

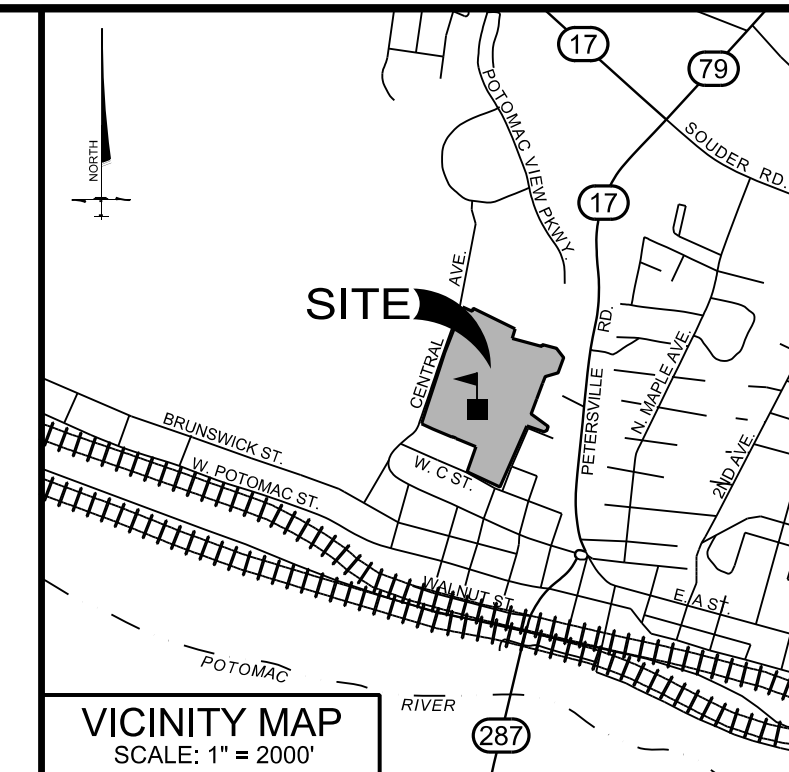
SWM Concept Plan Submission Checklist

1. Title shall be "SWM CONCEPT PLAN"
2. Site and Resource Mapping:
 - Table 5.1 page 5.7 of SWM design Manual (Discussion of protection & enhancing natural resources present onsite)
3. Site Fingerprinting and Development Layout:
 - Determine approx. location of buildings, roadways, parking lots and other impervious areas.
 - Location of ESD practices
4. Better Site Design Technique:

Discuss One by One all techniques listed in table 5.2
5. To scale Existing Conditions Plan View with the following
Contours, Existing impervious, Property lines
6. To Scale Proposed Conditions Plan View with Proposed
conditions, Proposed impervious, Proposed grading.

Note: Provide only above information that is a must for concept plan submission. Other information shall be submitted and reviewed with future SWM plans.

EXISTING NATURAL RESOURCES



BENCHMARK DATA				
COORDINATES AND BEARINGS SHOWN HEREON ARE BASED ON GPS OBSERVATIONS DERIVED FROM THE MARYLAND STATE COORDINATE SYSTEM (NAD83/NA2011 EPOCH 2010) FOR HORIZONTAL AND NAVD83 FOR VERTICAL DATINGS.				
POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
1	6026418451	1332345814	432.74	REBAR AND CAP
2	6025001460	1335540404	441.13	REBAR AND CAP
3	6020904701	1333301414	436.19	MAG NAIL

LEGEND

---	PROPERTY LINE
---	ADJOINING PARCEL LINE
---	ADJOINING PARCEL OWNERS
---	EX. PUBLIC UTILITY EASEMENT
---	EX. CURB AND GUTTER
---	EX. INDEX CONTOUR
---	EX. INTERMEDIATE CONTOUR
---	EX. SIGN
---	EX. UNDERGROUND ELECTRIC
---	EX. OVERHEAD ELECTRIC
---	EX. POWER POLE AND LIGHT POLE
---	EX. GAS
---	EX. 15" DRAIN
---	EX. STORM DRAIN LINE
---	EX. STORM DRAIN MANHOLE AND INLET
---	EX. 8" SANITARY
---	EX. SANITARY SEWER LINE
---	EX. SANITARY SEWER MANHOLE & CLEANOUT
---	EX. 8" WATER
---	EX. FIRE HYDRANT AND WATER VALVE
---	FOREST CONSERVATION EASEMENT
---	SOIL LINE
---	STEEP SLOPES

SITE NOTES

- USE: EXEMPT COMMERCIAL
- SITE ADDRESS: 400 CENTRAL AVENUE, BRUNSWICK, MD 21716
- OWNER: BOARD OF EDUCATION, 191 SOUTH EAST STREET, FREDERICK, MD 21701
- TAX ACCOUNT NUMBER: 464128
- PROPERTY REFERENCE: MAP 0426, GRID 14, PARCEL 176
- TAX ASSESSMENT DIST.: 25
- ZONING: EXISTING: RS, PROPOSED: RS
- AREA OF SITE: TOTAL PARCEL AREA: 5.4081 (SURVEYED) ACRES, PRIOR ELEMENTARY SCHOOL BUILDING: 41,541 S.F.
- PROPOSED BUILDING HEIGHT: 40'
- PARKING REQUIREMENTS: THE SITE CURRENTLY HAS 53 SPACES ON-SITE, INCLUDING 2 HANDICAP SPACES. PROPOSED: REGULAR PARKING SPACES: 126, A.D.A. ACCESSIBLE SPACES: 4, A.D.A. ACCESSIBLE VAN SPACES: 1, TOTAL PARKING SPACES PROPOSED: 131, SINGLE STAGE FOR DROP-OFF/PICK-UP: 45, DOUBLE STAGE FOR DROP-OFF/PICK-UP: 86. *WHEN THE NEW BUS LANE OPENS THERE IS POTENTIAL FOR 125+ ADDITIONAL WALKERS/CAR RIDERS FROM BRUNSWICK CROSSING DEVELOPMENT. *BUS CURRENTLY IS SERVED BY 11 BUSES. *CURRENT SITE PLAN PROVIDES FOR CHEVRON BUS PARKING AT SEPARATE BUS LOOP.
- FLOODPLAIN INFO: THE SITE DOES NOT LIE WITHIN A ONE HUNDRED (100) YEAR FLOODPLAIN. THE SITE LIES WITHIN ZONE X AS SHOWN ON FEMA FLOOD INSURANCE MAP PANEL NO. 2402C03850, DATED SEPTEMBER 18, 2001.
- ENVIRONMENTAL: A NON-TIDAL WETLANDS - NOTED B. 100-YEAR FLOODPLAIN - SITE IS NOT IN FLOODPLAIN C. STEEP SLOPES - STEEP SLOPES ARE LOCATED ON SHEET C2.01 & C2.02.
- WATER & SEWER: SITE WILL BE SERVED BY PUBLIC WATER AND SEWER (SANITARY).
- STORMWATER MANAGEMENT: STORMWATER MANAGEMENT IS PROVIDED ON-SITE.
- SOLID WASTE DISPOSAL: 10' x 12' CONCRETE DUMPSTER PAD WITH (2) DUMPSTERS.
- INTERVIEW AREAS: EXISTING INTERVIEWS: 157,324 S.F. / 0.18% PROPOSED INTERVIEWS: 261,101 S.F. / 0.18%.

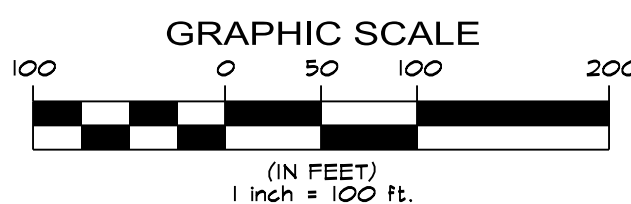
CERTIFICATION NOTE

THE LOCATION OF FEATURES SHOWN ON THIS RESOURCE MAP HAS BEEN FIELD VERIFIED BY PRECISION SURVEY AND MAPPING LLC.

RESOURCE MAP

SCALE: 1"=100'

MAPPED SOIL TYPES				
MAP UNIT	MAP UNIT NAME	HYDROLOGIC SOIL GROUP	K-FACTOR	HYDRIC RATING
Myc	Myersville-Catoctin-Urbian Land Complex 8% to 15% slopes	B	FAIR	NO
MxB	Myersville-Burkittsville Complex 8% to 15% slopes	B	FAIR	NO
ScD	Spoolsville-Burkittsville Complex 8% to 15% slopes	B	FAIR	NO
ScD	Spoolsville-Burkittsville Complex 15% to 25% slopes	B	FAIR	NO



mk Consulting Engineers, LLC
3300 Clipper Mill Road
Suite 201
Baltimore, MD 21211

REVISIONS			
NO.	DATE	DESCRIPTION	BY

FEDERAL REGULATED				STATE REGULATED		LOCAL REGULATED			
PRESENT? (Y/N)	FEATURE	LEGEND SYMBOL	PRESENT? (Y/N)	FEATURE	LEGEND SYMBOL	PRESENT? (Y/N)	FEATURE	LEGEND SYMBOL	PRESENT? (Y/N)
YES	WETLANDS	WL	YES	TIDAL & NON-TIDAL WETLANDS	WL	YES	STEEP SLOPES	WL	YES
NO	MAJOR WATERWAYS	MW	NO	WETLANDS OF SPECIAL STATE	WLS	NO	HIGHLY ERODIBLE SOILS	WLS	NO
NO	FLOODPLAINS	FP	YES	WETLAND BUFFER	WB	NO	ENHANCED STREAM BUFFERS	WB	NO
			NO	STREAM BUFFERS	SB	NO	TOPOGRAPHIC SLOPES	440	
			YES	PERENNIAL STREAMS	PS	NO	SPRINGS		
			NO	FLOODPLAINS	FP	NO	SEEPS		
			YES	FORESTS	FW	NO	INTERMITTENT STREAMS		
			NO	FOREST BUFFER	FB	NO	VEGETATIVE COVER		
			NO	CRITICAL AREAS	CAB	NO	SOILS		
						NO	BEDROCK/ GEOLOGY		
						NO	EXISTING DRAINAGE AREA		
						NO	EXISTING SWM FACILITIES	CAB	
			YES	LIMIT OF DISTURBANCE	LOD				

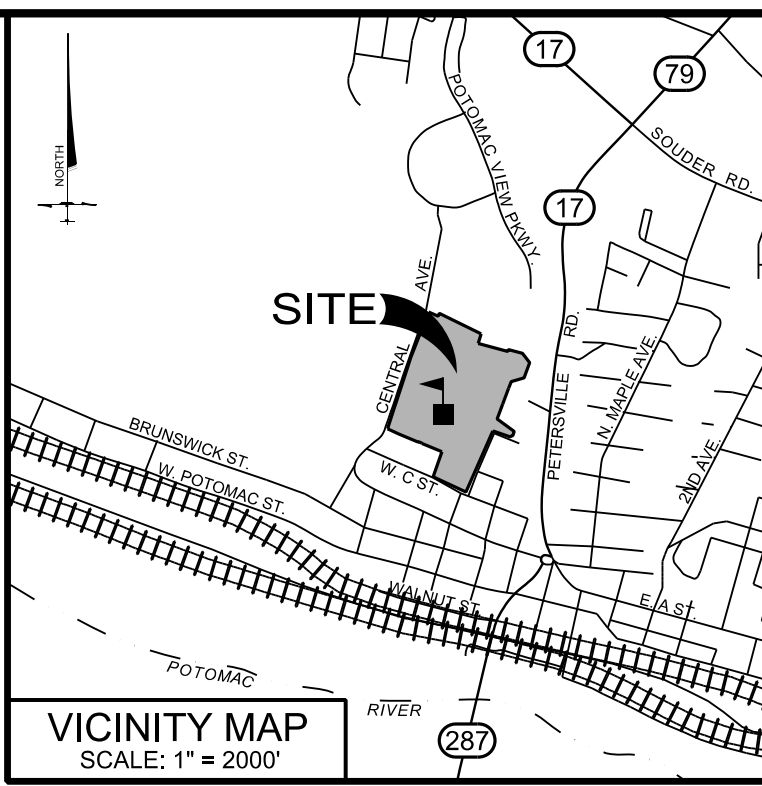
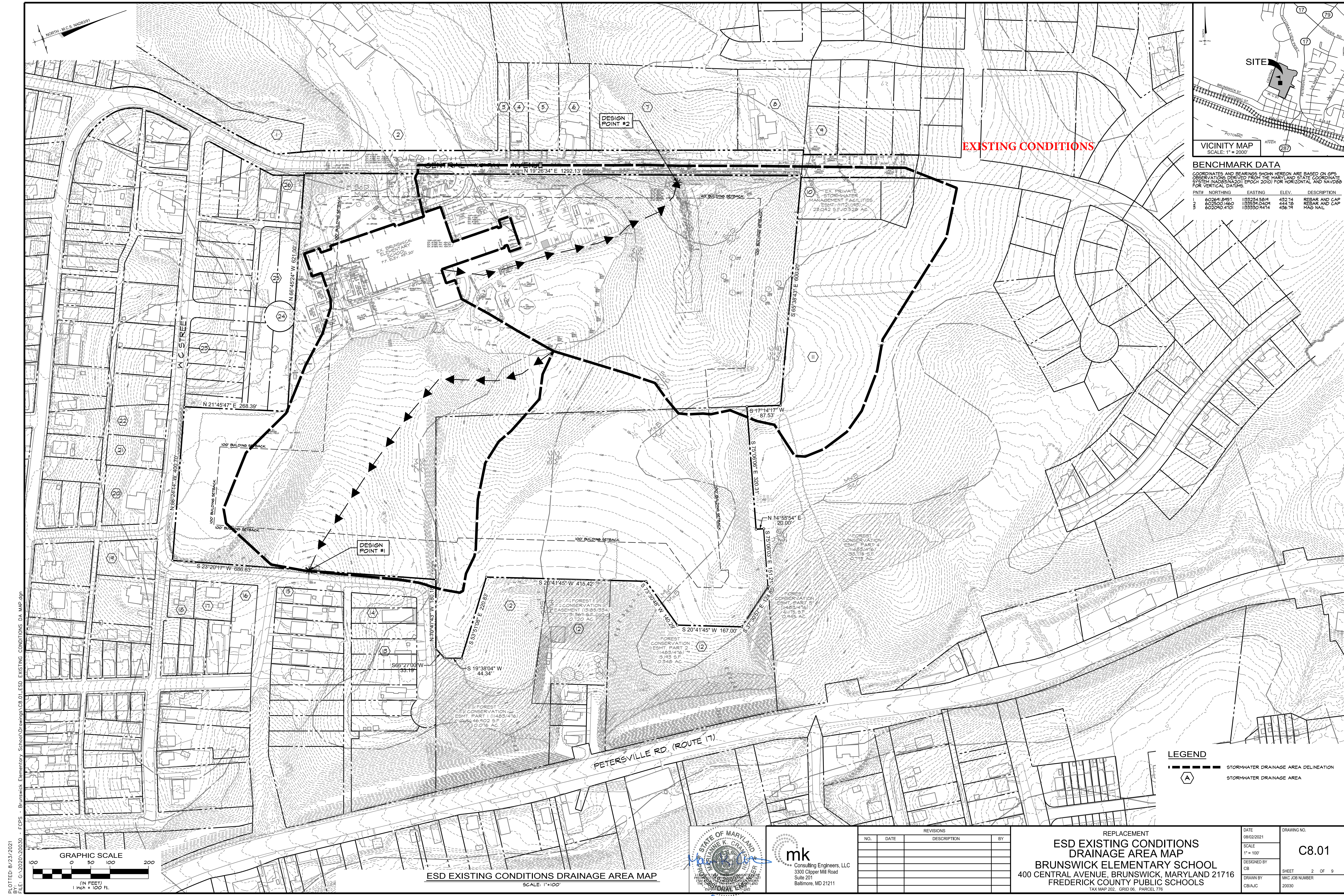
REPLACEMENT

RESOURCE MAP

BRUNSWICK ELEMENTARY SCHOOL
400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716
FREDERICK COUNTY PUBLIC SCHOOLS

TAX MAP 202, GRID 06, PARCEL 776

DATE	DRAWING NO.
08/02/2021	C8.00
SCALE	SHEET
1" = 100'	1 OF 9
DESIGNED BY	DRAWN BY
CB	CB/AJC
MKC JOB NUMBER	20030



BENCHMARK DATA

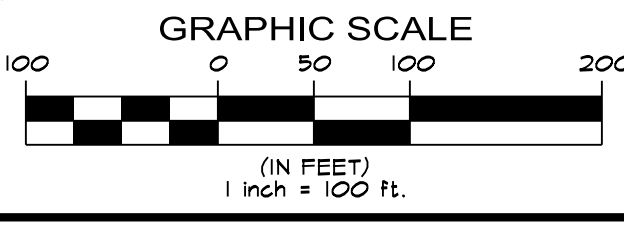
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POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
1	6026418451	1332345814	432.74	REBAR AND CAP
2	6026418460	1332345829	444.73	REBAR AND CAP
3	6026418470	1332345844	436.19	MAG NAIL

LEGEND

	STORMWATER DRAINAGE AREA DELINEATION
	STORMWATER DRAINAGE AREA

NOTED: 8/23/2021
BY: G.A.2020/02030 - FCPS - Brunswick Elementary School Drawings C8.01 ESD EXISTING CONDITIONS DA MAP.dgn
FILE: G:\2020\02030 - FCPS - Brunswick Elementary School Drawings C8.01 ESD EXISTING CONDITIONS DA MAP.dgn



ESD EXISTING CONDITIONS DRAINAGE AREA MAP
SCALE: 1"=100'



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REVISIONS			
NO.	DATE	DESCRIPTION	BY

