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1055 Washington Boulevard
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April 9, 2024

VIA E-MAIL & HAND DELIVERY

Mike Conklin, Director
Environmental Affairs Department
Town of Wilton
238 Danbury Road
Wilton, CT 06897
Mike.Conklin@wiltonct.org

Re: Responses to Third-Party Review and Town Comments; IWC App. WET#2918(S)
***Address*: 64 Danbury Road, Wilton, Connecticut**
***Applicants*: Wilton – 64 Danbury Road Owner LLC (Owner)**
Fuller Development, LLC (Contract Purchaser)

Dear Director Conklin:

As you know, our firm represents Wilton – 64 Danbury Road Owner LLC and Fuller Development, LLC (collectively, the "Applicants") in the above-referenced application (the "Application"), which proposes to redevelop the property located at 64 Danbury Road, in Wilton (the "Property") with multifamily housing. The Property is part of the larger parcel consisting of 50, 60, and 64 Danbury Road (the "Office Park"). Since the initial Application filing on January 2, 2024, the Applicants have received written feedback from the Wilton Public Works Department ("DPW"),[1] and the third-party reviewer for the proposal, Cardinal Engineering Associates ("Cardinal Engineering"), as well as questions and comments from you and the Inland Wetlands Commission (the "Commission"). The enclosed materials were prepared in response to these collective comments.

As requested, as part of this supplemental submission, Erik Lindquist, the project engineer, also evaluated the environmental benefits of moving the proposed location of Buildings 7 and 8 away from the hillside on the northeastern corner of the Property. This relocation is depicted on the plan titled "Alternate Site Plan (C-101A)," prepared by Tighe & Bond, Inc. ("Tighe & Bond"), dated March 26, 2024. For multiple reasons, Mr. Lindquist determined that the Alternate Site Plan is

[1] As indicated in his letter, Mr. Santacroce's comments also concern items that will be addressed as part of the review by the Planning and Zoning Commission.

not superior to the current proposal from an environmental perspective. The relocation results in a similar volume of excavation from the hillside, requiring a series of four (4) stepped retaining walls, whereas the proposed location only requires two (2). Moreover, the relocation also requires excavation within the regulated area upland of the pocket wetlands, near the existing volleyball court. Notably, after studying historic aerial photographs of the site, it appears that this hillside was previously cleared and improved with a residential dwelling and related site improvements (e.g., driveway), respectively. Further details related to Mr. Lindquist's analysis will be formally presented at the Commission's meeting on April 25, 2024.

In furtherance of the Application and in response to the comments received please find eleven (11) copies of the following materials:

- Letter from Tighe & Bond to Stephen Santacroce, DPW, dated April 9, 2024;
- Letter from Tighe & Bond to Roy Sellye and Darin Lemire, Cardinal Engineering, dated April 9, 2024;
- Aerial photographs of the Property:
  - Fairchild Arial Survey Co., Connecticut Air National Guard, dated April 1934, retrieved from the UConn Air Photo Archive on April 9, 2024; and
  - U.S. Geological Survey, dated April 11, 1991, retrieved from Google Earth on April 9, 2024;
- Copy of the report prepared by ELS, titled "Nonnative Invasive Plan Species Management Plan for Fuller Development, 64 Danbury Road, Wilton, CT," dated December 21, 2023;
- Set of Engineering Plans, prepared by Tighe & Bond, dated December 21, 2023, revised April 8, 2024, titled:
  - "General Notes, Legend and Abbreviations (C-001)";
  - "Existing Conditions Plan (C-002)";
  - "Overall Site Plan (C-100)";
  - "Site Plan (C-101)";
  - "Fire Truck Turning Movements Plan (C-102)";
  - "Grading Plan (C-201)";
  - "Drainage Plan (C-301)";
  - "Drainage Plan Enlargement (C-302)";
  - "Utility Plan (C-401)";
  - "Sanitary Profile (C-402)";
  - "Soil Erosion and Sediment Control Plan Initial Phase (C-501)";
  - "Soil Erosion and Sediment Control Plan Final Phase (C-502)";
  - "Soil Erosion and Sediment Control Notes Narrative and Details (C-503)";
  - "Soil Erosion and Sediment Control Details (C-504)";

- “Details – 1 (C-601)”;
- “Details – 2 (C-602)”;
- “Details – 3 (C-603)”;
- “Details – 4 (C-604)”;
- “Details – 5 (C-605)”;
- “Details – 6 (C-606)”;
- “Details – 7 (C-607)”;
- “Details – 8 (C-608)”;
- “Details – 9 (C-609)”; and
- “Cross-Sections (C-701)”;

- Copy of the plan depicting the proposed relocation of Buildings 7 and 8, prepared by Tighe & Bond, titled “Alternate Site Plan (C-101A),” dated March 26, 2024,

- Set of Landscape Plans prepared by Environmental Land Solutions (“ELS”), titled:

    - “Landscaping & Lighting Plan (LP-1),” dated January 2, 2024, revised to April 5, 2024;
    - “Details & Notes (LP-2),” dated January 2, 2024, revised to February 20, 2024; and
    - “Supplemental Landscape Plan (LP-3),” dated April 5, 2024;

- Copy of the Photometric Calculation prepared by Illuminate, titled “Project 23290 – 64 Danbury Road, Wilton (L-1),” Revision E, dated April 2, 2024;

- For reference purposes only: plans prepared for the Safety and Operational Improvements on Route 7 At Grumman Hill Road by the Office of Engineering of the State of Connecticut Department of Transportation, titled:

    - “Highway Design Index of Drawings (03.01),” dated March 7, 2019;
    - “”Alignment & Row Layout Plan (03.02),” dated March 6, 2019;
    - “Highway Plan (03.28),” dated March 6, 2019; and
    - “Drainage Plan (03.31),” dated March 6, 2019;

- Copy of the report by Tighe & Bond, titled “Engineering Report, prepared for: Town of Wilton, Planning and Zoning Commission,” dated December 2023, revised April 2024.[2]

[2] Hard copies will be submitted under separate cover. Note that the electronic copy of the Engineering Report contains the hydrographs; the hard copies do not include this information to limit the amount of paper used.

As always, please contact me should you have any questions or require additional information.

Sincerely,

Lisa L. Feinberg

Lisa L. Feinberg

cc: E. Larkin, Elizabeth.Larkin@wiltonct.org
Project Team

F-0173-001
April 9, 2024

Mr. Stephen Santacroce, PE
Senior Civil Engineer
Town of Wilton
Wilton Public Works Department
283 Danbury Road
Wilton, CT 06897

Re: Wilton Inland Wetlands and Watercourses Agency Review
Application for a Significant Regulated Activity
Application #2918(S) - Wilton 64 Danbury Road Owner, LLC
Fuller Development, LLC – Co-Applicant
64 Danbury Road, Wilton, CT

Dear Mr. Santacroce:

Thank you for the opportunity to address your comments for the above referenced project in the Town of Woodbridge. The following summarizes your comments in *italic* and our responses in **bold** text:

Staff Comments:

The following items shall be addressed as part of the Wetlands Application Review:

1. *For record tracking purposes, please provide the following:*
   Existing pervious surface Area (sqft)
   Existing impervious surface area directly connected to the water course (sqft)
   Existing impervious surface area not connected to the water course (sqft)
   Proposed pervious surface area (sqft)
   Proposed impervious surface area disconnected from the water course (sqft)
   Proposed impervious surface area directly connected to the water course (sqft)
   (Definition of "directly connect" verses "disconnect" is as defined in the State MS4 program.

   Response: See below for a summary of the requested numbers:

   Existing Pervious Surface Area = 145,800 SF
   Existing Impervious Surface Area Directly Connected = 97,020 SF
   Existing Impervious Surface Area NOT Directly Connected = 3,180 SF
   Proposed Pervious Surface Area = 101,065 SF
   Proposed Impervious Surface Area Disconnected = 132,585 SF
   Proposed Impervious Surface Area Directly Connected = 12,350 SF

2. *In the Engineering Report, provide hydrograph reports for the proposed infiltration units. Provide reports for the existing 36" pipes being used for stormwater storage in the calculations.*

   Response: The electronic copy of the engineering report has all the hydrographs, hard copies are reduced to limit amount of paper being used.

3. *At this time test pits are required to determine soil characteristics and groundwater depths. Soil percolation tests should be conducted to determine infiltration rates.*

   Response: Deep test pits and percolation tests were performed on site March 7th and 8th. Results are included in the revised engineering report.

4. *Prepare a demolition plan in order to more clearly show what utilities and features are being removed and what is proposed to be maintained, especially as it relates to the existing storm water infrastructure.*

   Response: The existing conditions plan has been updated to make note of the existing drainage pipes that are to remain and those to be removed/abandoned.

5. *Any existing stormwater infrastructure that is proposed to be re-used I maintained shall be inspected and repaired or replaced if deemed necessary prior to building permit set.*

   Response: So noted.

6. *Add notes to the plan regarding removal of any ledge that may be encountered. List any safety measures that are required for ledge removal in close proximity to the neighboring residential properties to the north of building units 7 & 8.*

   Response: We have added the notes provided by your office to the plan sheets.

7. *Add callouts to the plans for the top and bottom elevations of the proposed retaining walls.*

   Response: Top and bottom of wall elevations are shown on the grading plans.

8. *The 24" storm pipe inlet area within the wetlands area in back of the volleyball court needs to be cleared of debris and sediment.*

   Response: The 24-inch inlet will be cleared of sediment and silt, then stabilized with riprap to allow for proper conveyance of runoff from the wetlands. The drawings have been updated to show this.

9. *It appears that there is not sufficient cover over the proposed storm infiltration systems. Engineer to verify.*

   Response: The systems provide a minimum of 12-18" of cover over stone envelope and min. 2-ft of cover from chambers.

10. *Provide site sections showing any potential utility conflicts. There appears to be conflicts with the proposed water line utility and infiltration systems, as well as with the existing 54" culvert. It is not recommended to have proposed utilities (water, electric, etc.) crossing infiltration units. Engineer to re-evaluate and / or consult with respective utility company.*

Response: Additional pipe clearance call outs have been added to the plans and the sewer profile. The water service to the club house has been relocated to avoid crossing under the retention system.

11. *Add an enlargement for the area encompassing stormwater infiltration system 5.*

    Response: All the retention systems now have enlargements.

12. *Depict footing drain discharges for the proposed buildings. No footing drains shall be connected to sanitary sewers.*

    Response: The proposed buildings are slab on grade and do not have footing drains.

<u>The following items shall be addressed as part of the Planning & Zoning Review:</u>

13. *The project is subject to obtaining approvals from Wilton's WPCA Commission to connect additional units into the sanitary sewer system. The WPCA is currently evaluating all flows from proposed development projects. Separate letter will follow for WPCA related items.*

    Response: So noted.

14. *A graphic earthwork analysis should be provided in order to more clearly illustrate the cuts and fills within the regulated Copts Brook floodplain.*

    Response: Per our phone discussion, the area in question is a very small area beneath and adjacent to Building 4. In most cases the delta in grades is negligible to only a few inches. The general intent is to cut grades beneath the building to provide more compensatory storage than is required to accommodate the minor filling and columns being proposed within the floodplain. The plans have been updated to better show how the building terraces.

15. *Engineer to submit a traffic report or summary for approval by the Town's Independent Consultant as well as the State's Review and approval.*

    Response: A traffic statement was submitted with the initial application. Review with the State has already started and will provide their approval once local approval has been received.

16. *All proposed work in the State Right of Way shall be subject to the State Encroachment Permit approval.*

    Response: So noted.

17. *The plan is subject to review by the Town of Wilton Fire Marshal.*

    Response: We met with the Fire Marshall on 3/27/24 to go over the proposed development plan. Based on this discussion, the Fire Marshall took no exception to fire access and circulation. Hard copies of the site plan were distributed to his office on 3/29/24 to facilitate his final review and ultimate signoff.

18. *Prior to the issuance of a Certificate of Occupancy, a certified as-built drawing and certified letter signed by a Professional Engineer indicating that all work was completed in accordance with the design plans shall be submitted to the Town of Wilton.*

    Response: So noted.

19. *Establish or verify appropriate pedestrian access easements for the existing sidewalk along Route 7.*

    Response: So noted.

20. *Establish or verify appropriate vehicular access easements for the front drive area.*

    Response: So noted.

If you have any questions, please feel free to contact us at 860-852-5219.

Very truly yours,

TIGHE & BOND, INC.

Erik W. Lindquist, P.E., LEED AP
Senior Project Manager

John W. Block, P.E., L.S.
Senior Vice President

15-0173-001
April 9, 2024

Mr. Roy Seelye, PE
Senior Project Manager
Mr. Darin Lemire, PE, CPESC, CPSWQ
Senior Hydraulic Engineer
Cardinal Engineering Associates
180 Research Parkway
Meriden, CT 06541

Re: Wilton Inland Wetlands and Watercourses Agency Review
Application for a Significant Regulated Activity
Application #2918(S) - Wilton 64 Danbury Road Owner, LLC
Fuller Development, LLC – Co-Applicant
64 Danbury Road, Wilton, CT

Dear Mr. Seelye and Mr. Lemire:

Thank you for the opportunity to address your comments for the above referenced project in the Town of Wilton. The following summarizes your comments in *italic* and our responses in **bold** text:

Staff Comments:

Critical Comments

1. *General-01: Per field visit, it appears test pits were conducted in the areas of the infiltration systems. Provide test pit data. Were permeability tests conducted as well?*

   Response: Test pit and percolation test results have been added to the revised engineering report and included for review.

2. *General-02: Due to the large number of existing utilities, it is strongly suggested to provide a utility demolition and preparation plan. Note utilities and storm drainage to be removed, to remain and protected, etc.*

   Response: Per discussions with the Town engineer, the existing conditions plan has been updated to include delineation of the existing storm drainage lines to remain and the ones to be removed.

3. *General-03: Provide limits of clearing. Based on the grading and landscape plans, it appears that the areas adjacent to Copts Brook will need to be cleared to the top of bank, both sides. This will result in the removal of the existing vegetative buffer along the brook. Landscape plantings and lawn do not offer the potential for habitat.*

   Response: A clearing limit line and trees to be removed have been added to the Initial Phase Erosion Control Plan. The purpose of removing existing woody plants in these areas is to remove Norway Maples to allow a

replanting of native trees. Norway Maples are a nonnative invasive plant, which is renowned for the shallow roots and dense leaf canopy that will prevent plants from thriving beneath their canopy. Except for one Norway Maple that is strongly leaning toward the proposed building, this clearing is not needed for the development, but offered to provide an enhanced native and more diversity habitat plants selection along the wetlands and watercourse. The existing smaller Sugar Maples (4-6" caliper) will remain. There is no expansion of lawn area proposed on the site.

4. *General-04: Provide limits of clearing. Based on the grading and landscape plans, it appears that the areas adjacent to Copts Brook will need to be cleared to the top of bank, both sides. This will result in the removal of the existing vegetative buffer along the brook. Landscape plantings and lawn do not offer the potential for habitat. This is also the same condition at the small wetlands area at the volleyball court. It appears all upland vegetation will be removed.*

   Response: Similar to the response above, the purpose of removing nonnative invasive existing vegetation is to strictly enhance the vegetation adjacent to the wetlands. The area of the pocket wetland is targeted to remove Japanese Knotweed, an aggressive nonnative plant. The area will be replanted with a dense thicket of native shrubs. This clearing is not needed for the development. We have added notes to remove existing large Asiatic Bittersweet from the trees.

5. *RPT-8: The existing conditions watershed on the east side was stopped at the limit of the topographic survey, but the watershed appears to extend farther to the east into the Whipple Road area. This area is generating stormwater which ultimately flows onto the property. Some of this flow appears to be supporting the wetland near the volleyball court. The watershed should be revised to account for the additional stormwater.*

   Response: The watershed maps have been revised to more accurately depict this area and are included with the updated engineering report.

6. *RPT-18: 3.4.2 Compensatory Storage: It is stated that Building 4 will be constructed on Columns to minimize impact on the flood storage characteristics of Copts Brook. However, neither the architectural plans or site plans indicate that this is proposed. Modify the plans accordingly or provide calculations for the loss of flood storage capacity and provided compensatory grading elsewhere within the limits of Copts Brook 100-year flood.*

   Response: The garages for Building 4 are at grade and the lower level studio apartments are what is proposed to be on short columns. A foundation wall will be provided between the two to accommodate the grade transition. The civil plans have been updated to include a crosshatch to reflect this area being proposed on columns. The grade under the building was also proposed to be slightly lower to accommodate the minor inclusion of the proposed columns and the northern entry within the floodplain. These compensatory calculations are included in the engineering report.

7. *RPT-19: The hydrology section dealing with Copts brook depicts the watershed as 435 acres, but this is the the watershed of the brook where it crosses Grumman Hill Road in twin concrete pipes. Please confirm size of watershed (approximately*

470 acres) and include a figure of which clearly shows the limits of watershed boundary with the limits of the site included.

Response: We have updated the hydrology model to accurately reflect the correct design point noted and the revised calculations are included for review. The model was also revised to more accurately reflect lag times within the watershed.

8. *C-201-1: Northeast corner of Building No. 4 is located within the limits of the 100-year flood (El. 139.6). Fin. Flr. 141.7. The construction of the building results in a loss of flood storage capacity of the site. Provide compensatory storage volume. Area will be disturbed during construction. Provide proposed contours. Provide additional existing grades north and west of Building 4. Suggest providing TW and BW elevations of existing retaining wall on Lot 2 N/F Powell. Revise proposed contours north of north end of Building 4 parking area to reflect top of curb elevation of 141.50.*

   Response: As noted in prior comments, the residential portion of the building is on columns and only a small area of the floodplain is being filled at the northern entry. Grading under the building has been slightly lowered to provide the required compensatory flood storage to account for this and the subsequent columns being added.

9. *C-201-4 Building No. 8: Excavation to a depth of ±21 feet from existing grade to proposed finished floor elevation. ±24 feet for footings. Suggest borings to determine depth to ledge and water table. Foundation drains may be required. A detailed sequence of construction for the excavation and disposal of the material should be provided.*

   Response: For budgeting and design purposes it is anticipated that this excavation will all be rock. The proposed buildings will be slab on grade and no foundation drains are anticipated.

10. *C-201-5: The plan calls for a significant amount of cut and removal of existing soil for the construction of Buildings 7 & 8 at the northeast corner of the site, which is within the 100-foot regulated area. This is an area of steep existing grades (>30%). The soil in this area is a Canton and Charlton complex which is a fine sandy loam and susceptible to erosion. Additional measures to protect the wetlands should be provided. Only a single row of silt fence with haybales is provided. The sediment trap is only proposed for the completion of the first phase of excavation.*

    Response: The silt fence adjacent to the wetlands is not standard silt fence, it is heavy duty fencing with angled structural support and reinforced fabric. Another row was added to the erosion control plans during the initial phase to address these concerns.

11. *C-301-2: Provide a site demolition plan which includes how existing storm drainage flows are to be maintained where piping is proposed to be rerouted. Plan should also demolition of the existing building and associated utilities. Plan should also specify materials to be placed as backfill in the location of the foundation of the former building.*

    Response: The existing conditions plan has been updated to document the existing storm drainage to remain and be abandoned/removed.

12. *C-301-5: Level Spreader: Provide elevations of bottom and crest. Detail calls for erosion control blanket. Show limits of the blanket. Detail shows slope of 3:1 on uphill side of level spreader. Existing grades are steeper than 3:1. Confirm that an 8″ HDPE Flared End Section is available. It appears that the smallest flared end sections available is 12″ diameter.*

    Response: An erosion control blanket will be provided in the areas of disturbance exiting the level spreader to meet existing grades, approximate locations are shown on the plans.

13. *C-301-16: Replace headwalls at the 54″ RCP culvert at Copts Brook. Walls are in disrepair. Provide fencing on top of wall (4 ft. vinyl coated chain link) for fall protection. Provide inlet protection (trash screen) to prevent debris from entering and potentially clogging the system. Provide protective fencing (4 ft. vinyl coated chain link) at top of slope at Copts Brook. This will also assist in keeping trash and other debris from the brook.*

    Response: The design drawings have been revised to show replacing the existing headwall. A trash rack and security fence will be provided as well. The security fence will extend across the headwall and an additional 20 feet past the headwall on both sides.

Town of Wilton Inland Wetlands Commission Application

14. *APP-1: Additional description of chemical and physical characteristics of the 4,400 cy of material to be deposited. Characterization of onsite materials (geotechnical testing including sieve analysis) to be reused on onsite should be completed.*

    Response: The intent for this project is to reuse as much material on site as possible. New material brought in will most likely be associated with the pavement, concrete and associated base materials. The location and composition of these materials is not yet known and will be reviewed during the construction administration phase once a contractor is selected and submittals are provided. Fill material to be deposited will be clean soil, free of large stones, organic material and woody debris.

Reports

<u>Engineering Report – 64 Danbury Road, Wilton, Connecticut, dated December 2023, prepared by Tighe & Bond.</u>

15. *RPT-1: In Section 1, the report should include references to the 2002 CT E&S Guidelines and the revised manuals (Soil Erosion & Sediment Control and Water Quality Manual) that become effective at the end of this month:*

    Response: The report has been revised to reflect this reference.

16. *RPT-2: Stormwater management system should treat 50% of WQV based on the 1.3 inch storm.*

    Response: The initially submitted design provided water quality storage in excess of the 0.65-inch storm (one half the 1.3-inch storm). Based on the revisions required to the storm drainage system as a result of subsequent on-site percolation and deep hole testing, the system has been

revised and continues to provide storage for the 0.65-inch storm. The report text has been updated to make this clearer.

17. *RPT-3: Soil permeability and infiltration assumptions should be verified with fieldwork along with groundwater elevations. See critical comment 1.*

    Response: These tests were performed on March 7 and 8, 2024. The results are included in the updated Engineering Report.

18. *RPT-4: Section 1.4 describes the delineation of wetlands and says this work was completed in February and March of 2017. Section should be revised with actual dates and indicate that both state and federal wetlands were flagged.*

    Response: The delineation was performed on February 23, 24, March 9, and April 10, 2017. The summary letter of findings is included with the revised report.

19. *RPT-5: Under existing site hydrologic analysis, it is stated that the 54 inch RCP culvert discharges to the Norwalk River. If the pipe connects to the Norwalk River, then a joint probability analysis appears warranted where a 10 to 1 ratio may be appropriate (i.e. 25 year pipe capacity should use 10 year tailwater for the river).*

    Response: The starting HGL for the stormwater model has been updated to reflect the 10-year tailwater elevation in the Norwalk River at this location.

20. *RPT-6: Report should include a description of measures taken to verify condition of the existing 54 inch discharge pipe and condition of the outlet. Was a CCTV inspection conducted or field inspections performed to verify that it is good shape with no cracks, perforation, or joint separations and can handle the additional stormwater. The inclusion of this data into the report would be suggested including any field inspection photos of the interior of the pipe and outlet.*

    Response: The pipe has not been inspected to confirm current conditions, this is a Town drainage line. We can work with the Town to confirm the condition of this line and any others to remain on site prior to re-using. As a point of clarification, under the proposed development plan the total volume and peak rate of stormwater being directed from the proposed development to this line will be decreasing in all analyzed storm events.

21. *RPT-7: The description of the existing hydrology should include that there is flow from wetland near the volleyball court entering the storm drainage system.*

    Response: The report text was revised to make this clearer.

22. *RPT-8: The existing conditions watershed on the east side was stopped at the limit of the survey, but the watershed appears to extend farther to the east into the Whipple Road area. This area is generating stormwater and flowing onto the property. Some of this flow appears to be supporting the wetland near the volleyball court. The watershed should be revised to account for the additional stormwater.*

    Response: The watershed maps have been revised to more accurately depict the drainage area up to Whipple Road and are included with the

updated engineering report. Whipple Road is curbed and its drainage inlets in the area of our site appear to drain to Grumman Hill Road.

23. *RPT-9: The flow to design point B (the 54-inch culvert) includes flow from the front of the site at the driveway entrance north to an area in front of Building 64. It is not clear from the survey that they connect to the culvert or actually connect to state drainage on Route 7. The survey shows a 36 inch invert in the southerly direction at 127.4 feet which appears to be the outlet. This conflicts with the time of concentration path for EX-WS-02H.*

    Response: The design plans for the Route 7 widening are included as a separate attachment with these responses to provide further clarity. The State catch basins on Danbury Road connect to the 54-inch (shown as a 60-inch on State drawings) storm line. The existing infiltration system in question connects to the State catch basin and we are not proposing to touch this system as part of the proposed development plan.

24. *RPT-10: The proposed conditions watershed figure (PR-WS) should include additional area due to run on from the Whipple Road area. This appears to significantly affect PR-WS-2A (II), PRWS-2B (I), PRWS-3, and PR-WS-2D.*

    Response: The watershed maps have been revised to reflect this change. While it is an increase in total area, it will remain unchanged between the existing and proposed conditions as part of the proposed development plan.

25. *RPT-11: The flow from wetland near the volleyball court entering the storm drainage system appears to conflict with time of concentration path for PR-WS-2A.*

    Response: We have revised the watershed map and time of concentration path per the prior comments to more accurately reflect this condition in the existing and proposed condition.

26. *RPT-12: The eastern area of PR-WS-1 (north, west, and south of Buildings 7 and 8) is being modeled as forested, but it appears this area is converted to grass after removal of trees (site clearing work).*

    Response: There will be a small area of grass immediately behind the homes up to the retaining walls. The balance of disturbance will be heavily planted with shrubs and trees per the landscape drawings. We have adjusted the corresponding weighting on the coverage numbers, but it is minor in comparison to the overall watershed.

27. *RPT-13: Storm sewers reports should be provided for existing and proposed conditions. The reports should also include other storm events (e.g. 10 year, 25 year, 100 year). The reports should include the hydraulic grade profiles for existing and proposed systems. A proposed network should be provided accounting for CB-08 input, system 4,, system 5 input (from OCS-05), and overflow from infiltrator 1. These appear to account for another 10 cfs during a 25 year storm.*

    Response: Storm sewer reports are not typically provided for existing drainage systems since they are being either replaced or amended as shown in the proposed model. Furthermore, per Town drainage guidelines, piped drainage is to be designed for the 25-year peak storm

event, which the storm sewer model provided documents our system is in compliance with.

28. *RPT-14: Report should include a description of how starting hydraulic elevation was selected/calculated for 54 inch RCP to support the storm sewer calculations. The 25 year HGL is shown as 132.24 feet.*

    Response: We have adjusted the starting HGL in the model to be the 10-year elevation of the Norwalk River at the discharge location of the culvert.

29. *RPT-15: The proposed storm sewers model does not include the 24-inch line carrying water underneath the tennis court from the wetland area to DMH-06.*

    Response: The model has been updated to include this flow.

30. *RPT-16: Stormwater line between DMH-02 and DMH03 has a capacity less than the pipe upstream.*

    Response: The capacity in the two pipes noted is off by 0.06 cfs, or 0.1%. This is due to the calculated pipe slopes between the two lines being off by 0.01%. Since flatter pipes of the same size have less capacity the slight reduction in pipe slope resulted in a slight reduction in capacity. These numbers have since been revised based on the updated storm drainage model.

31. *RPT-17: Under Best Management Practices, catch basins and yard drains with sumps are mentioned, but indicates 24-inch sumps are a BMP. The CT Stormwater Manual recommends sump depths of 4 feet or greater.*

    Response: The sumps have been revised to 4-ft.

32. *RPT-18: 3.4.2 Compensatory Storage: It is stated that Building 4 will be constructed on Columns to minimize impact on the flood storage characteristics of Copts Brook. However, neither the architectural plans or site plans indicate that this is proposed. Modify the plans accordingly or provide calculations for the loss of flood storage capacity and provided compensatory grading elsewhere within the limits of Copts Brook 100-year flood.*

    Response: The garages for Building 4 are at grade and the lower-level studio apartments are what is proposed to be on short columns. A foundation wall will be provided between the two to accommodate the transition. The civil plans have been updated to include a hatch to reflect this area being proposed on columns. The grade under the building was also proposed to be slightly lowered to accommodate the minor inclusion of the proposed columns and the northern entry within the floodplain. These compensatory calculations are included in the engineering report.

33. *RPT-19: Appendix H presents the hydrology of Copts brook. It depicts the watershed as 435 acres, but this is the is the watershed of the brook where it crosses Grumman Hill Road in twin concrete pipes. Please confirm size of watershed (it appears closer to 470 acres) and include a figure of which clearly shows the limits of watershed boundary and limits of the site. Description of storage within the watershed should be described.*

Response: We have updated the hydrology model to accurately reflect the correct design point and the revised calculations are included for review.

34. *RPT-20: Under Section 3 Floodplain Management, the FIS was listed as 2010, but a revised study was completed in October 16, 2013.*

Response: The text has been revised to reflect the correct date.

35. *RPT-21: Cut and fill grading plans (with tics at 5 or 10 foot grid) should be created to support equal conveyance.*

Response: Civil 3D was used to calculate the volumetric difference between the existing and proposed surfaces included in the report.

36. *RPT-22: Initial phase of construction should include pre-construction meeting with Town's Director of Environmental Affairs. This should be indicated on E&S drawings also.*

Response: Town's Director of Environmental Affairs has been added to the list of attendees at the pre-construction meeting identified on the E&S Drawings.

37. *RPT-23: Hydroflow report provides pond report (for outlet control structures) for the 2 year storm only. These reports should also be included for the other storm events especially 25 year and 100 year.*

Response: A digital copy of the full report including all these hydrographs was included with our submission, the hard copy was abridged to save on paper. An updated full digital copy of revised calculations has been provided for review with these responses.

<u>Biological Evaluation–50 60 & 64 Danbury Road Wilton, Connecticut Wetland, dated January 2, 2024, prepared by ELS.</u>

38. *ELS-1: It states the wetlands were flagged by Otto Theall in April 2017. This should be revised to be consistent with Theall report (wetlands flagged February 23, March 9, and April 10, 2017).*

Response: We acknowledge that the wetlands were flagged by Otto Theall, and reference three separate field visits to determine the wetland boundary dated February 23, March 9, and April 10, 2017. These flags are noted on the application's "Topographic Survey," prepared by D'Andrea Surveying and Engineering, PC., dated 9/12/23.

39. *ELS-2: Indications of diameter breast height (DBH) of trees on northern part of the site near Copts Brook and clearing limits for proposed buildings 7 and 8 should be provided.*

Response: ELS visited the site on 3/29/24 and confirmed that existing trees at the front of the site are correctly noted on the plan. In the vicinity of Building 7 & 8 the trees sizes were updated, and trees not previously noted were field located and added to the plans.

40. *ELS-3: The proposed grading and drainage in northeast corner of the site appear to result in less flow to the small pocket wetland (AD-13 and AD-14 collect water that discharge to another area of the site) which could lead to the wetland drying out (change in hydrology) and to negative impacts.*

    Response: The proposed grading plan does change a very minor watershed area of this pocket wetland. However, the watershed that comes off the hillside to the east supplies more than 99% of the surface water to this wetland. The change is not expected to have an impact to the water hydrology supporting this wetland.

41. *ELS-4: Material on site might not be suitable for use as construction materials due to high silt and clay content so significant import of soils and materials may be anticipated. Additional information needed on materials to be excavated and materials to be deposited due to significant values (14,000 cy excavated & 4,000 cy deposited).*

    Response: A licensed geotechnical engineer will be retained to review and certify that all soils material that remains on site will be suitable for reuse.

42. *ELS-5: There are several 30-inch trees near Route 7 in front of Building 64 that will need to be removed. Can utilities and layout be adjusted so they can remain.*

    Response: We acknowledge that several large shade trees along Route 7 will be removed due to the placement of Building #1 and stormwater piping. These trees, planted for the previous development, are identified as White Ash trees. It is expected that these trees will succumb and die from the recent introduction of the Emerald Ash borer into the area. These trees will be replaced with native shade trees, Redmond Linden, that are not prone to this pest. To further mitigate the trees removed in connection with this development, the Applicants propose to plant a total of 11 additional trees and 25 additional shrubs on the office campus as reflected on "LP-3, Supplemental Landscape Plan" dated 4/5/2024 and submitted herewith.

Engineering Plans

<u>Topographic Survey (prepared by D'Andrea Surveying & Engineering)</u>

43. *TS-1: Suggest providing a strictly property map that clearly depicts boundary, setbacks and all easements.*

    Response: Refer to the zoning location survey, prepared by D'Andrea Surveying Associates, P.C., dated July 11, 2017, revised January 2, 2024.

44. *TS-2: Survey doesn't show end of 54 inch pipe where most of the site is discharging.*

    Response: This discharge is off the project site and on private property not owned by the applicant.

Sheet C-001 General Notes, Legend and Abbreviations

45. *C-001-1: Form 818 Notes: Update Form 818 reference to current supplements. Add 'Facilities" to Form 818 title.*

    Response: Note has been revised.

46. *C-001-2: Form 818 Notes: Note #4 refers to CTDOT District 4. Note does not apply to this project.*

    Response: Note has been revised.

47. *C-001-3: Grading Notes: Note #4. Provide locations of protective fencing on plans. Call out fencing height and material.*

    Response: Protective fencing shall be black, 4-foot, vinyl-coated chain link. Plans have been updated to include additional call outs and details.

Sheet C-002 Existing Conditions Plan

48. *C-002-1: Update survey to include reconstructed Route 7 and associated drainage.*

    Response: Supplemental design drawings for the Route 7 widening have been included with these responses for reference. Approximate locations of relevant storm drainage from these plans have been added to the project base.

49. *C-002-2: Does the site drainage connect to the State system for Route 7? If so, review and approval of changes to the storm drainage system on site may be required by CTDOT.*

    Response: No, the 54-inch line is a Town line the state drainage structures connect to. We are reviewing this with CTDOT as part of our OSTA application with the State.

50. *C-002-3: Provide additional contours at the wetlands area near the volleyball court. Invert of 24" pipe = 151.0. First contour is elevation 155. This will better define the area of the brook.*

    Response: The contouring shown is accurate, the inlet for the pipe will be cleared of sediment and silt, then stabilized with riprap to allow for proper conveyance of runoff from the wetlands.

Sheet C-100 Overall Site Plan

51. *C-100-1: Show limits of clearing / tree removal. Based on the grading and landscape plans, it appears that the areas adjacent to Copts Brook will need to be cleared to the top of bank, both sides. This will result in the removal of the existing vegetative buffer along the brook. Landscape plantings and lawn do not offer the potential for habitat. This is also the same condition at the small wetlands area at the volleyball court. It appears all upland vegetation will be removed.*

    Response: A clearing limit line and trees to be removed have been added to the Initial Phase Erosion Control Plan.

Sheet C-101 Site Plan

52. *C-101-1: Show limits of clearing / tree removal. Indicate size of trees to be removed.*

    Response: The clearing limits have been added to the Initial Phase Erosion control plan and have been update to include the size and locations of trees to be removed as well as landscape plans.

53. *C-101-2: Review parking count. Appears to be incorrect. Accessible spaces counted twice in total.*

    Response: Parking counts shown are correct. Accessible spaces are not counted in the 107 surface spaces.

54. *C-101-3: Suggest eliminating the parking space in front of tennis court gate for access.*

    Response: The parking space in question is part of a shared parking area used to accommodate 60 Danbury Road. An additional gate has been added to the Site Plan on the north side of the tennis court for access to the gazebo.

55. *C-101-4: The partial repaving of the circle south of buildings 1 and 2 does not seem practical. It appears that more than half of the roadway will be disturbed by utility installation and additional drainage seems likely in this area.*

    Response: The intent is to sawcut and trench utilities within the driveway as required to install the proposed utilities. Once this work is complete, the repaired areas will be milled, and a pavement overlay provided. The plans have been updated to include a hatch for the areas of milling and pavement overlay.

56. *C-101-5: What portion of the stone wall south of the tennis court is to remain? Is some of the stone wall going to be moved?*

    Response: The stone wall will be removed in all areas where grading is required.

57. *C-101-6: Trash Compactor Enclosure: Who will be discarding trash into the compactor? If residents, access should be ADA accessible for all residents.*

    Response: The trash area is accessible from the north side where the accessible space is. Grading in this lot is higher and provides accessible access to the top of the dumpster.

58. *C-101-7: Suggest sidewalk ramps at crosswalk north of Buildings 3 and 5.*

    Response: The sidewalk on the north side of the primary driveway ends at a set of stairs and is not accessible.

59. *C-101-8: Van spaces at pool: Typically, 8 ft. striping is on the passenger side of the van parking space to allow for a lift.*

Response: This current space configuration meets ADA shared space dimensional requirements for vans. If needed, a van can back into the space to utilize the cross hatch on the passenger side.

60. *C-101-9: Is speed bump at traffic circle in front of the proposed Clubhouse to be removed? Is the crosswalk to remain or be removed? If to remain, a pedestrian ramp is required on the Clubhouse side of the crosswalk.*

    Response: The sidewalk within the existing entry circle has been adjusted to provide an accessible route that utilizes a new crossing to the new accessible ramp at the site entry. The speed hump will be relocated to this location.

61. *C-101-10: Note retaining wall types, modular block or gravity wall. Two details provided.*

    Response: The walls will be designed during construction documents. The initial intent is to utilize gravity walls in areas of cut and modular block walls in fill areas.

62. *C-101-11: Sidewalk adjacent to Route 7 is going to be trenched through for utilities. Its repair should be noted.*

    Response: Additional sidewalk repairs have been noted on site plan.

63. *C-101-12: Three of the porches of Building 1 are within the front setback zone.*

    Response: The "porches" of Building 1 are Terraces, which are permitted within the setback in accordance with Section 29-4.C.5 of the Zoning Regulations provided they do not project "closer than one-half of the minimum required building setback distance from any property line."

<u>Sheet C-102 Fire Truck Turning Movements Plan</u>

64. *C-102-1: Verify plan is approved by Wilton Fire Marshall. Is the fact that the fire truck cannot access directly in front of Buildings 5 and 7 an issue? What is the maximum allowable distance from the building to the fire truck.*

    Response: We met with the Fire Marshall (Rocco Grosso) on 3/27/24 to review the site plans and architecture. He was generally supportive of the current layout and access and requested a hard copy for final confirmation and sign-off. Once received we will provide this concurrence to the commission.

<u>Sheet C-201 Grading Plan</u>

65. *C-201-1: Northeast corner of Building No. 4 is located within the limits of the 100-year flood (El.139.6). Fin. Flr. 141.7. The construction of the building results in a loss of flood storage capacity of the site. Provide compensatory storage volume. Area will be disturbed during construction. Provide proposed contours. Provide additional existing grades north and west of Building 4. Suggest providing TW and BW elevations of existing retaining wall on Lot 2 N/F Powell. Revise proposed contours north of north end of Building 4 parking area to reflect top of curb elevation of 141.50.*

Response: As noted in prior comments, the residential portion of the building is on columns and only a small area of the floodplain is being filled in at the northern entry. Grading under the building has been slightly lowered to provide the required compensatory flood storage to account for this and the subsequent columns being added.

66. *C-201-2: Grading Note #7 refers to survey of 141 Danbury Road.*

Response: Note has been corrected.

67. *C-201-3: Provide Fin. Flr. Elevations and Garage Flr. Elevations on Grading Plan.*

Response: Grading plan has been updated to show these elevations more accurately.

68. *C-201-4: Building No. 8: Excavation to a depth of ±21 feet from existing grade to proposed finished floor elevation. ±24 feet for footings. Suggest borings to determine depth to ledge and water table. Foundation drains may be required. A detailed sequence of construction for the excavation and disposal of the material should be provided.*

Response: For budgeting and design purposes it is anticipated that this excavation will all be rock. The proposed buildings will be slab on grade and no foundation drains are anticipated.

69. *C-201-5: The plan calls for a significant amount of cut and removal of existing soil for the construction of Buildings 7 & 8 at the northeast corner of the site, which is within the 100-foot regulated area. This is an area of steep existing grades (>30%). The soil in this area is a Canton and Charlton complex which is a fine sandy loam and susceptible to erosion. Additional measures to protect the wetlands should be provided. Only a single row of silt fence with haybales is provided. The sediment trap is only proposed for the completion of the first phase of excavation.*

Response: The silt fence in question is not standard silt fence, it is heavy duty fencing with angled structural support and reinforced fabric. Another row was added to the erosion control plans during the initial phase to address these concerns.

70. *C-201-6: Review grades at rear of Building 7. Appears flat and will not drain to area drains at middle units. Suggest relocating AD-16 to the west and lowing to allow area to drain.*

Response: Grate elevations have been slightly adjusted to ensure 2% slopes are maintained in these areas.

71. *C-201-7: It appears that the proposed grades cut ±1ft at the tennis court. How is access to the court to be maintained? Also, consider ADA access to the court.*

Response: The 155 contour runs through the curb in this area and the top of curb is at or within 1 to 2 tenths of existing grades.

72. *C-201-8: Spot grades for accessible parking north of pool area need to be shown on plan.*

Response: Additional spot grades have been provided. Grades within the accessible spaces range from 1.5% to 2% per ADA code.

Sheet C-301 Drainage Plan

73. *C-301-1: Suggest including structure information (TF elevations, Inverts, etc.) for catch basins and manholes to remain. Provide proposed rim / top of frame elevations for structures to remain.*

    Response: Additional top of frame and invert information has been added for adjusted structures to remain.

74. *C-301-2: Provide a site demolition plan which includes how existing storm drainage flows are to be maintained where piping is proposed to be rerouted. Plan should also demolition of the existing building and associated utilities. Plan should also specify materials to be placed as backfill in the location of the foundation of the former building.*

    Response: The existing conditions plan has been updated to document the existing storm drainage to remain.

75. *C-301-3: Why is flow from Infiltration System No. 1 being discharged into CB-02? This water has already been treated. Any treatment measures downstream from CB-02 should be designed to handle the total flow going to that measure.*

    Response: As part of the drainage modifications for the entire site, these systems are no longer routed like this.

76. *C-301-4: Provide location of wall footing drains and discharge locations.*

    Response: These locations will be coordinated with final wall design. A note was added to sheet C-001 stating these drains are to be connected to adjacent storm drainage infrastructure and not daylight to grade.

77. *C-301-5: Level Spreader: Provide elevations of bottom and crest. Detail calls for erosion control blanket. Show limits of the blanket. Detail shows slope of 3:1 on uphill side of level spreader. Existing grades are steeper than 3:1. Confirm that an 8" HDPE Flared End Section is available. It appears that the smallest flared end section available is 12" diameter.*

    Response: An erosion control blanket will be provided in the areas of disturbance exiting the level spreader to meet existing grades, approximate locations are shown on the plans.

78. *C-301-6: Specify which drains are Area Drains, Yard Drains with Dome Grates and Concrete Yard Drains.*

    Response: Additional clarity to details has been provided. Dome grates are for planting beds only, flat top area drains are for lawn and paved areas. The detail for concrete yard drains has been removed.

79. *C-301-7: Specify manhole diameters (4 ft., 6 ft. etc.).*

Response: A note was added stating all manholes unless noted will be 4-ft diameter. Sizing on manholes over 4-ft has been added.

80. *C-301-8: Suggest rerouting roof leaders so they do not discharge into water quality treatment structures as runoff from roofs is considered "clean".*

    Response: Water quality structures are capable of handling the additional flow and prefer to leave some of them as is currently designed to eliminate the need for additional piping and structures to avoid routing to them.

81. *C-301-9: Review pipe lengths and slopes.*

    Response: Pipe slopes and lengths appear accurate and are generated from the Civil 3D pipe network.

82. *C-301-10: Review inverts CB-08.*

    Response: Invert was off by 0.01 and has been adjusted.

83. *C-301-11: Provide doghouse manhole detail(s).*

    Response: An additional detail has been provided.

84. *C-301-12: Provide detail for converting catch basin to manhole.*

    Response: This detail has been added to the plan set.

85. *C-301-13: Note structures to be modified, new inverts core drilled, abandoned inverts to be sealed with block/brick and non-shrink mortar, etc.*

    Response: Additional callouts have been added to the plans to show lines to be cut and capped and manholes to be core and drilled.

86. *C-301-14: Drainage structures with deep sumps should be specified.*

    Response: All new catch basins are intended to have deep sumps.

87. *C-301-15: The drainage plan does not show where the 54 inch pipe ends. Its connection to state drainage in Route 7 or discharge to Norwalk River should be shown so hydraulic grade line calculations and capacity can be determined. A profile of the 54-inch pipe seems warranted showing all of the connection points to pipe from the Norwalk River to Copts Brook.*

    Response: Supplemental plan sheets for the Route 7 widening have been provided for reference. The 54-inch line (shown as 60-inch on CT DOT plans) discharges to the Norwalk River. Since we are reducing peak flows and volumes discharging to this pipe, and not proposing any new connections to this line off-site, we do not feel additional profiles or documentation of this line are warranted.

88. *C-301-16: Replace headwalls at the 54" RCP culvert at Copts Brook. Wall is in disrepair. Provide fencing on top of wall (4 ft. vinyl coated chain link) for fall protection. Provide inlet protection (trash screen) to prevent debris from entering and potentially clogging the system. Provide protective fencing (4 ft. vinyl coated*

chain link) at top of slope at Copts Brook. This will also assist in keeping trash and other debris from the brook.

Response: The design drawings have been revised to show replacing the existing headwall. A trash rack and security fence will be provided as well. The security fence will extend across the headwall and an additional 20 feet past the headwall on both sides.

89. *C-301-17: Pipe lengths are from center of structure to center of structure which results in incorrect pipe slopes.*

    Response: This is how Civil 3D displays pipe slopes and lengths. Notes are provided on the plans that the contractor should set pipes based on inverts and not pipe slopes. The discrepancy this generates is very minimal.

90. *C-301-18: Suggest turning off building interiors for clarity (see landscape plan as a example).*

    Response: These line types cannot be frozen based on how the Architect creates their 3D model. The LA created their own footprints for their drawings, and we would prefer not to do this for various internal drafting related concerns.

91. *C-301-19: The location of the pipe from CB-03 to CB-04 may conflict with the wall. The top of the pipe is only 2.5 feet below grade.*

    Response: This will be coordinated with final wall design to ensure no conflicts.

92. *C-301-20: DMH-03 does not pick up the existing 12" RCP that connects to two drains on the south.*

    Response: The location of DMH-03 was specifically chosen to capture the pipe in question. The estimated invert has been noted to further clarify.

93. *C-301-21: AD-13 and AD-14 are collecting water from area of site that was formerly draining to the small pocket wetland. Reducing of flows to the wetland may lead to impacts.*

    Response: These areas in question are relatively small in comparison to the overall size of contributing watershed area draining to the wetlands. Based on this we do not anticipate any adverse impacts to the wetlands.

94. *C-301-22: Clean water from the roofs of Building 7 and 8 are being collected and infiltrated underneath an existing parking lot. Since the water is being generated from an undeveloped area close to the nearby brook and pocket wetland, additional design appears needed to infiltrate the water on former hillside area to maintain pre development hydrology.*

    Response: As noted above, these areas are comparatively very small compared to the size of the overall watershed contributing to the pocket wetlands, and even more so to that of Copts Brook. We do not believe

these minor changes will have an adverse impact on the overall hydrology to either wetland.

95. *C-301-23: AD-01 appears to be collecting clean stormwater that could discharge overland to the east instead of being piped to a treatment unit.*

    Response: Area Drain 1 is collecting a very small area and has a negligible impact on the size and routing of the storm drainage system. We assume you mean west and not east with this comment and would prefer to route the piping as shown rather than creating a new discharge and outlet in the upland review area.

96. *C-301-24: Roof leaders containing clean stormwater are being sent to a treatment system. Some of this should be discharged directly to the ground especially in the areas near the brook to better maintain the pre-development hydrology.*

    Response: The CTDEEP design criteria for water quality volume is for all directly connected impervious surfaces, not just paved surfaces. Water quality systems are to be sized for building roof areas and their associated runoff should be directed to these systems whenever possible.

97. *C-301-25: The 54-inch is very deep on the site and would expect to have a significant amount of baseflow from groundwater. The design should be conservative when accounting for its actual carrying capacity.*

    Response: If this pipe was experiencing a significant enough groundwater infiltration to affect its conveyance capacity, it would likely be dewatering the area and lowering groundwater to match its invert over time. If the elevated groundwater condition occurred during a storm event it would be very difficult to quantify in the model for the existing and proposed condition.

98. *C-301-26: CB-08 only collects a portion of the stormwater in parking area of Building 1. Another catch basin seems appropriate on the circle to collect stormwater.*

    Response: CB-08 is only intended to capture a small portion of the area. There are ridges in the grading on either side of building 1 that send runoff to the north and south respectively. Runoff to the north goes to two catch basins along the curb with parking, while runoff to the south goes to the existing CB in the entry drive as the area currently does in the existing condition.

99. *C-301-27: Review of grading and drainage in parking area north of the pool area seems warranted. The area is very flat which may lead to ponding of water. Additional connections from north to AD-10 and AD-12 may be needed.*

    Response: There is a high point at the sidewalk for the accessible spaces that divides runoff from going to the north or to the south. The area to the north drains between 1.5-2.0% (per accessible codes) and will drain as intended. The area to the south is a steeper slope down to the pool patio which will drain to the area drains as intended.

100. C-301-28: The connection from OCS-06 to 54" pipe seems low and would conflict with top of 54-inch pipe.

Response: This area has been redesigned based on the subsurface soil investigation and the comment no longer represents the proposed condition.

101. C-301-29: Roof leader for Building 7 not observed.

Response: It is connected to the storm line discharging from the area drains on either side of the building.

<u>Sheet C-302 Drainage Plan Enlargement</u>

102. C-302-1: Enlargement Part Plan "B": Review inverts for Area Drains AD-05-AD-07. They appear to be mislabeled. It appears that AD-05 and AD-07 both discharge to AD-06, but AD-06 has no other outlet. Review pipe lengths and slopes.

Response: This area has been redesigned based on the subsurface soil investigation and the comment no longer represents the proposed condition.

103. C-302-2: Enlargement Part Plan "C": WQS-04: Suggest not connecting roof leader to water quality structure.

Response: The water quality structure is the smallest size available and maintains enough treatment capacity for the entire area, including the roof. We see no need to change the design as it only provides for an extra provision for water quality.

104. C-302-3: Enlargement Part Plan "C": Existing manhole – note pipe inverts to be sealed, which to remain. Note new rim elevation.

Response: Additional notes have been added to the plans.

105. C-302-4: Suggest including infiltration systems 1 and 5 in the enlargement plan. An additional sheet appears necessary.

Response: Drainage enlargements for all retention systems are now included on the enlargement plan.

106. C-302-5: Smaller height infiltrators may be needed for front of site (infiltration system 6 western part).

Response: Based on field observations of soil conditions, the specified height of the proposed infiltrators can be maintained.

<u>Sheet C-401 Utility Plan</u>

107. C-401-1: Clay tennis court is irrigated. Show irrigation lines. Area immediately west of the court is to be cut. This may impact irrigation supply line.

Response: Location of irrigation lines are not known. If they are encountered during earthwork they will be repaired/replaced accordingly.

108. *C-401-2: Provide clean-out at bends on 8″ PVC sanitary lines from Buildings 6 8.*

Response: Additional cleanouts have been added to the plans.

109. *C-401-3: Sanitary connection to existing manhole in Route 7 will require an Encroachment Permit from CTDOT. Provide limits of trench excavation and pavement repair. Provide State Road Pavement Repair Detail. Provide detail for modifying the manhole to accept new pipe. Provide existing manhole data (rim elevation, inverts). Crossing existing water main and gas main. Provide drainage structure data for storm system (notes are off the sheet).*

Response: So noted. Pavement repairs are shown on the site plan, and the CTDOT pavement repair detail has been added to the detail sheets. As we have done on prior projects, we will coordinate the connection to the manhole with the Town of Wilton WPCA in the field prior to commencing any work. The profile of the sewer lateral has been updated to include the Route 7 drainage from the widening work, and extended per DPW comment.

110. *C-401-4: Water connection to existing main in Route 7 will require an Encroachment Permit from CTDOT. Provide limits of trench excavation and pavement repair. Provide State Road Pavement Repair Detail. Provide details for tapping sleeve and valve.*

Response: So noted. Pavement repairs are shown on the site plans, and the requested details have been added to the plan set.

111. *C-401-5: Obtain current utility mapping for Route 7. There re 4 manholes in the Rte. 7 NB lane that are not shown on the survey and may associated utility may be in conflict with proposed water and sanitary services.*

Response: The design drawings for the Route 7 widening have been provided as a supplemental document depicting the locations of the drainage improvements in Danbury Road. Utility designs have been reviewed to confirm they do not conflict with this information.

112. *C-401-6: Sanitary Sewer Profile: Verify elevation of existing storm piping. 36″ CPP system upgrade from this location is at 127.5±.*

Response: The existing 36-inch pipe is for storage of runoff and set lower to capture and treat runoff. Its inverts are independent of the other storm drains shown.

113. *C-401-7: Review all pipe clearances. Inv. 8″ san. from SMH-06 = 136.35± (bot. of pipe = 136.3±) Invert 12″ HDPE from OCS-05 = 134.76± (top of pipe = 135.87±). Clearance = 0.47 ft.*

Response: Pipe clearances are shown on the sewer profile and utility plan and have been update accordingly per the recent revisions to the drainage design.

114. *C-401-8: Suggest separate fire service. Coordinate with Aquarion, Fire Marshal and Building Official.*

Response: Water service will be coordinated with the Aquarian Water Company. Fire Marshall has provided no comment on this.

115. *C-401-9: Are each individual units to have their own water meter?*

Response: Each building will have its own water meter.

116. *C-401-10: It appears each building will have one gas meter, correct? Gas service from existing drive to the south will require removal of mature vegetation along the slope next to the concrete stair, is this the intent?*

Response: There will be a meter bank for gas and each unit will have its own meter. The routing of the gas service is approximate and will be coordinated with the gas company to minimize impacts to existing areas to remain.

Sheet C-501 Soil Erosion and Sediment Control Plan Initial Phase

117. *C-501-1: Grading at proposed Sediment Trap at northeast corner is incorrect.*

Response: The sediment trap grading has been adjusted.

118. *C-501-2: Provide erosion control mat on all slopes 3:1 and steeper.*

Response: The 1:3 slopes adjacent to buildings 7 and 8 proposed during the initial phase will remain for as brief a time period as possible to facilitate construction of retaining walls. Installing mats in this area is not warranted as the intent is to move immediately into wall construction.

119. *C-501-3: Additional measures to protect the wetlands and watercourse should be provided. Only a single row of silt fence with haybales is provided. Multiple rows should be considered. Additional silt fence along the front of the site appear necessary.*

Response: The silt fence in question is not standard silt fence, it is heavy duty fencing with angled structural support and reinforced fabric. Another row was added during initial phase to address these concerns.

120. *C-501-4: Soil stockpile area seems inadequate considering the amount of materials involved in the site work ((14,000 cy excavated & 4,000 cy deposited).*

Response: The soil stockpile size is schematic. It is the current intent that the selected contractor will minimize stockpiling as much as possible by removing soils from the site as they are generated when not needed for reuse on site.

121. *C-501-5: Include whether environmentally impacted materials are expected.*

Response: There are no known environmentally impacted materials on the site.

122. *C-501-6 Site has enough room to keep stockpiles out of 100-foot regulated area.*

Response: Soil stockpile is shown outside the 100-foot regulated area.

123. C-501-7: Show sediment traps meet minimum DEEP criteria for size.

Response: Sediment trap sizing calculations have been added to the engineering report.

124. C-501-8: Catch basin at site entrance on south curb should also have inlet protection.

Response: Additional silt sack was added to the plans.

125. C-501-9: Suggest site to be developed have construction fencing and gates.

Response: Construction fencing and gates have been added to the plans.

126. C-501-10: Depending on building demo schedule, it might make sense to have separate construction entrance north of the existing entrance. This would improve construction access to the rear of the site where most of the earthwork is occurring.

Response: Two construction access points are currently proposed.

127. C-501-11: Temporary staging area not shown. Consideration and planning for temporary storage of construction equipment, contractor parking, construction trailer, and sanitary facilities should be shown.

Response: Staging and logistics will be determined by the selected contractor based on their means and methods for developing the site. No equipment or material storage, or sanitation facilities will be maintained in the floodplain or the regulated area.

<u>Sheet C-502 Soil Erosion and Sediment Control Plan Final Phase</u>

128. C-502-1: Area of disturbance is 3+ acres. Provide additional erosion and sediment controls including sediment traps, additional silt fence, etc. Suggest phasing construction if possible.

Response: Final phase construction sequence is based on a mostly stabilized site and a sediment trap is not practical for this phase. We anticipate an initial phase and final phase, with no distinct phasing in between them.

129. C-502-2: Provide additional erosion controls at level spreader. Spreader discharges to a steep slope. Single row of silt fence with hay bales is not adequate. Provide erosion control blanket to protect slope.

Response: Erosion control blanket will be provided for level spreader discharge, flows leaving this level spreader will be very minor lawn runoff. Disturbing the lower hillside adjacent to the Copts Brook for additional silt fence and erosion controls we do not feel is warranted.

130. C-502-3: Provide additional protections along wetlands areas. Single row of silt fence with hay bales is not sufficient. Straw bales and wattles may be more appropriate close to the brook and pocket wetland. Wood chips generated from land clearing could be based for stabilization.

Response: Additional erosion controls have been added on the initial phase. These will remain in place until the site is largely stabilized. The final phase erosion control plan shows the condition when the site is largely stabilized.

131. *C-502-4: Review limits of clearing and proposed grading and landscaping. Silt fence is shown within the areas of disturbance.*

Response: Limits of clearing lines have been added to the erosion control plans.

132. *C-502-5: Extend silt fence and haybales from volleyball court north along slope and property line as area will be cleared. It appears silt fence and haybales are shown incorrectly along small wetlands area. Does not conform to detail.*

Response: The silt fence has been revised to be on the other side of haybale barrier.

133. *C-502-6: Provide silt fence along property line north of Buildings 7 and 8.*

Response: Additional silt fence in this area has been provided.

134. *C-502-7: Suggest noting trees to remain and be protected.*

Response: Initial Phase Erosion control plans and Landscape drawings were revised to show this.

Sheet C-503 Soil Erosion and Sediment Control Notes Narrative and Details

135. *C-503-1: Sequence of construction is incomplete. Does not reflect significant excavation required for Buildings 7 and 8.*

Response: Additional notes were added to the construction sequence.

136. *C-503-2: Due to size of the construction and it occurring on a site with existing businesses, a logistics plan is recommended.*

Response: The proposed site development will be fenced off and kept separate from the balance of the parcels business operations. Any utility installation provided in common areas will be coordinated with the other property owner to minimize disruption.

137. *C-503-3: Sequence mentions building construction, but there are 8 buildings. Construction should include a rough buildout sequence and how site disturbance will be limited as much as possible.*

Response: It is the current intent to construct the buildings concurrently as much as possible.

Sheet C-601 Details 1

138. *C-601-1: Crosswalk striping does not conform to current standards.*

Response: The crosswalk design as shown is on private property and falls within current MUTCD standards for bar width, length, and spacing.

139. C-601-2: Accessible van space, striping should be on passenger side of the vehicle to allow for lift.

Response: Current space configuration meets ADA standards and reflects a shared configuration where vans can pull in or back in as needed to access the cross hatch.

Sheet C-604 Details 4

140. C-604-1: Provide 4 ft. sumps on all catch basins.

Response: Plans were revised accordingly.

141. C-604-2: Provide hood detail.

Response: Hood detail was added.

Sheet C-605 Details 5

142. C-605-1: Specify Concrete Yard Drain Frame and Grate. Dome Grate detail seems to indicate that it is for Yard Drains.

Response: Additional information has been added to the plans to clarify where each drain type will be used. The detail for concrete yard drains has been eliminated.

143. C-605-2: Suggest erosion control blanket on downhill side of level spreader where slopes are 3:1 or steeper.

Response: That is the intent and drawings were revised to show more clearly.

144. C-605-3: CDS unit should.

Response: Comment incomplete.

Sheet C-606 Details 6

145. C-606-1: Inspection ports in paved areas require concrete collars which should be shown on drainage and site plan.

Response: Inspection port locations were added on the drainage plans. Concrete collar details are shown with the system details.

Sheet C-607 Details 7

146. C-607-1: Outlet Control Structure Detail. Review proposed elevations. Allow for 8″ frame and cover, 2 courses of brick, 8″ top slab and freeboard (1 ft.?) to top of weir.

Response: The outlet control structures will no longer have internal weir walls and this detail has been eliminated. The design of each system has been revised to reflect an outlet manhole with a single pipe discharge sized and elevated to control discharges as needed to match or reduce existing flows. The invert elevation is set to ensure the required water

quality volume is met, and the balance of the chamber volume above that is sized to provide enough additional storage to mitigate peak runoff rates.

147. C-607-2: 15-inch low level orifice seems high for 15-inch outlet pipe.

Response: This retention system has been revised as part of the overall drainage modifications and the updated calculations are provided for review.

Sheet C-608 Details 8

148. C-608-1: Provide tapping sleeve and valve detail.

Response: Tapping sleeve and valve detail added to the plan set.

Landscaping and Lighting Plan

149. LP-1: Overlay drainage plan and utility plan with landscaping and lighting plan to verify conflicts. It appears the proposed light pole east of Building 6 at the south end of the parking area conflicts with the proposed relocated 24" pipe.

Response: The noted light post has been shifted east to avoid conflict with the proposed pipe. This change is reflected on our revised plan LP-1, revised to 4/5/24.

150. LP-2: Provide photometric plan.

Response: A photometric plan was provided with the initial submission. This plan has been updated to reflect the light pole shift noted above. Please note the town of Wilton Lighting regulations require a minimum of 2.5 average footage (Section 29-9.E.2.e). Our submission includes a preferred alternative plan that provides light levels, inline to current industry standards and provide an average of 1 foot candle. The application includes a request to use the alternative plan allowed in Section 29-9.E.2.b.

151. LP-3: Not all species are clearly identified on the plan.

Response: Additional labels have been added to the plan to aid in plant identifications noted on the revised plan LP-1, dated 4/5/24.

152. LP-4: Evergreens are shown next to the tennis court but it appears a more biodiverse planting would be appropriate next to woods and wetland pocket (within 100 foot regulated area) considering there is already existing privacy in this area.

Response: The additional screening would be beneficial for the adjoining neighbors that have a view of the existing tennis court during the winter months when the leaves are off the trees. The plants selected will tolerate being planted in the existing understory, provide evergreen screening, and are resistant to deer browsing. The vegetation cleared to allow room for the new plants are restricted to the nonnative invasive shrub understory of Euonymus and Honeysuckle. However, to provide added diversity we have exchanged some of the plants for native America Holly.

153. LP-5: It is not clear what existing trees and landscaping are to remain along Route 7 in front of Building 1. It appears that all existing trees are not taken into account.

Response: ELS has confirmed the existing shade trees and sizes are correctly noted on the site plans.

If you have any questions, please feel free to contact us at 860-852-5219.

Very truly yours,

TIGHE & BOND, INC.

Erik W. Lindquist, P.E., LEED AP
Senior Project Manager

John W. Block, P.E., L.S.
Senior Vice President

April 9, 2024

April 1934 Aerial Image

(northeastern corner of the present-day Property highlighted)

Credit: Fairchild Aerial Survey Co., Connecticut Air National Guard
Source: State Archives, Connecticut State Library (retrieved April 9, 2024)

April 11, 1991 Aerial Image

Credit: U.S. Geological Survey
Source: Google Earth (retrieved April 9, 2024)

Nonnative Invasive Plant Species Management Plan

for

Fuller Development
64 Danbury Road
Wilton, CT

(Inland Wetlands Application - Town of Wilton Inland Wetlands)

Date:	December 21, 2023
Prepared By:	Environmental Land Solutions, LLC *Landscape Architecture & Environmental Planning* 8 Knight Street, Suite 203, Norwalk, CT 06851 Tel: (203) 855-7879 Fax: (203) 855-7836

Nonnative invasive plants are a threat to natural plant communities throughout Connecticut. Managing invasive plant populations is important to reduce negative impacts to native plant communities. Early detection and action is key in any management plan. This plan is intended to provide a framework and guide to reduce these plants during and after the proposed site work associated residential development. Both non-chemical and chemical means of control have been incorporated for this plan. The choice of control measures depends on the size and nature of the infestation. If dealt with early enough, invasive plant problems can often be eliminated by non-chemical methods. However, a herbicide-based approach may be required to control an infestation that has become well established and widespread. The base source information has come from the Plant Conservation Alliance's Alien Plant Working Group and Connecticut Invasive Plant Working Group.

OBJECTIVES FOR CONTROL

Management objectives for targeted species list below will involve detection and removal within the planted wetland buffer and proposed disturbances areas. Control methods should be combined into an integrated management system for the best long-term control of the plants and areas shall be monitored for a minimum of five consecutive growing seasons to detect new germination or respouting of nonnative invasive plants. A monitoring report will be prepared and submitted to the Inland Wetlands Agency twice a year to review the efficiency for the management and reevaluate if other management techniques are needed to be employed.

TARGET AREAS

Two primary target existing stands of nonnative invasive plants are targeted to be removed in the following locations.

1. The stand of Japanese Knotweed (*Fallopia japonica*) adjacent to the volleyball court.

2. Norway Maple (*Acer platanoides*) and Winged Euonymus (*Euonymous alatus*) removal on the west side of Copt's Brook, and a 50x50' area on the east side of Copt's Brook.

TARGET SPECIES

Listed below are the predominate existing nonative invasive species identified on the site and targeted for removal. This list does not preclude expanding this list, if additional plants on the "Connecticut Invasive Plant List" are found. When additional plants are identified they should be added to the management plan.

LATIN NAME	COMMON NAME
Woody Shrubs/*Tree*	
Acer platanoides	Norway Maple
Ailianthus altissma	Tree of Heaven

Rosa multiflora	Multiflora Rose
Berberis thunbergii	Japanese Barberry
Euonymous alatus	Winged Euonymous
Lonicera tatarica	Tartarian Honeysuckle
Lonicera morrowii	Morrow's Honeysuckle

Vines

Celastrus orbiculatus	Asiatic Bittersweet

Herbaceous perennials/annuals (Plans with rhizomous roots)

Fallopia japonica	Japanese knotweed

PRE-CONSTRUCTION PROTOCOL

Meet and identify plants to be targeted for removal. Protection to adjacent existing native plants will provided. Provide plant identification guide book at job site office.

GENERAL REMOVAL PROTOCOL

1. Hand pulling
2. Mechanical grubbing out of root collar and roots
3. Cutting stems & paint with an herbicide.

MANAGEMENT OPTIONS #1 - Woody plants and vines

Mechanical and chemical control methods are the most widely used methods for controlling invasive plant. Frequent, repeated cutting or mowing at the rate of three to six times per growing season, for two to four years, has been shown to be effective control strategy. In high quality natural communities, cutting of individual plants is preferred to site mowing to minimize habitat disturbance. Various herbicides have been used successfully in controlling target plants but, because of the long-lived supply of seed in the soil, follow-up treatments are likely to be necessary. Application of systemic herbicides (e.g., glyphosate) directly to freshly cut stems or to regrowth may be the most effective methods, especially if conducted late in the growing season.

Vines shall be controlled by cutting and applying herbicide by paint methods. Cut and paint method shall be performed twice a year, once in June and again in September.

MANAGEMENT OPTIONS #2 - Japanese Knotweed

Established stands of Japanese Knotweed are difficult to eradicate even with repeated glyphosate treatments. Adequate control is usually not possible unless the entire stand of knotweed is treated (otherwise, it will re-invade via creeping rootstocks from untreated areas). However, glyphosate treatments will greatly weaken the plant and prevent it from dominating a site. The follow schedule will be followed.

1. Late June – Cut or mow down stalks.
2. Allow Knotweed to regrow.
3. After August 1, spray Knotweed with (glyphosate) at the suggested manufactures rate. Note in the wetland and adjacent river areas a approved herbicide such as "Rodeo" will be implemented.

MONITORING REPORT

Field reports shall be submitted twice year to the town staff. Site visits and reports shall be performed during May (preferably with the contractor) after the plants beginning to emerge and again in October. Each report shall note the size of the growth area, approximate number of plants, the conditions of the plant and the methods used for control since the last field report. Follow up reporting shall be done for five full calendar years after control has begun.

MAINTENANCE AND MONITORING PLAN (POST CONSTRUCTION)

A. General Seasonal Maintenance:
   a. Inspection areas for erosion.
   b. Any obvious damage to grass or to the swales bottom soil bed should be repaired immediately. Reseeding bare areas with the specified seed mixture.
   c. Removal of invasive nonnative plant species (by hand pulling or spot herbicide treatments).
   d. Remove litter monthly from as needed.
   e. Seed bare areas with the specified seed mixture, on the approved planting plans.
   f. Remove dead and diseased plant material as needed.

A. <u>Wetlands, Watercourses, and Their Buffers - Monitoring Plan</u>

The wetlands and watercourses on the site do not require management with the exception of nonnative invasive species management control and routine seasonal landscaping such as that listed below. Any maintenance work within a regulated area that is not to be completed by hand shall be reviewed with the Town of Wilton Inland Wetlands Agency staff prior to initiating such work.

1. *Invasive Nonnative Species Control:* Monthly inspect wetland creation and buffer areas for non-native invasive species (Japanese barberry, Burningbush, Asiatic bittersweet, Mile-a-Minute Weed, and Porcelainberry) during the growing season. When such species are identified, remove plants by hand pulling, cutting, or spot herbicide treatments. Do not remove pulled or cut nonnative invasive plants from the site until dead. Except for tuberous plants such as Japanese Knotweed, nonnative invasive plants pulled or cut shall be left on the ground surface in a sunny location for their roots to dry. Tuberous weed plants shall be left soil free in the sun on an impervious barrier (such as black plastic, driveways and walks) until dead so that they do not re-sprout.

2. *Deer browsing:* Spray newly installed woody plants with a deer repellant at time of

installation and continue as needed to insure good plant growth.

3. *Reseeding:* Reseed exposed and thinly vegetated wetland creation and buffer areas with the specified seed mixture noted on the approved site plans.

4. *Watering:* Water new plantings as needed throughout the first full growing season.

5. *Fertilizers:* Do not fertilize wetland creation or buffer areas.

6. *Litter:* Removal of litter monthly and as needed from the wetland creation area and buffer areas.

7. *Hazardous Plants:* Removal of hazardous plants that pose a safety concern as needed. If trees are required to be taken down, leave their trunks, branches, and leaves within the wetland creation and buffer areas as course woody debris as long as it does not create a flooding concern.

8. *Dead and Diseased Plants:* Under the observation of a Professional Wetland Scientist, removed dead and diseased plants that are likely to have an adverse impact to adjacent vegetation.

9. *Drainage Structures:* Maintain drainage structures as required (i.e.; removal of sediments) to maintain n proper working order.

10. *Drainage Channels*: If rills or gullies form, under direction of Landscape Architect and approval of local inland wetlands agency staff, fine grade smooth and seed with a native seed mixture or install native field stone in naturalistic manner for stabilization purposes.

DISPOSAL OF INVASIVE PLANTS

Plant disposals must follow “Guidelines for Disposal of Terrestrial Invasive Plants”, produced by DEEP and UCONN, 2011.

References:

1. Connecticut Invasive Plant Management Calendar by Connecticut Invasive Plan Group
2. Guideline for Best Management Practices for movement of topsoil and gravel fill, mulch and equipment in Connecticut, by Connecticut Invasive Plan Group
3. Guidelines for Disposal of Terrestrial Invasive Plants, Produced by DEEP and UCONN 2011

End.

Danbury Road 64-wilton- Invasive Species.wpd

GENERAL NOTES

1. NOTIFY CALL BEFORE YOU DIG AT 1-800-922-4455 AND OTHER UTILITY OWNERS IN THE AREA NOT ON THE CALL BEFORE YOU DIG LIST AT LEAST 72 HOURS PRIOR TO ANY DIGGING, TRENCHING, ROCK REMOVAL, DEMOLITION, BORING, BACKFILLING, GRADING, LANDSCAPING, OR ANY OTHER EARTH MOVING OPERATIONS.
2. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IN ADDITION, SOME UTILITIES MAY NOT BE SHOWN. DETERMINE THE EXACT LOCATION OF UTILITIES BY TEST PIT OR OTHER METHODS, AS NECESSARY TO PREVENT DAMAGE TO UTILITIES AND/OR INTERRUPTIONS IN UTILITY SERVICE. PERFORM TEST PIT EXCAVATIONS AND OTHER INVESTIGATIONS TO LOCATE UTILITIES, AND PROVIDE THIS INFORMATION TO THE ENGINEER, PRIOR TO CONSTRUCTING THE PROPOSED IMPROVEMENTS. LOCATE ALL EXISTING UTILITIES TO BE CROSSED BY HAND EXCAVATION.
3. NOT ALL OF THE UTILITY SERVICES TO BUILDINGS ARE SHOWN. THE CONTRACTOR SHALL ANTICIPATE THAT EACH PROPERTY HAS SERVICE CONNECTIONS FOR THE VARIOUS UTILITIES.
4. BOLD TEXT AND LINES INDICATE PROPOSED WORK. LIGHT TEXT AND LINES INDICATE APPROXIMATE EXISTING CONDITIONS.
5. TIGHE & BOND ASSUMES NO RESPONSIBILITY FOR ANY ISSUES, LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM TIGHE & BOND.
6. EXCAVATE ADDITIONAL TEST PITS TO LOCATE EXISTING UTILITIES AS DIRECTED OR APPROVED BY THE ENGINEER.
7. NOTIFY THE ENGINEER OF ANY UTILITIES IDENTIFIED DURING CONSTRUCTION THAT ARE NOT SHOWN ON THE DRAWINGS OR THAT DIFFER IN SIZE OR MATERIAL.
8. THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY; COORDINATION WITH THE OWNER, ALL SUBCONTRACTORS, AND WITH OTHER CONTRACTORS WORKING WITHIN THE LIMITS OF WORK, THE MEANS AND METHODS OF CONSTRUCTING THE PROPOSED WORK.
9. OBTAIN, PAY FOR AND COMPLY WITH PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK. ARRANGE AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE JURISDICTIONAL AUTHORITIES.
10. SHORE UTILITY TRENCHES WHERE FIELD CONDITIONS DICTATE AND/OR WHERE REQUIRED BY LOCAL, STATE AND FEDERAL HEALTH AND SAFETY CODES.
11. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS ARE OBSERVED THAT VARY SIGNIFICANTLY FROM THOSE SHOWN ON THE DRAWINGS, IMMEDIATELY NOTIFY THE ENGINEER IN WRITING FOR RESOLUTION OF THE CONFLICTING INFORMATION.
12. PROTECT AND MAINTAIN ALL UTILITIES IN THE AREAS UNDER CONSTRUCTION DURING THE WORK. LEAVE ALL PIPES AND STRUCTURES WITHIN THE LIMITS OF THE CONTRACT IN A CLEAN AND OPERABLE CONDITION AT THE COMPLETION OF THE WORK. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SAND AND SILT FROM DISTURBED AREAS FROM ENTERING THE DRAINAGE SYSTEM.
13. NOTIFY THE ENGINEER IN WRITING OF ANY CONFLICT, ERROR, AMBIGUITY, OR DISCREPANCY WITH THE PLANS OR BETWEEN THE PLANS AND ANY APPLICABLE LAW, REGULATION, CODE, STANDARD SPECIFICATION, OR MANUFACTURER'S INSTRUCTIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORT OF EXISTING UTILITIES AND REPAIR OR REPLACEMENT COSTS OF UTILITIES DAMAGED DURING CONSTRUCTION, WHETHER ABOVE OR BELOW GRADE. REPLACE DAMAGED UTILITIES IMMEDIATELY AT NO ADDITIONAL COST TO THE OWNER AND AT NO COST TO THE PROPERTY OWNER.
15. TAKE NECESSARY MEASURES AND PROVIDE CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE, AND STRENGTH TO PREVENT ACCESS TO ALL WORK AND STAGING AREAS AT THE COMPLETION OF EACH DAYS WORK.
16. NO OPEN TRENCHES WILL BE ALLOWED OVER NIGHT. THE USE OF ROAD PLATES TO PROTECT THE EXCAVATION WILL BE CONSIDERED UPON REQUEST, BUT BACKFILLING IS PREFERRED.
17. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY TRAFFIC CONTROL/SAFETY DEVICES TO ENSURE SAFE VEHICULAR AND PEDESTRIAN ACCESS THROUGH THE WORK AREA, OR FOR SAFELY IMPLEMENTING DETOURS AROUND THE WORK AREA. PERFORM TRAFFIC CONTROL IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED TRAFFIC CONTROL PLAN.
18. MAINTAIN EMERGENCY ACCESS TO ALL PROPERTIES WITHIN THE PROJECT AREA AT ALL TIMES DURING CONSTRUCTION.
19. WHEN WORKING IN THE ROAD, PROVIDE THE OWNER AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES A DETAILED PLAN OF APPROACH INDICATING METHODS OF PROPOSED TRAFFIC ROUTING ON A DAILY BASIS. PROVIDE COORDINATION TO ENSURE COMMUNICATION AND COORDINATION BETWEEN THE OWNER, CONTRACTOR AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES THROUGHOUT THE CONSTRUCTION PERIOD.
20. REMOVE AND DISPOSE OF ALL CONSTRUCTION-RELATED WASTE MATERIALS AND DEBRIS IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS.
21. THE TERM "DEMOLISH" USED ON THE DRAWINGS MEANS TO REMOVE AND DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
22. THE TERM "ABANDON" USED ON THE DRAWINGS MEANS TO LEAVE IN PLACE AND TAKE APPROPRIATE MEASURES TO DECOMMISSION AS SPECIFIED OR NOTED ON THE DRAWINGS.
23. ALL PROPOSED WORK MAY BE ADJUSTED IN THE FIELD BY THE OWNER'S PROJECT REPRESENTATIVE TO MEET EXISTING CONDITIONS.

STORM SEWER NOTES

1. STORM SEWER LINES ARE TO BE INSTALLED USING INVERT ELEVATIONS, PIPE SLOPES SHOWN ARE APPROXIMATE AND ARE FOR REFERENCE ONLY.
2. APPLICABLE STORM SEWER CONSTRUCTION SHALL CONFORM TO THE TOWN OF WILTON STORM SEWER SPECIFICATIONS.
3. ROOF DRAINS ARE TO BE CONNECTED TO THE STORM DRAINAGE SYSTEM WHERE SHOWN.
4. THE ON-SITE DRAINAGE SYSTEM WILL REMAIN PRIVATE. THE PROPERTY OWNER IS TO PROVIDE REGULAR MAINTENANCE OF THE SYSTEM TO ALLOW IT TO CONTINUALLY FUNCTION AS INTENDED.
5. THE STORM DRAINAGE SYSTEM IS TO BE INSPECTED PRIOR TO CONSTRUCTION, IN ORDER TO VERIFY THAT IT IS IN GOOD CONDITION AND FUNCTIONING PROPERLY. THE DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR CLEANING, REPAIRING AND MAINTAINING ALL PARTS OF THE EXISTING ON-SITE DRAINAGE SYSTEMS, AS NECESSARY, TO INSURE THAT ALL COMPONENTS ARE FUNCTIONING AS ORIGINALLY INTENDED.
6. ALL PORTIONS OF THE STORM DRAINAGE SYSTEM ARE TO BE CAPABLE OF HANDLING AASHTO H-20 LOADS.
7. ALL REINFORCED CONCRETE PIPE SHALL BE CLASS IV UNLESS OTHERWISE NOTED.
8. ALL PVC PIPING TO BE CLASS SDR-35 UNLESS OTHERWISE NOTED. (SDR-21 REQUIRED FOR DEPTHS OVER 12 FEET.)
9. ALL CATCH BASIN GRATES TO BE TYPE A UNLESS OTHERWISE NOTED.
10. ALL CATCH BASINS SHALL HAVE BELL TRAPS EXCEPT IF CONNECTED IN A SERIES, IN WHICH CASE ONLY THE UPPER TWO CATCH BASINS IN THE SERIES SHALL HAVE BELL TRAPS.
11. ALL STORM MANHOLES SHALL BE 48" DIAMETER CONCRETE MANHOLES, UNLESS OTHERWISE NOTED ON SHEETS C-301 AND C-302.
12. PENDING FINAL WALL DESIGN, FOOTING DRAINS SHALL BE HARD PIPED TO ADJACENT STORM DRAINAGE AND SHALL NOT DAYLIGHT TO GRADE.
13. HDPE PIPING SHALL CONFORM TO ASTM F2306.
14. THE INSTALLATION OF THE DRAINAGE SYSTEM IS TO BE DONE UNDER THE SUPERVISION OF THE DESIGN ENGINEER LICENSED IN THE STATE OF CONNECTICUT. AFTER CONSTRUCTION, THE ENGINEER IS TO SUBMIT TO THE TOWN OF WILTON A WRITTEN CERTIFICATION THAT THE SYSTEM WAS INSTALLED AS PER THE APPROVED DESIGN. A DRAINAGE AS-BUILT DRAWING IS SUBMITTED WITH THIS LETTER TO THE TOWN OF WILTON. A REMINDER TO THE PROPERTY OWNER THAT THE SYSTEM WILL REMAIN A PRIVATE ONE AND THAT REGULAR MAINTENANCE WILL BE CRUCIAL TO ITS CONTINUED FUNCTIONING AS INTENDED SHOULD BE MADE. ADEQUATE ACCESS TO THE SYSTEM FOR MAINTENANCE PURPOSES IS TO BE PROVIDED.

UTILITY COORDINATION NOTES

1. UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO FINAL SITE SURVEY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL ELEVATIONS, PROPERTY LINES, LOCATION OF UTILITIES AND SITE CONDITIONS IN THE FIELD. IF AN UNFORESEEN INTERFERENCE EXISTS BETWEEN AN EXISTING AND A PROPOSED STRUCTURE, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER SO THAT THE APPROPRIATE REVISIONS CAN BE MADE.
2. IT IS THE RESPONSIBILITY OF EACH BIDDER IN EVALUATING THESE PLANS TO MAKE EXAMINATIONS IN THE FIELD BY VARIOUS METHODS AND OBTAIN NECESSARY INFORMATION FROM AVAILABLE RECORDS, UTILITY CORPORATIONS, AND INDIVIDUALS AS TO THE LOCATION OF ALL SUBSURFACE STRUCTURES.
3. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING NEAR OR UNDER OVERHEAD AND UNDERGROUND UTILITIES. THE CONTRACTOR IS TO NOTIFY THE UTILITY COMPANIES OF HIS INTENT PRIOR TO THE COMMENCEMENT OF ANY WORK.
4. LANDSCAPING SHALL NOT BE PLACED ON TOP OF UTILITIES.
5. ELECTRICAL CONDUIT SHALL BE INSTALLED BY AN ELECTRICIAN LICENSED IN THE STATE OF CONNECTICUT

FORM 818 FACILITIES NOTES

1. CONSTRUCTION SPECIFICATIONS FOR WORK WITHIN THE STATE RIGHT-OF-WAY SHALL BE THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION, FORM 818, DATED 2020; SUPPLEMENTAL SPECIFICATIONS, DATED JANUARY 2023 AND ALL SUPPLEMENTS THERETO; AND SPECIAL PROVISIONS.
2. NEW PAVEMENT MARKINGS SHALL BE PAINTED WITH EPOXY RESIN PAINT IN COMPLIANCE WITH THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION FORM 818, SECTION 12.10.
3. NEW SIGN MATERIAL AND SHEETING SHALL BE MADE OF REFLECTIVE MATERIAL IN COMPLIANCE WITH THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION FORM 818, SECTION 12.08. TYPE 1 REFLECTIVE SHEETING SHALL BE USED FOR SIGNS WITH WHITE BACKGROUND, TYPE 3 REFLECTIVE SHEETING SHALL BE USED FOR SIGNS WITH COLORED BACKGROUND EXCEPT FOR SIGNS WITH RED BACKGROUND THAT SHALL BE TYPE 8 OR 9 REFLECTIVE SHEETING.
4. ALL SIGNS AND PAVEMENT MARKINGS INSTALLED ALONG THE STATE ROAD MUST CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," LATEST STATE OF CONNECTICUT CATALOGUE OF SIGNS AND STANDARDS, AS REVISED.
5. ANY DAMAGE TO EXISTING CURB, SIDEWALK, OR ANY OTHER HIGHWAY APPURTENANCES DURING THE DEVELOPMENT OF THE PERMITTED SITE WILL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE DISTRICT 3 PERMIT SECTION AT NO COST TO THE STATE.
6. THE FINAL LIMITS OF MILLING AND OVERLAY SHALL BE DETERMINED PRIOR TO FINAL PAVING BY CTDOT DISTRICT 3 PERMIT INSPECTOR. THE CONTRACTOR SHALL COORDINATE WITH CTDOT TO DETERMINE THESE LIMITS AND NOTIFY THE OWNER AND ENGINEER OF ANY CHANGES TO THE LIMITS SHOWN ON THE DRAWINGS.

SANITARY SEWER & WATER NOTES

1. SANITARY SEWER AND WATER LINE CROSSINGS SHALL MAINTAIN AN 18 INCH MINIMUM VERTICAL SEPARATION DISTANCE OR PROVIDE A CONCRETE ENCASEMENT AT THE CROSSING.
2. SEWER AND WATER LINE CROSSING ALL OTHER UTILITIES SHALL MAINTAIN A 12 INCH VERTICAL SEPARATION DISTANCE.
3. SANITARY SEWER LINES ARE TO BE INSTALLED USING INVERT ELEVATIONS. PIPE SLOPES SHOWN ARE APPROXIMATE AND ARE FOR REFERENCE ONLY.
4. PROPOSED SANITARY SEWER SERVICES ARE TO MEET THE REQUIREMENTS OF THE TOWN OF WILTON.
5. PROPOSED WATER SERVICES ARE TO MEET THE REQUIREMENTS OF THE STATE PLUMBING CODES AND THE AQUARION WATER COMPANY RULES AND REGULATIONS.

GRADING NOTES

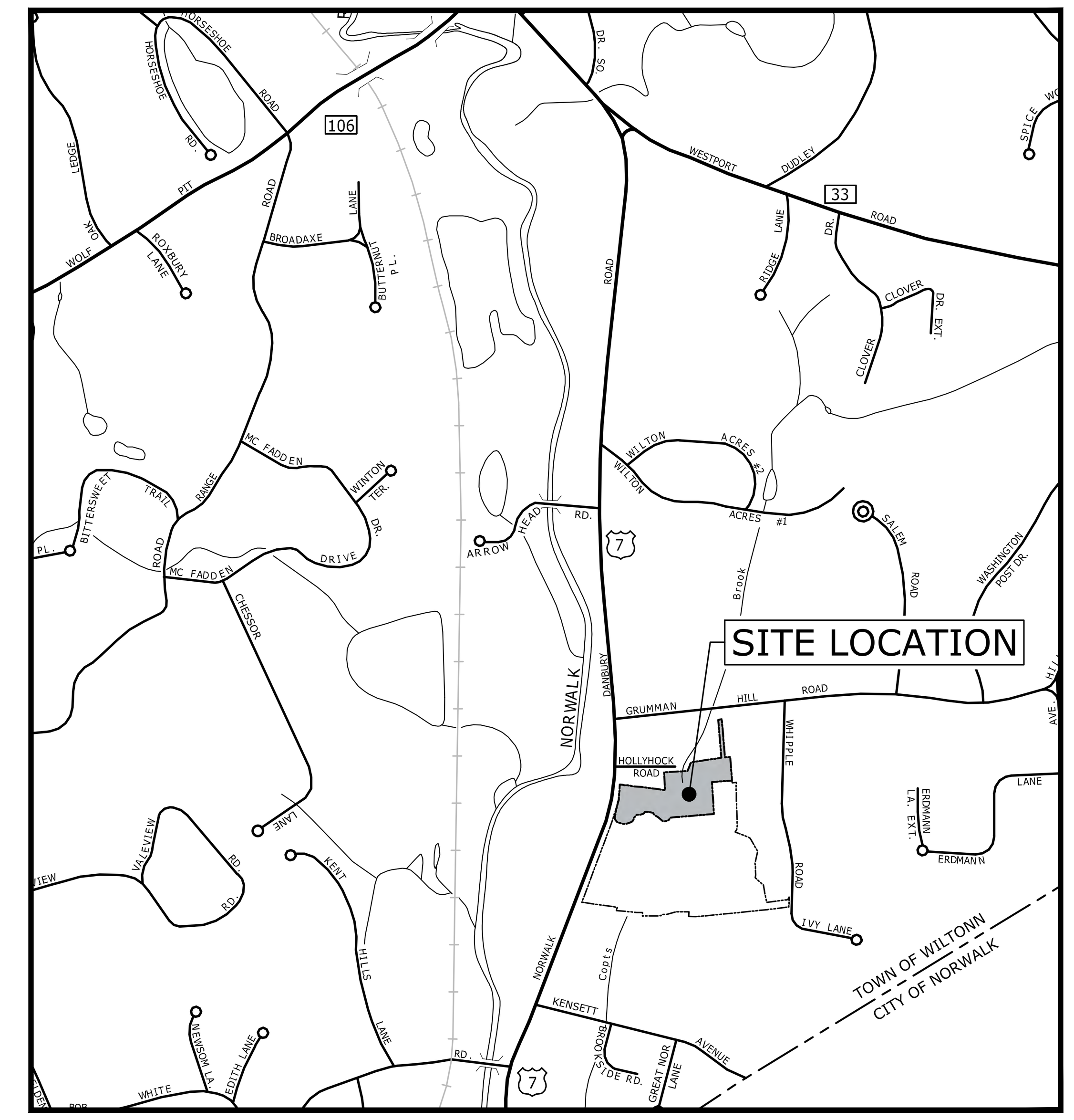
1. AREAS OF DISTURBED EARTH SHALL BE STABILIZED BY MULCHING OR OTHER MEANS. SEEDING OF GRASSED AREAS SHALL BE INITIATED AS SOON AS PRACTICAL AS AN EROSION AND SILTATION CONTROL MEASURE.
2. RETAINING WALLS OVER 3' IN HEIGHT ARE TO BE DESIGNED AND CONSTRUCTED UNDER THE SUPERVISION OF A STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER OR ARCHITECT. WOOD RETAINING WALLS OVER 3 FEET IN HEIGHT ARE NOT PERMITTED.
3. RETAINING WALLS REQUIRING AN ENGINEERED DESIGN SHALL BE SUBMITTED TO AND APPROVED BY THE TOWN OF WILTON BUILDING DEPARTMENT WITH CALCULATIONS BEFORE CONSTRUCTION OF THESE WALLS BEGINS.
4. RETAINING WALLS ARE TO HAVE PROTECTIVE FENCING WHERE WARRANTED.
5. WHERE LEDGE IS TO BE LEFT IN PLACE, THE STABILITY OF THE LEDGE IS TO BE VERIFIED BY A QUALIFIED STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER OR SOIL SCIENTIST.
6. ALL LAND CLEARING AND CONSTRUCTION DEBRIS SHALL BE PROPERLY DISPOSED OF OFFSITE.
7. MAXIMUM GRADE AT ACCESSIBLE PARKING SPACES NOT TO EXCEED 2%.

ABBREVIATIONS

ABDN('D)	ABANDON(ED)
AC	ASBESTOS CEMENT PIPE
BC	BITUMINOUS CURB
BFP	BACK FLOW PREVENTOR
BIT	BITUMINOUS
BL	BASELINE
BLDG	BUILDING
BND	BOUND
BOC	BOTTOM OF CURB
BOT	BOTTOM
BS	BOTTOM OF STEP
BW	BOTTOM OF WALL
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCW	CEMENT CONCRETE WALK
CEM	CEMENT
CI	CAST IRON PIPE
CL	CENTERLINE
CLF	CHAIN LINK FENCE
CO	CLEAN OUT
CONC	CONCRETE
CPP	CORRUGATED POLYETHYLENE PIPE
CY	CUBIC YARD
DH	DRILL HOLE
DI	DUCTILE IRON PIPE
DIA	DIAMETER
DMH	DRAIN MANHOLE
E	EAST
EF	EACH FACE
EG	EXISTING GRADE
EL/ELEV	ELEVATION
ELEC	ELECTRIC
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
EW	EACH WAY
EXIST	EXISTING
FES	FLARED END SECTION
FF	FINISH FLOOR
FM	FORCE MAIN
G	GAS
GG	GAS GATE
GRAN	GRANITE
HC	HANDICAP
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HYD	HYDRANT
IN	INCHES
INV	INVERT
IP	IRON PIN
L	LENGTH OF CURB
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM

ABBREVIATIONS CONT'D

MISC	MISCELLANEOUS
MON	MONUMENT
MJ	MECHANICAL JOINT
N	NORTH
NITC	NOT IN THIS CONTRACT
NTS	NOT TO SCALE
N/A	NOT APPLICABLE
N/F	NOW OR FORMERLY
OC	ON CENTER
OCS	OUTLET CONTROL STRUCTURE
OH	OVERHEAD
PB	PLANT BED
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCPP	PERFORATED CORRUGATED POLYETHYLENE PIPE
PERF	PERFORATED
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PROT	PROTECT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYLCHLORIDE
PVMT	PAVEMENT
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REV	REVISION
ROW	RIGHT OF WAY
RT	RIGHT
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
S	SOUTH
SAN	SANITARY
SCH	SCHEDULE
SF	SQUARE FOOT
SMH	SEWER MANHOLE
SS	STAINLESS STEEL
STA	STATION
STL	STEEL
STRM	STORM
T	TANGENT LENGTH
TC	TOP OF CURB
TEL	TEL-DATA
TP	TEST PIT
TS	TOP OF STEP
TW	TOP OF WALL
TYP	TYPICAL
UP	UTILITY POLE
W	WATER
WG	WATER GATE
WV	WATER VALVE
XFMR	TRANSFORMER



LOCATION MAP
SCALE: 1" = 1000'

LEGEND

DESCRIPTION	EXISTING	PROPOSED
PROPERTY LINE		
PROPERTY LINE ADJACENT		
RIGHT-OF-WAY LINE		
EASEMENT LINE		
CALCULATED 100-YEAR FLOODPLAIN		
UPLAND REVIEW AREA		
INTERMEDIATE CONTOURS		
INDEX CONTOURS	25	25
SPOT GRADE	X 141.2	+ 32.0
MAGNITUDE & DIRECTION OF SLOPE		0.0%
STORM DRAIN	SD SD	SD
STORM UNDERDRAIN		UD
GRAVITY SANITARY SEWER	SS SS	SS SS
SANITARY SEWER FORCE MAIN	SFM	SFM
SANITARY SEWER LOW PRESSURE	SSLP SSLP	SSLP
SANITARY SEWER COMBINED	COMB	COMB
WATER SERVICE	W W	W W
FIRE SERVICE		F F
UNDERGROUND ELECTRIC	E E	E E
PRIMARY ELECTRIC SERVICE	PE	PE PE
SECONDARY ELECTRIC	SE	SE SE
OVERHEAD ELECTRIC	OE OE	OE OE
TELEPHONE SERVICE	T T	T T
TEL-DATA SERVICE	T-D T-D	T-D T-D
COMMUNICATIONS SERVICE	T-C T-C	T-C T-C
CABLE TV SERVICE	CTV CTV	CTV CTV
GAS SERVICE	G G	G G
OVERHEAD UTILITY (UNSPECIFIED)	OHW OHW	
CURB		
EDGE OF PAVEMENT		
DIRT ROAD		
SIDEWALK		
RETAINING WALL		
STONE WALL		
FENCE - UNSPECIFIED	X X X	X X X
FENCE - CHAIN LINK		
FENCE - WOOD POST		
GUARDRAIL		
METAL BEAM RAIL		
TRAIN TRACKS		
STORM DRAIN STRUCTURES	MANHOLE D CATCH BASIN	MANHOLE D AREA DRAIN CATCH BASIN
SANITARY SEWER STRUCTURES	MANHOLE S TANK	MANHOLE S TANK
WATER SERVICE STRUCTURES	HYDRANT HYD MANHOLE W VALVE WV WV	HYDRANT MANHOLE W VALVE
GAS SERVICE STRUCTURES	MANHOLE G VALVE GV GG	MANHOLE G VALVE
ELECTRIC SERVICE STRUCTURES	UTILITY CO. POLE # MANHOLE E LIGHT	UTILITY CO. POLE # MANHOLE E LIGHT
TELECOMMUNICATIONS MANHOLE	T	T
TREELINE		
TREE	EVERGREEN DECIDUOUS STUMP	EVERGREEN DECIDUOUS
SNOW STORAGE AREA		

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TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

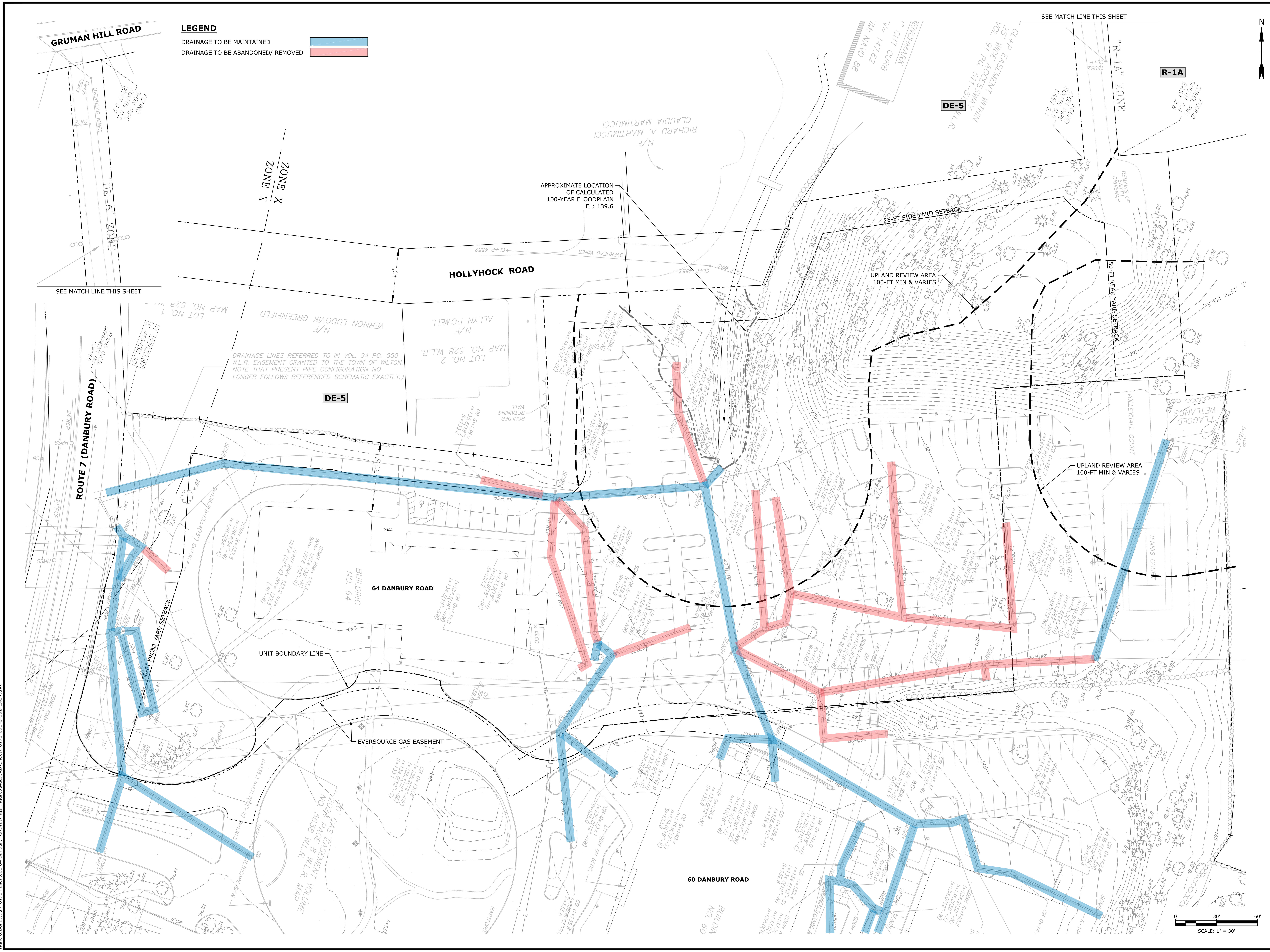
MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-001-GENR.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

GENERAL NOTES, LEGEND AND ABBREVIATIONS

SCALE: AS SHOWN

C-001



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TOWN SUBMISSION

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Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-002-EXCN.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

EXISTING CONDITIONS PLAN

SCALE: 1" = 30'

C-002

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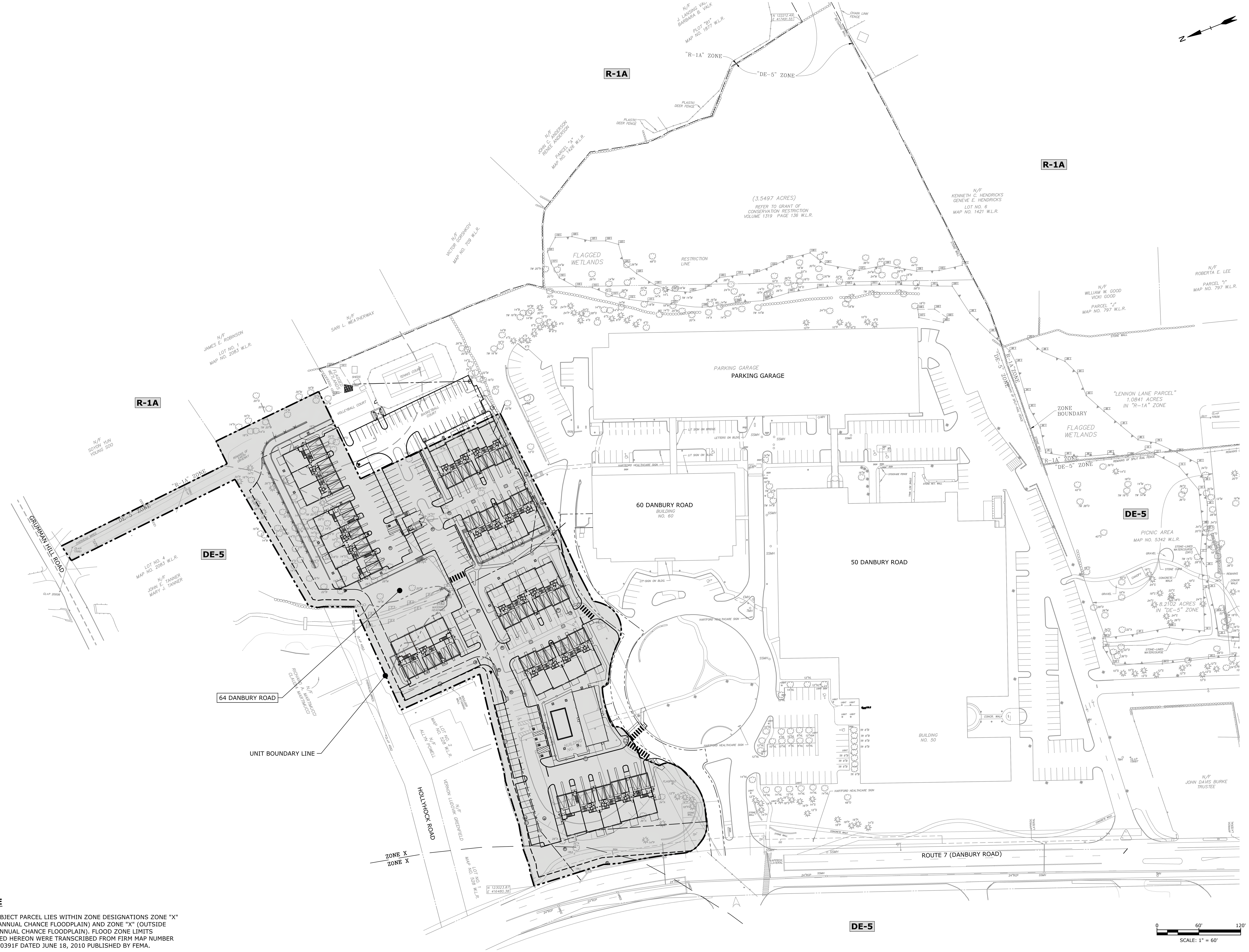

NOTE

THE SUBJECT PARCEL LIES WITHIN ZONE DESIGNATIONS ZONE "X" (0.2% ANNUAL CHANCE FLOODPLAIN) AND ZONE "X" (OUTSIDE 0.2% ANNUAL CHANCE FLOODPLAIN). FLOOD ZONE LIMITS DEPICTED HEREON WERE TRANSCRIBED FROM FIRM MAP NUMBER 09001C0391F DATED JUNE 18, 2010 PUBLISHED BY FEMA.

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Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-100-OVRL.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

OVERALL SITE PLAN

SCALE: 1" = 60'

C-100

SITE PLAN LEGEND

- UPLAND REVIEW AREA
- CALCULATED 100-YEAR FLOODPLAIN
- UNIT BOUNDARY LINE
- PROPOSED CURB
- PROPOSED RETAINING WALL
- SNOW STORAGE AREA
- PROPOSED SIGN
- PROPOSED ACCESSIBLE SYMBOL
- PAVEMENT MILL & OVERLAY
- PROPOSED STRUCTURE ON COLUMNS

AREA AND BULK REQUIREMENTS	DE-5R (EAST)	EXISTING	PROPOSED
MIN FRONT YARD	50	101.35	50.7
MIN SIDE YARD (EACH)	25	65.44	26.3
MIN SIDE YARD (RESIDENTIAL)	50	NA	80.37
MIN. REAR YARD	50	495.2	59.13
MIN. PARKING & LOADING SETBACKS (SIDE AND REAR YARDS)	10	14.0	10
MIN. PARKING & LOADING SETBACKS (RESIDENTIAL)	50	95.0	71.76
MAX. BUILDING HEIGHT (FEET)	3 / 39	< 39	< 39
MAX. BUILDING COVERAGE (%)	40%	21.74%	25.69%
MAX. SITE COVERAGE (%)	75%	46.41%	50.99%
MIN. LOT SIZE (ACRES)	3	22.27	22.27
MIN. LOT FRONTAGE	150	> 150	> 150

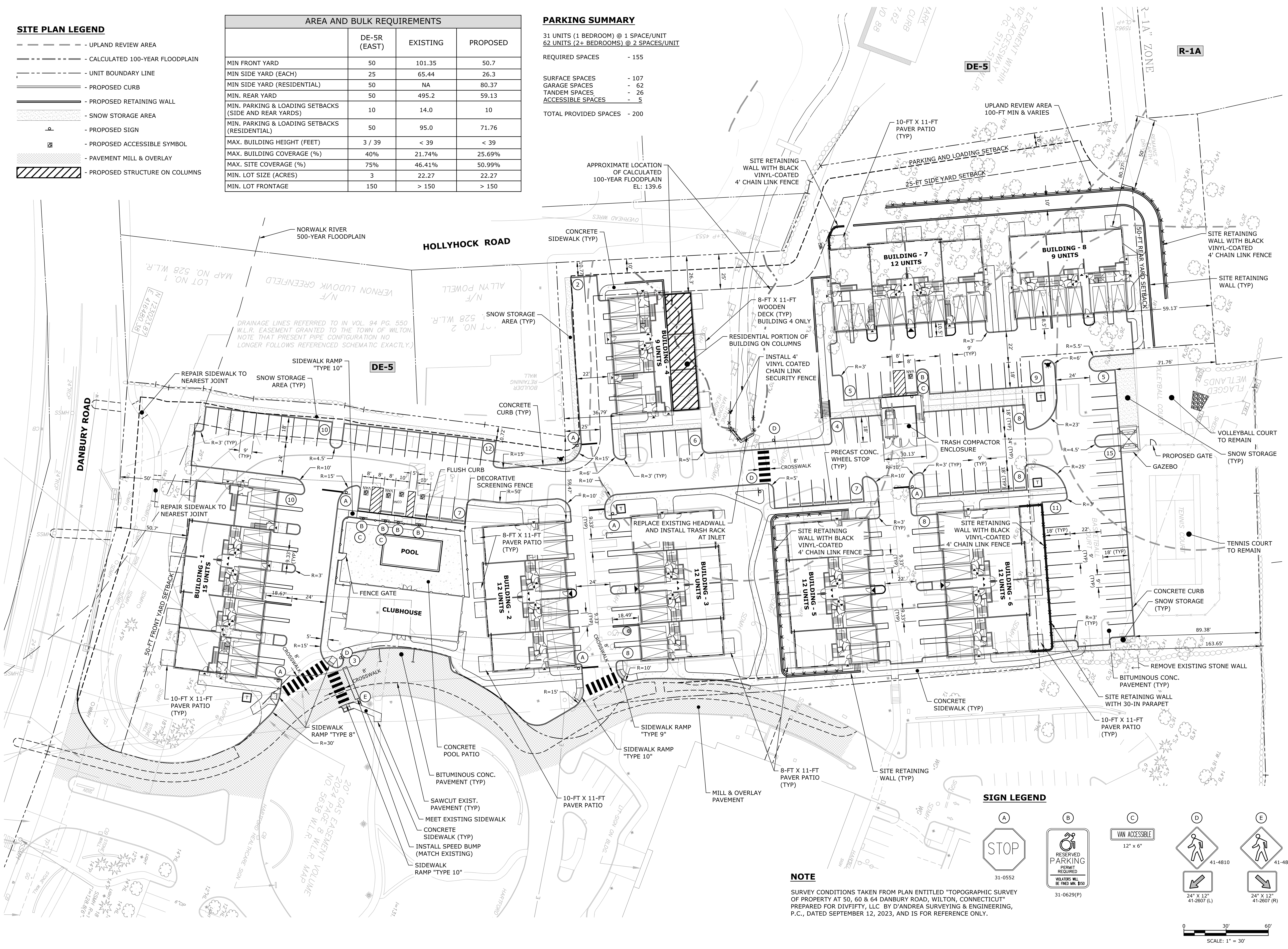
PARKING SUMMARY

31 UNITS (1 BEDROOM) @ 1 SPACE/UNIT
62 UNITS (2+ BEDROOMS) @ 2 SPACES/UNIT

REQUIRED SPACES - 155

SURFACE SPACES - 107
GARAGE SPACES - 62
TANDEM SPACES - 26
ACCESSIBLE SPACES - 5

TOTAL PROVIDED SPACES - 200



SIGN LEGEND

A: STOP — 31-0552
B: RESERVED PARKING PERMIT REQUIRED — VIOLATORS WILL BE FINED MIN. $150 — 31-0629(P)
C: VAN ACCESSIBLE — 12" x 6"
D: 41-4810 — 24" X 12" 41-2607 (L)
E: 41-4810 — 24" X 12" 41-2607 (R)

NOTE

SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.

0 30' 60'
SCALE: 1" = 30'

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(203) 712-1100

TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-101-SITE.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

SITE PLAN

SCALE: 1" = 30'

C-101

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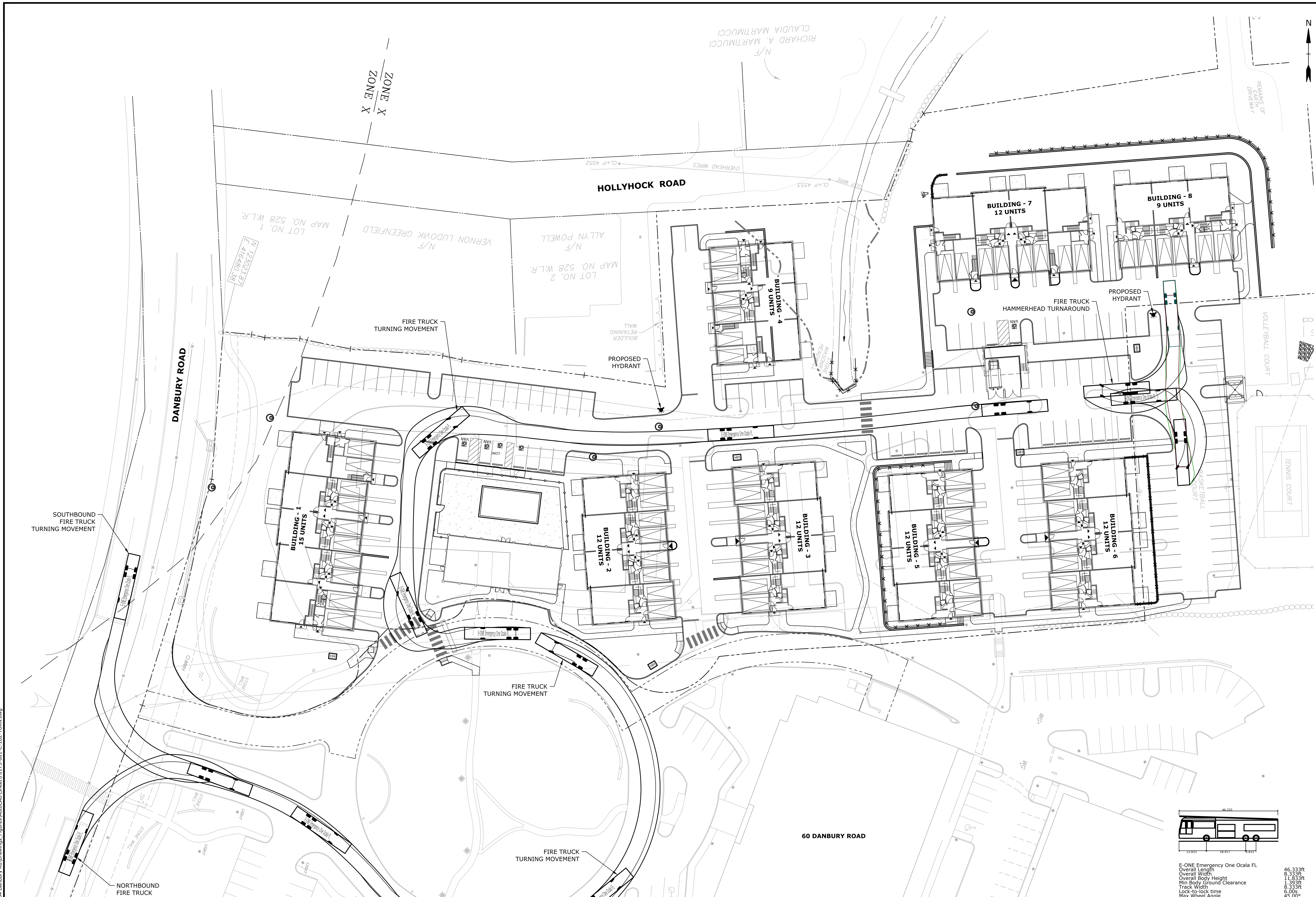

NOTE

SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.

E-ONE Emergency One Ocala FL

Overall Length	46.333ft
Overall Width	8.333ft
Overall Body Height	11.833ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

FIRE TRUCK DESIGN VEHICLE

NO SCALE

0 30' 60'

SCALE: 1" = 30'

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TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-102-TURN.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

FIRE TRUCK TURNING MOVEMENTS PLAN

SCALE: 1" = 30'

C-102

Last Saved: 4/8/2024
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SITE PLAN LEGEND

- UPLAND REVIEW AREA
- UNIT BOUNDARY LINE
- PROPOSED CURB
- PROPOSED RETAINING WALL
- PROPOSED SIGN
- PROPOSED CATCH BASIN
- PROPOSED YARD DRAIN
- PROPOSED MANHOLE
- PROPOSED STRUCTURE ON COLUMNS

GRADING PLAN NOTES

1. THE CONTRACTOR SHALL VERIFY ALL GRADES AND EXISTING CONDITIONS, AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE.
2. MAKE SMOOTH TRANSITIONS BETWEEN ALL SLOPE CHANGES AND FEATHER EDGES OF ALL CUTS AND FILLS TO BLEND WITH EXISTING CONDITIONS.
3. PRIOR TO PAVING, PLANTING AND SEEDING, ALL FINAL GRADING SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ADJUST ALL EXISTING AND RELOCATED UTILITY COLLARS, FRAMES, INLETS, VALVE BOXES, ETC. TO MEET NEW GRADES.
5. ADJUST ALL EXISTING AND RELOCATED MANHOLES, CATCH BASINS AND UTILITY STRUCTURES TO TNEW ELEVATIONS WHERE REQUIRED.
6. ALL EXCAVATED MATERIAL NOT REQUIRED FOR GRADING OR FILLING SHALL BE REMOVED PROMPTLY FROM THE SITE AND DISPOSED OF LEGALLY.
7. SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY DEPICTING 64 DANBURY ROAD IN WILTON, CONNECTICUT, PREPARED FOR FDSPIN 141 DR LLC" BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED APRIL 19, 2021, AND IS FOR REFERENCE ONLY.
8. THE ABBREVIATION F.F. REFERS TO FIRST FLOOR AND THE ABBREVIATION G.F. REFERS TO GARAGE FLOOR.
9. ACCESSIBLE SPACES TO BE GRADED AT 2% OR LESS.
10. ACCESSIBLE ROUTE TO BUILDING NOT TO EXCEED 5%
11. HORIZONTAL DATUM IS BASED ON NAD 27.
12. VERTICAL DATUM IS BASED ON NAVD88.

NOTE

SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.

0 30' 60'
SCALE: 1" = 30'

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TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-201-GRAD.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

GRADING PLAN

SCALE: 1" = 30'

C-201

Last Saved: 4/8/2024
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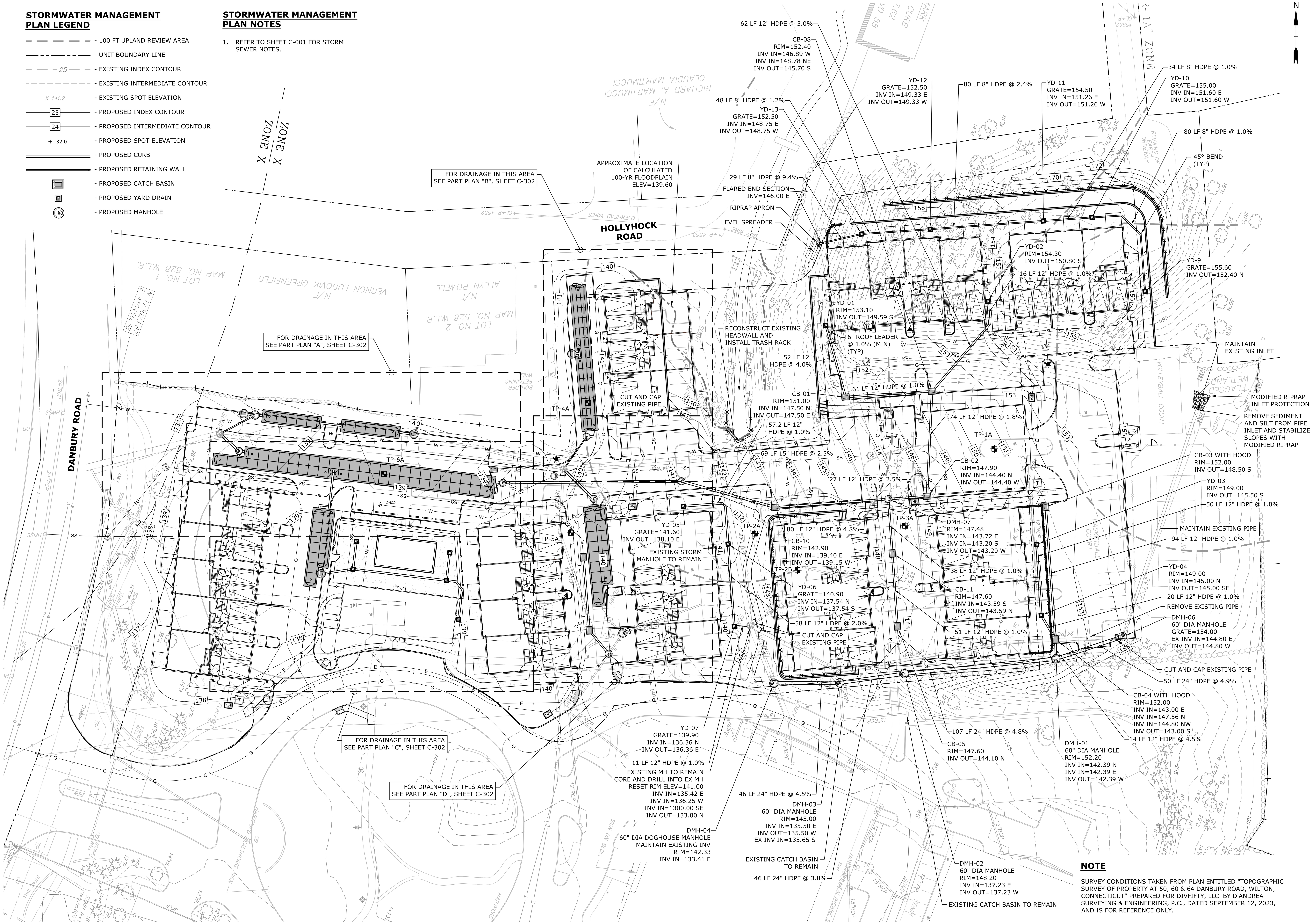
STORMWATER MANAGEMENT PLAN LEGEND

- 100 FT UPLAND REVIEW AREA
- UNIT BOUNDARY LINE
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED CURB
- PROPOSED RETAINING WALL
- PROPOSED CATCH BASIN
- PROPOSED YARD DRAIN
- PROPOSED MANHOLE

STORMWATER MANAGEMENT PLAN NOTES

1. REFER TO SHEET C-001 FOR STORM SEWER NOTES.



NOTE

SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.

SCALE: 1" = 30'

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Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-301-STRM.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DRAINAGE PLAN

SCALE: 1" = 30'

C-301

Last Saved: 4/8/2024
Plotted On:Apr 08, 2024-11:18am By: AClark
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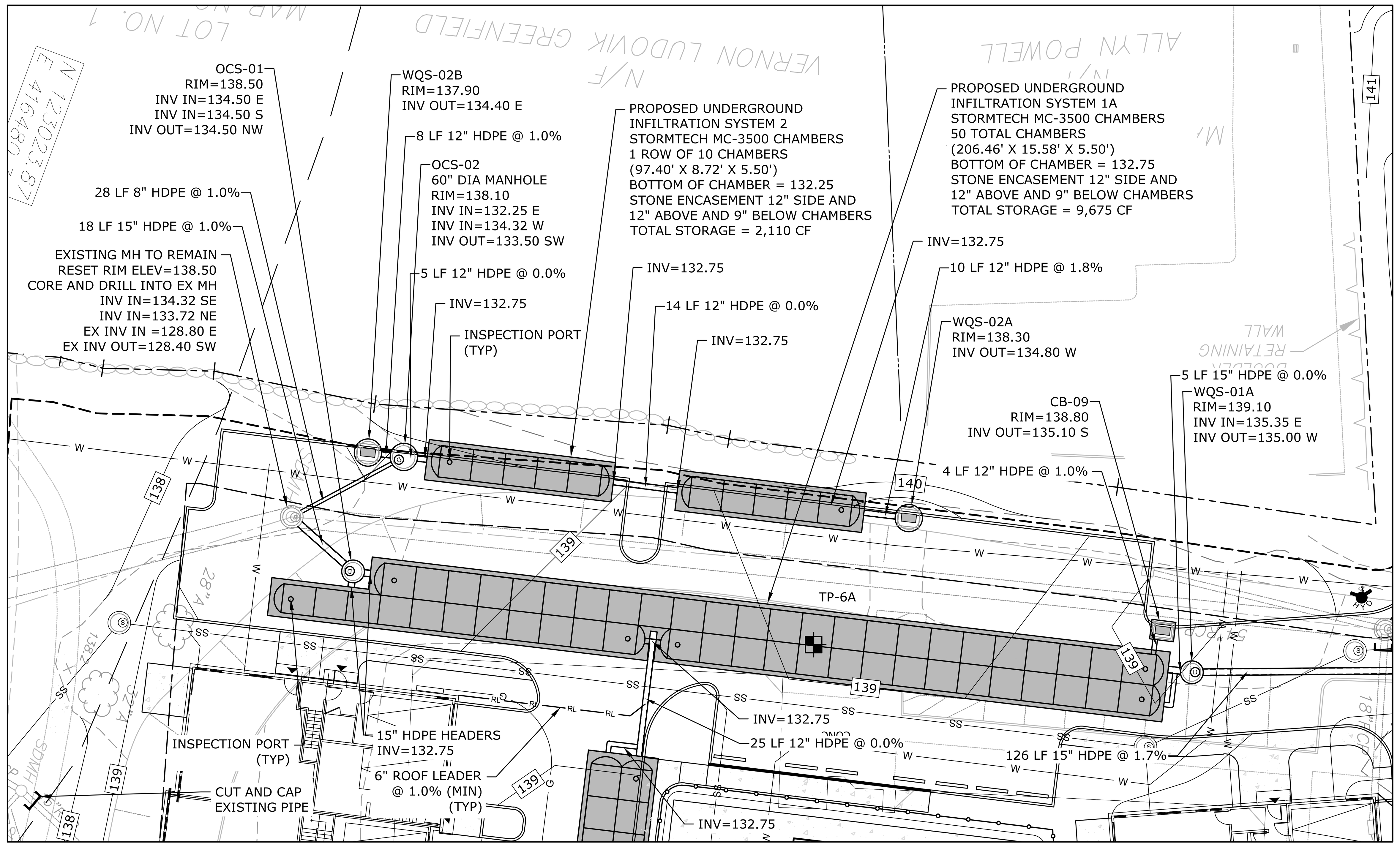
STORMWATER MANAGEMENT PLAN LEGEND

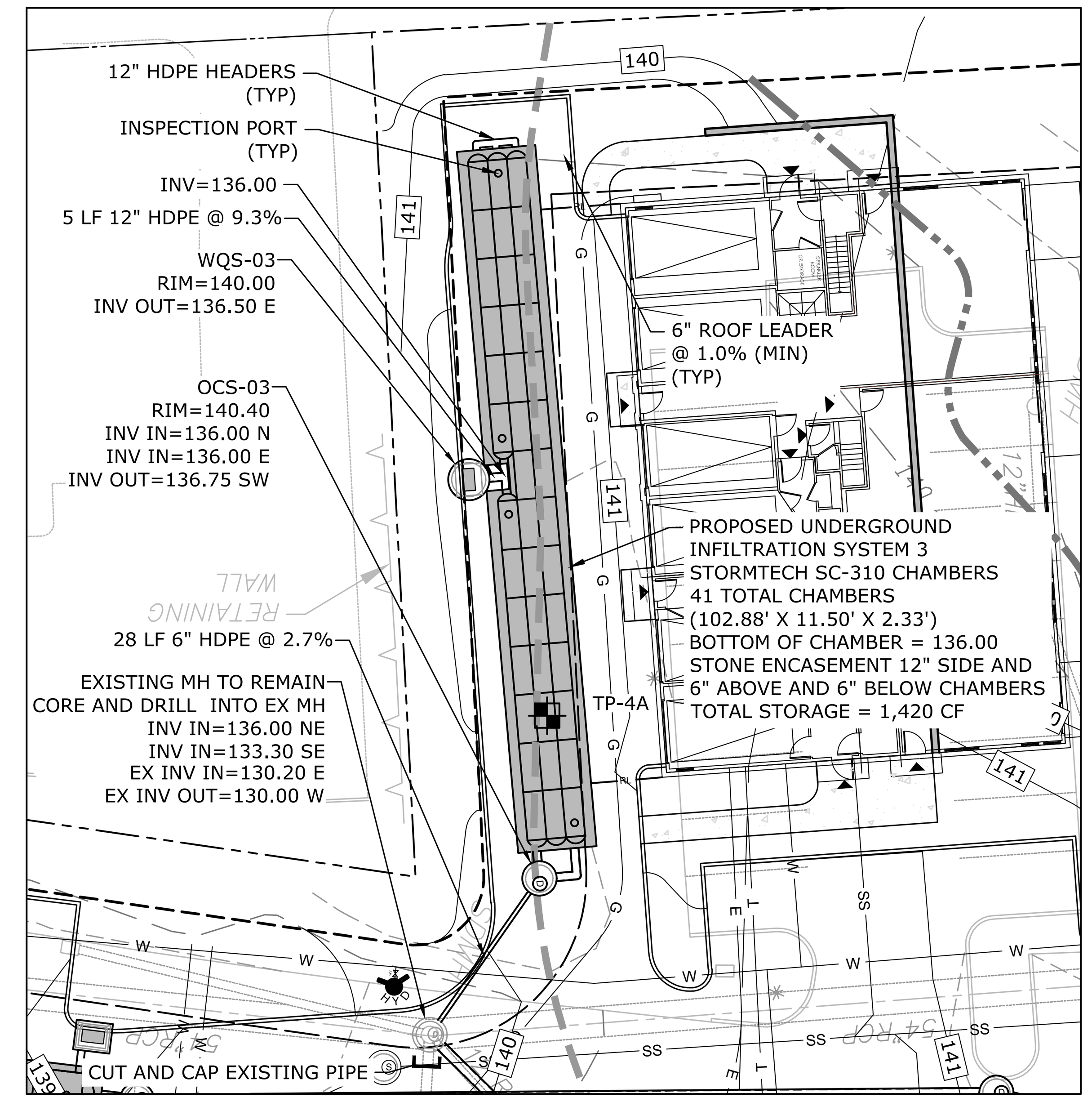
- 100 FT UPLAND REVIEW AREA
- UNIT BOUNDARY LINE
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED CURB
- PROPOSED RETAINING WALL
- PROPOSED CATCH BASIN
- PROPOSED YARD DRAIN
- PROPOSED MANHOLE

STORMWATER MANAGEMENT PLAN NOTES

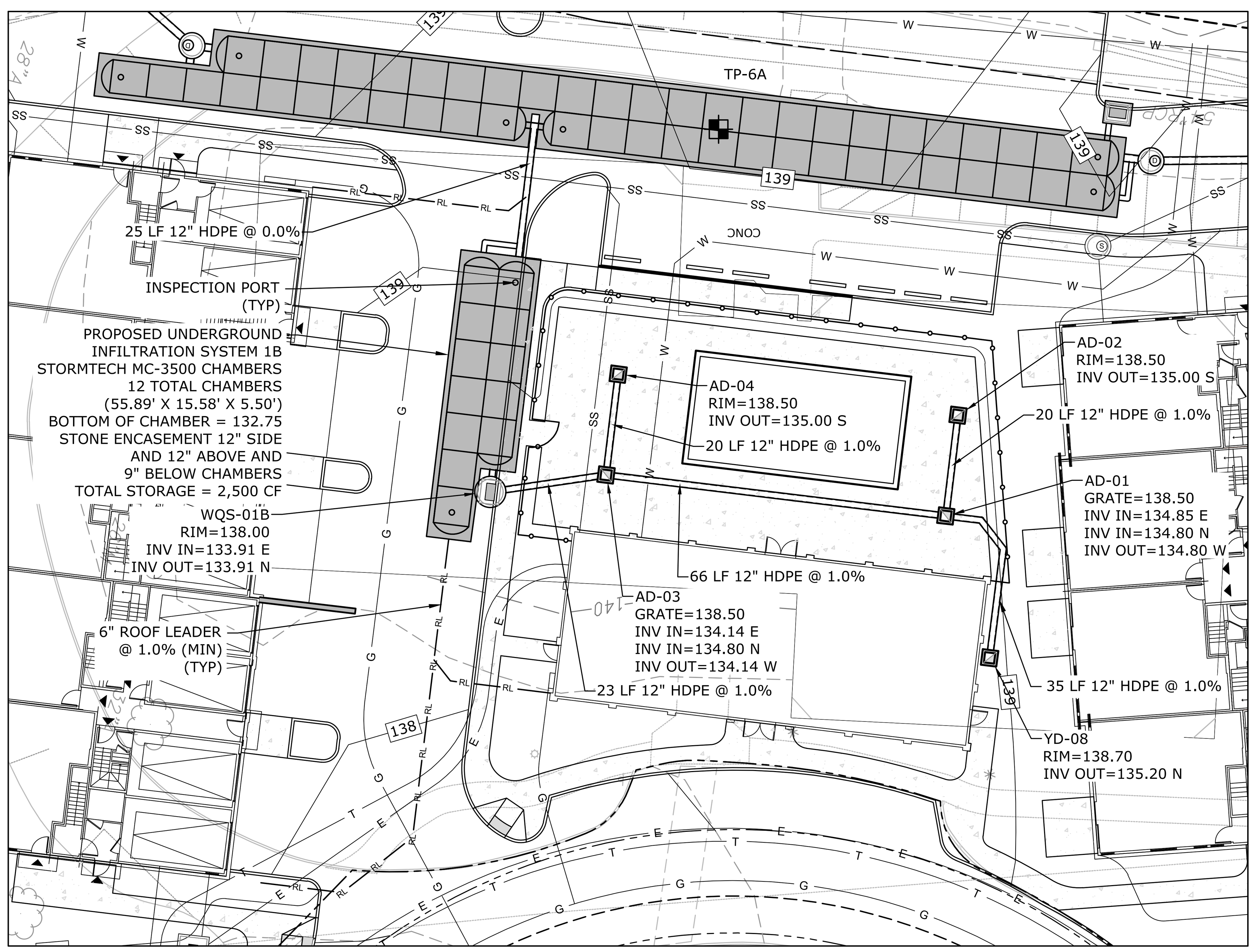
1. REFER TO SHEET C-001 FOR STORM SEWER NOTES.



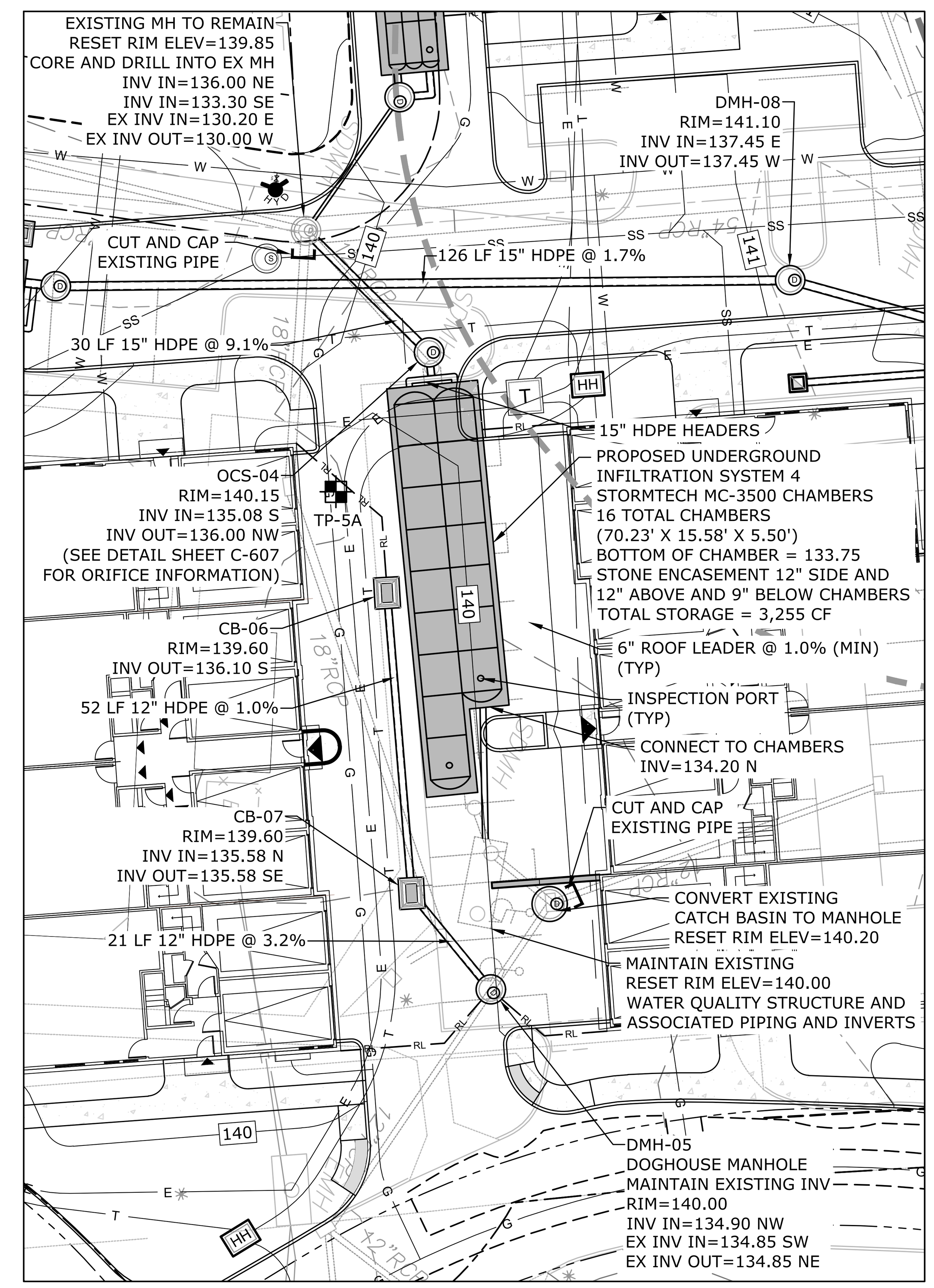
PART PLAN "A" - INFILTRATION SYSTEMS 1A AND 2
SCALE: 1" = 20'



PART PLAN "B" - INFILTRATION SYSTEM 3
SCALE: 1" = 20'



PART PLAN "C" - INFILTRATION SYSTEM 1B
SCALE: 1" = 20'



PART PLAN "D" - INFILTRATION SYSTEM 4
SCALE: 1" = 20'

NOTE

SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.

0 20' 40'
SCALE: 1" = 20'

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FILE:	F0173-001-C-301-STRM.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DRAINAGE PLAN ENLARGEMENT

SCALE: 1" = 20'

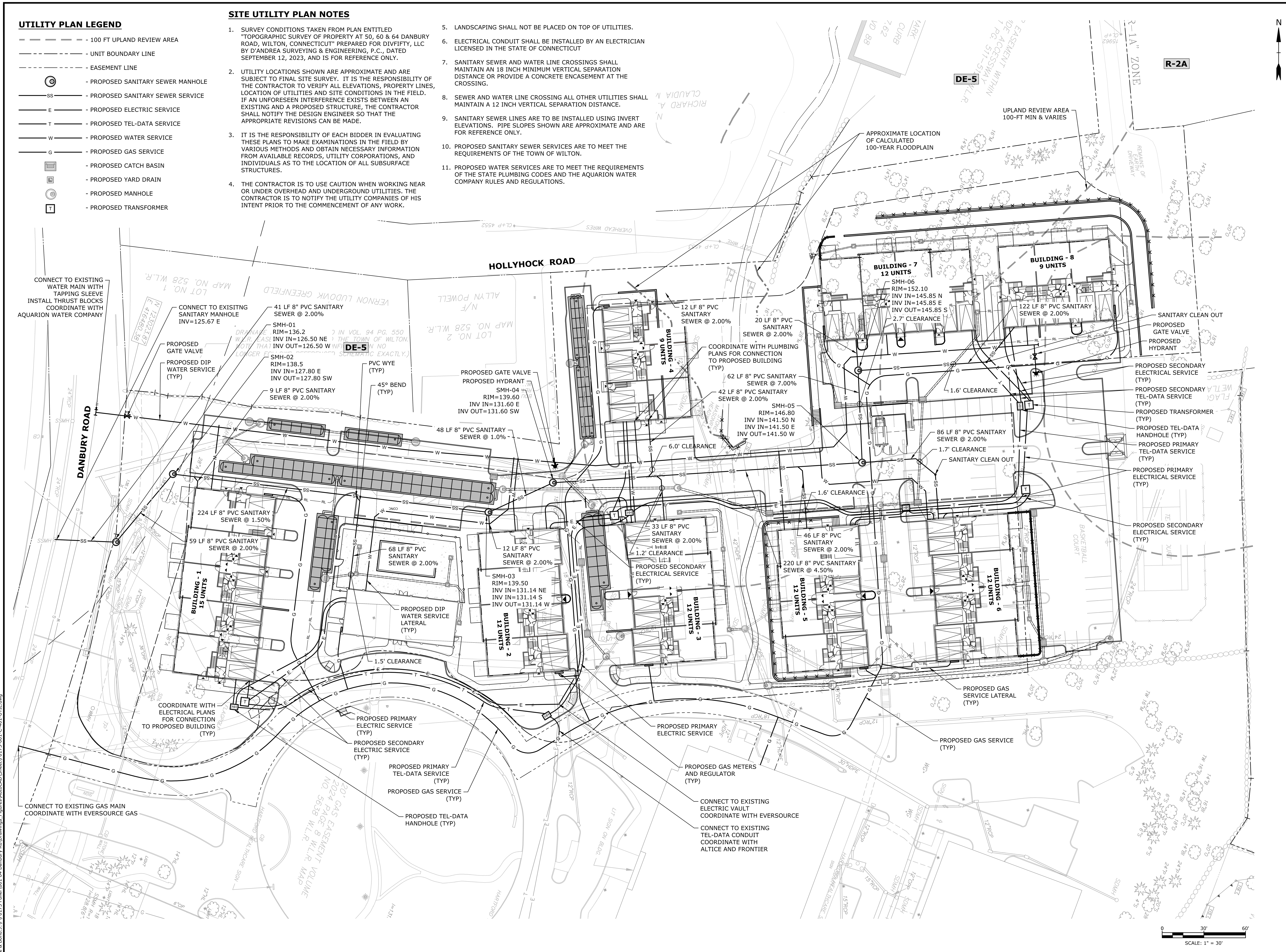
C-302

UTILITY PLAN LEGEND

- 100 FT UPLAND REVIEW AREA
- UNIT BOUNDARY LINE
- EASEMENT LINE
- PROPOSED SANITARY SEWER MANHOLE
- SS — PROPOSED SANITARY SEWER SERVICE
- E — PROPOSED ELECTRIC SERVICE
- T — PROPOSED TEL-DATA SERVICE
- W — PROPOSED WATER SERVICE
- G — PROPOSED GAS SERVICE
- PROPOSED CATCH BASIN
- PROPOSED YARD DRAIN
- PROPOSED MANHOLE
- T — PROPOSED TRANSFORMER

SITE UTILITY PLAN NOTES

1. SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.
2. UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO FINAL SITE SURVEY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL ELEVATIONS, PROPERTY LINES, LOCATION OF UTILITIES AND SITE CONDITIONS IN THE FIELD. IF AN UNFORESEEN INTERFERENCE EXISTS BETWEEN AN EXISTING AND A PROPOSED STRUCTURE, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER SO THAT THE APPROPRIATE REVISIONS CAN BE MADE.
3. IT IS THE RESPONSIBILITY OF EACH BIDDER IN EVALUATING THESE PLANS TO MAKE EXAMINATIONS IN THE FIELD BY VARIOUS METHODS AND OBTAIN NECESSARY INFORMATION FROM AVAILABLE RECORDS, UTILITY CORPORATIONS, AND INDIVIDUALS AS TO THE LOCATION OF ALL SUBSURFACE STRUCTURES.
4. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING NEAR OR UNDER OVERHEAD AND UNDERGROUND UTILITIES. THE CONTRACTOR IS TO NOTIFY THE UTILITY COMPANIES OF HIS INTENT PRIOR TO THE COMMENCEMENT OF ANY WORK.
5. LANDSCAPING SHALL NOT BE PLACED ON TOP OF UTILITIES.
6. ELECTRICAL CONDUIT SHALL BE INSTALLED BY AN ELECTRICIAN LICENSED IN THE STATE OF CONNECTICUT
7. SANITARY SEWER AND WATER LINE CROSSINGS SHALL MAINTAIN AN 18 INCH MINIMUM VERTICAL SEPARATION DISTANCE OR PROVIDE A CONCRETE ENCASEMENT AT THE CROSSING.
8. SEWER AND WATER LINE CROSSING ALL OTHER UTILITIES SHALL MAINTAIN A 12 INCH VERTICAL SEPARATION DISTANCE.
9. SANITARY SEWER LINES ARE TO BE INSTALLED USING INVERT ELEVATIONS. PIPE SLOPES SHOWN ARE APPROXIMATE AND ARE FOR REFERENCE ONLY.
10. PROPOSED SANITARY SEWER SERVICES ARE TO MEET THE REQUIREMENTS OF THE TOWN OF WILTON.
11. PROPOSED WATER SERVICES ARE TO MEET THE REQUIREMENTS OF THE STATE PLUMBING CODES AND THE AQUARION WATER COMPANY RULES AND REGULATIONS.



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Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-401-UTIL.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

UTILITY PLAN

SCALE: 1" = 30'

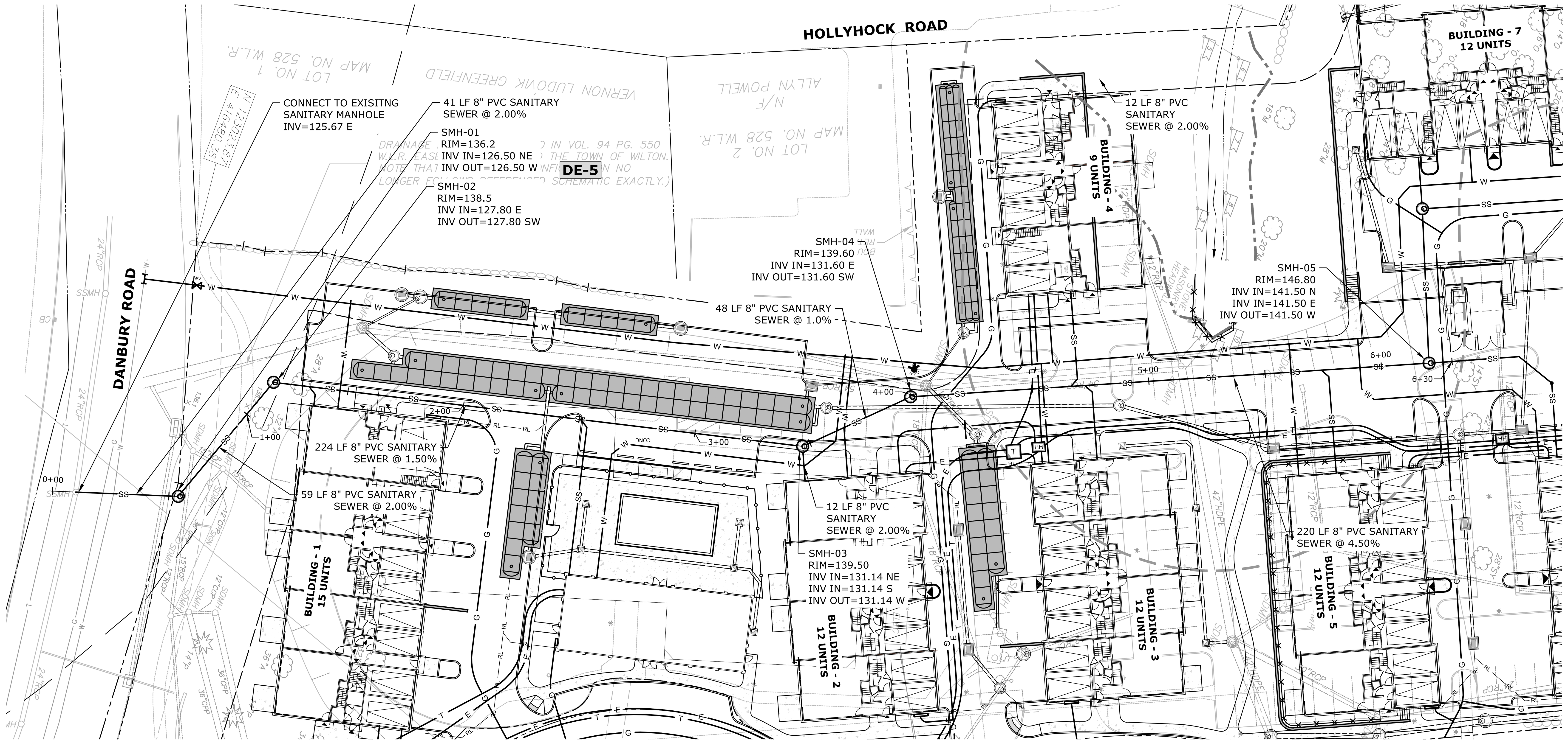
C-401

UTILITY PLAN LEGEND

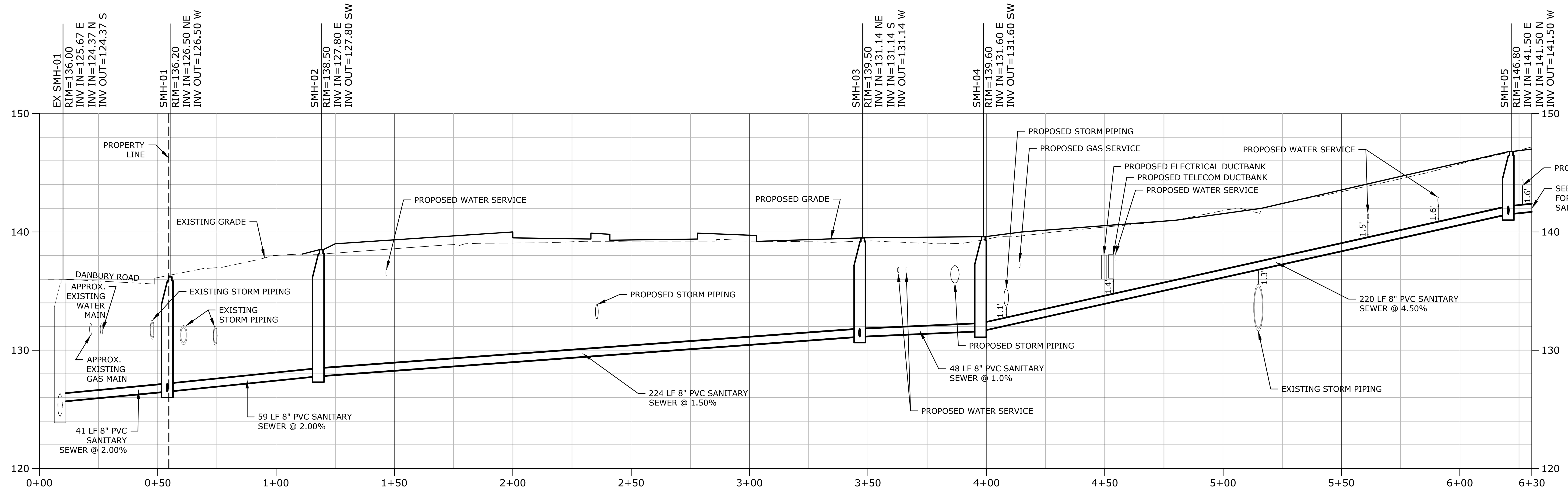
- 100 FT UPLAND REVIEW AREA
- UNIT BOUNDARY LINE
- EASEMENT LINE
- PROPOSED SANITARY SEWER MANHOLE
- SS — PROPOSED SANITARY SEWER SERVICE
- E — PROPOSED ELECTRIC SERVICE
- T — PROPOSED TEL-DATA SERVICE
- W — PROPOSED WATER SERVICE
- G — PROPOSED GAS SERVICE
- PROPOSED CATCH BASIN
- PROPOSED YARD DRAIN
- PROPOSED MANHOLE
- T — PROPOSED TRANSFORMER

SITE SANITARY PROFILE NOTES

1. SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.
2. UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO FINAL SITE SURVEY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL ELEVATIONS, PROPERTY LINES, LOCATION OF UTILITIES AND SITE CONDITIONS IN THE FIELD. IF AN UNFORESEEN INTERFERENCE EXISTS BETWEEN AN EXISTING AND A PROPOSED STRUCTURE, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER SO THAT THE APPROPRIATE REVISIONS CAN BE MADE.
3. IT IS THE RESPONSIBILITY OF EACH BIDDER IN EVALUATING THESE PLANS TO MAKE EXAMINATIONS IN THE FIELD BY VARIOUS METHODS AND OBTAIN NECESSARY INFORMATION FROM AVAILABLE RECORDS, UTILITY CORPORATIONS, AND INDIVIDUALS AS TO THE LOCATION OF ALL SUBSURFACE STRUCTURES.
4. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING NEAR OR UNDER OVERHEAD AND UNDERGROUND UTILITIES. THE CONTRACTOR IS TO NOTIFY THE UTILITY COMPANIES OF HIS INTENT PRIOR TO THE COMMENCEMENT OF ANY WORK.
5. LANDSCAPING SHALL NOT BE PLACED ON TOP OF UTILITIES.
6. ELECTRICAL CONDUIT SHALL BE INSTALLED BY AN ELECTRICIAN LICENSED IN THE STATE OF CONNECTICUT
7. SANITARY SEWER AND WATER LINE CROSSINGS SHALL MAINTAIN AN 18 INCH MINIMUM VERTICAL SEPARATION DISTANCE OR PROVIDE A CONCRETE ENCASEMENT AT THE CROSSING.
8. SEWER AND WATER LINE CROSSING ALL OTHER UTILITIES SHALL MAINTAIN A 12 INCH VERTICAL SEPARATION DISTANCE.
9. SANITARY SEWER LINES ARE TO BE INSTALLED USING INVERT ELEVATIONS. PIPE SLOPES SHOWN ARE APPROXIMATE AND ARE FOR REFERENCE ONLY.
10. PROPOSED SANITARY SEWER SERVICES ARE TO MEET THE REQUIREMENTS OF THE TOWN OF WILTON.
11. PROPOSED WATER SERVICES ARE TO MEET THE REQUIREMENTS OF THE STATE PLUMBING CODES AND THE AQUARION WATER COMPANY RULES AND REGULATIONS.
12. SEE SHEET C-401 FOR ADDITIONAL UTILITY INFORMATION.



SANITARY SEWER PLAN VIEW



SANITARY SEWER PROFILE

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APPROVED BY:	JWB

SANITARY PROFILE

SCALE: 1" = 30'

C-402

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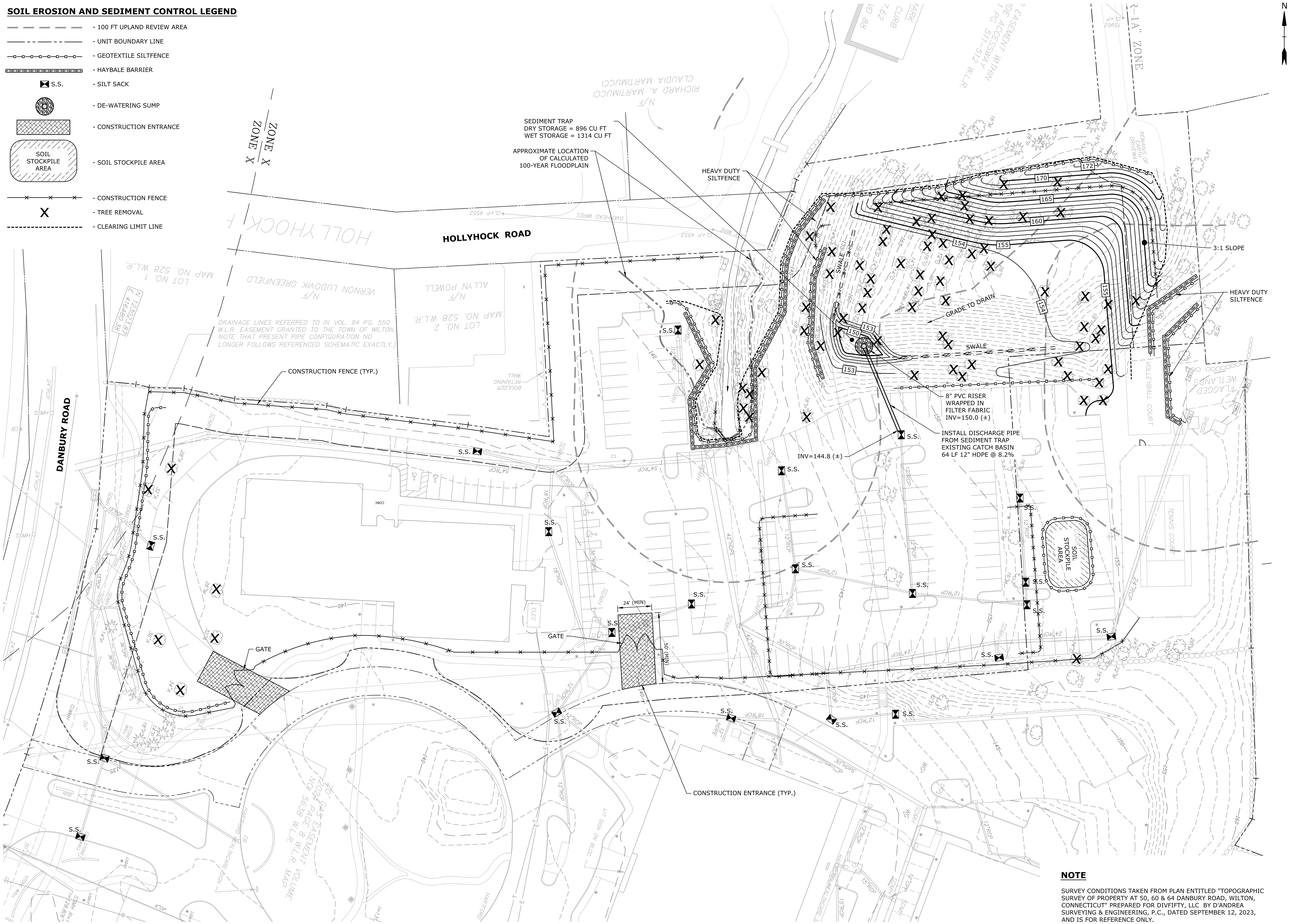
SOIL EROSION AND SEDIMENT CONTROL LEGEND

- 100 FT UPLAND REVIEW AREA
- UNIT BOUNDARY LINE
- GEOTEXTILE SILTFENCE
- HAYBALE BARRIER
- S.S. - SILT SACK
- DE-WATERING SUMP
- CONSTRUCTION ENTRANCE
- SOIL STOCKPILE AREA - SOIL STOCKPILE AREA
- CONSTRUCTION FENCE
- X - TREE REMOVAL
- CLEARING LIMIT LINE



NOTE

SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.

0 30' 60'
SCALE: 1" = 30'

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DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

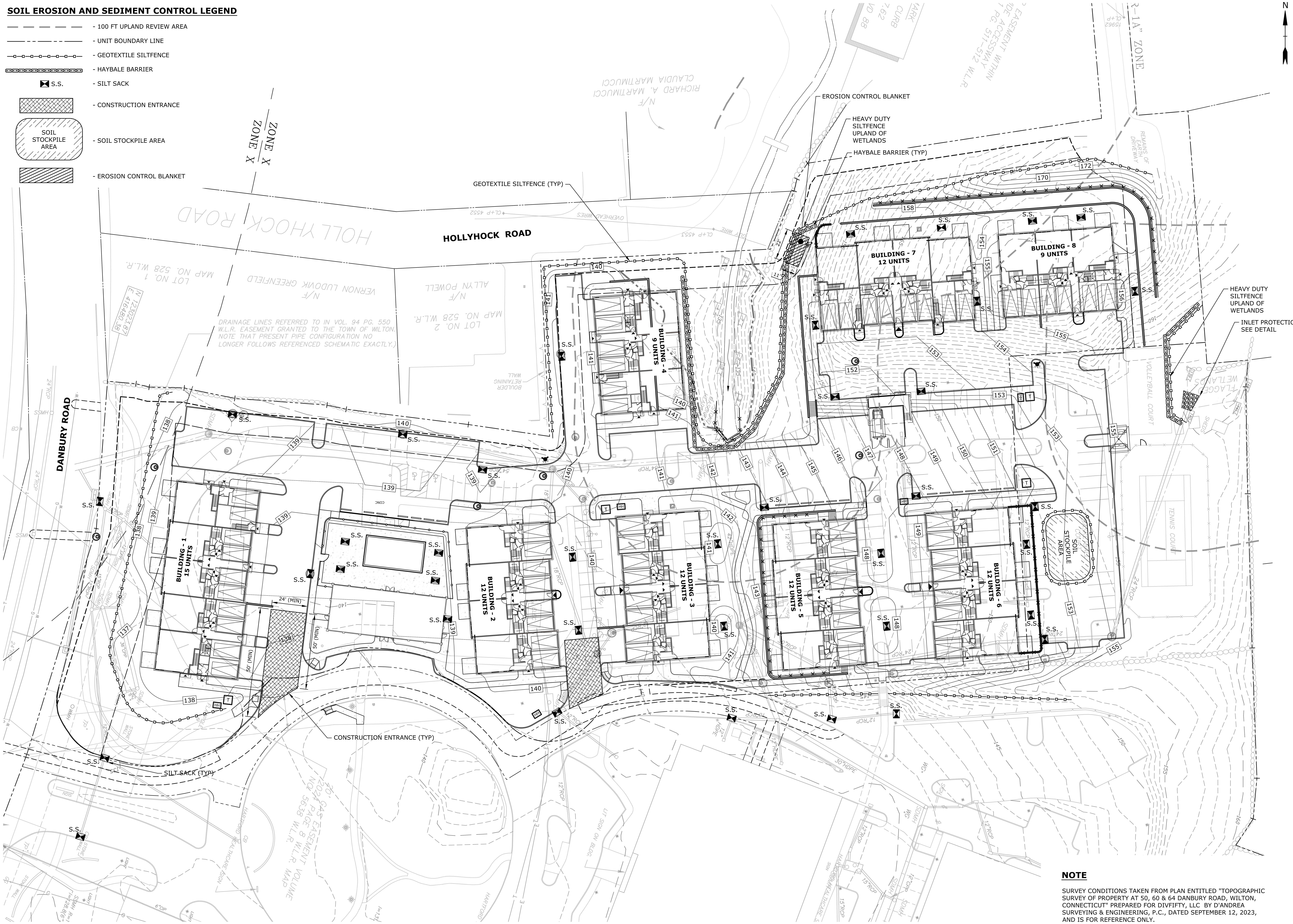
SOIL EROSION AND SEDIMENT CONTROL PLAN INITIAL PHASE

SCALE: 1" = 30'

C-501

SOIL EROSION AND SEDIMENT CONTROL LEGEND

- 100 FT UPLAND REVIEW AREA
- UNIT BOUNDARY LINE
- GEOTEXTILE SILTFENCE
- HAYBALE BARRIER
- S.S. - SILT SACK
- CONSTRUCTION ENTRANCE
- SOIL STOCKPILE AREA - SOIL STOCKPILE AREA
- EROSION CONTROL BLANKET



NOTE

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SOIL EROSION AND SEDIMENT CONTROL PLAN FINAL PHASE

SCALE: 1" = 30'

C-502

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SOIL EROSION AND SEDIMENT CONTROL

THE STORMWATER MANAGEMENT MEASURES WILL ADDRESS THE STORMWATER QUALITY ONCE THE SITE HAS BEEN CONSTRUCTED AND STABILIZED. SEDIMENTATION AND EROSION CONTROL MEASURES WILL BE INSTALLED DURING CONSTRUCTION WHICH WILL MINIMIZE ADVERSE IMPACTS FROM CONSTRUCTION ACTIVITIES.

ALL SEDIMENTATION AND EROSION CONTROL MEASURES PROPOSED FOR THIS DEVELOPMENT HAVE BEEN DESIGNED IN ACCORDANCE WITH THE "2024 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AS PUBLISHED BY THE CONNECTICUT COUNCIL ON SOIL EROSION AND WATER CONSERVATION. ADDITIONAL GUIDELINES HAVE ALSO BEEN FOLLOWED THAT ARE AVAILABLE FROM THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION AS RECOMMENDED FOR SEDIMENTATION CONTROL DURING CONSTRUCTION ACTIVITIES.

LISTED BELOW ARE THE EROSION CONTROL NARRATIVE AND THE EROSION CONTROL NOTES.

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

GENERAL

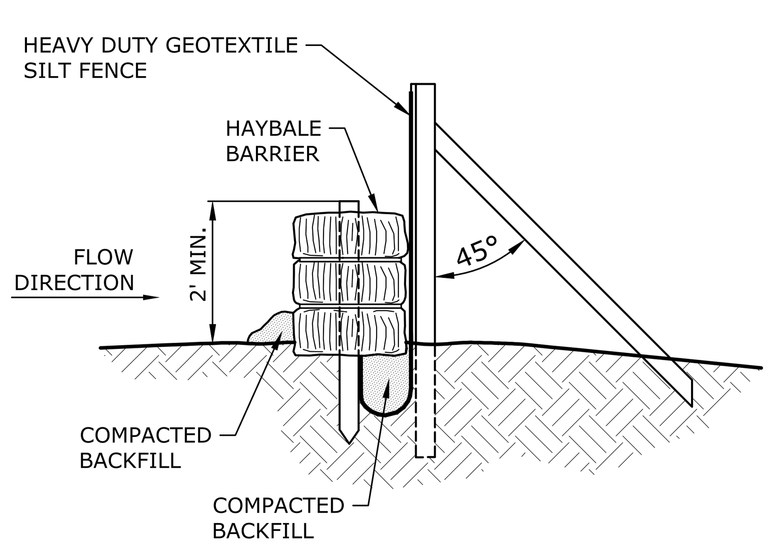
1. THE PROPOSED DEVELOPMENT IS ENTITLED 64 DANBURY ROAD, WILTON, CONNECTICUT.
2. ESTIMATED:
   PROJECT START: SPRING 2024
   PROJECT COMPLETION: SUMMER 2026
3. EROSION CONTROL NARRATIVE REFERS TO DRAWINGS C-501 THROUGH C-504.
4. THE PROPOSED SITE DEVELOPMENT WILL CONSIST OF BUILDING DEMOLITION, CLEARING AND GRUBBING THE EXISTING SITE, EXCAVATION,CONSTRUCTION OF STORMWATER MANAGEMENT, UTILITIES, AND ROUGH GRADING OF BUILDING, PARKING AREAS, SIDEWALKS AND CURBING.
5. THE DEVELOPMENT IS LOCATED ON DANBURY ROAD IN WILTON, CONNECTICUT.

CONSTRUCTION SEQUENCE - INITIAL PHASE

1. CONDUCT A PRE-CONSTRUCTION MEETING WITH THE OWNER OR OWNER'S REPRESENTATIVE, TOWN PLANNER, DIRECTOR OF ENVIRONMENTAL AFFAIRS, DESIGN ENGINEER, SITE ENGINEER, CONTRACTOR AND SITE SUPERINTENDENT TO ESTABLISH THE LIMITS OF CONSTRUCTION, CONSTRUCTION PROCEDURES AND MATERIAL STOCKPILE AREAS.
2. FIELD STAKE THE LIMITS OF CONSTRUCTION.
3. INSTALL ALL APPLICABLE SOIL AND EROSION CONTROL MEASURES AROUND THE PERIMETER OF THE SITE TO THE EXTENT POSSIBLE. THIS WILL INCLUDE SILTATION FENCE AROUND THE PROJECT AS SHOWN ON THE PLANS.
4. INSTALL CONSTRUCTION ACCESS ROAD AND ANTI-TRACKING PAVEMENT IN THE AREAS AS SHOWN ON THE PLANS. ALL CONSTRUCTION ACCESS SHALL BE INTO THE SITE THROUGH THE ANTI-TRACKING PADS.
5. ESTABLISH TEMPORARY STAGING AREA.
6. BEGIN BUILDING DEMOLITION AND PAVEMENT REMOVAL.
7. BEGIN MASS EARTHWORK AND CONSTRUCT SEDIMENT TRAP IN THE VICINITY OF BUILDINGS 7 & 8. CONSTRUCT RETAINING WALLS AND LEVEL BUILDING PAD AS SOON AS POSSIBLE AFTER EXCAVATED.
8. CONSTRUCT THE INITIAL STORM DRAINAGE AS SHOWN ON THE DRAINAGE PLANS.
9. INSTALL WATER QUALITY SYSTEMS AND ASSOCIATED DRAINAGE NETWORK TO THE MAXIMUM EXTENT PRACTICABLE. GRADE THE AREA AROUND THE STORM DRAINAGE SYSTEM AS NECESSARY.
10. BEGIN ROUGH ROADWAY GRADING.
11. INSTALL REMAINING DRAINAGE SYSTEM TO THE EXTENT NECESSARY TO PROVIDE POSITIVE DRAINAGE.
12. BEGIN INSTALLATION OF SANITARY SEWER SYSTEM, WATER AND OTHER UTILITIES TO EXTENT NECESSARY.
13. PROVIDE SILT FENCE/HAYBALE BARRIER AROUND SOIL STOCKPILE AREA. PROVIDE TEMPORARY VEGETATIVE COVER (DEFINED IN EROSION CONTROL NOTES) ON ALL EXPOSED SURFACES.
14. BEGIN BUILDING CONSTRUCTION.
15. PAVE BINDER COURSE ON PARKING AND DRIVEWAYS FOR NON-POROUS PAVEMENT AREAS.
16. ESTABLISH TEMPORARY VEGETATIVE COVER.

CONSTRUCTION SEQUENCE - FINAL PHASE

1. REPAIR PERIMETER SEDIMENT & EROSION CONTROLS AS NEEDED.
2. CLEAN/REPLACE CONTROLS FROM PREVIOUS PHASE AS NEEDED.
3. FINE GRADE SITE.
4. CONTINUE CONSTRUCTION OF BUILDING.
5. COMPLETE CONSTRUCTION OF SIDEWALKS.
6. ESTABLISH FINAL VEGETATIVE COVER AND LANDSCAPING.
7. PAVE SURFACE COURSE ON ROADWAYS.
8. REMOVE EROSION CONTROLS WHEN SITE IS STABILIZED.



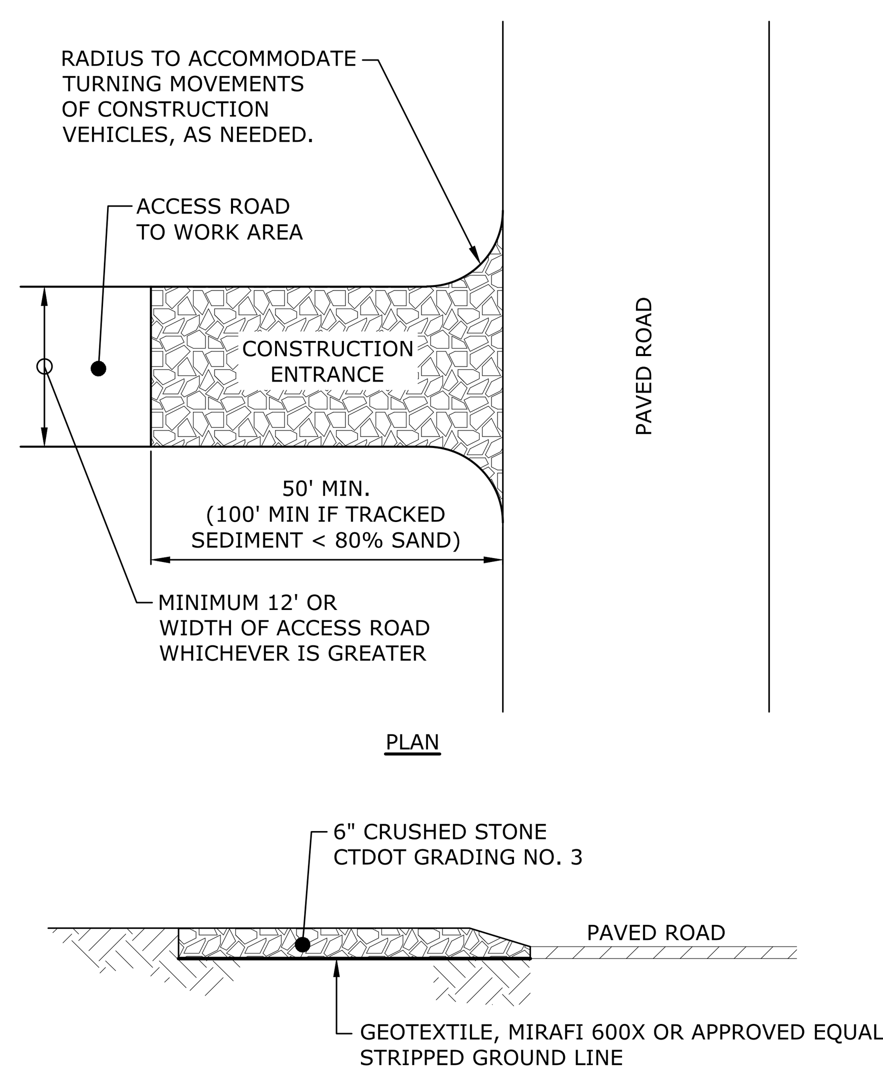
NOTE:

1. BACKFILL AND COMPACT THE EXCAVATED SOIL AS SHOWN ON THE UPHILL SIDE OF THE BARRIER TO PREVENT PIPING.

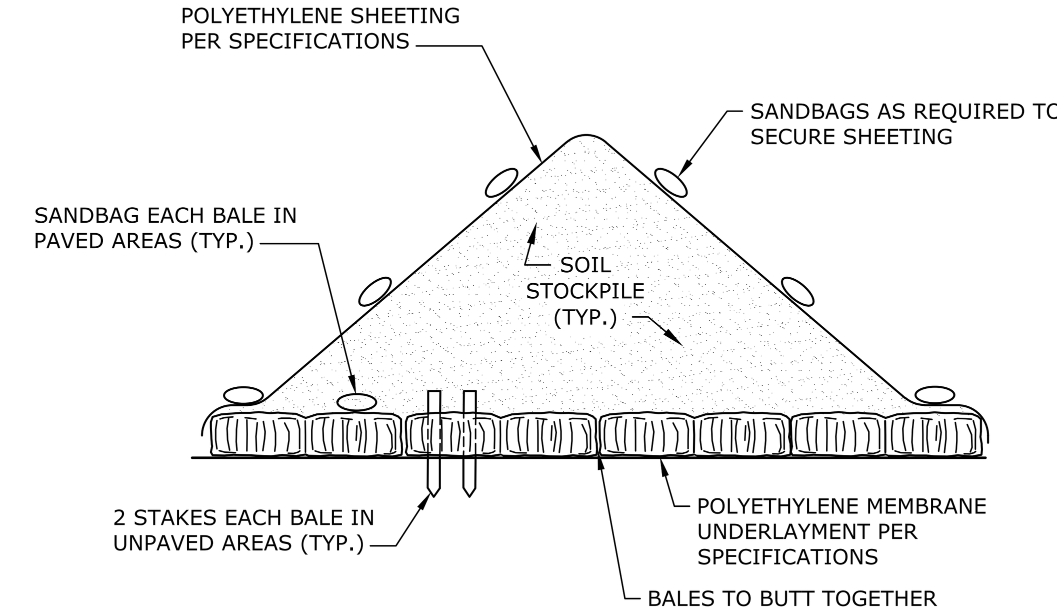
SILT FENCE AND HAYBALE COMBINED BARRIER
NO SCALE

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE "2024 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", DEP BULLETIN NO. 34, AND ALL AMENDMENTS AND ADDENDA THERETO AS PUBLISHED BY THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION.
2. LAND DISTURBANCE SHALL BE KEPT TO THE MINIMUM NECESSARY FOR CONSTRUCTION OPERATIONS.
3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AS ORDERED BY THE ENGINEER.
4. ALL CATCH BASINS SHALL BE PROTECTED WITH A SILT SACKS, HAYBALE RING, SILT FENCE OR BLOCK AND STONE INLET PROTECTION THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
5. WHENEVER POSSIBLE, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION. SEE "EROSION CONTROL NARRATIVE".
6. ADDITIONAL CONTROL MEASURES SHALL BE INSTALLED DURING THE CONSTRUCTION PERIOD AS ORDERED BY THE ENGINEER.
7. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
8. SEDIMENT REMOVED SHALL BE DISPOSED OF OFF SITE OR IN A MANNER AS REQUIRED BY THE ENGINEER.
9. THE CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF ALL CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PERIOD.
10. ALL DISTURBED AREAS TO BE LEFT EXPOSED FOR MORE THAN 30 DAYS SHALL BE PROTECTED WITH A TEMPORARY VEGETATIVE COVER. SEED THESE AREAS WITH PERENNIAL RYEGRASS AT THE RATE OF 40 LBS. PER ACRE (1 LB. PER 1,000 SQ. FT). APPLY SOIL AMENDMENTS AND MULCH AS REQUIRED TO ESTABLISH A UNIFORM STAND OF VEGETATION OVER ALL DISTURBED AREAS.
11. THE CONSTRUCTION CONTRACTOR SHALL UTILIZE APPROVED METHODS/MATERIALS FOR PREVENTING THE BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES ONTO ADJACENT PROPERTIES AND SITE AREAS.
12. THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A SUPPLY OF SILT FENCE/HAYBALES AND ANTI-TRACKING CRUSHED STONE ON SITE FOR EMERGENCY REPAIRS.
13. ALL DRAINAGE STRUCTURES SHALL BE PERIODICALLY INSPECTED WEEKLY BY THE CONSTRUCTION CONTRACTOR AND CLEANED TO PREVENT THE BUILD-UP OF SILT.
14. THE CONSTRUCTION CONTRACTOR SHALL CAREFULLY COORDINATE THE PLACEMENT OF EROSION CONTROL MEASURES WITH THE PHASING OF CONSTRUCTION.
15. KEEP ALL PAVED SURFACES CLEAN. SWEEP AND SCRAPE BEFORE FORECASTED STORMS.
16. TREAT ALL UNPAVED SURFACE WITH 4" MINIMUM OF TOPSOIL PRIOR TO FINAL STABILIZATION.
17. HAYBALE BARRIERS AND SILT FENCING SHALL BE INSTALLED ALONG THE TOE OF CRITICAL CUT AND FILL SLOPES.
18. THE CONTRACTOR SHALL NOTIFY THE TOWN OFFICIALS PRIOR TO THE INSTALLATION OF EROSION CONTROLS, CUTTING OF TREES, OR ANY EXCAVATION.
19. ALL TRUCKS LEAVING THE SITE MUST BE COVERED.
20. SOME CONTROL MEASURES ARE PERMANENT. THESE STRUCTURES SHALL BE CLEANED AND REPLENISHED AT THE END OF CONSTRUCTION. LOCATIONS OF THE PERMANENT CONTROL STRUCTURES ARE SHOWN ON THE DRAINAGE PLANS.
21. ALL SEDIMENTATION AND EROSION CONTROLS SHALL BE CHECKED WEEKLY AND/OR AFTER EACH RAIN FALL EVENT. NECESSARY REPAIRS SHALL BE MADE WITHOUT DELAY.
22. PRIOR TO ANY FORECASTED RAINFALL, EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND REPAIRED AS NECESSARY.
23. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, EROSION CONTROLS MAY BE REMOVED ONCE AUTHORIZATION TO DO SO HAS BEEN SECURED FROM THE OWNER. DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
24. ALL EMBANKMENT SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL BLANKET, NORTH AMERICAN GREEN SC150BN OR APPROVED EQUIVALENT, UNLESS OTHERWISE NOTED ON PLANS.



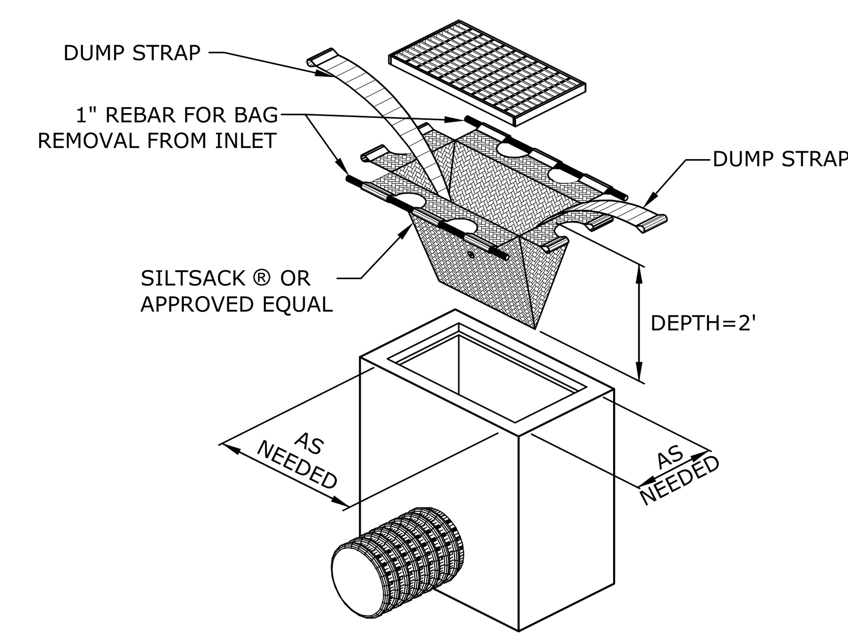
CONSTRUCTION ENTRANCE
NO SCALE



NOTE:

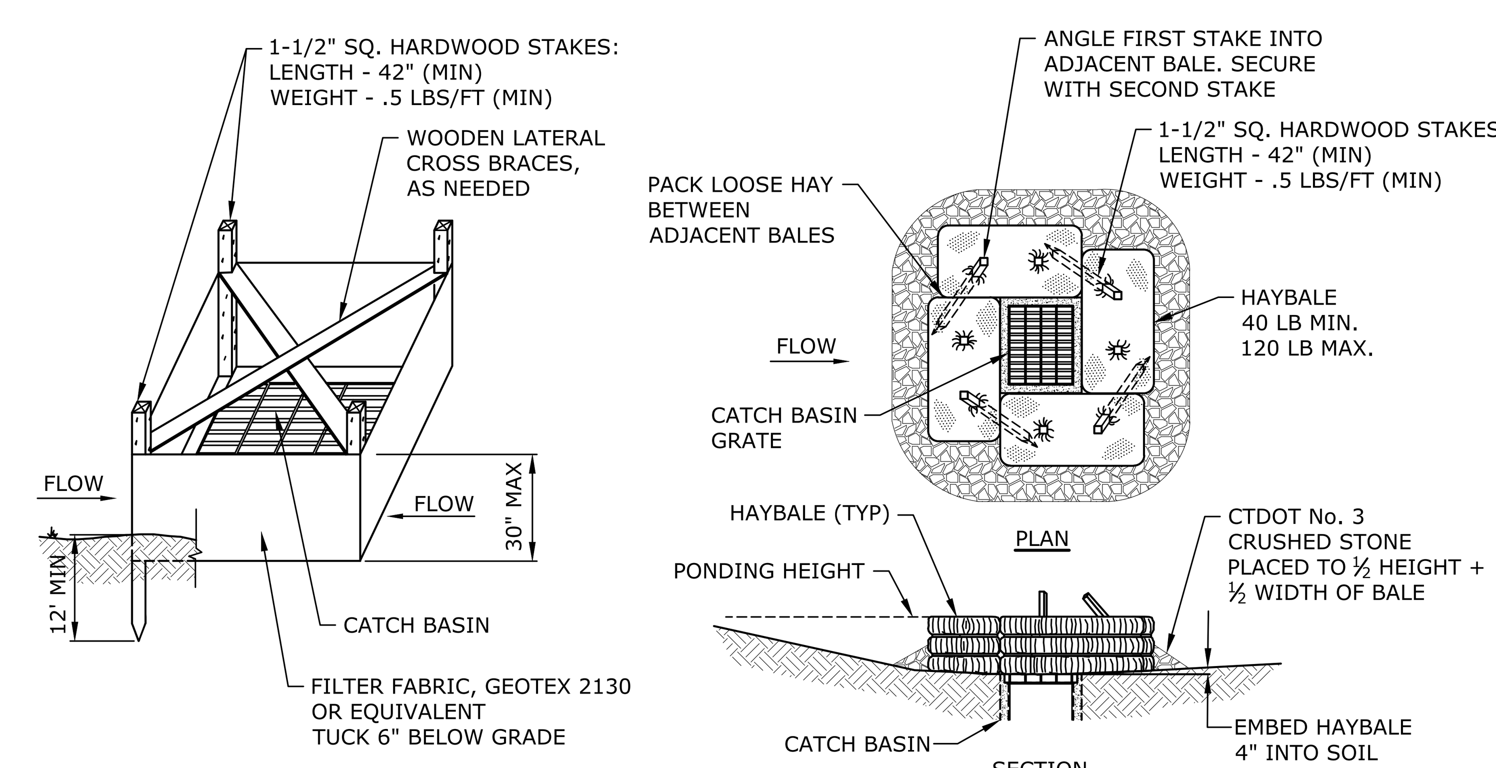
1. DIMENSIONS AS SHOWN ON PLANS

TEMPORARY CONTROLLED STOCKPILE AREA
NO SCALE



SILTSACK MANUFACTURED BY:
ACF ENFIRONMENTAL
2831 CARDWELL ROAD
RICHMOND, VIRGINIA 23237

SILTSACK®
NO SCALE



SILT FENCE INSTALLATION AT CATCH BASIN AT LOW POINTS

HAYBALE FILTER INSTALLATION AT CATCH BASIN AT LOW POINTS

CATCH BASIN EROSION CONTROL
NO SCALE

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SOIL EROSION AND SEDIMENT CONTROL NOTES NARRATIVE AND DETAILS

SCALE: AS SHOWN

C-503

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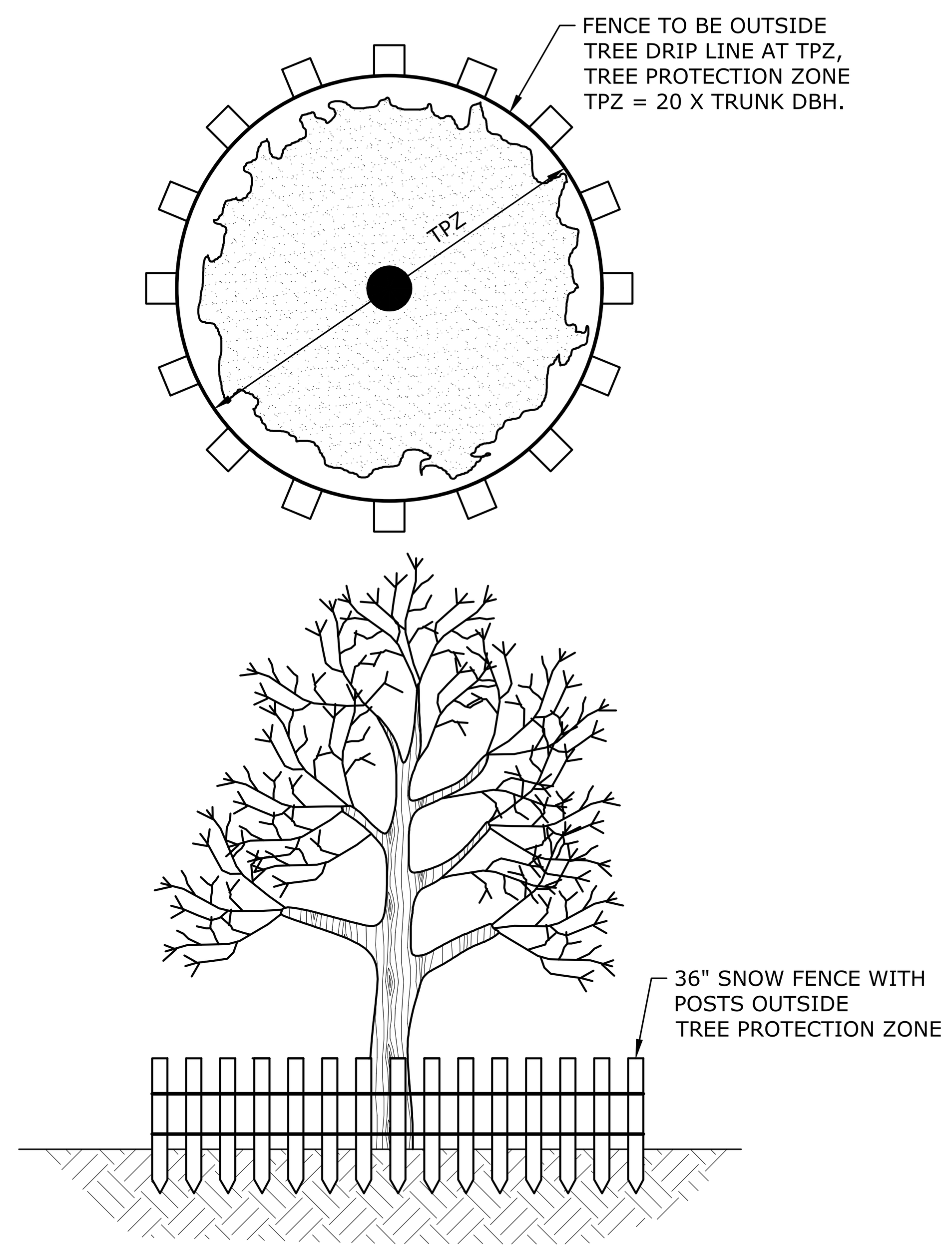

TREE PROTECTION
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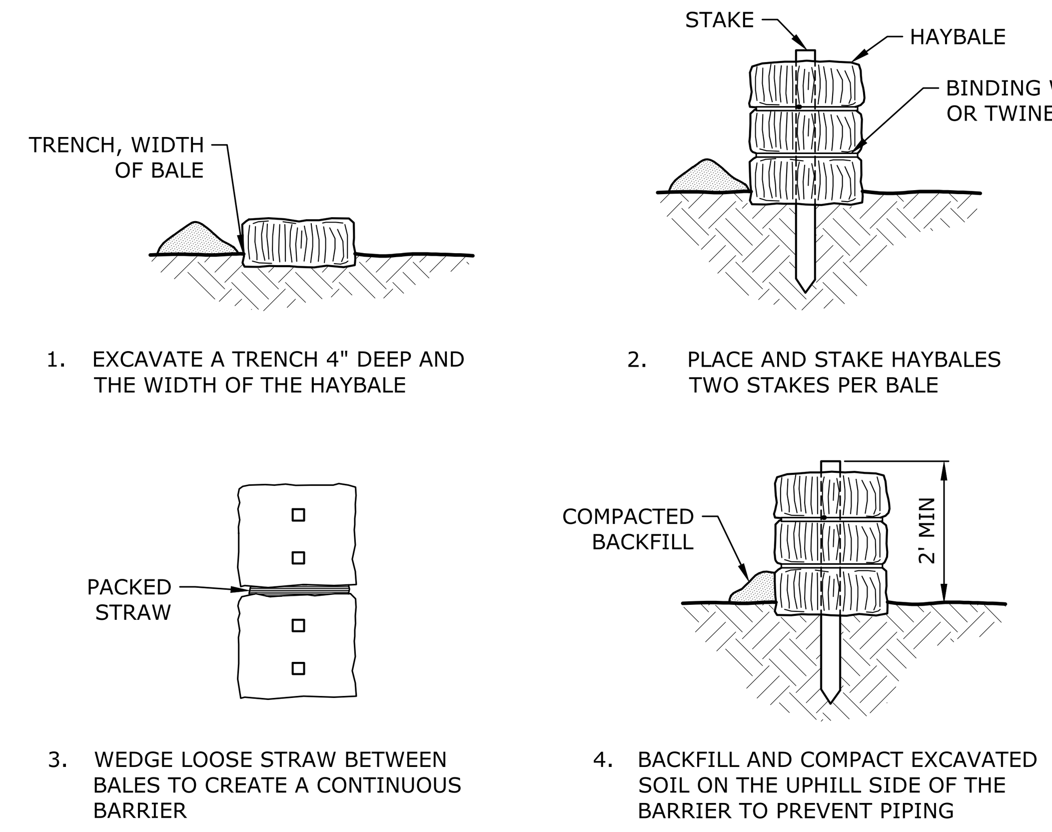

PLACEMENT AND CONSTRUCTION OF HAYBALE BARRIER
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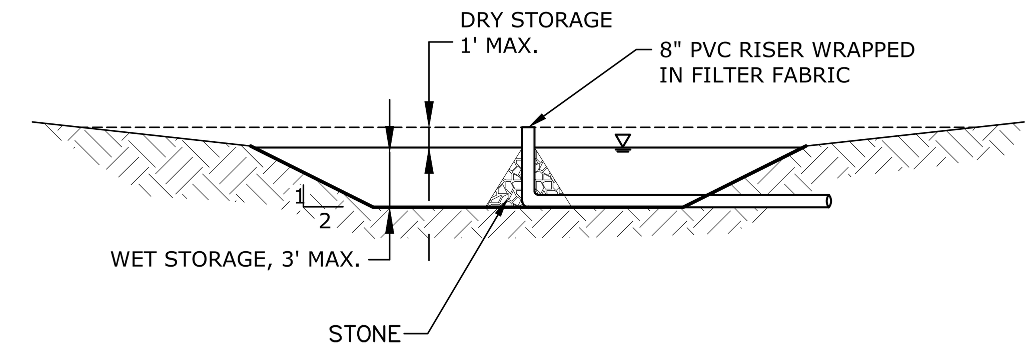

TEMPORARY SEDIMENT TRAP
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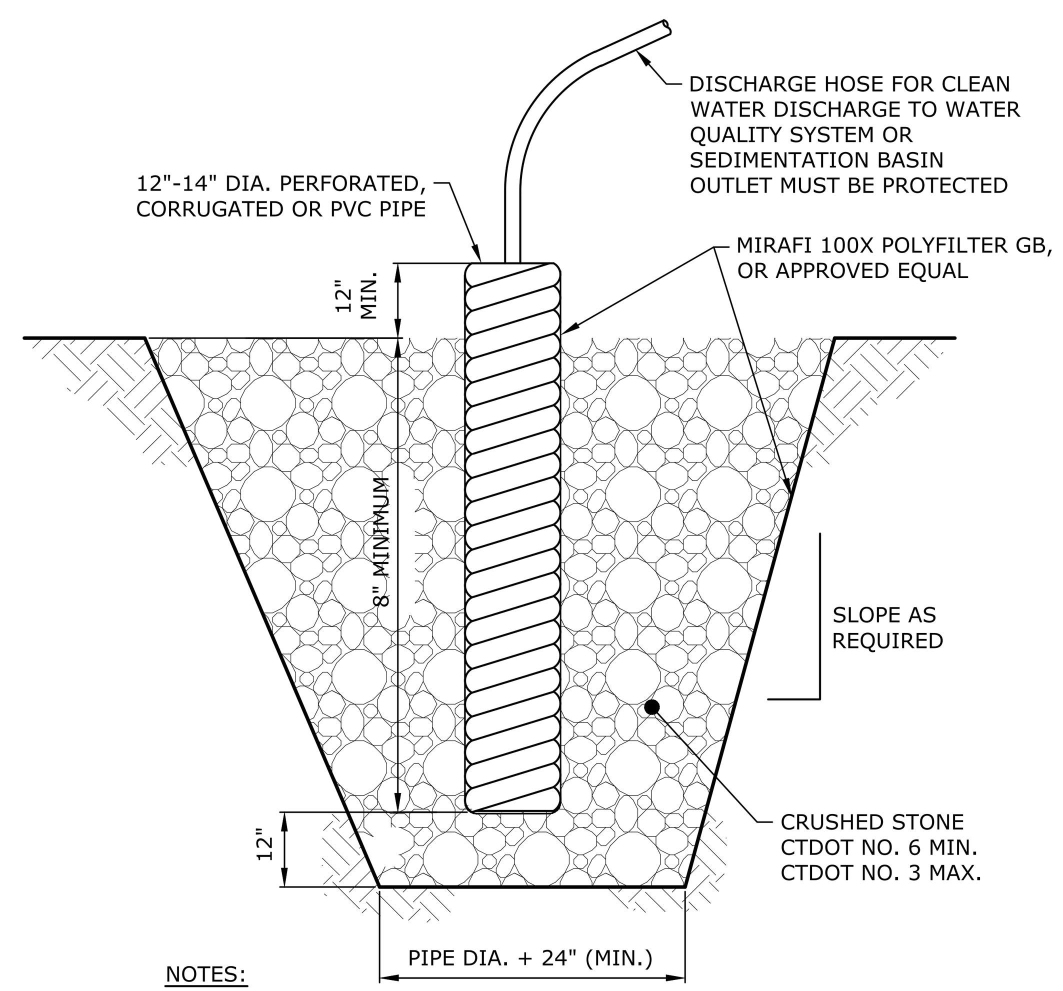
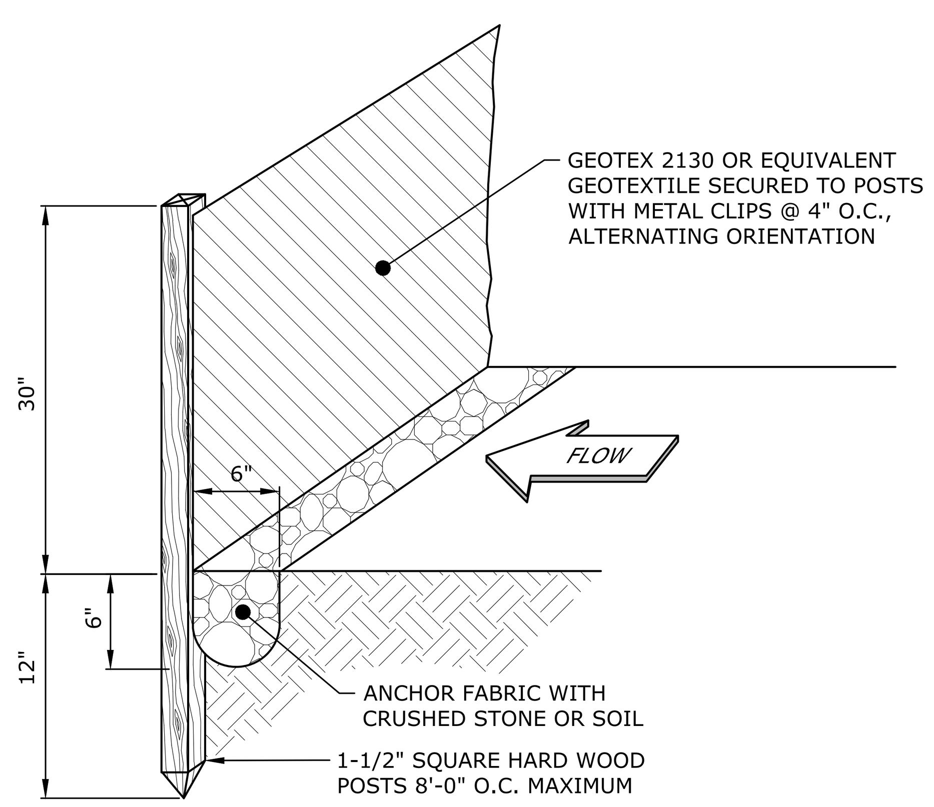


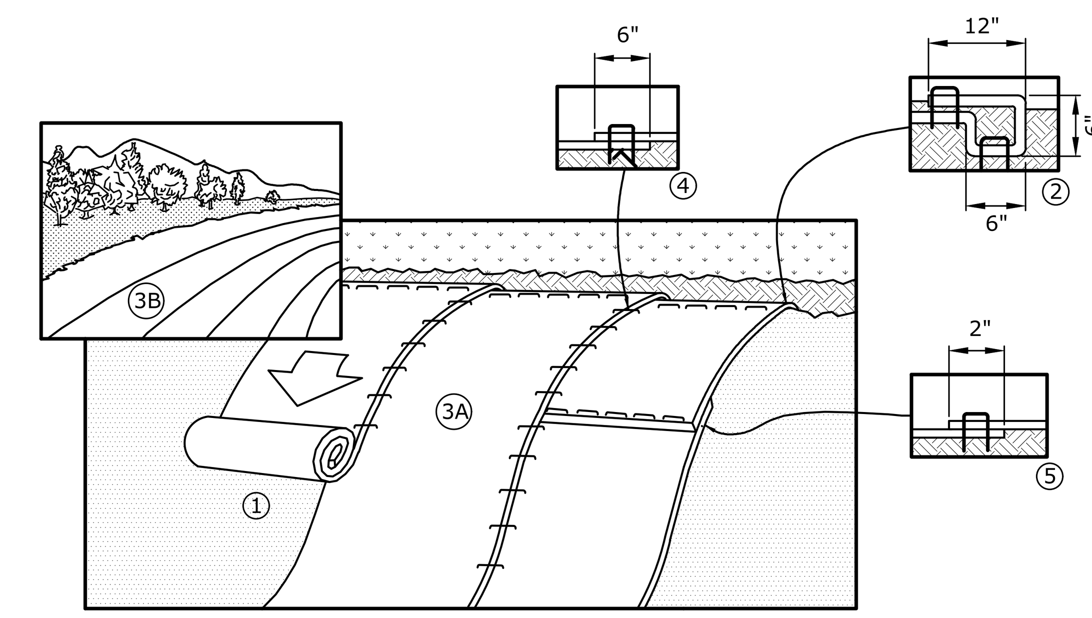
NOTES:

1. PERFORATIONS SHALL BE CIRCULAR OR SLOTS, NOT TO EXCEED 1/2" DIAMETER.
2. SIDE SLOPES TO MEET OSHA TRENCHING REQUIREMENTS.

SUMP PIT DETAIL (IF REQUIRED)
NO SCALE



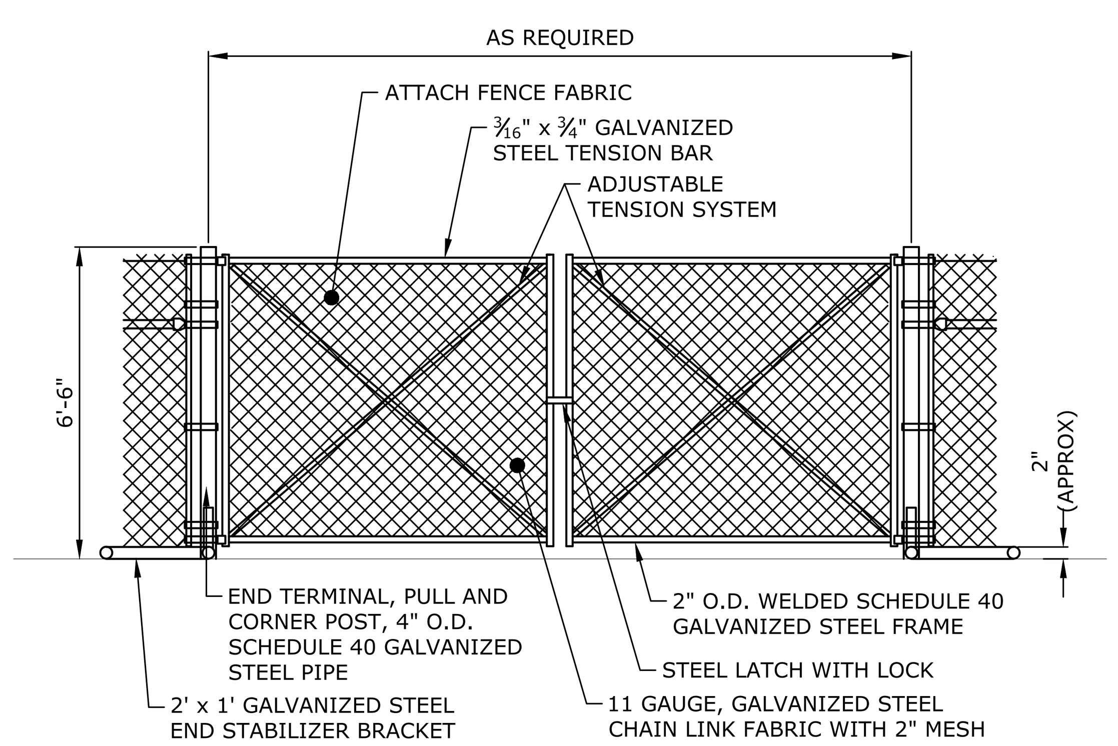
SILT FENCE
NO SCALE



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE, 36" OVER THE GRADE BREAK, BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES SPACED 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS DOWN THE SLOPE. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SOIL SURFACE BY PLACING STAPLES IN APPROPRIATE LOCATIONS AS SHOWN ON THE STAPLE PATTERN GUIDE.
4. STAPLE LENGTHS SHALL BE A MINIMUM OF 8 INCHES.

EROSION CONTROL BLANKET FOR SLOPE PROTECTION
NO SCALE



6' TEMPORARY CHAIN LINK CONSTRUCTION GATE
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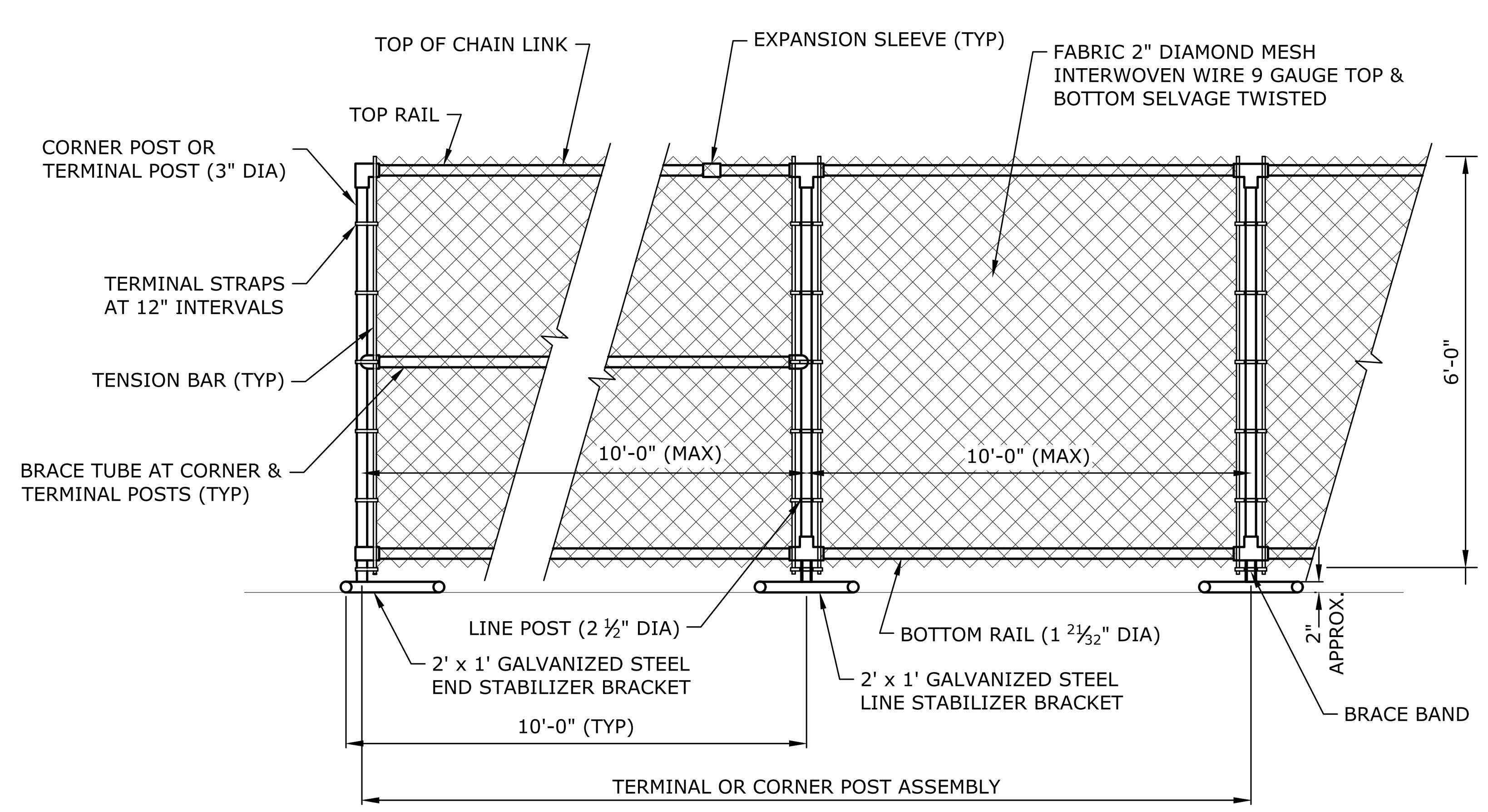

6' TEMPORARY CHAIN LINK CONSTRUCTION FENCE
NO SCALE

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MARK	DATE	DESCRIPTION

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DATE:	12/21/2023
FILE:	F0173-001-C-501-SESC.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

SOIL EROSION AND SEDIMENT CONTROL DETAILS

SCALE: AS SHOWN

C-504

Last Saved: 4/5/2024
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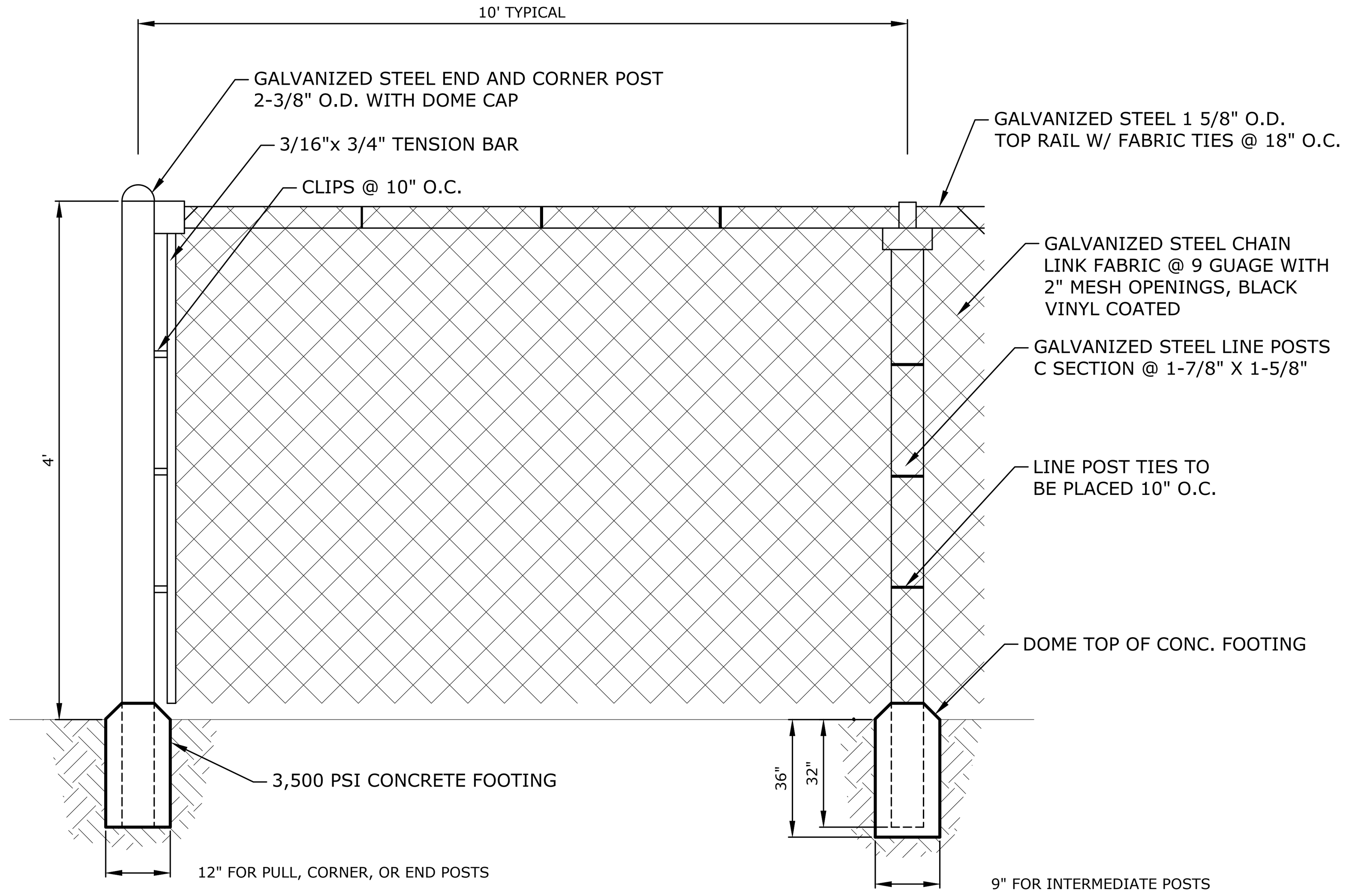
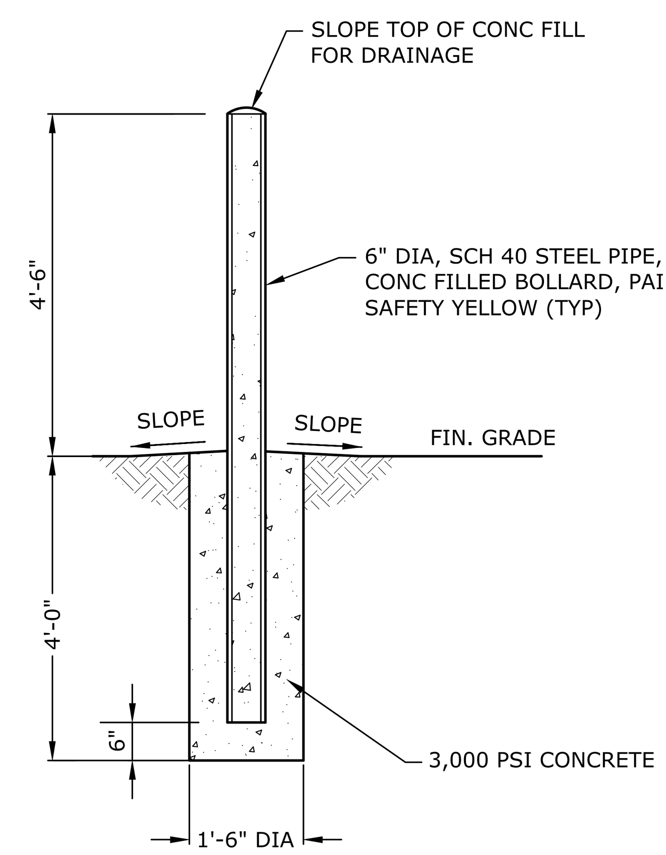
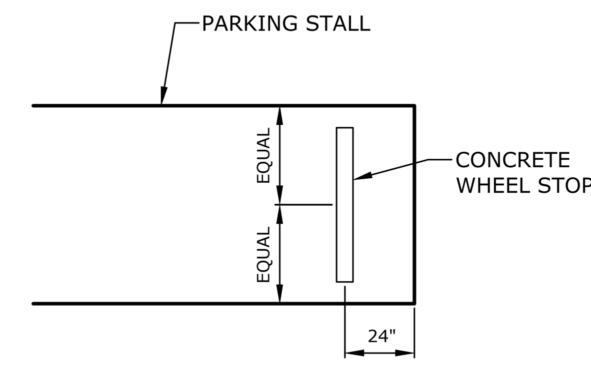


NOTE: PROVIDE PRIVACY SCREENING FOR FENCE MESH ALONG THE TOP OF PROPOSED RETAINING WALLS OR AS DIRECTED BY THE CITY OF WILTON.

