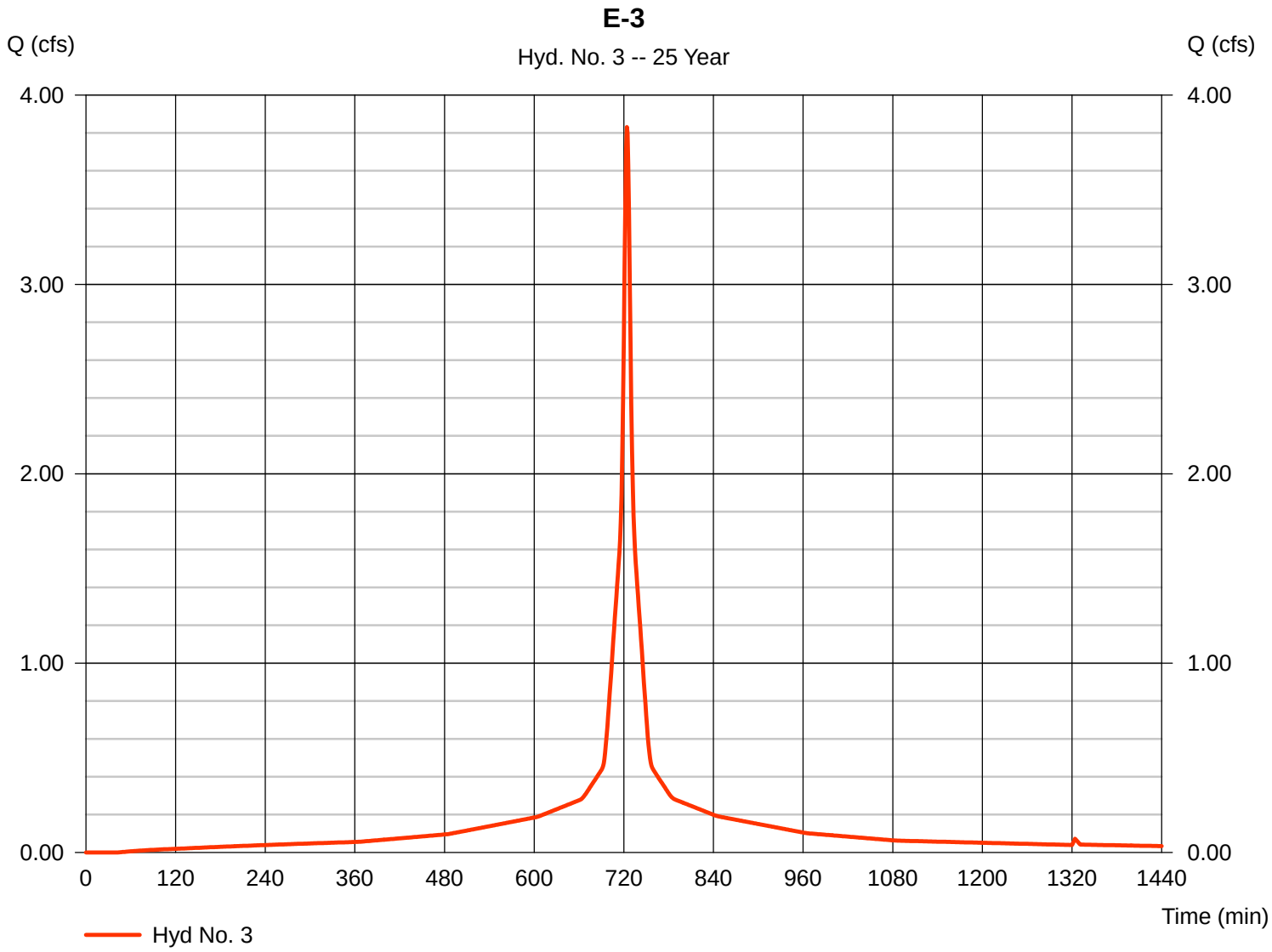
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 3

E-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.831 cfs
Storm frequency	=	25 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	13,608 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



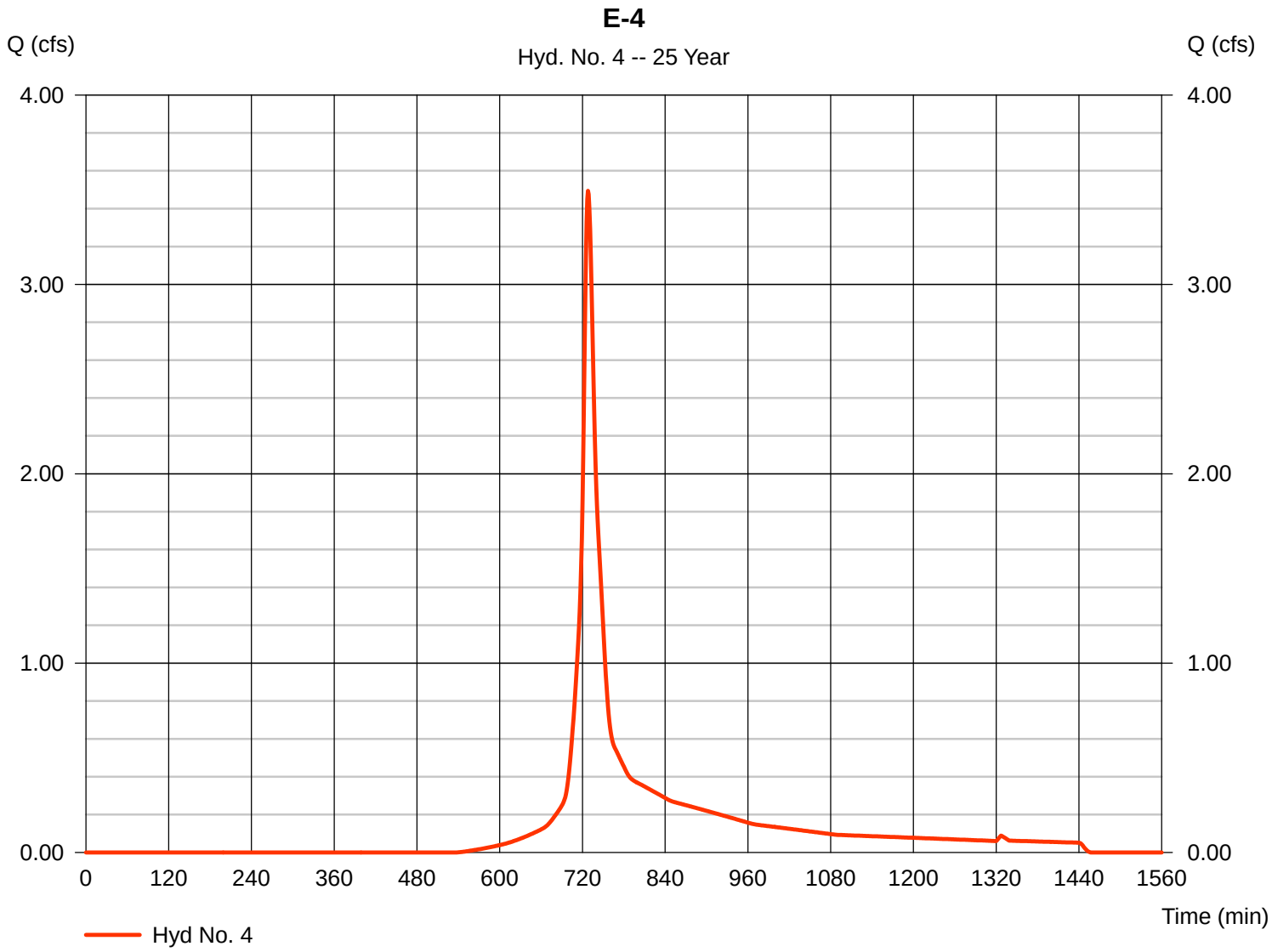
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 4

E-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.494 cfs
Storm frequency	=	25 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	12,756 cuft
Drainage area	=	1.140 ac	Curve number	=	69
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.69 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



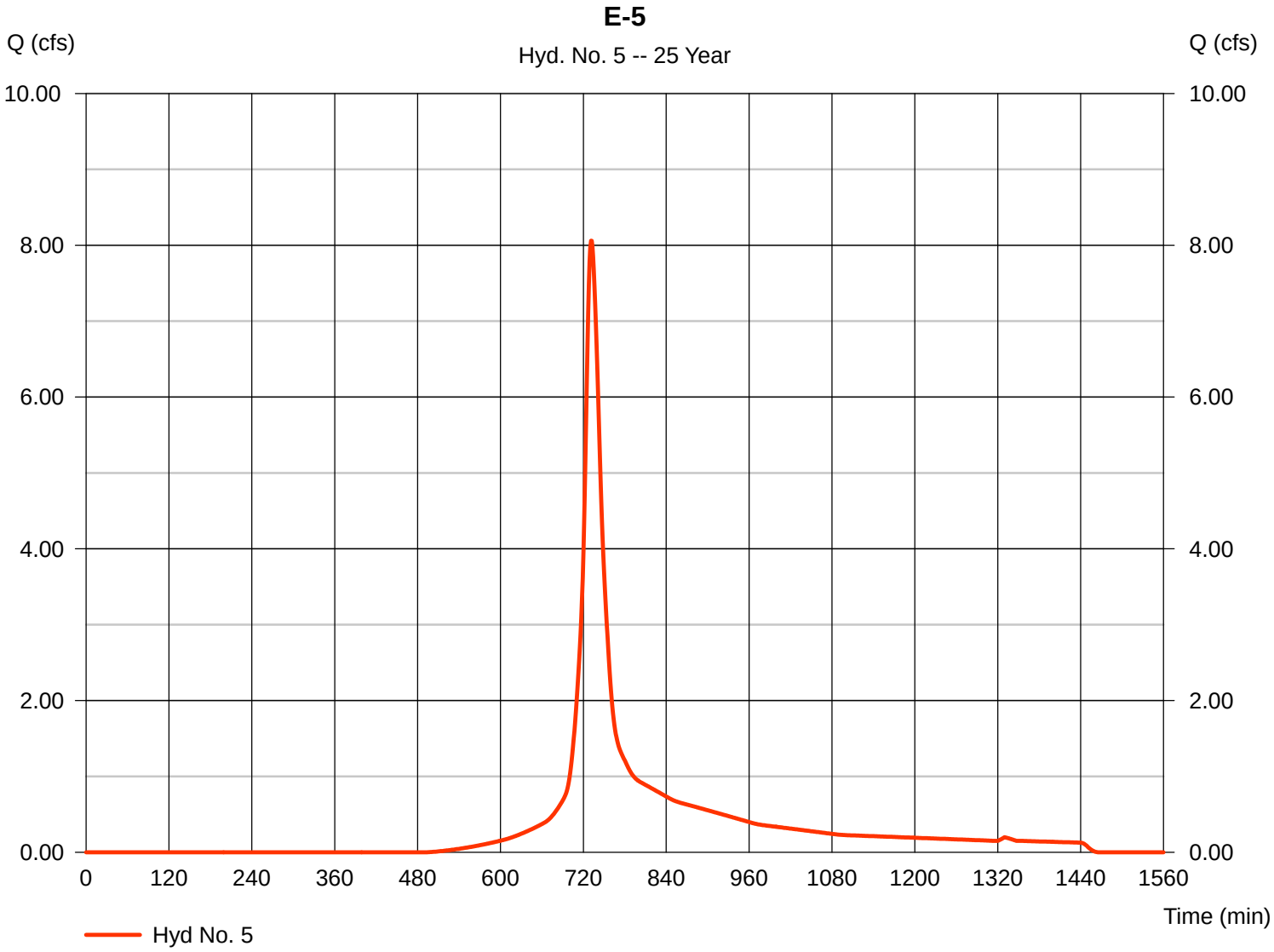
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 5

E-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.059 cfs
Storm frequency	=	25 yrs	Time to peak	=	731 min
Time interval	=	1 min	Hyd. volume	=	33,342 cuft
Drainage area	=	2.650 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.40 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



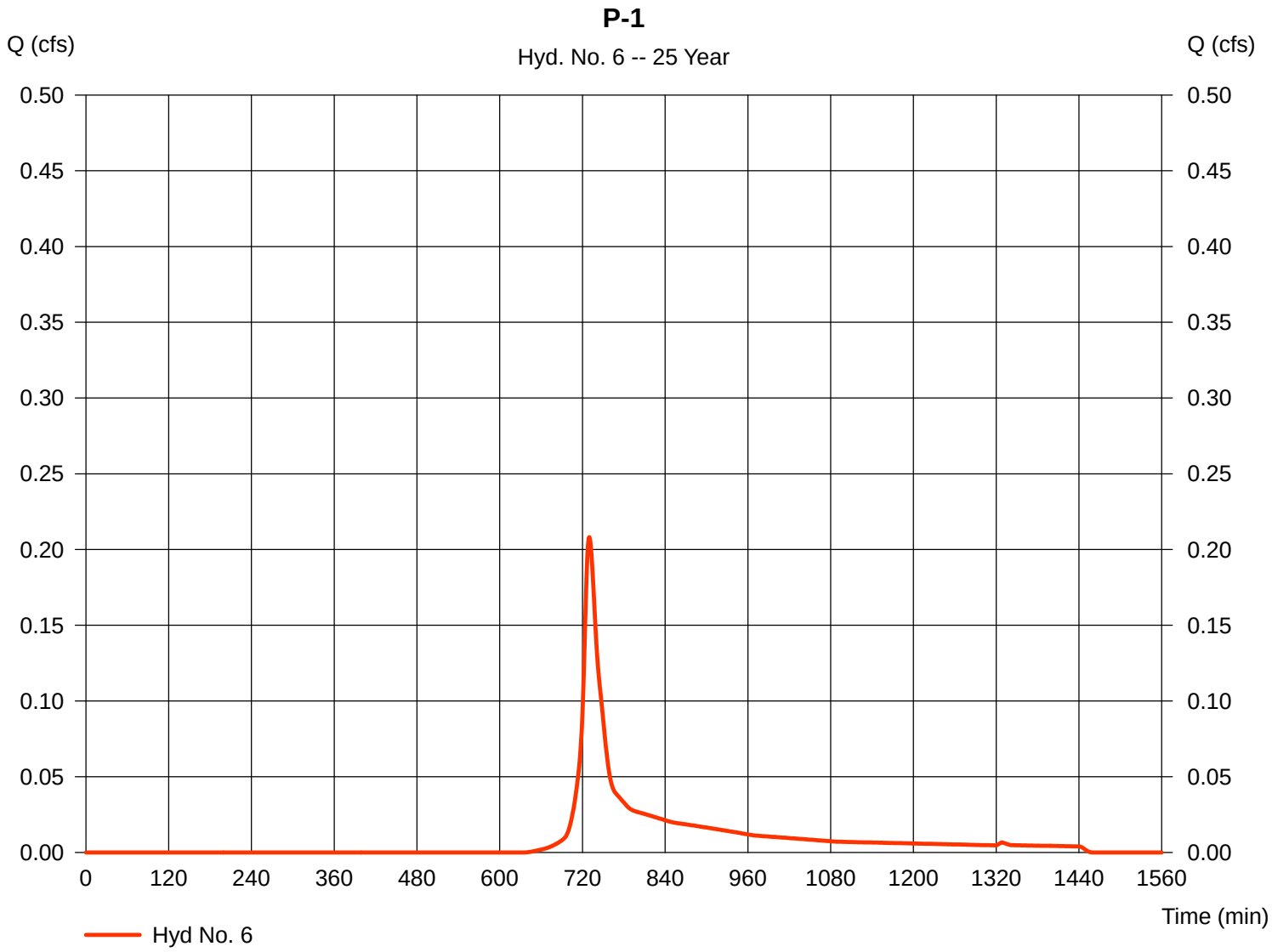
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 6

P-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.208 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	1 min	Hyd. volume	=	825 cuft
Drainage area	=	0.110 ac	Curve number	=	59
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.04 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



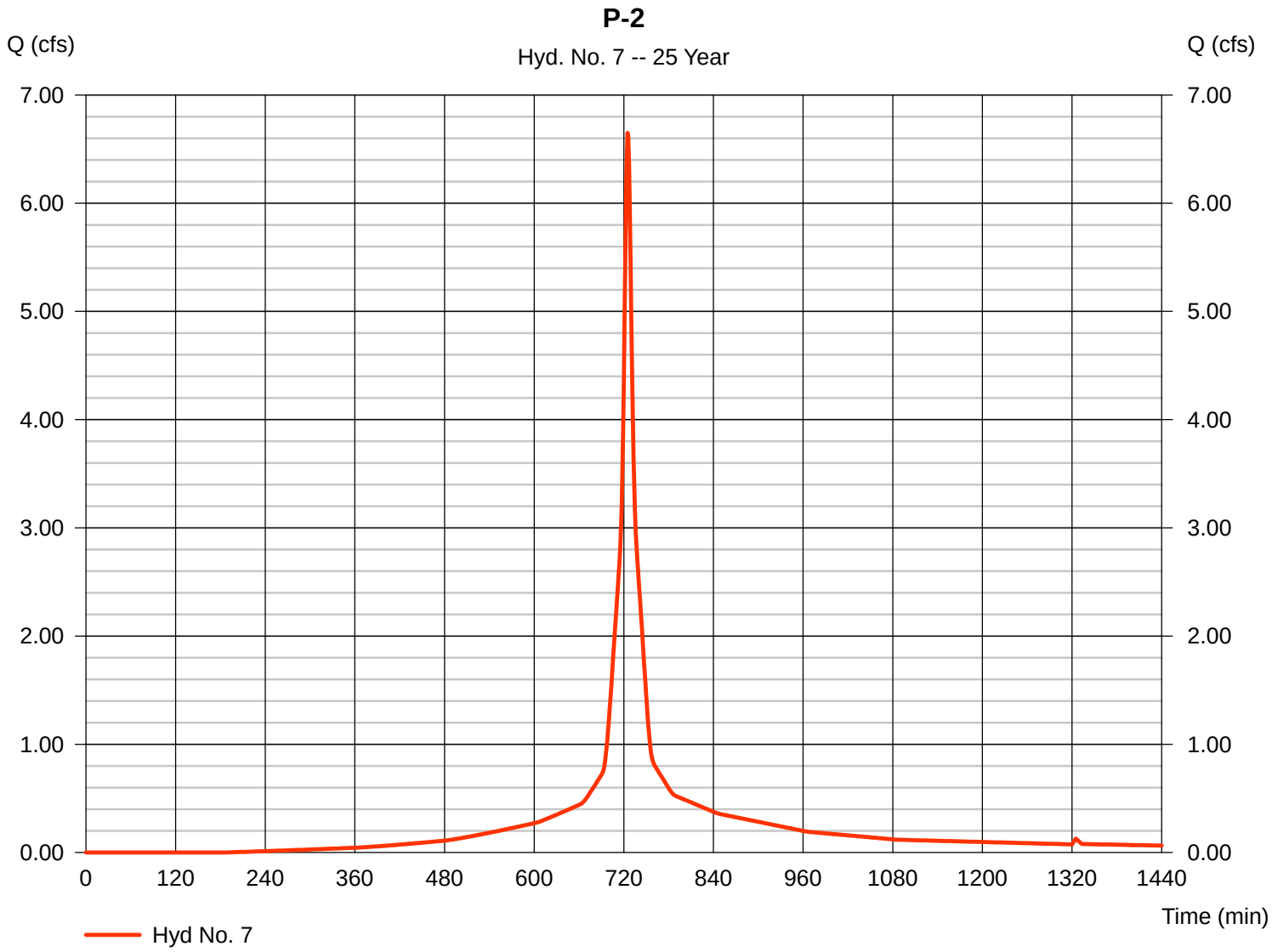
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 7

P-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.650 cfs
Storm frequency	=	25 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	22,719 cuft
Drainage area	=	1.200 ac	Curve number	=	91
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.77 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



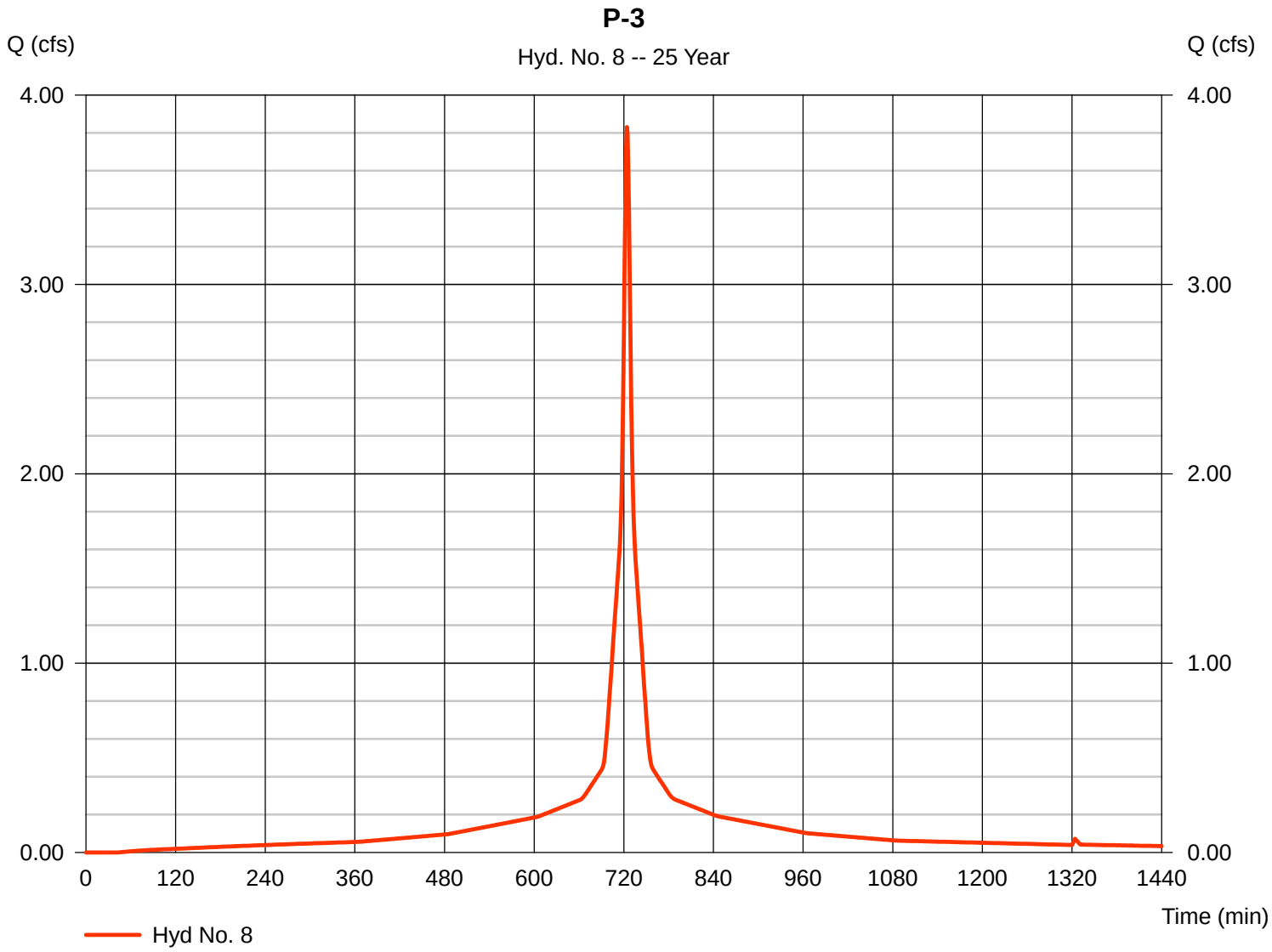
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 8

