



TOWN OF ASHLAND CITY
Planning Commission Meeting
February 01, 2021 5:30 PM
Agenda

Chairwoman: Melody Sleeper

Vice Chairman: Gerald Greer

Committee Members: Steve Allen, Alberto Santacruz, Steven Stratton, Hadley Williams

CALL TO ORDER

ROLL CALL

APPROVAL OF AGENDA

APPROVAL OF MINUTES

- [1.](#) January 4, 2021 Planning Commission Meeting Minutes

PUBLIC FORUM

NEW BUSINESS

- [2.](#) Site Plan Approval: Gas Station & Convenience Market - Map 62 Parcel 4.01

OLD BUSINESS

- [3.](#) Jarrett Concrete Plant Site Plan Approval- Hwy 12 South Map 65 Parcel 046
4. Landscape Ordinance

OTHER

ADJOURNMENT

Those with disabilities who require certain accommodations in order to allow them to observe and/or participate in this meeting, or who have questions regarding the accessibility of the meeting, should contact the ADA Coordinator at 615-792-6455, M-F 8:00 AM – 4:00 PM. The town will make reasonable accommodations for those persons.



TOWN OF ASHLAND CITY Planning Commission Meeting January 04, 2021 5:30 PM Minutes

CALL TO ORDER

Mayor Allen called the meeting to order at 5:30 p.m.

ROLL CALL

PRESENT

Mayor Steve Allen
Committee Member Gerald Greer
Committee Member Alberto Santacruz
Committee Member Steven Stratton
Committee Member Hadley Williams

ABSENT

Chairwoman Melody Sleeper
Committee Member Justin Bell

Ms. Kellie Reed informed the committee they will need to elect a Vice Chairman who will be responsible for running the meeting in Ms. Sleeper's absence. Mayor Allen opened the floor for nominations. A motion was made by Committee Member Stratton, seconded by Committee Member Santacruz, to elect Committee Member Greer as the Vice Chairman of the Planning Commission. All approved by voice vote and Vice Chairman Greer took over the meeting.

APPROVAL OF AGENDA

Ms. Reed requested adding "Approval of Resignation of Justin Bell" under Other. A motion was made by Mayor Allen, seconded by Committee Member Stratton, to approve the agenda with the changes. All approved by voice vote.

APPROVAL OF MINUTES

1. December 7, 2020 Planning Commission Meeting Minutes

A motion was made by Committee Member Stratton, seconded by Mayor Allen, to approve the December 7, 2020 meeting minutes. All approved by voice vote.

PUBLIC FORUM

None.

NEW BUSINESS

2. Jarrett Concrete Plant Site Plan Approval- Hwy 12 South Map 65 Parcel 046

Mr. Travis Jarrett stated this site plan covers the building site and some parking. Further, this is for manufacturing and storage, but does not include office space. Committee Member Santacruz questioned the location of the site. Mr. Jarrett discussed the location and stated it is behind the Nashville Fabrication up to the left. Mayor Allen questioned the structure of the building. Mr. Jarrett responded it will be a metal building with a concrete slab. Vice Chairman Greer asked Site Engineer Devender Sandhu to review the plan. Mr. Sandhu stated they are awaiting some items from TDOT and some of the questions that came up had to do with the TDOT turnaround. He further discussed the storm water and the elevation. City Planner Rick Gregory stated the engineer for the city had reviewed the site plan and a number of issues were noted that have not been resolved. He further stated these issues may be cause for a deferral being they are unresolved. Mr. Sandhu stated these are pretty standard items for comment and details are unavailable at this time due to TDOT needing to acquire some of the property. He

assured the committee they will complete the checklist and will get it submitted. Further, of the six (6) to seven (7) acres on the site they are only utilizing about an acre. Vice Chairman Greer questioned how the committee would like to proceed. A motion was made by Committee Member Stratton, seconded by Committee Member Santacruz, to defer this until the communication is made with CSR and items are resolved. All approved by voice vote.

3. Subdivision Approval: Lindahl Subdivision-1007 Hunter Lane

Ms. Reed stated that back when the property was purchased, they did subdivide and rezone the property; however, neither Mr. McClain nor I were able to find much information from back then. She stated she did find a rezone, but it was only a portion of the property. She stated after further discussion they decided to put it on the agenda to clean it up and record it correctly. Mr. Johnny Lindahl stated he wants is record this as Industrial except for the area that was zoned commercially previously. Mr. Tom Jones stated there was a lot of confusion on the whole track. He further discussed the currant leases on the subdivision. Mr. Lindahl stated the reason this is an issue is currently is because there is someone who is interested in the property for the use of a distillery, restaurant, and retail store. Mayor Allen questioned the total acreage. City Planner Rick Gregory responded it shows 14.84 on GIS records. Mr. McClain stated Mr. Lindahl had the property subdivided into four parcels. Further, we found the rezone from years ago, but we cannot find the subdivision records from years ago and we are trying to correct this by completing and recording the subdivision then rezoning the third and forth lots. A motion was made by Mayor Allen, seconded by Committee Member Stratton, to approve the subdivision. Voting Yea: Mayor Allen, Committee Member Greer, Committee Member Santacruz, Committee Member Stratton, Committee Member Williams.

4. Rezone: Lindahl Property

Ms. Reed displayed the subdivided plats. After much discussion City Planner Rick Gregory recommended the zoning for the lots all be recorded on the same ordinance. Further, the lot 1 be I-1 to C-2 and the remaining lots be zoned to I-2. A motion was made by Mayor Allen, seconded by Committee Member Stratton, to rezone all the lots in the subdivision. Voting Yea: Mayor Allen, Committee Member Greer, Committee Member Santacruz, Committee Member Stratton, Committee Member Williams.

OLD BUSINESS

5. Landscape Ordinance

City Planner Rick Gregory stated he emailed a copy of a revised document for this discussion earlier today. He further stated they have reviewed the majority of it, but there are still just a few things that need to be discussed. After much discussion Committee Member Stratton recommended lightening the load for the cost of the buffer between the development and residential sites. He further stated the committee has went through the ordinance and lightened the load already, but it is important to get this finalized. He requested Mr. Gregory complete those items and bring it back for approval next month. A motion was made by Committee Member Stratton, seconded by Committee Member Santacruz, to defer this discussion until the next meeting. All approved by voice vote.

OTHER

6. Approval of Resignation: Justin Bell

Ms. Reed stated Committee Member Justin Bell submitted his resignation. A motion was made by Mayor Allen, seconded by Committee Member Stratton, to accept the resignation. All approved by voice vote.

ADJOURNMENT

A motion was made by Mayor Allen, seconded by Committee Member Santacruz, to adjourn the meeting. All approved by voice vote and the meeting adjourned at 6:44 p.m.



Ashland City Fire, Building & Life Safety Department

101 Court Street
Ashland City TN 37015

Fire & Life Safety: (615) 792-4531 – Building Codes (615) 792-6455

PLANNING COMMISSION SITE PLAN CHECKLIST

NAME OF SITE 0 Old Hydes Ferry Pike

LOCATION 0 Old Hydes Ferry Pike ZONING DISTRICT C2

OWNER Ramdal Ashland City, LLC

ENGINEER Dewey Engineering

1. Three (3) copies of the site plan. Please indicate at time of application if you would like any of the remaining copies after your case is heard and voted on.
2. Three (3) copies and an electronic PDF of revised site plans made available to the Fire, Building and Life Safety Department – according to planner/engineer comments. Also written response to all comments to match what was changed on revised site plans.
3. Location map of the site at a scale of not less than 1"=2000' (USGS map is acceptable). Map must show the following:
 - a. Approximate site boundary
 - b. Public streets in the vicinity
 - c. Types of development of surrounding parcels
 - d. Public water and sewer lines serving the site
 - e. Map # and Parcel # of site location
4. Site boundary, stamped and signed by a registered surveyor.
5. The shape, size and location of all existing buildings on the lot.
6. The existing and intended use of the lot and of structures on it. If residential, give the number of dwelling units per building.
7. Topographic survey of the site with contour intervals at no greater than 5' intervals, stamped and signed by a registered surveyor.
8. Location of all driveways and entrances with dimensions from the centerline of the drive to the nearest property corner and to the nearest intersection (if the intersection is closer than 200 feet).
9. Dimensioned layout and location of all parking spaces including handicapped spaces.
10. Dimensioned layout and location of off-street loading bays and docks.

11. Location and area of open space.
12. A table showing the ground coverage, total floor area and building heights.
13. Location, dimension and heights of all fences and walls with materials specified.
14. Location, type and amount of landscaping.
15. Proposed means of surface drainage, including locations and sizes of all culverts, ditches and detention structures, storm-water system to be designed as per the requirements of the Ashland City Planning Commission.
16. Dimensioned location of all easements and right-of-ways.
17. Location of all portions of the site that are within the floodway and the 100-year floodplain. A note will be included which gives the FEMA map number from which this information was developed. In addition, if portions of the site are in the 100-year floodplain and/or the floodway, the 100-year flood elevation(s) at the site will be listed on the plan.
18. Location, size and distance to all public utilities serving the site including all fire hydrants.
19. Location, by type and size of all proposed signs, (Please note that signs larger than 40 sq. ft. are not permitted per the sign ordinance for the Town of Ashland City.
20. Vegetation, show at minimum the following:
 - a. Existing tree masses and hedgerows
 - b. General description of the tree types and sizes within the tree masses
 - c. Location and identification of trees 15" in caliper (measured 4' above the ground) or larger
 - d. Description of landscaping requirements for the site based upon surrounding land uses (see Zoning Ordinance Section 3, 140)
21. Identification of slopes greater than 15% and identification of those soils (SCS soil mapping is acceptable) on those slopes.
22. Site plan application fee \$100
23. Additional engineering review etc., site inspection charges are subject to Section 14-301 of the Ashland City Municipal Code per Ordinance #165.
24. Three (3) sets of the construction plans for the site.
25. Submittal must be made at least 20 working days prior to the Planning Commission meeting to be heard.
26. If application is requesting a variance, application is to be submitted to the Building Official in accordance with Section 7.080 of the Ashland City Zoning Ordinance.

January 15, 2021

Letter of Transmittal



DEWEY
ENGINEERING

To:
Ashland City Building & Codes
233 Tennessee Waltz Pkwy
Ashland City, TN 37015

From: Michael Dewey
Dewey Engineering
2925 Berry Hill Drive
Nashville, TN 37204
Phone 615-979-9071

Copies	Description
1	Site Plan Application
1	Site Plan Application & Checklist
1	\$100 Review Fee
3	Copies of Site Plan
1	Drainage Report
1	Disc containing PDFs

Notes:
Old Hydes Ferry – Site Plan Initial Submittal



Ashland City Fire, Building & Life Safety Department

101 Court Street
Ashland City TN 37015
Fire & Life Safety: (615) 792-4531 – Building Codes (615) 792-6455

APPLICATION FOR SITE PLAN APPROVAL

Date Received: 1/15/21

Property Address: 0 Old Hydes Ferry Pike, Ashland City, TN 37015

Map # 62 Parcel # 4.01 Acreage: 1.6

Property Owner(s): Jason Walker

Phone: _____

Description of project being reviewed: Mixed use development
consisting of a Gasoline Station & Convenience Market as well as a

Restaurant in the C2 zoning district.

Having submitted plans for review by the Ashland City Planning Commission, I understand that I am responsible for all review fees incurred by the Town of Ashland City. I understand that the fee paid at the time of submittal is not applicable for the fees incurred through review. With my signature, I verify that I fully understand that I am responsible for said fees, and that I have received a copy of Ordinance #165.

ASHLAND CITY PLANNING COMMISSION SITE PLAN REVIEW FEE: \$100.00

NEXT SCHEDULED MEETING: _____

Applicant's Signature

Date

Site Plan for Old Hydes Ferry Pike

Being a Portion of Parcel 4.01 on Tax Map 62
Ashland City, Cheatham County, Tennessee

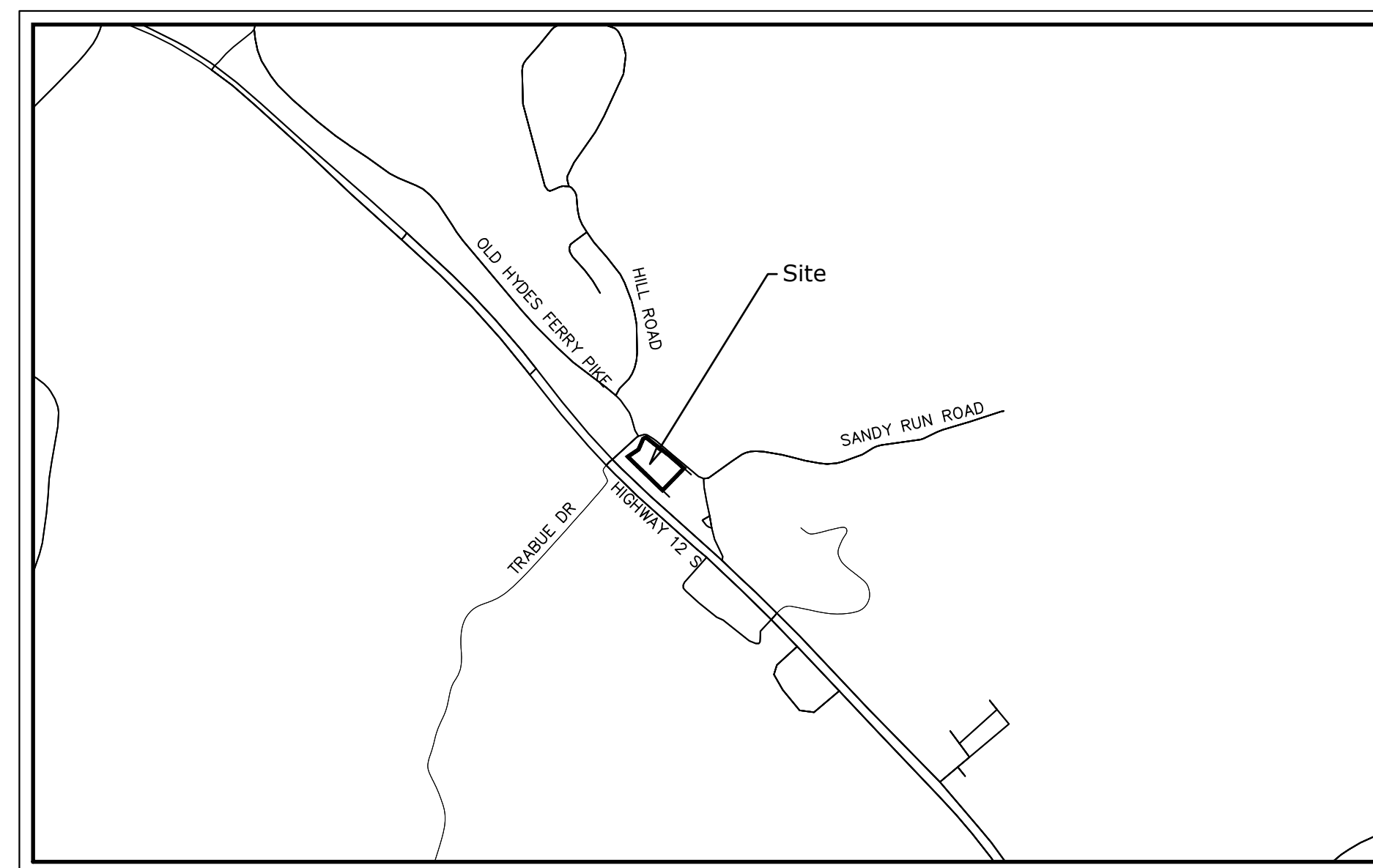
Revisions:

Drawing Notes:

Date: January 15, 2021

General Notes:

1. BOUNDARY, EASEMENT AND TOPOGRAPHIC INFORMATION SHOWN IN BASED ON A ALTA/ACSM LAND TITLE SURVEY CONDUCTED BY SOUTHERN CONSULTING AND DATED DECEMBER 3, 2020.
2. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS. INFORM ENGINEER OF ANY CONFLICTS DETRIMENTAL TO THE DESIGN INTENT.
3. 72 HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES: TENNESSEE 811 AND ALL OTHER AGENCIES THAT MAY HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NON-MEMBERS OF TENNESSEE 811.
4. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
5. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND OWNER'S REPRESENTATIVE FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
6. CONTRACTOR SHALL OBTAIN A PERMIT FOR ALL CONSTRUCTION ACTIVITIES AND PERFORM SAID ACTIVITIES IN ACCORDANCE WITH ALL LOCAL, STATE, FEDERAL & OSHA REGULATIONS.
7. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL APPLICABLE PERMITS, AND PAY ALL REQUIRED FEES PRIOR TO BEGINNING WORK.
8. ANY WORK PERFORMED IN THE LOCAL RIGHT OF WAYS SHALL BE IN ACCORDANCE WITH THE APPLICABLE LOCAL REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS FOR THE WORK, SCHEDULE NECESSARY INSPECTIONS, AND PROVIDE THE NECESSARY TRAFFIC CONTROL MEASURES AND DEVICES, ETC., FOR WORK PERFORMED IN THE RIGHT OF WAYS.
9. THE PROPOSED SITE IMPROVEMENTS ARE NOT EXPECTED TO REQUIRE COVERAGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT ISSUED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC). THE TOTAL SITE DISTURBANCE WILL BE LESS THAN ONE ACRE.
10. CONTRACTOR SHALL IMPLEMENT ALL SOIL AND EROSION CONTROL, PRACTICES REQUIRED BY METRO NASHVILLE AND TDEC.
11. ALL GROUND SURFACE AREAS THAT HAVE BEEN EXPOSED OR LEFT BARE AS A RESULT OF CONSTRUCTION AND ARE TO FINAL GRADE AND ARE TO REMAIN SO, SHALL BE PERMANENTLY STABILIZED AS SOON AS PRACTICAL IN ACCORDANCE WITH SPECIFICATIONS.
12. ALL WORK SHALL COMPLY WITH METRO NASHVILLE PUBLIC WORKS SPECIFICATIONS, AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS AND IN ACCORDANCE WITH APPLICABLE STANDARDS OF METRO NASHVILLE.
13. ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE LATEST REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT.
14. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
15. BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT THEY ARE NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.
16. WHERE CURB IS PRESENT, DIMENSIONS ARE SHOWN TO THE FACE OF CURB, OTHERWISE DIMENSIONS ARE SHOWN TO THE EDGE OF PAVEMENT AND/OR EDGE OF BUILDING UNLESS OTHERWISE NOTED.
17. SITE SIGNAGE AND STRIPING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
18. CONSTRUCTION OF ALL ROADWAYS AND SIDEWALKS SHALL MEET THE REQUIREMENTS OF METRO NASHVILLE PUBLIC WORKS ROADWAY CONSTRUCTION CRITERIA AND STANDARD DETAILS.
19. CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND AS REQUIRED BY LOCAL AGENCIES WHEN WORKING IN AND/OR ALONG STREETS, ROADS, HIGHWAYS, ETC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL AND COORDINATE WITH LOCAL AND/OR STATE AGENCIES REGARDING THE NEED, EXTENT AND LIMITATIONS ASSOCIATED WITH INSTALLING AND MAINTAINING TRAFFIC CONTROL MEASURES.
20. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL BE IN ACCORDANCE WITH ALL FEDERAL OSHA REGULATIONS. CONTRACTOR TO PAY PARTICULAR ATTENTION TO 29 CFR PART 1926, SUBPARTS M AND P.



Vicinity Map
NTS

Sheet Schedule

1	C0.0	Cover Sheet
2	C1.0	Layout & Utilities Plan
3	C2.0	Existing Conditions & Initial Erosion Control Plan
4	C3.0	Intermediate Erosion Control Plan
5	C4.0	Grading & Drainage Plan
6	C5.0	Details
7	L1.0	Landscape Compliance Plan

Project Summary

Site Data

Commissioner District - 4
Brian Abston

Property Location/Address:
0 Old Hydes Ferry Pike
Ashland City, TN 37015

Property Owner/Developer:
Ramdal Ashland City LLC
Address: 505 Whirlaway CT
Burns, TN 37029
Phone: (615) 5985887
Email: dhawalom@gmail.com

Engineer:
Dewey Engineering
Contact: Michael Dewey, PE
Address: 2925 Berry Hill Drive
Nashville, TN 37204
Phone: (615) 401-9956
Email: mdewey@dewey-engineering.com

Flood Note:
A Portion of this Property is Located
Within a Flood Hazard Area as Indicated
by Zone 'AE' on FEMA Map Number
47189C0142C.
Dated: Feb. 20, 2008.

Site Information

Parcel: Tax Map 62, Portion of Parcel 4.01

Current Zoning: C2

Total Site Area: 1.60 Acres (69,752 SF)

Current Use: Vacant
Proposed Use: Convenience Retail Sales and Services, Food & Beverage Service

Setbacks:
Street Yard: 40'
Side Yard: 10'

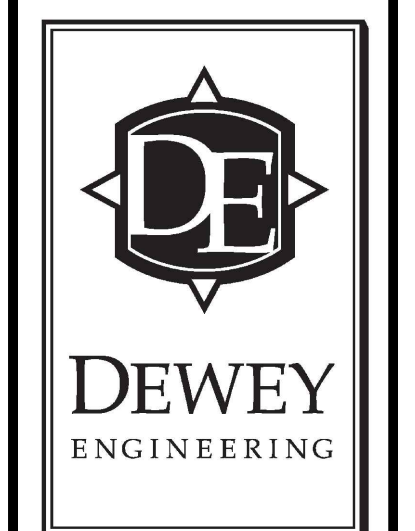
Max Building Height: 40'

ISR of Site: 62%

Building Coverage of Site: 9%
Building Square Footage (Gross)
4,002 SF Convenience Retail Sales and Services
2,520 SF Food & Beverage Service

Parking Required: 29 Stalls (Per Section 4.010.1.C)
Parking Provided: 50 Stalls

Old Hydes Ferry Pike
Being Parcel 4.01 on Tax Map 62
Ashland City, Cheatham County, Tennessee

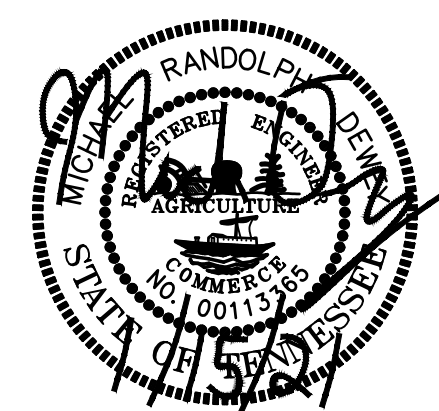


Cover Sheet

Job No. 20053

C0.0

1 of 7



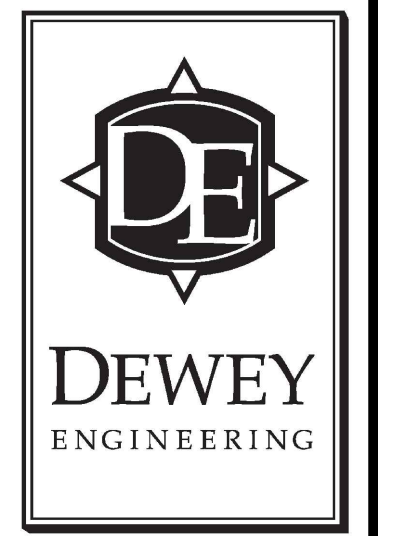
Revisions:

Drawing Notes:

Date: January 15, 2021

Old Hydes Ferry Pike

Being Parcel 4.01 on Tax Map 62
Asland City, Cheatham County, Tennessee

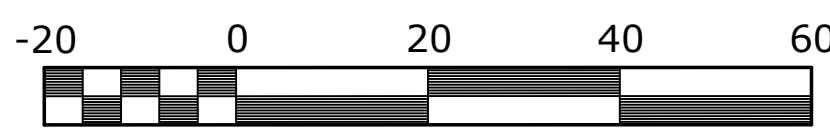
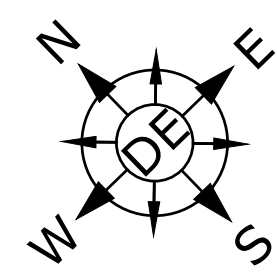


Existing
Conditions &
Initial
Erosion
Control Plan

Job No. 20053

C2.0

3 of 7



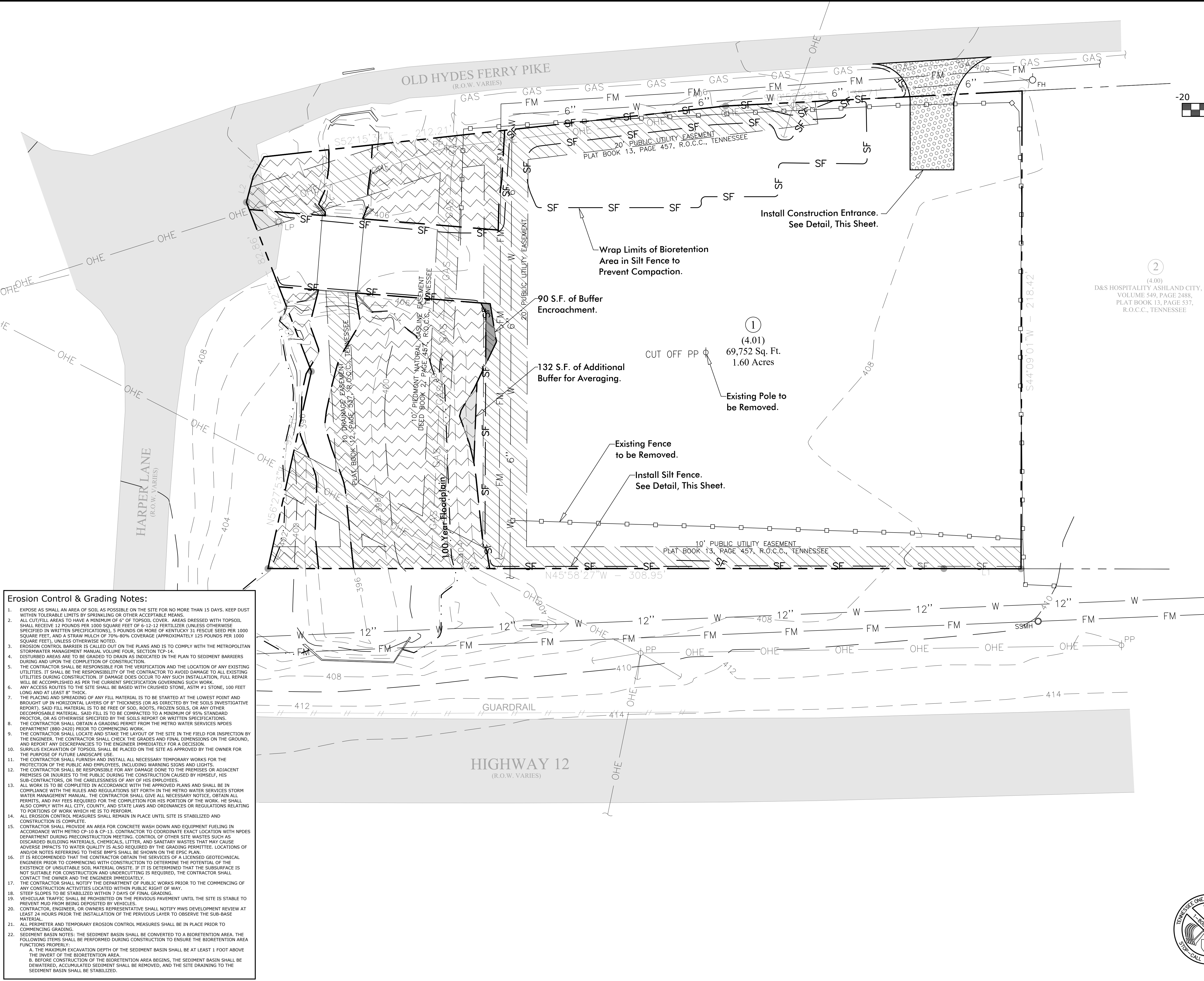
Scale 1" = 20'

Property Owner/Developer:
Ramdal Asland City LLC
Address: 505 Whirlaway CT
Burns, TN 37029
Phone: (615) 598-5887
Email: dhawalom@gmail.com

Engineer:
Dewey Engineering
Contact: Michael Dewey, PE
Address: 2925 Berry Hill Drive
Nashville, TN 37204
Phone: (615) 401-9956
Email: mdewey@dewey-engineering.com

Flood Note:
A Portion of this Property is Located
Within a Flood Hazard Area as Indicated
by Zone 'AE' on FEMA Map Number
47189C0142C.
Dated: Feb. 20, 2008.

