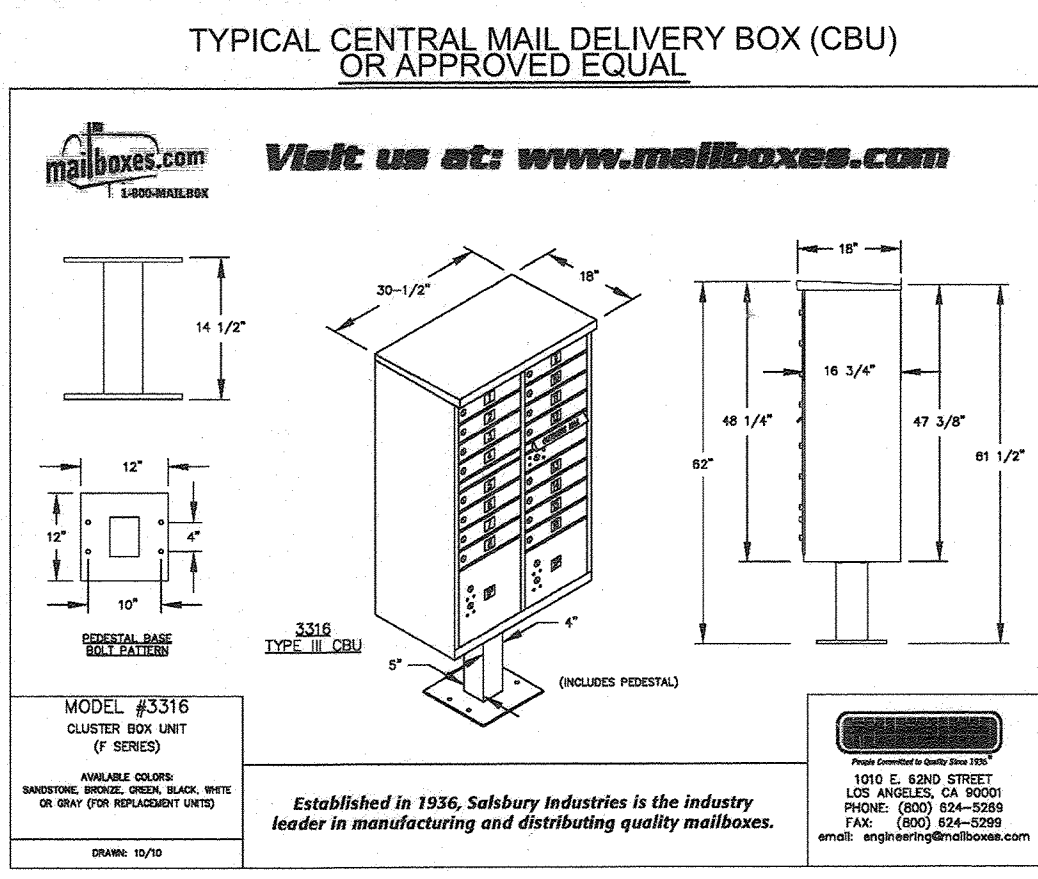


ROAD NAME	STATION	OFFSET	FIXTURE/POLE TYPE
ATTENBOROUGH WAY	L.P. 1+30.17	9' LEFT	LED-100 PREMIER COLUMNAL POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE

ROAD NAME	STATION	OFFSET	TYPE
ATTENBOROUGH WAY	0+13	14.5 LT	R7-1 "NO PARKING" SIGN
ATTENBOROUGH WAY	0+15.5	14.5 RT	R7-1 "NO PARKING" SIGN

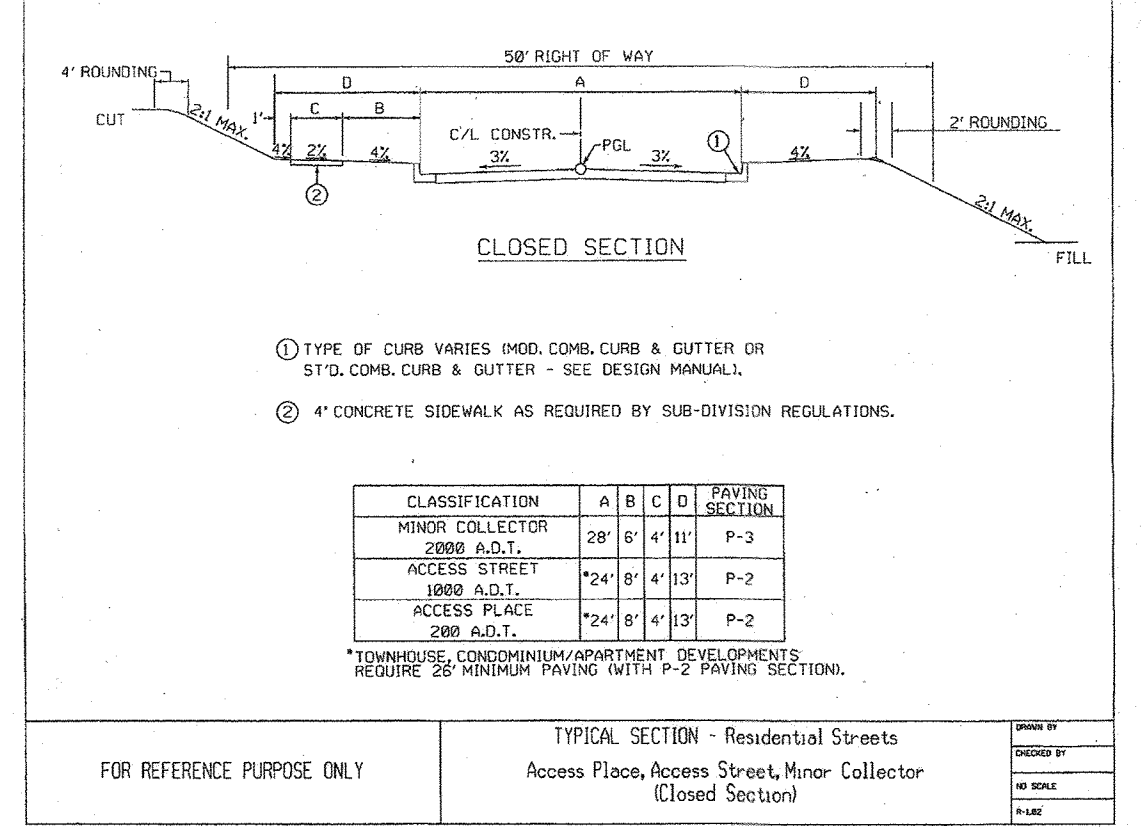
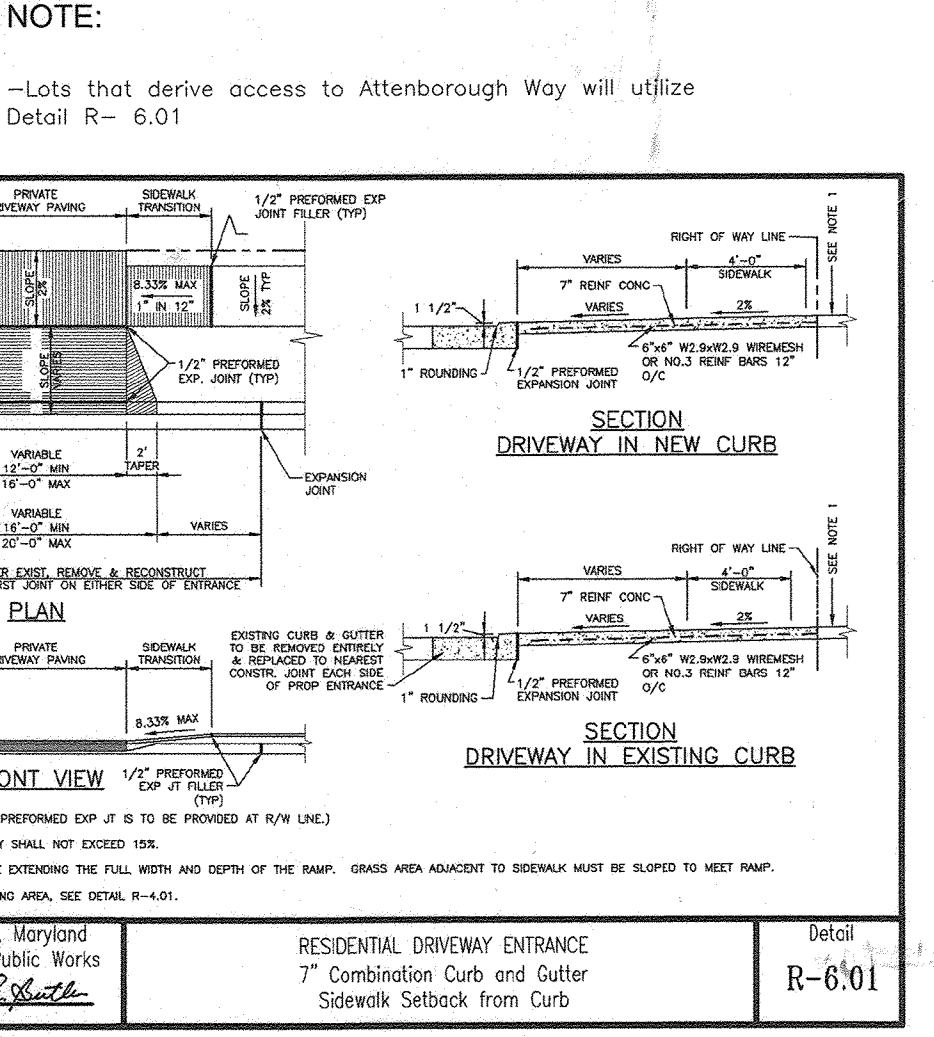
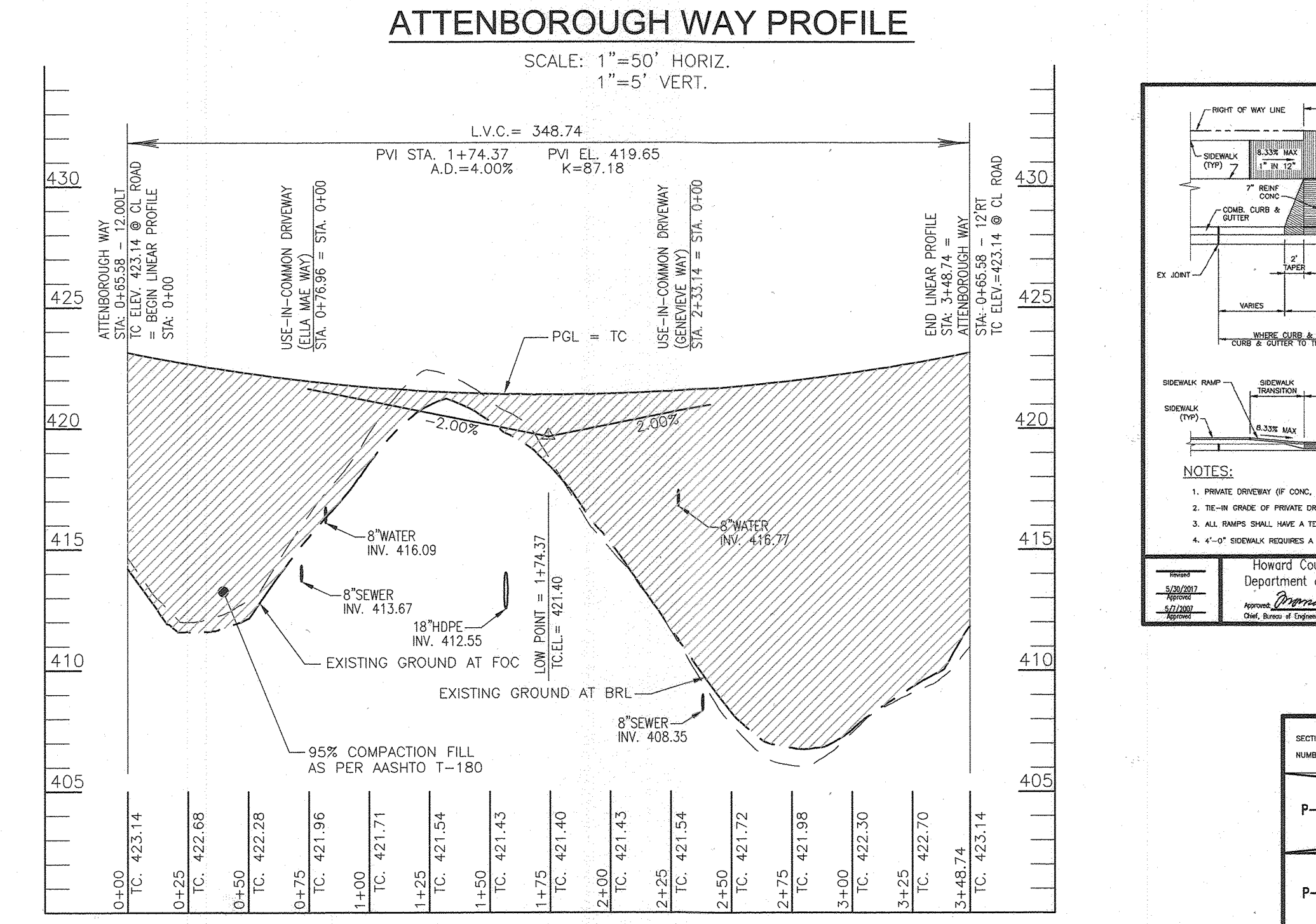
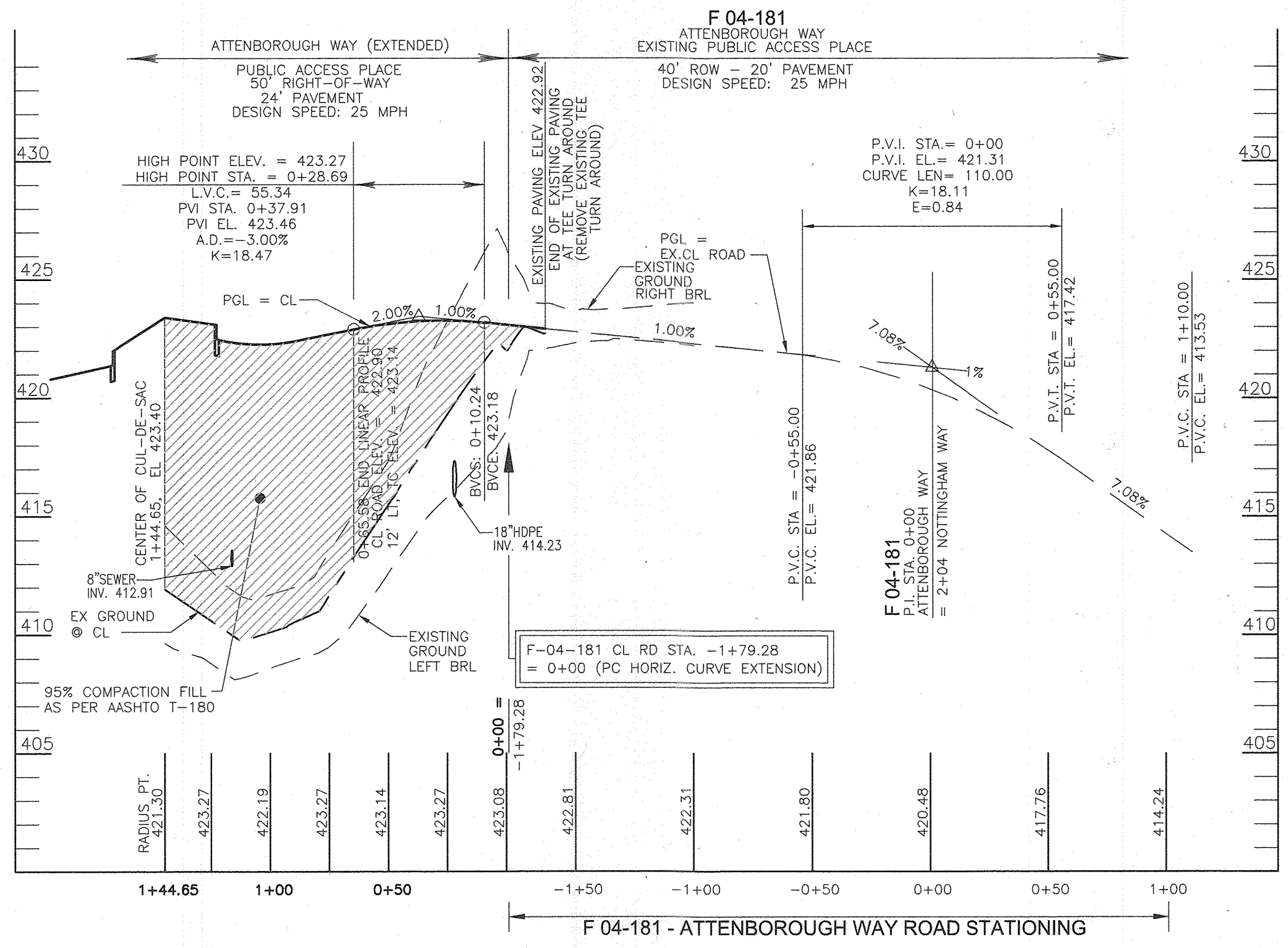
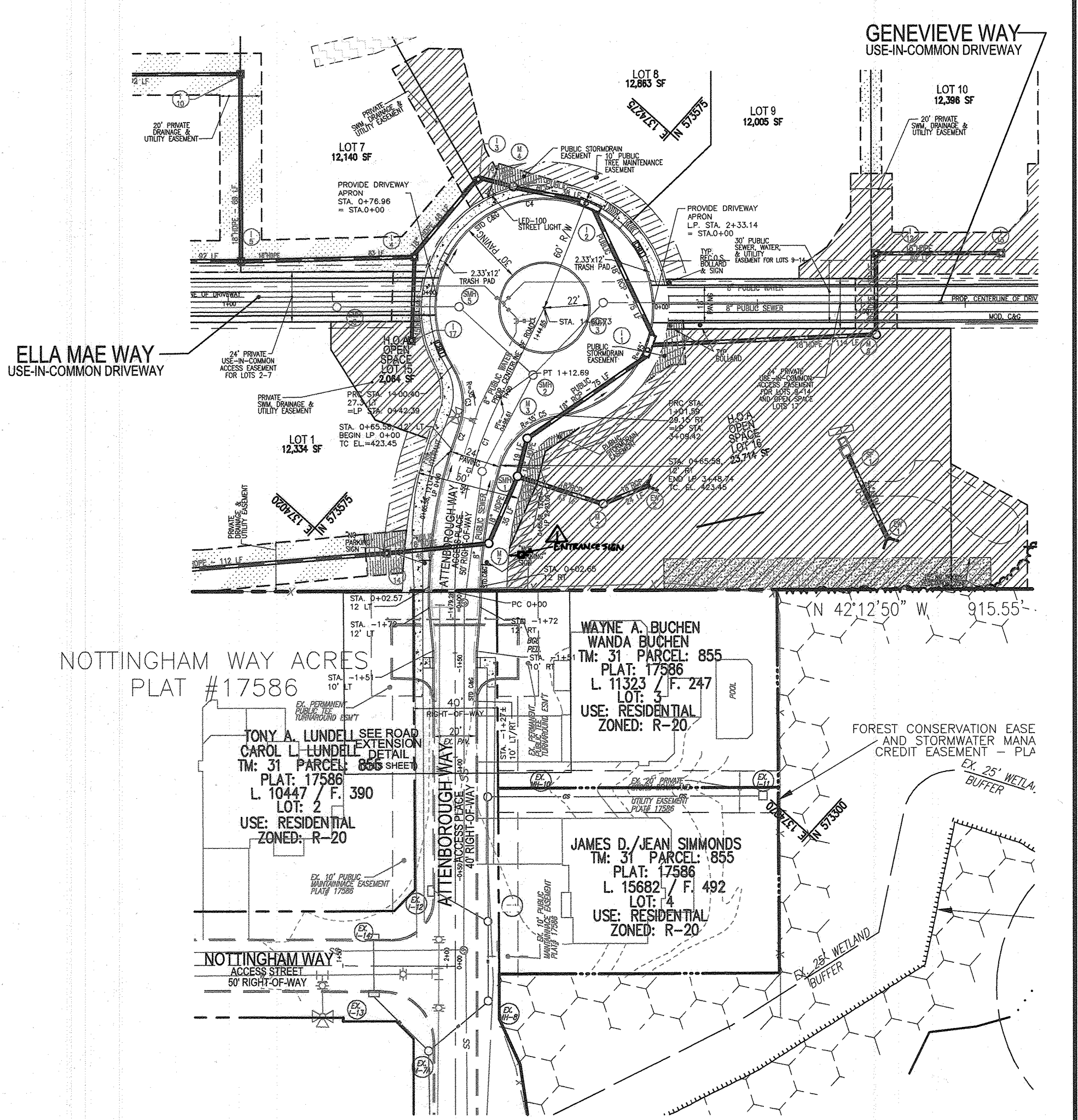
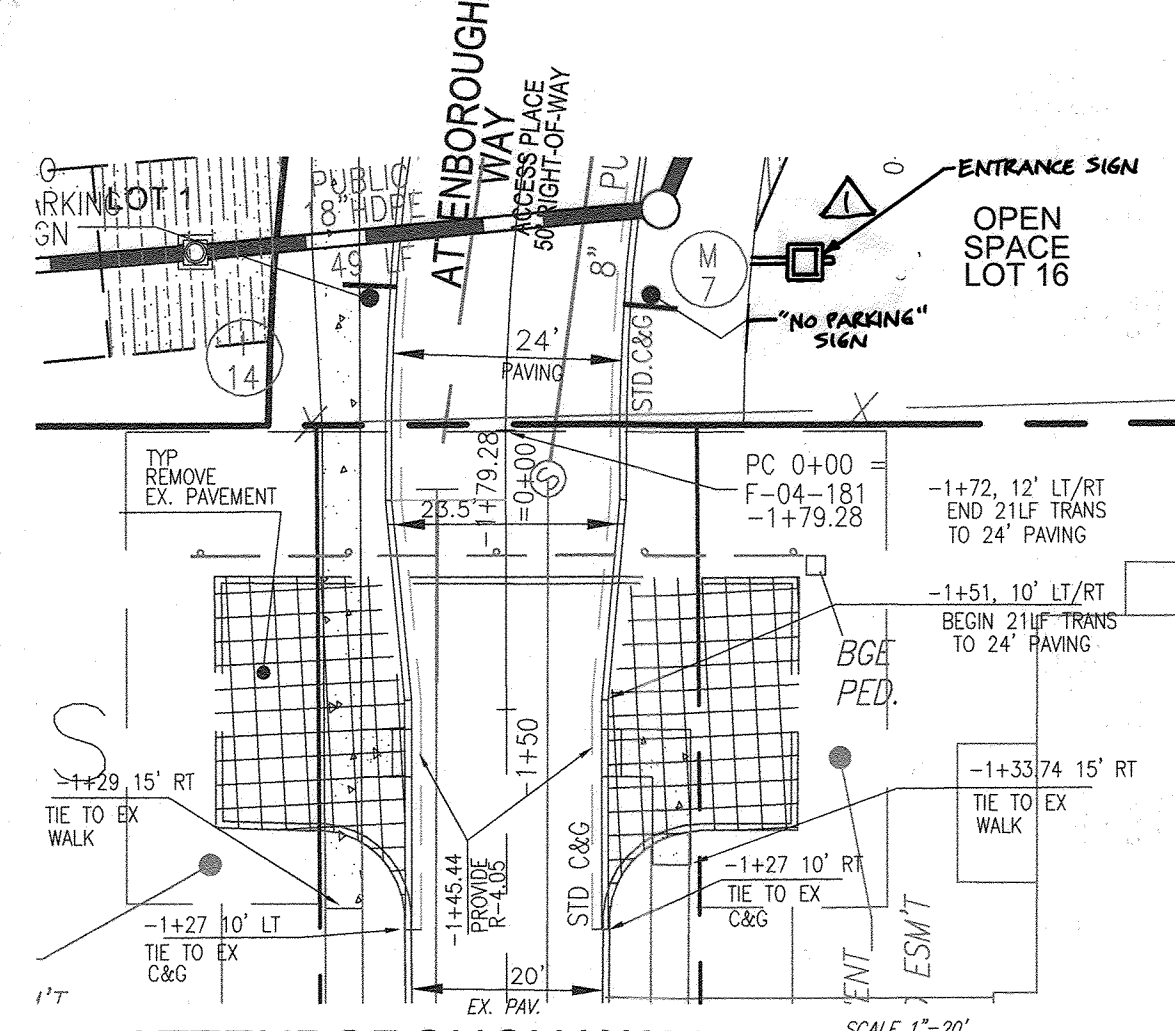
ROAD	CURVE	STA. - STA.	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
ATTENBOROUGH WAY	C1	0+00-0+96.61	96.61	210.00'	26°21'33"	49.18'	S61°02'32"W	95.76'
	C2	LPO+00-LPO+10.31	10.31	222.00'	2°39'37"	5.16'	N67°05'05"E	10.31'
	C3	LPO+10.31-LPO+42.39	32.08	35.00'	52°31'12"	17.27'	N42°09'17"E	30.97'
	C4	LPO+42.39-LP3+09.42	267.03	52.00'	29°41'34"	33.62'	S18°59'32"E	56.47'
	C5	LP3+09.42-LP3+48.74	39.32	35.00'	64°21'59"	22.03'	N82°03'44"E	37.28'



SALSBUURY INDUSTRIES MANUFACTURES CBU'S THAT ARE OFFICIALLY LICENSED BY THE U.S.P.S. SALSBUURY 3300 SERIES CLUSTER BOX UNITS ARE MANUFACTURED TO U.S.P.S. "T" SPECIFICATIONS. THEY ARE AN OFFICIALLY LICENSED PRODUCT OF THE U.S. POSTAL SERVICE FOR CENTRALIZED MAIL DELIVERY. LICENSE NUMBER 1CDSEQ-08-B-0026