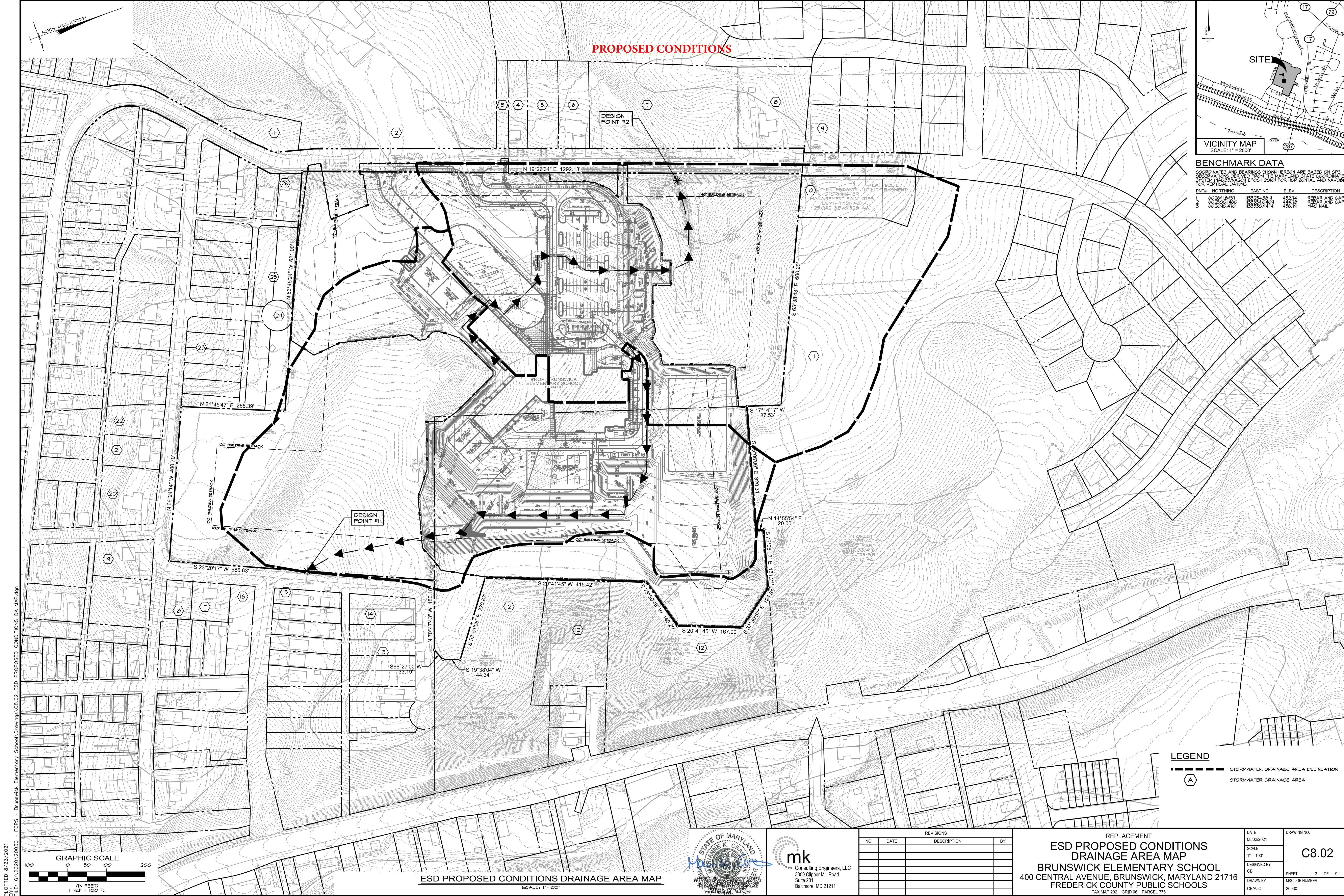
REPLACEMENT
ESD EXISTING CONDITIONS
DRAINAGE AREA MAP
BRUNSWICK ELEMENTARY SCHOOL
400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716
FREDERICK COUNTY PUBLIC SCHOOLS

TAX MAP 202, GRID 06, PARCEL 776

DATE	DRAWING NO.
08/02/2021	C8.01

SCALE	DESIGNED BY	DRAWN BY	SHEET	2 OF 9
1" = 100'	CB	CB/AJC		

8-2-21



BENCHMARK DATA

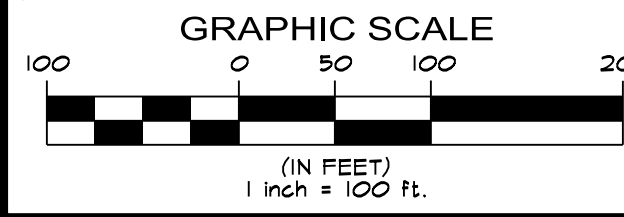
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2	6026500460	1332345814	444.10	REBAR AND CAP
3	6026904701	1332345814	436.19	MAG NAIL

LEGEND

	STORMWATER DRAINAGE AREA DELINEATION
	STORMWATER DRAINAGE AREA

PLOTTED: 8/23/2021
BY: G:\2020\200330 - FCPS - Brunswick Elementary School\Drawings\CB.02 ESD PROPOSED CONDITIONS DA MAP.dgn
FILE: G:\2020\200330 - FCPS - Brunswick Elementary School\Drawings\CB.02 ESD PROPOSED CONDITIONS DA MAP.dgn



ESD PROPOSED CONDITIONS DRAINAGE AREA MAP
SCALE: 1"=100'



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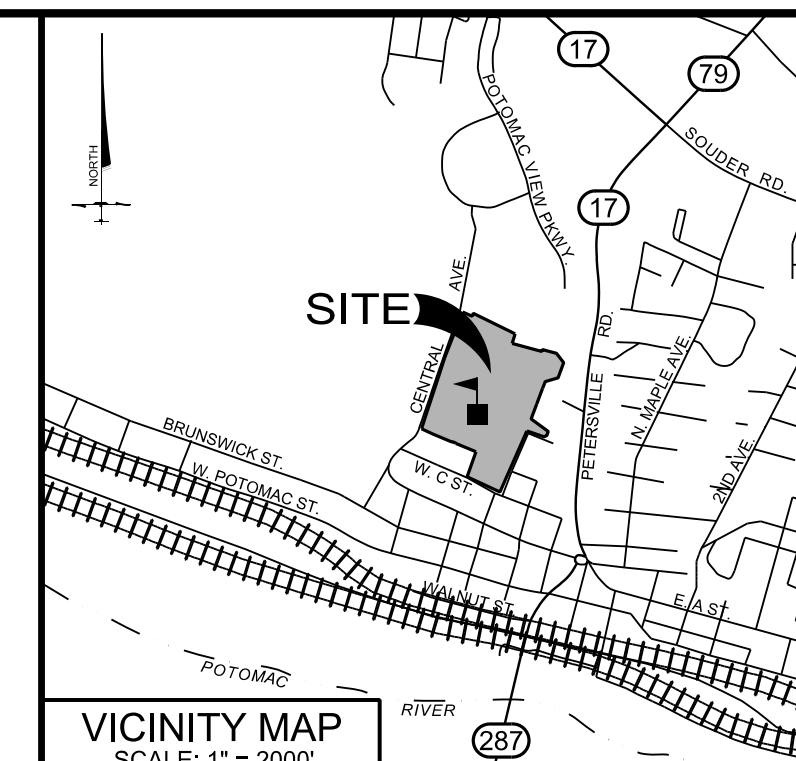
REVISIONS			
NO.	DATE	DESCRIPTION	BY

REPLACEMENT
**ESD PROPOSED CONDITIONS
DRAINAGE AREA MAP**
BRUNSWICK ELEMENTARY SCHOOL
400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716
FREDERICK COUNTY PUBLIC SCHOOLS
TAX MAP 202, GRID 06, PARCEL 776

DATE 08/02/2021	DRAWING NO. C8.02
SCALE 1" = 100'	SHEET 3 OF 9
DESIGNED BY CB	MKC JOB NUMBER 20030
DRAWN BY CB/AJC	

8-2-21

THIS SHEET NOT REQUIRED WITH SWM CONCEPT



BENCHMARK DATA

COORDINATES AND BEARINGS SHOWN HEREON ARE BASED ON GPS OBSERVATIONS DERIVED FROM THE MARYLAND STATE COORDINATE SYSTEM (NAD83/NAZ01) EPOCH 2010) FOR HORIZONTAL AND NAVD83 FOR VERTICAL DATUMS.

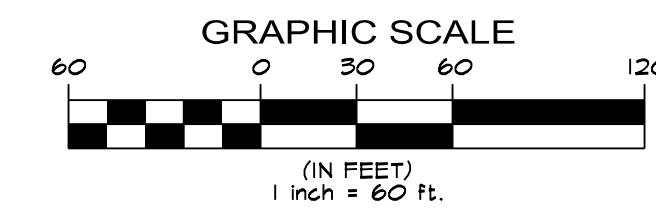
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3	602090.4701	133530.9474	436.74	MAG NAIL

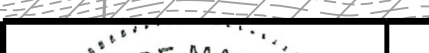
LEGEND

— 440 —	PROP. CONTOUR
PROP. 8' SPOT ELEVATION	
PROP. 6" WATER	PROP. WATER
PROP. FIRE HYDRANT VALVE	
PROP. FIRE DEPARTMENT CONNECTION	
PROP. SANITARY	
PROP. MANHOLE, CLEANOUT	
PROP. STORM DRAIN	
PROP. MANHOLE, CLEANOUT, INLET	
PROP. ELECTRICAL	
PROP. TRANSFORMER, GENERATOR	
PROP. LIGHT POLE	
PROP. GAS	
PROP. CURB AND GUTTER	
PROP. SIDEWALK	
PROP. FENCE	
PROP. SIGN	
LIMIT OF DISTURBANCE	
LIMIT OF WORK	
CRITICAL ROOT ZONE	
PROPERTY LINE	
ADJOINING PARCEL LINE	
RIGHT OF WAY LINE	
EX. PUBLIC UTILITY EASEMENT	
EX. CURB AND GUTTER	
EX. INDEX CONTOUR	
EX. INTERMEDIATE CONTOUR	
EX. SIGN	
EX. UNDERGROUND ELECTRIC	
EX. OVERHEAD ELECTRIC	
EX. POWER POLE, LIGHT POLE	
EX. GAS	
EX. STORM DRAIN LINE	
EX. STORM DRAIN MANHOLE, INLET	
EX. FIRE HYDRANT VALVE	
EX. SAN. SEWER MANHOLE, CLEANOUT	
EX. WATER	
EX. FIRE HYDRANT, WATER VALVE	