P-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.831 cfs
Storm frequency	=	25 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	13,608 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



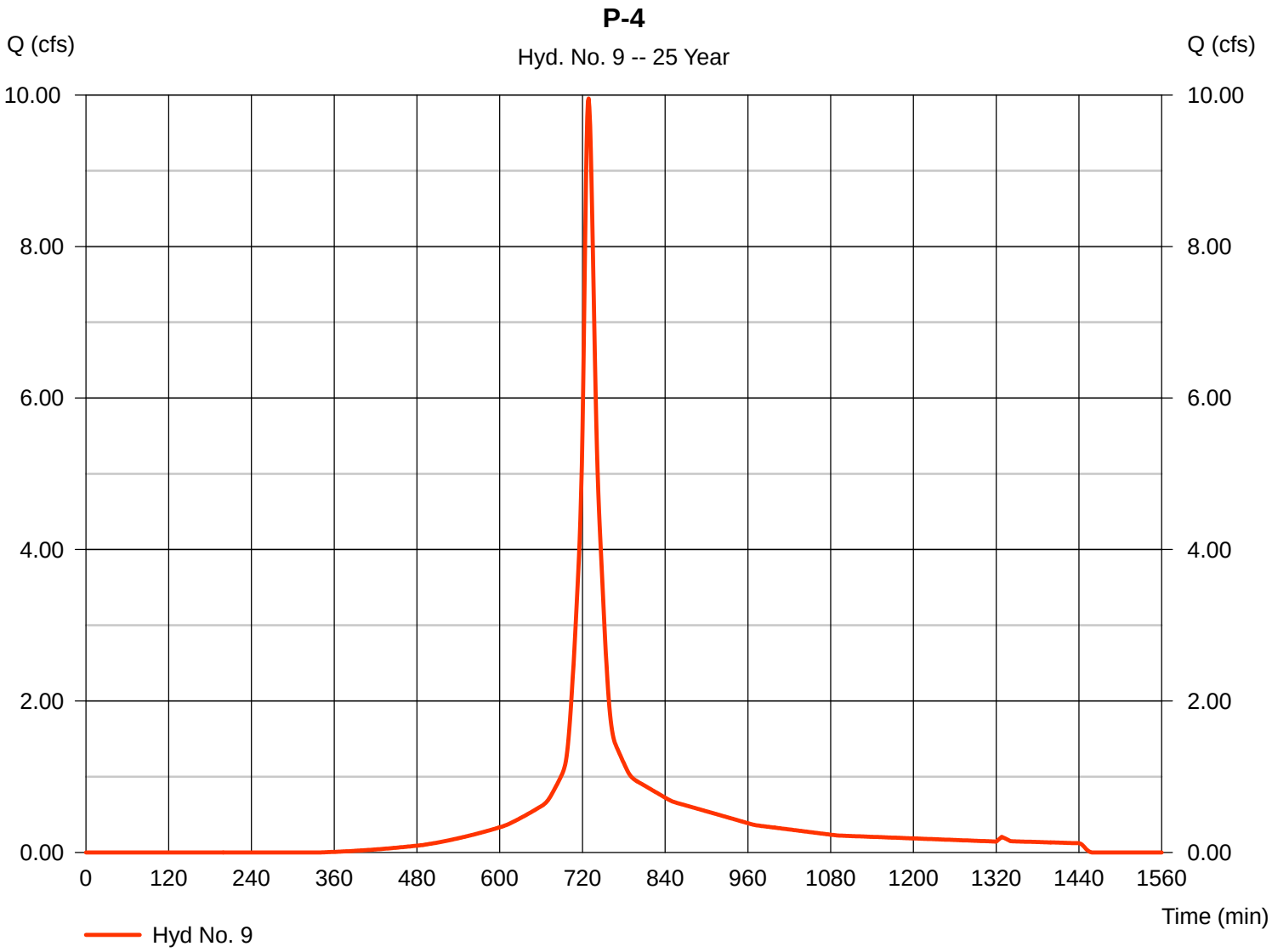
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 9

P-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.955 cfs
Storm frequency	=	25 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	37,964 cuft
Drainage area	=	2.380 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.77 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



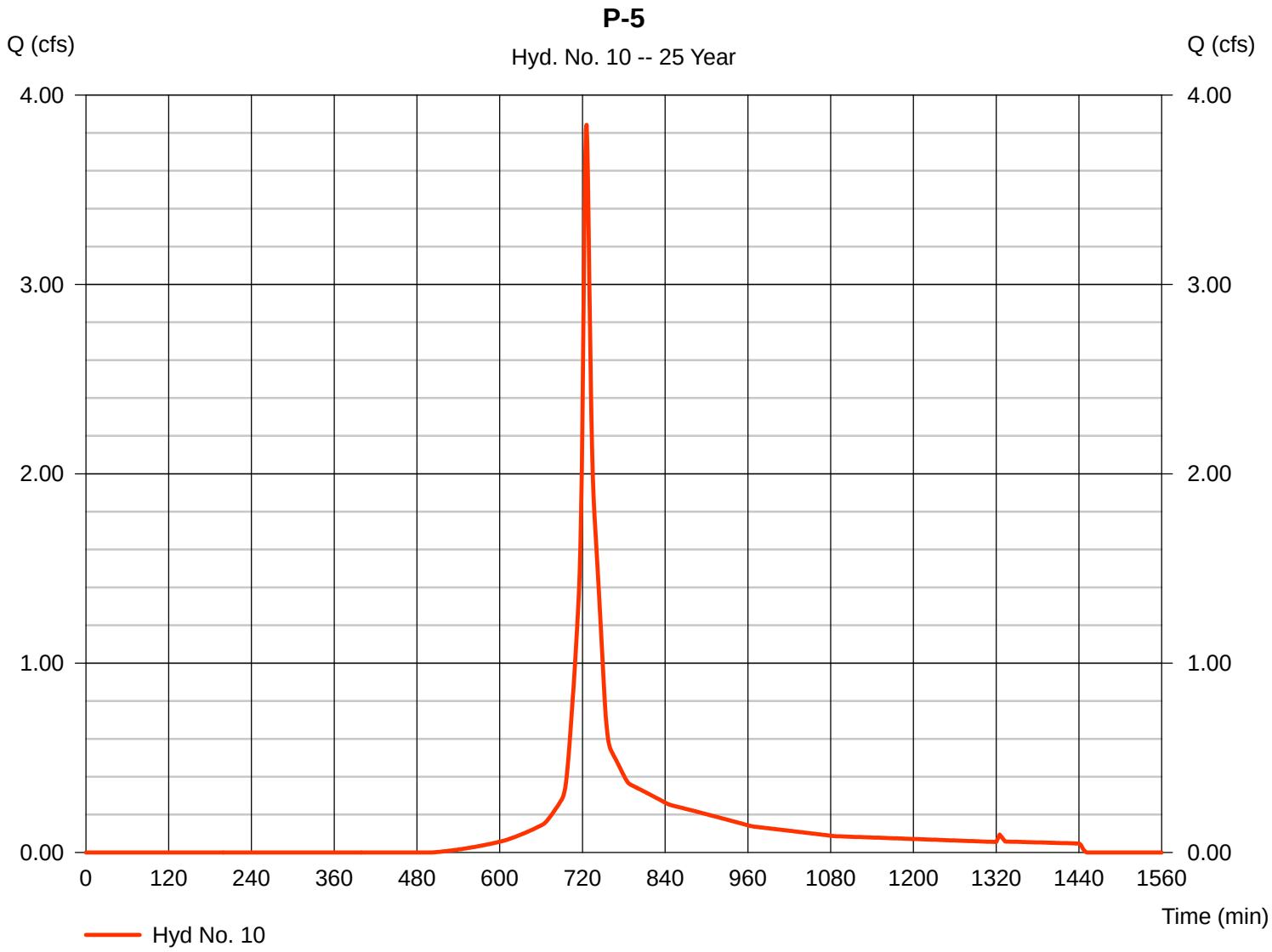
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 10

P-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.842 cfs
Storm frequency	=	25 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	12,351 cuft
Drainage area	=	1.050 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.10 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



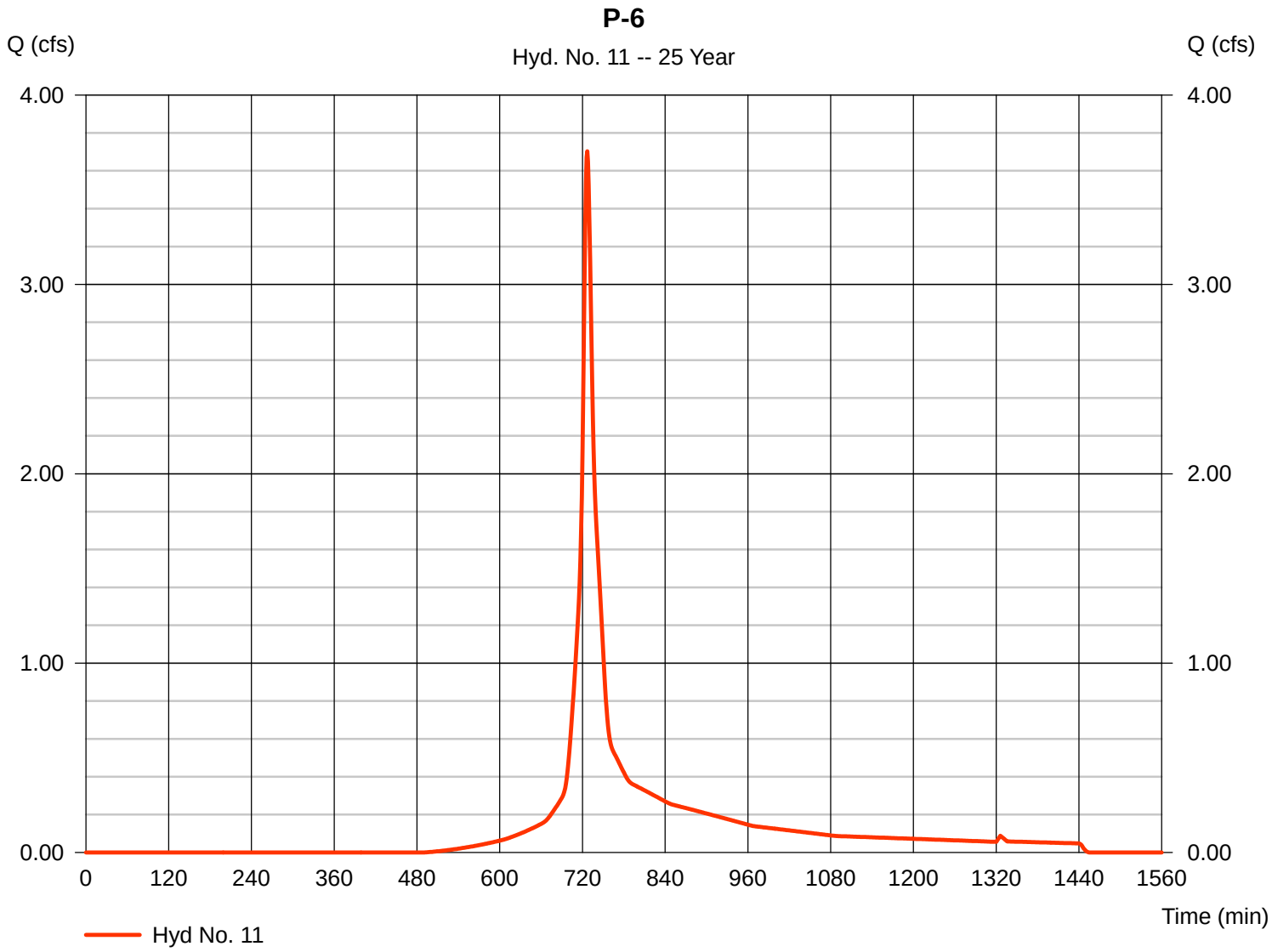
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 11

P-6

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.703 cfs
Storm frequency	=	25 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	12,675 cuft
Drainage area	=	1.020 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.59 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



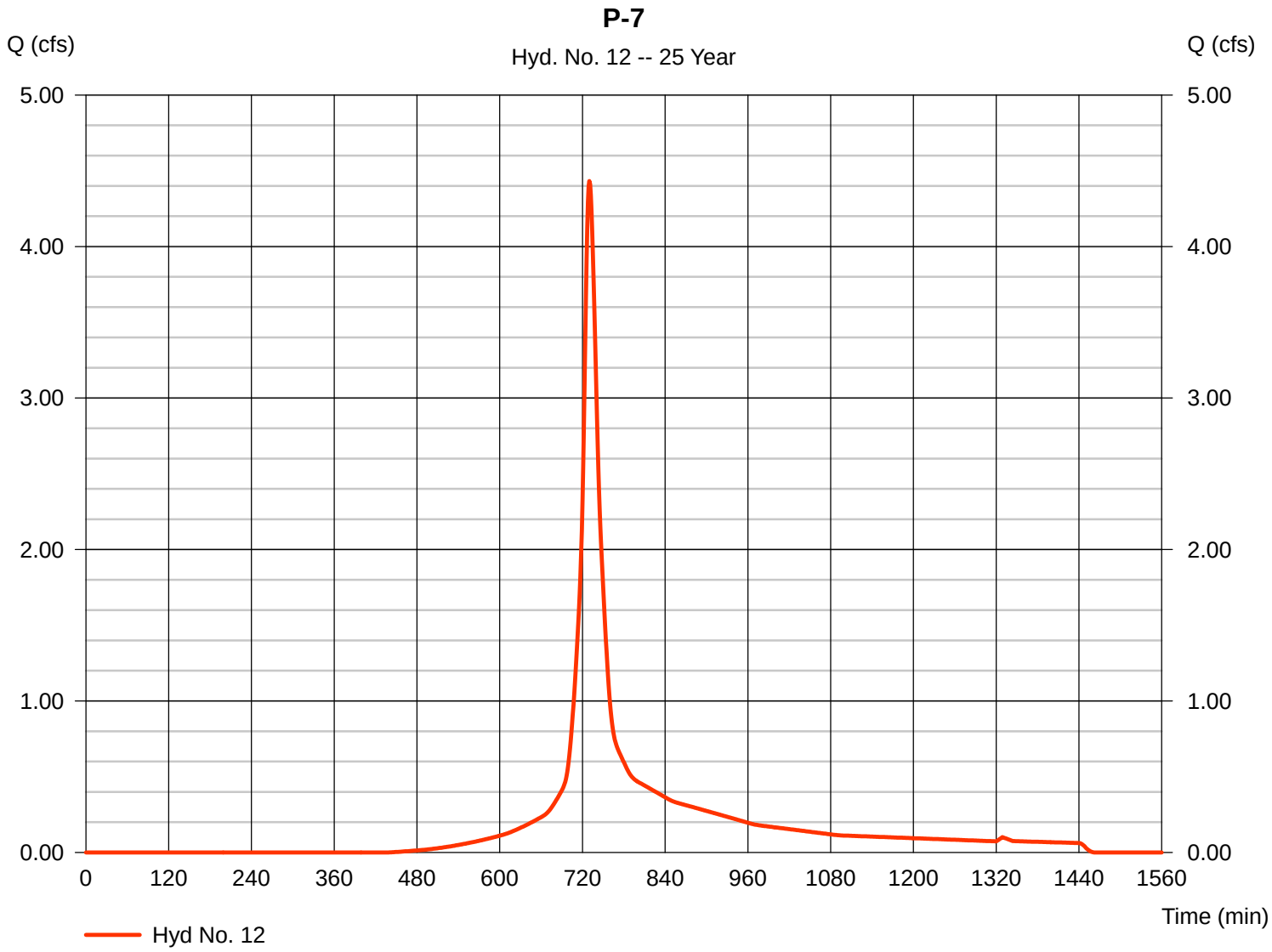
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 12

P-7

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.432 cfs
Storm frequency	=	25 yrs	Time to peak	=	730 min
Time interval	=	1 min	Hyd. volume	=	17,521 cuft
Drainage area	=	1.260 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.52 min
Total precip.	=	6.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

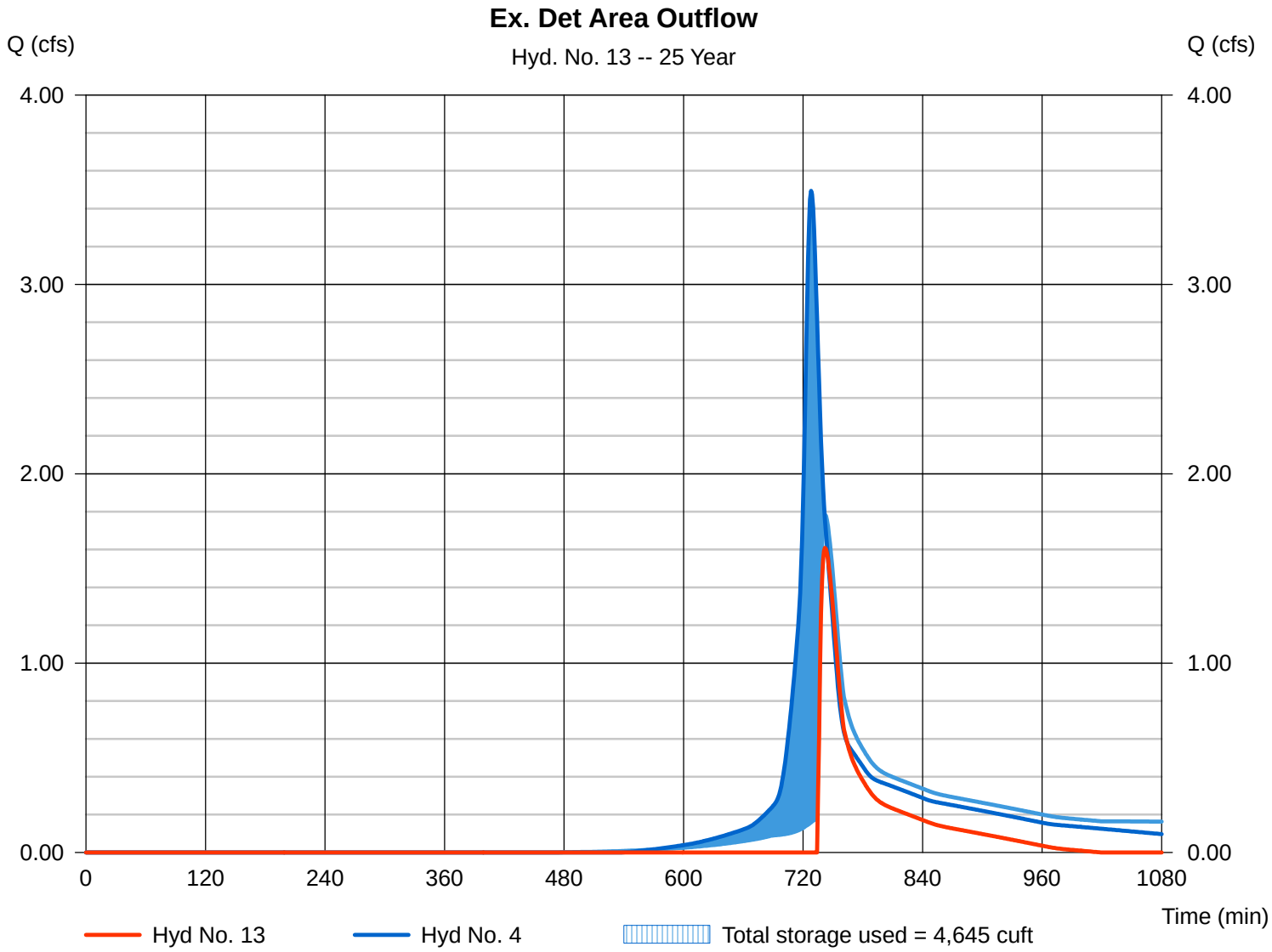
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 13

Ex. Det Area Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	1.609 cfs
Storm frequency	=	25 yrs	Time to peak	=	742 min
Time interval	=	1 min	Hyd. volume	=	4,049 cuft
Inflow hyd. No.	=	4 - E-4	Max. Elevation	=	93.38 ft
Reservoir name	=	Ex. Det. Pond	Max. Storage	=	4,645 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