(4.00)
D&S HOSPITALITY ASHLAND CITY, G.P.
VOLUME 549, PAGE 2488,
PLAT BOOK 13, PAGE 537,
R.O.C.C., TENNESSEE



Erosion Control & Grading Notes:

1. EXPOSE AS SMALL AN AREA OF SOIL AS POSSIBLE ON THE SITE FOR NO MORE THAN 15 DAYS. KEEP DUST WITHIN TOLERABLE LIMITS BY SPRINKLING OR OTHER ACCEPTABLE MEANS.
2. ALL CUT/FILL AREAS TO HAVE A MINIMUM OF 6" OF TOPSOIL COVER. AREAS DRESSED WITH TOPSOIL SHALL RECEIVE 12 POUNDS PER 1000 SQUARE FEET OF 6-12 FERTILIZER (UNLESS OTHERWISE SPECIFIED IN WRITTEN SPECIFICATIONS), 5 POUNDS OR MORE OF KENTUCKY 31 FESCUE SEED PER 1000 SQUARE FEET, AND A STRAW MULCH OF 70%-80% COVERAGE (APPROXIMATELY 125 POUNDS PER 1000 SQUARE FEET), UNLESS OTHERWISE NOTED.
3. EROSION CONTROL BARRIER IS CALLED OUT ON THE PLANS AND IS TO COMPLY WITH THE METROPOLITAN STORMWATER MANAGEMENT MANUAL VOLUME FOUR, SECTION 10-14.
4. DISTURBED AREAS ARE TO BE GRADED TO DRAIN AS INDICATED IN THE PLAN TO SEDIMENT BARRIERS DURING AND UPON THE COMPLETION OF CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION AND THE LOCATION OF ANY EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID DAMAGE TO ALL EXISTING UTILITIES DURING CONSTRUCTION. IF DAMAGE DOES OCCUR TO ANY SUCH INSTALLATION, FULL REPAIR WILL BE ACCOMPLISHED AS PER THE CURRENT SPECIFICATION GOVERNING SUCH WORK.
6. ANY ACCESS ROUTES TO THE SITE SHALL BE BASED WITH CRUSHED STONE, ASTM #1 STONE, 100 FEET LONG AND AT LEAST 8" THICK.
7. THE PLACING AND SPREADING OF ANY FILL MATERIAL IS TO BE STARTED AT THE LOWEST POINT AND BROUGHT UP IN HORIZONTAL LAYERS OF 8" THICKNESS (OR AS DIRECTED BY THE SOILS INVESTIGATIVE REPORT). SAID FILL MATERIAL IS TO BE FREE OF SOIL, ROOTS, FROZEN SOILS, OR ANY OTHER DECOMPOSABLE MATERIAL. SAID FILL IS TO BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR, OR AS OTHERWISE SPECIFIED BY THE SOILS REPORT OR WRITTEN SPECIFICATIONS.
8. THE CONTRACTOR SHALL OBTAIN A GRADING PERMIT FROM THE METRO WATER SERVICES NPDES DEPARTMENT (880-2420) PRIOR TO COMMENCING WORK.
9. THE CONTRACTOR SHALL LOCATE AND STAKE THE LAYOUT OF THE SITE IN THE FIELD FOR INSPECTION BY THE ENGINEER. THE CONTRACTOR SHALL CHECK THE GRADES AND FINAL DIMENSIONS ON THE GROUND, AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY FOR A DECISION.
10. SURPLUS EXCAVATION OF TOPSOIL SHALL BE PLACED ON THE SITE AS APPROVED BY THE OWNER FOR THE PURPOSE OF FUTURE LANDSCAPE USE.
11. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY TEMPORARY WORKS FOR THE PROTECTION OF THE PUBLIC AND EMPLOYEES, INCLUDING WARNING SIGNS AND LIGHTS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE PREMISES OR ADJACENT PREMISES OR INJURING TO THE PUBLIC DURING THE CONSTRUCTION CAUSED BY HIMSELF, HIS SUB-CONTRACTORS, OR THE CARELESSNESS OF ANY OF HIS EMPLOYEES.
13. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS AND SHALL BE IN COMPLIANCE WITH THE RULES AND REGULATIONS SET FORTH IN THE METRO WATER SERVICES STORM WATER MANAGEMENT MANUAL. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICE, OBTAIN ALL PERMITS, AND PAY FEES REQUIRED FOR THE COMPLETION FOR HIS PORTION OF THE WORK. HE SHALL ALSO COMPLY WITH ALL CITY, COUNTY, AND STATE LAWS AND ORDINANCES OR REGULATIONS RELATING TO PORTIONS OF WORK WHICH HE IS TO PERFORM.
14. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL SITE IS STABILIZED AND CONSTRUCTION IS COMPLETE.
15. CONTRACTOR SHALL PROVIDE AN AREA FOR CONCRETE WASH DOWN AND EQUIPMENT FUELING IN ACCORDANCE WITH METRO CP-10 & CP-13. CONTRACTOR TO COORDINATE EXACT LOCATION WITH NPDES DEPARTMENT DURING PRECONSTRUCTION MEETING. CONTROL OF OTHER SITE WASTES SUCH AS DISCARDED BUILDING MATERIALS, CHEMICALS, LITTER, AND SANITARY WASTES THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY IS ALSO REQUIRED BY THE GRADING PERMITTEE. LOCATIONS OF AND/OR NOTES REFERRING TO THESE BMP'S SHALL BE SHOWN ON THE EPSC PLAN.
16. IT IS RECOMMENDED THAT THE CONTRACTOR OBTAIN THE SERVICES OF A LICENSED GEOTECHNICAL ENGINEER PRIOR TO COMMENCING WITH CONSTRUCTION TO DETERMINE THE POTENTIAL OF THE EXISTENCE OF UNSUITABLE SOIL MATERIAL ON-SITE. IF IT IS DETERMINED THAT THE SUBSURFACE IS NOT SUITABLE FOR CONSTRUCTION AND UNDERCUTTING IS REQUIRED, THE CONTRACTOR SHALL CONTACT THE OWNER AND THE ENGINEER IMMEDIATELY.
17. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE COMMENCING OF ANY CONSTRUCTION ACTIVITIES LOCATED WITHIN PUBLIC RIGHT OF WAY.
18. STEEP SLOPES TO BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.
19. VEHICULAR TRAFFIC SHALL BE PROHIBITED ON THE PERVIOUS PAVEMENT UNTIL THE SITE IS STABLE TO PREVENT MUD FROM BEING DEPOSITED BY VEHICLES.
20. CONTRACTOR, ENGINEER, OR OWNERS REPRESENTATIVE SHALL NOTIFY MWS DEVELOPMENT REVIEW AT LEAST 24 HOURS PRIOR TO THE INSTALLATION OF THE PERVIOUS LAYER TO OBSERVE THE SUB-BASE MATERIAL.
21. ALL PERIMETER AND TEMPORARY EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING GRADING.
22. SEDIMENT BASIN NOTES: THE SEDIMENT BASIN SHALL BE CONVERTED TO A BIORETENTION AREA. THE FOLLOWING ITEMS SHALL BE PERFORMED DURING CONSTRUCTION TO ENSURE THE BIORETENTION AREA FUNCTIONS PROPERLY.
 - A. THE MAXIMUM EXCAVATION DEPTH OF THE SEDIMENT BASIN SHALL BE AT LEAST 1 FOOT ABOVE THE INVERT OF THE BIORETENTION AREA.
 - B. BEFORE CONSTRUCTION OF THE BIORETENTION AREA BEGINS, THE SEDIMENT BASIN SHALL BE DEWATERED, ACCUMULATED SEDIMENT SHALL BE REMOVED, AND THE SITE DRAINING TO THE SEDIMENT BASIN SHALL BE STABILIZED.

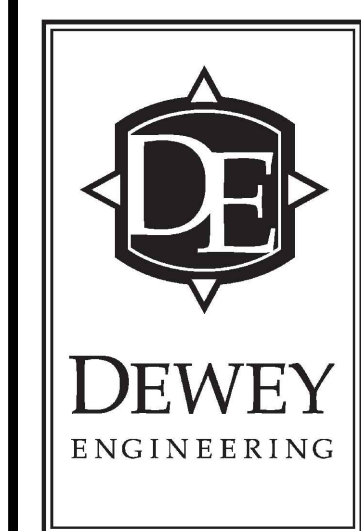
Revisions:

Drawing Notes:

Date: January 15, 2021

Old Hydes Ferry Pike

Being Parcel 4.01 on Tax Map 62
Ashland City, Cheatham County, Tennessee



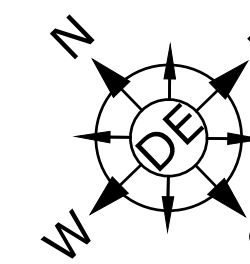
Intermediate
Erosion
Control Plan

Job No. 20053

C3.0

4 of 7

ITEM #2.



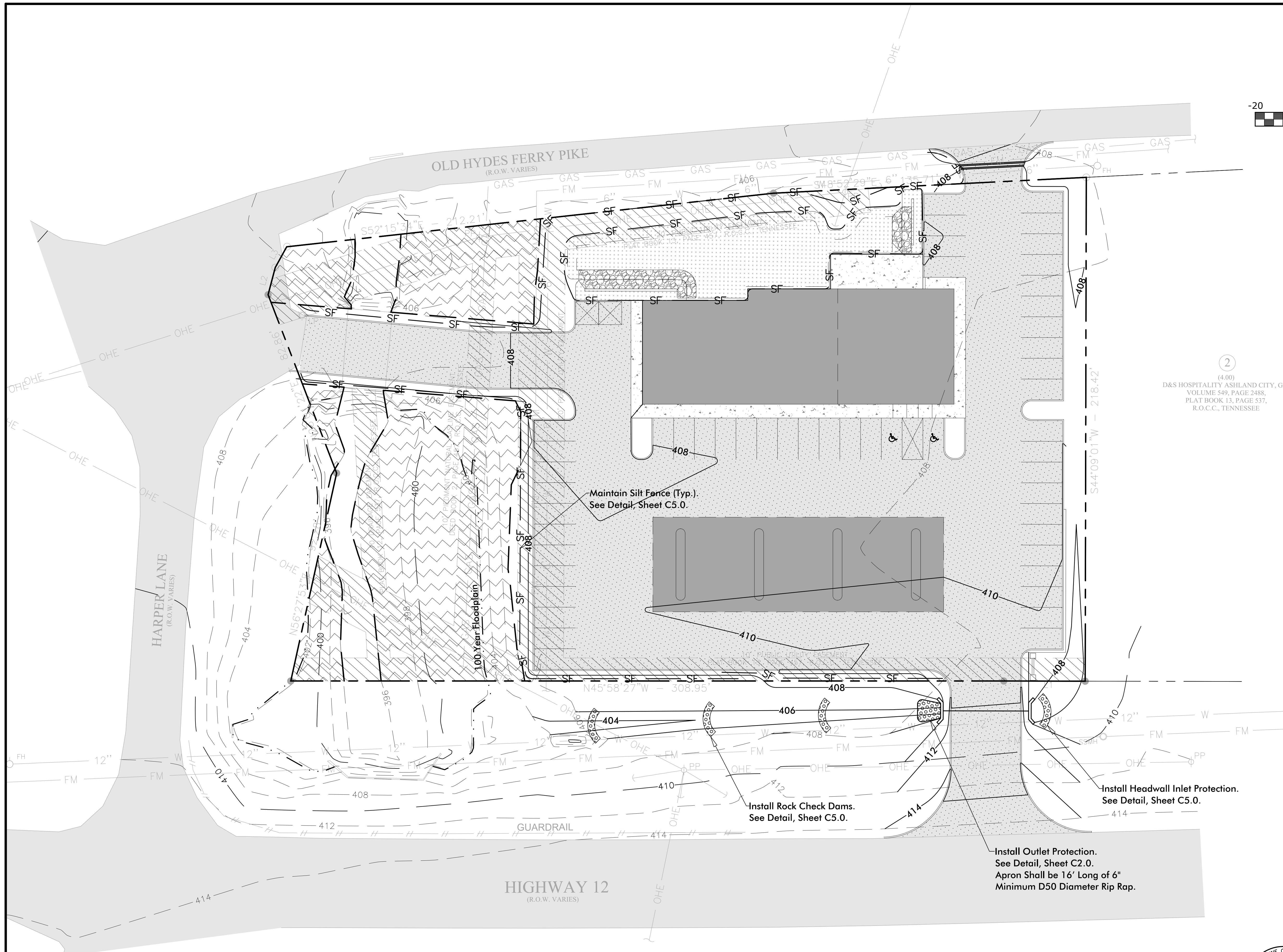
Scale 1" = 20'

Property Owner/Developer:
Randal Ashland City LLC
Address: 505 Whirlaway CT
Burns, TN 37029
Phone: (615) 598-5887
Email: dhawalom@gmail.com

Engineer:
Dewey Engineering
Contact: Michael Dewey, PE
Address: 2925 Berry Hill Drive
Nashville, TN 37204
Phone: (615) 401-9956
Email: mdewey@dewey-engineering.com

Flood Note:
A Portion of this Property is Located
Within a Flood Hazard Area as Indicated
by Zone 'AE' on FEMA Map Number
47189C0142C.
Dated: Feb. 20, 2008.

(4.00)
D&S HOSPITALITY ASHLAND CITY, G.P.
VOLUME 549, PAGE 2488,
PLAT BOOK 13, PAGE 537,
R.O.C.C., TENNESSEE



Maintain Silt Fence (Typ.).
See Detail, Sheet C5.0.

Install Rock Check Dams.
See Detail, Sheet C5.0.

Install Outlet Protection.
See Detail, Sheet C2.0.
Apron Shall be 16' Long of 6"
Minimum D50 Diameter Rip Rap.

Install Headwall Inlet Protection.
See Detail, Sheet C5.0.

BENCHMARK
EXISTING FIRE HYDRANT
ELEV. = 410.30

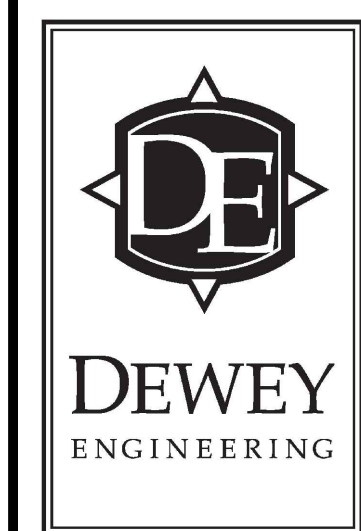
Revisions:

Drawing Notes:

Date: January 15, 2021

Old Hydes Ferry Pike

Being Parcel 4.01 on Tax Map 62
Asland City, Cheatham County, Tennessee

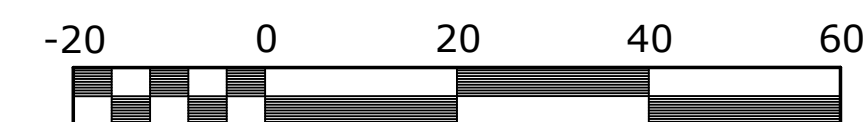
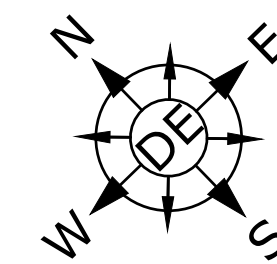


Grading & Drainage Plan

Job No. 20053

C3.0

5 of 7



Scale 1" = 20'

Property Owner/Developer:
Ramdal Ashland City LLC
Address: 505 Whirlaway CT
Burns, TN 37029
Phone: (615) 598-5887
Email: dhawalom@gmail.com

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Dewey Engineering
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(4.00)
D&S HOSPITALITY ASHLAND CITY, G.P.
VOLUME 549, PAGE 2488,
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R.O.C.C., TENNESSEE

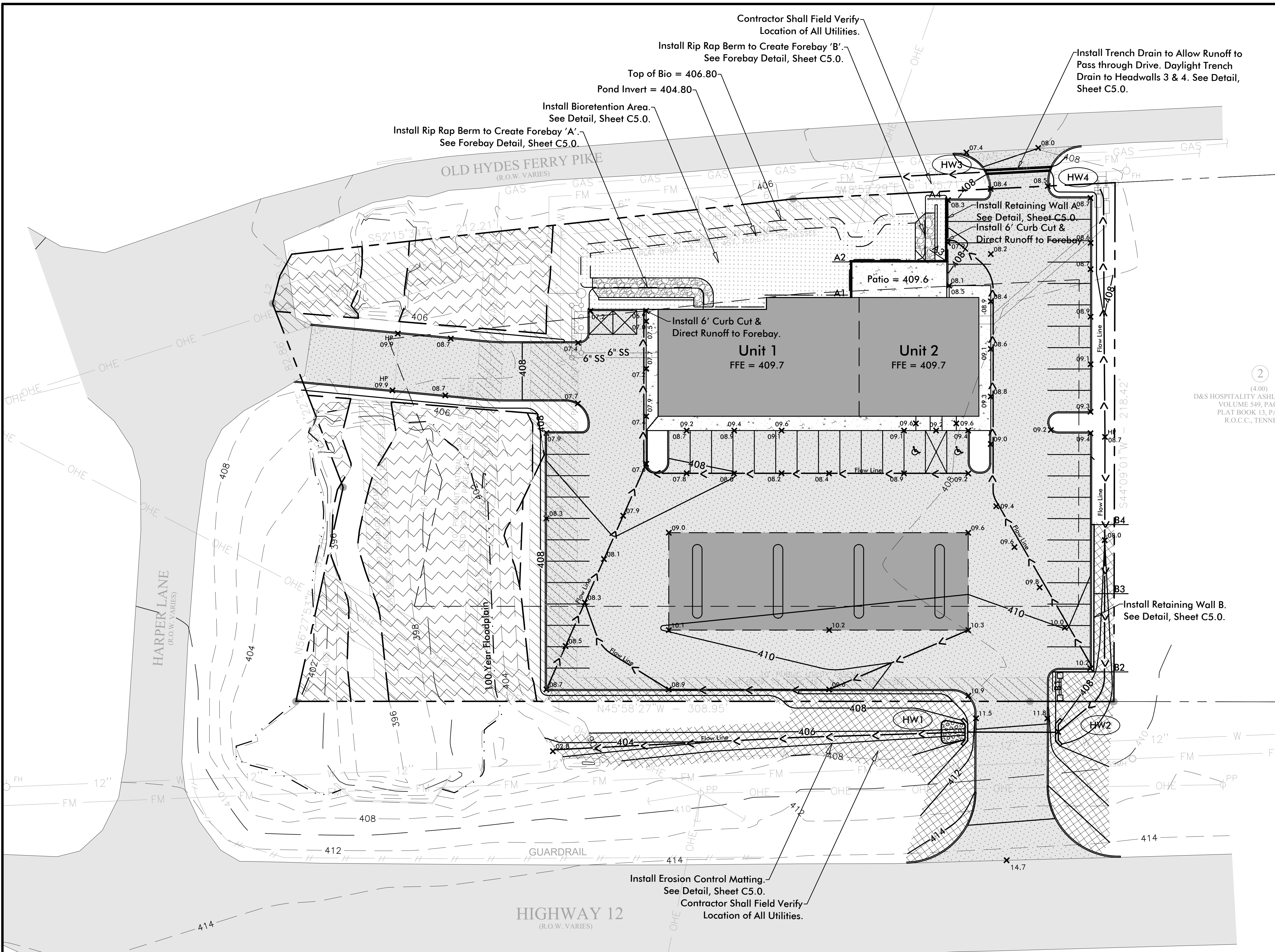
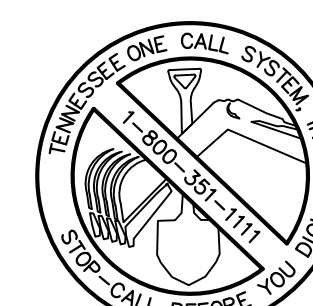
BENCHMARK
EXISTING FIRE HYDRANT
ELEV. = 410.30

Michael Dewey
AS THE "CERTIFIED"
EROSION CONTROL SPECIALIST FOR THIS SITE, HAVE
REVIEWED AND APPROVED THE EROSION PREVENTION
AND SEDIMENT CONTROL BMP'S OF THIS PLAN ON
1/15/21
DATE

THE PROJECT ASSOCIATED WITH THESE SUBMITTED
PLANS IS COVERED UNDER TENNESSEE
CONSTRUCTION GENERAL PERMIT TNR000000.
THE TOTAL DISTURBED AREA IS: 1.57 ACRES.
THE RECEIVING WATERS ARE: MARROWBONE CREEK.

CHECK ALL THAT APPLY: THIS SITE DISCHARGES
INTO WATERS IDENTIFIED BY TDEC AS:
 IMPAIRED FOR SILTATION
 IMPAIRED FOR HABITAT ALTERATION
 EXCEPTIONAL

Michael Dewey 1/15/21
SIGNATURE DATE



DOWNSTREAM STRUCTURE	INVERT	UPSTREAM STRUCTURE	INVERT	PIPE SIZE	LENGTH (LF)	Slope (%)
HW01	405.80	HW02	406.00	30" RCP	38	0.53
HW03	406.70	HW04	407.00	TRENCH DRAIN	28	1.07

STRUCTURE LABEL	STRUCTURE TYPE	T.C. ELEV.1	INVERT IN	INVERT OUT
HW01	TDOT HEADWALL	409.80		405.80
HW02	TDOT HEADWALL	410.50		406.00
HW03	TRENCH DRAIN/HEADWALL	408.00		406.70
HW04	TRENCH DRAIN/HEADWALL	408.30		407.00

Wall 'A' Table			
Label	TOW	BOW	Height (ft)
A1	409.6	404.8	4.8
A2	409.6	404.8	4.8
A3*	408.4	406.8	1.6
A4*	408.8	406.8	2

Wall 'B' Table			
Label	TOW	BOW	Height (ft)
B1*	411	410.5	0.5
B2*	410.7	408.2	2.5
B3*	410.6	408.8	1.8
B4*	410.2	409.8	0.4

*Note: TOW Includes 6" Curb.

*Note: TOW Includes 6" Curb.

NOTES

THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES.

THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINE GRADING OF ALL PLANTING AREAS.

ALL PLANTING AREAS SHALL BE FERTILIZED WITH 12#/1000 S.F. OF 10-10-10 FERTILIZER.

ALL PLANTING BEDS SHALL HAVE A MINIMUM OF 3" DEPTH OF SHREDDED BARK MULCH. FINELY GROUND, NO NUGGETS, 1/2" DIAMETER MAX. PIECES. REFUSE & STONE FREE.

THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL MATERIAL QUANTITIES.

THE LANDSCAPE CONTRACTOR NOTIFY THE LANDSCAPE ARCHITECT OF ANY ARCHITECTURAL FEATURES SUCH AS WALKWAYS, WINDOWS, OR BUILT ELEMENTS WHICH CONFLICT WITH THE APPROVED PLANTING PLAN.

DISTURBED AREAS SHALL BE PLANTED WITH TURF AS INDICATED ON THE MATERIALS SCHEDULE.

NO PLANT MATERIALS SHOULD BE SUBSTITUTED WITHOUT AUTHORIZATION.

PLANT SIZES SHOWN ARE MINIMUMS REQUIRED BY THE LOCAL MUNICIPALITY AND MATERIALS SHOWN HAVE BEEN SELECTED SPECIFICALLY FOR THIS PROJECT.

ALL WIRE BASKETS SHALL BE COMPLETELY REMOVED AND DISPOSED OF, BURLAP SHOULD BE REMOVED OR PUNCTURED IN AT LEAST 5 PLACES. REMOVE ALL TWINE FROM BURLAP MATERIALS.

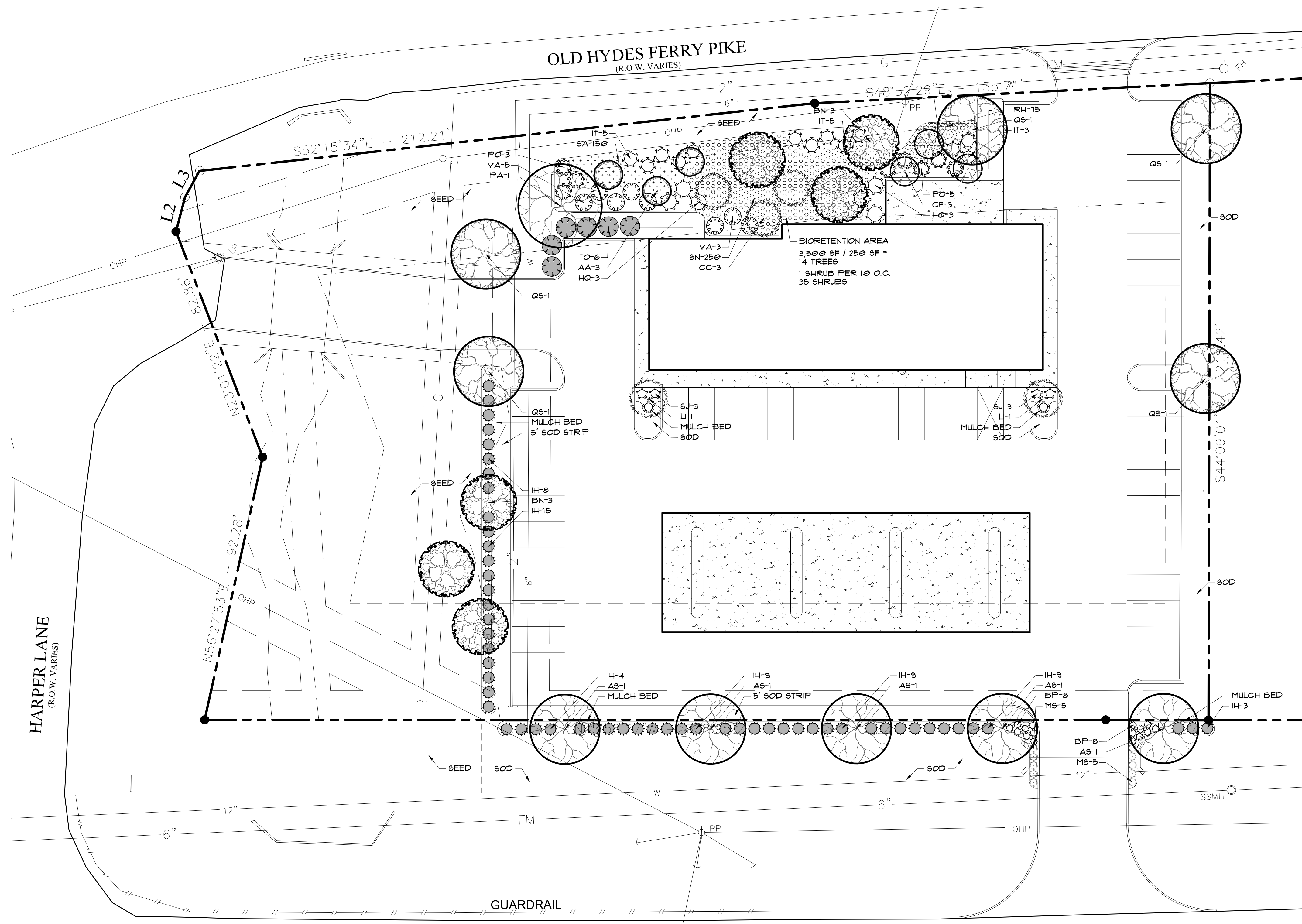
STAKE TREES IN PLACE PER DETAIL - WIRE OR ROPE GUYING IS NOT ALLOWED.

NO CANOPY TREE LOCATED WITHIN 15' OF AN OVERHEAD UTILITY, POWER LINE, OR LIGHT POLE.

NO CANOPY TREE SHALL BE LOCATED WITHIN A GAS, WATER, SEWER, UNDERGROUND ELECTRIC, CABLE, FIBER, OR PUBLIC UTILITY EASEMENT WITHOUT SIGNING OF A RELEASE WAIVER AND APPROVAL BY THE EASEMENT HOLDER.

