FINAL PLAN / CONSTRUCTION DRAWINGS

FOR

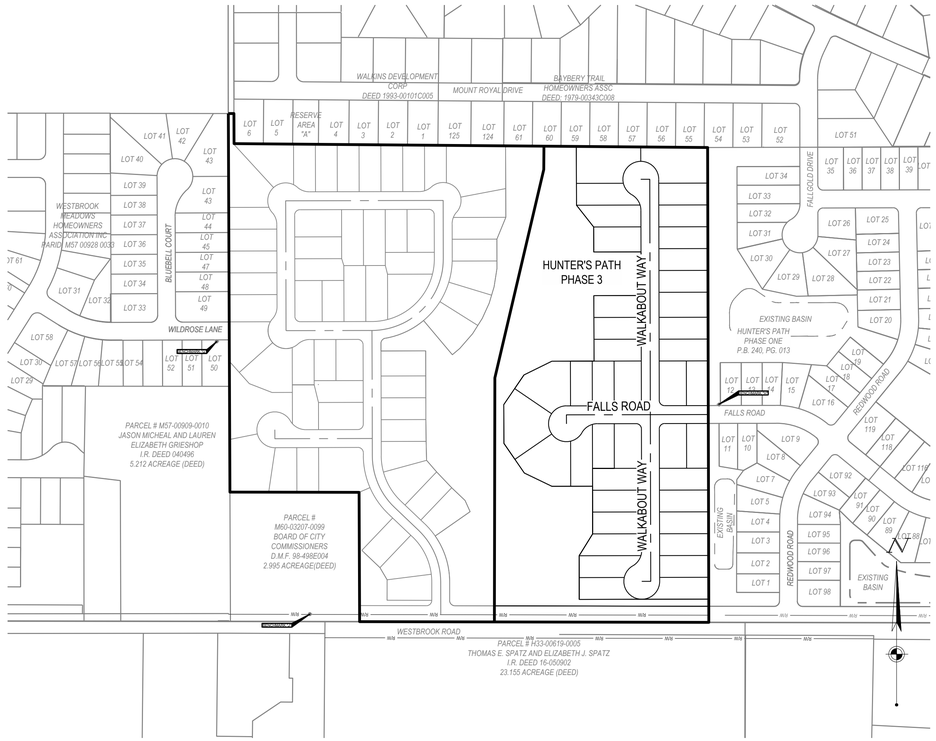
HUNTERS PATH

PHASE 3

WESTBROOK RD

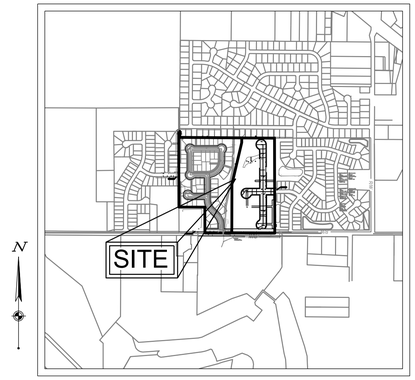
SECTION 33, TOWN 5, RANGE 5E

CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO



AREA MAP

SCALE: 1" = 200'



VICINITY MAP

N.T.S.

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OWNER/DEVELOPER:
LAGOS PROPERTIES, INC.
750 SHRINE RD
SPRINGFIELD, OH 45504

DEVELOPER:
DDC MANAGEMENT
3601 RIGBY ROAD, SUITE 300
MIAMISBURG, OH 45342
PHONE: (937) 610-1500

SURVEY PROVIDED BY:
CESO, INC.
3601 RIGBY ROAD, SUITE 300
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PH: (937) 435-8584
SEAN BROOKS, P.S.

ENGINEER:
CESO, INC.
3601 RIGBY ROAD, SUITE 300
MIAMISBURG, OH 45342
PH: (937) 435-8584
JUSTIN ELAM, P.E.

CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BID AND CONSTRUCTION.

GOVERNING AGENCIES AND UTILITY COMPANIES:

WATER & WASTEWATER SERVICE:
MONTGOMERY COUNTY
ENVIRONMENTAL SERVICES
1850 SPAULDING ROAD
KETTERING, OH 45432
PHONE: (937) 781-2688

GAS SERVICE:
CENTERPOINT ENERGY
1335 E DAYTON YELLOW SPRINGS ROAD
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DAYTON, OH 45459
PHONE: (800) 892-4357

ELECTRIC:
AES OHIO
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PHONE SERVICE:
AT&T
9192 N MAIN STREET
ENGLEWOOD, OH 45415
PHONE: (937) 314-8600

VERIZON
1106 S MAIN STREET
ENGLEWOOD, OH 45322
PHONE:(877) 502-2876

FRONTIER
PHONE: (877) 843-9809

SITE DATA:

ZONING:	RSD-RESIDENTIAL SINGLE UNIT DISTRICT
TOTAL ACREAGE:	37.94 AC
PHASE 3 ACREAGE:	17.09 AC
PHASE 3 LOT COUNT:	40 LOTS

BUILDING SETBACKS:
FRONT: 25 '
SIDE: 10' MINIMUM
REAR: 30 ' MINIMUM

SITE BENCHMARKS:

SITE BM #1
X - CUT ON THE EAST BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF FALLGOLD DRIVE, SOUTH OF THE INTERSECTION OF FALLGOLD DR. & MOUNT ROYAL DR.
ELEVATION = 954.39 (NAVD88)

SITE BM #2
YELLOW BENCHTIE SET IN A TELEPHONE POLE LOCATED ON THE EAST SIDE OF UNION ROAD. BEING THE SECOND POLE NORTH OF THE ENTRANCE TO THE GOLF DRIVING RANGE.
ELEVATION = 949.22 (NAVD88)

SITE BM #3
X-CUT ON THE ARROW BOLT OF A FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF WESTBROOK ROAD, JUST WEST OF THE INTERSECTION OF WESTBROOK RD. & UNION RD.
ELEVATION = 946.68 (NAVD88)

SITE BM #4
X-CUT ON THE ARROW BOLT OF A FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF WESTBROOK ROAD, LOCATED ABOUT 400 FEET WEST OF THE INTERSECTION OF WESTBROOK RD. & UNION RD.
ELEVATION = 948.59 (NAVD88)

SURVEY NOTES:

HORIZONTAL DATUM:
U.S. STATE PLANE, NAD83 OHIO SOUTH (3402) ESTABLISHED FROM USING THE OHIO REAL TIME NETWORK (RTN) PROVIDED BY THE OHIO DEPARTMENT OF TRANSPORTATION. COORDINATES TAKEN TO GROUND AT LATITUDE N39°50'05.61394", LONGITUDE W84°18'38.91330", PROJECT HEIGHT 843.459', GROUND SCALE FACTOR 1.00007356849189.

UTILITY DISCLAIMER:
THE UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND/OR EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES LOCATED HERE ON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES LOCATED ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

DATE OF FIELD SURVEY: FEBRUARY , 2025
DATE OF SURVEY MAP: FEBRUARY 20 , 2025

FLOOD NOTE:

BY INFORMATION PROVIDED BY FEMA FLOOD MAP SERVICE CENTER, THIS PROPERTY WAS FOUND TO BE LOCATED WITHIN FLOOD ZONE X, AN AREA OF MINIMAL FLOOD HAZARD, BY THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 39223C0133E & NO. 39113C0129E. WHICH BOTH BEAR AN EFFECTIVE DATE OF 1-6-2005.

Ohio Utilities Protection Service
Call 811 before you dig

APPROVED: _____
CITY OF CLAYTON DATE

APPROVED: _____
CITY OF DAYTON (SANITARY ONLY) DATE

APPROVED: _____
MONTGOMERY COUNTY ENVIRONMENTAL SERVICES DATE

STATE OF OHIO
JUSTIN ELAM E-76298
REGISTERED PROFESSIONAL ENGINEER

05/05/2025
JUSTIN ELAM, P.E. DATE
OHIO LICENSE NO. E-76298

CESO
WWW.CESOINC.COM
3601 Rigby Rd., Suite 300
Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

THE INFORMATION IN THIS DOCUMENT IS PRELIMINARY OR INCOMPLETE, NOT FOR CONSTRUCTION, RECORDING PURPOSES, OR IMPLEMENTATION.

DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
TITLE SHEET

GENERAL NOTES

DEMOLITION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL. THE DEMOLITION, REMOVAL, AND DISPOSAL IS TO BE APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL FACILITIES SUCH AS: STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE, STRUCTURES, UTILITIES, WELLS, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL AS SPECIFIED BY A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER. IF UNDOCUMENTED FACILITIES ARE FOUND ON SITE, CONTRACTOR SHALL CONTACT THE OWNER AND UTILITY COMPANY PRIOR TO REMOVAL. ALL FACILITIES SHALL BE PLUGGED, ABANDONED, OR REMOVED PER STATE AND LOCAL REQUIREMENTS.
2. FEDERAL, STATE AND LOCAL CODE REQUIREMENTS SHALL GOVERN THE DISPOSAL OF DEBRIS INCLUDING ANY POTENTIALLY HAZARDOUS AND TOXIC MATERIALS. ALL MATERIALS AND STRUCTURES DESIGNATED AS "TO BE REMOVED" SHALL BE DISPOSED OF OFF SITE AND AT THE COST OF THE CONTRACTOR.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING JOB SITE SAFETY PER OSHA REQUIREMENTS AT ALL TIMES.
4. PRIOR TO DEMOLITION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALL THE STATE 811 AND NOTIFY ALL UTILITY COMPANIES TO SCHEDULE UTILITY SERVICE REMOVAL AND/OR ABANDONMENT. ALL UTILITIES SHALL BE REMOVED/RELOCATED PER THE SPECIFICATIONS OF THE UTILITY COMPANIES. THE CONTRACTOR IS RESPONSIBLE TO PAY ALL FEES AND CHARGES ASSOCIATED WITH THIS WORK
5. CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICES TO INHABITED BUILDINGS ON SITE AND ADJACENT PROPERTIES AT ALL TIMES. INTERRUPTIONS SHALL BE APPROVED BY THE OWNERS OF THE BUILDINGS/PROPERTIES.
6. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES. IF THE LOCATION OR ELEVATION OF THE EXISTING UTILITIES ARE FOUND TO BE DIFFERENT FROM THE PLANS, CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
7. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES TO REMAIN INSIDE AND OUTSIDE CONSTRUCTION LIMITS. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGES AND NOTIFY THE CITY/COUNTY PRIOR TO CONSTRUCTION START. ANY EXISTING SITE FEATURE TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, CURB, ETC. SHALL BE REPAIRED TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THE EXISTING CONDITIONS. PRIOR TO BEING DAMAGED, THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
8. CONTINUOUS ACCESS SHALL BE MAINTAINED TO THE SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.
9. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND LOCAL REGULATIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR PLACING AND MAINTAINING CONSTRUCTION FENCE, SIGNS, ETC. TO WARN AND KEEP UNAUTHORIZED PEOPLE OFF SITE FOR THE DURATION OF THE PROJECT.
11. PRIOR TO DEMOLITION, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED PER THE GOVERNING AGENCIES GUIDELINES AND STANDARDS. DUST CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. SAWCUT LINE PROVIDED IS FOR REFERENCE ONLY. CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXTENT OF THE SAWCUT THAT WILL BE REQUIRED AS WELL AS PAVEMENT REPAIRS TO INSTALL UTILITY TRENCHING. IF ANY DAMAGE OCCURS ON ANY OF THE SURROUNDING PAVEMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THAT WHICH IS NECESSARY TO COMPLETE THE INTENT OF THE PROPOSED IMPROVEMENTS. SAWCUT EXISTING PAVEMENT TO FULL DEPTH, USING CARE TO CUT NEAT, STRAIGHT LINES. CUT AT EXISTING JOINTS WHERE POSSIBLE.
13. THE CONTRACTOR SHALL MAINTAIN A WELL-DRAINED SITE, FREE OF STANDING WATER DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY DRAINAGE MEASURES DURING CONSTRUCTION.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO STUDY THE PLANS AND VISIT THE SITE TO DETERMINE THE ITEMS THAT MUST BE REMOVED TO COMPLY WITH THE SITE DEVELOPMENT PLANS. NO EXTRA FEE WILL BE PAID FOR THE REMOVAL OF ANY ITEM NOT LISTED THAT IS VISIBLE UPON A SITE VISIT. THE DEMOLITION PLAN IS INTENDED TO PRESENT THE SCOPE OF THE DEMOLITION, AND DOES NOT GUARANTEE THAT ALL ITEMS ARE ADDRESSED.
15. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR ALL SITE DEVELOPMENT WORK, PAY ALL FEES FOR PERMITS AND CHECK ALL GOVERNING AUTHORITIES' SPECIFICATIONS FOR BUT NOT LIMITED TO, GUTTERS, SIDEWALKS, POLES, AND OTHER STRUCTURES, INCLUDING THE REMOVAL OR RELOCATION OF EXISTING UTILITIES OR OTHER PHYSICAL OBJECTS SHOWN ON PLANS OR NOTED OTHERWISE.
16. THE CONTRACTOR SHALL CREATE AND IMPLEMENT AN EROSION AND SEDIMENTATION CONTROL PLAN FOR ALL SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROJECT. THE PLAN MUST CONFORM TO THE EROSION AND SEDIMENTATION REQUIREMENTS OF THE CONSTRUCTION GENERAL PERMIT OR LOCAL STANDARDS AND CODES, WHICHEVER IS MORE STRINGENT.
17. ALL COSTS FOR INSPECTIONS AND/OR TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.

SITE NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. ALL MATERIAL NOTED ON DRAWINGS WILL BE SUPPLIED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
3. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR ALL SITE DEVELOPMENT WORK, PAY ALL FEES FOR PERMITS AND CHECK ALL GOVERNING AUTHORITIES' SPECIFICATIONS FOR BUT NOT LIMITED TO, GUTTERS, SIDEWALKS, POLES, AND OTHER STRUCTURES, INCLUDING THE REMOVAL OR RELOCATION OF EXISTING UTILITIES OR OTHER PHYSICAL OBJECTS SHOWN ON PLANS OR NOTED OTHERWISE.
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5. ALL COSTS FOR INSPECTIONS AND/OR TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.
6. ACCESSIBILITY STANDARDS SHALL BE IN ACCORDANCE WITH FEDERAL AND LOCAL REQUIREMENTS FOR HANDICAP ACCESSIBILITY, INCLUDING BUT NOT LIMITED TO THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES. ADA PARKING STALLS SHALL MEET ADA GRADE GUIDELINES. CONTRACTOR SHALL FIELD VERIFY EXISTING GRADES AT ACCESS POINTS, ACCESSIBLE ROUTES, AND EXISTING PARKING TO REMAIN TO DETERMINE COMPLIANCE WITH STANDARDS.
7. ALL DISTURBED AREAS ARE TO RECEIVE 6" OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
8. PROVIDE SIGNAGE AND STRIPING AS SHOWN. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL COMPLY WITH THE OHIO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (O.M.U.T.C.D.).
9. REFER TO GEOTECHNICAL ENGINEERING REPORT FOR SITE WORK PREPARATION/RECOMMENDATIONS AND PAVEMENT SECTIONS.
10. REFER TO ORIGINAL SURVEY PROVIDED BY CESO.
11. ALL LIGHT POLES TO BE LOCATED 3' FROM THE BACK OF CURB, AS MEASURED FROM THE FACE OF POLE FOUNDATION, UNLESS OTHERWISE DENOTED ON PLANS.

GRADING NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. THE TOPOGRAPHIC SURVEY WAS PERFORMED BY A REGISTERED LAND SURVEYOR. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
3. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
4. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE EPA OR APPLICABLE STATE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
5. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS ARE SHOWN AT 1 FOOT INTERVALS.
6. ALL SPOT ELEVATIONS REFER TO FINISHED GRADE ELEVATIONS UNLESS OTHERWISE NOTED.
7. MAINTAIN EXISTING DRAINAGE PATTERN THROUGHOUT THE SITE, EXCEPT WITHIN THE LIMITS OF DISTURBANCE (LOD).
8. EXISTING DRAINAGE STRUCTURES SHALL BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES ARE TO BE CLEANED TO REMOVE ALL SILT AND DEBRIS AFTER CONSTRUCTION IS COMPLETE.
9. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO A CONDITION EQUAL TO OR BETTER THAN IT'S CONDITION PRIOR TO DAMAGE.
10. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDING AND WITHIN PAVED AREAS.
11. ALL TOPSOIL MUST BE REMOVED BEFORE FILL MATERIAL IS PLACED.
12. ALL WET, OR OTHERWISE UNSUITABLE SOILS MUST BE STABILIZED. THIS MAY BE ACCOMPLISHED BY DRYING, REMOVAL & REPLACEMENT, REMOVAL & DRYING & RECOMPACTION, OR SOIL TREATMENT (LIME/CEMENT) UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER.
13. ALL UNSURFACED AREAS, DISTURBED BY GRADING, OPERATION SHALL RECEIVE 6" OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER AND SEED WITH LOW MAINTENANCE GRASS SEED MIX. CONTRACTOR SHALL SEED DISTURBED AREAS IN ACCORDANCE WITH SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED. ALL EXPOSED SURFACE AREAS SHALL BE STABILIZED PER THE SWPPP AND LANDSCAPE REQUIREMENTS AS PART OF THIS PLAN SET.
14. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATER TIGHT.
15. ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED MORTAR INVERT FROM INVERT IN TO INVERT OUT.
16. STORM PIPE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:

MATERIAL	TYPE	PIPE SPEC	JOINT SPEC	INSTALLATION	ACCEPTABLE AREAS OF USE
REINFORCED CONCRETE PIPE (RCP)	CLASS IV	ASTM C-76	ASTM C443	ASTM C1479	WITHIN R/W, COVER VARIES WITH PIPE CLASS
HIGH DENSITY POLYETHYLENE (HDPE)	CORRUGATED POLYETHYLENE SMOOTH LINED PIPE (WATERTIGHT)	AASHTO M294 (TYPE S)	ASTM F477	ASTM D2321	OUTSIDE OF R/W, 12" TO 60" DIA.
POLYVINYL CHLORIDE (PVC)	SDR 35	ASTM D3034	ASTM D3212	ASTM D2321	AS NOTED, 4" TO 10"

17. ALL STORM SEWER STRUCTURE GRATES AND FRAMES SHALL BE HEAVY DUTY.
18. ALL STORM DRAINAGE SHALL BE PERFORMED IN ACCORDANCE WITH ALL CITY OF CLAYTON AND ODOT STANDARDS.
19. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
20. THE STORM SEWER GRADE WILL BE SUCH THAT A MINIMUM COVER IS MAINTAINED TO WITHSTAND AASHTO HS-25 LOADING ON THE PIPE. PROVIDE MINIMUM 2.0 FEET OF COVER FOR ALL STORM SEWERS UNLESS OTHERWISE NOTED. REFER TO CITY OF CLAYTON FOR ADDITIONAL STORM DRAINAGE STANDARDS.

SANITARY AND WATER NOTES

1. ALL SANITARY SEWER CONSTRUCTION AND MATERIAL SHALL BE IN ACCORDANCE WITH MONTGOMERY COUNTY ENVIRONMENTAL SERVICES SPECIFICATION, THE CITY OF DAYTON CONSTRUCTION AND MATERIAL SPECIFICATIONS (LAST EDITION) AND THE CITY OF DAYTON WATER ENGINEERING DESIGN STANDARDS FOR WATER, SANITARY SEWER, AND STORM SEWER FACILITIES. THE MOST RESTRICTIVE SHALL APPLY.
2. NO ADDITIONS, DELETIONS OR REVISIONS TO THE SANITARY SEWER AND/OR WATER FACILITIES ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY THE CITY OF DAYTON DEPARTMENT OF WATER.
3. NO CONSTRUCTION SHALL COMMENCE UNTIL MONTGOMERY COUNTY ENVIRONMENTAL SERVICES PERMITS HAVE BEEN ISSUED, AND TWO (2) WORKING DAYS NOTICE HAS BEEN GIVEN TO THE INSPECTION DIVISION (781-2650).
4. ALL UTILITY TRENCHES WITHIN THE EXISTING OR PROPOSED RIGHT-OF-WAY OR UNDER PAVED AREAS SHALL BE BACKFILLED WITH COMPACTED GRANULAR MATERIAL CONFORMING TO ODOT 703.11 TYPE 2 IN ACCORDANCE WITH THE MONTGOMERY COUNTY ENVIRONMENTAL SERVICES SPECIFICATIONS.
5. NO SANITARY SEWER AND/OR WATER MAIN LINE PERMITS SHALL BE ISSUED UNTIL PERMITS TO WORK IN THE PUBLIC ROAD RIGHT OF WAY (STREET CUT PERMITS) OR THE STATE OF OHIO HIGHWAY PERMIT HAS BEEN OBTAINED (AS APPLICABLE).
6. ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ACCORDING TO THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL NOTIFY THE MONTGOMERY COUNTY ENVIRONMENTAL SERVICES AT 1-800-362-2764 AND ALL OTHER UTILITY COMPANIES 48 HOURS PRIOR TO CONSTRUCTION TO OBTAIN FIELD LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES (811).
7. NO SERVICE CONNECTIONS SHALL BE MADE TO THE WATER MAIN OR SANITARY SEWER UNTIL THE MAIN LINE HAS BEEN INSPECTED, TESTED, DISINFECTED AND RELEASED FOR TAPS AND ON-PREMISE.
8. ROOF DRAINS, FOUNDATION DRAINS OR OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
9. SANITARY MANHOLES SHALL BE PRE-CAST CONFORMING TO ASTM C-478, OR MONOLITHIC CONSTRUCTED OF CLASS "A" 4200 PSI CONCRETE. MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ASTM C-1244. JOINTS BETWEEN PRE-CAST SANITARY MANHOLE SECTIONS SHALL CONFORM TO ASTM C-443. CHIMNEY SEALS SHALL BE PROVIDED BETWEEN THE CASTING AND CONE SECTION. ECCENTRIC CONES SHALL BE USED.
10. SANITARY MANHOLE BOTTOMS TO BE FULLY CHANNELED.
11. SANITARY SEWER PIPE AND FITTINGS SHALL BE PVC OR EXTRA STRENGTH VITRIFIED CLAY. PVC PIPE AND FITTINGS SHALL MEET OR EXCEED ALL THE REQUIREMENTS OF ASTM D-3034, SDR26 AND HAVE A MINIMUM PIPE STIFFNESS OF 115 PSI. EXTRA STRENGTH VITRIFIED CLAY PIPE AND FITTINGS SHALL MEET OR EXCEED ALL THE REQUIREMENTS OF ASTM C-700. THE CONTRACTOR MAY HAVE HIS CHOICE OF THESE MATERIALS (PRIOR TO ISSUANCE OF MAINLINE PERMITS) UNLESS OTHERWISE SPECIFIED IN THE PLANS AND SPECIFICATIONS. PVC PIPE SHALL MEET THE REQUIREMENTS FOR DEFLECTION TESTING PER MCES STANDARD SPECIFICATIONS.
12. SANITARY SEWER PIPE JOINTS SHALL CONFORM AS FOLLOWS: PVC PIPE JOINTS SHALL CONFORM TO ASTM D-3212 (ELASTOMERICALLY GASKETED). CLAY PIPE JOINTS SHALL CONFORM TO ASTM C - 425, O-RING GASKET .
13. THE CONTRACTOR SHALL NOT MAKE ANY PHYSICAL CONNECTION TO THE EXISTING SANITARY SEWER UNTIL THE REMAINING SEWER, EXCLUDING THE FIRST SPAN HAS BEEN INSPECTED, TESTED AND RELEASED.
14. THE INFILTRATION/EXFILTRATION TEST FOR THE SANITARY SEWER SHALL NOT EXCEED 50 GAL/IN.-DIA./MI./DAY.
15. THE WATER MAIN INSTALLATION WILL BE INSPECTED BY MONTGOMERY COUNTY ENVIRONMENTAL SERVICES, AREAS NORTH OF US-35 MAY BE INSPECTED BY THE CITY OF DAYTON, IF REQUIRED.
16. WATER MAINS, BENDS AND FITTING SHALL BE DUCTILE CAST IRON PIPE AND CONFORM TO ANSI A - 21.51 (AWWA C - 151), CLASS 51.
17. WATER MAINS SHALL HAVE 4'-6" MINIMUM COVER.
18. ONLY MONTGOMERY COUNTY ENVIRONMENTAL SERVICES PERSONNEL SHALL OPERATE MAIN LINE WATER VALVES.
19. FIRE HYDRANTS (CLOSEST POINT) SHALL BE LOCATED 2' FROM AND WITHIN 5' OF THE CURB OR EDGE OF PAVEMENT AND 4" STORZ OPENING TO FACE THE STREET.
20. WATER LINES CROSSING ANY AND ALL SEWERS SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 18" BETWEEN THE OUTSIDES OF THE WATER MAIN PIPE AND THE SEWER PIPE. ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING SUCH THAT BOTH JOINTS WILL BE EQUIDISTANT AND AS FAR FROM THE SEWER AS POSSIBLE. IF WATER CROSSES BELOW SANITARY SEWERS, THE SEWER MUST BE WATER MAIN MATERIAL FOR THAT SPAN.
21. ALL GATE VALVES ARE TO BE LOCATED AT TEES OR CROSSES WITH A ONE FOOT, (3') MAXIMUM NIPPLE BETWEEN TEE OR CROSS AND VALVE. ALL PLUGS ARE TO BE CONNECTED TO VALVES EXCEPT WHERE SHOWN ON PLANS.
22. ANY CONSTRUCTION OF, OR CONNECTION TO PRE-STRESSED CONCRETE WATER MAINS WILL REQUIRE A MEETING WITH MONTGOMERY COUNTY ENVIRONMENTAL SERVICES BEFORE ORDERING THE PIPE FOR THE PROJECT.
23. ALL FIRE HYDRANTS AND/OR VALVES NOTED TO BE RELOCATED SHALL BE INSPECTED PRIOR TO BEING PLACED BACK INTO SERVICE. ONLY FIRE HYDRANTS MEETING THE CURRENT SPECIFICATIONS WILL BE PLACED BACK INTO SERVICE. ALL VALVES THAT ARE NOT RESTRAINED OR ANCHORED SHALL BE REPLACED.
24. ALL WATER SERVICES AND SANITARY SERVICES NOTED TO BE ABANDONED SHALL BE ABANDONED AT THE MAIN.
25. ALL SERVICE TAPS TO THE EXISTING OR PROPOSED WATER MAINS WILL BE MADE BY THE CITY OF DAYTON, AT THE CONTRACTOR'S EXPENSE. THIS WORK WILL INCLUDE MAKING THE TAP AND PROVIDING THE CORPORATION STOPS, SADDLES, TAPPING SLEEVES AND VALVES. NO TAPS OR SERVICES ON MONDAY OR FRIDAY. PLEASE REFER TO STANDARDS FOR TAPS, SERVICES, METERS AND BACKFLOW PREVENTION WHICH CAN BE FOUND ONLINE AT: www.daytonohio.gov/DocumentCenter/View/1639/Taps-Services-Meters-and-Backflow-Prevention?bidId=
26. ALL OTHER WORK RELATED TO WATER SERVICES, INCLUDING EXCAVATION, BACKFILL, AND RESTORATION OVER THE TAPPED MAIN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THIS INCLUDES ANY NECESSARY VALVE BOXES, METER PITS, ETC. THE CONTRACTOR SHALL PROVIDE SHORING AS REQUIRED BY CITY OF DAYTON WATER DISTRIBUTION TO ENTER THE HOLE TO MAKE THE TAP.

HORIZONTAL SEPARATION FOR WATER LINES NOTES

1. THE WATER MAIN SHALL BE SEPARATED BY AT LEAST 10' (BARREL TO BARREL) FROM SANITARY SEWER AND STORM SEWER.
2. THE WATER SERVICE LINE SHALL BE SEPARATED BY AT LEAST 10' (BARREL TO BARREL) FROM THE SANITARY SEWER AND STORM SEWER.
3. THE WATER SERVICE LINE SHALL BE SEPARATED BY AT LEAST 10' (BARREL TO BARREL) FROM THE SANITARY SERVICE LINE.

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DDC MANAGEMENT, LLC.

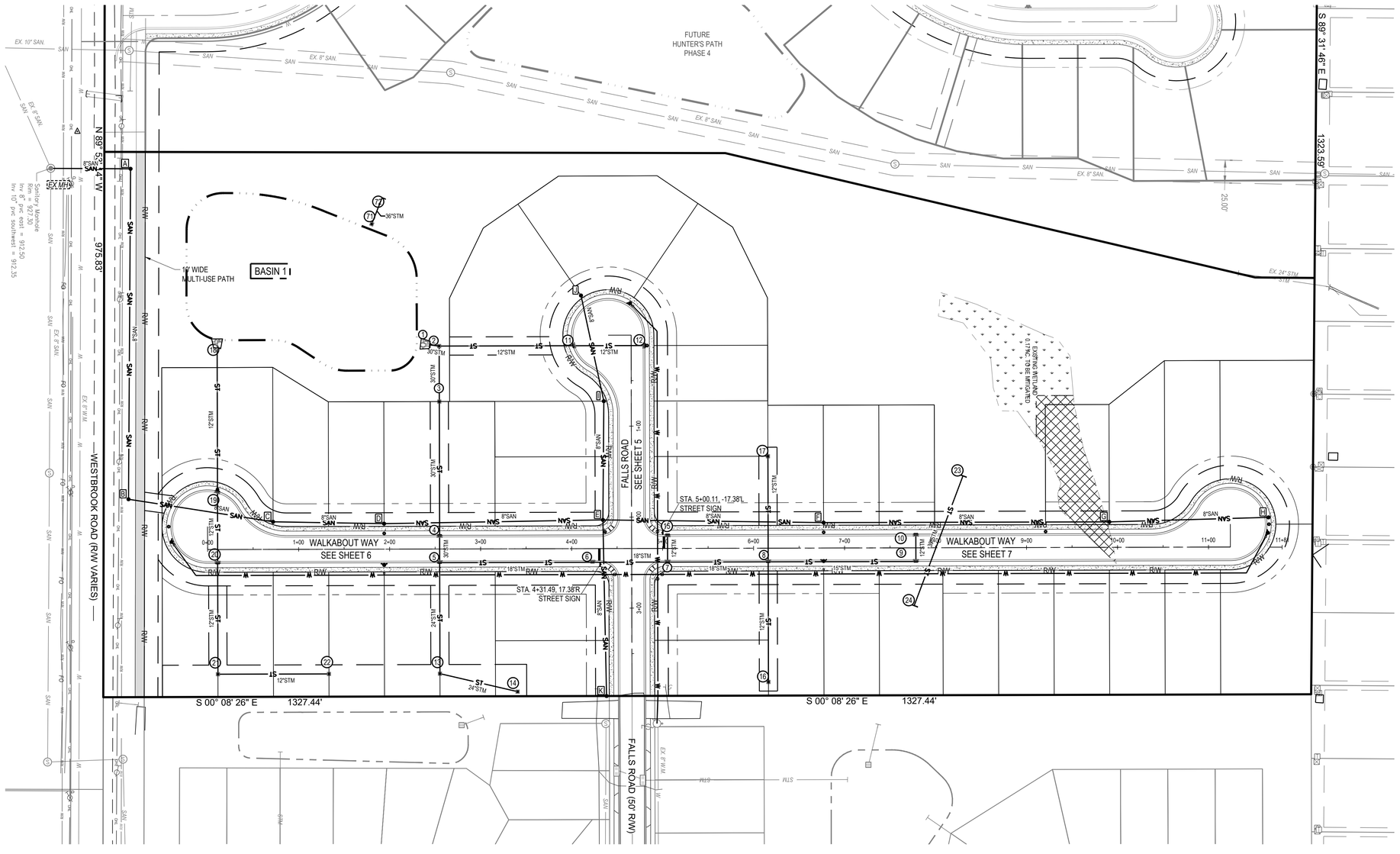
HUNTERS PATH PHASE 3
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
GENERAL NOTES



LEGEND

- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING STREAM (TO REMAIN)
- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING STORM STRUCTURES
- EXISTING SANITARY STRUCTURE
- EXISTING WATER STRUCTURES
- EXISTING WETLAND (TO REMAIN)
- EXISTING WETLAND (TO BE MITIGATED)
- PROPOSED RIGHT-OF-WAY
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED BASIN
- PROPOSED CENTERLINE
- PROPOSED CURB & GUTTER
- SUBJECT BOUNDARY
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURES
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT/VALVE

N

60 0 60 120

GRAPHIC SCALE (IN FEET)
1 in. = 60 ft.

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HUNTERS PATH PHASE 3

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CLAYTON, OHIO

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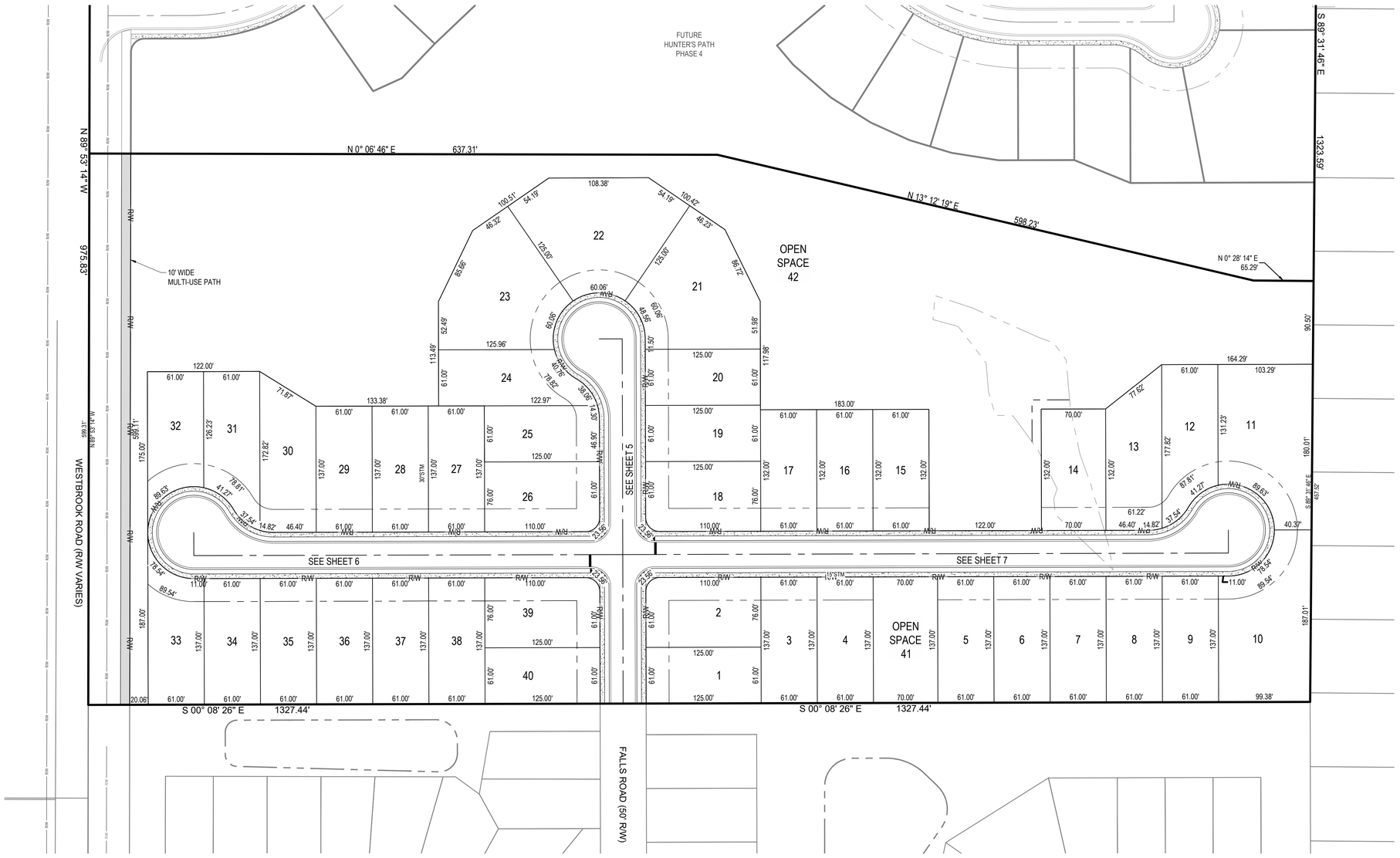
Drawing Title:
OVERALL PLAN

3

C:\DC\ACCDocs\CESO\CAP5 Hunters Path Extension\Project Files_CESO\03-CIVIL\3-PHASE 3\PLAN\B_765930_OVERALL PLAN.dwg - 5/5/2025 - Steven Shelton



LEGEND

- SUBJECT BOUNDARY
- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- PROPOSED RIGHT-OF-WAY
- EXISTING STREAM (TO REMAIN)
- EXISTING WETLAND (TO REMAIN)
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED BASIN
- PROPOSED CENTERLINE
- PROPOSED CURB & GUTTER

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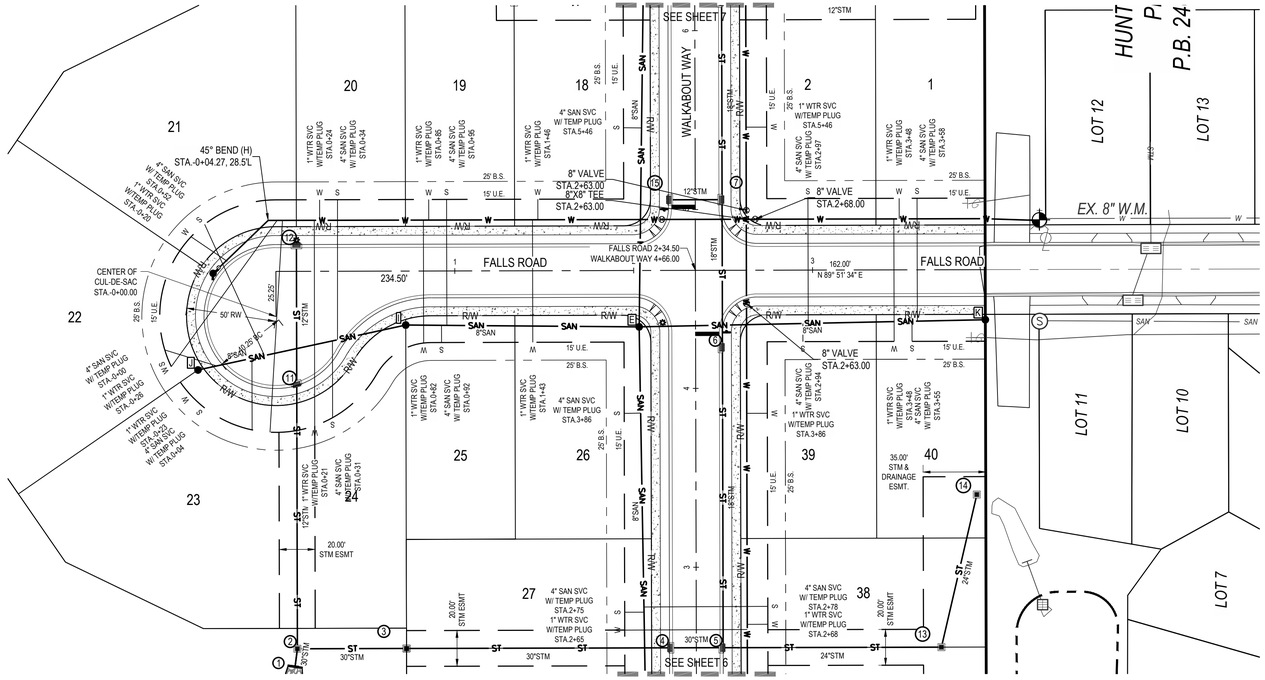
Drawing Title:
OVERALL PLAN

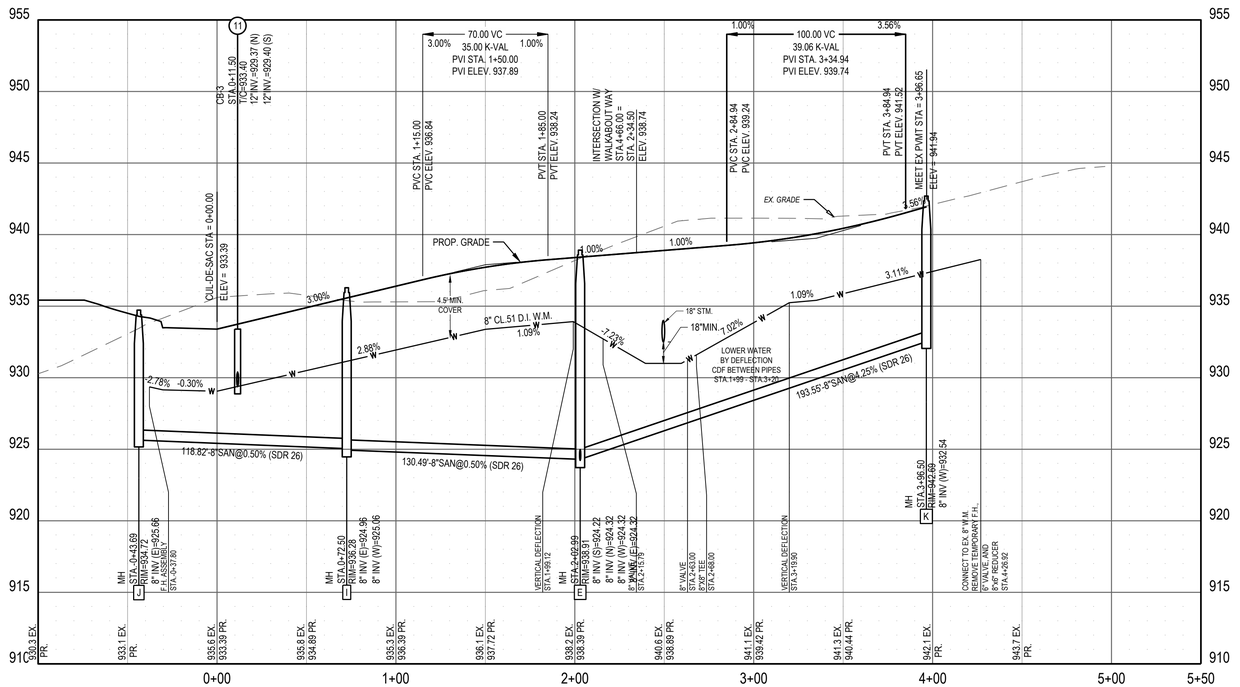
GRAPHIC SCALE (IN FEET)
1 in. = 60 ft.

4



FALLS ROAD PLAN VIEW

SCALE: 1"=40'



FALLS ROAD PROFILE

SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.

SITE BENCHMARKS:

SITE BM "G"
CHISELED "+" ON ARROW BOLT EAST SIDE OF FIRE HYDRANT, SOUTH SIDE OF WILDROSE LANE IN FRONT OF HOUSE ADDRESS # 516.
ELEVATION = 936.33'(NAVD88)

SITE BM "H"
CHISELED "+" ON ARROW BOLT WEST SIDE OF FIRE HYDRANT, NORTH SIDE OF FALLS ROAD WEST SIDE OF HOUSE ADDRESS # 3027 NEXT TO PAVEMENT PARKING LOT AREA.
ELEVATION = 946.07'(NAVD88)

SITE BM "J"
BENCHNAIL SET EAST SIDE OF TELEPHONE POLE NORTH SIDE E. WESTBROOK ROAD WEST FROM ENTRANCE TO MONTGOMERY WATER TOWER.
ELEVATION = 926.70'(NAVD88)

N

LEGEND

- SUBJECT BOUNDARY LINE
- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING TREE LINE
- EXISTING INTERMITTENT STREAM
- EXISTING EASEMENT
- EXISTING EDGE OF PAVEMENT
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING STORM STRUCTURES
- EXISTING SANITARY SEWER MANHOLE
- EXISTING WATER STRUCTURES
- EXISTING CABLE BOX
- EXISTING STRUCTURE
- EXISTING WETLAND (TO REMAIN)
- EXISTING WETLAND (TO BE MITIGATED)
- PROPOSED PHASE LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED BASIN
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- PROPOSED CURB & GUTTER
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- PROPOSED STORM STRUCTURES
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED WATER LINE
- PROPOSED WATER HYDRANT/VALVE
- SIDEWALK
- ASPHALT
- FLOOD ROUTING
- BUILDER'S SWALE
- TC=902.75 PROPOSED TOP OF CASTING
- 905.25 PROPOSED SPOT ELEVATION
- LP=903.58 PROPOSED LOW POINT
- HP=912.17 PROPOSED HIGH POINT

GRAPHIC SCALE (IN FEET)
HORIZONTAL
1 inch = 40 ft.
40 0 20 40

VERTICAL
1 inch = 5 ft.
10 5

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HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

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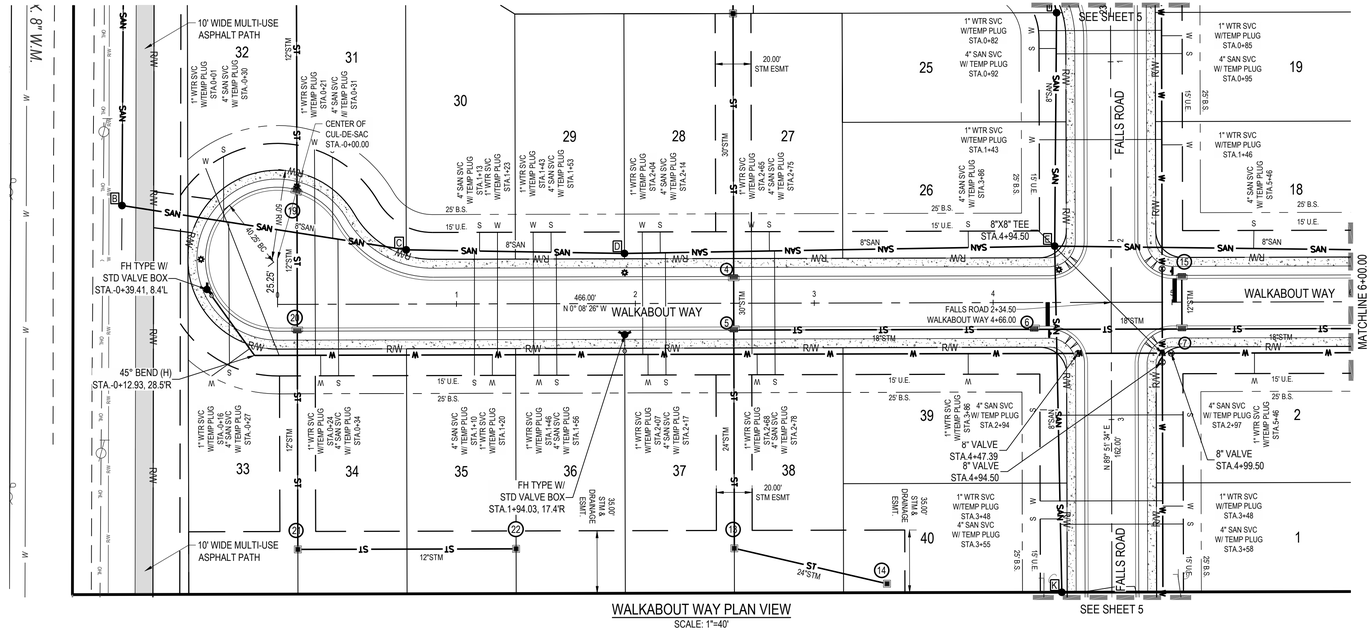
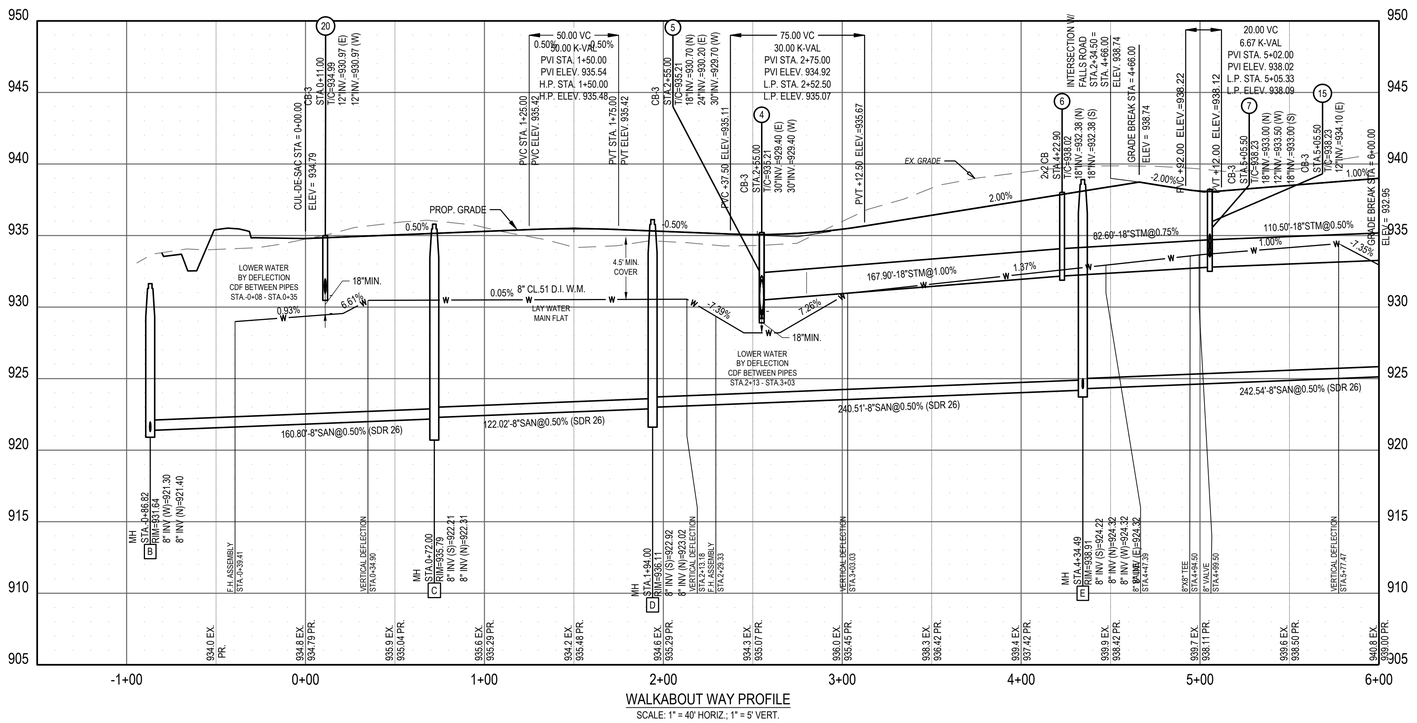
Drawing Title:
PLAN AND PROFILE

5





WALKABOUT WAY PROFILE
SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.

SITE BENCHMARKS:

SITE BM "G"
CHISELED "+" ON ARROW BOLT EAST SIDE OF FIRE HYDRANT, SOUTH SIDE OF WILDROSE LANE IN FRONT OF HOUSE ADDRESS # 516.
ELEVATION = 936.33'(NAVD88)

SITE BM "H"
CHISELED "+" ON ARROW BOLT WEST SIDE OF FIRE HYDRANT, NORTH SIDE OF FALLS ROAD WEST SIDE OF HOUSE ADDRESS # 3027 NEXT TO PAVEMENT PARKING LOT AREA.
ELEVATION = 946.07'(NAVD88)

SITE BM "J"
BENCHNAIL SET EAST SIDE OF TELEPHONE POLE NORTH SIDE E. WESTBROOK ROAD WEST FROM ENTRANCE TO MONTGOMERY WATER TOWER.
ELEVATION = 926.70'(NAVD88)

GRAPHIC SCALE (IN FEET)
HORIZONTAL
1 inch = 40 ft.
40 0 20 40
VERTICAL
1 inch = 5 ft.
10 5

LEGEND

- SUBJECT BOUNDARY LINE
- EXISTING PROPERTY LINE
- R/W — EXISTING R/W
- EXISTING CENTERLINE
- EXISTING TREE LINE
- EXISTING INTERMITTENT STREAM
- EXISTING EASEMENT
- EXISTING EDGE OF PAVEMENT
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- STM — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- W — EXISTING WATER MAIN
- EXISTING STORM STRUCTURES
- EXISTING SANITARY SEWER MANHOLE
- EXISTING WATER STRUCTURES
- EXISTING CABLE BOX
- EXISTING STRUCTURE
- EXISTING WETLAND (TO REMAIN)
- EXISTING WETLAND (TO BE MITIGATED)
- PROPOSED PHASE LINE
- R/W — PROPOSED RIGHT-OF-WAY
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED BASIN
- PROPOSED CENTERLINE
- PROPOSED CURB & GUTTER
- ST — PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURES
- SAN — PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER MANHOLE
- W — PROPOSED WATER LINE
- PROPOSED WATER HYDRANT/VALVE
- SIDEWALK
- ASPHALT
- FLOOD ROUTING
- BUILDER'S SWALE
- TC=902.75 — PROPOSED TOP OF CASTING
- 905.25 — PROPOSED SPOT ELEVATION
- LP=903.58 — PROPOSED LOW POINT
- HP=912.17 — PROPOSED HIGH POINT

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HUNTERS PATH PHASE 3

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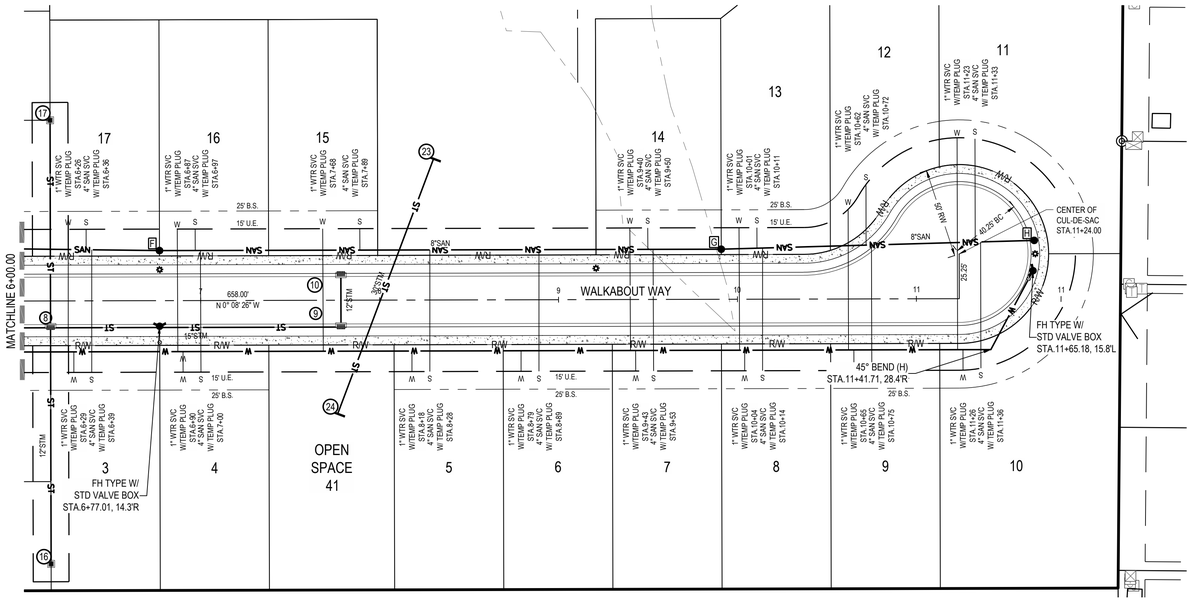
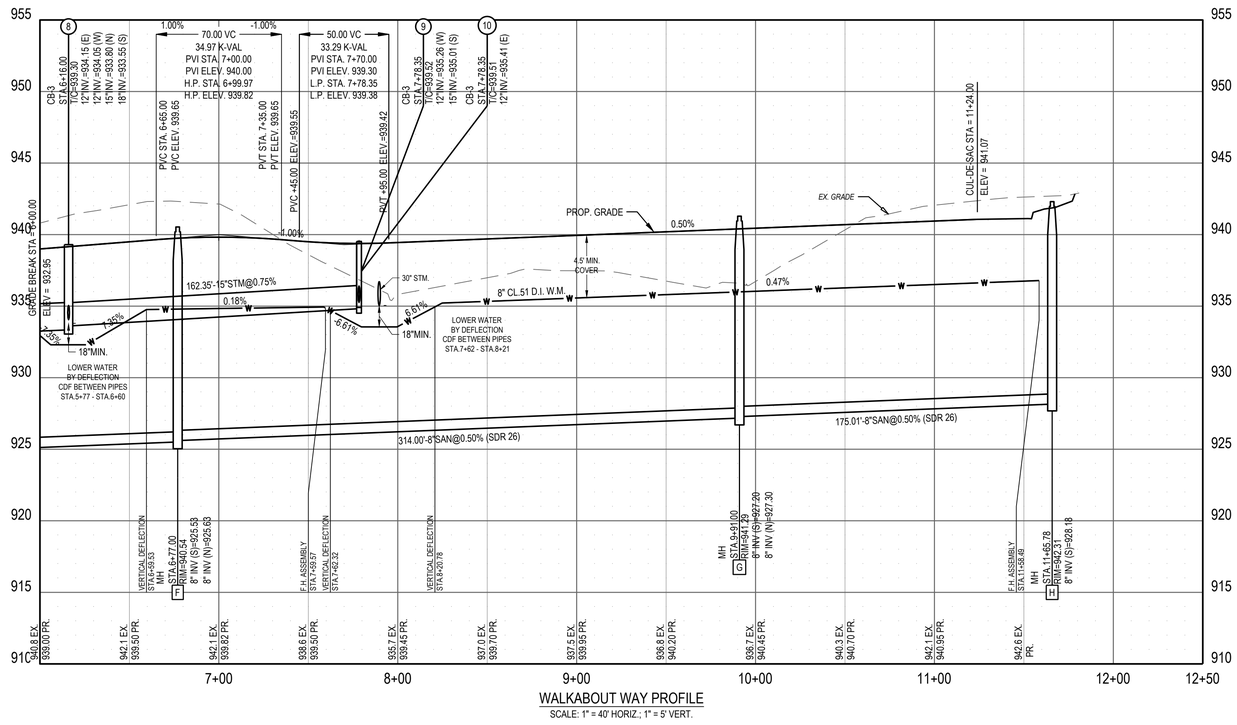
Drawing Title:
PLAN AND PLOTS

6



WALKABOUT WAY PLAN VIEW
SCALE: 1"=40'



WALKABOUT WAY PROFILE
SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.

SITE BENCHMARKS:

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ELEVATION = 946.07'(NAVD88)

SITE BM "J"
BENCHNAIL SET EAST SIDE OF TELEPHONE POLE NORTH SIDE E. WESTBROOK ROAD WEST FROM ENTRANCE TO MONTGOMERY WATER TOWER.
ELEVATION = 926.70'(NAVD88)

LEGEND

- SUBJECT BOUNDARY LINE
- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING TREE LINE
- EXISTING INTERMITTENT STREAM
- EXISTING EASEMENT
- EXISTING EDGE OF PAVEMENT
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
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- EXISTING STORM STRUCTURES
- EXISTING SANITARY SEWER MANHOLE
- EXISTING WATER STRUCTURES
- EXISTING CABLE BOX
- EXISTING STRUCTURE
- EXISTING WETLAND (TO REMAIN)
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- PROPOSED RIGHT-OF-WAY
- PROPOSED PROPERTY LINE
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- PROPOSED EASEMENT
- PROPOSED BASIN
- PROPOSED CENTERLINE
- PROPOSED CURB & GUTTER
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURES
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED WATER LINE
- PROPOSED WATER HYDRANT/VALVE
- SIDEWALK

GRAPHIC SCALE (IN FEET)
HORIZONTAL
1 inch = 40 ft.
40 0 20 40

VERTICAL
1 inch = 5 ft.
10 5

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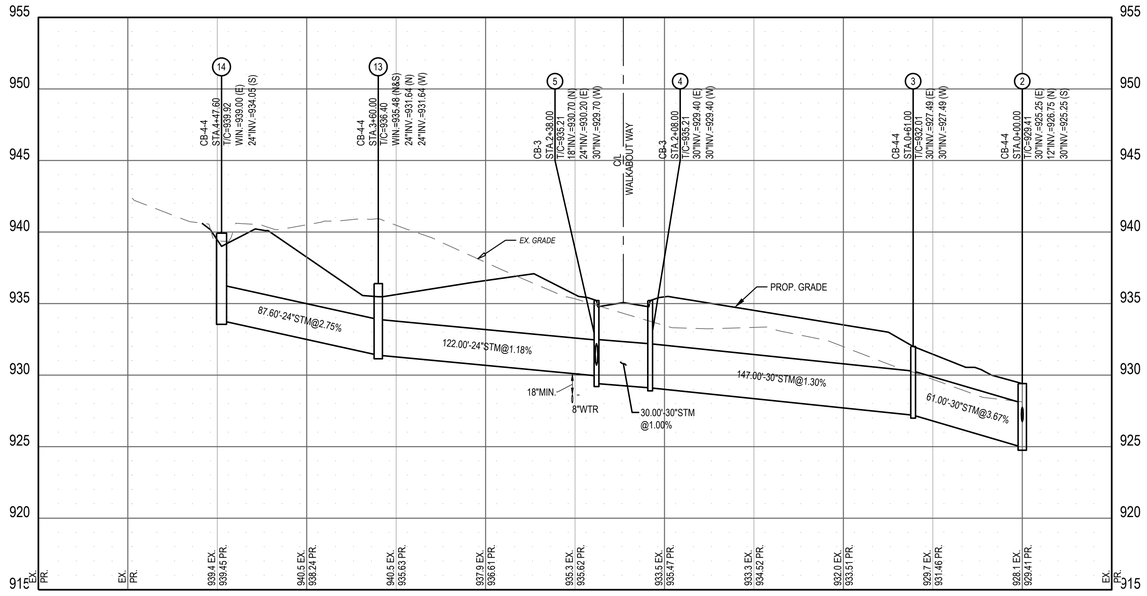
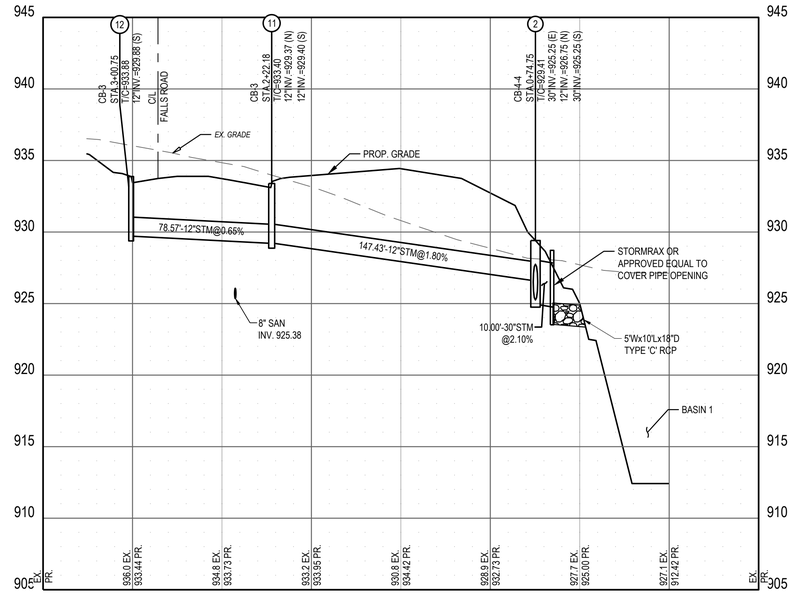
PLAN AND PROFILE



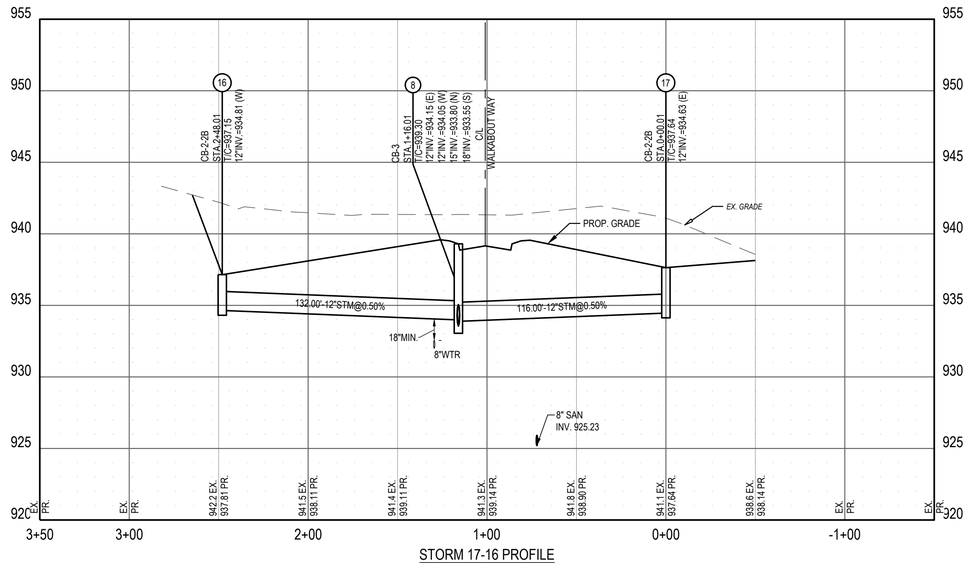
STORM 14-2 PROFILE

SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.



STORM 12-1 PROFILE

SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.



STORM 17-16 PROFILE

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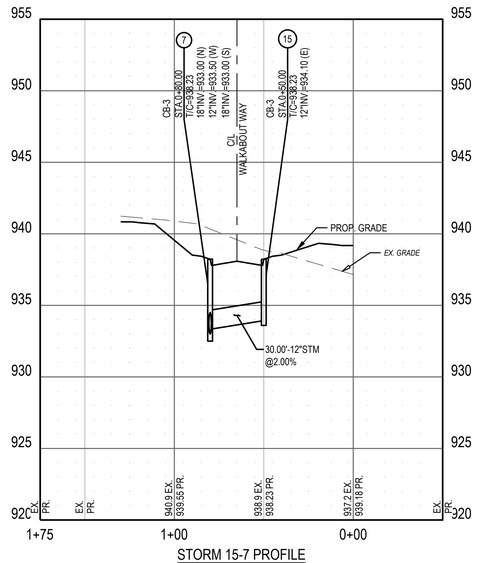
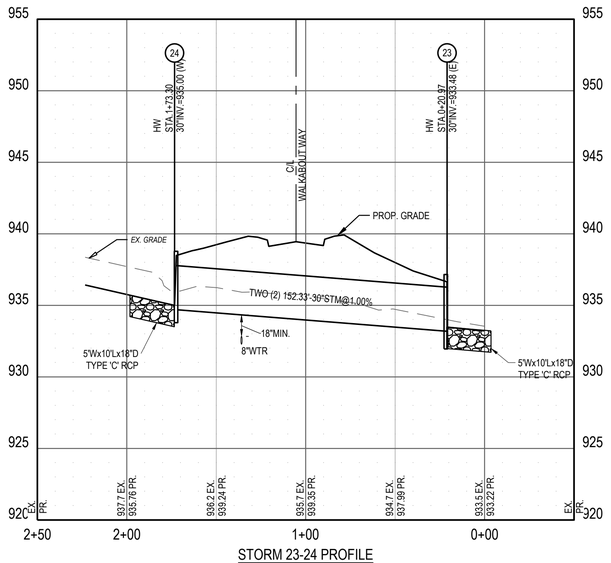


STORM 15-7 PROFILE

SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.



STORM 23-24 PROFILE

SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.

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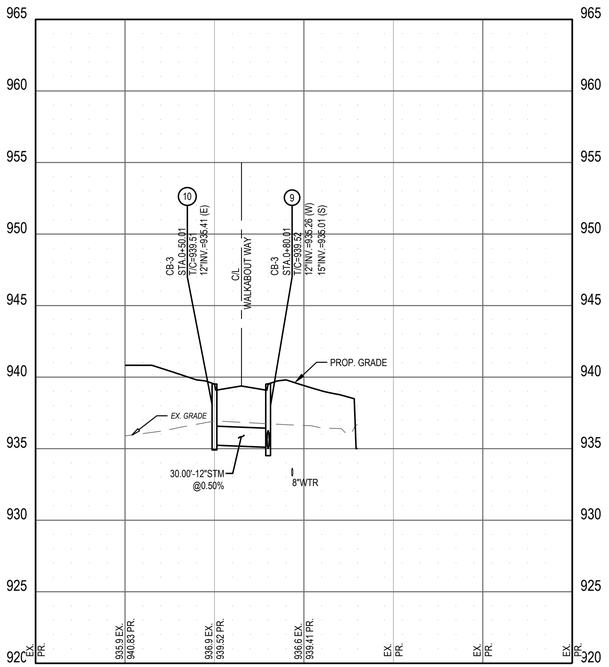
Drawing Title:

OFFSTREET PROFILE

8



STORM 10-9 PROFILE
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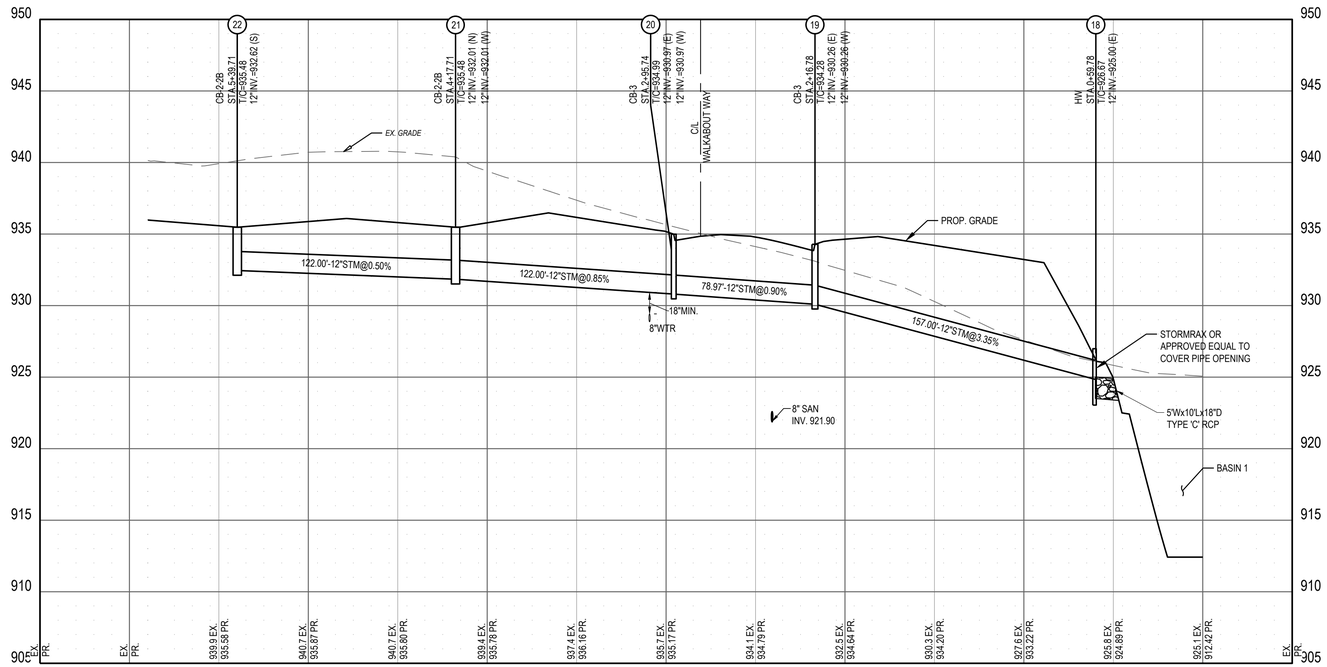

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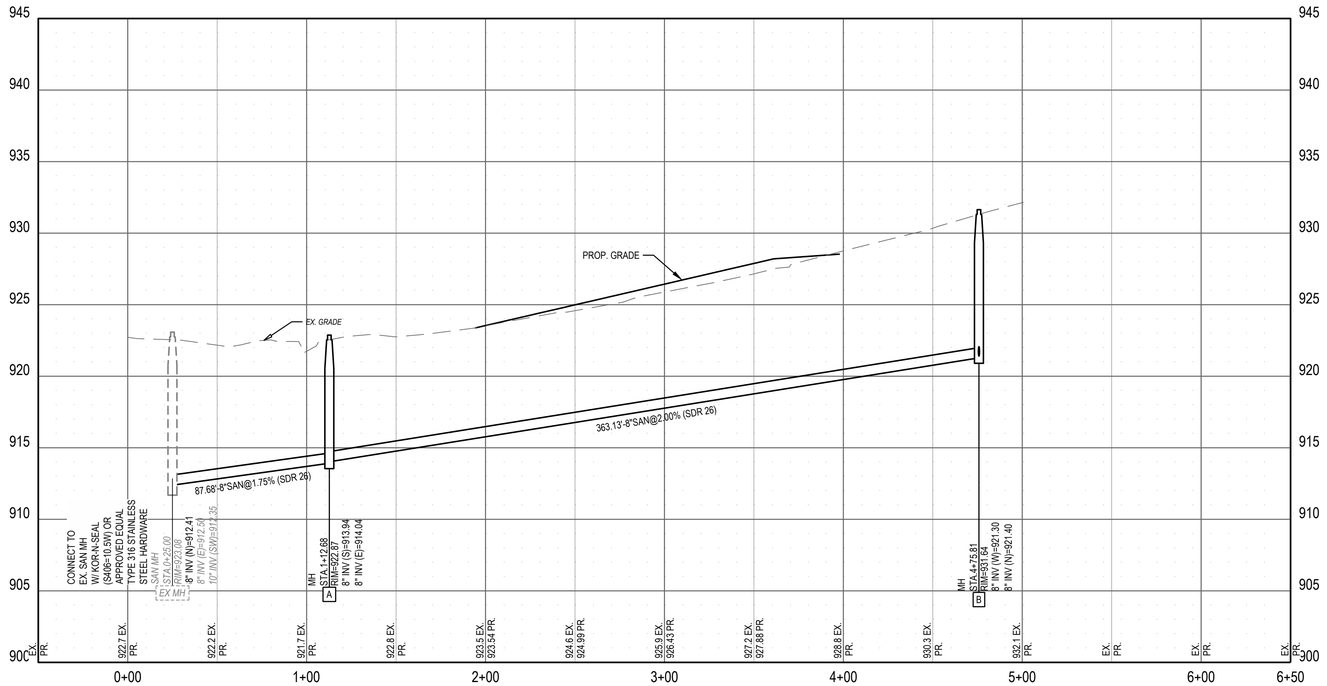

SSWR EX-B PROFILE
SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.

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LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- SUBJECT BOUNDARY LINE
- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING TREE LINE
- EXISTING INTERMITTENT STREAM
- EXISTING EASEMENT
- EXISTING EDGE OF PAVEMENT
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING STORM STRUCTURES
- EXISTING SANITARY SEWER MANHOLE
- EXISTING WATER STRUCTURES
- EXISTING CABLE BOX
- EXISTING STRUCTURE
- EXISTING WETLAND (TO REMAIN)
- EXISTING WETLAND (TO BE MITIGATED)
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- PROPOSED PHASE LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED BASIN
- PROPOSED CENTERLINE
- PROPOSED CURB & GUTTER
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURES
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED WATER LINE
- PROPOSED WATER HYDRANT/VALVE
- SIDEWALK
- FLOOD ROUTING
- BUILDER'S SWALE
- TC=902.75 PROPOSED TOP OF CASTING
- 905.25 PROPOSED SPOT ELEVATION
- LP=903.58 PROPOSED LOW POINT
- HP=912.17 PROPOSED HIGH POINT

NOTES

1. MAXIMUM SLOPE AWAY FROM THE HOUSE IS 3:1.
2. EROSION CONTROL PRACTICES SHALL BE INSTALLED BEFORE ANY MAJOR SOIL DISTURBANCE.
3. ESTABLISH VEGETATION IN ALL BARE AREAS AS PER OEPA N.P.D.E.S. REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR N.P.D.E.S. INSPECTION DURING CONSTRUCTION PERIOD.
4. SPOTS SHOWN AT CURB ARE TOP OF CURB ELEVATIONS UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING ELEVATIONS AND INVERTS PRIOR TO THE START OF CONSTRUCTION.

N

100 0 100 200
GRAPHIC SCALE (IN FEET)
1 in. = 100 ft.

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DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
GRADING PLAN

10

LEGEND

940	EXISTING INDEX CONTOUR
941	EXISTING INTERMEDIATE CONTOUR
	SUBJECT BOUNDARY LINE
	EXISTING PROPERTY LINE
R/W	EXISTING R/W
	EXISTING CENTERLINE
	EXISTING TREE LINE
	EXISTING INTERMITTENT STREAM
	EXISTING EASEMENT
	EXISTING EDGE OF PAVEMENT
	EXISTING FACE OF CURB
	EXISTING BACK OF CURB
STM	EXISTING STORM SEWER
SAN	EXISTING SANITARY SEWER
W	EXISTING WATER MAIN
	EXISTING STORM STRUCTURES
	EXISTING SANITARY SEWER MANHOLE
	EXISTING WATER STRUCTURES
	EXISTING CABLE BOX
	EXISTING STRUCTURE
	EXISTING WETLAND (TO REMAIN)
	EXISTING WETLAND (TO BE MITIGATED)
950	PROPOSED INDEX CONTOUR
951	PROPOSED INTERMEDIATE CONTOUR
	PROPOSED PHASE LINE
R/W	PROPOSED RIGHT-OF-WAY
	PROPOSED PROPERTY LINE
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED BASIN
	PROPOSED CENTERLINE
	PROPOSED CURB & GUTTER
ST	PROPOSED STORM SEWER
	PROPOSED STORM STRUCTURES
SAN	PROPOSED SANITARY SEWER
	PROPOSED SANITARY SEWER MANHOLE
W	PROPOSED WATER LINE
	PROPOSED WATER HYDRANT/VALVE
	SIDEWALK
	FLOOD ROUTING
	BUILDER'S SWALE
TC=902.75	PROPOSED TOP OF CASTING
905.25	PROPOSED SPOT ELEVATION
LP=903.58	PROPOSED LOW POINT
HP=912.17	PROPOSED HIGH POINT

NOTES

1. MAXIMUM SLOPE AWAY FROM THE HOUSE IS 3:1.
2. EROSION CONTROL PRACTICES SHALL BE INSTALLED BEFORE ANY MAJOR SOIL DISTURBANCE.
3. ESTABLISH VEGETATION IN ALL BARE AREAS AS PER OEPA N.P.D.E.S. REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR N.P.D.E.S. INSPECTION DURING CONSTRUCTION PERIOD.
4. SPOTS SHOWN AT CURB ARE TOP OF CURB ELEVATIONS UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING ELEVATIONS AND INVERTS PRIOR TO THE START OF CONSTRUCTION.

N

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1 in. = 100 ft.

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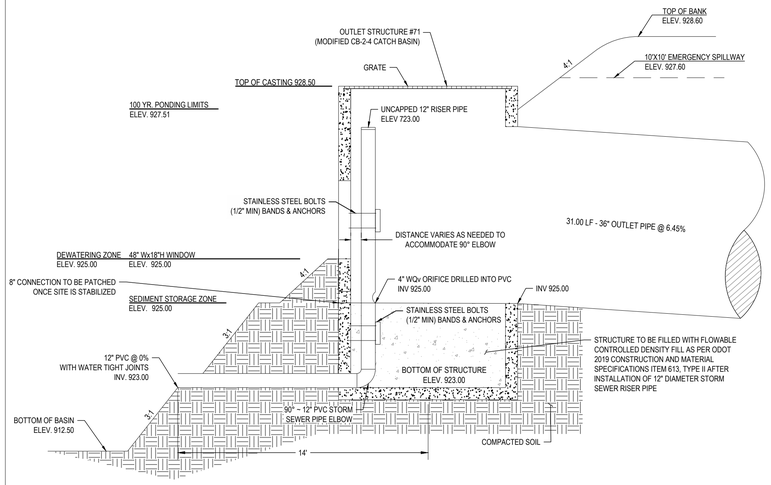
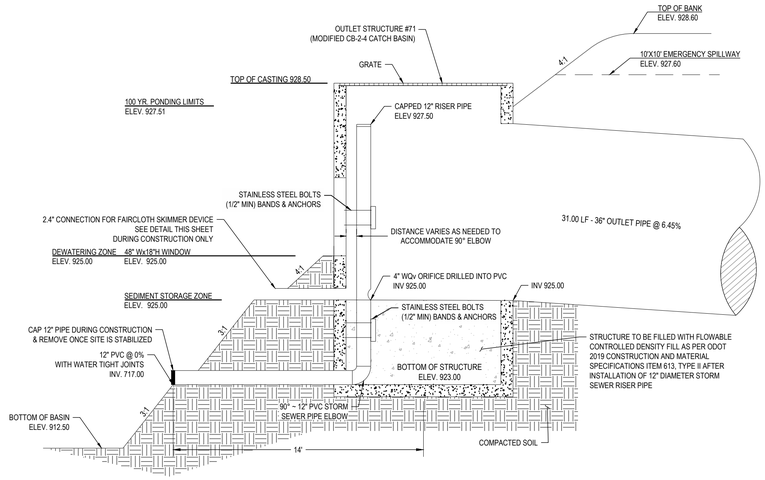


NOTE:
1. ALL EROSION AND SEDIMENT CONTROL PRACTICES ARE SUBJECT TO FIELD MODIFICATION AT THE DISCRETION OF CITY OF CLAYTON OFFICE AND/OR THE EPA

OUTLET STRUCTURE DETAIL
STRUCTURE #71
POST CONSTRUCTION
MODIFIED CB-2-4 CATCH BASIN
N.T.S.



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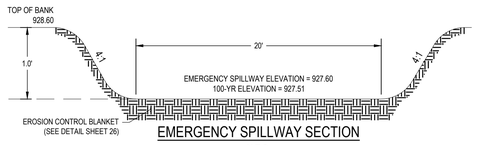
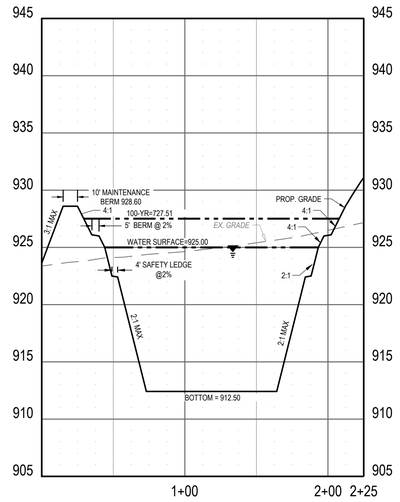
OUTLET STRUCTURE DETAIL
STRUCTURE #71
DURING CONSTRUCTION
MODIFIED CB-2-4 CATCH BASIN
N.T.S.

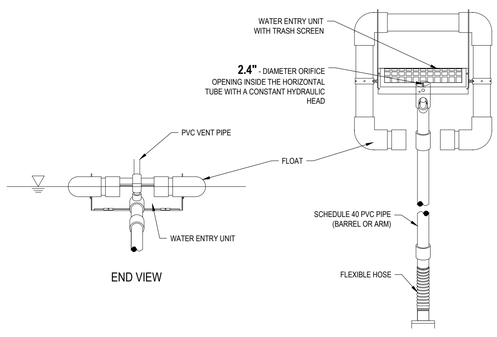


EMERGENCY SPILLWAY SECTION
N.T.S.



BASIN SECTION PROFILE
SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.

SIDE VIEW
(NO SCALE)



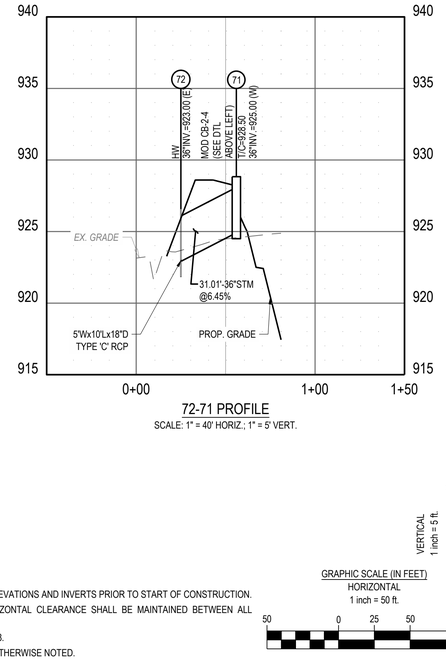
END VIEW

TOP VIEW

GENERAL NOTES:
1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
3. EMBANKMENT MUST BE COMPACTED TO DESIGN SPECIFICATIONS.
4. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
5. EROSION PROTECTION MUST BE INSTALLED ALONG THE EMBANKMENT AND AT THE DISCHARGE END OF THE PIPE.
6. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
7. EIGHT SIZES OF SKIMMERS ARE AVAILABLE, REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.

Ⓡ 5" FAIRCLOTH SKIMMER DISCHARGE SYSTEM WITH OUTLET STRUCTURE
N.T.S.

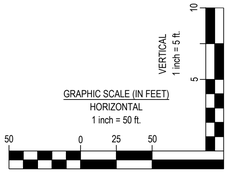
BASIN #	VOLUME (CF)	DAYS TO DRAIN	SKIMMER SIZE (IN.)	BARREL LENGTH (FT.)	ORIFICE RADIUS (IN.)	CONNECT TO OUTLET STRUCTURE INV. ELEVATION
BASIN 1	40,555	3	2.5	2	1.2	925.00



72-71 PROFILE
SCALE: 1" = 40' HORIZ.; 1" = 5' VERT.

SEDIMENT CONTROL VOLUMES - EXTENDED WET DETENTION BASIN								
POND	DRAINAGE AREA (AC)	DISTURBED AREA (AC)	REQUIRED DEWATERING ZONE VOLUME (CF)	REQUIRED SEDIMENT ZONE VOLUME (CF)	PROVIDED DEWATERING ZONE VOLUME (CF)	PROVIDED SEDIMENT ZONE VOLUME(CF)	DEWATERING ZONE (FT)	SEDIMENT STORAGE ZONE (FT)
EXT WET DETENTION BASIN 1	11.21	11.2100	20,178	11,210	40,555	340,837	925.00 - 926.00	912.50 - 925.00

NOTES
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING ELEVATIONS AND INVERTS PRIOR TO START OF CONSTRUCTION.
2. 18" MINIMUM VERTICAL CLEARANCE AND 10' HORIZONTAL CLEARANCE SHALL BE MAINTAINED BETWEEN ALL SANITARY, STORM, AND WATER LINES.
3. ALL ELEVATIONS SHOWN ON THIS PLAN ARE NAVD 88.
4. ALL EXISTING INFORMATION IS PER PLAN, UNLESS OTHERWISE NOTED.
5. ALL BACKFILL SHALL BE COMPACTED TO THE DENSITY OF THE EXISTING GROUND UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL ENSURE THAT ALL PIPES ARE NOT DAMAGED DURING CONSTRUCTION.



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HUNTERS PATH
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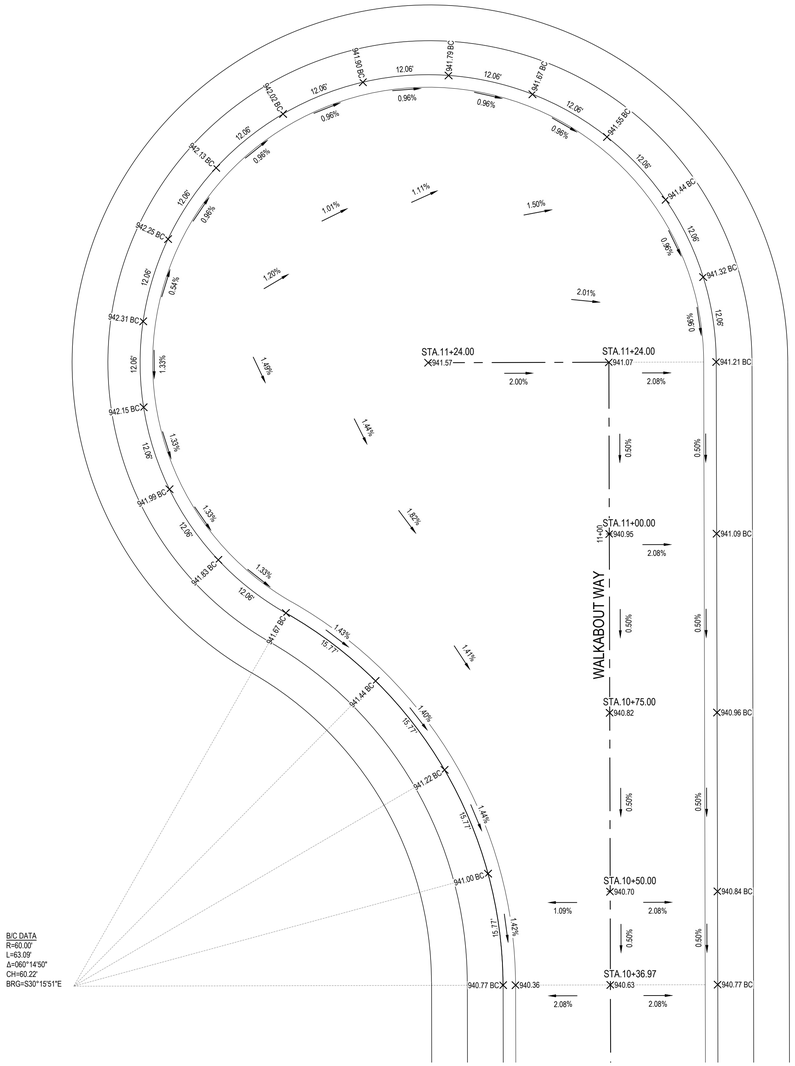
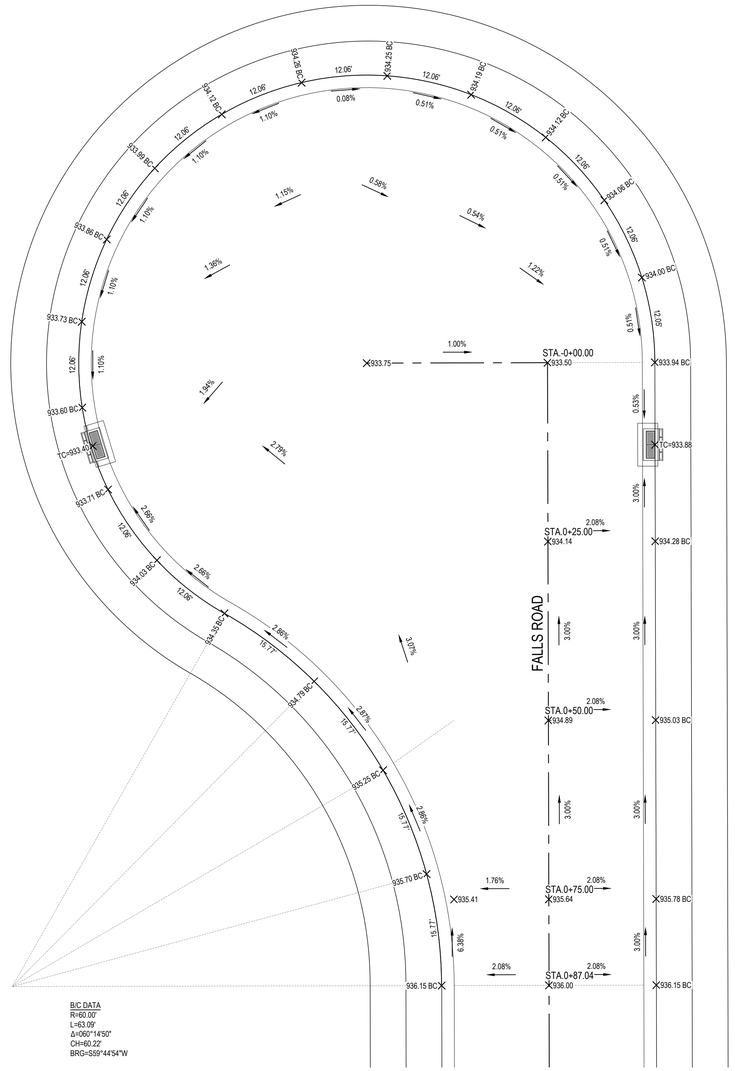
BASIN DETAIL



CUL-DE-SAC DETAIL
WALKABOUT WAY

NOTES:
ALL ELEVATIONS SHOWN ARE CENTERLINE OF FINISHED PAVEMENT AND TOP OF CURB UNLESS OTHERWISE NOTED.

GRAPHIC SCALE (IN FEET)
1 in. = 10 ft.



CUL-DE-SAC DETAIL
FALLS ROAD

NOTES:
ALL ELEVATIONS SHOWN ARE CENTERLINE OF FINISHED PAVEMENT AND TOP OF CURB UNLESS OTHERWISE NOTED.

GRAPHIC SCALE (IN FEET)
1 in. = 10 ft.