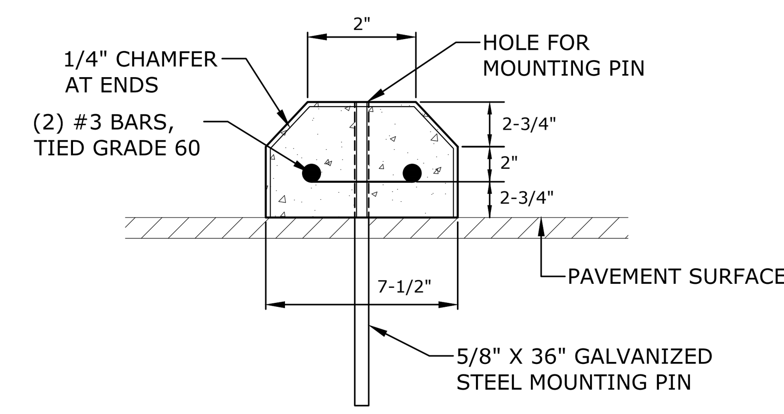
BLACK VINYL-COATED MESH
4' CHAIN LINK FENCE
NO SCALE



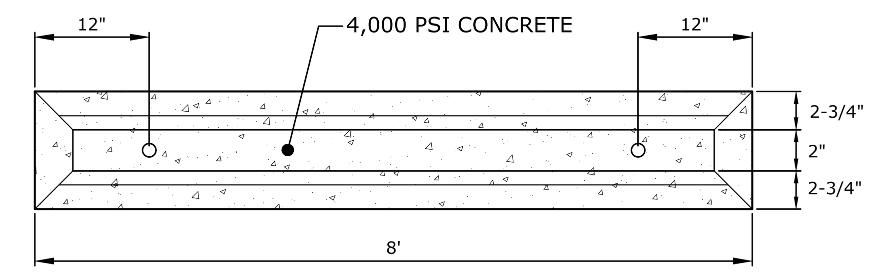
6" DIAMETER
STEEL UTILITY BOLLARD
NO SCALE



PLACEMENT OF WHEEL STOP

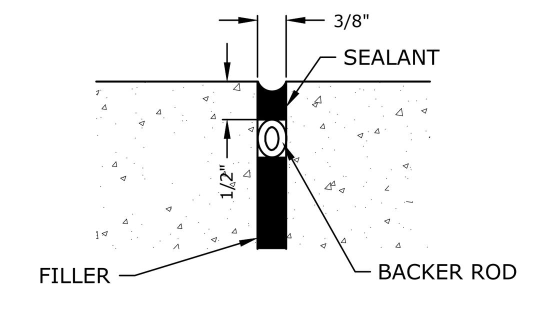


SECTION

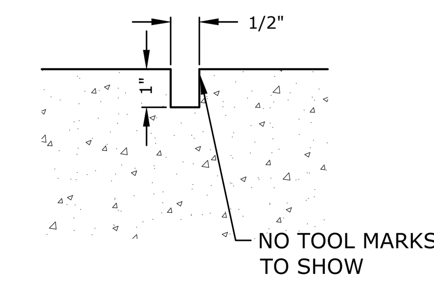


PLAN

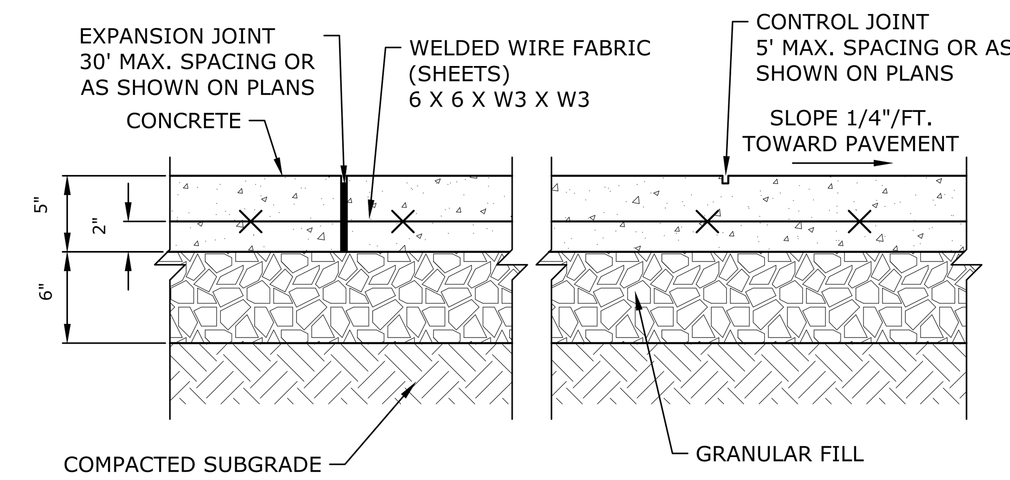
CONCRETE WHEEL STOP DETAIL
NO SCALE



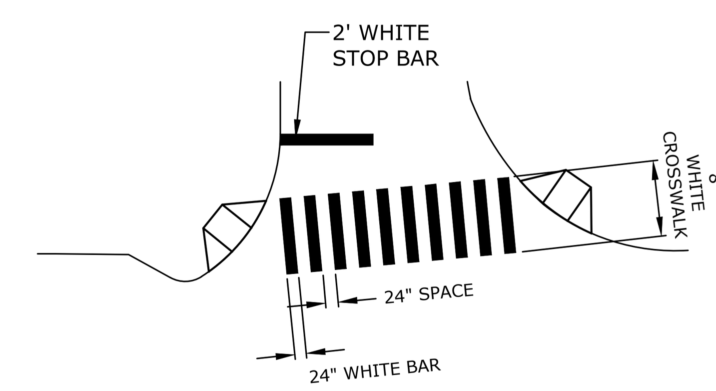
EXPANSION JOINT



CONTROL JOINT

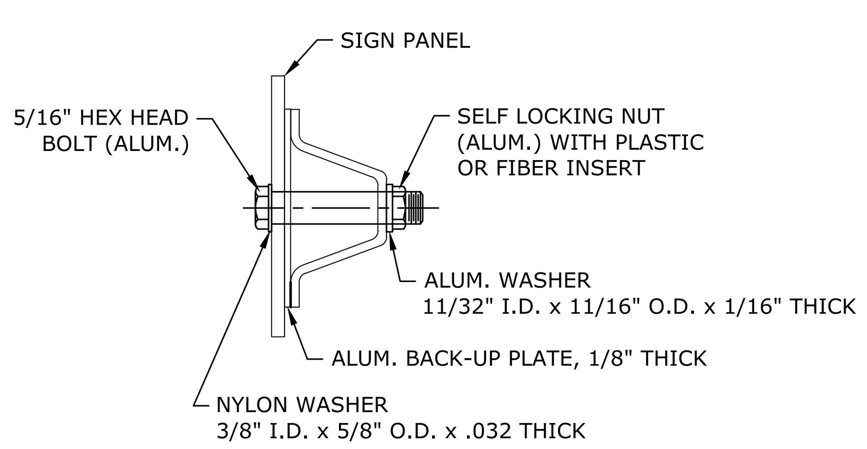


CONCRETE SIDEWALK DETAIL
NO SCALE

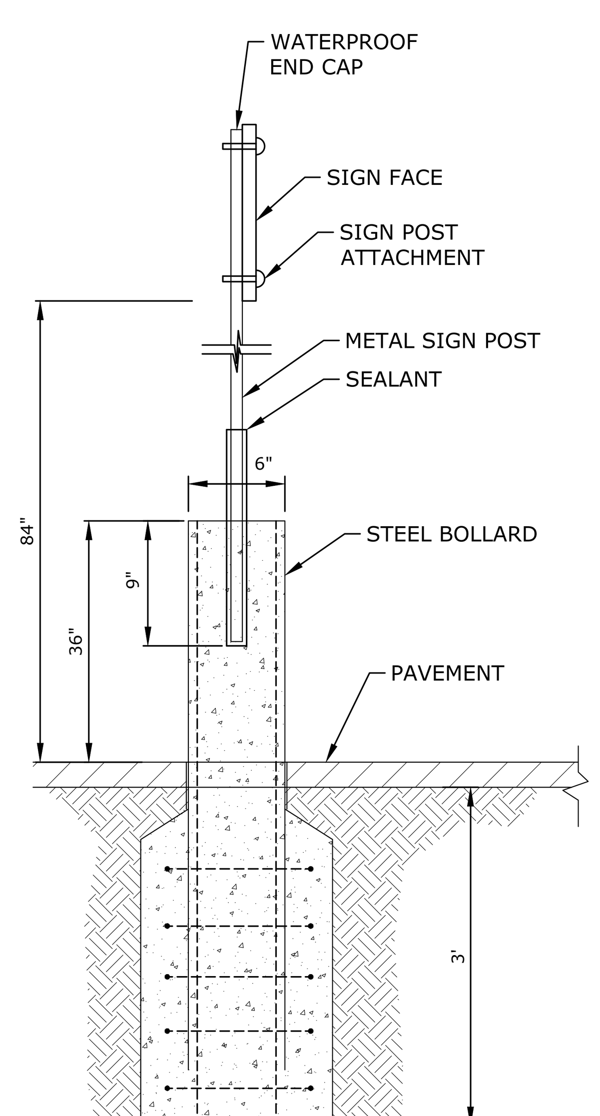


CROSSWALK & STOP BAR

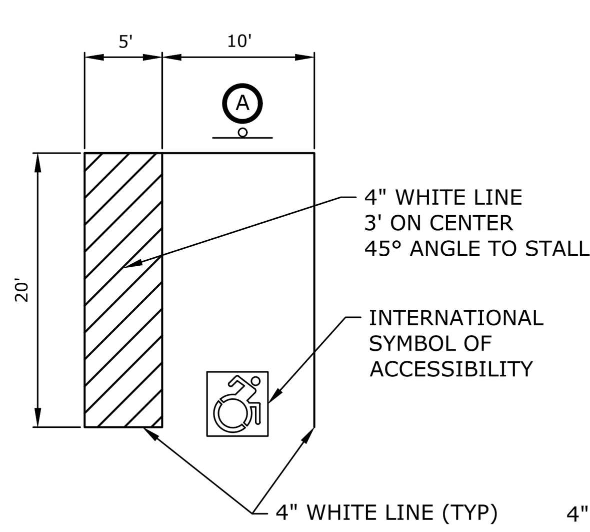
TYPICAL PAVEMENT MARKING DETAILS
NO SCALE



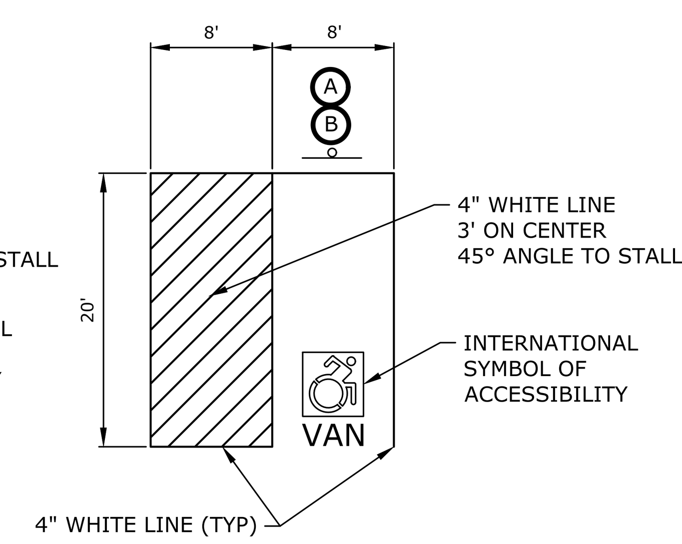
TYPICAL SIGN
PANEL ATTACHMENT
NO SCALE



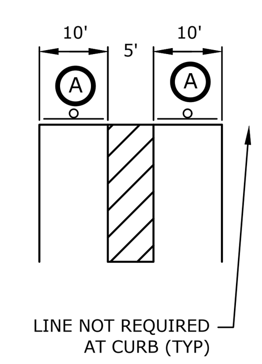
BOLLARD SIGN MOUNTING DETAIL
NO SCALE



ACCESSIBLE SINGLE

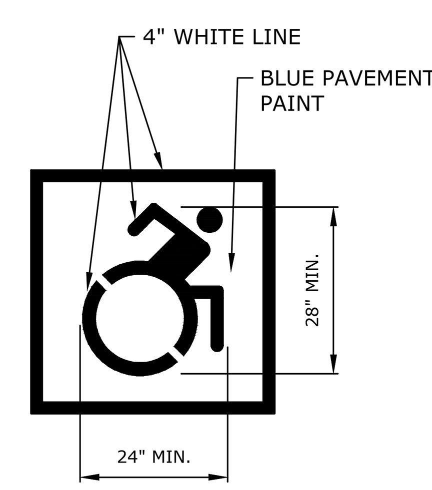


VAN ACCESSIBLE



ACCESSIBLE SHARED

SIGNS

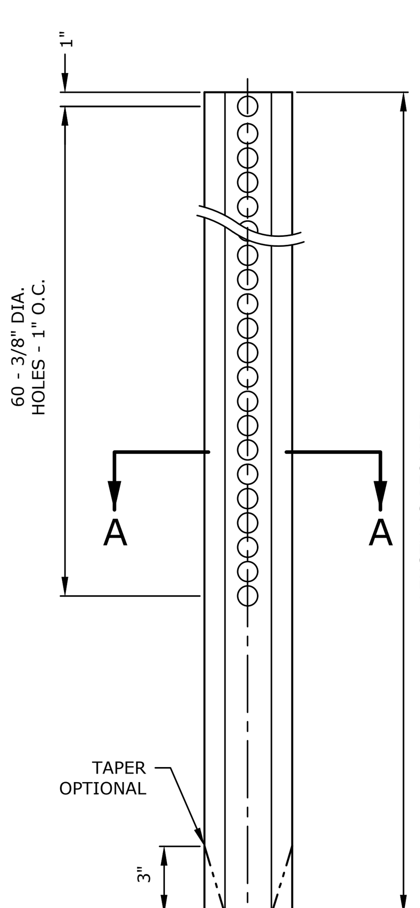


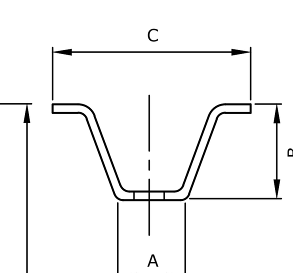
INTERNATIONAL SYMBOL OF ACCESSIBILITY

NOTES:

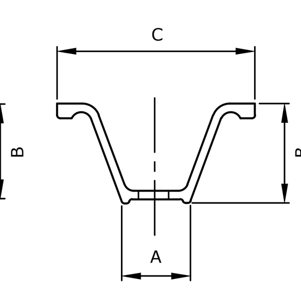
1. SIGN LOCATED AT ALL HANDICAPPED PARKING SPACES.
2. 18' X 15' D.O.T STANDARD ACCESSIBLE PARKING STALL
3. SIGN BACKGROUND - BLUE REFLECTIVE
4. LETTERS, GRAPHICS & BORDER - WHITE REFLECTIVE

ACCESSIBLE PARKING STRIPING DETAILS
NO SCALE



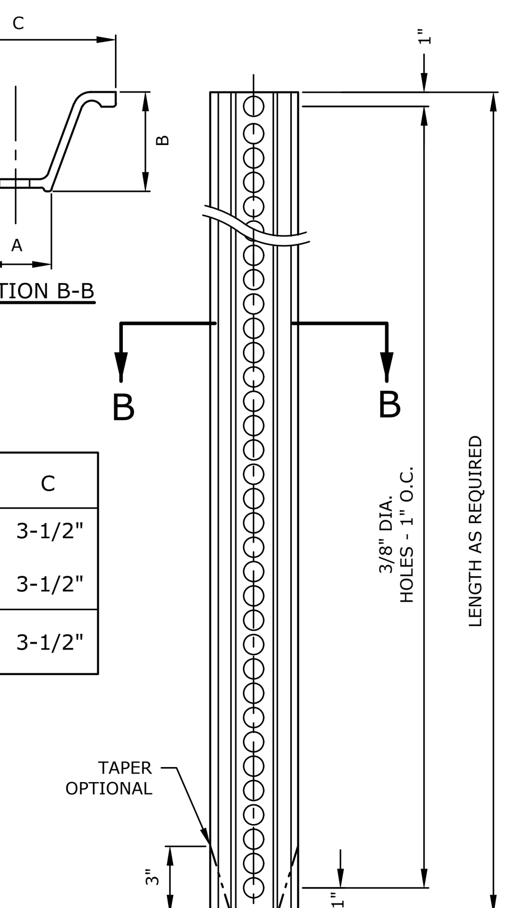


SECTION A-A



SECTION B-B

WT.	A	B	C
3lbs or 3lbs	1-5/8" 1-5/16"	1-3/4" 1-7/8"	3-1/2" 3-1/2"
4lbs	1-5/8"	1-3/4"	3-1/2"

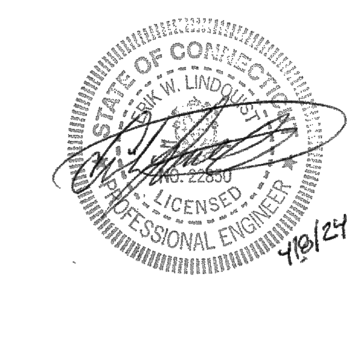


NOTES:

1. STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A 123.
3. ALL SIGN POSTS SHALL HAVE "BREAKAWAY" FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS-1985." THE "BREAKAWAY" FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
4. TYPE A POSTS - 3 LB/FT TYPE B POSTS - 4 LB/FT.

TYPICAL METAL SIGN POSTS
NO SCALE

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100



TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-601-DETL.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DETAILS - 1

SCALE: AS SHOWN

C-601

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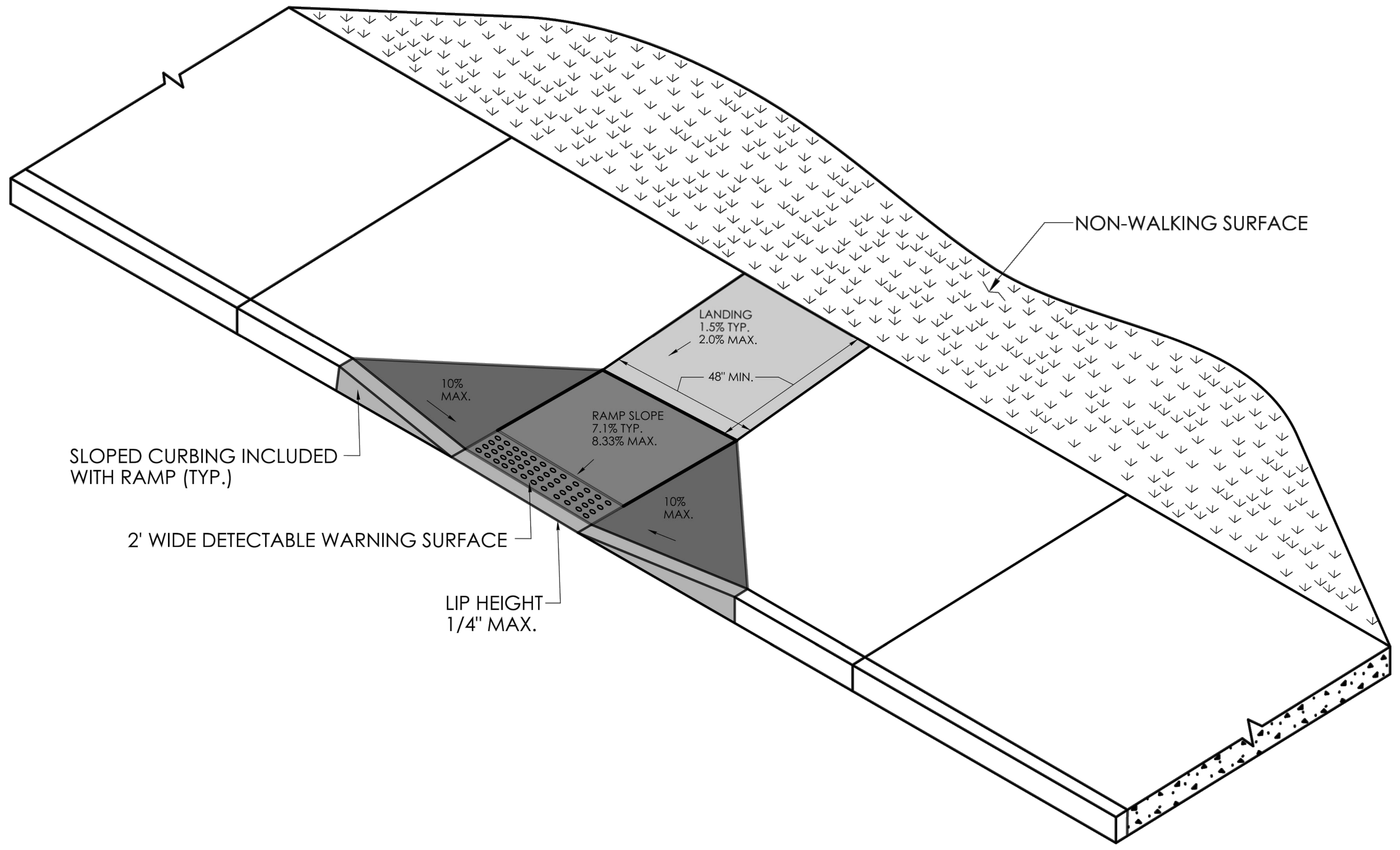
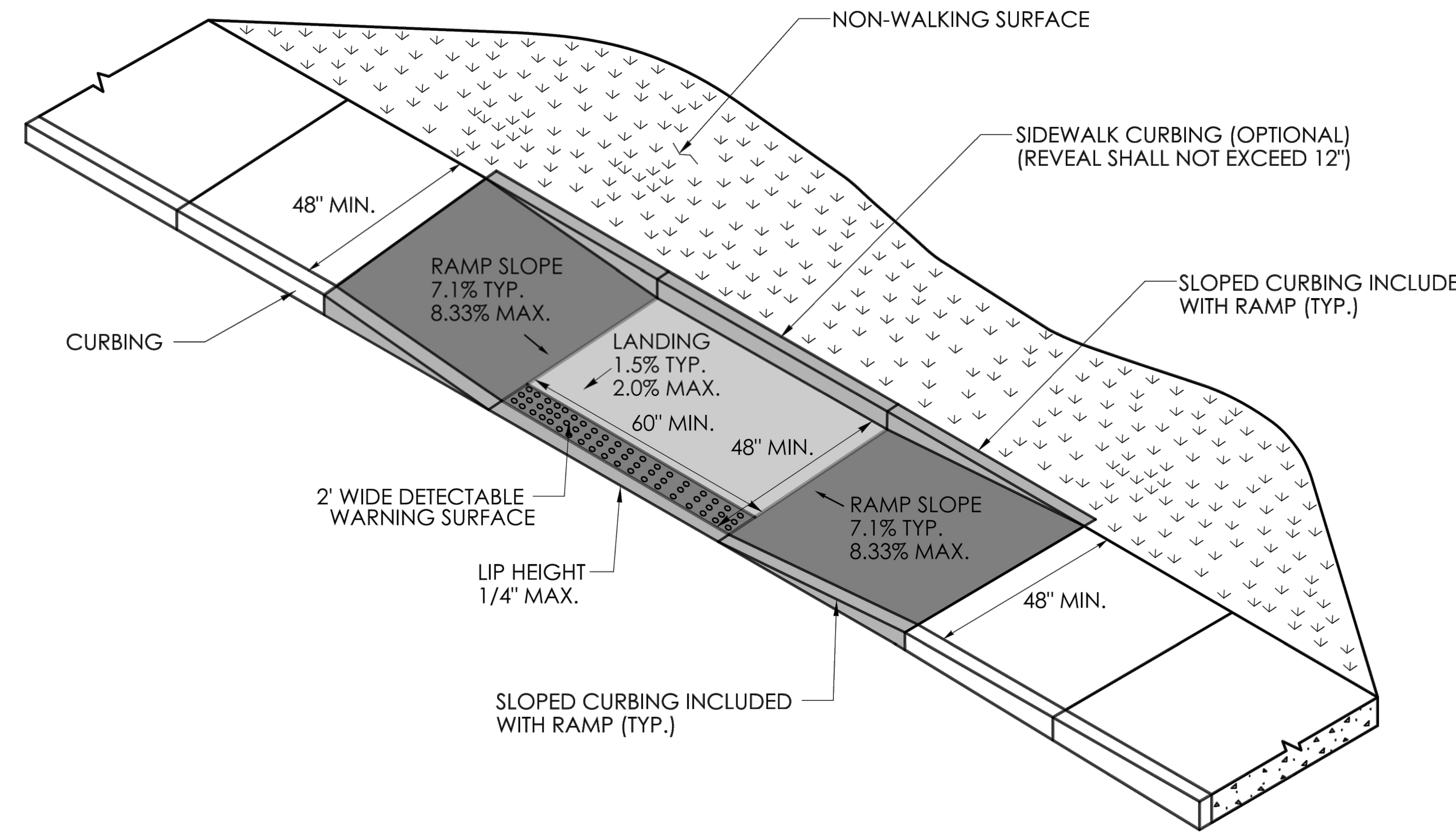


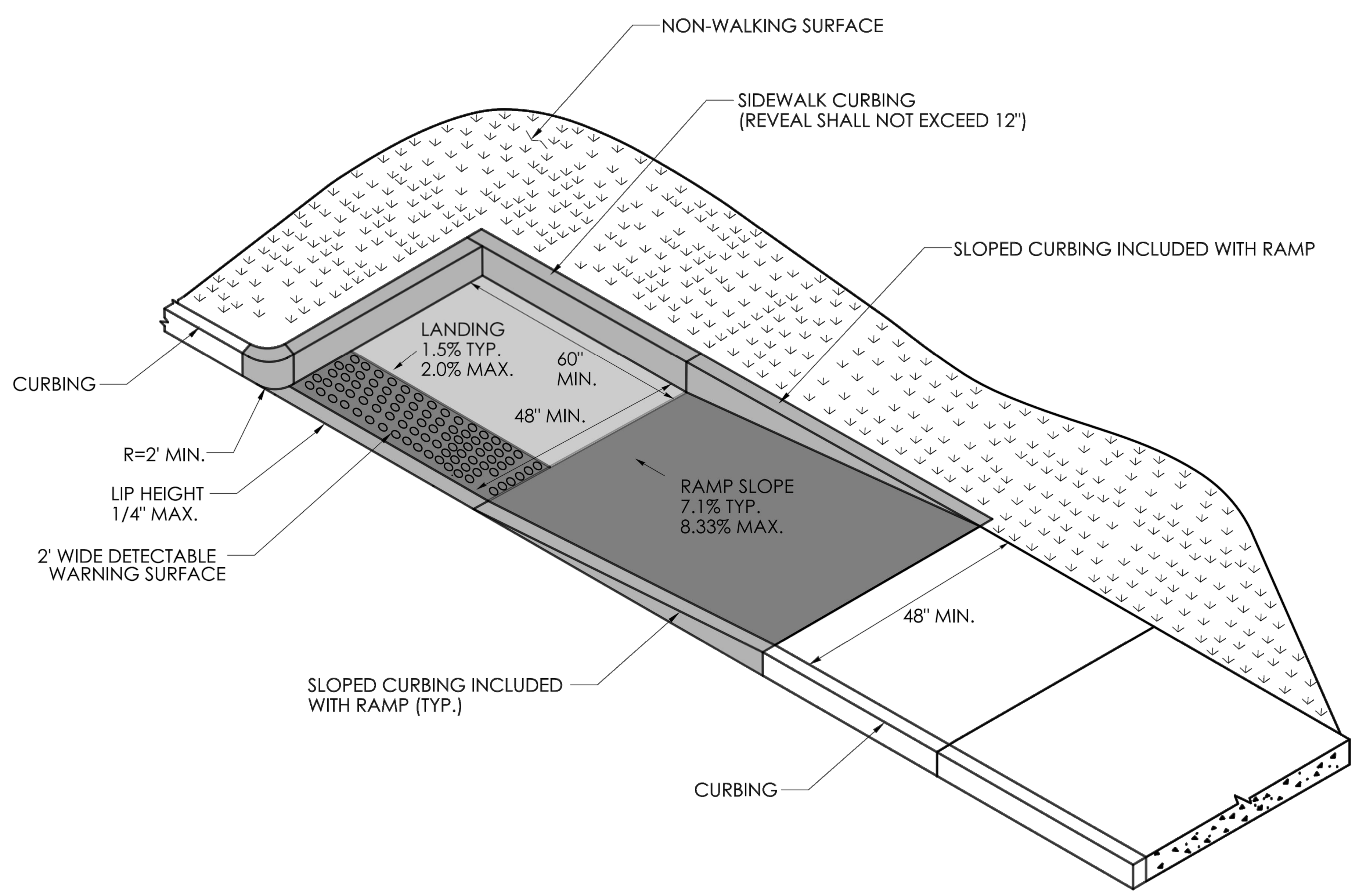
ACCESSIBLE SIDEWALK RAMP - "TYPE 8"

NO SCALE



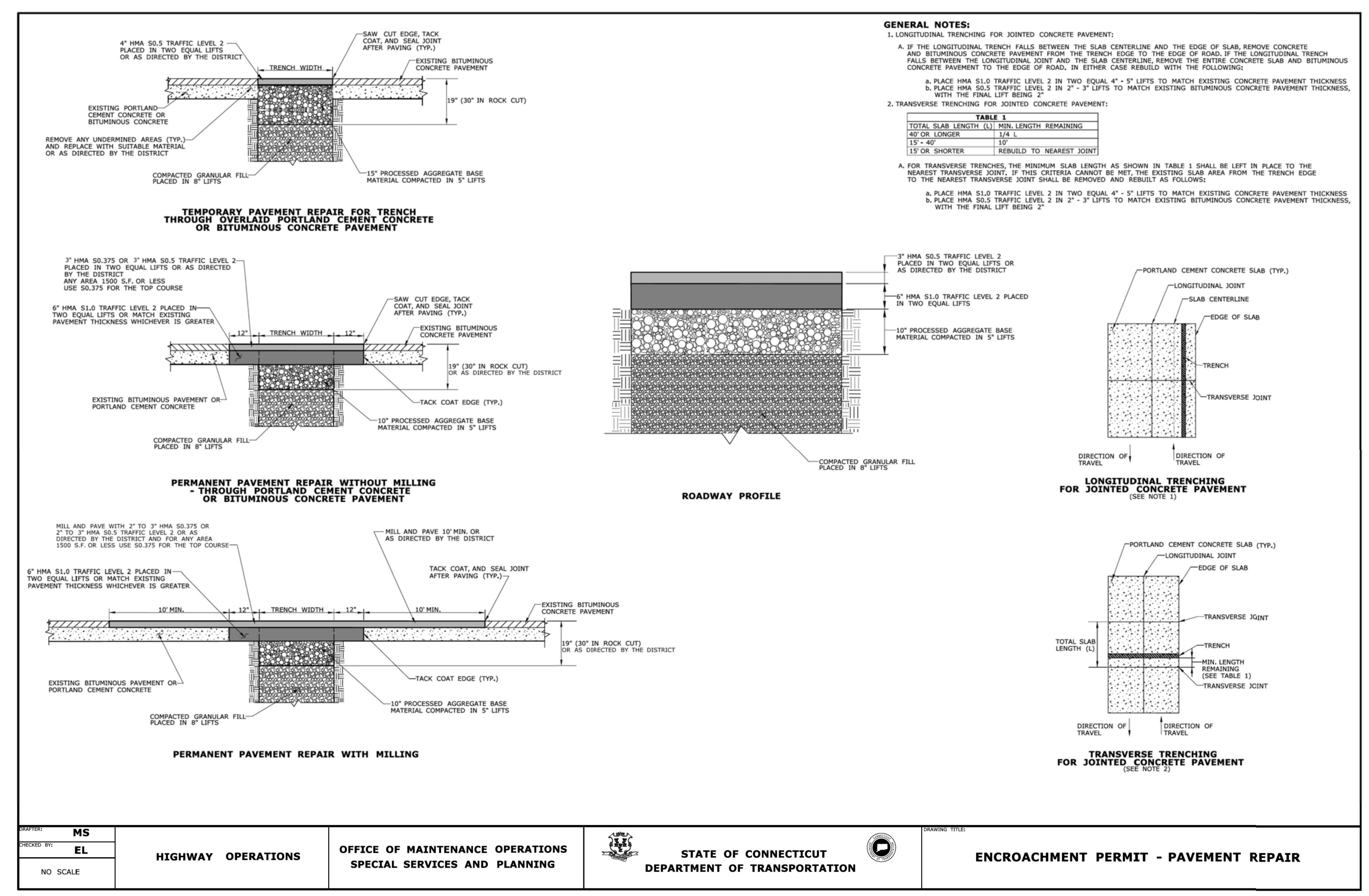
ACCESSIBLE SIDEWALK RAMP - "TYPE 9"

NO SCALE



ACCESSIBLE SIDEWALK RAMP - "TYPE 10"

NO SCALE



GENERAL NOTES:

1. LONGITUDINAL TRENCHING FOR JOINTED CONCRETE PAVEMENT:
   A. IF THE LONGITUDINAL TRENCH FALLS BETWEEN THE SLAB CENTERLINE AND THE EDGE OF SLAB, REMOVE CONCRETE AND BITUMINOUS CONCRETE PAVEMENT FROM THE TRENCH EDGE TO THE EDGE OF ROAD. IF THE LONGITUDINAL TRENCH FALLS BETWEEN THE LONGITUDINAL JOINT AND THE SLAB CENTERLINE, REMOVE THE ENTIRE CONCRETE SLAB AND BITUMINOUS CONCRETE PAVEMENT TO THE EDGE OF ROAD. IN EITHER CASE REBUILD WITH THE FOLLOWING:
      a. PLACE HMA S1.0 TRAFFIC LEVEL 2 IN TWO EQUAL 4" - 5" LIFTS TO MATCH EXISTING CONCRETE PAVEMENT THICKNESS
      b. PLACE HMA S0.5 TRAFFIC LEVEL 2 IN 2" - 3" LIFTS TO MATCH EXISTING BITUMINOUS CONCRETE PAVEMENT THICKNESS, WITH THE FINAL LIFT BEING 2"
2. TRANSVERSE TRENCHING FOR JOINTED CONCRETE PAVEMENT:

TABLE 1

TOTAL SLAB LENGTH (L)	MIN. LENGTH REMAINING
40' OR LONGER	1/4 L
15' - 40'	10'
15' OR SHORTER	REBUILD TO NEAREST JOINT

   A. FOR TRANSVERSE TRENCHES, THE MINIMUM SLAB LENGTH AS SHOWN IN TABLE 1 SHALL BE LEFT IN PLACE TO THE NEAREST TRANSVERSE JOINT. IF THIS CRITERIA CANNOT BE MET, THE EXISTING SLAB AREA FROM THE TRENCH EDGE TO THE NEAREST TRANSVERSE JOINT SHALL BE REMOVED AND REBUILT AS FOLLOWS:
      a. PLACE HMA S1.0 TRAFFIC LEVEL 2 IN TWO EQUAL 4" - 5" LIFTS TO MATCH EXISTING CONCRETE PAVEMENT THICKNESS
      b. PLACE HMA S0.5 TRAFFIC LEVEL 2 IN 2" - 3" LIFTS TO MATCH EXISTING BITUMINOUS CONCRETE PAVEMENT THICKNESS, WITH THE FINAL LIFT BEING 2"

PAVEMENT REPAIR IN ROUTE 7

NO SCALE

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1000 Bridgeport Avenue
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Shelton, CT 06484
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TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

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DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DETAILS - 2

SCALE: AS SHOWN

C-602

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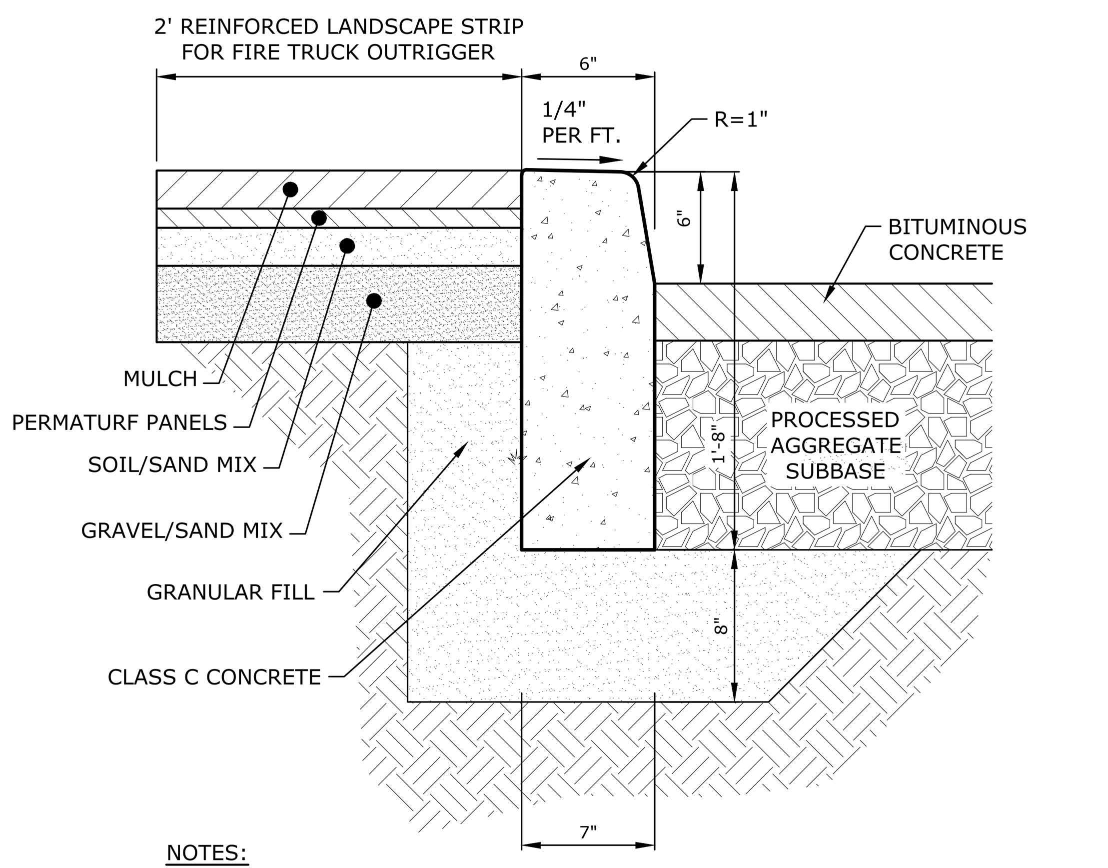
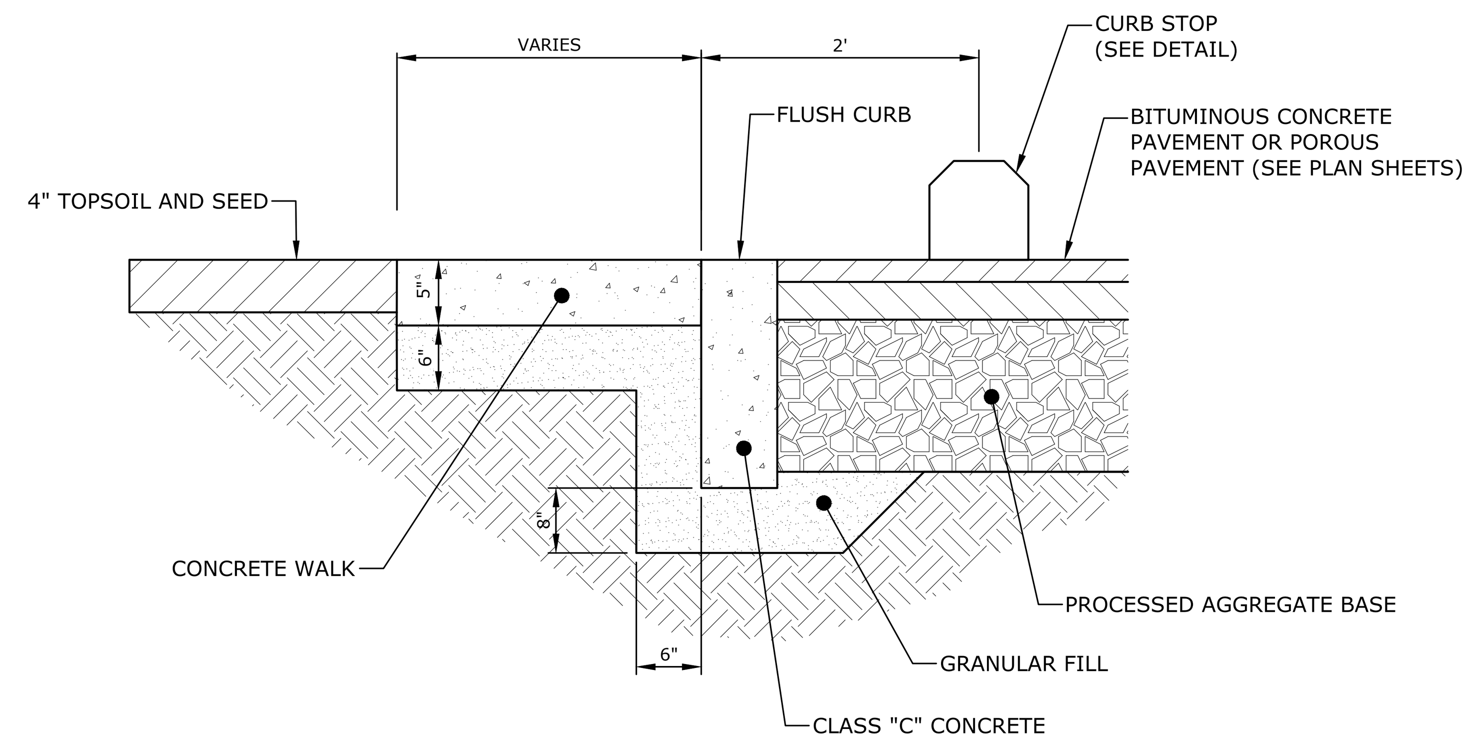


NOTES:

1. CONSTRUCT CURBING IN SECTIONS NOT TO EXCEED 10 FEET IN LENGTH, SUCH THAT THE CURBING JOINTS ALIGN WITH JOINTS IN THE CONCRETE PAVEMENT SLAB. NO SECTION SHALL BE LESS THAN 6 FEET IN LENGTH.

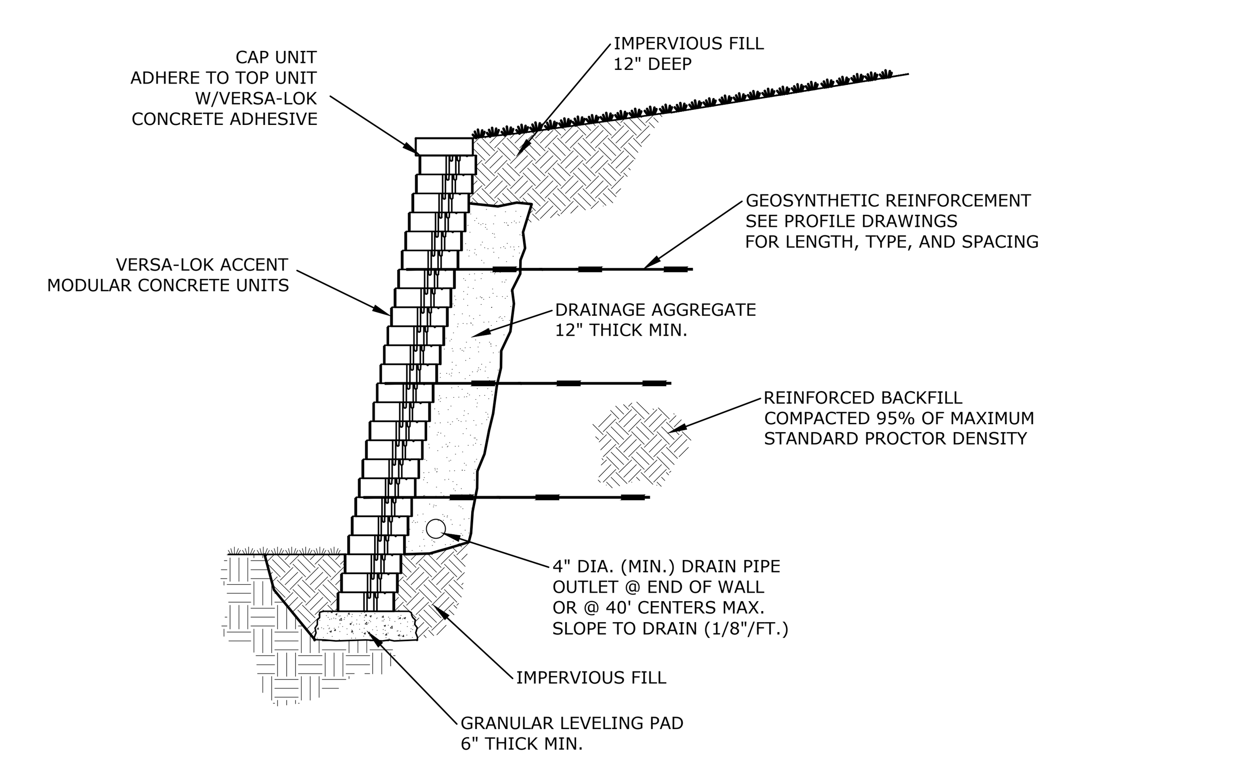
CONCRETE CURB ADJACENT TO REINFORCED LANDSCAPE STRIP

NO SCALE



FLUSH CURB DETAIL

NO SCALE



TYPICAL SECTION—REINFORCED RETAINING WALL

ACCENT UNIT

SCALE: NONE

THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

VERSA-LOK® Retaining Wall Systems

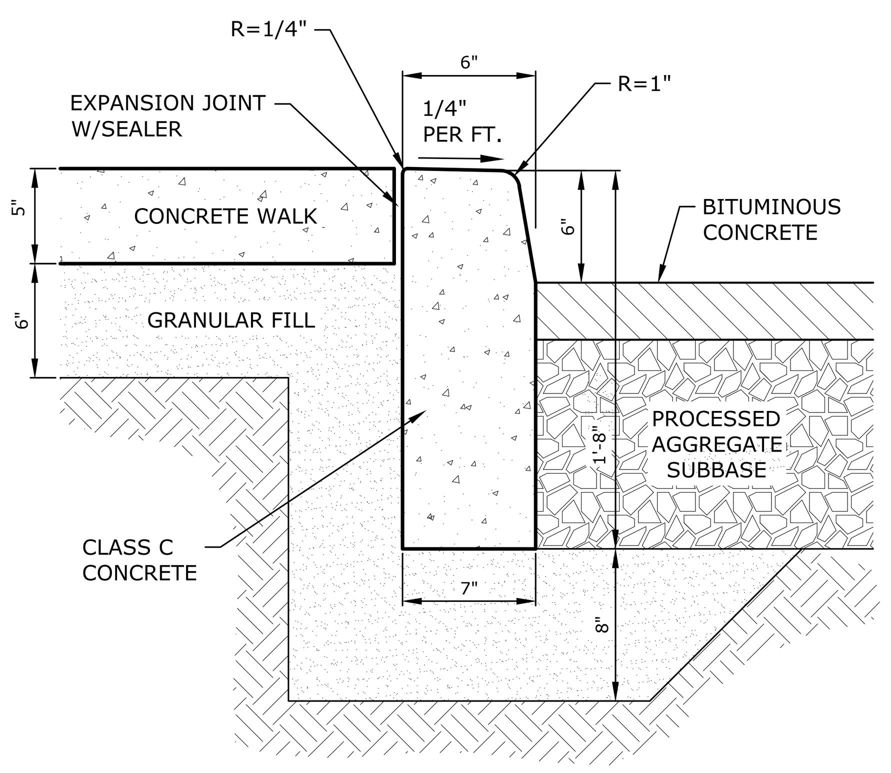
(800)770-4525 fax(651)770-4089 6348 Hwy36 Ste1, Oakdale,MN 55128 *Solid Solutions.*™

VERSA-LOK ACCENT DETAILS | REINFORCED SECTION | 3/8"=1' | PPS | 10/2007

OR APPROVED EQUAL

MODULAR BLOCK RETAINING WALL

NO SCALE

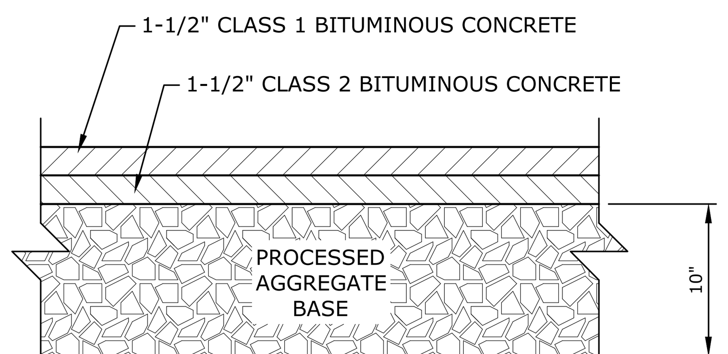


NOTE:

1. CONSTRUCT CURBING IN SECTIONS NOT TO EXCEED 10 FEET IN LENGTH, SUCH THAT THE CURBING JOINTS ALIGN WITH JOINTS IN THE CONCRETE PAVEMENT SLAB. NO SECTION SHALL BE LESS THAN 6 FEET IN LENGTH.

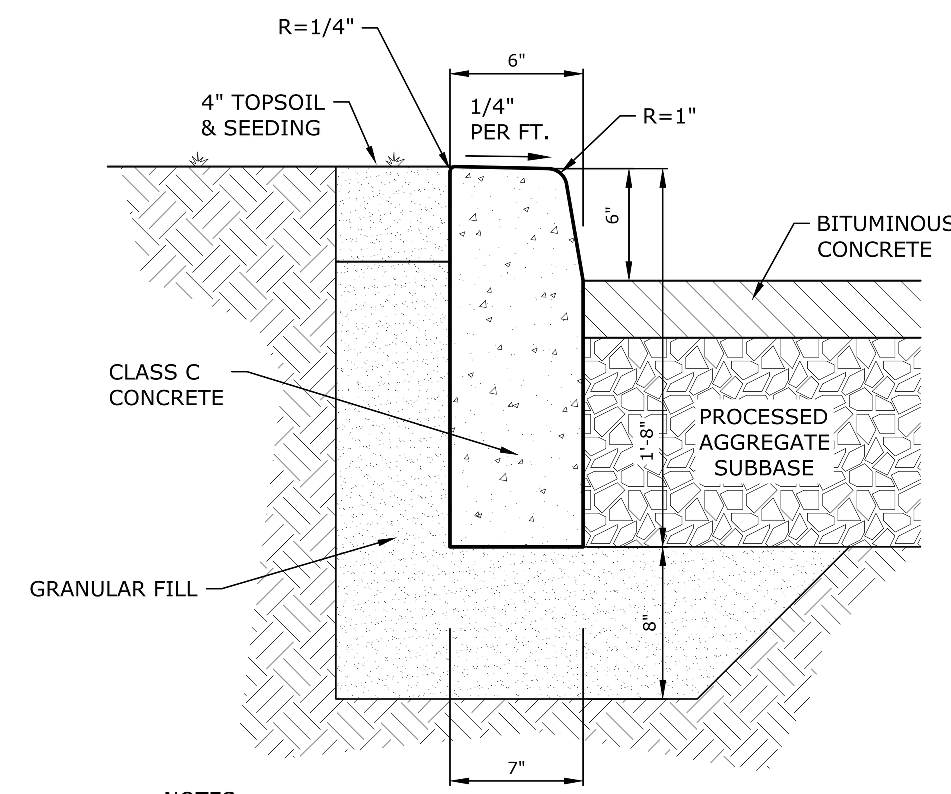
CONCRETE CURB AND CONCRETE SIDEWALK

NO SCALE



BITUMINOUS CONCRETE PAVEMENT

NO SCALE

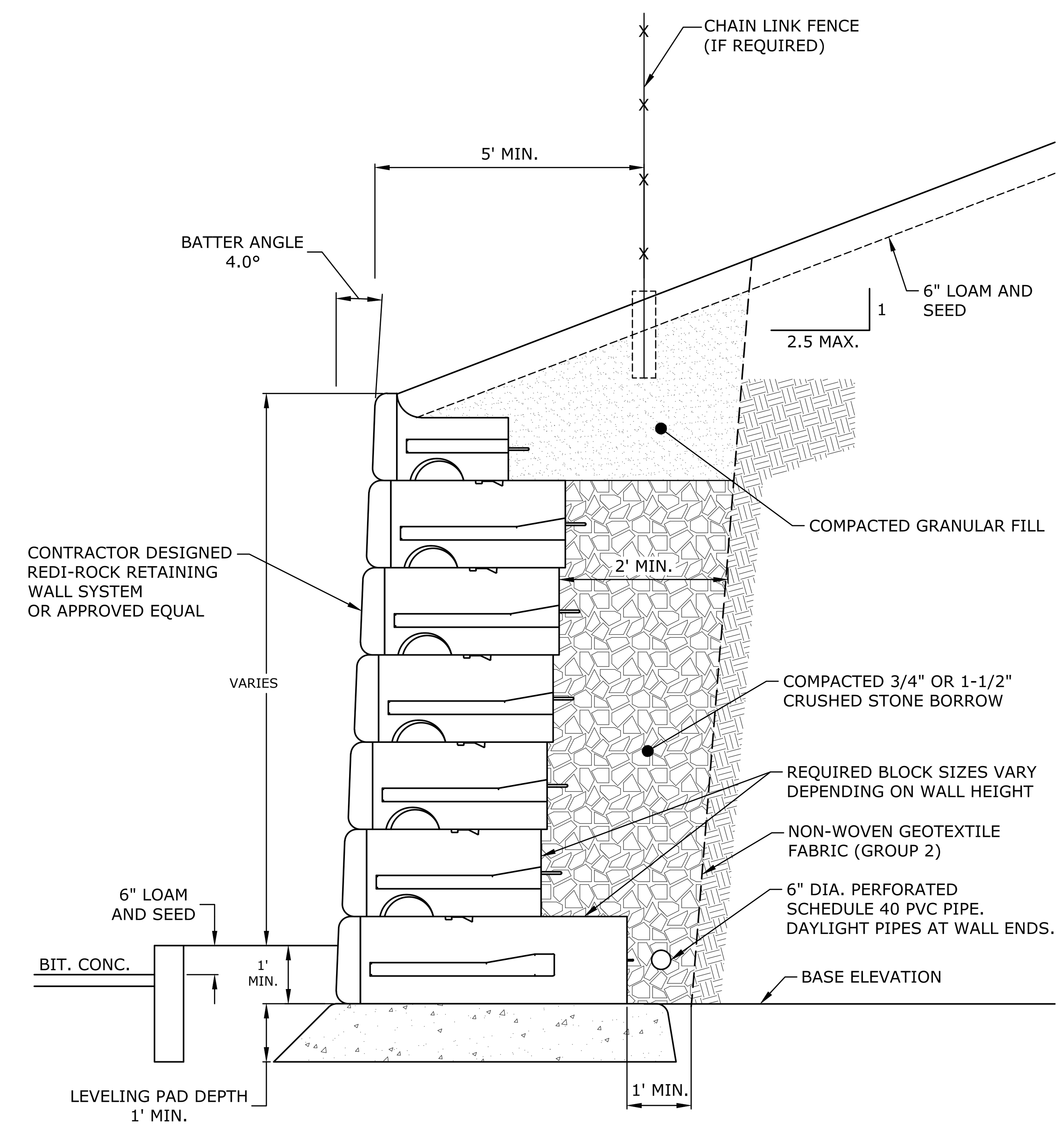


NOTES:

1. CONSTRUCT CURBING IN SECTIONS NOT TO EXCEED 10 FEET IN LENGTH, SUCH THAT THE CURBING JOINTS ALIGN WITH JOINTS IN THE CONCRETE PAVEMENT SLAB. NO SECTION SHALL BE LESS THAN 6 FEET IN LENGTH.

CONCRETE CURB ADJACENT TO GRASS

NO SCALE

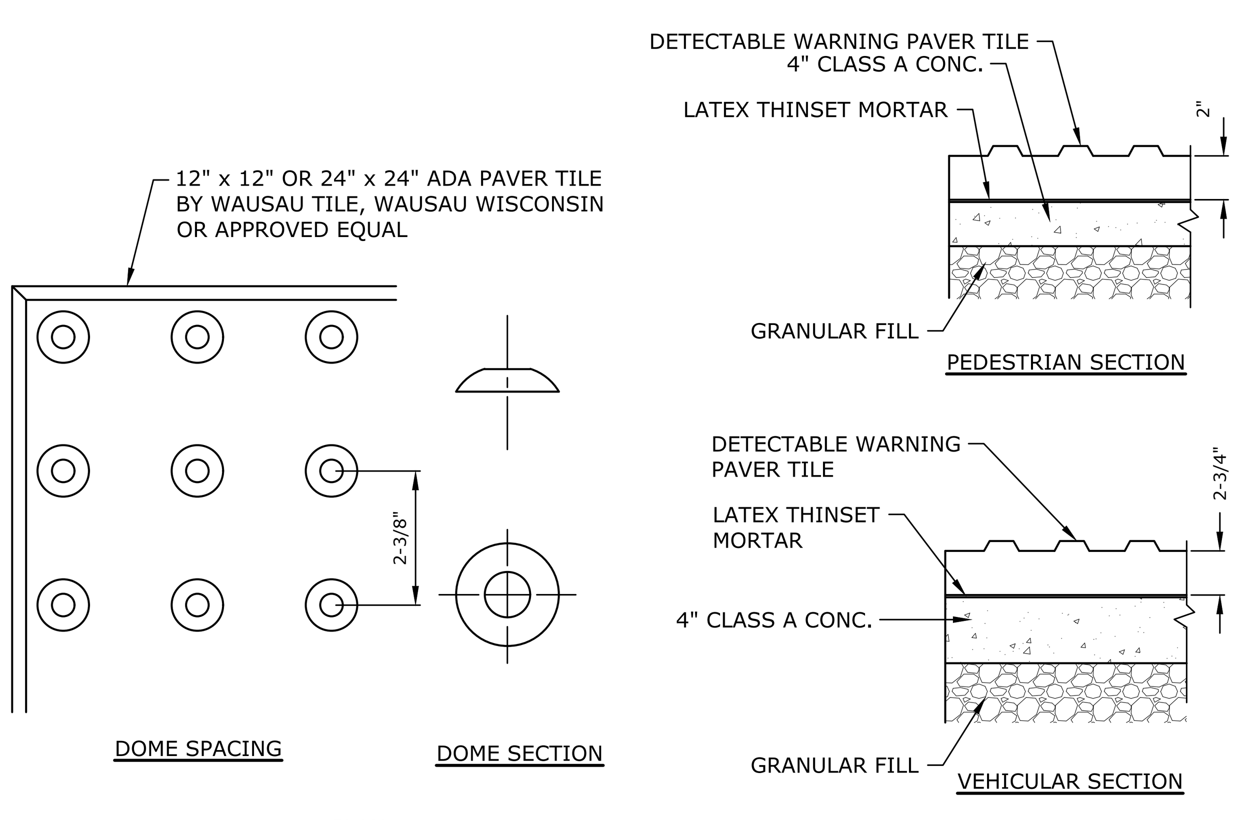


NOTE:

1. TEMPORARY EXCAVATIONS FOR WALL AND CRUSHED STONE PLACEMENT SHALL BE IN ACCORDANCE WITH OSHA STANDARDS. ADDITIONAL BACKFILL REQUIRED TO FILL EXCAVATIONS SHALL CONSIST OF COMPACTED GRANULAR FILL OR CRUSHED STONE EXCEPT AS NOTED.

GRAVITY RETAINING WALL DETAIL

NO SCALE



DETECTABLE WARNING TILE

NO SCALE

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

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DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DETAILS - 3

SCALE: AS SHOWN

C-603

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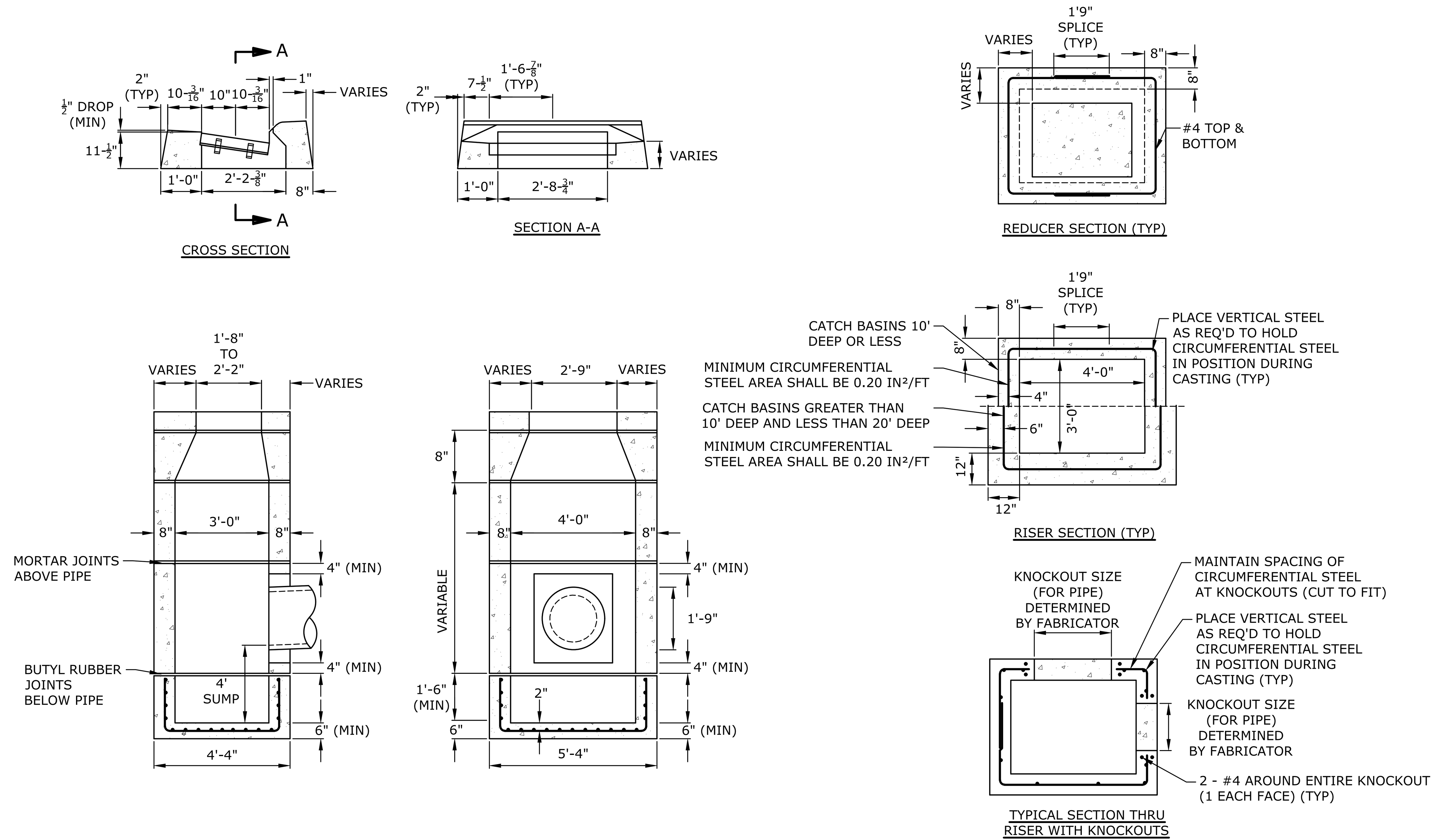
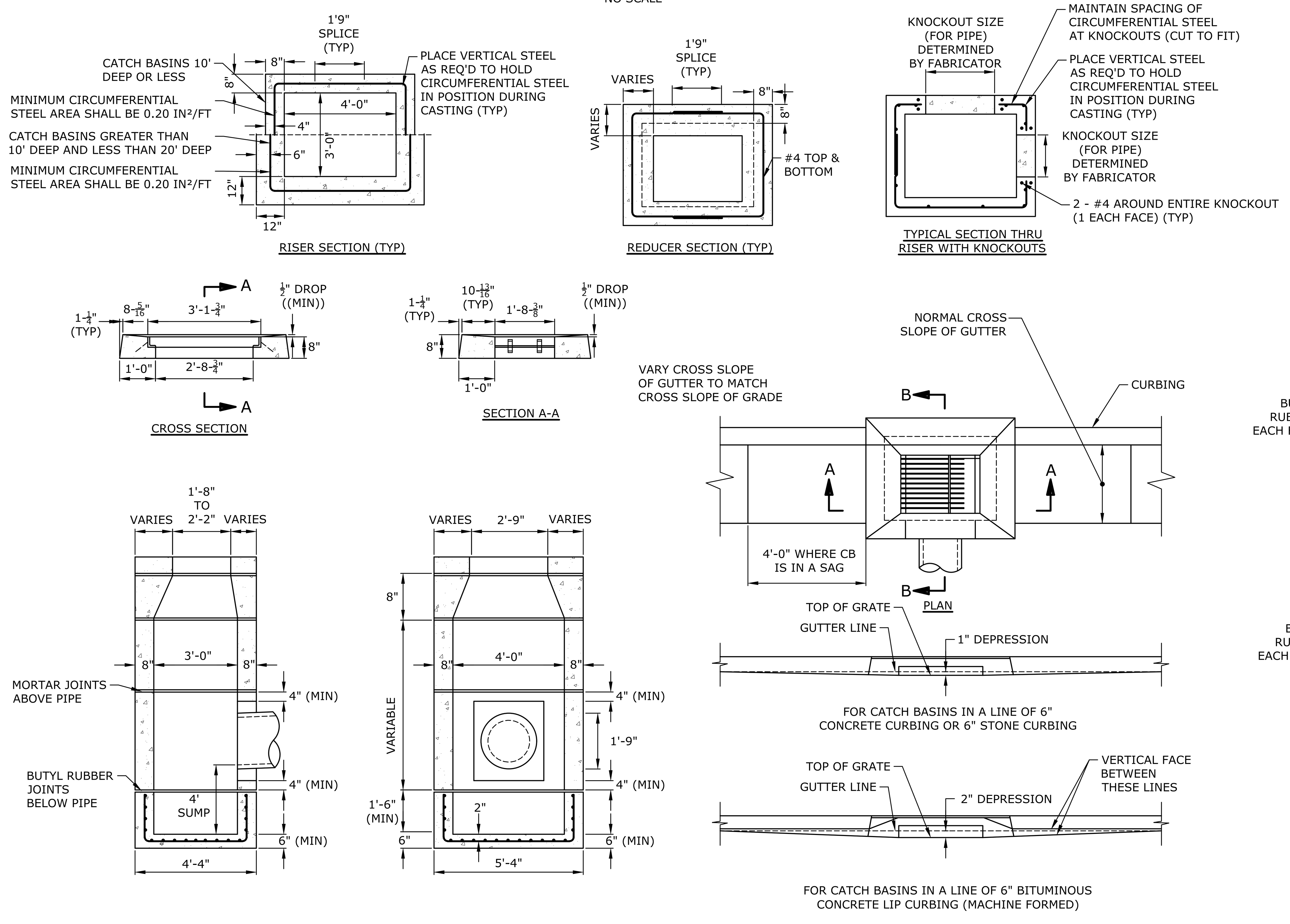


CONNECTICUT DEPARTMENT OF TRANSPORTATION

TYPE "C" CATCH BASIN

NO SCALE



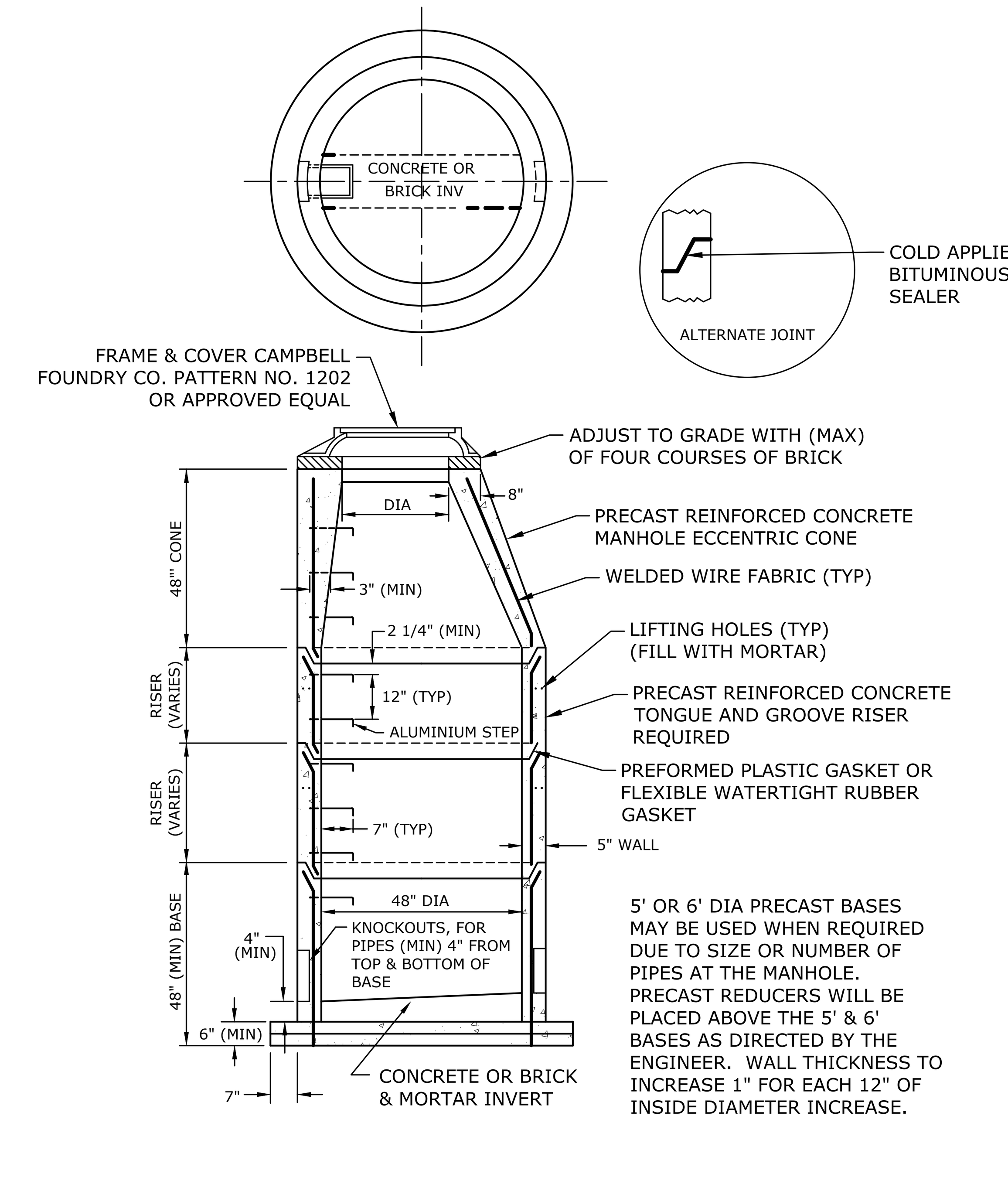
CONNECTICUT DEPARTMENT OF TRANSPORTATION

TYPE "C-L" CATCH BASIN

NO SCALE

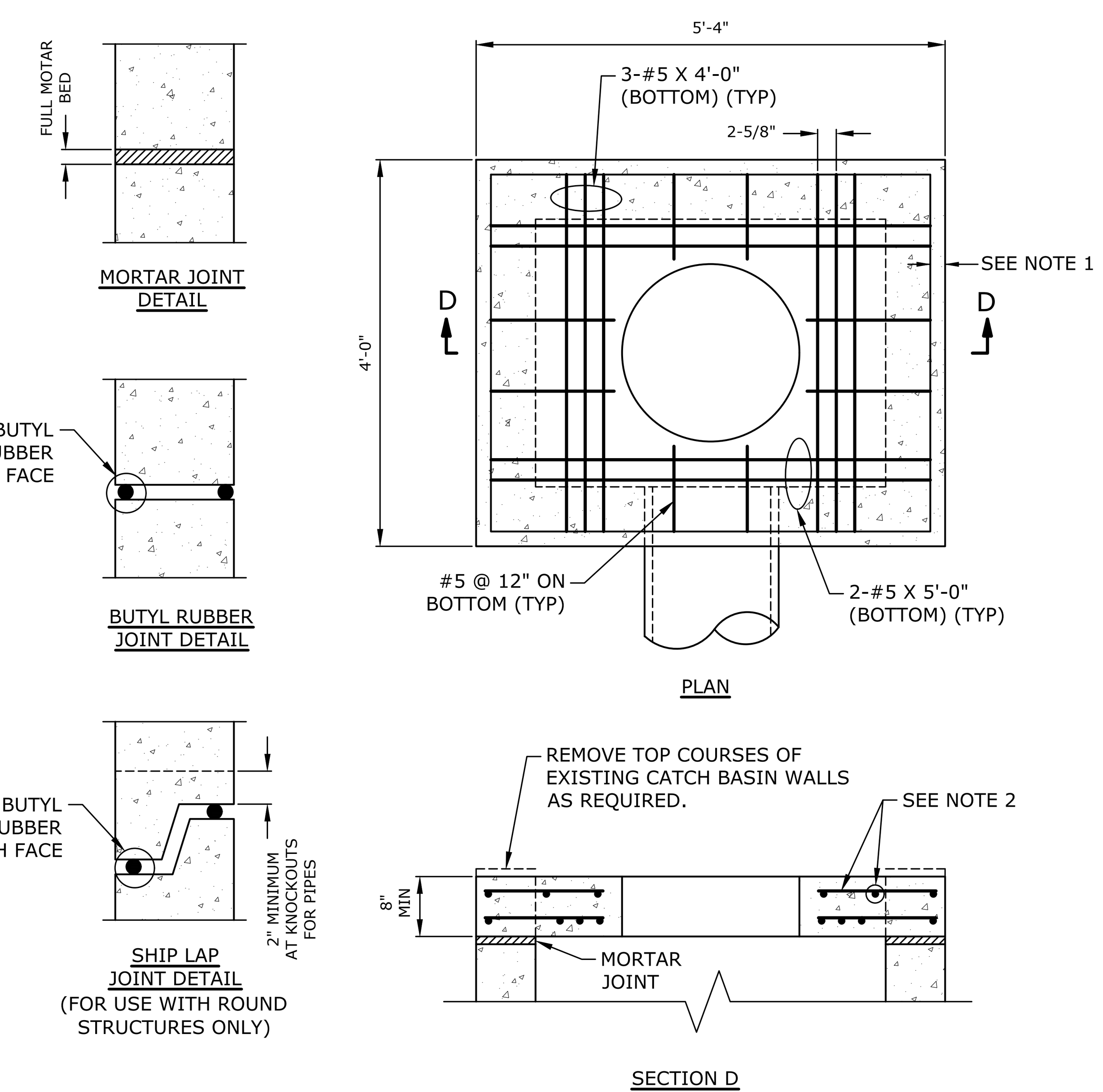
NOTES:

1. REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60.
2. DETAILS ON THIS SHEET SHOW STANDARD REINFORCEMENT. WELDED WIRE FABRIC WITH AN AREA EQUAL TO OR GREATER THAN THE REINFORCING SHOWN MAY BE SUBSTITUTED.
3. ALL LAP SPLICES, DEVELOPMENT LENGTHS, BENDS FOR REINFORCEMENT, AND WELDED WIRE FABRIC SHALL CONFORM TO AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
4. ALL REINFORCEMENT SHALL HAVE A MINIMUM CLEAR COVER OF 2", EXCEPT FOR BENEATH BOTTOM REINFORCEMENT IN TOP SLABS, WHERE THE MINIMUM MAY BE 1½"
5. MINIMUM CONCRETE COMPRESSIVE STRENGTH FC'=4,000PSI SHALL BE OBTAINED BEFORE SHIPPING.
6. BASES AND RISERS AT A DEPTH OF 20' AND GREATER SHALL BE DESIGNED BY THE CONTRACTOR AND WORKING DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
7. SEE STANDARD DRAWING 507-K FOR CATCH BASIN FRAMES AND GRATES.
8. FOR DOT MAINTENANCE PERSONNEL, RISERS MAY BE PREFABRICATED WITH PIPE OPENINGS IN ALL FOUR WALLS. ADEQUATE REINFORCING AROUND PIPE OPENINGS TO CONFORMING TO THESE PLANS SHALL BE PROVIDED. ANY RISERS USED WHERE A PIPE OPENING IS TO REMAIN IN PLACE MUST BE FORMED UP WITH BRICK AS DIRECTED BY THE ENGINEER.
9. RISERS SHALL NEVER HAVE CORNER PIPE ENTRIES. WHERE THE ALIGNMENT OF THE PIPE WITH RESPECT TO THE CORNER OF THE CATCH BASIN CANNOT BE CHANGED, A ROUND STRUCTURE CONFORMING TO ASTM C478 SHALL BE USED. REINFORCING FOR THE ROUND TOP SLAB WITH A RECTANGULAR OPENING SHALL CONFORM TO DETAILS SHOWN HERE.
10. ALL PIPE OPENINGS SHALL BE CLOSED USING MATERIALS WHICH CONFORM TO STATE OF CONNECTICUT STANDARD SPECIFICATIONS SECTION M.08.02. IF THE ENGINEER DETERMINES THAT THE CLOSURE OF ANY PIPE OPENING IS UNSATISFACTORY, THE CONTRACTOR SHALL RECLOSE SAID OPENING AT NO ADDITIONAL COST TO THE STATE. KNOCKOUTS FOR PIPE OPENINGS SHALL NOT RESULT IN A REDUCED WALL THICKNESS.
11. THE LATEST STATE OF CONNECTICUT STANDARD SPECIFICATIONS AND SUPPLEMENTALS SHALL GOVERN.
12. FOR ADDITIONAL DETAILS, SEE OTHER CATCH BASIN SHEETS.
13. WALL THICKNESS OF ALL CB'S OVER 10' DEEP SHALL BE INCREASED TO 12" THICK. INSIDE DIMENSION SHALL REMAIN THE SAME. (THE 12" THICKNESS SHALL START AFTER THE FIRST 10")
14. BUTYL RUBBER JOINT SEAL SHALL CONFORM TO AASHTO M-198 AND MORTAR SHALL CONFORM TO THE LATEST STATE OF CONNECTICUT STANDARD SPECIFICATIONS MATERIAL SECTION M11.04.
15. SHRINKAGE AND TEMPERATURE REINFORCEMENT SHALL BE PROVIDED IN THE TOPS OF SLABS. THE TOTAL AREA OF REINFORCEMENT PROVIDED SHALL BE AT LEAST 0.125 IN²/FT IN EACH DIRECTION. THE MAXIMUM SPACING OF THIS REINFORCEMENT SHALL NOT EXCEED 18 INCHES.
16. THE DETAILS SHOWN IN THE PLAN VIEW FOR THE PRECAST CONCRETE ROUND STRUCTURES SHALL ALSO BE USED FOR CONVERTING MANHOLES TO CATCH BASINS.



48" PRECAST MANHOLE

NO SCALE

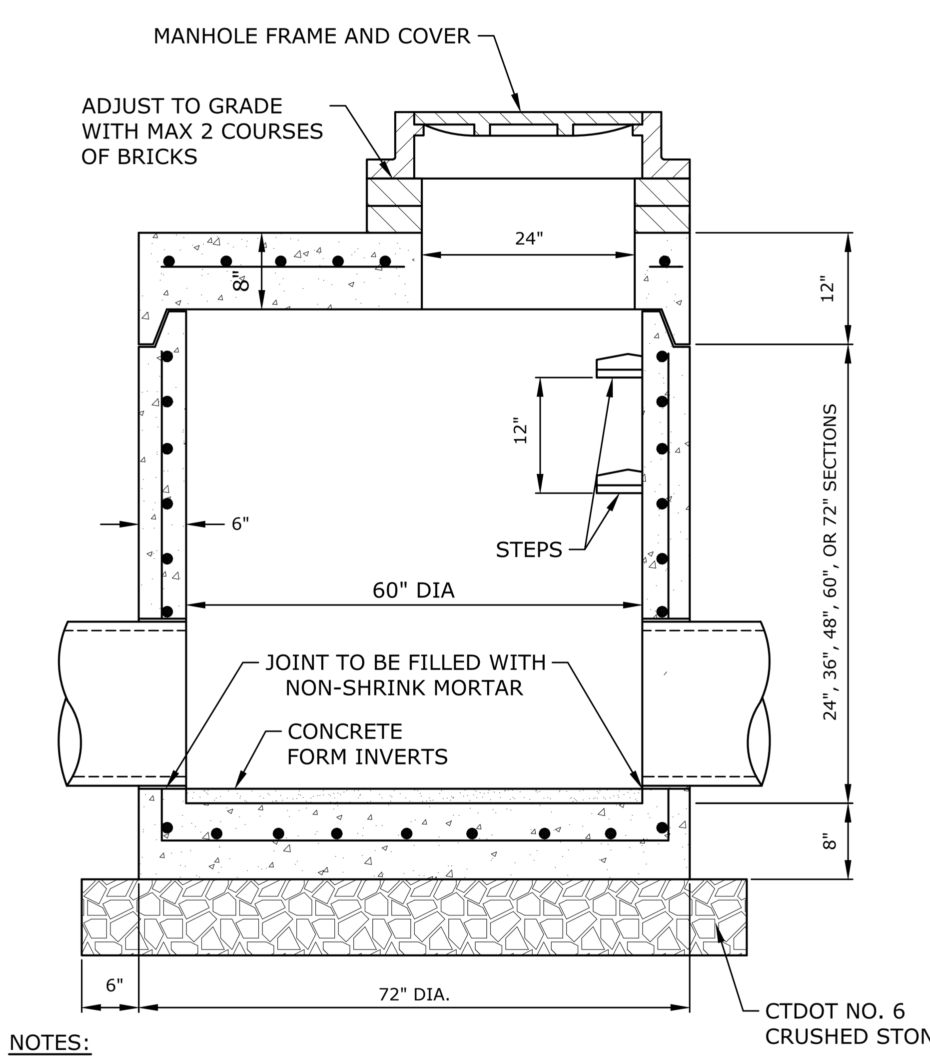


NOTES:

1. ALL REINFORCEMENT SHALL HAVE A MINIMUM CLEAR COVER OF 2", EXCEPT FOR BENEATH BOTTOM REINFORCEMENT IN TOP SLABS, WHERE THE MINIMUM MAY BE 1-1/2".
2. SHRINKAGE AND TEMPERATURE REINFORCEMENT SHALL BE PROVIDED IN THE TOPS OF SLABS. THE TOTAL AREA OF REINFORCEMENT PROVIDED SHALL BE AT LEAST 0.125 SQUARE INCHES PER FOOT IN EACH DIRECTION. THE MAXIMUM SPACING OF THIS REINFORCEMENT SHALL NOT EXCEED 18 INCHES.

TOP SLAB TO CONVERT CATCH BASIN TO MANHOLE

NO SCALE



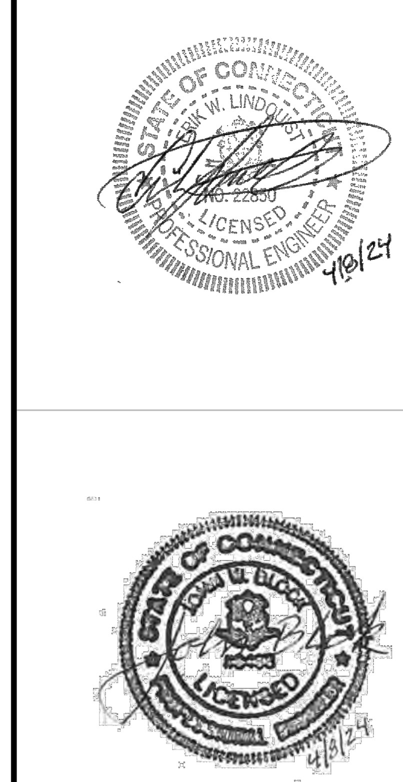
NOTES:

1. JOINT SEALANT SHALL BE PREFORMED BUTYL RUBBER MASTIC TYPE SEAL COMPLYING WITH AASHTO M198.
2. REINFORCING ASTM A185, 0.17 IN²/VERT. FT.
3. 5,000 PSI CONCRETE @ 28 DAYS.
4. MANHOLE STEP TO BE USED MEETS OSHA REGULATION 20 CFR 1910.27 AND SECTION 11 ASTM SPECIFICATION C-473.
5. METHOD OF MANUFACTURE: WET CAST.
6. BASE SECTION MONOLITHIC.
7. KNOCKOUTS FOR PIPES 4" MIN. FROM TOP AND BOTTOM OF SECTION.

60" DIA. FLAT TOP MANHOLE

NO SCALE

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100



TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-601-DETL.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DETAILS - 4

SCALE: AS SHOWN

C-604

Last Saved: 4/5/2024
Plotted On:Apr 08, 2024-11:27am By: AClark
Tighe & Bond:J:\F\F0173 Fuller\001 64 Danbury Rd\Drawings_Figures\AutoCAD\Sheet\F0173-001-C-601-DETL.dwg

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1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
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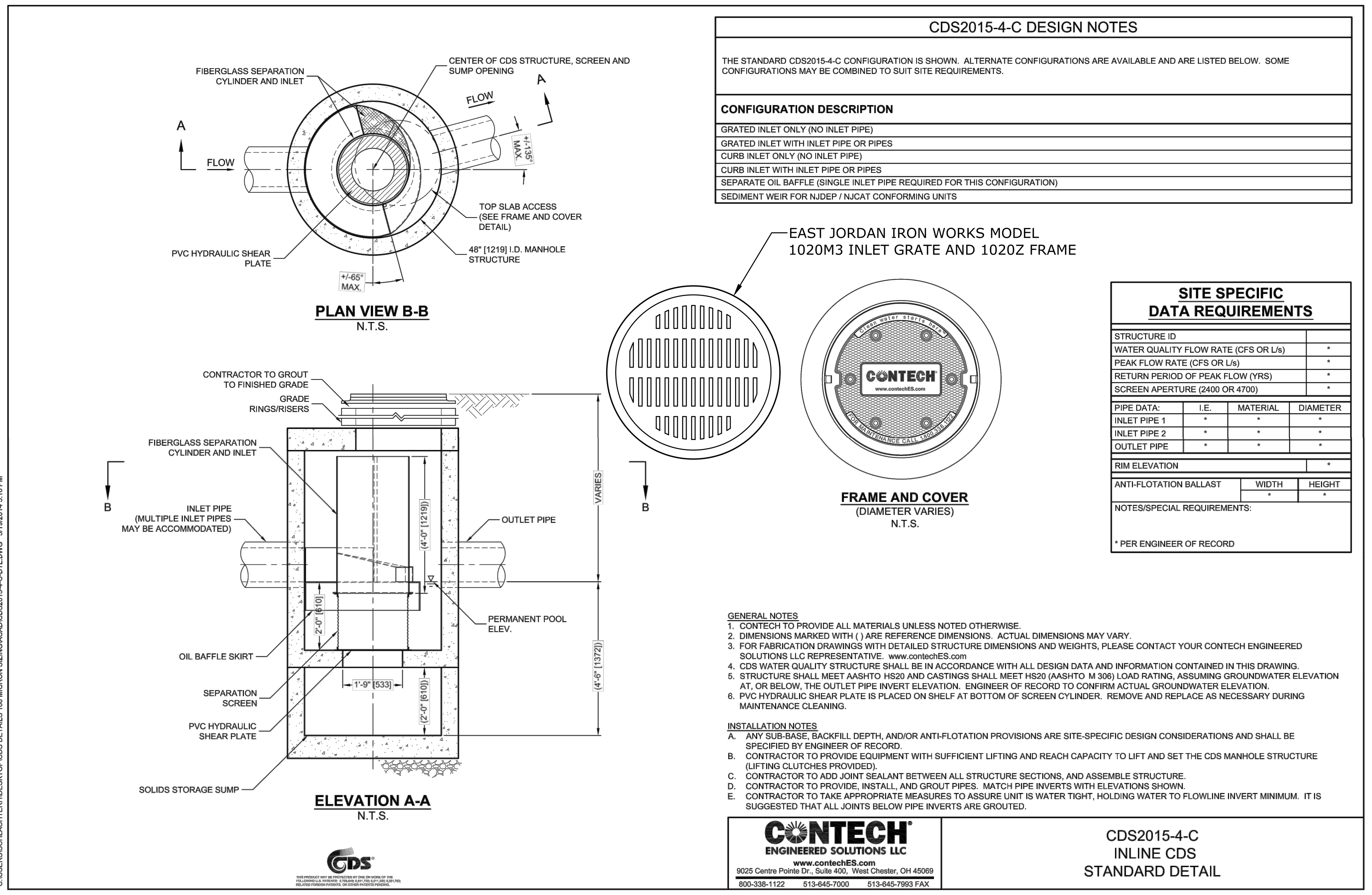
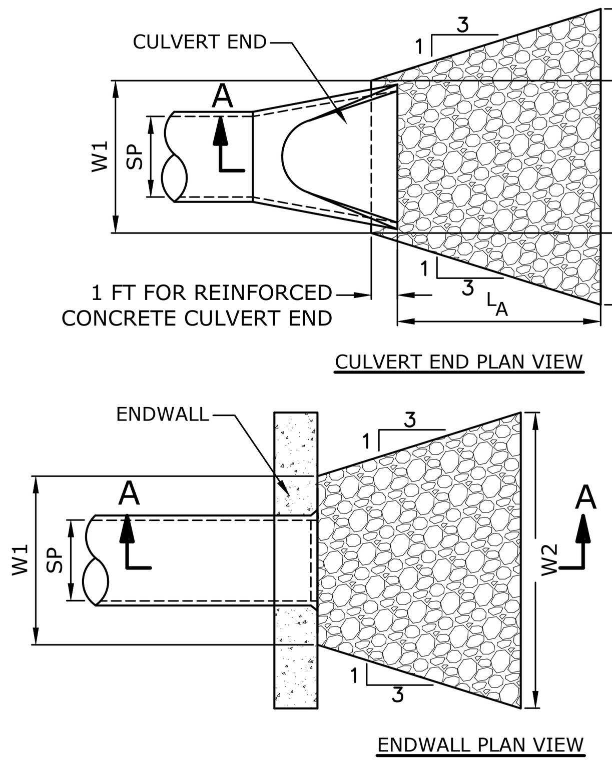
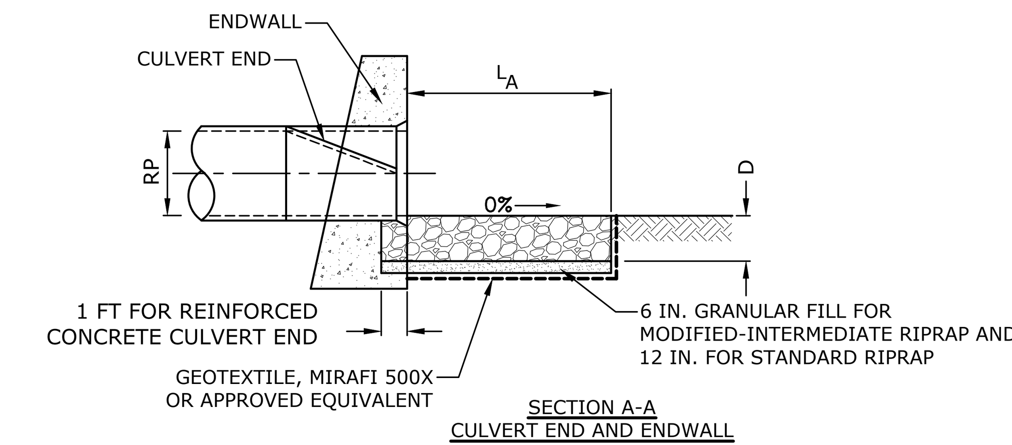


WATER QUALTIY STRUCTURE
NO SCALE



SP= { MAX. INSIDE PIPE SPAN (NON-CIRCULAR SECTIONS) INSIDE PIPE DIAMETER (CIRCULAR SECTIONS)
RP= { MAX. INSIDE PIPE RISE (NON-CIRCULAR SECTIONS) INSIDE PIPE DIAMETER (CIRCULAR SECTIONS)
L_A= LENGTH OF RIPRAP APRON MEASURED FROM THE END OF CULVERT END SECTION OR FACE OF ENDWALL
D= { 12 IN. MODIFIED RIPRAP; 18 IN. INTERMEDIATE RIPRAP; 36 IN. STANDARD RIPRAP

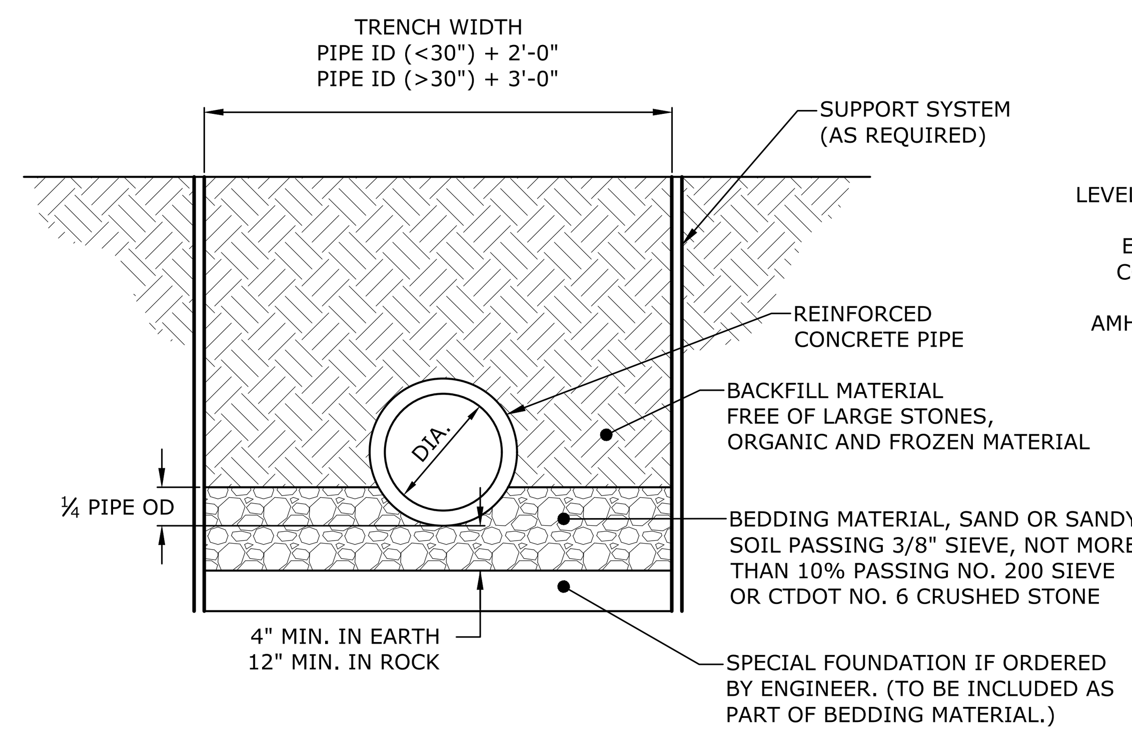


NOTE:

1. RIPRAP SIZE AND GRADATION TO MEET CTDOT FORM 818 SECTION M.12.02.

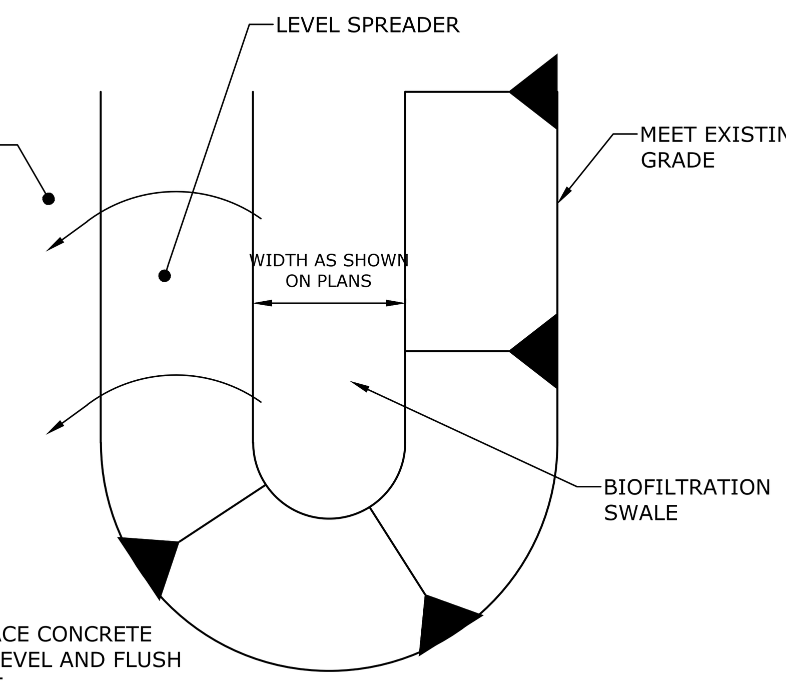
APRON LENGTH (LA)	APRON WIDTH (W1)	APRON WIDTH (W2)	SP
(FEET)	(FEET)	(FEET)	(FEET)
2.08	3.0	4.46	1.0

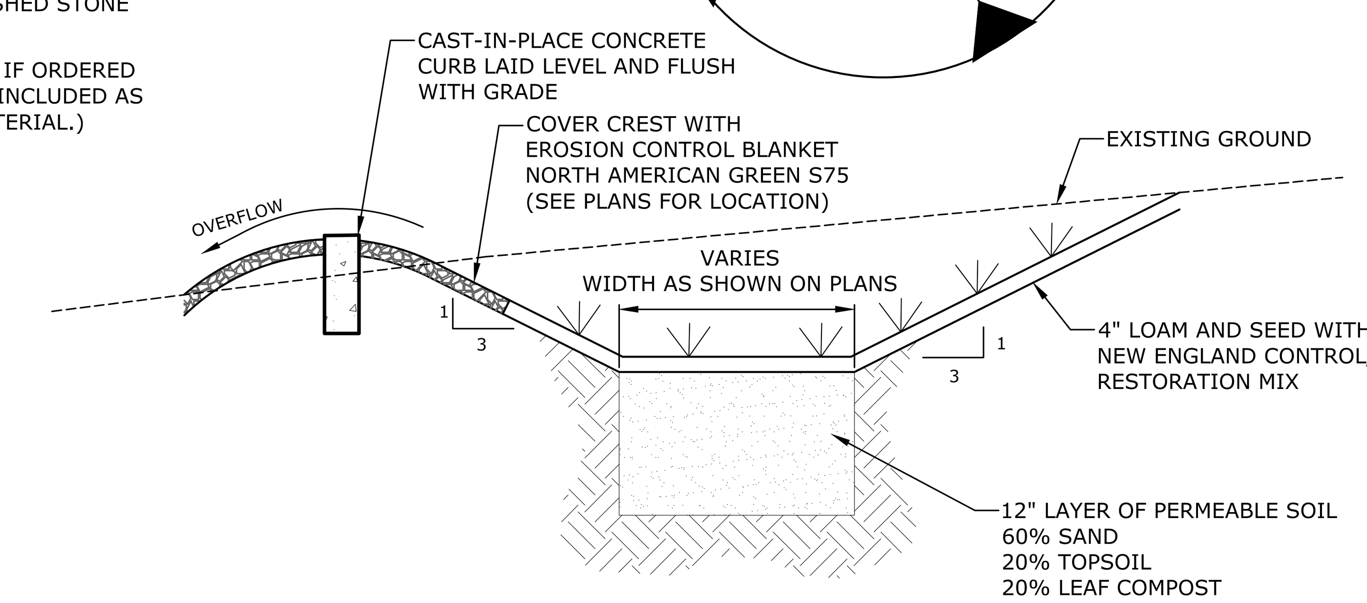
TYPE "A" RIPRAP APRON
NO TO SCALE



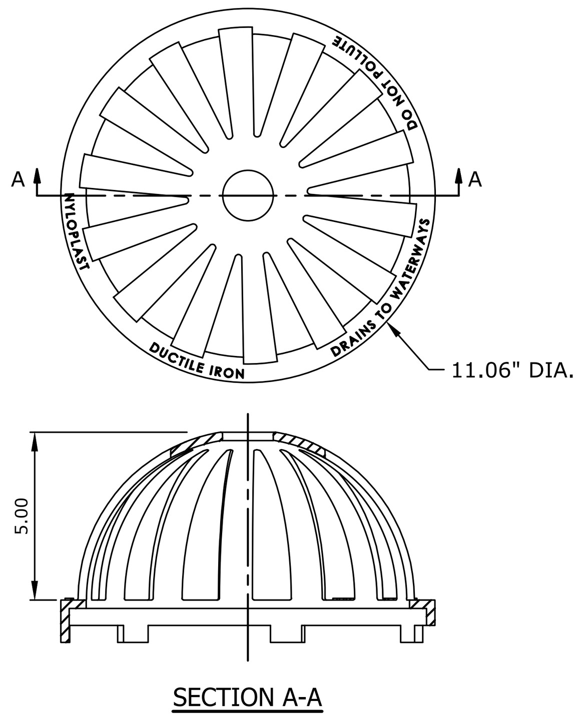
CIRCULAR R.C.P. TRENCH BEDDING
NO SCALE

NOTE:
WHERE GROUND DOWNSTREAM OF LEVEL SPREADER HAS BEEN DISTURBED, VEGETATIVE COVER SHALL BE ESTABLISHED USING NEW ENGLAND CONSERVATION/WILDLIFE MIX FROM NEW ENGLAND WETLAND PLANTS, AMHERST, MA. APPLICATION SHALL BE AT A RATE OF 25 LBS/ACRE.

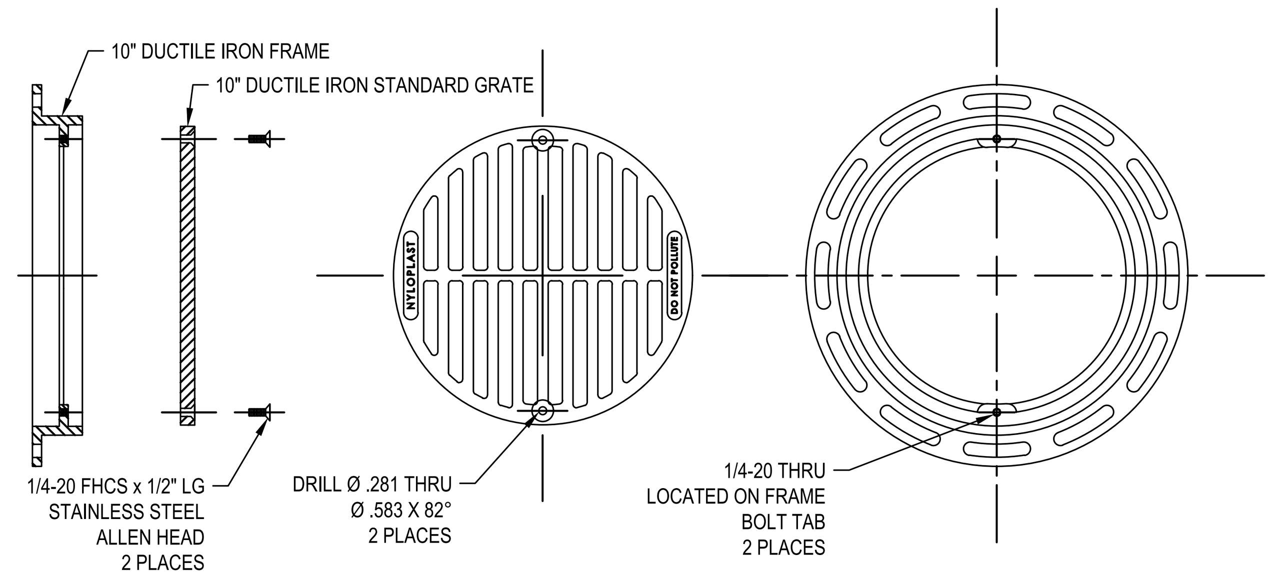




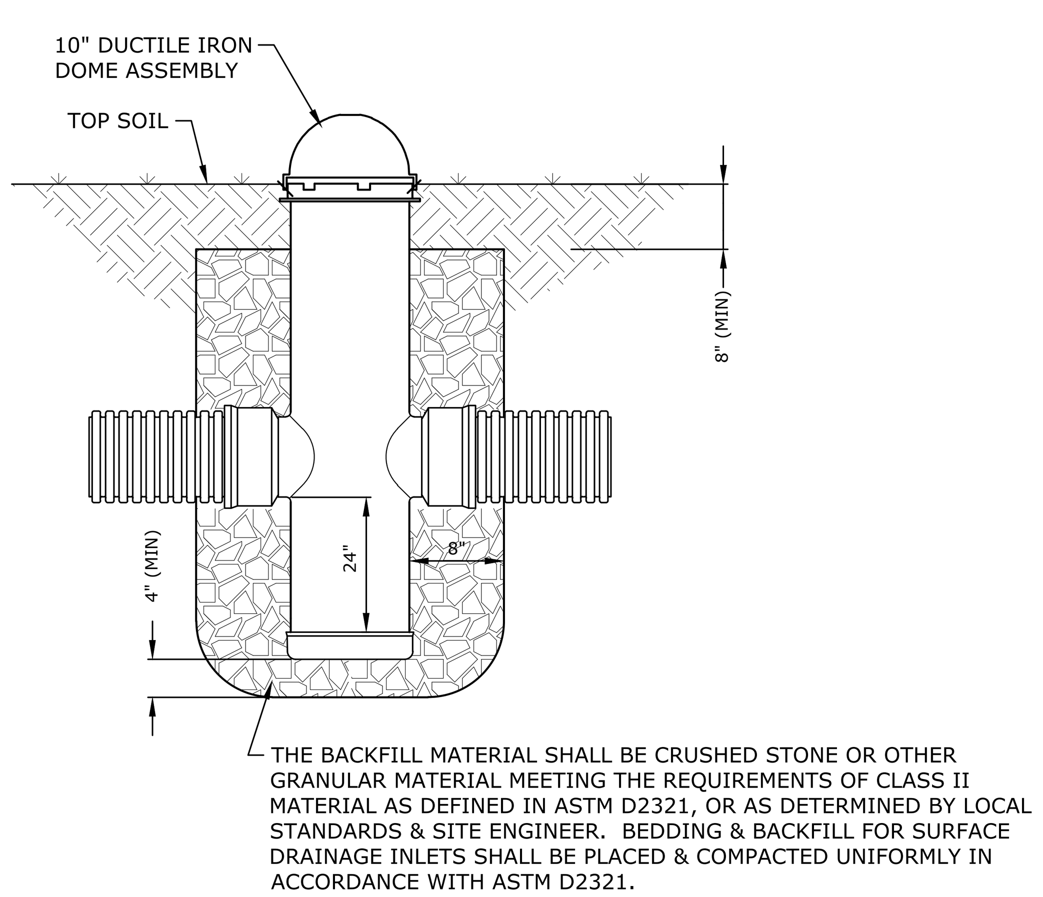
LEVEL SPREADER
NO SCALE



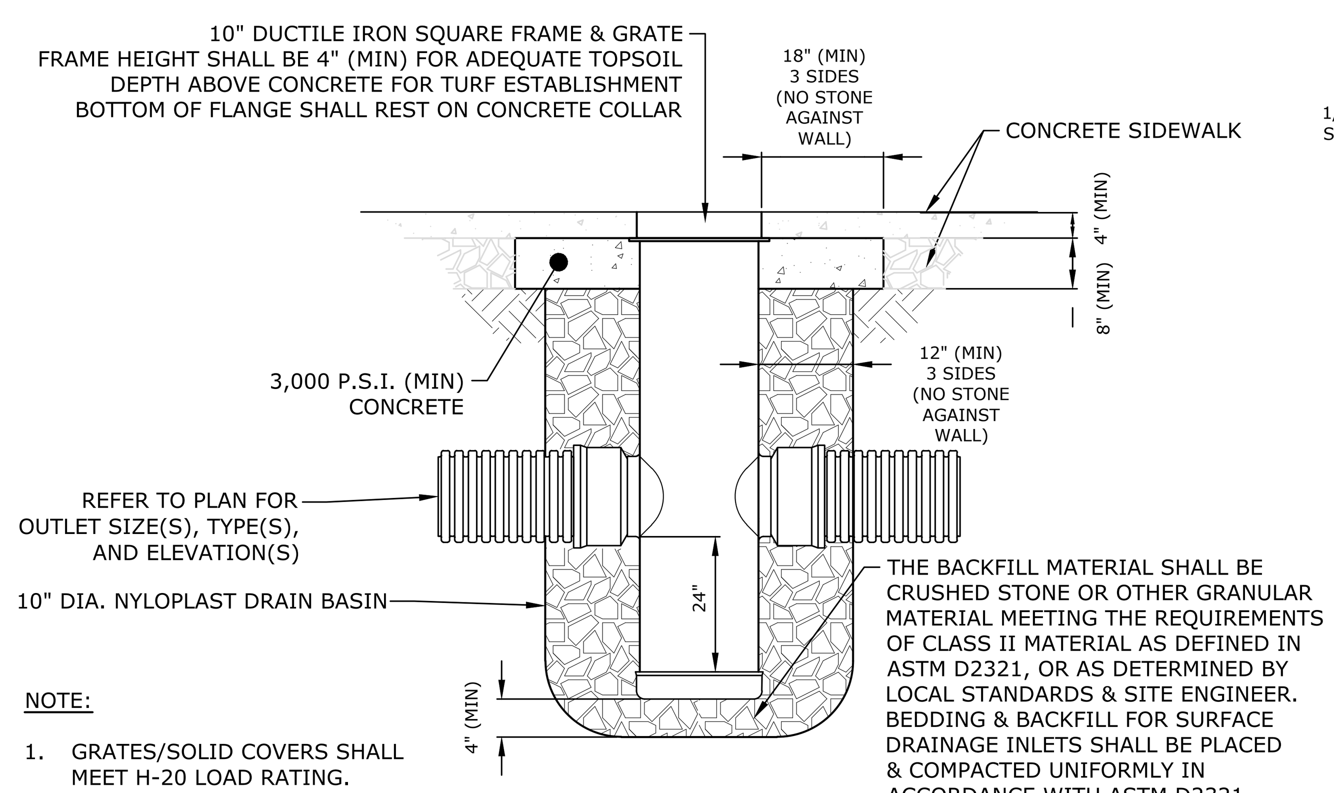
DOME GRATE (PLANTING BEDS)



FLAT GRATE (LAWN AREAS)



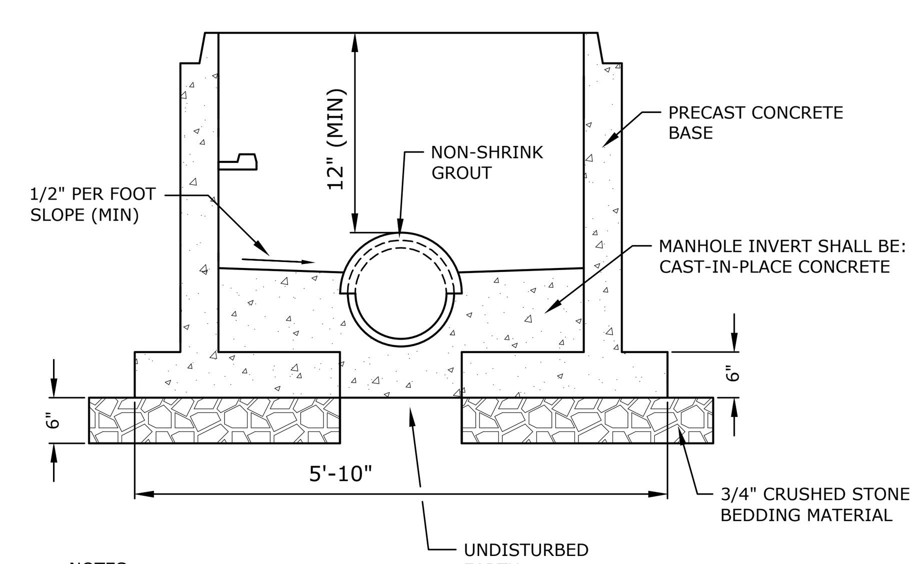
YARD DRAIN DETAIL (LANDSCAPED AREAS)
NO SCALE



NOTE:

1. GRATES/SOLID COVERS SHALL MEET H-20 LOAD RATING.

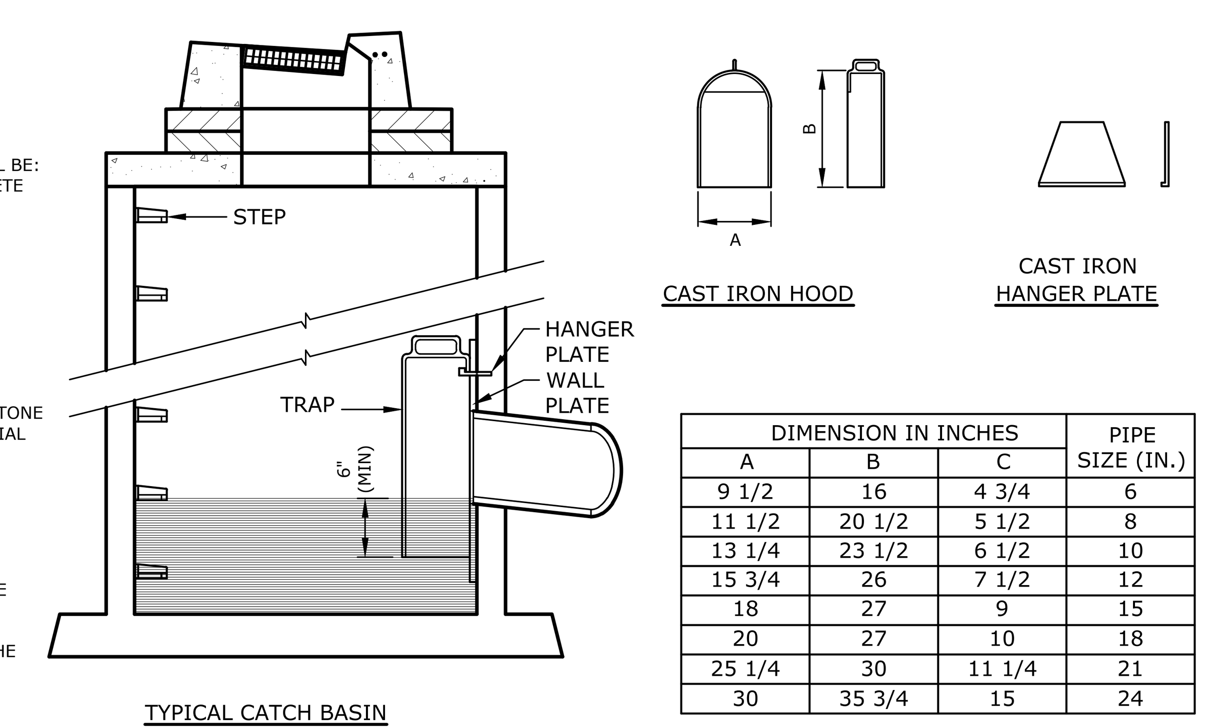
AREA DRAIN DETAIL (PAVED AREAS)
NO SCALE



NOTES:

1. MINIMUM 4' DIAMETER MANHOLE.
2. DOGHOUSE OPENING MAY ONLY BE USED WHEN PLACING A NEW MANHOLE OVER AN EXISTING LINE; OTHERWISE, THE OPENING MUST BE CAST. SIZE, LOCATION AND ANGLE OF ENTRY SHOULD BE AS REQUIRED BY THE PLANS.
3. OPENINGS IN PRECAST UNITS ARE TO BE 4" MINIMUM TO 8" MAXIMUM LARGER THAN THE OUTSIDE DIAMETER OF THE EXISTING PIPE.
4. TOP HALF OF EXISTING PIPE TO BE REMOVED FOR FULL LENGTH EXPOSED INSIDE MANHOLE. EXISTING MAIN TO BE NEATLY CUT ALONG THE SPRING LINE OF THE PIPE.
5. SEE STORM MANHOLE DETAIL FOR ADDITIONAL INFORMATION.

STORM DRAINAGE DOGHOUSE MANHOLE BASE
NO SCALE



DIMENSION IN INCHES			PIPE SIZE (IN.)
A	B	C	
9 1/2	16	4 3/4	6
11 1/2	20 1/2	5 1/2	8
13 1/4	23 1/2	6 1/2	10
15 3/4	26	7 1/2	12
18	27	9	15
20	27	10	18
25 1/4	30	11 1/4	21
30	35 3/4	15	24

NOTE

1. CAST IRON HANGER PLATE FURNISHED WITH HOOD.

CATCH BASIN TRAP DETAIL
NO SCALE

TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

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APPROVED BY:	JWB

DETAILS - 5

SCALE: AS SHOWN

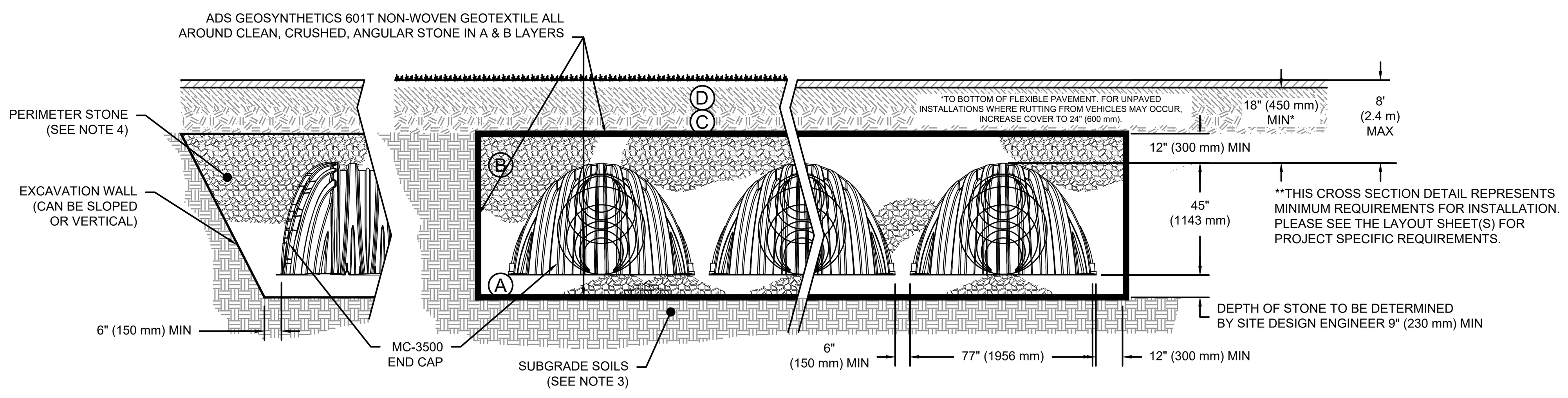
C-605

Last Saved: 4/5/2024
Plotted On: Apr 08, 2024-11:27am By: AClark
Tighe & Bond:J:\F\F0173 Fuller\001 64 Danbury Rd\Drawings_Figures\AutoCAD\Sheet\F0173-001-C-601-DETL.dwg

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

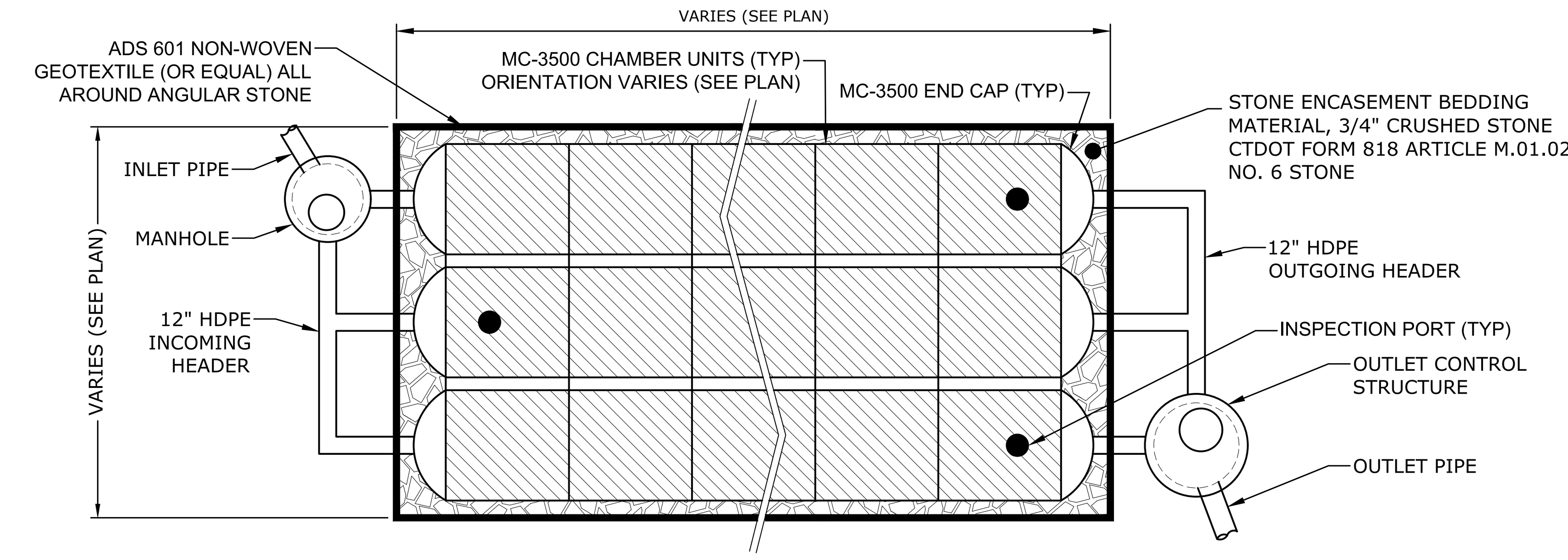


*FOR COVER DEPTHS GREATER THAN 8.0' (2.4 m) PLEASE CONTACT ADS

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 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 3".
   - 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 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

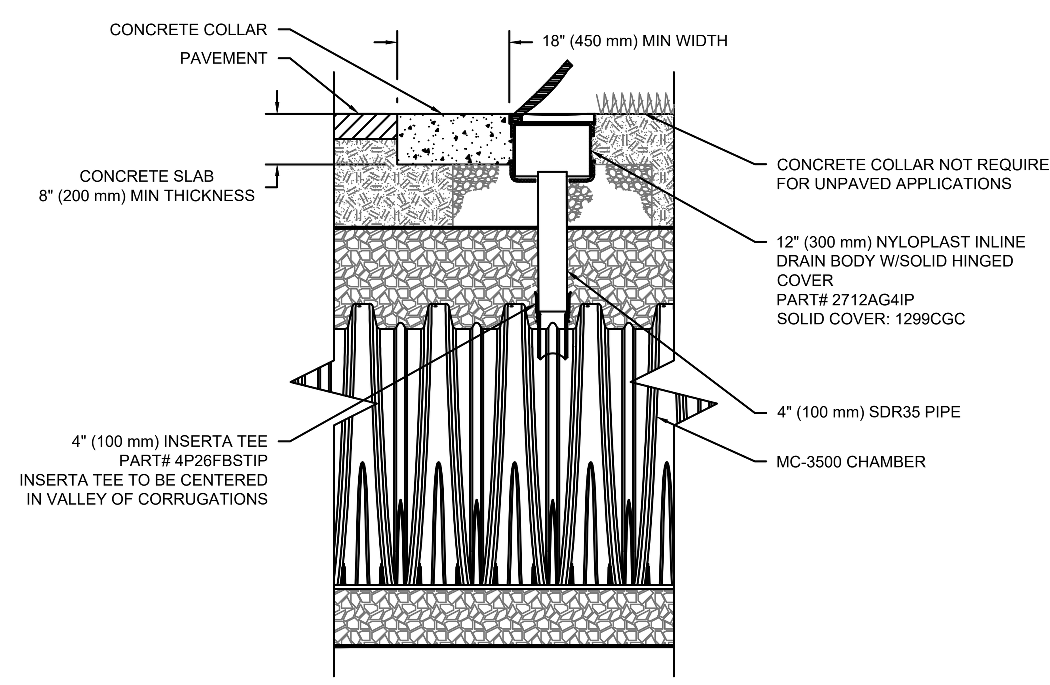
INFILTRATION SYSTEM
ADS, INC STORMTECH® MC-3500 TYPICAL CROSS-SECTION
NO SCALE



NOTES:

1. THE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER'S COVER REQUIREMENTS ARE MET.
2. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT & COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.

MC-3500 UNDERGROUND INFILTRATION SYSTEM
NO SCALE

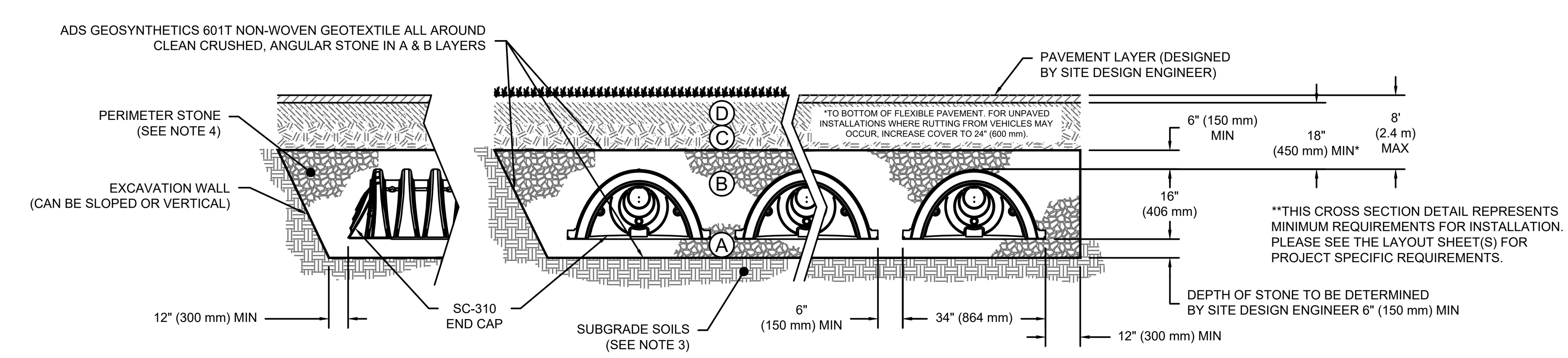


INFILTRATION SYSTEM
ADS, INC STORMTECH® MC-3500 INSPECTION PORT DETAIL
NO SCALE

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

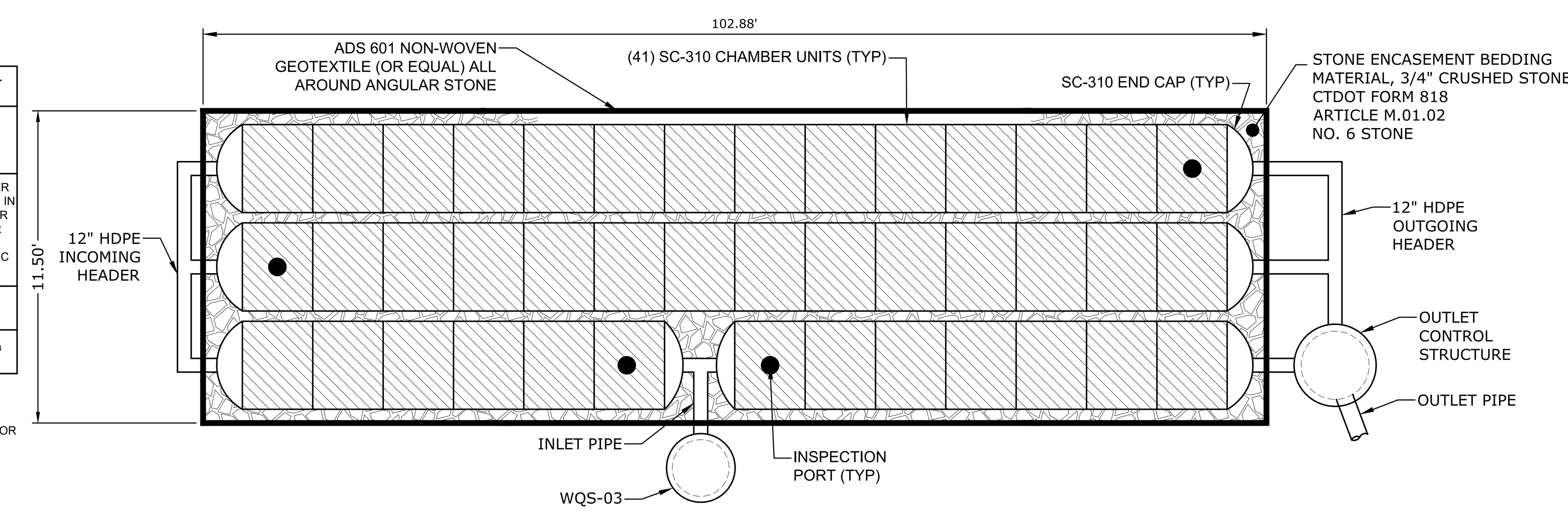
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 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 F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

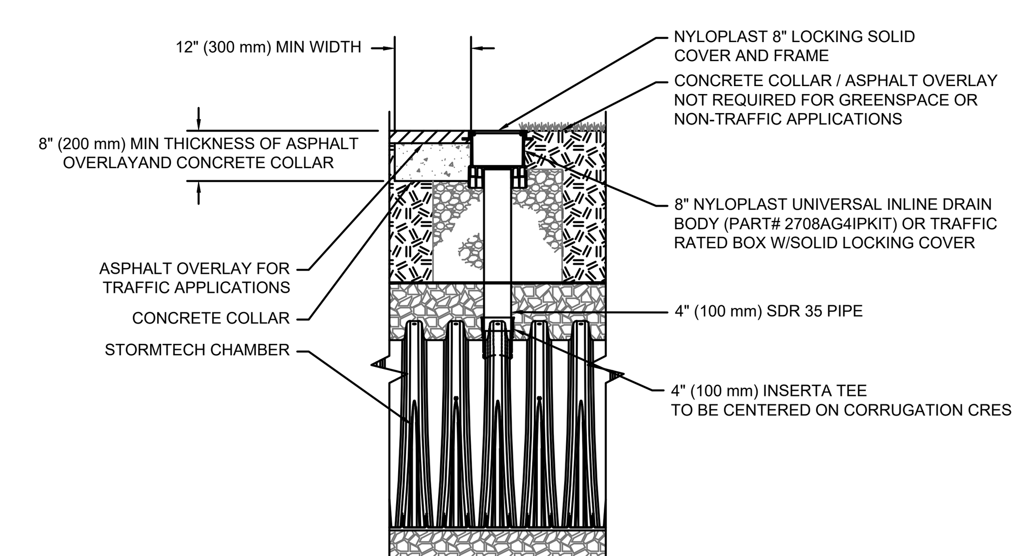
INFILTRATION SYSTEM
ADS, INC STORMTECH® SC-310 TYPICAL CROSS-SECTION
NO SCALE



NOTES:

1. THE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER'S COVER REQUIREMENTS ARE MET.
2. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT & COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.

MC-3500 UNDERGROUND INFILTRATION SYSTEM
NO SCALE



INFILTRATION SYSTEM
ADS, INC STORMTECH® SC-310 INSPECTION PORT DETAIL
NO SCALE

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

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APPROVED BY:	JWB

DETAILS - 6

SCALE: AS SHOWN

C-606

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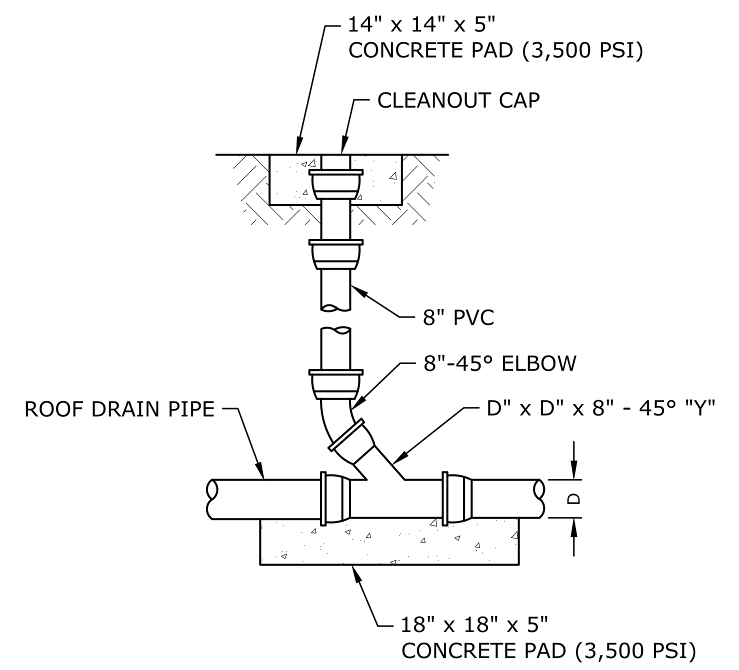
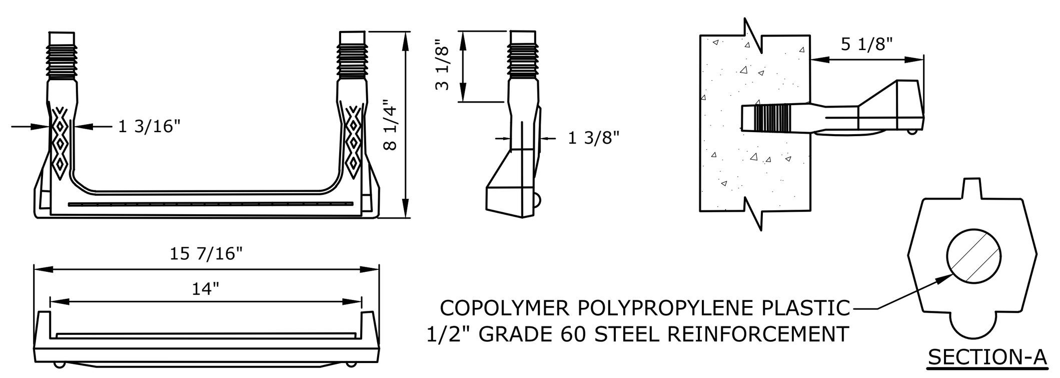
Tighe & Bond:J:\F\F0173 Fuller\001 64 Danbury Rd\Drawings_Figures\AutoCAD\Sheet\F0173-001-C-601-DETL.dwg

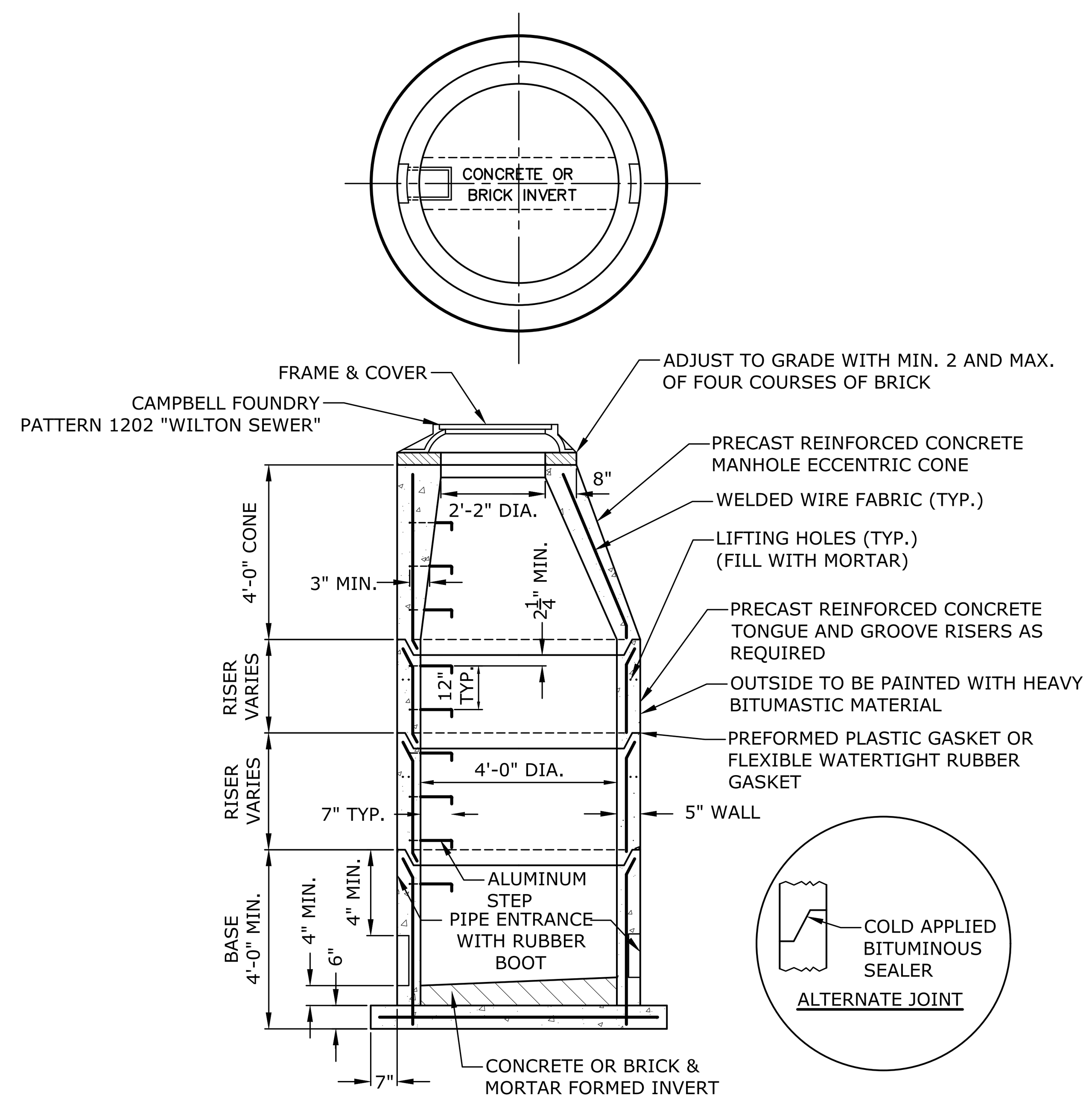


CLEANOUT DETAIL
NO SCALE



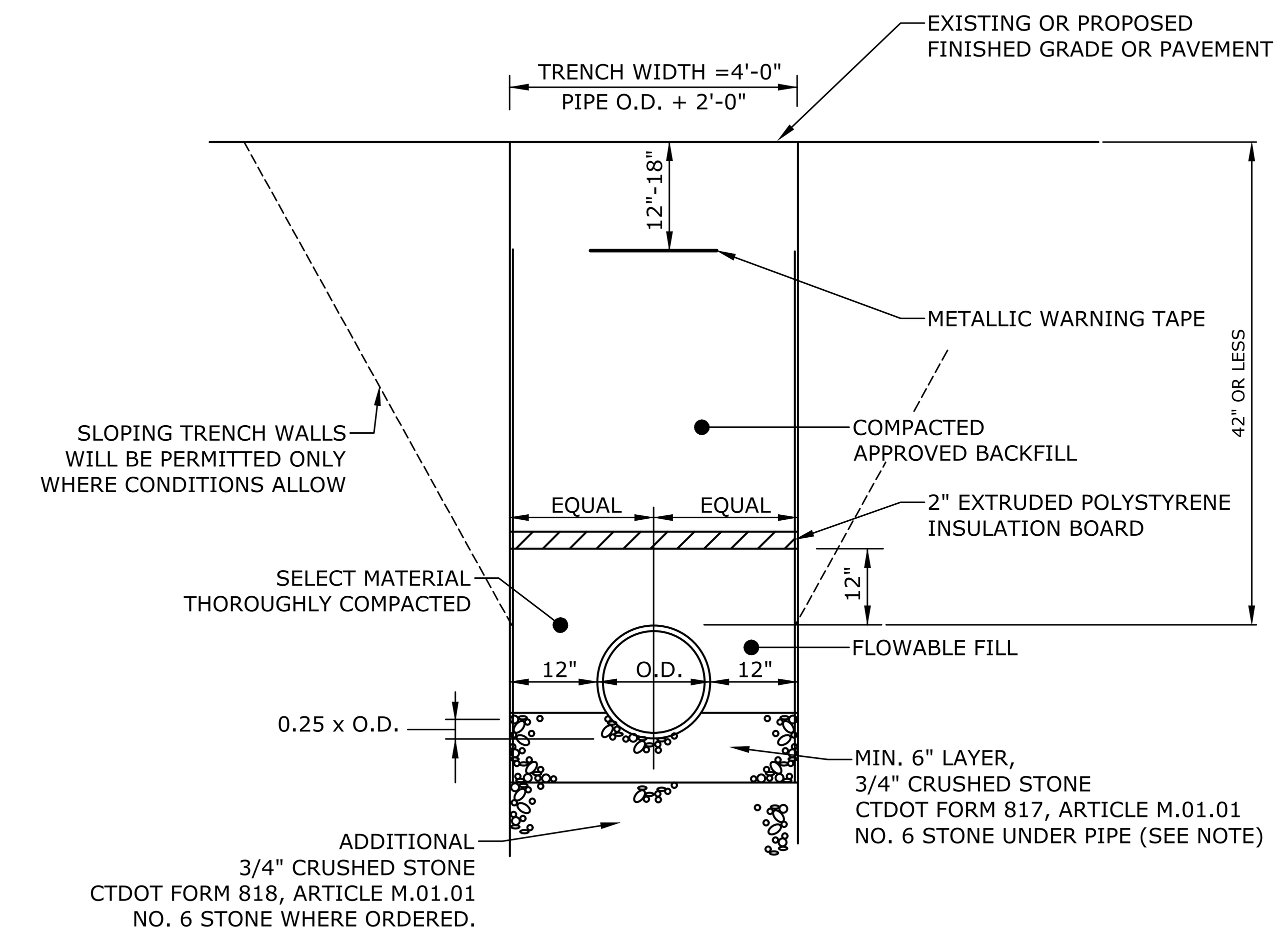
NOTE:
MANHOLE RUNGS ARE TO BE "SAFETY GREEN" PHOSPHORESCENT COPOLYMER POLYPROPYLENE PLASTIC COATED 1/2" GRADE STEEL REINFORCEMENT STEP MODEL No. PS2-PFSL AS MANUFACTURED BY M.A. INDUSTRIES, INC. OR PRESS-SEAL GASKET,STEEL REINFORCED (GRADE 60 STEEL), COPOLYMER POLYPROPYLENE 14" MANHOLE SAFETY STEP PART # P-14850 WITH BUILT-IN REFLECTORS. STEPS ARE TO BE FACTORY INSTALLED BY THE MANUFACTURER OF THE MANHOLES

MANHOLE RUNG
NO SCALE



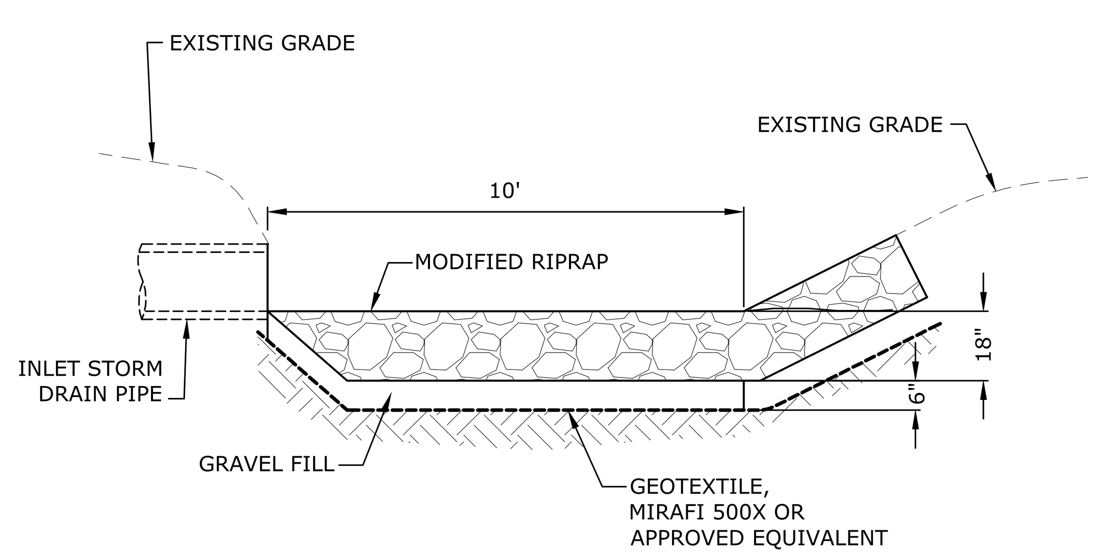
5' OR 6' DIA. PRECAST BASES MAY BE USED WHEN REQUIRED DUE TO SIZE OR NUMBER OF PIPES AT THE MANHOLE.
PRECAST REDUCERS WILL BE PLACED ABOVE THE 5' & 6' BASES AS DIRECTED BY THE ENGINEER.
WALL THICKNESS TO INCREASE 1" FOR EACH 1' OF INSIDE DIAMETER INCREASE.

PRECAST SANITARY MANHOLE
NO SCALE

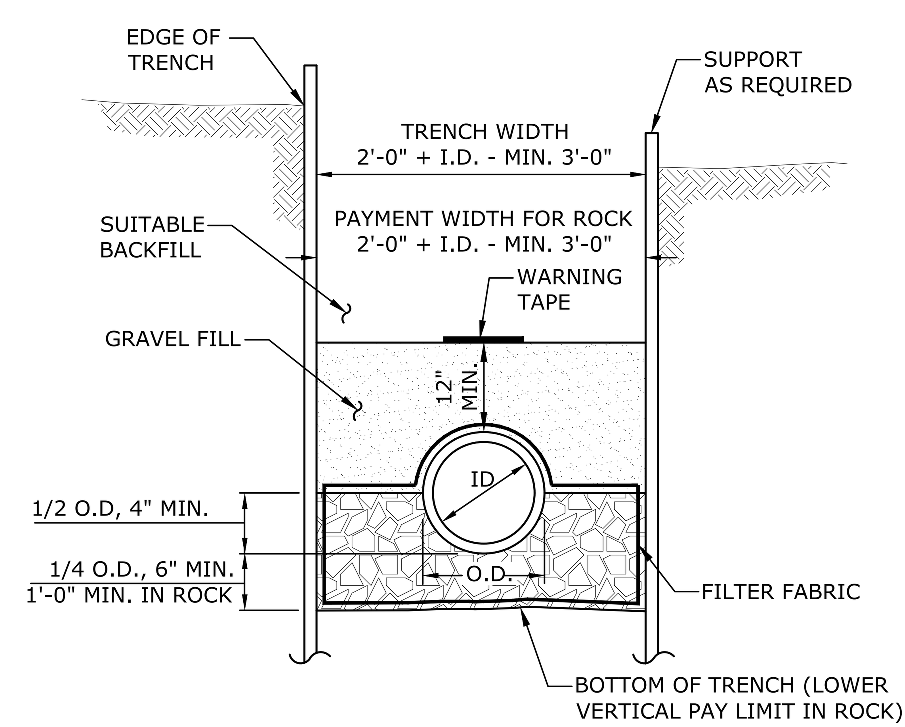


NOTE:
ADJACENT UTILITIES ARE TO BE PROPERLY SUPPORTED AT ALL TIMES
DEAD SAND WATERSTOPS ARE TO BE PLACED AT ALL JOINTS INCLUDING JOINTS AT MANHOLES. THEY ARE TO EXTEND 12" BEYOND EACH PIPE JOINT (IN BOTH DIRECTIONS). THE DEAD SAND IS TO BE PLACED TO THE SAME HEIGHT AS THE BEDDING MATERIAL.

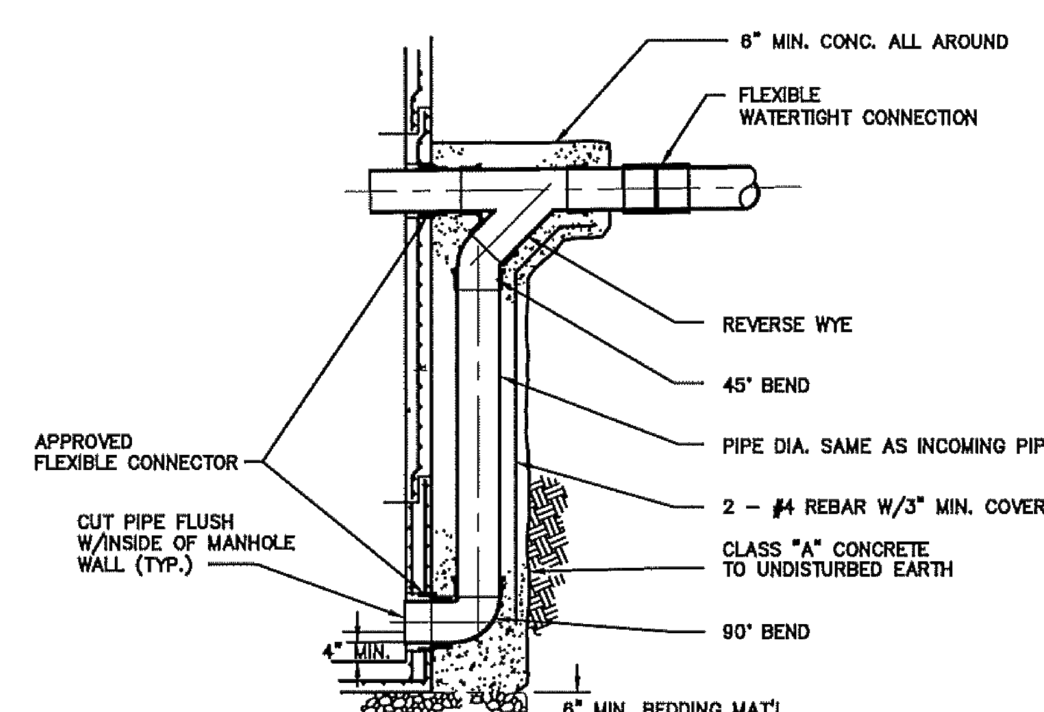
SANITARY SEWER TRENCH FOR SEWER WITH 42" COVER OR LESS
NO SCALE



MODIFIED RIPRAP INLET PROTECTION
NO SCALE



TYPICAL SANITARY SEWER TRENCH SECTION
NO SCALE



DROP MANHOLE DETAIL
NO SCALE

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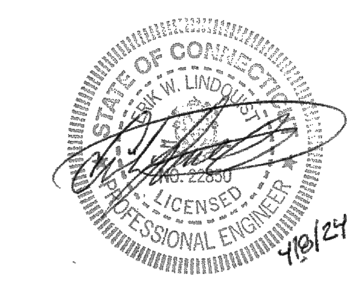
Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100



TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

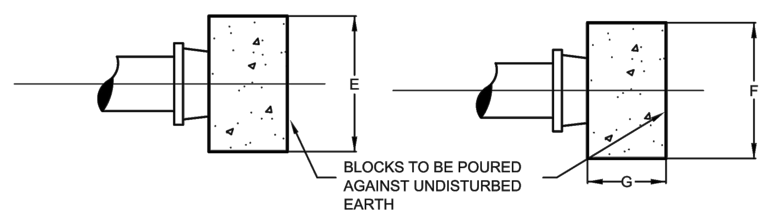
MARK	DATE	DESCRIPTION
1	4/8/2024	RESPONSE TO TOWN COMMENTS

PROJECT NO:	F0173-001
DATE:	12/21/2023
FILE:	F0173-001-C-601-DETL.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DETAILS - 7

SCALE: AS SHOWN

C-607



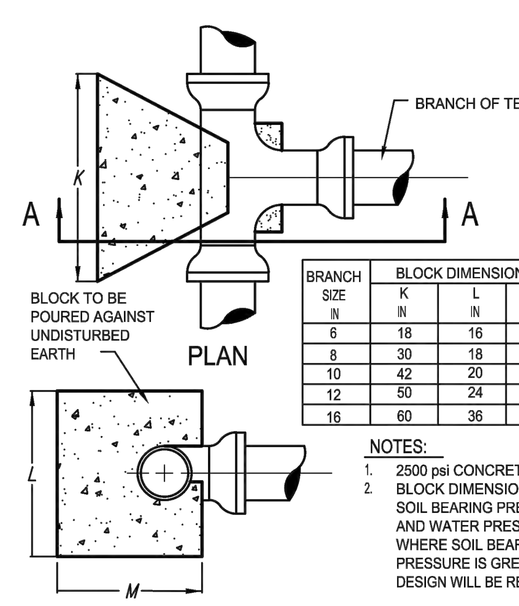
PLAN

ELEVATION

NOTES:
1. 2500 psi CONCRETE TO BE USED
2. BLOCK DIMENSIONS ARE BASED UPON SOIL BEARING PRESSURE OF 2000 psi AND WATER PRESSURE OF 150 psi. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.
3. FOR USE ON ABANDONED LINES AND DEAD ENDS WHERE NO EXTENSION IS CONTEMPLATED.

PIPE DIAM. IN	BLOCK DIMENSIONS E IN	F IN	G IN	CONCRETE VOLUME CU. YD.
6	20	16	12	0.09
8	28	20	12	0.15
10	30	24	12	0.19
12	42	30	14	0.40
16	52	42	18	0.85

CAPS, PLUGS AND VALVES



PLAN

SECTION AA

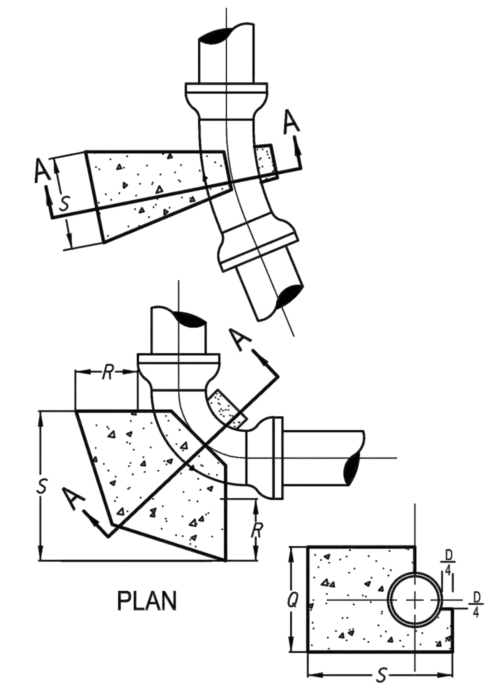
BRANCH SIZE IN	BLOCK DIMENSIONS K IN	L IN	M IN	CONCRETE VOLUME CU. YD.
6	18	16	12	0.09
8	30	18	12	1.15
10	42	20	12	0.24
12	50	24	16	0.42
16	60	36	24	1.12

NOTES:
1. 2500 psi CONCRETE TO BE USED
2. BLOCK DIMENSIONS ARE BASED UPON SOIL BEARING PRESSURE OF 2000 psi AND WATER PRESSURE OF 150 psi. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.

TEES

AQUARION Water Company
Stewards of the Environment

THRUST BLOCKS
AT TEES, CAPS, PLUGS & VALVES
NOT TO SCALE
SD-14



PLAN

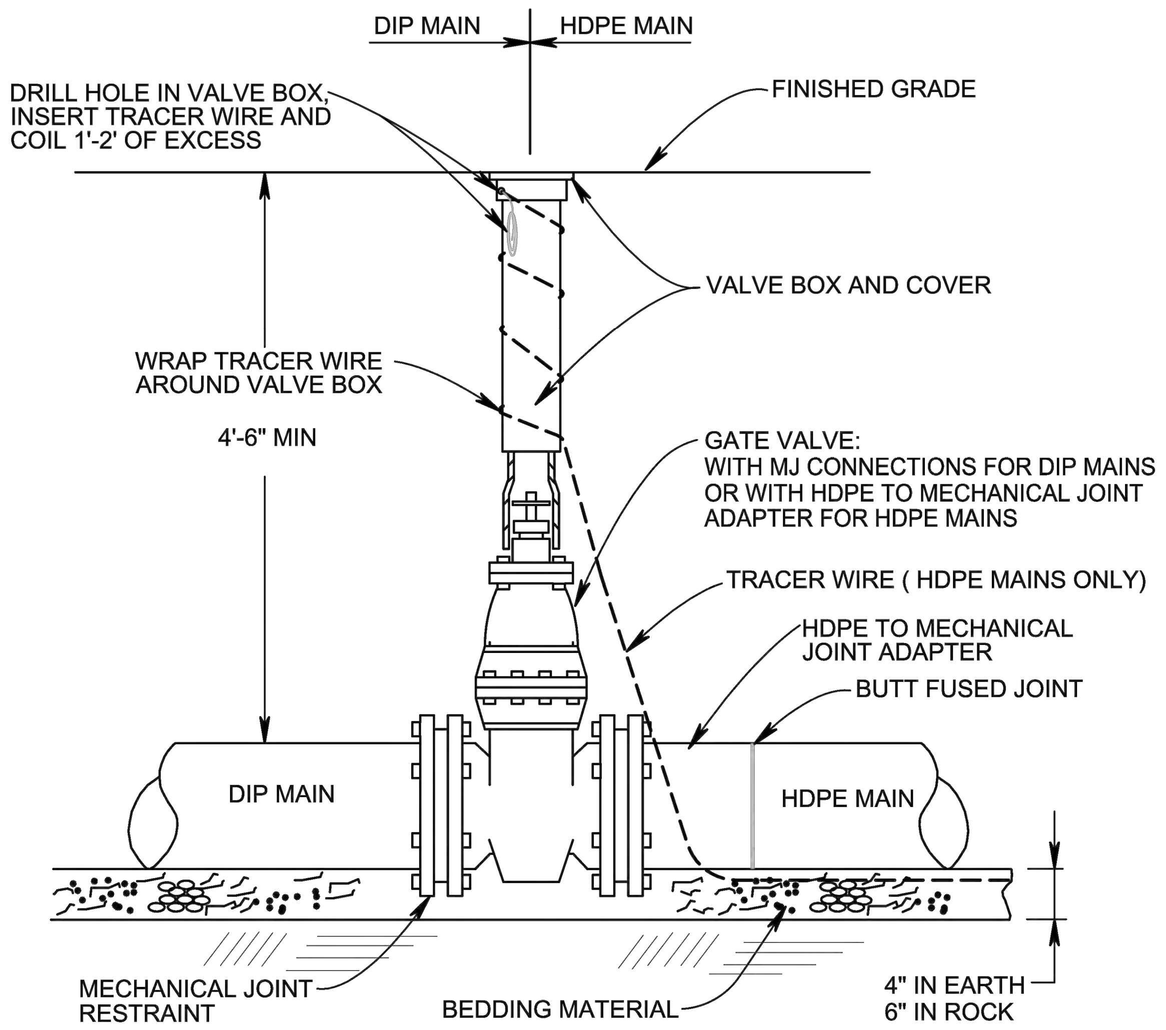
SECTION AA

PIPE DIAM. IN	BEND	BLOCK DIMENSIONS S IN.	Q IN.	R IN.	CONCRETE VOLUME CU. YD.
16	90	48	48	48	2.37
	45	48	34	20	0.70
	22 1/2	42	20	18	0.32
	11 1/4				SEE NOTE 3
12	90	36	36	36	1.00
	45	36	24	18	0.33
	22 1/2	28	18	12	0.13
	11 1/4				SEE NOTE 3
10	90	30	30	30	0.60
	45	30	20	18	0.23
	22 1/2	22	16	12	0.09
	11 1/4				SEE NOTE 3
8	90	24	24	24	0.30
	45	24	16	12	0.20
	22 1/2	18	12	12	0.11
	11 1/4				SEE NOTE 3
6	90	18	18	18	0.25
	45	18	12	12	0.11
	22 1/2	12	12	12	0.07
	11 1/4				SEE NOTE 3

NOTES:
1. 2500 psi CONCRETE TO BE USED
2. BLOCK DIMENSIONS ARE BASED UPON SOIL BEARING PRESSURE OF 2000 psi AND WATER PRESSURE OF 150 psi. WHERE SOIL BEARING IS LESS OR WATER PRESSURE IS GREATER, A SPECIAL DESIGN WILL BE REQUIRED.
3. SEE SAG VERTICAL (ABOVE)

AQUARION Water Company
Stewards of the Environment

THRUST BLOCKS
AT HORIZONTAL BENDS
NOT TO SCALE
SD-15

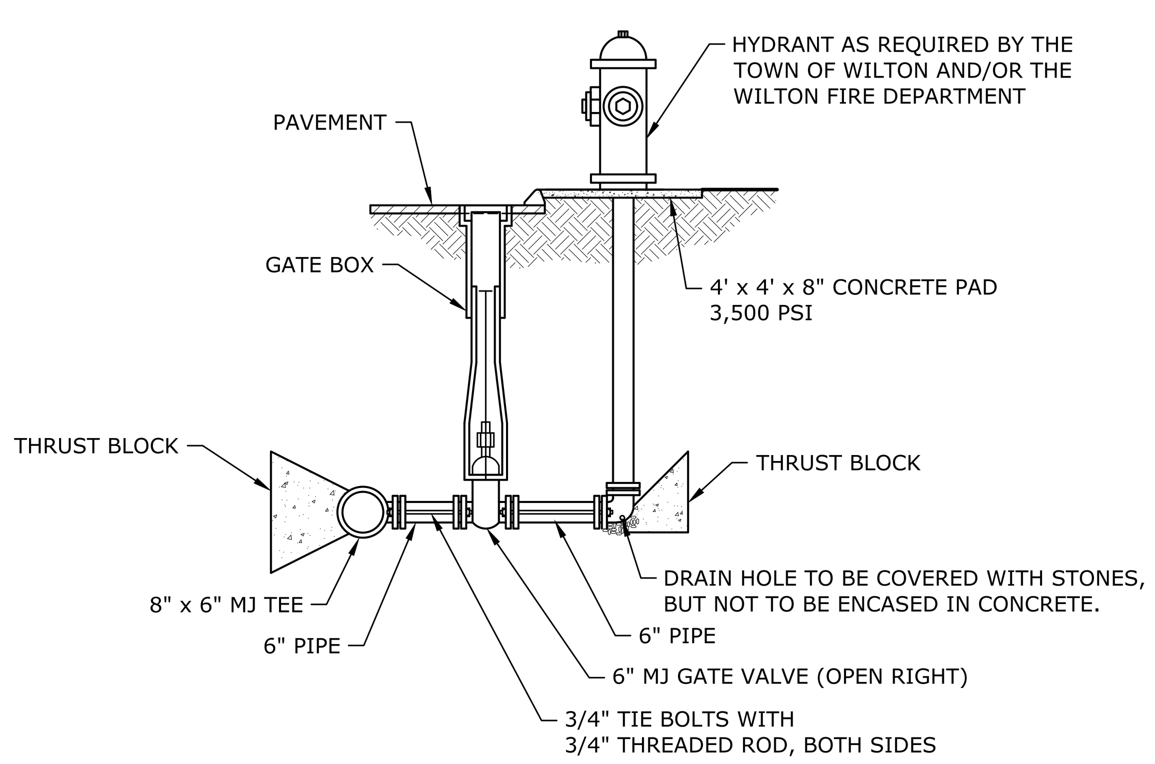


NOTE: ONLY INSTALLED ON MAINS 8" AND SMALLER

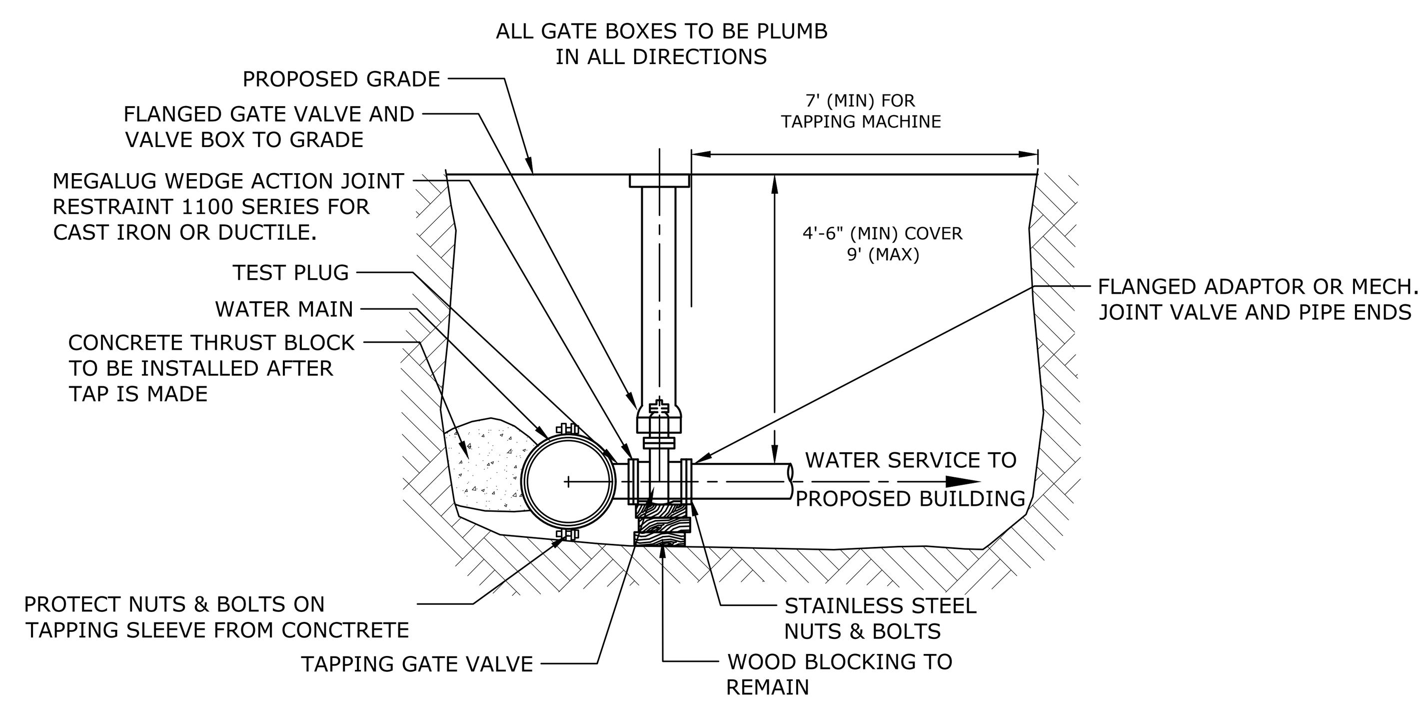
NOTE: FOR CONTINUOUS HDPE MAINS, INSTALL TRACER WIRE UNDER ALL VALVES AND FITTINGS. FOR TERMINATION POINTS, INSTALL TRACER WIRE AROUND VALVE BOXES AS SHOWN ABOVE.

AQUARION Water Company
Stewards of the Environment

GATE VALVE
NOT TO SCALE
SD-2



HYDRANT DETAIL
TOWN OF WILTON
NO SCALE

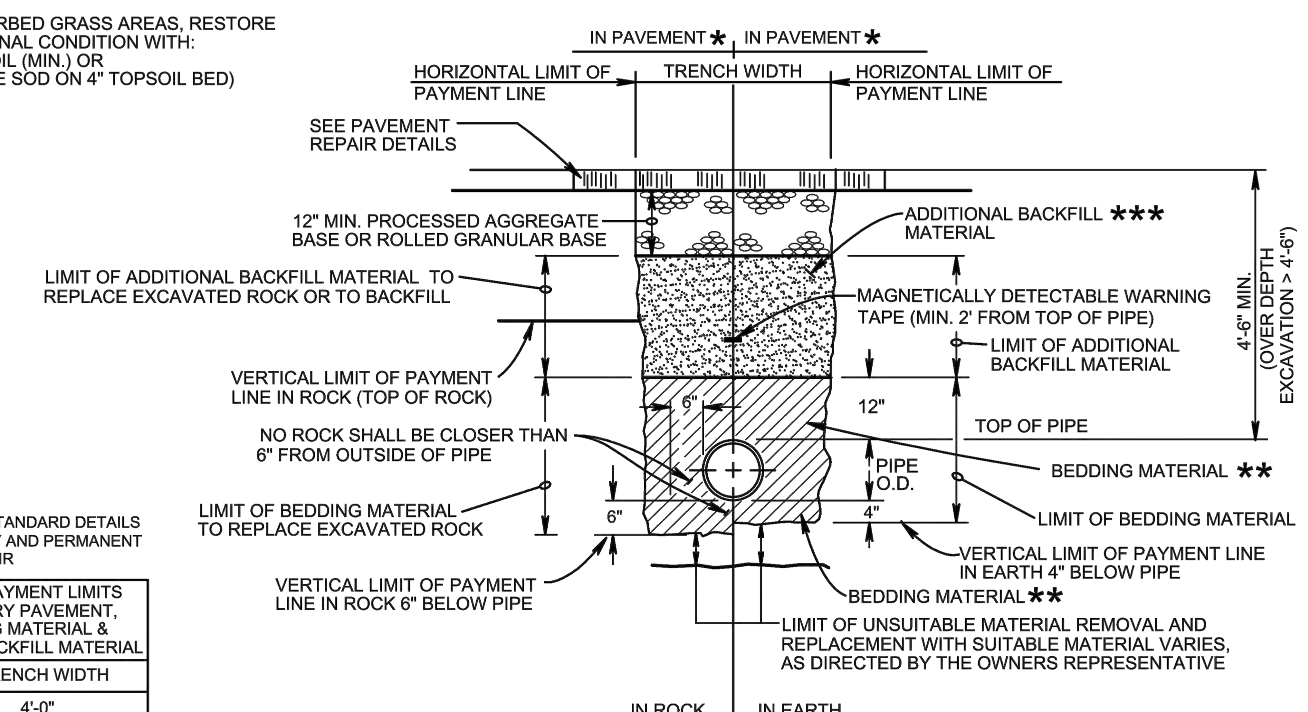


NOTES:

1. THE TRENCH IS TO BE DEWATERED AND IN COMPLIANCE WITH OSHA REQUIREMENTS FOR TRENCH EXCAVATION. THE WET TAP TO BE PERFORMED BY A CONTRACTOR APPROVED BY THE CITY FOR THIS PURPOSE.
2. TAPPING SLEEVE & TAPPING GATE VALVE TO BE INSTALLED ON WATER MAIN. A HYDROSTATIC PRESSURE TEST WILL BE PERFORMED THROUGH THE TEST PLUG WITH INSPECTOR PRESENT. A WET TAP WILL BE PERFORMED ONLY AFTER TAPPING SLEEVE TEST PRESSURE HAS PASSED.

TYPICAL 4" THROUGH 12" WATER SERVICE TAP ON MAIN
AND TAPPING GATE VALVE DETAIL
NO SCALE

* IN DISTURBED GRASS AREAS, RESTORE TO ORIGINAL CONDITION WITH:
2" TOPSOIL (MIN.) OR
SOD (LIVE SOD ON 4" TOPSOIL BED)



REFER TO THE STANDARD DETAILS FOR TEMPORARY AND PERMANENT PAVEMENT REPAIR

HORIZONTAL PAYMENT LIMITS FOR TEMPORARY PAVEMENT, ROCK, BEDDING MATERIAL & ADDITIONAL BACKFILL MATERIAL	
PIPE SIZE	TRENCH WIDTH
6"	4'-0"
8"	4'-0"
12"	4'-0"
16"	4'-0"
20"	5'-0"
24"	5'-0"
30"	6'-0"
36"	6'-0"

NOTE: IF TRENCH BOXES ARE USED ADD 2' TO ALL TRENCH WIDTHS

** FOR DIP: NO STONES LARGER THAN 4", NO STONES WITHIN 4" OF PIPE, THOROUGHLY COMPACTED
FOR HDPE: NO STONES LARGER THAN 3/4", NO STONES WITHIN 4" OF PIPE, THOROUGHLY COMPACTED

*** (NO STONES LARGER THAN 12") (COMPACTED IN 12" LIFTS)

AQUARION Water Company
Stewards of the Environment

TYPICAL TRENCH DETAIL
NOT TO SCALE
SD-1

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

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1	4/8/2024	RESPONSE TO TOWN COMMENTS

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DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DETAILS - 8

SCALE: AS SHOWN

C-608

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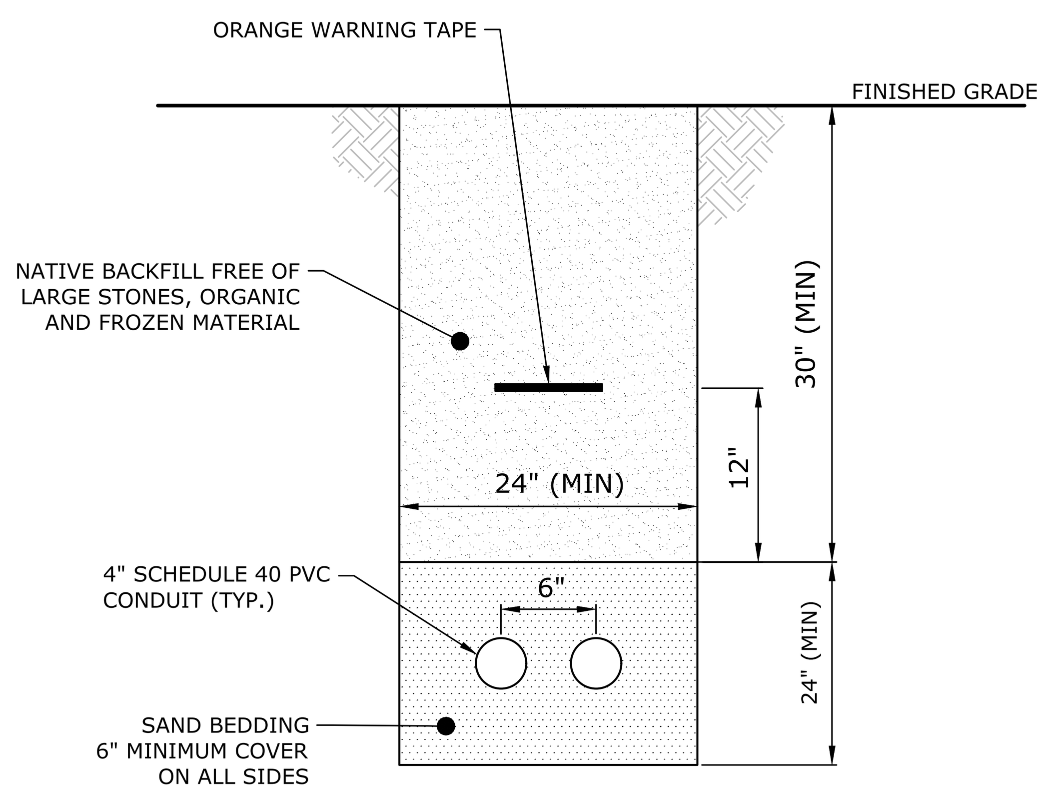


NOTES:

MINIMUM CONDUIT RADIUS TO BE 15'-0".

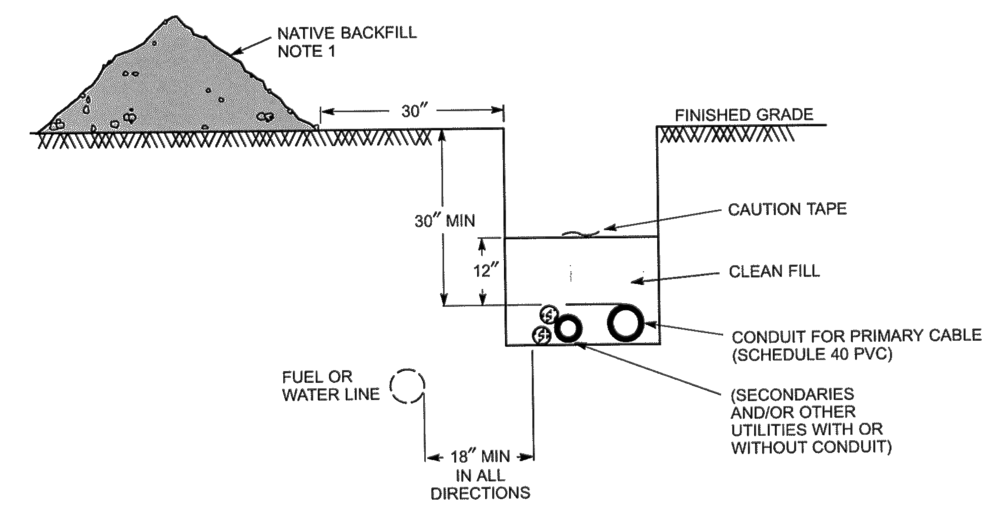
TEL-COM CONDUIT BANK DETAIL

NO SCALE

SCOPE – All direct–buried primary cables shall be of the jacketed type. The cables may be random–laid with the secondaries and other utilities under certain conditions, detailed in **DTR 44.101**.

INSTALLATION IN TRENCH – All direct–buried cables shall be installed at a depth of at least 30 inches in the following order:

1. Ensure that the bottom of the trench is well–tamped and free of rocks.
2. Install the conduit, gluing all couplings.
3. Install secondaries and other utility cables or conduits in the trench.
4. Backfill with 12 inches clean fill not to contain stones larger than 2 inches in maximum diameter.
5. Install cable warning tape 12 inches over the conduit.
6. Fill in the remainder of the trench with native backfill.
7. Install pull line, including 10 feet of slack, and secure to conduit plug at each end of conduit run.

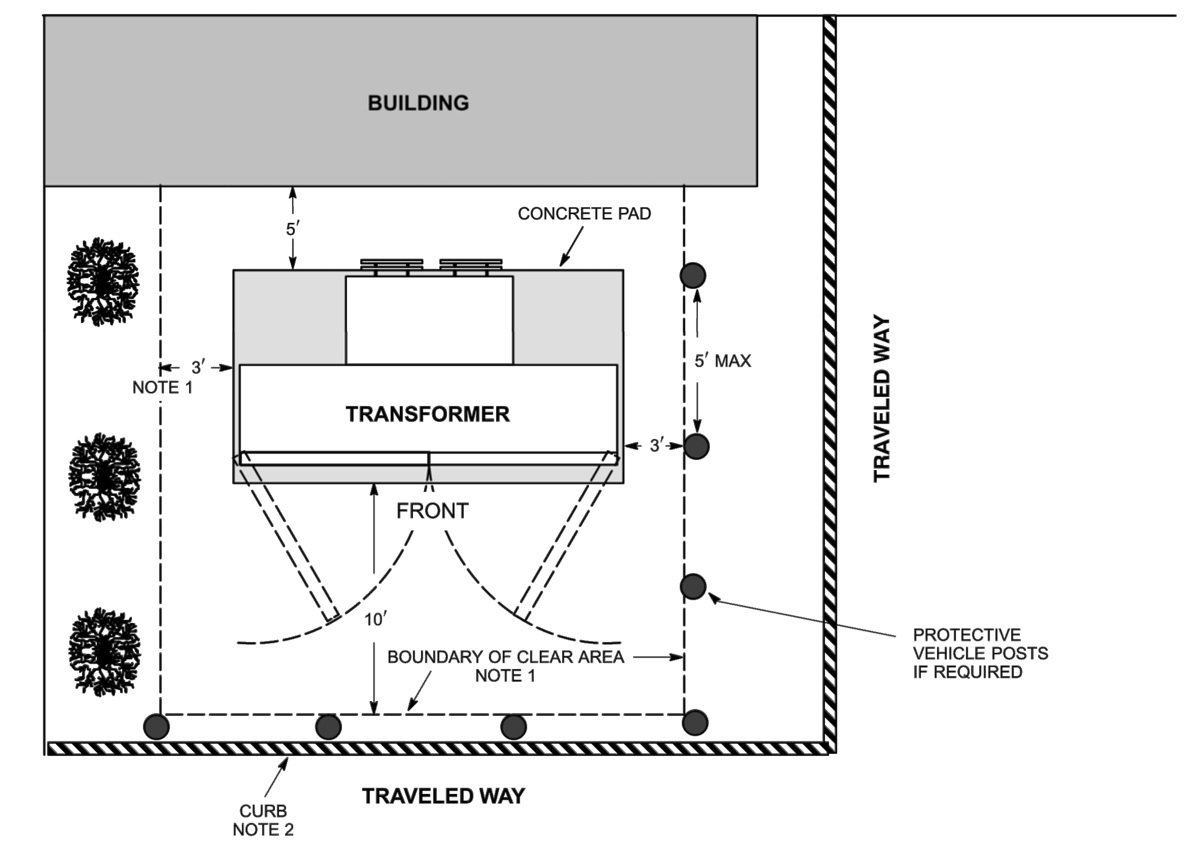


CROSS SECTION OF JOINT TRENCH

Notes

1. The trench shall be backfilled immediately following placement of the conduit.
2. 1/4–inch–diameter nylon pull line and plastic conduit plugs to be supplied and installed by contractor.

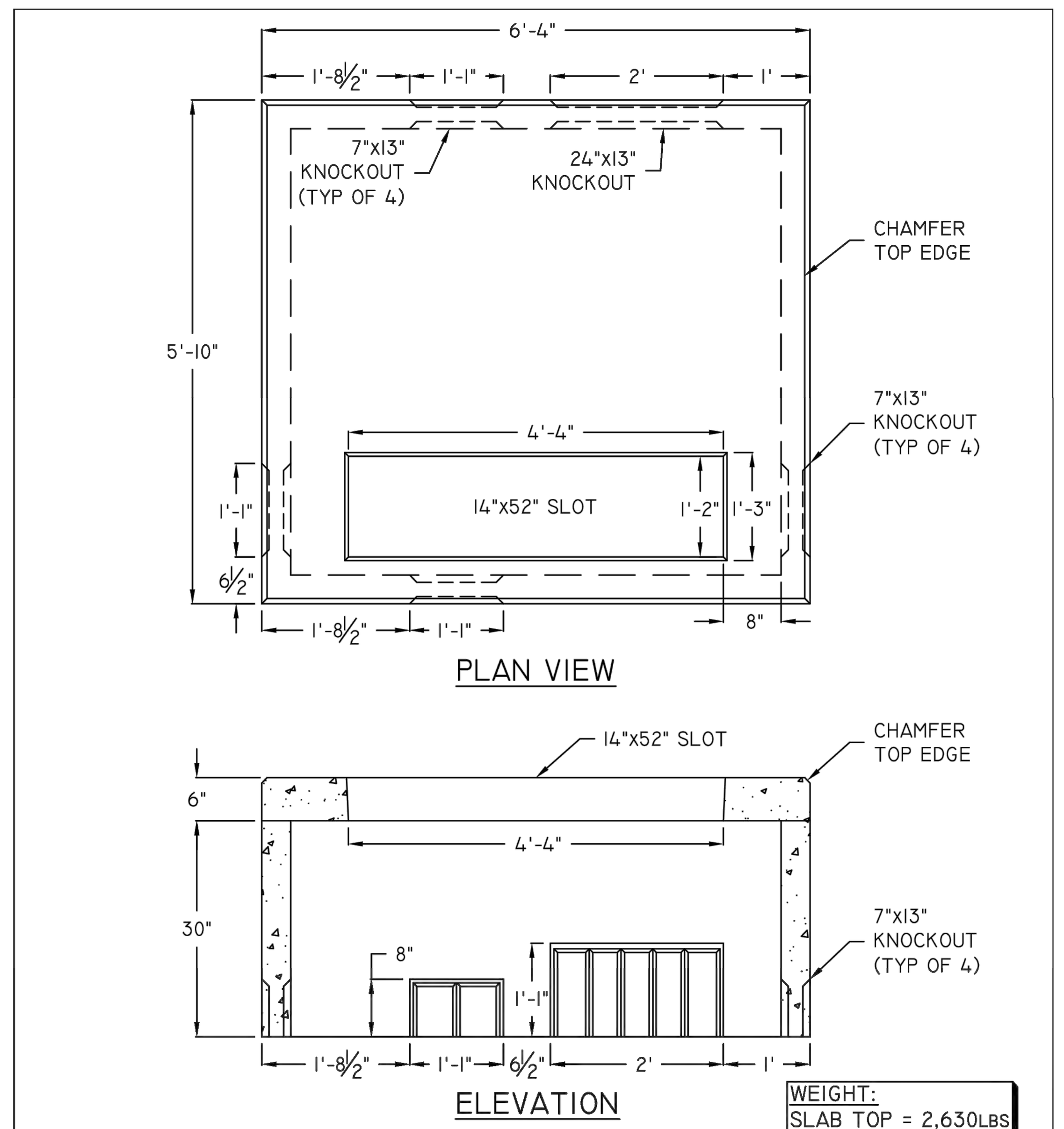
ORIGINAL 6/24/96 APPROVED 12/18/05	SINGLE–PHASE PRIMARY CABLE INSTALLATION DIRECT–BURIED – IN CONDUIT		CT/MA	
	NORTHEAST UTILITIES	CONSTRUCTION STANDARD	DTR 50.103	3



Notes

1. To inspect, provide access, operate elbow connectors and ventilate the transformer, the above specified clear area distances to buildings or shrubs shall be maintained. The distance from the building is to the concrete transformer pad. Property line shall be considered an obstruction, since fences, shrubs, etc. may be installed at a future date by adjacent property owners. Because of the possibility of cooling fins overhanging the pad, side clearances to be increased to 5 feet for transformers 1000 kVA and larger.
2. If no curb exists, or transformer is located closer than 10 feet to the traveled way, protective vehicle posts (●) shall be installed as specified in **DTR 42.061**.
3. Top of transformer pad shall be installed 3 inches above final grade.
4. Transformer shall not be located on steep grades where access to or elbow operation is made difficult.
5. Transformer shall meet the minimum distances to doors, windows, fire escapes, air intakes and walls as specified in **DTR 42.061**.
6. Transformer ***is not*** to be located with its doors facing the building.
7. Refer to **DTR 58.301** for specific instructions on the installation of the transformer pad.
8. Refer to **DSEM Section 06.32** for information on environmental considerations.

ORIGINAL 4/10/91 APPROVED 1/25/02	PAD–MOUNTED TRANSFORMERS LOCATION TO BUILDINGS AND ROADWAYS			
	NORTHEAST UTILITIES	CONSTRUCTION STANDARD	DTR 42.047	6



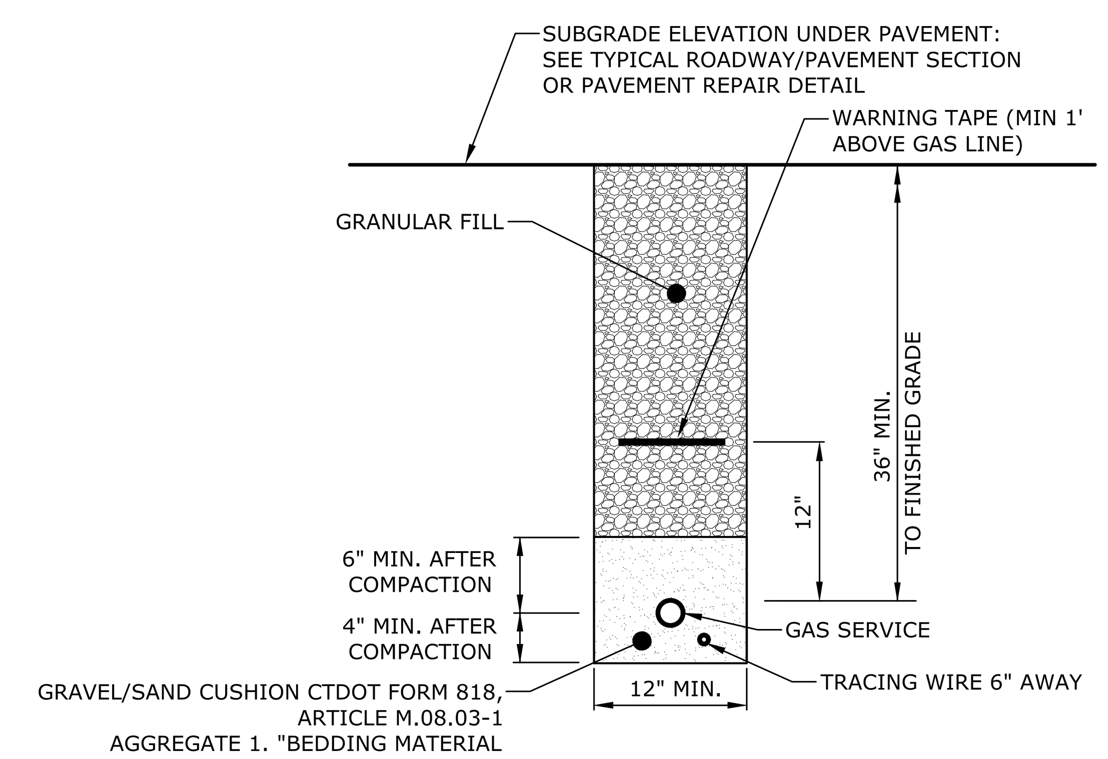
WEIGHT:
SLAB TOP = 2,630LBS
BASE = 3,165LBS

DESIGN NOTES:

1. CONCRETE - 5,000 PSI, 28 DAYS
2. REINFORCING STEEL CONFORMS TO LATEST ASTM A615 GRADE 60
3. H-20 DESIGN LOADING PER AASHTO HS-20-44
4. MEETS ALL PROVISIONS OF NORTHEAST UTILITIES SERVICE DWG NO. P-015

ANY MODIFICATIONS TO THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF ARROW CONCRETE PRODUCTS SHALL RENDER IT INVALID AND UNUSABLE.

APPROVAL:	P-015 TRANSFORMER PAD		SCALE: N.T.S.
SIGNATURE / DATE			WEIGHT: 5,795 LBS
ARROW CONCRETE PRODUCTS	PROGRESS IN PRECAST		DATE: 3/31/16
			DRAWN: JPW
560 SALMON BROOK STREET GRANBY, CT 06035 = (860) 653-5063 = www.arrow-concrete.com			DWG #: -



NOTES:

1. ALL EXCAVATION WORK WILL BE IN ACCORDANCE WITH THE DIRECTION OF THE COMPANY AND IN COMPLIANCE WITH THE REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION OVER THE STREETS, ALLEYS, RIGHT-OF-WAYS, OR PROPERTIES WHERE THE WORK IS TO BE EXECUTED.
2. PRIOR TO THE INSTALLATION OF THE PIPE, SAND PADDING SHALL BE INSTALLED, A MINIMUM OF 4" (MEASURED AFTER COMPACTION.)
3. SAND PADDING ABOVE THE GAS PIPE SHALL BE A MINIMUM OF 6" (MEASURED AFTER COMPACTION).
4. BACKFILL SHALL BE FREE OF LARGE STONES (6" DIAMETER) WITHIN 1' OF THE PIPE. IF THE MATERIAL REMOVED FROM THE TRENCH IS NOT SUITABLE FOR BACKFILL, REPLACEMENT FILL SHALL BE USED.
5. ALL GAS SERVICE INSTALLATIONS SHALL BE COORDINATED WITH EVERSOURCE.
6. ALL GAS SERVICES SHALL BE INSTALLED ACCORDING TO EVERSOURCE STANDARDS AND REQUIREMENTS.

GAS SERVICE TRENCH

NO SCALE

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

TOWN SUBMISSION

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Fuller Development, LLC

Wilton, CT

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DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

DETAILS - 9

SCALE: AS SHOWN

C-609

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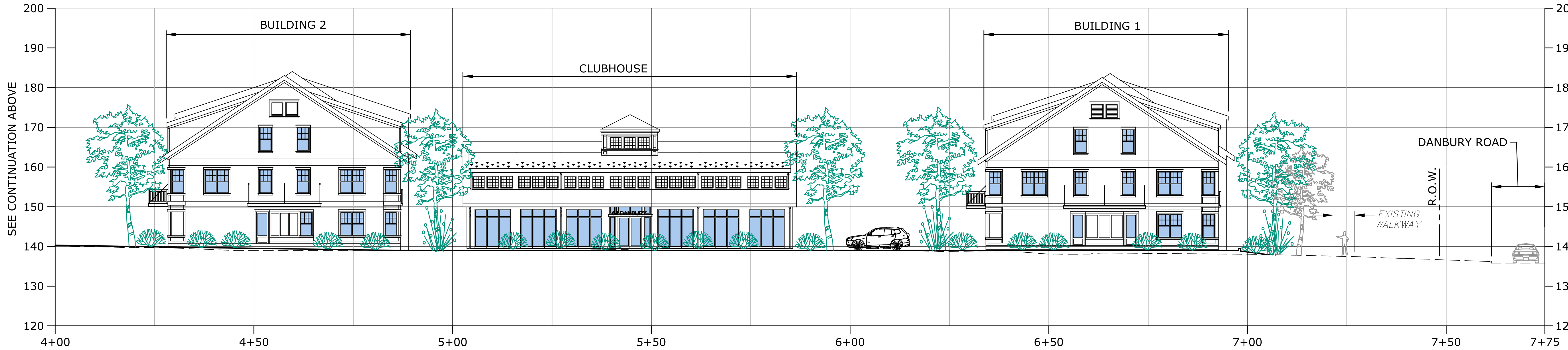
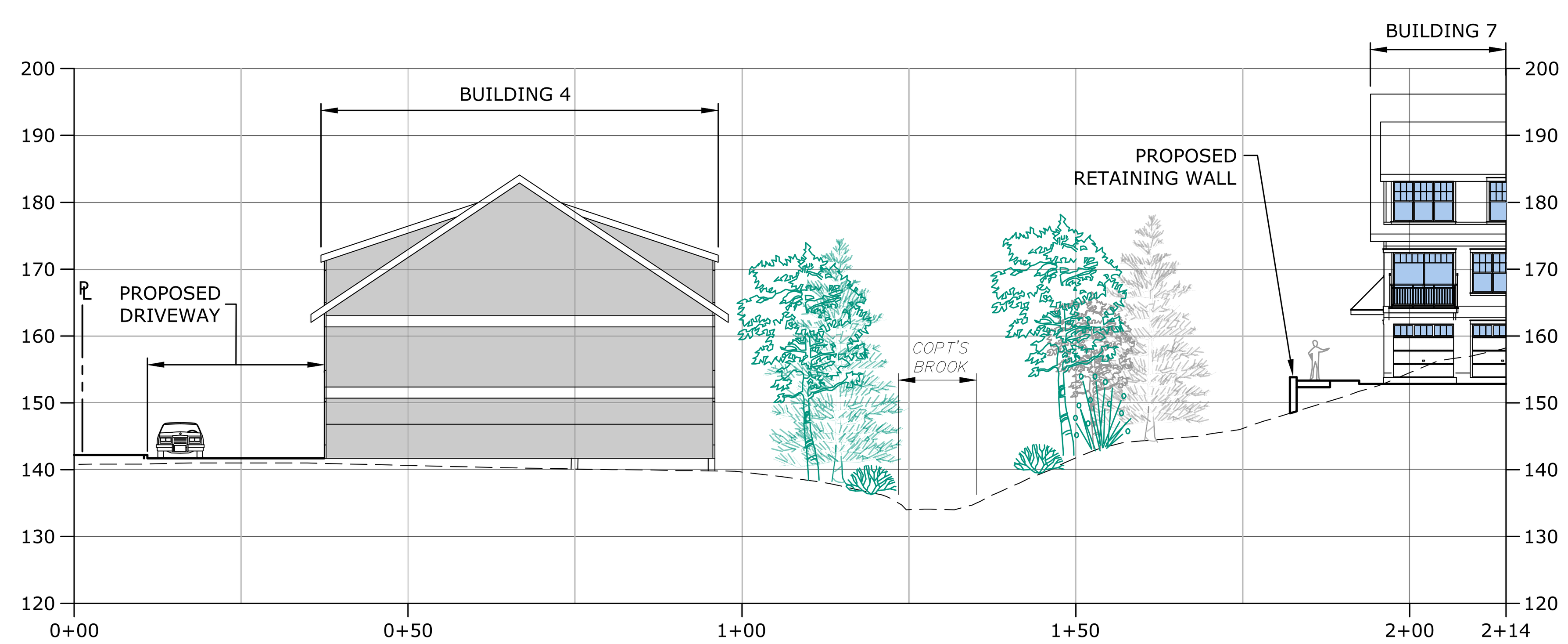
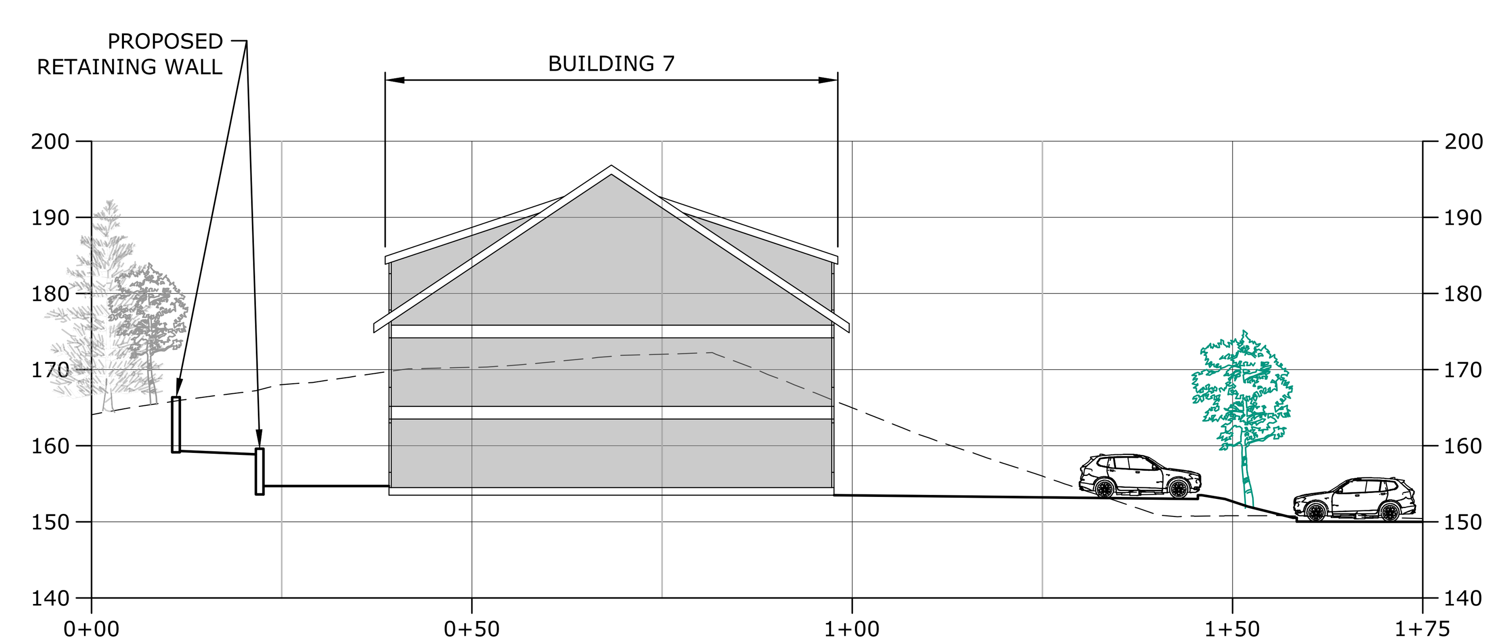
SECTION A-A C-701
SCALE: 1"=20'



SECTION A-A C-701
SCALE: 1"=20'

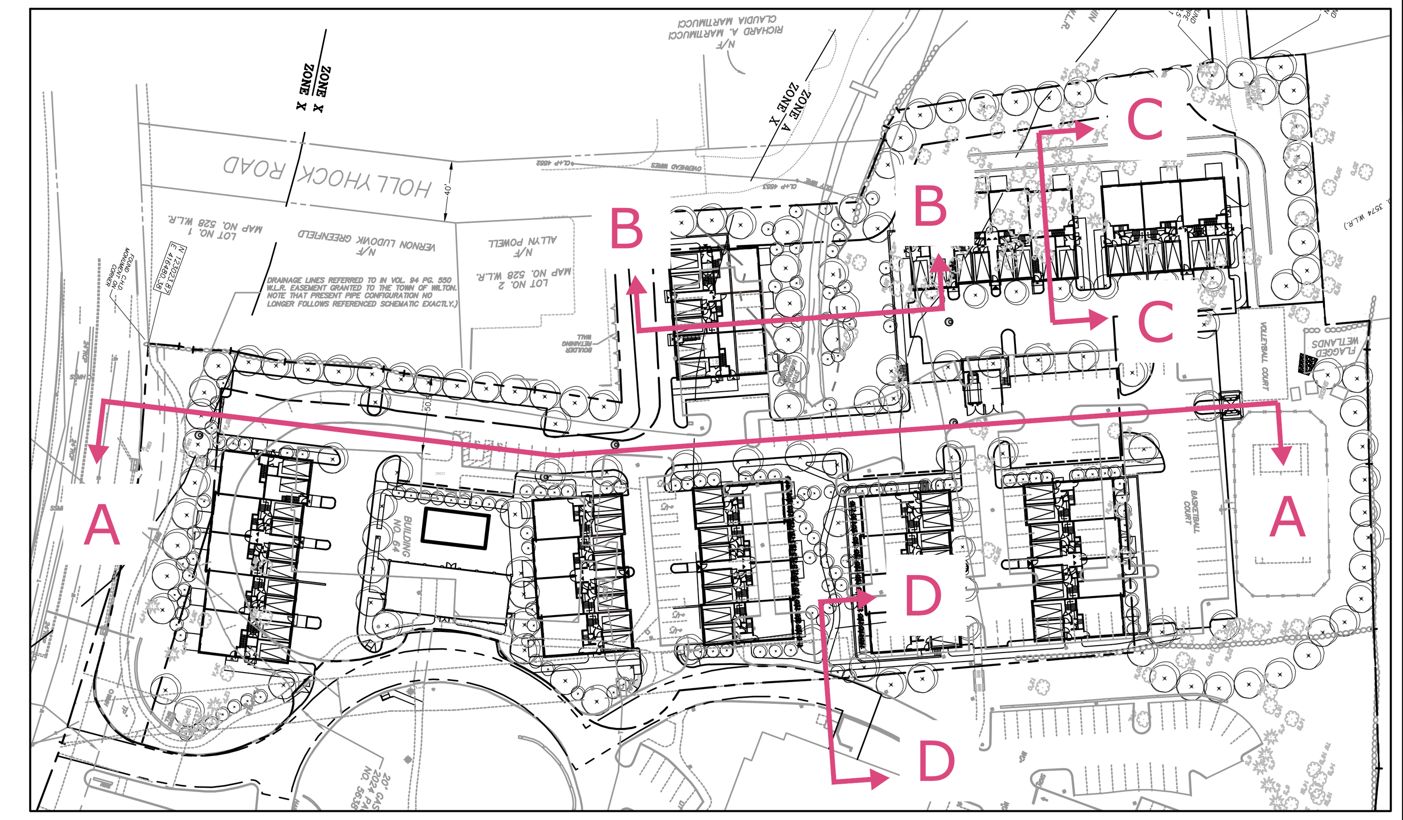


SECTION B-B C-701
SCALE: 1"=20'



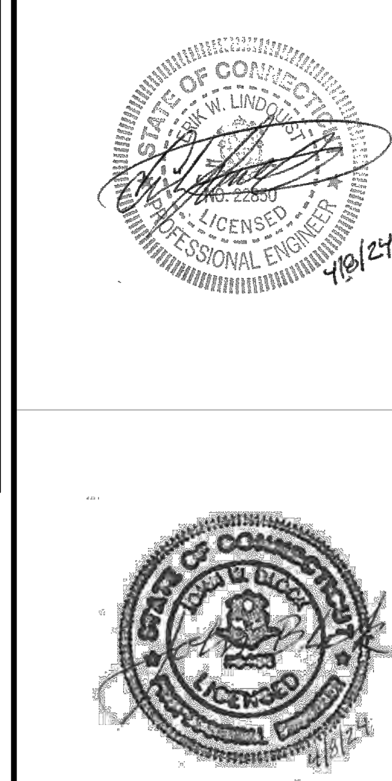
SECTION C-C C-701
SCALE: 1"=20'

SECTION D-D C-701
SCALE: 1"=20'



KEY MAP
SCALE: 1" = 100'

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100



TOWN SUBMISSION

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Fuller Development, LLC

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DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

CROSS-SECTIONS

SCALE: 1" = 20'

C-701

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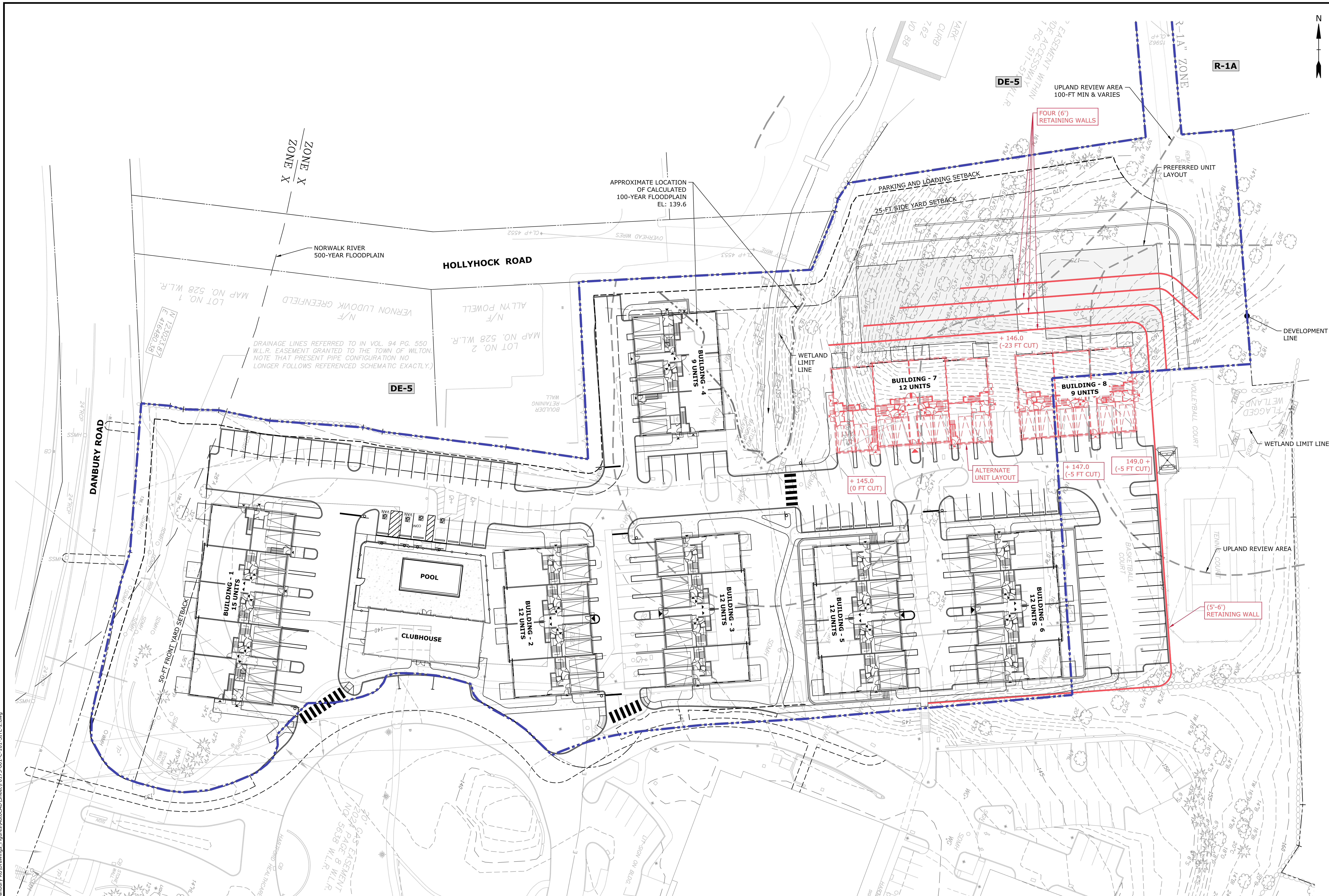

NOTE

SURVEY CONDITIONS TAKEN FROM PLAN ENTITLED "TOPOGRAPHIC SURVEY OF PROPERTY AT 50, 60 & 64 DANBURY ROAD, WILTON, CONNECTICUT" PREPARED FOR DIVFIFTY, LLC BY D'ANDREA SURVEYING & ENGINEERING, P.C., DATED SEPTEMBER 12, 2023, AND IS FOR REFERENCE ONLY.

0 30' 60'
SCALE: 1" = 30'

Last Saved: 3/26/2024
Plotted On:Mar 27, 2024-12:42pm By: ELindquist
Tighe & Bond:J:\F\F0173 Fuller\001 64 Danbury Rd\Drawings_Figures\AutoCAD\Sheet\F0173-001-C-101-SITE-2.dwg

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1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

TOWN SUBMISSION

64 Danbury Road

Fuller Development, LLC

Wilton, CT

MARK	DATE	DESCRIPTION

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FILE:	F0173-001-C-101-SITE-2.dwg
DRAWN BY:	MDS
DESIGNED/CHECKED BY:	EWL
APPROVED BY:	JWB

ALTERNATE SITE PLAN

SCALE: 1" = 30'

C-101A

PLANT LIST

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
6	AR	ACER RUBRUM	RED MAPLE	3-3.5" CAL.	B&B	FULL
4	AM	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG MAPLE	3-3.5" CAL.	B&B	
2	HL	GLEDITSIA TRIACANTHOS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	3.3.5" CAL.	B&B	FULL, MATCHING
6	QB	QUERCUS BICOLOR	SWAMP WHITE OAK	3-3.5" CAL.	B&B	
7	QP	QUERCUS PALUSTRIS 'PACIFIC BRILLIANCE'	PIN OAK	3-3.5" CAL.	B&B	FULL12
12	TA	TILIA AMERICANA 'REDMOND'	REDMOND LINDEN	3-3.5" CAL.	B&B	FULL
8	AB	AMELANCHIER 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SHAD	8-10' HT.	B&B	
1	RP	AMELANCHIER CANADENSIS 'RAINBOW PILLAR'	RAINBOW PILLAR SHAD	8-10' HT.	B&B	LIMBED TO 6'
9	AC	AMELANCHIER CANADENSIS	SHAD	5-6' HT.	B&B	MULTI-STEM
5	CF	CORNUS FLORIDA 'CLOUDE NINE'	FLOWERING DOGWOOD	2-2.5" CAL.	B&B	WHITE
8	WK	CRATAEGUS 'WINTER KING'	WINTER KING HAWTHORN	2-2.5" CAL.	B&B	LIMBED TO 6'
8	MA	MALUS X 'ADIRONDACK'	ADIRONDACK CRAB APPLE	2-2.5" CAL.	B&B	LIMBED TO 6'
2	OA	OXYDENDRUM ARBOREUM	SOURWOOD	2-2.5" CAL.	B&B	
5	OV	OSTRYA VIRGINIANA	AMERICAN HOPHORNBEAM	2-2.5" CAL.	B&B	
EVERGREENS						
19	AH	ILEX OPACA 'SATYR HILL'	SATYR HILL HOLLY	7-8' HT.	B&B	FEMALE
3	JV	JUNIPERUS VIRGINIANA 'EMERALD SENTINEL'	RED CEDAR	7-8' HT.	B&B	FULL
25	GG	THUJA 'GREEN GIANT'	GREEN GIANT ARBORVITAE	8-9' HT.	B&B	
17	TN	THUGA OCCIDENTALIS 'NIGRA'	DARK ARBORVITAE	7-8' HT.	b&b	
52	TO	THUJA OCCIDENTALIS 'DEGROOT'S SPIRE'	DEGROOT'S SPIRE ARBORVITAE	6-7' HT.	B&B	

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
SHRUBS					
7	AA	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	RED CHOKEBERRY	2-3' HT.	CONT.
18	JT	CEANOTHUS AMERICANUS	JERSEY TEA	18-24" HT.	CONT.
36	CA	CLETHRA ALNIFOLIA	CLETHRA	3-4' HT.	CONT.
12	HB	CLETHRA 'HUMMINGBIRD'	HUMMINGBIRD CLETHRA	2-3' HT.	CONT.
10	HA	HYDRANGEA ARBORESCENS 'ANNABELLE'	ANNABELLE HYDRANGEA	2-3' HT.	CONT.
10	HQ	HYDRANGEA QUERCIFOLIA	OAKLAEF HYDRANGEA	2-3' HT.	CONT.
120	IG	ILEX GLABRA 'SHAMROCK'	COMPACT INKBERRY	2-3' HT.	CONT.
8	IV	ILEX VERTICILLATA 'WINTER RED'	WINTER RED WINTERBERRY	2-3' HT.	CONT.
30	IT	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	2-3' HT.	CONT.
32	JE	JUNIPERUS COMMUNIS 'EFFUSA'	COMMON JUNIPER	18-24' SPR.	CONT.
19	JO	JUNIPERUS 'GREY OWL'	GREY OWL JUNIPER	24-30" HT.	CONT.
35	LA	LEUCOTHOE AXILLARIS 'SARAH'S CHOICE'	LEUCOTHOE	15-18" HT.	CONT.
57	LB	LINDERA BENZION	SPICEBUSH	2-3' HT.	CONT.
40	MP	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	2-3' HT.	CONT.
47	NB	PHYSOCARPUS OPULIFOLIS 'AMBER JUBILEE'	AMBER JUBILEE NINEBARK	3-4' HT	CONT.
22	PO	POTENTILLA 'DAKOTA SUNSPOT'	DAKOTA SUNSPOT CINQUEFOIL	2-3' HT.	CONT.
19	RC	RHODODENDRON CAROLINIANUM	CAROLINA RHODODENDRON	2-3' HT.	CONT.
11	RM	RHODODENDRON MAXIMUM	ROSEBAY RHODODENDRON	3-4' HT.	B&B
11	GL	RHUS AROMATICA 'GRO-LOW'	GRO-LOW SUMAC	2-3' SPR.	CONT.
18	RV	ROSA VIRGINIANA	VIRGINIA ROSE	2-3' HT.	CONT.
7	VA	VIBURNUM ACERFOLIA	MAPLELEAF VIBURNUM	3-4' HT.	B&B
8	VC	VIBURNUM CASSINOIDES	WILD RAISIN	3-4' HT.	B&B
24	VD	VIBURNUM DENTATUM 'BLUE MUFFIN'	BLUE MUFFIN ARROWWOOD	36-42" HT.	CONT.
7	VL	VIBURNUM LENTAGO	NANNYBERRY	3-4' HT.	B&B
24	VN	VIBURNUM NUDUM 'WINTERTHUR'	SMOOTH WITHEROD	3-4' HT.	B&B
34	VR	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM	3-4' HT.	B&B

QTY	KEY	BOTANICAL NAME	COMMON NAME	ROOT
GROUNDCOVERS & PERENNIALS				
5	AU	ARCOTOPHYLOS UVA-URSI	BEARBERRY	1 GAL.
10	BC	AMSONIA 'BLUE ICE' OR 'SHORT STACK'	BLUE ICE AMSONIA	1 QT.
25	CM	CIMIFUGA RACEMOSA	FAIRLYCANDLES	1 GAL.
25	HF	DENNSTAEDTIA PUNCTILOBA	HAYSCENTED FERN	1 QT.
25	PA	PACKERA AUREA	GOLDEN GROUNSEL	1 QRT.
5	SG	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCHGRASS	1 GAL.
25	CF	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	1 GAL.

LEGEND

- PROPERTY LINE
- WETLAND LINE
- WATERCOURSE LINE
- 100' UPLAND REVIEW AREA
- 62 EXISTING CONTOUR
- 262 PROPOSED CONTOUR (BY OTHERS)
- EX. EVERGREEN/DECIDUOUS TREE TO REMAIN (APPROX. LOCATION)
- NEW EVERGREEN TREE
- NEW DECIDUOUS SHADE TREE
- NEW SMALL FLOWERING TREE
- NEW SHRUB
- NEW / EX. LAWN
- PROPOSED SINGLE HEAD HEAD LIGHT POLE
- PROPOSED WALL MOUNTED LIGHT
- PROPOSED BOLLARD LIGHT

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

THIS DOCUMENT IS INCOMPLETE AND IS RELEASED TEMPORARILY FOR PROGRESS REVIEW ONLY. IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

Fuller Development LLC

64 Danbury Road

Wilton, Connecticut

0 30' 60'
SCALE: 1" = 30'

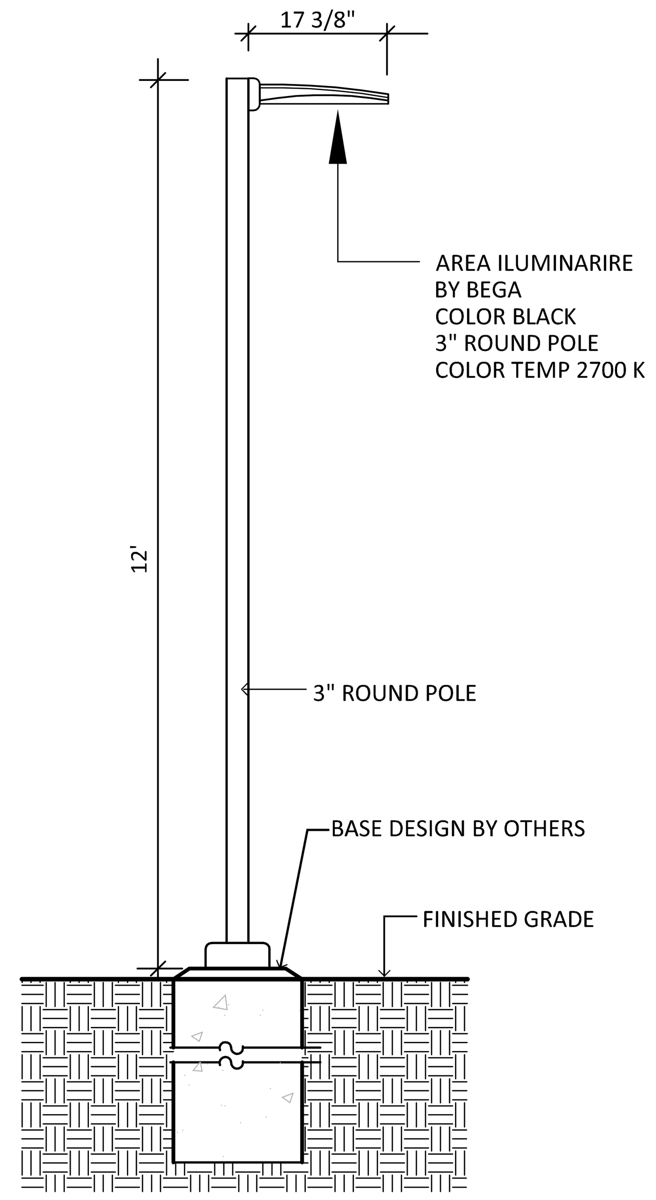
REVISIONS:

4-5-24	REVISIONS PER PEER REVIEW
1-25-24	REVISIONS PER ARB
PROJECT NO:	G5081-001
DATE:	1/2/2024
FILE:	Drawing1.dwg
DRAWN BY:	KET
DESIGNED/CHECKED BY:	MEP
APPROVED BY:	KET

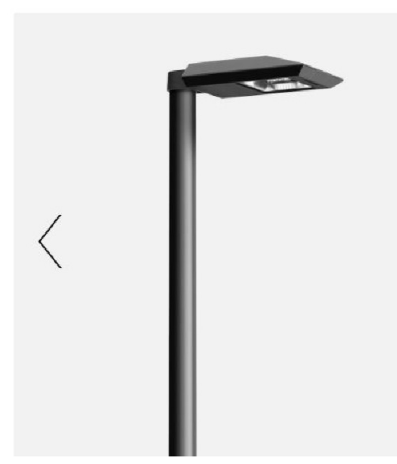
LANDSCAPING & LIGHTING PLAN

SCALE: 1"=30'

LP-1



BEGA



NOTE:
1. LIGHT FIXTURE & POLE BY BEGA PRODUCTS.
2. POLE AND FIXTURE COLOR SHALL BE BLACK.
3. INSTALL LIGHT POLE AND FOOTING PER MANUFACTURER'S RECOMMENDATIONS.

POLE LIGHT (TYP.)

SCALE: NOT TO SCALE

LANDSCAPE LIGHTING NOTES (TYP.):

1. FOOTCANDLE LIGHTING LEVELS FOR THIS PROJECT WERE PREPARED BY OTHERS.
2. SITE LIGHTING INFORMATION AND LIGHTING PLANS PREPARED BY ENVIRONMENTAL LAND SOLUTIONS, LLC ARE DESIGNED FOR GENERAL LANDSCAPE AESTHETIC PURPOSES ONLY. LIGHTING INFORMATION SHOWN ON THIS PLAN SHALL NOT BE USED FOR SECURITY OR SAFETY PURPOSES.
3. THIS PLAN ASSUMES THAT THE BUILDING WILL HAVE WALL MOUNTED FIXTURES (BY OTHERS) TO LIGHT THE FACADE AND ADJACENT LANDSCAPE AREAS (INCLUDING WALKS AND DOORS).
4. INSTALL LIGHT FIXTURES AS RECOMMENDED BY THE MANUFACTURER.
5. LIGHT POLES LOCATED WITHIN LANDSCAPE AND PEDESTRIAN AREAS SHALL BE ON A BASE FLUSH WITH GRADE LOCATED A MINIMUM OF 3' FROM THE EDGE OF VEHICLE PAVEMENT IF FEASIBLE.