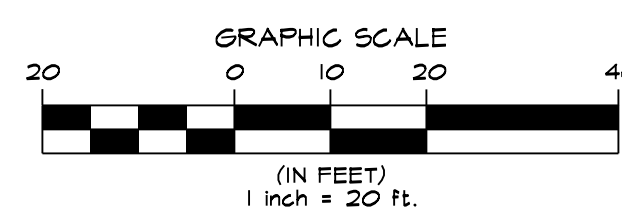
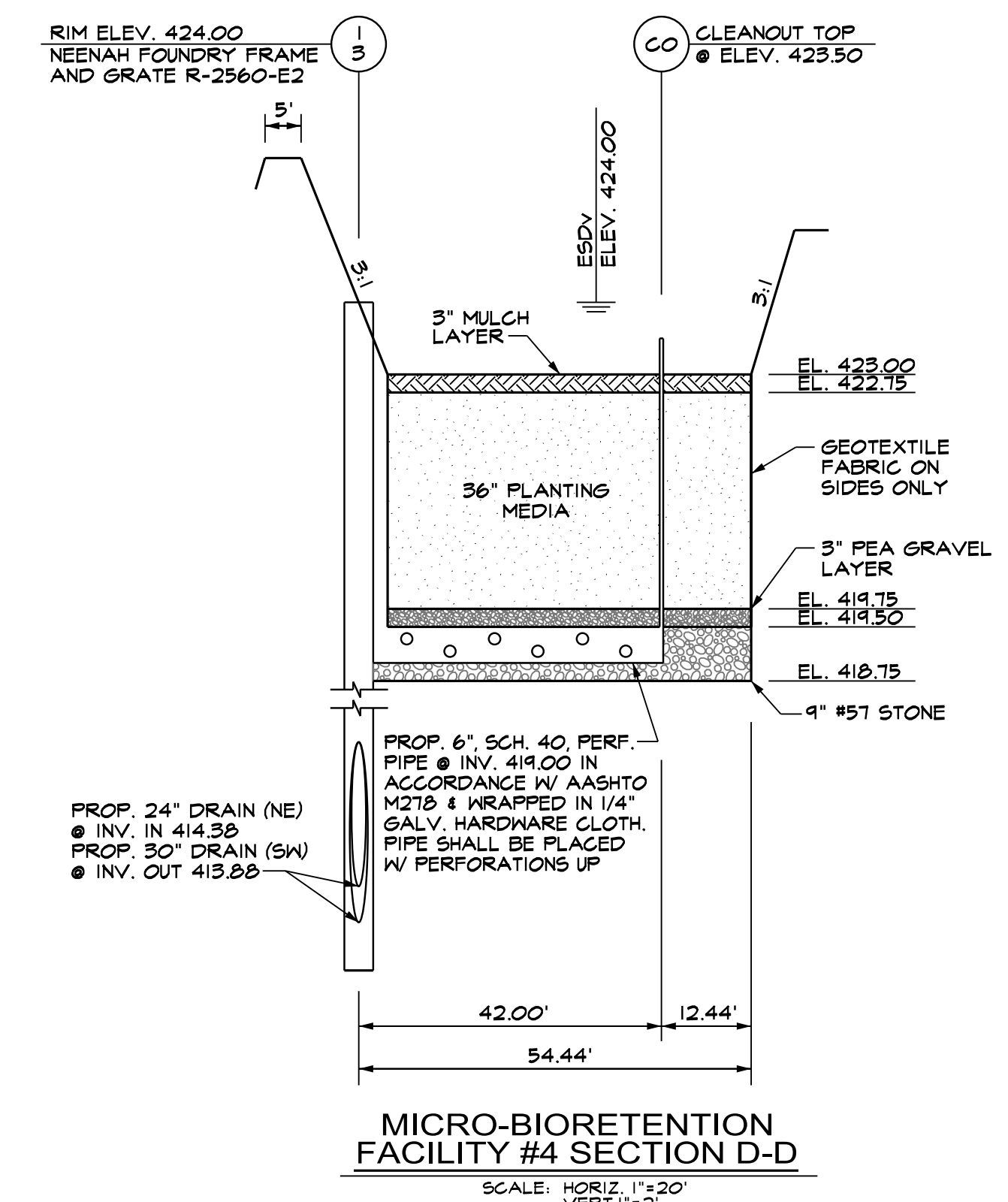
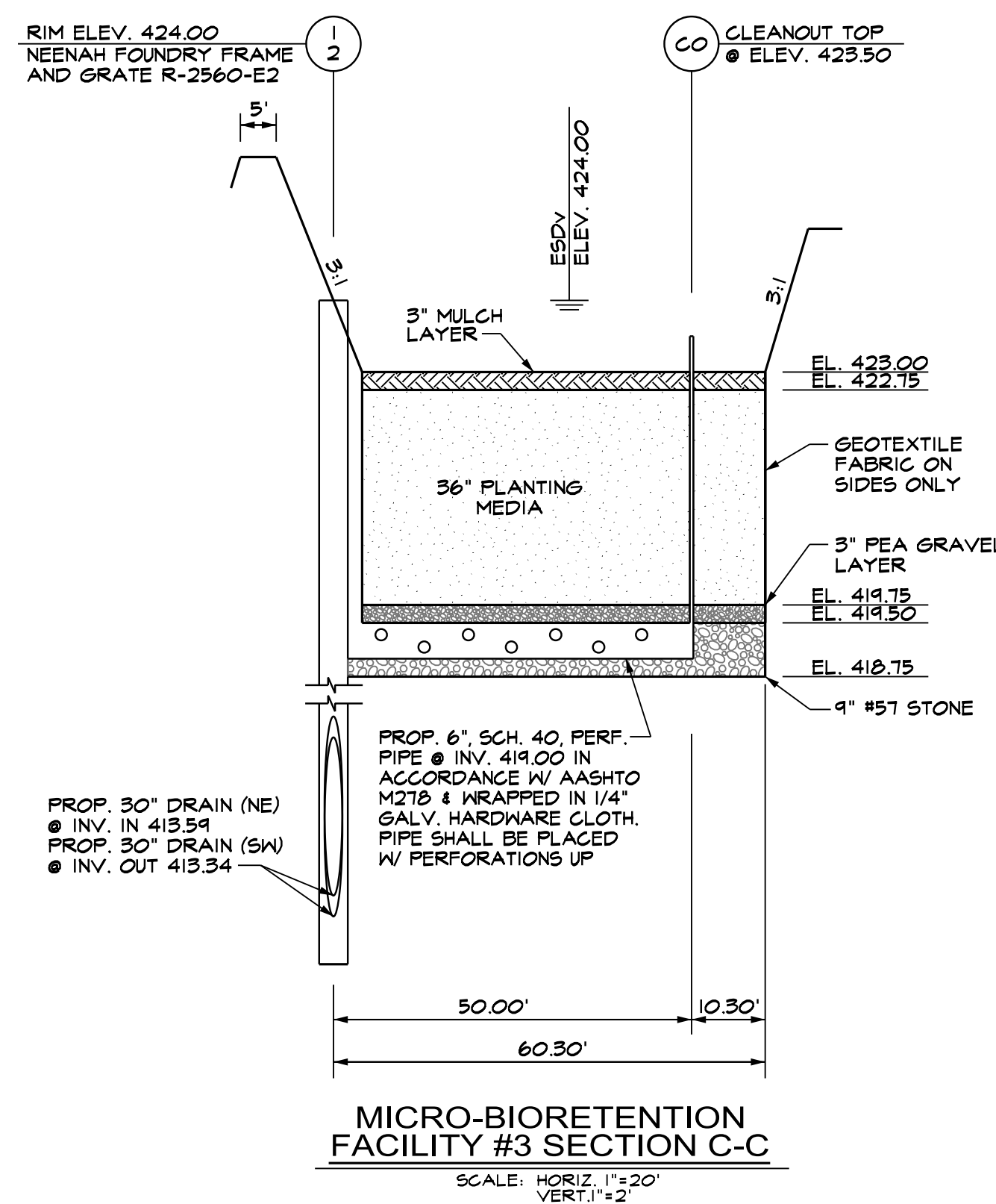
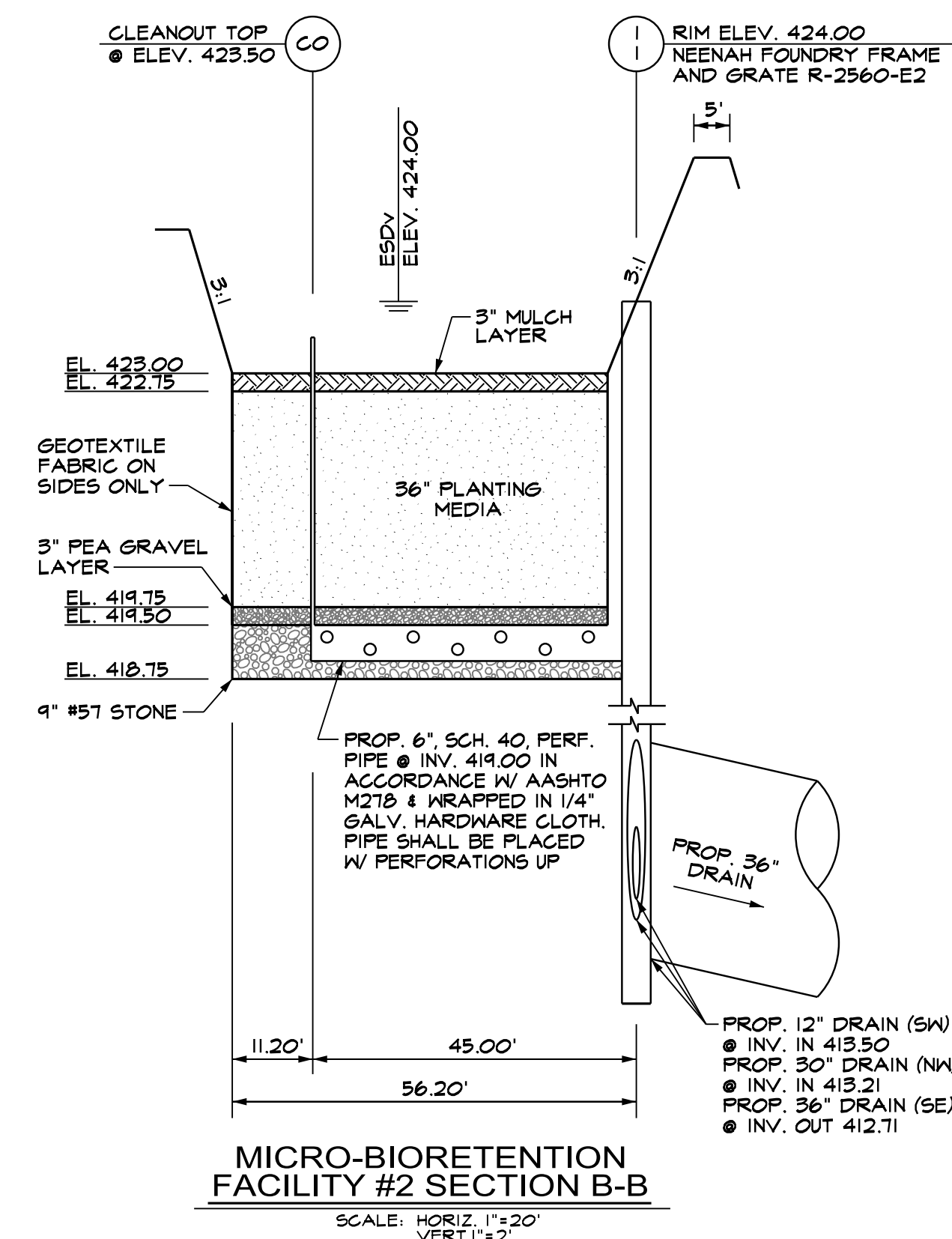
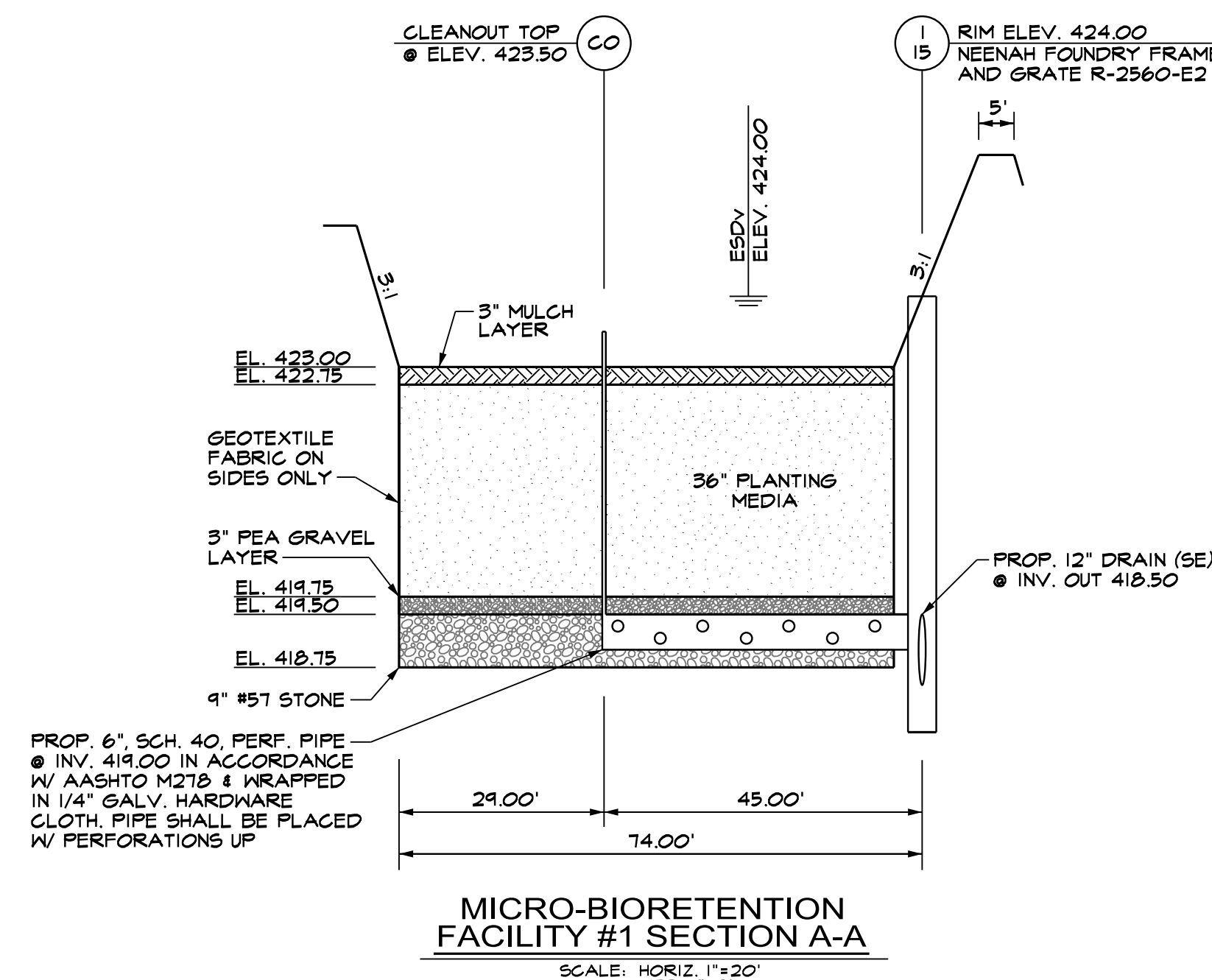
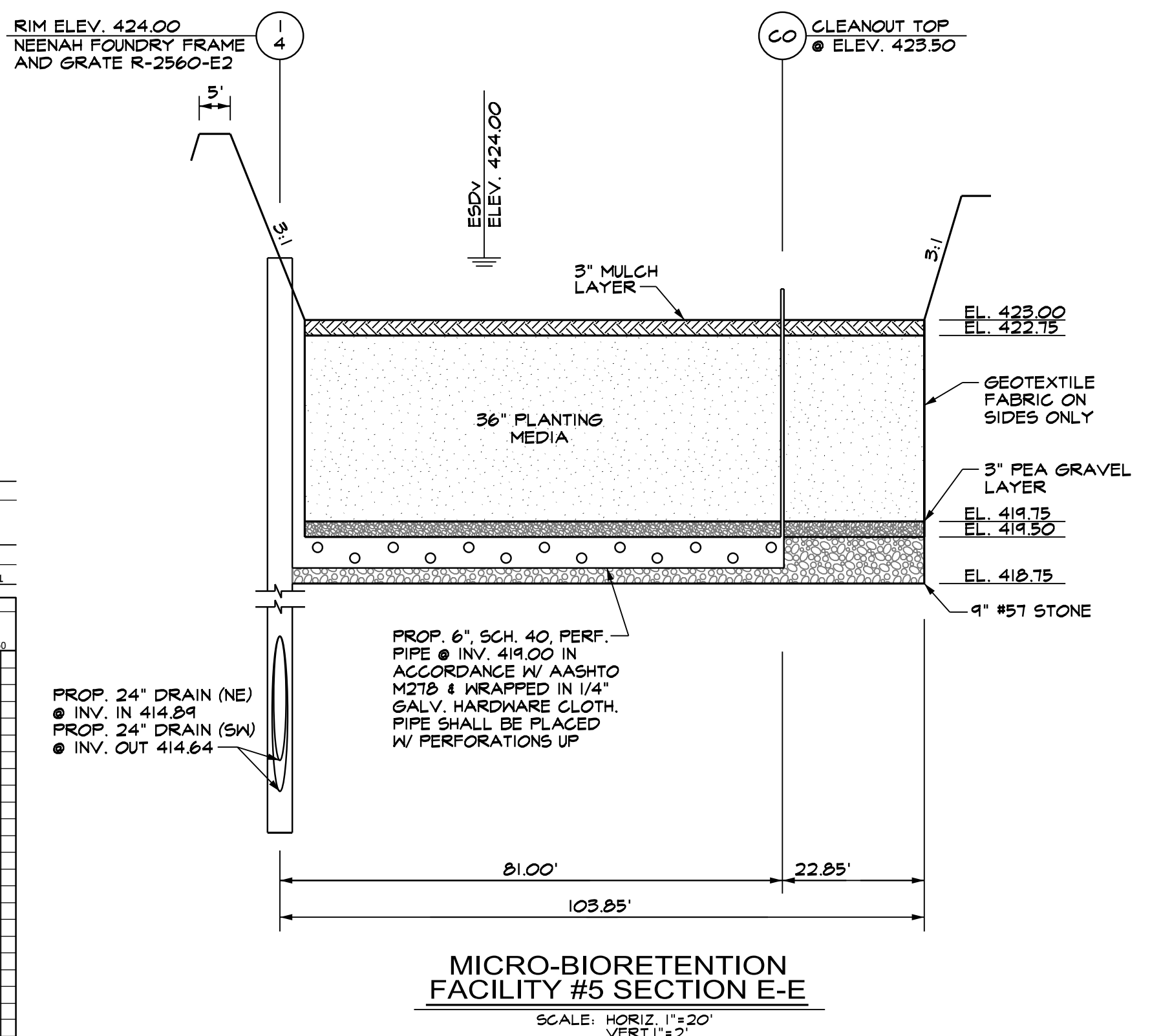
ENVIRONMENTAL SITE DESIGN SUMMARY TABLE							
PRACTICE	DRAINAGE AREA	IMP. AREA TREATED	REQUIRED	PROVIDED		RE	RE
			ESOV	ESOV STORAGE	ESOV TREATED	REQUIRED	PROVIDED
MICRO-BIORETENTION FACILITY #1	2,311 SQ.FT. OR 0.49 ACRES	9,566 SQ.FT. OR 0.21 ACRES	-	1,948 C.F.	1,948 C.F.	1.8"	2.56"
MICRO-BIORETENTION FACILITY #2	11,784 SQ.FT. OR 0.45 ACRES	8,883 SQ.FT. OR 0.20 ACRES	-	1,466 C.F.	1,466 C.F.	1.8"	1.95"
MICRO-BIORETENTION FACILITY #3	12,016 SQ.FT. OR 0.26 ACRES	4,803 SQ.FT. OR 0.11 ACRES	-	2,048 C.F.	1,060 C.F.	1.8"	2.7"
MICRO-BIORETENTION FACILITY #4	11,551 SQ.FT. OR 0.26 ACRES	6,747 SQ.FT. OR 0.15 ACRES	-	1,694 C.F.	1,573 C.F.	1.8"	2.1"
MICRO-BIORETENTION FACILITY #5	15,585 SQ.FT. OR 0.36 ACRES	7,847 SQ.FT. OR 0.18 ACRES	-	2,263 C.F.	1,733 C.F.	1.8"	2.7"
MICRO-BIORETENTION FACILITY #6	26,223 SQ.FT. OR 0.29 ACRES	6,478 SQ.FT. OR 0.15 ACRES	-	1,591 C.F.	1,446 C.F.	1.8"	2.7"
MICRO-BIORETENTION FACILITY #7	18,456 SQ.FT. OR 0.42 ACRES	13,711 SQ.FT. OR 0.32 ACRES	-	2,053 C.F.	2,053 C.F.	1.8"	1.84"
MICRO-BIORETENTION FACILITY #8	5,830 SQ.FT. OR 0.13 ACRES	2,778 SQ.FT. OR 0.06 ACRES	-	1,018 C.F.	632 C.F.	1.8"	2.7"
MICRO-BIORETENTION FACILITY #9	14,484 SQ.FT. OR 0.34 ACRES	4,122 SQ.FT. OR 0.09 ACRES	-	1,944 C.F.	1,018 C.F.	1.8"	2.7"
MICRO-BIORETENTION FACILITY #10	21,511 SQ.FT. OR 0.41 ACRES	13,414 SQ.FT. OR 0.31 ACRES	-	1,530 C.F.	1,530 C.F.	1.8"	1.40"
MICRO-BIORETENTION FACILITY #11	16,659 SQ.FT. OR 0.45 ACRES	10,300 SQ.FT. OR 0.24 ACRES	-	1,064 C.F.	1,064 C.F.	1.8"	1.26"
MICRO-BIORETENTION FACILITY #12	19,446 SQ.FT. OR 0.45 ACRES	14,532 SQ.FT. OR 0.33 ACRES	-	1,173 C.F.	1,173 C.F.	1.8"	1.0"
MICRO-BIORETENTION FACILITY #13	8,473 SQ.FT. OR 0.44 ACRES	12,935 SQ.FT. OR 0.30 ACRES	-	1,288 C.F.	1,288 C.F.	1.8"	1.23"
MICRO-BIORETENTION FACILITY #14	20,240 SQ.FT. OR 0.46 ACRES	14,933 SQ.FT. OR 0.34 ACRES	-	1,349 C.F.	1,349 C.F.	1.8"	1.16"
MICRO-BIORETENTION FACILITY #15	18,218 SQ.FT. OR 0.42 ACRES	13,651 SQ.FT. OR 0.31 ACRES	-	1,146 C.F.	1,146 C.F.	1.8"	1.04"
MICRO-BIORETENTION FACILITY #16	18,474 SQ.FT. OR 0.42 ACRES	13,740 SQ.FT. OR 0.29 ACRES	-	2,080 C.F.	2,080 C.F.	1.8"	2.01"
UNDERGROUND STORAGE FACILITY #1	10,171 SQ.FT. OR 2.32 ACRES	75,566 SQ.FT. OR 1.73 ACRES	-	16,588 C.F.	16,504 C.F.	1.8"	2.7"
MICRO-BIORETENTION FACILITY #18	21,705 SQ.FT. OR 0.50 ACRES	8,491 SQ.FT. OR 0.19 ACRES	-	1,284 C.F.	1,284 C.F.	1.8"	1.77"
MICRO-BIORETENTION FACILITY #19	9,038 SQ.FT. OR 0.21 ACRES	4,440 SQ.FT. OR 0.10 ACRES	-	1,179 C.F.	991 C.F.	1.8"	2.7"
TOTAL PROVIDED				34,640 C.F.	44,803 C.F.	4,416 C.F.	
TOTAL REQUIRED				41,416 C.F.			

STORMWATER MANAGEMENT STORAGE REQUIREMENTS						
REQUIREMENT	VOL. REQ.	VOL. PROV.	EXIST. DISCH.	PROP. DISCH.	PROP. DISCH. W/ GN REDUC.	NOTES
ESDv POI-1	15,246 C.F.	16,123 C.F.	—	—	—	PROVIDED IN 12 SWM FACILITIES.
ESDv POI-2	24,344 C.F.	24,138 C.F.	—	—	—	PROVIDED IN 7 SWM FACILITIES.
REV	—	—	—	—	—	ADDRESSED BY ESD
GPv	—	—	—	—	—	ADDRESSED BY ESD
GO	D.P. "A"				N.A.	