LEGEND

BC	BACK OF CURB
EP	EDGE OF PAVEMENT
R/W	RIGHT-OF-WAY
VC	VERTICAL CURVE
TC	TOP OF CASTING
HP	HIGH POINT
1.00%	PROPOSED SLOPE
910.27	PROPOSED SPOT ELEVATION
910.21 BC	PROPOSED BACK OF CURB ELEVATION
910.16 G	PROPOSED GUTTER ELEVATION
910.12 EP	PROPOSED EDGE OF PAVEMENT ELEVATION
	PROPOSED DETECTABLE WARNING MAT

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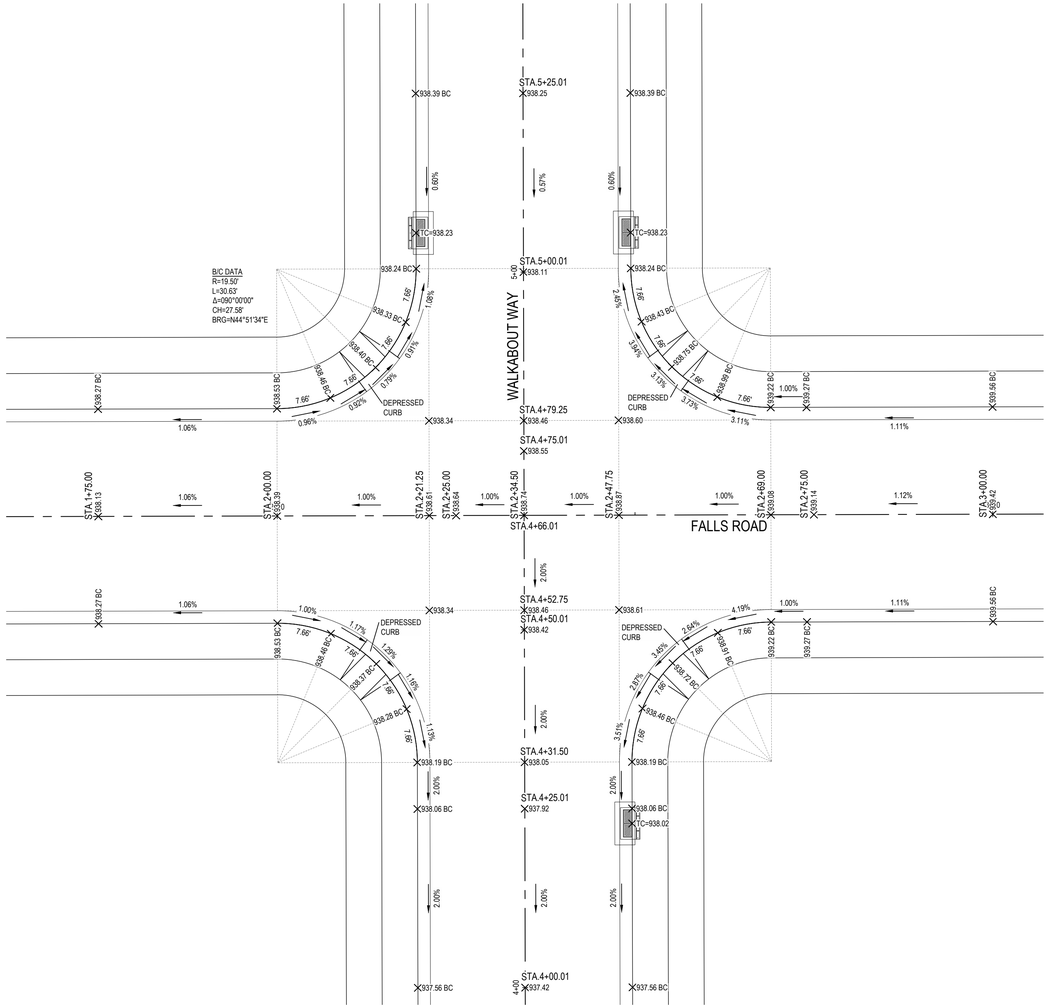
INTERSECTION DETAILS

13



INTERSECTION DETAIL
FALLS ROAD & WALKABOUT WAY

NOTES:
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GRAPHIC SCALE (IN FEET)
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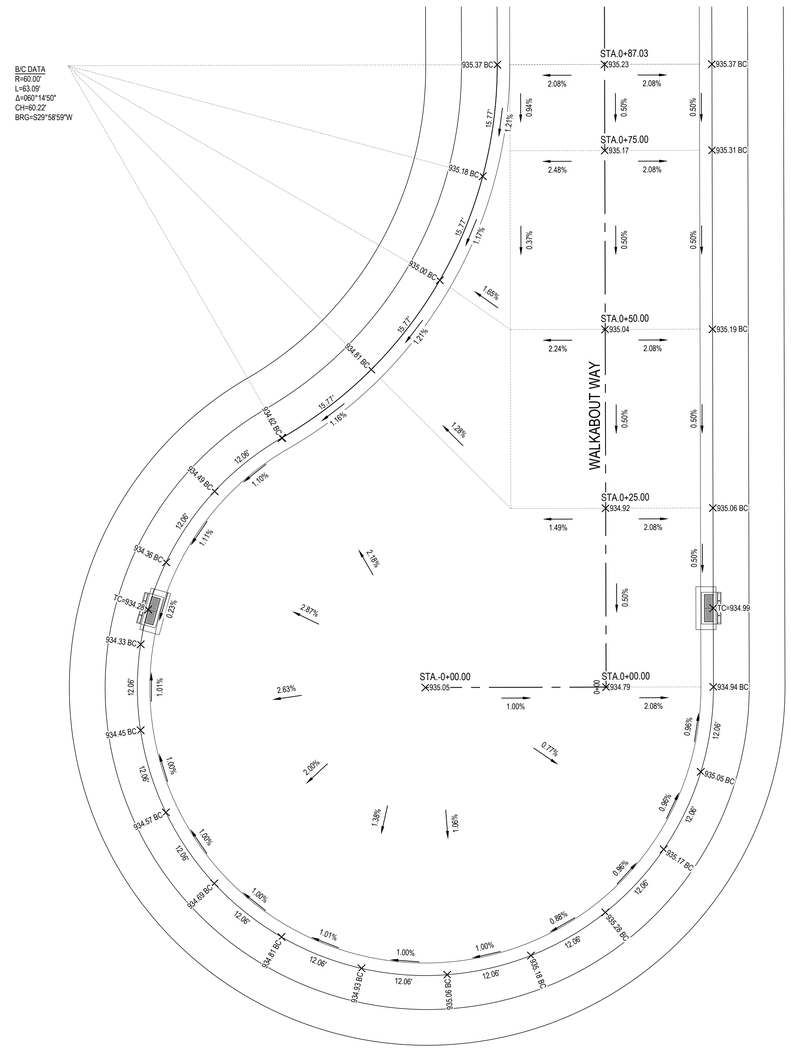

CUL-DE-SAC DETAIL
WALKABOUT WAY

NOTES:
ALL ELEVATIONS SHOWN ARE CENTERLINE OF FINISHED PAVEMENT AND TOP OF CURB UNLESS OTHERWISE NOTED.

GRAPHIC SCALE (IN FEET)
1 in. = 10 ft.

LEGEND

BC	BACK OF CURB
EP	EDGE OF PAVEMENT
R/W	RIGHT-OF-WAY
VC	VERTICAL CURVE
TC	TOP OF CASTING
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1.00%	PROPOSED SLOPE
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	PROPOSED DETECTABLE WARNING MAT

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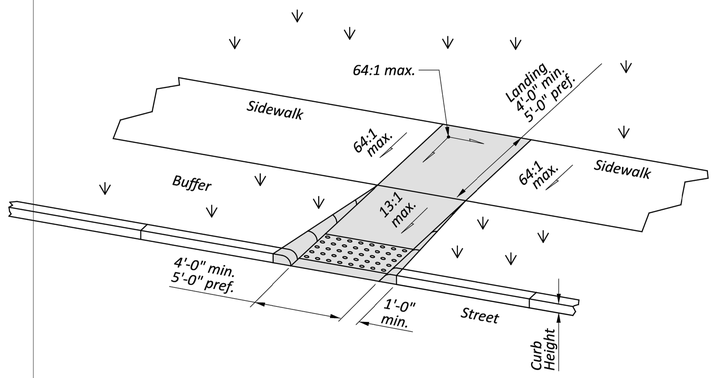
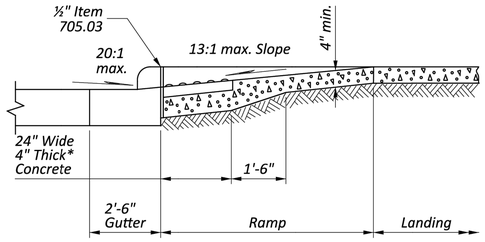


Type A2 (Perpendicular with returned curb)



New gutter shown.

SECTION A-A NORMAL DETAIL

The running slope of the curb ramp shall be a 13:1 maximum or flatter. In existing sidewalks, where the maximum ramp slope is not feasible due to site constraints (e.g. utility poles or vaults, right-of-way limits) it may be reduced as follows:

A) 10:1 for a max. rise of 6",
B) 8:1 for a max. rise of 3",
C) 6:1 over a max. run of 2'-0" for historic areas where a flatter slope is not feasible.

To prevent chasing the grade indefinately, the transition from exisiting sidewalk to the shaded curb ramp area is not required to exceed 15 feet in length.

While ramps may be skewed to the crosswalk, the entire lower landing area must fall within the cross walk that the ramp serves and cannot be located in the traveled lane of opposing traffic.

The counter slope of the gutter or street at the foot of a curb ramp, landing, or blended transitions shall be 20:1 ot flatter.

The bottom edge of the ramp shall change planes perpendicular to the landing.

The edge of the curb shall be flush with the edge of the adjacent pavement and gutter and surface slopes that meet grade breaks shall also be flush.

Ramp landings shall be 4' min. x 4' min. with a 64:1 or flatter cross slope and running slope.

***DETECTABLE WARNINGS:** Install Detectable Warnings on each curb ramp with approved materials, as shown on Sheet 3. Install these proprietary products as per manufacturer's written instructions.*

***DRAINAGE:** Contractor is to ensure the base of each constructed curb ramp allows for proper drainage, without exceeding allowable cross slope or ramp slopes. Vertical change in level exceeding ¼" between the 1) pavement and gutter, and 2) gutter and ramp, are not allowed.*

***SURFACE TEXTURE:** Texture concrete surfaces by coarse brooming transverse to the ramp slopes to be rougher than the adjacent walk.*

***JOINTS:** Provide expansion joints in the curb ramp as extensions of walk joints and consistent with Item 608.03 requirements for a new concrete walk. Provide a ½" Item 705.03 expansion joint filler around the edge of ramps built in existing concrete walks. Lines shown on this drawing indicate the ramp edges and slope changes, and do not necessarily indicate joint lines.*

DETECTABLE WARNINGS NOTES

***GENERAL:** Detectable Warnings are a distinctive surface pattern of truncated domes which are detectable by cane or underfoot to alert people with vision impairments of their approach to streets and hazardous drop-offs.*

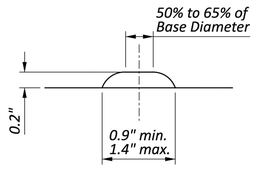
***PLACEMENT:** Detectable warnings are to be installed at any location where pedestrians might cross paths with vehicular traffic lanes, such as the base of curb ramps or at blended curbs. A 24" strip of domes is to be installed for the full width of the ramp or walk. Typical street corner placement locations are shown on Sheet 1.*

Some detectable warning products require a concrete border for proper installation. The concrete border should not exceed 2". Where the back of curb edge is tooled to provide a radius, the border dimension should be measured from the end of the radius.

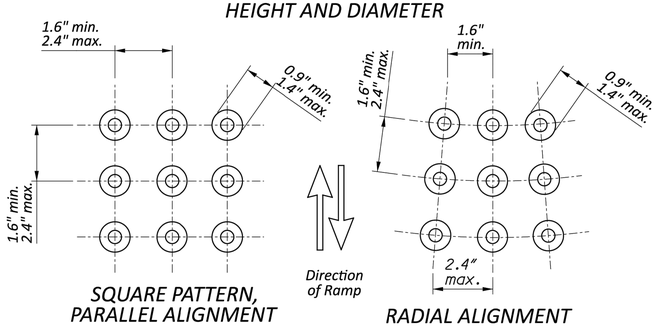
The depth of concrete underneath detectable warning products shall be a minimum of 4". See DETAIL A.

***ALIGNMENT:** Truncated domes should be aligned with the primary direction of the ramp as shown on the DETECTABLE WARNING ALIGNMENT Detail. Normally the detectable warnings should be flush with the back of the curb, but for skewed conditions see DETECTABLE WARNING ALIGNMENT Detail. For non-standard layouts, detectable warning materials may have to be mitered and placed segmentally.*

***PRODUCTS & COLORS:** Color of the detectable warnings should contrast with surrounding concrete walk and ramp. Black is not an acceptable color. Approved products and guidance on color may be found on the Office of Roadway Engineering Service's Detectable Warnings Approved List. Install products as per manufacturer's printed instructions.*



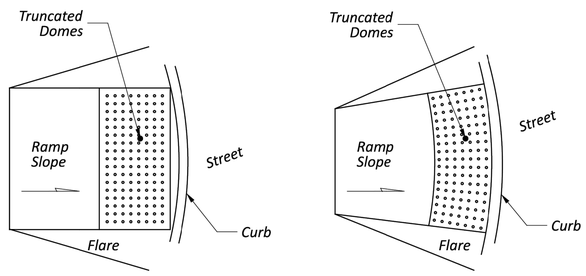
HEIGHT AND DIAMETER



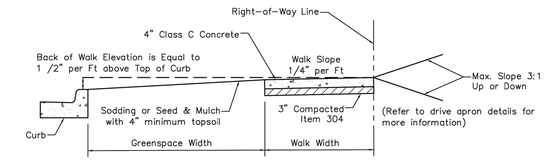
SQUARE PATTERN, PARALLEL ALIGNMENT

RADIAL ALIGNMENT

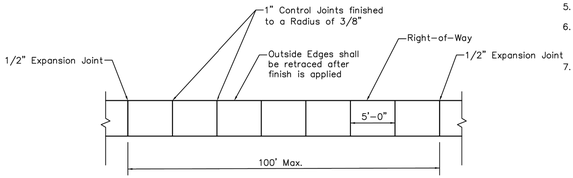
TRUNCATED DOMES DETAILS



DOME ALIGNMENT ON RADIUSED CURB



SIDEWALK CROSS-SECTION



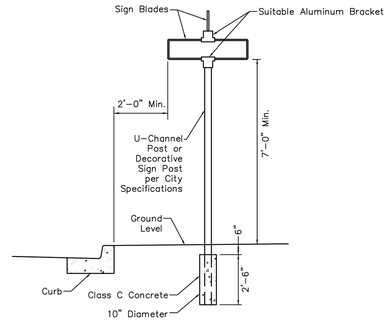
SIDEWALK PLAN

GENERAL NOTES:

1. Concrete for sidewalk shall meet the requirements of ODOT Item 608.
2. All exposed surfaces shall be broomed and edged.
3. Sidewalks shall be 4" thick, except thru driveways which shall be:
   Residential Driveway: 6"
   Commercial Driveway: 8"
4. 3" of gravel base shall be placed under walks if determined necessary.
5. Walks shall be backfilled within 5 days of being poured.
6. Curing compound shall be applied in accordance with ODOT Item 451.10, Curing. From May 1 through September 30, white curing compound is preferred.
7. The minimum replacement area is one (1) full sidewalk block.

CONCRETE WALK
CITY OF CLAYTON
MONTGOMERY COUNTY, OHIO
APPROVED:
DRAWN IBI GROUP
DATE : JANUARY 2021
SHEET 9

# OF LETTERS IN NAME	NEIGHBORHOOD / RESIDENTIAL		COLLECTOR / ARTERIAL	
	A	B	A	B
< 7	8"	24"	10"	24"
= 7	8"	30"	10"	30"
> 7	8"	36"	10"	36"



GENERAL NOTES:

1. The Sign Face shall be made of Reflectorized Black-Green Letters on Reflectorized White Background with a Black-Green Border.
2. Type 'C' Series Letters, Reference: Ohio Manual of Uniform Traffic Control Devices.
3. Sign Blades shall have Nominal Thickness of 0.080 Inches and shall be of 6061-T6 Aluminum alloy.
4. The Blades shall be made of extruded Aluminum.
5. All Blades shall be Bonderized or Anodized prior to applying the reflective sheeting.
6. Post shall be located at the intersection to provide good visibility of Street names from all approaches.

STREET SIGN
CITY OF CLAYTON
MONTGOMERY COUNTY, OHIO
APPROVED:
DRAWN IBI GROUP
DATE : JANUARY 2021
SHEET 10

NOTE: MOUNT BELOW STREET SIGNS. SEE DETAIL ABOVE.

STOP SIGN DETAIL
NTS

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CONSTRUCTION DETAILS

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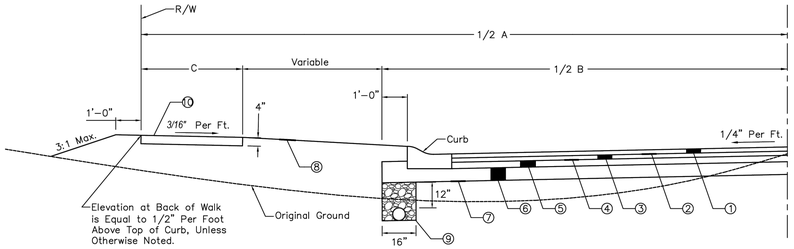
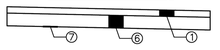


①	ODOT ITEM 448	Asphalt Concrete, 2" Surface Course, to be applied 9 months after item 448, Intermediate Course.
②	ODOT ITEM 407	Tack Coat (0.1 gal/sy)
③	ODOT ITEM 448	Asphalt Concrete, 2" Intermediate Course
④	ODOT ITEM 407	Tack Coat (0.1 gal/sy)
⑤	ODOT ITEM 301	Asphalt Base, 3" course
⑥	ODOT ITEM 304	Aggregate Base, 4" course
⑦	ODOT ITEM 204	Compacted Subgrade
⑧	ODOT ITEM 659	Seeding and Mulching
⑨	ODOT ITEM 605	8" Perforated Underdrain, trench filled with washed 57's
⑩	ODOT ITEM 608	4" Concrete Walk

Multi–Use Path Build–Up



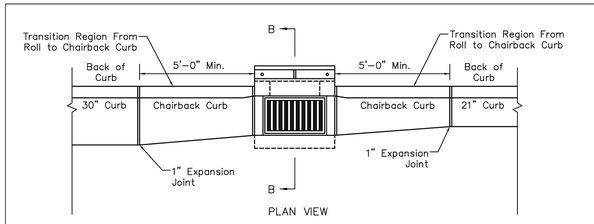
A	B	C
50'	27–29 FT.	5'–0"
60'	37 FT.	5'–0"

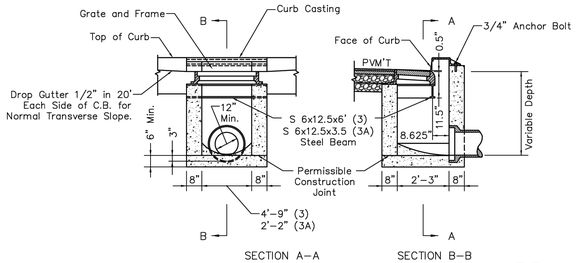
GENERAL NOTES:

1. Item 448, Surface Course, shall not be applied until item 448, Intermediate Course has been in place 9 months. Any deterioration or settling that has developed during this period shall be removed and replaced before item 448, Surface Course is applied.
2. All construction methods and materials shall be in conformance with the current edition of the State of Ohio, Department of Transportation, Construction and Materials Specifications.
3. All trenches within the right–of–way must be backfilled with compacted granular material.
4. A ribbon of AC–20 shall be applied where item 448, Surface Course meets the curb, within five (5) days after the paving.
5. Existing 4'–0" sidewalk may be replaced with 4'–0" sidewalk. All newly built street sections should be built with 5'–0" sidewalk or 10'–0" multi–use path for section "C" above.

The City Of Clayton

TYPICAL SECTION ASPHALT STREET	
CITY OF CLAYTON MONTGOMERY COUNTY, OHIO	
APPROVED:	
DRAWN IBI GROUP	SHEET 2
DATE : JANUARY 2021	



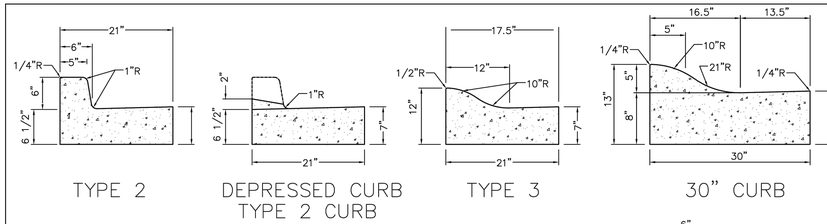


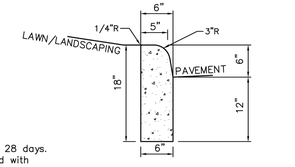
GENERAL NOTES:

1. Concrete for curb shall meet the requirements of ODOT Item 609.
2. All exposed surfaces shall be broomed and edged.
3. ODOT Type 3 catch basins are to be located in low spots and ODOT type 3A in other locations. ODOT Type 2.2B catch basins allowable upon approval from the city.
4. Taper curb in transition region from the typical 21" or 30" to meet the corner of inlet frame.
5. Catch basin and curbing shall be backfilled immediately after removal of curb forms.
6. Curing compound shall be applied in accordance with ODOT Item 451.10, Curing.
7. Cast the following text into the top of the curb casting: "DUMP NO WASTE" and "DRAINS TO CREEK". Print text in bold, capital letter at least 3/4" high.

The City Of Clayton

CURB INLET & CATCH BASIN	
CITY OF CLAYTON MONTGOMERY COUNTY, OHIO	
APPROVED:	
DRAWN IBI GROUP	SHEET 12
DATE : JANUARY 2021	





GENERAL NOTES:

1. Curb and gutter material shall be Portland cement concrete having strength of 4,000 PSI at 28 days. Either City of Clayton 6 3/8 bag mix with fiber or ODOT class C mix with fiber shall be used with 6.0% + 1.0% air entrainment and a maximum slump of four inches (4").
2. 1/2 inch thick pre–molded expansion joint shall be constructed at the beginning and end of intersection radius curb and at intervals not to exceed 100 feet. Pre–molded joints constructed with catch basins shall be considered as effective in meeting the requirement.
3. Curbing shall have contraction joints a maximum of every ten feet (10') and at no time are joints to be spaced closer than five feet (5').
4. Six inches (6") of item 304 shall be placed under curbing when in a fill area as specified.
5. Curbing shall be backfilled immediately after the forms are removed.
6. Provide a broom finish and edging to all exposed surfaces.
7. Curing compound shall be applied in accordance with ODOT item 451.10, Curing. From May 1 through September 30, white curing compound is preferred.
8. Damaged curb when marked for replacement before acceptance by the City will be removed and replaced joint to joint unless directed differently by the City.

The City Of Clayton

CURB SECTION DETAILS	
CITY OF CLAYTON MONTGOMERY COUNTY, OHIO	
APPROVED:	
DRAWN IBI GROUP	SHEET 3
DATE : JANUARY 2021	

CESO
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Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

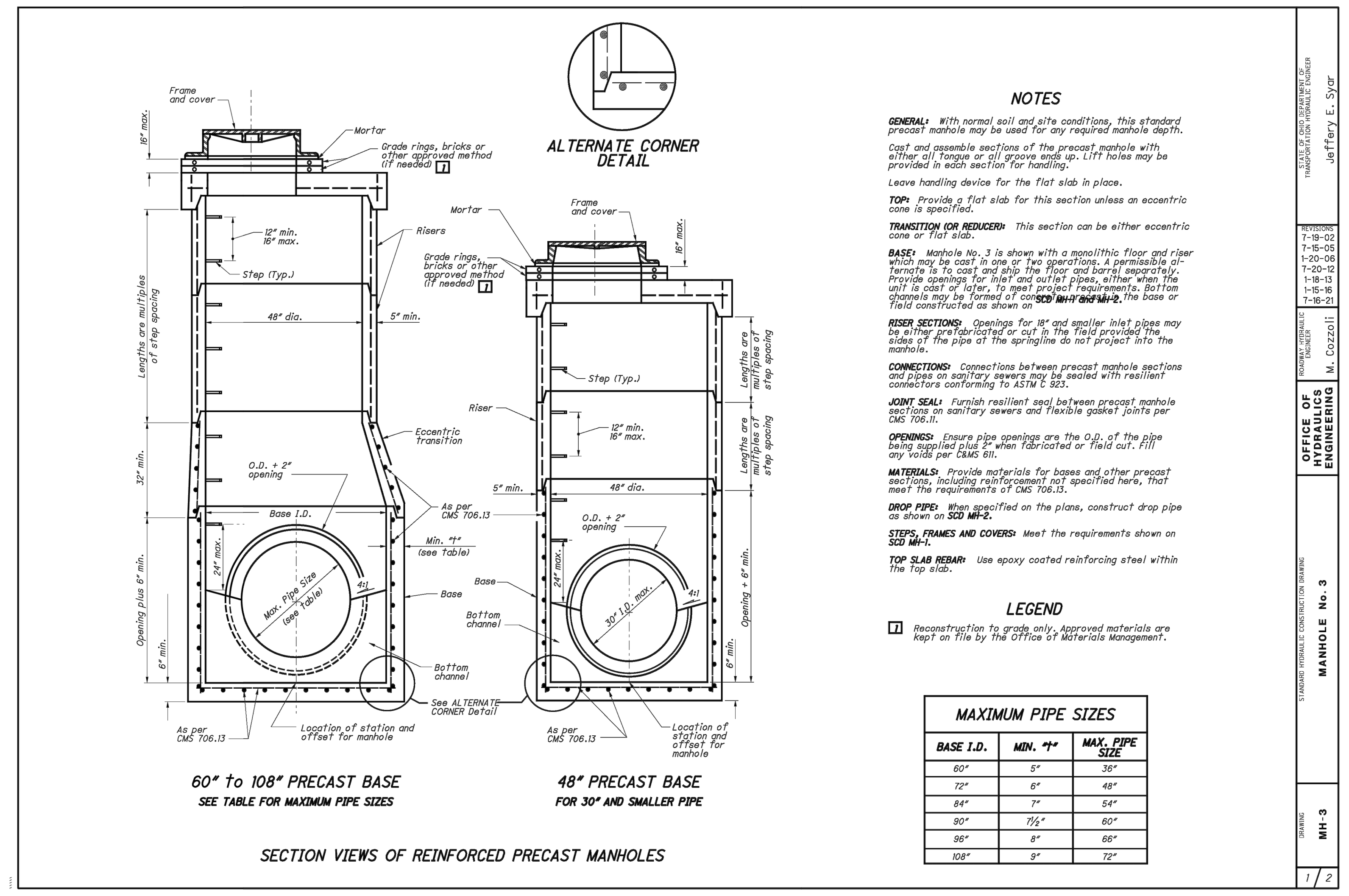
Revisions / Submissions

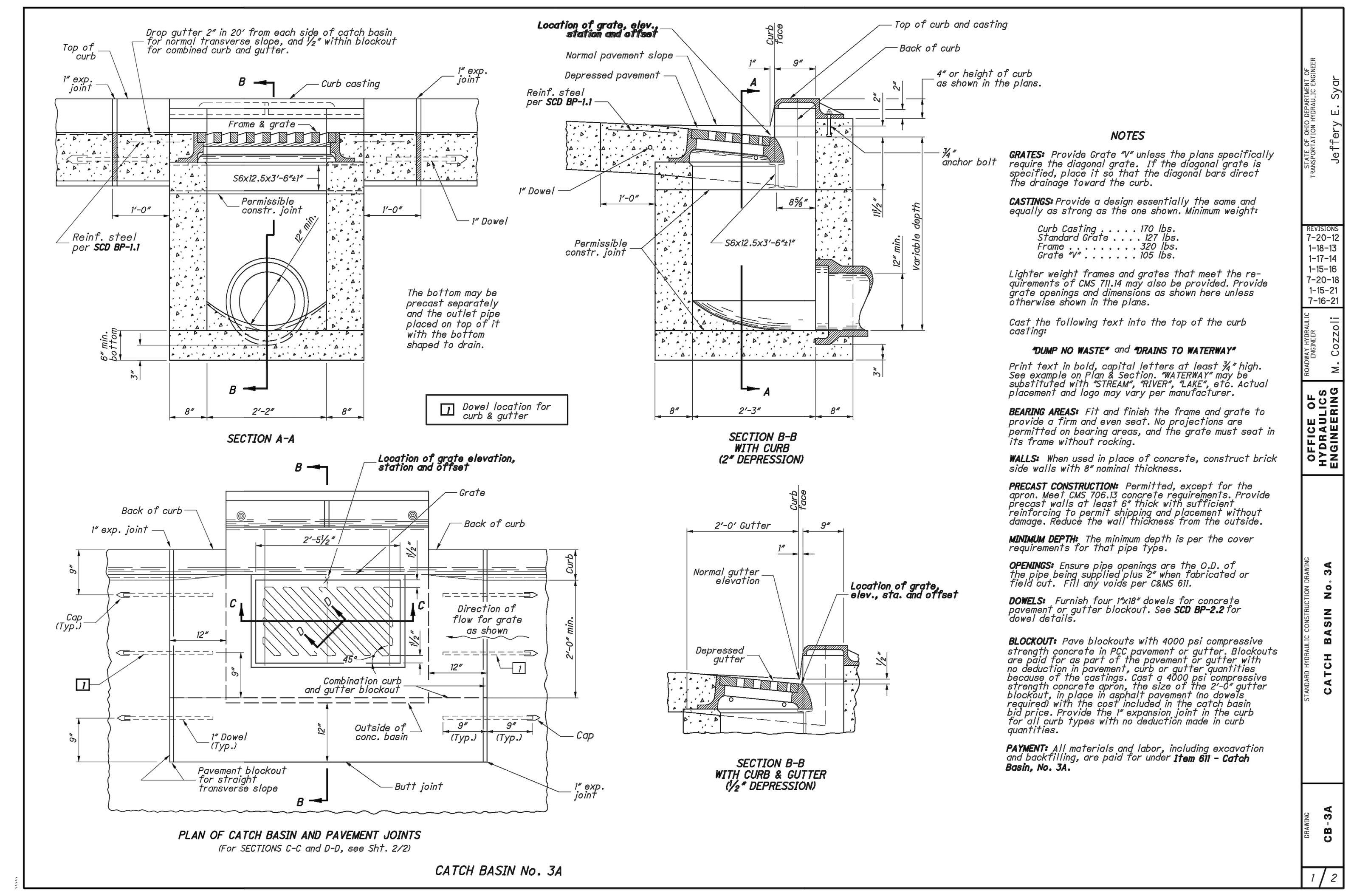
ID	Description	Date

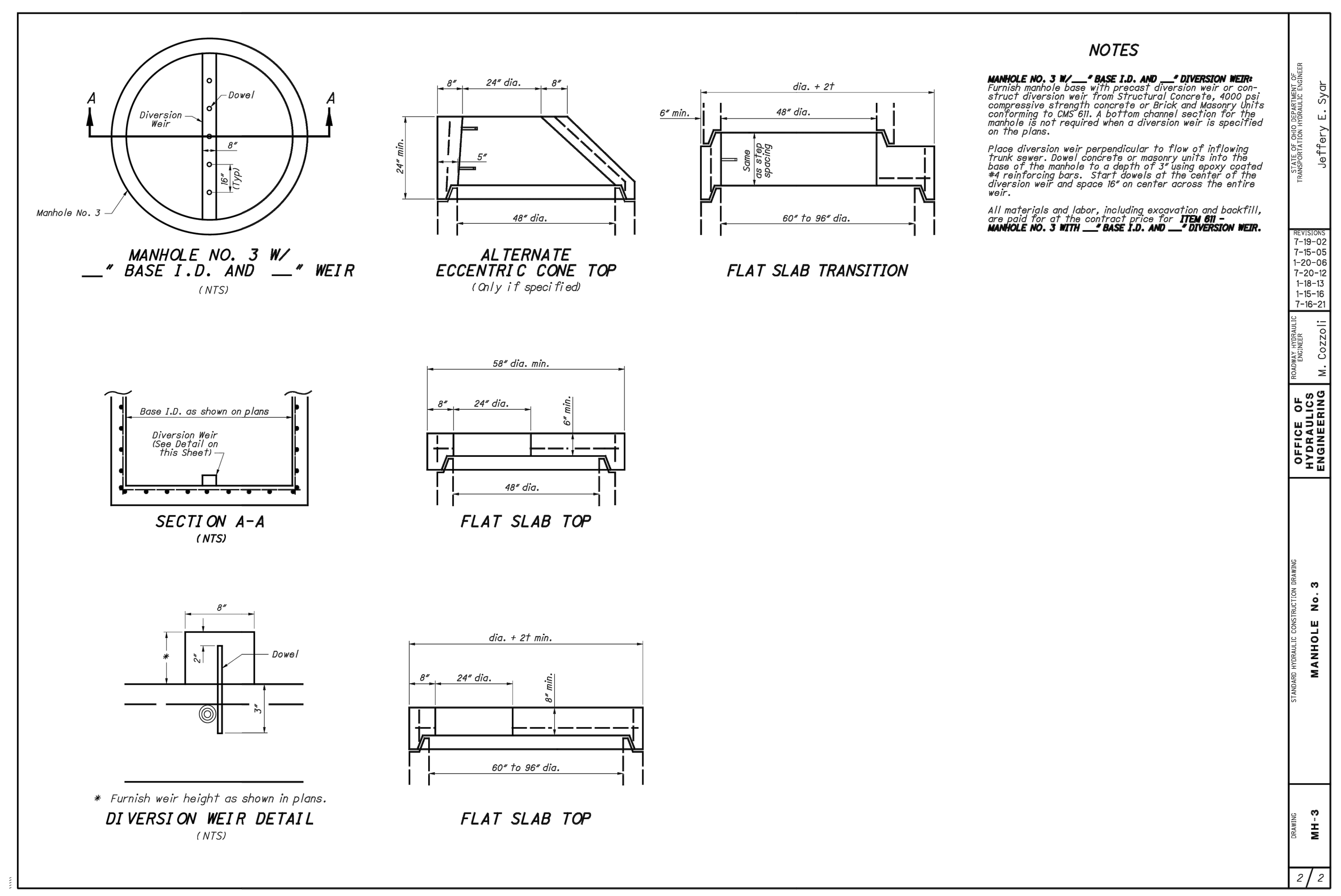
Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

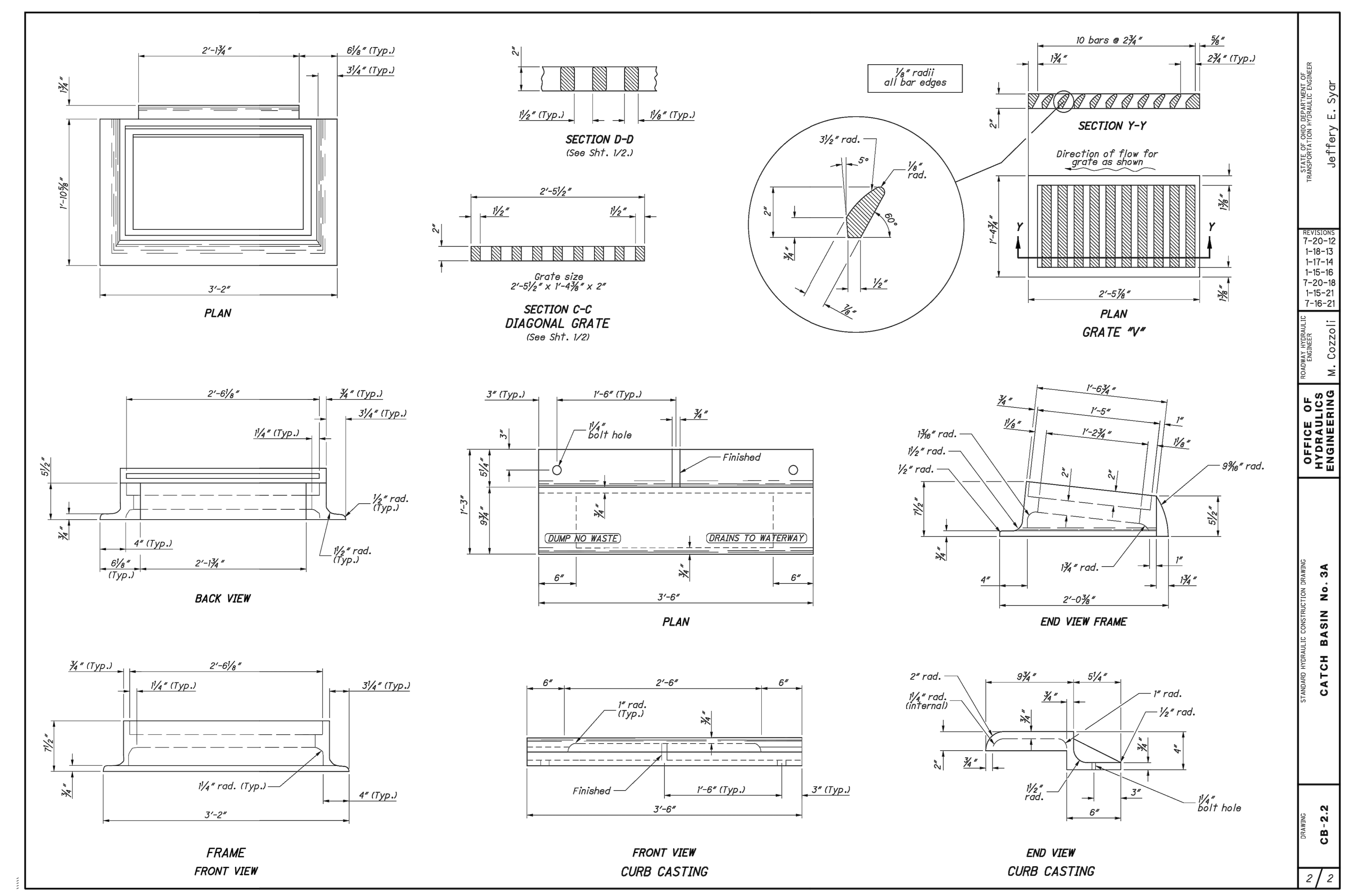
Drawing Title:
CONSTRUCTION DETAILS

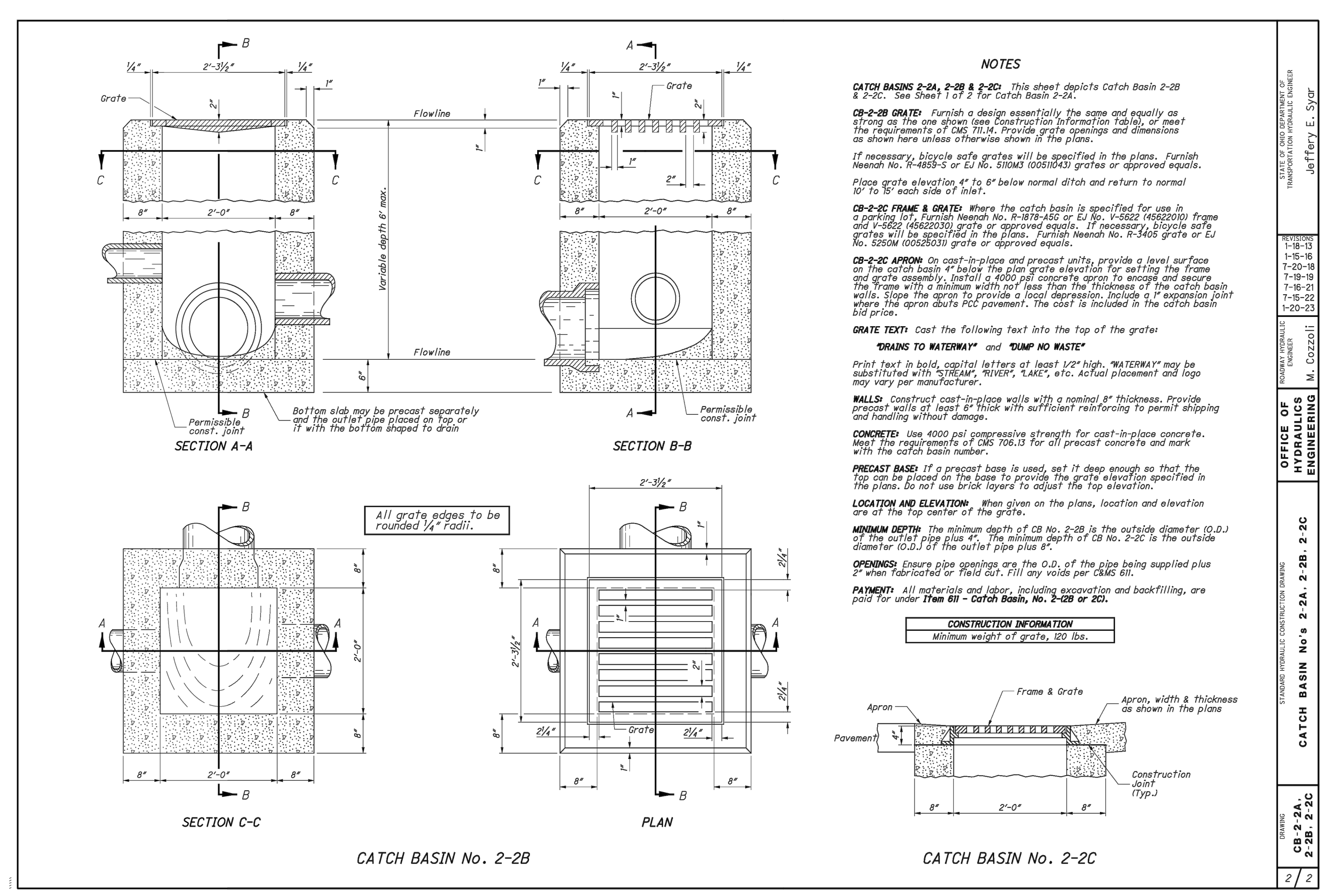
16

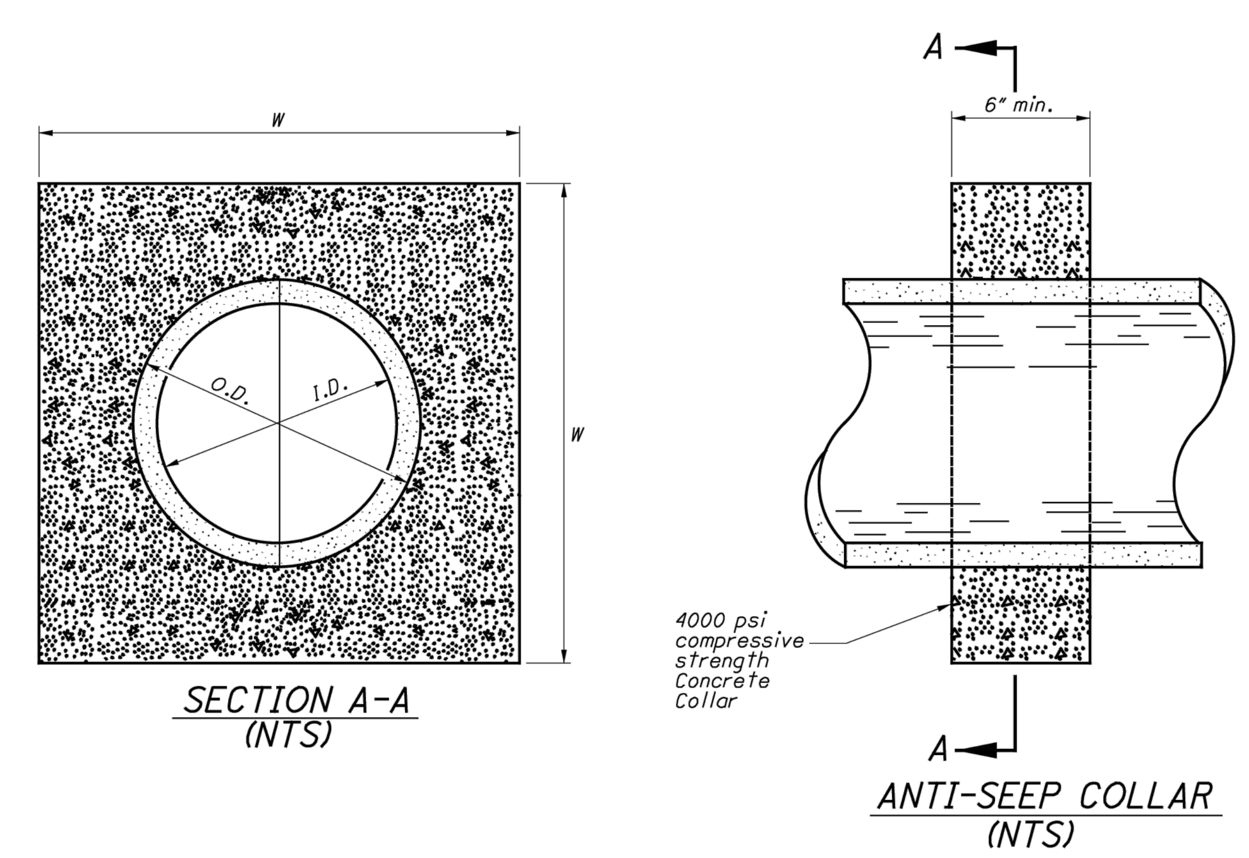












DIAMETER (I.D.) (FT.)	CONCRETE (C.Y.) DIMENSION OF COLLAR W X W (FT.)		
	3X3	4X4	5X5
1	0.15	0.28	0.45
2	N/A	0.24	0.40
3	N/A	N/A	0.33

NOTES

ANTI-SEEP COLLARS: Provide an anti-seep collar as shown in the plans. Payment for the collar is at the contract price for **ITEM 602, CONCRETE MASONRY.**

OBSERVATION WELL: Construct the observation well to a depth and location as shown in the plans. All materials and labor including excavation and backfill are paid for at the contract price for **ITEM 611, OBSERVATION WELL.**

INFILTRATION TRENCH: Construct the infiltration trench to the dimensions shown on the plan. The top 6 inch covering is paid for at the contract price for **ITEM 601, INFILTRATION BASIN AGGREGATE.**

All other materials and labor, including excavation, geotextile fabric, and backfill are paid for at the contract price for **ITEM 601 SPECIAL, INFILTRATION TRENCH.**

CESO
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THE INFORMATION ON THIS DOCUMENT IS PRELIMINARY OR INCOMPLETE. NOT FOR CONSTRUCTION, RECORDING PURPOSES, OR IMPLEMENTATION

DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

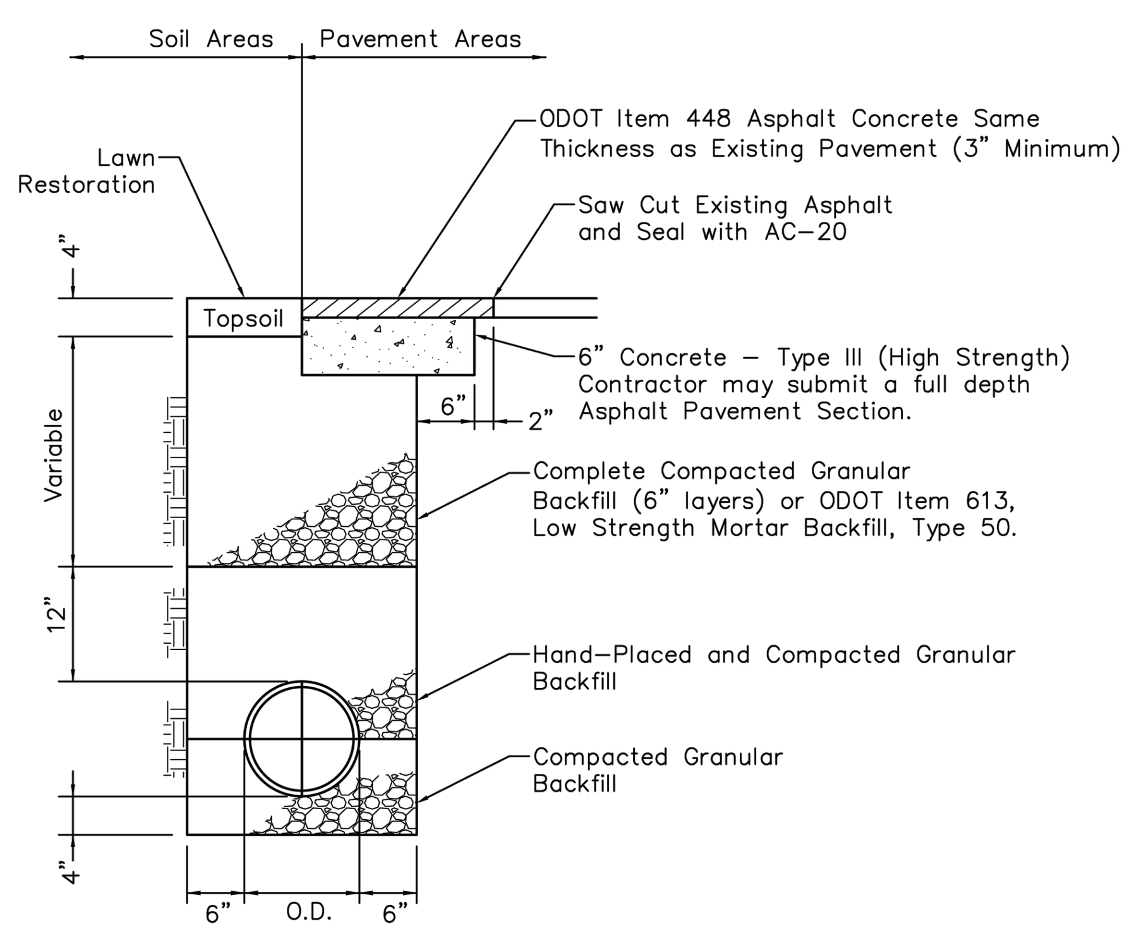
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue: FINAL DEVELOPMENT PLAN	

Drawing Title:
STORM DETAILS



GENERAL NOTES:

1. A street cut permit shall be obtained from the City of Clayton Public Service Department prior to opening a city roadway.
2. Traffic shall be maintained at all times. All traffic control shall be in accordance with the latest edition of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD). Contractor shall supply for review and approval a Maintenance of Traffic Plan prior to beginning work.
3. Closing of a city road requires the approval of the Public Service Director. A written request shall be submitted to the Public Service Director at least two (2) weeks prior to the closing.
4. City of Clayton shall inspect the trench prior to backfilling.
5. All backfill material shall be compacted in uniform layers.
6. ODOT Item 407 – Tack Coat shall be placed on the concrete surface at the rate of 0.1 gal. per sq. yd. prior to placing the 448 asphalt.
7. All joints shall be sealed with an AC-20 seal or approved equal.
8. Upon completion of the job, the area shall be cleaned of all dirt, mud and debris.
9. Lawn Restoration can be Seed & Mulch or Sod.

NOTE:

In pavement areas, the 448 asphalt concrete shall be placed the same day the concrete is poured. If the contractor is unable to complete the restoration the same day, temporary means shall be used to open the road to traffic (temporary patch, gravel, steel plates, etc.). The contractor will assume responsibility for maintaining the temporary patch until the final 448 asphalt is in place.

The City Of Clayton

TRENCH REPAIR

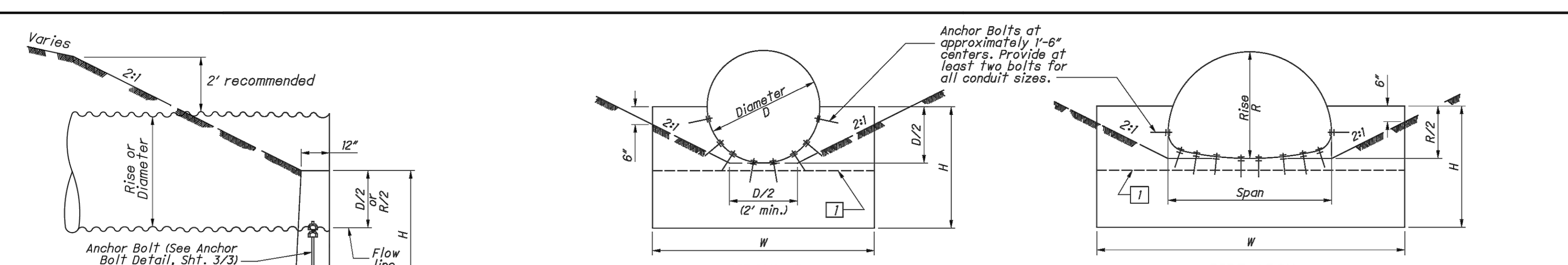
CITY OF CLAYTON
MONTGOMERY COUNTY, OHIO

APPROVED:

DRAWN: IBI GROUP | SHEET 11
DATE: JANUARY 2021

TRENCH WIDTHS FOR CORRUGATED SMOOTH WALL HDPE PIPE

PIPE DIAMETER	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
60"	96"

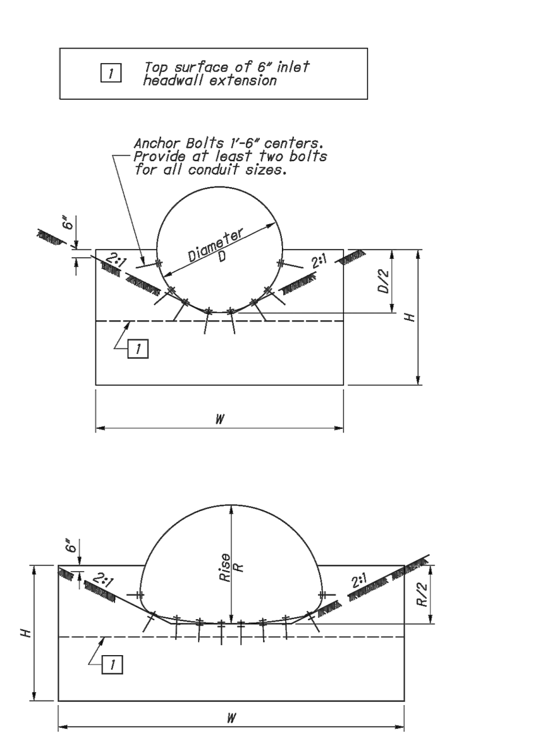


METAL PIPE PROFILE W/ ANCHOR BOLT OPTION

CIRCULAR

PIPE-ARCH

METAL PIPE END TREATMENT "A" W/ ANCHOR BOLT OPTION



METAL PIPE END TREATMENT "B" W/ ANCHOR BOLT OPTION

CAST-IN-PLACE HW FOR CORRUGATED METAL PIPE & PLASTIC PIPE (English)																
CIRCULAR					PIPE ARCH						PIPE ARCH					
D	W	H	T	CONC. cu. yds.	SPAN	RISE	W	H	T	CONC. cu. yds.	SPAN	RISE	W	H	T	CONC. cu. yds.
12"	2'-0"	3'-0"	12"	0.21	2.67"x½" Corrugations						*81"	59"	12'-4"	5'-5"	15"	2.14
15"	2'-6"	3'-2"	12"	0.27	17"	13"	3'-0"	3'-0"	12"	0.31	87"	63"	13'-0"	5'-7"	17"	2.50
18"	3'-0"	3'-3"	12"	0.33	21"	15"	3'-6"	3'-0"	12"	0.35	95"	67"	14'-0"	5'-9"	20"	3.14
21"	3'-6"	3'-4"	12"	0.39	24"	18"	4'-0"	3'-2"	12"	0.43	103"	71"	15'-0"	5'-11"	22"	3.54
24"	4'-0"	3'-6"	12"	0.46	28"	20"	4'-6"	3'-3"	12"	0.48	112"	75"	16'-0"	6'-1"	24"	3.96
27"	4'-6"	3'-8"	12"	0.53	35"	24"	5'-6"	3'-5"	12"	0.61	117"	79"	17'-9"	6'-3"	25"	4.89
30"	5'-0"	3'-9"	12"	0.60	42"	29"	6'-6"	3'-7"	12"	0.73	128"	83"	18'-0"	6'-5"	26"	5.01
33"	5'-6"	3'-10"	12"	0.68	49"	33"	7'-8"	3'-9"	12"	0.90	137"	87"	19'-0"	6'-7"	27"	5.45
36"	6'-0"	4'-0"	12"	0.76	57"	38"	9'-0"	4'-0"	12"	1.10	142"	91"	20'-9"	6'-9"	27"	6.31
39"	6'-6"	4'-2"	12"	0.84	64"	43"	10'-0"	4'-4"	12"	1.31	6"x2" Corrugations (18" Corner Radius)					
42"	7'-0"	4'-3"	12"	0.92	71"	47"	11'-0"	4'-8"	12"	1.54						
48"	8'-0"	4'-6"	12"	1.10	*77"	52"	11'-8"	5'-3"	12"	1.84	*6'-1"	4'-7"	11'-8"	5'-7"	12"	1.89
54"	9'-3"	4'-9"	12"	1.33	*83"	57"	12'-4"	5'-5"	15"	2.46	*6'-4"	4'-9"	12'-0"	5'-8"	14"	2.12
60"	10'-6"	5'-6"	12"	1.78	6"x2" Corrugations (31" Corner Radius)						*6'-9"	4'-11"	12'-4"	5'-9"	15"	2.42
66"	11'-9"	5'-9"	12"	2.06							*7'-0"	5'-1"	12'-8"	5'-10"	16"	2.44
72"	13'-0"	6'-0"	12"	2.37	13'-3"	9'-4"	23'-11"	7'-11"	32"	9.63	7'-3"	5'-3"	12'-11"	5'-11"	17"	2.69
78"	14'-3"	6'-3"	14"	2.94	13'-6"	9'-6"	24'-9"	8'-0"	32"	10.12	7'-8"	5'-5"	13'-2"	6'-0"	18"	2.77
84"	15'-6"	6'-6"	14"	3.30	14'-0"	9'-8"	24'-10"	8'-1"	33"	10.33	7'-11"	5'-7"	14'-0"	6'-1"	20"	3.15
90"	16'-9"	6'-9"	16"	4.00	14'-2"	9'-10"	25'-9"	8'-2"	33"	10.87	8'-2"	5'-9"	14'-8"	6'-2"	21"	3.45
96"	18'-0"	7'-0"	16"	4.40	14'-5"	10'-0"	26'-7"	8'-3"	33"	11.39	8'-7"	5'-11"	15'-0"	6'-3"	22"	3.75
102"	19'-3"	7'-3"	18"	5.28	14'-11"	10'-2"	26'-9"	8'-4"	34"	11.68	8'-10"	6'-1"	15'-10"	6'-4"	23"	4.15
108"	20'-6"	7'-6"	20"	6.21	15'-4"	10'-4"	26'-11"	8'-5"	34"	11.96	9'-4"	6'-3"	16'-0"	6'-5"	24"	4.65
114"	21'-9"	7'-9"	22"	7.25	15'-7"	10'-6"	27'-9"	8'-6"	34"	12.51	9'-6"	6'-5"	16'-10"	6'-6"	26"	4.93
120"	23'-0"	8'-0"	24"	8.38	15'-10"	10'-8"	28'-7"	8'-7"	35"	13.06	9'-9"	6'-7"	17'-9"	6'-7"	27"	5.41
*126"	23'-0"	8'-3"	26"	8.64	16'-3"	10'-10"	28'-8"	8'-8"	35"	13.34	10'-3"	6'-9"	17'-10"	6'-8"	27"	5.45
132"	23'-0"	8'-6"	28"	9.23	16'-6"	11'-0"	29'-7"	8'-9"	35"	13.94	10'-8"	6'-11"	17'-11"	6'-9"	27"	5.59
138"	24'-1"	8'-9"	30"	10.50	17'-0"	11'-2"	29'-8"	8'-10"	36"	14.24	10'-11"	7'-1"	18'-10"	6'-10"	28"	5.97
144"	25'-2"	9'-0"	32"	11.89	17'-2"	11'-4"	30'-7"	8'-11"	36"	14.84	11'-5"	7'-3"	18'-11"	6'-11"	28"	6.12
150"	26'-4"	9'-3"	34"	13.38	17'-5"	11'-6"	31'-5"	9'-0"	36"	15.42	11'-7"	7'-5"	19'-9"	7'-0"	28"	6.52
156"	27'-5"	9'-6"	36"	15.01	17'-11"	11'-8"	31'-7"	9'-1"	37"	15.83	11'-10"	7'-7"	20'-9"	7'-1"	29"	6.94
162"	28'-7"	9'-9"	38"	16.75	18'-1"	11'-10"	32'-5"	9'-2"	37"	16.43	12'-4"	7'-9"	20'-10"	7'-2"	29"	7.12
168"	29'-8"	10'-0"	40"	18.61	18'-7"	12'-0"	32'-6"	9'-3"	37"	16.78	12'-6"	7'-11"	21'-8"	7'-3"	29"	7.53
174"	30'-9"	10'-3"	42"	20.28	18'-9"	12'-2"	33'-4"	9'-4"	38"	17.43	12'-8"	8'-1"	22'-7"	7'-4"	30"	7.95
180"	31'-11"	10'-6"	43"	21.87	19'-3"	12'-4"	33'-5"	9'-5"	38"	17.78	12'-10"	8'-4"	23'-7"	7'-5"	30"	8.48
186"	33'-0"	10'-9"	44"	23.54	19'-6"	12'-6"	34'-5"	9'-6"	38"	18.49	13'-5"	8'-5"	23'-7"	7'-6"	30"	8.63
192"	34'-2"	11'-0"	45"	25.30	19'-8"	12'-8"	35'-3"	9'-7"	39"	19.19	13'-11"	8'-7"	23'-7"	7'-7"	31"	8.81
198"	35'-3"	11'-3"	46"	27.12	19'-11"	12'-10"	36'-3"	9'-8"	39"	19.95	14'-1"	8'-9"	25'-1"	7'-8"	31"	9.29
204"	36'-4"	11'-6"	47"	29.15	20'-5"	13'-0"	36'-3"	9'-9"	39"	20.30	14'-3"	8'-11"	25'-6"	7'-9"	31"	9.78
210"	37'-6"	11'-9"	48"	31.03	20'-7"	13'-2"	37'-2"	9'-10"	40"	21.05	14'-10"	9'-1"	25'-6"	7'-10"	32"	10.25
216"	38'-7"	12'-0"	49"	33.43	3"x1" Corrugations						15'-4"	9'-3"	25'-6"	7'-11"	32"	10.25
222"	39'-9"	12'-3"	50"	36.26	40"	31"	6'-6"	3'-7"	12"	0.70	15'-6"	9'-5"	26'-5"	8'-0"	32"	10.74
228"	40'-10"	12'-6"	51"	37.52	46"	36"	7'-8"	3'-9"	12"	0.85	15'-8"	9'-7"	27'-5"	8'-1"	33"	11.28
234"	42'-0"	12'-9"	52"	39.86	53"	41"	9'-0"	4'-0"	12"	1.06	15'-10"	9'-10"	28'-5"	8'-2"	33"	12.00
240"	43'-1"	13'-0"	53"	42.28	60"	46"	10'-0"	4'-4"	12"	1.27	16'-5"	9'-11"	28'-5"	8'-3"	33"	12.09
246"	44'-2"	13'-3"	54"	44.83	66"	51"	11'-0"	4'-8"	12"	1.54	16'-7"	10'-1"	29'-4"	8'-4"	34"	12.64
252"	45'-4"	13'-6"	55"	47.44	*73"	55"	11'-8"	5'-3"	12"	1.81	--	--	--	--	--	--

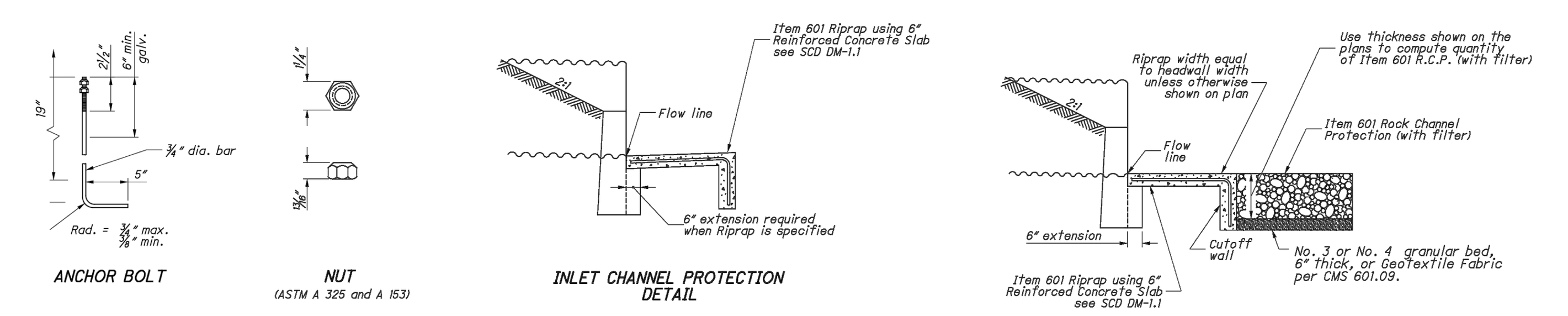
* Determine channel configuration for pipe sizes between end treatment "A" and end treatment "B" by 2:1 slopes passing through a point 6" below the top and at each side of the headwall. For end treatment "B", 2:1 slopes are tangent to pipe.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

HW-2.1

HALF-HEIGHT HEADWALLS FOR CORRUGATED METAL PIPE AND PLASTIC PIPE

1/3

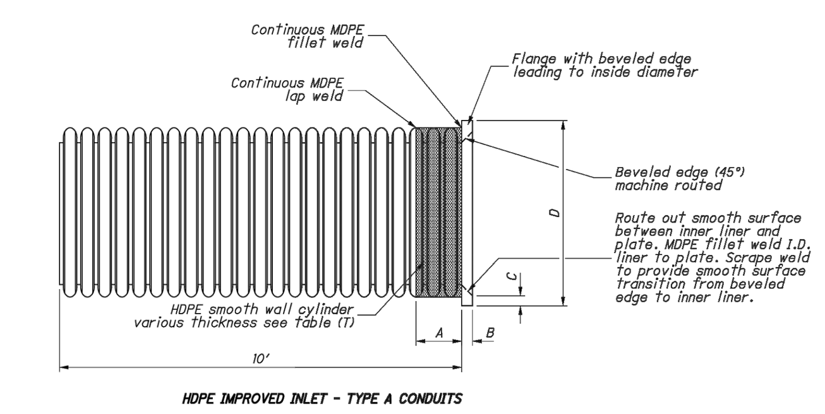


ANCHOR BOLT

NUT (ASTM A 325 and A 153)

INLET CHANNEL PROTECTION DETAIL

OUTLET CHANNEL PROTECTION DETAIL



HDPE IMPROVED INLET - TYPE A CONDUITS

PIPE SIZE	A	B	C	D	T
12 in.	6.00 in.	0.50 in.	1.00 in.	15.15 in.	0.13 in.
15 in.	6.00 in.	0.63 in.	1.26 in.	18.73 in.	0.19 in.
18 in.	6.00 in.	0.75 in.	1.50 in.	22.57 in.	0.25 in.
24 in.	8.00 in.	1.00 in.	2.00 in.	30.08 in.	0.25 in.
30 in.	8.00 in.	1.25 in.	2.50 in.	37.50 in.	0.38 in.
36 in.	10.00 in.	1.50 in.	3.00 in.	45.00 in.	0.38 in.
42 in.	10.00 in.	1.75 in.	3.50 in.	51.90 in.	0.38 in.
48 in.	10.00 in.	2.00 in.	4.00 in.	59.60 in.	0.38 in.
60 in.	12.00 in.	2.50 in.	5.00 in.	74.50 in.	0.38 in.

NOTES

GENERAL: Provide a riprap reinforced concrete slab according to SCD DM-1.1 if the pipe is depressed or it is specified in the plan. Payment for the slab is made per square yard of **Item 601 Riprap Using 6" Reinforced Concrete Slab** and includes the cost of the cutoff wall.

This drawing is for cast-in-place half-height concrete headwalls. Precast half-height headwalls are only approved for round conduits with a maximum conduit diameter of 78". When precast headwalls are furnished, provide openings for the anchor cable as shown and fill with grout after placement of the anchor cable. If anchor bolts are to be used with a precast headwall, fill the anchor cable openings with grout.

CONCRETE: Use 4000 psi compressive strength concrete for headwall. Concrete quantities are based on headwalls without the 6" extension under the channel protection.

ANCHOR BOLTS: Furnish bolts (see detail sheet 2/3) that meet ASTM A 307 for anchoring both ends of metal pipe. The top 6" min. of the bolt must be galvanized according to ASTM A 153. Cost of anchors is included in the price bid per foot of Item 611.

Headwall dimensions are based on end treatment "A" for pipe sizes up to and including 120", 71"x47", and 66"x51", and on end treatment "B" for sizes over and including 132", 13'-3"x9'-4", and 7'-3"x5'-3".

PLASTIC PIPE: Plastic pipe may not be available in all the sizes specified on this drawing.

ANCHOR CABLE: Furnish galvanized anchor cable (see detail sheet 2/4 & 3/4) that meets ASTM A 1023 for anchoring both ends of plastic or metal pipe. Wire rope clip must be galvanized according to ASTM A 153. Cost of anchor cable and wire rope clip is included in the unit price bid per foot of Item 611.

EYEBOLTS: Furnish eyebolts (see detail sheet 3/4) that meet ASTM A 489 for anchoring both ends of metal or plastic pipe. The eyebolts must be galvanized according to ASTM A 153. Furnish eyebolts with a min. I.D. eye of 1/2" and a min. shank length of 3". Cost of eyebolts is included in the price bid per foot of Item 611.

IMPROVED INLET FOR HDPE PIPE: Furnish improved inlet at upstream end of culverts and open-ended storm sewers using plastic pipe when specified in the plans.

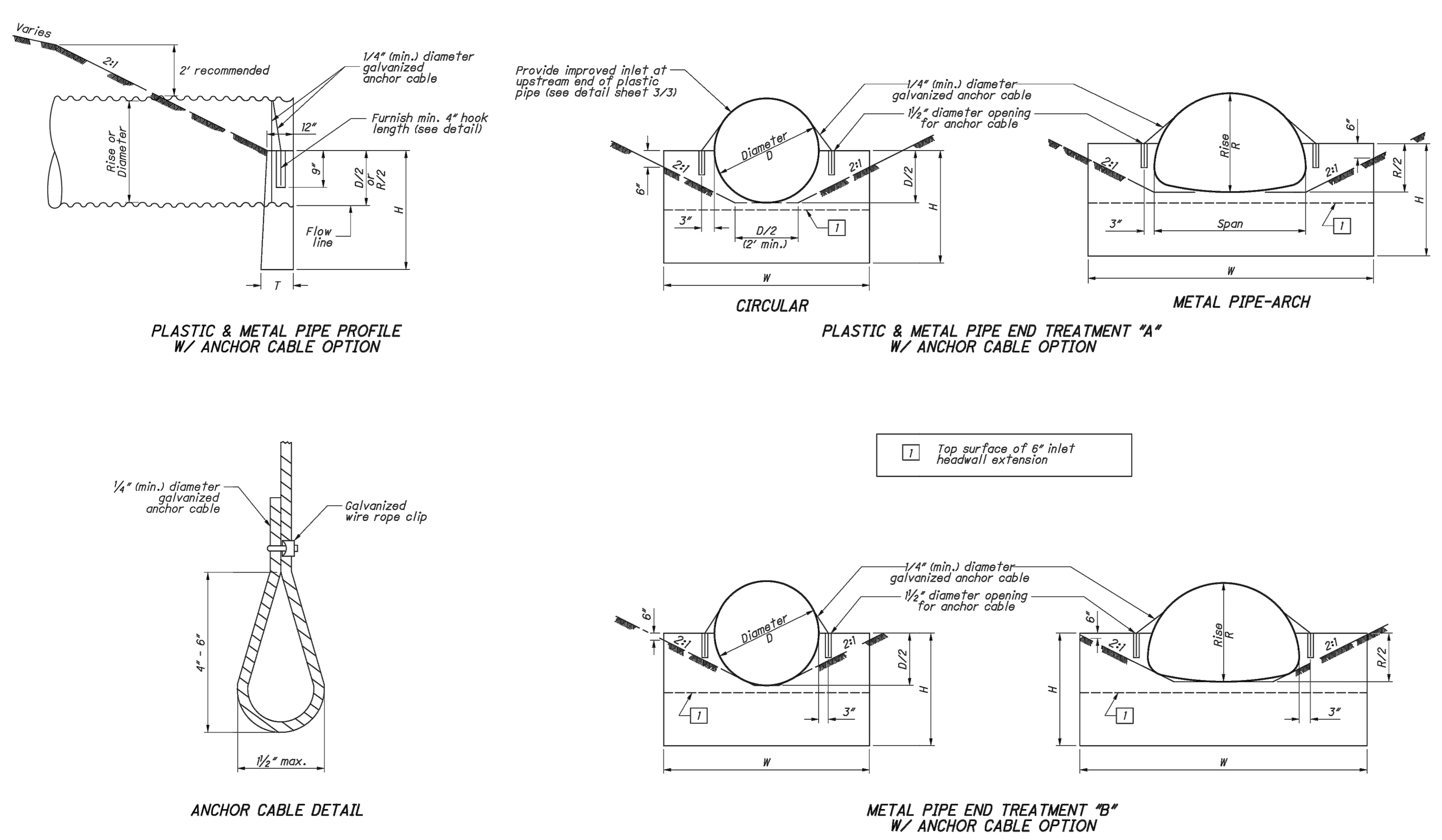
Use HDPE smooth cap and flange materials according to ASTM D 3350 345464C.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

HW-2.1

HALF-HEIGHT HEADWALLS FOR CORRUGATED METAL PIPE AND PLASTIC PIPE

4/4



PLASTIC & METAL PIPE PROFILE W/ ANCHOR CABLE OPTION

CIRCULAR

METAL PIPE-ARCH

PLASTIC & METAL PIPE END TREATMENT "A" W/ ANCHOR CABLE OPTION

ANCHOR CABLE DETAIL

METAL PIPE END TREATMENT "B" W/ ANCHOR CABLE OPTION

NOTES

Tightly Wrap galvanized anchor cable one time completely around the circumference of the conduit. Furnish hook at least 4" long at the ends of the anchor cable as shown above.

Cut galvanized anchor cable to length required.

Form or drill 1½" diameter openings for anchor cable at locations shown. Alternatively, place anchor cable in wet concrete at the dimensions shown above to secure conduit to headwall.

Fill any openings made for anchor cables with grout after the cables are placed to a taut fit.

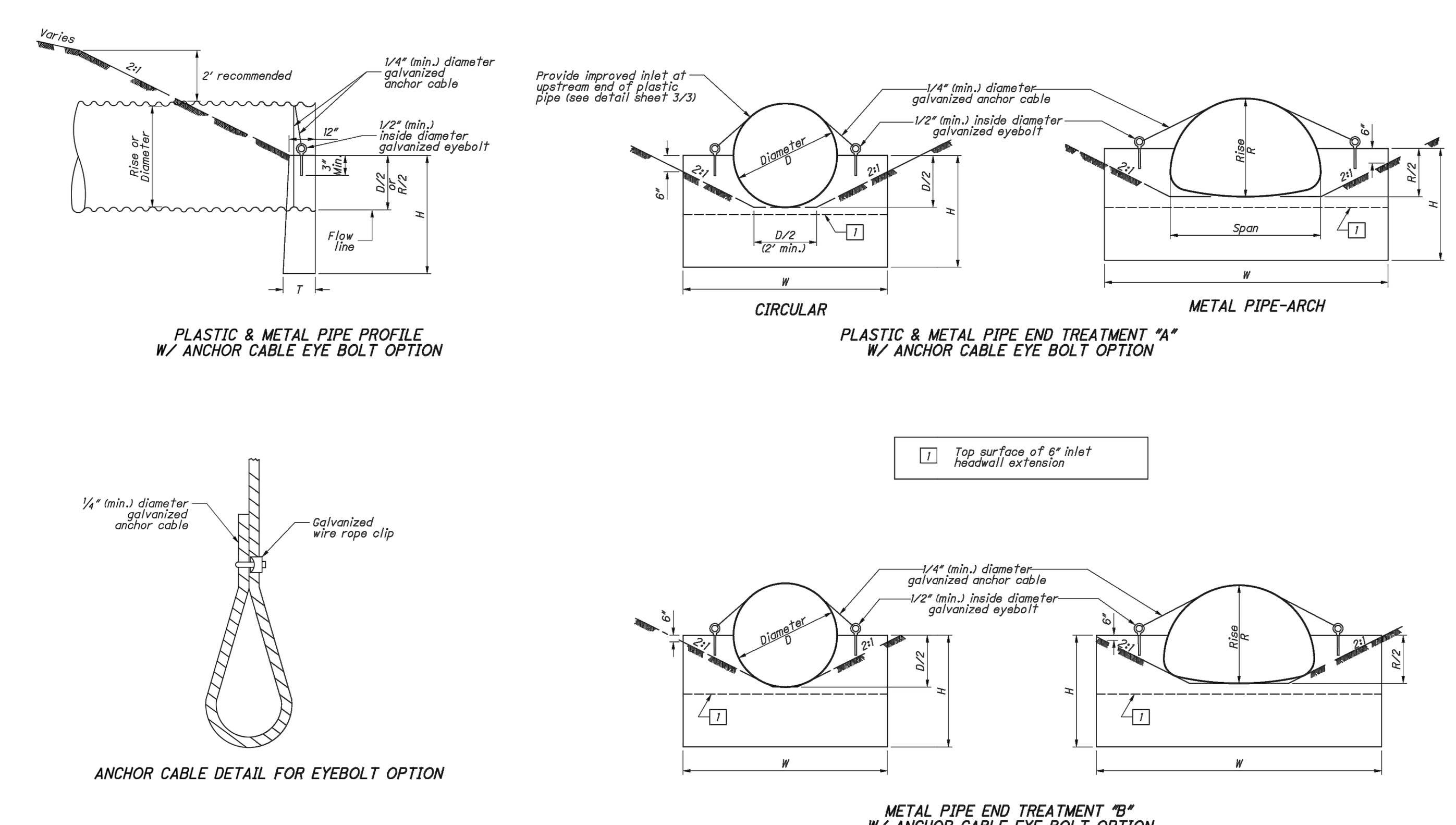
Secure cables such that they are taut after the grout or concrete has cured.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

HW-2.1

HALF-HEIGHT HEADWALLS FOR CORRUGATED METAL PIPE AND PLASTIC PIPE

2/4



PLASTIC & METAL PIPE PROFILE W/ ANCHOR CABLE EYE BOLT OPTION

CIRCULAR

METAL PIPE-ARCH

PLASTIC & METAL PIPE END TREATMENT "A" W/ ANCHOR CABLE EYE BOLT OPTION

ANCHOR CABLE DETAIL FOR EYEBOLT OPTION

METAL PIPE END TREATMENT "B" W/ ANCHOR CABLE EYE BOLT OPTION

NOTES

Drill openings a min. of 3" deep for eyebolts at the locations shown. Insert entire length of bolt shank into opening. Fill openings with grout and allow to harden before securing anchor cable. Alternatively, place eyebolts in wet concrete at the locations shown above.

Tightly Wrap galvanized anchor cable one time completely around the circumference of the conduit.

Cut galvanized anchor cable to length required.

Place cable through eyebolt and form a loop as shown in the above detail. Ensure the cable is pulled to a tight fit and secured with a galvanized wire rope clip.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

HW-2.1

HALF-HEIGHT HEADWALLS FOR CORRUGATED METAL PIPE AND PLASTIC PIPE

3/4

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DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

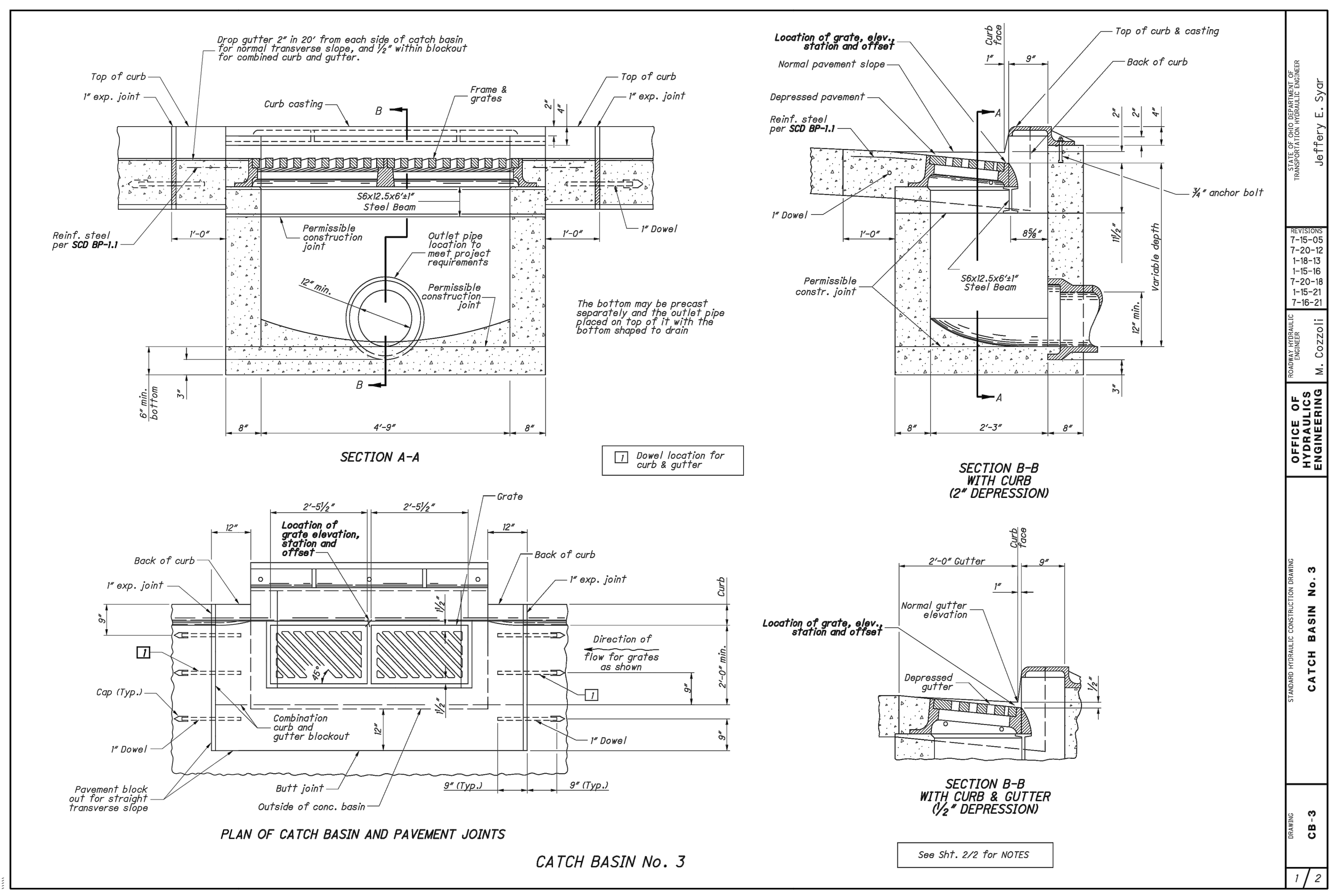
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

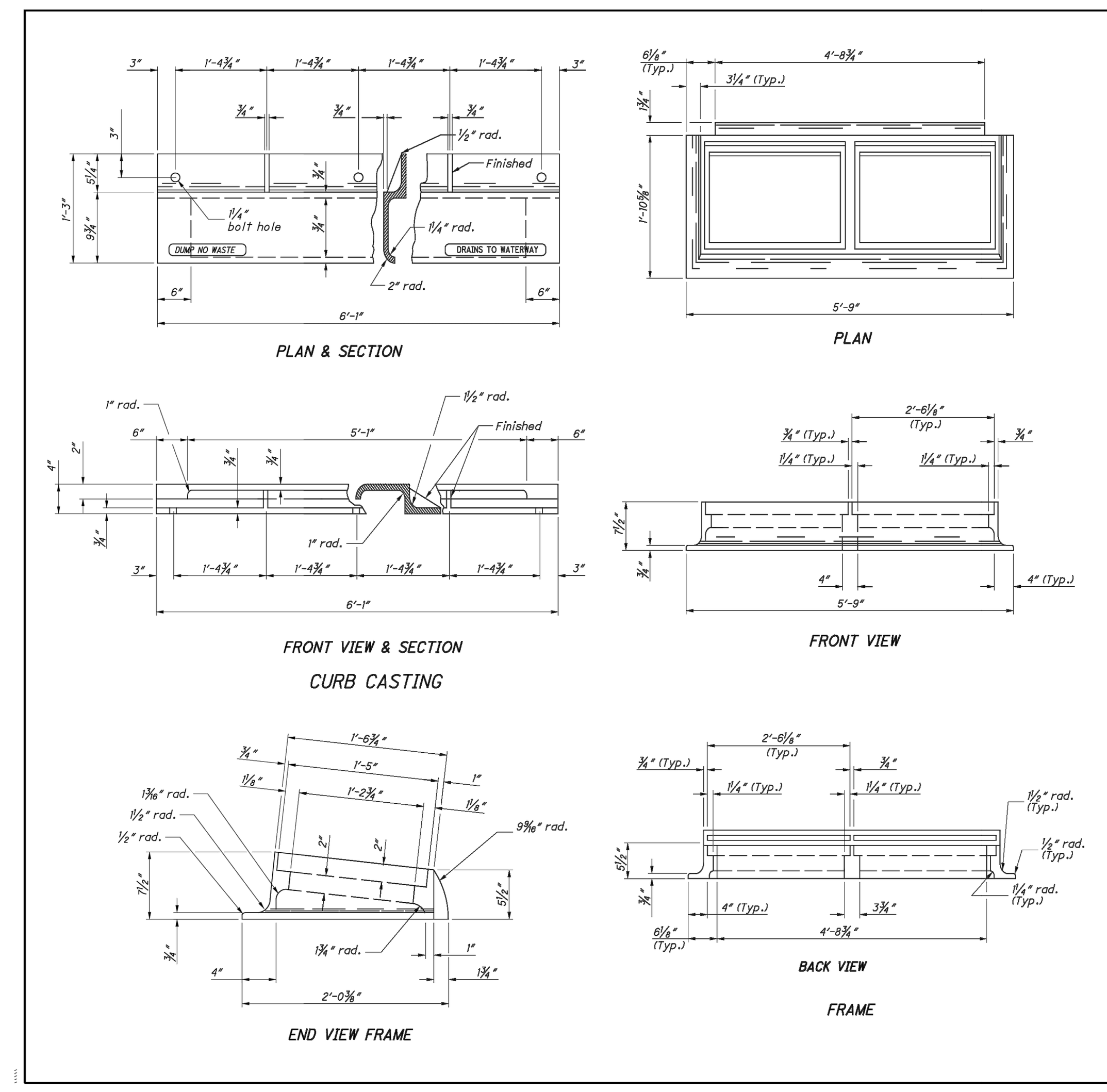
Revisions / Submissions

ID	Description	Date

Project Number: 765930
Scale: AS SHOWN
Drawn By: SJS
Checked By: JEE
Date: MAY 5, 2025
Issue: FINAL DEVELOPMENT PLAN

Drawing Title:
STORM DETAILS





NOTES

GRATES: Two required. For details, see **SCD CB-3A.** Provide Grate "V" unless the plans specifically require the diagonal grate. If the diagonal grate is specified, place it so that the diagonal bars direct drainage flow toward the curb.

CASTINGS: Provide a design essentially the same and equally as strong as the one shown. Minimum weight:

Curb Casting . . . . . 305 lbs.
Two Grates . . . . . . 254 lbs.
Frame . . . . 590 lbs.
Two Grate "V" . . . . 210 lbs.

Lighter weight frames and grates that meet the requirements of CMS 711.14 may also be provided. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

Cast the following text into the top of the curb casting:

"DUMP NO WASTE" and **"DRAINS TO WATERWAY"**

Print text in bold, capital letters at least ¾" high. See example on Plan & Section. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

BEARING AREAS: Fit and finish the frame and grate to provide a firm and even seat. No projections are permitted on bearing areas, and the grate must seat in its frame without rocking.

WALLS: When used in place of concrete, construct brick side walls with 8" nominal thickness.

PRECAST CONSTRUCTION: Permitted, except for the apron. Meet CMS 706.13 concrete requirements. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and placement without damage. Reduce the wall thickness from the outside.

MINIMUM DEPTH: The minimum depth is per the cover requirements for that pipe type.

OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per C&MS 611.

DOWELS: Furnish four 1"x18" dowels for concrete pavement or gutter blockout. See **SCD BP-2.2** for dowel details.

BLOCKOUT: Pave blockouts with 4000 psi compressive strength concrete in PCC pavement or gutter. Blockouts are paid for as part of the pavement or gutter with no deduction in pavement, curb or gutter quantities because of the castings. Cast a 4000 psi compressive strength concrete apron, the size of the 2'-0" gutter blockout, in place in asphalt pavement (no dowels required) with the cost included in the catch basin bid price. Provide the 1" expansion joint in the curb for all curb types with no deduction made in curb quantities.

PAYMENT: All materials and labor, including excavation and backfilling, are paid for under **Item 611 - Catch Basin, No. 3.**

STATE OF OHIO DEPARTMENT OF TRANSPORTATION HYDRAULIC ENGINEER Jeffery E. Syar

REVISIONS 7-15-05 7-20-12 1-18-13 1-15-16 7-20-18 1-15-21 7-16-21

ROADWAY HYDRAULIC ENGINEER M. Cozzoli

OFFICE OF HYDRAULICS ENGINEERING

STANDARD HYDRAULIC CONSTRUCTION DRAWING CATCH BASIN No. 3

CB-3

2/2

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DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

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Project Number: 765930
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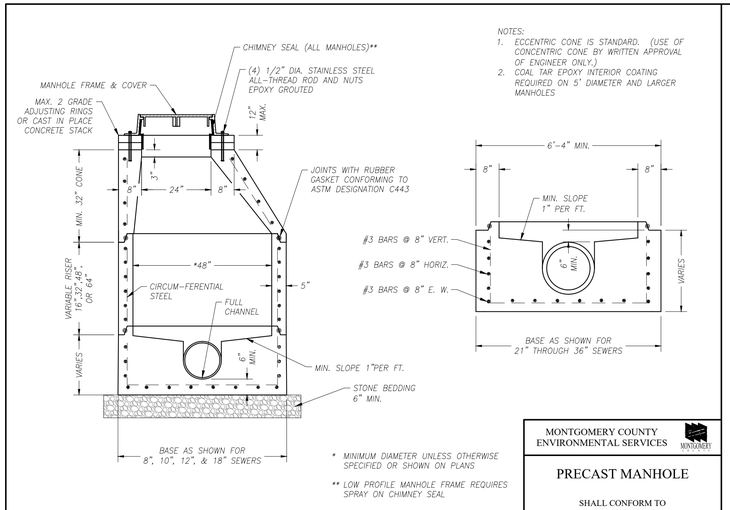
STORM DETAILS



NOTES:
1. ECCENTRIC CONE IS STANDARD. (USE OF CONCENTRIC CONE BY WRITTEN APPROVAL OF ENGINEER ONLY.)
2. COAL TAR EPOXY INTERIOR COATING REQUIRED ON 5' DIAMETER AND LARGER MANHOLES

* MINIMUM DIAMETER UNLESS OTHERWISE SPECIFIED OR SHOWN ON PLANS

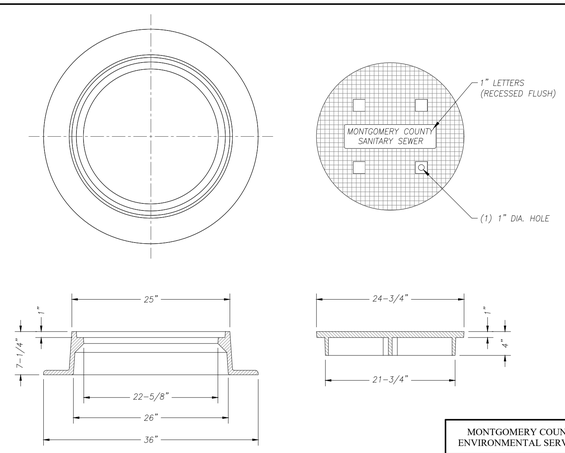
** LOW PROFILE MANHOLE FRAME REQUIRES SPRAY ON CHIMNEY SEAL

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

PRECAST MANHOLE

SHALL CONFORM TO ASTM DESIGNATION C478

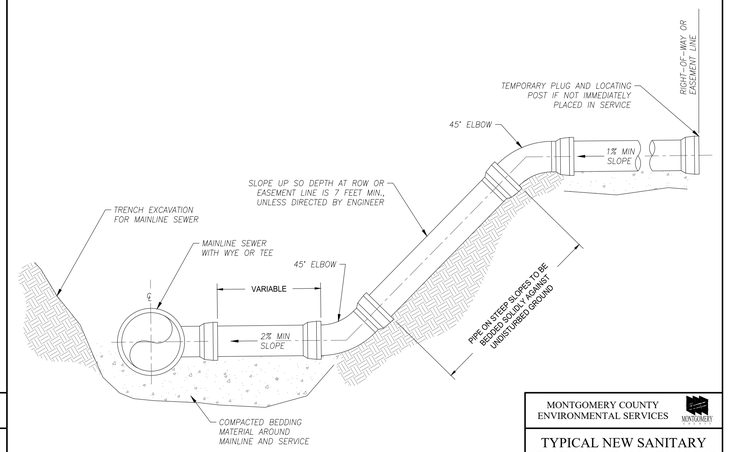
SCALE : NONE | DATE : 11/21/2019



MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

STANDARD MANHOLE FRAME AND COVER

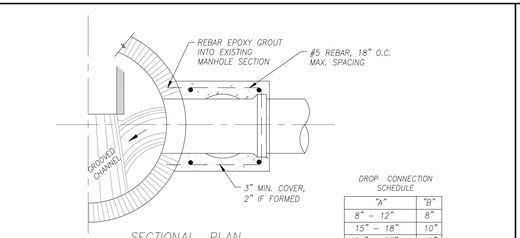
SCALE : NONE | DATE : 11/21/2019



MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

TYPICAL NEW SANITARY SERVICE INSTALLATION FOR SERVICE DEPTHS GREATER THAN 12 FEET AT MAINLINE

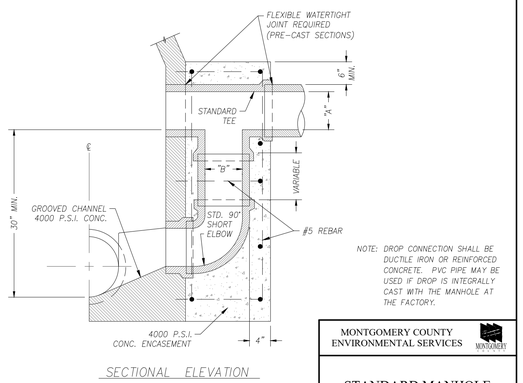
SCALE : NONE | DATE : 11/21/2019



SECTIONAL PLAN

DROP CONNECTION SCHEDULE

"A"	"B"
8" – 12"	8"
15" – 18"	10"
21" – 27"	12"
30" – 60"	½"A"



SECTIONAL ELEVATION

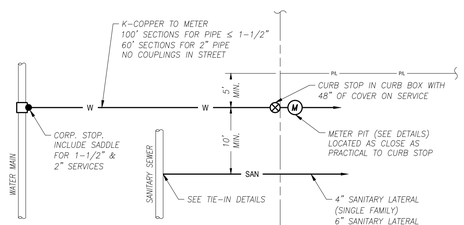
NOTE: DROP CONNECTION SHALL BE DUCTILE IRON OR REINFORCED CONCRETE. PVC PIPE MAY BE USED IF DROP IS INTEGRALLY CAST WITH THE MANHOLE AT THE FACTORY.

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

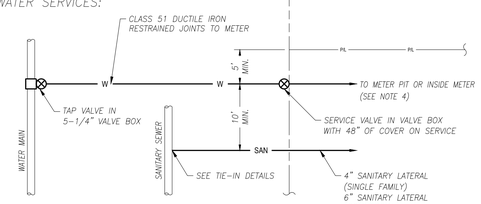
STANDARD MANHOLE DROP CONNECTION

SCALE : NONE | DATE : 11/21/2019

1", 1-1/2", OR 2" WATER SERVICES:



3" OR LARGER WATER SERVICES:



NOTES:
1. CONTACT MCES FOR COURSE OF ACTION FOR ANY SITUATION NOT COVERED IN HANDBOOK
2. SHUTOFF VALVE REQUIRED IMMEDIATELY AFTER SERVICE ENTERS BUILDING
3. PICKUP OF 3/4" SERVICE IS ONLY PERMITTED IF K-COPPER AND EXISTING STUB WERE INSTALLED AS PART OF A MAIN LINE EXTENSION
4. INSIDE METER MUST MEET ALL REQUIREMENTS PER MCES RULES AND REGULATIONS

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

TYPICAL SERVICE INSTALLATION

SCALE : NONE | DATE : 11/21/2019

NOTES:
1. RISER PIPE LAID ON STEEP GRADE TO BE BEDDED SOLIDLY AGAINST UNDISTURBED GROUND, OTHERWISE BED AS SPECIFIED IN MONTGOMERY COUNTY ENVIRONMENTAL SERVICES STANDARD SPECIFICATIONS.
2. RISER PIPE TO BE INSTALLED SO THAT CONNECTING SERVICE SHALL HAVE A MINIMUM DEPTH OF 7 FEET AT THE PROPERTY LINE UNLESS A GREATER DEPTH IS DIRECTED.