MATERIALS SCHEDULE

KEY	AMOUNT	SCIENTIFIC NAME/ COMMON NAME	HEIGHT	SPREAD	TRUNK	NOTES
TREES						
AA	3	Amelanchier arborea/ Common Serviceberry	6' Min.	2'-3'	2"	
AS	5	Acer saccharum/ Sugar Maple	16'-18'	5'-6'	3 1/2"	Matched 5' Clear
BN	6	Betula nigra/ River Birch	7'-9'	4'-5'	3 Cane, 1.5" Each	
CC	3	Cercis canadensis/ Eastern Redbud	6' Min.	2'-3'	2"	
CF	3	Cornus florida/ Flowering Dogwood	6' Min.	2'-3'	2"	
LI	2	Lagerstroemia indica/ Crape Myrtle	6' Min.	2'-3'	3 Cane, 1" Each	
PA	1	Platanus occidentalis/ American Sycamore	14'-16'	6'-7'	2 1/2"	
QS	5	Quercus acutissima/ Sawtooth Oak	14'-16'	6'-7'	2 1/2"	Matched 5' Clear
SHRUBS						
BP	16	Berberis thunbergii 'Goruzam'/ Golden Ruby Barberry	12" Min.	15"-18"	F.T.B.	Or Equal
IH	57	Ilex crenata 'Helleri'/ Heller's Japanese Holly	24" Min.	18"-24"	F.T.B.	Or Equal
SJ	6	Spiraea x 'Zelda'/ Solar Flair Spirea	18" Min.	15"-18"	F.T.B.	Or Equal
TO	6	Thuja occidentalis 'Smaragd'/ Emerald Green Arborvitae	60" Min.	15"-18"	F.T.B.	
ORNAMENTAL GRASS						
MS	10	Pennisetum alopecuroides 'Moudry'/ Black Fountain Grass		1 Gallon Containers		
NATIVE SHRUBS						
HQ	6	Hydrangea quercifolia/ Oakleaf Hydrangea	30" Min.	24"-30"	F.T.B.	
IT	13	Itea virginica/ Itea	30" Min.	24"-30"	F.T.B.	
PO	6	Physocarpus opulifolius/ Common Ninebark	30" Min.	24"-30"	F.T.B.	
VA	8	Viburnum acerifolium/ Maple-leaf Viburnum	30" Min.	24"-30"	F.T.B.	
NATIVE GRASS / WILDFLOWERS						
RH	75	Rudbeckia hirta/ Black-eyed Susan		Plugs at 18" O.C. in triangular pattern.		Or Equal
SA	150	Symphotrichum novae-angliae/ New England Aster		Plugs at 18" O.C. in triangular pattern.		Or Equal
SN	250	Sorghastrum nutans/ Indiangrass		Plugs at 18" O.C. in triangular pattern.		Or Equal
TURF						
SOD		Rebel II Fine Bladed Sod		Install where shown.		
SEED						
		Rebel II Fine Bladed Fescue		Seed at 5 lbs per 1,000 sf Install w/ weed free Straw		
MISCELLANEOUS						
		Mulch Bed Hardwood Bark Mulch		Minimum 3" depth throughout.		
NOTES						
		FTB = Full To Bottom				
		THE LANDSCAPE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS				



REQUIREMENTS

VEHICLE USE AREA:	35,500 SF
LANDSCAPE AREA (10%):	3,550 SF
1 TREE PER 250 SF: (3,550 / 250)	15
HIGHWAY 12 STREET TREES: (200 / 40LF)	5
STREET SHRUB SCREENING: (200 / 5LF)	40
HARPER LANE STREET TREES: (135 / 40LF)	4
STREET SHRUB SCREENING: (135 / 5LF)	27

REQUIRED PROVIDED

15 18

5 5

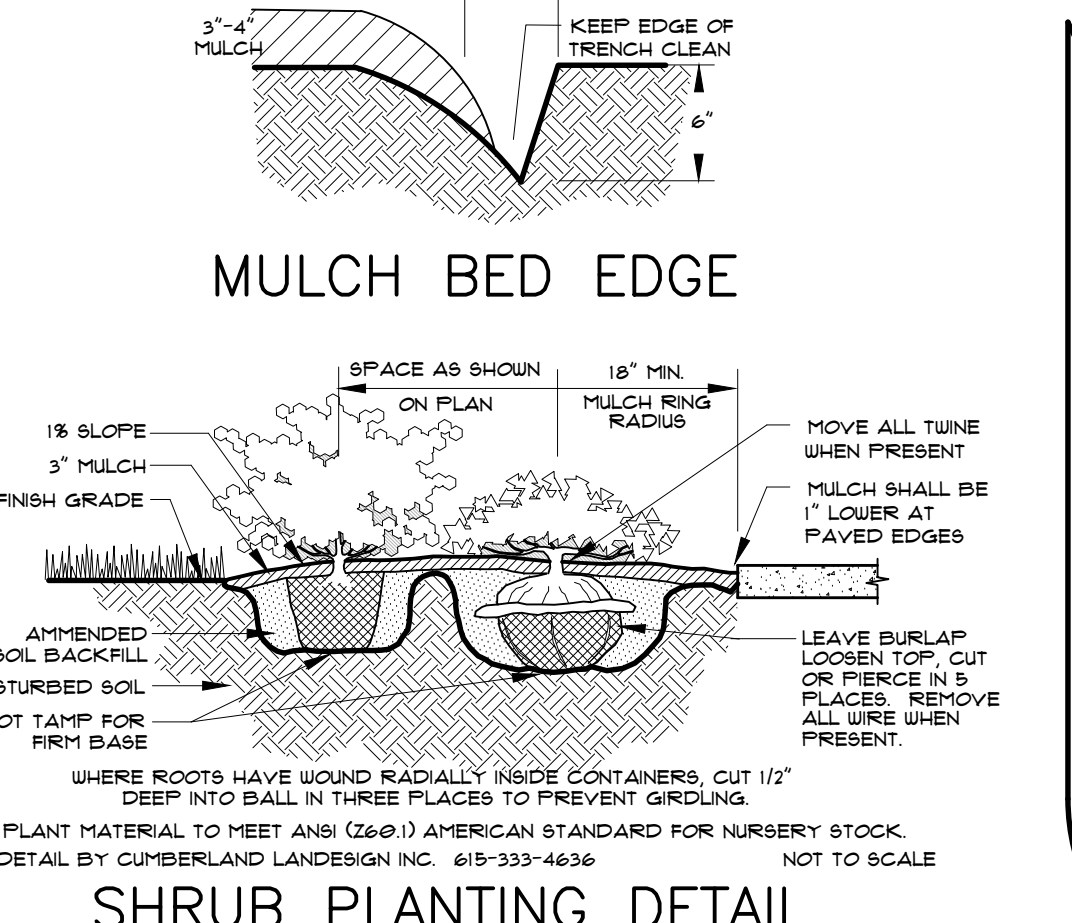
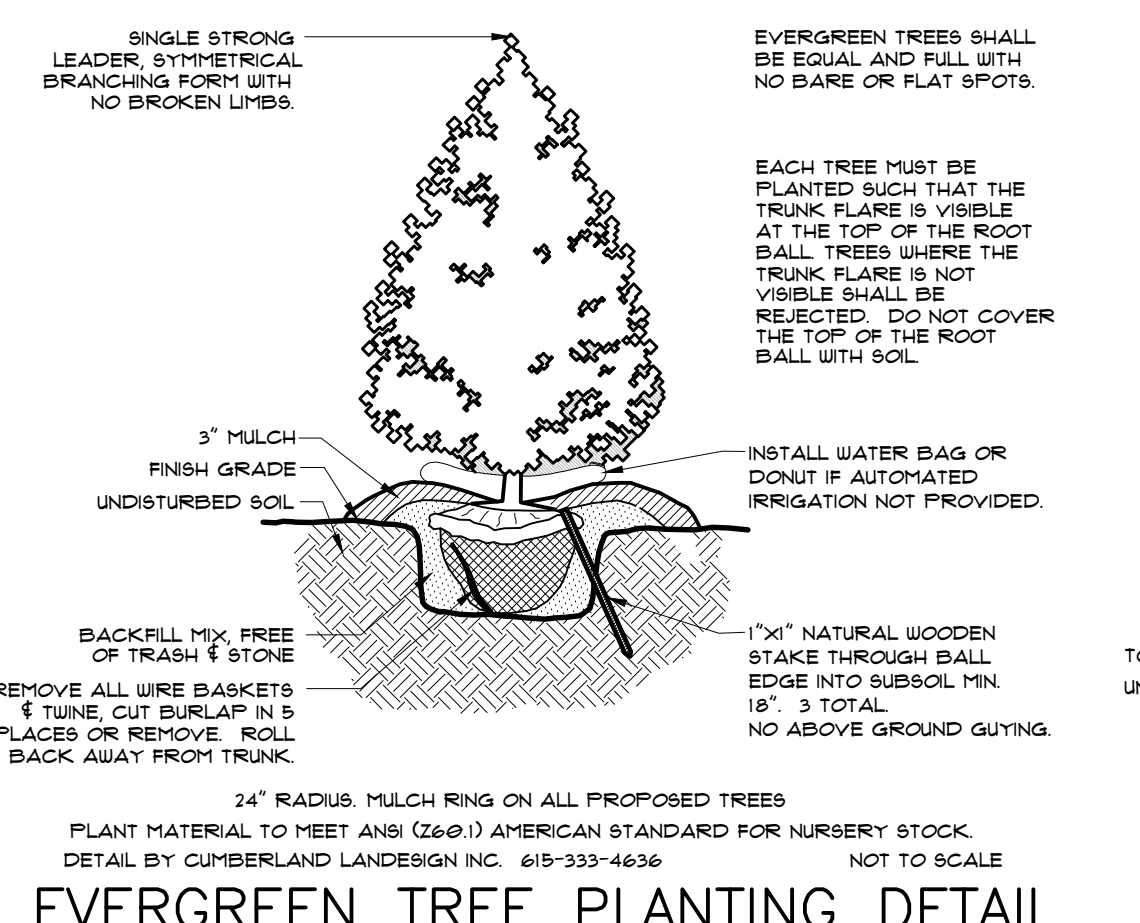
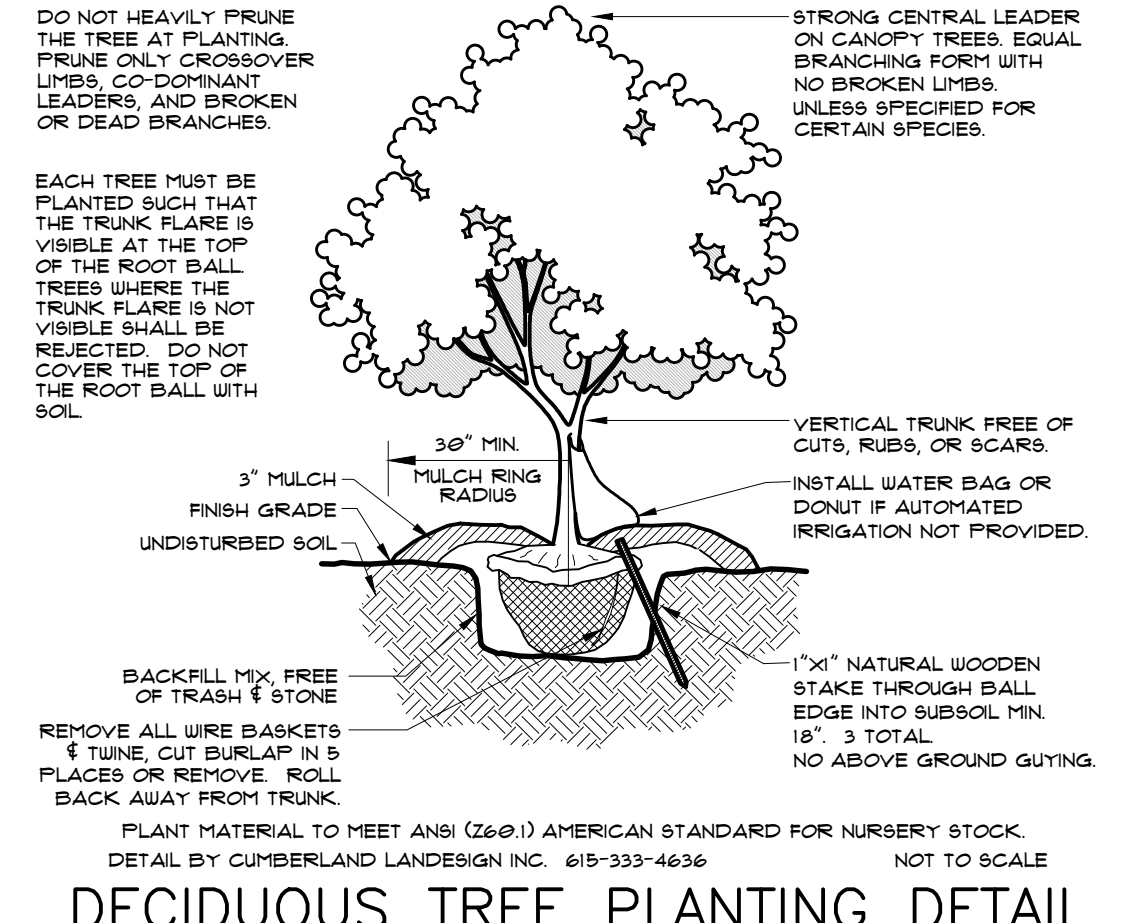
40 49

4 4

27 28

NO EXISTING TREES TO REMOVE OR TO BE PRESERVED
BUFFERYARDS NOT PROPOSED AT UNDEVELOPED PARCEL
*INCLUDES BIORETENTION & SITE / INTERIOR TREES

BIORETENTION LANDSCAPING PER 2014 TENNESSEE STORMWATER MANAGEMENT & DESIGN MANUAL REQUIREMENTS



SOLAR POWERED PLANS

N

Date: 01-15-2021

Revisions: 00-00-2021

Landscape Compliance Plan
Old Hydes Ferry Pike
Being Parcel 4.01 on Tax Map 62
Ashland City, Cheatham County, Tennessee

21102
Sheet:
L1.0
1 of 1

ITEM # 2



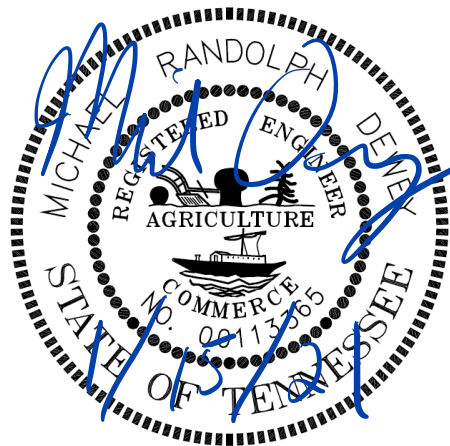
DEWEY
ENGINEERING

Drainage Calculations

For

Old Hydes Ferry Pike

January 15, 2021



Michael Dewey, PE
Dewey Engineering
2925 Berry Hill Drive
Nashville, TN 37204
(615) 401-9956

mdewey@dewey-engineering.com

Project Description

This project consists of a single commercial lot located along Old Hydes Ferry Pike at the intersection with Harper Lane. The site boundary contains 1.60 acres, and construction of this project will ultimately disturb 1.57 acres. Upon completion of this project, this development will include a gas station, a restaurant, parking, stormwater infrastructure, and private utilities.

Summaries for the following are included below along with associated calculations: Existing Conditions and Erosion Control Summary, Stormwater Infrastructure Summary, Water Quality Summary, and Water Quantity Summary.

Existing Conditions and Erosion Control Summary

This site contains a single outfall near the western corner of the property. A tributary of Marrowbone Creek, which is exceptional waters of the state, drains through this outfall. Soil types for this development were identified using the USGS Web Soil Survey printout attached in Appendix A. Since the site ultimately drains to exceptional waters, erosion control measures have been designed to control runoff generated from the 5-year, 24-hour storm event and include wire-backed silt fence and a construction exit.

Stormwater Infrastructure Summary

All catch basins and pipes were sized to pass at least the 10 year storm event. Attached in Appendix B are drain area maps, storm profiles, and printouts from Autodesk Storm and Sanitary Analysis 2019. The software was used to calculate hydraulic grade lines, velocities, inlet spreads and all other required design parameters.

Water Quality

The 80% TSS removal requirement for this site will be accomplished using a bioretention area. The bioretention area was sized using Version 9 of Metro Nashville Stormwater's LID Site Design Tool. Additionally, TNRAT was used to verify the design meets state requirements set in the Tennessee Permanent Stormwater Management & Design Guidance Manual. The required water quality volume for the bioretention area was obtained using the following attachments located in Appendix C: LID Drain Area Maps, Forebay Sizing Worksheets, LID worksheet, and TNRAT report. The volume sizing for the bioretention area is summarized in Table 1 below:

Table 1: Water Quality Sizing Calculations

	Bioretention Area
Required WQ Volume	4,388 cf
Surface Area	3,598 sf
Depth of Ponding	0.5 ft
Depth of Storage Media	3 ft
Depth of Gravel	3 ft
Equivalent Depth	2.45 ft
Proposed WQ Volume (cf)	8,815
Tv Provided/Tv Required (%)	201%

Water Quantity

Water Quantity for this site will also be accomplished using the bioretention area. Using USDA's Web Soil Survey, the soils for this site were determined to be Ennis Gravelly Silt Loam. Web Soil Survey list the capacity of the most limiting layer of Ennis Gravelly Silt Loam to transmit water as high with infiltration rates of 2 to 6 in/hr. Since the bioretention area will be managed through infiltration and an overflow weir, the infiltration rate in Hydraflow was set to the minimum 2 in/hr. The pre-developed and post-developed conditions for the site are summarized in the table below:

Table 1: Pre-Developed & Post-Developed Basins

	Existing Basin	Prop. to Bio
Total Acres	1.11	1.11
Weighted Curve Numbers	69	93
Time of Concentration (min)	16.1	2.1

All pre-post development requirements for the 2-100 year events have been met. The tables below summarize the pre vs. post developed release rates. Refer to the Water Quantity Section in Appendix D for detailed information including Maps, Calculations, Summaries, Hydrographs, and other pertinent information.

Table 2: Runoff Release Rates (CFS)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Existing Basin (Pre-Developed Flow)	1.166	2.229	2.999	4.044	4.848	5.658
From Bioretention (Post-Developed Flow)	0.000	0.000	0.000	0.497	2.013	5.208
Flow Reduction (= Pre – Post)	1.166	2.229	2.999	3.547	2.835	0.450

Appendix: Table of Contents

Appendix A: Existing Conditions and Erosion Control

- USGS Web Soil Survey Printout
- FEMA FIRM

Appendix B: Stormwater Infrastructure Calculations

- Drain Area Map
- 100 Year Storm Calculations – Pipe Printout

Appendix C: Water Quality Calculations

- Drain Area Map – Proposed
- Metro Nashville LID Worksheet
- TNRA Report
- Forebay Sizing Calculations

Appendix D: Pond Calculations

- Drain Area Map – Existing for Detention
- Drain Area Map – Proposed for Detention
- Contour Area Calculations (Input for Pond Calculations)
- Curve Number Calculations (Input for Pond Calculations)
- Pond Calculations

Appendix A: Existing Conditions and Erosion Control

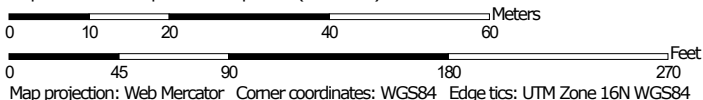
- USGS Web Soil Survey Printout
- FEMA FIRM

Hydrologic Soil Group—Cheatham County, Tennessee
(USGS Boundary)



Soil Map may not be valid at this scale.


Map Scale: 1:944 if printed on A portrait (8.5" x 11") sheet.



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 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Cheatham County, Tennessee
Survey Area Data: Version 14, May 29, 2020

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

Date(s) aerial images were photographed: Sep 21, 2019—Apr 10, 2020

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
En	Ennis gravelly silt loam, occasionally flooded	A	1.6	100.0%
Totals for Area of Interest			1.6	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

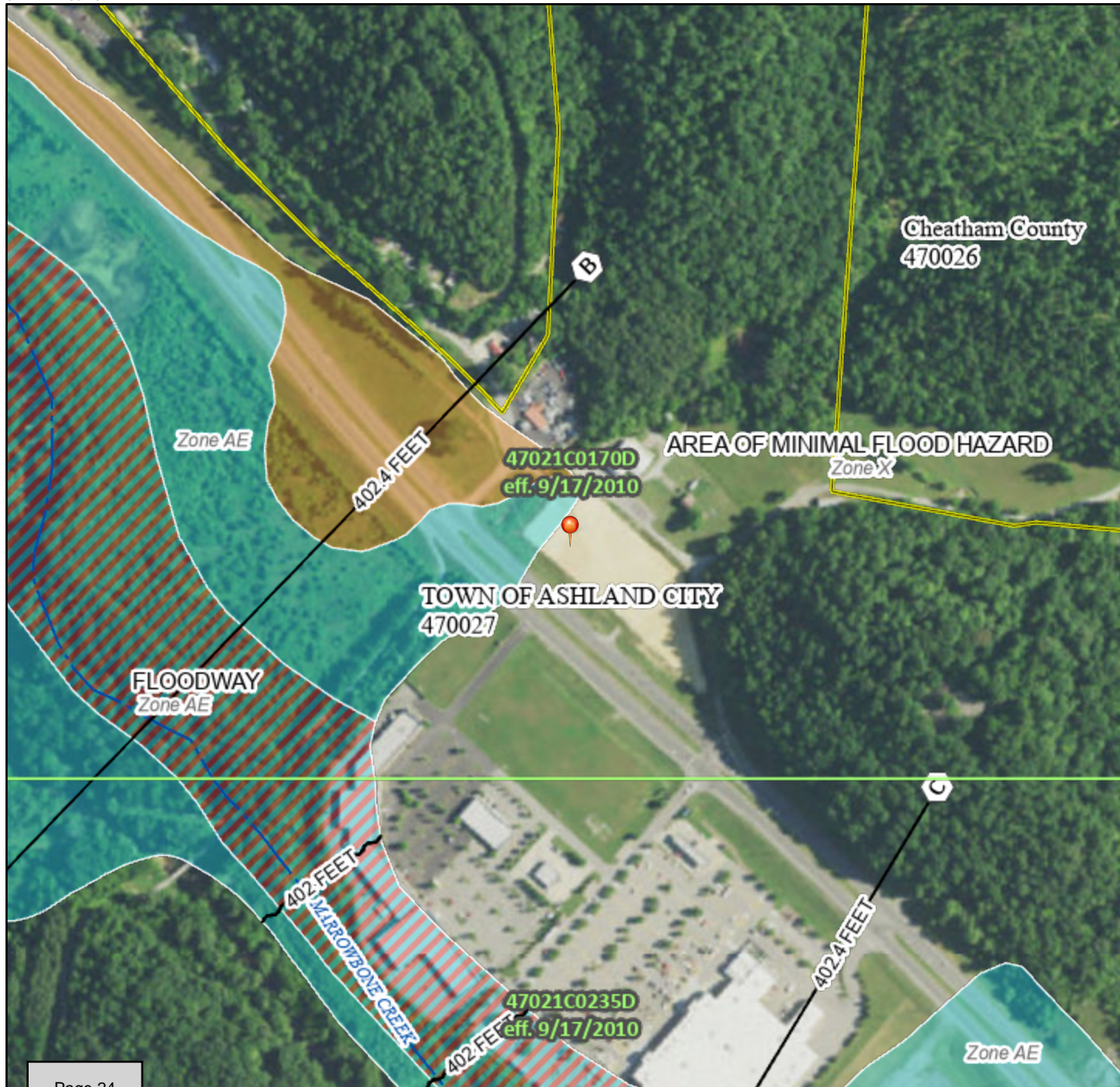
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette



87°2'21"W 36°15'21"N



Legend

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

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

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

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

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

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

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

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

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

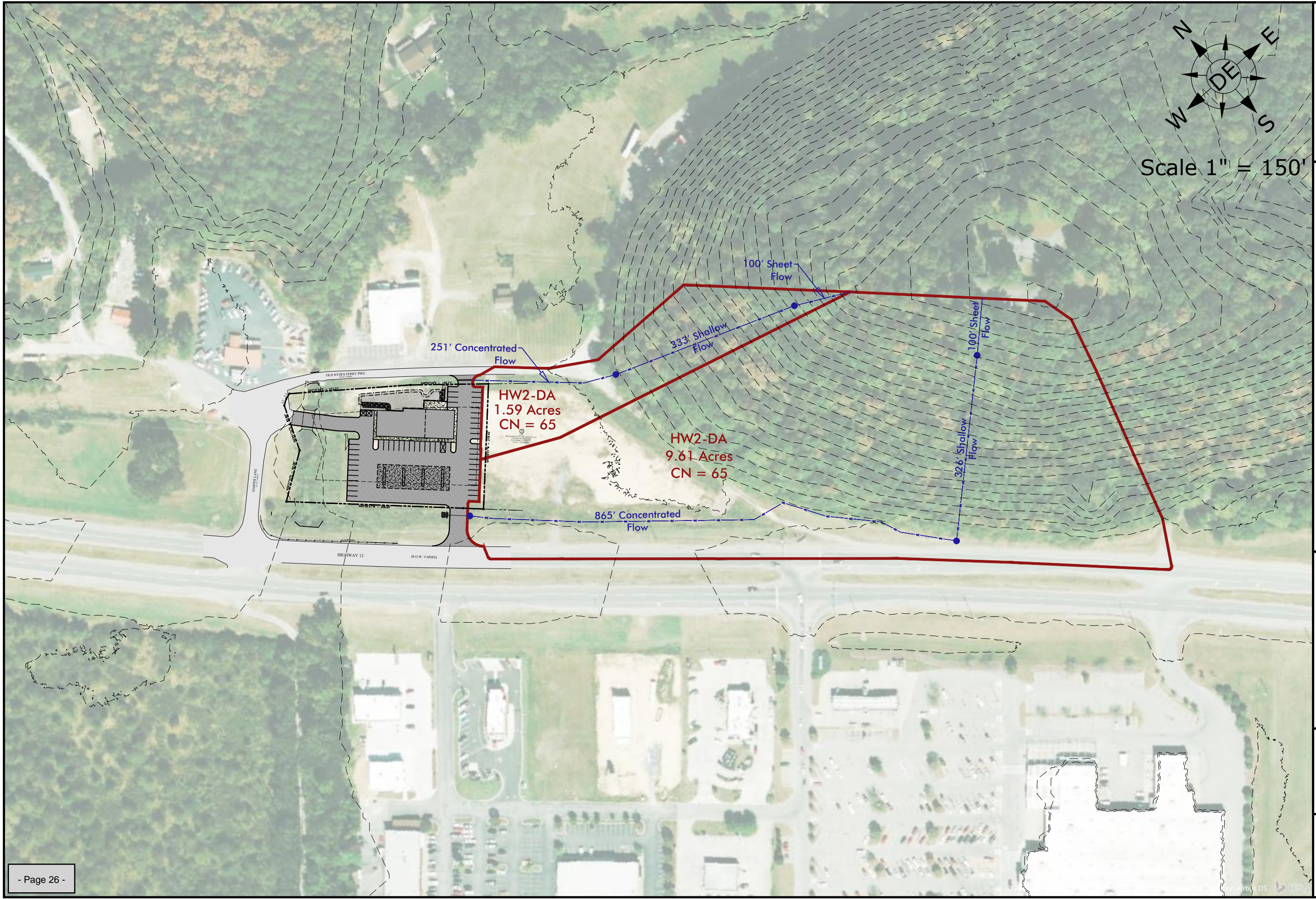
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/13/2021 at 4:35 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

ITEM # 2.

Appendix B: Stormwater Infrastructure Calculations

- Drain Area Map
- 100 Year Storm Calculations – Pipe Printout

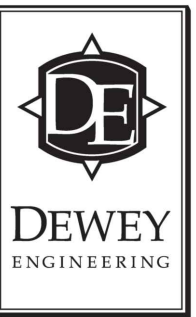


Scale 1" = 150'

Date: January 15, 2021

Old Hydes Ferry Pike

Being Parcel 4.01 on Tax Map 62
Ashland City, Cheatham County, Tennessee



Drain Area
Map
(Pipes)

1
ITEM # 2.

Project Description

File Name 20053.SPF

Project Options

Flow Units CFS
Elevation Type Elevation
Hydrology Method SCS TR-55
Time of Concentration (TOC) Method SCS TR-55
Link Routing Method Kinematic Wave
Enable Overflow Ponding at Nodes YES
Skip Steady State Analysis Time Periods NO

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	Rain Gage-01	Time Series	TS-01	Cumulative	inches	Tennessee	Cheatham	10	4.90	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	HW02-DA	9.61	65.00	4.90	1.59	15.25	19.97	0 00:11:30
2	Sub-02	1.59	65.00	4.90	1.59	2.52	3.52	0 00:08:16

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft ²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	HW02	Junction	406.00	411.00	0.00	0.00	0.00	19.58	407.63	0.00	3.37	0 00:00	0.00	0.00
2	HW04	Junction	407.00	409.00	0.00	0.00	3.51	407.68	407.68	0.00	1.32	0 00:00	0.00	0.00
3	HW01	Outfall	405.80					19.48	407.42					
4	HW03	Outfall	406.70					3.50	407.38					

Subbasin Hydrology

Subbasin : HW02-DA

Input Data

Area (ac) 9.61
 Weighted Curve Number 65.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
2 acre lots, 12% impervious	9.61	B	65.00
Composite Area & Weighted CN	9.61		65.00

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$$

Where :

- Tc = Time of Concentration (hr)
- n = Manning's roughness
- Lf = Flow Length (ft)
- P = 2 yr, 24 hr Rainfall (inches)
- Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

- V = 16.1345 * (Sf^{0.5}) (unpaved surface)
- V = 20.3282 * (Sf^{0.5}) (paved surface)
- V = 15.0 * (Sf^{0.5}) (grassed waterway surface)
- V = 10.0 * (Sf^{0.5}) (nearly bare & untilled surface)
- V = 9.0 * (Sf^{0.5}) (cultivated straight rows surface)
- V = 7.0 * (Sf^{0.5}) (short grass pasture surface)
- V = 5.0 * (Sf^{0.5}) (woodland surface)
- V = 2.5 * (Sf^{0.5}) (forest w/heavy litter surface)
- Tc = (Lf / V) / (3600 sec/hr)

Where:

- Tc = Time of Concentration (hr)
- Lf = Flow Length (ft)
- V = Velocity (ft/sec)
- Sf = Slope (ft/ft)

Channel Flow Equation :

$$V = (1.49 * (R^{2/3})) * (S_f^{0.5}) / n$$

R = Aq / Wp
 Tc = (Lf / V) / (3600 sec/hr)

Where :

- Tc = Time of Concentration (hr)
- Lf = Flow Length (ft)
- R = Hydraulic Radius (ft)
- Aq = Flow Area (ft²)
- Wp = Wetted Perimeter (ft)
- V = Velocity (ft/sec)
- Sf = Slope (ft/ft)
- n = Manning's roughness

	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	0.40	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	33	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.50	0.00	0.00
Velocity (ft/sec) :	0.25	0.00	0.00
Computed Flow Time (min) :	6.69	0.00	0.00
Shallow Concentrated Flow Computations			
	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	325	0.00	0.00
Slope (%) :	20	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	7.22	0.00	0.00
Computed Flow Time (min) :	0.75	0.00	0.00
Channel Flow Computations			
	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.032	0.00	0.00
Flow Length (ft) :	865	0.00	0.00
Channel Slope (%) :	1	0.00	0.00
Cross Section Area (ft ²) :	8	0.00	0.00
Wetted Perimeter (ft) :	12	0.00	0.00
Velocity (ft/sec) :	3.55	0.00	0.00
Computed Flow Time (min) :	4.06	0.00	0.00
Total TOC (min)	11.50		

Subbasin Runoff Results

Total Rainfall (in)	4.90
Total Runoff (in)	1.59
Peak Runoff (cfs)	19.97
Weighted Curve Number	65.00
Time of Concentration (days hh:mm:ss)	0 00:11:30

Subbasin : Sub-02

Input Data

Area (ac) 1.59
 Weighted Curve Number 65.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.59	-	65.00
Composite Area & Weighted CN	1.59		65.00

Time of Concentration

Sheet Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.4	0.00	0.00
Flow Length (ft) :	100	0.00	0.00
Slope (%) :	33	0.00	0.00
2 yr, 24 hr Rainfall (in) :	3.50	0.00	0.00
Velocity (ft/sec) :	0.25	0.00	0.00
Computed Flow Time (min) :	6.69	0.00	0.00

Shallow Concentrated Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Flow Length (ft) :	334	0.00	0.00
Slope (%) :	25	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	8.07	0.00	0.00
Computed Flow Time (min) :	0.69	0.00	0.00

Channel Flow Computations	Subarea	Subarea	Subarea
	A	B	C
Manning's Roughness :	0.032	0.00	0.00
Flow Length (ft) :	251	0.00	0.00
Channel Slope (%) :	1	0.00	0.00
Cross Section Area (ft²) :	8	0.00	0.00
Wetted Perimeter (ft) :	8	0.00	0.00
Velocity (ft/sec) :	4.66	0.00	0.00
Computed Flow Time (min) :	0.90	0.00	0.00
Total TOC (min)	8.28		

Subbasin Runoff Results

Total Rainfall (in) 4.90
 Total Runoff (in) 1.59
 Peak Runoff (cfs) 3.52
 Weighted Curve Number 65.00
 Time of Concentration (days hh:mm:ss) 0 00:08:17

Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft ²)	Minimum Pipe Cover (in)
1	HW02	406.00	411.00	5.00	0.00	-406.00	0.00	-411.00	0.00	0.00
2	HW04	407.00	409.00	2.00	0.00	-407.00	0.00	-409.00	0.00	0.00