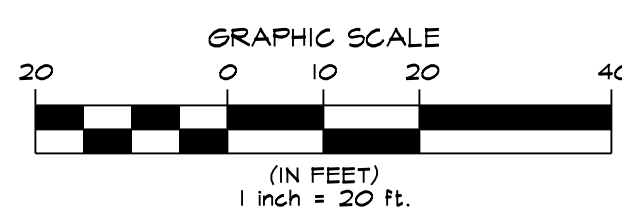
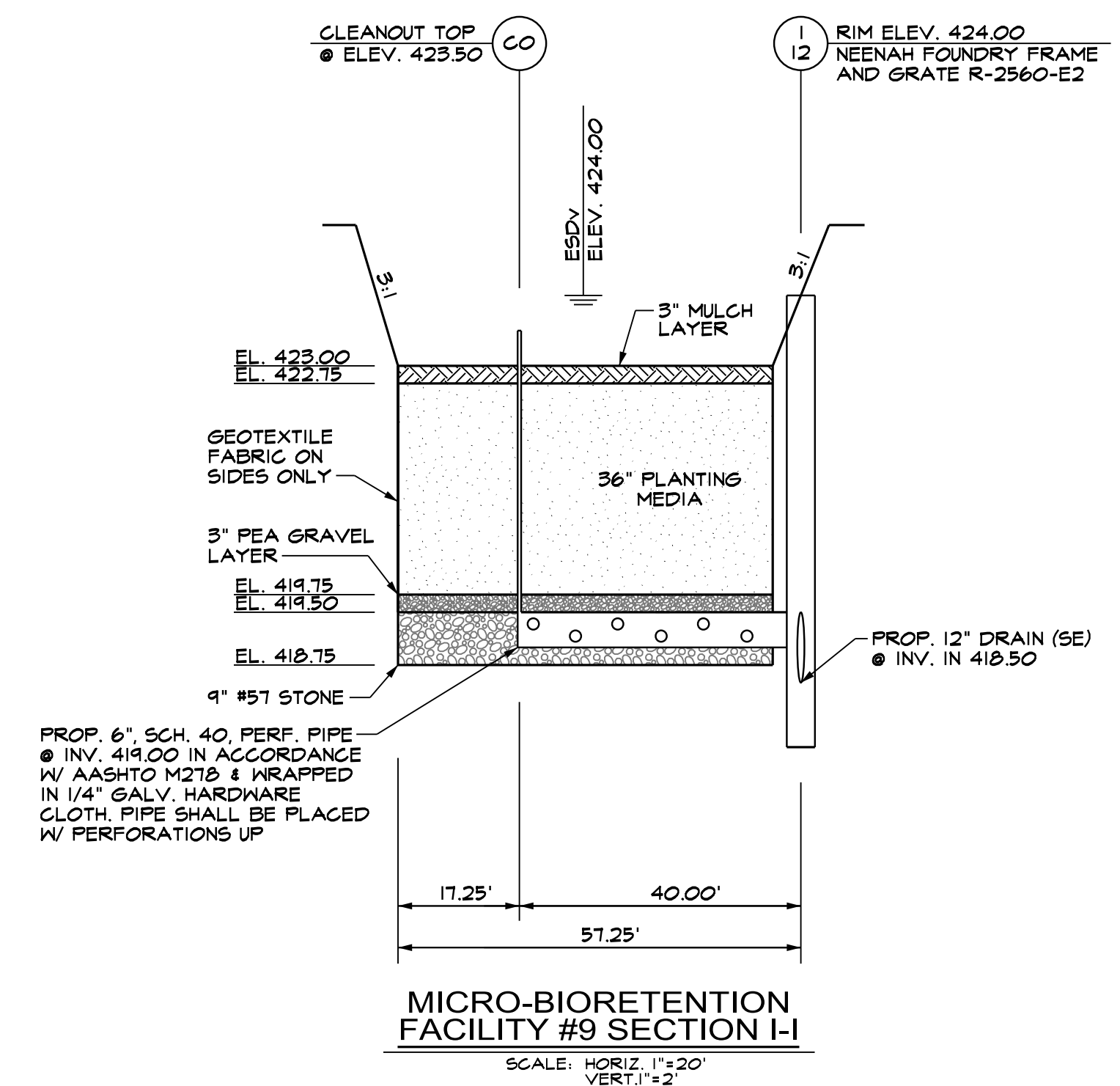
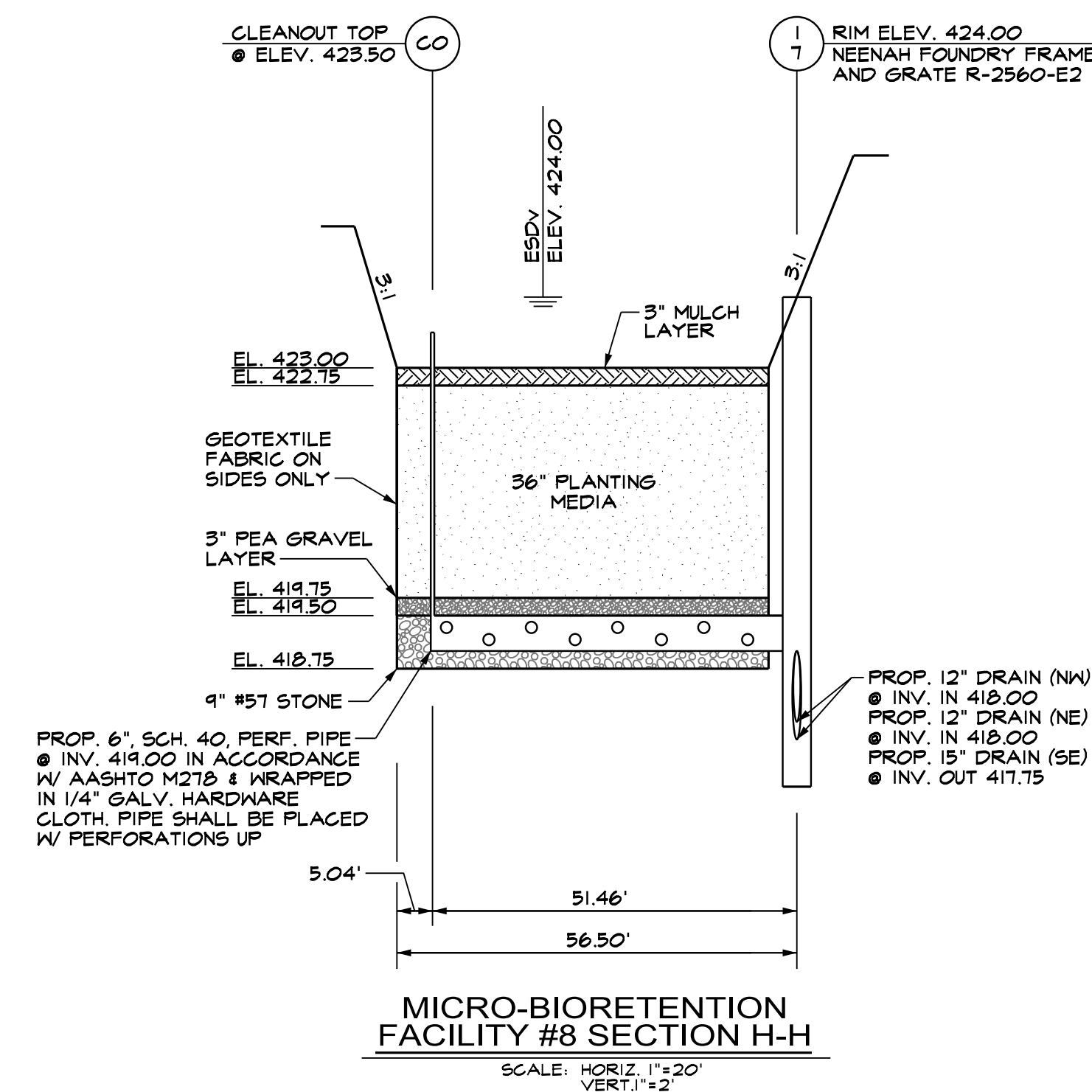
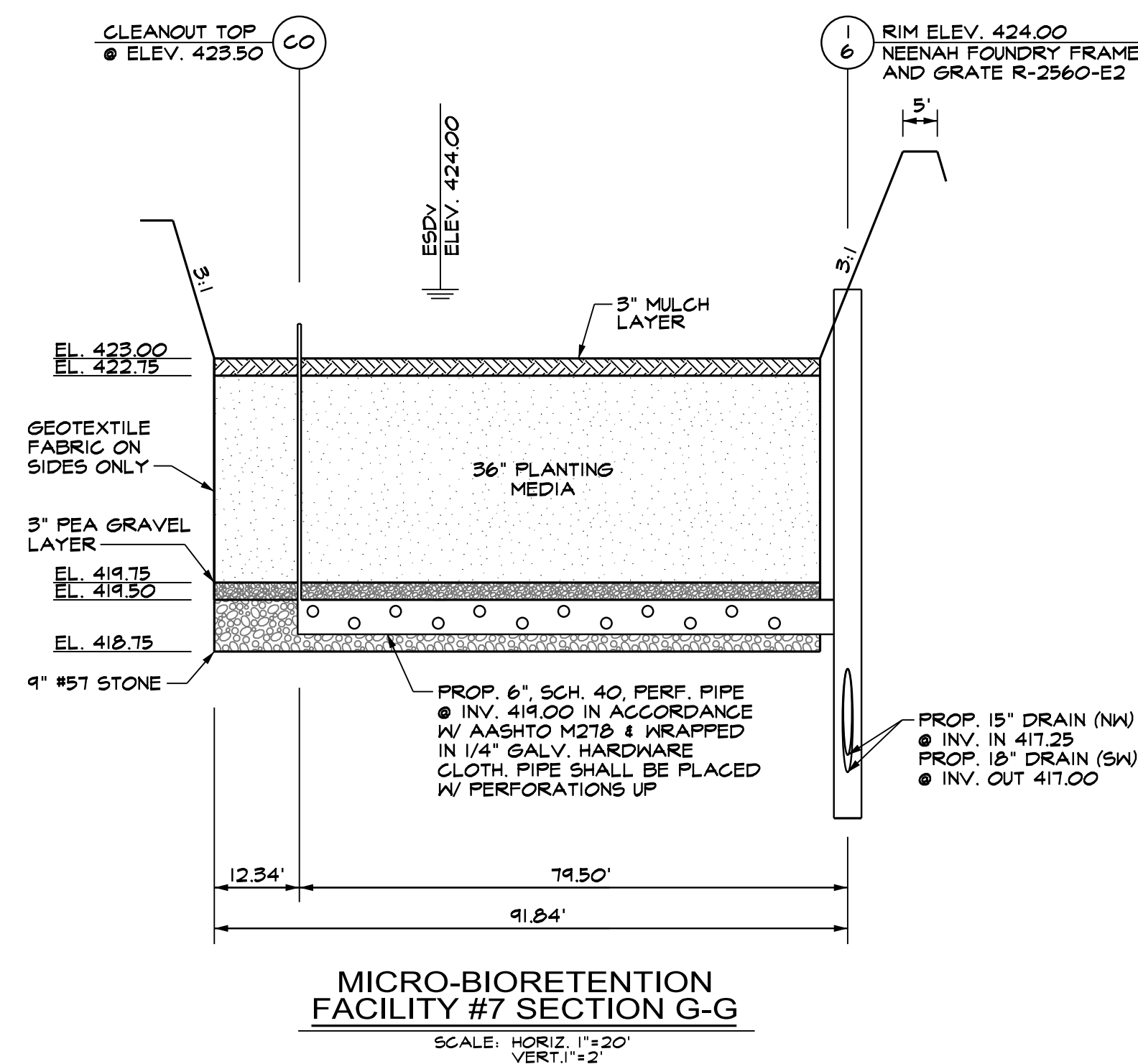
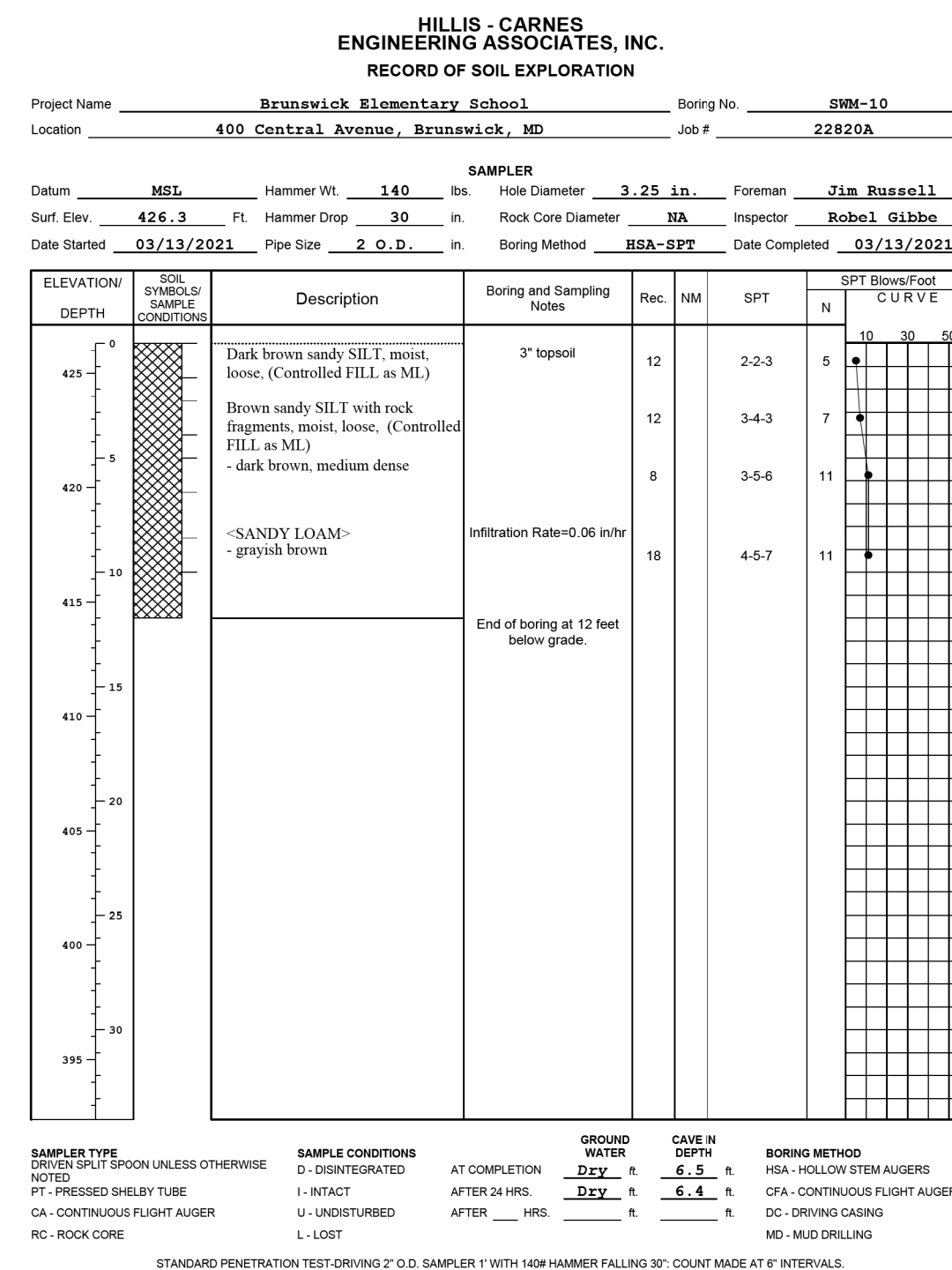
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  Consulting Engineers, LLC 3300 Clipper Mill Road Suite 201 Baltimore, MD 21211	REVISONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">DATE</th> <th style="width: 50%;">DESCRIPTION</th> <th style="width: 10%;">BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>				NO.	DATE	DESCRIPTION	BY																					REPLACEMENT ESD PLAN BRUNSWICK ELEMENTARY SCHOOL 400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716 FREDERICK COUNTY PUBLIC SCHOOLS TAX MAP 2022, GRID 06, PARCEL 776				DRAWING NO. C8.03	
	NO.	DATE	DESCRIPTION	BY																														
DATE 08/02/2021		SCALE 1" = 60'																																
DESIGNED BY CB		DRAWN BY CB/AJC		SHEET 4 OF 9																														
DRAWN BY CB/AJC		MKC JOB NUMBER 20030		DRAWING NO. C8.03																														

PLOTTED: 8/23/2021
BY:
FILE: G:\2020\20030 - FCPS - Brunswick Elementary School\Drawings\8.03_CSD PLAN.dgn

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REPLACEMENT
ESD FACILITIES
1, 2, 3, 4 AND 5
BRUNSWICK ELEMENTARY SCHOOL
400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716
FREDERICK COUNTY PUBLIC SCHOOLS
TAX MAP 202, GRID 06, PARCEL 776



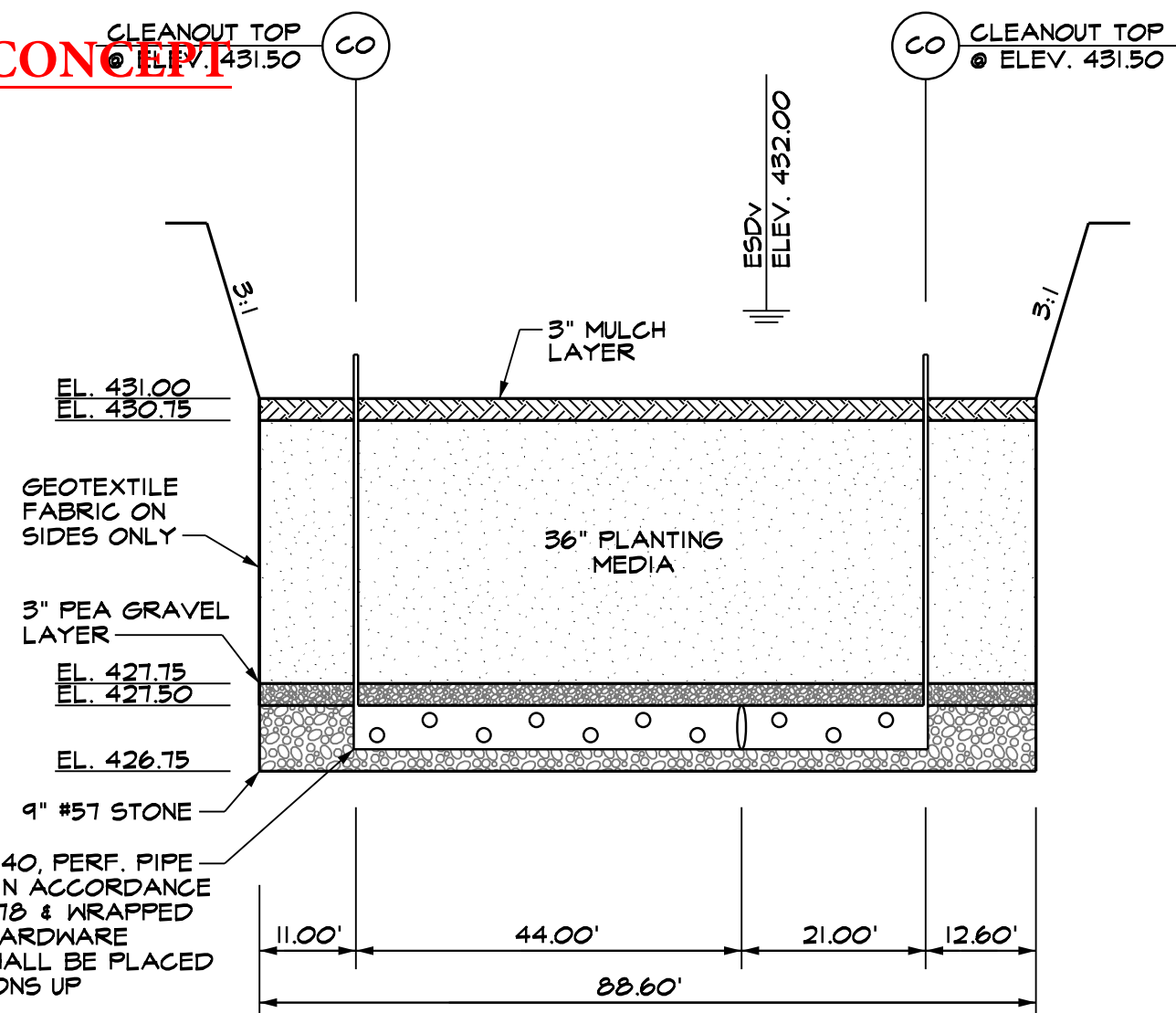
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3300 Clipper Mill Road
Suite 201
Baltimore, MD 21211