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

TYPICAL NEW SANITARY SERVICE INSTALLATION DETAIL

SCALE : NONE | DATE : 11/21/2019

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DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

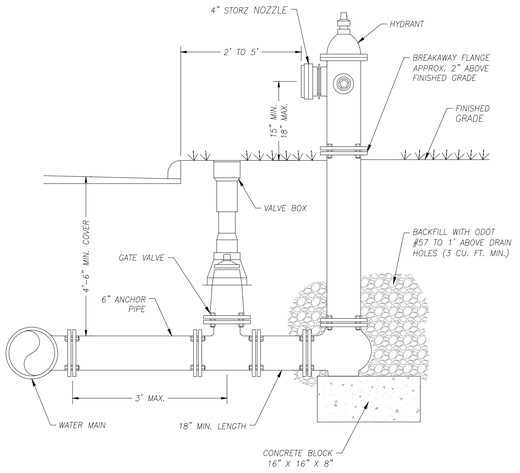
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
SANITARY AND WATER DETAILS

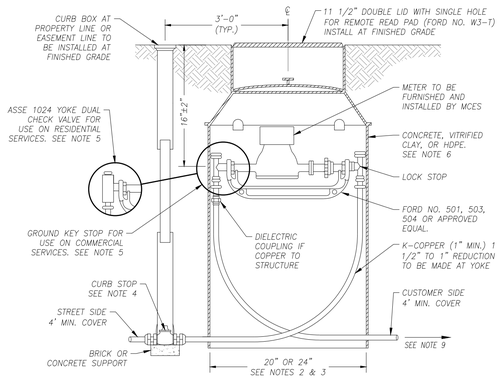


NOTE:
DO NOT PLACE POLYWRAP OVER DRAIN HOLES.

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

FIRE HYDRANT INSTALLATION

SCALE : NONE | DATE : 11/21/2019



NOTES:
1. FORD BOX LOCATED MAXIMUM OF 3'-0" FROM CURB BOX AT PROPERTY LINE
2. (20") I.D. TILE FOR FORD NO. W3-T LID OR APPROVED EQUAL (5/8" & 3/4" METERS)
3. (24") I.D. TILE FOR FORD NO. W3-T LID AND NO. 2 EXTENSION RING OR APPROVED EQUAL (1" METER)
4. CURB STOP TO BE MUELLER 300 BALL CURB VALVE B-25204N OR APPROVED EQUAL.
5. FOR **RESIDENTIAL** SERVICES, USE ASSE 1024 DUAL CHECK VALVE ON CUSTOMER SIDE OF YOKE. FOR **COMMERCIAL** SERVICES, USE GROUND KEY STOP ON CUSTOMER SIDE OF YOKE.
6. TILE TO BE CONCRETE, VITRIFIED CLAY, OR HIGH DENSITY POLYETHYLENE METER BOXES.
7. ALTERNATE DESIGNS MAY BE SUBMITTED TO MCES FOR APPROVAL.
8. BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH OHO PLUMBING CODE AND MCES RULES AND REGULATIONS. BACKFLOW PREVENTION DEVICE SPECIFIED BY MCES REQUIRED AT SERVICE ENTRANCE.
9. FOR COMMERCIAL SERVICES, REDUCED PRESSURE ZONE (ASSE 1013) BACKFLOW DEVICE REQUIRED AT SERVICE ENTRANCE. BACKFLOW DEVICE INSTALLATION DRAWING MUST BE SUBMITTED TO MCES.

FORD CATALOG YOKE NUMBER	SERVICE SIZE		METER	TILE SIZE
	INLET	OUTLET		
501 BAR	1"	1"	5/8"	20" DIA.
501 BAR	1"	3/4"	5/8"	20" DIA.
503 BAR	1"	1"	3/4"	20" DIA.
504 BAR	1"	1"	1"	24" DIA.
504 BAR	1-1/2"*	1-1/2"	1"	24" DIA.
504 BAR	1-1/2"*	1"	1"	24" DIA.

* NO BYPASS REQUIRED

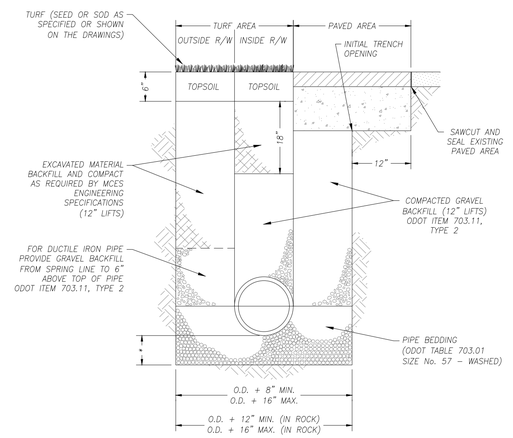
MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

STANDARD INSTALLATION FOR 5/8", 3/4", & 1" WATER METERS (FOR OFF ROAD USE ONLY)

SCALE : NONE | DATE : 11/21/2019

FOR PAVEMENT AND TURF RESTORATION SEE MONTGOMERY COUNTY ENVIRONMENTAL SERVICES DEPARTMENT STANDARD SPECIFICATIONS SECTION 02512

NOTE: ALL RESTORATION MUST COMPLY WITH THE REQUIREMENTS OF THE LOCAL JURISDICTION



* 6" OR $\frac{\text{PIPE O.D.}_{(\text{INCHES})}}{8}$ WHICHEVER IS LARGER

** RIGID PIPE = DUCTILE IRON, CONCRETE PRESSURE PIPE, PVC COMPOSITE (TRUSS), VITRIFIED CLAY PIPE, OR REINFORCED CONCRETE PIPE

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

PIPE BEDDING AND TRENCH DETAIL FOR RIGID PIPE**

SCALE : NONE | DATE : 11/21/2019

FOR PAVEMENT AND TURF RESTORATION SEE MONTGOMERY COUNTY ENVIRONMENTAL SERVICES DEPARTMENT STANDARD SPECIFICATIONS SECTION 02512

NOTE: ALL RESTORATION MUST COMPLY WITH THE REQUIREMENTS OF THE LOCAL JURISDICTION

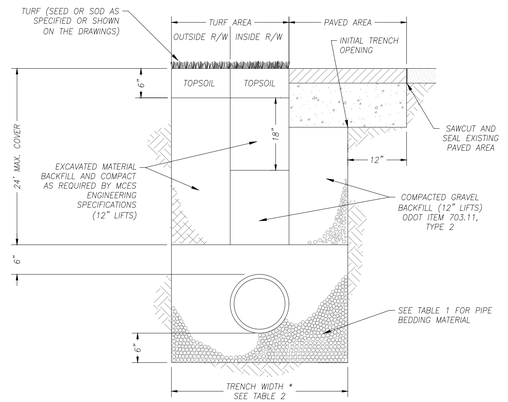


TABLE 1	
PIPE DIAMETER	ODOT TABLE 703.01 SIZE
LESS THAN 15"	#7 OR #8 - 100% CRUSHED
15"-30"	#67 - 100% CRUSHED
GREATER THAN 30"	#57 - 100% CRUSHED

NOTE: FOR PVC COMPOSITE PIPE SEE RIGID PIPE DETAIL

TABLE 2	
PIPE DIAMETER	TRENCH WIDTH *
LESS THAN 15"	O.D. + 16"
GREATER THAN 15"	(O.D. x 1.25) + 12"

* TRENCH WIDTH MAY BE LESS IF APPROVED BY THE ENGINEER. TRENCH WIDTH TO BE GREATER IN POOR OR UNSTABLE SOILS AS DETERMINED BY THE ENGINEER (REF. ASTM D 2321).

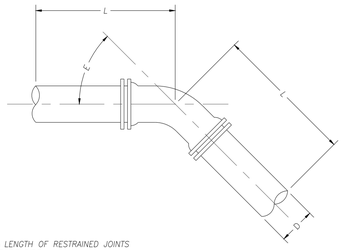
MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

PIPE BEDDING AND TRENCH DETAIL FOR THERMOPLASTIC PIPE (CLOSED PROFILE)

SCALE : NONE | DATE : 11/21/2019

MINIMUM LENGTH OF RESTRAINED JOINTS ("L")

DEGREE OF DEFLECTION ("E")	DIAMETER OF PIPE ("D")			
	6"	8"	12"	16"
11 1/4°	6'	8'	12'	15'
22 1/2°	13'	17'	24'	31
45°	26'	35'	50'	65'
90°	64'	84'	120'	156'



"L" = MINIMUM LENGTH OF RESTRAINED JOINTS
"D" = DIAMETER OF PIPE
"E" = DEGREE OF DEFLECTION

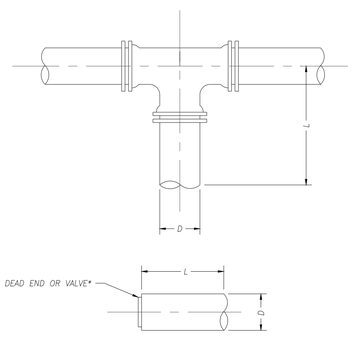
LENGTHS CALCULATED USING DIPRA THRUST RESTRAINT CALCULATOR WITH THE FOLLOWING ASSUMPTIONS:
VERTICAL BEND DOWN
POLYWRAPPED PIPE
PRESSURE = 150 PSI
SAFETY FACTOR = 1.5
SOIL TYPE = COHESIVE GRANULAR
DEPTH OF COVER = 4.5 FEET
LAYING CONDITIONS = TYPE 4 BEDDING

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

JOINT RESTRAINT FOR BENDS

SCALE : NONE | DATE : 7/1/2021

DIAMETER OF PIPE ("D")	6"	8"	12"	16"
MINIMUM LENGTH OF RESTRAINED JOINTS ("L")	61'	79'	112'	145'



* MINIMUM LENGTH OF RESTRAINED JOINTS SHALL EXTEND FROM EACH SIDE OF AN INLINE VALVE.

"L" = MINIMUM LENGTH OF RESTRAINED JOINTS
"D" = DIAMETER OF PIPE

LENGTHS CALCULATED USING DIPRA THRUST RESTRAINT CALCULATOR WITH THE FOLLOWING ASSUMPTIONS:
POLYWRAPPED PIPE
PRESSURE = 150 PSI
SAFETY FACTOR = 1.5
SOIL TYPE = SILT 1
DEPTH OF COVER = 4.5 FEET
LAYING CONDITIONS = TYPE 4 BEDDING

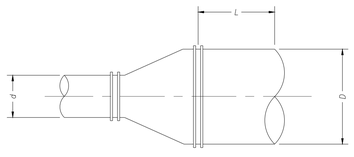
MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

JOINT RESTRAINT FOR DEAD ENDS, VALVES, AND TEES

SCALE : NONE | DATE : 7/1/2021

MINIMUM LENGTH OF RESTRAINED JOINTS ("L")

DIAMETER OF LARGER PIPE ("D")	DIAMETER OF SMALLER PIPE ("d")		
	6"	8"	12"
8"	33'		
12"	82'	59'	
16"	122'	105'	61'



"L" = MINIMUM LENGTH OF RESTRAINED JOINTS
"D" = DIAMETER OF LARGER PIPE
"d" = DIAMETER OF SMALLER PIPE

LENGTHS CALCULATED USING DIPRA THRUST RESTRAINT CALCULATOR WITH THE FOLLOWING ASSUMPTIONS:
POLYWRAPPED PIPE
PRESSURE = 150 PSI
SAFETY FACTOR = 1.5
SOIL TYPE = SILT 1
DEPTH OF COVER = 4.5 FEET
LAYING CONDITIONS = TYPE 4 BEDDING

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

JOINT RESTRAINT FOR REDUCERS

SCALE : NONE | DATE : 7/1/2021

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Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
SANITARY AND WATER DETAILS

GENERAL NOTES FOR ALL SANITARY AND WATER WORK

1. "MONTGOMERY COUNTY WATER SERVICES", "MONTGOMERY COUNTY ENVIRONMENTAL SERVICES" AND/OR MONTGOMERY COUNTY SANITARY ENGINEERING DEPARTMENT' AS REFERRED, ALL OR IN PART, ALL REFERRED TO AND ARE THE SAME AS MONTGOMERY COUNTY ENVIRONMENTAL SERVICES."
2. SAFETY- CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK IN ACCORDANCE WITH GENERAL CONDITIONS, ARTICLE 7 - "CONTRACTOR'S RESPONSIBILITIES".
3. PROJECT SPECIFICATIONS- CONTRACTOR SHALL CONSTRUCT ALL SANITARY SEWERS, WATER MAINS, FACILITIES, STORM SEWERS AND APPURTENANCES IN ACCORDANCE WITH MONTGOMERY COUNTY ENVIRONMENTAL SERVICES DEPARTMENT STANDARD AND SUPPLEMENTAL CONSTRUCTION SPECIFICATIONS (HEREIN CALLED "SPECIFICATION") EFFECTIVE 2019 OR THE LATEST REVISION.
4. REFERENCE STANDARDS/SPECIFICATIONS- CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND REFERENCE DOCUMENTS AND SPECIFICATIONS CITED BUT NOT INCLUDED IN THE PROJECT SPECIFICATIONS. THESE MAY INCLUDE THE FOLLOWING:
   A. ENVIRONMENTAL SERVICES DEPARTMENT RULES AND REGULATIONS EFFECTIVE MAY 17, 2016 OR THE LATEST REVISION.
   B. OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS EFFECTIVE JANUARY 1, 2019 OR THE LATEST REVISION.
   C. ODOT "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" EFFECTIVE APRIL 12, 2012 OR THE LATEST REVISION.
   D. OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) PERMIT NUMBER OHC000006-*AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM" EFFECTIVE APRIL 23, 2018.
   E. FEDERAL, STATE, COUNTY, CITY, TOWNSHIP, PARK DISTRICT OR OTHER RELEVANT AGENCY RULES, REGULATIONS AND SPECIFICATIONS FOR WORK ON ASSETS UNDER THEIR JURISDICTION.
   F. OTHER DOCUMENTS AND SPECIFICATIONS REFERENCED IN THE PLANS AND/OR PROJECT SPECIFICATIONS.
5. CONNECTIONS- ROOF DRAINS, FOUNDATION DRAINS, OR OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
6. DITCHES AND EROSION CONTROL- CONTRACTOR SHALL MAINTAIN AND RESTORE ALL EXISTING DITCHES THROUGHOUT THE PERIOD OF CONSTRUCTION ACTIVITY AND THE MAINTENANCE PERIOD. CONTRACTOR SHALL PROVIDE SEDIMENT AND EROSION CONTROL FOR ALL DISTURBED AREAS.
7. PERMITS- CONTRACTOR SHALL OBTAIN PERMITS REQUIRED TO WORK WITHIN THE PUBLIC RIGHT-OF-WAY, AS REQUIRED BY THE APPROPRIATE JURISDICTIONS. ENVIRONMENTAL SERVICES PERMITS WILL NOT BE ISSUED UNTIL ALL PERMITS REQUIRED BY OTHER JURISDICTIONS HAVE BEEN ISSUED. CONTRACTOR SHALL NOT COMMENCE CONSTRUCTION UNTIL ENVIRONMENTAL SERVICES PERMITS HAVE BEEN ISSUED. CONTRACTOR SHALL PROCURE AND PAY ALL PERMITS, LICENSES, INSPECTIONS AND APPROVALS NECESSARY FOR CONSTRUCTION OF THE WORK. CONTRACTOR SHALL INCLUDE THE COST OF THE PERMITS IN THE BID UNLESS OTHERWISE SPECIFIED.
8. CHANGES- CONTRACTOR SHALL NOT INSTALL ADDITIONS, DELETIONS, OR REVISIONS TO THE SANITARY SEWERS, STORM WATER SEWERS, FACILITIES, WATER MAINS, OR APPURTENANCES WITHOUT PRIOR WRITTEN APPROVAL BY THE ENVIRONMENTAL SERVICES PROJECT ENGINEER.
9. UNDERGROUND UTILITIES LOCATIONS- CONTRACTOR SHALL NOTIFY ENVIRONMENTAL SERVICES AND OTHER UTILITY OWNERS MORE THAN TWO FULL WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION AND REQUEST ACCURATE FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES. THE APPROXIMATE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES ARE AS SHOWN ON THE PLANS BASED ON THE BEST AVAILABLE INFORMATION.
10. TREE AND SHRUB PROTECTION AND TRIMMING- CONTRACTOR SHALL TAKE SPECIAL CARE TO AVOID DAMAGE TO TREE, SHRUBS AND THEIR ROOT SYSTEMS. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF SPECIFICATION SECTION 02998.
11. BURNING AND BURYING- CONTRACTOR SHALL NOT BURN OR BURY TREES, STUMPS, OR OTHER CONSTRUCTION DEBRIS ON THE PROJECT SITE.
12. TRAFFIC CONTROL- CONTRACTOR SHALL PLAN AND EXECUTE TRAFFIC CONTROL IN ACCORDANCE WITH THE TRAFFIC CONTROL NOTES.
13. OPERATION OF ENVIRONMENTAL SERVICES UTILITIES-ONLY MONTGOMERY COUNTY ENVIRONMENTAL SERVICES PERSONNEL SHALL OPERATE MAIN LINE WATER VALVES, SEWER FORCE MAIN VALVES, AND ALL OTHER WATER AND SEWAGE FACILITIES AND APPURTENANCES.
14. NOTIFICATION TO OTHER AGENCIES- CONTRACTOR SHALL NOTIFY AGENCIES RESPONSIBLE FOR PUBLIC RIGHT-OF-WAY AND EASEMENT PRIOR TO PERFORMING WORK IN THEM. NOTIFICATION SHALL BE IN THE FORM AND THE LEAD TIME REQUIRED BY EACH AGENCY.
15. REPORT OF SPILLS AND SAMPLING- CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ON-SITE ENVIRONMENTAL SERVICES INSPECTOR AND THE PROJECT ENGINEER ANY SPILL OF SANITARY SEWAGE. CONTRACTOR SHALL DOCUMENT THE TIME THE DISCHARGED BEGAN, THE TIME IT ENDED, ESTIMATED AMOUNT IN GALLONS THAT REACHED THE WATER OF THE STATE (ANY STREAM) AND THE REASON THE DISCHARGE OCCURRED, SUCH AS FAILED PIPE GASKET, BROKEN PUMP HOSE, OR OTHER REASONS. CONTRACTOR SHALL REMOVE SEWAGE THAT DOES NOT DRAIN TO THE WATERS OF OHIO AND DELIVER IT TO THE MONTGOMERY COUNTY SEPTAGE RECEIVING STATION AT 4257 DRYDEN ROAD FOR TREATMENT.
16. HISTORICAL OR ARCHEOLOGICAL EVIDENCE- CONTRACTOR SHALL IMMEDIATELY CEASE OPERATIONS WHEN EVIDENCE OF DEPOSITS OF HISTORICAL OR ARCHEOLOGICAL INTEREST IS FOUND. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENVIRONMENTAL SERVICES PROJECT ENGINEER. ENVIRONMENTAL SERVICES WILL NOTIFY THE HISTORIC PRESERVATION OFFICE. CONTRACTOR SHALL NOT PERMIT FURTHER DISTURBANCE OF THE EVIDENCE UNTIL CONTRACTOR HAS BEEN NOTIFIED IN WRITING BY THE PROJECT ENGINEER THAT HE/SHE SURVEYED THE FIND AND MADE A DETERMINATION OF VALUE AND EFFORT AND SUBMITTED SUCH DETERMINATION TO THE OWNER.
17. PLANNING- CONTRACTOR SHALL PLAN HIS OPERATION IN ORDER TO MINIMIZE DISRUPTION OF EXISTING FACILITIES. THE CONTRACTOR SHALL PREPARE AND SUBMIT A CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE SPECIFICATIONS.

WATER MAINS

1. SERVICE CONNECTIONS- CONTRACTOR SHALL NOT CONNECT ANY WATER SERVICE TO THE WATER MAIN UNTIL THE MAINS HAVE BEEN INSPECTED, TESTED, DISINFECTED AND RELEASED FOR TAPS. ALL NEW OR REPLACEMENT WATER SERVICES SHALL BE A MINIMUM OF ONE INCH IN DIAMETER AND SHALL BE FABRICATED OF TYPE "K" COPPER FROM THE MAIN TO THE METER PIT OR CURB BOX.
2. SEVERED CONNECTION- CONTRACTOR SHALL REPLACE ALL SERVICE CONNECTIONS THAT ARE SEVERED OR DAMAGED DURING CONSTRUCTION.
3. MINIMUM COVER- WATER MAINS SHALL HAVE FOUR FEET SIX INCHES (4'6") MINIMUM COVER.
4. HYDRANT LOCATIONS- FIRE HYDRANTS SHALL BE LOCATED NO CLOSER THAN TWO FEET (2') OR FARTHER THAN FIVE FEET (5') FROM THE BACK OF CURB OR EDGE OF PAVEMENT. THE FOUR INCH (4") HYDRANT OPENING SHALL FACE THE STREET. ALL HYDRANTS SHALL BE ADJUSTED TO FINAL GRADE.
5. SEPARATION- WATER MAINS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN FEET (10') FROM ANY SANITARY OR STORM SEWER. THE SEPARATION DISTANCE SHALL BE MEASURED LEVEL BETWEEN THE OUTSIDE SURFACE OF THE WATER MAIN PIPE AND THE OUTSIDE SURFACE OF ANY SANITARY OR STORM SEWER PIPE. WATER MAINS SHALL HAVE A MINIMUM VERTICAL SEPARATION OF EIGHTEEN INCHES (18") MEASURED VERTICALLY BETWEEN THE OUTSIDE SURFACE OF THE WATER MAIN PIPE AND THE OUTSIDE SURFACE OF ANY SANITARY OR STORM SEWER PIPE. WHERE A WATER MAIN CROSSES A SANITARY OR STORM SEWER, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING SUCH THAT BOTH JOINTS WILL BE EQUIDISTANT, AND AS FAR AS POSSIBLE, FROM THE SEWER PIPE.
6. INSPECTIONS- WATER MAIN INSTALLATIONS WILL BE INSPECTED BY ENVIRONMENTAL SERVICES PERSONNEL AND MAY BE INSPECTED BY OTHER JURISDICTIONS HAVING AUTHORITY OVER WATER MAINS.
7. VALVE LOCATIONS- ALL GATE VALVES AT TEES/OR CROSSES SHALL BE LOCATED WITHIN THREE FEET (3') OF THE TEE OR CROSS. WHERE PLUGS ARE INSTALLED ON A BRANCH, THEY SHALL BE CONNECTED TO VALVES EXCEPT WHERE OTHERWISE SHOWN ON THE PLANS.
8. CONNECTIONS TO PRE-STRESSED- CONTRACTOR SHALL MEET WITH ENVIRONMENTAL SERVICES REPRESENTATIVE BEFORE ORDERING ANY WATER PIPE WHEN A CONNECTION TO PRE-STRESSED WATER MAIN IS INCLUDED IN THE WORK.
9. NOTICE TO SHUTDOWN WATER MAIN- CONTRACTOR SHALL PROVIDE A MINIMUM OF SEVENTY-TWO (72) HOURS NOTICE TO THE PROJECT ENGINEER (EXCLUSIVE OF WEEKENDS AND HOLIDAYS) FOR ANY PLANNED WATER MAIN SHUTDOWN.
10. DEFLECTIONS- PIPE DEFECTIONS AT A JOINT SHALL NOT EXCEED ONE HALF (1/2) OF THE MAXIMUM DEFECTION RECOMMENDED BY THE PIPE MANUFACTURER.
11. COMPRESSION (NOT PACKED) JOINTS ARE ACCEPTABLE FOR COPPER CONNECTIONS.
12. VALVE BOXES LOCATED IN THE ROADWAY SHALL BE OF A DOMESTIC MANUFACTURER AND BE "HEAVY DUTY".

13. STARTING JANUARY 1, 2014 EPA REQUIRES THAT MUNICIPAL WATER SYSTEMS USE LOW LEAD BRASS FITTINGS. THIS SHALL APPLY TO ALL BRASS COMPONENTS IN FIRE HYDRANTS.
14. ALL FITTINGS AND VALVES SHALL BE RESTRAINED JOINT.

SANITARY SEWERS

1. RELEASES AND CONNECTIONS- CONTRACTOR SHALL NOT MAKE ANY PHYSICAL CONNECTION TO AN EXISTING SANITARY SEWER UNTIL THE NEW SEWER, EXCLUDING THE CONNECTING SPAN, HAS BEEN INSPECTED, TESTED AND RELEASED.
2. BYPASS PUMPING- CONTRACTOR SHALL ENSURE THAT NO SEWAGE IS BYPASS PUMPED OR RELEASED FROM THE MONTGOMERY COUNTY SANITARY SEWER SYSTEM. SEE PROJECT SPECIFICATION SECTION 01046. SANITARY SEWAGE SPILLS SHALL BE REPORTED AND REMOVED IN ACCORDANCE WITH THE “GENERAL NOTES FOR ALL WORK”, ABOVE.
3. MANHOLES- CONTRACTOR SHALL FURNISH AND INSTALL PRECAST CONCRETE MANHOLES CONFORMING TO ASTM C-478. JOINTS BETWEEN MANHOLE SECTIONS SHALL CONFORM TO ASTM C-443. MANHOLES SHALL BE VACUUM TESTED ALL IN ACCORDANCE WITH THE PROJECT SPECIFICATION SECTION 02722.
4. CHIMNEY SEALS- CONTRACTOR SHALL INSTALL AN APPROVED CHIMNEY SEAL BETWEEN THE CASTING AND CONE SECTION OF EACH MANHOLE.
5. MANHOLE BASE- BASE SECTIONS OF EACH MANHOLE SHALL BE CHANNELED TO TO ACCOMMODATE FLOW AND PROVIDE A BENCH FOR MAINTENANCE PERSONNEL. EACH BASE SHALL BE PRECAST CONCRETE UNLESS THE PLANS DIRECT OTHERWISE. PRECAST CONCRETE BASES SHALL HAVE TWO (2) CAGES OF REINFORCING STEEL IN THE WALL. EACH CAGE HAVING AN AREA OF STEEL EQUAL TO THAT REQUIRED IN THE RISER SECTIONS IN ACCORDANCE WITH PROJECT SPECIFICATION SECTION 02722.
6. MANHOLE STEPS- STEPS SHALL NOT BE INSTALLED IN MANHOLES.

CONSTRUCTION INSPECTION

1. NOTIFICATION- CONTRACTOR SHALL NOTIFY MONTGOMERY COUNTY ENVIRONMENTAL SERVICES TEN (10) CALENDAR DAYS PRIOR TO COMMENCEMENT OF PROJECT ACTIVITIES. THIS TIME IS NECESSARY TO LOCATE VALVES AND MANHOLES, CREATE WORK ORDERS AND PERFORM REPAIRS WHEN NECESSARY IN A NON-EMERGENCY MODE.
2. REPLACEMENT PARTS- PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL SCHEDULE A "PROJECT WALK THROUGH" WITH ENVIRONMENTAL SERVICES INSPECTION PERSONNEL AND RELEVANT SUBCONTRACTORS. CONTRACTOR SHALL IDENTIFY EXISTING ENVIRONMENTAL SERVICES UTILITIES THAT REQUIRE REPAIR OR REPLACEMENT. PARTS MAY INCLUDE BROKEN OR MISSING VALVE CAPS, VALVE BOXES, MANHOLE LIDS, MANHOLE CASTINGS, INOPERABLE FIRE HYDRANTS, AND OTHER SIMILAR ITEMS. ENVIRONMENTAL SERVICES WILL PROVIDE REPLACEMENT PARTS TO CONTRACTOR FOR INSTALLATION BY CONTRACTOR AT THE APPROPRIATE TIME.
3. NOTICE TO TEST OR TAP MAINS- CONTRACTOR SHALL NOTIFY PROJECT ENGINEER FORTY-EIGHT (48) HOURS PRIOR TO ANY PLANNED TESTING OR TAPPING OF MAIN LINE UTILITIES OR THEIR APPURTENANCES. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO BEGINNING WORK.
4. INSPECTOR DUTIES- INSPECTORS ARE AVAILABLE TO DISCUSS WITH CONTRACTOR THE CONSTRUCTION EVENTS ASSOCIATED WITH PROJECT PLANS, SPECIFICATIONS OR OTHER REQUIREMENTS OR REGULATIONS NECESSARY FOR COMPLETION OF THE PROJECT. ENVIRONMENTAL SERVICES INSPECTORS DO NOT HAVE AUTHORITY TO CHANGE ANY PORTIONS OF A PROJECT THAT WILL INCREASE OR DECREASE PROJECT COTS. ALL CHANGES IN WORK (WHICH COULD CAUSE AN INCREASE IN PROJECT COSTS) SHALL BE REVIEWED BY THE ENVIRONMENTAL SERVICES PROJECT ENGINEER. CONTRACTOR SHALL DISCUSS WITH THE PROJECT ENGINEER ANY ADDITIONS OR DELETIONS FOR THE PURPOSE OF SEEKING APPROVAL OF THE PROPOSED CHANGES.
5. MARKING AND ACCESSIBILITY- CONTRACTOR SHALL AT ALL TIMES PROTECT AND ENSURE THAT VALVES, HYDRANTS, AND MANHOLES OR OTHER APPURTENANCES ARE ACCESSIBLE AND VISIBLY MARKED DURING CONSTRUCTION. FAILURE TO MAINTAIN ACCESSIBILITY AND MARK FOR THESE ITEMS MAY REQUIRE ENVIRONMENTAL SERVICES TO PERFORM THESE TASKS AT A CONTRACTOR'S EXPENSE.
6. WORKING HOURS AND ADDITIONAL COSTS- CONTRACTOR SHALL PERFORM ALL WORK THAT REQUIRES INSPECTION, ATTENTION OR PRESENCE BY ENVIRONMENTAL SERVICES PERSONNEL DURING REGULAR WORKING HOURS WHICH ARE 7:30AM TO 4:00 PM MONDAY THROUGH FRIDAY. CONTRACTOR SHALL SUBMIT A WRITTEN NOTICE OF INTENT TO WORK AT TIMES OTHER THAN REGULAR WORKING HOURS. THE NOTICE SHALL BE SUBMITTED TO THE PROJECT ENGINEER AND CONSTRUCTION INSPECTOR FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING WORK. THE PROJECT ENGINEER HAS THE RIGHT TO DENY PERMISSION WITH DUE CAUSE, FOR THE CONTRACTOR TO WORK AT TIMES OTHER THAN REGULAR WORKING HOURS. WHEN CONTRACTOR PERFORMS WORK AT TIME OTHER THAN REGULAR WORKING HOURS, EITHER BY CHOICE OR NECESSITY TO MEET CONTRACT REQUIREMENTS, CONTRACTOR SHALL PAY ENVIRONMENTAL SERVICES THE COST OF CONSTRUCTION INSPECTOR SERVICES AT RATES DEFINED BY ENVIRONMENTAL SERVICES AND AVAILABLE UPON REQUEST. PAYMENT TO ENVIRONMENTAL SERVICES SHALL BE FOR A MINIMUM OF TWO (2) HOURS AND SHALL BE PAID BY CHECK MADE PAYABLE TO "MONTGOMERY COUNTY ENVIRONMENTAL SERVICES".
7. CONTRACTOR ASSISTANCE- CONTRACTOR SHALL PROVIDE ASSISTANCE TO ENVIRONMENTAL SERVICES PERSONNEL, IN CASE OF EMERGENCY, TO SHUT DOWN VALVES OR OTHER OPERATIONS REQUESTED BY ENVIRONMENTAL SERVICE PERSONNEL IN ORDER TO LIMIT DAMAGE OR LOSS.

SUPPLEMENTAL NOTES

1. UNDERGROUND UTILITY LOCATIONS- ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS IN THE APPROXIMATE LOCATIONS ACCORDING TO THE BEST AVAILABLE INFORMATION. THE LOCATIONS SHOWN ARE INTENDED ONLY AS A GUIDE AND THE ENVIRONMENTAL SERVICES DEPARTMENT CANNOT GUARANTEE ACCURACY OF THEIR LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM THE FOLLOWING WORK AND INCLUDE THE COSTS FOR THE WORK THE RELEVANT BID ITEMS.
   A. NOTIFY OHIO UTILITY PROTECTION SERVICE (OUPS) AT PHONE NUMBER 811 OR 1-800-362-2764 MORE THAN FORTY EIGHT (48) HOURS PRIOR TO BEGINNING CONSTRUCTION AND REQUEST ACCURATE FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES.
   B. CONFIRM THAT ALL UTILITIES OF OUPS MEMBER UTILITIES, LIMITED BASED PARTNER UTILITIES AND NON-MEMBER UTILITIES ARE MARKED PRIOR TO BEGGING CONSTRUCTION ACTIVITY.
   C. CONFORM TO THE CONSTRUCTION ACTIVITY TIME LIMITATIONS FOR MARKING ESTABLISHED BY OUPS AND APPLY THE SAME LIMITATIONS TO NON-MEMBER UTILITIES.
   D. VERIFY BY VACUUM EXCAVATION OR OTHER RELIABLE MEANS THE HORIZONTAL AND VERTICAL LOCATION OF EACH UTILITY PRIOR TO BEGINNING EXCAVATION.
   E. PERFORM WORK IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION SECTION S-01545-PROTECTION OF THE WORK AND PROPERTY.
2. POTENTIAL UTILITIES:

OHIO UTILITY PROTECTION SERVICE
PHONE:811 OR 1-800-362-2764

CITY OF CLAYTON
PO BOX 280
CLAYTON, OH 45315
937-836-3500

MONTGOMERY COUNTY ENGINEER
451 W. THIRD ST. 8TH FLOOR
PO BOX 972 DAYTON, OHIO 45422
(937) 225-4904

MONTGOMERY COUNTY
ENVIRONMENTAL SERVICES
1850 SPAULDING RD.
DAYTON, OHIO 45432
(937) 781-2500

VECTREN GAS TRANSMISSION
6500 CLYO ROAD
DAYTON, OHIO 45459
(937) 909-7668

FRONTIER COMMUNICATIONS
6464 WESTBROOK ROAD
CLAYTON, OHIO
(937) 833-0468

CHARTER COMMUNICATIONS
SPECTRUM
3691 TURNER RD.
DAYTON, OHIO 45415
(937) 396-8372

DAYTON POWER & LIGHT
1900 DRYDEN RD.
PO BOX 1807
DAYTON, OHIO 45439
(937) 331-4834

MIAMI VALLEY LIGHTING
1065 WOODMAN DR.
DAYTON, OHIO 45407
(937) 259-7192

AT&T
3233 WOODMAN DR.
DAYTON, OHIO 45420
(937) 293-3630

CITY OF DAYTON
DEPARTMENT OF WATER
320 W. MONUMENT AVE.
DAYTON, OHIO 45402
(937) 333-3725

3. RESTORATION- CONTRACTOR SHALL RESTORE DISTURBED AREAS TO THEIR ORIGINAL CONTOURS AND ELEVATIONS, AS NEAR AS POSSIBLE, RESTORE PAVING, CURB AND SIDEWALK WITH THE SAME TYPE OF MATERIAL, RESTORE UNDERGROUND UTILITIES, WIRES AND SPRINKLER SYSTEMS TO THEIR ORIGINAL CONDITION, AND INSTALL GRASS TURF BY INSTALLING GRASS SEED AND MULCH. ALL IN ACCORDANCE WITH SPECIFICATION SECTION 02985. MINIMUM STANDARDS FOR RESTORATION ARE DEFINED IN SPECIFICATION SECTION 02512.
4. PAVEMENT FAILURES- CONTRACTOR SHALL REPAIR OR REPLACE PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITY AT ANY ON-SITE OR OFF-SITE FACILITY IN ACCORDANCE WITH REQUIREMENTS OF THE RELEVANT AGENCY OR OWNER, AT NO COST TO MONTGOMERY COUNTY.
5. DAMAGE DURING CONSTRUCTION- CONTRACTOR SHALL REMOVE AND REPLACE ALL PAVEMENT, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED DURING CONSTRUCTION AT NO COST TO MONTGOMERY COUNTY. DAMAGED CONCRETE ITEMS SHALL BE REPLACED TO THE NEAREST EXISTING EXPANSION/CONTRACTION JOINT OF THE ADJACENT UNDAMAGED PANEL.
6. STORM SEWER RESTORATION- CONTRACTOR SHALL REPAIR OR REPLACE ANY DRAINAGE CONDUIT DISTURBED BY CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AGENCY.
7. MAILBOXES- CONTRACTOR SHALL REPLACE TO THE ORIGINAL LOCATION, WHERE POSSIBLE, ANY MAILBOX MOVED DURING CONSTRUCTION OPERATIONS. REPLACEMENT, EITHER PERMANENT OR TEMPORARY, SHALL OCCUR ON THE SAME DAY CONSTRUCTION OCCURS. CONTRACTOR SHALL REPLACE DAMAGED MAILBOXES WITH THE SAME SIZE, SHAPE AND STYLE. PERMANENT REPLACEMENT OF MAILBOXES SHALL CONFORM TO THE REQUIREMENTS OF THE UNITED STATES POSTAL SERVICE AS TO THE MAILBOX AND ITS LOCATION.
8. WORK AREA- CONTRACTOR SHALL CONFINE THEIR OPERATIONS TO DESIGNATED WORK AREAS IN PUBLIC RIGHT-OF-WAYS, PERMANENT EASEMENTS AND TEMPORARY EASEMENTS AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL IMMEDIATELY REPAIR OR COMPENSATE PROPERTY OWNERS FOR ANY DAMAGE OUTSIDE DESIGNATED WORK AREAS CAUSED BY HIS OPERATIONS, AT NO COST TO MONTGOMERY COUNTY.
9. PEDESTRIAN SAFETY- CONTRACTOR SHALL GIVE CONSIDERATION TO PEDESTRIAN TRAFFIC AND THEIR USE OF THE SIDEWALK IN THE PROJECT AREA. CONTRACTOR SHALL CLOSE PORTIONS OF THE SIDEWALK DURING WORK HOURS IF CONTRACTOR'S OPERATIONS WILL POSE DANGER TO PEDESTRIANS. SIDEWALKS SHALL BE CLOSED BY USE OF WARNING SIGNS AND BARRICADES AS NECESSARY. SIDEWALKS SHALL BE MADE PASSABLE DURING NON-WORKING HOURS. SIDEWALKS SHALL NOT BE CLOSED ON BOTH SIDES OF THE STREET SIMULTANEOUSLY.
10. ACCESS TO FIRE HYDRANTS- THE CONTRACTOR SHALL ENSURE THAT ALL IN-SERVICE FIRE HYDRANTS ARE ACCESSIBLE TO FIRE APPARATUS DURING CONSTRUCTION OF THIS PROJECT.
11. PERMITS- CONTRACTOR SHALL NOT COMMENCE CONSTRUCTION UNTIL PERMITS HAVE BEEN ISSUED BY THE FOLLOWING JURISDICTION:
   A. CITY OR TOWNSHIP RIGHT-OF-WAY
   B. MONTGOMERY COUNTY ENVIRONMENTAL SERVICES (FEE PAID BY MONTGOMERY COUNTY)
12. SERVICE TAP PERMITS- UNLESS OTHERWISE SPECIFIED, ALL 1", 1 ½" AND 2" SERVICES TAPS SHALL BE PAID FOR BY THE CONTRACTOR, BY CONTRACTING WITH THE CITY OF DAYTON. CONTRACTOR SHALL COORDINATE THE NEED FOR A TAP WITH THE INSPECTOR, WHO WILL SCHEDULE THE TAP WITH DAYTON. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ACCEPTABLE ACCESS TO THE MAIN.
13. BLASTING- CONTRACTOR SHALL NOT USE EXPLOSIVES OR PERFORM BLASTING ON THIS PROJECT.
14. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
   A. CONTRACTOR AND ALL SUBCONTRACTORS SHALL NOT REQUIRE ANY LABORER OR MECHANIC EMPLOYED IN PERFORMANCE ON THE CONTRACT TO WORK IN SURROUNDINGS OR UNDER WORKING CONDITIONS WHICH ARE UNSANITARY, HAZARDOUS OR DANGEROUS TO HIS/HER HEALTH OR SAFETY, AS DETERMINED UNDER FEDERAL AND/OR STATE CONSTRUCTION SAFETY AND HEALTH STANDARDS AND REGULATIONS (SEE TITLE 29, CODE OR FEDERAL REGULATIONS, LATEST REVISION).
   B. CONTRACTOR SHALL CONSTRUCT OR ERECT ALL SAFETY DEVICES OR APPURTENANCES, REQUIRED BY FEDERAL AND/OR STATE LAWS FOR EMPLOYEE SAFETY. CONTRACTOR SHALL PERFORM THIS WORK PRIOR TO PERSONNEL FROM ENVIRONMENTAL SERVICES, CONTRACTORS SUBCONTRACTORS, CONSULTANTS OR OTHER PERFORMING REQUIRED SURVEY WORK, ASSEMBLY, INSPECTION, TESTING OR OTHER TASKS IN THE AFFECTED AREA.
15. AT LOCATIONS WHERE FIELD TILE IS ENCOUNTERED DURING CONSTRUCTION THE CONTRACTOR MUST CONTACT THE PROPERTY OWNER AND OFFER THEM THE OPPORTUNITY TO VIEW THE FIELD TILE REPAIR.
16. PRIOR TO CONSTRUCTION, THE CONTRACTOR WILL FIELD LOCATE THE ELEVATION AND LOCATION OF THOSE UTILITIES THAT CROSS THE NEW CONSTRUCTION THAT MAY INTERFERE WITH BE IN CONFLICT WITH THE NEW CONSTRUCTION. PRICE FOR THIS TO BE INCLUDED IN THE PRICE OF PIPE. IF THERE IS A CONFLICT AND THE CONTRACTOR FAILS TO LOCATE THE UTILITY, NO EXTRAS FOR WORK WILL BE ALLOWED FOR LOSS OF TIME, WORK, OR PRODUCTION.
17. COMPACTION OF BACKFILL WILL BE STRICTLY ENFORCED. TESTS MAY BE ORDERED AT ANY TIME AND AT ANY LOCATION OF THE CONSTRUCTION. ANY SITE FAILING MAY BE REQUIRED TO BE REMOVED AND RECOMPACTED UNTIL SATISFACTORY RESULTS ARE ATTAINED.
18. TRENCH WIDTH- TRENCH WIDTH FOR THIS PROJECT SHALL BE DEFINED AS FOLLOWS: (O.D.) + 16", WHERE O.D. IS DEFINED AS THE OUTSIDE DIAMETER OF THE LARGEST OUTSIDE PORTION OF THE PIPE. ALL RESTORATION WORK OUTSIDE OF THIS AREA IS TO BE PREFORMED AT THE CONTRACTORS EXPENSE.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING FOR THE STORAGE OF MATERIALS THAT CANNOT BE STRUNG OUT ALONG THE ROUTE OF CONSTRUCTION DUE TO SPACE LIMITATION AND/OR BECAUSE OF SENSITIVE AREAS. ALL SUCH MATERIAL DELIVERED SHALL BE PLACED IN A STORAGE YARD AND BECOME THE CONTRACTOR'S RESPONSIBILITY TO PROTECT FROM LOSS AND OR DAMAGE DURING OR FOLLOWING LOADING AND UNLOADING.
20. THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN A SET OF CONSTRUCTION DRAWINGS DURING THE PROJECT AT THE WORK SITE.
21. ALL POLES, SIGNS, FENCES, GUARD RAIL, ETC. TO BE MOVED DURING CONSTRUCTION SHALL BE CAREFULLY REMOVED, STORED, AND REPLACED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND WITH ODOT CMS ITEM 202, LATEST EDITION.
22. ALL KNOWN ROADS, STREETS, DRIVES, TRAILS, SIDEWALKS, CULVERTS, DRAINAGE STRUCTURES, SEPTIC SYSTEMS, LEACH FIELD, ETC. (NOT INSIDE CONSTRUCTION WORK LIMITS OR NOT ON PLANS AS TO EXISTENCE) DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR TO A MINIMUM OF THEIR PREEXISTING CONDITION AND A CONDITION ACCEPTABLE TO MONTGOMERY COUNTY ENVIRONMENTAL SERVICES PROJECT MANAGER OR THEIR DESIGNATED REPRESENTATIVE.
23. ALL DUCTILE IRON WATER AND SEWER MAINS SHALL BE POLY WRAPPED
24. SOME "CUT & PLUGS" OR "TIE INS" MAY REQUIRE NIGHT WORK.
25. THE CONTRACTOR SHALL PROTECT ALL CATCH BASINS FROM INTRUSION OF SILT OR CONSTRUCTION DEBRIS. THE CONTRACTOR SHALL REMOVE ALL SILT AND/OR CONSTRUCTION DEBRIS COLLECTED IN CATCH BASINS OR STORM SEWER SYSTEM DUE TO CONSTRUCTION ACTIVITIES AT THE CONTRACTORS COST.
26. STREAM CROSSING MITIGATION
   A. CONTRACTOR SHALL ALLOW TREE ROOTS AND STUMPS TO REMAIN IN PLACE WHERE POSSIBLE, WHERE TREE REMOVAL ALONG A STREAM IS NECESSARY, IN ORDER TO ANCHOR THE STREAM BANK.
   B. CONTRACTOR SHALL CONTINUE TO CONSTRUCTION ACTIVITY DURING REGULAR WORKING HOURS IN A STREAM UNTIL THE WORK IS COMPLETED.
   C. CONTRACTOR SHALL COMPLETE STREAM RESTORATION IMMEDIATELY AFTER COMPLETION OF WORK IN A STREAM. RESTORATION SHALL INCLUDE THE RE-ESTABLISHMENT OF CHANNEL AND BANK STABILIZATION. CONTRACTOR SHALL COMPLETE STREAM RESTORATION WITHIN FORTY-EIGHT (48) HOURS WHERE OPEN CUT METHODS ARE EMPLOYED TO INSTALL PIPE ACROSS AN INTERMITTENT OR VERY SMALL STREAM. CONTRACTOR SHALL COMPLETE STREAM CROSSING AND ASSOCIATED RESTORATION WITHIN SEVEN (7) CALENDAR DAYS WHERE TO CROSSING INCLUDES TEMPORARY DIVERSION OF A SMALL TO MODERATE SIZE STREAM.
   D. CONTRACTOR SHALL MAINTAIN A BUFFER ZONE OF UNDISTURBED VEGETATION BETWEEN THE WORK AREA AND WATERWAYS WHEN WORKING ADJACENT TO A WATERWAY. CONTRACTOR SHALL INSTALL SILT BARRIERS TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE WATERWAY WHERE A BUFFER ZONE OF VEGETATION DOES NOT PREVENT SEDIMENT FROM ENTERING THE WATER.

27. WHEN EXCAVATION LENGTH EXCEEDS 2000 FEET OF A STREET WHERE MAIN LINE HAS BEEN INSTALLED, A GRAVEL FILLED TRENCH SHALL HAVE A DUST INHIBITOR APPLIED AND MAINTAINED UNTIL FINAL TRENCH RESTORATION IS COMPLETE.

ENVIRONMENTAL PROTECTION MEASURES

1. STORM WATER DISCHARGE PERMIT- CONTRACTOR SHALL OBTAIN PERMIT COVERAGE FROM THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) UNDER PERMIT OHC000006 AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY WHEN THE TOTAL PROJECT AREA TO BE DISTURBED IS ONE ACRE OR MORE.
2. POLLUTION PREVENTION PLAN- CONTRACTOR SHALL PREPARE A STORM WATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE REQUIREMENTS OF OEPA PERMIT OHC000006, BUT NOT OBTAIN PERMIT COVERAGE, WHEN COVERAGE IS NOT REQUIRED.
3. SOIL STOCKPILES- CONTRACTOR SHALL STOCKPILE TOPSOIL TO BE REPLACED AFTER FINAL GRADING. EXCESS SOIL SHALL BE REMOVED FROM THE SITE OR PERMANENTLY STABILIZED IN ACCORDANCE WITH THE REQUIREMENTS OF OEPA PERMIT OHC00006. CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES FOR DISTURBED AREAS AND STOCKPILED SOIL BY INSTALLING SILT BARRIERS, TEMPORARY SEED, MULCH, WOOD CHIP, WINDROWS, OR OTHER METHODS APPROVED BY PERMIT OHC00006.
4. DEBRIS AND SILT CONTROL- CONTRACTOR SHALL REMOVE EACH DAY, ALL MUD, SOIL, AND DEBRIS THAT MAY BE TRACKED ONTO EXISTING STREETS, DRIVES OR WALK BY CONTRACTOR EQUIPMENT OR EQUIPMENT OPERATED BY SUBCONTRACTORS OR SUPPLIERS.
5. DISPOSAL- CONTRACTOR SHALL DISPOSE OF MATERIAL TO BE REMOVED FROM THE SITE IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. CONTRACTOR SHALL NOT DISPOSE OF EXCESS MATERIALS IN WET LANDS, FLOOD PLAINS, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. EROSION CONTROL MEASURES AT THE DISPOSAL SITE SHALL BE INSTALLED AND MAINTAINED UNTIL THE DISPOSAL SITE IS PERMANENTLY STABILIZED.

LIGHT AND NOISE CONTROL

1. LIGHTING- CONTRACTOR SHALL PROVIDE LIGHTING AT CONSTRUCTION SITE DURING HOURS OF DARKNESS IN ACCORDANCE WITH LOCAL CITY REQUIREMENTS. LIGHTS SHALL BE MOUNTED AND ALIGNED TO ILLUMINATE ONLY THE SITE WHERE CONSTRUCTION ACTIVITY IS ON-GOING AND OTHER SITES AS NECESSARY TO ENSURE SAFETY OF THE PUBLIC AND CONSTRUCTION PERSONNEL.
2. NOISE- CONTRACTOR SHALL CONTROL NOISE AT CONSTRUCTION SITE IN ACCORDANCE WITH THE LOCAL REQUIREMENTS. CONSTRUCTION EQUIPMENT SHALL BE PROVIDED WITH INTAKE SILENCERS AND MUFFLERS.

DEWATERING OPERATIONS

1. WATER FLOWS- CONTRACTOR SHALL CONVEY ALL WATER FROM DEWATERING OPERATIONS IN A CLOSED CONDUIT. CONTRACTOR SHALL NOT USE TRENCH EXCAVATIONS AS A TEMPORARY DRAINAGE DITCH. WATER FLOWS SHALL BE SETTLED IN SILTATION BASINS OR DIRECTED THROUGH FILTERING DEVICES BEFORE BEING DISCHARGED TO STABILIZED SITES, STREAMS OR STORM SEWERS. WATER FLOWS SHALL NOT BE DIRECTED TO EXPOSED SOIL, STREAM BANKS, OR ANY OTHER SITE WHERE THE FLOW COULD CAUSE EROSION.
2. SILT IN STORM SEWERS- CONTRACTOR SHALL NOT PERMIT SILT FROM CONSTRUCTION SITES TO ENTER STORM SEWERS. CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES, SUCH AS INLET FILTERS, TO PREVENT SILT FROM ENTERING STORM SEWERS.

TRAFFIC CONTROL

1. STANDARDS- CONTRACTOR SHALL PLAN AND EXECUTE TRAFFIC CONTROL IN ACCORDANCE WITH THE “OHIO DEPARTMENT OF TRANSPORTATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES” AND THE PERMIT REQUIREMENTS OF FEDERAL, STATE AND/OR LOCAL AGENCIES HAVING JURISDICTION OVER TRAFFIC CONTROL.
2. PLAN- CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR REVIEW BY AGENCIES HAVING JURISDICTION AND ENVIRONMENTAL SERVICES
3. APPROVALS- CONTRACTOR SHALL NOT PERFORM ANY CONSTRUCTION WORK, OR CLOSE ANY LANE OR STREET, UNTIL TRAFFIC CONTROL PLAN HAS BEEN APPROVED BY ALL AGENCIES.
4. AGENCY NOTIFICATION- CONTRACTOR SHALL PROVIDE NOTICE TO JURISDICTION AND ENVIRONMENTAL SERVICES, IN ACCORDANCE WITH AGENCY REQUIREMENTS, PRIOR TO BEGINNING CONSTRUCTION, CLOSING STREET LANES OR CLOSING AN ENTIRE STREET.
5. JOB-SITE NOTIFICATIONS- CONTRACTOR SHALL NOTIFY RESIDENTS AND BUSINESSES SEVEN (7) CALENDAR DAYS PRIOR TO BEGINNING CONSTRUCTION ACTIVITY THAT WILL IMPACT ACCESS TO THEIR PROPERTY. CONTRACTOR SHALL ARRANGE ALTERNATE ROUTES OF ACCESS WITH SPECIAL ATTENTION TO ELDERLY PEOPLE AND PEOPLE WITH DISABILITIES.
6. STREET ACCESS- CONTRACTOR SHALL OPEN ALL LANES OF INTERSECTING STREETS TO TRAFFIC DURING NON-WORKING HOURS. CONTRACTOR MAY INSTALL A TEMPORARY GRAVEL BYPASS, WHEN NECESSARY, TO MAINTAIN TRAFFIC ACCESS TO INTERSECTING STREETS.
7. DRIVEWAY ACCESS- ALL RESIDENTS AND BUSINESS SHALL HAVE ACCESS TO THEIR DRIVEWAY OVERNIGHT. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY ALL AFFECTED PROPERTY OWNERS 24 HOURS IN ADVANCE OF ANY CONSTRUCTION ACTIVITIES THAT WILL TEMPORARILY RESTRICT ACCESS TO THEIR RESPECTIVE PROPERTY. DRIVEWAYS SHALL BE OPEN TO VEHICLE ACCESS DURING NON-WORKING HOURS.
8. SERVICE VEHICLE ACCESS- CONTRACTOR SHALL ENABLE ACCESS FOR SERVICE VEHICLES TO RESIDENCES AND BUSINESSES AT ALL TIMES. SERVICE VEHICLES INCLUDE FIRE TRUCKS, AMBULANCES, POLICE VEHICLES, SCHOOL BUSES, SNOW PLOWS, SOLID WASTE TRUCKS, PUBLIC HANDICAP TRANSPORTATION VEHICLES, POSTAL SERVICE AND DELIVERY VEHICLES, AND SIMILAR PUBLIC SERVICE VEHICLES.

CESO
WWW.CESOINC.COM
3601 Rigby Rd., Suite 300
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Phone: 937.435.8584 Fax: 888.208.4826

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DDC MANAGEMENT, LLC.

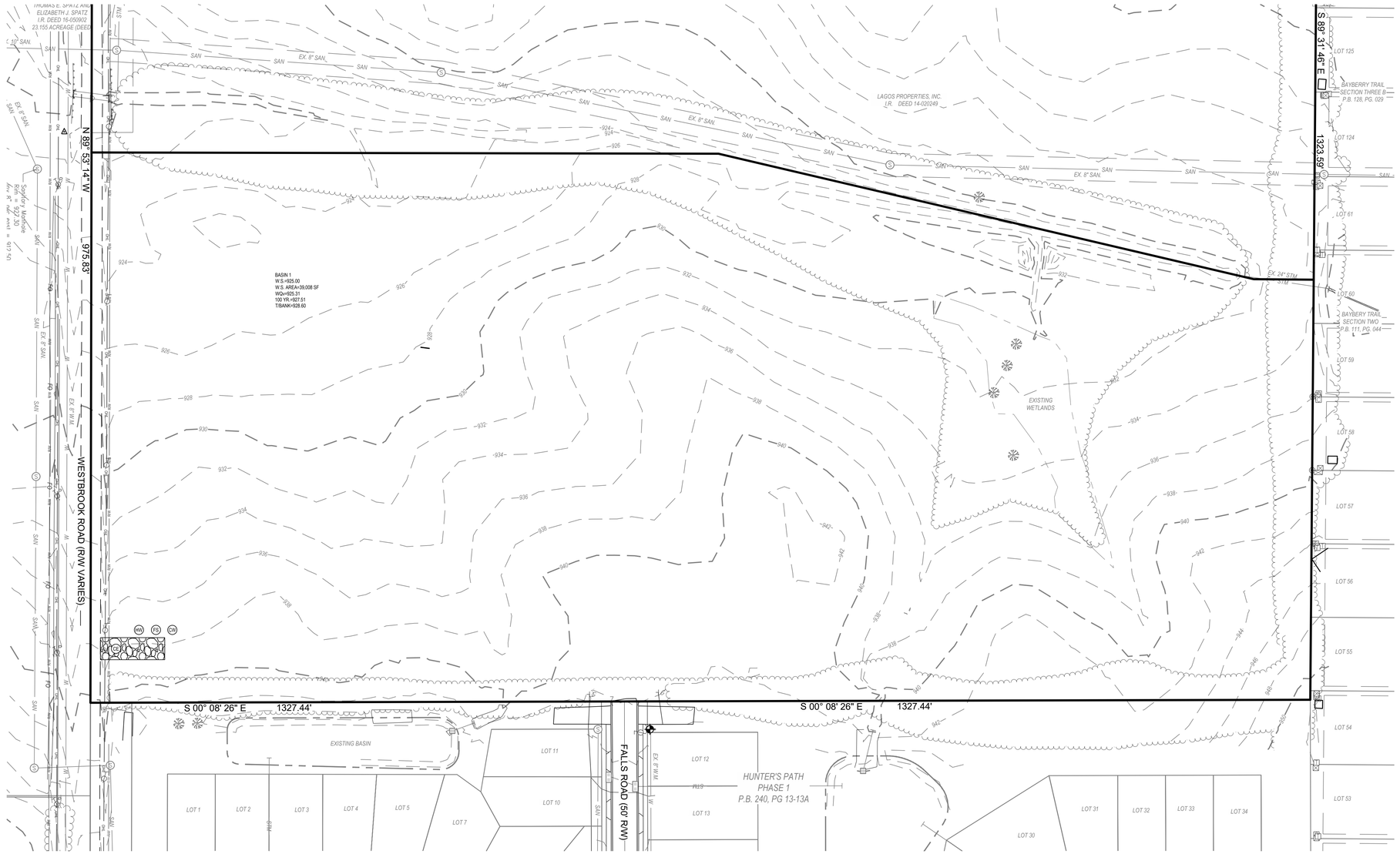
HUNTERS PATH
PHASE 3
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number: 765930
Scale: AS SHOWN
Drawn By: SJS
Checked By: JEE
Date: MAY 5, 2025
Issue: FINAL DEVELOPMENT PLAN

Drawing Title:
SANITARY AND WATER NOTES



SWPPP LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- PAVEMENT/WALK
- STORM SEWER
- SILT FENCE
- COMPOST SOCK
- GRADING/SEEDING LIMITS
- LIMIT OF DISTURBANCE
- PERMANENT EROSION CONTROL BLANKET ON ALL 3:1 SLOPES OR STEEPER
- STABILIZED CONSTRUCTION ENTRANCE
- STORAGE AREA
- BASIN SEDIMENT FILTER
- STORM MANHOLE
- CATCH BASIN
- CURB INLET
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY SEEDING
- PERMANENT SOD
- HAZARDOUS WASTE STORAGE AREA
- FUEL STORAGE AREA
- CONCRETE WASHOUT AREA
- INLET PROTECTION
- DANDY CURB (INLET PROTECTION)
- DANDY BAG (INLET PROTECTION)
- TRASH AREA

Ohio Utilities Protection Service
Call 811 before you dig

NPDES PERMIT #_____ GENERAL CONTRACTOR SHALL REFERENCE OEPA GENERAL PERMIT OHC000006 PRIOR TO START OF CONSTRUCTION.

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DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
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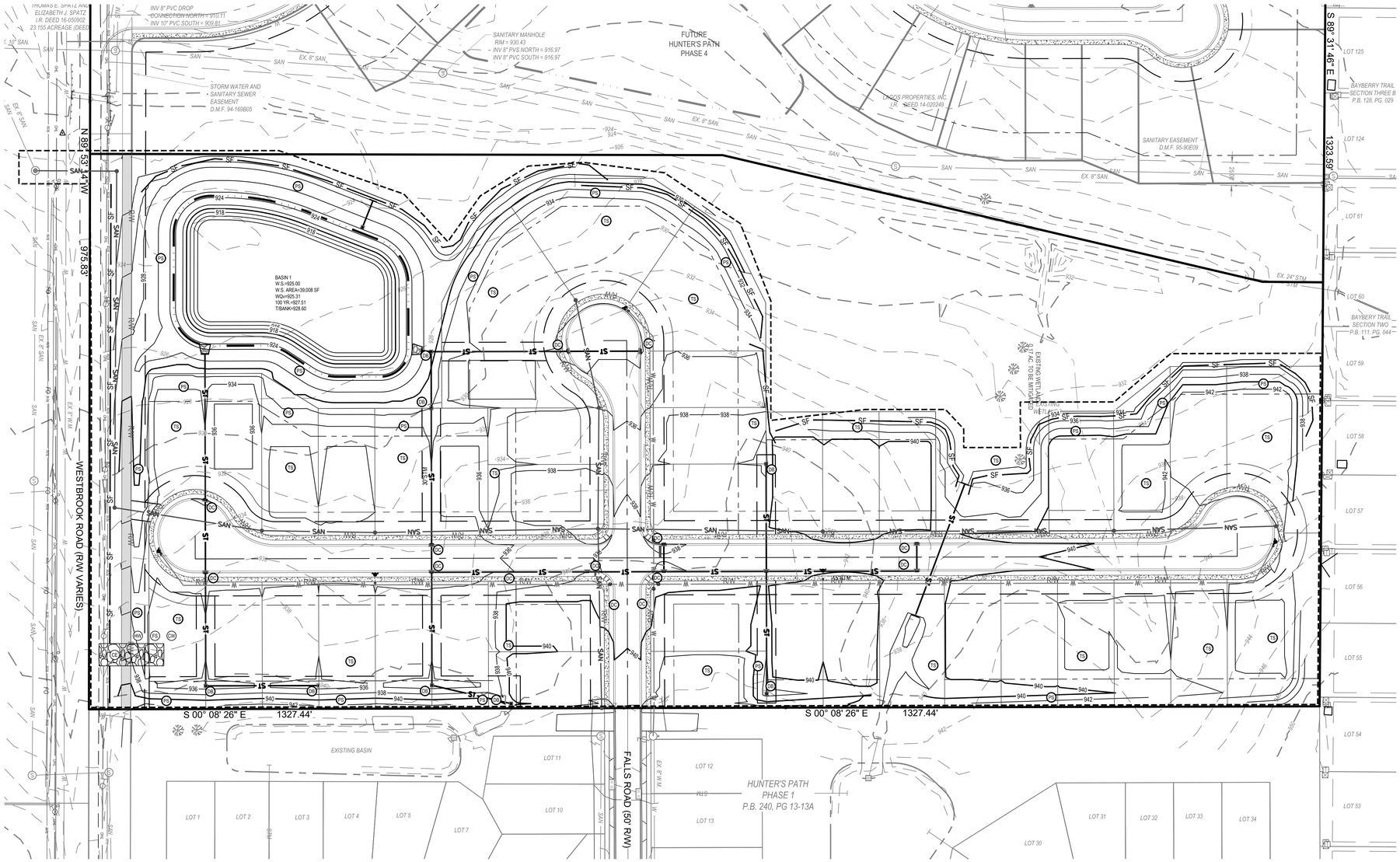
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
SWPPP PHASE 1



LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- SUBJECT BOUNDARY LINE
- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING TREE LINE
- EXISTING SIDEWALK
- EXISTING EDGE OF PAVEMENT
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING STORM STRUCTURES
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- STABILIZED CONSTRUCTION ENTRANCE
- LIMITS OF DISTURBANCE
- SILT FENCE
- FILTER SOCK
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURES
- TS — TEMPORARY SEEDING
- PS — PERMANENT SEEDING
- HW — HAZARDOUS WASTE STORAGE AREA
- FS — FUEL STORAGE AREA
- CW — CONCRETE WASHOUT AREA
- DB — DANDY BAG
- DC — DANDY CURB

N

60 0 60 120

GRAPHIC SCALE (IN FEET)
1 in. = 60 ft.

Ohio Utilities Protection Service
Call 811 before you dig

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DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
SWPPP PHASE 2

SITE DATA

DEVELOPER/APPLICANT:
DDC MANAGEMENT
3601 RIGBY ROAD, SUITE 300
MIAMISBURG, OHIO 45342

ENGINEER/SURVEYOR:
CESO, INC.
3601 RIGBY ROAD, SUITE 300
MIAMISBURG, OHIO 45342

DEVELOPMENT NAME AND DESCRIPTION:
HUNTER'S PATH, RESIDENTIAL SUBDIVISION, WILL CONSIST OF 40 SINGLE FAMILY HOMES.

SITE ACREAGE:
THE SITE IS APPROXIMATELY 17.10 ACRES OF WHICH 14.20 ACRES WILL BE DISTURBED BY CONSTRUCTION

RUNOFF COEFFICIENT:
PRE-CONSTRUCTION RUNOFF COEFFICIENT, C=0.4
POST-CONSTRUCTION RUNOFF COEFFICIENT, C=0.5

IMPERVIOUS AREA:
PRE-CONSTRUCTION- 0.00 ACRE, 0.00%
POST-CONSTRUCTION- 4.3 ACRES, 30%

PRIOR LAND USE
THE SITE WAS PREVIOUSLY ROW CROPS

SOIL TYPES ON THE SITE INCLUDE BROOKSTON
SLITY CLAY LOAM, MIAMIAN CLAY LOAM, CELINA
SILT LOAM & CROSBY SILT LOAM.

ADJACENT AREAS:
THE SITE IS BOUND TO THE NORTH BY BAYBERRY TRAIL, TO THE WEST BY A PARCEL OWNED BY LAGOS PROPERTIES INC., TO THE EAST BY HUNTER'S PATH PHASE 1, AND TO THE SOUTH BY WESTBROOK ROAD.

STORM WATER MANAGEMENT:
THE OUTFALL WILL BE TREATED WITH A PROPOSED WET POND FOR DETENTION AND WATER QUALITY. EACH DRAINAGE BASIN WILL DISCHARGE AT A LOWER FLOW RATE POST CONSTRUCTION THAN THE EXISTING CONDITIONS.

SEQUENCE OF CONSTRUCTION

1. INSTALL CONSTRUCTION ENTRANCE, HAZARDOUS WASTE STORAGE AREA, VEHICLE REFUELING AREA, AND CONCRETE WASH PIT.
2. INSTALL SILT FENCE AS NEEDED
3. CLEAR & GRUB SITE
4. CONSTRUCT BASIN
5. ROUGH GRADE SITE
6. CONSTRUCT SANITARY, DISTURBING TRENCH AREA ONLY
7. INSTALL STORM & WATER LINE, PLACING INLET PROTECTION AS INLETS ARE CONSTRUCTED
8. GRADE STREETS FIXING INLET PROTECTION AS NEEDED
9. REMOVE CONSTRUCTION ROAD STABILIZATION
10. PAVE STREETS
11. FINAL GRADE LOTS
12. SEED & MULCH ALL DISTURBED AREAS
13. REMOVE ALL EROSION CONTROL PRACTICES

GOOD HOUSEKEEPING

THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT:

AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.

ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS, AND IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.

PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.

SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.

WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.

MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.

THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

GENERAL LAND CONSERVATION NOTES

NO DISTURBED AREA WILL BE DENUDED FOR MORE THAN 30 DAYS IF IT IS TO REMAIN DORMANT FOR MORE THAN 45 DAYS UNLESS AUTHORIZED BY THE STATE GOVERNING JURISDICTION'S INSPECTOR. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DISTURBED AREAS WITHIN 14 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE.

ALL STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING FOR ALL SITES.

ALL STORM SEWER, SANITARY SEWER, WATER MAIN AND SERVICE TRENCHES SHALL BE MULCHED AND SEEDED WITHIN 14 DAYS AFTER BACK FILL IF INSTALLATION IS THROUGH STABILIZED AREAS. NO MORE THAN 500 FEET OF TRENCH WILL BE OPEN AT ANY ONE TIME.

ELECTRIC POWER, TELEPHONE, CATV AND GAS SUPPLY TRENCHES SHALL BE COMPACTED SEEDED AND MULCHED WITHIN 14 DAYS AFTER BACK FILL, IF INSTALLATION IS THROUGH STABILIZED AREAS.

ALL TEMPORARY DIVERSIONS, SEDIMENT BASIN EMBANKMENTS AND EARTH STOCKPILES SHALL BE SEEDED AND MULCHED FOR TEMPORARY VEGETATIVE COVER WITHIN 7 DAYS AFTER GRADING. STRAW, HAY MULCH OR EQUIVALENT IS REQUIRED.

ALL STORM SEWER INLETS SHALL BE PROTECTED BY SEDIMENT TRAPS (INLET PROTECTION) WHICH WILL BE MAINTAINED AND MODIFIED AS REQUIRED AS CONSTRUCTION PROGRESSES.

ANY DISTURBED AREA NOT STABILIZED WITH SEEDING, SODDING, PAVING OR BUILT UPON BY NOVEMBER 1ST, OR AREAS DISTURBED AFTER THAT DATE, SHALL BE MULCHED IMMEDIATELY WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED BY APRIL 15TH.

AT THE COMPLETION OF CONSTRUCTION, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED.

HOA SHALL MAINTAIN AND KEEP RECORD OF ANY MAINTENANCE/INSPECTIONS OF COMMON AREAS.

SWPPP NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL SHALL BE PERFORMED ACCORDING TO: SWPPP AND DETAIL PLANS; ACCORDING TO THE LATEST OHIO EPA AUTHORIZATION FOR CONSTRUCTION ACTIVITY UNDER THE "NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM" (NPDES); ANY AND ALL REQUIRED PERMITS, REPORTS, AND RELATED DOCUMENTS. SEE OHIO EPA PERMIT NO. OHC000006 FOR SWPPP RULES AND REGULATIONS. ALL CONTRACTORS AND SUBCONTRACTORS MUST BECOME FAMILIAR WITH ALL OF THE ABOVE.
2. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AND GRADE CHANGES TO THE SITE AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
3. CONTRACTOR SHALL MINIMIZE CLEARING AND DISTURBANCE TO THE ENVIRONMENT TO THE MAXIMUM EXTENT POSSIBLE OR AS REQUIRED BY THE GENERAL PERMIT. EVERY EFFORT SHALL BE MADE TO PRESERVE THE NATURAL RIPARIAN SETBACK ADJACENT TO STREAMS OR OTHER SURFACE WATER BODIES.
4. SEDIMENT STRUCTURE AND PERIMETER SEDIMENT BARRIERS SHALL BE IMPLEMENTED AS THE FIRST STEP OF GRADING WITHIN SEVEN (7) DAYS FROM THE START OF CLEARING AND GRUBBING, AND SHALL CONTINUE TO FUNCTION UNTIL THE SLOPE DEVELOPMENT AREA IS RESTABILIZED. SEDIMENT CONTROL DEVICES SHALL BE IMPLEMENTED FOR ALL AREAS REMAINING DISTURBED FOR OVER 14 DAYS.
5. TEMPORARY SOIL STABILIZATION OF DISTURBED AREAS BY MEANS OF TEMPORARY VEGETATION, MULCHING, GEOTEXTILES, SOD, PRESERVATION OF EXISTING VEGETATION, AND OTHER APPROVED TECHNIQUES TO BE APPLIED AS FOLLOWS:

   WITHIN TWO (2) DAYS OF ANY AREA WITHIN 50 FEET OF A STREAM NOT AT FINAL GRADE REMAINING DORMANT FOR OVER FOURTEEN (14) DAYS.

   WITHIN SEVEN (7) DAYS OF ANY AREA THAT WILL BE DORMANT FOR MORE THAN FOURTEEN (14) DAYS BUT LESS THAN A YEAR.

   FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST SEVEN (7) DAYS PRIOR TO TRANSFER OF PERMIT COVERAGE FOR INDIVIDUAL LOTS.
6. PERMANENT SOIL STABILIZATION OF DISTURBED AREAS BY MEANS OF VEGETATION, LANDSCAPE TYPE MULCHING, MATTING, SOD, RIP RAP, AND OTHER APPROVED LANDSCAPING TECHNIQUES TO BE APPLIED AS FOLLOWS:
   WITHIN SEVEN (7) DAYS OF ANY AREA THAT WILL BE DORMANT FOR ONE (1) YEAR OR MORE.
   WITHIN TWO (2) DAYS OF ANY AREA WITHIN 50 FEET OF A STREAM AT FINAL GRADE.
   WITHIN SEVEN (7) DAYS FOR ANY OTHER AREA AT FINAL GRADE.
7. TEMPORARY SEEDING, MULCHING, AND FERTILIZER SPECIFICATIONS:
   SEEDING: ANNUAL RYEGRASS AT 2.02 #/1,000 S.F.
   MULCHING: STRAW MATERIAL SHALL BE UNROTTED SMALL GRAIN STRAW APPLIED AT A RATE OF TWO (2) TON/ACRE, OR 80-100 POUNDS PER 1,000 S.F. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE FREE OF PROHIBITIVE NOXIOUS WEEDS. MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICAL MEANS. FROM NOVEMBER 01 THRU MARCH 15 INCREASE THE RATE OF STRAW MULCH TO THREE (3) TON/ACRE.
   FERTILIZER: APPLY FERTILIZER AT HALF THE RATE OF PERMANENT APPLICATION AND AS PER STATE DOT SPECIFICATIONS. IF PROJECT CONDITIONS PREVENT FERTILIZING THE SOIL, THEN THIS ITEM MAY BE WAIVED.
8. PERMANENT SEEDING SHALL BE IN ACCORDANCE WITH ODOT STANDARD SPECIFICATIONS.
9. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION. ALL SLOPES 3:1 OR GREATER THAN 3:1 SHALL BE FERTILIZED, SEEDED, AND CURLEX BLANKETS BY AMERICAN EXCELSIOR COMPANY, NORTH AMERICAN GREEN, INC. OR AN APPROVED EQUAL AS SPECIFIED IN THE PLANS SHALL BE INSTALLED ON THE SLOPES.
10. OHIO EPA SWPPP REGULATIONS REQUIRES THAT A SEDIMENT TRAP OR POND BE SIZED TO PROVIDE AT LEAST 104 CUBIC YARDS (67 CY FOR DEWATERING AND 37 CY FOR SEDIMENT STORAGE) OF STORAGE PER ACRE OF TOTAL CONTRIBUTING AREA. MAXIMUM DEPTH OF SEDIMENT SETTLING POND SHALL BE EQUAL OR LESS THAN 5-FEET WITH A LENGTH TO WIDTH RATIO GREATER THAN OR EQUAL TO 2:1)
11. OUTLET STRUCTURES IN SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT MUST BE REMOVED FROM BASINS AND OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 40% (APPROXIMATELY ONE-HALF OF POND DEPTH).
12. NO SOLID (OTHER THAN SEDIMENT) OR LIQUID WASTE, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED IN STORM WATER RUNOFF.
13. ALL TOXIC WASTES, HAZARDOUS WASTES AND NON-SEDIMENT POLLUTANTS MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL GUIDELINES. WASH OUT OF CEMENT TRUCKS SHOULD OCCUR IN DESIGNATED PIT OR DIKED AREAS, WHERE WASHINGS CAN BE REMOVED AND PROPERLY DISPOSED OFF-SITE WHEN THEY HARDEN. STORAGE TANKS SHOULD ALSO BE LOCATED IN PIT OR DIKED AREAS. IN ADDITION, SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS TO CLEAN AND CONTAIN FUEL AND CHEMICAL SPILLS MUST BE KEPT ON SITE. NO TOXIC OR HAZARDOUS WASTES SHALL BE DISPOSED INTO STORM DRAINS, SEPTIC TANKS OR BY BURYING, BURNING OR MIXING THE WASTES.
14. CONTAINERS SHALL BE AVAILABLE FOR DISPOSAL OF DEBRIS, TRASH, HAZARDOUS OR PETROLEUM WASTES. ALL CONTAINERS MUST BE COVERED AND LEAK-PROOF. ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THE PERTINENT MATERIAL.
15. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DISPOSED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE SITE THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
16. BRICKS, HARDENING CONCRETE AND SOIL WASTE SHALL BE FREE FROM CONTAMINATION WHICH MAY LEACH CONSTITUENTS TO WATERS OF THE STATE.
17. CLEAN CONSTRUCTION WASTES THAT WILL BE DISPOSED INTO THE PROPERTY SHALL BE SUBJECT TO ANY LOCAL PROHIBITIONS FROM THIS TYPE OF DISPOSAL.
18. ALL CONSTRUCTION AND DEMOLITION DEBRIS (C&DD) WASTE SHALL BE DISPOSED OF IN AN OHIO EPA APPROVED C&DD LANDFILL AS REQUIRED BY OHIO REVISED CODE 3714. CONSTRUCTION DEBRIS MAY BE DISPOSED OF ON-SITE, BUT DEMOLITION DEBRIS MUST BE DISPOSED IN AN OHIO EPA APPROVED LANDFILL. ALSO, MATERIALS WHICH CONTAIN ASBESTOS MUST COMPLY WITH AIR POLLUTION REGULATIONS (SEE OHIO ADMINISTRATIVE CODE 3745-20).
19. AREA SHALL BE DESIGNATED FOR MIXING OR STORAGE OF COMPOUNDS SUCH AS FERTILIZERS, LIME ASPHALT, OR CONCRETE, THESE DESIGNATED AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS, OR OTHER STORMWATER DRAINAGE AREA.
20. EQUIPMENT FUELING & MAINTENANCE SHALL BE IN DESIGNATED AREAS ONLY, THESE DESIGNATED AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS, OR OTHER STORMWATER DRAINAGE AREA.
21. A SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN MUST BE DEVELOPED FOR SITES WITH ONE ABOVE-GROUND STORAGE TANK OF 660 GALLONS OR MORE, TOTAL ABOVE-GROUND STORAGE OF 1,330 GALLONS OR BELOW-GROUND STORAGE OF 4,200 GALLONS OF FUEL.
22. ALL DESIGNATED CONCRETE CHUTE OR WASHOUT AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS OR OTHER STORMWATER DRAINAGE AREAS.
23. THERE IS A POTENTIAL FOR HIGH GROUND WATER AT THIS SITE. CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND IMPLEMENTING A PLAN TO CONTROL BOTH SURFACE AND GROUND WATER DURING THE COURSE OF CONSTRUCTION.
24. DISCHARGE OF WATER WITH POTENTIAL SEDIMENT FROM THE SITE SHALL BE THROUGH A FILTER BAG, SUMP PIT OR OTHER SEDIMENT REMOVAL DEVICE.
25. ALL CONTAMINATED SOIL MUST BE TREATED AND/OR DISPOSED IN AN OHIO EPA APPROVED SOLID WASTE MANAGEMENT FACILITY OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITIES (TSDFs).
26. IF THE SITE CONTAINS CONTAMINATED SOIL, THE FOLLOWING SHALL BE USED TO PREVENT CONTAMINATION FROM BEING RELEASED:
    1. BERMS, TRENCHES AND PITS TO COLLECT CONTAMINATED RUNOFF AND PREVENT DISCHARGES.
    2. PUMPING RUNOFF INTO A SANITARY SEWER (WITH PRIOR APPROVAL OF THE SANITARY SYSTEM OPERATOR) OR INTO A CONTAINER FOR TRANSPORT TO AN APPROPRIATE TREATMENT/DISPOSAL FACILITY.
    3. COVERING AREAS OF CONTAMINATION WITH TARPS OR OTHER METHODS THAT PREVENT STORM WATER FROM COMING INTO CONTACT WITH THE MATERIAL.

SWPPP NOTES (CONT.)

27. IN THE EVENT OF AN ACCIDENTAL SPILL, IMMEDIATE ACTION WILL BE UNDERTAKEN BY THE GENERAL CONTRACTOR TO CONTAIN AND REMOVE THE SPILLED MATERIAL. ALL HAZARDOUS MATERIALS, INCLUDING CONTAMINATED SOIL AND LIQUID CONCRETE WASTE, WILL BE DISPOSED OF BY THE CONTRACTOR IN THE MANNER SPECIFIED BY FEDERAL, STATE AND LOCAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. AS SOON AS POSSIBLE, THE SPILL WILL BE REPORTED TO THE APPROPRIATE AGENCIES. AS REQUIRED UNDER THE PROVISIONS OF THE CLEAN WATER ACT, ANY SPILL OR DISCHARGE ENTERING WATERS OF THE UNITED STATES WILL BE PROPERLY REPORTED. THE GENERAL CONTRACTOR WILL PREPARE A WRITTEN RECORD OF ANY SPILL AND ASSOCIATED CLEAN-UP ACTIVITIES OF PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS IN EXCESS OF 1 GALLON OR REPORTABLE QUANTITIES, WHICH EVER IS LESS.
28. THE CONTRACTOR SHALL CONTACT THE OHIO EPA AT 800.282.9378, THE CITY OF CLAYTON FIRE DEPARTMENT AT 937.836.3500 AND THE MONTGOMERY COUNTY LOCAL EMERGENCY PLANNING COMMITTEE AT 937.224.8934 WITHIN 30 MINUTES OF A PETROLEUM SPILL (>25 GALLONS) OR THE PRESENCE OF SHEEN.
29. OPEN BURNING IS NOT PERMITTED ON THE SITE.
30. DUST CONTROL USING APPROVED MATERIALS MUST BE PERFORMED AT ALL TIMES. DUST SUPPRESSANTS SHALL NOT BE APPLIED NEAR CATCH BASINS FOR STORM SEWERS OR OTHER DRAINAGE WAYS. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION IS PROHIBITED.
31. APPROPRIATE MEASURES MUST BE TAKEN TO ENSURE THAT ALL PROPER AIR POLLUTION PERMITS ARE OBTAINED.
32. PROCESS WASTEWATERS (EQUIPMENT WASHING, LEACHATE ASSOCIATED WITH ON-SITE WASTE DISPOSAL AND CONCRETE WASH-OUTS) SHALL BE COLLECTED AND DISPOSED OF PROPERLY.
33. SANITARY AND WATER PTI FORMS SHALL BE FILED WITH THE OHIO EPA AS REQUIRED.
34. PROTECTED STORAGE AREAS SHALL BE USED FOR INDUSTRIAL AND CONSTRUCTION MATERIALS IN ORDER TO MINIMIZE THE EXPOSURE OF SUCH MATERIALS TO STORMWATER.
35. ALL CONTROL MEASURES STATED IN THE SWPPP SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL TEMPORARY OR PERMANENT STABILIZATION OF THE SITE IS ACHIEVED. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED BY A QUALIFIED PERSON IN ACCORDANCE TO THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED ACCORDING TO THE FOLLOWING:
36. INSPECTIONS OF BMPS SHALL BE PERFORMED BY QUALIFIED PERSONS PROVIDED BY THE PERMITTEE AND THE INSPECTION LOGS ARE TO BECOME A PART OF THIS PLAN. INSPECTIONS RECORDS SHALL BE SIGNED BY THE INSPECTOR AND WILL BE KEPT FOR 3 YEARS AFTER THE NOTICE OF TERMINATION IS SUBMITTED.
37. INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE IN EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD, FROM THE BEGINNING OF CONSTRUCTION THROUGH THE FINAL INSPECTION PRIOR TO THE NOTICE OF TERMINATION.
38. NON-SEDIMENT POND BMPS TO BE REPAIRED WITHIN 3 DAYS OF INSPECTION AND SEDIMENT POND BMPS WITHIN 10 DAYS OF INSPECTION. BMPS NOT MEETING THE INTENDED FUNCTION SHALL BE REPLACED WITHIN 10 DAYS OF INSPECTION. MISSING BMPS SHALL BE INSTALLED WITHIN 10 DAYS OF INSPECTION.
39. IF THE SITE IS STABILIZED AND WILL BE DORMANT FOR A LONG PERIOD OF TIME, LESS FREQUENT INSPECTIONS MAY BE REQUESTED OF THE OEPA VIA A WAIVER REQUEST.
40. INLET PROTECTION DEVICES AND CONTROLS SHALL BE REPAIRED OR REPLACED WHEN THEY SHOW SIGNS OF UNDERMINING AND OR DETERIORATION.
41. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STANDING OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
42. SILT FENCES, INLET PROTECTION, SILT DIKES AND PERVIOUS LOGS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITION IF DAMAGED. SEDIMENT ACCUMULATION MUST BE REMOVED WHEN SEDIMENT HEIGHT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE, INLET PROTECTION, SILT DIKE AND PERVIOUS LOG.
43. MINIMIZE OFF-SITE SEDIMENT TRACKING OF VEHICLES BY THE USE OF STONE MATERIAL IN ALL CONSTRUCTION ENTRANCES, ALONG WITH REGULARLY SCHEDULED SWEEPING/GOOD HOUSEKEEPING. STABILIZED CONSTRUCTION ENTRANCES TO BE PROPERLY MAINTAINED AND IN GOOD WORKING ORDER AT ALL TIMES; THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE STONE AS CONDITIONS DEMAND.
44. IF THE ACTION OF VEHICLES TRAVELING OVER THE STABILIZED CONSTRUCTION ENTRANCE DOES NOT SUFFICIENTLY REMOVE MOST OF THE DIRT AND MUD, THEN THE TIRES MUST BE WASHED BEFORE VEHICLES ENTER A PUBLIC ROAD. PROVISIONS MUST BE MADE TO INTERCEPT THE WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
45. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED ONTO THE ROADWAYS OR INTO THE STORM SEWERS MUST BE REMOVED IMMEDIATELY.
46. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
47. CONTRACTORS AND SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING ALL SEDIMENT FROM THE SITE, INCLUDING DETENTION PONDS, AND STORM SEWER SYSTEMS. SEDIMENT DEPOSITION DURING SITE STABILIZATION MUST ALSO BE REMOVED.
48. ALL RIP RAP MUST BE PLACED OVER GEOTEXTILE FILTER.
49. STONE CONSTRUCTION ENTRANCE TO BE MAINTAINED BY CONTRACTOR UNTIL SITE HAS BEEN PAVED OR IS NO LONGER REQUIRED.
50. ALL CATCH BASIN GRATES ARE TO BE PROTECTED WITH INLET BAGS AFTER THEY ARE INSTALLED. THEY SHOULD BE ROUTINELY CLEANED AND MAINTAINED.
51. ROCK CHECK DAMS SHOULD BE ROUTINELY CLEANED ONCE SEDIMENT BEGINS TO APPEAR ON THE UPSTREAM SIDE OF THE ROCK.
52. ON-SITE AND OFF-SITE STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION BY THE USE OF BEST MANAGEMENT PRACTICES. THESE AREAS MUST BE SHOWN IN THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
53. CONTRACTOR TO DELINEATE STOCK PILE LOCATION ON PLANS TO BE KEPT ON SITE DURING CONSTRUCTION.
54. CONSTRUCT STOCKPILES IN ACCESSIBLE LOCATIONS THAT DO NOT INTERFERE WITH NATURAL DRAINAGE. INSTALL APPROPRIATE SEDIMENT CONTROLS TO TRAP SEDIMENT SUCH AS SILT FENCE IMMEDIATELY ADJACENT TO THE STOCKPILE OR SEDIMENT TRAPS OR BASINS DOWNSTREAM OF STOCKPILE. STOCKPILE SIDE SLOPES SHALL NOT EXCEED A RATIO OF 2:1.
55. IF STOCKPILE IS STORED FOR MORE THAN 14 DAYS, IT SHOULD BE TEMPORARY SEEDED, OR COVERED WITH A TARP.
56. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH DAY; THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR ASPHALT FOR ROAD CONSTRUCTION.
57. THE LAST LAYER OF SOIL, INCLUDING TOP SOIL SHOULD BE COMPACTED TO 80% - 85% OF THE MAXIMUM STANDARD PROCTOR DENSITY, IN AREAS OUTSIDE THE PARKING LOT THAT WILL RECEIVE VEGETATION. THIS IS PARTICULARLY IMPORTANT IN CUT SLOPE AND EMBANKMENT AREAS. IN PAVEMENT AND ISLAND AREAS, IT IS RECOMMENDED THAT THE SOIL BE COMPACTED TO 98% AND 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY RESPECTIVELY; THE LAST COMPACTED LAYER MAY BE SCARIFIED TO IMPROVE THE SOIL GROWTH CHARACTERISTICS.
58. THE POST CONSTRUCTION WATER QUALITY REQUIREMENTS OF OHIO EPA PERMIT OHC000006 SHALL BE MET BY THE WATER QUALITY BASINS.
59. ALL WATER FROM DEWATERING ACTIVITES SHALL BE PROCESSED THROUGH A BMP PRIOR TO LEAVING THE SITE.

STRUCTURAL BMP LONG-TERM MAINTENANCE (GENERAL NOTES)

1. THE OWNER AGREES TO MAINTAIN IN PERPETUITY THE STORM WATER MANAGEMENT PRACTICES IN ACCORDANCE WITH APPROVED MAINTENANCE PLANS LISTED IN #2 BELOW AND IN A MANNER THAT WILL PERMIT THE STORM WATER MANAGEMENT PRACTICES TO PERFORM THE PURPOSES FOR WHICH THEY WERE DESIGNED AND CONSTRUCTED. THIS INCLUDES ALL PIPES, STRUCTURES, IMPROVEMENTS, AND VEGETATION PROVIDED TO CONTROL THE QUANTITY OF THE STORM WATER.
2. NO ALTERATIONS TO THE WATER QUALITY/DETENTION BASINS WITHOUT APPROVAL FROM THE JURISDICTIONAL REVIEWING AUTHORITY.
3. THE OWNER SHALL PROVIDE A MAINTENANCE PLAN FOR EACH STORM WATER MANAGEMENT PRACTICE. THE MAINTENANCE PLANS SHALL INCLUDE A SCHEDULE FOR MONTHLY AND ANNUAL MAINTENANCE. THE OWNER SHALL MAINTAIN, UPDATE AND STORE THE MAINTENANCE RECORDS FOR THE STORM WATER MANAGEMENT PRACTICES. THE SPECIFIC MAINTENANCE PLANS FOR EACH STORM WATER MANAGEMENT PRACTICE ARE AS FOLLOWS.

MAINTENANCE TO BE COMPLETED EVERY 3 MONTHS
- REMOVE TRASH AND/OR ACCUMULATED SEDIMENT FROM POND AREA.
- REMOVE OBSTRUCTIONS IN ORIFICES AND/OR OUTLETS WITHIN POND.
- REMOVE DEBRIS AND SEDIMENT FROM INLET PIPES, OUTLET PIPES AND STRUCTURES.

MAINTENANCE TO BE COMPLETED YEARLY
- REPAIR EROSION TO OUTFALL OR SPILLWAY OF THE POND
- REPAIR AND/OR REPLACE DAMAGED STRUCTURES, SUCH AS CATCH BASINS, RISERS, PIPES AND HEADWALLS.
- MOW EMBANKMENTS AND REMOVE WOODY VEGETATION ON EMBANKMENTS

YEARLY REPORT REQUIREMENTS
SKETCH SHOWING GENERAL AREA OF BMP'S, SUMMARY OF ALL MAINTENANCE ACTIVITIES SINCE LAST ANNUAL INSPECTION, PHOTOS AND DESCRIPTION OF ALL BMP DESIGN FEATURES, INDICATION OF ANY DEVIATION FROM APPROVED PLAN FOR BMP, IDENTIFICATION OF IMPROVEMENTS NECESSARY TO RESTORE ORIGINAL DESIGN FUNCTION, MAINTENANCE ACTIVITIES REQUIRED IN THE NEXT 6 MONTHS, IDENTIFICATION AND CONTACT INFORMATION OF ENTITY RESPONSIBLE FOR BMP, AND IDENTIFICATION AND CONTACT INFORMATION FOR ENGINEER PREPARING THE REPORT INCLUDING SIGNATURE AND SEAL.

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THE INFORMATION ON THIS DOCUMENT IS PRELIMINARY OR INCOMPLETE, NOT FOR CONSTRUCTION, RECORDING PURPOSES, OR IMPLEMENTATION.

DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

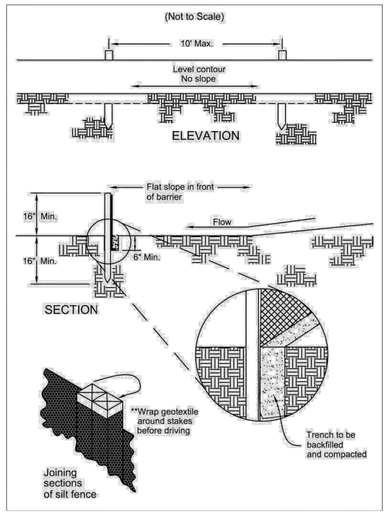
ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
SWPPP NOTES

Specifications
for

Silt Fence



1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground, (see details).
10. Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.

    Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.

    Silt fences shall be inspected after each rainfall and at least daily during a prolonged rainfall. The location of existing silt fence shall be reviewed daily to ensure its proper location and effactiveness. If damaged, the silt fence shall be repaired immediately.

Criteria for silt fence materials

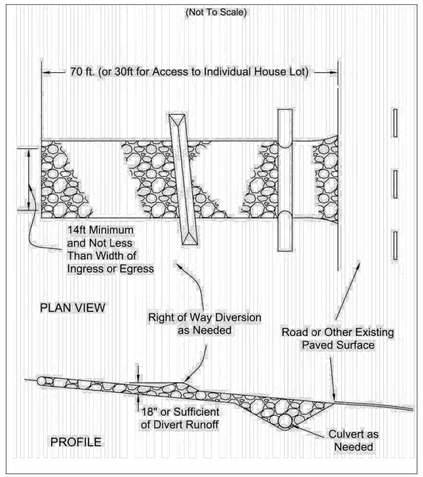
1. Fence post – The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

Table 6.3.2 Minimum criteria for Silt Fence Fabric (ODOT, 2002)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM G 4355

Specifications
for

Construction Entrance



1. Stone Size—ODOT # 2 (1.5-2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length—The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lots).
3. Thickness -The stone layer shall be at least 6 inches thick for light duty entrances or at least 10 inches for heavy duty use.
4. Width -The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile -A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot-proof polymeric fibers and meet the following specifications:

Figure 7.4.1

Geotextile Specification for Construction Entrance	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi.
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	EOS < 0.6 mm.
Permittivity	1×10-3 cm/sec.

6. Timing—The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert -A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water Bar -A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance -Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off-site tracking. Vehicles that enter and leave the construction-site shall be restricted from muddy areas.
11. Removal—the entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

Specifications
for

Temporary Seeding

Table 7.8.1 Temporary Seeding Species Selection

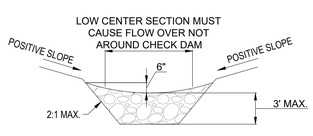
Seeding Dates	Species	Lb./1000 ft2	Lb/Acre
March 1 to August 15	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (4 Bushel) 40 40
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	55 142 17 17
	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (3 bushel) 40 40
August 16th to November	Rye Tall Fescue Annual Ryegrass	3 1 1	112 (2 bushel) 40 40
	Wheat Tall Fescue Annual Ryegrass	3 1 1	120 (2 bushel) 40 40
	Perennial Rye Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	40 40 40
November 1 to Feb. 29	Use mulch only or dormant seeding		

Note: Other approved species may be substituted.

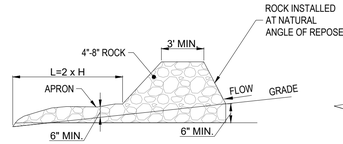
1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 21 days or greater. These idle areas shall be seeded within 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments—Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method—Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

Mulching Temporary Seeding

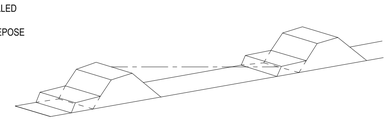
1. Applications of temporary seeding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.
2. Materials:
    - Straw—If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons per acre or 90 lbs./ 1,000 sq. ft. (2-3 bales)
    - Hydroseeders—If wood cellulose fiber is used, it shall be used at 2000 lbs./ ac. or 46 lb./ 1,000-sq.-ft.
    - Other—Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ ac.
3. Straw Mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:
    - Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
    - Mulch Netting—Netting shall be used according to the manufacturers recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
    - Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Track or equivalent may be used at rates recommended by the manufacturer.
    - Wood-Cellulose Fiber—Wood-cellulose fiber binder shall be applied at a net dry wt. of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb. / 100 gal.