NOTE:
1. PROVIDE LIGHT # 84510 BY BEGA PRODUCTS.
2. FIXTURE COLOR SHALL BE BLACK.
3. INSTALL LIGHT PER MANUFACTURER'S RECOMMENDATIONS.

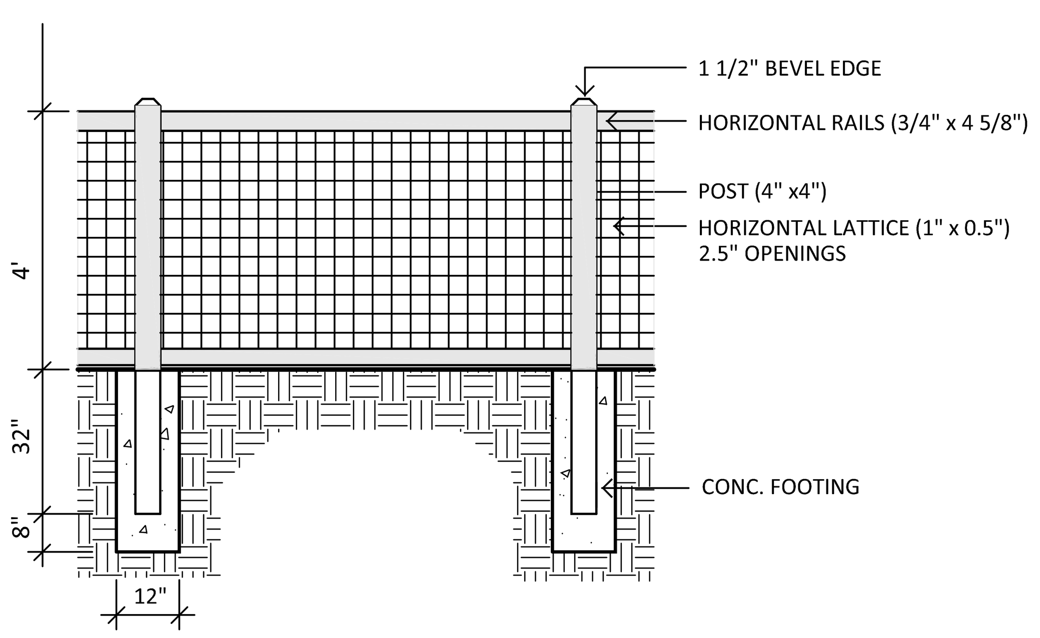
SIGN LIGHT (TYP.)

SCALE: NOT TO SCALE

NOTE:
1. LIGHT FIXTURE BY BEGA PRODUCTS # 9986/K3/99619.
2. FIXTURE COLOR SHALL BE BLACK.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

BOLLARD LIGHT (TYP.)

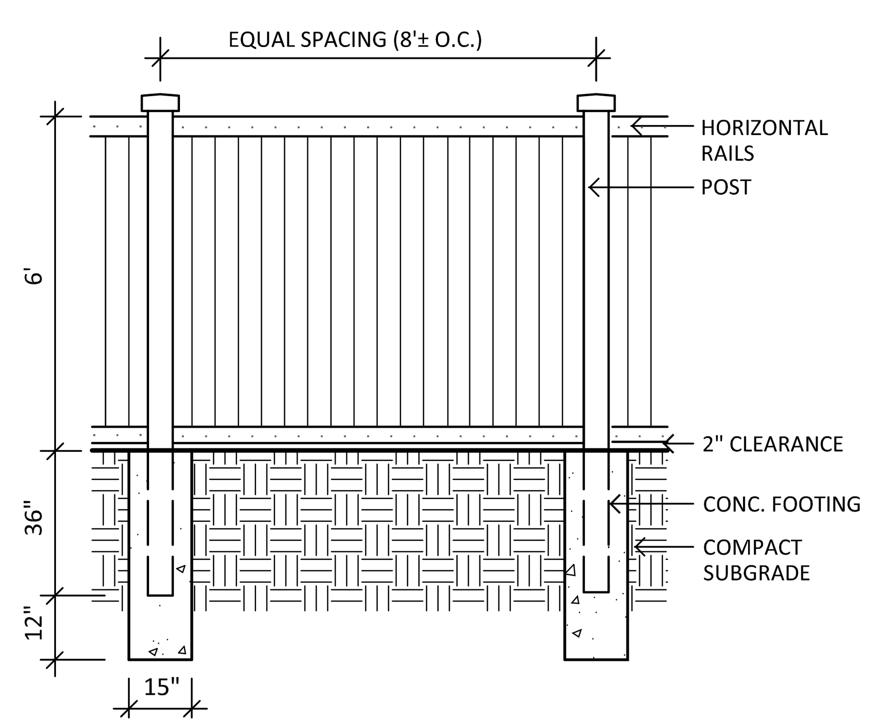
SCALE: NOT TO SCALE



NOTE:
1. FENCE SHALL BE MADE OF VINYL.
2. COLOR SHALL MATCH BUILDING COLOR, "ANTHRACITE GREY".

LATTICE SCREENING FENCE (4' HT.) FOR AIR HANDLERS

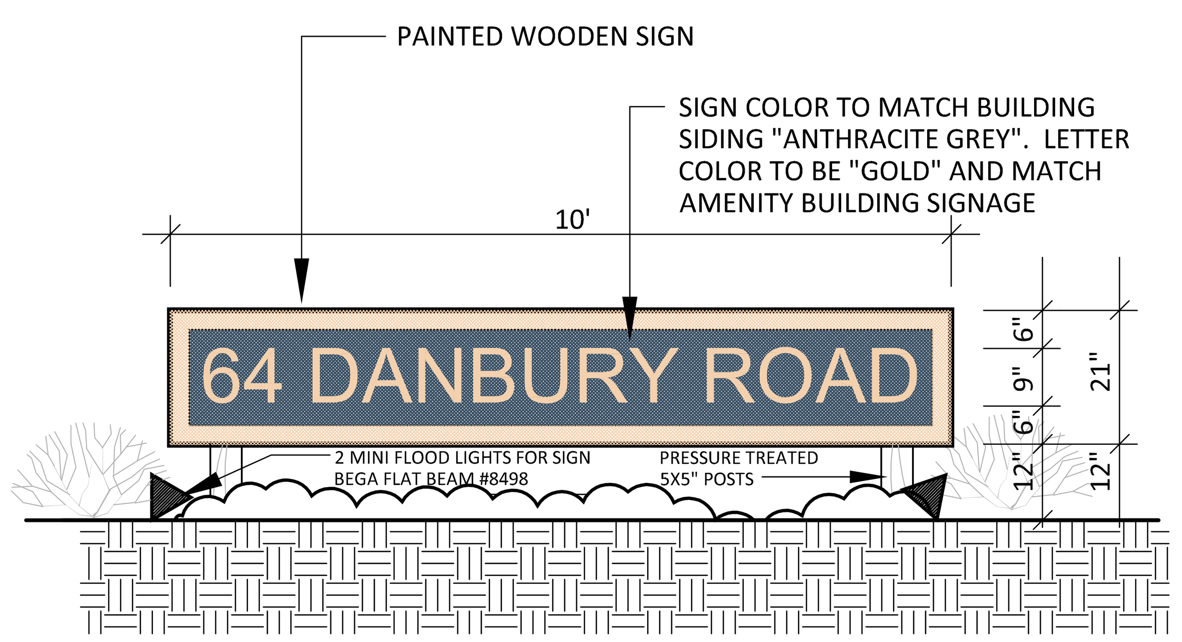
SCALE: NOT TO SCALE



NOTE:
1. FENCE COLOR SHALL MATCH BUILDINGS. "ANTHRACITE GREY".

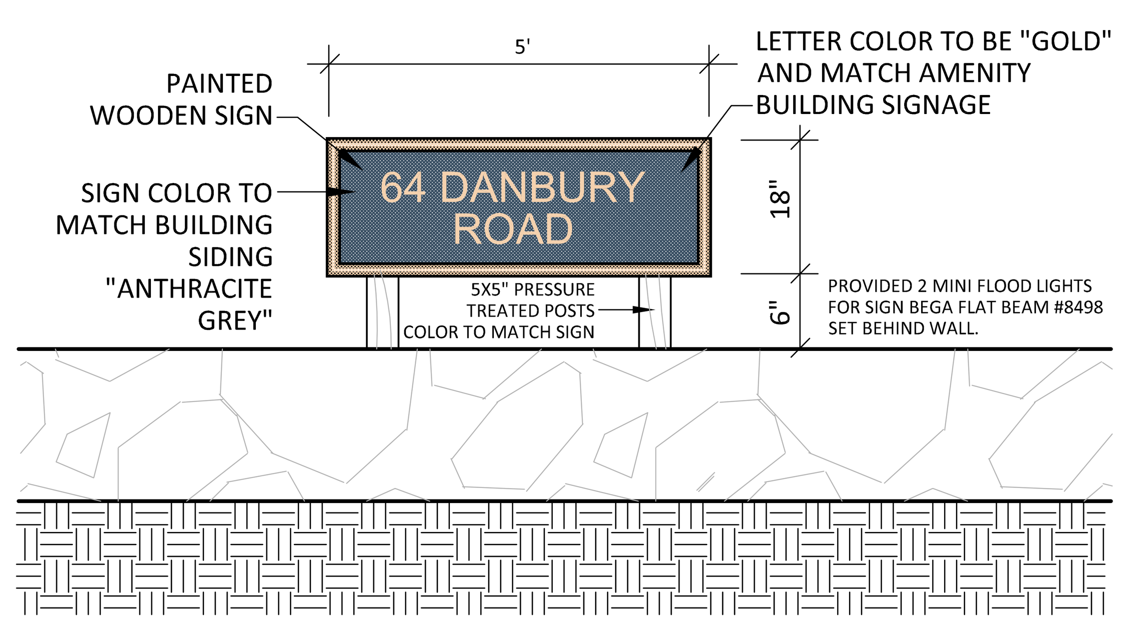
VINYL SCREENING FENCE (TYP.)

SCALE: NOT TO SCALE



FREE STANDING SIGN (SIGN AREA 17.5 SF)

SCALE: NTS



SIGN BEHIND EXISTING ENTRANCE WALL (SIGN AREA 7.5 SF)

SCALE: NTS

NOTES:

1. EXISTING AND PROPOSED SITE INFORMATION TAKEN FROM A DIGITAL AUTOCADD SITE PLAN SUPPLIED BY TIGHE&BOND. REFER TO THESE SITE PLANS FRO ADDITIONAL INFORMATION.
2. CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455 TO HAVE UNDERGROUND UTILITY LINES MARKED BY THEM PRIOR TO START OF ANY EXCAVATION WORK.
3. SEED AREAS AT THE METHODS AND 125% THE APPLICATION RATE RECOMMENDED BY THE MANUFACTURER. THE SEED SHALL BE SPREAD ON THE PREPARED SOIL, LIGHTLY RAKED TO ESTABLISH GOOD SOIL CONTACT AFTER SOWING, AND MULCHED WITH A 2 INCH LOOSE LAYER OF CLEAN OAT STRAW OR COMMERCIAL WOOD FIBER PRODUCTS APPLIED BY HAND OR BY HYDROSEEDING ON SLOPES LESS THAN 10%. SEEDED AREAS ON SLOPES ON OR GREATER THAN 10% SHALL BE COVERED WITH A PLASTIC-FREE AND 100% BIODEGRADABLE (INCLUDING ANCHOR STAPLES) EROSION CONTROL BLANKET. A NURSE CROP OF PERENNIAL RYE GRASS AT THE RATE OF 40 LBS./ACRE SHALL BE ADDED TO THE SEED MIX ON SLOPES OF EXCESS OF 10% AND AS SPECIFIED. SEED MIX SUBSTITUTIONS SHALL BE EQUIVALENT TO THAT SPECIFIED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT PRIOR TO USE. UNLESS OTHERWISE SPECIFIED, MAINTAIN SEEDED AREAS AS RECOMMENDED BY THE MANUFACTURER. EXCEPT FOR LAWN AREAS, DO NOT FERTILIZE AREAS TO BE SEEDED UNLESS SPECIFIED BY THE MANUFACTURER. SEED AREAS AS PER THE FOLLOWING SCHEDULE:
   A. LAWN: SEED LAWN AREAS WITH "SMART SEED NORTHEAST" MIX BY PENNINGTON SEED, INC. OR APPROVED EQUIVALENT. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE MANUFACTURER.
   B. WETLAND BUFFERS (UPLAND AREAS): SEED THIS AREA WITH "NEW ENGLAND CONSERVATION / WILDLIFE SEED MIX" BY FROM NEW ENGLAND WETLAND PLANTS, INC. (413-548-8000).
4. IF SPECIFIED SEEDING CAN NOT OCCUR DUE TO SEASONAL AND WEATHER CONDITIONS, TEMPORARY SEED DISTURBED UPLAND AREAS WITH A MIXTURE OF ANNUAL RYE AT 20 LBS./ACRE, PERENNIAL RYE AT 20 LBS./ACRE, AND REDTOP AT 2 LBS./ACRE AND DISTURBED WETLAND AREAS WITH ANNUAL RYE AT THE RATE OF 30 LBS./ACRE. MULCHING, WITHOUT SEEDING, MAY BE USED DURING THE NON-GROWING SEASON IN ACCORDANCE WITH THE THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL (2002)".
5. EXACT LOCATION OF PROPOSED PLANTINGS AND SPECIES TYPES MAY VARY FROM THIS PLAN BASED ON ACTUAL FIELD CONDITIONS.
6. SPRAY NEW PLANTINGS IMMEDIATELY AFTER INSTALLATION WITH A WHITE-TAILED DEER REPELLENT AND CONTINUE AS NEEDED TO MAINTAIN PLANTS FREE OF SIGNIFICANT DEER BROWSING.
7. PLANT SPECIES SUBSTITUTIONS MAY BE MADE WITH THE APPROVAL OF THE PROJECT LANDSCAPE ARCHITECT AND TOWN OF WILTON PRIOR TO PLANTING. SUBSTITUTED PLANTS SHALL BE AT AN EQUAL OR GREATER SIZE AS NOTED USING A SIMILAR TYPE PLANT.
8. MULCH AREAS AROUND NEW TREES AND SHRUBS WITH A 3" THICK LAYER OF SHREDDED CEDAR BARK MULCH. NEW TREES SHALL EACH HAVE A 5' MIN. DIA. MULCHED BED AND NEW SHRUBS SHALL EACH HAVE A MINIMUM 3' DIAMETER MULCHED BED. AREAS WITHIN 4" OF TREE TRUNKS SHALL BE MAINTAINED FREE OF MULCH.
9. PLANTING METHODS SHALL BE IN ACCORDANCE WITH THE "AMERICAN STANDARDS FOR NURSERY STOCK," LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
10. THE CONTRACTOR SHALL VERIFY WITH THE PROJECT ENGINEER THAT THE NEW PLANTINGS DO NOT INTERFERE WITH EXISTING AND/OR PROPOSED UTILITIES, SIGHT LINES, AND/OR STRUCTURES.
11. THIS PLAN FOR PLANTING PURPOSES ONLY. SEE PLANS BY OTHERS FOR ADDITIONAL INFORMATION.
12. NONNATIVE INVASIVE MANAGEMENT: REMOVE JAPANESE BARBERRY, BURNINGBUSH, ASIATIC BITTERSWEET, MULTIFLORA ROSE AND NOTED NORWAY MAPLES UNDER 3" CALIPER FROM WETLAND AND ADJACENT UPLAND AREAS BY HAND PULLING, OR IF NOT PRACTICAL, CUTTING THE PLANTS DOWN TO JUST ABOVE GRADE AND APPLYING AN APPROPRIATE HERBICIDE, SUCH AS ROUNDUP IN UPLAND AREAS AND IMAZAPYR (TRADE NAME: HABITAT) IN WET CONDITIONS, INTO THE STEM WELLS. SEVERAL TREATMENT MAY BE REQUIRED. THE PERIOD BETWEEN JULY AND OCTOBER IS THE PREFERRED TIMING TO APPLY HERBICIDE. NONNATIVE INVASIVE PLANTS SHALL BE MANAGED FOR A MINIMUM OF FIVE YEARS.

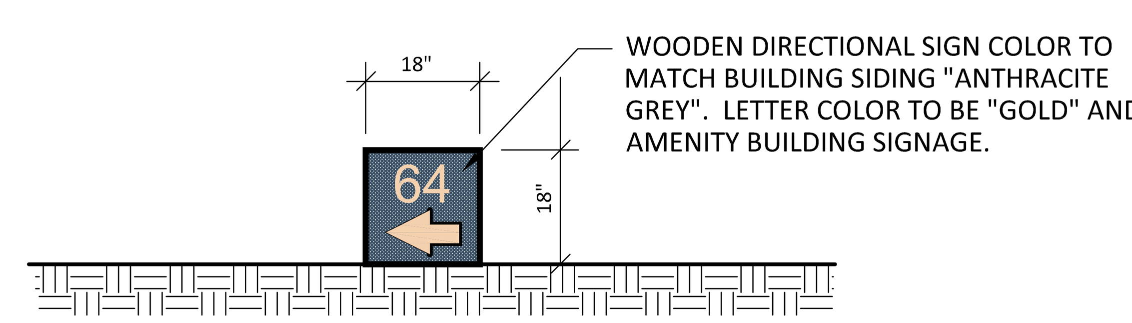
NONNATIVE INVASIVE SPECIES CONTROL NOTES:

1. CONTROL PERIOD OF NONNATIVE INVASIVE PLANTS TO BE ONGOING OVER A FIVE (5) YEAR PERIOD (OR LONGER).
2. THE LANDSCAPE CONTRACTOR SHALL CONTACT THE PROJECT ENVIRONMENTAL CONSULTANT WITH ANY QUESTIONS REGARDING THE CONTROL OR IDENTIFICATION OF INVASIVE NONNATIVE SPECIES.
3. THE LANDSCAPE CONTRACTOR SHALL FOLLOW THE METHODS AND RECOMMENDATIONS RECOMMENDED BY THE HERBICIDE MANUFACTURER AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS. A PERMIT FROM DEEP IS REQUIRED FOR ANY PESTICIDE APPLICATION TO A BODY OF WATER.
4. ALL CUT OR PULLED INVASIVE NONNATIVE PLANT MATERIALS SHALL BE DISPOSED APPROPRIATELY AND COMPLY WITH THE 2004 DEEP / UCONN "GUIDELINES FOR DISPOSAL OF TERRESTRIAL INVASIVE PLANTS." ALL CUTTINGS SHALL BE COLLECTED AND PLACED ONSITE ON A PLASTIC TARP (OR ON AN ASPHALT PAVEMENT AREA) AND SUN DRIED UNTIL DEAD. AVOID CUTTINGS FROM BEING IN CONTACT WITH ANY SOIL. DEAD PLANTS SHALL BE BAGGED AND DEPOSITED AT AN INCINERATOR WASTE FACILITY (NOT A COMPOSTING FACILITY).
5. START CONTROL OF INVASIVE PLANT SPECIES PRIOR TO THE START OF EARTH MOVING ACTIVITIES. CONTROL NONNATIVE INVASIVE SPECIES AS FOLLOWS:
   A. FOR JAPANESE KNOTWEED, EUONYMUS, ASIATIC BITTERSWEET, AND NORWAY MAPLES CONTROL.
      STEP #1 (PRIOR TO HERBICIDE TREATMENT): CUT PLANT DOWN TO GRADE LEVEL DURING THE GROWING SEASON (LATE SUMMER OR EARLY FALL IS PREFERABLE). REMOVE ASIATIC BITTERSWEET ROOTS IF FEASIBLE. DISPOSE OF CUT PLANT MATERIAL AS OUTLINED ABOVE.
      STEP #2: IMMEDIATELY AFTER CUTTING, TREAT CUT STEMS WITH AN APPROPRIATE HERBICIDE (SUCH AS ROUND-UP) AT THE RATE AND METHODS RECOMMENDED BY THE MANUFACTURER. CARE SHALL BE TAKEN TO AVOID HERBICIDE CONTACT WITH NATIVE OR OTHER DESIRABLE VEGETATION.
      STEP #3: CHECK CONTROL AREA MONTHLY DURING THE GROWING SEASON FOR NEW GROWTH. SPOT TREAT NEW GROWTH WITH AN APPROPRIATE HERBICIDE AS NEEDED FOR CONTROL.
6. CARE SHALL BE TAKEN TO AVOID HERBICIDE CONTACT WITH NATIVE OR OTHER DESIRABLE VEGETATION. IN AREAS WHERE NATIVE PLANTS ARE GROWING NEAR PLANTS TO BE CONTROLLED, THE HERBICIDE SHALL NOT BE SPRAYED ONTO THE TARGET PLANTS. IN THESE AREAS THE HERBICIDE SHALL BE APPLIED WITH A BRUSH OR CLOTH.

NONNATIVE INVASIVE DISPOSAL:

PLANT DISPOSAL

1. ALL CUT OR PULLED INVASIVE NONNATIVE PLANT MATERIALS SHALL BE DISPOSED APPROPRIATELY AND COMPLY WITH THE 2004 DEEP / UCONN "GUIDELINES FOR DISPOSAL OF TERRESTRIAL INVASIVE PLANTS." ALL CUTTINGS SHALL BE COLLECTED AND PLACED ONSITE ON A PLASTIC TARP (OR ON AN ASPHALT PAVEMENT AREA) AND SUN DRIED UNTIL DEAD. AVOID CUTTINGS FROM BEING IN CONTACT WITH ANY SOIL. IF FEASIBLE, DO NOT REMOVE PULLED OR CUT NONNATIVE INVASIVE PLANTS FROM THE SITE UNTIL DEAD. EXCEPT FOR TUBEROUS PLANTS, SUCH AS JAPANESE KNOTWEED AND PHRAGMITES, NONNATIVE INVASIVE PLANTS PULLED OR CUT SHALL BE LEFT ON THE GROUND SURFACE IN A SUNNY LOCATION FOR THEIR ROOTS TO DRY. TUBEROUS WEED PLANTS SHALL BE LEFT SOIL FREE IN THE SUN ON AN IMPERVIOUS BARRIER (SUCH AS BLACK PLASTIC, DRIVEWAYS AND WALKS) UNTIL DEAD SO THAT THEY DO NOT RE-SPROUT.
2. IF PLANTS HAVE TO BE REMOVED FROM THE SITE BEFORE THEY ARE DEAD, THEY SHALL BE BAGGED AND DEPOSITED AT AN INCINERATOR WASTE FACILITY (NOT A COMPOSTING FACILITY).



DIRECTIONAL SIGN (SIGN AREA 2.25 SF)

SCALE: NTS

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

ENVIRONMENTAL LAND SOLUTIONS, LLC
Landscape Architecture and Environmental Planning
8 KNIGHT STREET, SUITE 203
NORWALK, CONNECTICUT 06851
Tel: (203) 855-7879 Fax: (203) 855-7836
info@elsllc.net www.elsllc.net

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Fuller Development LLC

64 Danbury Road

Wilton, Connecticut

REVISIONS:

2-20-24: SIGN DIMENSIONS ADDED PER P&Z STAFF

PROJECT NO:	G5081-001
DATE:	1-2-24
FILE:	ELS PROJECT # 2130
DRAWN BY:	KET
DESIGNED/CHECKED BY:	MEP
APPROVED BY:	KET

DETAILS AND NOTES

SCALE: AS NOTED

LP-2

PLANT LIST

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
TREES						
4	HL	GLEDITSIA TRIACANTHOS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	3.3.5" CAL.	B&B	FULL,
1	QP	QUERCUS PALUSTRIS	PIN OAK	3-3.5" CAL.	B&B	FULL, LIMBED TO 5'
6	TA	TILIA AMERICANA 'REDMOND'	REDMOND LINDEN	3-3.5" CAL.	B&B	FULL
SHRUBS						
8	MP	MYRICA PENNSYLVANICA	BAYBERRY	30'36"	CONT.	
12	NB	PYSOCARPUS OPULIFOLIUS	NINEBARK	30-36"	CONT.	
5	VD	VIBURNUM DENTATUM' BLUE MUFFIN'	ARROWWOOD	30-30"	CONT.	

LEGEND

PROPERTY LINE
WETLAND LINE
WATERCOURSE LINE
100' UPLAND REVIEW AREA
EXISTING CONTOUR
EX. EVERGREEN/DECIDUOUS TREE TO REMAIN (APPROX. LOCATION)
NEW EVERGREEN TREE
NEW DECIDUOUS SHADE TREE
NEW SMALL FLOWERING TREE
NEW SHRUB
NEW / EX. LAWN

Tighe&Bond
1000 Bridgeport Avenue
Suite 320
Shelton, CT 06484
(203) 712-1100

Fuller Development LLC

64 Danbury Road

Wilton, Connecticut

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

REVISIONS:

PROJECT NO:	G5081-001
DATE:	4/5/2024
ELS FILE:	2130.dwg
DRAWN BY:	KET
DESIGNED/CHECKED BY:	MEP
APPROVED BY:	KET

SUPPLEMENTAL LANDSCAPE PLAN

SCALE: 1"=40'

LP-3

Luminaire Schedule					
Qty	Label	Watts	Arrangement	LLF	Description
6	BL	34	Single	0.900	BEGA 99865+K27 / 99619 / 22" BOLLARD
32	SL	41	Single	0.900	BEGA 99515+K27 / MTD 12FT AFG
32	WP	35	Single	0.900	Bega 66457+K27 / Mounted at 11FT AFG

Calculation Summary							
Label	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Height
CalcPts_1	Fc	1.09	43.5	0.0	N.A.	N.A.	0
PARKING AND DRIVE LANES	Fc	1.87	10.5	0.1	18.70	105.00	

Project:
23290 - 64 Danbury Road, Wilton

Contact:
Cliff Gilbert
Specifications - Southern CT
(203) 788-0814
cgilbert@illuminatene.com

Detail: Photometric Calculation
Date: 4/2/2024
Revision:E
Scale: 1" = 30'-0"
Drawn By: AJS

illuminate
263 Winn Street
Burlington, MA 01803
(781) 935-8500

333 Pleasant Valley Road
South Windsor, CT 06074
(860) 282-0597

Drawing Number:

L-1

Sheet 1 of 1

03 - HIGHWAYS
INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
INX-01	HIGHWAY DESIGN - INDEX OF DRAWINGS		
ALN-01 - ALN-03	ALIGNMENT & ROW LAYOUT PLAN		
TYP-01	TYPICAL SECTION		
MDS-01 - MDS-18	MISCELLANEOUS DETAILS		
IGP-01	INTERSECTION GRADING PLAN		
BOR-01 - 02	BORING LOG		
NOT-01	GENERAL NOTES		
PLN-01 - PLN-02	HIGHWAY PLANS		
SEQ-01	SEQUENCE OF OPERATIONS		
DRG-01 - DRG-02	DRAINAGE SHEETS		
PRO-01 - PRO-02	PROFILE SHEETS		
XSC-01 - XSC-29	ROUTE 7 CROSS SECTIONS		
XSC-29 - XSC-33	DRIVEWAY CROSS SECTIONS		
XSC-34	ASML DRIVEWAY CROSS SECTIONS		
XSC-35 - XSC-36	GRUMMAN HILL ROAD CROSS SECTIONS		

THE DESIGN APPEARS TO CONFORM TO APPLICABLE CRITERIA. APPROVAL IS NOT TO BE CONSTRUED TO MEAN THAT ALL ASPECTS OF THE DESIGN HAVE BEEN PERSONALLY CHECKED BY THE UNDERSIGNED.

Scott Bushee, P.E.
2019.03.07
15:02:50-05'00'

TRANSPORTATION PRINCIPAL ENGINEER

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 3/7/2019

DESIGNER/DRAFTER: **BKK**

CHECKED BY: **BKK**

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\HW_MSH_0161_0141_INX-01.dgn

SIGNATURE/BLOCK: **OFFICE OF ENGINEERING**

APPROVED BY:

PROJECT TITLE: **SAFETY AND OPERATIONAL IMPROVEMENTS ON ROUTE 7 AT GRUMMAN HILL ROAD**

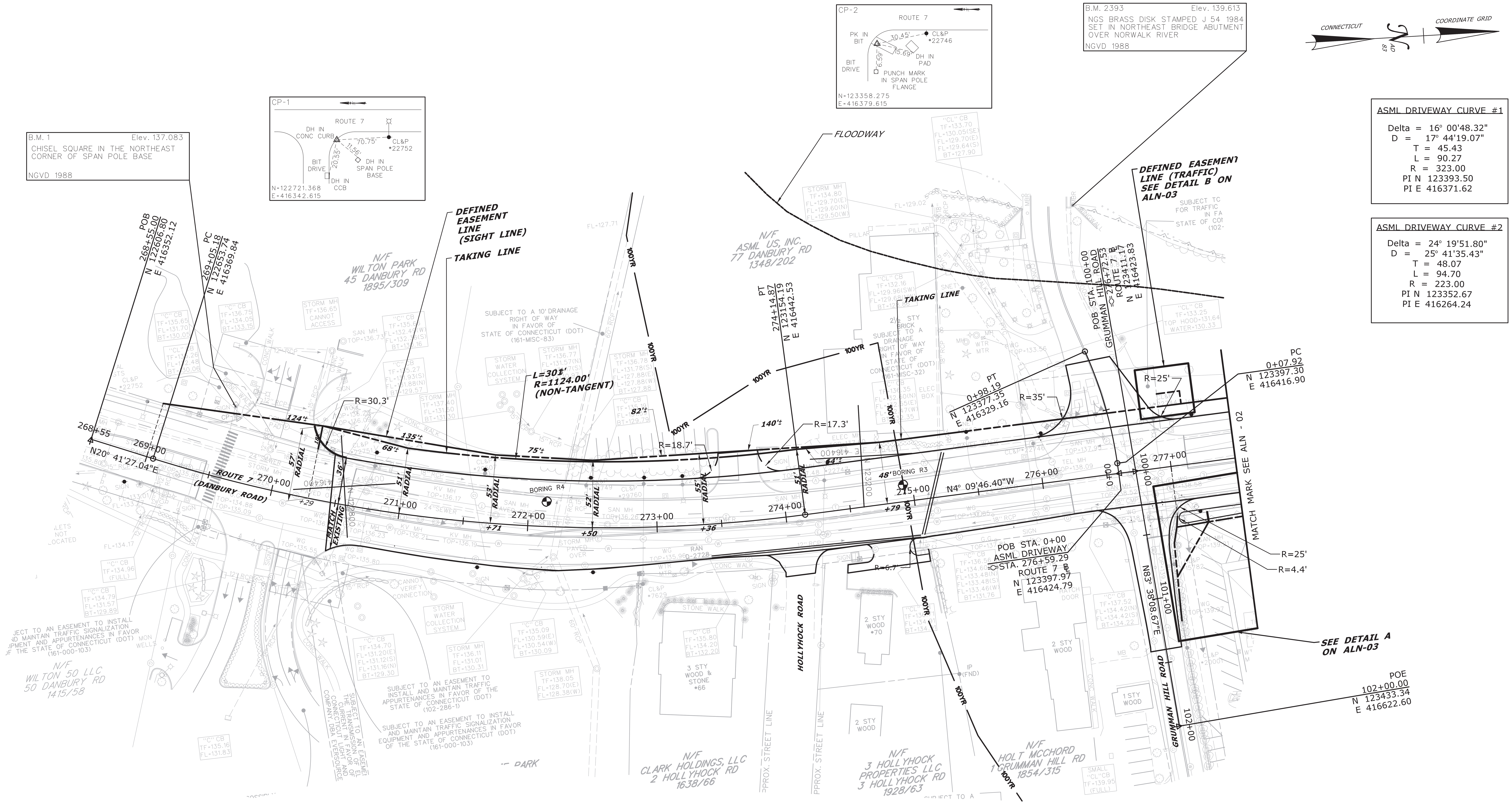
TOWN: **WILTON**

DRAWING TITLE: **HIGHWAY DESIGN INDEX OF DRAWINGS**

PROJECT NO. **161-141**

DRAWING NO. **INX-01**

SHEET NO. **03.01**



ASML DRIVEWAY CURVE #1

Delta = 16° 00'48.32"
D = 17° 44'19.07"
T = 45.43
L = 90.27
R = 323.00
PI N 123393.50
PI E 416371.62

ASML DRIVEWAY CURVE #2

Delta = 24° 19'51.80"
D = 25° 41'35.43"
T = 48.07
L = 94.70
R = 223.00
PI N 123352.67
PI E 416264.24

ROUTE 7 CURVE #1

Delta = 24° 51'13.45"
D = 4° 52'34.45"
T = 258.92
L = 509.69
R = 1175.00
PI N 122895.96
PI E 416461.33

RAN D-2728

HOLLYHOCK LN
RAN
TOP NUT OF HYDRANT
12.27'
5.42'
4.98'
DH IN CCB
NAIL IN PAVEMENT 1' OFF EDGE OF ROAD
ROUTE 7
N=123066.215
E=416475.729

LEGEND:

100YR — FEMA 100-YEAR FLOOD ELEVATION (CALCULATED)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 3/6/2019

DESIGNER/DRAFTER: ATE
CHECKED BY: BKK

SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\HW_MSH_0161_0141_ALN-01.dgn

SIGNATURE/BLOCK: OFFICE OF ENGINEERING
APPROVED BY: Matthew Vail

PROJECT TITLE: SAFETY & OPERATIONAL IMPROVEMENTS ON ROUTE 7 AT GRUMMAN HILL ROAD

TOWN: WILTON

DRAWING TITLE: ALIGNMENT & ROW LAYOUT PLAN

PROJECT NO. 161-141
DRAWING NO. ALN-01
SHEET NO. 03.02

BEGIN FEDERAL AID PROJECT NO. 0007(152)
STATE PROJECT NO. 161-141
℄ STATION 270+45
LIMIT OF CONSTRUCTION
MILL AND PAVE
CUT BITUMINOUS CONCRETE PAVEMENT

BCLC		
ROADWAY	**FROM STA.**	**TO STA.**
ROUTE 7	270+75 RT	277+50 RT
	270+60 LT	276+00 LT

LEGEND

- (A) PARTIAL TAKE REQUIRED
- (B) EASEMENT TO SLOPE FOR THE SUPPORT OF THE HIGHWAY REQUIRED
- (C) EASEMENT TO SLOPE FOR THE SAFETY OF THE HIGHWAY AND REMOVE, USE OR RETAIN EXCAVATED MATERIAL REQUIRED
- (D) RIGHT TO INSTALL SEDIMENTATION CONTROL SYSTEM REQUIRED
- (E) RIGHT TO CONSTRUCT DRIVEWAY(S) REQUIRED
- (F) RIGHT TO REMOVE RETAINING WALL
- (G) DEFINED TRAFFIC EASEMENT REQUIRED
- (H) DEFINED SIGHTLINE EASEMENT
- (I) EASEMENT FOR SIDEWALK REQUIRED
- (J) RIGHT TO INSTALL ISLAND
- (K) CONSTRUCTION EASEMENT
- (L) AERIAL EASEMENT REQUIRED
- (M) RIGHT TO REMOVE SHRUBS AND/OR STONE PILLAR
- (N) RIGHT TO INSTALL CONCRETE CURBING
- (O) RIGHT TO REMOVE TREES
- (P) RIGHT TO GRADE
- (Q) RIGHT TO INSTALL DRAIN

LEGEND:

- AREA OF MILL AND PAVE
- AREA OF FULL DEPTH RECONSTRUCTION
- 100YR — FEMA 100-YEAR FLOOD ELEVATION (CALCULATED)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 3/6/2019

DESIGNER/DRAFTER: ATE
CHECKED BY: BKK

SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\HW_MSH_0161_0141_PLN-01.dgn

SIGNATURE/BLOCK: OFFICE OF ENGINEERING
APPROVED BY: Matthew Vail

PROJECT TITLE: SAFETY & OPERATIONAL IMPROVEMENTS ON ROUTE 7 AT GRUMMAN HILL ROAD

TOWN: WILTON

DRAWING TITLE: HIGHWAY PLAN

PROJECT NO. 161-141
DRAWING NO. PLN-01
SHEET NO. 03.28

BEGIN FEDERAL AID PROJECT NO. 0007(152)
STATE PROJECT NO. 161-141
℄ STATION 270+45
LIMIT OF CONSTRUCTION
MILL AND PAVE
CUT BITUMINOUS CONCRETE PAVEMENT

LEGEND:

DBL - DOUBLE

- TEST PIT (G=GAS AND F=FRONTIER)

CAP - CORRUGATED ALUMINUM PIPE-ARCH

100YR — FEMA 100-YEAR FLOOD ELEVATION (CALCULATED)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 3/6/2019

DESIGNER/DRAFTER: ATE
CHECKED BY: BKK

SCALE IN FEET 0 40 80
SCALE 1"=40'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\HW_MSH_0161_0141_DRG-01.dgn

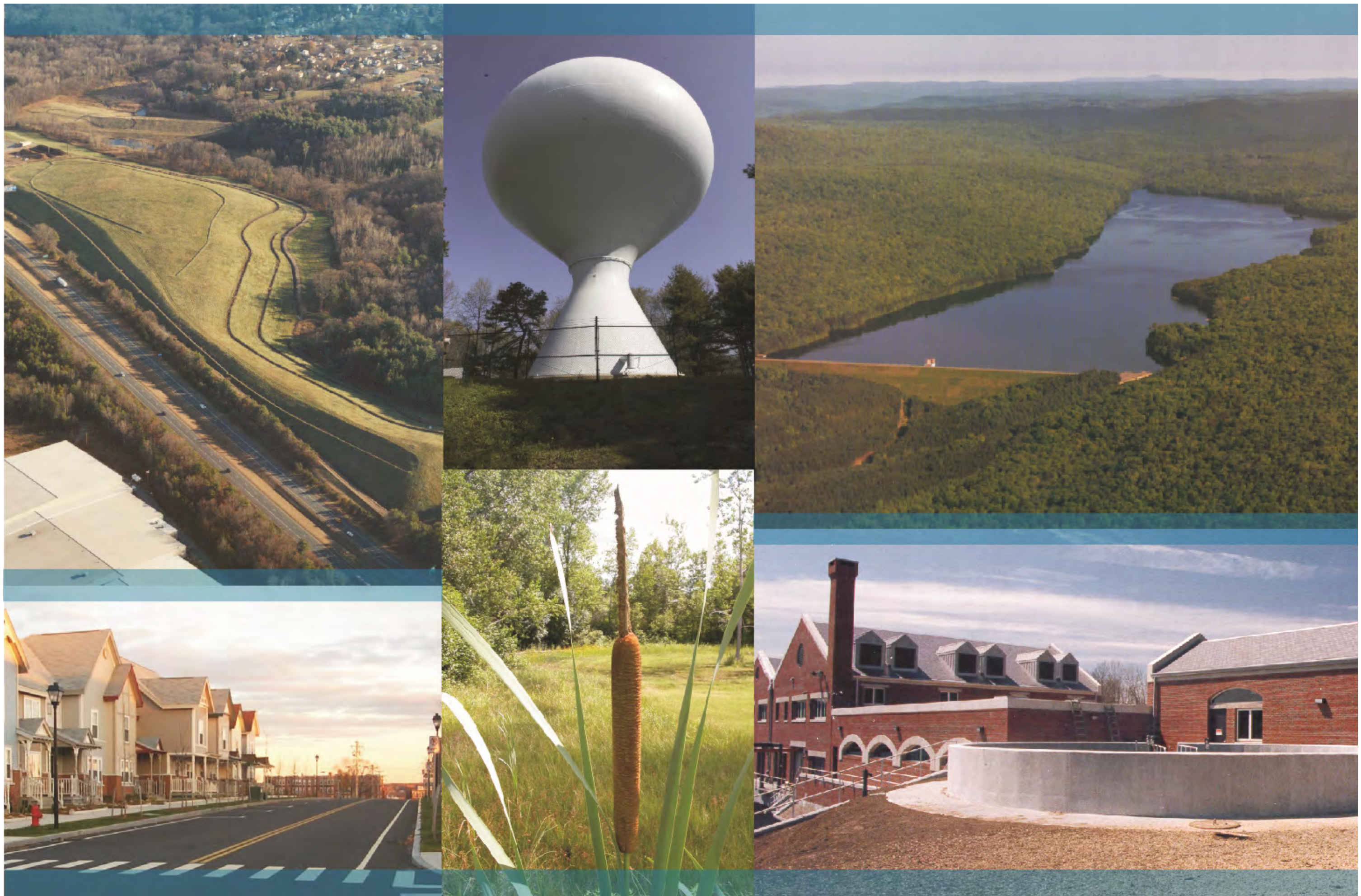
SIGNATURE/BLOCK:
OFFICE OF ENGINEERING
APPROVED BY: Matthew Vail

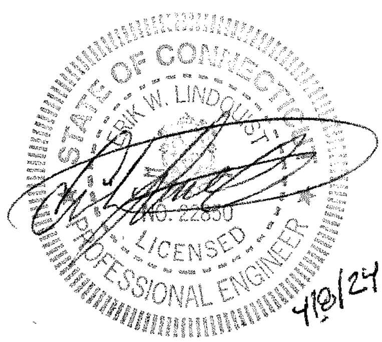
PROJECT TITLE:
SAFETY & OPERATIONAL IMPROVEMENTS ON ROUTE 7 AT GRUMMAN HILL ROAD

TOWN: WILTON

DRAWING TITLE: DRAINAGE PLAN

PROJECT NO. 161-141
DRAWING NO. DRG-01
SHEET NO. 03.31





Tighe&Bond

64 Danbury Road
Wilton, CT 06897

Engineering Report

Prepared For:

Town of Wilton,
Planning and Zoning Commission

December 2023
(Revised April 2024)

Table of Contents

Section 1
Introduction and Site Conditions

Tighe & Bond has prepared this report at the request of Fuller Development, LLC ("Applicant"), to support their applications to the Town of Wilton Planning & Zoning Commission and Inlands Wetlands Commission for a proposed 8-building residential development with 93 units.

The 64 Danbury Road site is an approximately 4.84-acre unit located on the northern extents of a larger 22.27-acre parcel of land, the entirety of which is bounded by Danbury Road to the west, wooded area and residential properties to the east, and commercial properties to the north and south. The proposed development consists of the construction of a 93-unit residential development, at-grade parking, stormwater management systems, utility services, lighting, and associated landscaping. Refer to **Figure 1**, Site Location Map, in **Appendix A**.

Tighe & Bond has inspected the property and analyzed available soils, drainage, utility, wetland, and topographic information. Drainage calculations and stormwater management design have been prepared in accordance with the 2000 Connecticut Department of Transportation (CTDOT) Drainage Manual, and the Connecticut Department of Energy and Environmental (DEEP) Protection 2004 Stormwater Quality Manual. The drainage calculations include a hydrologic and hydraulic analysis of the existing conditions and the proposed development. Specifically, the calculations include an analysis of the on-site stormwater management measures and their performance in handling peak flow attenuation and pollutant removals. The report also includes a summary of the site floodplain management for Copts Brook, the available existing and proposed utilities to service the property, and the proposed soil erosion and sedimentation control measures incorporated during construction.

1.1 Existing Conditions

The existing site consists of an office building with a 15,500 square-foot footprint and at-grade parking. The development site is located within Wilton's DE-5 Design Enterprise District Zone, and the proposal includes a request to apply the DE-5R Design Enterprise Residential District (Overlay) to the site. A significant portion of the site is impervious, including paved parking areas, sidewalks, and building roof area, with landscaping and lawns generally around the perimeter of the site. Utility services include underground water, natural gas, electric, and tele-data, which ultimately connect to service mains and overhead lines in Danbury Road.

The site is located on Danbury Road (Route 7) which is a north-south four lane State maintained major arterial roadway, with dedicated left turn lanes for a traffic light at the main entrance. The roadway is generally 50 feet wide and widens to roughly 60-feet along the frontage of the site to accommodate the aforementioned left turn lanes.

The topography of the site slopes primarily from east to west towards Copts Brook and Route 7. There are a series of catch basins and inlet structures on the existing site, which capture runoff and discharges to 54" RCP along the northern end of the site. The front yard of the property partially lies within the 500-year flood plain for the Norwalk River, while a small part of the middle of the property lies within the 100-year floodplain for

Copts Brook. This floodplain and site hydrology will be discussed in greater detail later in this report.

1.2 Project Proposal

The 8-building residential development with 93 units includes driveways and parking areas throughout the site. The development will use the current entry drive and the same point of access to Danbury Road as the other properties at 50 and 60 Danbury Road. A centrally located clubhouse and pool is proposed for the development immediately adjacent to the existing entry loop roadway. The site development plan also includes a network of sidewalks for pedestrian circulation and retaining walls to minimize the overall development footprint and grading impacts, as well as to establish required finished floor elevations. New utility services for the property are proposed including underground water, natural gas, electric, tel-com and sanitary sewer.

Stormwater management will be accommodated on-site. Surface runoff will be collected in catch basins and inlet structures located throughout the site and tie into the existing drainage infrastructure to be maintained. Underground infiltration systems have been designed to reduce peak flows and provide stormwater treatment, prior to discharge. The stormwater management system has been designed to treat the 0.5-inch water quality volume and remove a high level of pollutants. This will be discussed in greater detail later in the report.

1.3 Site Soils

The U.S. Department of Agriculture's National Resource Conservation Service (NRCS) Web Soil Survey indicates the following soil types are present on the site:

Urban Land (307): Urban land is mostly covered by streets, parking lots, buildings, and other structures of urban areas. Slopes range from 0 to 33 percent. No drainage class is assigned, and the complex does not meet hydric criteria.

Udorthents-Urban Land Complex (306): Udorthents is a miscellaneous land type used to denote moderately well to excessively drained earthen material which has been so disturbed by cutting, filling, or grading that the original soil profile can no longer be discerned. Udorthents consist of very deep, moderately well drained to excessively drained soils on uplands, terraces and plains. They are highly disturbed soils commonly associated with construction and building or surface mining. Typically, more than 2 feet of the original soil has been removed or it has been covered with more than 2 feet of earthy fill. Texture to a depth of 60 inches, varies from silt loam to extremely gravelly sand. Slopes range from 0 to 35 percent.

Canton and Charlton Fine Sandy Loams (60C & 61C): The Charlton component is typically found on hills, uplands while the Chatfield component is typically found on bedrock-controlled ridges, uplands, bedrock-controlled hills. The parent material of both soils consists of coarse-loamy melt-out till derived from granite and/or schist and/or gneiss with a natural drainage class of well drained. These soil does not meet hydric criteria.
Slope ranges from 8 to 15 percent.

A copy of the NRCS Soil Resource Report is included in **Appendix B** of this report.

Soil permeability for the site was estimated to be 1-inch per hour for the design of the proposed stormwater management systems and are in part based on historic design assumptions used for the site. We believe the estimate is conservative given the soil classifications, furthermore permeability estimates will be field verified at the site prior to the completion of construction documents to confirm the design assumptions are accurate.

1.4 Wetlands

Wetlands soils were delineated and flagged by Otto Theall, professional soil scientist on February and March, 2017 and located in the field by D'Andrea Surveying & Engineering, P.C. Wetland flags and limits are depicted on the project drawing sheets.

Wetland soils documentation is provided in **Appendix B** of this report.

Section 2
Stormwater Management

2.1 Existing Site Hydrologic Analysis

To review the impact of the proposed development on the existing site, an existing conditions hydrologic analysis was performed. Under existing conditions, stormwater runoff from the site generally flows from east to west towards Copts Brook and Danbury Road (US Route 7). There are a series of catch basins and inlet structures on the 64 Danbury Road site that capture runoff and discharge to a 54" RCP culvert that crosses Danbury Road and outlets to the Norwalk River. This culvert takes the majority of runoff from 64 Danbury Road as well as from 60 Danbury Road and the recently expanded parking garage. There are three oversized perforated pipes within this existing drainage network that provide nominal storage/infiltration for runoff from the parking areas and one water quality structure that treats a small portion of the parking area as well. In addition, there is an existing subsurface retention system near the site entry from Danbury Road that collects runoff from most of the circular entry drive before discharging it to the 54-inch RCP culvert. The 54" RCP culvert also receives flow from a 24" RCP pipe which conveys runoff from wetlands on the eastern edge of the property to the culvert. The wetlands and the accompanying 24" pipe collect runoff from the wooded area between the eastern property line and Whipple Road. Lastly, the culvert also receives flow from Copts Brook and ultimately conveys the aggregate runoff from all these areas to the Norwalk River. The last segment of the 54" RCP culvert along the southern edge of the property has been designated as Design Point B for our analysis.

There is an additional design point in the northeastern portion of the site which is used to analyze overland flow to Copts Brook, denoted as Design Point A.

The drainage areas for the existing site and contributing areas have been delineated into sub-watershed areas and are shown on the Existing Conditions Watershed Map (Figure EX-WS), which is included in **Appendix C** of this report.

Impervious and pervious areas, weighted curve number, and time of concentration were calculated for each watershed area and developed into hydrologic model to determine the project's peak flow and volume, as part of the comparative hydrology analysis. Precipitation data for the hydrologic modeling were developed from NOAA's Atlas 14 Point Precipitation Frequency Estimates online utility. The site-specific precipitation depths for a 24-hour durations storm are shown in **Table 2-1** below.

Table 2-1
24-hour Duration Precipitation Depth

	2-Year	10-Year	25-Year	50-Year	100-Year
Depth (in)	3.52	5.38	6.54	7.41	8.34

A breakdown of existing watershed areas, existing volumetric hydrographs, and the existing watershed map are included in **Appendix C** of this report.

2.1.1 Floodplain Management

The Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) for Fairfield County, effective June 18, 2010 shows a portion of the site within Zone X (shaded) Norwalk River 500-year floodplain along Danbury Road, and the floodway and Zone A of Copts Brook, as shown in **Figure 2** in **Appendix A**.

Zone A is studied by approximate methods, and therefore does not have established base flood elevations or a regulatory floodway. Since there is no available base flood data for Copt's Brook, we prepared a hydrologic and hydraulic analysis of the Copt's Brook watershed contributing to the drainage inlet on the site to establish a base flood elevation. Please refer to Section 3, Floodplain Management, for more details.

2.2 Proposed Site Hydrologic and Hydraulic Analysis

A stormwater management system has been designed for the proposed development to reduce or maintain existing peak flows and improve water quality for the site. The proposed stormwater management system consists of catch basins and inlets throughout the development site as well as water quality structures, underground infiltration systems, and outlet protection. The stormwater management system will maintain existing drainage piping to maximum extent practical and utilize Best Management Practices for stormwater treatment.

Under proposed conditions, drainage patterns will generally remain the same, largely flowing in a westerly direction and ultimately discharging to the 54" RCP culvert for Copts Brook. Drainage structures have been located throughout the site to collect stormwater runoff from paved and landscaped surfaces. Due to the various locations of the proposed buildings and the need to maintain a significant portion of the existing drainage network, the proposed drainage system has been split into four different sub-systems around the site. Infiltration systems have been designed for each area to promote infiltration and provide treatment of stormwater runoff. The bottom elevation of each system was also designed to be at or above the elevations for the existing infiltration pipes on site to ensure they are above the known ground water table. Ultimately, these systems converge into a single piped location at the western edge of the site. The existing retention system located adjacent to the main entry at Danbury Road will remain in place and unchanged. The contributing area for this system is minimally impacted by the proposed development plan and any changes to discharge flows will be negligible. Likewise, the 42-inch perforated pipe which receives runoff from 60 Danbury Road will remain in place as well and the proposed stormwater management system has been designed around it.

Lastly, a small portion of the site consisting of lawn area and 7 patios behind Buildings 7 and 8 is captured using area drains and discharged directly to the hillside adjacent to Copts Brook. A riprap apron and level spreader have been designed to reduce outlet velocities and provide erosion control prior to this discharge.

2.2.1 Proposed Site Hydrology

The proposed conditions hydrologic analysis consists of sub-watershed areas at each inlet structure of the development property. For each proposed watershed area, weighted curve numbers and times of concentration were calculated and utilized in the proposed conditions hydrologic model. The infiltration systems were also modeled to determine the effectiveness in reducing peak discharges from the site. **Table 2-2** below provides a summary of the peak discharges under existing and proposed conditions for the 2, 10, 25, 50, and 100 year storm events.

Table 2-2
Summary of Stormwater Peak Discharge (cfs)

		Storm Frequency (Years)				
Discharge Location	**Condition**	**2**	**10**	**25**	**50**	**100**
Copts Brook (DP-A)	Existing	1.539	4.097	5.932	7.378	8.969
	Proposed	1.538	3.964	5.692	7.047	8.534
	% Reduction	-0.1%	-3.2%	-4.0%	-4.5%	-4.9%
54" RCP Culvert (DP-B)	Existing	15.23	26.25	33.18	40.73	46.31
	Proposed	12.75	23.71	32.78	38.93	45.00
	% Reduction	-16.3%	-9.7%	-1.2%	-4.4%	-2.8%

Table 2-3 provides a summary of the peak volumetric runoff under existing and proposed conditions for the 2, 10, 25, 50, and 100 year storm events.

Table 2-3
Summary of Stormwater Peak Discharge (cfs)

		Storm Frequency (Years)				
Discharge Location	**Condition**	**2**	**10**	**25**	**50**	**100**
Copts Brook (DP-A)	Existing	11,394	27,414	38,948	48,110	58,271
	Proposed	11,183	26,393	37,264	45,872	55,399
	% Reduction	-1.9%	-3.7%	-4.3%	-4.7%	-4.9%
54" RCP Culvert (DP-B)	Existing	63,542	134,100	181,596	218,310	258,337
	Proposed	50,534	114,719	158,930	194,138	232,805
	% Reduction	-20.5%	-14.5%	-12.5%	-11.1%	-9.9%

The proposed conditions watershed map, curve number and time of concentration worksheets, and volumetric hydrographs are included in **Appendix D**.

2.2.2 Water Quality Volume

The design includes capturing and treating 0.65 inches of rainfall for the water quality volume to remove stormwater pollutants on an average annual basis.

Section 6(B)(i) of the Connecticut DEEP General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems "MS4 General Permit" requires where an existing site exceeds 40 percent directly connected impervious area (DCIA), that one-half of the water quality volume is to be retained onsite. The Town of Wilton is registered under the MS4 General Permit (Registration #GSM000040), and therefore is subject to its provisions and requirements. The project site contains more than 40 percent directly connected impervious area. As a result, the standard for water quality treatment is one half of the 1.3 inch required water quality volume, per Connecticut Stormwater Quality Manual, last updated March 30, 2024.

The infiltration systems have been designed to provide the required treatment volume. **Table 2-4** below summarizes the required and provided treatment volume for the site.

Table 2-4

Summary of Treatment Volume (cu ft)

Infiltration System - 1	**Required Treatment Volume**	5,261
	Provided Treatment Volume	6,035
Infiltration System - 2	**Required Treatment Volume**	809
	Provided Treatment Volume	810
Infiltration System - 3	**Required Treatment Volume**	400
	Provided Treatment Volume	800
Infiltration System - 4	**Required Treatment Volume**	1,875
	Provided Treatment Volume	1,960

The water quality volume calculation sheets are included in **Appendix F**.

2.2.3 Hydraulic Capacity and Outlet Velocity

The stormwater collection system has been designed to convey the 25-year storm event as required by the CTDOT 2000 Drainage Manual. The system was designed by analyzing sub-areas corresponding to each inlet structure and calculating weighted runoff coefficients and times of concentration. The discharge from the four infiltration systems as well as the inlet flow for Copts Brook to the culvert are modeled as known constant flows, and do not take into account offsetting peaks between their respective hydrographs. Therefore, the analyzed flows within the piped drainage system are very conservative and the available capacity and hydraulic grade lines would only improve when accounting for the delayed time for flow in Copts Brook to peak. The downstream hydraulic grade line of the 54" RCP Culvert was determined to be 131.90 per joint probability analysis, consistent with the 10-year elevation of the Norwalk River at the discharge location of the culvert. These values were entered into a storm sewers model using Hydraflow Storm Sewers Extension for AutoCAD Civil 3D 2018, Version 2018.3. Based upon this analysis, the proposed storm system has the capacity to convey the 25-year storm event. Hydraulic calculation worksheets and storm sewers output results are included in **Appendix E**.

2.3 Method of Hydrology and Hydraulic Analysis

The following storm drainage design criteria were used for all drainage pipe systems:

1. Design storm rainfall data from NOAA Atlas 14 Point Precipitation Frequency Estimates
2. Piped storm drainage system and the outlets are designed for a 25-year storm event.
3. Minimum time of concentration = 5 minutes
4. For SCS peak flow calculations, Curve Number were as follows:
    a. Impervious (Pavement/Roof Areas) = 98
    b. Landscaped and Lawn Areas (HSG-B) = 69
    c. Landscaped and Lawn Areas (HSG-D) = 84
    d. Wooded Areas (HSG-B) = 55
    e. Wooded Areas (HSG-D) = 77
5. For rational peak flow calculations, runoff coefficients were as follows:
    a. Impervious (Pavement/Roof) areas = 0.90
    b. Landscaped and Lawn Areas = 0.30
6. Minimum diameter of pipes = 12 inches, excluding roof leaders, underdrains, yard drains and foundation drains
7. Minimum pipe slope = 0.5 percent
8. Watershed areas delineated using polylines in AutoCAD Civil 3D 2018.
9. Comparative hydrology analyzed using Hydraflow Hydrographs Extension for AutoCAD Civil 3D 2018, Version 2018.3
10. Storm drainage system analyzed using Hydraflow Storm Sewers Extension for AutoCAD Civil 3D 2018, Version 2018.3

2.4 Best Management Practices

The stormwater management plan for the proposed site uses "Best Management Practices" (BMPs) to remove a high percentage of sediments in accordance with the Connecticut Department of Energy and Environmental Protection "Stormwater General Permit Criteria".

The BMPs include:

Catch Basins and Yard Drains with Sumps and Bell Traps: Catch basins and yard drains with sumps and bell traps collect sediment and prevent discharge of oil and other pollutants into the storm drainage system. All new catch basins and yard drains on-site will have 24-inch sumps with several also maintaining bell traps.

Hydrodynamic Separators: Hydrodynamic separators serve as pretreatment and prevent transport of oils and sediment further downstream. The proposed stormwater management system utilizes Contech CDS units prior to discharge into the underground infiltration systems. The Contech CDS units have been sized in accordance with the 2004 CTDEEP Stormwater Quality Manual. Sizing calculations are provided in **Appendix F.**

Underground Infiltration: Underground Infiltration serves as a primary treatment practice, reduces peak flow rates, and promotes groundwater recharge. The proposed stormwater management system utilizes plastic chambers surrounded by stone and filter fabric and an outlet control structure designed to attenuate peak flows.

Level Spreader: Level Spreaders serve as a secondary treatment practice that are utilized to reduce stormwater discharge velocities to non-erosive levels.

2.5 Pollutant Loading Analysis

Pollutant loadings for the existing and proposed conditions were calculated using the method prescribed by Debo and Reese in "Municipal Stormwater Management", 1995. This method determines the mass of pollutant loading by inputting the fraction of impervious area, the contributing area, the mean annual rainfall, and the event mean concentration of pollutant (EMC). The EMC is based upon the pollutant analyzed and the general characteristic of the contributing area – residential, commercial, or open space.

For the proposed conditions, the contributing area was further broken down into contributing areas to certain best management practices (BMPs). Pollutant loading reductions were taken at certain BMPs, depending upon the removal efficiency of the BMP as stated in the 2003 edition of Debo and Reese. Pollutant removal efficiencies for proprietary products were taken from a report entitled "Final Report: Stormwater Treatment Devices Section 319 Project" submitted to the Connecticut Department of Environmental Protection, Bureau of Water Management by the University of Connecticut Department of Natural Resources Management and Engineering, April 15, 2002. This report provides results of field testing for pollutant removal on different types of proprietary stormwater treatment devices installed throughout the State of Connecticut. Based upon these pollutant reductions, we have determined that pollutant loadings will be less for the proposed conditions, as shown in **Table 2-5** below. The pollutant loading calculation sheets are included in **Appendix F**.

Table 2-5
Pollutant Loading Summary

		Pollutant					
Item	**Units**	**TKN**	**P**	**TSS**	**Pb**	**Cu**	**Zn**
Proposed, Pre-Treatment	lb/yr/1-in	2.685	0.541	142.730	0.203	0.047	0.191
Proposed, Post-Treatment	lb/yr/1-in	1.771	0.230	11.785	0.104	0.022	0.069
Reduction, Pre to Post Treat	---	34%	57%	92%	49%	53%	64%

2.6 Stormwater Maintenance and Inspection Schedule

Stormwater management systems require periodic maintenance to ensure they function as designed. The initial inspection will be made during an intense rainfall to check the adequacy of the catch basins, roof leaders, piping, hydrodynamic separators, underground infiltration systems, and system outlet.

The following is a checklist of items that will be checked and maintained during scheduled maintenance operations.

<u>Drainage Structures:</u> The Owner will be responsible for cleaning the catch basins, yard drains, manholes, piping, and outlet protection on their property. A Connecticut licensed hauler shall clean the sumps, and legally dispose of removed sand at an off-site location. The road sand may not be reused or stored on-site. As part of the hauling contract, the hauler shall notify the Owner in writing where the material is being disposed.

Each catch basin and yard drain shall be inspected every four months, with one inspection occurring during the month of April. Any debris occurring within one foot from the bottom of each sump shall be removed by Vacuum "Vactor" type of maintenance equipment. Maintain a log of inspections. Remove organic matter, sand, and debris from catch basins as necessary and dispose of legally.

<u>Hydrodynamic Separator:</u> The Contech CDS Units (hydrodynamic separator) will be skimmed and oil and scum removed. In a separate operation, silt, sand, and sediment will be removed. Once the structure is cleaned of debris, the chamber will be refilled with clean water to prevent wash through of debris and oil during next storm event.

<u>Underground Infiltration:</u> The underground infiltration system will be cleaned of all silt, debris and sediment from the inlet structure, outlet structure and the chamber lengths. The outlet control structure will be inspected and cleaned to make sure nothing is clogging the discharge pipe.

<u>Level Spreader:</u> The level spreader shall be inspected two times annually. Regular maintenance includes removing accumulated debris and sediment, checking for erosion, vegetative bare spots, and removing invasive plant species or tree saplings.

<u>Stormwater System Outfalls:</u> The stormwater system outfalls shall be inspected two times annually as well as after every major storm, for slope integrity, soil moisture, vegetated

health, soil stability, soil compaction, soil erosion, ponding and sediment accumulation. If the rip rap has been displaced, undermined or damaged, it should be replaced immediately. The channel immediately below the outlet should be checked to see that erosion is not occurring. The downstream channel will be kept clear of obstructions, such as fallen trees, debris, leaves and sediment that could change flow patterns and/or tail water depths in pipes. Repairs must be carried out immediately to avoid additional damage to the outlet protection apron.

Maintenance & Inspection Forms are included in **Appendix G.**

Section 3
Floodplain Management & Hydraulics

3.0 Background

FEMA studied Copts Brook using approximate methods as a part of the Flood Insurance Study (FIS) for Fairfield County, dated October 16, 2013. Therefore, the entire length of the watercourse was assigned Zone A, with no defined base flood elevation or floodway.

3.1 Basis of Modeling

Since no detailed base flood elevations are available on Copts Brook, Tighe & Bond prepared a hydrologic study of the approximately 490-acre watershed contributory to the 54-inch RCP inlet on the site. We utilized the HEC-HMS hydrologic model, which includes inputs for land coverage, basin area, time of concentration, travel time, and areas of storage. See **Appendix H** for further additional information.

We subdivided the watershed into three watershed subarea, and included two areas of storage. One located on-site immediately upstream of the 54-inch RCP inlet, and the area behind Wilton Acres Road, extending northeasterly to Clover Drive and Westport Road. Storage available on-site was computed using topographic survey data, while storage at Wilton Acres Road was determined using available LiDAR topographic data.

3.2 Flow Rates

Since the FIS did not study Copts Brook using detailed methods, there are no published discharges for the watercourse. The purpose of the hydrologic model was to develop a discharge for the 25- and 100-year events, as well as a corresponding water surface elevation at the inlet to the 54-inch RCP.

Table 3-1
Computed Flow Rates to the 54" RCP Inlet

Return Frequency (years)	Annual Chance Probability	Flow Rate (cfs)
25	4%	120.3
100	1%	163.1

3.3 Water Surface Elevations

We used the storage-discharge feature in concert with the incoming flow rate to develop water surface elevations at the 54-inch RCP inlet for the purposes of creating a base flood elevation for design purposes. **Table 3-2** summarizes the resulting water surface elevations for the 25-year and 100-year events:

Table 3-2
Computed Water Surface Elevations at the 54" RCP Inlet

Return Frequency (years)	Annual Chance Probability	WSEL (NAVD88)
25	4%	137.9
100	1%	139.6

3.4 Compliance with Local Floodplain Regulations

Section 29-9.F.7 of the Wilton Zoning Regulations requires the following:

k. Equal Conveyance: Within the floodplain, except those areas which are tidally influenced, as designated on the Flood Insurance Rate Map (FIRM) for the community, encroachments resulting from filling, new construction or substantial improvements involving an increase in footprint of the structure, are prohibited unless the applicant provides certification by a registered professional engineer demonstrating, with supporting hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that such encroachments shall not result in any (0.00 feet) increase in flood levels (base flood elevation). Work within the floodplain and the land adjacent to the floodplain, including work to provide compensatory storage shall not be constructed in such a way so as to cause an increase in flood stage or flood velocity.

l. Compensatory Storage: The water holding capacity of the floodplain, except those areas which are tidally influenced, shall not be reduced. Any reduction caused by filling, new construction or substantial improvements involving an increase in footprint to the structure, shall be compensated for by deepening and/or widening of the floodplain, storage shall be provided on-site, unless easements have been gained from adjacent property owners; it shall be provided within the same hydraulic reach and a volume not previously used for flood storage; it shall be hydraulically comparable and incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, which would be displaced by the proposed project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Compensatory storage can be provided off-site if approved by the municipality.

3.4.1 Equal Conveyance

The proposal does not diminish floodplain storage, and therefore base flood elevations will not increase as a result of the proposal. The additional floodplain storage provided would have the effect of reducing base flood elevations by a de minimis amount.

3.4.2 Compensatory Storage

The footprint for Building 4 is proposed to be within the existing paved parking lot immediately west of Copts Brook. This area is also within the calculated floodplain for Copts Brook. In order to mitigate the impacts of the proposed development, the residential portion of the building which extends over the floodplain will be elevated on columns to allow potential floodwaters to go under the building while allowing the garage portion outside the floodplain to remain at grade. Since the placement of building columns and a retaining wall within the floodplain would result in a loss of floodplain storage volume, we have proposed revised grading beneath the building footprint to provide additional flood storage. The grading as proposed results in a net cut of approximately 250 CF within the floodplain boundary, compensating for the approximately 40 CF occupied by the columns and retaining walls of the proposed building. The development plan as proposed would therefore increase floodplain storage on-site. Provided in **Table 3-3** below is a summary of the Compensatory Flood Storage volumes being proposed for Copts Brook.

Table 3-3
Compensatory Flood Storage (NAVD88)

	100-year Water Surface Elevation (NAVD88)		
Elevation (NAVD88)	**Existing (CF)**	**Proposed (CF)**	**Difference (CF)**
134.0	-	-	-
135.0	1,112	1,112	0
136.0	2,707	2,707	0
137.0	4,910	4,910	0
138.0	8,101	8,101	0
139.0	12,633	12,633	0
140.0	19,028	19,278	250

Section 4 Site Utility Services

4.1 Water and Fire Protection Services

Water and fire protection services to the site will be provided by The Aquarion Water Company (Aquarion). Services to the proposed buildings will be fed from the reported 12-inch main located in Danbury Road. An existing hydrant is located just north of the site on Danbury Road and a second hydrant is located just south of the main entry to the site. In addition, two new hydrants are proposed within the site to service the proposed development.

The estimated daily water demand for the proposed residential development is approximately 24,300 gallons per day (GPD). The estimated peak hour demand is 68 gallons per minute (GPM), determined using a maximum-to-average-day ratio of 4.0.

4.2 Electric and Tel-Data Service

Electric service to the site is provided by Eversource Electric Company and telephone and cable are provided by Altice and Frontier. Underground primary service lines are located within the main entry loop driveway with an existing electric vault located near the southeastern corner of the existing building.

4.3 Gas Service

Eversource Gas Company provides natural gas service to the site. Eversource Gas Company maintains a gas main in Danbury Road and a service lateral to 60 Danbury Road thru the easement in the main entry loop. The current development plan shows the replacement of the existing gas service lateral within the Eversource easement; however, once service loads are better understood the existing lateral will be evaluated to determine if it can be re-used to service the entire development area.

Furthermore, once the estimated peak demand for the total project is determined, Eversource Gas Company will provide a letter of service availability.

4.4 Sanitary Sewer Service

The project site is located within the Wilton WPCA Sewershed.

Based on available Town maps, there is a 24-inch gravity sanitary sewer located in Danbury Road. The proposed development will connect to the sewer main at the existing manhole in front of the site. WPCA approval will be required for all sewer connections.

The projected wastewater flows associated with the proposed development were calculated based on the 93 residential units – comprised of 31 one-bedroom units, 55 two-bedroom units, and 7 three-bedroom units – for a total of 162 bedrooms and a flow rate of 150 gallons per day (GPD) per bedroom. A peaking factor of 4 was applied to the average daily flows to estimate peak flows. **Table 4-1** below summarizes the projected average and peak daily sanitary sewer flows for the site.

Table 4-1 - Projected Average and Peak Daily Sanitary Sewer Flows

Wastewater Requirements					
Development		Design Criteria		Average Daily Flow (GPD)	Peak Flow (GPM)*
Use	Units / Bedrooms	GPD	Unit		
Residential	93 / 162	150	Per Bedroom	24,300	68

* Peak factor of 4 was applied to average daily flows to estimate peak flows; New England Interstate Water Pollution Control Commission, 2011.

Section 5
Soil Erosion and Sedimentation Control

5.1 SESC Narrative

General

The proposed development is entitled “64 Danbury Road” in Wilton, Connecticut.

Estimated:
Project Start: Spring 2024
Project Completion: Summer 2026

Erosion Control Narrative refers to drawings C-501 through C-504.

The proposed site development will consist of building demolition, clearing and grubbing the existing site, excavation, construction of stormwater management, utilities, and rough grading of building, parking areas, sidewalks and curbing.

The development is located on Danbury Road in Wilton, Connecticut.

The stormwater management measures will address the stormwater quality once the site has been constructed and stabilized. Sedimentation and erosion control measures will be installed during construction which will minimize adverse impacts from construction activities.

All sedimentation and erosion control measures proposed for this development have been designed in accordance with the "2024 Connecticut Guidelines for Soil Erosion and Sedimentation Control" as published by the Connecticut Council on Soil Erosion and Water Conservation. Additional guidelines have also been followed that are available from the Connecticut Department of Environmental Protection as recommended for sedimentation control during construction activities.

Construction Sequence – Initial Phase

1. Conduct a pre-construction meeting with the Owner or Owner's Representative, Town Engineer, Design Engineer, Site Engineer, Contractor and Site Superintendent to establish the limits of construction, construction procedures and material stockpile areas.

2. Field stake the limits of construction.

3. Install all applicable soil and erosion control measures around the perimeter of the site to the extent possible. this will include siltation fence around the project as shown on the plans.

4. Install construction access road and anti-tracking pavement in the areas as shown on the plans. All construction access shall be into the site through the anti-tracking pads.

5. Establish temporary staging area.

6. Begin building demolition and pavement removal.

7. Begin mass earthwork and construct sediment trap in the vicinity of buildings 7 & 8. Construct retaining walls and level building pad as soon as possible after excavated.

8. Construct the initial storm drainage as shown on the drainage plans.

9. Install water quality systems and associated drainage network to the maximum extent practicable. Grade the area around the storm drainage system as necessary.

10. Begin rough roadway grading.

11. Install remaining drainage system to the extent necessary to provide positive drainage.

12. Begin installation of sanitary sewer system, water, and other utilities to extent necessary.

13. Provide silt fence/haybale barrier around soil stockpile area. Provide temporary vegetative cover (defined in erosion control notes) on all exposed surfaces.

14. Begin building construction.

15. Pave binder course on parking and driveways for non-porous pavement areas.

16. Establish temporary vegetative cover.

Construction Sequence – Final Phase

1. Repair perimeter sediment & erosion controls as needed.

2. Clean/replace controls from previous phase as needed.

3. Fine grade site.

4. Continue construction of building.

5. Complete construction of sidewalks.

6. Establish final vegetative cover and landscaping.

7. Pave surface course on roadways.

8. Remove erosion controls when site is stabilized.

5.2 Soil Erosion and Sedimentation Control Notes

1. All sedimentation and erosion control measures shall be constructed in accordance with the standards and specifications of the "2024 Connecticut Guidelines for Soil Erosion and Sediment Control", DEP Bulletin No. 34, and all amendments and addenda thereto as published by the Connecticut Department of Environmental Protection.

2. Land disturbance shall be kept to the minimum necessary for construction operations.

3. All erosion control measures shall be installed as shown on the plan and elsewhere as ordered by the engineer.

4. All catch basins shall be protected with a silt sacks, haybale ring, silt fence or block and stone inlet protection throughout the construction period and until all disturbed areas are thoroughly stabilized.

5. Whenever possible, erosion and sediment control measures shall be installed prior to construction. See "Erosion Control Narrative".

6. Additional control measures shall be installed during the construction period as ordered by the engineer.

7. All sedimentation and erosion control measures shall be maintained in effective condition throughout the construction period.

8. Sediment removed shall be disposed of offsite or in a manner as required by the Engineer.

9. The construction contractor shall be responsible for construction and maintenance of all control measures throughout the construction period.

10. All disturbed areas to be left exposed for more than 30 days shall be protected with a temporary vegetative cover. Seed these areas with perennial ryegrass at the rate of 40 lbs. per acre (1 lb. per 1,000 sq. ft). Apply soil amendments and mulch as required to establish a uniform stand of vegetation over all disturbed areas.

11. The construction contractor shall utilize approved methods/materials for preventing the blowing and movement of dust from exposed soil surfaces onto adjacent properties and site areas.

12. The construction contractor shall maintain a supply of silt fence/haybales and anti-tracking crushed stone on site for emergency repairs.

13. All drainage structures shall be periodically inspected weekly by the construction contractor and cleaned to prevent the build-up of silt.

14. The construction contractor shall carefully coordinate the placement of erosion control measures with the phasing of construction.

15. Keep all paved surfaces clean. Sweep and scrape before forecasted storms.

16. Treat all unpaved surface with 4" minimum of topsoil prior to final stabilization.

17. Haybale barriers and silt fencing shall be installed along the toe of critical cut and fill slopes.

18. The contractor shall notify the Town officials prior to the installation of erosion controls, cutting of trees, or any excavation.

19. All trucks leaving the site must be covered.

20. Some control measures are permanent. These structures shall be cleaned and replenished at the end of construction. locations of the permanent control structures are shown on the drainage plans.

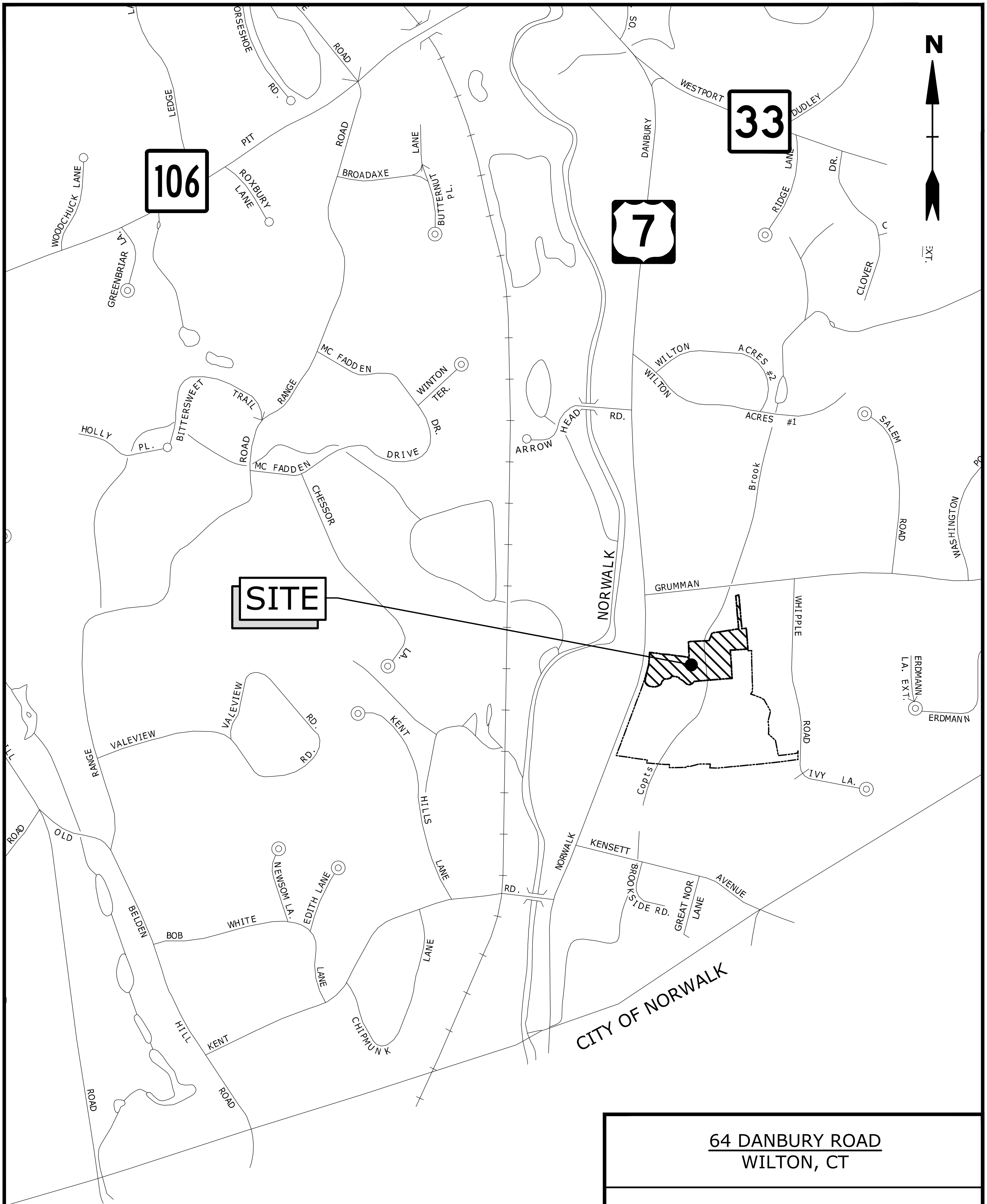
21. All sedimentation and erosion controls shall be checked weekly and/or after each rain fall event. Necessary repairs shall be made without delay.

22. Prior to any forecasted rainfall, erosion and sediment controls shall be inspected and repaired as necessary.

23. After all disturbed areas have been stabilized, erosion controls may be removed once authorization to do so has been secured from the Owner. Disturbed areas shall be seeded and mulched.

24. All embankment slopes 3:1 or greater to be stabilized with erosion control blanket, North American Green SC150BN or approved equivalent, unless otherwise noted on plans.

APPENDIX A



SCALE IN FEET

0 1000' 2000'

GRAPHIC SCALE

64 DANBURY ROAD
WILTON, CT

SITE LOCATION MAP

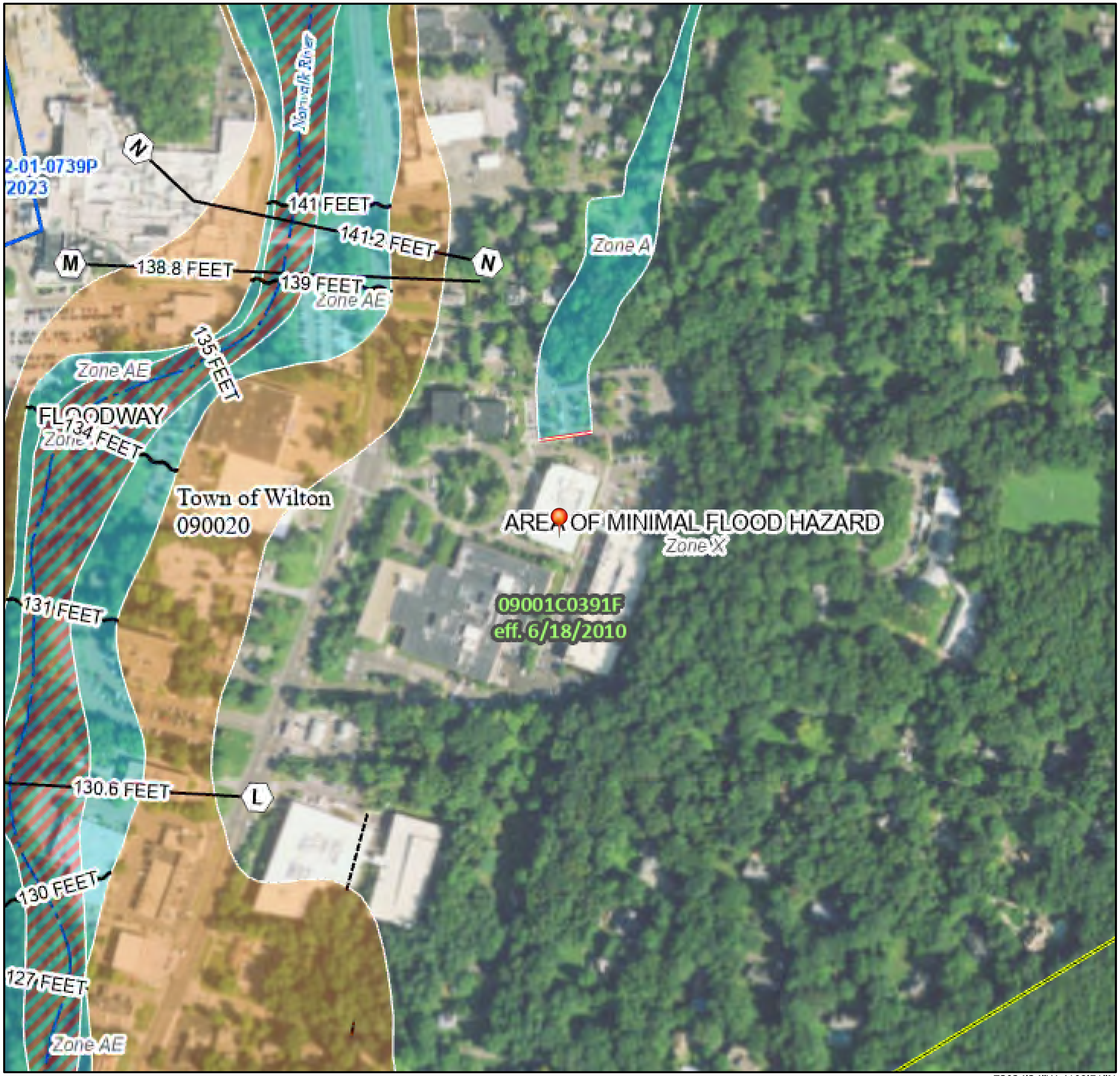
DATE: 12/04/2023
SCALE: 1"=1000'
FIGURE: 1

Tighe&Bond

National Flood Hazard Layer FIRMette

FEMA

73°25'11"W 41°10'18"N



Feet

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

1:6,000

73°24'34"W 41°9'51"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

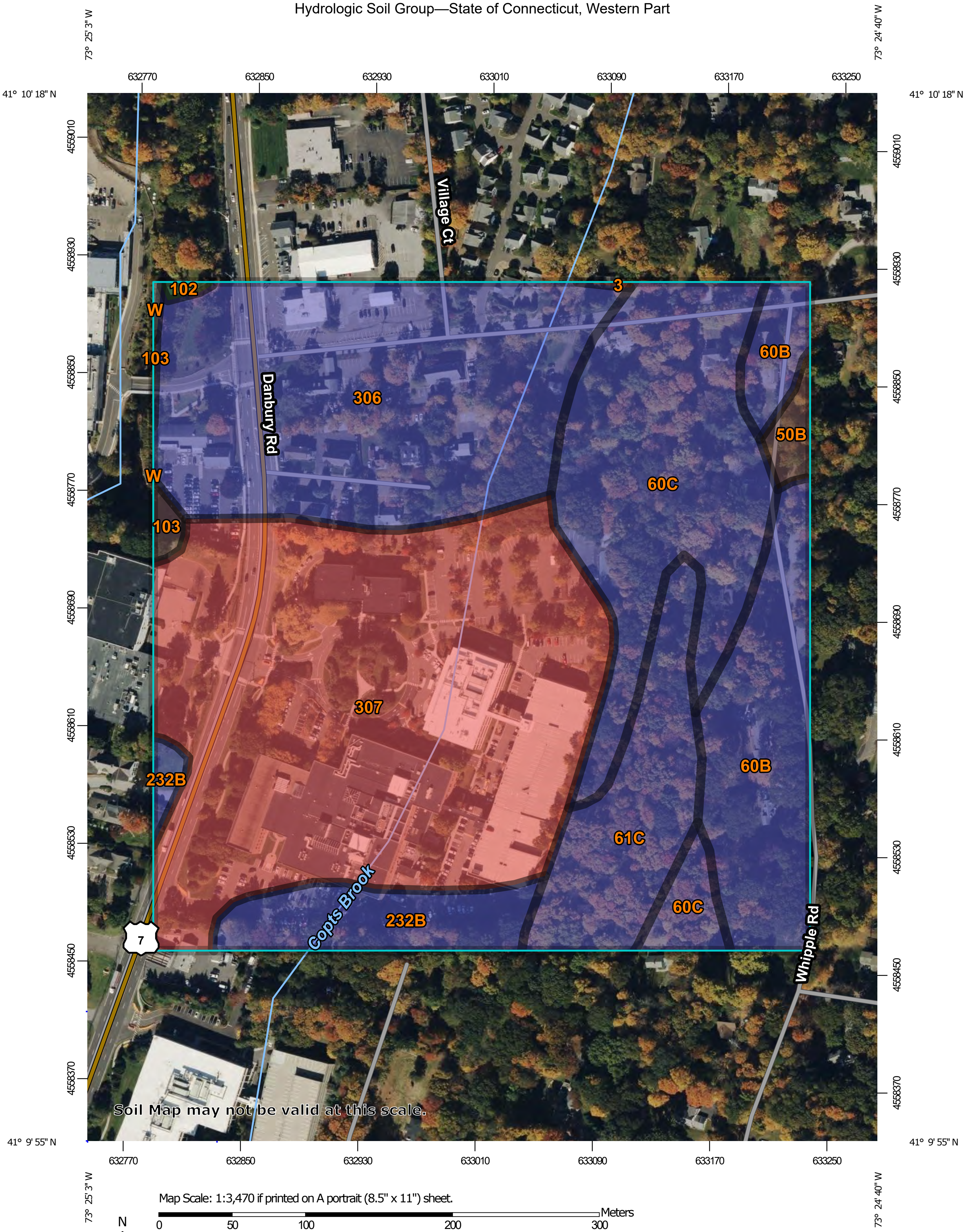
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/4/2023 at 12:02 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

APPENDIX B



Map Scale: 1:3,470 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 50, 100, 200, 300

Feet: 0, 150, 300, 600, 900

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N 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 1:12,000.

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: State of Connecticut, Western Part
Survey Area Data: Version 1, Sep 15, 2023

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

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 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
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	0.0	0.0%
50B	Sutton fine sandy loam, 3 to 8 percent slopes	B/D	0.4	0.9%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	B	5.4	10.6%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	B	8.4	16.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	B	3.8	7.4%
102	Pootatuck fine sandy loam	A/D	0.1	0.1%
103	Rippowam fine sandy loam	B/D	0.2	0.5%
232B	Haven-Urban land complex, 0 to 8 percent slopes	B	2.5	4.9%
306	Udorthents-Urban land complex	B	11.3	22.4%
307	Urban land	D	18.4	36.3%
W	Water		0.0	0.1%
Totals for Area of Interest			**50.5**	**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

NOAA Atlas 14, Volume 10, Version 3
Location name: Wilton, Connecticut, USA*
Latitude: 41.1679°, Longitude: -73.4146°
Elevation: 141 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.365 (0.286-0.461)	0.425 (0.333-0.537)	0.523 (0.408-0.663)	0.604 (0.468-0.770)	0.716 (0.536-0.946)	0.801 (0.586-1.08)	0.888 (0.629-1.23)	0.981 (0.662-1.40)	1.11 (0.719-1.63)	1.21 (0.766-1.82)
10-min	0.518 (0.405-0.654)	0.602 (0.471-0.761)	0.740 (0.577-0.938)	0.855 (0.664-1.09)	1.01 (0.759-1.34)	1.14 (0.831-1.53)	1.26 (0.892-1.75)	1.39 (0.938-1.98)	1.57 (1.02-2.31)	1.71 (1.08-2.57)
15-min	0.609 (0.477-0.769)	0.709 (0.555-0.896)	0.872 (0.680-1.10)	1.01 (0.781-1.28)	1.19 (0.894-1.58)	1.34 (0.977-1.80)	1.48 (1.05-2.06)	1.64 (1.10-2.33)	1.85 (1.20-2.72)	2.02 (1.28-3.03)
30-min	0.849 (0.665-1.07)	0.987 (0.772-1.25)	1.21 (0.946-1.54)	1.40 (1.08-1.78)	1.66 (1.24-2.19)	1.86 (1.36-2.49)	2.06 (1.45-2.84)	2.26 (1.53-3.22)	2.53 (1.64-3.73)	2.74 (1.74-4.12)
60-min	1.09 (0.853-1.38)	1.26 (0.990-1.60)	1.55 (1.21-1.97)	1.79 (1.39-2.28)	2.12 (1.59-2.80)	2.38 (1.74-3.19)	2.63 (1.85-3.63)	2.88 (1.95-4.11)	3.22 (2.09-4.73)	3.47 (2.20-5.20)
2-hr	1.39 (1.10-1.75)	1.64 (1.29-2.06)	2.05 (1.61-2.59)	2.39 (1.87-3.03)	2.86 (2.16-3.76)	3.22 (2.37-4.31)	3.58 (2.56-4.96)	3.98 (2.70-5.64)	4.54 (2.96-6.64)	4.99 (3.17-7.44)
3-hr	1.60 (1.26-2.00)	1.90 (1.50-2.38)	2.39 (1.88-3.00)	2.80 (2.20-3.54)	3.37 (2.55-4.42)	3.79 (2.81-5.08)	4.24 (3.04-5.86)	4.74 (3.21-6.69)	5.45 (3.55-7.94)	6.03 (3.84-8.96)
6-hr	2.01 (1.60-2.50)	2.41 (1.92-2.99)	3.06 (2.42-3.81)	3.60 (2.83-4.51)	4.34 (3.30-5.67)	4.90 (3.65-6.52)	5.48 (3.97-7.57)	6.16 (4.20-8.65)	7.15 (4.68-10.4)	7.98 (5.09-11.8)
12-hr	2.48 (1.99-3.06)	2.99 (2.39-3.69)	3.80 (3.03-4.71)	4.48 (3.55-5.58)	5.42 (4.15-7.04)	6.12 (4.59-8.11)	6.86 (4.99-9.42)	7.72 (5.28-10.8)	8.99 (5.90-12.9)	10.0 (6.43-14.7)
24-hr	2.90 (2.34-3.55)	3.52 (2.84-4.32)	4.54 (3.64-5.58)	5.38 (4.29-6.66)	6.54 (5.05-8.45)	7.41 (5.59-9.77)	8.34 (6.11-11.4)	9.43 (6.47-13.1)	11.1 (7.28-15.8)	12.4 (7.99-18.1)
2-day	3.20 (2.60-3.90)	3.97 (3.22-4.83)	5.21 (4.21-6.36)	6.24 (5.01-7.67)	7.67 (5.95-9.86)	8.72 (6.63-11.5)	9.86 (7.29-13.5)	11.2 (7.74-15.5)	13.4 (8.83-19.0)	15.2 (9.78-22.0)
3-day	3.44 (2.80-4.17)	4.28 (3.48-5.19)	5.65 (4.58-6.87)	6.78 (5.46-8.29)	8.34 (6.50-10.7)	9.50 (7.24-12.4)	10.8 (7.98-14.7)	12.3 (8.47-16.8)	14.6 (9.68-20.7)	16.7 (10.7-24.0)
4-day	3.67 (3.00-4.44)	4.56 (3.72-5.51)	6.00 (4.88-7.28)	7.20 (5.81-8.78)	8.85 (6.91-11.3)	10.1 (7.70-13.1)	11.4 (8.46-15.5)	13.0 (8.98-17.8)	15.5 (10.2-21.8)	17.6 (11.3-25.2)
7-day	4.36 (3.58-5.24)	5.33 (4.37-6.41)	6.90 (5.64-8.32)	8.20 (6.66-9.94)	10.0 (7.83-12.7)	11.3 (8.68-14.7)	12.8 (9.48-17.1)	14.5 (10.0-19.6)	17.0 (11.3-23.8)	19.1 (12.4-27.3)
10-day	5.05 (4.16-6.04)	6.06 (4.99-7.26)	7.71 (6.32-9.27)	9.09 (7.40-11.0)	11.0 (8.61-13.8)	12.4 (9.50-15.9)	13.9 (10.3-18.5)	15.6 (10.9-21.1)	18.1 (12.1-25.3)	20.2 (13.1-28.8)
20-day	7.12 (5.91-8.47)	8.26 (6.84-9.82)	10.1 (8.34-12.1)	11.6 (9.54-14.0)	13.8 (10.8-17.1)	15.4 (11.8-19.5)	17.0 (12.6-22.3)	18.8 (13.2-25.2)	21.2 (14.2-29.4)	23.2 (15.1-32.7)
30-day	8.85 (7.36-10.5)	10.1 (8.37-11.9)	12.1 (9.99-14.3)	13.7 (11.3-16.4)	16.0 (12.6-19.8)	17.8 (13.7-22.3)	19.5 (14.4-25.3)	21.3 (15.0-28.5)	23.7 (15.9-32.7)	25.5 (16.6-36.0)
45-day	11.0 (9.18-13.0)	12.3 (10.3-14.5)	14.5 (12.0-17.1)	16.3 (13.4-19.4)	18.7 (14.8-23.0)	20.7 (15.9-25.8)	22.6 (16.7-29.0)	24.4 (17.2-32.4)	26.8 (18.0-36.8)	28.5 (18.6-39.9)
60-day	12.8 (10.7-15.0)	14.2 (11.9-16.7)	16.5 (13.7-19.5)	18.4 (15.2-21.8)	21.0 (16.7-25.7)	23.1 (17.8-28.7)	25.0 (18.5-32.0)	26.9 (19.0-35.7)	29.3 (19.8-40.1)	31.0 (20.3-43.3)

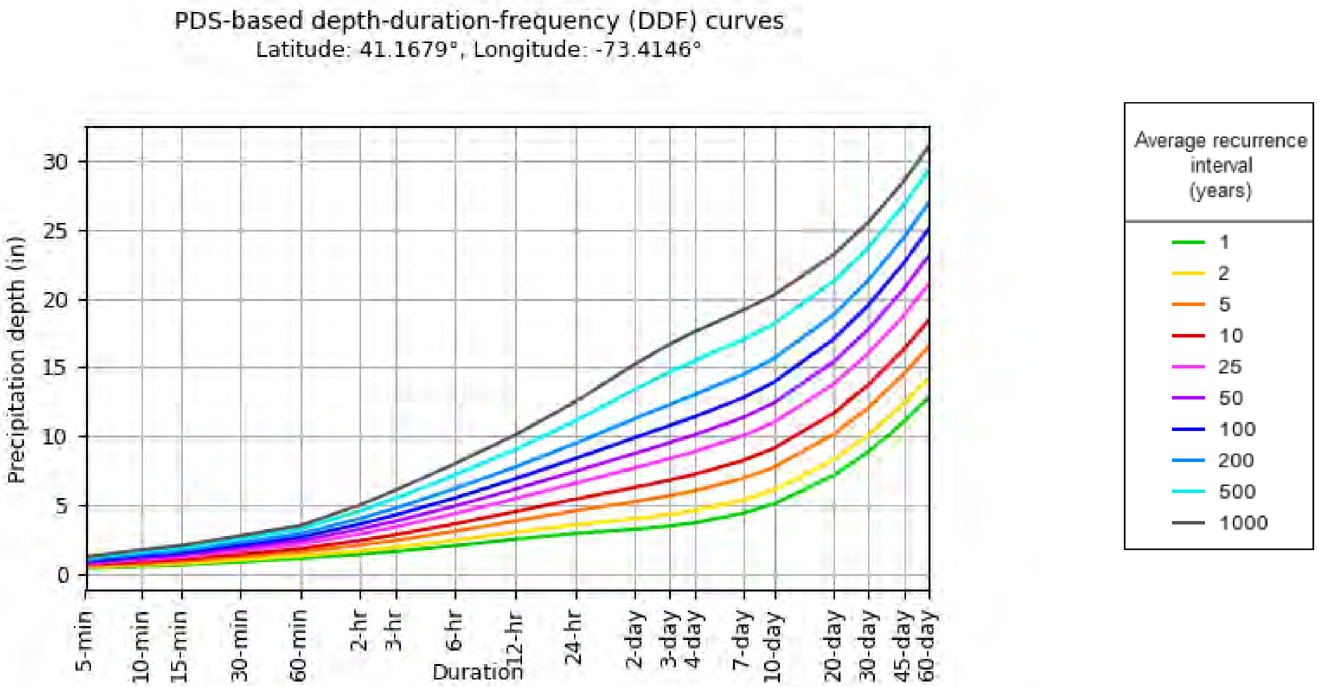
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

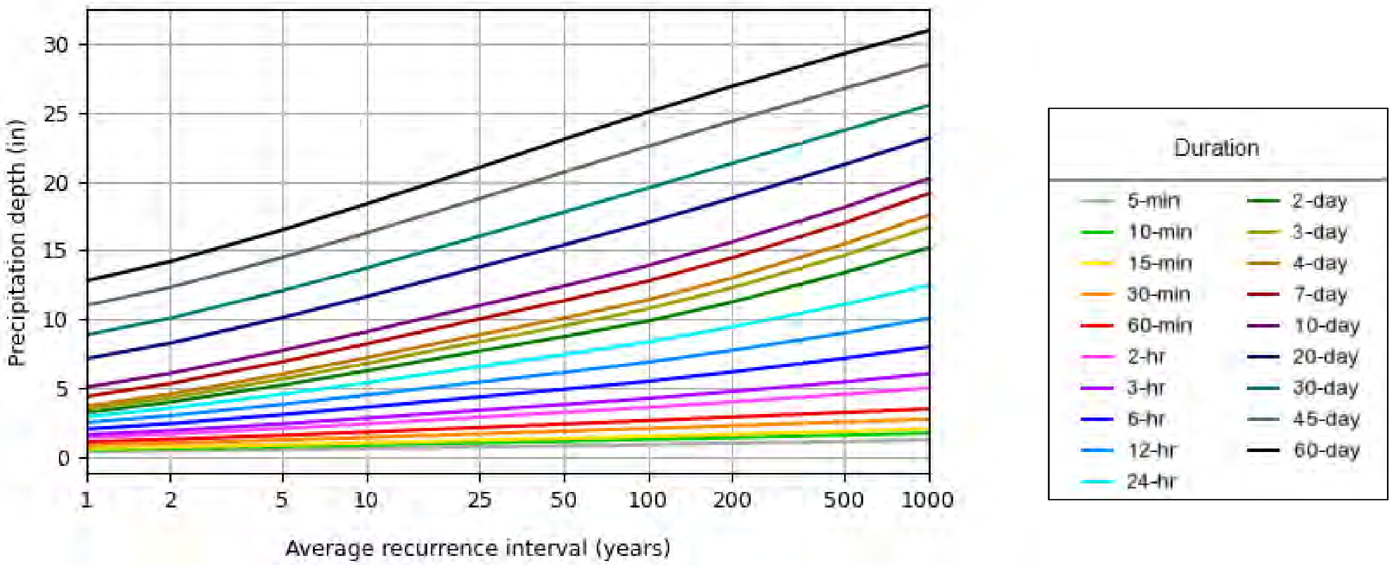
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical





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Back to Top

Maps & aerials

Small scale terrain

NOAA Atlas 14, Volume 10, Version 3
Location name: Wilton, Connecticut, USA*
Latitude: 41.1679°, Longitude: -73.4146°
Elevation: 141 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.38 (3.43-5.53)	5.10 (4.00-6.44)	6.28 (4.90-7.96)	7.25 (5.62-9.24)	8.59 (6.43-11.4)	9.61 (7.03-12.9)	10.7 (7.55-14.8)	11.8 (7.94-16.8)	13.3 (8.63-19.6)	14.5 (9.19-21.8)
10-min	3.11 (2.43-3.92)	3.61 (2.83-4.57)	4.44 (3.46-5.63)	5.13 (3.98-6.54)	6.08 (4.55-8.04)	6.81 (4.99-9.16)	7.55 (5.35-10.5)	8.34 (5.63-11.9)	9.43 (6.11-13.9)	10.3 (6.51-15.4)
15-min	2.44 (1.91-3.08)	2.84 (2.22-3.58)	3.49 (2.72-4.42)	4.03 (3.12-5.13)	4.77 (3.58-6.31)	5.34 (3.91-7.18)	5.92 (4.20-8.22)	6.54 (4.42-9.32)	7.39 (4.80-10.9)	8.07 (5.10-12.1)
30-min	1.70 (1.33-2.14)	1.97 (1.54-2.50)	2.42 (1.89-3.07)	2.80 (2.17-3.57)	3.31 (2.48-4.37)	3.71 (2.71-4.98)	4.11 (2.90-5.68)	4.52 (3.05-6.44)	5.07 (3.29-7.46)	5.48 (3.47-8.23)
60-min	1.09 (0.853-1.38)	1.26 (0.990-1.60)	1.55 (1.21-1.97)	1.79 (1.39-2.28)	2.12 (1.59-2.80)	2.38 (1.74-3.19)	2.63 (1.85-3.63)	2.88 (1.95-4.11)	3.22 (2.09-4.73)	3.47 (2.20-5.20)
2-hr	0.696 (0.549-0.873)	0.821 (0.647-1.03)	1.03 (0.805-1.29)	1.20 (0.933-1.52)	1.43 (1.08-1.88)	1.61 (1.18-2.16)	1.79 (1.28-2.48)	1.99 (1.35-2.82)	2.27 (1.48-3.32)	2.49 (1.58-3.72)
3-hr	0.532 (0.421-0.665)	0.632 (0.500-0.791)	0.797 (0.627-1.00)	0.933 (0.730-1.18)	1.12 (0.848-1.47)	1.26 (0.935-1.69)	1.41 (1.01-1.95)	1.58 (1.07-2.23)	1.81 (1.18-2.64)	2.01 (1.28-2.98)
6-hr	0.335 (0.267-0.416)	0.402 (0.319-0.499)	0.510 (0.404-0.636)	0.600 (0.473-0.752)	0.724 (0.551-0.946)	0.817 (0.609-1.09)	0.915 (0.662-1.26)	1.03 (0.701-1.44)	1.19 (0.781-1.73)	1.33 (0.849-1.96)
12-hr	0.206 (0.165-0.254)	0.247 (0.198-0.305)	0.315 (0.251-0.391)	0.372 (0.294-0.463)	0.449 (0.344-0.583)	0.507 (0.380-0.672)	0.569 (0.414-0.782)	0.641 (0.438-0.893)	0.746 (0.489-1.07)	0.834 (0.533-1.22)
24-hr	0.120 (0.097-0.148)	0.146 (0.118-0.180)	0.189 (0.151-0.232)	0.224 (0.178-0.277)	0.272 (0.210-0.352)	0.308 (0.233-0.407)	0.347 (0.254-0.475)	0.392 (0.269-0.544)	0.461 (0.303-0.659)	0.518 (0.332-0.755)
2-day	0.066 (0.054-0.081)	0.082 (0.066-0.100)	0.108 (0.087-0.132)	0.130 (0.104-0.159)	0.159 (0.123-0.205)	0.181 (0.138-0.238)	0.205 (0.151-0.280)	0.234 (0.161-0.322)	0.278 (0.183-0.395)	0.316 (0.203-0.457)
3-day	0.047 (0.038-0.057)	0.059 (0.048-0.072)	0.078 (0.063-0.095)	0.094 (0.075-0.115)	0.115 (0.090-0.148)	0.131 (0.100-0.172)	0.149 (0.110-0.203)	0.170 (0.117-0.233)	0.203 (0.134-0.287)	0.231 (0.149-0.333)
4-day	0.038 (0.031-0.046)	0.047 (0.038-0.057)	0.062 (0.050-0.075)	0.075 (0.060-0.091)	0.092 (0.071-0.117)	0.104 (0.080-0.136)	0.118 (0.088-0.161)	0.135 (0.093-0.185)	0.161 (0.106-0.227)	0.183 (0.118-0.262)
7-day	0.025 (0.021-0.031)	0.031 (0.025-0.038)	0.041 (0.033-0.049)	0.048 (0.039-0.059)	0.059 (0.046-0.075)	0.067 (0.051-0.087)	0.075 (0.056-0.102)	0.086 (0.059-0.116)	0.101 (0.067-0.141)	0.113 (0.073-0.162)
10-day	0.021 (0.017-0.025)	0.025 (0.020-0.030)	0.032 (0.026-0.038)	0.037 (0.030-0.045)	0.045 (0.035-0.057)	0.051 (0.039-0.066)	0.057 (0.042-0.077)	0.065 (0.045-0.088)	0.075 (0.050-0.105)	0.084 (0.054-0.119)
20-day	0.014 (0.012-0.017)	0.017 (0.014-0.020)	0.021 (0.017-0.025)	0.024 (0.019-0.029)	0.028 (0.022-0.035)	0.032 (0.024-0.040)	0.035 (0.026-0.046)	0.039 (0.027-0.052)	0.044 (0.029-0.061)	0.048 (0.031-0.068)
30-day	0.012 (0.010-0.014)	0.013 (0.011-0.016)	0.016 (0.013-0.019)	0.019 (0.015-0.022)	0.022 (0.017-0.027)	0.024 (0.018-0.031)	0.027 (0.020-0.035)	0.029 (0.020-0.039)	0.032 (0.022-0.045)	0.035 (0.023-0.049)
45-day	0.010 (0.008-0.011)	0.011 (0.009-0.013)	0.013 (0.011-0.015)	0.015 (0.012-0.017)	0.017 (0.013-0.021)	0.019 (0.014-0.023)	0.020 (0.015-0.026)	0.022 (0.015-0.030)	0.024 (0.016-0.034)	0.026 (0.017-0.036)
60-day	0.008 (0.007-0.010)	0.009 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.010-0.015)	0.014 (0.011-0.017)	0.016 (0.012-0.019)	0.017 (0.012-0.022)	0.018 (0.013-0.024)	0.020 (0.013-0.027)	0.021 (0.014-0.030)

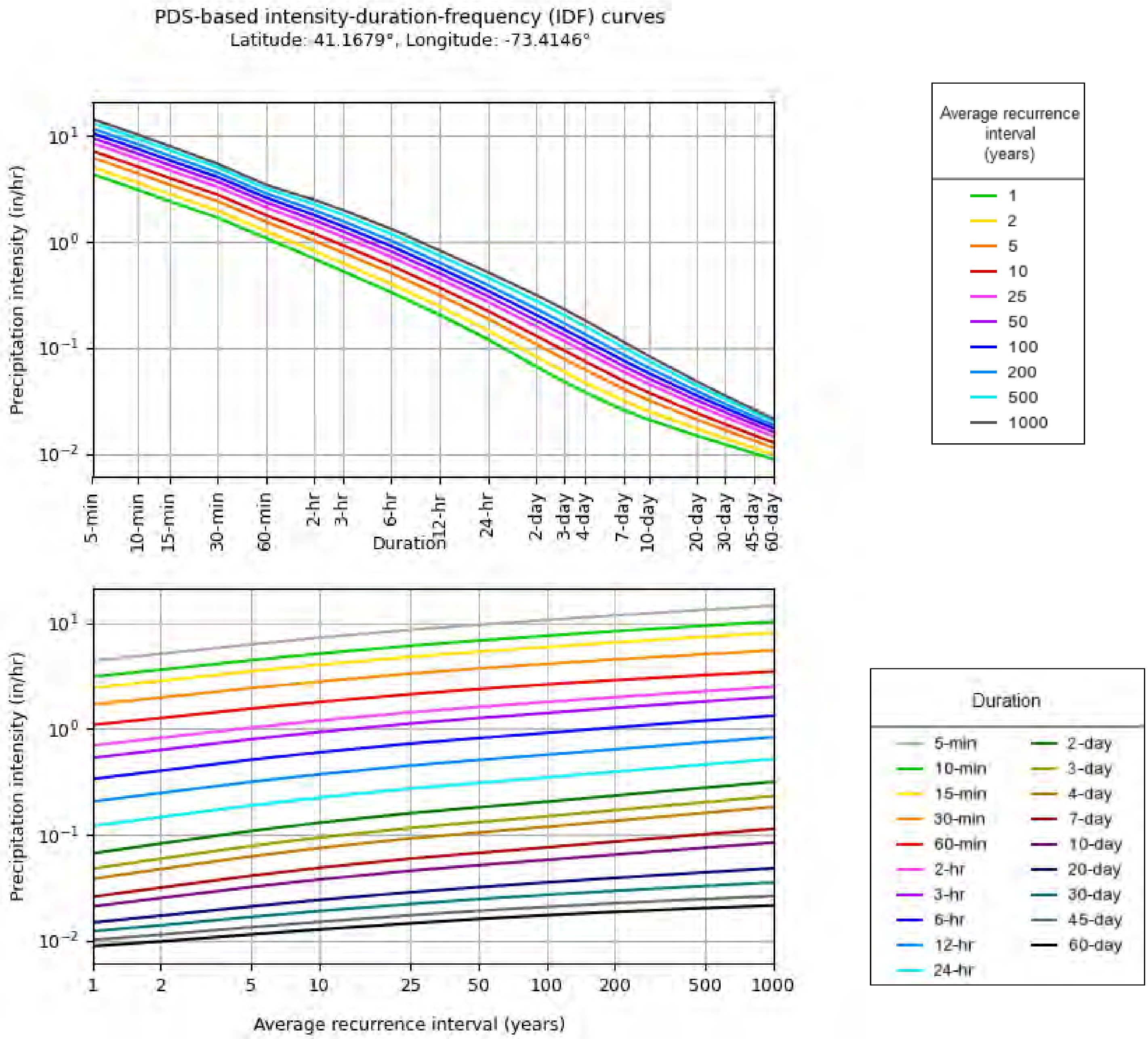
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



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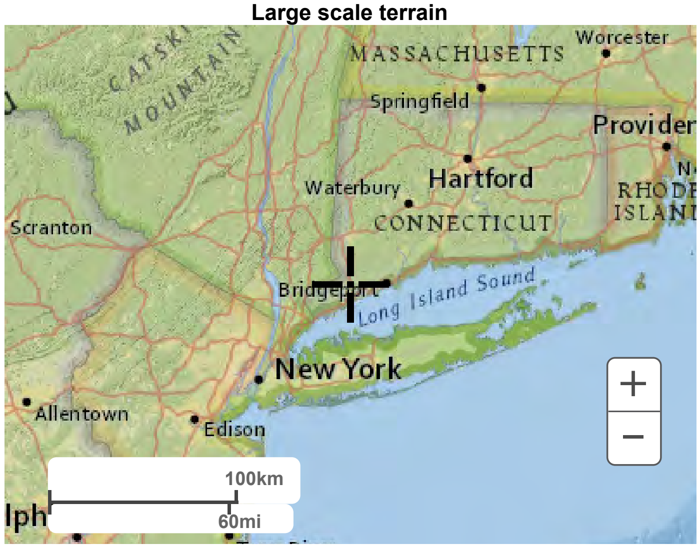
Back to Top

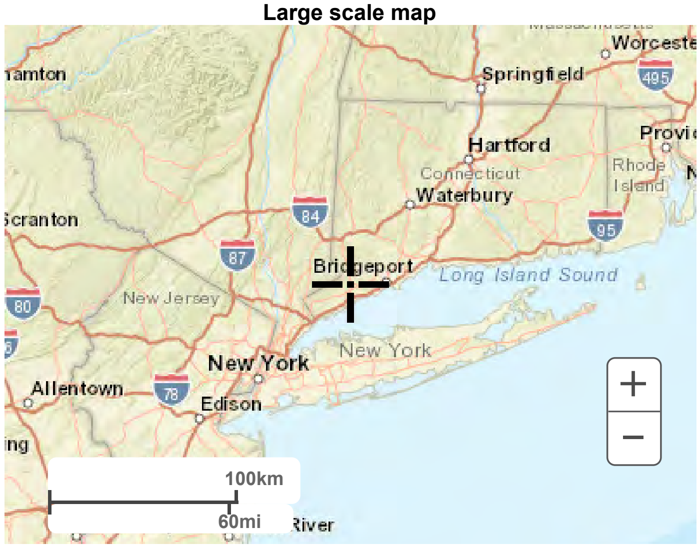
Maps & aerials

Small scale terrain

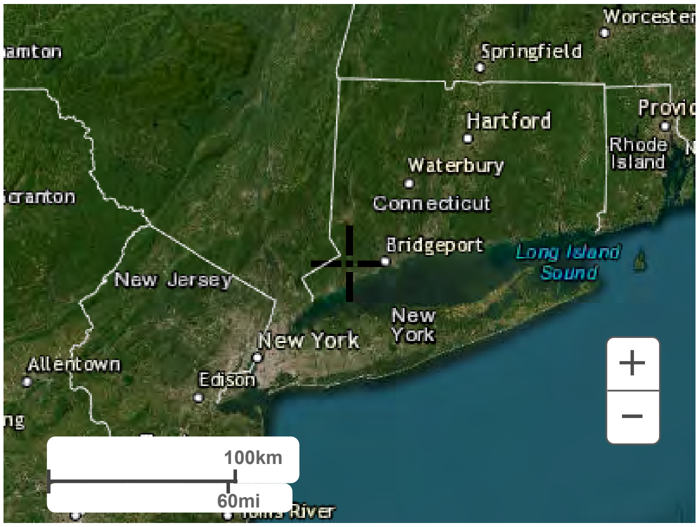
Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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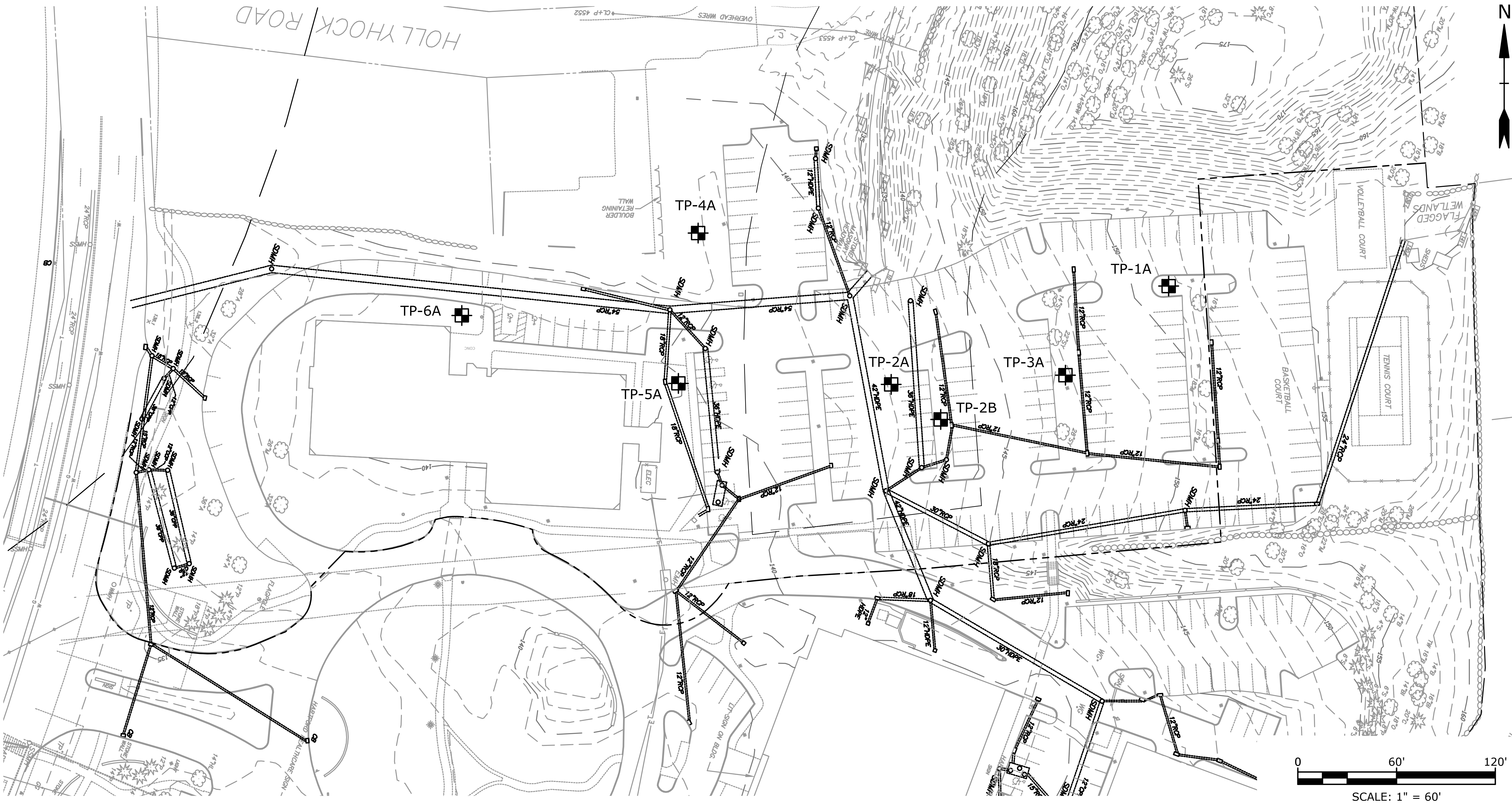

64 DANBURY ROAD
WILTON, CT

TEST PIT FIGURE

DATE: 2/22/2024
SCALE: 1"=60'
FIGURE EX-WS

Tighe&Bond

Tighe & Bond:J:\F\F0173 Fuller\001 64 Danbury Rd\Calculations\Stormwater\Figures\F0173-001-TP-FIGURE.dwg

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Deep Test Pits**
Prepared By: **NDG** Date: **March 07-08, 2024**

<u>TP-1A</u>

0' - 6"	Topsoil
6" - 12"	Grey Silty Gravel
12" - 24"	Dark Brown Sandy Loam w/ Gravel
24" - 84"	Tan Sandy Loam w/ Gravel, Cobbles
84"	Ledge

NO MOTTLING
NO GROUNDWATER

<u>TP-2A</u>

0' - 4"	Bituminous Pavement
4" - 12"	Grey Sandy Loam w/ Cosrse Gravel
12" - 60"	Grey Clean Sandy
60" - 108"	3/4" Crushed Stone
108"	Groundwater

NO LEDGE
NO GROUNDWATER

<u>TP-2B</u>

0 - 6"	Topsoil
6" - 24"	Brown Sandy Loam
24" - 84"	Grey Sandy Loam w/ Gravel, Cobbles
84"	Groundwater

NO LEDGE
NO MOTTLING

<u>TP-3A</u>

0 - 6"	Topsoil
6" - 48"	Brown Silty Loam w/ Sand, Gravel
48" - 60"	Reddish Silt
60" - 84"	Brown Silty Loam w/ Sand, Gravel (Wet)
84" - 108"	Brown Silty Loam w/ Sand, Gravel, Cobbles, Boulders (Wet)

NO LEDGE
NO MOTTLING
NO GROUNDWATER (although soil below 60" was very wet)

<u>TP-4A</u>

0 - 6"	Topsoil
6" - 72"	Light brown Sandy Loam w/ Gravel, Cobbles

NO LEDGE
NO MOTTLING
NO GROUNDWATER (although soil below 60" was very wet)

<u>TP-5A</u>

0 - 6"	Topsoil
6" - 84"	Light Brown Silty to Clean Sand w/ Cobbles, Boulders
84"	Groundwater

NO LEDGE
NO MOTTLING

<u>TP-6A</u>

0 - 6"	Topsoil
6" - 84"	Light Brown Sandy Loam w/ Gravel, Cobbles, Boulders, Debris

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Soil Infiltration Test**
Performed By: **NDG** Date: **March 07-08 2024** Checked By: **EWL**

Test No: **TP-1A**
Method: Double Ring Infiltrometer
Depth: 5'

Δ Time (min)	Δ Depth Inner Ring (in)	Rate (in/min)	Rate (in/hr)	Comments
				Pre-soak
				Topped Off
10.00	1	0.10	6.00	Refilled
10.00	1	0.10	6.00	Refilled
10.00	3/4	0.08	4.50	Refilled
10.00	3/4	0.08	4.50	Refilled
10.00	3/4	0.08	4.50	Refilled
10.00	3/4	0.08	4.50	End Test

Result **Avg. Infiltration Rate** **4.50**

Test No: **TP-2B**
Method: Double Ring Infiltrometer
Depth: 3'

Δ Time (min)	Δ Depth Inner Ring (in)	Rate (in/min)	Rate (in/hr)	Comments
				Pre-soak
				Topped Off
10.00	1/4	0.03	1.50	Refilled
10.00	1/4	0.03	1.50	Refilled
10.00	1/4	0.03	1.50	Refilled
10.00	1/4	0.03	1.50	End Test

Result **Avg. Infiltration Rate** **1.50**

Test No: **TP-4A**
Method: Double Ring Infiltrometer
Depth: 6'

Δ Time (min)	Δ Depth Inner Ring (in)	Rate (in/min)	Rate (in/hr)	Comments
				Pre-soak
				Topped Off
10.00	1 1/2	0.15	9.00	Refilled
10.00	1	0.10	6.00	Refilled
10.00	3/4	0.08	4.50	Refilled
10.00	3/4	0.08	4.50	Refilled
10.00	3/4	0.08	4.50	End Test

Result **Avg. Infiltration Rate** **4.50**

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Soil Infiltration Test**
Performed By: **NDG** Date: **March 07-08 2024** Checked By: **EWL**

Test No: **TP-5A**
Method: Double Ring Infiltrometer
Depth: 5'

Δ Time (min)	Δ Depth Inner Ring (in)	Rate (in/min)	Rate (in/hr)	Comments
				Pre-soak
				Topped Off
10.00	3 1/2	0.35	21.00	Refilled
10.00	3 1/2	0.35	21.00	Refilled
10.00	3 1/2	0.35	21.00	Refilled
10.00	3 1/2	0.35	21.00	End Test

Result **Avg. Infiltration Rate** **21.00**

Test No: **TP-6A**
Method: Double Ring Infiltrometer
Depth: 5'

Δ Time (min)	Δ Depth Inner Ring (in)	Rate (in/min)	Rate (in/hr)	Comments
				Pre-soak
				Topped Off
1.00	2	2.00	120.00	Refilled
1.00	2	2.00	120.00	Refilled
1.00	2	2.00	120.00	Refilled
1.00	1 1/2	1.50	90.00	Refilled
2.00	1 1/2	0.75	45.00	Refilled
2.00	1 1/2	0.75	45.00	Refilled
2.00	1 1/2	0.75	45.00	Refilled
2.00	1 1/2	0.75	45.00	End Test

Result **Avg. Infiltration Rate** **45.00**

SOIL & WETLAND SCIENCE, LLC
OTTO R. THEALL
PROFESSIONAL SOIL SCIENTIST
PROFESSIONAL WETLAND SCIENTIST
2 LLOYD ROAD
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OFFICE (203) 845-0278
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EMAIL: soilwetlandsci@aol.com

SOIL INVESTIGATION REPORT
40, 50-60 DANBURY ROAD
WILTON, CONNECTICUT
APRIL 10, 2017

I conducted an on-site investigation of the soils on the Perkin-Elmer Corporation properties located 40, 50-60 Danbury Road in Wilton, Connecticut on February 23 and 24, March 9 and April 10, 2017. The examination for wetland soils was conducted in the field by inspection of approximately 300 soil samples taken with spade and auger.

Inland wetlands in Connecticut, according to the Connecticut General Statutes, are lands, including submerged lands, which consist of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey of the NRCS. Watercourses include rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent. Intermittent watercourses are to be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (A) evidence of scour or deposits of recent alluvium or detritus, (B) the presence of standing or flowing water for a duration longer than a particular storm incident, and (C) the presence of hydrophytic vegetation.

The wetland boundary was marked in the field with red flags numbered 1 through 10, 11 through 40, 47 through 77, 78 through 87, 88 through 141, 139 through 142 and 146 through 150. The wetland soils consist of Aquents (1), Ridgebury, Leicester and Whitman soils, extremely stony (3) and Raypol silt loam (12). The non-wetland soils consist of Haven and Enfield soils (32), Sutton fine sandy loam (50), Canton and Charlton soils (60), Canton and Charlton soils, very stony (61), Udorthents-Urban land complex (306), Urban land (307) and Udorthents, smoothed (308). The soil map units contain inclusions of other soil types. The results of this investigation are subject to change until accepted by the Inland Wetland Commission of the Town of Wilton.

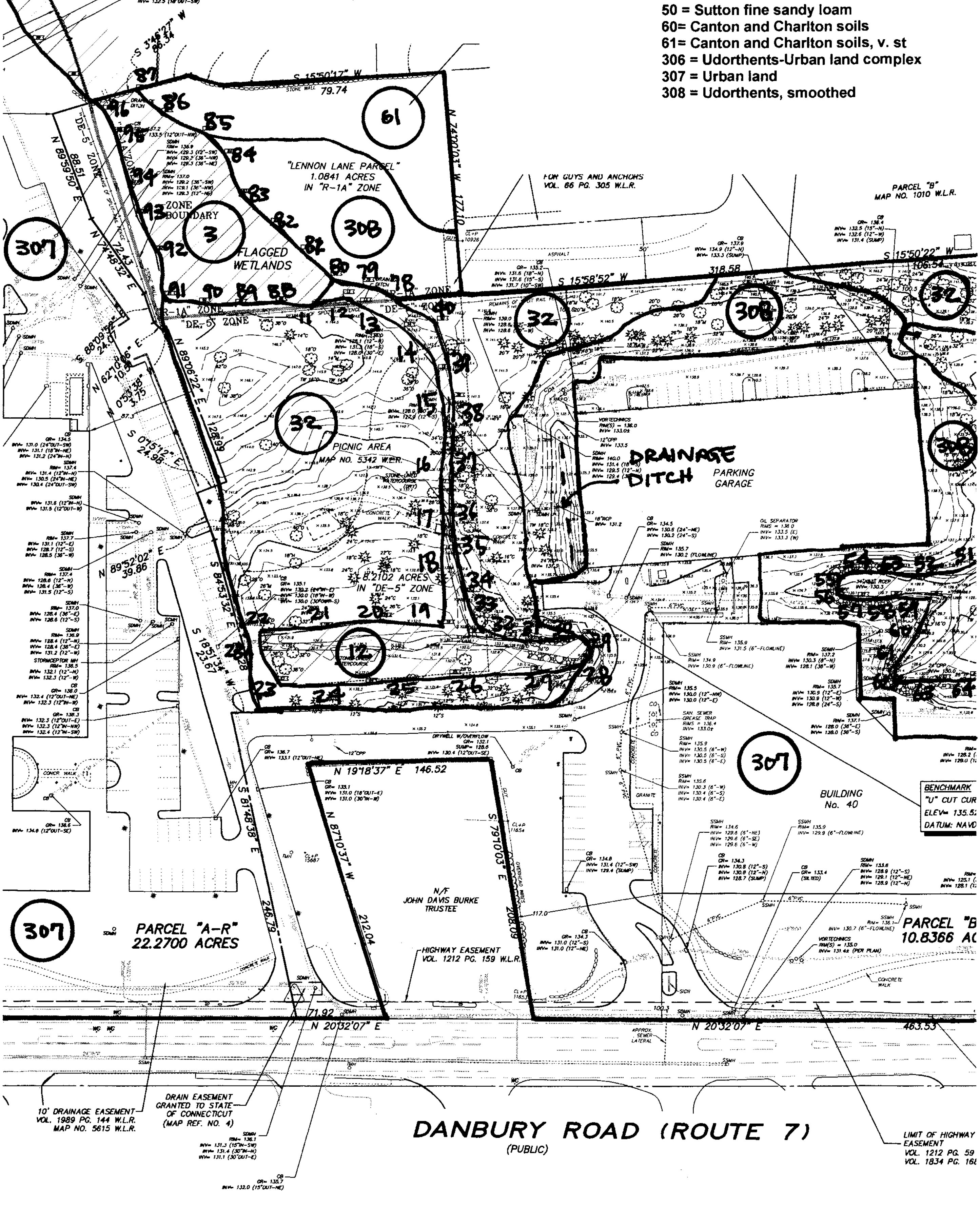
Respectfully submitted:

Otto R. Theall

Otto R. Theall
Professional Soil Scientist

SOIL SURVEY SKETCH MAP
40, 50-60 DANBURY ROAD
WILTON, CONNECTICUT
SOIL & WETLAND SCIENCE, LLC
OTTO R. THEALL
PROFESSIONAL SOIL SCIENTIST
APRIL 10, 2017

SOIL LEGEND:
Wetland Soils:
1 = Aquents
3 = Ridgebury, Leicester & Whitman
12 = Raypol silt loam
Non-wetland Soils:
32 = Haven and Enfield soils
50 = Sutton fine sandy loam
60= Canton and Charlton soils
61= Canton and Charlton soils, v. st
306 = Udorthents-Urban land complex
307 = Urban land
308 = Udorthents, smoothed



APPENDIX C

LEGEND

WATERSHED BOUNDARY	
TIME OF CONCENTRATION	
PAVEMENT/ROOF	
LANDSCAPED AND LAWNS	
WOODED	

64 DANBURY ROAD
WILTON, CT

EXISTING WATERSHED FIGURE

DATE: 03/28/2024
SCALE: 1"=150'
FIGURE EX-WS

Tighe&Bond

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Existing CN & Tc Calculations** Prepared By: **AVC/ZNH** Date: **March 28, 2024**

Designation: **EX WS-01**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.443	98	43.4273
Landscaped and Lawns (HSG-B)	1.175	69	81.0956
Landscaped and Lawns (HSG-D)	0.080	84	6.6818
Wooded (HSG-B)	1.744	55	95.9318
Wooded (HSG-D)	0.235	77	18.0604
	3.677		245.197

Weighted CN: 66.7

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	150	0.11	9.83
Segment B - C	0.015	46	0.11	0.42
Segment C - D	0.24	4	0.11	0.54
Segment D - E	0.4	124	0.14	11.53
Segment E - F	0.24	92	0.1	6.91
Segment F - G	0.4	27	0.07	4.49
Segment G - H	0.24	51	0.08	4.71
Segment H - I	0.015	11	0.09	0.14
Segment I - J	0.24	43	0.02	7.15

Total Tc = 45.7 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Existing CN & Tc Calculations** Prepared By: **AVC/ZNH** Date: **March 28, 2024**

Designation: **EX WS-02A**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.906	98	88.7872
Landscaped and Lawns (HSG-B)	0.074	69	5.1060
Landscaped and Lawns (HSG-D)	0.138	84	11.5895
Wooded (HSG-B)	0.210	55	11.5500
Wooded (HSG-D)	0.129	77	9.9414
	1.457		126.974

Weighted CN: 87

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	18	0.02	3.56
Segment B - C	0.015	67	0.033	0.91

Total Tc = 4.5 Min.
Minimum Tc = 5.0 (MIN)

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02B**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.006	98	0.5917
Landscaped and Lawns (HSG-B)	0.005	69	0.3738
Landscaped and Lawns (HSG-D)	0.120	84	10.0545
Wooded (HSG-B)	0.029	55	1.6061
Wooded (HSG-D)	0.025	77	1.9604
	0.186		14.586

Weighted CN: 79

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	84	0.072	11.02

Total Tc = 11.0 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond
Consulting Engineers
Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Existing CN & Tc Calculations**
Prepared By: **AVC/ZNH** Date: **March 28, 2024**

Designation: **EX WS-02C**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.391	98	38.3293
Landscaped and Lawns (HSG-D)	0.199	84	16.7287
	0.590		55.058

Weighted CN: **93**

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	108	0.08	8.58
Segment B - C	0.015	82	0.067	0.80

Total Tc = 9.4 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02D**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	1.683	98	164.9442
Landscaped and Lawns (HSG-D)	0.313	84	26.3300
Wooded (HSG-B)	0.448	55	24.6212
Wooded (HSG-D)	0.018	77	1.3841
	2.462		217.279

Weighted CN: **88**

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	212	0.18	16.02
Segment B - C	0.24	77	0.12	5.57
Segment C - D	0.015	43	0.045	0.56

Total Tc = 22.1 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02E**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.126	98	12.3580
Landscaped and Lawns (HSG-D)	0.020	84	1.6430
	0.146		14.001

Weighted CN: 96

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	6	0.02	1.48
Segment B - C	0.015	94	0.01	1.92

Total Tc = 3.4 Min.
USE 5.0 Min. (MIN)

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02F**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.704	98	68.9667
Landscaped and Lawns (HSG-D)	0.274	84	23.0229
Wooded (HSG-D)	0.034	77	2.6356
	1.012		94.625

Weighted CN: 93

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	35	0.025	5.55

Total Tc = 5.5 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02G**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.159	98	15.5459
Landscaped and Lawns (HSG-D)	0.124	84	10.3997
	0.282		25.946

Weighted CN: 92

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	46	0.025	6.91

Total Tc = 6.9 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02H**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.166	98	16.2591
Landscaped and Lawns (HSG-D)	0.450	84	37.8309
	0.616		54.090

Weighted CN: 88

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	65	0.025	9.11
Segment B - C	0.015	6	0.02	0.16
Segment C - D	0.25	53	0.025	7.99

Total Tc = 17.3 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02I**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.577	98	56.5165
Landscaped and Lawns (HSG-D)	0.810	84	68.0311
	1.387		124.548

Weighted CN: 90

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	82	0.06	7.73
Segment B - C	0.015	6	0.02	0.16
Segment C - D	0.25	97	0.04	10.74

Total Tc = 18.6 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **EX WS-02J**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.343	98	33.5756
	0.343		33.576

Weighted CN: 98

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	75	0.02	1.21

Total Tc = 1.2 Min.
USE 5.0 Min. (MIN)

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond
Consulting Engineers
Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Existing CN & Tc Calculations**
Prepared By: **AVC/ZNH** Date: **March 28, 2024**

Designation: **EX WS-03**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.358	98	35.0424
Landscaped and Lawns (HSG-B)	1.279	69	88.2510
Wooded (HSG-B)	3.270	55	179.8500
	4.907		303.143

Weighted CN: 62

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

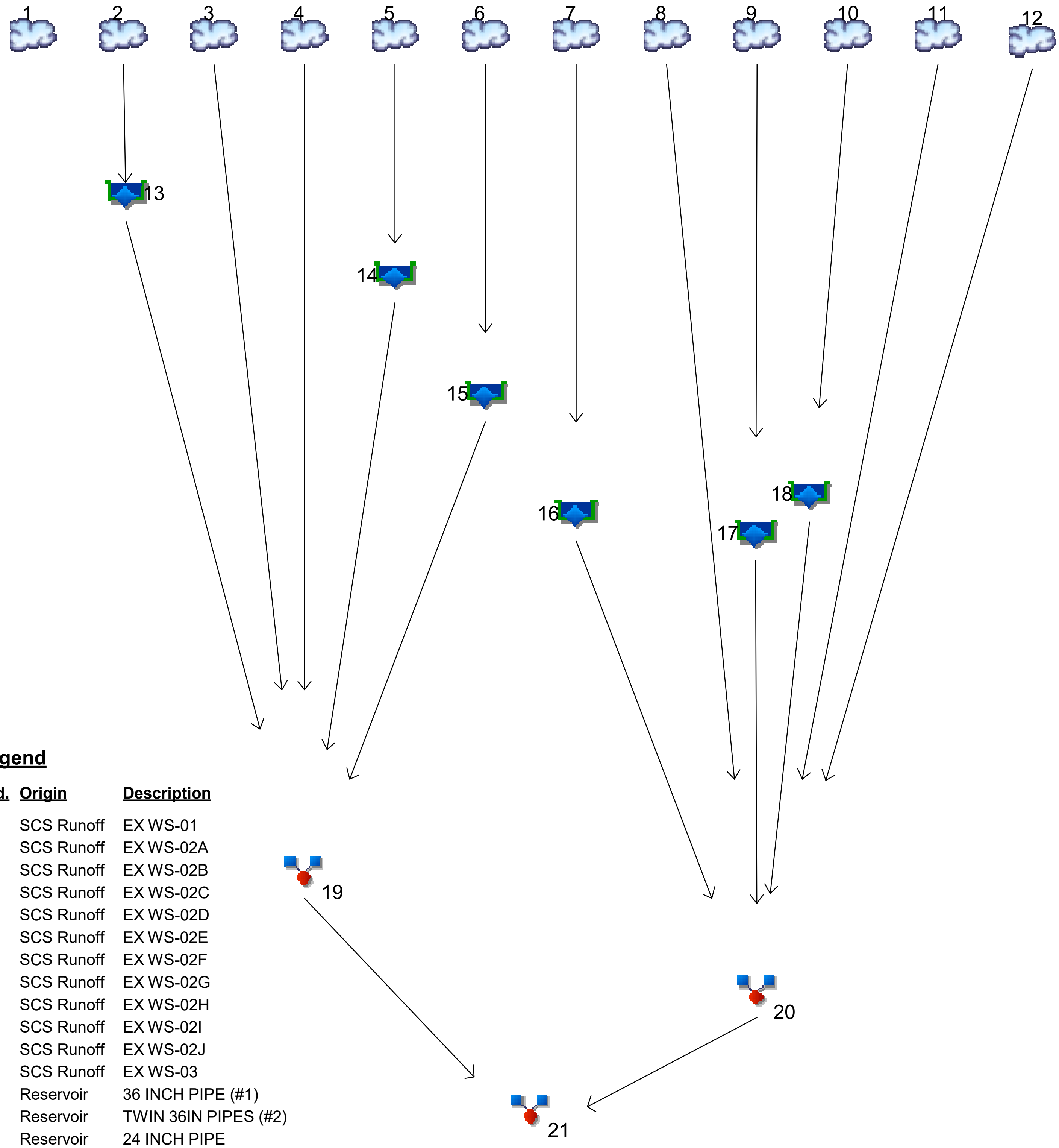
Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	182	0.09	18.71
Segment B - C	0.24	63	0.03	8.26
Segment C - D	0.015	11	0.015	0.29
Segment D - E	0.24	27	0.015	5.53
Segment E - F	0.015	28	0.015	0.62
Segment F - G	0.24	62	0.1	5.04
Segment G - H	0.4	198	0.15	16.31

Total Tc = 54.8 Min.
0.91 Hrs.
Total Lag = 0.68 Hrs.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021



Legend

Hyd.	Origin	Description
1	SCS Runoff	EX WS-01
2	SCS Runoff	EX WS-02A
3	SCS Runoff	EX WS-02B
4	SCS Runoff	EX WS-02C
5	SCS Runoff	EX WS-02D
6	SCS Runoff	EX WS-02E
7	SCS Runoff	EX WS-02F
8	SCS Runoff	EX WS-02G
9	SCS Runoff	EX WS-02H
10	SCS Runoff	EX WS-02I
11	SCS Runoff	EX WS-02J
12	SCS Runoff	EX WS-03
13	Reservoir	36 INCH PIPE (#1)
14	Reservoir	TWIN 36IN PIPES (#2)
15	Reservoir	24 INCH PIPE
16	Reservoir	36 INCH PIPE (#2)
17	Reservoir	36 INCH PIPE (#3)
18	Reservoir	TWO 36 INCH PIPES
19	Combine	<no description>
20	Combine	<no description>
21	Combine	Design Point B

Project: Existing-Hydraflow.gpw | Thursday, 04 / 4 / 2024

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	------	-------	1.539	-------	-------	4.097	5.932	7.378	8.969	EX WS-01
2	SCS Runoff	------	-------	3.631	-------	-------	6.345	8.035	9.296	10.64	EX WS-02A
3	SCS Runoff	------	-------	0.283	-------	-------	0.569	0.755	0.895	1.046	EX WS-02B
4	SCS Runoff	------	-------	1.664	-------	-------	2.685	3.315	3.785	4.285	EX WS-02C
5	SCS Runoff	------	-------	4.374	-------	-------	7.568	9.563	11.05	12.64	EX WS-02D
6	SCS Runoff	------	-------	0.468	-------	-------	0.731	0.894	1.015	1.145	EX WS-02E
7	SCS Runoff	------	-------	3.039	-------	-------	4.896	6.042	6.897	7.807	EX WS-02F
8	SCS Runoff	------	-------	0.774	-------	-------	1.265	1.567	1.793	2.033	EX WS-02G
9	SCS Runoff	------	-------	1.152	-------	-------	1.996	2.521	2.913	3.330	EX WS-02H
10	SCS Runoff	------	-------	2.779	-------	-------	4.677	5.852	6.727	7.659	EX WS-02I
11	SCS Runoff	------	-------	1.132	-------	-------	1.741	2.120	2.404	2.707	EX WS-02J
12	SCS Runoff	------	-------	0.834	-------	-------	2.690	4.111	5.256	6.537	EX WS-03
13	Reservoir	2	-------	3.618	-------	-------	6.339	8.034	8.911	9.045	36 INCH PIPE (#1)
14	Reservoir	5	-------	4.352	-------	-------	7.442	9.452	10.93	12.50	TWIN 36IN PIPES (#2)
15	Reservoir	6	-------	0.440	-------	-------	0.701	0.901	1.040	1.127	24 INCH PIPE
16	Reservoir	7	-------	2.961	-------	-------	4.789	5.869	6.709	7.323	36 INCH PIPE (#2)
17	Reservoir	9	-------	0.057	-------	-------	2.020	3.073	2.890	3.297	36 INCH PIPE (#3)
18	Reservoir	10	-------	2.821	-------	-------	4.587	5.764	6.644	7.572	TWO 36 INCH PIPES
19	Combine	3, 4, 13, 14, 15,	-------	8.831	-------	-------	14.85	18.63	21.92	25.05	<no description>
20	Combine	8, 11, 12, 16, 17, 18,	-------	6.758	-------	-------	11.40	14.87	18.82	22.06	<no description>
21	Combine	19, 20	-------	15.23	-------	-------	26.25	33.18	40.73	46.31	Design Point B

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	1.539	2	758	11,394	------	------	------	EX WS-01
2	SCS Runoff	3.631	2	724	10,910	------	------	------	EX WS-02A
3	SCS Runoff	0.283	2	730	1,101	------	------	------	EX WS-02B
4	SCS Runoff	1.664	2	726	5,899	------	------	------	EX WS-02C
5	SCS Runoff	4.374	2	736	20,803	------	------	------	EX WS-02D
6	SCS Runoff	0.468	2	724	1,523	------	------	------	EX WS-02E
7	SCS Runoff	3.039	2	724	9,485	------	------	------	EX WS-02F
8	SCS Runoff	0.774	2	726	2,719	------	------	------	EX WS-02G
9	SCS Runoff	1.152	2	732	5,114	------	------	------	EX WS-02H
10	SCS Runoff	2.779	2	732	12,419	------	------	------	EX WS-02I
11	SCS Runoff	1.132	2	724	3,836	------	------	------	EX WS-02J
12	SCS Runoff	0.834	2	798	11,082	------	------	------	EX WS-03
13	Reservoir	3.618	2	724	8,949	2	143.60	1,515	36 INCH PIPE (#1)
14	Reservoir	4.352	2	736	16,179	5	139.00	3,136	TWIN 36IN PIPES (#2)
15	Reservoir	0.440	2	724	690	6	139.60	475	24 INCH PIPE
16	Reservoir	2.961	2	724	6,152	7	139.42	1,180	36 INCH PIPE (#2)
17	Reservoir	0.057	2	916	470	9	137.46	3,649	36 INCH PIPE (#3)
18	Reservoir	2.821	2	728	6,466	10	135.68	2,408	TWO 36 INCH PIPES
19	Combine	8.831	2	726	32,817	3, 4, 13, 14, 15,	------	------	<no description>
20	Combine	6.758	2	728	30,725	8, 11, 12, 16, 17, 18,	------	------	<no description>
21	Combine	15.23	2	728	63,542	19, 20	------	------	Design Point B

Existing-Hydraflow.gpw	Return Period: 2 Year	Thursday, 04 / 4 / 2024

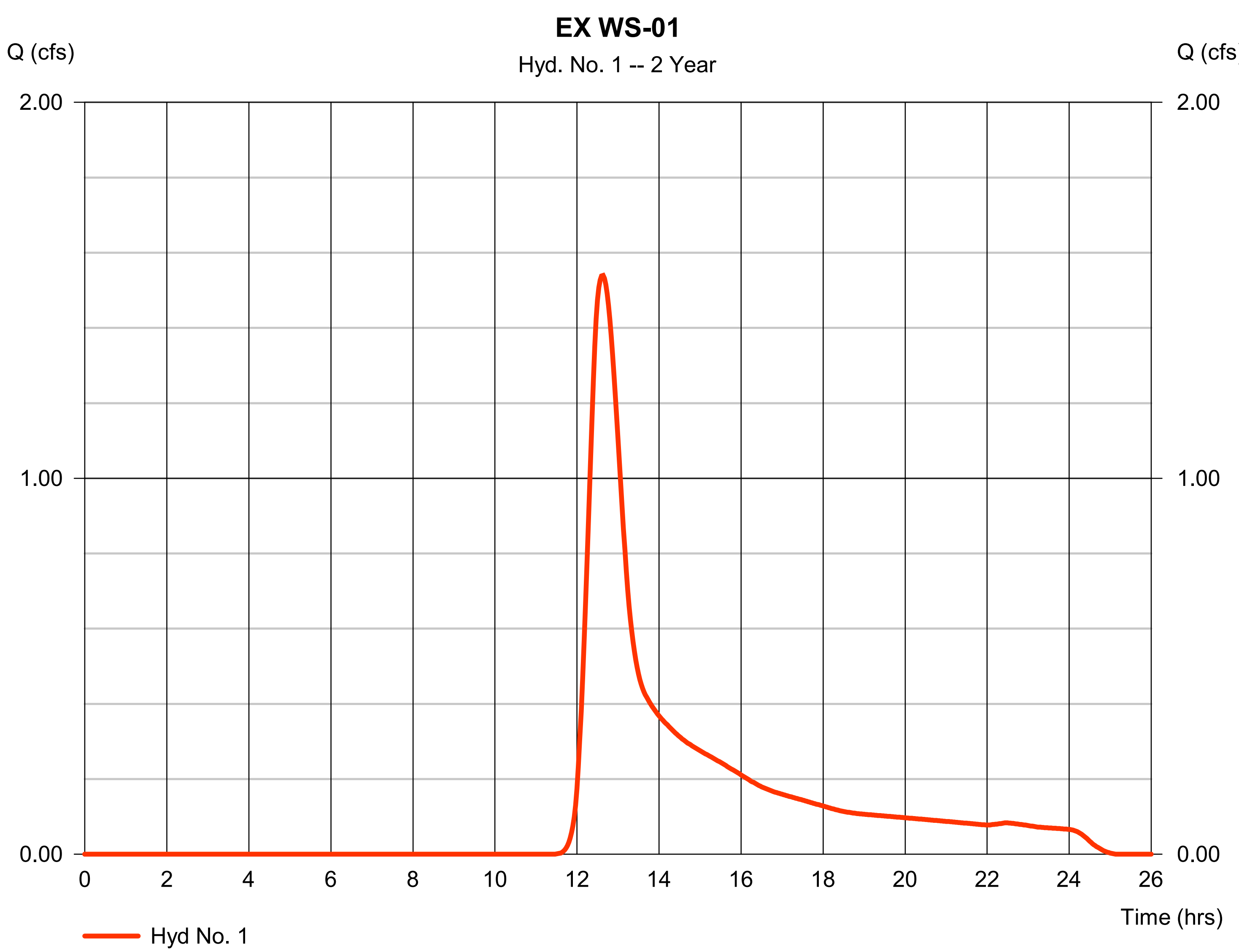
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

EX WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 1.539 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.63 hrs
Time interval	= 2 min	Hyd. volume	= 11,394 cuft
Drainage area	= 3.677 ac	Curve number	= 67
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



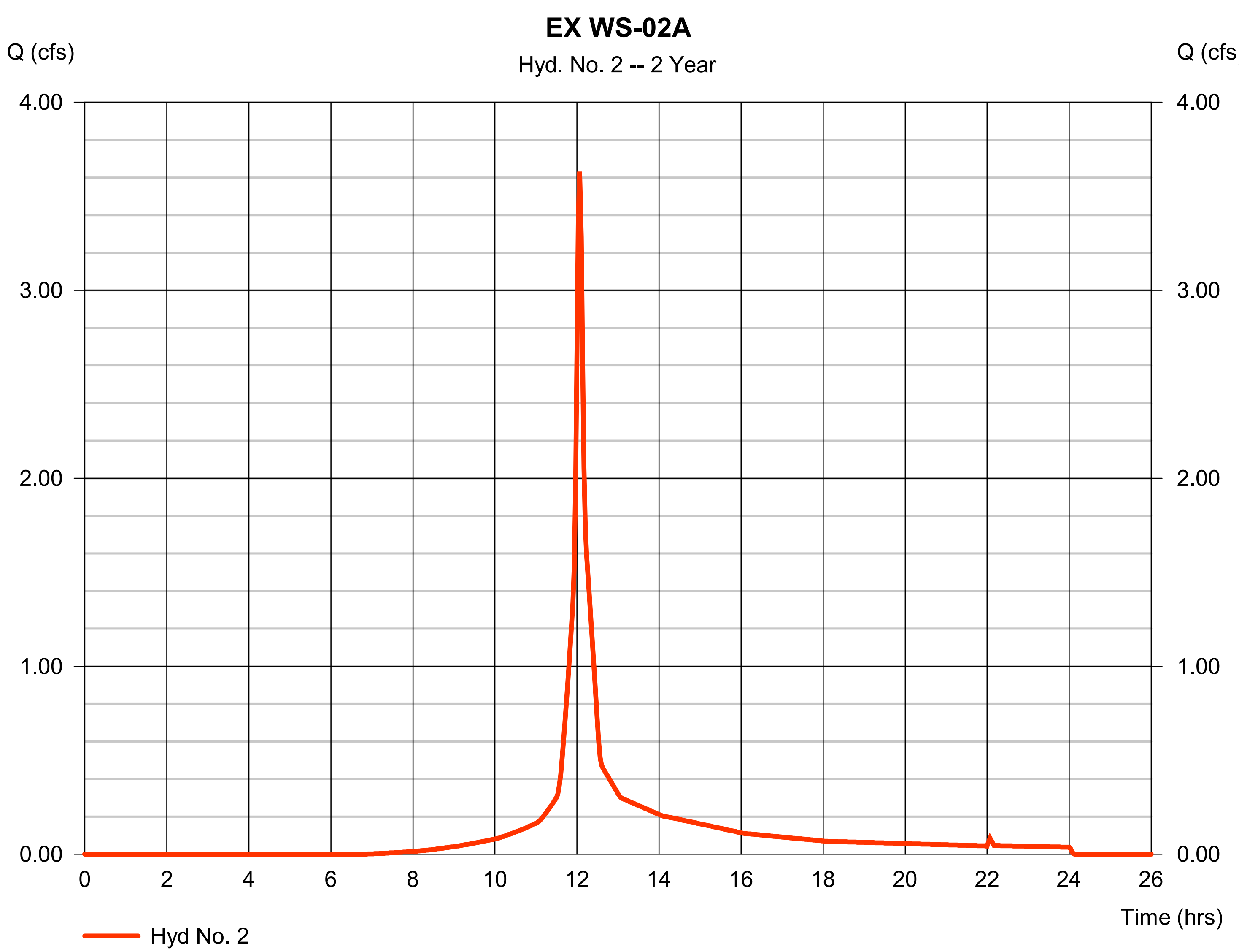
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 2

EX WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 3.631 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 10,910 cuft
Drainage area	= 1.457 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



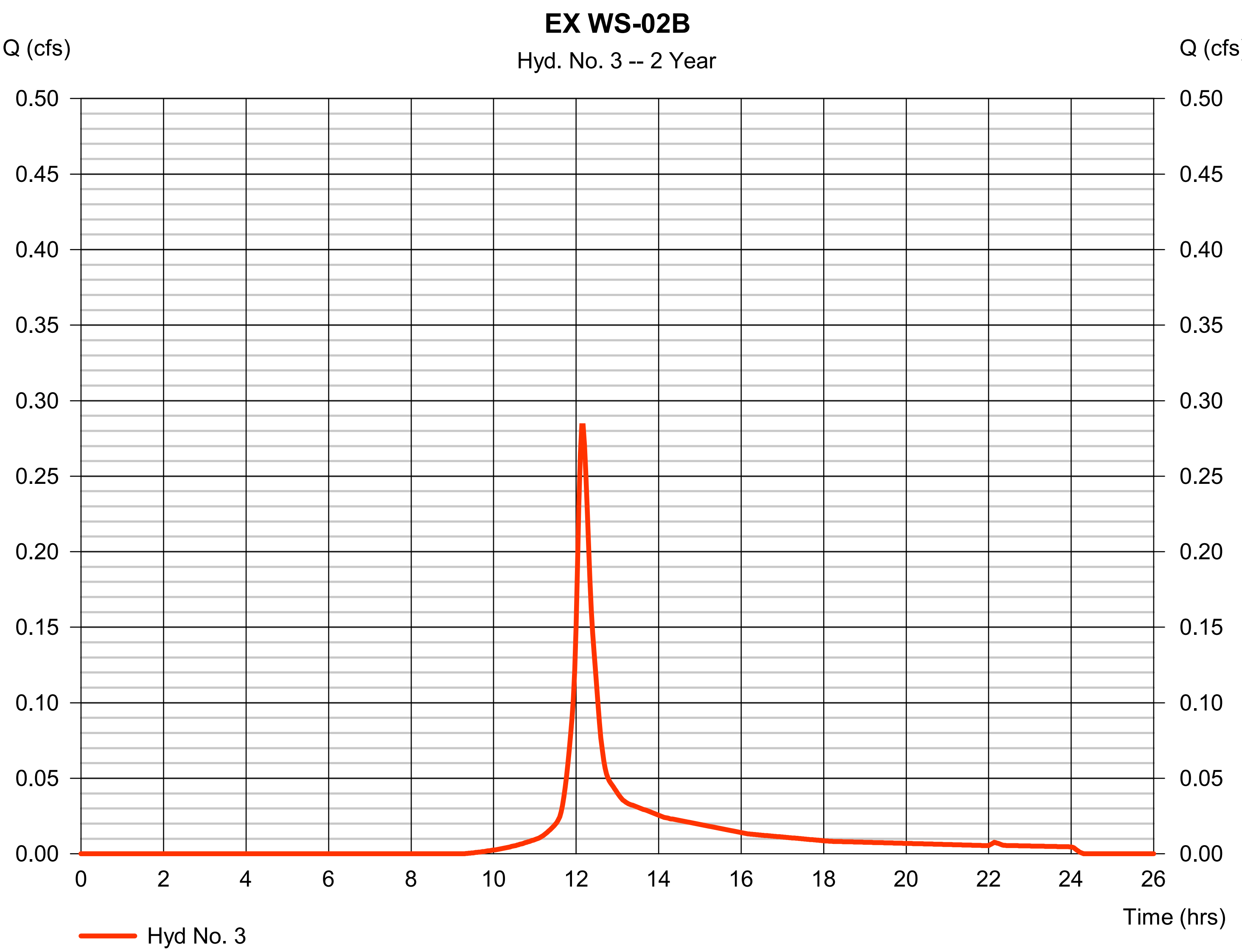
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 3

EX WS-02B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.283 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 1,101 cuft
Drainage area	= 0.186 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



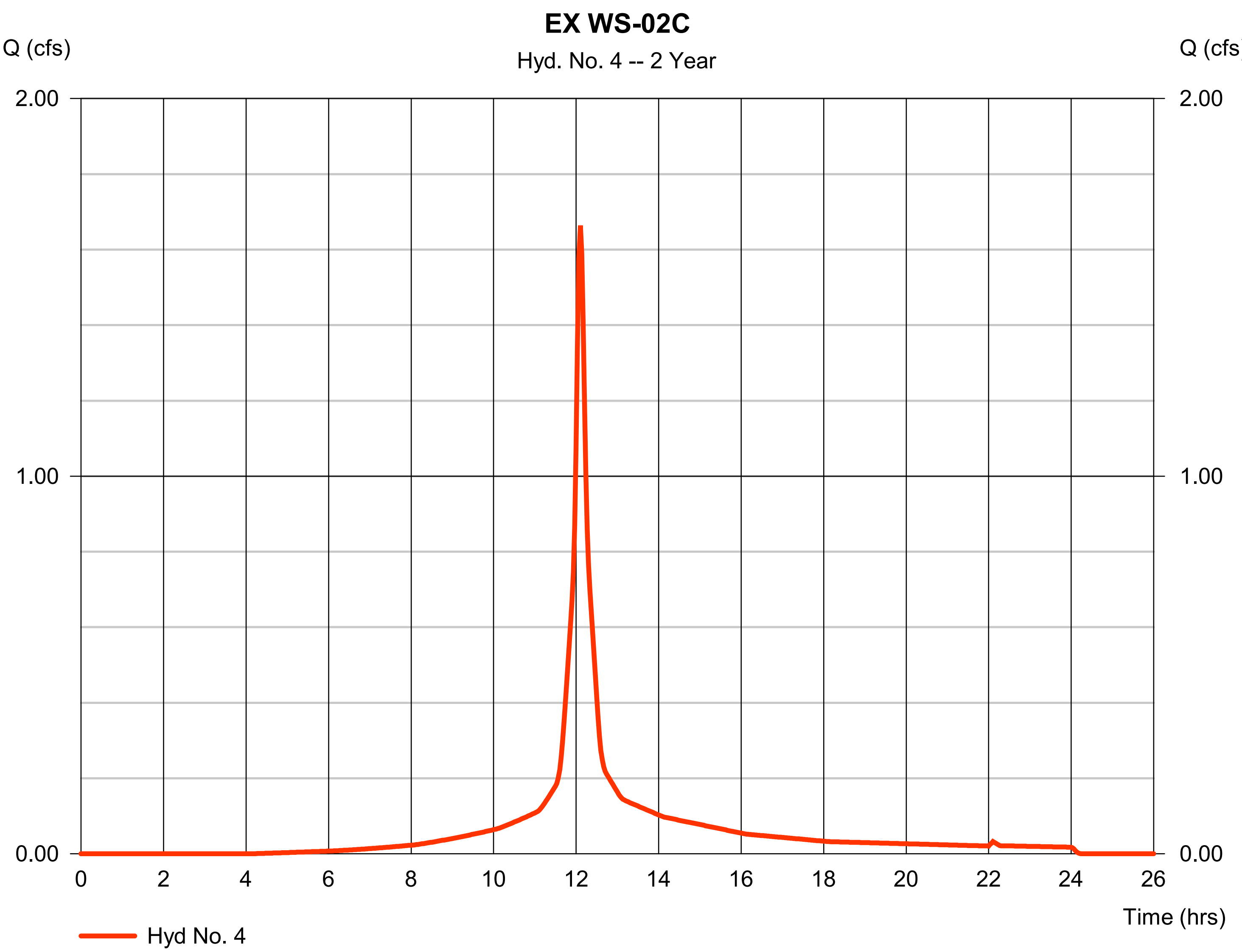
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 4

EX WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 1.664 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 5,899 cuft
Drainage area	= 0.590 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



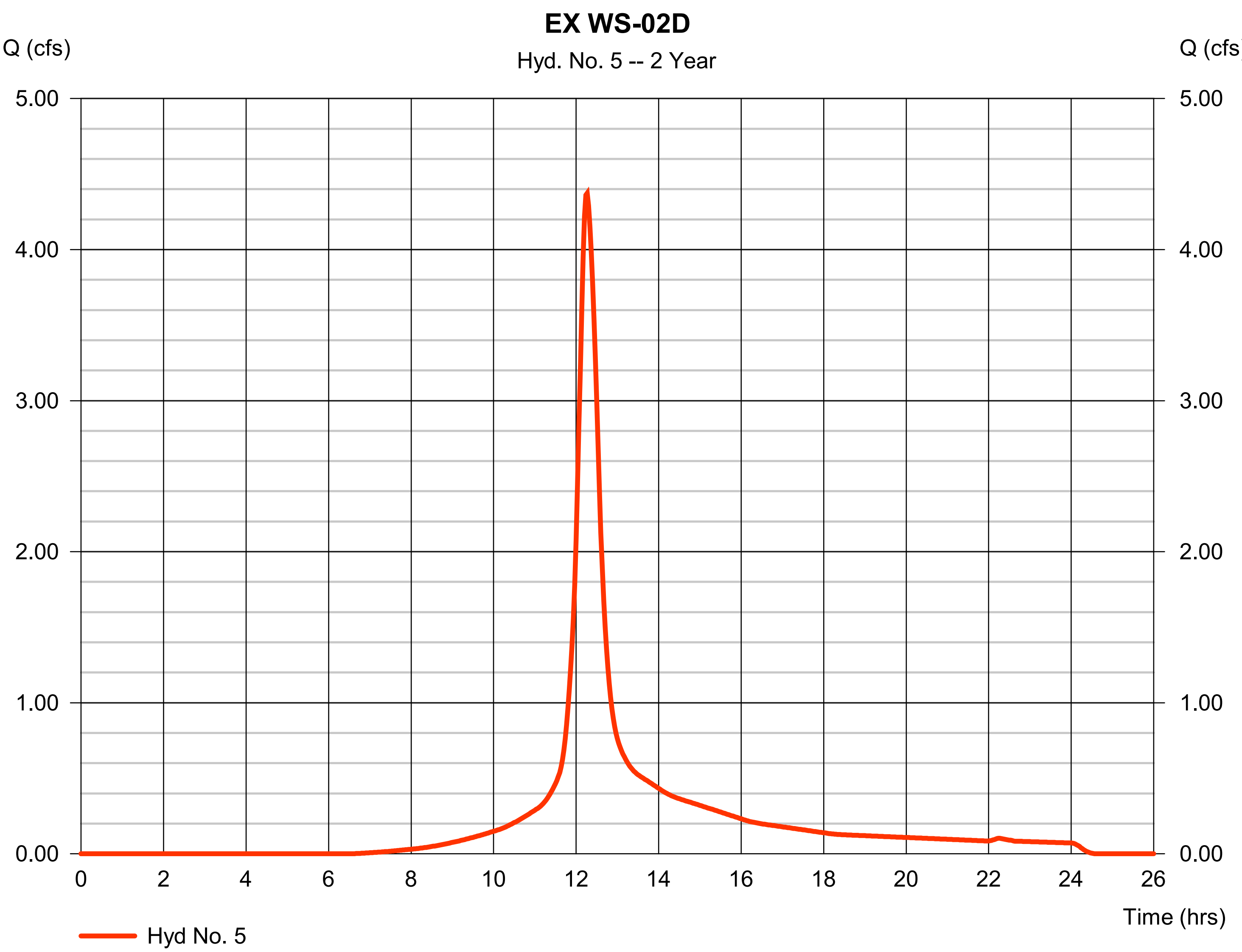
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 5

EX WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 4.374 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 20,803 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



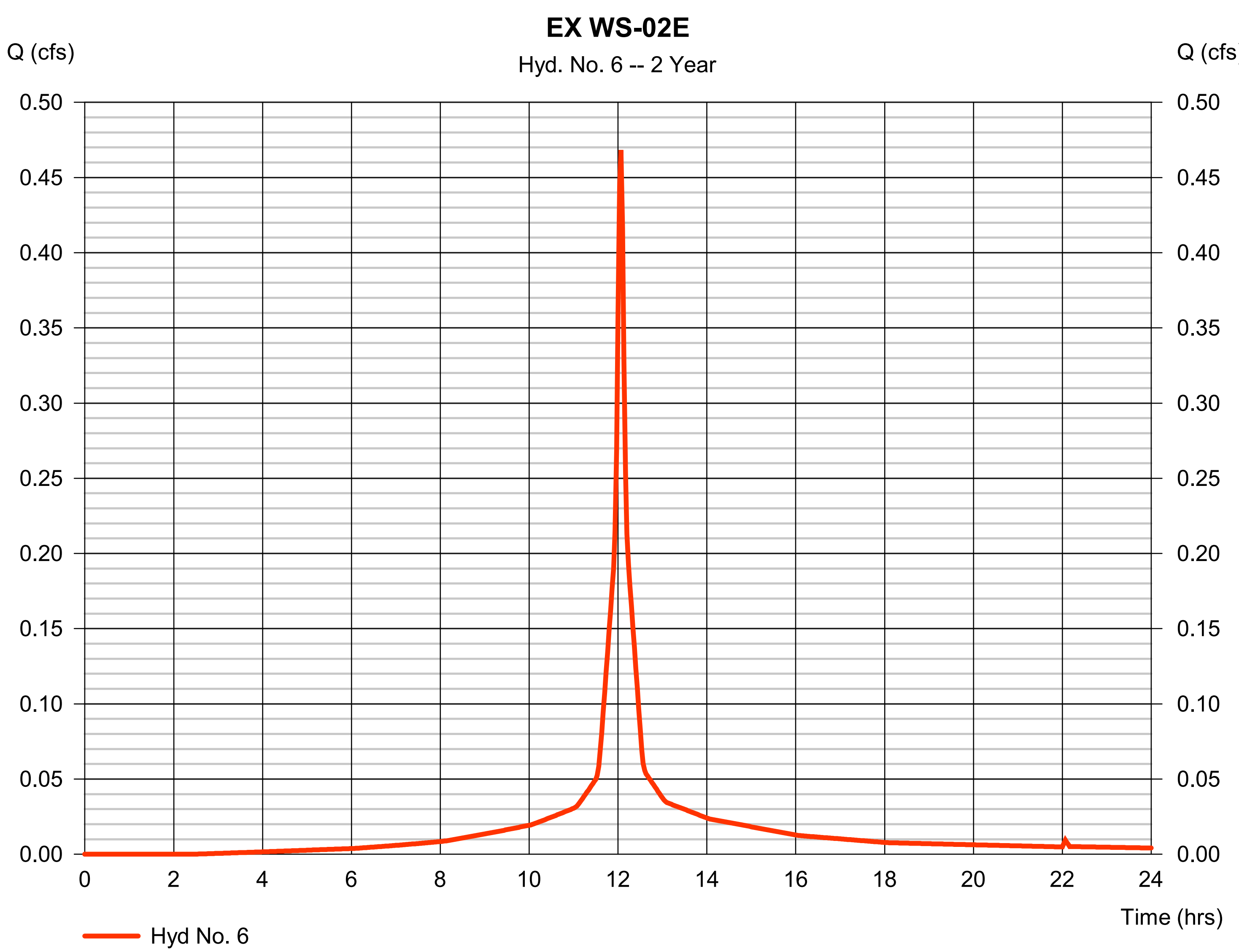
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

EX WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 0.468 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 1,523 cuft
Drainage area	= 0.146 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



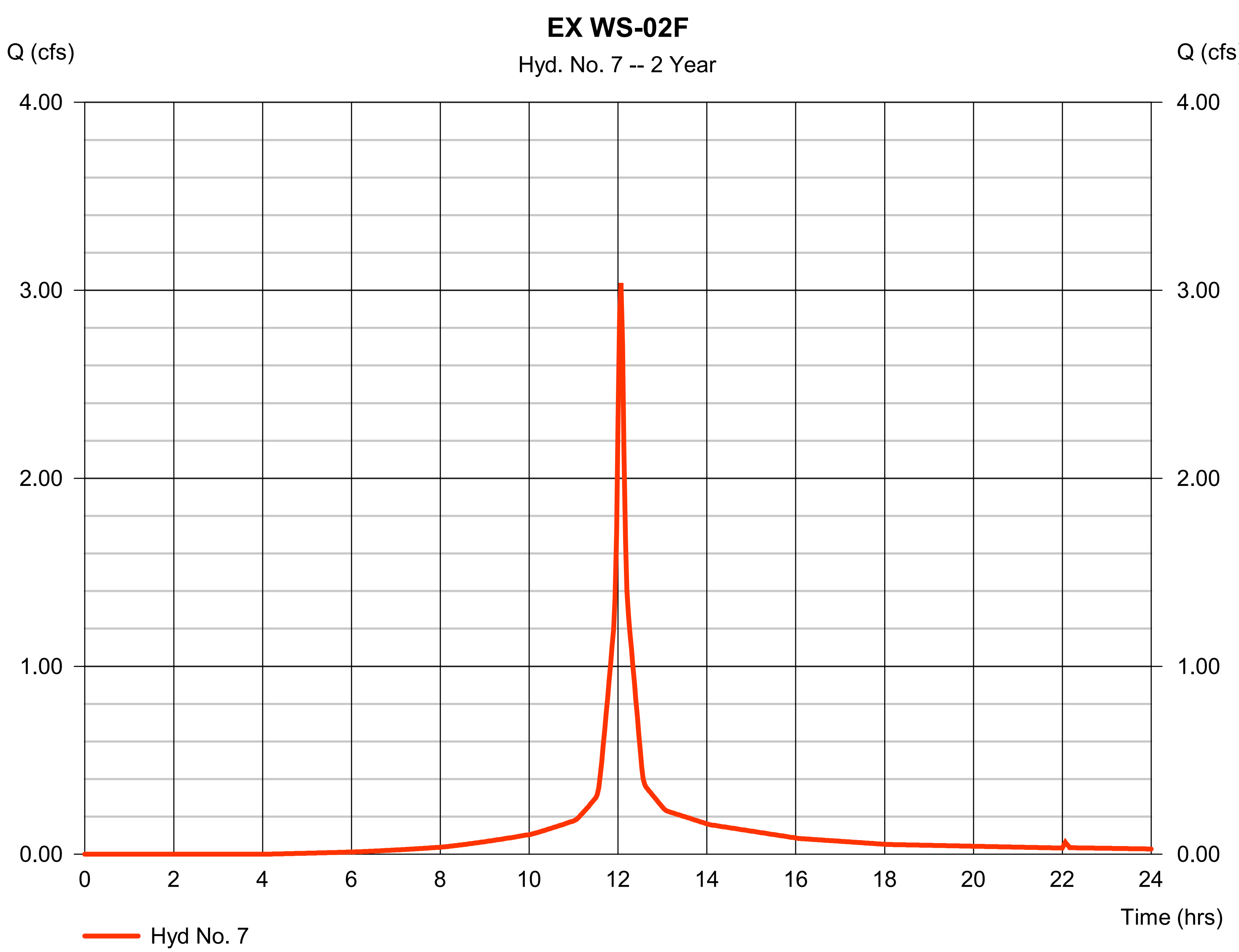
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

EX WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 3.039 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 9,485 cuft
Drainage area	= 1.012 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.50 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

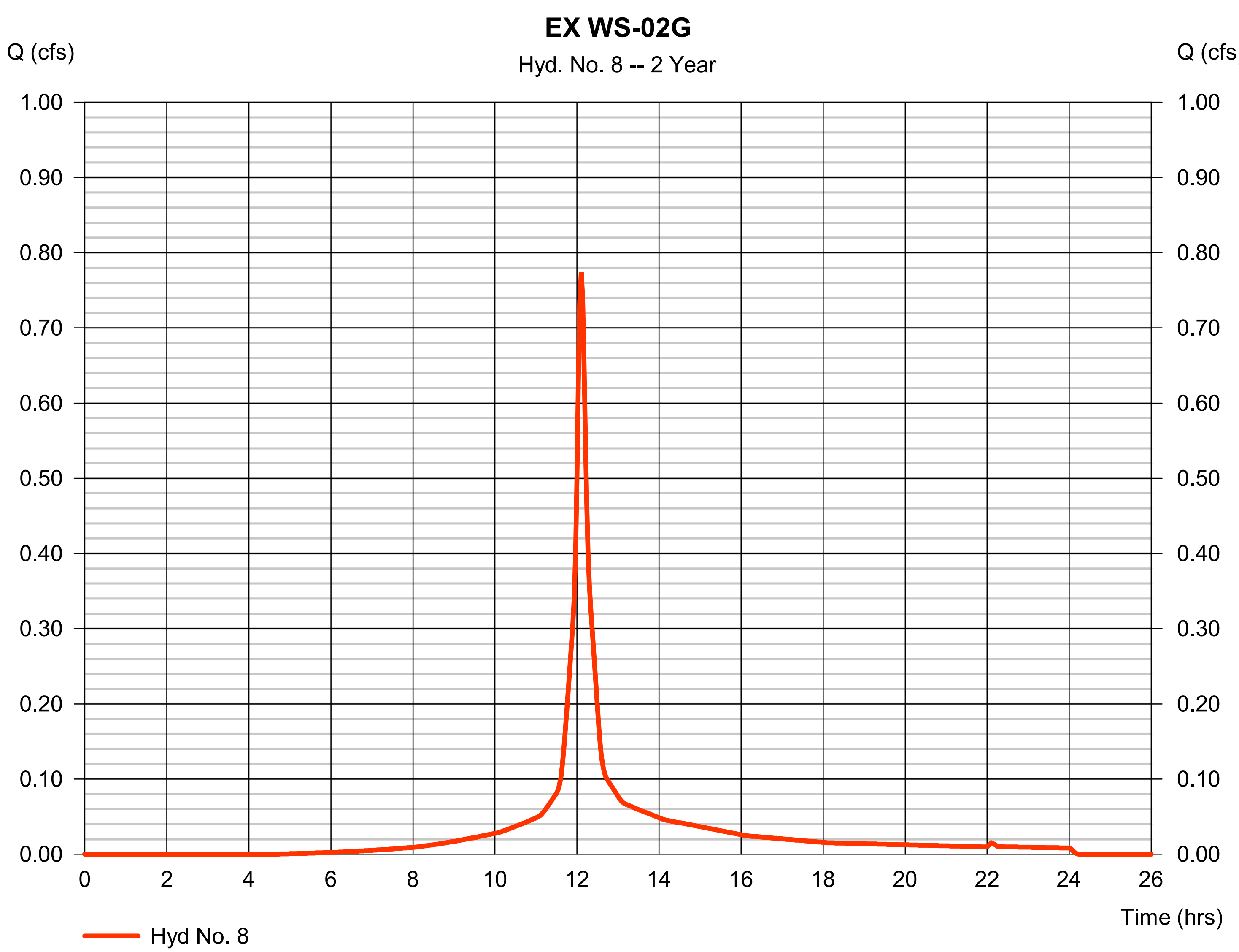


Hydrograph Report

Hyd. No. 8

EX WS-02G

Hydrograph type	= SCS Runoff	Peak discharge	= 0.774 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 2,719 cuft
Drainage area	= 0.282 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.90 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

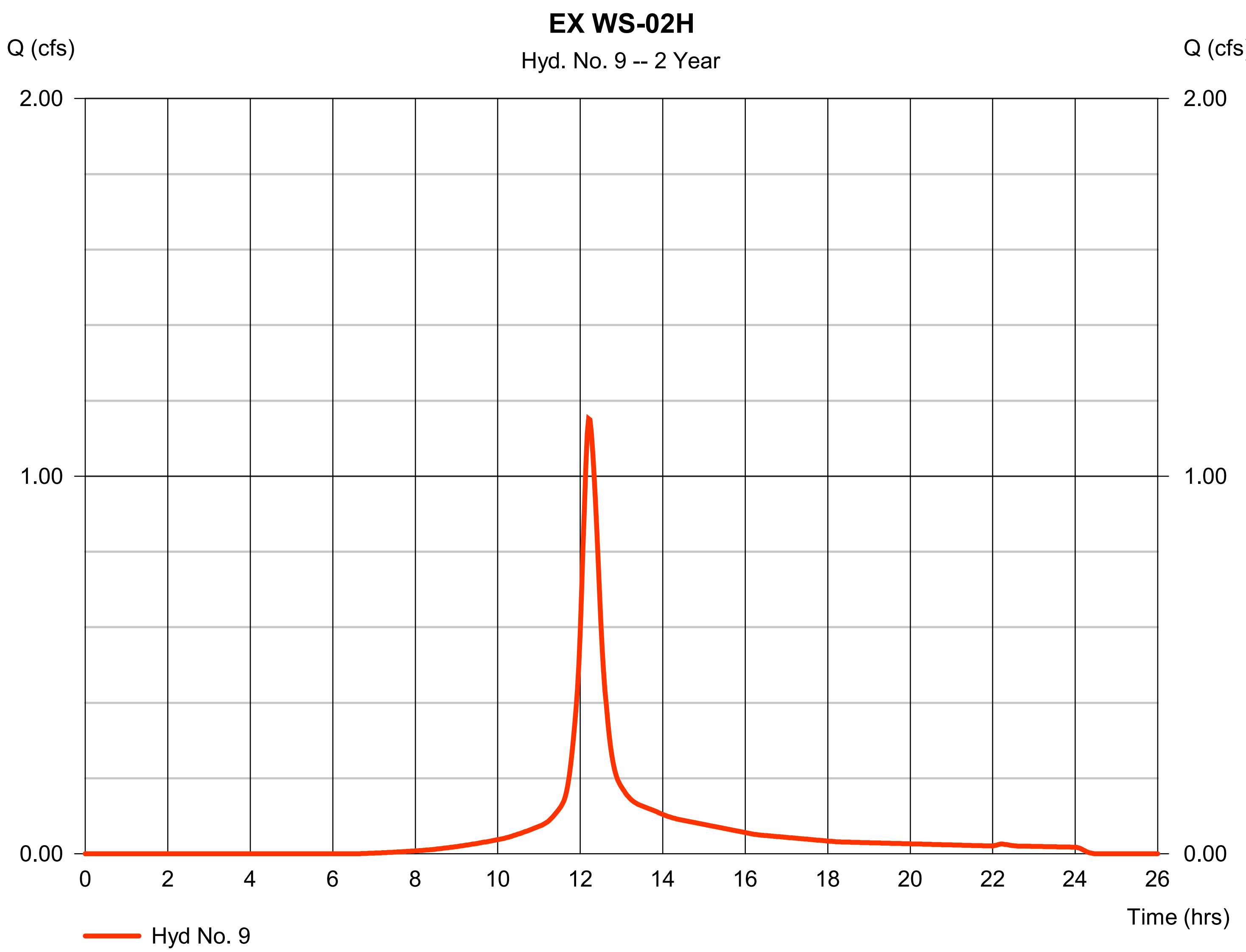


Hydrograph Report

Hyd. No. 9

EX WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 1.152 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 5,114 cuft
Drainage area	= 0.616 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.30 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



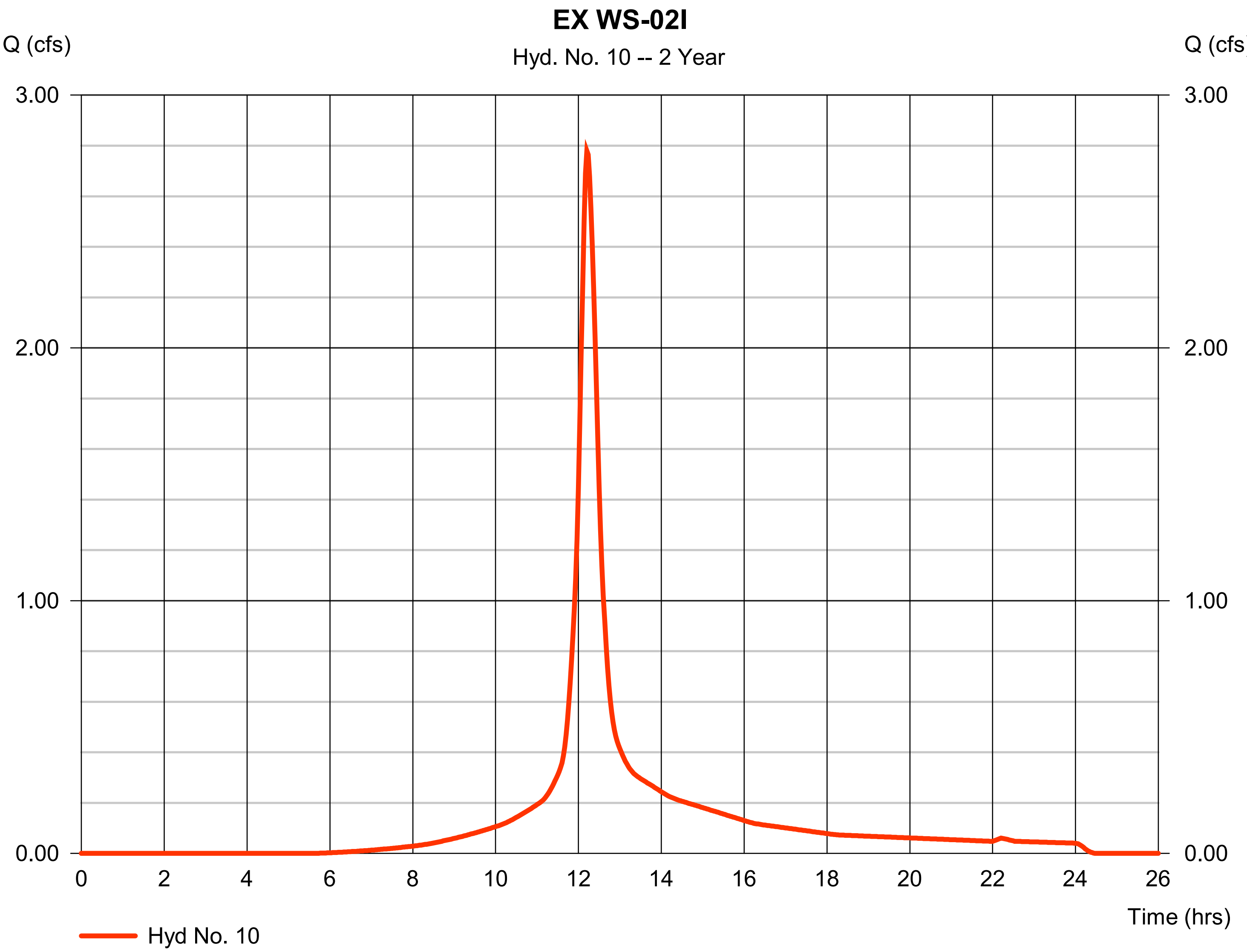
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

EX WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 2.779 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 12,419 cuft
Drainage area	= 1.387 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



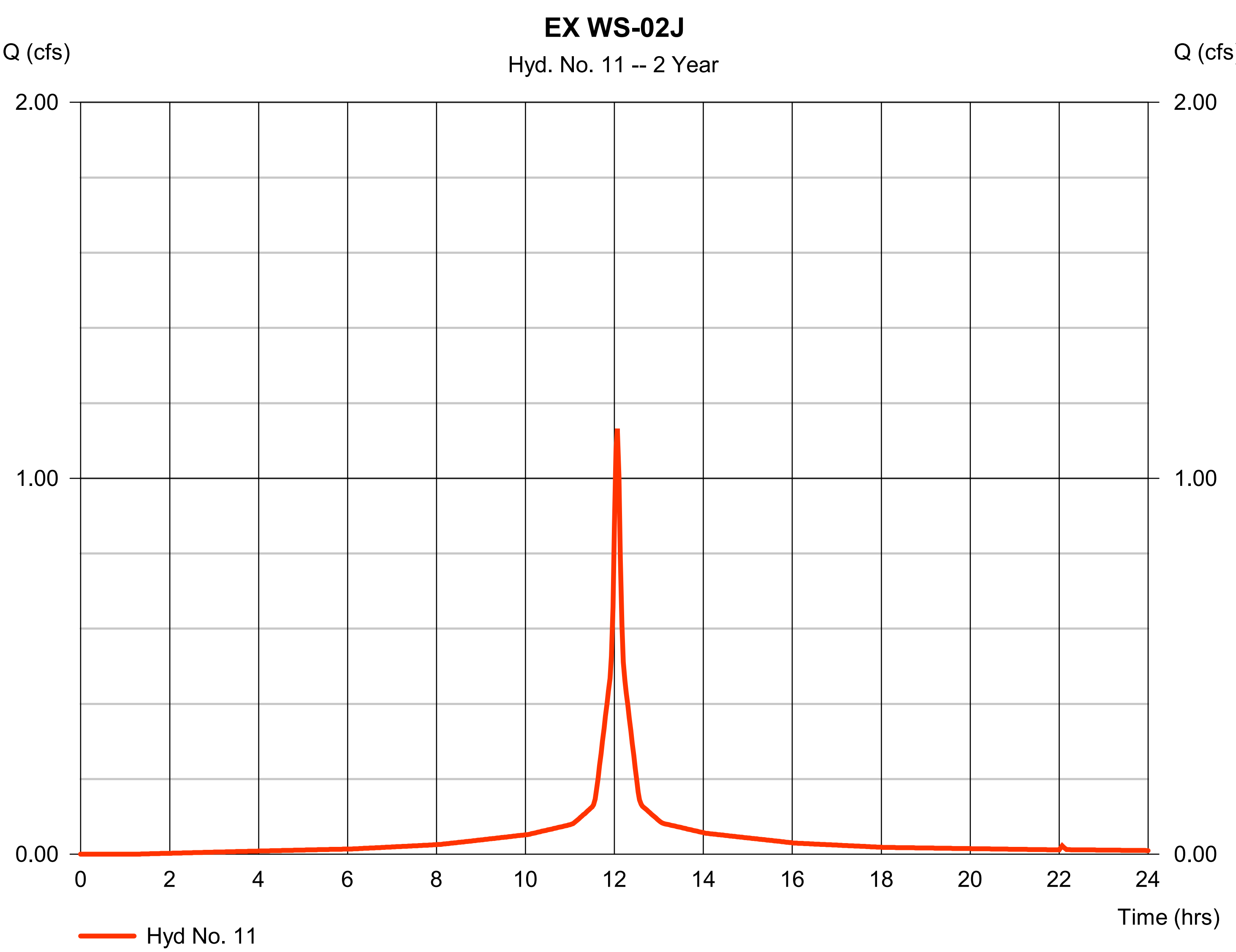
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

EX WS-02J

Hydrograph type	= SCS Runoff	Peak discharge	= 1.132 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,836 cuft
Drainage area	= 0.343 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

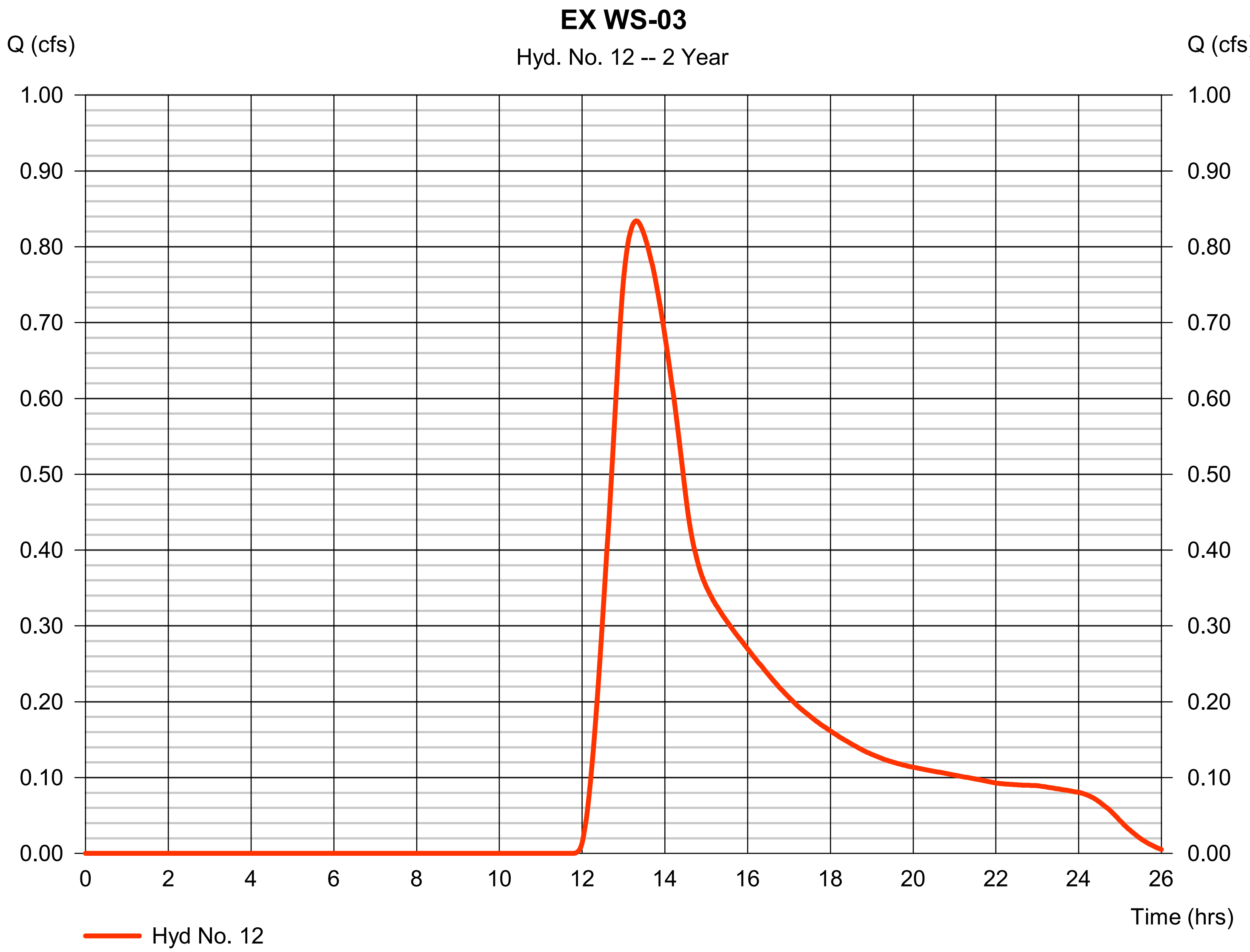


Hydrograph Report

Hyd. No. 12

EX WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 0.834 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.30 hrs
Time interval	= 2 min	Hyd. volume	= 11,082 cuft
Drainage area	= 4.907 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

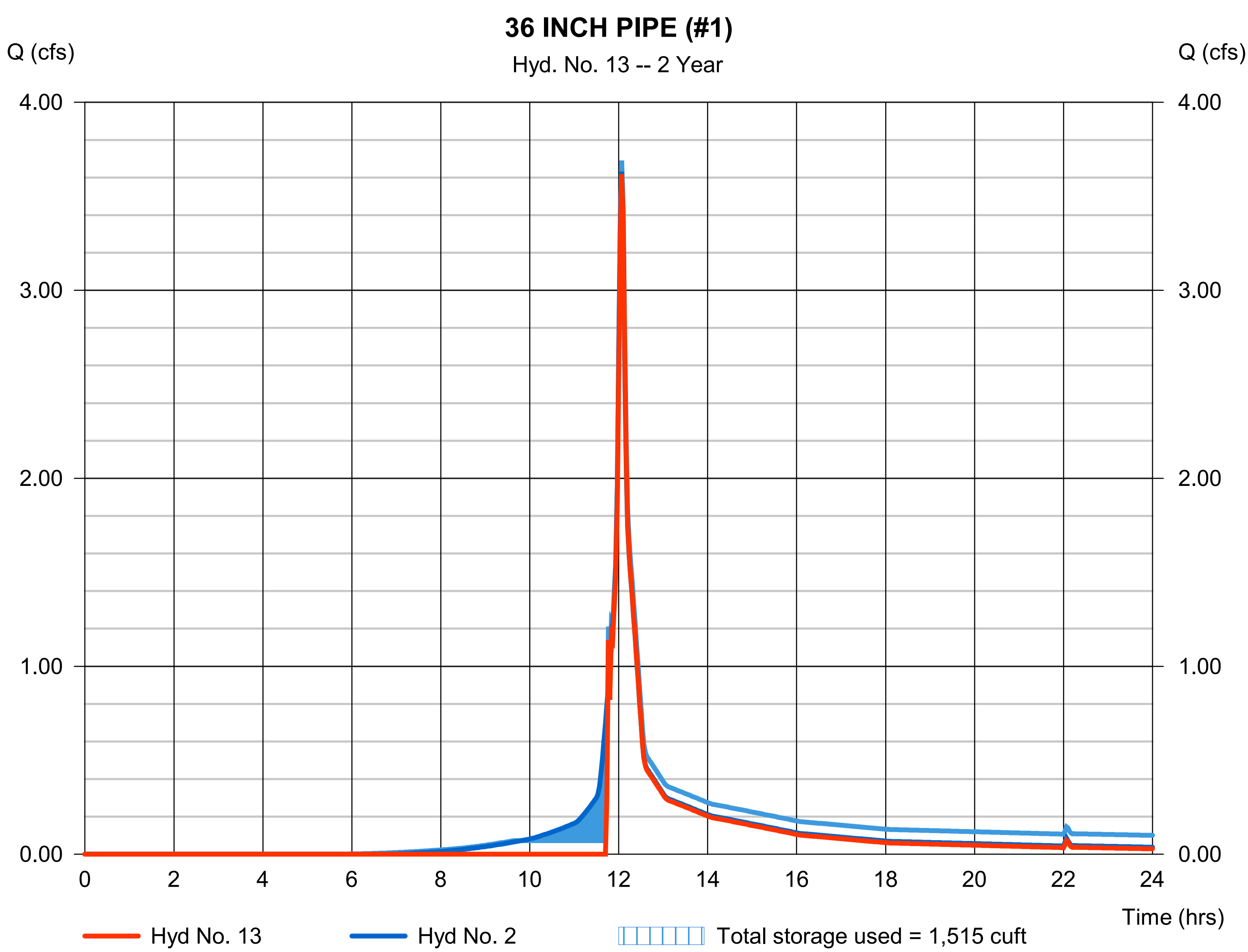
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 13

36 INCH PIPE (#1)

Hydrograph type	= Reservoir	Peak discharge	= 3.618 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 8,949 cuft
Inflow hyd. No.	= 2 - EX WS-02A	Max. Elevation	= 143.60 ft
Reservoir name	= 36IN - 1	Max. Storage	= 1,515 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 4 - 36IN - 1

Pond Data

UG Chambers - Invert elev. = 134.30 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 102.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 133.80 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%
Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 142.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	133.80	n/a	0	0
0.35	134.15	n/a	71	71
0.70	134.50	n/a	84	155
1.05	134.85	n/a	113	269
1.40	135.20	n/a	126	395
1.75	135.55	n/a	133	528
2.10	135.90	n/a	136	663
2.45	136.25	n/a	134	798
2.80	136.60	n/a	130	927
3.15	136.95	n/a	120	1,047
3.50	137.30	n/a	100	1,147
9.10	142.90	00	0	1,147
12.00	144.00	1,055	1,530	2,677

Culvert / Orifice Structures

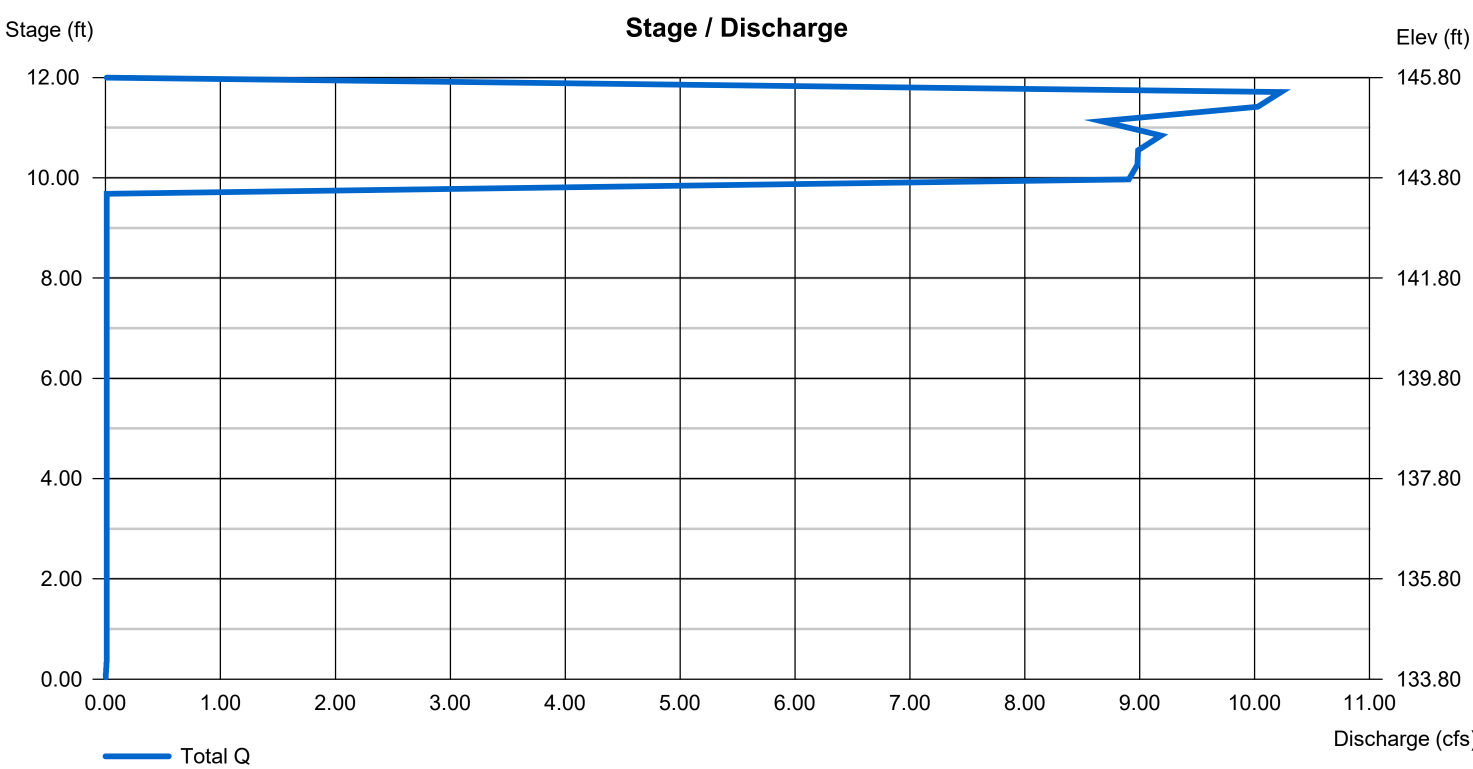
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	Inactive	Inactive	Inactive
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 137.70	0.00	0.00	0.00
Length (ft)	= 26.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 60.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 143.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.750 (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

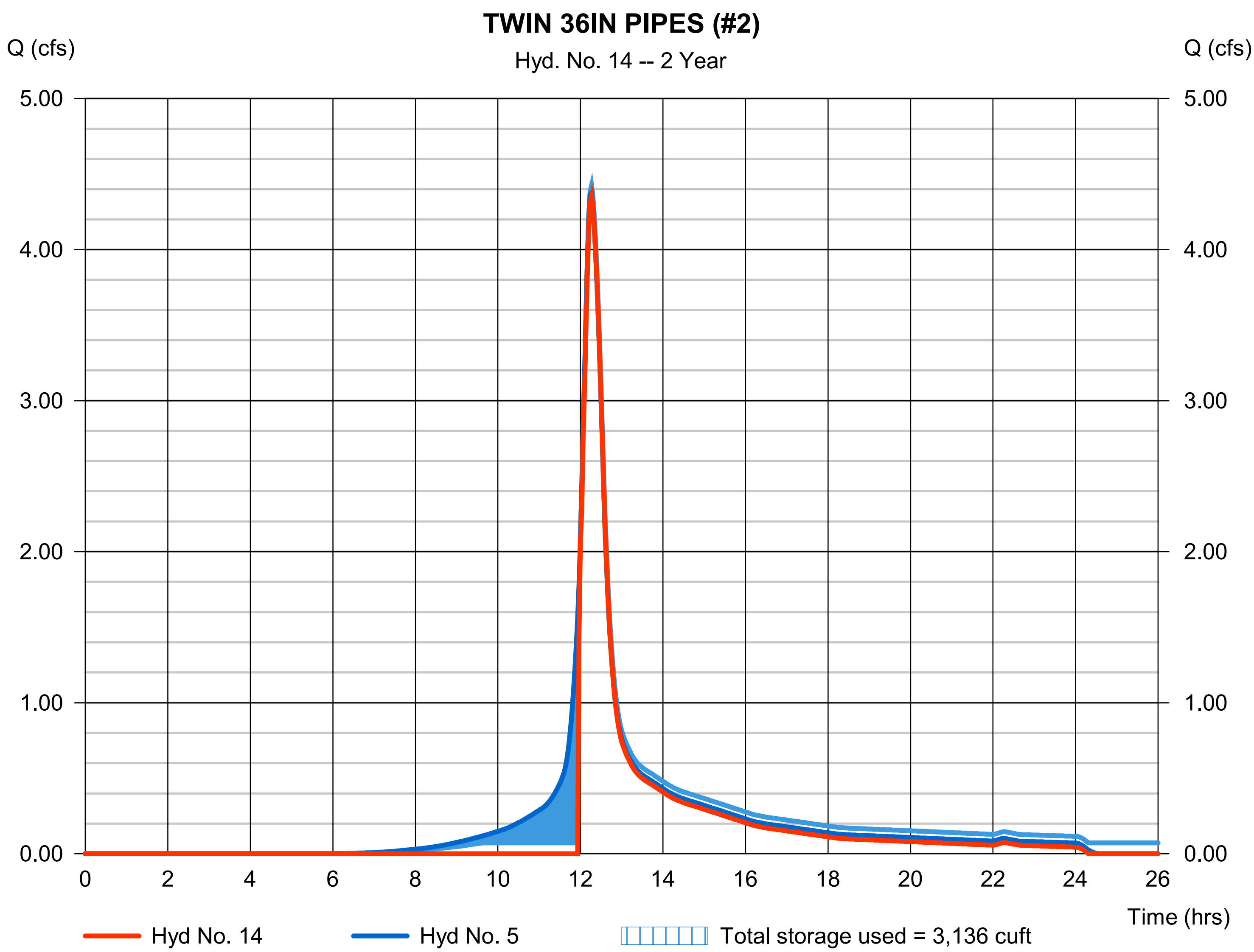
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 4.352 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 16,179 cuft
Inflow hyd. No.	= 5 - EX WS-02D	Max. Elevation	= 139.00 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,136 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 6 - Northern Twin 36IN

Pond Data

UG Chambers - Invert elev. = 131.00 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 120.00 ft, No. Barrels = 2, Slope = 0.00%, Headers = No

Encasement - Invert elev. = 130.50 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%

Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 138.30 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	130.50	n/a	0	0
0.35	130.85	n/a	168	168
0.70	131.20	n/a	197	365
1.05	131.55	n/a	267	632
1.40	131.90	n/a	297	929
1.75	132.25	n/a	313	1,242
2.10	132.60	n/a	319	1,561
2.45	132.95	n/a	316	1,877
2.80	133.30	n/a	305	2,182
3.15	133.65	n/a	282	2,464
3.50	134.00	n/a	234	2,698
7.80	138.30	01	2	2,701
8.50	139.00	1,250	438	3,138
9.50	140.00	7,570	4,410	7,548

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	0.00	0.00	0.00
Span (in)	= 30.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 134.20	0.00	0.00	0.00
Length (ft)	= 69.00	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

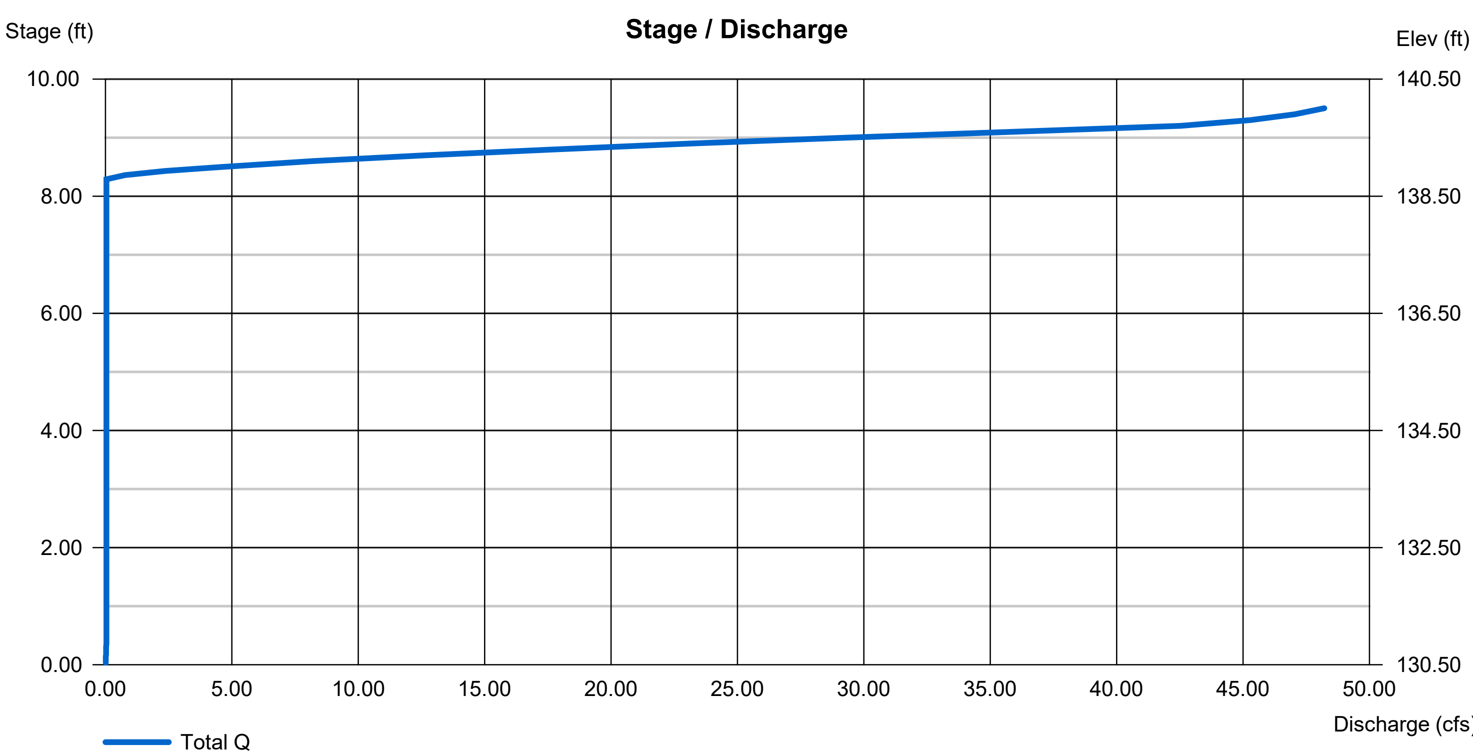
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 15.00	0.00	0.00	0.00
Crest El. (ft)	= 138.80	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 1.000 (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

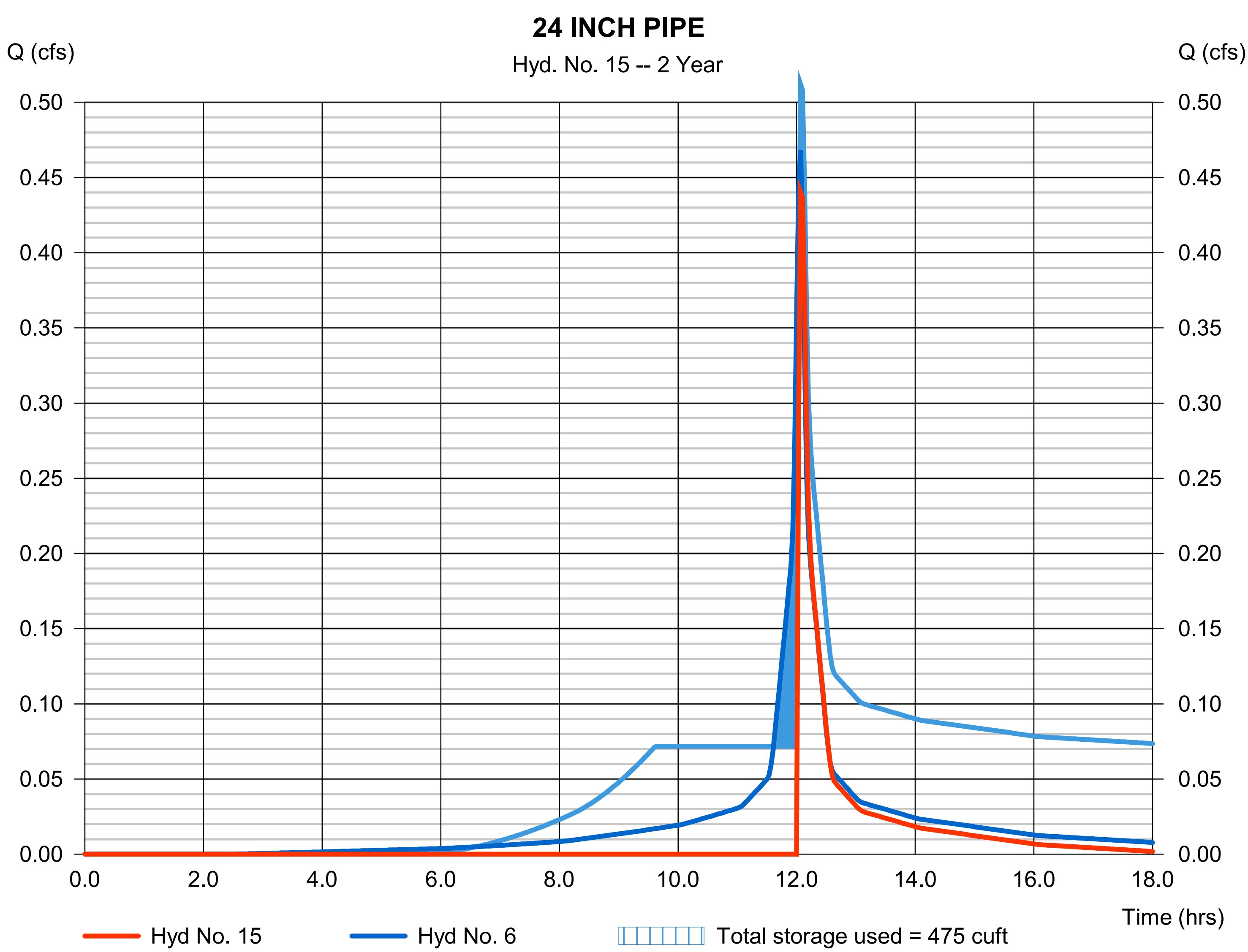
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

24 INCH PIPE

Hydrograph type	= Reservoir	Peak discharge	= 0.440 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 690 cuft
Inflow hyd. No.	= 6 - EX WS-02E	Max. Elevation	= 139.60 ft
Reservoir name	= 24IN	Max. Storage	= 475 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 5 - 24IN

Pond Data

UG Chambers -Invert elev. = 135.00 ft, Rise x Span = 2.00 x 2.00 ft, Barrel Len = 29.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 134.50 ft, Width = 4.00 ft, Height = 2.50 ft, Voids = 40.00%
Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 139.10 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	134.50	n/a	0	0
0.25	134.75	n/a	12	12
0.50	135.00	n/a	12	23
0.75	135.25	n/a	16	39
1.00	135.50	n/a	18	57
1.25	135.75	n/a	20	77
1.50	136.00	n/a	20	97
1.75	136.25	n/a	20	117
2.00	136.50	n/a	20	137
2.25	136.75	n/a	18	155
2.50	137.00	n/a	16	171
4.60	139.10	01	1	172
5.50	140.00	1,212	546	718

Culvert / Orifice Structures

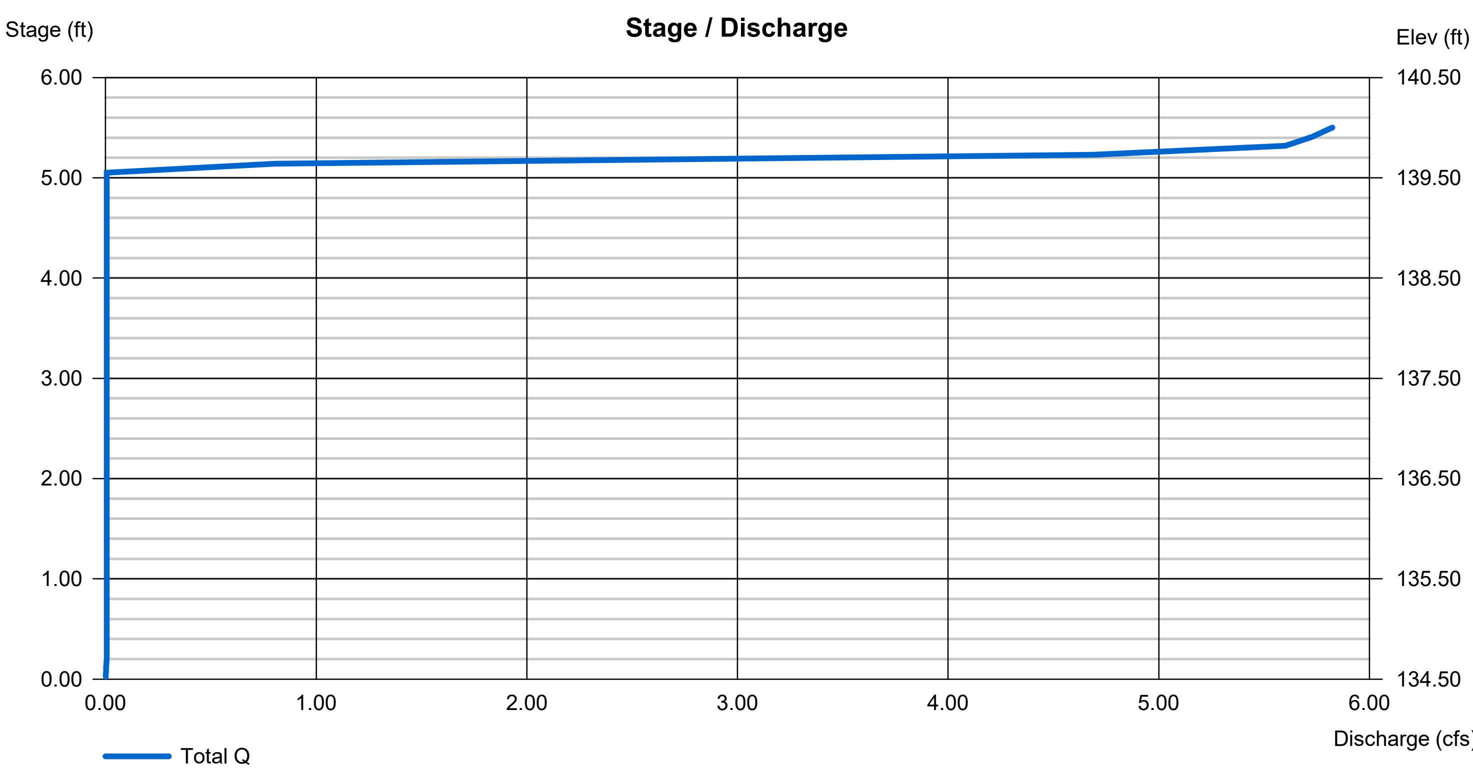
		[A]	[B]	[C]	[PrfRsr]
Rise (in)	=	12.00	Inactive	Inactive	Inactive
Span (in)	=	12.00	0.00	0.00	0.00
No. Barrels	=	1	0	0	0
Invert El. (ft)	=	137.10	0.00	0.00	0.00
Length (ft)	=	55.00	0.00	0.00	0.00
Slope (%)	=	2.00	0.00	0.00	n/a
N-Value	=	.013	.013	.013	n/a
Orifice Coeff.	=	0.60	0.60	0.60	0.60
Multi-Stage	=	n/a	No	No	No

Weir Structures

		[A]	[B]	[C]	[D]
Crest Len (ft)	=	30.00	Inactive	Inactive	Inactive
Crest El. (ft)	=	139.60	0.00	0.00	0.00
Weir Coeff.	=	3.33	3.33	3.33	3.33
Weir Type	=	Broad	---	---	---
Multi-Stage	=	Yes	No	No	No

Exfil.(in/hr) = 2.250 (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

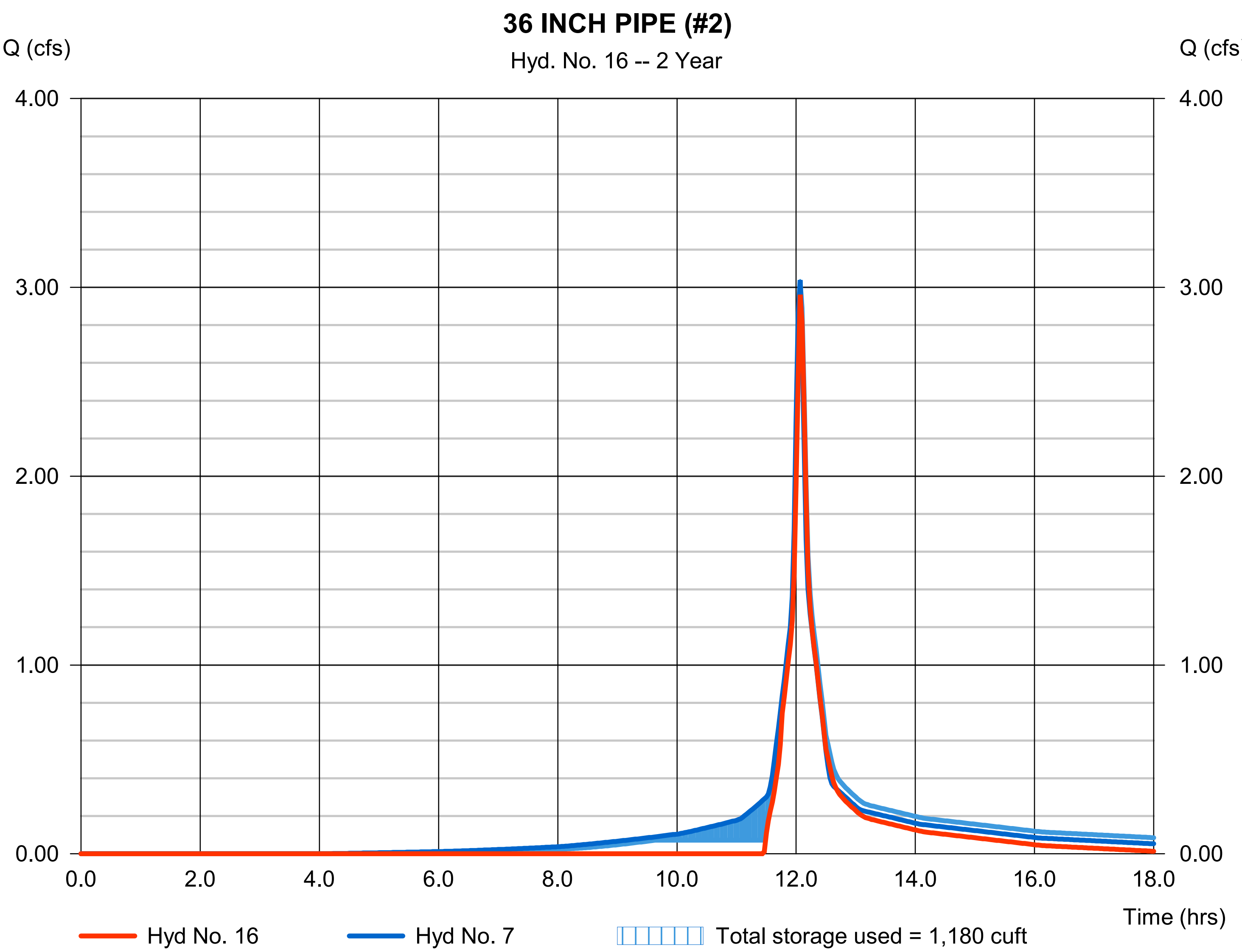
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

36 INCH PIPE (#2)

Hydrograph type	= Reservoir	Peak discharge	= 2.961 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 6,152 cuft
Inflow hyd. No.	= 7 - EX WS-02F	Max. Elevation	= 139.42 ft
Reservoir name	= 36in - 2	Max. Storage	= 1,180 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 1 - 36in - 2

Pond Data

UG Chambers - Invert elev. = 133.00 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 70.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Encasement - Invert elev. = 132.50 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%

Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 139.20 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	132.50	n/a	0	0
0.35	132.85	n/a	49	49
0.70	133.20	n/a	58	107
1.05	133.55	n/a	78	184
1.40	133.90	n/a	87	271
1.75	134.25	n/a	91	362
2.10	134.60	n/a	93	455
2.45	134.95	n/a	92	547
2.80	135.30	n/a	89	636
3.15	135.65	n/a	82	719
3.50	136.00	n/a	68	787
6.70	139.20	01	2	789
7.40	139.90	3,493	1,223	2,012

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	Inactive	Inactive	Inactive
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 135.20	0.00	0.00	0.00
Length (ft)	= 30.00	0.00	0.00	0.00
Slope (%)	= 2.00	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

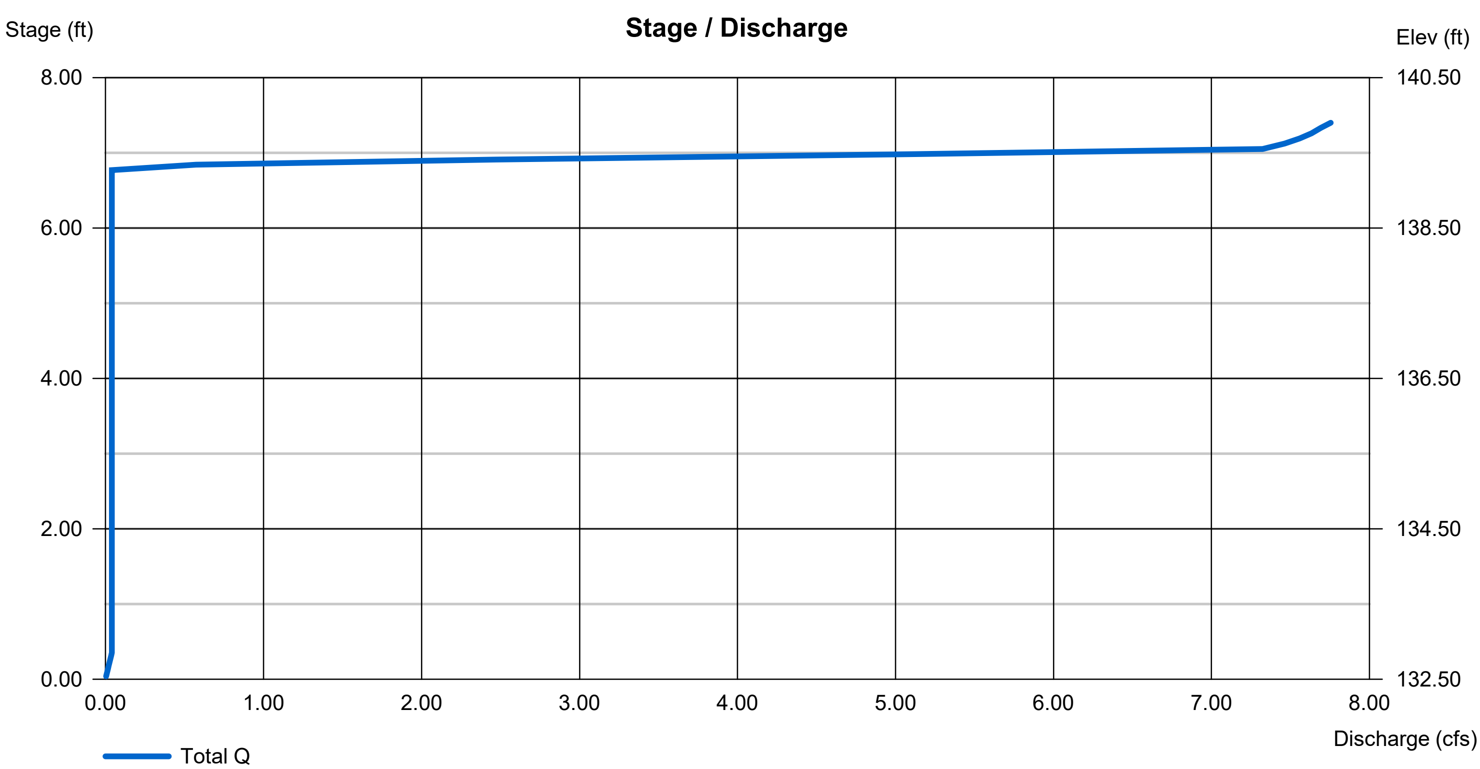
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 20.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 139.30	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 5.000 (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

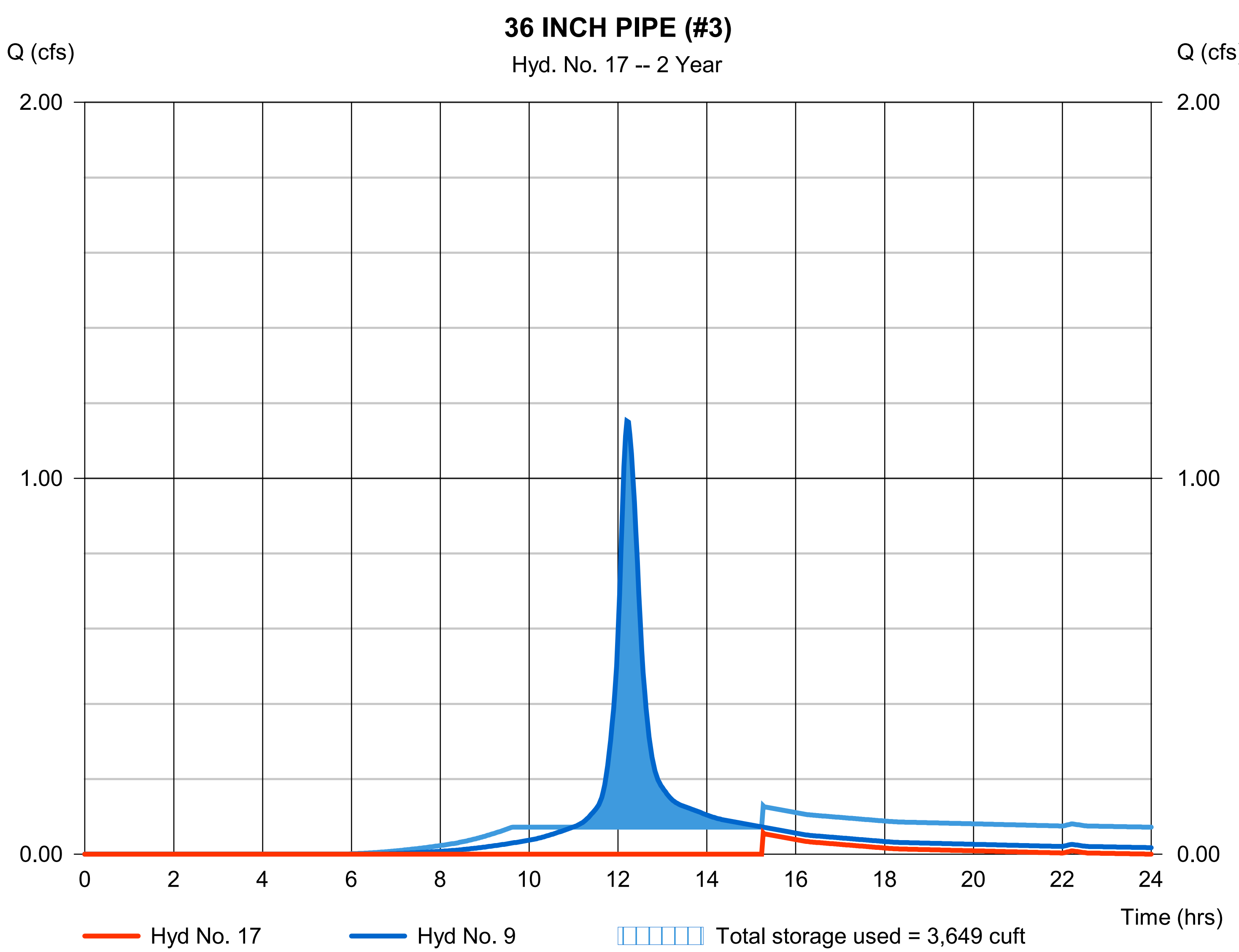
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 0.057 cfs
Storm frequency	= 2 yrs	Time to peak	= 15.27 hrs
Time interval	= 2 min	Hyd. volume	= 470 cuft
Inflow hyd. No.	= 9 - EX WS-02H	Max. Elevation	= 137.46 ft
Reservoir name	= 36in - 3	Max. Storage	= 3,649 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 3 - 36in - 3

Pond Data

UG Chambers - Invert elev. = 129.00 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 30.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 128.50 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%
Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 136.20 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	128.50	n/a	0	0
0.35	128.85	n/a	21	21
0.70	129.20	n/a	25	46
1.05	129.55	n/a	33	79
1.40	129.90	n/a	37	116
1.75	130.25	n/a	39	155
2.10	130.60	n/a	40	195
2.45	130.95	n/a	40	235
2.80	131.30	n/a	38	273
3.15	131.65	n/a	35	308
3.50	132.00	n/a	29	337
7.20	136.20	01	2	339
9.00	138.00	5,250	4,726	5,065

Culvert / Orifice Structures

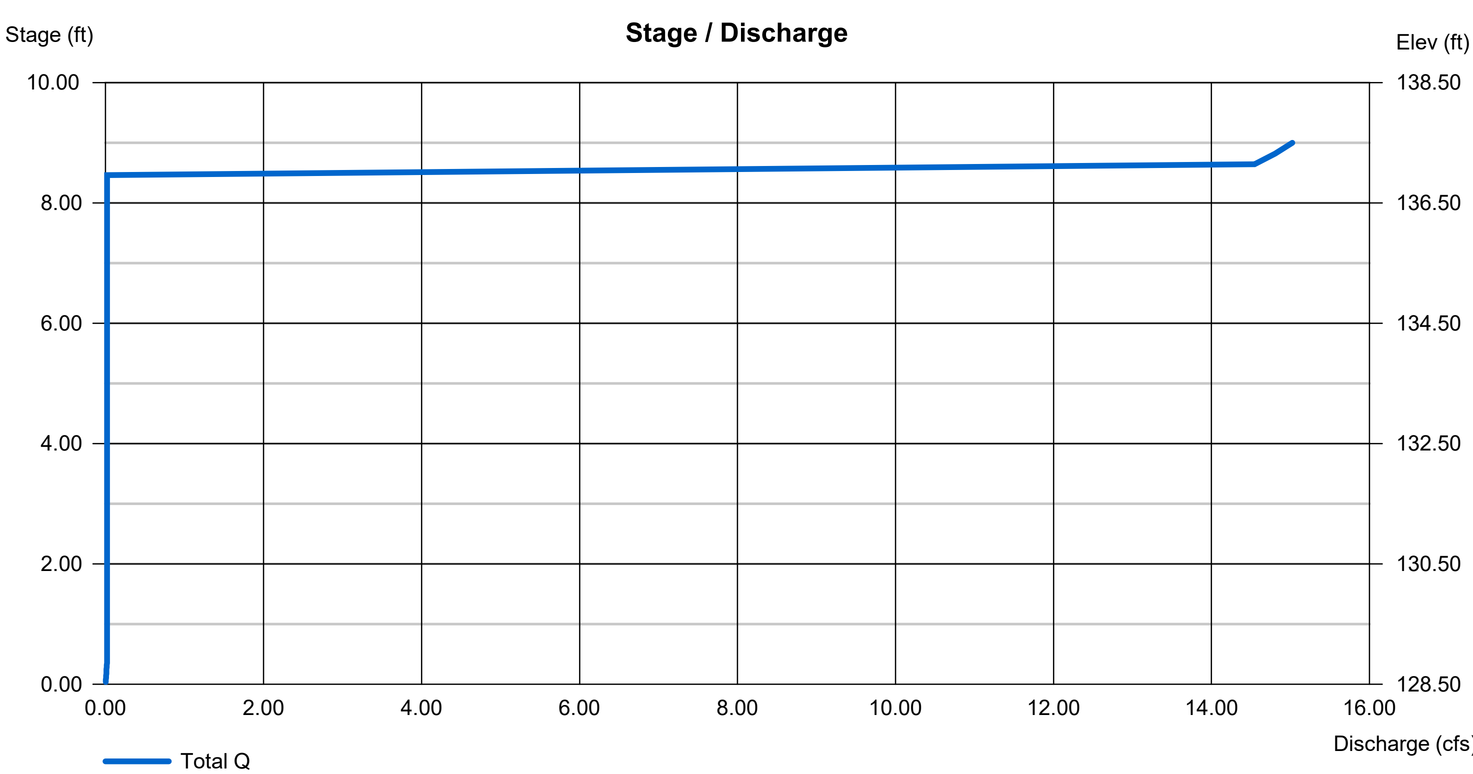
		[A]	[B]	[C]	[PrfRsr]
Rise (in)	=	15.00	Inactive	Inactive	Inactive
Span (in)	=	15.00	0.00	0.00	0.00
No. Barrels	=	1	0	0	0
Invert El. (ft)	=	130.90	0.00	0.00	0.00
Length (ft)	=	13.00	0.00	0.00	0.00
Slope (%)	=	1.00	0.00	0.00	n/a
N-Value	=	.013	.013	.013	n/a
Orifice Coeff.	=	0.60	0.60	0.60	0.60
Multi-Stage	=	n/a	No	No	No

Weir Structures

		[A]	[B]	[C]	[D]
Crest Len (ft)	=	100.00	Inactive	Inactive	Inactive
Crest El. (ft)	=	137.50	0.00	0.00	0.00
Weir Coeff.	=	3.33	3.33	3.33	3.33
Weir Type	=	Broad	---	---	---
Multi-Stage	=	Yes	No	No	No

Exfil.(in/hr) = 5.000 (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

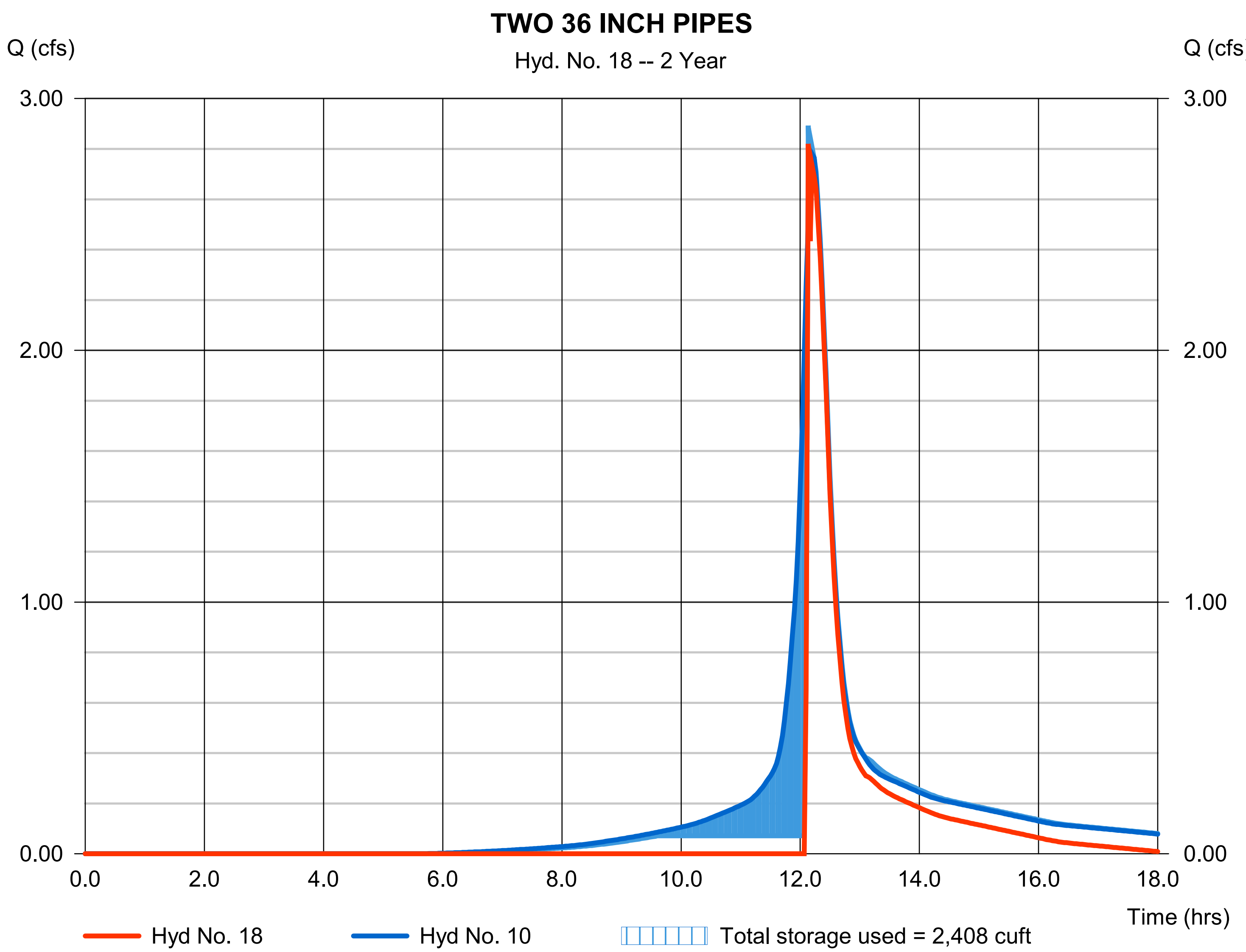
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 2.821 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 6,466 cuft
Inflow hyd. No.	= 10 - EX WS-02I	Max. Elevation	= 135.68 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,408 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 2 - TWIN 36IN

Pond Data

UG Chambers - Invert elev. = 127.50 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 62.00 ft, No. Barrels = 2, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 127.00 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%
Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 134.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	127.00	n/a	0	0
0.35	127.35	n/a	87	87
0.70	127.70	n/a	102	189
1.05	128.05	n/a	138	327
1.40	128.40	n/a	153	480
1.75	128.75	n/a	162	642
2.10	129.10	n/a	165	806
2.45	129.45	n/a	163	970
2.80	129.80	n/a	157	1,127
3.15	130.15	n/a	146	1,273
3.50	130.50	n/a	121	1,394
7.90	134.90	01	2	1,396
8.80	135.80	2,590	1,166	2,562

Culvert / Orifice Structures

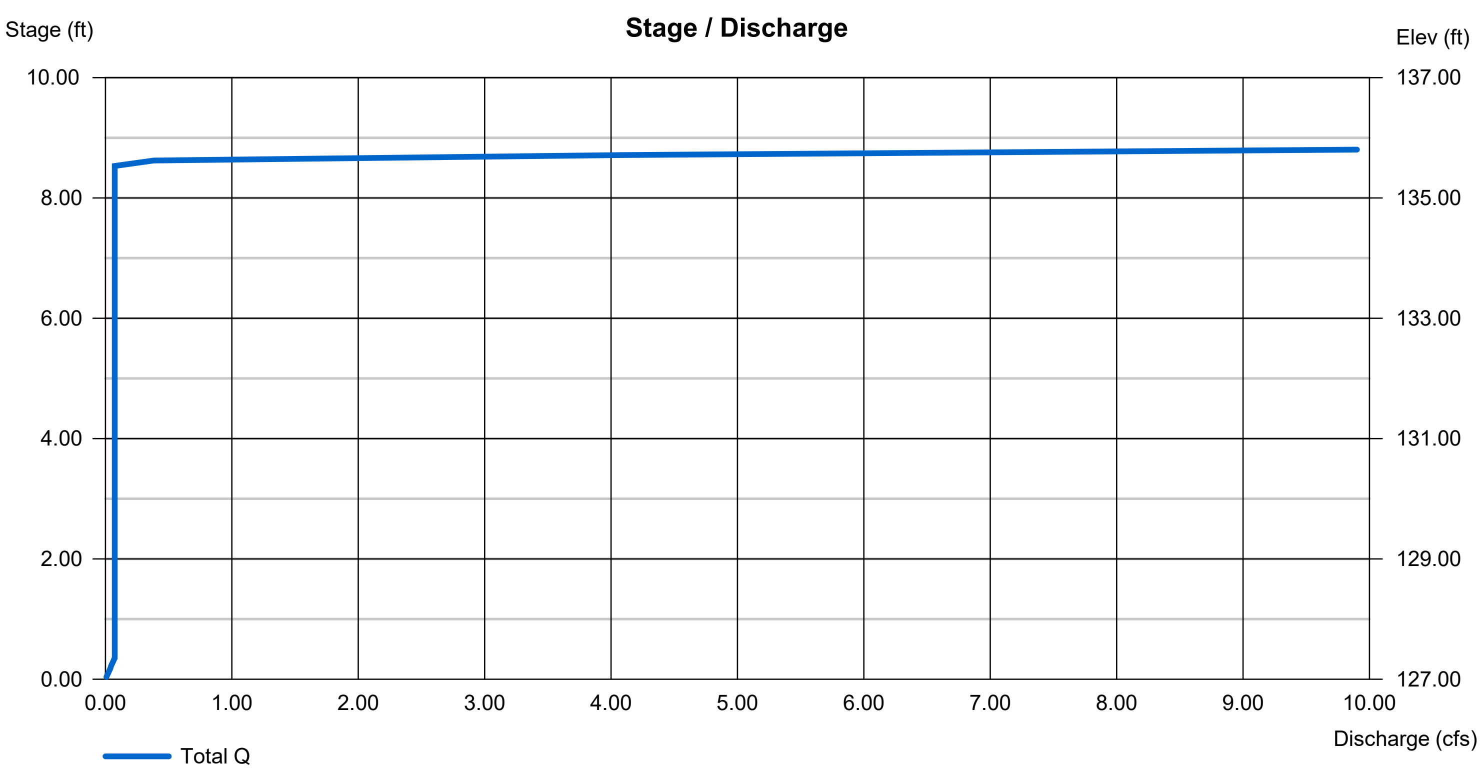
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	Inactive	Inactive	Inactive
Span (in)	= 15.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 129.60	0.00	0.00	0.00
Length (ft)	= 70.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 33.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 135.60	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 5.000 (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).