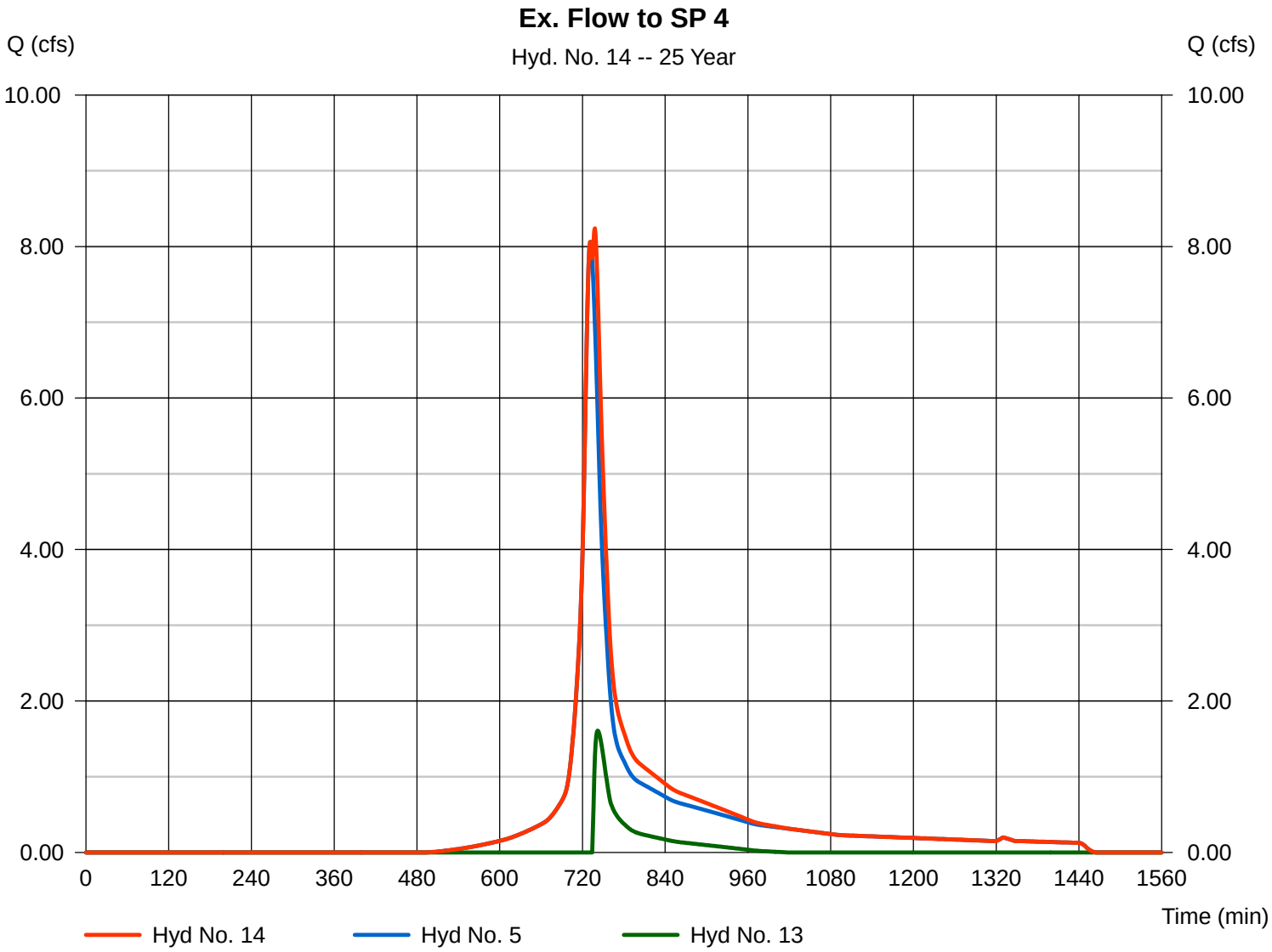
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 14

Ex. Flow to SP 4

Hydrograph type	=	Combine	Peak discharge	=	8.240 cfs
Storm frequency	=	25 yrs	Time to peak	=	738 min
Time interval	=	1 min	Hyd. volume	=	37,391 cuft
Inflow hyds.	=	5, 13	Contrib. drain. area	=	2.650 ac



Hydrograph Report

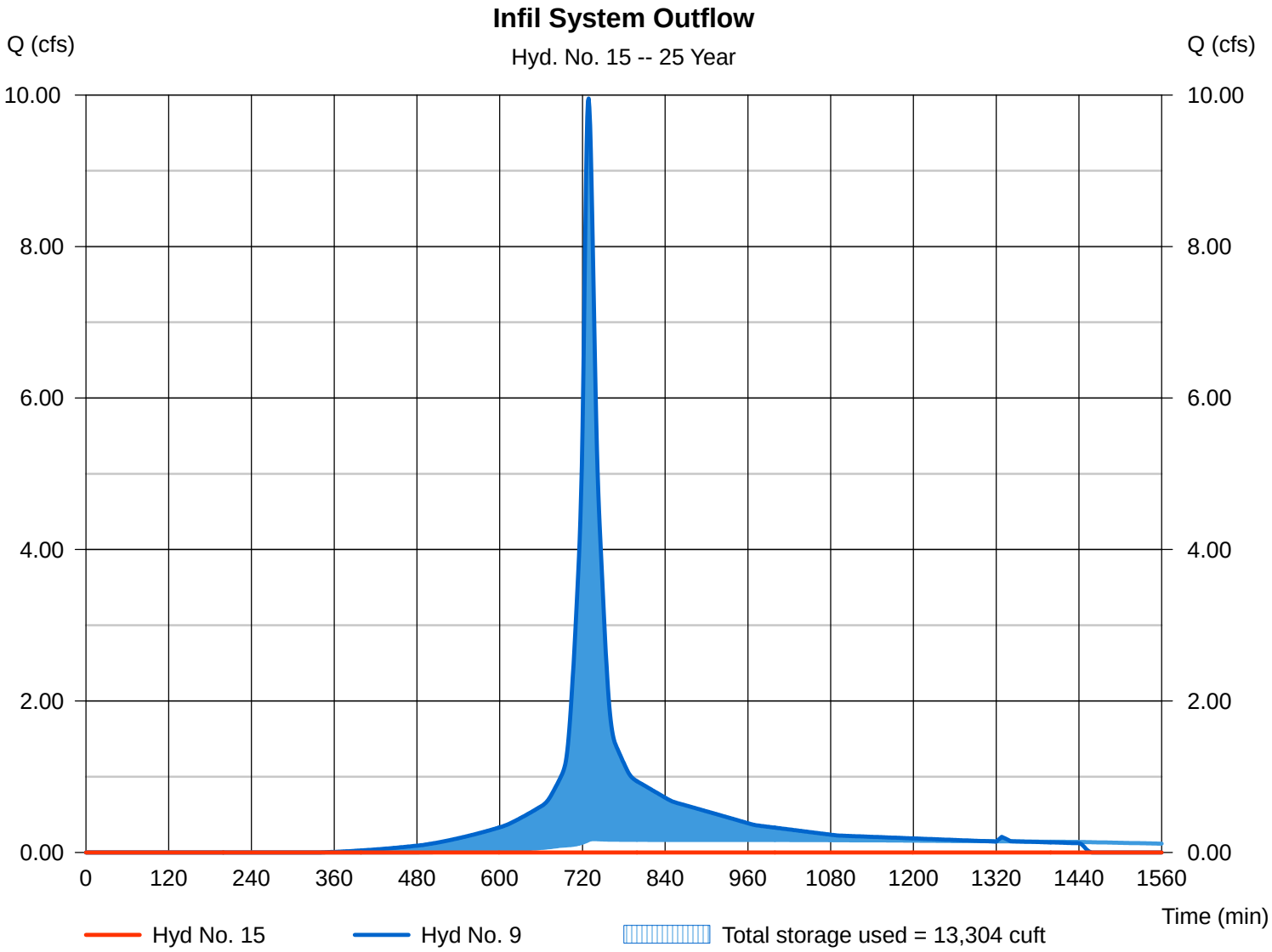
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 15

Infil System Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	0.000 cfs
Storm frequency	=	25 yrs	Time to peak	=	678 min
Time interval	=	1 min	Hyd. volume	=	0 cuft
Inflow hyd. No.	=	9 - P-4	Max. Elevation	=	102.37 ft
Reservoir name	=	GW Recharge System	Max. Storage	=	13,304 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



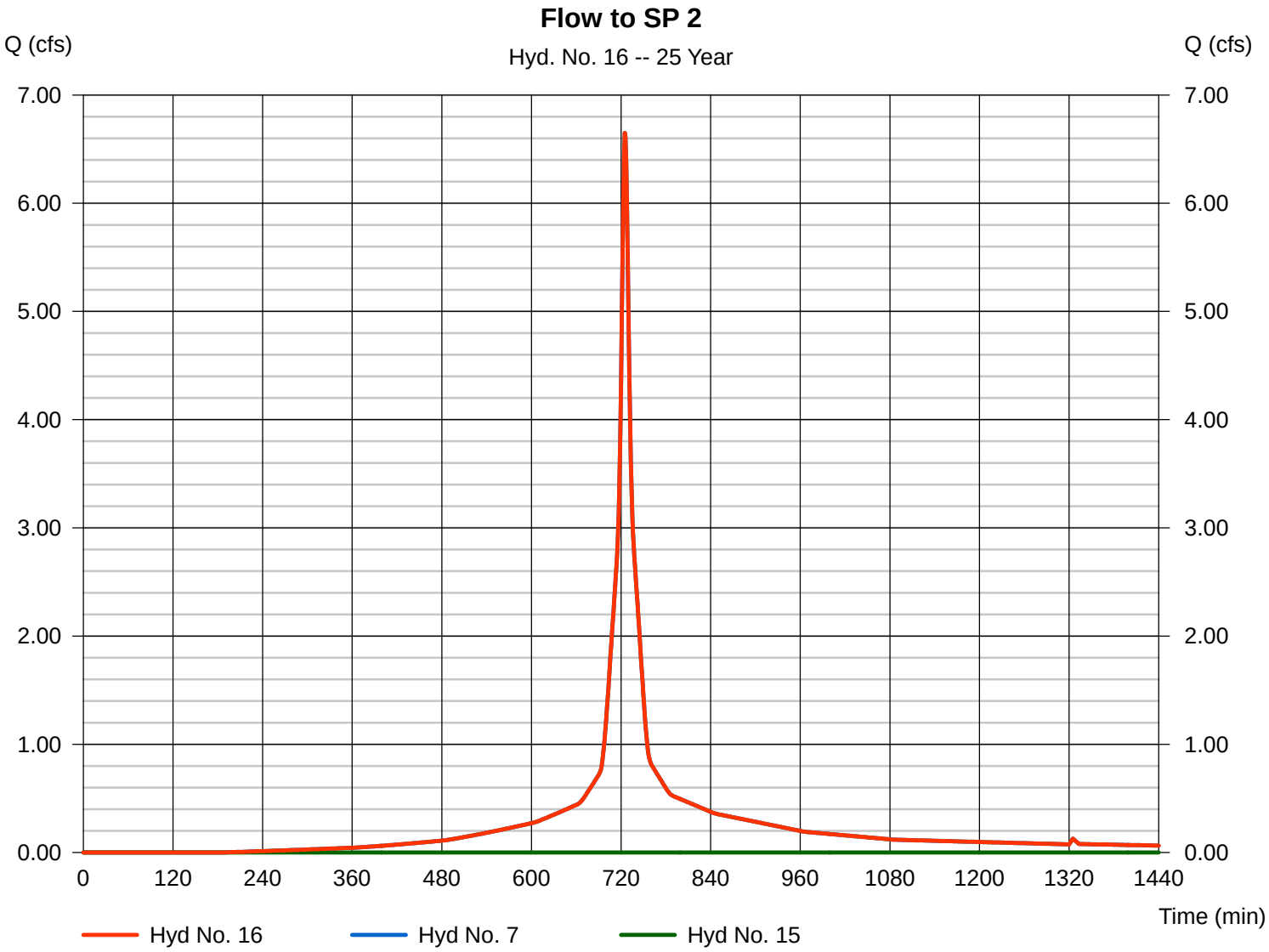
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 16

Flow to SP 2

Hydrograph type	=	Combine	Peak discharge	=	6.650 cfs
Storm frequency	=	25 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	22,719 cuft
Inflow hyds.	=	7, 15	Contrib. drain. area	=	1.200 ac



Hydrograph Report

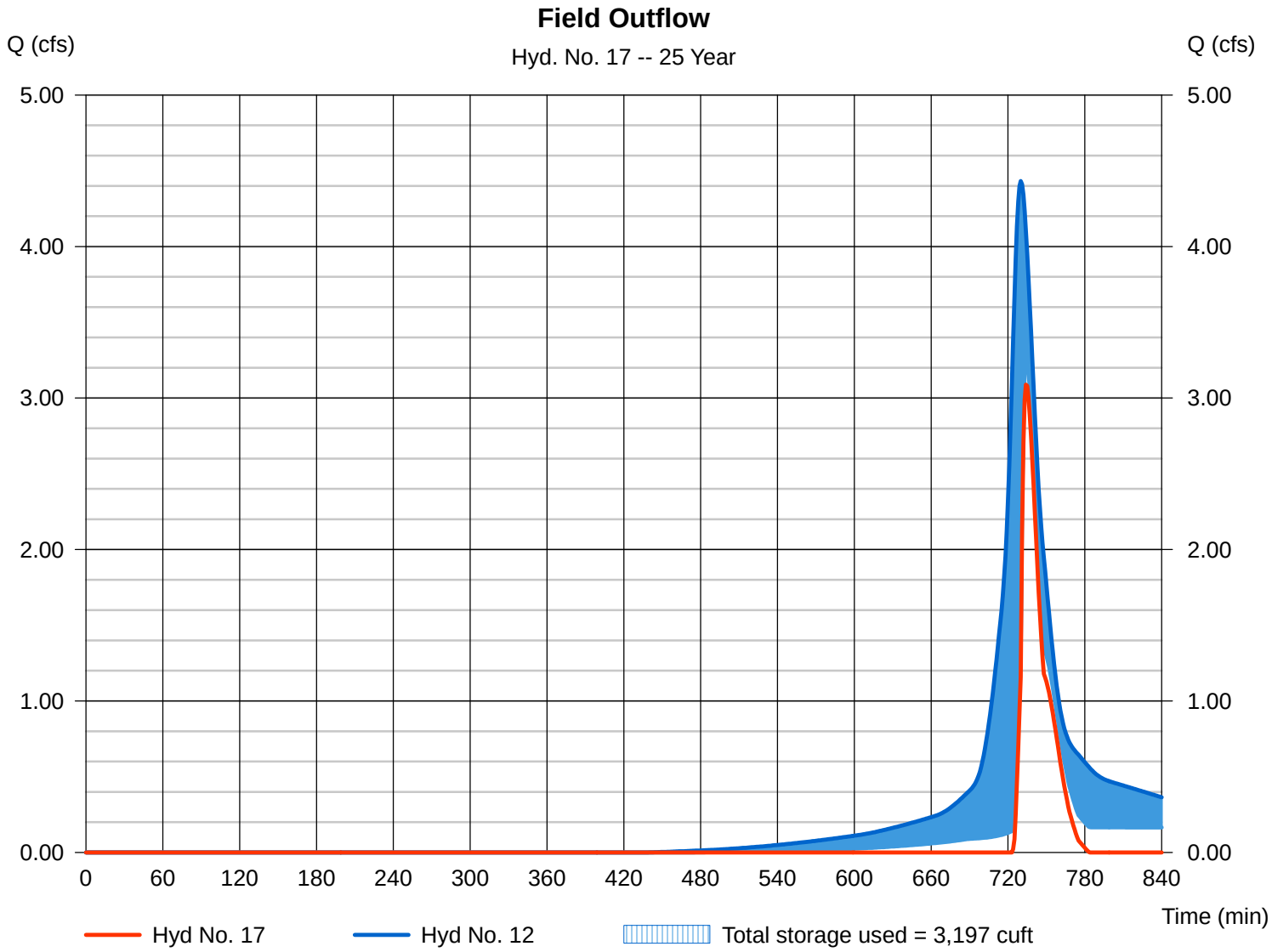
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 17

Field Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	3.088 cfs
Storm frequency	=	25 yrs	Time to peak	=	734 min
Time interval	=	1 min	Hyd. volume	=	3,627 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	97.60 ft
Reservoir name	=	Syn Field	Max. Storage	=	3,197 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



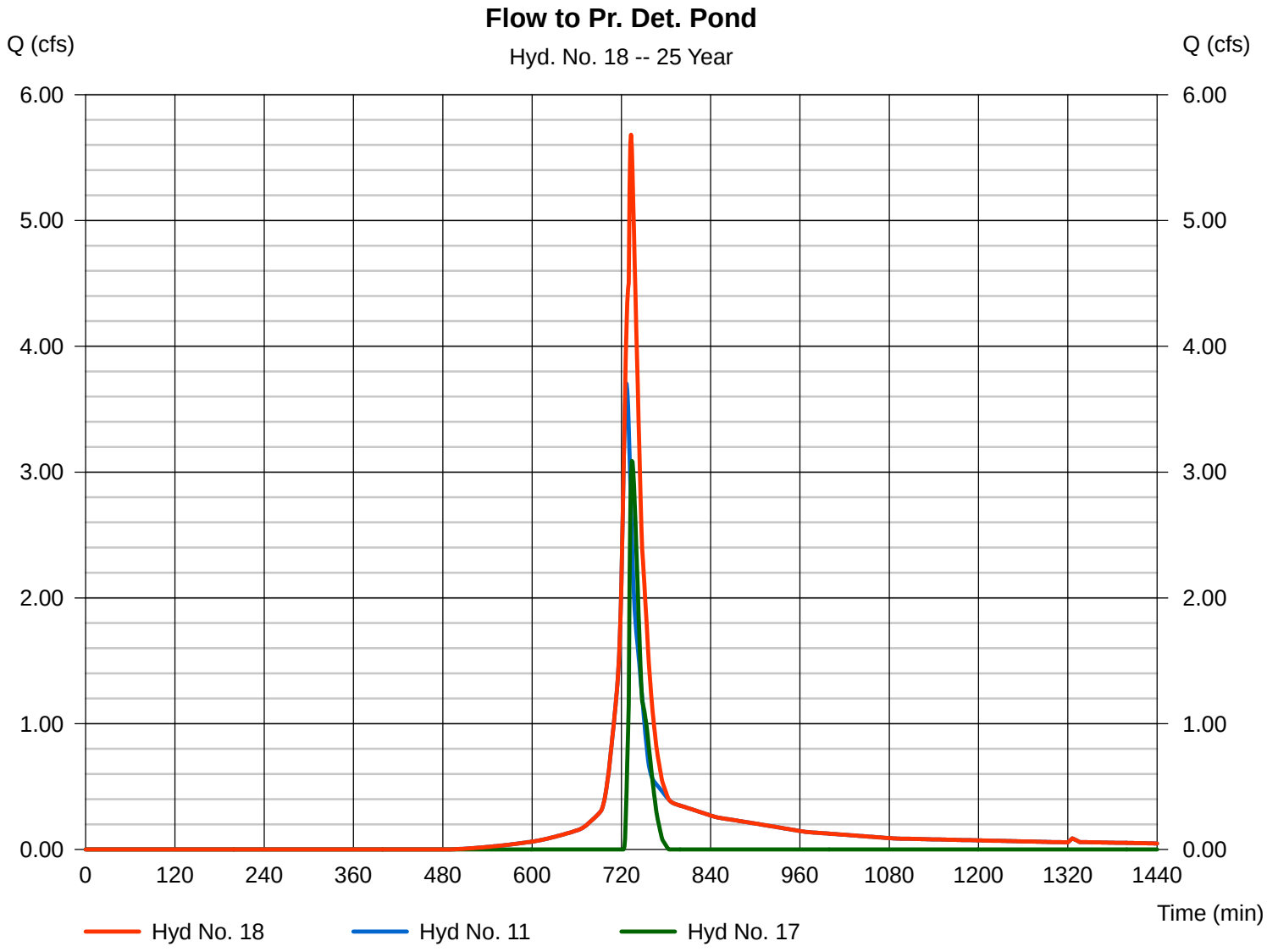
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 18

Flow to Pr. Det. Pond

Hydrograph type	=	Combine	Peak discharge	=	5.681 cfs
Storm frequency	=	25 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	16,303 cuft
Inflow hyds.	=	11, 17	Contrib. drain. area	=	1.020 ac



Hydrograph Report

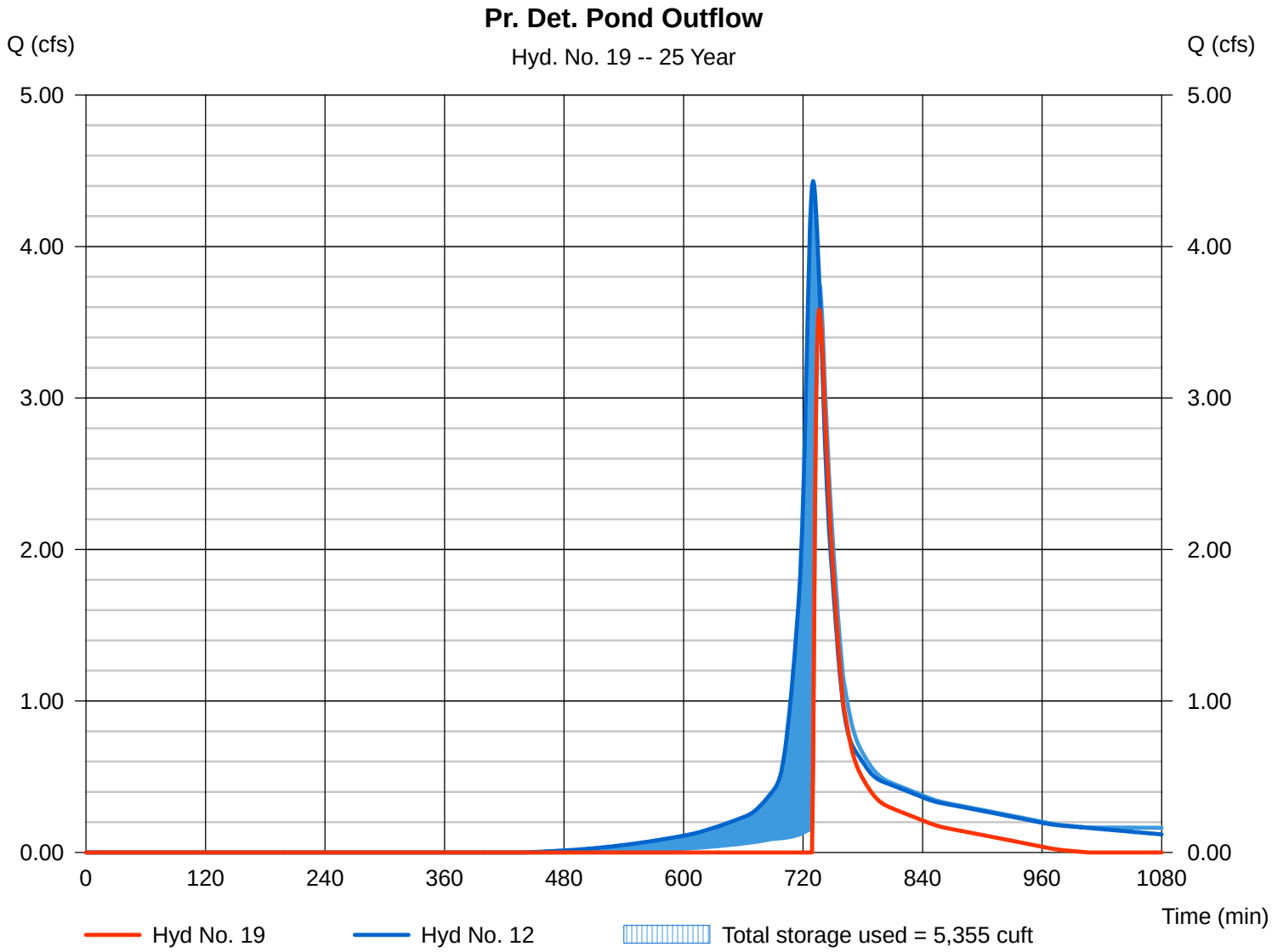
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 19