CROSS SECTION



PROFILE



ISOMETRIC

NOTES:

1. THE CHECK DAM SHALL BE CONSTRUCTED OF 4-8 INCH DIAMETER STONE, PLACED SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL. FILTER FABRIC SHALL BE NON-WOVEN MEETING AASHTO M-288-06 FOR CLASS 1 APPLICATIONS.
2. MAXIMUM HEIGHT OF CHECK DAM SHALL NOT EXCEED 3.0 FEET.
3. THE MIDPOINT OF THE ROCK CHECK DAM SHALL BE A MINIMUM OF 6 INCHES LOWER THAN THE SIDES IN ORDER TO DIRECT ACROSS THE CENTER AND AWAY FROM THE CHANNEL SIDES.
4. THE BASE OF THE CHECK DAM SHALL BE ENTRENCHED APPROXIMATELY 6 INCHES.
5. SPACING OF CHECK DAMS SHALL BE IN A MANNER SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM.
6. A SPLASH APRON SHALL BE CONSTRUCTED WHERE CHECK DAMS ARE EXPECTED TO BE IN USE FOR AN EXTENDED PERIOD OF TIME, A STONE APRON SHALL BE CONSTRUCTED IMMEDIATELY DOWNSTREAM OF THE CHECK DAM TO PREVENT FLOWS FROM UNDERCUTTING THE STRUCTURE. THE APRON SHOULD BE 6 IN. THICK AND ITS LENGTH TWO TIMES THE HEIGHT OF THE DAM.
7. STONE PLACEMENT SHALL BE PERFORMED EITHER BY HAND OR MECHANICALLY AS LONG AS THE CENTER OF CHECK DAM IS LOWER THAN THE SIDES AND EXTENDS ACROSS ENTIRE CHANNEL.
8. SIDE SLOPES SHALL BE A MINIMUM OF 2:1.

ROCK CHECK DAM

NTS

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DDC MANAGEMENT, LLC.

HUNTERS PATH
PHASE 3
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
SWPPP DETAILS

Specifications
for

Permanent Seeding

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limitec to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime—Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
2. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

1. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":

3. Straw and Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind or water.

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.

- From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
- From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
- Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
- Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

1. Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
2. Materials
- Straw—If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
- Hydroseeders—If wood cellulose fiber is used, it shall be applied at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other—Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.

- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
- Wood Cellulose Fiber—Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

Irrigation

Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth.

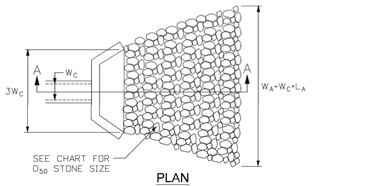
Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

Table 7.10.2 Permanent Seeding

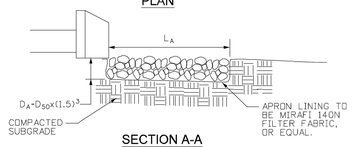
Seed Mix	Seeding Rate Lbs./acre	Seeding Rate Lbs./1,000 Sq. Feet	Notes:
General Use			
Creeping Red Fescue Domestic Ryegrass Kentucky Bluegrass	20-40 10-20 20-40	1/2-1 1/4-1/2 1/2-1	For close mowing & for waterways with <2.0 ft/sec velocity
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	
Crown Vetch Tall Fescue	10-20 20-30	1/4-1/2 1/2-3/4	Do not seed later than August
Flat Pea Tall Fescue	20-25 20-30	1/2-3/4 1/2-3/4	Do not seed later than August
Road Ditches and Swales			
Tall Fescue	40-50	1-11/4	
Turf-type (Dwarf) Fescue Kentucky Bluegrass	90 5	2 1/4 0.1	
Lawns			
Kentucky Bluegrass Perennial Ryegrass	100-120	2 2	
Kentucky Bluegrass Creeping Red Fescue	100-120	2 1-1/2	For shaded areas

Note: Other approved seed species may be substituted.

W_C, Culvert Diameter (inches)	D_{50}, Rock Size (inches)	L_A, Apron Length (feet)	W_A, Downstream Width (feet)	D_A, Thickness (inches)	Rock Qty. (tons)
12	6	12	13	18	15
18	9	16	18	24	20
21	9	18	20	24	35
24	9	20	22	24	60
30	9	22	24	24	75
36	12	24	27	30	120
42	18	26	30	36	180
48	18	28	32	36	215



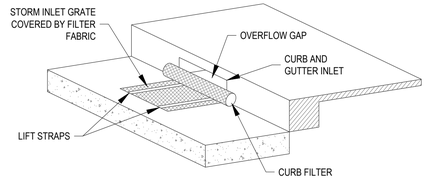
PLAN



SECTION A-A

RIPRAP AT HEADWALL

N.T.S.

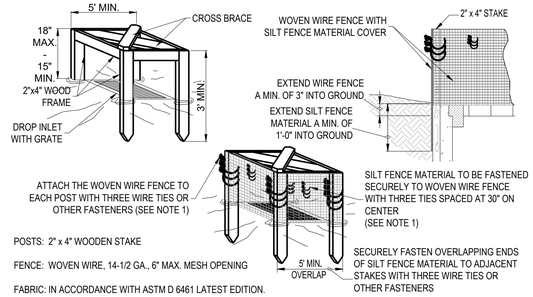


NOTE:

INLET PROTECTION SHALL BE DANDY CURB BAG OR APPROVED OTHER.

CURB INLET PROTECTION

NTS



NOTES:

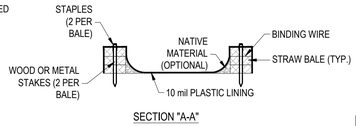
1. ATTACH THE WOVEN WIRE FENCE TO EACH POST AND THE GEOTEXTILE TO THE WOVEN WIRE FENCE (SPACED EVERY 30") WITH THREE WIRE TIES OR OTHER FASTENERS, ALL SPACED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1" VERTICALLY APART.
2. WHEN TWO SECTIONS OF SILT FENCE MATERIAL ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED ACROSS TWO POSTS.
3. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE SWPPP. DEPTH OF ACCUMULATED SEDIMENTS MAY NOT EXCEED ONE-HALF THE HEIGHT OF THE FABRIC. MAINTENANCE CLEANOUT MUST BE CONDUCTED REGULARLY TO PREVENT ACCUMULATED SEDIMENTS FROM REACHING ONE-HALF THE HEIGHT OF THE SILT FENCE MATERIAL ABOVE GRADE.
4. ALL SILT FENCE INLETS SHALL INCLUDE WIRE SUPPORT.

AREA INLET PROTECTION (REINFORCED)

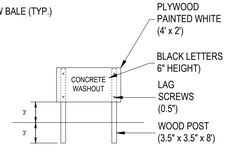
NTS

SECTION "A-A"

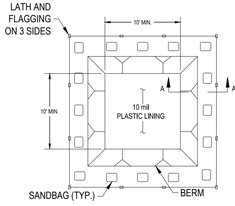
SECTION "A-A"



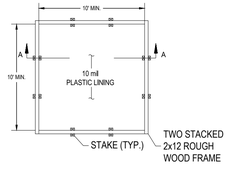
SECTION "A-A"



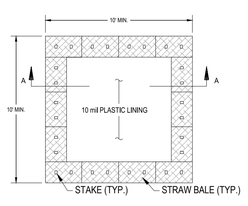
CONCRETE WASHOUT SIGN DETAIL



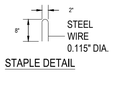
BELOW GRADE



ABOVE GRADE WITH WOOD PLANKS



ABOVE GRADE W/ HAYBALES



STAPLE DETAIL

NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH AS SHOWN IN DETAIL 2. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURES RECOMMENDATION.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MINIMUM 6" OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
6. PLACE STAPLES/STAKES PER MANUFACTURER'S RECOMMENDATION FOR THE APPROPRIATE SLOPE BEING APPLIED.

EROSION CONTROL BLANKET

NTS

NOTES:

1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. THE WASHOUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS INCLUDING BUT NOT LIMITED TO OPERATIONS ASSOCIATED WITH GROUT AND MORTAR.

CONCRETE WASHOUT

NTS

CESO
WWW.CESOINC.COM
3601 Rigby Rd., Suite 300
Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

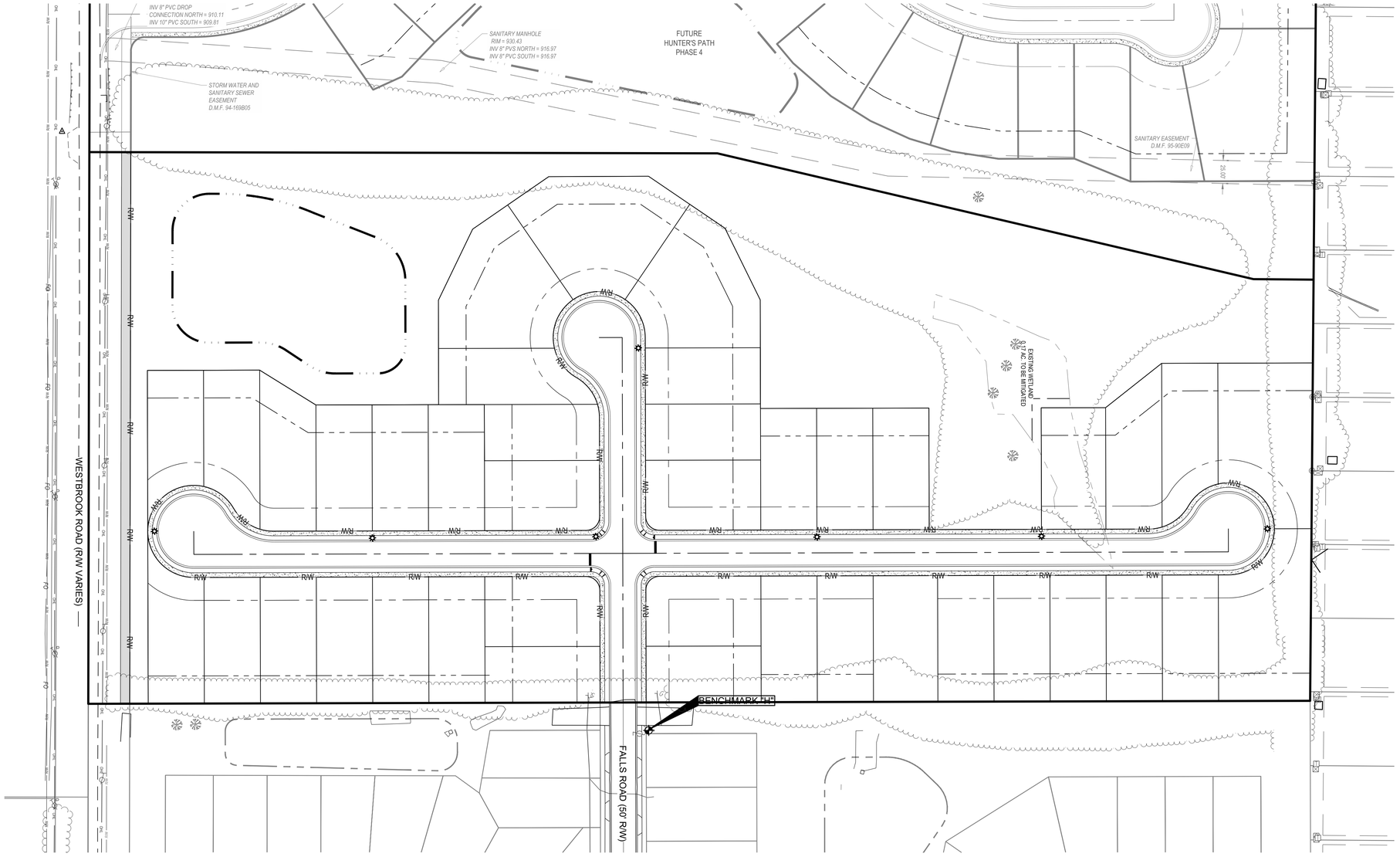
Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:

SWPPP DETAILS



LEGEND

- SUBJECT BOUNDARY
- EXISTING PROPERTY LINE
- EXISTING R/W
- EXISTING CENTERLINE
- EXISTING FACE OF CURB
- EXISTING BACK OF CURB
- PROPOSED RIGHT-OF-WAY
- EXISTING STREAM (TO REMAIN)
- EXISTING WETLAND (TO REMAIN)
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED BASIN
- PROPOSED CENTERLINE
- PROPOSED CURB & GUTTER

LIGHTING PLAN LEGEND

PROPOSED

- NEW LIGHT POLE LOCATION

N

GRAPHIC SCALE (IN FEET)
1 in. = 60 ft.

CESO
WWW.CESOINC.COM
3601 Rigby Rd., Suite 300
Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

DDC MANAGEMENT, LLC.

HUNTERS PATH PHASE 3

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Drawing Title:
LIGHTING PLAN

Lunar Optics

Lunar Optics has been designed to address environmental lighting issues such as urban sky glow (light pollution), light trespass, and glare, in addition to maintaining classic style and appearance.

The GranVille Series with Lunar Optics boasts an exquisite daytime appearance, yet has been engineered with purposeful optical performance. Specifically, the luminaire restricts the intensity (candela) at the critical vertical angles to achieve an IESNA cutoff classification.

Furthermore, a small amount of light illuminates the top acorn refractor to allow for a fully luminous nighttime appearance. As an overall result, the percentage of upward light is significantly reduced, yet the traditional lighted appearance is retained. The Lunar Optics version is ideal for applications where communities want to celebrate tradition, however are sensitive to light pollution and trespass.

1 Finial: Is designed to define luminaire shape

2 Decorative top cover: (optional) Designed to define luminaire shape and control uplight

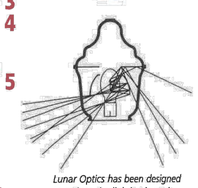
3 Prismatic top reflector: Defines shape and efficiently controls light

4 Reflector mounting plate: Is designed to support Lunar Optics reflector and reduce uplight

5 Anodized hydro-formed reflector: Restricts the intensity at the critical vertical angles

6 Ballast housing: Holds and protects electrical components and defines luminaire shape and size

7 Pole options: A variety of pole materials and styles are available to complement luminaire and site architecture



Lunar Optics has been designed to reduce the lighting intensity at the critical vertical angles to achieve IESNA Cutoff.

HScapes™ HOLOPHANE outdoor lighting

DECORATIVE
Product Catalog

Lunar Optics®

DECORATIVE GranVille™ Series

Pole Samples

Cast aluminum | Cast iron | Cast iron and steel | Composite | Concrete

Historically Styled Decorative Posts

Tapered and Straight Poles

Decorative SiteLink Posts

Specifications

General Description
The luminaire consists of three main components, a ballast housing, a reflector with socket, and a prismatic glass optical assembly.

Optical Assembly
The optical assembly is a precisely molded thermal resistant borosilicate glass reflector and refractor with or without a decorative finial. The upper portion of this system incorporates a series of reflecting prisms that redirect over 50% of the upward light in to the controlling refractor while allowing a soft uplight component to define the traditional acorn shape of the luminaire. Two decorative aluminum covers are available. The lower portion uses precisely molded refracting prisms to control the distribution of light to maximize utilization, uniformity, and luminaire spacing. Three unique optical assemblies are available, designed for IES type III, IV, and V lighting distributions.

Ballast Assembly
The ballast housing contains the ballast and other electrical components. The housing is cast of aluminum alloy. The slipfitter will accept a 3" high, 2-7/8" to 3-1/8" O.D. tenon and is secured by four hex head 1/4-20 set screws. Four uniquely designed stainless steel spring clips enclosed in a clear polyvinyl chloride sleeve and adjusted by hex head 1/4-20 bolts securely cradle the optical assembly.

Ballast
(Refer to Ballast Data Sheet for specific operating characteristics) 35 - 100 watt 120 volt High Pressure Sodium (HPS) ballasts are High Power Factor Reactor type. All other HPS ballasts are High Power Factor High Reactance. 175 watt Metal Halide (MH) ballasts are Peak Lead Autotransformer (CWA) type. 70 and 100 watt MH units are available only with (120V, 208V, 240V, 277V) multitap High Power Factor High Reactance type ballast.

Reflector/Socket Assembly
The reflector/socket assembly is designed to position the specified light source at the light center of the refractor.

Installation
Refer to the instruction manual provided with each luminaire as to the specific method of wiring and mounting the luminaire.

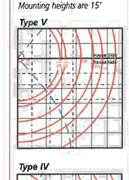
Finish
The housing is finished with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability.

UL LIsting
The luminaire is UL listed as suitable for wet locations at a maximum 40°C ambient temperature.

Distributions

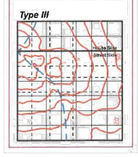
Mounting heights are 15'

Type V



Type IV

Type III



Ordering Information

HScapes™ HOLOPHANE outdoor lighting

DECORATIVE
Product Catalog

How to Construct a Catalog Number

Example: GV 1 | 050HP 2 | 12 3 | S 4 | B 5 | 3 6 | N 7 | C 8 | B 9 | F1 10

1 Luminaire	2 Wattage	3 Voltage	4 Housing	5 Color	6 Optics	7 Trim	8 Finial	9 Trim Finish	10 Options/Accessories
GV	050HP	12	A	A	3	N	B	A	DTLPR12X
SY	055QL	20	C	B	4	R	C	B	DTLPR20/24/27X
	085QL	24	F	N	5		E	G	DTLPR34X
	35DHP	27	L	Z	6		F	N	FCVRX
	50DHP	34	M		7		N	U	F1
	070HP	48	S		8		P	Z	F2
	70DHP	MT					R		GV1A73X
	70DMH						S		GVBANDX
	100HP								MCVRX
	10DHP								P
	10DMH								WHS090
	15AHP								WHS120
	15DHP								WHS180
	15DMH								WHSL090
	175MH								WHSL120
	17DMH								WHSL180
	20DIN								

Catalog Number Information

STEP 1: Luminaire

GV GranVille
SY Syracuse

STEP 2: Source and Wattage

Mogul Base	
050HP	50W HPS
070HP	70W HPS
100HP	100W HPS
15AHP	150W/55V HPS
175MH	175W MH
Medium Base	
35DHP[1]	35W HPS
50DHP	50W HPS
70DHP	70W HPS
10DHP	100W HPS
15DHP	150W/55V HPS
70DMH[2]	70W MH
10DMH[2]	100W MH
15DMH[2]	150W MH
17DMH	175W MH
20DIN	200W Inc
INDUCTION	
055QL[1]	55W Ind.
085QL[1]	85W Ind.

1 120V only
2 "MT" only

STEP 3: Voltage

12	120V
20	208V
24	240V
27	277V
34	347V
48	480V
MT	Multi-tap

STEP 4: Housing

A[2]	Arcadian
C[1]	Convex Octagonal
F[1]	Fluted
L[1]	Leaf
M	Modern Fluted Swing Open Design
S[1]	Simple

1 Casting for 3" tenon
2 Casting for 7" crown

STEP 5: Color

B	Black
Z	Bronze
N	Green
A	As specified

STEP 6: Optics

Asymmetric	
3	Type III
4	Type IV
6	Type II – Lunar Optics
7	Type III – Lunar Optics
Symmetric	
5	Type V
8	Type V – Lunar Optics

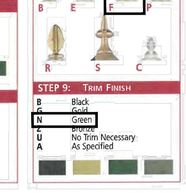
STEP 7: Trim

GV	
R	Hinged Top with Ribs and Bands
N	No Ribs or Bands
SY	
R	Ribs, Bands and Spun Cover

STEP 8: Finial

Painted Cast Aluminum

B	Ball
E	Eagle
F	Flower
P	Pawn
R	Cross
S	Standard
Other	
C	Clear Acrylic, 3"
N	None



STEP 9: Trim Finish

B	Black
G	Gold
N	Green
U	Bronze
A	As Specified

STEP 10: Options/Accessories

FCVRX[1]	Full Decorative Aluminum Cover for "GV" (Finial required)
MCVRX[1]	Mogul Decorative Aluminum Cover for "GV" (Covers 2/3 of the reflector and requires a finial)
P	Protected Starter for HPS Units
F1[2]	Single Fusing for 120, 240 and 277V Units. Ships Separate
F2[2]	Double Fusing for 208 and 240V Units. Ships Separate
GV1A73X[3]	3" to 7" Post Capital. Converts 3" Post Top Tenon to Flared 7" Post Capital. Use Only with "A", "F", or "C" Housings
GVBANDX[3]	Optional Decorative Band Kit Added to Glass Assembly for "GV" (Field installed)

Photocontrol Kit for "L" and "S" Housing Style only

DTLPR12X[5]	120V, GV1A73 Post Capital
DTLPR20/24/27X[5]	208, 240 or 277V, GV1A73 Post Capital
DTLPR34X[5]	347V, GV1A73 Post Capital

Internal House Side Shield

WHS090[4]	90°
WHS120[4]	120°
WHS180[4]	180°
WHSL090[4]	With Lunar Optics, 90°
WHSL120[4]	With Lunar Optics, 120°
WHSL180[4]	With Lunar Optics, 180°

1 For color insert "B", "G", "N", "Z" or "A" for "X"
2 Fusing not available for 480V and 200W Incandescent
3 For color insert "B", "Z", "N" or "A" for "X"
4 Mogul Base Only

[ ] - CITY STANDARDS FOR RESIDENTIAL STREET LIGHTING

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WWW.CESOINC.COM
3601 Rigby Rd., Suite 300
Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

DDC MANAGEMENT, LLC.

HUNTERS PATH
PHASE 3
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	MAY 5, 2025
Issue:	FINAL DEVELOPMENT PLAN

Drawing Title:
LIGHTING DETAILS

Stormwater Management Report

Hunter's Path Extension

Clayton, Ohio

Date Prepared: 05/02/25

Revised:

On behalf of:

DDC Management, LLC

Contact:

Ross Behnfeldt
ross.behnfeldt@ddcmgmt.com
937-401-3932

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3601 Rigby Road, Suite 300
Miamisburg, Ohio 45342

Engineer of Record:

Justin Elam, PE, CPESC

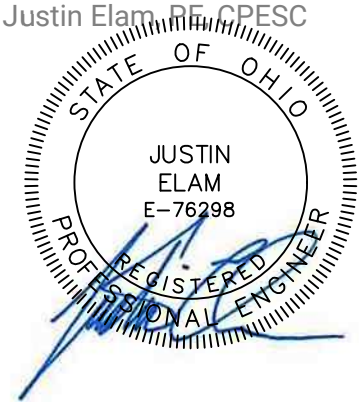


Table of Contents

APPENDICES

Introduction

This report covers the methodology and calculations used in the design of the stormwater management system for the proposed development anticipated for the Hunter's Path Extension development in Clayton, Ohio.

The stormwater management system is designed in accordance with the City of Clayton Stormwater Management Ordinance. The ordinance has requirements for stormwater quality and stormwater quantity.

- The stormwater quality requirements can be met by using one (1) wet extended detention basin, a water quality Best Management Practice (BMP). The water quality volume (WQv) will be detained for a 24-hour period (minimum) while releasing less than half of that volume in the first 8 hours.

- The stormwater quantity requirements can be satisfied by the wet extended detention basin. According to the City of Clayton Stormwater Management Ordinance, the critical storm and all more frequent storms occurring in the post-developed condition shall not exceed the one-year peak rate of runoff in the existing condition. For storm events occurring less frequently the peak rate of runoff in the proposed condition shall be less than the peak rate of runoff in the existing condition for equivalent storm events.

Storm routings for this project were performed using Hydrographs Extension for Civil 3D. Time of Concentration was determined by using the TR-55 method, within Hydrographs Extension for Civil 3D.

The onsite soils were obtained from USDA NRCS Web Soil Survey and can be found in **Appendix D.**

The storm pipe network was designed using Hydraflow Storm sewers Extension for Autodesk Civil 3D. The City of Clayton Stormwater Management Ordinance requires that the pipes be sized using peak flow rates for the 10-year storm event. Refer to **Appendix C** for the Storm Pipe Calculations and **Appendix E3** for the associated Tributary Drainage area Map.

Existing Conditions

The site consists of 12.89 acres, which is comprised of straight row crops. The existing drainage pattern of the site drains to the west to an existing stream. Additionally, there are offsite flows from the previous sections of Hunter's Path. These have been divided for analysis purposes as shown below. Two existing basins from the previous sections of Hunter's path also outlet onto the proposed site.

The existing runoff consists of three (3) major existing drainage areas and two (2) existing basins as listed below:

- EDA-1 - Existing Drainage Area – 12.89 Ac., CN=82, Tc=14.10 Min.
- OS-1 – Offsite 1 – 0.99 Ac., CN=83, TC=10 Min.
- OS-2 – Offsite 2 – 1.49 Ac., CN=83, Tc=10 Min.
- Ex Basin B – This basin outlets to the west onto the property and will bypass the basin in the post developed condition. Hydrograph developed with Hunter's Path Phase 1 & 2 calculations.

- Ex Basin C – This basin outlets to the west onto the property and will drain to the basin in the post developed condition. Hydrograph developed with Hunter's Path Phase 1 & 2 calculations.

The Soil Survey indicates this site to have MnB3 and MnC3 Hydrologic Group 'C' type soil as well as Bs, CeB and CsA Hydrologic Group 'C/D' type soil. To be conservative hydrologic soil group 'C' soils were assumed across the site with a CN value of 82 for straight row + crop residue. Offsite areas utilized the previous calculations for Hunter's Path, Phases 1 and 2.

Peak runoff rates from the existing conditions of the site are listed in the following table:

Existing Conditions Peak Runoff Rates							
Drainage Area	**1-year Storm**	**2-year Storm**	**5-year Storm**	**10-year Storm**	**25-year Storm**	**50-year Storm**	**100-year Storm**
EDA-1	13.28	18.84	26.84	33.50	42.56	50.06	57.75
OS-1	1.26	1.75	2.47	3.06	3.86	4.52	5.19
OS-2	1.90	2.64	3.71	4.60	5.81	6.80	7.82
Ex Basin B	2.71	9.65	17.51	24.91	44.20	61.84	78.33
Ex Basin C	0.06	0.40	2.72	8.31	14.53	18.55	21.97

Refer to **Appendix A** for the Existing Conditions Calculations. The Existing Conditions Drainage Area Map can be found in **Appendix E1**.

Proposed Conditions

The proposed development of the site will consist of the construction of 40 single family lots with associated site improvements and a stormwater management system. The stormwater management system consists of one (1) extended detention basin, an outlet control structure, an emergency spillway, and a storm sewer network with catch basins and headwalls. The extended detention basin in conjunction with the outlet control structure has been designed to address the water quality and water quantity requirements. The outflow from the stormwater management system will be routed through the outlet structure and directed into the stream to the west of this phase of the development.

The post developed runoff consists of four (4) major existing drainage areas and the two (2) existing basins and two (2) offsite drainage areas.

- DA-1 – Drainage Area 1 – 10.22 Ac., CN=93, Tc=14.30 Min.
- BYP-1A – Bypass 1A – 0.83 Ac., CN=92, Tc=10 Min.
- BYP-1B – Bypass 1B – 1.04 Ac., CN=92, Tc=10 Min.
- BYP–2 – Bypass 2 – 0.80 Ac., CN=92, Tc=10 Min.
- TO BASIN 1 – The combination of the DA-1, OS-1, and Basin C Hydrographs. This indicates the proposed runoff that will be directed towards the proposed Basin 1
- BASIN 1 – Basin 1 Routing
- POST DEV TOTAL RELEASE – The combination of the BASIN 1, BYP-1A, BYP-1B, BYP-2, and OS-2.

To be conservative in the post developed condition, hydrologic soil group 'D' soils were assumed across the site with a CN value of 92 for 1/8 Ac. or less residential district. Offsite areas utilized the previous calculations for Hunter's Path, Phases 1 and 2.

Stormwater Quantity

The resulting proposed conditions peak runoff rates are listed in the following table:

Proposed Conditions Peak Runoff Rates							
Drainage Area	1-year Storm	2-year Storm	5-year Storm	10-year Storm	25-year Storm	50-year Storm	100-year Storm
DA-1	19.99	25.12	32.05	37.60	44.92	50.86	56.89
BYP-1A	1.77	2.24	2.89	3.40	4.08	4.64	5.20
BYP-1B	2.22	2.81	3.62	4.26	5.12	5.81	6.51
BYP-2	1.71	2.16	2.78	3.28	3.94	4.47	5.01
TO BASIN 1	COMBINE OS-1, EX BASIN C, DA-1						
BASIN 1	0.64	1.58	4.47	8.11	14.24	18.49	22.56
POST DEV	8.15	11.95	23.37	35.44	62.26	86.80	110.04

The discharge characteristics for the proposed stormwater management basin are listed in the following table:

Basin 1		
Storm	Peak Discharge	Water surface Elevation
1-year	0.64	926.06
2-year	1.58	926.20
5-year	4.47	926.45
10-year	8.11	926.69
25-year	14.24	927.02
50-year	18..49	927.26
100-year	22.56	927.51

The critical storm was calculated to be the 10-year storm event based upon the requirements set forth by the City of Clayton Stormwater Management Ordinance. Refer to **Appendix B** for critical storm calculations.

A summary of the existing conditions peak runoff rates, the allowable peak runoff rates and the proposed conditions peak runoff rates are listed in the following table:

	Runoff Reduction Summary			
Storm	**Existing Onsite**	**Offsite Total**	**Allowable**	**Proposed**
1-year	13.28	3.58	16.86	8.15
2-year	18.84	10.39	23.67	11.95
5-year	26.84	20.65	33.93	23.37

10-year(Crit Stm)	33.50	34.25	47.53	35.44
25-year	42.56	52.74	47.53	62.26
50-year	50.06	75.61	125.67	86.80
100-year	57.75	97.32	155.07	110.04

Refer to **Appendix A** for the Stormwater Quantity Calculations. The Proposed Conditions Drainage Area Map can be found in **Appendix E2**.

Stormwater Quality

To satisfy the water quality requirements, one (1) wet extended detention basin will be installed, a water quality BMP. Therefore, the stormwater quality requirements have been satisfied. Refer to **Appendix B** for Stormwater Quality Calculations.

Summary

The proposed stormwater management system has been successfully designed to manage the increased runoff from associated improvements of the project. The stormwater management system has been designed in accordance with the appropriate regulations, as demonstrated in the previous tables and accompanying calculations.

APPENDIX A:
HYDROGRAPHS

Hydrograph Return Period Recap

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	------	13.28	18.84	-------	26.84	33.50	42.56	50.06	57.75	EDA-1
2	SCS Runoff	------	24.04	30.50	-------	39.27	46.29	55.57	63.10	70.75	POST DEV ONSITE UNDETAINED
4	SCS Runoff	------	1.259	1.752	-------	2.465	3.057	3.857	4.517	5.194	OS-1
5	SCS Runoff	------	1.896	2.637	-------	3.710	4.601	5.805	6.799	7.817	OS-2
7	Manual	------	2.710	9.650	-------	17.51	24.91	44.20	61.84	78.33	EX BASIN B
8	Manual	------	0.060	0.400	-------	2.720	8.310	14.53	18.55	21.97	EX BASIN C
10	Combine	4, 5, 7, 8,	3.575	10.39	-------	20.65	34.25	52.74	75.61	97.32	OFFSITE TOTAL
12	SCS Runoff	------	19.99	25.12	-------	32.05	37.60	44.92	50.86	56.89	DA-1
13	SCS Runoff	------	1.768	2.243	-------	2.886	3.401	4.082	4.635	5.195	BYP-1A
14	SCS Runoff	------	2.216	2.810	-------	3.616	4.262	5.115	5.807	6.510	BYP-1B
15	SCS Runoff	------	1.705	2.162	-------	2.782	3.278	3.935	4.467	5.008	BYP-2
17	Combine	4, 8, 12,	21.29	26.90	-------	34.54	41.84	61.28	73.84	83.94	TO BASIN 1
18	Reservoir	17	0.635	1.578	-------	4.471	8.105	14.24	18.49	22.56	BASIN 1
20	Combine	5, 7, 13, 14, 15, 18,	8.151	11.95	-------	23.37	35.44	62.26	86.80	110.04	POST DEV TOTAL RELEASE

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	13.28	2	722	38,309	------	------	------	EDA-1
2	SCS Runoff	24.04	2	722	68,004	------	------	------	POST DEV ONSITE UNDETAINED
4	SCS Runoff	1.259	2	722	3,308	------	------	------	OS-1
5	SCS Runoff	1.896	2	722	4,979	------	------	------	OS-2
7	Manual	2.710	2	780	93,537	------	------	------	EX BASIN B
8	Manual	0.060	2	866	13,892	------	------	------	EX BASIN C
10	Combine	3.575	2	722	115,716	4, 5, 7, 8,	------	------	OFFSITE TOTAL
12	SCS Runoff	19.99	2	722	56,910	------	------	------	DA-1
13	SCS Runoff	1.768	2	720	4,631	------	------	------	BYP-1A
14	SCS Runoff	2.216	2	720	5,803	------	------	------	BYP-1B
15	SCS Runoff	1.705	2	720	4,464	------	------	------	BYP-2
17	Combine	21.29	2	722	74,109	4, 8, 12,	------	------	TO BASIN 1
18	Reservoir	0.635	2	950	68,280	17	926.06	43,342	BASIN 1
20	Combine	8.151	2	720	181,694	5, 7, 13, 14, 15, 18,	------	------	POST DEV TOTAL RELEASE

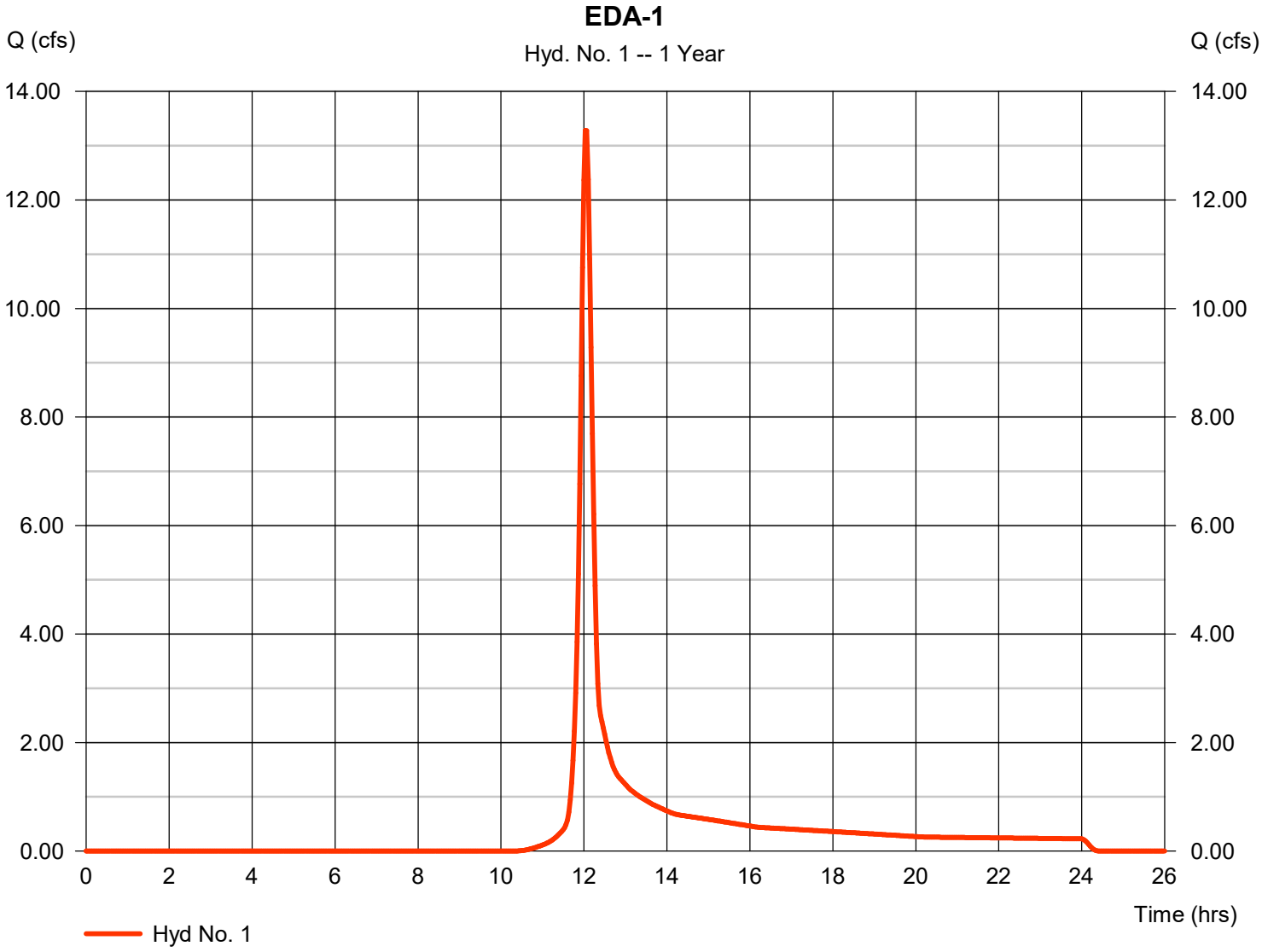
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.28 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	38,309 cuft
Drainage area	=	12.890 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	14.10 min
Total precip.	=	2.28 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 1

EDA-1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.130		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 2.73		0.00		0.00		
Land slope (%)	= 1.75		0.00		0.00		
Travel Time (min)	**= 9.98**	**+**	**0.00**	**+**	**0.00**	**=**	**9.98**
Shallow Concentrated Flow							
Flow length (ft)	= 520.00		130.00		0.00		
Watercourse slope (%)	= 3.00		1.75		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.79		2.13		0.00		
Travel Time (min)	**= 3.10**	**+**	**1.02**	**+**	**0.00**	**=**	**4.12**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 14.10 min

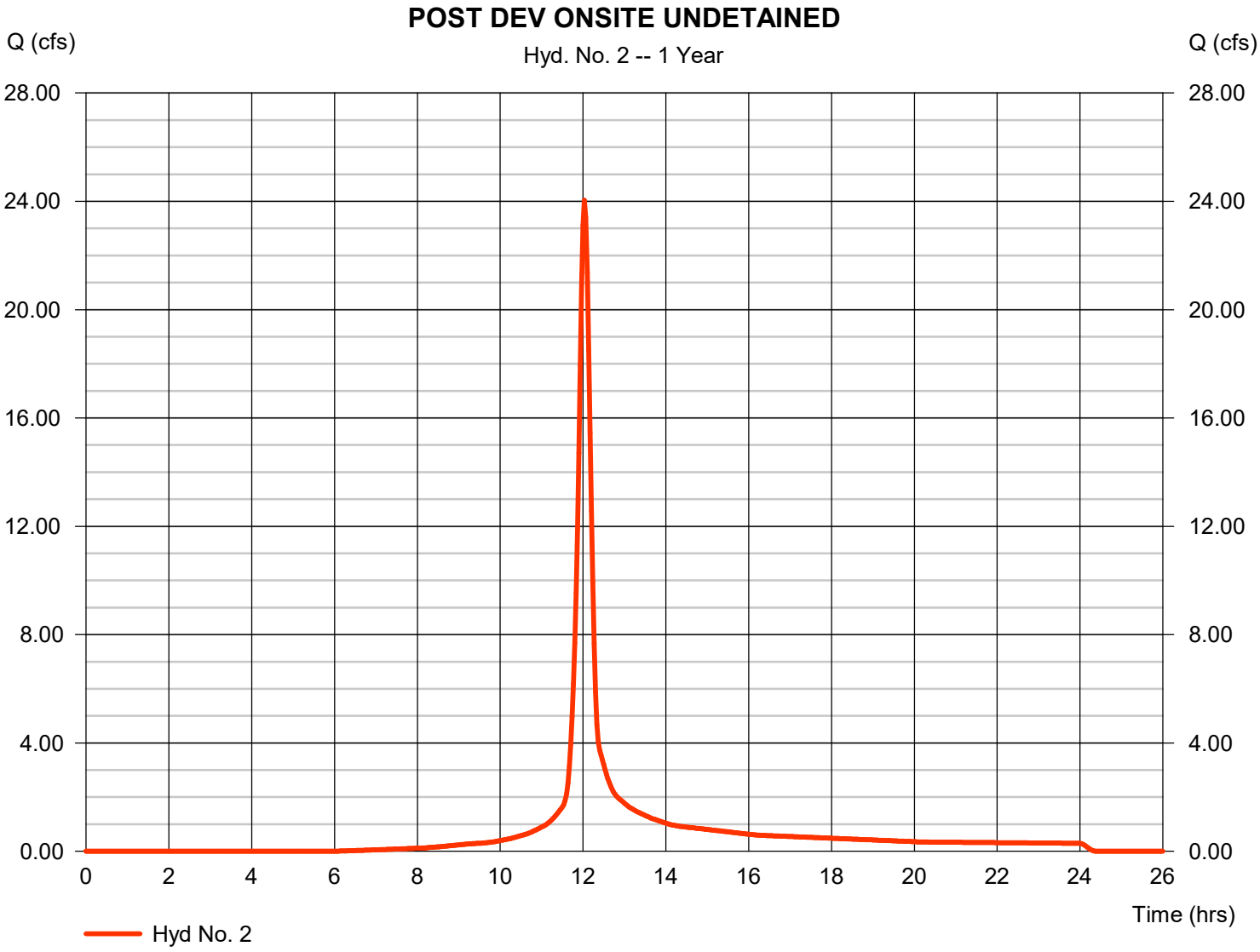
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 2

POST DEV ONSITE UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 24.04 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 68,004 cuft
Drainage area	= 12.890 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 2.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



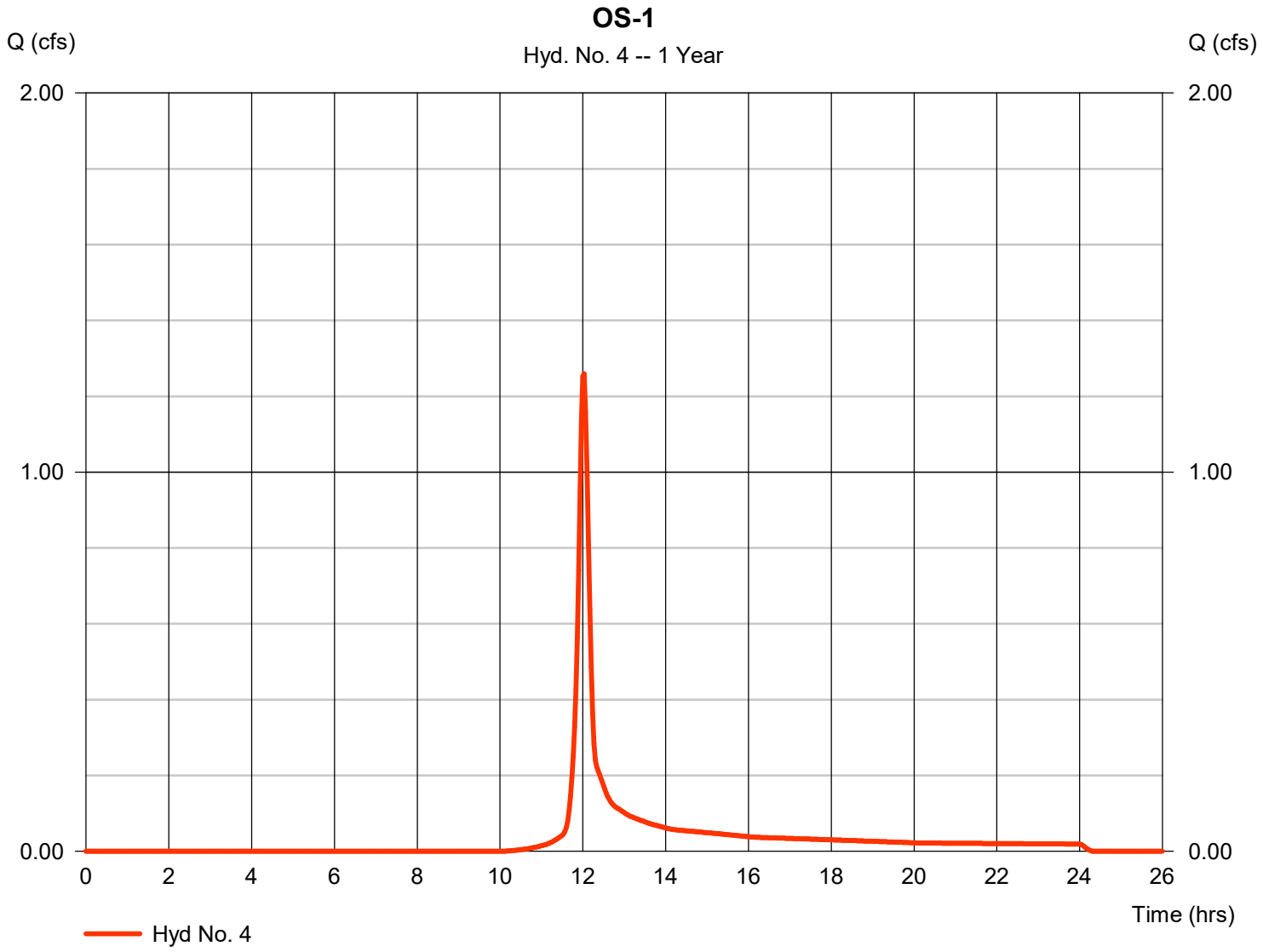
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 4

OS-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.259 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	3,308 cuft
Drainage area	=	0.990 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.28 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



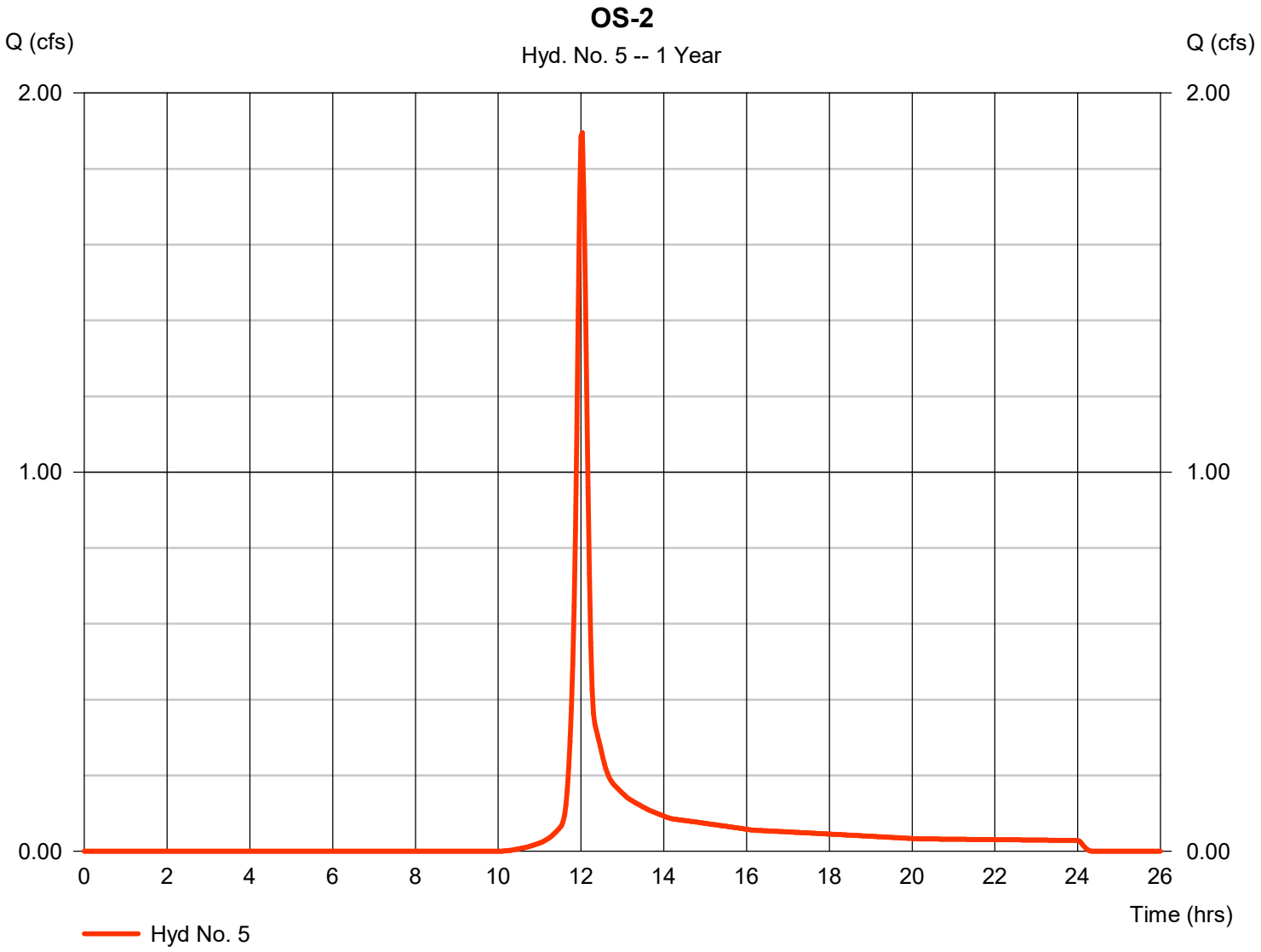
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 5

OS-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.896 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	4,979 cuft
Drainage area	=	1.490 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.28 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



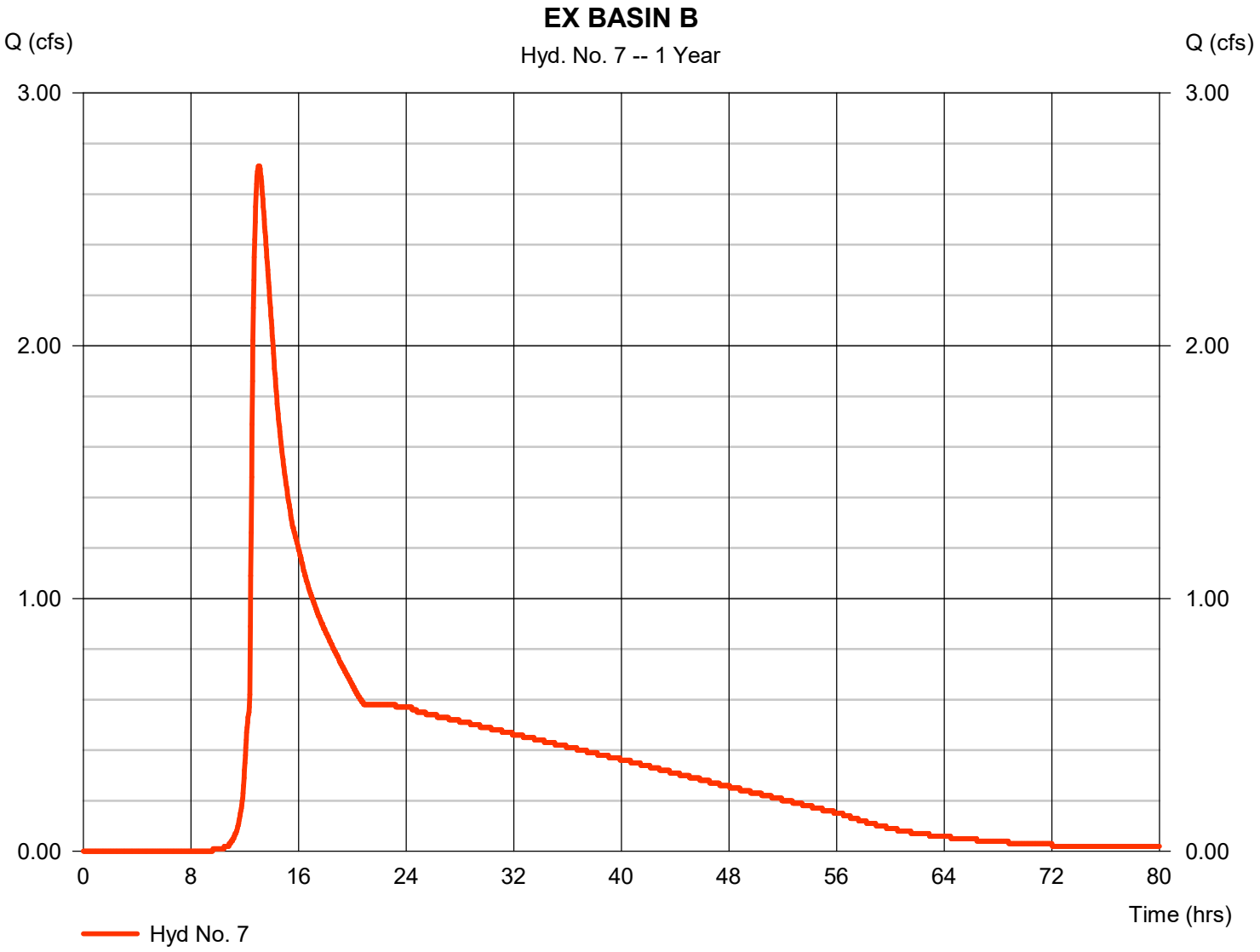
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 7

EX BASIN B

Hydrograph type	= Manual	Peak discharge	= 2.710 cfs
Storm frequency	= 1 yrs	Time to peak	= 13.00 hrs
Time interval	= 2 min	Hyd. volume	= 93,537 cuft



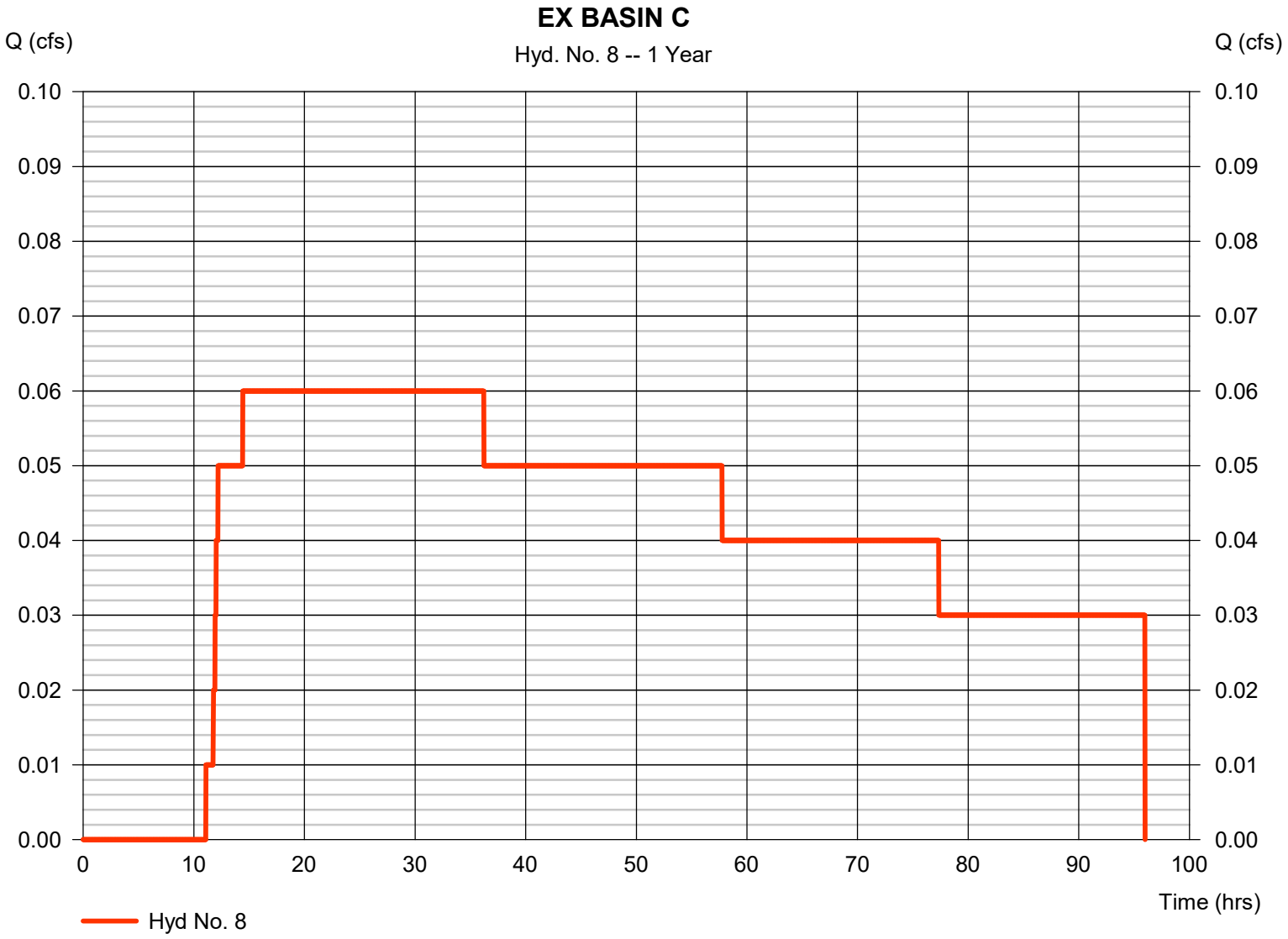
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 8

EX BASIN C

Hydrograph type	= Manual	Peak discharge	= 0.060 cfs
Storm frequency	= 1 yrs	Time to peak	= 14.43 hrs
Time interval	= 2 min	Hyd. volume	= 13,892 cuft



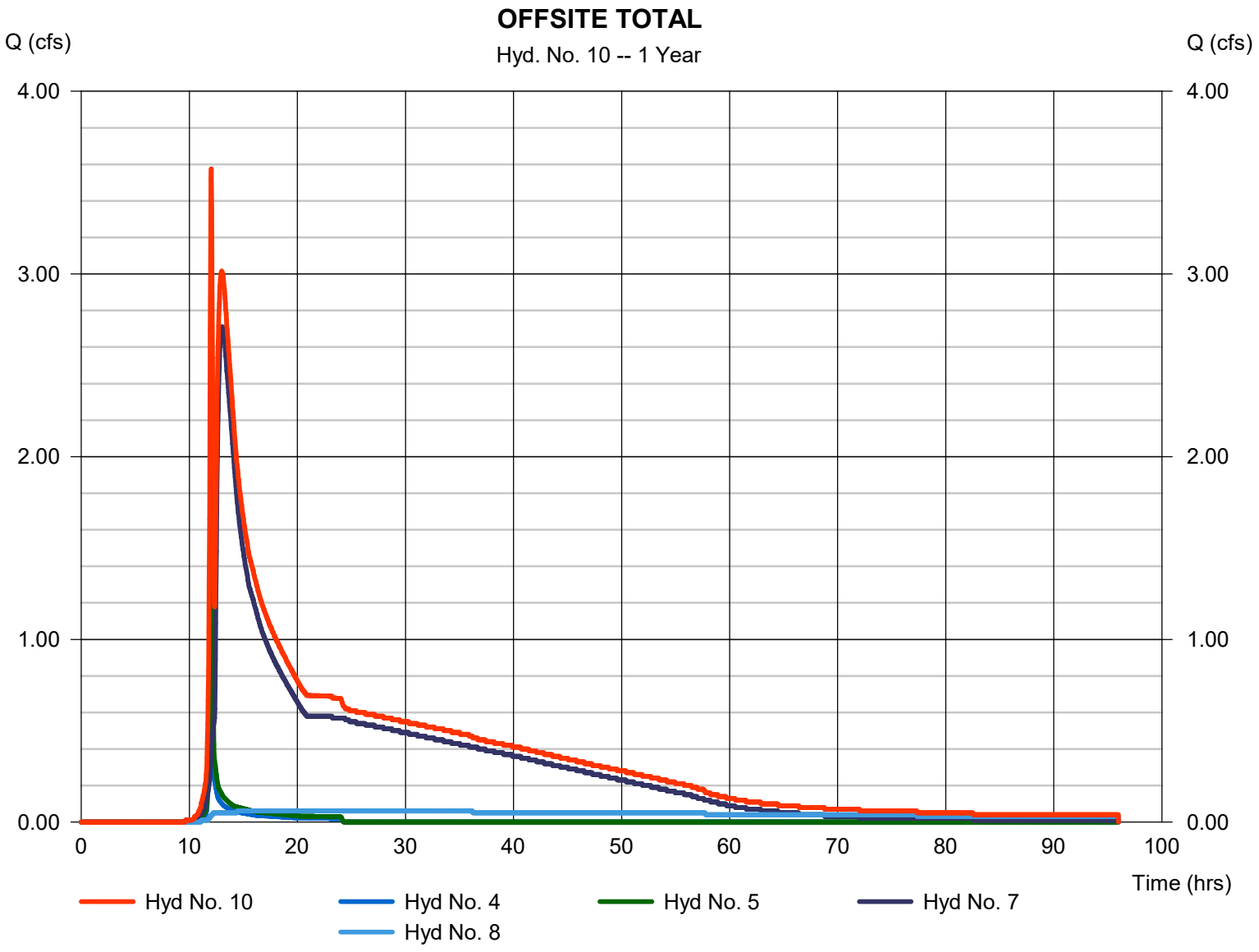
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 10

OFFSITE TOTAL

Hydrograph type	= Combine	Peak discharge	= 3.575 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 115,716 cuft
Inflow hyds.	= 4, 5, 7, 8	Contrib. drain. area	= 2.480 ac



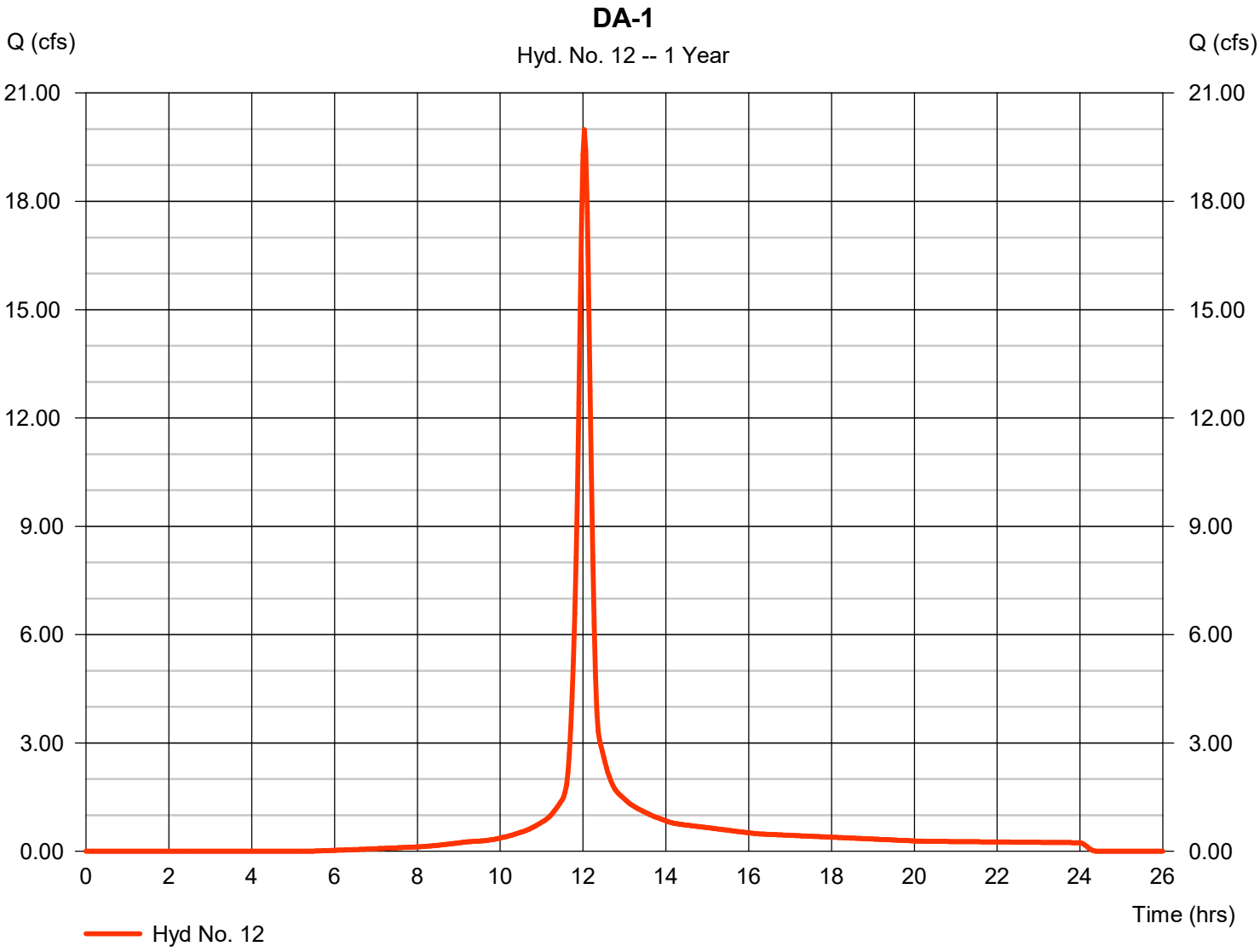
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 12

DA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	19.99 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	56,910 cuft
Drainage area	=	10.220 ac	Curve number	=	93
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.30 min
Total precip.	=	2.28 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



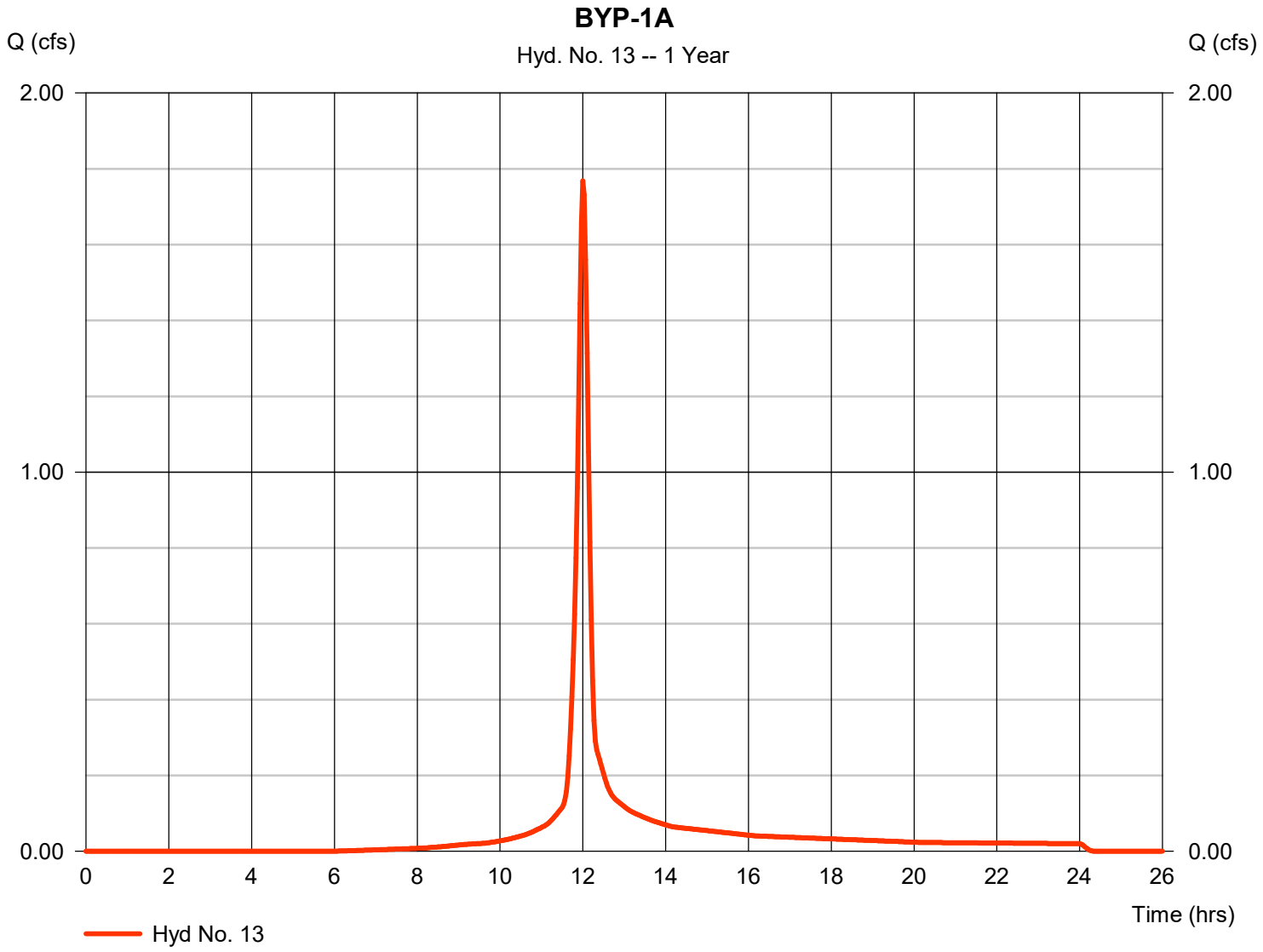
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 13

BYP-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.768 cfs
Storm frequency	=	1 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	4,631 cuft
Drainage area	=	0.830 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.28 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



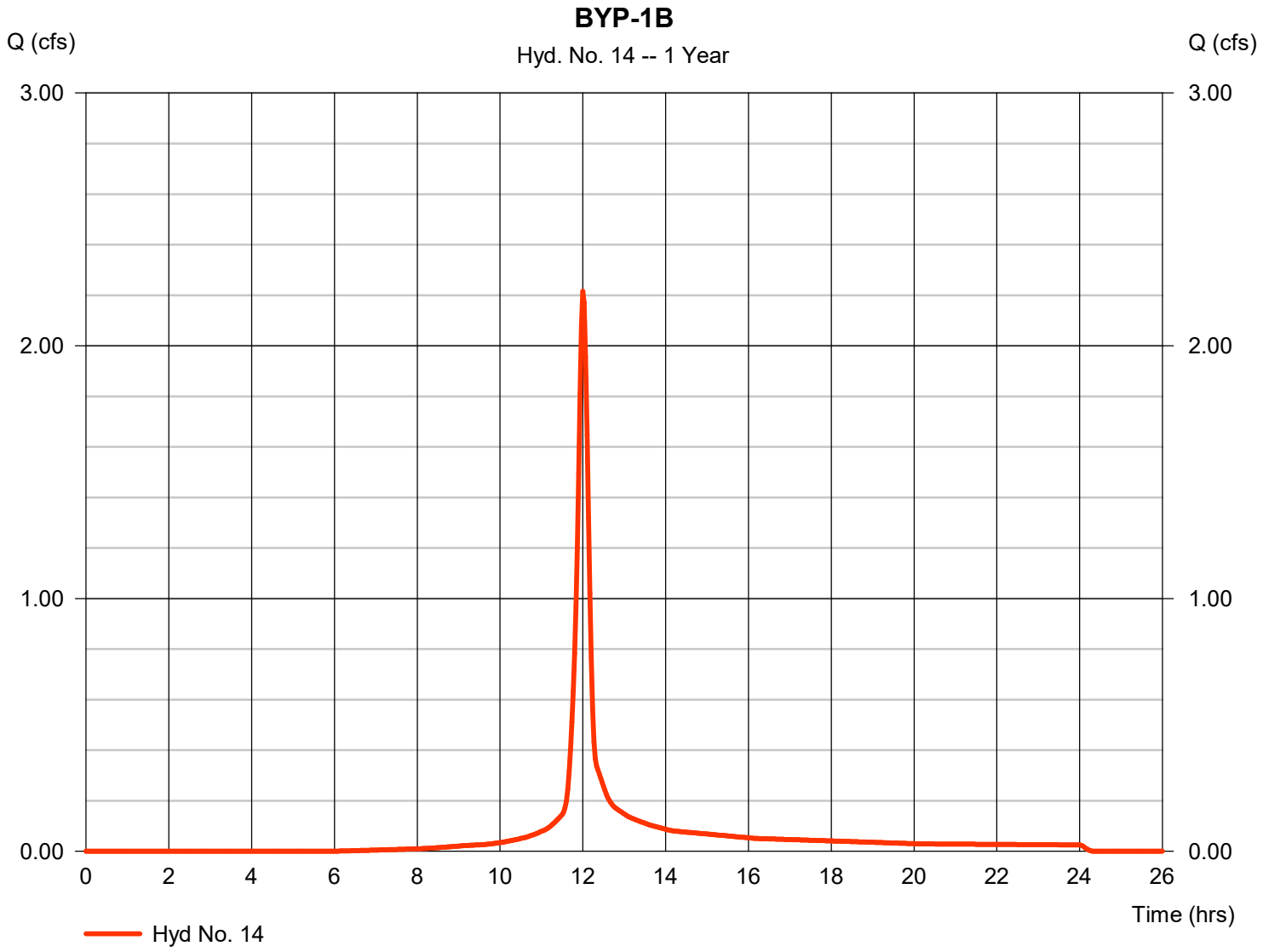
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 14

BYP-1B

Hydrograph type	= SCS Runoff	Peak discharge	= 2.216 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 5,803 cuft
Drainage area	= 1.040 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



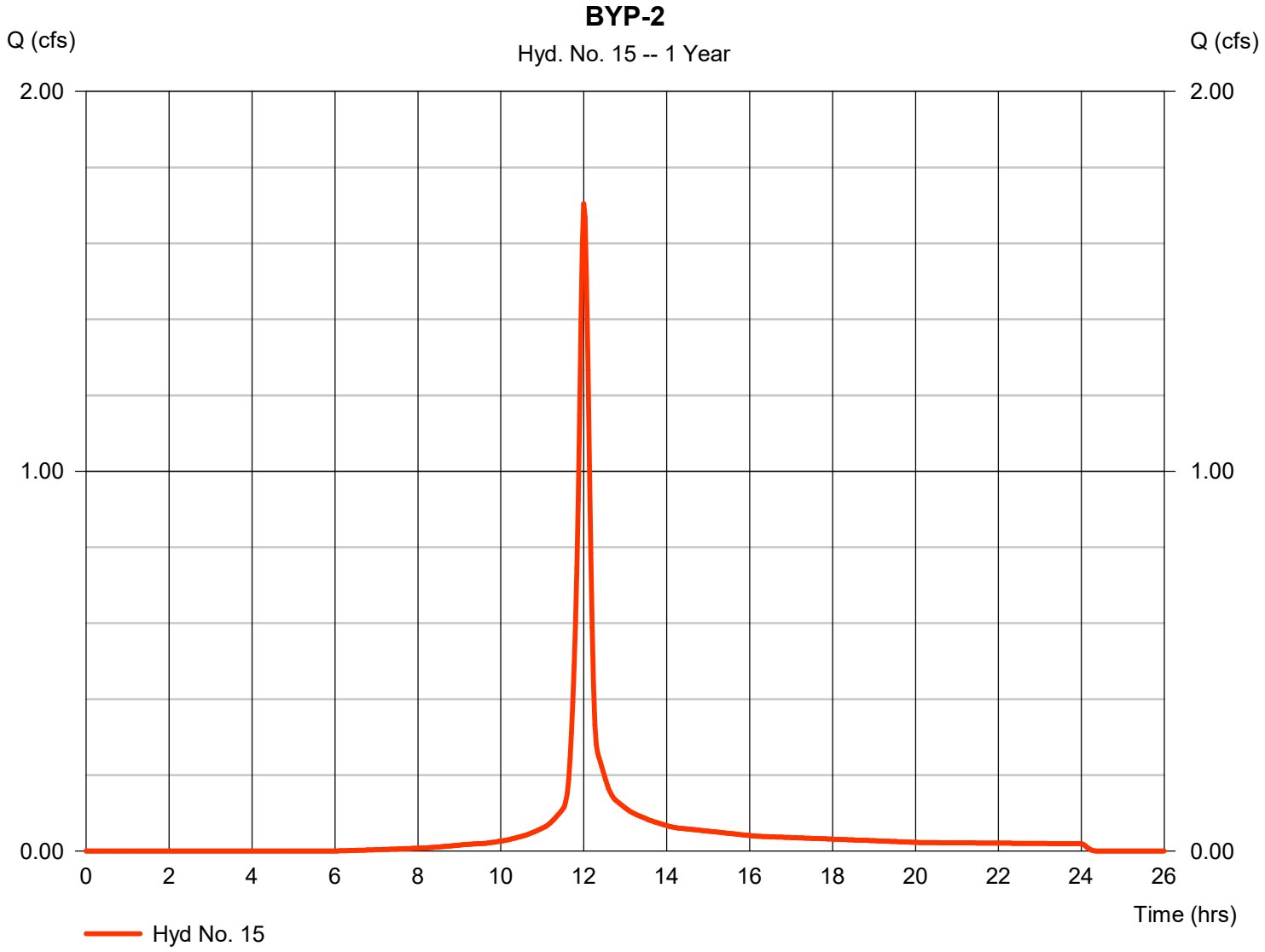
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 15

BYP-2

Hydrograph type	= SCS Runoff	Peak discharge	= 1.705 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 4,464 cuft
Drainage area	= 0.800 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.28 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



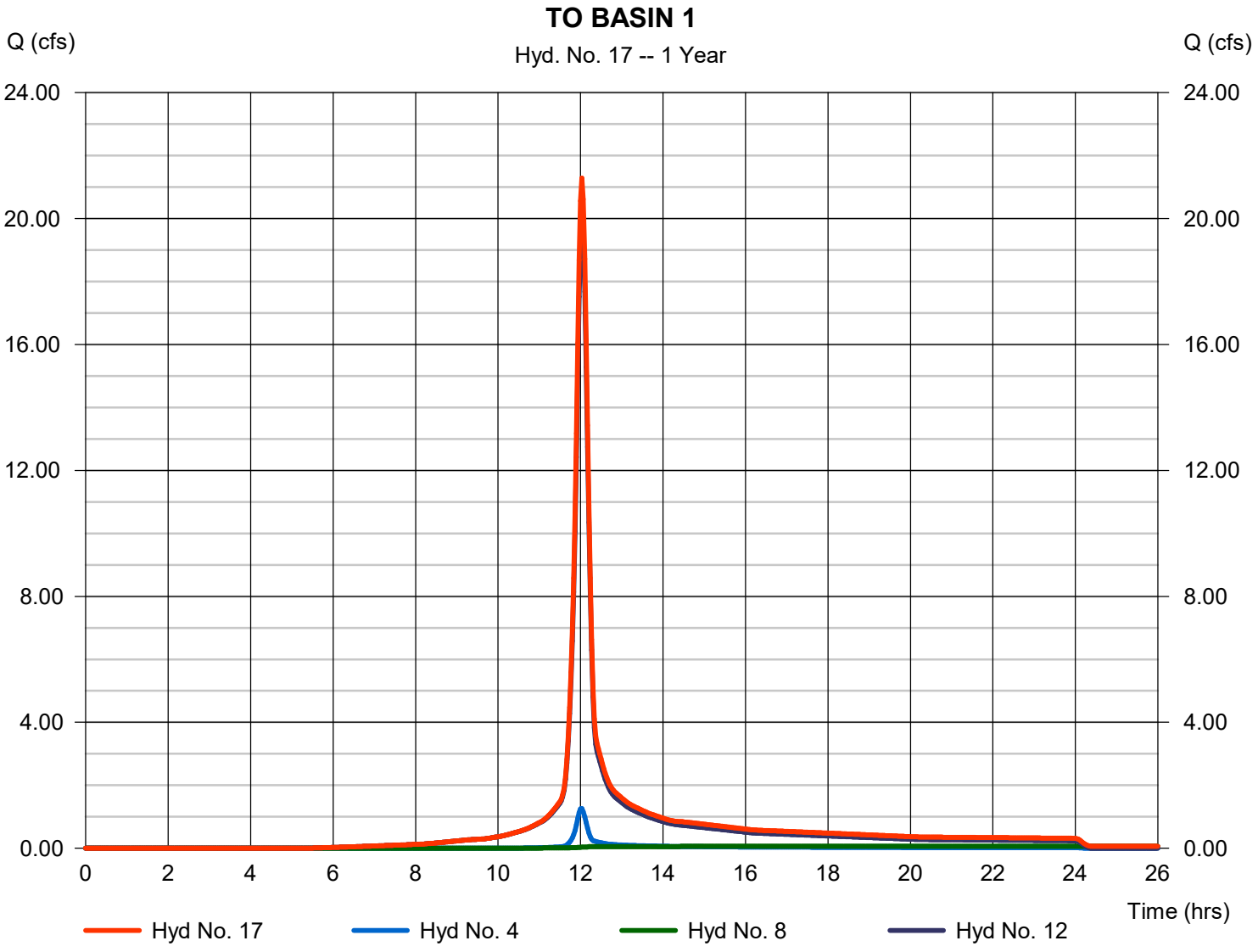
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 17

TO BASIN 1

Hydrograph type	= Combine	Peak discharge	= 21.29 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 74,109 cuft
Inflow hyds.	= 4, 8, 12	Contrib. drain. area	= 11.210 ac



Hydrograph Report

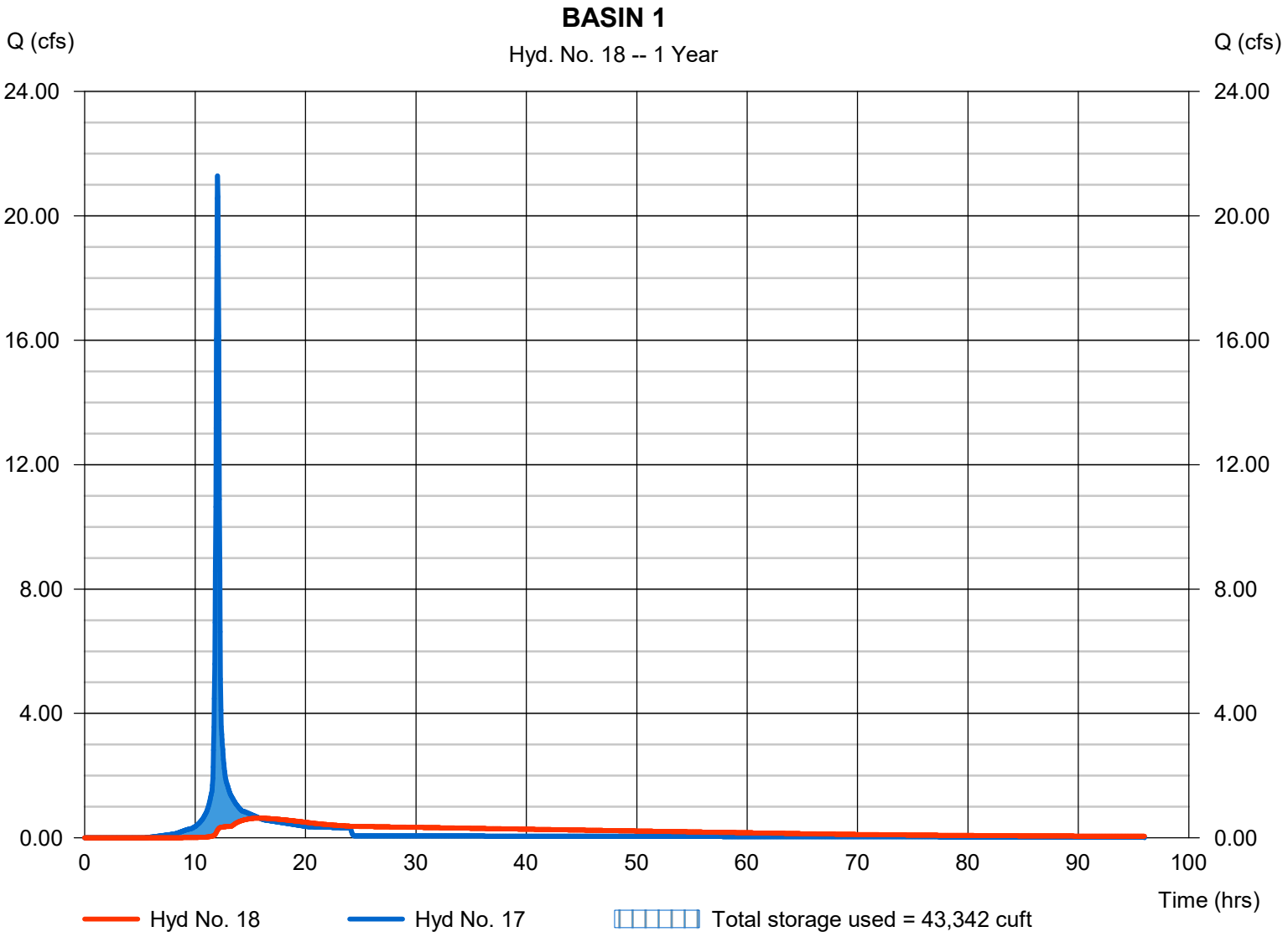
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 18

BASIN 1

Hydrograph type	= Reservoir	Peak discharge	= 0.635 cfs
Storm frequency	= 1 yrs	Time to peak	= 15.83 hrs
Time interval	= 2 min	Hyd. volume	= 68,280 cuft
Inflow hyd. No.	= 17 - TO BASIN 1	Max. Elevation	= 926.06 ft
Reservoir name	= Basin 1	Max. Storage	= 43,342 cuft

Storage Indication method used.