CBU BOX LOCATIONS: SUBJECT TO CHANGE

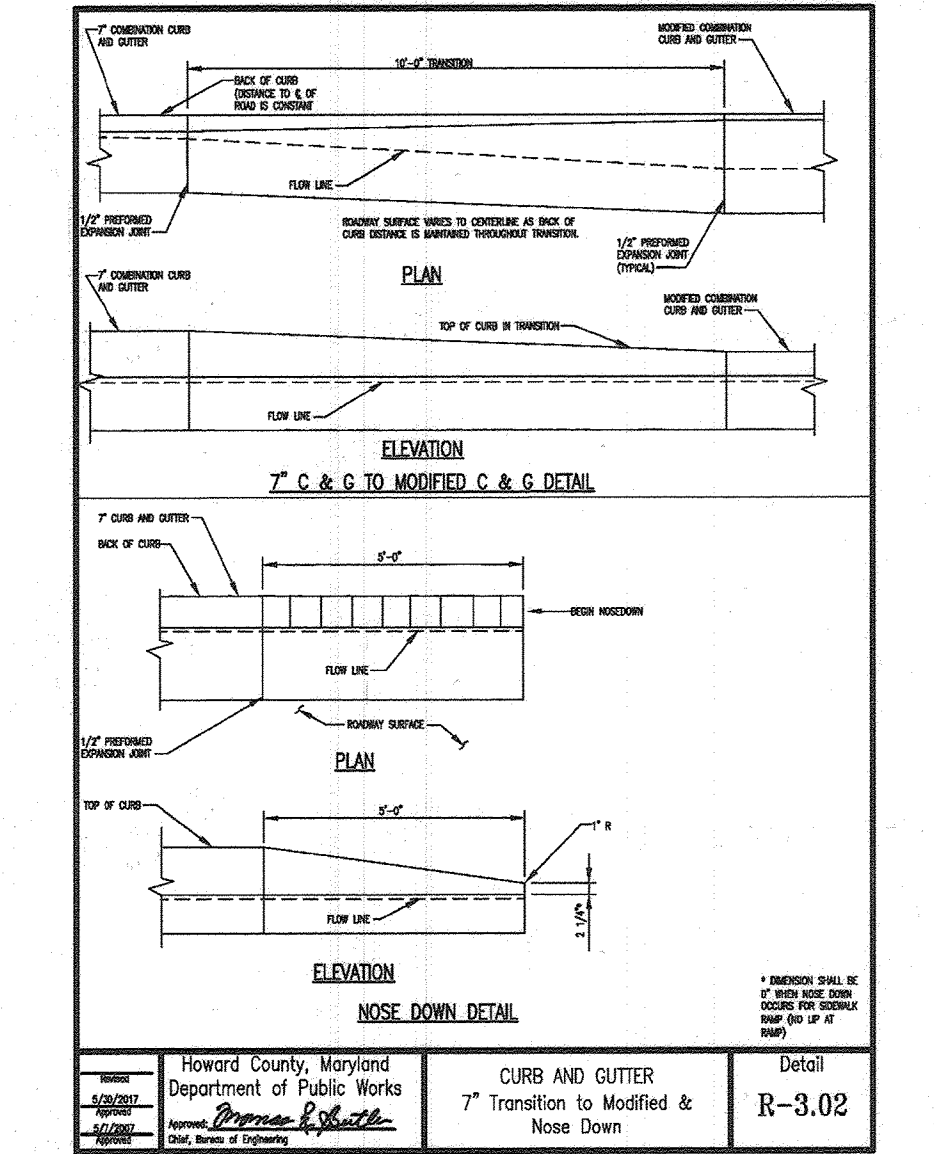
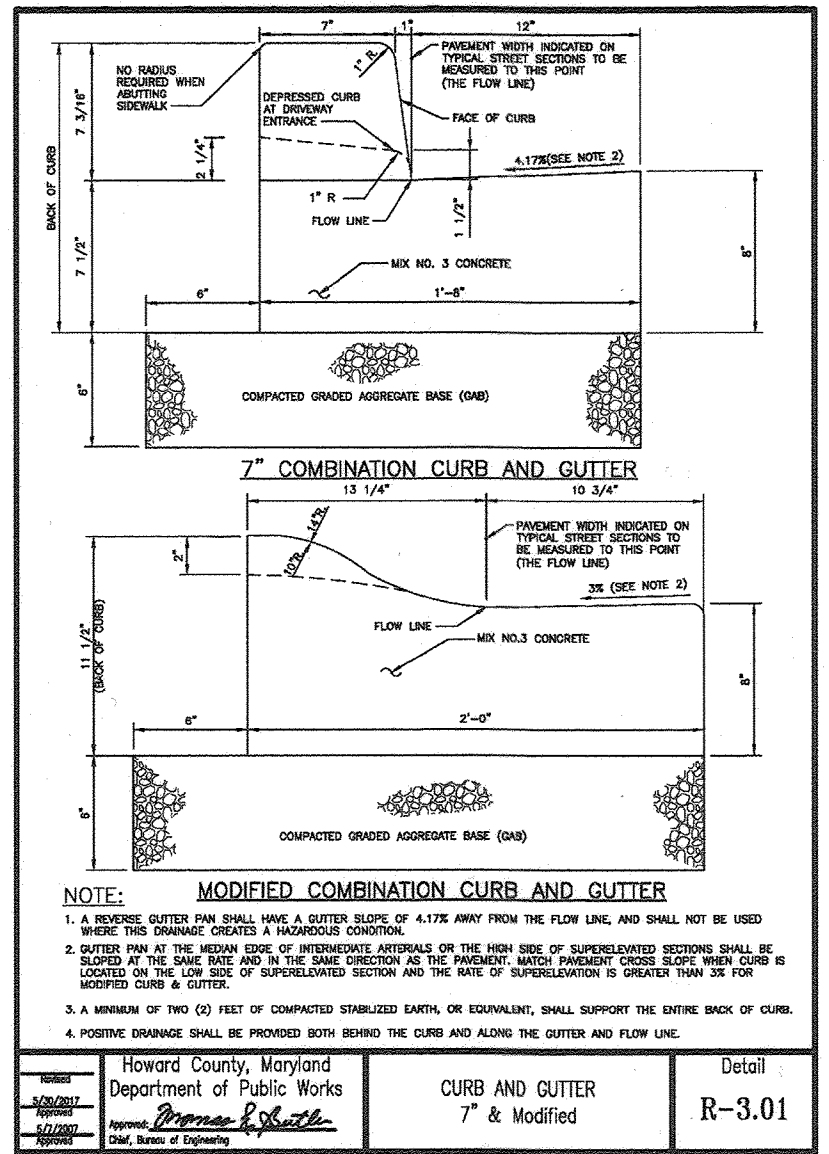
- ONE 8 UNIT "CLUSTER BOX UNIT" HAS BEEN PLACED NEAR OPEN SPACE LOT 15 TO SERVE LOTS 1-8.
- ONE 6 UNIT "CLUSTER BOX UNIT" HAS BEEN PLACED NEAR LOT 14 TO SERVE LOTS 9-14.



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- PROPOSED STORMDRAIN
- PROPOSED CURB
- TEE TURN AROUND TO BE REMOVED

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	PAVEMENT MATERIAL (INCHES)	MIN. SUPERPAVE FRACTION WITH CURB	MIN. SUPERPAVE FRACTION WITH CURB	MIN. SUPERPAVE FRACTION WITH CURB
P-1	RESIDENTIAL AND HIGH-RESIDENTIAL WITH NO MORE THAN 15' ROAD WIDTH FOR C&G	1.5\"/>			
P-2	RESIDENTIAL AND HIGH-RESIDENTIAL WITH NO MORE THAN 15' ROAD WIDTH FOR C&G	1.5\"/>			
P-3	RESIDENTIAL AND HIGH-RESIDENTIAL WITH NO MORE THAN 15' ROAD WIDTH FOR C&G	1.5\"/>			
P-4	MINOR COLLECTORS	1.5\"/>			



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 07/27/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8/10/21

CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/10/21

NOTES:

- REFER TO SHEET 14 FOR STORMDRAIN PROFILES.
- REFER TO SHEET 14 FOR STORMDRAIN STRUCTURE SCHEDULE.
- FOR STREET TREE LOCATIONS, REFER TO SHEET 15.
- ALL STREET TREES AND/OR SIGN SHALL BE LOCATED 5' MIN. FROM PROPOSED DRAINAGE, UTILITY STRUCTURES.
- THERE SHOULD BE A MINIMUM OF 20' BETWEEN STREET LIGHTS AND STREET TREES.
- IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
 - THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
 - THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.
- REFER TO THIS SHEET FOR PROPOSED CENTRAL MAIL DELIVERY BOX (CBU) BY THE U.S. POSTAL SERVICE.

OWNER: HAMPTON HILLS, LLC. 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043 (410) 480-0023

DEVELOPER: TRINITY HOMES MARY LAND, LLC. 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043 (410) 480-0023

NO.	REUSE TO ADD ENTRANCE FEATURE	REVISION	DATE
1			9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
 ATTENBOROUGH WAY (EXTENDED)
 PLAN & PROFILE
 HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONED: R-20

HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
 TIMMONS GROUP

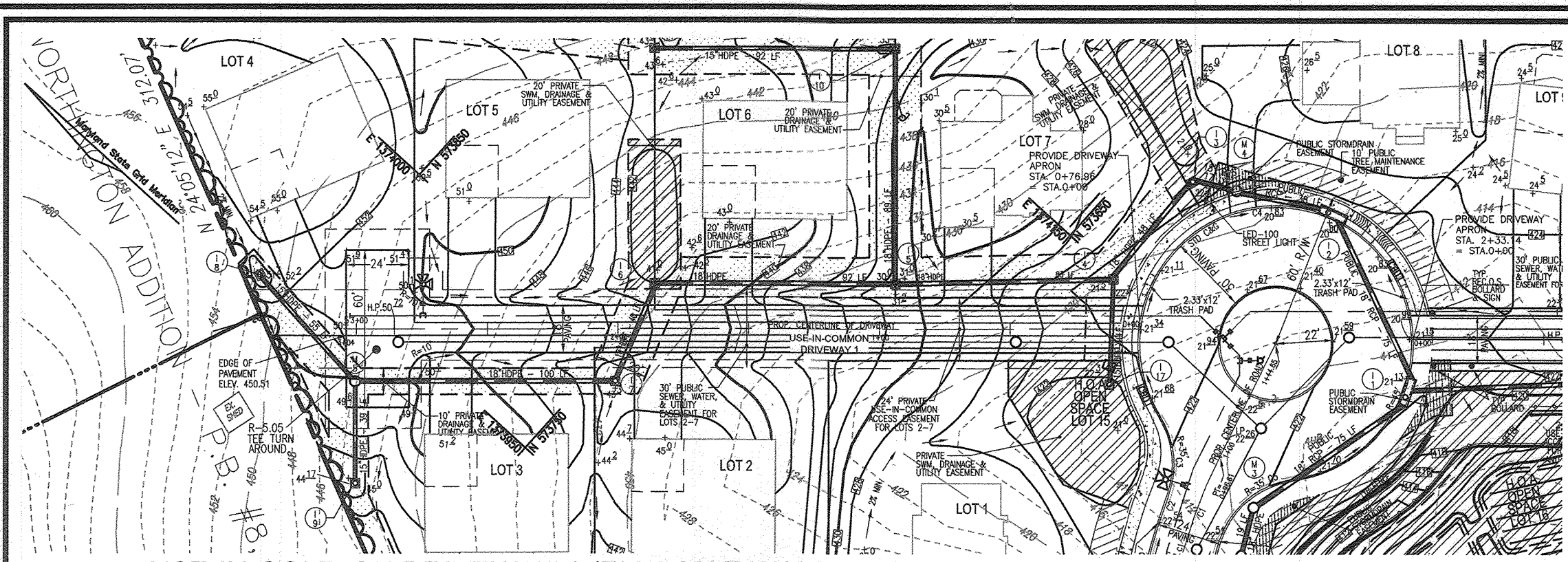
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHW
 DRAWN BY: VETG
 CHECKED BY: RHW
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

STATE OF MARYLAND
 REGISTERED PROFESSIONAL ENGINEER
 ROBERT H. VOGEL, PE No.16193

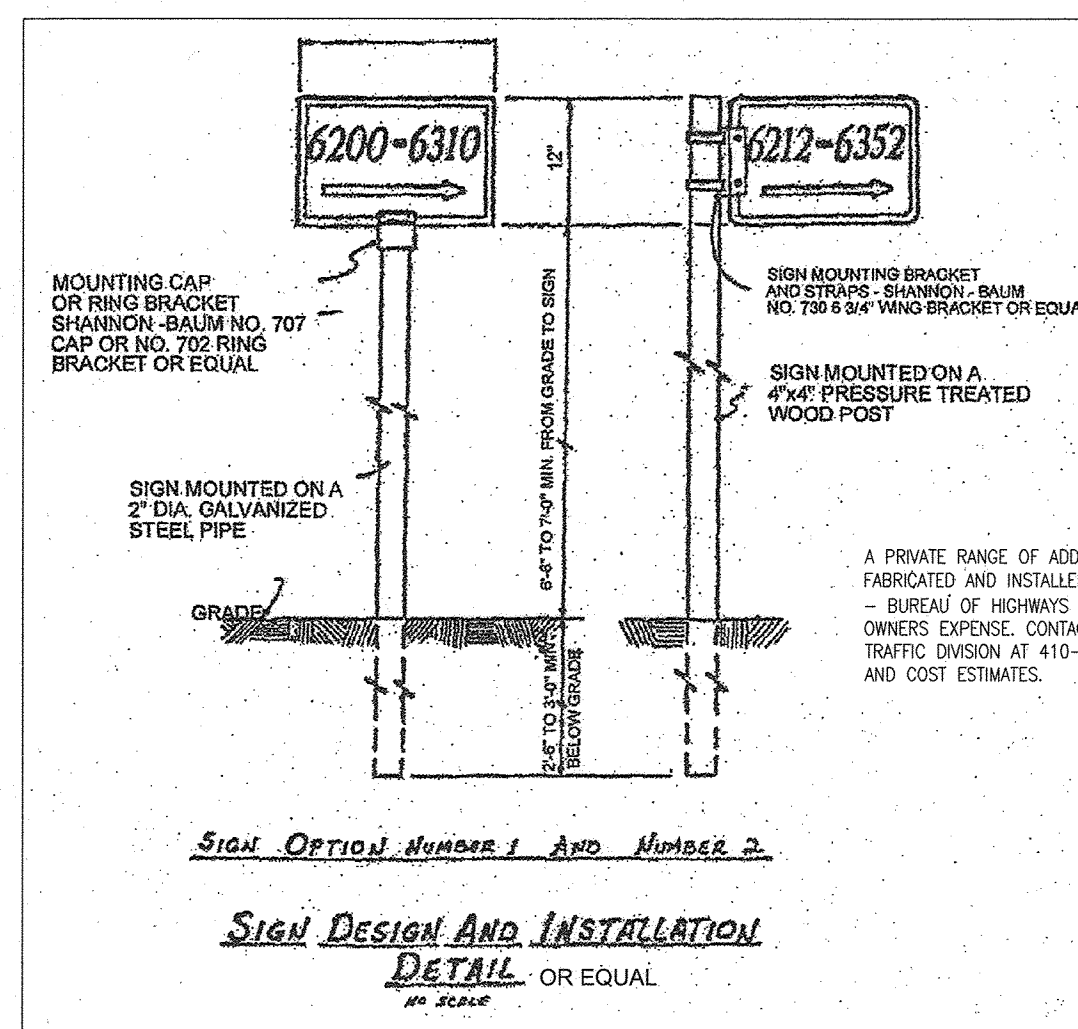
2 SHEET OF 34



USE-IN-COMMON DRIVEWAY 1 (ELLA MAE WAY)
PLAN VIEW
SCALE: 1"=50'

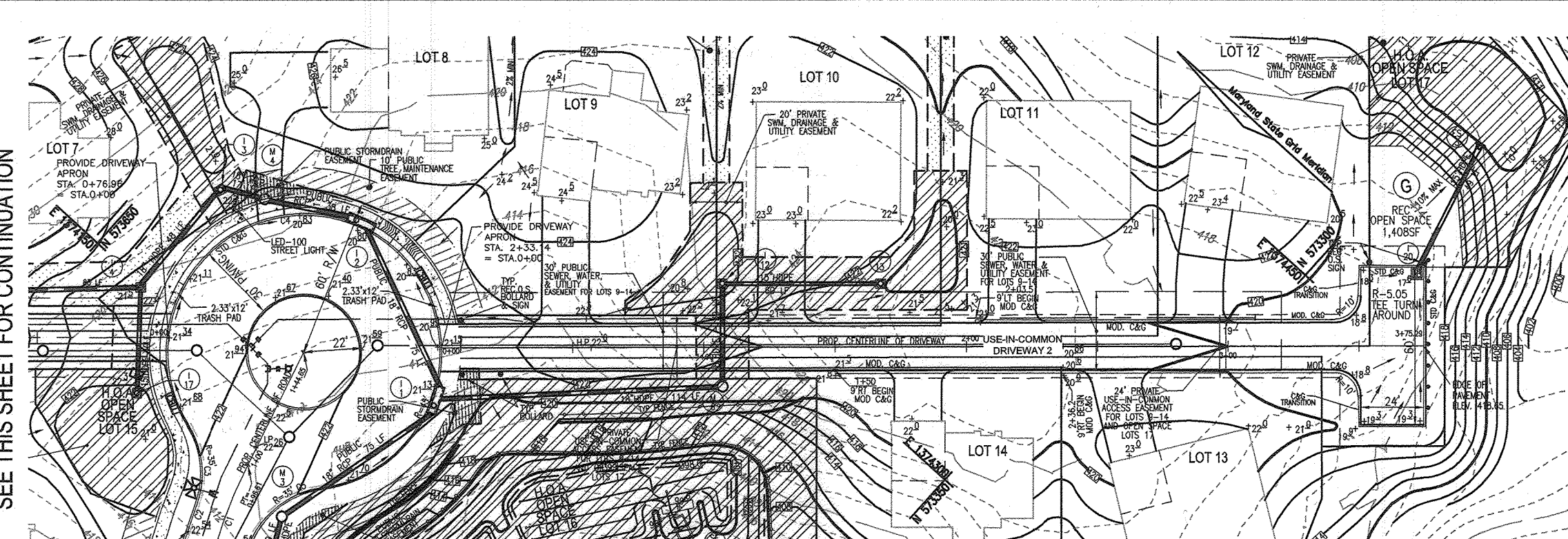
ATTENBOROUGH WAY
ACCESS PLACE
50' RIGHT-OF-WAY

USE-IN-COMMON DRIVEWAY 2
SEE THIS SHEET FOR CONTINUATION



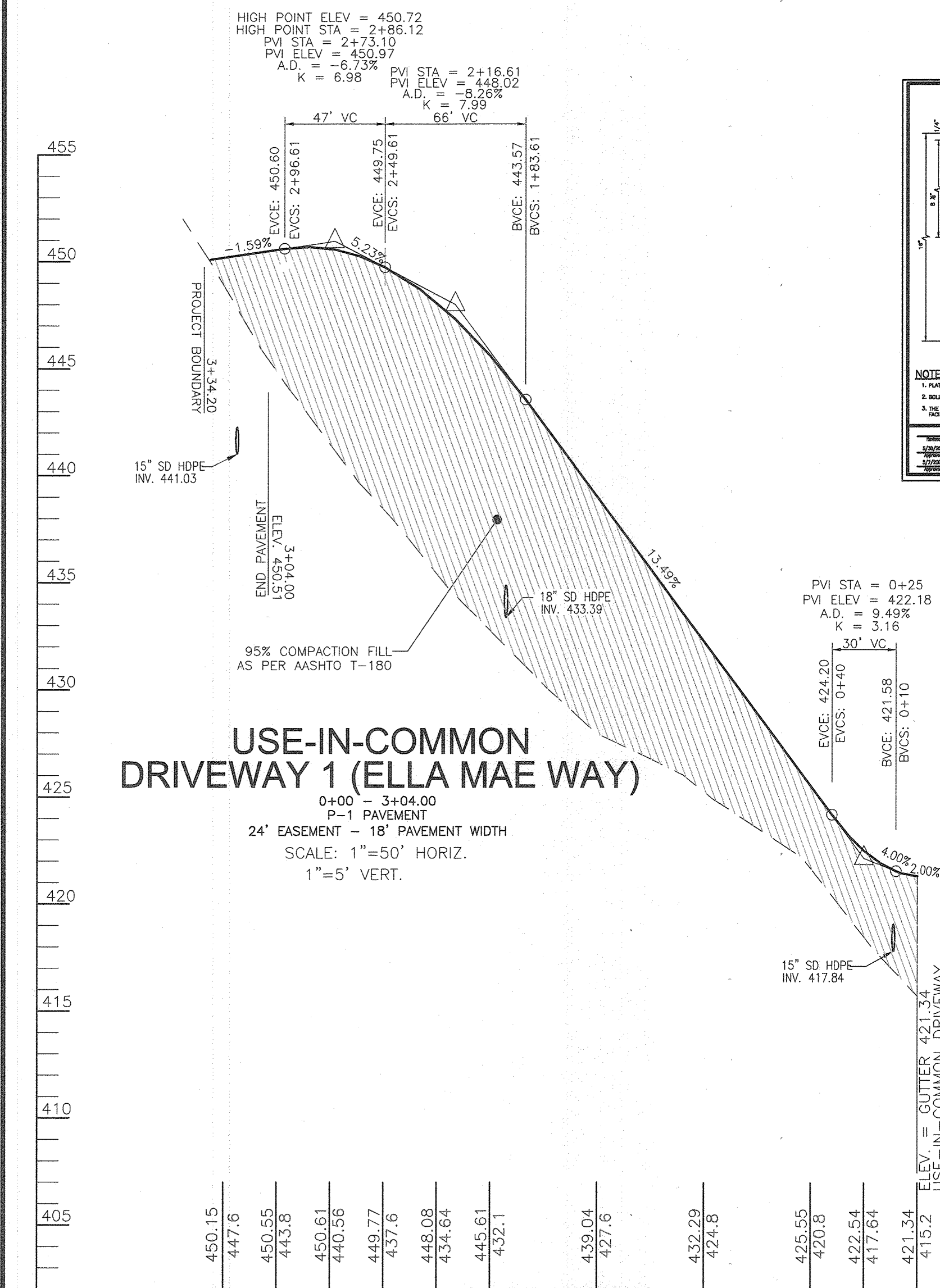
Sign Design And Installation
Detail
OR EQUAL

USE-IN-COMMON DRIVEWAY 1
SEE THIS SHEET FOR CONTINUATION

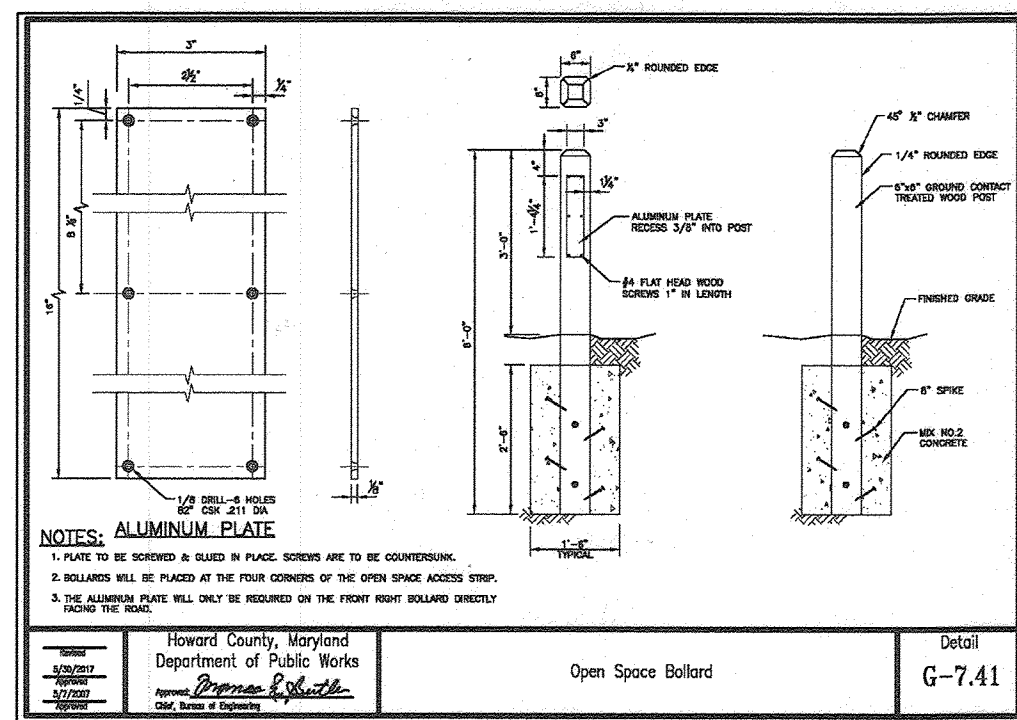


ATTENBOROUGH WAY
ACCESS PLACE
50' RIGHT-OF-WAY

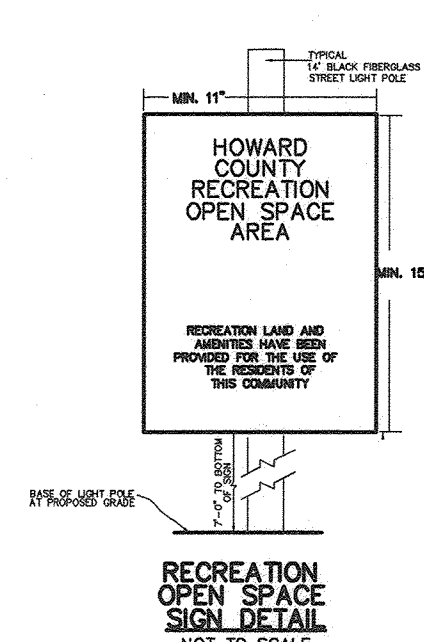
USE-IN-COMMON DRIVEWAY #2 (GENEVIEVE WAY)
PLAN VIEW
SCALE: 1"=50'



USE-IN-COMMON DRIVEWAY 1 (ELLA MAE WAY)
SCALE: 1"=50' HORIZ.
1"=5' VERT.