Junction Results

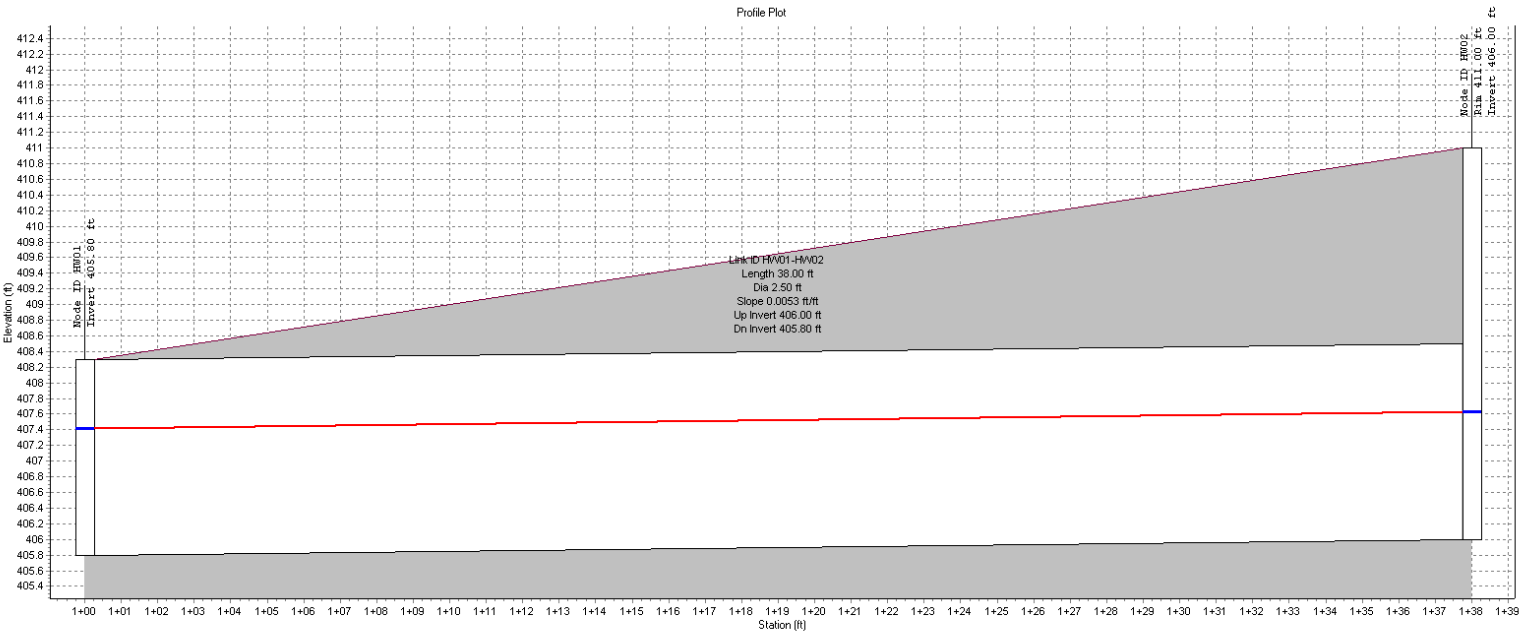
SN Element ID	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Max HGL Depth Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Average HGL Elevation Attained	Average HGL Depth Attained	Time of Max HGL Occurrence	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(days hh:mm)	(days hh:mm)	(ac-in)	(min)
1 HW02	19.58	19.58	407.63	1.63	0.00	3.37	406.17	0.17	0 12:05	0 00:00	0.00	0.00
2 HW04	3.51	3.51	407.68	0.68	0.00	1.32	407.04	0.04	0 12:05	0 00:00	0.00	0.00

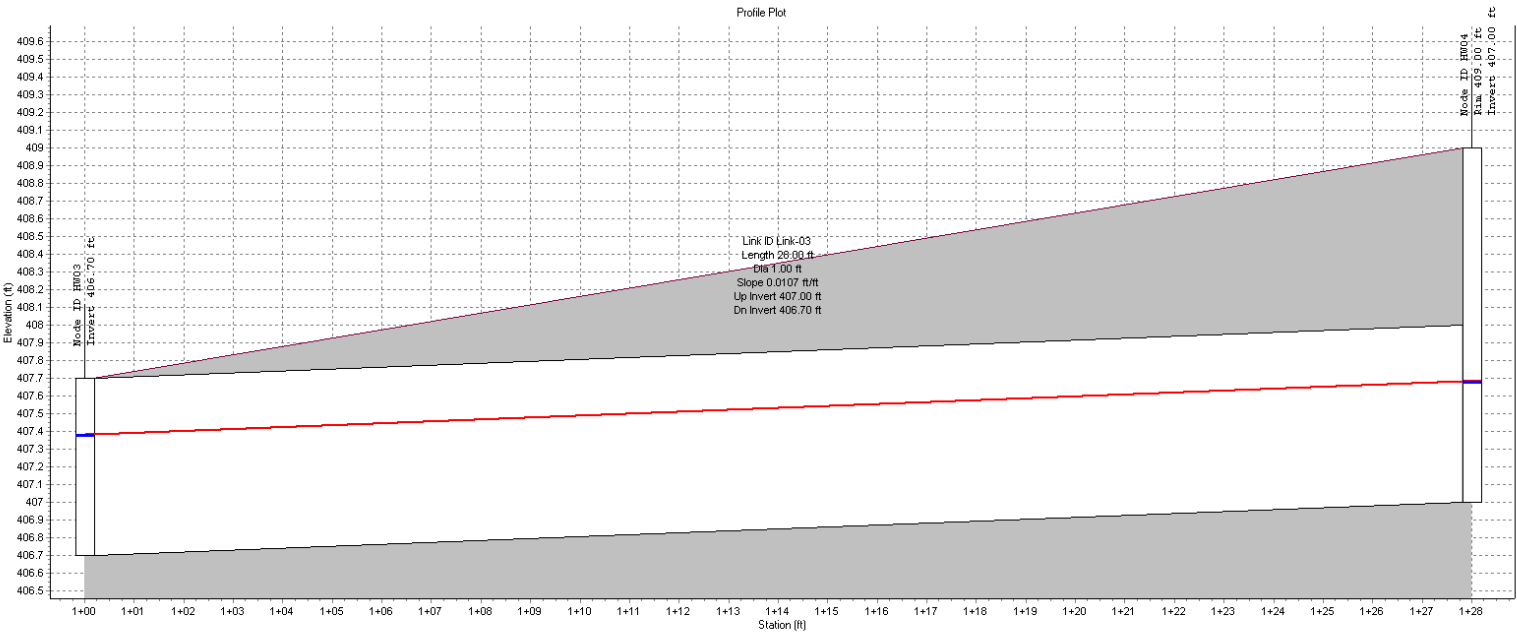
Pipe Input

SN Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
1 HW01-HW02	38.00	406.00	0.00	405.80	0.00	0.20	0.5300	CIRCULAR	30.000	30.000	0.0150	0.5000	0.5000	0.0000	0.00	No	1
2 Link-03	28.00	407.00	0.00	406.70	0.00	0.30	1.0700	Rectangular	12.000	12.000	0.0130	0.5000	0.5000	0.0000	0.00	No	1

Pipe Results






SN Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Froude Number	Reported Condition
	(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)		
1 HW01-HW02	19.48	0 12:05	25.79	0.76	5.79	0.11	1.63	0.65	0.00		Calculated
2 Link-03	3.50	0 12:05	4.70	0.75	5.15	0.09	0.68	0.68	0.00		Calculated

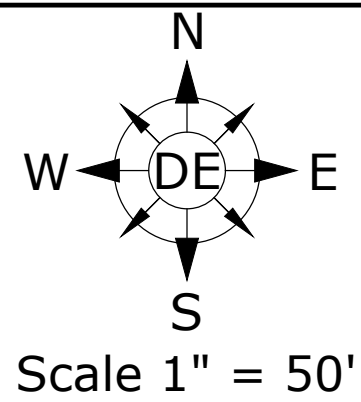




Appendix C: Water Quality Calculations

- Drain Area Map – Proposed
- Metro Nashville LID Worksheet
- TNRAT Report
- Forebay Sizing Calculations

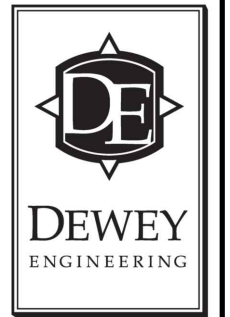
Color	Description	Acreage
	Impervious to Bio to FA	0.660
	Impervious to Bio to FB	0.340
	Grass (A) to Bio to FA	0.004
	Grass (A) to Bio to FB	0.005
	To Bio	0.100
	Total	1.109



Date: January 15, 2021



Old Hydes Ferry Pike
 Being Parcel 4.01 on Tax Map 62
 Ashland City, Cheatham County, Tennessee



DA Map
 (Post-Developed)

1
 ITEM # 2.

MWS LID Site Design Tool

Project Name	Old Hydes Ferry Pike	
Parcel Identification #	Tax Map 62, Parcel 4.01	
Combined Sewer Overlay?	NO	
Pre-Development Impervious Area (acres)	0.05	
Post-Development Impervious Area (acres)	1.05	
Pre-Development Rv =	0.18	
Target Runoff Reduction Requirement =	80%	See Section 7.2.1 in Metro SWMM Volume 1

MWS LID SITE DESIGN TOOL VERSION 9 - August 1, 2016

Instructions

1. Input cells are in **Green**.
2. Break Site Into Sub areas by single soils and land use type combinations.
3. Assign a code to each subarea and input the code into column C. Descriptions can be entered in column B.
4. Input the subarea drainage area in column D.
5. Input treatment credit code (Column F) for the first tier of treatments
6. Input additional treatment code as desired (Column I) for any subarea
7. Adjust until you reach 80% reduction or better (Cell N turns green if 80% reached).
8. If 80% reduction is not reached and it has been decided that GIPs in series is an option use Step 3a to place GIPs in series. Their respective treatment volumes are calculated in column W. This volume is separate from GIPs upstream.
9. When using GIPs in Series the user will look to Cell T for confirmation the 80% goal has been met.

Capture Depth=	1	inch	
Cistern Capture=		% Total Vol captured	From Cistern Design Tool

Percent Volume Reduction-Based Calculations

Step 1: Lay out the site and divide it into sub-areas each of a specific land use type and Rv.					Step 1a: Change any basic land use types through reforestation, permeable pavement or green roofs - or through use of open space for a GIP.			Step 2: Treat impervious areas through the use of disconnection or sheet flow			Step 3: Treat primarily impervious areas with structural GIPs either in series with Step 3 intrinsic GIPs or alone downstream from Steps 1 and 2 land use.			Size controls for Step 3 by assigning structure ID to each sub-area, combining sub-areas into one structure if appropriate.		Step 3a Treatment in Series Calculation - Place Structural GIPs in same row as upstream GIP			Size controls for Step 3a in series by assigning a sequential structure ID to each area treated in series.			Nominal Cu			
Step1 Basic Land Use					Step 1a Modified LU			Step 2 Intrinsic GIPs			Step 3 Structural GIPs			Structure ID	IA Capture		Step 3a Structural GIPs in Series			Structure ID	IA Capture		Nominal Cu		
Subarea	Description	Code	Acres	Base Rv	Code	Acres	Eff Rv1	Code	Trtmt VR1	Eff Rv2	Code	Trtmt VR2	Eff Rv3		Tv Multiplier	Tv (cf)	Code	Trtmt VR2	Eff Rv4	Site GIP ID Number	Tv Multiplier	Structure in Series Tv (cf)	Step 1		
1				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
2	Imp to Bio to FA	IA	0.66	0.95	IA	0.66	0.95		0	0.95	B2	0.8	0.19		1.25	2,845		0	0.19		0.00	-	98		
3	Grass to Bio to FA	TA	0.004	0.15	TA	0.004	0.15		0	0.15	B2	0.8	0.03		1.25	3		0	0.03		0.00	-	49		
4	Imp to Bio to FB	IA	0.34	0.95	IA	0.34	0.95		0	0.95	B2	0.8	0.19		1.25	1,466		0	0.19		0.00	-	98		
5	Grass to Bio to FB	TA	0.005	0.15	TA	0.005	0.15		0	0.15	B2	0.8	0.03		1.25	3		0	0.03		0.00	-	49		
6	Bio	TA	0.1	0.15	TA	0.1	0.15		0	0.15	B2	0.8	0.03		1.25	68		0	0.03		0.00	-	49		
7				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
8				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
9				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
10				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
11				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
12				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
13				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
14				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
15				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
16				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
17				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
18				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
19				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
20				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0		
Weighted Rv				0.871	Weighted Rv			0.871	Weighted Rv			0.871	Weighted Rv		0.174	Step 3 Tv Total		4,385	0.174			Final Tv Total		4,385	93.2
Total Area=				1.109	Total Area=			1.109	Total Area=			1.109	Total Area=		1.109	Step 3 Tv Total		4,385	0.174			Final Tv Total		4,385	
% Removal				12.9%	% Removal			12.9%	% Removal			12.9%	% Removal		82.6%	% Removal		82.6%	% Removal			82.6%			

THIS CELL WILL TURN GREEN WHEN TARGET RUNOFF REDUCTION MET

THIS CELL WILL TURN GREEN WHEN TARGET RUNOFF REDUCTION MET

Project Name	Old Hydes Ferry Pike
Parcel Identification #	Tax Map 62, Parcel 4.01

MWS LID SITE DESIGN TOOL VERSION 9 - August 1, 2016

PreDev CN	50.9
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METRO RAINFALL	
Return Period	Rainfall (in)
2-yr	3.39
5-yr	4.50
10-yr	5.23
25-yr	6.16
50-yr	6.85
100-yr	7.53

Curve Number Instructions

1. Enter the composite pre-development curve number (CN), to the left, for the watershed.
2. The tool automatically assigns curve numbers for each subarea based on MWS policy matching the land uses of Steps 1 and 1a to curve numbers (see column **G COVER SHEET**).
3. Curve numbers are shown for both Step 1 and Step 1a in columns **X** and **Y** as well as the composite curve number for the site in line 59 of those columns.
4. The ratio of the **Tv provided/Tv required** for each GIP (as a %) is entered in column **AG** (e.g. if only required Tv is provided then this should be 100%).
5. Select the rainfall in **Cell AC19** based on return periods shown in table to left.
6. Adjusted curve numbers for each subarea are shown in the table below in column **AK**, as well as the composite adjusted curve number in **Cell AK59**, for the rainfall selected. If this value is greater than the composite Pre-Development CN then **Cell AK60** will state "Detention Required"
7. These are the curve numbers to be used in flood control design calculations. Each watershed must be calculated independently. If there are multiple watersheds for the project, then the composite pre-development curve number and composite adjusted curve number should be compared for each watershed to determine if detention is required.
8. If there are GIPs in series, use the 2nd table to calculate the additional reduction in CN.

Adjusted Curve Number Calculations (Step 3 only)

Curve Number	No Controls				With Structural Controls & Treatment Vol Removed							
	Original CN	Rainfall (in)	S (in)	Q (in)	Tv required (cu ft)	Tv provided (%)	RO Vol Red (cu ft)	Q reduction (in)	Q adj (in)	Adjusted CN	Difference	
Step 1A												
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
98	98.0	7.53	0.204	7.29	2845	100.0%	2845	1.1875	6.103	87.9	-10.1	
49	49.0	7.53	10.408	1.87	3	100.0%	3	0.1875	1.685	47.0	-2.0	
98	98.0	7.53	0.204	7.29	1466	100.0%	1466	1.1875	6.103	87.9	-10.1	
49	49.0	7.53	10.408	1.87	3	100.0%	3	0.1875	1.685	47.0	-2.0	
49	49.0	7.53	10.408	1.87	68	100.0%	68	0.1875	1.685	47.0	-2.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
0	0.0	7.53	-	-	-			0	-	0.0	0.0	
93.2	93.2		0.731	0.04	4384.8131			1.089213255	-1.053	83.9	-9.3	

Note that this assumes the same Pre- and Post-development Tc and Drainage Areas if this is not the case additional routing calculations will be required **DETENTION REQ**

Adjusted Curve Number Calculations (Step 3a added)

Adjusted CN (St 3)	No Controls				With Structural Controls & Treatment Vol Removed						
	Rainfall (in)	S (in)	Q (in)	Tv required (cu ft)	Tv provided (%)	RO Vol Red (cu ft)	Q reduction (in)	Q adj (in)	Adjusted CN	Difference	
0.0	7.53	-	-	-			0	-	0.0	0.0	
87.9	7.53	1.371	6.10	-			0	6.103	87.9	0.0	
47.0	7.53	11.259	1.68	-			0	1.685	47.0	0.0	
87.9	7.53	1.371	6.10	-			0	6.103	87.9	0.0	
47.0	7.53	11.259	1.68	-			0	1.685	47.0	0.0	
47.0	7.53	11.259	1.68	-			0	1.685	47.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
0.0	7.53	-	-	-			0	-	0.0	0.0	
93.2		0.731	0.04	0			#DIV/0!	#DIV/0!	83.9	-9.3	

Note that this assumes the same Pre- and Post-development Tc and Drainage Areas if this is not the case additional routing calculations will be required **DETENTION REQ**



TN Runoff Reduction Assessment Tool (RRAT)

Site Name: Old Hydes Ferry
Assigned Site Number:
Design submitter:

NOTES:

Access: R2_TN_RRAT_Basic
Version #: 2.5.6.1

Design File Name: tn-rrat-runs\Ashland City

Design Results:

Design OK?: GREEN
 Pollutant removal OK?: GREEN Portion action vol captured: 100 % Portion pollutant removed: 100 %
 Volume red. OK?: GREEN Net volume red. depth: 1.65 in.

Inputs:

Location: Nashville Total surface area: 48300 ft2 Imp:active ratio (X:1): 6.52

General Design Conditions:

<i>Design element #</i>	<i>Discharges to design element #</i>	<i>Area, ft2</i>	<i>Special conditions</i>	<i>Soil</i>	<i>Base SCM / management</i>	<i>Design element description</i>
1	0	4386	none	silt loam	04. bioretention\bioretention	Bioretention Area
2	1	28590	none	silt loam	impervious\impervious	Impervious to Bio to FA
3	1	205.0	none	silt loam	06. infiltration areas\turf, fair	Grass to Bio to FA
4	1	14930	none	silt loam	06. infiltration areas\turf, fair	Impervious to Bio to FB
5	1	218.0	none	silt loam	06. infiltration areas\turf, fair	Grass to to Bio to FB

Specific Element Design Values:

<i>Design element #</i>	<i>Base SCM / management</i>	<i>Surface removal eff, %</i>	<i>Drain disch rem eff, %</i>	<i>Drain invert depth, in.</i>	<i>Drain disch element #</i>	<i>Storage vol, gal</i>	<i>Withdrawal rate, gal</i>	<i>Layer #</i>	<i>Layer material</i>	<i>Layer design depth, in.</i>
1	tn-rrat-scms\04. bioretention\bioretention	10.0					0	1	(none)	6.00
					0			2	tn-rrat-materials\Mulch	3.00
					0			3	tn-rrat-materials\Media, soil-based, loamy sand	12.0
2	tn-rrat-scms\impervious\impervious	0					0	1	(none)	0
3	tn-rrat-scms\06. infiltration areas\turf, fair	15.0					0	1	(none)	0
4	tn-rrat-scms\06. infiltration areas\turf, fair	15.0					0	1	(none)	0
5	tn-rrat-scms\06. infiltration areas\turf, fair	15.0					0	1	(none)	0

Appendix A: Pond Calculations
Contour Area Calculations for Forebay A

Required Volume

Required Treatment Volume = *Input* 2848 cu ft

Required Forebay Volume = 0.15(Req Trt Vol) 427.2 cu ft

Volume Calculations

** Calculations Based on the Average End Area Method*

	<i>Elevation (ft)</i>	<i>Area (ft²)</i>	<i>Length Between Contours (ft)</i>	<i>Volume (cf)</i>
TOB	406.8	427		
			2	467.0
BOB	404.8	40		

Appendix A: Pond Calculations
Contour Area Calculations for Forebay B

Required Volume

Required Treatment Volume = *Input* 1569 cu ft

Required Forebay Volume = 0.15(Req Trt Vol) 235.35 cu ft



Volume Calculations

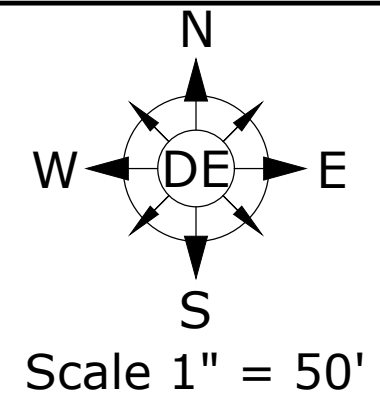
* Calculations Based on the Average End Area Method

	<i>Elevation (ft)</i>	<i>Area (ft²)</i>	<i>Length Between Contours (ft)</i>	<i>Volume (cf)</i>
TOB	406.8	252		
			2	272.0
BOB	404.8	20		

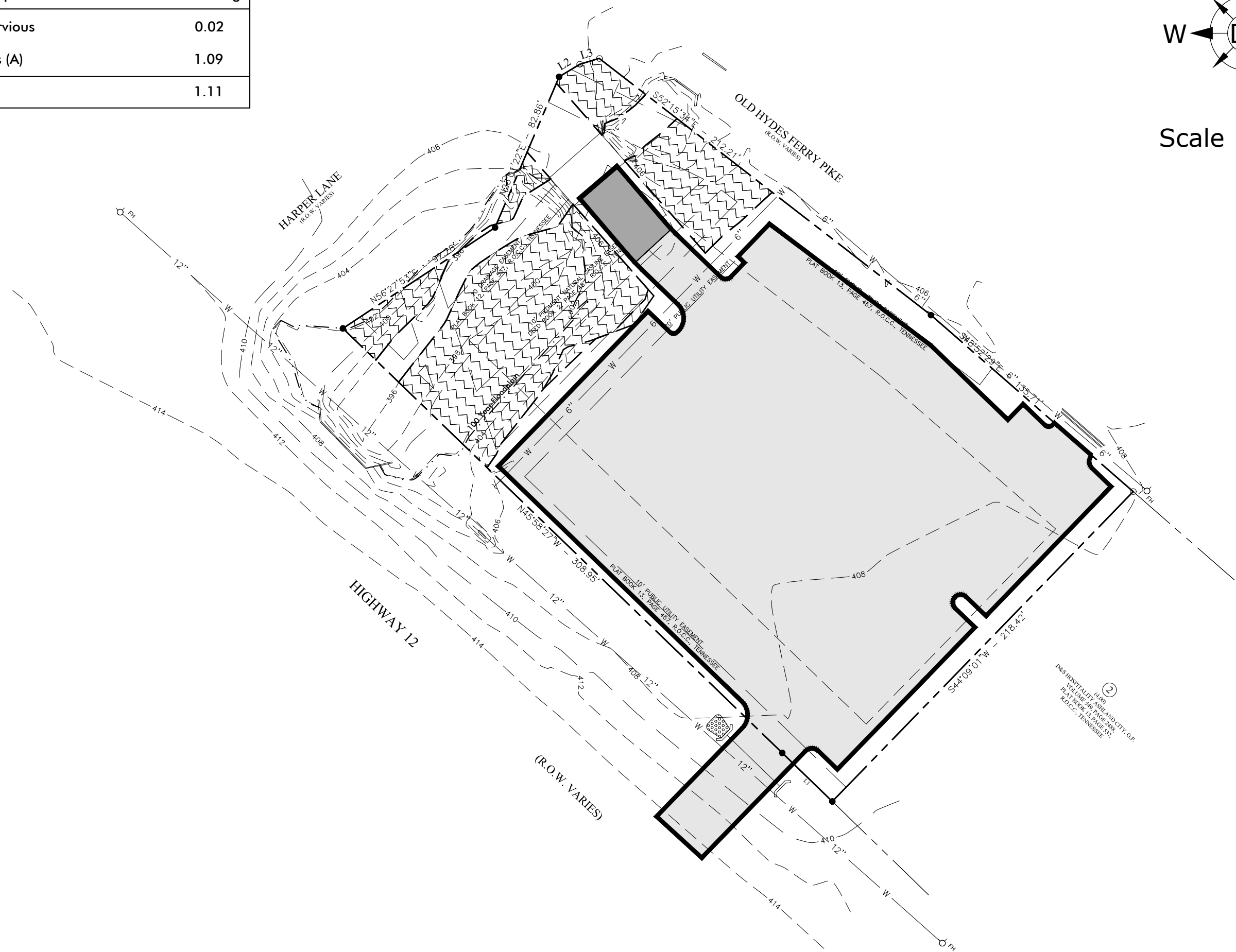
Appendix D: Pond Calculations

- Drain Area Map – Existing for Detention
- Drain Area Map – Proposed for Detention
- Contour Area Calculations (Input for Pond Calculations)
- Pond Calculations

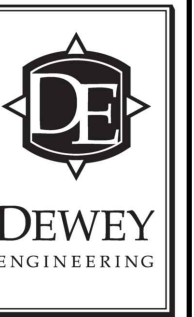
Color	Description	Acreage
	Impervious	0.02
	Grass (A)	1.09
	Total	1.11



Date: January 15, 2021








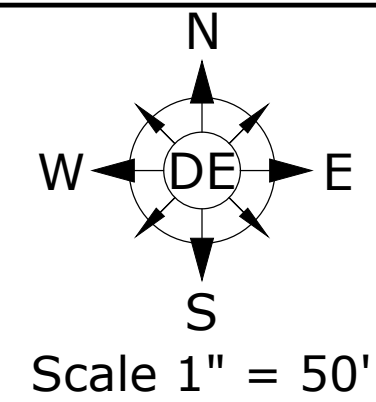
Old Hydes Ferry Pike
 Being Parcel 4.01 on Tax Map 62
 Ashland City, Cheatham County, Tennessee



DA Map
 (Pre-Developed)

1
 ITEM # 2.

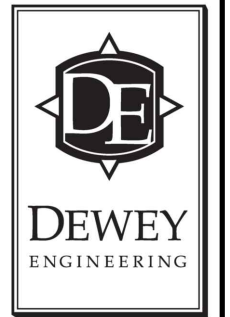
Color	Description	Acreage
	Impervious to Bio to FA	0.660
	Impervious to Bio to FB	0.340
	Grass (A) to Bio to FA	0.004
	Grass (A) to Bio to FB	0.005
	To Bio	0.100
	Total	1.109



Date: January 15, 2021



Old Hydes Ferry Pike
 Being Parcel 4.01 on Tax Map 62
 Ashland City, Cheatham County, Tennessee



DA Map
 (Post-Developed)

1
 ITEM # 2.

Appendix D: Pond Calculations
Contour Area Calculations for Bio Area 1

Inputs

Surface Area of Bioretention = 3598 sf
 Surface Area of Bottom Bank of Bio = 2224 sf

Contour Area Calculations

<i>Elevation Description</i>	<i>Elevation</i>	<i>Calculation</i>	<i>Contour Area</i>
Bio Invert	398.80	=SA of Bioretention*0.40	1439.20
Top of Storage Layer	399.79	=SA of Bioretention*0.40	1439.20
Bottom of Bio Gravel	399.80	=SA of Bioretention*0.40	1439.20
Top of Bio Gravel	401.79	=SA of Bioretention*0.40	1439.20
Bottom Of Media	401.80	=SA of Bioretention*0.25	899.50
Top of Media	404.79	=SA of Bioretention*0.25	899.50
Bottom of Bank Bio	404.80	=SA of Bottom of Bank of Bioretention + Forebay	2284.00
Top of Bank Bio/Contour	406.80	=SA of Top of Bank of Bioretention + Forebay	4276.00

**Contour Areas and Elevations used in Hydraflow to Model Pond*

- Hydrograph Return Period Recap..... 1**

- 2 - Year**
 - Summary Report..... 2**
 - Hydrograph Reports..... 3**
 - Hydrograph No. 1, SCS Runoff, Existing to Outfall 1..... 3
 - TR-55 Tc Worksheet..... 4
 - Hydrograph No. 3, SCS Runoff, Proposed to Bio 1 to Outfall 1..... 5
 - TR-55 Tc Worksheet..... 6
 - Hydrograph No. 4, Reservoir, From Bioretention Area..... 7
 - Pond Report - Bioretention Area..... 8

- 5 - Year**
 - Summary Report..... 10**
 - Hydrograph Reports..... 11**
 - Hydrograph No. 1, SCS Runoff, Existing to Outfall 1..... 11
 - Hydrograph No. 3, SCS Runoff, Proposed to Bio 1 to Outfall 1..... 12
 - Hydrograph No. 4, Reservoir, From Bioretention Area..... 13

- 10 - Year**
 - Summary Report..... 14**
 - Hydrograph Reports..... 15**
 - Hydrograph No. 1, SCS Runoff, Existing to Outfall 1..... 15
 - Hydrograph No. 3, SCS Runoff, Proposed to Bio 1 to Outfall 1..... 16
 - Hydrograph No. 4, Reservoir, From Bioretention Area..... 17

- 25 - Year**
 - Summary Report..... 18**
 - Hydrograph Reports..... 19**
 - Hydrograph No. 1, SCS Runoff, Existing to Outfall 1..... 19
 - Hydrograph No. 3, SCS Runoff, Proposed to Bio 1 to Outfall 1..... 20
 - Hydrograph No. 4, Reservoir, From Bioretention Area..... 21

- 50 - Year**
 - Summary Report..... 22**
 - Hydrograph Reports..... 23**
 - Hydrograph No. 1, SCS Runoff, Existing to Outfall 1..... 23
 - Hydrograph No. 3, SCS Runoff, Proposed to Bio 1 to Outfall 1..... 24
 - Hydrograph No. 4, Reservoir, From Bioretention Area..... 25

- 100 - Year**
 - Summary Report..... 26**
 - Hydrograph Reports..... 27**
 - Hydrograph No. 1, SCS Runoff, Existing to Outfall 1..... 27
 - Hydrograph No. 3, SCS Runoff, Proposed to Bio 1 to Outfall 1..... 28
 - Hydrograph No. 4, Reservoir, From Bioretention Area..... 29

Hydrograph Return Period Recap

Hydroflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	-----	-----	1.166	-----	2.229	2.999	4.044	4.848	5.658	Existing to Outfall 1
3	SCS Runoff	-----	-----	5.186	-----	7.139	8.413	10.03	11.22	12.39	Proposed to Bio 1 to Outfall 1
4	Reservoir	3	-----	0.000	-----	0.000	0.000	0.497	2.013	5.208	From Bioretention Area

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.166	1	724	3,626	-----	-----	-----	Existing to Outfall 1
3	SCS Runoff	5.186	1	715	9,930	-----	-----	-----	Proposed to Bio 1 to Outfall 1
4	Reservoir	0.000	1	931	0	3	404.80	7,033	From Bioretention Area