Pr. Det. Pond Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	3.585 cfs
Storm frequency	=	25 yrs	Time to peak	=	736 min
Time interval	=	1 min	Hyd. volume	=	6,922 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	94.73 ft
Reservoir name	=	Pr. Det. Pond	Max. Storage	=	5,355 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



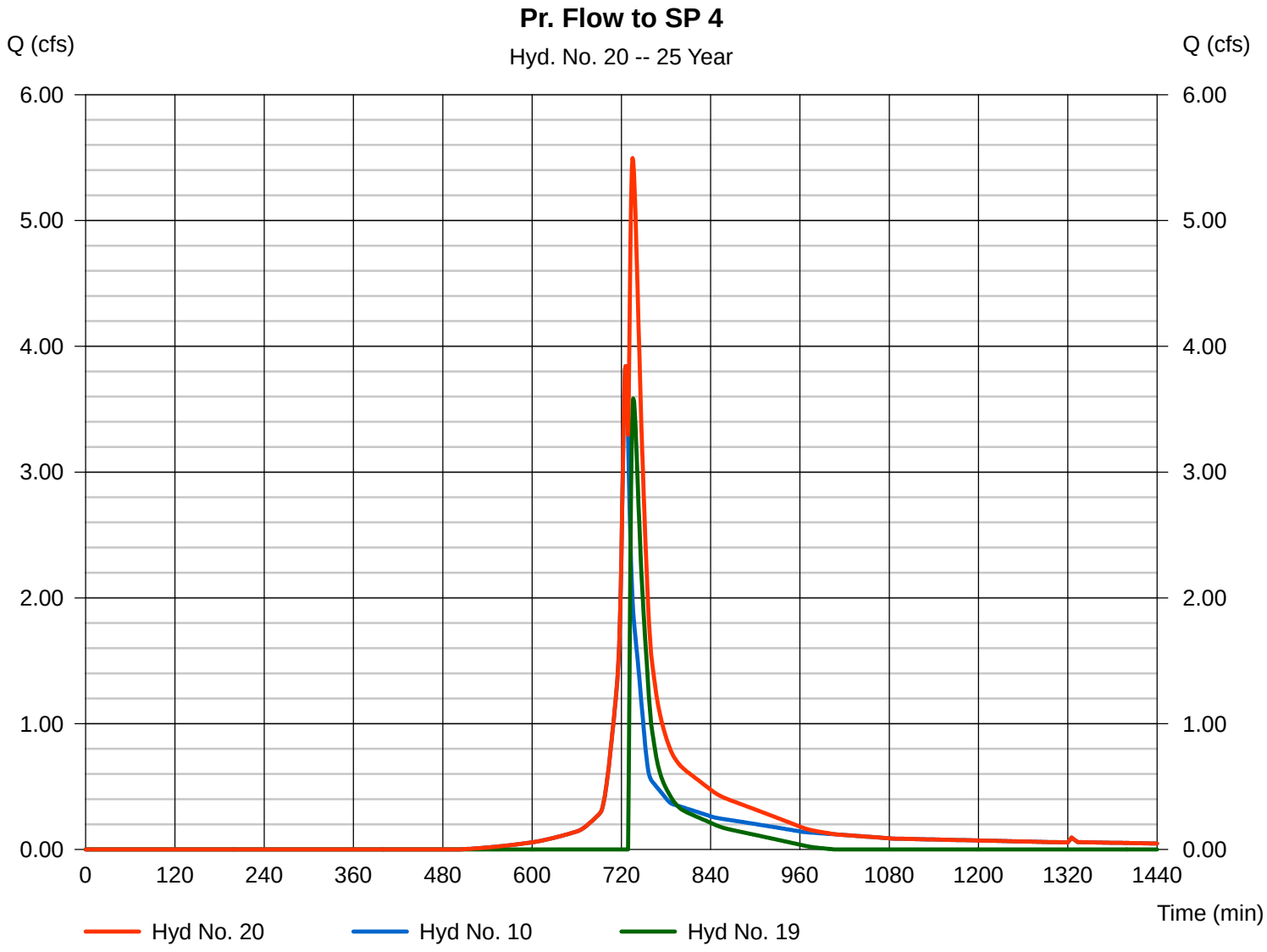
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 20

Pr. Flow to SP 4

Hydrograph type	=	Combine	Peak discharge	=	5.496 cfs
Storm frequency	=	25 yrs	Time to peak	=	735 min
Time interval	=	1 min	Hyd. volume	=	19,273 cuft
Inflow hyds.	=	10, 19	Contrib. drain. area	=	1.050 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	2.134	1	733	9,135	----	------	------	E-1
2	SCS Runoff	12.10	1	733	54,154	----	------	------	E-2
3	SCS Runoff	4.939	1	724	17,669	----	------	------	E-3
4	SCS Runoff	5.285	1	728	19,183	----	------	------	E-4
5	SCS Runoff	11.82	1	731	48,924	----	------	------	E-5
6	SCS Runoff	0.349	1	729	1,337	----	------	------	P-1
7	SCS Runoff	8.757	1	725	30,416	----	------	------	P-2
8	SCS Runoff	4.939	1	724	17,669	----	------	------	P-3
9	SCS Runoff	13.65	1	729	52,786	----	------	------	P-4
10	SCS Runoff	5.658	1	726	18,231	----	------	------	P-5
11	SCS Runoff	5.418	1	727	18,599	----	------	------	P-6
12	SCS Runoff	6.314	1	730	25,133	----	------	------	P-7
13	Reservoir	4.513	1	732	9,540	4	93.56	5,105	Ex. Det Area Outflow
14	Combine	16.31	1	732	58,465	5, 13	------	------	Ex. Flow to SP 4
15	Reservoir	3.364	1	747	3,573	9	103.26	17,404	Infil System Outflow
16	Combine	8.757	1	725	33,989	7, 15	------	------	Flow to SP 2
17	Reservoir	5.309	1	731	7,367	12	97.67	3,335	Field Outflow
18	Combine	10.24	1	729	25,966	11, 17	------	------	Flow to Pr. Det. Pond
19	Reservoir	5.983	1	732	13,354	12	94.83	5,640	Pr. Det. Pond Outflow
20	Combine	10.40	1	728	31,584	10, 19	------	------	Pr. Flow to SP 4

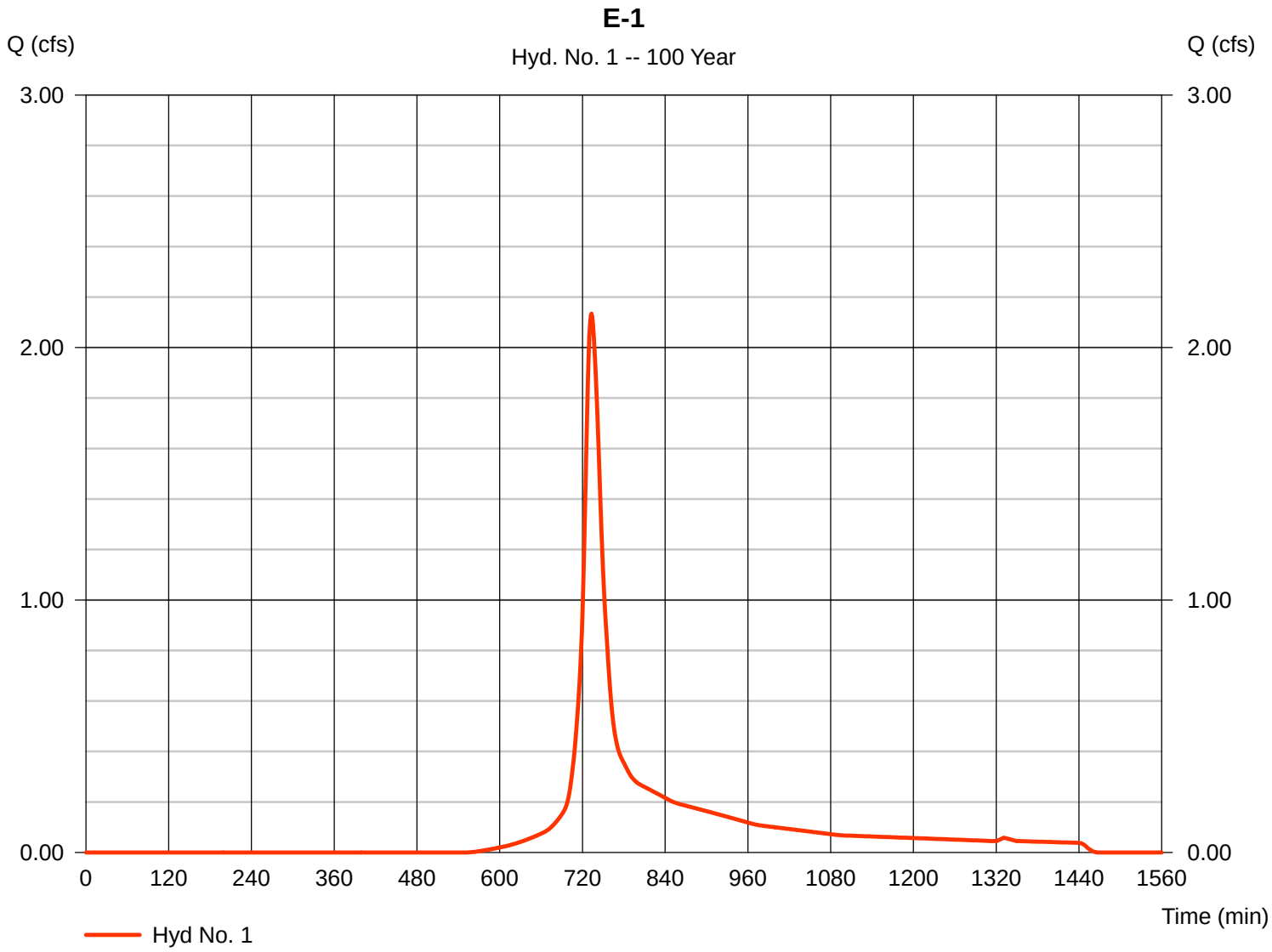
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 1

E-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.134 cfs
Storm frequency	=	100 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	9,135 cuft
Drainage area	=	0.680 ac	Curve number	=	62
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.49 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



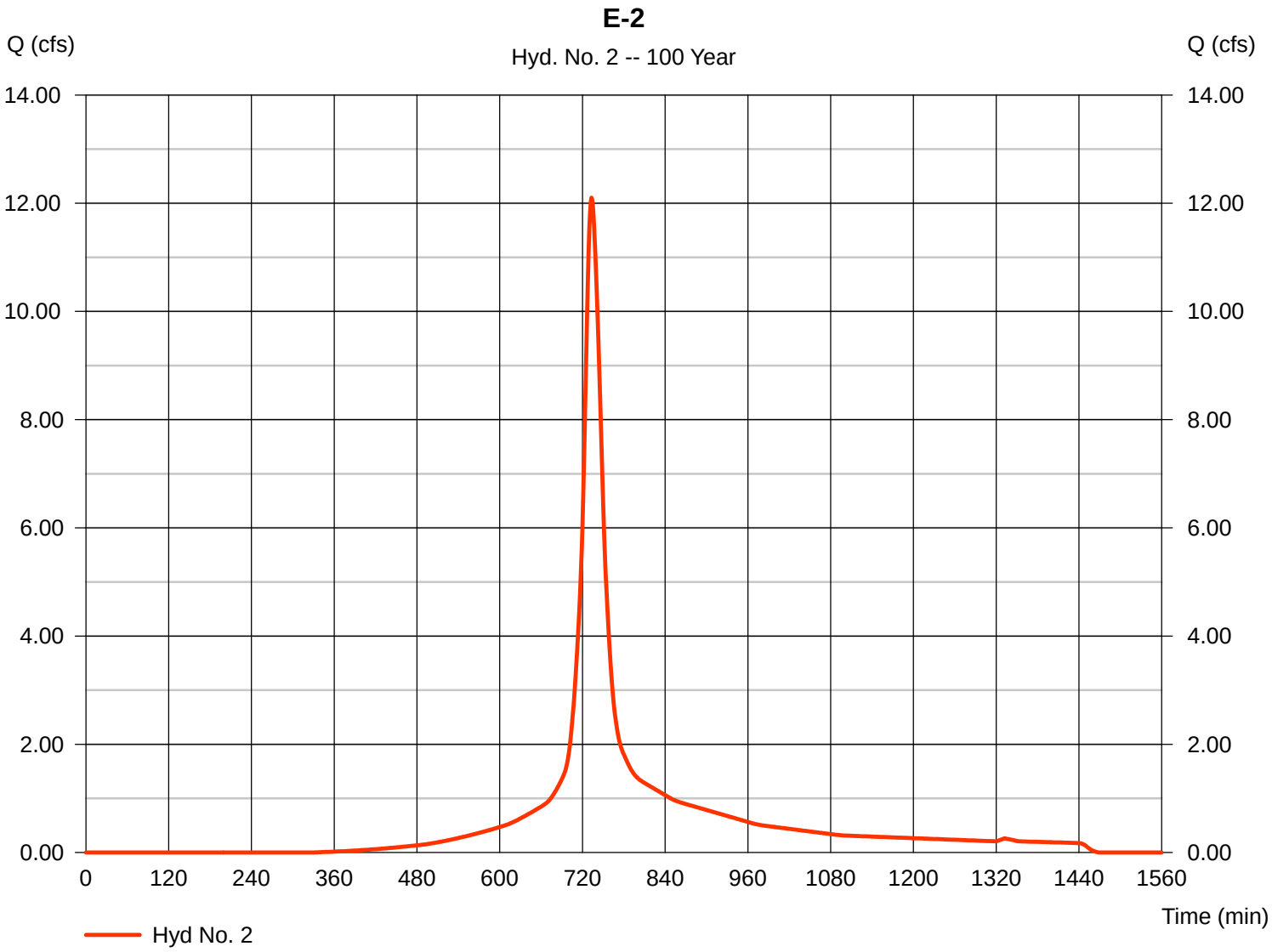
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 2

E-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.10 cfs
Storm frequency	=	100 yrs	Time to peak	=	733 min
Time interval	=	1 min	Hyd. volume	=	54,154 cuft
Drainage area	=	2.550 ac	Curve number	=	80
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	19.90 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



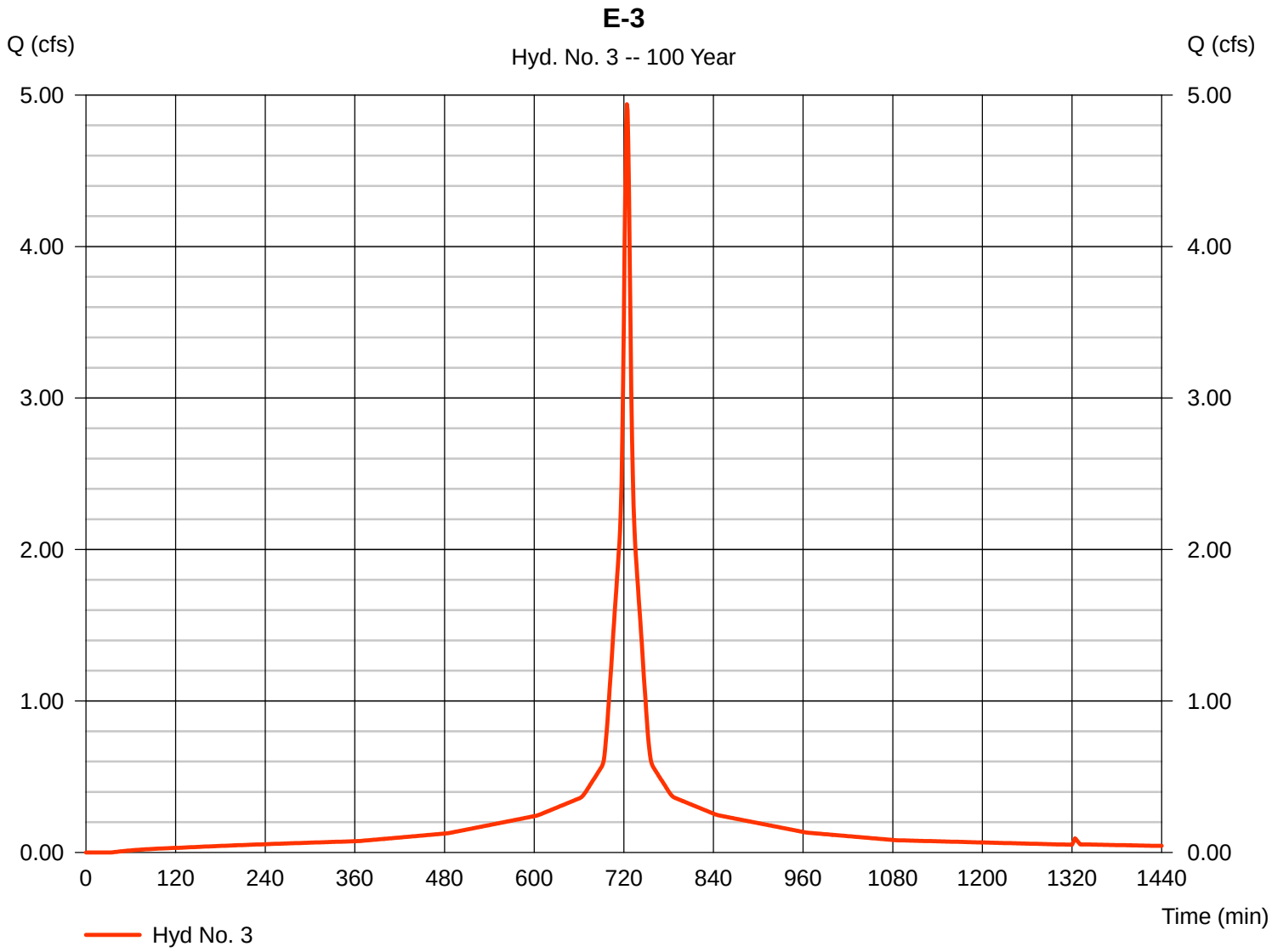
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 3

E-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.939 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	17,669 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



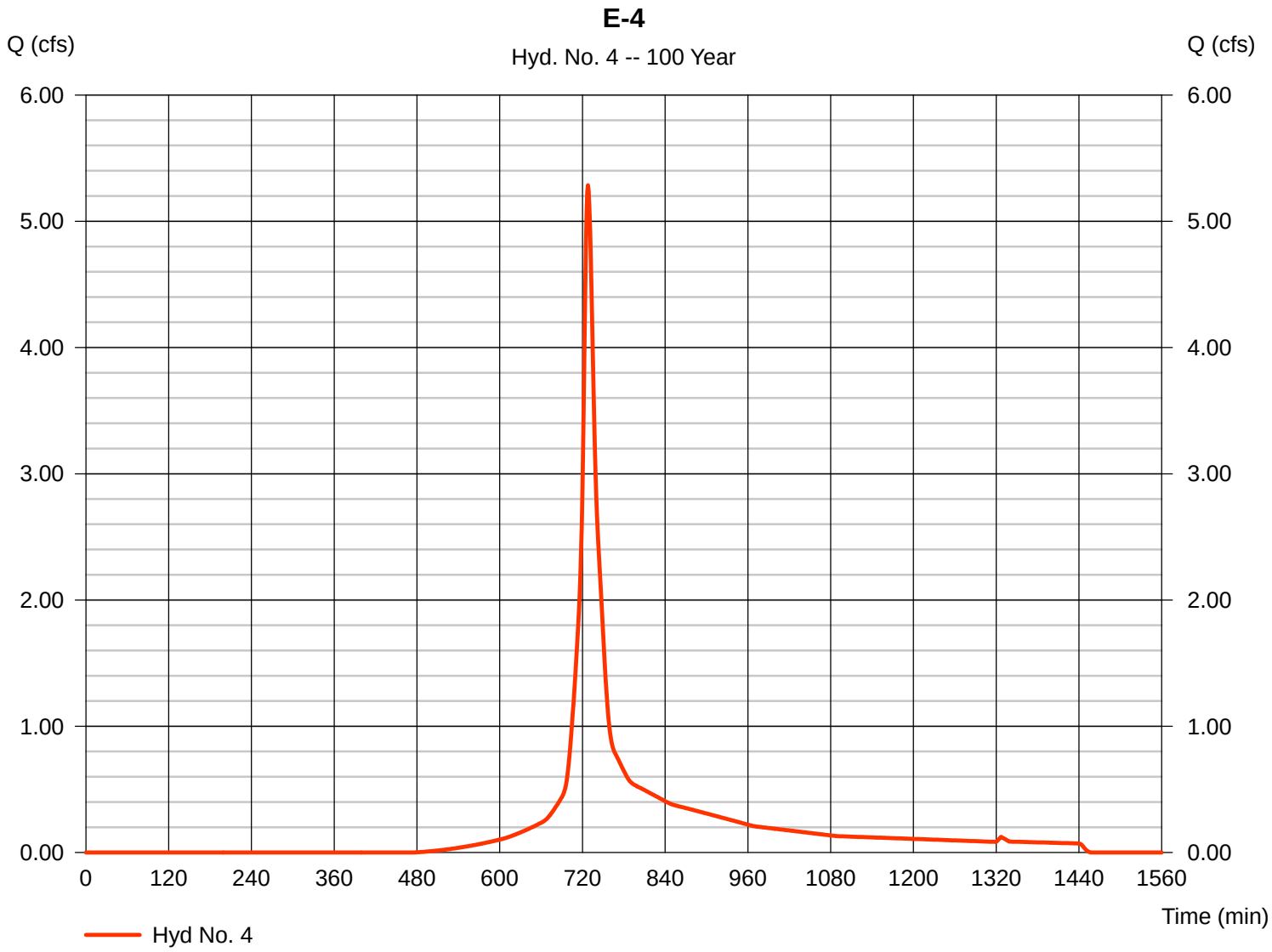
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 4