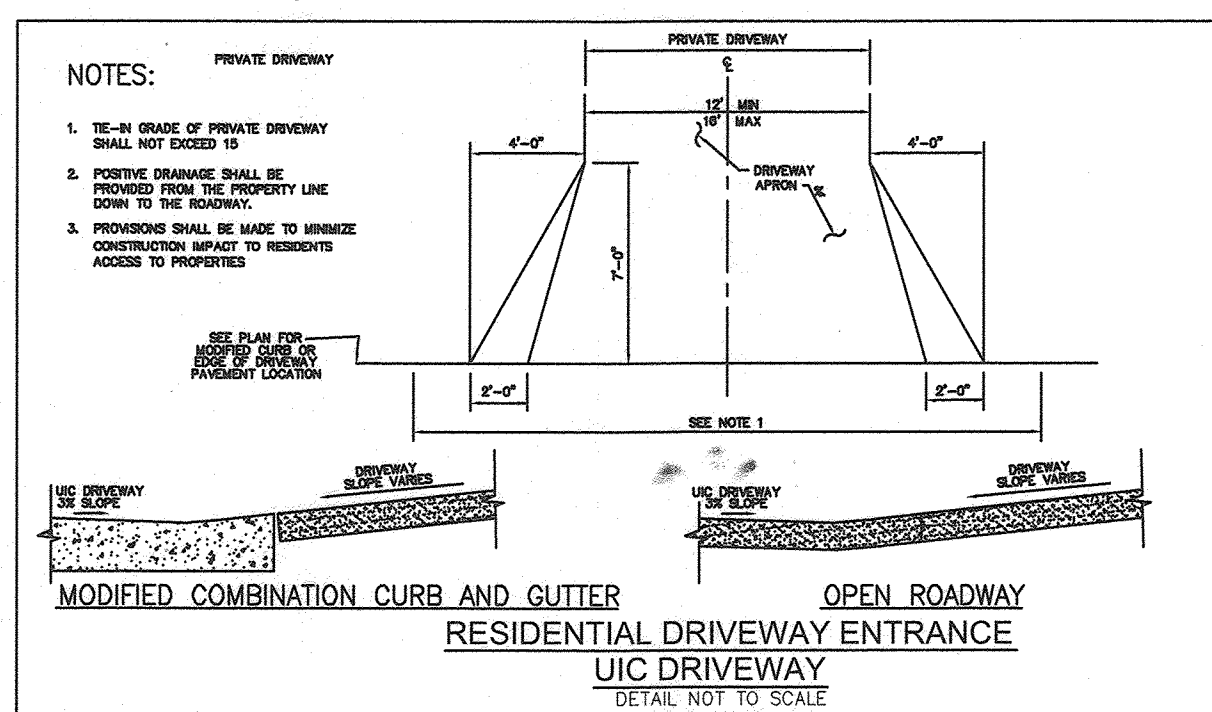
ALUMINUM PLATE
NOT TO SCALE



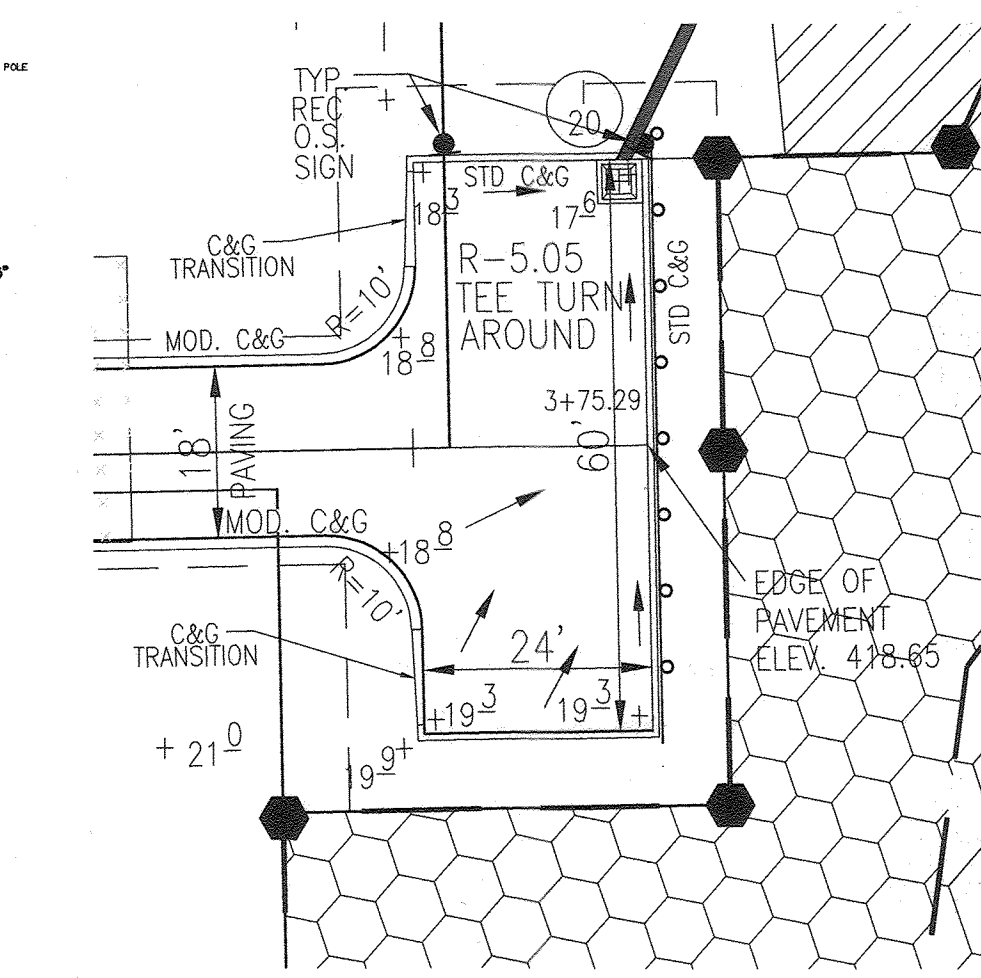
RECREATION OPEN SPACE SIGN
DETAIL
NOT TO SCALE

NOTE:

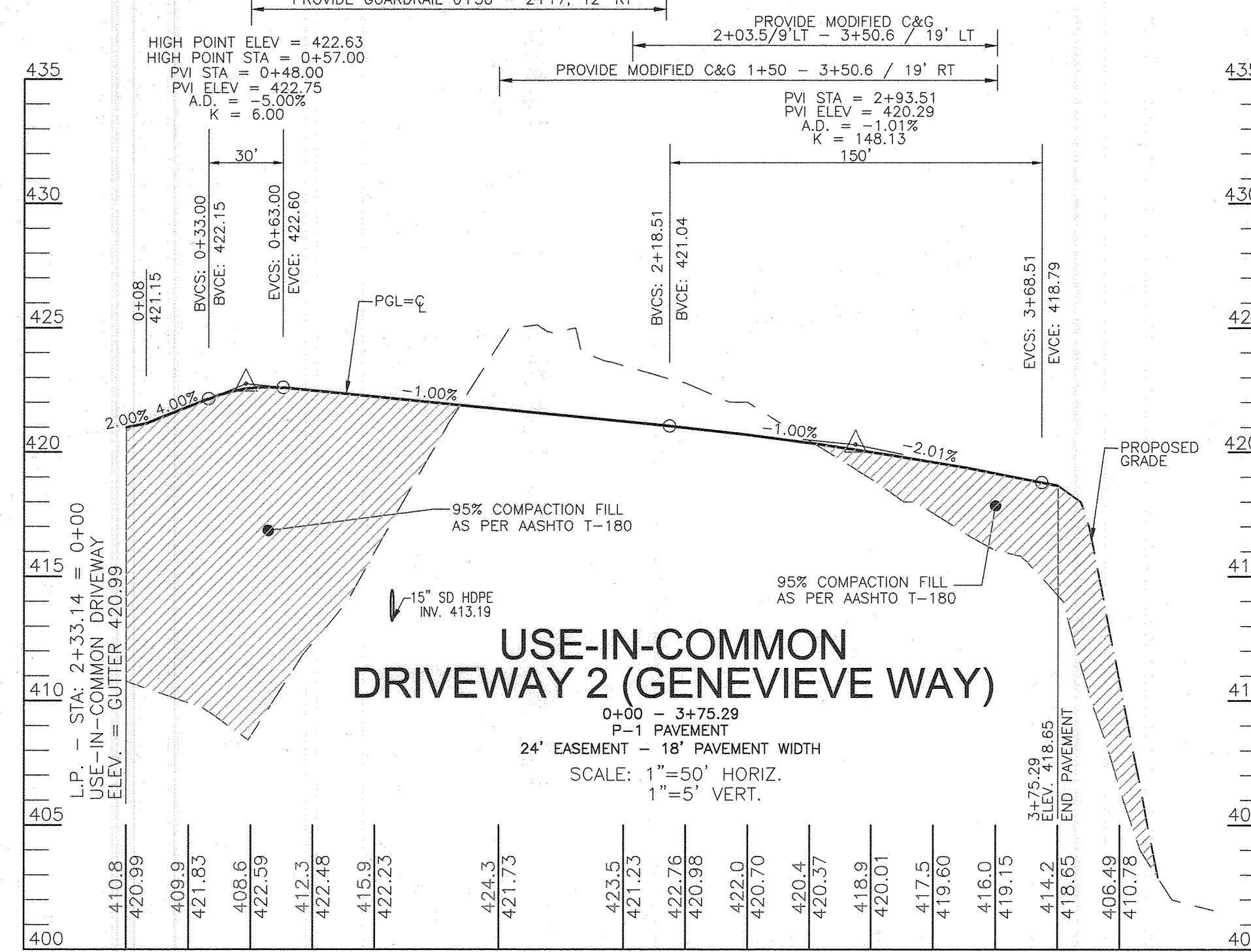
- Lots that derive access to Attenborough Way will utilize Detail R-6.01
- Lots that derive access to the Ella Mae Way use-in-common driveway will tie directly to the edge of use-in-common driveway pavement, see Detail 3.
- Lots that derive access to the Genevieve Way use-in-common driveway will utilize Detail 3 / tie directly to the edge of use-in-common driveway pavement or modified curb & gutter.



RESIDENTIAL DRIVEWAY ENTRANCE
UIC DRIVEWAY
DETAIL NOT TO SCALE



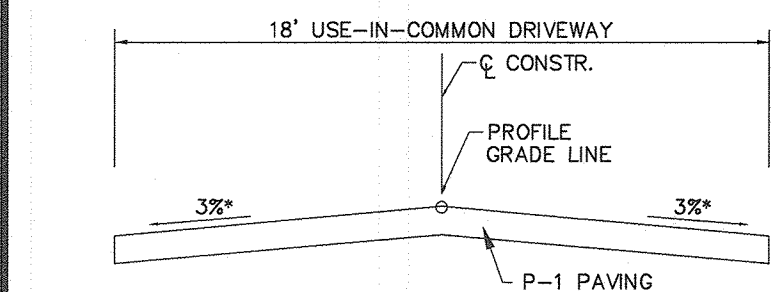
USE-IN-COMMON DRIVEWAY 2 (GENEVIEVE WAY)
- TEE DETAIL
SCALE 1"=20'



USE-IN-COMMON DRIVEWAY 2 (GENEVIEVE WAY)
SCALE: 1"=50' HORIZ.
1"=5' VERT.

OWNER
HAMPTON HILLS, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

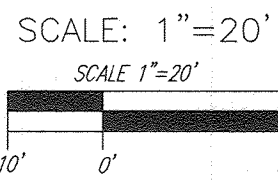
DEVELOPER
TRINITY HOMES MARY LAND, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023



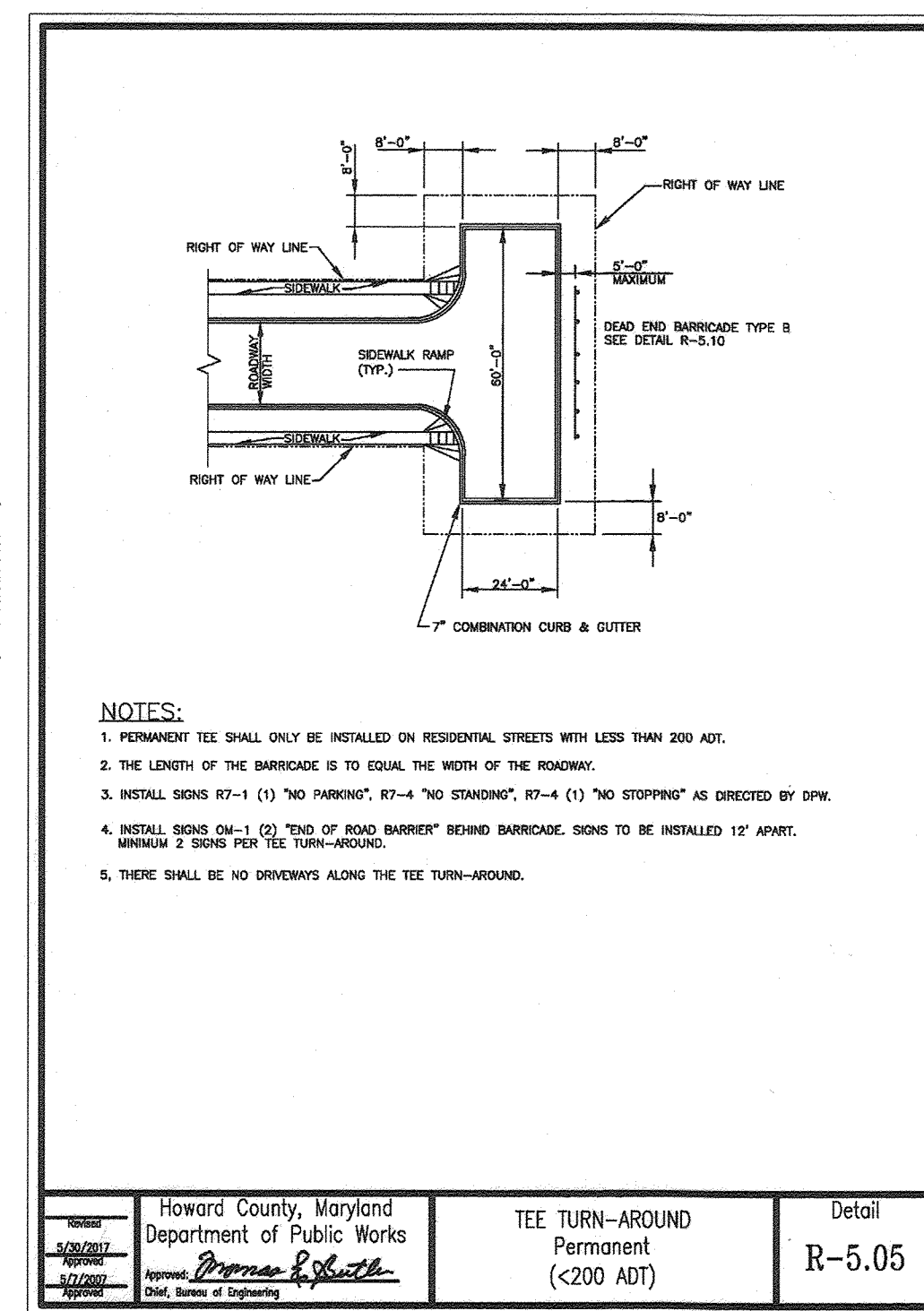
ELLA MAE WAY
USE-IN-COMMON DRIVEWAY
TYPICAL SECTION
SECTION NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 07/29/2021
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 8.10.21
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 8/19/21

USE-IN-COMMON DRIVEWAY 1 (ELLA MAE WAY)
TEE DETAIL
SCALE: 1"=20'

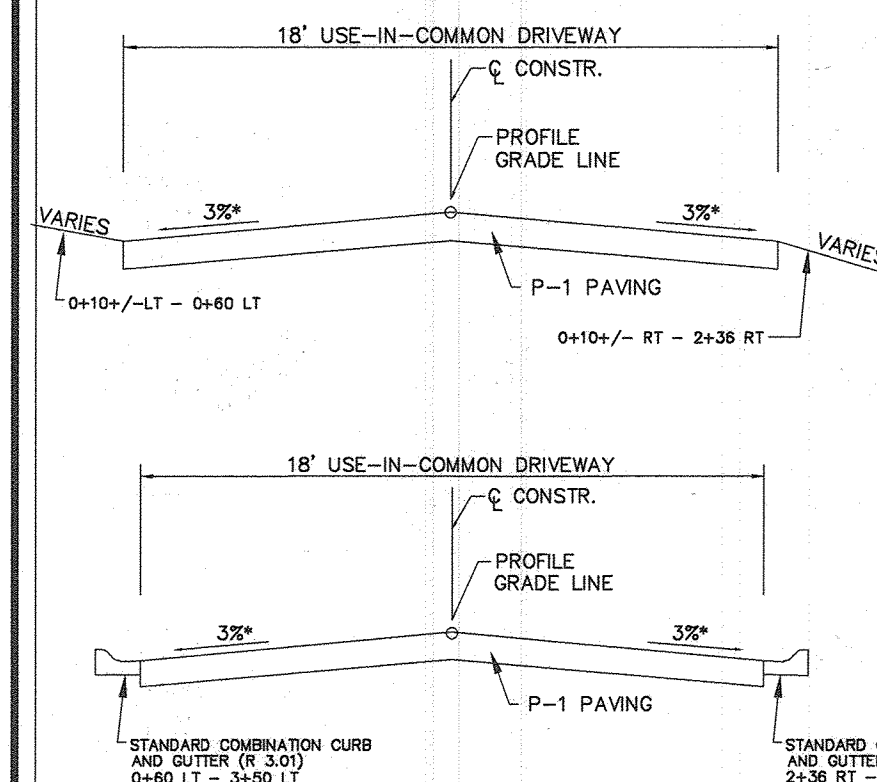


NOTE:
BARRICADE NOT REQUIRED FOR USE-IN-COMMON #1 TEE



- NOTES:
- PERMANENT TEE SHALL ONLY BE INSTALLED ON RESIDENTIAL STREETS WITH LESS THAN 200 ADT.
 - THE LENGTH OF THE BARRICADE IS TO EQUAL THE WIDTH OF THE ROADWAY.
 - INSTALL SIGNS R7-1 (1) "NO PARKING", R7-4 "NO STOPPING", R9-4 (1) "NO STOPPING" AS DIRECTED BY DWP.
 - INSTALL SIGNS R1-1 (2) "END OF ROAD BARRIERS" BEHIND BARRICADE. SIGNS TO BE INSTALLED 12' APART, MINIMUM 6' SPACING FOR THE TURN-AROUND.
 - THERE SHALL BE NO DRIVEWAYS ALONG THE TEE TURN-AROUND.

TEE TURN-AROUND
Permanent
(<200 ADT)
R-5.05



GENEVIEVE WAY
USE-IN-COMMON DRIVEWAY
TYPICAL SECTION
SECTION NOT TO SCALE

REVISED FINAL ROAD CONSTRUCTION PLAN
USE-IN-COMMON DRIVEWAY
PLAN & PROFILES
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID 3
2ND ELECTION DISTRICT

PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
3300 NORTH RIDGE ROAD, SUITE 110, ELLCOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

TIMMONS GROUP
PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: VETC
CHECKED BY: RHV
DATE: MAY 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2022

ROBERT H. VOGEL, PE No. 16193

3 SHEET OF 34

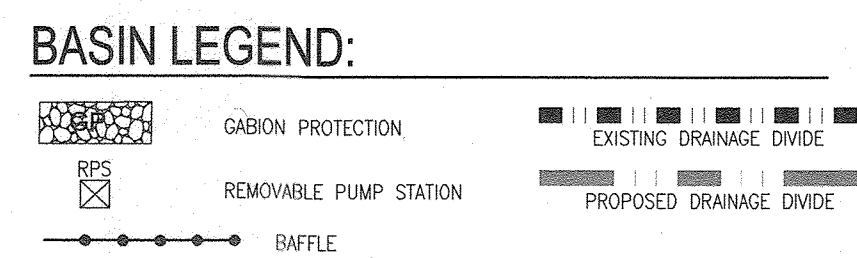
BASIN # 1
 FACILITY TYPE: TEMPORARY BASIN TO BE CONVERTED TO SWM SAND FILTER

EX. DRAINAGE AREA: 6.2 AC.
 INTERIM DRAINAGE AREA: 6.2 AC.
 ULTIMATE DRAINAGE AREA: 5.6 AC.
 TOTAL WET STORAGE RVD: 11,160 CF
 TOTAL DRY STORAGE RVD: 11,160 CF
 TOTAL STORAGE REQUIRED: 22,320 CF
 TOTAL WET STORAGE PRVD: 11,214 CF
 TOTAL DRY STORAGE PRVD: 11,349 CF
 TOTAL STORAGE PROVIDED: 22,563 CF

BOTTOM ELEV.: 396.00
 RISER CREST ELEVATION: 402.00, 402.50
 WET STORAGE ELEVATION: 396.00-398.75
 DRY STORAGE ELEVATION: 398.75-400.65
 TOTAL STORAGE DEPTH: 4.65' (396.00-400.65)
 TOP OF EMBANKMENT: 405.00 (SETTLED)
 CLEANOUT ELEVATION: 397.60
 SIDE SLOPES: 3:1 INSIDE, 8:1 OUTSIDE

EMERGENCY SPILLWAY:
 Q1 (EX.): 0.5 CFS
 Q1 (BASIN): 0.7 CFS
 THROUGH DEWATER DEVICE ORIFICE
 1 YR TSSM WSEL= 401.92
 10 YR TSSM WSEL= 402.89

BAFFLE DESIGN: SEE SHEET 12



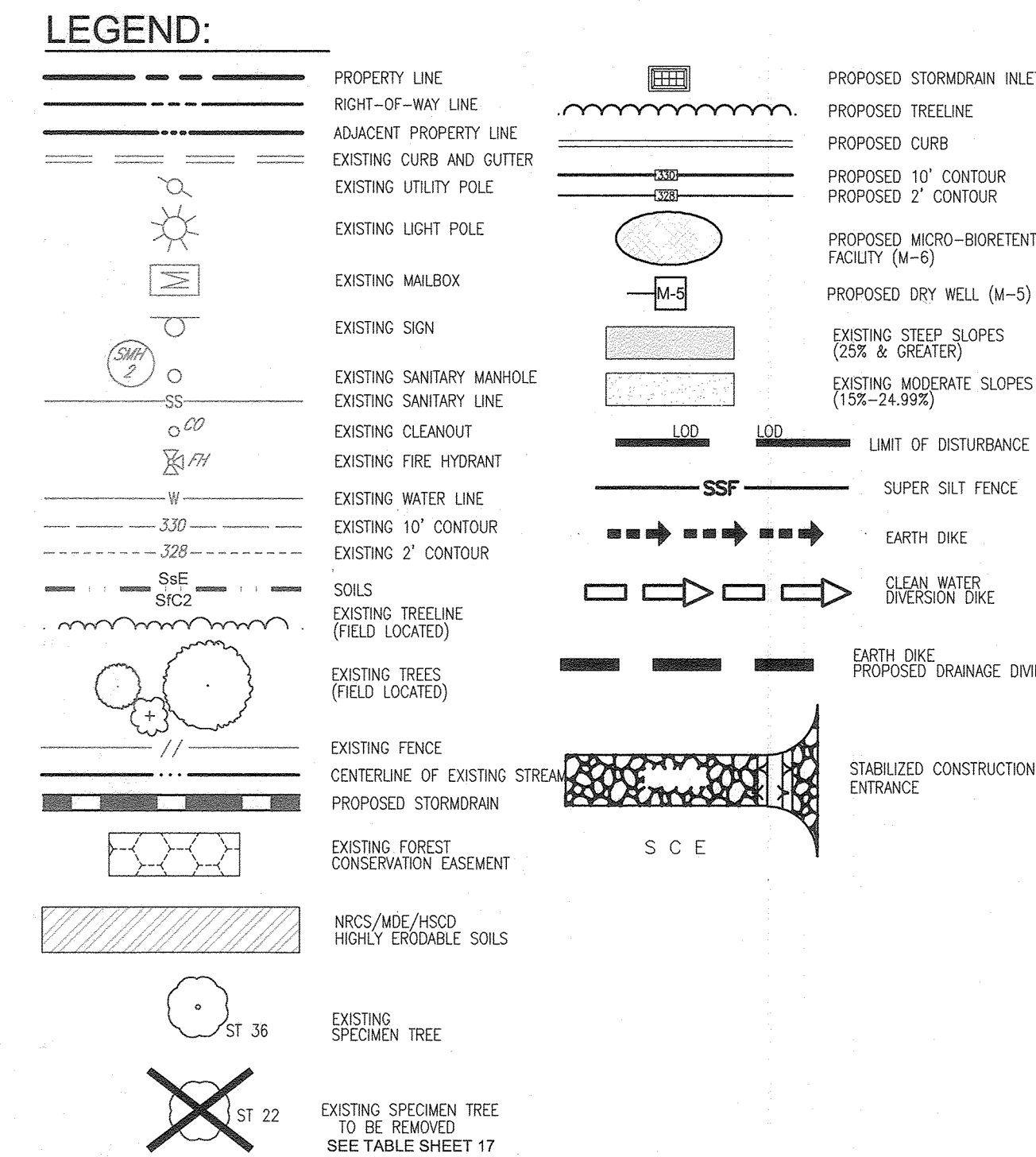
- NOTES**
- REFER TO SHEET 11 FOR SEQUENCE OF CONSTRUCTION.
 - REFER TO SHEET 12 FOR BASIN DETAILS.
 - REFER TO SHEETS 10 FOR STANDARD DETAILS AND STABILIZATION NOTES.
 - REFER TO SHEET 22 FOR SOIL BORINGS.
 - PROVIDE SOIL STABILIZATION MATING UP TO L.O.D. BEYOND END OF RIPRAP.

NOTE:
 FOR SOILS ON-SITE THAT WOULD BE CONSIDERED HIGHLY ERODIBLE BY THE HOWARD SOIL CONSERVATION DISTRICT, MORE STRINGENT SEEDING AND STABILIZATION METHODS MAY BE EXPECTED AT SITE DEVELOPMENT STAGE.

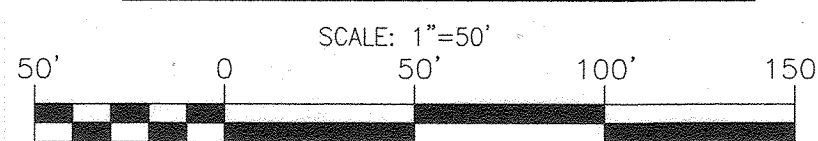
SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRC	K FACTOR	CRS. SLOPE	HYDROLOGIC
Cd	ODOROUS AND HAZARDOUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.50	NO	NO
CdS	GLAUCIOUS-LEGGED COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.28	NO	NO
CdG	GLAUCIOUS-LEGGED COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28	NO	NO
CdC	GLAUCIOUS-LEGGED COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	0.52	NO	NO
GmP	GLENNVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	0.49	YES	YES
MdP	MAKON-BANNINGTOWN SANDY LOAMS, 7.5 TO 8.5 PERCENT SLOPES, ROCKY	B	NO	0.24	YES	YES
MdS	MAKON LUKAS SILE LOAM, 8 TO 15 PERCENT SLOPES, STONY	T	NO	0.37	YES	YES

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT



PHASE 1 - SOILS MAP, GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN



LOT 14 NOTE:

- THE FOUNDATION FOR THE PROPOSED HOME ON LOT 14 WILL BE CONSTRUCTED IN THE AREA OF THE SEDIMENT BASIN EXCAVATION.
- UPON CONVERSION OF THE BASIN TO THE PERMANENT STORMWATER FACILITY, PRECAUTIONS SHALL BE TAKEN TO ACHIEVE PROPER STRUCTURAL FILL IN THIS AREA
- PROPER REMOVAL OF THE SEDIMENT AND WET SOIL AROUND THE BASIN TO ACHIEVE PROPER COMPACTION IS REQUIRED.
- PROPER COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER.

NOTE:
 NO GRADING WILL BE ALLOWED UNTIL ALL MATERIALS TO CONSTRUCT THE BASIN ARE ON SITE.

NOTE:
 ALL EARTH DIKES ARE TO BE PLACED IN WORKING ORDER AT THE END OF EACH WORKING DAY.

NOTE:
 STABILIZATION IS TO BE DONE AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 SCS & SPCS, WHICHEVER IS MORE RESTRICTIVE.

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

NOTE: SEDIMENT CONTROLS INTERRUPTED BY INSTALLATION OF UTILITY LINES ARE TO BE REPAIRED IMMEDIATELY.

OWNER
 HAMPTON HILLS, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION TO ADD ENTRANCE FEATURE	9-21-23
1	REVISION	DATE

REVISED FINAL ROAD CONSTRUCTION PLAN
PHASE-1 SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
 DRAWN BY: VETG
 CHECKED BY: RHV
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 08-29-2022.

4 SHEET OF 34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION JK DATE

[Signature] 8/19/21
 CHIEF, DIVISION OF LAND DEVELOPMENT Es DATE

OWNER/DEVELOPER CERTIFICATION:
 I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT, AND MDE.