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REPLACEMENT
ESD FACILITIES
6, 7, 8, 9 AND 10
BRUNSWICK ELEMENTARY SCHOOL
400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716
FREDERICK COUNTY PUBLIC SCHOOLS
TAX MAP 202, GRID 06, PARCEL 776

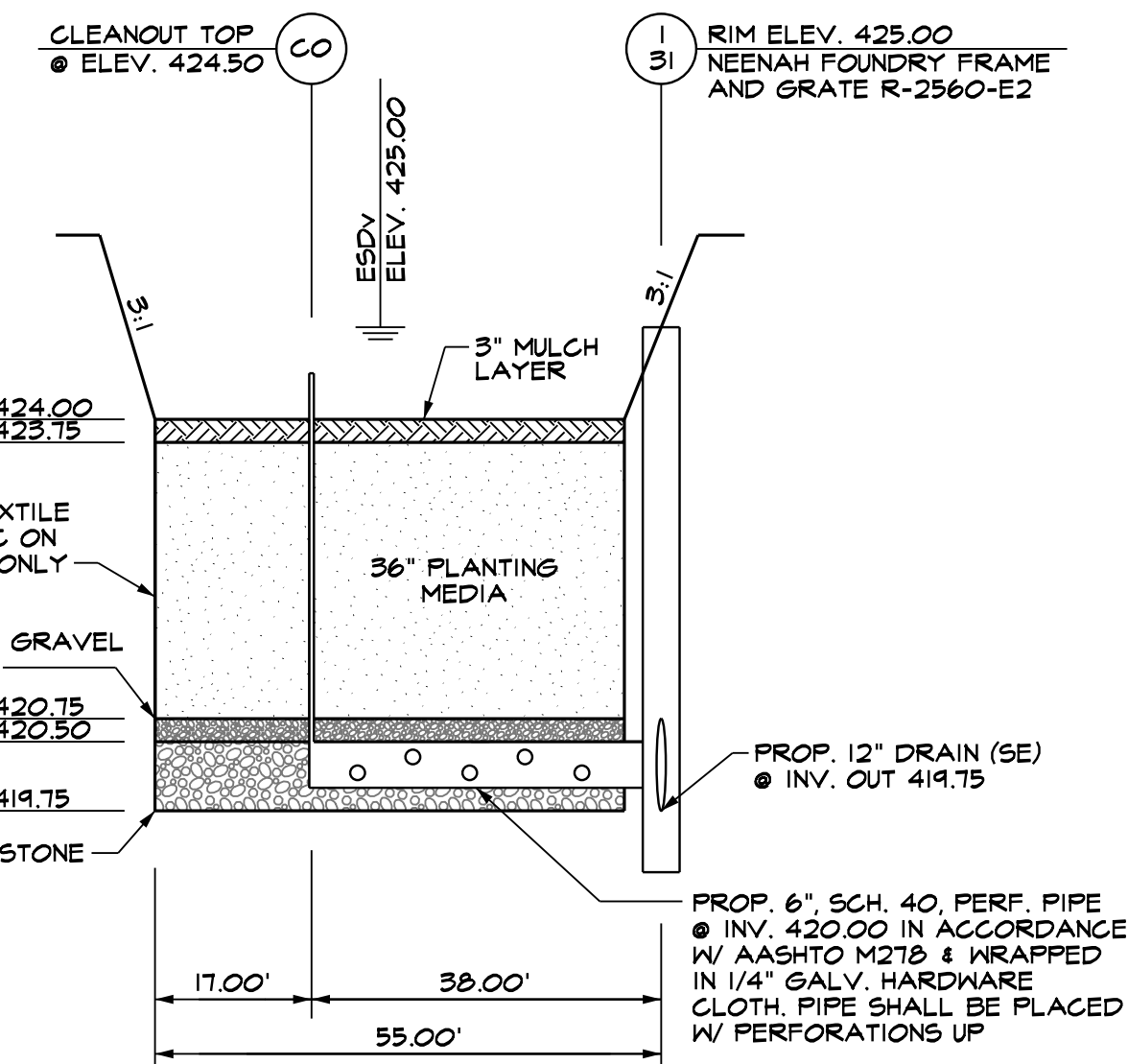
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SCALE AS SHOWN	
DESIGNED BY CB	
DRAWN BY CBA/IC	SHEET 6 OF 9 MKC JOB NUMBER 20030

THIS SHEET NOT REQUIRED WITH SWM CONCEPT



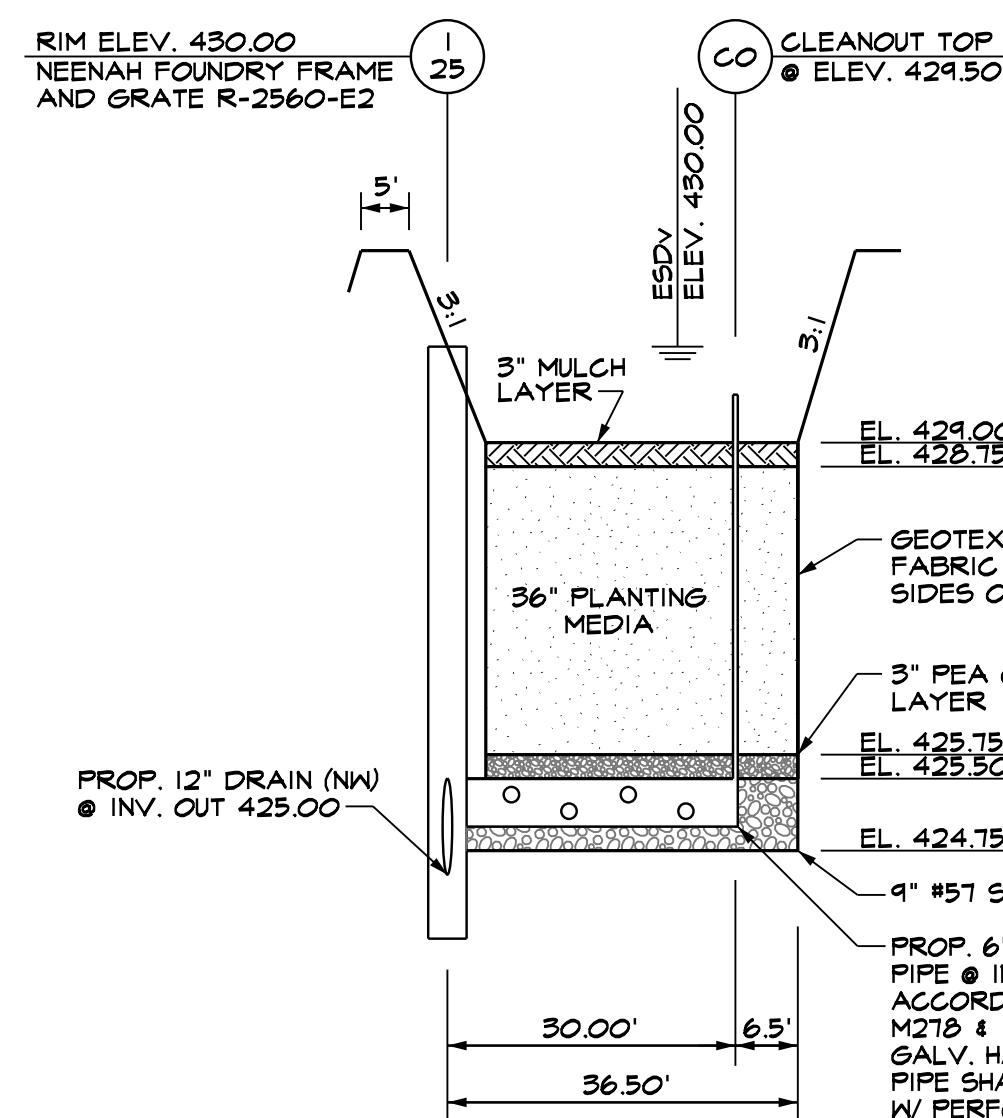
**MICRO-BIORETENTION
FACILITY #16 SECTION P-F**

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

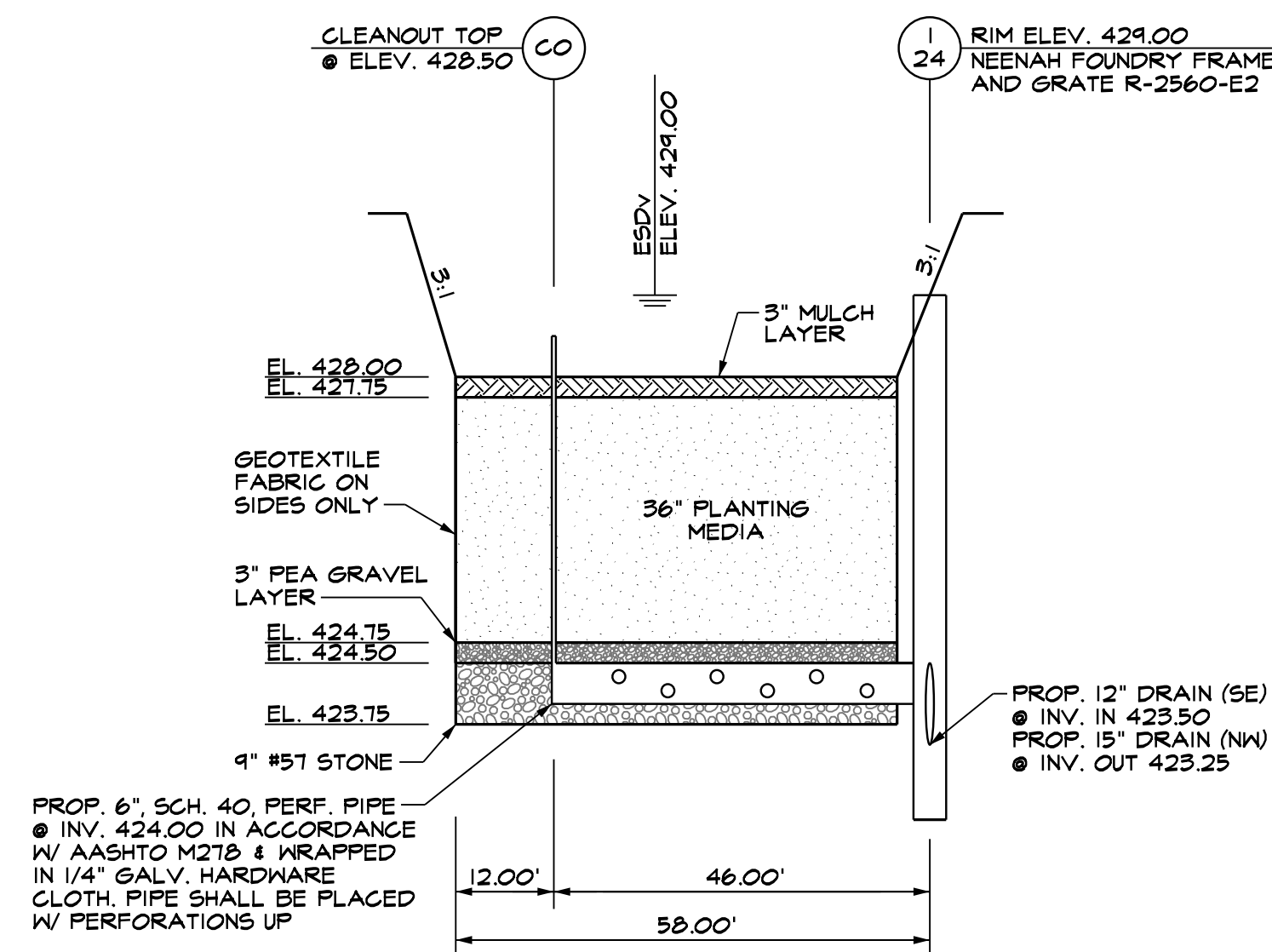


MICRO-BIORETENTION
FACILITY #15 SECTION O-O
SCALE: HORIZ. 1"=20'

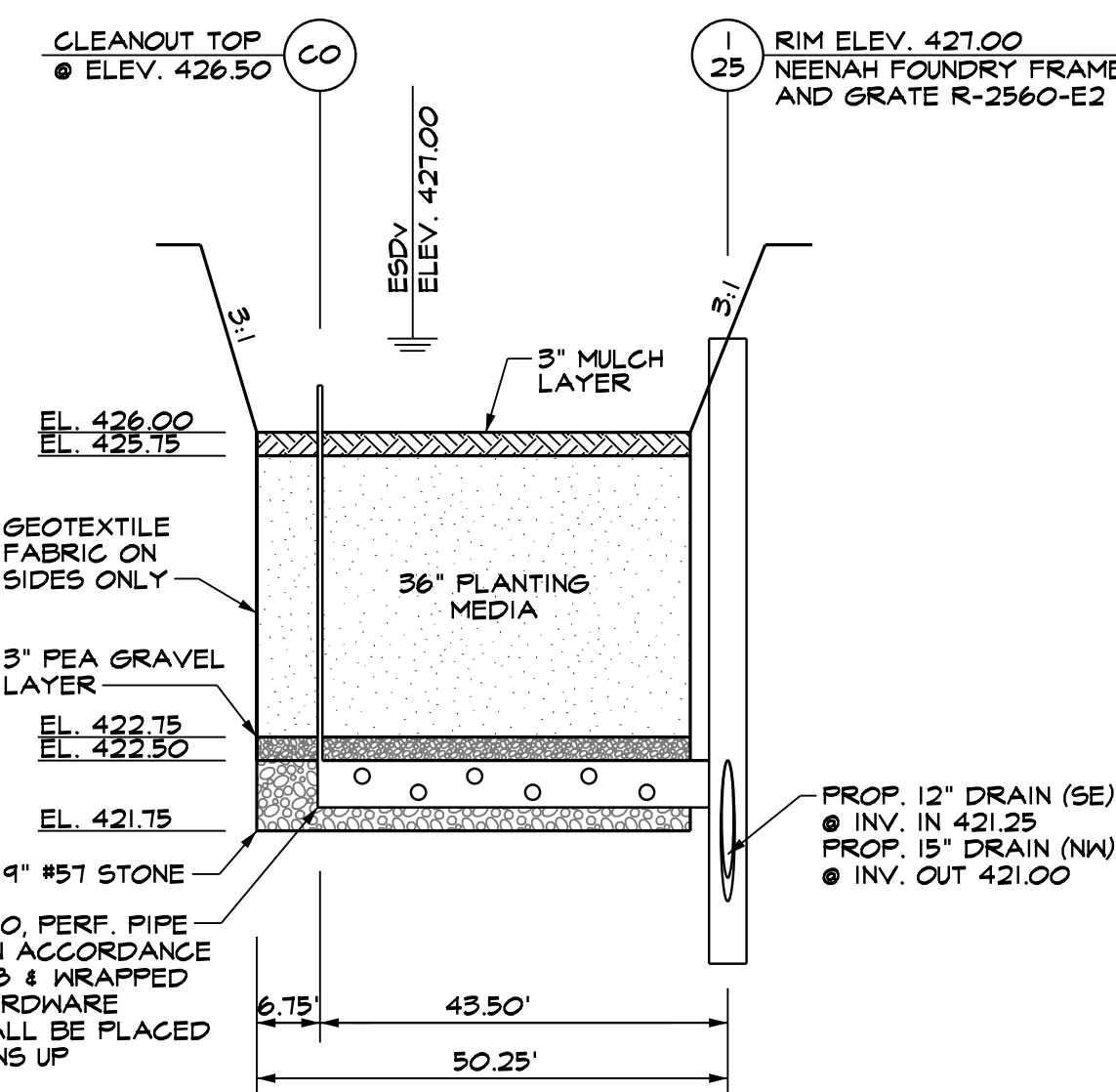
ESD MICRO-BIORETENTION FACILITIES 11, 12, 13, 14, 15 AND 16 PLAN