E-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.285 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	19,183 cuft
Drainage area	=	1.140 ac	Curve number	=	69
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.69 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



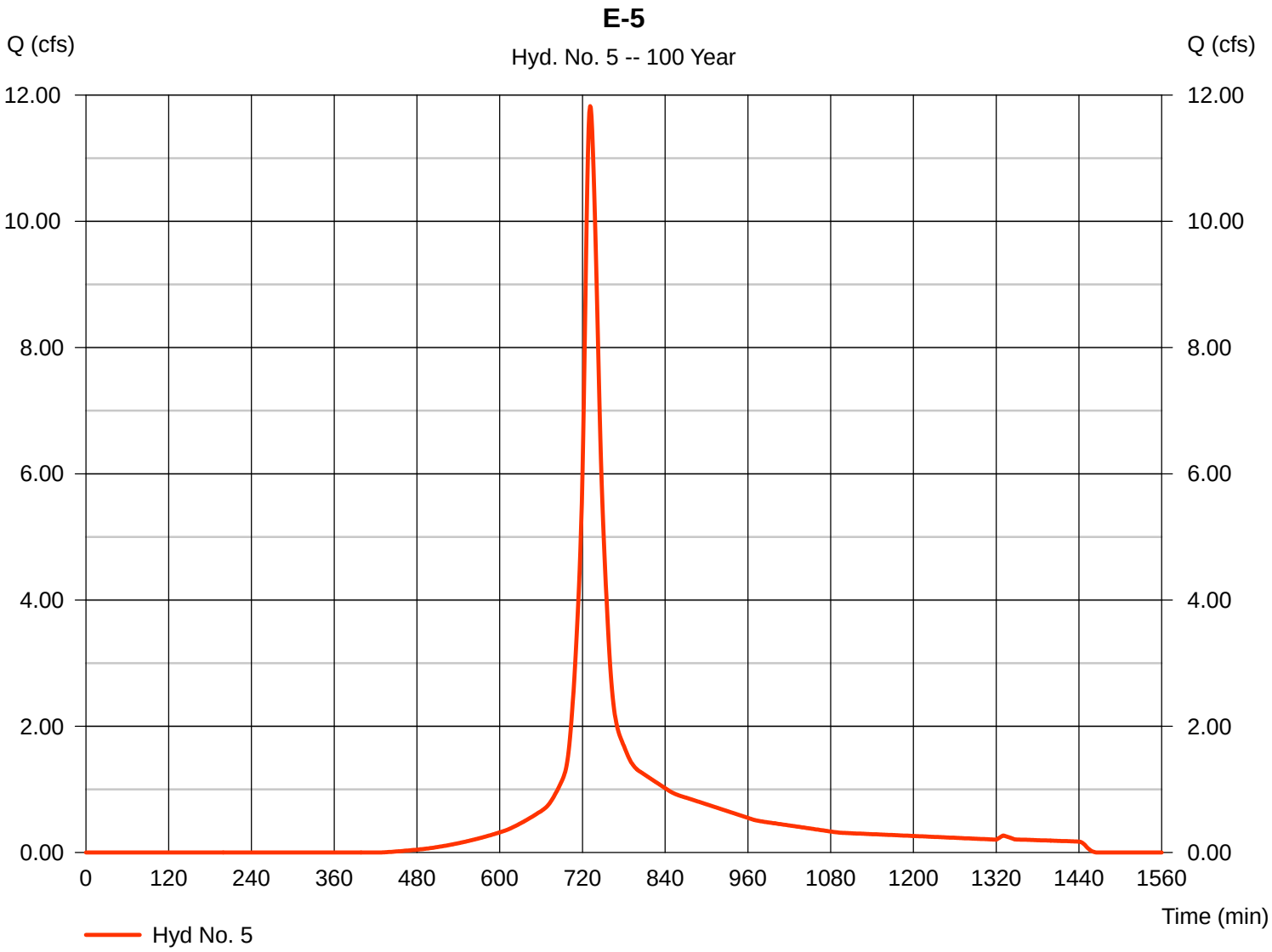
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 5

E-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.82 cfs
Storm frequency	=	100 yrs	Time to peak	=	731 min
Time interval	=	1 min	Hyd. volume	=	48,924 cuft
Drainage area	=	2.650 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	16.40 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



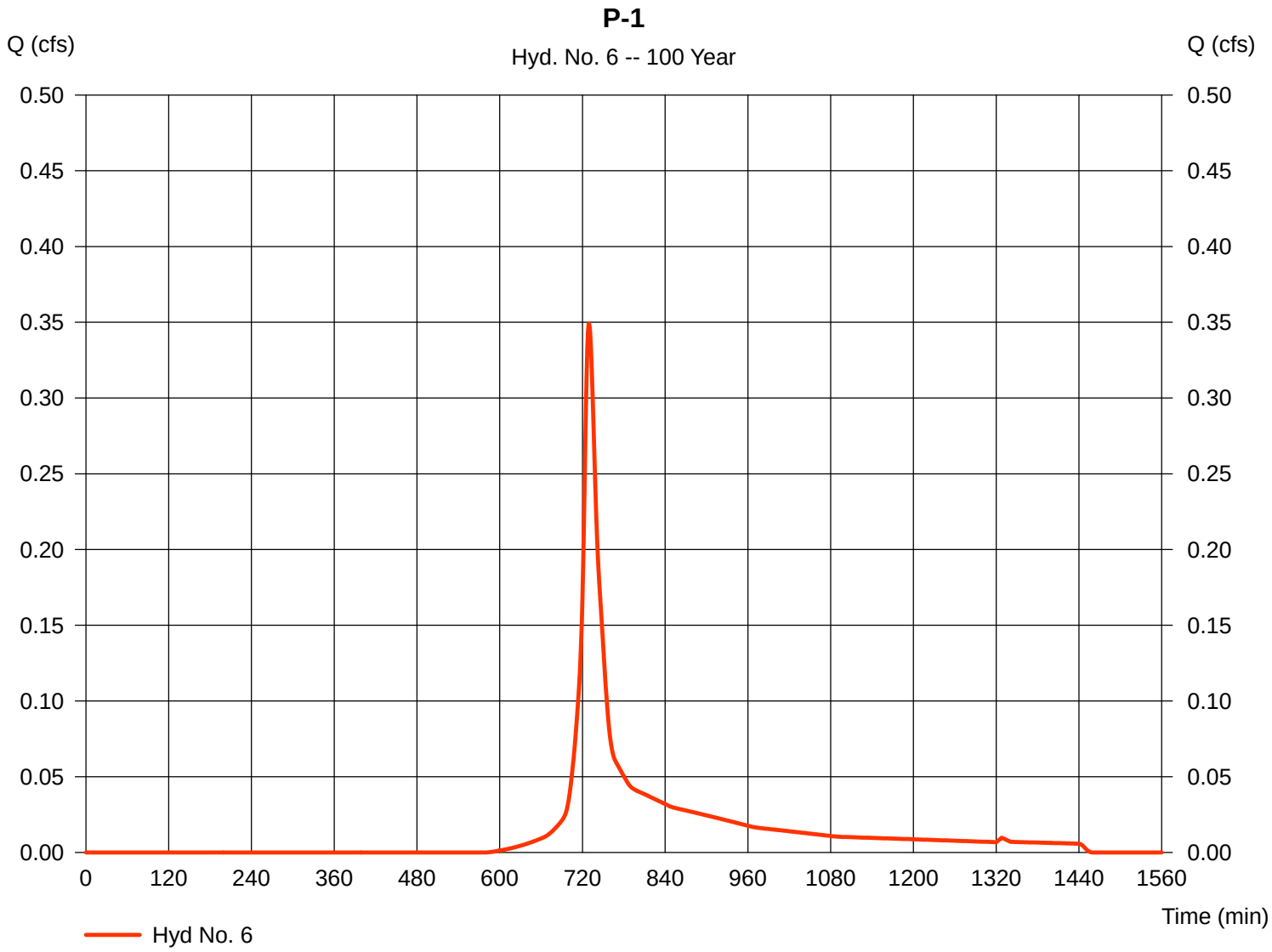
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 6

P-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.349 cfs
Storm frequency	=	100 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	1,337 cuft
Drainage area	=	0.110 ac	Curve number	=	59
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.04 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



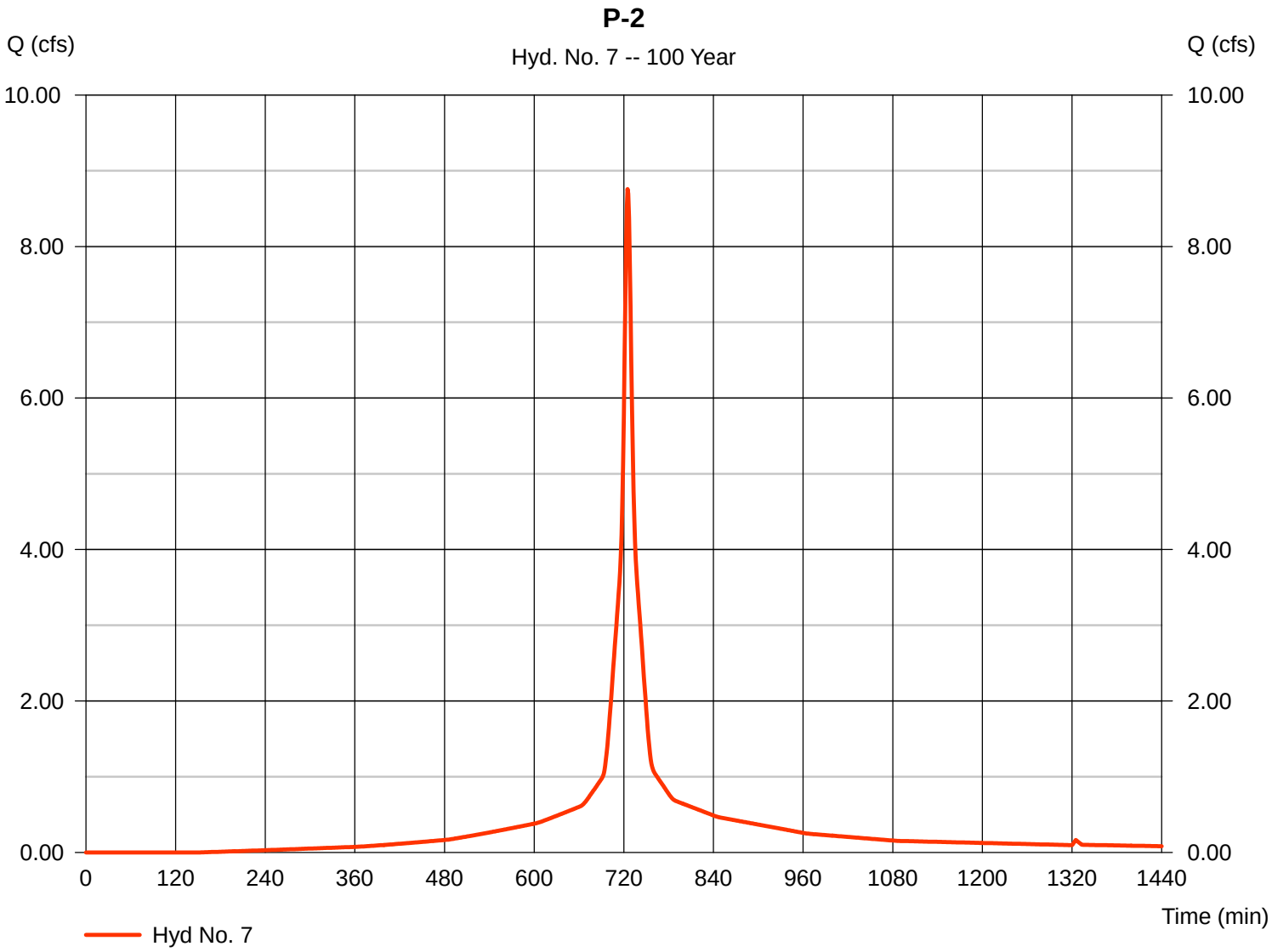
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 7

P-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.757 cfs
Storm frequency	=	100 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	30,416 cuft
Drainage area	=	1.200 ac	Curve number	=	91
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.77 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



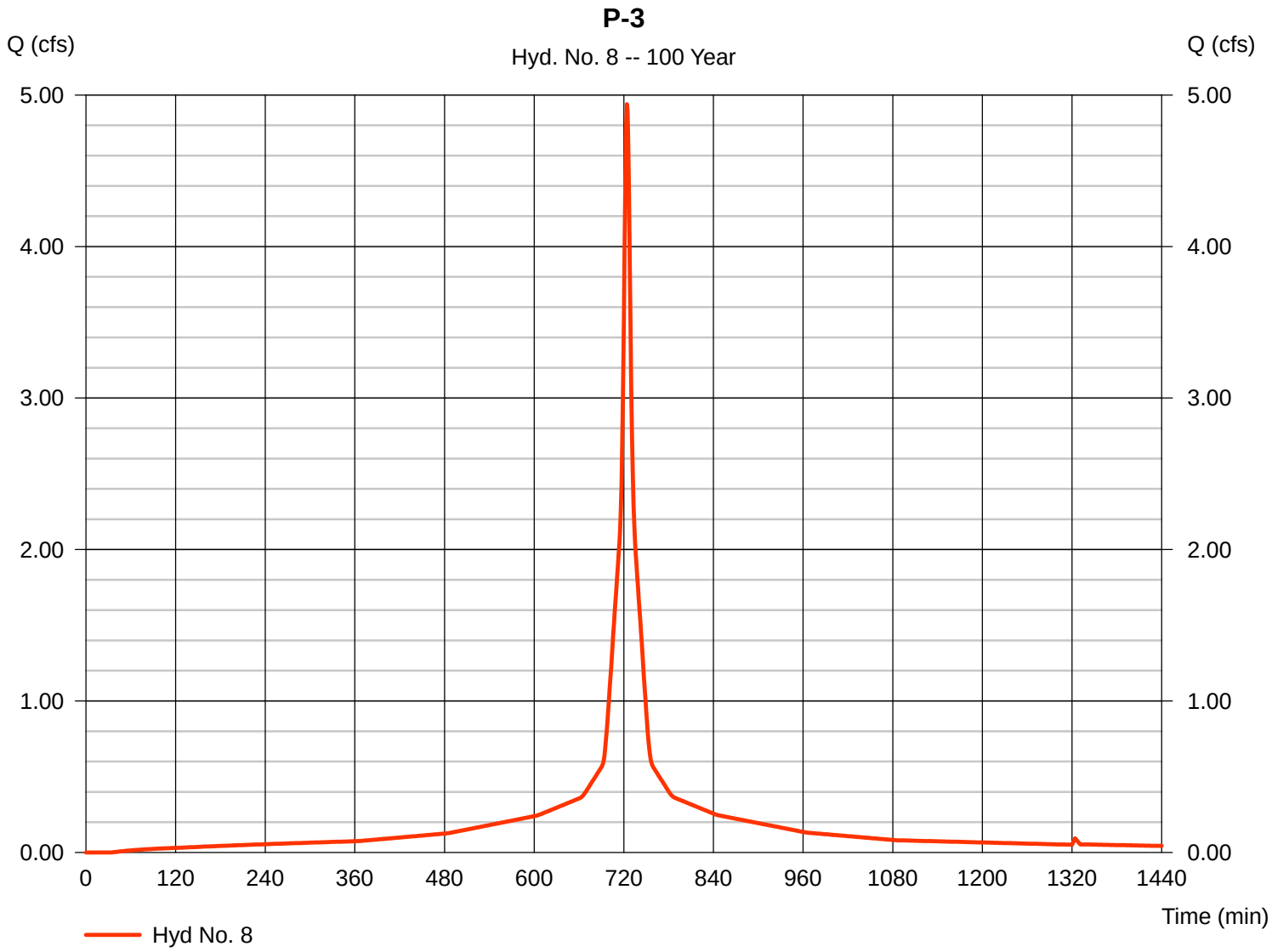
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 8

P-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.939 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	1 min	Hyd. volume	=	17,669 cuft
Drainage area	=	0.590 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	6.00 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



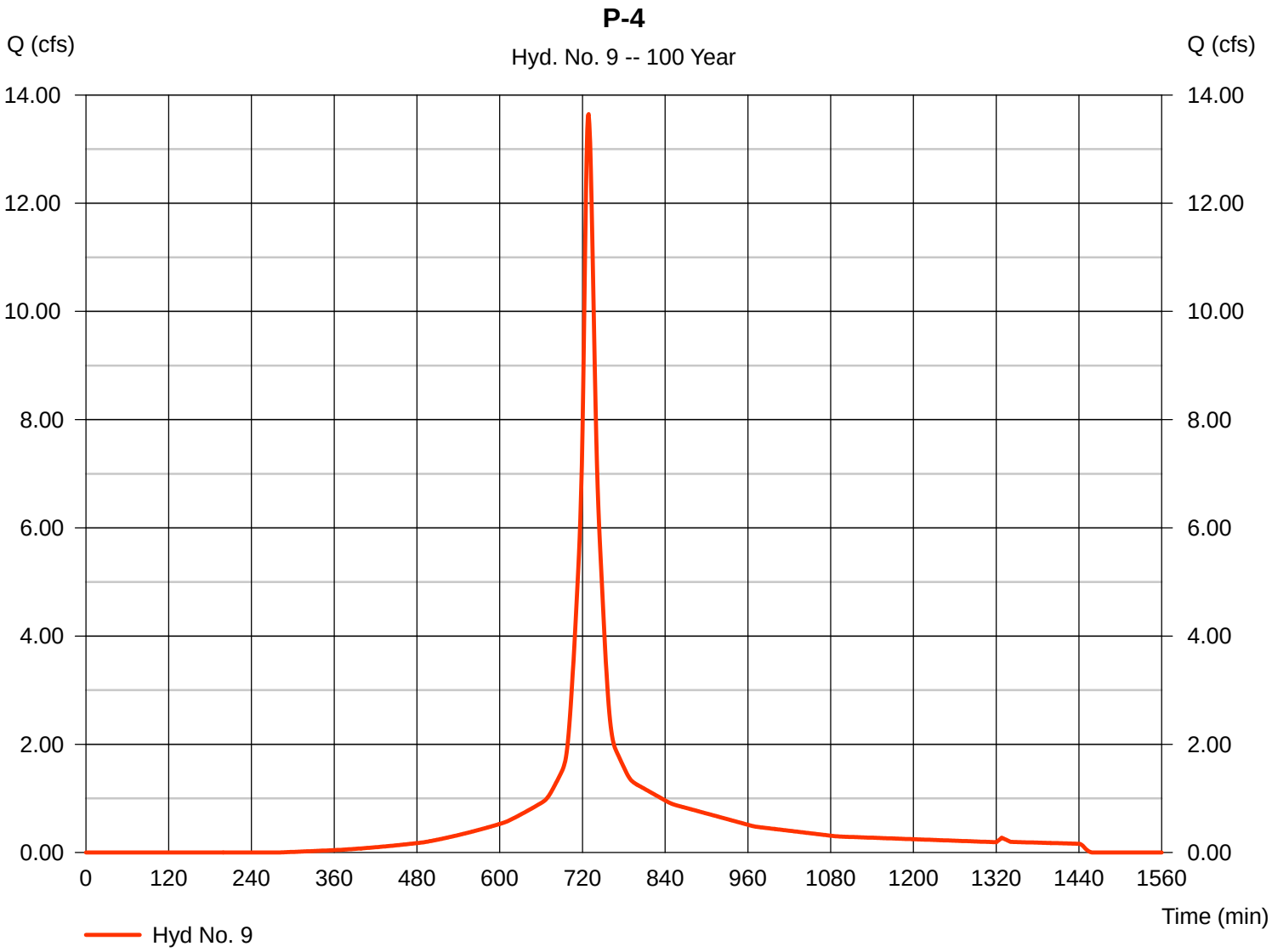
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 9

P-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.65 cfs
Storm frequency	=	100 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	52,786 cuft
Drainage area	=	2.380 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.77 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