[Signature] 5/25/21
 OWNER/DEVELOPER SIGNATURE DATE
 MICHAEL PETI, MEMBER
 PRINTED NAME & TITLE

DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 5/25/21
 DESIGNER'S SIGNATURE DATE
 ROBERT H. VOGEL
 PRINTED NAME
 MD REGISTRATION NO. 16193
 P.E. R.L.S. OR R.L.A. (Circle one)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 6/17/21
 HOWARD S.C.D. DATE

NOTE:
 NO DISTURBANCES, ROAD WIDENING OR ROAD IMPROVEMENTS ARE PROPOSED IN PHASE 1 OF THE GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN

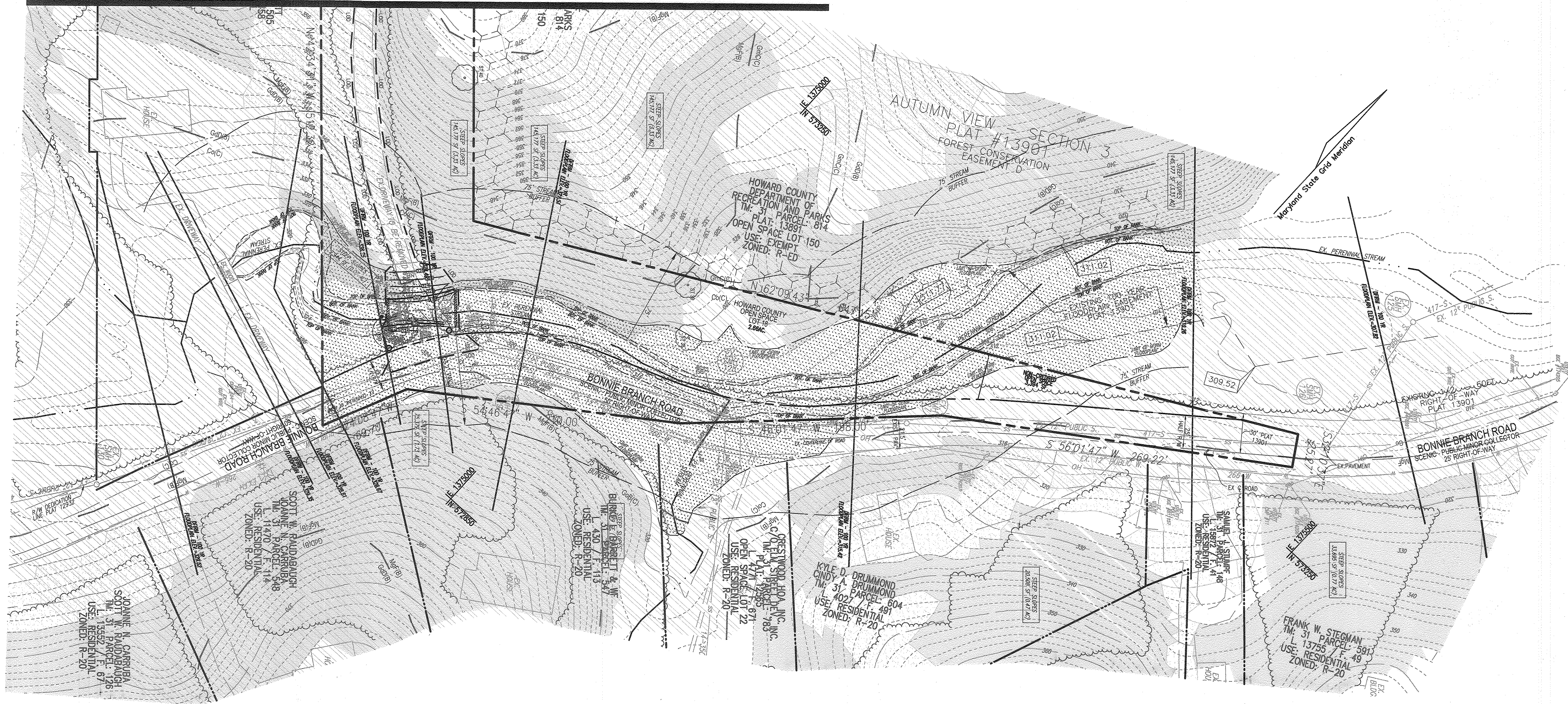
SOILS LEGEND					
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	EROSION POTENTIAL
Cc	COGOLUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.35	YES
GdC	GLADSTONE-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.28	NO
GdP	GLADSTONE-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28	YES
GdS	GLADSTONE-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	0.37	NO
GmC	GLENMILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	0.49	YES
Maf	MANOR-BANNERHORN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	0.24	YES
MkC	MOUNT LUCKS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	0.37	YES

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY, MD
 NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

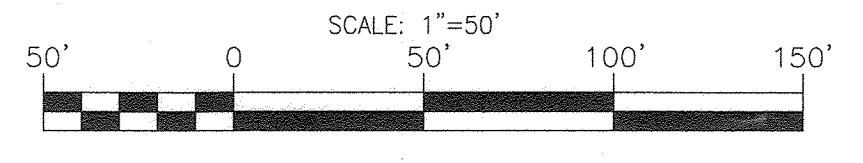
LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	EXISTING TREE LINE (FIELD LOCATED)
	EXISTING TREES (FIELD LOCATED)
	EXISTING FENCE
	CENTERLINE OF EXISTING STREAM
	EXISTING FOREST CONSERVATION EASEMENT
	100 YEAR FLOODPLAIN
	NRCS/ADE/HSCD HIGHLY ERODIBLE SOILS
	EXISTING SPECIMEN TREE
	EXISTING STEEP SLOPES (25% & GREATER)
	EXISTING MODERATE SLOPES (15%-24.99%)

MATCHLINE - SEE SHEET 4



PHASE 1 - SOILS MAP, GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN



OWNER
 HAMPTON HILLS, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
 PHASE-1 SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

VOGEL ENGINEERING

TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
 DRAWN BY: VETG
 CHECKED BY: RHV
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022

5 SHEET OF 34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF HIGHWAYS
 DATE: 07/29/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8-10-21

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/15/21

OWNER/DEVELOPER CERTIFICATION:
 I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

OWNER/DEVELOPER SIGNATURE
 DATE: 5/25/21

Michael P. Fry, member

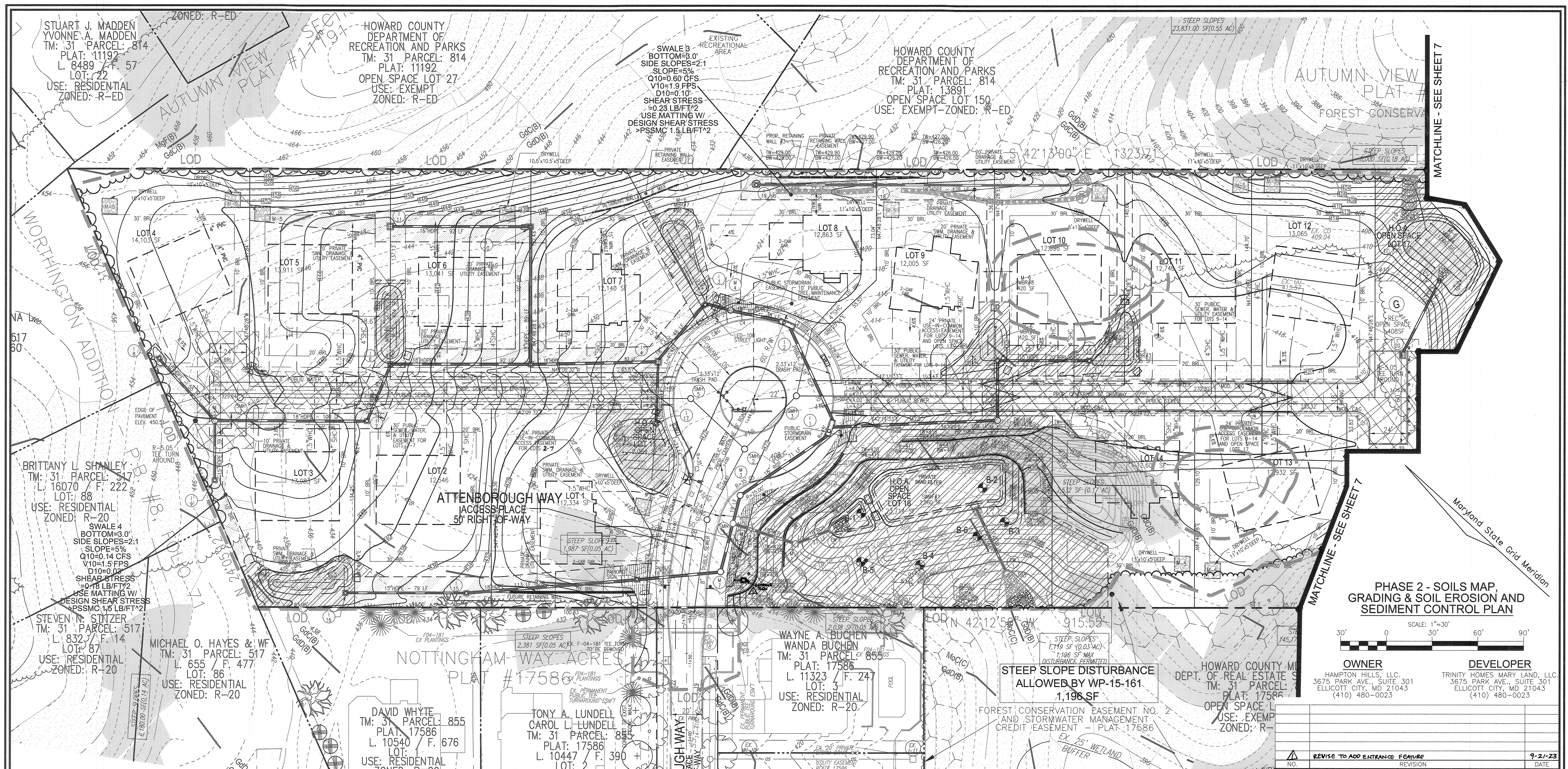
DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DESIGNER'S SIGNATURE
 DATE: 5/25/21

ROBERT H. VOGEL
 PRINTED NAME
 MD REGISTRATION NO. 16193
 P.E. R.L.S., OR R.L.A. (circle one)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DATE: 6/15/21



PHASE 2 - SOILS MAP, GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=30'

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

SOILS LEGEND

SYMBOL / NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	USE SLOPE
Ce	COARSSUR AND HEAVY SAND SOILS, 0 TO 3 PERCENT SLOPES	C	YES	0.55
Cd	GLASSSTONE-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.28
CdD	GLASSSTONE-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28
CdC	GLASSSTONE-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	0.32
CmC	GLENNHILL SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	0.49
Mf	MOUNT LUCAS SANDY SOILS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	0.24
MfC	MOUNT LUCAS SANDY SOILS, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	0.37

NOTE: STABILIZATION IS TO BE DONE AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 SDS & SPCS, WHICHEVER IS MORE RESTRICTIVE.

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

NOTE: SEDIMENT CONTROLS INTERRUPTED BY INSTALLATION OF UTILITY LINES ARE TO BE REPAIRED IMMEDIATELY.

LEGEND:

---	PROPERTY LINE	---	EXISTING TREES (FIELD LOCATED)
---	RIGHT-OF-WAY LINE	---	EXISTING FENCE
---	ADJACENT PROPERTY LINE	---	CENTERLINE OF EXISTING STREAM
---	EXISTING CURB AND GUTTER	---	PROPOSED STORMDRAIN
---	EXISTING WATER LINE	---	EXISTING FOREST CONSERVATION EASEMENT
---	EXISTING 10' CONTOUR	---	PROPOSED STORMDRAIN INLET
---	EXISTING 2' CONTOUR	---	PROPOSED CURB
---	SOILS	---	PROPOSED 10' CONTOUR
---	EXISTING TREETRACE (FIELD LOCATED)	---	PROPOSED 2' CONTOUR
---	PROPOSED TREETRACE	---	PROPOSED MICRO-BIOTRETENTION FACILITY (M-5)
---	PROPOSED DRYWELL (M-5)	---	EXISTING STEEP SLOPES (25% & GREATER)
---	EXISTING STEEP SLOPES (15%-24.99%)	---	STABILIZED CONSTRUCTION ENTRANCE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
07/29/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
08.10.21

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
08/19/21

OWNER/DEVELOPER CERTIFICATION:
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD COUNTY CONSERVATION DISTRICT AND MDE.

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT.

DESIGNER'S SIGNATURE: ROBERT H. VOGEL
DATE: 5/25/21

OWNER/DEVELOPER SIGNATURE: Michael Fox, member
DATE: 5/25/21

REVISED FINAL ROAD CONSTRUCTION PLAN
PHASE-2 SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLCOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2022.

DESIGN BY: RHV
DRAWN BY: VETG
CHECKED BY: RHV
DATE: MAY 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

6 SHEET OF 34

LEGEND:

	PROPERTY LINE		LIMIT OF DISTURBANCE
	RIGHT-OF-WAY LINE		SUPER SILT FENCE
	ADJACENT PROPERTY LINE		EARTH DIKE
	EXISTING CURB AND GUTTER		CLEAN WATER DIVERSION DIKE
	EXISTING WATER LINE		EXISTING DRAINAGE DIVIDE
	EXISTING 10' CONTOUR		PROPOSED DRAINAGE DIVIDE
	EXISTING 2' CONTOUR		BAFFLE
	SOILS		GABION PROTECTION
	EXISTING TREELINE (FIELD LOCATED)		REMOVABLE PUMP STATION
	PROPOSED TREELINE		STABILIZED CONSTRUCTION ENTRANCE
	EXISTING TREES (FIELD LOCATED)		
	EXISTING FENCE		
	CENTERLINE OF EXISTING STREAM		
	PROPOSED STORMDRAIN		
	EXISTING FOREST CONSERVATION EASEMENT		
	PROPOSED STORMDRAIN INLET		
	PROPOSED CURB		
	PROPOSED 10' CONTOUR		
	PROPOSED 2' CONTOUR		
	PROPOSED MICRO-BIORETENTION FACILITY (M-6)		
	PROPOSED DRY WELL (M-5)		
	EXISTING STEEP SLOPES (20% & GREATER)		
	EXISTING MODERATE SLOPES (15% - 24.99%)		

NOTE: FOR SOILS ON-SITE THAT WOULD BE CONSIDERED HIGHLY ERODIBLE BY THE HOWARD SOIL CONSERVATION DISTRICT, MORE STRINGENT SEEDING AND STABILIZATION METHODS MAY BE EXPECTED AT SITE DEVELOPMENT STAGE.

SYMBOL NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	CISE RISK FACTOR
Gc	C	YES	0.35	YES
Gbc	A	NO	0.28	NO
Gbd	A	NO	0.28	YES
Gdc	A	NO	0.32	NO
Gmc	C	NO	0.49	YES
Maf	B	NO	0.24	YES
Lmc	C/D	NO	0.37	YES

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

NOTE: STABILIZATION IS TO BE DONE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 STDS. & SPECS, WHICHEVER IS MORE RESTRICTIVE.

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

NOTE: SEDIMENT CONTROLS INTERRUPTED BY INSTALLATION OF UTILITY LINES ARE TO BE REPAIRED IMMEDIATELY.

NOTE: ALL EARTH DIKES ARE TO BE PLACED IN WORKING ORDER AT THE END OF EACH WORKING DAY. PHASE 1 CONTROLS (GREYSHADE) SHALL BE RELOCATED AS FOR THEIR CONTINUED USE AS CONSTRUCTION CONTINUES.

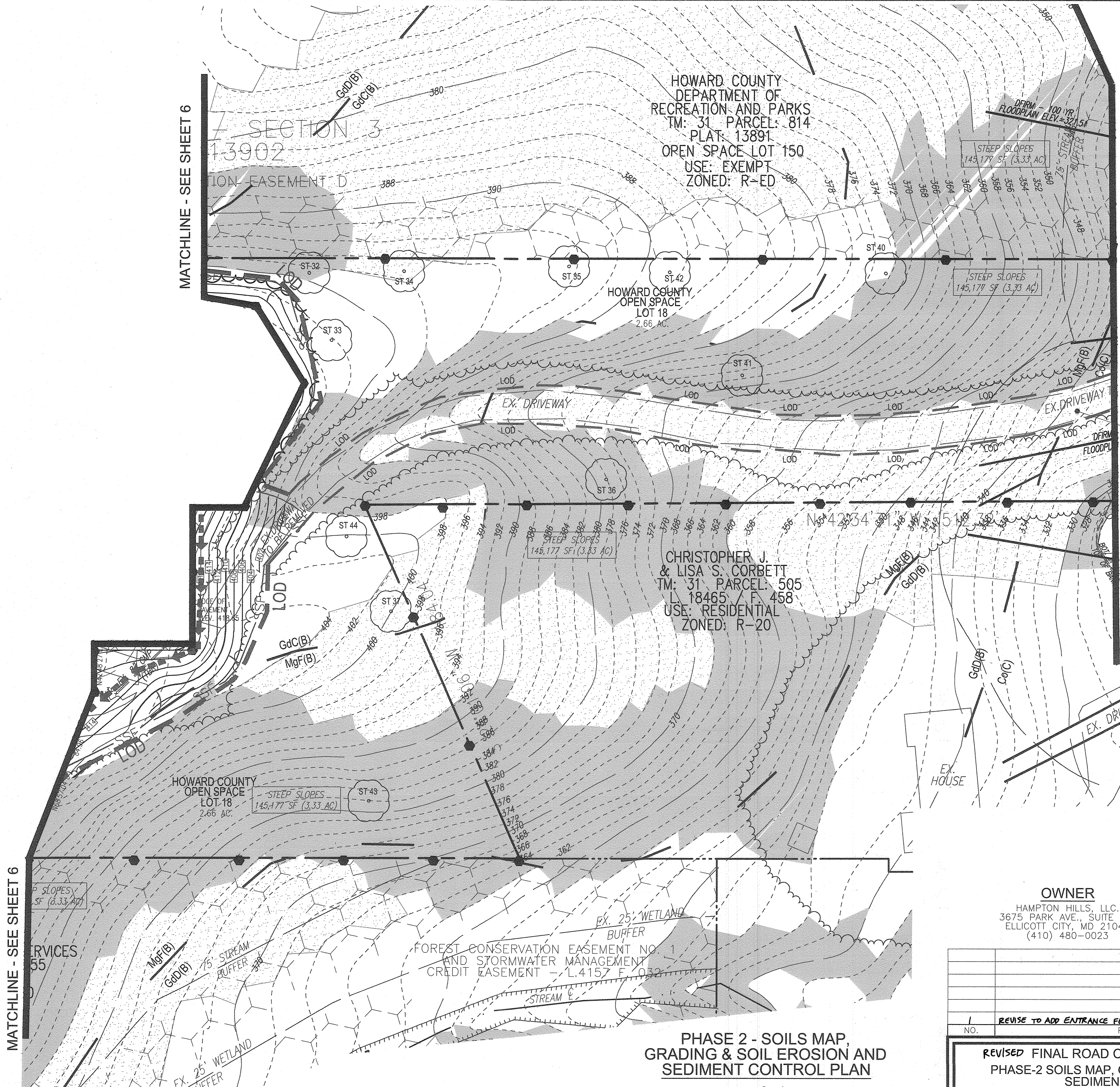
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8.10.21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NS DATE
 [Signature] 8/11/21
 CHIEF, DIVISION OF LAND DEVELOPMENT 08 DATE

OWNER/DEVELOPER CERTIFICATION:
 I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT PLAN, INCLUDING INSPECTING AND MAINTAINING EROSION AND SEDIMENT CONTROL, RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT, OR MDE.
 [Signature] 5/25/21
 MICHAEL PEN
 PRINTED NAME & TITLE

DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 5/25/21
 ROBERT H. VOGEL
 PRINTED NAME
 MD REGISTRATION NO. 18193
 (S), R.L.S., OR R.L.A. (Circle one)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 6/13/21
 J.P. RAYMOND
 DISTRICT S.C.D. DATE



NO.	REVISION TO ADD ENTRANCE FEATURE	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-2-23

REVISED FINAL ROAD CONSTRUCTION PLAN
 PHASE-2 SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

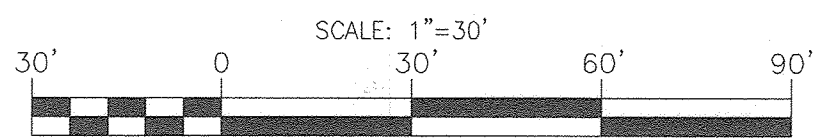
VOGEL ENGINEERING
 TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022.
 DESIGN BY: RHY
 DRAWN BY: VETC
 CHECKED BY: RHY
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10
 7 SHEET OF 34

SOILS LEGEND					
SYMBOL NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	SOIL SLOPE	
Co	COARSES AND HEAVY SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.50	YES
CoC	GLADSTONE-LEGRE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.28	NO
GoD	GLADSTONE-LEGRE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28	YES
CoC	GLADSTONE-LEGRE COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	0.32	NO
LoMC	ELMALLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	0.49	YES
MuF	MANOR-BANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	0.24	YES
MuC	MOUNT LUCAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	0.37	YES

TAKEN FROM: USDA, SCS-WE8 SOIL SURVEY, HOWARD COUNTY
 NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

PHASE 2 - SOILS MAP, GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN

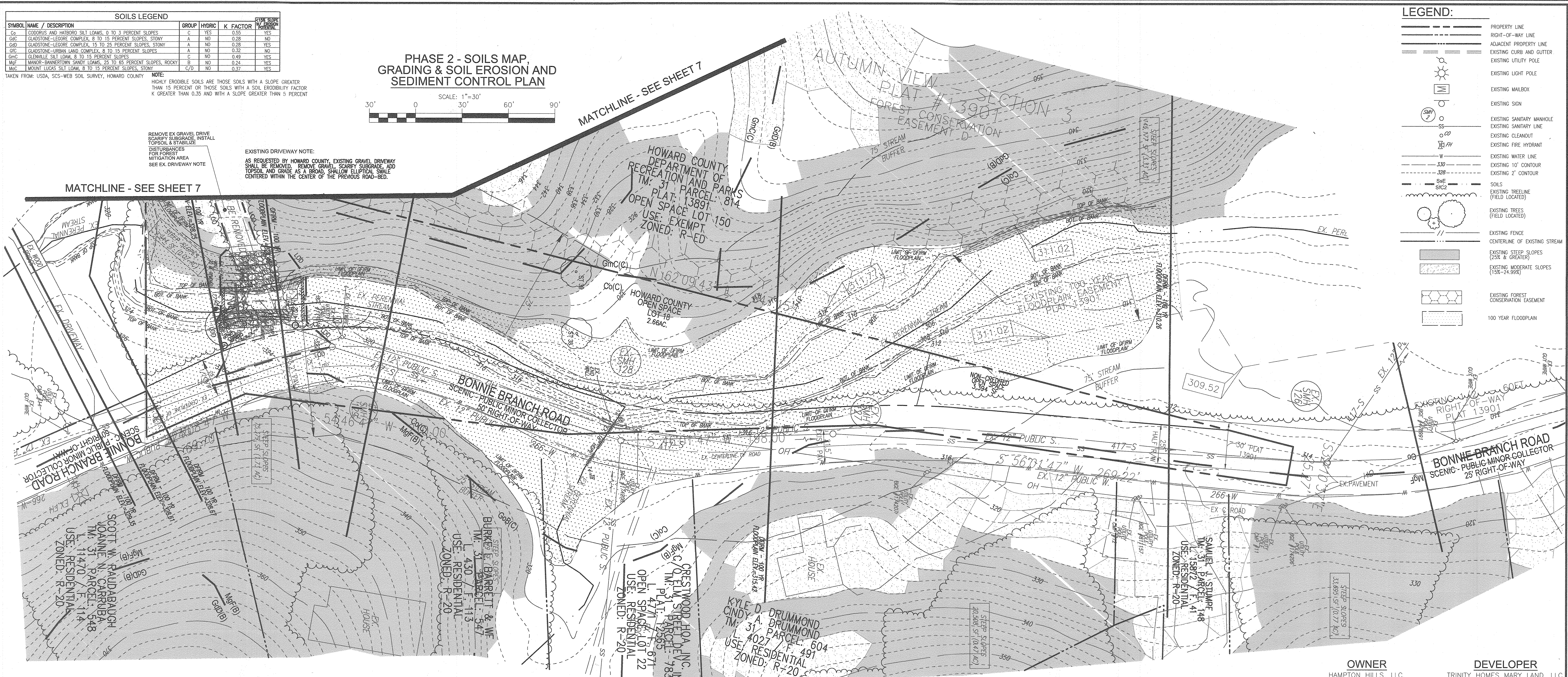


MATCHLINE - SEE SHEET 7

REMOVE EX GRAVEL DRIVE SCARIFY SUBGRADE, INSTALL TOPSOIL & STABILIZE DISTURBANCES FOR FOREST MITIGATION AREA SEE EX. DRIVEWAY NOTE

EXISTING DRIVEWAY NOTE: AS REQUESTED BY HOWARD COUNTY, EXISTING GRAVEL DRIVEWAY SHALL BE REMOVED. REMOVE GRAVEL, SCARIFY SUBGRADE, ADD TOPSOIL AND GRADE AS A BROAD SHALLOW ELLIPTICAL SWALE CENTERED WITHIN THE CENTER OF THE PREVIOUS ROAD-BED.

MATCHLINE - SEE SHEET 7



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING TREES (FIELD LOCATED)
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- EXISTING STEEP SLOPES (25% & GREATER)
- EXISTING MODERATE SLOPES (15%-24.99%)
- EXISTING FOREST CONSERVATION EASEMENT
- 100 YEAR FLOODPLAIN

OWNER
 HAMPTON HILLS, LLC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
 PHASE-2 SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONED: R-20
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
 +
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
 DRAWN BY: VETG
 CHECKED BY: RHV
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16163 EXPIRATION DATE: 09-27-2022

8 SHEET OF 34

ROBERT H. VOGEL, PE No. 16193

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 07/27/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE

[Signature] 8/19/21
 CHIEF, DIVISION OF LAND DEVELOPMENT EB DATE

OWNER/DEVELOPER CERTIFICATION:
 I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND MDE.