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

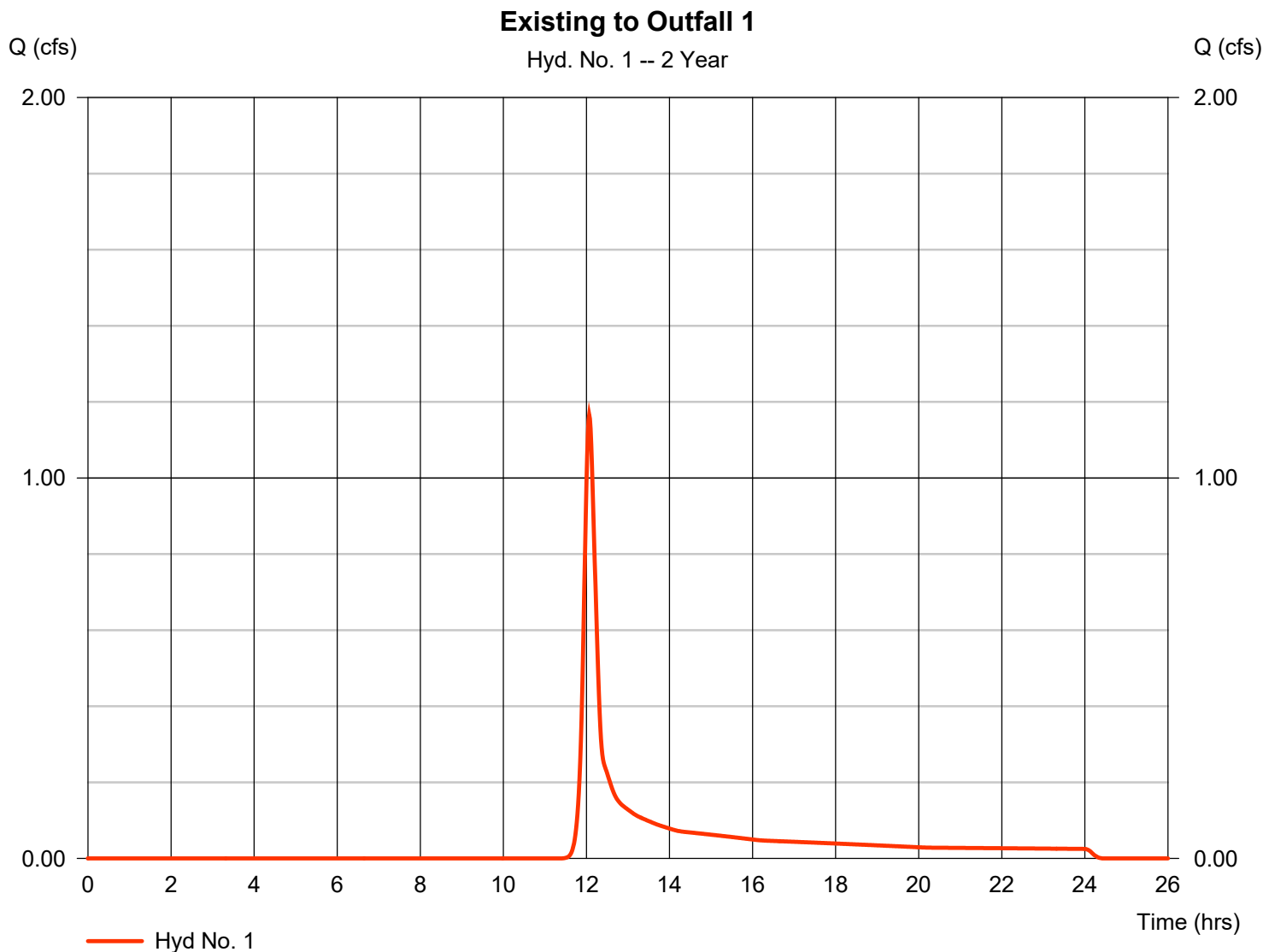
Friday, 01 / 15 / 2021

Hyd. No. 1

Existing to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.166 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 1 min	Hyd. volume	= 3,626 cuft
Drainage area	= 1.110 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.10 min
Total precip.	= 3.39 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.020 x 98) + (1.090 x 68)] / 1.110



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 1

Existing to Outfall 1

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.150	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.39	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= 12.56	+ 0.00	+ 0.00	= 12.56
Shallow Concentrated Flow				
Flow length (ft)	= 408.00	0.00	0.00	
Watercourse slope (%)	= 2.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.28	0.00	0.00	
Travel Time (min)	= 2.98	+ 0.00	+ 0.00	= 2.98
Channel Flow				
X sectional flow area (sqft)	= 10.00	0.00	0.00	
Wetted perimeter (ft)	= 12.00	0.00	0.00	
Channel slope (%)	= 1.00	0.00	0.00	
Manning's n-value	= 0.025	0.015	0.015	
Velocity (ft/s)	=5.27	0.00	0.00	
Flow length (ft)	191.0	0.0	0.0	
Travel Time (min)	= 0.60	+ 0.00	+ 0.00	= 0.60
Total Travel Time, Tc				16.10 min

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

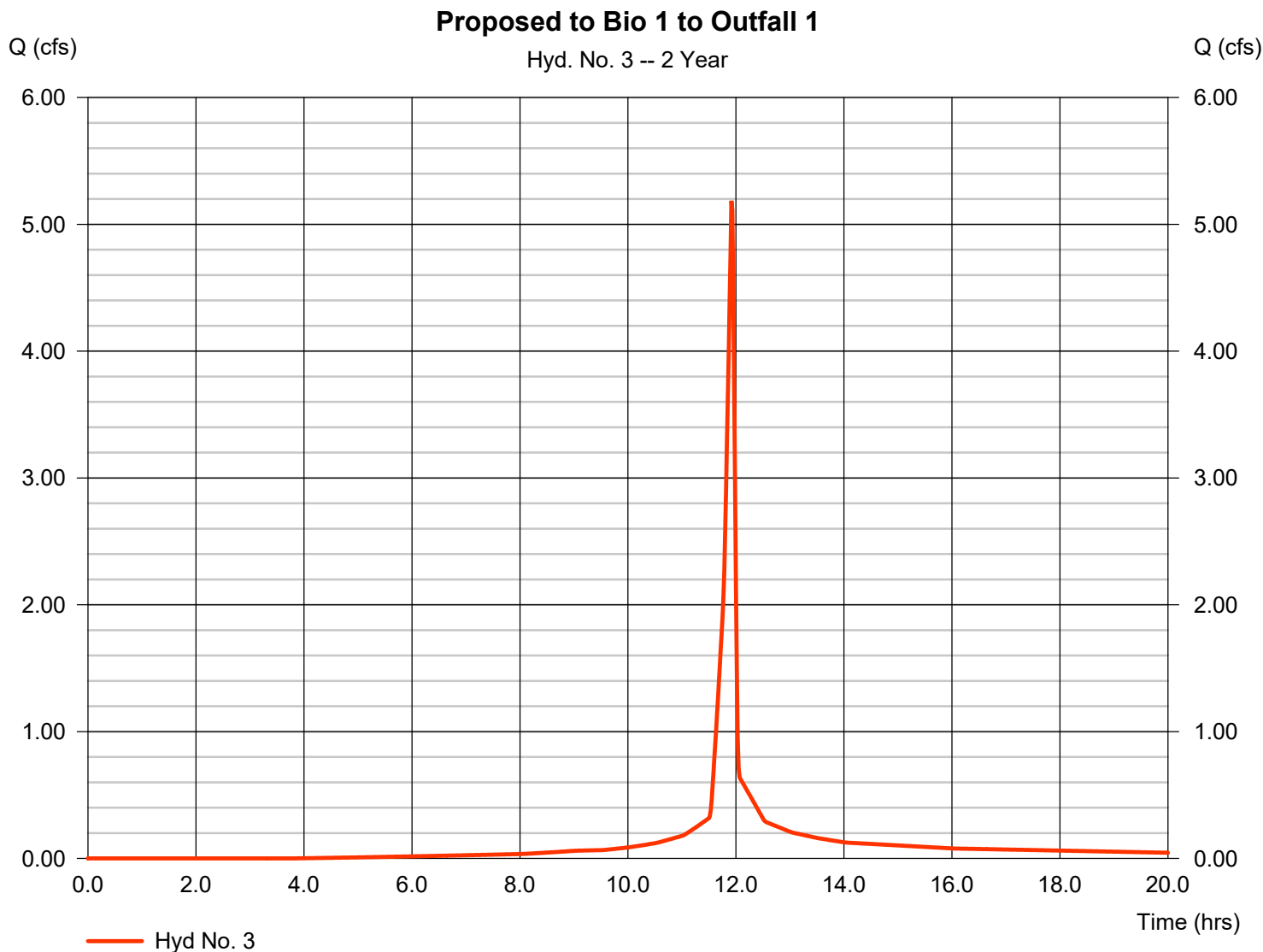
Friday, 01 / 15 / 2021

Hyd. No. 3

Proposed to Bio 1 to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 5.186 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.92 hrs
Time interval	= 1 min	Hyd. volume	= 9,930 cuft
Drainage area	= 1.110 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 3.39 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (0.009 x 68) + (0.100 x 49)] / 1.110



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 3

Proposed to Bio 1 to Outfall 1

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.013	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.39	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= 1.78	+ 0.00	+ 0.00	= 1.78
Shallow Concentrated Flow				
Flow length (ft)	= 0.00	0.00	0.00	
Watercourse slope (%)	= 0.00	0.00	0.00	
Surface description	= Paved	Paved	Paved	
Average velocity (ft/s)	=0.00	0.00	0.00	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Channel Flow				
X sectional flow area (sqft)	= 10.00	0.00	0.00	
Wetted perimeter (ft)	= 10.00	0.00	0.00	
Channel slope (%)	= 1.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=9.93	0.00	0.00	
Flow length (ft)	{{0}}179.0	0.0	0.0	
Travel Time (min)	= 0.30	+ 0.00	+ 0.00	= 0.30
Total Travel Time, Tc				2.10 min

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

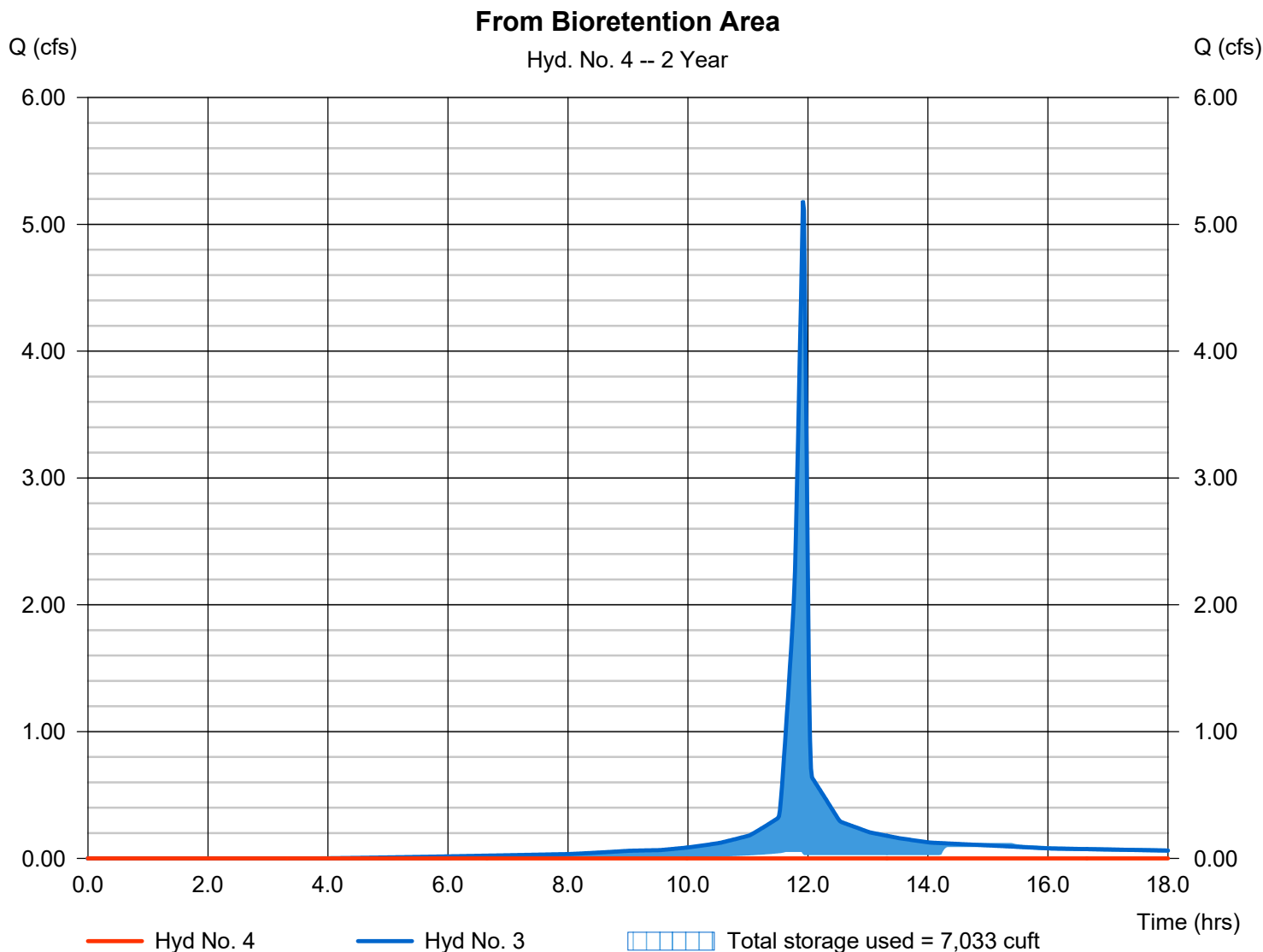
Friday, 01 / 15 / 2021

Hyd. No. 4

From Bioretention Area

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 15.52 hrs
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 3 - Proposed to Bio 1 to Outfall	Max. Elevation	= 404.80 ft
Reservoir name	= Bioretention Area	Max. Storage	= 7,033 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 1 - Bioretention Area

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 398.80 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	398.80	1,439	0	0
0.99	399.79	1,439	1,425	1,425
1.00	399.80	1,439	14	1,439
2.99	401.79	1,439	2,864	4,303
3.00	401.80	900	12	4,314
5.99	404.79	900	2,691	7,005
6.00	404.80	2,284	16	7,021
8.00	406.80	4,276	6,560	13,581

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	0.00	0.00	0.00
Crest El. (ft)	= 406.30	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 2.000 (by Contour)			
TW Elev. (ft)	= 0.00			

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ 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	398.80	---	---	---	---	0.00	---	---	---	0.000	---	0.000
0.10	142	398.90	---	---	---	---	0.00	---	---	---	0.007	---	0.007
0.20	285	399.00	---	---	---	---	0.00	---	---	---	0.013	---	0.013
0.30	427	399.10	---	---	---	---	0.00	---	---	---	0.020	---	0.020
0.40	570	399.20	---	---	---	---	0.00	---	---	---	0.027	---	0.027
0.50	712	399.30	---	---	---	---	0.00	---	---	---	0.033	---	0.033
0.59	855	399.39	---	---	---	---	0.00	---	---	---	0.040	---	0.040
0.69	997	399.49	---	---	---	---	0.00	---	---	---	0.047	---	0.047
0.79	1,140	399.59	---	---	---	---	0.00	---	---	---	0.053	---	0.053
0.89	1,282	399.69	---	---	---	---	0.00	---	---	---	0.060	---	0.060
0.99	1,425	399.79	---	---	---	---	0.00	---	---	---	0.067	---	0.067
0.99	1,426	399.79	---	---	---	---	0.00	---	---	---	0.067	---	0.067
0.99	1,428	399.79	---	---	---	---	0.00	---	---	---	0.067	---	0.067
0.99	1,429	399.79	---	---	---	---	0.00	---	---	---	0.067	---	0.067
0.99	1,430	399.79	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.00	1,432	399.80	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.00	1,433	399.80	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.00	1,435	399.80	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.00	1,436	399.80	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.00	1,438	399.80	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.00	1,439	399.80	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.20	1,725	400.00	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.40	2,012	400.20	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.60	2,298	400.40	---	---	---	---	0.00	---	---	---	0.067	---	0.067
1.80	2,584	400.60	---	---	---	---	0.00	---	---	---	0.067	---	0.067
2.00	2,871	400.80	---	---	---	---	0.00	---	---	---	0.067	---	0.067
2.19	3,157	400.99	---	---	---	---	0.00	---	---	---	0.067	---	0.067
2.39	3,444	401.19	---	---	---	---	0.00	---	---	---	0.067	---	0.067
2.59	3,730	401.39	---	---	---	---	0.00	---	---	---	0.067	---	0.067
2.79	4,016	401.59	---	---	---	---	0.00	---	---	---	0.067	---	0.067
2.99	4,303	401.79	---	---	---	---	0.00	---	---	---	0.067	---	0.067
2.99	4,304	401.79	---	---	---	---	0.00	---	---	---	0.064	---	0.064
2.99	4,305	401.79	---	---	---	---	0.00	---	---	---	0.062	---	0.062
2.99	4,306	401.79	---	---	---	---	0.00	---	---	---	0.059	---	0.059
	4,307	401.79	---	---	---	---	0.00	---	---	---	0.057	---	0.057

Bioretention Area

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
3.00	4,308	401.80	---	---	---	---	0.00	---	---	---	0.054	---	0.054
3.00	4,310	401.80	---	---	---	---	0.00	---	---	---	0.052	---	0.052
3.00	4,311	401.80	---	---	---	---	0.00	---	---	---	0.049	---	0.049
3.00	4,312	401.80	---	---	---	---	0.00	---	---	---	0.047	---	0.047
3.00	4,313	401.80	---	---	---	---	0.00	---	---	---	0.044	---	0.044
3.00	4,314	401.80	---	---	---	---	0.00	---	---	---	0.042	---	0.042
3.30	4,583	402.10	---	---	---	---	0.00	---	---	---	0.042	---	0.042
3.60	4,853	402.40	---	---	---	---	0.00	---	---	---	0.042	---	0.042
3.90	5,122	402.70	---	---	---	---	0.00	---	---	---	0.042	---	0.042
4.20	5,391	403.00	---	---	---	---	0.00	---	---	---	0.042	---	0.042
4.50	5,660	403.30	---	---	---	---	0.00	---	---	---	0.042	---	0.042
4.79	5,929	403.59	---	---	---	---	0.00	---	---	---	0.042	---	0.042
5.09	6,198	403.89	---	---	---	---	0.00	---	---	---	0.042	---	0.042
5.39	6,467	404.19	---	---	---	---	0.00	---	---	---	0.042	---	0.042
5.69	6,736	404.49	---	---	---	---	0.00	---	---	---	0.042	---	0.042
5.99	7,005	404.79	---	---	---	---	0.00	---	---	---	0.042	---	0.042
5.99	7,007	404.79	---	---	---	---	0.00	---	---	---	0.048	---	0.048
5.99	7,009	404.79	---	---	---	---	0.00	---	---	---	0.054	---	0.054
5.99	7,010	404.79	---	---	---	---	0.00	---	---	---	0.061	---	0.061
5.99	7,012	404.79	---	---	---	---	0.00	---	---	---	0.067	---	0.067
6.00	7,013	404.80	---	---	---	---	0.00	---	---	---	0.074	---	0.074
6.00	7,015	404.80	---	---	---	---	0.00	---	---	---	0.080	---	0.080
6.00	7,016	404.80	---	---	---	---	0.00	---	---	---	0.087	---	0.087
6.00	7,018	404.80	---	---	---	---	0.00	---	---	---	0.093	---	0.093
6.00	7,020	404.80	---	---	---	---	0.00	---	---	---	0.099	---	0.099
6.00	7,021	404.80	---	---	---	---	0.00	---	---	---	0.106	---	0.106
6.20	7,677	405.00	---	---	---	---	0.00	---	---	---	0.115	---	0.115
6.40	8,333	405.20	---	---	---	---	0.00	---	---	---	0.124	---	0.124
6.60	8,989	405.40	---	---	---	---	0.00	---	---	---	0.133	---	0.133
6.80	9,645	405.60	---	---	---	---	0.00	---	---	---	0.143	---	0.143
7.00	10,301	405.80	---	---	---	---	0.00	---	---	---	0.152	---	0.152
7.20	10,957	406.00	---	---	---	---	0.00	---	---	---	0.161	---	0.161
7.40	11,613	406.20	---	---	---	---	0.00	---	---	---	0.170	---	0.170
7.60	12,269	406.40	---	---	---	---	0.66	---	---	---	0.180	---	0.838
7.80	12,925	406.60	---	---	---	---	3.42	---	---	---	0.189	---	3.608
8.00	13,581	406.80	---	---	---	---	7.35	---	---	---	0.198	---	7.552

...End

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.229	1	724	6,537	-----	-----	-----	Existing to Outfall 1
3	SCS Runoff	7.139	1	715	14,006	-----	-----	-----	Proposed to Bio 1 to Outfall 1
4	Reservoir	0.000	1	1538	0	3	405.52	9,392	From Bioretention Area

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

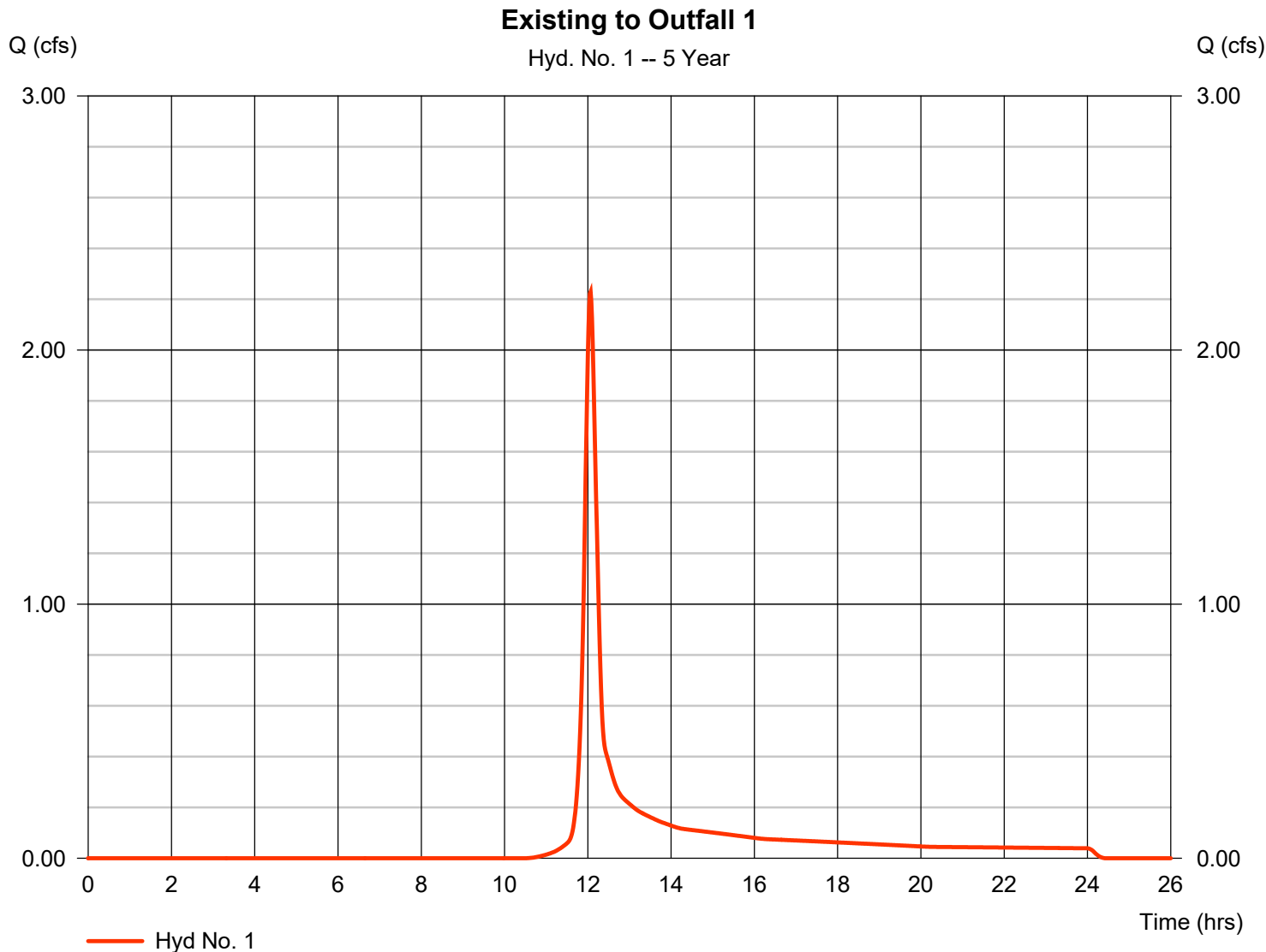
Friday, 01 / 15 / 2021

Hyd. No. 1

Existing to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.229 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.07 hrs
Time interval	= 1 min	Hyd. volume	= 6,537 cuft
Drainage area	= 1.110 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.10 min
Total precip.	= 4.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.020 x 98) + (1.090 x 68)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

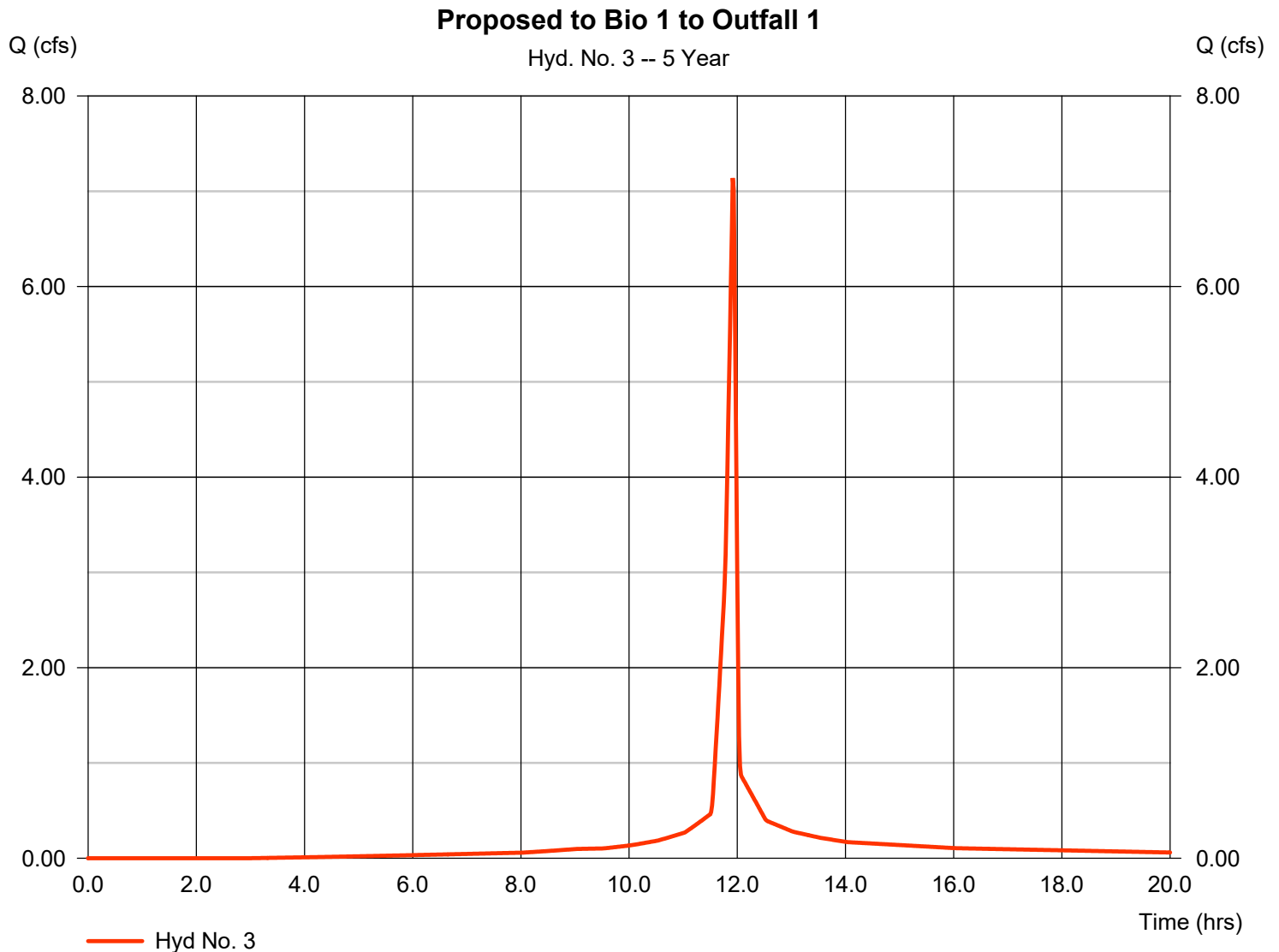
Friday, 01 / 15 / 2021

Hyd. No. 3

Proposed to Bio 1 to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 7.139 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.92 hrs
Time interval	= 1 min	Hyd. volume	= 14,006 cuft
Drainage area	= 1.110 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 4.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (0.009 x 68) + (0.100 x 49)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