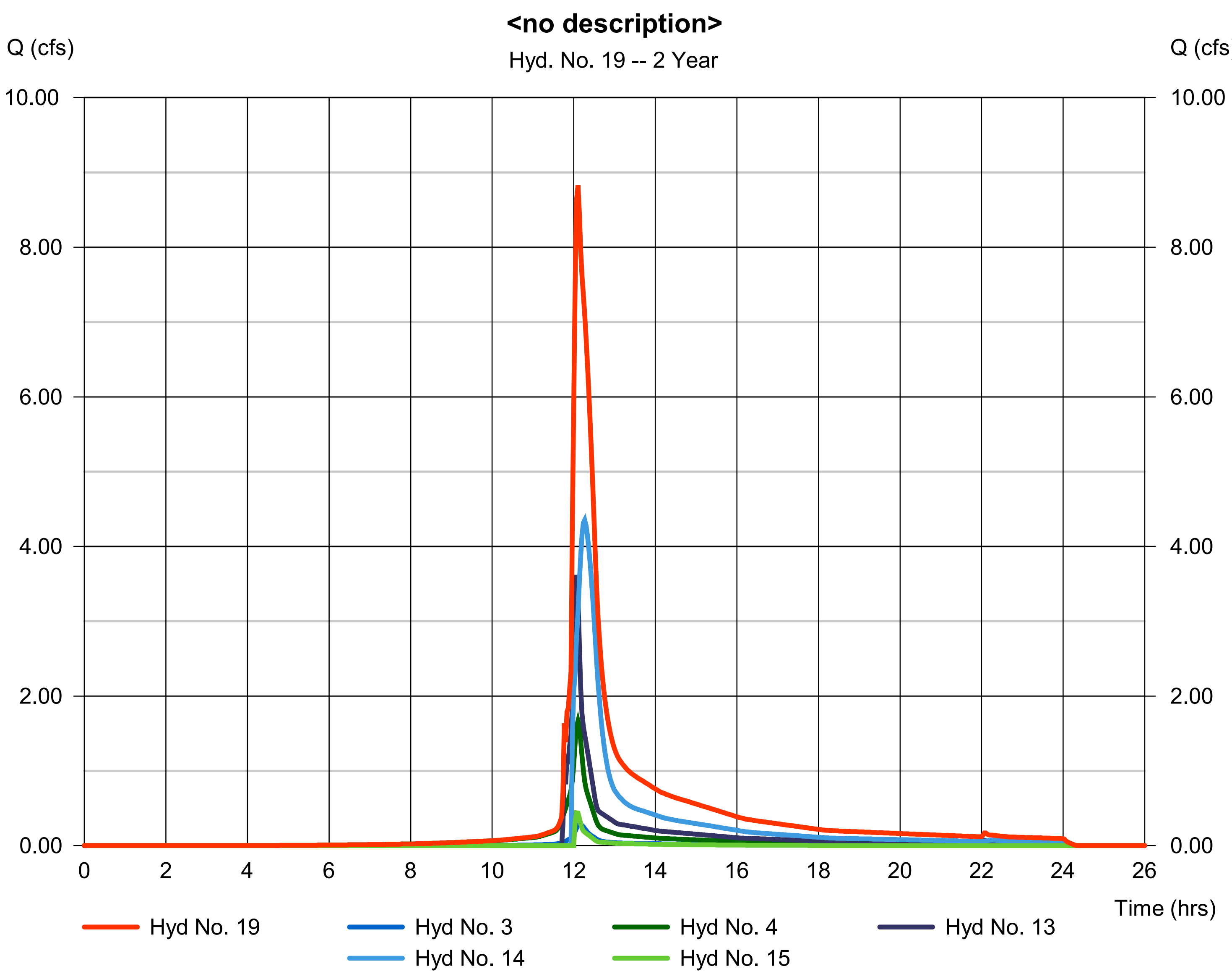
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 8.831 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 32,817 cuft
Inflow hyds.	= 3, 4, 13, 14, 15	Contrib. drain. area	= 0.776 ac



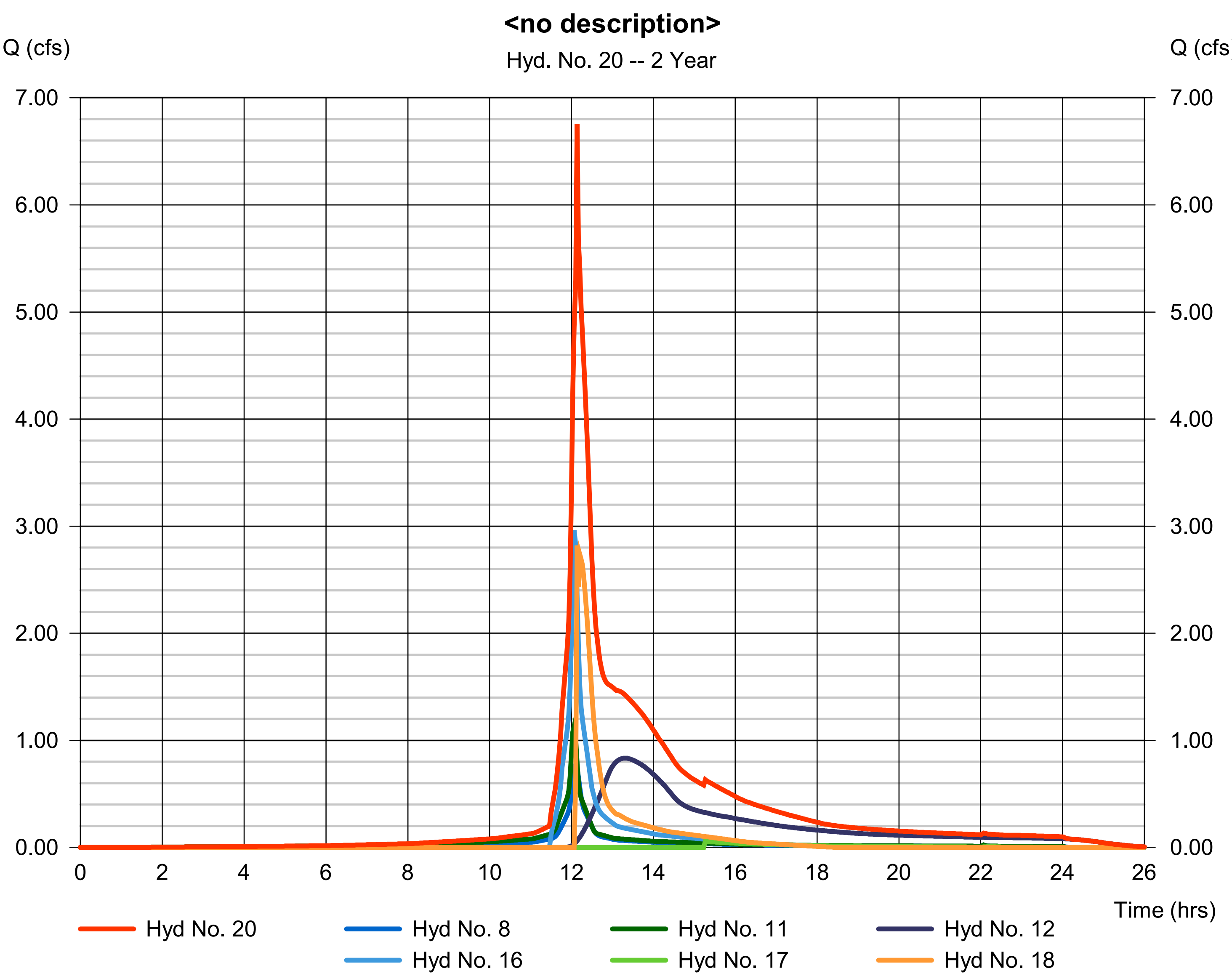
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 20

<no description>

Hydrograph type	= Combine	Peak discharge	= 6.758 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 30,725 cuft
Inflow hyds.	= 8, 11, 12, 16, 17, 18	Contrib. drain. area	= 5.532 ac



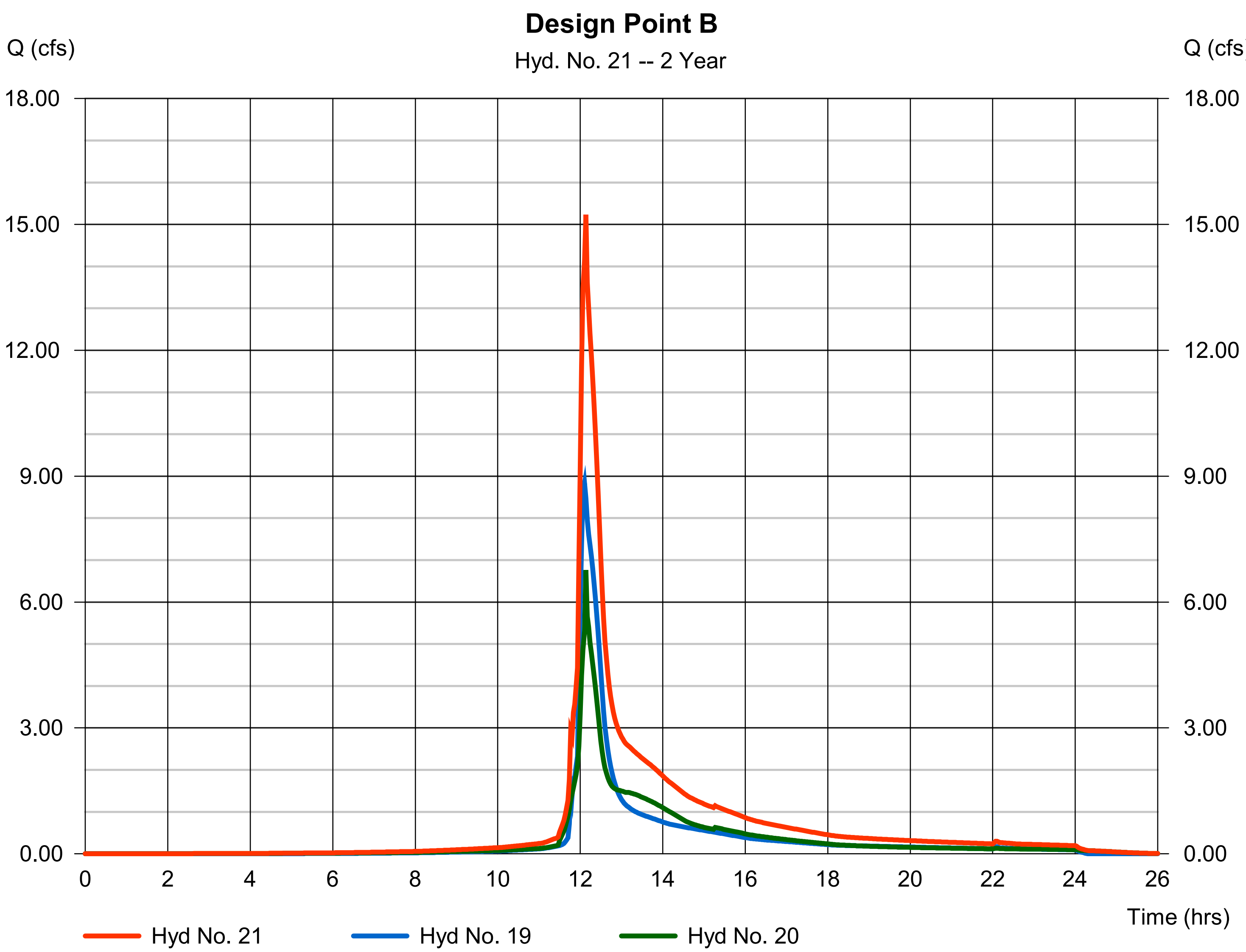
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 21

Design Point B

Hydrograph type	= Combine	Peak discharge	= 15.23 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 63,542 cuft
Inflow hyds.	= 19, 20	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	4.097	2	754	27,414	------	------	------	EX WS-01
2	SCS Runoff	6.345	2	724	19,469	------	------	------	EX WS-02A
3	SCS Runoff	0.569	2	728	2,180	------	------	------	EX WS-02B
4	SCS Runoff	2.685	2	726	9,791	------	------	------	EX WS-02C
5	SCS Runoff	7.568	2	734	36,669	------	------	------	EX WS-02D
6	SCS Runoff	0.731	2	724	2,440	------	------	------	EX WS-02E
7	SCS Runoff	4.896	2	724	15,744	------	------	------	EX WS-02F
8	SCS Runoff	1.265	2	726	4,567	------	------	------	EX WS-02G
9	SCS Runoff	1.996	2	732	9,014	------	------	------	EX WS-02H
10	SCS Runoff	4.677	2	732	21,366	------	------	------	EX WS-02I
11	SCS Runoff	1.741	2	724	6,003	------	------	------	EX WS-02J
12	SCS Runoff	2.690	2	790	29,764	------	------	------	EX WS-03
13	Reservoir	6.339	2	724	17,448	2	143.69	1,562	36 INCH PIPE (#1)
14	Reservoir	7.442	2	738	31,857	5	139.08	3,489	TWIN 36IN PIPES (#2)
15	Reservoir	0.701	2	724	1,554	6	139.63	493	24 INCH PIPE
16	Reservoir	4.789	2	724	12,060	7	139.47	1,264	36 INCH PIPE (#2)
17	Reservoir	2.020	2	740	4,253	9	137.49	3,713	36 INCH PIPE (#3)
18	Reservoir	4.587	2	732	14,622	10	135.72	2,457	TWO 36 INCH PIPES
19	Combine	14.85	2	726	62,831	3, 4, 13, 14, 15,	------	------	<no description>
20	Combine	11.40	2	726	71,269	8, 11, 12, 16, 17, 18,	------	------	<no description>
21	Combine	26.25	2	726	134,100	19, 20	------	------	Design Point B

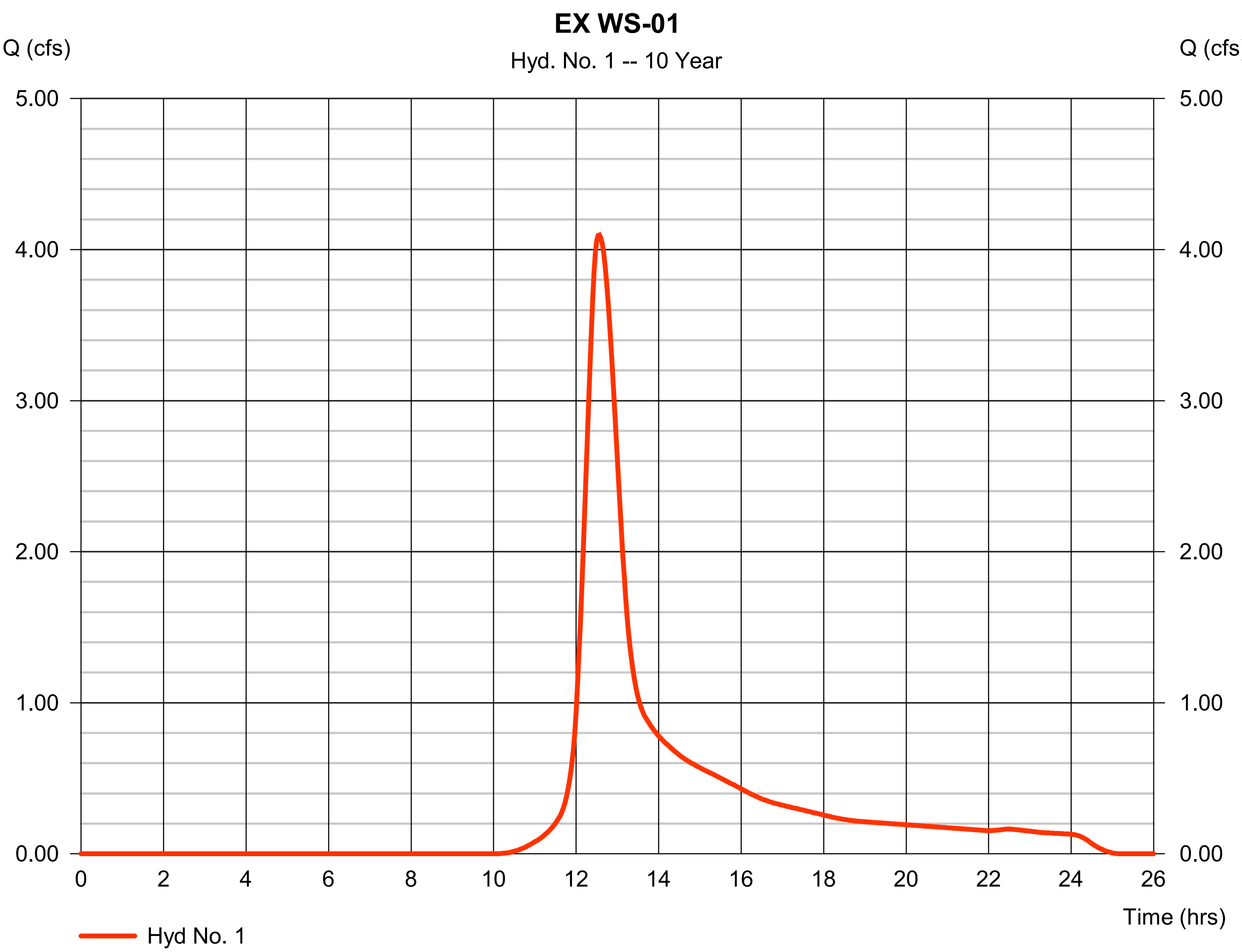
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 1

EX WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 4.097 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.57 hrs
Time interval	= 2 min	Hyd. volume	= 27,414 cuft
Drainage area	= 3.677 ac	Curve number	= 67
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

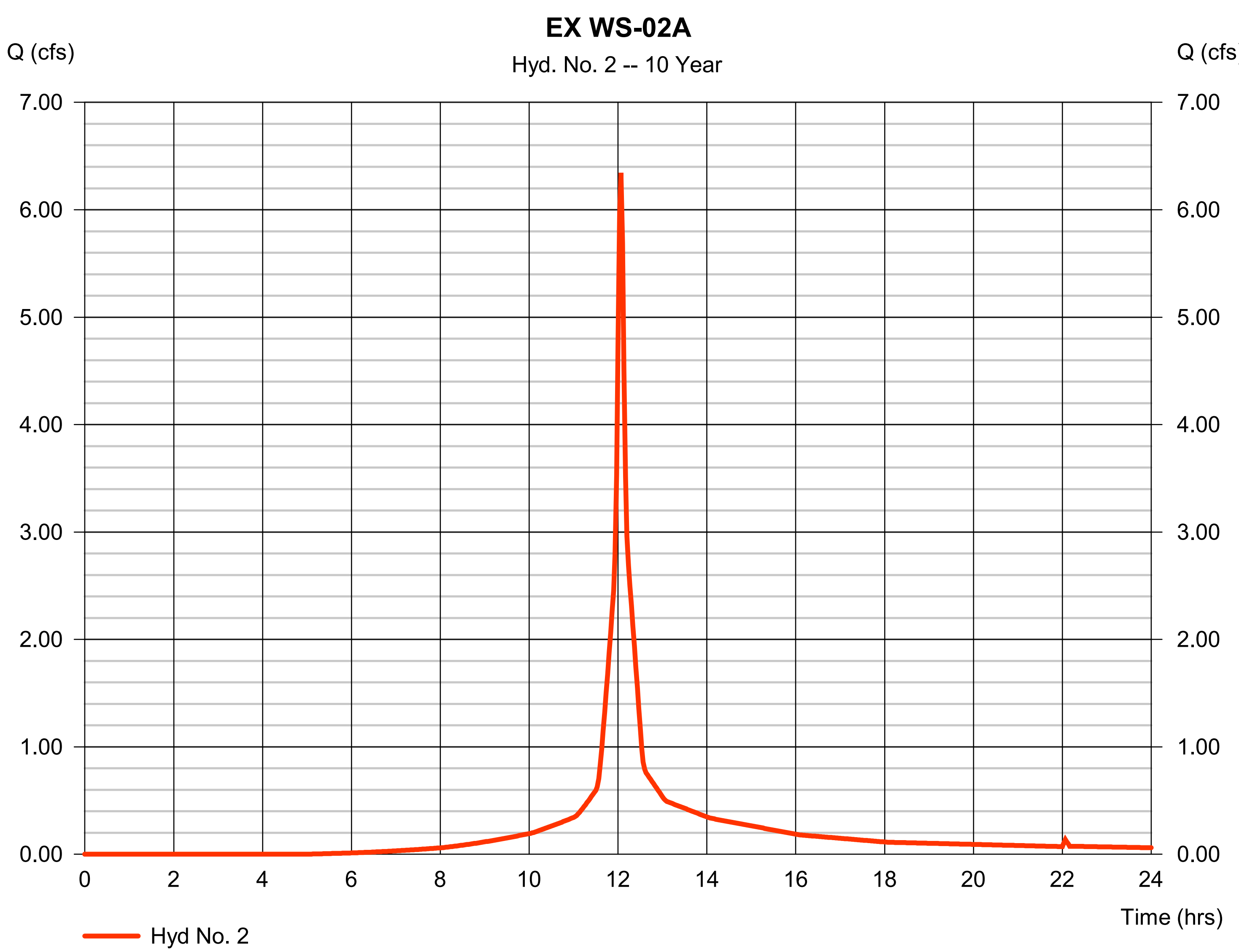


Hydrograph Report

Hyd. No. 2

EX WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 6.345 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 19,469 cuft
Drainage area	= 1.457 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



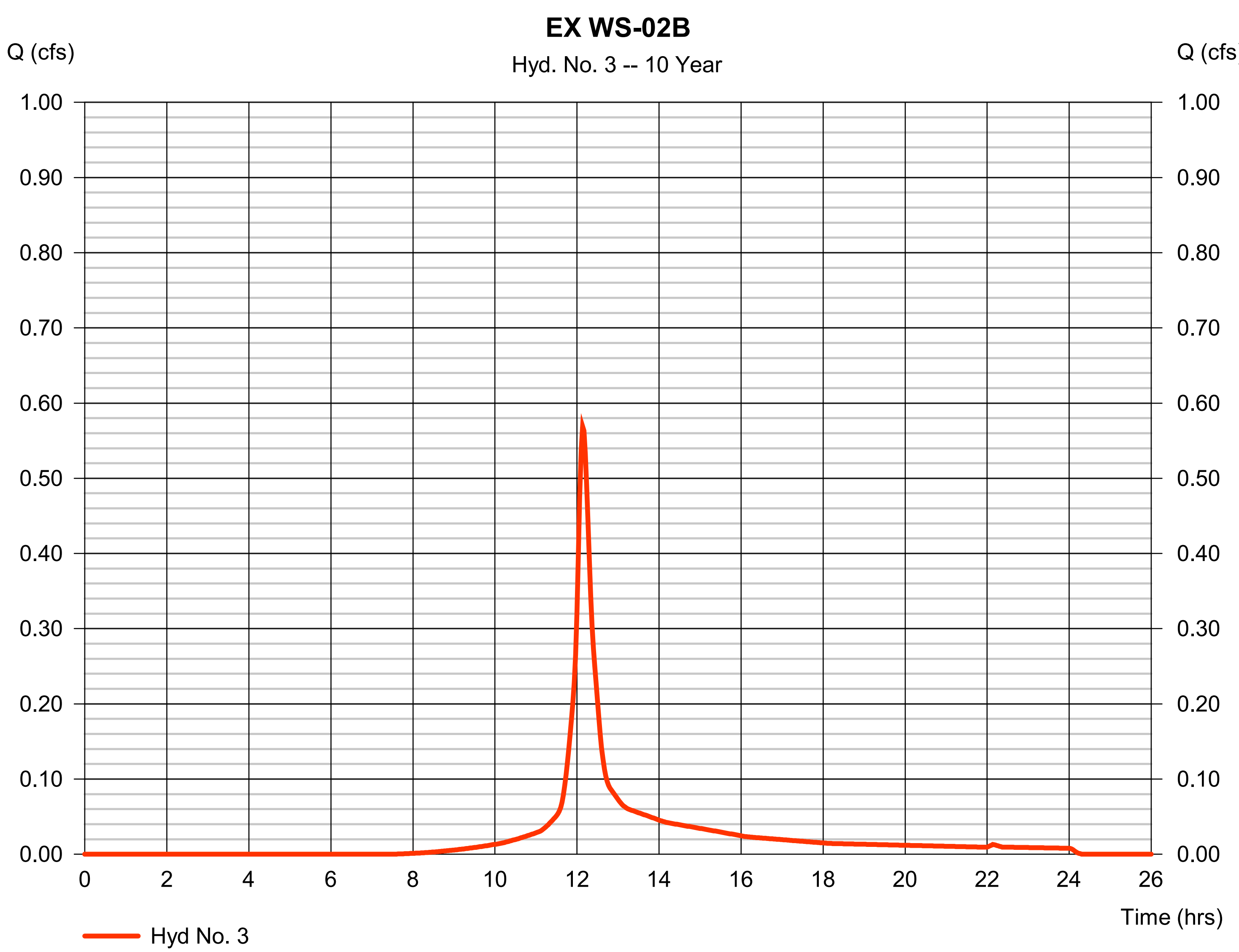
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 3

EX WS-02B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.569 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 2,180 cuft
Drainage area	= 0.186 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



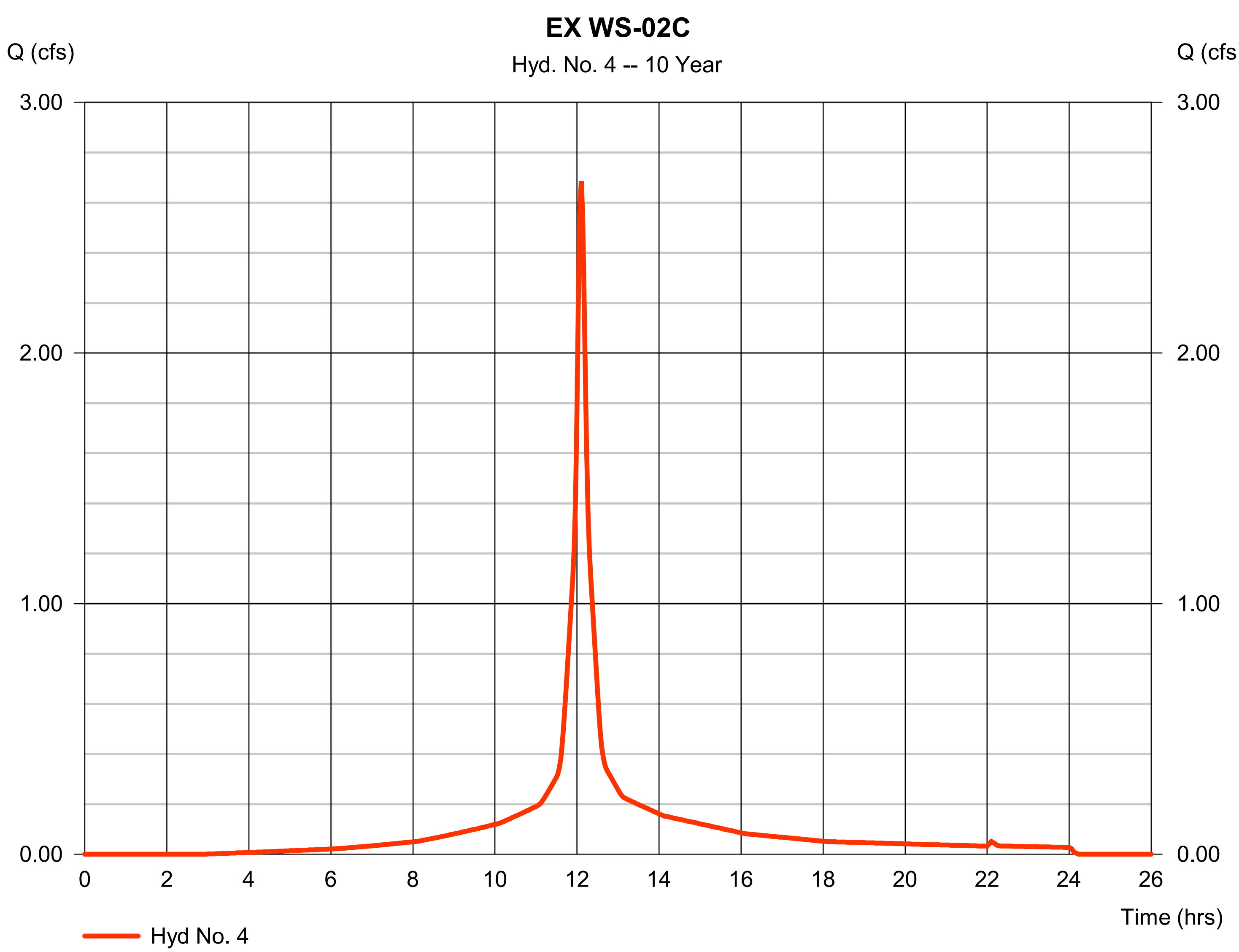
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 4

EX WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 2.685 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 9,791 cuft
Drainage area	= 0.590 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

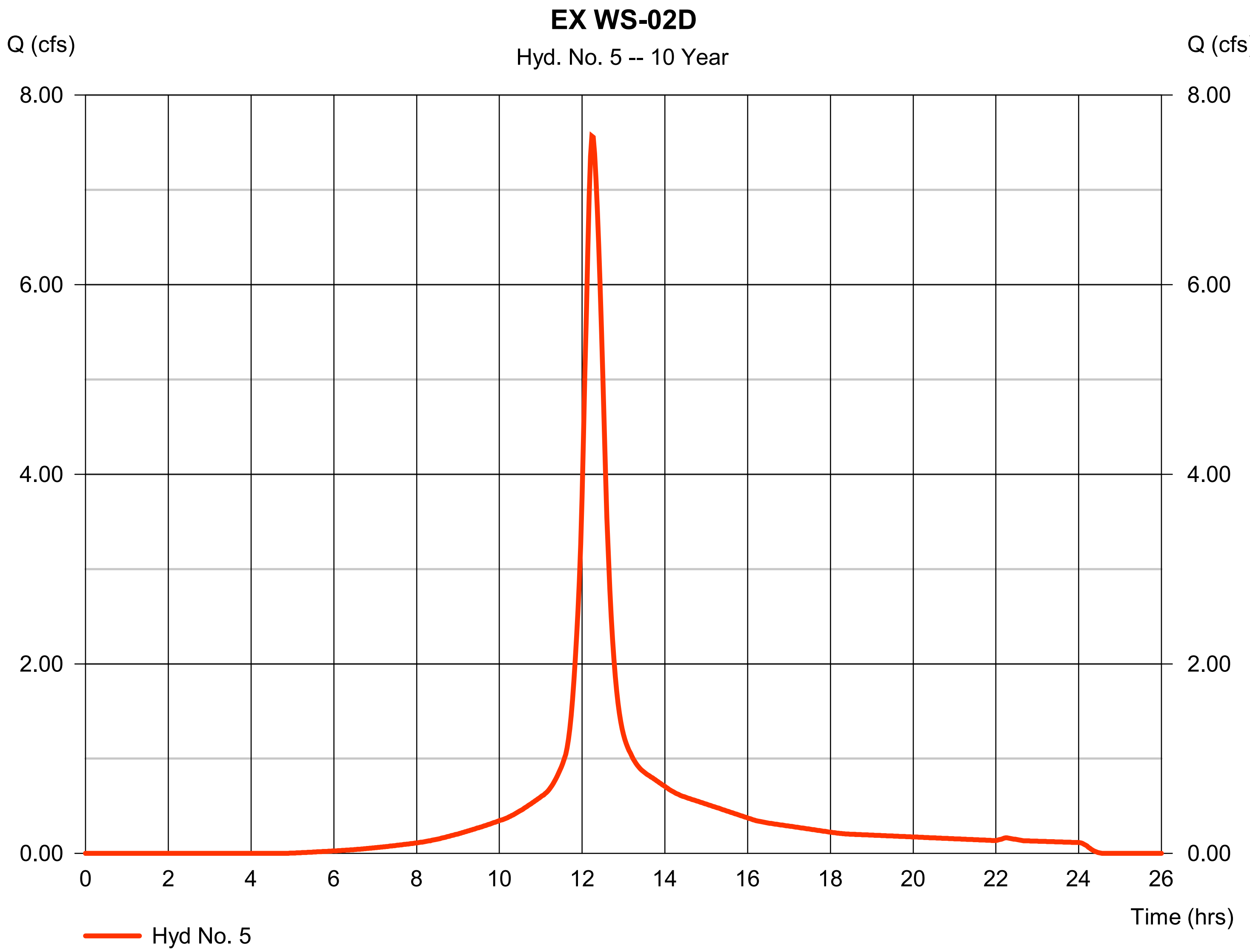


Hydrograph Report

Hyd. No. 5

EX WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 7.568 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 36,669 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



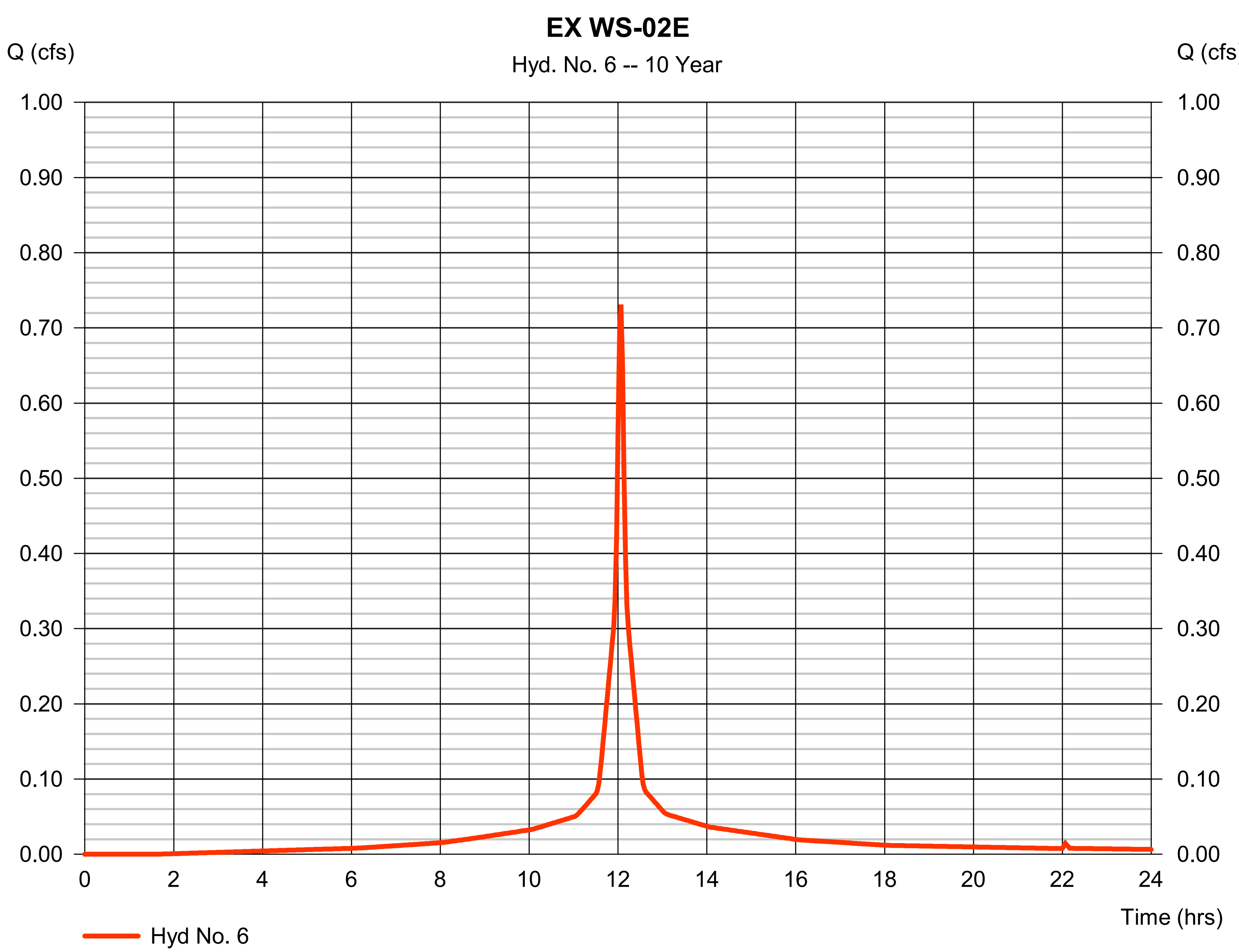
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

EX WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 0.731 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,440 cuft
Drainage area	= 0.146 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



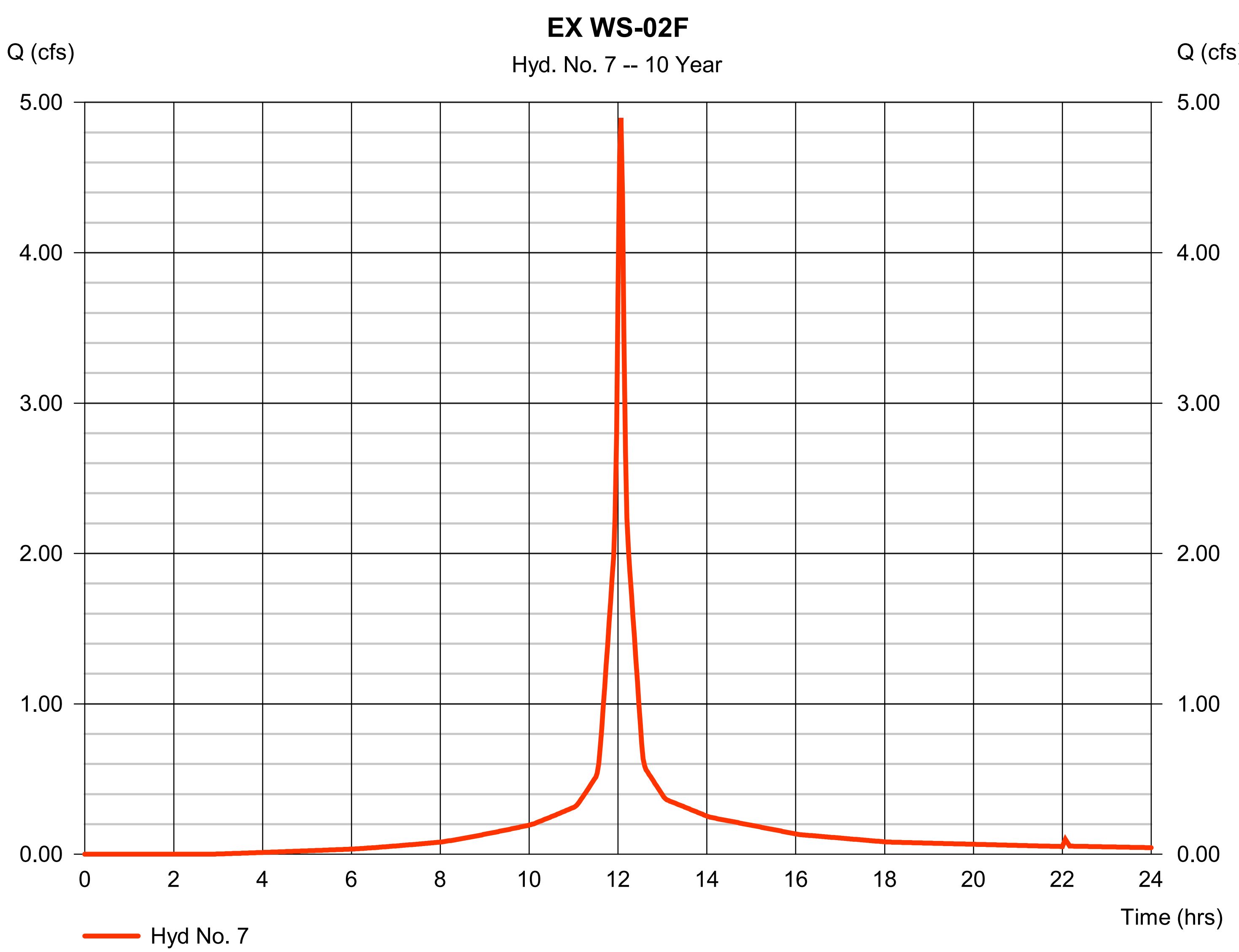
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

EX WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 4.896 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 15,744 cuft
Drainage area	= 1.012 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.50 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



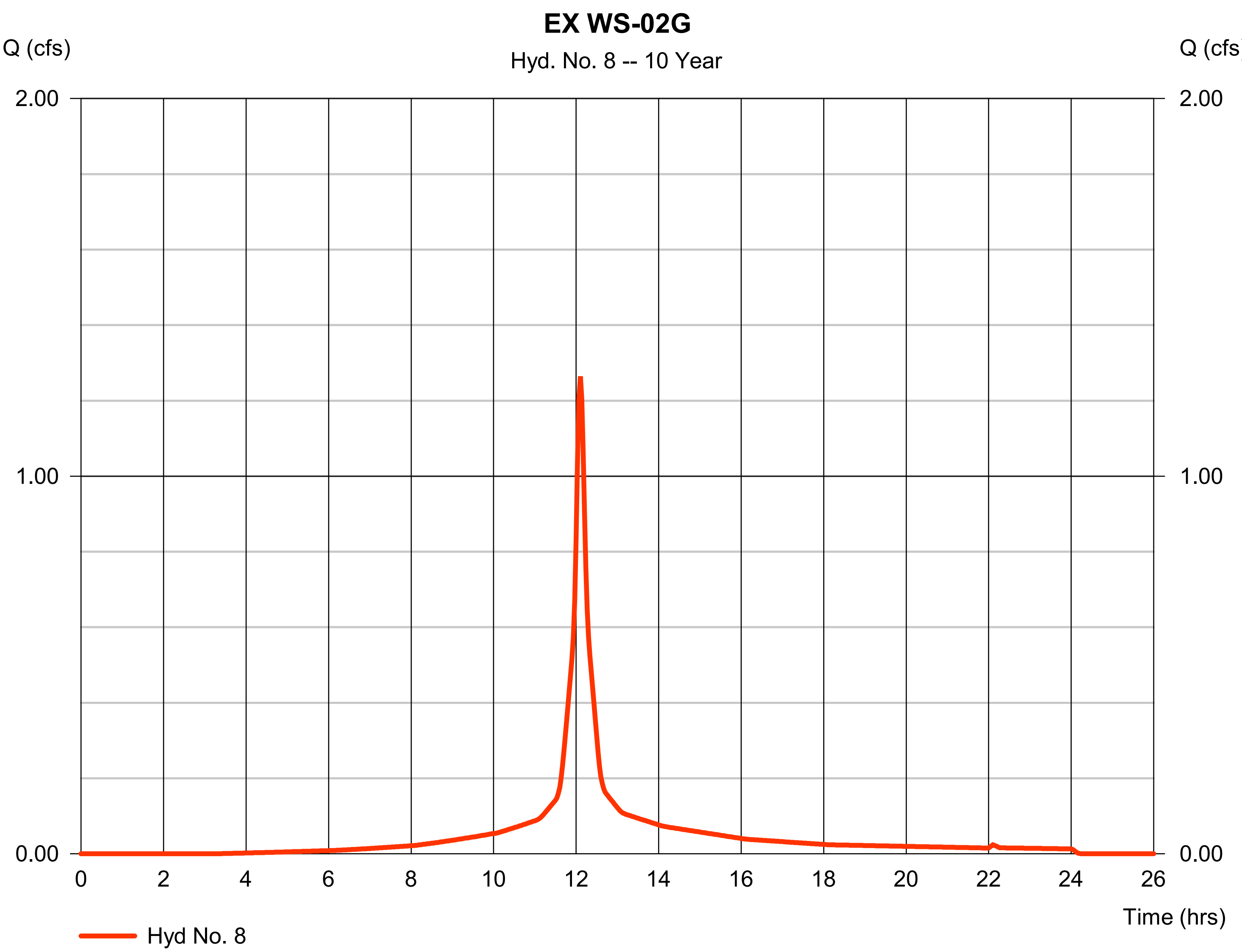
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

EX WS-02G

Hydrograph type	= SCS Runoff	Peak discharge	= 1.265 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 4,567 cuft
Drainage area	= 0.282 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.90 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



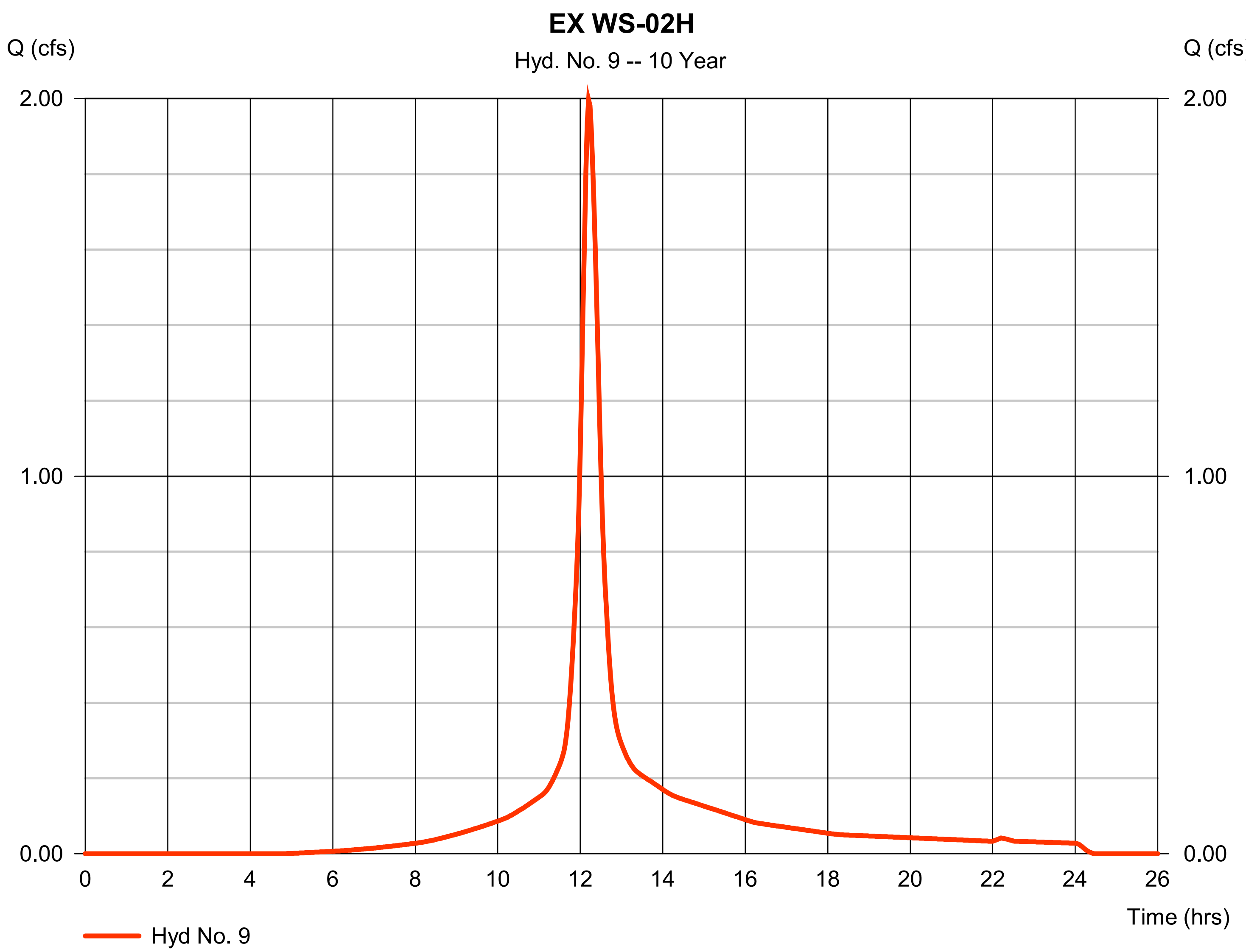
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 9

EX WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 1.996 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 9,014 cuft
Drainage area	= 0.616 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.30 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



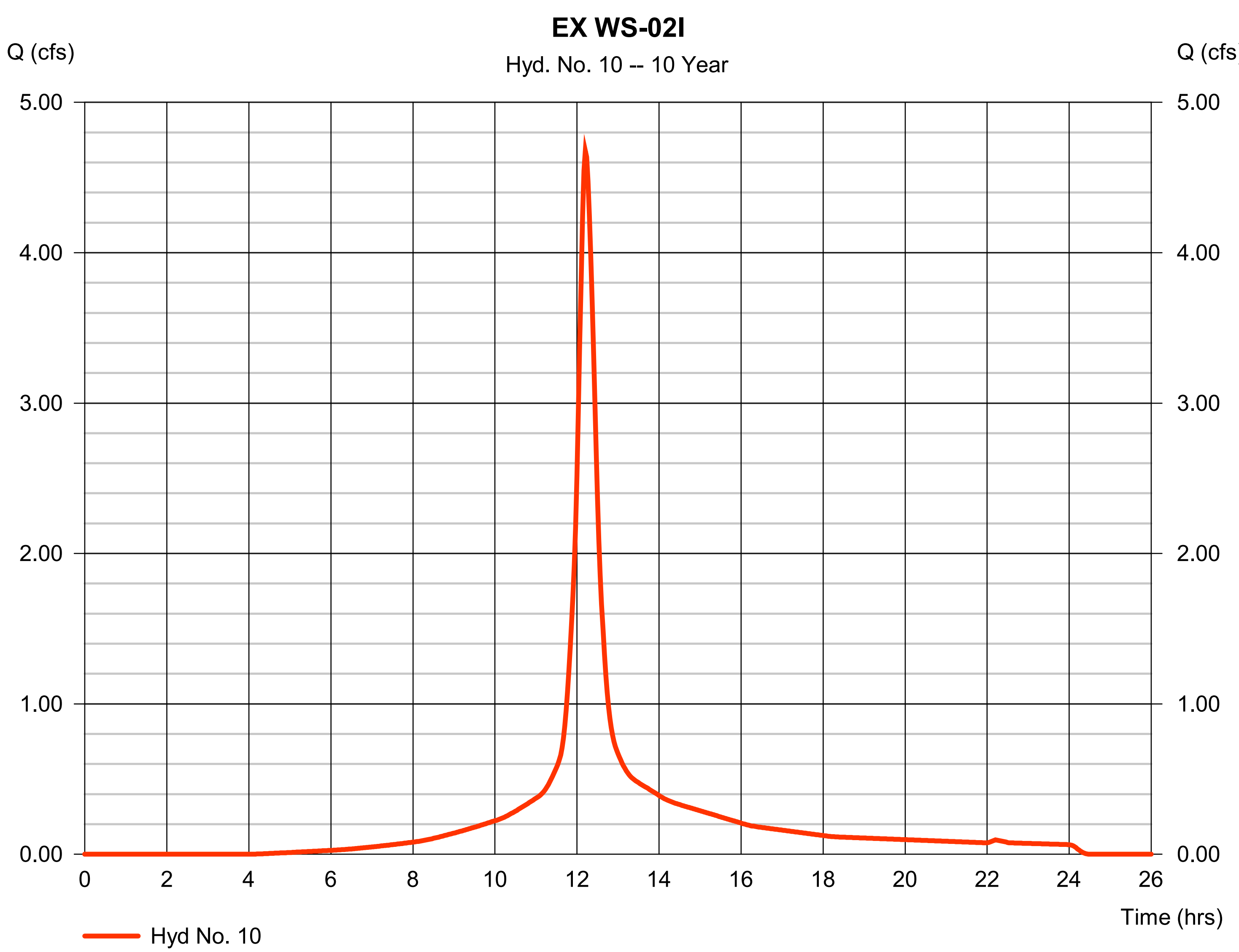
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

EX WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 4.677 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 21,366 cuft
Drainage area	= 1.387 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



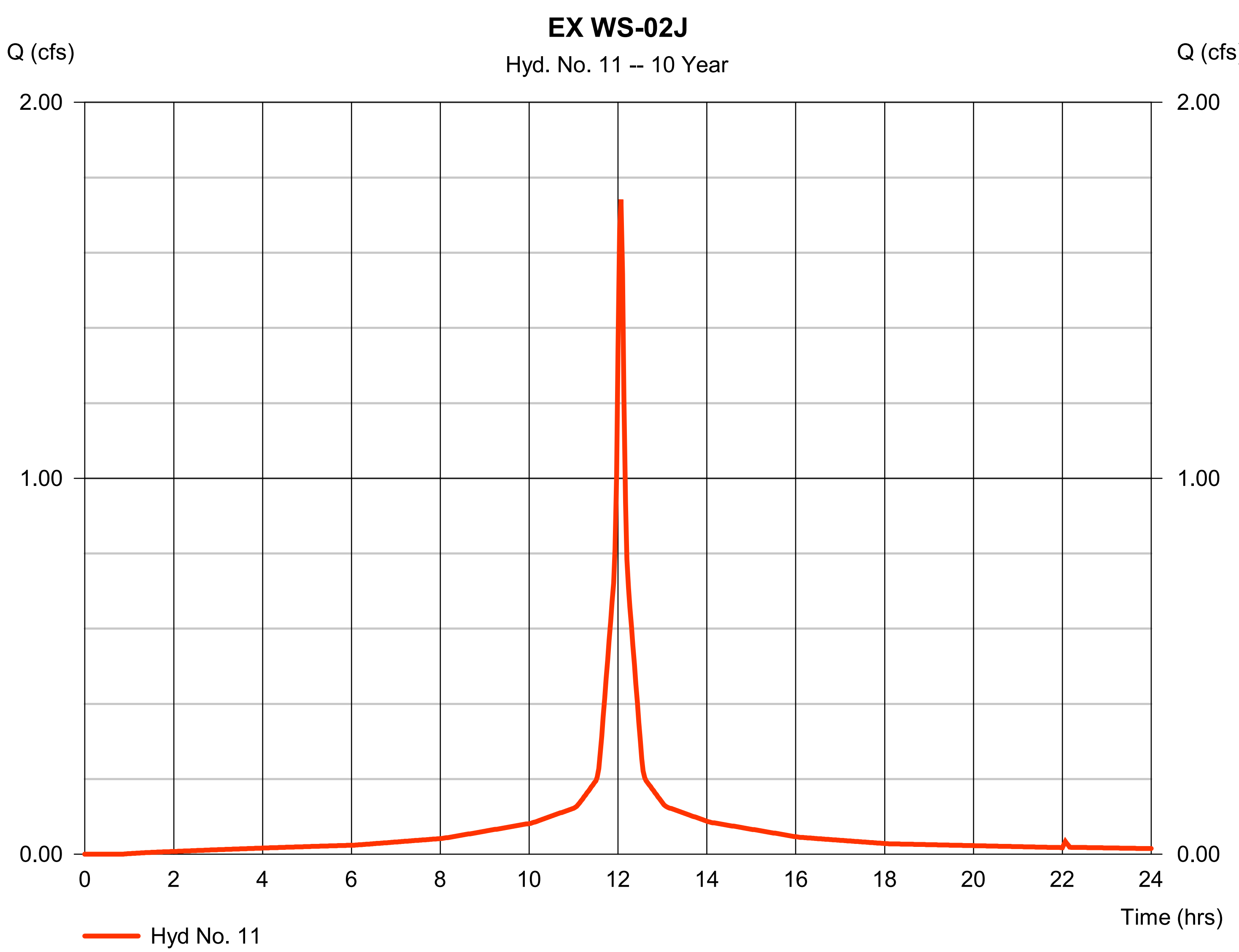
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

EX WS-02J

Hydrograph type	= SCS Runoff	Peak discharge	= 1.741 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 6,003 cuft
Drainage area	= 0.343 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

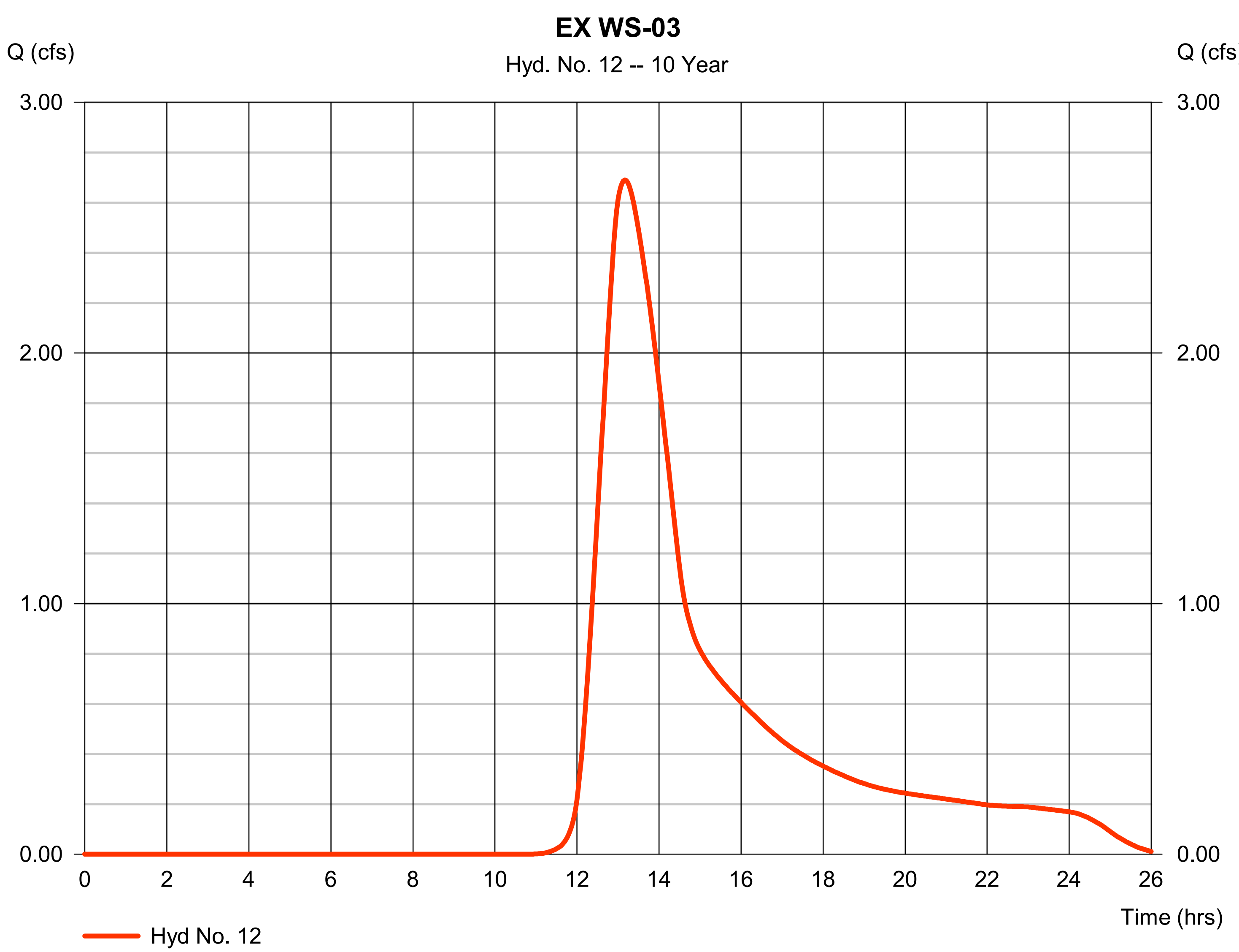


Hydrograph Report

Hyd. No. 12

EX WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 2.690 cfs
Storm frequency	= 10 yrs	Time to peak	= 13.17 hrs
Time interval	= 2 min	Hyd. volume	= 29,764 cuft
Drainage area	= 4.907 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

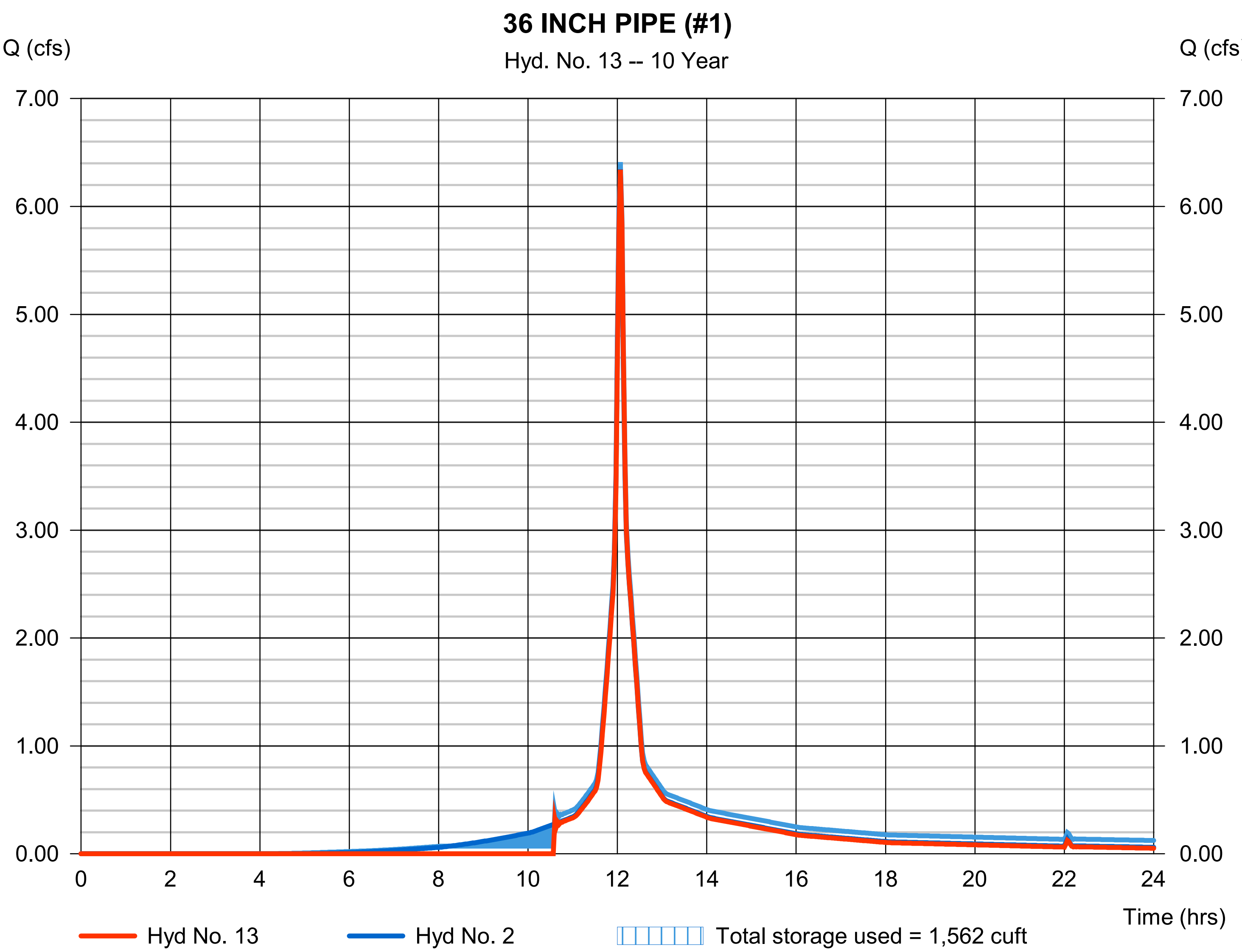
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 13

36 INCH PIPE (#1)

Hydrograph type	= Reservoir	Peak discharge	= 6.339 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 17,448 cuft
Inflow hyd. No.	= 2 - EX WS-02A	Max. Elevation	= 143.69 ft
Reservoir name	= 36IN - 1	Max. Storage	= 1,562 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

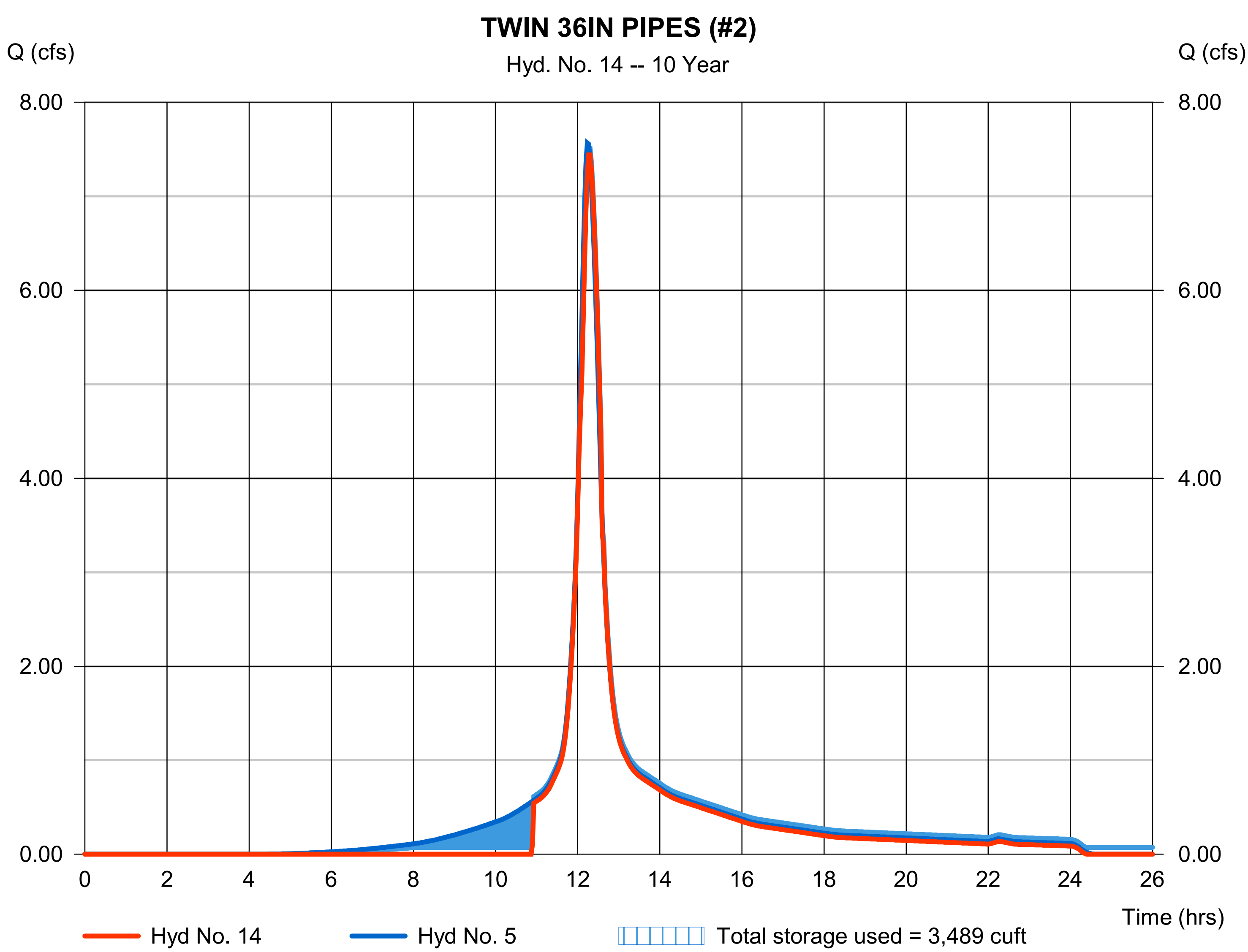
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 7.442 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.30 hrs
Time interval	= 2 min	Hyd. volume	= 31,857 cuft
Inflow hyd. No.	= 5 - EX WS-02D	Max. Elevation	= 139.08 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,489 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

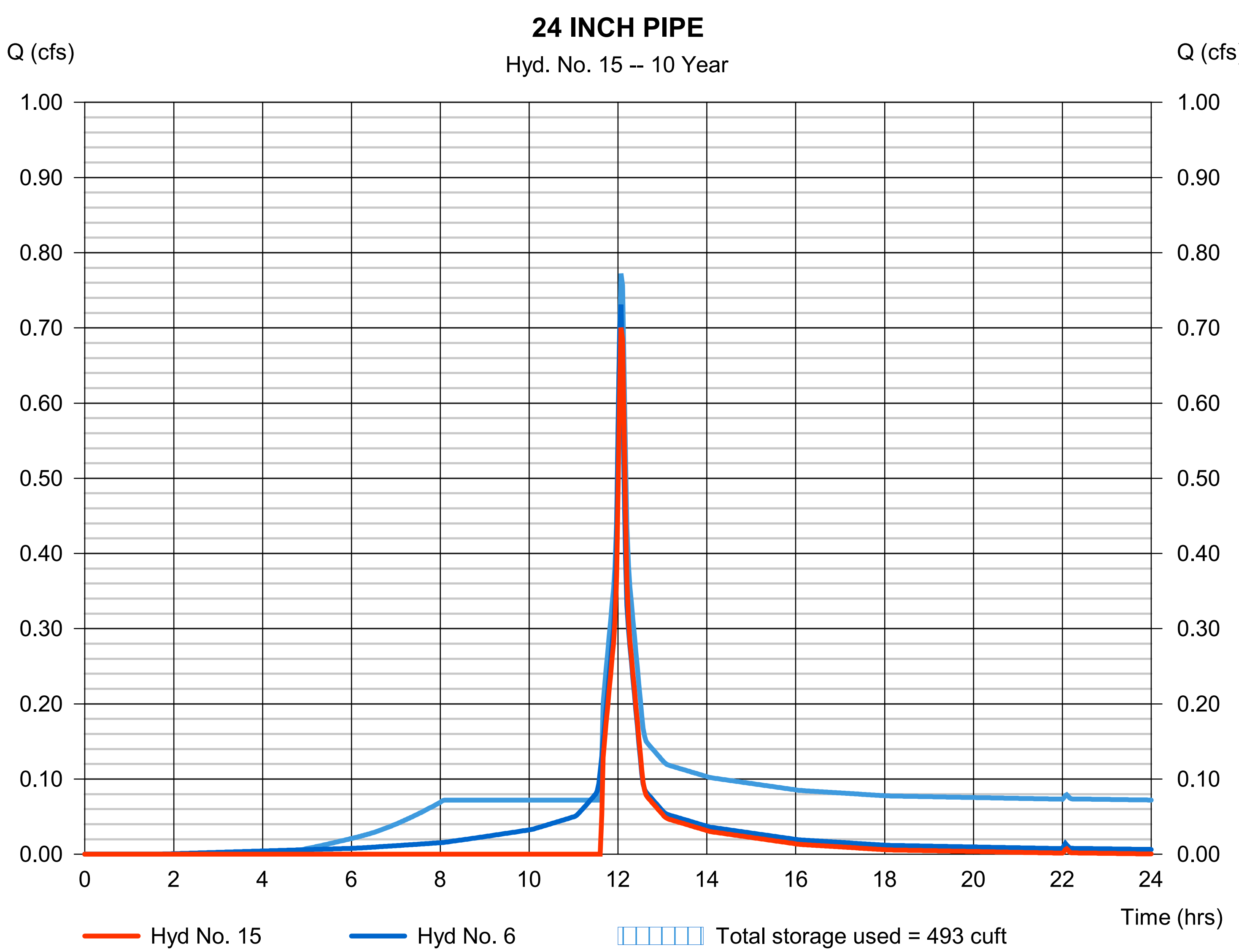
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

24 INCH PIPE

Hydrograph type	= Reservoir	Peak discharge	= 0.701 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 1,554 cuft
Inflow hyd. No.	= 6 - EX WS-02E	Max. Elevation	= 139.63 ft
Reservoir name	= 24IN	Max. Storage	= 493 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

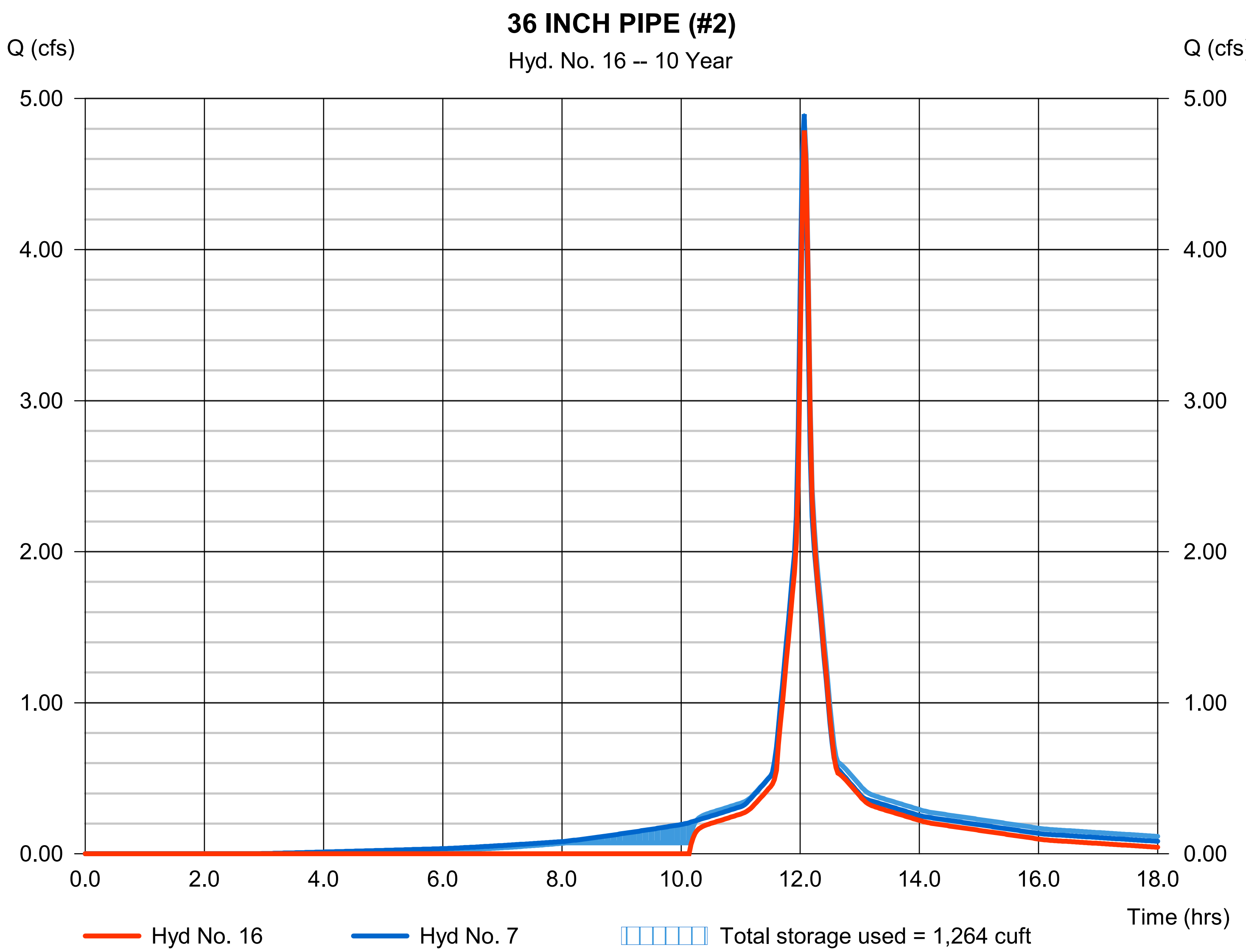
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

36 INCH PIPE (#2)

Hydrograph type	= Reservoir	Peak discharge	= 4.789 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 12,060 cuft
Inflow hyd. No.	= 7 - EX WS-02F	Max. Elevation	= 139.47 ft
Reservoir name	= 36in - 2	Max. Storage	= 1,264 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

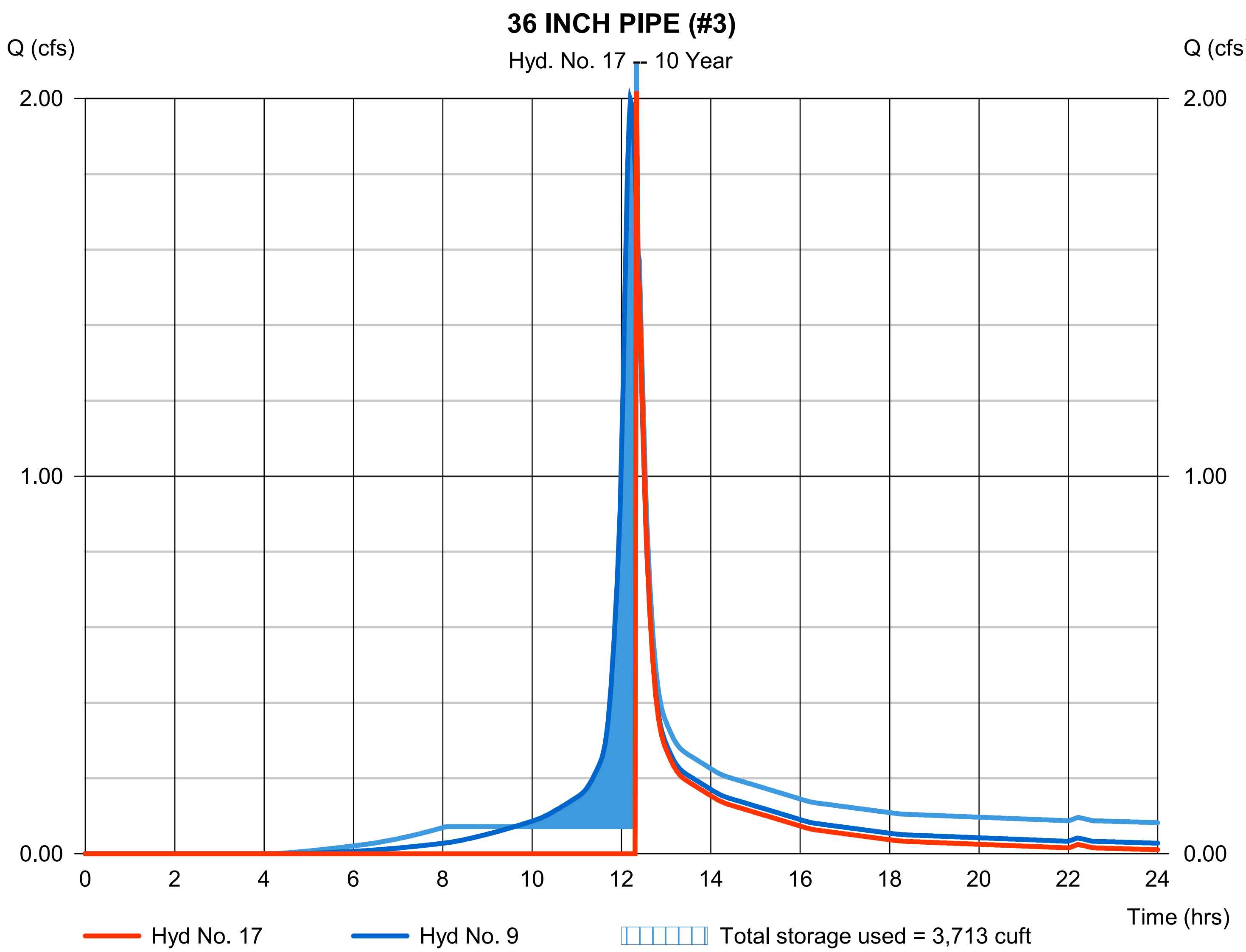
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 2.020 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 4,253 cuft
Inflow hyd. No.	= 9 - EX WS-02H	Max. Elevation	= 137.49 ft
Reservoir name	= 36in - 3	Max. Storage	= 3,713 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

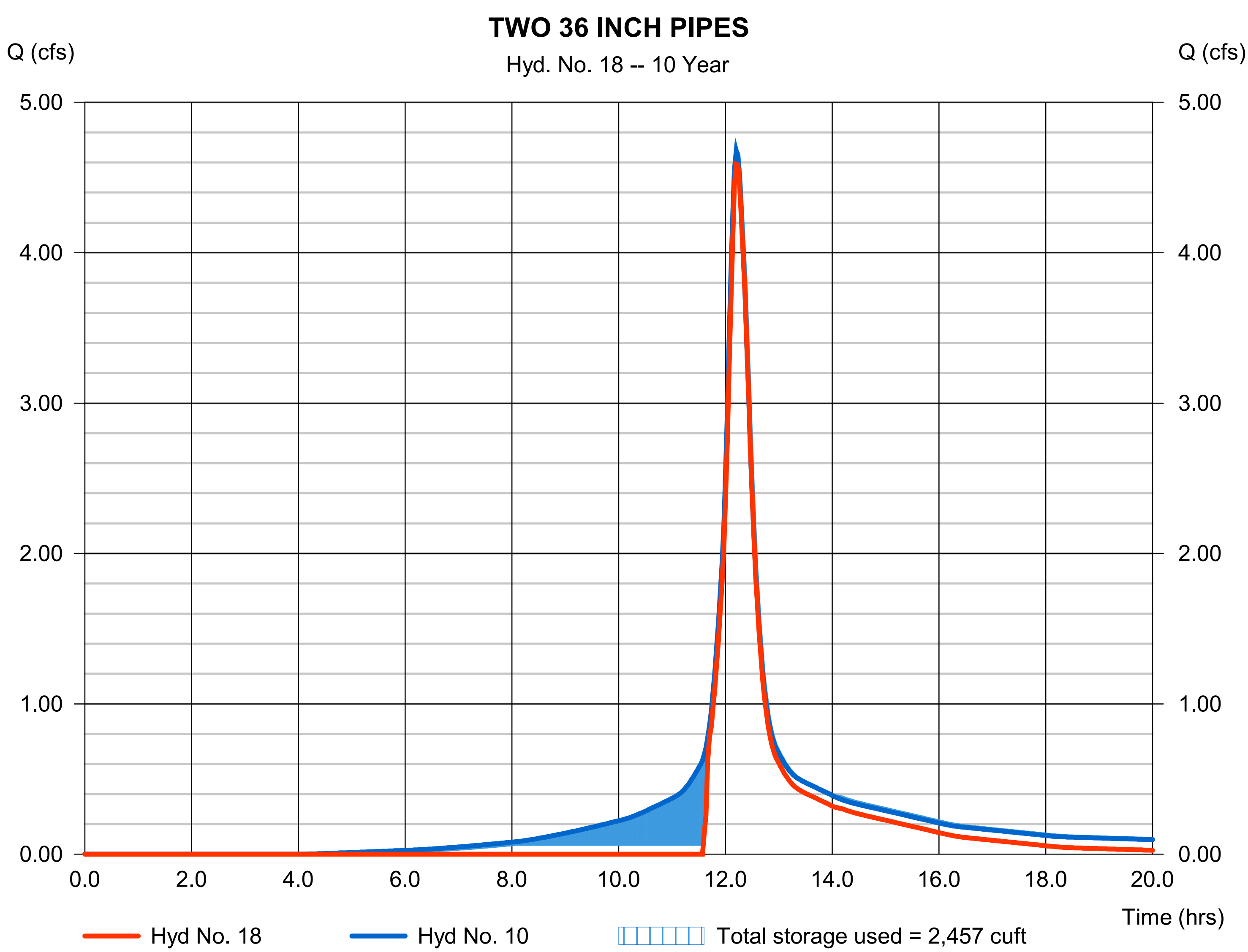
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 4.587 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 14,622 cuft
Inflow hyd. No.	= 10 - EX WS-02I	Max. Elevation	= 135.72 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,457 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



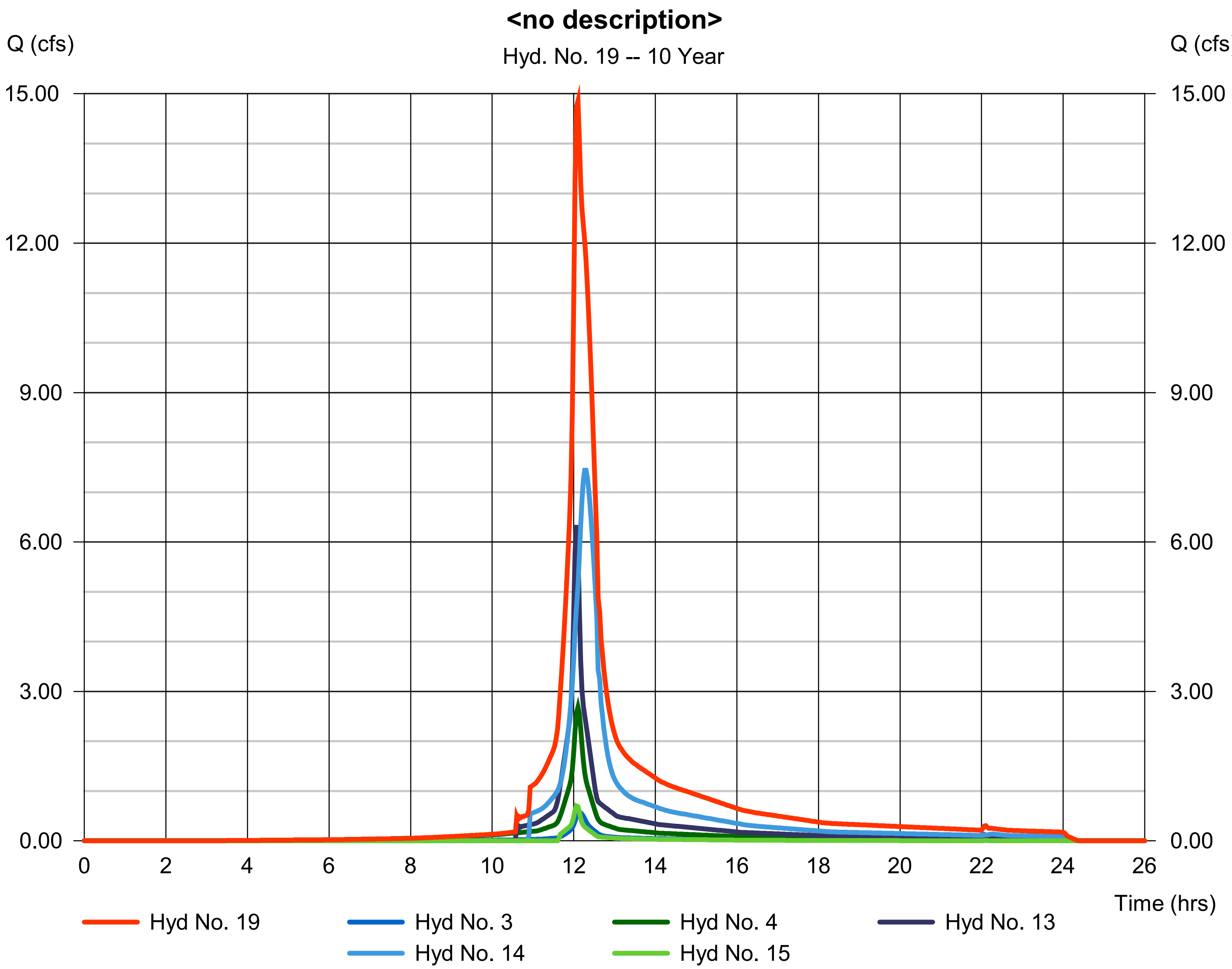
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 14.85 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 62,831 cuft
Inflow hyds.	= 3, 4, 13, 14, 15	Contrib. drain. area	= 0.776 ac



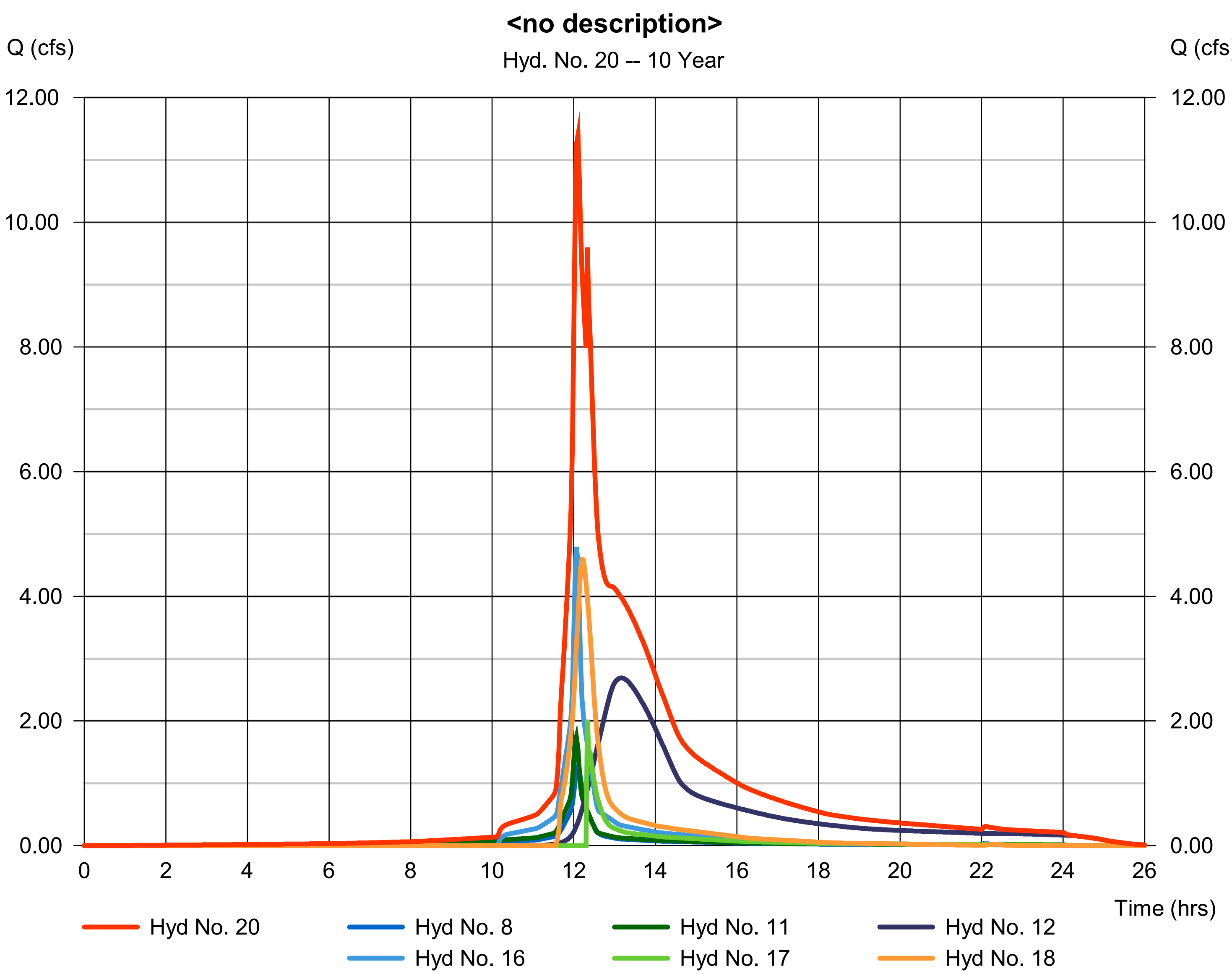
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 20

<no description>

Hydrograph type	= Combine	Peak discharge	= 11.40 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 71,269 cuft
Inflow hyds.	= 8, 11, 12, 16, 17, 18	Contrib. drain. area	= 5.532 ac



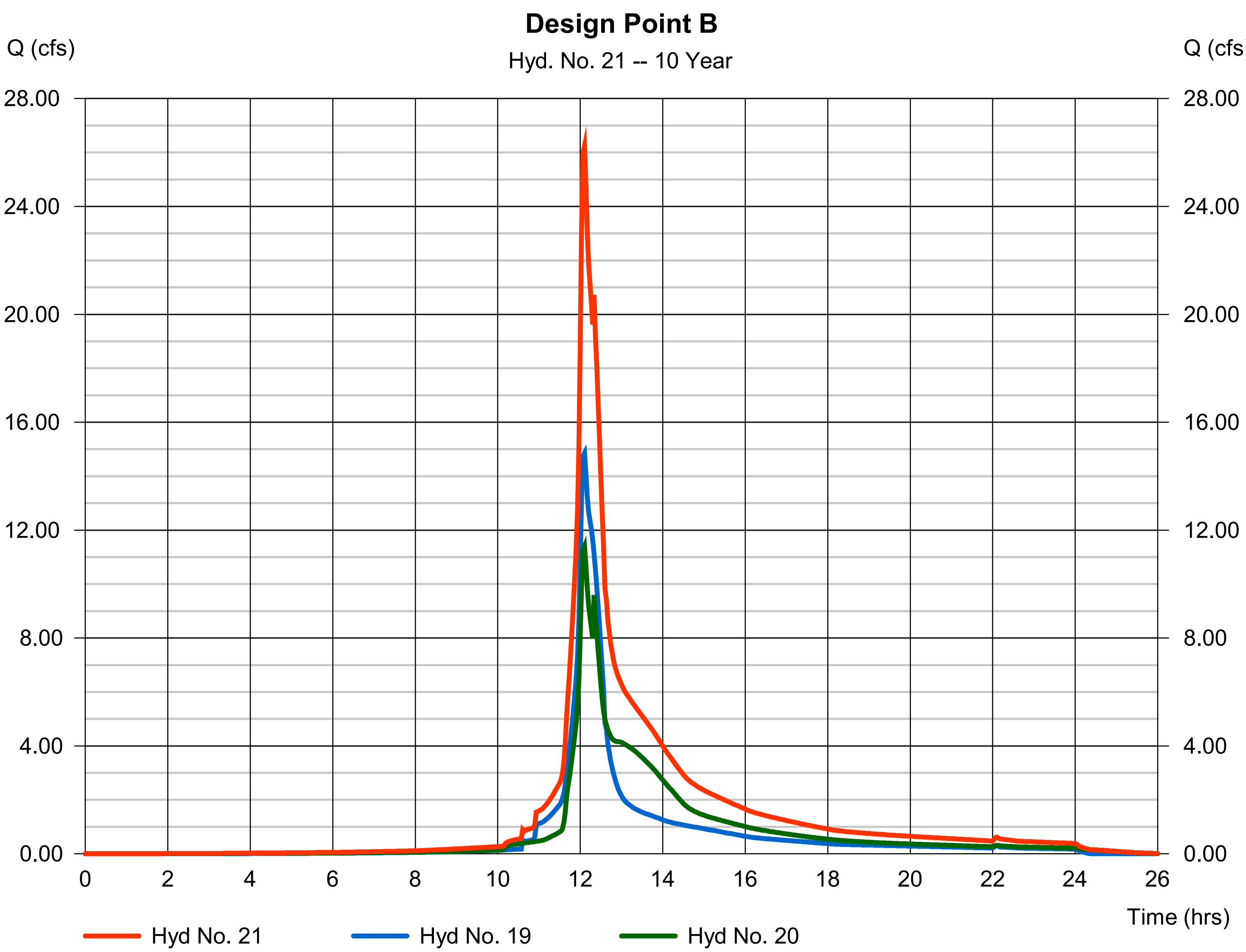
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

Design Point B

Hydrograph type	= Combine	Peak discharge	= 26.25 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 134,100 cuft
Inflow hyds.	= 19, 20	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	5.932	2	752	38,948	------	------	------	EX WS-01
2	SCS Runoff	8.035	2	724	24,968	------	------	------	EX WS-02A
3	SCS Runoff	0.755	2	728	2,900	------	------	------	EX WS-02B
4	SCS Runoff	3.315	2	726	12,242	------	------	------	EX WS-02C
5	SCS Runoff	9.563	2	734	46,823	------	------	------	EX WS-02D
6	SCS Runoff	0.894	2	724	3,014	------	------	------	EX WS-02E
7	SCS Runoff	6.042	2	724	19,686	------	------	------	EX WS-02F
8	SCS Runoff	1.567	2	726	5,734	------	------	------	EX WS-02G
9	SCS Runoff	2.521	2	732	11,510	------	------	------	EX WS-02H
10	SCS Runoff	5.852	2	732	27,051	------	------	------	EX WS-02I
11	SCS Runoff	2.120	2	724	7,355	------	------	------	EX WS-02J
12	SCS Runoff	4.111	2	788	43,770	------	------	------	EX WS-03
13	Reservoir	8.034	2	724	22,921	2	143.74	1,591	36 INCH PIPE (#1)
14	Reservoir	9.452	2	736	41,926	5	139.13	3,703	TWIN 36IN PIPES (#2)
15	Reservoir	0.901	2	724	2,112	6	139.64	501	24 INCH PIPE
16	Reservoir	5.869	2	724	15,877	7	139.50	1,321	36 INCH PIPE (#2)
17	Reservoir	3.073	2	732	6,695	9	137.50	3,747	36 INCH PIPE (#3)
18	Reservoir	5.764	2	732	20,064	10	135.74	2,481	TWO 36 INCH PIPES
19	Combine	18.63	2	726	82,102	3, 4, 13, 14, 15,	------	------	<no description>
20	Combine	14.87	2	732	99,494	8, 11, 12, 16, 17, 18,	------	------	<no description>
21	Combine	33.18	2	726	181,596	19, 20	------	------	Design Point B

Existing-Hydraflow.gpw | Return Period: 25 Year | Thursday, 04 / 4 / 2024

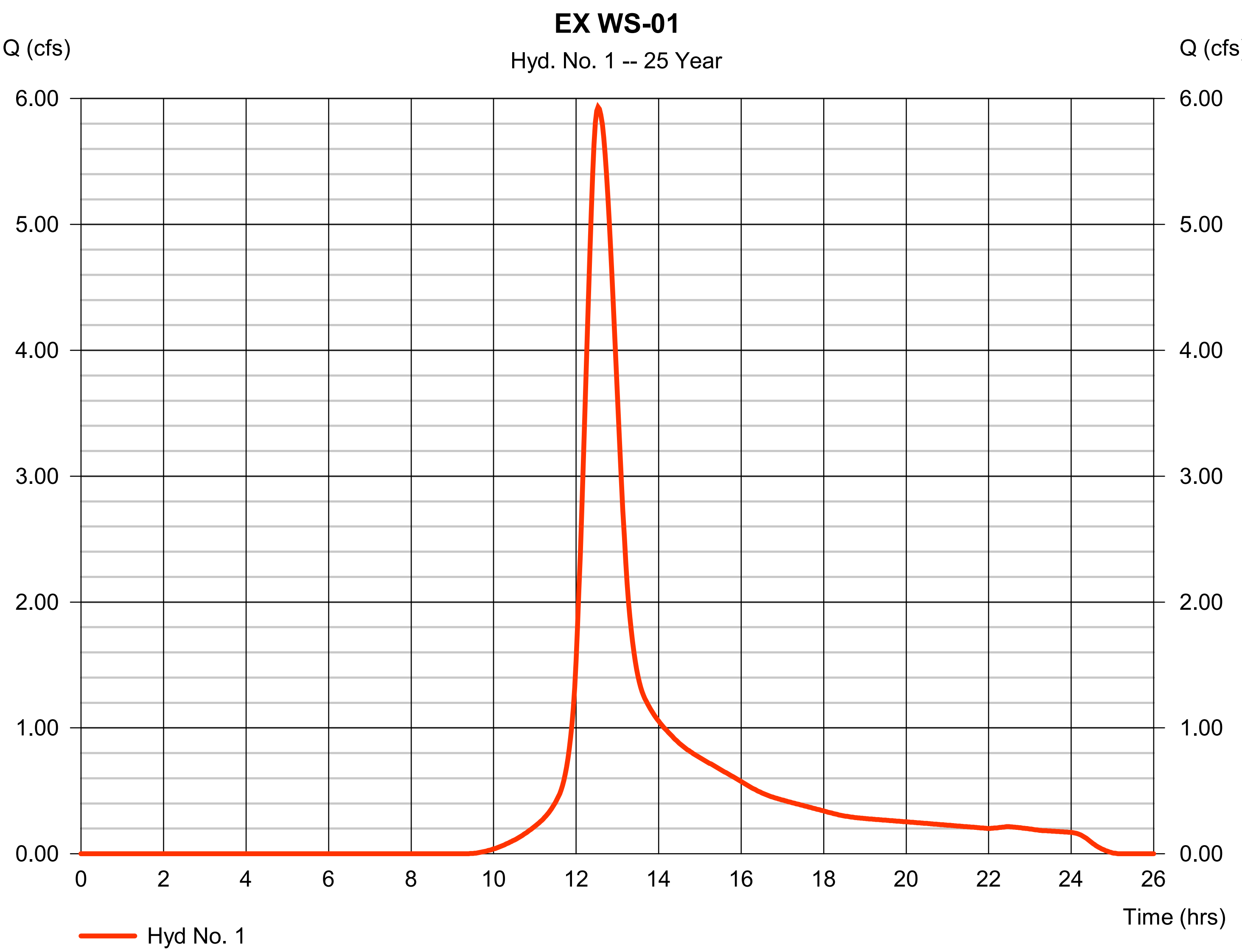
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

EX WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 5.932 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 38,948 cuft
Drainage area	= 3.677 ac	Curve number	= 67
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



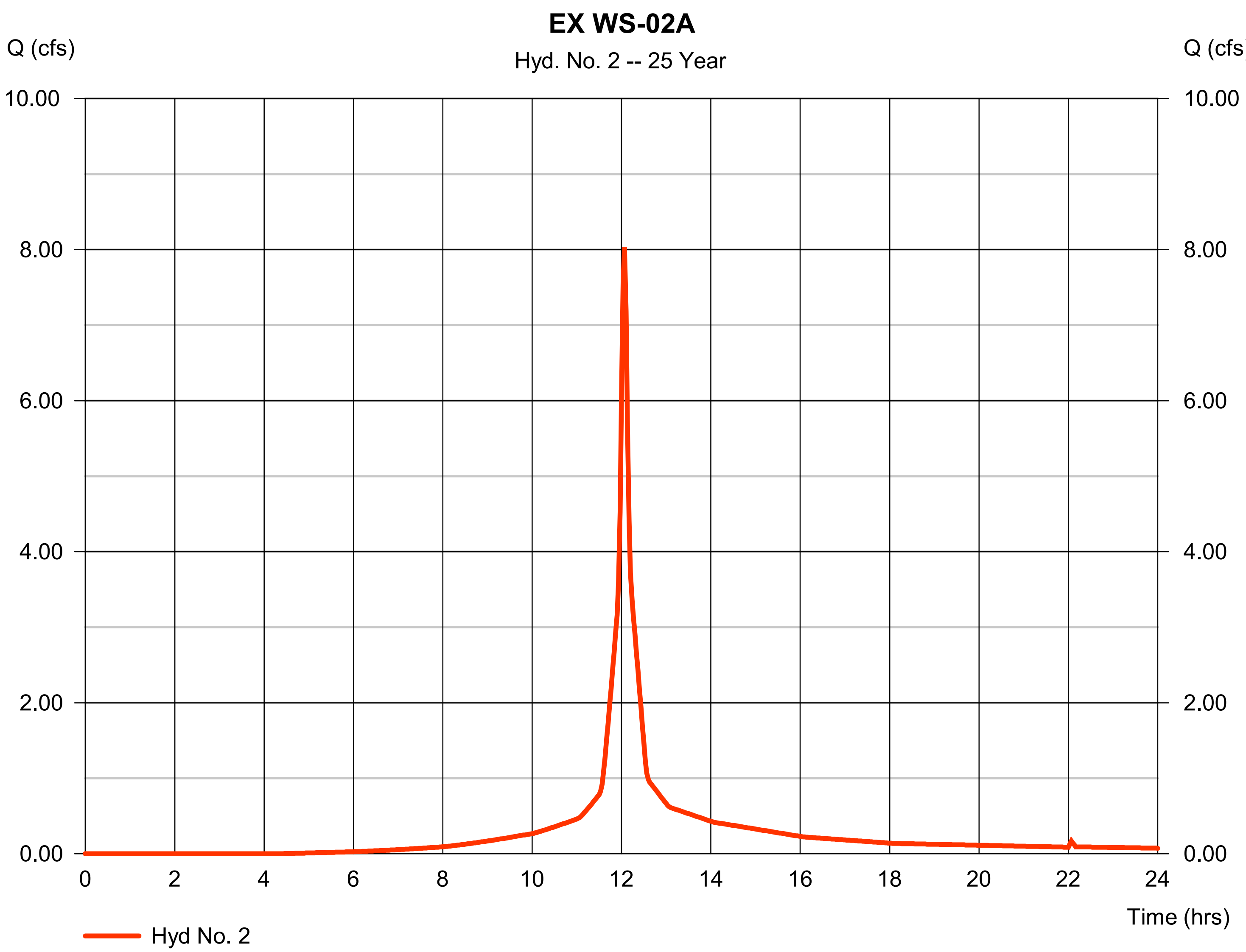
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 2

EX WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 8.035 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 24,968 cuft
Drainage area	= 1.457 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



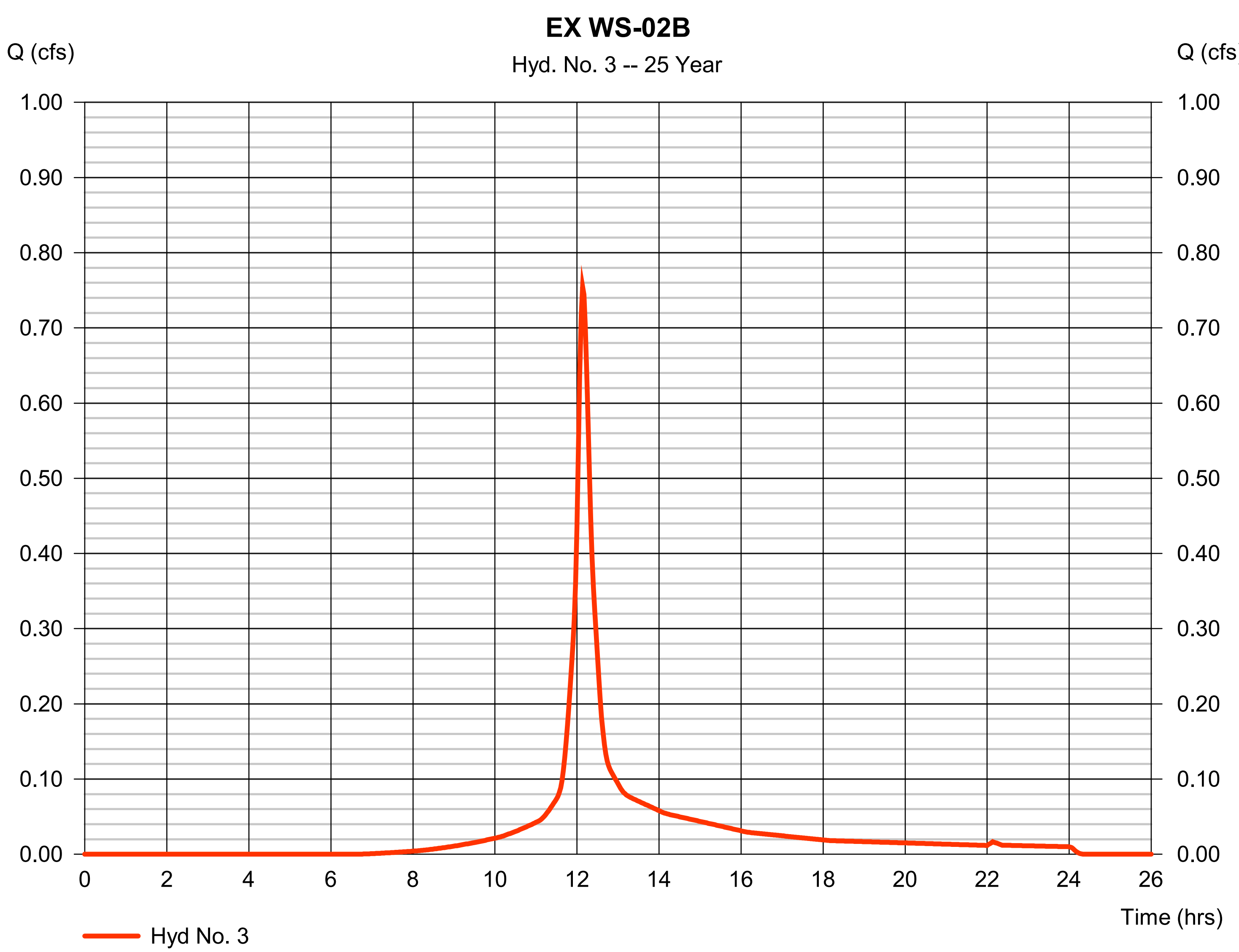
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 3

EX WS-02B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.755 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 2,900 cuft
Drainage area	= 0.186 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

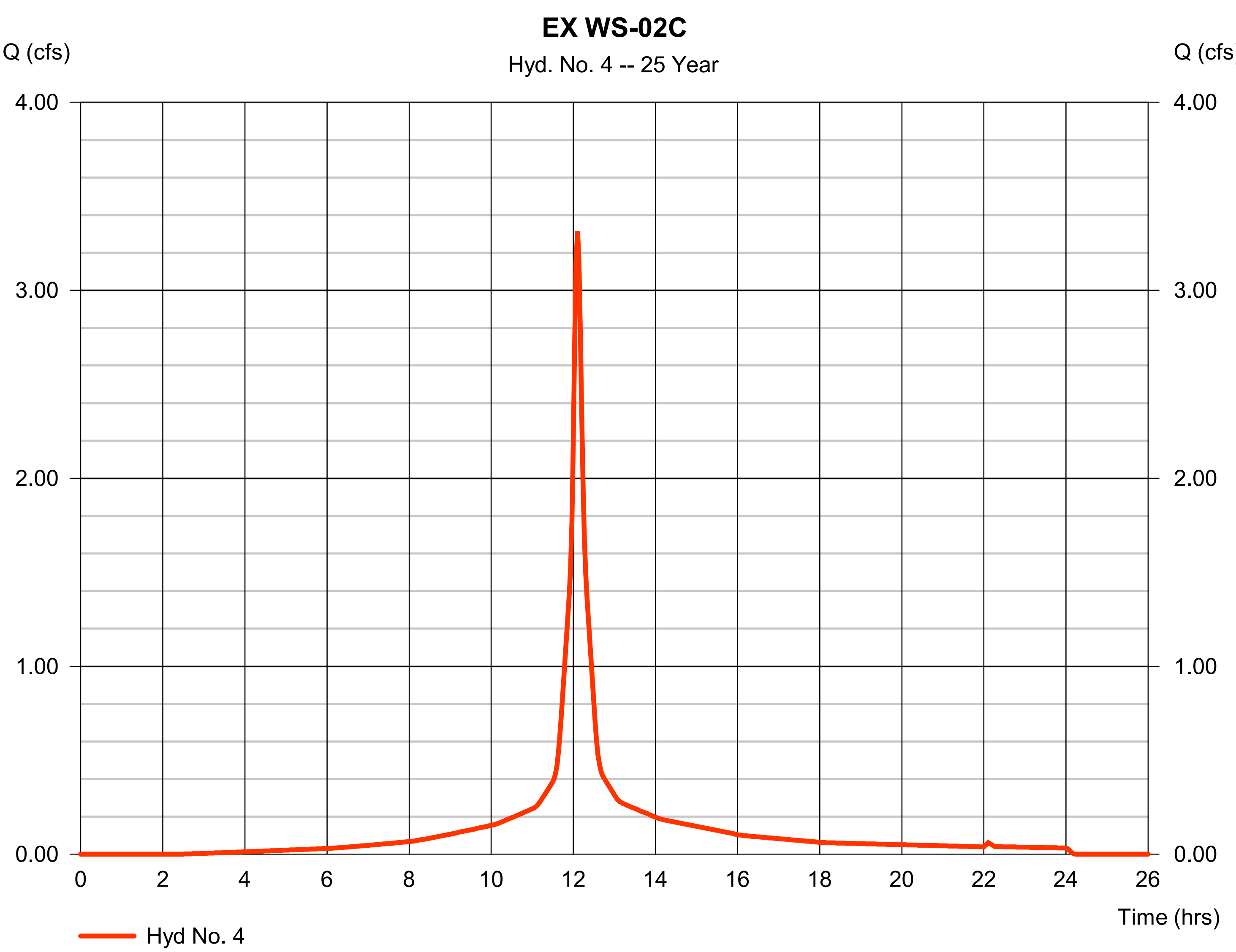


Hydrograph Report

Hyd. No. 4

EX WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 3.315 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 12,242 cuft
Drainage area	= 0.590 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



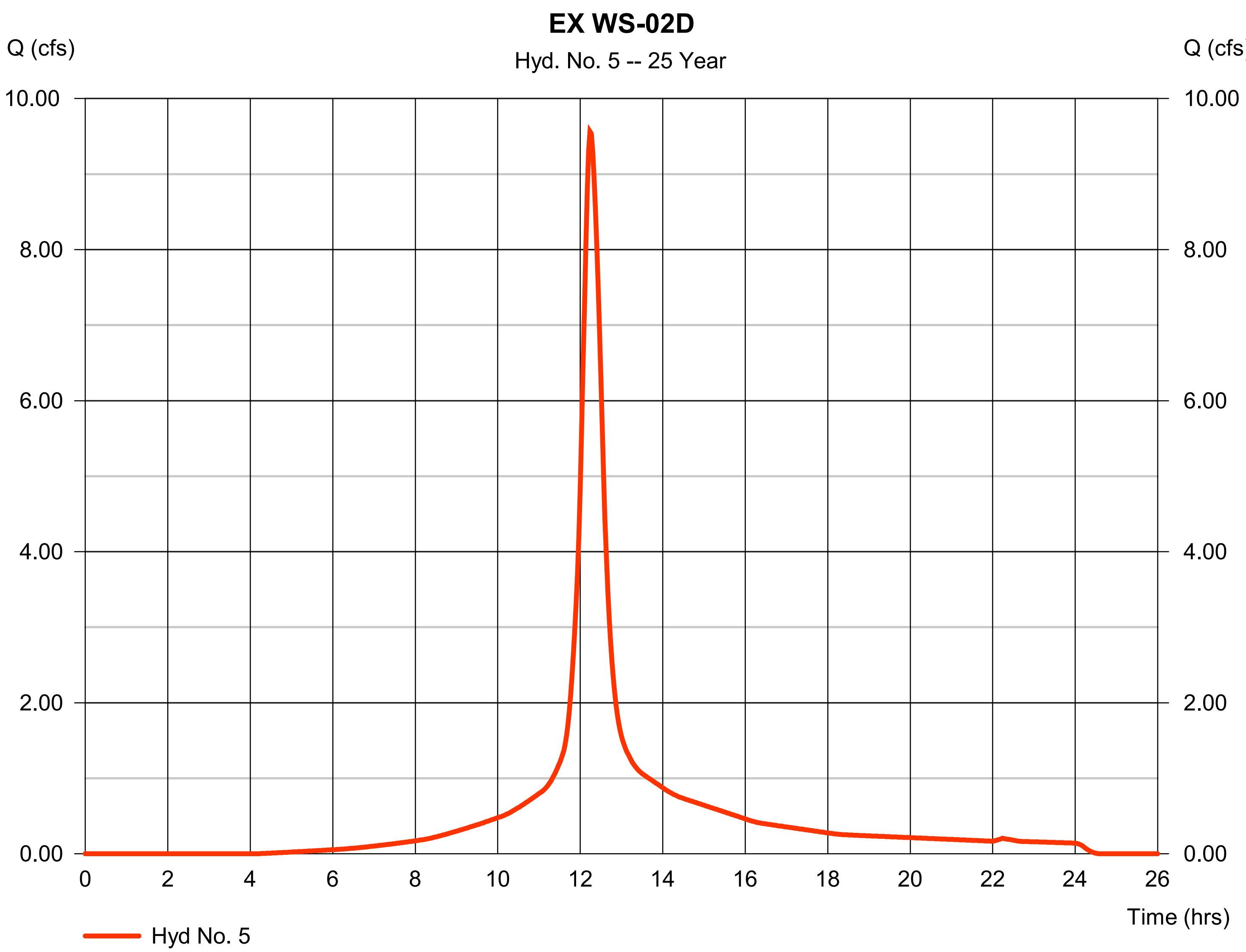
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 5

EX WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 9.563 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 46,823 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



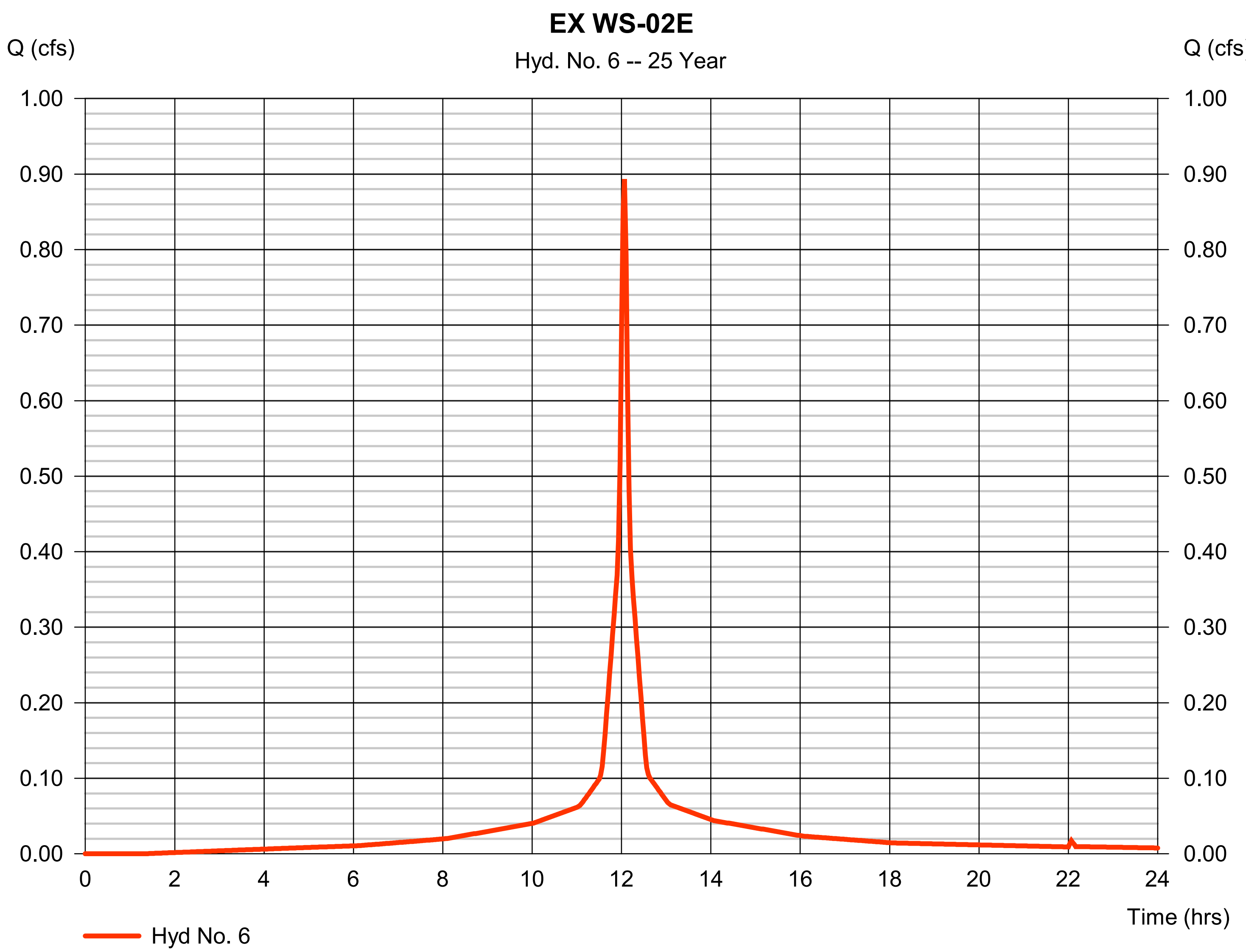
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

EX WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 0.894 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,014 cuft
Drainage area	= 0.146 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



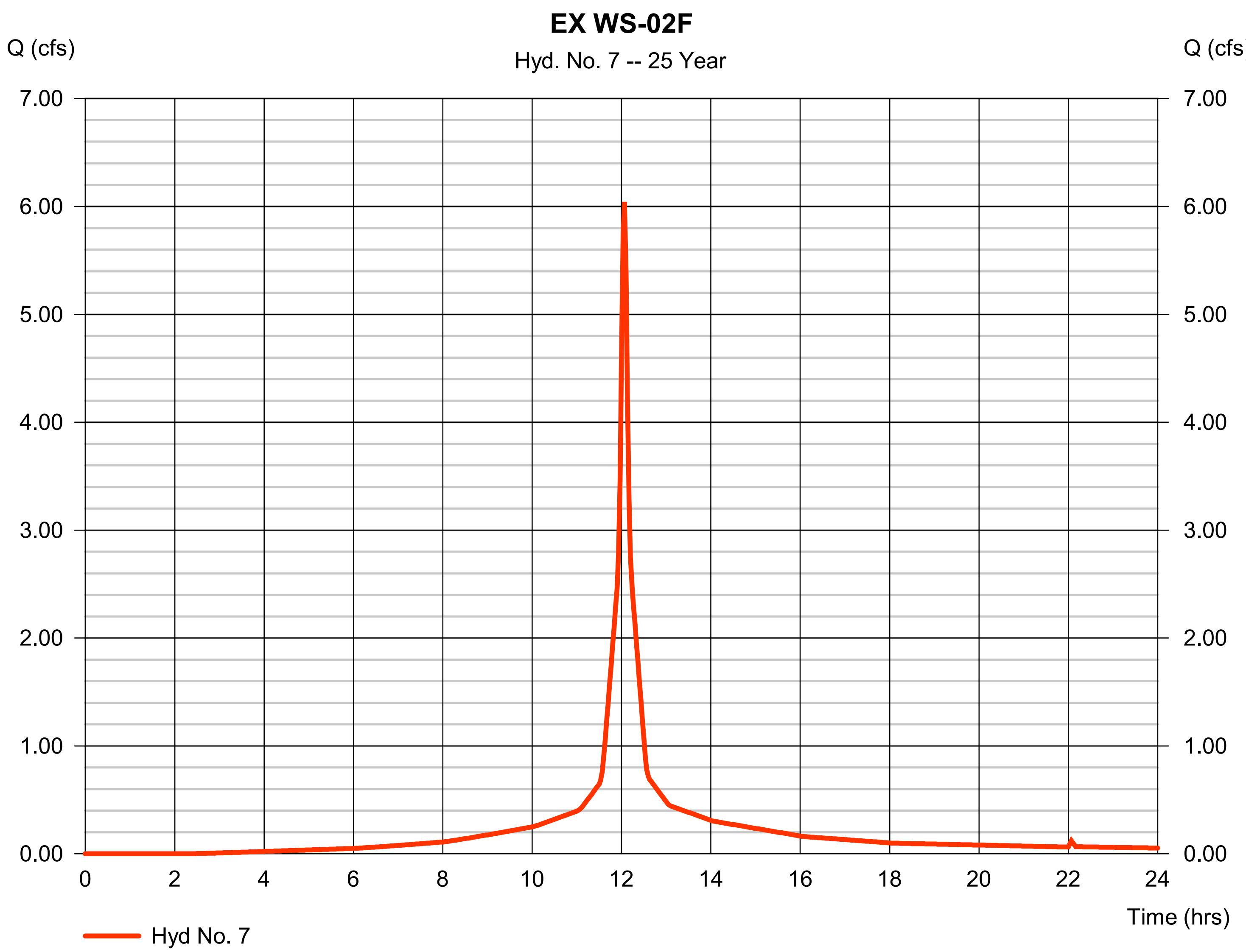
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

EX WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 6.042 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 19,686 cuft
Drainage area	= 1.012 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.50 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

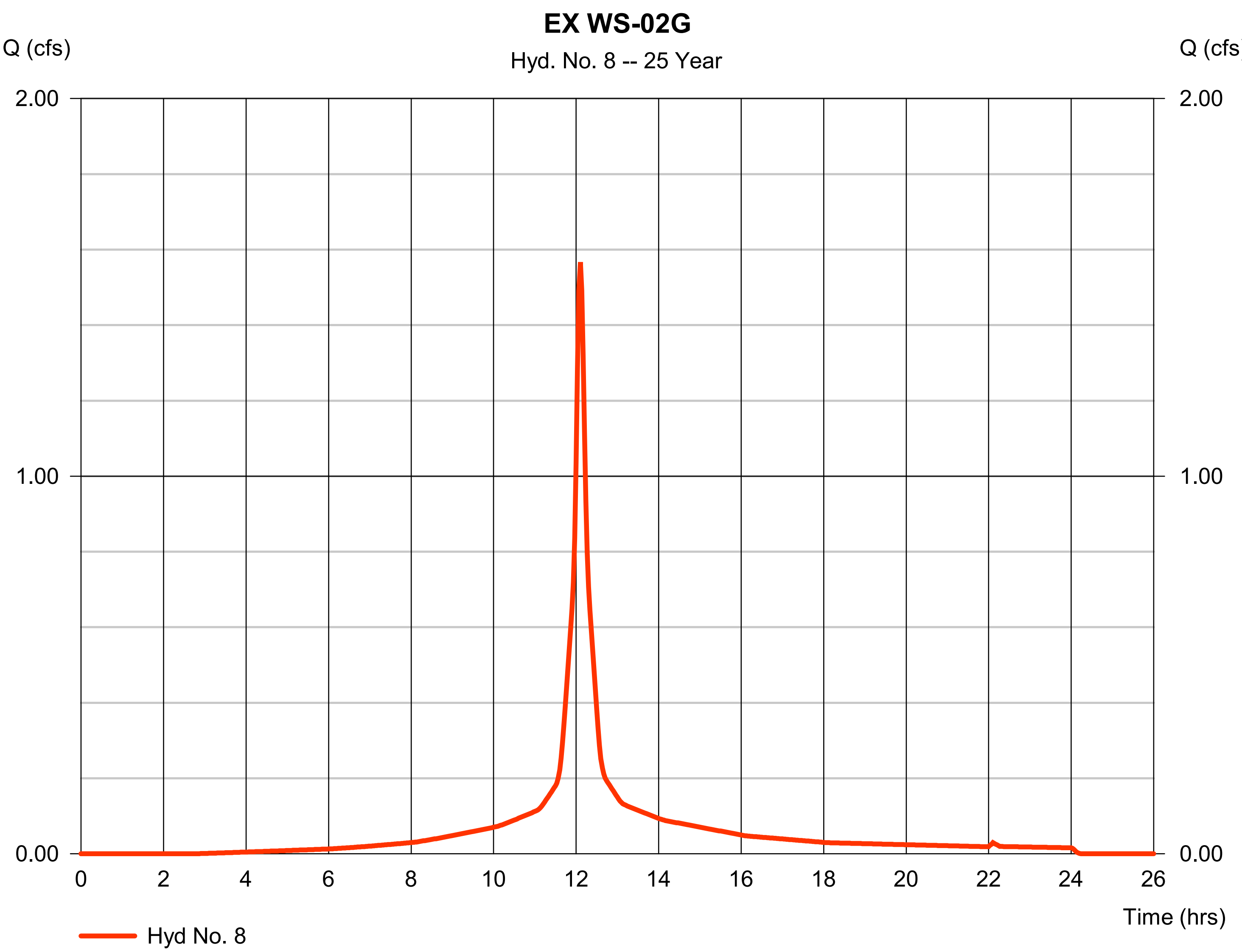


Hydrograph Report

Hyd. No. 8

EX WS-02G

Hydrograph type	= SCS Runoff	Peak discharge	= 1.567 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 5,734 cuft
Drainage area	= 0.282 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.90 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



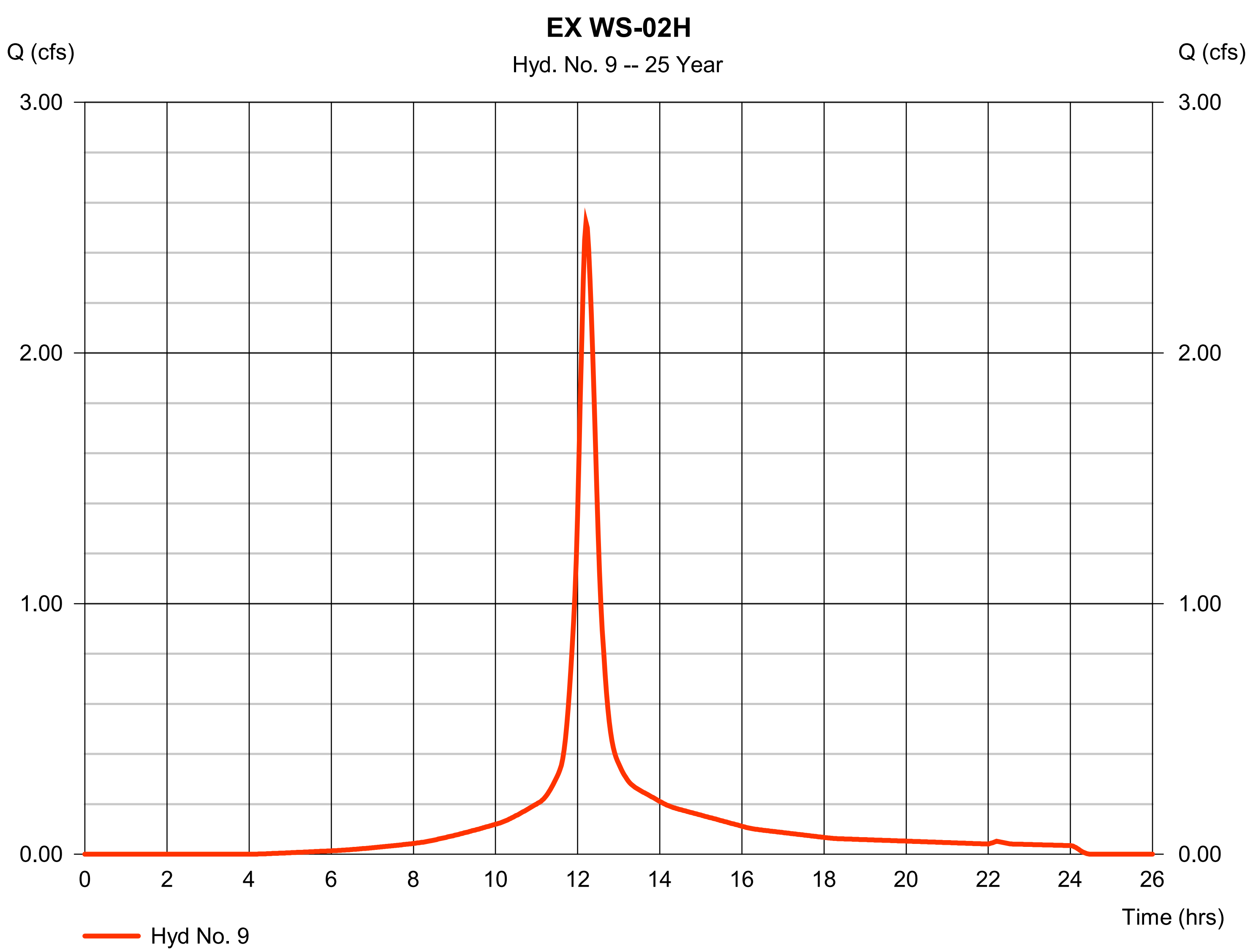
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 9

EX WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 2.521 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 11,510 cuft
Drainage area	= 0.616 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.30 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



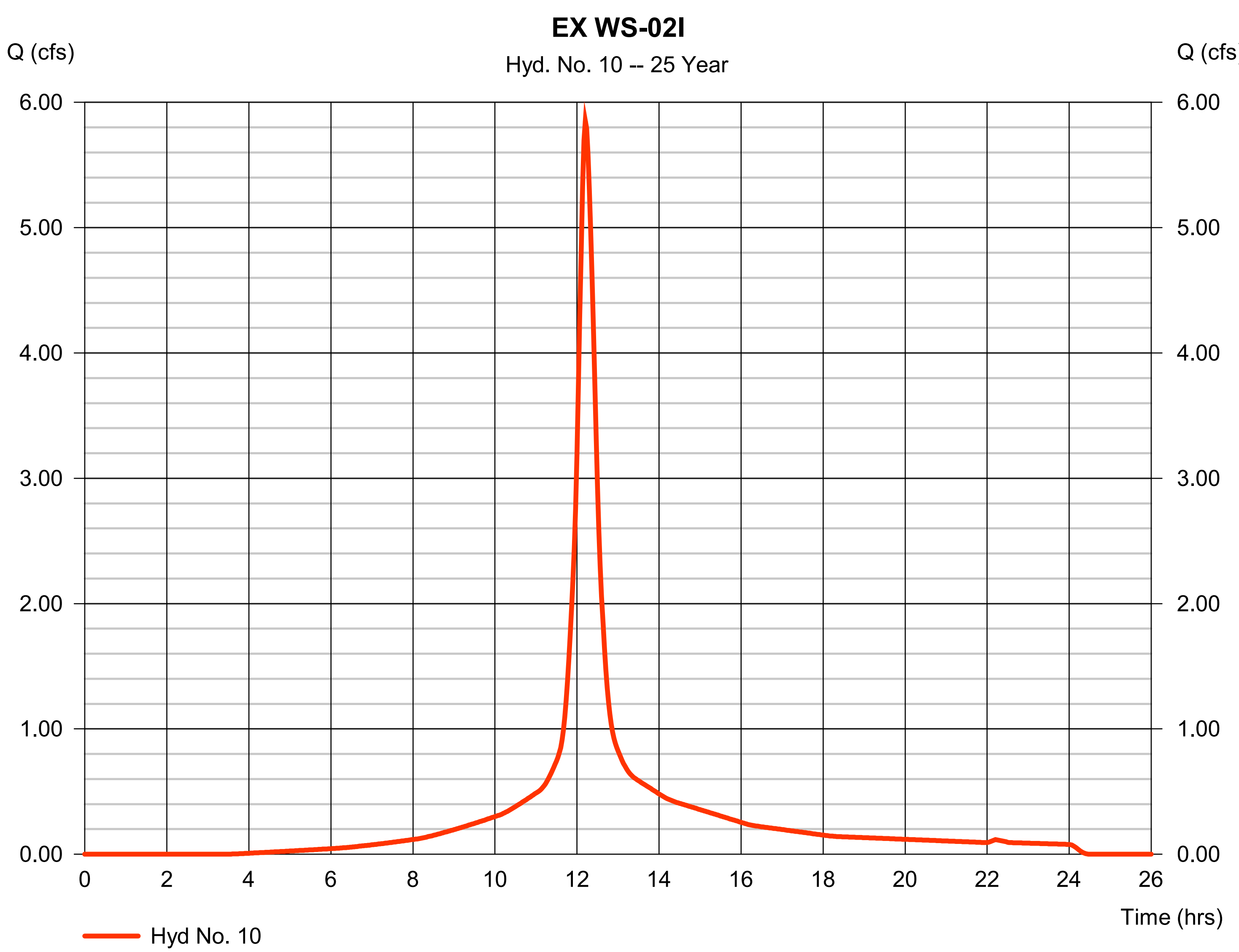
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

EX WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 5.852 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 27,051 cuft
Drainage area	= 1.387 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



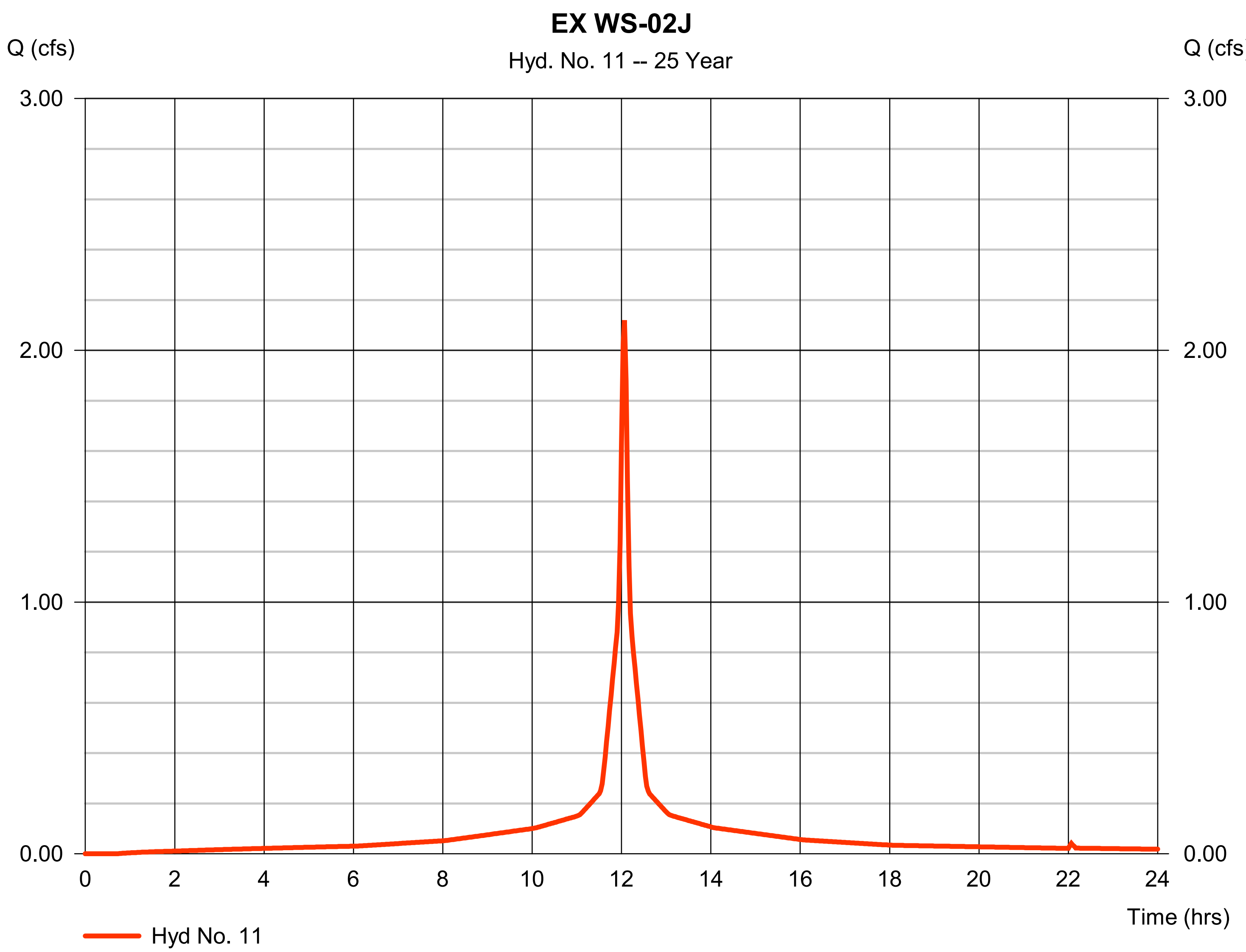
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

EX WS-02J

Hydrograph type	= SCS Runoff	Peak discharge	= 2.120 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 7,355 cuft
Drainage area	= 0.343 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



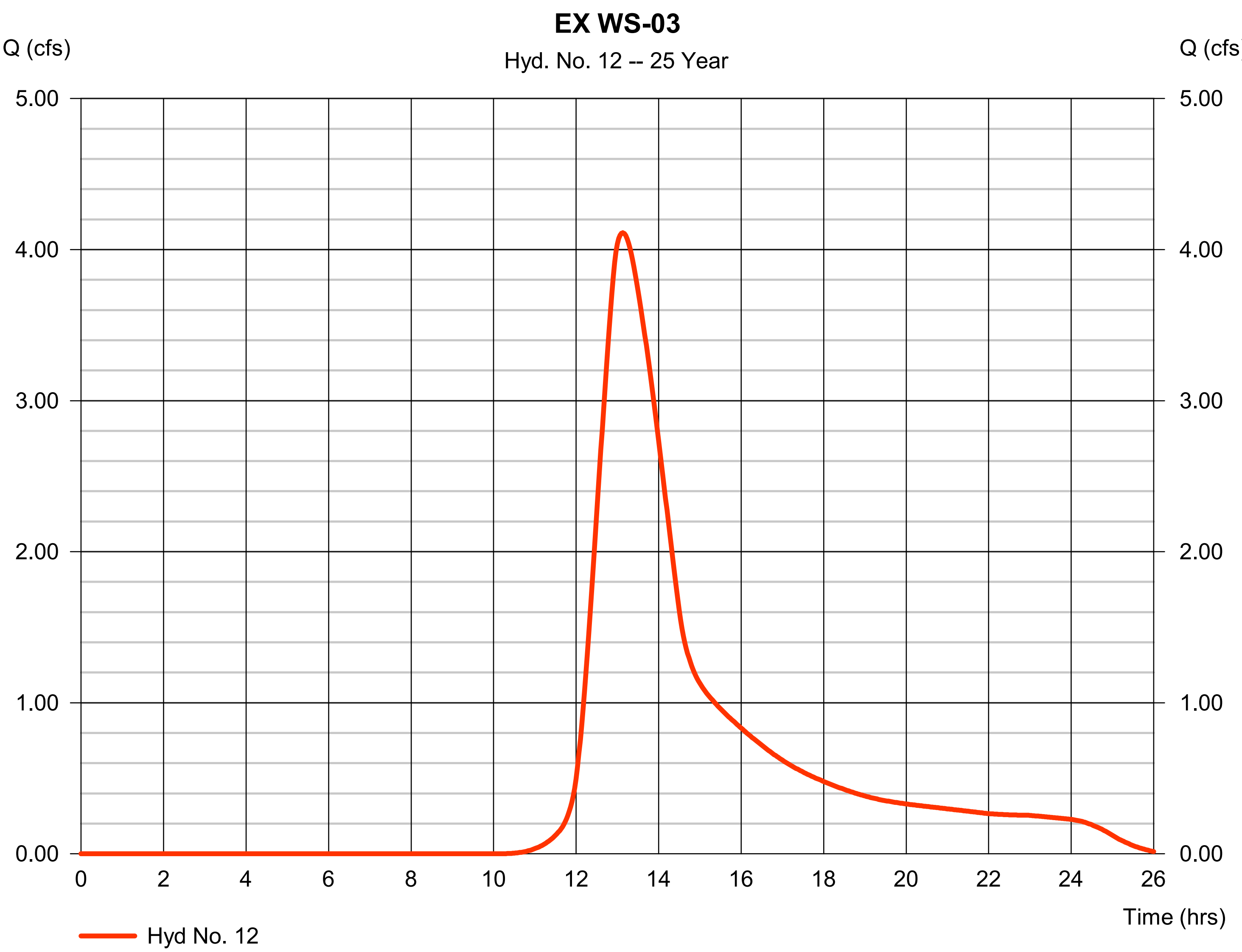
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 12

EX WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 4.111 cfs
Storm frequency	= 25 yrs	Time to peak	= 13.13 hrs
Time interval	= 2 min	Hyd. volume	= 43,770 cuft
Drainage area	= 4.907 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

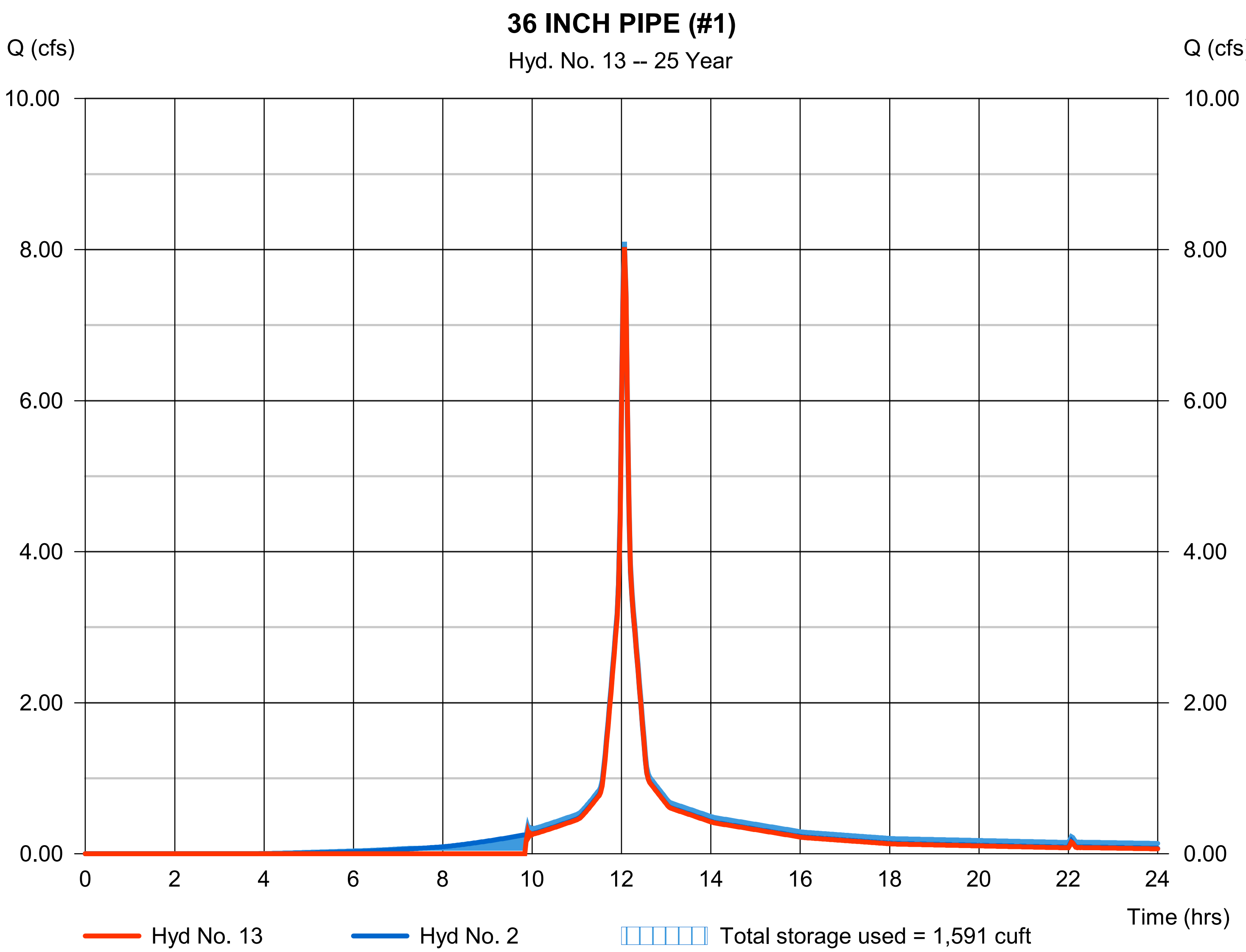
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 13

36 INCH PIPE (#1)

Hydrograph type	= Reservoir	Peak discharge	= 8.034 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 22,921 cuft
Inflow hyd. No.	= 2 - EX WS-02A	Max. Elevation	= 143.74 ft
Reservoir name	= 36IN - 1	Max. Storage	= 1,591 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

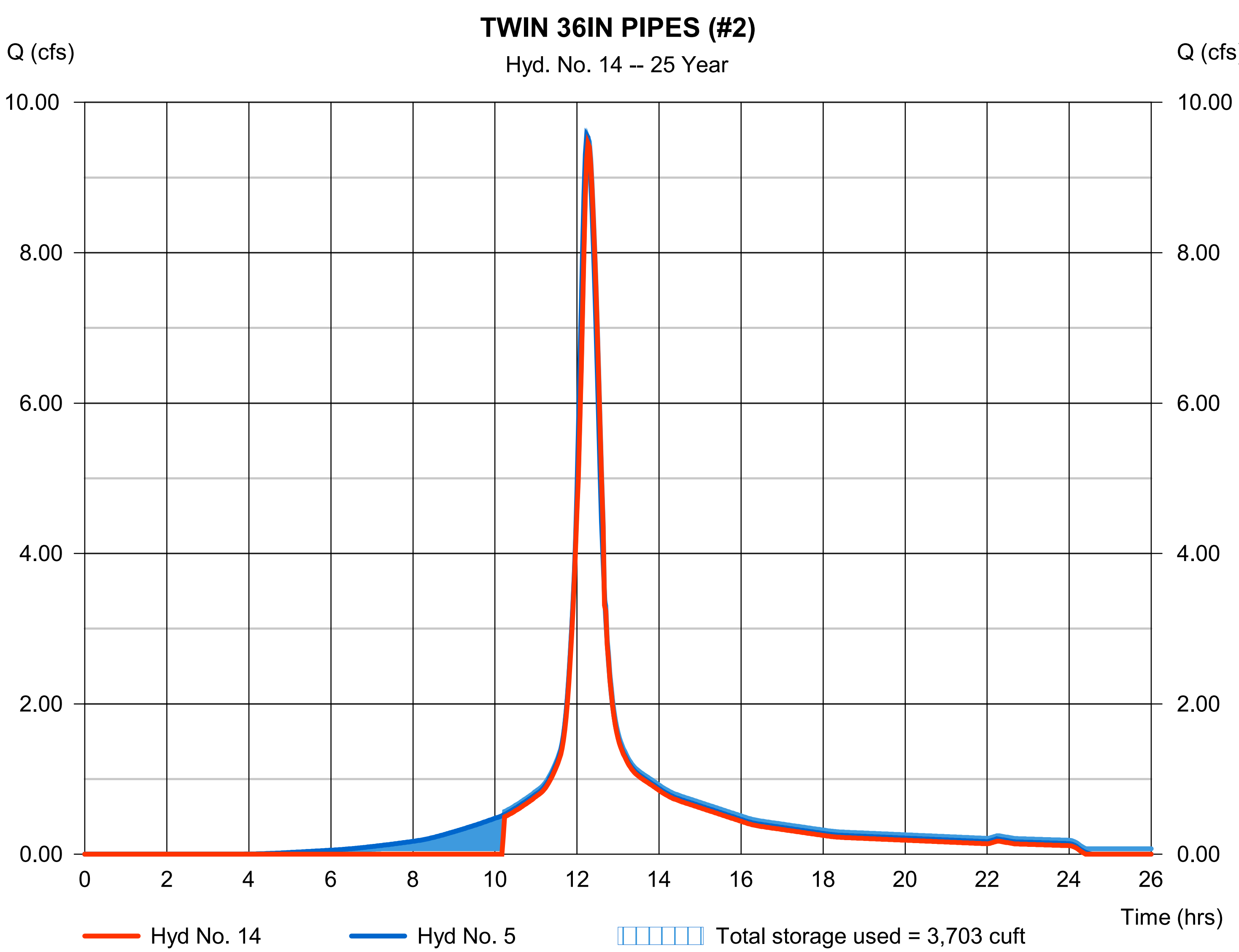
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 9.452 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 41,926 cuft
Inflow hyd. No.	= 5 - EX WS-02D	Max. Elevation	= 139.13 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,703 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

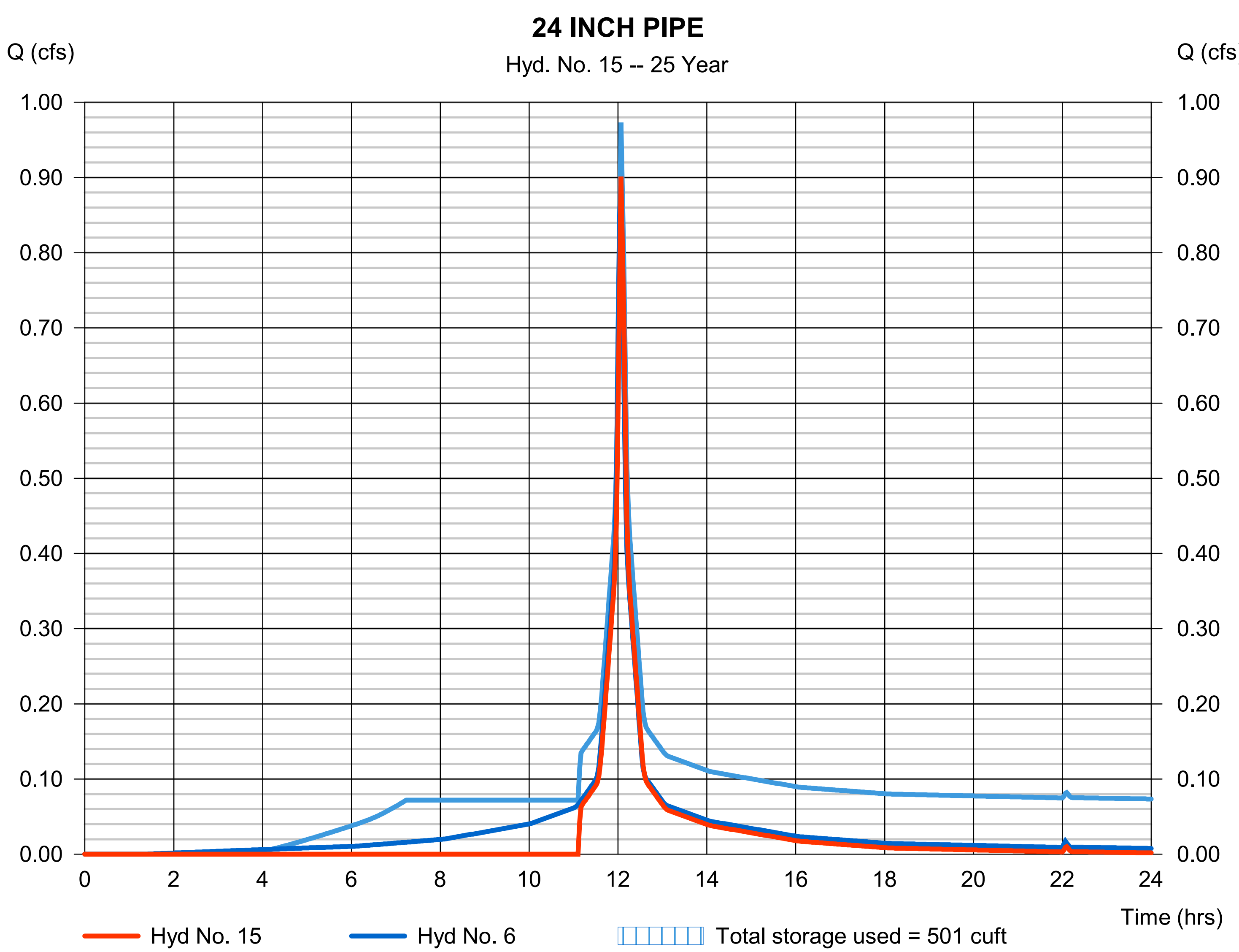
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

24 INCH PIPE

Hydrograph type	= Reservoir	Peak discharge	= 0.901 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,112 cuft
Inflow hyd. No.	= 6 - EX WS-02E	Max. Elevation	= 139.64 ft
Reservoir name	= 24IN	Max. Storage	= 501 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

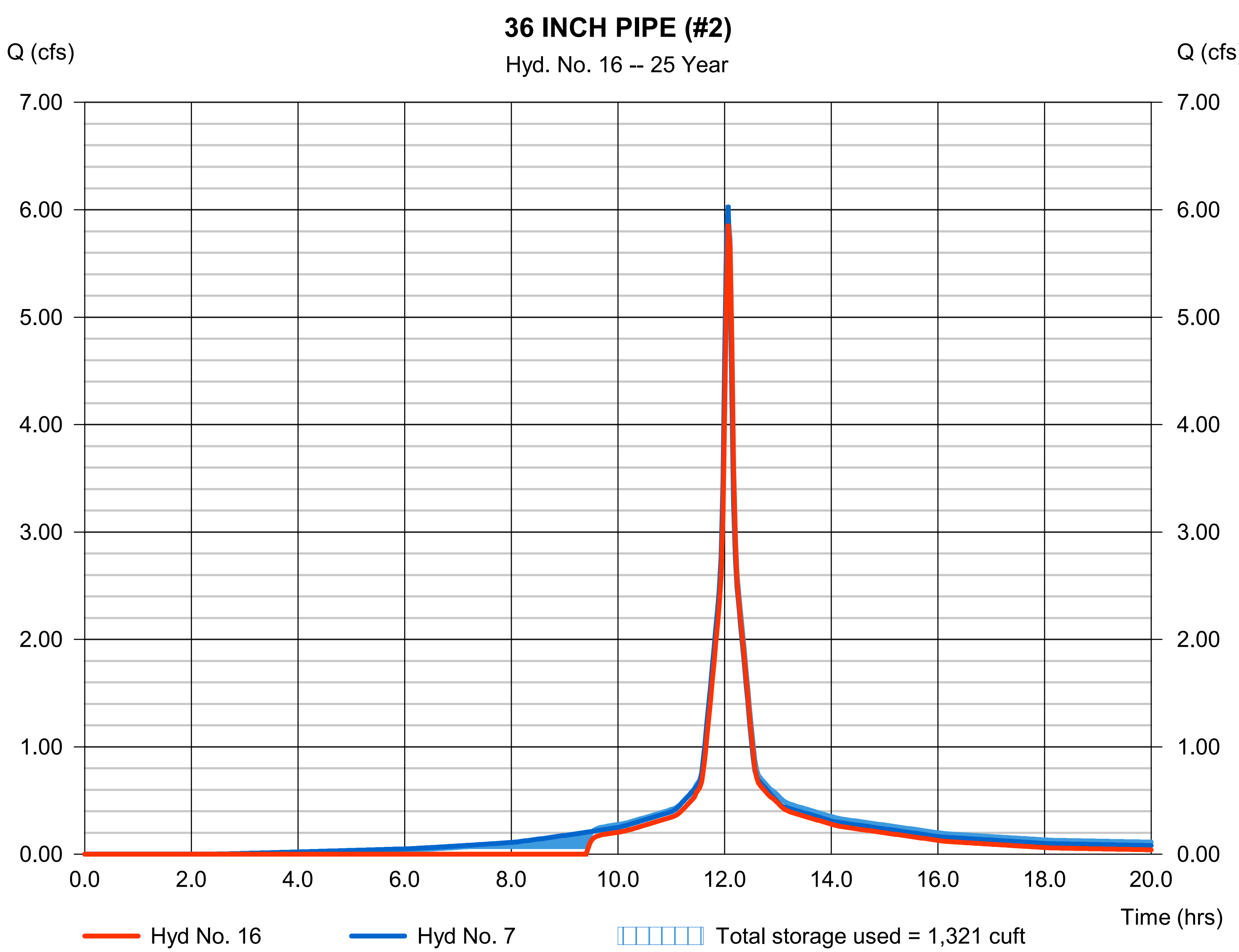
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

36 INCH PIPE (#2)

Hydrograph type	= Reservoir	Peak discharge	= 5.869 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 15,877 cuft
Inflow hyd. No.	= 7 - EX WS-02F	Max. Elevation	= 139.50 ft
Reservoir name	= 36in - 2	Max. Storage	= 1,321 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

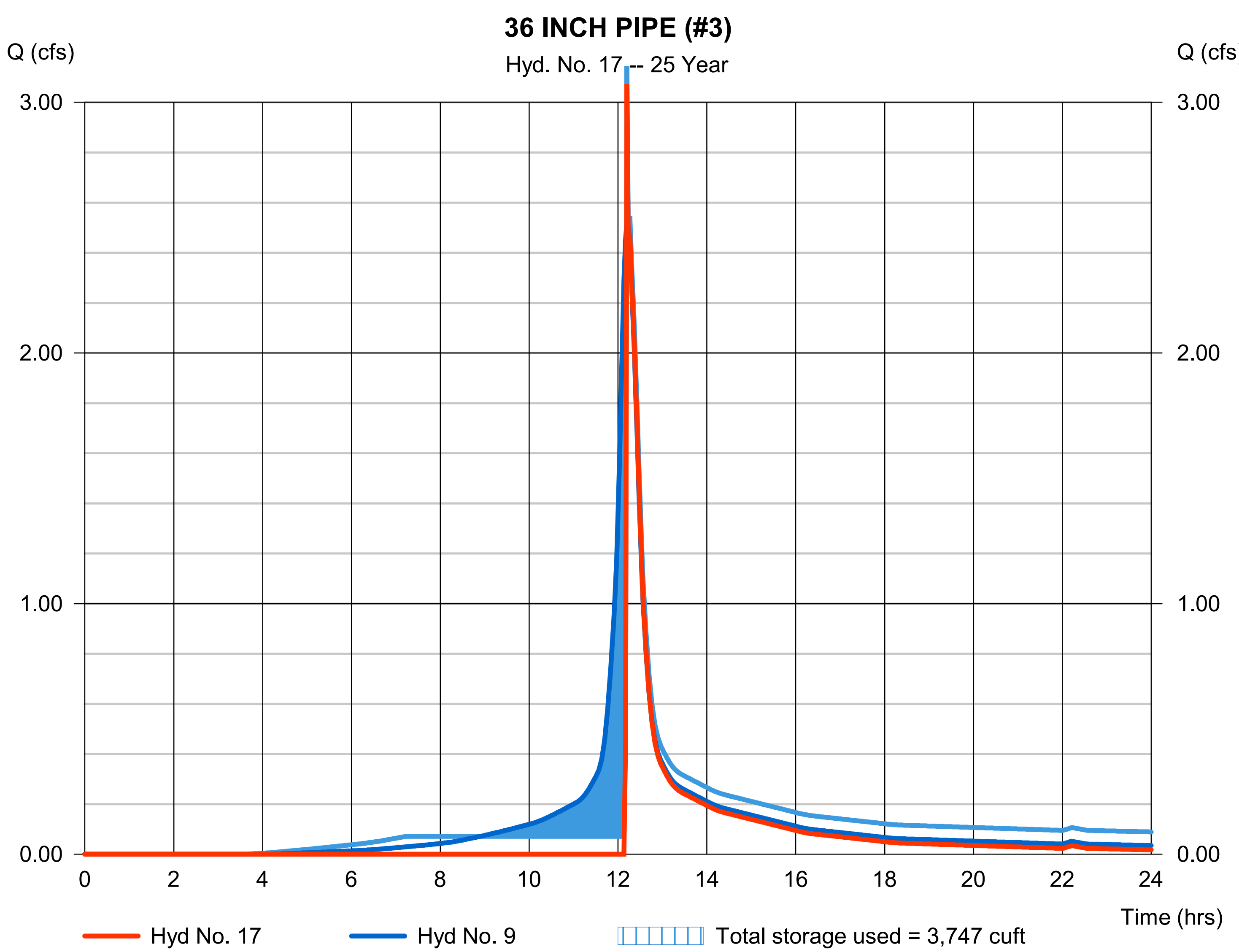
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 3.073 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 6,695 cuft
Inflow hyd. No.	= 9 - EX WS-02H	Max. Elevation	= 137.50 ft
Reservoir name	= 36in - 3	Max. Storage	= 3,747 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

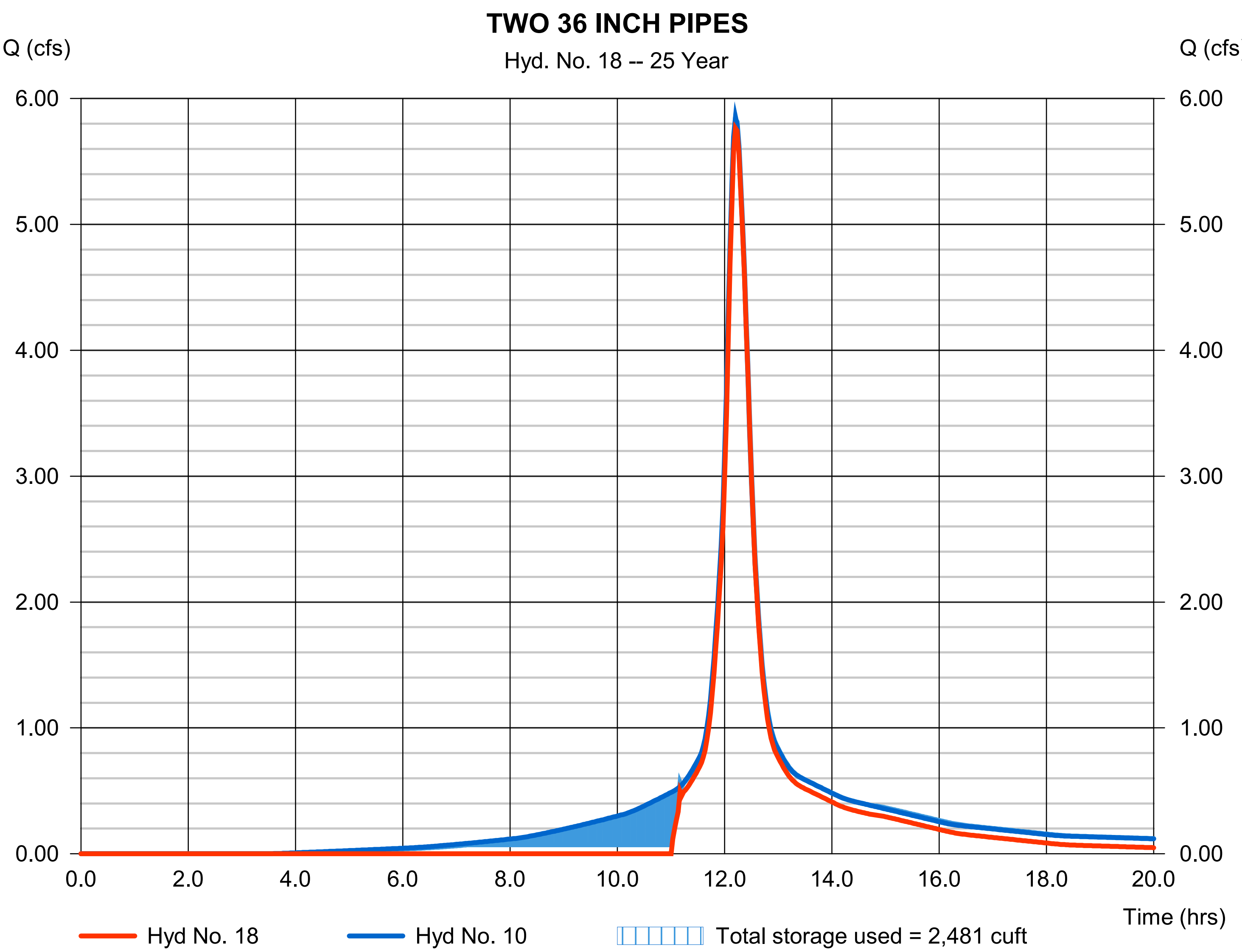
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 5.764 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 20,064 cuft
Inflow hyd. No.	= 10 - EX WS-02I	Max. Elevation	= 135.74 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,481 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



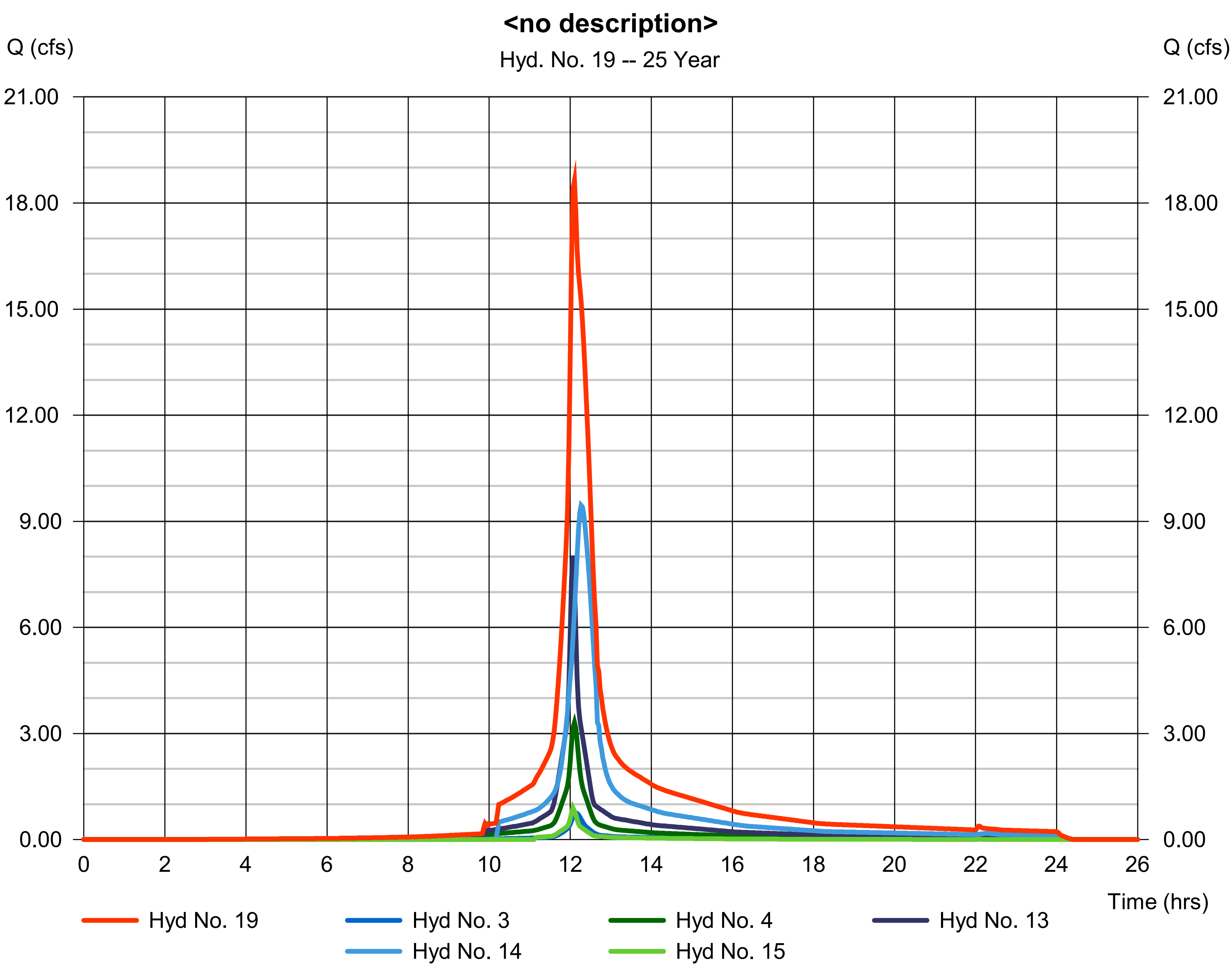
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 18.63 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 82,102 cuft
Inflow hyds.	= 3, 4, 13, 14, 15	Contrib. drain. area	= 0.776 ac



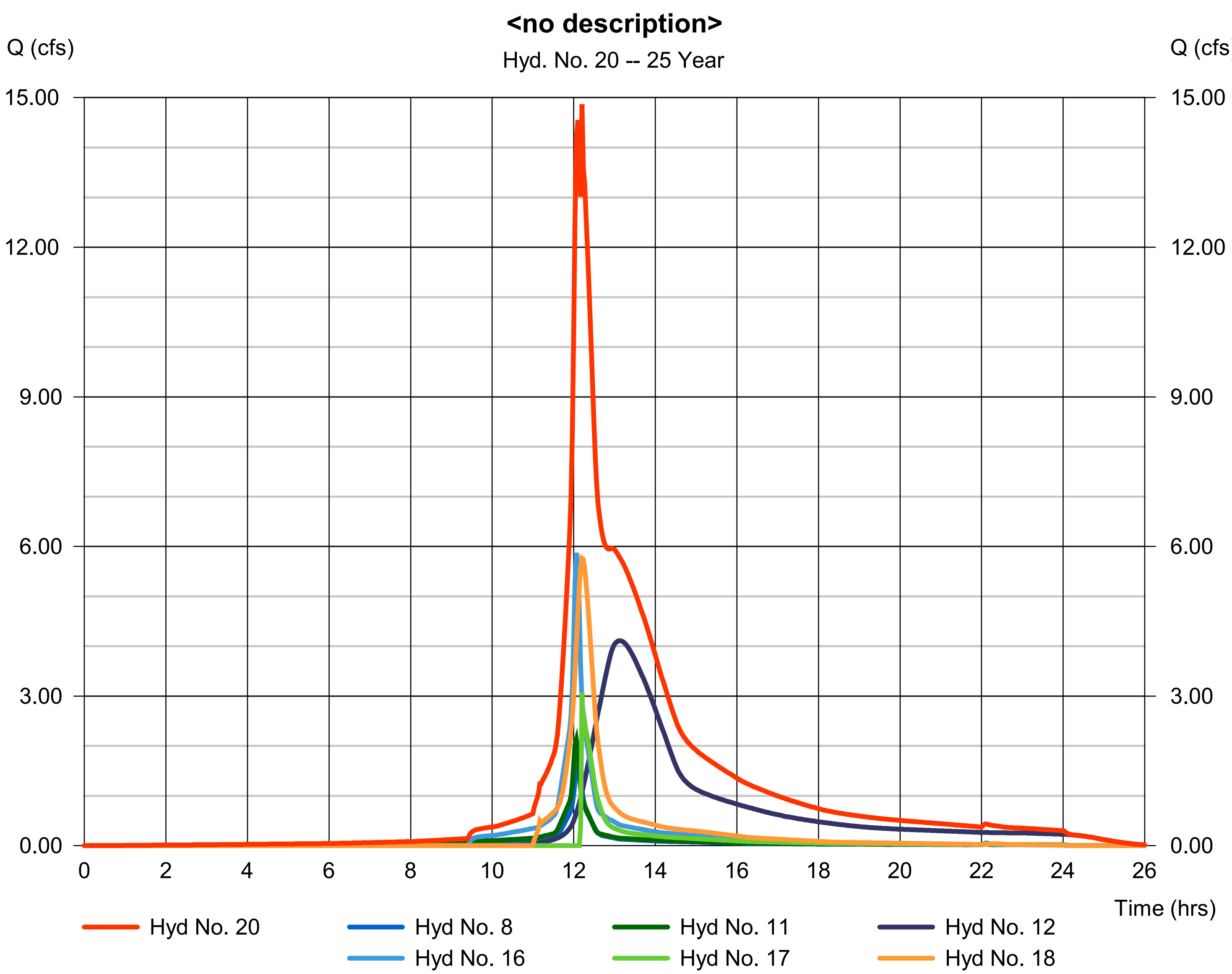
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 20

<no description>

Hydrograph type	= Combine	Peak discharge	= 14.87 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 99,494 cuft
Inflow hyds.	= 8, 11, 12, 16, 17, 18	Contrib. drain. area	= 5.532 ac



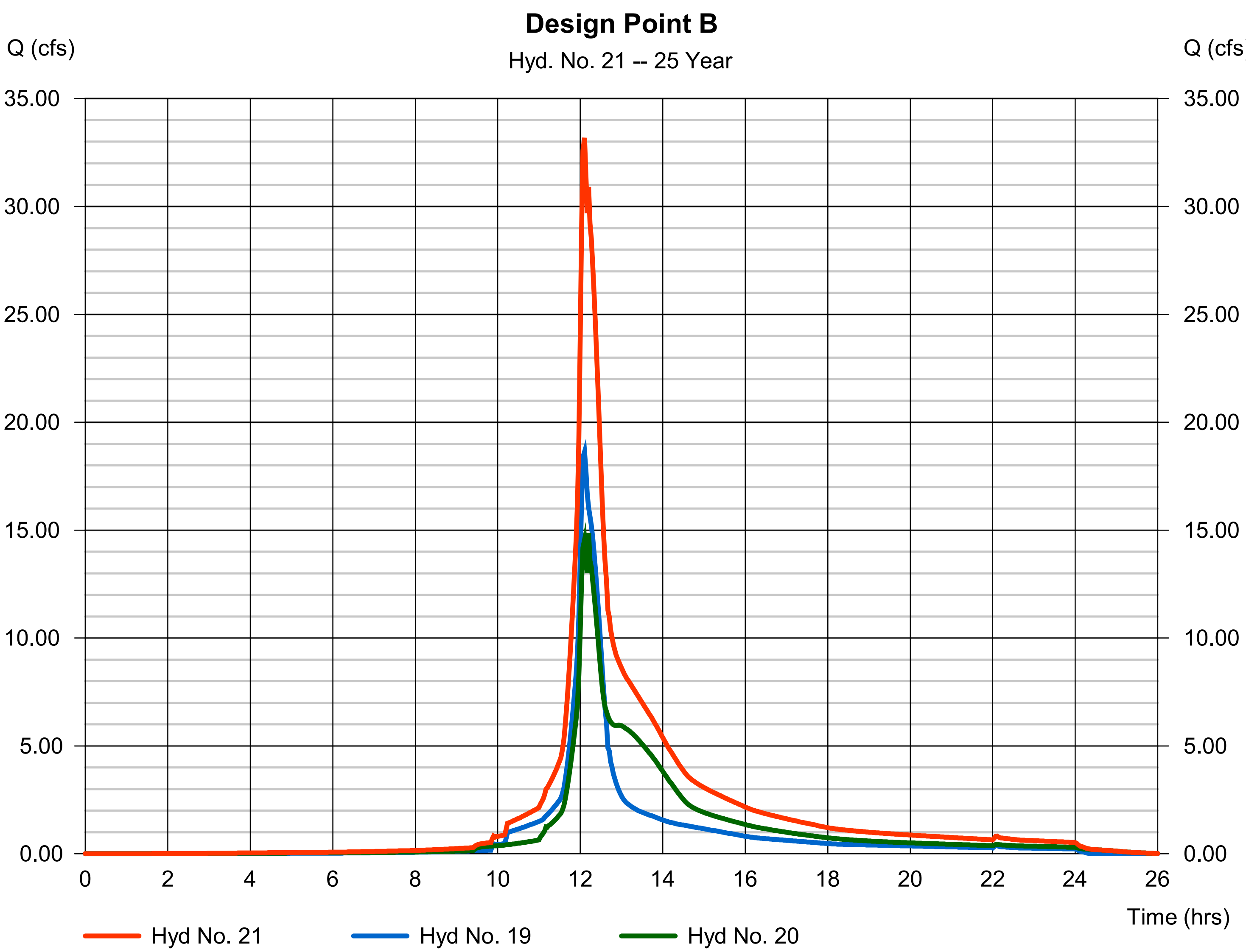
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

Design Point B

Hydrograph type	= Combine	Peak discharge	= 33.18 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 181,596 cuft
Inflow hyds.	= 19, 20	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	7.378	2	752	48,110	------	------	------	EX WS-01
2	SCS Runoff	9.296	2	724	29,137	------	------	------	EX WS-02A
3	SCS Runoff	0.895	2	728	3,454	------	------	------	EX WS-02B
4	SCS Runoff	3.785	2	726	14,087	------	------	------	EX WS-02C
5	SCS Runoff	11.05	2	734	54,511	------	------	------	EX WS-02D
6	SCS Runoff	1.015	2	724	3,444	------	------	------	EX WS-02E
7	SCS Runoff	6.897	2	724	22,653	------	------	------	EX WS-02F
8	SCS Runoff	1.793	2	726	6,613	------	------	------	EX WS-02G
9	SCS Runoff	2.913	2	732	13,399	------	------	------	EX WS-02H
10	SCS Runoff	6.727	2	732	31,344	------	------	------	EX WS-02I
11	SCS Runoff	2.404	2	724	8,370	------	------	------	EX WS-02J
12	SCS Runoff	5.256	2	786	55,086	------	------	------	EX WS-03
13	Reservoir	8.911	2	724	27,074	2	143.83	1,636	36 INCH PIPE (#1)
14	Reservoir	10.93	2	736	49,562	5	139.16	3,851	TWIN 36IN PIPES (#2)
15	Reservoir	1.040	2	724	2,535	6	139.65	503	24 INCH PIPE
16	Reservoir	6.709	2	724	18,771	7	139.53	1,368	36 INCH PIPE (#2)
17	Reservoir	2.890	2	732	8,550	9	137.50	3,741	36 INCH PIPE (#3)
18	Reservoir	6.644	2	732	24,209	10	135.75	2,499	TWO 36 INCH PIPES
19	Combine	21.92	2	726	96,711	3, 4, 13, 14, 15,	------	------	<no description>
20	Combine	18.82	2	726	121,599	8, 11, 12, 16, 17, 18,	------	------	<no description>
21	Combine	40.73	2	726	218,310	19, 20	------	------	Design Point B

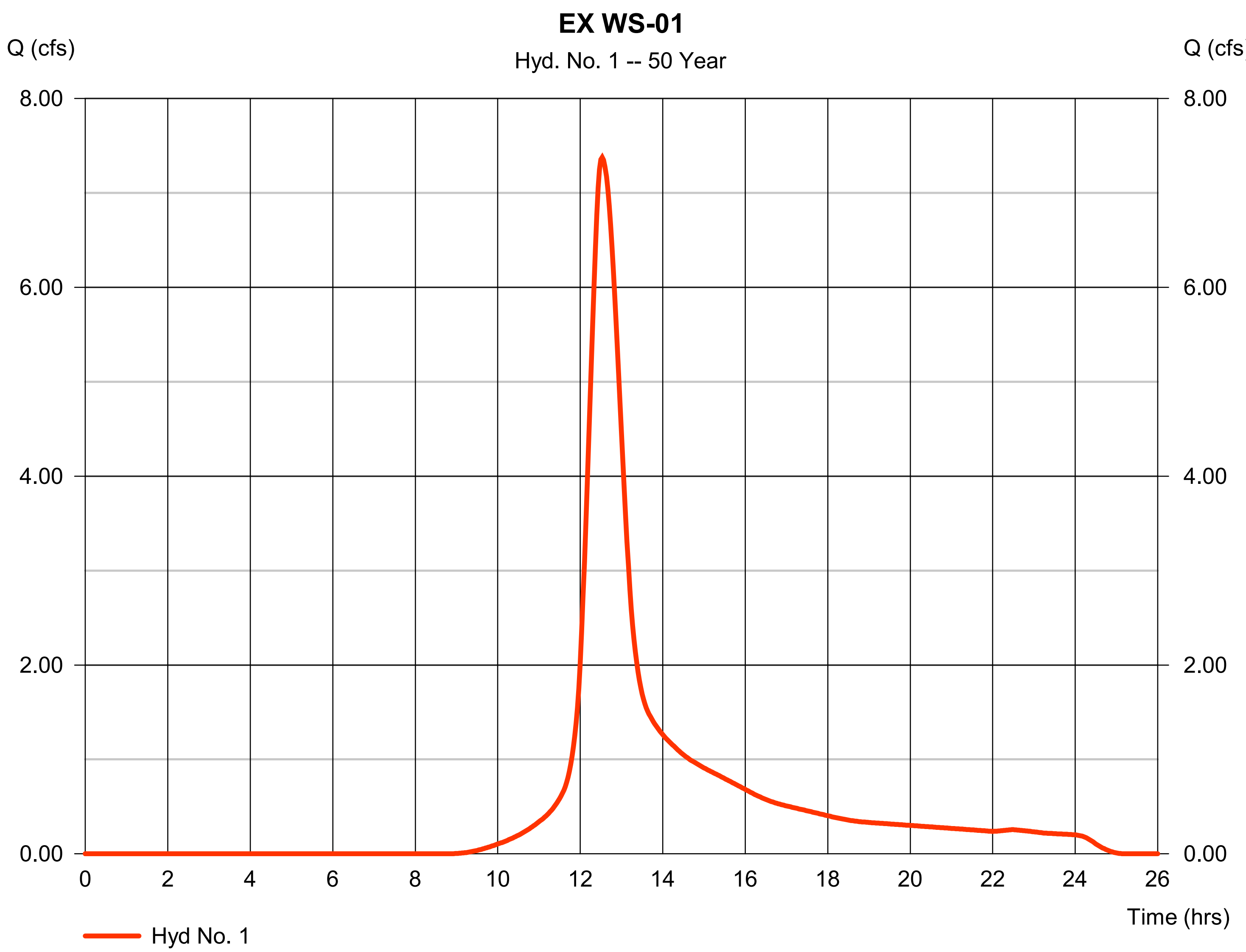
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

EX WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 7.378 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 48,110 cuft
Drainage area	= 3.677 ac	Curve number	= 67
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



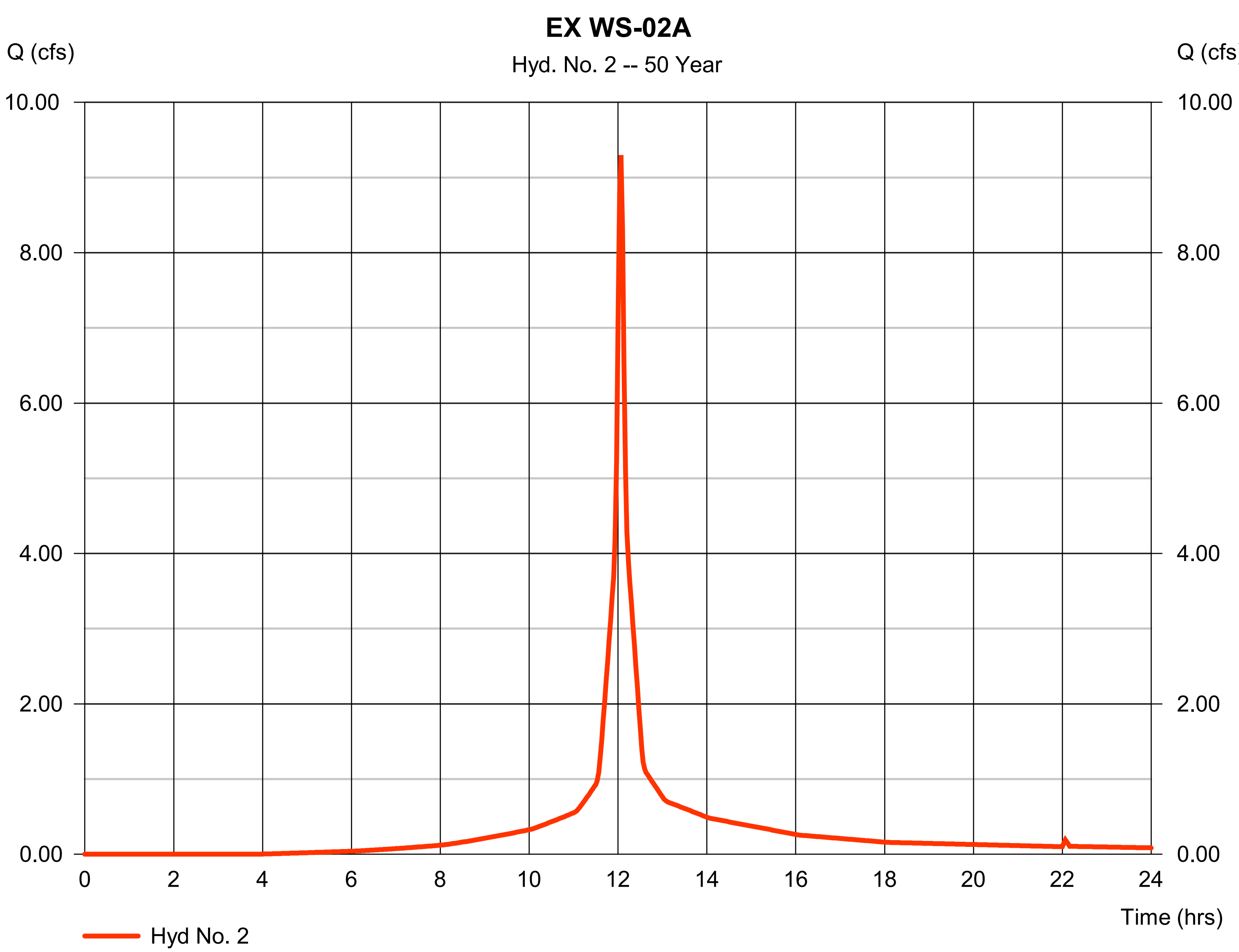
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 2

EX WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 9.296 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 29,137 cuft
Drainage area	= 1.457 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

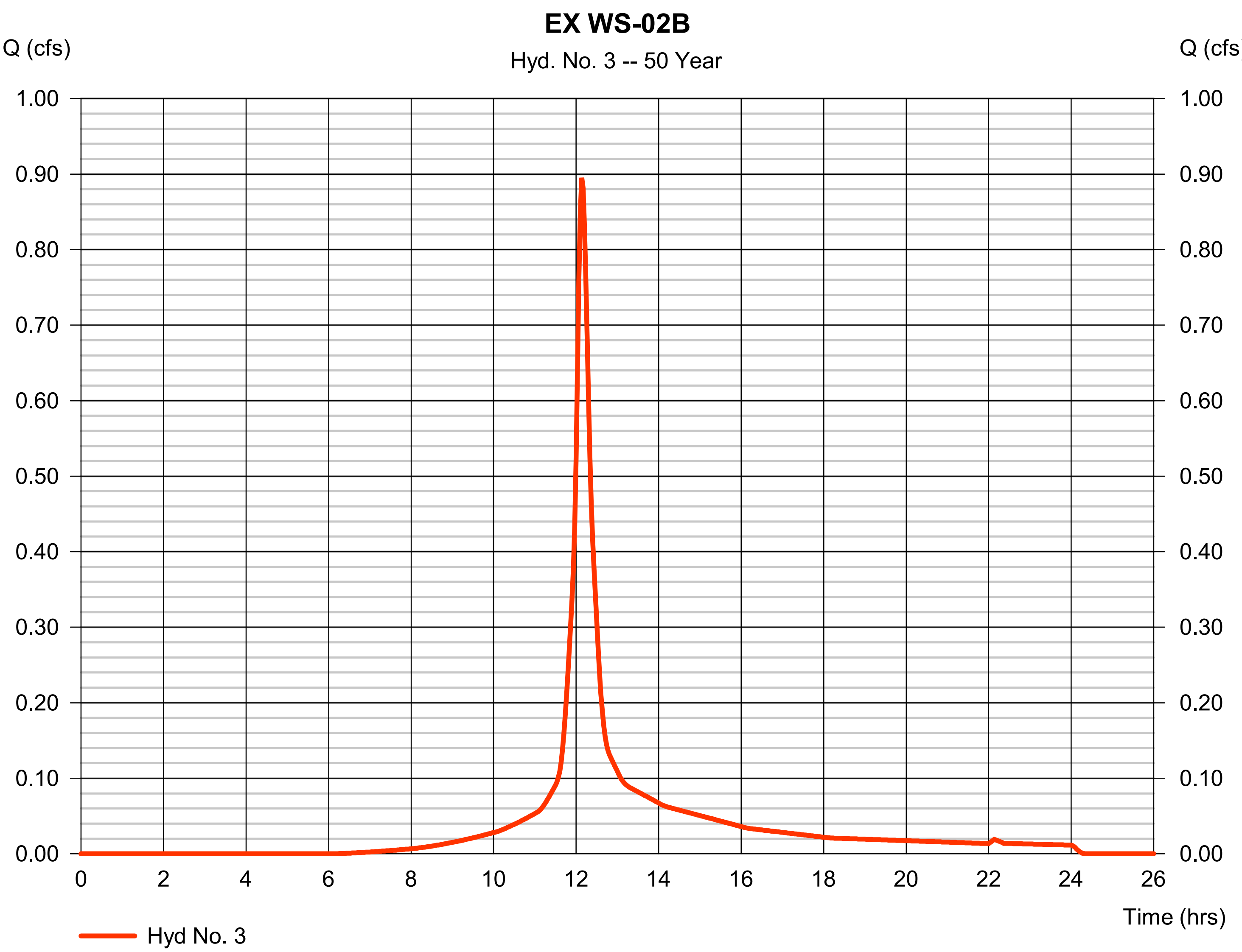


Hydrograph Report

Hyd. No. 3

EX WS-02B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.895 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 3,454 cuft
Drainage area	= 0.186 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



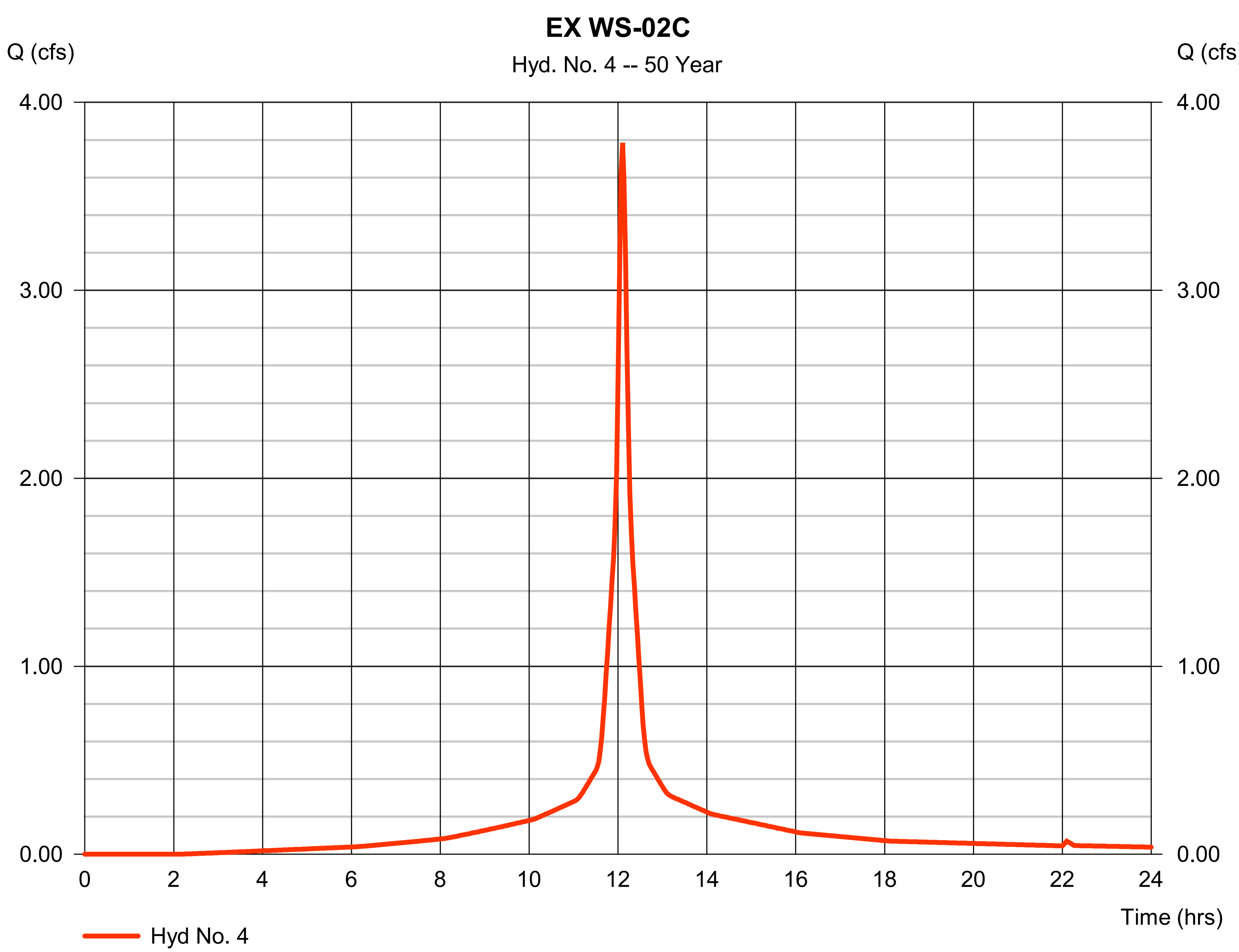
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 4