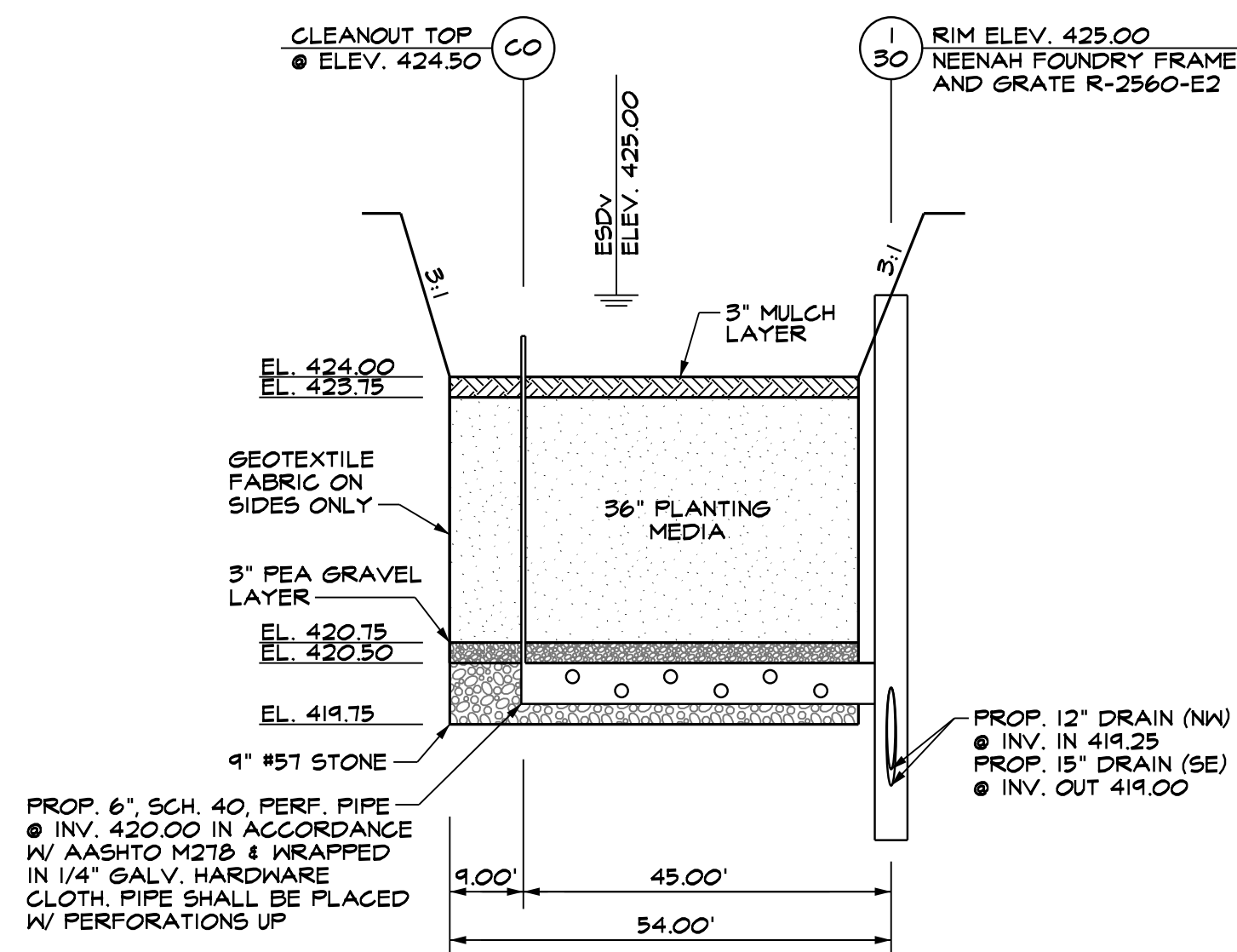
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FACILITY #11 SECTION K-K
SCALE: HORIZ. 1"=20'
VERT. 1"=2'



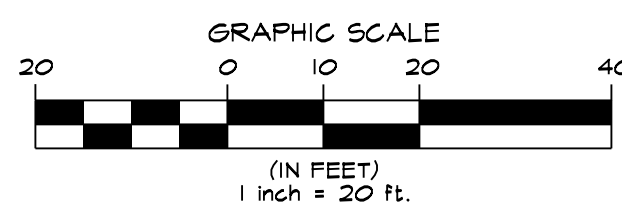
MICRO-BIORETENTION
FACILITY #12 SECTION L-L



MICRO-BIORETENTION
FACILITY #13 SECTION M-M



MICRO-BIORETENTION
FACILITY #14 SECTION N-N

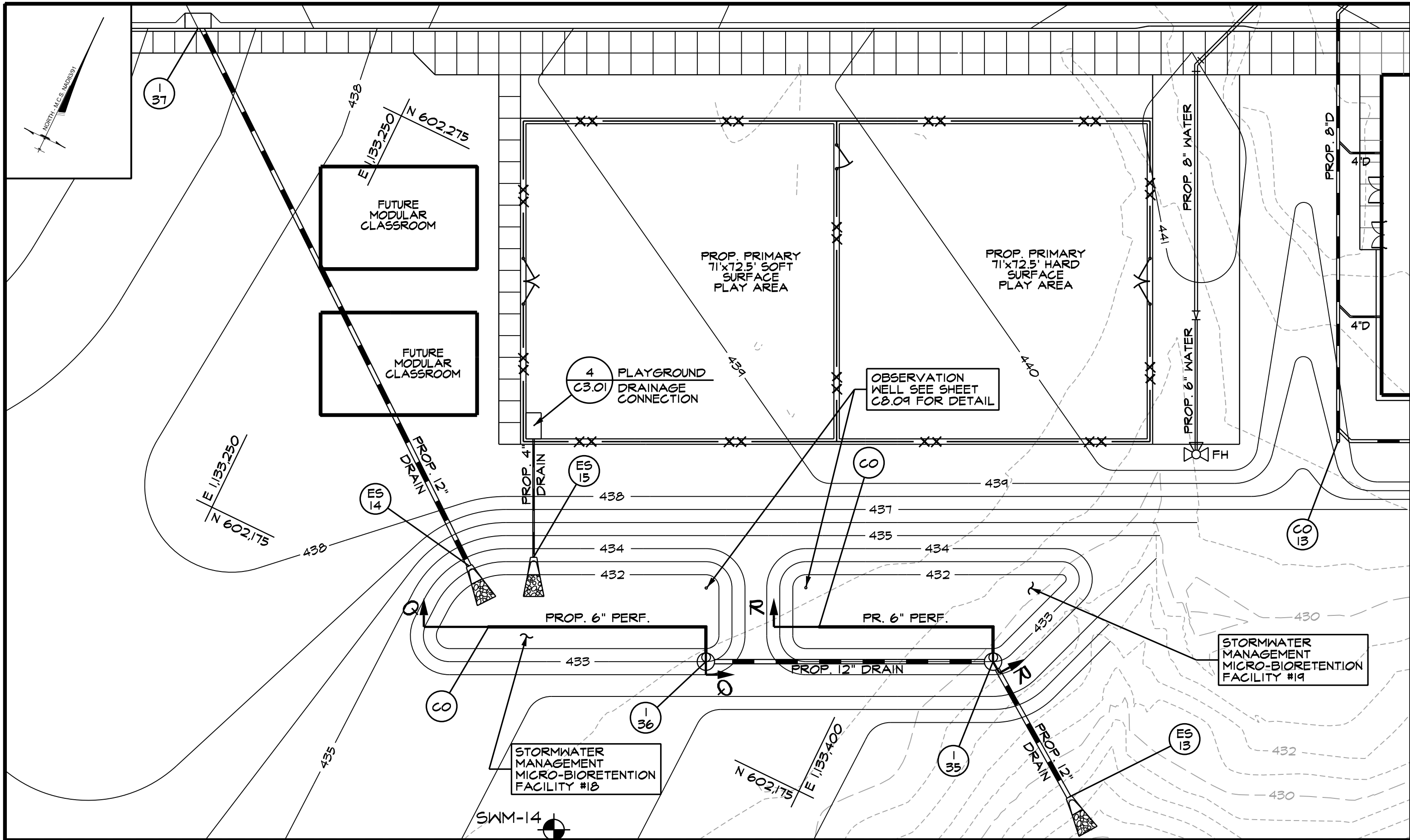
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REPLACEMENT
ESD FACILITIES
11, 12, 13, 14, 15 AND 16
BRUNSWICK ELEMENTARY SCHOOL
400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716
FREDERICK COUNTY PUBLIC SCHOOLS
TAX MAP 2022, GRID 06, PARCEL 776

DATE 08/02/2021	DRAWING NO. C8.06
SCALE	
AS SHOWN	
DESIGNED BY C/B	
DRAWN BY C/B/AJC	SHEET 7 OF 9 MKC JOB NUMBER 20030



THIS SHEET NOT REQUIRED WITH SWM CONCEPT

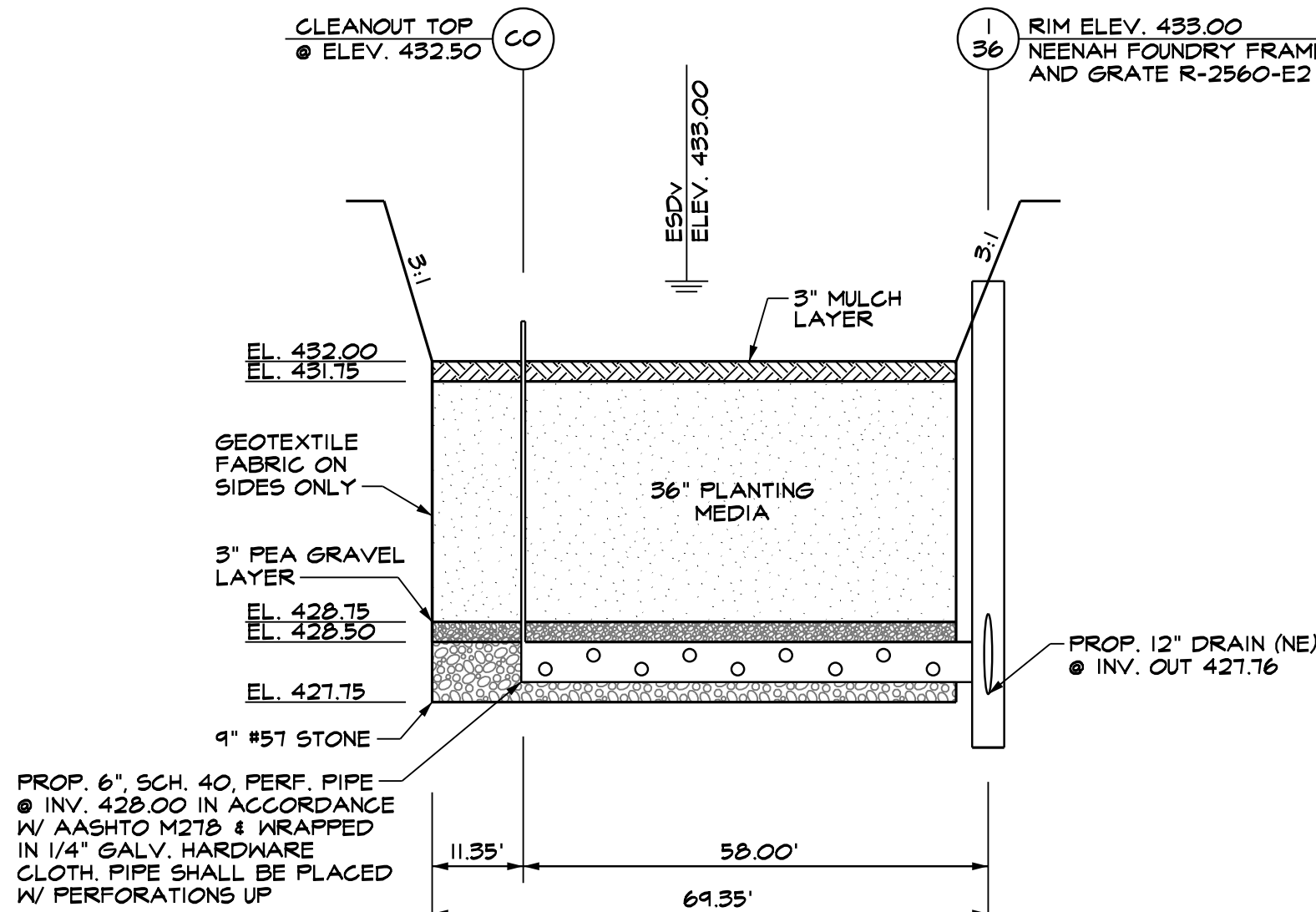


ESD MICRO-BIORETENTION FACILITIES 18 AND 19 PLAN

SCALE: 1"=20'

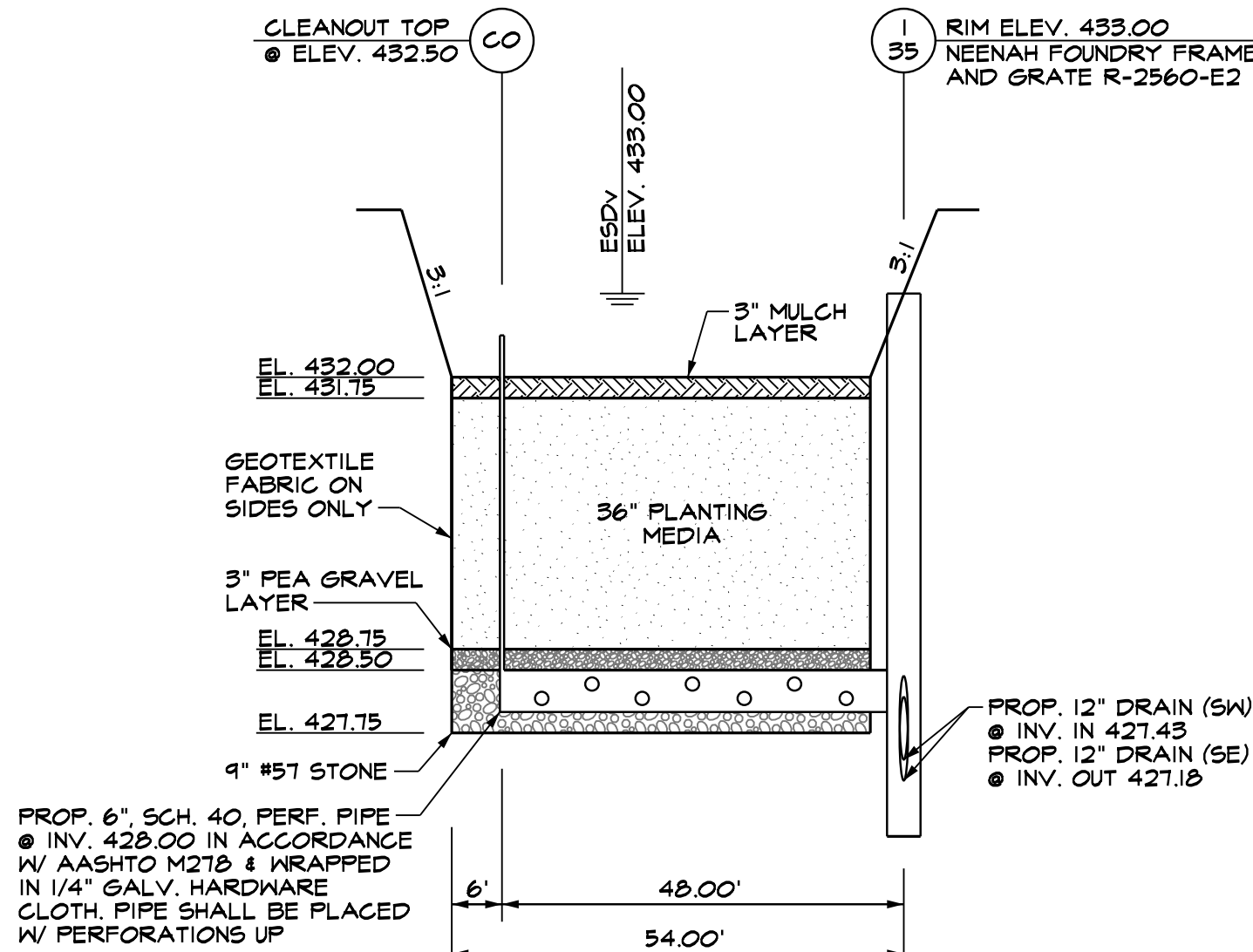
- LEGEND**
- 440 PROP. CONTOUR
 - X 440.21 PROP. SPOT ELEVATION
 - PROP. 6" WATER PROP. WATER
 - FH 32 WV 10 FDC PROP. FIRE HYDRANT, VALVE, FIRE DEPARTMENT CONNECTION
 - PROP. 4" SAN. PROP. SANITARY
 - O PROP. MANHOLE, CLEANOUT
 - PROP. 6" DRAIN PROP. STORM DRAIN
 - O PROP. MANHOLE, CLEANOUT, INLET
 - E PROP. ELECTRICAL
 - T GEN PROP. TRANSFORMER, GENERATOR
 - H LP 10 10 PROP. HANDBOX, LIGHT POLE
 - G PROP. GAS
 - PROP. CURB AND GUTTER
 - PROP. SIDEWALK
 - XX XX PROP. FENCE
 - SWM-14 PROP. BORING

Project Name		Brunswick Elementary School		Boring No.	SWM-14															
Location		400 Central Avenue, Brunswick, MD		Job #	22820A															
SAMPLER																				
Datum		MSL	Hammer Wt.	140 lbs	Hole Diameter	3.25 in.	Foreman	Jim Russell												
Surf. Elev.		436.7	ft.	Hammer Drop	30	in.	Rock Core Diameter	NA	Inspector	Robert Gibbs										
Date Started		03/22/2021	Pipe Size		2 O.D.		Boring Method		HSA-SPT		Date Completed	03/22/2021								
Description																				
Boring and Sampling Notes																				
Infiltration Rate=0.06 in/hr																				
End of boring at 12 feet below grade.																				
STANDARD PENETRATION TEST (SPT) DATA																				
SPT Blows/Feet																				
CURVE																				
SAMPLE TYPE																				
NOTES																				
PT: PRESSED SHELVE TUBE																				
CA: CONTINUOUS FLIGHT AUGER																				
RC: ROCK CORE																				
SAMPLE CONDITIONS																				
D: DISINTEGRATED																				
I: INTACT																				
U: UNDISTURBED																				
L: LOOT																				
AT COMPLETION																				
AFTER 24 HRS																				
AFTER 72 HRS																				
GROUND WATER																				
CAVE-IN DEPTH																				
BORING METHOD																				
HSA - HOLLOW STEM AUGERS																				
CFA - CONTINUOUS FLIGHT AUGERS																				
DC - DRIVING Casing																				
MD - MUD DRILLING																				