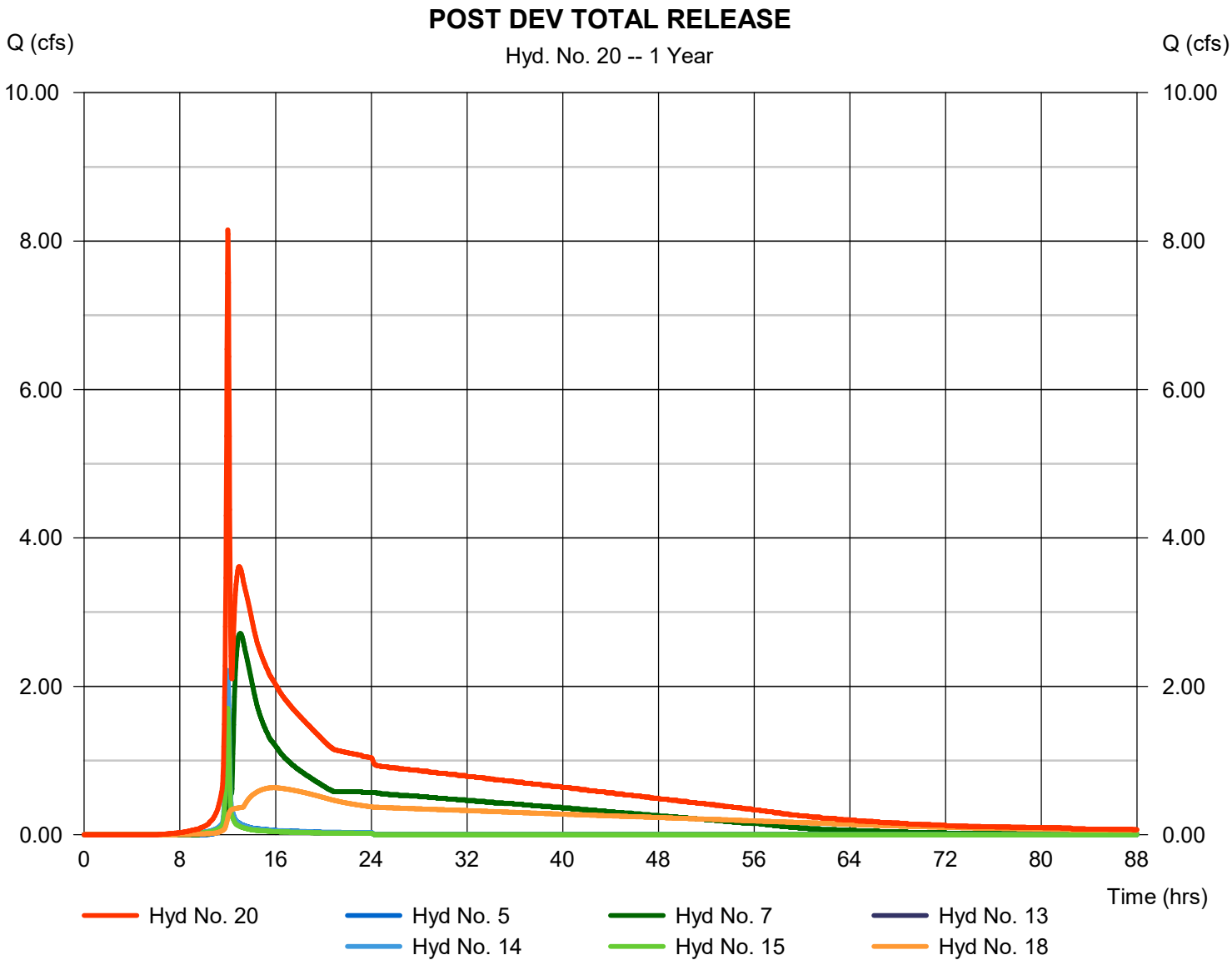


Hydrograph Report

Hyd. No. 20

POST DEV TOTAL RELEASE

Hydrograph type	= Combine	Peak discharge	= 8.151 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 181,694 cuft
Inflow hyds.	= 5, 7, 13, 14, 15, 18	Contrib. drain. area	= 4.160 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	18.84	2	722	53,375	------	------	------	EDA-1
2	SCS Runoff	30.50	2	722	87,011	------	------	------	POST DEV ONSITE UNDETAINED
4	SCS Runoff	1.752	2	720	4,568	------	------	------	OS-1
5	SCS Runoff	2.637	2	720	6,874	------	------	------	OS-2
7	Manual	9.650	2	744	123,902	------	------	------	EX BASIN B
8	Manual	0.400	2	822	19,302	------	------	------	EX BASIN C
10	Combine	10.39	2	744	154,645	4, 5, 7, 8,	------	------	OFFSITE TOTAL
12	SCS Runoff	25.12	2	722	72,226	------	------	------	DA-1
13	SCS Runoff	2.243	2	720	5,926	------	------	------	BYP-1A
14	SCS Runoff	2.810	2	720	7,425	------	------	------	BYP-1B
15	SCS Runoff	2.162	2	720	5,712	------	------	------	BYP-2
17	Combine	26.90	2	722	96,096	4, 8, 12,	------	------	TO BASIN 1
18	Reservoir	1.578	2	834	90,184	17	926.20	49,680	BASIN 1
20	Combine	11.95	2	744	240,023	5, 7, 13, 14, 15, 18,	------	------	POST DEV TOTAL RELEASE

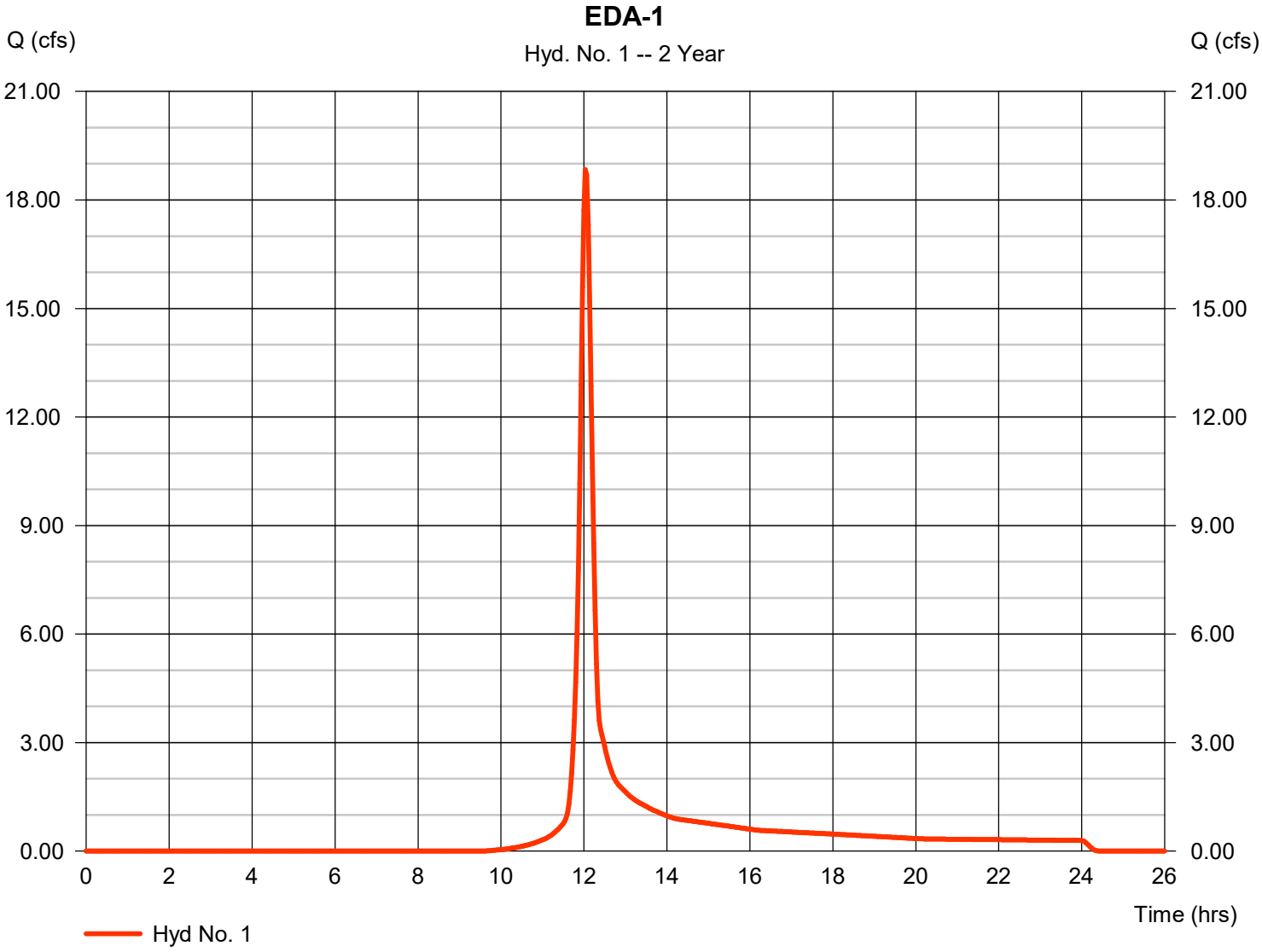
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	18.84 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	53,375 cuft
Drainage area	=	12.890 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	14.10 min
Total precip.	=	2.73 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



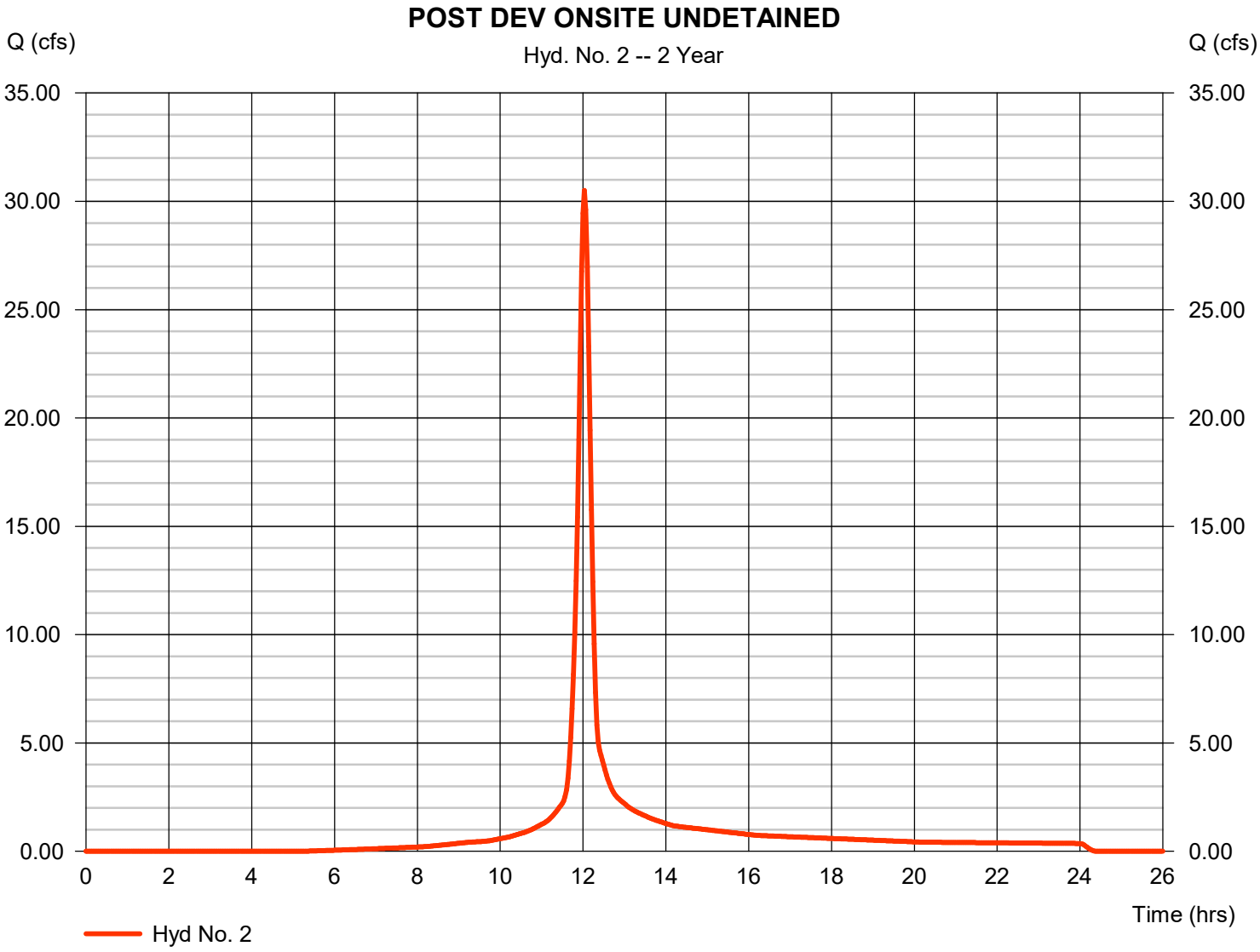
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 2

POST DEV ONSITE UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 30.50 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 87,011 cuft
Drainage area	= 12.890 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 2.73 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



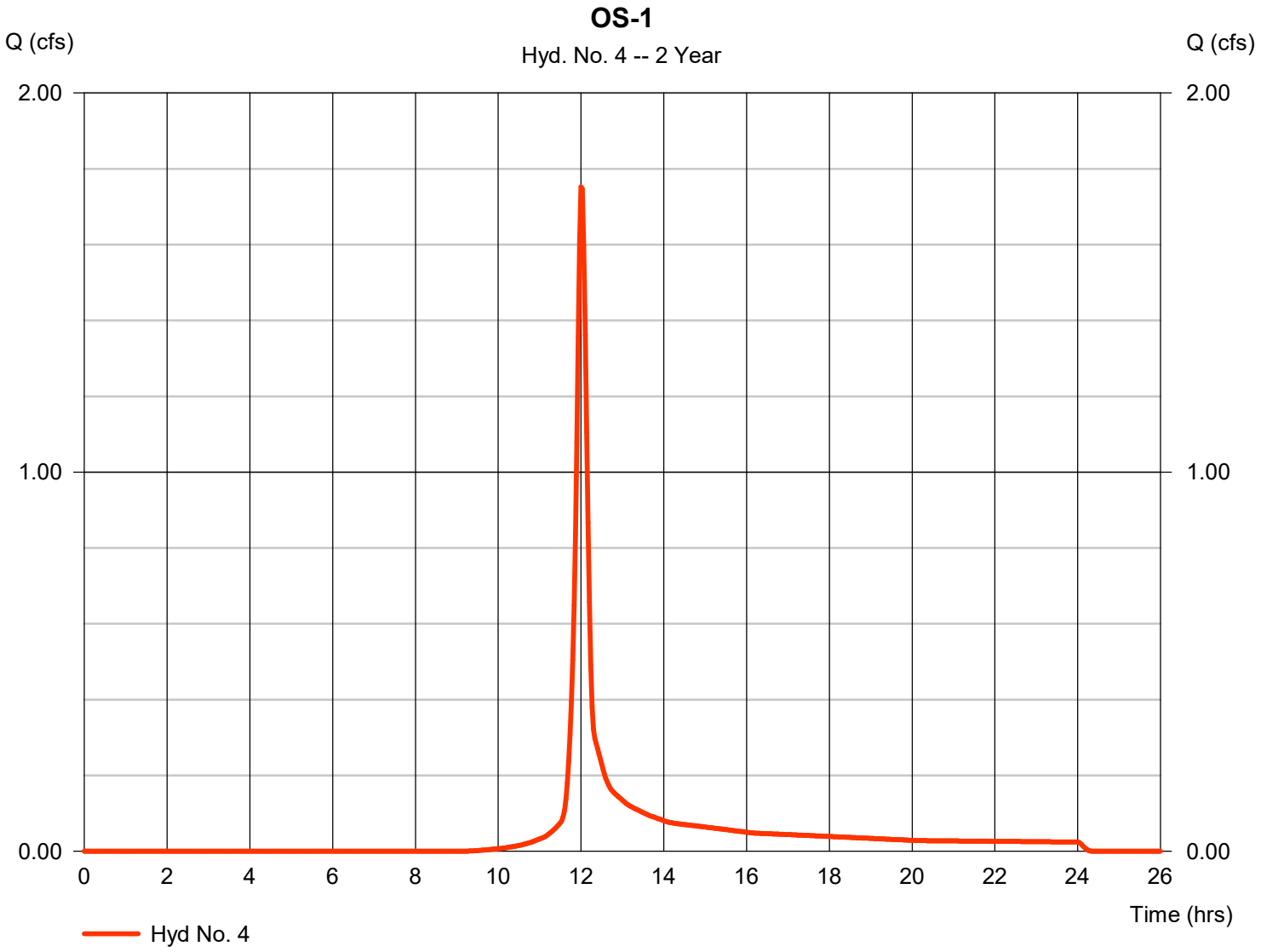
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 4

OS-1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.752 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 4,568 cuft
Drainage area	= 0.990 ac	Curve number	= 83
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.73 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



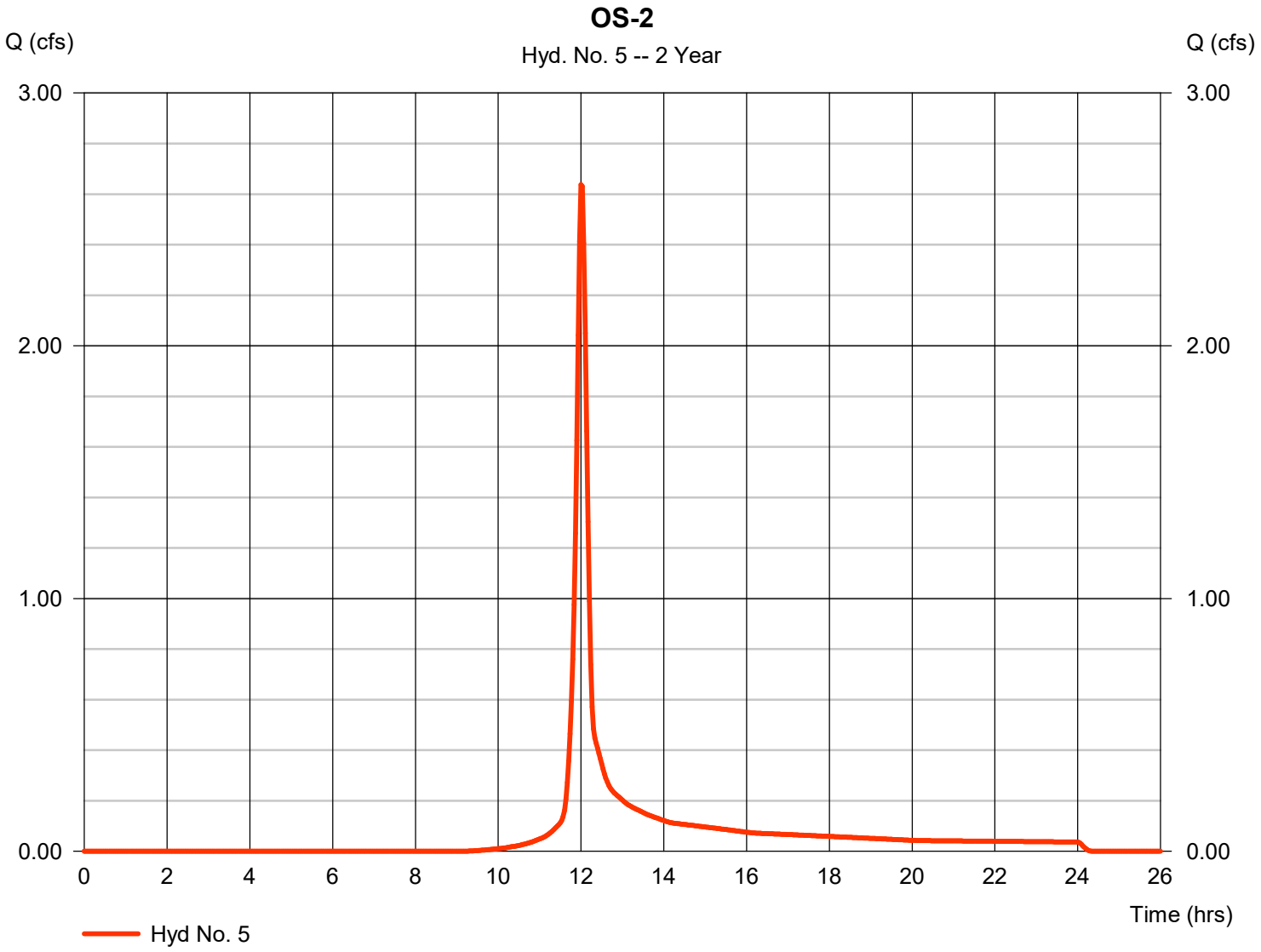
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 5

OS-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.637 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	6,874 cuft
Drainage area	=	1.490 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.73 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



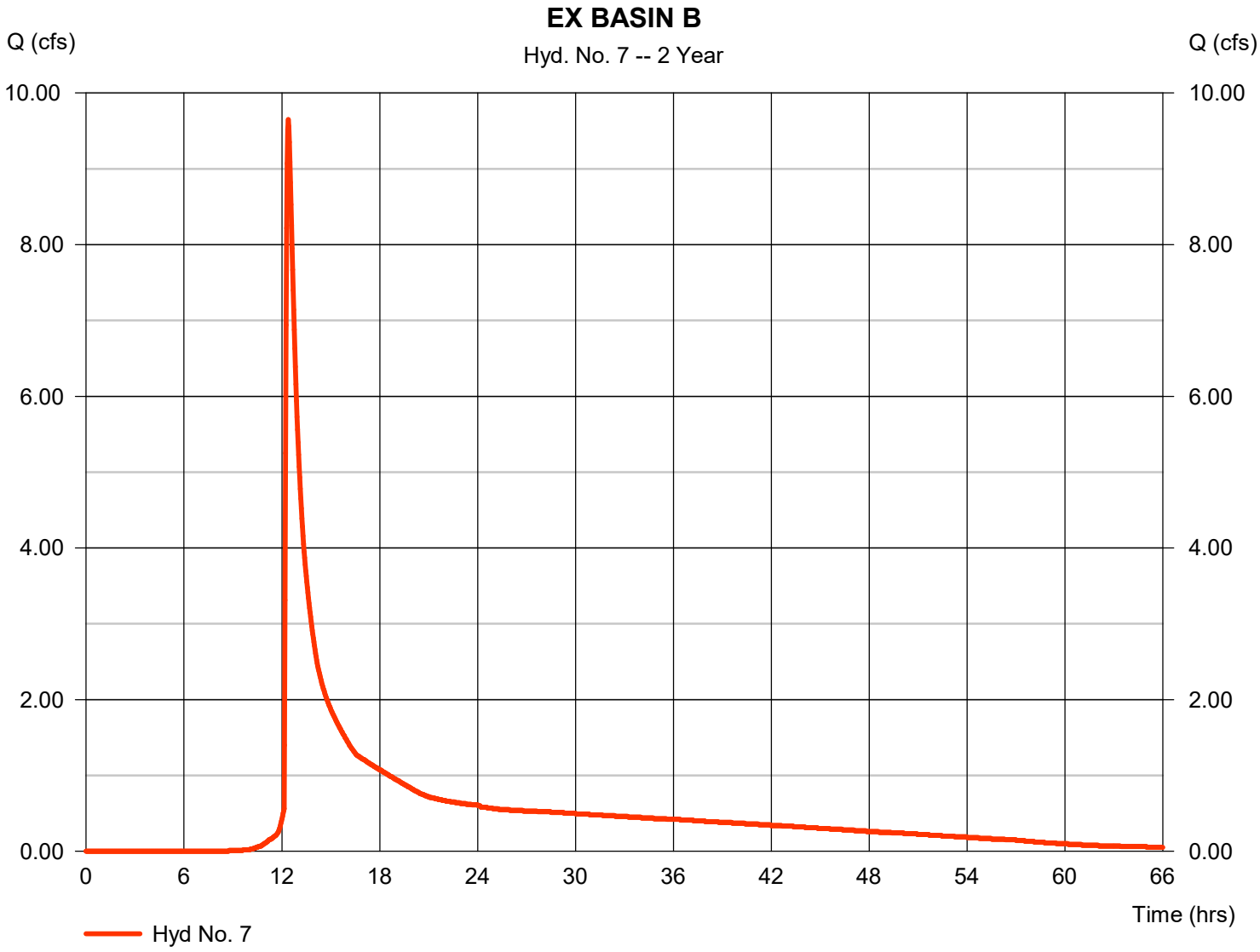
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 7

EX BASIN B

Hydrograph type	= Manual	Peak discharge	= 9.650 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.40 hrs
Time interval	= 2 min	Hyd. volume	= 123,902 cuft



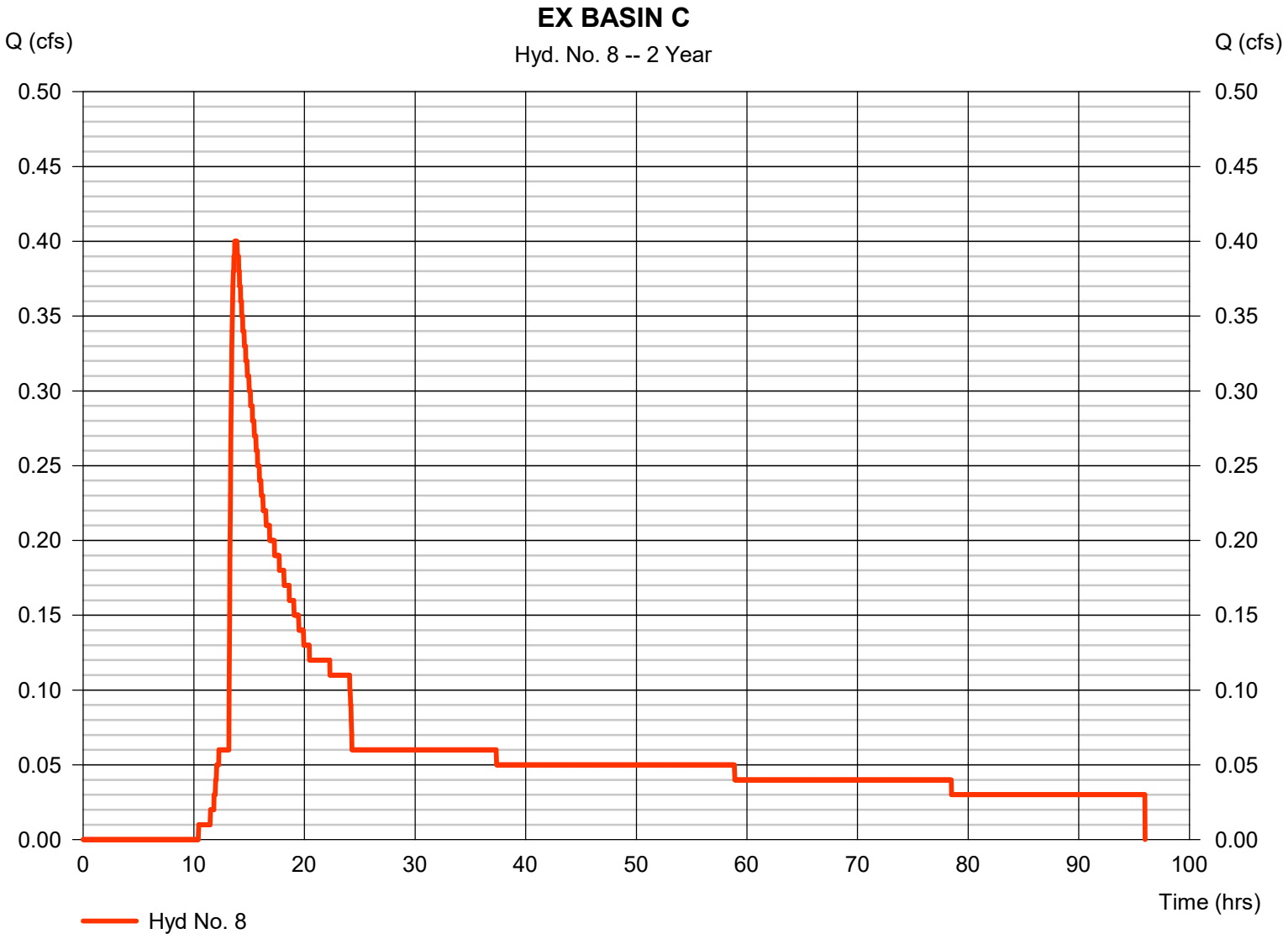
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 8

EX BASIN C

Hydrograph type	= Manual	Peak discharge	= 0.400 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.70 hrs
Time interval	= 2 min	Hyd. volume	= 19,302 cuft



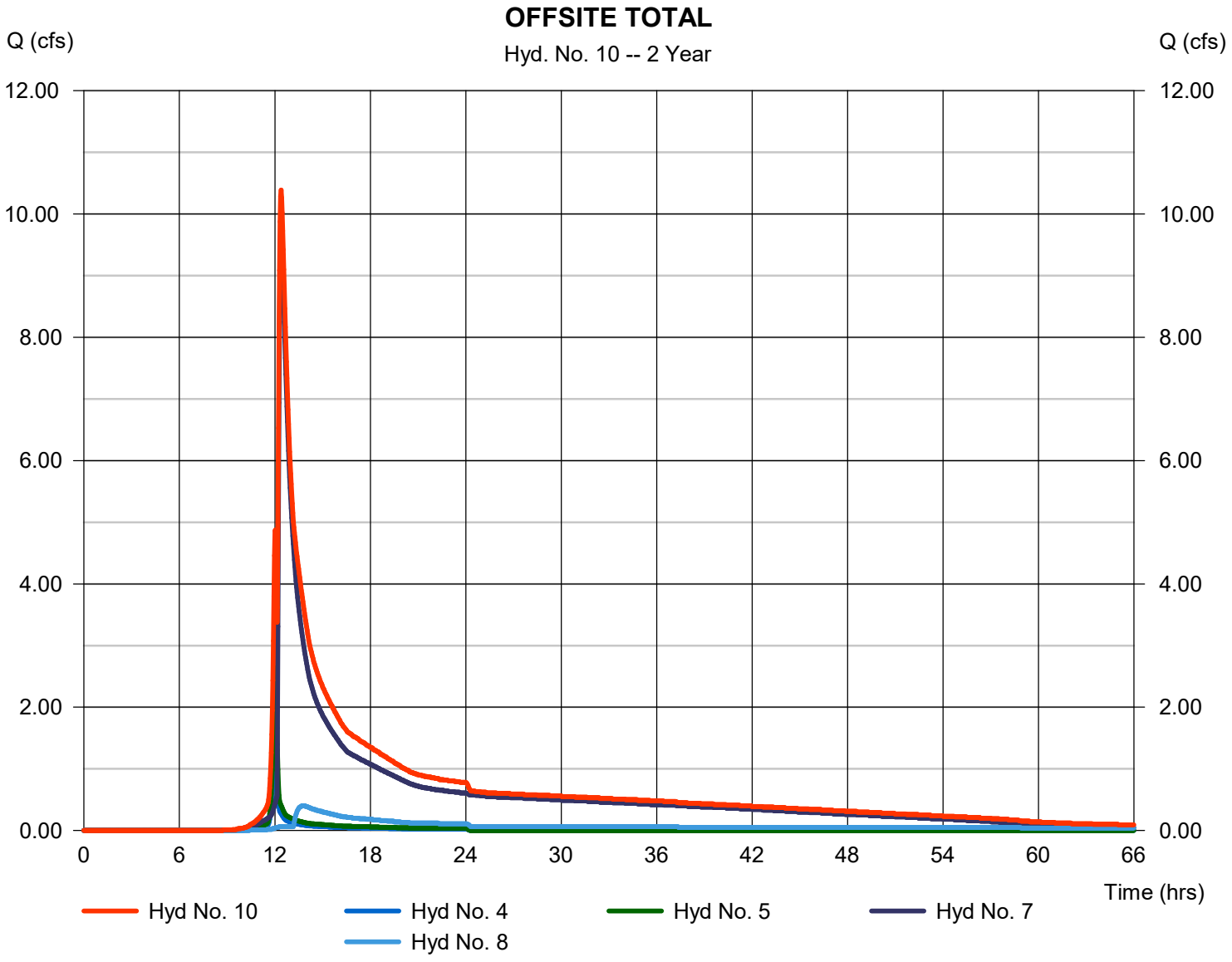
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 10

OFFSITE TOTAL

Hydrograph type	= Combine	Peak discharge	= 10.39 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.40 hrs
Time interval	= 2 min	Hyd. volume	= 154,645 cuft
Inflow hyds.	= 4, 5, 7, 8	Contrib. drain. area	= 2.480 ac



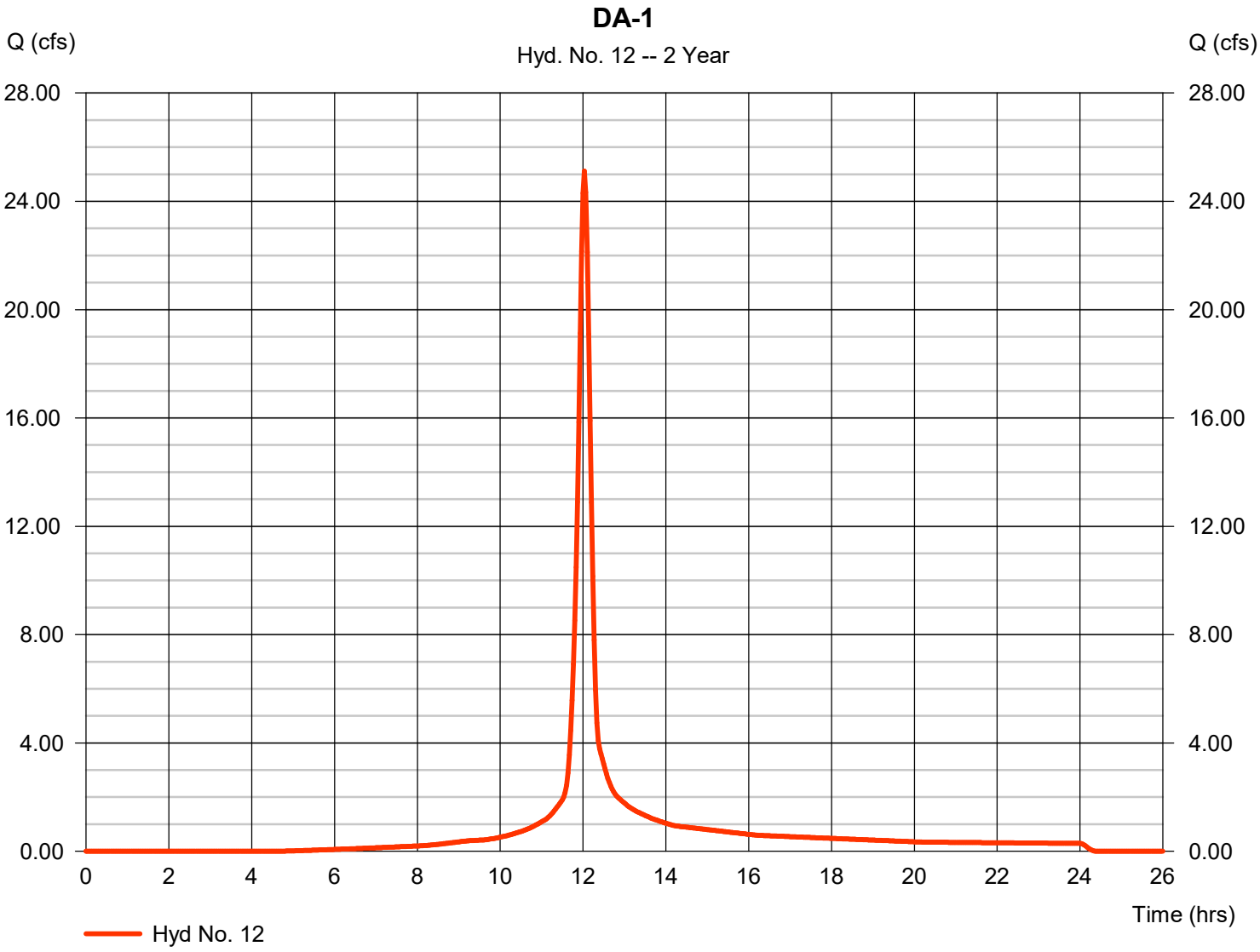
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 12

DA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 25.12 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 72,226 cuft
Drainage area	= 10.220 ac	Curve number	= 93
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 2.73 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



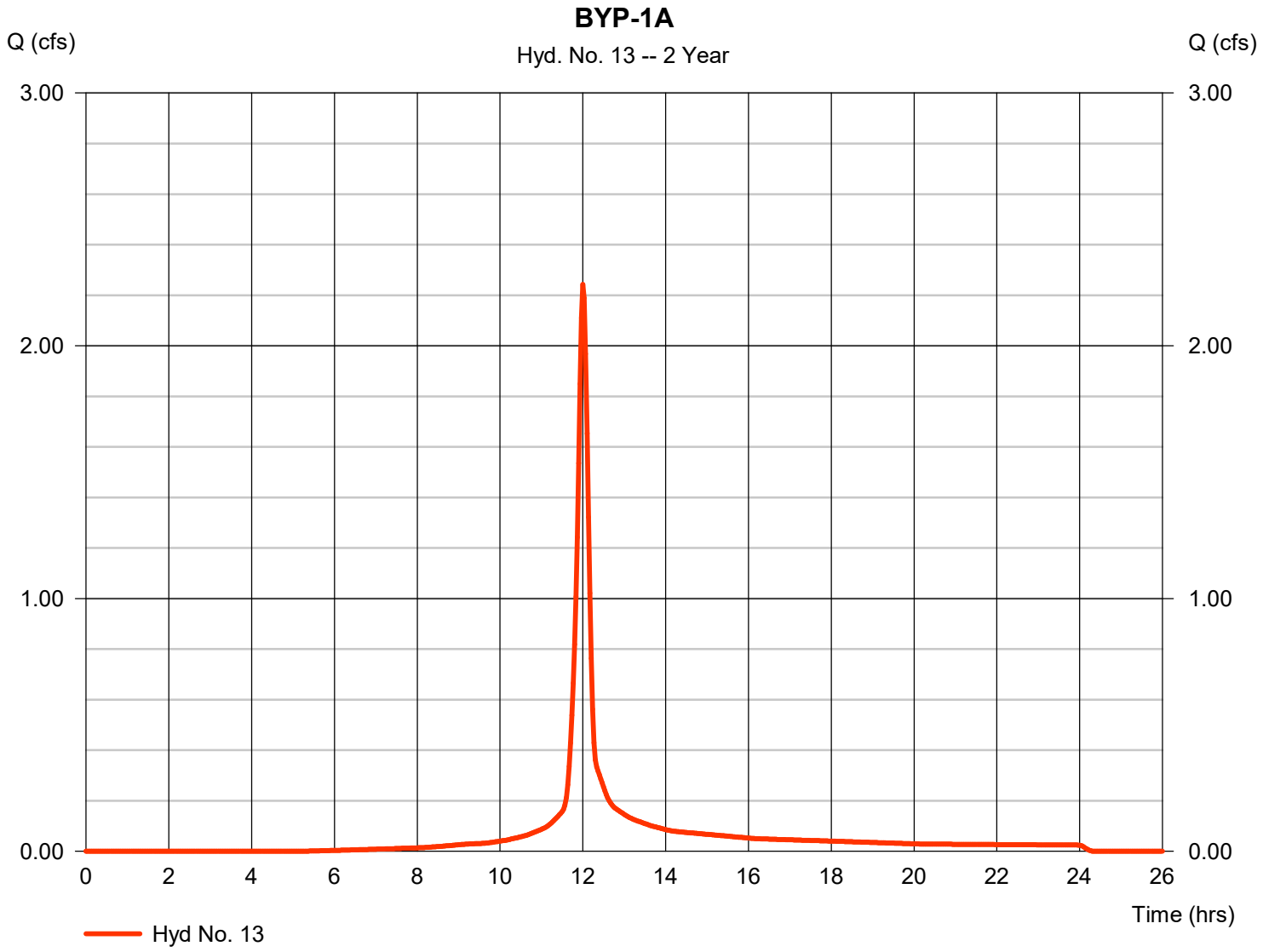
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 13

BYP-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.243 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	5,926 cuft
Drainage area	=	0.830 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.73 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



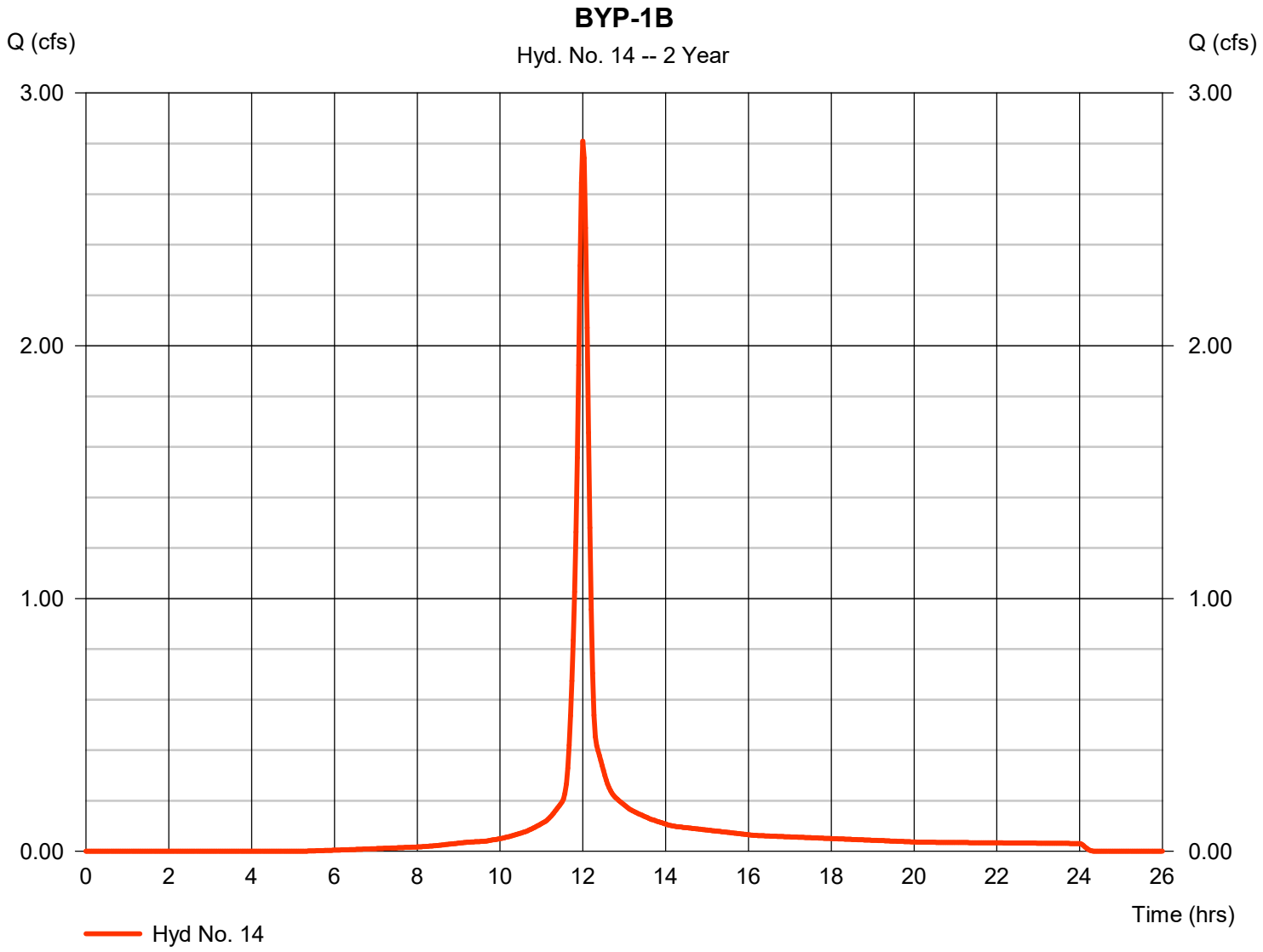
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 14

BYP-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.810 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	7,425 cuft
Drainage area	=	1.040 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	2.73 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



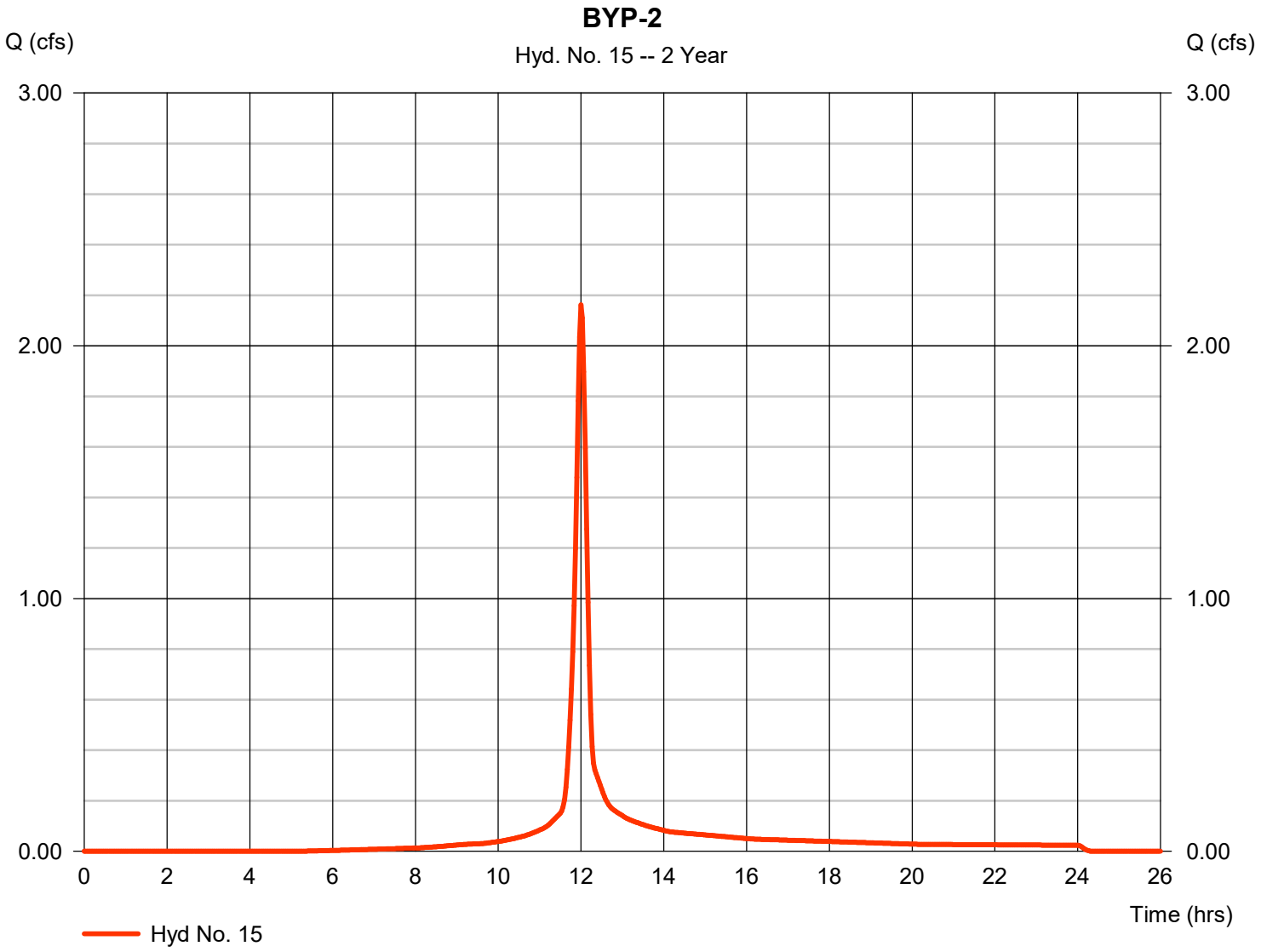
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 15

BYP-2

Hydrograph type	= SCS Runoff	Peak discharge	= 2.162 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 5,712 cuft
Drainage area	= 0.800 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 2.73 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



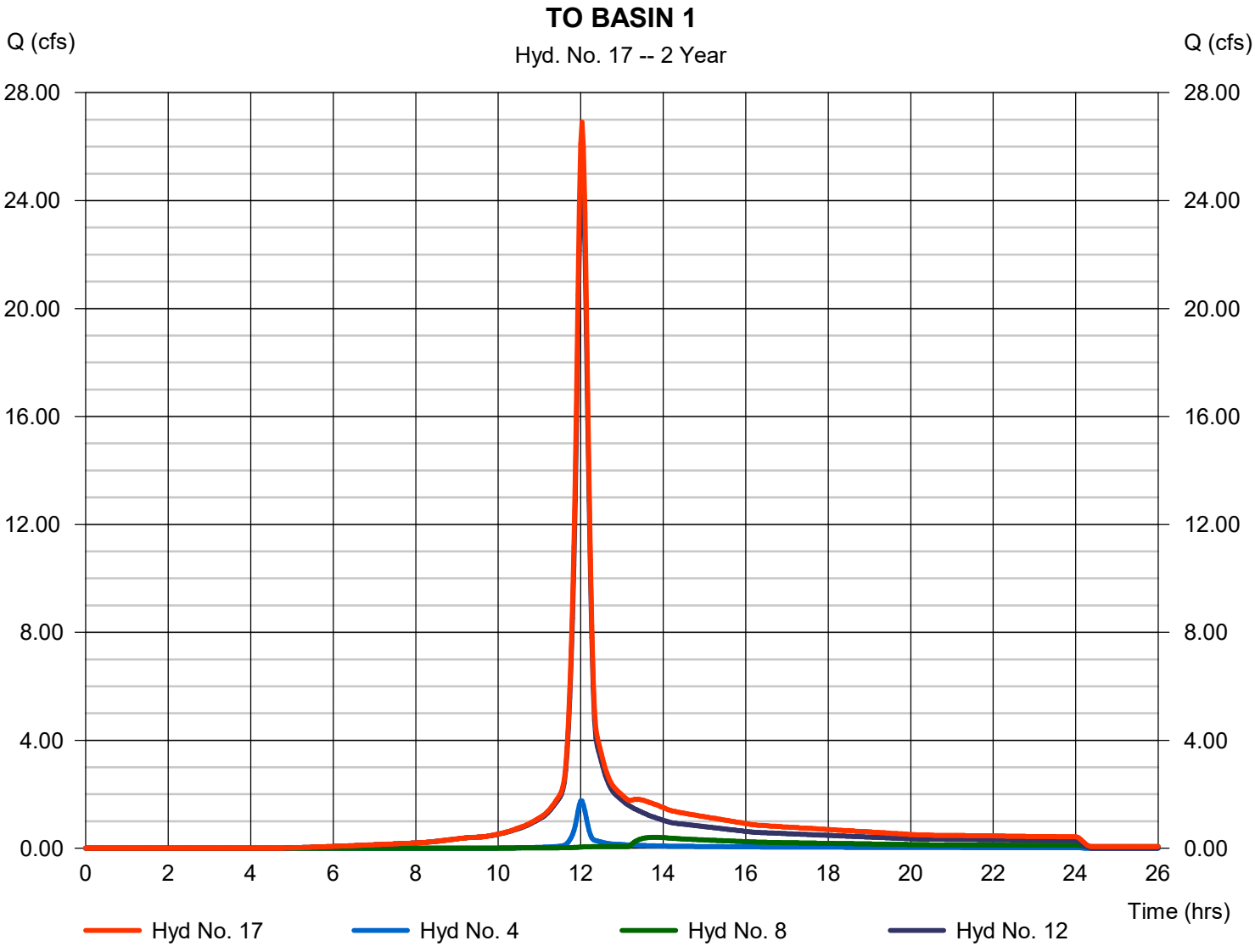
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 17

TO BASIN 1

Hydrograph type	= Combine	Peak discharge	= 26.90 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 96,096 cuft
Inflow hyds.	= 4, 8, 12	Contrib. drain. area	= 11.210 ac



Hydrograph Report

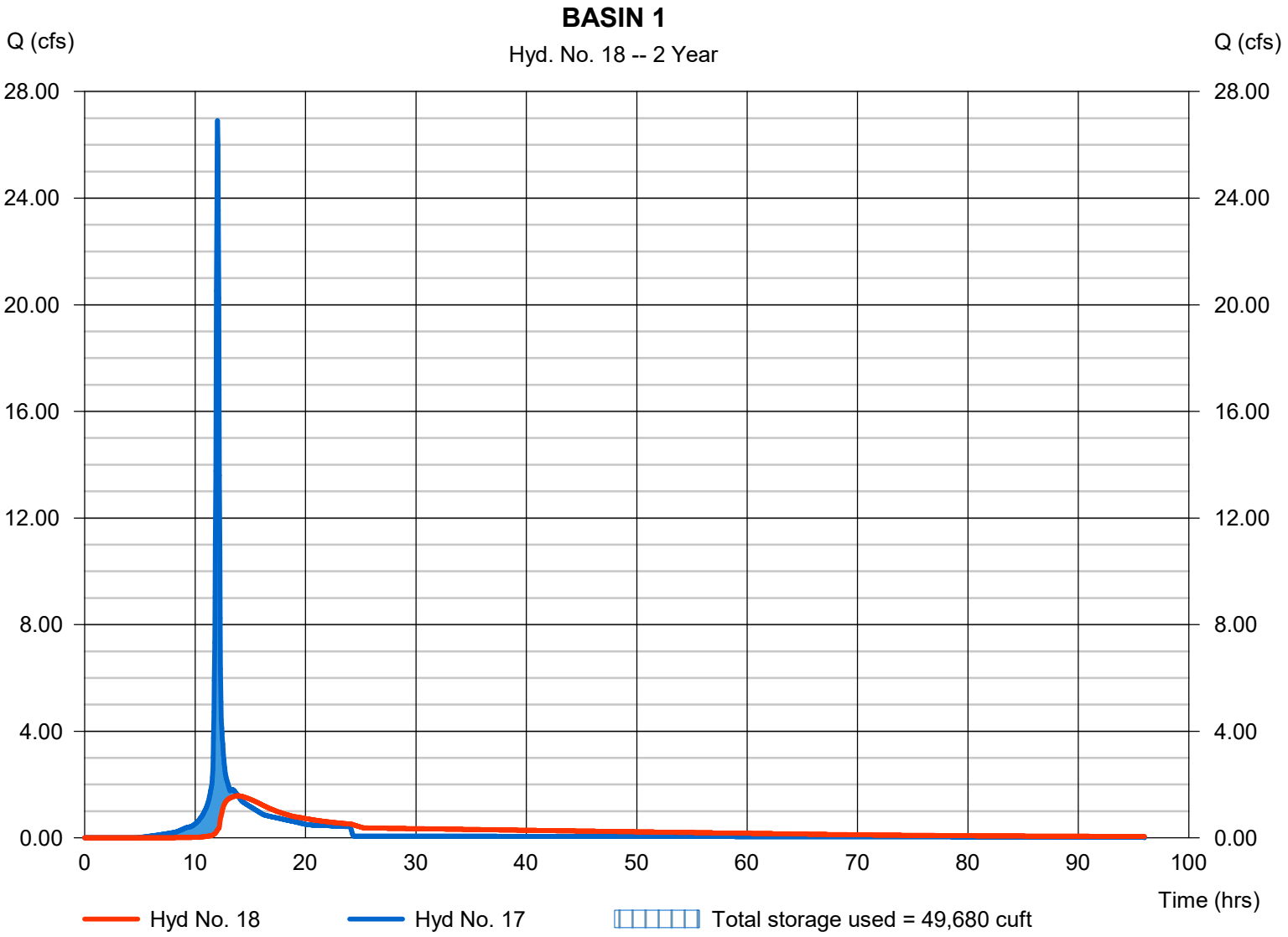
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 18

BASIN 1

Hydrograph type	=	Reservoir	Peak discharge	=	1.578 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.90 hrs
Time interval	=	2 min	Hyd. volume	=	90,184 cuft
Inflow hyd. No.	=	17 - TO BASIN 1	Max. Elevation	=	926.20 ft
Reservoir name	=	Basin 1	Max. Storage	=	49,680 cuft

Storage Indication method used.

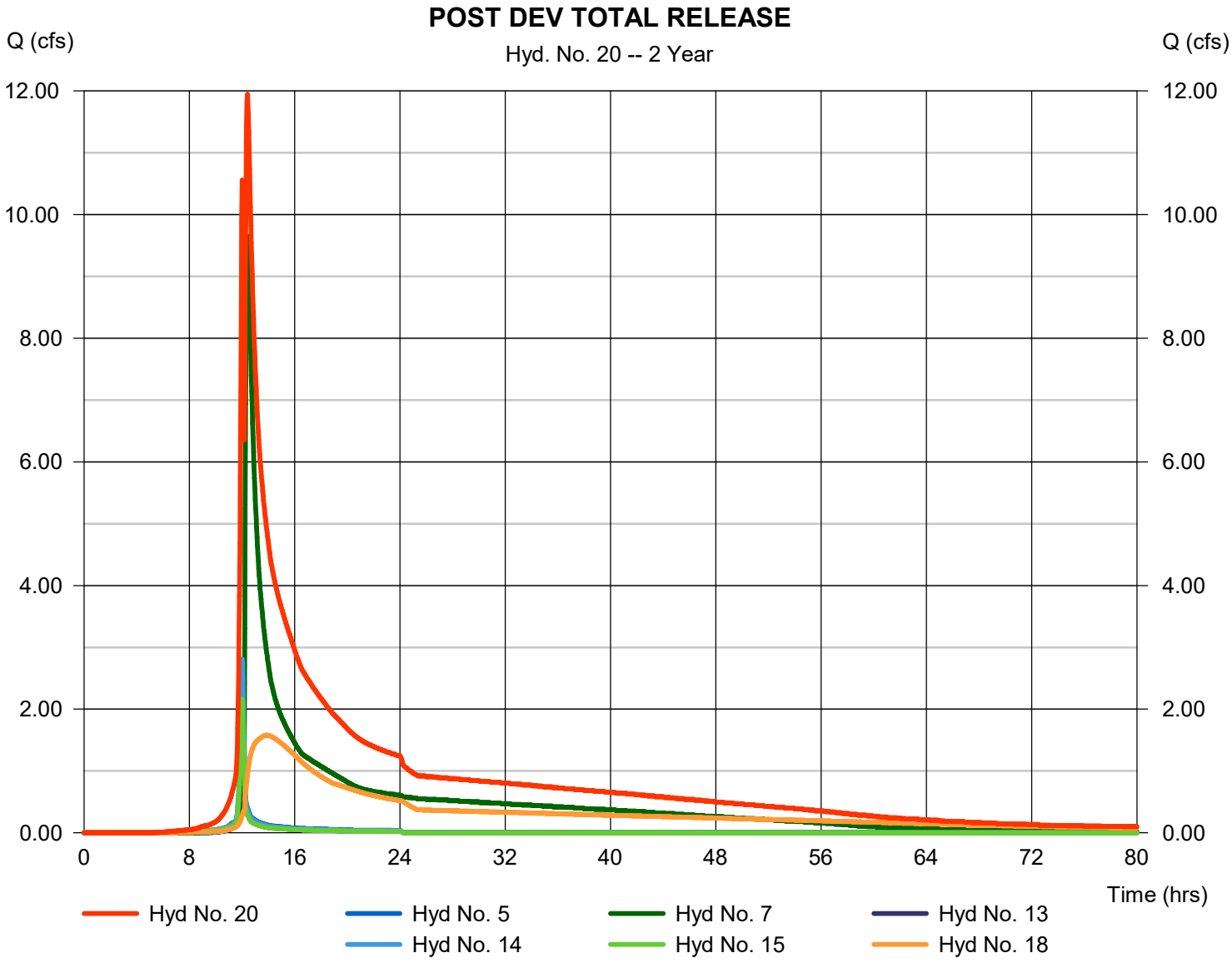


Hydrograph Report

Hyd. No. 20

POST DEV TOTAL RELEASE

Hydrograph type	= Combine	Peak discharge	= 11.95 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.40 hrs
Time interval	= 2 min	Hyd. volume	= 240,023 cuft
Inflow hyds.	= 5, 7, 13, 14, 15, 18	Contrib. drain. area	= 4.160 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	26.84	2	722	75,338	------	------	------	EDA-1
2	SCS Runoff	39.27	2	722	113,317	------	------	------	POST DEV ONSITE UNDETAINED
4	SCS Runoff	2.465	2	720	6,392	------	------	------	OS-1
5	SCS Runoff	3.710	2	720	9,620	------	------	------	OS-2
7	Manual	17.51	2	740	166,751	------	------	------	EX BASIN B
8	Manual	2.720	2	734	27,175	------	------	------	EX BASIN C
10	Combine	20.65	2	740	209,936	4, 5, 7, 8,	------	------	OFFSITE TOTAL
12	SCS Runoff	32.05	2	722	93,339	------	------	------	DA-1
13	SCS Runoff	2.886	2	720	7,718	------	------	------	BYP-1A
14	SCS Runoff	3.616	2	720	9,670	------	------	------	BYP-1B
15	SCS Runoff	2.782	2	720	7,439	------	------	------	BYP-2
17	Combine	34.54	2	722	126,907	4, 8, 12,	------	------	TO BASIN 1
18	Reservoir	4.471	2	760	120,957	17	926.45	61,115	BASIN 1
20	Combine	23.37	2	742	322,152	5, 7, 13, 14, 15, 18,	------	------	POST DEV TOTAL RELEASE

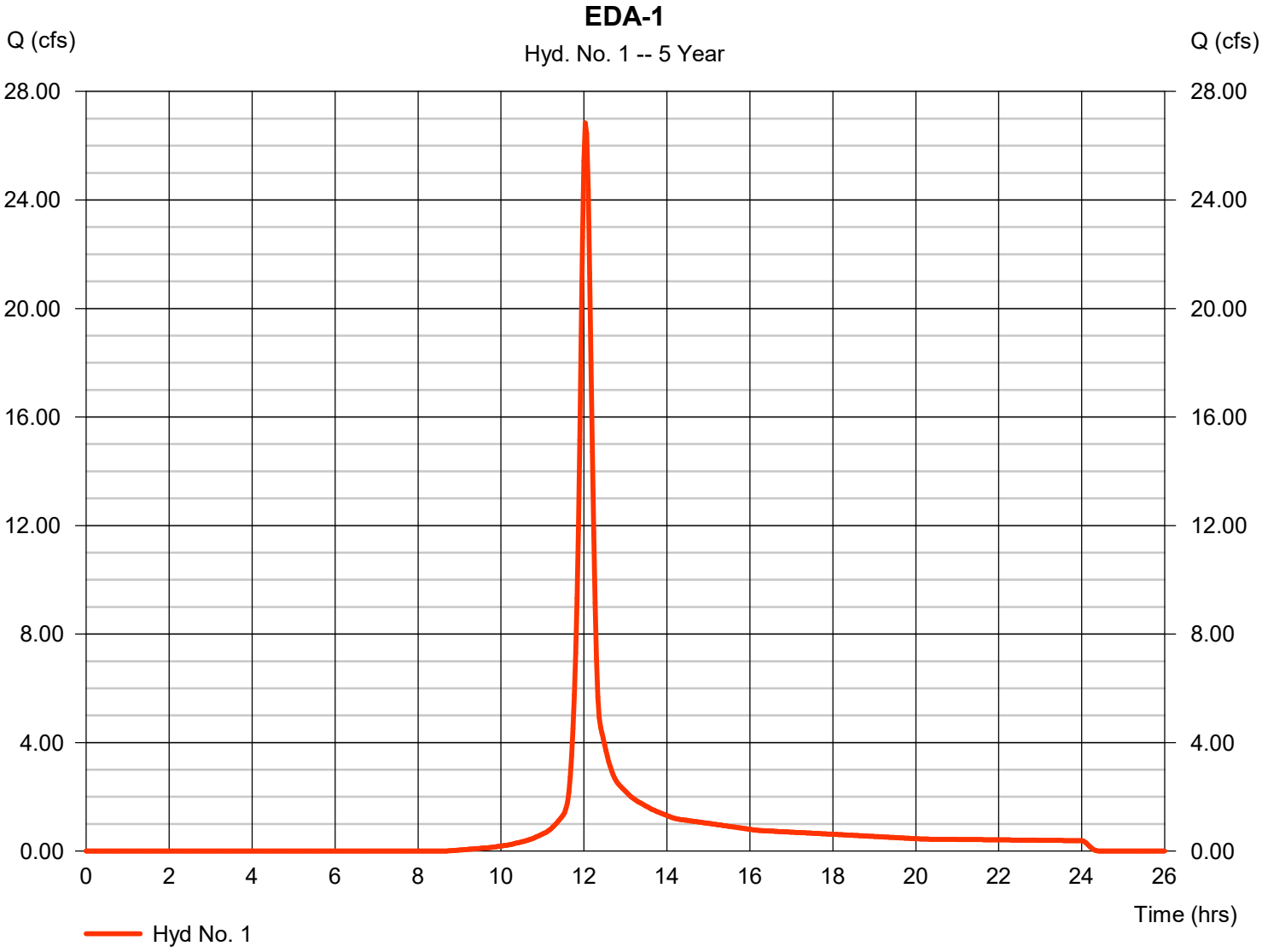
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	26.84 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	75,338 cuft
Drainage area	=	12.890 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	14.10 min
Total precip.	=	3.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



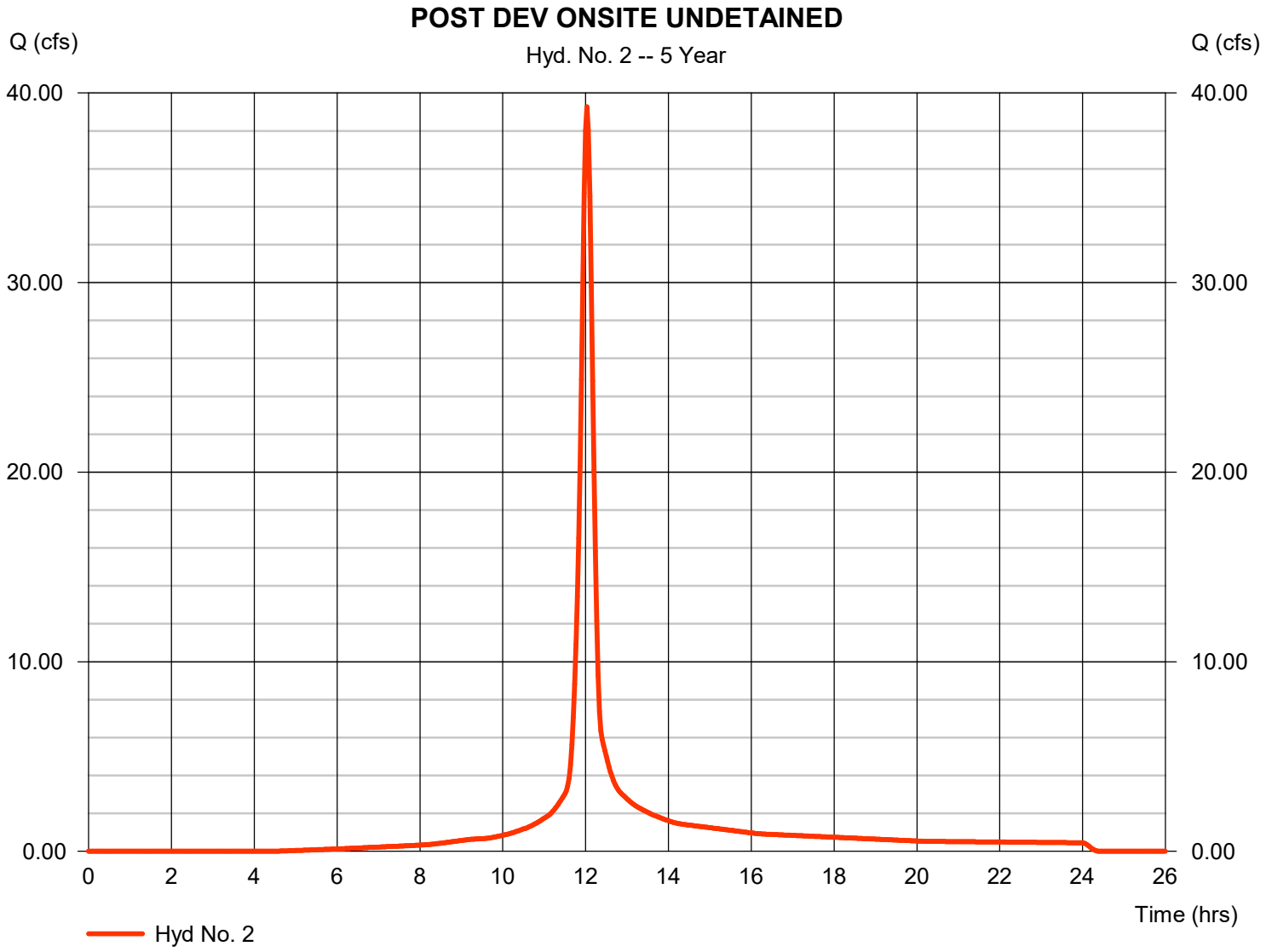
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 2

POST DEV ONSITE UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 39.27 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 113,317 cuft
Drainage area	= 12.890 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 3.34 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



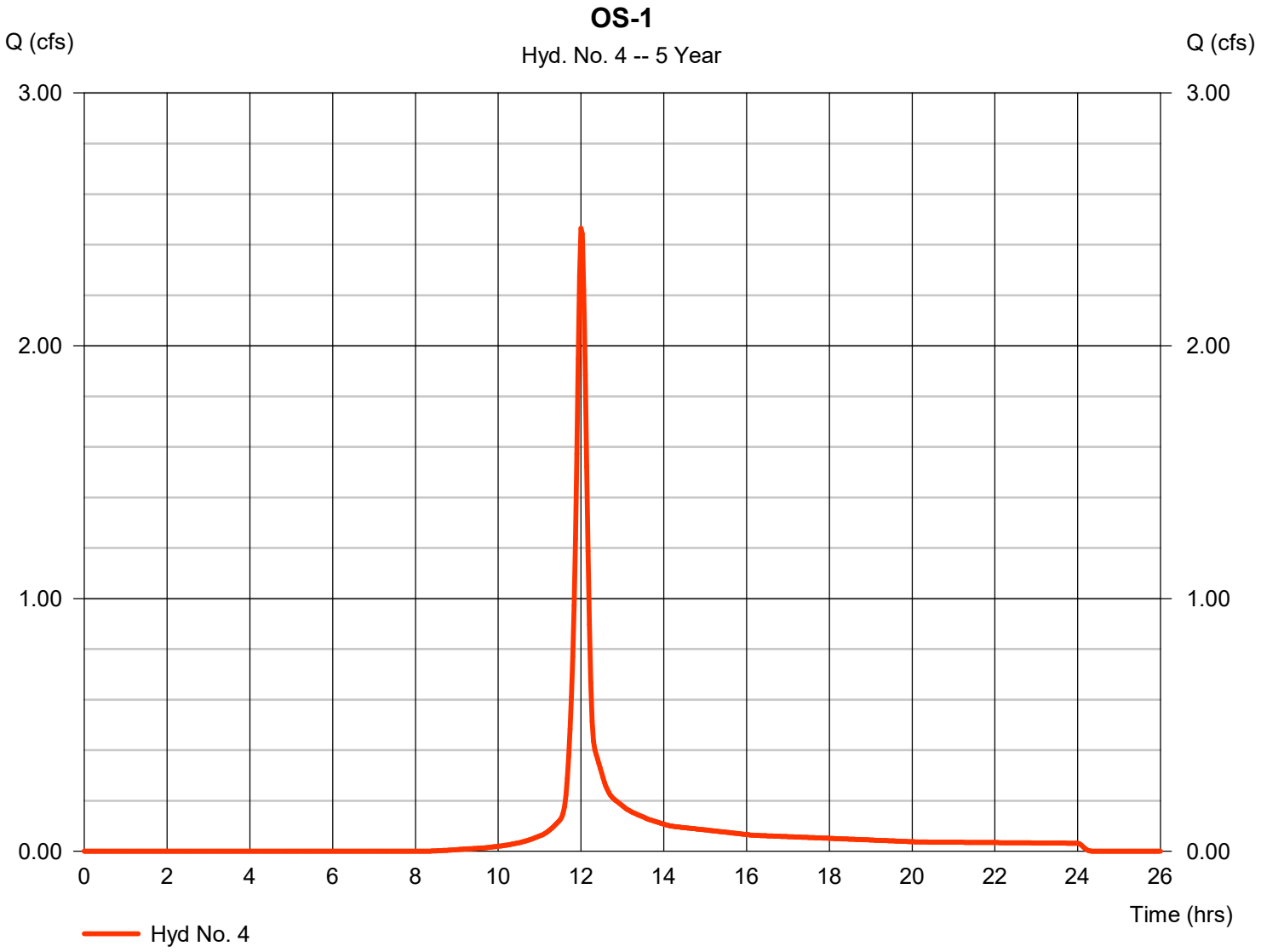
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 4

OS-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.465 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	6,392 cuft
Drainage area	=	0.990 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



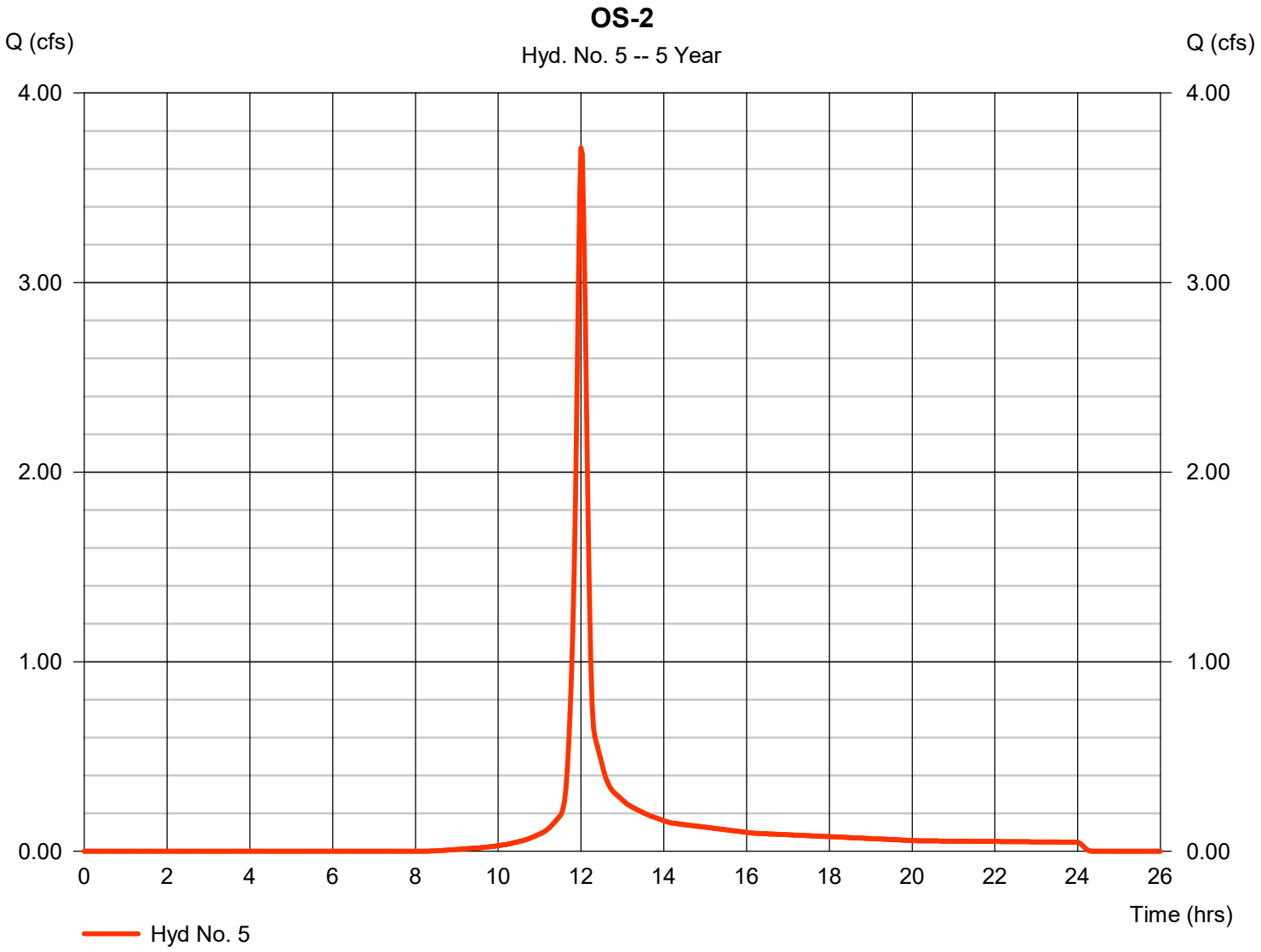
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 5

OS-2

Hydrograph type	= SCS Runoff	Peak discharge	= 3.710 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 9,620 cuft
Drainage area	= 1.490 ac	Curve number	= 83
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.34 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



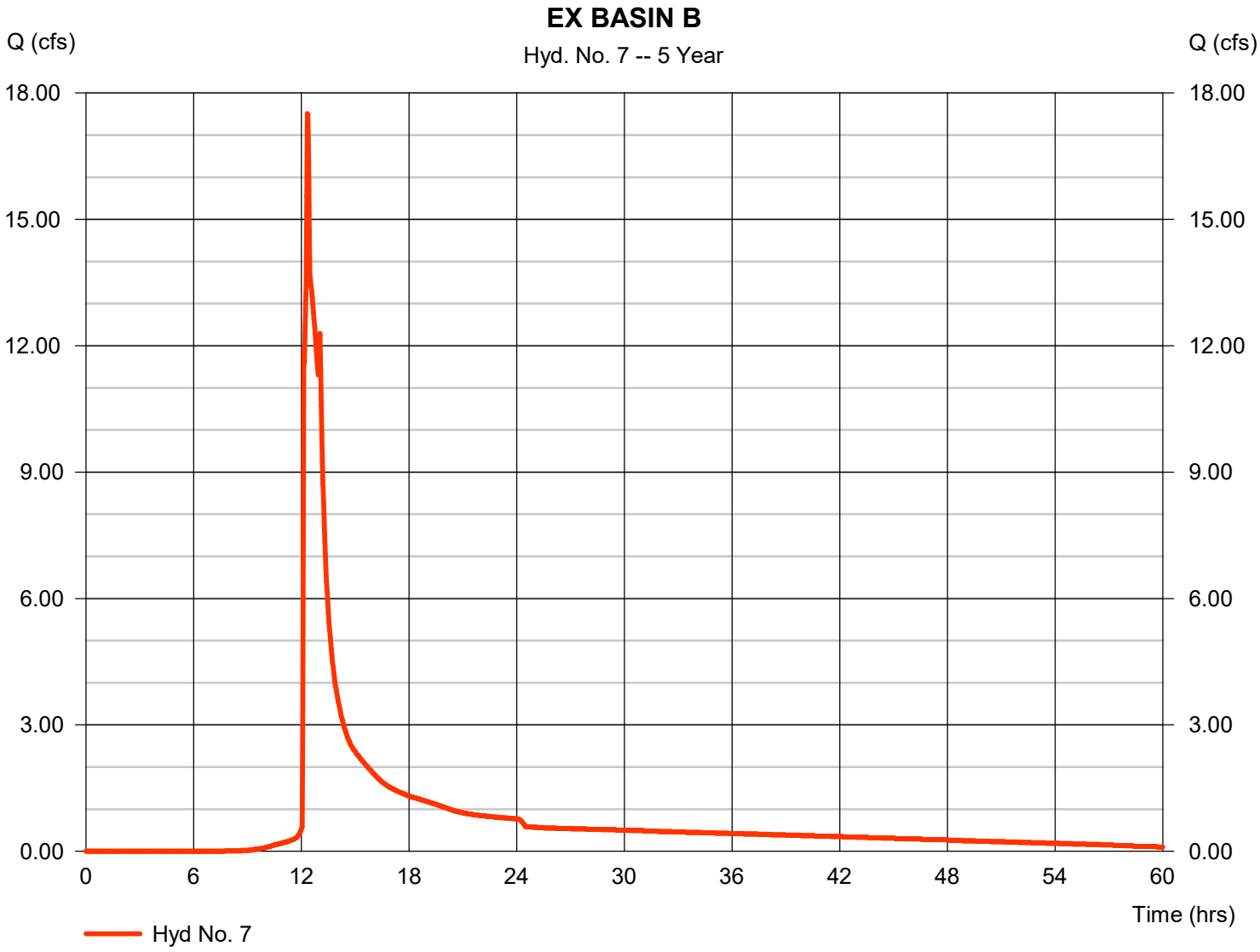
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 7

EX BASIN B

Hydrograph type	= Manual	Peak discharge	= 17.51 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 166,751 cuft



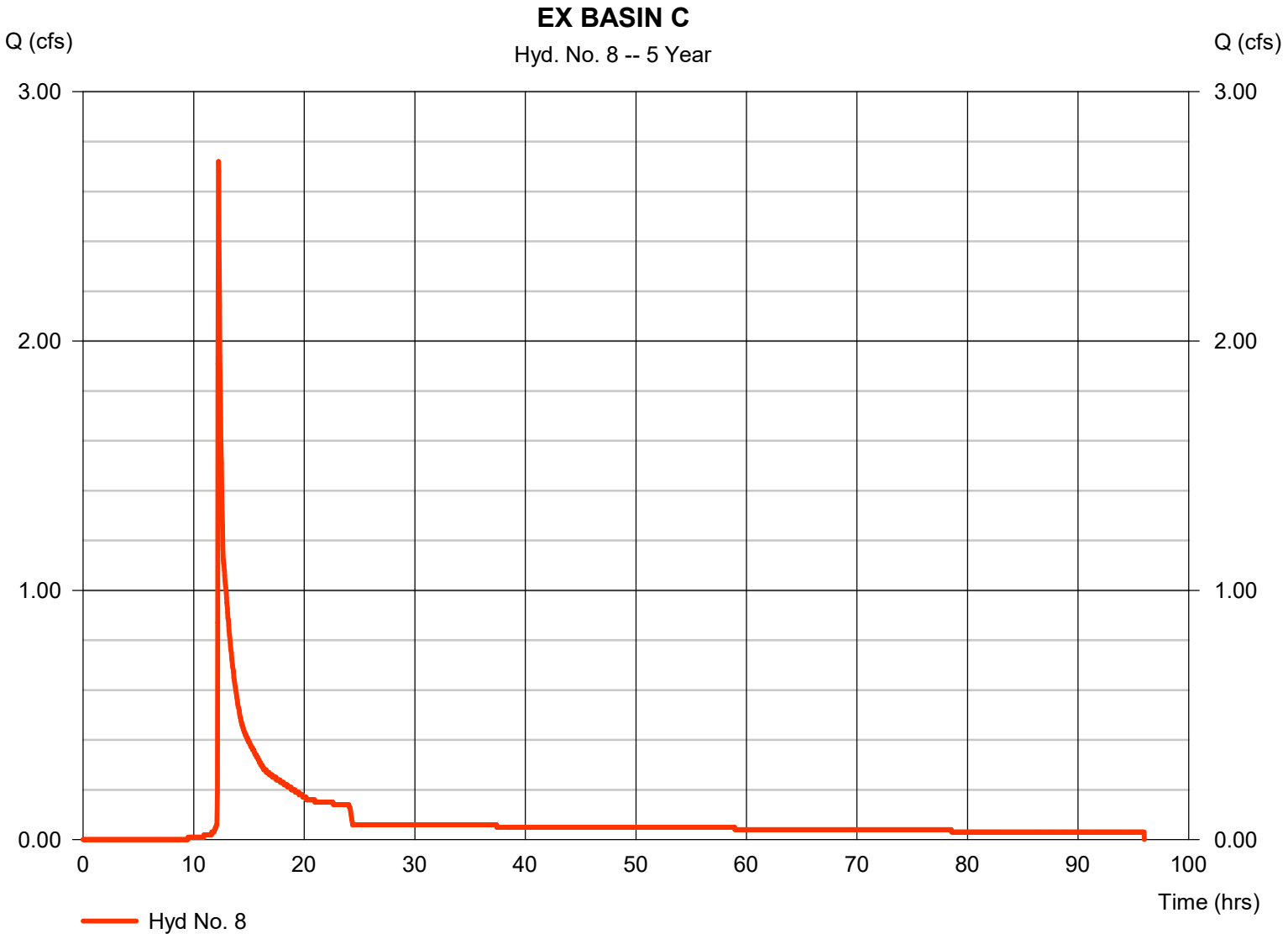
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 8

EX BASIN C

Hydrograph type	= Manual	Peak discharge	= 2.720 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 27,175 cuft



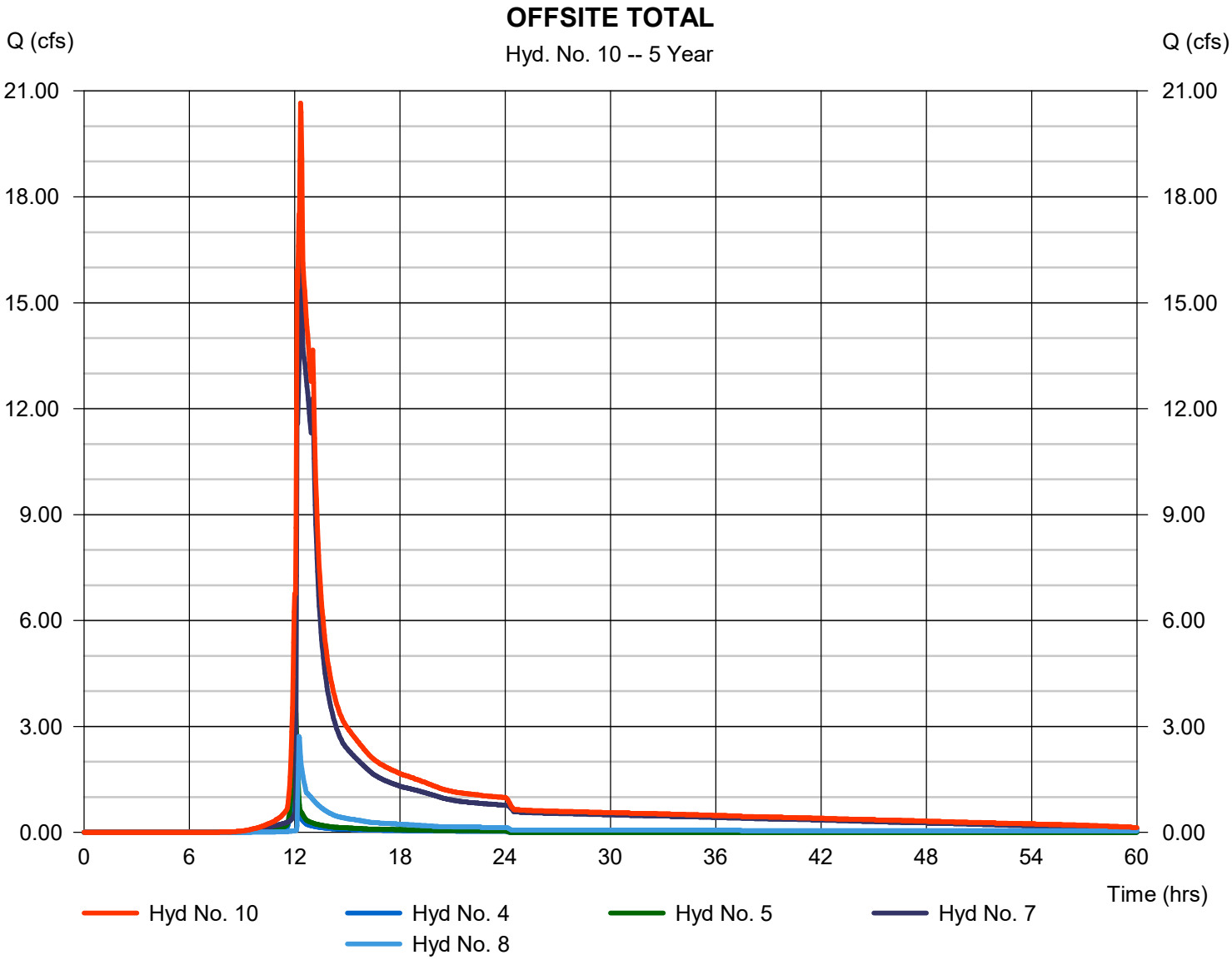
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 10

OFFSITE TOTAL

Hydrograph type	= Combine	Peak discharge	= 20.65 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 209,936 cuft
Inflow hyds.	= 4, 5, 7, 8	Contrib. drain. area	= 2.480 ac



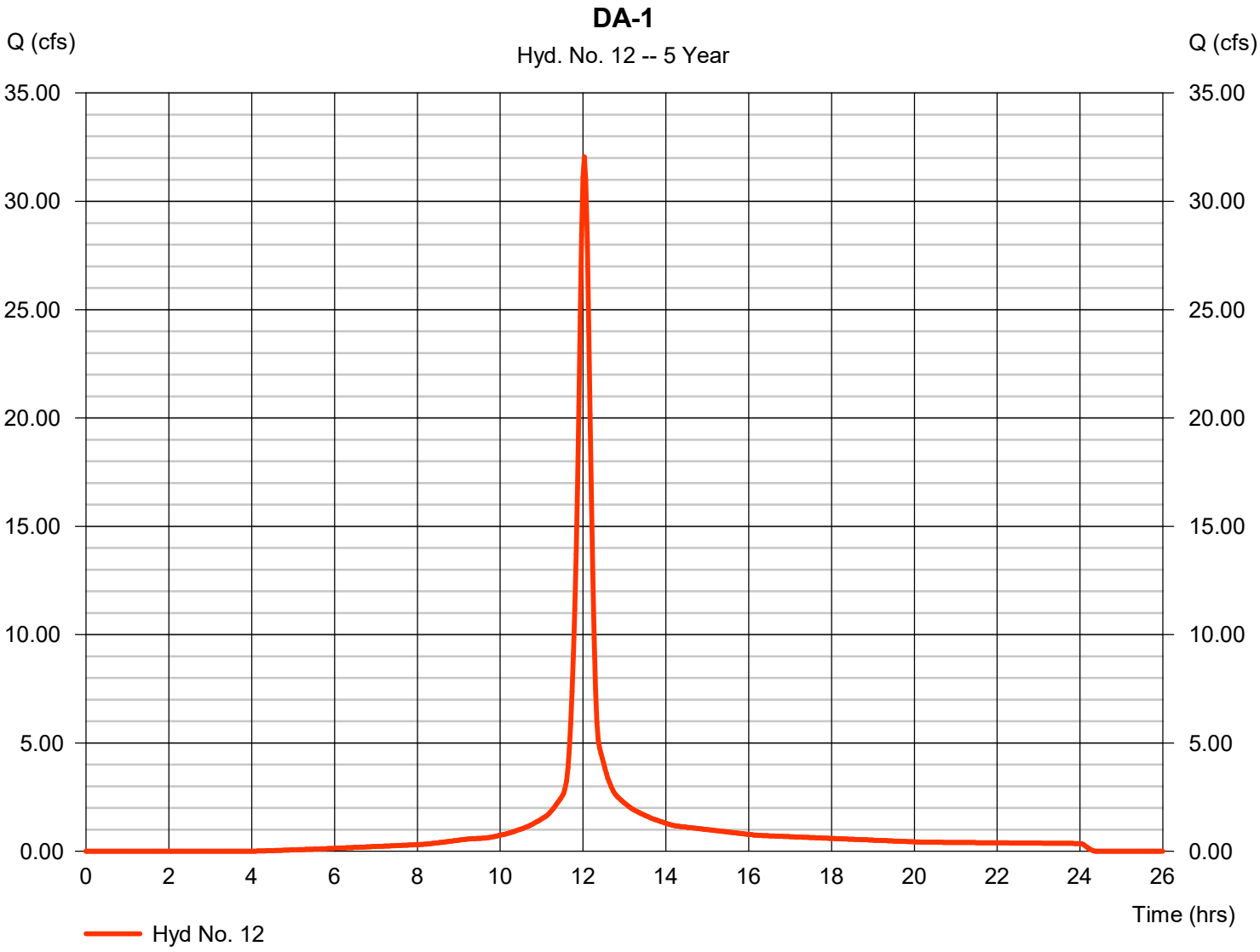
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 12

DA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	32.05 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	93,339 cuft
Drainage area	=	10.220 ac	Curve number	=	93
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.30 min
Total precip.	=	3.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



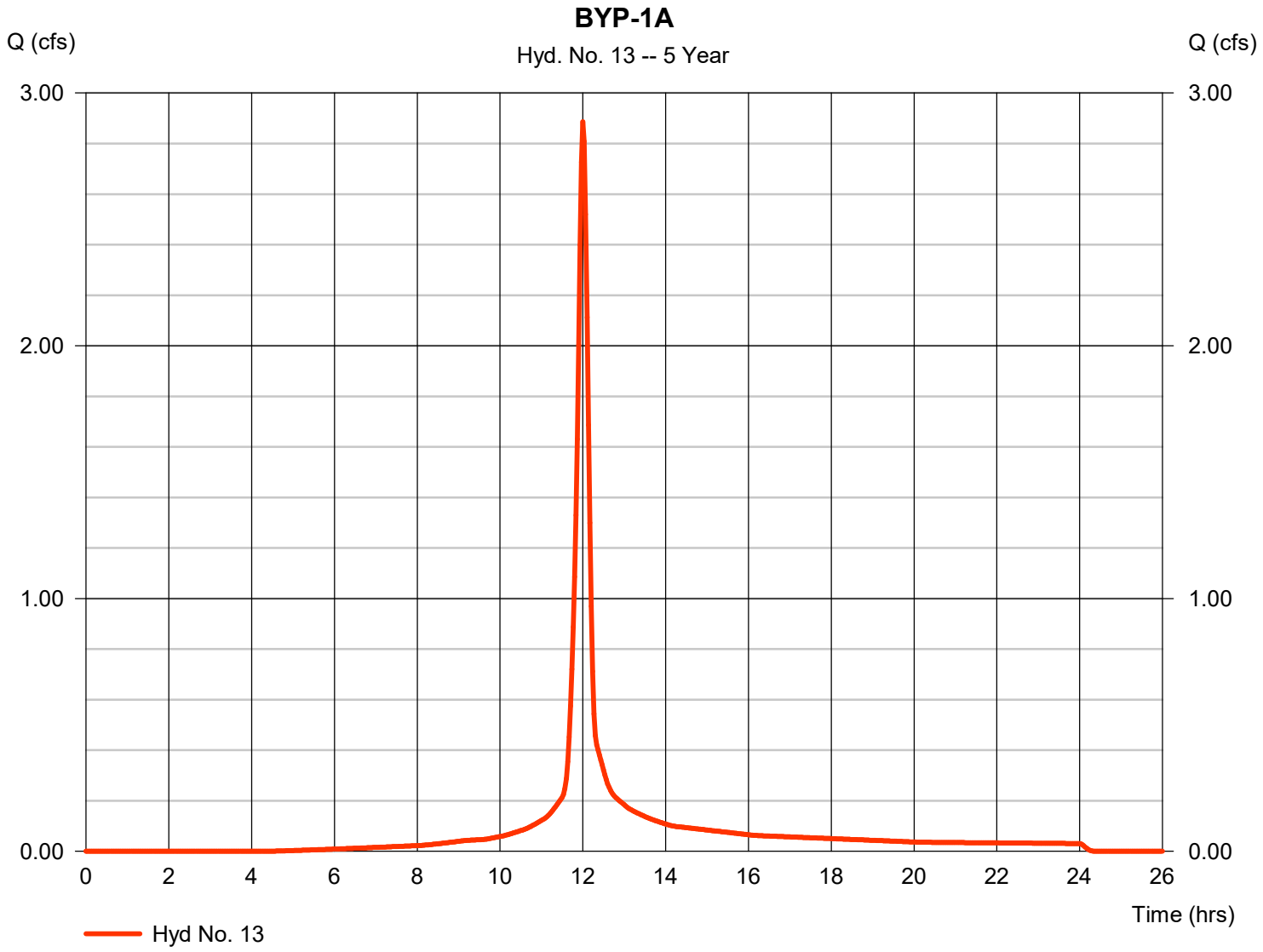
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 13

BYP-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.886 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	7,718 cuft
Drainage area	=	0.830 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



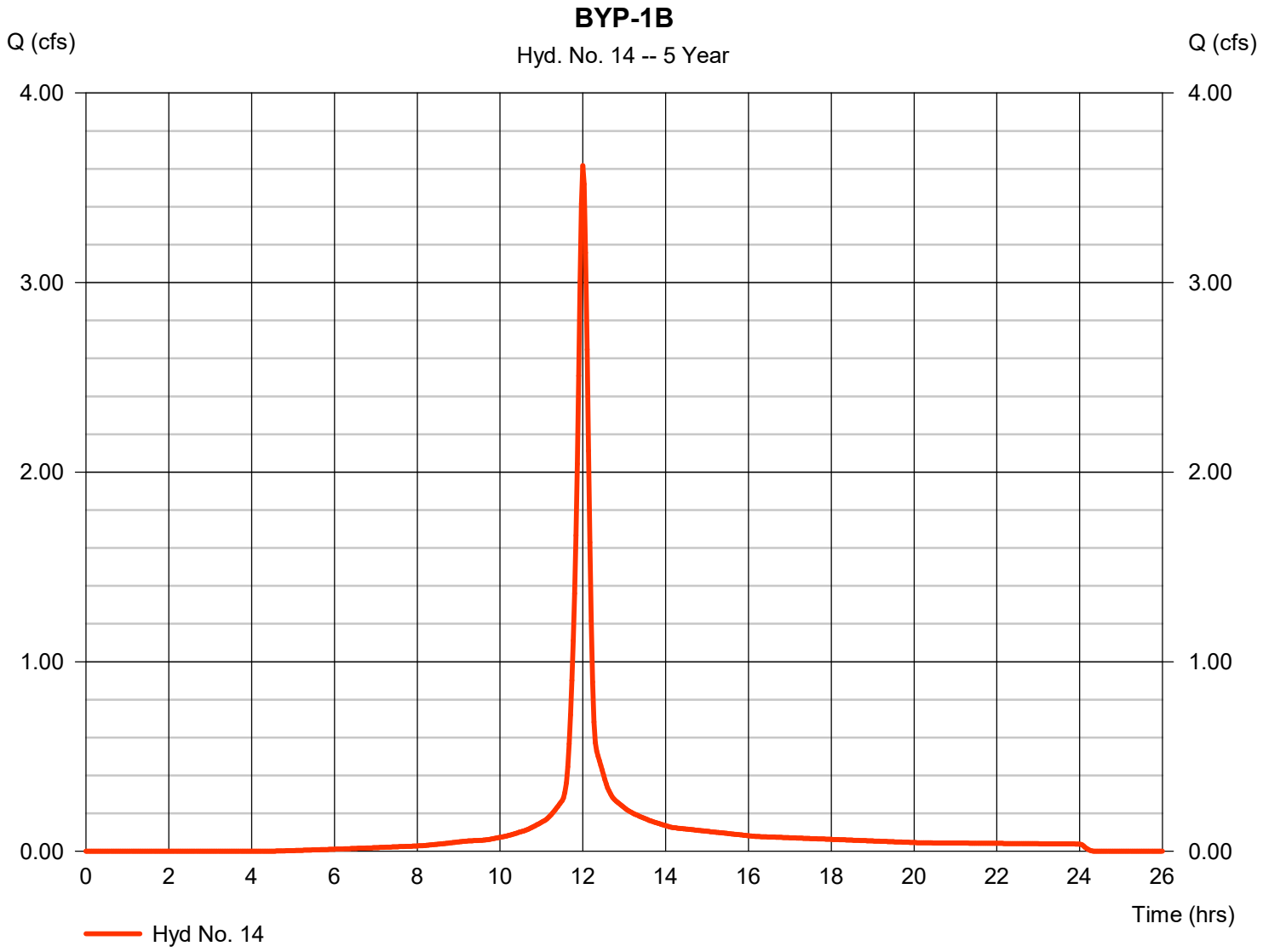
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 14

BYP-1B

Hydrograph type	= SCS Runoff	Peak discharge	= 3.616 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 9,670 cuft
Drainage area	= 1.040 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.34 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



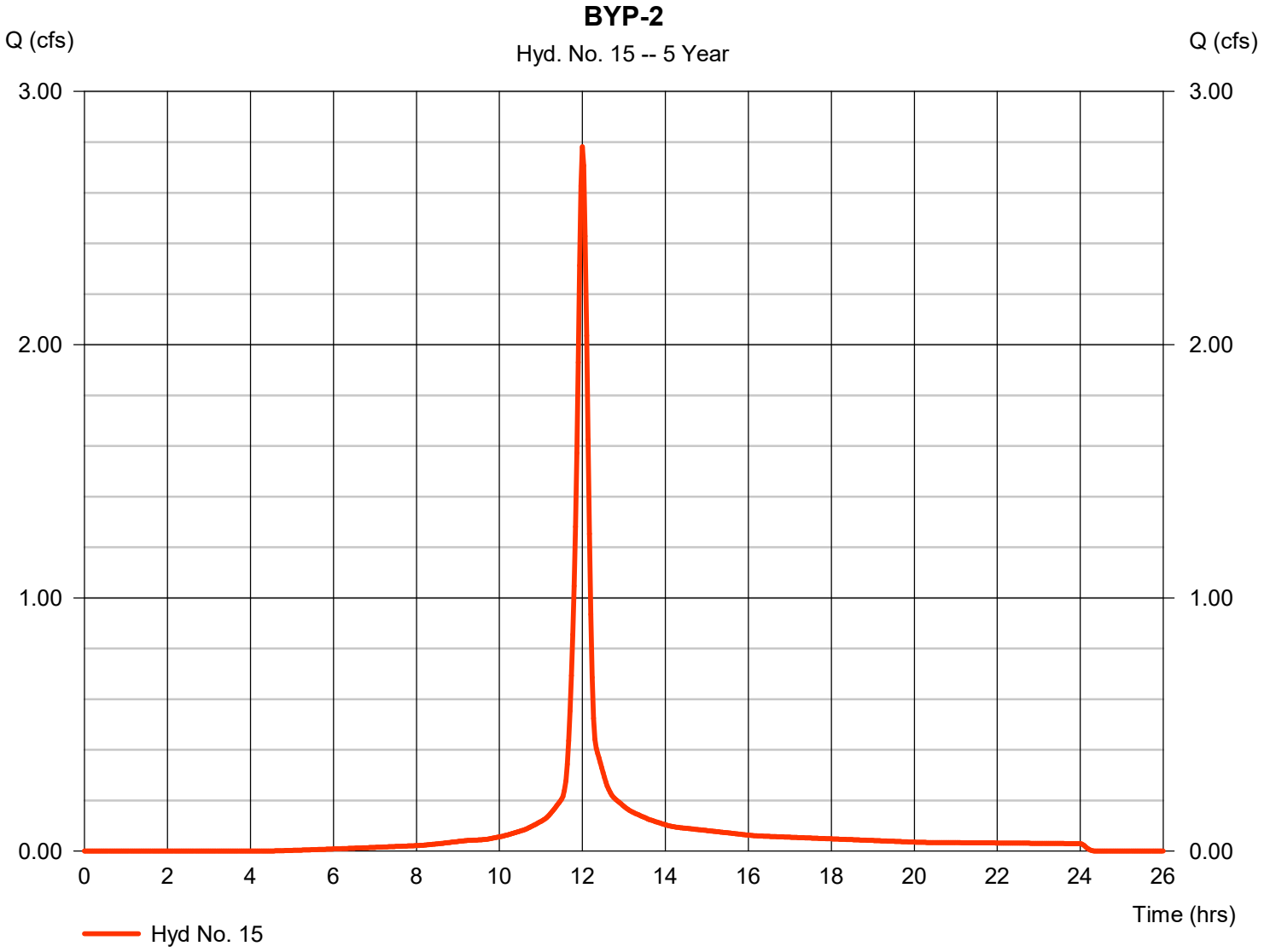
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 15

BYP-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.782 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	7,439 cuft
Drainage area	=	0.800 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



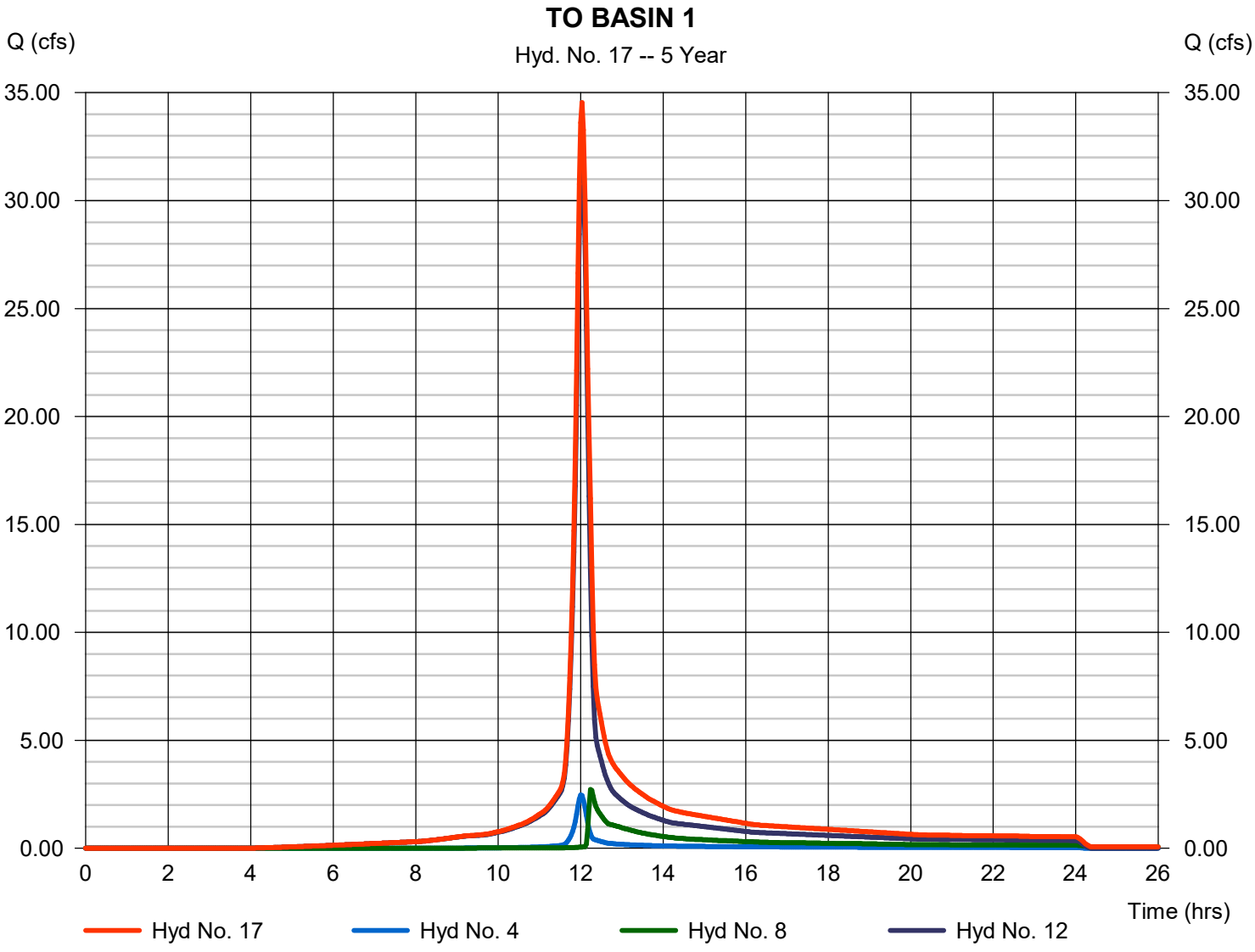
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 17

TO BASIN 1

Hydrograph type	= Combine	Peak discharge	= 34.54 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 126,907 cuft
Inflow hyds.	= 4, 8, 12	Contrib. drain. area	= 11.210 ac



Hydrograph Report

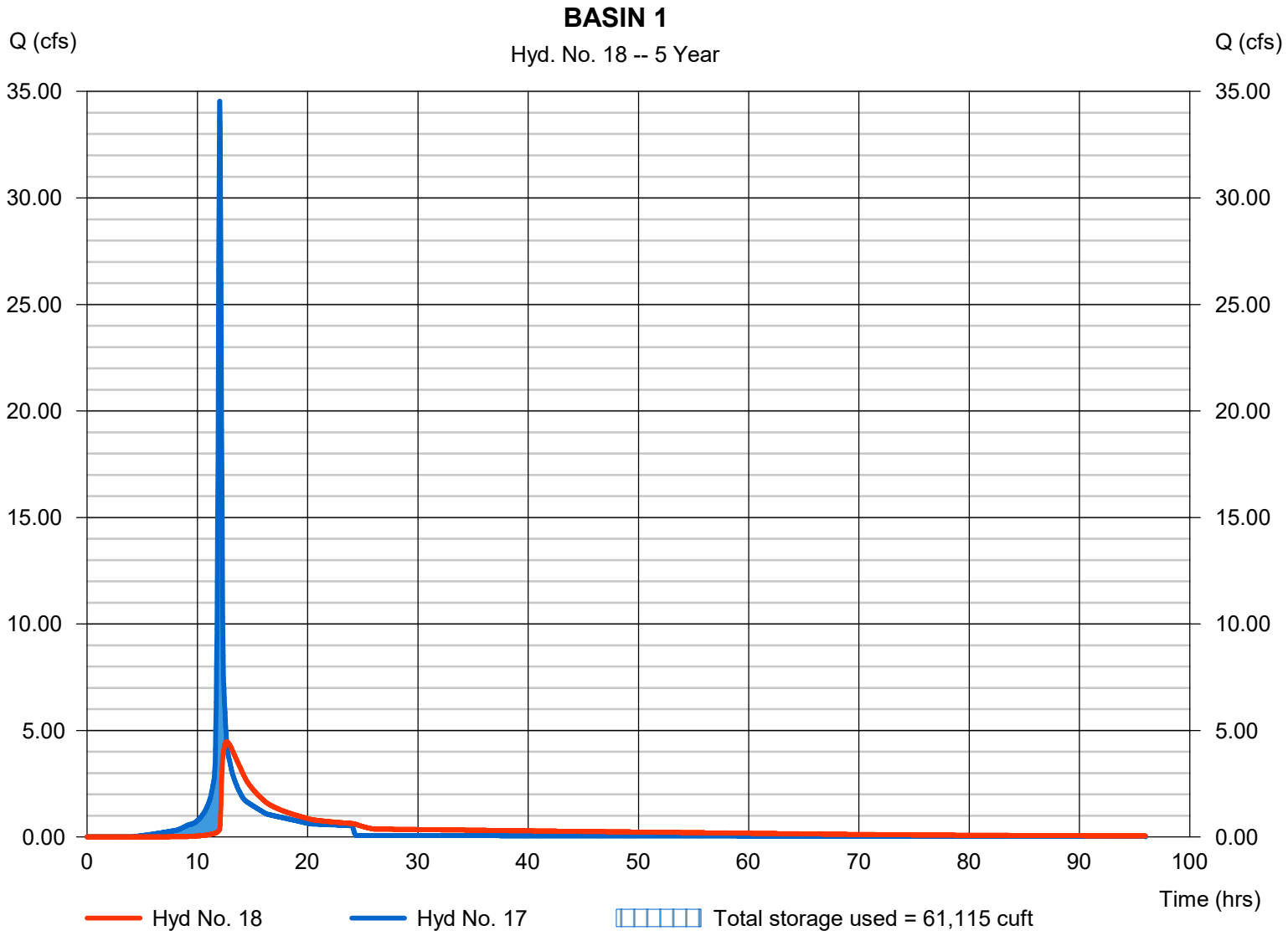
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 18

BASIN 1

Hydrograph type	=	Reservoir	Peak discharge	=	4.471 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.67 hrs
Time interval	=	2 min	Hyd. volume	=	120,957 cuft
Inflow hyd. No.	=	17 - TO BASIN 1	Max. Elevation	=	926.45 ft
Reservoir name	=	Basin 1	Max. Storage	=	61,115 cuft

Storage Indication method used.