[Signature] 8-25-21
 MICHAEL P. FAN
 PRINTED NAME & TITLE DATE

DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 5/26/21
 ROBERT H. VOGEL
 PRINTED NAME DATE

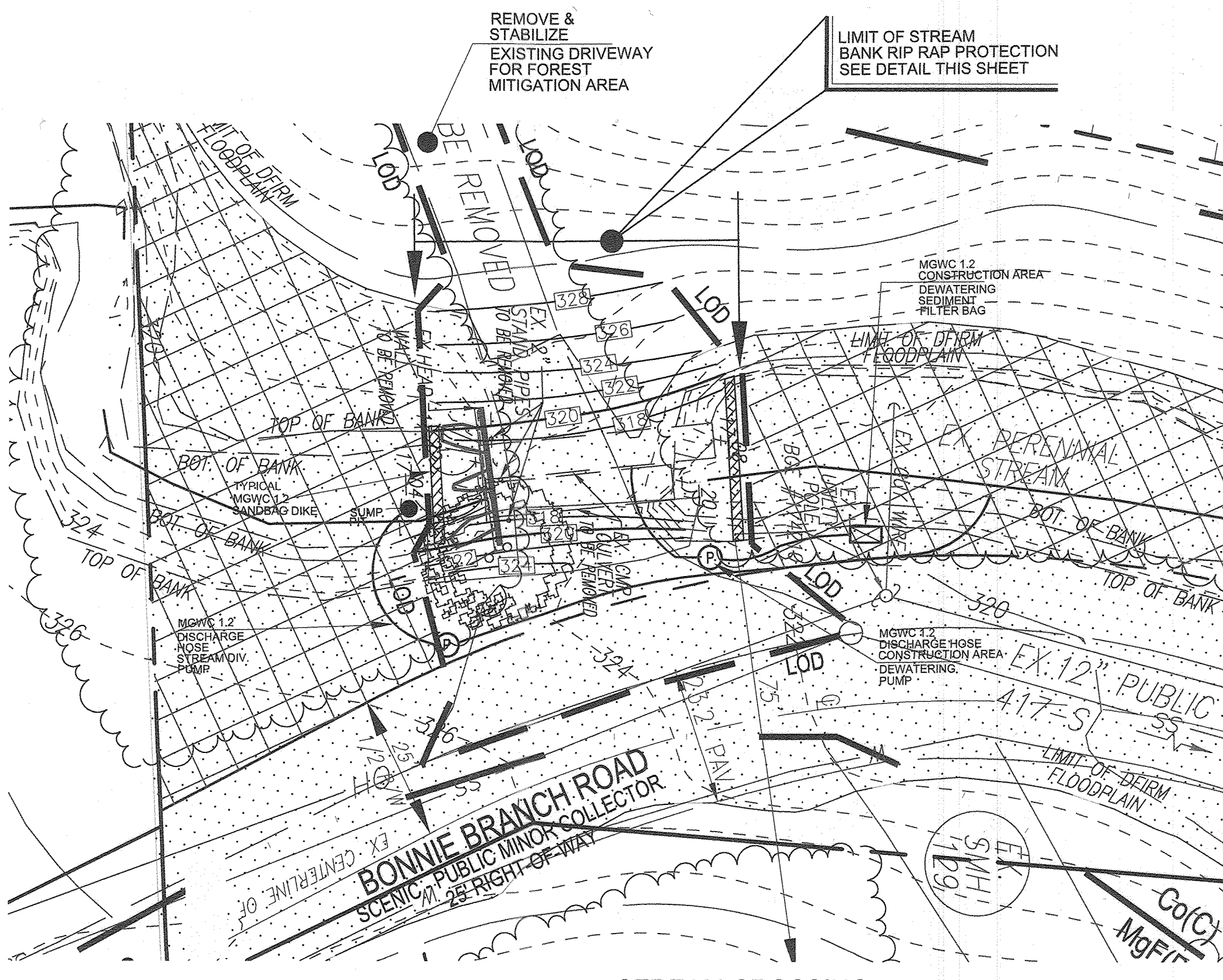
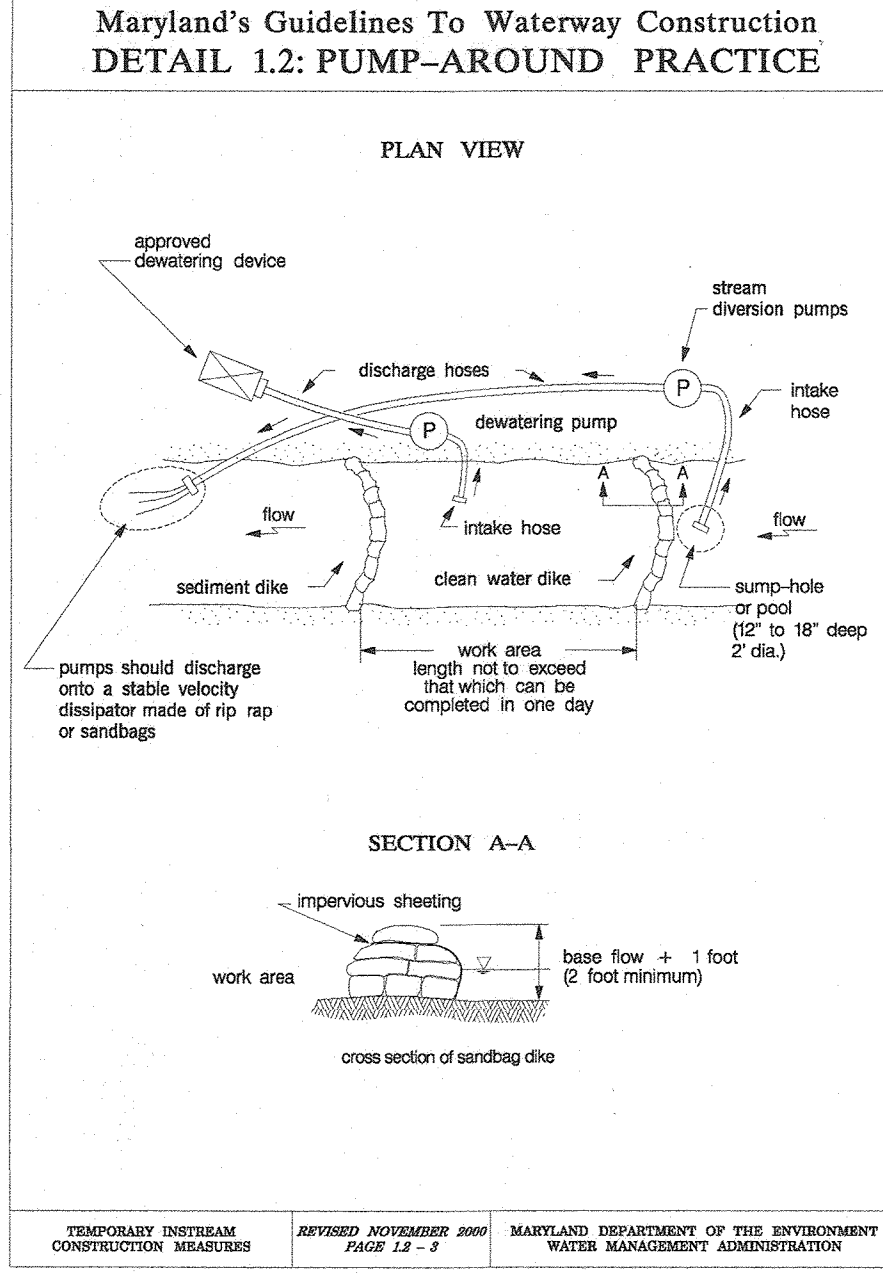
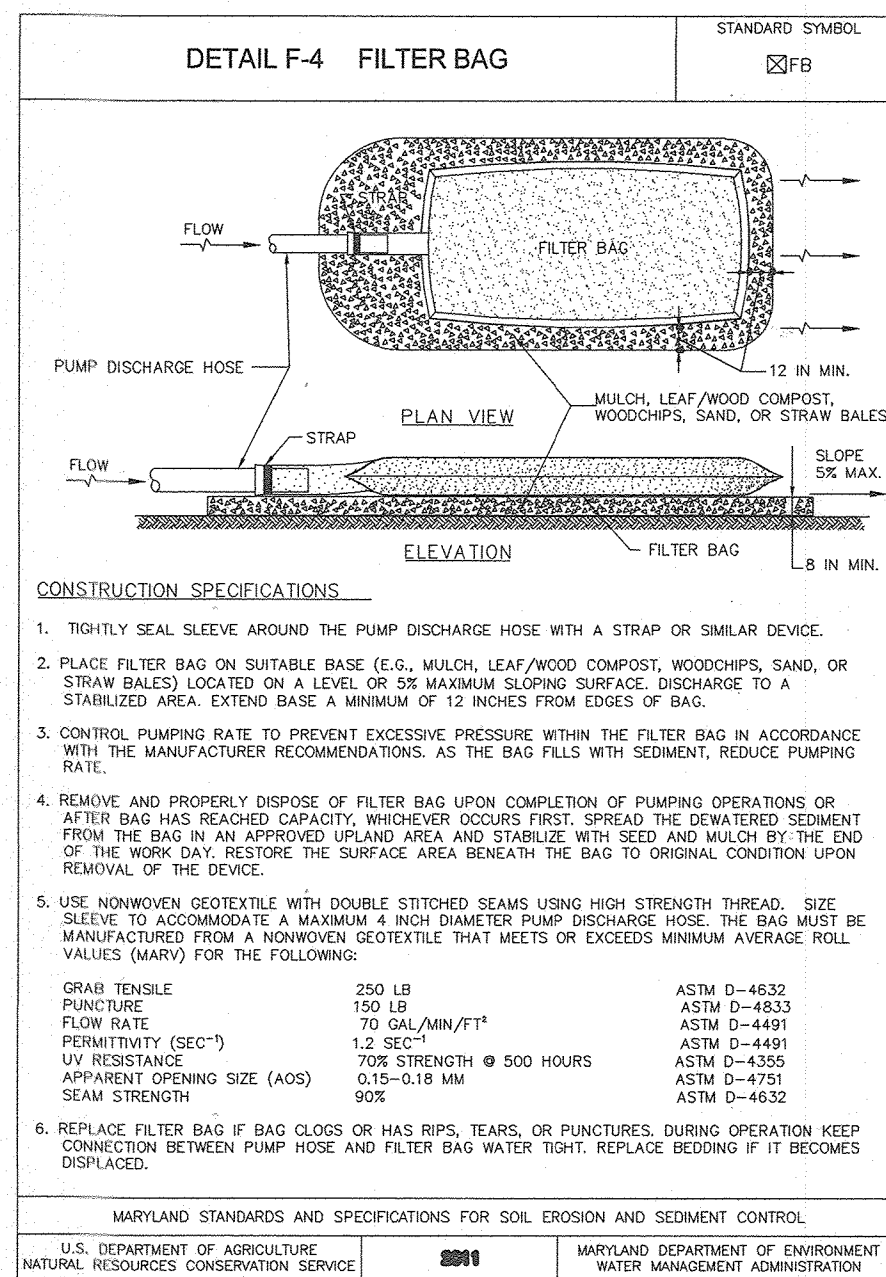
MD REGISTRATION NO. 16193
 (P.E., R.L.S., OR R.L.A. (circle one))

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 6/19/21
 JOHN R. BLUMBERG
 DATE

NOTE:
 NO ROAD WIDENING OR ROAD IMPROVEMENTS ARE PROPOSED

- BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS
- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
 - PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
 - DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
 - REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
 - REPAIR ANY NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
 - ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (*Lolium multiflorum*), MILLET (*Setaria italica*), BARLEY (*Hordeum sp.*), OATS (*Avena sp.*), AND/OR RYE (*Secale cereale*). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
 - AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
 - TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
 - USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
 - USE II WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
 - USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
 - STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
 - CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.



NOTE
THE DEVELOPER WILL OBTAIN ALL NECESSARY STATE PERMITS FOR THE IMPACTS TO THE STREAM AND FLOODPLAIN FOR CULVERT / DRIVEWAY REMOVAL.

-MDE TRACKING NUMBER IS: #21-NT-3044
-NTW 202160670

ALL WORK IN THE NONTIDAL WETLANDS, WETLAND BUFFERS SHALL BE COMPLETED PER THE BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS.

STREAM CROSSING REMOVAL DETAIL
SCALE 1"=20'

NOTE
ONCE CROSSING IS REMOVED PLACE SUPER SILT FENCE AT THE TOE OF SLOPE, COMPLETE SLOPE GRADING & STABILIZATION OPERATIONS PER MGWC DETAIL 2.1

LEGEND:

---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	ADJACENT PROPERTY LINE
---	EXISTING CURB AND GUTTER
---	EXISTING UTILITY POLE
---	EXISTING LIGHT POLE
---	EXISTING MAILBOX
---	EXISTING SIGN
---	EXISTING SANITARY MANHOLE
---	EXISTING SANITARY LINE
---	EXISTING FIRE HYDRANT
---	EXISTING WATER LINE
---	EXISTING 10' CONTOUR
---	EXISTING 2' CONTOUR
---	SOILS
---	EXISTING TREELINE (FIELD LOCATED)
---	EXISTING TREES (FIELD LOCATED)
---	EXISTING FENCE
---	CENTERLINE OF EXISTING STREAM

MGWC 2.1: RIPRAP

Rigid engineering technique for bank stabilization

DESCRIPTION
Riprap is used to protect and stabilize embankment soils from the erosive forces of flowing water and piping forces resulting from groundwater seepage. A well-engineered riprap system should consist of the following:

- a filter layer of gravel or cloth designed to prevent soil movement into or through the riprap layer while allowing water to drain from the embankment, and
- a stone layer of appropriate gradation and thickness to resist the shearing forces of channelized water.

PERFORMATIVE USES & LIMITATIONS

When properly designed and installed, riprap is an effective method where soil conditions, water turbulence and velocity, exposed vegetation cover, and groundwater conditions are such that the soil may erode under the design flow conditions. Some common areas of riprap applicability are:

- stream channel banks and/or bottoms,
- roadside ditches,
- drop structure outlets, and,
- locally eroding banks threatening infrastructure or personal property.

Additionally, properly graded riprap forms a flexible, self-healing cover which can be easily repaired in localized areas by the timely replacement of stone. Uniform-grade riprap can also be used with a geotextile filter cloth.

Filter cloth should only be utilized when the bank material is noncohesive such as sand or gravel.

MATERIAL SPECIFICATIONS

- Filters: Material and design specifications for granular filters are found in Table 3.1a.

Table 3.1a: Granular Filter Material Grading Specifications

% less than	U.S. Standard sieve size
100	2 1/2 in (64 mm)
85-100	1 in (25 mm)
60-100	3/8 in (9.5 mm)
35-70	No. 10
20-50	No. 40
5-20	No. 200

The thickness of the filter cloth should not be less than 6 inches (15 cm). Generally, filters that are one-half the thickness of the riprap layer are satisfactory.

Synthetic filter cloth may be used cautiously based on the 1994 MDE Standards and Specifications for Soil Erosion and Sediment Control.

- Riprap: The maximum diameter or weight of stone for riprap should be based upon the design flow velocity using Figure 3.1. This chart is based on a maximum slope of 2H:1V. The stone gradations for Classes I-III are found in Table 3.1b.

SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2006

MGWC 2.1: RIPRAP

Table 3.1b: Stone Gradations for Riprap Stone Classes

Class	Size	% Total Weight - Given Size
I	150 lb (70 kg)	100
	2 lb (1 kg)	10 max
II	700 lb (320 kg)	100
	20 lb (10 kg)	10 max
III	2000 lb (910 kg)	100
	40 lb (20 kg)	10 max

Uniform-grade riprap should incorporate angular rock to promote interlocking.

Approximate Cost (\$1999)
\$78 per layer ft

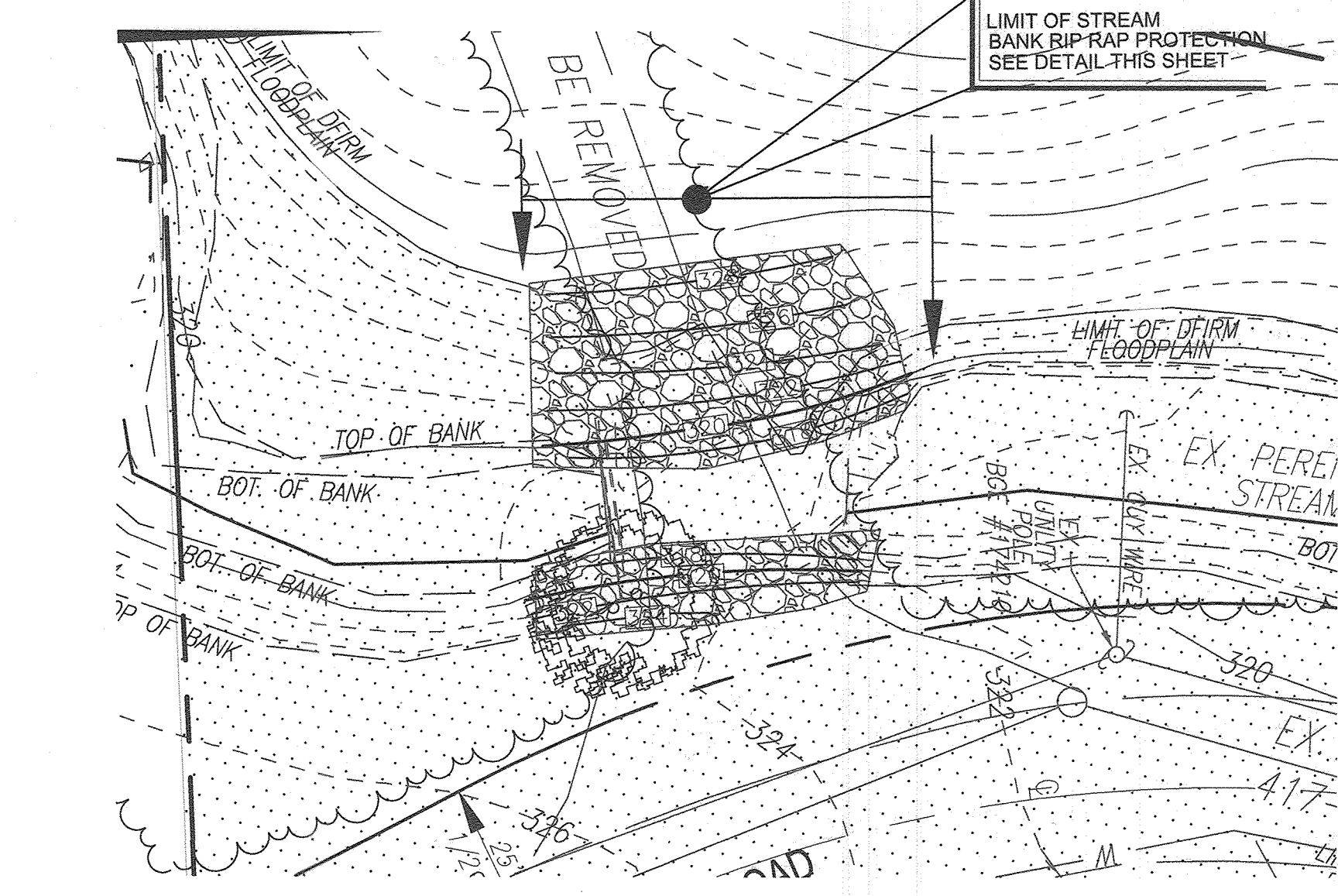
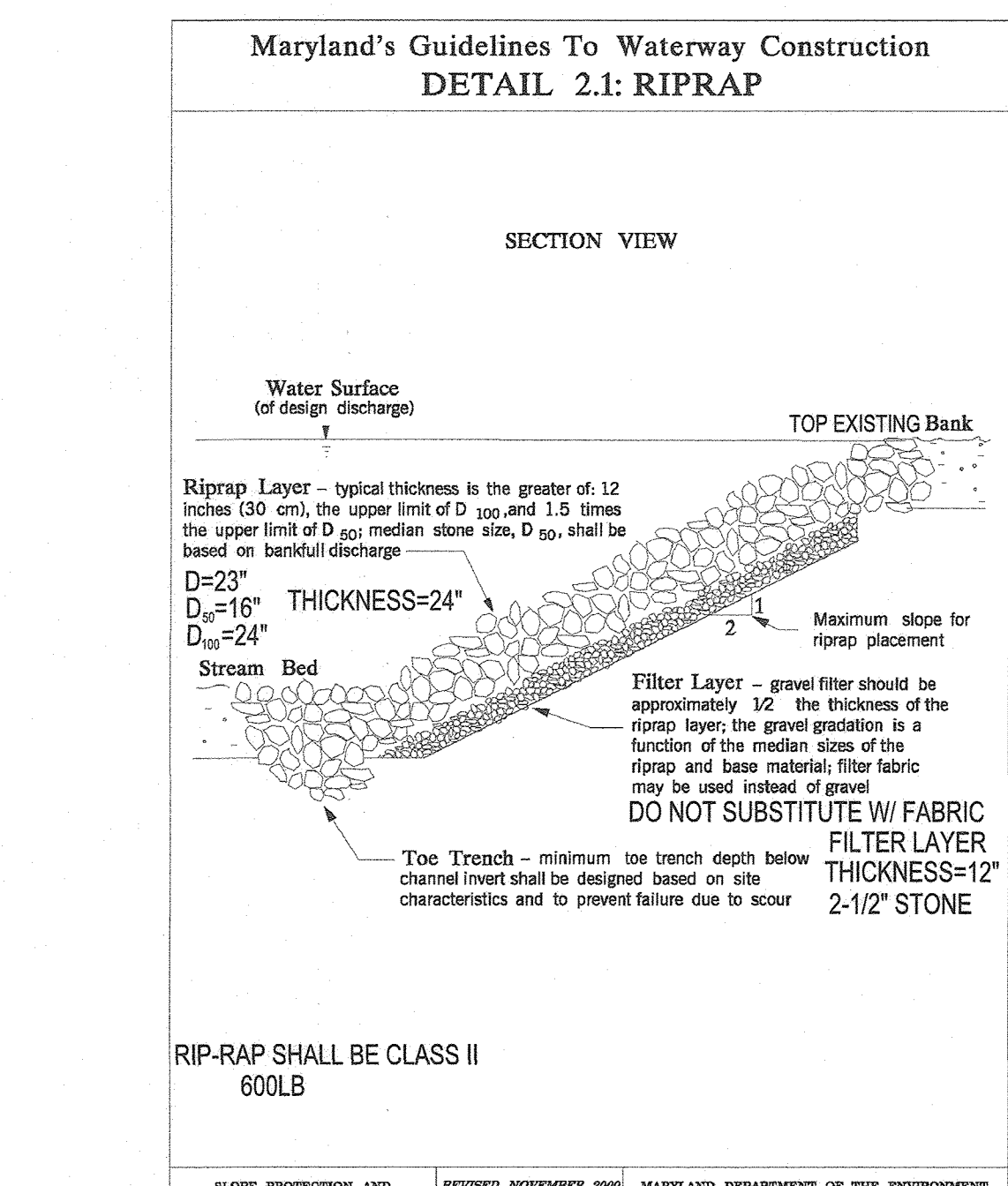
INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Once a slope stabilization project is initiated, preparation and placement of the riprap should immediately follow the initial disturbance to minimize the chance for further slope degradation. The recommended construction procedure for riprap is as follows beginning with initial slope preparations (refer to Detail 2.1):

- The contractor should install all sediment and erosion control devices as the first order of business.
- Excavation should be made in reasonably close conformity with the existing stream slope and bed.
- All fill in the subgrade should be compacted to a density approximating that of the surrounding undisturbed material.
- Provisions must be made to anchor the riprap at the stream bed so as to provide protection against undermining. If this cannot be accomplished by creating a toe trench, an alternative method of protection must receive prior written approval from the WMA or local authority.
- The filter layer or blanket should be placed immediately after slope preparation.
 - The stone for granular filters should be spread in a uniform layer to the specified depths. Where more than one layer is employed, they should be spread such that there is minimal mixing.
 - When cloth filters are used, special care should be taken not to damage the fabric during riprap placement.
- Riprap placement should begin with the toe. The larger stones, as specified by the design gradation, should be placed in the toe and along the perimeter of the slope and channel protection. The riprap should be placed with suitable equipment in such a manner as to produce a reasonably graded mass of stones with zero drop height. The placing of stones that cause excessive segregation is not allowed. Where appropriate, a low flow channel shall be constructed through the riprap.
- Any excavation voids existing along the edges of the completed slope and channel protection should be backfilled and compacted.
- All disturbed areas should be permanently stabilized in accordance with an approved sediment and erosion control plan.

NOTE: The use of rock vanes (MESC 3.3: Rock Vanes) should be considered to redirect high-velocity flows at the toe.

SLOPE PROTECTION AND STABILIZATION TECHNIQUES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2006



STREAM BANK BANK RIP RAP PROTECTION
SCALE 1"=20'

NOTE:
NO ROAD WIDENING OR ROAD IMPROVEMENTS ARE PROPOSED

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James 07/29/2021
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Michael Pfan 9-10-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE

Michael Pfan 8/10/21
CHIEF, DIVISION OF LAND DEVELOPMENT 65 DATE

OWNER/DEVELOPER CERTIFICATION:
I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT.

Michael Pfan 6-25-21
OWNER/DEVELOPER SIGNATURE DATE

Michael Pfan
PRINTED NAME & TITLE

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED UPON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert H. Vogel 5/25/21
DESIGNER'S SIGNATURE DATE

ROBERT H. VOGEL
PRINTED NAME

MD REGISTRATION NO. 16193
(E.D.) R.L.S. OR R.L.A. (circle one)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Borton 6/15/21
HOWARD S.C.D. DATE

OWNER
HAMPTON HILLS, LLC.
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC.
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
STREAM CROSSING REMOVAL - PLAN & DETAILS

HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONE: R-20
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: VETG
CHECKED BY: RHV
DATE: MAY 2021
SCALE: AS SHOWN
W.D. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2022

9 SHEET OF 34

**HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES**

1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOG AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOURS NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 A. PRIOR TO THE START OF EARTH DISTURBANCE.
 B. UPON COMPLETION OF THE INITIAL PHASE OF PERMANENT EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
 C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
 D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, BANKS, SLOPES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE CONSTRUCTION.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-3), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-5).

6. SITE ANALYSIS:
 AREA OF SITE: 8.47 ACRES
 AREA DISTURBED: 5.20 ACRES
 AREA TO BE RESEED OR PLANTED: 1.93 ACRES
 AREA TO BE TEMPORARILY STABILIZED: 1.33 ACRES
 TOTAL CUT: 8.502 CU. YDS. TOTAL
 TOTAL FILL: 3.198 CU. YDS. TOTAL
 OFFSITE WASTE/BORROW AREA LOCATION: N/A

- INSPECTION DATE: _____
 INSPECTION TIME (ROUTINE, PRE-CONSTRUCTION EVENT, DURING RAIN EVENT)
 NAME AND TITLE OF INSPECTOR
 WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
 BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
 EVIDENCE OF SEDIMENT DISCHARGES
 IDENTIFICATION OF PLAN DEFICIENCIES
 IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 PHOTOGRAPHS
 MONITORING/SAMPLING
 MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE)
- TRICHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH DAY, WHICHEVER IS SHORTER.
- ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID) PRIOR TO PROCEEDING WITH CONSTRUCTION. MAJOR REVISIONS MAY ALLOWED BY THE CID PER THE USE OF HSD-APPROVED FIELD CHANGES.
- CONSTRUCTION SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID, UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE. STOCKPILING SHALL BE IN ACCORDANCE WITH THE USE OF HSD-APPROVED FIELD CHANGES.
- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON THE-CONTOUR, AND BE IMBERGATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUDES):
 - USE I AND II FROM MARCH 1 - JUNE 15
 - USE III FROM MARCH 1 - APRIL 30
 - USE IV FROM MARCH 1 - MAY 31
- A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
 TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE
 TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES
 EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA
 A. SEED MIXTURES
 1. GENERAL USE
 A. SEED ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE 8.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DITCHES FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
 D. FOR AREAS HAVING DISTURBED AREAS OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
 E. FOR AREAS HAVING DISTURBED AREAS APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

- TEMPORARY STABILIZATION
 A. SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR DISC PLOWERS OR DISC PLOWERS WITH CONSTRUCTION EQUIPMENT AFTER THE SOIL IS LOOSENED. IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- PERMANENT STABILIZATION
 A. SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 I. SOIL PH BETWEEN 6.0 AND 7.0.
 II. SOIL SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 III. SOIL SOLIDS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 20 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION F. LOOSESOILS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE PLANTED.
 IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 B. AREAS WHICH ARE UNDESIRABLE FOR ANY OF THE ABOVE CONDITIONS, OR ARE NOT MEETING THE ABOVE CONDITIONS, MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCORPED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
 C. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN AND AS INDICATED BY THE RESULTS OF A SOIL TEST.
 D. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LAWN OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SOIL APPLICATION. LOOSEN SURFACE SOIL BY GRADING WITH A HEAVY GRAB OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION. TRACKING SHOULD BE LIMITED TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDING LOOSENESS MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- PERMANENT STABILIZATION
 A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL REQUIRE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE; FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MAINTENANCE TO INTENSIFY PERENNIALS. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE; FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY INTENSIVELY MAINTAINED TURF AREA. MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1.5 TO 2 POUNDS PER 1000 SQUARE FEET.
 V. SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMIC MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" OR CURRENT ACTIVITIES
 IDENTIFICATION OF SEDIMENT DISCHARGES
 IDENTIFICATION OF PLAN DEFICIENCIES
 IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 PHOTOGRAPHS
 MONITORING/SAMPLING
 MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE)

IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
 - WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 6B, 6A)
 - CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
 - SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

- INSTALLATION
 A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOIL.
 B. LAY THE FIRST ROW OF SOU IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOIL IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED THAT IN ORDER TO PREVENT Voids WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
 C. WHEREVER POSSIBLE, LAY SOU WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP. PEG OR OTHERWISE SECURE THE SOU TO PREVENT SURFACE SOIL SLIDING.
 D. SOU MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOU NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
- SOU SPECIFICATIONS
 A. CLASS OF TURFGRASS SOU MUST BE MARYLAND STATE CERTIFIED. SOU LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
 B. SOU MUST BE SUFFICIENTLY THICKNESS OF 3/4 INCH PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GRASS AND THATCH. BROKEN PLANS OR TOM OR UNWEN EDGES WILL NOT BE ACCEPTABLE.
 C. STANDARD SIZE SECTIONS OF SOU MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP. THE UPPER 10 PERCENT OF THE SECTION.
 D. SOU MUST NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT EXCEEDS 100 PERCENT (WET) OR WHEN MOISTURE CONTENT IS LESS THAN 10 PERCENT (DRY).
 E. SOU MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOU NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

- PERMANENT SEEDING SUMMARY
 HARDNESS ZONE (FROM FIGURE B.3): _____ ZONE 6b
 SEED MIXTURE (FROM TABLE 8.3): _____

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	FERTILIZER RATE (10-20-20)			LIME RATE
				N	P ₂ O ₅	K ₂ O	
1	COOL SEASON TALL FESCUE & KENTUCKY BLUEGRASS OR EQUAL	40 LB / AC	MAR 1 TO MAY 15 OCT 15 TO OCT 15	45 LB / AC (1 LB PER 1000 SF)	90 LB / AC (2 LB PER 1000 SF)	90 LB / AC (2 LB PER 1000 SF)	2 TONS/AC
- SOU INSTALLATION
 A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOU.
 B. LAY THE FIRST ROW OF SOU IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOIL IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED THAT IN ORDER TO PREVENT Voids WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
 C. WHEREVER POSSIBLE, LAY SOU WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP. PEG OR OTHERWISE SECURE THE SOU TO PREVENT SURFACE SOIL SLIDING.
 D. SOU MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOU NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

- SOU MAINTENANCE
 A. DO NOT MOW UNTIL THE SOU IS FIRMLY ROOTED. NO MORE THAN 1/2 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

PERMANENT SEEDING SUMMARY
 HARDNESS ZONE (FROM FIGURE B.3): _____ ZONE 6b
 SEED MIXTURE (FROM TABLE 8.3): _____

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	FERTILIZER RATE (10-20-20)			LIME RATE
				N	P ₂ O ₅	K ₂ O	
1	COOL SEASON TALL FESCUE & KENTUCKY BLUEGRASS OR EQUAL	40 LB / AC	MAR 1 TO MAY 15 OCT 15 TO OCT 15	45 LB / AC (1 LB PER 1000 SF)	90 LB / AC (2 LB PER 1000 SF)	90 LB / AC (2 LB PER 1000 SF)	2 TONS/AC

NOTES

DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN HEREON.