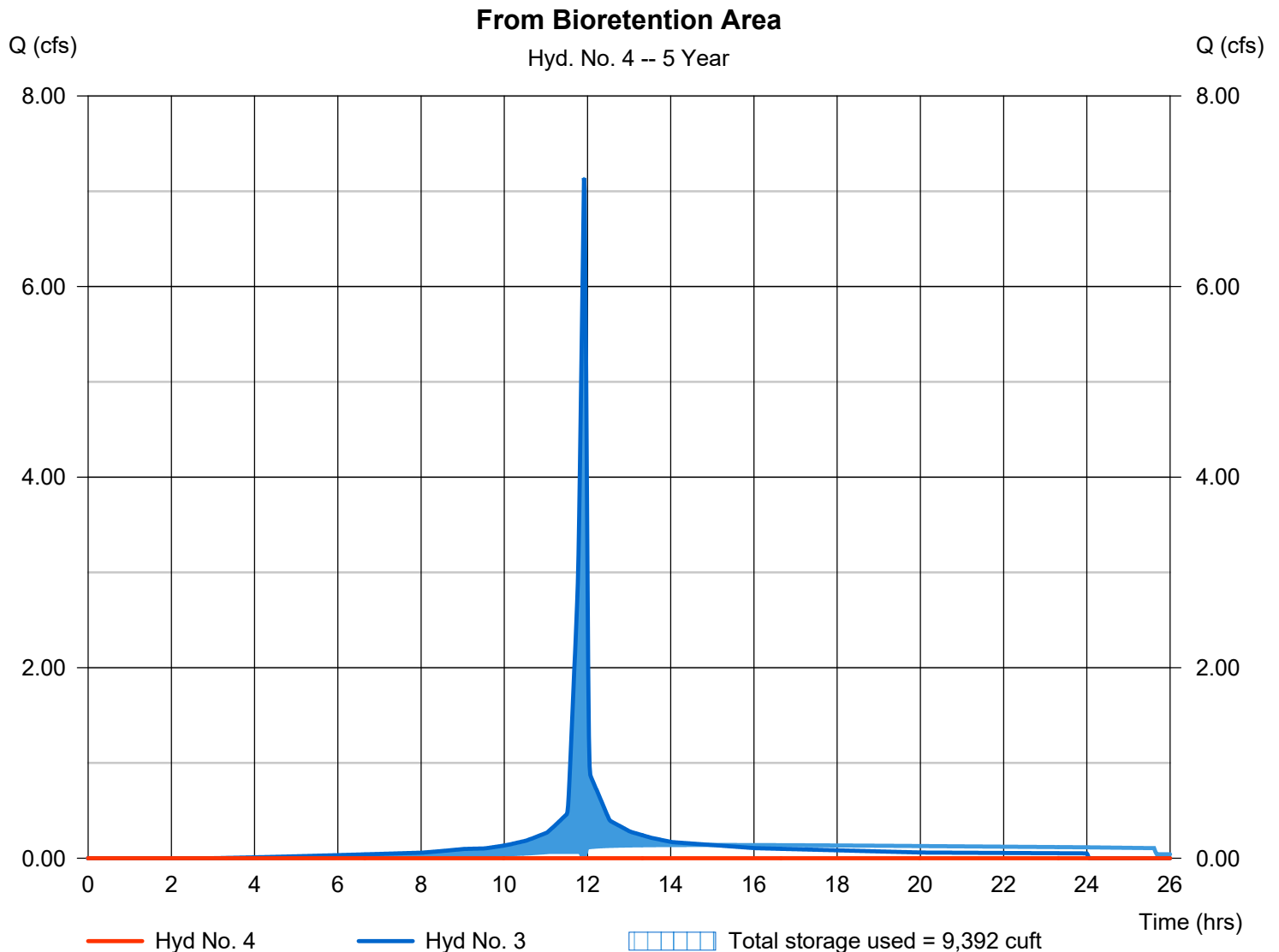
Friday, 01 / 15 / 2021

Hyd. No. 4

From Bioretention Area

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 5 yrs	Time to peak	= 25.63 hrs
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 3 - Proposed to Bio 1 to Outfall	Max. Elevation	= 405.52 ft
Reservoir name	= Bioretention Area	Max. Storage	= 9,392 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.999	1	723	8,674	-----	-----	-----	Existing to Outfall 1
3	SCS Runoff	8.413	1	715	16,711	-----	-----	-----	Proposed to Bio 1 to Outfall 1
4	Reservoir	0.000	1	720	0	3	406.09	11,238	From Bioretention Area

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

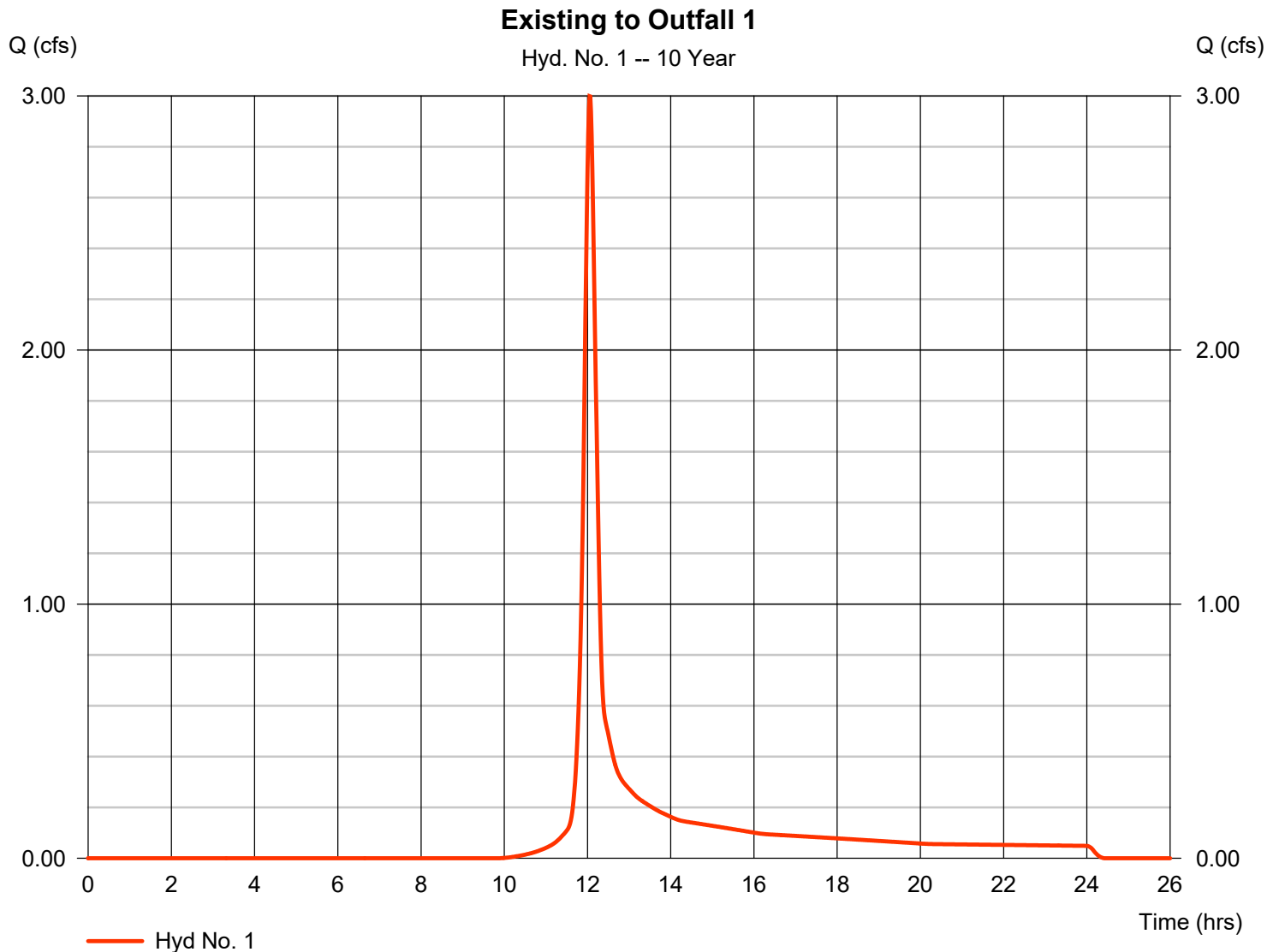
Friday, 01 / 15 / 2021

Hyd. No. 1

Existing to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 2.999 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.05 hrs
Time interval	= 1 min	Hyd. volume	= 8,674 cuft
Drainage area	= 1.110 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.10 min
Total precip.	= 5.23 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.020 x 98) + (1.090 x 68)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

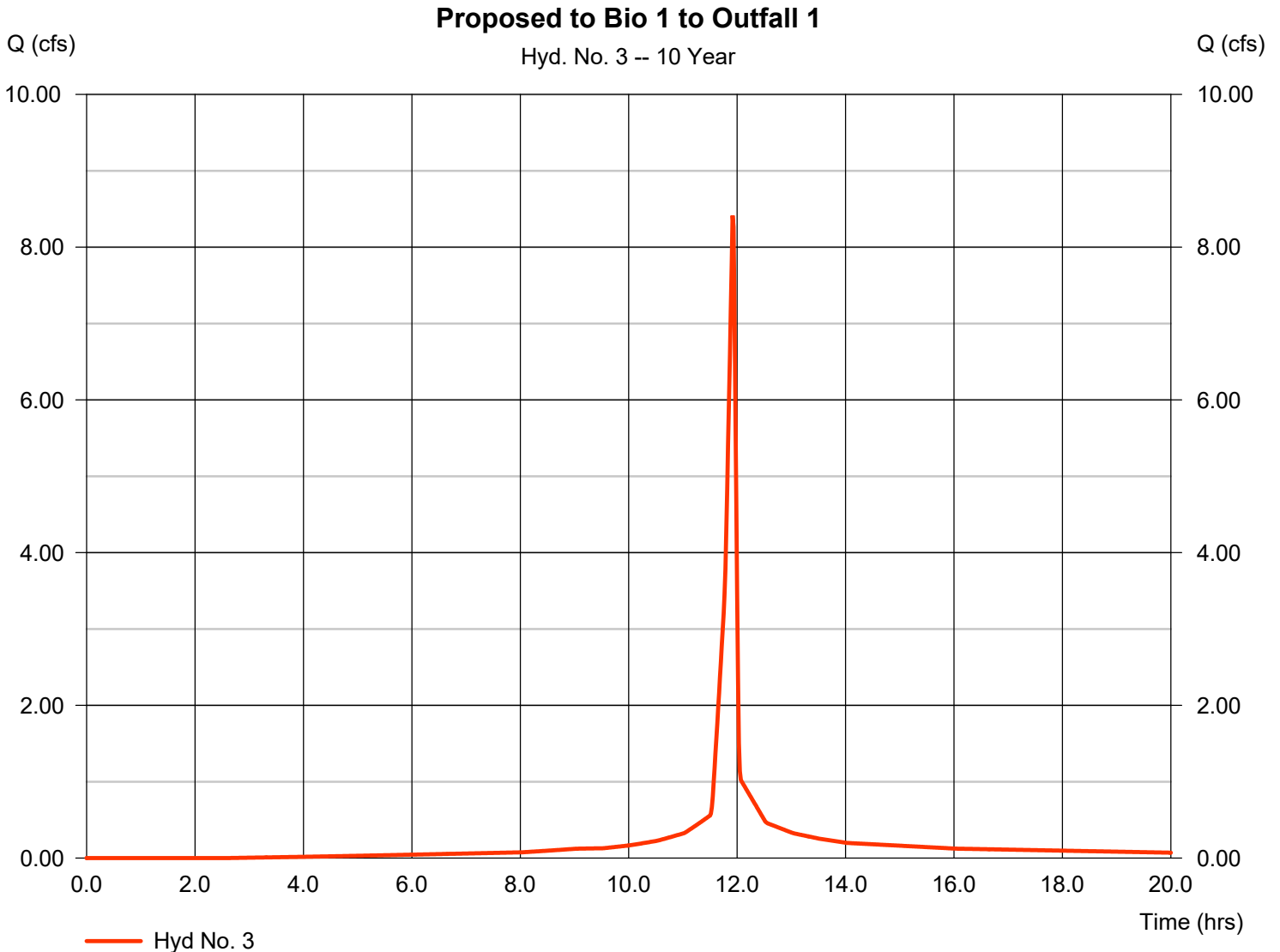
Friday, 01 / 15 / 2021

Hyd. No. 3

Proposed to Bio 1 to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 8.413 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.92 hrs
Time interval	= 1 min	Hyd. volume	= 16,711 cuft
Drainage area	= 1.110 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 5.23 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (0.009 x 68) + (0.100 x 49)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

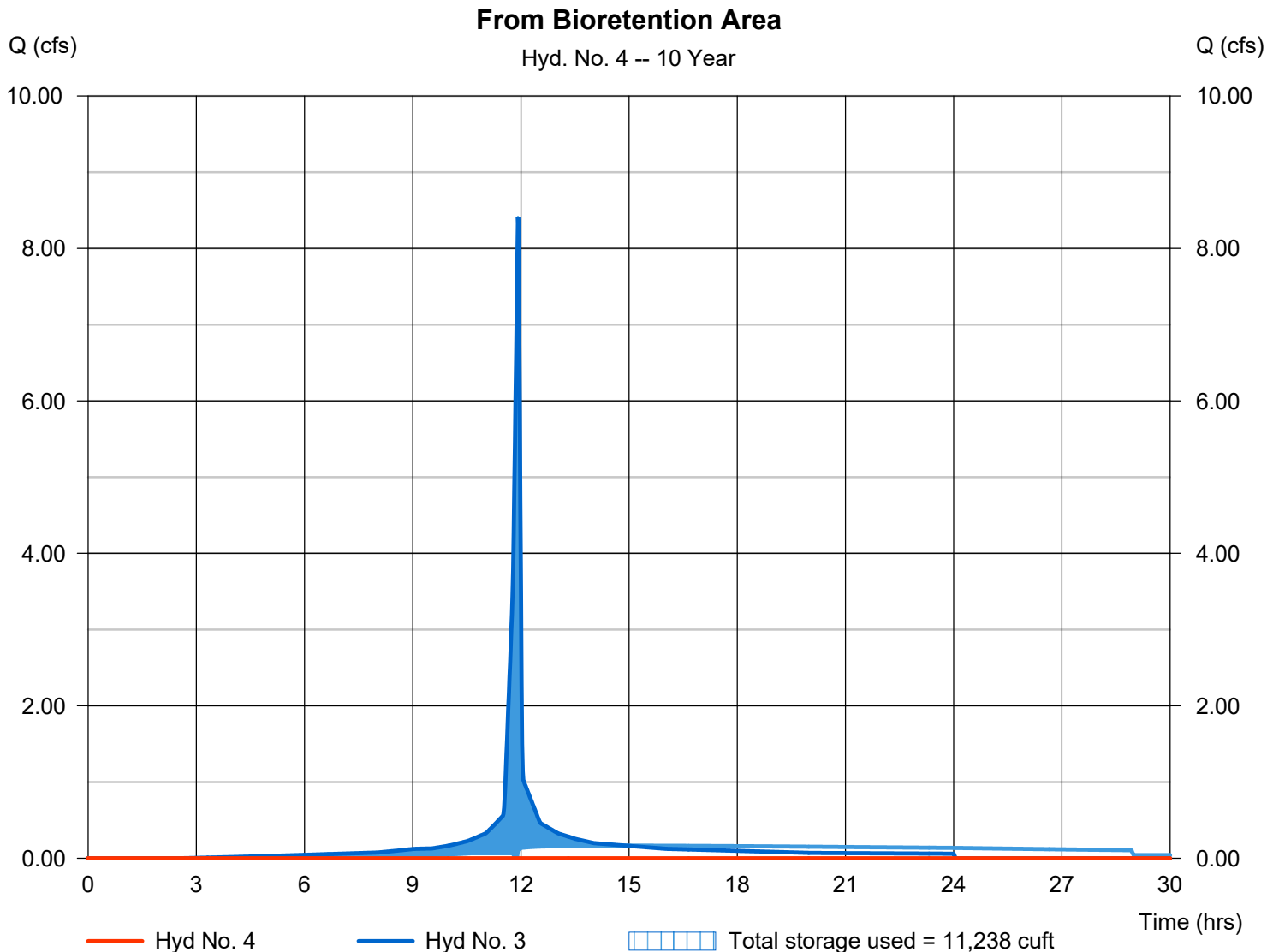
Friday, 01 / 15 / 2021

Hyd. No. 4

From Bioretention Area

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 3 - Proposed to Bio 1 to Outfall	Max. Elevation	= 406.09 ft
Reservoir name	= Bioretention Area	Max. Storage	= 11,238 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.044	1	723	11,578	-----	-----	-----	Existing to Outfall 1
3	SCS Runoff	10.03	1	715	20,174	-----	-----	-----	Proposed to Bio 1 to Outfall 1
4	Reservoir	0.497	1	747	2,229	3	406.35	12,108	From Bioretention Area

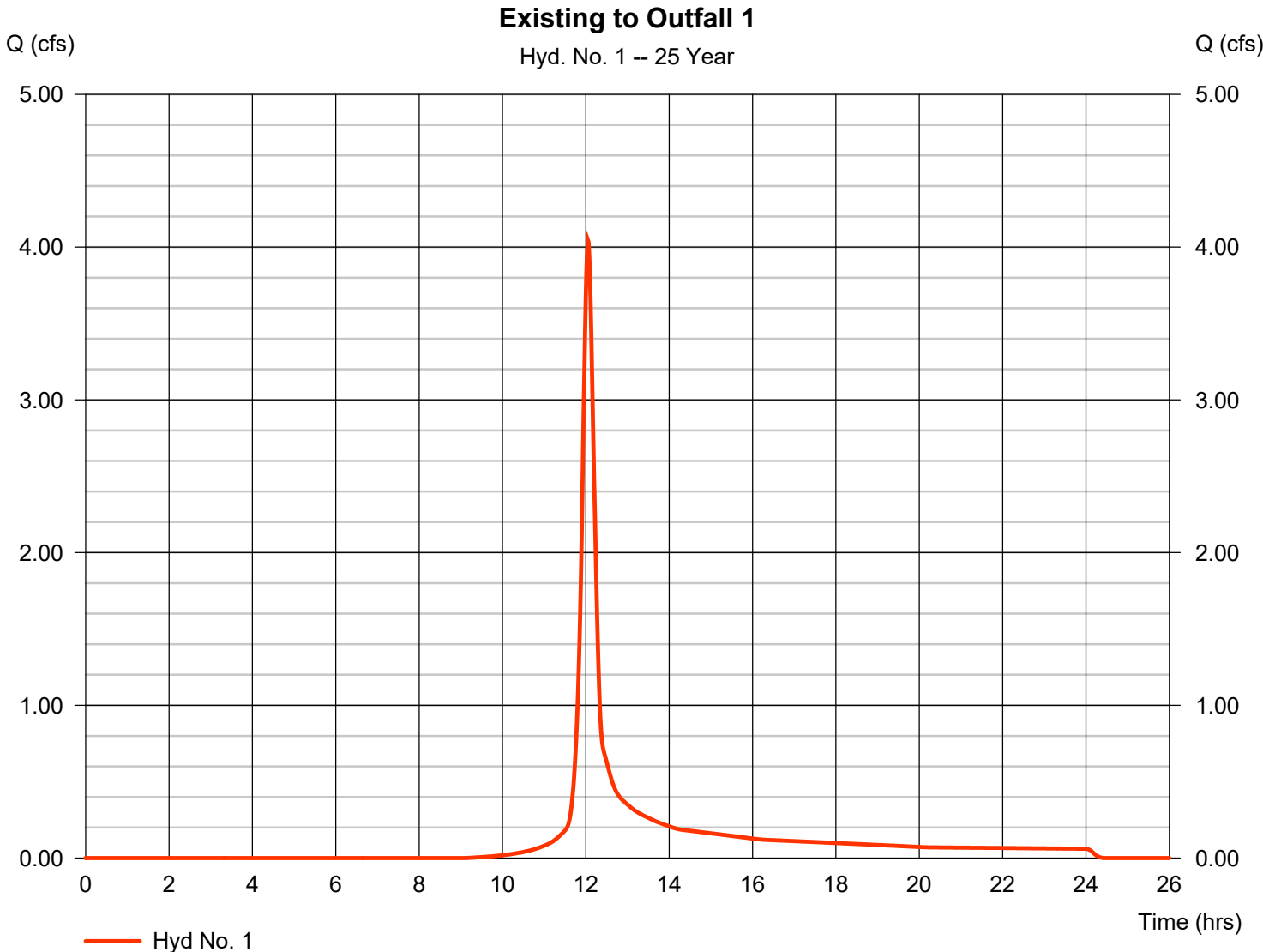
Hydrograph Report

Hyd. No. 1

Existing to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 4.044 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.05 hrs
Time interval	= 1 min	Hyd. volume	= 11,578 cuft
Drainage area	= 1.110 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.10 min
Total precip.	= 6.16 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.020 x 98) + (1.090 x 68)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

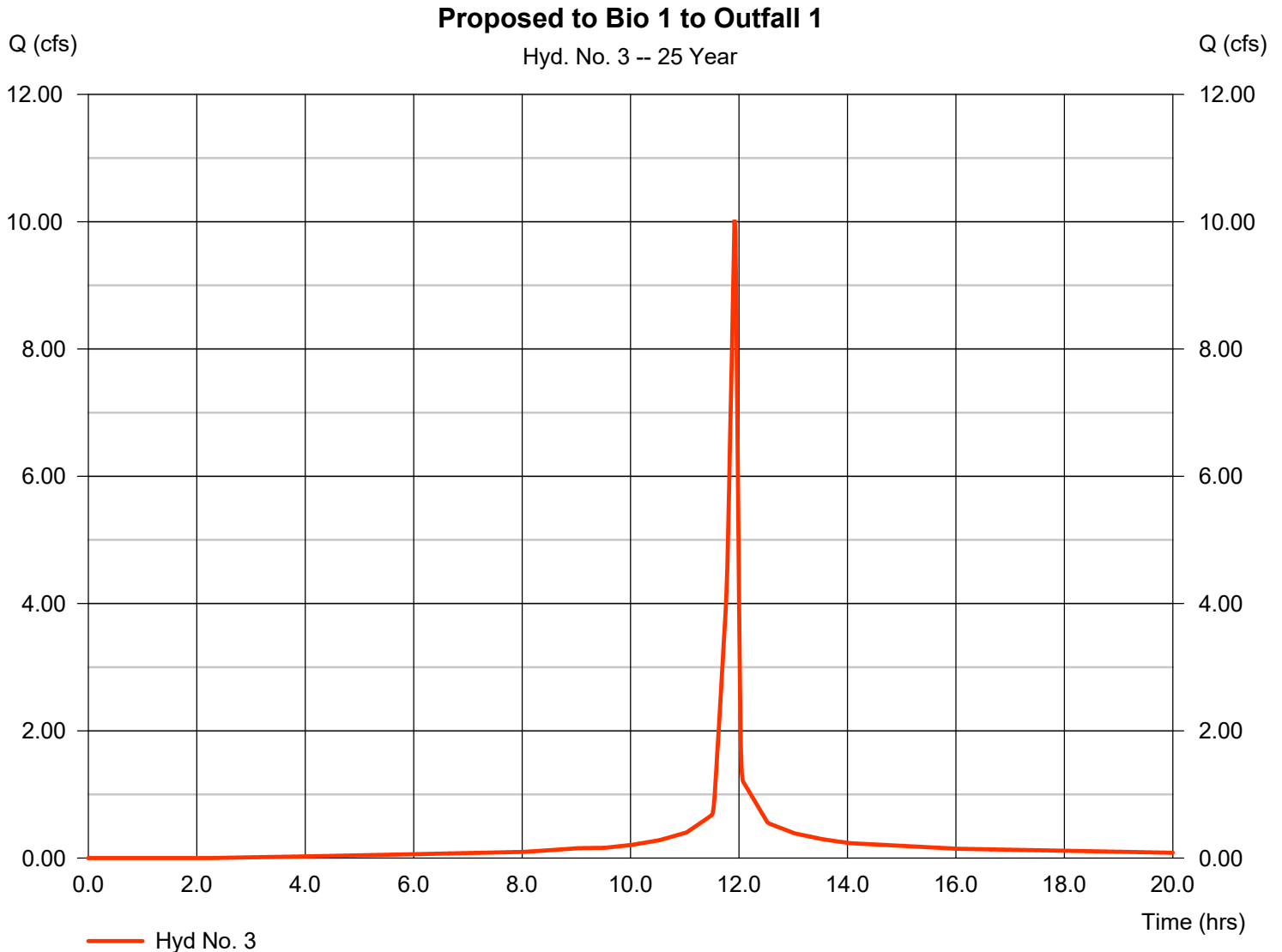
Friday, 01 / 15 / 2021

Hyd. No. 3

Proposed to Bio 1 to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 10.03 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.92 hrs
Time interval	= 1 min	Hyd. volume	= 20,174 cuft
Drainage area	= 1.110 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 6.16 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (0.009 x 68) + (0.100 x 49)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

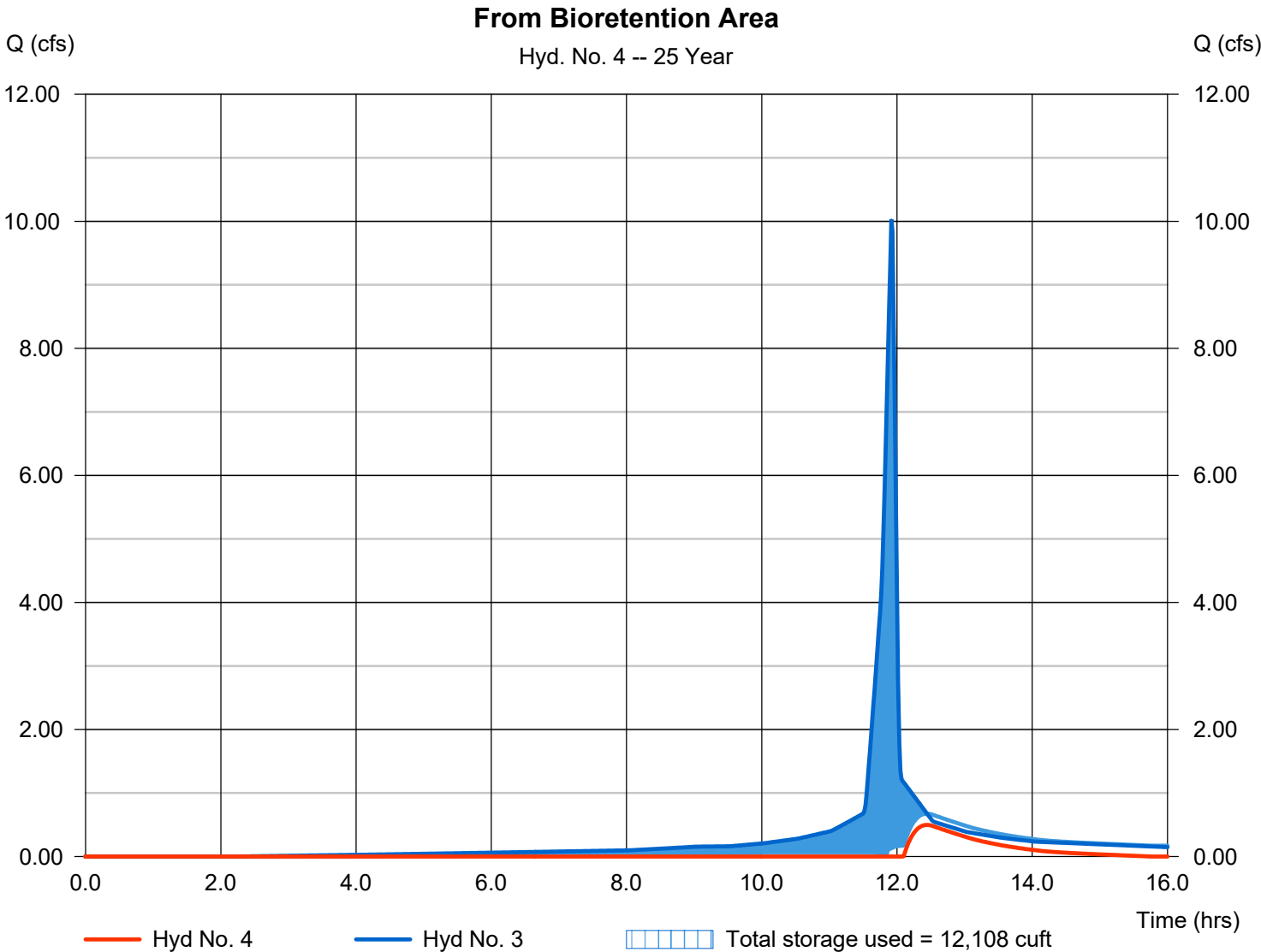
Friday, 01 / 15 / 2021

Hyd. No. 4

From Bioretention Area

Hydrograph type	= Reservoir	Peak discharge	= 0.497 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.45 hrs
Time interval	= 1 min	Hyd. volume	= 2,229 cuft
Inflow hyd. No.	= 3 - Proposed to Bio 1 to Outfall	Max. Elevation	= 406.35 ft
Reservoir name	= Bioretention Area	Max. Storage	= 12,108 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.848	1	723	13,836	-----	-----	-----	Existing to Outfall 1
3	SCS Runoff	11.22	1	715	22,751	-----	-----	-----	Proposed to Bio 1 to Outfall 1
4	Reservoir	2.013	1	722	4,315	3	406.50	12,591	From Bioretention Area

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

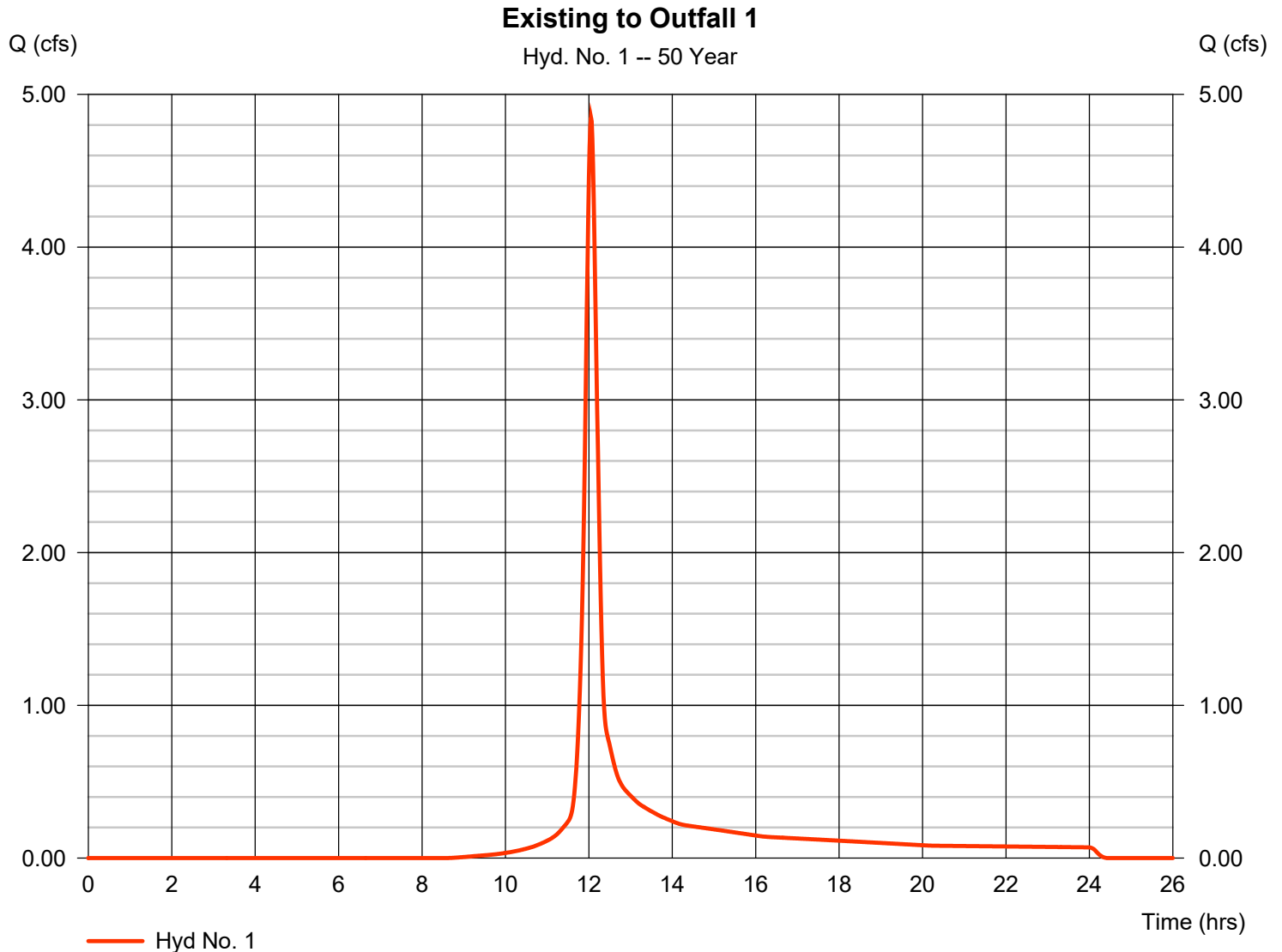
Friday, 01 / 15 / 2021

Hyd. No. 1

Existing to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 4.848 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.05 hrs
Time interval	= 1 min	Hyd. volume	= 13,836 cuft
Drainage area	= 1.110 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.10 min
Total precip.	= 6.85 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.020 x 98) + (1.090 x 68)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