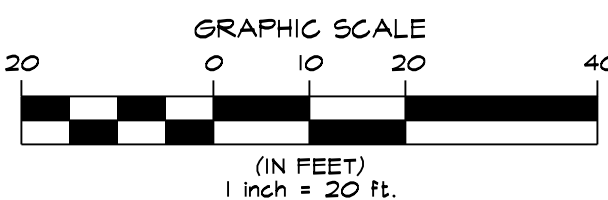
MICRO-BIORETENTION FACILITY #18 SECTION Q-Q

SCALE: HORIZ. 1"=20' VERT. 1"=2'



MICRO-BIORETENTION FACILITY #19 SECTION R-R

SCALE: HORIZ. 1"=20' VERT. 1"=2'



mk
Consulting Engineers, LLC
3300 Clipper Mill Road
Suite 201
Baltimore, MD 21211

REVISIONS			
NO.	DATE	DESCRIPTION	BY

REPLACEMENT
**ESD FACILITIES
18 AND 19**
BRUNSWICK ELEMENTARY SCHOOL
400 CENTRAL AVENUE, BRUNSWICK, MARYLAND 21716
FREDERICK COUNTY PUBLIC SCHOOLS
TAX MAP 202, GRID 06, PARCEL 776

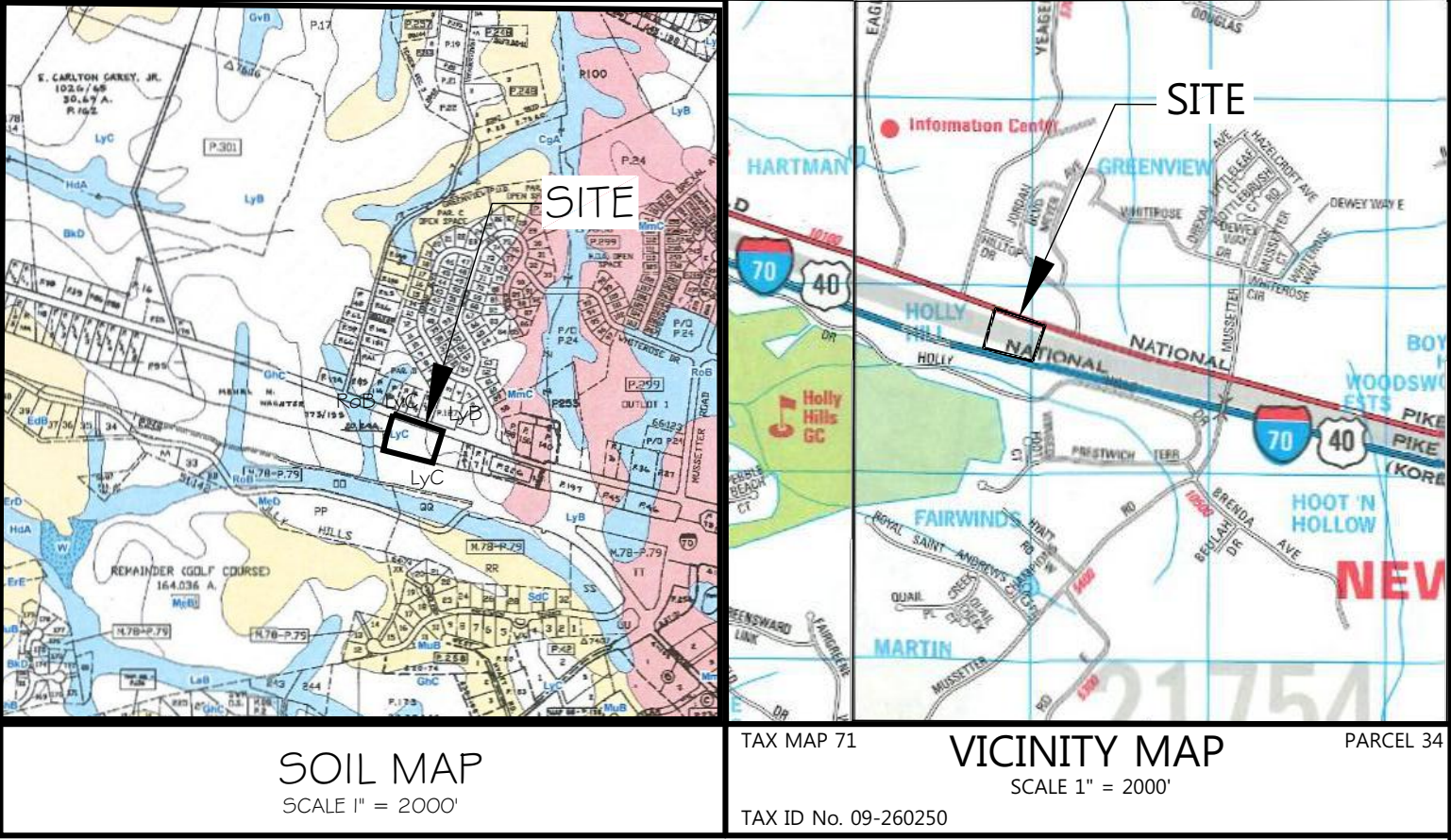
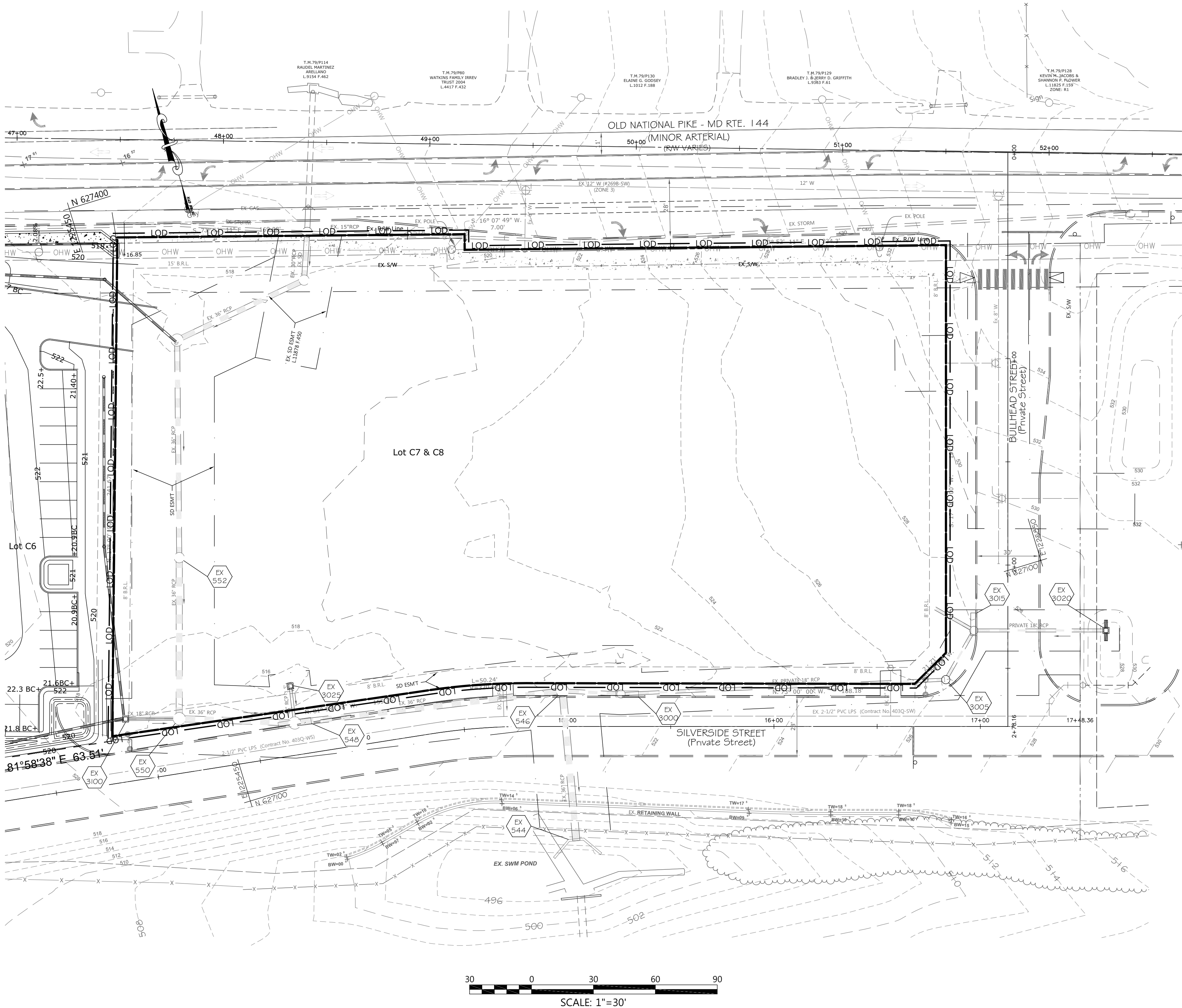
DATE 08/02/2021	DRAWING NO. C8.08
SCALE AS SHOWN	SHEET 52 OF 9
DESIGNED BY CB	MKC JOB NUMBER 20030
DRAWN BY CB/AJC	

REVIEWED IN ACCORDANCE WITH LOCAL COUNTY REQUIREMENTS. FREDERICK COUNTY ASSUMES NO LIABILITY FOR DESIGN AND/OR CONSTRUCTION. APPROVAL IS VALID FOR TWO (2) YEARS AFTER THE LAST DATE SHOWN ABOVE. THE PROJECT MUST BE UNDER CONSTRUCTION BEFORE THE APPROVAL EXPIRATION TO BE CONSIDERED ACTIVE. OTHERWISE, RESUBMITTAL OF PLANS, INCLUDING APPLICABLE FEES, MUST BE MADE TO DEVELOPMENT REVIEW FOR REAPPROVAL. FEES FOR RESUBMITTAL CANNOT BE WAIVED.

GENERAL NOTES

- A. PURPOSE STATEMENT:
1. THE PURPOSE OF THIS STORMWATER MANAGEMENT (SWM) CONCEPT PLAN IS FOR THE DEVELOPMENT OF A 21,838 S.F. MEDICAL OFFICE FACILITY ON THE SUBJECT SITE. THE SUBJECT SITE WAS PRELIMINARILY APPROVED AS LOTS C-7 & C-8 OF THE LINGANORE TOWN CENTER-SOUTH COMMERCIAL DEVELOPMENT (S-826T/AF#19092). THOSE LOTS ARE PENDING RECORDATION AND WILL BE RECORDED BY THE LINGANORE TOWN CENTER DEVELOPER AS ONE LOT CONTAINING APPROXIMATELY 2.02 ACRES ±. THE SITE IS LOCATED IN THE SW CORNER OF THE INTERSECTION OF OLD NATIONAL PIKE AND PROPOSED BULLHEAD STREET BETWEEN OLD NATIONAL PIKE AND SILVERSIDE STREET.
- B. SITE NOTES:
1. PROPERTY IS CURRENTLY OWNED BY DRYDEN INVESTMENTS, LLC. AS RECORDED IN LIBER 09827 AT FOLIO 00008 AND IS DESIGNATED ON TAX MAP 79 AS PARCEL 34. TAX ID# IS 09-260250.
 2. THE SITE IS ZONED P.U.D. WITH A COMMERCIAL DESIGNATION AND IS A PORTION OF THE COMMERCIAL COMPONENT OF THE LINGANORE P.U.D. PER SECTION I-19-10.500.6(A)(2) OF THE FREDERICK COUNTY ZONING ORDINANCE. ONLY THOSE LAND USES PERMITTED IN THE VILLAGE CENTER ZONE ARE PERMITTED WITHIN COMMERCIALLY DESIGNATED PARCELS WITHIN A P.U.D.
 3. TOTAL SITE AREA = LOTS C-7 & C-8 TO BE COMBINED = 2.02 AC. ±
- C. SEC. I-19-2 STORM WATER MANAGEMENT (SWM) REQUIREMENTS
1. QUANTITY (PEAK) SWM IS BEING ADDRESSED BY AN EXISTING REGIONAL SWM POND LOCATED ON THE SOUTH SIDE OF SILVERSIDE STREET. ON-SITE SWM (ESD) SHALL BE PROVIDED IN THE AREAS AS SHOWN ON PLAN.
 2. PROPOSED LAND DISTURBANCE = APPROX. 2.02 AC. ±
- D. SEC. I-19-3 FLOODPLAIN REGULATIONS
1. THERE ARE NO WETLANDS PER NATIONAL WETLAND INVENTORY MAPPING.
 2. THE SITE IS NOT LOCATED WITHIN A 100-YEAR REGULATORY FLOODPLAIN PER FEMA FIRM PANEL #24021-C0320D, EFFECTIVE DATE 09/19/2007.
- E. SEC. I-19-3.300 WETSOILS REGULATIONS
1. SOILS DATA SHOWN IN THE SOILS MAP ON THIS SHEET IS BASED ON 'SOIL CLASSIFICATION MAP OF FREDERICK COUNTY', PANEL 79.
 2. PER A REPORT FILED TO FREDERICK COUNTY BY ACORN ENVIRONMENTAL, INC. DATED FEBRUARY 14, 2019, THE SOILS LOCATED ON THE SUBJECT SITE CLASSIFIED AS ROHRERSVILLE-LANTZ SILT LOAMS (RcB) DID NOT REPRESENT CHARACTERISTICS OF RcB SOILS AND ARE MORE REPRESENTATIVE OF MT. ZION SILT LOAM. MT. ZION SILT LOAM SOILS ARE NOT SUBJECT TO FLOODING. ALSO, THE SUBJECT SITE HAS BEEN MASS-GRADED BY THE LINGANORE DEVELOPER PER THEIR MASS-GRAIDING PLANS (AF#18205) APPROVED ON MAY 3, 2016.
- F. SEC. I-21-1 FOREST RESOURCE ORDINANCE REQUIREMENTS
1. NO FOREST OR SPECIMEN TREES EXIST ON SITE. PRO MITIGATION WAS PREVIOUSLY PROVIDED BY THE PURCHASE OF FOREST BANKING CREDITS ON 4/19/2018 UNDER AP #17556.
- G. PREVIOUS SITE HISTORY:
1. LINGANORE TOWN CENTER PRELIMINARY PLAN (S-826T/AF#19092) - APPROVED 06/2019.
 2. LINGANORE TOWN CENTER APPO APPROVAL (AF#19093) - APPROVED 04/2019.
 3. LINGANORE TOWN CENTER PRO APPROVAL (AF#17556) - APPROVED 04/2018.
 4. LINGANORE TOWN CENTER PRO EXEMPTION (AF#19094) - APPROVED 12/2018.
 5. LINGANORE TOWN CENTER MASS-GRAIDING PLANS (AF#18205) - APPROVED 05/2016.

SHOW AND LABEL ALL EXISTING NATURAL RESOURCES



SOILS:
LyB - LINGANORE-HYATTSTOWN CHANNERY SILT LOAM, LOWER 1/3 RESTRICTED, 3% - 8%, NOT HIGHLY ERODIBLE, HSG - C
LYC - LINGANORE-HYATTSTOWN CHANNERY SILT LOAM, LOWER 1/3 RESTRICTED, 8% - 15%, NOT HIGHLY ERODIBLE, HSG - C

LEGEND

EX DRAINAGE DIVIDE

LOD LIMITS OF DISTURBANCE

LINGG
PROPERTY CONSULTING
295 West Patrick Street, Suite 3A
Frederick, Maryland 21701
www.LinggPropertyConsulting.com
Land Use Consulting • Zoning Entitlement Consulting • Development Rights & Approval Strategies
Civil Engineering & Land Surveying Management

DW
DAFT MCCUNE WALKER INC.
920 NORTH EAST STREET
P: 301.696.9040
FREDERICK, MD 21701
WWW.DMW.COM

EXISTING CONDITIONS MAP

**SWM CONCEPT PLAN for
FREDERICK PRIMARY
CARE
MEDICAL OFFICE FACILITY**

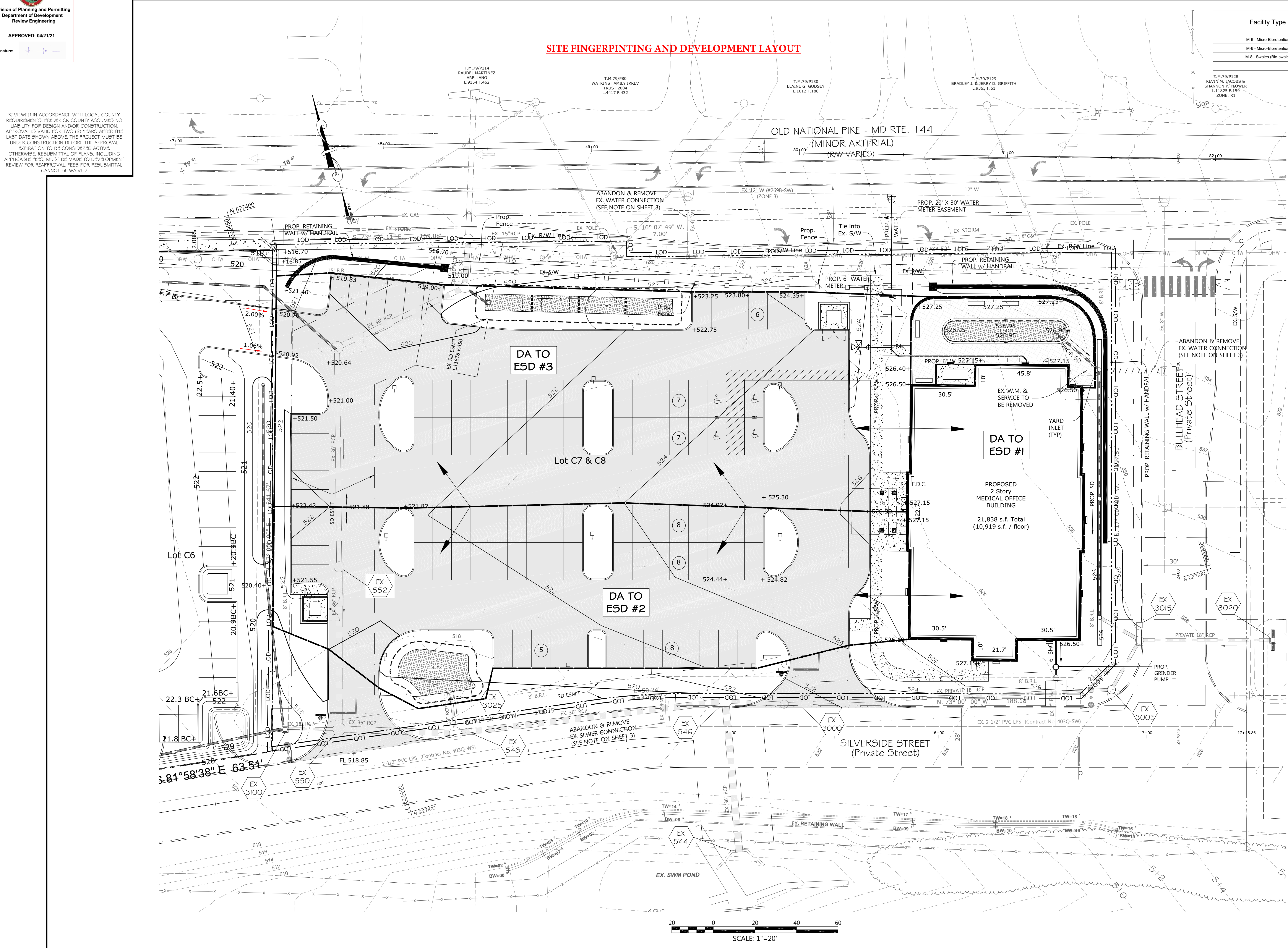
SITUATED ALONG SILVERSIDE STREET AT BULLHEAD STREET & OLD NATIONAL PIKE
ELECTION DISTRICT NO. 2
FREDERICK COUNTY, MARYLAND