EX WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 3.785 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 14,087 cuft
Drainage area	= 0.590 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



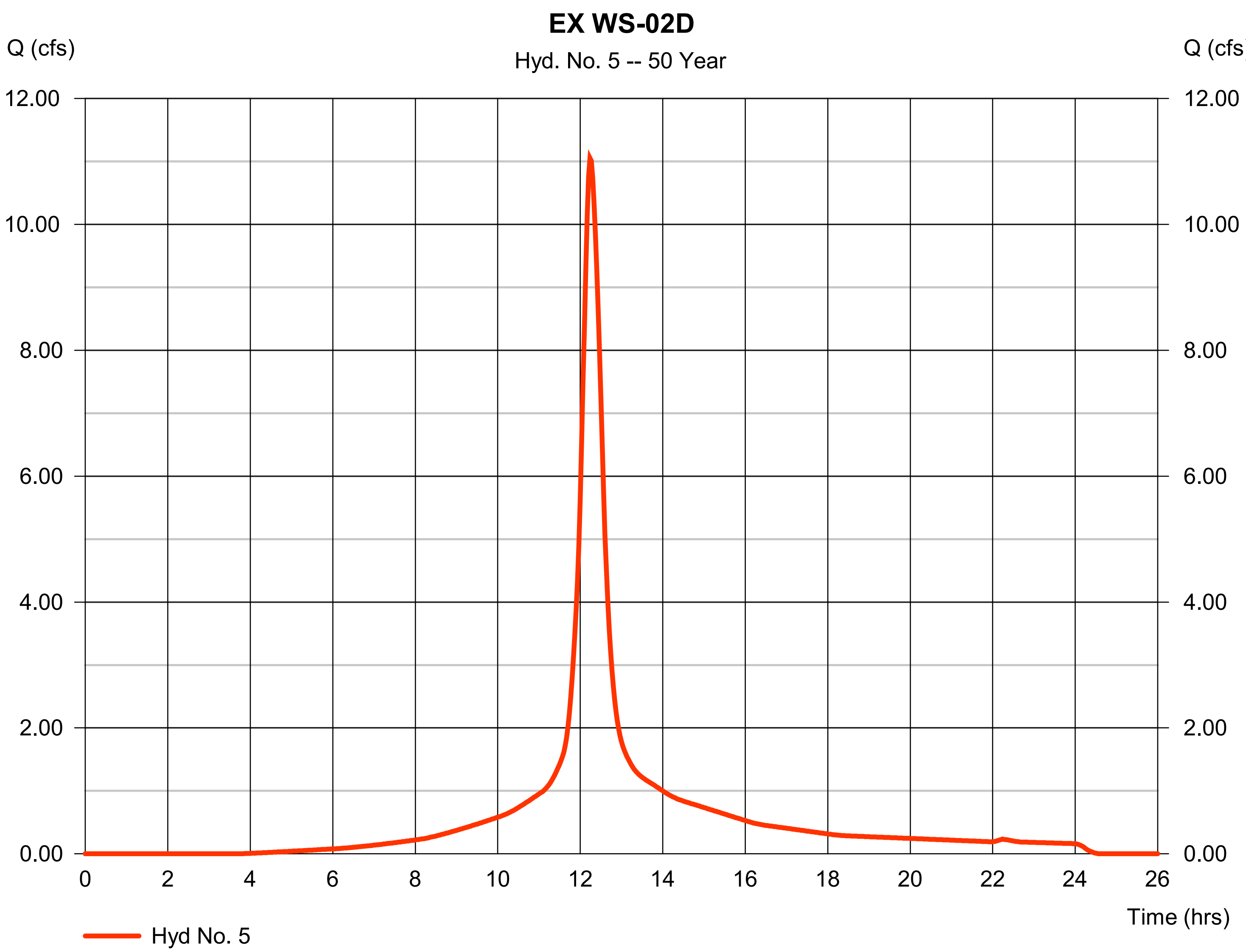
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 5

EX WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 11.05 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 54,511 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



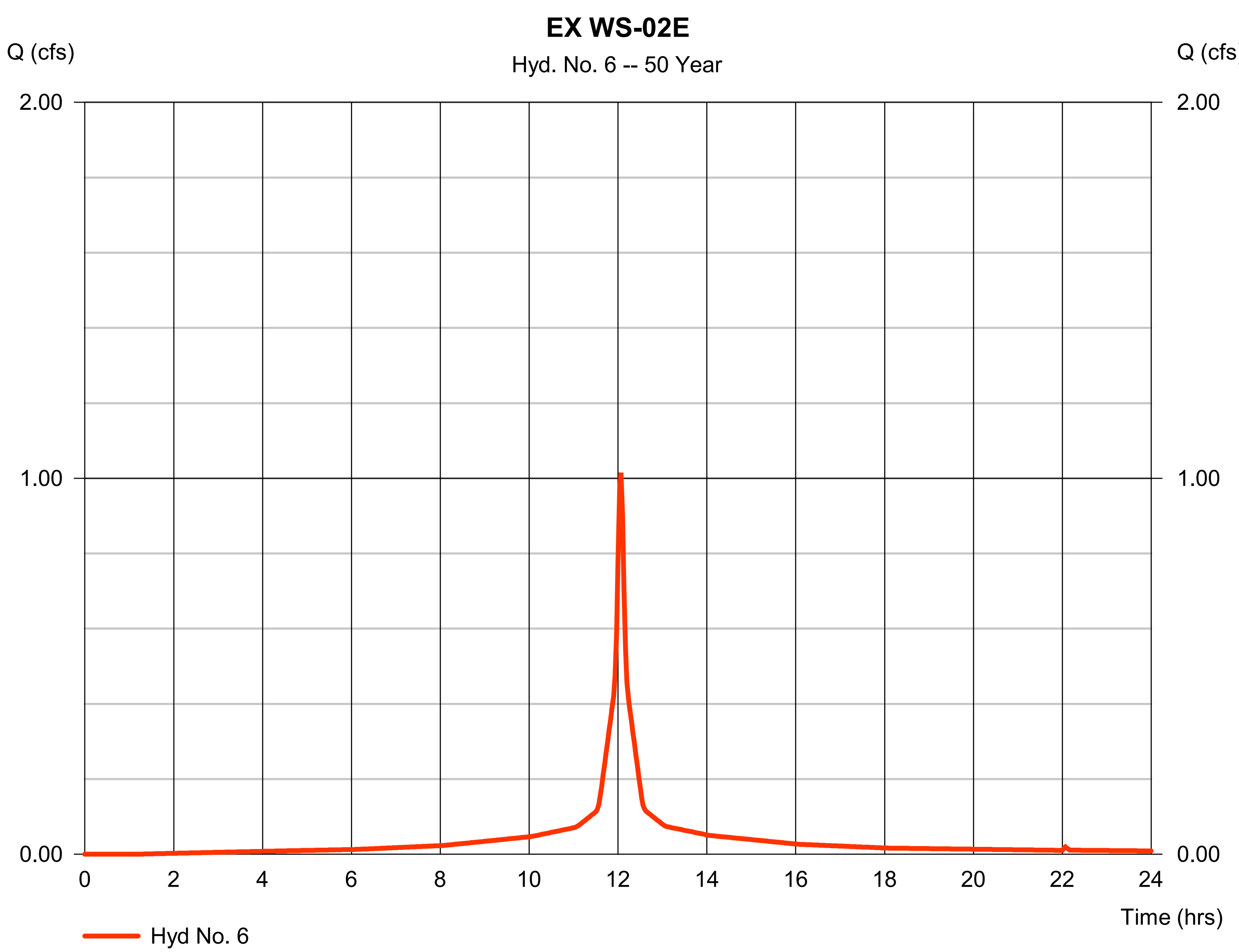
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

EX WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 1.015 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,444 cuft
Drainage area	= 0.146 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



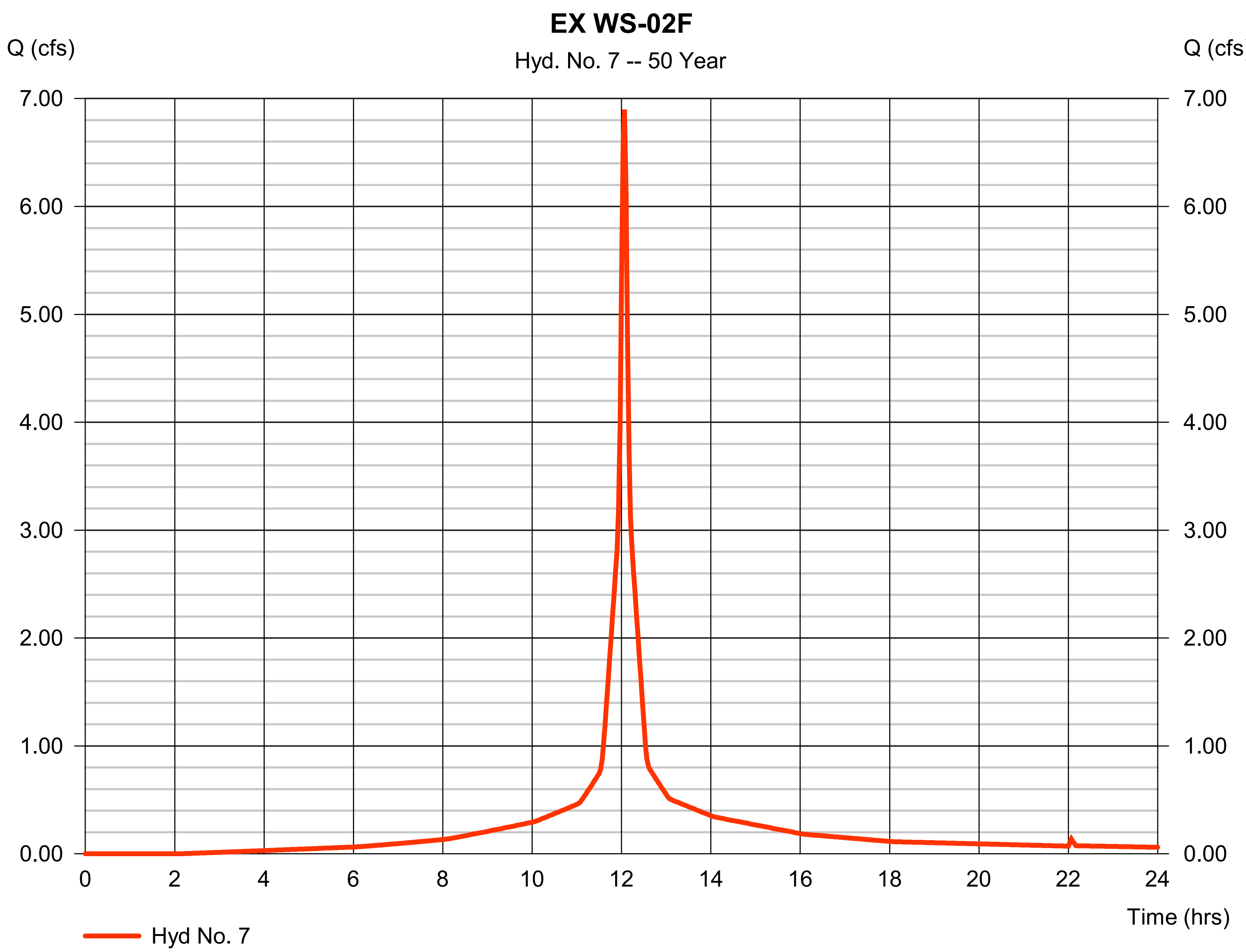
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

EX WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 6.897 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 22,653 cuft
Drainage area	= 1.012 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.50 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



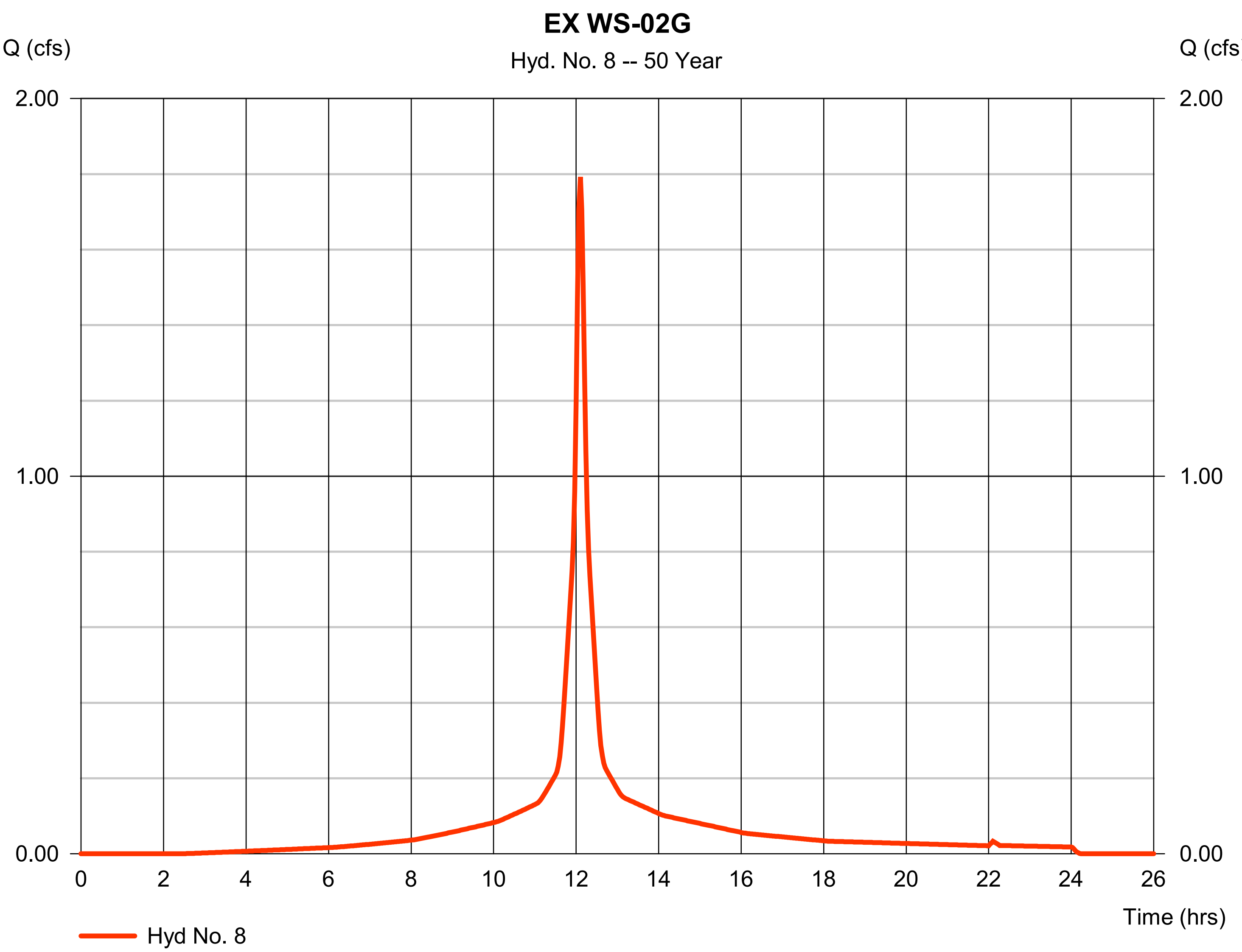
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

EX WS-02G

Hydrograph type	= SCS Runoff	Peak discharge	= 1.793 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 6,613 cuft
Drainage area	= 0.282 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.90 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



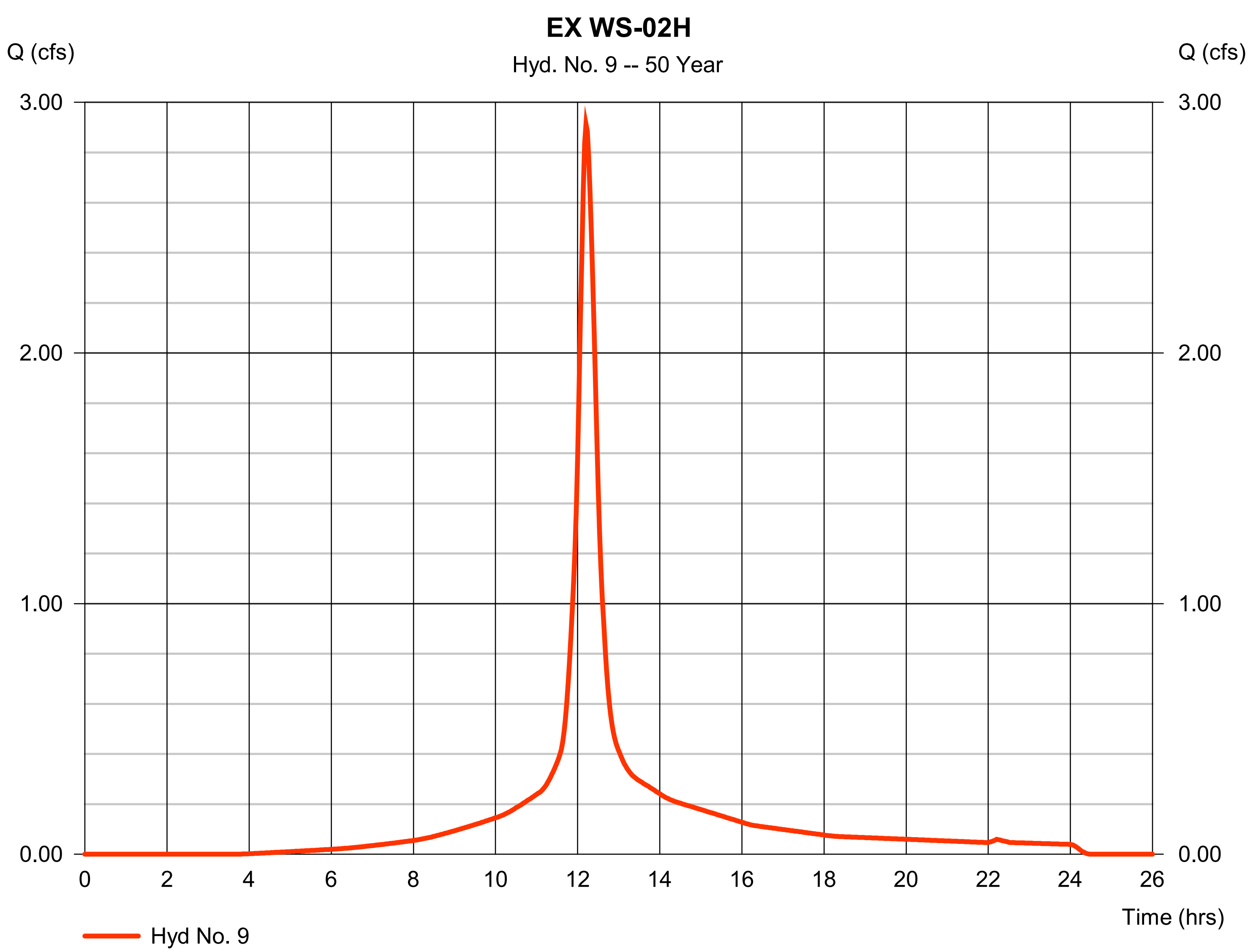
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 9

EX WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 2.913 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 13,399 cuft
Drainage area	= 0.616 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.30 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



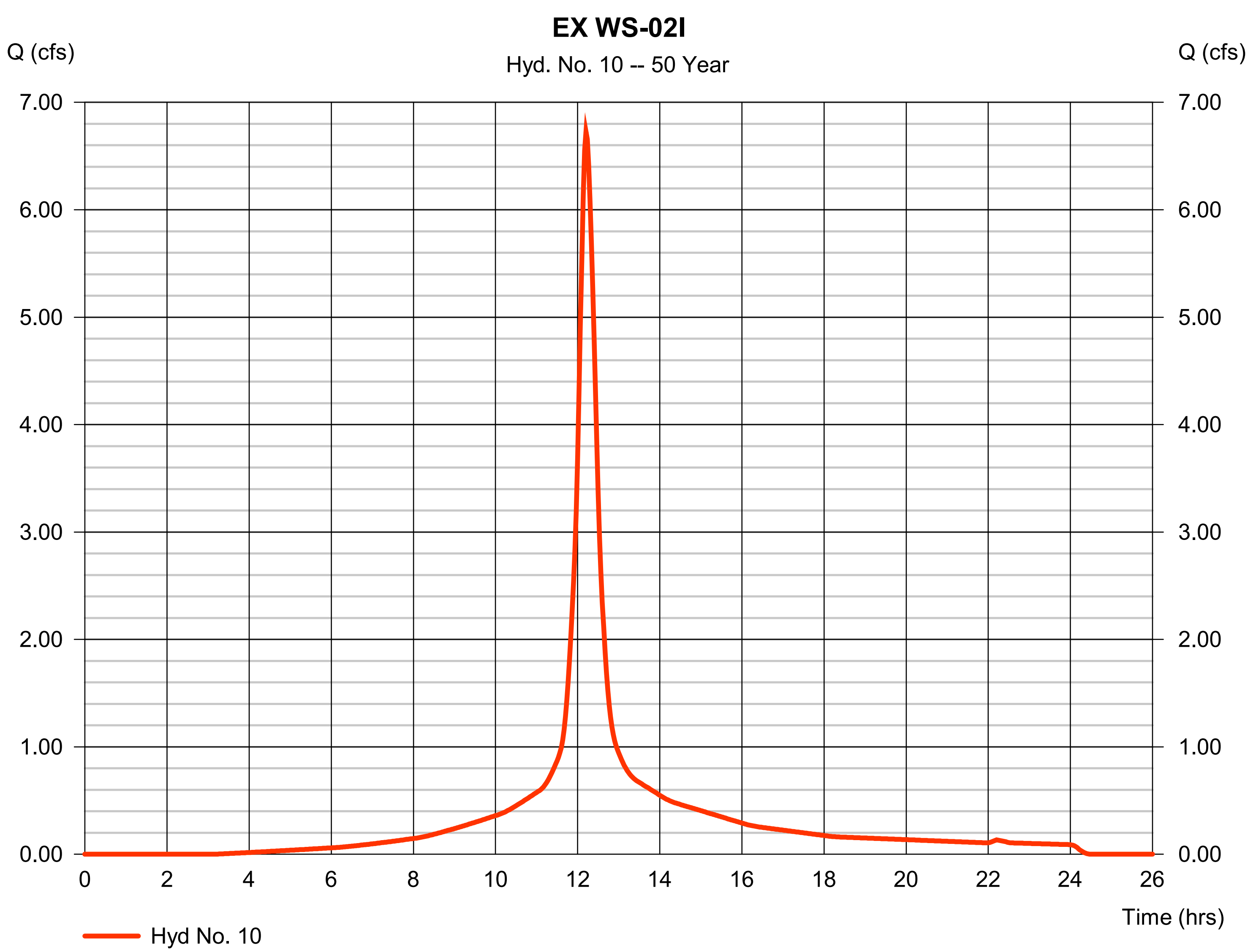
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

EX WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 6.727 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 31,344 cuft
Drainage area	= 1.387 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



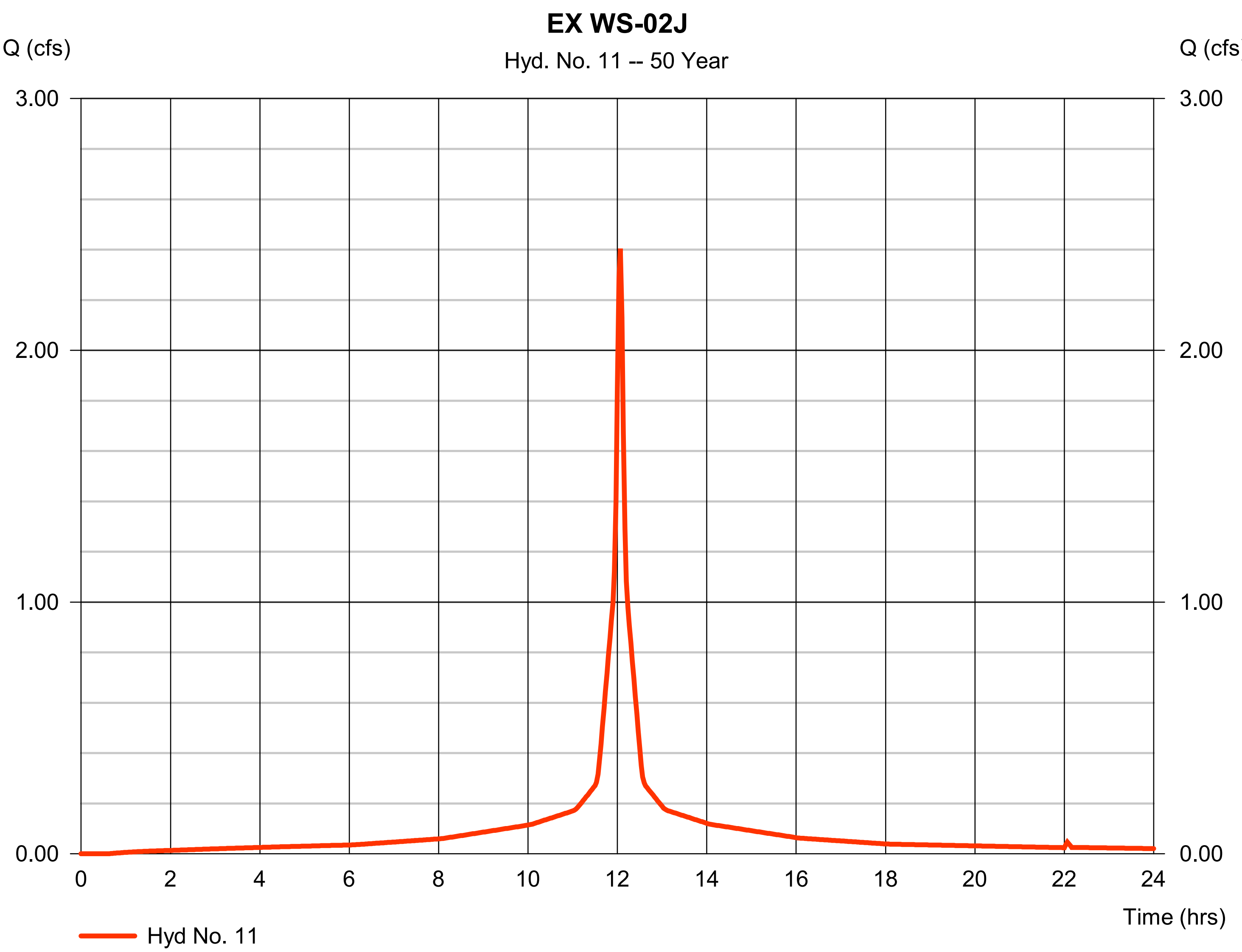
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

EX WS-02J

Hydrograph type	= SCS Runoff	Peak discharge	= 2.404 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 8,370 cuft
Drainage area	= 0.343 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



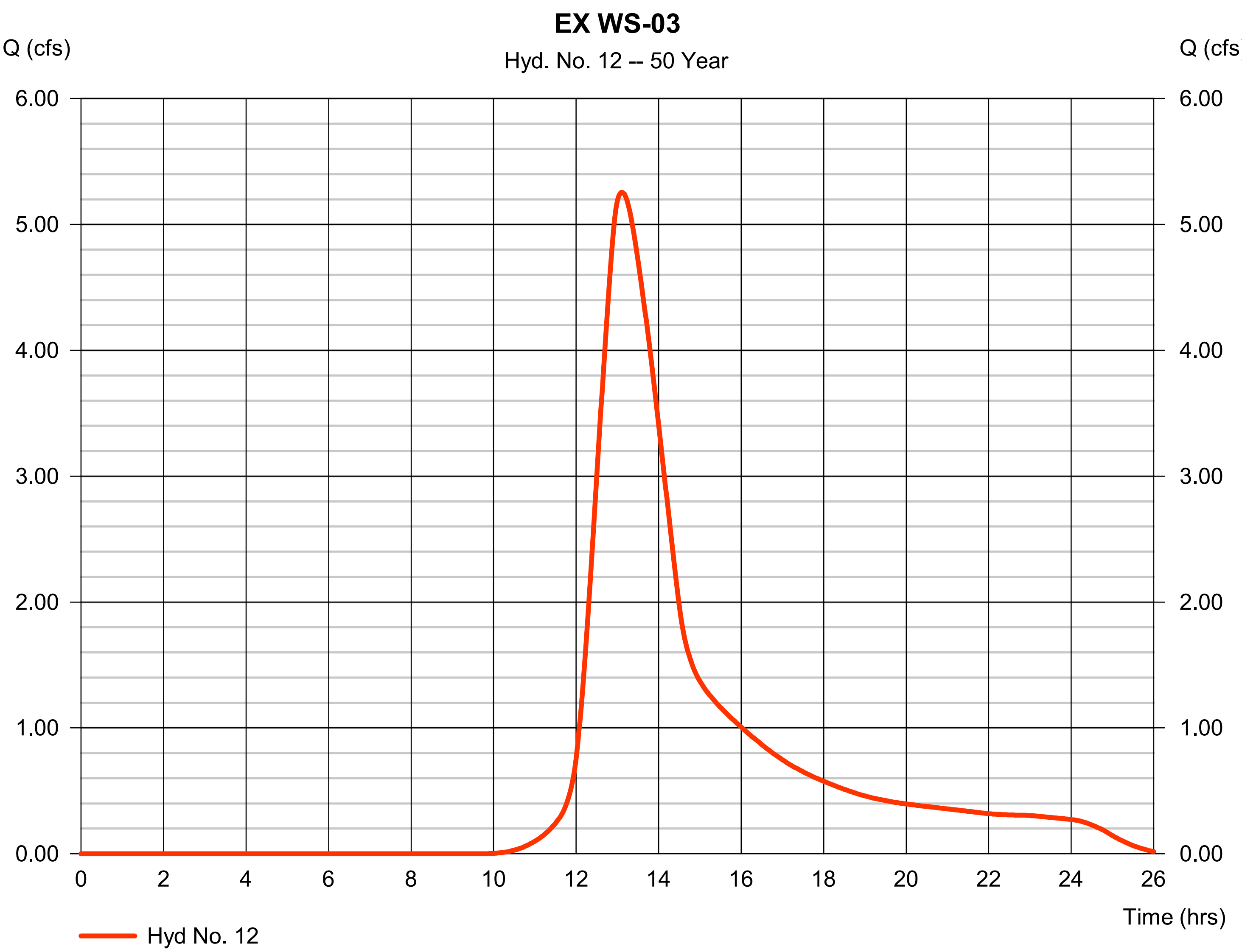
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 12

EX WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 5.256 cfs
Storm frequency	= 50 yrs	Time to peak	= 13.10 hrs
Time interval	= 2 min	Hyd. volume	= 55,086 cuft
Drainage area	= 4.907 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

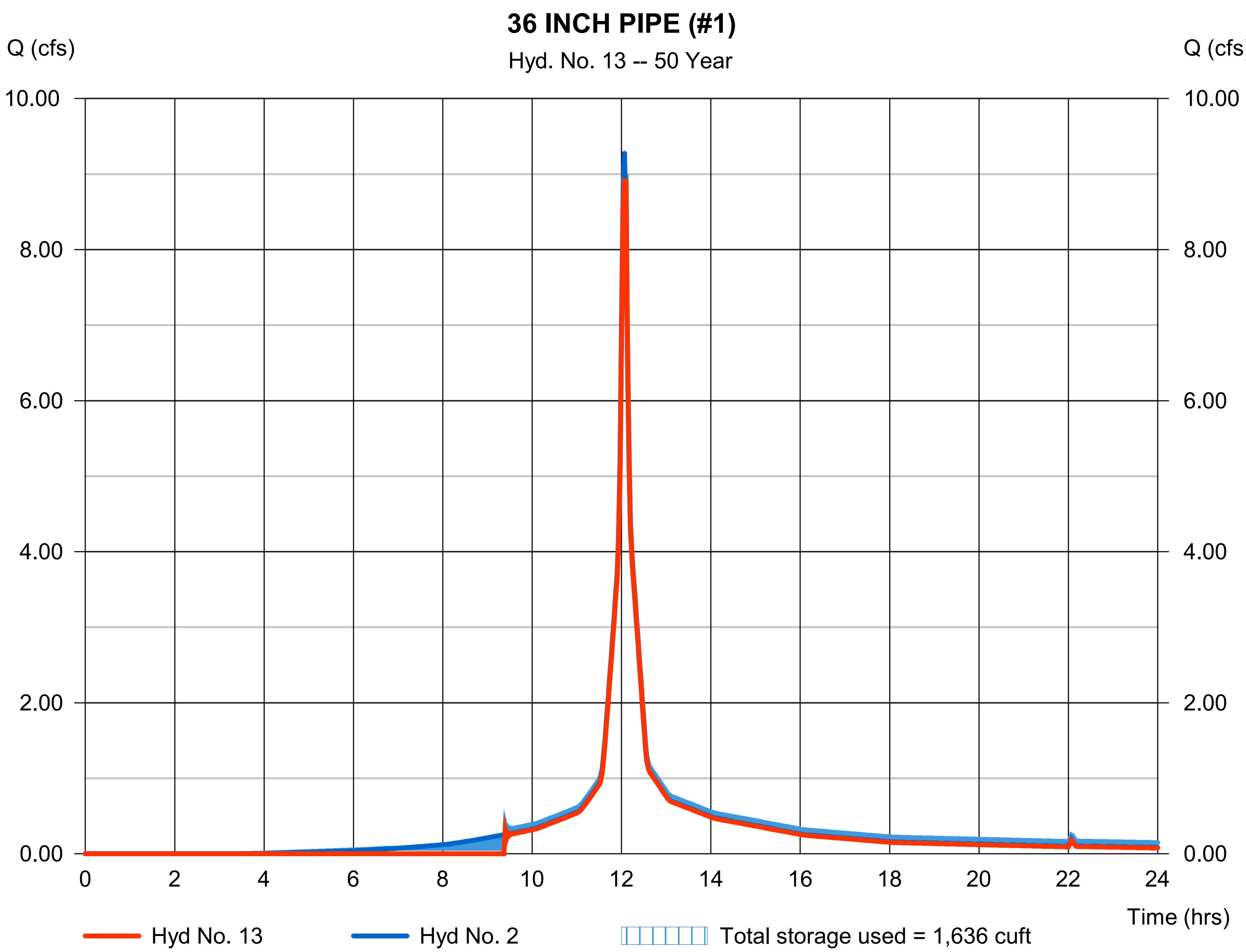
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 13

36 INCH PIPE (#1)

Hydrograph type	= Reservoir	Peak discharge	= 8.911 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 27,074 cuft
Inflow hyd. No.	= 2 - EX WS-02A	Max. Elevation	= 143.83 ft
Reservoir name	= 36IN - 1	Max. Storage	= 1,636 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

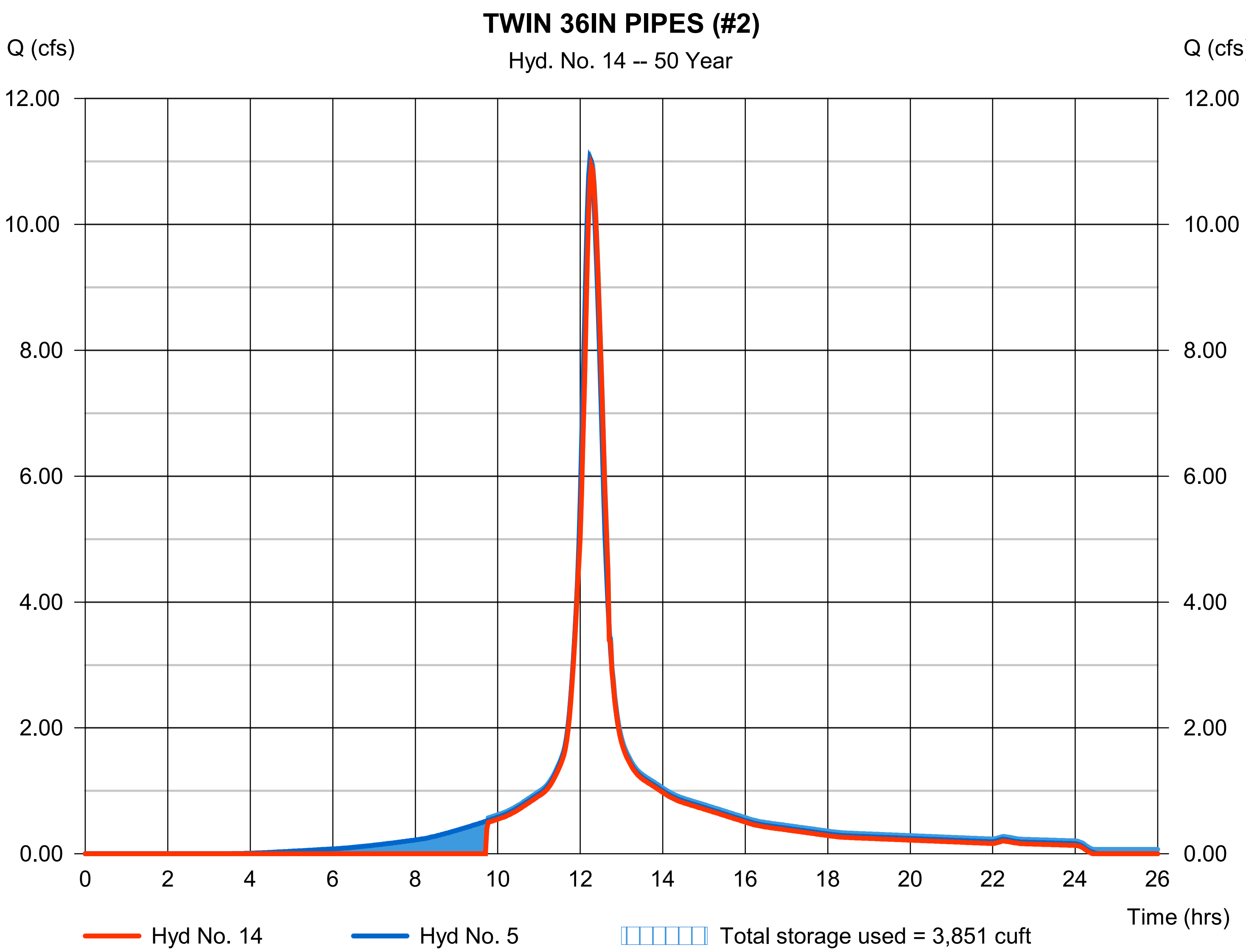
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 10.93 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 49,562 cuft
Inflow hyd. No.	= 5 - EX WS-02D	Max. Elevation	= 139.16 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,851 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

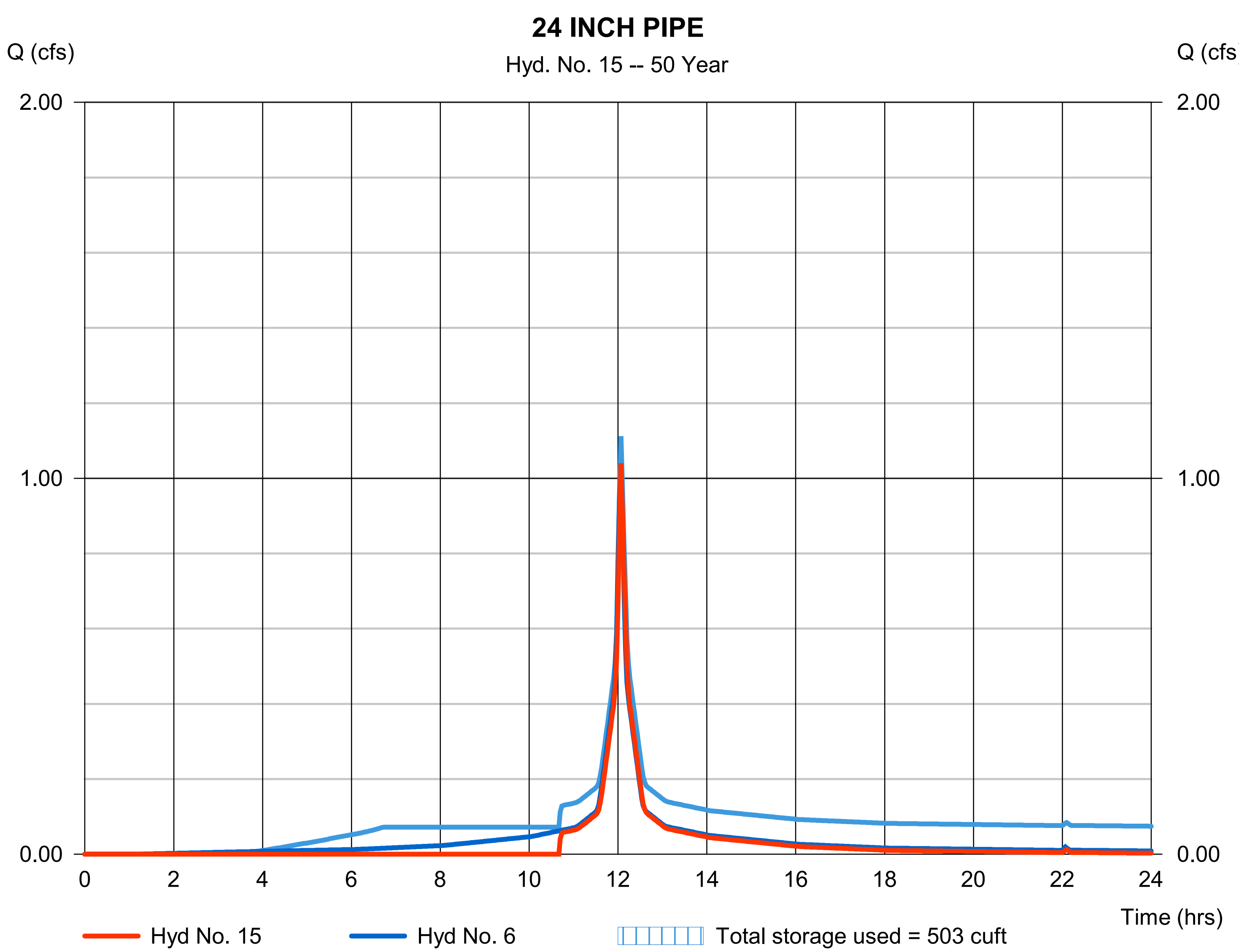
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

24 INCH PIPE

Hydrograph type	= Reservoir	Peak discharge	= 1.040 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,535 cuft
Inflow hyd. No.	= 6 - EX WS-02E	Max. Elevation	= 139.65 ft
Reservoir name	= 24IN	Max. Storage	= 503 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

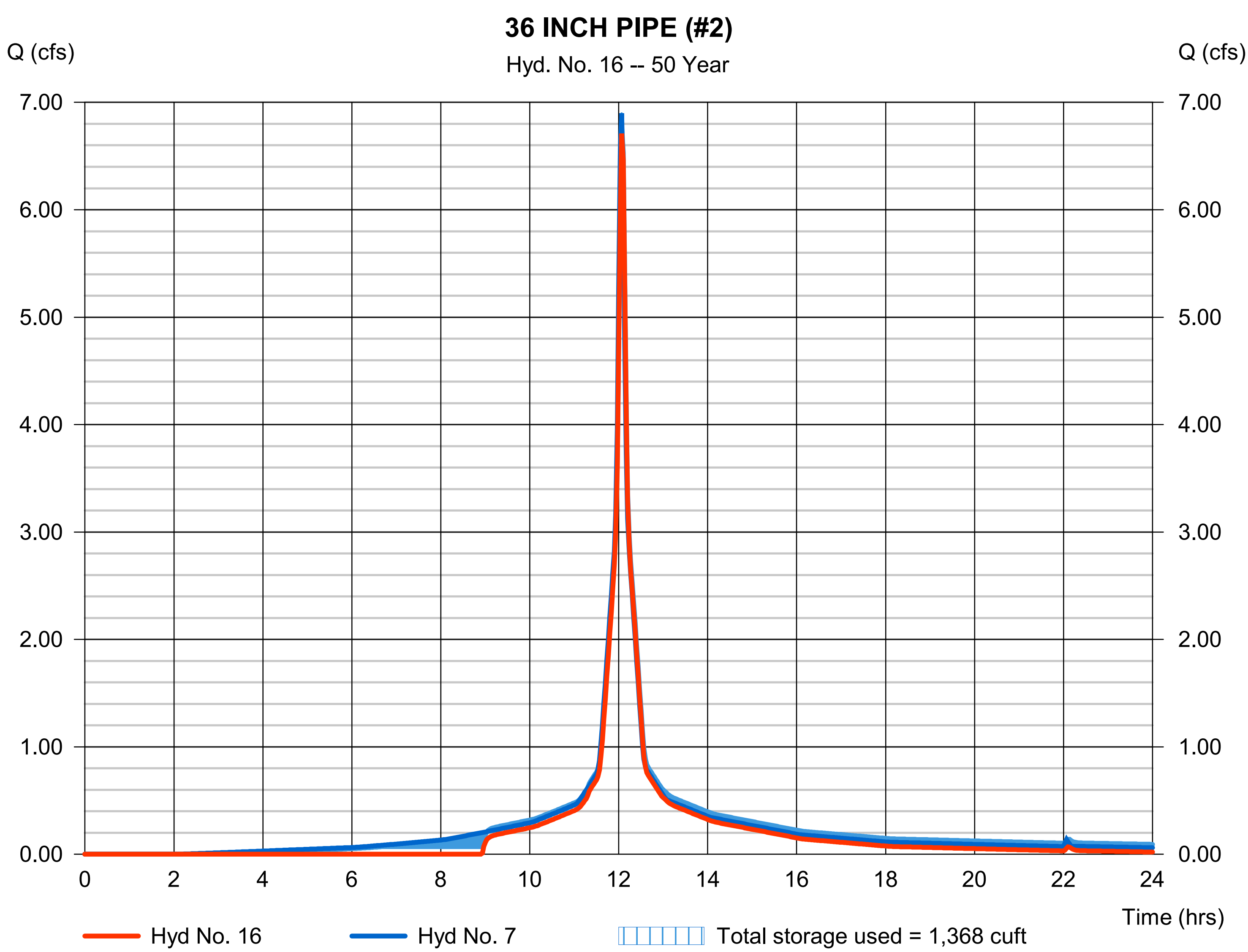
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

36 INCH PIPE (#2)

Hydrograph type	= Reservoir	Peak discharge	= 6.709 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 18,771 cuft
Inflow hyd. No.	= 7 - EX WS-02F	Max. Elevation	= 139.53 ft
Reservoir name	= 36in - 2	Max. Storage	= 1,368 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

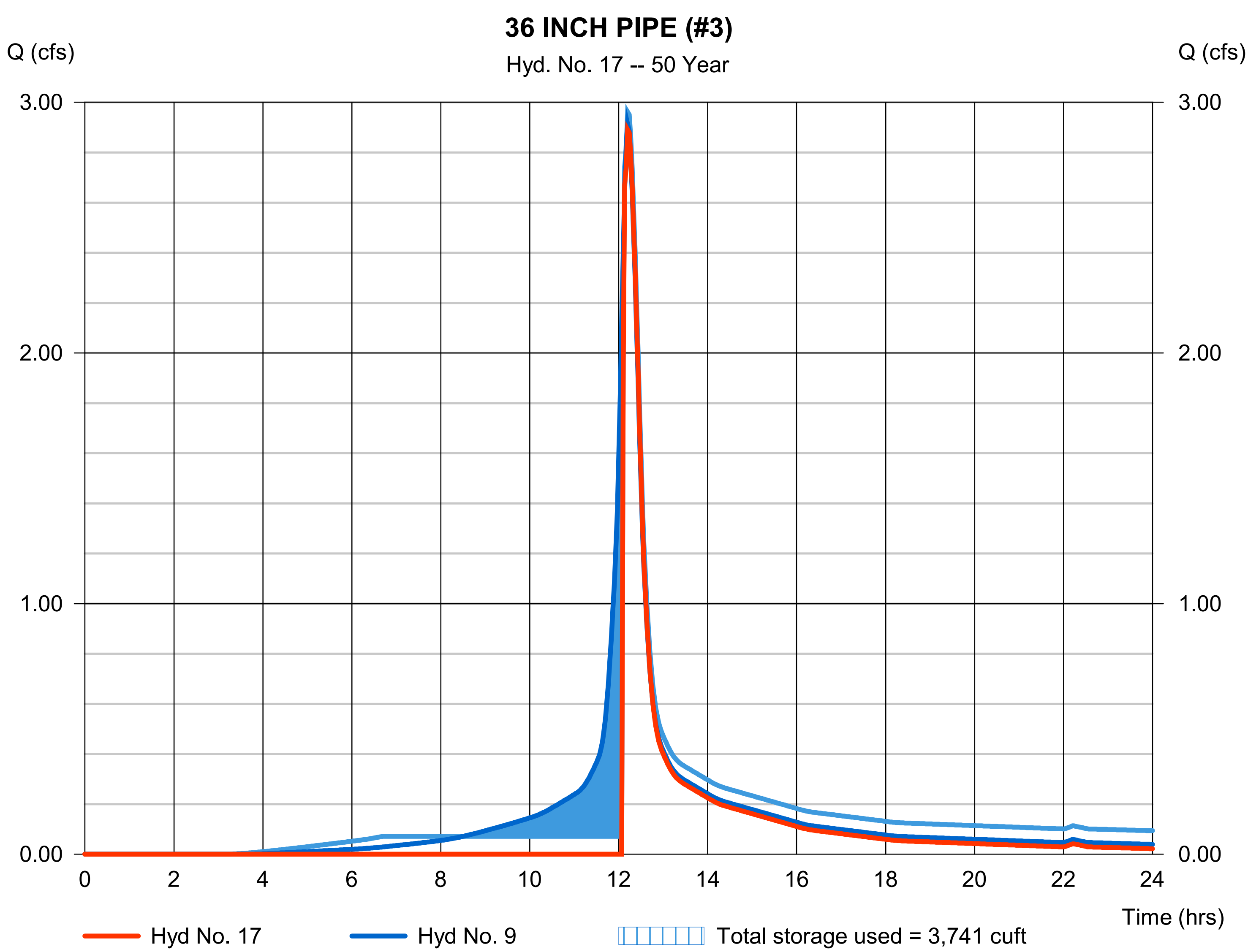
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 2.890 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 8,550 cuft
Inflow hyd. No.	= 9 - EX WS-02H	Max. Elevation	= 137.50 ft
Reservoir name	= 36in - 3	Max. Storage	= 3,741 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

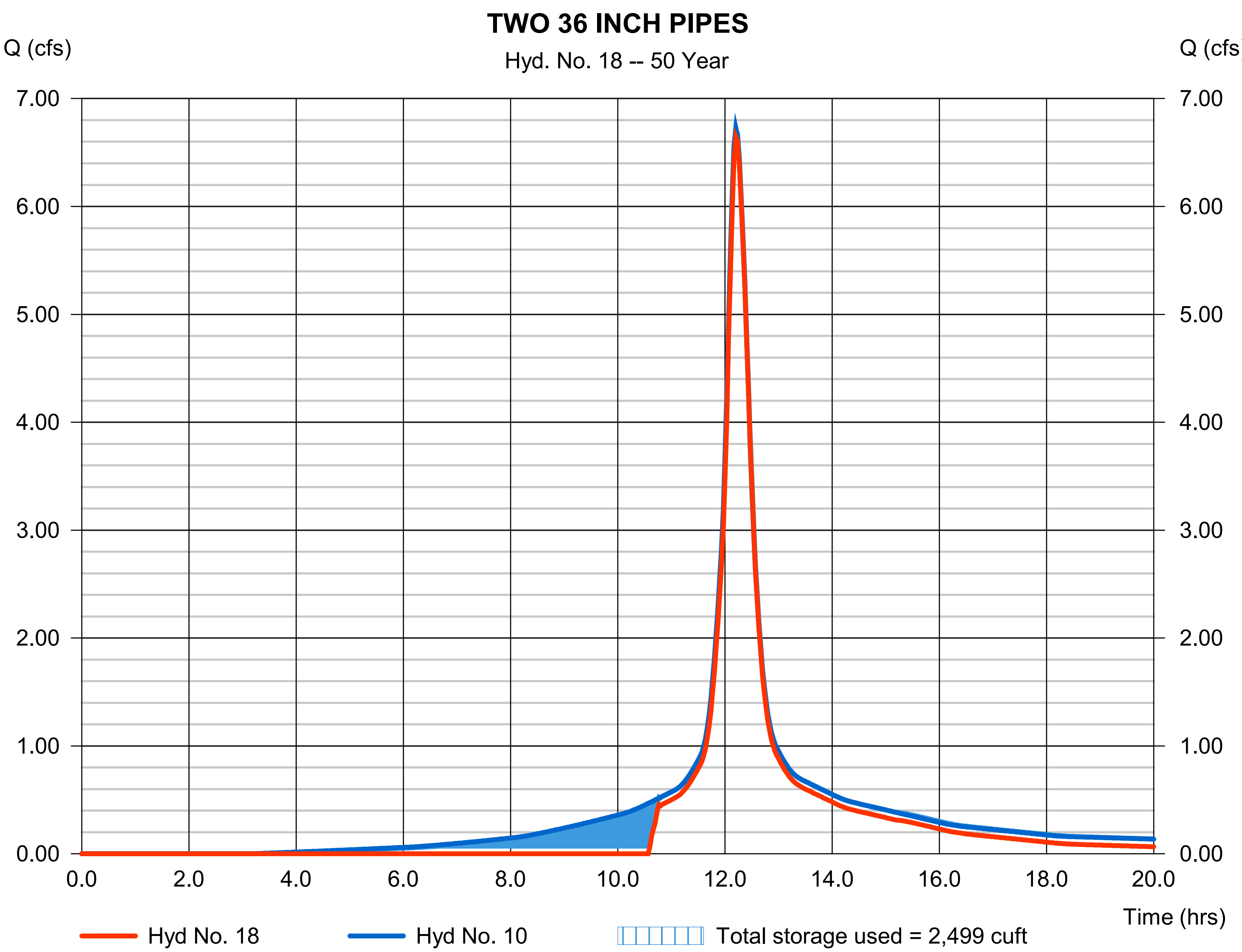
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 6.644 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 24,209 cuft
Inflow hyd. No.	= 10 - EX WS-02I	Max. Elevation	= 135.75 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,499 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



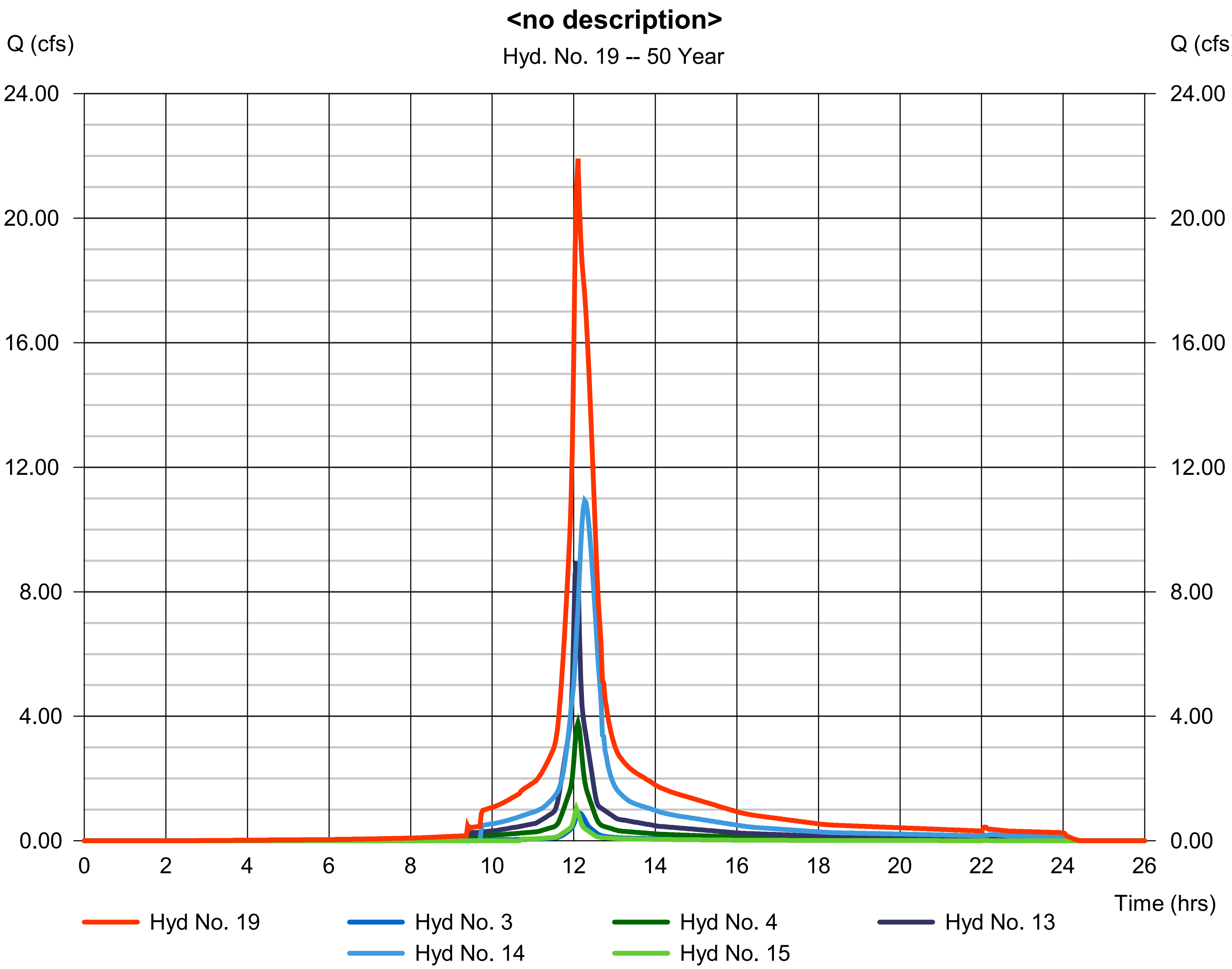
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 21.92 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 96,711 cuft
Inflow hyds.	= 3, 4, 13, 14, 15	Contrib. drain. area	= 0.776 ac



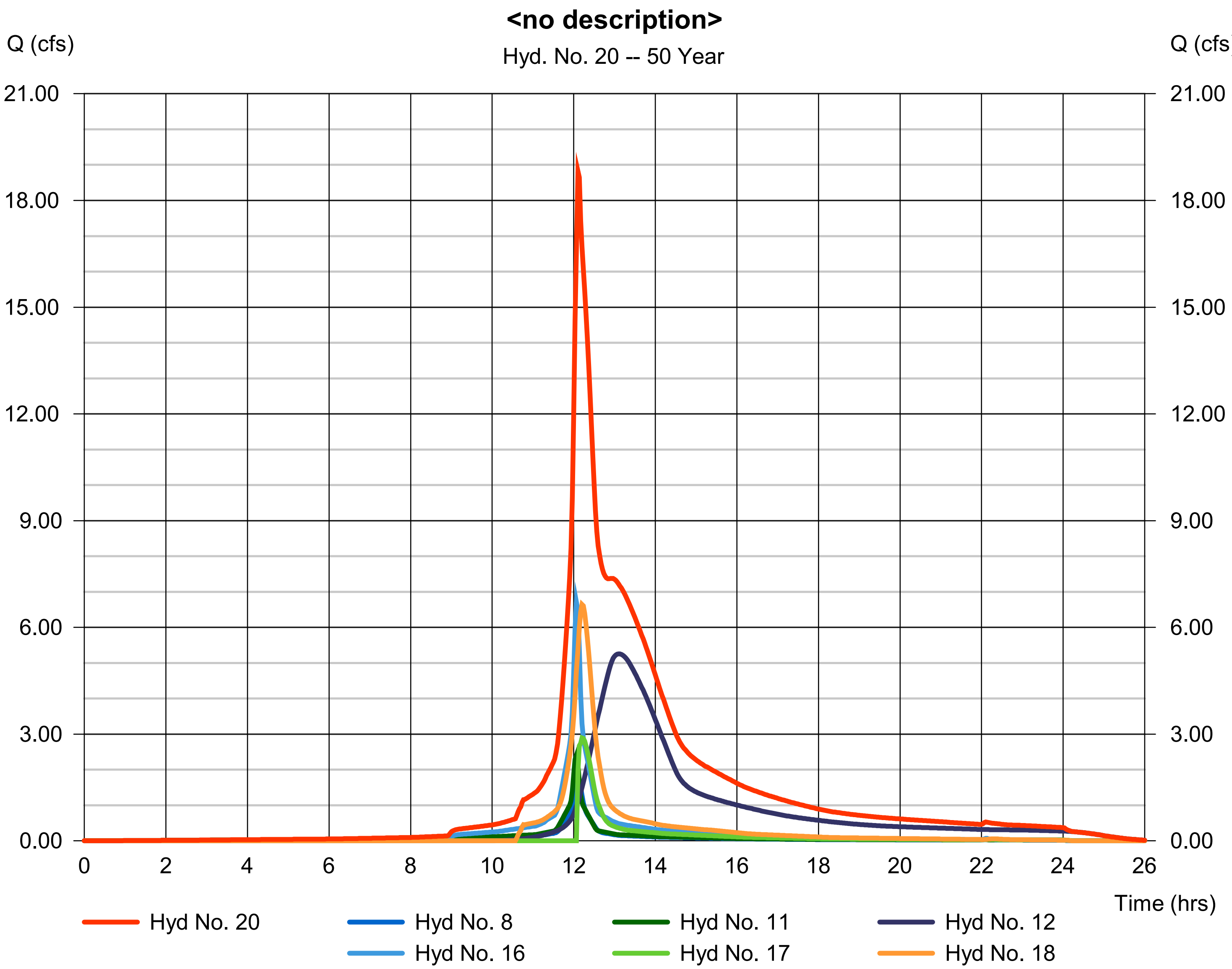
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 20

<no description>

Hydrograph type	= Combine	Peak discharge	= 18.82 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 121,599 cuft
Inflow hyds.	= 8, 11, 12, 16, 17, 18	Contrib. drain. area	= 5.532 ac



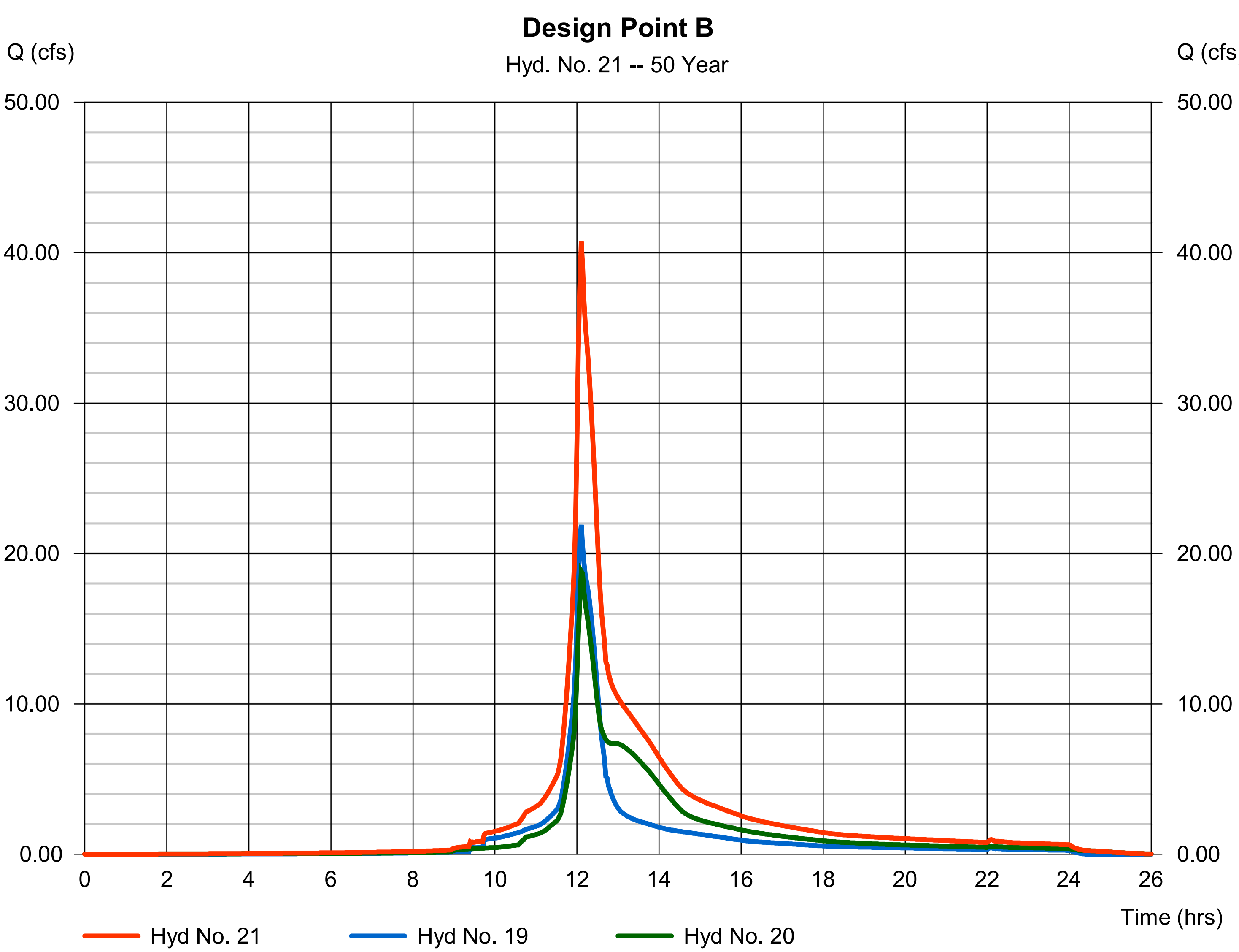
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

Design Point B

Hydrograph type	= Combine	Peak discharge	= 40.73 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 218,310 cuft
Inflow hyds.	= 19, 20	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	8.969	2	752	58,271	------	------	------	EX WS-01
2	SCS Runoff	10.64	2	724	33,623	------	------	------	EX WS-02A
3	SCS Runoff	1.046	2	728	4,056	------	------	------	EX WS-02B
4	SCS Runoff	4.285	2	726	16,063	------	------	------	EX WS-02C
5	SCS Runoff	12.64	2	734	62,774	------	------	------	EX WS-02D
6	SCS Runoff	1.145	2	724	3,905	------	------	------	EX WS-02E
7	SCS Runoff	7.807	2	724	25,830	------	------	------	EX WS-02F
8	SCS Runoff	2.033	2	726	7,555	------	------	------	EX WS-02G
9	SCS Runoff	3.330	2	732	15,431	------	------	------	EX WS-02H
10	SCS Runoff	7.659	2	732	35,951	------	------	------	EX WS-02I
11	SCS Runoff	2.707	2	724	9,455	------	------	------	EX WS-02J
12	SCS Runoff	6.537	2	786	67,780	------	------	------	EX WS-03
13	Reservoir	9.045	2	726	31,545	2	144.45	1,964	36 INCH PIPE (#1)
14	Reservoir	12.50	2	736	57,780	5	139.20	4,007	TWIN 36IN PIPES (#2)
15	Reservoir	1.127	2	724	2,988	6	139.65	504	24 INCH PIPE
16	Reservoir	7.323	2	726	21,887	7	139.57	1,435	36 INCH PIPE (#2)
17	Reservoir	3.297	2	732	10,550	9	137.50	3,755	36 INCH PIPE (#3)
18	Reservoir	7.572	2	732	28,677	10	135.77	2,517	TWO 36 INCH PIPES
19	Combine	25.05	2	730	112,433	3, 4, 13, 14, 15,	------	------	<no description>
20	Combine	22.06	2	726	145,904	8, 11, 12, 16, 17, 18,	------	------	<no description>
21	Combine	46.31	2	728	258,337	19, 20	------	------	Design Point B

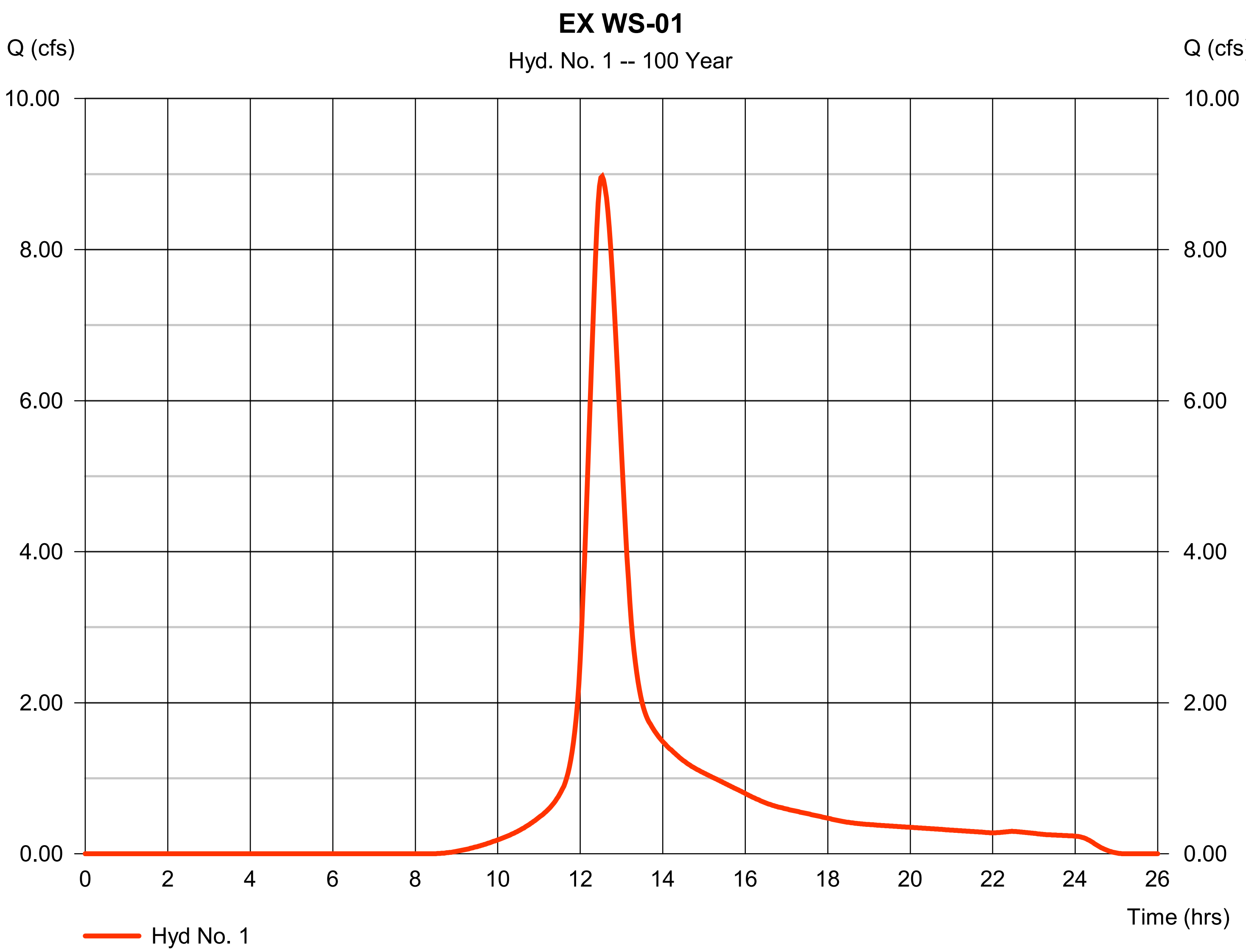
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

EX WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 8.969 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 58,271 cuft
Drainage area	= 3.677 ac	Curve number	= 67
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



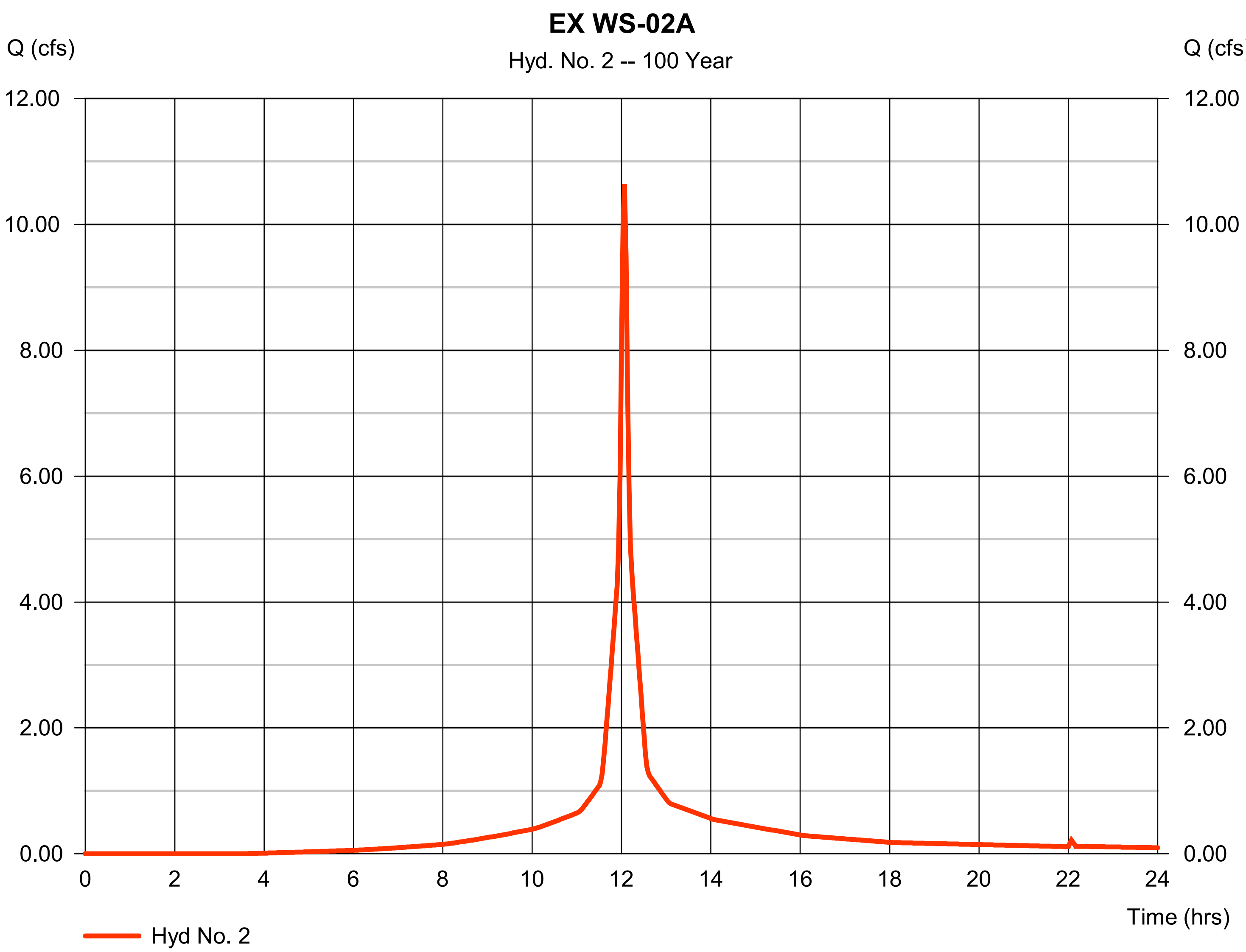
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 2

EX WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 10.64 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 33,623 cuft
Drainage area	= 1.457 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



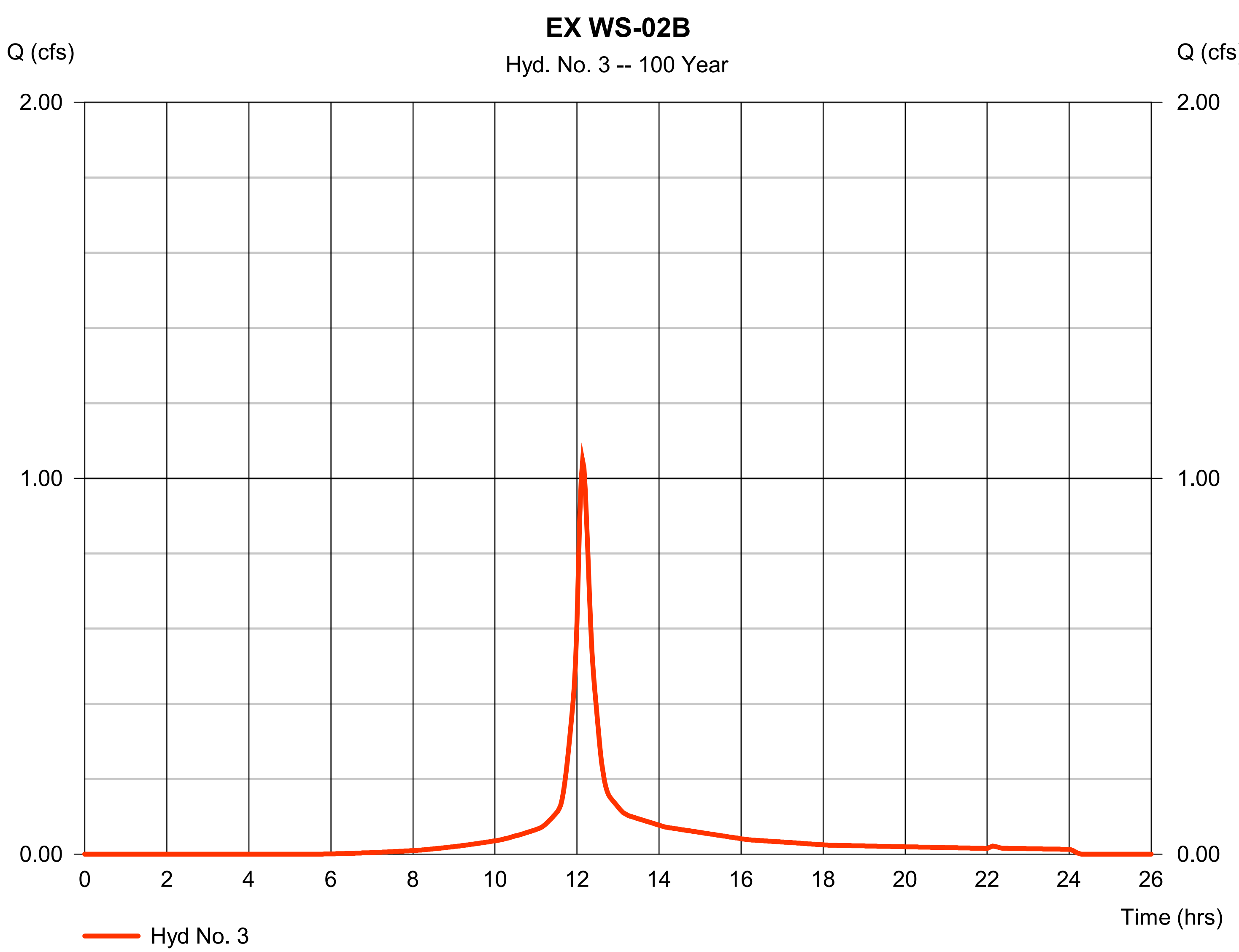
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 3

EX WS-02B

Hydrograph type	= SCS Runoff	Peak discharge	= 1.046 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 4,056 cuft
Drainage area	= 0.186 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



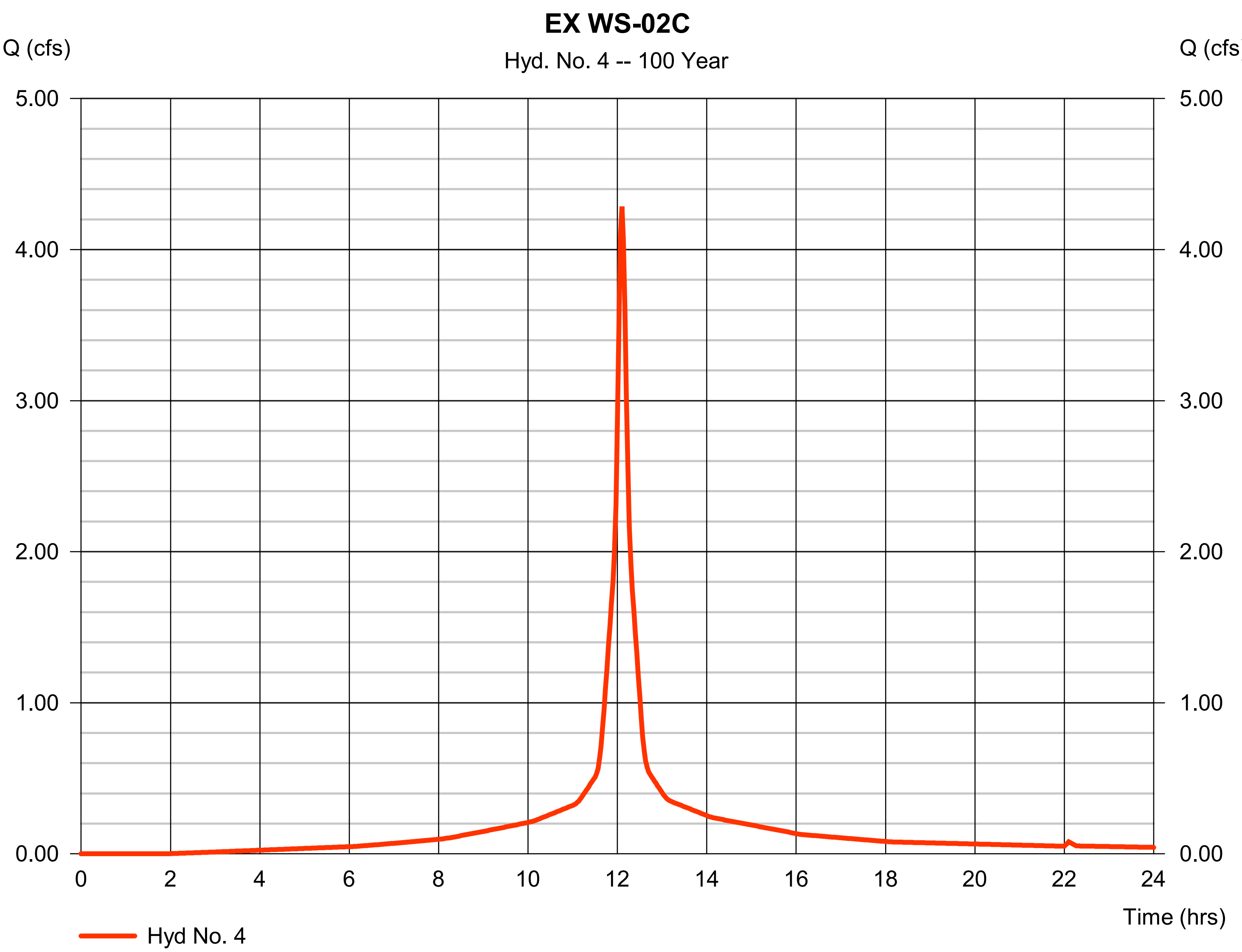
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 4

EX WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 4.285 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 16,063 cuft
Drainage area	= 0.590 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



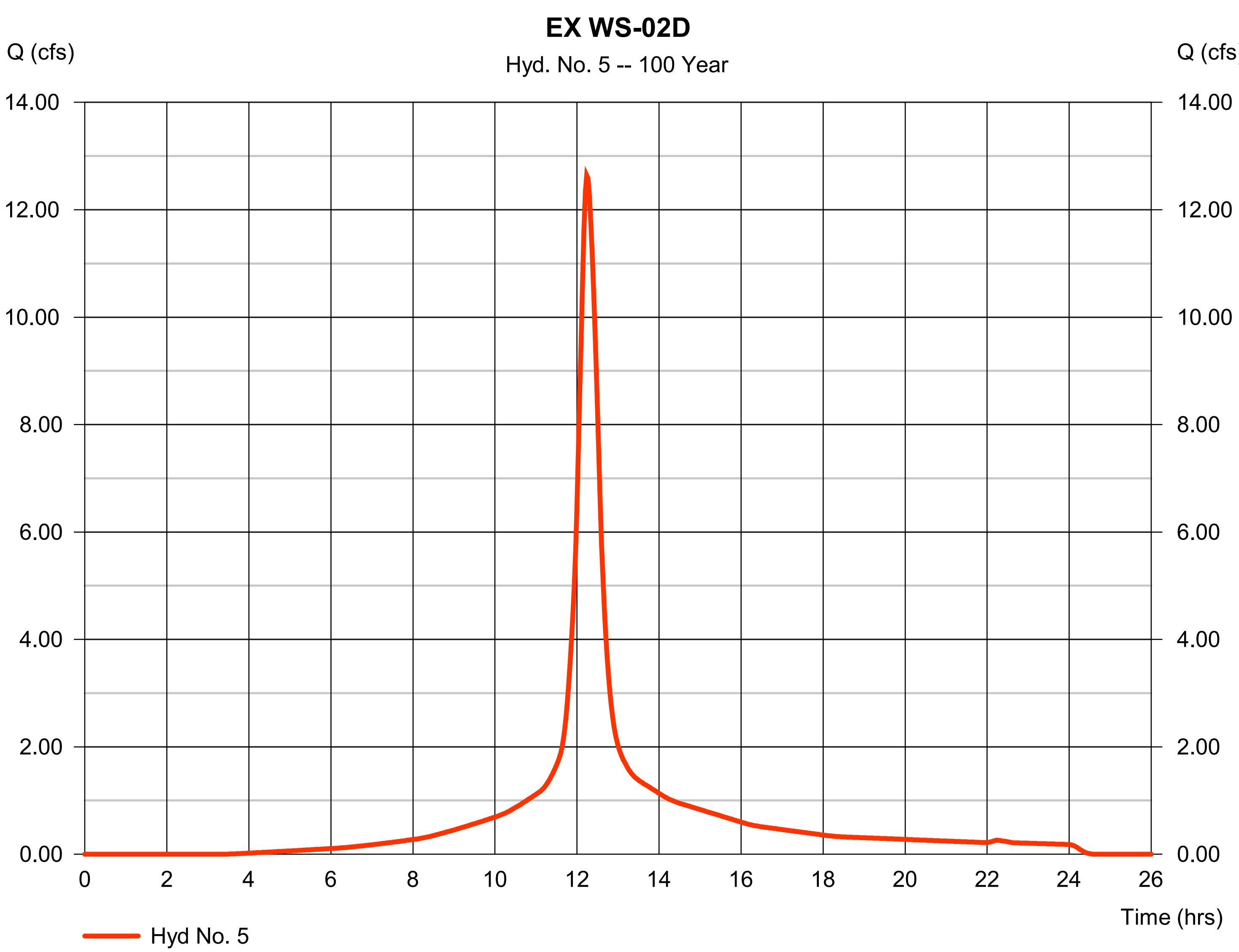
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 5

EX WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 12.64 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 62,774 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



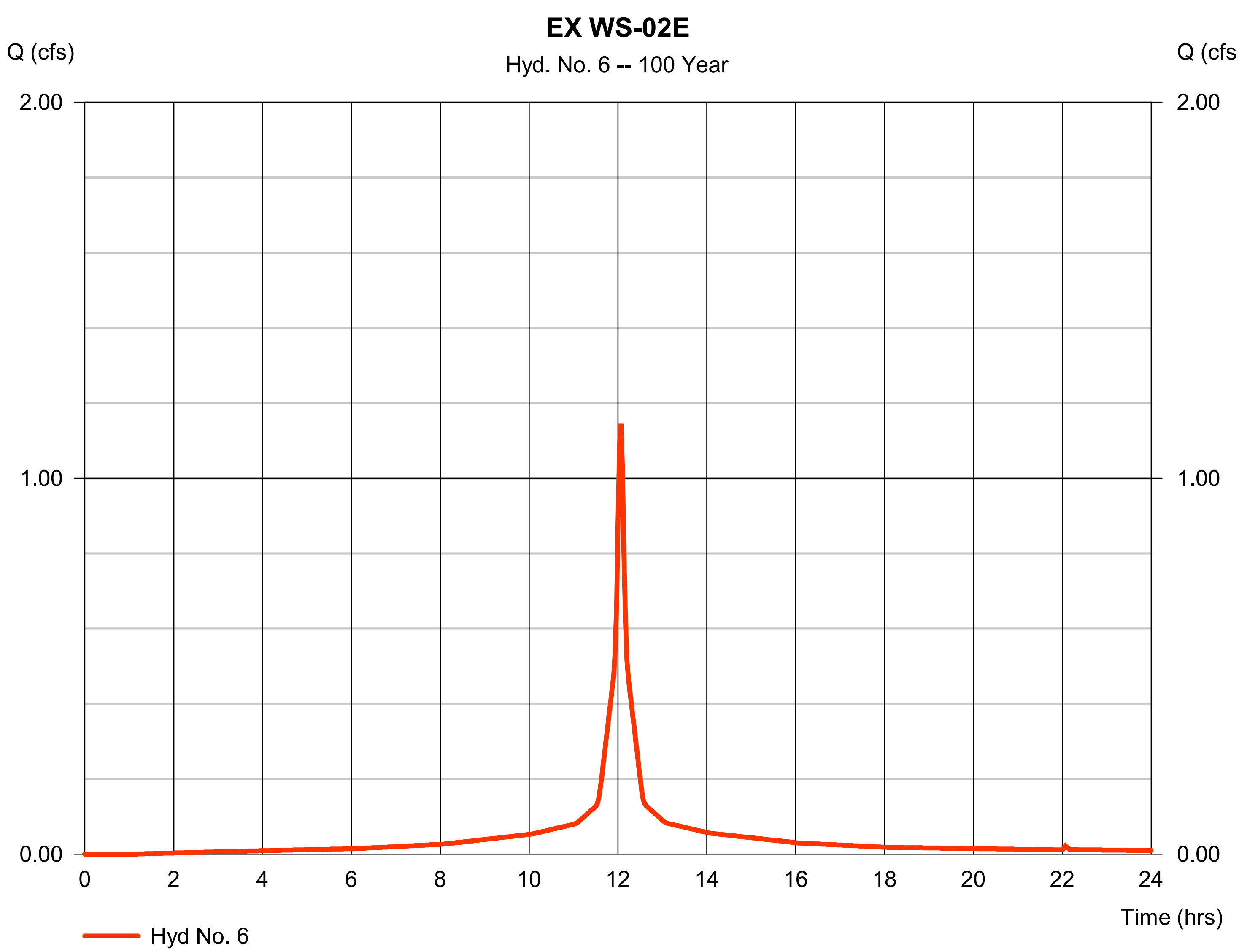
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

EX WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 1.145 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,905 cuft
Drainage area	= 0.146 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



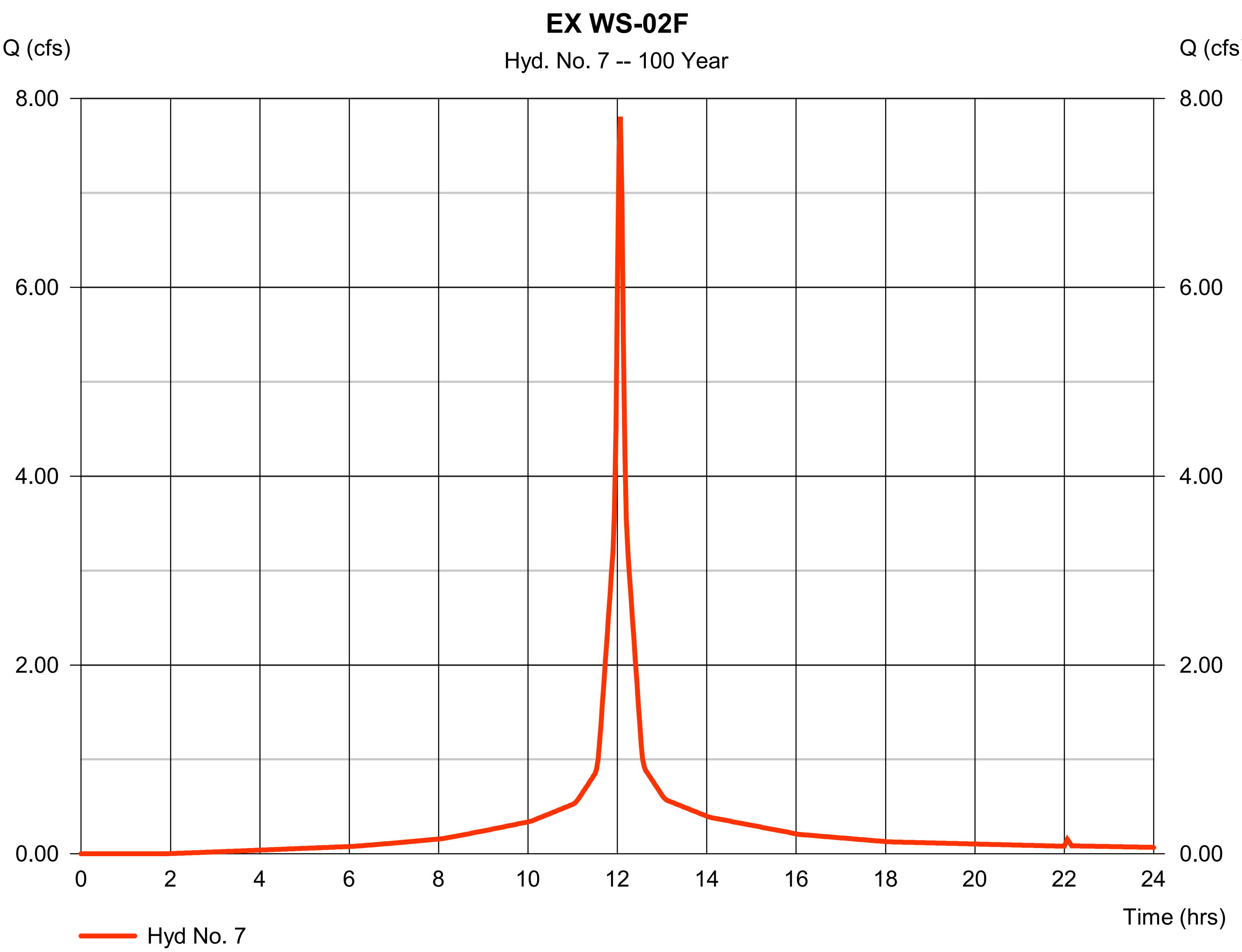
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

EX WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 7.807 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 25,830 cuft
Drainage area	= 1.012 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.50 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



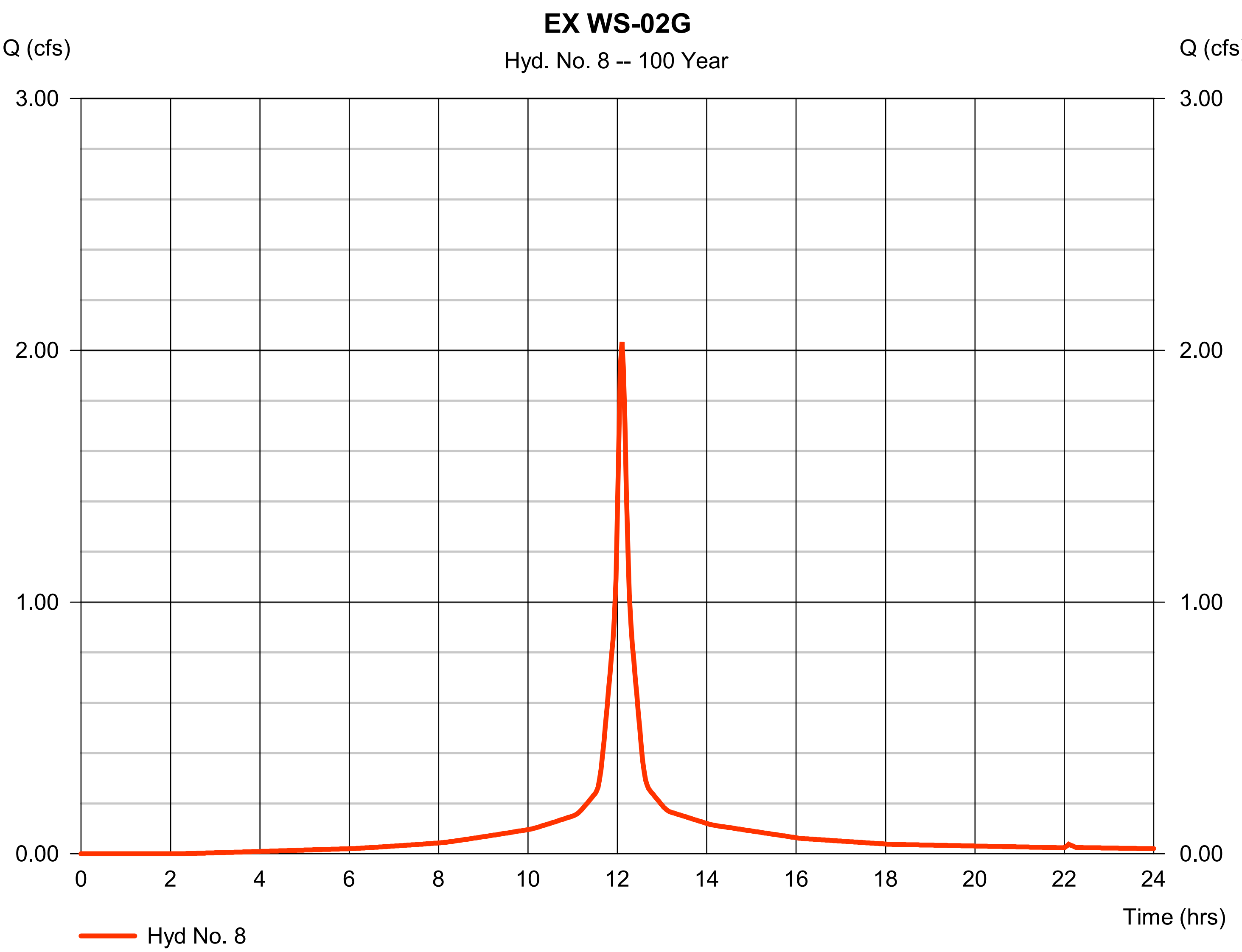
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

EX WS-02G

Hydrograph type	= SCS Runoff	Peak discharge	= 2.033 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 7,555 cuft
Drainage area	= 0.282 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.90 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



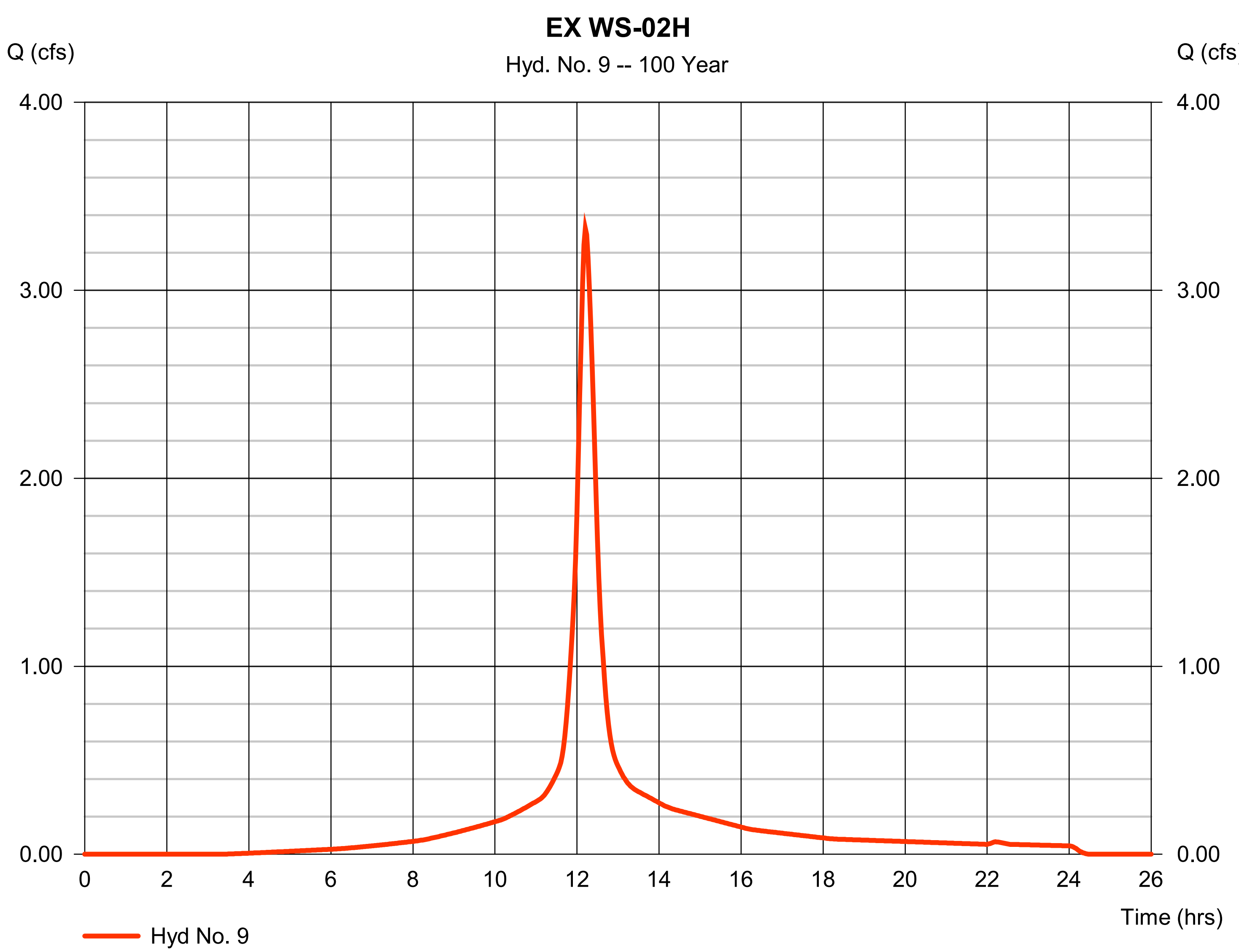
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 9

EX WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 3.330 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 15,431 cuft
Drainage area	= 0.616 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.30 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



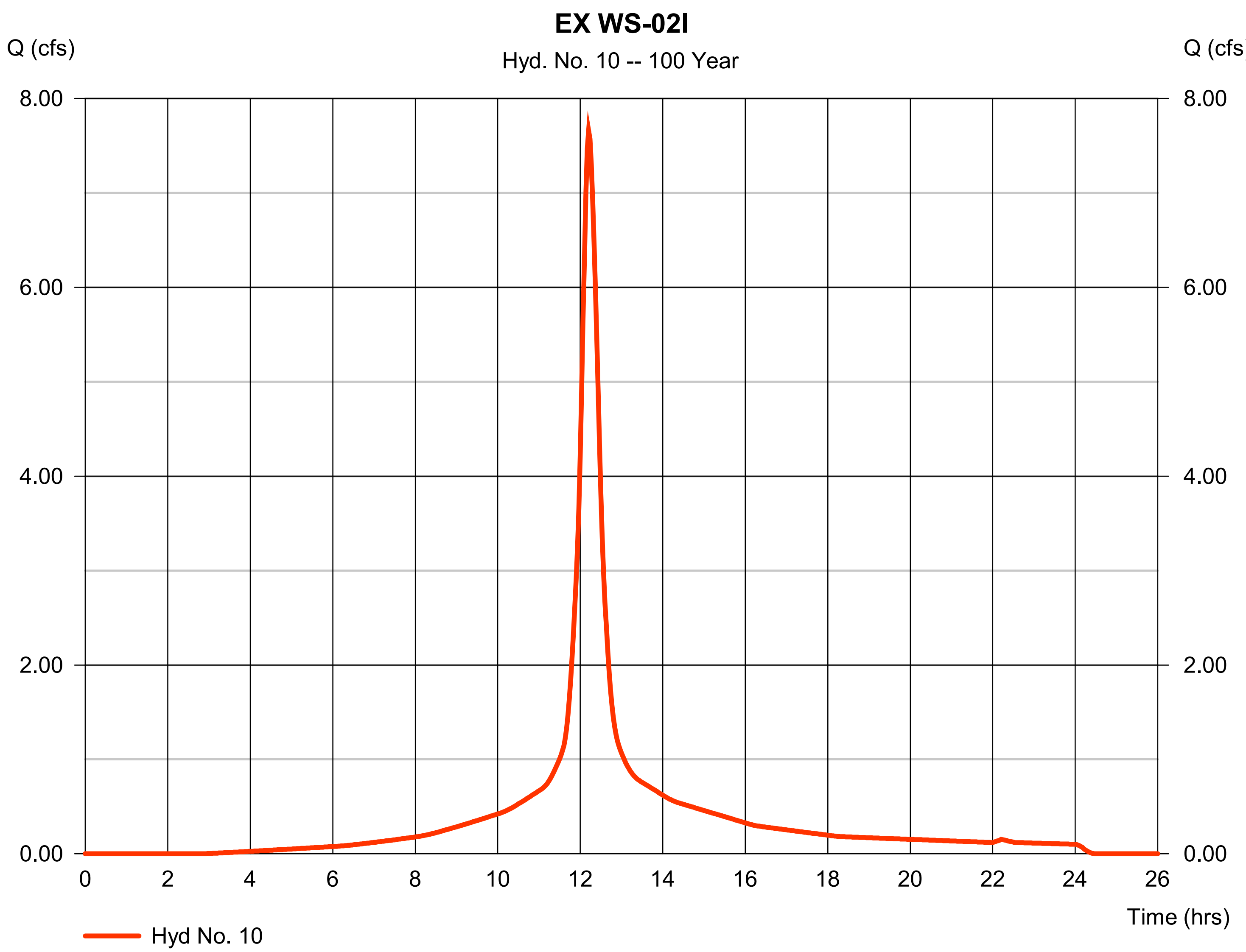
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

EX WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 7.659 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 35,951 cuft
Drainage area	= 1.387 ac	Curve number	= 90
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



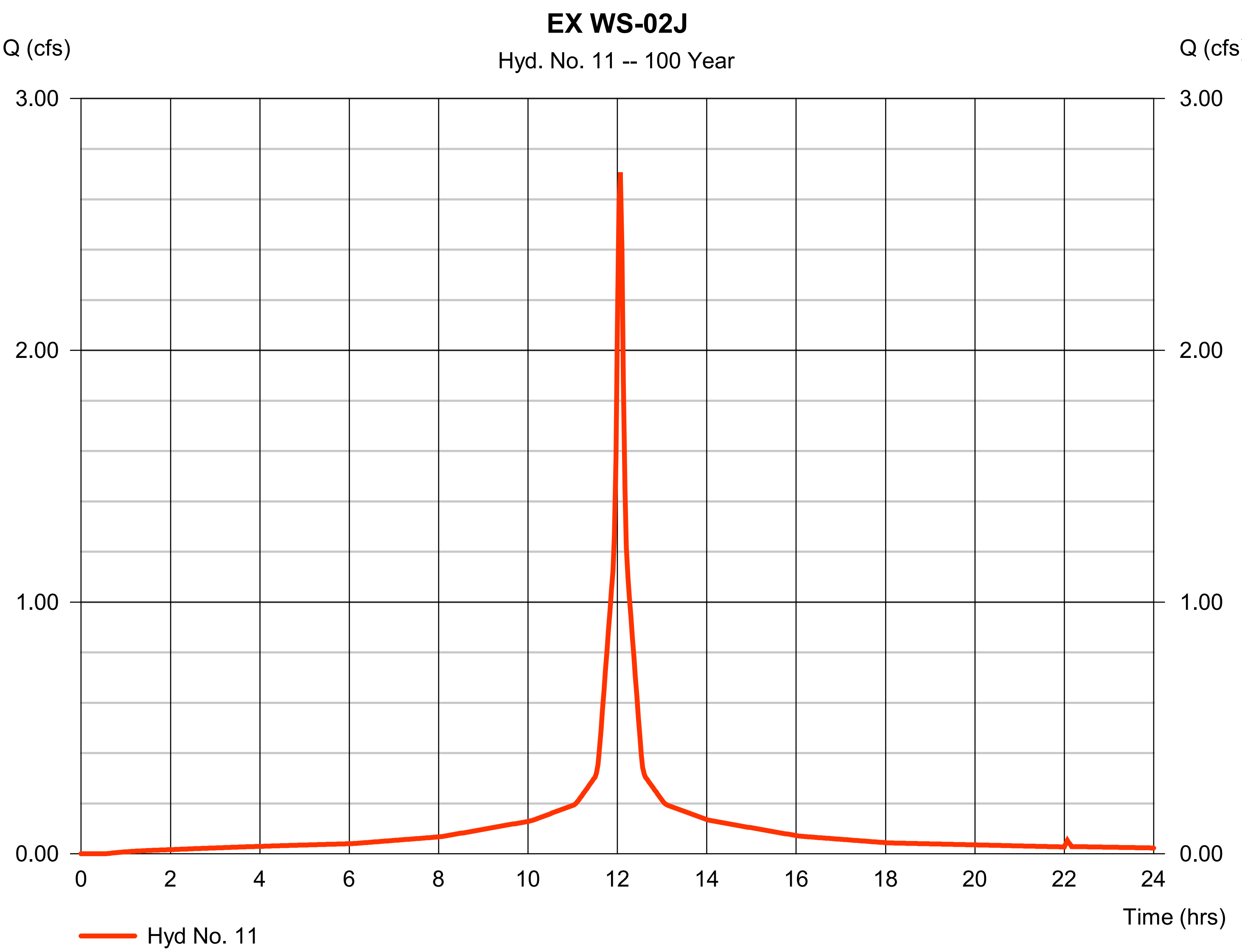
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 11

EX WS-02J

Hydrograph type	= SCS Runoff	Peak discharge	= 2.707 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 9,455 cuft
Drainage area	= 0.343 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

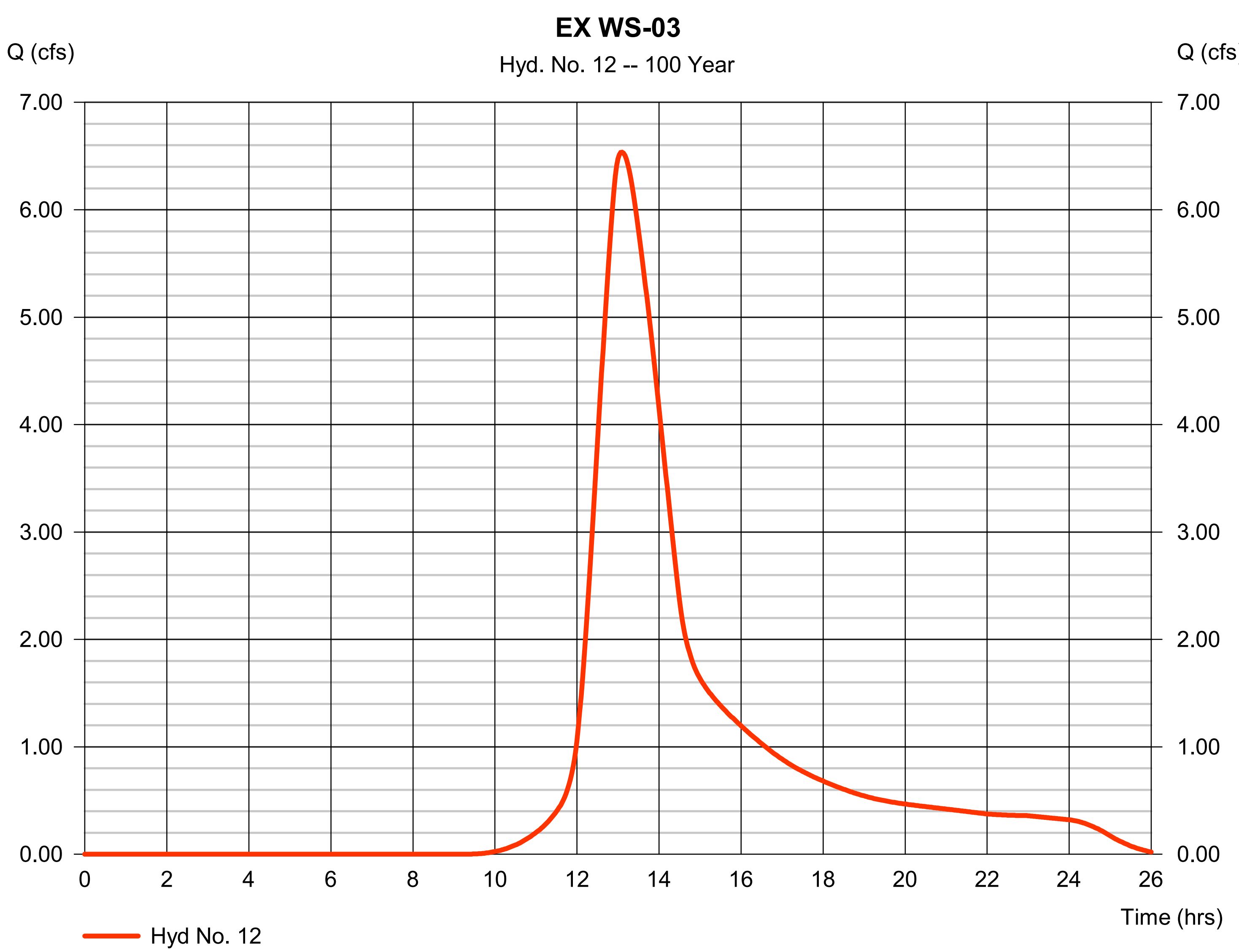


Hydrograph Report

Hyd. No. 12

EX WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 6.537 cfs
Storm frequency	= 100 yrs	Time to peak	= 13.10 hrs
Time interval	= 2 min	Hyd. volume	= 67,780 cuft
Drainage area	= 4.907 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

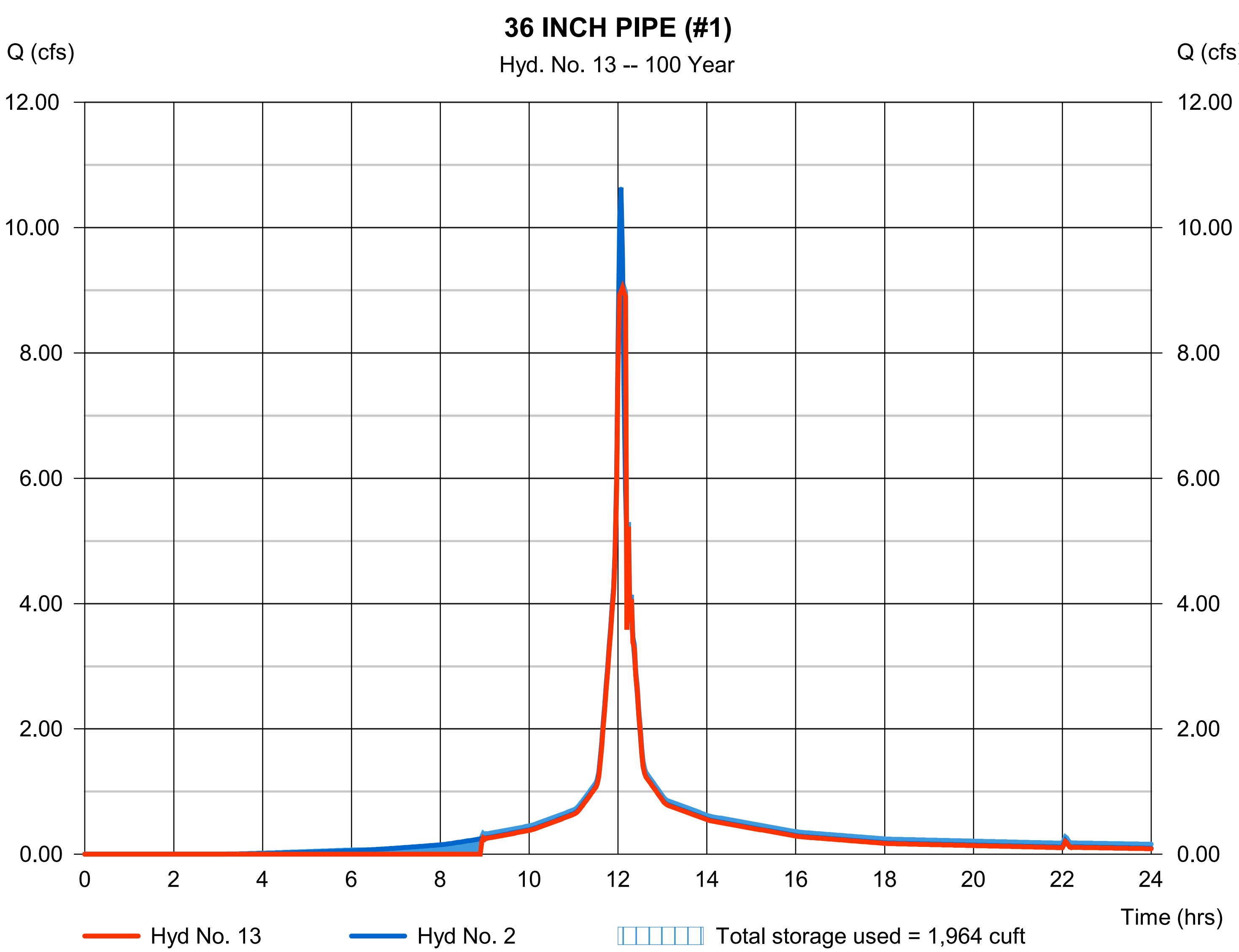
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 13

36 INCH PIPE (#1)

Hydrograph type	= Reservoir	Peak discharge	= 9.045 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 31,545 cuft
Inflow hyd. No.	= 2 - EX WS-02A	Max. Elevation	= 144.45 ft
Reservoir name	= 36IN - 1	Max. Storage	= 1,964 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

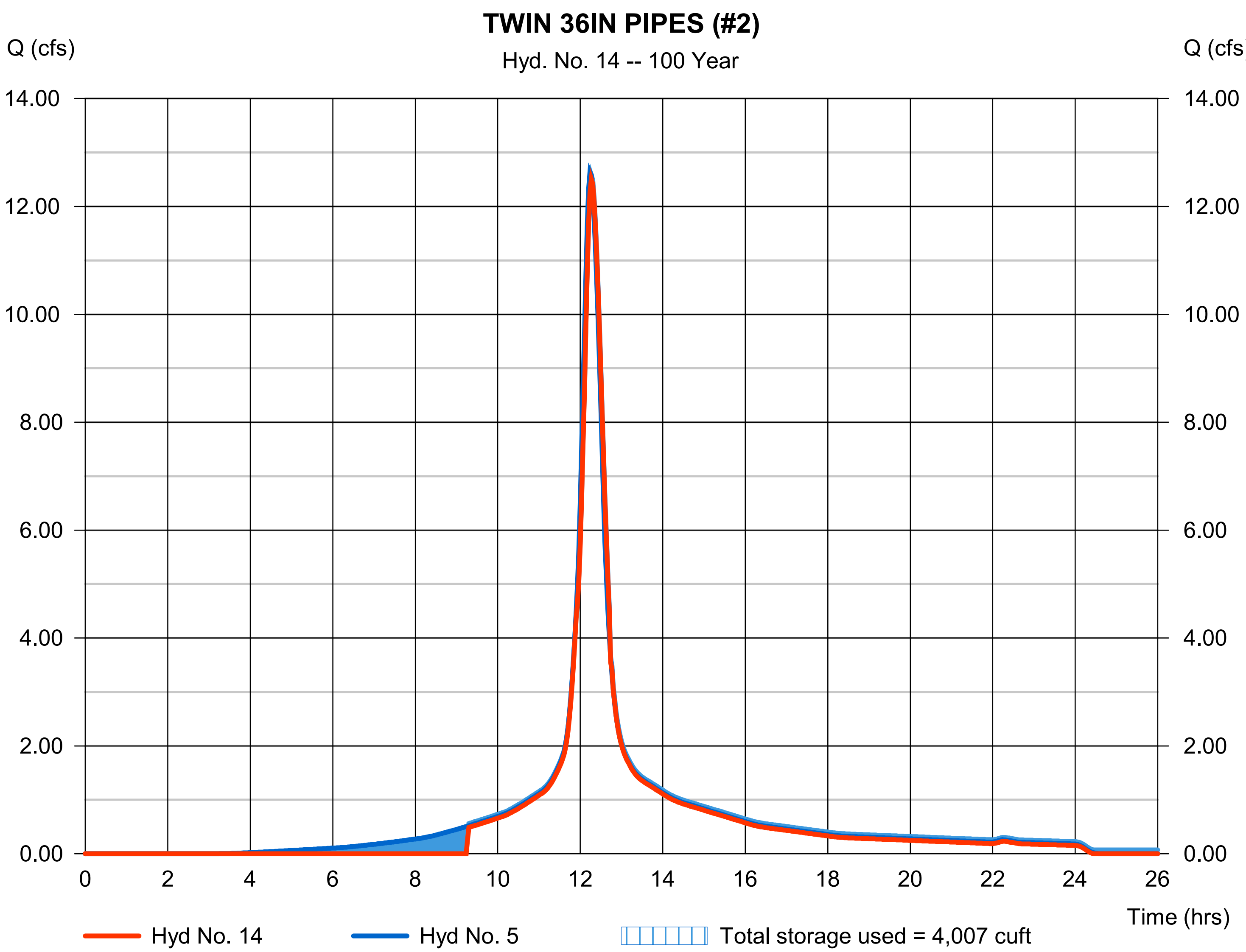
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 12.50 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 57,780 cuft
Inflow hyd. No.	= 5 - EX WS-02D	Max. Elevation	= 139.20 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 4,007 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

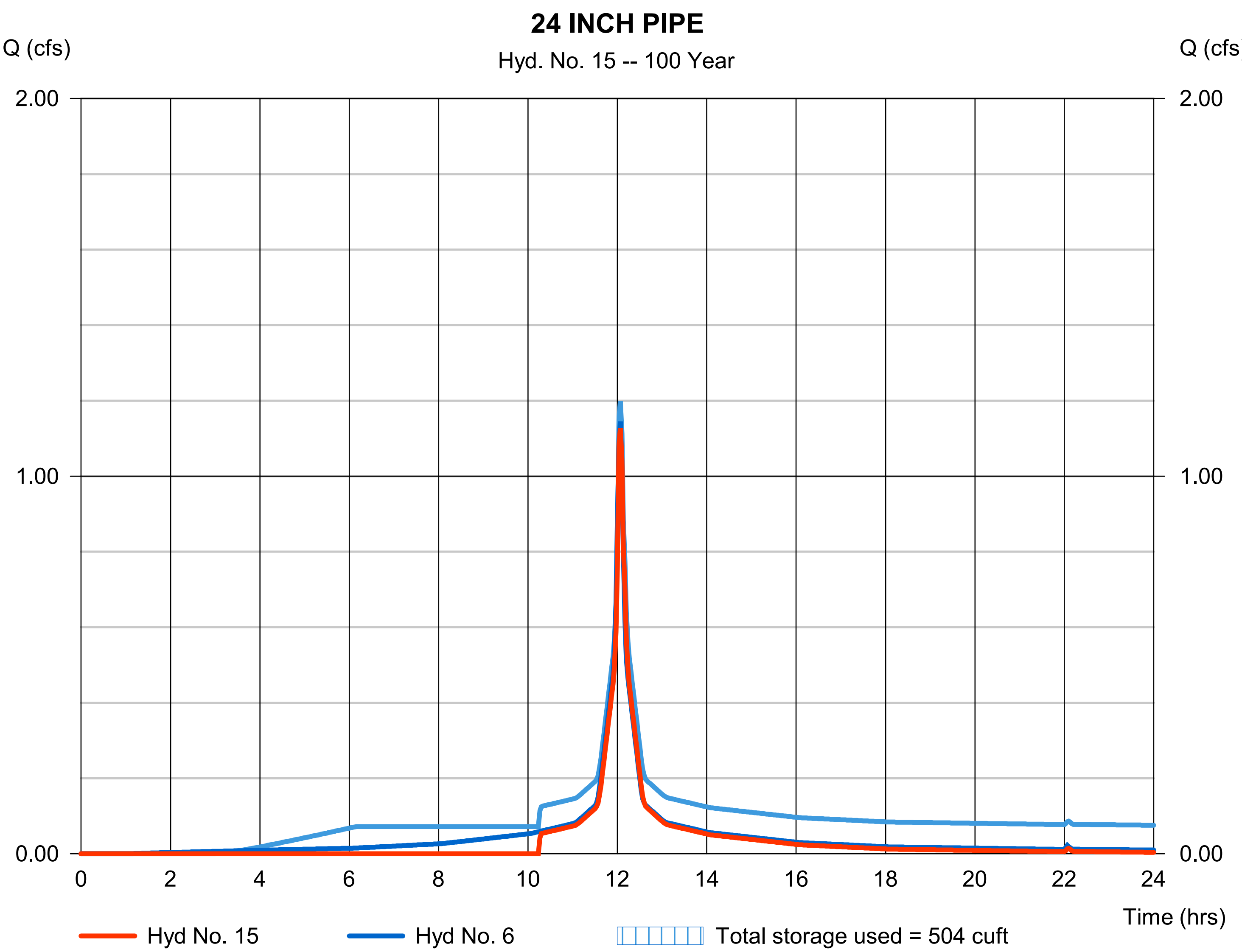
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

24 INCH PIPE

Hydrograph type	= Reservoir	Peak discharge	= 1.127 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,988 cuft
Inflow hyd. No.	= 6 - EX WS-02E	Max. Elevation	= 139.65 ft
Reservoir name	= 24IN	Max. Storage	= 504 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

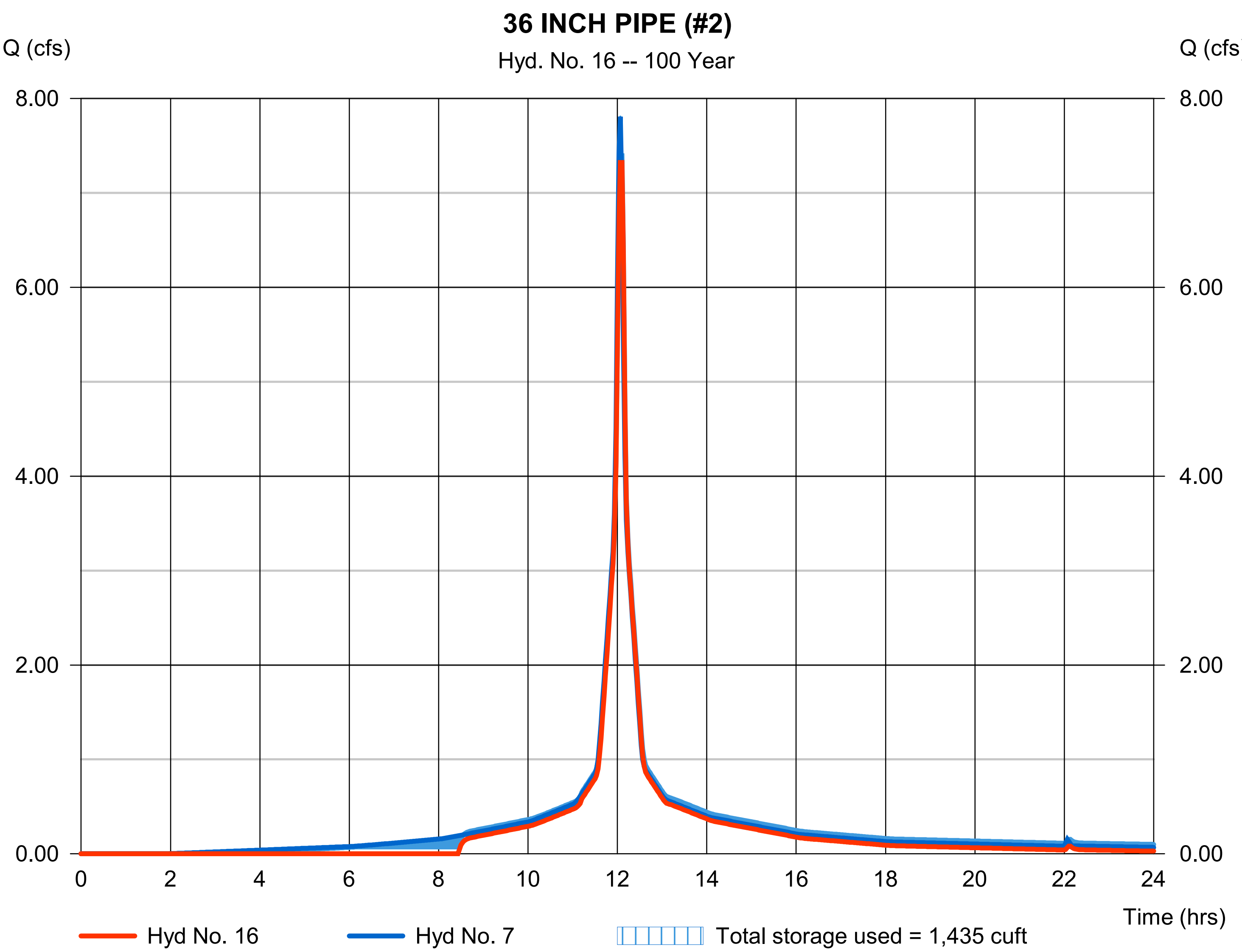
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

36 INCH PIPE (#2)

Hydrograph type	= Reservoir	Peak discharge	= 7.323 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 21,887 cuft
Inflow hyd. No.	= 7 - EX WS-02F	Max. Elevation	= 139.57 ft
Reservoir name	= 36in - 2	Max. Storage	= 1,435 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

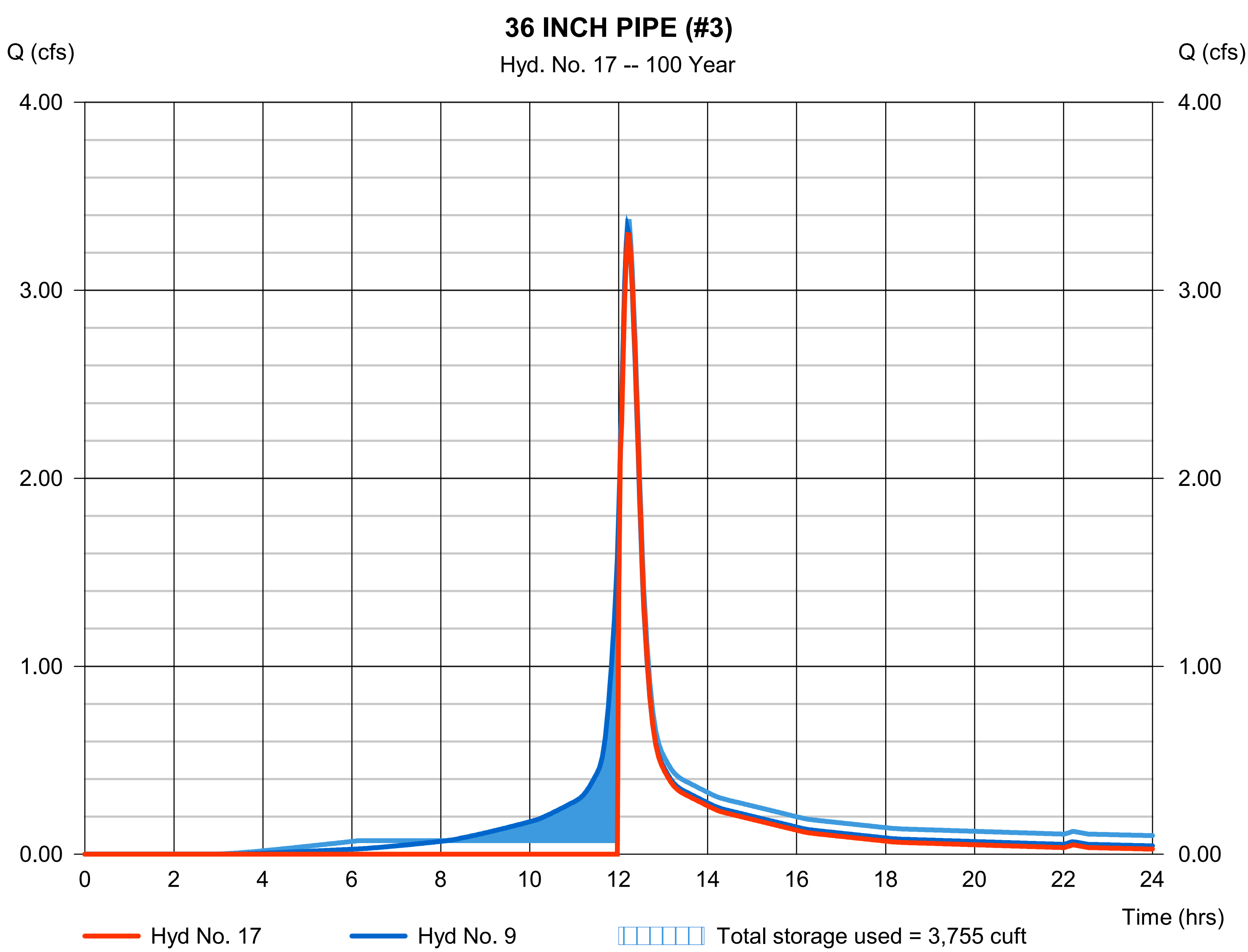
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 3.297 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 10,550 cuft
Inflow hyd. No.	= 9 - EX WS-02H	Max. Elevation	= 137.50 ft
Reservoir name	= 36in - 3	Max. Storage	= 3,755 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

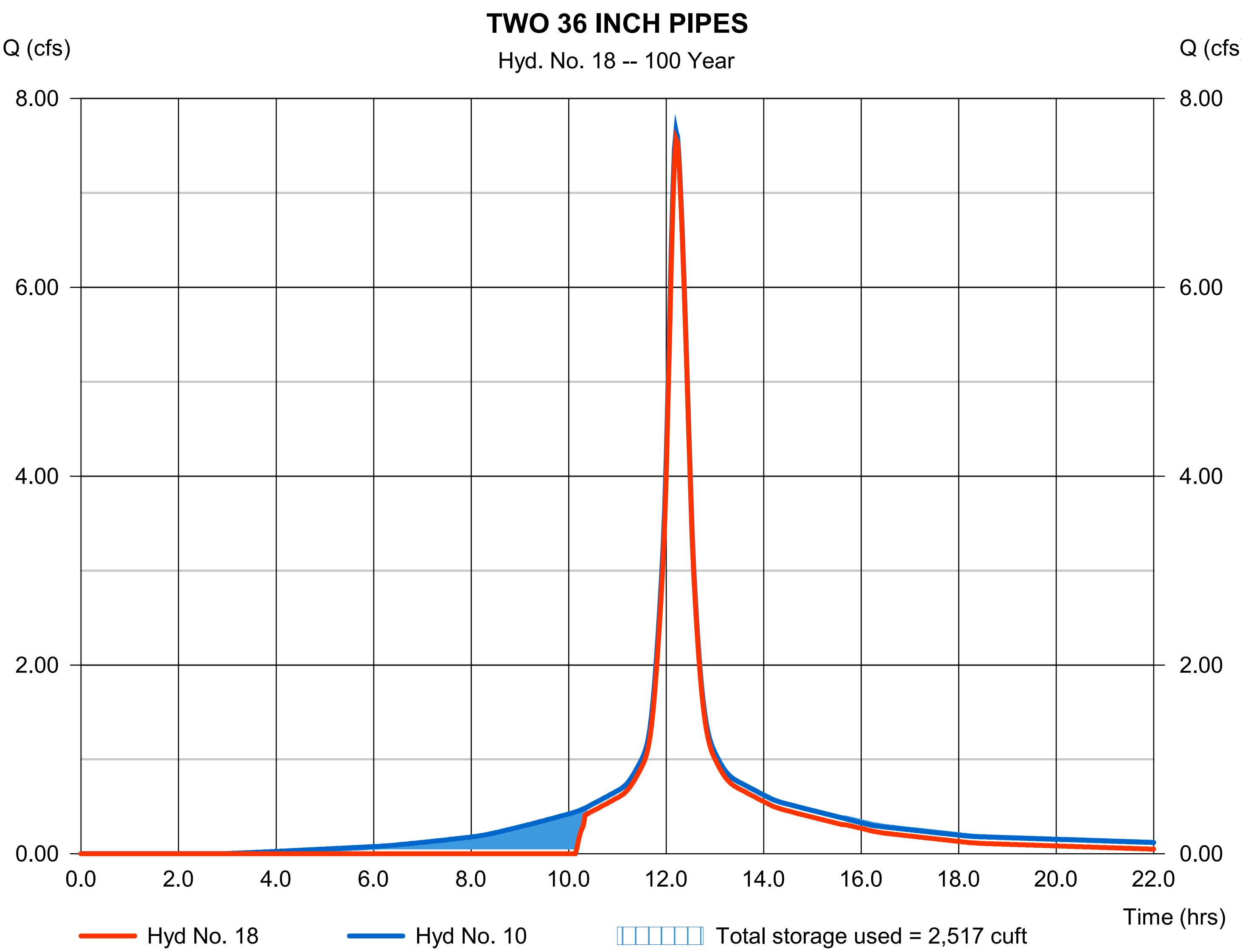
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 7.572 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 28,677 cuft
Inflow hyd. No.	= 10 - EX WS-02I	Max. Elevation	= 135.77 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,517 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



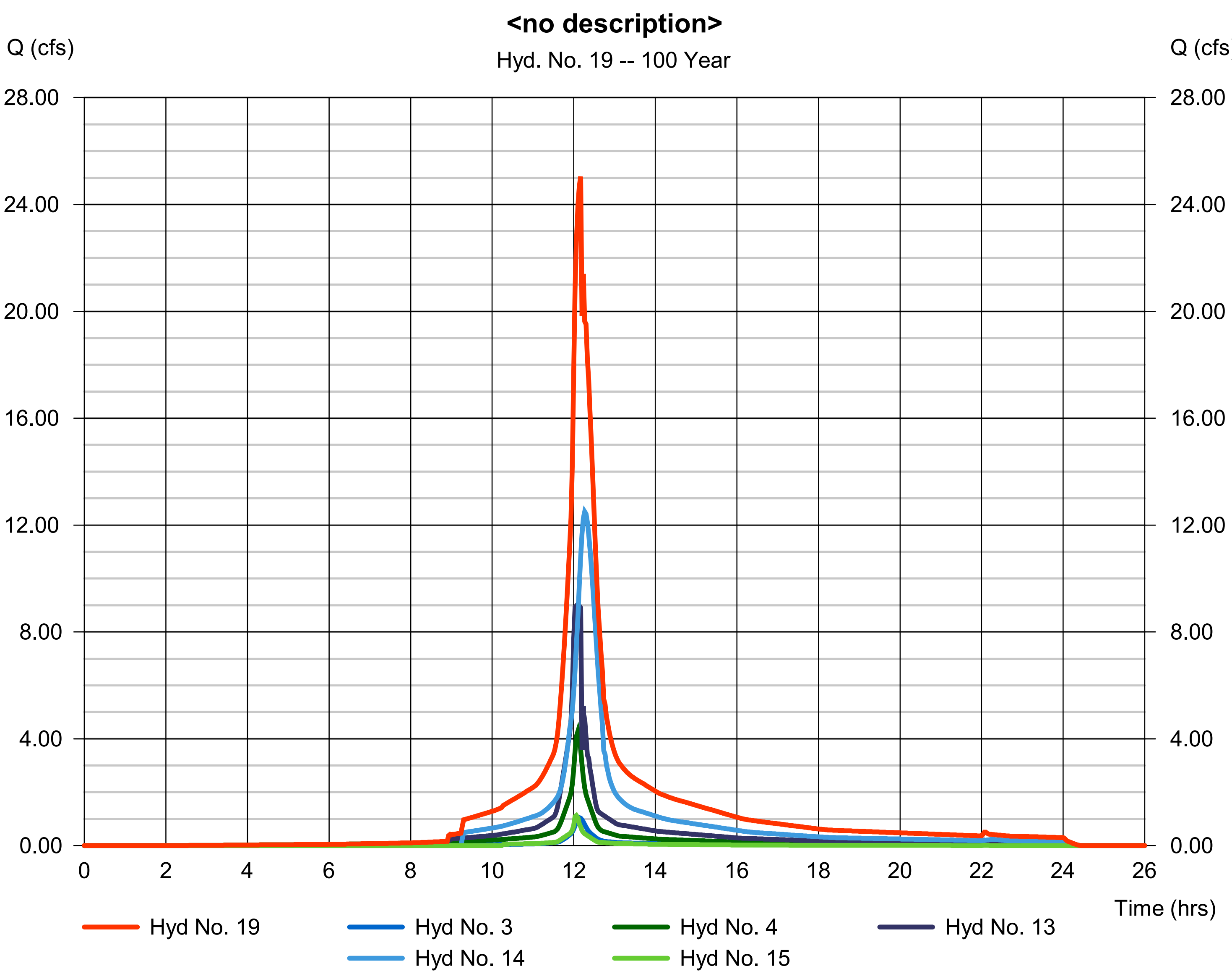
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 25.05 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 112,433 cuft
Inflow hyds.	= 3, 4, 13, 14, 15	Contrib. drain. area	= 0.776 ac



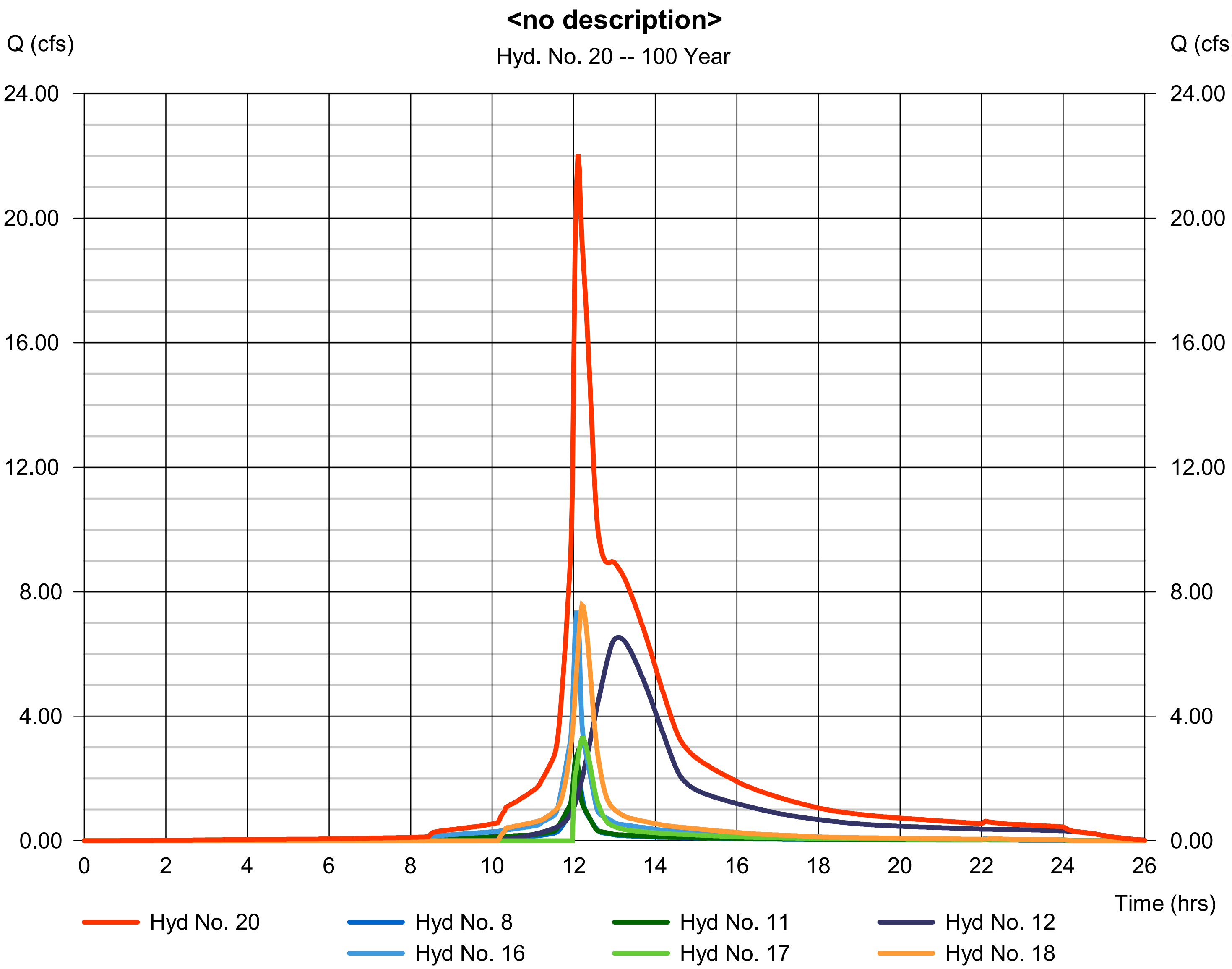
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 20

<no description>

Hydrograph type	= Combine	Peak discharge	= 22.06 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 145,904 cuft
Inflow hyds.	= 8, 11, 12, 16, 17, 18	Contrib. drain. area	= 5.532 ac



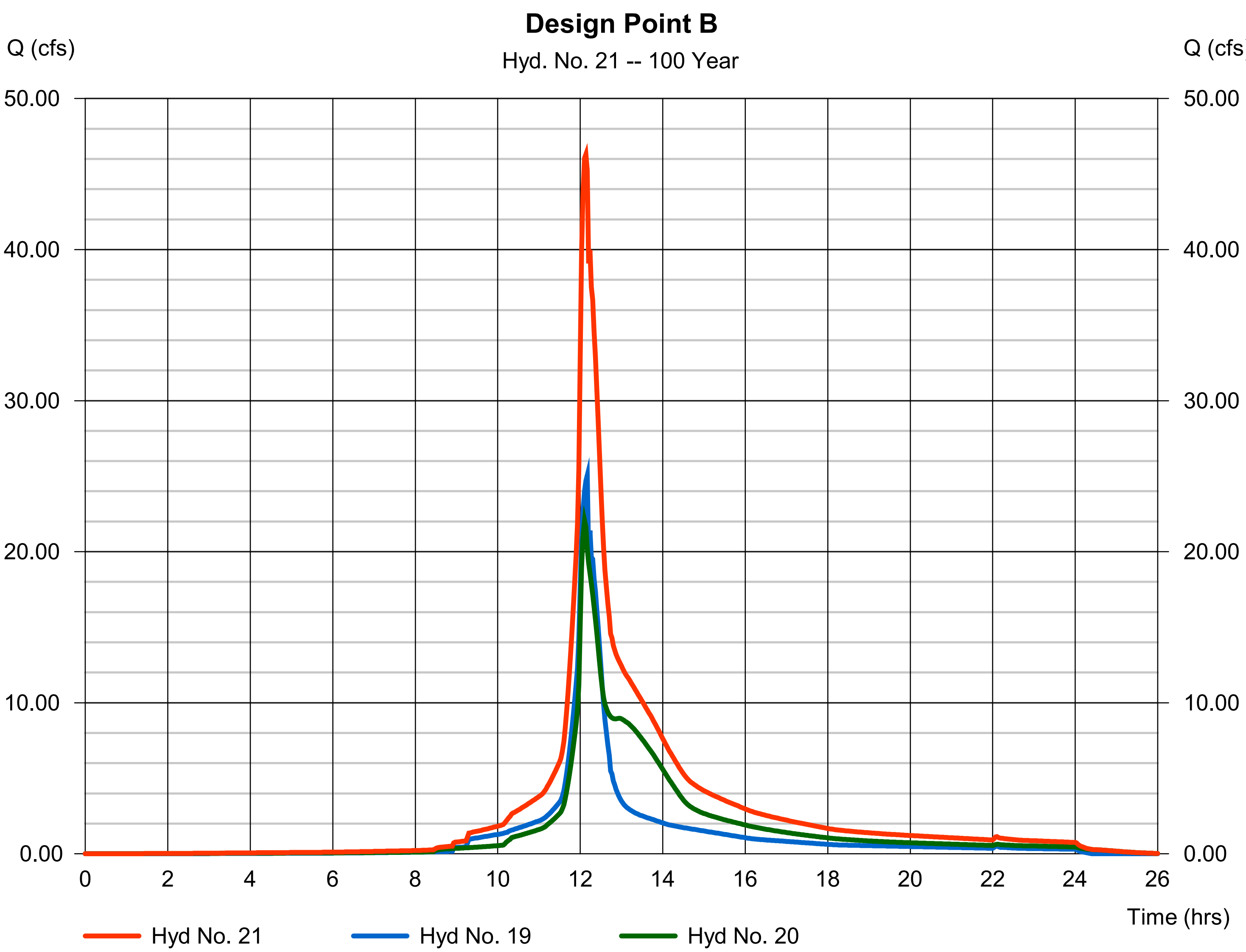
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 21

Design Point B

Hydrograph type	= Combine	Peak discharge	= 46.31 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 258,337 cuft
Inflow hyds.	= 19, 20	Contrib. drain. area	= 0.000 ac



Hydraflow Rainfall Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	23.2694	3.7000	0.7019	--------
3	0.0000	0.0000	0.0000	--------
5	28.1517	3.6000	0.6982	--------
10	33.4115	3.8000	0.7042	--------
25	38.5092	3.6000	0.6982	--------
50	42.7840	3.6000	0.6957	--------
100	48.0560	3.6000	0.6997	--------

File name: WILTON.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.10	3.71	2.98	2.52	2.21	1.97	1.79	1.64	1.52	1.42	1.33	1.26
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.27	4.55	3.66	3.10	2.71	2.42	2.20	2.02	1.87	1.75	1.64	1.55
10	7.22	5.26	4.23	3.58	3.13	2.80	2.54	2.33	2.16	2.02	1.90	1.79
25	8.57	6.22	5.00	4.24	3.70	3.31	3.00	2.76	2.56	2.39	2.24	2.12
50	9.57	6.96	5.60	4.74	4.15	3.71	3.37	3.09	2.87	2.68	2.52	2.38
100	10.66	7.74	6.22	5.26	4.60	4.11	3.73	3.43	3.17	2.96	2.79	2.63

Tc = time in minutes. Values may exceed 60.

Precip. file name: J:\T\T5000 Toll Brothers\012 Woodbridge Village\Calculations\Stormwater\WOODBRIDGE.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.95	3.52	0.00	4.65	5.38	6.54	7.41	8.34
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hydraflow Table of Contents

APPENDIX D

LEGEND

WATERSHED BOUNDARY

TIME OF CONCENTRATION

PAVEMENT/ROOF

LANDSCAPED AND LAWNS

WOODED

64 DANBURY ROAD
WILTON, CT

PROPOSED WATERSHED FIGURE

DATE: 03/29/2024
SCALE: 1"=150'
FIGURE PR-WS

Tighe&Bond

Tighe & Bond:J:\F\F0173 Fuller\001 64 Danbury Rd\Calculations\Stormwater\Figures\F0173-001-PR-WS-FIGURE.dwg

Tighe&Bond Consulting Engineers Environmental Specialists	
	Project Name: **64 Danbury Road**
	Project Number: **F0173-001**
	Project Location: **Wilton, CT**
	Description: **Proposed CN & Tc Calculations**
	Prepared By: **AVC/ZNH** Date: **March 28, 2024**

Designation: **PR WS-01**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.468	98	45.8728
Landscaped and Lawns (HSG-B)	1.502	69	103.6077
Landscaped and Lawns (HSG-D)	0.173	84	14.5207
Wooded (HSG-B)	1.263	55	69.1919
Wooded (HSG-D)	0.000	77	0.0000
	3.405		233.193

Weighted CN: 68

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	150	0.11	9.83
Segment B - C	0.015	46	0.11	0.42
Segment C - D	0.24	4	0.11	0.54
Segment D - E	0.4	124	0.14	11.53
Segment E - F	0.24	92	0.1	6.91
Segment F - G	0.4	27	0.07	4.49
Segment G - H	0.24	51	0.08	4.71
Segment H - I	0.015	11	0.09	0.14
Segment I - J	0.24	43	0.02	7.15

Total Tc = 45.7 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Proposed CN & Tc Calculations** Prepared By: **AVC/ZNH** Date: **March 28, 2024**

Designation: **PR WS-02A**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	1.228	98	120.3440
Landscaped and Lawns (HSG-B)	0.056	69	3.8640
Landscaped and Lawns (HSG-D)	0.077	84	6.4680
	1.361		130.676

Weighted CN: 96

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	5	0.020	1.3
Segment B - C	0.015	143	0.040	1.5

Total Tc = 2.8 Min.
Minimum Tc = 5.0 (MIN)

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02B(I)**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.281	98	27.5462
Landscaped and Lawns (HSG-B)	0.022	69	1.5302
Landscaped and Lawns (HSG-D)	0.166	84	13.9653
Wooded (HSG-B)	0.064	55	3.5341
Wooded (HSG-D)	0.023	77	1.7535
	0.557		48.329

Weighted CN: 87

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	52	0.11	6.34
Segment B - C	0.24	3	0.11	0.43
Segment C - D	0.015	43	0.04	0.59

Total Tc = 7.4 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02B(II)**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.031	98	3.0777
Landscaped and Lawns (HSG-D)	0.101	84	8.4887
	0.132		11.566

Weighted CN: 87

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	15	0.1	1.62

Shallow Concentrated Flow					
Segment		**Slope (ft/ft)**	**V (ft/s)**	**Length (ft)**	**Time (min.)**
Segment B - C	unpaved	0.045	3.42	125	0.6
Segment C - D	unpaved	0.150	6.25	125	0.3

Total Tc = 2.6 Min.
USE 5.0 Min. (MIN)

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02C**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.391	98	38.3293
Landscaped and Lawns (HSG-D)	0.185	84	15.5697
	0.576		53.899

Weighted CN: 93

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	108	0.08	8.58
Segment B - C	0.015	82	0.067	0.80

Total Tc = 9.4 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02D**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	1.683	98	164.9397
Landscaped and Lawns (HSG-D)	0.313	84	26.3281
Wooded (HSG-B)	0.448	55	24.6212
Wooded (HSG-D)	0.018	77	1.3823
	2.462		217.271

Weighted CN: 88

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	212	0.18	16.02
Segment B - C	0.24	77	0.12	5.57
Segment C - D	0.015	43	0.045	0.56

Total Tc = 22.1 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02E**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.177	98	17.3030
Landscaped and Lawns (HSG-B)	0.011	69	0.7793
Landscaped and Lawns (HSG-D)	0.015	84	1.2322
	0.203		19.315

Weighted CN: 95

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	22	0.02	4.18
Segment B - C	0.015	44	0.02	0.79

Total Tc = 5.0 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Proposed CN & Tc Calculations** Prepared By: **AVC/ZNH** Date: **March 28, 2024**

Designation: **PR WS-02F**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.826	98	80.9512
Landscaped and Lawns (HSG-D)	0.197	84	16.5686
	1.023		97.520

Weighted CN: 95

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	31	0.025	5.04

Total Tc = 5.0 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02G(I)**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.415	98	40.6700
Landscaped and Lawns (HSG-D)	0.079	84	6.6360
	0.494		47.306

Weighted CN: 96

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	20	0.05	2.69
Segment B - C	0.015	32	0.04	0.47

Total Tc = 3.2 Min.
USE 5.0 Min. (MIN)

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02G(II)**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.357	98	34.9860
Landscaped and Lawns (HSG-D)	0.077	84	6.4680
	0.434		41.454

Weighted CN: 96

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	8	0.02	1.86
Segment B - C	0.015	50	0.02	0.88

Total Tc = 2.7 Min.
USE 5.0 Min. (MIN)

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02H**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.037	98	3.6260
Landscaped and Lawns (HSG-D)	0.230	84	19.3358
	0.267		22.962

Weighted CN: 86

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	45	0.04	5.62
Segment B - C	0.015	6	0.02	0.16
Segment C - D	0.25	53	0.025	7.99

Total Tc = 13.8 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-02I**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.613	98	60.0329
Landscaped and Lawns (HSG-D)	0.684	84	57.4270
	1.296		117.460

Weighted CN: 91

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	82	0.06	7.73
Segment B - C	0.015	6	0.02	0.16
Segment C - D	0.25	97	0.04	10.74

Total Tc = 18.6 Min.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **PR WS-03**
Location:

Cover Type	Area, ac	CN	A x CN
Pavement/Roof	0.358	98	35.0424
Landscaped and Lawns (HSG-B)	1.314	69	90.6660
Wooded (HSG-B)	3.165	55	174.0750
	4.837		299.783

Weighted CN: 62

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

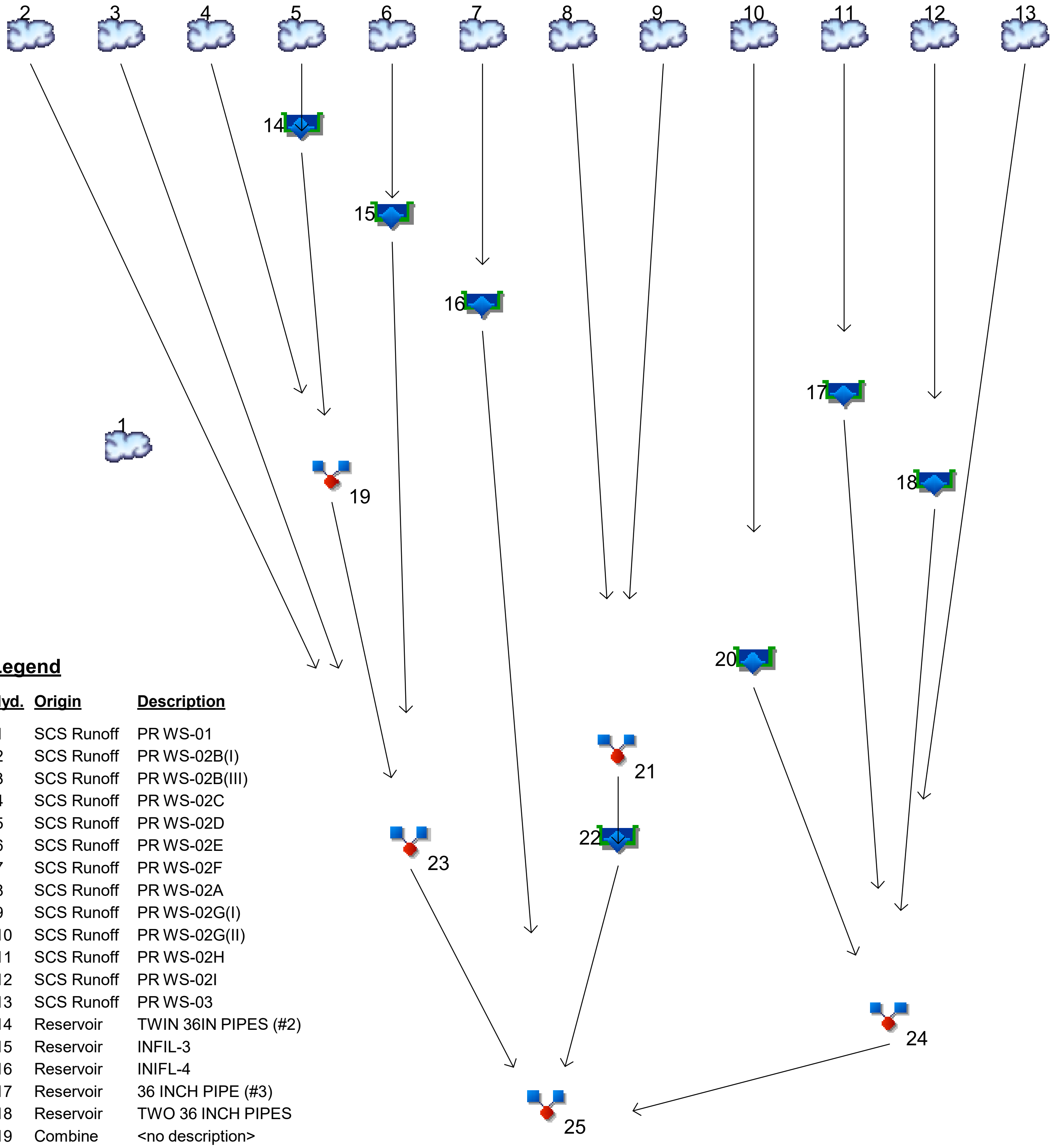
Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	182	0.09	18.71
Segment B - C	0.24	63	0.03	8.26
Segment C - D	0.015	11	0.015	0.29
Segment D - E	0.24	27	0.015	5.53
Segment E - F	0.015	28	0.015	0.62
Segment F - G	0.24	62	0.1	5.04
Segment G - H	0.4	198	0.15	16.31

Total Tc = 54.8 Min.
0.91 Hrs.
Total Lag = 0.68 Hrs.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021



Legend

Hyd.	Origin	Description
1	SCS Runoff	PR WS-01
2	SCS Runoff	PR WS-02B(I)
3	SCS Runoff	PR WS-02B(III)
4	SCS Runoff	PR WS-02C
5	SCS Runoff	PR WS-02D
6	SCS Runoff	PR WS-02E
7	SCS Runoff	PR WS-02F
8	SCS Runoff	PR WS-02A
9	SCS Runoff	PR WS-02G(I)
10	SCS Runoff	PR WS-02G(II)
11	SCS Runoff	PR WS-02H
12	SCS Runoff	PR WS-02I
13	SCS Runoff	PR WS-03
14	Reservoir	TWIN 36IN PIPES (#2)
15	Reservoir	INFIL-3
16	Reservoir	INIFL-4
17	Reservoir	36 INCH PIPE (#3)
18	Reservoir	TWO 36 INCH PIPES
19	Combine	<no description>
20	Reservoir	INFIL-2
21	Combine	<no description>
22	Reservoir	INFIL-1
23	Combine	<no description>
24	Combine	<no description>
25	Combine	<no description>

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	------	-------	1.538	-------	-------	3.964	5.692	7.047	8.534	PR WS-01
2	SCS Runoff	------	-------	1.299	-------	-------	2.276	2.885	3.339	3.823	PR WS-02B(I)
3	SCS Runoff	------	-------	0.329	-------	-------	0.575	0.728	0.842	0.964	PR WS-02B(III)
4	SCS Runoff	------	-------	1.625	-------	-------	2.622	3.236	3.695	4.184	PR WS-02C
5	SCS Runoff	------	-------	4.374	-------	-------	7.568	9.563	11.05	12.64	PR WS-02D
6	SCS Runoff	------	-------	0.639	-------	-------	1.006	1.234	1.404	1.585	PR WS-02E
7	SCS Runoff	------	-------	3.218	-------	-------	5.072	6.217	7.074	7.986	PR WS-02F
8	SCS Runoff	------	-------	4.365	-------	-------	6.814	8.330	9.464	10.67	PR WS-02A
9	SCS Runoff	------	-------	1.584	-------	-------	2.473	3.024	3.435	3.874	PR WS-02G(I)
10	SCS Runoff	------	-------	1.392	-------	-------	2.173	2.656	3.018	3.404	PR WS-02G(II)
11	SCS Runoff	------	-------	0.491	-------	-------	0.876	1.116	1.296	1.488	PR WS-02H
12	SCS Runoff	------	-------	2.681	-------	-------	4.450	5.543	6.358	7.225	PR WS-02I
13	SCS Runoff	------	-------	0.822	-------	-------	2.651	4.052	5.181	6.444	PR WS-03
14	Reservoir	5	-------	4.352	-------	-------	7.442	9.452	10.93	12.50	TWIN 36IN PIPES (#2)
15	Reservoir	6	-------	0.000	-------	-------	0.256	0.490	0.660	0.819	INFIL-3
16	Reservoir	7	-------	2.634	-------	-------	4.598	5.631	6.410	7.203	INIFL-4
17	Reservoir	11	-------	0.000	-------	-------	0.000	0.000	0.087	0.269	36 INCH PIPE (#3)
18	Reservoir	12	-------	2.770	-------	-------	4.369	5.460	6.274	7.140	TWO 36 INCH PIPES
19	Combine	4, 14,	-------	5.322	-------	-------	8.811	11.17	12.90	14.74	<no description>
20	Reservoir	10	-------	0.849	-------	-------	1.539	1.854	2.083	2.326	INFIL-2
21	Combine	8, 9,	-------	5.950	-------	-------	9.287	11.35	12.90	14.55	<no description>
22	Reservoir	21	-------	0.573	-------	-------	3.162	6.146	7.770	9.071	INFIL-1
23	Combine	2, 3, 15, 19,	-------	6.557	-------	-------	10.90	14.07	16.46	18.90	<no description>
24	Combine	13, 17, 18, 20,	-------	3.679	-------	-------	6.316	8.206	9.661	11.25	<no description>
25	Combine	16, 22, 23, 24	-------	12.75	-------	-------	23.71	32.78	38.93	45.00	<no description>

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	1.538	2	756	11,183	------	------	------	PR WS-01
2	SCS Runoff	1.299	2	726	4,449	------	------	------	PR WS-02B(I)
3	SCS Runoff	0.329	2	724	988	------	------	------	PR WS-02B(III)
4	SCS Runoff	1.625	2	726	5,759	------	------	------	PR WS-02C
5	SCS Runoff	4.374	2	736	20,803	------	------	------	PR WS-02D
6	SCS Runoff	0.639	2	724	2,044	------	------	------	PR WS-02E
7	SCS Runoff	3.218	2	724	10,300	------	------	------	PR WS-02F
8	SCS Runoff	4.365	2	724	14,196	------	------	------	PR WS-02A
9	SCS Runoff	1.584	2	724	5,153	------	------	------	PR WS-02G(I)
10	SCS Runoff	1.392	2	724	4,527	------	------	------	PR WS-02G(II)
11	SCS Runoff	0.491	2	730	2,000	------	------	------	PR WS-02H
12	SCS Runoff	2.681	2	732	12,044	------	------	------	PR WS-02I
13	SCS Runoff	0.822	2	798	10,924	------	------	------	PR WS-03
14	Reservoir	4.352	2	736	16,179	5	139.00	3,136	TWIN 36IN PIPES (#2)
15	Reservoir	0.000	2	634	0	6	135.52	717	INFIL-3
16	Reservoir	2.634	2	726	3,558	7	136.82	2,494	INIFL-4
17	Reservoir	0.000	2	724	0	11	131.44	1,262	36 INCH PIPE (#3)
18	Reservoir	2.770	2	728	6,100	12	135.68	2,407	TWO 36 INCH PIPES
19	Combine	5.322	2	732	21,938	4, 14,	------	------	<no description>
20	Reservoir	0.849	2	728	1,186	10	134.09	1,080	INFIL-2
21	Combine	5.950	2	724	19,349	8, 9,	------	------	<no description>
22	Reservoir	0.573	2	750	1,391	21	134.85	6,983	INFIL-1
23	Combine	6.557	2	728	27,375	2, 3, 15, 19,	------	------	<no description>
24	Combine	3.679	2	728	18,210	13, 17, 18, 20,	------	------	<no description>
25	Combine	12.75	2	728	50,534	16, 22, 23, 24	------	------	<no description>

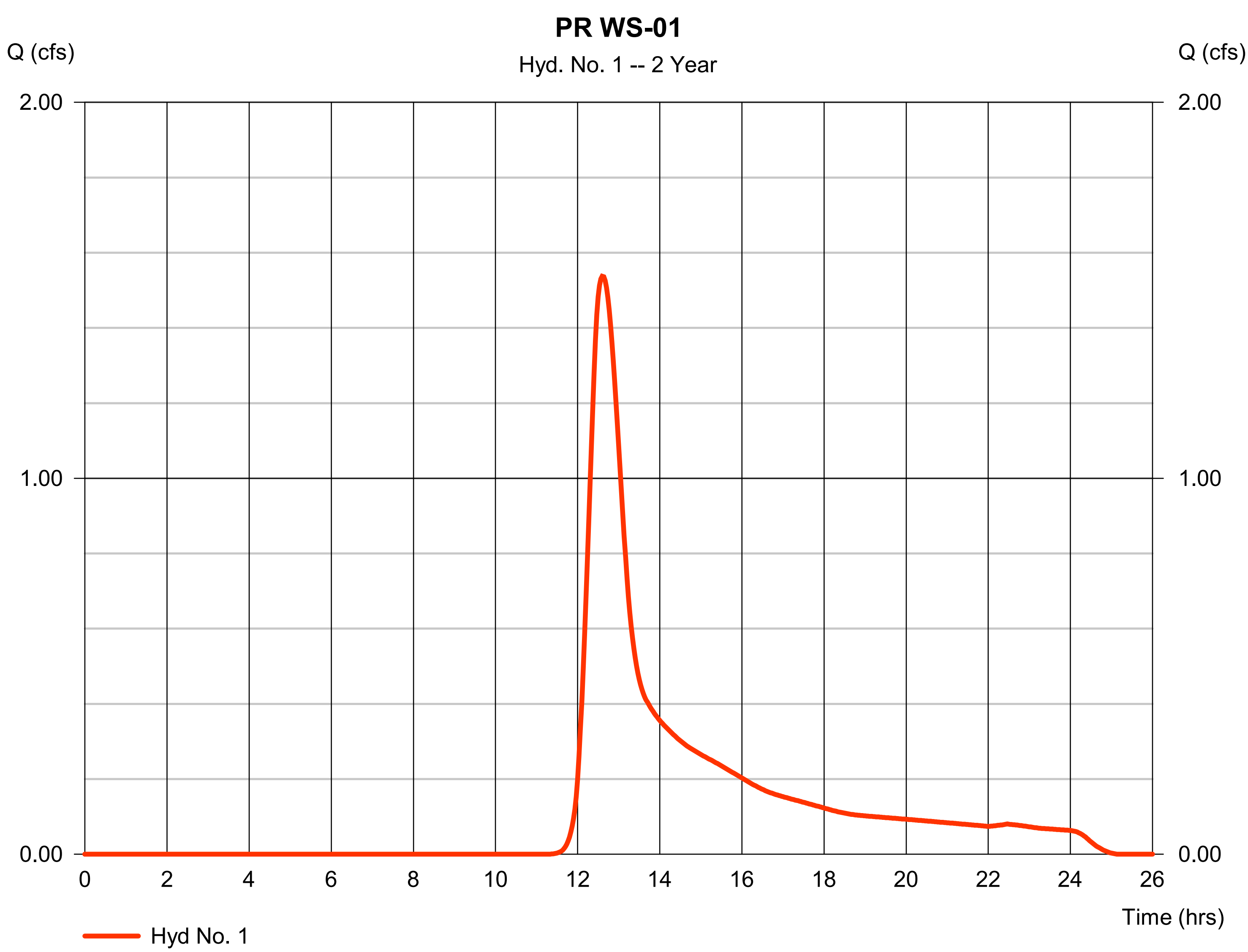
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

PR WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 1.538 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.60 hrs
Time interval	= 2 min	Hyd. volume	= 11,183 cuft
Drainage area	= 3.405 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



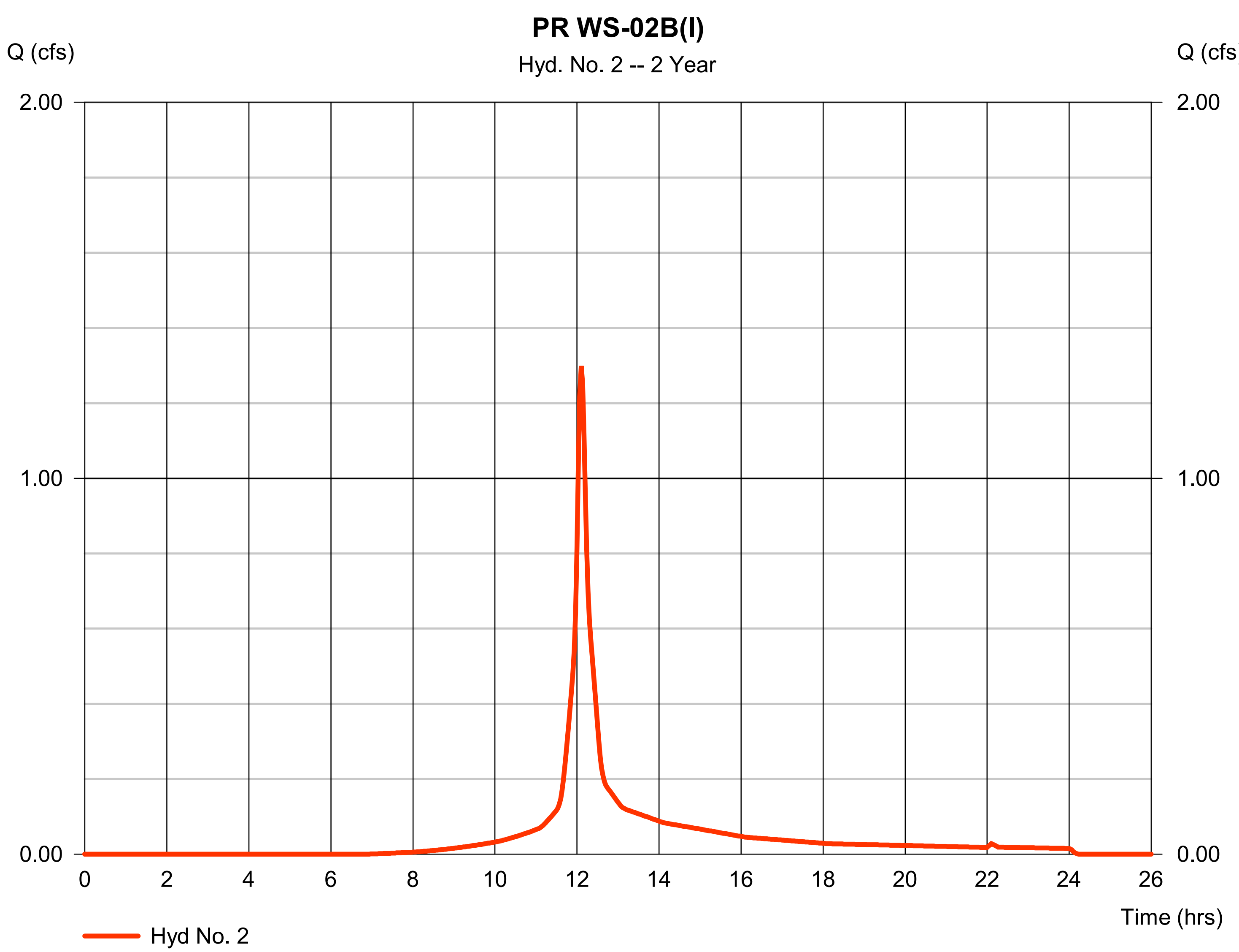
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 2

PR WS-02B(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.299 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 4,449 cuft
Drainage area	= 0.557 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 7.40 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



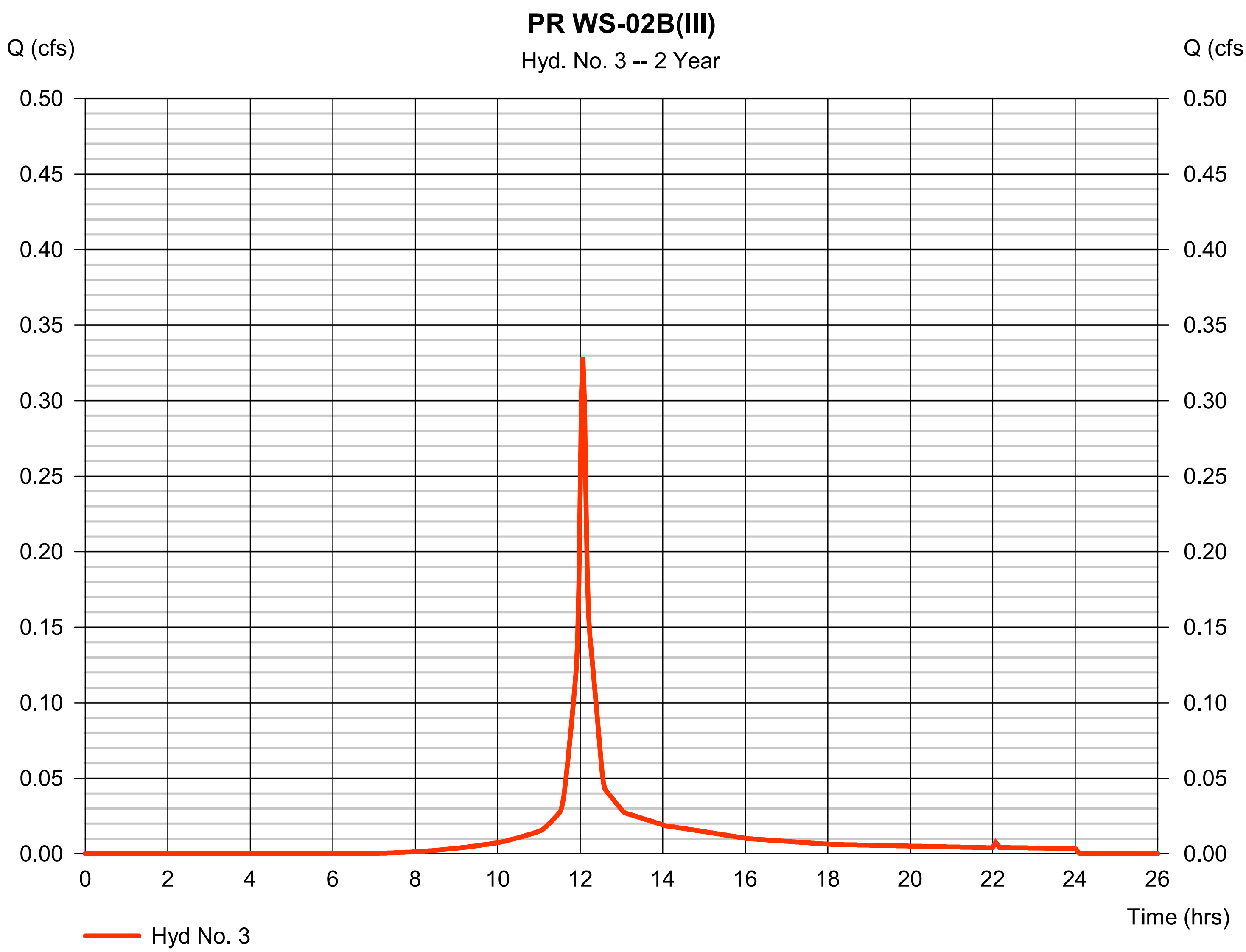
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 3

PR WS-02B(III)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.329 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 988 cuft
Drainage area	= 0.132 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

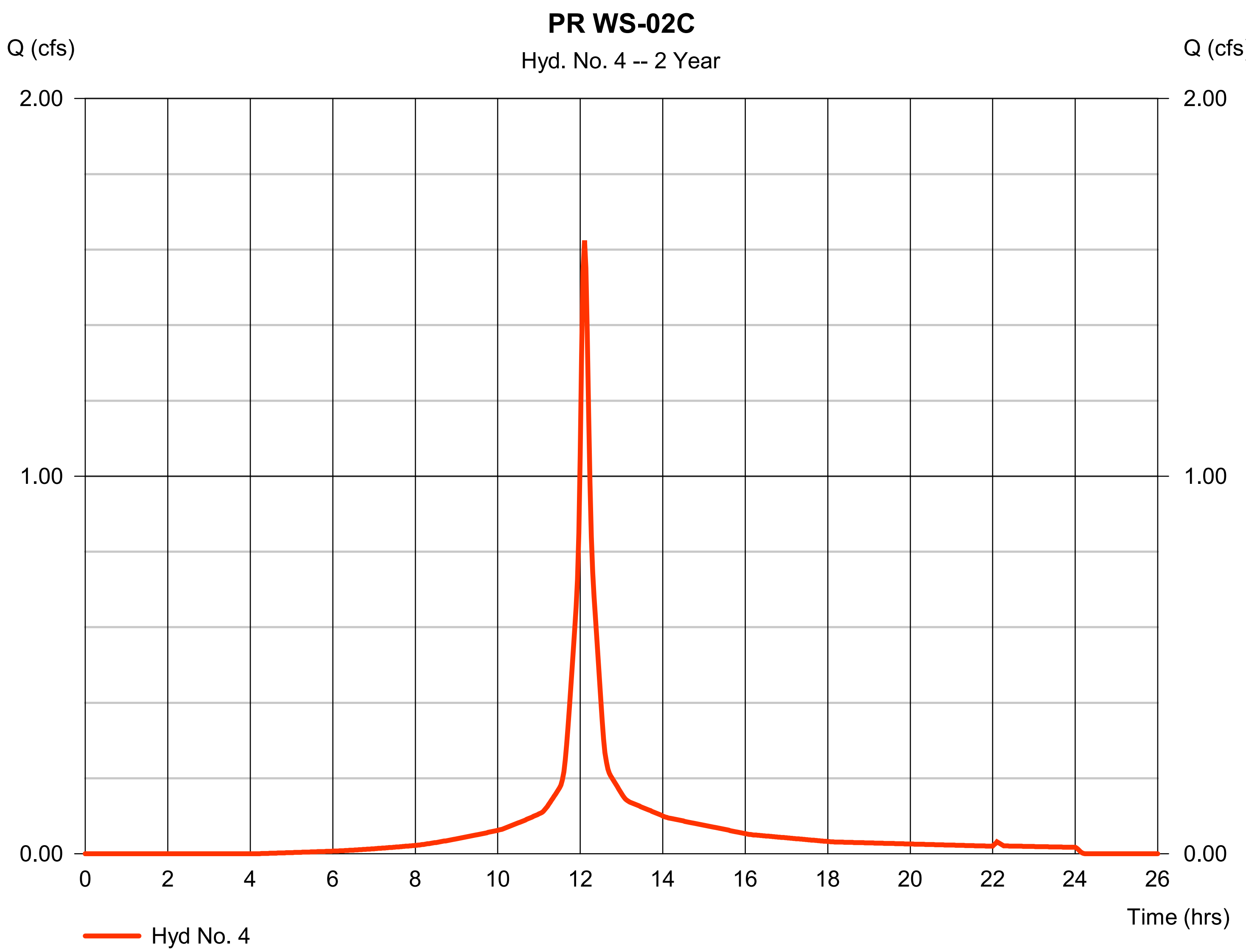


Hydrograph Report

Hyd. No. 4

PR WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 1.625 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 5,759 cuft
Drainage area	= 0.576 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



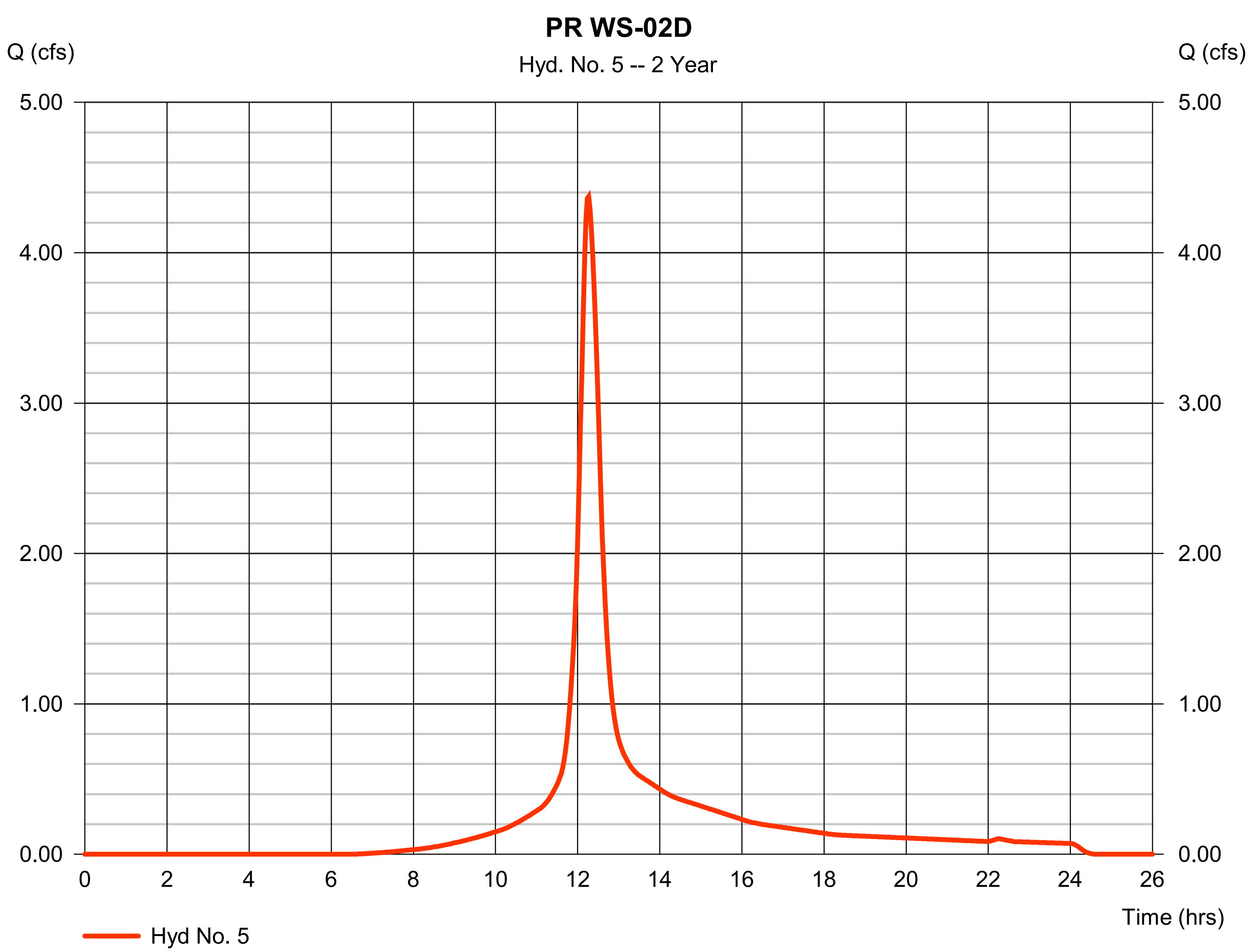
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 5

PR WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 4.374 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 20,803 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



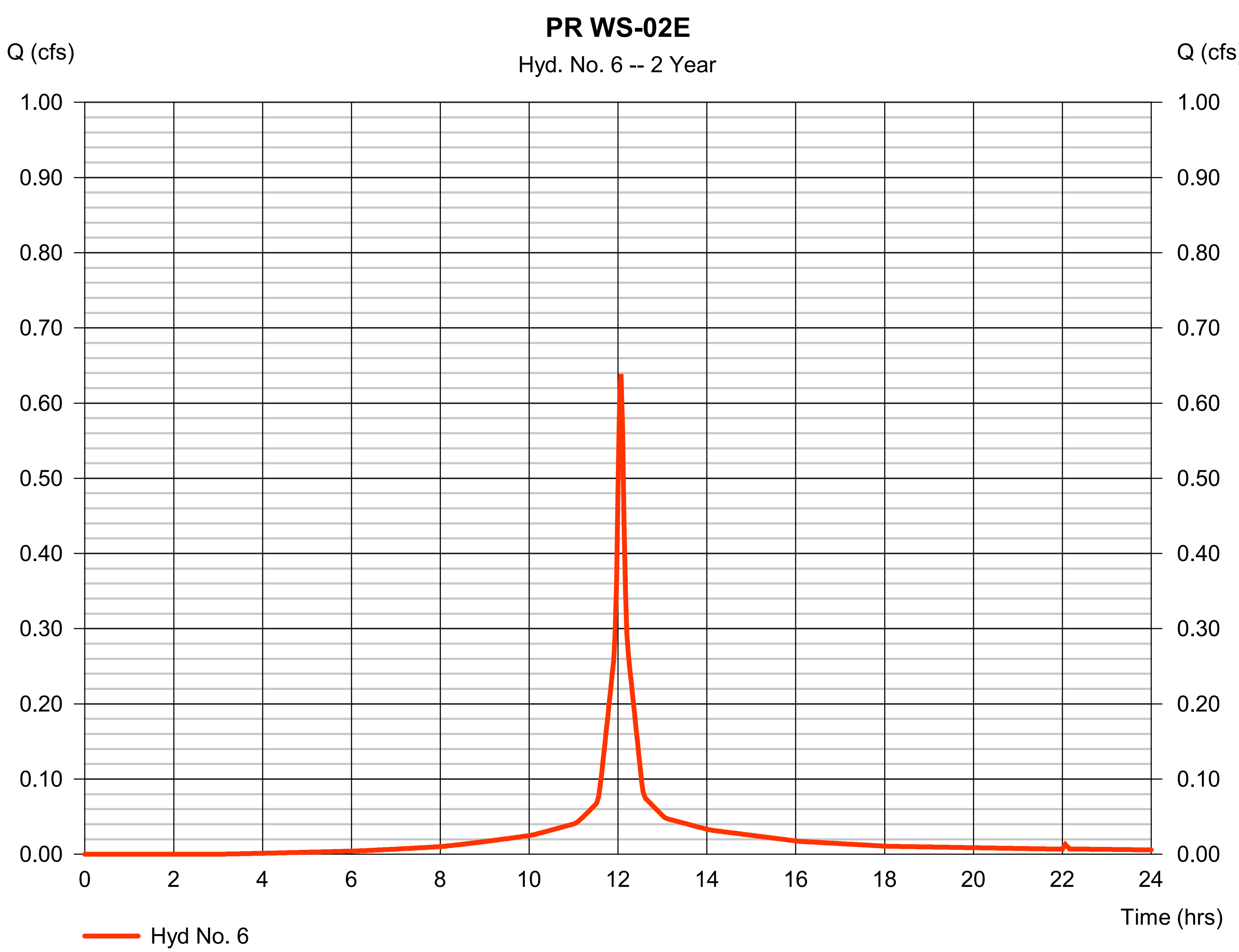
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

PR WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 0.639 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,044 cuft
Drainage area	= 0.203 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

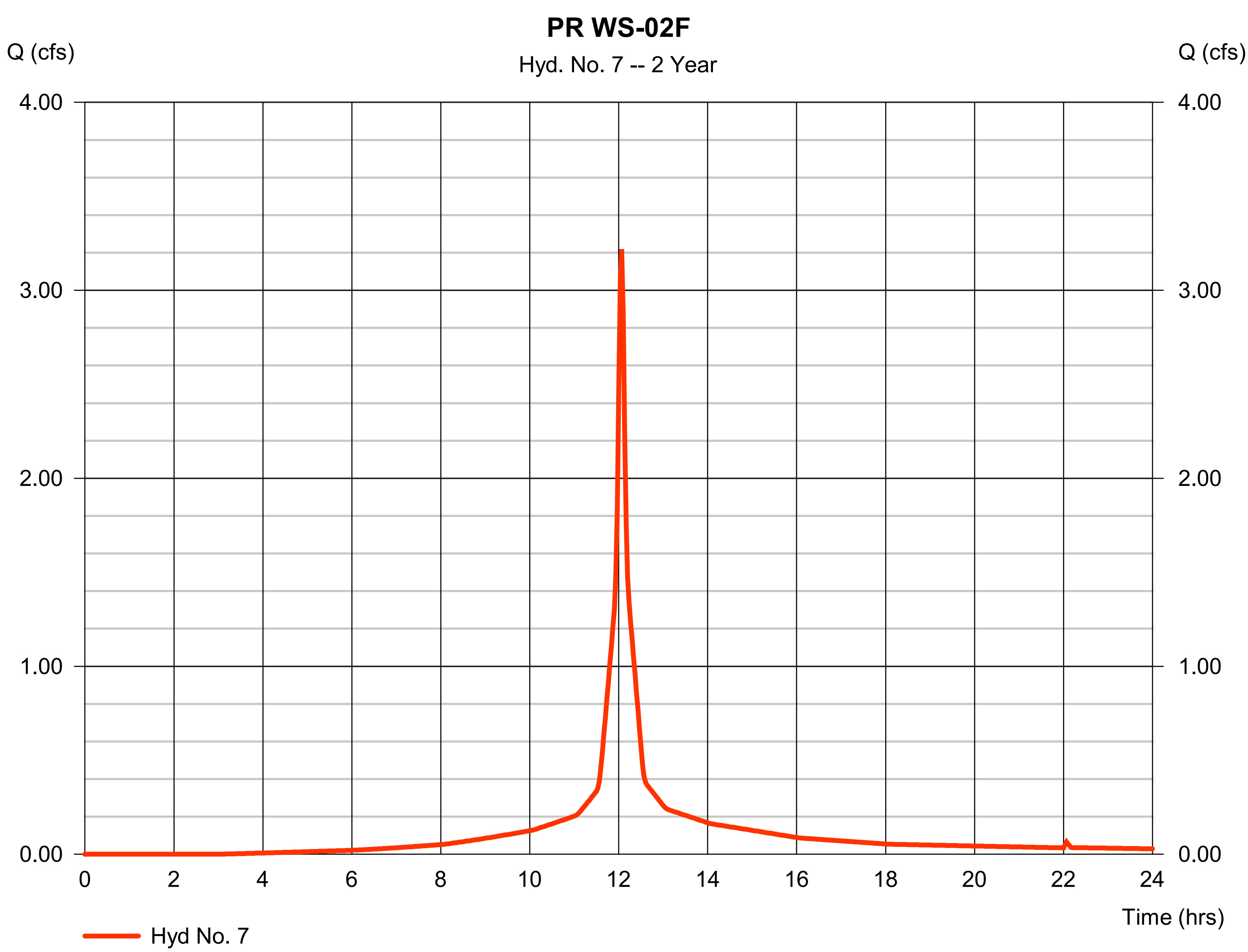


Hydrograph Report

Hyd. No. 7

PR WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 3.218 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 10,300 cuft
Drainage area	= 1.023 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



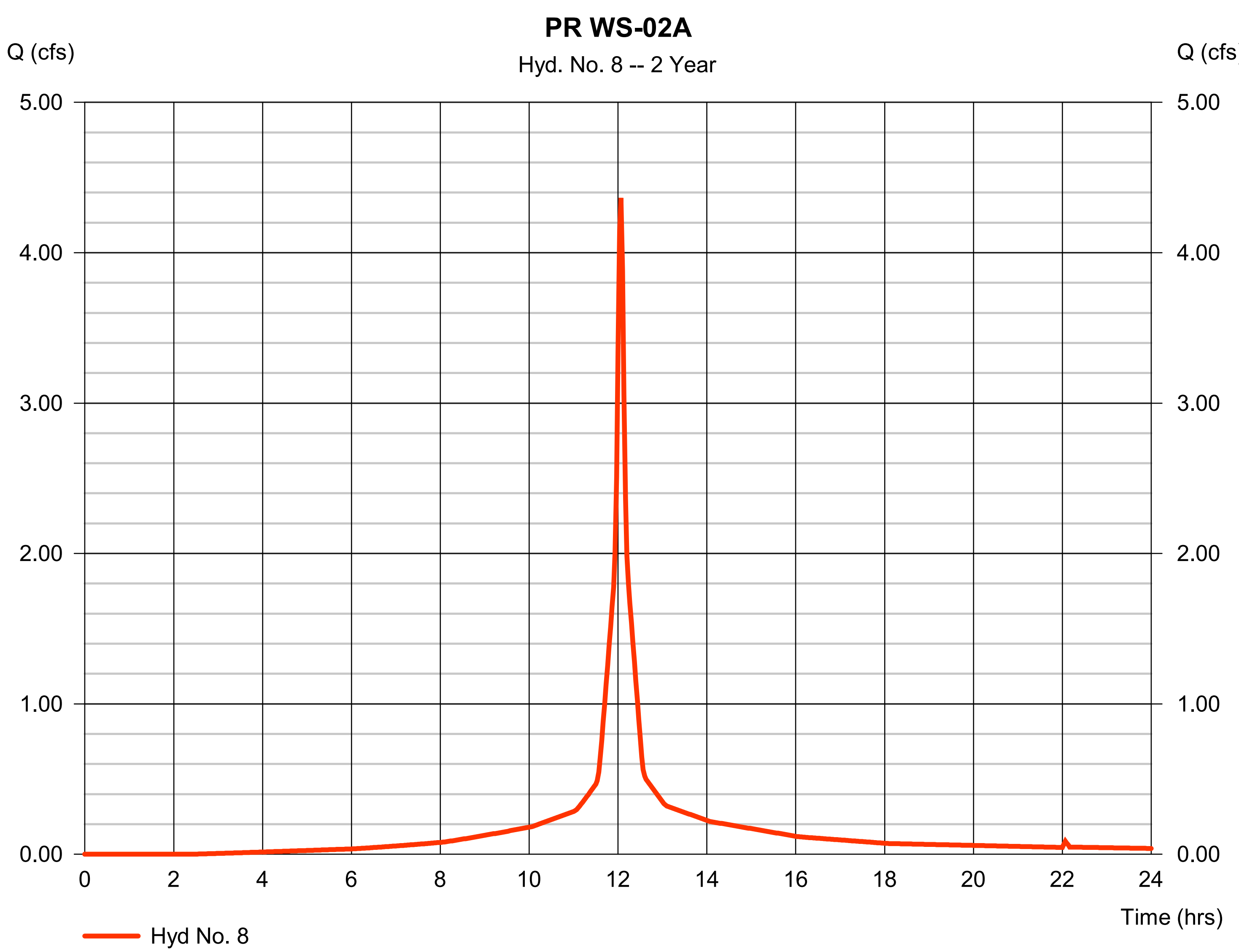
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

PR WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 4.365 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 14,196 cuft
Drainage area	= 1.361 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

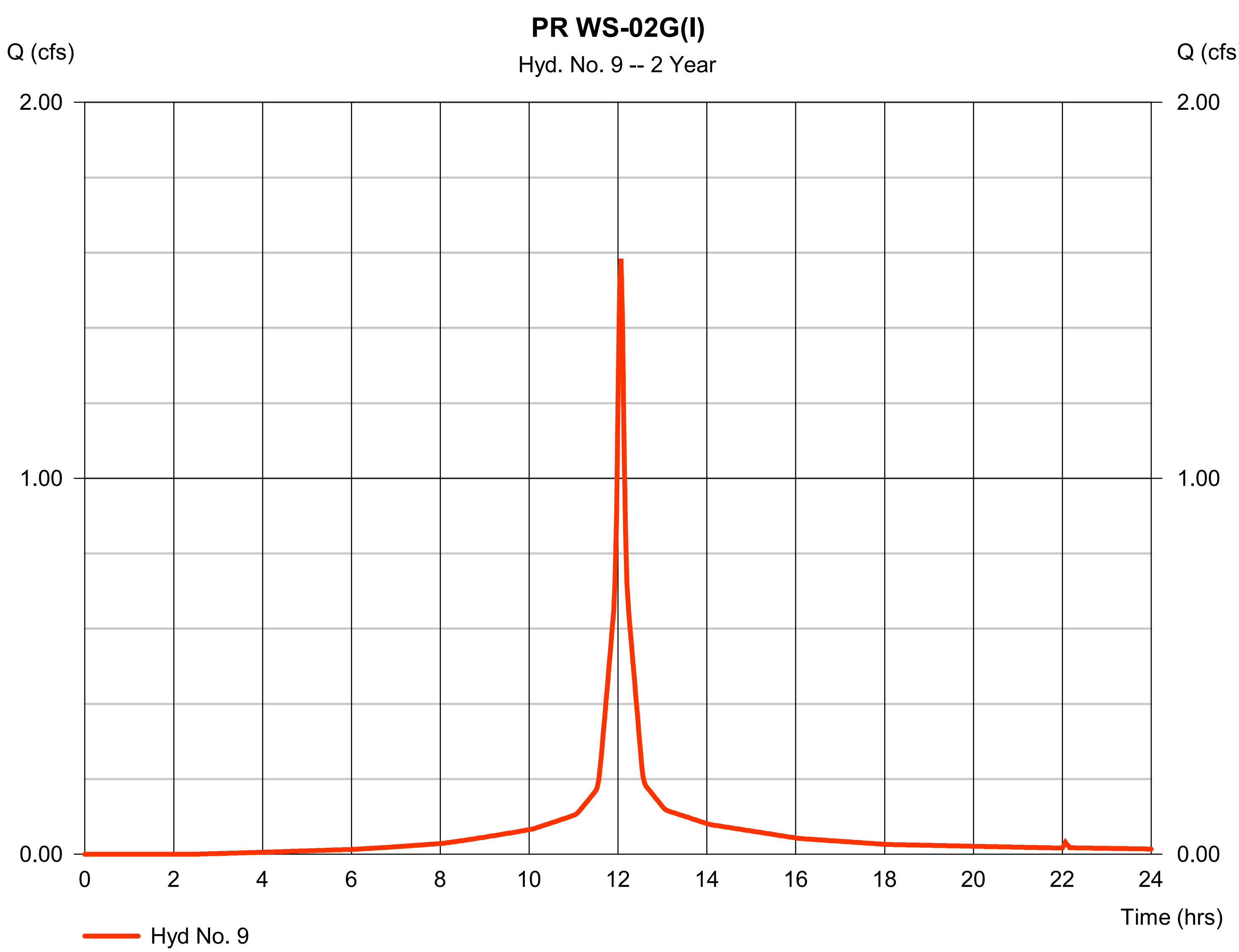


Hydrograph Report

Hyd. No. 9

PR WS-02G(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.584 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 5,153 cuft
Drainage area	= 0.494 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



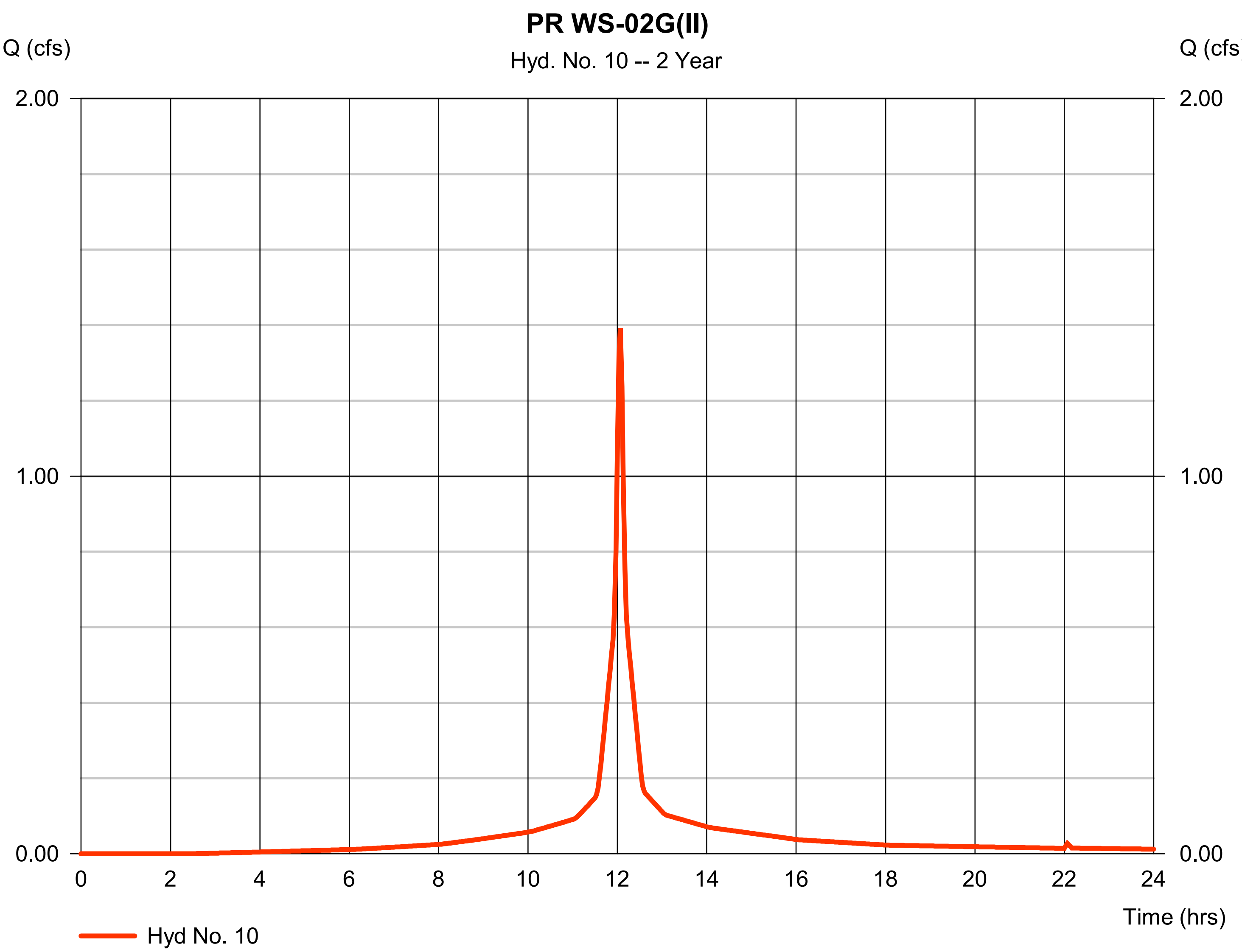
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 10

PR WS-02G(II)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.392 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 4,527 cuft
Drainage area	= 0.434 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



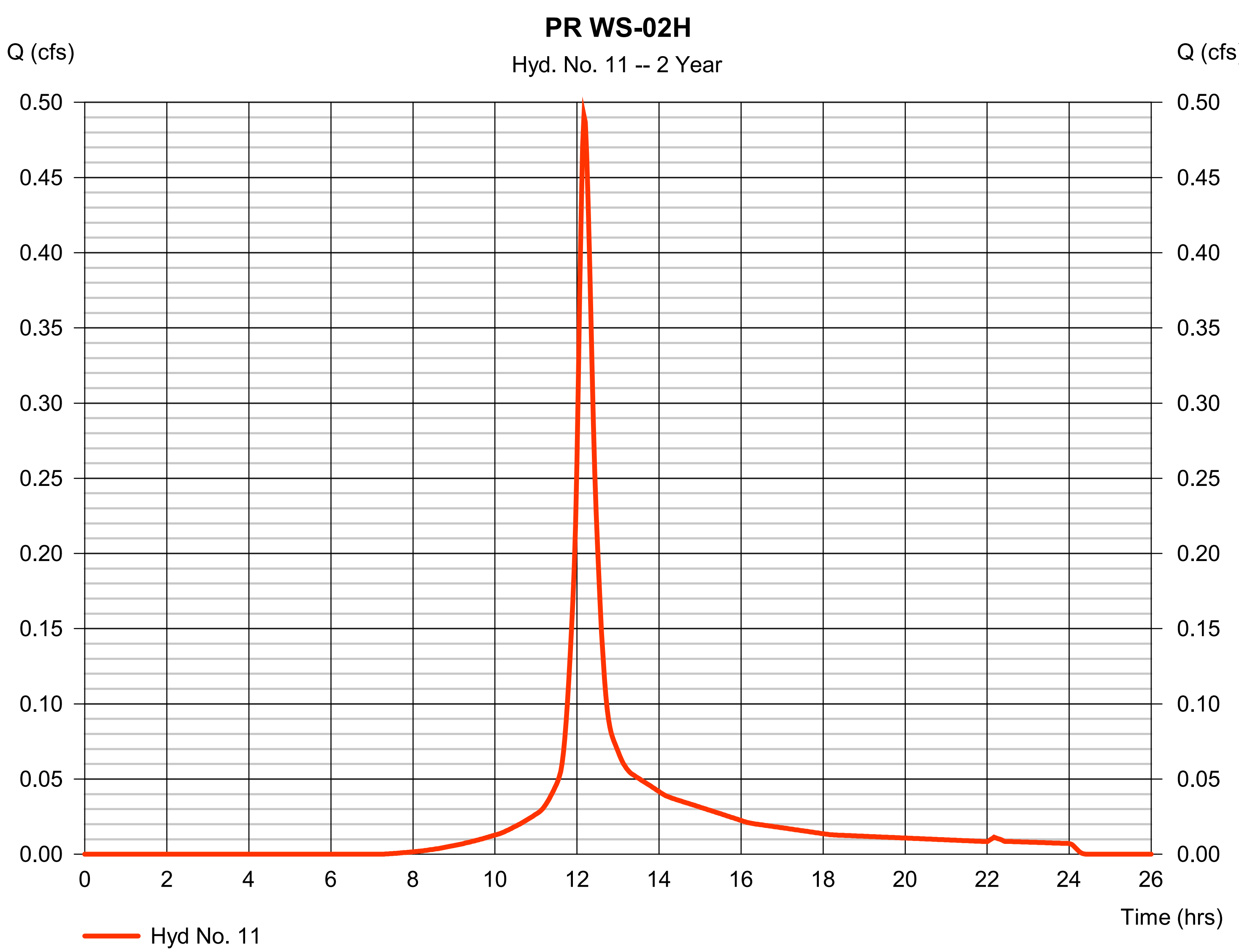
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 11

PR WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 0.491 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 2,000 cuft
Drainage area	= 0.267 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.80 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



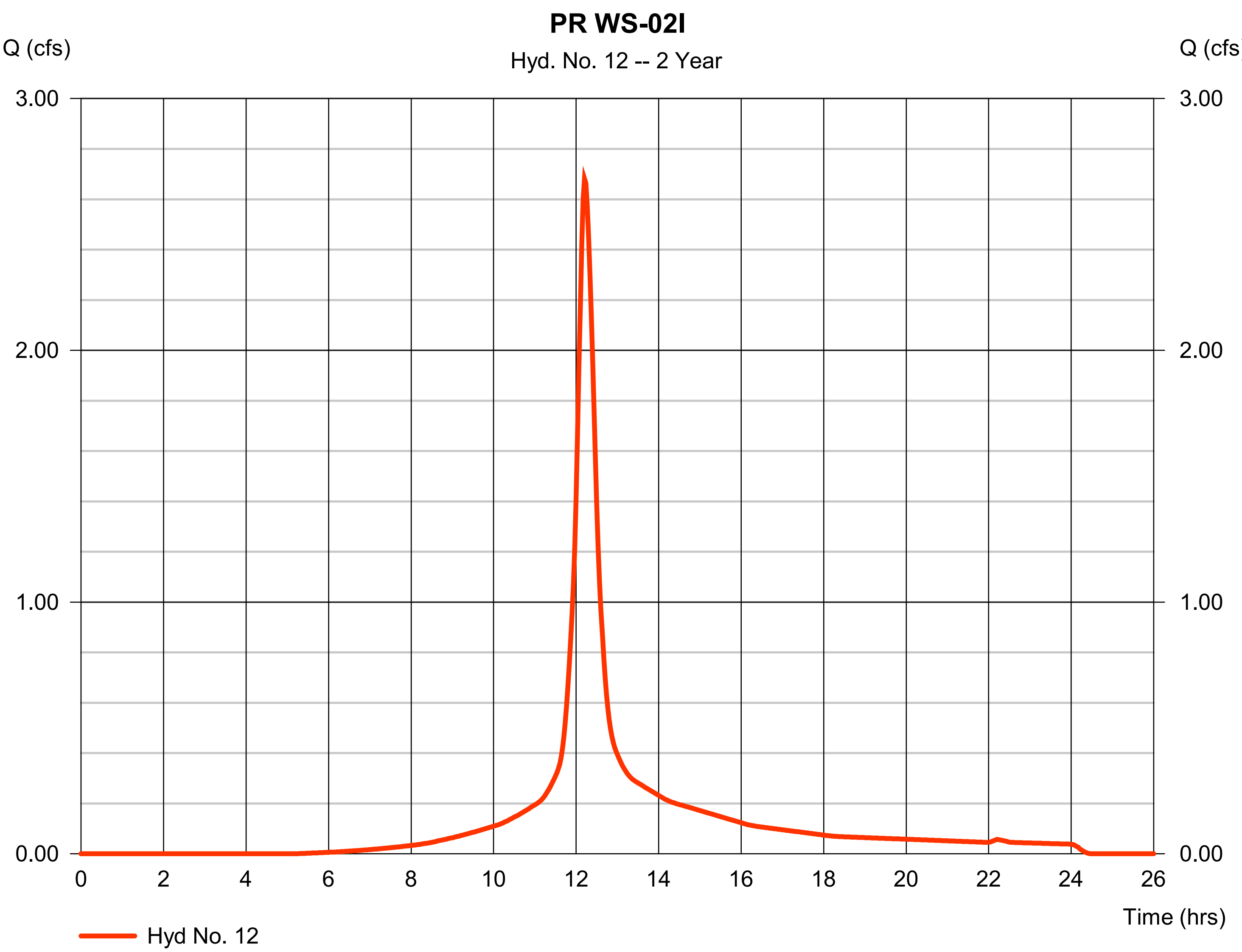
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 12

PR WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 2.681 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 12,044 cuft
Drainage area	= 1.296 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



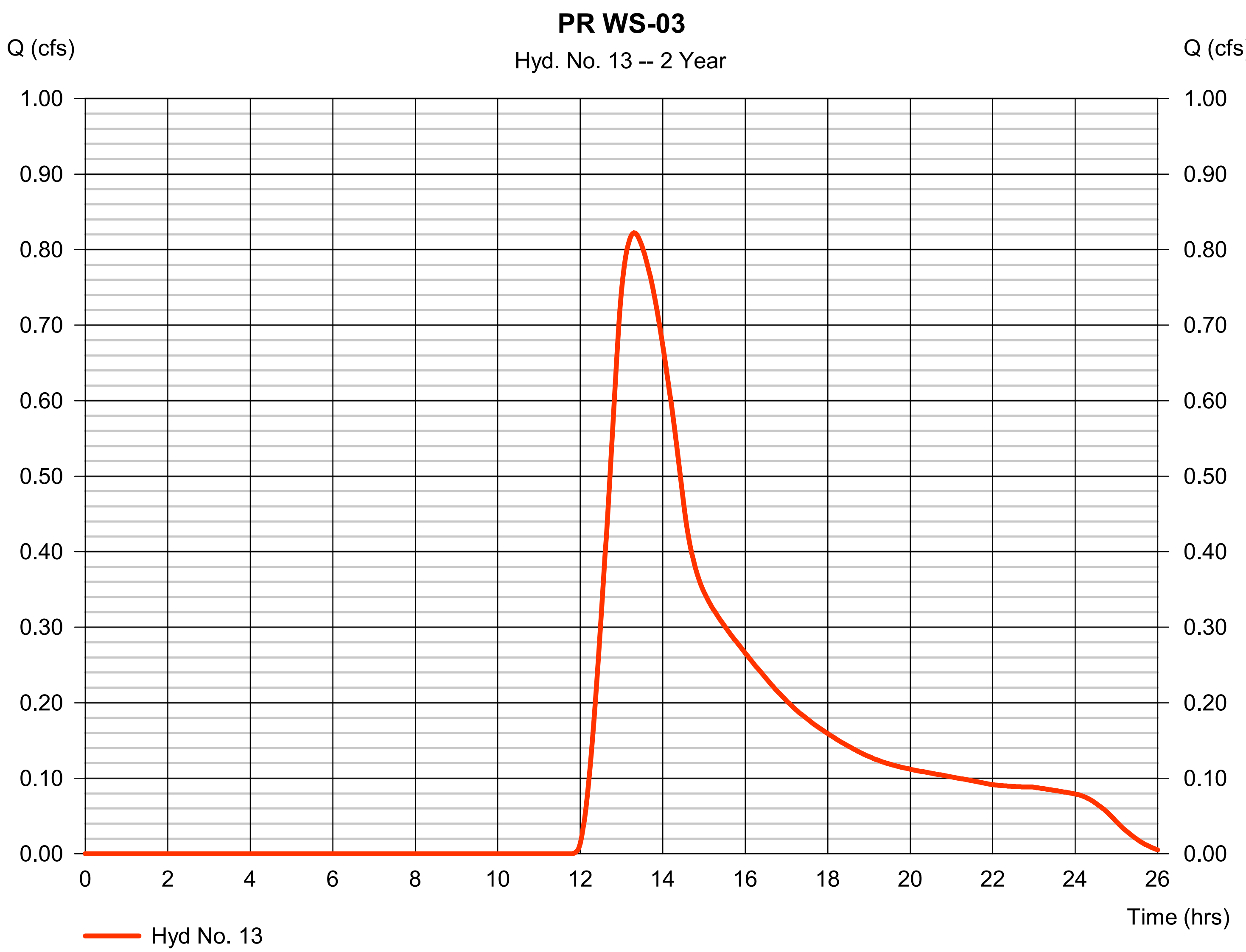
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 13

PR WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 0.822 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.30 hrs
Time interval	= 2 min	Hyd. volume	= 10,924 cuft
Drainage area	= 4.837 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 3.52 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

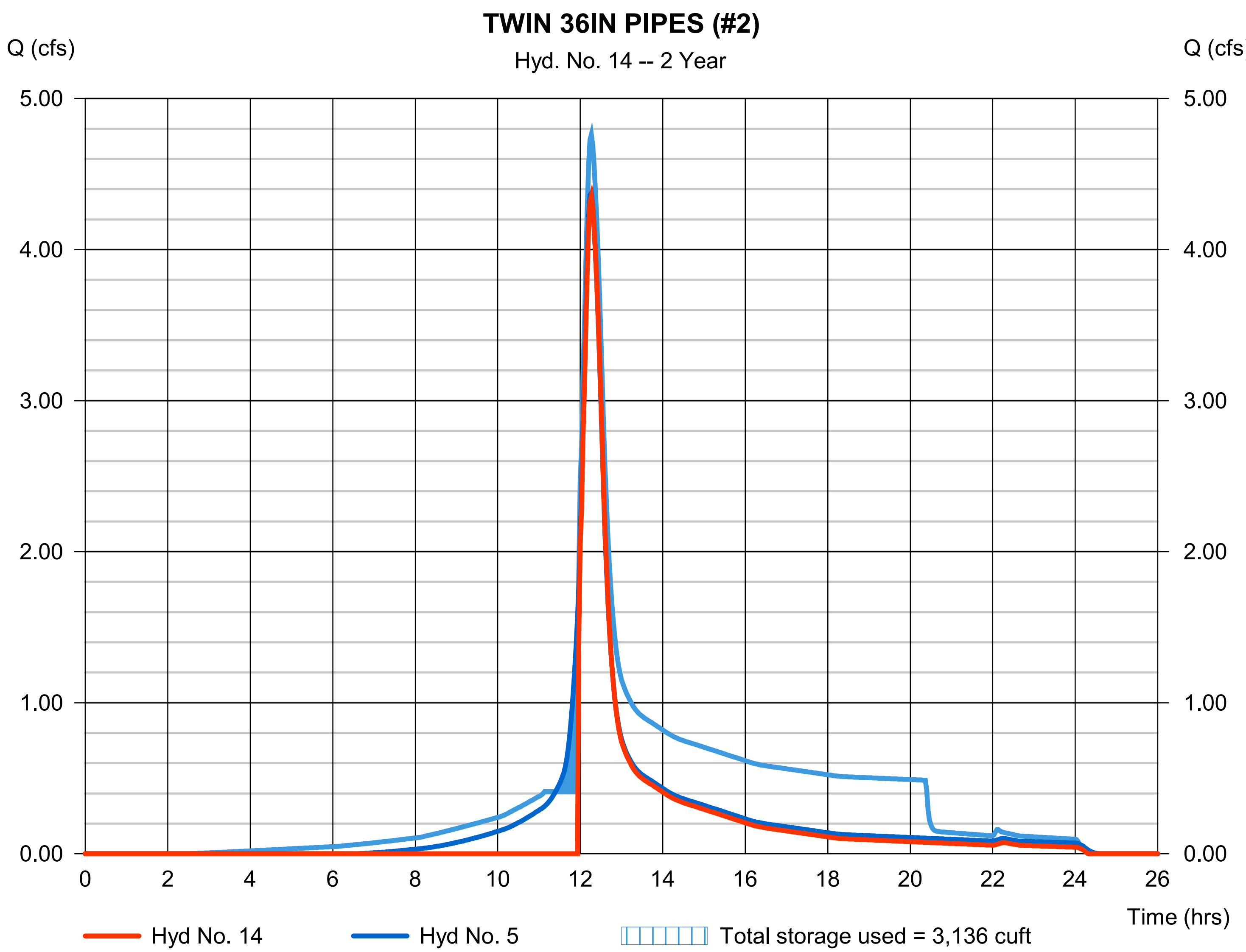
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 4.352 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 16,179 cuft
Inflow hyd. No.	= 5 - PR WS-02D	Max. Elevation	= 139.00 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,136 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 6 - Northern Twin 36IN