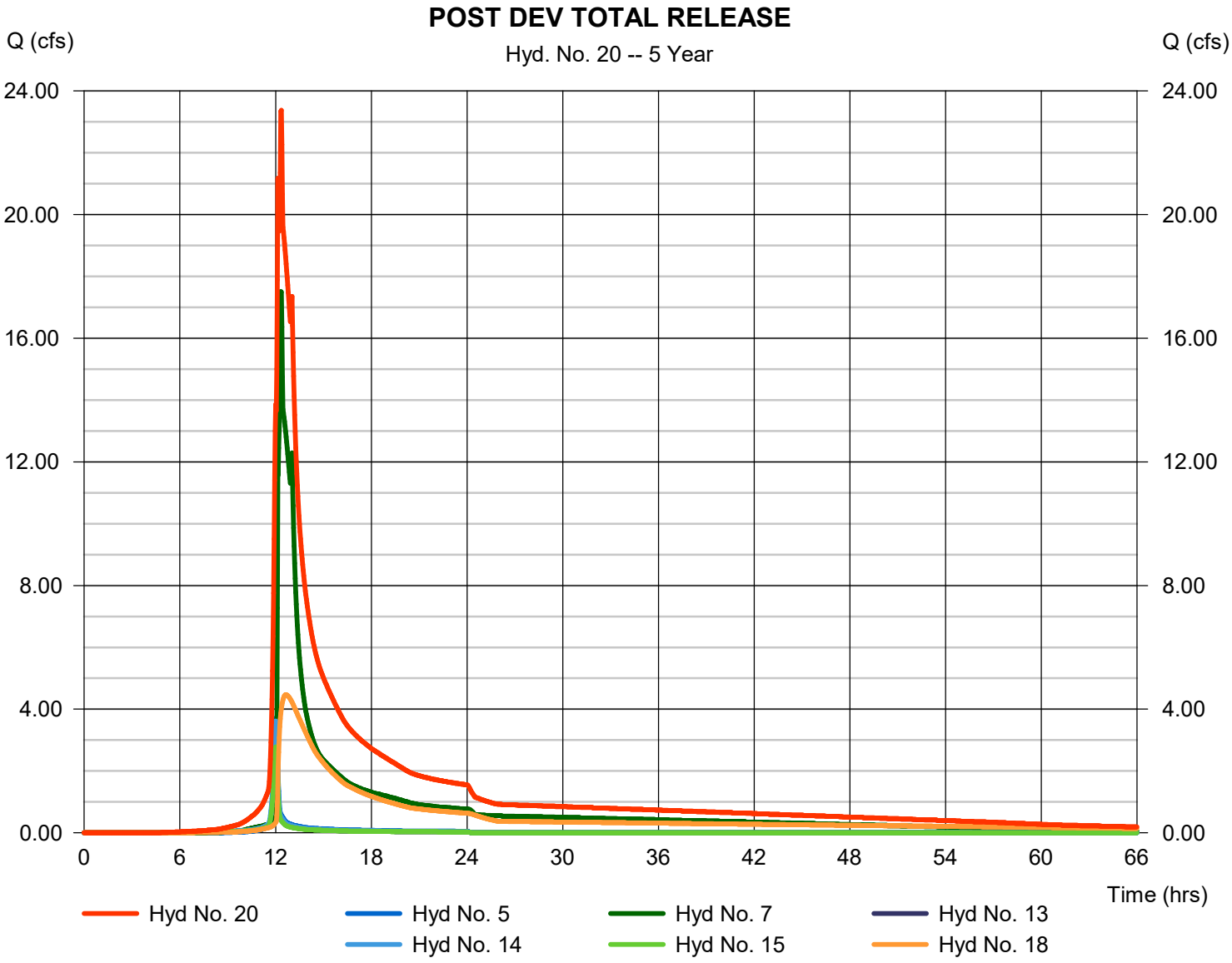
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 20

POST DEV TOTAL RELEASE

Hydrograph type	= Combine	Peak discharge	= 23.37 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 322,152 cuft
Inflow hyds.	= 5, 7, 13, 14, 15, 18	Contrib. drain. area	= 4.160 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	33.50	2	722	93,909	------	------	------	EDA-1
2	SCS Runoff	46.29	2	722	134,746	------	------	------	POST DEV ONSITE UNDETAINED
4	SCS Runoff	3.057	2	720	7,928	------	------	------	OS-1
5	SCS Runoff	4.601	2	720	11,932	------	------	------	OS-2
7	Manual	24.91	2	740	202,110	------	------	------	EX BASIN B
8	Manual	8.310	2	728	33,713	------	------	------	EX BASIN C
10	Combine	34.25	2	730	255,680	4, 5, 7, 8,	------	------	OFFSITE TOTAL
12	SCS Runoff	37.60	2	722	110,488	------	------	------	DA-1
13	SCS Runoff	3.401	2	720	9,177	------	------	------	BYP-1A
14	SCS Runoff	4.262	2	720	11,499	------	------	------	BYP-1B
15	SCS Runoff	3.278	2	720	8,845	------	------	------	BYP-2
17	Combine	41.84	2	726	152,126	4, 8, 12,	------	------	TO BASIN 1
18	Reservoir	8.105	2	744	146,156	17	926.69	71,998	BASIN 1
20	Combine	35.44	2	732	389,718	5, 7, 13, 14, 15, 18,	------	------	POST DEV TOTAL RELEASE

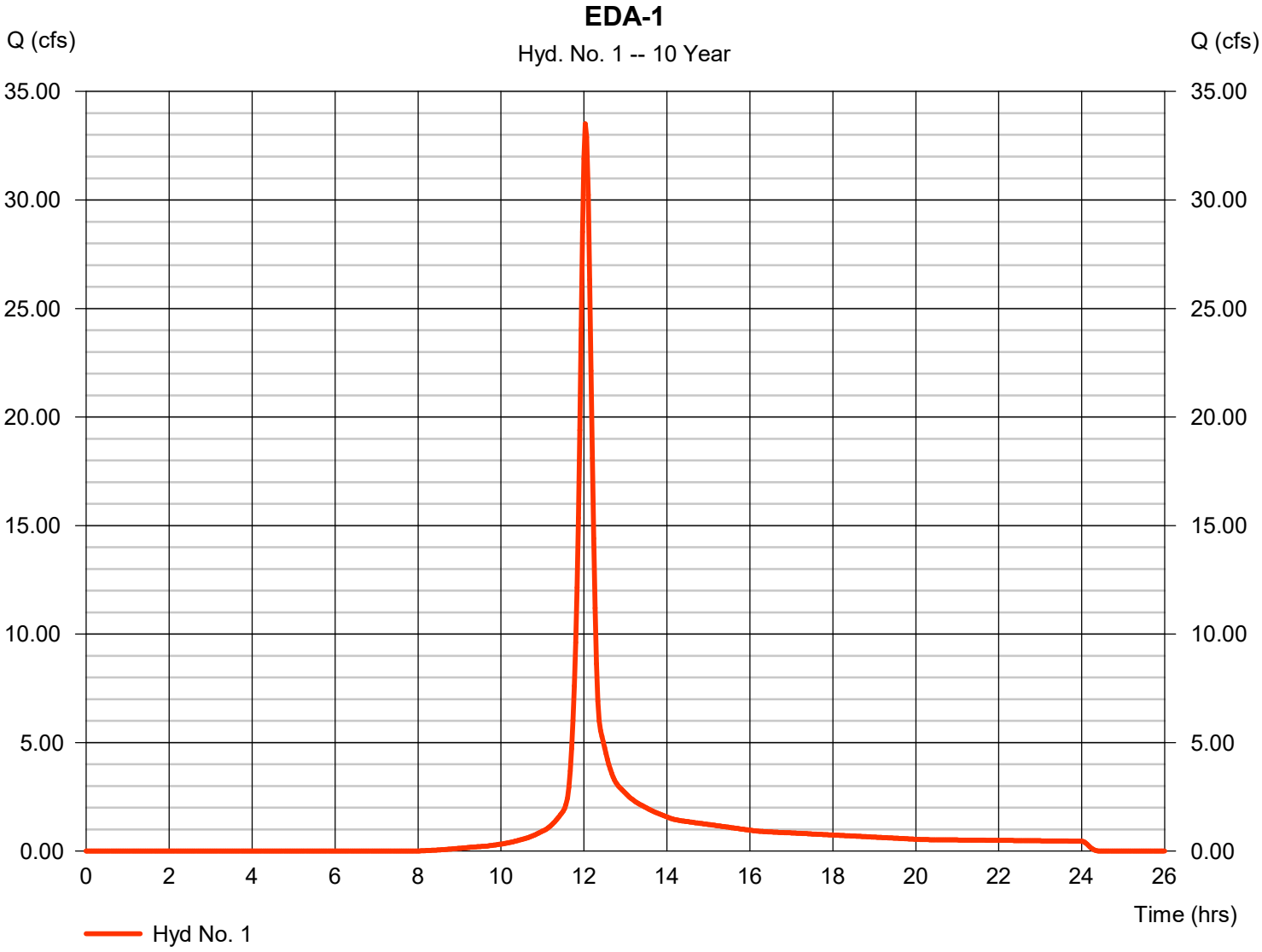
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	33.50 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	93,909 cuft
Drainage area	=	12.890 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	14.10 min
Total precip.	=	3.83 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



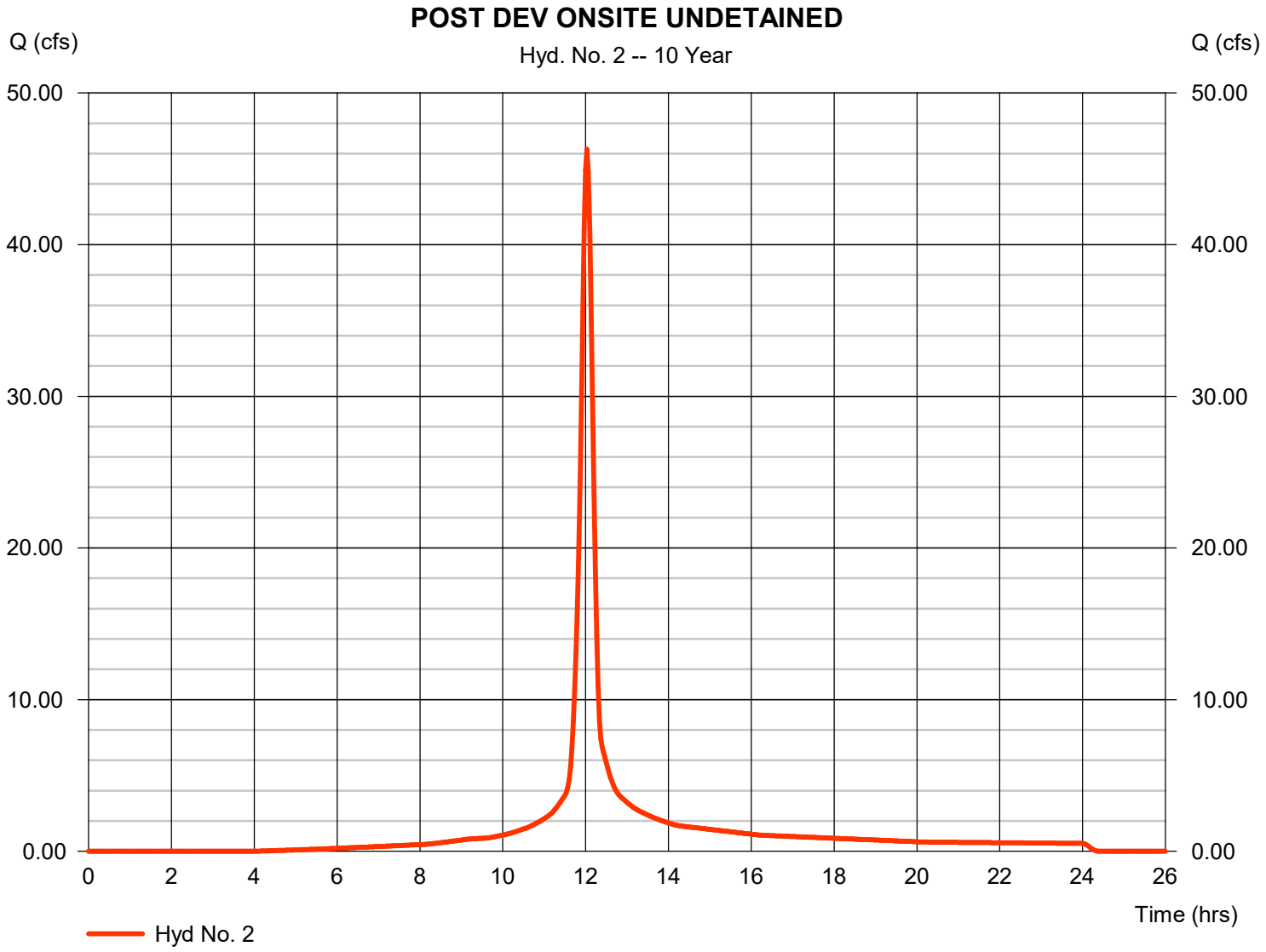
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 2

POST DEV ONSITE UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 46.29 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 134,746 cuft
Drainage area	= 12.890 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 3.83 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



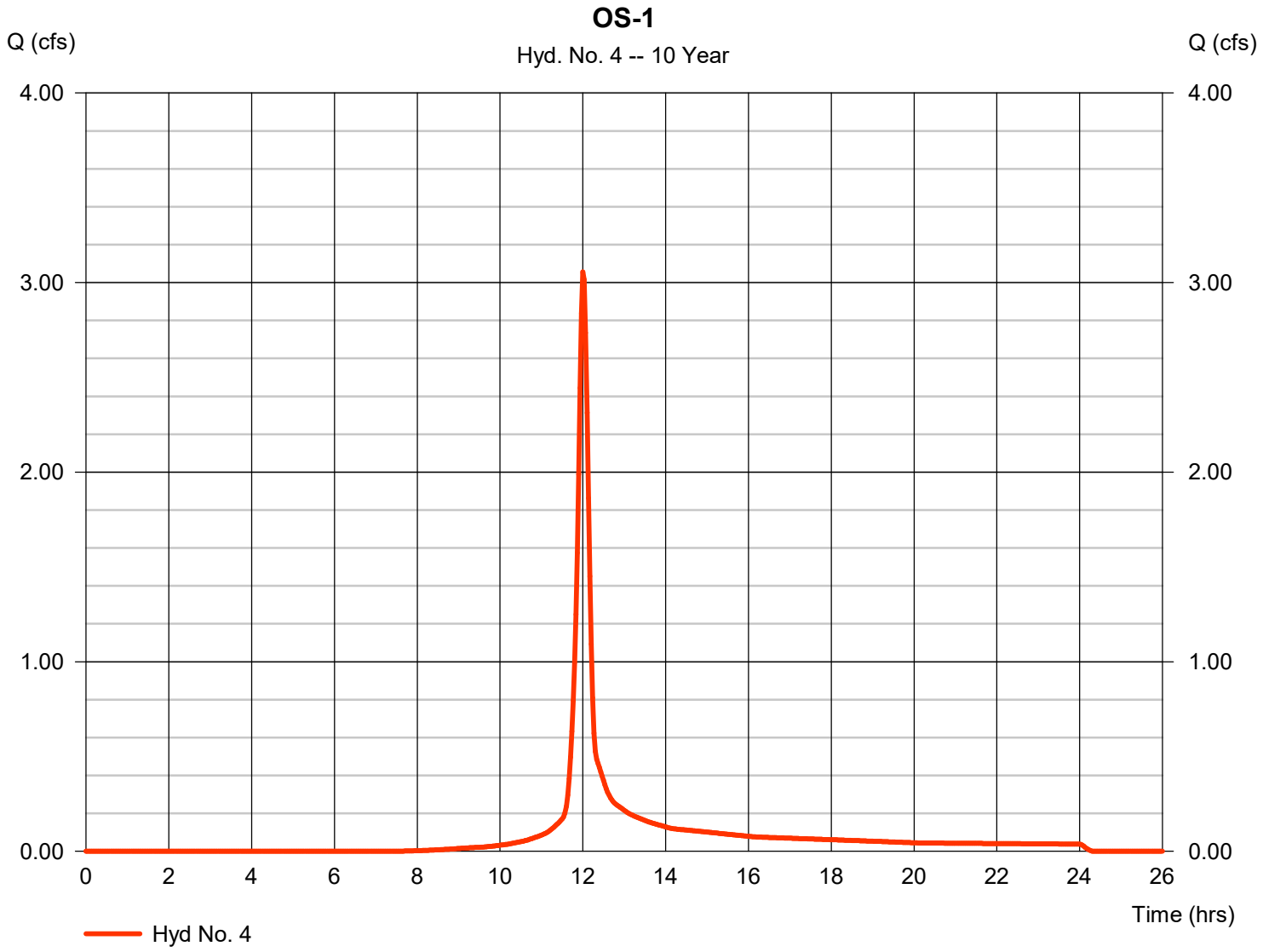
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 4

OS-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.057 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	7,928 cuft
Drainage area	=	0.990 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.83 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



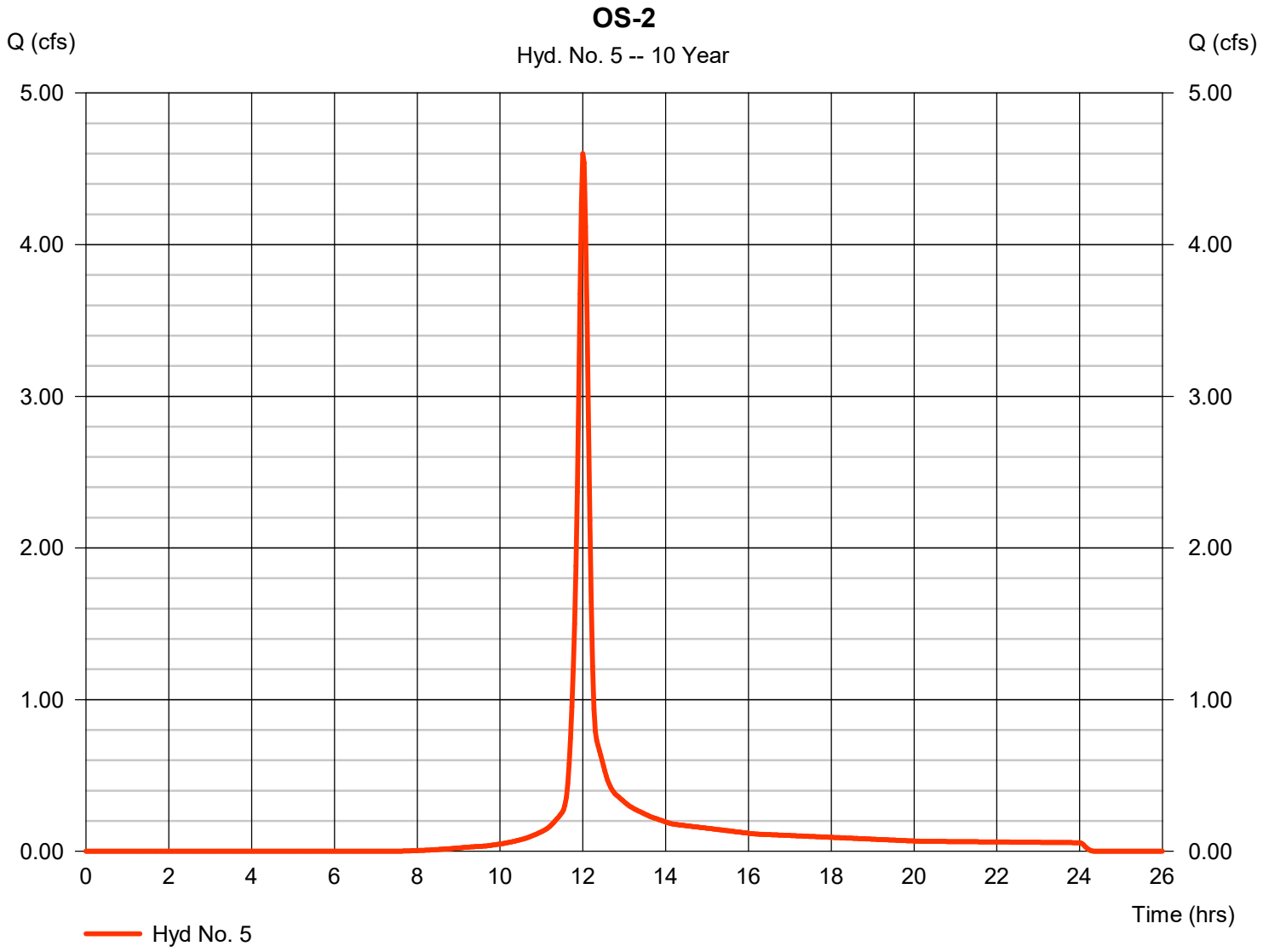
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 5

OS-2

Hydrograph type	= SCS Runoff	Peak discharge	= 4.601 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 11,932 cuft
Drainage area	= 1.490 ac	Curve number	= 83
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.83 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



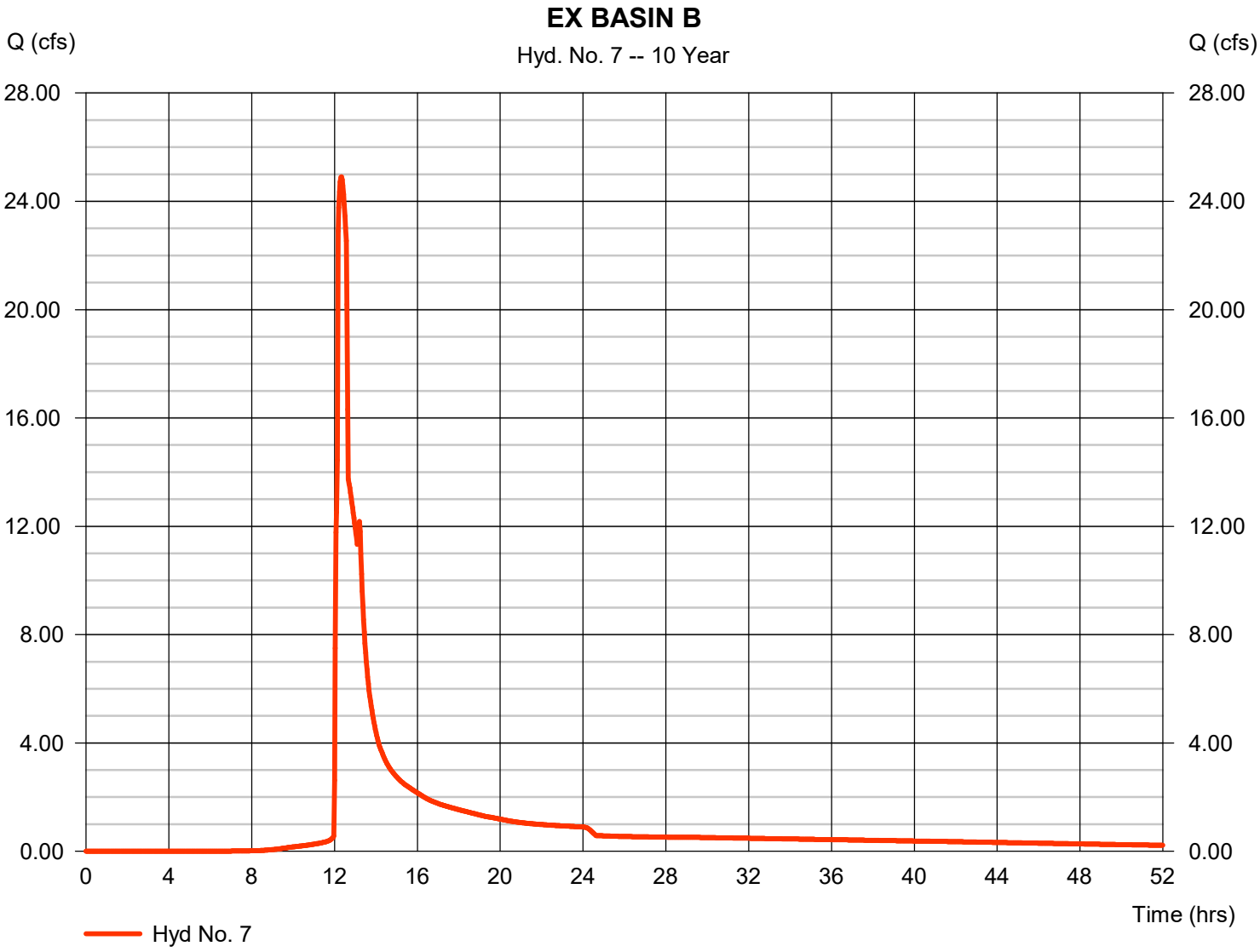
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 7

EX BASIN B

Hydrograph type	= Manual	Peak discharge	= 24.91 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 202,110 cuft



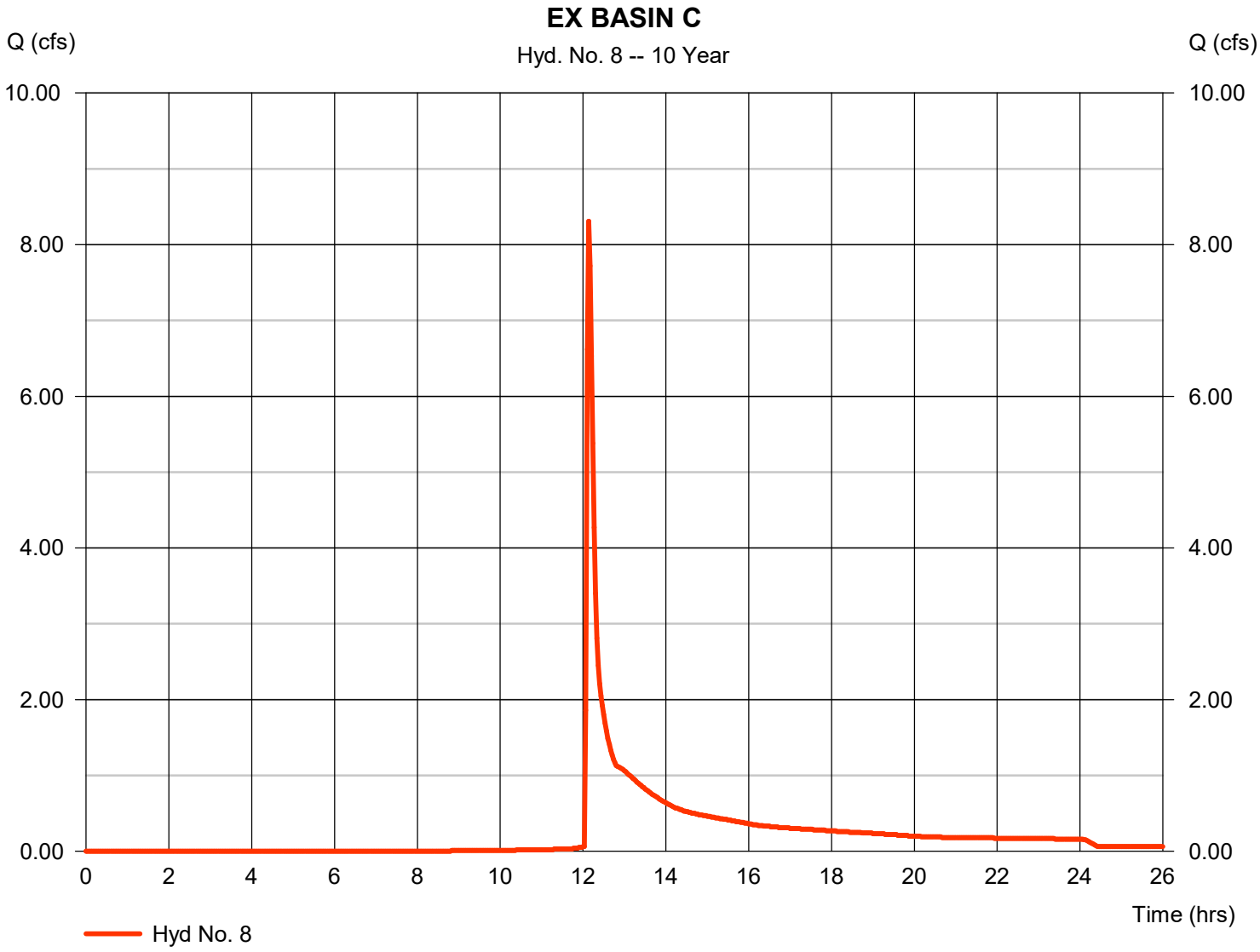
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 8

EX BASIN C

Hydrograph type	= Manual	Peak discharge	= 8.310 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 33,713 cuft



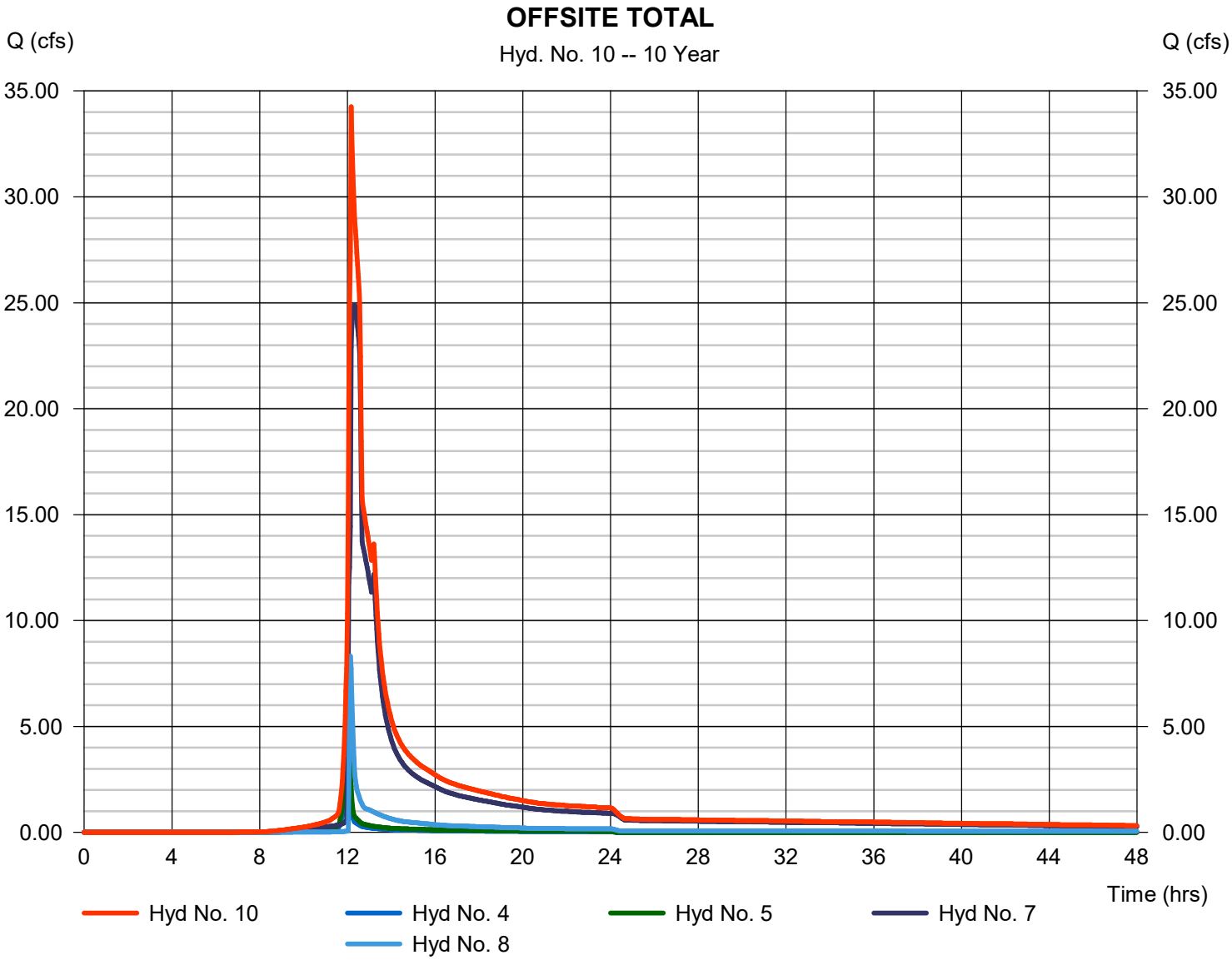
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 10

OFFSITE TOTAL

Hydrograph type	= Combine	Peak discharge	= 34.25 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 255,680 cuft
Inflow hyds.	= 4, 5, 7, 8	Contrib. drain. area	= 2.480 ac



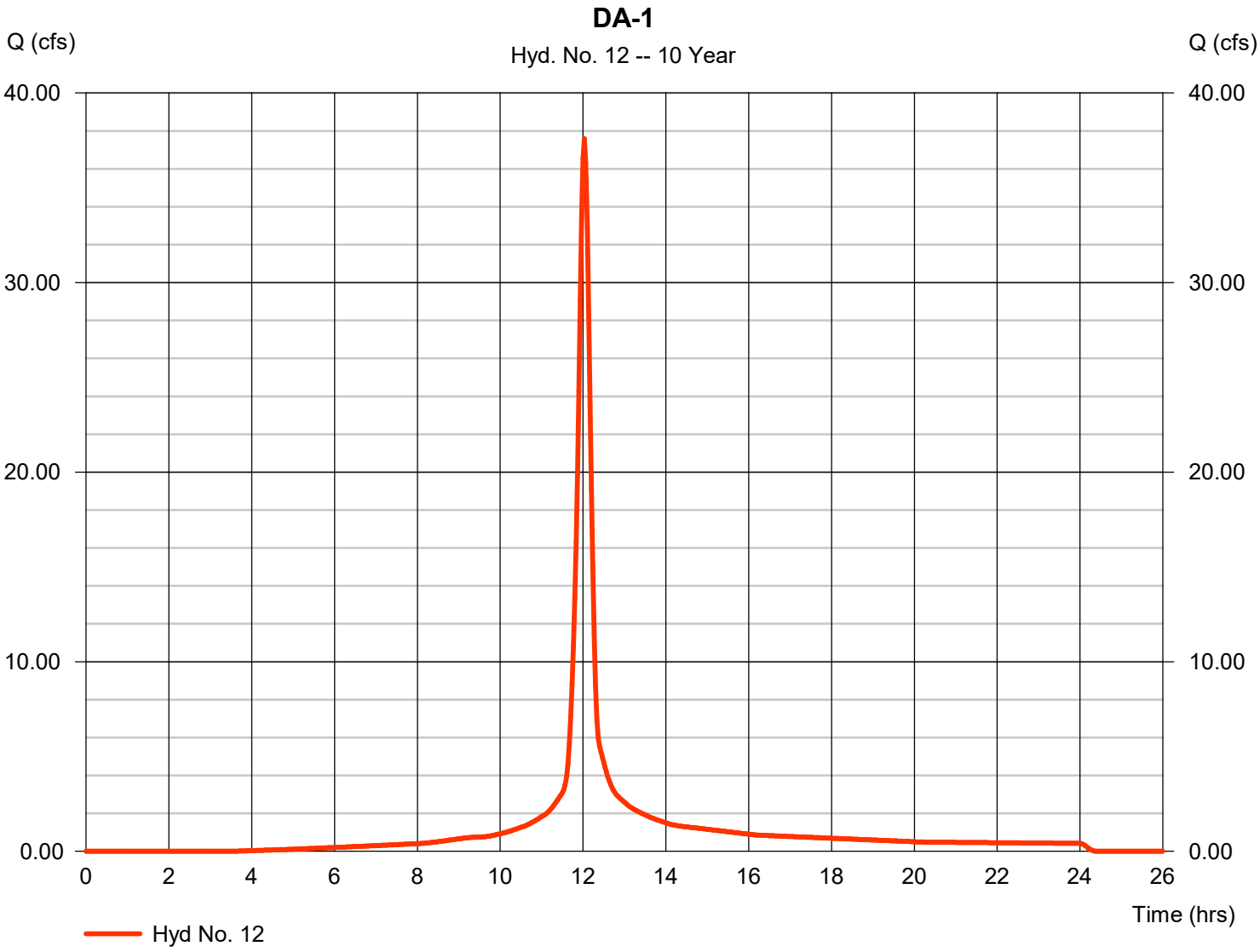
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 12

DA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	37.60 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	110,488 cuft
Drainage area	=	10.220 ac	Curve number	=	93
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.30 min
Total precip.	=	3.83 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



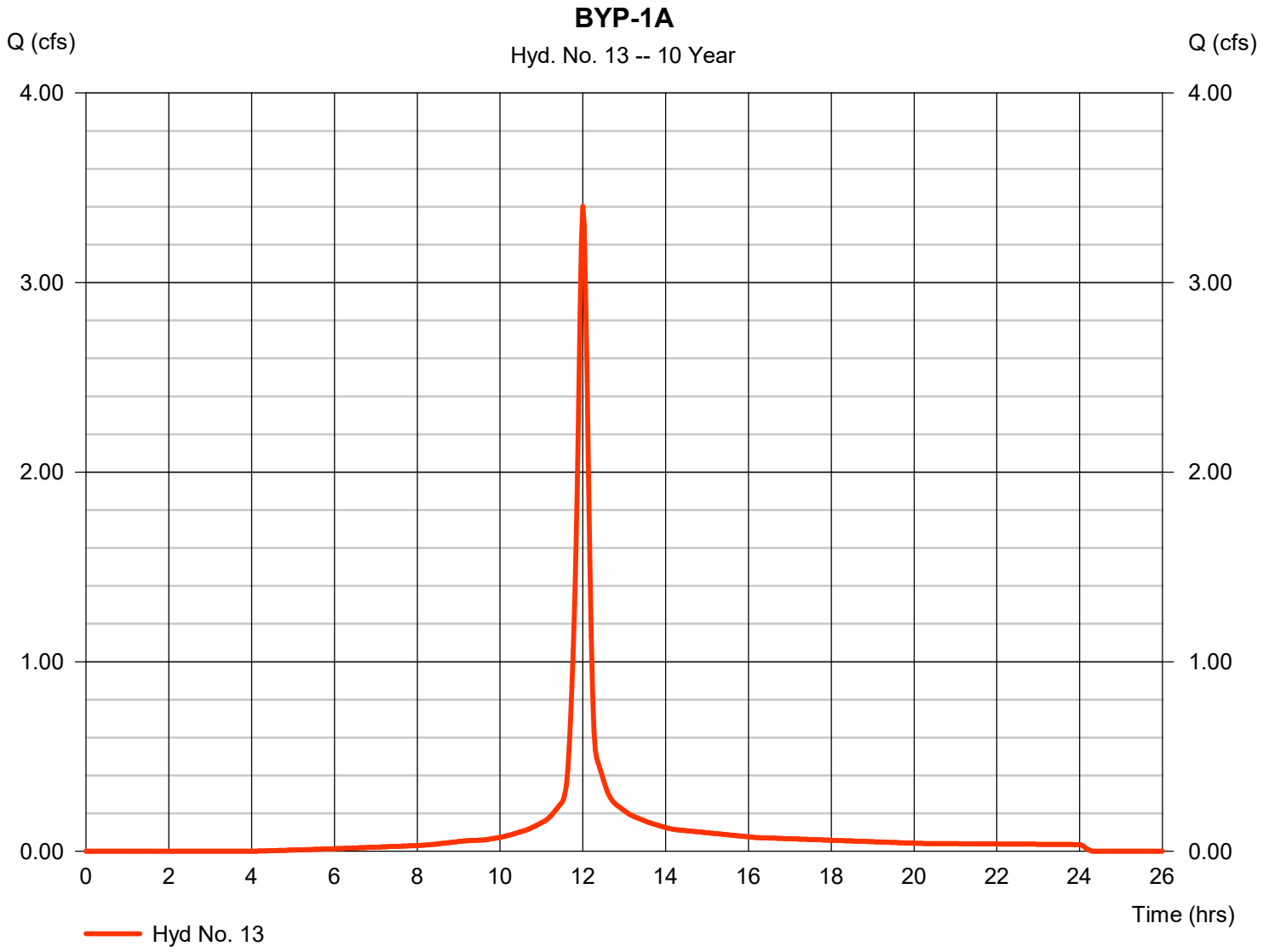
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 13

BYP-1A

Hydrograph type	= SCS Runoff	Peak discharge	= 3.401 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 9,177 cuft
Drainage area	= 0.830 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.83 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



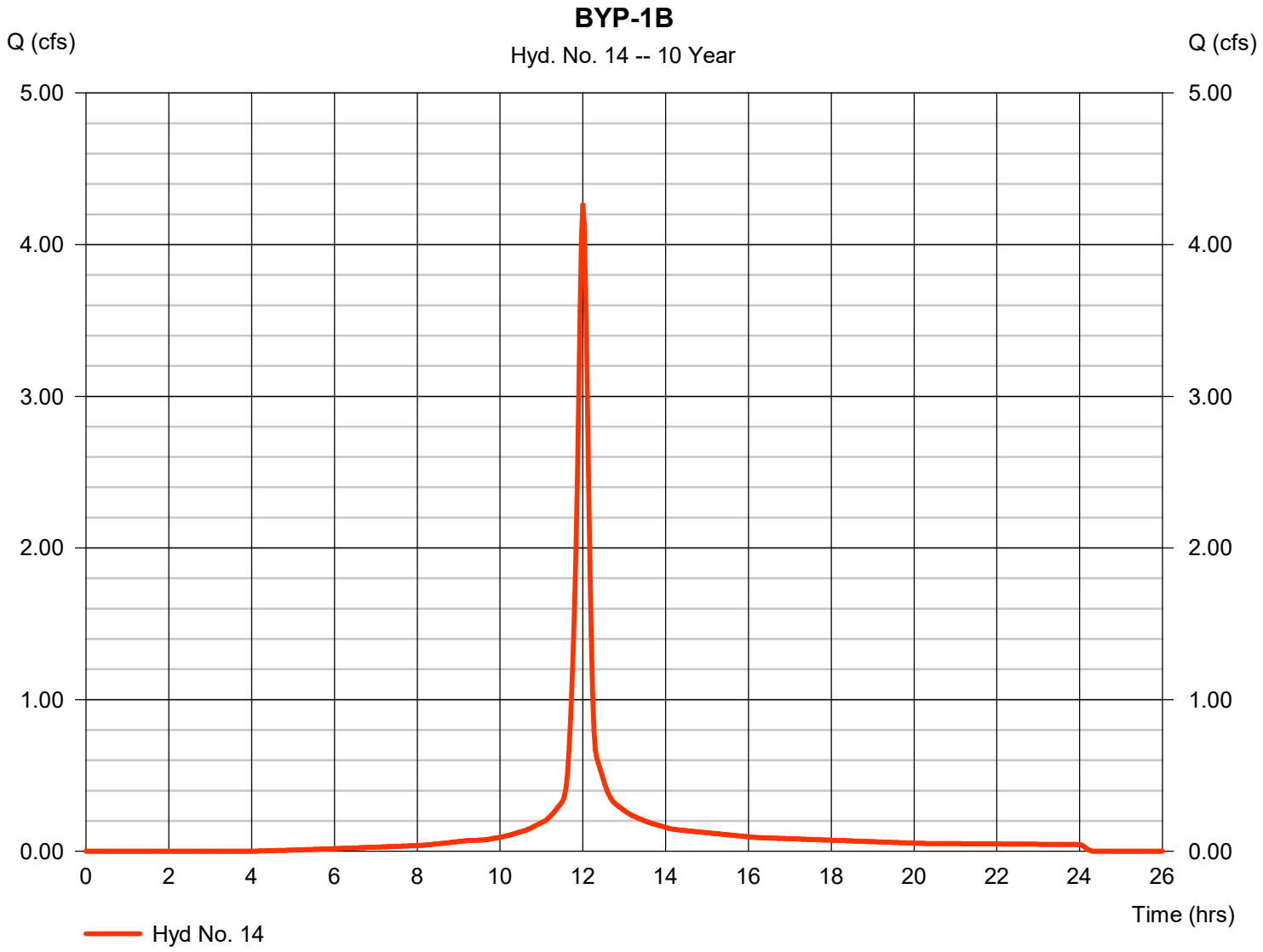
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 14

BYP-1B

Hydrograph type	= SCS Runoff	Peak discharge	= 4.262 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 11,499 cuft
Drainage area	= 1.040 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.83 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



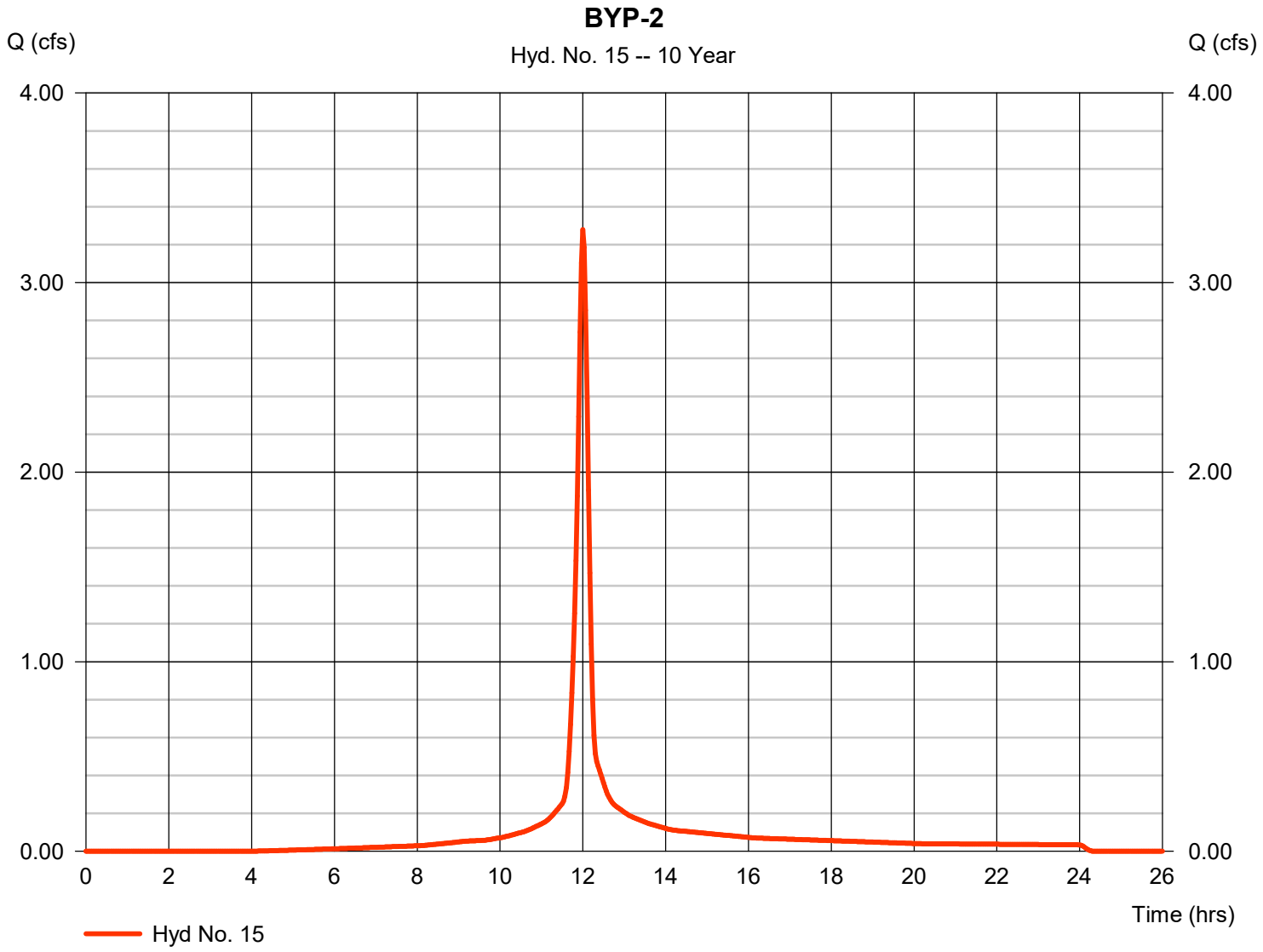
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 15

BYP-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.278 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	8,845 cuft
Drainage area	=	0.800 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.83 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



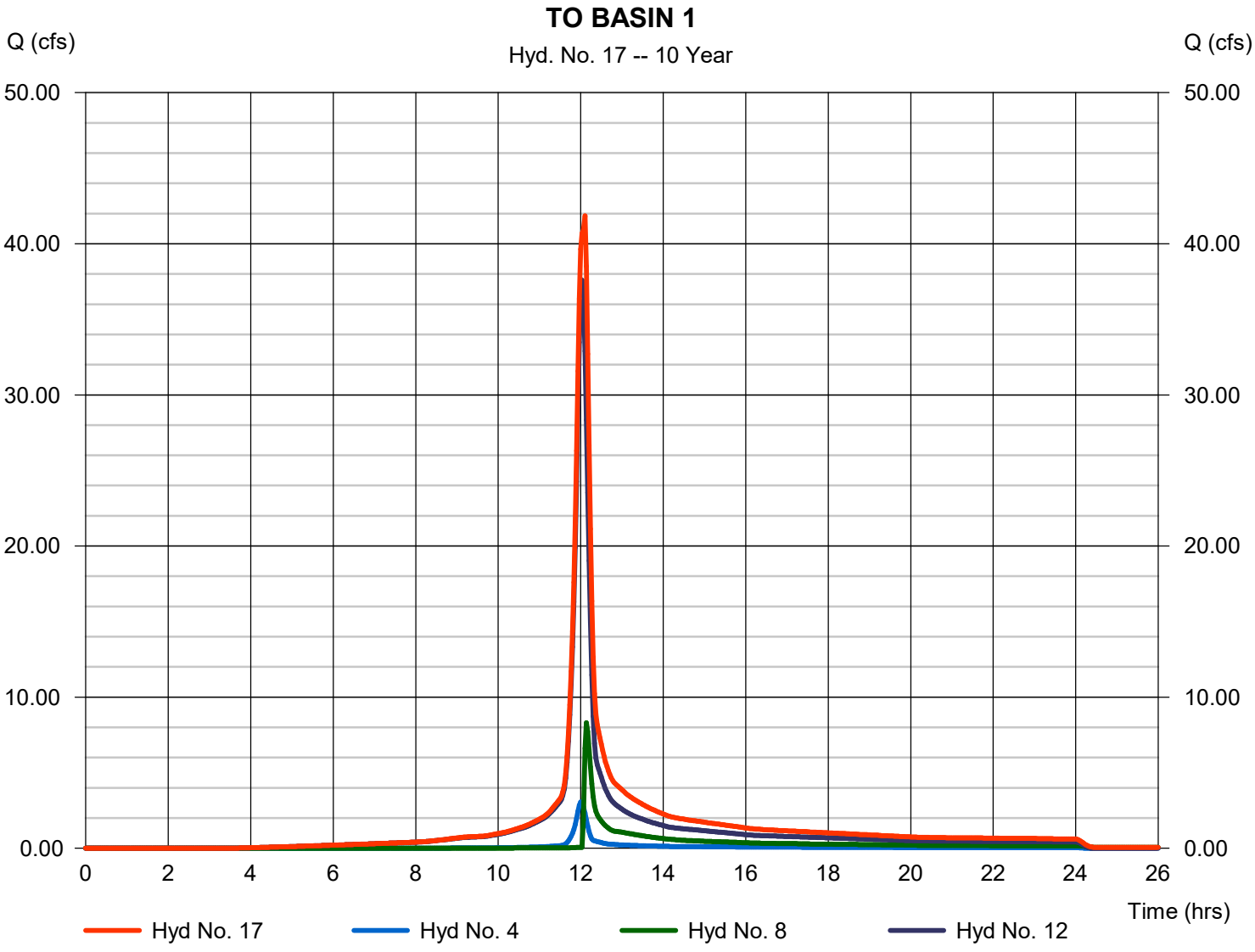
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 17

TO BASIN 1

Hydrograph type	= Combine	Peak discharge	= 41.84 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 2 min	Hyd. volume	= 152,126 cuft
Inflow hyds.	= 4, 8, 12	Contrib. drain. area	= 11.210 ac



Hydrograph Report

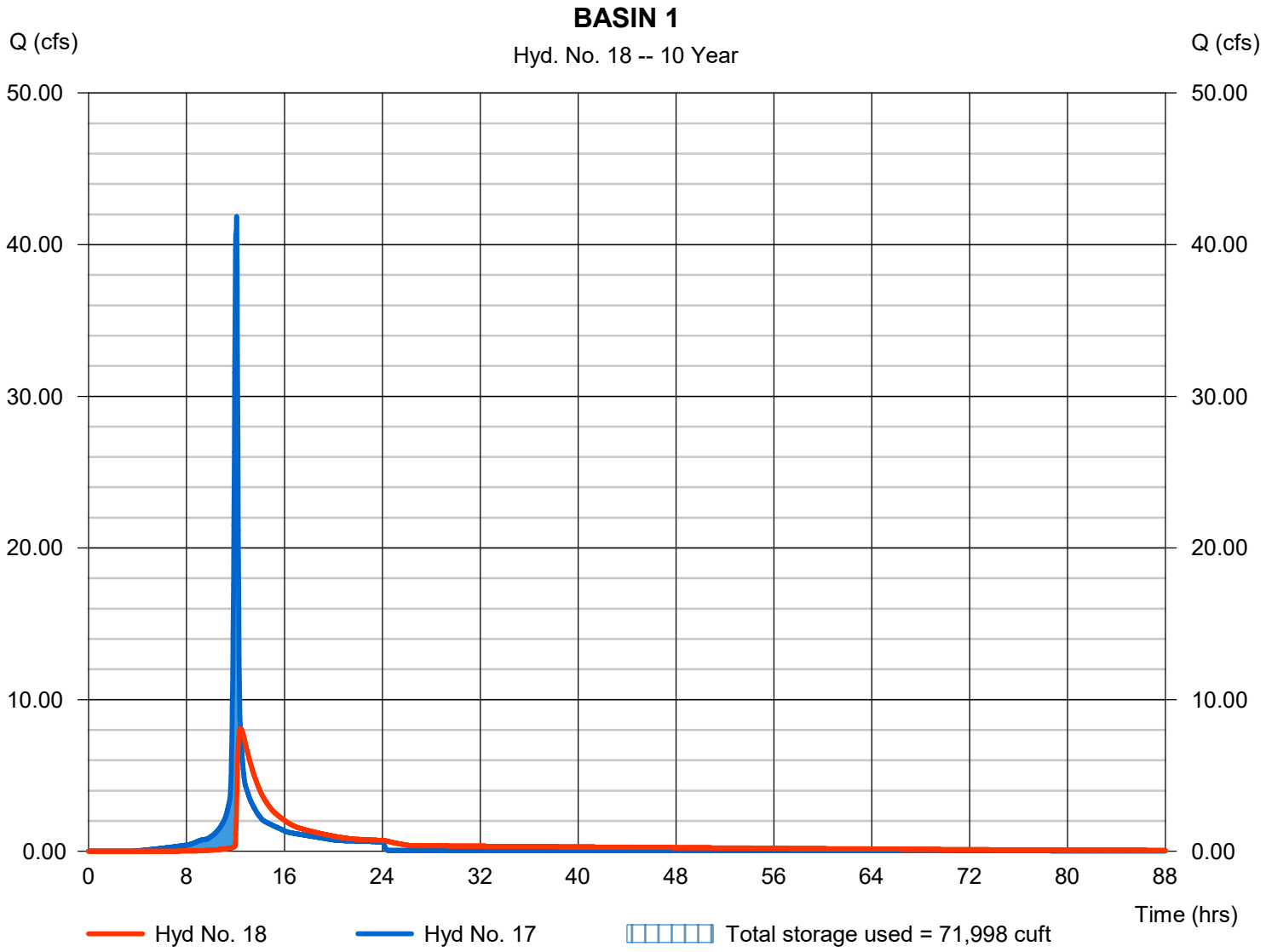
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 18

BASIN 1

Hydrograph type	=	Reservoir	Peak discharge	=	8.105 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.40 hrs
Time interval	=	2 min	Hyd. volume	=	146,156 cuft
Inflow hyd. No.	=	17 - TO BASIN 1	Max. Elevation	=	926.69 ft
Reservoir name	=	Basin 1	Max. Storage	=	71,998 cuft

Storage Indication method used.

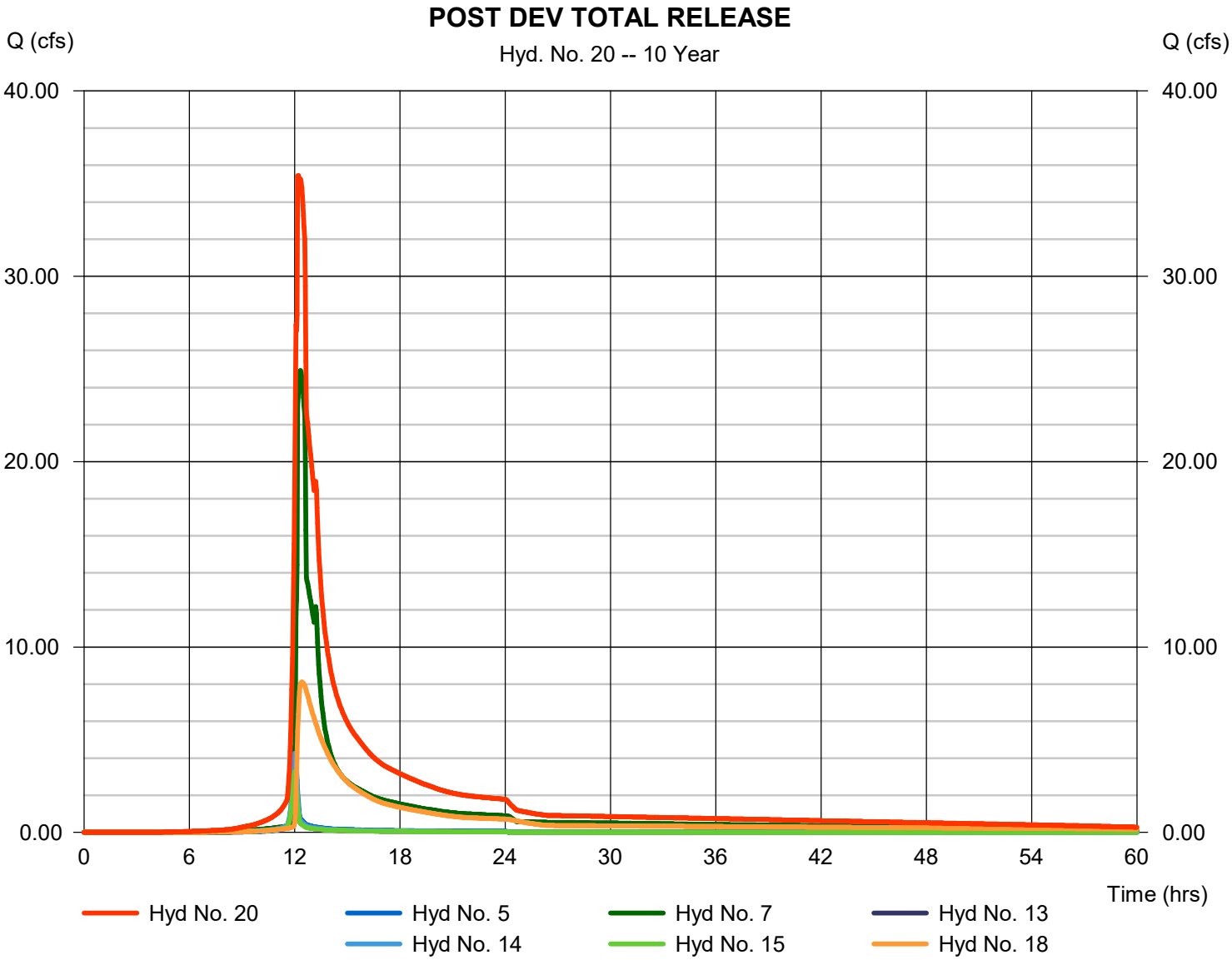


Hydrograph Report

Hyd. No. 20

POST DEV TOTAL RELEASE

Hydrograph type	= Combine	Peak discharge	= 35.44 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 389,718 cuft
Inflow hyds.	= 5, 7, 13, 14, 15, 18	Contrib. drain. area	= 4.160 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	42.56	2	722	119,460	------	------	------	EDA-1
2	SCS Runoff	55.57	2	722	163,442	------	------	------	POST DEV ONSITE UNDETAINED
4	SCS Runoff	3.857	2	720	10,035	------	------	------	OS-1
5	SCS Runoff	5.805	2	720	15,103	------	------	------	OS-2
7	Manual	44.20	2	736	249,924	------	------	------	EX BASIN B
8	Manual	14.53	2	724	42,566	------	------	------	EX BASIN C
10	Combine	52.74	2	734	317,629	4, 5, 7, 8,	------	------	OFFSITE TOTAL
12	SCS Runoff	44.92	2	722	133,408	------	------	------	DA-1
13	SCS Runoff	4.082	2	720	11,131	------	------	------	BYP-1A
14	SCS Runoff	5.115	2	720	13,948	------	------	------	BYP-1B
15	SCS Runoff	3.935	2	720	10,729	------	------	------	BYP-2
17	Combine	61.28	2	724	186,005	4, 8, 12,	------	------	TO BASIN 1
18	Reservoir	14.24	2	738	180,012	17	927.02	87,073	BASIN 1
20	Combine	62.26	2	734	480,846	5, 7, 13, 14, 15, 18,	------	------	POST DEV TOTAL RELEASE

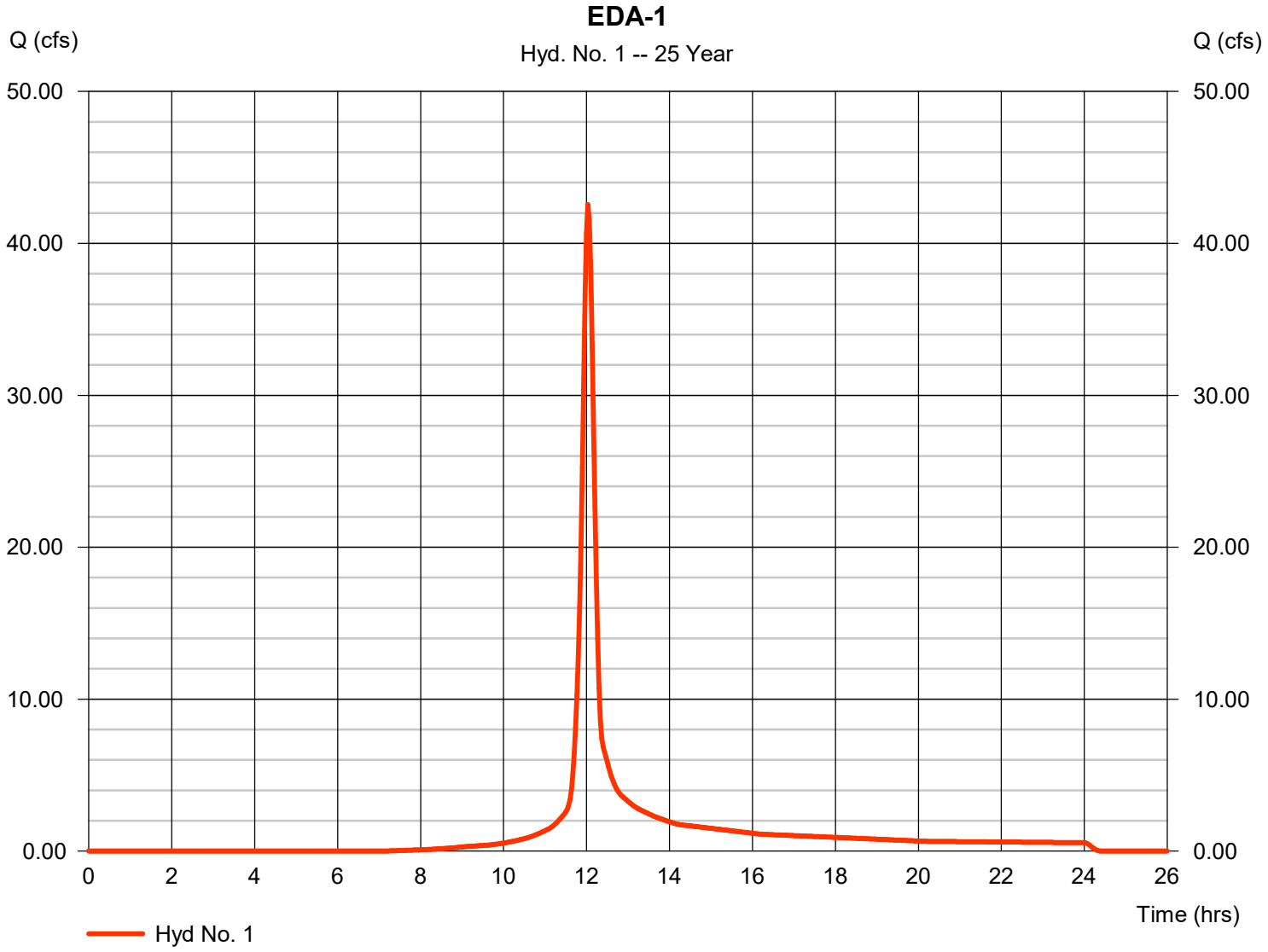
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 1

EDA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 42.56 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 119,460 cuft
Drainage area	= 12.890 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.10 min
Total precip.	= 4.48 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



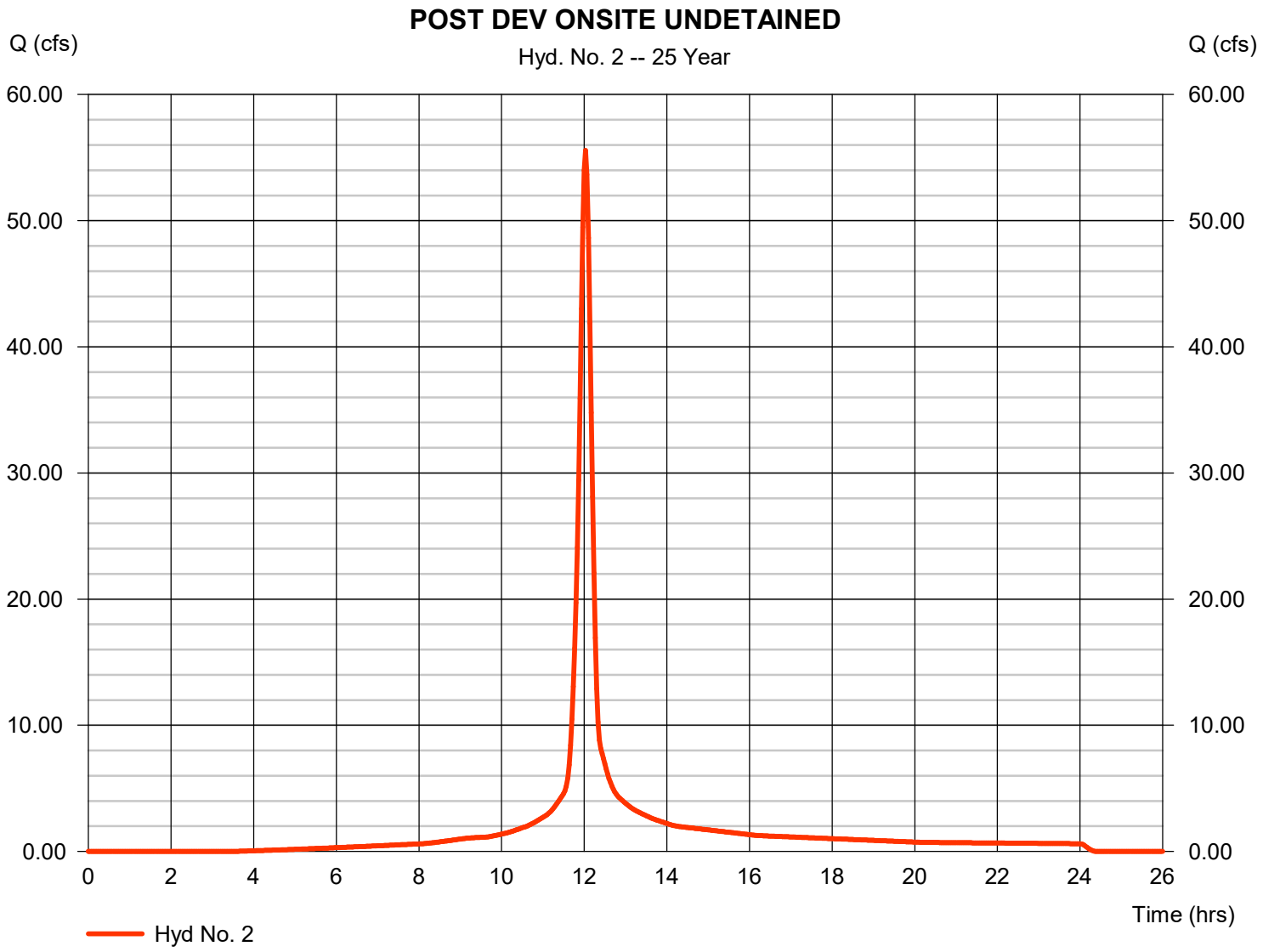
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 2

POST DEV ONSITE UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 55.57 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 163,442 cuft
Drainage area	= 12.890 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 4.48 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



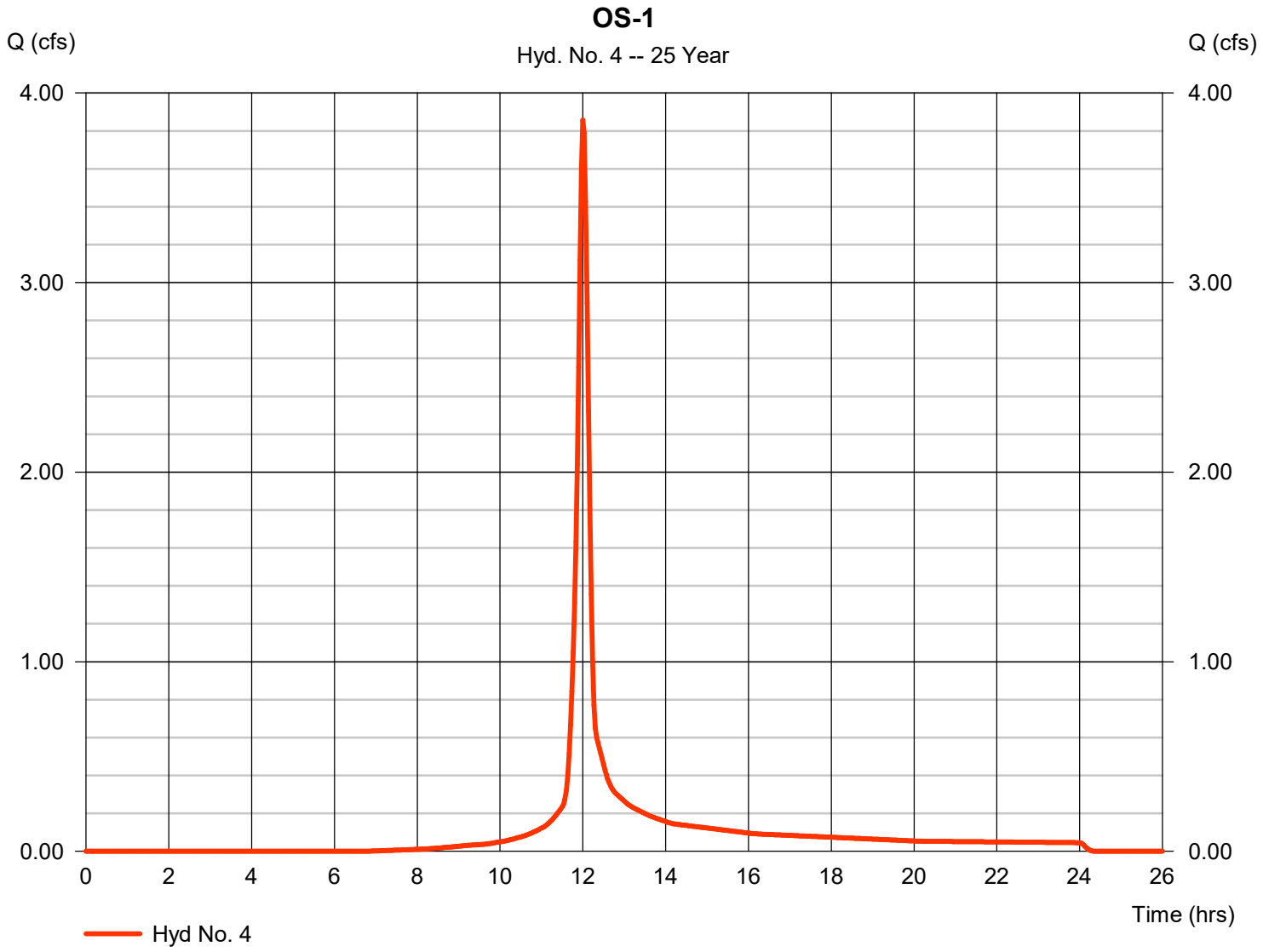
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 4

OS-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.857 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	10,035 cuft
Drainage area	=	0.990 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



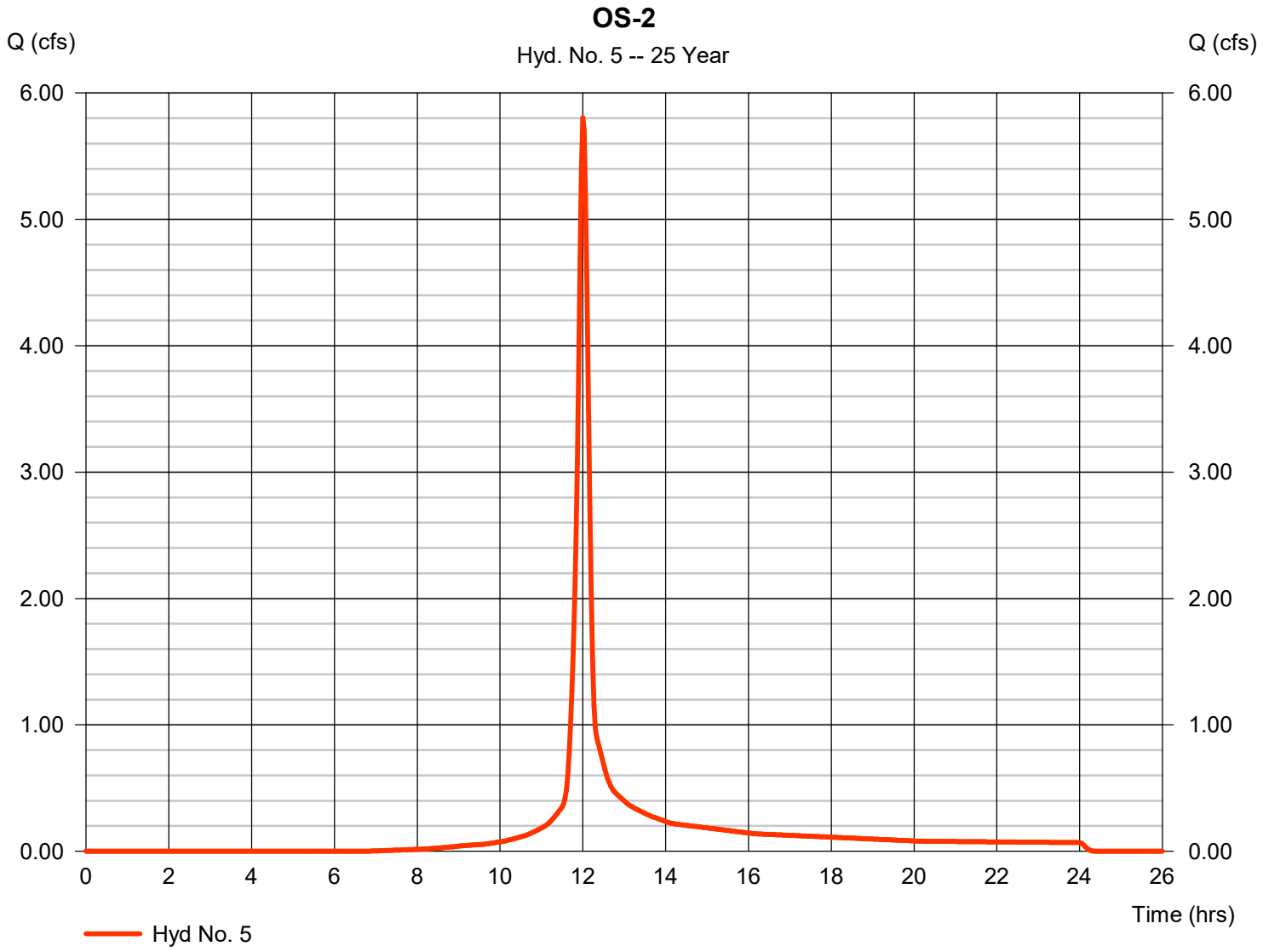
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 5

OS-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.805 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	15,103 cuft
Drainage area	=	1.490 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



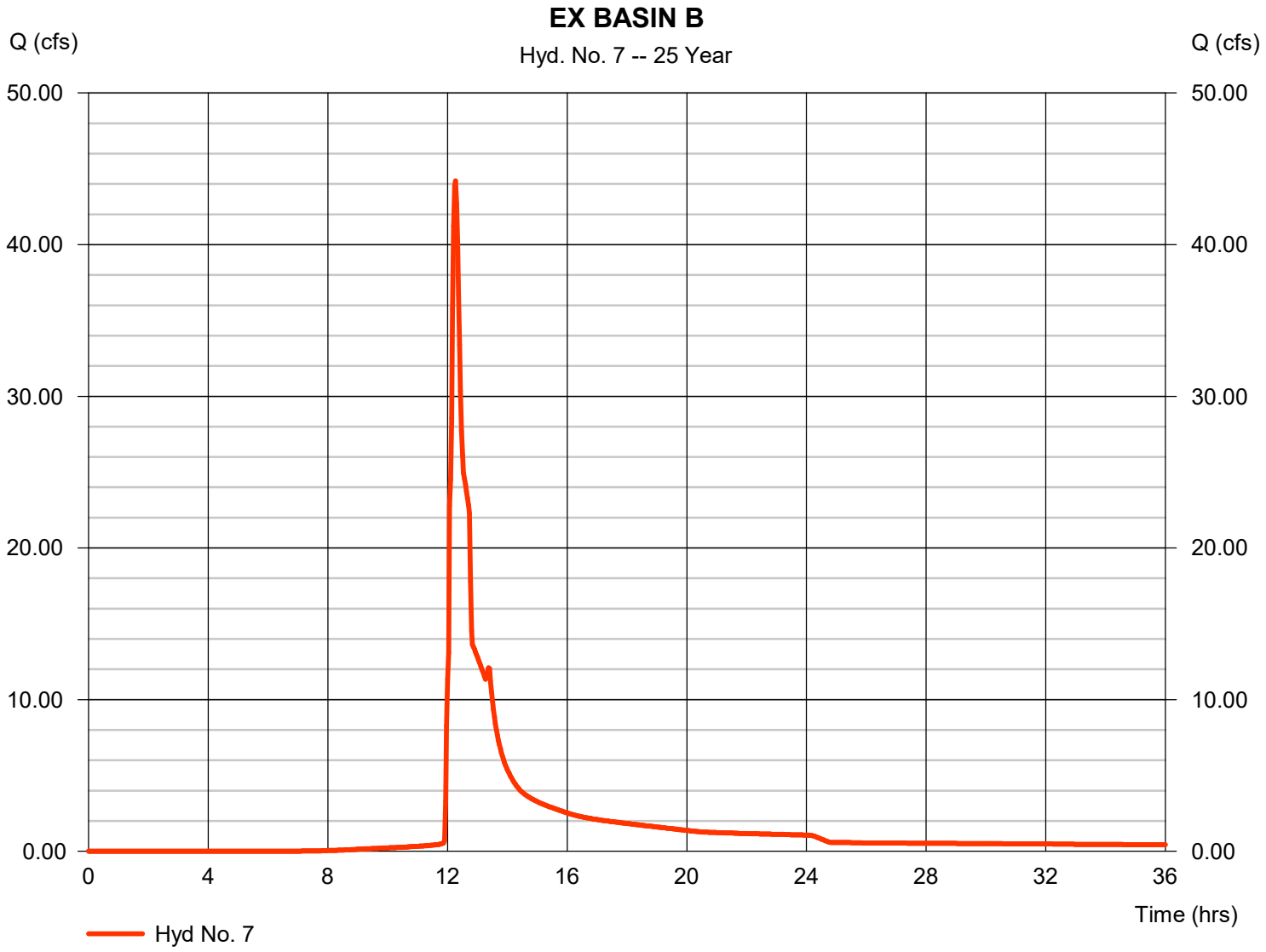
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 7

EX BASIN B

Hydrograph type	= Manual	Peak discharge	= 44.20 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.27 hrs
Time interval	= 2 min	Hyd. volume	= 249,924 cuft



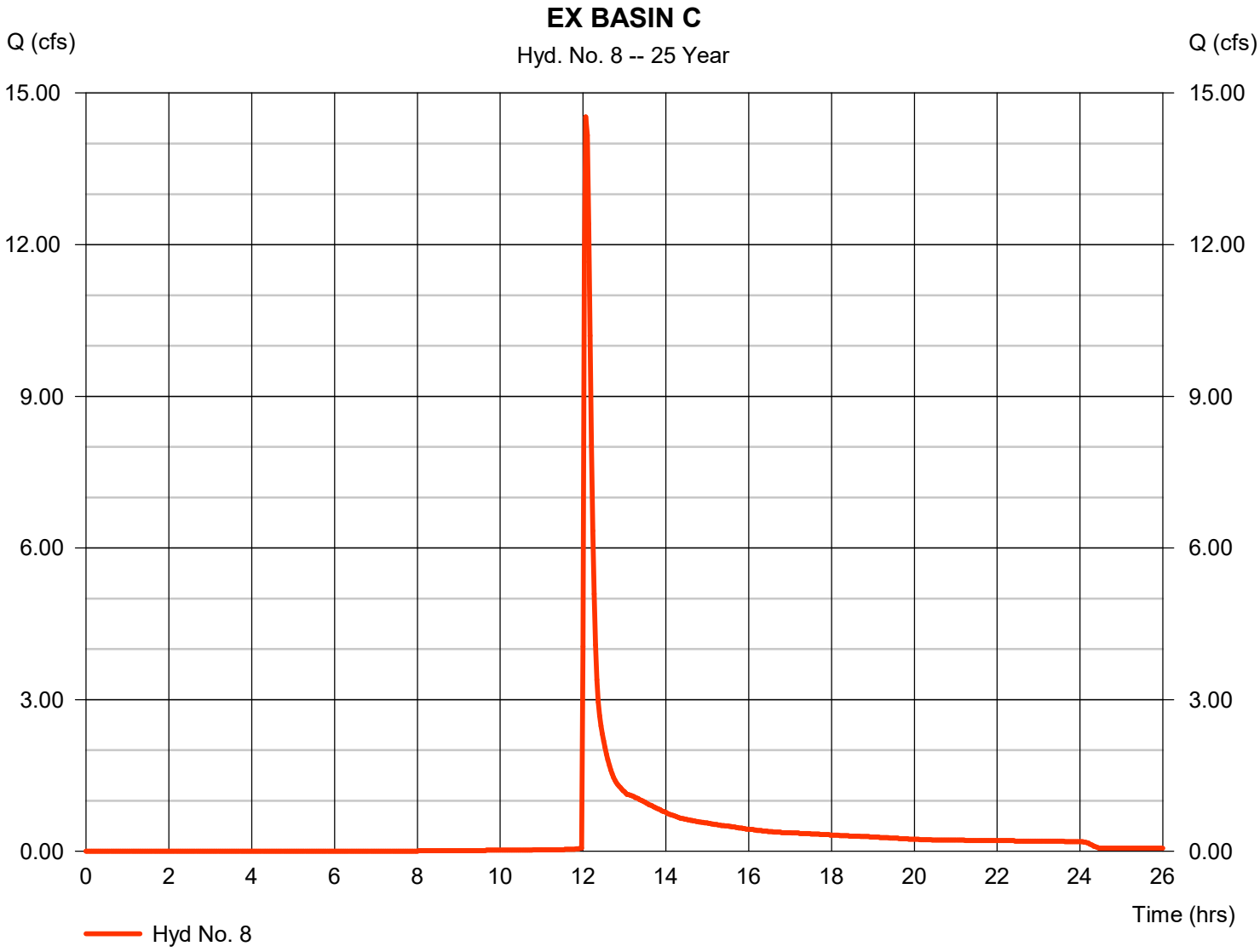
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 8

EX BASIN C

Hydrograph type	= Manual	Peak discharge	= 14.53 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 42,566 cuft



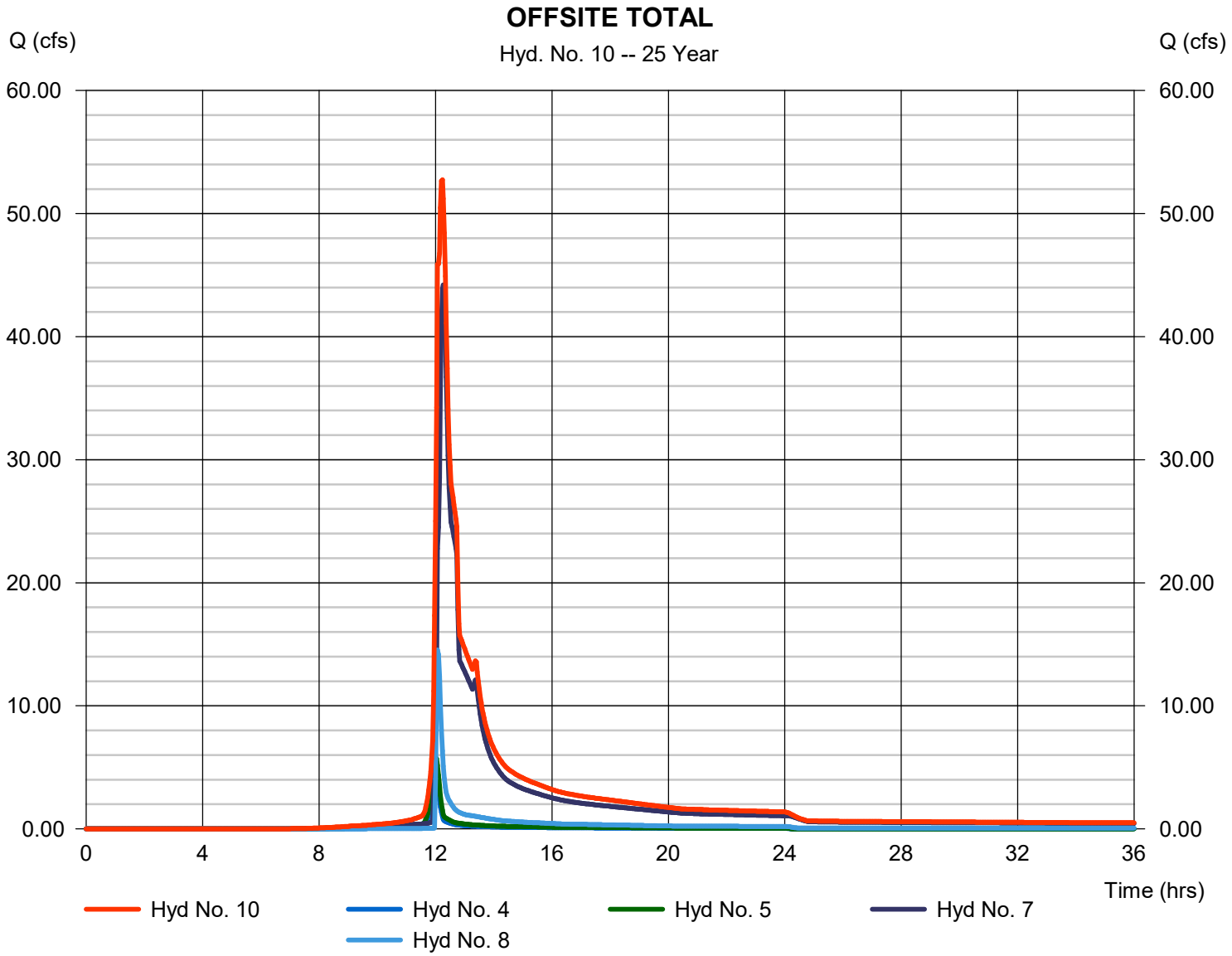
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 10

OFFSITE TOTAL

Hydrograph type	= Combine	Peak discharge	= 52.74 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 317,629 cuft
Inflow hyds.	= 4, 5, 7, 8	Contrib. drain. area	= 2.480 ac