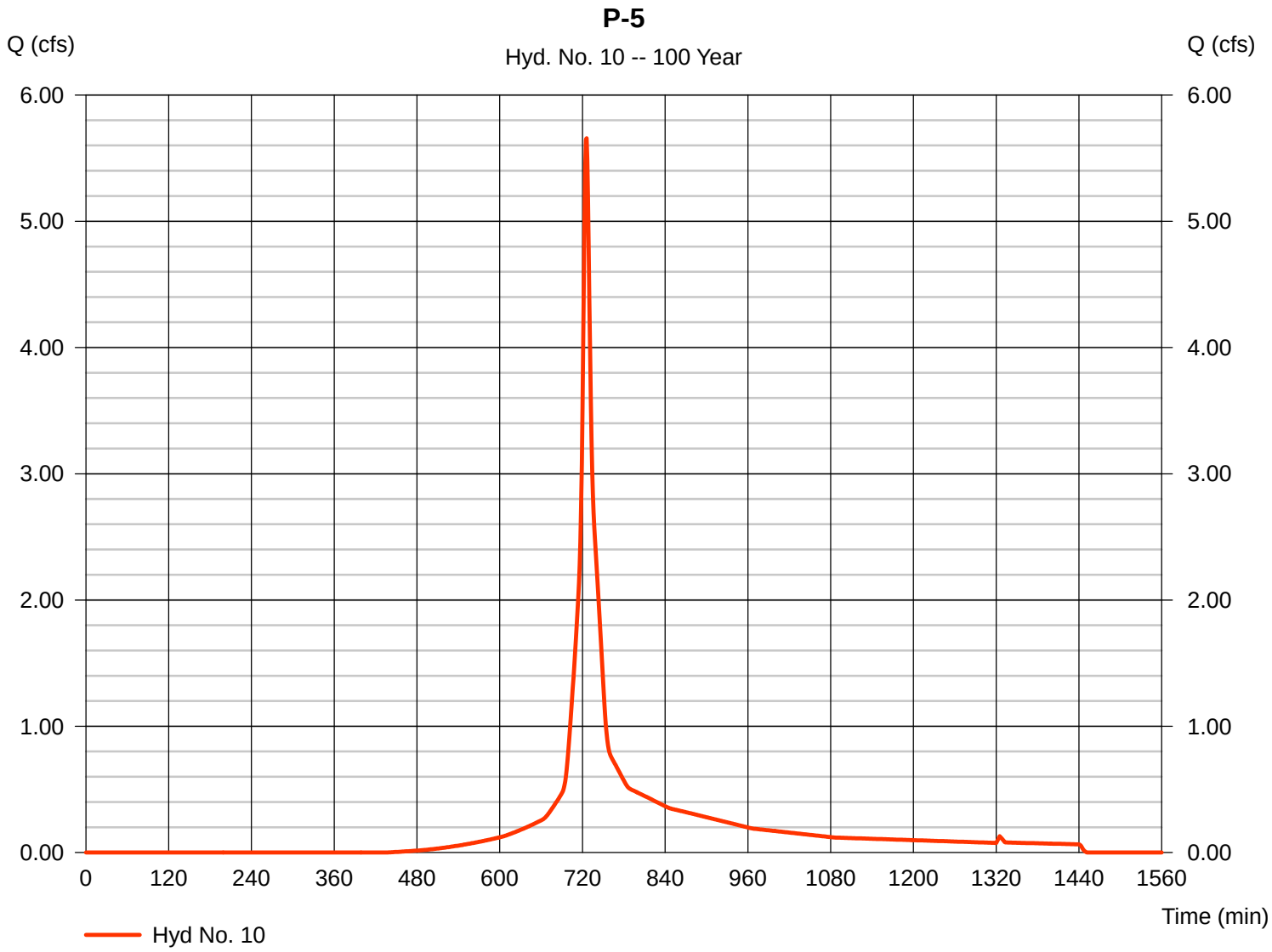
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 10

P-5

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.658 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	1 min	Hyd. volume	=	18,231 cuft
Drainage area	=	1.050 ac	Curve number	=	72
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	7.10 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



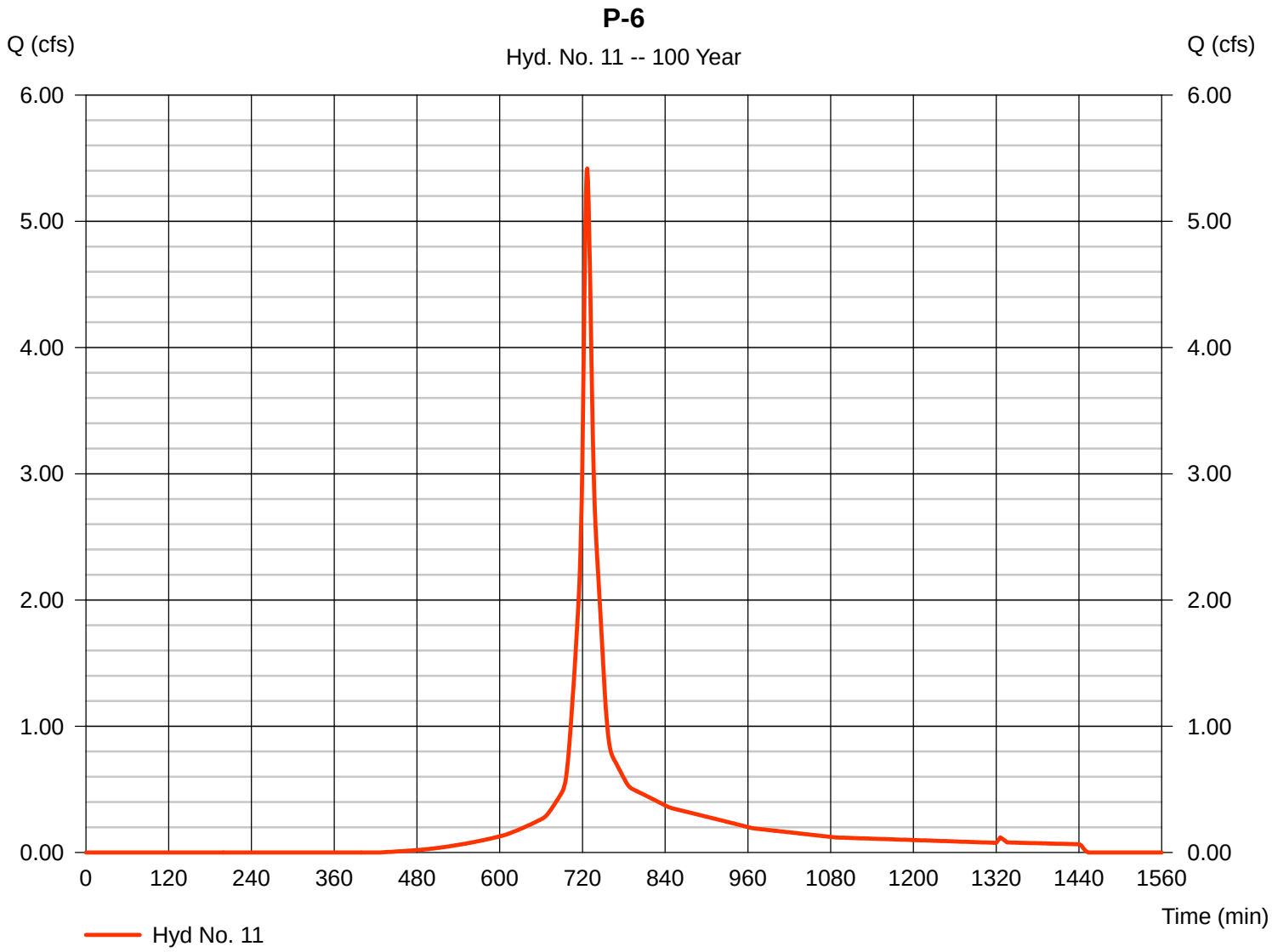
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 11

P-6

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.418 cfs
Storm frequency	=	100 yrs	Time to peak	=	727 min
Time interval	=	1 min	Hyd. volume	=	18,599 cuft
Drainage area	=	1.020 ac	Curve number	=	73
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.59 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



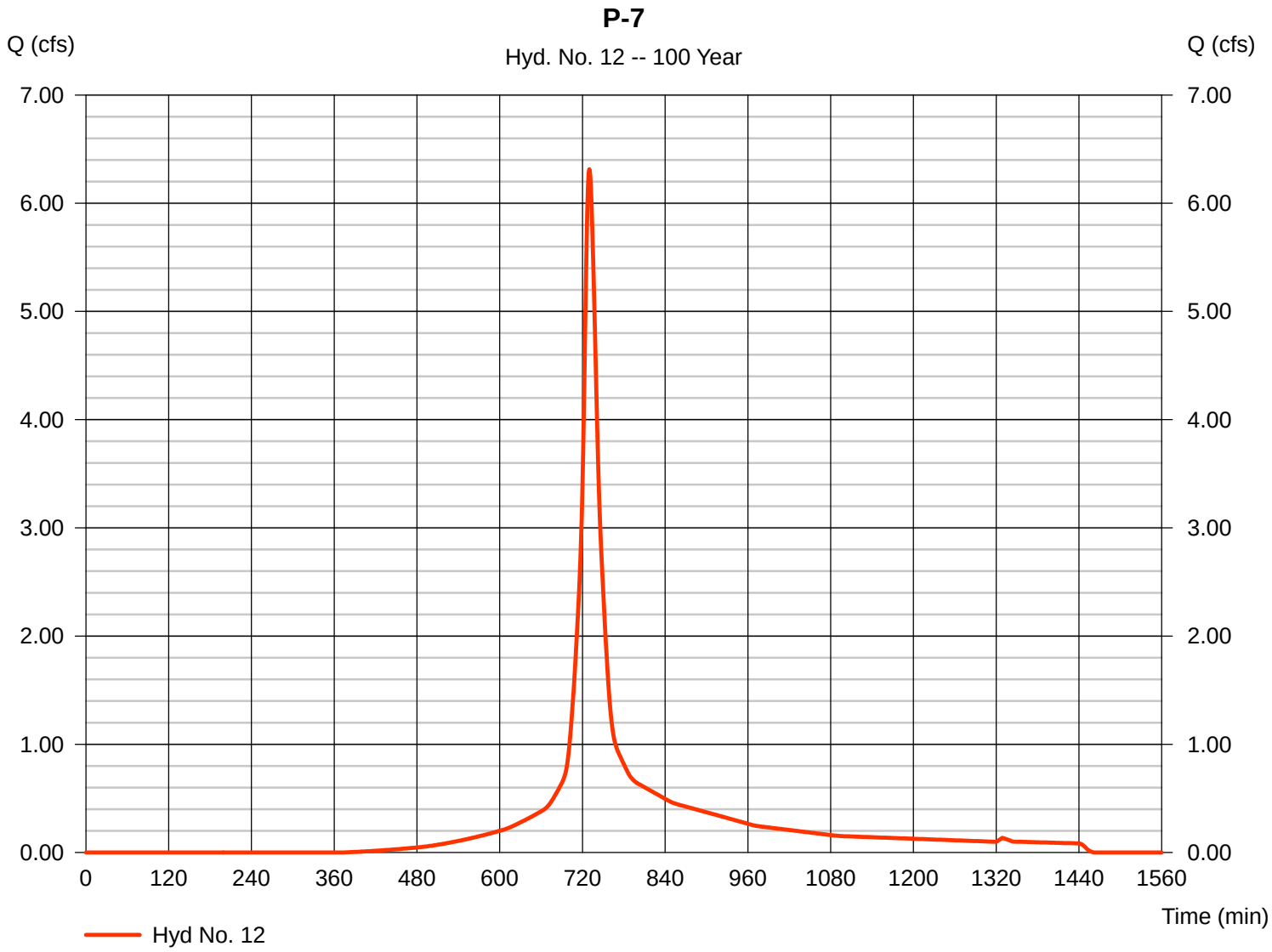
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 12

P-7

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.314 cfs
Storm frequency	=	100 yrs	Time to peak	=	730 min
Time interval	=	1 min	Hyd. volume	=	25,133 cuft
Drainage area	=	1.260 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	13.52 min
Total precip.	=	8.24 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

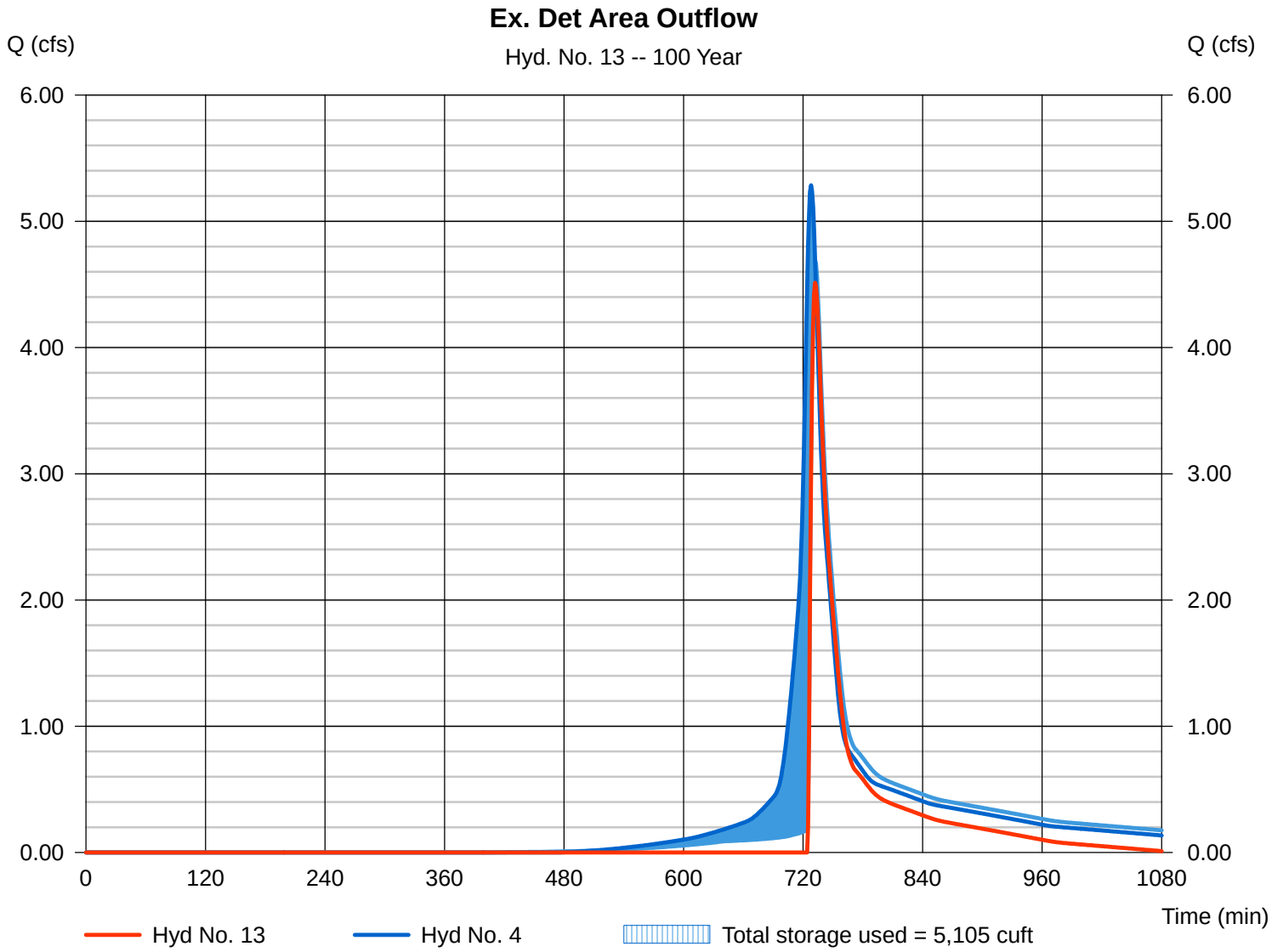
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 13

Ex. Det Area Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	4.513 cfs
Storm frequency	=	100 yrs	Time to peak	=	732 min
Time interval	=	1 min	Hyd. volume	=	9,540 cuft
Inflow hyd. No.	=	4 - E-4	Max. Elevation	=	93.56 ft
Reservoir name	=	Ex. Det. Pond	Max. Storage	=	5,105 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



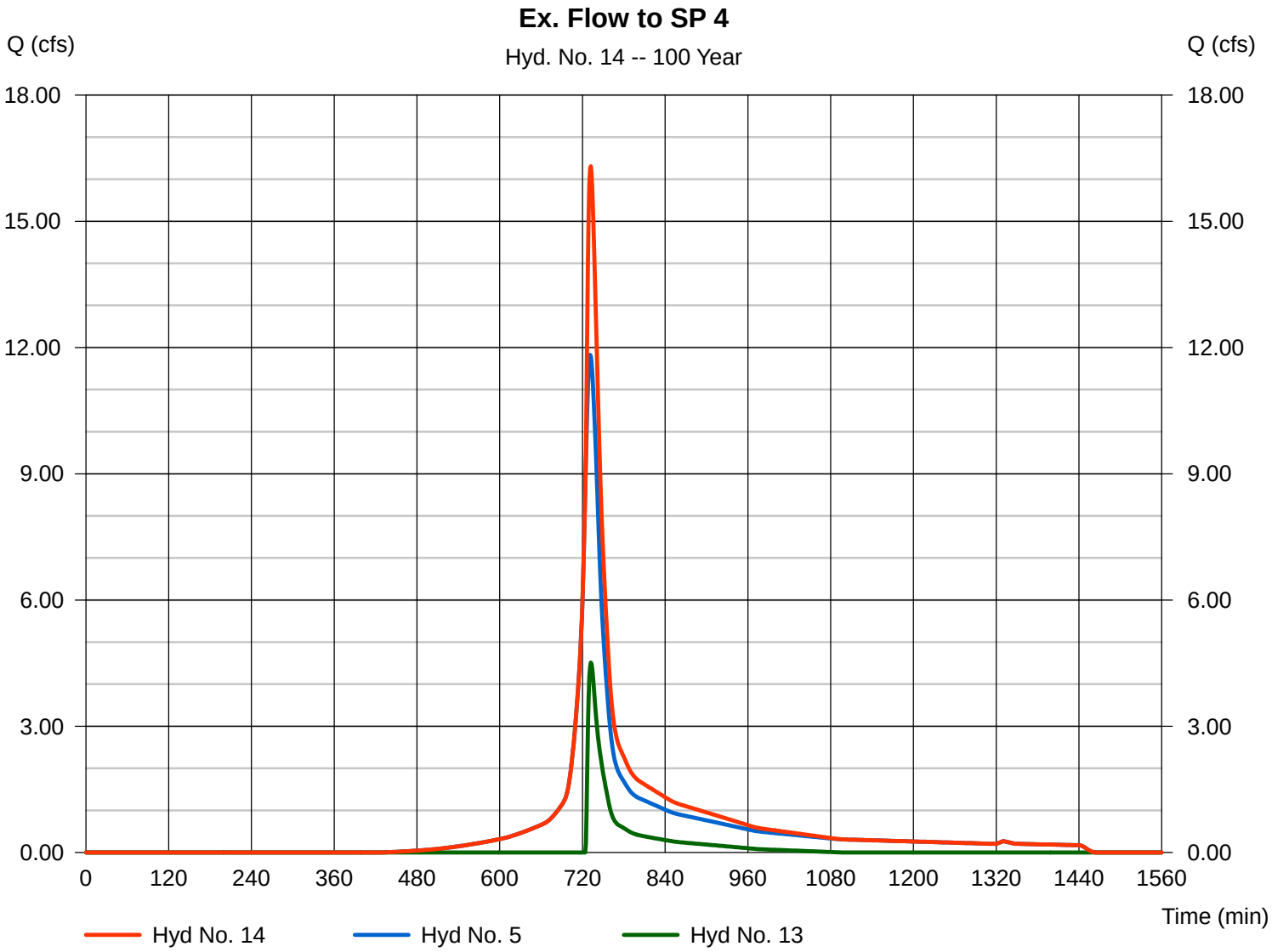
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 14

Ex. Flow to SP 4

Hydrograph type	=	Combine	Peak discharge	=	16.31 cfs
Storm frequency	=	100 yrs	Time to peak	=	732 min
Time interval	=	1 min	Hyd. volume	=	58,465 cuft
Inflow hyds.	=	5, 13	Contrib. drain. area	=	2.650 ac



Hydrograph Report

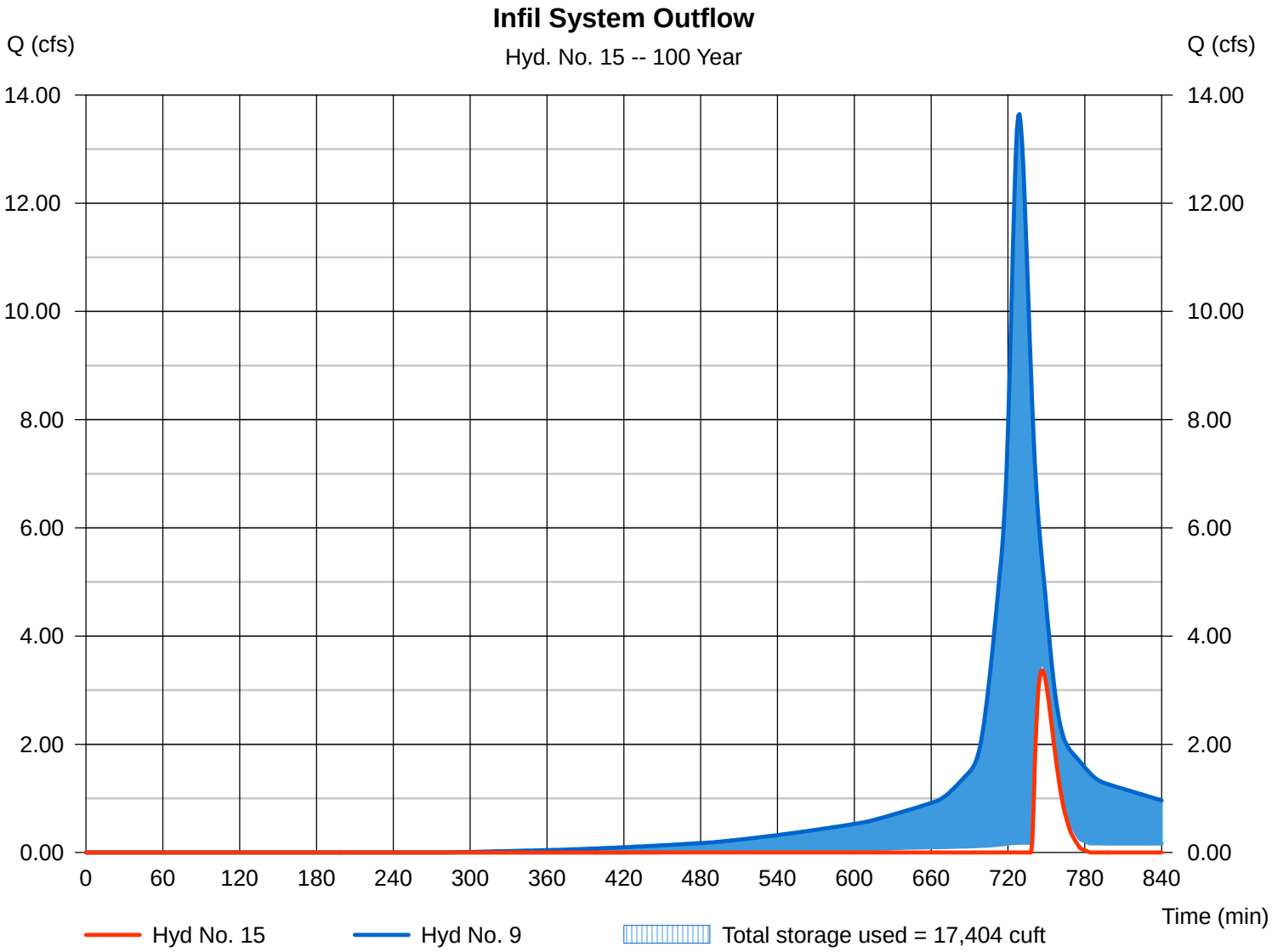
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 15