Pond Data

UG Chambers - Invert elev. = 131.00 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 120.00 ft, No. Barrels = 2, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 130.50 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%
Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 138.30 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	130.50	n/a	0	0
0.35	130.85	n/a	168	168
0.70	131.20	n/a	197	365
1.05	131.55	n/a	267	632
1.40	131.90	n/a	297	929
1.75	132.25	n/a	313	1,242
2.10	132.60	n/a	319	1,561
2.45	132.95	n/a	316	1,877
2.80	133.30	n/a	305	2,182
3.15	133.65	n/a	282	2,464
3.50	134.00	n/a	234	2,698
7.80	138.30	01	2	2,701
8.50	139.00	1,250	438	3,138
9.50	140.00	7,570	4,410	7,548

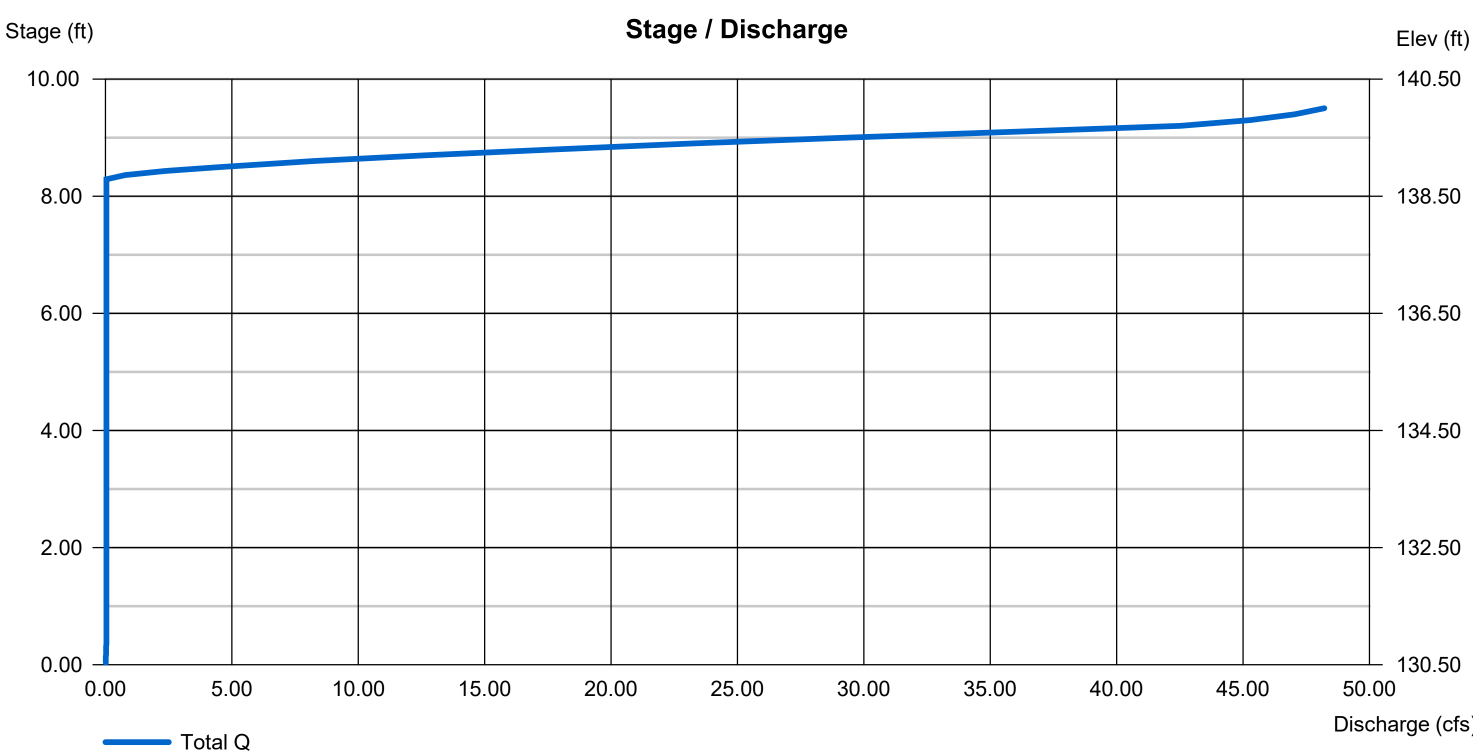
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	Inactive	Inactive	Inactive
Span (in)	= 30.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 134.20	0.00	0.00	0.00
Length (ft)	= 69.00	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)	= 15.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 138.80	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 1.000 (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

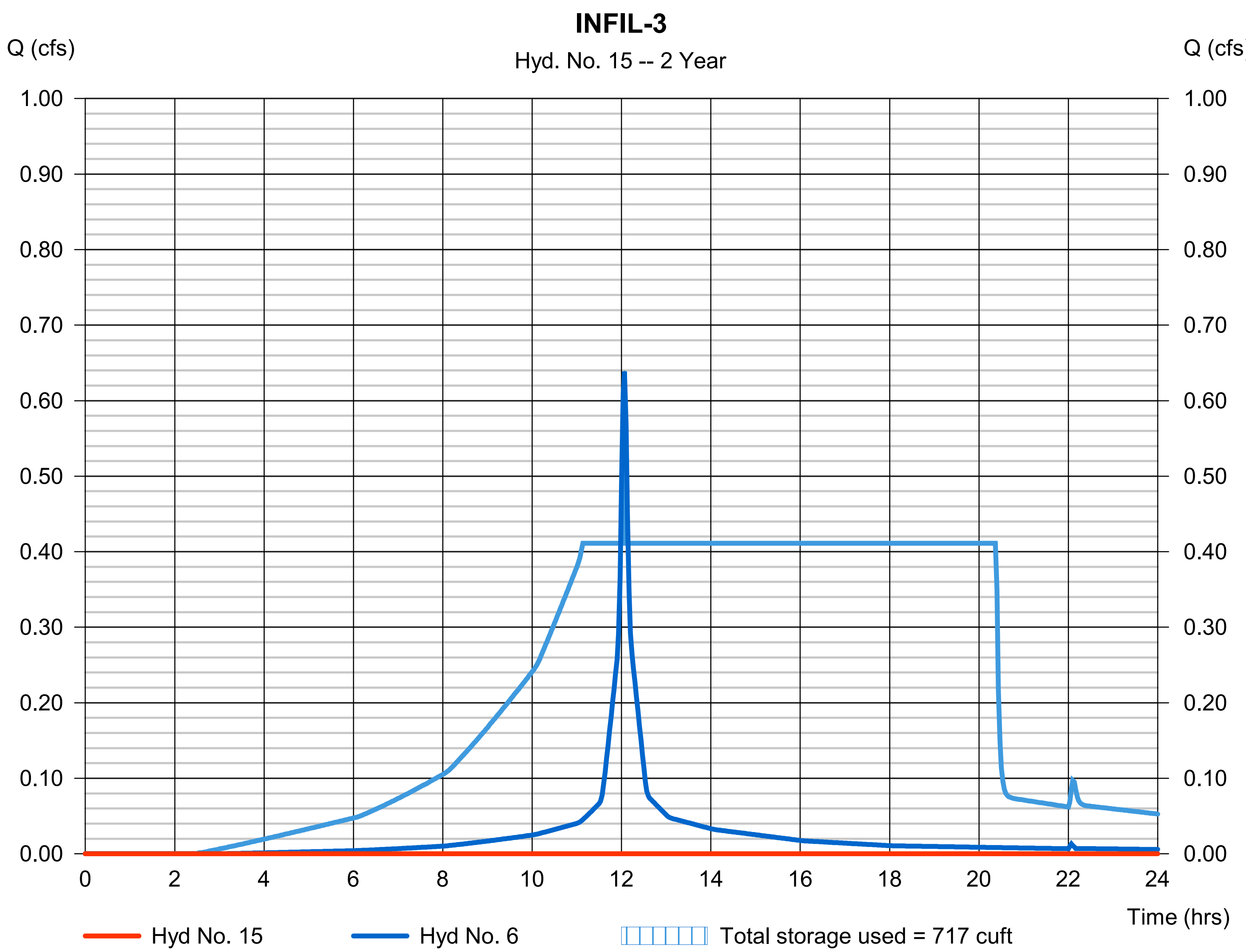
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

INFIL-3

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 10.57 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 6 - PR WS-02E	Max. Elevation	= 135.52 ft
Reservoir name	= INFIL-3	Max. Storage	= 717 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 2 - INFIL-3

Pond Data

UG Chambers -Invert elev. = 136.00 ft, Rise x Span = 1.33 x 1.65 ft, Barrel Len = 102.88 ft, No. Barrels = 3, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 135.50 ft, Width = 3.83 ft, Height = 2.33 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	135.50	n/a	0	0
0.23	135.73	n/a	110	110
0.47	135.97	n/a	110	220
0.70	136.20	n/a	171	391
0.93	136.43	n/a	179	570
1.17	136.66	n/a	175	745
1.40	136.90	n/a	168	913
1.63	137.13	n/a	156	1,069
1.86	137.36	n/a	132	1,201
2.10	137.60	n/a	110	1,311
2.33	137.83	n/a	110	1,421

Culvert / Orifice Structures

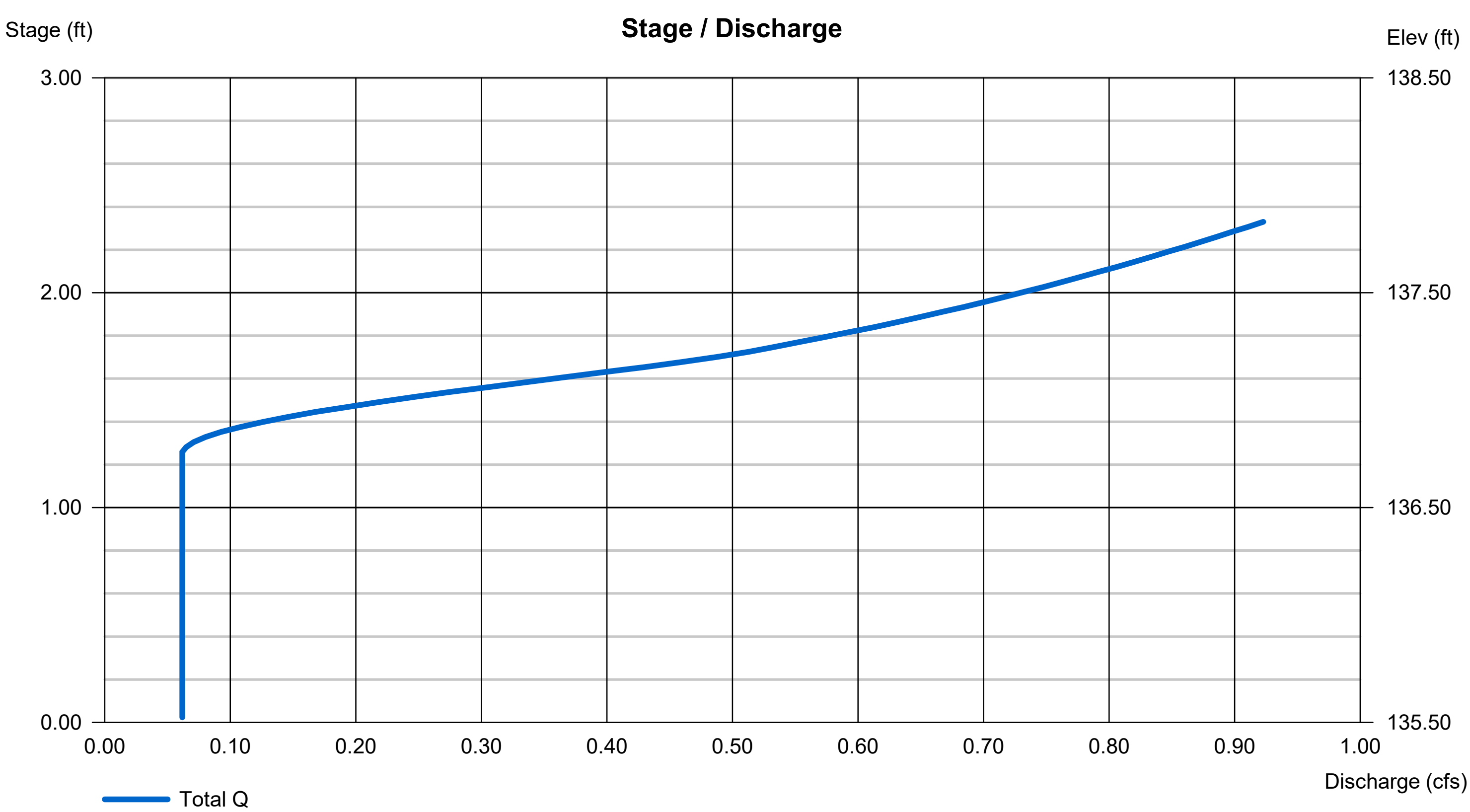
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 6.00	Inactive	Inactive	Inactive
Span (in)	= 6.00	0.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 136.75	0.00	0.00	0.00
Length (ft)	= 28.00	0.00	0.00	0.00
Slope (%)	= 2.70	1.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	Inactive	Inactive	Inactive
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 2.250 (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

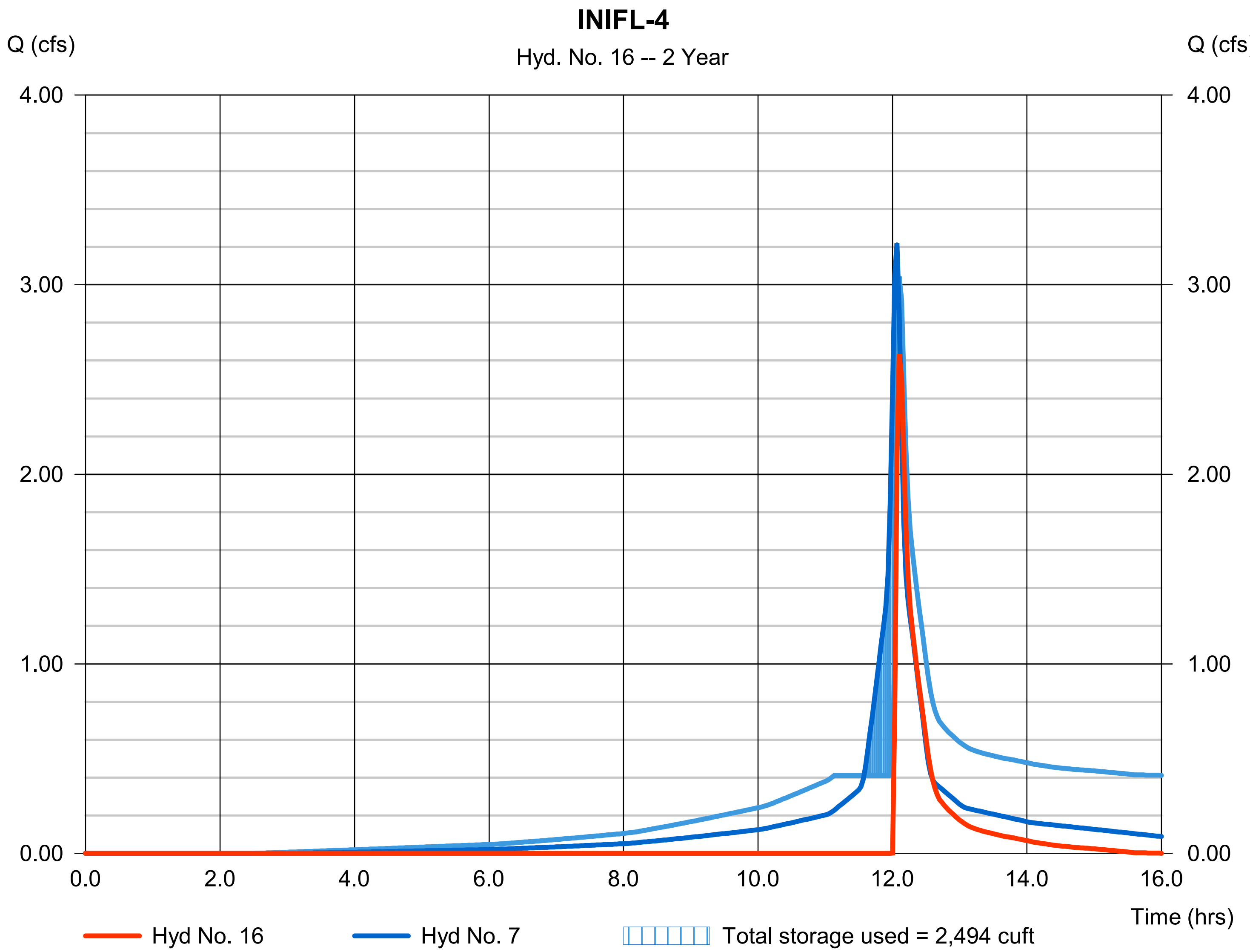
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

INIFL-4

Hydrograph type	= Reservoir	Peak discharge	= 2.634 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 3,558 cuft
Inflow hyd. No.	= 7 - PR WS-02F	Max. Elevation	= 136.82 ft
Reservoir name	= INIFL-4	Max. Storage	= 2,494 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 3 - INIFL-4

Pond Data

UG Chambers -Invert elev. = 133.75 ft, Rise x Span = 3.75 x 4.90 ft, Barrel Len = 63.06 ft, No. Barrels = 2, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 133.00 ft, Width = 7.79 ft, Height = 5.50 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	133.00	n/a	0	0
0.55	133.55	n/a	216	216
1.10	134.10	n/a	346	562
1.65	134.65	n/a	417	979
2.20	135.20	n/a	410	1,389
2.75	135.75	n/a	397	1,786
3.30	136.30	n/a	378	2,164
3.85	136.85	n/a	350	2,513
4.40	137.40	n/a	303	2,816
4.95	137.95	n/a	222	3,038
5.50	138.50	n/a	216	3,254

Culvert / Orifice Structures

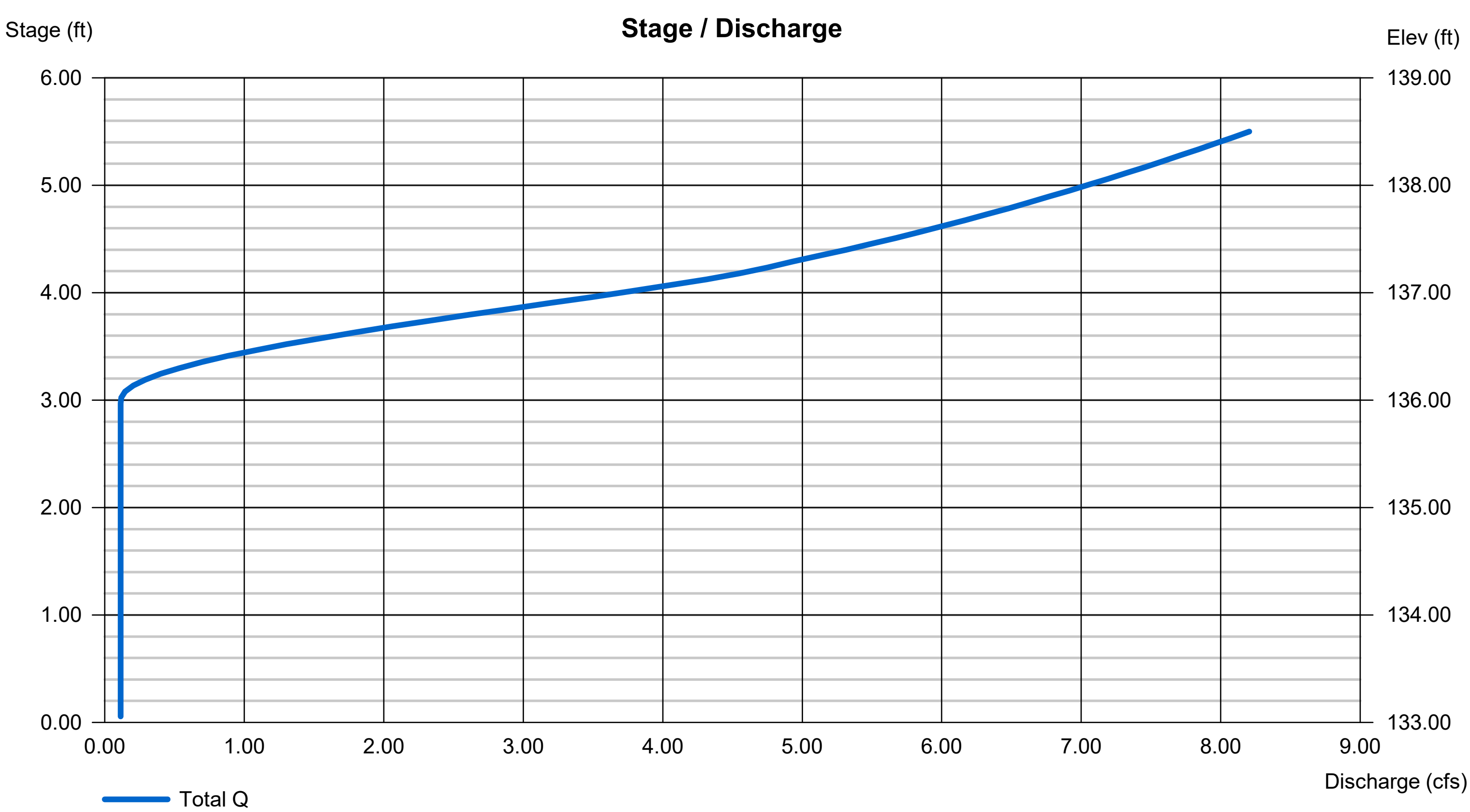
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	Inactive	0.00	0.00
Span (in)	= 15.00	0.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 136.00	0.00	0.00	0.00
Length (ft)	= 29.00	0.00	0.00	0.00
Slope (%)	= 9.10	1.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 5.000 (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

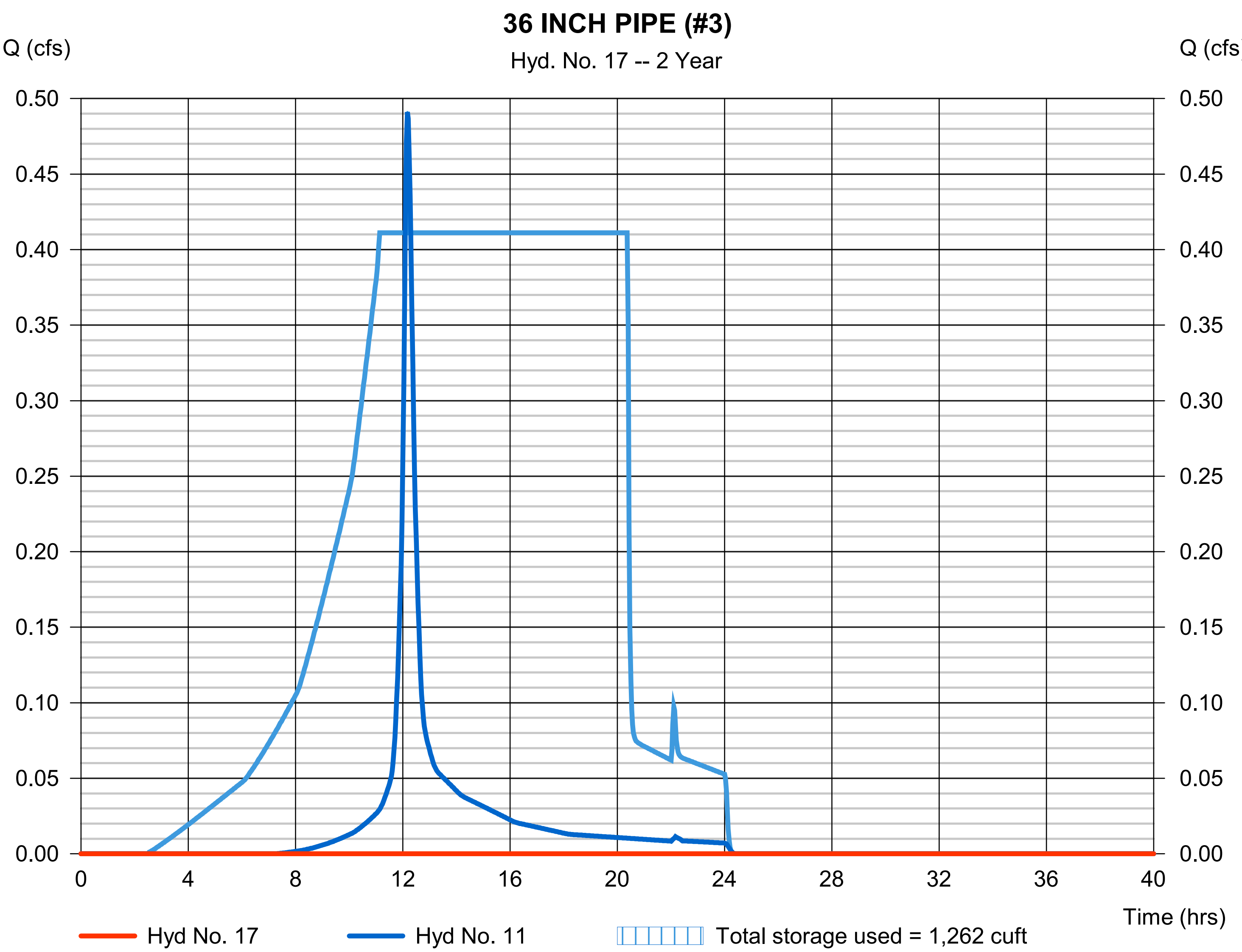
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - PR WS-02H	Max. Elevation	= 131.44 ft
Reservoir name	= 36IN - 3	Max. Storage	= 1,262 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 4 - 36IN - 3

Pond Data

UG Chambers -Invert elev. = 129.00 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 30.00 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 128.50 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%
Boundaries -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 136.20 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	128.50	n/a	0	0
0.35	128.85	n/a	21	21
0.70	129.20	n/a	25	46
1.05	129.55	n/a	33	79
1.40	129.90	n/a	37	116
1.75	130.25	n/a	39	155
2.10	130.60	n/a	40	195
2.45	130.95	n/a	40	235
2.80	131.30	n/a	38	273
3.15	131.65	n/a	35	308
3.50	132.00	n/a	29	337
7.20	136.20	01	2	339
9.00	137.50	5,250	4,726	5,065

Culvert / Orifice Structures

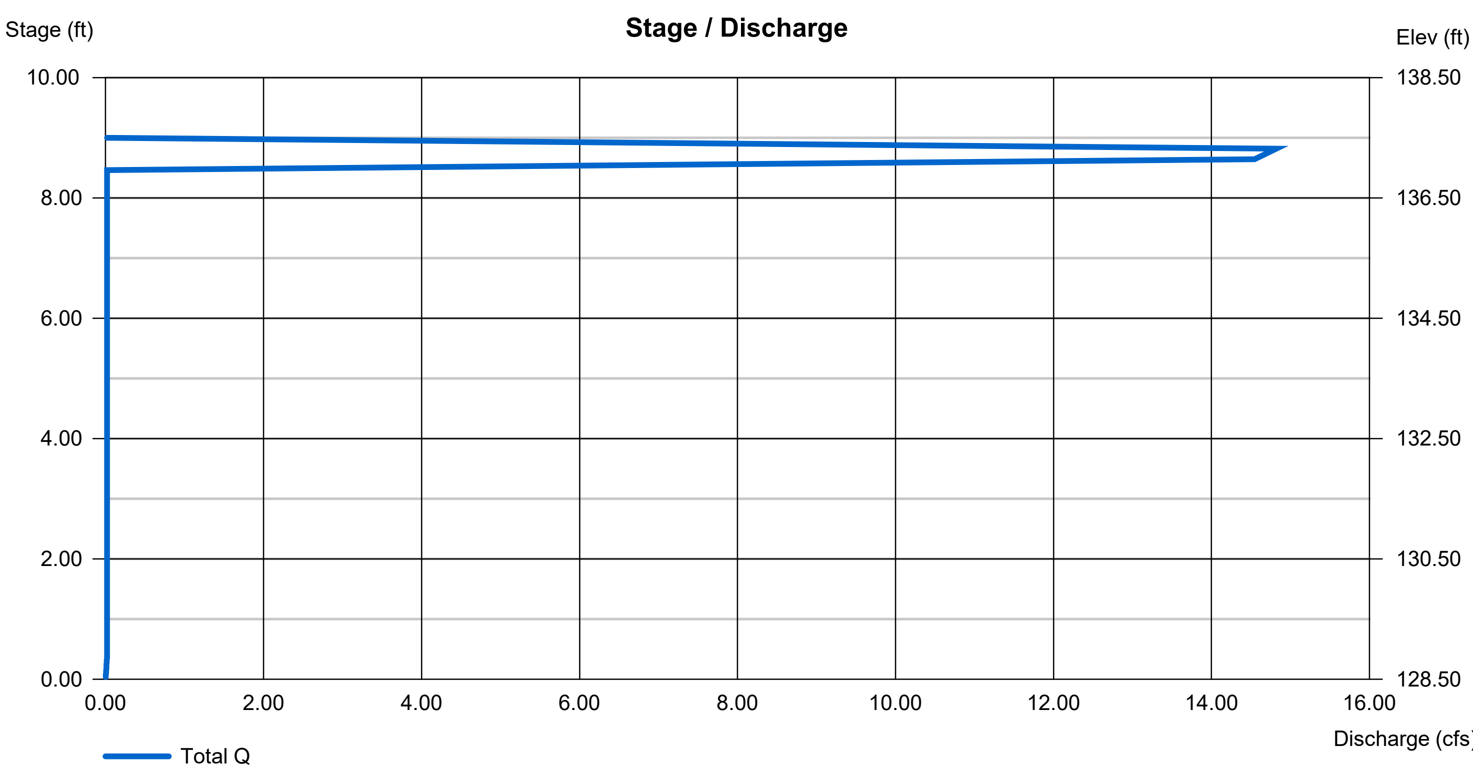
		[A]	[B]	[C]	[PrfRsr]
Rise (in)	=	15.00	Inactive	Inactive	Inactive
Span (in)	=	15.00	0.00	0.00	0.00
No. Barrels	=	1	0	0	0
Invert El. (ft)	=	130.90	0.00	0.00	0.00
Length (ft)	=	13.00	0.00	0.00	0.00
Slope (%)	=	1.00	0.00	0.00	n/a
N-Value	=	.013	.013	.013	n/a
Orifice Coeff.	=	0.60	0.60	0.60	0.60
Multi-Stage	=	n/a	No	No	No

Weir Structures

		[A]	[B]	[C]	[D]
Crest Len (ft)	=	100.00	Inactive	Inactive	Inactive
Crest El. (ft)	=	137.50	0.00	0.00	0.00
Weir Coeff.	=	3.33	3.33	3.33	3.33
Weir Type	=	Rect	---	---	---
Multi-Stage	=	Yes	No	No	No

Exfil.(in/hr) = 5.000 (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

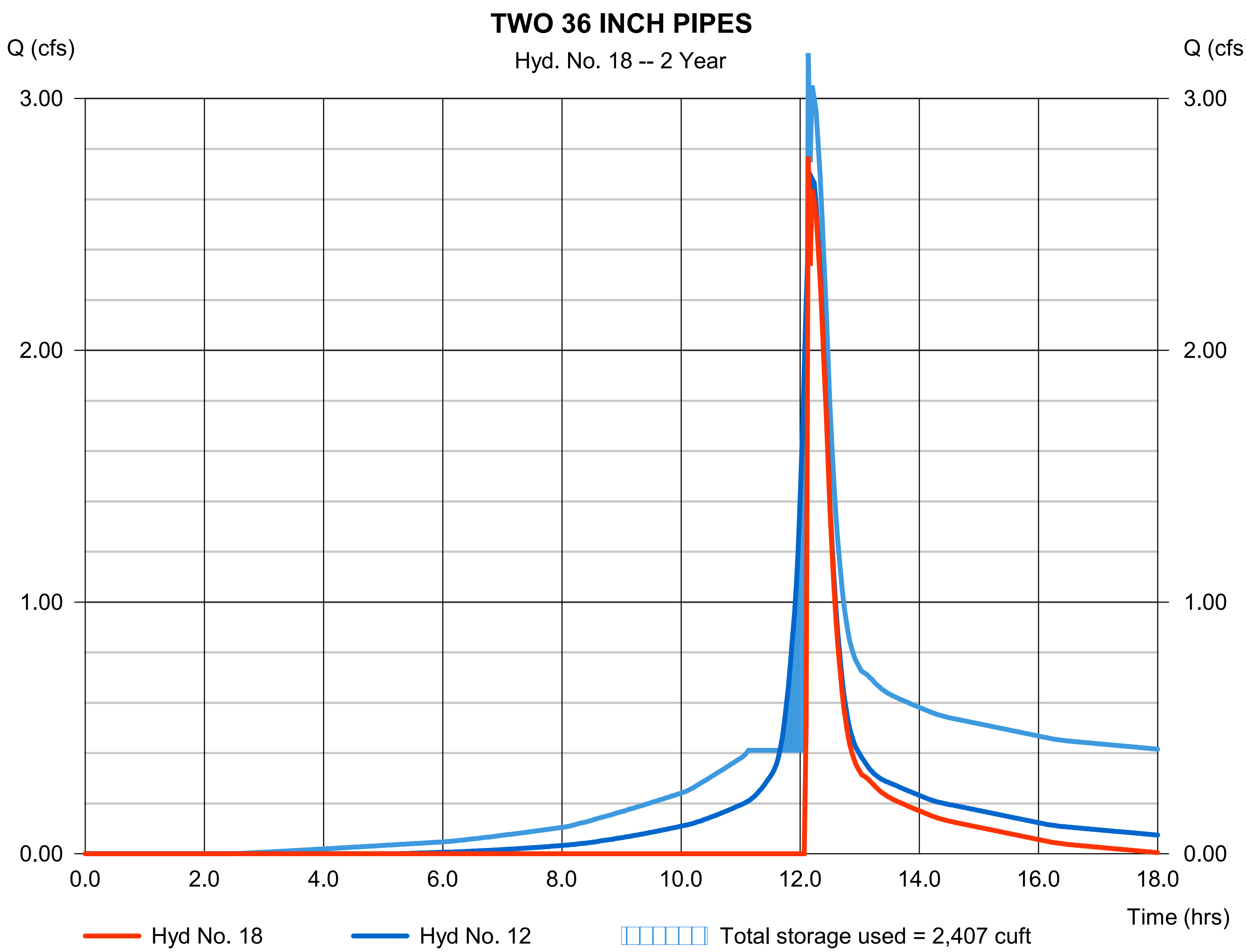
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 2.770 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 6,100 cuft
Inflow hyd. No.	= 12 - PR WS-02I	Max. Elevation	= 135.68 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,407 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 5 - TWIN 36IN

Pond Data

UG Chambers - Invert elev. = 127.50 ft, Rise x Span = 3.00 x 3.00 ft, Barrel Len = 62.00 ft, No. Barrels = 2, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 127.00 ft, Width = 5.00 ft, Height = 3.50 ft, Voids = 40.00%
Contours - User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 134.90 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	127.00	n/a	0	0
0.35	127.35	n/a	87	87
0.70	127.70	n/a	102	189
1.05	128.05	n/a	138	327
1.40	128.40	n/a	153	480
1.75	128.75	n/a	162	642
2.10	129.10	n/a	165	806
2.45	129.45	n/a	163	970
2.80	129.80	n/a	157	1,127
3.15	130.15	n/a	146	1,273
3.50	130.50	n/a	121	1,394
7.90	134.90	01	2	1,396
8.80	135.80	2,590	1,166	2,562

Culvert / Orifice Structures

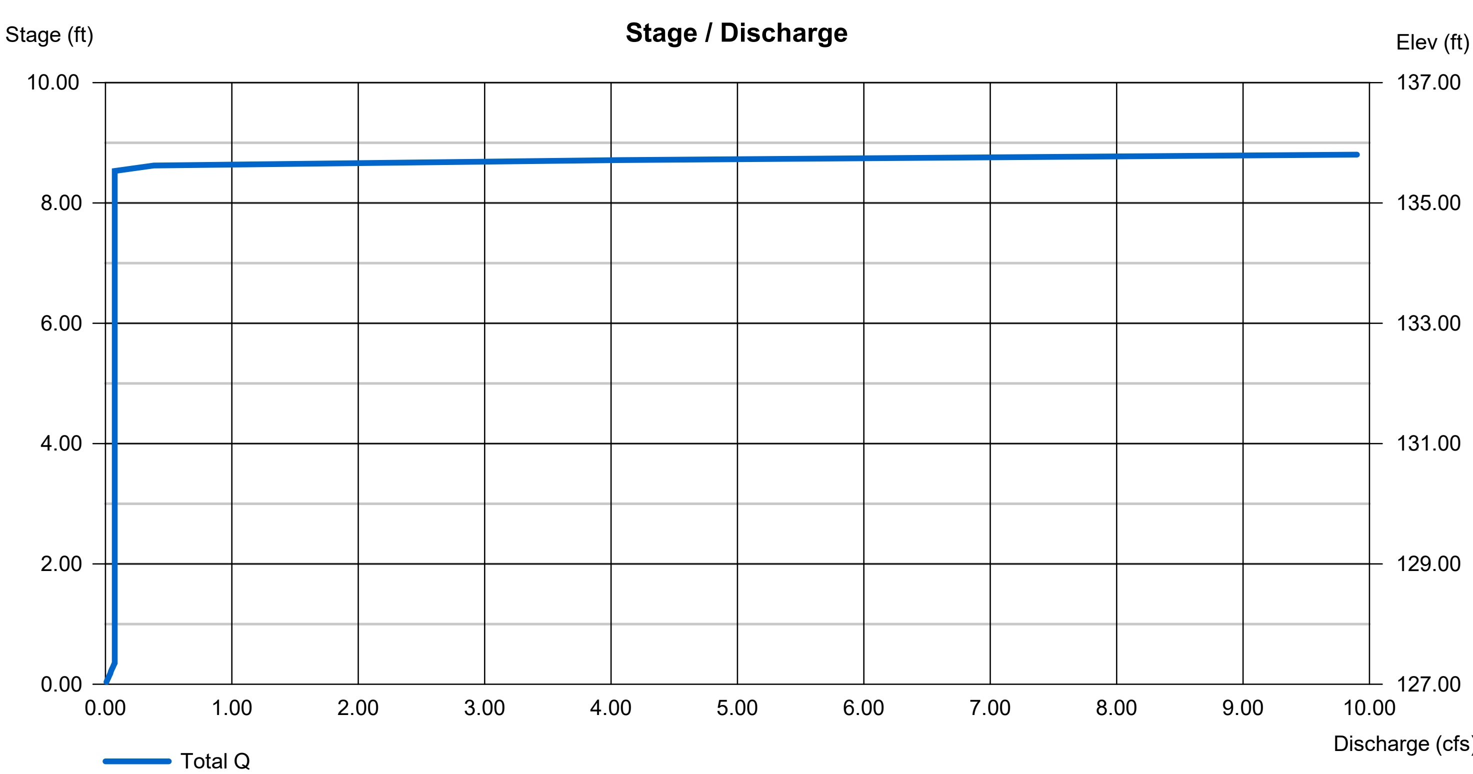
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	Inactive	Inactive	Inactive
Span (in)	= 15.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 129.60	0.00	0.00	0.00
Length (ft)	= 70.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 33.00	Inactive	Inactive	Inactive
Crest El. (ft)	= 135.60	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 5.000 (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).



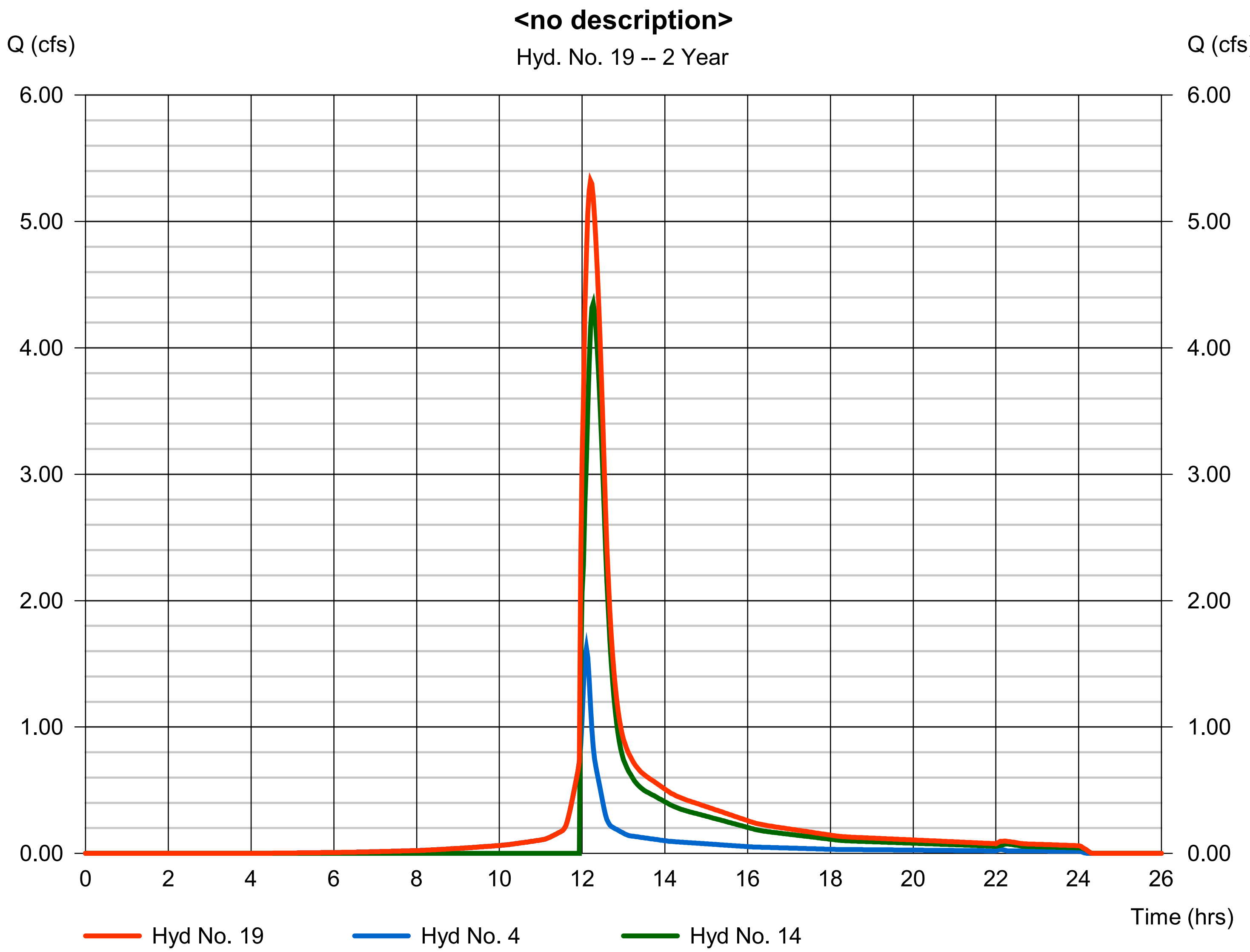
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 5.322 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 21,938 cuft
Inflow hyds.	= 4, 14	Contrib. drain. area	= 0.576 ac



Hydrograph Report

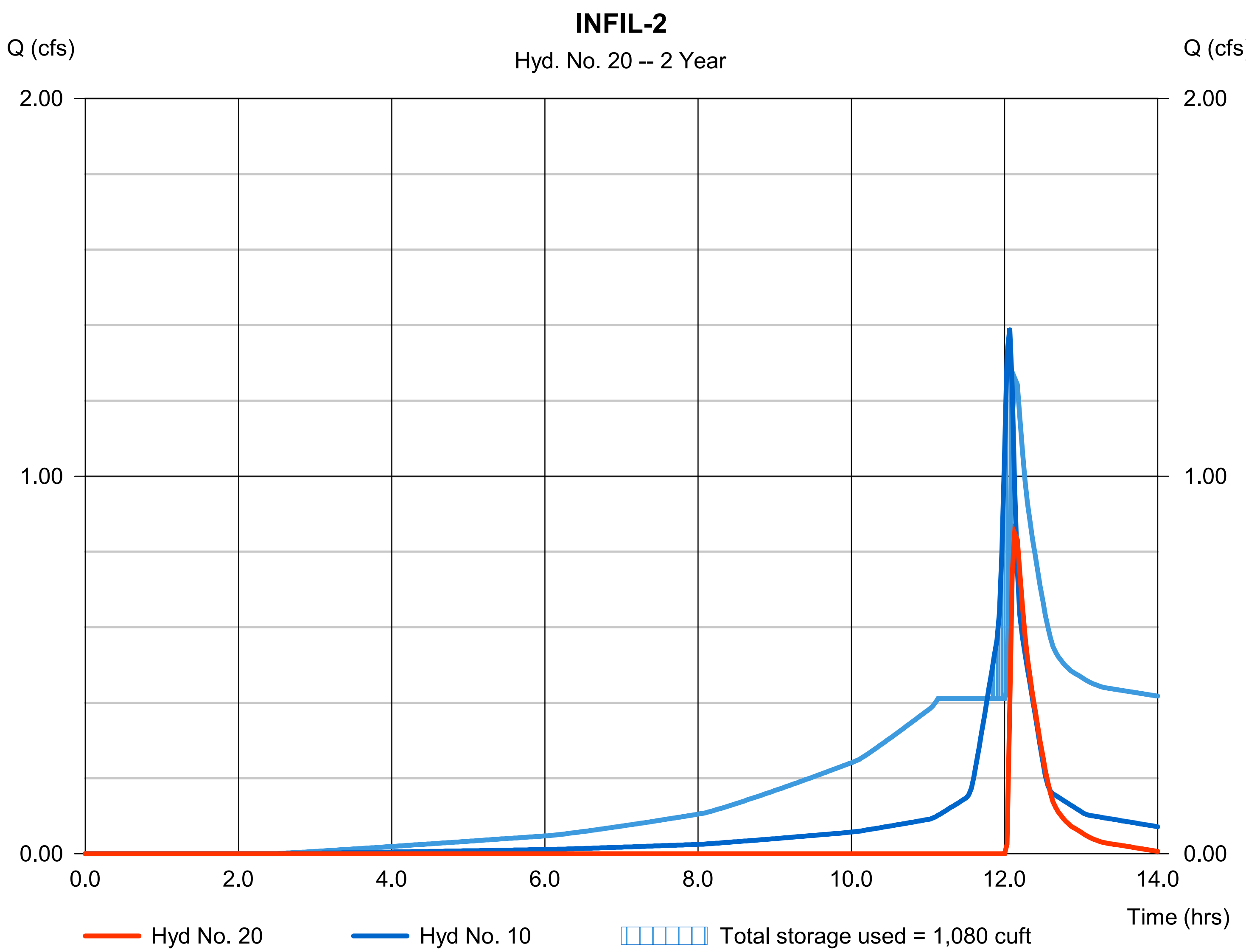
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 20

INFIL-2

Hydrograph type	= Reservoir	Peak discharge	= 0.849 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 1,186 cuft
Inflow hyd. No.	= 10 - PR WS-02G(II)	Max. Elevation	= 134.09 ft
Reservoir name	= INFIL-2	Max. Storage	= 1,080 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 12 - INFIL-2

Pond Data

UG Chambers -Invert elev. = 132.25 ft, Rise x Span = 3.75 x 4.95 ft, Barrel Len = 77.40 ft, No. Barrels = 1, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 131.50 ft, Width = 8.42 ft, Height = 5.50 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	131.50	n/a	0	0
0.55	132.05	n/a	143	143
1.10	132.60	n/a	224	367
1.65	133.15	n/a	268	635
2.20	133.70	n/a	263	899
2.75	134.25	n/a	256	1,154
3.30	134.80	n/a	244	1,398
3.85	135.35	n/a	226	1,624
4.40	135.90	n/a	197	1,821
4.95	136.45	n/a	147	1,968
5.50	137.00	n/a	143	2,111

Culvert / Orifice Structures

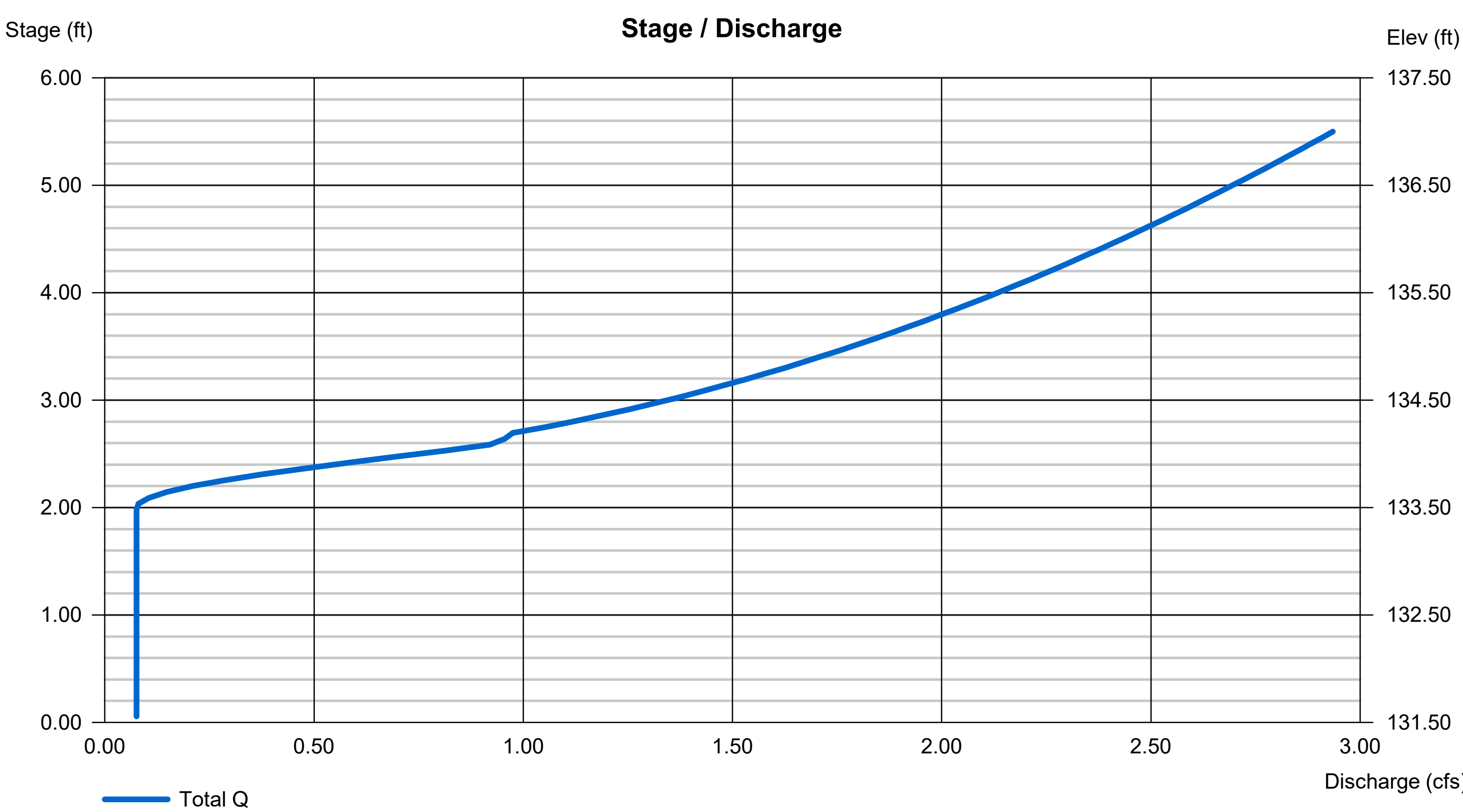
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 8.00	Inactive	0.00	0.00
Span (in)	= 8.00	0.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 133.50	0.00	0.00	0.00
Length (ft)	= 28.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 25 degV	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 5.000 (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).



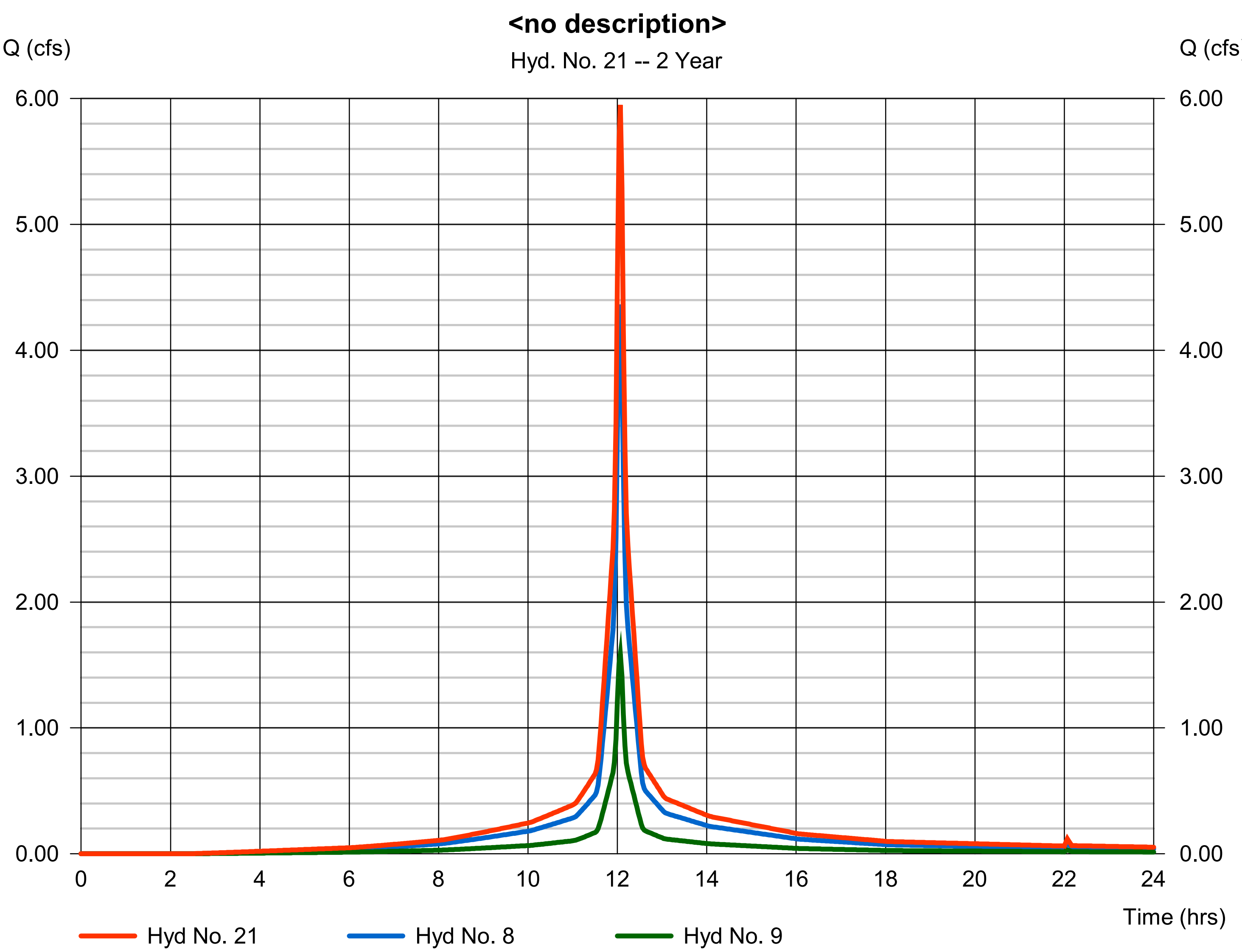
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

<no description>

Hydrograph type	= Combine	Peak discharge	= 5.950 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 19,349 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 1.855 ac



Hydrograph Report

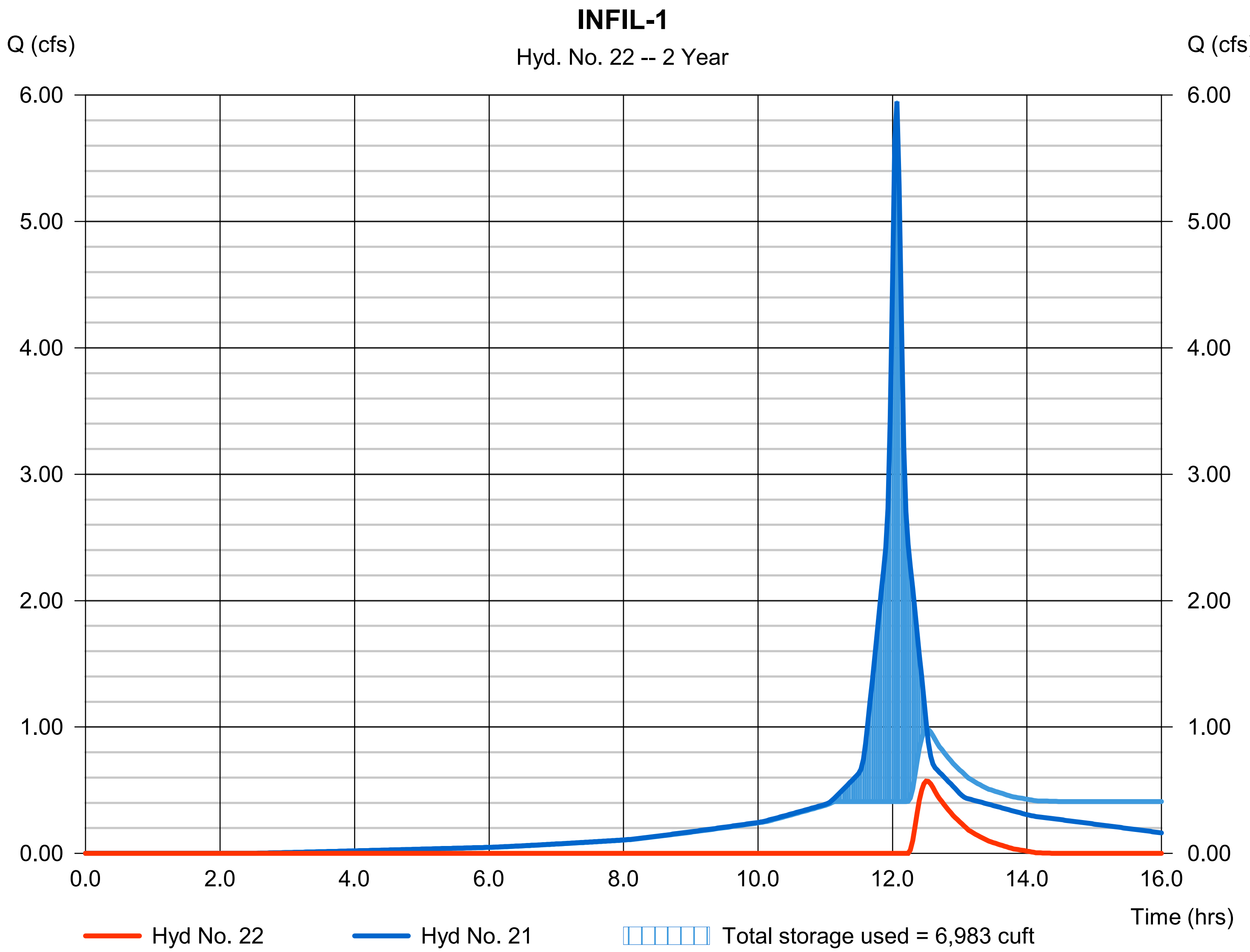
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 22

INFIL-1

Hydrograph type	= Reservoir	Peak discharge	= 0.573 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 1,391 cuft
Inflow hyd. No.	= 21 - <no description>	Max. Elevation	= 134.85 ft
Reservoir name	= INFIL-1	Max. Storage	= 6,983 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Pond No. 7 - INFIL-1

Pond Data

UG Chambers -Invert elev. = 132.75 ft, Rise x Span = 3.75 x 5.41 ft, Barrel Len = 227.97 ft, No. Barrels = 2, Slope = 0.00%, Headers = No
Encasement -Invert elev. = 132.00 ft, Width = 7.79 ft, Height = 5.50 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	132.00	n/a	0	0
0.55	132.55	n/a	782	782
1.10	133.10	n/a	1,299	2,080
1.65	133.65	n/a	1,584	3,664
2.20	134.20	n/a	1,554	5,218
2.75	134.75	n/a	1,503	6,721
3.30	135.30	n/a	1,427	8,149
3.85	135.85	n/a	1,314	9,463
4.40	136.40	n/a	1,127	10,589
4.95	136.95	n/a	804	11,394
5.50	137.50	n/a	782	12,175

Culvert / Orifice Structures

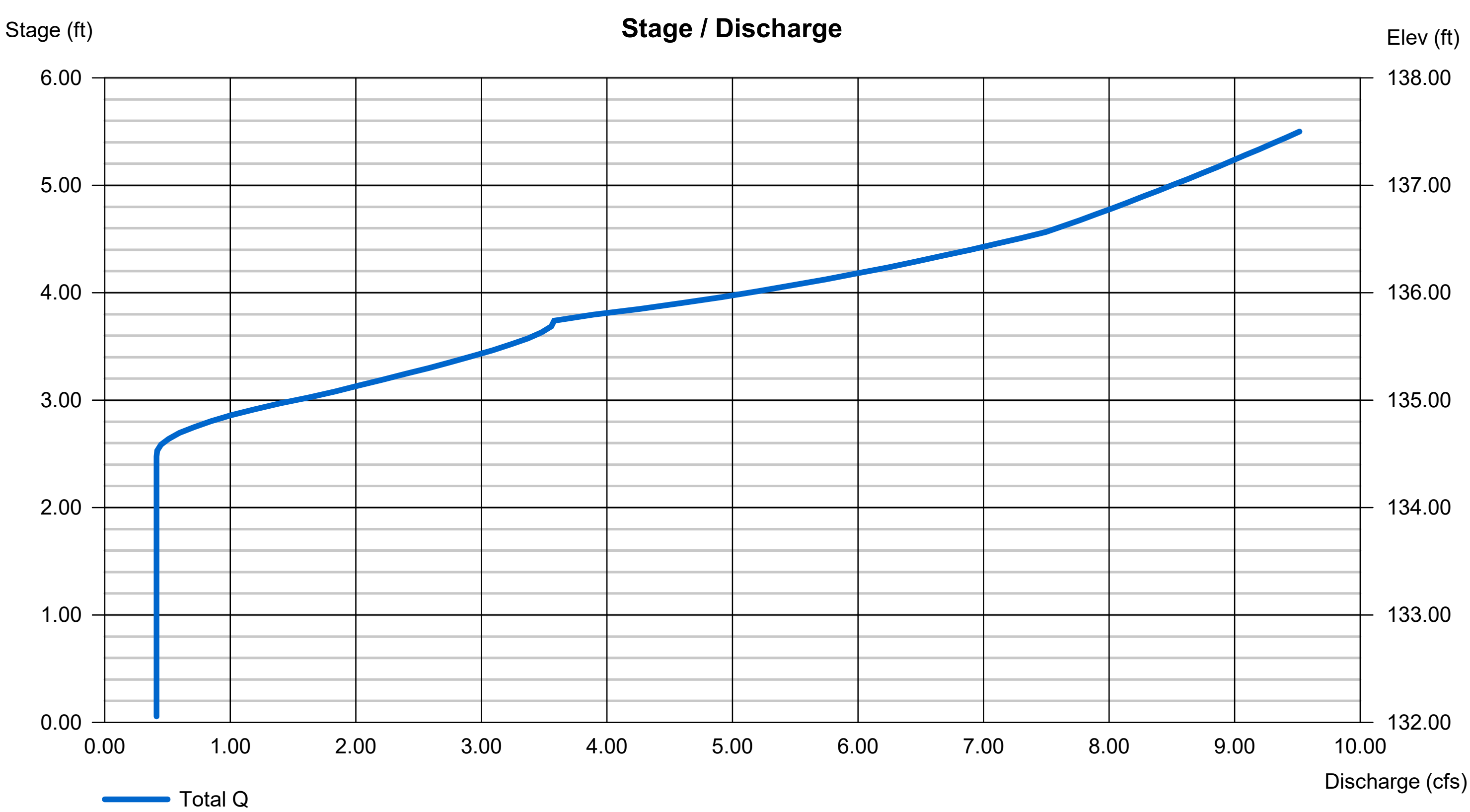
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	Inactive	0.00	0.00
Span (in)	= 15.00	0.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 134.50	0.00	0.00	0.00
Length (ft)	= 20.00	0.00	0.00	0.00
Slope (%)	= 1.00	1.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 5.000 (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).



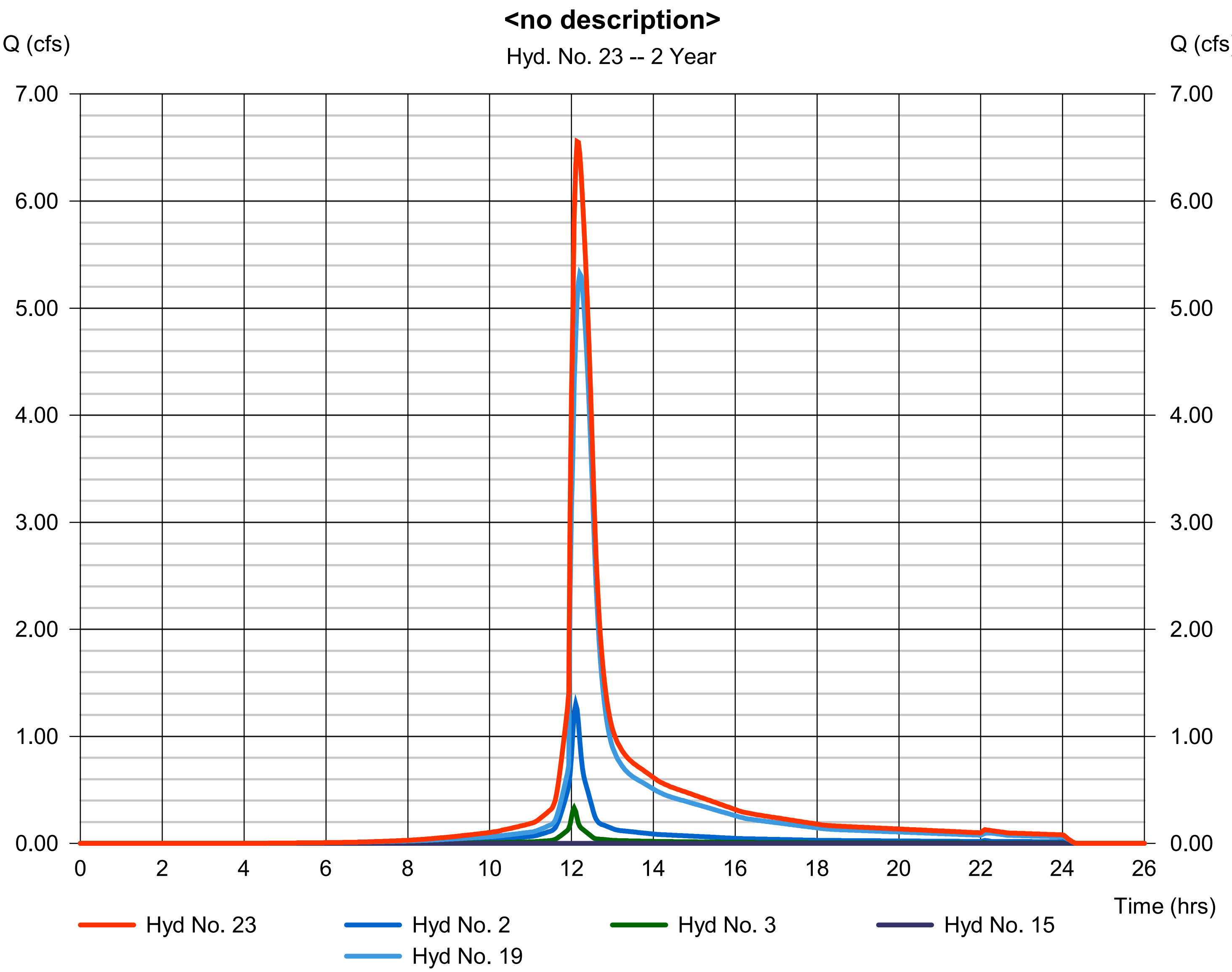
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 23

<no description>

Hydrograph type	= Combine	Peak discharge	= 6.557 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 27,375 cuft
Inflow hyds.	= 2, 3, 15, 19	Contrib. drain. area	= 0.689 ac



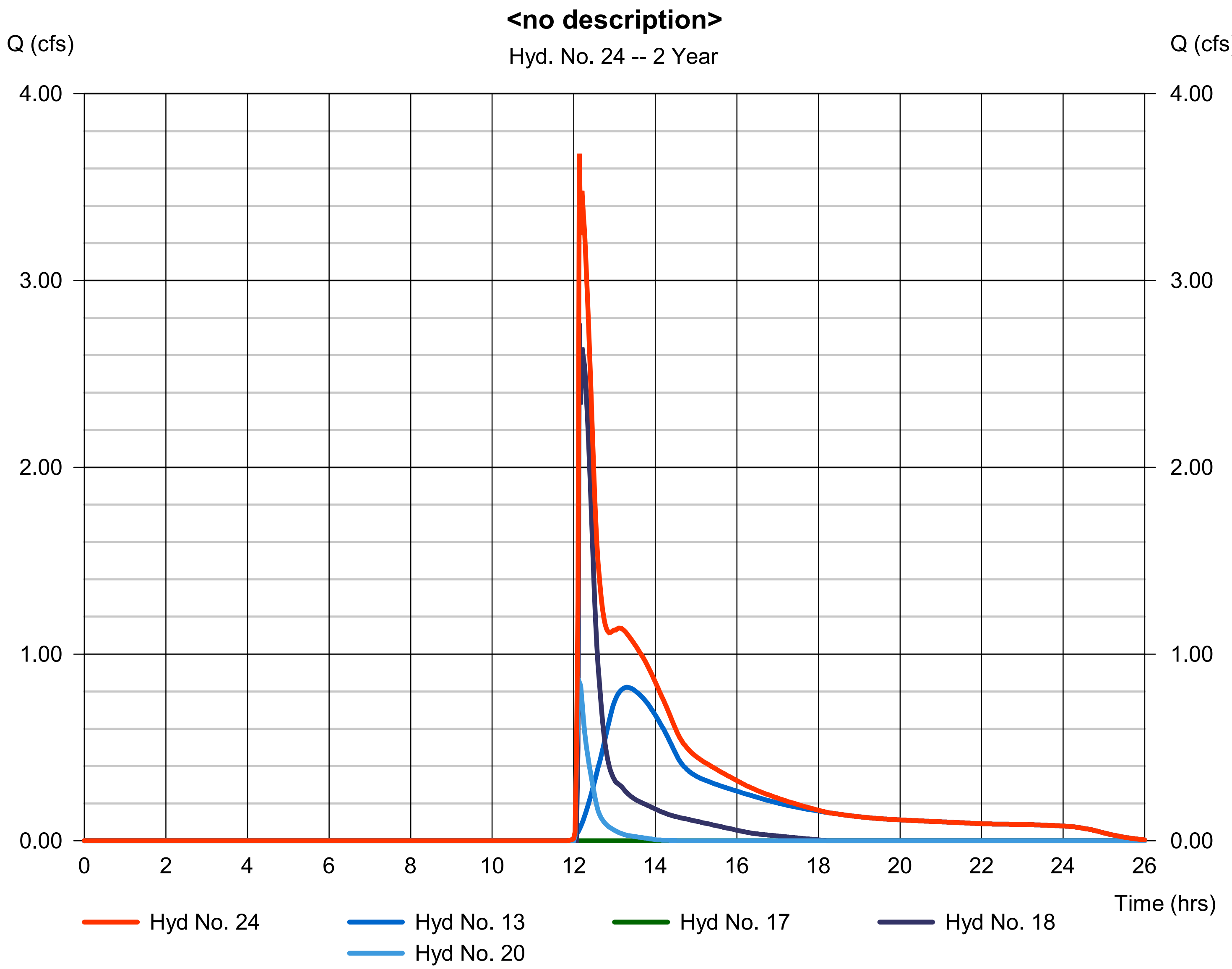
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 24

<no description>

Hydrograph type	= Combine	Peak discharge	= 3.679 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 18,210 cuft
Inflow hyds.	= 13, 17, 18, 20	Contrib. drain. area	= 4.837 ac



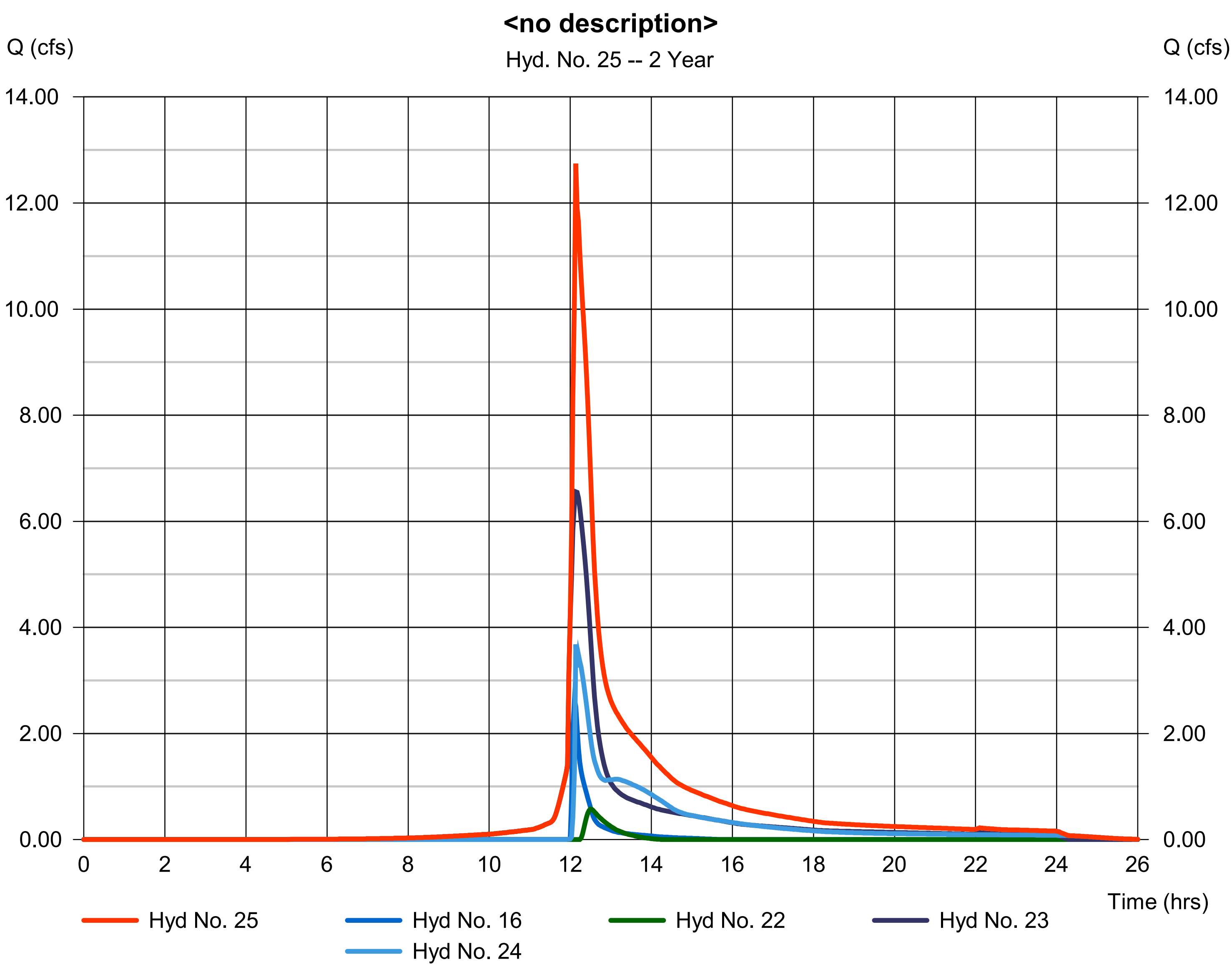
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 25

<no description>

Hydrograph type	= Combine	Peak discharge	= 12.75 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 50,534 cuft
Inflow hyds.	= 16, 22, 23, 24	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	3.964	2	752	26,393	------	------	------	PR WS-01
2	SCS Runoff	2.276	2	726	7,939	------	------	------	PR WS-02B(I)
3	SCS Runoff	0.575	2	724	1,764	------	------	------	PR WS-02B(III)
4	SCS Runoff	2.622	2	726	9,558	------	------	------	PR WS-02C
5	SCS Runoff	7.568	2	734	36,669	------	------	------	PR WS-02D
6	SCS Runoff	1.006	2	724	3,313	------	------	------	PR WS-02E
7	SCS Runoff	5.072	2	724	16,697	------	------	------	PR WS-02F
8	SCS Runoff	6.814	2	724	22,743	------	------	------	PR WS-02A
9	SCS Runoff	2.473	2	724	8,255	------	------	------	PR WS-02G(I)
10	SCS Runoff	2.173	2	724	7,252	------	------	------	PR WS-02G(II)
11	SCS Runoff	0.876	2	730	3,613	------	------	------	PR WS-02H
12	SCS Runoff	4.450	2	732	20,472	------	------	------	PR WS-02I
13	SCS Runoff	2.651	2	790	29,339	------	------	------	PR WS-03
14	Reservoir	7.442	2	738	31,857	5	139.08	3,489	TWIN 36IN PIPES (#2)
15	Reservoir	0.256	2	740	538	6	137.07	1,028	INFIL-3
16	Reservoir	4.598	2	726	8,520	7	137.23	2,720	INIFL-4
17	Reservoir	0.000	2	700	0	11	131.44	2,645	36 INCH PIPE (#3)
18	Reservoir	4.369	2	732	13,692	12	135.72	2,453	TWO 36 INCH PIPES
19	Combine	8.811	2	734	41,416	4, 14,	------	------	<no description>
20	Reservoir	1.539	2	728	3,027	10	134.79	1,393	INFIL-2
21	Combine	9.287	2	724	30,998	8, 9,	------	------	<no description>
22	Reservoir	3.162	2	736	8,485	21	135.72	9,160	INFIL-1
23	Combine	10.90	2	730	51,656	2, 3, 15, 19,	------	------	<no description>
24	Combine	6.316	2	732	46,058	13, 17, 18, 20,	------	------	<no description>
25	Combine	23.71	2	728	114,719	16, 22, 23, 24	------	------	<no description>

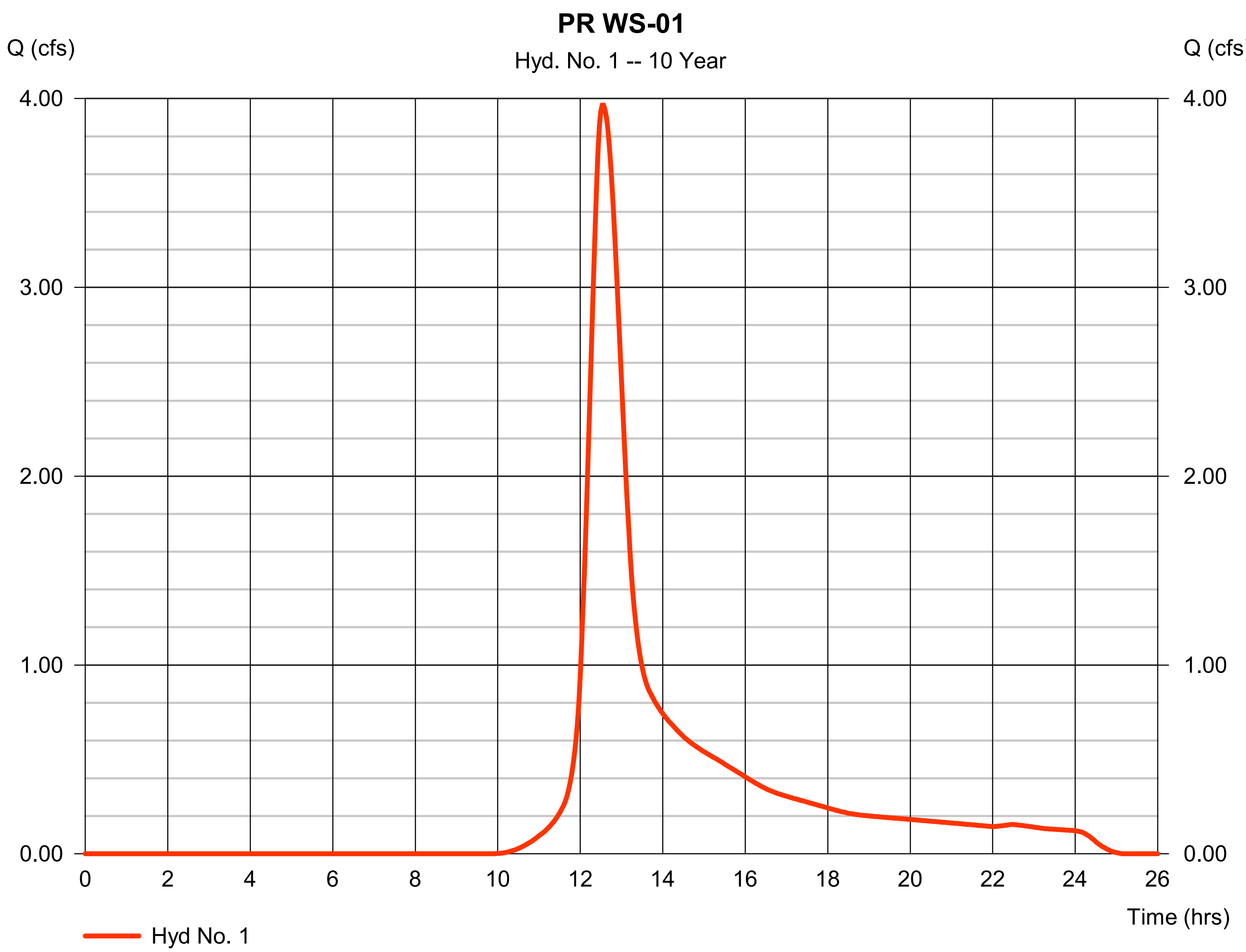
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

PR WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 3.964 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 26,393 cuft
Drainage area	= 3.405 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



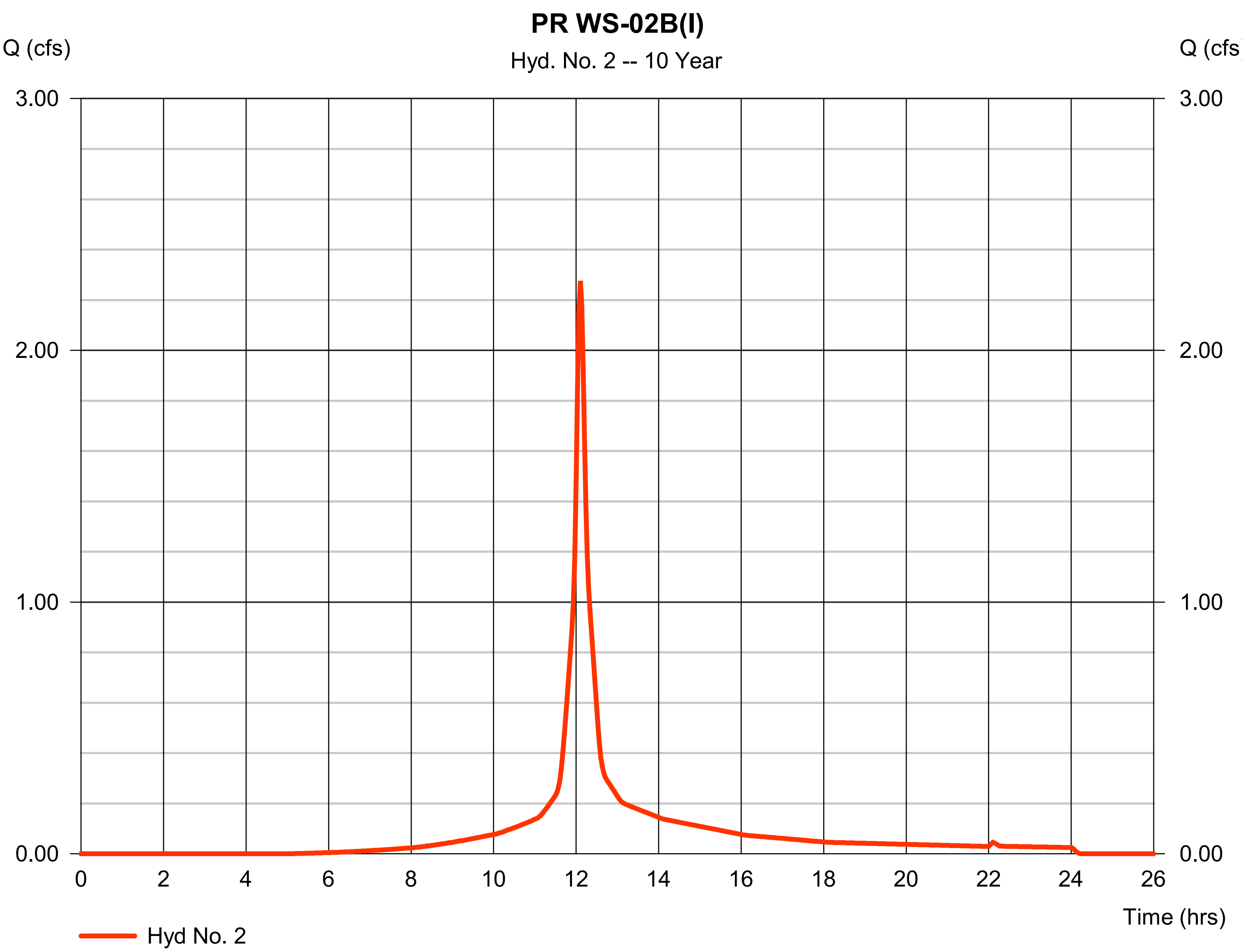
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 2

PR WS-02B(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.276 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 7,939 cuft
Drainage area	= 0.557 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 7.40 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



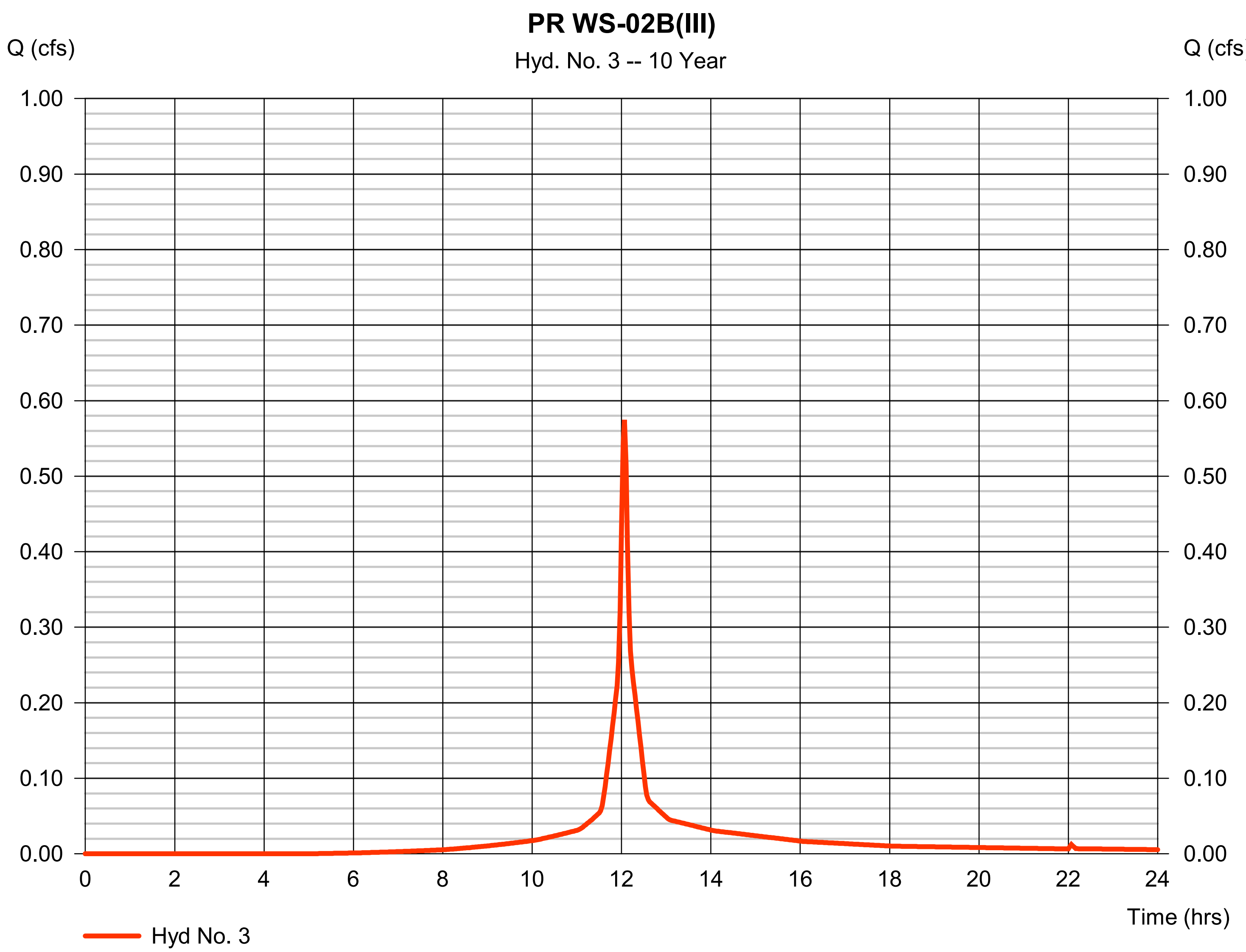
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 3

PR WS-02B(III)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.575 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 1,764 cuft
Drainage area	= 0.132 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



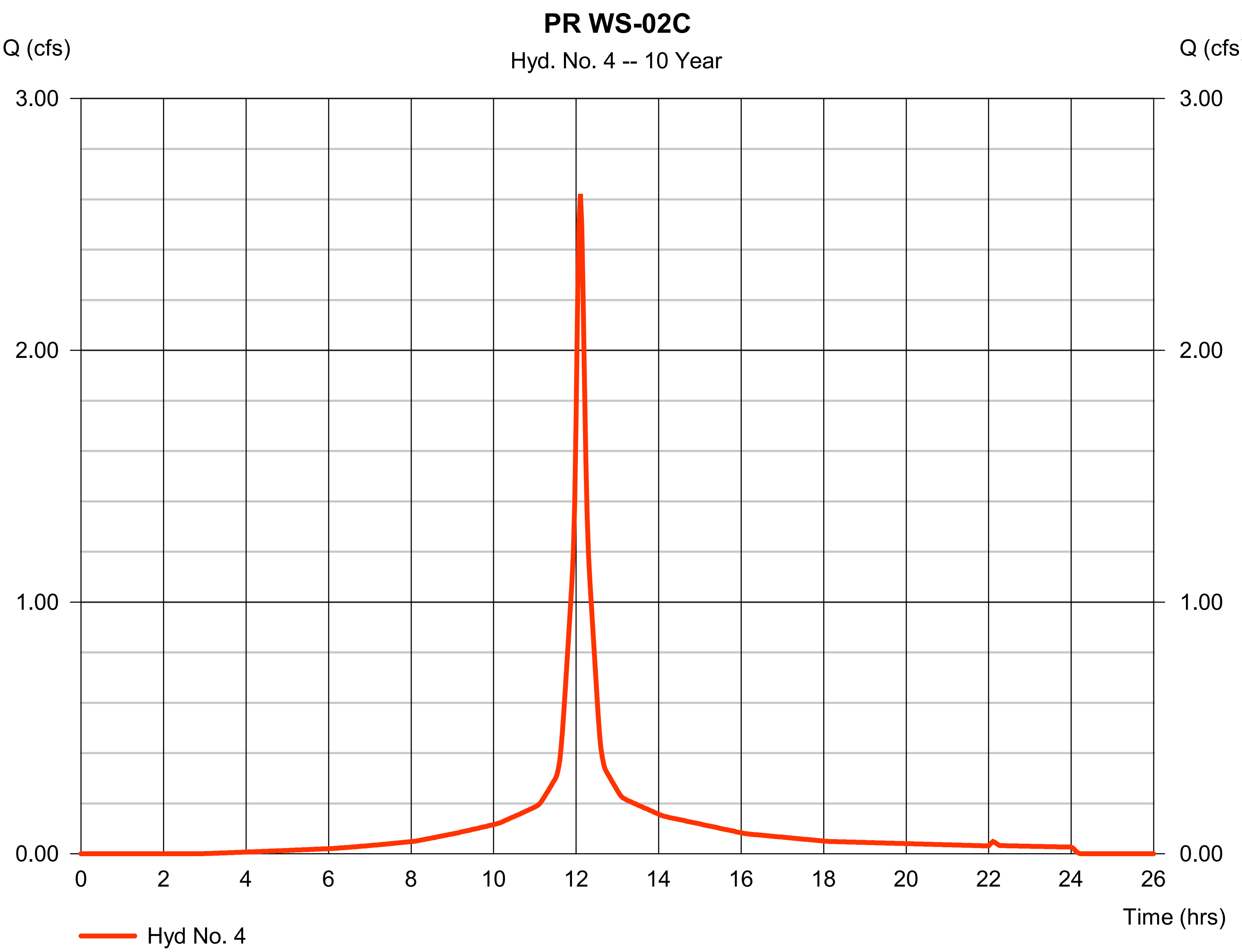
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 4

PR WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 2.622 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 9,558 cuft
Drainage area	= 0.576 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



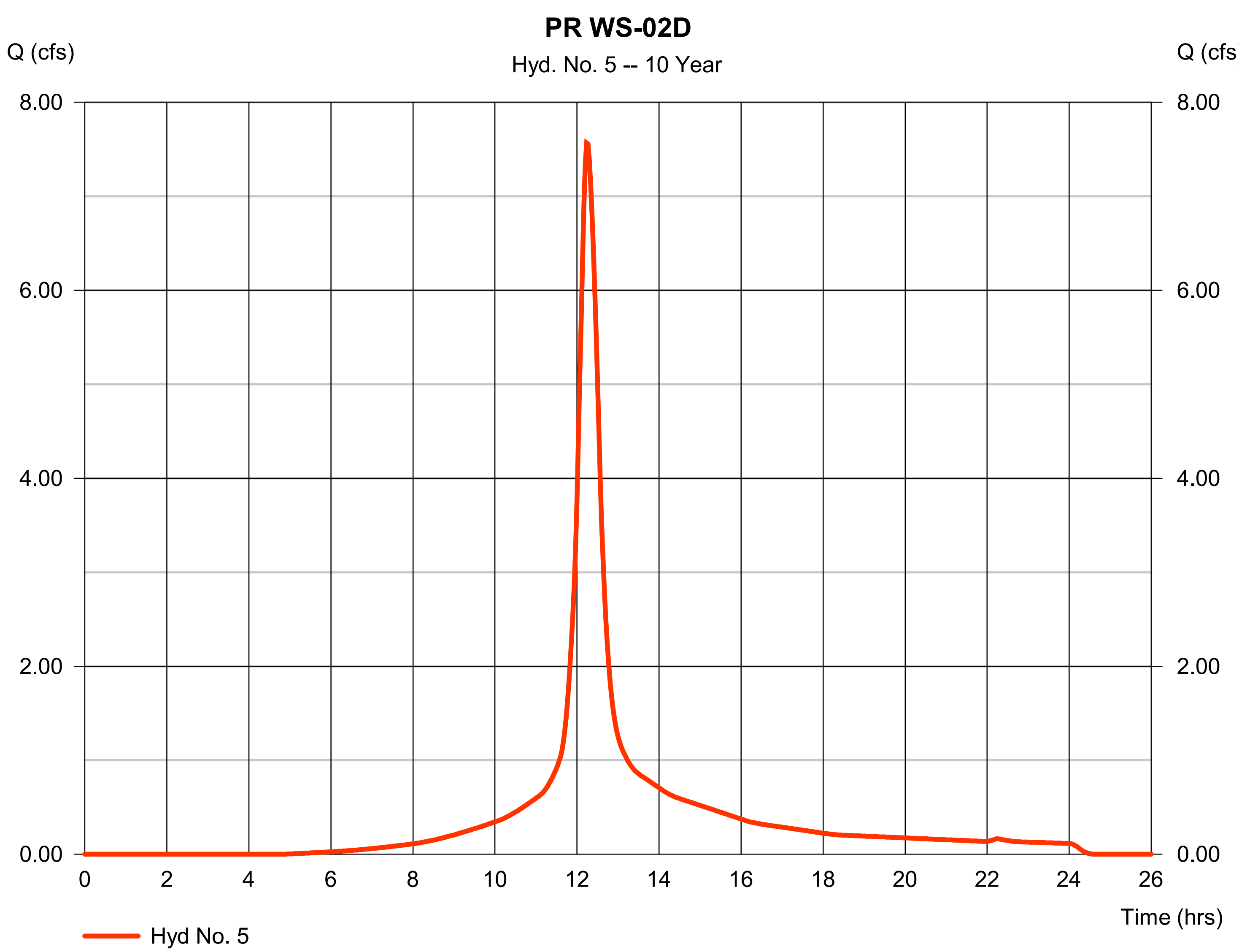
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 5

PR WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 7.568 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 36,669 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



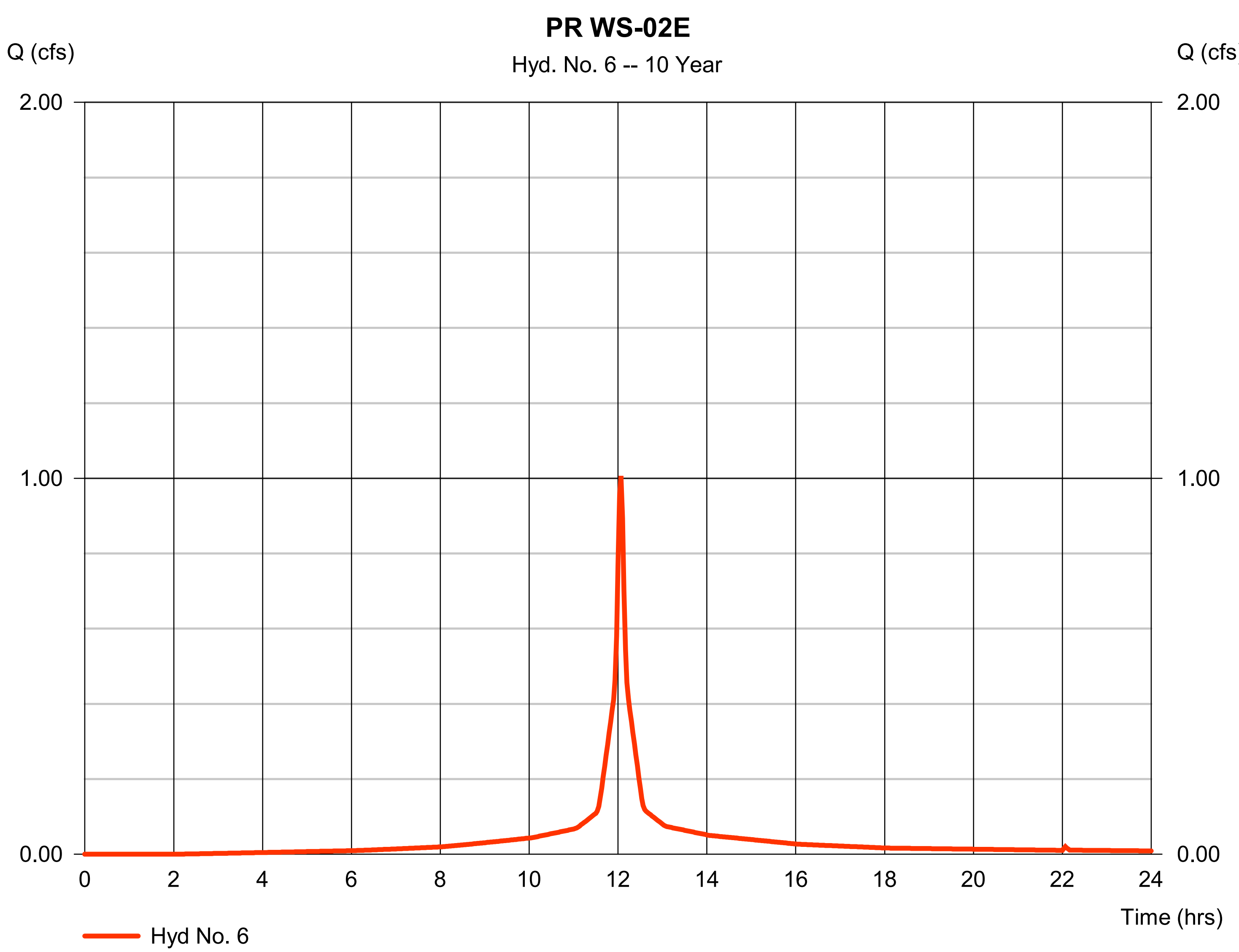
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

PR WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 1.006 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,313 cuft
Drainage area	= 0.203 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



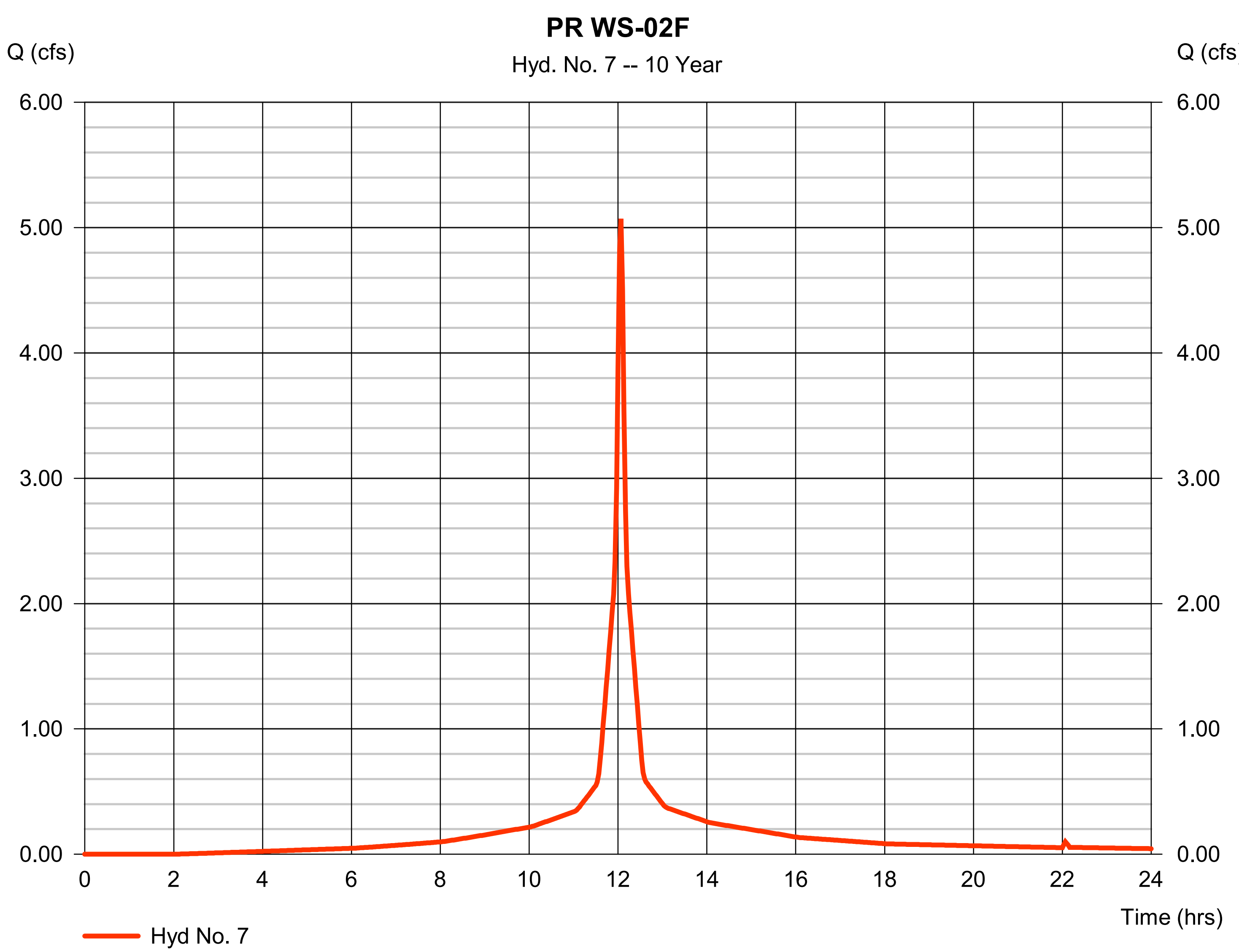
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

PR WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 5.072 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 16,697 cuft
Drainage area	= 1.023 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



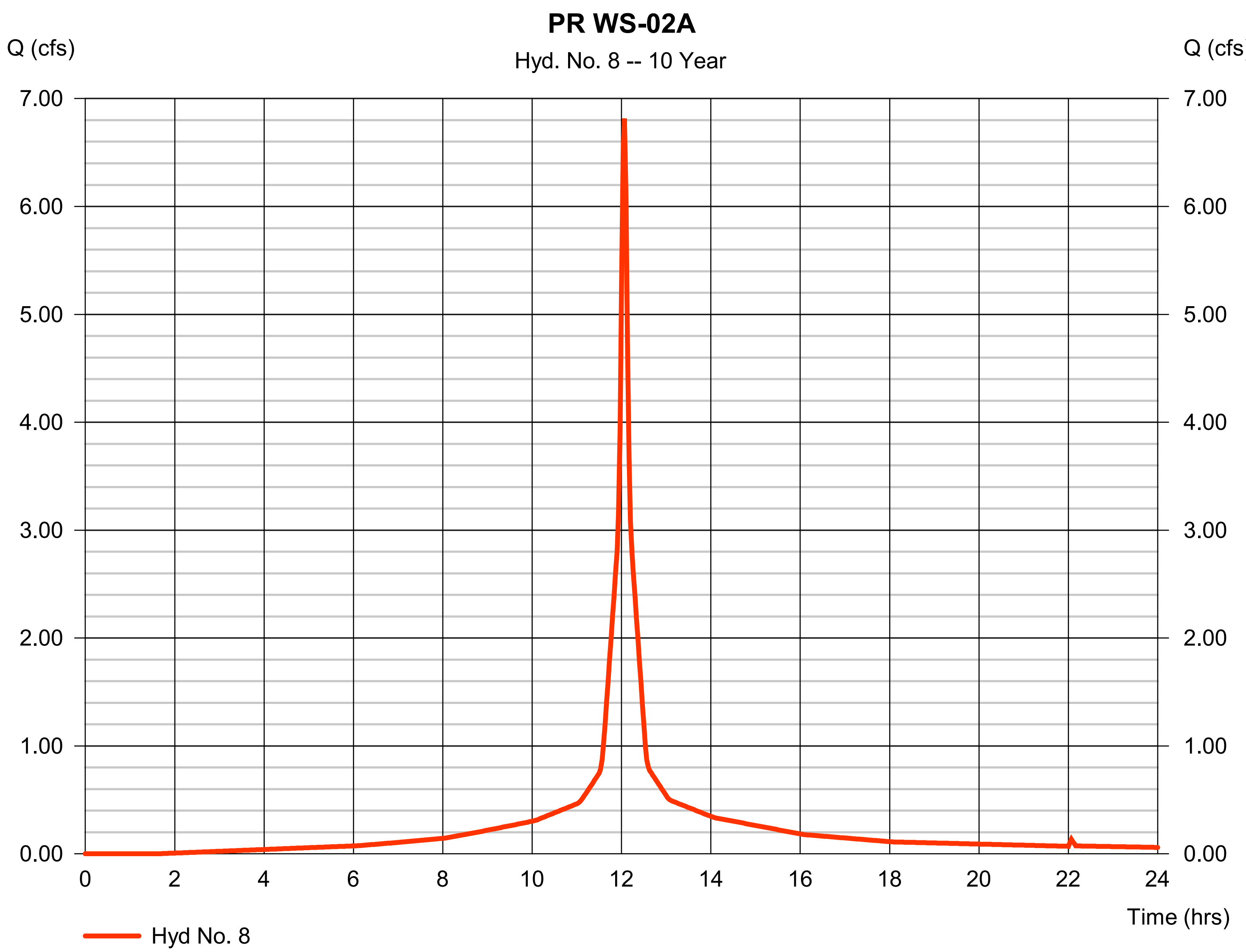
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

PR WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 6.814 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 22,743 cuft
Drainage area	= 1.361 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



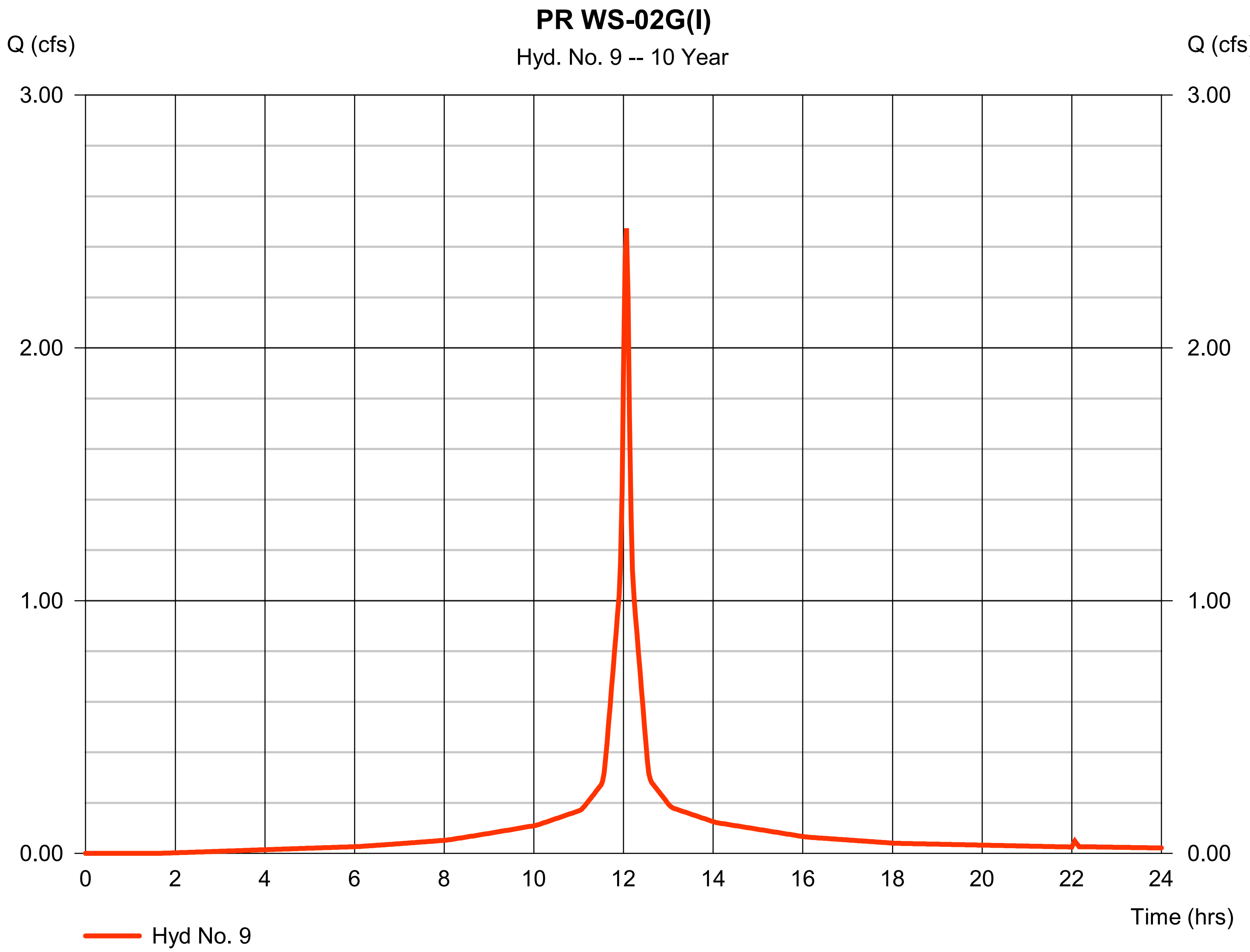
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 9

PR WS-02G(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.473 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 8,255 cuft
Drainage area	= 0.494 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



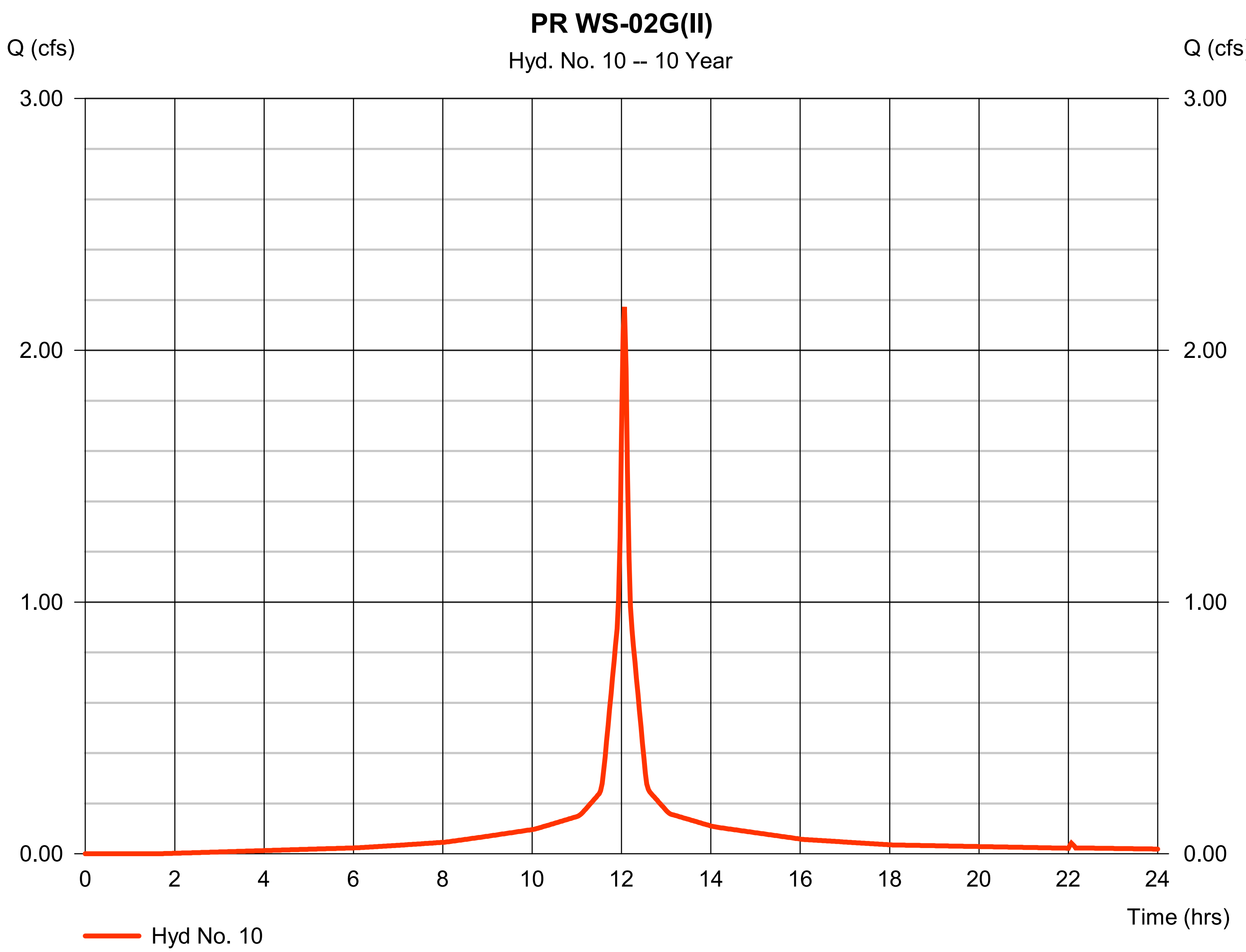
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

PR WS-02G(II)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.173 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 7,252 cuft
Drainage area	= 0.434 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



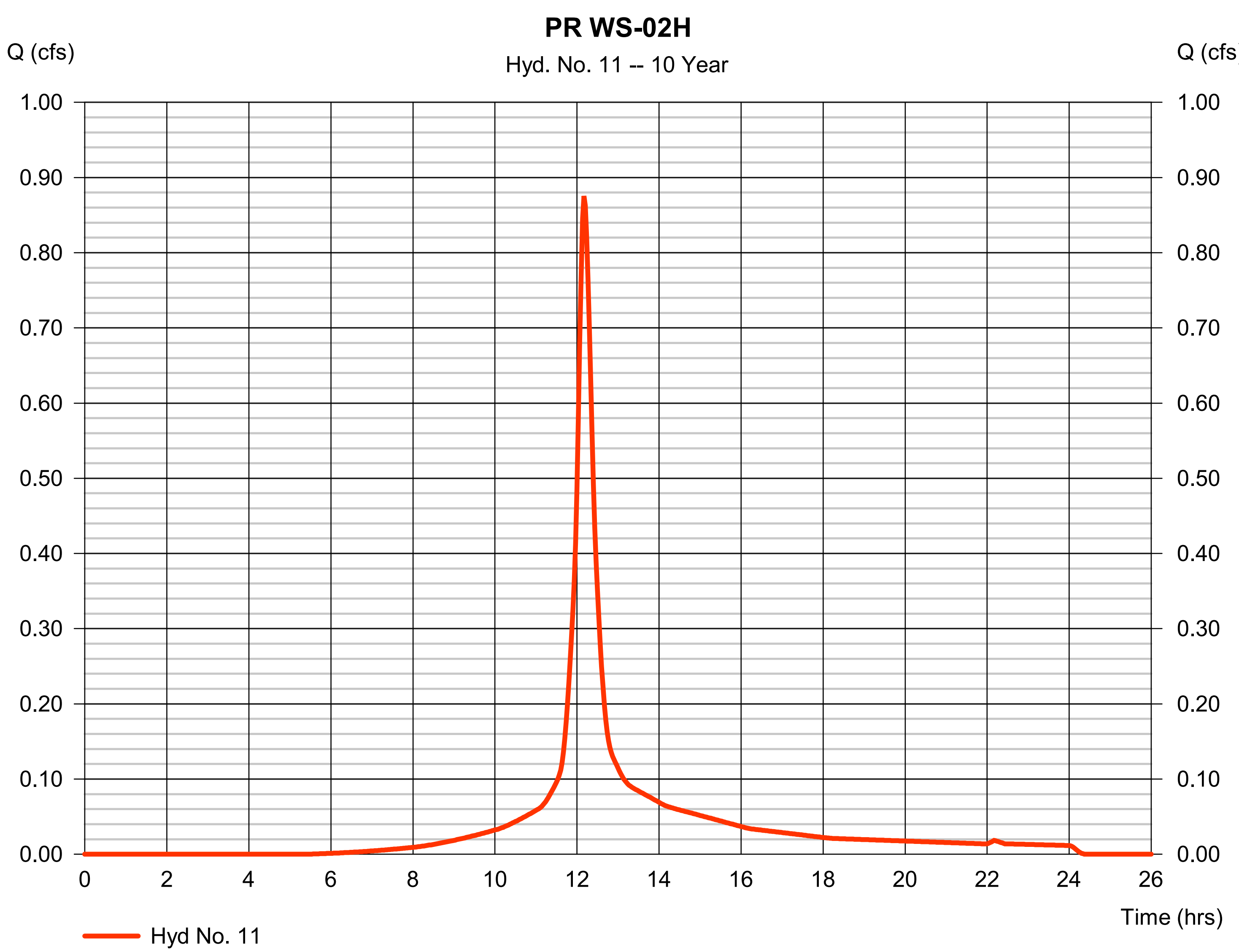
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

PR WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 0.876 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 3,613 cuft
Drainage area	= 0.267 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.80 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



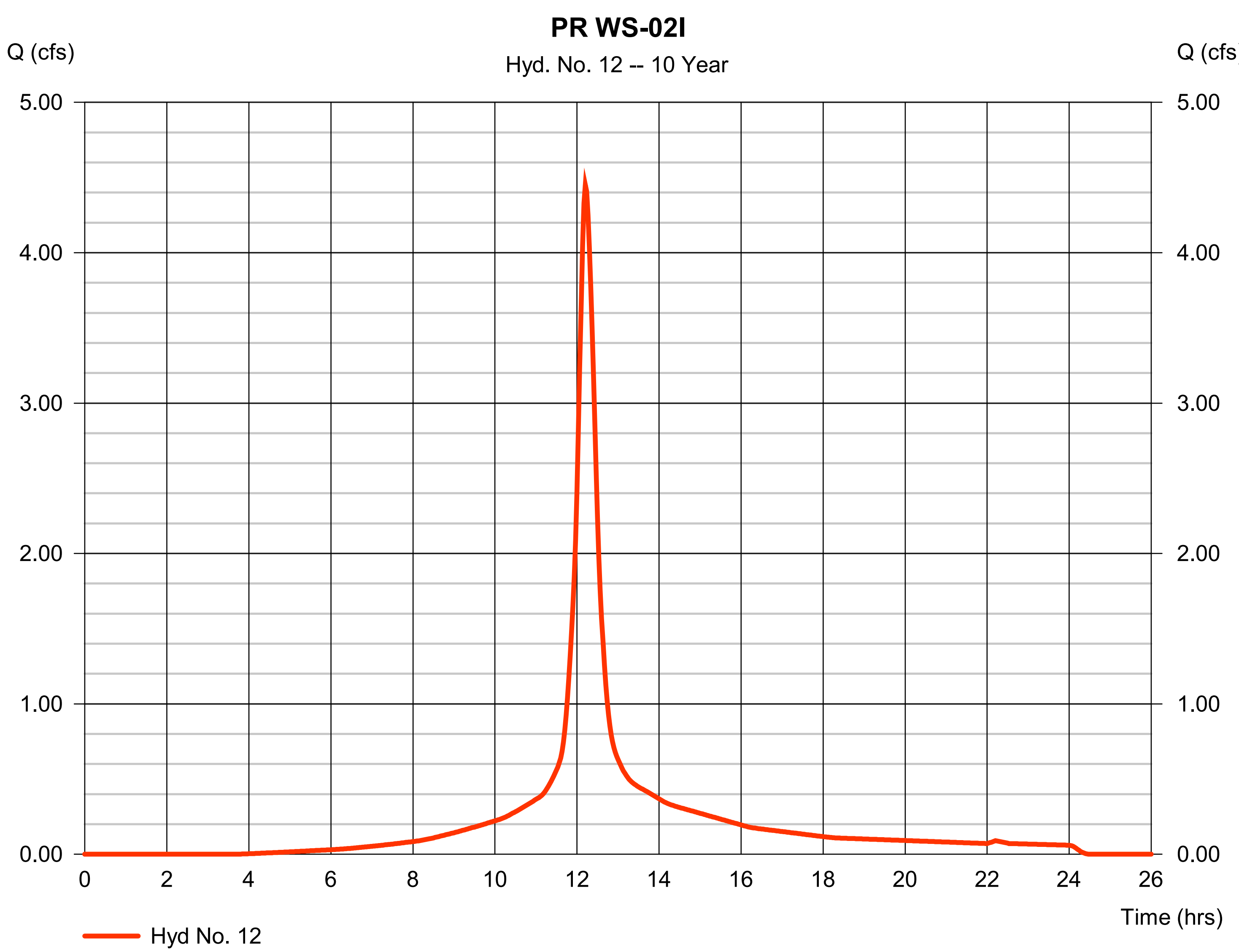
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 12

PR WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 4.450 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 20,472 cuft
Drainage area	= 1.296 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



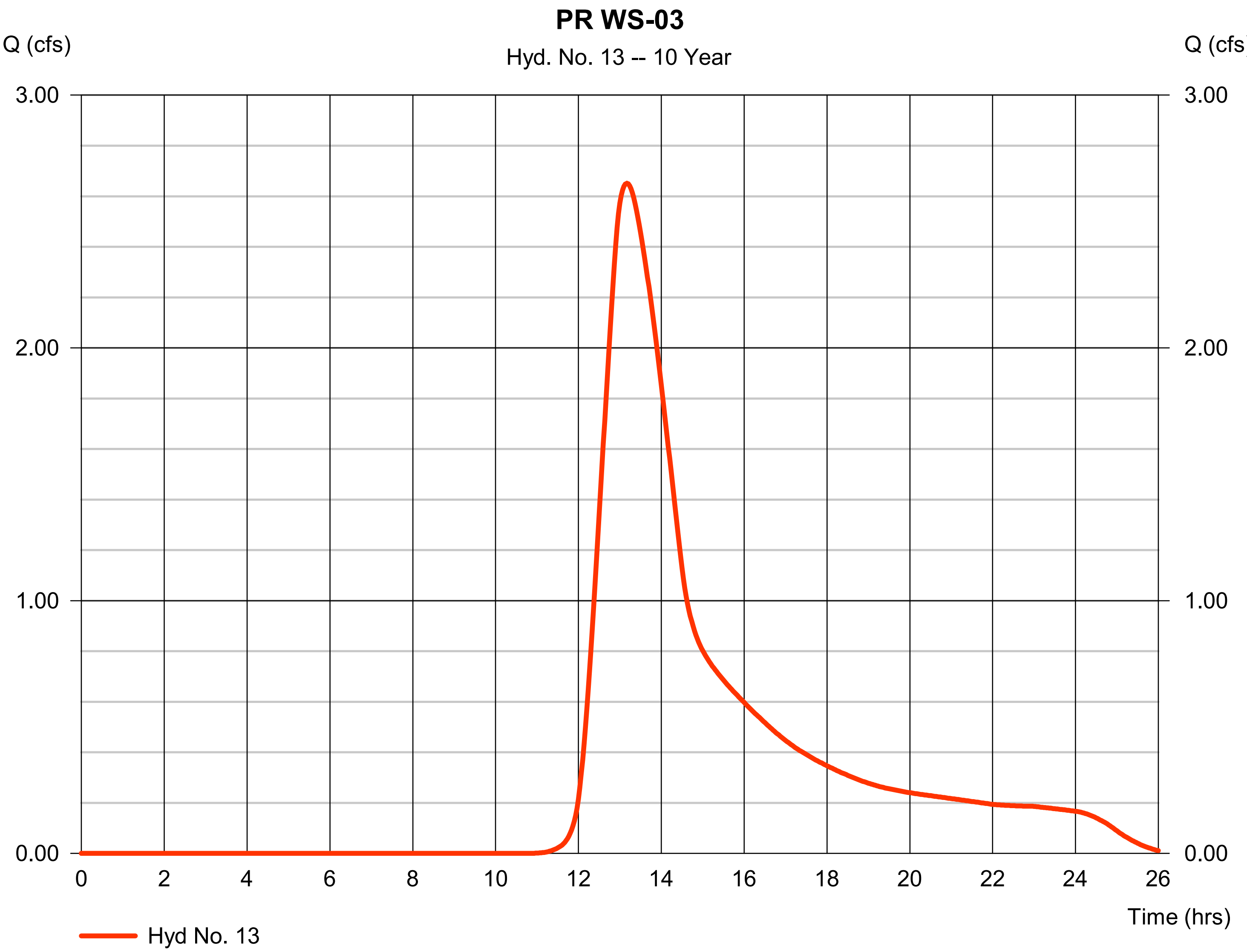
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 13

PR WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 2.651 cfs
Storm frequency	= 10 yrs	Time to peak	= 13.17 hrs
Time interval	= 2 min	Hyd. volume	= 29,339 cuft
Drainage area	= 4.837 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 5.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

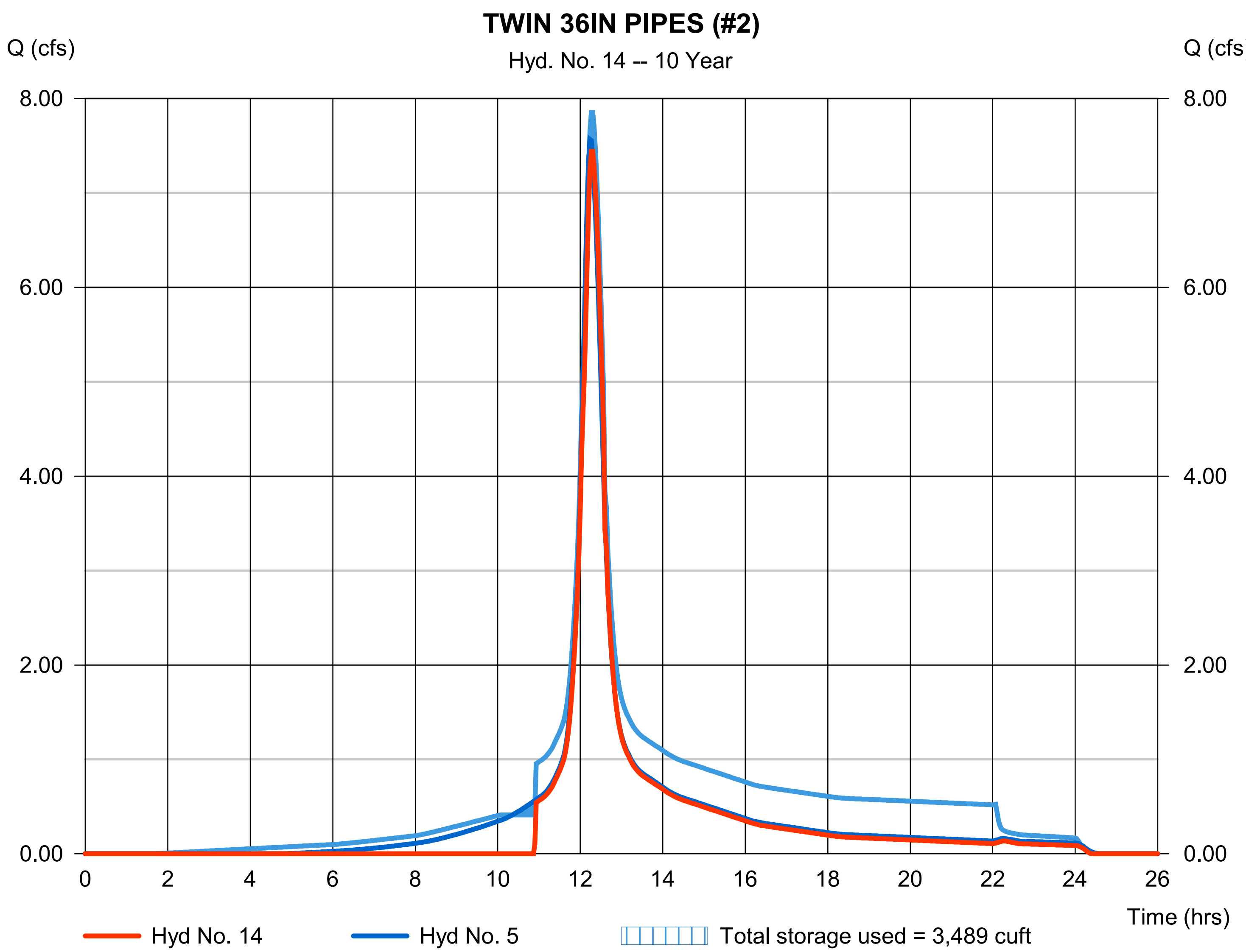
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 7.442 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.30 hrs
Time interval	= 2 min	Hyd. volume	= 31,857 cuft
Inflow hyd. No.	= 5 - PR WS-02D	Max. Elevation	= 139.08 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,489 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

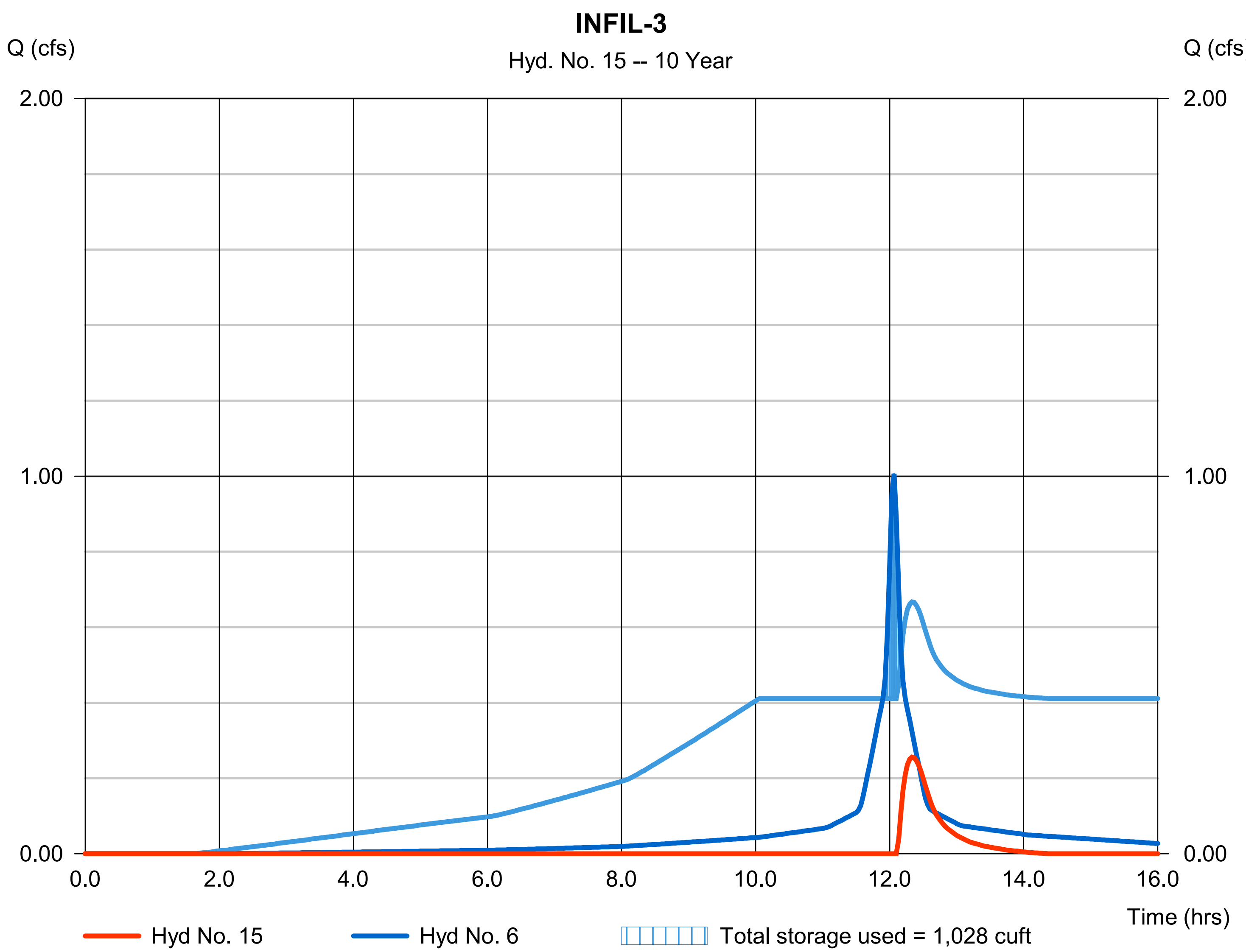
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

INFIL-3

Hydrograph type	= Reservoir	Peak discharge	= 0.256 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 538 cuft
Inflow hyd. No.	= 6 - PR WS-02E	Max. Elevation	= 137.07 ft
Reservoir name	= INFIL-3	Max. Storage	= 1,028 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

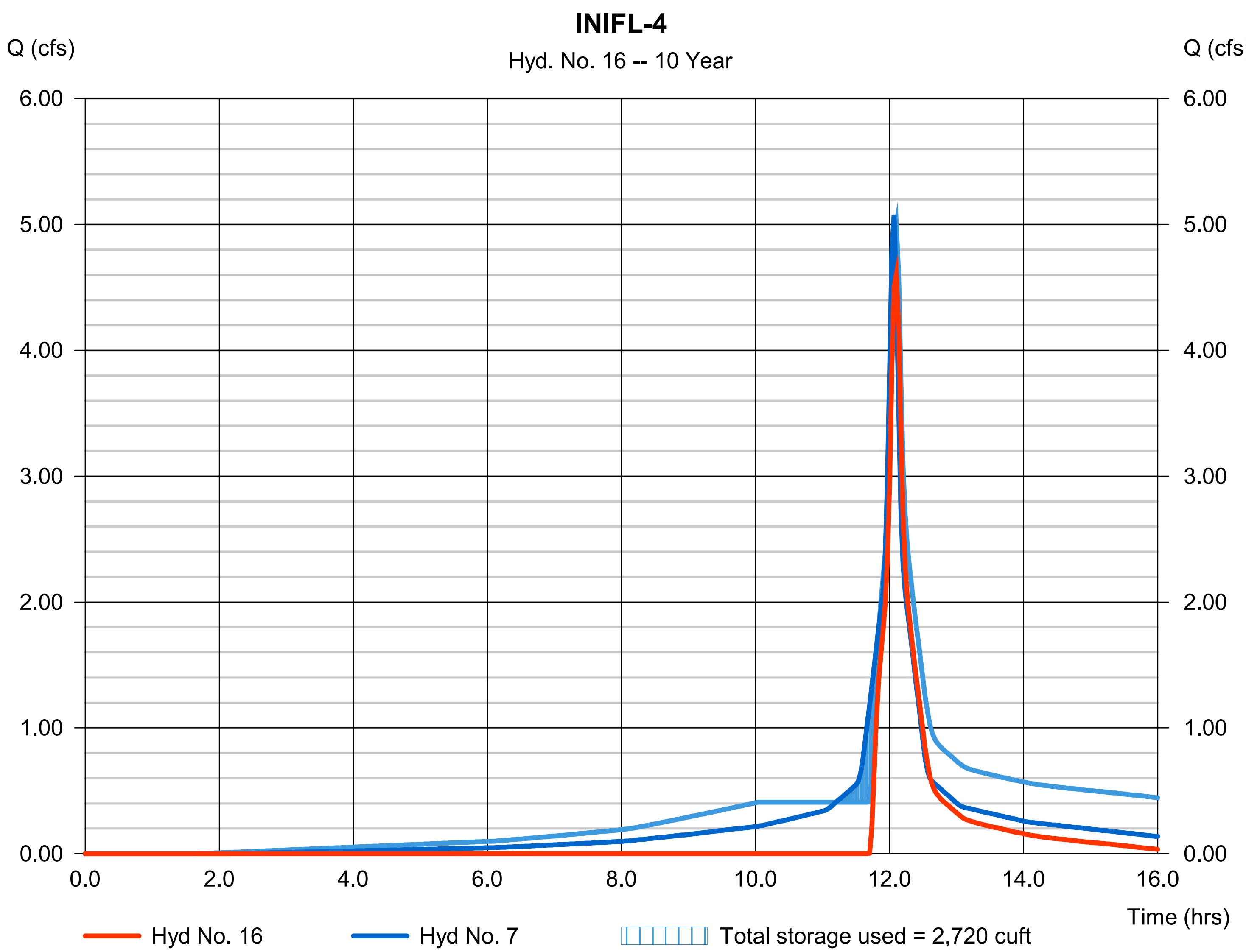
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

INIFL-4

Hydrograph type	= Reservoir	Peak discharge	= 4.598 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 8,520 cuft
Inflow hyd. No.	= 7 - PR WS-02F	Max. Elevation	= 137.23 ft
Reservoir name	= INIFL-4	Max. Storage	= 2,720 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

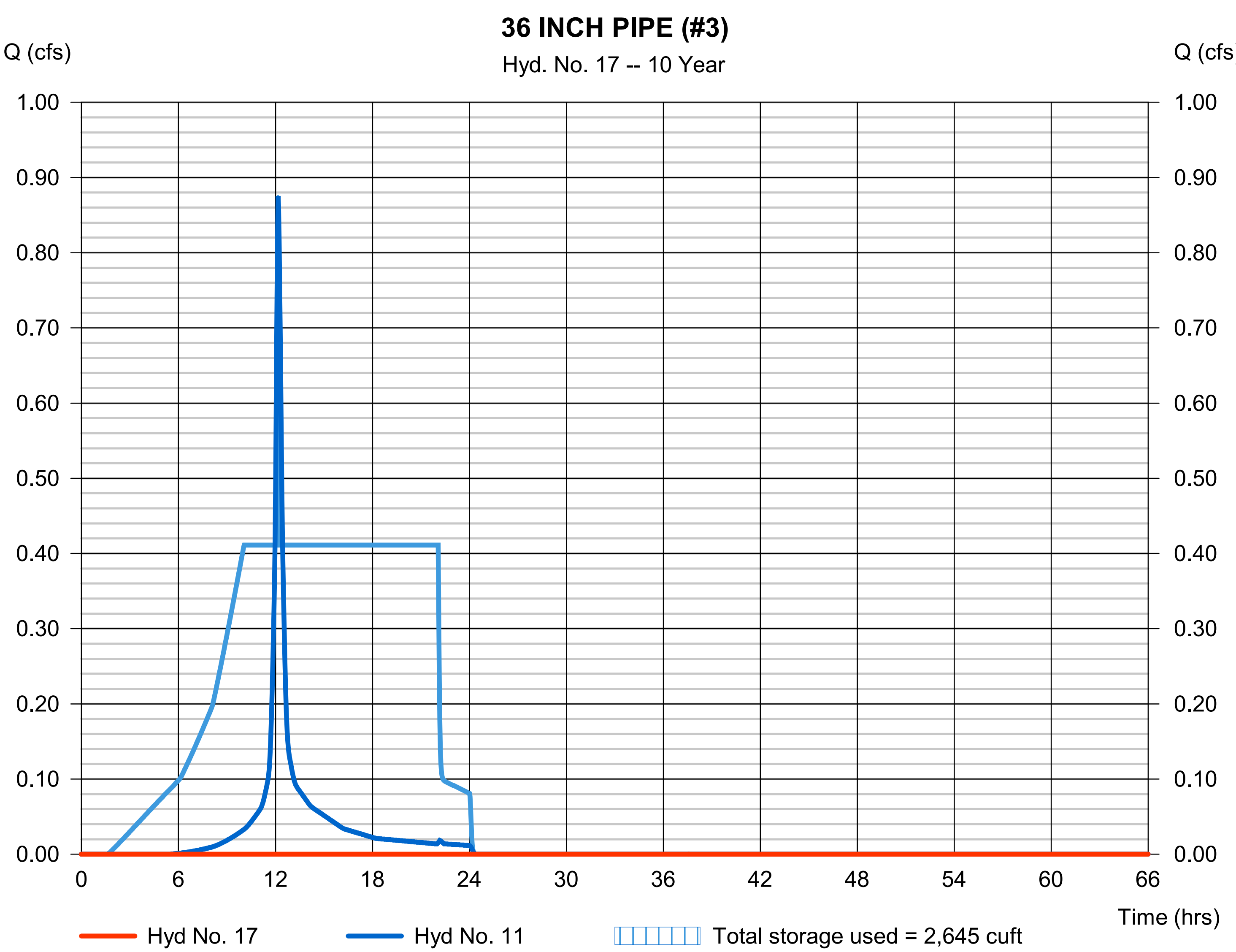
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.67 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - PR WS-02H	Max. Elevation	= 131.44 ft
Reservoir name	= 36IN - 3	Max. Storage	= 2,645 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

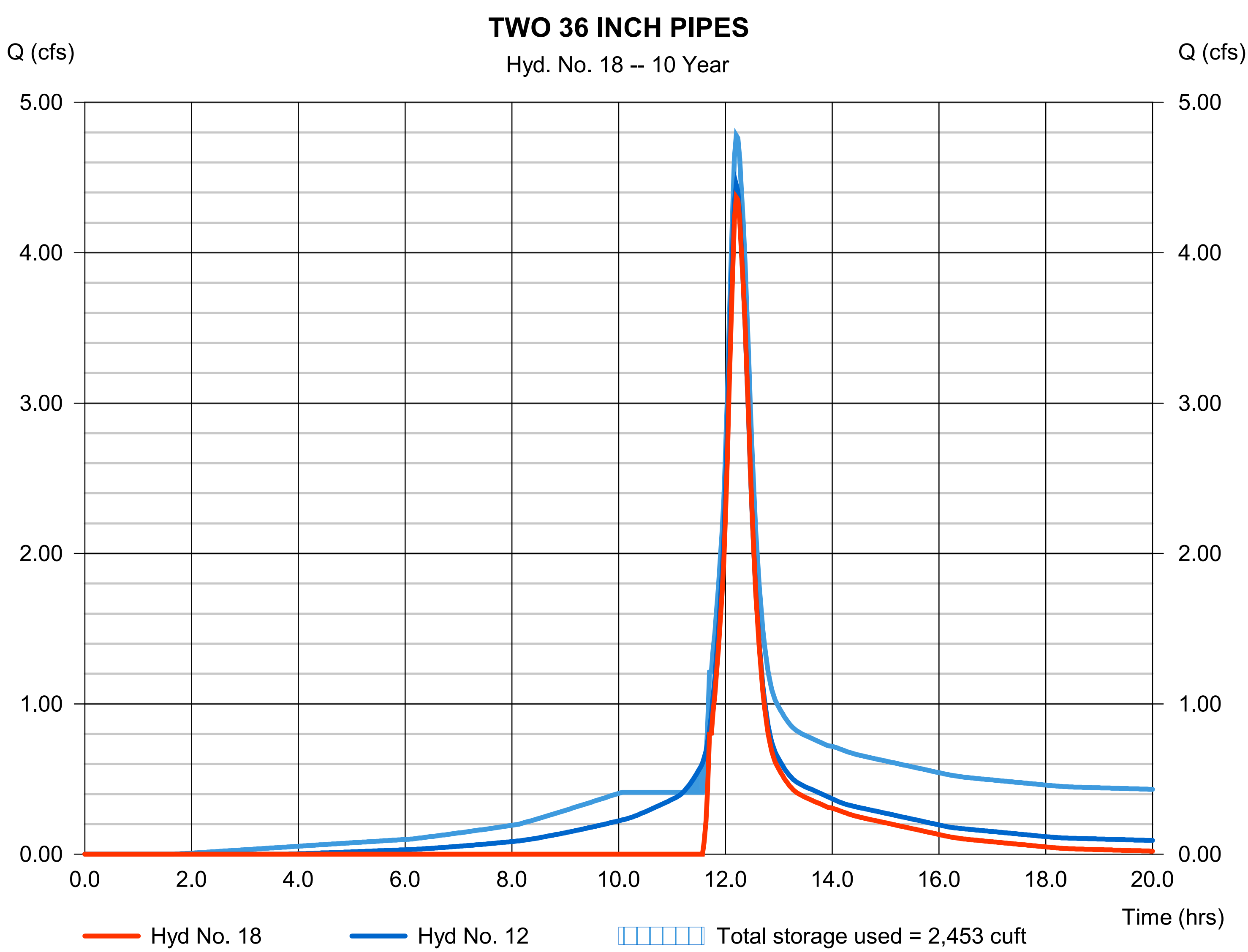
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 4.369 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 13,692 cuft
Inflow hyd. No.	= 12 - PR WS-02I	Max. Elevation	= 135.72 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,453 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



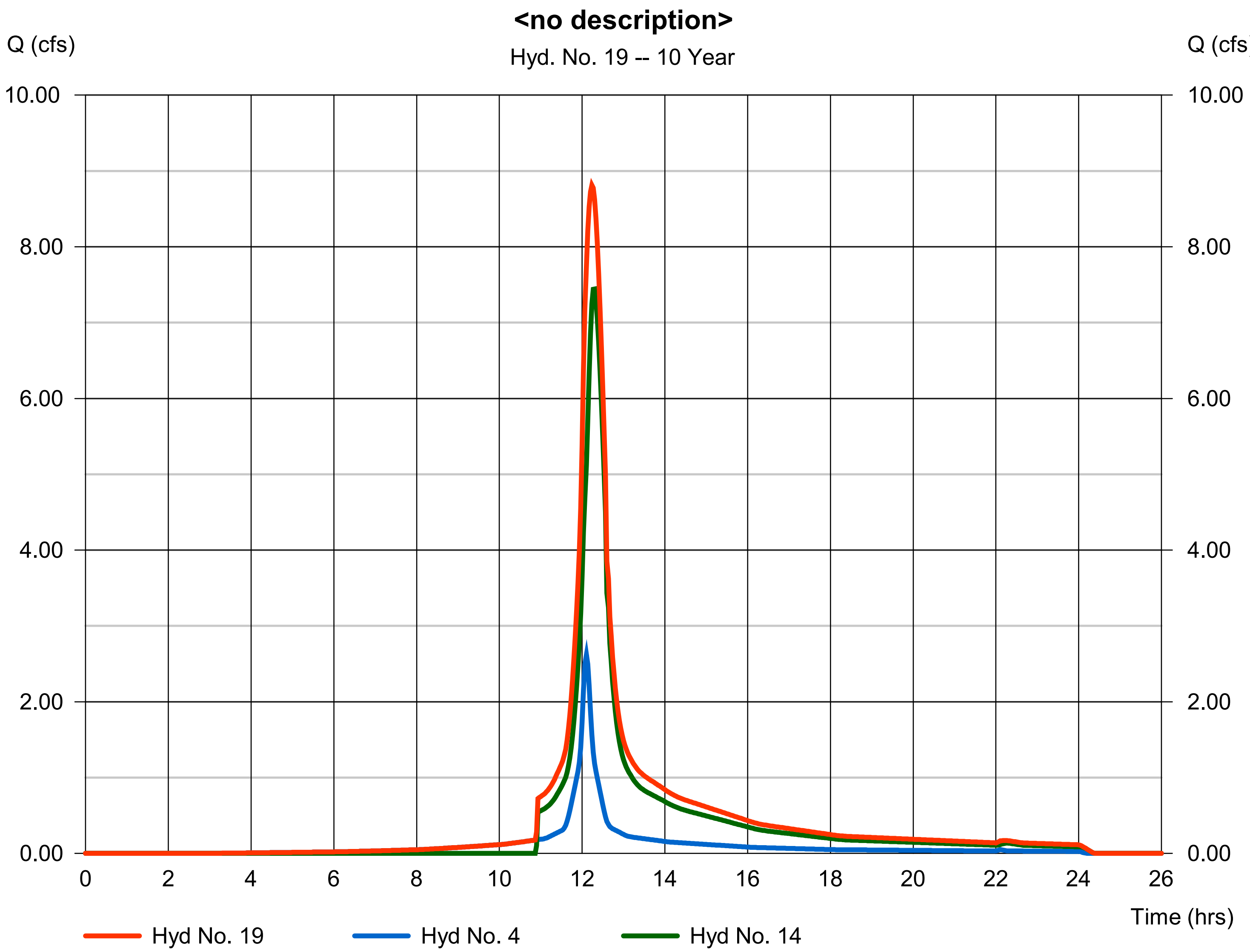
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 8.811 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 41,416 cuft
Inflow hyds.	= 4, 14	Contrib. drain. area	= 0.576 ac



Hydrograph Report

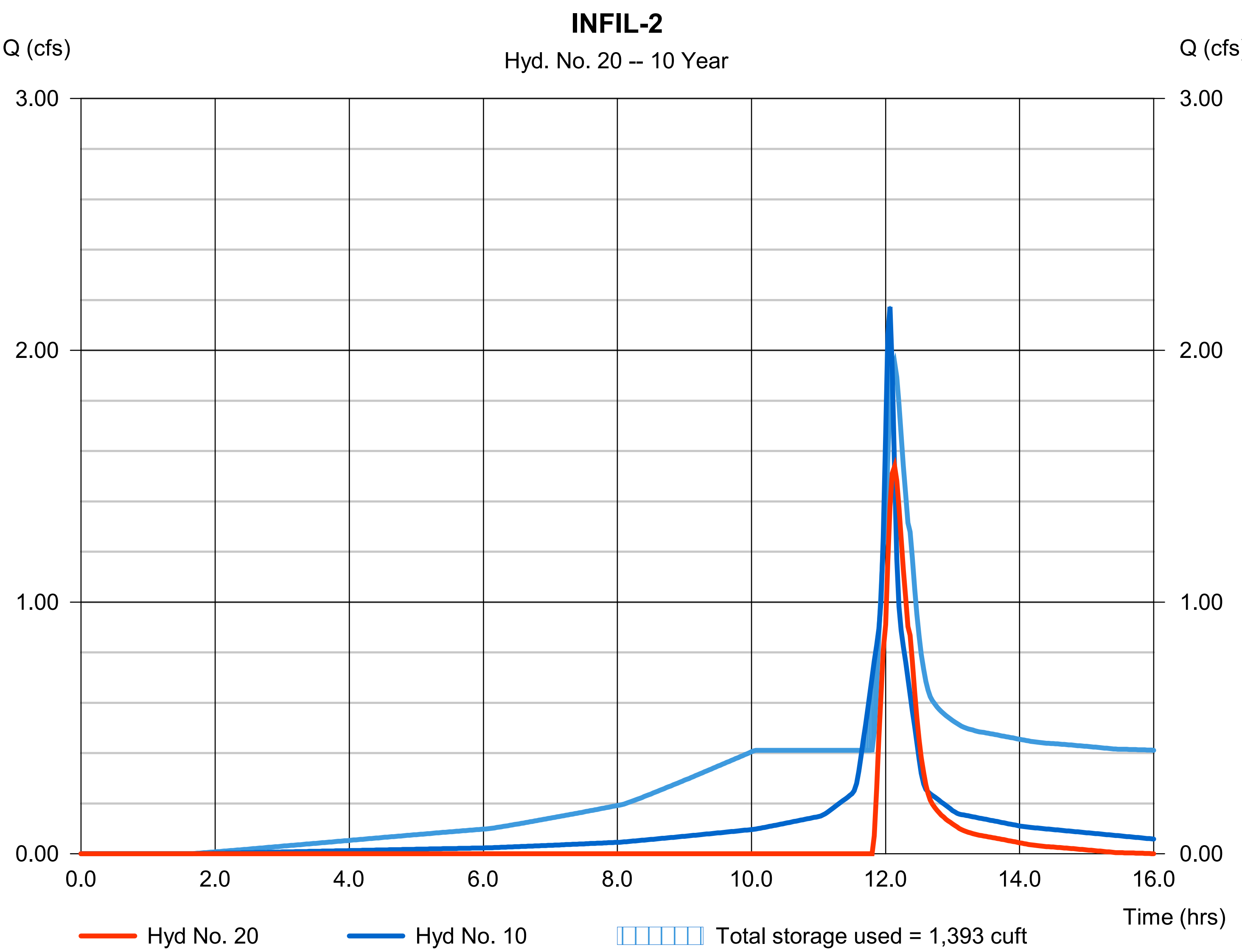
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 20

INFIL-2

Hydrograph type	= Reservoir	Peak discharge	= 1.539 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 3,027 cuft
Inflow hyd. No.	= 10 - PR WS-02G(II)	Max. Elevation	= 134.79 ft
Reservoir name	= INFIL-2	Max. Storage	= 1,393 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



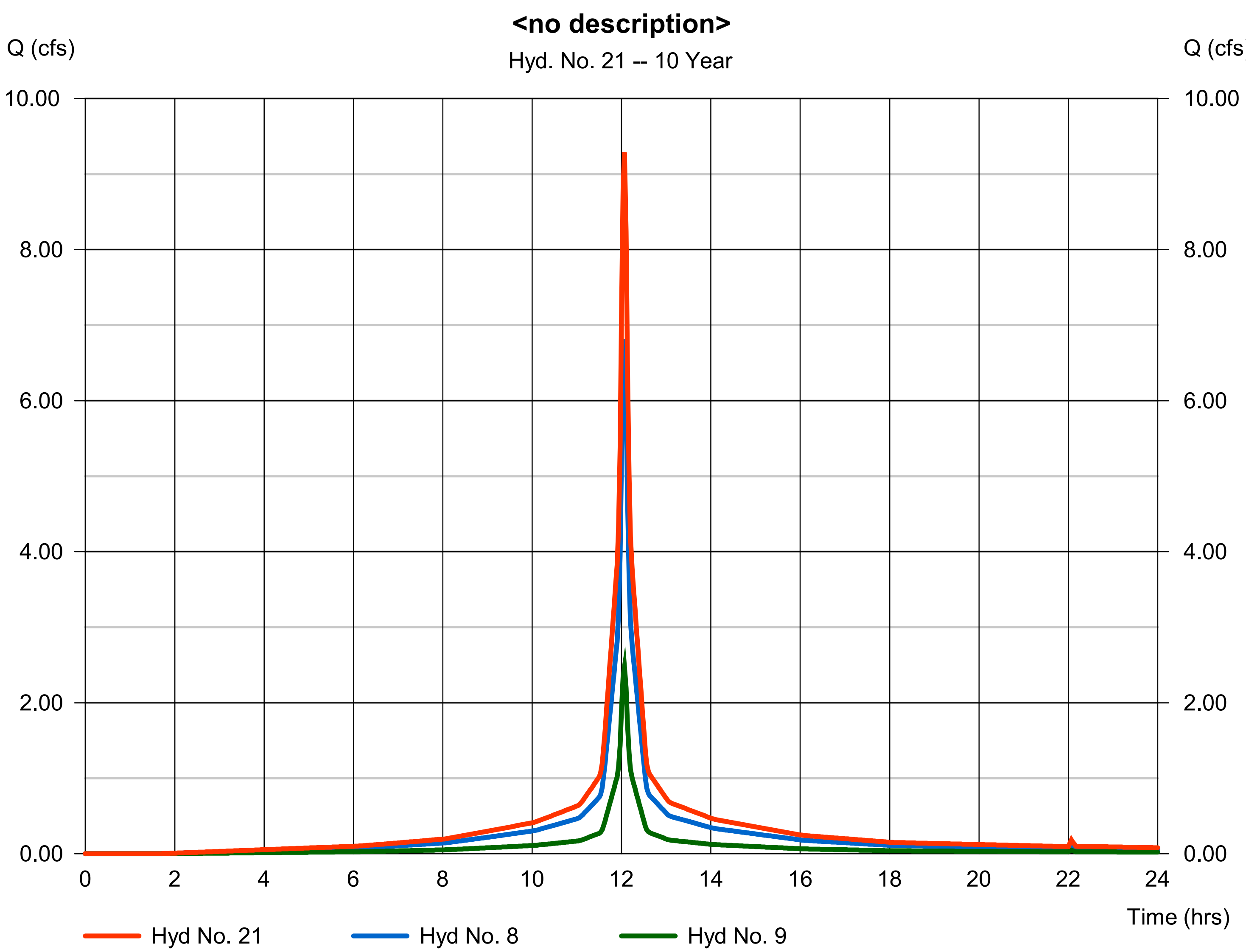
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

<no description>

Hydrograph type	= Combine	Peak discharge	= 9.287 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 30,998 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 1.855 ac



Hydrograph Report

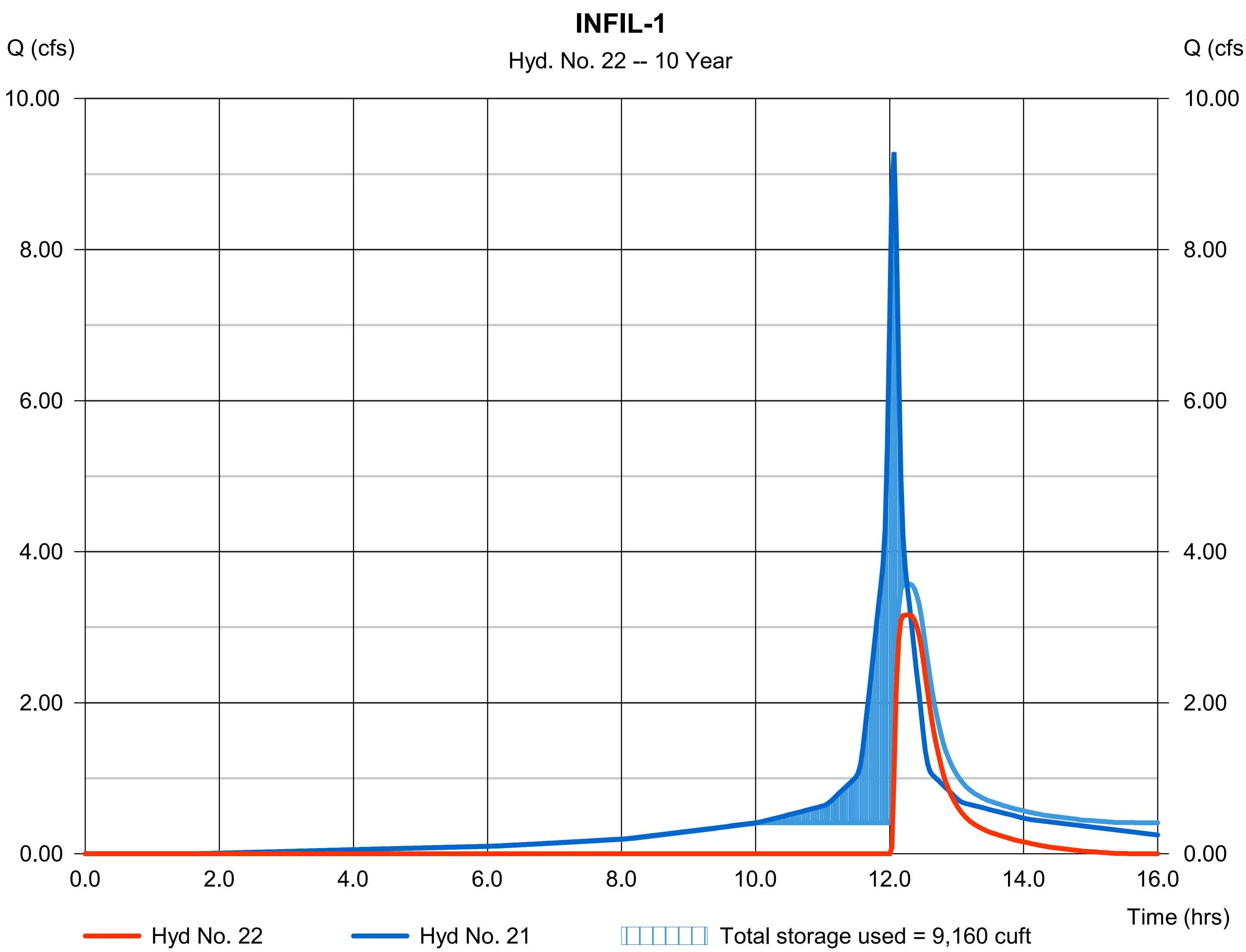
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 22

INFIL-1

Hydrograph type	= Reservoir	Peak discharge	= 3.162 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 8,485 cuft
Inflow hyd. No.	= 21 - <no description>	Max. Elevation	= 135.72 ft
Reservoir name	= INFIL-1	Max. Storage	= 9,160 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



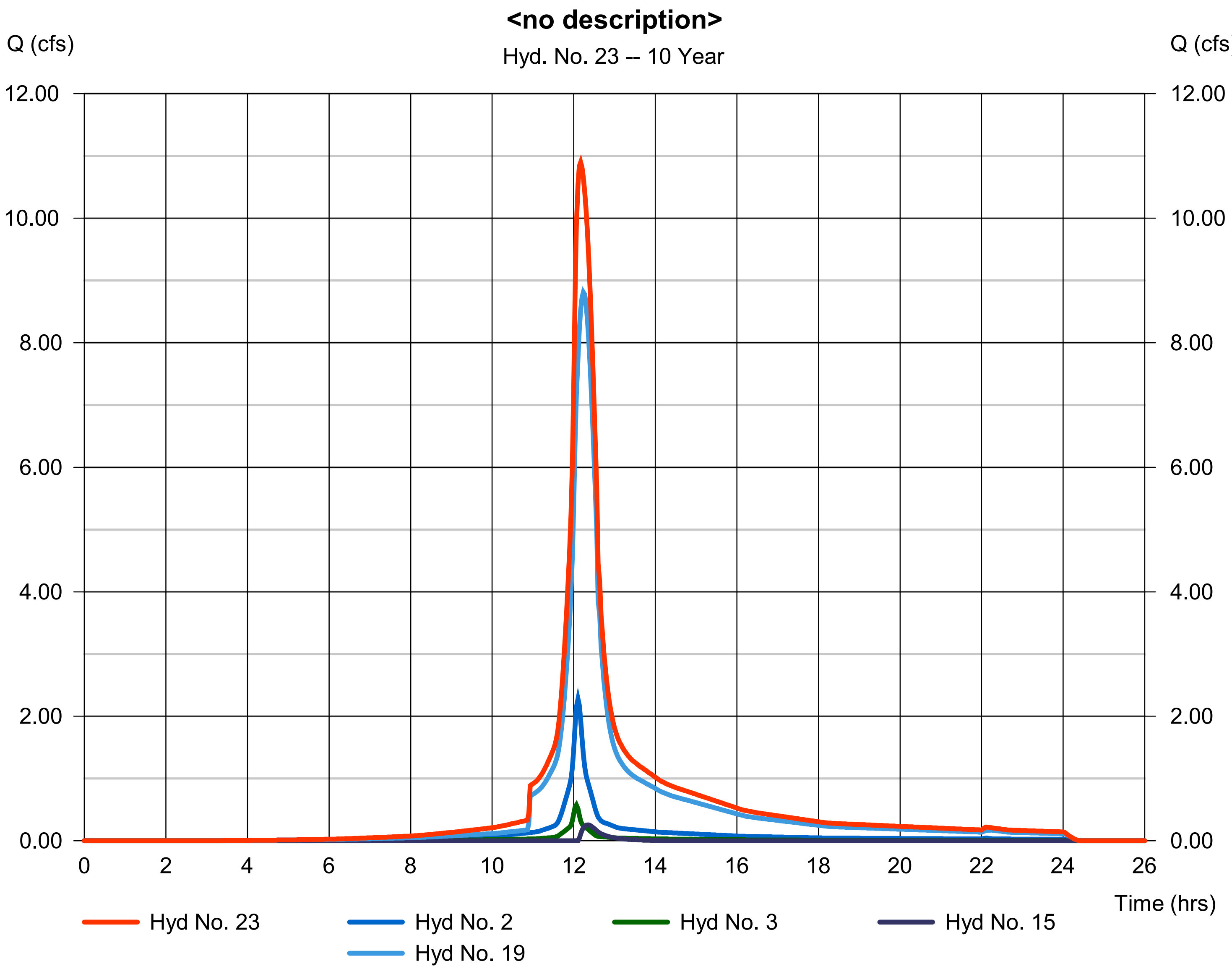
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 23

<no description>

Hydrograph type	= Combine	Peak discharge	= 10.90 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 51,656 cuft
Inflow hyds.	= 2, 3, 15, 19	Contrib. drain. area	= 0.689 ac



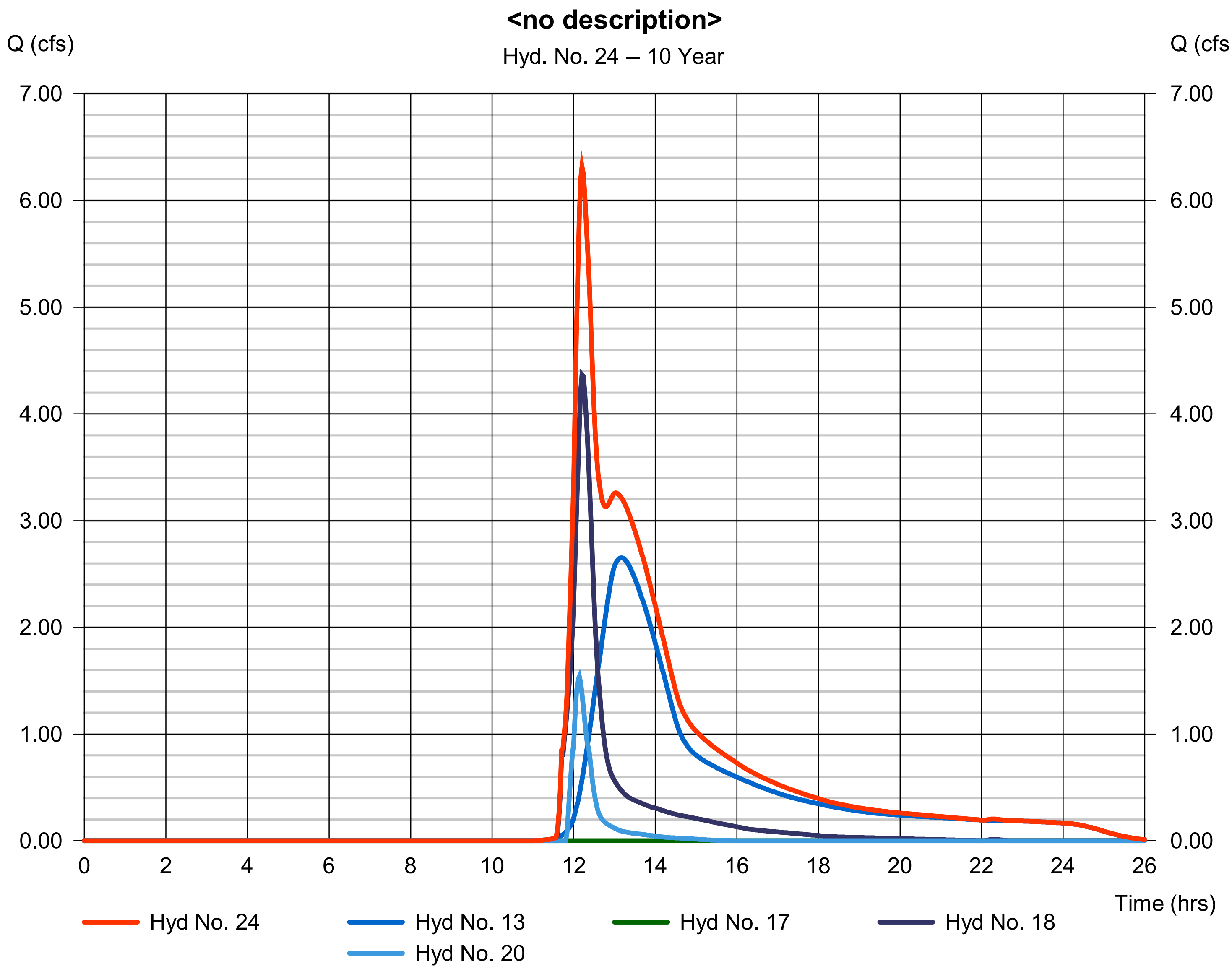
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 24

<no description>

Hydrograph type	= Combine	Peak discharge	= 6.316 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 46,058 cuft
Inflow hyds.	= 13, 17, 18, 20	Contrib. drain. area	= 4.837 ac



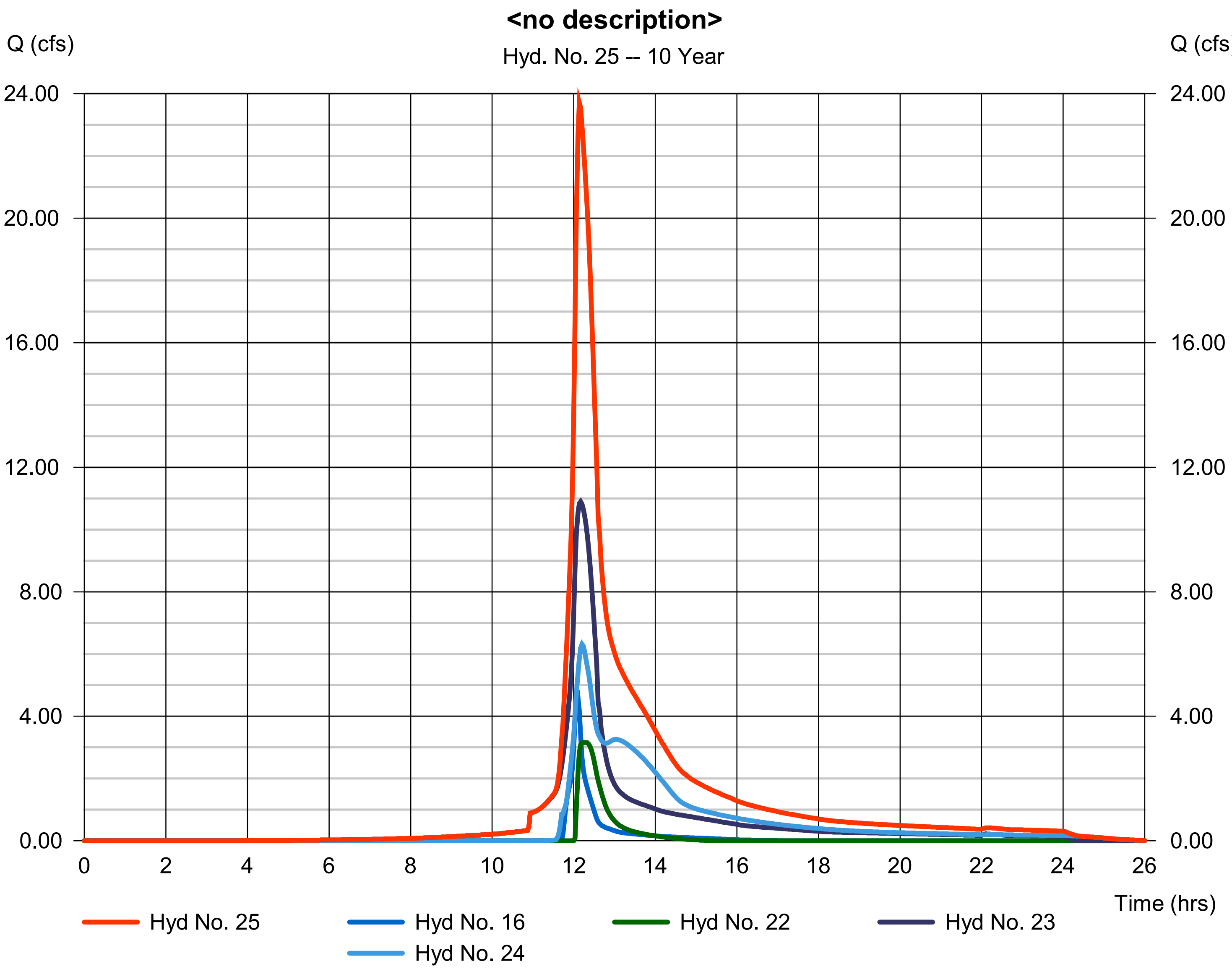
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 25

<no description>

Hydrograph type	= Combine	Peak discharge	= 23.71 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 114,719 cuft
Inflow hyds.	= 16, 22, 23, 24	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	5.692	2	752	37,264	------	------	------	PR WS-01
2	SCS Runoff	2.885	2	726	10,181	------	------	------	PR WS-02B(I)
3	SCS Runoff	0.728	2	724	2,262	------	------	------	PR WS-02B(III)
4	SCS Runoff	3.236	2	726	11,952	------	------	------	PR WS-02C
5	SCS Runoff	9.563	2	734	46,823	------	------	------	PR WS-02D
6	SCS Runoff	1.234	2	724	4,109	------	------	------	PR WS-02E
7	SCS Runoff	6.217	2	724	20,708	------	------	------	PR WS-02F
8	SCS Runoff	8.330	2	724	28,092	------	------	------	PR WS-02A
9	SCS Runoff	3.024	2	724	10,197	------	------	------	PR WS-02G(I)
10	SCS Runoff	2.656	2	724	8,958	------	------	------	PR WS-02G(II)
11	SCS Runoff	1.116	2	730	4,653	------	------	------	PR WS-02H
12	SCS Runoff	5.543	2	732	25,812	------	------	------	PR WS-02I
13	SCS Runoff	4.052	2	788	43,145	------	------	------	PR WS-03
14	Reservoir	9.452	2	736	41,926	5	139.13	3,703	TWIN 36IN PIPES (#2)
15	Reservoir	0.490	2	732	1,019	6	137.27	1,147	INFIL-3
16	Reservoir	5.631	2	726	11,834	7	137.53	2,870	INIFL-4
17	Reservoir	0.000	2	668	0	11	131.44	3,602	36 INCH PIPE (#3)
18	Reservoir	5.460	2	732	18,770	12	135.73	2,475	TWO 36 INCH PIPES
19	Combine	11.17	2	734	53,878	4, 14,	------	------	<no description>
20	Reservoir	1.854	2	728	4,305	10	135.20	1,561	INFIL-2
21	Combine	11.35	2	724	38,289	8, 9,	------	------	<no description>
22	Reservoir	6.146	2	730	13,535	21	136.31	10,413	INFIL-1
23	Combine	14.07	2	730	67,341	2, 3, 15, 19,	------	------	<no description>
24	Combine	8.206	2	732	66,220	13, 17, 18, 20,	------	------	<no description>
25	Combine	32.78	2	728	158,930	16, 22, 23, 24	------	------	<no description>

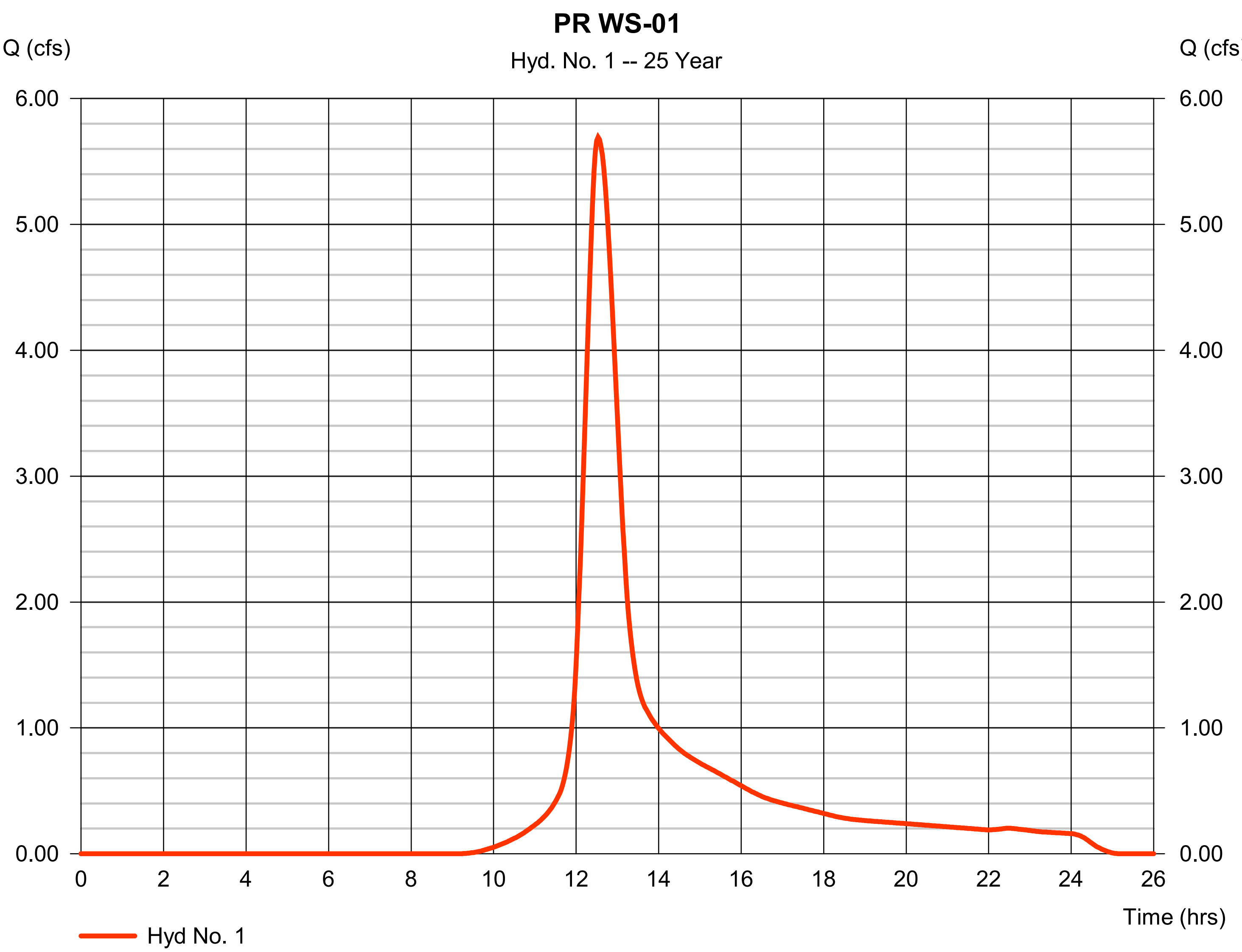
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

PR WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 5.692 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 37,264 cuft
Drainage area	= 3.405 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



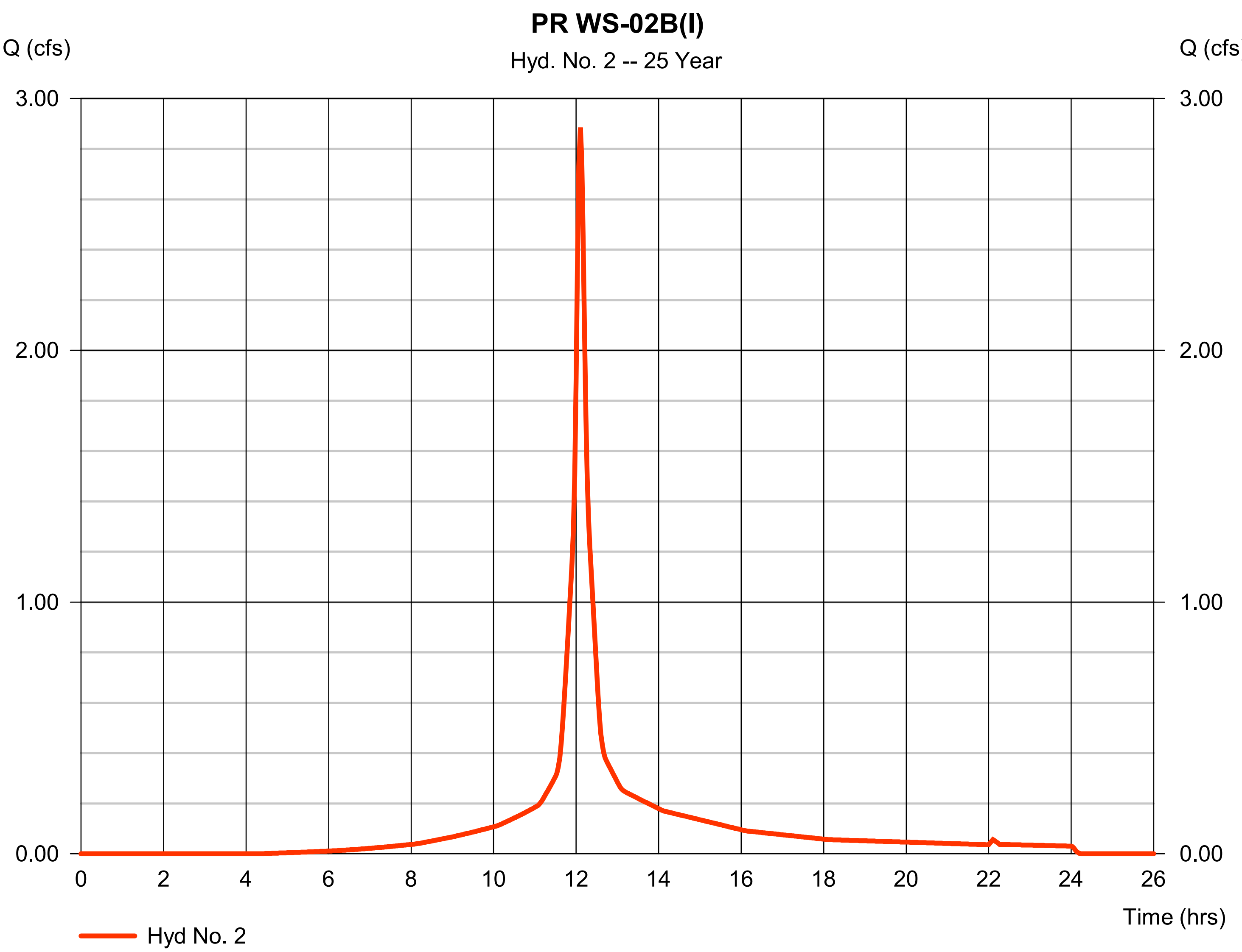
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 2

PR WS-02B(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.885 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 10,181 cuft
Drainage area	= 0.557 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 7.40 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



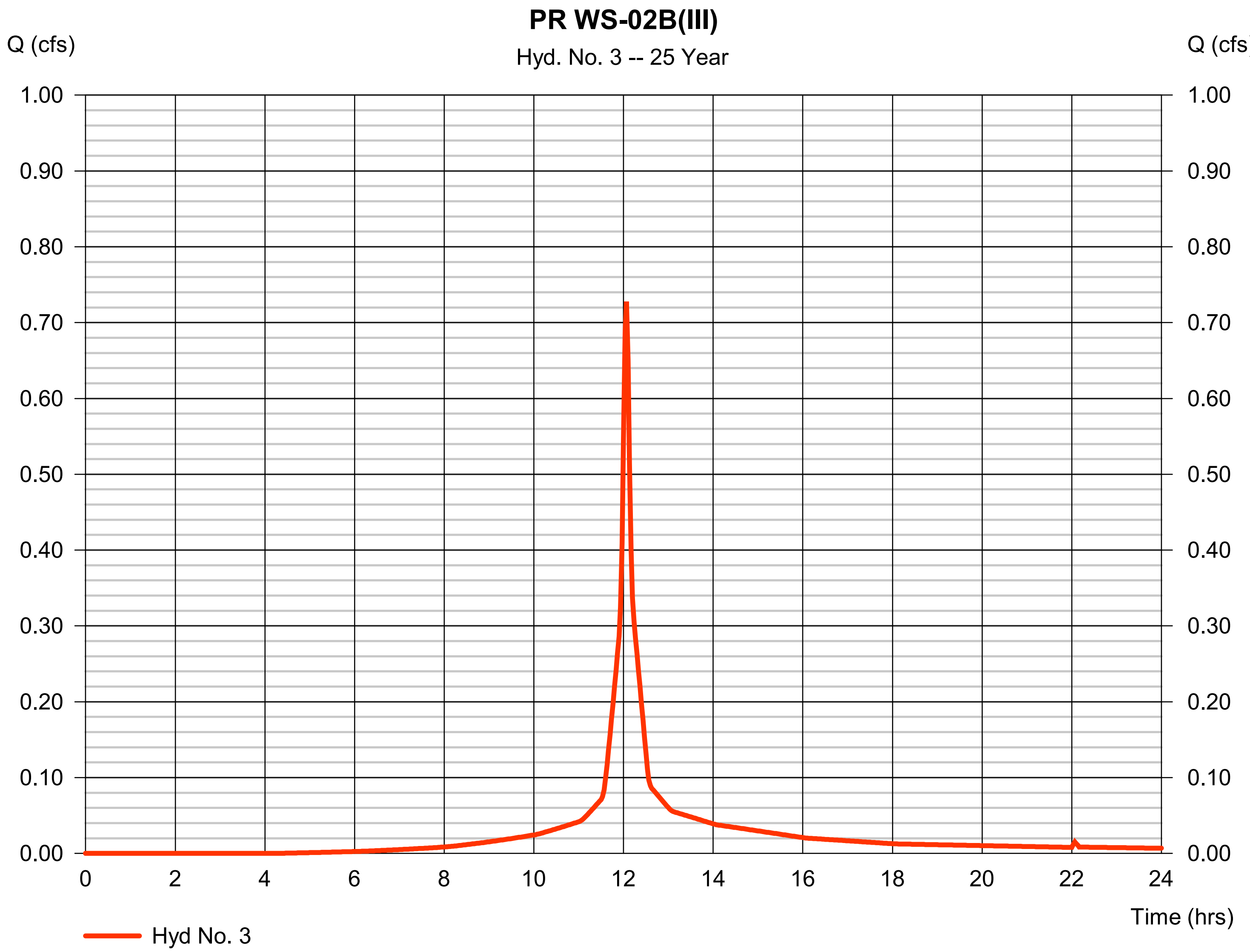
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 3

PR WS-02B(III)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.728 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,262 cuft
Drainage area	= 0.132 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



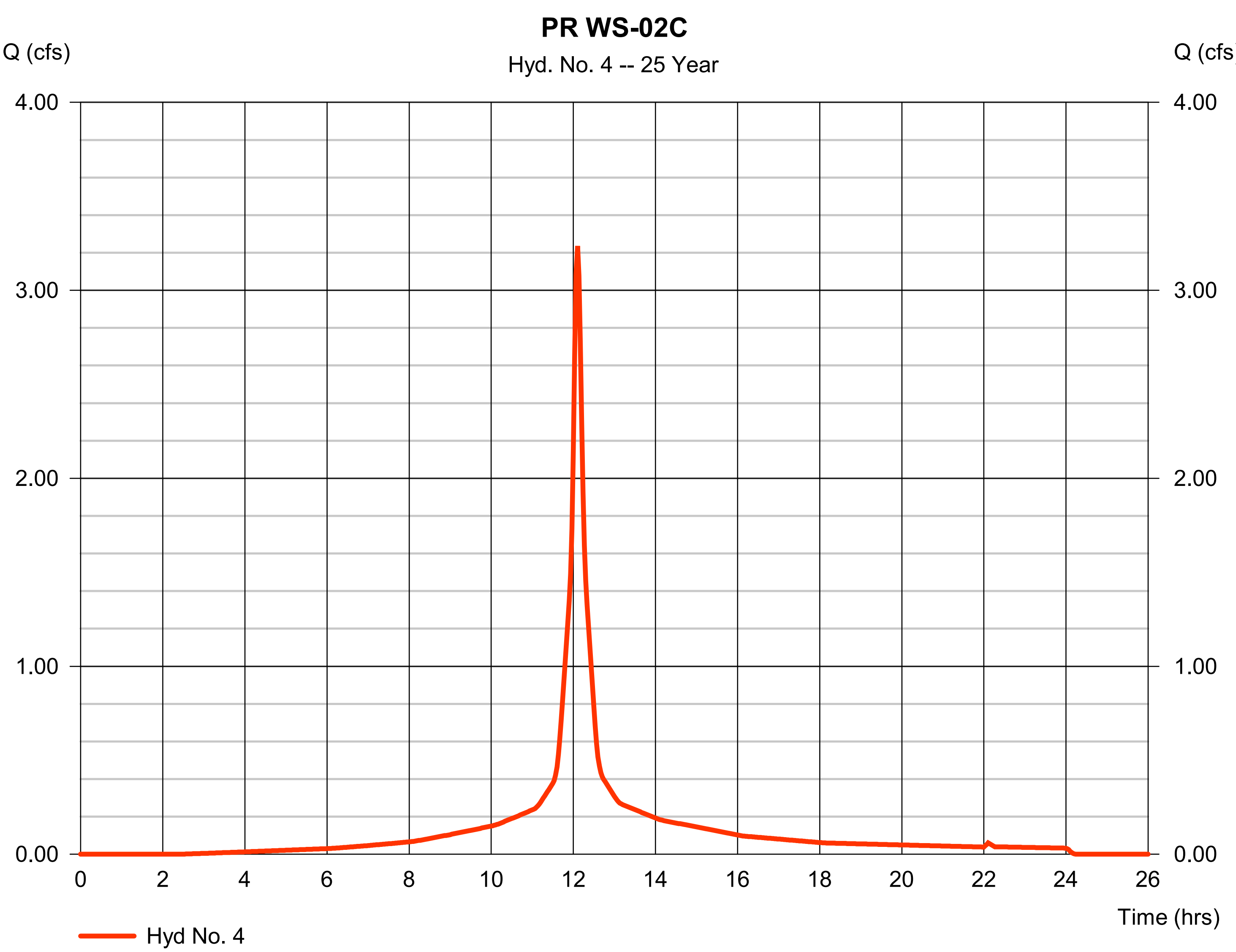
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 4

PR WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 3.236 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 11,952 cuft
Drainage area	= 0.576 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



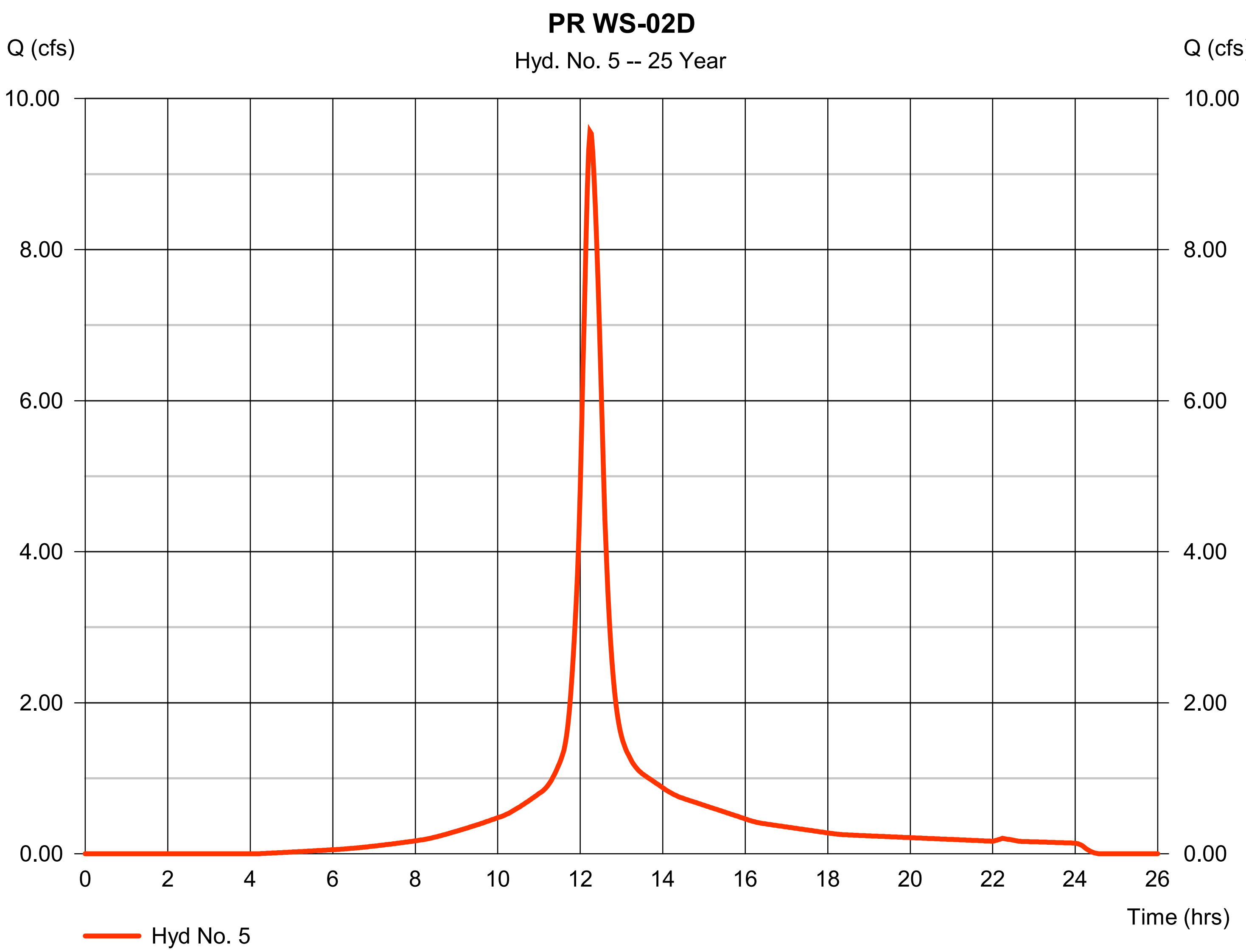
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 5

PR WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 9.563 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 46,823 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



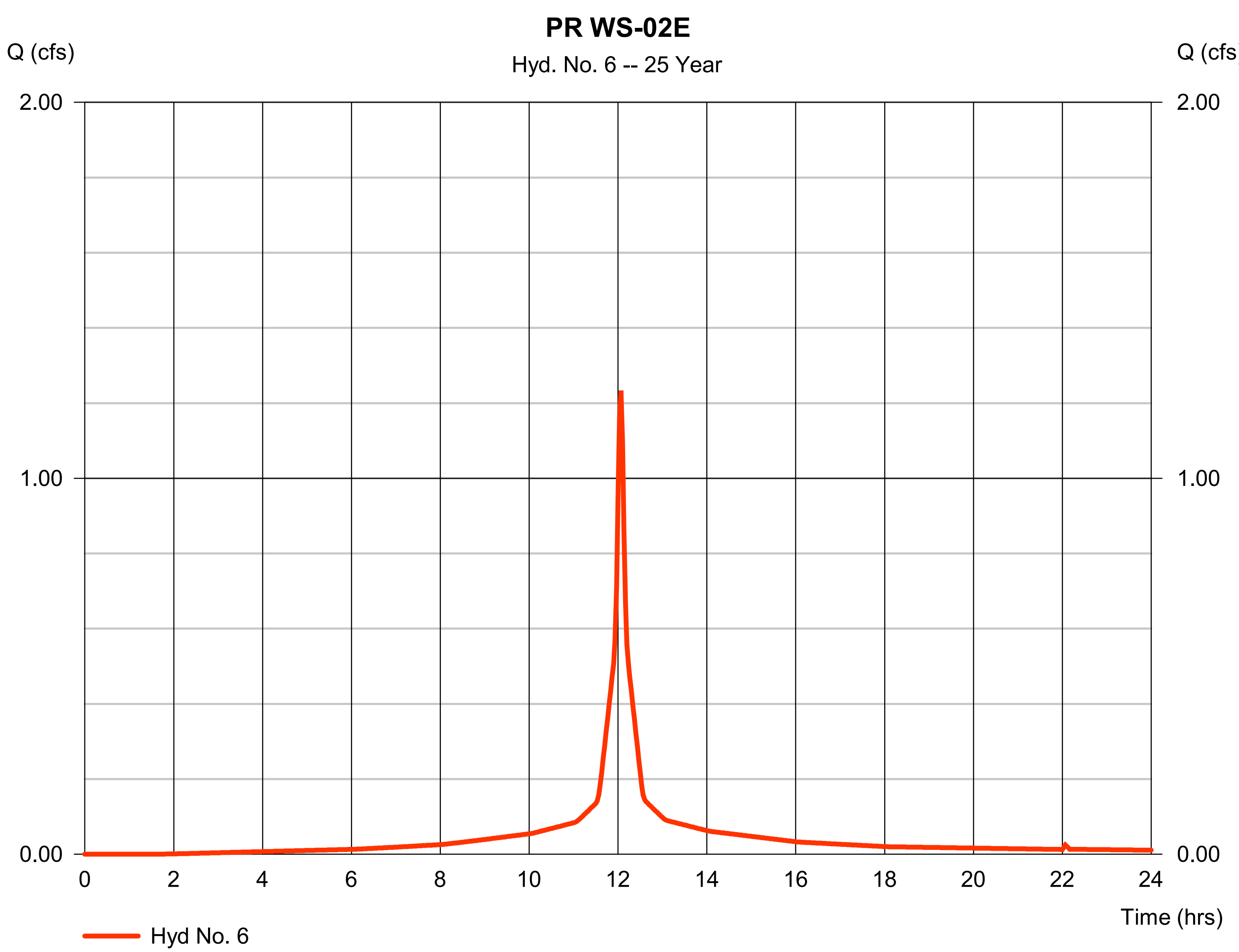
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

PR WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 1.234 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 4,109 cuft
Drainage area	= 0.203 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



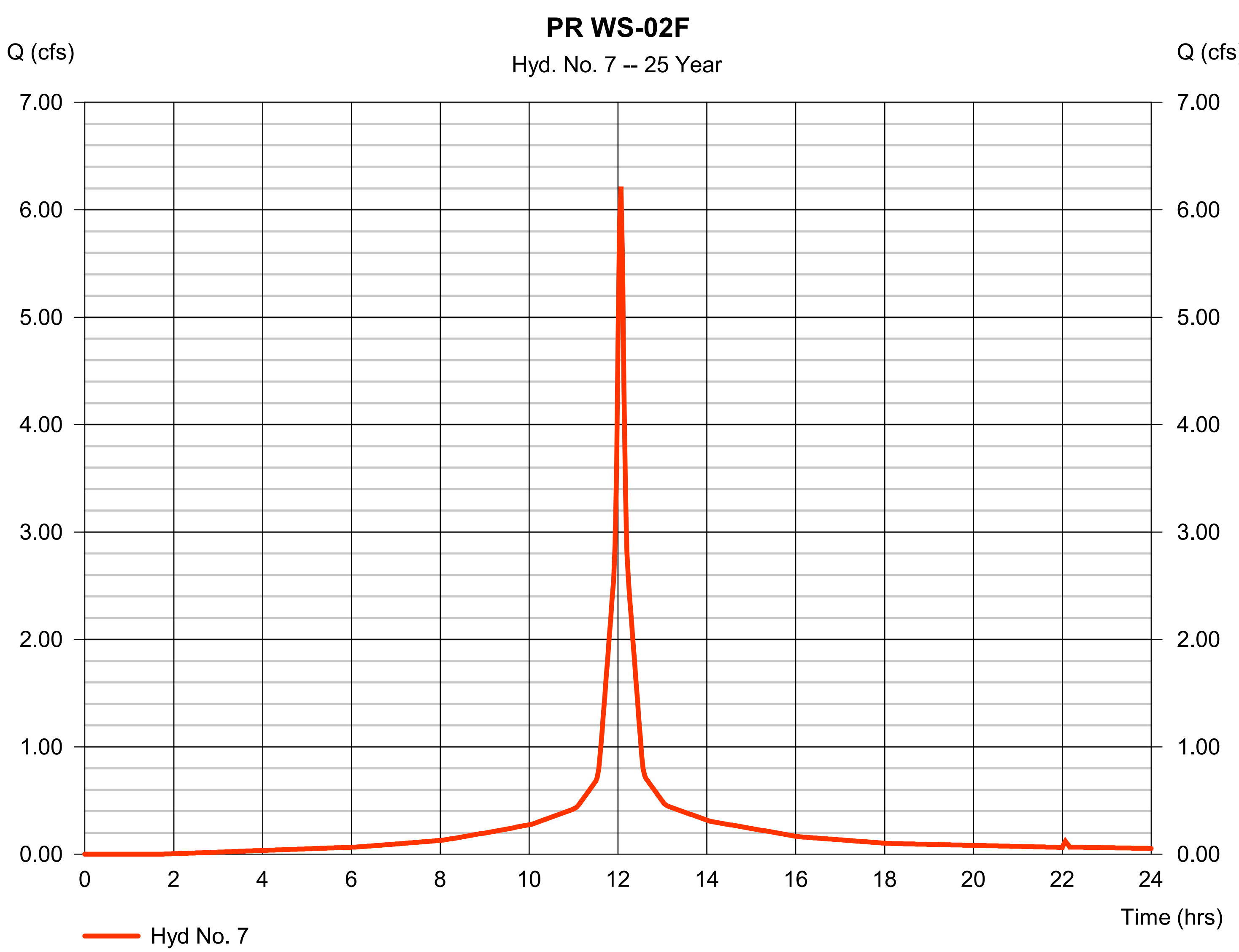
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

PR WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 6.217 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 20,708 cuft
Drainage area	= 1.023 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



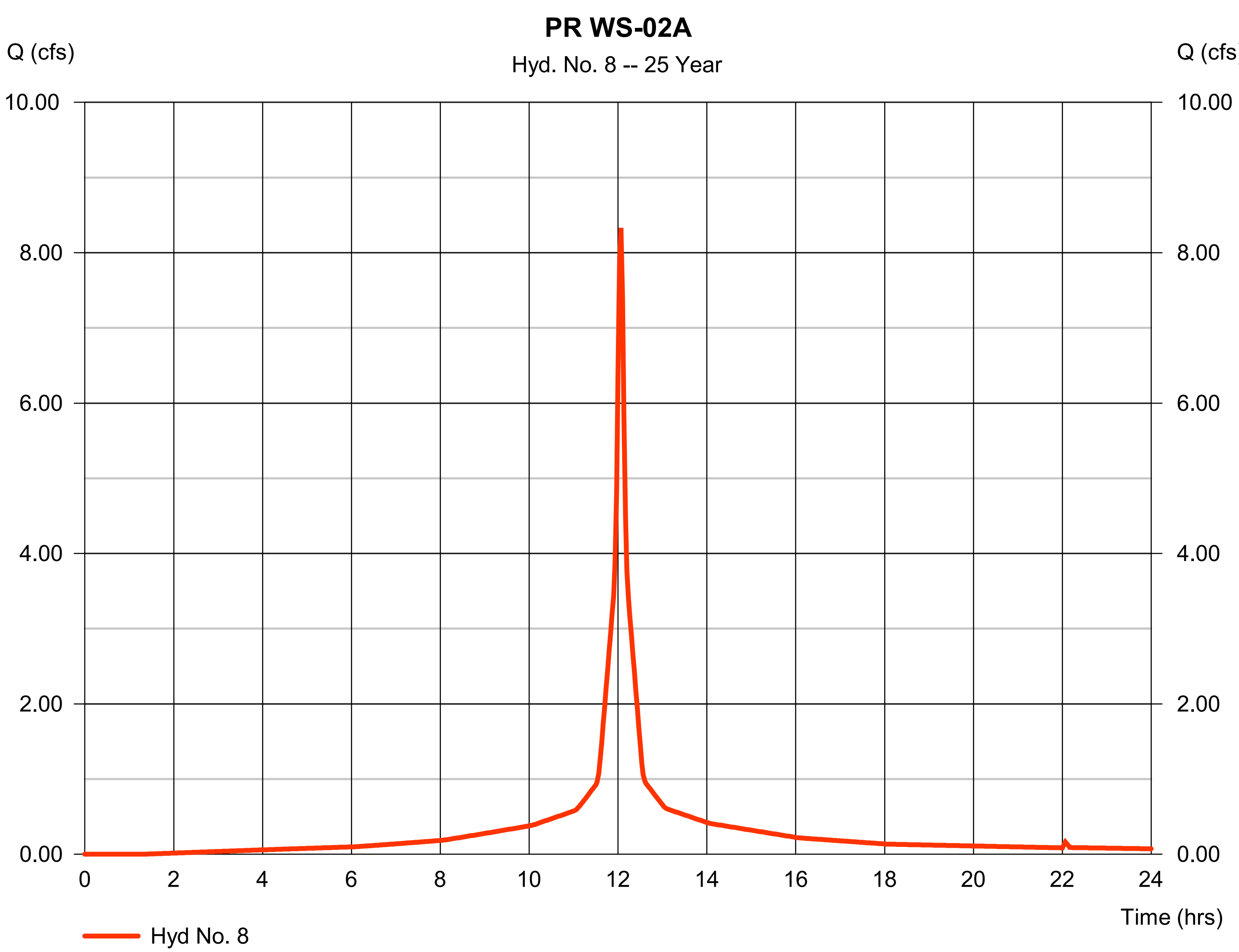
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

PR WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 8.330 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 28,092 cuft
Drainage area	= 1.361 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



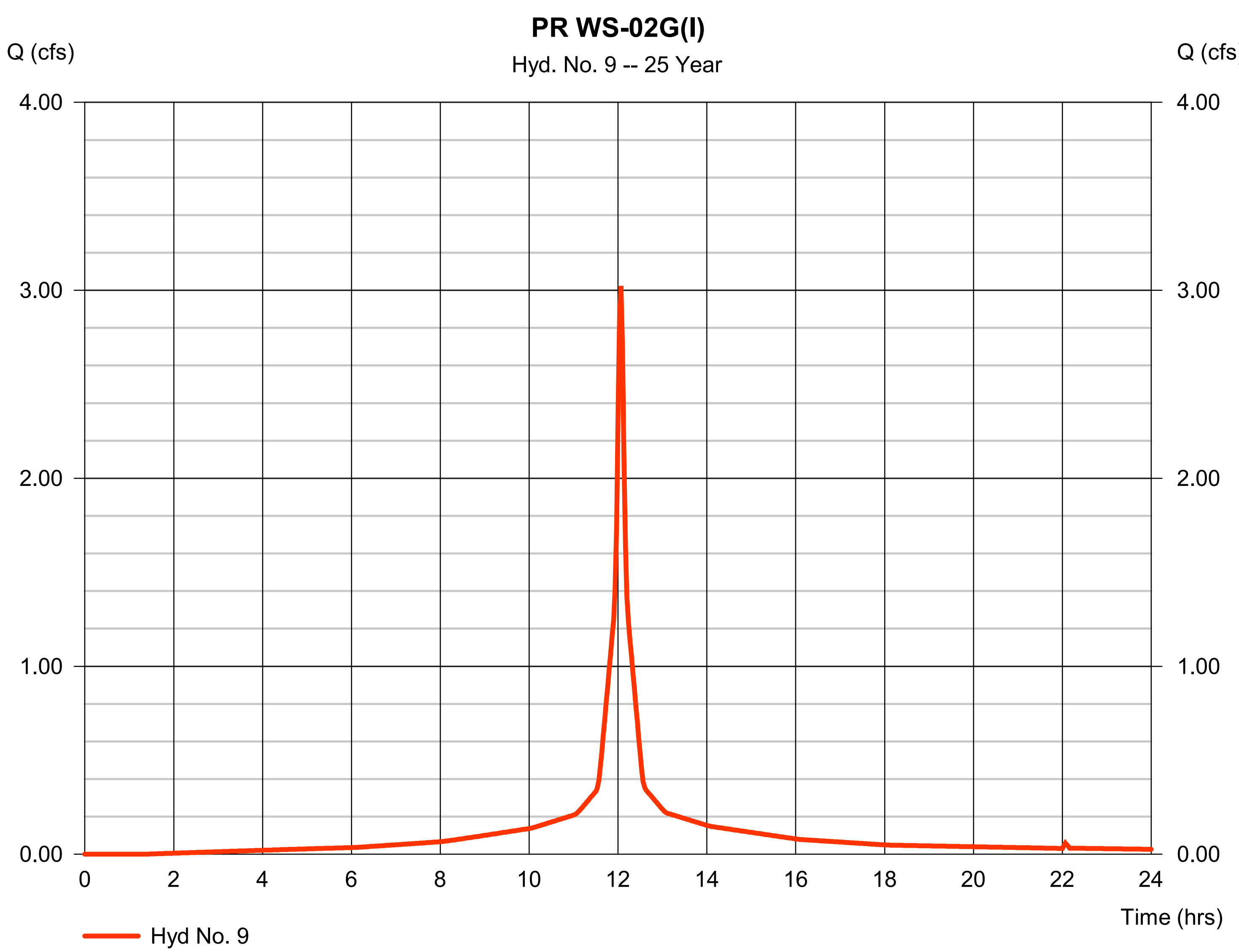
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 9

PR WS-02G(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.024 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 10,197 cuft
Drainage area	= 0.494 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



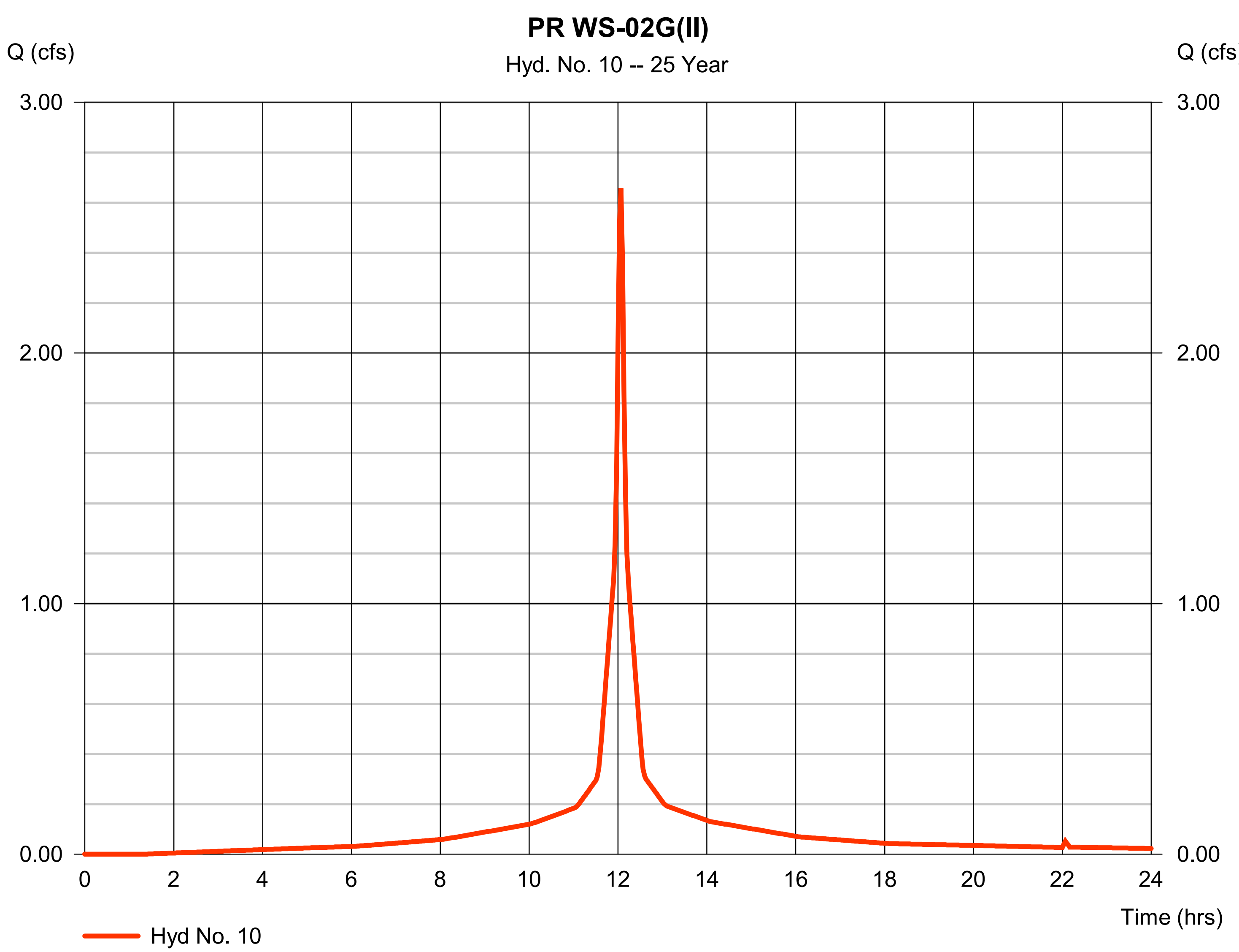
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

PR WS-02G(II)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.656 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 8,958 cuft
Drainage area	= 0.434 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



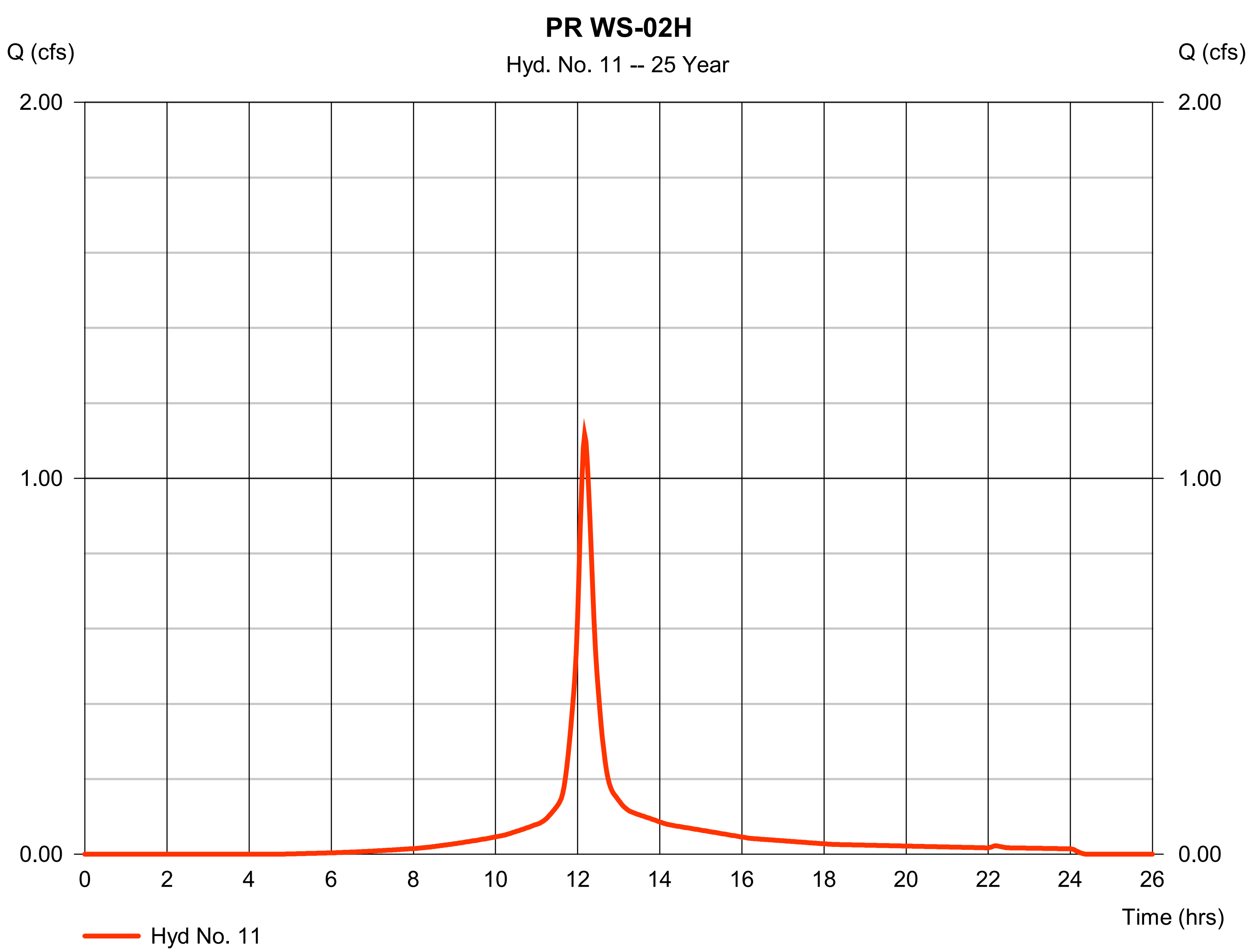
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