OWNER:
FREDERICK PRIMARY CARE ASSOCIATES
610 SOLARX COURT
FREDERICK, MD 21703
(301) 663-6162

DATE	BY	REVISIONS

SEAL	INITIAL SUB: 04/02/2021
SCALE: 1"=30'	
DRAWN: JNS	
DESIGNED: DSM	
CHECKED BY: MSC	
PROJECT NO.: 20701	
DRAWING: 1 of 2	

REVIEWED IN ACCORDANCE WITH LOCAL COUNTY REQUIREMENTS. FREDERICK COUNTY ASSUMES NO LIABILITY FOR DESIGN AND/OR CONSTRUCTION. APPROVAL IS VALID FOR TWO (2) YEARS AFTER THE LAST DATE SHOWN ABOVE. THE PROJECT MUST BE UNDER CONSTRUCTION BEFORE THE APPROVAL EXPIRATION TO BE CONSIDERED ACTIVE. OTHERWISE, RESUBMITTAL OF PLANS, INCLUDING APPLICABLE FEES, MUST BE MADE TO DEVELOPMENT REVIEW FOR REAPPROVAL. FEES FOR RESUBMITTAL CANNOT BE WAIVED.



SITE FINGERPRINTING AND DEVELOPMENT LAYOUT

Facility Type	Facility #	Drainage Area Treated (Ft2)	Impervious Area Treated (Ft2)
M-6 - Micro-Bioretenion	1	14,105	13,535
M-6 - Micro-Bioretenion	2	23,560	18,940
M-8 - Swales (Bio-swale)	3	32,915	25,755
Totals:		70,580	58,230

LEGEND

--- PROP. DRAINAGE DIVIDE & FLOW ARROWS

--- LOD --- LIMITS OF DISTURBANCE

LINGG
PROPERTY CONSULTING

255 West Patrick Street, Suite 2A
Frederick, Maryland 21701
www.LinggPropertyConsulting.com

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DAFT MCCUNE WALKER INC.

920 NORTH EAST STREET
P: 301.696.9040

FREDERICK, MD 21701
WWW.DMW.COM

ESD DRAINAGE AREA MAP

SWM CONCEPT PLAN for
FREDERICK PRIMARY CARE MEDICAL OFFICE FACILITY

SITUATED ALONG SILVERSIDE STREET AT BULLHEAD STREET # OLD NATIONAL PIKE
ELECTION DISTRICT NO. 2
FREDERICK COUNTY, MARYLAND

OWNER:
FREDERICK PRIMARY CARE ASSOCIATES
610 SOLAREX COURT
FREDERICK, MD 21703
(301) 663-6162

DATE	BY	REVISIONS

SEAL	INITIAL SUB: 04/02/2021
	SCALE: 1"=20'
	DRAWN: JNS
	DESIGNED: DSM
	CHECKED BY: MSC
	PROJECT NO.: 20701
	DRAWING: 2 of 2

REPORT TITLE:

***Concept Stormwater
Management Report***

For a Stormwater Concept Plan

***Frederick Primary Care
Lots C7 & C8
Linganore Town Center
New Market, MD***

DMW Project No. 20701

April 2, 2021



04-02-2021

Prepared by:



Daft•McCune•Walker, Inc.
920 N. East Street
Frederick, Maryland 21701
(301) 696-9040
dmw@dmw.com

Table of Contents

Narrative	1
Table 5.1 On-Site Natural Resources	2
2009 MDE Practices	3
ESD Computations Summary Sheet.....	4
ESD#1 (M-6 Micro-Bioretenction)	5
ESD#2 (M-6 Micro-Bioretenction)	6
ESD#3 (M-8 Bio-Swale)	7
Channel Computations (ESD#3)	8
TR-55 Report	9
Conclusion	11
Existing Conditions Drainage Area Map.....	1 of 2
ESD Drainage Area Map	2 of 2

NARRATIVE

This Concept Stormwater Management (SWM) Report is for Frederick Primary Care, a proposed medical office facility located in Frederick County, MD. The site is comprised of two undeveloped lots, C-7 and C-8 of the Liganore Town Center-South Commercial Development in New Market, MD. The Liganore Town Center developer will record these two lots as one lot, and the combined lot will be approximately 2.02 Ac. The limits of disturbance (LOD) is assumed to encompass the entire lot. The proposed improvements include a 21,838 square foot medical office building, parking lot and associated on-site improvements. This site has already been cleared and mass graded. The site generally drains toward the southwest corner, and is drained by an existing yard inlet (existing structure 3025) and conveyed through an existing storm drain system to an existing regional SWM pond located on the south side of Silverside Street. This existing SWM pond was designed to manage the peak runoff from the commercial development, including Lots C-7 and C-8. No on-site peak management is proposed with this plan as this lot was included in the peak management design of the existing SWM pond; only water quality treatment for 1.0" of runoff is proposed with this plan to bring the site into compliance with the "Stormwater Management Act of 2007".

There are no wetlands, streams, or other natural resources on the property. There is no FEMA floodplain on this property; the site lies within Zone "X" per FEMA Panel #24021C0320D, effective date September 19, 2007. There are no steep slopes on the subject property. The site contains soils that are categorized as HSG C.

The total proposed impervious area for these improvements is 61,695 square feet, which is 70% of the site area. Since the peak management is handled by the existing SWM pond, the target P_E is 1.0 inch, which yields a total required ESD_v of 4,994 cubic feet. Water quality requirements will be met by installing two (2) micro-bioretenention facilities and one (1) bio-swale, as shown on the SWM Concept Plan. ESD facility #1 has been sized to treat the rooftop runoff from the proposed building and courtyard area on the north side of the building. ESD facilities #2 and #3 will treat runoff from the parking areas. The micro-bioretenention facilities and bio-swale provide 5,101 cubic feet of ESD_v and achieve a P_E of 1.0 inch. The ESD_v and P_E meet the required target for water quality. The outfalls for these facilities will tie into the existing storm drain system around the perimeter of the site, and eventually discharge into the existing SWM pond.

In conclusion, we believe that this plan meets the requirements of the Frederick County SWM Ordinance and the 2009 Maryland Stormwater Design Manual of providing ESD to the Maximum Extent Practical for new development.

NATURAL RESOURCES TABLE 5.1

Page 2

Table 5.1 On-Site Natural Resources			
Authority	Resource	Presence	Method of Protection
Federal	Wetlands	No	
	Major Waterways	No	
	Floodplains	No	
State	Wetlands	No	
	Wetland Buffers	No	
	Stream Buffers	No	
	Perennial Streams	No	
	Floodplains	No	
	Forests	No	
	Forest Buffers	No	
	Critical Areas	No	
Local	Steep Slopes	No	
	Highly Erodible Soils	No	
	Enhanced Stream Buffers	No	
	Topography / Slopes	Yes	Honoring existing topography
	Springs	No	
	Seeps	No	
	Intermittent Streams	No	
	Vegetative Cover	No	
	Soils	Yes	C Soils
	Bedrock / Geology	No	
	Ex. Drainage areas	Yes	Honoring existing drainage divides

ESD DESIGN EXPLORATION

Page 3

2009 MDE ESD Practices					
Type	No.	Name	Page	Max. DA (Ft ²)	Applicability
Alternative Surfaces	A-1	Green Roofs	5.42		Not practical
	A-2	Permeable Pavements	5.46		Not practical
	A-3	Reinforced Turf	5.52		Not practical
Nonstructural Practices	N-1	Disconnection of Rooftop Runoff	5.57	500	None available
	N-2	Disconnection of Non-Rooftop Runoff	5.61	1,000	None available
	N-3	Sheetflow to Conservation Areas	5.66		None available
Micro-Scale Practices	M-1	Rainwater Harvesting	5.71		Not practical
	M-2	Submerged Gravel Wetlands	5.77		Not practical
	M-3	Landscape Infiltration	5.82	10,000	Not practical
	M-4	Infiltration Berms	5.87		Not practical
	M-5	Dry Wells	5.91	500	Not practical
	M-6	Micro-Bioretenion	5.96	20,000	Yes
	M-7	Rain Gardens	5.104	10,000 *	Not practical
	M-8	Swales	5.108	40,000	Yes
	M-9	Enhanced Filters	5.113		Not practical

* Maximum DA=2,000 SF for Single Family houses

**2009 MDE Storm Water Management
Chapter 5 - ESD Computations (Summary Sheet)**

Page 4

Project Name Frederick Primary Care

Project Number 20701

Date: 04/02/21

By: D. Matthews

County Frederick

Total Site Area: 2.02 Acres

LOD: 2.02 Ac. New Development

A. Determine Pre-Development RCN*:

RCN* is based on woods in good condition (Table 5.3)

Weighted Avg. RCN* = 70

Soil Conditions				
HSG	RCN*	Area (Ft ²)	Area (Ac.)	Percent
A	38		0.00	0%
B	55		0.00	0%
C	70	88,133	2.02	100%
D	77		0.00	0%
Totals:		88,133	2.02	100%

B. Determine Target Rainfall (P_E) :

Total Site Impervious Area = 61,695 Ft²

Computed P_E = 2.0 Inches of Rainfall (from Table 5.3 or

Impervious Area / Site Area, I = 70%

P_E = 1.0 inches if providing WQ_V and RE_V only)

Target P_E = 1.0 Inches (providing WQ only)

C. Compute Target Runoff (Q_E) :

R_V = 0.05+0.009(I) = 0.68

Target Q_E = P_E X R_V = 0.68 Inches of Runoff

D. Compute Target ESD Volume (ESD_V) :

Target ESD_V = P_E X R_V X DA / 12 = 4,994 Ft³

E. ESD Provided:

Facility Type	Facility #	Drainage Area Treated (Ft ²)	Impervious Area Treated (Ft ²)	Proportion of Toal Impervious Area	Proportion of Target ESD _V (Ft ³)	ESD _V Provided (Ft ³)	Design P _E (In)
M-6 - Micro-Bioretentention	1	14,105	13,535	22%	1,161	1,226	1.1
M-6 - Micro-Bioretentention	2	23,560	18,940	31%	1,624	1,635	1.1
M-8 - Swales (Bio-swale)	3	32,315	25,755	42%	2,209	2,241	1.1
Totals:		69,980	58,230	94%	4,994	5,101	1.0

WQ Requirements Met, CP_V & peak management provided in an existing Structural BMP

F. Peak Management:

No on-site peak management is proposed with this SWM plan as this lot was included in the peak management design of the existing BMP pond.

BELOW DETAILED COMPS SHALL NOT BE SUBMITTED WITH CONCEPT PLAN SUBMISSION BUT WITH FUTURE PLANS

2009 MDE Storm Water Management Chapter 5 - ESD Computations

Page 5

Project Name Frederick Primary Care

Project Number 20701

Date: 04/02/21

By: D. Matthews

County Frederick

SWM Practice M-6 - Micro-Bioretenention

Facility Number 1

Drainage Area = 14,105 Ft²

I% = 96%

Impervious Area = 13,535 Ft²

R_v = 0.91

G1. Facility Design:

Design P_E = 15" X Af / IA
= 0.6 Inches

HSG C

Contributing Overland Slope = 2 %

Facility Slope = 0 %

Minimum area of filter (2% X DA) = 282 Ft²

Designed Area of Filter A_f = 570 Ft²

Depth of River Rock = 2 Inches

Depth of Planting Soil = 24 Inches

Depth of Gravel = 16 Inches

Depth of Filter D = 3.50 Ft

Gross Volume of Filter V = 1,995 Ft³

Net Volume of Filter V_f = V X 40% (void ratio) = 798 Ft³

Depth of storage above Filter d (with 3:1 SS) = 0.75 Ft < 1 Ft

Volume of Storage above Filter = 428 Ft³

Use underdrain? Yes

Pipe Size: 4 Inches

ESD_v Provided = 1,226 Ft³

Required ESD_v = P_E X R_v X DA / 12 = 1,161 Ft³

Design P_E = 1.1 Inches

2009 MDE Storm Water Management
Chapter 5 - ESD Computations

Page 6

Project Name Frederick Primary Care

Project Number 20701

Date: 04/02/21

By: D. Matthews

County Frederick

SWM Practice M-6 - Micro-Bioretenention

Facility Number 2

Drainage Area = 23,560 Ft²

I% = 80%

Impervious Area = 18,940 Ft²

R_v = 0.77

G2. Facility Design:

Design P_E = 15" X Af / IA
= 0.5 Inches

HSG C

Contributing Overland Slope = 2 %

Facility Slope = 0 %

Minimum area of filter (2% X DA) = 471 Ft²

Designed Area of Filter A_f = 615 Ft²

Depth of River Rock = 2 Inches

Depth of Planting Soil = 24 Inches

Depth of Gravel = 16 Inches

Depth of Filter D = 3.50 Ft

Gross Volume of Filter V = 2,153 Ft³

Net Volume of Filter V_f = V X 40% (void ratio) = 861 Ft³

Depth of storage above Filter d (with 3:1 SS) = 1.00 Ft < 1 Ft

Volume of Storage above Filter = 774 Ft³

Use underdrain? Yes

Pipe Size: 4 Inches

ESD_v Provided = 1,635 Ft³

Required ESD_v = P_E X R_v X DA / 12 = 1,624 Ft³

Design P_E = 1.1 Inches

2009 MDE Storm Water Management
Chapter 5 - ESD Computations

Page 7

Project Name Frederick Primary Care

Project Number 20701

Date: 04/02/21

By: D. Matthews

County Frederick

SWM Practice M-8 - Swales (Bio-swale)

Facility Number 3

Drainage Area = 32,315 Ft²

I% = 80%

Impervious Area = 25,755 Ft²

R_v = 0.77

G3. Facility Design:

Design P_E = 15" X Af / IA
= 0.4 Inches

HSG C

Facility Slope = 2.5 %

Number of Check Dams = 4

Height of Check Dam = 1.00 Ft

Length Between Check Dams = 22.50 Ft

Height of Storage at Upstream Check Dam = 0.44 Ft

Minimum area of filter (2% X DA) = 646 Ft²

Bottom Width = 8.00 Ft

Swale Length = 90.00 Ft

Designed Area of Filter A_f = 720 Ft²

ESD_v Velocity = 0.7 fps at a Flow Depth of 4 Inches

Channel Depth = 1.50 Ft with 10-year Flow of 0.24 Ft

Depth of Topsoil = 2 Inches

Depth of Planting Soil = 48 Inches

Depth of Gravel = 16 Inches

Depth of Filter D = 5.50 Ft

Gross Volume of Filter V = 3,960 Ft³

Net Volume of Filter V_f = V X 40% (void ratio) = 1,584 Ft³

Depth of storage above Filter d (with 3:1 SS) = 1.00 Ft

Volume of Storage above Filter = 657 Ft³

Use underdrain? Yes

Outlet orifice diameter size = 0.50 Inches

Pipe Size: 4 Inches
for 24 Hr Drawdown

ESD_v Provided = 2,241 Ft³

Required ESD_v = P_E X R_v X DA / 12 = 2,209 Ft³

Design P_E = 1.1 Inches

ESD Channel Computations

[illegible]

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Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.1	4.0	5.0	5.4	6.1	7.0	2.5

Storm Data Source: Frederick County, MD (NRCS)

Rainfall Distribution Type: Type II

Dimensionless Unit Hydrograph: <standard>

Hydrograph Peak/Peak Time Table

Sub Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period	
	10-Yr	1-Yr
	(cfs) (hr)	(cfs) (hr)
ESD3	4.48	1.99
	11.93	11.93

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Conc. (hr)	Curve Number	Receiving Reach	Sub-Area Description
ESD3	0.74	0.100	93	Outlet	

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Sub-Area Time of Concentration Details

Sub-Area Identifier	Flow Length (ft)	Slope (ft/ft)	Manning's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
ESD3							
User-provided							0.100
Time of Concentration							<u>0.100</u>

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
ESD3	Open space; grass cover > 75%	(good) C	0.151	74
	Paved parking lots, roofs, driveways	C	0.591	98
Total Area / Weighted Curve Number			<u>0.74</u>	<u>93</u>

CONCLUSION

In conclusion, we believe that this plan meets the requirements of the Frederick County SWM Ordinance and the 2009 Maryland Stormwater Design Manual of providing ESD to the Maximum Extent Practical for new development. The target P_E is 1.0 inch, and the required ESD_v is 4,994 cubic feet are provided by two (2) micro-bioretenment facilities and one (1) bio-swale, as shown on the SWM Concept Plan.