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

- 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.
- 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE 8/10/21
 CHIEF, DIVISION OF LAND DEVELOPMENT 68 DATE 8/19/21

R-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

DEFINITION
 THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
 TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
 WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA
 A. SOIL PREPARATION
 1. TEMPORARY STABILIZATION
 A. SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR DISC PLOWERS OR DISC PLOWERS WITH CONSTRUCTION EQUIPMENT AFTER THE SOIL IS LOOSENED. IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 A. SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 I. SOIL PH BETWEEN 6.0 AND 7.0.
 II. SOIL SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 III. SOIL SOLIDS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 20 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION F. LOOSESOILS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE PLANTED.
 IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 B. AREAS WHICH ARE UNDESIRABLE FOR ANY OF THE ABOVE CONDITIONS, OR ARE NOT MEETING THE ABOVE CONDITIONS, MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCORPED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
 C. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN AND AS INDICATED BY THE RESULTS OF A SOIL TEST.
 D. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LAWN OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SOIL APPLICATION. LOOSEN SURFACE SOIL BY GRADING WITH A HEAVY GRAB OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION. TRACKING SHOULD BE LIMITED TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDING LOOSENESS MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- TEMPORARY STABILIZATION
 A. SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR DISC PLOWERS OR DISC PLOWERS WITH CONSTRUCTION EQUIPMENT AFTER THE SOIL IS LOOSENED. IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
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 C. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN AND AS INDICATED BY THE RESULTS OF A SOIL TEST.
 D. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LAWN OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SOIL APPLICATION. LOOSEN SURFACE SOIL BY GRADING WITH A HEAVY GRAB OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION. TRACKING SHOULD BE LIMITED TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDING LOOSENESS MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

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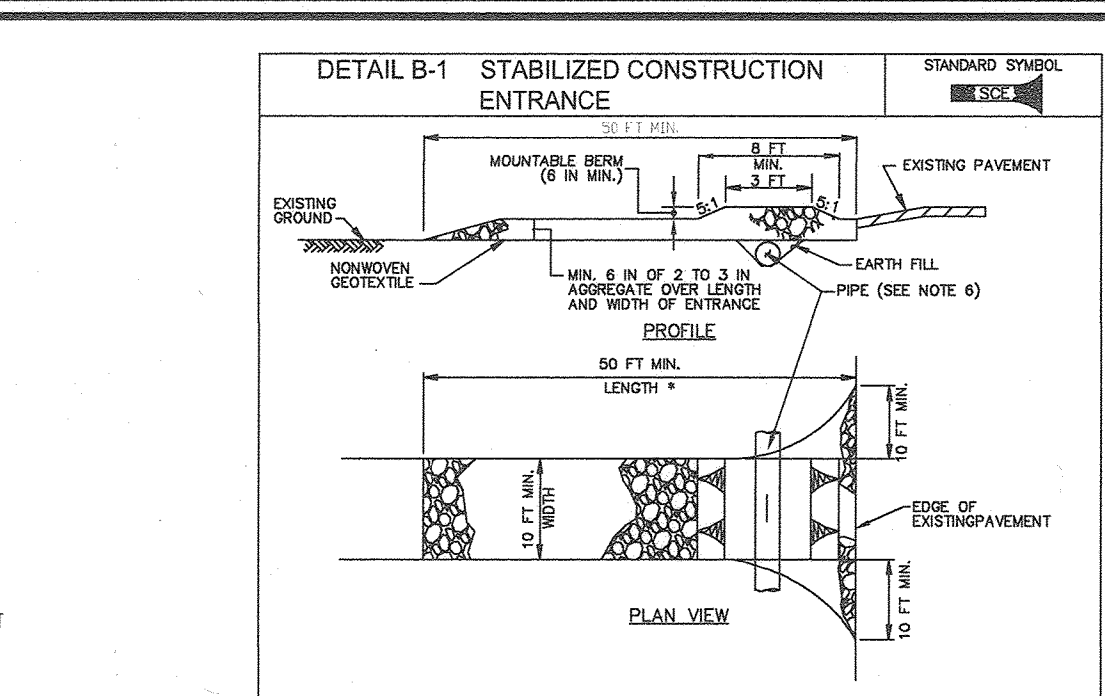
B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION
 THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
 TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
 TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA
 A. SEEDING
 1. SPECIFICATIONS
 A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE 8.4 REGARDING THE QUALITY OF SEED. SEED MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 B. MULCH ALONE MAY BE USED TO PROTECT THE FALL AND SPRING SEEDING ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWES.
 C. INCULCANTS THE INCULCANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA BACTERIA SPECIALLY FOR THE SPECIES.
 D. TOPSOIL MUST NOT BE USED LATER THAN DATE INDICATED ON THE CONTAINER. ADD FRESH INCULCANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSCOPIC. NOTE: IT IS VERY IMPORTANT TO KEEP MIXTURES AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 90 DEGREES FAHRENHEIT CAN KILL BACTERIA AND MAKE THE INCULCANT LESS EFFECTIVE.
 E. SOU OR SOU MUST NOT BE PLACED ON SOU WHICH HAS BEEN TREATED WITH SOU STERILANTS UNLESS THE STERILANTS ARE COMPLETELY WASHED OFF. PRESENT TIME HAS EXPIRED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHITO-TOXIC MATERIALS.
 2. APPLICATION
 A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE 8.1, PERMANENT SEEDING TABLE 8.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDING AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOU CONTACT.
 B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOU.
 I. CULTIPACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOU COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 C. HYDROSCOPIC: APPLY SEED UNIFORMLY WITH HYDROSCOPER (SQUIRY INCLUDES SEED AND FERTILIZER).
 I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: 200 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; 2000 POUNDS PER ACRE; 400 POUNDS PER ACRE; 200 POUNDS PER ACRE.
 II. LIME USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSCOPING). NORMALLY, NO MORE THAN 2 TONS ARE APPLIED BY HYDROSCOPING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSCOPING.
 III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 IV. WHEN HYDROSCOPING DO NOT INCORPORATE SEED INTO THE SOU.
 B. MULCHING
 1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 A. STRAW CONSISTING OF THOROUGHLY THRESHED WHOLE, LIVE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOULDY, CAVED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE FIBER.
 I. WCFM IS TO BE DIED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SQUIRY.
 II. WCFM INCLUDING DYE MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM DISPERSION IN WATER UNDER AGITATION AND WILL BLEND WITH SOU, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SQUIRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOU WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHITO-TOXIC.
 V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 1 MILLIMETERS; DIAMETER APPROXIMATELY 1 MILLIMETER; PH PARTICLES OF 4.0 TO 8.5; ASH CONTENT OF 1.8 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MAXIMUM.
 2. APPLICATION
 A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOU SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
 C. WOOD CELLULOSE FIBER MULCH IS TO BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER MULCH WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 3. ANCHORING
 A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOU SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 II. WOOD CELLULOSE FIBER MULCH MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 200 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 III. SYNTHETIC ENDERS SUCH AS ACRYLIC DLP (ACRO-TACK), DCA-70, PREFOREST, TERA-4, TERA-40 OR OTHER SIMILAR MIXTURES MAY BE USED. APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 N. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.



CONSTRUCTION NOTES
 1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE ENTRANCE. MINIMUM LENGTH OF 50 FEET (100 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SIDE TO 10 FEET MINIMUM AT THE ENTRANCE.
 2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED THROUGH THE ENTRANCE UNDER THE ENTRANCE. INSTALL 12 INCH DIAMETER GALVANIZED STEEL PIPES BEING INSTALLED THROUGH THE ENTRANCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. PROVIDE A MINIMUM OF 24 INCHES OF STONE OVER THE PIPE AND NO MORE THAN 2 INCHES OF STONE OVER THE PIPE. A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SOU IS NOT USED.
 3. PREPARE SUBGRADE AND PLACE NON

DEWATERING STRATEGY

Dewatering refers to the act of removing and discharging water from excavated areas on construction sites or from sediment traps or basins on construction sites. Standards and specifications for dewatering practices follow:

These standards apply to removal and discharge of water from any excavated area or sediment trap or basin at any construction site. Given the unique conditions of any particular construction site, any or all of the practices may apply. Regardless of the applicability of the practices listed herein, operators are required to use acceptable procedures for maintenance and dewatering. In all cases, every effort shall be made to eliminate sediment pollution associated with dewatering.

Designers shall specify the preferred procedures for dewatering on plans. In particular, designers should specify procedures for dewatering sediment traps and basins prior to elimination of the last sediment control facility on the site or prior to conversion of sediment control facilities to stormwater management facilities. Recommended procedures shall be consistent with best standards. Applicable site conditions may require innovative dewatering designs. Dewatering measures not referenced in this standard may be used with the consent of the approval authority.

Dewatering of Excavated Areas

Designers shall specify on plans, and in sequences of construction included on plans, practices for dewatering of excavated areas. Plan reviewers shall check to see that procedures for dewatering are included on plans.

Approved Practices for Dewatering of Excavated Areas

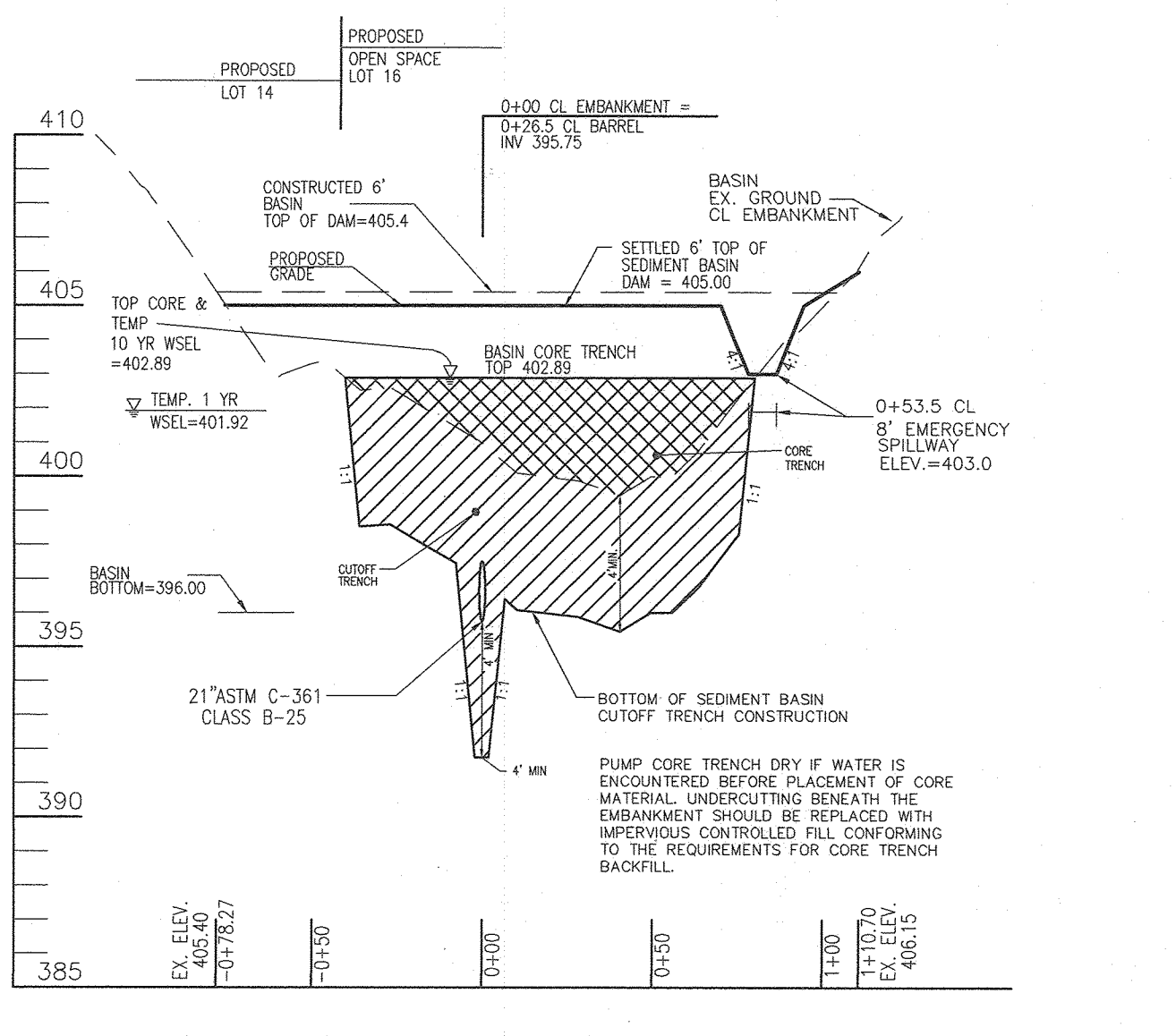
1. Pumping of water to an existing sediment basin or trap in which the entire volume of water from the site is to be dewatered can be contained without discharge to receiving waters.
2. Pumping of water to an existing sediment basin or trap such that the entire volume of water from the area to be dewatered can be managed without exceeding the design outflow from the sediment control structure.
3. Removable Pumping Station - Standards and specifications for Removable Pumping Station are on Detail 208.
4. Use of a Sump Pit - Standards and specifications for a sump pit are on Detail 208.
5. Sediment Tank - Standards and specifications for a sump pit are on Detail 21.

Dewatering of Sediment Traps and Basins

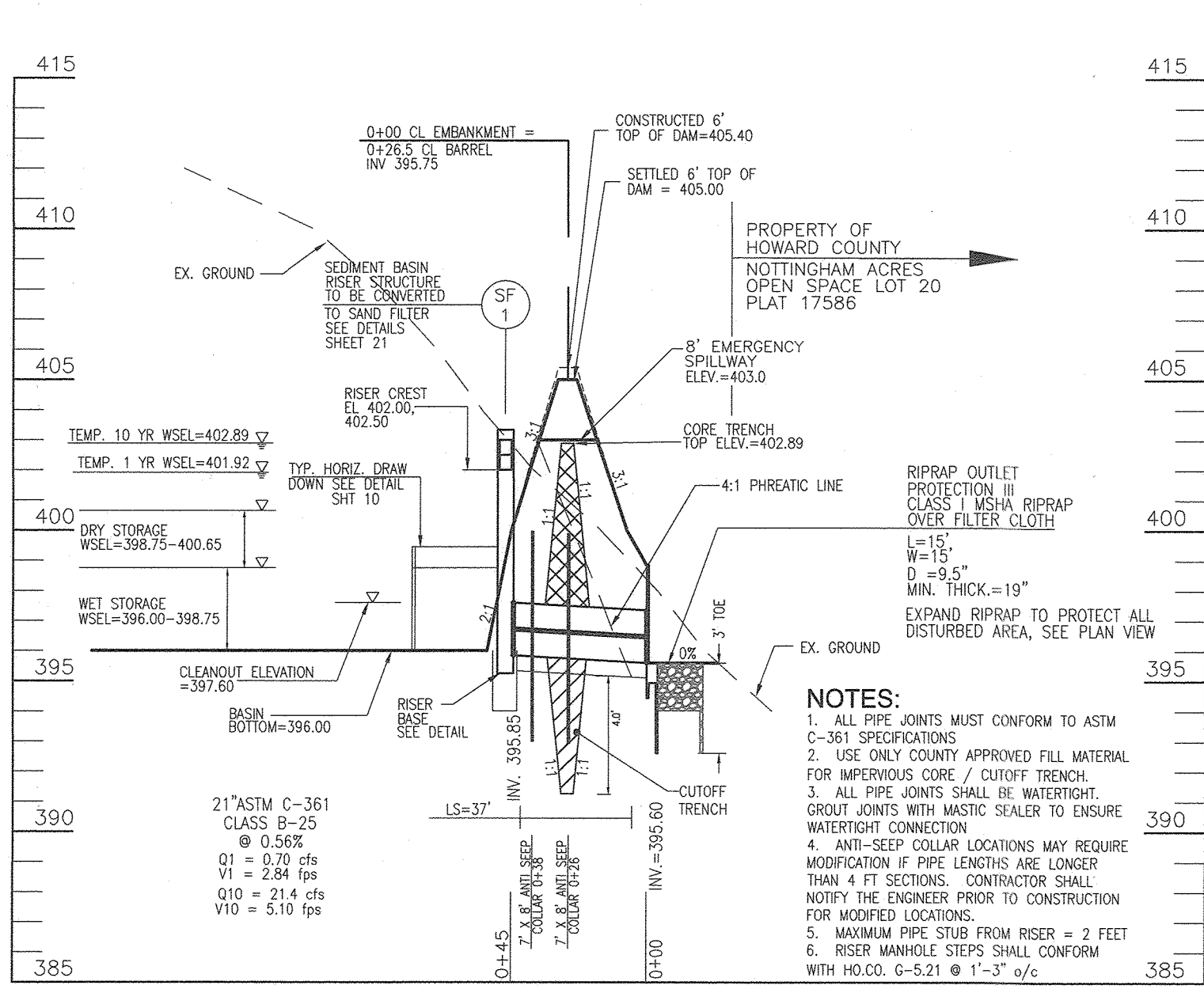
Designers shall specify on plans, and in sequences of construction included on plans, the practices for dewatering of traps and basins. Plan reviewers shall check to see that procedures for dewatering to be used are included on plans. In all cases, water removed from sediment basins shall be discharged so that it passes through a sediment control device prior to entering receiving waters.

Approved Practices for Dewatering of Traps and Basins

1. Removable Pumping Station.
2. Use of a Sump Pit.
3. Use of a floating suction hose to pump the clearer water from the top of the pond. As the clearer water is pumped the suction hose will lower and eventually enclose sediment basins water. When this happens the pumping operation will cease. Provisions shall be made to filter water.



PROFILE ALONG CL OF BASIN EMBANKMENT
SCALE: HORIZONTAL = 1"=50'
VERTICAL = 1"=5'



SEDIMENT BASIN #1*
PROFILE ALONG CL OF BARREL
SCALE: HORIZONTAL = 1"=50'
VERTICAL = 1"=5'

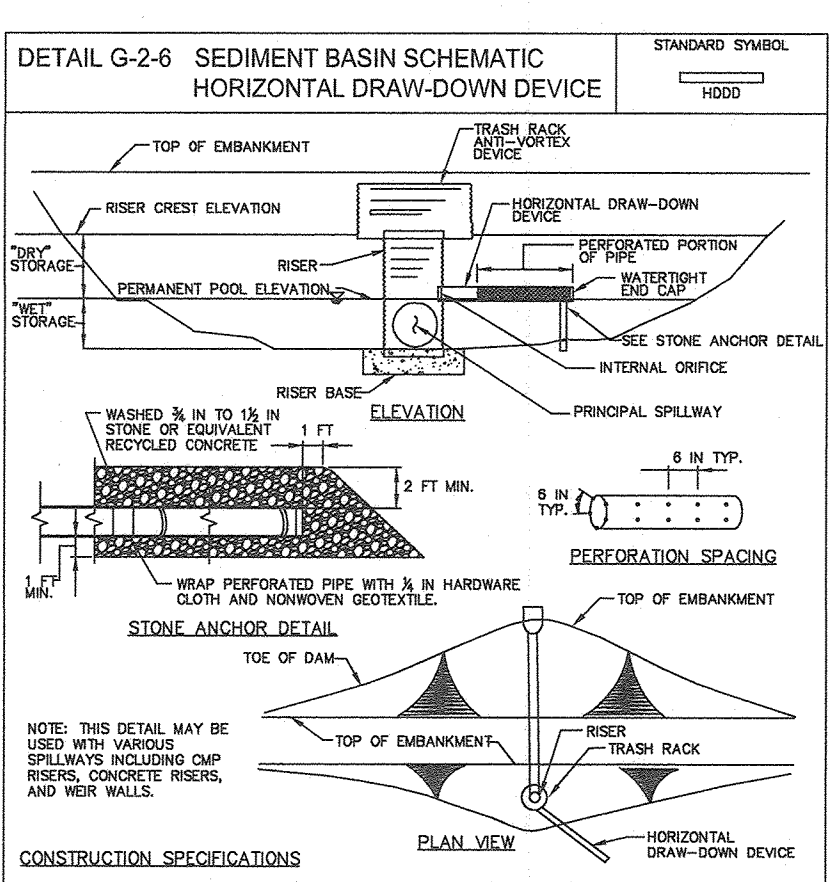
NOTES:

1. A GEOTECHNICAL ENGINEER IS TO BE PRESENT ON-SITE TO SUPERVISE THE CONSTRUCTION OF THE IMPERVIOUS CORE / CUTOFF TRENCH, PER MD-318 SPECIFICATIONS.
2. IMPERVIOUS CORE MATERIAL SHALL BE CENTER PRIOR TO PLACEMENT OF CORE APPROVED FILL MATERIAL.
3. THE SITE SHALL BE STABILIZED OF TOPSOIL AND ANY OTHER UNDESIRABLE MATERIALS FROM THE EMBANKMENT OF STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED. THE EXPOSED SUBSTRATE MATERIALS SHOULD BE PROOF-ROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, EXPOSED MATERIAL SHALL BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER, ANY SUICING SOFT OR LOSS MATERIALS IDENTIFIED BY PROOF ROLLING OR PENETROMETER TESTING SHOULD BE DISCARDED TO ADEQUATELY FIRM SOIL AND THEN REESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

* SEDIMENT BASIN #1
BASIN & RISER (SF-1) SHALL BE CHEEVED TO THE PROJECTS SAND FILTER, SEE SHEET 21.

CONSTRUCTION SPECIFICATIONS

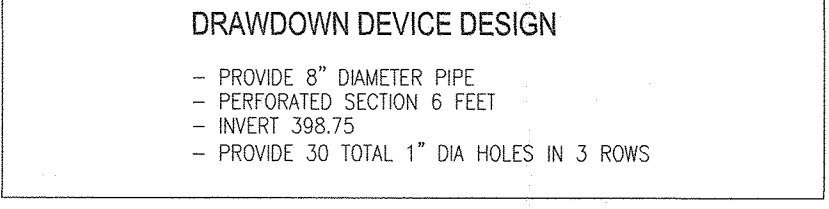
1. INSTALL SEDIMENT CONTROL PRACTICES NECESSARY TO CONSTRUCT BASIN, CLEAR AND GRUB TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL FROM THE AREAS WHERE THE EMBANKMENT IS TO BE PLACED. DO NOT CLEAR THE POOL AREA UNTIL COMPLETION OF THE EMBANKMENT IS TO BE USED FOR BORROW, SALVAGE TOPSOIL FOR LATER USE.
2. EXCAVATE CUT-OFF TRENCH ALONG CENTERLINE OF PROPOSED EMBANKMENT A MINIMUM DEPTH OF 4 FEET AND A BOTTOM (MIN. 4 FEET) WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT. CONSTRUCT SIDE SLOPES 1:1 OR FLATTER. CUT-OFF TRENCH MUST BE CONTINUOUS AND EXTEND THE ENTIRE LENGTH OF EMBANKMENT. COMPACTION REQUIREMENTS ARE THE SAME AS THOSE FOR THE EMBANKMENT. DENATURE THE TRENCH DURING THE BACKFILLING COMPACTION OPERATIONS, USING AN APPROVED PRACTICE.
3. CONSTRUCT EMBANKMENT OF CLEAN SOIL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL. FILL MATERIAL FOR IMPERVIOUS CORE AND CUT-OFF TRENCH MUST CONFORM TO UNITED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30 PERCENT PASSING THE #200 SIEVE. USE FILL MATERIAL CONTAINING SUFFICIENT MOISTURE SO THAT THE SOIL CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN SIX-INCH TO EIGHT INCH THICK CONTINUOUS LIFTS OVER THE ENTIRE LENGTH OF THE FILL. OBTAIN COMPACTION BY PASSING CONSTRUCTION EQUIPMENT OR COMPACTOR OVER THE FILL, SO THAT THE ENTIRE SURFACE OF EACH LAYER OF FILL IS TRAVERSED AT LEAST FOUR TIMES. CONSTRUCT THE EMBANKMENT TO AN ELEVATION A MINIMUM OF 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT.
4. INSTALL PRINCIPAL SPILLWAY PRIOR TO, OR CONCURRENTLY WITH, FILL PLACEMENT. DO NOT EXCAVATE EMBANKMENT FOR PLACEMENT OF SPILLWAY. ALL PIPE CONNECTIONS, INCLUDING ANTI-SEEP COLLARS MUST BE COMPLETELY WATER-TIGHT. INSTALL FILTER DIAPHRAGM WHEN SPECIFIED ON PLAN. BARREL CONNECTION TO RISER MUST BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ATTACH BARREL STUD TO RISER AT THE SAME POINT (SLOPE) OF GRADE AS THE BARREL FOR CONCRETE RISER/BARREL ASSEMBLY. POUR RISER WITH BARREL IN PLACE OR SET PRE-CAST RISER AND INSTALL PROTECTION COLLAR FOR WATER-TIGHT CONNECTION. PLACE FILL MATERIAL AROUND THE PIPE SPILLWAY IN FOUR (4) INCH LIFTS AND COMPACT AROUND THE PIPE TO A DEPTH OF 1.5 TIMES THE PIPE DIAMETER (MINIMUM). SECURELY INSTALL ANTI-VORTEX DEVICE AND TRASH RACK AS SHOWN ON PLAN.
5. INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED NATURAL GROUND. CONSTRUCT SPILLWAY WITH A TOLERANCE OF ± 0.2 FEET.
6. STABILIZE EMBANKMENT AND ASSOCIATED DISTURBED AREAS WITHIN THREE (3) DAYS OF COMPLETION WITH SEED AND MULCH. MONITOR EMBANKMENT AND MAINTAIN EROSION FREE DURING THE LIFE OF THE BASIN.
7. INSTALL FENCING AND SIGNAGE IN ACCORDANCE WITH THE APPROVED PLAN.
8. REMOVE SEDIMENT WHEN ACCUMULATED MATERIAL HAS REACHED 25 PERCENT OF THE TOTAL STORAGE DEPTH. RESTORE BASIN TO ORIGINAL DESIGN VOLUME. PLACE REMOVED SEDIMENTS IN A CONTROLLED AREA AND STABILIZE. DO NOT DEPOSIT SEDIMENT DOWNSTREAM OF THE EMBANKMENT, ADJACENT TO A STREAM OR FLOODPLAIN.
9. WHEN THE CONTRIBUTING DRAINAGE AREA IS STABLE, THE BASIN CAN BE REMOVED IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN.
10. A SEDIMENT BASIN DESIGNED, BUILT, AND CERTIFIED AS A STORMWATER MANAGEMENT STRUCTURE, MAY BE CONVERTED WHEN THE CONTRIBUTORY DRAINAGE AREA IS STABLE. PROPERLY DENERATE BASIN, MODIFY OUTLET STRUCTURE, PERFORM ADDITIONAL GRADING, AND PROVIDE REQUIRED STORAGE VOLUME IN ACCORDANCE WITH APPROVED STORMWATER MANAGEMENT PLANS.