PR WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 1.116 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 4,653 cuft
Drainage area	= 0.267 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.80 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



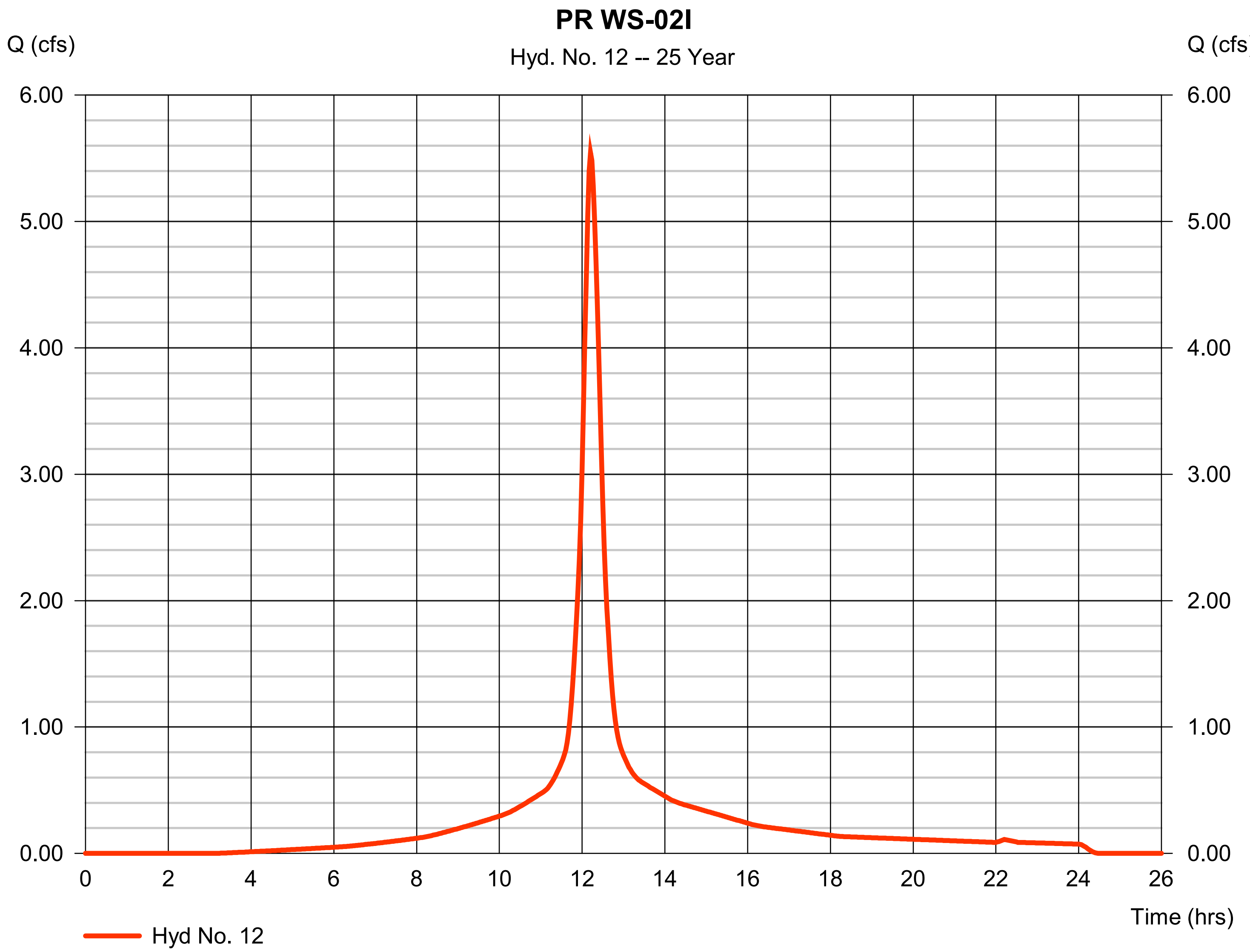
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 12

PR WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 5.543 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 25,812 cuft
Drainage area	= 1.296 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

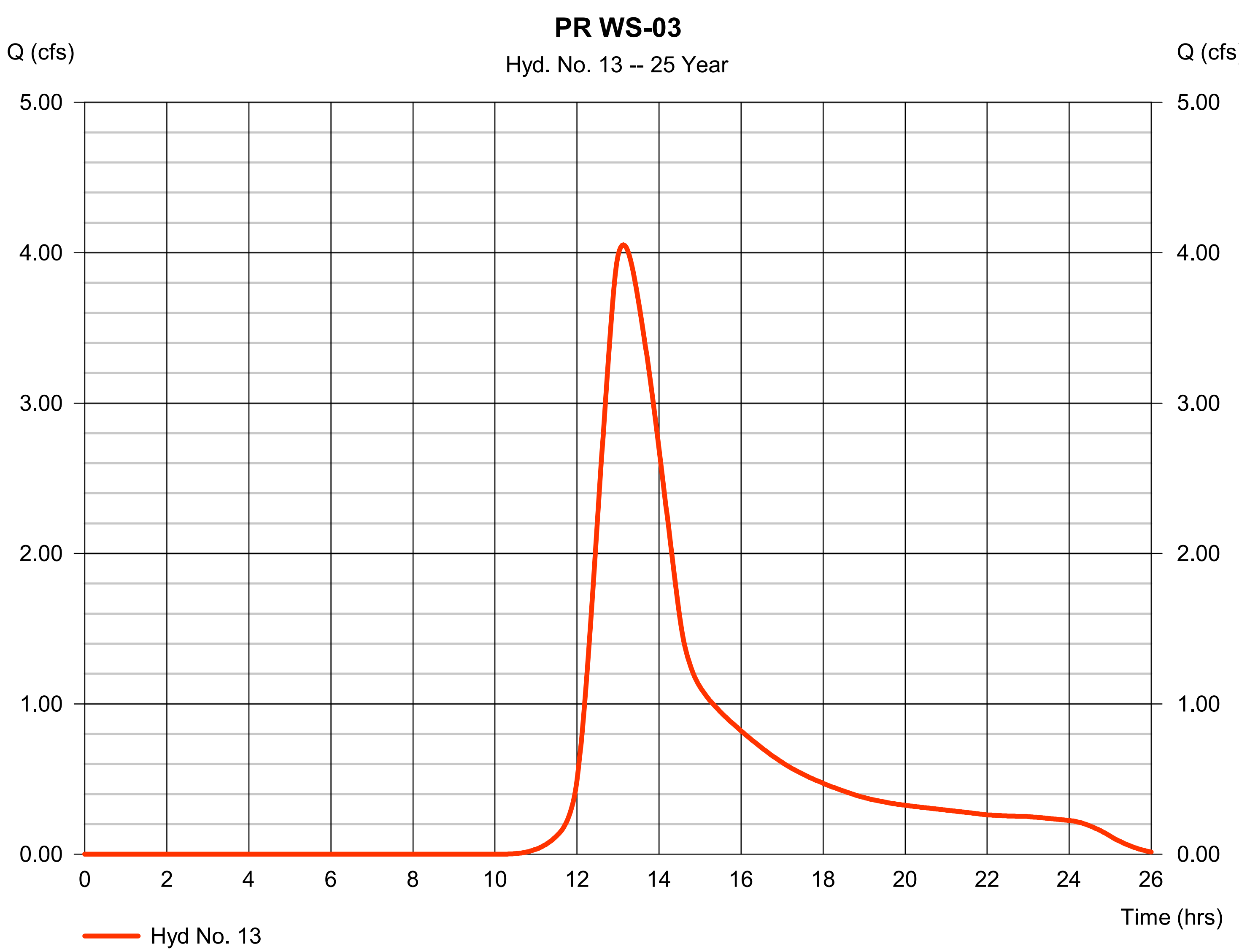


Hydrograph Report

Hyd. No. 13

PR WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 4.052 cfs
Storm frequency	= 25 yrs	Time to peak	= 13.13 hrs
Time interval	= 2 min	Hyd. volume	= 43,145 cuft
Drainage area	= 4.837 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 6.54 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

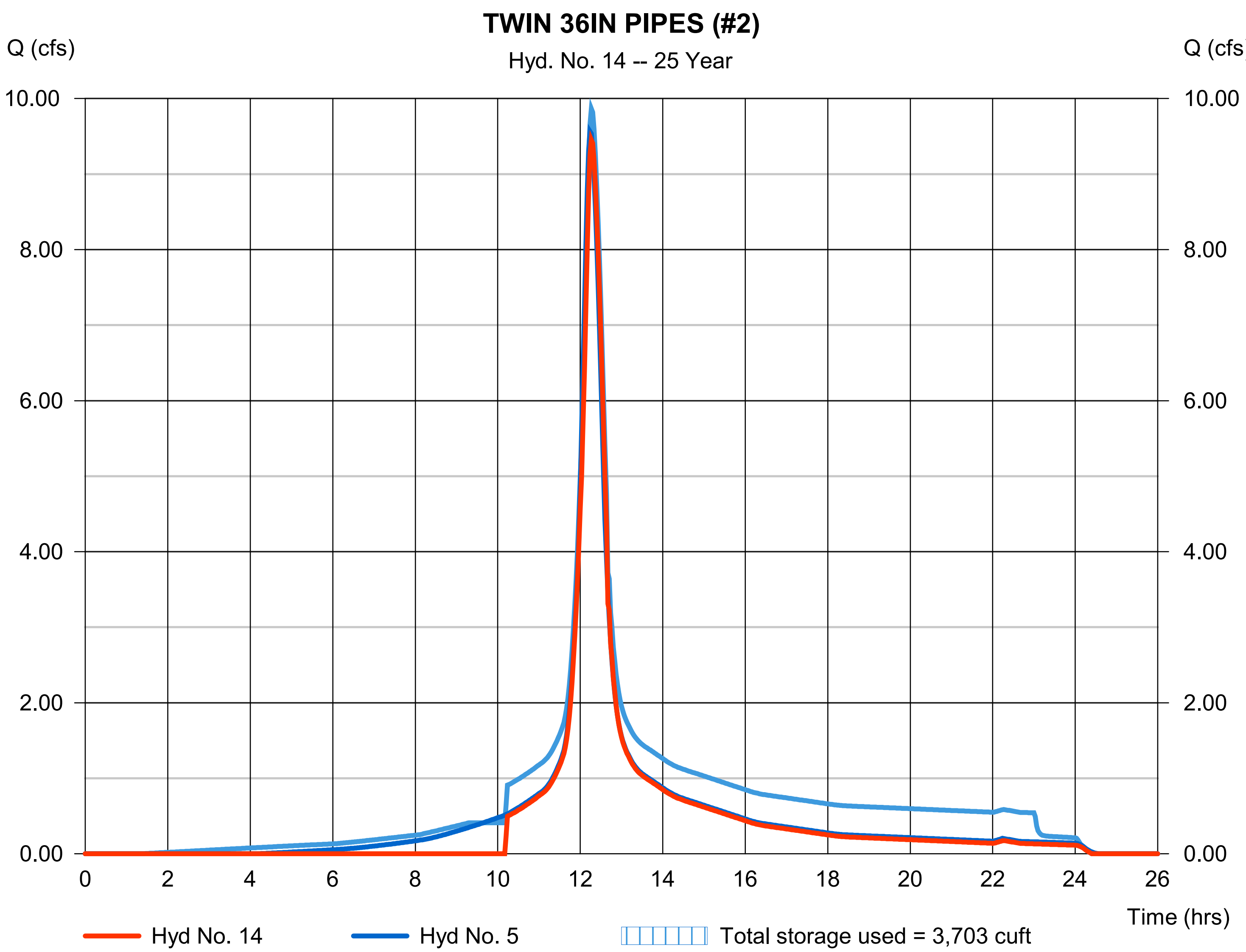
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 9.452 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 41,926 cuft
Inflow hyd. No.	= 5 - PR WS-02D	Max. Elevation	= 139.13 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,703 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

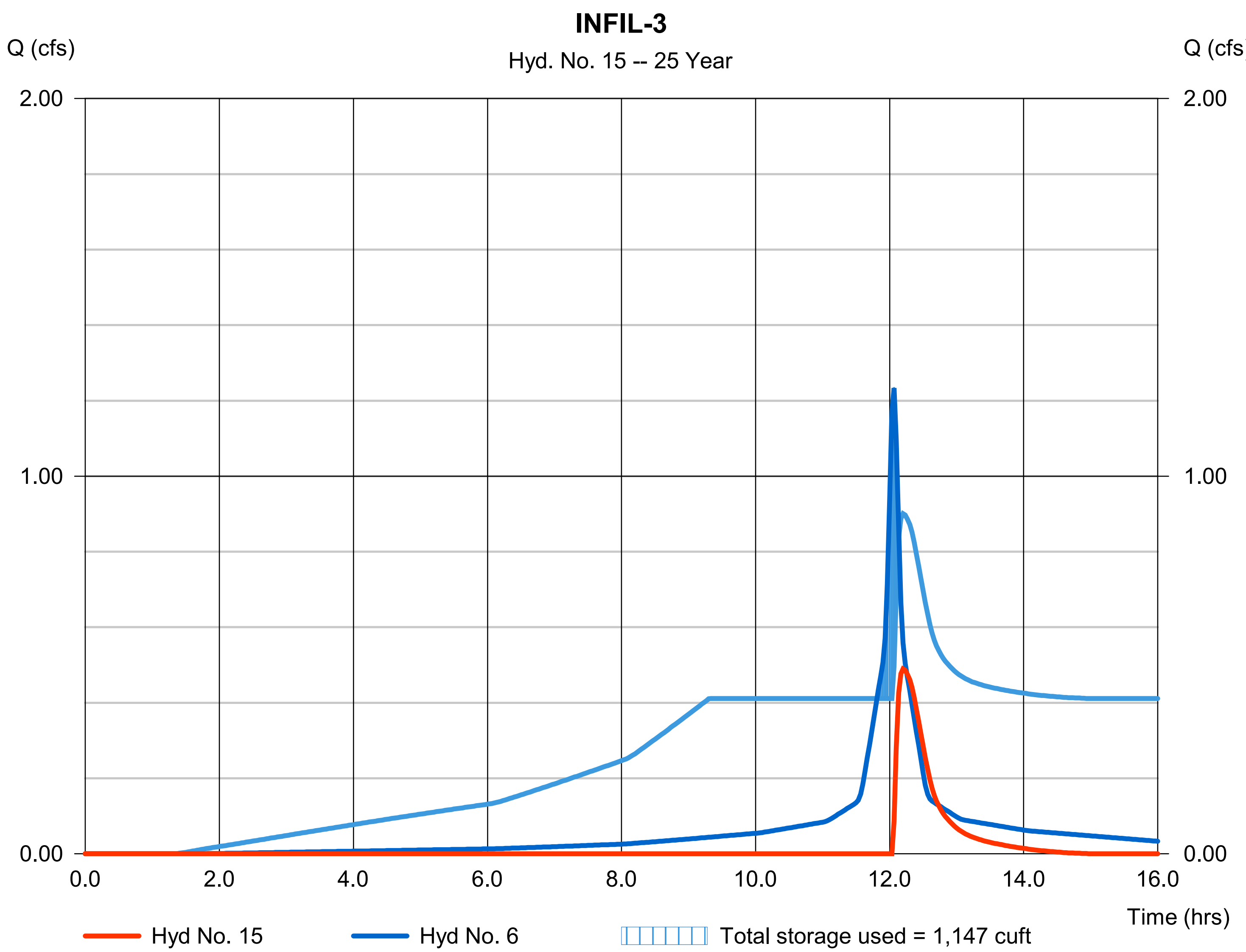
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

INFIL-3

Hydrograph type	= Reservoir	Peak discharge	= 0.490 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 1,019 cuft
Inflow hyd. No.	= 6 - PR WS-02E	Max. Elevation	= 137.27 ft
Reservoir name	= INFIL-3	Max. Storage	= 1,147 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



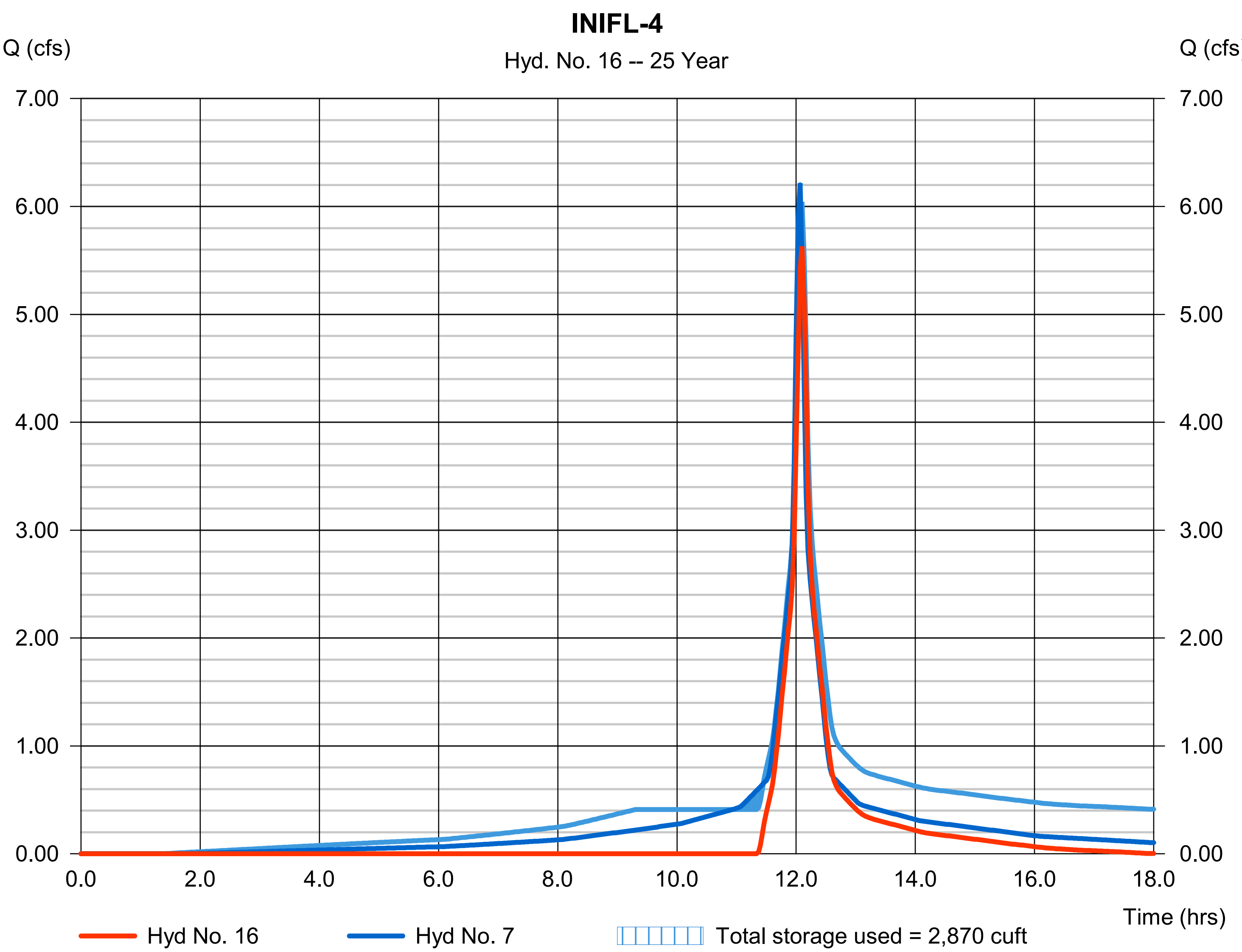
Hydrograph Report

Hyd. No. 16

INIFL-4

Hydrograph type	= Reservoir	Peak discharge	= 5.631 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 11,834 cuft
Inflow hyd. No.	= 7 - PR WS-02F	Max. Elevation	= 137.53 ft
Reservoir name	= INIFL-4	Max. Storage	= 2,870 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

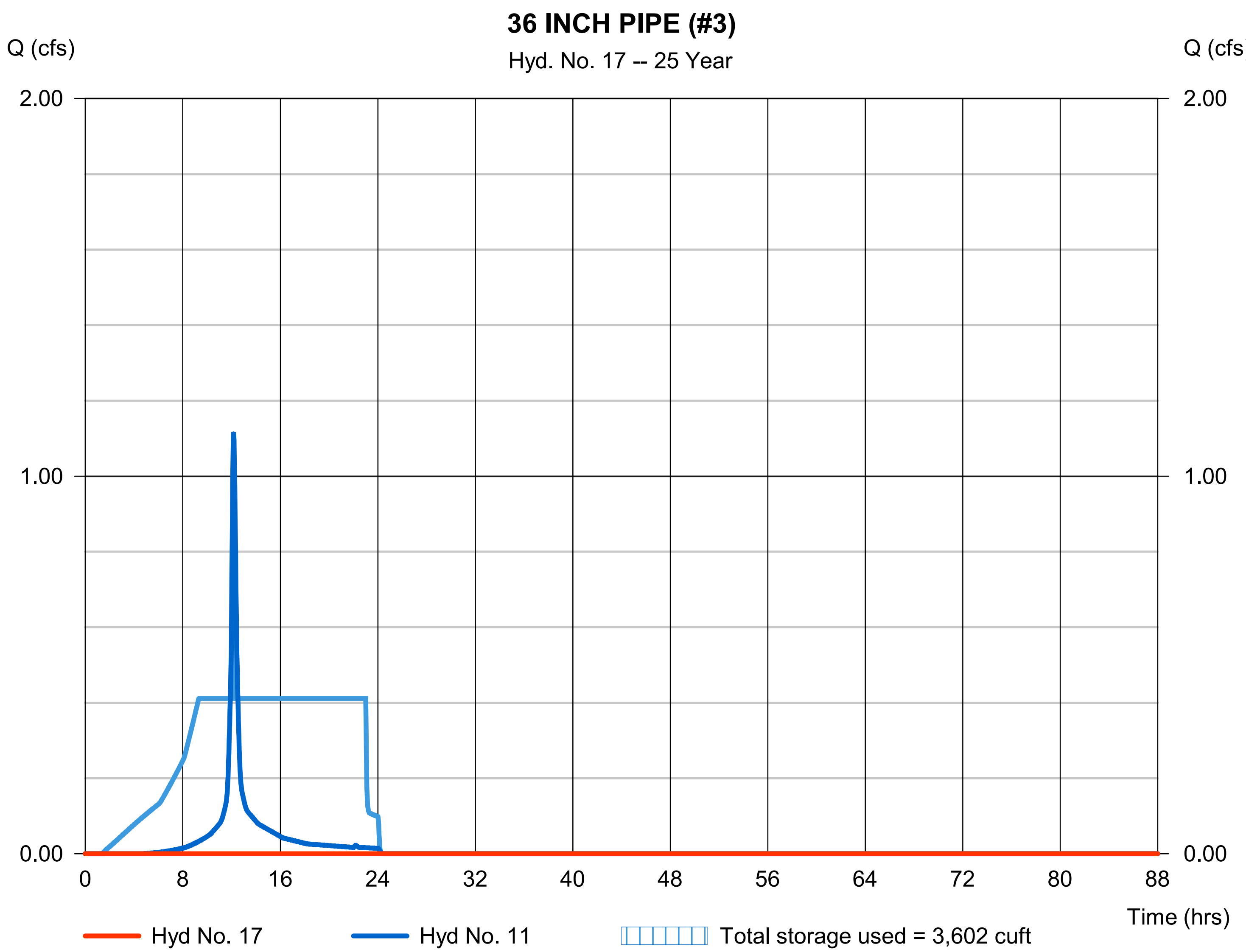
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.13 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 11 - PR WS-02H	Max. Elevation	= 131.44 ft
Reservoir name	= 36IN - 3	Max. Storage	= 3,602 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

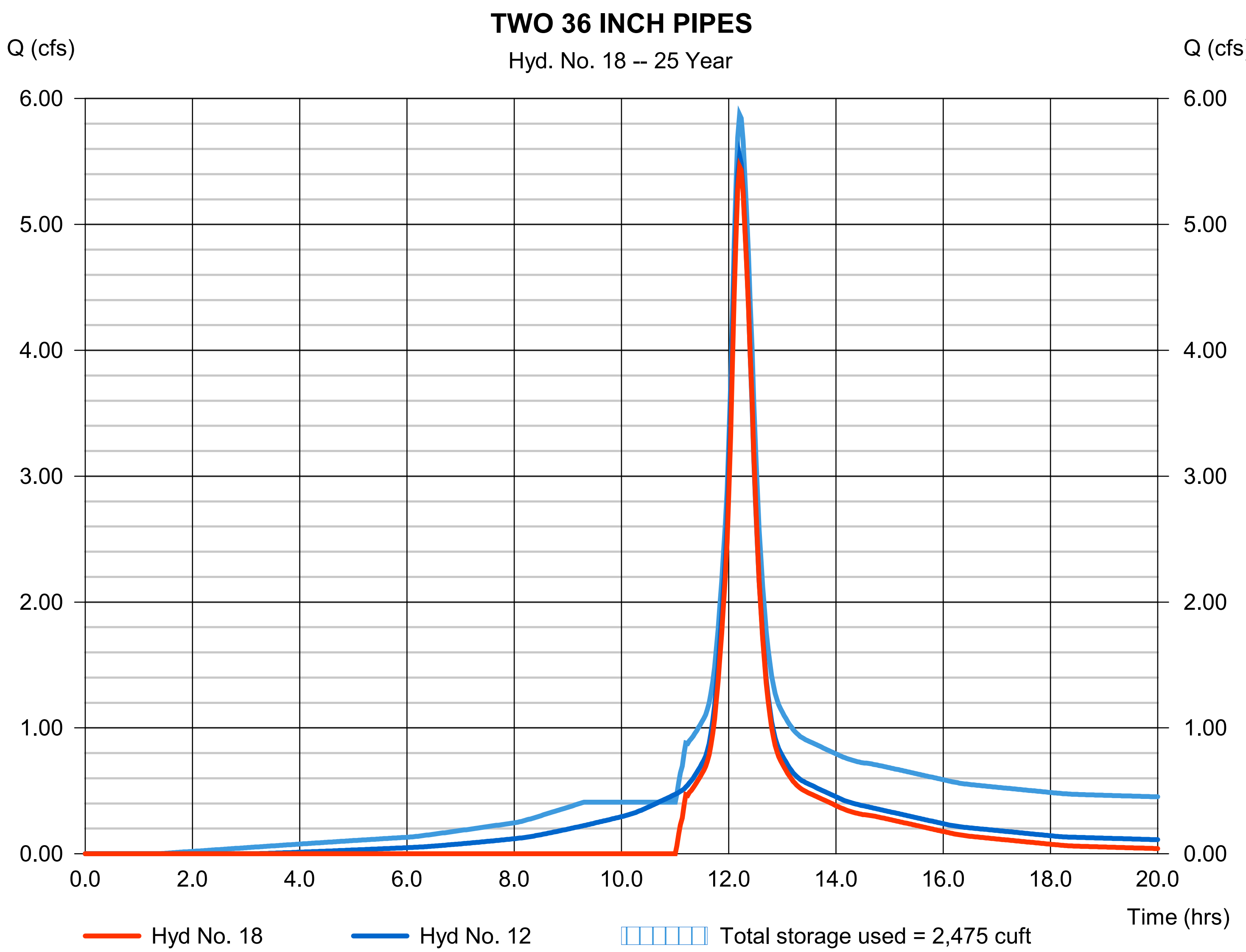
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 5.460 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 18,770 cuft
Inflow hyd. No.	= 12 - PR WS-02I	Max. Elevation	= 135.73 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,475 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



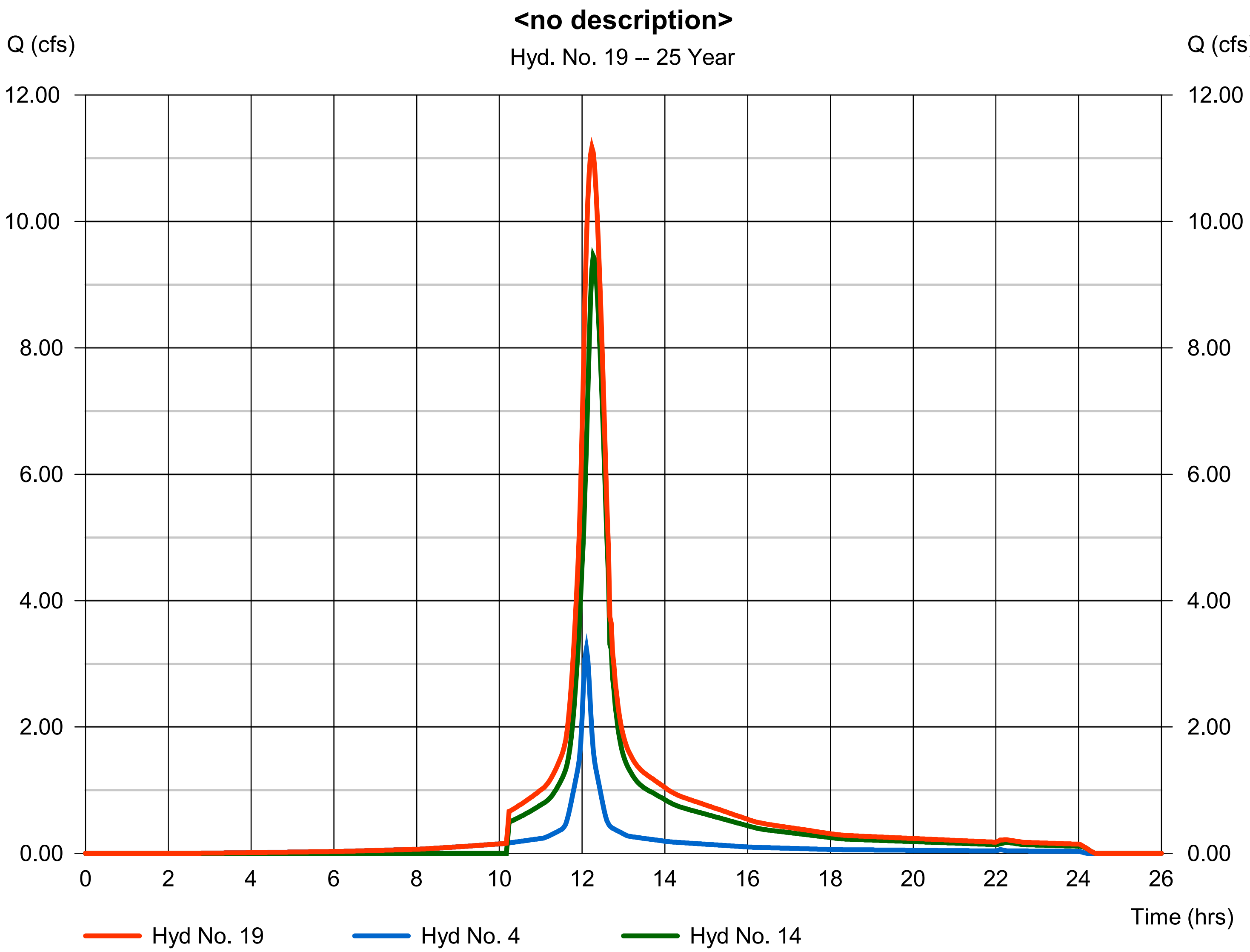
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 11.17 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 53,878 cuft
Inflow hyds.	= 4, 14	Contrib. drain. area	= 0.576 ac



Hydrograph Report

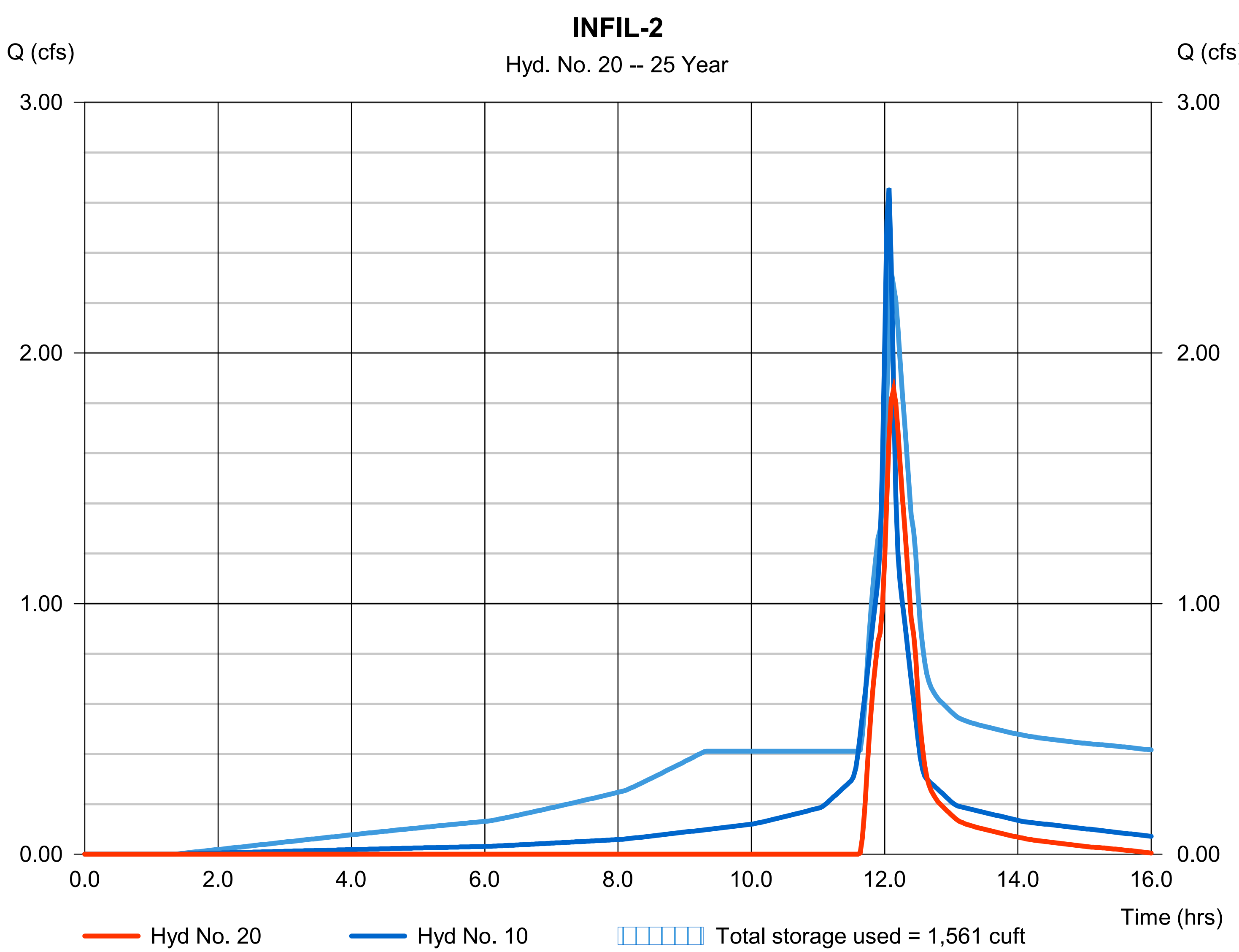
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 20

INFIL-2

Hydrograph type	= Reservoir	Peak discharge	= 1.854 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 4,305 cuft
Inflow hyd. No.	= 10 - PR WS-02G(II)	Max. Elevation	= 135.20 ft
Reservoir name	= INFIL-2	Max. Storage	= 1,561 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



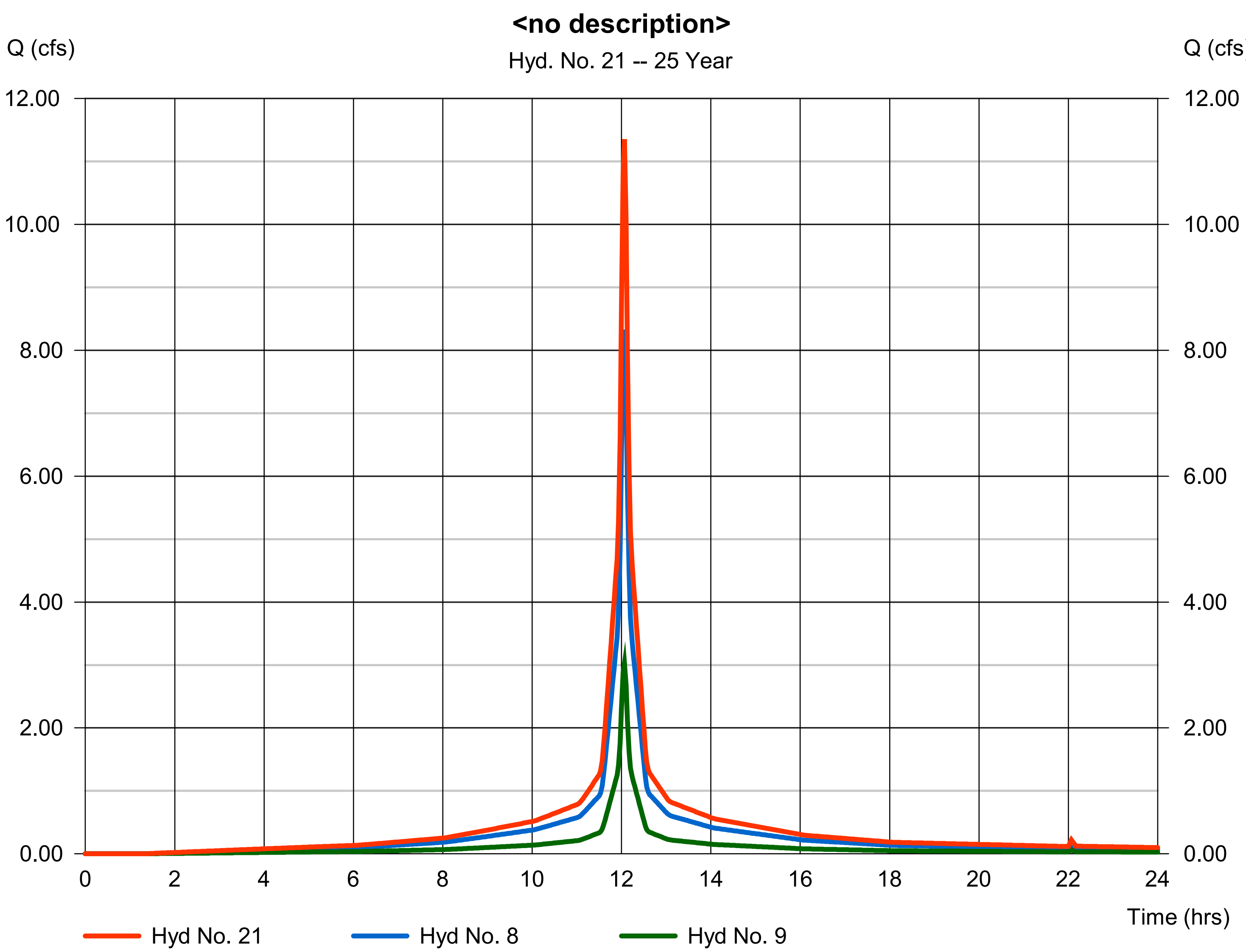
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

<no description>

Hydrograph type	= Combine	Peak discharge	= 11.35 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 38,289 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 1.855 ac



Hydrograph Report

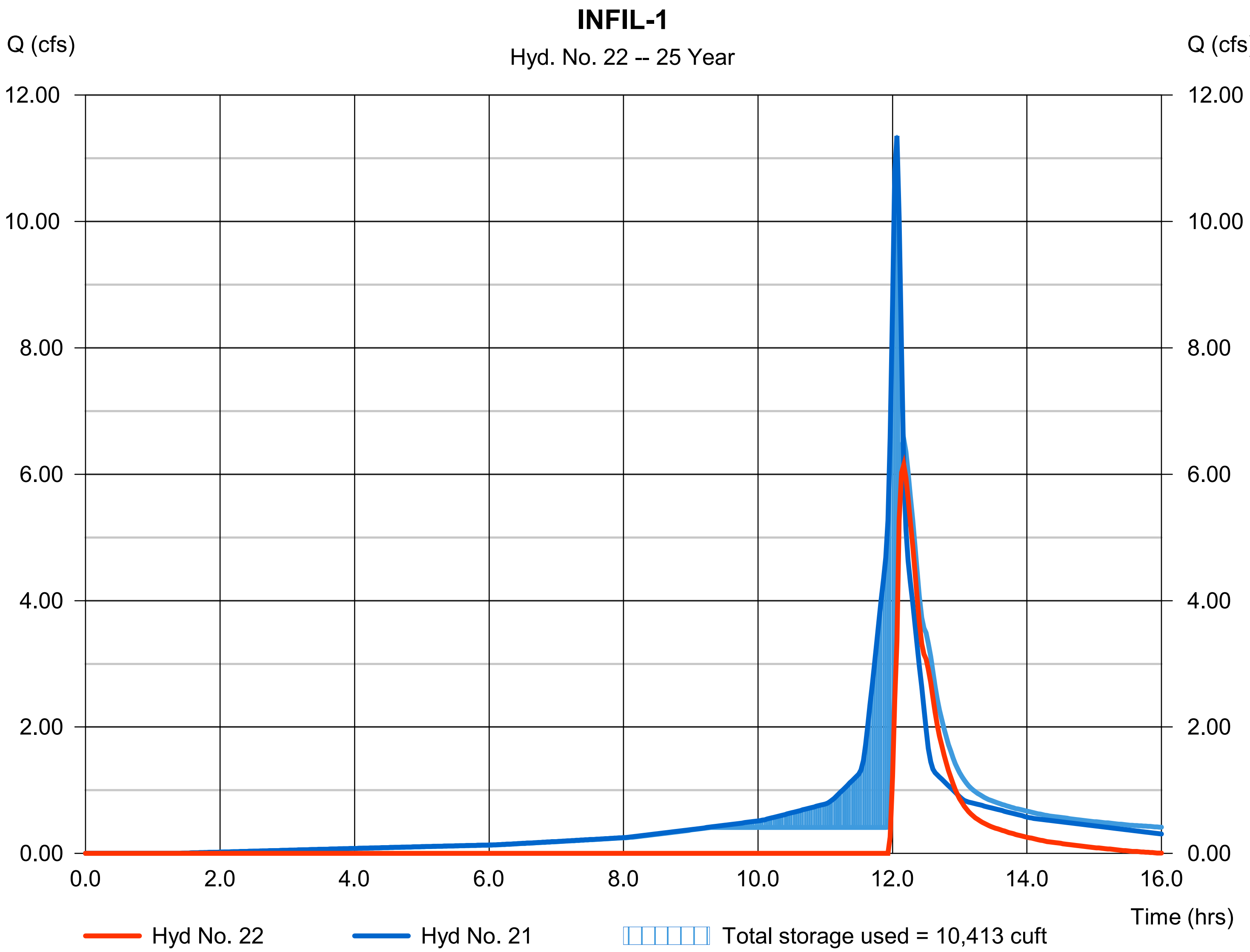
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 22

INFIL-1

Hydrograph type	= Reservoir	Peak discharge	= 6.146 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 13,535 cuft
Inflow hyd. No.	= 21 - <no description>	Max. Elevation	= 136.31 ft
Reservoir name	= INFIL-1	Max. Storage	= 10,413 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



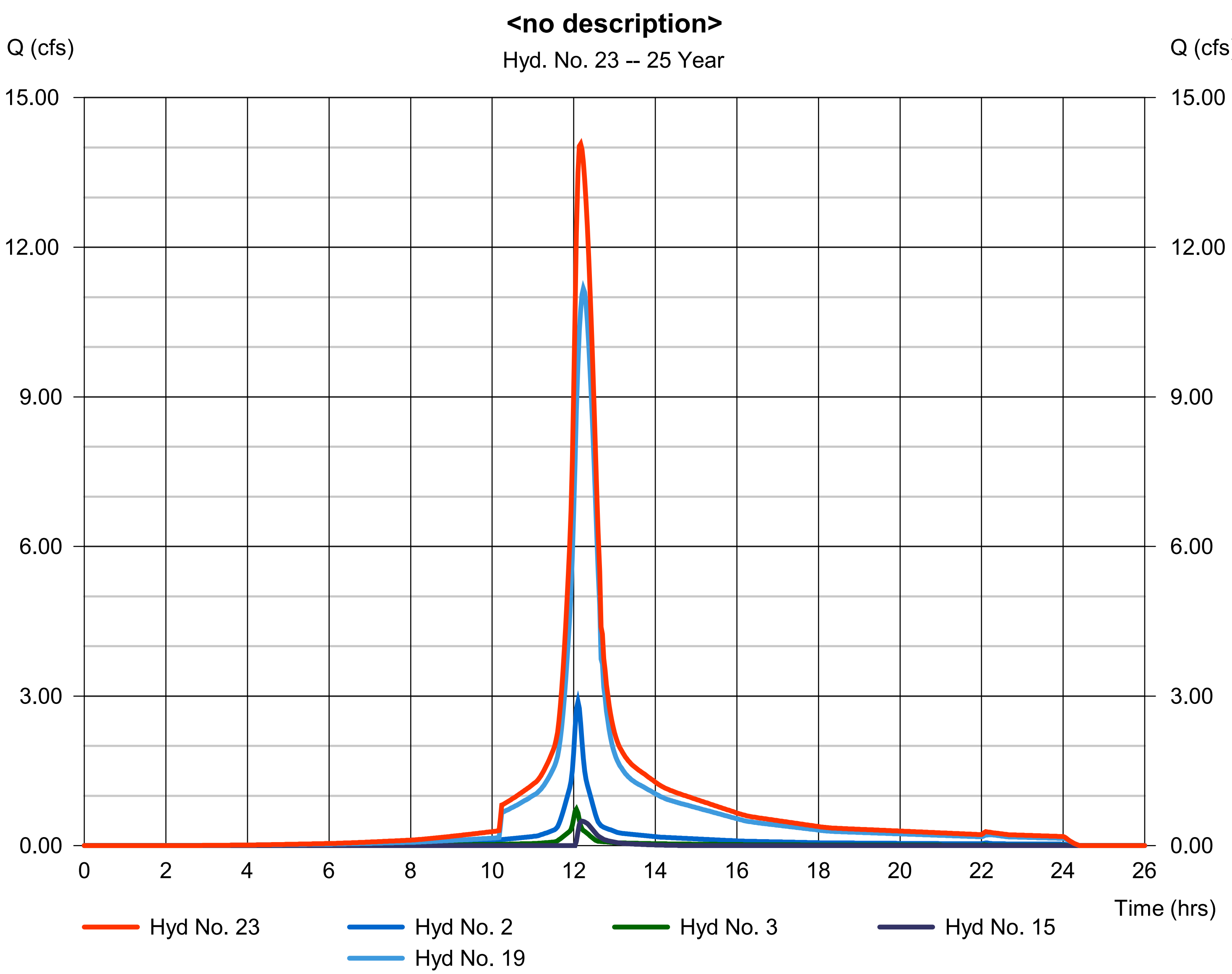
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 23

<no description>

Hydrograph type	= Combine	Peak discharge	= 14.07 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 67,341 cuft
Inflow hyds.	= 2, 3, 15, 19	Contrib. drain. area	= 0.689 ac



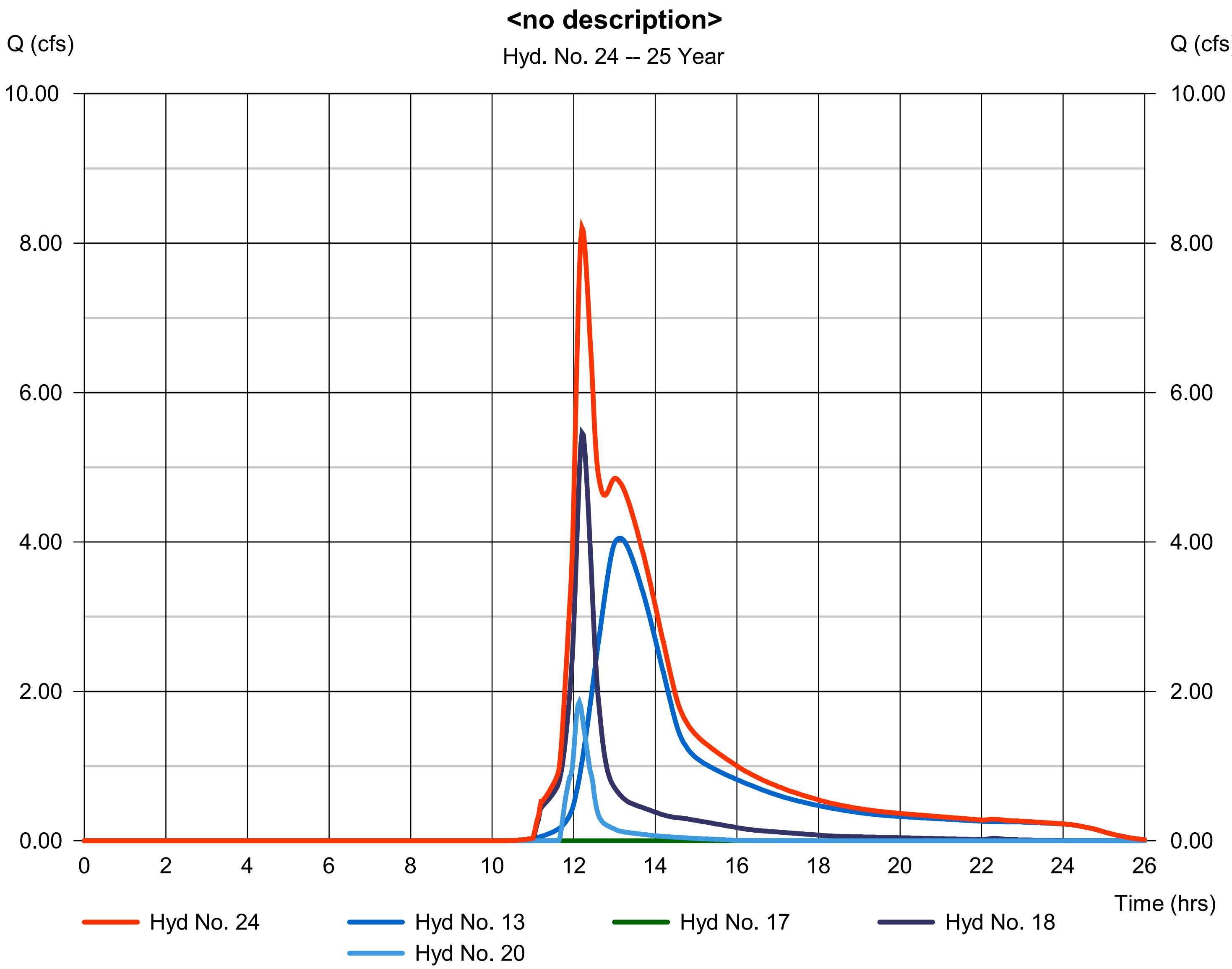
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 24

<no description>

Hydrograph type	= Combine	Peak discharge	= 8.206 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 66,220 cuft
Inflow hyds.	= 13, 17, 18, 20	Contrib. drain. area	= 4.837 ac



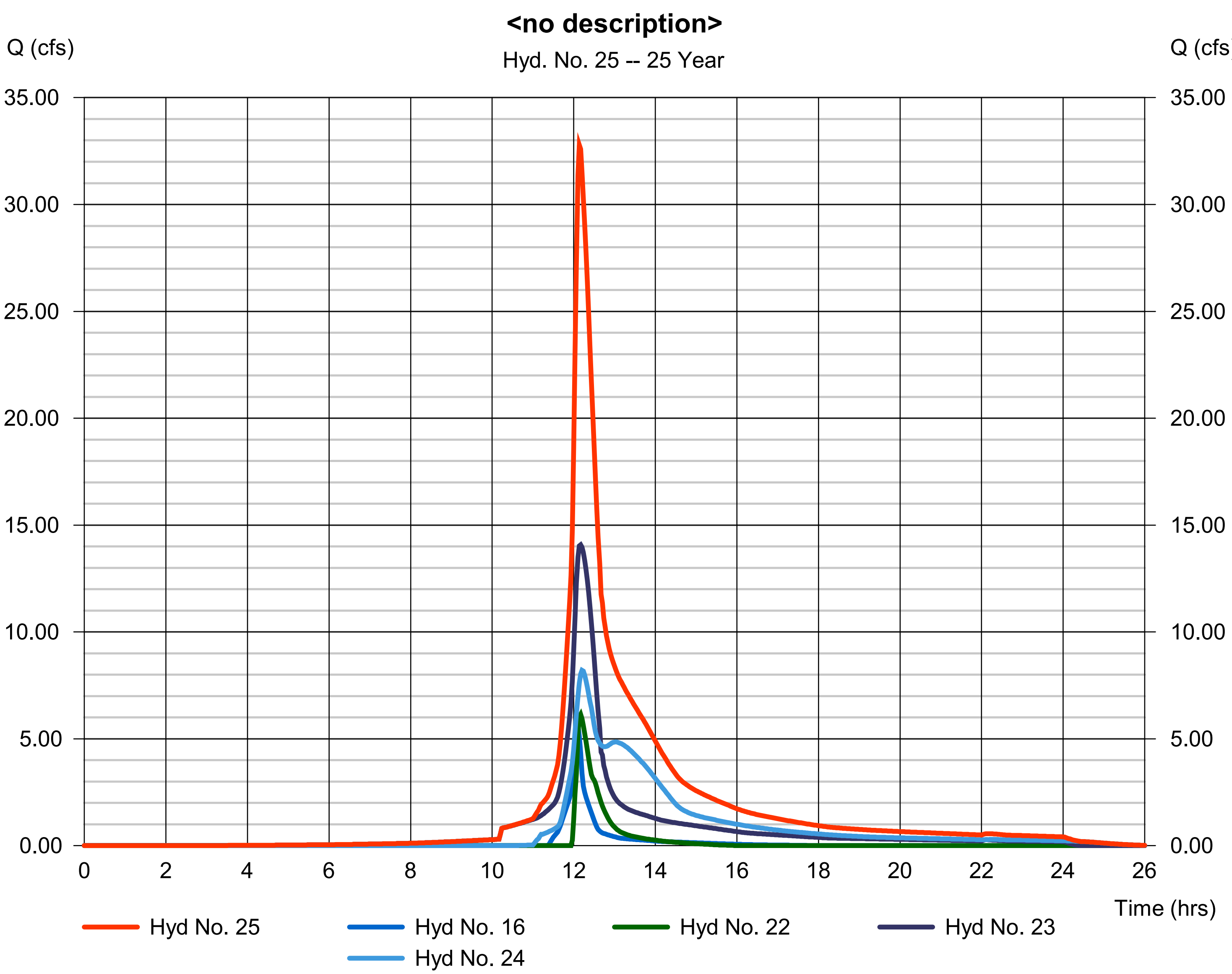
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 25

<no description>

Hydrograph type	= Combine	Peak discharge	= 32.78 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 158,930 cuft
Inflow hyds.	= 16, 22, 23, 24	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	7.047	2	752	45,872	------	------	------	PR WS-01
2	SCS Runoff	3.339	2	726	11,881	------	------	------	PR WS-02B(I)
3	SCS Runoff	0.842	2	724	2,640	------	------	------	PR WS-02B(III)
4	SCS Runoff	3.695	2	726	13,753	------	------	------	PR WS-02C
5	SCS Runoff	11.05	2	734	54,511	------	------	------	PR WS-02D
6	SCS Runoff	1.404	2	724	4,707	------	------	------	PR WS-02E
7	SCS Runoff	7.074	2	724	23,722	------	------	------	PR WS-02F
8	SCS Runoff	9.464	2	724	32,109	------	------	------	PR WS-02A
9	SCS Runoff	3.435	2	724	11,654	------	------	------	PR WS-02G(I)
10	SCS Runoff	3.018	2	724	10,239	------	------	------	PR WS-02G(II)
11	SCS Runoff	1.296	2	730	5,444	------	------	------	PR WS-02H
12	SCS Runoff	6.358	2	732	29,838	------	------	------	PR WS-02I
13	SCS Runoff	5.181	2	786	54,300	------	------	------	PR WS-03
14	Reservoir	10.93	2	736	49,562	5	139.16	3,851	TWIN 36IN PIPES (#2)
15	Reservoir	0.660	2	730	1,407	6	137.49	1,259	INFIL-3
16	Reservoir	6.410	2	726	14,402	7	137.80	2,978	INIFL-4
17	Reservoir	0.087	2	842	702	11	137.46	3,650	36 INCH PIPE (#3)
18	Reservoir	6.274	2	732	22,648	12	135.75	2,491	TWO 36 INCH PIPES
19	Combine	12.90	2	734	63,315	4, 14,	------	------	<no description>
20	Reservoir	2.083	2	728	5,300	10	135.54	1,692	INFIL-2
21	Combine	12.90	2	724	43,763	8, 9,	------	------	<no description>
22	Reservoir	7.770	2	728	17,543	21	136.85	11,254	INFIL-1
23	Combine	16.46	2	730	79,243	2, 3, 15, 19,	------	------	<no description>
24	Combine	9.661	2	732	82,950	13, 17, 18, 20,	------	------	<no description>
25	Combine	38.93	2	728	194,138	16, 22, 23, 24	------	------	<no description>

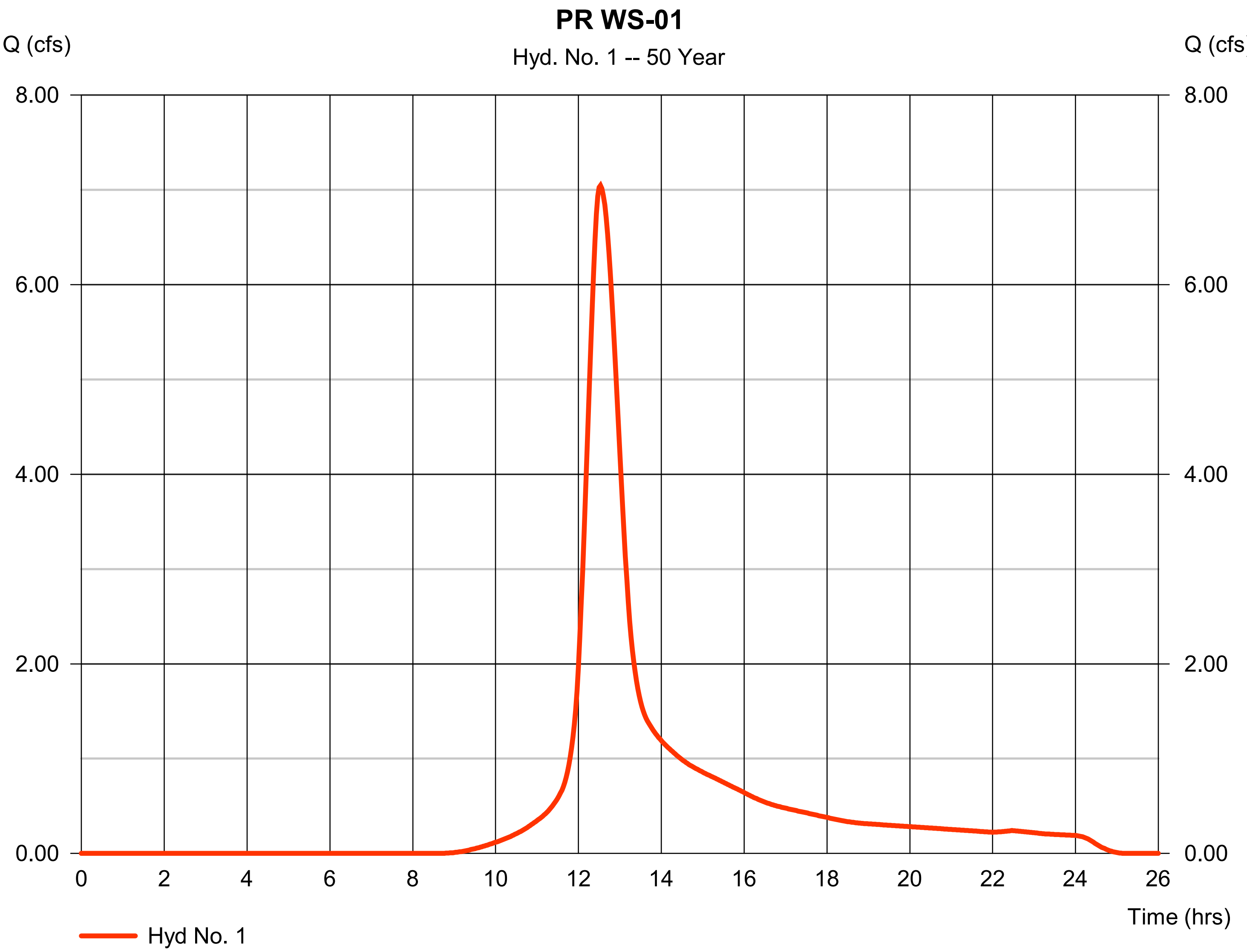
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

PR WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 7.047 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 45,872 cuft
Drainage area	= 3.405 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



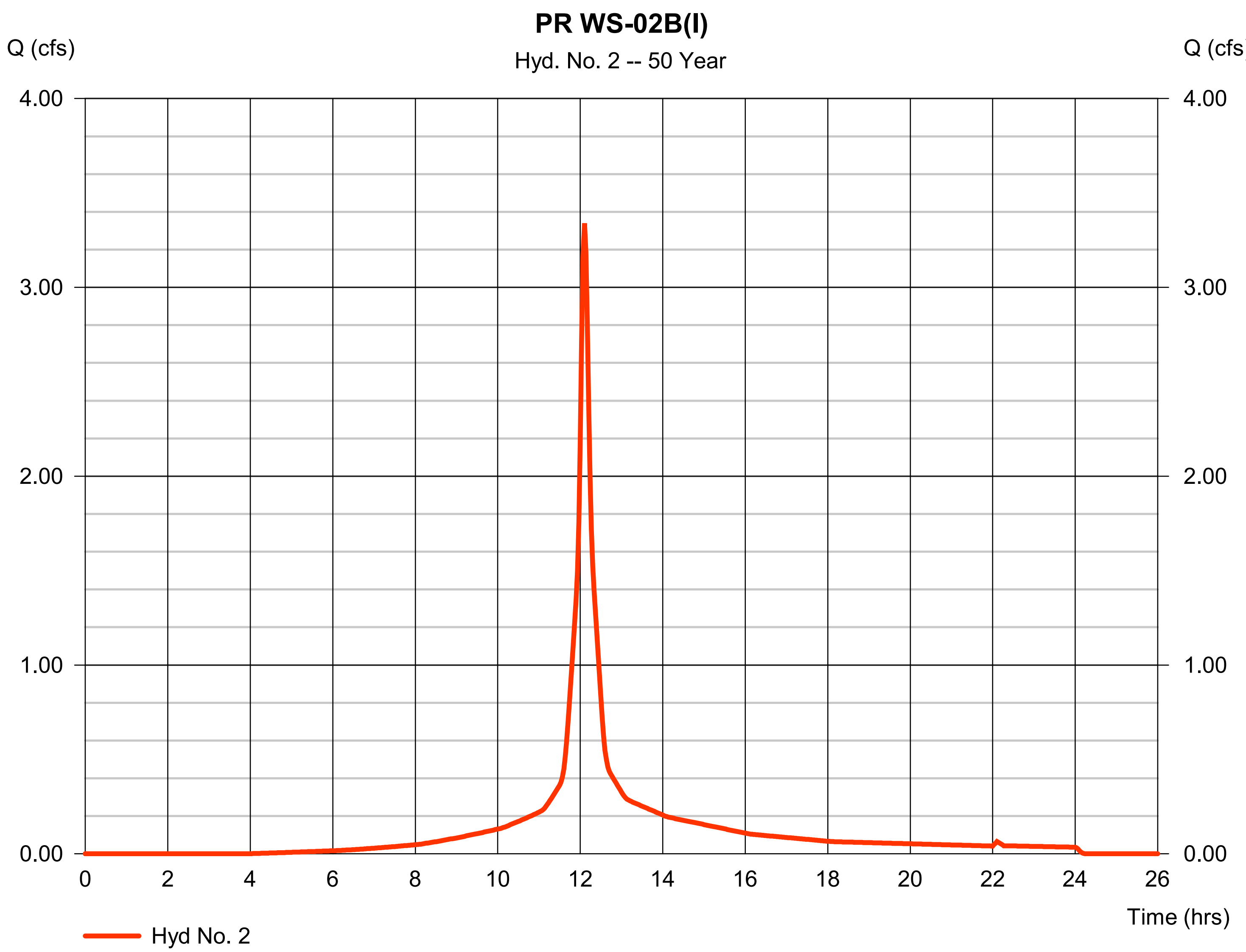
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 2

PR WS-02B(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.339 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 11,881 cuft
Drainage area	= 0.557 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 7.40 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



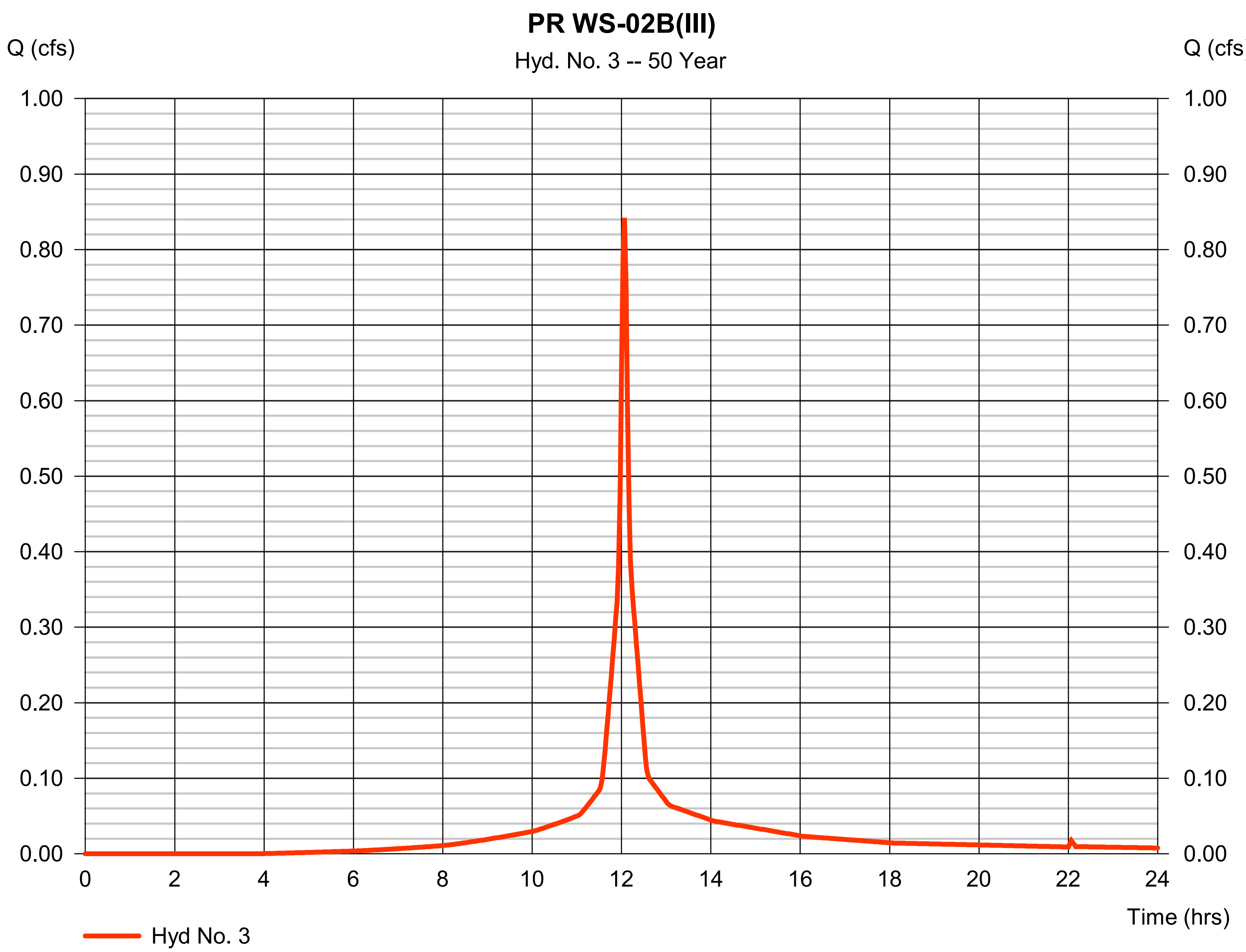
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 3

PR WS-02B(III)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.842 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 2,640 cuft
Drainage area	= 0.132 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

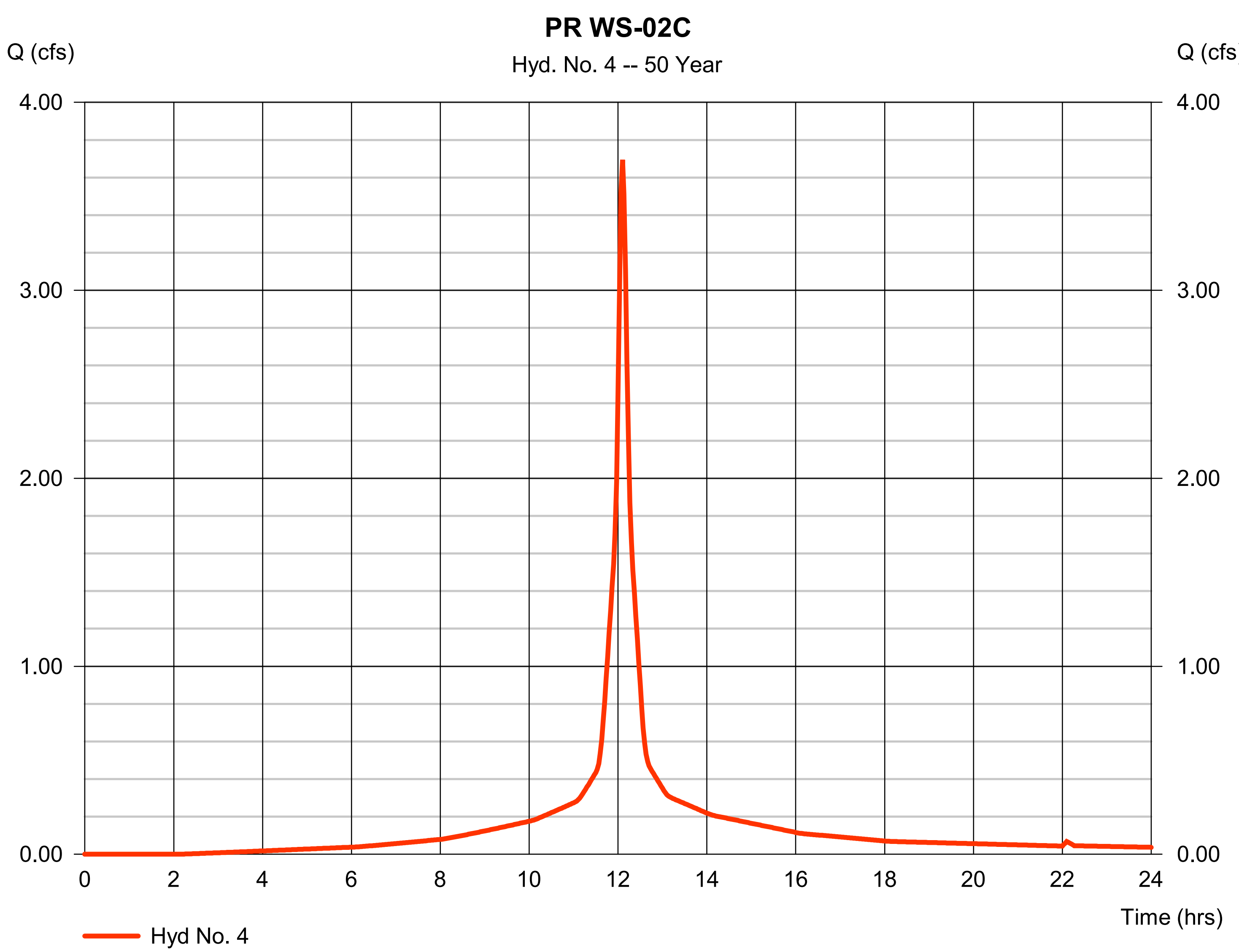


Hydrograph Report

Hyd. No. 4

PR WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 3.695 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 13,753 cuft
Drainage area	= 0.576 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



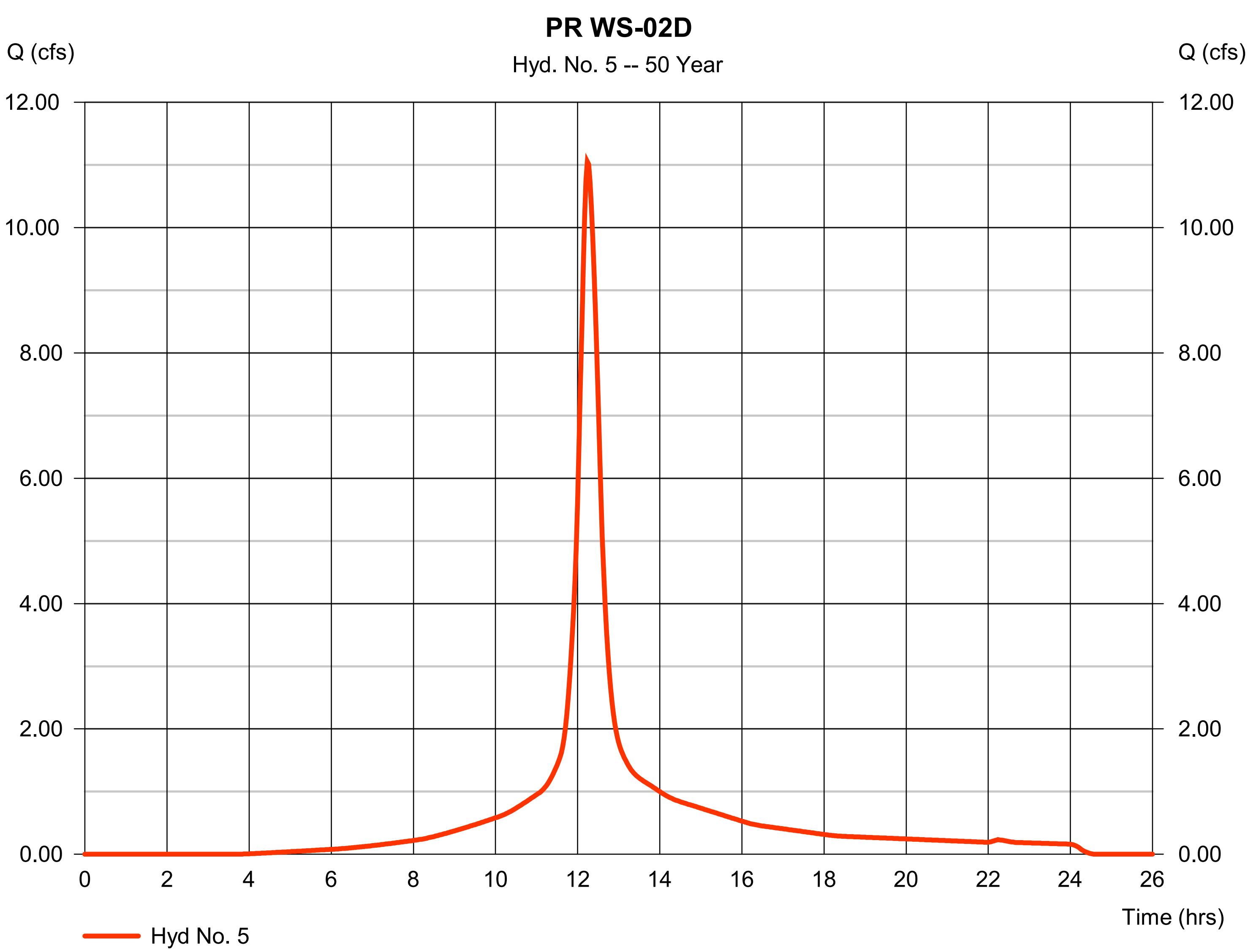
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 5

PR WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 11.05 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 54,511 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



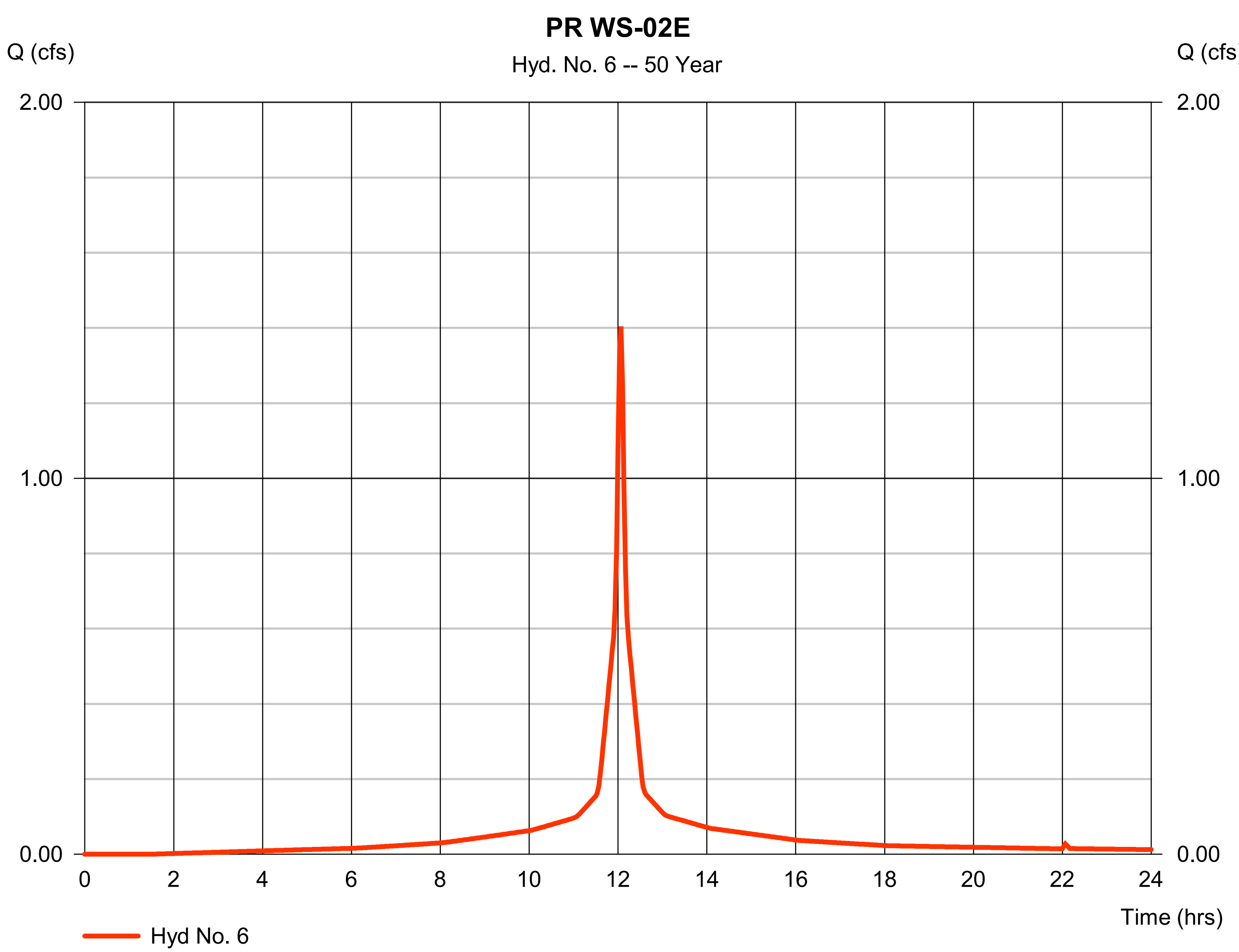
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

PR WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 1.404 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 4,707 cuft
Drainage area	= 0.203 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



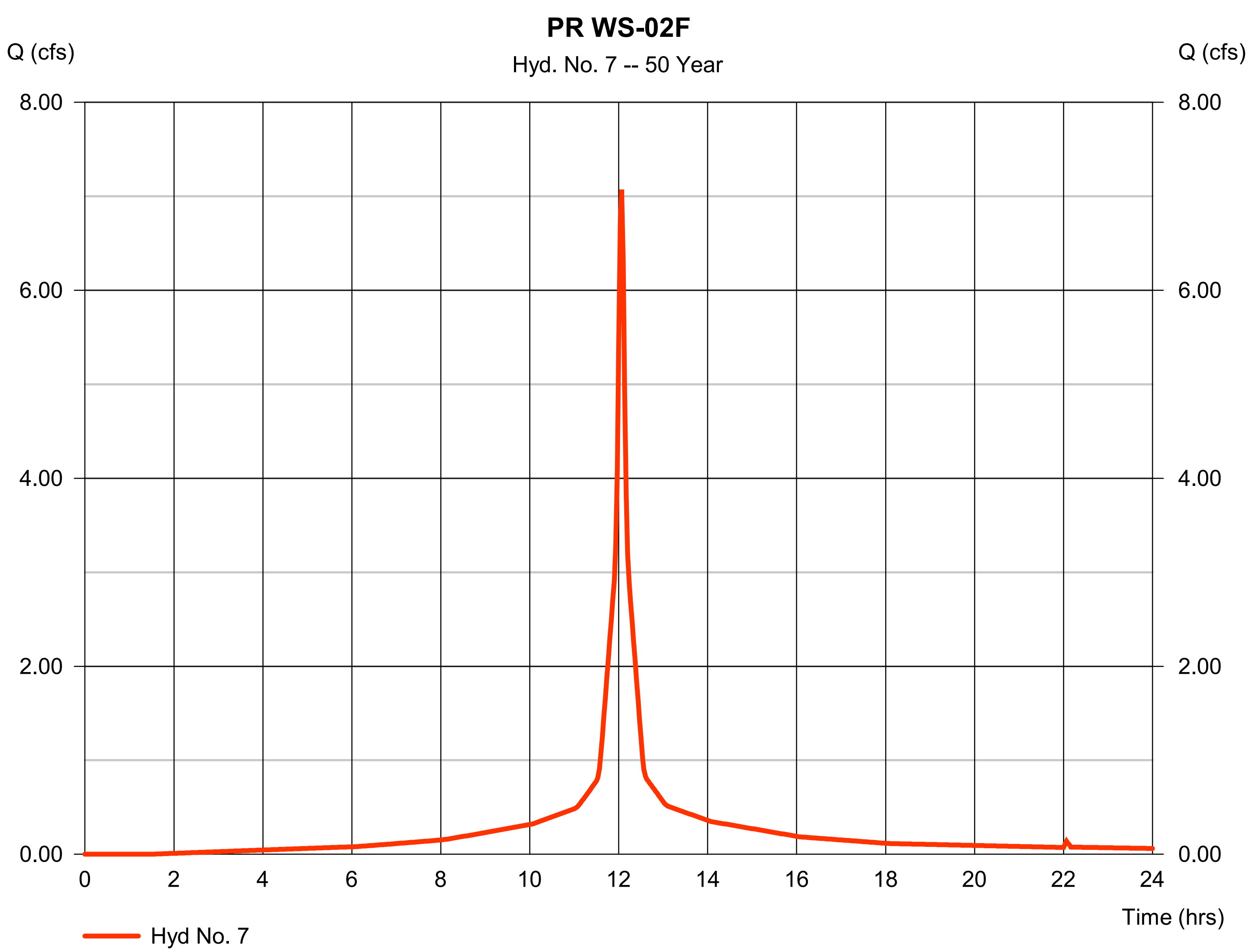
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

PR WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 7.074 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 23,722 cuft
Drainage area	= 1.023 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



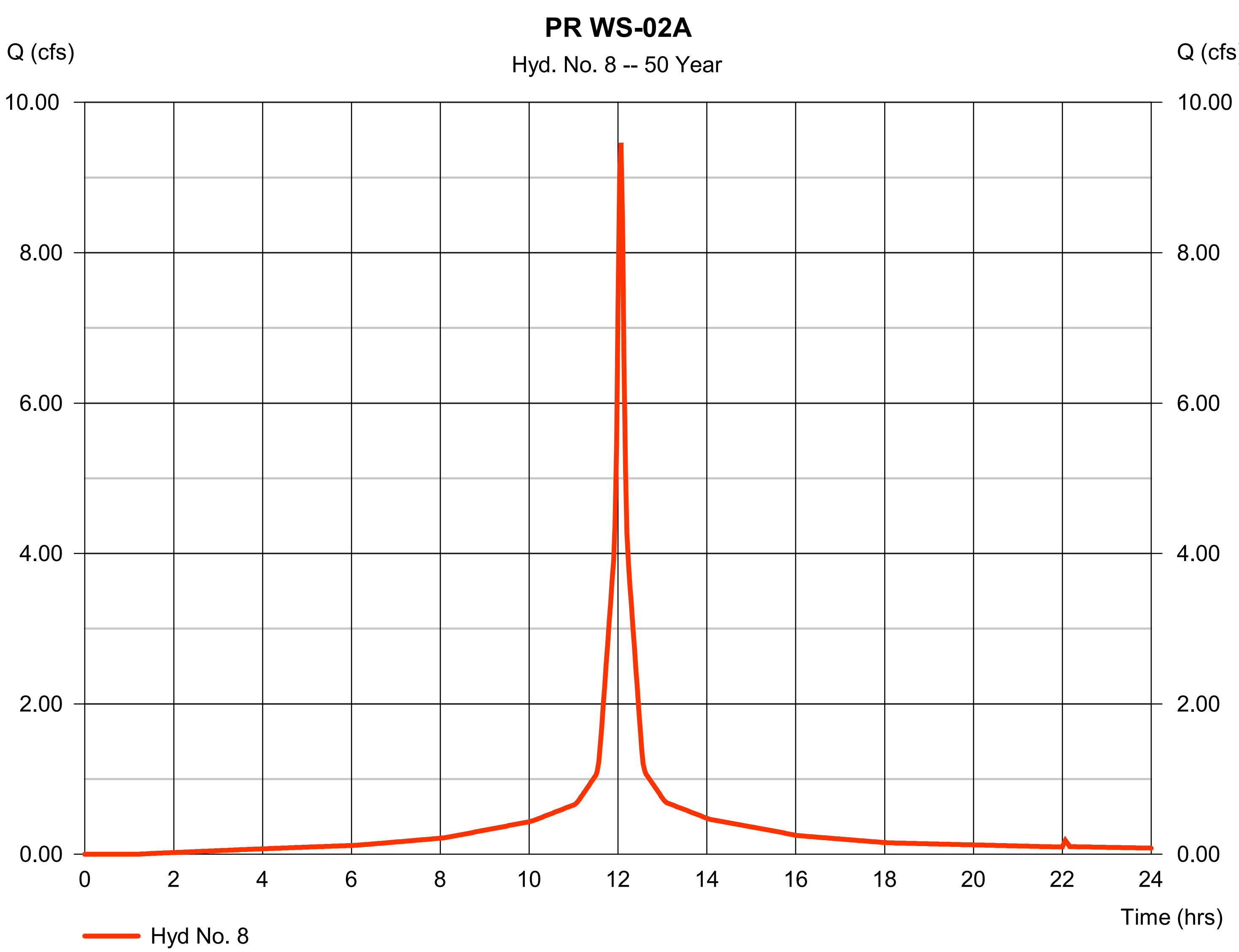
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

PR WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 9.464 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 32,109 cuft
Drainage area	= 1.361 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



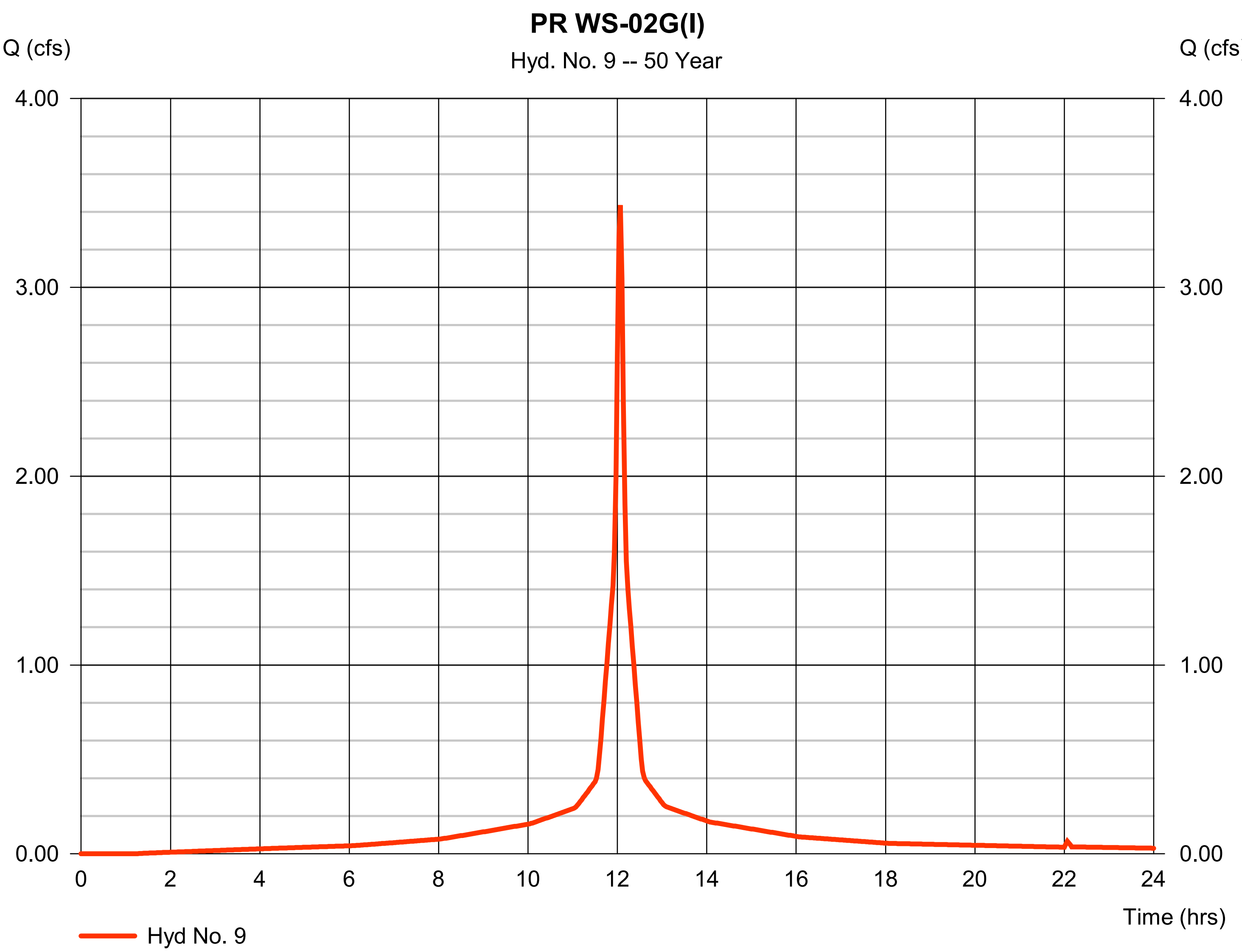
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 | Thursday, 04 / 4 / 2024

Hyd. No. 9

PR WS-02G(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.435 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 11,654 cuft
Drainage area	= 0.494 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



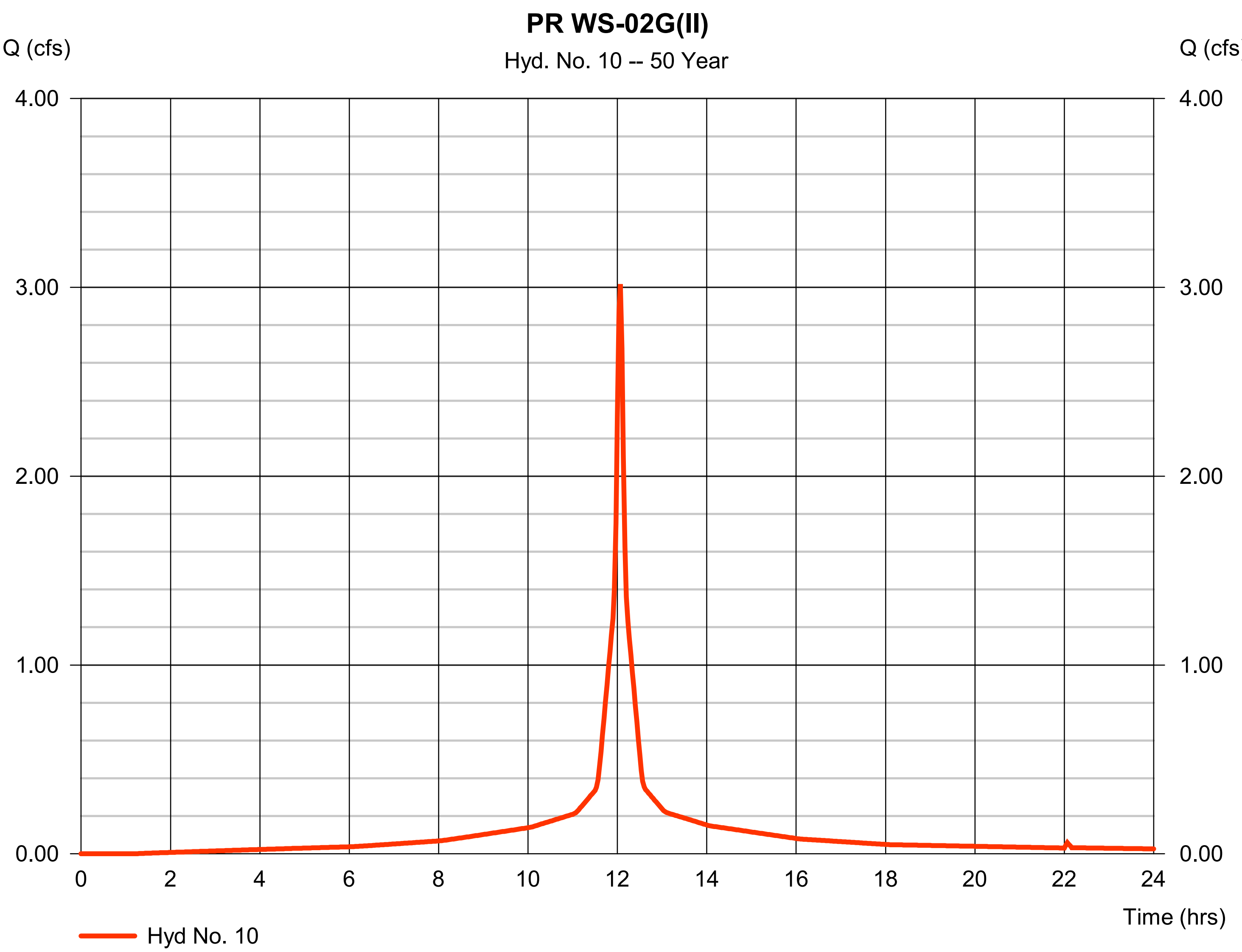
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

PR WS-02G(II)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.018 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 10,239 cuft
Drainage area	= 0.434 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



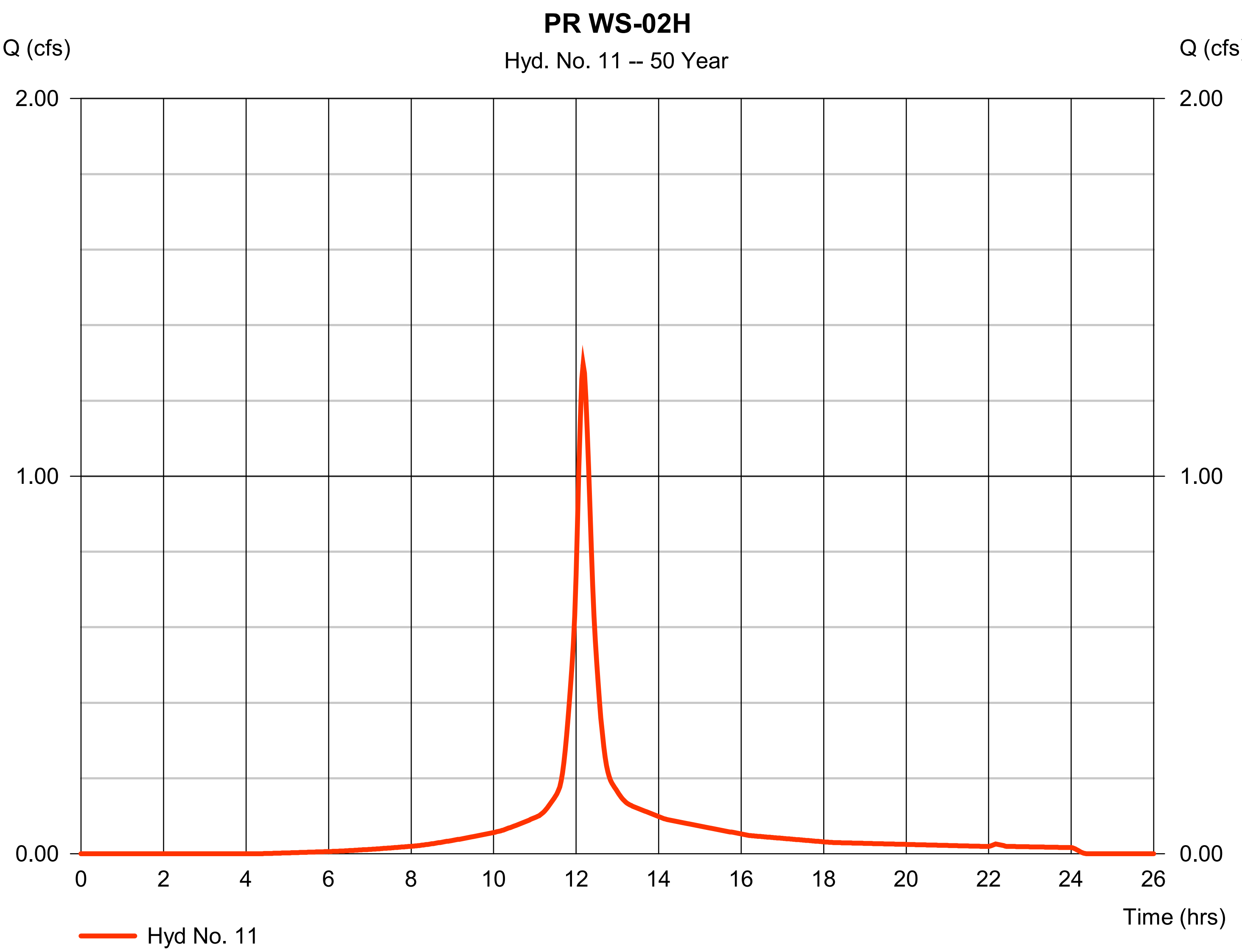
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

PR WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 1.296 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 5,444 cuft
Drainage area	= 0.267 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.80 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



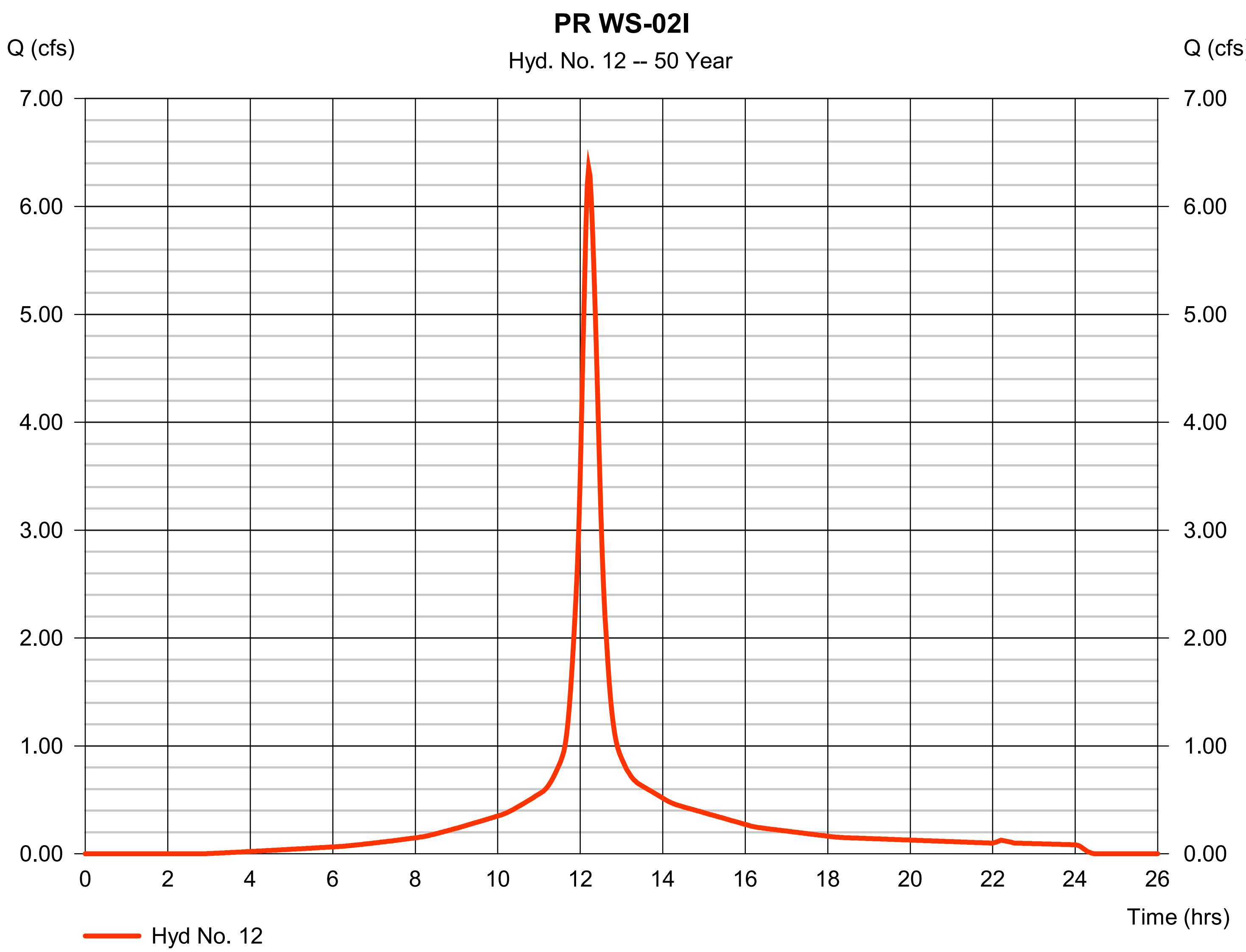
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 12

PR WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 6.358 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 29,838 cuft
Drainage area	= 1.296 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



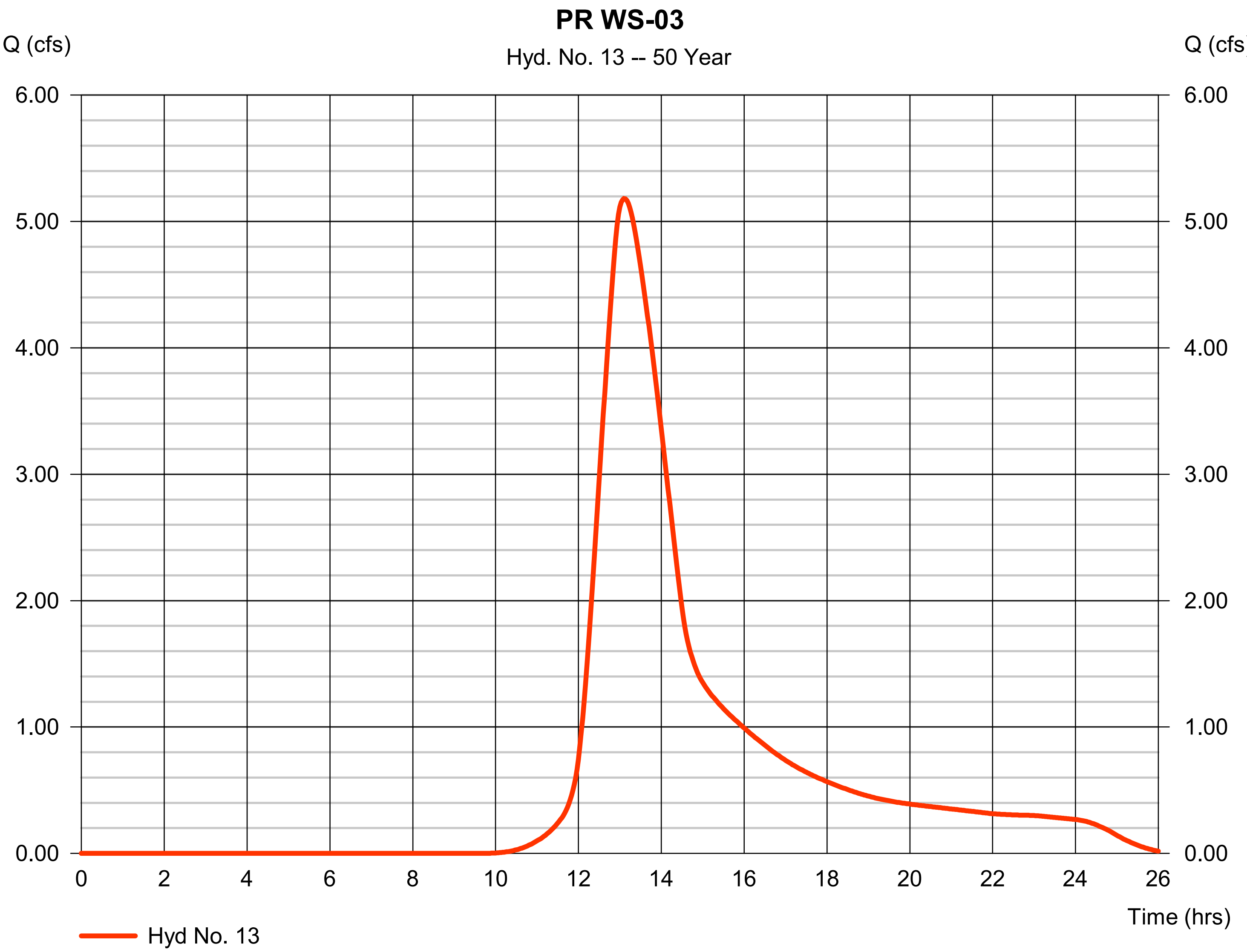
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 13

PR WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 5.181 cfs
Storm frequency	= 50 yrs	Time to peak	= 13.10 hrs
Time interval	= 2 min	Hyd. volume	= 54,300 cuft
Drainage area	= 4.837 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 7.41 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

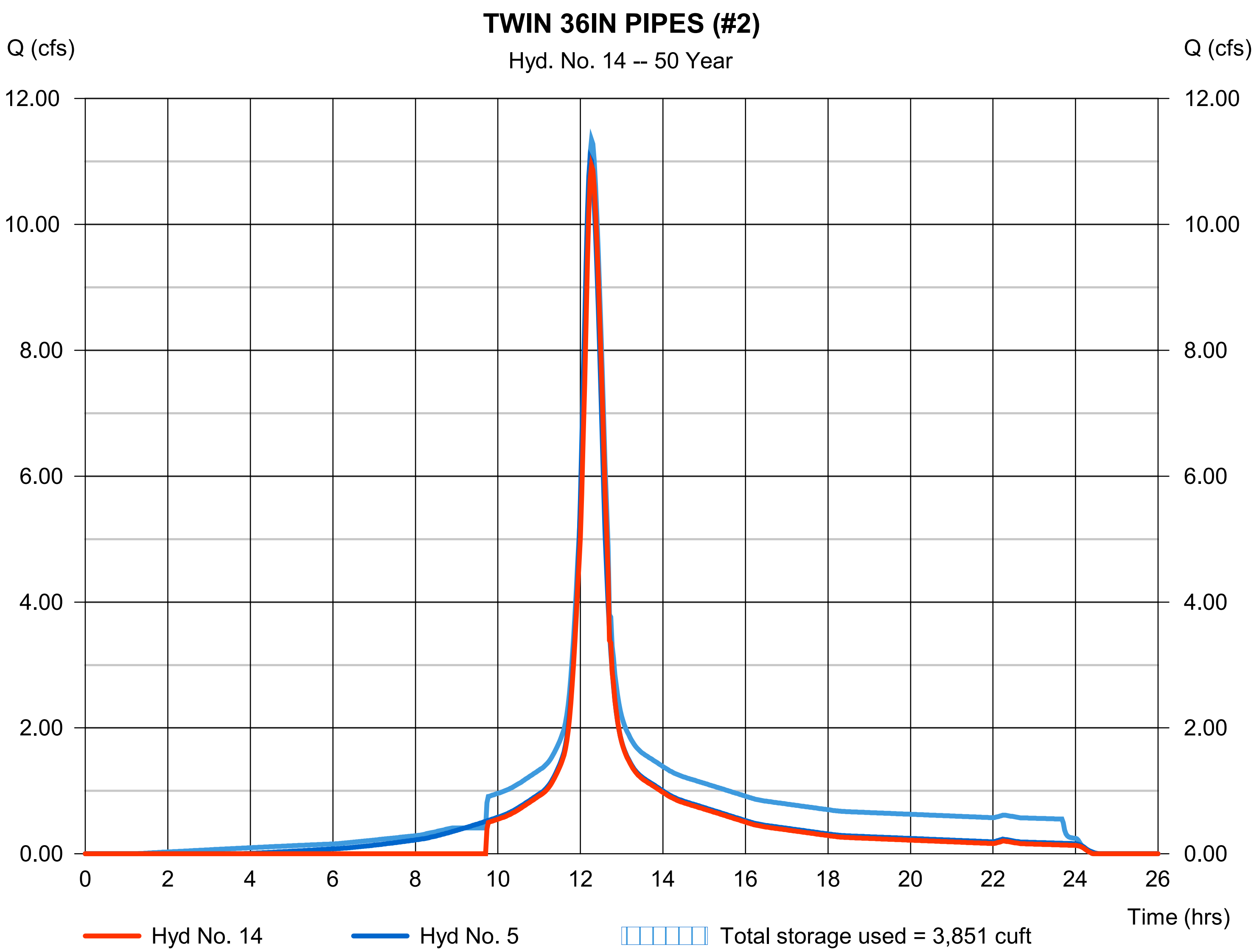
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 10.93 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 49,562 cuft
Inflow hyd. No.	= 5 - PR WS-02D	Max. Elevation	= 139.16 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 3,851 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

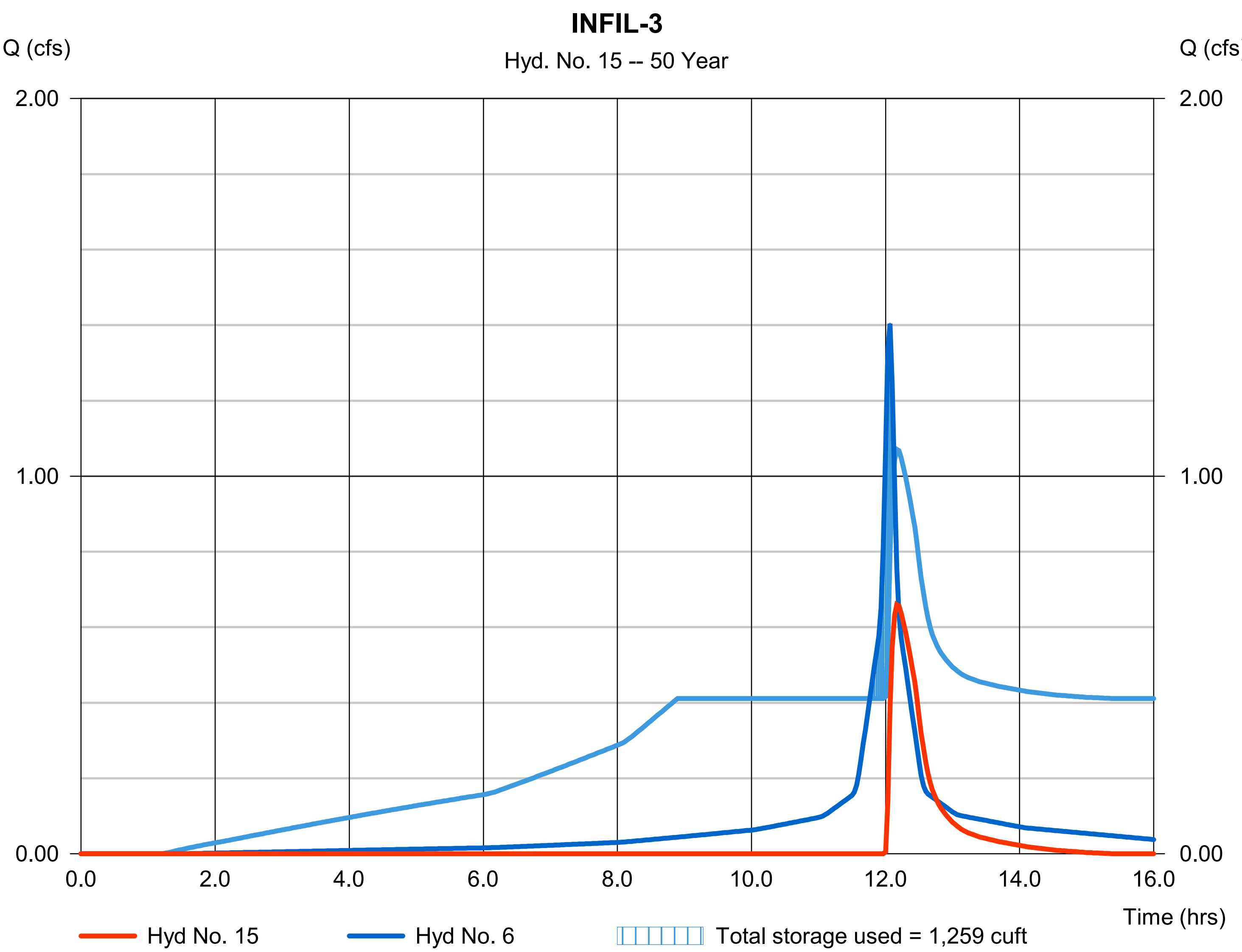
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 15

INFIL-3

Hydrograph type	= Reservoir	Peak discharge	= 0.660 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 1,407 cuft
Inflow hyd. No.	= 6 - PR WS-02E	Max. Elevation	= 137.49 ft
Reservoir name	= INFIL-3	Max. Storage	= 1,259 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

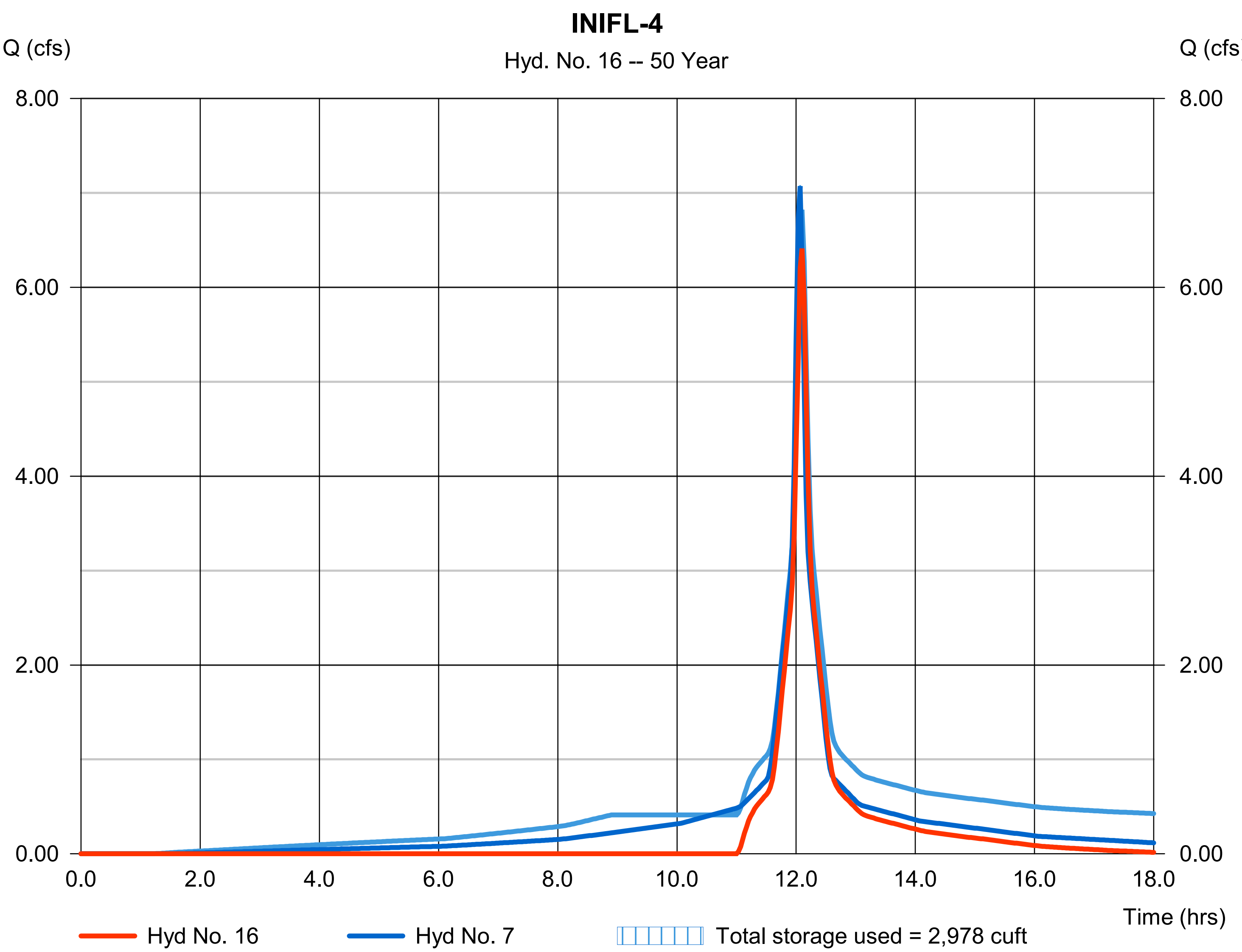
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

INIFL-4

Hydrograph type	= Reservoir	Peak discharge	= 6.410 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 14,402 cuft
Inflow hyd. No.	= 7 - PR WS-02F	Max. Elevation	= 137.80 ft
Reservoir name	= INIFL-4	Max. Storage	= 2,978 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

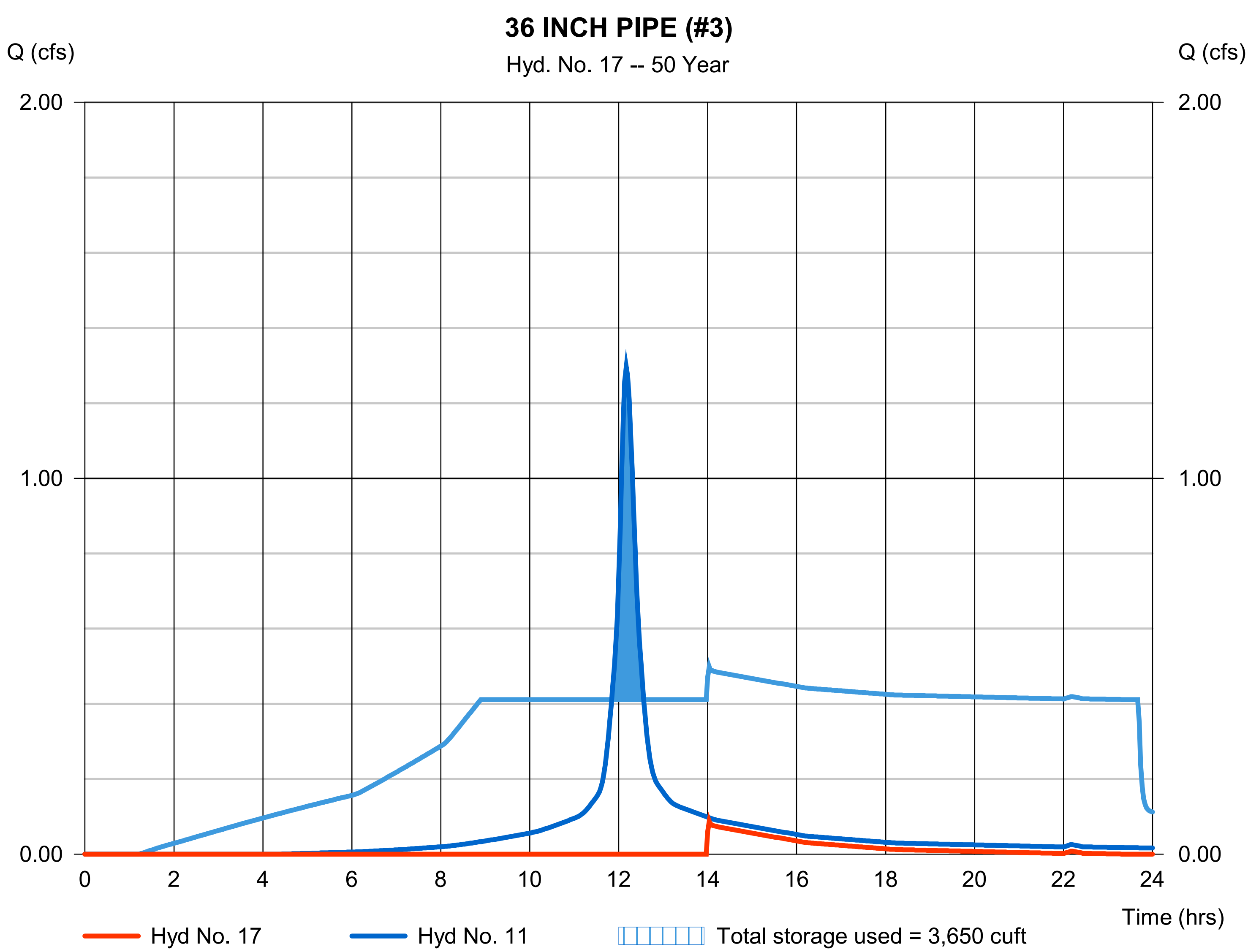
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 0.087 cfs
Storm frequency	= 50 yrs	Time to peak	= 14.03 hrs
Time interval	= 2 min	Hyd. volume	= 702 cuft
Inflow hyd. No.	= 11 - PR WS-02H	Max. Elevation	= 137.46 ft
Reservoir name	= 36IN - 3	Max. Storage	= 3,650 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

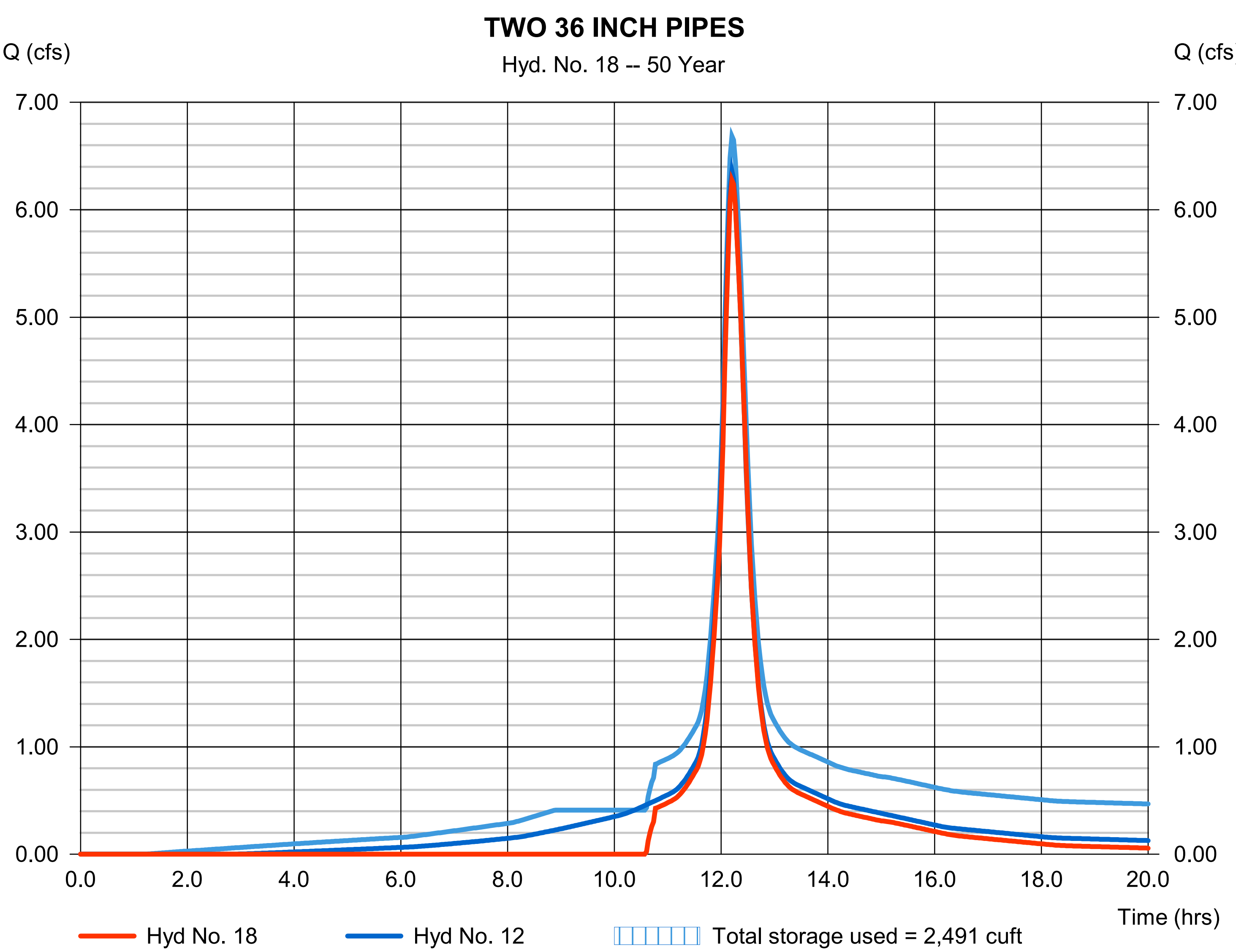
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 6.274 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 22,648 cuft
Inflow hyd. No.	= 12 - PR WS-02I	Max. Elevation	= 135.75 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,491 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



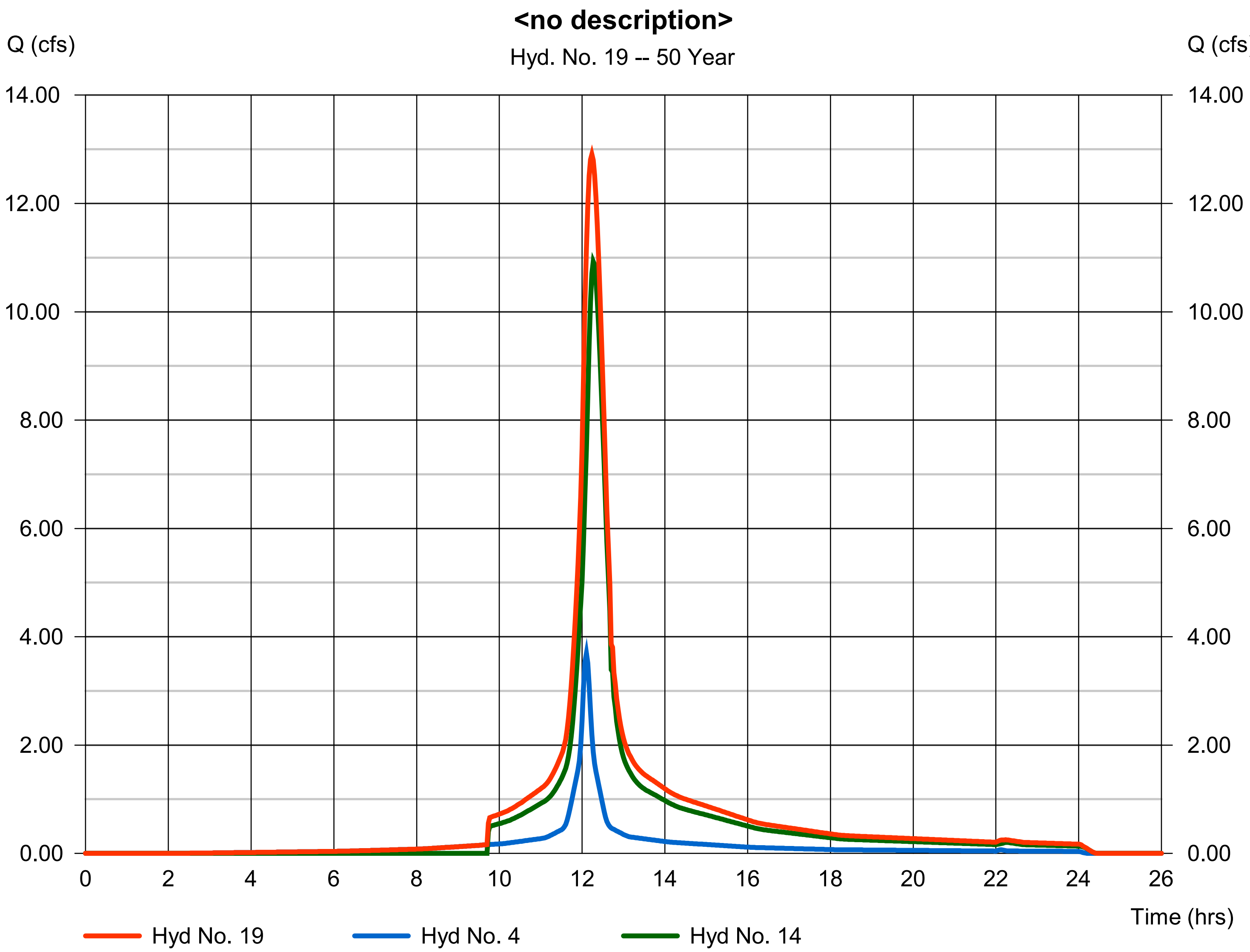
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 12.90 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 63,315 cuft
Inflow hyds.	= 4, 14	Contrib. drain. area	= 0.576 ac



Hydrograph Report

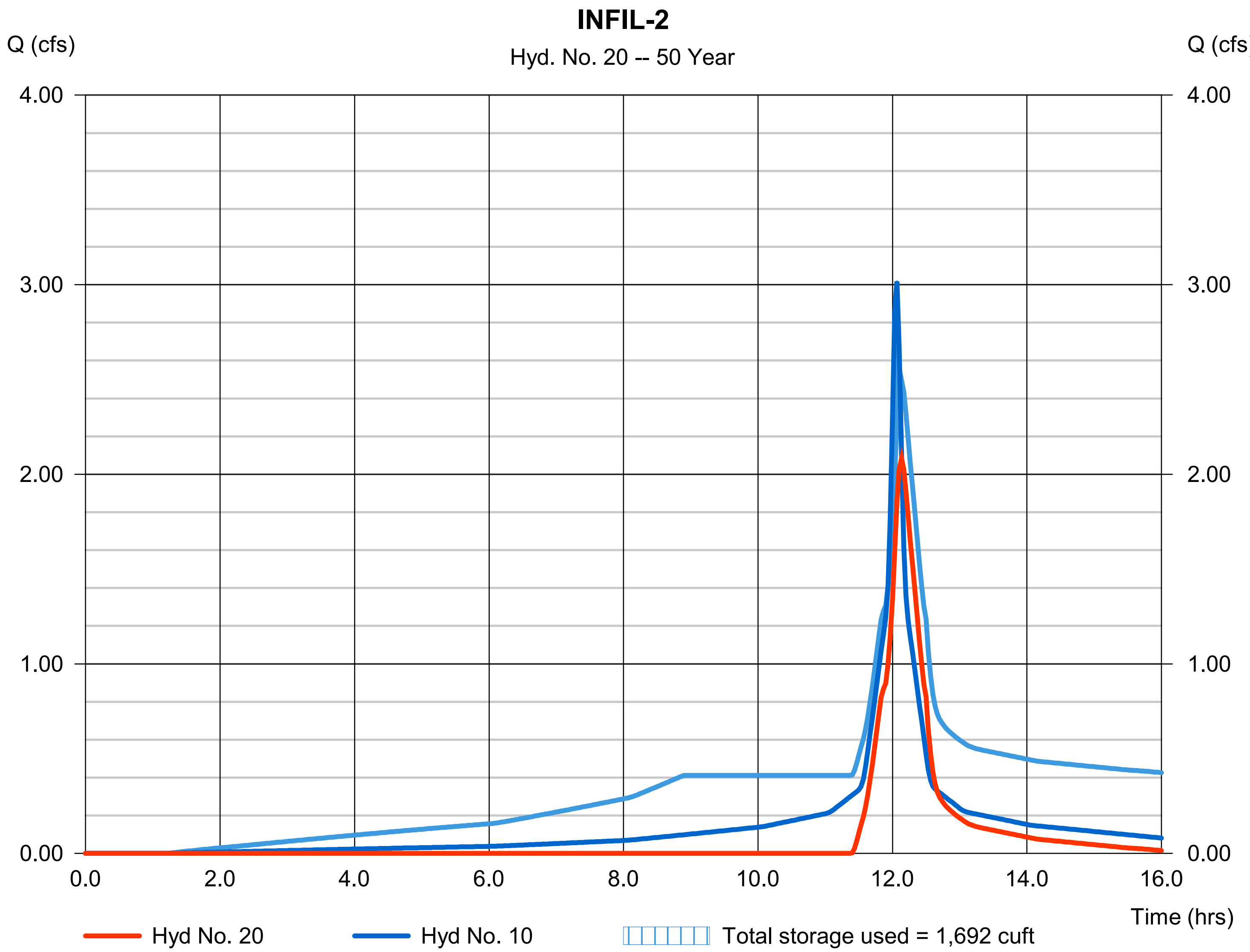
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 20

INFIL-2

Hydrograph type	= Reservoir	Peak discharge	= 2.083 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 5,300 cuft
Inflow hyd. No.	= 10 - PR WS-02G(II)	Max. Elevation	= 135.54 ft
Reservoir name	= INFIL-2	Max. Storage	= 1,692 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



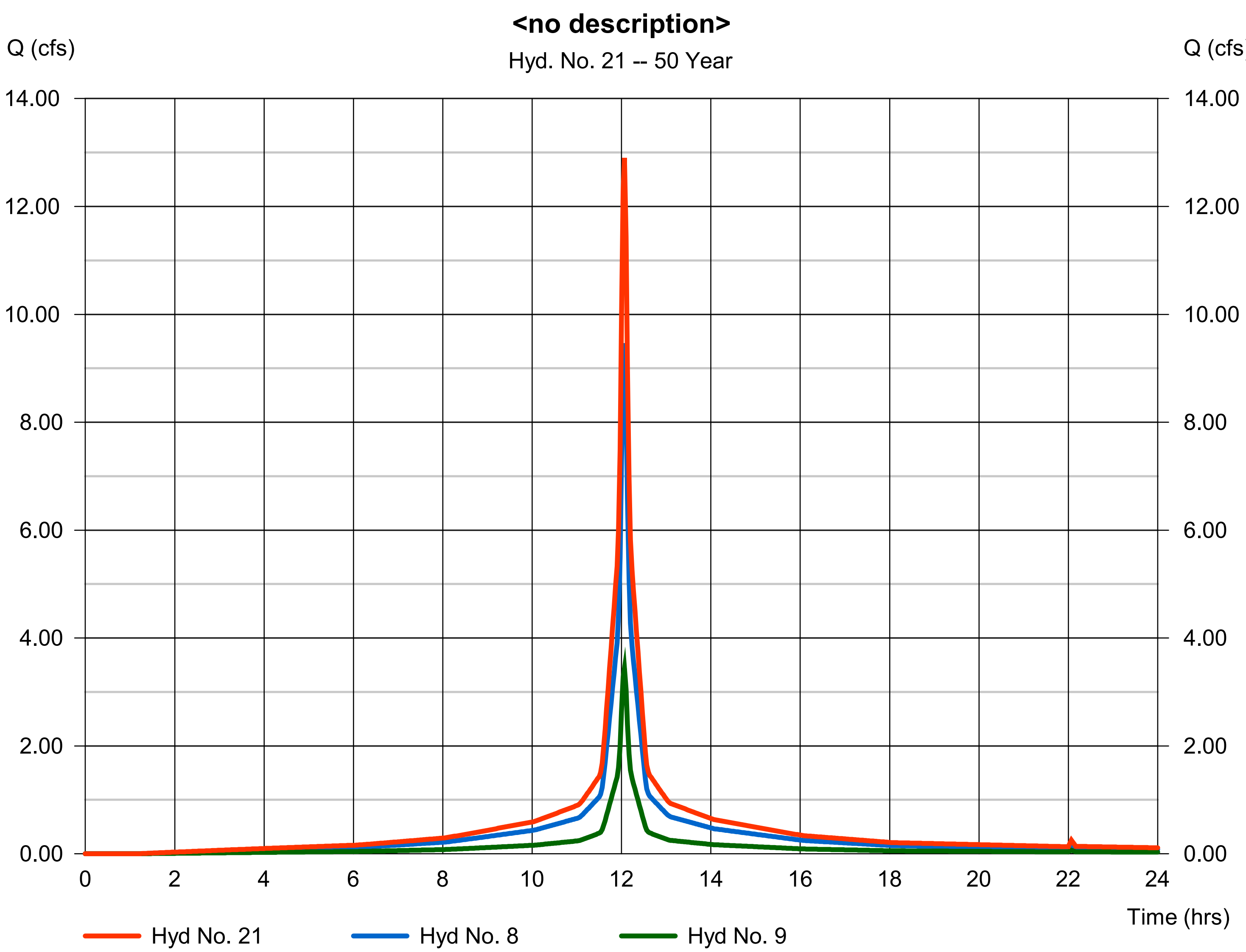
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

<no description>

Hydrograph type	= Combine	Peak discharge	= 12.90 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 43,763 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 1.855 ac



Hydrograph Report

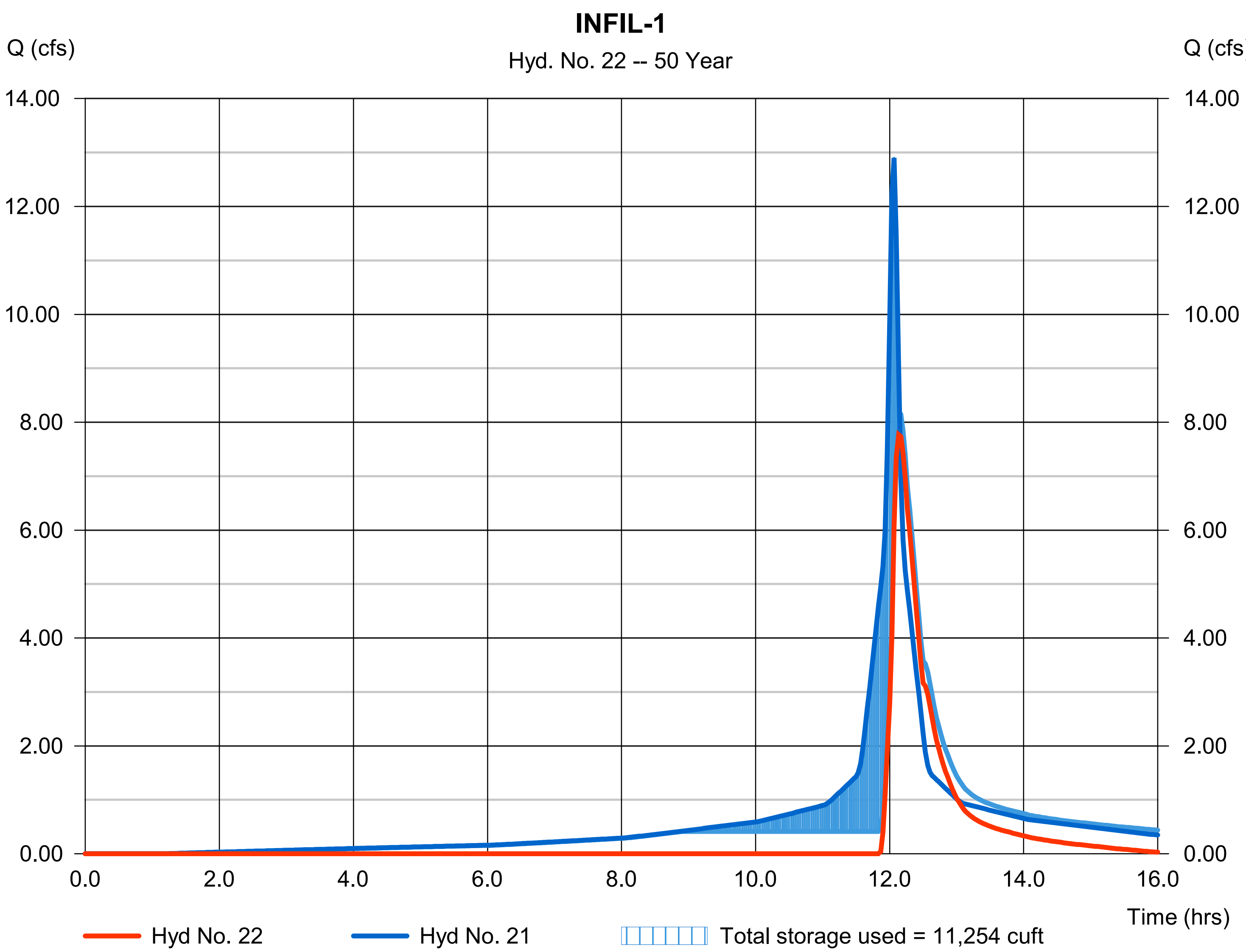
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 22

INFIL-1

Hydrograph type	= Reservoir	Peak discharge	= 7.770 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 17,543 cuft
Inflow hyd. No.	= 21 - <no description>	Max. Elevation	= 136.85 ft
Reservoir name	= INFIL-1	Max. Storage	= 11,254 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



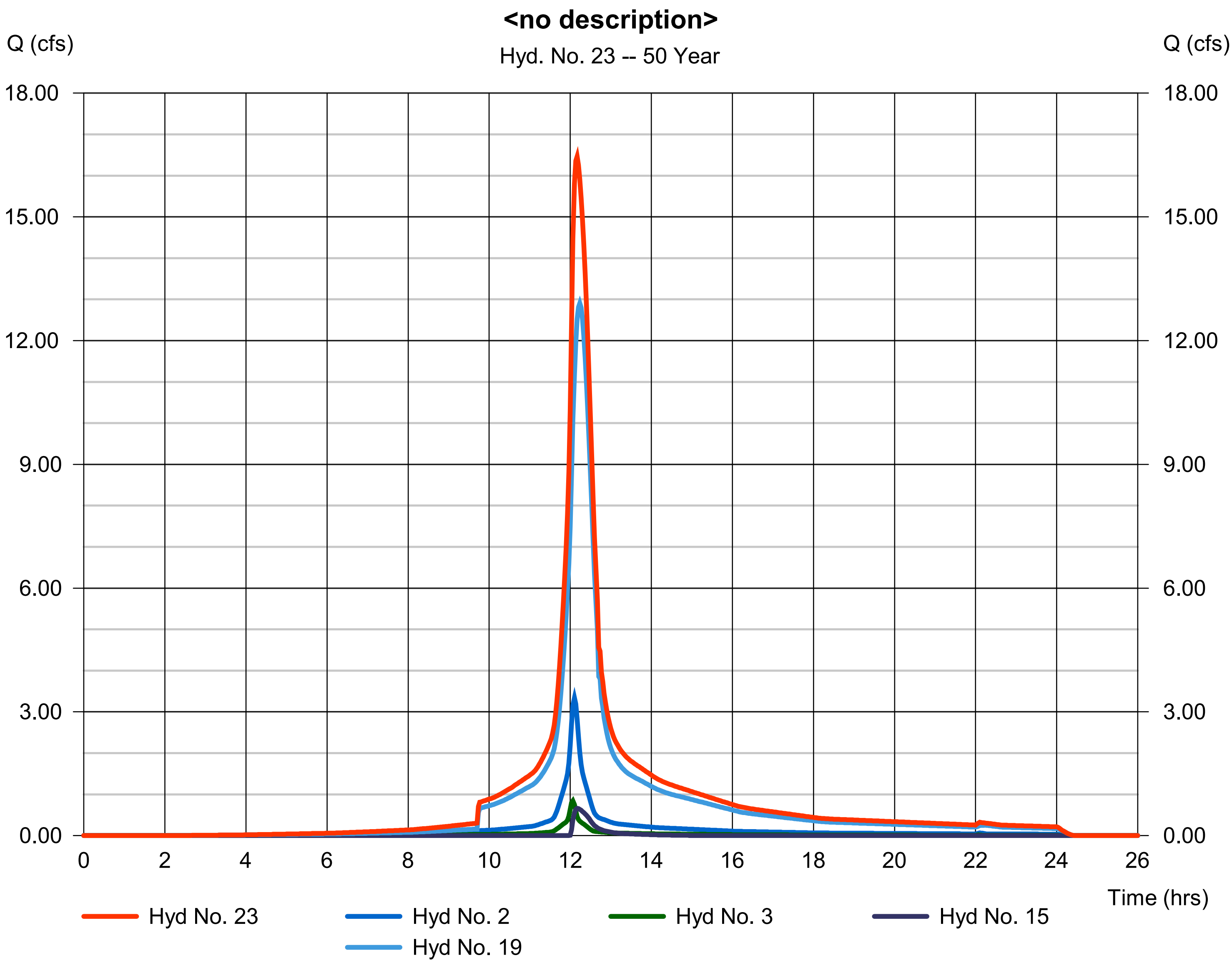
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 23

<no description>

Hydrograph type	= Combine	Peak discharge	= 16.46 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 79,243 cuft
Inflow hyds.	= 2, 3, 15, 19	Contrib. drain. area	= 0.689 ac



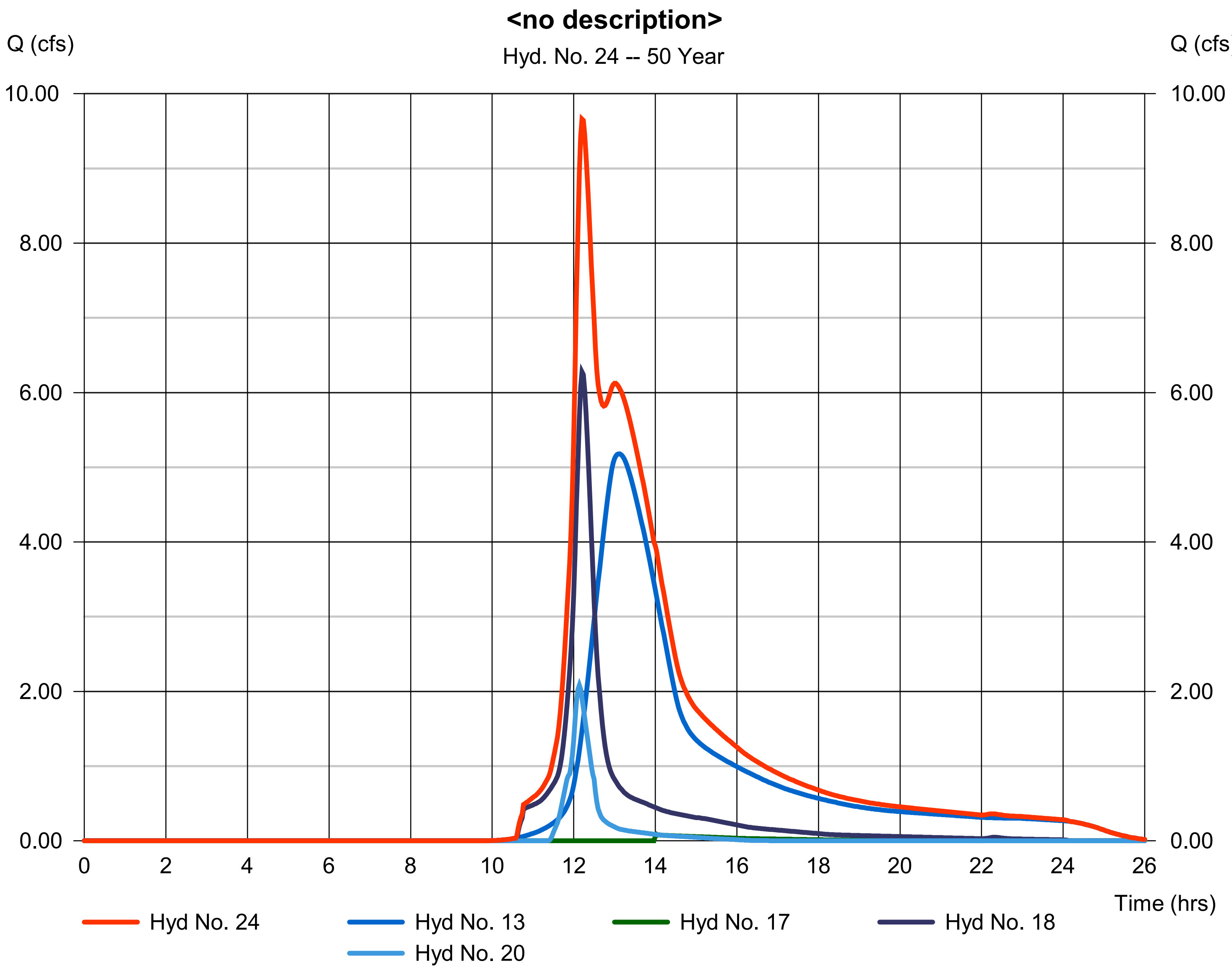
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 24

<no description>

Hydrograph type	= Combine	Peak discharge	= 9.661 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 82,950 cuft
Inflow hyds.	= 13, 17, 18, 20	Contrib. drain. area	= 4.837 ac



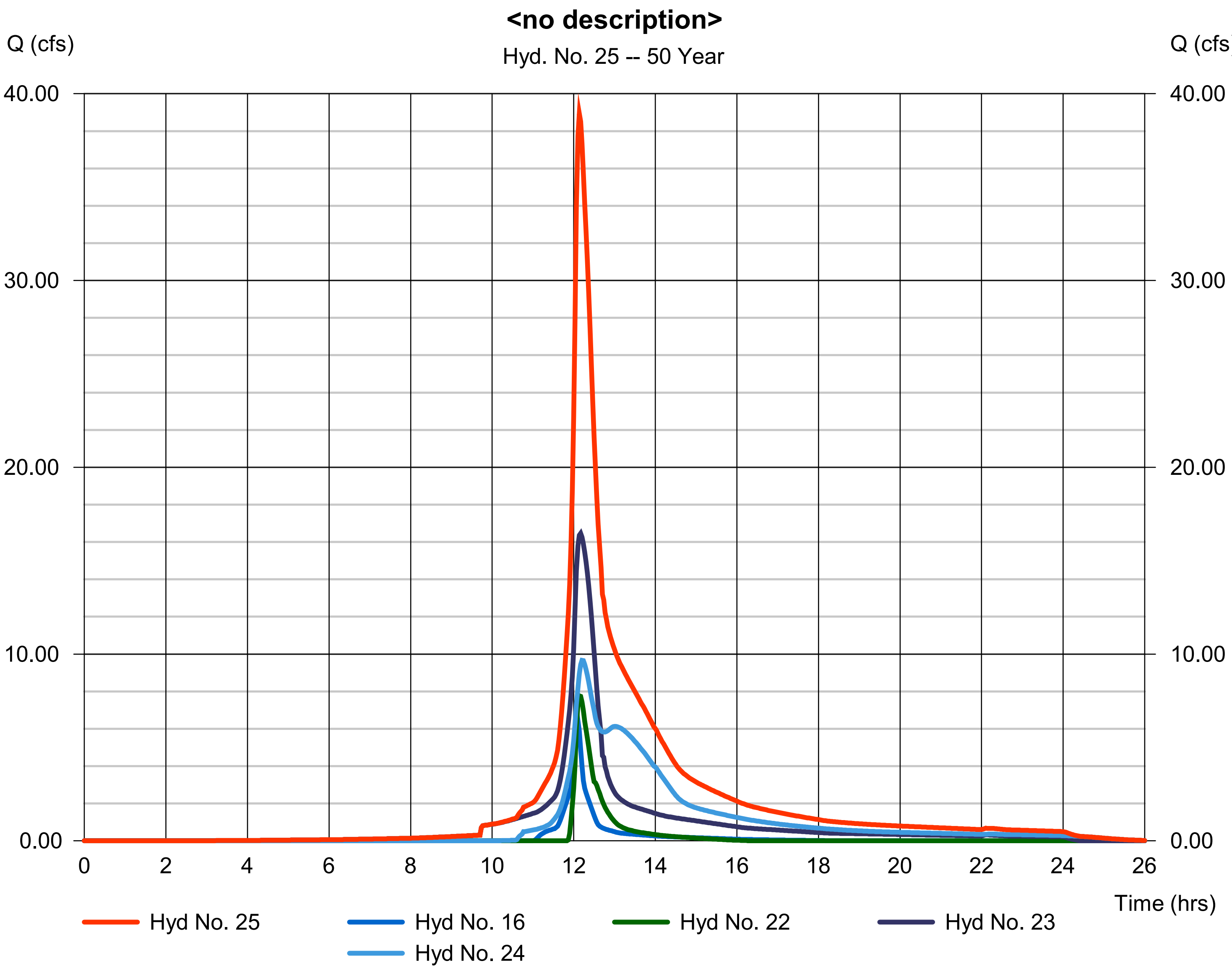
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 25

<no description>

Hydrograph type	= Combine	Peak discharge	= 38.93 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 194,138 cuft
Inflow hyds.	= 16, 22, 23, 24	Contrib. drain. area	= 0.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

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	8.534	2	752	55,399	------	------	------	PR WS-01
2	SCS Runoff	3.823	2	726	13,711	------	------	------	PR WS-02B(I)
3	SCS Runoff	0.964	2	724	3,046	------	------	------	PR WS-02B(III)
4	SCS Runoff	4.184	2	726	15,682	------	------	------	PR WS-02C
5	SCS Runoff	12.64	2	734	62,774	------	------	------	PR WS-02D
6	SCS Runoff	1.585	2	724	5,347	------	------	------	PR WS-02E
7	SCS Runoff	7.986	2	724	26,946	------	------	------	PR WS-02F
8	SCS Runoff	10.67	2	724	36,405	------	------	------	PR WS-02A
9	SCS Runoff	3.874	2	724	13,214	------	------	------	PR WS-02G(I)
10	SCS Runoff	3.404	2	724	11,609	------	------	------	PR WS-02G(II)
11	SCS Runoff	1.488	2	730	6,295	------	------	------	PR WS-02H
12	SCS Runoff	7.225	2	732	34,156	------	------	------	PR WS-02I
13	SCS Runoff	6.444	2	786	66,814	------	------	------	PR WS-03
14	Reservoir	12.50	2	736	57,780	5	139.20	4,007	TWIN 36IN PIPES (#2)
15	Reservoir	0.819	2	730	1,844	6	137.75	1,384	INFIL-3
16	Reservoir	7.203	2	726	17,218	7	138.11	3,101	INIFL-4
17	Reservoir	0.269	2	766	1,519	11	137.46	3,656	36 INCH PIPE (#3)
18	Reservoir	7.140	2	732	26,828	12	135.76	2,508	TWO 36 INCH PIPES
19	Combine	14.74	2	734	73,462	4, 14,	------	------	<no description>
20	Reservoir	2.326	2	728	6,392	10	135.95	1,833	INFIL-2
21	Combine	14.55	2	724	49,619	8, 9,	------	------	<no description>
22	Reservoir	9.071	2	728	21,971	21	137.48	12,150	INFIL-1
23	Combine	18.90	2	730	92,063	2, 3, 15, 19,	------	------	<no description>
24	Combine	11.25	2	732	101,553	13, 17, 18, 20,	------	------	<no description>
25	Combine	45.00	2	728	232,805	16, 22, 23, 24	------	------	<no description>

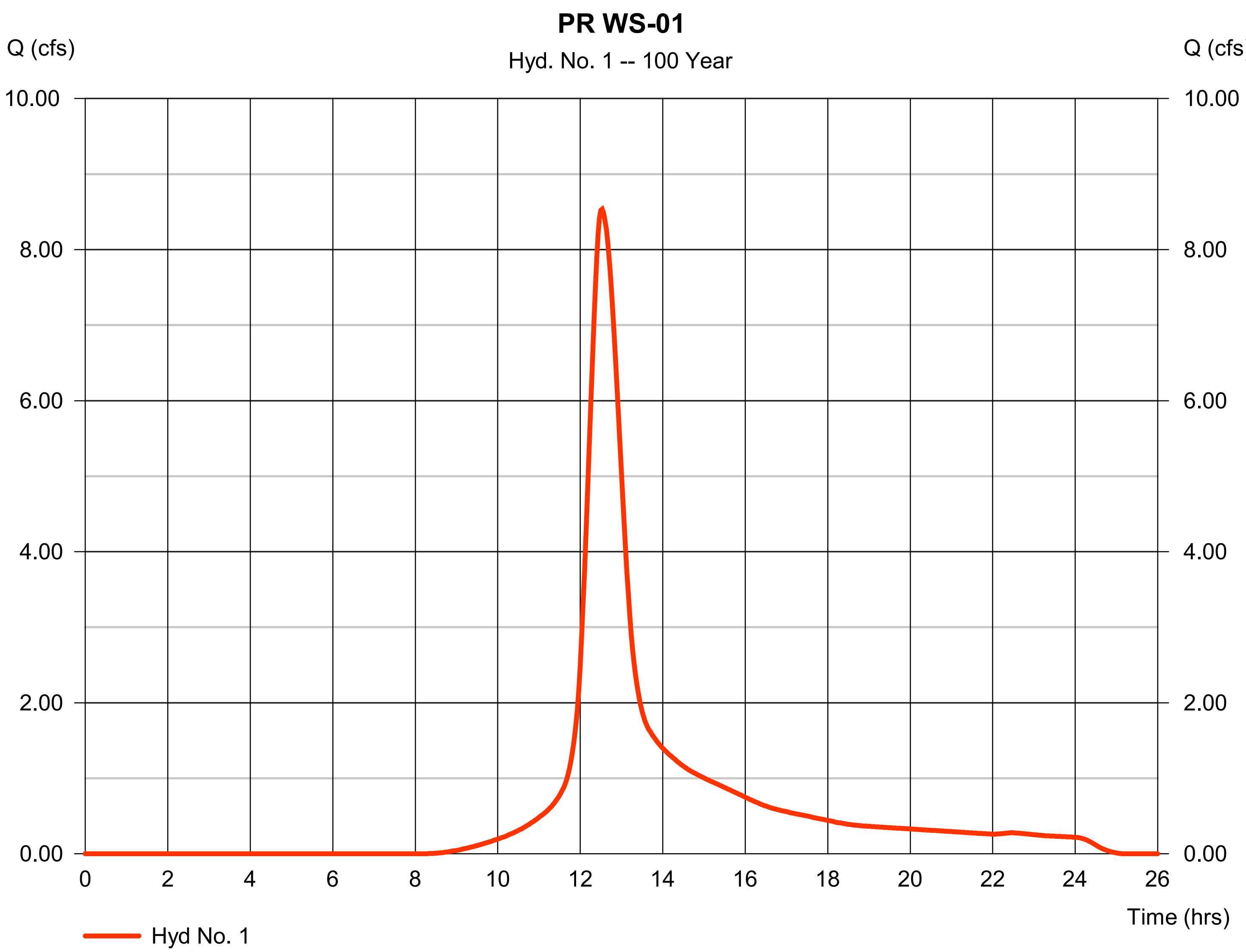
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 1

PR WS-01

Hydrograph type	= SCS Runoff	Peak discharge	= 8.534 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.53 hrs
Time interval	= 2 min	Hyd. volume	= 55,399 cuft
Drainage area	= 3.405 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 45.70 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



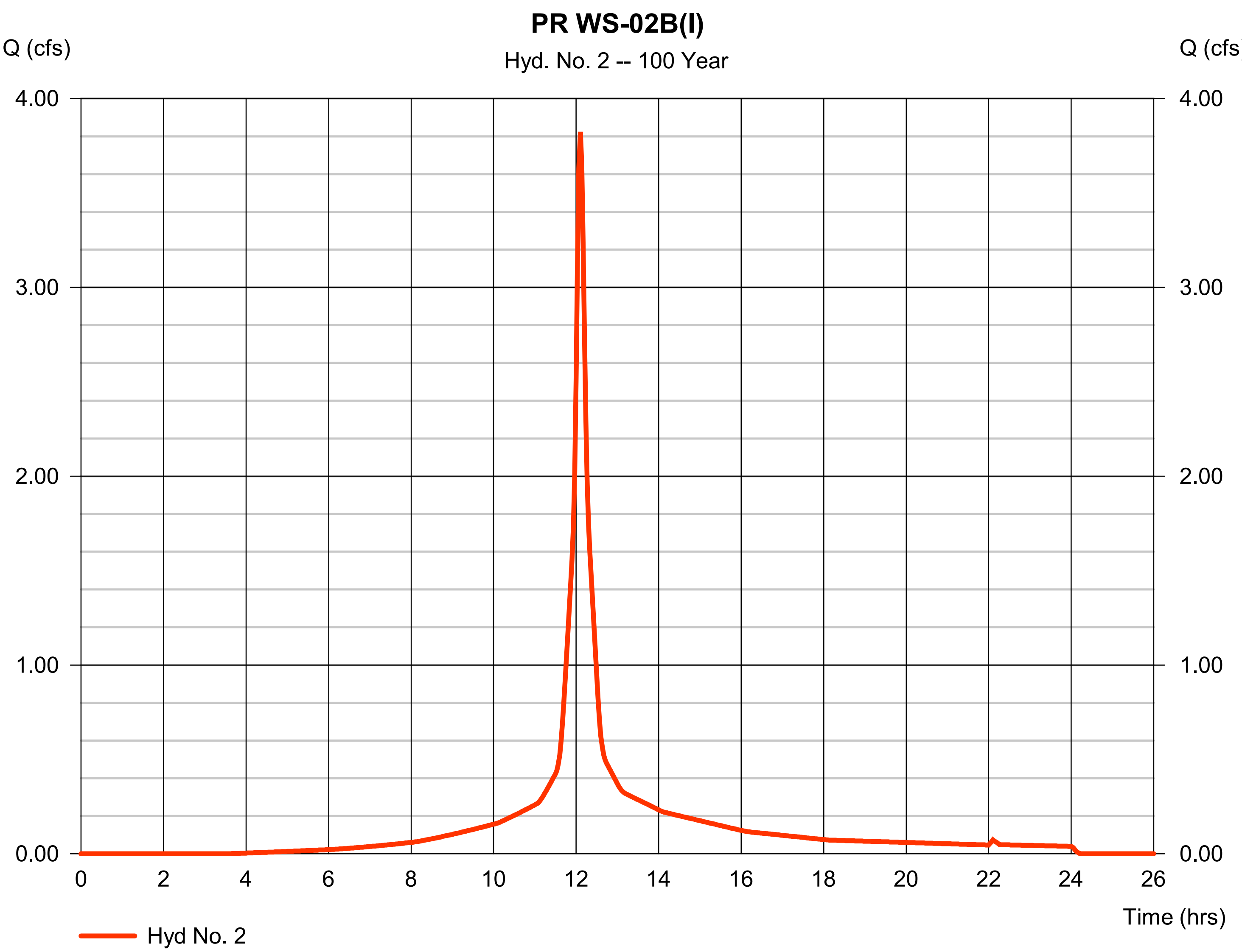
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 2

PR WS-02B(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.823 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 13,711 cuft
Drainage area	= 0.557 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 7.40 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



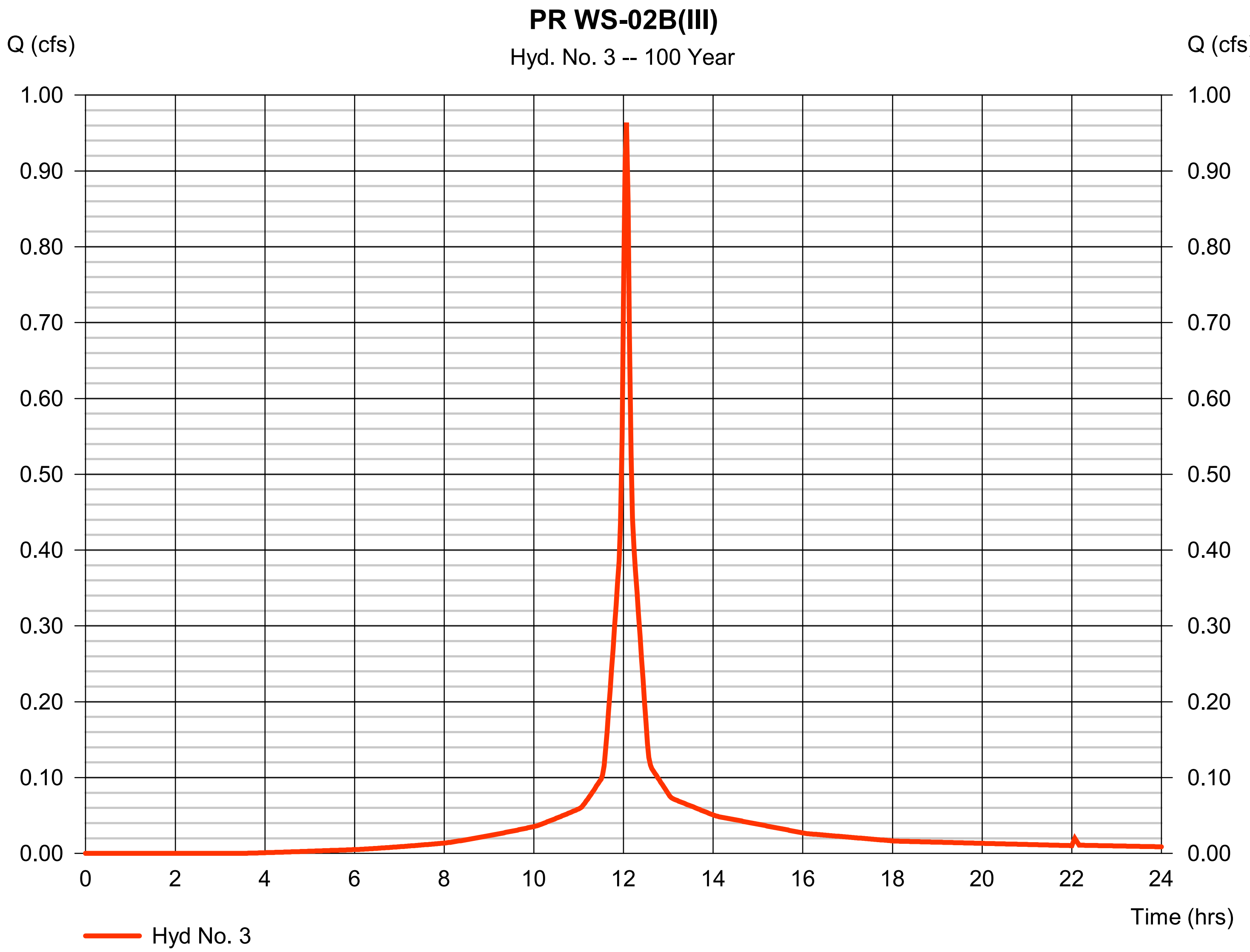
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 3

PR WS-02B(III)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.964 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 3,046 cuft
Drainage area	= 0.132 ac	Curve number	= 87
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



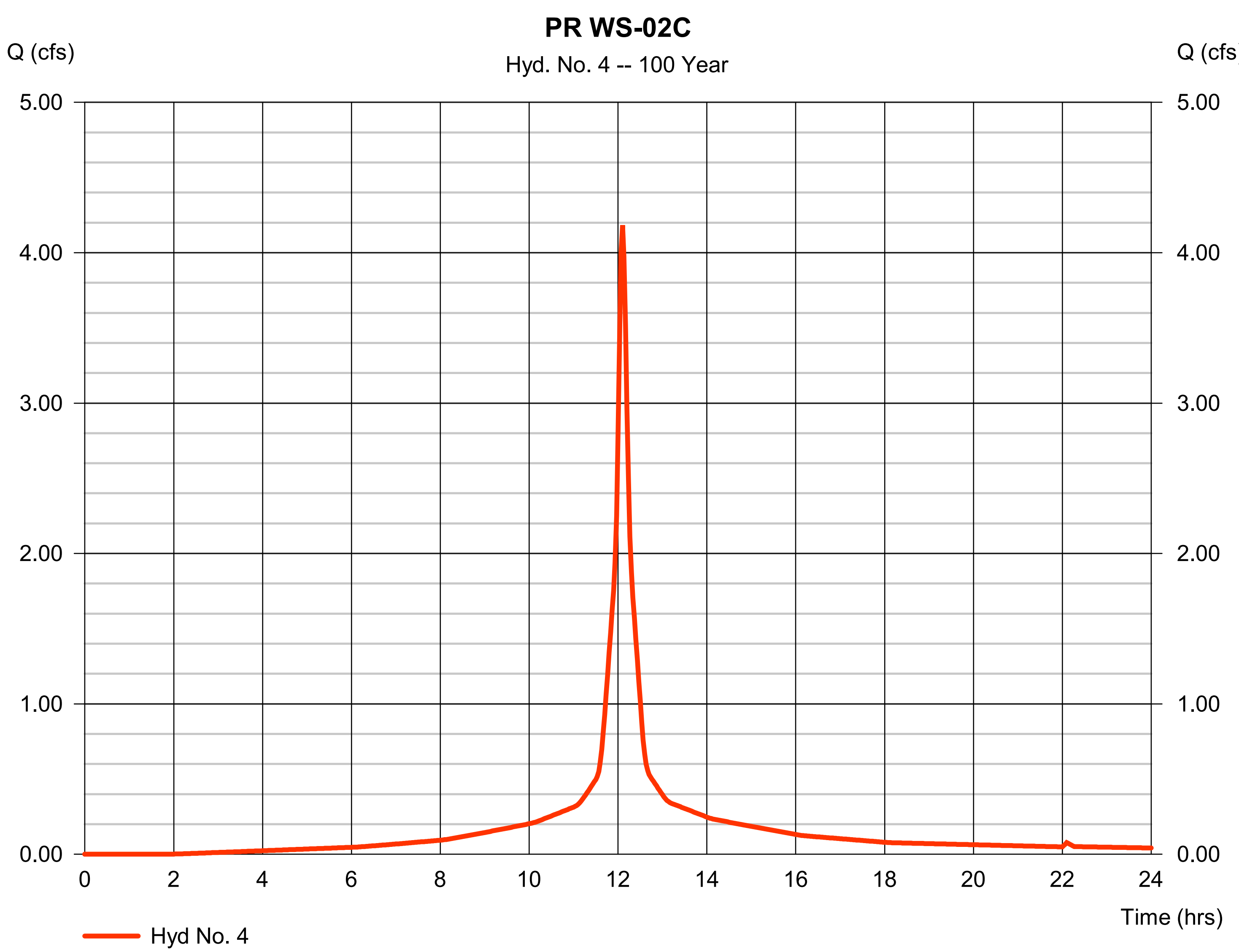
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 4

PR WS-02C

Hydrograph type	= SCS Runoff	Peak discharge	= 4.184 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 15,682 cuft
Drainage area	= 0.576 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.40 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



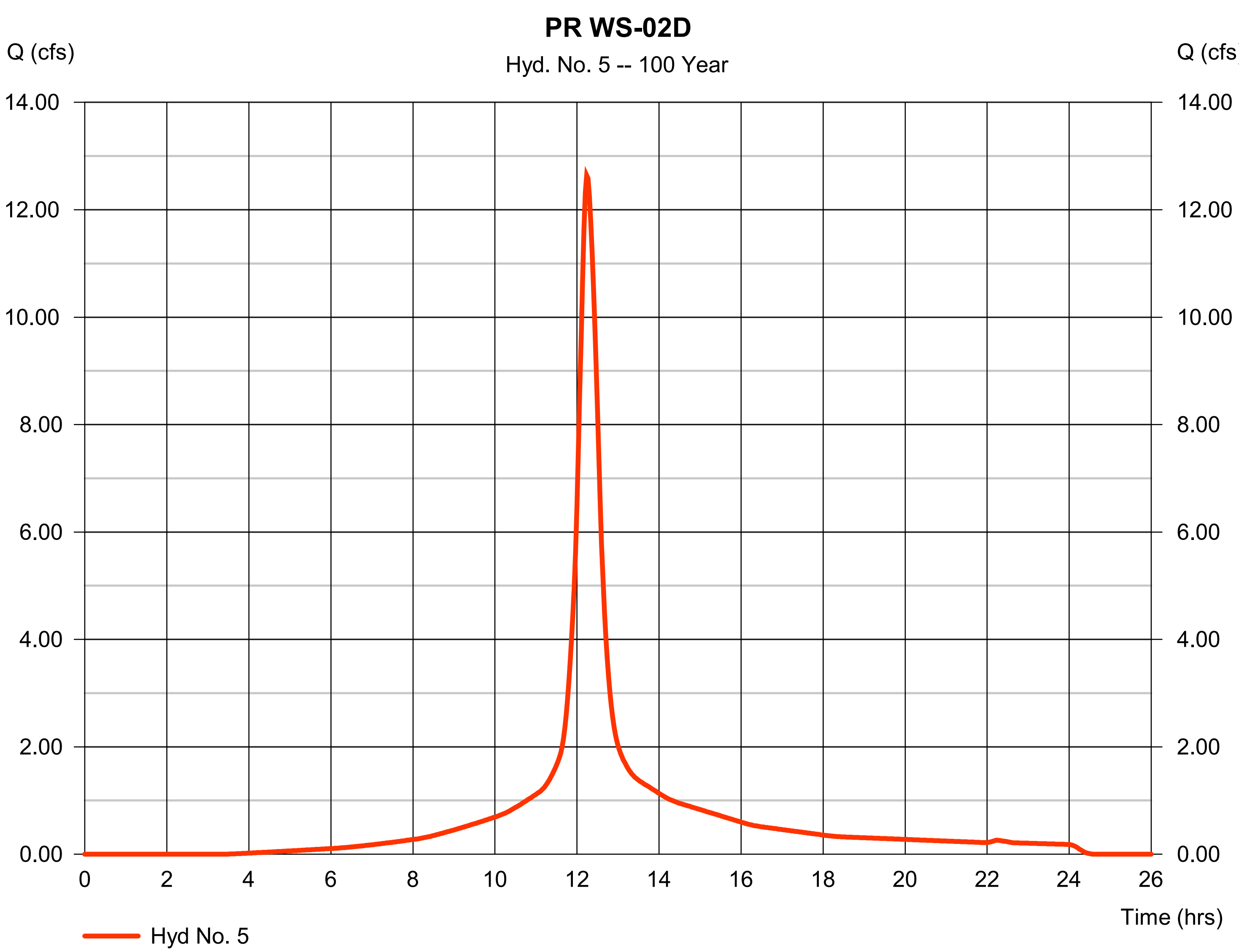
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 5

PR WS-02D

Hydrograph type	= SCS Runoff	Peak discharge	= 12.64 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 62,774 cuft
Drainage area	= 2.462 ac	Curve number	= 88
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 22.10 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



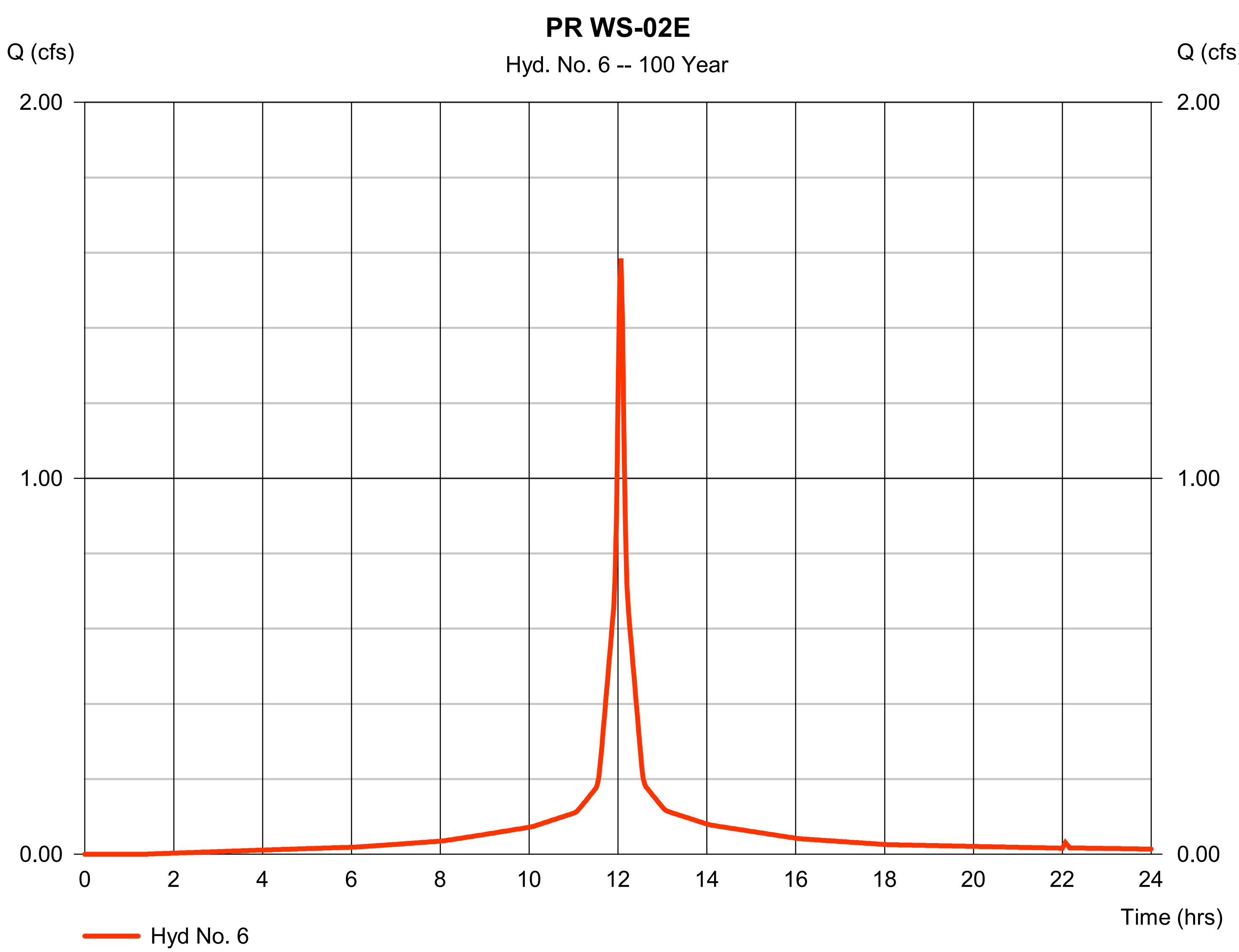
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 6

PR WS-02E

Hydrograph type	= SCS Runoff	Peak discharge	= 1.585 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 5,347 cuft
Drainage area	= 0.203 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



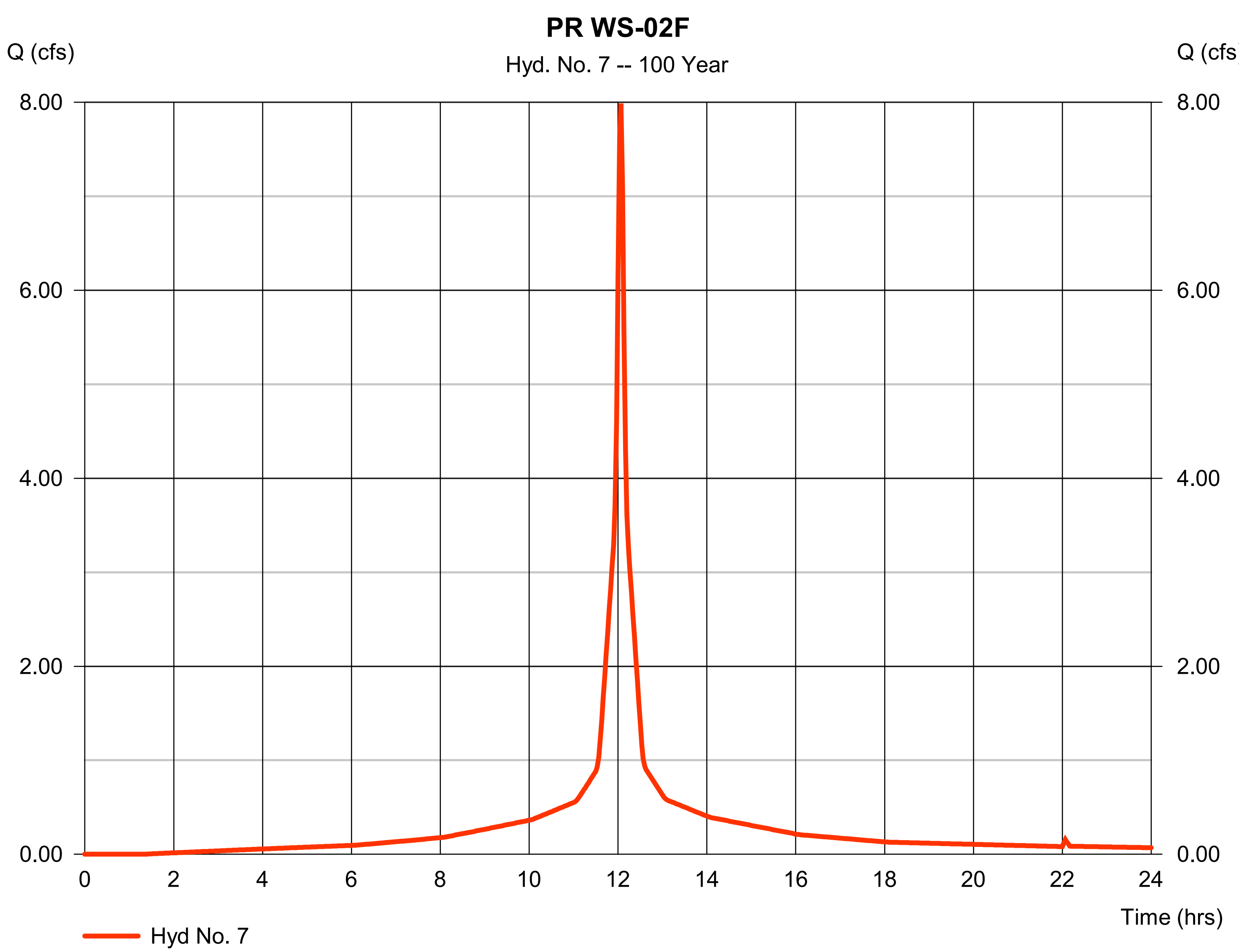
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 7

PR WS-02F

Hydrograph type	= SCS Runoff	Peak discharge	= 7.986 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 26,946 cuft
Drainage area	= 1.023 ac	Curve number	= 95
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



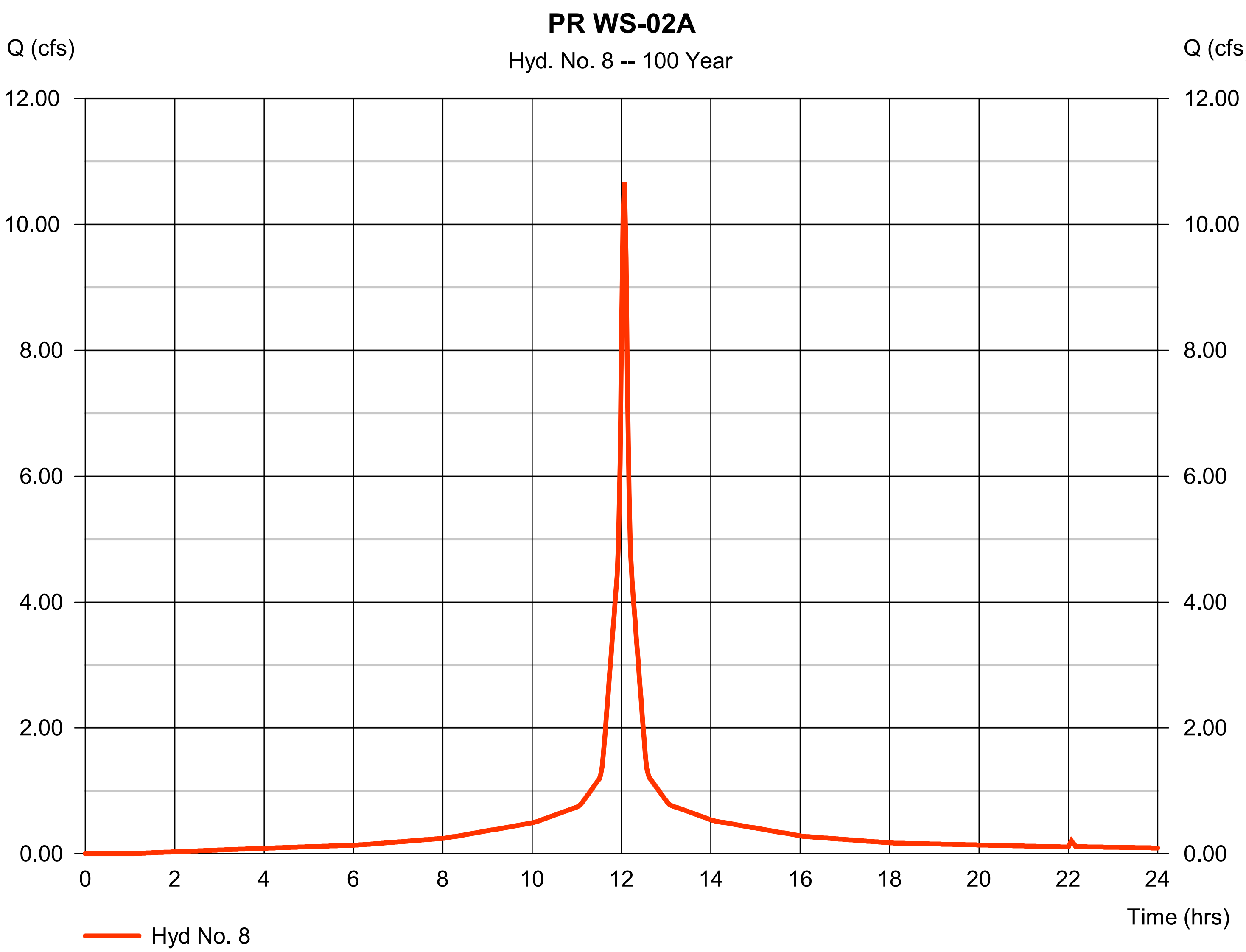
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 8

PR WS-02A

Hydrograph type	= SCS Runoff	Peak discharge	= 10.67 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 36,405 cuft
Drainage area	= 1.361 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



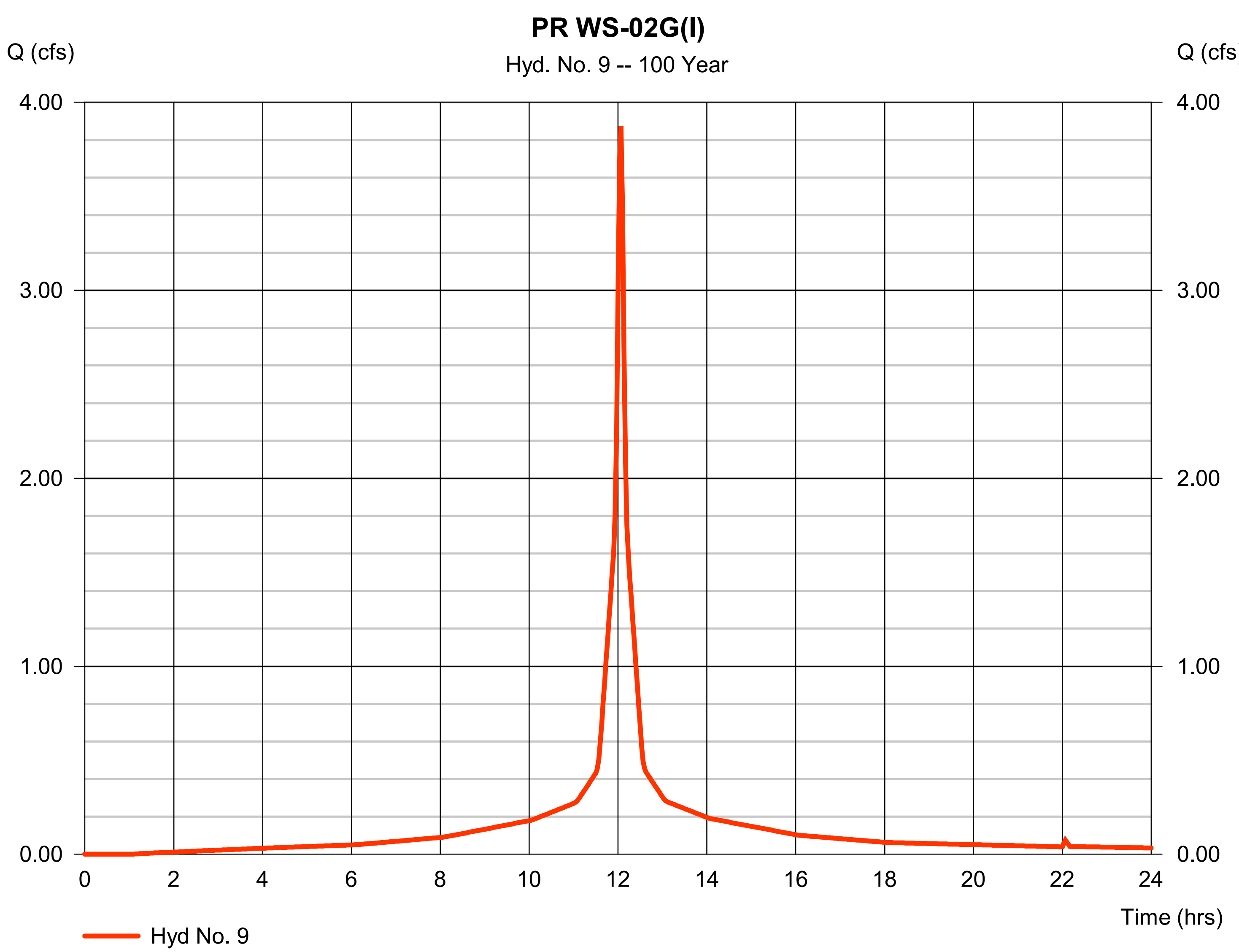
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 9

PR WS-02G(I)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.874 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 13,214 cuft
Drainage area	= 0.494 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



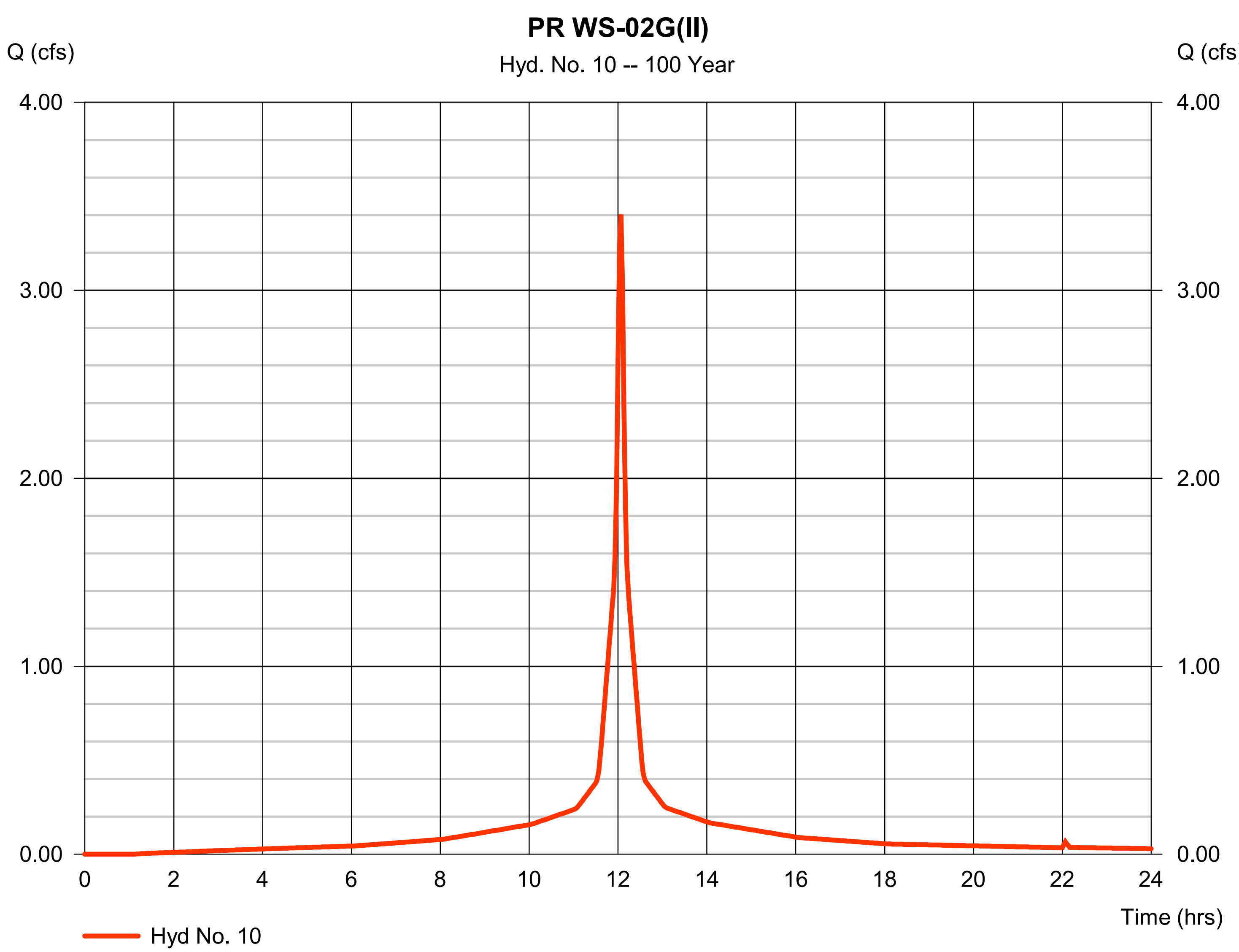
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 10

PR WS-02G(II)

Hydrograph type	= SCS Runoff	Peak discharge	= 3.404 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 11,609 cuft
Drainage area	= 0.434 ac	Curve number	= 96
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



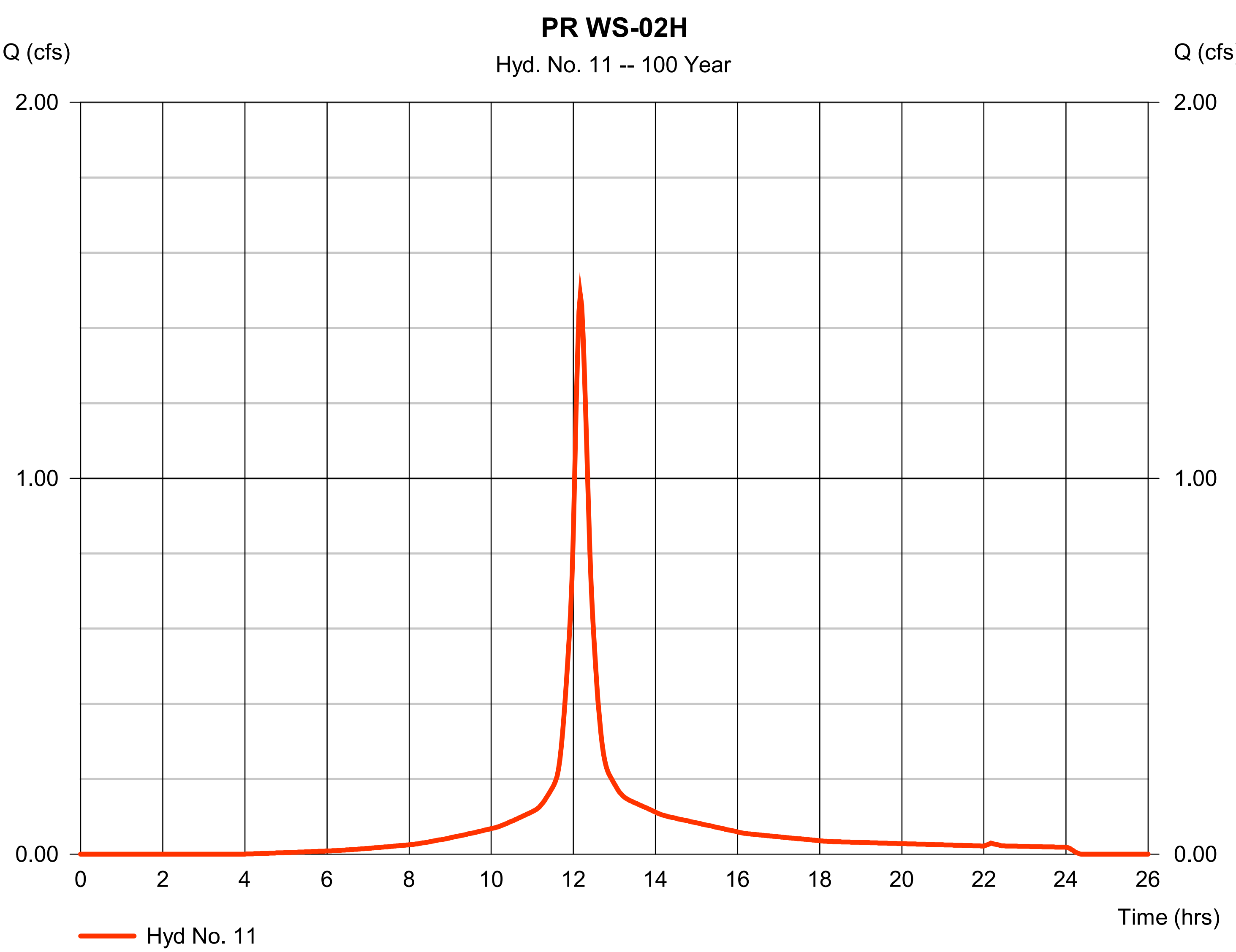
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 11

PR WS-02H

Hydrograph type	= SCS Runoff	Peak discharge	= 1.488 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 6,295 cuft
Drainage area	= 0.267 ac	Curve number	= 86
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 13.80 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



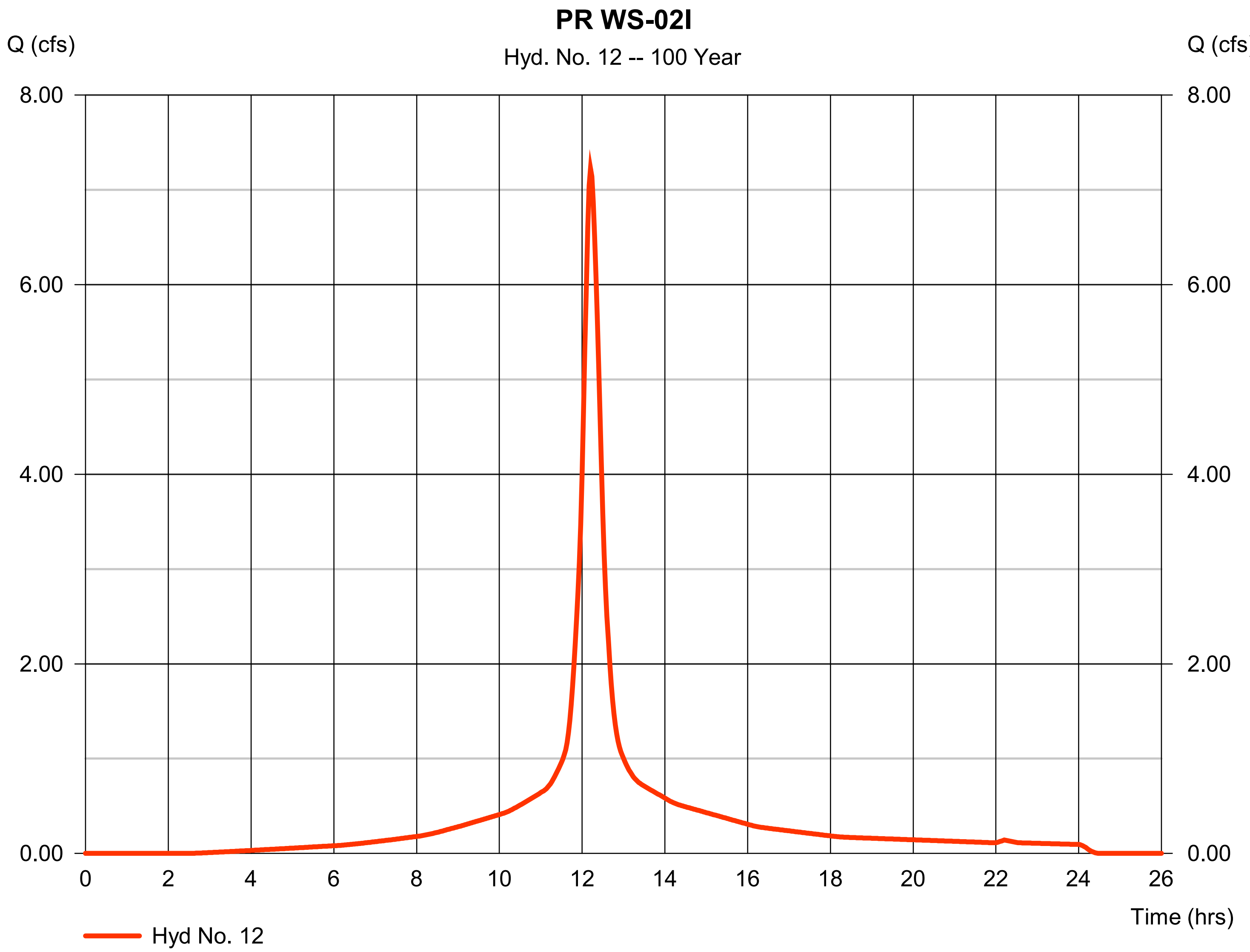
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 12

PR WS-02I

Hydrograph type	= SCS Runoff	Peak discharge	= 7.225 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 34,156 cuft
Drainage area	= 1.296 ac	Curve number	= 91
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.60 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



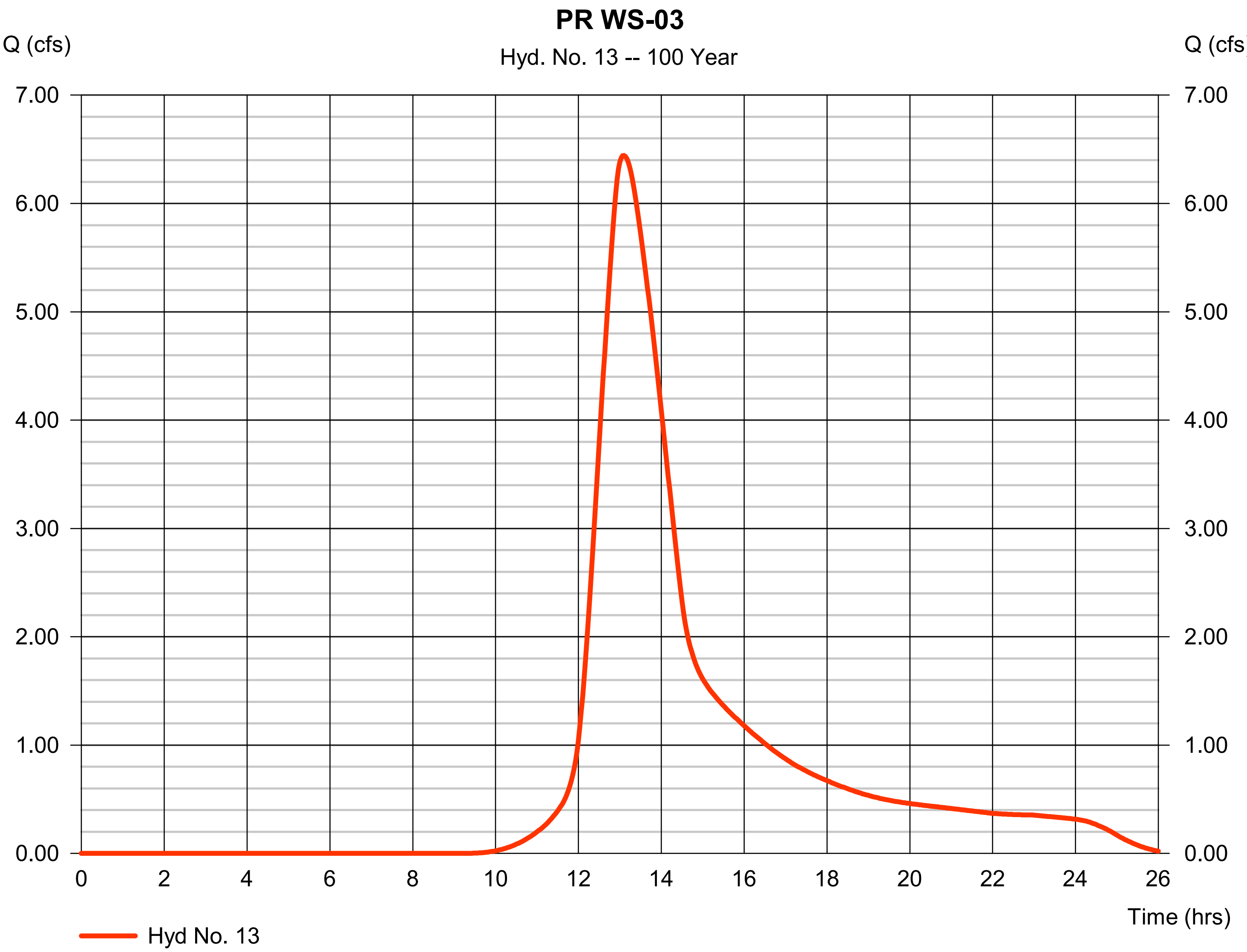
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 13

PR WS-03

Hydrograph type	= SCS Runoff	Peak discharge	= 6.444 cfs
Storm frequency	= 100 yrs	Time to peak	= 13.10 hrs
Time interval	= 2 min	Hyd. volume	= 66,814 cuft
Drainage area	= 4.837 ac	Curve number	= 62
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 95.00 min
Total precip.	= 8.34 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

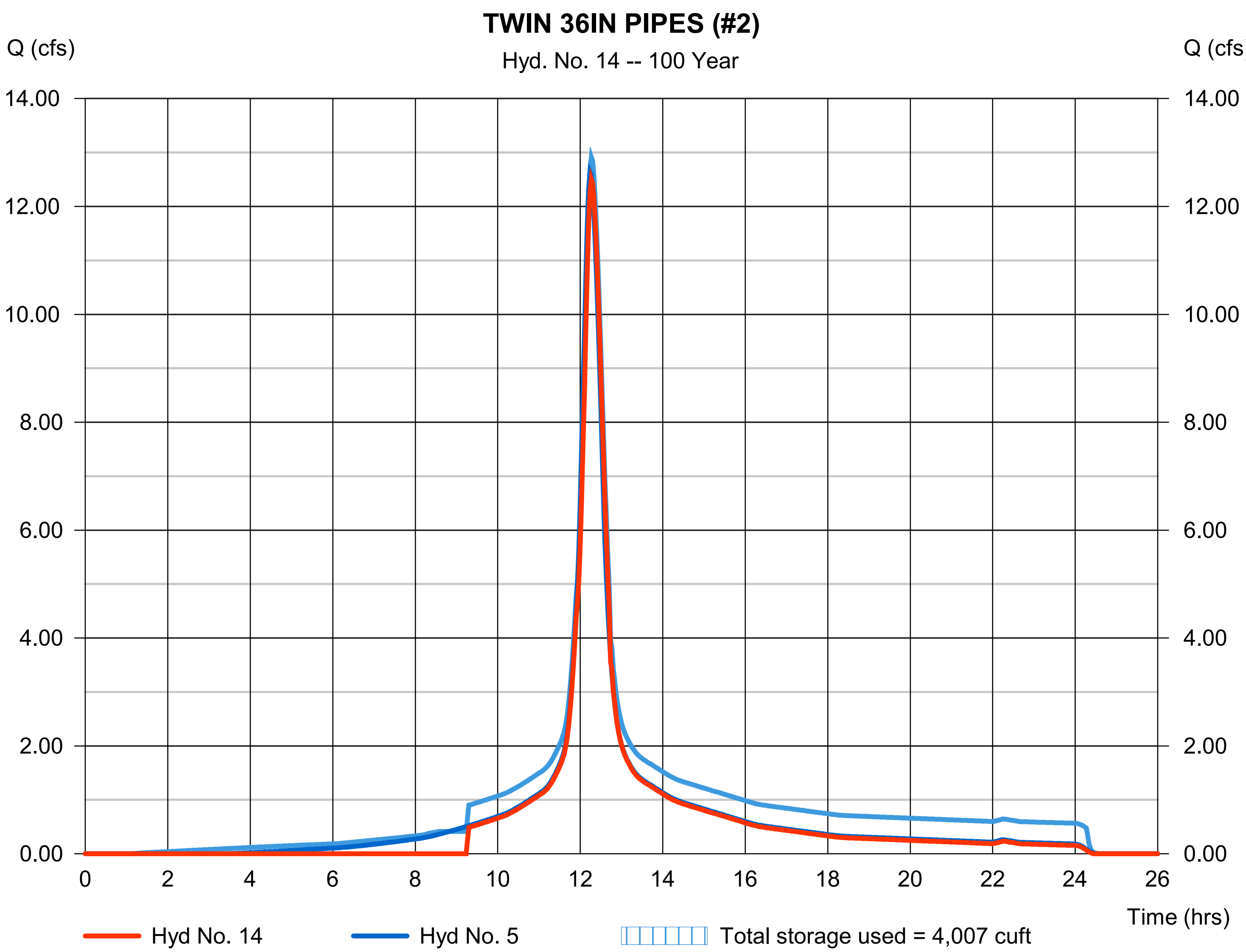
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 14

TWIN 36IN PIPES (#2)

Hydrograph type	= Reservoir	Peak discharge	= 12.50 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 57,780 cuft
Inflow hyd. No.	= 5 - PR WS-02D	Max. Elevation	= 139.20 ft
Reservoir name	= Northern Twin 36IN	Max. Storage	= 4,007 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

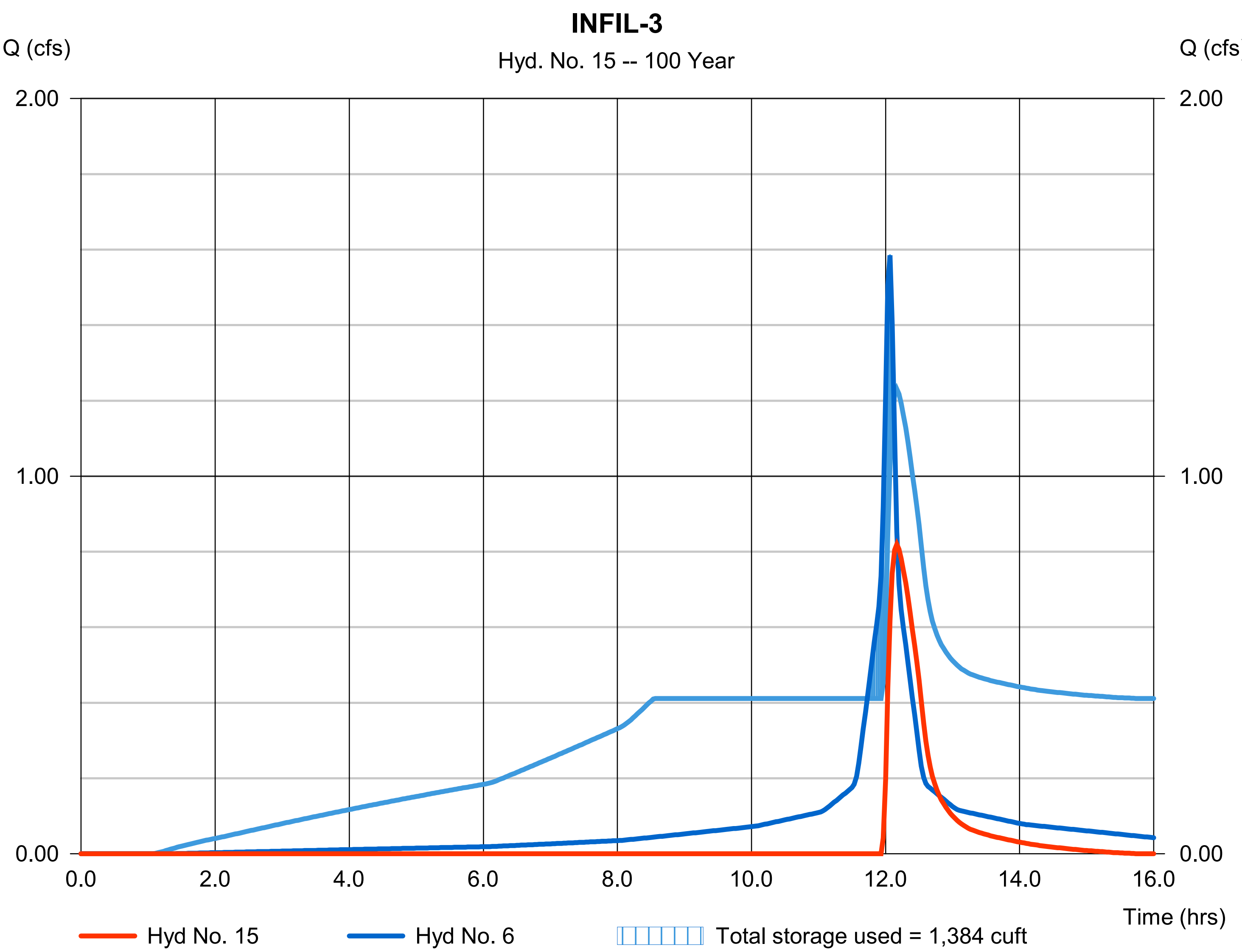
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 15

INFIL-3

Hydrograph type	= Reservoir	Peak discharge	= 0.819 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 1,844 cuft
Inflow hyd. No.	= 6 - PR WS-02E	Max. Elevation	= 137.75 ft
Reservoir name	= INFIL-3	Max. Storage	= 1,384 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

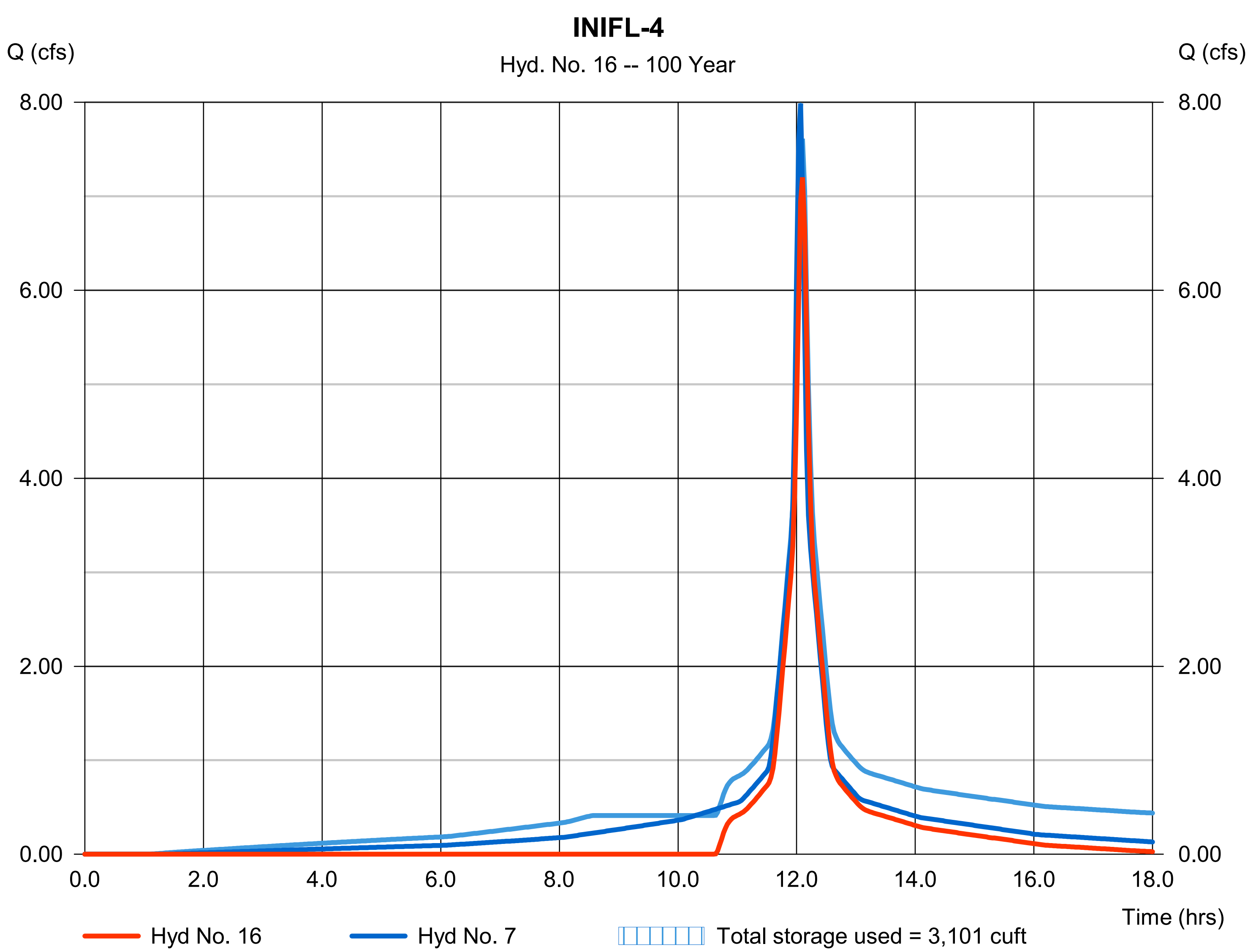
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 16