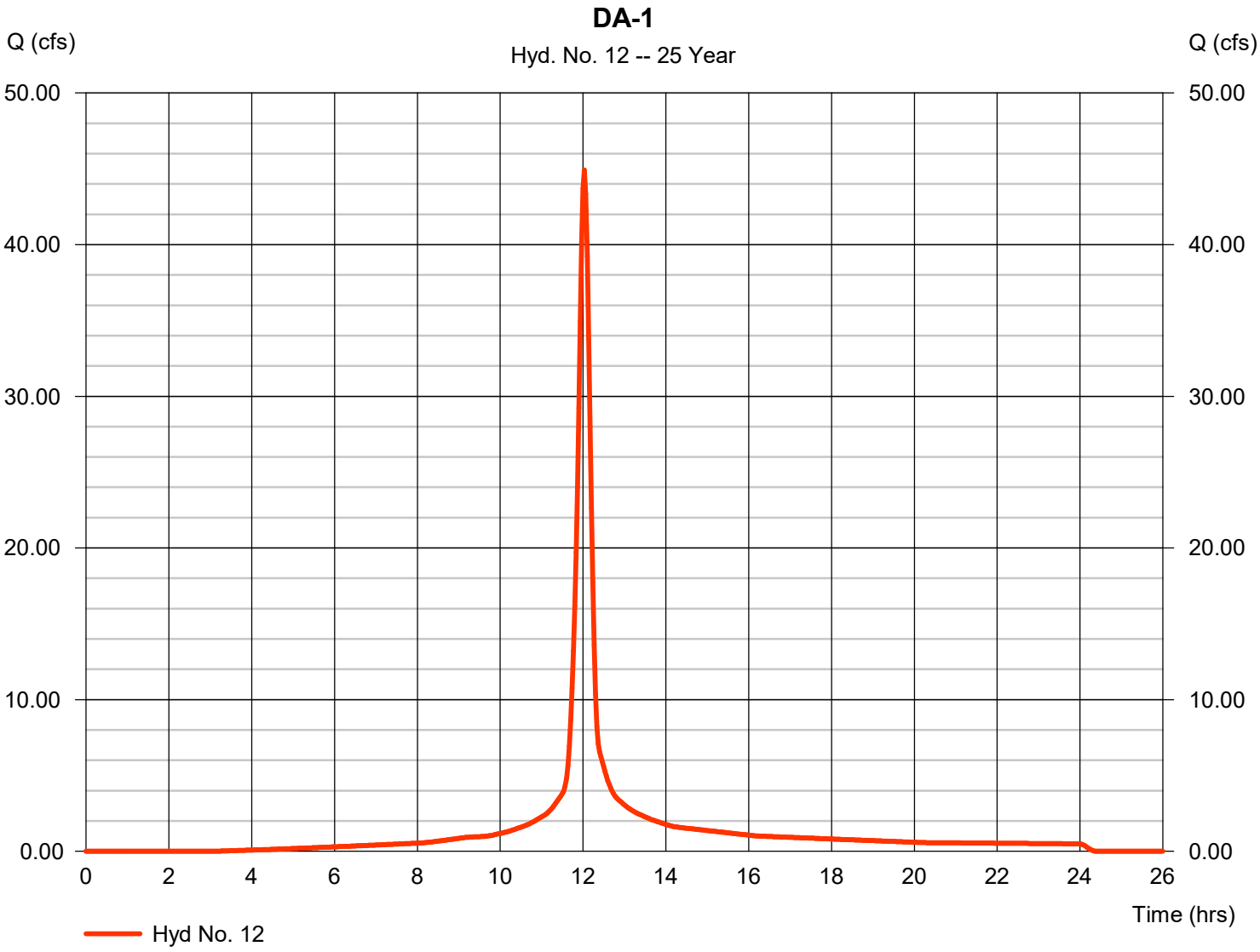
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 12

DA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	44.92 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	133,408 cuft
Drainage area	=	10.220 ac	Curve number	=	93
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.30 min
Total precip.	=	4.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



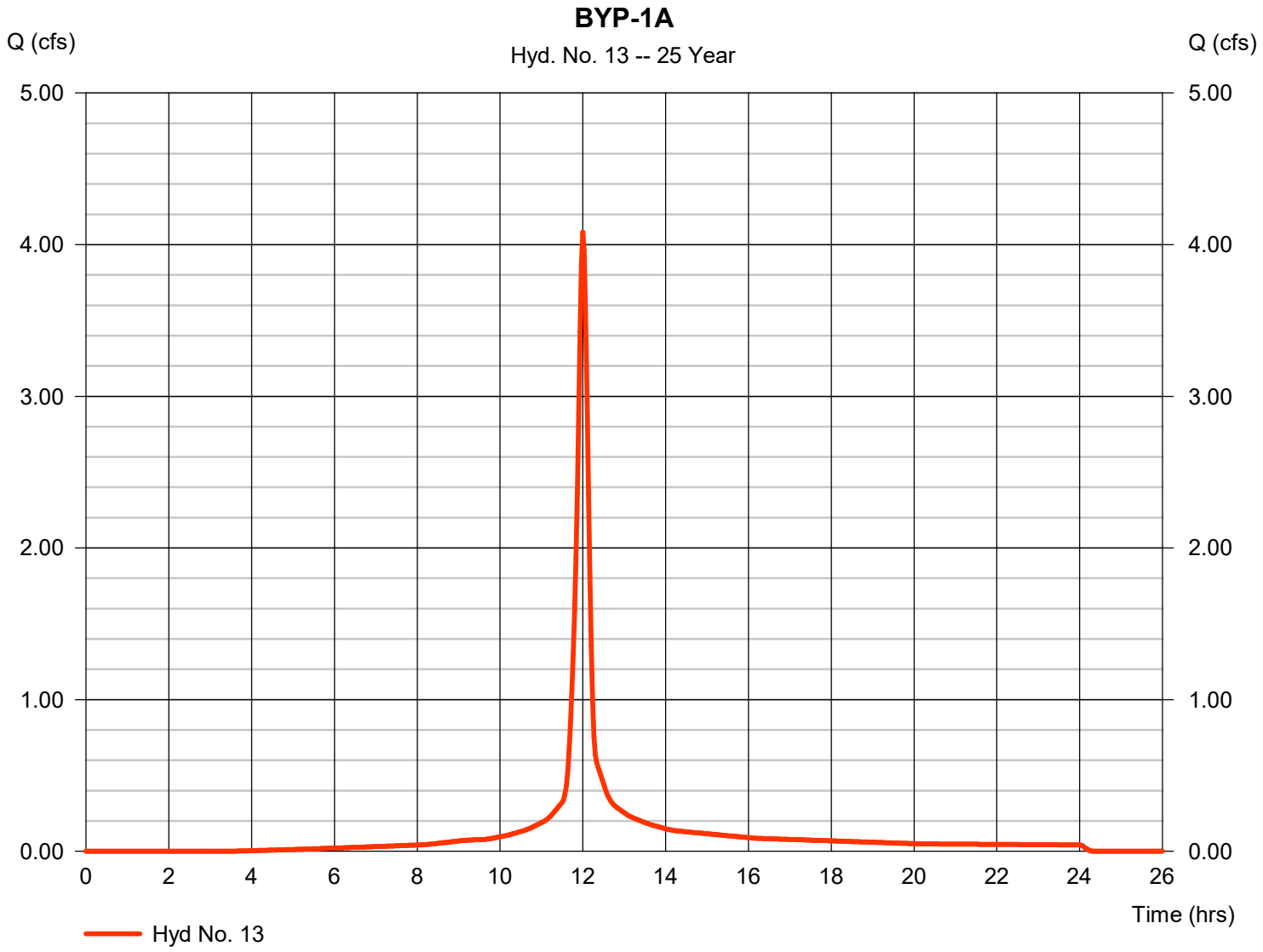
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 13

BYP-1A

Hydrograph type	= SCS Runoff	Peak discharge	= 4.082 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 11,131 cuft
Drainage area	= 0.830 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 4.48 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



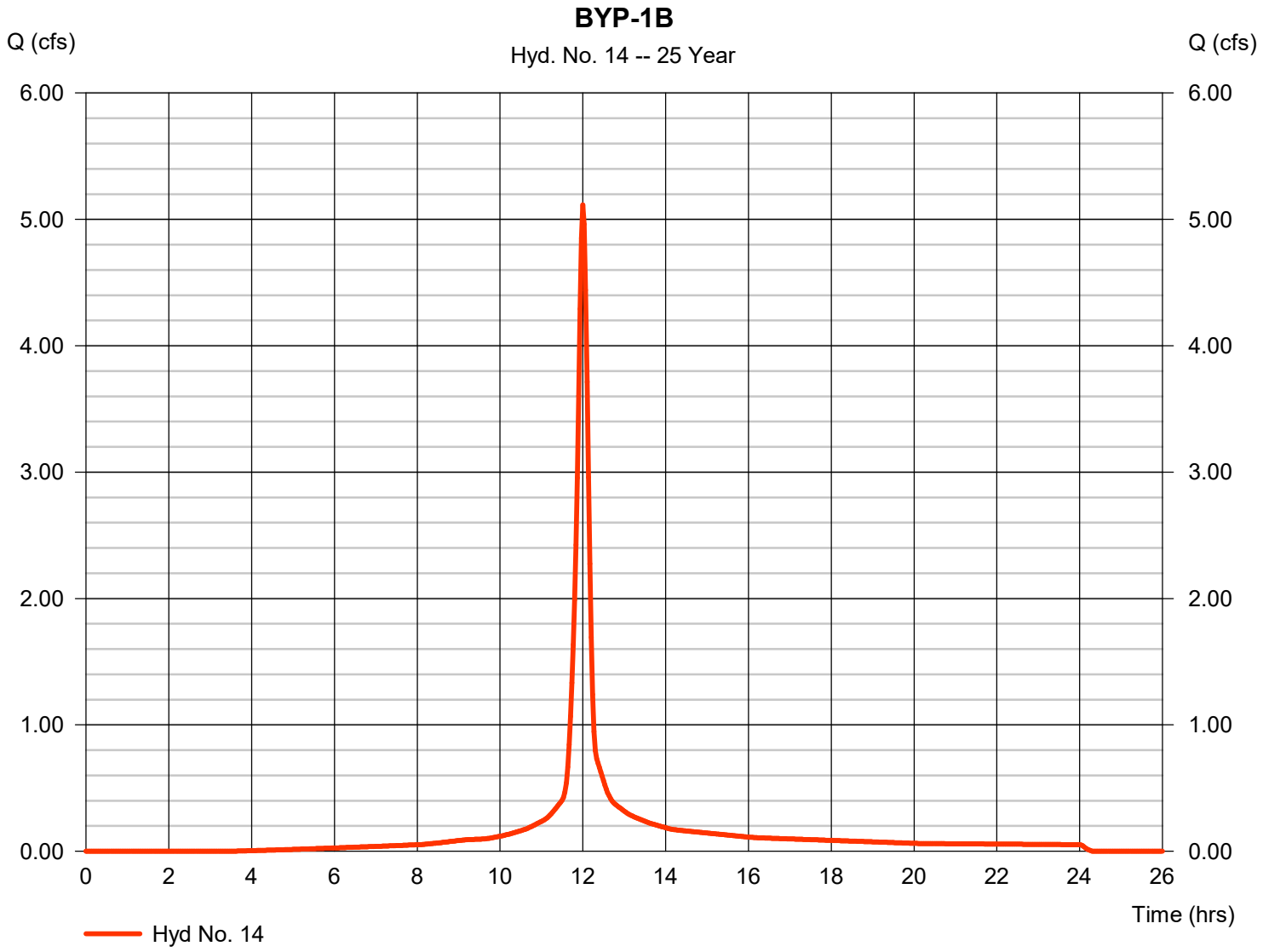
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 14

BYP-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.115 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	13,948 cuft
Drainage area	=	1.040 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



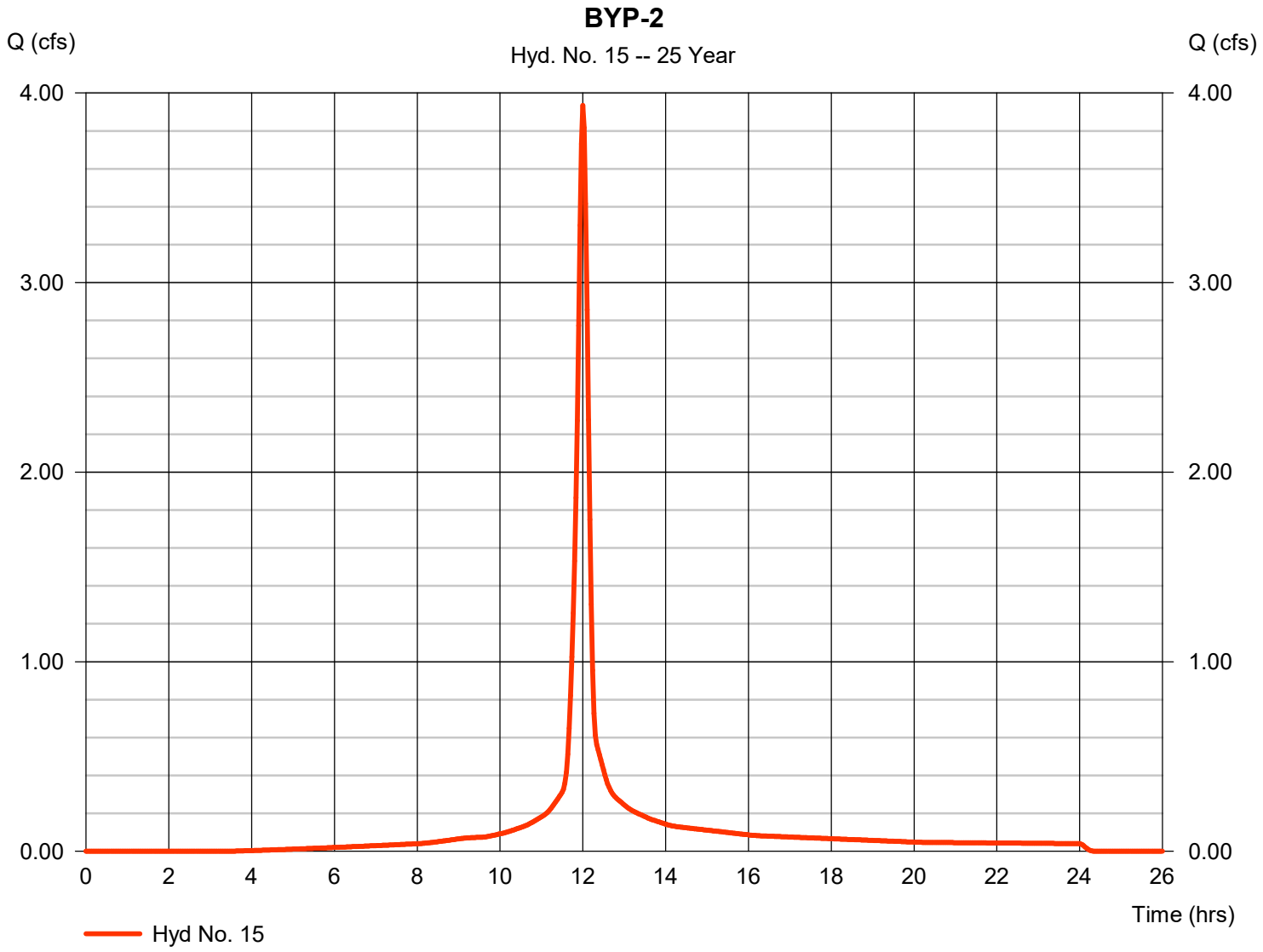
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 15

BYP-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.935 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	10,729 cuft
Drainage area	=	0.800 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.48 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



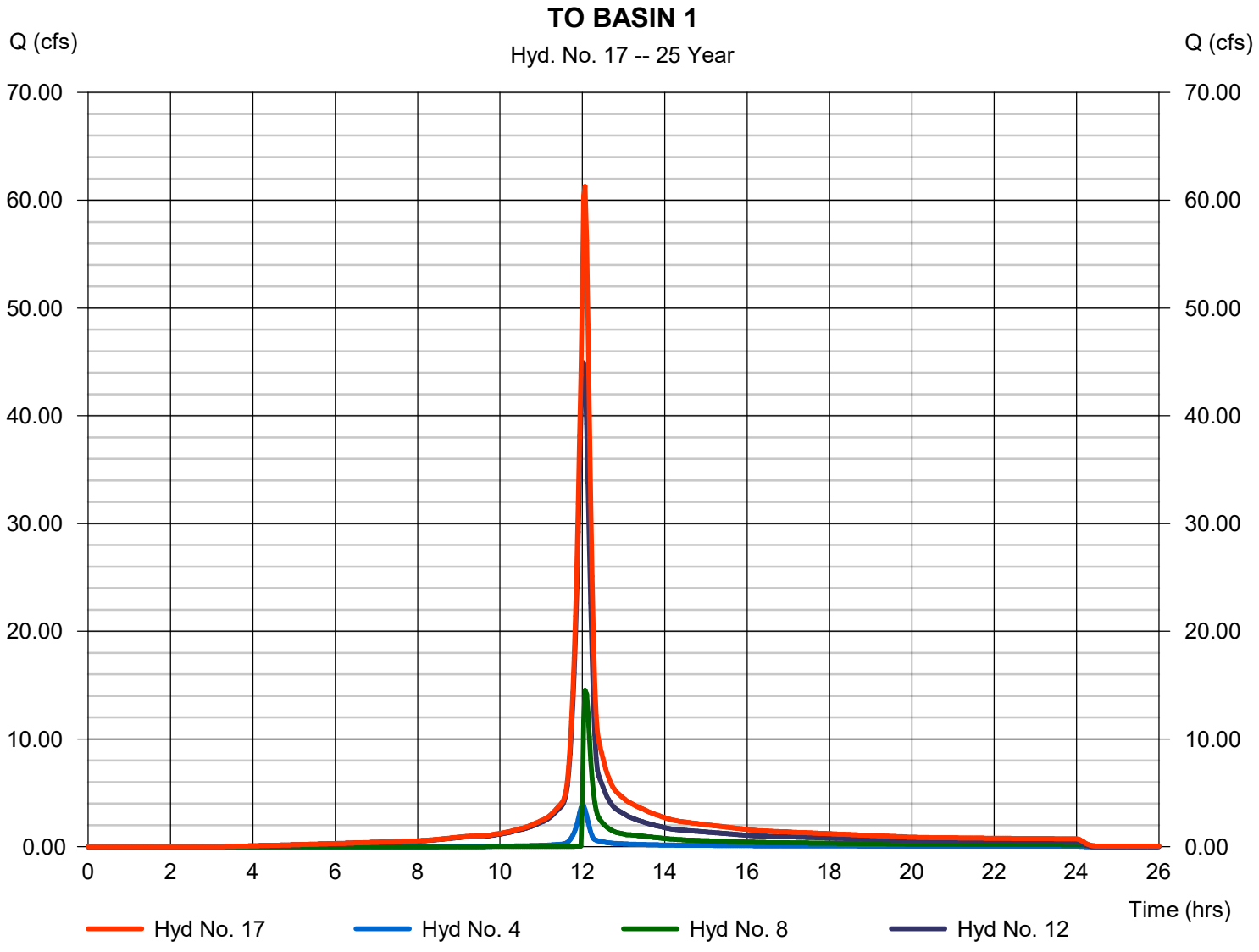
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 17

TO BASIN 1

Hydrograph type	=	Combine	Peak discharge	=	61.28 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	186,005 cuft
Inflow hyds.	=	4, 8, 12	Contrib. drain. area	=	11.210 ac



Hydrograph Report

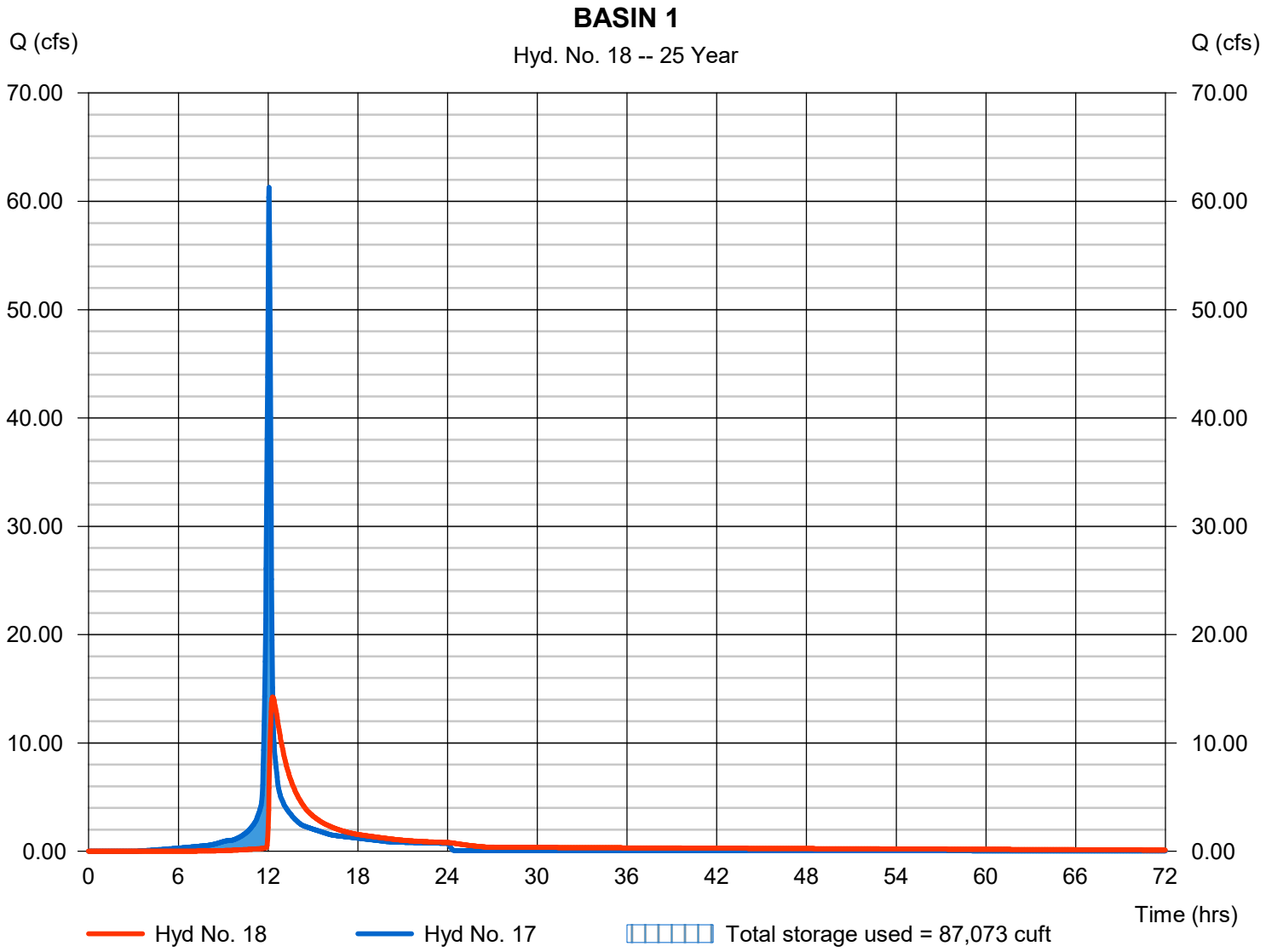
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 18

BASIN 1

Hydrograph type	=	Reservoir	Peak discharge	=	14.24 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.30 hrs
Time interval	=	2 min	Hyd. volume	=	180,012 cuft
Inflow hyd. No.	=	17 - TO BASIN 1	Max. Elevation	=	927.02 ft
Reservoir name	=	Basin 1	Max. Storage	=	87,073 cuft

Storage Indication method used.



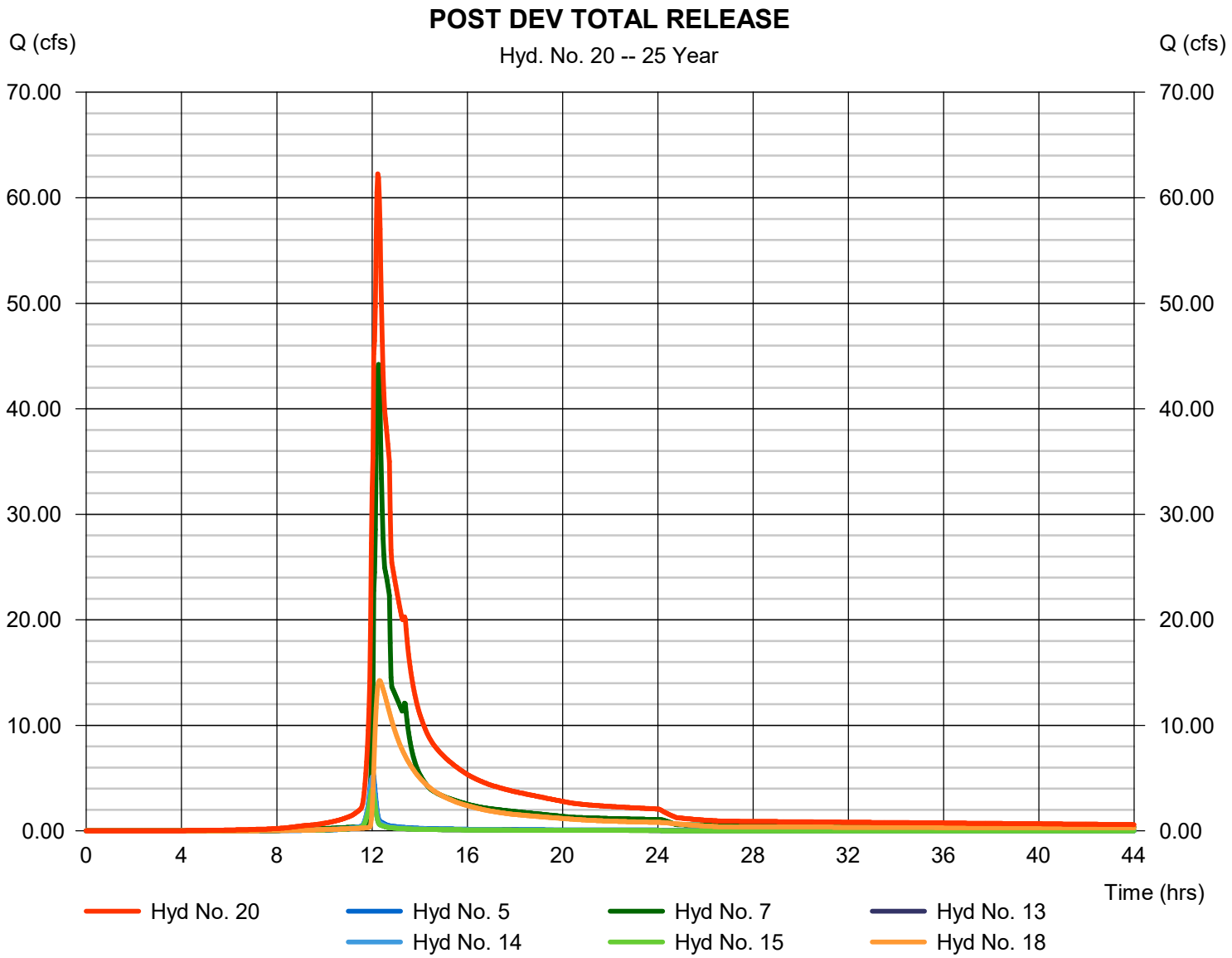
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 20

POST DEV TOTAL RELEASE

Hydrograph type	= Combine	Peak discharge	= 62.26 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.23 hrs
Time interval	= 2 min	Hyd. volume	= 480,846 cuft
Inflow hyds.	= 5, 7, 13, 14, 15, 18	Contrib. drain. area	= 4.160 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	50.06	2	722	140,878	------	------	------	EDA-1
2	SCS Runoff	63.10	2	722	187,002	------	------	------	POST DEV ONSITE UNDETAINED
4	SCS Runoff	4.517	2	720	11,797	------	------	------	OS-1
5	SCS Runoff	6.799	2	720	17,755	------	------	------	OS-2
7	Manual	61.84	2	732	289,448	------	------	------	EX BASIN B
8	Manual	18.55	2	722	49,897	------	------	------	EX BASIN C
10	Combine	75.61	2	730	368,901	4, 5, 7, 8,	------	------	OFFSITE TOTAL
12	SCS Runoff	50.86	2	722	152,198	------	------	------	DA-1
13	SCS Runoff	4.635	2	720	12,736	------	------	------	BYP-1A
14	SCS Runoff	5.807	2	720	15,958	------	------	------	BYP-1B
15	SCS Runoff	4.467	2	720	12,276	------	------	------	BYP-2
17	Combine	73.84	2	722	213,887	4, 8, 12,	------	------	TO BASIN 1
18	Reservoir	18.49	2	738	207,882	17	927.26	99,557	BASIN 1
20	Combine	86.80	2	732	556,057	5, 7, 13, 14, 15, 18,	------	------	POST DEV TOTAL RELEASE

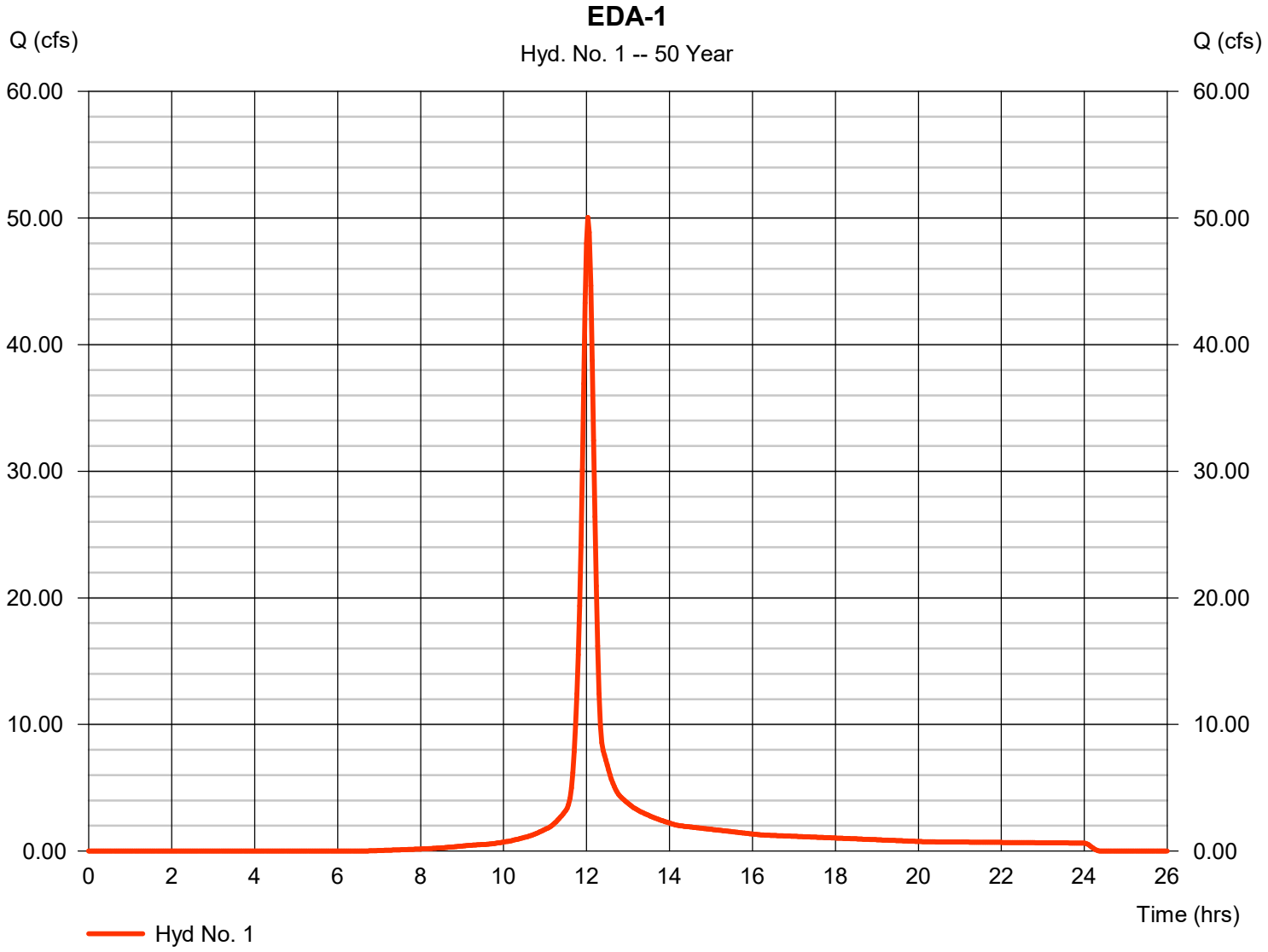
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 1

EDA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	50.06 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	140,878 cuft
Drainage area	=	12.890 ac	Curve number	=	82
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	14.10 min
Total precip.	=	5.01 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



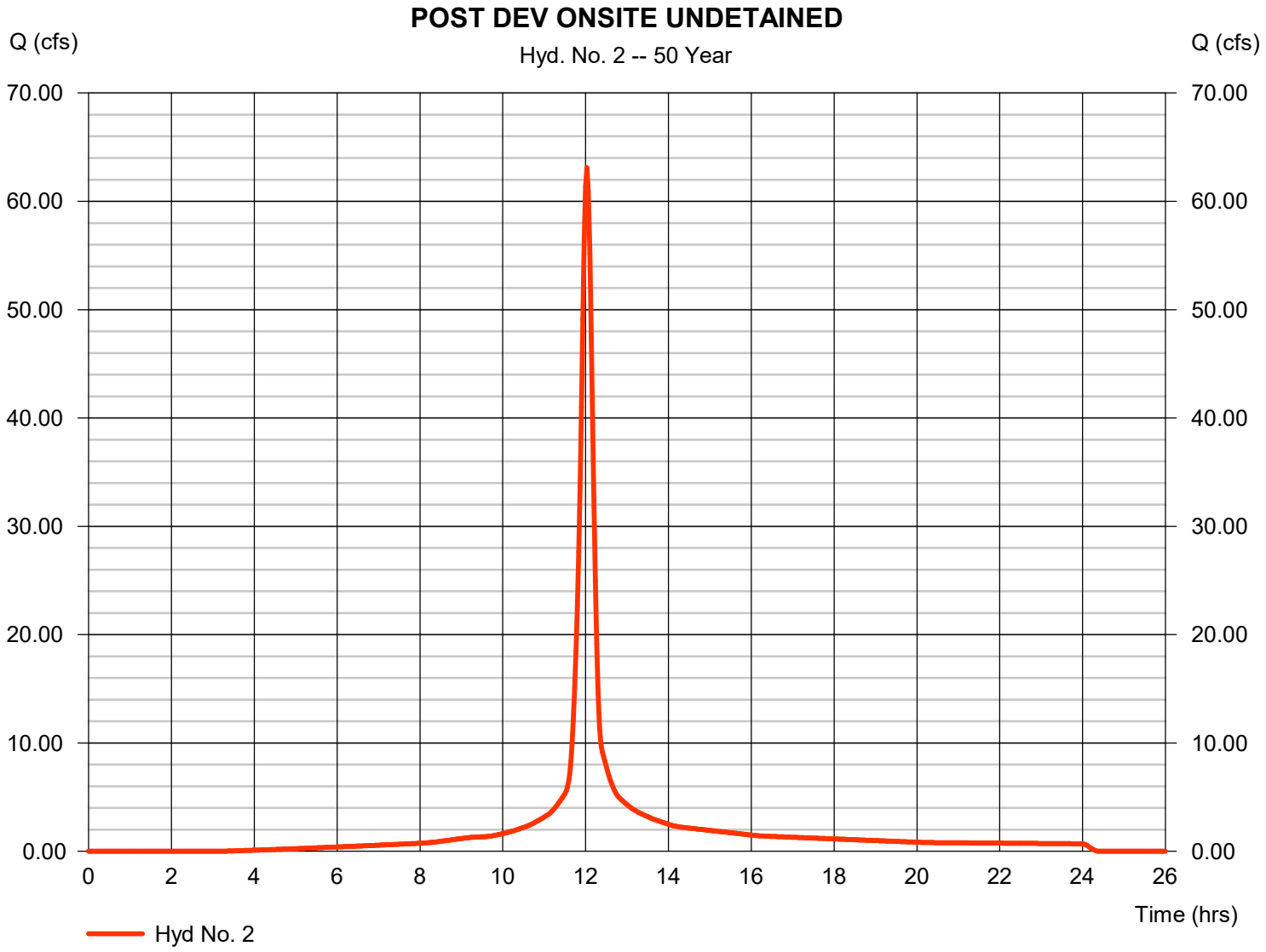
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 2

POST DEV ONSITE UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 63.10 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 187,002 cuft
Drainage area	= 12.890 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 5.01 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



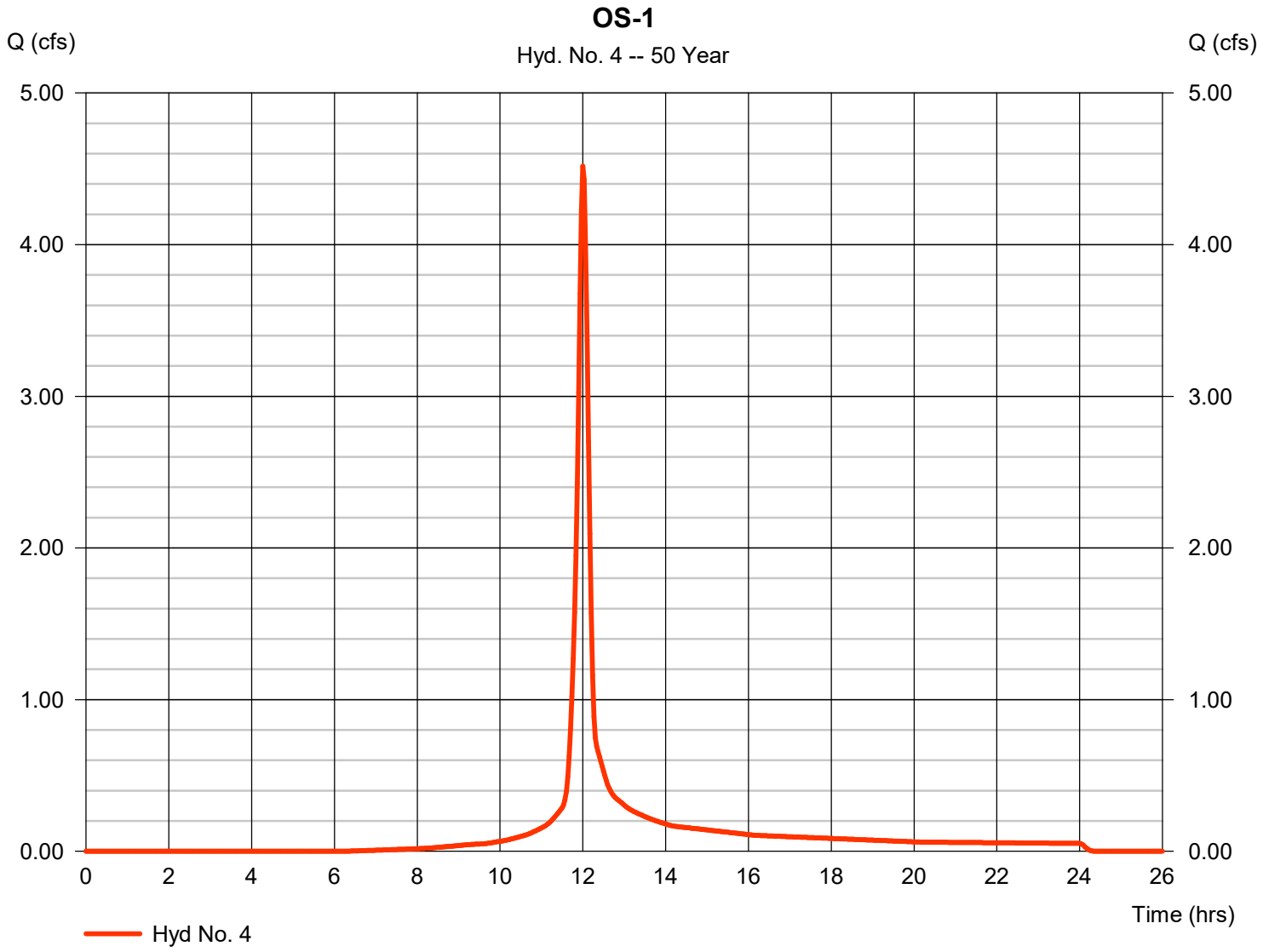
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 4

OS-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.517 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	11,797 cuft
Drainage area	=	0.990 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.01 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



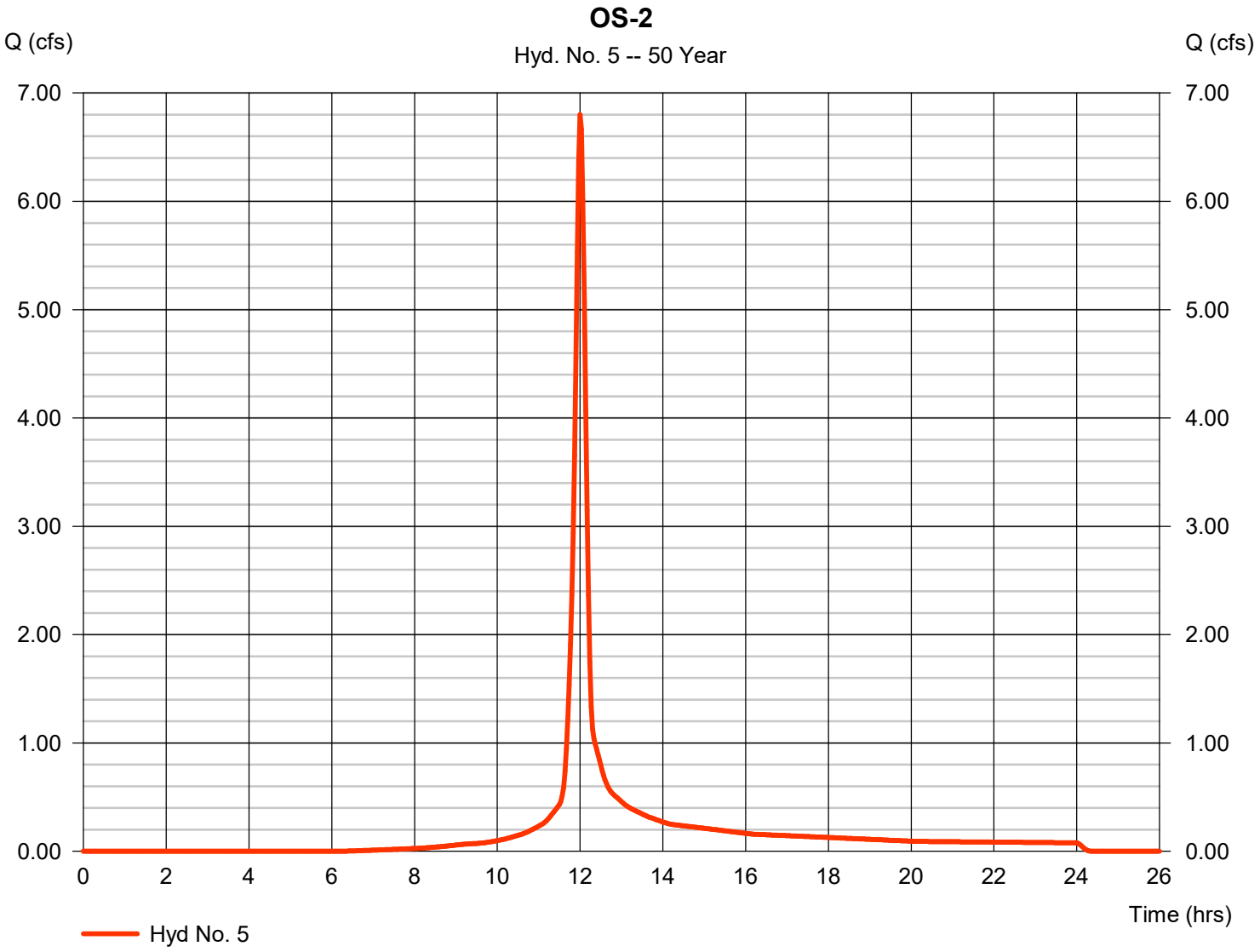
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 5

OS-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.799 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	17,755 cuft
Drainage area	=	1.490 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.01 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



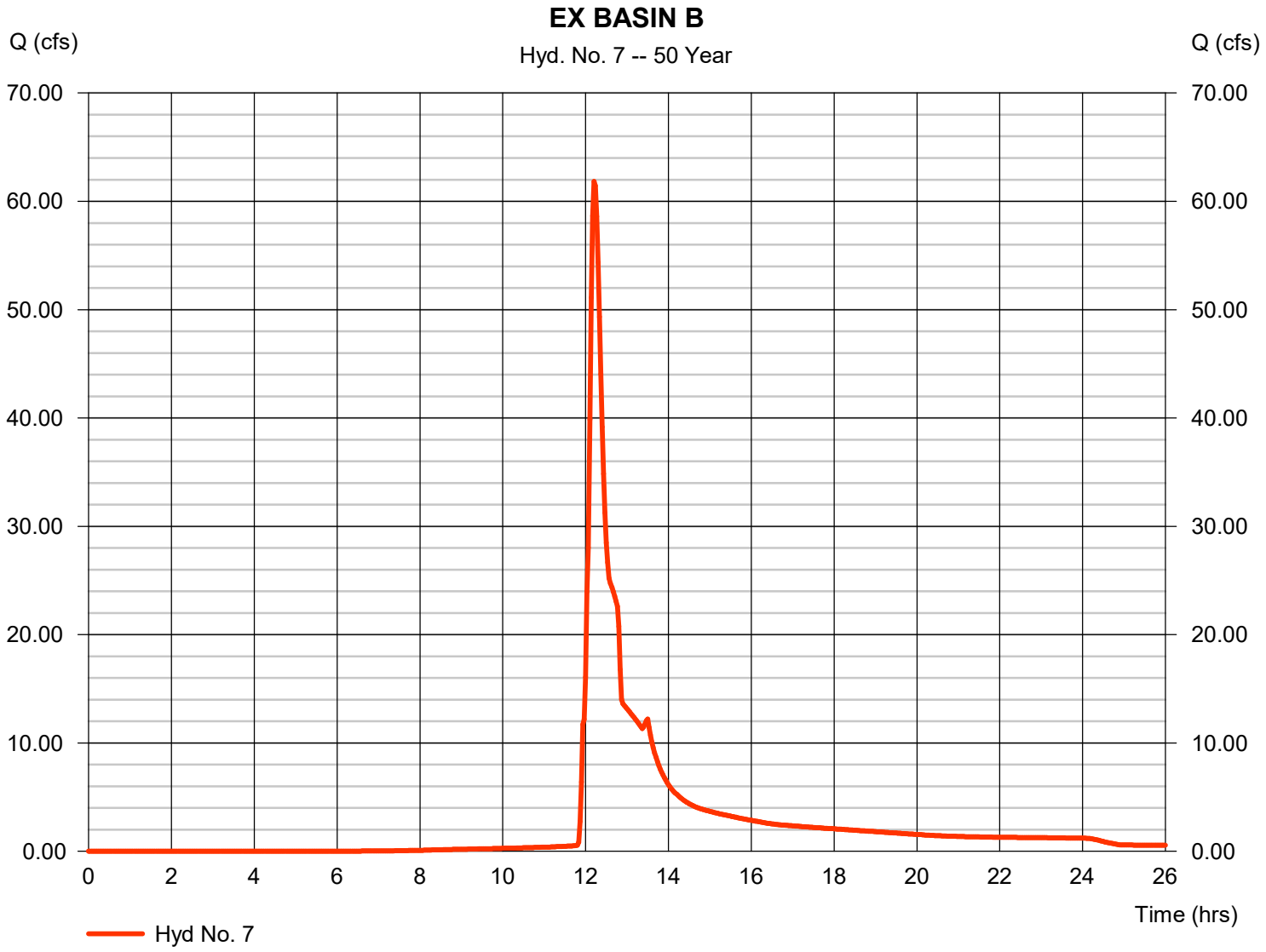
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 7

EX BASIN B

Hydrograph type	= Manual	Peak discharge	= 61.84 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 289,448 cuft



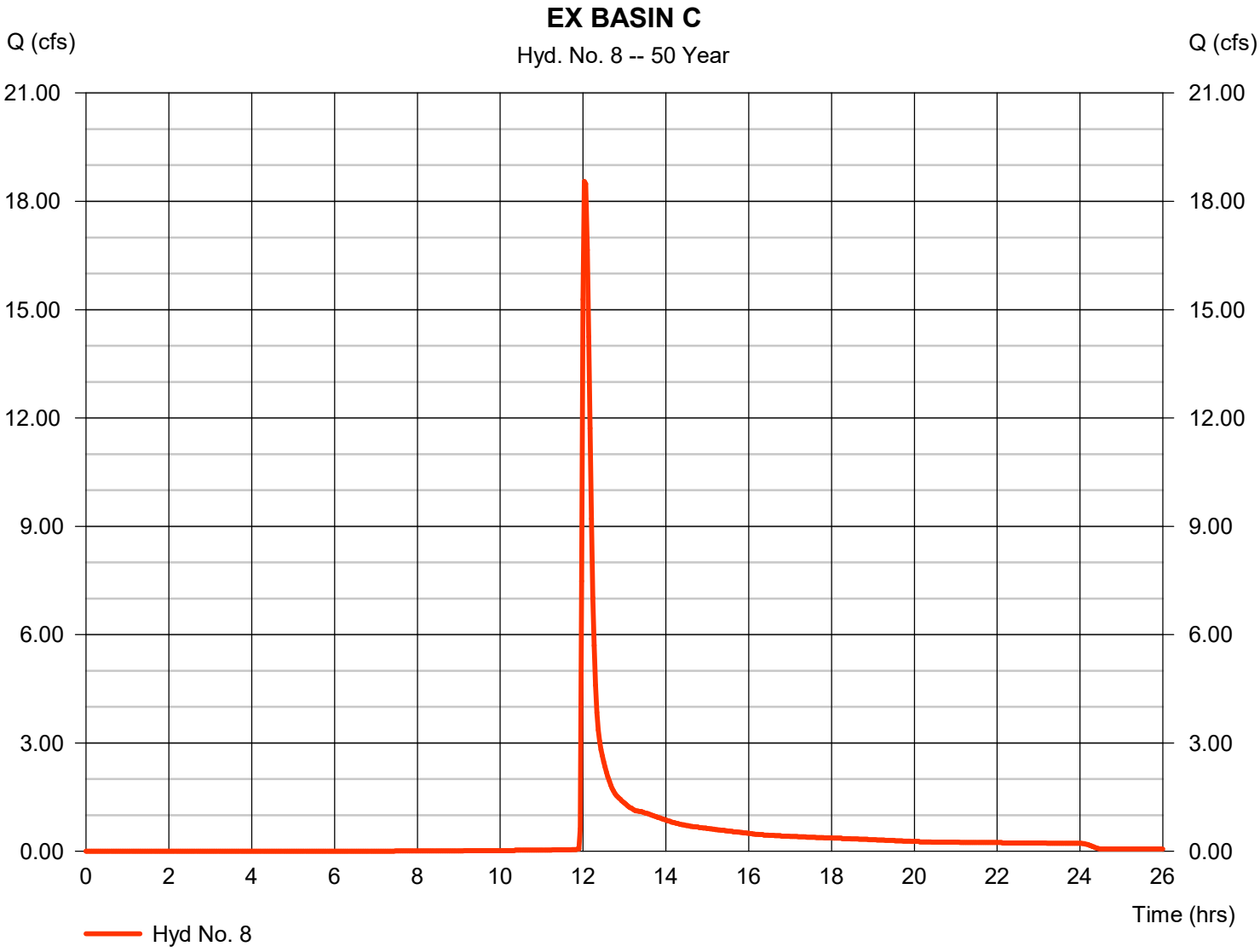
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 8

EX BASIN C

Hydrograph type	= Manual	Peak discharge	= 18.55 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 49,897 cuft



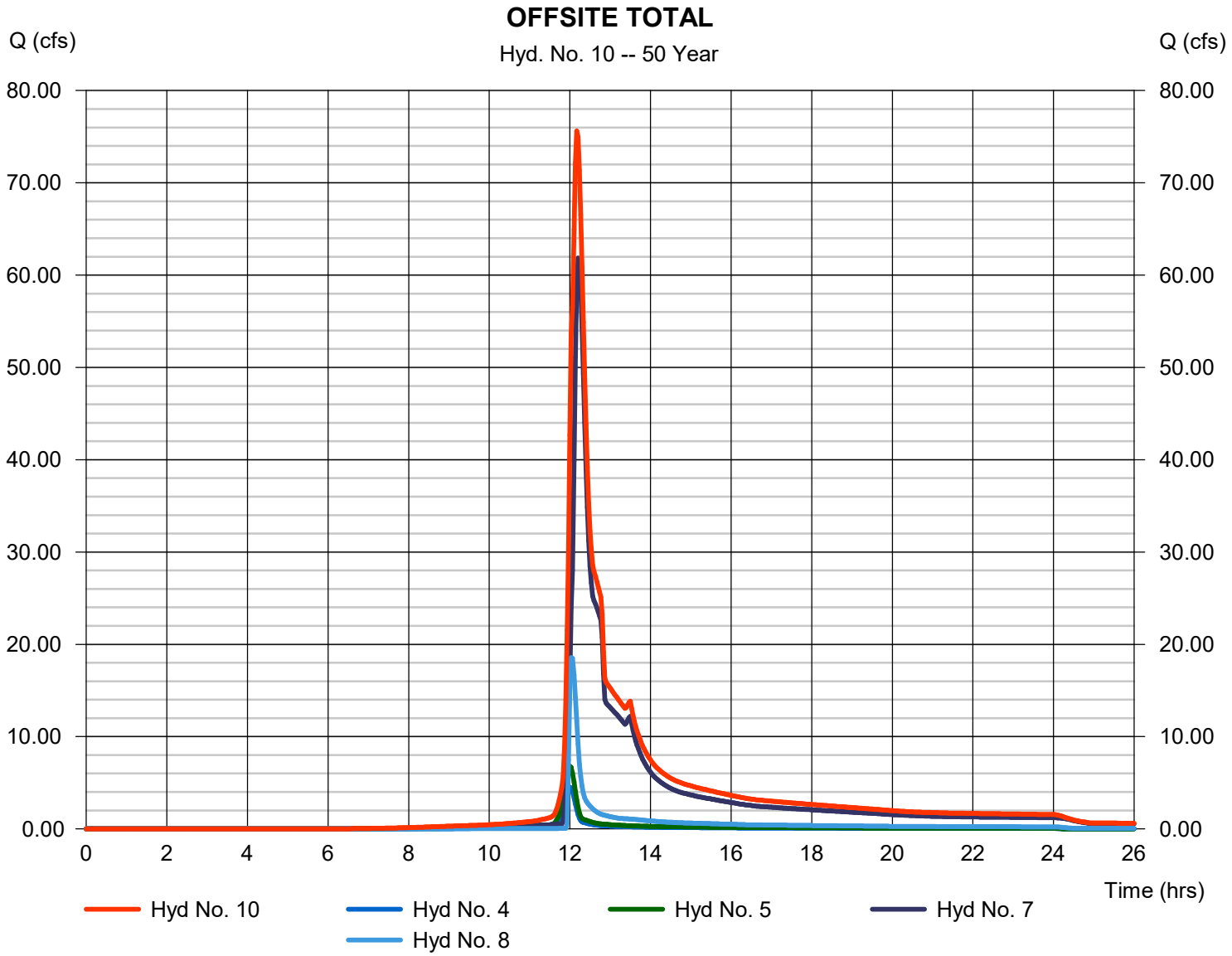
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 10

OFFSITE TOTAL

Hydrograph type	= Combine	Peak discharge	= 75.61 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 368,901 cuft
Inflow hyds.	= 4, 5, 7, 8	Contrib. drain. area	= 2.480 ac



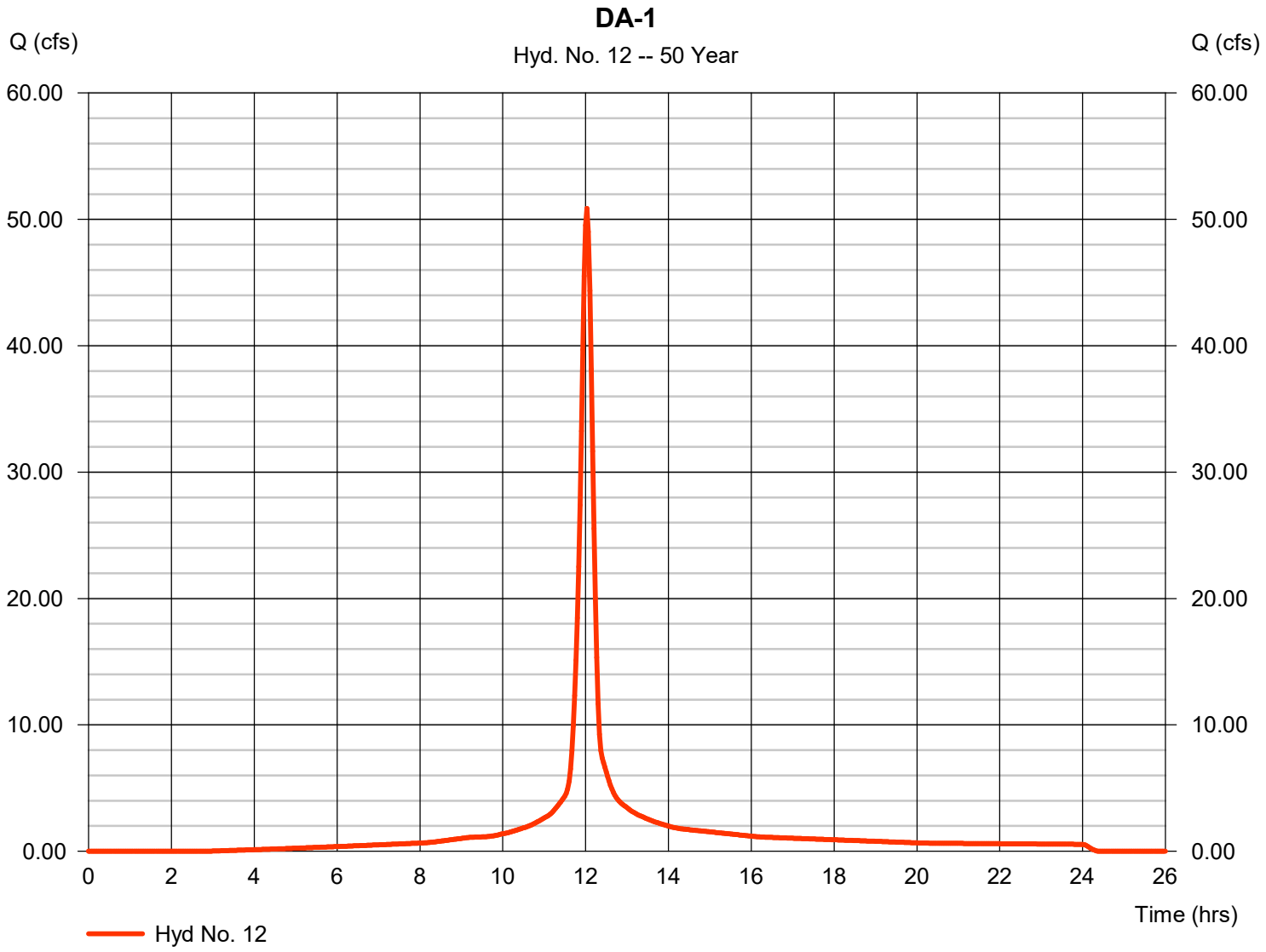
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 12

DA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	50.86 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	152,198 cuft
Drainage area	=	10.220 ac	Curve number	=	93
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.30 min
Total precip.	=	5.01 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



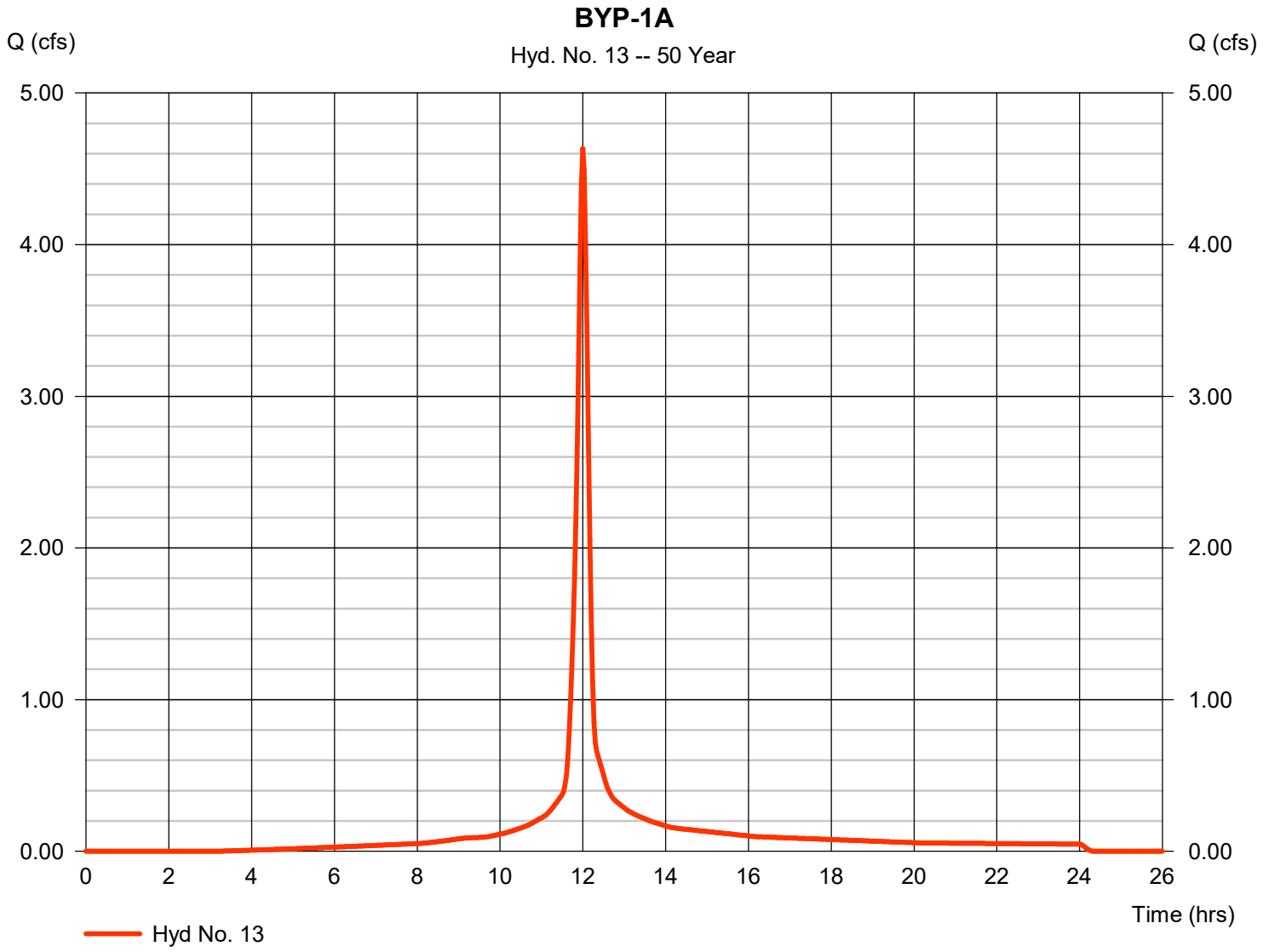
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 13

BYP-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.635 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	12,736 cuft
Drainage area	=	0.830 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.01 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



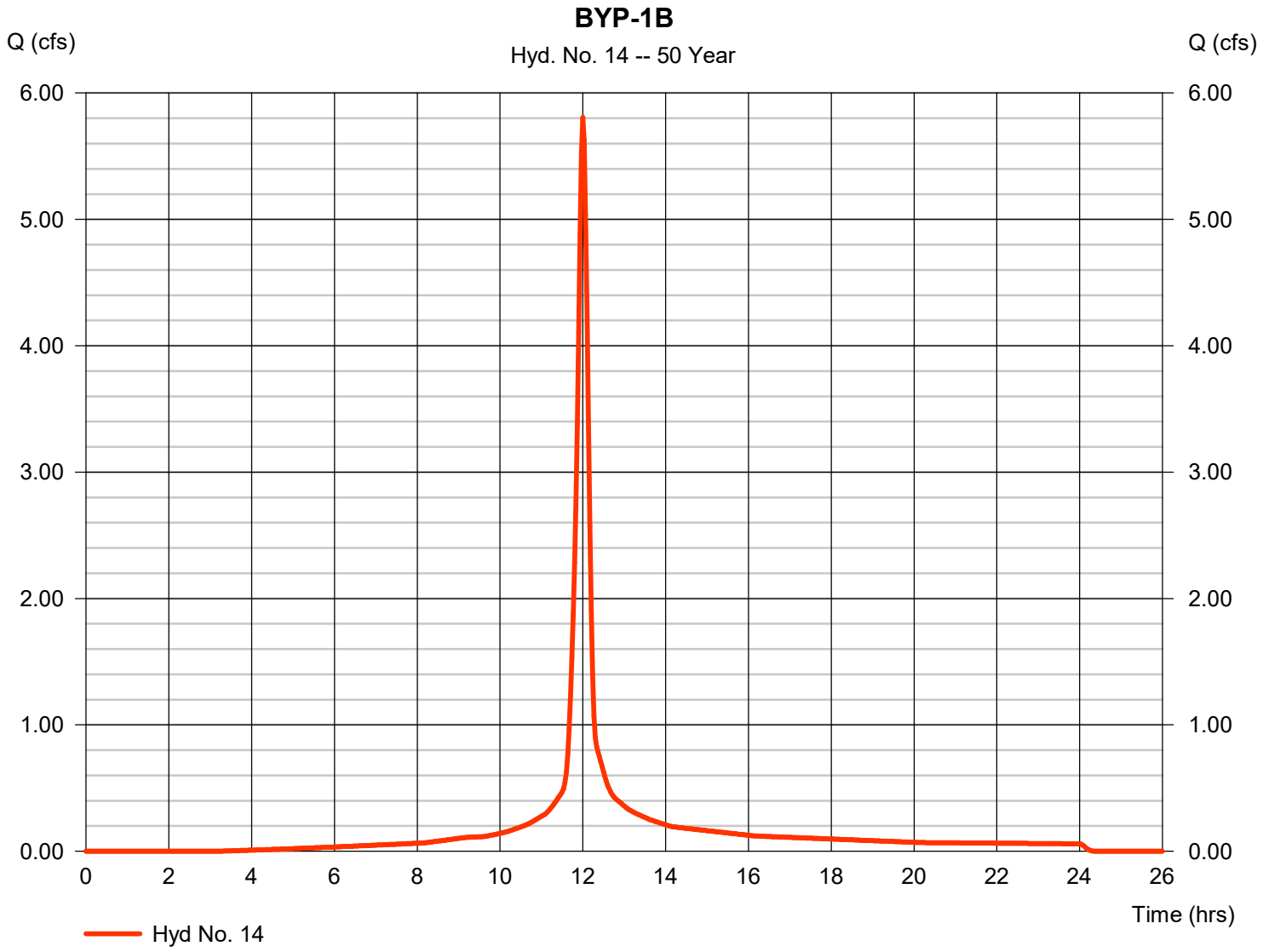
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 14

BYP-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.807 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	15,958 cuft
Drainage area	=	1.040 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.01 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



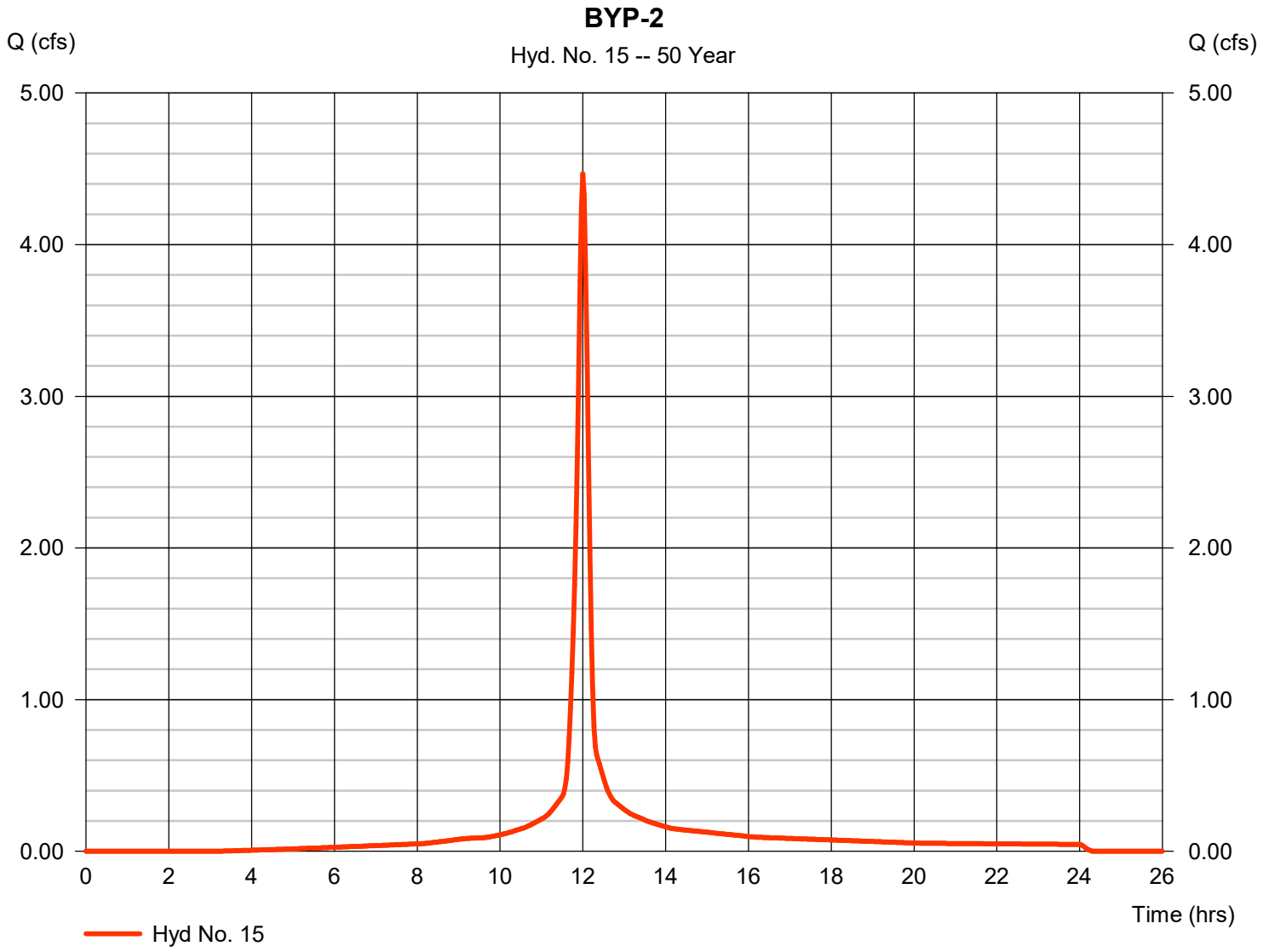
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 15

BYP-2

Hydrograph type	= SCS Runoff	Peak discharge	= 4.467 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 12,276 cuft
Drainage area	= 0.800 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.01 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



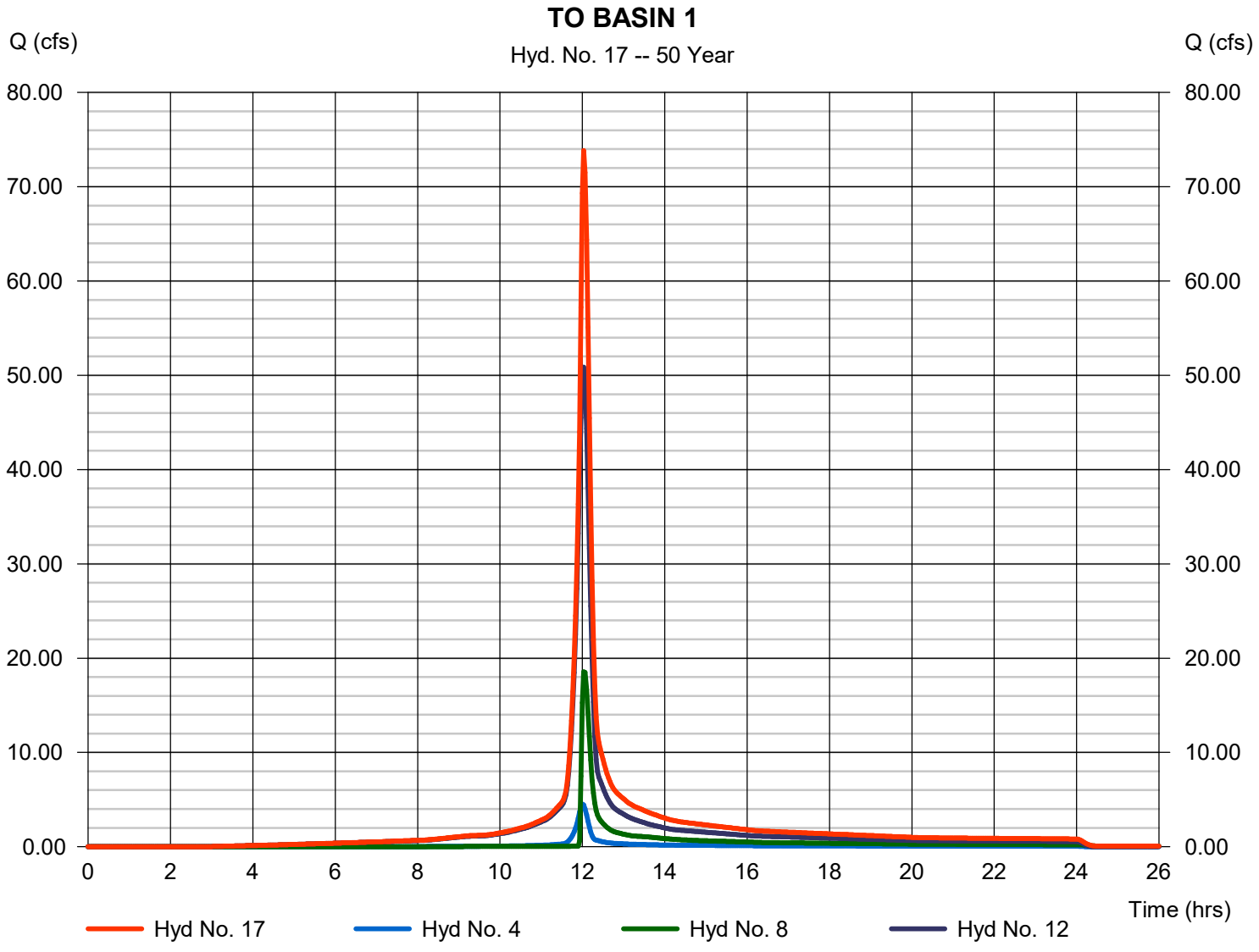
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 17

TO BASIN 1

Hydrograph type	= Combine	Peak discharge	= 73.84 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 213,887 cuft
Inflow hyds.	= 4, 8, 12	Contrib. drain. area	= 11.210 ac



Hydrograph Report

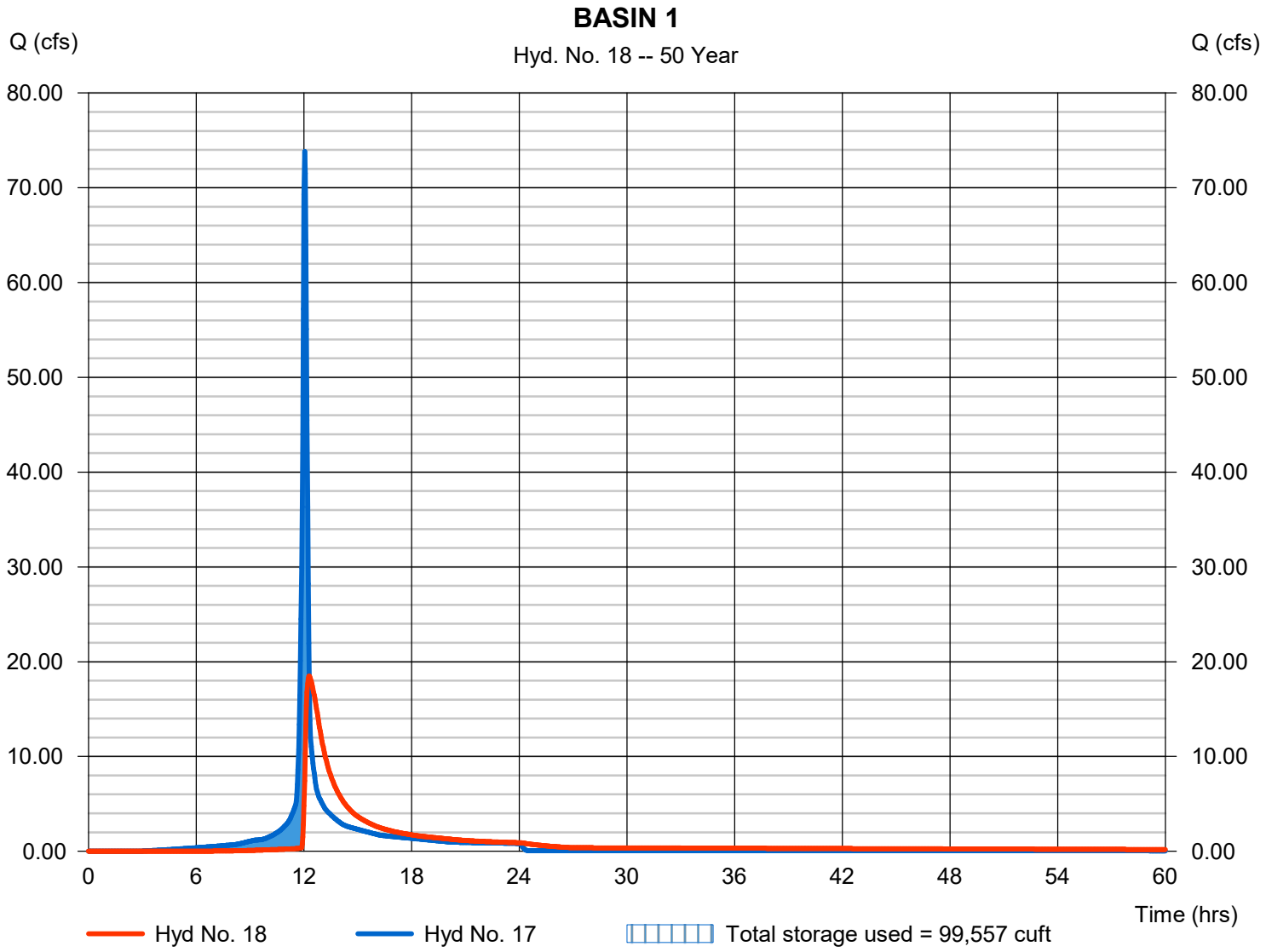
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 18

BASIN 1

Hydrograph type	=	Reservoir	Peak discharge	=	18.49 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.30 hrs
Time interval	=	2 min	Hyd. volume	=	207,882 cuft
Inflow hyd. No.	=	17 - TO BASIN 1	Max. Elevation	=	927.26 ft
Reservoir name	=	Basin 1	Max. Storage	=	99,557 cuft

Storage Indication method used.



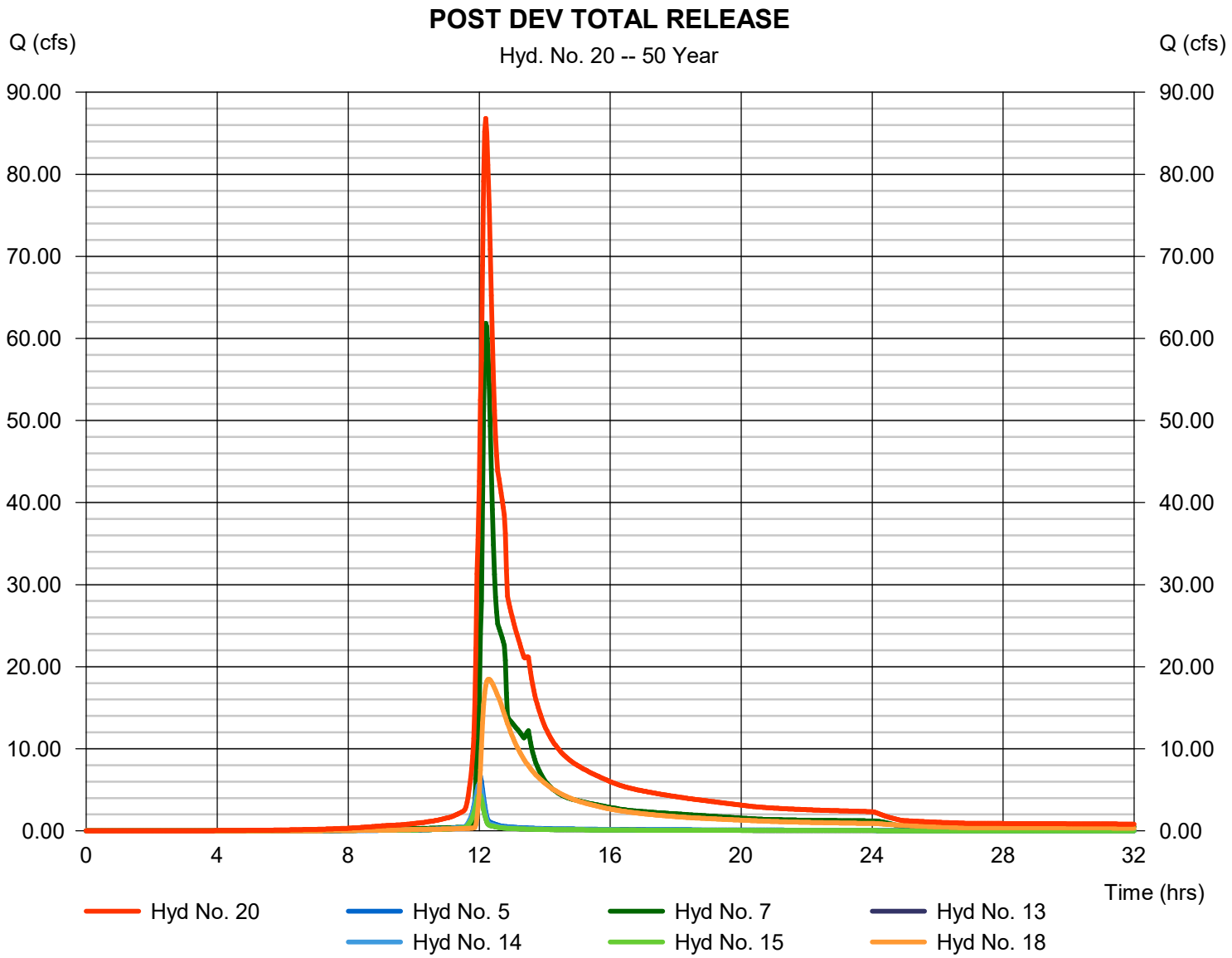
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 20

POST DEV TOTAL RELEASE

Hydrograph type	= Combine	Peak discharge	= 86.80 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 556,057 cuft
Inflow hyds.	= 5, 7, 13, 14, 15, 18	Contrib. drain. area	= 4.160 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

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	57.75	2	722	163,112	------	------	------	EDA-1
2	SCS Runoff	70.75	2	722	211,115	------	------	------	POST DEV ONSITE UNDETAINED
4	SCS Runoff	5.194	2	720	13,622	------	------	------	OS-1
5	SCS Runoff	7.817	2	720	20,502	------	------	------	OS-2
7	Manual	78.33	2	732	330,097	------	------	------	EX BASIN B
8	Manual	21.97	2	722	57,462	------	------	------	EX BASIN C
10	Combine	97.32	2	730	421,688	4, 5, 7, 8,	------	------	OFFSITE TOTAL
12	SCS Runoff	56.89	2	722	171,410	------	------	------	DA-1
13	SCS Runoff	5.195	2	720	14,378	------	------	------	BYP-1A
14	SCS Runoff	6.510	2	720	18,016	------	------	------	BYP-1B
15	SCS Runoff	5.008	2	720	13,858	------	------	------	BYP-2
17	Combine	83.94	2	722	242,489	4, 8, 12,	------	------	TO BASIN 1
18	Reservoir	22.56	2	736	236,472	17	927.51	112,461	BASIN 1
20	Combine	110.04	2	730	633,325	5, 7, 13, 14, 15, 18,	------	------	POST DEV TOTAL RELEASE

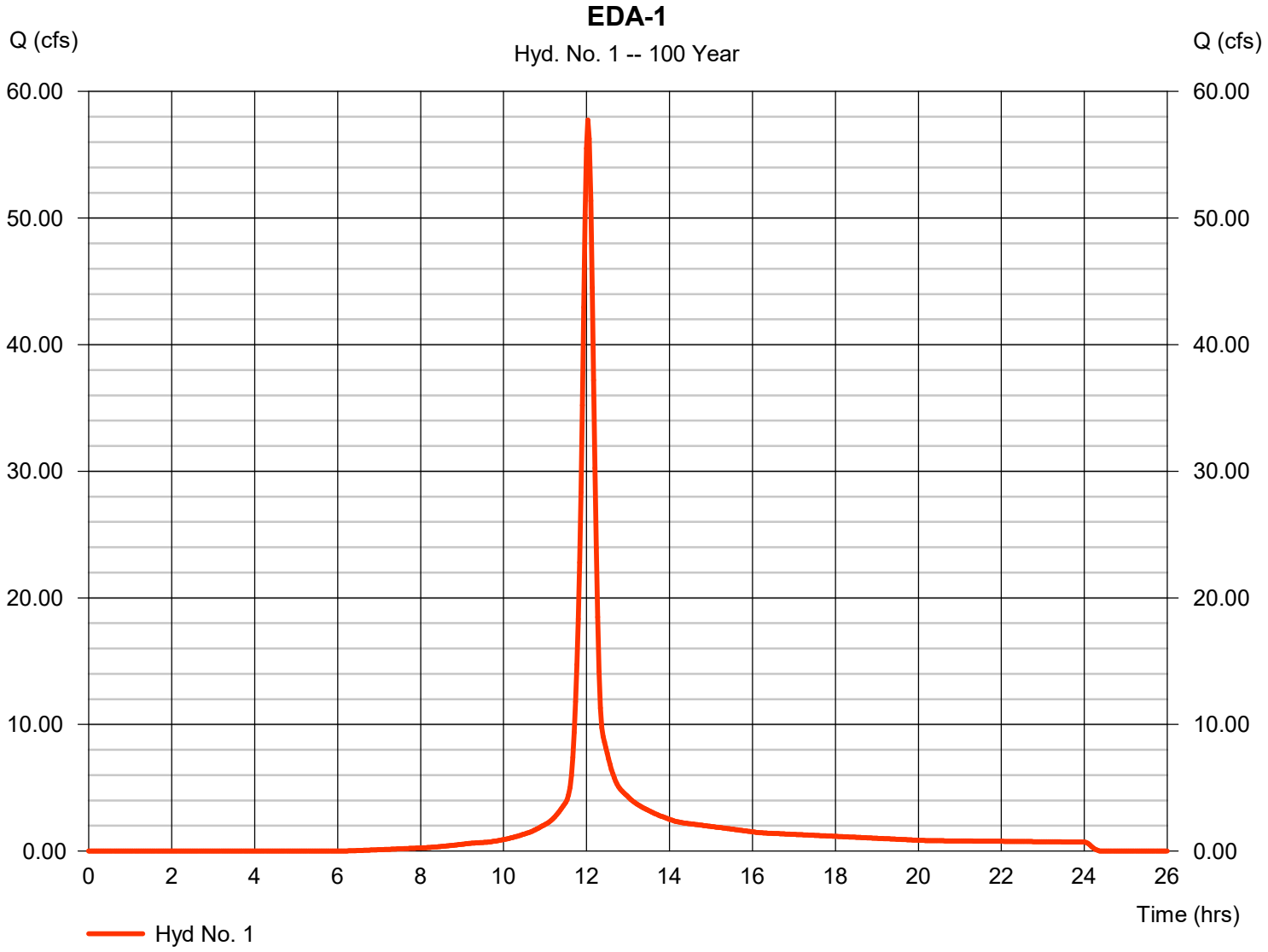
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 1

EDA-1

Hydrograph type	= SCS Runoff	Peak discharge	= 57.75 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 163,112 cuft
Drainage area	= 12.890 ac	Curve number	= 82
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 14.10 min
Total precip.	= 5.55 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



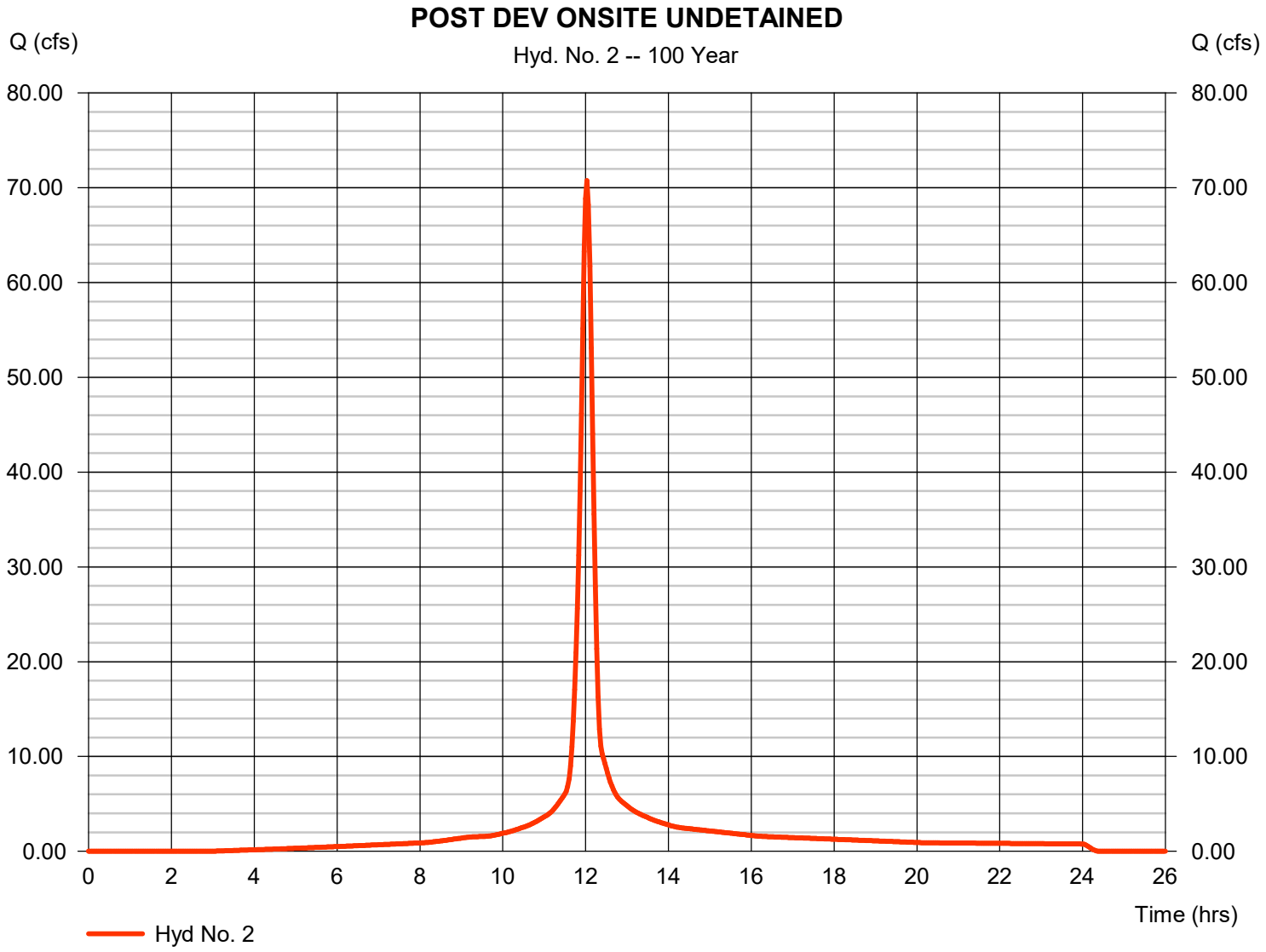
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 2

POST DEV ONSITE UNDETAINED

Hydrograph type	= SCS Runoff	Peak discharge	= 70.75 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 211,115 cuft
Drainage area	= 12.890 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.30 min
Total precip.	= 5.55 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



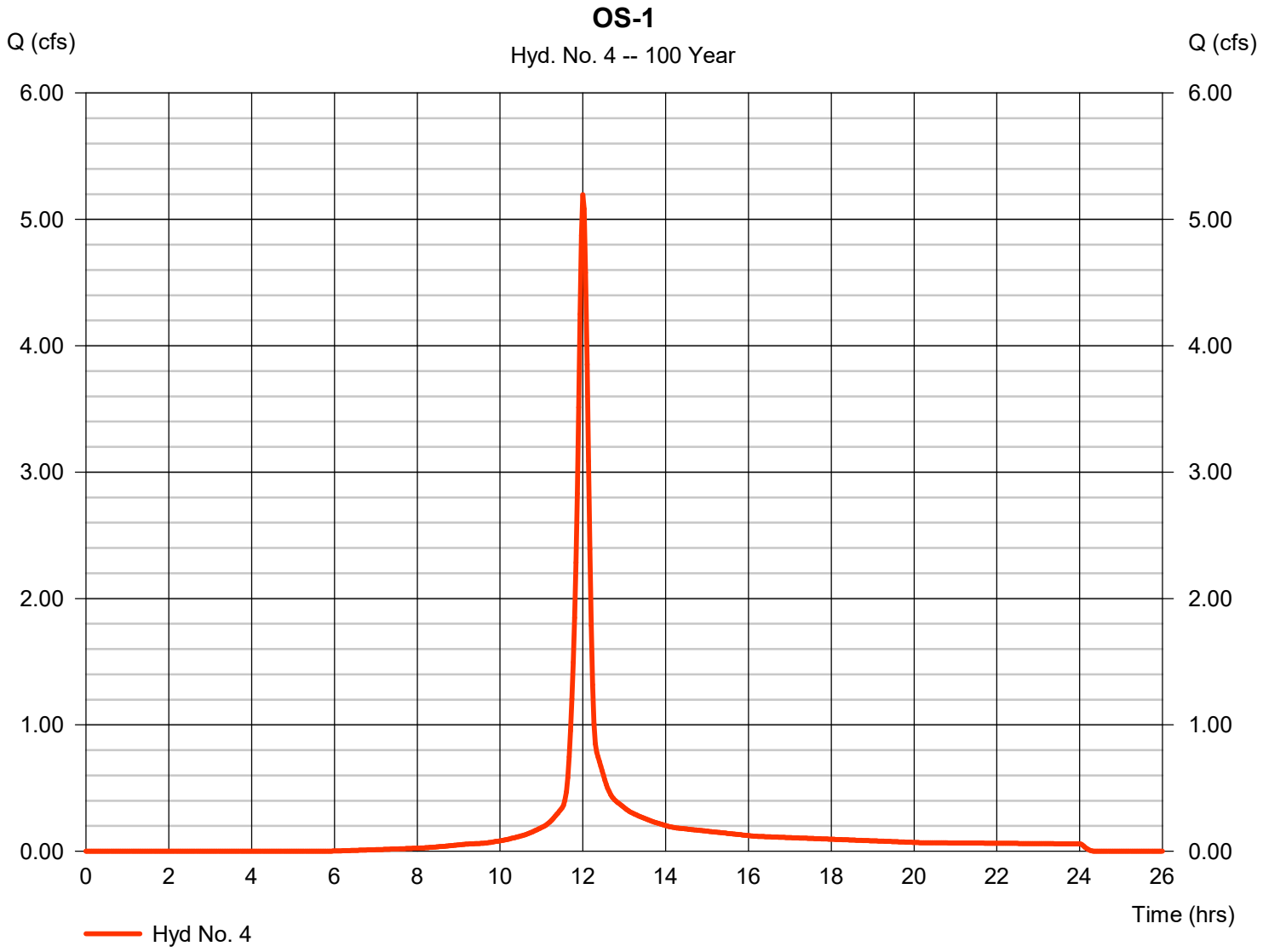
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 4