DETAIL G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE

CONSTRUCTION SPECIFICATIONS
1. PERFORATE PIPE WITH 1/2 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND TRANSVERSELY IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH A HIGH GALVANIZED STEEL STRIP 2 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORS, SECURE DRAW-DOWN DEVICE WITH TWO (2) INCH STEEL ANCHORS SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH DIAMETER GALVANIZED STEEL STRIP OR 1/2 INCH HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN ACCUMULATED TO DESIGN ELEVATION SIDE OF THE WET STORAGE DEPTH. DEPTH DEPOSITED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT EXCEED MAXIMUM WET SOFT CONE STRENGTH REPLACE GEOTEXTILE ABOVE PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION



DRAWDOWN DEVICE DESIGN

CONSTRUCTION SPECIFICATIONS
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1/2 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 1/2 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE SHOULD BE COMPACTED WITH WATER-TIGHT SEAL.
3. WRAP EACH PIPE WITH 1/2 INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONVORTEX GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXPOSED SUBSTRATE MATERIALS SHOULD BE PROOF-ROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, EXPOSED MATERIAL SHALL BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER, ANY SUICING SOFT OR LOSS MATERIALS IDENTIFIED BY PROOF ROLLING OR PENETROMETER TESTING SHOULD BE DISCARDED TO ADEQUATELY FIRM SOIL AND THEN REESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION (WHEN DENERATING A BASIN).
6. BACKFILL AROUND THE OUTER PIPE WITH 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED MATERIAL AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP TOP OF DISCHARGE PIPE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION

OWNER DEVELOPER

OWNER: HAMPTON HILLS, LLC, 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043, (410) 480-0023
DEVELOPER: TRINITY HOMES MARYLAND, LLC, 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043, (410) 480-0023

SEDIMENT BASIN #1

PLAN VIEW SHEET 15	ACRES
DRAINAGE AREA - INITIAL	6.2
DRAINAGE AREA - INTERIM	6.2
DRAINAGE AREA - FINAL	5.8
TOTAL STORAGE REQUIRED	23,330
TOTAL STORAGE PROVIDED	23,263
WET STORAGE REQUIRED	11,160
WET STORAGE PROVIDED	11,214
DRY STORAGE REQUIRED	11,160
DRY STORAGE PROVIDED	11,349
BASIN BOTTOM ELEVATION	396.00
BASIN BOTTOM DIMENSIONS	SEE PLAN
DRY STORAGE ELEVATION	402.65
OUTLET (WET STORAGE) ELEVATION	398.75
CLEANOUT ELEVATION (1)	397.60
TOP OF EMBANKMENT ELEVATION	405.00
SIDE SLOPE (NSIDE)	3:1
EMBANKMENT TOP WIDTH	6
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)	21" ASTM C-361 CLASS B-25
RISER DIAMETER / CREST ELEVATION	SEE DETAILS
BARREL DIAMETER	SEE DETAILS
TRASH RACK DIAMETER	SEE DETAILS
TRASH RACK HEIGHT	N/A
ANTI-SEEP COLLAR DIMENSIONS	7 x 6
OUTLET PROTECTION - LENGTH	15'
OUTLET PROTECTION - WIDTH	15'
OUTLET PROTECTION - DEPTH	19"

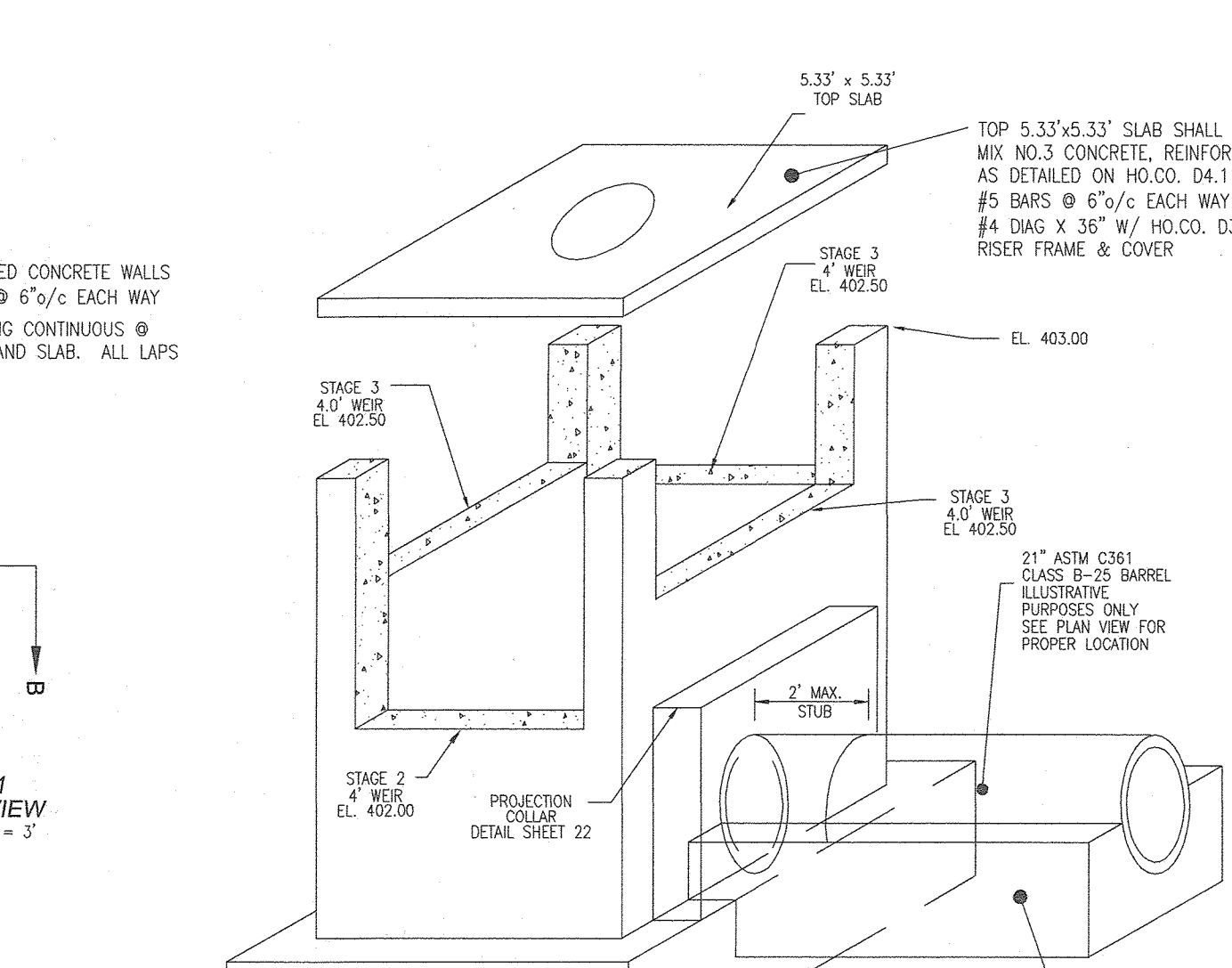
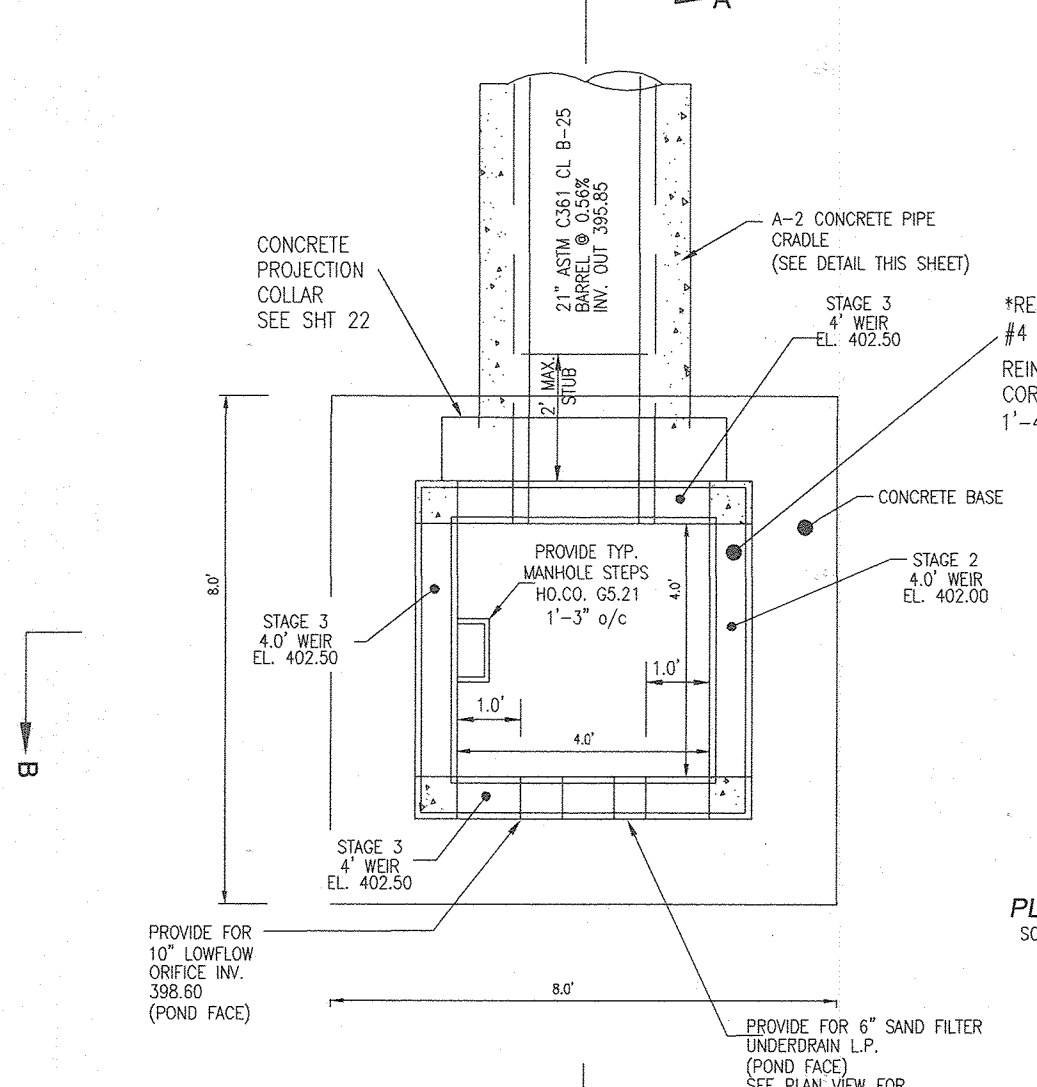
REFER TO SHEET 20 FOR:
(1) MARK CLEANOUT ELEVATION OR RISER
- Baffle Design/Detail
- Anti-Seep Collar Design/Detail
- Drawdown Device Design/Detail
- Riser Base Design/Detail
- Anti-Vortex Design/Detail

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION

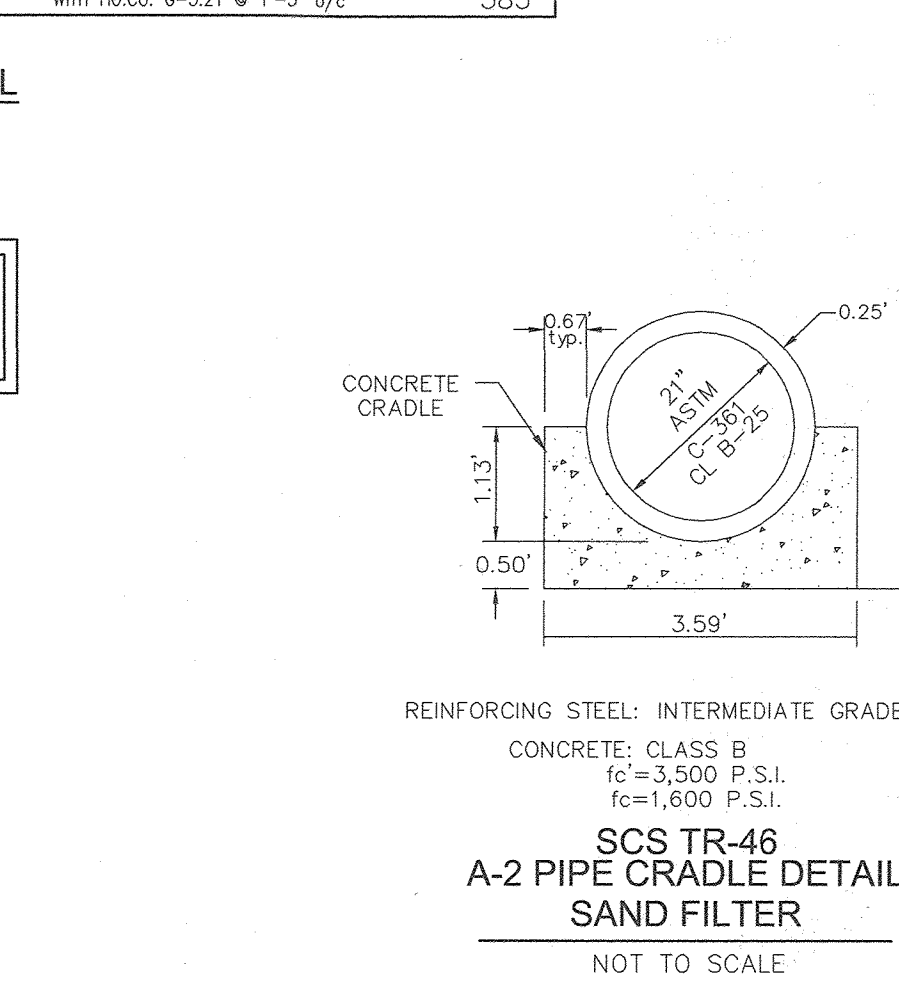
BASIN MAINTENANCE

Sediment and debris must be removed and the basin restored to its original dimensions when sediment accumulation to the original elevation (50% of the wet storage depth). Removed sediment must be deposited in an approved area in such a manner that it will not erode. The points of inflow and outflow as well as the interior of the basin must be cleared of any accumulated debris and kept free of erosion. The embankments must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Any trees, brush, or other woody vegetation growing on the embankment or near the principal spillway must be removed. The fire, grade, and cross section must be maintained. Water light connections must be maintained.

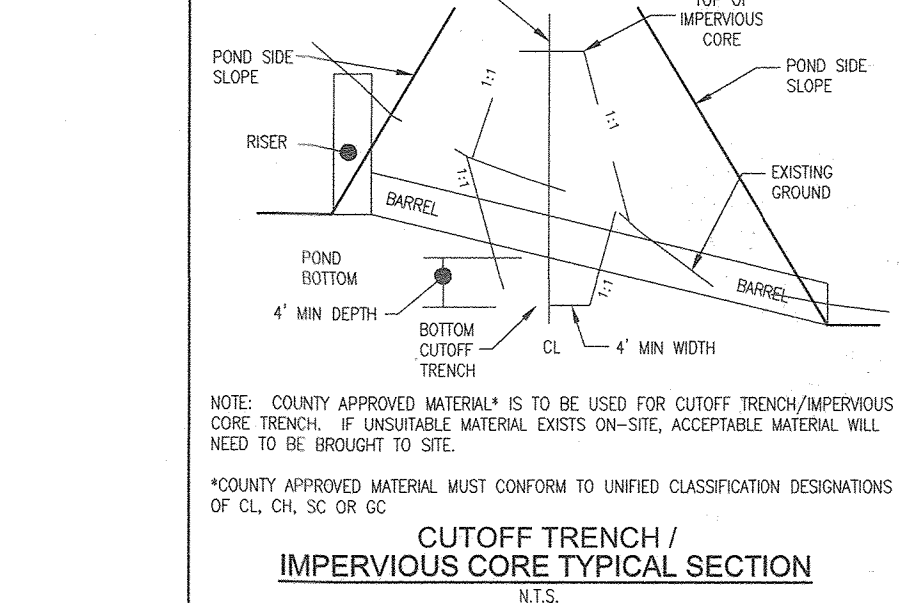
If the dry storage volume does not drain within 10 hours, the geotextile around the draw-down device must be replaced.



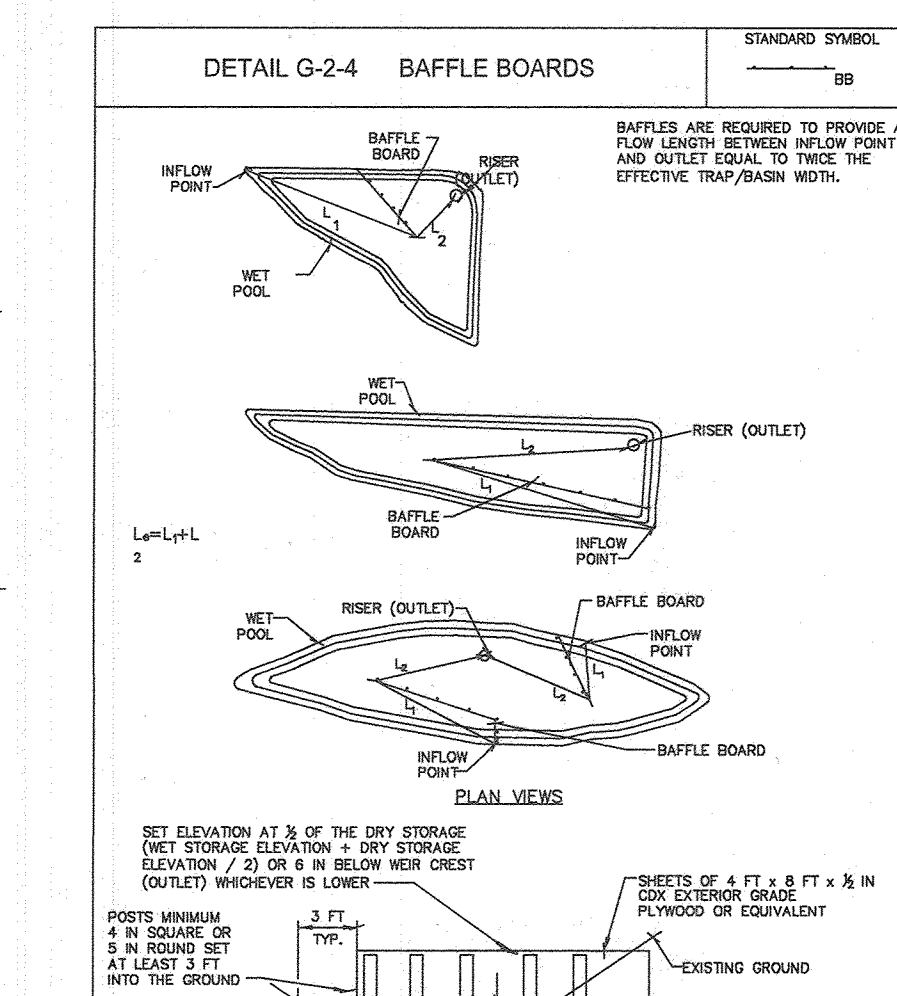
SF-1 ISOMETRIC VIEW N.T.S.



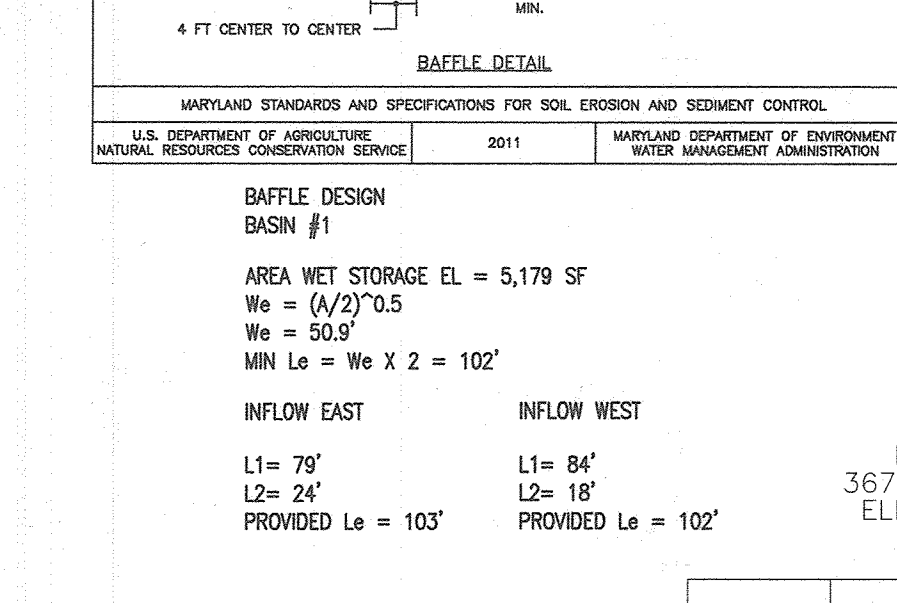
SCS TR-46 A-2 PIPE CRADLE DETAIL SAND FILTER NOT TO SCALE



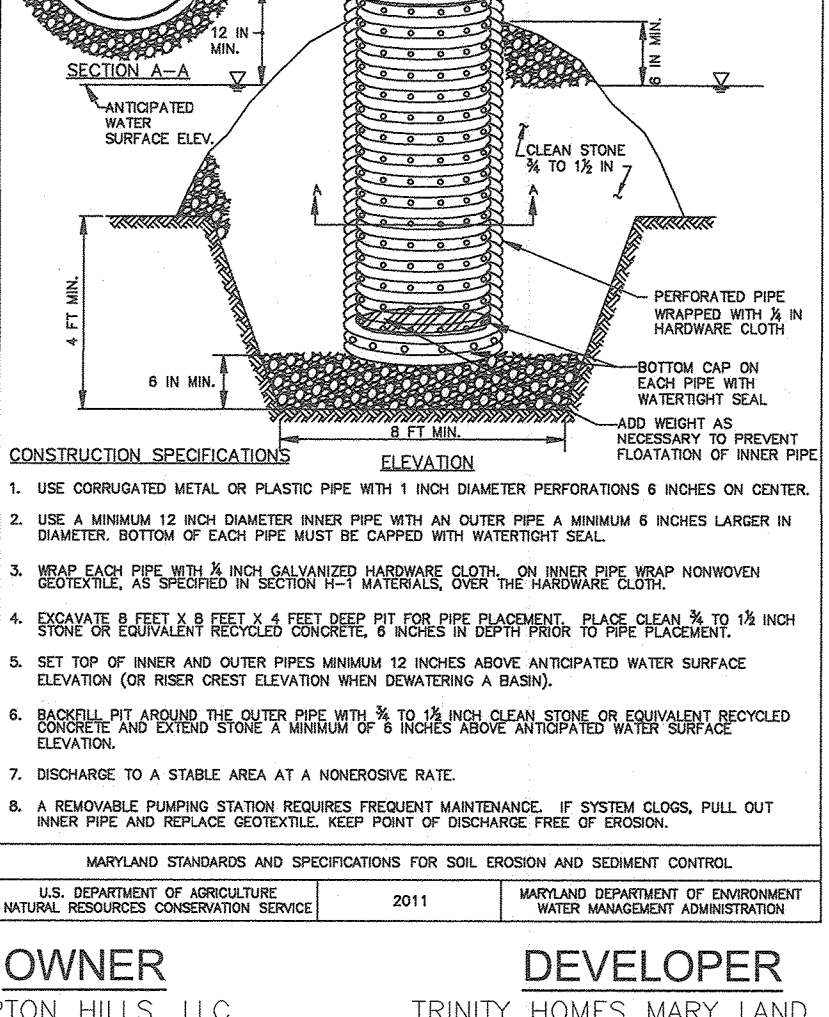
CUTOFF TRENCH / IMPERVIOUS CORE TYPICAL SECTION N.T.S.



DETAIL G-2-4 Baffle Boards



Baffle Design Detail



DETAIL F-1 REMOVABLE PUMPING STATION

CONSTRUCTION SPECIFICATIONS
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1/2 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 1/2 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE SHOULD BE COMPACTED WITH WATER-TIGHT SEAL.
3. WRAP EACH PIPE WITH 1/2 INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONVORTEX GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXPOSED SUBSTRATE MATERIALS SHOULD BE PROOF-ROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, EXPOSED MATERIAL SHALL BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER, ANY SUICING SOFT OR LOSS MATERIALS IDENTIFIED BY PROOF ROLLING OR PENETROMETER TESTING SHOULD BE DISCARDED TO ADEQUATELY FIRM SOIL AND THEN REESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION (WHEN DENERATING A BASIN).
6. BACKFILL AROUND THE OUTER PIPE WITH 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED MATERIAL AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP TOP OF DISCHARGE PIPE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION

THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.

John P. Platon 6/13/21
HOWARD COUNTY CONSERVATION DISTRICT

OWNER/DEVELOPER CERTIFICATION:
I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING RESPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I SHALL ENGAGE A MARYLAND REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION, AND PROVIDE THE HOWARD COUNTY CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I CERTIFY NOT TO CONDUCT ANY FURTHER ON-SITE EROSION EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT, AND/OR MDE.