INIFL-4

Hydrograph type	= Reservoir	Peak discharge	= 7.203 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 17,218 cuft
Inflow hyd. No.	= 7 - PR WS-02F	Max. Elevation	= 138.11 ft
Reservoir name	= INIFL-4	Max. Storage	= 3,101 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

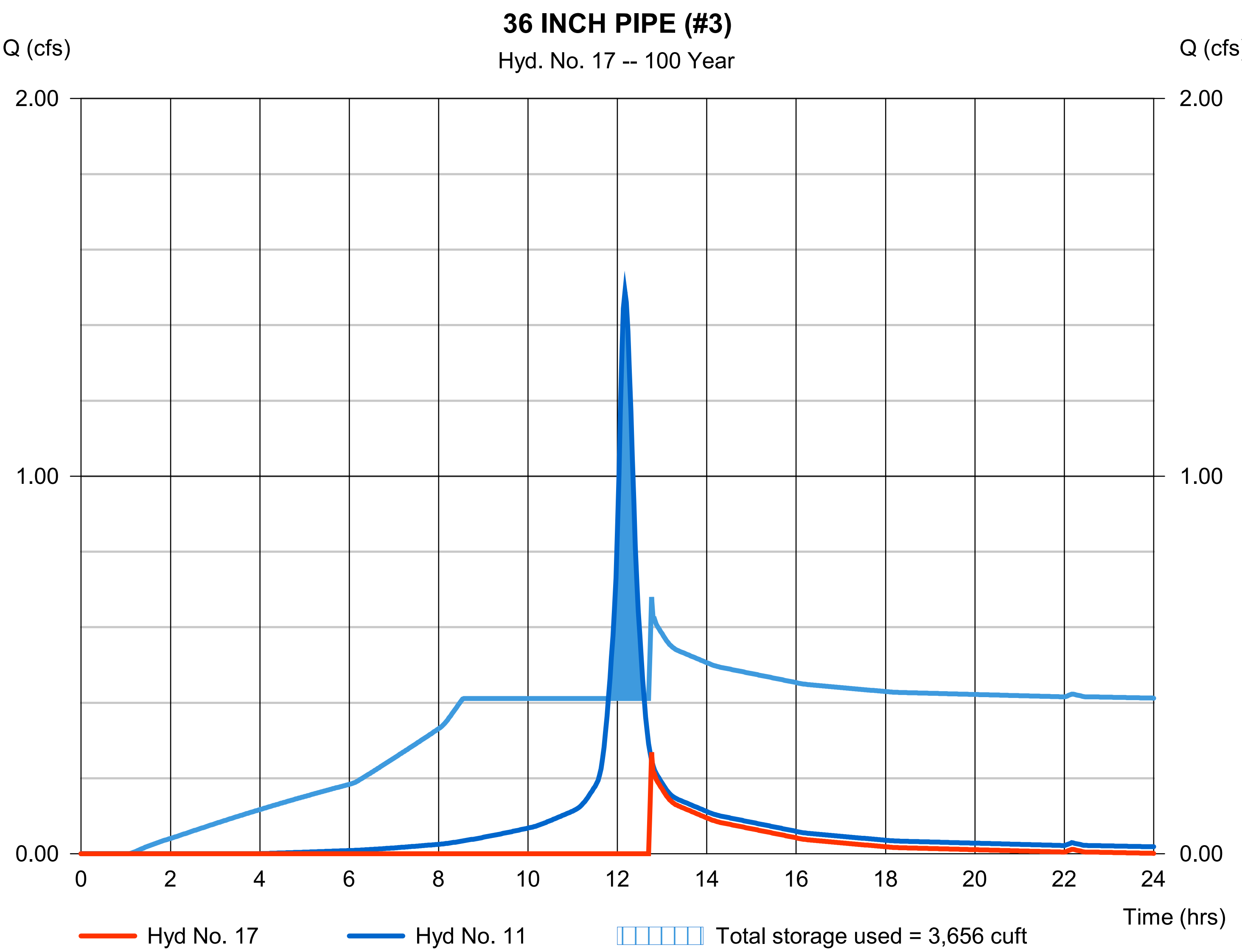
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 17

36 INCH PIPE (#3)

Hydrograph type	= Reservoir	Peak discharge	= 0.269 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.77 hrs
Time interval	= 2 min	Hyd. volume	= 1,519 cuft
Inflow hyd. No.	= 11 - PR WS-02H	Max. Elevation	= 137.46 ft
Reservoir name	= 36IN - 3	Max. Storage	= 3,656 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

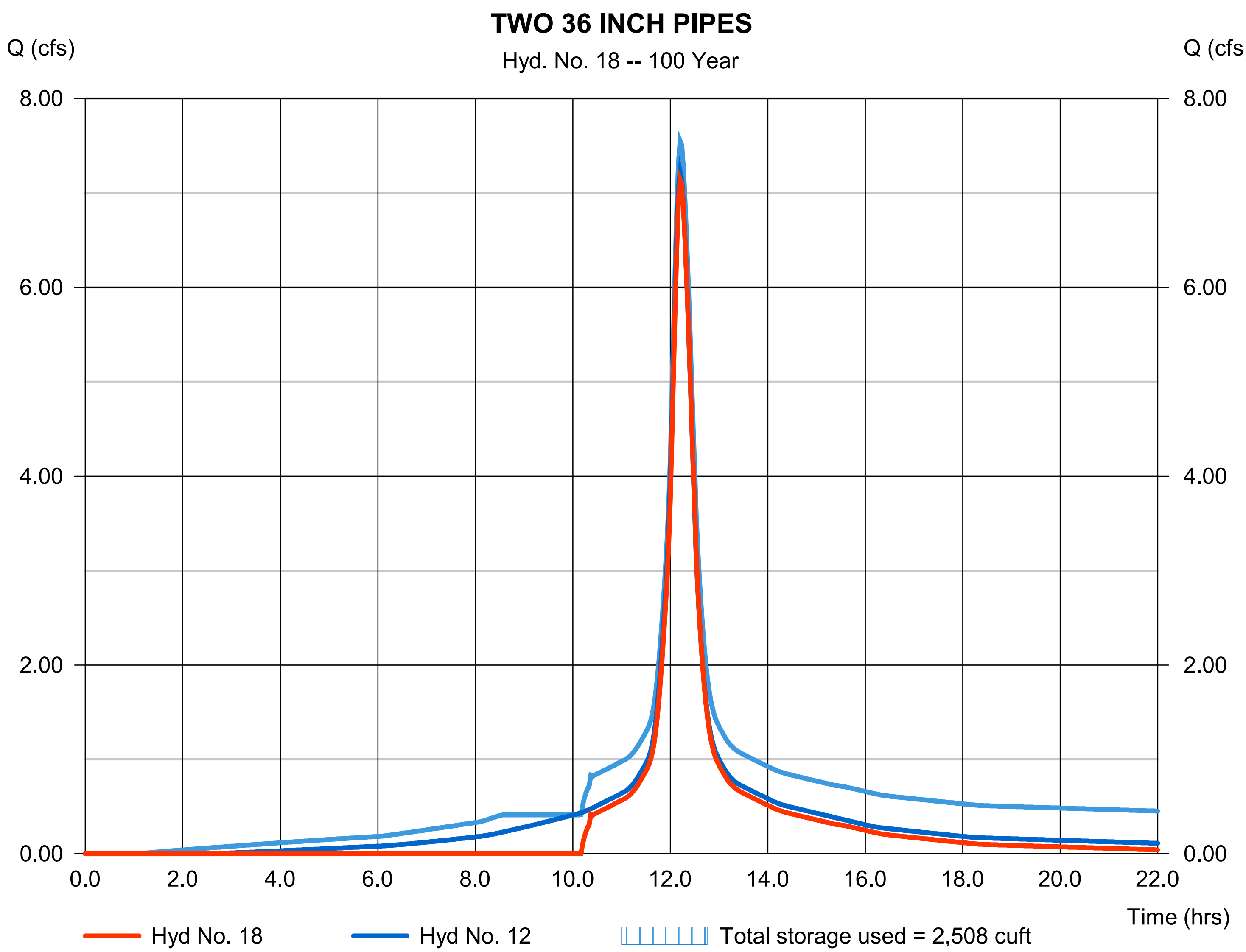
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 18

TWO 36 INCH PIPES

Hydrograph type	= Reservoir	Peak discharge	= 7.140 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 26,828 cuft
Inflow hyd. No.	= 12 - PR WS-02I	Max. Elevation	= 135.76 ft
Reservoir name	= TWIN 36IN	Max. Storage	= 2,508 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



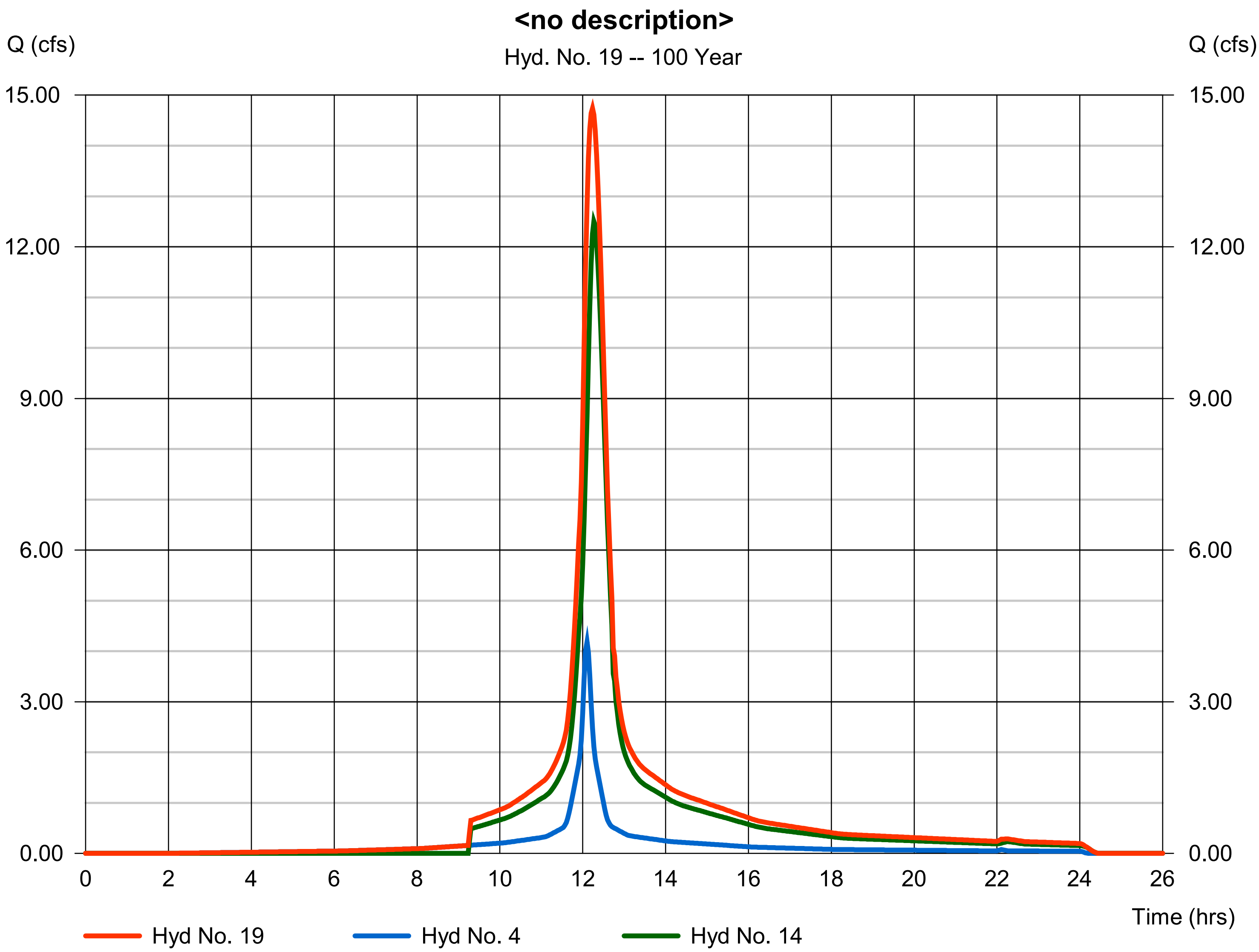
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 19

<no description>

Hydrograph type	= Combine	Peak discharge	= 14.74 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 73,462 cuft
Inflow hyds.	= 4, 14	Contrib. drain. area	= 0.576 ac



Hydrograph Report

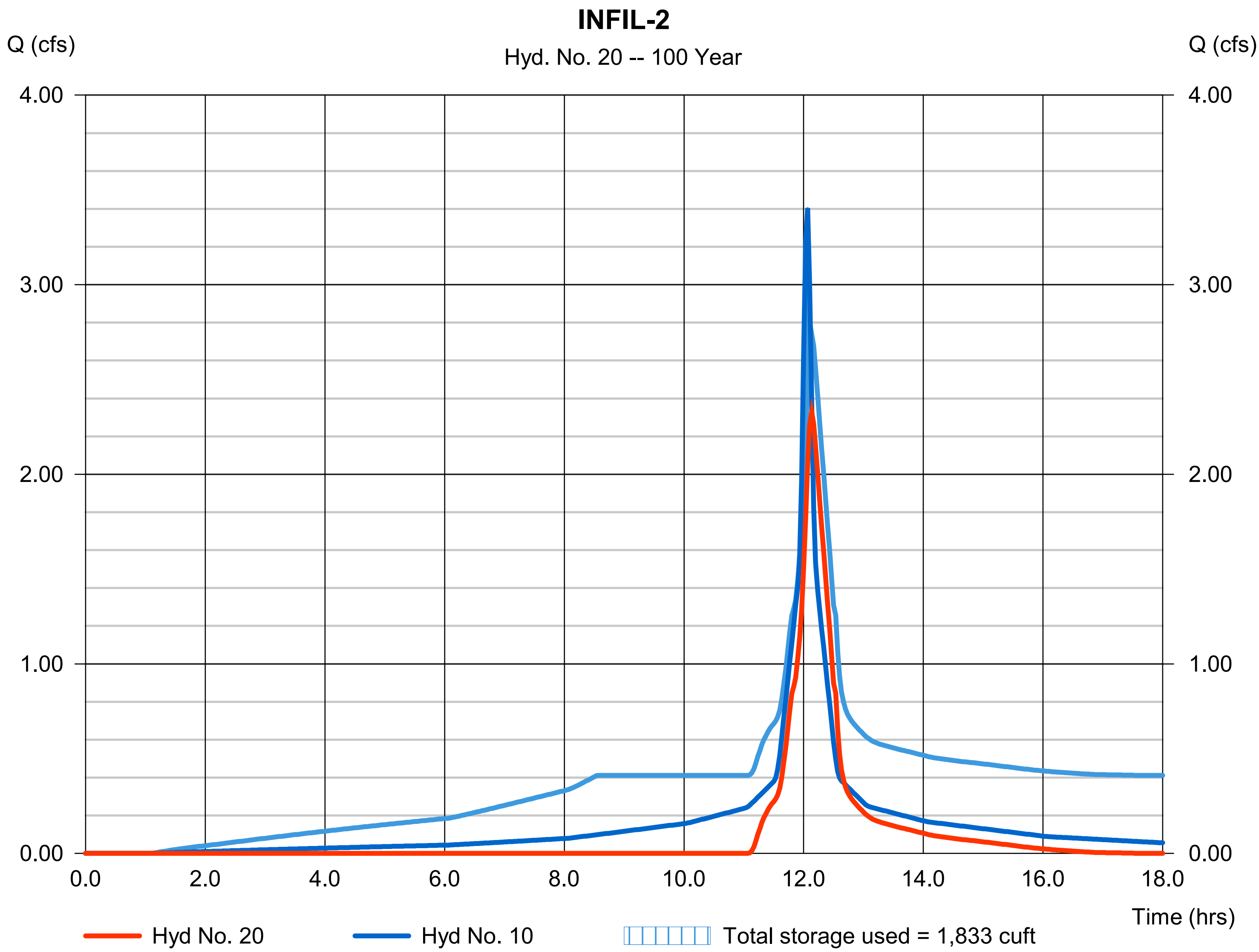
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 — Thursday, 04 / 4 / 2024

Hyd. No. 20

INFIL-2

Hydrograph type	= Reservoir	Peak discharge	= 2.326 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 6,392 cuft
Inflow hyd. No.	= 10 - PR WS-02G(II)	Max. Elevation	= 135.95 ft
Reservoir name	= INFIL-2	Max. Storage	= 1,833 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



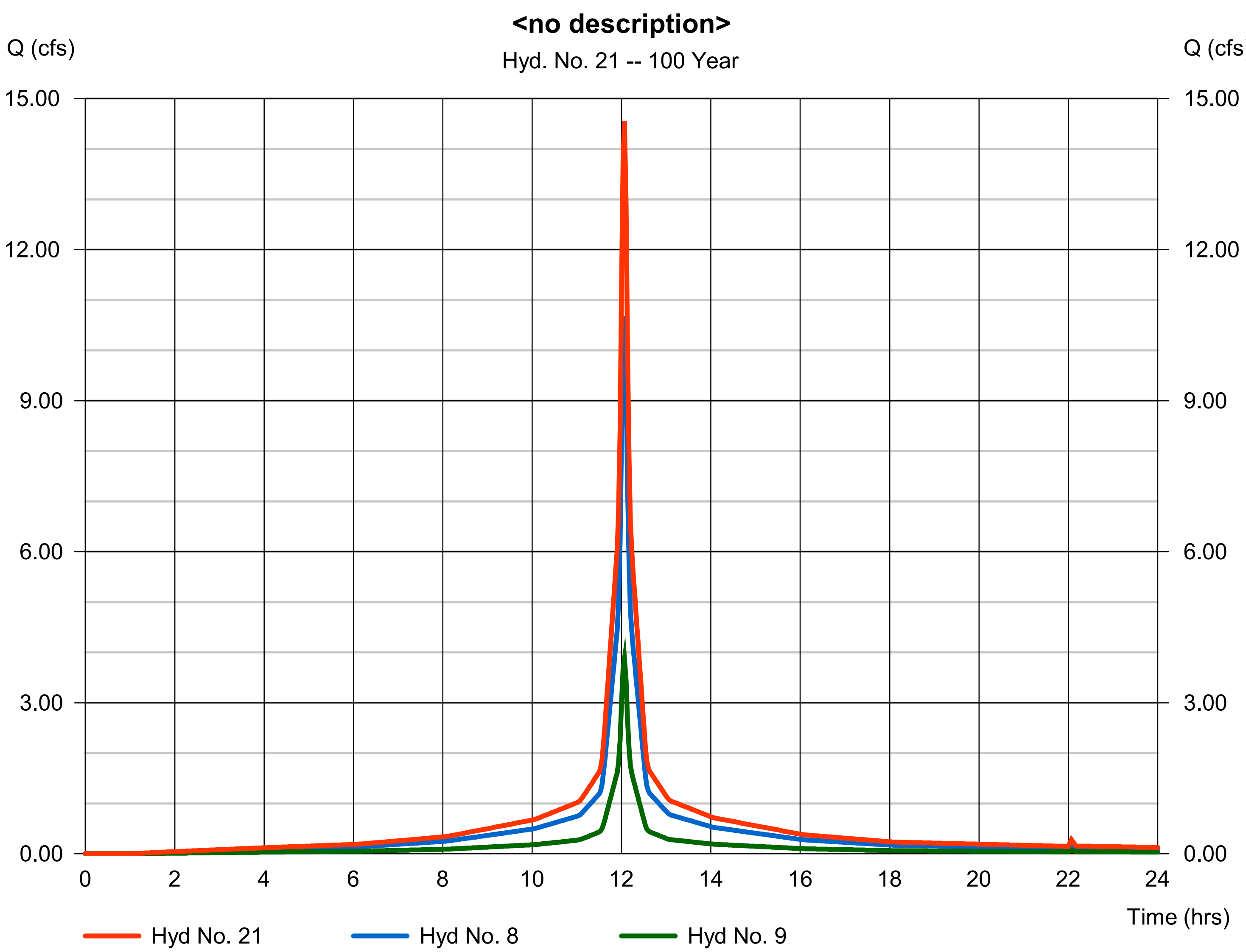
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 21

<no description>

Hydrograph type	= Combine	Peak discharge	= 14.55 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 49,619 cuft
Inflow hyds.	= 8, 9	Contrib. drain. area	= 1.855 ac



Hydrograph Report

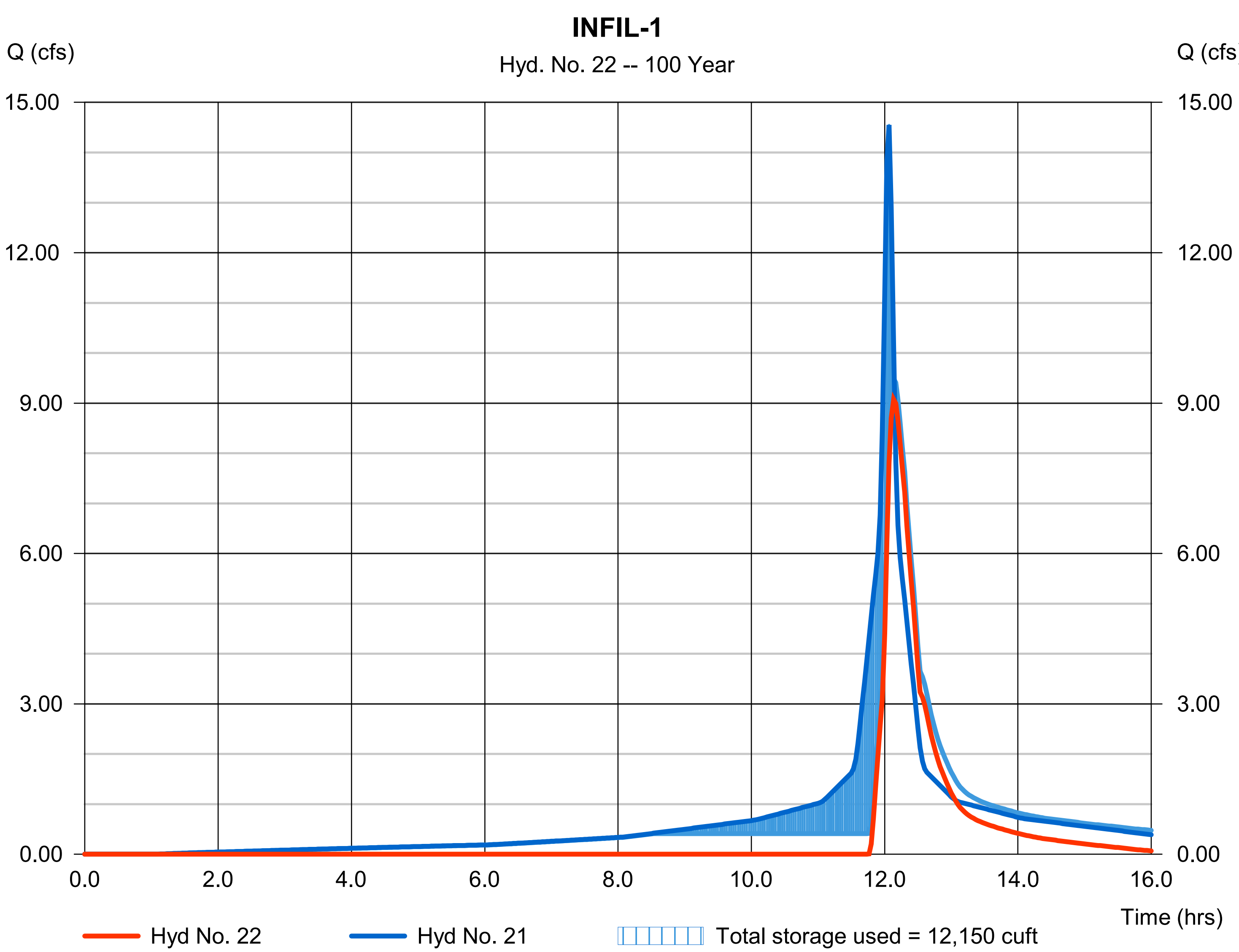
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 22

INFIL-1

Hydrograph type	= Reservoir	Peak discharge	= 9.071 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 21,971 cuft
Inflow hyd. No.	= 21 - <no description>	Max. Elevation	= 137.48 ft
Reservoir name	= INFIL-1	Max. Storage	= 12,150 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



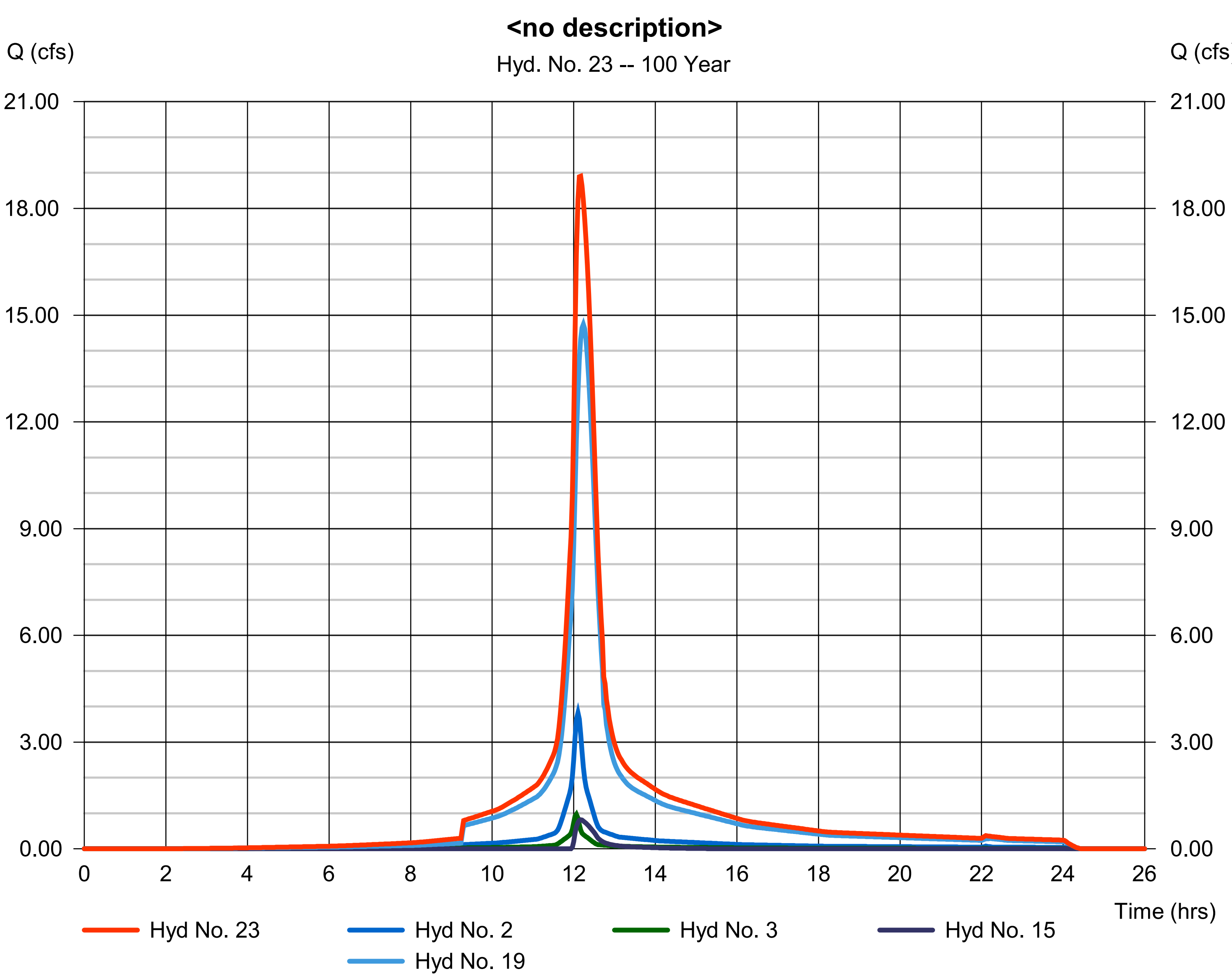
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 23

<no description>

Hydrograph type	= Combine	Peak discharge	= 18.90 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 92,063 cuft
Inflow hyds.	= 2, 3, 15, 19	Contrib. drain. area	= 0.689 ac



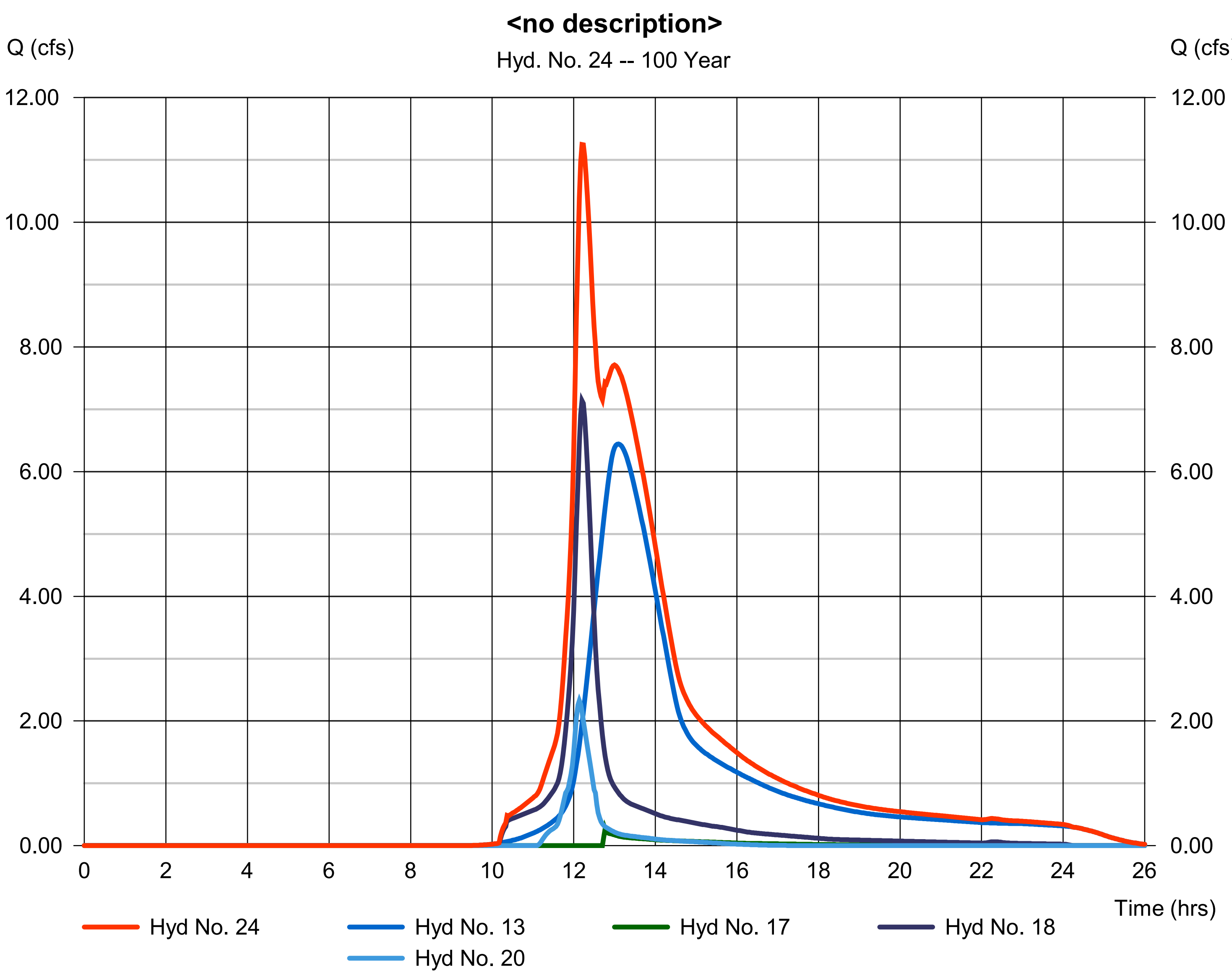
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 24

<no description>

Hydrograph type	= Combine	Peak discharge	= 11.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 101,553 cuft
Inflow hyds.	= 13, 17, 18, 20	Contrib. drain. area	= 4.837 ac



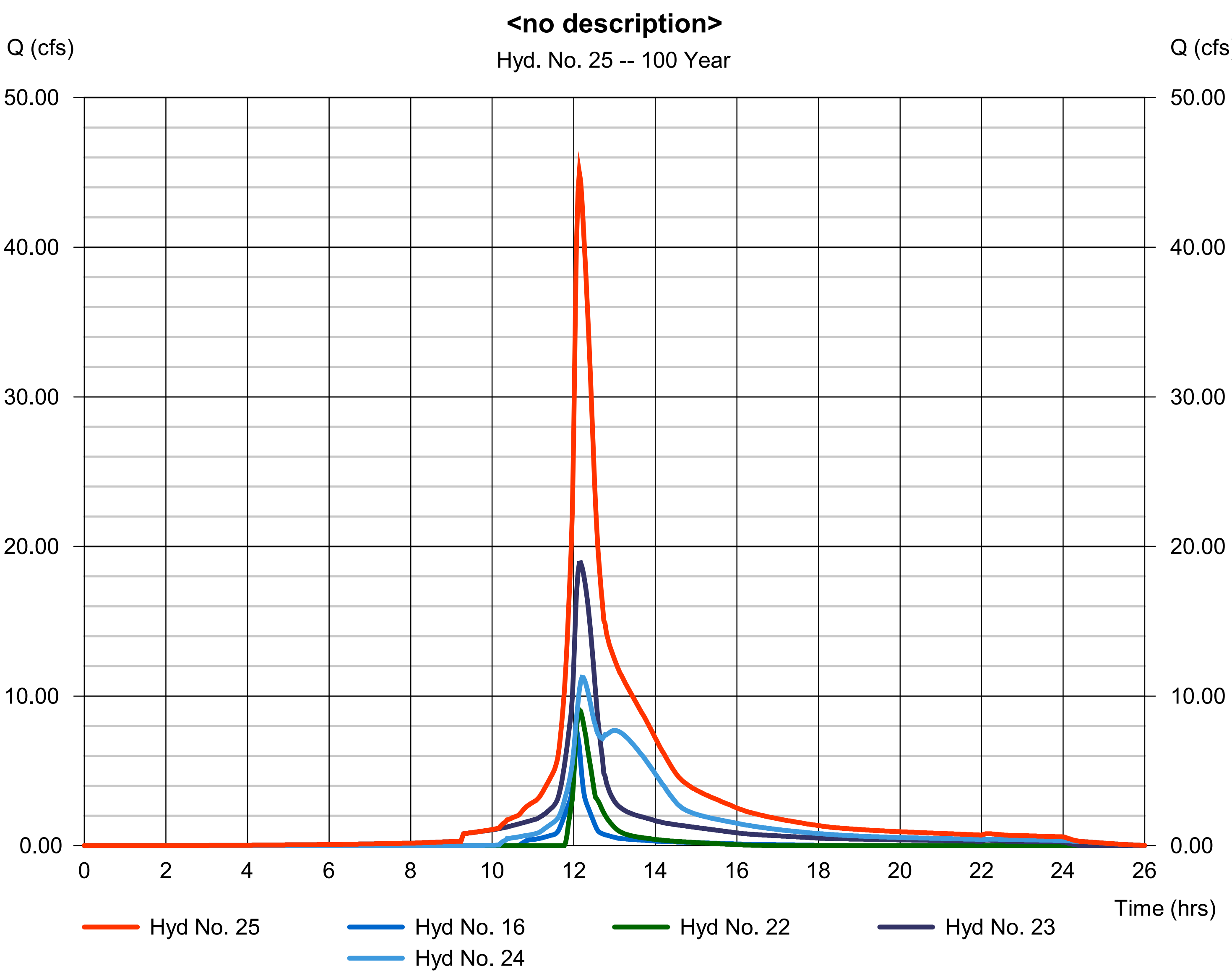
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021 Thursday, 04 / 4 / 2024

Hyd. No. 25

<no description>

Hydrograph type	= Combine	Peak discharge	= 45.00 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 232,805 cuft
Inflow hyds.	= 16, 22, 23, 24	Contrib. drain. area	= 0.000 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	23.2694	3.7000	0.7019	--------
3	0.0000	0.0000	0.0000	--------
5	28.1517	3.6000	0.6982	--------
10	33.4115	3.8000	0.7042	--------
25	38.5092	3.6000	0.6982	--------
50	42.7840	3.6000	0.6957	--------
100	48.0560	3.6000	0.6997	--------

File name: WILTON.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.10	3.71	2.98	2.52	2.21	1.97	1.79	1.64	1.52	1.42	1.33	1.26
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.27	4.55	3.66	3.10	2.71	2.42	2.20	2.02	1.87	1.75	1.64	1.55
10	7.22	5.26	4.23	3.58	3.13	2.80	2.54	2.33	2.16	2.02	1.90	1.79
25	8.57	6.22	5.00	4.24	3.70	3.31	3.00	2.76	2.56	2.39	2.24	2.12
50	9.57	6.96	5.60	4.74	4.15	3.71	3.37	3.09	2.87	2.68	2.52	2.38
100	10.66	7.74	6.22	5.26	4.60	4.11	3.73	3.43	3.17	2.96	2.79	2.63

Tc = time in minutes. Values may exceed 60.

Precip. file name: J:\T\T5000 Toll Brothers\012 Woodbridge Village\Calculations\Stormwater\WOODBRIDGE.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.95	3.52	0.00	4.65	5.38	6.54	7.41	8.34
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hydraflow Table of Contents

100 - Year

APPENDIX E

LEGEND

WATERSHED BOUNDARY	
TIME OF CONCENTRATION	
PAVEMENT/ROOF	
LANDSCAPED AND LAWNS	
WOODED	

64 DANBURY ROAD
WILTON, CT

INLET WATERSHED FIGURE

DATE: 04/04/2024
SCALE: 1"=150'
FIGURE INLET-WS

Tighe&Bond

Tighe & Bond: J:\F\F0173 Fuller\001 64 Danbury Rd\Calculations\Stormwater\Figures\F0173-001-INLET-WS-FIGURE.dwg

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **CB-01**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.070	0.90	0.063
Landscaped / Lawns	0.003	0.30	0.001
	0.073		0.064

Weighted C: **0.87**

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	75	0.020	1.2

Total Tc = 1.2
Minimum Tc = 5.0

Designation: **CB-02**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.274	0.90	0.247
Landscaped / Lawns	0.076	0.30	0.023
	0.350		0.270

Weighted C: **0.77**

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	5	0.020	1.28
Segment B - C	0.015	143	0.040	1.54

Total Tc = 2.8
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **CB-03**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.133	0.90	0.120
Landscaped / Lawns	0.004	0.30	0.001
	0.137		0.121

Weighted C: 0.88

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	10	0.02	2.23
Segment B - C	0.015	135	0.03	1.65

Total Tc = 3.9
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **CB-04**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.113	0.90	0.102
Landscaped / Lawns	0.082	0.30	0.025
	0.195		0.126

Weighted C: 0.65

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	52	0.11	6.34
Segment B - C	0.24	3	0.11	0.43
Segment C - D	0.015	43	0.04	0.59

Total Tc = 7.4

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **CB-05**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.132	0.90	0.119
Landscaped / Lawns	0.001	0.30	0.000
	0.133		0.119

Weighted C: 0.90

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	35	0.045	0.5

Total Tc = 0.5
Minimum Tc = 5.0

Designation: **CB-06**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.346	0.90	0.312
Landscaped / Lawns	0.045	0.30	0.013
	0.391		0.325

Weighted C: 0.83

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	95	0.065	0.9
Segment B - C	0.015	35	0.020	0.7

Total Tc = 1.6
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **CB-07**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.270	0.90	0.243
Landscaped / Lawns	0.001	0.30	0.000
	0.270		0.243

Weighted C: 0.90

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	35	0.020	0.7

Total Tc = 0.7
Minimum Tc = 5.0

Designation: **CB-08**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.088	0.90	0.079
Landscaped / Lawns	0.003	0.30	0.001
	0.092		0.080

Weighted C: 0.88

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	105	0.025	1.5

Total Tc = 1.5
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **CB-09**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.101	0.90	0.091
Landscaped / Lawns	0.056	0.30	0.017
	0.158		0.108

Weighted C: 0.69

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	20	0.05	2.69
Segment B - C	0.015	32	0.04	0.47

Total Tc = 3.2
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **CB-10**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.120	0.90	0.108
Landscaped / Lawns	0.035	0.30	0.010
	0.155		0.118

Weighted C: 0.77

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	185	0.065	1.6

Total Tc = 1.6
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **CB-11**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.271	0.90	0.244
Landscaped / Lawns	0.000	0.30	0.000
	0.271		0.244

Weighted C: 0.90

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	35	0.045	0.5

Total Tc = 0.5
Minimum Tc = 5.0

Designation: **WQS-01B**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.342	0.90	0.308
Landscaped / Lawns	0.004	0.30	0.001
	0.346		0.309

Weighted C: 0.89

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	60	0.020	1.0

Total Tc = 1.0
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **WQS-02A**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.132	0.90	0.119
Landscaped / Lawns	0.034	0.30	0.010
	0.165		0.129

Weighted C: 0.78

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	13	0.020	2.7
Segment B - C	0.015	55	0.020	0.9

Total Tc = 3.7
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **WQS-02B**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.107	0.90	0.096
Landscaped / Lawns	0.042	0.30	0.012
	0.148		0.109

Weighted C: 0.73

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	7	0.020	1.7
Segment B - C	0.015	49	0.020	0.9

Total Tc = 2.5
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **WQS-04**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.178	0.90	0.160
Landscaped / Lawns	0.024	0.30	0.007
	0.203		0.168

Weighted C: 0.83

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	22	0.02	4.18
Segment B - C	0.015	44	0.02	0.79

Total Tc = 5.0
Minimum Tc = 5.0

Designation: **YD-01**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.084	0.90	0.075
Landscaped / Lawns	0.005	0.30	0.002
	0.089		0.077

Weighted C: 0.87

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	13	7.600	0.3

Total Tc = 0.3
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **YD-02**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.195	0.90	0.175
Landscaped / Lawns	0.008	0.30	0.002
	0.203		0.178

Weighted C: 0.88

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	10	0.020	2.1
Segment B - C	0.015	15	0.020	0.3
Segment C - D	0.24	6	0.020	1.5

Total Tc = 4.0
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **YD-03**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.005	0.90	0.004
Landscaped / Lawns	0.012	0.30	0.003
	0.016		0.008

Weighted C: 0.47

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	25	0.020	4.6

Total Tc = 4.6
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **YD-04**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.005	0.90	0.004
Landscaped / Lawns	0.012	0.30	0.004
	0.017		0.008

Weighted C: 0.47

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	25	0.020	4.6

Total Tc = 4.6
Minimum Tc = 5.0

Designation: **YD-05**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.000	0.90	0.000
Landscaped / Lawns	0.006	0.30	0.002
	0.006		0.002

Weighted C: 0.30

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	20	0.050	2.7

Total Tc = 2.7
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **YD-06**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.015	0.90	0.013
Landscaped / Lawns	0.042	0.30	0.013
	0.057		0.026

Weighted C: 0.46

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	25	0.075	2.7

Total Tc = 2.7
Minimum Tc = 5.0

Designation: **YD-07**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.015	0.90	0.014
Landscaped / Lawns	0.053	0.30	0.016
	0.068		0.029

Weighted C: 0.43

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	25	0.075	2.7

Total Tc = 2.7
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **YD-08**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.003	0.90	0.002
Landscaped / Lawns	0.011	0.30	0.003
	0.013		0.006

Weighted C: 0.42

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	18	0.020	3.6

Total Tc = 3.6
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **YD-09**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.006	0.90	0.006
Landscaped / Lawns	0.024	0.30	0.007
	0.030		0.013

Weighted C: 0.43

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	34	0.020	5.9

Total Tc = 5.9

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Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **YD-10**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.008	0.90	0.007
Landscaped / Lawns	0.076	0.30	0.023
	0.084		0.030

Weighted C: 0.36

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	61	0.020	9.5

Total Tc = 9.5

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **YD-11**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.004	0.90	0.004
Landscaped / Lawns	0.033	0.30	0.010
	0.037		0.013

Weighted C: 0.37

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	21	0.020	4.0

Total Tc = 4.0
Minimum Tc = 5.0

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Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **YD-12**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.007	0.90	0.006
Landscaped / Lawns	0.048	0.30	0.014
	0.055		0.021

Weighted C: 0.38

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	47	0.040	5.8

Total Tc = 5.8

Designation: **YD-13**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.010	0.90	0.009
Landscaped / Lawns	0.035	0.30	0.010
	0.045		0.019

Weighted C: 0.43

Time of Concentration
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	50	0.020	8.1

Total Tc = 8.1

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **AD-01**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.019	0.90	0.017
Landscaped / Lawns	0.006	0.30	0.002
	0.025		0.019

Weighted C: 0.76

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	10	0.020	2.2
Segment B - C	0.015	13	0.020	0.3

Total Tc = 2.5
Minimum Tc = 5.0

Designation: **AD-02**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.011	0.90	0.010
Landscaped / Lawns	0.008	0.30	0.002
	0.019		0.012

Weighted C: 0.65

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	13	0.020	2.7
Segment B - C	0.015	6	0.020	0.2

Total Tc = 2.9
Minimum Tc = 5.0

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Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **AD-03**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.025	0.90	0.022
Landscaped / Lawns	0.002	0.30	0.000
	0.026		0.023

Weighted C: 0.86

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	35	0.020	0.7

Total Tc = 0.7
Minimum Tc = 5.0

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Designation: **AD-04**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.014	0.90	0.013
Landscaped / Lawns	0.006	0.30	0.002
	0.020		0.014

Weighted C: 0.72

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.015	14	0.020	0.3

Total Tc = 0.3
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **EX-CB-01**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.052	0.90	0.047
Landscaped / Lawns	0.013	0.30	0.004
	0.064		0.050

Weighted C: 0.78

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	13	0.020	2.7
Segment B - C	0.015	35	0.020	0.7

Total Tc = 3.4
Minimum Tc = 5.0

Designation: **EX-CB-02**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.149	0.90	0.134
Landscaped / Lawns	0.087	0.30	0.026
	0.236		0.160

Weighted C: 0.68

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	31	0.025	5.04

Total Tc = 5.0

Designation: **EX-CB-03**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.010	0.90	0.009
Landscaped / Lawns	0.048	0.30	0.014
	0.058		0.023

Weighted C: 0.40

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	45	0.133	3.48

Total Tc = 3.5
Minimum Tc = 5.0

Designation: **EX-CB-04**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.013	0.90	0.012
Landscaped / Lawns	0.070	0.30	0.021
	0.084		0.033

Weighted C: 0.40

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	15	0.1	1.62

Shallow Concentrated Flow					
Segment		**Slope (ft/ft)**	**V (ft/s)**	**Length (ft)**	**Time (min.)**
Segment B - C	unpaved	0.045	3.42	125	0.6
Segment C - D	unpaved	0.150	6.25	125	0.3

Total Tc = 2.6
Minimum Tc = 5.0

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Proposed C & Tc Calculations**
Prepared By: **AVC** Date: **April 4, 2023**

Designation: **EX-AD**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.009	0.90	0.009
Landscaped / Lawns	0.047	0.30	0.014
	0.057		0.023

Weighted C: 0.40

Time of Concentration

(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.24	40	0.020	6.8

Total Tc = 6.8

Designation: **EX-WETLANDS**

Cover Type	Area, ac	Coef.	A x C
Hardscape / Roof	0.358	0.90	0.320
Landscaped / Lawns	4.479	0.30	1.321
	4.837		1.642

Weighted C: 0.34

Time of Concentration

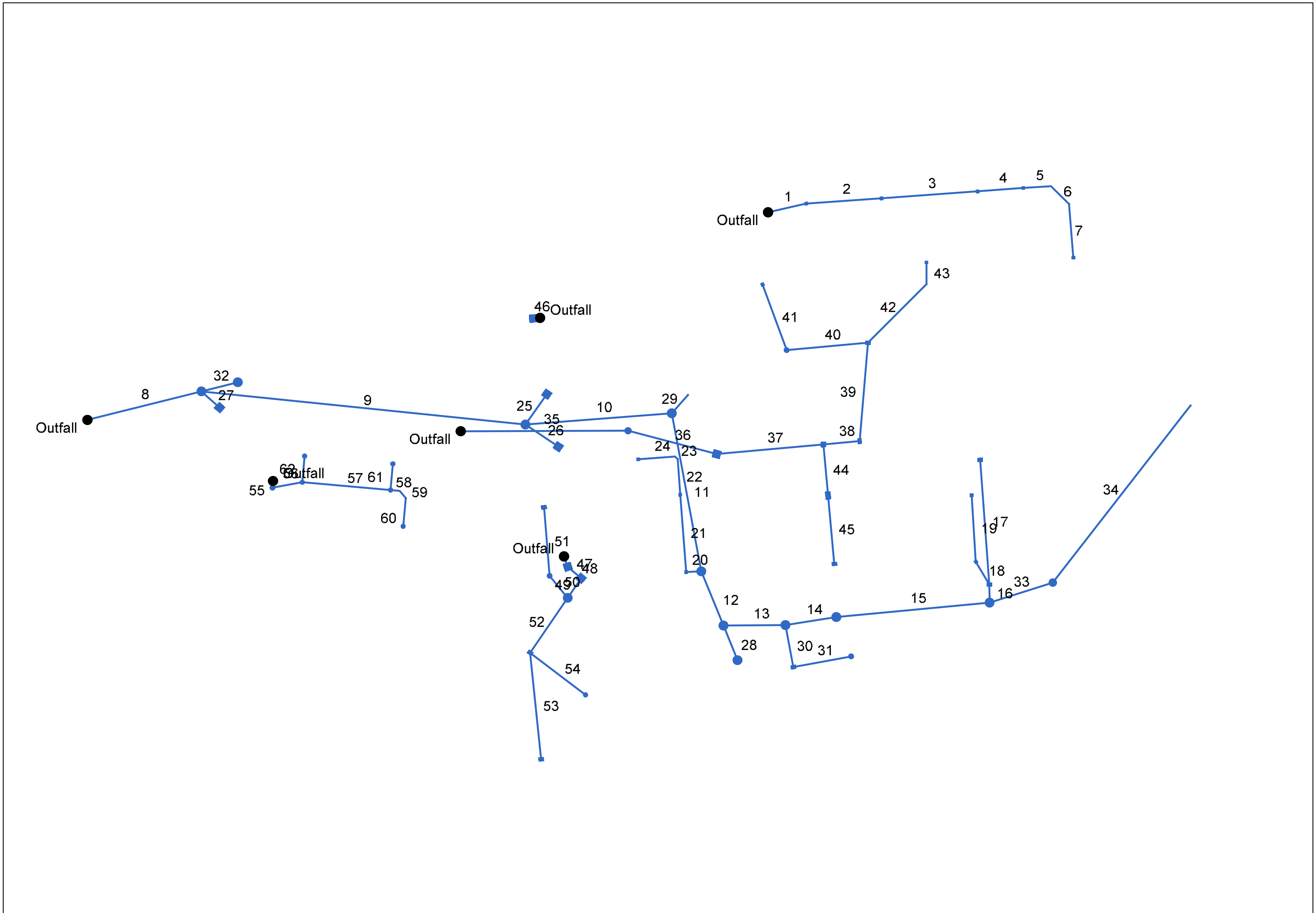
(computed in accordance with ConnDOT Drainage Manual, Sec. 6C)

Overland				
Segment	**Surface "n"**	**Flow Length (ft.)**	**Slope (ft/ft)**	**Time (min.)**
Segment A - B	0.4	182	0.09	18.71
Segment B - C	0.24	63	0.03	8.26
Segment C - D	0.015	11	0.015	0.29
Segment D - E	0.24	27	0.015	5.53
Segment E - F	0.015	28	0.015	0.62
Segment F - G	0.24	62	0.1	5.04
Segment G - H	0.4	198	0.15	16.31

Total Tc = 54.8 Min.
0.91 Hrs.
Total Lag = 0.68 Hrs.

Note: Overland time of concentration computed using "Kinematic Wave" equation
Gutter and pipe time of concentration computed using Manning's equation

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: F0173-001-Stormsewers.stm	Number of lines: 62	Date: 4/4/2024

Storm Sewers v2021.00

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	29.111	0.05	0.26	0.43	0.02	0.10	8.1	10.6	6.0	0.61	4.02	3.38	8	9.45	146.00	148.75	146.32	149.12	147.00	152.50	Pipe - (58)
2	1	56.500	0.06	0.21	0.38	0.02	0.08	5.8	10.3	6.1	0.49	1.33	2.67	8	1.03	148.75	149.33	149.12	149.66	152.50	152.50	Pipe - (57)
3	2	71.800	0.04	0.15	0.37	0.01	0.06	5.0	9.8	6.3	0.36	2.15	2.35	8	2.69	149.33	151.26	149.66	151.54	152.50	154.50	Pipe - (56)
4	3	34.280	0.08	0.11	0.36	0.03	0.04	9.5	9.5	6.4	0.27	1.30	2.16	8	0.99	151.26	151.60	151.54	151.84	154.50	155.00	Pipe - (55)
5	4	20.718	0.00	0.03	0.00	0.00	0.01	0.0	6.4	7.7	0.10	1.32	1.34	8	1.01	151.60	151.81	151.84	151.95	155.00	156.00	Pipe - (115)
6	5	19.047	0.00	0.03	0.00	0.00	0.01	0.0	6.3	7.8	0.10	1.31	1.82	8	1.00	151.81	152.00	151.95	152.14	156.00	156.00	Pipe - (114)
7	6	40.198	0.03	0.03	0.43	0.01	0.01	5.9	5.9	8.0	0.10	1.31	1.84	8	1.00	152.00	152.40	152.14	152.55	156.00	155.60	Pipe - (113)
8	End	87.828	0.00	5.47	0.00	0.00	2.02	0.0	100.1	1.5	150.6	150.8	10.33	54	0.50	127.96	128.40	131.90	132.22	135.80	138.10	Pipe - (121)
9	8	243.249	0.00	5.47	0.00	0.00	2.02	0.0	99.7	1.5	140.6	149.6	8.84	54	0.49	128.80	130.00	133.68	134.74	138.10	139.90	Pipe - (120)
10	9	109.653	0.00	5.47	0.00	0.00	2.02	0.0	99.5	1.5	134.5	128.7	8.46	54	0.36	130.20	130.60	135.84	136.28	139.90	142.00	Pipe - (119)
11	10	120.483	0.00	5.47	0.00	0.00	2.02	0.0	98.1	1.5	14.25	108.8	1.48	42	1.00	131.80	133.00	137.39	137.41	142.00	140.19	Pipe - (118)
12	11	43.869	0.00	5.33	0.00	0.00	1.96	0.0	97.6	1.5	14.17	83.91	1.47	42	0.59	133.00	133.26	137.44	137.45	140.19	142.33	Pipe - (117)
13	12	46.296	0.00	5.33	0.00	0.00	1.96	0.0	96.8	1.5	3.01	52.06	0.96	24	4.51	133.41	135.50	137.48	137.49	142.33	145.00	Pipe - (26)
14	13	38.468	0.00	5.19	0.00	0.00	1.90	0.0	96.5	1.5	2.93	51.96	2.33	24	4.50	135.50	137.23	137.50	137.83	145.00	147.80	Pipe - (25)
15	14	115.000	0.00	5.19	0.00	0.00	1.90	0.0	96.0	1.5	2.94	51.90	3.73	24	4.49	137.23	142.39	137.83	142.99	147.80	152.20	Pipe - (24)
16	15	13.578	0.19	0.36	0.65	0.12	0.26	7.4	7.4	7.2	1.85	51.93	2.81	24	4.49	142.39	143.00	142.99	143.47	152.20	152.00	Pipe - (23)
17	16	93.648	0.13	0.13	0.88	0.11	0.11	5.0	5.0	8.6	0.98	3.87	3.64	12	1.00	147.56	148.50	147.90	148.92	152.00	152.00	Pipe - (22)
18	16	19.814	0.02	0.04	0.47	0.01	0.02	5.0	5.6	8.2	0.15	3.88	2.14	12	1.01	144.80	145.00	144.94	145.16	152.00	149.00	Pipe - (28)
19	18	49.936	0.02	0.02	0.47	0.01	0.01	5.0	5.0	8.6	0.08	3.86	1.29	12	1.00	145.00	145.50	145.16	145.62	149.00	149.00	Pipe - (27)
20	11	11.297	0.07	0.14	0.43	0.03	0.06	5.0	6.9	7.4	0.45	3.98	0.58	12	1.06	136.25	136.37	137.44	137.44	140.19	139.90	Pipe - (106)
21	20	58.106	0.06	0.07	0.46	0.03	0.03	5.0	6.1	7.9	0.24	4.96	1.20	12	1.65	136.37	137.33	137.45	137.53	139.90	140.90	Pipe - (59)
22	21	26.816	0.00	0.01	0.00	0.00	0.00	0.0	5.5	8.3	0.02	5.11	0.68	12	1.75	137.33	137.80	137.57	137.86	140.90	142.00	Pipe - (72)

Project File: F0173-001-Stormsewers.stm | Number of lines: 62 | Run Date: 4/4/2024

NOTES:Intensity = 38.51 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
23	22	2.804	0.00	0.01	0.00	0.00	0.00	0.0	5.4	8.3	0.02	3.99	1.18	12	1.07	137.80	137.83	137.86	137.89	142.00	142.00	Pipe - (73)
24	23	27.512	0.01	0.01	0.30	0.00	0.00	5.0	5.0	8.6	0.03	3.89	1.09	12	1.02	137.82	138.10	137.89	138.17	142.00	141.60	Pipe - (62)
25	9	27.900	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.49	1.00	4.16	6	2.69	136.00	136.75	136.25	137.11	139.90	140.39	Pipe - (46)
26	9	29.650	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	5.63	11.64	7.25	12	9.11	133.30	136.00	135.84	136.94	139.90	140.15	Pipe - (98)
27	8	18.166	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	6.15	6.96	6.12	15	0.99	134.32	134.50	135.23	135.50	138.10	138.50	Pipe - (86)
28	12	27.974	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.17	77.10	1.16	42	0.50	133.26	133.40	137.48	137.48	142.33	141.20	Pipe - (116)
29	10	18.394	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	120.3	149.0	7.56	54	0.49	131.80	131.89	137.39	137.45	142.00	142.20	Pipe - (122)
30	13	32.000	0.06	0.14	0.40	0.02	0.06	5.0	15.1	5.0	0.28	14.22	0.16	18	1.56	134.50	135.00	137.50	137.50	145.00	141.00	
31	30	44.000	0.08	0.08	0.40	0.03	0.03	12.1	12.1	5.6	0.19	4.11	0.24	12	1.14	135.10	135.60	137.50	137.50	141.00	141.30	
32	8	28.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	1.85	1.31	5.30	8	1.00	133.22	133.50	133.89	134.45	138.10	137.70	Pipe - (82)
33	15	49.500	0.00	4.83	0.00	0.00	1.64	0.0	95.8	1.6	2.55	54.07	3.41	24	4.87	142.39	144.80	142.99	145.36	152.20	154.00	
34	33	168.000	4.83	4.83	0.34	1.64	1.64	95.0	95.0	1.6	2.56	47.07	3.59	24	3.69	144.80	151.00	145.36	151.56	154.00	155.50	
35	End	125.000	0.00	1.38	0.00	0.00	1.16	0.0	6.2	7.8	9.07	9.07	8.02	15	1.68	135.35	137.45	136.38	138.61	139.10	141.10	Pipe - (107)
36	35	68.500	0.16	1.38	0.77	0.12	1.16	5.0	6.1	7.9	9.17	11.02	7.73	15	2.48	137.45	139.15	138.61	140.31	141.10	142.90	Pipe - (107)(2)
37	36	80.000	0.00	1.22	0.00	0.00	1.04	0.0	5.9	8.0	8.27	8.41	10.79	12	4.75	139.40	143.20	140.31	144.19	142.90	146.80	Pipe - (12)
38	37	27.200	0.35	0.82	0.77	0.27	0.68	5.0	5.9	8.0	5.43	6.10	7.94	12	2.50	143.72	144.40	144.45	145.34	146.80	147.90	Pipe - (12)(2)
39	38	74.000	0.09	0.47	0.88	0.08	0.41	5.0	5.6	8.2	3.34	5.11	4.72	12	1.76	144.40	145.70	145.34	146.48	147.90	152.40	
40	39	61.000	0.07	0.16	0.87	0.06	0.14	5.0	5.4	8.3	1.16	3.86	3.82	12	1.00	146.89	147.50	147.27	147.95	152.40	151.00	
41	40	52.300	0.09	0.09	0.87	0.08	0.08	5.0	5.0	8.6	0.67	7.71	2.39	12	4.00	147.50	149.59	147.95	149.93	151.00	153.00	
42	39	62.000	0.02	0.22	0.72	0.01	0.19	5.0	5.1	8.5	1.62	6.68	5.38	12	3.00	148.78	150.64	149.12	151.18	152.40	154.00	
43	42	16.300	0.20	0.20	0.88	0.18	0.18	5.0	5.0	8.6	1.51	3.82	3.57	12	0.98	150.64	150.80	151.18	151.32	154.00	154.30	
44	37	38.400	0.27	0.40	0.90	0.24	0.36	5.0	5.4	8.3	3.00	3.89	4.32	12	1.02	143.20	143.59	144.19	144.33	146.80	147.60	Pipe - (93)
45	44	51.421	0.13	0.13	0.90	0.12	0.12	5.0	5.0	8.6	1.00	3.84	2.40	12	0.99	143.59	144.10	144.33	144.52	147.60	147.60	Pipe - (17)
46	End	5.195	0.20	0.20	0.83	0.17	0.17	5.0	5.0	8.6	1.42	3.78	4.03	12	0.96	136.45	136.50	136.87	137.00	140.50	140.00	Pipe - (76)
47	End	8.312	0.00	1.02	0.00	0.00	0.80	0.0	8.8	6.6	5.31	6.28	6.97	12	2.65	134.20	134.42	135.13	135.35	140.00	140.00	Pipe - (128)
48	47	13.266	0.00	1.02	0.00	0.00	0.80	0.0	8.8	6.6	5.32	6.18	7.09	12	2.56	134.46	134.80	135.35	135.73	140.00	140.20	Pipe - (127)
49	48	17.753	0.00	1.02	0.00	0.00	0.80	0.0	8.7	6.7	5.34	7.64	4.64	18	0.45	134.80	134.88	135.73	135.81	140.20	140.00	Pipe - (126)

Project File: F0173-001-Stormsewers.stm | Number of lines: 62 | Run Date: 4/4/2024

NOTES:Intensity = 38.51 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
50	49	21.322	0.27	0.66	0.90	0.24	0.57	5.0	5.2	8.4	4.79	6.89	6.25	12	3.19	134.90	135.58	136.14	136.48	140.00	139.60	Pipe - (32)
51	50	51.579	0.39	0.39	0.83	0.32	0.32	5.0	5.0	8.6	2.78	3.87	4.18	12	1.01	135.58	136.10	136.48	136.81	139.60	139.60	Pipe - (31)
52	49	49.833	0.24	0.36	0.68	0.16	0.23	5.0	8.3	6.8	1.59	2.56	2.03	12	0.44	134.88	135.10	136.14	136.23	140.00	138.60	Pipe - (125)
53	52	80.288	0.06	0.06	0.78	0.05	0.05	5.0	5.0	8.6	0.43	3.60	0.77	12	0.87	135.10	135.80	136.32	136.33	138.60	138.60	Pipe - (123)
54	52	52.042	0.06	0.06	0.40	0.02	0.02	6.8	6.8	7.5	0.17	5.07	0.49	12	1.73	135.10	136.00	136.32	136.33	138.60	139.10	Pipe - (124)
55	End	5.000	0.35	0.46	0.89	0.31	0.39	5.0	6.3	7.8	3.05	14.64	4.36	12	14.40	133.20	133.92	134.50	134.67	139.40	138.00	Pipe - (38)
56	55	22.641	0.03	0.11	0.86	0.03	0.08	5.0	6.1	7.9	0.63	3.89	1.89	12	1.02	133.91	134.14	134.67	134.47	138.00	138.74	Pipe - (37)
57	56	66.235	0.03	0.06	0.76	0.02	0.04	5.0	5.5	8.2	0.33	3.85	1.89	12	1.00	134.14	134.80	134.47	135.04	138.74	138.79	Pipe - (36)
58	57	6.823	0.00	0.01	0.00	0.00	0.00	0.0	5.4	8.3	0.03	3.91	0.82	12	1.03	134.85	134.92	135.04	135.00	138.79	138.80	Pipe - (92)
59	58	7.053	0.00	0.01	0.00	0.00	0.00	0.0	5.3	8.4	0.04	3.84	1.29	12	0.99	134.92	134.99	135.00	135.07	138.80	138.80	Pipe - (91)
60	59	21.252	0.01	0.01	0.42	0.00	0.00	5.0	5.0	8.6	0.04	3.83	1.31	12	0.99	134.99	135.20	135.07	135.28	138.80	138.70	Pipe - (90)
61	57	19.655	0.02	0.02	0.65	0.01	0.01	5.0	5.0	8.6	0.11	3.89	1.26	12	1.02	134.80	135.00	135.04	135.14	138.79	138.50	Pipe - (39)
62	56	19.655	0.02	0.02	0.72	0.01	0.01	5.0	5.0	8.6	0.12	3.89	2.02	12	1.02	134.80	135.00	134.92	135.14	138.74	138.50	Pipe - (40)

Project File: F0173-001-Stormsewers.stm | Number of lines: 62 | Run Date: 4/4/2024

NOTES:Intensity = 38.51 / (Inlet time + 3.60) ^ 0.70; Return period =Yrs. 25 ; c = cir e = ellip b = box

Riprap Apron

Invert Elevation =	146.00	ft	
Tailwater Elevation =	146.33	ft	
Tailwater Depth (TW) =	0.33	ft	
Inside Pipe Diameter (S_p) =	1.00	ft	
Pipe Discharge (Q) =	0.61	cfs	(From Hydraflow Model)
Outlet Velocity (V) =	0.34	ft/s	(From Hydraflow Model)

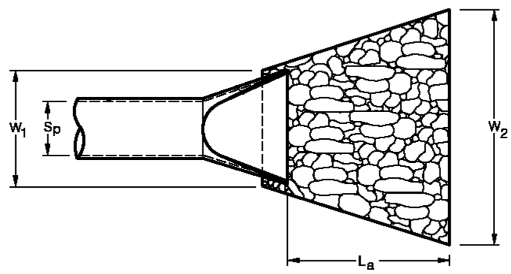
Apron Type

Type A Riprap Apron (Minimum Tailwater Condition) TW < $0.5R_p$

Type B Riprap Apron (Maximum Tailwater Condition) TW ≥ $0.5R_p$

TW = 146.33 < $0.5R_p$

Use Type A Apron



Apron Length

Type A Riprap Apron (Minimum Tailwater Condition) TW < $0.5R_p$

L_a= $(1.8(Q-5.0)/Sp^{1.5})+10.0$

L_a= 2.08 ft

Apron Width

Type A Riprap Apron (Minimum Tailwater Condition) TW < $0.5R_p$

$W_1 = 3*S_p$

$W_2 = 3*S_p+0.7L_a$

W_1 = 3.00 ft

W_2 = 4.46 ft

Riprap Specification

Outlet Velocity (V)=	0-8 ft/s	Modified
Outlet Velocity (V)=	8-10 ft/s	Intermediate
Outlet Velocity (V)=	10-14 ft/s	Standard

Outlet Velocity (V)= 0.338 ft/s Use Modified Riprap

Outlet protection has been designed in accordance with the Section 11.13 of the ConnDOT Drainage Manual

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Level Spreader Calculation** Prepared By: **AVC** Date: **April 4, 2024**

Level Spreader

Flow for 10 Yr Storm=	0.61	CFS
Depth=	0.33	FT
Max Allowable Velocity	**0.5**	FPS
Length=	**3.69697**	FT
Proposed Length	**10**	FT

Calculated in accordence with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Section 5-11

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Temporary Sediment Trap Sizing Calculation**
Prepared By: **ZNH** Date: **April 3, 2024**

Temporary Sediment Trap 01

Sediment Storage Volume

Drainage Area	=	0.6	acres
Initial Storage Volume	=	134	cy/ac
Required Storage	=	**80**	**cy**
	=	**2,171**	**cf**
Min Wet Storage (1/2 Required Storage)	=	**1,085**	**cf**

Wet Storage Volume

$$V_w = 0.85 * A_w * D_w$$

V_w, Wet Storage Volume	=	**1314**	**cf**
D_w, Maximum Depth (Low Point in Trap to Base of Outlet)	=	2	ft
A_w, Surface Area of the Flooded Area at the Base of the Outlet	=	773	sf

Dry Storage Volume

$$V_d = [(A_w + A_d) / 2] * D_d$$

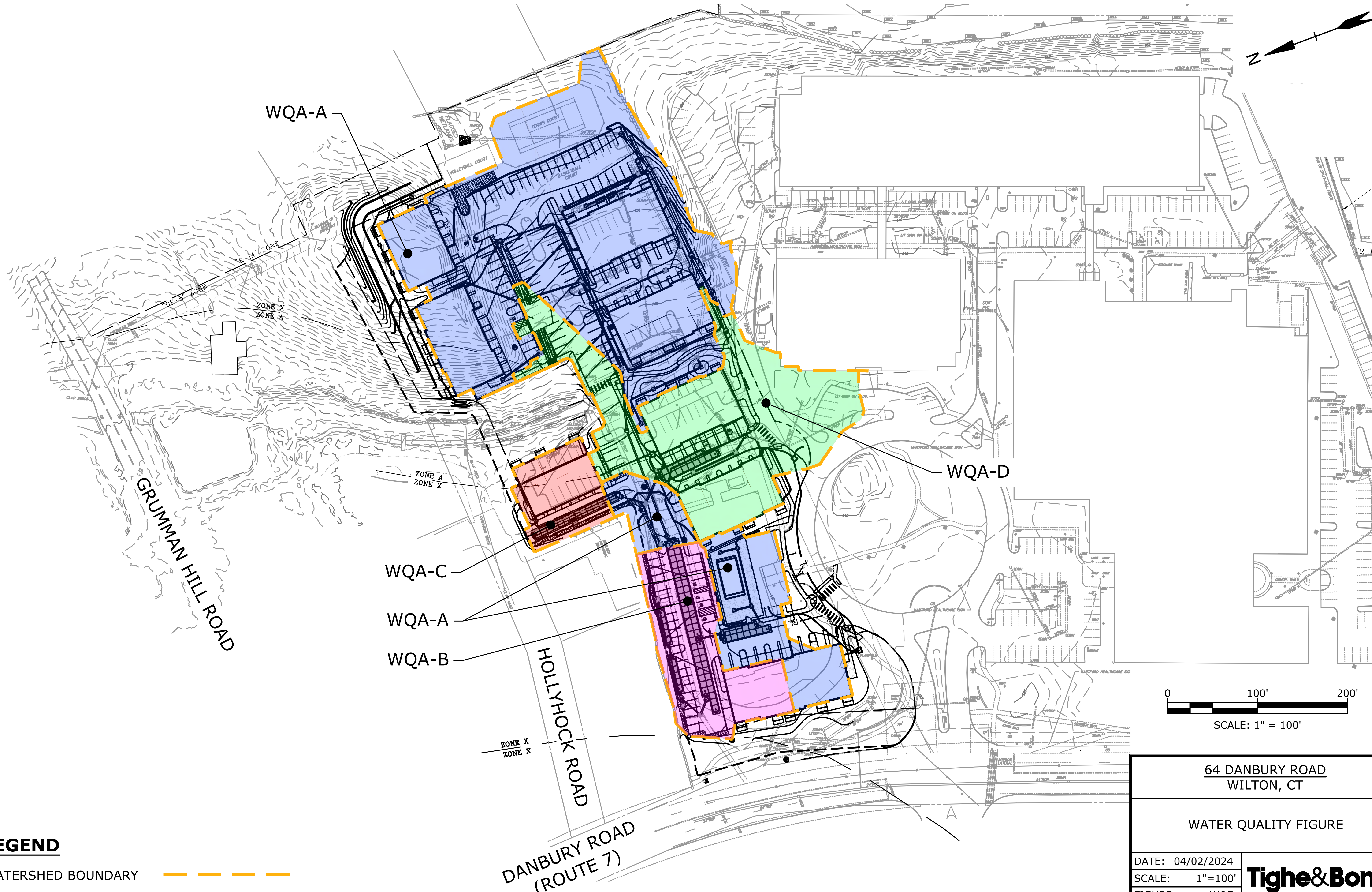
A_w, Surface Area of the Flooded Area at the Base of the Outlet	=	773	sf
A_d, Surface Area of the Flooded Area at the Top of the Outlet	=	1019	sf
D_d, Depth (Base to the top of the Outlet)	=	1	ft
V_d, Dry Storage Volume	=	**896**	**cf**

Provided Storage Volume

Wet Storage	=	1314	cf
	=	49	cy
Dry Storage	=	896	cf
	=	33	cy
Total Provided Storage	=	**2210**	**cf**
	=	**82**	**cy**

Calculated in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Section 5-11

APPENDIX F



LEGEND

WATERSHED BOUNDARY

64 DANBURY ROAD
WILTON, CT

WATER QUALITY FIGURE

DATE: 04/02/2024
SCALE: 1"=100'
FIGURE WQF

Tighe&Bond

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Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Water Quality Calculations** Prepared By: **AVC** Date: **April 2, 2024**

WQA-A

Required Water Quality Volume (WQv)

Total Area in acres (A)	=	2.978
Impervious Area in acres	=	2.312
Pecenct of Impervious Area (I)	=	78
Volumetric Runoff Coefficient (R)		

R = 0.05+0.009(I) = 0.749

WQv = $\frac{(0.65")(R)(A)}{12}$ **= 0.1208 ac*ft**

= $\boxed{5261 \text{ cf}}$

6,035 CF PROVIDED

Required Water Quality Flow (WQf)

WQv (Ac*ft)	=	0.1208
Drainage Area (Ac)	=	2.978

Q= WQv*12 / DA = **0.487 in**

Runoff Depth in inches (Q)	=	**0.487**	**in**
Design Precipitation in inches (P)	=	**1**	**in**

$CN=1000/[10+5*P+10Q-10*(Q^2+1.25QP)^{1/2}$ = **94 CN**

From table 4-1 in chapter 4, TR-55

I_a = **0.128 in**

I_a / P = **0.128**

From Exhibit 4-11 in chapter 4, TR-55

q_u = **620 csm/in**

Unit peak discharge in csm/in (q_u)	=	**620**
Area in square miles (A)	=	**0.00**
Runoff Depth in inches (Q)	=	**0.49**

$WQF=q_u*A*Q$ = **1.40 cfs**

CDS 2015-4-C Treatment Capacity = 1.40 cfs Provided

Calculated in accordence with the 2004 Connecticut Stormwater Quality Manual Sections 7.4.1 and 7.4.2

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Water Quality Calculations** Prepared By: **AVC** Date: **April 2, 2024**

WQA-B

Required Water Quality Volume (WQv)

Total Area in acres (A)	=	0.434
Impervious Area in acres	=	0.357
Pecenct of Impervious Area (I)	=	82
Volumetric Runoff Coefficient (R)		

R = 0.05+0.009(I) = 0.790

WQv = $\frac{(0.65")(R)(A)}{12}$ = **0.0186 ac*ft**

= $\boxed{\textbf{809 cf}}$

810 CF PROVIDED

Required Water Quality Flow (WQf)

WQv (Ac*ft)	=	0.0186
Drainage Area (Ac)	=	0.434

Q= WQv*12 / DA = **0.514 in**

Runoff Depth in inches (Q)	=	**0.514**	**in**
Design Precipitation in inches (P)	=	**1**	**in**

$CN=1000/[10+5*P+10Q-10*(Q^2+1.25QP)^{1/2}$ = **94 CN**

From table 4-1 in chapter 4, TR-55

I_a = **0.128 in**

I_a / P = **0.128**

From Exhibit 4-11 in chapter 4, TR-55

q_u = **620 csm/in**

Unit peak discharge in csm/in (q_u)	=	**620**
Area in square miles (A)	=	**0.00**
Runoff Depth in inches (Q)	=	**0.51**

WQF=q_u*A*Q = **0.22 cfs**

CDS 2015-4-C Treatment Capacity = 1.40 cfs Provided

Calculated in accordence with the 2004 Connecticut Stormwater Quality Manual Sections 7.4.1 and 7.4.2

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Water Quality Calculations** Prepared By: **AVC** Date: **April 2, 2024**

WQA-C

Required Water Quality Volume (WQv)

Total Area in acres (A)	=	0.203
Impervious Area in acres	=	0.177
Pecenct of Impervious Area (I)	=	87
Volumetric Runoff Coefficient (R)		

R = 0.05+0.009(I) = 0.835

WQv = (0.65")(R)(A) / 12 = 0.0092 ac*ft

= 400 cf

800 CF PROVIDED

Required Water Quality Flow (WQf)

WQv (Ac*ft)	=	0.0092
Drainage Area (Ac)	=	0.203

Q= WQv*12 / DA = 0.543 in

Runoff Depth in inches (Q)	=	**0.543**	**in**
Design Precipitation in inches (P)	=	**1**	**in**

$CN=1000/[10+5*P+10Q-10*(Q^2+1.25QP)^{1/2}$ = 95 CN

From table 4-1 in chapter 4, TR-55

I_a = 0.105 in

I_a / P = 0.105

From Exhibit 4-11 in chapter 4, TR-55

q_u = 650 csm/in

Unit peak discharge in csm/in (q_u)	=	**650**
Area in square miles (A)	=	**0.00**
Runoff Depth in inches (Q)	=	**0.54**

$WQF=q_u*A*Q$ = 0.11 cfs

CDS 2015-4-C Treatment Capacity = 1.40 cfs Provided

Calculated in accordence with the 2004 Connecticut Stormwater Quality Manual Sections 7.4.1 and 7.4.2

Tighe&Bond Consulting Engineers Environmental Specialists	Project Name: **64 Danbury Road** Project Number: **F0173-001** Project Location: **Wilton, CT** Description: **Water Quality Calculations** Prepared By: **AVC** Date: **April 2, 2024**

WQA-D

Required Water Quality Volume (WQv)

Total Area in acres (A)	=	1.023
Impervious Area in acres	=	0.826
Pecenct of Impervious Area (I)	=	81
Volumetric Runoff Coefficient (R)		

R = 0.05+0.009(I) = 0.777

WQv = (0.65")(R)(A) / 12 = **0.0430 ac*ft**

= **1875 cf**

1,960 CF PROVIDED

Required Water Quality Flow (WQf)

WQv (Ac*ft)	=	0.0430
Drainage Area (Ac)	=	1.023

Q= WQv*12 / DA = **0.505 in**

Runoff Depth in inches (Q)	=	**0.505**	**in**
Design Precipitation in inches (P)	=	**1**	**in**

$CN=1000/[10+5*P+10Q-10*(Q^2+1.25QP)^{1/2}$ = **94 CN**

From table 4-1 in chapter 4, TR-55

I_a = **0.128 in**

I_a / P = **0.128**

From Exhibit 4-11 in chapter 4, TR-55

q_u = **620 csm/in**

Unit peak discharge in csm/in (q_u)	=	**620**
Area in square miles (A)	=	**0.00**
Runoff Depth in inches (Q)	=	**0.50**

$WQF=q_u*A*Q$ = **0.50 cfs**

CDS 2015-4-C Treatment Capacity = 1.40 cfs Provided

Calculated in accordence with the 2004 Connecticut Stormwater Quality Manual Sections 7.4.1 and 7.4.2

Tighe&Bond
Engineers | Environmental Specialists

Project Name: **64 Danbury Road**
Project Number: **F0173-001**
Project Location: **Wilton, CT**
Description: **Stormwater BMP Pollutant Removal Estimate**
Prepared By: **AVC** Date: **April 4, 2024**

Water Quality Area A

Item	Units	Pollutant					
		TKN	P	TSS	Pb	Cu	Zn
Proposed, Pre Treatment	lb/yr/1-in	0.942	0.190	50.095	0.071	0.016	0.067
Proposed, Post Treatment	lb/yr/1-in	0.562	0.042	2.380	0.026	0.005	0.007
Reduction, Pre to Post Treat	---	40%	78%	95%	64%	70%	90%

Water Quality Area B

Item	Units	Pollutant					
		TKN	P	TSS	Pb	Cu	Zn
Proposed, Pre Treatment	lb/yr/1-in	0.143	0.029	7.599	0.011	0.002	0.010
Proposed, Post Treatment	lb/yr/1-in	0.085	0.006	0.361	0.004	0.001	0.001
Reduction, Pre to Post Treat	---	40%	78%	95%	64%	70%	90%

Water Quality Area C

Item	Units	Pollutant					
		TKN	P	TSS	Pb	Cu	Zn
Proposed, Pre Treatment	lb/yr/1-in	0.070	0.014	3.728	0.005	0.001	0.005
Proposed, Post Treatment	lb/yr/1-in	0.042	0.003	0.177	0.002	0.000	0.000
Reduction, Pre to Post Treat	---	40%	78%	95%	64%	70%	90%

Water Quality Area D

Item	Units	Pollutant					
		TKN	P	TSS	Pb	Cu	Zn
Proposed, Pre Treatment	lb/yr/1-in	0.334	0.067	17.735	0.025	0.006	0.024
Proposed, Post Treatment	lb/yr/1-in	0.199	0.015	0.842	0.009	0.002	0.002
Reduction, Pre to Post Treat	---	40%	78%	95%	64%	70%	90%

Northeast Portion to Area Drains

Item	Units	Pollutant					
		TKN	P	TSS	Pb	Cu	Zn
Proposed, Pre Treatment	lb/yr/1-in	0.035	0.007	1.853	0.003	0.001	0.002
Proposed, Post Treatment	lb/yr/1-in	0.035	0.007	1.853	0.003	0.001	0.002
Reduction, Pre to Post Treat	---	0%	0%	0%	0%	0%	0%

Areas to Existing Infiltration Systems

Item	Units	Pollutant					
		TKN	P	TSS	Pb	Cu	Zn
Proposed, Pre Treatment	lb/yr/1-in	1.161	0.234	61.720	0.088	0.020	0.082
Proposed, Post Treatment	lb/yr/1-in	0.848	0.157	6.172	0.060	0.014	0.056
Reduction, Pre to Post Treat	---	27%	33%	90%	32%	32%	32%

Total Site

Item	Units	Pollutant					
		TKN	P	TSS	Pb	Cu	Zn
Proposed, Pre Treatment	lb/yr/1-in	2.685	0.541	142.730	0.203	0.047	0.191
Proposed, Post Treatment	lb/yr/1-in	1.771	0.230	11.785	0.104	0.022	0.069
Reduction, Pre to Post Treat	---	34%	57%	92%	49%	53%	64%

Loading Calculation

Location: **Area A** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.78 Total Area = 2.978 acres

Pollutant	Residential		Weighted	
	A (acres)	EMC (mg/L)	EMC (mg/L)	L (lbs/yr)
Total Nitrogen (N)	2.978	1.900	1.900	0.942
Total Phosphorus (P)	2.978	0.383	0.383	0.190
Total Suspended Solids	2.978	101.0	101.0	50.1
Lead	2.978	0.144	0.144	0.071
Copper	2.978	0.033	0.033	0.016
Zinc	2.978	0.135	0.135	0.067

L = 0.2266 * EMC * [0.15 + 0.75*I] * P *A

L	Pollution Loading (lbs/year)
EMC	Mean Event Mean Concentration (mg/L)
I	Fraction of Impervious Acres (acres)
P	Annual Rainfall (in)
A	Watershed Area (acres)

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

Location:	**Area A**	Condition:	**Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.78	Total Area =	2.978 acres
BMP:	**Deep Sump Catch Basins**		

Pollutant	Lin 1 (lbs)	Sum L (lbs)	RR (%)	Lremoved (lbs)	Lout (lbs)
Total Nitrogen (N)	0.942	0.942	0	0.00	0.942
Total Phosphorus (P)	0.190	0.190	0	0.00	0.190
Total Suspended Solids	50.095	50.1	5	2.50	47.6
Lead	0.071	0.071	0	0.00	0.071
Copper	0.016	0.016	0	0.00	0.016
Zinc	0.067	0.067	0	0.00	0.067
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
Lout	Pollutant Load out of BMP				

Notes:

1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

3. Pollutant removal rates for Contechs CDS Unit water quality structure taken from NJCAT TSS Approval letter, January 9, 2015

4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Location:	**Area A**		Condition: **Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.78	Total Area =	2.978 acres
BMP:	**Water Quality Structure**		

Pollutant	L_{in} 1 (lbs)	Sum L (lbs)	RR (%)	$L_{removed}$ (lbs)	L_{out} (lbs)
Total Nitrogen (N)	0.942	0.942	18.3	0.17	0.770
Total Phosphorus (P)	0.190	0.190	66.9	0.13	0.063
Total Suspended Solids	47.590	47.6	50	23.80	23.8
Lead	0.071	0.071	46.5	0.03	0.038
Copper	0.016	0.016	56.2	0.01	0.007
Zinc	0.067	0.067	85.3	0.06	0.010
L_{in} 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
L_{out}	Pollutant Load out of BMP				

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

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4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Location:	**Area A**	Condition:	**Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.78	Total Area =	2.978 acres
BMP:	**Infiltration System**		

Pollutant	L_{in} 1 (lbs)	Sum L (lbs)	RR (-)	$L_{removed}$ (lbs)	L_{out} (lbs)
Total Nitrogen (N)	0.770	0.770	27	0.21	0.562
Total Phosphorus (P)	0.063	0.063	33	0.02	0.042
Total Suspended Solids	23.795	23.8	90	21.42	2.380
Lead	0.038	0.038	32	0.01	0.026
Copper	0.007	0.007	32	0.00	0.005
Zinc	0.010	0.010	32	0.00	0.007

Lin 1	Pollutant Load In
Sum L	Sum of Pollutant Load to this BMP
RR	Removal rate in percentage
L_{out}	Pollutant Load out of BMP

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

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4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Loading Calculation

Location: **Area B** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.82 Total Area = 0.434 acres

Pollutant	Residential		Weighted	
	A (acres)	EMC (mg/L)	EMC (mg/L)	L (lbs/yr)
Total Nitrogen (N)	0.434	1.900	1.900	0.143
Total Phosphorus (P)	0.434	0.383	0.383	0.029
Total Suspended Solids	0.434	101.0	101.0	7.6
Lead	0.434	0.144	0.144	0.011
Copper	0.434	0.033	0.033	0.002
Zinc	0.434	0.135	0.135	0.010

L = 0.2266 * EMC * [0.15 + 0.75*I] * P *A

L	Pollution Loading (lbs/year)
EMC	Mean Event Mean Concentration (mg/L)
I	Fraction of Impervious Acres (acres)
P	Annual Rainfall (in)
A	Watershed Area (acres)

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

Location: **Area B** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.82 Total Area = 0.434 acres
BMP: **Deep Sump Catch Basins**

Pollutant	Lin 1 (lbs)	Sum L (lbs)	RR (%)	Lremoved (lbs)	Lout (lbs)
Total Nitrogen (N)	0.143	0.143	0	0.00	0.143
Total Phosphorus (P)	0.029	0.029	0	0.00	0.029
Total Suspended Solids	7.599	7.6	5	0.38	7.2
Lead	0.011	0.011	0	0.00	0.011
Copper	0.002	0.002	0	0.00	0.002
Zinc	0.010	0.010	0	0.00	0.010
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
Lout	Pollutant Load out of BMP				

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

3. Pollutant removal rates for Contechs CDS Unit water quality structure taken from NJCAT TSS Approval letter, January 9, 2015

4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Location:	**Area B**		Condition: **Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.82		Total Area = 0.434 acres
BMP:	**Water Quality Structure**		

Pollutant	L_{in} 1 (lbs)	Sum L (lbs)	RR (%)	$L_{removed}$ (lbs)	L_{out} (lbs)
Total Nitrogen (N)	0.143	0.143	18.3	0.03	0.117
Total Phosphorus (P)	0.029	0.029	66.9	0.02	0.010
Total Suspended Solids	7.219	7.2	50	3.61	3.6
Lead	0.011	0.011	46.5	0.01	0.006
Copper	0.002	0.002	56.2	0.00	0.001
Zinc	0.010	0.010	85.3	0.01	0.001
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
L_{out}	Pollutant Load out of BMP				

Notes:

1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

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3. Pollutant removal rates for Contechs CDS Unit water quality structure taken from NJCAT TSS Approval letter, January 9, 2015

4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Location:	**Area B**	Condition:	**Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.82	Total Area =	0.434 acres
BMP:	**Infiltration System**		

Pollutant	L_{in} 1 (lbs)	Sum L (lbs)	RR (-)	$L_{removed}$ (lbs)	L_{out} (lbs)
Total Nitrogen (N)	0.117	0.117	27	0.03	0.085
Total Phosphorus (P)	0.010	0.010	33	0.00	0.006
Total Suspended Solids	3.609	3.6	90	3.25	0.4
Lead	0.006	0.006	32	0.00	0.004
Copper	0.001	0.001	32	0.00	0.001
Zinc	0.001	0.001	32	0.00	0.001

L_{in} 1	Pollutant Load In
Sum L	Sum of Pollutant Load to this BMP
RR	Removal rate in percentage
L_{out}	Pollutant Load out of BMP

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

3. Pollutant removal rates for Contechs CDS Unit water quality structure taken from NJCAT TSS Approval letter, January 9, 2015

4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Loading Calculation

Location: **Area C** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.87 Total Area = 0.203 acres

Pollutant	Residential A (acres)	Residential EMC (mg/L)	Weighted EMC (mg/L)	Weighted L (lbs/yr)
Total Nitrogen (N)	0.203	1.900	1.900	0.070
Total Phosphorus (P)	0.203	0.383	0.383	0.014
Total Suspended Solids	0.203	101.0	101.0	3.7
Lead	0.203	0.144	0.144	0.005
Copper	0.203	0.033	0.033	0.001
Zinc	0.203	0.135	0.135	0.005

L = 0.2266 * EMC * [0.15 + 0.75*I] * P *A

L	Pollution Loading (lbs/year)
EMC	Mean Event Mean Concentration (mg/L)
I	Fraction of Impervious Acres (acres)
P	Annual Rainfall (in)
A	Watershed Area (acres)

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

Location:	**Area C**	Condition:	**Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.87	Total Area =	0.203 acres
BMP:	**Deep Sump Catch Basins**		

Pollutant	L_{in} 1 (lbs)	Sum L (lbs)	RR (%)	$L_{removed}$ (lbs)	L_{out} (lbs)
Total Nitrogen (N)	0.070	0.070	0	0.00	0.070
Total Phosphorus (P)	0.014	0.014	0	0.00	0.014
Total Suspended Solids	3.728	3.7	5	0.19	3.5
Lead	0.005	0.005	0	0.00	0.005
Copper	0.001	0.001	0	0.00	0.001
Zinc	0.005	0.005	0	0.00	0.005
L_{in} 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
L_{out}	Pollutant Load out of BMP				

Notes:

1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

3. Pollutant removal rates for Contechs CDS Unit water quality structure taken from NJCAT TSS Approval letter, January 9, 2015

4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Location:	**Area C**		Condition: **Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.87	Total Area =	0.203 acres
BMP:	**Water Quality Structure**		

Pollutant	Lin 1 (lbs)	Sum L (lbs)	RR (%)	Lremoved (lbs)	Lout (lbs)
Total Nitrogen (N)	0.070	0.070	18.3	0.01	0.057
Total Phosphorus (P)	0.014	0.014	66.9	0.01	0.005
Total Suspended Solids	3.542	3.5	50	1.77	1.8
Lead	0.005	0.005	46.5	0.00	0.003
Copper	0.001	0.001	56.2	0.00	0.001
Zinc	0.005	0.005	85.3	0.00	0.001
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
Lout	Pollutant Load out of BMP				

Notes:

1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

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4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Location: **Area C** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.87 Total Area = 0.203 acres
BMP: **Infiltration System**

Pollutant	Lin 1 (lbs)	Sum L (lbs)	RR (-)	Lremoved (lbs)	Lout (lbs)
Total Nitrogen (N)	0.057	0.057	27	0.02	0.042
Total Phosphorus (P)	0.005	0.005	33	0.00	0.003
Total Suspended Solids	1.771	1.8	90	1.59	0.2
Lead	0.003	0.003	32	0.00	0.002
Copper	0.001	0.001	32	0.00	0.000
Zinc	0.001	0.001	32	0.00	0.000
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
Lout	Pollutant Load out of BMP				

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

3. Pollutant removal rates for Contechs CDS Unit water quality structure taken from NJCAT TSS Approval letter, January 9, 2015

4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Loading Calculation

Location:	**Area D**	Condition: **Proposed**
Rainfall:	1 inches	
Impervious Fraction:	0.81	Total Area = 1.023 acres

Pollutant	Residential A (acres)	Residential EMC (mg/L)	Weighted EMC (mg/L)	Weighted L (lbs/yr)
Total Nitrogen (N)	1.023	1.900	1.900	0.334
Total Phosphorus (P)	1.023	0.383	0.383	0.067
Total Suspended Solids	1.023	101.0	101.0	17.7
Lead	1.023	0.144	0.144	0.025
Copper	1.023	0.033	0.033	0.006
Zinc	1.023	0.135	0.135	0.024

L = 0.2266 * EMC * [0.15 + 0.75*I] * P *A

L	Pollution Loading (lbs/year)
EMC	Mean Event Mean Concentration (mg/L)
I	Fraction of Impervious Acres (acres)
P	Annual Rainfall (in)
A	Watershed Area (acres)

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

Location:	**Area D**		Condition: **Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.81		Total Area = 1.023 acres
BMP:	**Deep Sump Catch Basins**		

Pollutant	Lin 1 (lbs)	Sum L (lbs)	RR (%)	Lremoved (lbs)	Lout (lbs)
Total Nitrogen (N)	0.334	0.334	0	0.00	0.334
Total Phosphorus (P)	0.067	0.067	0	0.00	0.067
Total Suspended Solids	17.735	17.7	5	0.89	16.8
Lead	0.025	0.025	0	0.00	0.025
Copper	0.006	0.006	0	0.00	0.006
Zinc	0.024	0.024	0	0.00	0.024

Lin 1	Pollutant Load In
Sum L	Sum of Pollutant Load to this BMP
RR	Removal rate in percentage
Lout	Pollutant Load out of BMP

Notes:

1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

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Location:	**Area D**		Condition: **Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.81		Total Area = 1.023 acres
BMP:	**Water Quality Structure**		

Pollutant	L_{in} 1 (lbs)	Sum L (lbs)	RR (%)	$L_{removed}$ (lbs)	L_{out} (lbs)
Total Nitrogen (N)	0.334	0.334	18.3	0.06	0.273
Total Phosphorus (P)	0.067	0.067	66.9	0.04	0.022
Total Suspended Solids	16.849	16.8	50	8.42	8.4
Lead	0.025	0.025	46.5	0.01	0.014
Copper	0.006	0.006	56.2	0.00	0.003
Zinc	0.024	0.024	85.3	0.02	0.003
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
L_{out}	Pollutant Load out of BMP				

Notes:

1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

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4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Location:	**Area D**		Condition: **Proposed**
Rainfall:	1 inches		
Impervious Fraction:	0.81		Total Area = 1.023 acres
BMP:	**Infiltration System**		

Pollutant	Lin 1 (lbs)	Sum L (lbs)	RR (-)	Lremoved (lbs)	Lout (lbs)
Total Nitrogen (N)	0.273	0.273	27	0.07	0.199
Total Phosphorus (P)	0.022	0.022	33	0.01	0.015
Total Suspended Solids	8.424	8.4	90	7.58	0.8
Lead	0.014	0.014	32	0.00	0.009
Copper	0.003	0.003	32	0.00	0.002
Zinc	0.003	0.003	32	0.00	0.002
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
Lout	Pollutant Load out of BMP				

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

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4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Loading Calculation

Location: **Northwest Portion to Area Drains** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.23 Total Area = 0.251 acres

Pollutant	Residential		Weighted	
	A (acres)	EMC (mg/L)	EMC (mg/L)	L (lbs/yr)
Total Nitrogen (N)	0.251	1.900	1.900	0.035
Total Phosphorus (P)	0.251	0.383	0.383	0.007
Total Suspended Solids	0.251	101.0	101.0	1.9
Lead	0.251	0.144	0.144	0.003
Copper	0.251	0.033	0.033	0.001
Zinc	0.251	0.135	0.135	0.002

L = 0.2266 * EMC * [0.15 + 0.75*I] * P *A

L	Pollution Loading (lbs/year)
EMC	Mean Event Mean Concentration (mg/L)
I	Fraction of Impervious Acres (acres)
P	Annual Rainfall (in)
A	Watershed Area (acres)

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

Loading Calculation

Location: **Areas to Existing Infiltration Systems** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.62 Total Area = 4.385 acres

Pollutant	Residential A (acres)	Residential EMC (mg/L)	Weighted EMC (mg/L)	Weighted L (lbs/yr)
Total Nitrogen (N)	4.385	1.900	1.900	1.161
Total Phosphorus (P)	4.385	0.383	0.383	0.234
Total Suspended Solids	4.385	101.0	101.0	61.7
Lead	4.385	0.144	0.144	0.088
Copper	4.385	0.033	0.033	0.020
Zinc	4.385	0.135	0.135	0.082

L = 0.2266 * EMC * [0.15 + 0.75*I] * P *A

L	Pollution Loading (lbs/year)
EMC	Mean Event Mean Concentration (mg/L)
I	Fraction of Impervious Acres (acres)
P	Annual Rainfall (in)
A	Watershed Area (acres)

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

Location: **Areas to Existing Infiltration Systems** Condition: **Proposed**
Rainfall: 1 inches
Impervious Fraction: 0.62 Total Area = 4.385 acres
BMP: **Infiltration System**

Pollutant	L_{in} 1 (lbs)	Sum L (lbs)	RR (-)	$L_{removed}$ (lbs)	L_{out} (lbs)
Total Nitrogen (N)	1.161	1.161	27	0.31	0.848
Total Phosphorus (P)	0.234	0.234	33	0.08	0.157
Total Suspended Solids	61.720	61.7	90	55.55	6.2
Lead	0.088	0.088	32	0.03	0.060
Copper	0.020	0.020	32	0.01	0.014
Zinc	0.082	0.082	32	0.03	0.056
Lin 1	Pollutant Load In				
Sum L	Sum of Pollutant Load to this BMP				
RR	Removal rate in percentage				
L_{out}	Pollutant Load out of BMP				

Notes:
1. Pollution loading calculated using *Municipal Stormwater Management* by Debo & Reese

2. Pollutant removal rates for Infiltration Practices taken from *Municipal Stormwater Management* by Debo & Reese, Table 13-13

3. Pollutant removal rates for Contechs CDS Unit water quality structure taken from NJCAT TSS Approval letter, January 9, 2015

4. Pollutant removal rates for Deep Sump Catch Basins taken from MassDEP Stormwater Handbook Volume 2 - Structural BMP Specifications

Available Models

CDS Model	Treatment Capacity[3] (cfs)	Maximum Sediment Storage Capacity (CF)
1515	1.0	26
w/ 1' added sump	1.0	33
w/ 2' added sump	1.0	40
w/ 3' added sump	1.0	47
2015_4	1.4	50
w/ 1' added sump	1.4	63
w/ 2' added sump	1.4	75
w/ 3' added sump	1.4	88
2015	1.4	79
w/ 1' added sump	1.4	98
w/ 2' added sump	1.4	118
2020	2.2	90
w/ 1' added sump	2.2	110
w/ 2' added sump	2.2	129
2025	3.2	97
w/ 1' added sump	3.2	117
w/ 2' added sump	3.2	136
3020	3.9	134
w/ 1' added sump	3.9	163
w/ 2' added sump	3.9	191
3030	6.1	157
w/ 1' added sump	6.1	185
w/ 2' added sump	6.1	213
4030	7.9	329
w/ 1' added sump	7.9	379
w/ 2' added sump	7.9	429
4040	12.4	381
w/ 1' added sump	12.4	431
w/ 2' added sump	12.4	482

1. Structure diameter represents the typical inside dimension of the concrete structure. Offline systems will require additional concrete diversion components
2. Depth below pipe can vary to accommodate site specific design. Depth below pipe invert represents the depth from the pipe invert to the inside bottom of concrete structure.
3. Treatment Capacity is based on laboratory testing using OK-110 (average d50 particle size of approximately 100 microns) and a 2400 micron screen.

Sediment Depths Indicating Required Servicing*

CDS Model	Standard Sediment Depth (in.)	w/ 1' added Sump Sediment Depth (in.)	w/ 2' added Sump Sediment Depth (in.)
1515	18	27	36
2015_4	18	30	42
2015	18	30	42
2020	18	30	42
2025	18	30	42
3020	18	30	42
3030	18	39	42
4030	27	39	51
4040	27	39	51

* Based on 75% capacity of isolated sump.

APPENDIX G

64 Danbury Road

Wilton, Connecticut

Maintenance and Inspection Plan

December 2023

The initial inspection will be made during an intense rainfall to check the adequacy of the yard drains, catch basins, roof leaders, piping, hydrodynamic separator, infiltration systems, and system outlet.

The following is a checklist of items that will be checked and maintained during scheduled maintenance operations.

Drainage Structures: The Owner will be responsible for cleaning the catch basins, yard drains, manholes, piping, and outlet protection on their property. A Connecticut licensed hauler shall clean the sumps, and legally dispose of removed sand at an off-site location. The road sand may not be reused or stored on-site. As part of the hauling contract, the hauler shall notify the Owner in writing where the material is being disposed.

Each catch basin and yard drain shall be inspected every four months, with one inspection occurring during the month of April. Any debris occurring within one foot from the bottom of each sump shall be removed by Vacuum "Vactor" type of maintenance equipment. Maintain a log of inspections. Remove organic matter, sand and debris from catch basins as necessary and dispose of legally.

Hydrodynamic Separator: The Contech CDS units (hydrodynamic separator) will be skimmed and oil and scum removed. In a separate operation, silt, sand and sediment will be removed. Once the structure is cleaned of debris, the chamber will be refilled with clean water to prevent wash through of debris and oil during next storm event.

Underground Infiltration: The underground infiltration systems will be cleaned of all silt, debris and sediment from the inlet structure, outlet structure and the chamber lengths. The outlet control structure will be inspected and cleaned to make sure nothing is clogging the discharge pipe.

Level Spreader: The level spreader shall be inspected two times annually. Regular maintenance includes removing accumulated debris and sediment, checking for erosion, vegetative bare spots, and removing invasive plant species or tree saplings.

Stormwater System Outfalls: The stormwater system outfalls shall be inspected two times annually as well as after every major storm, for slope integrity, soil moisture, vegetated health, soil stability, soil compaction, soil erosion, ponding and sediment accumulation. If the rip rap has been displaced, undermined or damaged, it should be replaced immediately. The channel immediately below the outlet should be checked to see that erosion is not occurring. The downstream channel will be kept clear of obstructions, such as fallen trees, debris, leaves and sediment that could change flow patterns and/or tail water depths in pipes. Repairs must be carried out immediately to avoid additional damage to the outlet protection apron.

Drainage Structures Inspection

Each catch basin and yard drain shall be inspected every four months, with one inspection occurring during the month of April. Any debris occurring within one foot from the bottom of each sump shall be removed by Vacuum "Vactor" type of maintenance equipment. Maintain a log of inspections. Remove organic matter, sand and debris from catch basins as necessary and dispose of legally.

Date (MM/DD/YY)	Company/Person	Supervising Team Member	Comments

Hydrodynamic Separator

The Contech CDS units (hydrodynamic separator) will be skimmed and oil and scum removed. In a separate operation, silt, sand and sediment will be removed. Once the structure is cleaned of debris, the chamber will be refilled with clean water to prevent wash through of debris and oil during next storm event.

Date (MM/DD/YY)	Company/Person	Supervising Team Member	Comments

Underground Infiltration

The underground infiltration system shall be inspected annually and will be cleaned of all silt, debris and sediment from the inlet structure, outlet structure and the chamber lengths. The outlet control structure will be inspected and cleaned to make sure nothing is clogging the discharge pipe.

Date (MM/DD/YY)	Company/Person	Supervising Team Member	Comments

Level Spreader

The level spreader shall be inspected two times annually. Regular maintenance includes removing accumulated debris and sediment, checking for erosion, vegetative bare spots, and removing invasive plant species or tree saplings.

Date (MM/DD/YY)	Company/Person	Supervising Team Member	Comments

Stormwater System Outfalls

The stormwater system outfalls shall be inspected two times annually as well as after every major storm, for slope integrity, soil moisture, vegetated health, soil stability, soil compaction, soil erosion, ponding and sediment accumulation. If the rip rap has been displaced, undermined or damaged, it should be replaced immediately. The channel immediately below the outlet should be checked to see that erosion is not occurring. The downstream channel will be kept clear of obstructions, such as fallen trees, debris, leaves and sediment that could change flow patterns and/or tail water depths in pipes. Repairs must be carried out immediately to avoid additional damage to the outlet protection apron.

Date (MM/DD/YY)	Company/Person	Supervising Team Member	Comments

APPENDIX H

Project: 64_Danbury_Road
Simulation Run: 100-Year
Simulation Start: 3 April 2024, 24:00
Simulation End: 4 April 2024, 24:00

HMS Version: 4.9
Executed: 08 April 2024, 15:58

Global Parameter Summary - Subbasin

Area (MIē)

Element Name	Area (MIē)
EX - 04	0.34
EX - 03	0.2
EX - 02	0.08
EX - 01	0.05
EX - 00	0.07

Downstream

Element Name	Downstream
EX - 04	SA - 3
EX - 03	JCT - 03
EX - 02	JCT - 02
EX - 01	JCT - 01
EX - 00	JCT - 00

Loss Rate: Scs

Element Name	Percent Impervious Area	Curve Number	Initial Abstraction
EX - 04	9.77	74.63	0.68
EX - 03	9.77	77.44	0.58
EX - 02	9.77	73.1	Not Specified
EX - 01	9.77	75.53	Not Specified
EX - 00	9.77	69.92	Not Specified

Transform: Scs

Element Name	Lag	Unitgraph Type
EX - 04	181.04	Standard
EX - 03	152.72	Standard
EX - 02	132.63	Standard
EX - 01	83.18	Standard
EX - 00	47.43	Standard

Global Results Summary

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
EX - 04	0.34	199.56	04Apr2024, 15:18	5.25
SA - 3	0.34	42.5	04Apr2024, 21:18	1.9
EX - 03	0.2	141.8	04Apr2024, 14:44	5.63
JCT - 03	0.55	177.35	04Apr2024, 14:54	3.29
SA - 2	0.55	49.49	04Apr2024, 24:00	1.37
EX - 02	0.08	56.24	04Apr2024, 14:24	5.22
JCT - 02	0.63	85	04Apr2024, 14:52	1.86
EX - 01	0.05	51.87	04Apr2024, 13:30	5.57
JCT - 01	0.68	120.94	04Apr2024, 13:58	2.13
EX - 00	0.07	93.82	04Apr2024, 12:52	5.04
JCT - 00	0.75	178.54	04Apr2024, 13:08	2.41
SA - 1	0.75	170.04	04Apr2024, 13:30	2.41

Subbasin: EX-04

Area (MIē) : 0.34
Downstream : SA - 3

Loss Rate: Scs

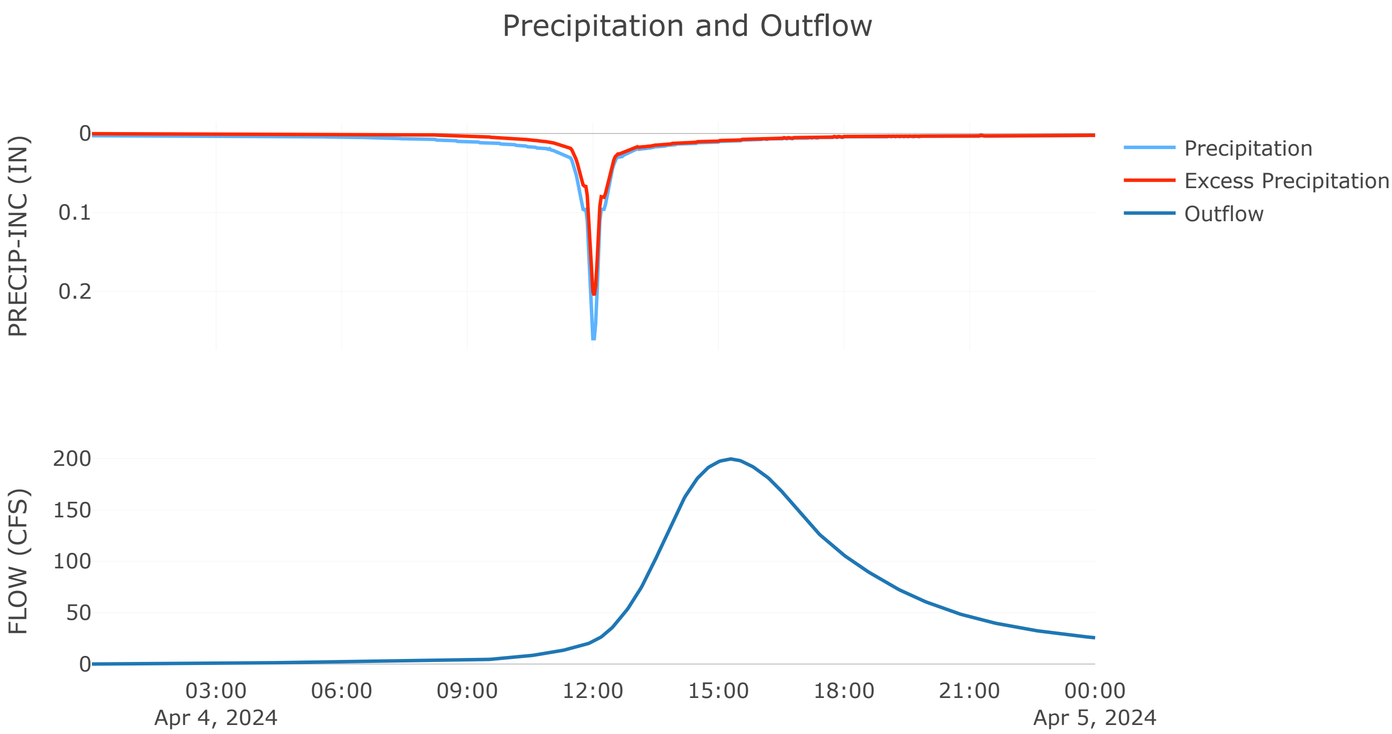
Percent Impervious Area	9.77
Curve Number	74.63
Initial Abstraction	0.68

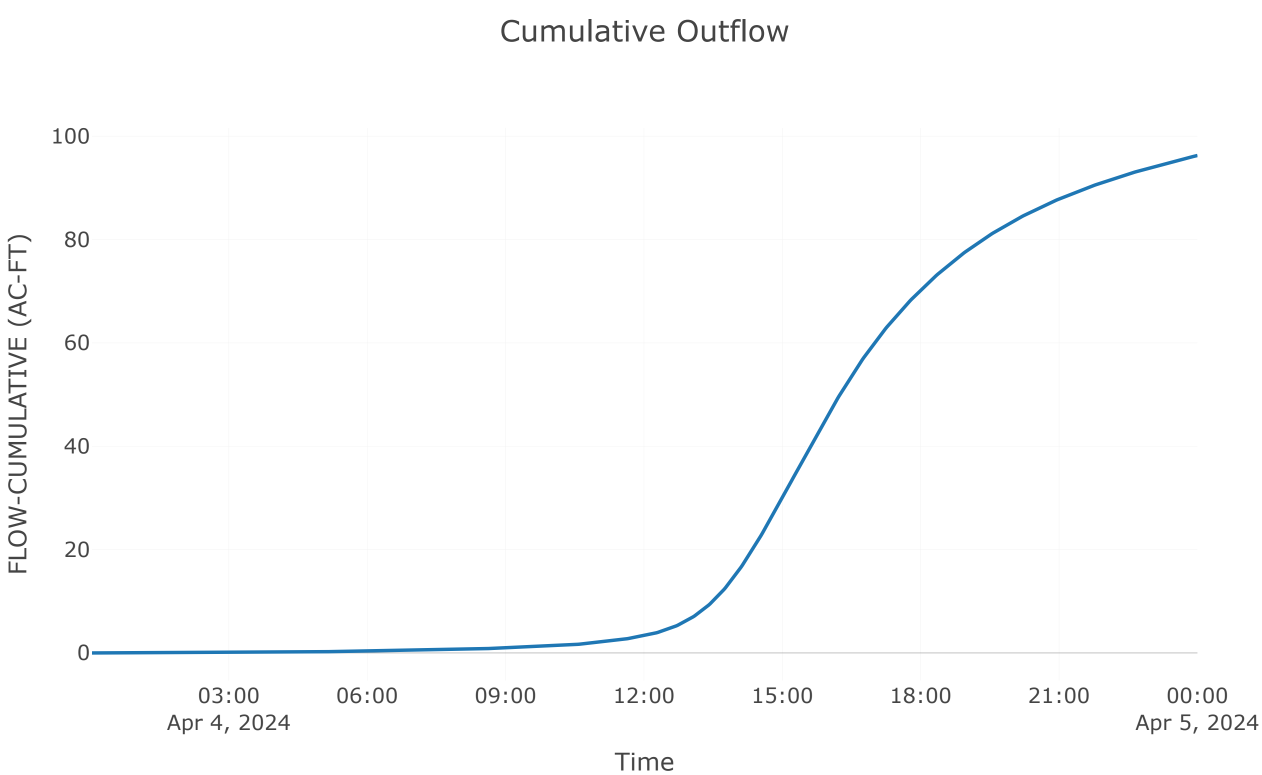
Transform: Scs

Lag	181.04
Unitgraph Type	Standard

Results: EX-04

Peak Discharge (CFS)	199.56
Time of Peak Discharge	04Apr2024, 15:18
Volume (IN)	5.25
Precipitation Volume (AC - FT)	153.15
Loss Volume (AC - FT)	50.24
Excess Volume (AC - FT)	102.92
Direct Runoff Volume (AC - FT)	96.26
Baseflow Volume (AC - FT)	0


Precipitation and Outflow
PRECIP-INC (IN)
0
0.1
0.2
Precipitation
Excess Precipitation
Outflow
FLOW (CFS)
200
150
100
50
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
100
80
60
40
20
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

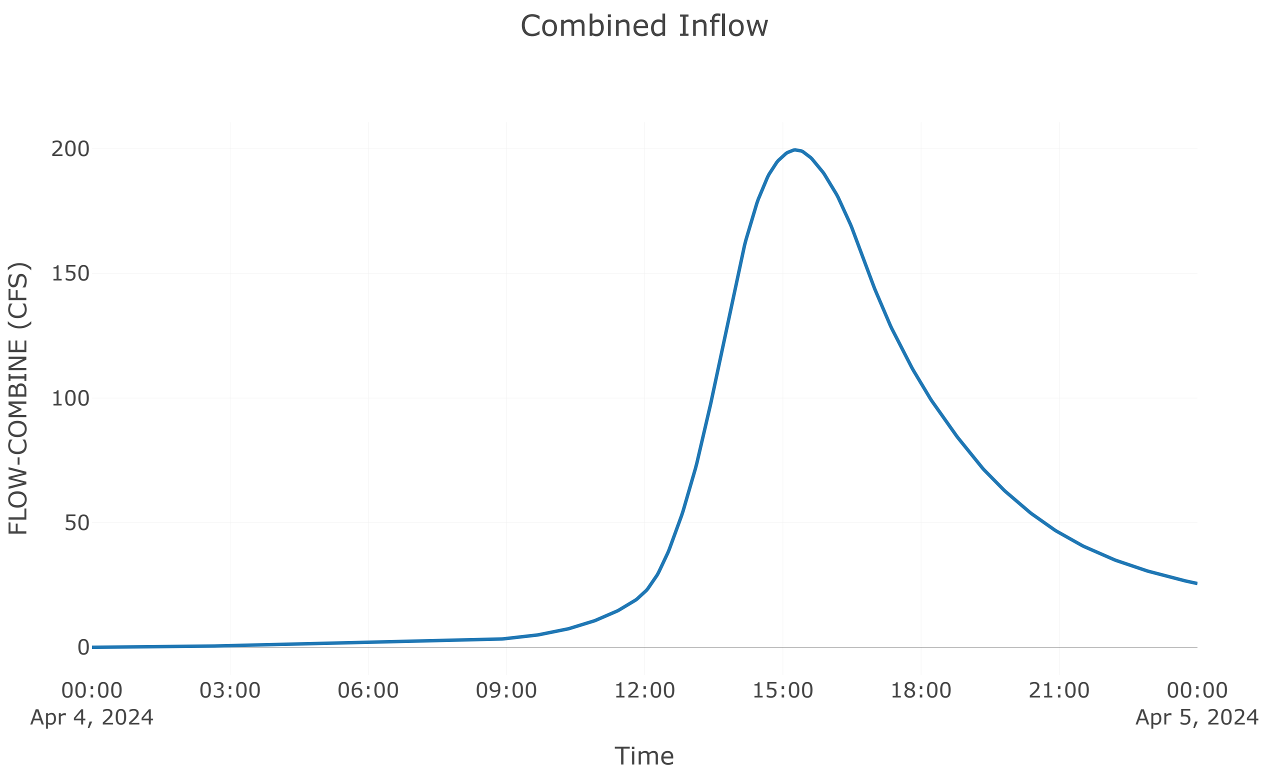
Reservoir: SA-3

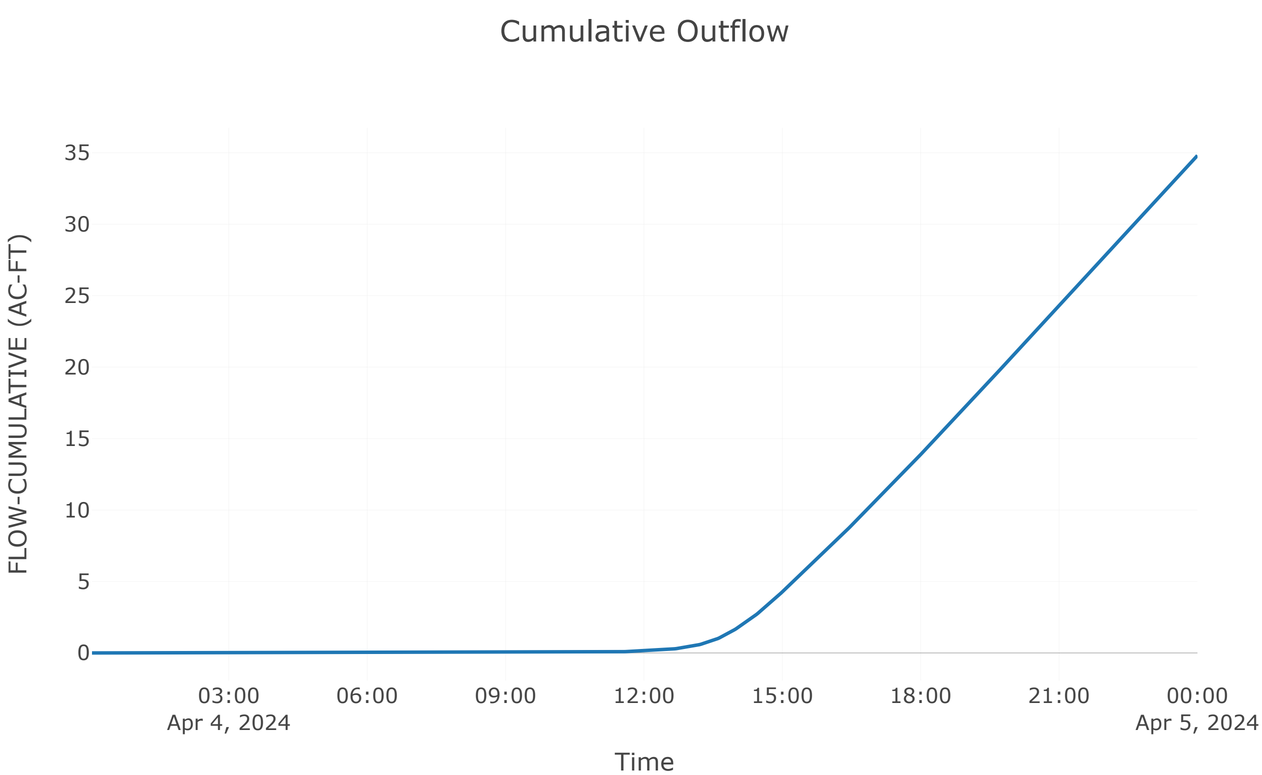
Storage north of Route 33

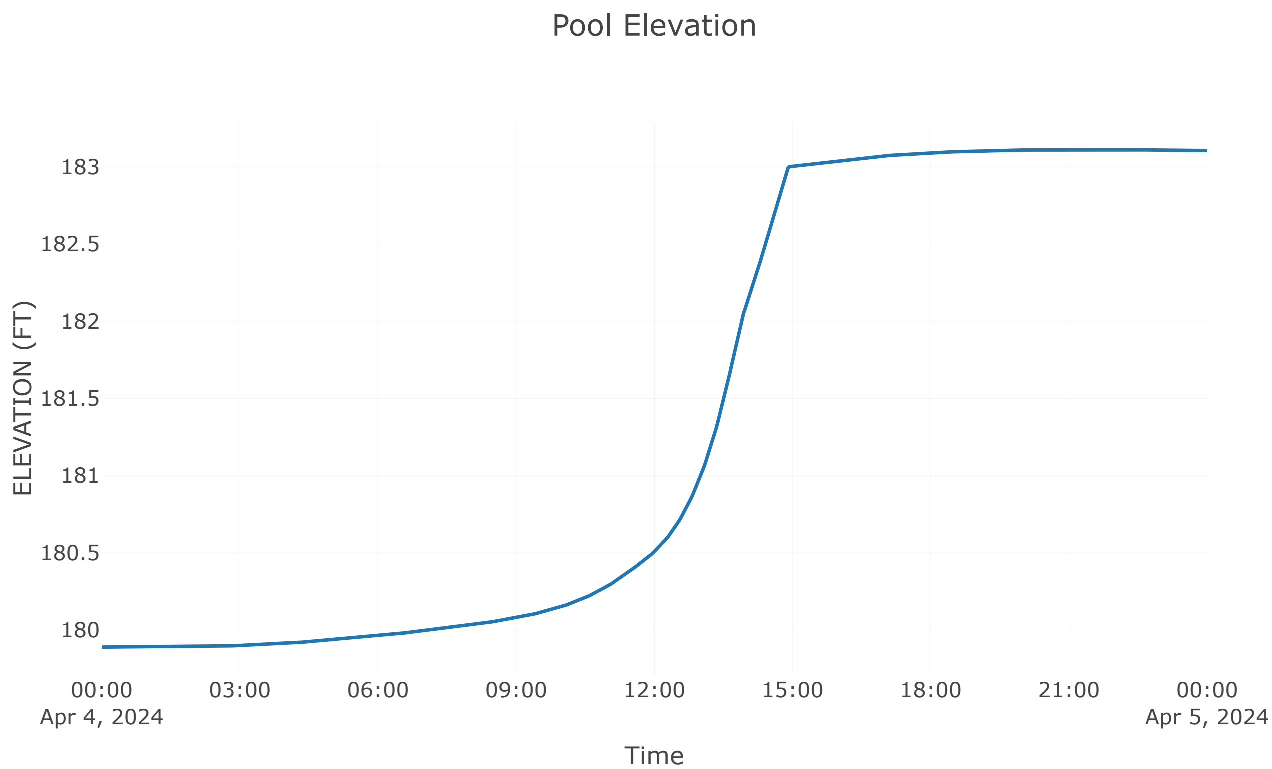
Downstream : JCT - 03

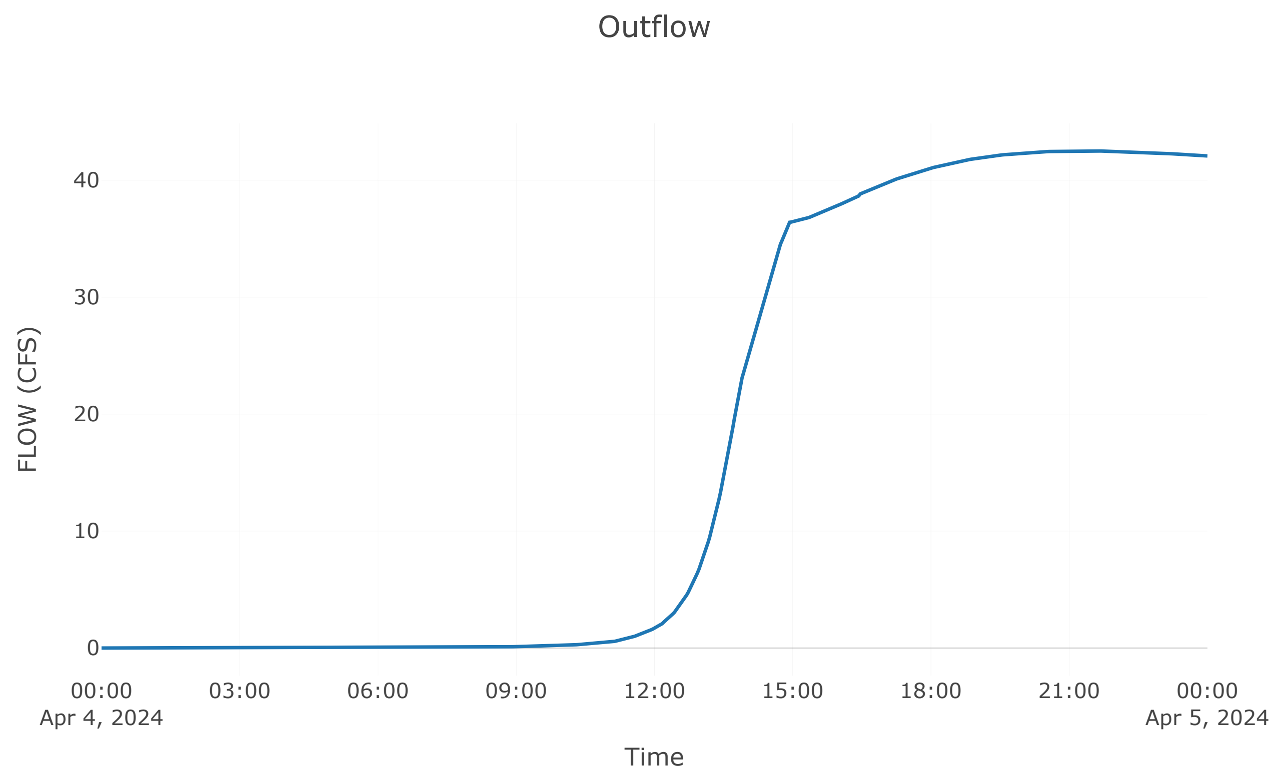
Results: SA-3

Peak Discharge (CFS)	42.5
Time of Peak Discharge	04Apr2024, 21:18
Volume (IN)	1.9
Peak Inflow (CFS)	199.56
Time of Peak Inflow	04Apr2024, 15:18
Inflow Volume (AC - FT)	96.26
Maximum Storage (AC - FT)	63.62
Peak Elevation (FT)	183.11
Discharge Volume (AC - FT)	34.81


Combined Inflow
FLOW-COMBINE (CFS)
200
150
100
50
0
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
35
30
25
20
15
10
5
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Pool Elevation
183
182.5
182
181.5
181
180.5
180
ELEVATION (FT)
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Outflow
40
30
20
10
0
FLOW (CFS)
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

Subbasin: EX-03

Area (MIē) : 0.2
Downstream : JCT - 03

Loss Rate: Scs

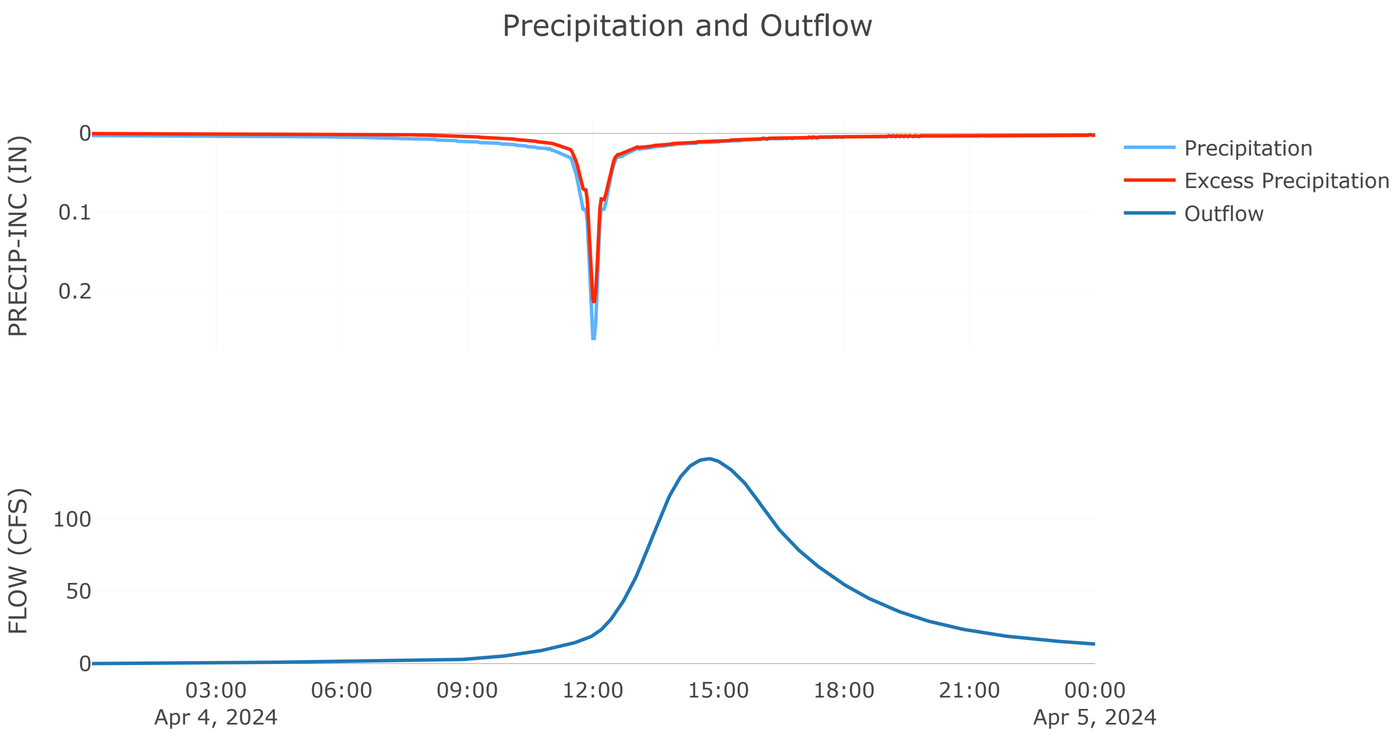
Percent Impervious Area	9.77
Curve Number	77.44
Initial Abstraction	0.58

Transform: Scs

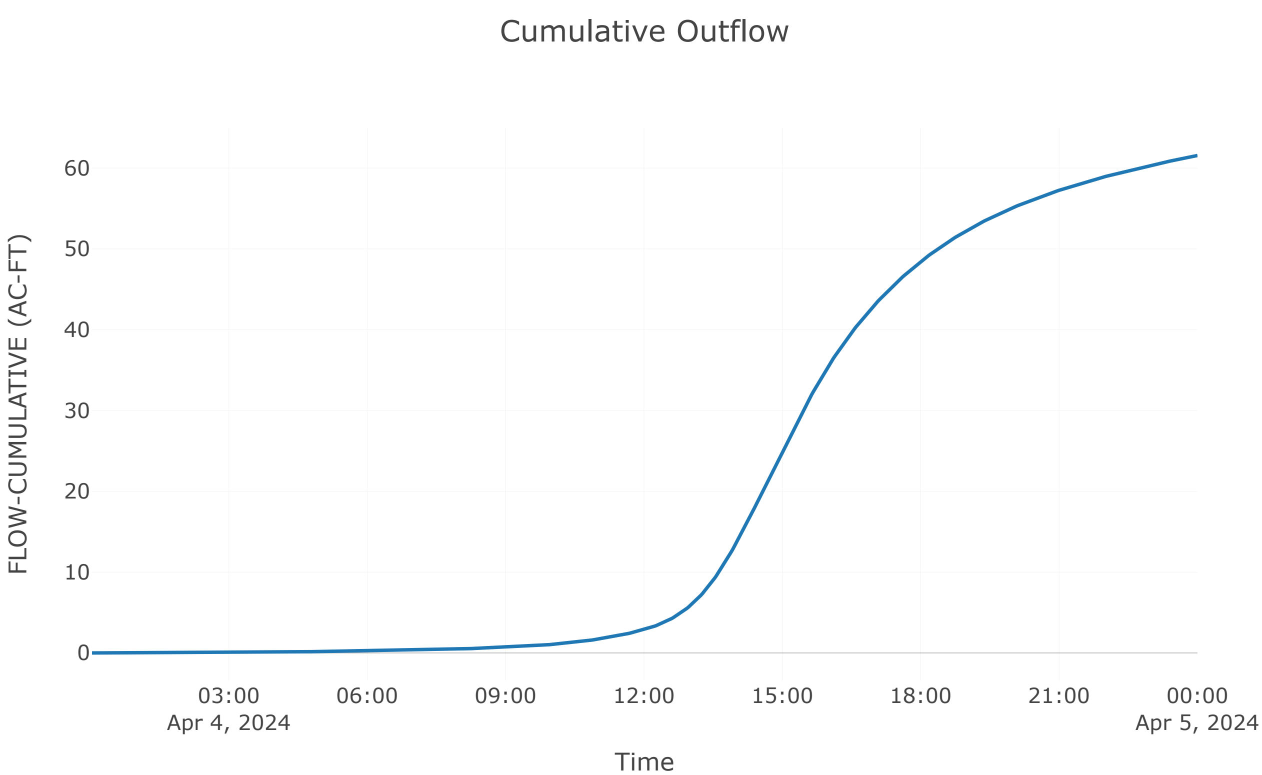
Lag	152.72
Unitgraph Type	Standard

Results: EX-03

Peak Discharge (CFS)	141.8
Time of Peak Discharge	04Apr2024, 14:44
Volume (IN)	5.63
Precipitation Volume (AC - FT)	91.29
Loss Volume (AC - FT)	26.62
Excess Volume (AC - FT)	64.67
Direct Runoff Volume (AC - FT)	61.55
Baseflow Volume (AC - FT)	0



Precipitation and Outflow
PRECIP-INC (IN)
0
0.1
0.2
Precipitation
Excess Precipitation
Outflow
FLOW (CFS)
100
50
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024



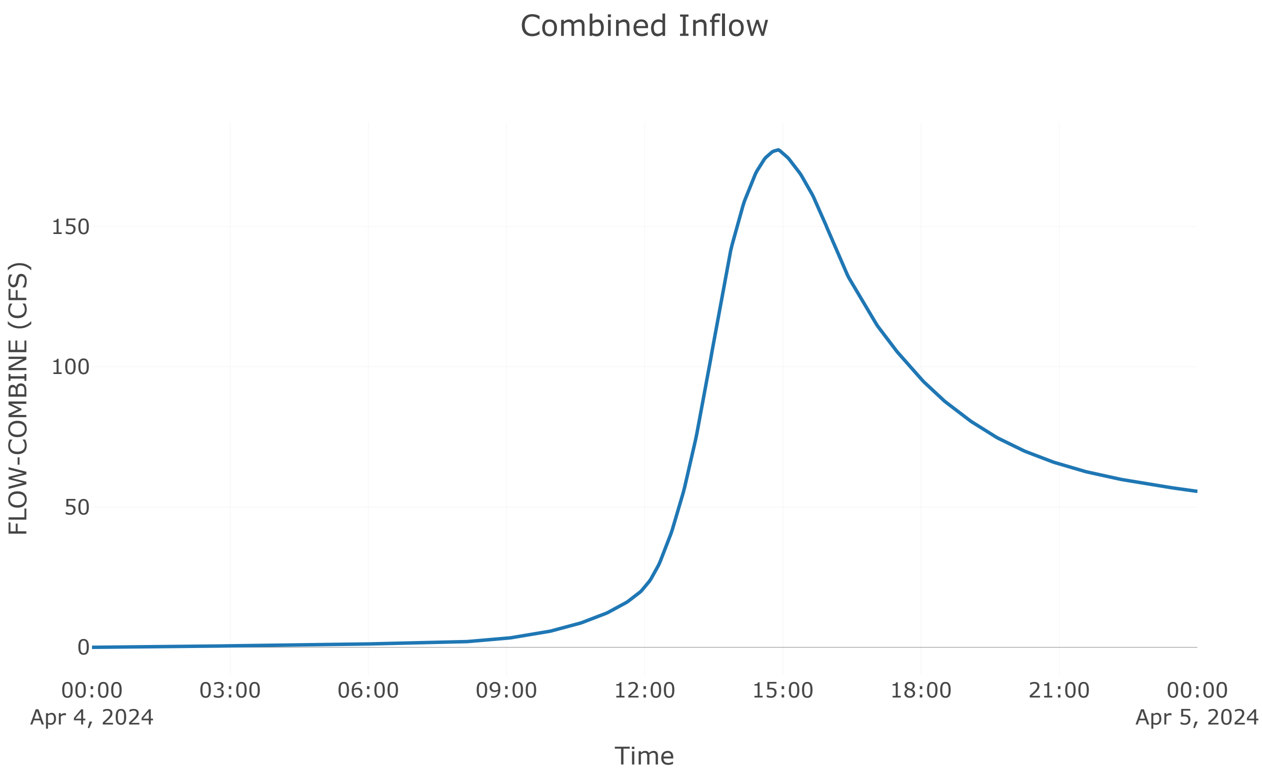
Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
60
50
40
30
20
10
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

Junction: JCT-03

Downstream : SA - 2

Results: JCT-03

Peak Discharge (CFS)	177.35
Time of Peak Discharge	04Apr2024, 14:54
Volume (IN)	3.29


Combined Inflow
FLOW-COMBINE (CFS)
0
50
100
150
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
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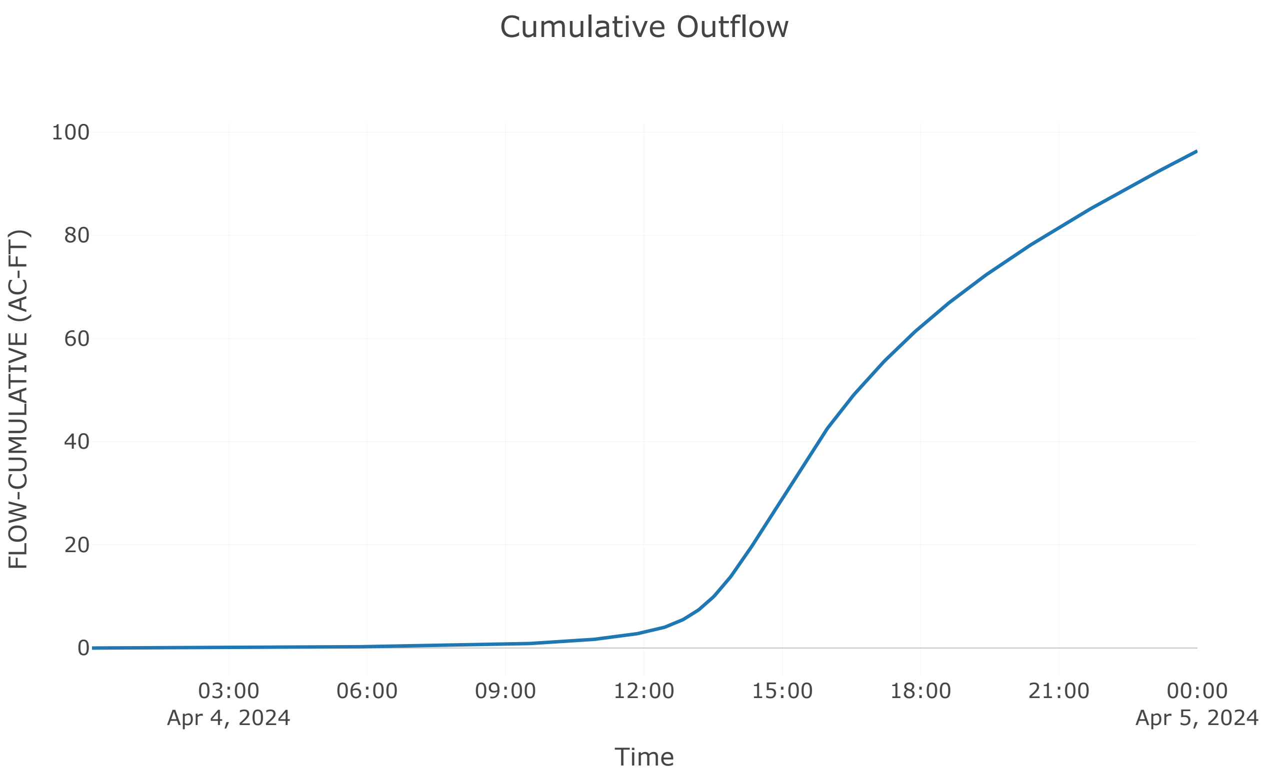
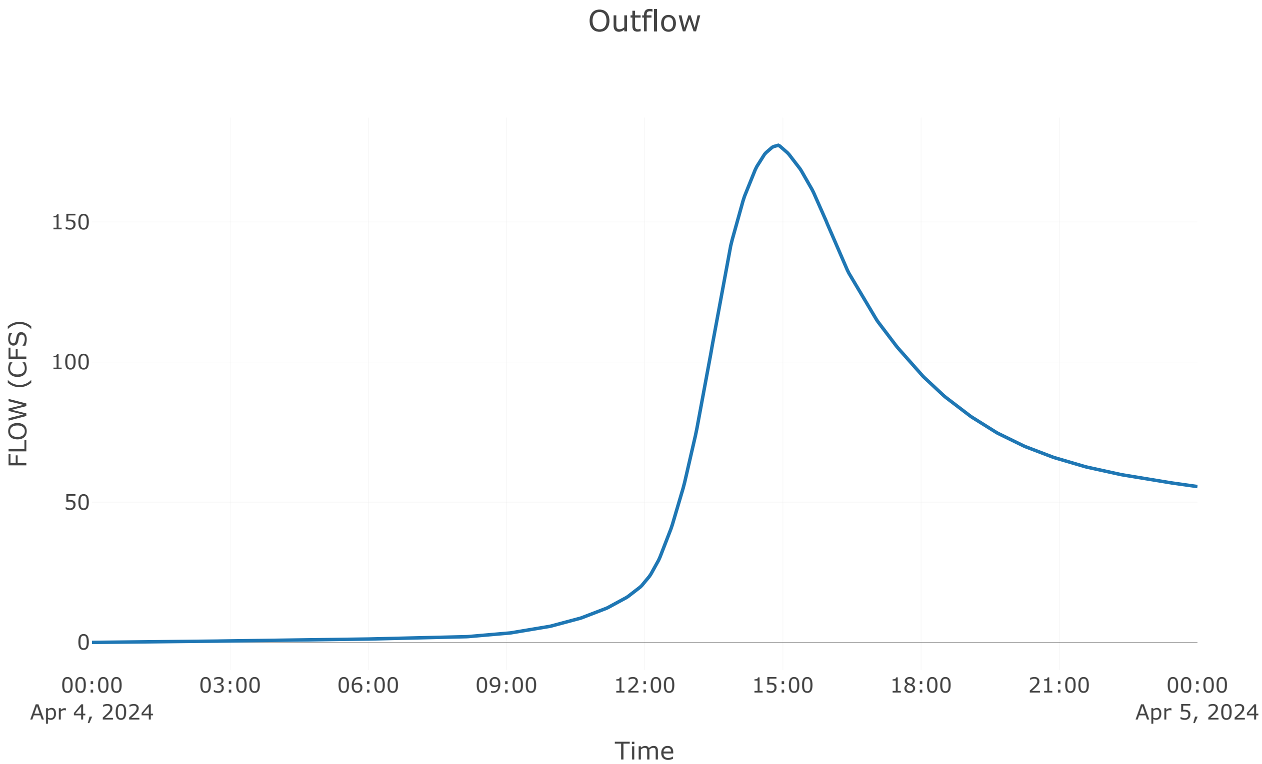
18:00
21:00
00:00
Apr 5, 2024
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
20
40
60
80
100
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Outflow
FLOW (CFS)
0
50
100
150
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

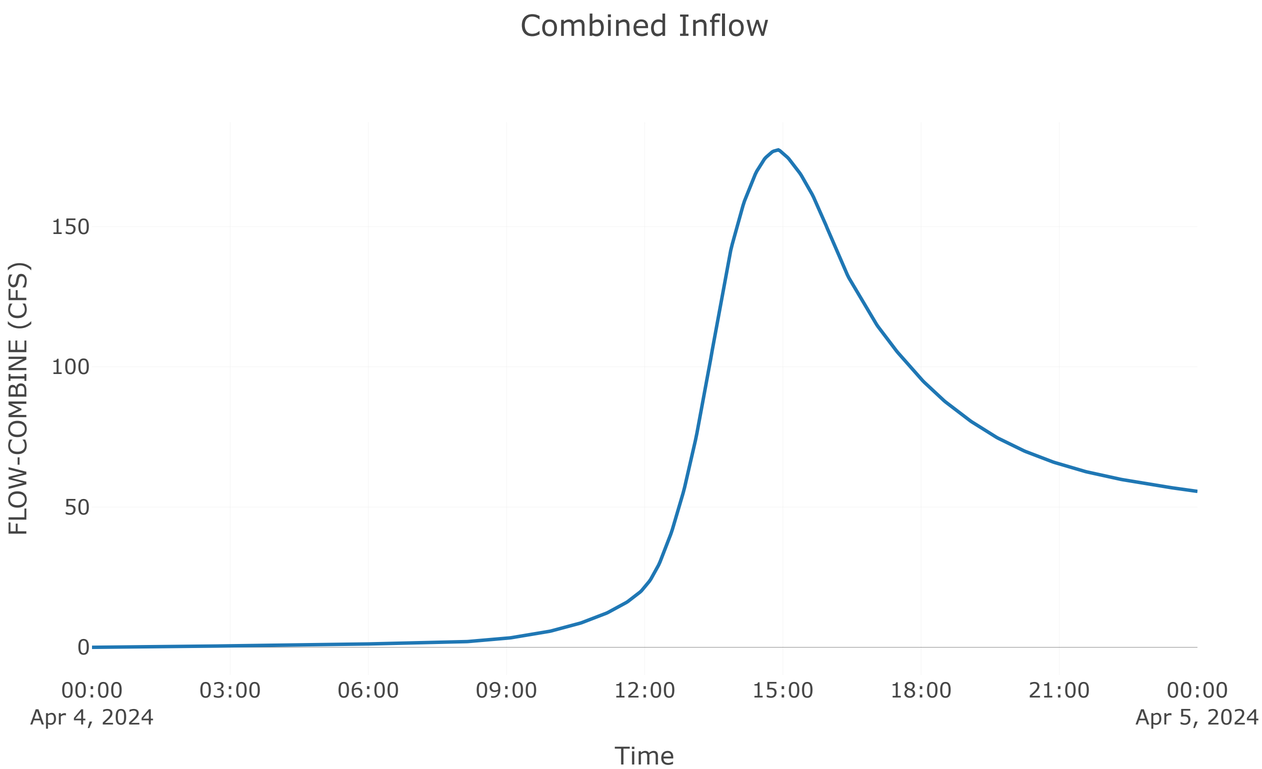
Reservoir: SA-2

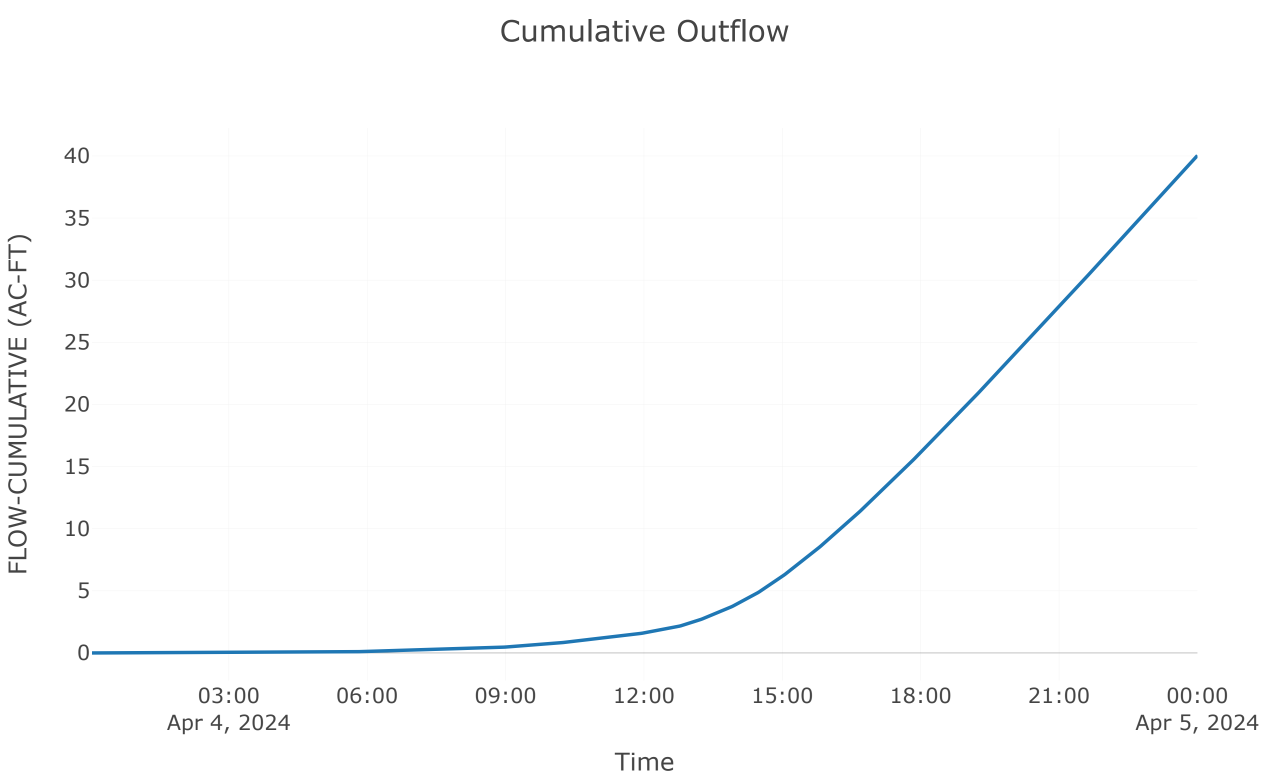
Storage at Clover Lane

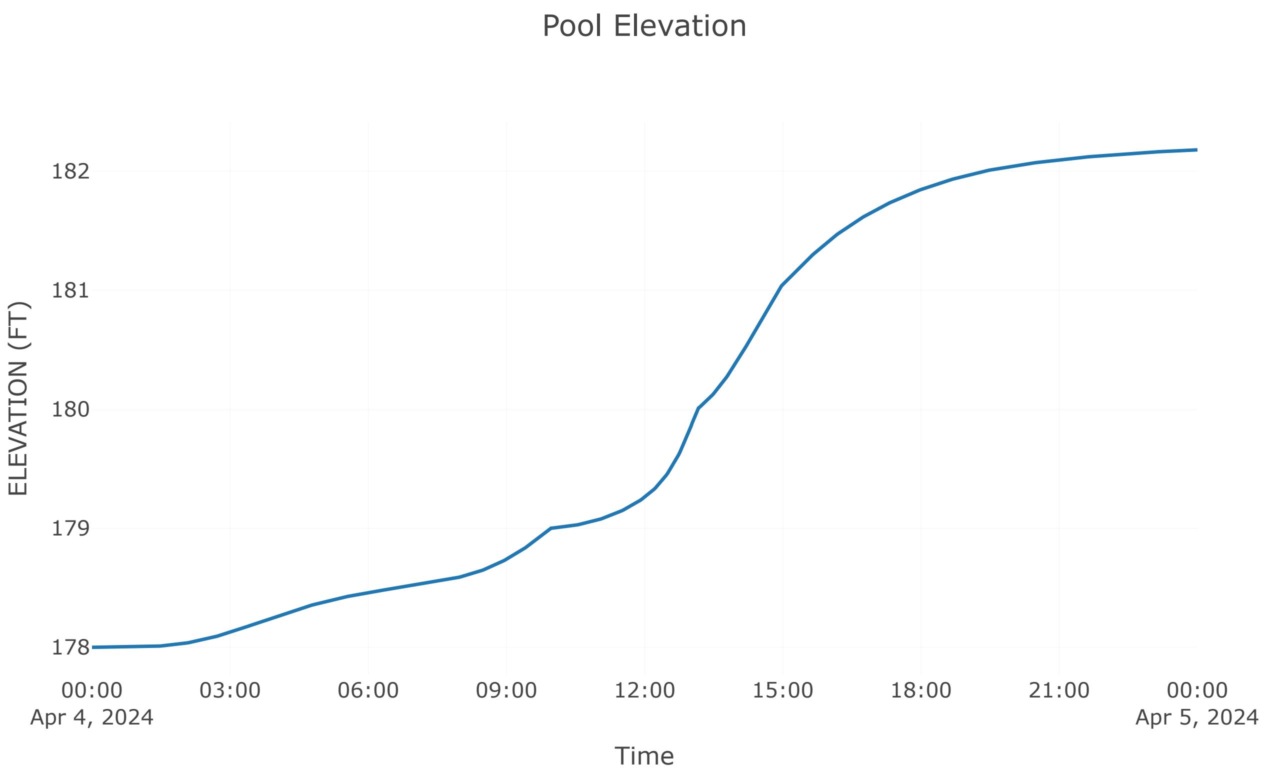
Downstream : JCT - 02

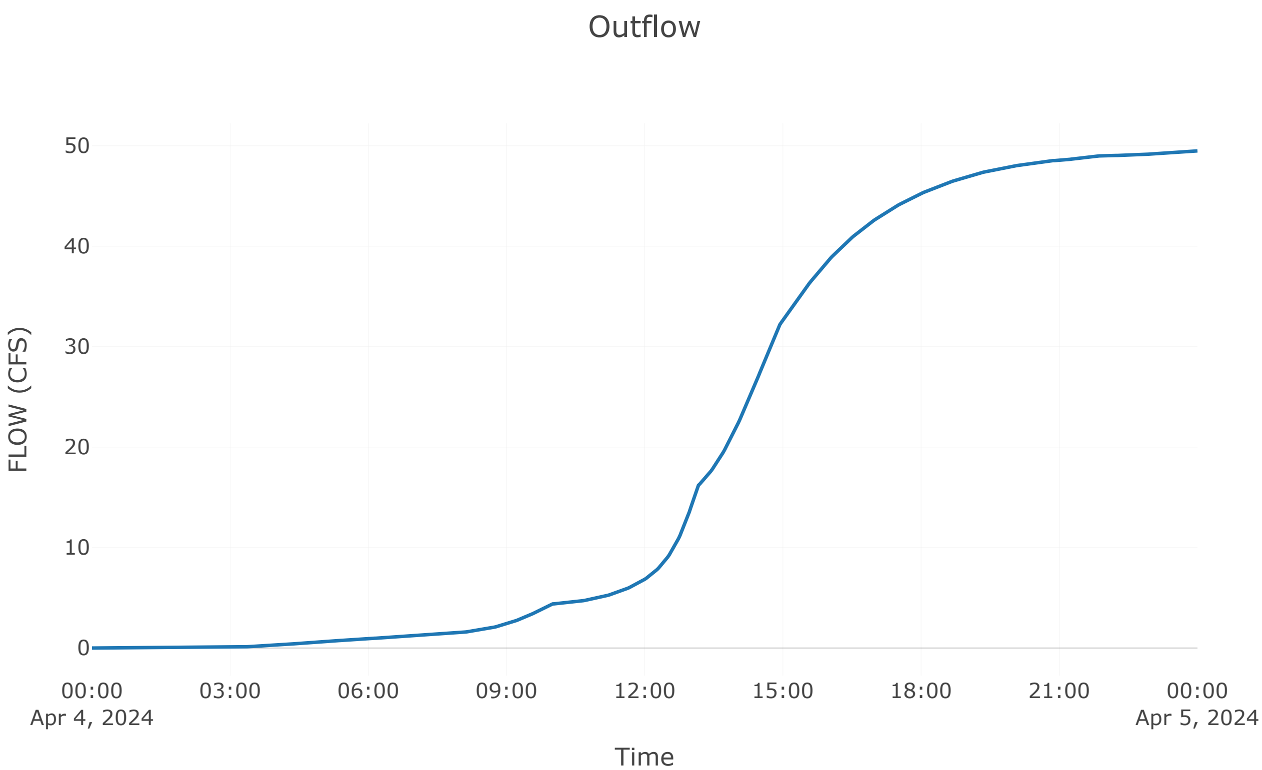
Results: SA-2

Peak Discharge (CFS)	49.49
Time of Peak Discharge	04Apr2024, 24:00
Volume (IN)	1.37
Peak Inflow (CFS)	177.35
Time of Peak Inflow	04Apr2024, 14:54
Inflow Volume (AC - FT)	96.36
Maximum Storage (AC - FT)	56.33
Peak Elevation (FT)	182.18
Discharge Volume (AC - FT)	40.04


Combined Inflow
FLOW-COMBINE (CFS)
0
50
100
150
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
5
10
15
20
25
30
35
40
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Pool Elevation
ELEVATION (FT)
182
181
180
179
178
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Outflow
FLOW (CFS)
50
40
30
20
10
0
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

Subbasin: EX-02

Area (MIē) : 0.08
Downstream : JCT - 02

Loss Rate: Scs

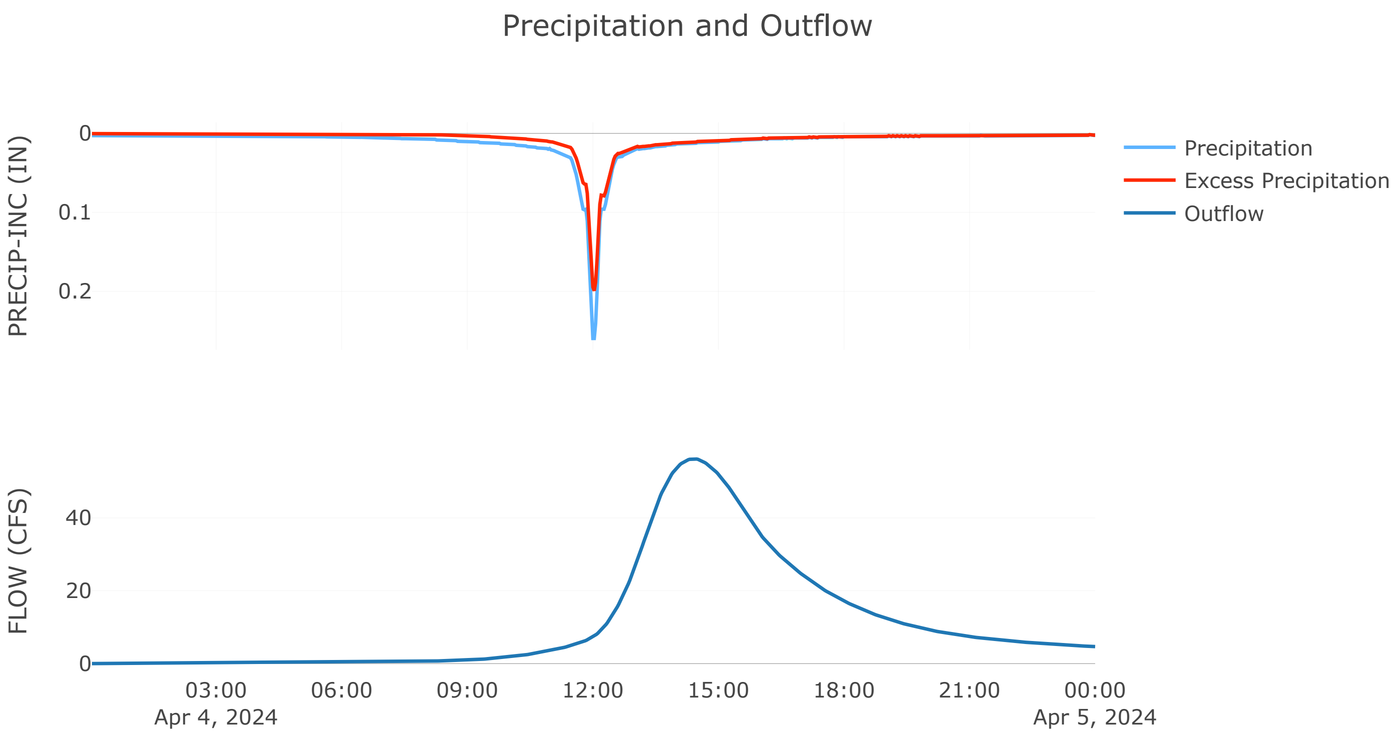
Percent Impervious Area	9.77
Curve Number	73.1

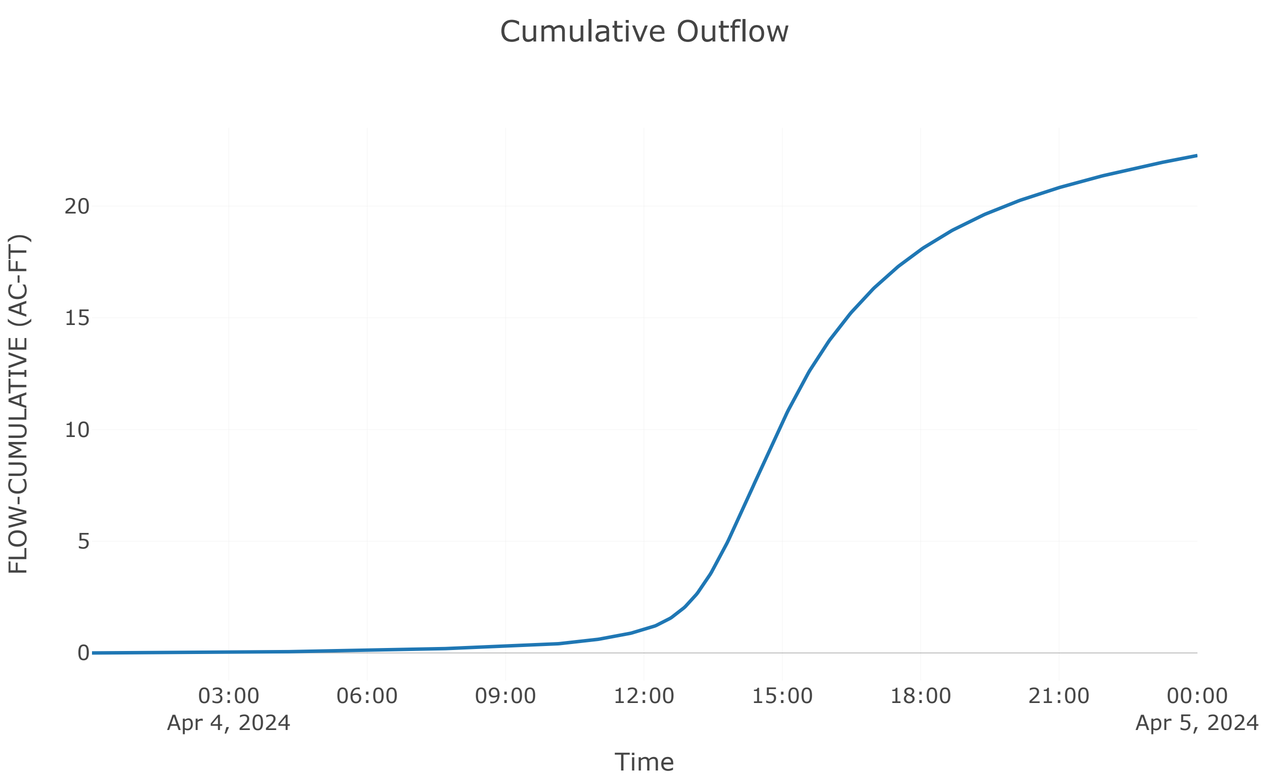
Transform: Scs

Lag	132.63
Unitgraph Type	Standard

Results: EX-02

Peak Discharge (CFS)	56.24
Time of Peak Discharge	04Apr2024, 14:24
Volume (IN)	5.22
Precipitation Volume (AC - FT)	35.63
Loss Volume (AC - FT)	12.38
Excess Volume (AC - FT)	23.24
Direct Runoff Volume (AC - FT)	22.27
Baseflow Volume (AC - FT)	0


Precipitation and Outflow
PRECIP-INC (IN)
0
0.1
0.2
Precipitation
Excess Precipitation
Outflow
FLOW (CFS)
40
20
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024

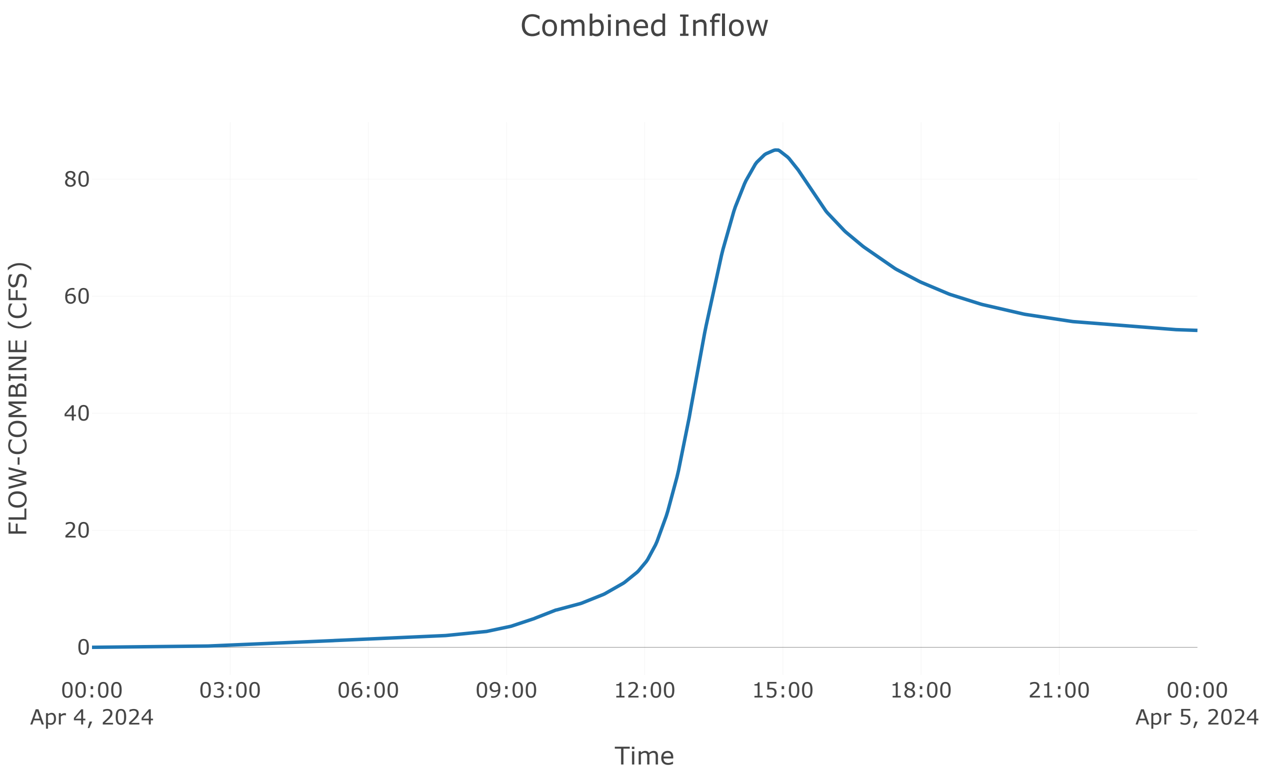

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
20
15
10
5
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

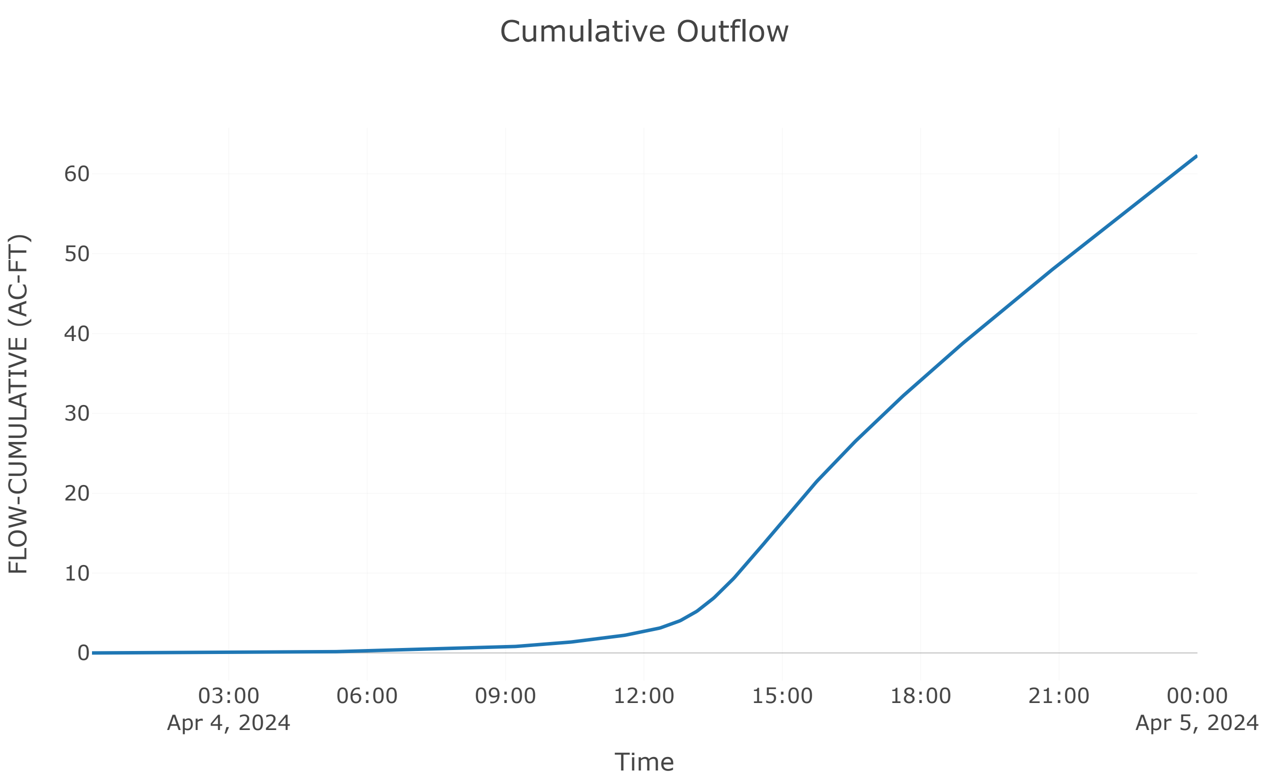
Junction: JCT-02

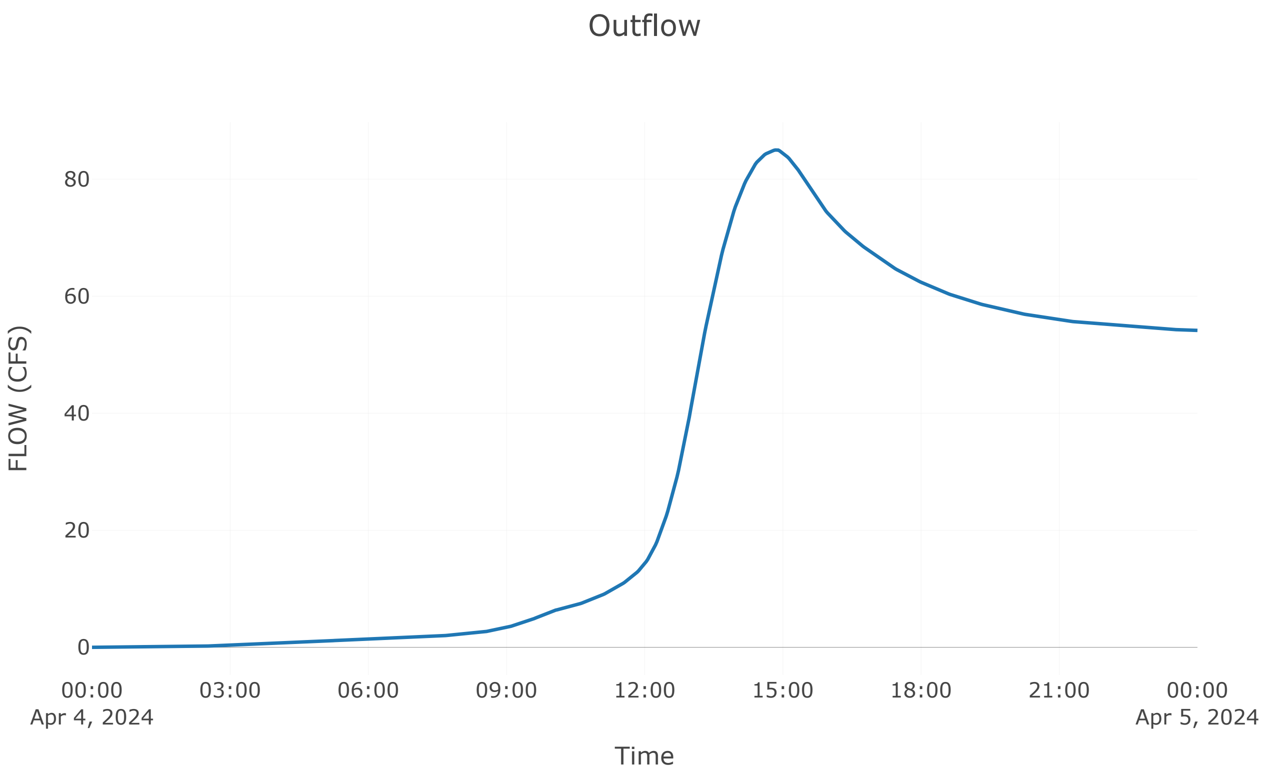
Downstream : JCT - 01

Results: JCT-02

Peak Discharge (CFS)	85
Time of Peak Discharge	04Apr2024, 14:52
Volume (IN)	1.86


Combined Inflow
FLOW-COMBINE (CFS)
0
20
40
60
80
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
10
20
30
40
50
60
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Outflow
FLOW (CFS)
0
20
40
60
80
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

Subbasin: EX-01

Area (MIē) : 0.05
Downstream : JCT - 01

Loss Rate: Scs

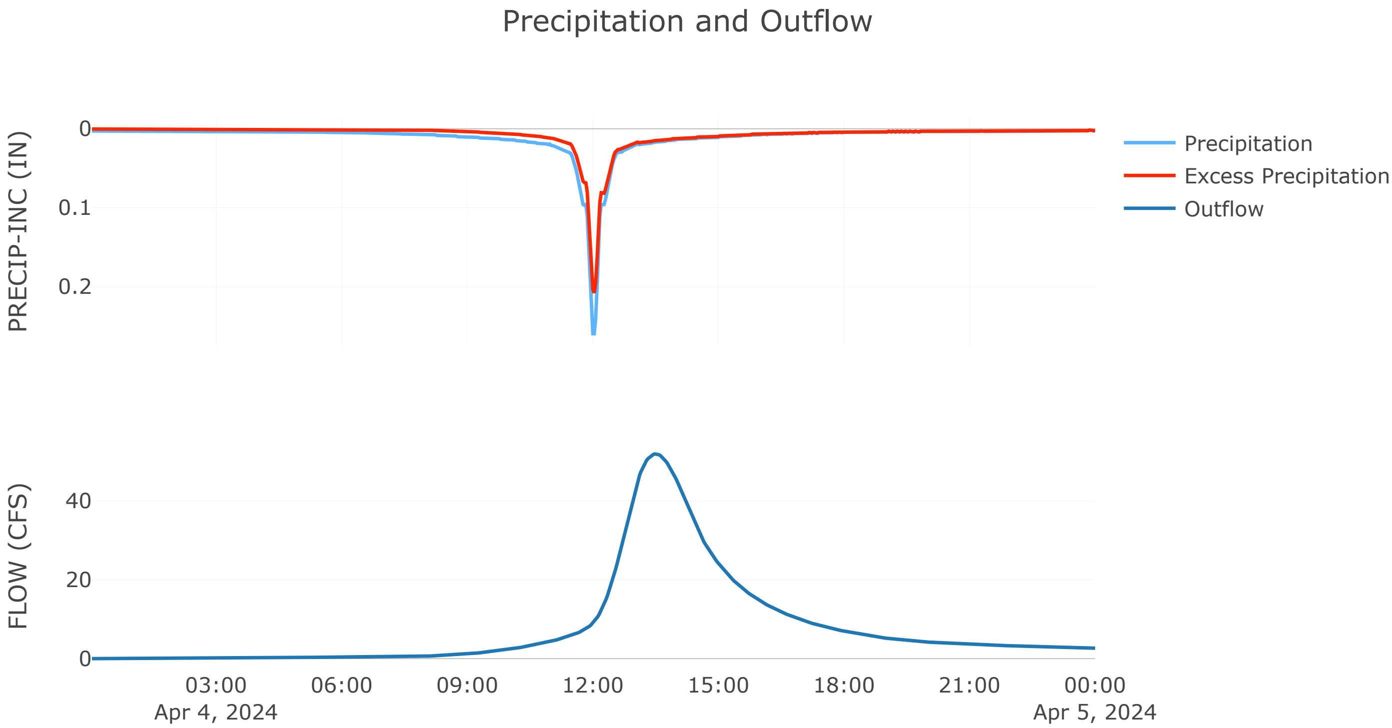
Percent Impervious Area	9.77
Curve Number	75.53

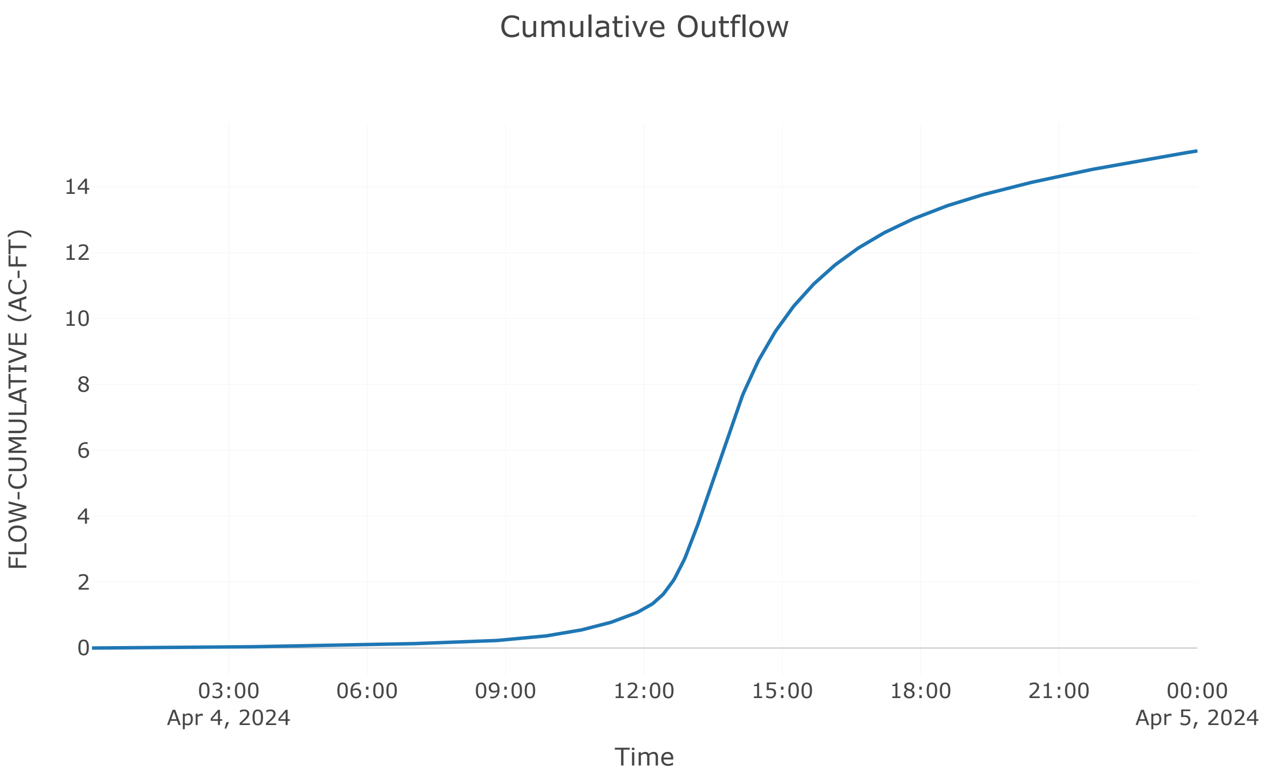
Transform: Scs

Lag	83.18
Unitgraph Type	Standard

Results: EX-01

Peak Discharge (CFS)	51.87
Time of Peak Discharge	04Apr2024, 13:30
Volume (IN)	5.57
Precipitation Volume (AC - FT)	22.61
Loss Volume (AC - FT)	7.15
Excess Volume (AC - FT)	15.45
Direct Runoff Volume (AC - FT)	15.09
Baseflow Volume (AC - FT)	0


Precipitation and Outflow
PRECIP-INC (IN)
0
0.1
0.2
Precipitation
Excess Precipitation
Outflow
FLOW (CFS)
40
20
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024

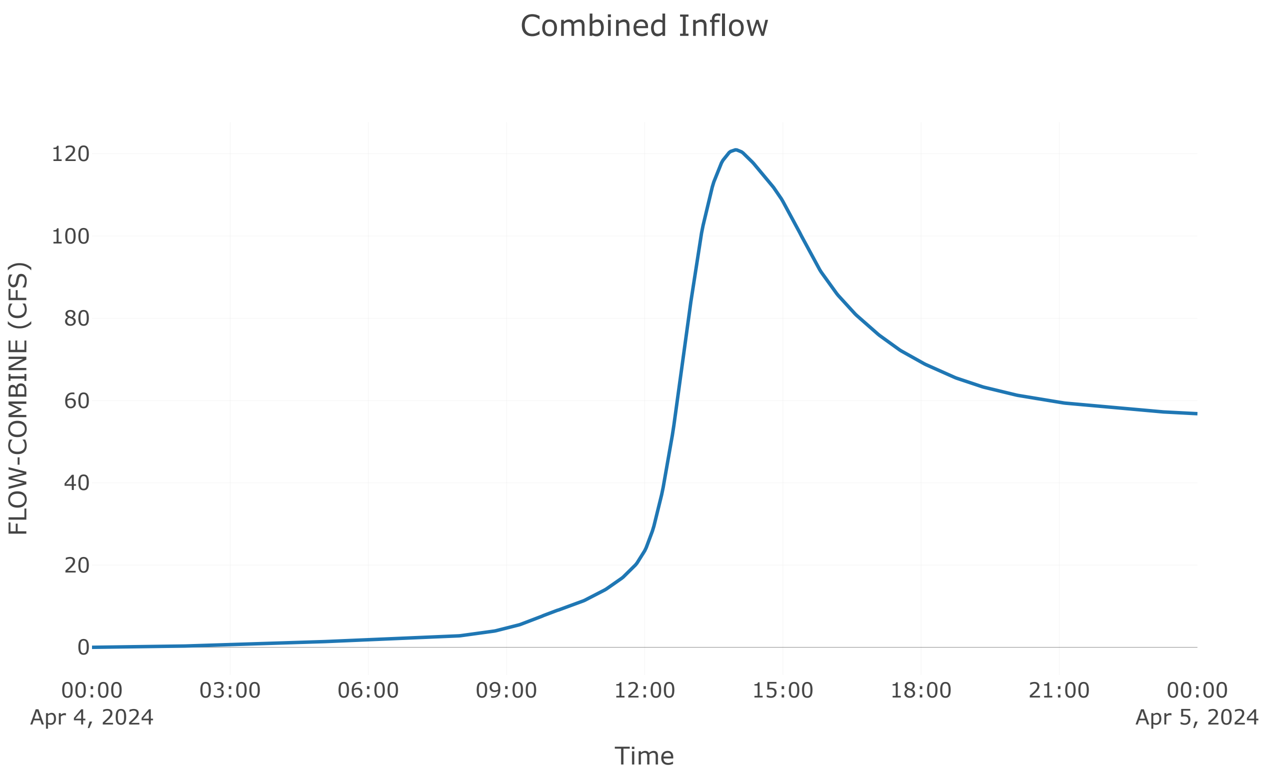

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
14
12
10
8
6
4
2
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

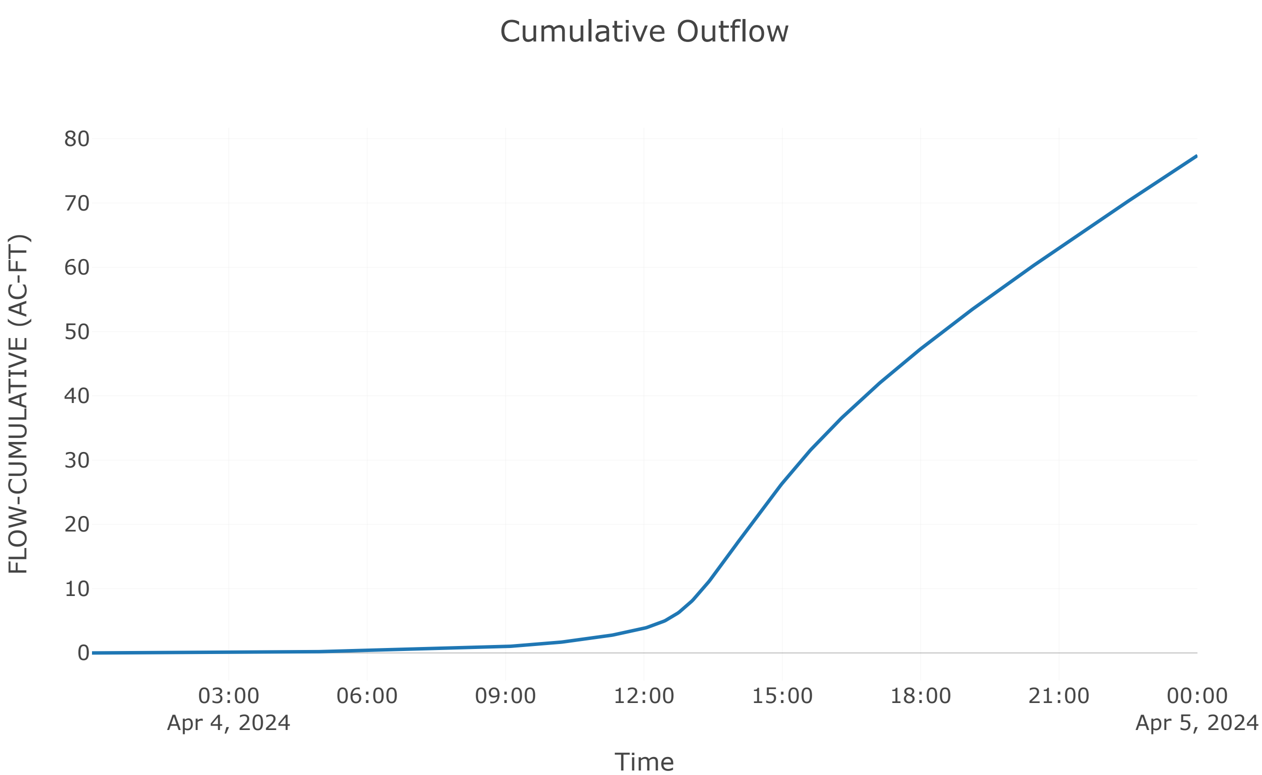
Junction: JCT-01

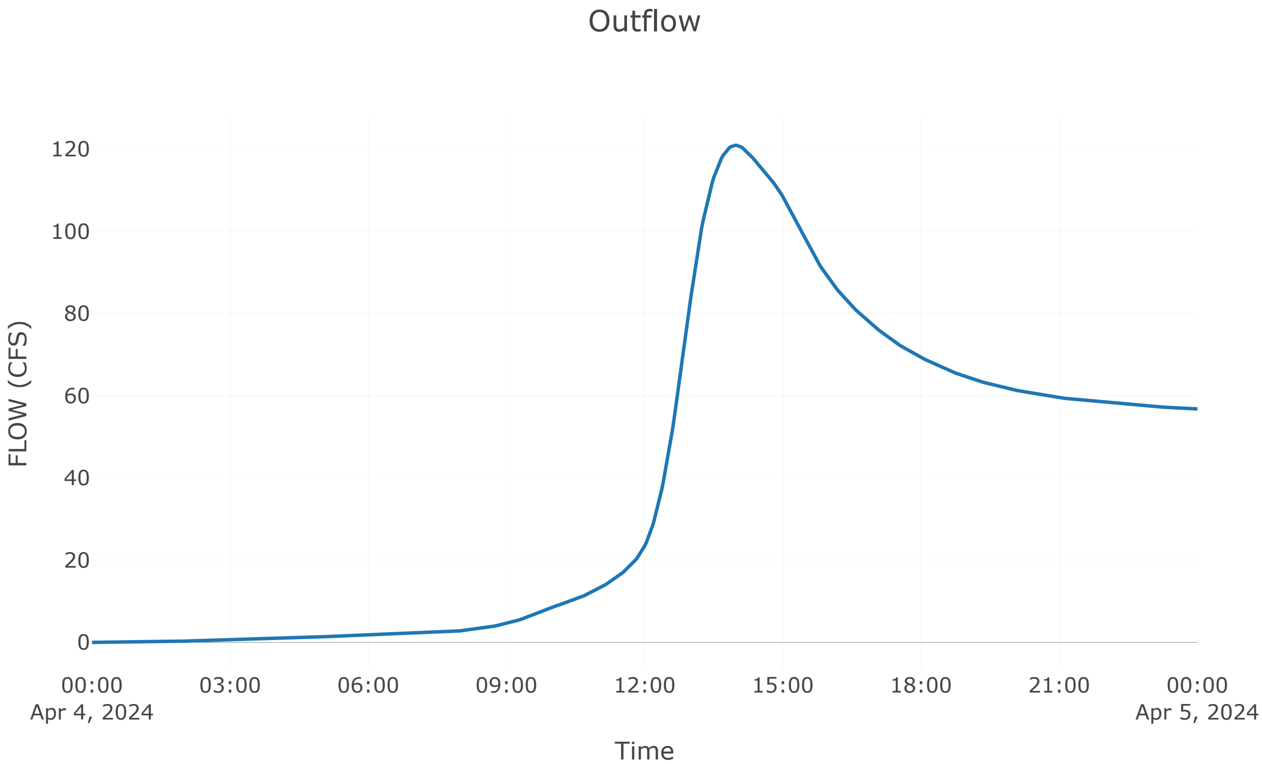
Downstream : JCT - 00

Results: JCT-01

Peak Discharge (CFS)	120.94
Time of Peak Discharge	04Apr2024, 13:58
Volume (IN)	2.13


Combined Inflow
FLOW-COMBINE (CFS)
0
20
40
60
80
100
120
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
0
10
20
30
40
50
60
70
80
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Outflow
FLOW (CFS)
0
20
40
60
80
100
120
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

Subbasin: EX-00

Added subbasin between Grumman Hill road and 64 DBR

Area (MIē) : 0.07
Downstream : JCT - 00

Loss Rate: Scs

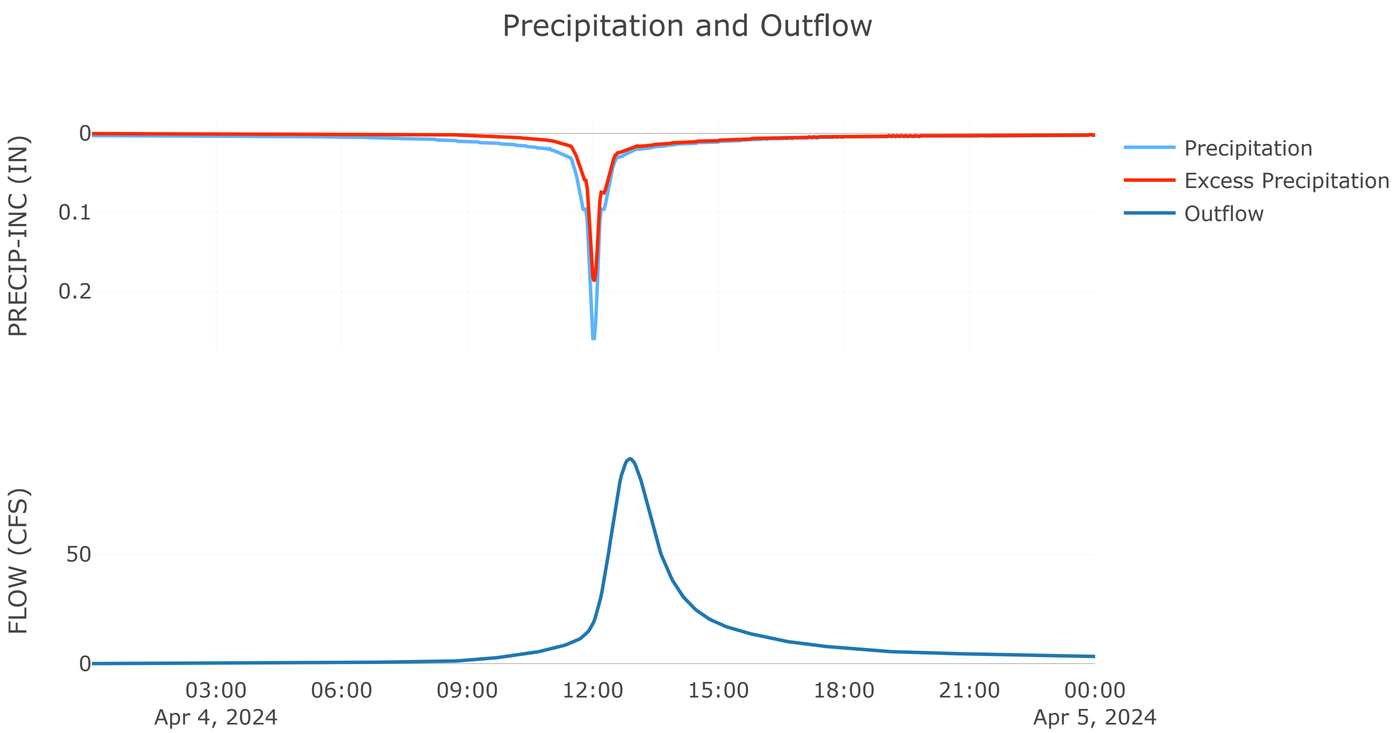
Percent Impervious Area	9.77
Curve Number	69.92

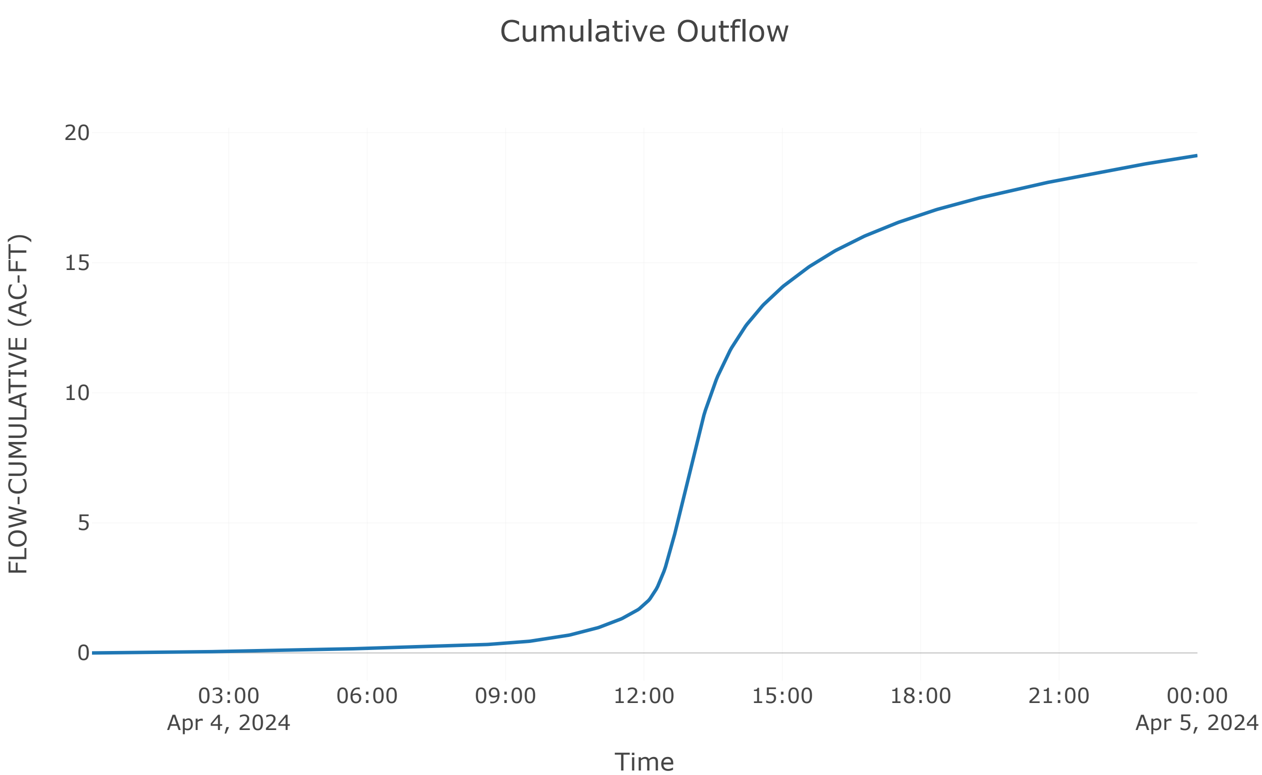
Transform: Scs

Lag	47.43
Unitgraph Type	Standard

Results: EX-00

Peak Discharge (CFS)	93.82
Time of Peak Discharge	04Apr2024, 12:52
Volume (IN)	5.04
Precipitation Volume (AC - FT)	31.69
Loss Volume (AC - FT)	12.31
Excess Volume (AC - FT)	19.39
Direct Runoff Volume (AC - FT)	19.13
Baseflow Volume (AC - FT)	0


Precipitation and Outflow
PRECIP-INC (IN)
0
0.1
0.2
Precipitation
Excess Precipitation
Outflow
FLOW (CFS)
50
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024

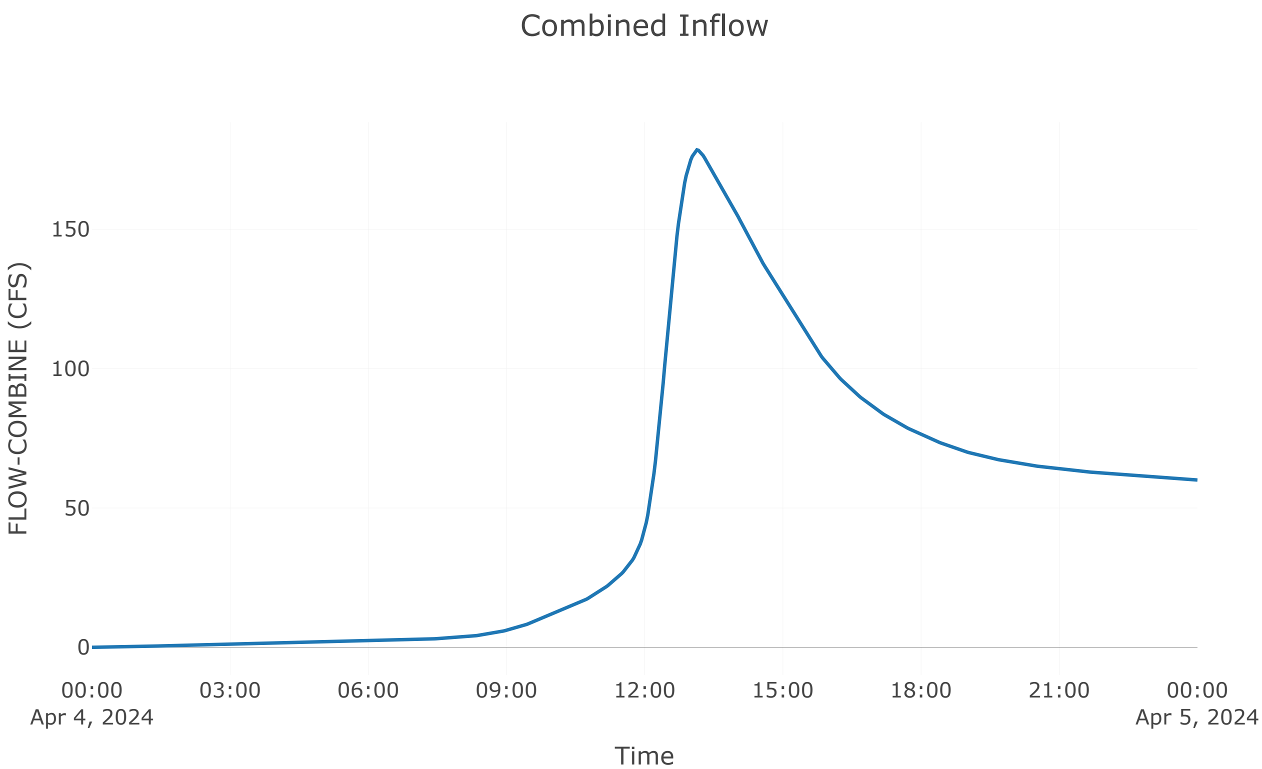

Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
20
15
10
5
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

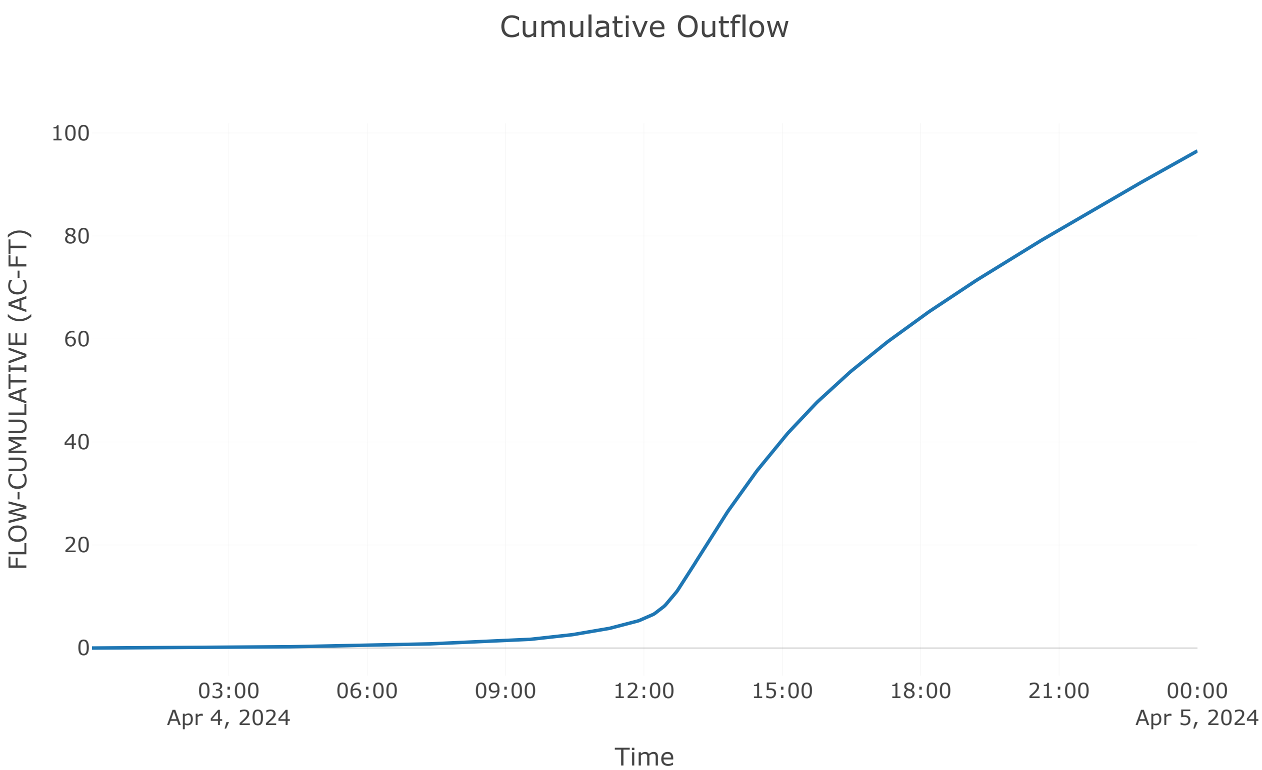
Junction: JCT-00

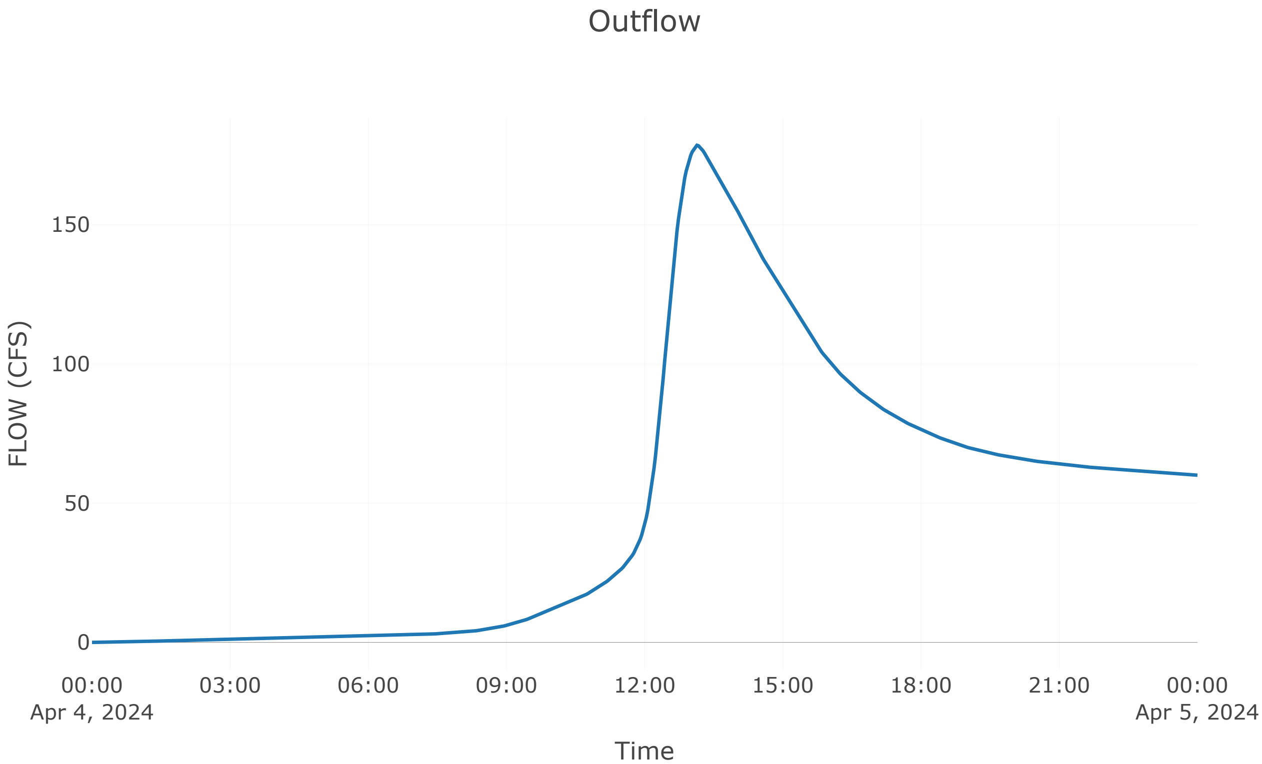
Downstream : SA - 1

Results: JCT-00

Peak Discharge (CFS)	178.54
Time of Peak Discharge	04Apr2024, 13:08
Volume (IN)	2.41


Combined Inflow
FLOW-COMBINE (CFS)
150
100
50
0
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Cumulative Outflow
FLOW-CUMULATIVE (AC-FT)
100
80
60
40
20
0
03:00
Apr 4, 2024
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time


Outflow
FLOW (CFS)
150
100
50
0
00:00
Apr 4, 2024
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
Apr 5, 2024
Time

Reservoir: SA-1

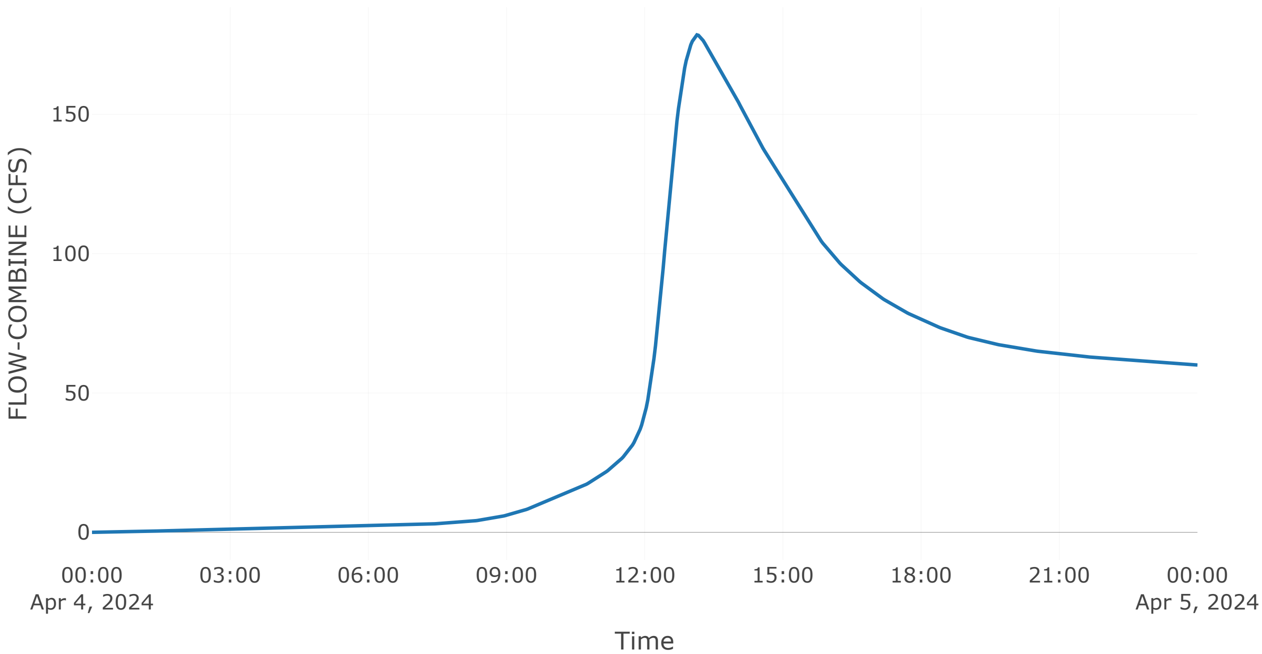
Storage at 64 DBR Headwall

Results: SA-1

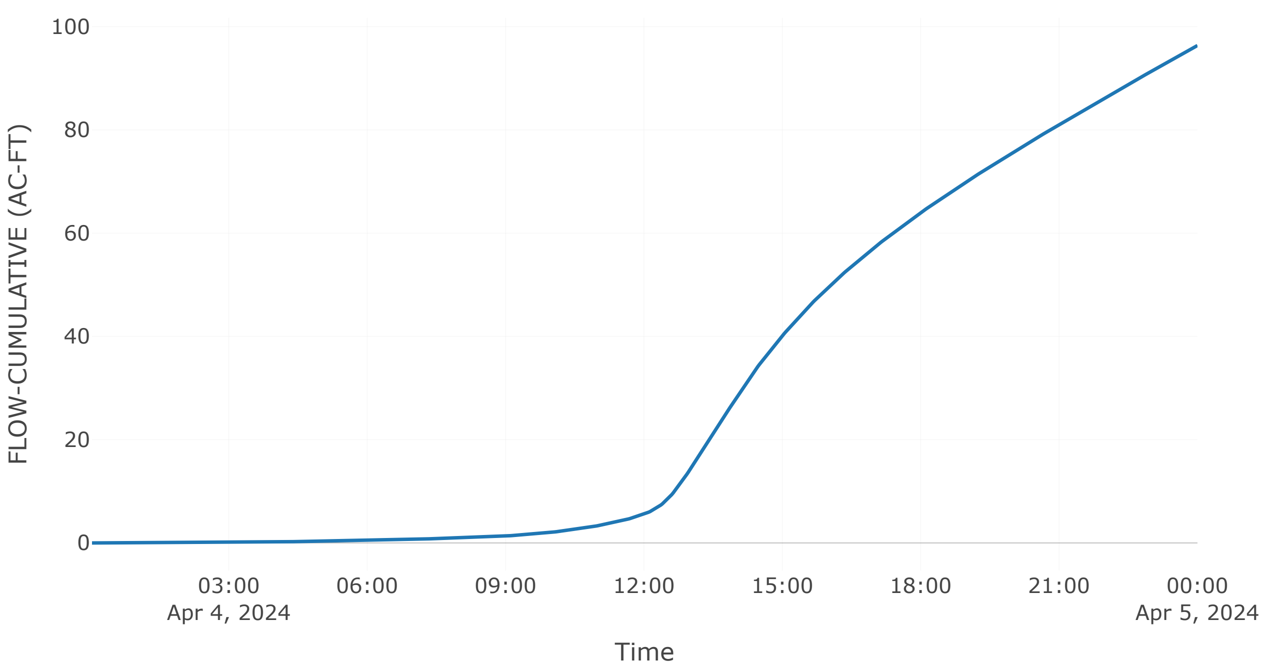
Peak Discharge (CFS)	170.04
Time of Peak Discharge	04Apr2024, 13:30
Volume (IN)	2.41
Peak Inflow (CFS)	178.54
Time of Peak Inflow	04Apr2024, 13:08
Inflow Volume (AC - FT)	96.52
Maximum Storage (AC - FT)	1
Peak Elevation (FT)	139.6
Discharge Volume (AC - FT)	96.36

peak elevation at 64 DBR headwall

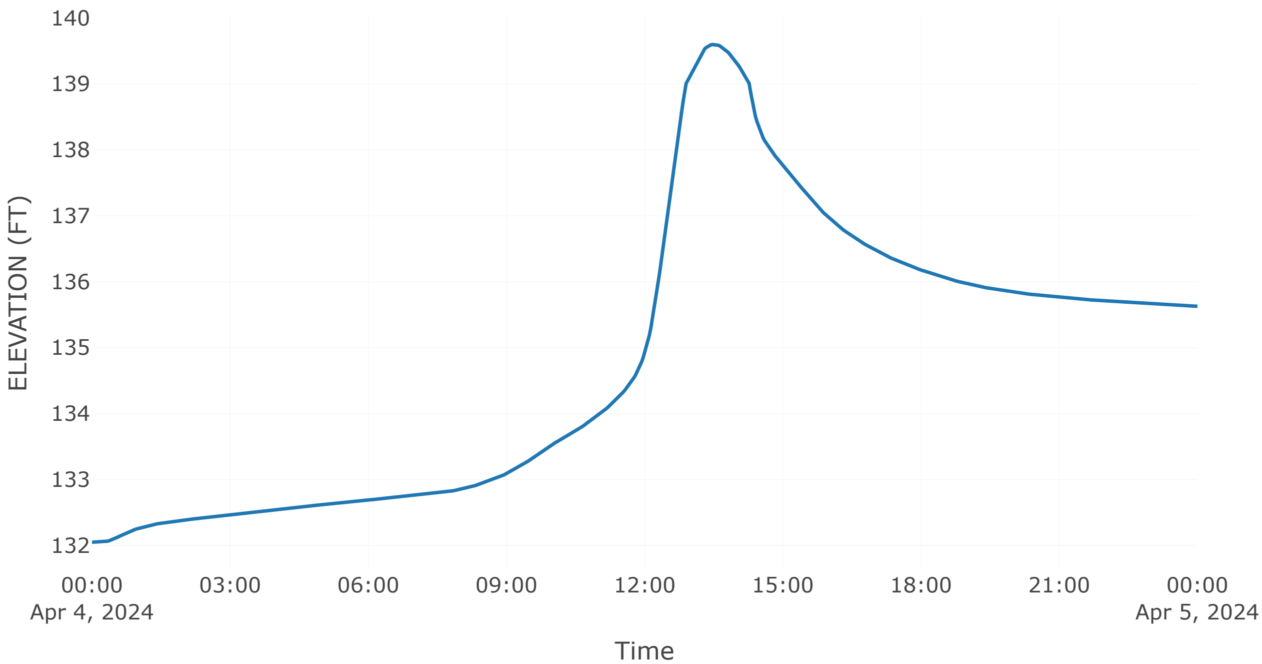
Combined Inflow



Cumulative Outflow



Pool Elevation



Outflow