OS-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.194 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	13,622 cuft
Drainage area	=	0.990 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.55 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



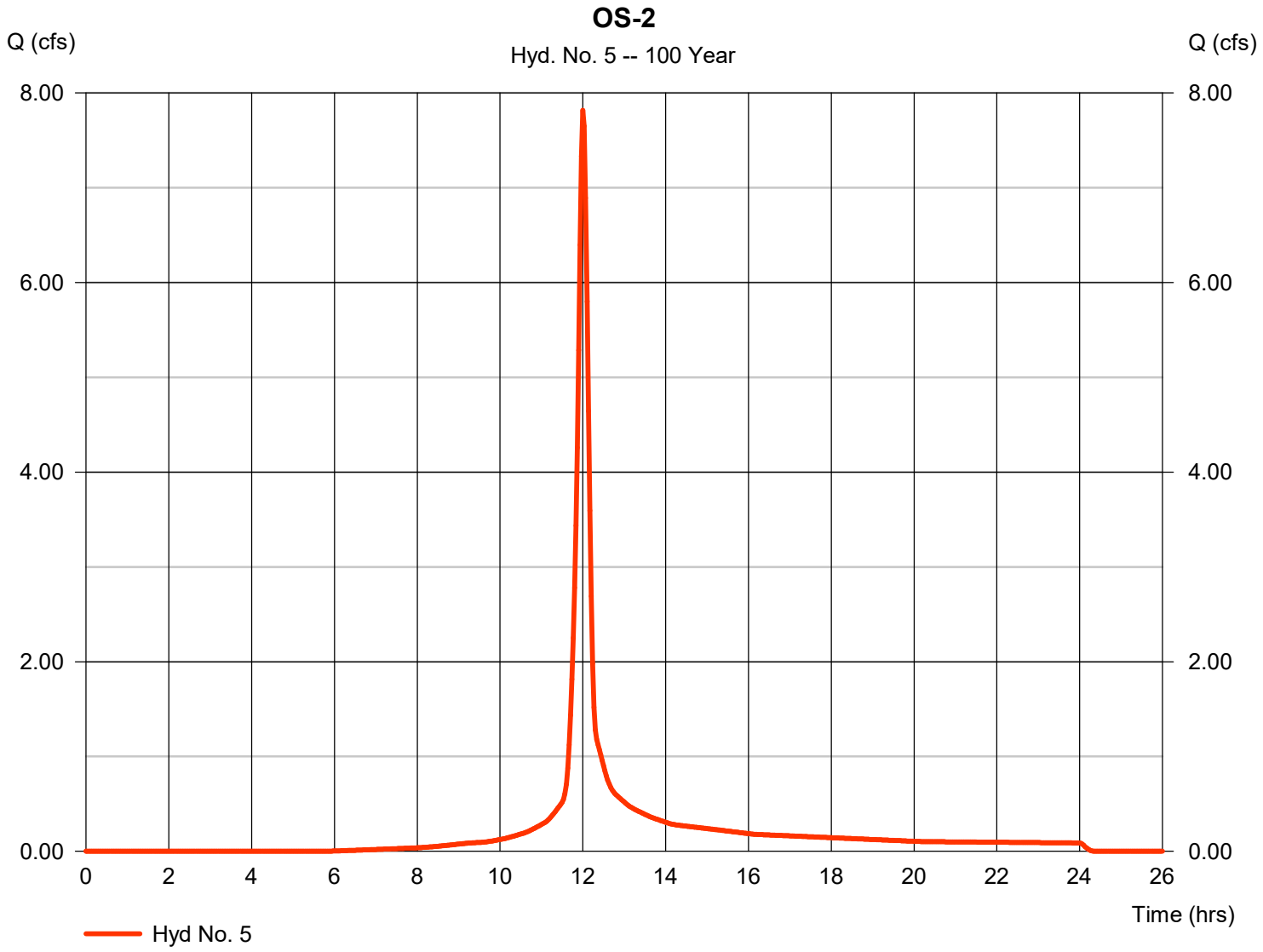
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 5

OS-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.817 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	20,502 cuft
Drainage area	=	1.490 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.55 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



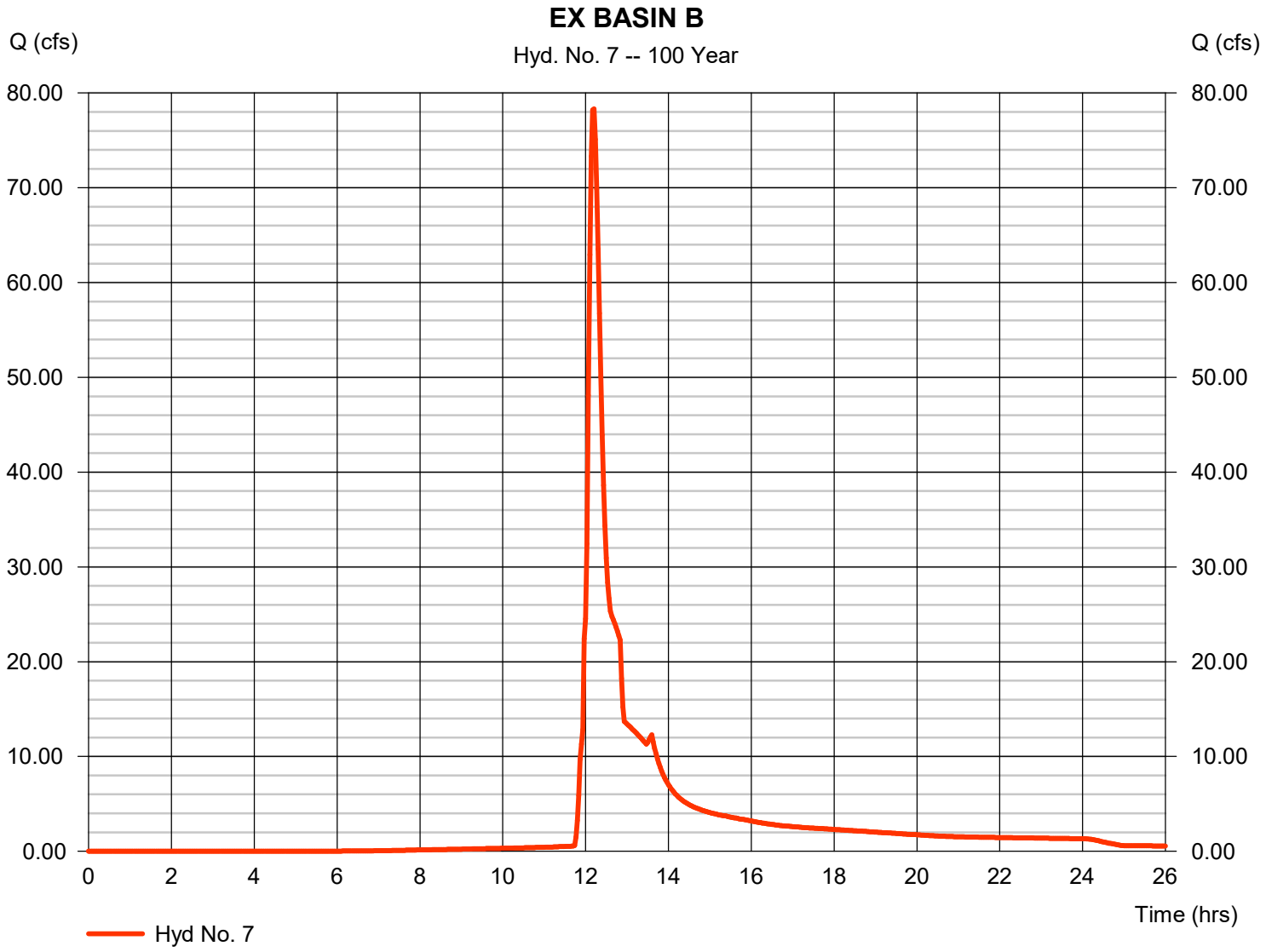
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 7

EX BASIN B

Hydrograph type	= Manual	Peak discharge	= 78.33 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.20 hrs
Time interval	= 2 min	Hyd. volume	= 330,097 cuft



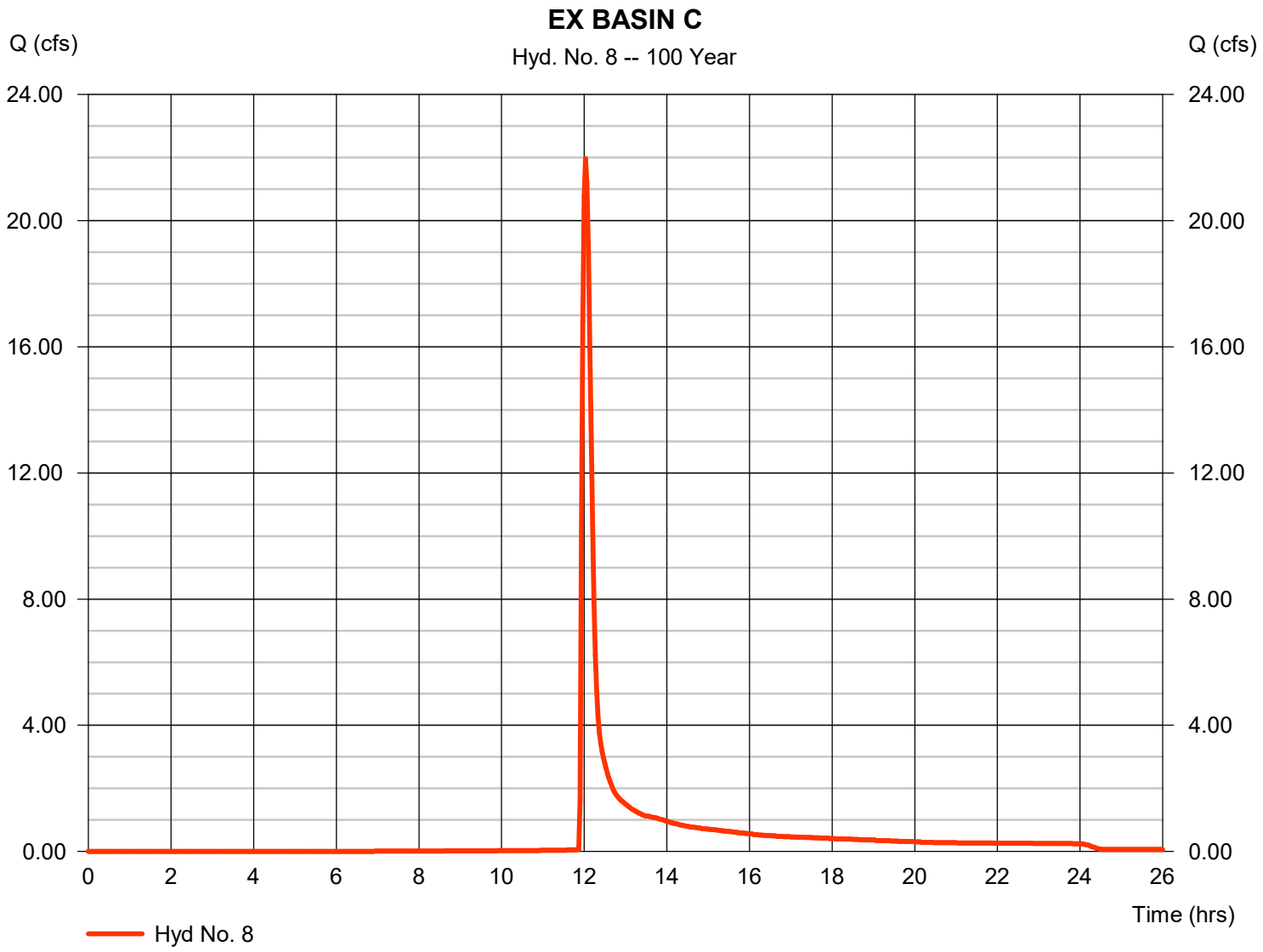
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 8

EX BASIN C

Hydrograph type	= Manual	Peak discharge	= 21.97 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 57,462 cuft



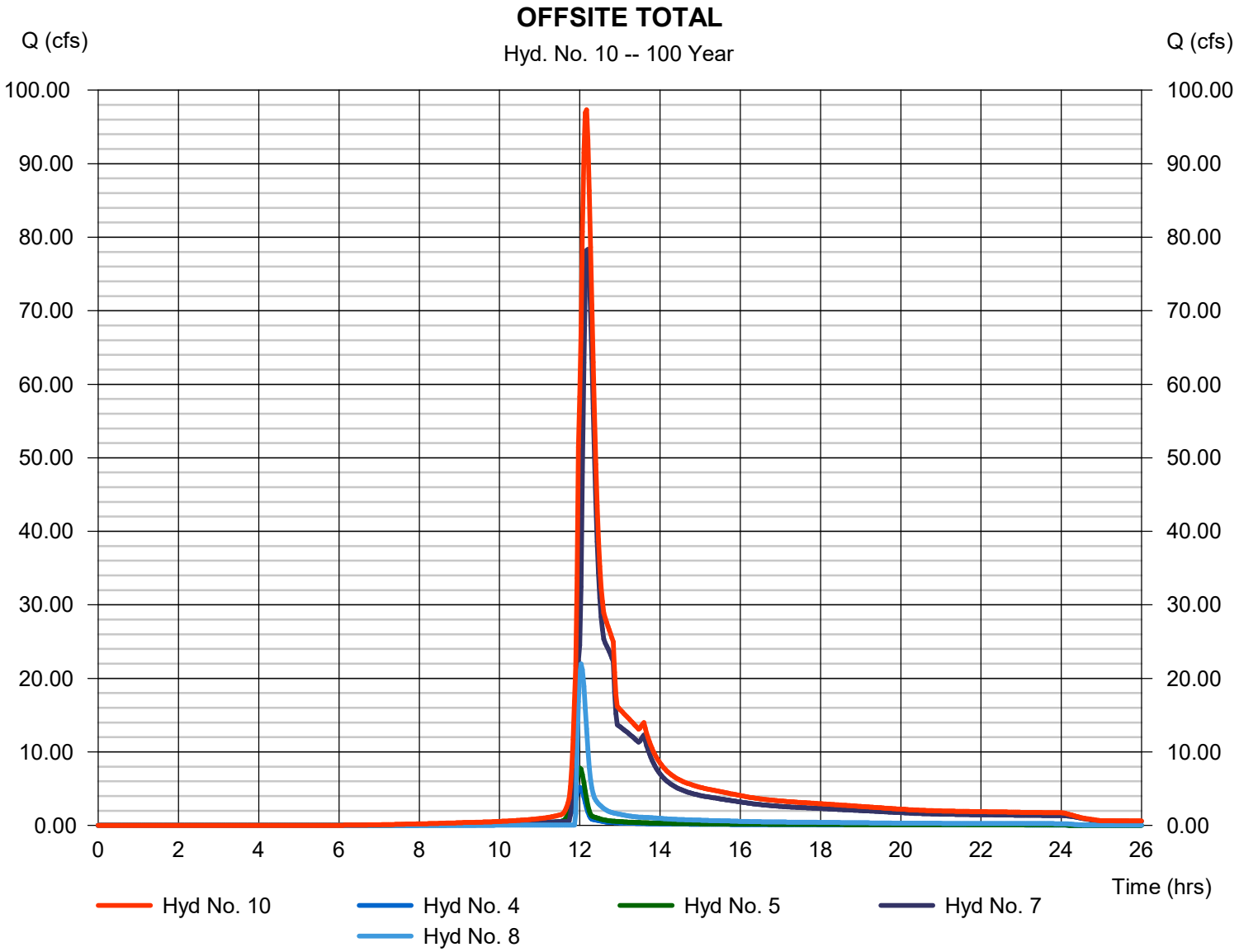
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 10

OFFSITE TOTAL

Hydrograph type	= Combine	Peak discharge	= 97.32 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 421,688 cuft
Inflow hyds.	= 4, 5, 7, 8	Contrib. drain. area	= 2.480 ac



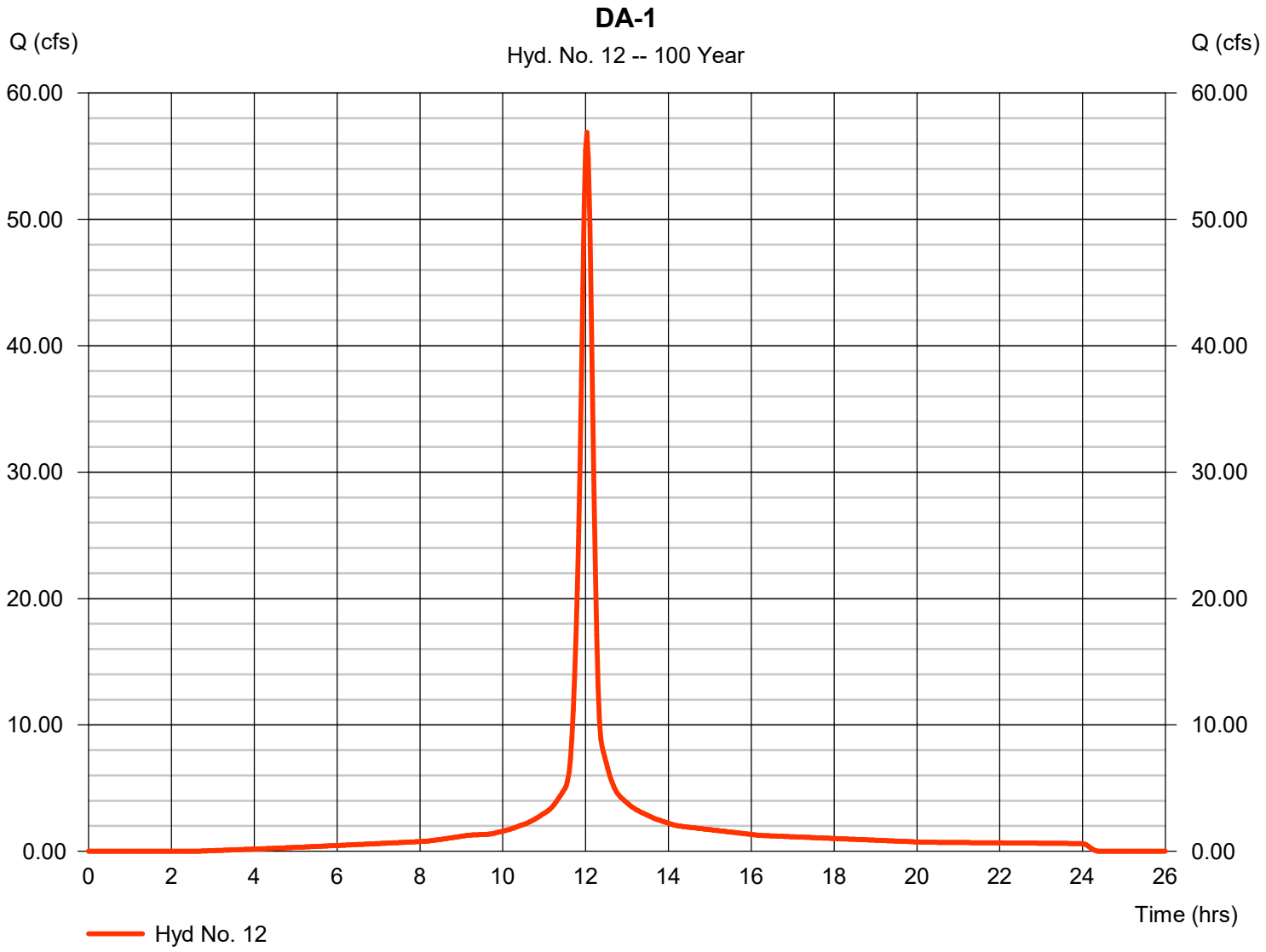
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 12

DA-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	56.89 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	171,410 cuft
Drainage area	=	10.220 ac	Curve number	=	93
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.30 min
Total precip.	=	5.55 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



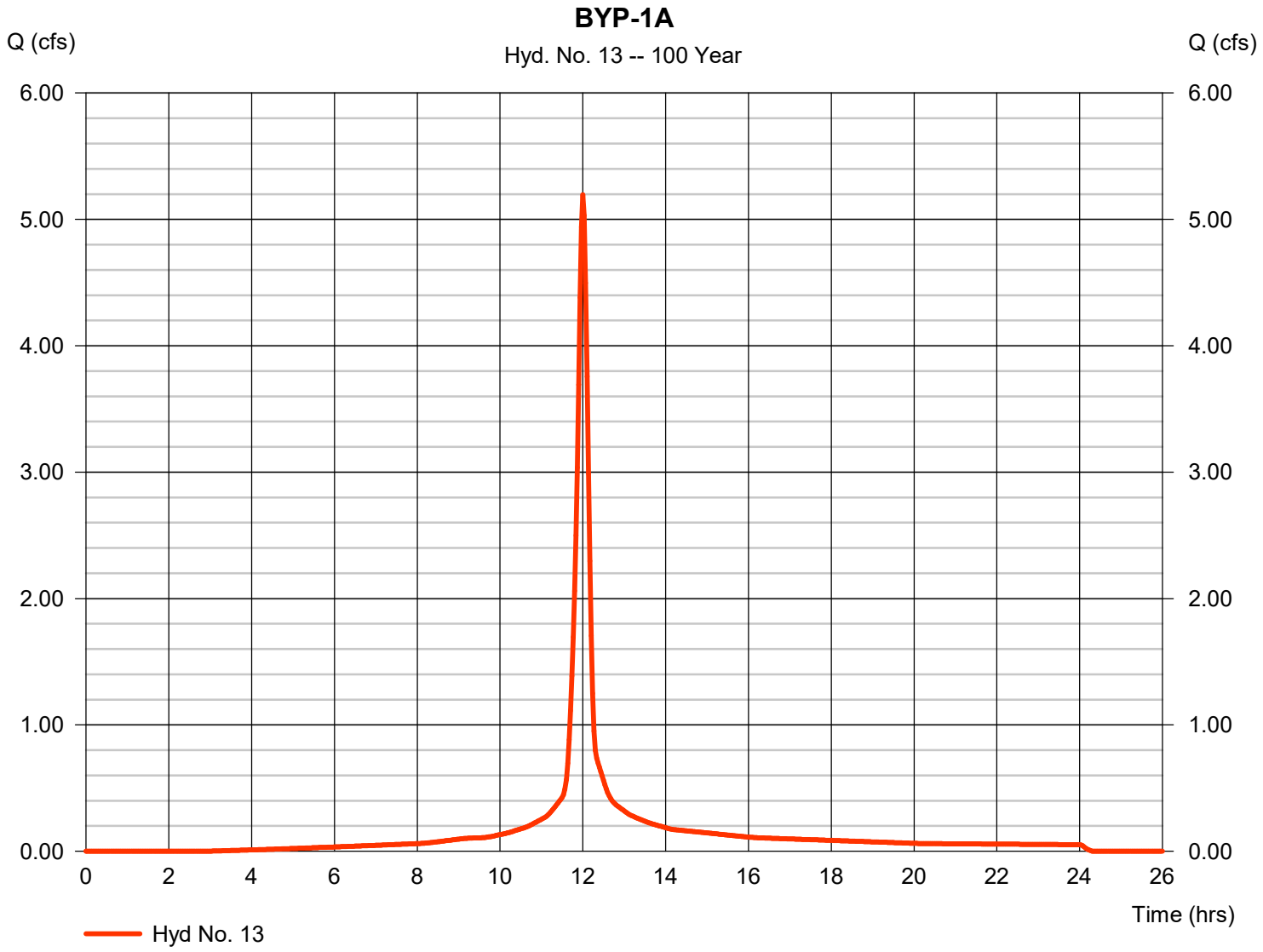
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 13

BYP-1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.195 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	14,378 cuft
Drainage area	=	0.830 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.55 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



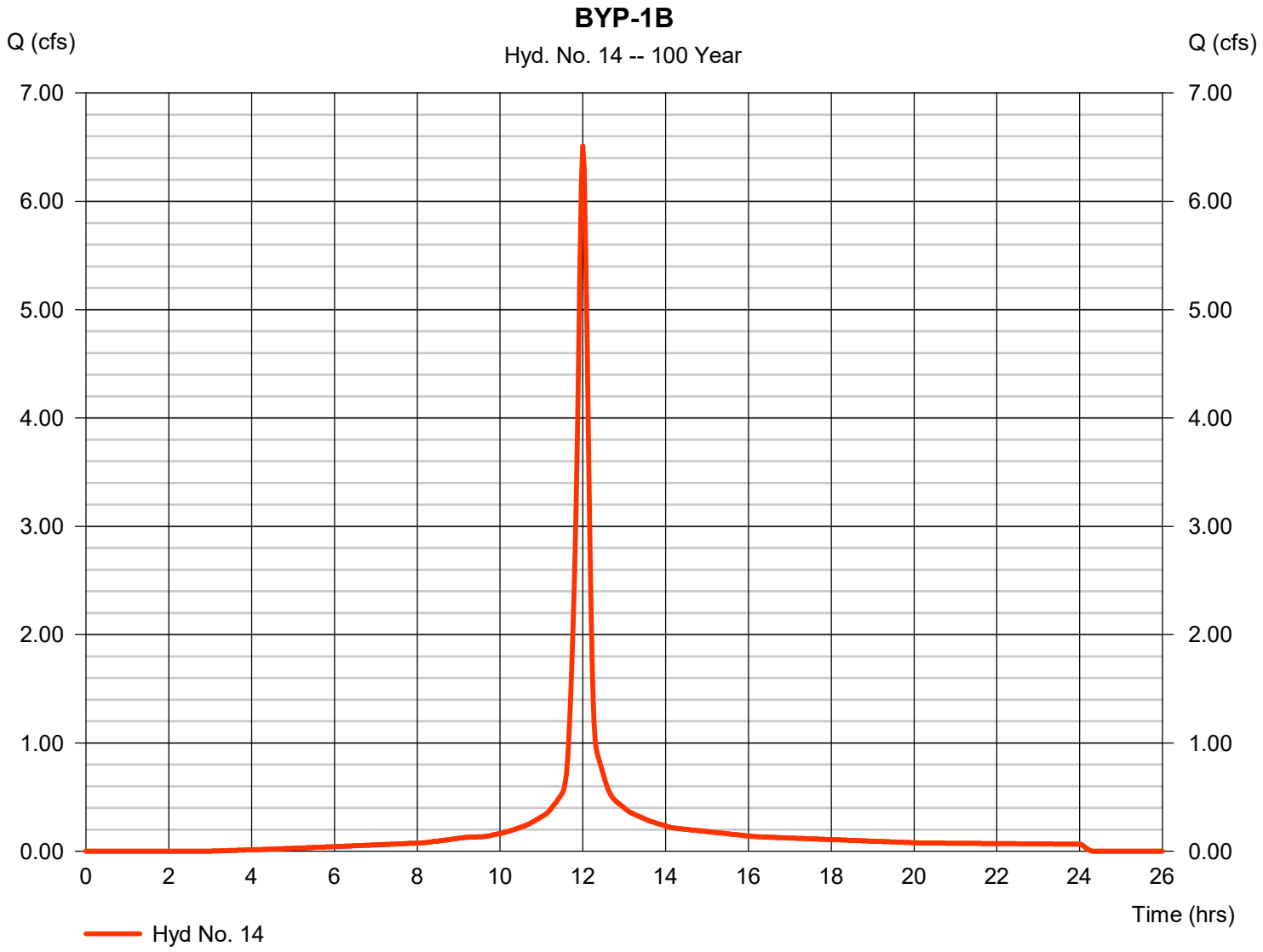
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 14

BYP-1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.510 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	18,016 cuft
Drainage area	=	1.040 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.55 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



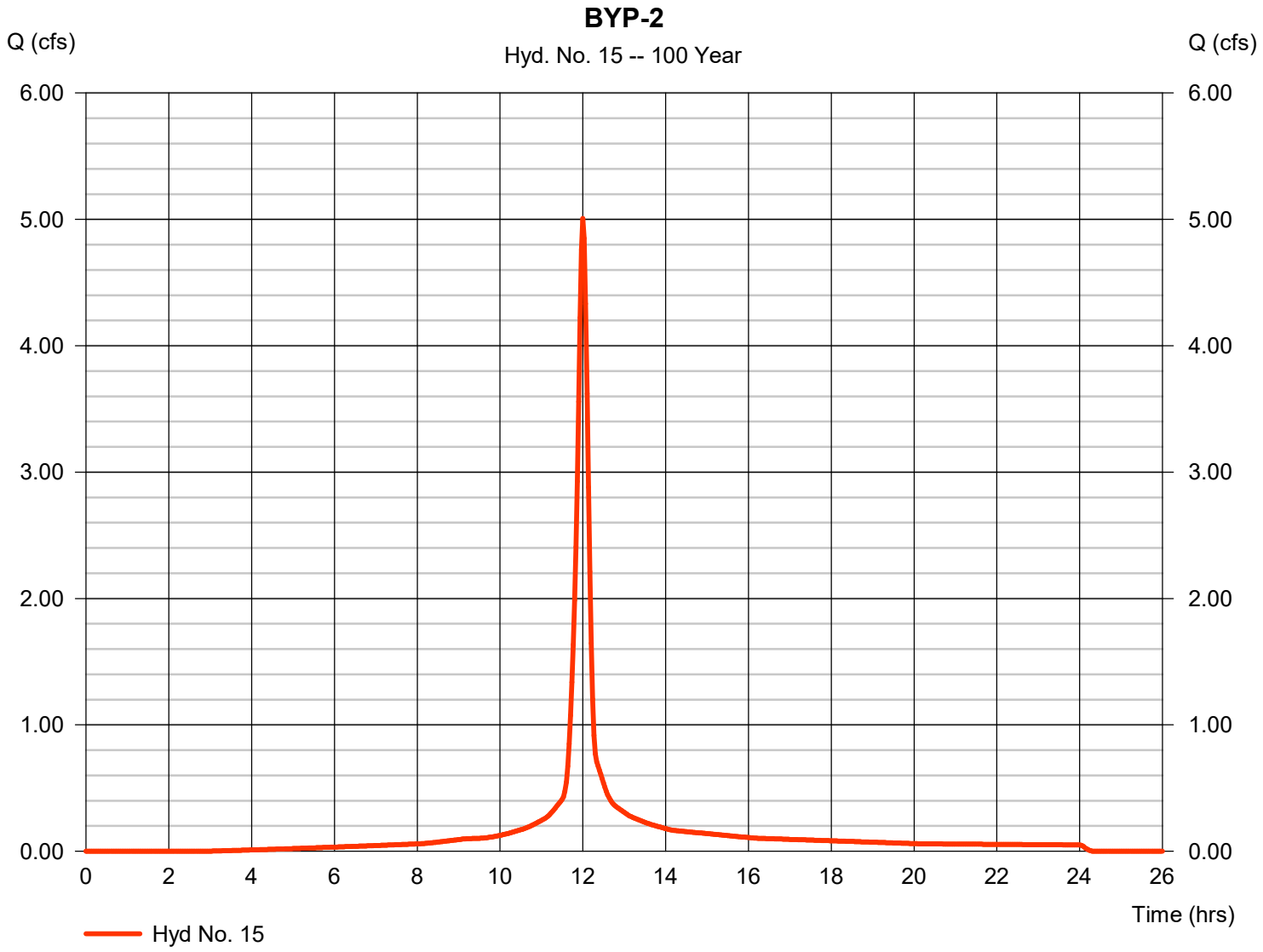
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 15

BYP-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.008 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	13,858 cuft
Drainage area	=	0.800 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.55 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



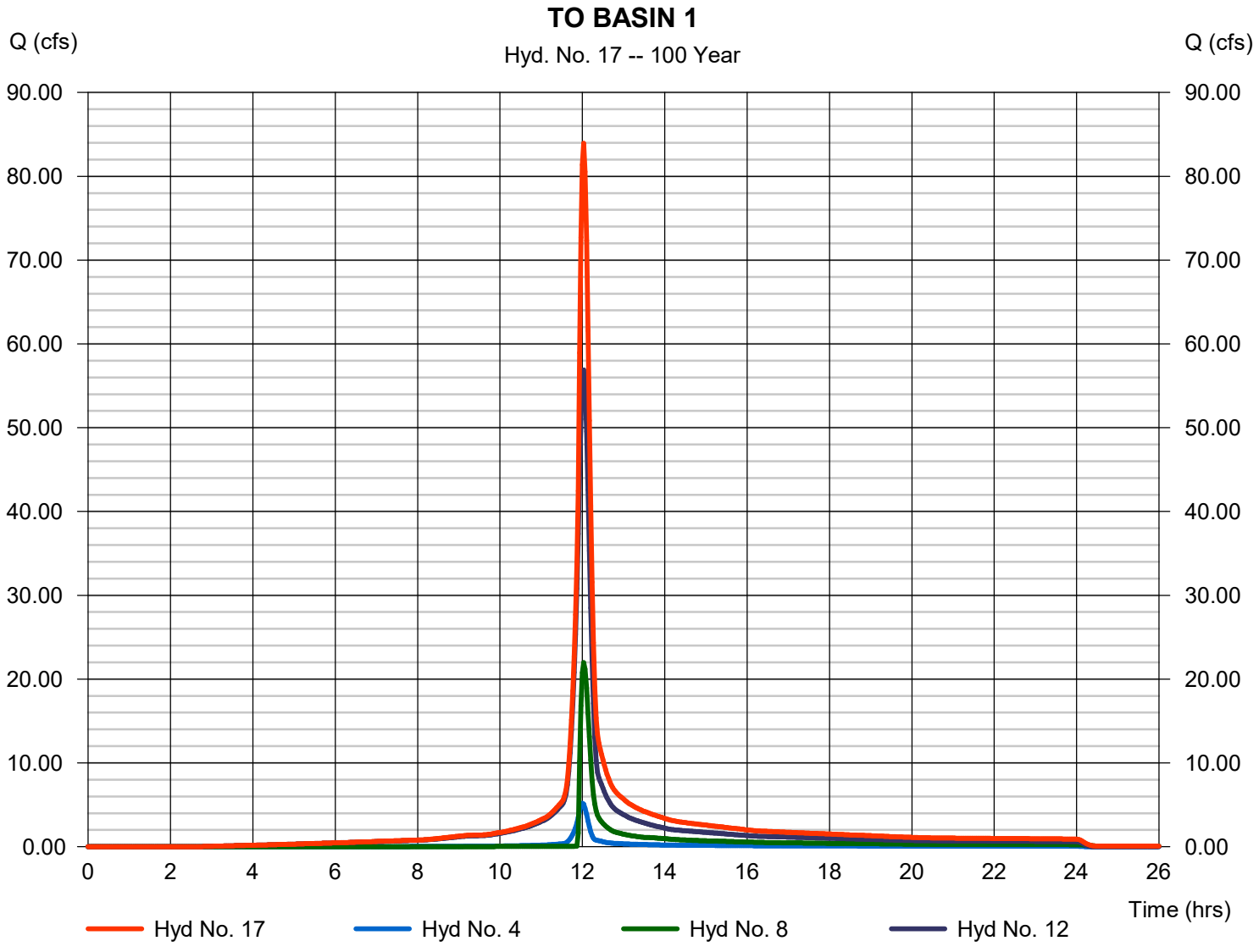
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 17

TO BASIN 1

Hydrograph type	= Combine	Peak discharge	= 83.94 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 242,489 cuft
Inflow hyds.	= 4, 8, 12	Contrib. drain. area	= 11.210 ac



Hydrograph Report

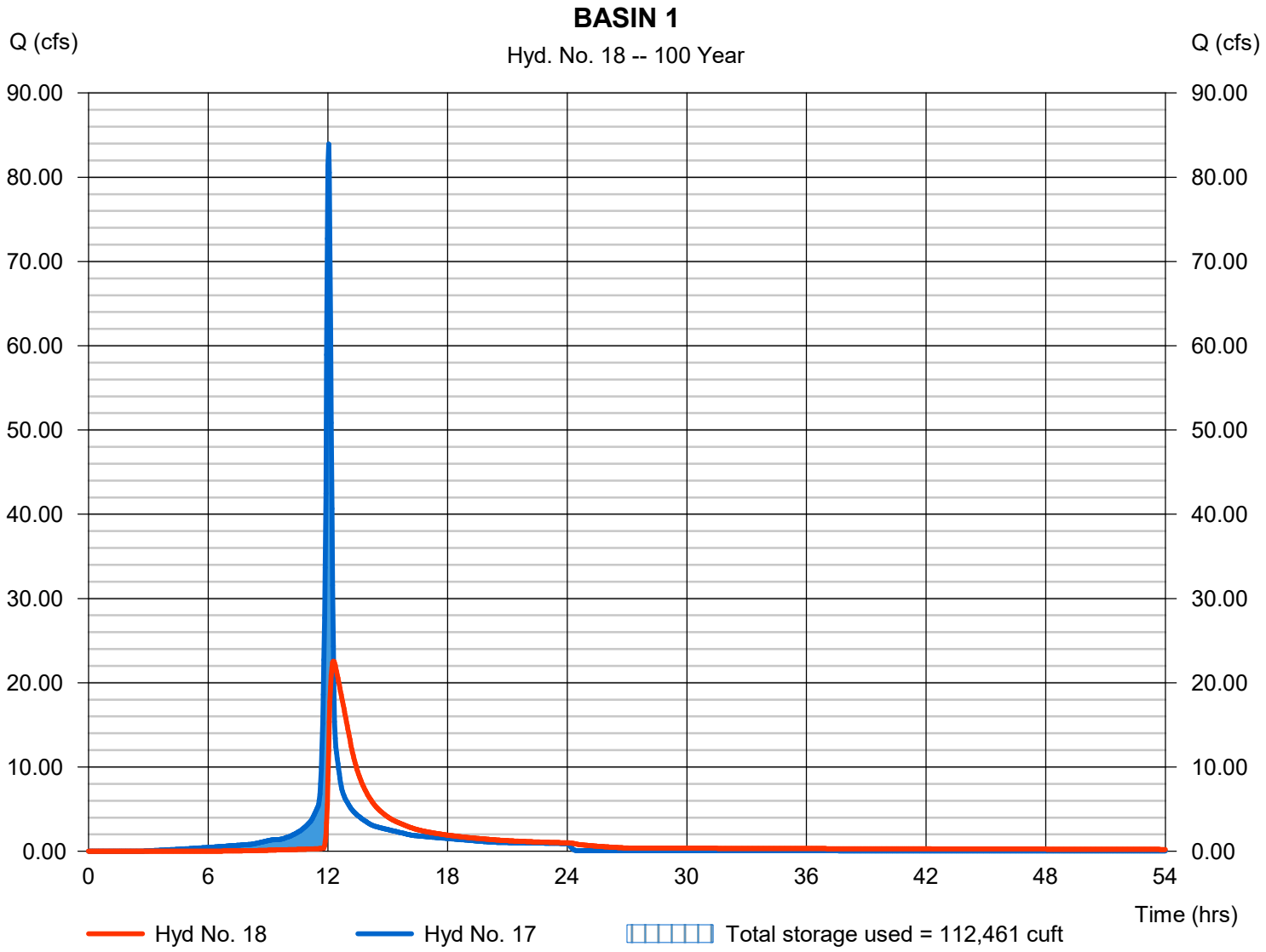
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 18

BASIN 1

Hydrograph type	=	Reservoir	Peak discharge	=	22.56 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.27 hrs
Time interval	=	2 min	Hyd. volume	=	236,472 cuft
Inflow hyd. No.	=	17 - TO BASIN 1	Max. Elevation	=	927.51 ft
Reservoir name	=	Basin 1	Max. Storage	=	112,461 cuft

Storage Indication method used.



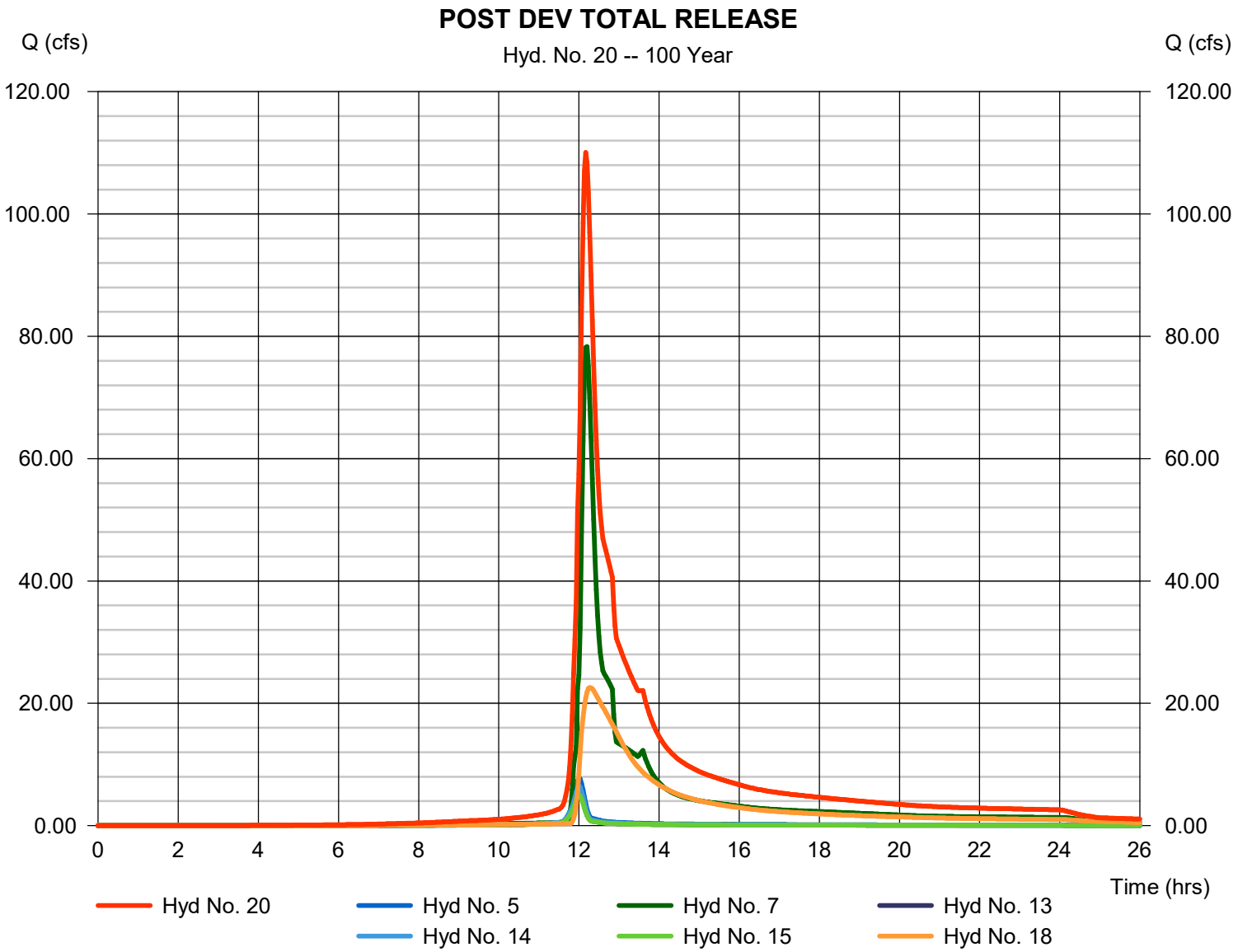
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Hyd. No. 20

POST DEV TOTAL RELEASE

Hydrograph type	= Combine	Peak discharge	= 110.04 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.17 hrs
Time interval	= 2 min	Hyd. volume	= 633,325 cuft
Inflow hyds.	= 5, 7, 13, 14, 15, 18	Contrib. drain. area	= 4.160 ac



Hydraflow Rainfall Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	106.0000	17.0000	1.0000	--------
3	0.0000	0.0000	0.0000	--------
5	131.0000	19.0000	1.0000	--------
10	170.0000	23.0000	1.0000	--------
25	230.0000	30.0000	1.0000	--------
50	250.0000	27.0000	1.0000	--------
100	300.0000	31.0000	1.0000	--------

File name: General SW Ohio.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	4.82	3.93	3.31	2.86	2.52	2.26	2.04	1.86	1.71	1.58	1.47	1.38
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	5.46	4.52	3.85	3.36	2.98	2.67	2.43	2.22	2.05	1.90	1.77	1.66
10	6.07	5.15	4.47	3.95	3.54	3.21	2.93	2.70	2.50	2.33	2.18	2.05
25	6.57	5.75	5.11	4.60	4.18	3.83	3.54	3.29	3.07	2.88	2.71	2.56
50	7.81	6.76	5.95	5.32	4.81	4.39	4.03	3.73	3.47	3.25	3.05	2.87
100	8.33	7.32	6.52	5.88	5.36	4.92	4.55	4.23	3.95	3.70	3.49	3.30

Tc = time in minutes. Values may exceed 60.

CCDocs\CESO\CAP5 Hunters Path Extension\Project Files_CESO\03-CIVIL\3-PHASE 3\DATA\STM\Clayton PCP.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	2.28	2.73	0.00	3.34	3.83	4.48	5.01	5.55
SCS 6-Hr	1.66	1.99	0.00	2.45	2.82	3.32	3.72	4.13
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

APPENDIX B:
BASIN CALCULATIONS

Hunter's Path - Phase 3
Clayton, OH
CESO Project Number: 765930-01
CRITICAL STORM CALCULATION

MADE BY:	JEE
DATE:	05.05.2025
CHECKED BY:	--
DATE:	

Pre & Post Developed Area XXXXX

1 Year Pre-Developed Runoff Volume*=	0.879	AC-FT
1 Year Post-Developed Runoff Volume*=	1.561	AC-FT
*Comparison of onsite and disturbed acreages only.		
Volume % Increase =	77.5%	

Critical Storm = **10-Year**

If the percent of increase in runoff volume is		The critical runoff rate will be limited to:
Equal to or greater than	And less than	
-	10	1-Year
10	20	2-Year
20	50	5-Year
50	100	10-Year
100	250	25-Year
250	500	50-Year
500	-	100-Year

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Sunday, 05 / 4 / 2025

Pond No. 1 - Basin 1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 925.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	925.00	39,007	0	0
1.00	926.00	42,122	40,550	40,550
2.00	927.00	49,414	45,715	86,265
3.00	928.00	53,447	51,412	137,678

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	4.00	18.00	0.00
Span (in)	= 36.00	4.00	48.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 925.00	925.00	926.00	0.00
Length (ft)	= 31.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .012	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	Inactive	0.00	0.00
Crest El. (ft)	= 928.00	925.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	925.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.10	4,055	925.10	0.03 ic	0.02 ic	0.00	---	0.00	0.00	---	---	---	---	0.023
0.20	8,110	925.20	0.08 ic	0.08 ic	0.00	---	0.00	0.00	---	---	---	---	0.083
0.30	12,165	925.30	0.15 ic	0.15 ic	0.00	---	0.00	0.00	---	---	---	---	0.154
0.40	16,220	925.40	0.20 ic	0.20 ic	0.00	---	0.00	0.00	---	---	---	---	0.203
0.50	20,275	925.50	0.26 ic	0.24 ic	0.00	---	0.00	0.00	---	---	---	---	0.240
0.60	24,330	925.60	0.29 ic	0.27 ic	0.00	---	0.00	0.00	---	---	---	---	0.270
0.70	28,385	925.70	0.30 ic	0.30 ic	0.00	---	0.00	0.00	---	---	---	---	0.298
0.80	32,440	925.80	0.33 ic	0.33 ic	0.00	---	0.00	0.00	---	---	---	---	0.326
0.90	36,495	925.90	0.37 ic	0.35 ic	0.00	---	0.00	0.00	---	---	---	---	0.349
1.00	40,550	926.00	0.37 ic	0.37 ic	0.00	---	0.00	0.00	---	---	---	---	0.372
1.10	45,122	926.10	0.81 ic	0.37 ic	0.43 ic	---	0.00	0.00	---	---	---	---	0.803
1.20	49,693	926.20	1.64 ic	0.36 ic	1.22 ic	---	0.00	0.00	---	---	---	---	1.580
1.30	54,265	926.30	2.61 ic	0.36 ic	2.24 ic	---	0.00	0.00	---	---	---	---	2.593
1.40	58,836	926.40	3.88 ic	0.35 ic	3.44 ic	---	0.00	0.00	---	---	---	---	3.791
1.50	63,408	926.50	5.24 ic	0.34 ic	4.81 ic	---	0.00	0.00	---	---	---	---	5.154
1.60	67,979	926.60	6.84 ic	0.33 ic	6.33 ic	---	0.00	0.00	---	---	---	---	6.661
1.70	72,551	926.70	8.36 ic	0.33 ic	7.97 ic	---	0.00	0.00	---	---	---	---	8.303
1.80	77,122	926.80	10.07 ic	0.32 ic	9.74 ic	---	0.00	0.00	---	---	---	---	10.07
1.90	81,694	926.90	11.94 ic	0.32 ic	11.62 ic	---	0.00	0.00	---	---	---	---	11.94
2.00	86,265	927.00	14.21 ic	0.31 ic	13.62 ic	---	0.00	0.00	---	---	---	---	13.93
2.10	91,407	927.10	15.92 ic	0.31 ic	15.61 ic	---	0.00	0.00	---	---	---	---	15.92
2.20	96,548	927.20	17.57 ic	0.31 ic	17.26 ic	---	0.00	0.00	---	---	---	---	17.57
2.30	101,689	927.30	19.30 ic	0.32 ic	18.82 ic	---	0.00	0.00	---	---	---	---	19.14
2.40	106,830	927.40	20.74 ic	0.32 ic	20.42 ic	---	0.00	0.00	---	---	---	---	20.74
2.50	111,972	927.50	22.47 ic	0.32 ic	22.15 ic	---	0.00	0.00	---	---	---	---	22.47
2.60	117,113	927.60	23.39 ic	0.34 ic	23.05 ic	---	0.00	0.00	---	---	---	---	23.39
2.70	122,254	927.70	24.56 ic	0.35 ic	24.03 ic	---	0.00	0.00	---	---	---	---	24.38
2.80	127,395	927.80	25.43 ic	0.36 ic	24.98 ic	---	0.00	0.00	---	---	---	---	25.34
2.90	132,536	927.90	26.22 oc	0.38 ic	25.85 ic	---	0.00	0.00	---	---	---	---	26.22
3.00	137,678	928.00	27.09 oc	0.39 ic	26.48 ic	---	0.00	0.00	---	---	---	---	26.86

Sediment Basin Sizing and Dewatering Compliance Tool

version 1.3 2023-05-15

Project Summary

Project Name:	Hunter's Path - Phase 3	
Project Location:	Clayton, Ohio	Street address (or street name and nearest intersection), City, state, zip code
Subwatershed ID/Label:	Basin 1	
Project Latitude:		Enter latitude at entrance to site in decimal degrees (format: 40.947544)
Project Longitude:		Enter longitude at entrance to site in decimal degrees (format: -81.465240)
NPDES Permit Applicant:		
Submitted by:	Justin Elam, PE	Name of design engineer
Date:	5/5/2025	mm/dd/yyyy
Watershed:	Statewide	Select from dropdown which watershed the project is located in, select "Statewide" if not in the Big Darby Creek Watershed

Subwatershed Total Drainage Area, A_{total} =	11.21	acres	=	488,308	ft^2
Subwatershed Disturbed Drainage Area, A_{dist} =	11.21	acres	=	488,308	ft^2

Report to the nearest 0.01 acre; include any drainage from off-site

All Basin dewatering discharge calculations in these worksheets assume free discharge from the outlet (i.e., no tailwater)

Step 1 - Sediment Basin Volume Requirements

For Statewide Watersheds

Minimum Sediment Storage Volume, Vsediment =	11210	ft3	=	415	yd3	=	0.257 acre-ft
Minimum Dewatering Zone Volume, Vdewatering =	20178	ft3	=	747	yd3	=	0.463 acre-ft

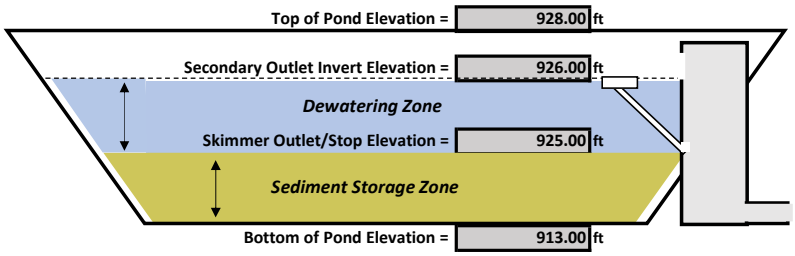
Requirement: Minimum Sediment Volume = 1000 ft3/acre of disturbed drainage area
Requirement: Minimum Dewatering Volume = 1800 ft3/acre of total drainage area

Step 2 - Basin Stage-Storage Relationship

IMPORTANT: Must include the exact Skimmer Outlet/Skimmer Stop Elevation and the Secondary Outlet Invert Elevation in the Stage-Storage Table

	Elevation ft	Area ft^2	Incremental Volume ft^3	Cumulative Volume ft^3
Bottom of Sediment Storage (Pond) =	913.00	20,120		
	914.00	21,314	20,714	20,714
	915.00	22,533	21,921	42,635
	916.00	23,778	23,153	65,788
	917.00	25,048	24,410	90,198
	918.00	26,343	25,693	115,891
	919.00	27,664	27,001	142,891
	920.00	29,009	28,334	171,225
	921.00	30,379	29,691	200,917
	922.00	31,775	31,074	231,991
	923.00	35,994	33,863	265,854
	924.00	37,488	36,738	302,592
	925.00	39,007	38,245	340,837
	926.00	42,122	40,555	381,392
	927.00	49,414	45,720	427,111
	928.00	53,447	51,417	478,528

Basin Schematic



Note: The basin dewatering discharge calculation in this worksheet assumes a free discharge from the outlet (i.e., no tailwater). The skimmer outlet elevation may need to be adjusted upward to account for tailwater as appropriate. Tailwater is common to low gradient ditches or water bodies with prolonged increases in water level

Step 3 - Outlet Elevations and Storage Volumes

Skimmer Outlet Invert/Skimmer Stop Elevation =	925.00	ft	OKAY
Secondary Outlet Invert Elevation =	926.00	ft	OKAY
Provided Sediment Storage Volume =	340,837	ft^3	OKAY
Provided Dewatering Volume =	40,555	ft^3	OKAY

The invert of the Skimmer Outlet/Skimmer Stop (e.g. stone pad) corresponds to the top of the sediment storage zone/permanent pool and the bottom of the Dewatering Volume. It cannot be below the bottom of the pond.

The invert elevation for the next (usually peak discharge or flood control) outlet. This elevation must exceed that of the Skimmer Outlet Invert Elevation and be below the top of the pond. *Check - The difference between the skimmer outlet invert/skimmer stop elevation and the secondary outlet invert elevation (dewatering zone depth) must not exceed 5ft.

The Sediment Storage Volume must exceed the requirement listed above in Step 1

The Dewatering Volume must exceed the requirement listed above in Step 1

ERROR Check - The Step 2 Stage Storage Table above must include the exact Skimmer Outlet/Skimmer Stop Elevation and the Secondary Outlet Invert Elevation provided in Step 3

Step 4 - Skimmer-Type Outlet Sizing

Select Skimmer Type or Manufacturer: Faircloth Skimmer

Faircloth Skimmer Sizing Calculator: Click Here For Link to Online Calculator

Follow directions on webpage to calculate exact skimmer size and model, include screenshot of results in SWP3. *Note* Input required

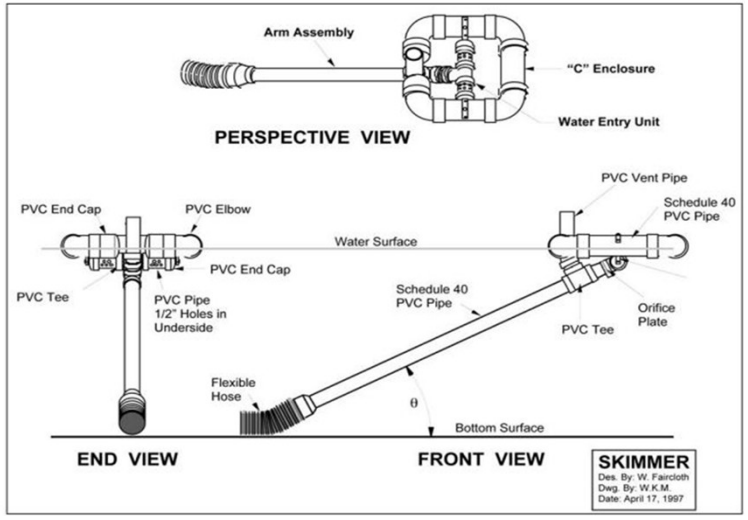
Orifice Size Selected:	2.5	in
Dewatering Drawdown Time:	72	hrs

Check to ensure that orifice sizing calculation is done using required, NOT provided dewatering volume

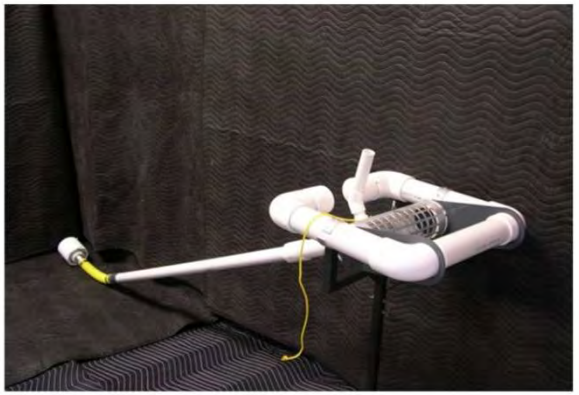
Check that dewatering drawdown time is greater than 2 days and less than 7 days

Example Faircloth Float Spec Sheet

Please note the drawing and image shown below are provided solely to assist with identification of the skimmer type and its associated componants. The drawing and photo below does not necessarily depict an installation that complies with the General Permit or Rainwater & Land Development specification, especially where the sediment storage zone in omitted.



Faircloth Float Photo



Calculate Skimmer Size for Faircloth Skimmer®

Basin Volume in Cubic Feet	20,178	Cu.Ft	**Skimmer Size**	**3.0**	Inch
Days to Drain*	3	Days	Orifice Radius	**1.2**	Inch[es]
			Orifice Diameter	**2.5**	Inch[es]

*In NC assume 3 days to drain

If no results maximum flow rate for a single skimmer is exceeded. More than one skimmer may be required.

Estimate Volume of Basin

	Length	Width			
Top of water surface in feet			Feet	**VOLUME**	**0** Cu. Ft.
Bottom dimensions in feet			Feet		
Depth in feet			Feet		

Updated 5/1/19

Wet Extended Detention Basin WQv Compliance Tool

version 3.2 2020-07-07

Project Summary

Project Name: Hunter's Path - Phase 3
Subwatershed ID/Label: Basin 1
Submitted by: Justin Elam, PE, CPESC
Date: 5/2/2025

Subwatershed Drainage Area, A_{total} =	11.21	acres	=	488,308	ft2
Subwatershed Impervious Area, A_{imp} =	3.50	acres	=	152,460	ft2
Imperviousness fraction, i =	0.31			31	%
Water Quality Volume, WQv =	12,122	ft^3	=	0.28	ac-ft

Step 1 - Soil Suitability

Soil Series: | HSG:

Step 2 - Wet ED Basin Volume Requirements

Extended Detention Volume, EDv =	12122	ft^3
Minimum Sediment Storage Volume, $V_{sediment}$ =	2424	ft^3
Minimum Permanent Pool Volume, PPv =	14547	ft^3

Step 3 - Basin Stage-Storage Relationship

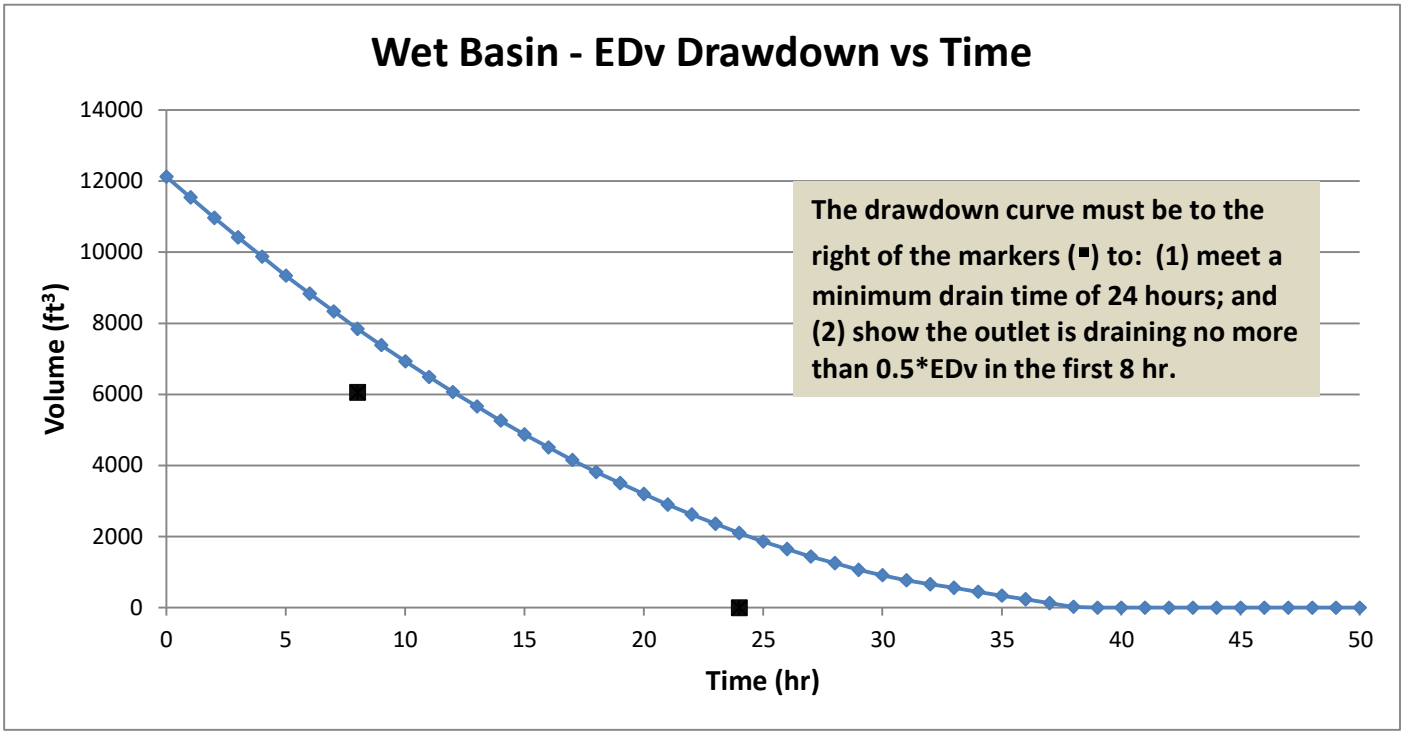
	Elevation ft	Area ft^2		Incremental Volume ft^3	Cumulative Volume ft^3
Bottom of Permanent Micropool =	913.00	20120			
	914.00	21314		20,714	20,714
	915.00	22533		21,921	42,635
	916.00	23778		23,153	65,788
	917.00	25048		24,410	90,198
	918.00	26343		25,693	115,891
	919.00	27664		27,001	142,891
	920.00	29009		28,334	171,225
	921.00	30379		29,691	200,917
	922.00	31775		31,074	231,991
	923.00	35994		33,863	265,854
	924.00	37488		36,738	302,592
	925.00	39007		38,245	340,837
	926.00	42122		40,555	381,392
	927.00	49414		45,720	427,111
	928.00	53447		51,417	478,528

Step 4 - Outlet Elevations and Storage Volumes

WQ Orifice Invert Elevation =	925.00				
Elevation of Top of EDv =	925.31				
Secondary Outlet Invert Elevation =	925.50				OKAY
WQ Treatment Volume Provided, $V_{treatment}$ =	19,888	ft^3			
Treatment Vol Provided Relative to EDv, $V_{treatment}$/EDv =	1.64		=	164%	OKAY
Permanent Pool Volume Provided, PPv =	340,837	ft^3			
Ratio PPv Provided to PPv Required =	23.43		=	2343%	OKAY

Step 5 - Outlet (Orifice) Sizing

Maximum Hydraulic Head, Hmax =	0.31	ft			
Orifice Coefficient, C =	0.6				
Target (Minimum) Draw-down Time, T_d =	24	hr			
Target Average Discharge, Q_{avg} =	0.14	cfs			
Average Hydraulic Head, H_{avg} =	0.15	ft			
Estimated Orifice Area, $A_{orifice}$ =	10.66	in^2	=	0.074	ft^2
Estimated Orifice Diameter, $D_{orifice}$ =	3.68	in	=	0.31	ft
Design Orifice Diameter, $D_{orifice}$ =	4.00	in	=	0.33	ft
Design Orifice Area, $A_{orifice}$ =	12.49	in^2	=	0.087	ft^2
Time to Completely Drain EDv, T_d =	39	hr	must be ≥ 24 hr		OKAY
Volume Drained in First 8 hr =	4,275	ft^3			
% of EDv =	35.3	%	must be ≤ 50%		OKAY



APPENDIX C:
STORMWATER PIPE CALCULATIONS

Line ID	Line Length	Incr. Area	Total Area	Runoff Coeff.	Incr C x A	Total C x A	Inlet Time	Time Conc	Rnfal Int	Total Runoff	Adnl Flow	Total Flow	Capac Full	Veloc	Veloc Full Flow	Pipe Size	Pipe Slope	Inv Elev Dn	Inv Elev Up	HGL Dn	HGL Up	Grnd/ Rim Dn	Grnd/ Rim Up	Line ID
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/ hr)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ s)		(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
2-1	10	0.00	7.37	0.50	0.00	3.69	10.0	14.3	4.5	16.53	0.00	38.50	64.39	9.12	13.12	30	2.10	925.04	925.25	926.97	927.34	925.00	929.32	2-1
3-2	61	0.38	6.11	0.50	0.19	3.06	10.0	14.2	4.5	13.77	0.00	35.74	85.14	8.26	17.34	30	3.67	925.25	927.49	927.34	929.52	929.32	932.01	3-2
4-3	147	0.43	5.73	0.50	0.22	2.87	10.0	13.9	4.6	13.07	0.00	35.04	50.64	8.25	10.32	30	1.30	927.49	929.40	929.52	931.41	932.01	935.21	4-3
5-4	30	0.49	5.30	0.50	0.25	2.65	10.0	13.8	4.6	12.12	0.00	34.09	44.43	8.11	9.05	30	1.00	929.40	929.70	931.41	931.68	935.21	935.21	5-4
6-5	168	0.36	4.16	0.50	0.18	2.08	10.0	13.3	4.7	9.68	0.00	9.68	11.38	6.81	6.44	18	1.00	930.70	932.38	931.76	933.58	935.21	938.02	6-5
7-6	83	0.52	3.80	0.50	0.26	1.90	10.0	13.0	4.7	8.93	0.00	8.93	9.86	6.00	5.58	18	0.75	932.38	933.00	933.58	934.16	938.02	938.23	7-6
8-7	111	0.15	3.01	0.50	0.08	1.51	10.0	12.6	4.8	7.18	0.00	7.18	8.03	5.06	4.54	18	0.50	933.00	933.55	934.16	934.64	938.23	939.30	8-7
16-8	132	0.76	0.76	0.50	0.38	0.38	10.0	10.0	5.3	2.01	0.00	2.01	2.73	3.26	3.48	12	0.50	934.15	934.81	935.06	935.44	939.30	937.15	16-8
17-8	116	0.22	0.22	0.50	0.11	0.11	10.0	10.0	5.3	0.58	0.00	0.58	2.73	1.15	3.48	12	0.50	934.05	934.63	935.06	935.11	939.30	937.64	17-8
13-5	122	0.37	0.65	0.50	0.19	0.33	10.0	10.2	5.2	1.71	0.00	23.68	26.62	8.85	8.47	24	1.18	930.20	931.64	931.68	933.36	935.21	936.14	13-5
9-8	162	1.12	1.88	0.50	0.56	0.94	10.0	10.2	5.3	4.94	0.00	4.94	6.04	4.62	4.92	15	0.75	933.80	935.01	935.06	935.91	939.30	939.52	9-8
10-9	30	0.76	0.76	0.50	0.38	0.38	10.0	10.0	5.3	2.01	0.00	2.01	2.73	3.77	3.48	12	0.50	935.26	935.41	935.91	936.05	939.52	939.52	10-9
14-13	88	0.28	0.28	0.50	0.14	0.14	10.0	10.0	5.3	0.74	21.97	22.71	40.64	7.94	12.94	24	2.75	931.64	934.05	933.36	935.75	936.14	939.00	14-13
15-7	30	0.27	0.27	0.50	0.14	0.14	10.0	10.0	5.3	0.71	0.00	0.71	5.46	2.10	6.95	12	2.00	933.50	934.10	934.16	934.45	938.23	938.23	15-7
11-2	147	0.61	1.26	0.50	0.31	0.63	10.0	10.6	5.2	3.25	0.00	3.25	5.17	5.85	6.58	12	1.80	926.75	929.40	927.34	930.17	929.32	933.40	11-2
12-11	79	0.65	0.65	0.50	0.33	0.33	10.0	10.0	5.3	1.72	0.00	1.72	3.11	3.19	3.96	12	0.65	929.37	929.88	930.17	930.44	933.40	933.88	12-11
19-18	157	0.42	1.31	0.50	0.21	0.66	10.0	14.0	4.5	2.97	0.00	2.97	7.06	3.78	8.99	12	3.35	925.00	930.26	930.74	931.67	932.00	934.28	19-18
20-19	79	0.39	0.89	0.50	0.20	0.45	10.0	13.6	4.6	2.05	0.00	2.05	3.66	2.65	4.66	12	0.90	930.26	930.97	931.70	931.91	934.28	934.99	20-19
21-20	122	0.24	0.50	0.50	0.12	0.25	10.0	12.3	4.8	1.21	0.00	1.21	3.56	2.48	4.53	12	0.85	930.97	932.01	931.92	932.47	934.99	935.48	21-20
22-21	122	0.26	0.26	0.50	0.13	0.13	10.0	10.0	5.3	0.69	0.00	0.69	2.73	2.40	3.48	12	0.50	932.01	932.62	932.47	932.97	935.48	935.48	22-21

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	10	0.00	7.37	0.50	0.00	3.69	10.0	14.3	4.5	38.50	64.39	9.12	30	2.10	925.04	925.25	926.97	927.34	925.00	929.32	2-1
2	1	61	0.38	6.11	0.50	0.19	3.06	10.0	14.2	4.5	35.74	85.14	8.26	30	3.67	925.25	927.49	927.34	929.52	929.32	932.01	3-2
3	2	147	0.43	5.73	0.50	0.22	2.87	10.0	13.9	4.6	35.04	50.64	8.25	30	1.30	927.49	929.40	929.52	931.41	932.01	935.21	4-3
4	3	30	0.49	5.30	0.50	0.25	2.65	10.0	13.8	4.6	34.09	44.43	8.11	30	1.00	929.40	929.70	931.41	931.68	935.21	935.21	5-4
5	4	168	0.36	4.16	0.50	0.18	2.08	10.0	13.3	4.7	9.68	11.38	6.81	18	1.00	930.70	932.38	931.76	933.58	935.21	938.02	6-5
6	5	83	0.52	3.80	0.50	0.26	1.90	10.0	13.0	4.7	8.93	9.86	6.00	18	0.75	932.38	933.00	933.58	934.16	938.02	938.23	7-6
7	6	111	0.15	3.01	0.50	0.08	1.51	10.0	12.6	4.8	7.18	8.03	5.06	18	0.50	933.00	933.55	934.16	934.64	938.23	939.30	8-7
8	7	132	0.76	0.76	0.50	0.38	0.38	10.0	10.0	5.3	2.01	2.73	3.26	12	0.50	934.15	934.81	935.06	935.44	939.30	937.15	16-8
9	7	116	0.22	0.22	0.50	0.11	0.11	10.0	10.0	5.3	0.58	2.73	1.15	12	0.50	934.05	934.63	935.06	935.11	939.30	937.64	17-8
10	4	122	0.37	0.65	0.50	0.19	0.33	10.0	10.2	5.2	23.68	26.62	8.85	24	1.18	930.20	931.64	931.68	933.36	935.21	936.14	13-5
11	7	162	1.12	1.88	0.50	0.56	0.94	10.0	10.2	5.3	4.94	6.04	4.62	15	0.75	933.80	935.01	935.06	935.91	939.30	939.52	9-8
12	11	30	0.76	0.76	0.50	0.38	0.38	10.0	10.0	5.3	2.01	2.73	3.77	12	0.50	935.26	935.41	935.91	936.05	939.52	939.52	10-9
13	10	88	0.28	0.28	0.50	0.14	0.14	10.0	10.0	5.3	22.71	40.64	7.94	24	2.75	931.64	934.05	933.36	935.75	936.14	939.00	14-13
14	6	30	0.27	0.27	0.50	0.14	0.14	10.0	10.0	5.3	0.71	5.46	2.10	12	2.00	933.50	934.10	934.16	934.45	938.23	938.23	15-7
15	1	147	0.61	1.26	0.50	0.31	0.63	10.0	10.6	5.2	3.25	5.17	5.85	12	1.80	926.75	929.40	927.34	930.17	929.32	933.40	11-2
16	15	79	0.65	0.65	0.50	0.33	0.33	10.0	10.0	5.3	1.72	3.11	3.19	12	0.65	929.37	929.88	930.17	930.44	933.40	933.88	12-11
18	End	157	0.42	1.31	0.50	0.21	0.66	10.0	14.0	4.5	2.97	7.06	3.78	12	3.35	925.00	930.26	930.74	931.67	932.00	934.28	19-18
19	18	79	0.39	0.89	0.50	0.20	0.45	10.0	13.6	4.6	2.05	3.66	2.65	12	0.90	930.26	930.97	931.70	931.91	934.28	934.99	20-19
20	19	122	0.24	0.50	0.50	0.12	0.25	10.0	12.3	4.8	1.21	3.56	2.48	12	0.85	930.97	932.01	931.92	932.47	934.99	935.48	21-20
21	20	122	0.26	0.26	0.50	0.13	0.13	10.0	10.0	5.3	0.69	2.73	2.40	12	0.50	932.01	932.62	932.47	932.97	935.48	935.48	22-21

Project File: 765930_Hunters_Ext.stm

Number of lines: 21

Run Date: 5/5/2025

NOTES:Intensity = 50.82 / (Inlet time + 8.30) ^ 0.78; Return period =Yrs. 10 ; c = cir e = ellip b = box

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, May 5 2025

Culvert 24 - 23

Invert Elev Dn (ft)	=	933.48
Pipe Length (ft)	=	152.33
Slope (%)	=	1.00
Invert Elev Up (ft)	=	935.00
Rise (in)	=	30.0
Shape	=	Circular
Span (in)	=	30.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

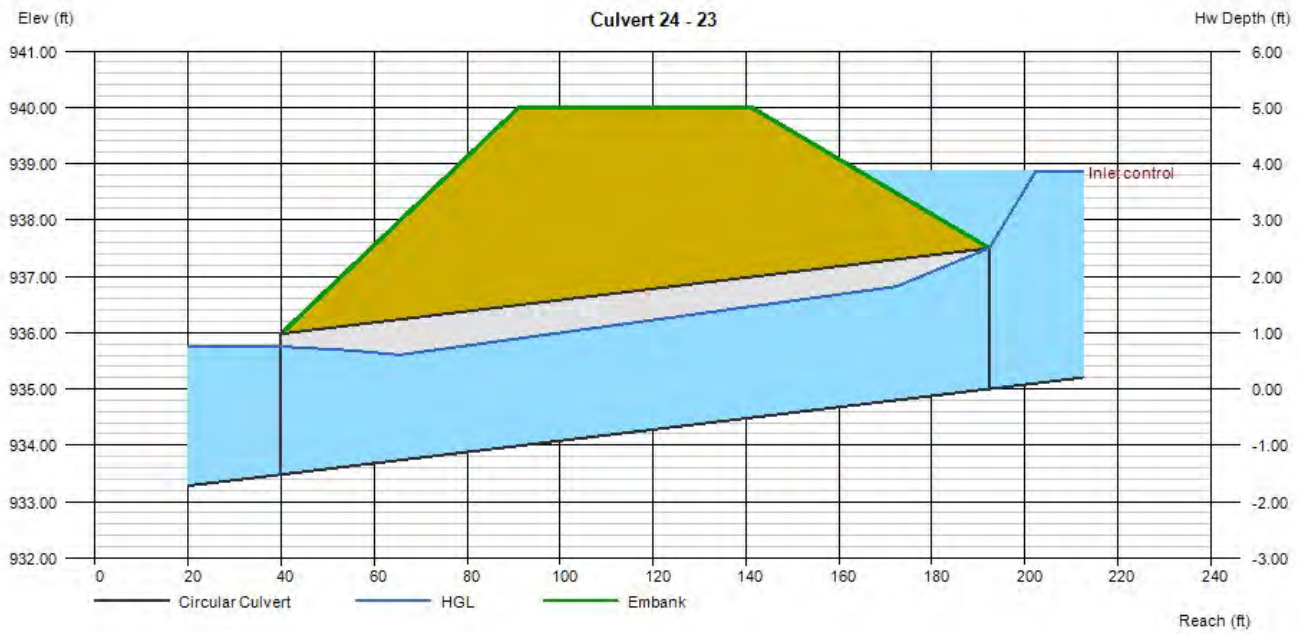
Top Elevation (ft)	=	940.00
Top Width (ft)	=	50.00
Crest Width (ft)	=	100.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	73.28 TOTAL 50 YR
Tailwater Elev (ft)	=	(dc+D)/2

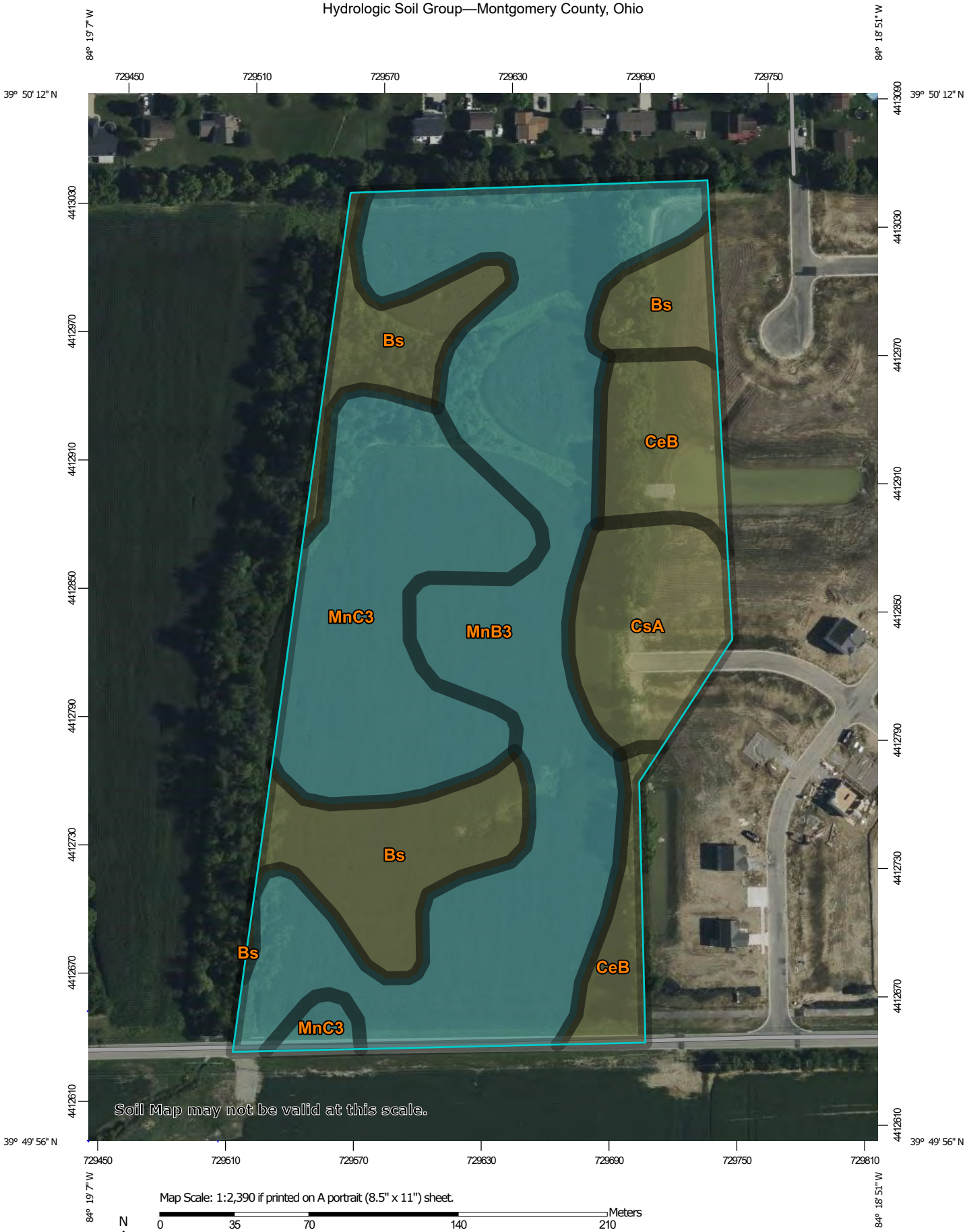
Highlighted

Qtotal (cfs)	=	73.00
Qpipe (cfs)	=	73.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.79
Veloc Up (ft/s)	=	8.49
HGL Dn (ft)	=	935.75
HGL Up (ft)	=	937.05
Hw Elev (ft)	=	938.86
Hw/D (ft)	=	1.55
Flow Regime	=	Inlet Control



APPENDIX D:
USDA NRCS Web Soil Survey

Hydrologic Soil Group—Montgomery County, Ohio



Map Scale: 1:2,390 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N 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 1:15,800.

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: Montgomery County, Ohio
Survey Area Data: Version 23, Aug 28, 2024

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

Date(s) aerial images were photographed: May 18, 2023—Aug 4, 2023

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
Bs	Brookston silty clay loam, fine texture, 0 to 2 percent slopes	C/D	3.4	18.1%
CeB	Celina silt loam, 2 to 6 percent slopes	C/D	1.7	9.3%
CsA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	C/D	1.6	8.8%
MnB3	Miamian clay loam, 2 to 6 percent slopes, severely eroded	C	7.9	42.6%
MnC3	Miamian clay loam, 6 to 12 percent slopes, severely eroded	C	4.0	21.2%
Totals for Area of Interest			**18.7**	**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

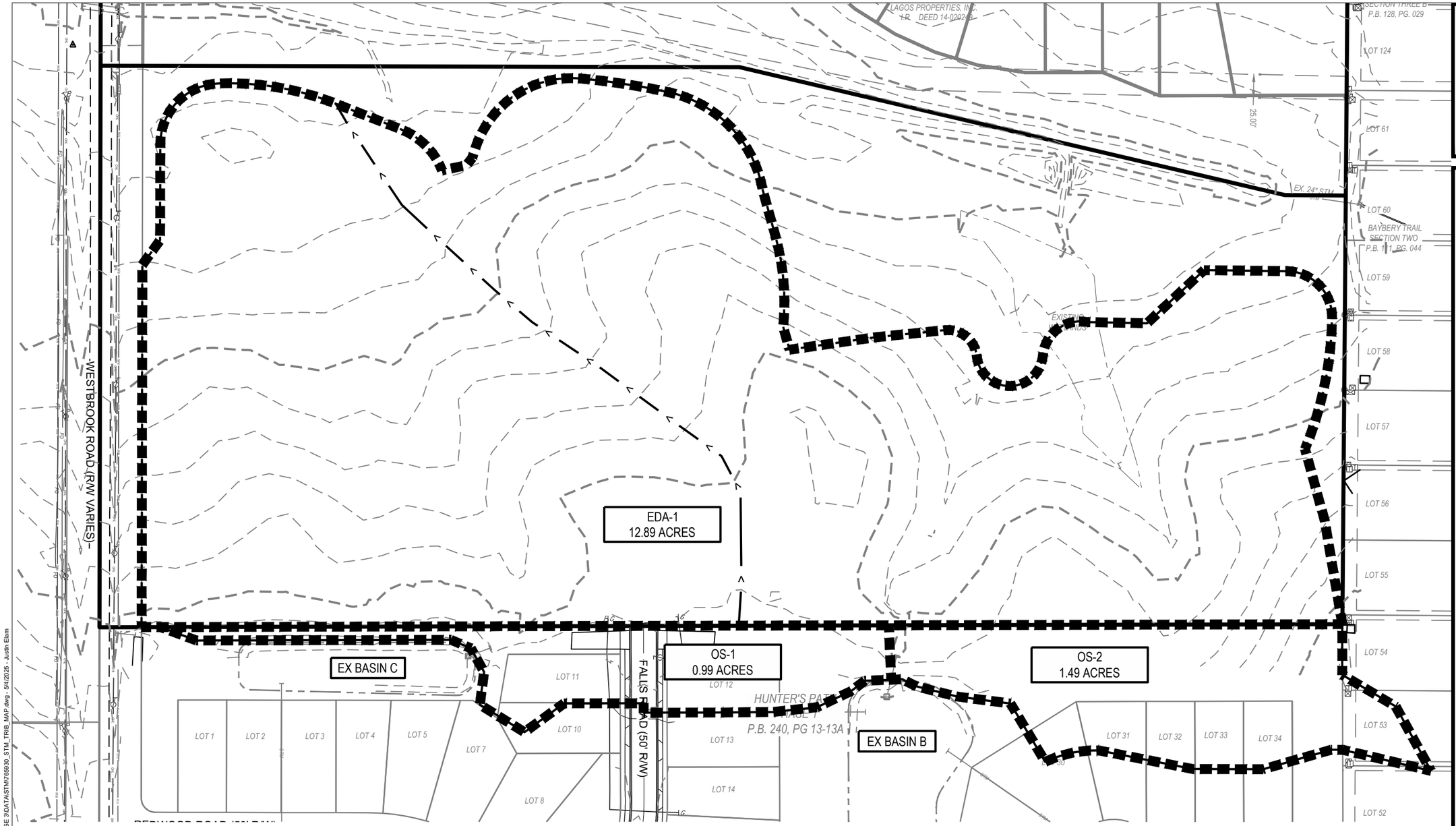
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX E:
DRAINAGE AREA MAPS

APPENDIX E1:
EXISTING CONDITIONS DRAINAGE AREA MAP



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CAP 5

HUNTERS PATH PHASE 3

SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

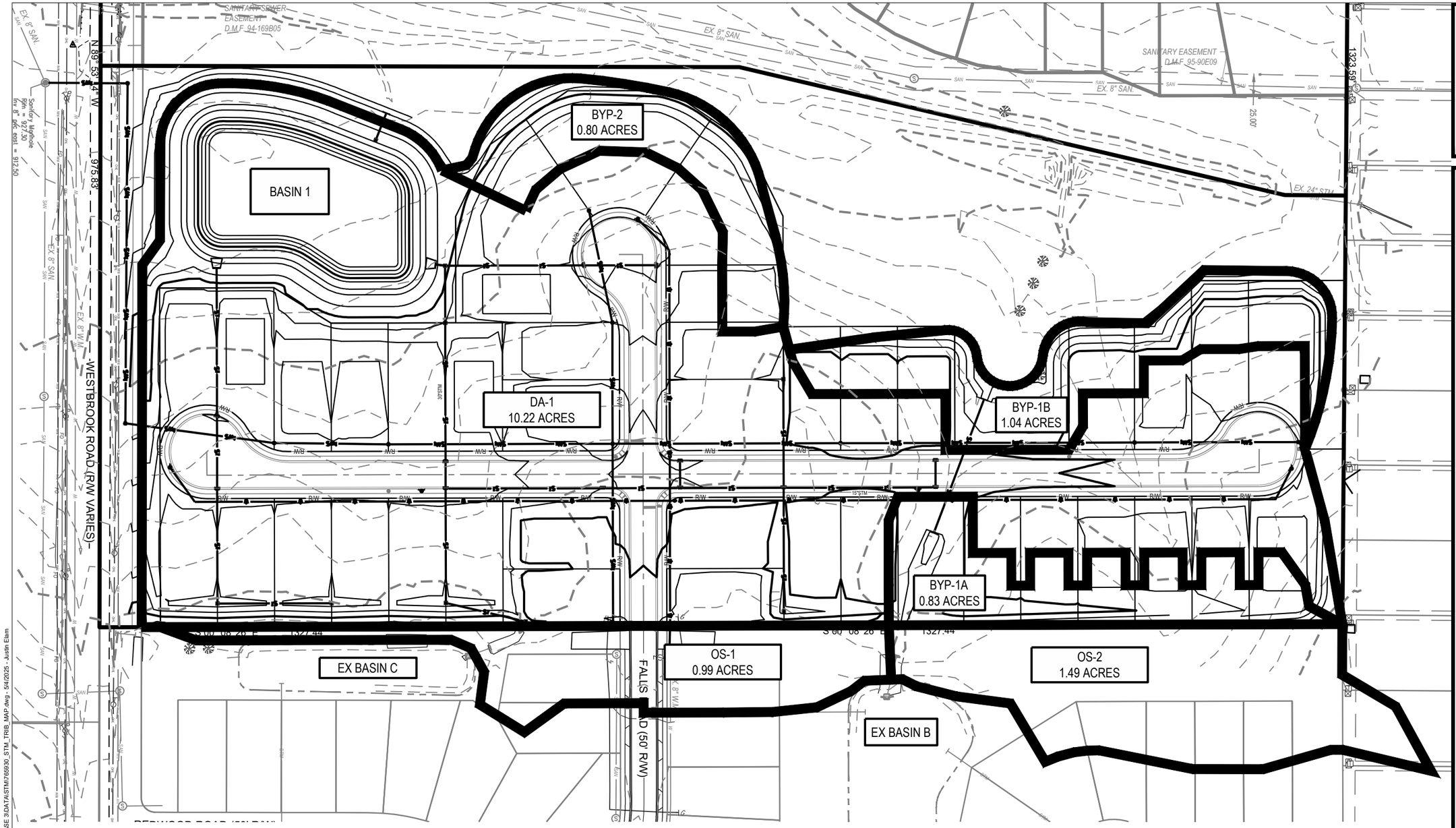
Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	APRIL, 2025
Issue:	FINAL DEVELOPMENT

Drawing Title:
PRE-DEVELOPED DRAINAGE MAP

1

C:\DC\ACCDocs\CESO\CAP5 Hunters Path Extension\Project Files_CESO\03-CIVIL\3-PHASE 3\DATA\STM\765930_STM_TRIB_MAP.dwg - 5/4/2025 - Justin Elam

APPENDIX E2:
PROPOSED CONDITIONS DRAINAGE AREA MAP



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CAP 5

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SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	APRIL, 2025
Issue:	FINAL DEVELOPMENT

Drawing Title:

POST DEVELOPED DRAINAGE MAP

1

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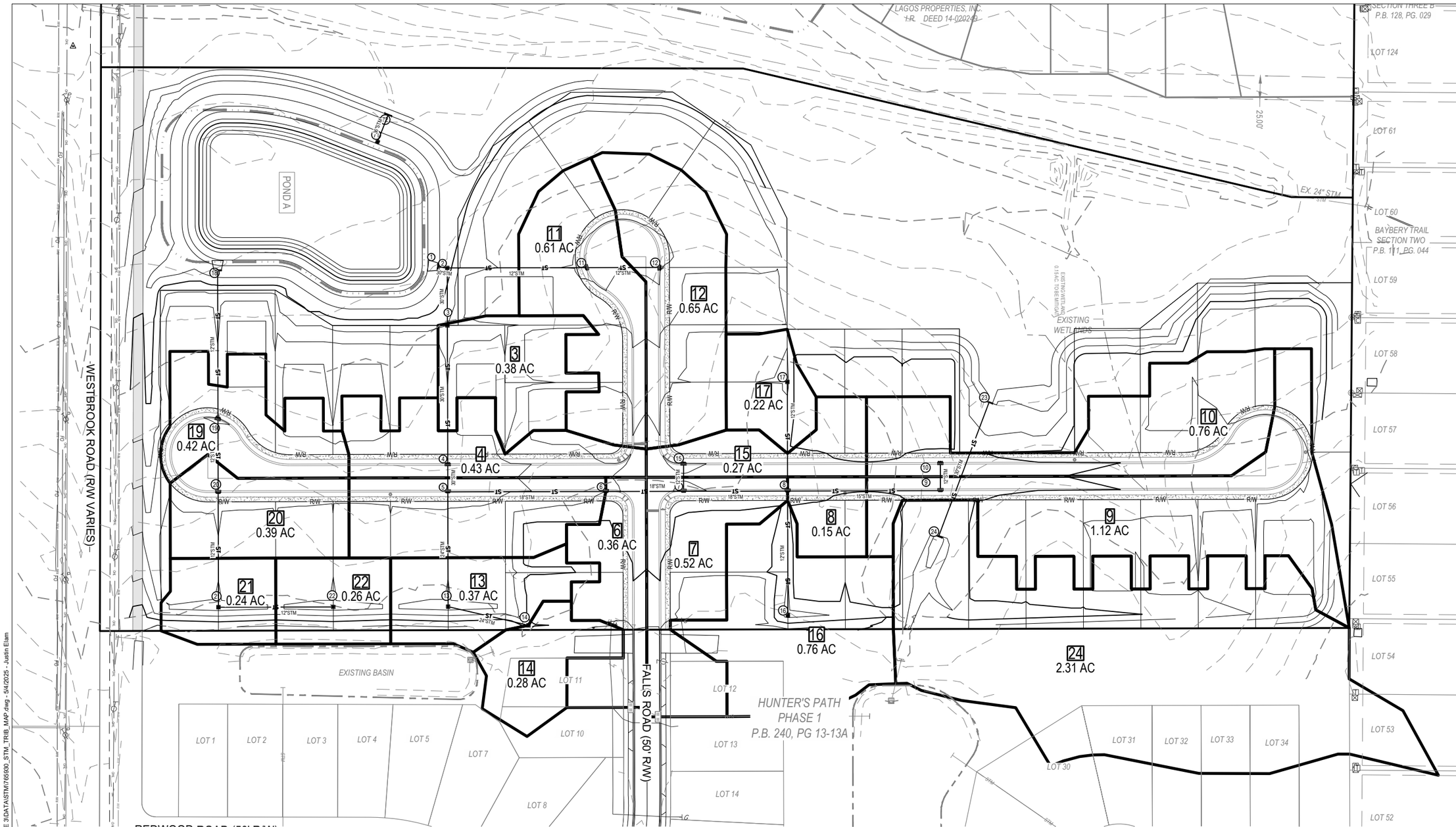
APPENDIX E3:
TRIBUTARY DRAINAGE AREA MAP



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CAP 5
HUNTERS PATH PHASE 3
SECTION 33, TOWN 5, RANGE 5E
CLAYTON, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	765930
Scale:	AS SHOWN
Drawn By:	SJS
Checked By:	JEE
Date:	APRIL, 2025
Issue:	FINAL DEVELOPMENT

Drawing Title:
STORM SEWER DRAINAGE MAP

1

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