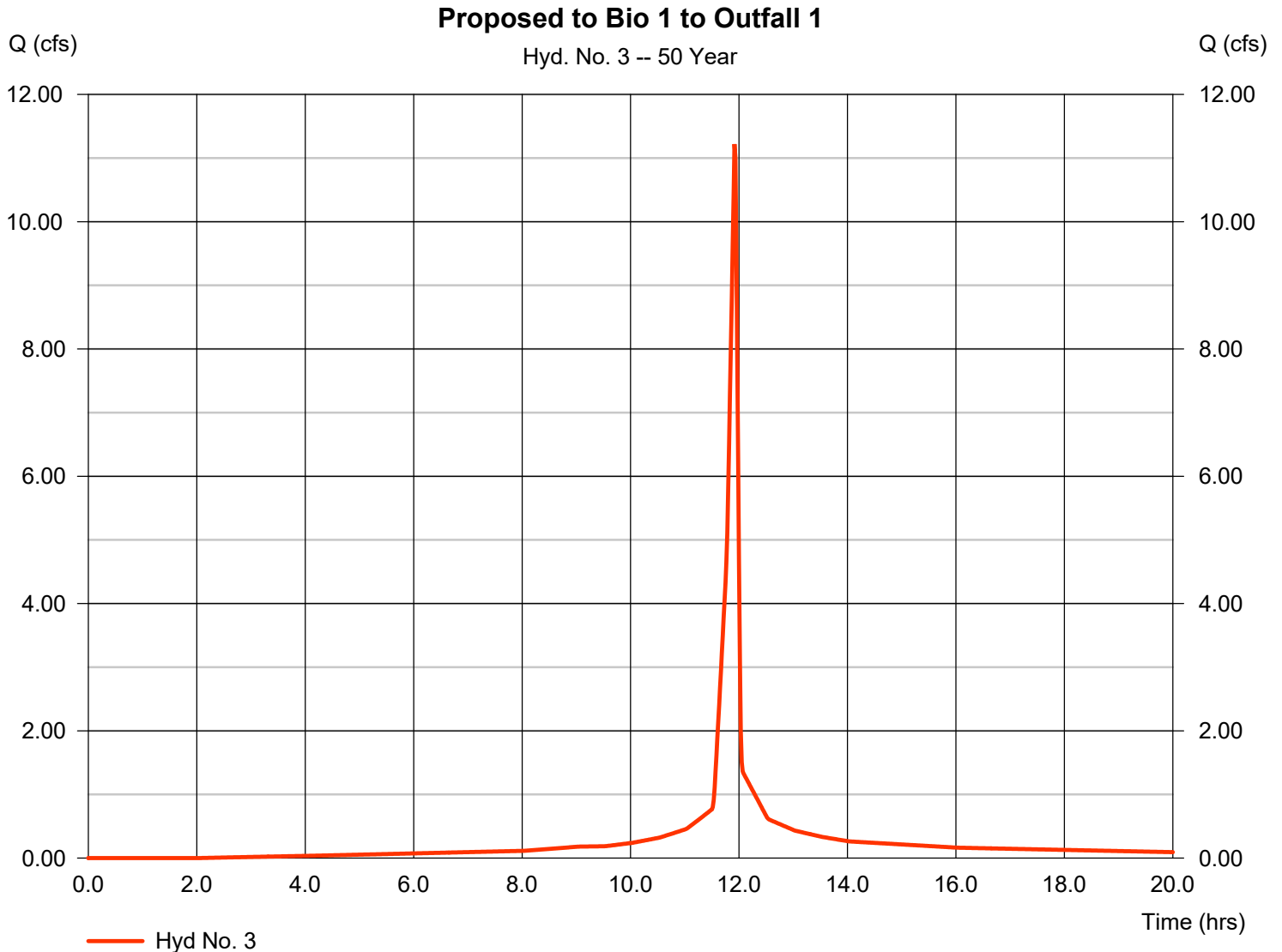
Friday, 01 / 15 / 2021

Hyd. No. 3

Proposed to Bio 1 to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 11.22 cfs
Storm frequency	= 50 yrs	Time to peak	= 11.92 hrs
Time interval	= 1 min	Hyd. volume	= 22,751 cuft
Drainage area	= 1.110 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 6.85 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (0.009 x 68) + (0.100 x 49)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

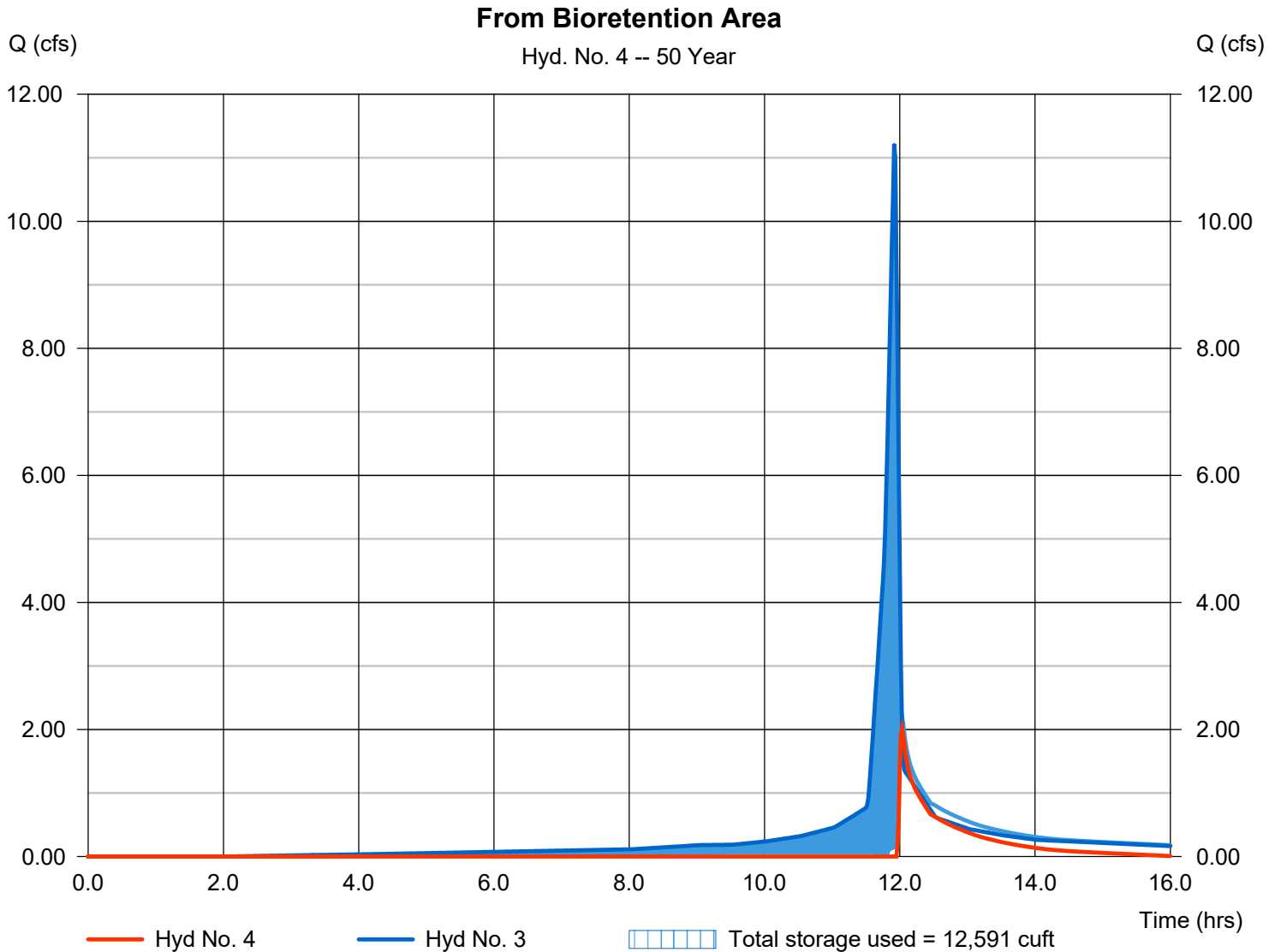
Friday, 01 / 15 / 2021

Hyd. No. 4

From Bioretention Area

Hydrograph type	= Reservoir	Peak discharge	= 2.013 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.03 hrs
Time interval	= 1 min	Hyd. volume	= 4,315 cuft
Inflow hyd. No.	= 3 - Proposed to Bio 1 to Outfall	Max. Elevation	= 406.50 ft
Reservoir name	= Bioretention Area	Max. Storage	= 12,591 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	5.658	1	723	16,128	-----	-----	-----	Existing to Outfall 1
3	SCS Runoff	12.39	1	715	25,296	-----	-----	-----	Proposed to Bio 1 to Outfall 1
4	Reservoir	5.208	1	720	6,428	3	406.69	13,223	From Bioretention Area

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

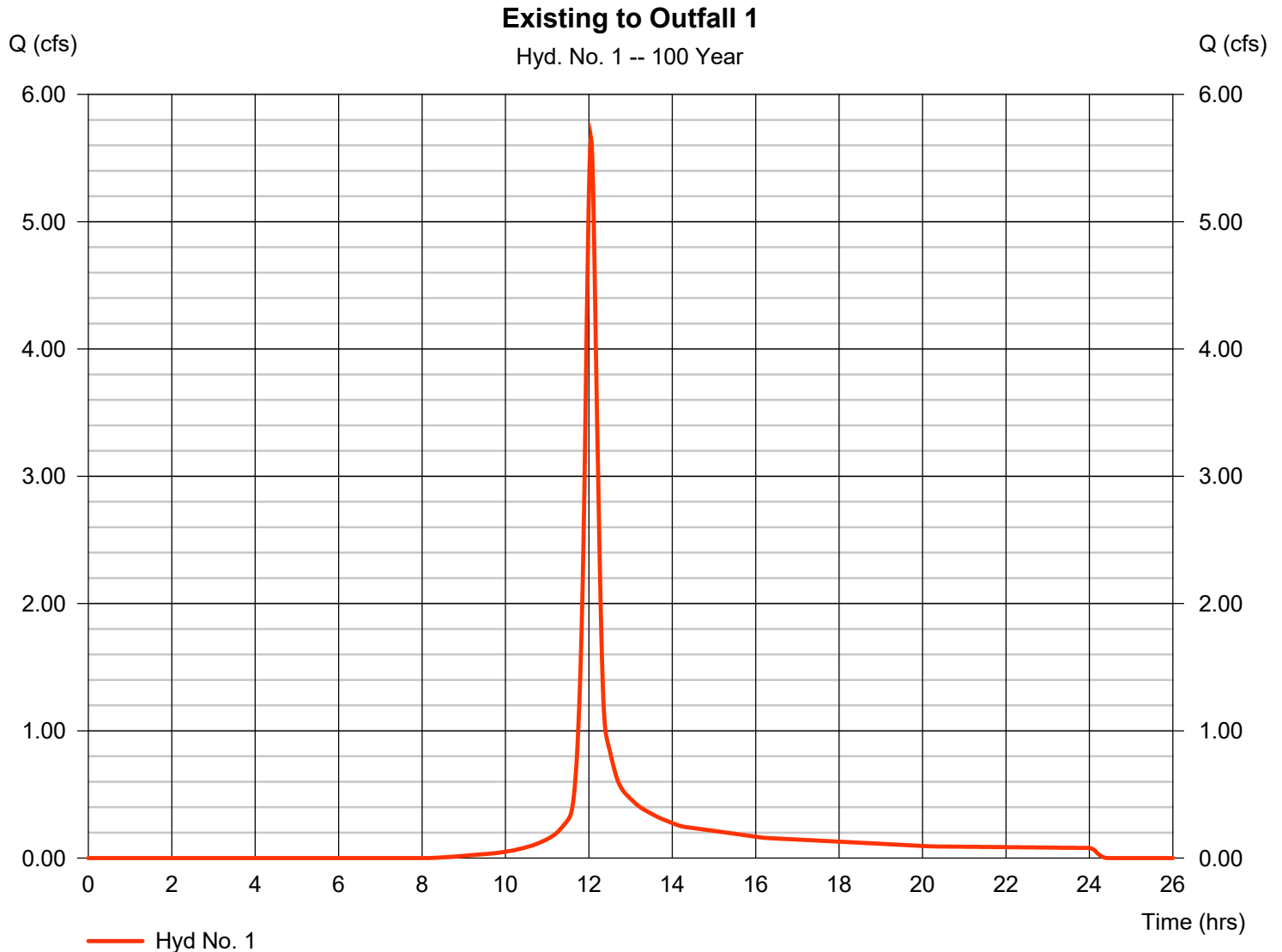
Friday, 01 / 15 / 2021

Hyd. No. 1

Existing to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 5.658 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.05 hrs
Time interval	= 1 min	Hyd. volume	= 16,128 cuft
Drainage area	= 1.110 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 16.10 min
Total precip.	= 7.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.020 x 98) + (1.090 x 68)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

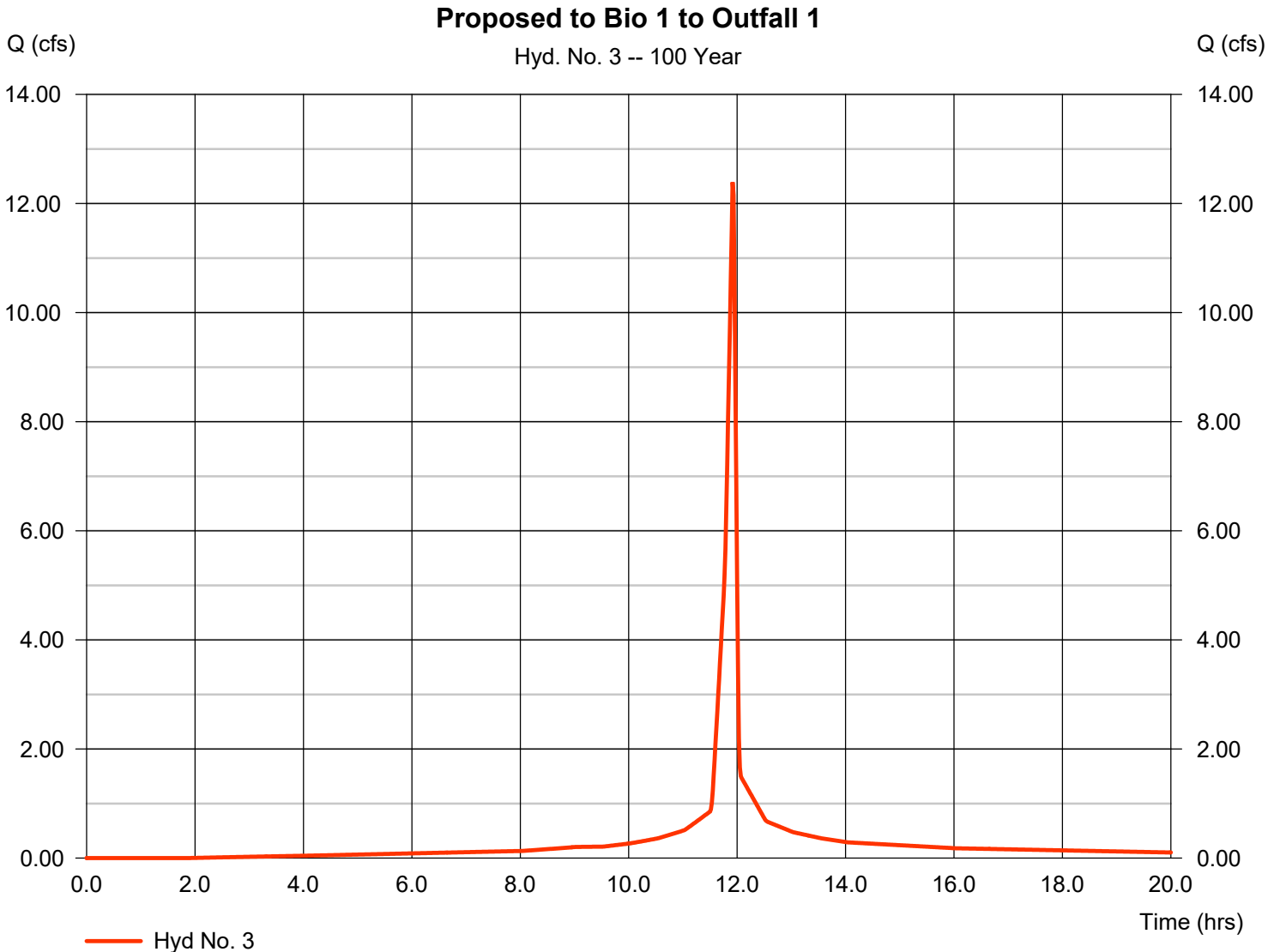
Friday, 01 / 15 / 2021

Hyd. No. 3

Proposed to Bio 1 to Outfall 1

Hydrograph type	= SCS Runoff	Peak discharge	= 12.39 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.92 hrs
Time interval	= 1 min	Hyd. volume	= 25,296 cuft
Drainage area	= 1.110 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 2.10 min
Total precip.	= 7.53 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.000 x 98) + (0.009 x 68) + (0.100 x 49)] / 1.110



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

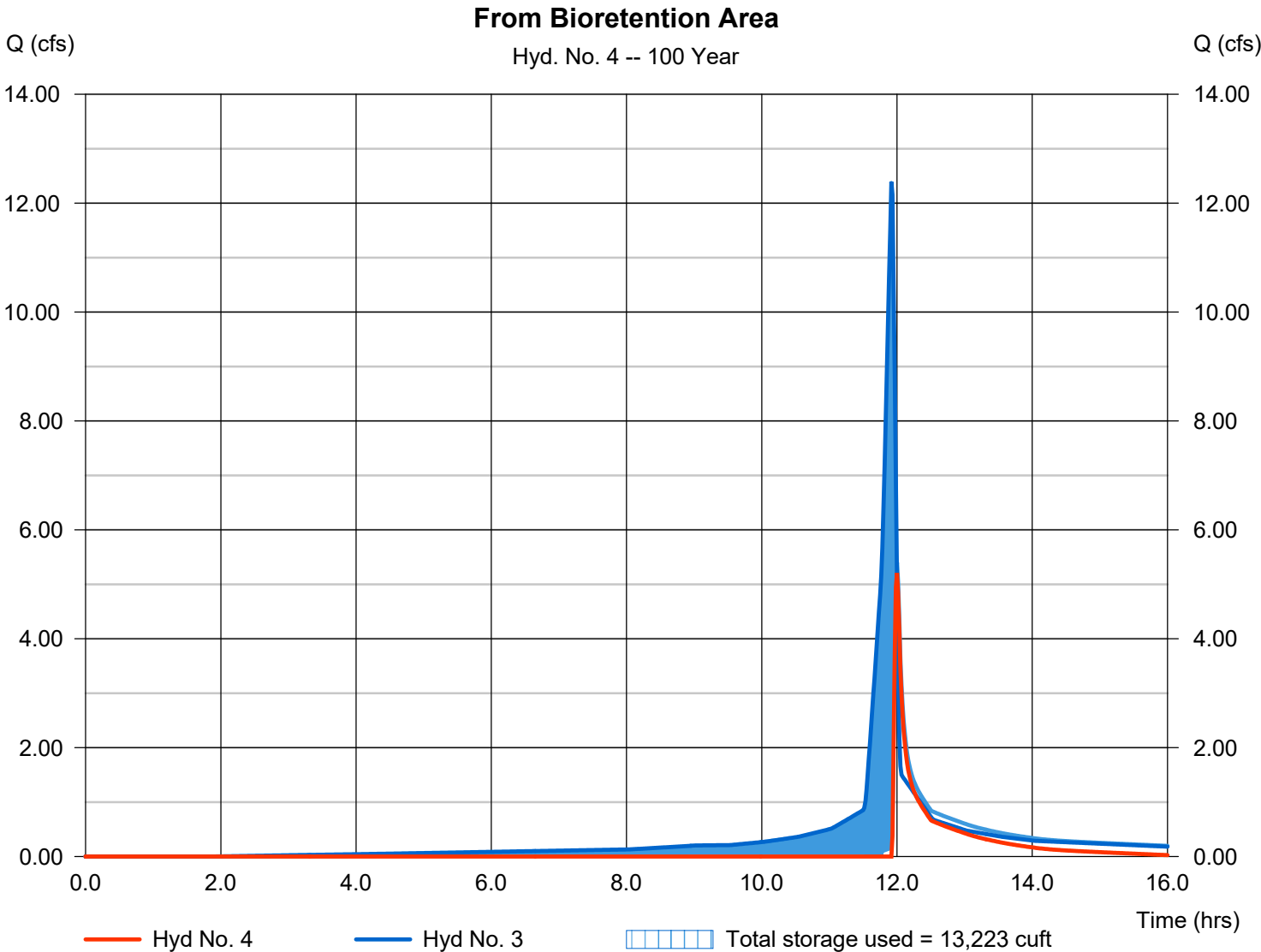
Friday, 01 / 15 / 2021

Hyd. No. 4

From Bioretention Area

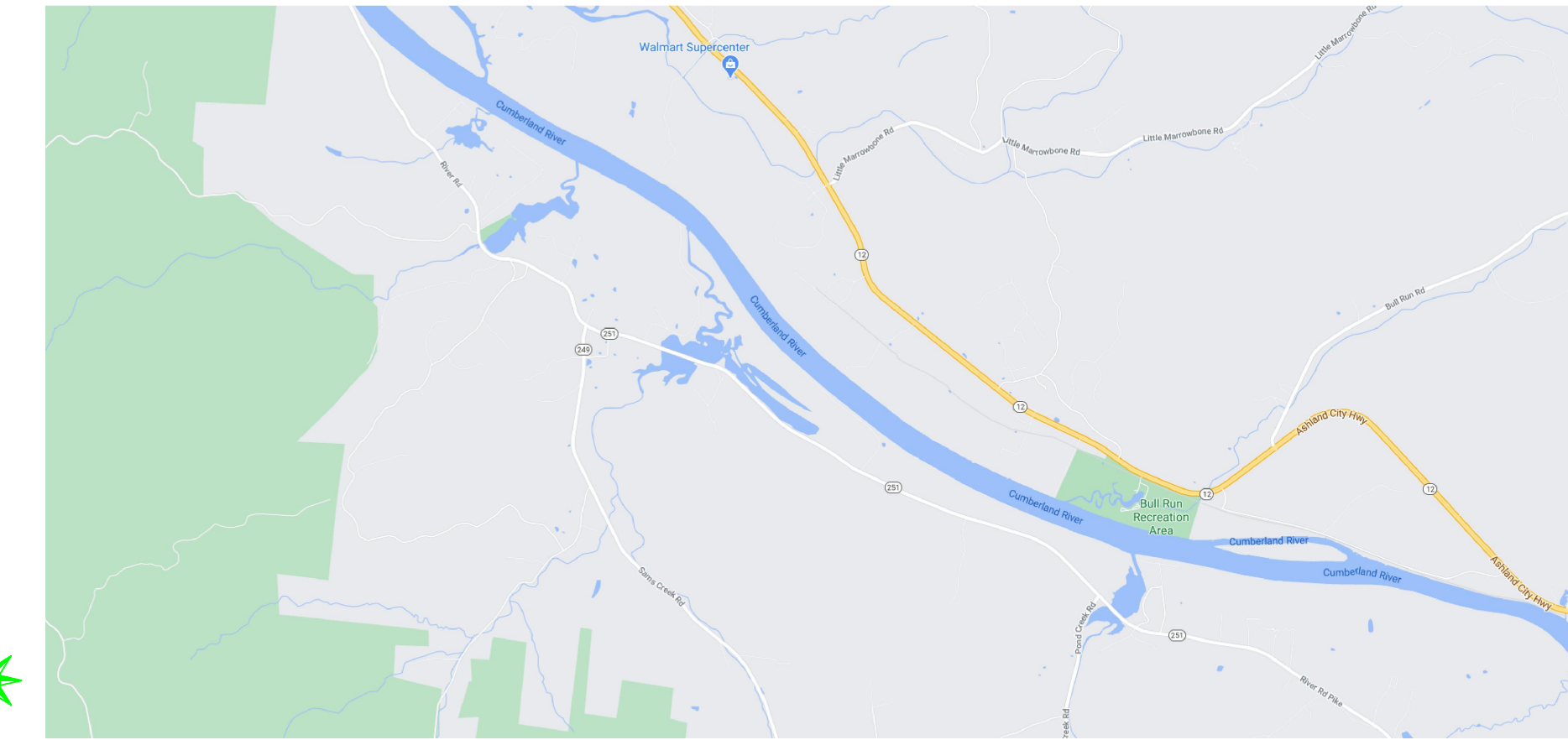
Hydrograph type	= Reservoir	Peak discharge	= 5.208 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 1 min	Hyd. volume	= 6,428 cuft
Inflow hyd. No.	= 3 - Proposed to Bio 1 to Outfall	Max. Elevation	= 406.69 ft
Reservoir name	= Bioretention Area	Max. Storage	= 13,223 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



CONSTRUCTION PLANS FOR NEW CONCRETE PIPE PLANT JARRETT BUSINESS PROPERTIES, LLC MAP 065 PARCEL 046.00 2012 HIGHWAY AS SOUTH ASHLAND CITY, TENNESSEE

DECEMBER 20, 2020



VICINITY MAP
Scale: NONE



NOTES

1. THE PURPOSE OF THIS PROJECT IS TO SHOW THE PROPOSED DEVELOPMENT FOR CONSTRUCTION OF THE NEW PIPE PLANT AND RELATED APPURTENANCES.
2. ALL DEVELOPMENT WITHIN THE BOUNDARIES OF THIS PLAN SHALL MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND THE FAIR HOUSING ACT.
3. THIS SITE PLAN HAS BEEN DESIGNED TO MEET THE CITY OF ASHLAND CITY STANDARDS AND THE APPROVAL OF THE PLANNING COMMISSION. CHANGES SHALL NOT BE MADE TO THE APPROVED SITE PLAN UNLESS APPROVED EITHER BY THE RELEVANT DEPARTMENT SUPERINTENDENT OR THE PLANNING COMMISSION.
4. THE REQUIRED FIRE FLOW SHALL BE DETERMINED BY THE FIRE MARSHAL'S OFFICE.
5. PUBLIC WATER AND SEWER IS ALONG HIGHWAY 12 - ASHLAND CITY HIGHWAY.
6. THERE ARE CURRENTLY NO BUILDINGS ON THE PROPERTY.
7. THERE ARE NO FENCES OR RETAINING WALLS ANTICIPATED.
8. THE PROPERTY IS NOT IN THE 100 YEAR FLOOD PLAIN.
9. NO SLOPES WITHIN THE AREA OF DISTURBANCE ARE GREATER THAN FIFTEEN (15%).