Infil System Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	3.364 cfs
Storm frequency	=	100 yrs	Time to peak	=	747 min
Time interval	=	1 min	Hyd. volume	=	3,573 cuft
Inflow hyd. No.	=	9 - P-4	Max. Elevation	=	103.26 ft
Reservoir name	=	GW Recharge System	Max. Storage	=	17,404 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



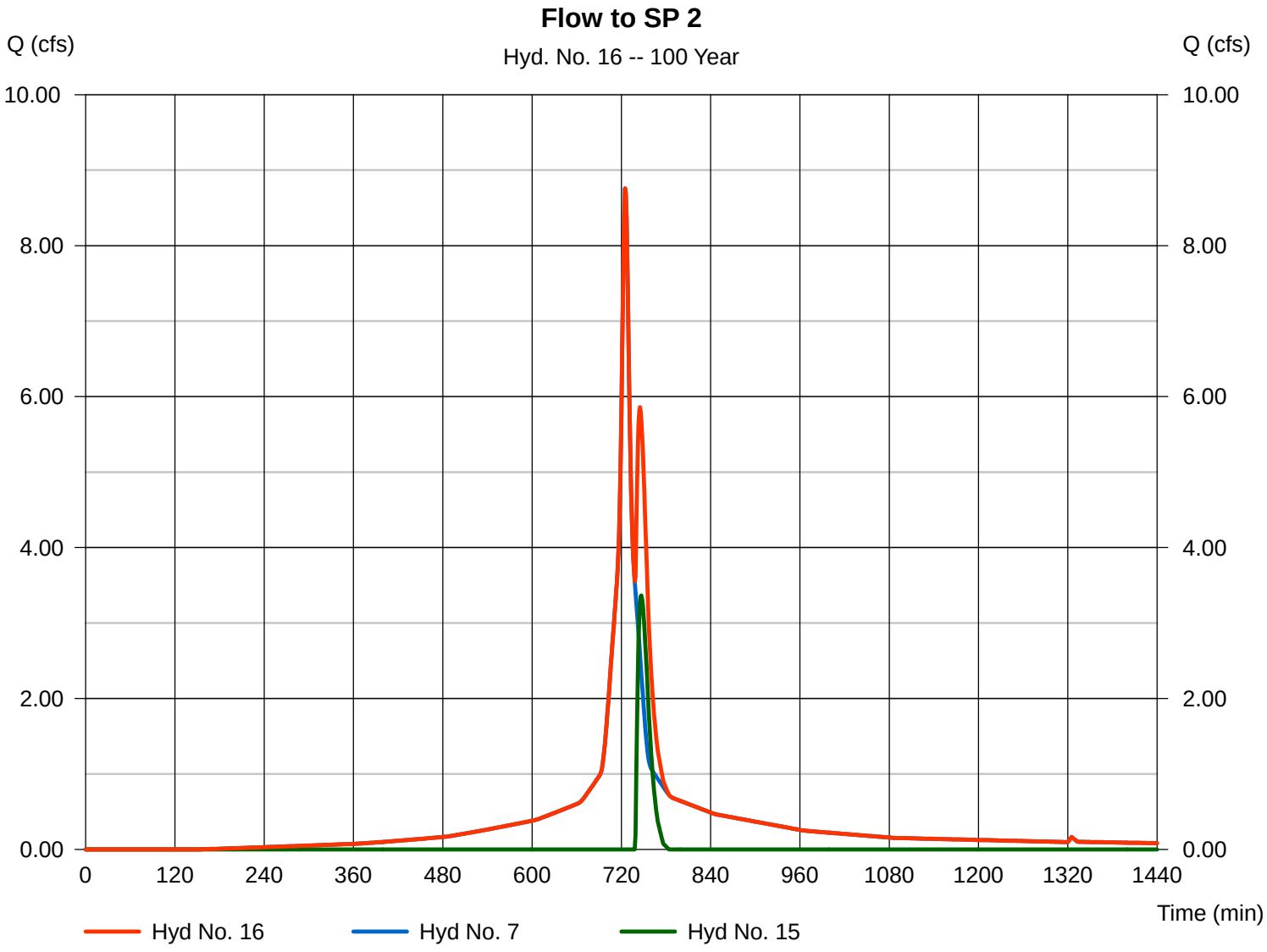
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 16

Flow to SP 2

Hydrograph type	=	Combine	Peak discharge	=	8.757 cfs
Storm frequency	=	100 yrs	Time to peak	=	725 min
Time interval	=	1 min	Hyd. volume	=	33,989 cuft
Inflow hyds.	=	7, 15	Contrib. drain. area	=	1.200 ac



Hydrograph Report

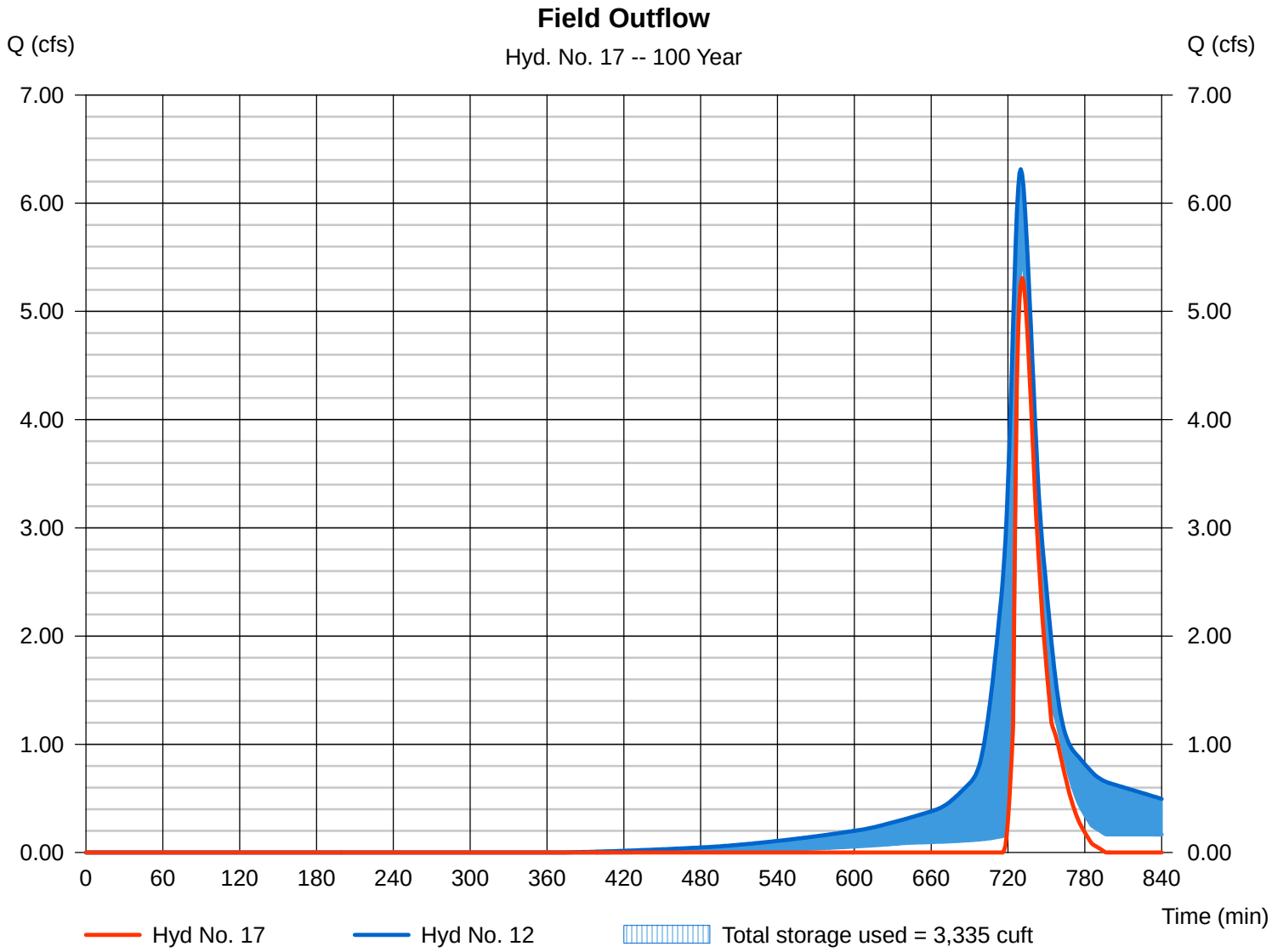
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 17

Field Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	5.309 cfs
Storm frequency	=	100 yrs	Time to peak	=	731 min
Time interval	=	1 min	Hyd. volume	=	7,367 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	97.67 ft
Reservoir name	=	Syn Field	Max. Storage	=	3,335 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



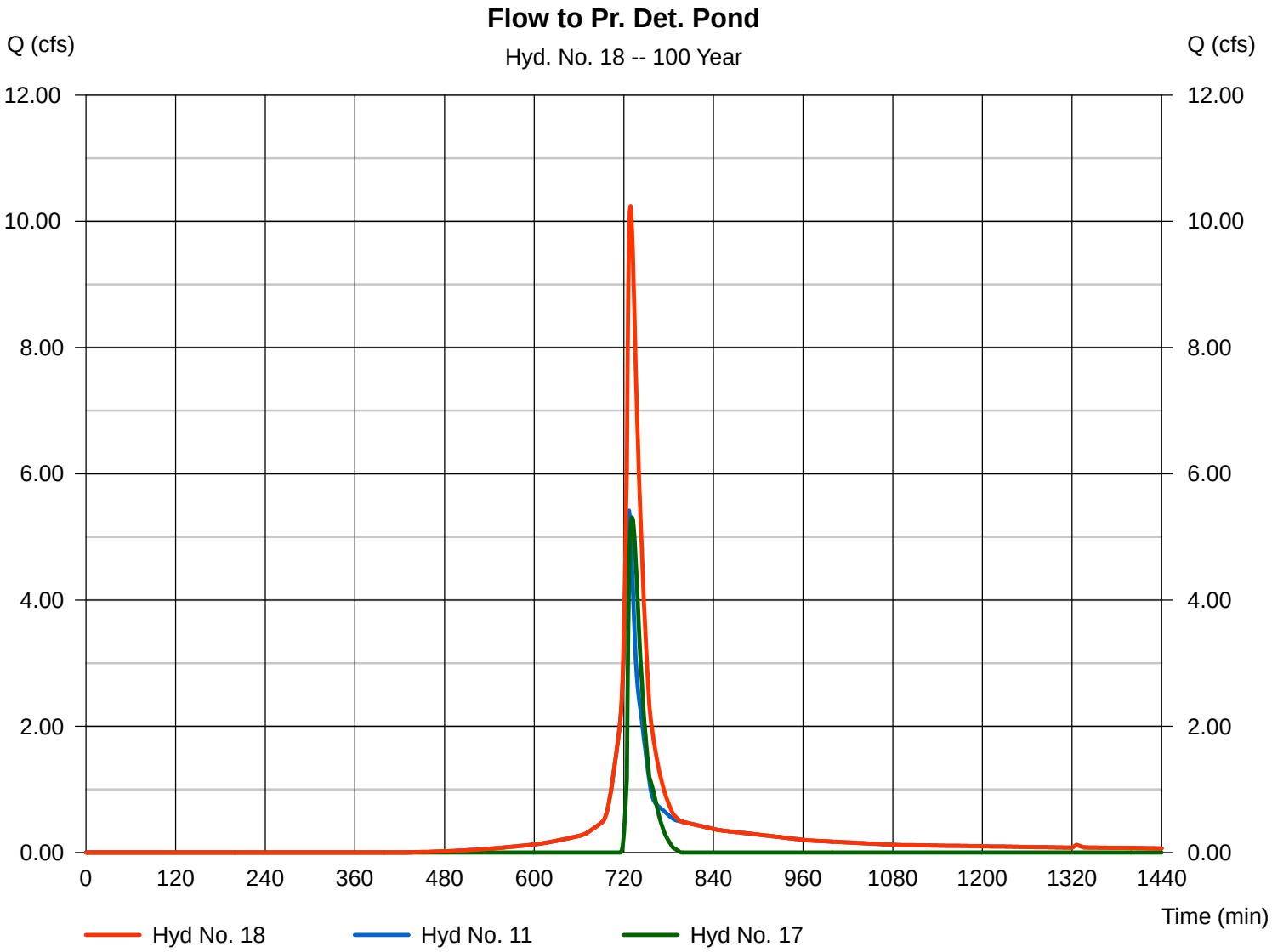
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 18

Flow to Pr. Det. Pond

Hydrograph type	=	Combine	Peak discharge	=	10.24 cfs
Storm frequency	=	100 yrs	Time to peak	=	729 min
Time interval	=	1 min	Hyd. volume	=	25,966 cuft
Inflow hyds.	=	11, 17	Contrib. drain. area	=	1.020 ac



Hydrograph Report

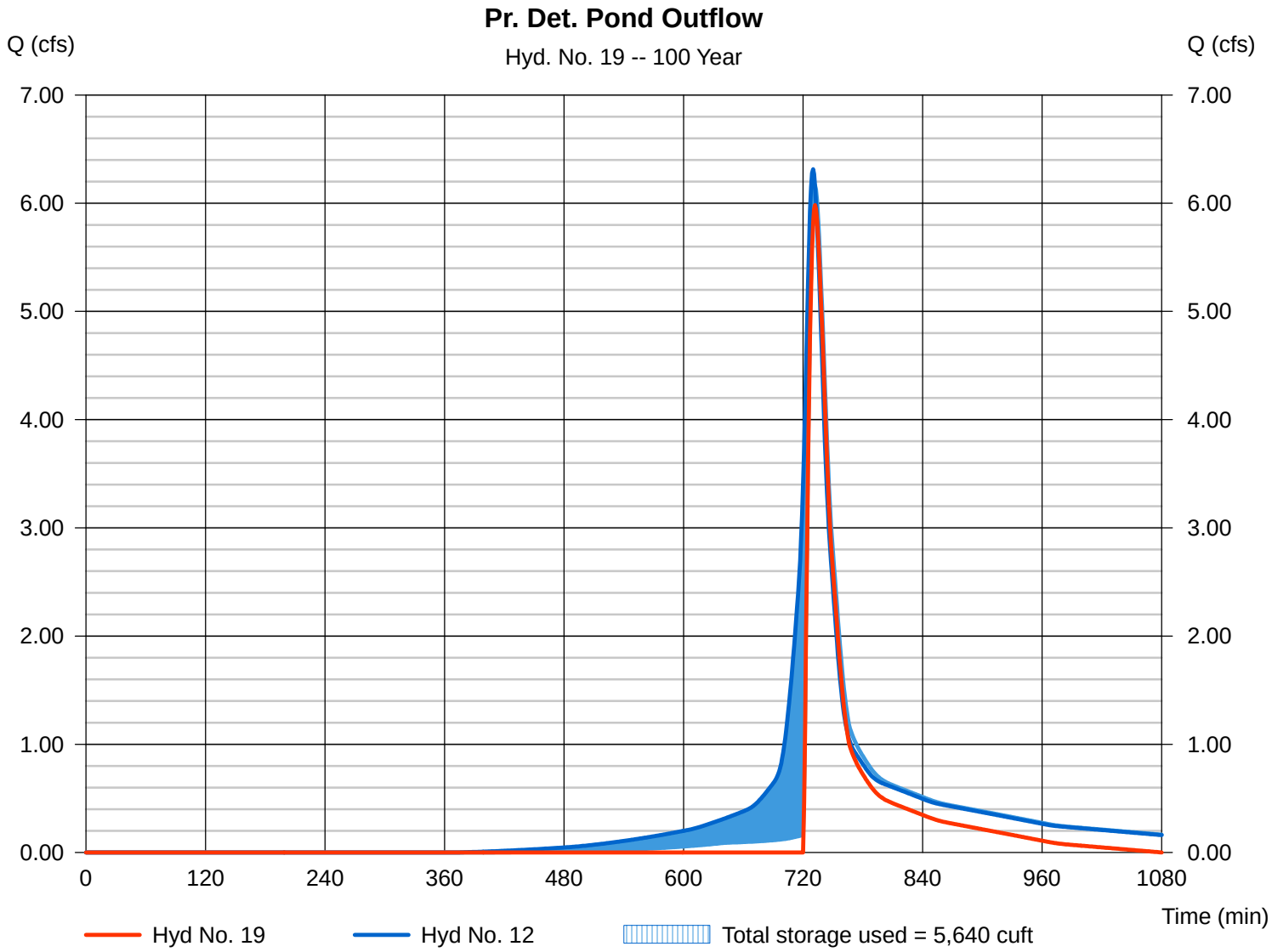
Hydraflow Hydrographs by Intelisolve v9.2 — Monday, May 12, 2025

Hyd. No. 19

Pr. Det. Pond Outflow

Hydrograph type	=	Reservoir	Peak discharge	=	5.983 cfs
Storm frequency	=	100 yrs	Time to peak	=	732 min
Time interval	=	1 min	Hyd. volume	=	13,354 cuft
Inflow hyd. No.	=	12 - P-7	Max. Elevation	=	94.83 ft
Reservoir name	=	Pr. Det. Pond	Max. Storage	=	5,640 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



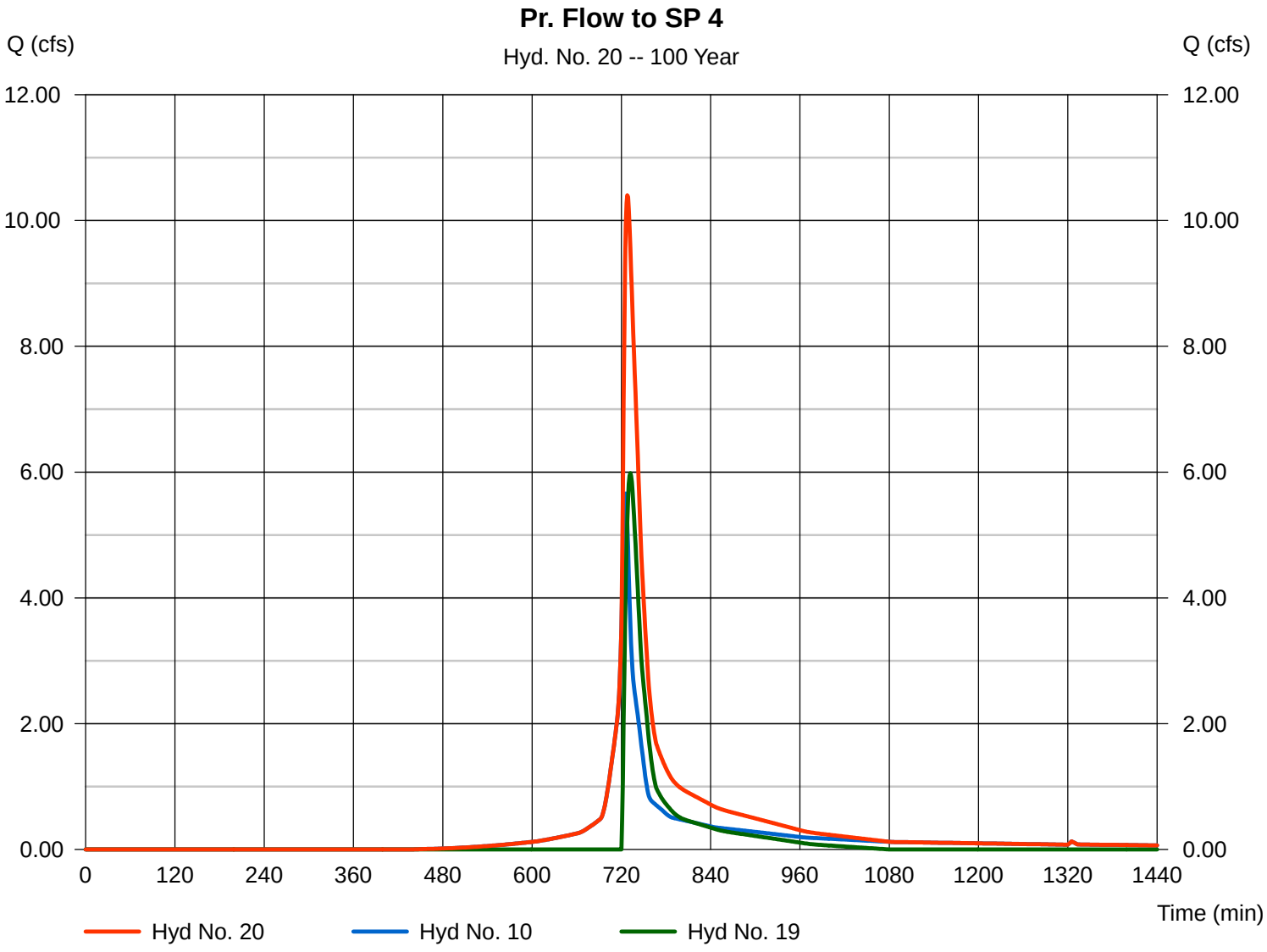
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 Monday, May 12, 2025

Hyd. No. 20

Pr. Flow to SP 4

Hydrograph type	=	Combine	Peak discharge	=	10.40 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	1 min	Hyd. volume	=	31,584 cuft
Inflow hyds.	=	10, 19	Contrib. drain. area	=	1.050 ac



APPENDIX 2

Standard 3 (Recharge)

Marchionda & Associates, LP
62 Montvale Ave, Suite I
Stoneham, MA 02180
781-438-6121 Fax 781-438-9654

JOB 670-26, Austin Prep.
SHEET NO. 1 OF 1
CALCULATED BY JB DATE 5/12/25
CHECKED BY DATE
SCALE

STANDARD #3

LOSS OF ANNUAL RECHARGE

- IMPERVIOUS COVER TO BE ADDED TO THE SITE W/IN THE LIMIT OF WORK (STUDY AREA)

EXISTING IMPERVIOUS = 2.09 Ac
PROPOSED IMPERVIOUS = 3.33 Ac
NET INCREASE = 1.24 Ac

- REQUIRED VOLUME TO BE RECHARGED:

NOTE: BASED OF D.E.P. TARGET DEPTH FOR "A SOILS (0.60"/S.F.)