SITE CRITERIA DATA TABLE

	CURRENT/REQUIRED BY REGULATION	PROPOSED
CURRENT ZONING	COMMERCIAL MIXED USE	COMMERCIAL MIXED USE
OVERLAYS	NONE	NONE
SURROUNDING ZONING		
TOTAL GROSS ACREAGE (Ac)	140 Ac	140 Ac
BUILDING AREA - FOOTPRINT	-0-	0.488 Ac
SIDEWALK	0	0
PARKING LOT/DRIVEWAYS	-0-	0.344 Ac
OPEN SPACE / GREEN SPACE (Ac)	140 Ac	139.168 Ac
NUMBER OF BUILDINGS	-0-	1
FLOOR AREA RATIO (FAR)	-0-	0.003
TOTAL IMPERVIOUS AREA	-0-	0.488 Ac
IMPERVIOUS SURFACE AREA (ISR)	-0-	0.003
SLOPES >15% - IMPERVIOUS AREA	0	0 SF 0 Ac
SLOPES >15% - OPEN SPACE / GREEN AREAS	0	0 SF 0 Ac
MINIMUM STREET SET BACK		
MINIMUM SIDE SET BACK		
MINIMUM REAR SET BACK		
MAX HEIGHT AT SETBACK LINE		
BUILDING TYPE	NA	METAL FRAME, CLADDING AND ROOFING
BUILDING HEIGHT	NA	42'
SLOPE OF HEIGHT OF CONTROL PLANE (V TO H)		

¹ SEE LOCATION MAP FOR SURROUNDING PROPERTY ZONING



SITE

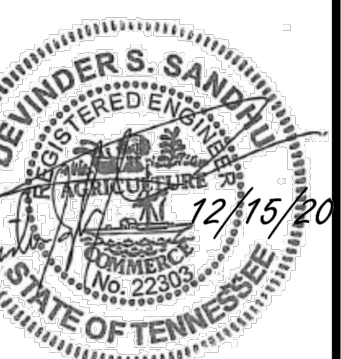
INDEX OF DRAWINGS

- 0.0 TITLE SHEET
- 0.1 GENERAL CONDITIONS
- 0.2 EXISTING CONDITIONS
- 0.3 EPSC DETAILS
- C2.0 SITE PLAN
- C2.1 GRADING PLAN

PROPERTY DATA

OWNER/ DEVELOPER	JARRETT BUSINESS PROPERTIES, LLC 2012 HIGHWAY 12 SOUTH ASHLAND CITY, TENNESSEE 37015 615-792-9332
PARCEL ID	MAP 065 PARCEL 046.00
COUNCIL DISTRICT	
ELECTION WARD	2
LAND USE	VACANT
ZONING	COMMERCIAL MIXED USE
AREA	140 ACRES

SANDHU CONSULTANTS
INTERNATIONAL
 ENGINEERING AND SCIENCE
 1709 ASHWOOD AVENUE, NASHVILLE, TN 37212
 TEL: 615-262-0799 FAX: 615-262-2373



TITLE SHEET
JARRETT CONCRETE PRODUCTS
CONCRETE PIPE PLANT
HIGHWAY 12, ASHLAND CITY, TN

JOB NUMBER
SCJ 2201212

SHEET NUMBER

0.0

INITIAL SUBMITTAL
12-15-2020



Ashland City Fire, Building & Life Safety Department

101 Court Street
Ashland City TN 37015

Fire & Life Safety: (615) 792-4531 – Building Codes (615) 792-6455

APPLICATION FOR SITE PLAN APPROVAL

Date Received: _____

Property Address: Highway 12 S, Ashland City, TN 37015

(Next to 2011 Highway 12S)

Map # 065 Parcel # 046.00 Acreage: 140

Property Owner(s): Jarrett Business Properties, LLC

2012 Highway 12 S, Ashland City, TN 37015

Phone: 615-792-9332

Description of project being reviewed: Jarrett Concrete Products –
Concrete Pipe Plant; 21,280 sf building and 15,000 sf pipe yard

Project site is 7 acres within 140 acre property

Having submitted plans for review by the Ashland City Planning Commission, I understand that I am responsible for all review fees incurred by the Town of Ashland City. I understand that the fee paid at the time of submittal is not applicable for the fees incurred through review. With my signature, I verify that I fully understand that I am responsible for said fees, and that I have received a copy of Ordinance #165.

ASHLAND CITY PLANNING COMMISSION SITE PLAN REVIEW FEE: \$100.00

NEXT SCHEDULED MEETING: _____

Applicant's Signature

Date

GENERAL NOTES

- The Contractor shall verify the location of all existing utilities near the Area of Disturbance and report any discrepancies to the Owner's Representative prior to beginning work. Contractor understands that the information presented on the existing conditions sheet for said utilities is developed to the best of the Surveyors, Owners and Engineer ability and shall be field verified.
- The Contractor shall conform to all local, state, federal and any other pertinent codes or regulations.
- Contractor shall obtain all permits prior to beginning work.
- Grades presented on these plans are final grades.
- Contractor shall check all dimensions and grades prior to beginning work and report any discrepancies to the Owner's Representative.
- Dimensions are to the face of curb, edge of concrete and outside of building (face) unless otherwise indicated.
- All traffic markings shall conform to the **Manual of Uniform Traffic Control Device (MUTCD)**.
- All pavement markings shall be thermoplastic, unless otherwise approved by the Owner.
- All handicapped sidewalks, ramps, etc. and accessible routes shall comply with the current ADA requirements.
- All walls greater than 30" in height shall have a fence or appropriate landscaping to prevent falling/tripping.

CONSTRUCTION NOTES

- The necessary permits required for completion of the work as shown on these construction documents shall be obtained by the Contractor prior to beginning field work. The Contractor shall give all necessary notices and obtain all permits, pay all fees and perform all other services necessary to secure said permits.
- The Contractor shall comply with all local, state, federal and any other pertinent building codes, ordinances, environmental regulations, etc. necessary to the construct the project.
- The Contractor shall be responsible for and bear all costs associated with field the field staking necessary for site layout. The Engineer will provide the Contractor with a DWG (2014 Verison) of the Site Plan and DTM to assist the Contractor in staking and grading operations. Any discrepancies between the DWG/DTM and the Contract Documents will be brought to the attention of the Owner's Representative.
- The location of existing piping, underground utilities, overhead electric and telephone lines, etc are approximate and determined from the best available information. The Owner, Surveyor, Engineer and Owner's Representative do not verify that the information is correct or that during the course of construction activities shown utility locations may vary or other utilities may be discovered. Any discrepancies shall be brought to the Owner's attention. Where the exact location of utilities is necessary, the Contractor shall (at his own expense) furnish all materials, labor and other appurtenances necessary to obtain all said information.
- The Contractor understands that all work necessary to complete activities associated with construction shall be performed at his risk until accepted by the Owner.
- Safety operations at the site are the responsibility of the Contractor. The Contractor shall furnish and install all necessary temporary safety items necessary for protection of the work and workers. Said items shall include, but not limited to barricades, warning lights and signs, etc.
- The project shall be subject to inspection and final approval of the local, state and federal inspectors, planning, codes, water and sewer, engineering, public works, fire marshal (local and state), etc.
- If during the course of the work a question arises regarding the intent of the plans or specifications, the Contractor will bring the matter to the attention of the Owner's Representative for resolution before the affected work items are initiated or installed.
- The Contractor will exercise extreme caution in the use of equipment in and around overhead/underground utilities. If at any time the contractor must work in close proximity to overhead/underground power lines, the proper utility company will be notified and the proper safety measures installed. The Contractor should make a proper inspection of the overhead/underground power lines prior to beginning construction activities.
- The Contractor shall be responsible for any damage done to subject property or adjacent properties (private and public), or injuries to the public during the work, caused by construction activities of himself, employees, subcontractors no matter the cause.
- The Contractor shall obtain and keep current all necessary insurance. Owner will be named on said policies.

EROSION/SEDIMENT CONTROL NOTES

- All erosion and sediment control measures shall be designed to retain sediment on-site.
- All control measures must be properly selected, installed and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections indicates inappropriate or incorrectly installed devices, the contractor shall replace or modify the control devices for on-site situations.
- Stockpiled topsoil shall be surrounded by earth berms and or silt fence.
- If sediment escapes the construction site, offsite accumulations shall be removed at a frequency sufficient to minimize offsite impacts and pose a safety hazard to the public.
- Sediment shall be removed from silt fences and other sediment control devices as necessary and must be removed when design capacity has been reduced by 33%.
- Litter and construction debris shall be picked-up prior to anticipated storm events (as forecasted by local weather reports). After use, silt fences shall be removed or otherwise prevented from becoming a pollutant source for storm water discharges.
- Pre-construction vegetative cover shall not be destroyed, removed or disturbed more than 14 calendar days prior to grading or earth moving unless the area is seeded and/or mulched or other temporary cover is installed.
- Clearing and grubbing must be held to the minimum necessary for grading and equipment operations.
- Construction must be sequenced to minimize the exposure time of grade or denuded areas.
- Erosion and sediment control measurers must be in place and functional before earth moving operations begin and must be constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the work day but must be replaced at the end of the work day.
- All land on or offsite which is disturbed by the Contractor and which is not built upon or surfaced shall be seeded and mulched per TCP-05 of the Stormwater Management Manual - Best Management Practice - Volume 4.
- All inlets shall have inlet protection as per detail TCP-24 of the Stormwater Management Manual Vol. 4. As a minimum install filter fabric protection around inlets.
- Slopes 3:1 and steeper shall be stabilized by sodding.
- All cut/fill area to have a minimum depth of 6-inches of topsoil. Areas dressed with topsoil will receive twelve (12) pounds per 1,000 square feet of 6-12-12 fertilizer, a minimum of five (5) pounds of Kentucky 31 fescue seed and straw mulch covering approximately 70%-80% of the area.
- Disturbed areas shall be graded to drain to the sediment control devices shown on the drawings.
- A stone access ramp shall be constructed on all construction entrances with a minimum width of 20 ft and a minimum length of 100 ft. ramp is to be based on 6 inches of ASTM D448 size 3 inch diameter stone and maintained throughout construction.
- Erosion control is to be maintained during construction of and until site is stabilized. erosion control is to be inspected and approved prior to beginning work.
- BMP devices are to be inspected in accordance with the state and local regulatory agencies.
- Once construction is complete and stabilization of disturbed areas achieved all erosion control devices shall be removed and the area where they were shall be stabilized as required to match the surrounding topo.
- All erosion prevention and sediment control best management practices identified in the SWPPP and on these plans will be installed in accordance with the Tennessee Erosion and Sediment Control handbook and maintained in accordance with their recommendations.
- The disturbed area shall be seeded and stabilized (or left undisturbed) until these Contract Documents have been constructed for this development.
- All tree-protection fencing shall be in place prior to the issuance of a grading or land disturbance permit and shall be maintained in good working order until all construction activity is completed. No disturbance is permitted in a tree preservation area. Any required erosion control measures shall be placed outside of any tree protection fencing.
- This site plan has been designed to meet the City of Ashland City standards and the approval of the Planning Commission.
- Changes shall not be made to the approved site plan unless approved by either the relevant department superintendent or the planning commission.
- Turf Reinforcing Matting (TRM) shall be Land Lock 450, North American Green C350 or Pyramat-HPTRM.

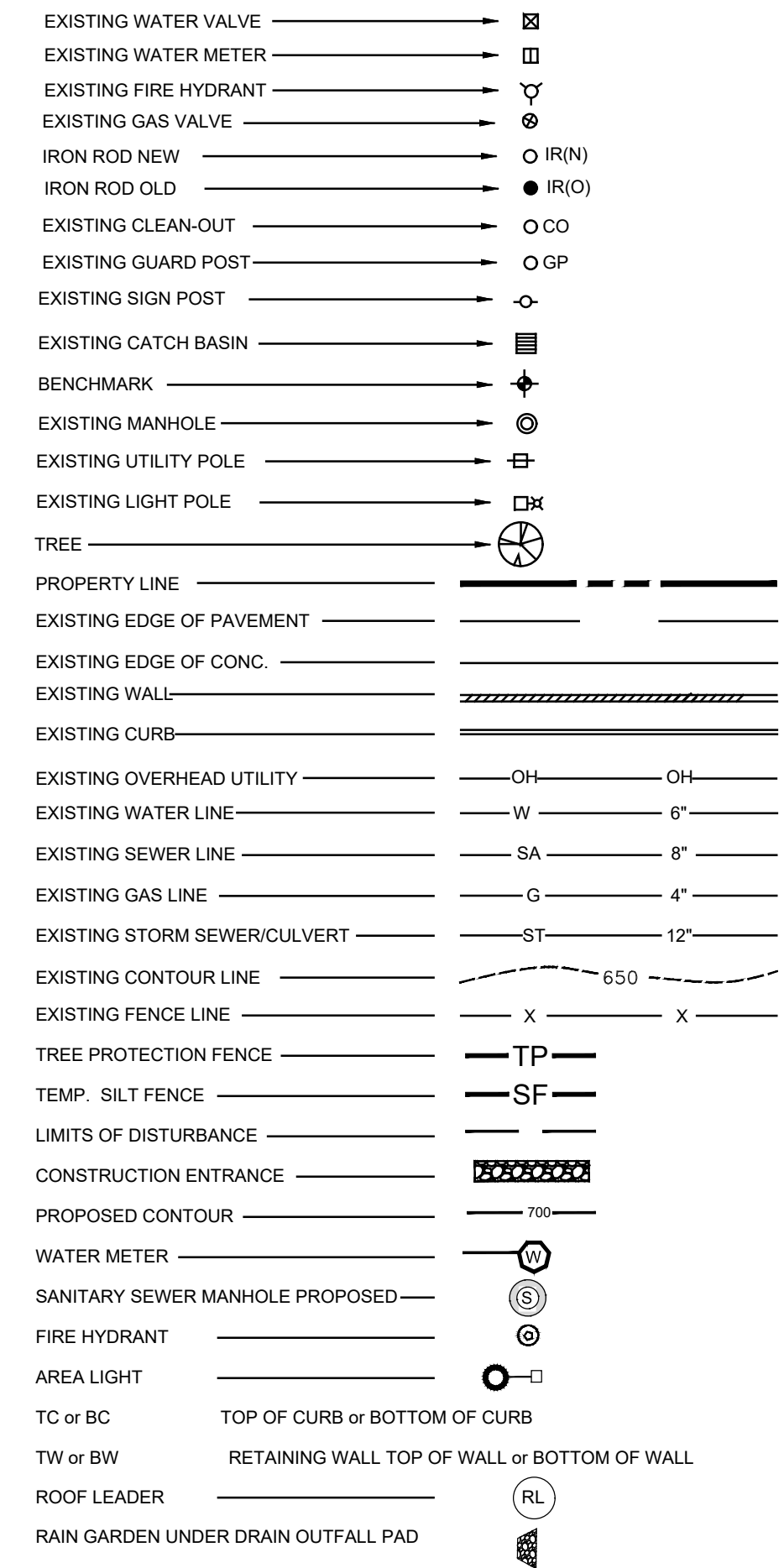
SITE UTILITY NOTES

- All materials and workmanship for utility lines and appurtenances shall be in strict accordance with the governing utility company/district, local, state and federal codes. Prior to construction the Contractor shall notify the Utility Company (See contact information on Title Sheet 0.0).
- The Contractor shall coordinate site electrical, gas, telephone, cable and all other utilities with the respective utility companies for service layout and design information. Any proposed layout of these utilities depicted on the Contract Documents is graphical only and is not intended to represent design of these utilities.
- Prior to start of construction, the Contractor shall obtain all permits, pay all fees and hold all pre-construction meetings as required by the appropriate utility.
- All trenching, piping laying, backfilling and excavation shall be performed in accordance with with local, state and federal (OSHA) regulations.
- Site Contractor shall be responsible for coordinating the sequencing of construction activities with other contractor to avoid conflicts.
- Fire line installation, thrust block locations and sizing shall be per N.F.P.A. and local fire department requirements.
- Water meter manufacture/model number and vault specifications shall meet local utility company requirements.
- Sanitary Sewer service lines shall be 6" SDR 35 PVC unless specified otherwise.
- Maintain a 10' horizontal and 18" vertical separation between sanitary sewer and domestic water lines.
- Installation of pipe material shall be placed with an appropriate granular envelope and when under pavement the entire trench shall be backfilled with a structural granular backfill. Size of granular backfill material, envelopes and trench widths shall be in accordance with the local municipalities for public lines. Private lines to conform to local building codes and common practices for the utility being installed.

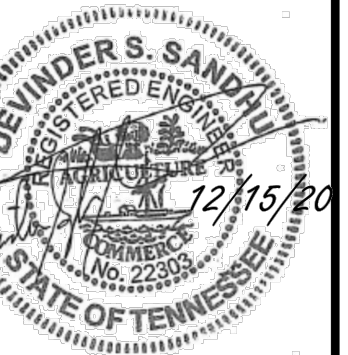
PROJECT SPECIFIC NOTES

- Contractor to adjust existing utility castings as necessary.
- Pavement dimensions are shown from edge of pavement to edge of pavement, or edge of curb to edge of curb or face of sidewalk to face of sidewalk, etc.
- This project will be subject to the inspection and final approval of Ashland City, Tennessee.
- Prior to beginning construction, the contractor will install all EPSC devices, have then inspected by Ashland City, Tennessee representative.
- The contractor will hire a soil testing agency (acceptable to the Owner) to observe fill placement operations and roads. Daily reports and tests results will be provide to the Owner/Engineer of a weekly basis. The costs of the inspections, testing and reports shall be borne by the Contractor.

LEGEND



SANDHU CONSULTANTS
INTERNATIONAL
ENGINEERING AND SCIENCE
 1709 ASHWOOD AVENUE, NASHVILLE, TN 37212
 TEL: 615-282-0758 FAX: 615-282-2373



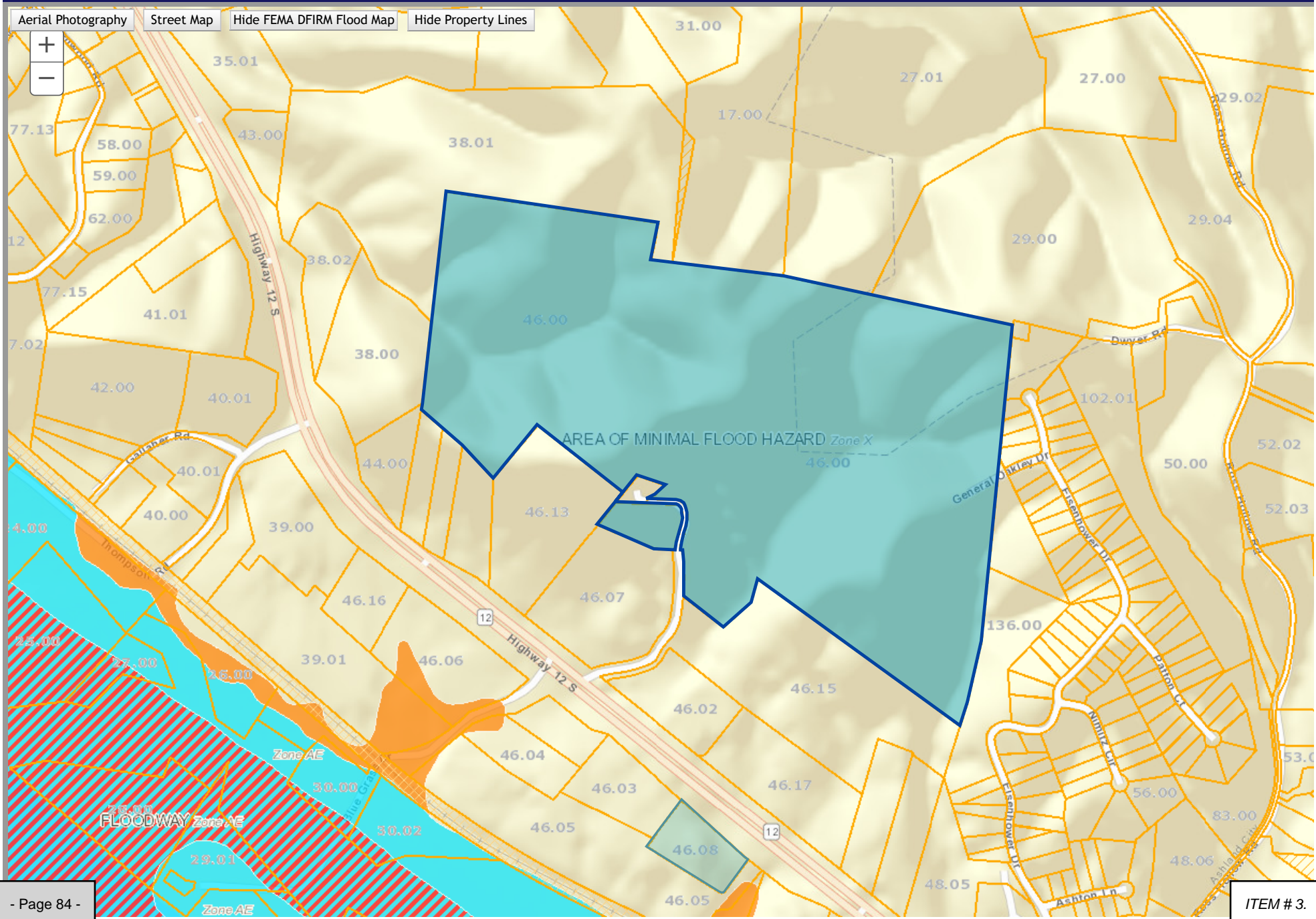
GENERAL NOTES
 JARRETT CONCRETE PRODUCTS
 CONCRETE PIPE PLANT
 HIGHWAY 12, ASHLAND CITY, TN

JOB NUMBER
 SCI 20201212
 SHEET NUMBER

0.1

INITIAL SUBMITTAL
 12-15-2020

Aerial Photography Street Map Hide FEMA DFIRM Flood Map Hide Property Lines





Ashland City Fire, Building & Life Safety Department

101 Court Street
Ashland City TN 37015

Fire & Life Safety: (615) 792-4531 – Building Codes (615) 792-6455

PLANNING COMMISSION SITE PLAN CHECKLIST

NAME OF SITE Jarrett Concrete Products – Concrete Pipe Plant

LOCATION Highway 12S; Map 65; Parcel 46.00 ZONING DISTRICT: Neighborhood Commercial Mixed

OWNER: Jarrett Business Properties, LLC ; 2012 Hiway 12S; 37015; 615-792-9332

ENGINEER: Sandhu Consultants International, LLC, 1709 Ashwood Avenue, Nashville, TN 37212; 615-485-0488 (Devinder Sandhu, PE)

1. Three (3) copies of the site plan. Please indicate at time of application if you would like any of the remaining copies after your case is heard and voted on.
2. Three (3) copies and an electronic PDF of revised site plans made available to the Fire, Building and Life Safety Department – according to planner/engineer comments. Also written response to all comments to match what was changed on revised site plans.
3. Location map of the site at a scale of not less than 1"=2000' (USGS map is acceptable). Map must show the following:
 - a. Approximate site boundary
 - b. Public streets in the vicinity
 - c. Types of development of surrounding parcels
 - d. Public water and sewer lines serving the site
 - e. Map # and Parcel # of site location
4. Site boundary, stamped and signed by a registered surveyor.
5. The shape, size and location of all existing buildings on the lot.
6. The existing and intended use of the lot and of structures on it. If residential, give the number of dwelling units per building.
7. Topographic survey of the site with contour intervals at no greater than 5' intervals, stamped and signed by a registered surveyor.
8. Location of all driveways and entrances with dimensions from the centerline of the drive to the nearest property corner and to the nearest intersection (if the intersection is closer than 200 feet).
9. Dimensioned layout and location of all parking spaces including handicapped spaces.
10. [NA] Dimensioned layout and location of off-street loading bays and docks.

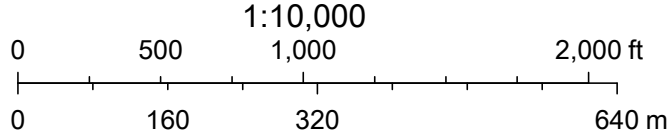
11. [NA] Location and area of open space.
12. A table showing the ground coverage, total floor area and building heights.
13. [NA] Location, dimension and heights of all fences and walls with materials specified.
14. [NA] Location, type and amount of landscaping.
15. Proposed means of surface drainage, including locations and sizes of all culverts, ditches and detention structures, storm-water system to be designed as per the requirements of the Ashland City Planning Commission. (OVERLAND FLOW)
16. [NA] Dimensioned location of all easements and right-of-ways.
17. [NA] Location of all portions of the site that are within the floodway and the 100-year floodplain. A note will be included which gives the FEMA map number from which this information was developed. In addition, if portions of the site are in the 100-year floodplain and/or the floodway, the 100-year flood elevation(s) at the site will be listed on the plan. **ZONE X**
18. [NA] Location, size and distance to all public utilities serving the site including all fire hydrants.
19. [NA] Location, by type and size of all proposed signs, (Please note that signs larger than 40 sq. ft. are not permitted per the sign ordinance for the Town of Ashland City.
20. [NA] Vegetation, show at minimum the following:
 - a. Existing tree masses and hedgerows
 - b. General description of the tree types and sizes within the tree masses
 - c. Location and identification of trees 15" in caliper (measured 4' above the ground) or larger
 - d. Description of landscaping requirements for the site based upon surrounding land uses (see Zoning Ordinance Section 3, 140)
MOST OF 140 ACRE PROPERTY IS FORSTED. THE WHOLE 7 ACRE SUBJECT SITE IS SURROUNDED BY TREES AND VEGETATION.
21. [NA] Identification of slopes greater than 15% and identification of those soils (SCS soil mapping is acceptable) on those slopes.
22. Site plan application fee \$100
23. Additional engineering review etc., site inspection charges are subject to Section 14-301 of the Ashland City Municipal Code per Ordinance #165.
24. Three (3) sets of the construction plans for the site. **Preliminary plans**
25. Submittal must be made at least 20 working days prior to the Planning Commission meeting to be heard.
26. [NA] If application is requesting a variance, application is to be submitted to the Building Official in accordance with Section 7.080 of the Ashland City Zoning Ordinance.

Cheatham GIS

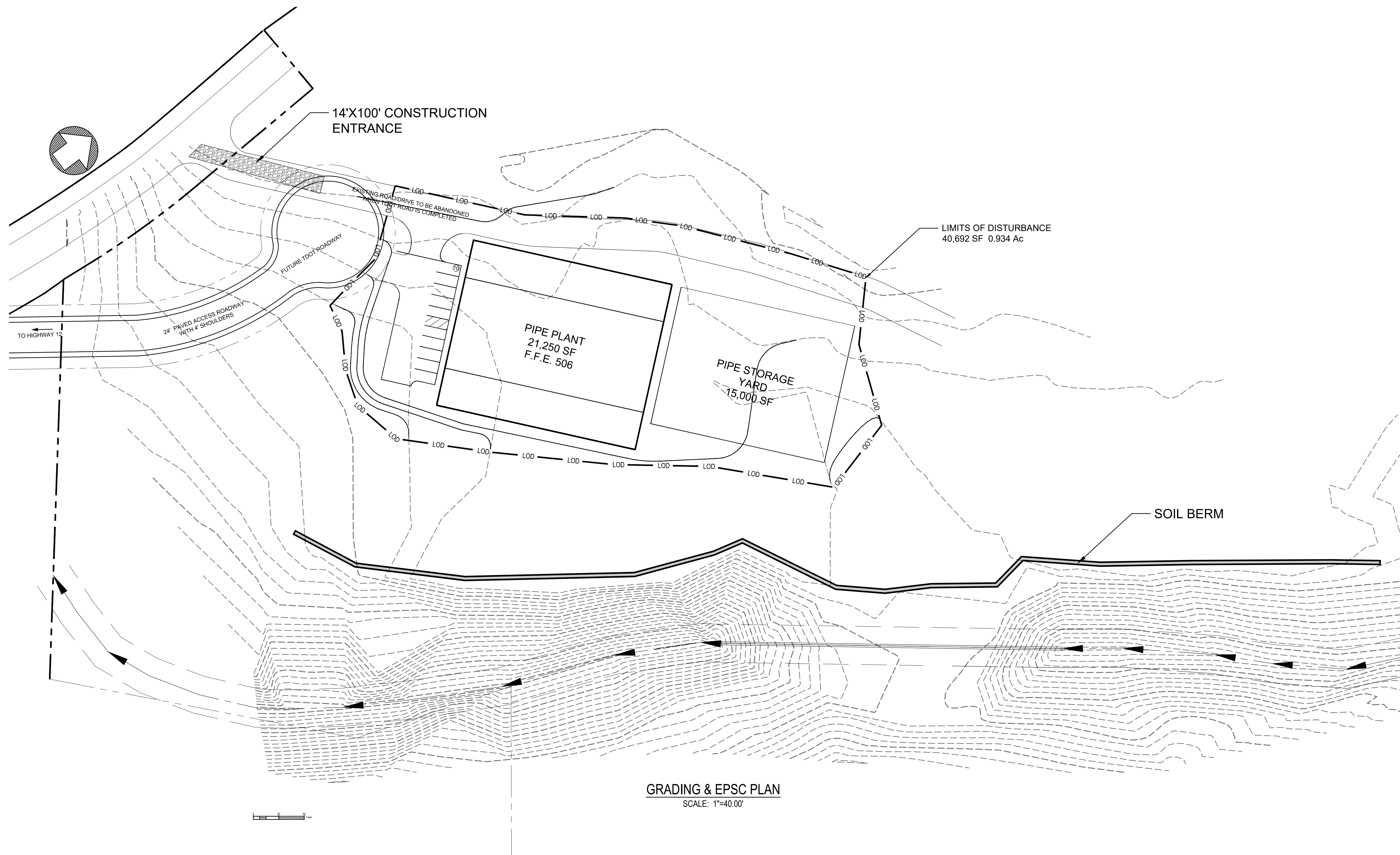


12/14/2020, 10:04:00 PM

- Streets
- Cheatham County Boundary
- Parcels
- Communities
- ASHLAND CITY
- Cheatham Zoning
- A - Agricultural



USDA FSA, GeoEye, Maxar, Esri, HERE, Garmin, iPC



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- Construction must be sequenced to minimize the exposure time of grade or denuded areas.
- Erosion and sediment control measures must be in place, functional and inspected by the Engineering Division before earth moving operations begin and must be constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the work day but must be replaced at the end of the work day.
- All land on or offsite which is disturbed by the Contractor and which is not built upon or surfaced shall be stabilized in accordance TDEC Handbook Chapter 7 - Management Practices.
- All inlets shall have inlet protection as per TDEC Handbook Chapter 7, Subsection 7.35.
- Slopes 3:1 and steeper shall be stabilized by sodding.
- All cut/fill area to have a minimum depth of 6-inches of topsoil. Areas dressed with topsoil will receive twelve (12) pounds per 1,000 square feet of 6-12-12 fertilizer, a minimum of five (5) pounds of Kentucky 31 fescue seed and straw mulch covering approximately 70%-80% of the area.
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- Turf Reinforcing Matting (TRM) shall be Land Lock 450, North American Green C350 or Pyramat-HPTRM.
- Check dams are shown in their approximate location. dams should be field located. Top of check dam should be level with to of down gradient check dam.

NO.	DATE	REVISIONS
	12-15-2020	DESIGN SUBMITTAL TO ASHLAND CITY
DATE	SCALE	PROJECT
12-15-2020	AS SHOWN	JARRETT CONCRETE PRODUCTS CONCRETE PIPE PLANT
DRAWN BY	CHECKED BY	DATE
		12/15/20
SANDHU CONSULTANTS INTERNATIONAL ENGINEERING AND SCIENCE 1709 ASHWOOD AVENUE, NASHVILLE, TN 37212 TEL: 615-282-0759 FAX: 615-282-2373		
GRADING & EPSC PLAN JARRETT CONCRETE PRODUCTS CONCRETE PIPE PLANT HIGHWAY 12, ASHLAND CITY, TN		
JOB NUMBER SCI 20201212		
SHEET NUMBER C2.2		
INITIAL SUBMITTAL 12-15-2020		
ITEM # 3		