REQ. = 0.60"/12 × 1.24 Ac × 43,560 SF
= 2,701 FT³

- VOLUME PROVIDED*:

SYNTHETIC FIELD STONE BED:
14"/12 × 5,000 SF × 0.40 (VR) = 2,333 FT³
GROUND WATER RECHARE SYS. = 13,346 FT³
TOTAL PROVIDED = 15,679 FT³ ✓

* NO CREDIT TAKEN FOR RAIN GARDEN OF DET. AREA/SED. TRAP

POND

CHARACTERISTICS

Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Friday, May 9, 2025

Pond No. 4 - Pr. Det. Pond

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 92.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	92.00	780	0	0
1.00	93.00	1,600	1,166	1,166
2.00	94.00	2,500	2,033	3,199
3.00	95.00	3,400	2,938	6,137

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

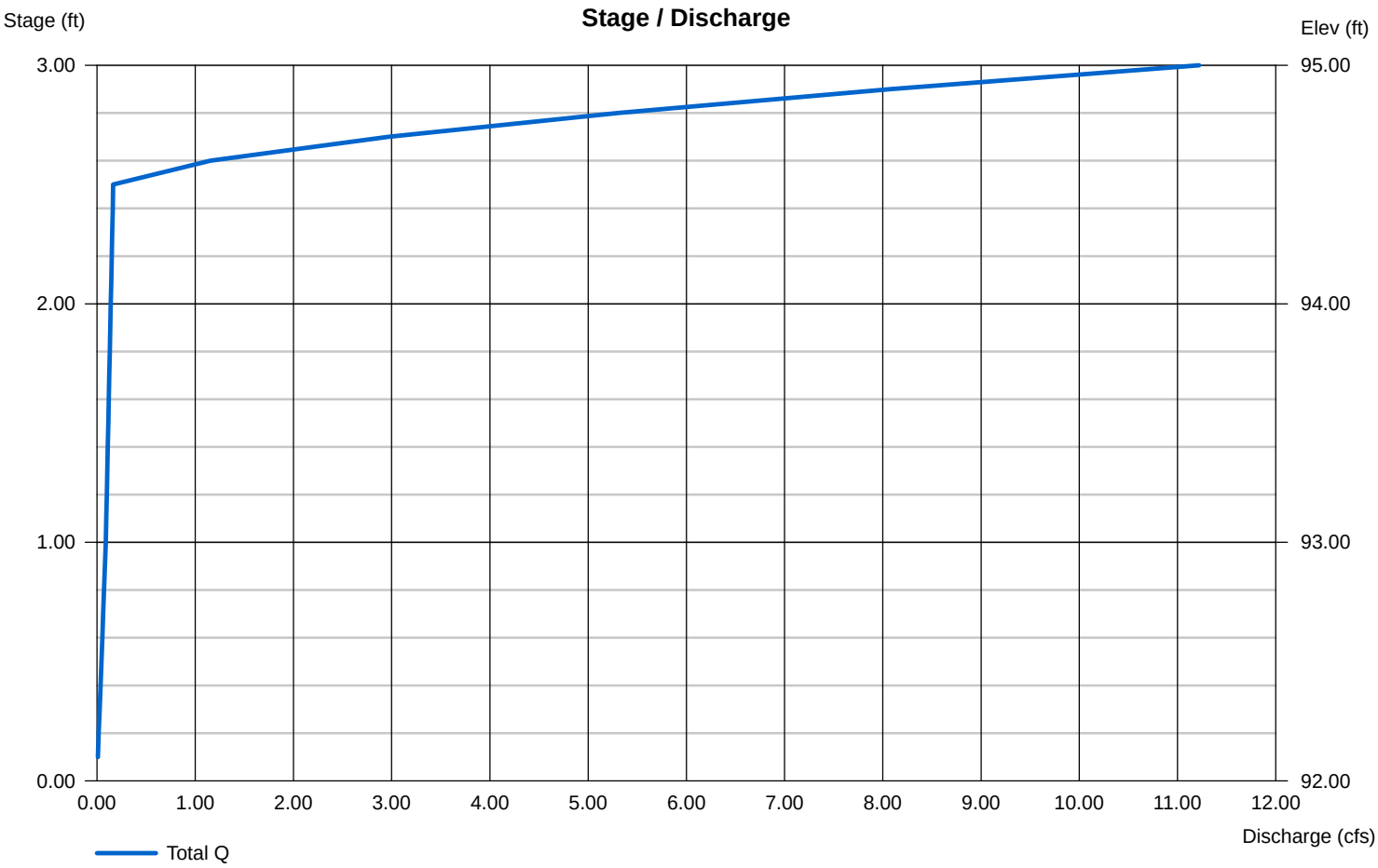
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	0.00	0.00	0.00
Crest El. (ft)	= 94.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 2.410 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Friday, May 9, 2025

Pond No. 2 - Syn Field

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 95.85 ft. Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	96.00	5,000	0	0
1.00	97.00	5,000	2,000	2,000
2.00	98.00	5,000	2,000	4,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 10.00	0.00	0.00	0.00
Span (in)	= 10.00	0.00	0.00	0.00
No. Barrels	= 2	0	0	0
Invert El. (ft)	= 97.00	0.00	0.00	0.00
Length (ft)	= 20.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

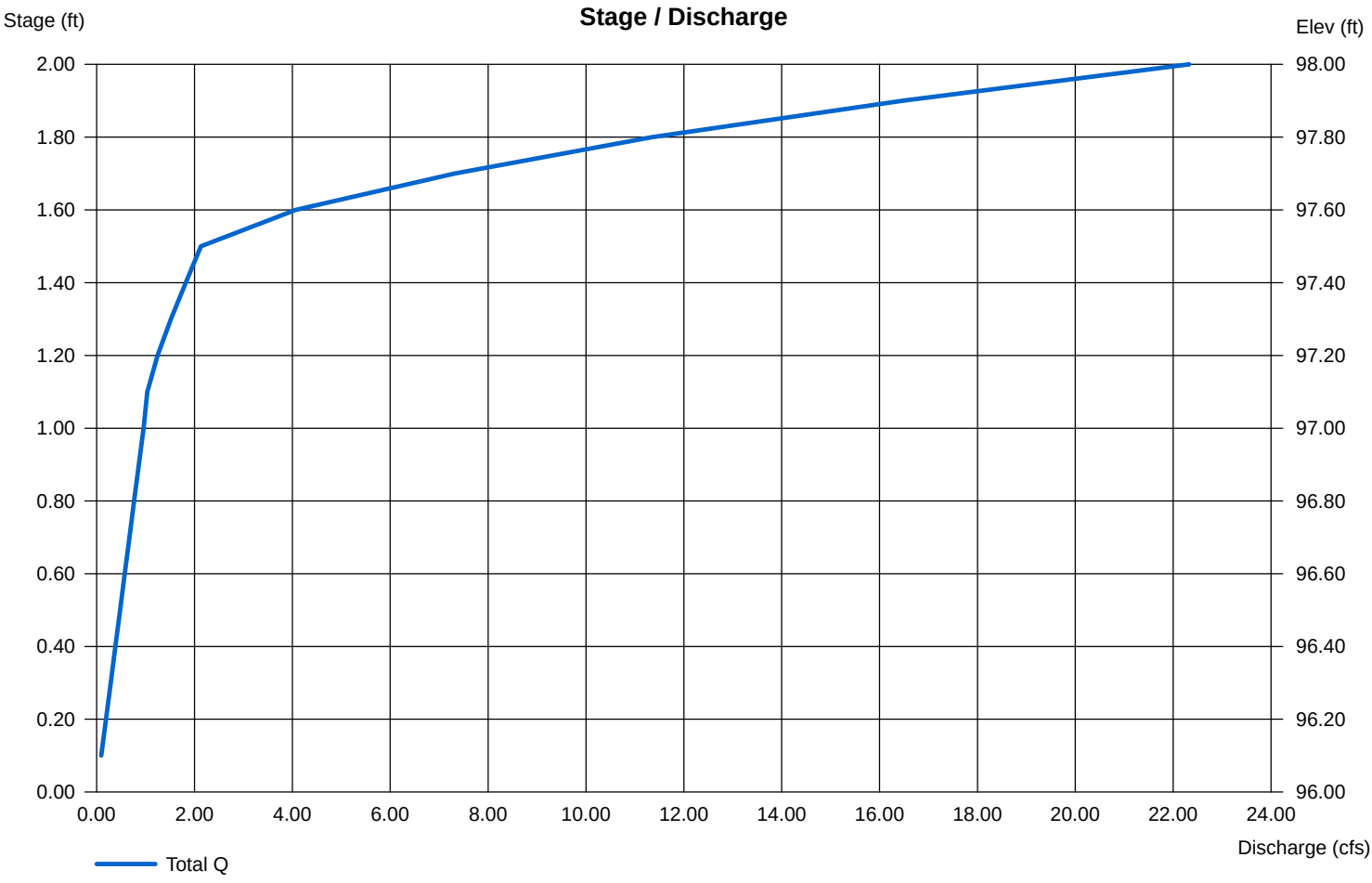
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	0.00	0.00	0.00
Crest El. (ft)	= 97.50	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 8.270 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



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JOB 670-26 · AUSTIN PREP
SHEET NO. 1 OF
CALCULATED BY JB DATE 5/12/25
CHECKED BY DATE
SCALE

STANDARD #3

DRAW DOWN CALCULATIONS

- G.W. RECHARGE SYSTEM

*NOTE: ASSUME SAND RAWLS RATE = 8.27 IN/HR

$$\text{TIME} = \frac{\text{VOLUME}}{\text{RAWLS RATE}^* \times \text{BASIN AREA}}$$

$$= \frac{13,346\ \text{FT}^3}{8.27\ \text{IN/HR}^* \times (100' \times 42.66') \times 1/12}$$

$$= 4.6\ \text{HOURS}$$

- SYNTHETIC FIELD STONE BED

$$= \frac{2,333\ \text{FT}^3}{8.27^*\ \text{IN/HR} \times 5,000\ \text{SF} \times 1/12}$$

$$= 0.7\ \text{HOURS}$$

APPENDIX 3

Standard 4 (TSS)

TREATMENT TRAIN #1

Location: AUSTIN PREP. - NEW PARKING

TSS Removal Calculation Worksheet

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
RAIN GARDEN	0.90	1.00*	0.90	0.10
INFILTRATION BASIN	0.80	0.10	0.08	0.02
		Total TSS Removal =	0.98	= 98%

Project: 670-26

Prepared By: JB

Date: 5/12/25

* Equals remaining load from previous BMP (E) which enters the BMP

TREATMENT TRAIN #2

Location: AUSTIN PREP - NEW PARKING

TSS Removal Calculation Worksheet

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
DEEP SUMP CATCH BASIN	0.25	1.00*	0.25	0.75
INFILTRATION BASIN	0.80	0.75	0.60	0.15

Total TSS Removal = 0.85 = 85%

Project: 670-26

Prepared By: JB

Date: 5/12/25

* Equals remaining load from previous BMP (E) which enters the BMP

APPENDIX 4

Long-Term Operation and Maintenance & Pollution Prevention Plan

OPERATION AND MAINTENANCE
&
LONG TERM POLLUTION PREVENTION PLAN
FOR POST-CONSTRUCTION STORM WATER CONTROLS

AUSTIN PREP SOFTBALL FIELD IMPROVEMENTS
READING, MASSACHUSETTS
May 12, 2025

GENERAL

The Best Management Practices (BMPs) used in the design of the Austin Prep Softball Field project were chosen for their effectiveness at reducing peak discharge, treating the required Water Quality Volume for total suspended solids (TSS), and infiltrating groundwater. Routine maintenance is required for the BMPs, as proper maintenance is essential in achieving the desired result of improved water quality. This Operations and Maintenance (O&M) and Long Term Pollution Prevention Plan (LTPPP) is intended to cover the post-construction maintenance of the permanent BMPs[1] and site specific pollution prevention.

MAINTENANCE REQUIREMENTS

Qualified personnel shall inspect all components of the stormwater management system as outlined below. To be considered "qualified", personnel should have a working knowledge of the maintenance requirements of storm water BMP's and must be approved by the Reading DPW. Qualified personnel shall be responsible for overseeing the required inspections and shall file annual reports with the town of Reading officials. Additionally, a copy of the Inspection/Maintenance Log, as further described herein, shall be provided to town of Reading officials on an annual basis.

SUMMARY OF MAINTENANCE REQUIREMENTS

BMP	MIN. FREQUENCY	RESPONSIBLE PARTY
Trash Removal	Inspect once/month Clean as necessary	AUSTIN PREP
Catch Basin & Leaching Basins	Inspect 4x/year Clean once/year	AUSTIN PREP
Turf Field	Inspect once/year Clean as necessary	AUSTIN PREP
Bio-Retention Area (Rain Garden)	Inspect 4x/year Clean once/year	AUSTIN PREP
Sediment Trap/Detention Area	Inspect once/year Clean as necessary	AUSTIN PREP

[1] Operations and maintenance of temporary erosion and sedimentation controls utilized during construction will be covered by a *Stormwater Pollution Prevention Plan* as required by the National Pollutant Discharge Elimination System program of the Environmental Protection Agency, and is not part of this O&M Plan.

RESPONSIBILITY TO ADMINISTER O&M PLAN

During construction, the general contractor will be responsible for maintaining the stormwater management system in accordance with this O&M Plan until such time that ownership of the project or phases thereof are turned over to the owner. The owner is then responsible for maintaining the portions of the stormwater management system under their ownership in accordance with this O&M Plan. This section below (names and signatures) shall be updated with every change in ownership and/or person(s) responsible for administering/financing the O&M of the system.

Owner(s) of the stormwater management system:

Name: _____ Name: _____

Signature: _____ Signature: _____

Person(s) responsible for financing maintenance and emergency repairs:

_____

_____

INSPECTION AND MAINTENANCE LOG

A sample inspection and maintenance log to be used is attached to the end of this O&M Plan. At a minimum, any inspection and maintenance log used shall include the following items:

- Date activity performed
- Specific inspection/maintenance task
- Structural components inspected/maintained
- Staff person or contractor performing activity
- Supervisor verification of maintenance activity
- Recommended additional maintenance tasks

An Annual Report shall be submitted to the Town of Reading to meet the requirements of the town's Stormwater Management and Erosion Control Regulations.

PROPOSED BMPS AND CORRESPONDING O&M REQUIREMENTS:

TRASH REMOVAL:

The field areas shall be inspected for litter and trash monthly as part of overall site maintenance. Any accumulated trash, litter and discarded materials in these areas shall be removed.

No disposal of materials will be permitted within the landscaped areas or wooded areas on the Site. This prohibition applies to trash, fill material, construction debris, grass clippings, collected leaves and cut branches.

DEEP SUMP CATCH BASINS:

The catch basins shall be inspected four times per year for build-up of sediment, oil, and/or other debris which could decrease the effectiveness of the sumps. A qualified company specializing in the cleaning of catch basins shall perform the inspection of catch basins.

Typically a dipstick tube equipped with a ball valve, such as a Sludge Judge®, is used to measure the approximate oil and sediment depth, and a vacuum truck is used to clean out the catch basin. Catch basins shall be cleaned once per year, or sooner if the depth of sediment is found to reach 12 inches. If visual inspection observes any evidence of hydrocarbons, the material shall be immediately cleaned and disposed in accordance with all applicable local, state and federal guidelines and regulations.

Frames and grates should be inspected and repaired or replaced as necessary to ensure proper operation.

GROUNDWATER RECHARGE SYSTEM:

The groundwater recharge systems consist of a network of underground HDPE chambers surrounded and set in a bed of crushed stone. The purpose of the recharge systems are to infiltrate stormwater runoff back into the aquifer, and as such it is important to preserve the integrity of these systems.

It is important to occasionally inspect the system to ensure it will continue to function efficiently for the long term.

To accomplish this, the recharge system should be inspected four times per year. The system includes observation ports which are vertical pipes that extend from the recharge chamber to the ground surface. A dipstick tube equipped with a ball valve, such as a Sludge Judge®, or a stadia rod should be used to measure the depth of sediment in the chamber. Should the depth of sediment exceed six inches, which is not expected to occur during the life of the system, the chamber(s) should be cleaned of the sediment. In the unlikely event that the system would need to be cleaned, a culvert cleaning nozzle such as a JetVac® is recommended.

If the inspection determine that the system fails to fully drain within 72 hours of a storm event, the responsible party shall retain a qualified engineer to assess the reason for infiltration failure and to recommend corrective action for restoring infiltration function. The responsible party should immediately implement corrective action based on this evaluation.

SYNTHETIC SPORTS FIELD:

The groundwater recharge system consists of a bed of crushed stone located under the field surface. The purpose of the bed is to infiltrate stormwater runoff back into the aquifer, and as such it is important to preserve the integrity of the field surface.

It is important to occasionally inspect the field to ensure it will continue to function efficiently for the long term. The owner should complete the required maintenance as recommended by the manufacturer of the field components.

The field should be inspected annually. If the inspection determine that the field fails to fully drain within 72 hours of a storm event, the responsible party shall retain a qualified engineer to assess the reason for infiltration failure and to recommend corrective action for restoring infiltration function.

BIORETENTION AREAS (RAIN GARDEN):

The project also includes two Bio-retention / Rain Gardens. The effective long term functioning of these structures is dependent on proper maintenance[2]. Plant care and infiltration maintenance are the two main items of importance.

[2] Recommended Operation and Maintenance procedures were taken from the "Prince George County, Maryland, DER Bioretention Manual, dated; Dec. 2007.

Trimming and pruning of excess vegetation will occasionally be necessary. Dead, dying, diseased, or hazardous branches should be trimmed and removed. This should be done annually in the spring prior to the budding of the plants. Dead plants should be removed and replaced. Mowing and weeding of invasive species should take place as necessary during the growing season. Native grasses should be mowed to provide a neat trim appearance with heights no shorter than 8".

The hardwood mulches should be re-applied once every 6 months during the first three growing seasons. Trash and debris should be removed weekly while the facility is in use. It is appropriate for stormwater to temporarily (<6 hrs) pond above the surface. If ponding is witnessed for extended periods it is recommended that the mulch be removed to allow the raking of the sediment and loosening the top layer of soil. The mulch can then be replaced and abated as necessary.

SEDIMENT TRAP/DETENTION BASIN:

The stormwater management system includes one storm water sediment trap/detention area. This area shall be inspected four times per year for erosion, accumulated sediment, and debris that could affect the capacity of the pipes. Any concerns shall be addressed as soon as practicable to ensure free flow. Snow may not be stockpiled in the sediment trap/detention area. Sediment shall be removed once it has accumulated to a depth of six (6) inches in the trap or within three (3) inches of the lowest outlet. Sediment shall be disposed in accordance with all applicable local, state and federal guidelines and regulations.

LONG TERM POLLUTION PREVENTION:

MAINTENANCE OF LANDSCAPED AREAS:

Fertilizers used for landscaping and lawn areas shall be slow release, low-nitrogen types (<5%) and shall not be used within 25 feet of a wetland resource area, and pesticides/herbicides shall not be used within 100 feet of a wetland resource area. Furthermore, the use of any fertilizers, pesticides, and herbicides shall be in accordance with the manufacturer's recommendations.

WINTER MAINTENANCE OF WALKS AND DRIVES:

Snow storage shall take place on pervious surfaces to the extent practicable to allow the snowmelt to filter through the soil, leaving behind sand and debris that can be removed in the springtime. Snow shall not be stockpiled in drainage collection areas or conveyance channels as this may block the system causing flooding. Furthermore, snow shall not be stored in or within 25 feet of a wetland resource area. No road salt, sodium chloride, or other deicing chemicals shall be used on paved surfaces within 25 feet of a wetland resource area.

STORAGE OF WASTE PRODUCTS:

Any outdoor storage of waste products shall be covered to prevent rainfall from picking up contaminants from the waste. This requirement shall include any dumpster(s) which shall have the lid(s) closed when not being loaded or unloaded.

ILLICIT DISCHARGES:

There shall be no illicit discharges to the stormwater management system. Illicit discharges are defined by 310 CMR 10.04 as follows:

"Illicit discharge means a discharge that is not entirely comprised of stormwater. Notwithstanding the foregoing, an illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated ground water, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing and water used to clean residential buildings without detergents."

Prior to the discharge of stormwater runoff to the post-construction stormwater best management practices, an Illicit Discharge Compliance Statement shall be submitted to the Reading Planning Board verifying that no illicit discharges exist on the site.

EMERGENCY SPILLS

The owner shall provide personnel with a list of emergency contact phone numbers to use to report a spill. At a minimum the list should include the DEP Emergency Response Section, an environmental cleanup contractor such as Clean Harbors, Inc., the Reading Fire Department, and a contact person/phone number for the owner:

- DEP Emergency Response **1(888)304-1133**
- Clean Harbors, Inc. **1(800)645-8265**
- Reading Fire Department **911 or (781) 944-3132**
- Owner (Austin Prep) **781-944-4900**

While the above-listed phone numbers are current as of the writing of this O&M Plan, the owner shall be responsible for verifying these numbers prior to distribution to the homeowners. Additionally, the owner shall update and redistribute a list of emergency contact phone numbers to the homeowners every other year, or sooner should any changes occur.