Michael P. Am 5-25-21
MICHAEL P. AM, REGISTERED PROFESSIONAL ENGINEER
PRINTED NAME & TITLE

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD COUNTY CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Robert H. Vogel 5/25/21
ROBERT H. VOGEL, REGISTERED PROFESSIONAL ENGINEER
PRINTED NAME & TITLE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
June 07/29/2021
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John P. Platon 8-10-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF LAND DEVELOPMENT
John P. Platon 8/16/21
CHIEF, DIVISION OF LAND DEVELOPMENT OS DATE

REINFORCEMENT NOTE
STRUCTURAL ENGINEER SHALL VERIFY REINFORCEMENT SPECIFIED IS ADEQUATE FOR APPLICATION

NOTE
REFER TO SHEET 21 FOR TRASH RACK DETAILS

NOTE
REFER TO SHEET 21 FOR TRASH RACK DETAILS

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NOTE
REFER TO SHEET 21 FOR TRASH RACK DETAILS

NO.	REVISE TO ADD ENTRANCE FEATURE	REVISION	DATE
1			9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
SEDIMENT BASIN & SOIL EROSION AND SEDIMENT CONTROL PLAN - NOTES AND DETAILS
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BOLLING BRANCH ROAD
ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

VOGEL ENGINEERING

TIMMONS GROUP

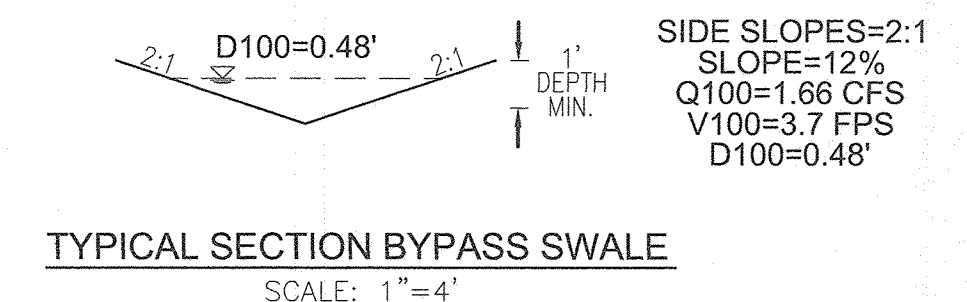
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: VETG
CHECKED BY: RHV
DATE: MAY 2021
SCALE: AS SHOWN
W.C. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 10193 EXPIRATION DATE: 09-27-2022

12 SHEET OF 34



- NOTES:**
1. WORST CASE 5 MIN. TC ASSUMED THROUGHOUT DESIGN.
 2. PERCENT IMPERVIOUS SHOWN, IGNORES STORMWATER MANAGEMENT "CREDITS", I.E. ROOFTOP DISCONNECTS.
 3. DESIGN ASSUMES COMPLETE FAILURE OF PROPOSED MICRO-SCALE PRACTICES.

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELlicott CITY, MD 21043
(410) 480-0023

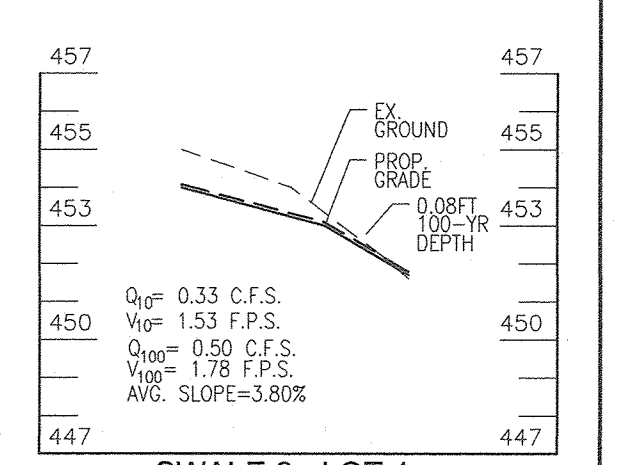
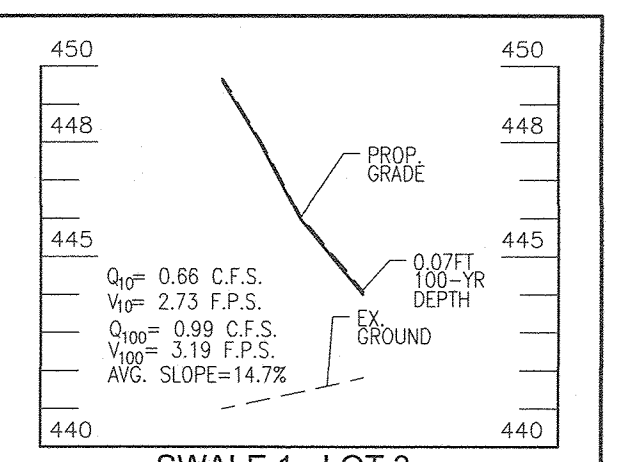
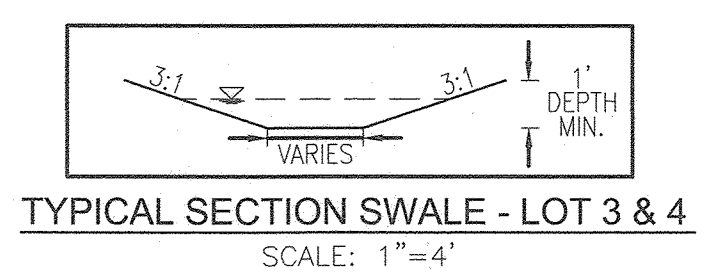
DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELlicott CITY, MD 21043
(410) 480-0023

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND CUTTER
- EXISTING EDGE OF PAVING
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING STREAM BUFFER
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- DRAINAGE AREA DAVID
- PROPOSED MICRO-BIOTRENTATION FACILITY (M-B)
- PROPOSED DRY WELL (M-S)
- 10' PUBLIC TREE MAINTENANCE EASEMENT
- 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PRIVATE DRAINAGE & UTILITY EASEMENT
- PRIVATE SWIM DRAINAGE & UTILITY EASEMENT
- 30' PUBLIC SEWER, WATER & UTILITY EASEMENT
- PROPOSED INLET
- PROPOSED STORM DRAIN PIPE
- OVERFLOW PATH
- AREA OF PONDING 1-19 CLOG

TYPICAL SWALE SECTION DATA

ID	Q10 CFS	VELOCITY FPS	DEPTH FT	SLOPE F1/FT	BOTTOM WIDTH
LOT 3	0.35	2.24	0.07	0.079	4"
LOT 4	0.96	3.01	0.13	0.068	3"



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

[Signature] 8/19/21
 CHIEF, DIVISION OF LAND DEVELOPMENT es DATE

REVISED FINAL ROAD CONSTRUCTION PLAN

STORM DRAIN DRAINAGE AREA MAP

HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4785 BONNIE BRANCH ROAD
ELlicott CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

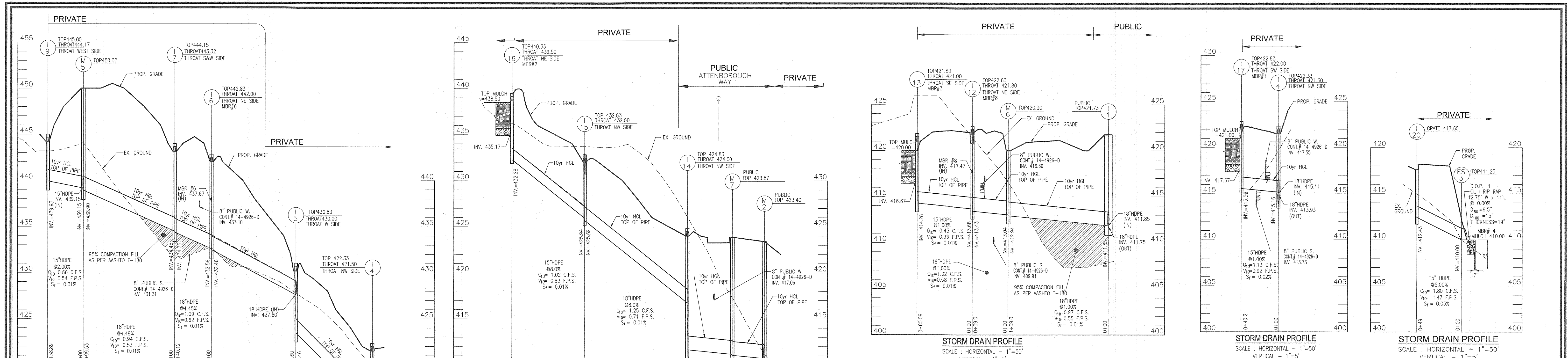
VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELlicott CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE
 DESIGN BY: RHV
 DRAWN BY: VETO
 CHECKED BY: RHV
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

STATE OF MARYLAND
 ROBERT H. VOGEL
 PROFESSIONAL ENGINEER
 19183

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 16193 EXPIRATION DATE: 09-27-2022

13 SHEET OF 34



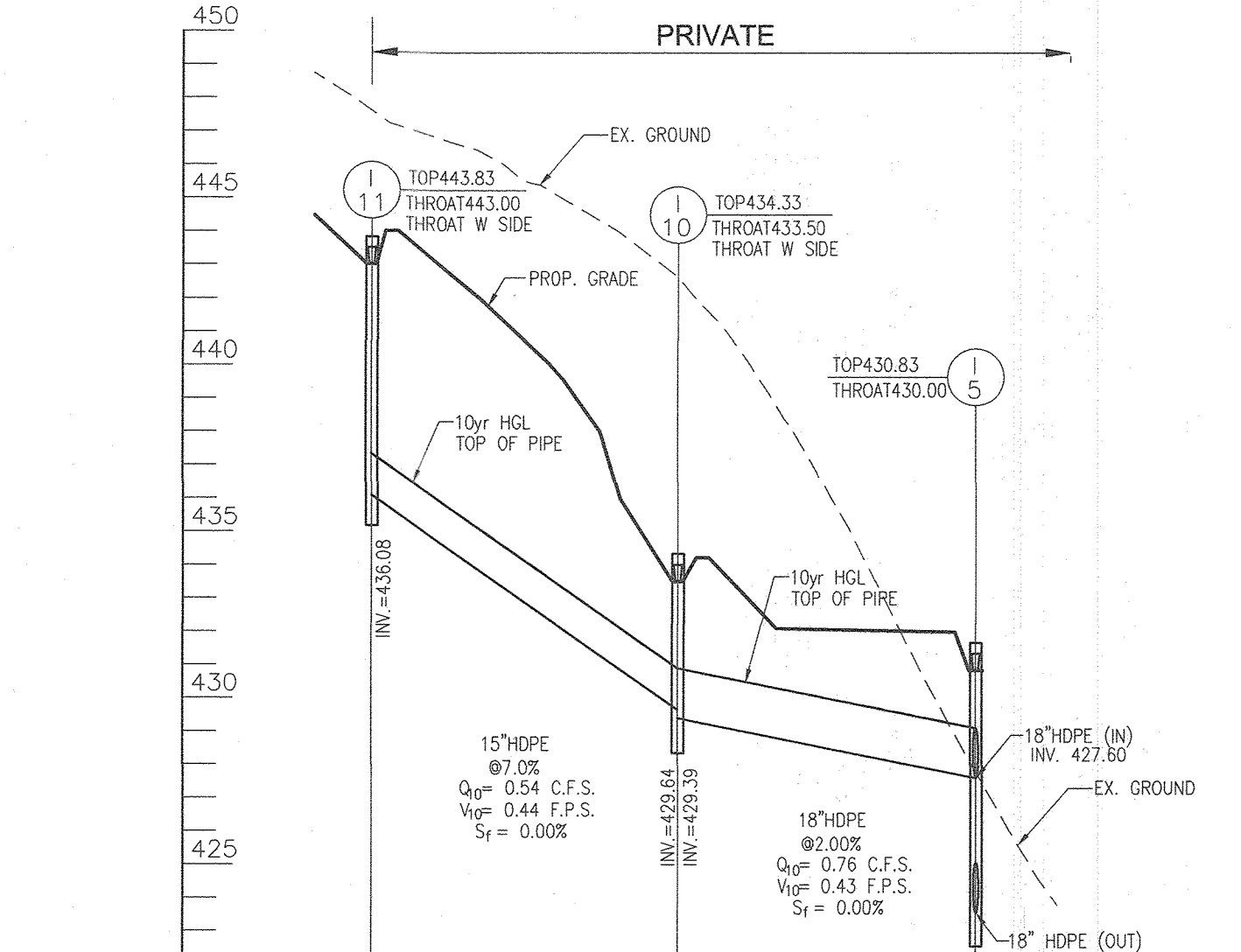
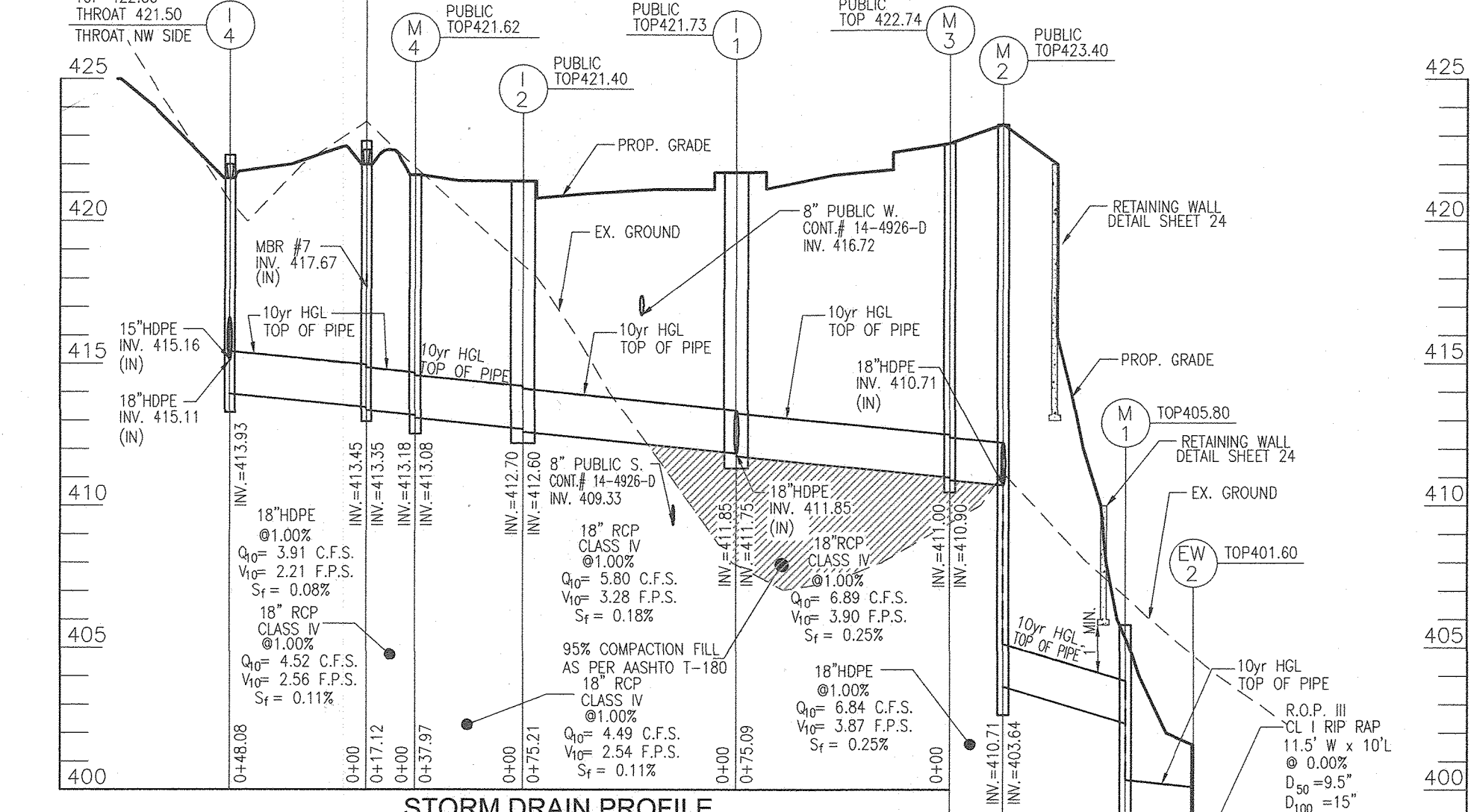
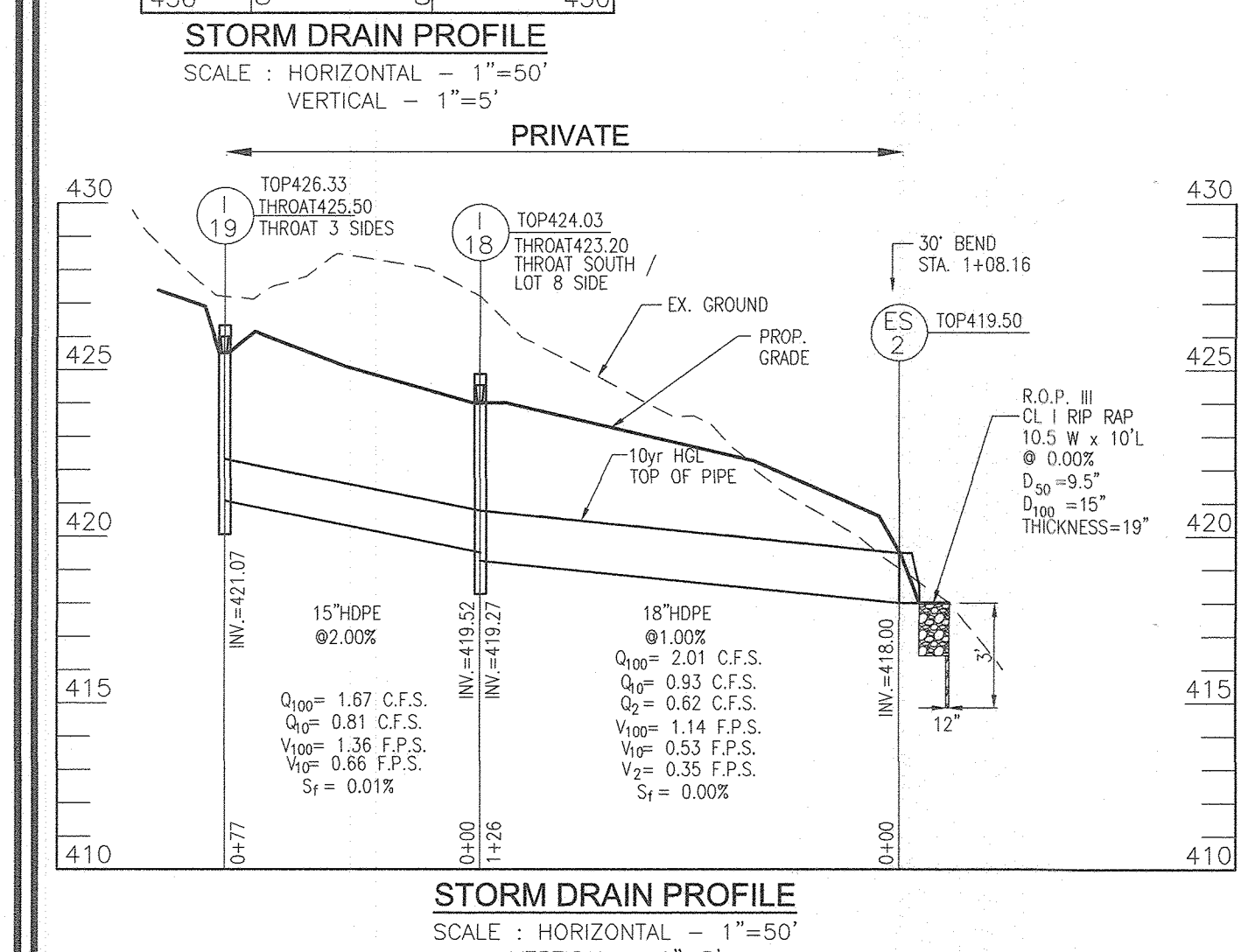
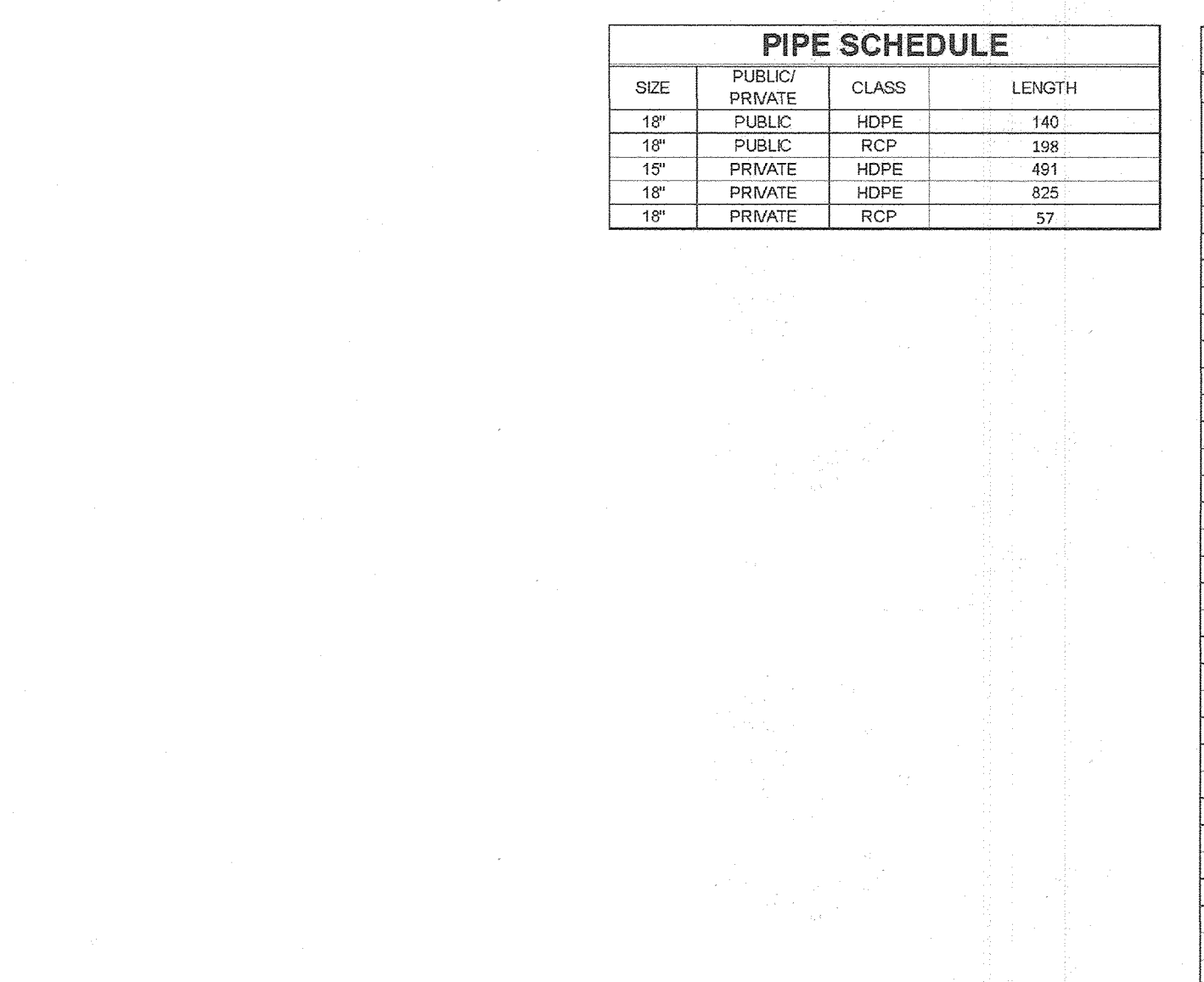
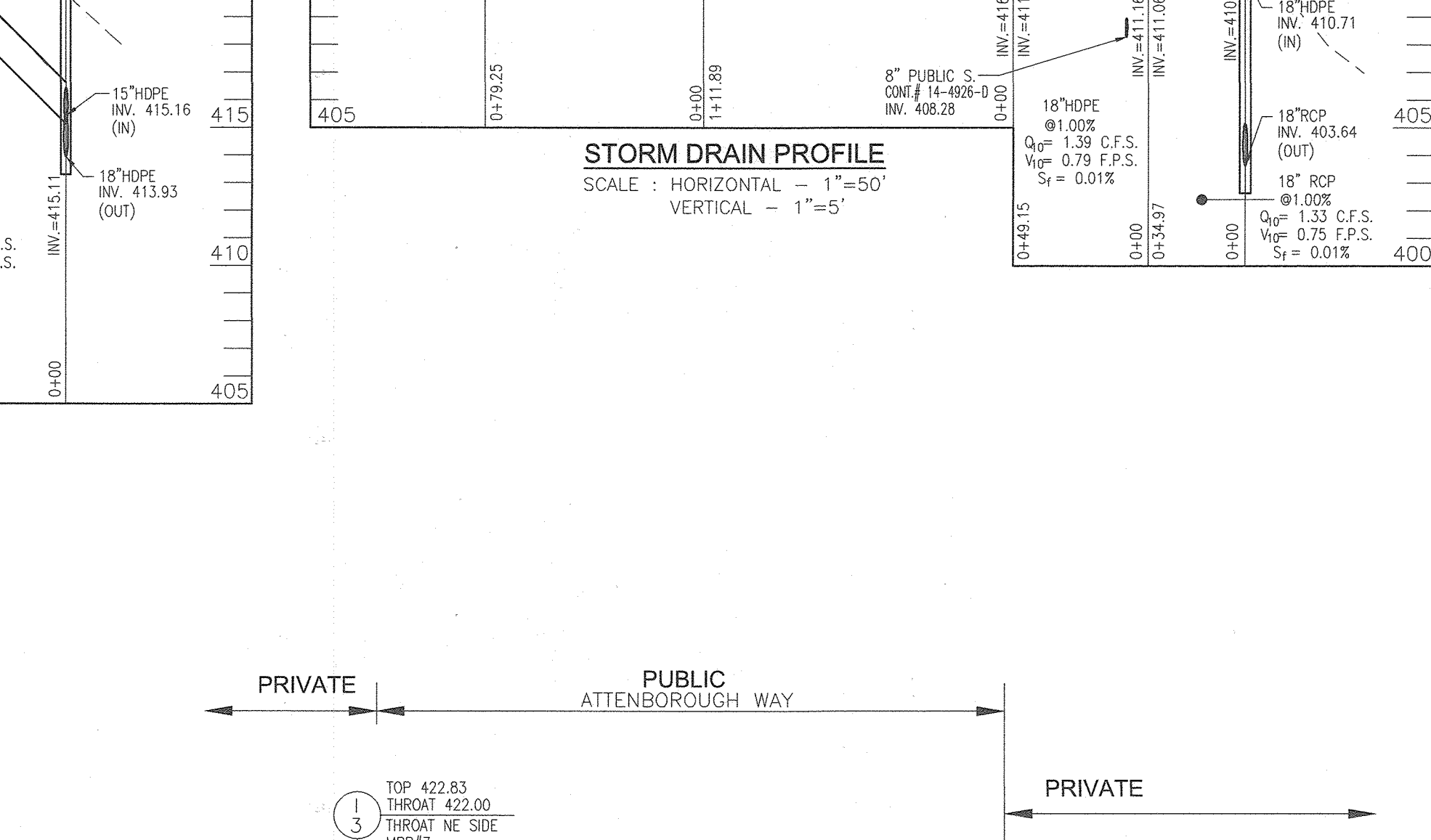
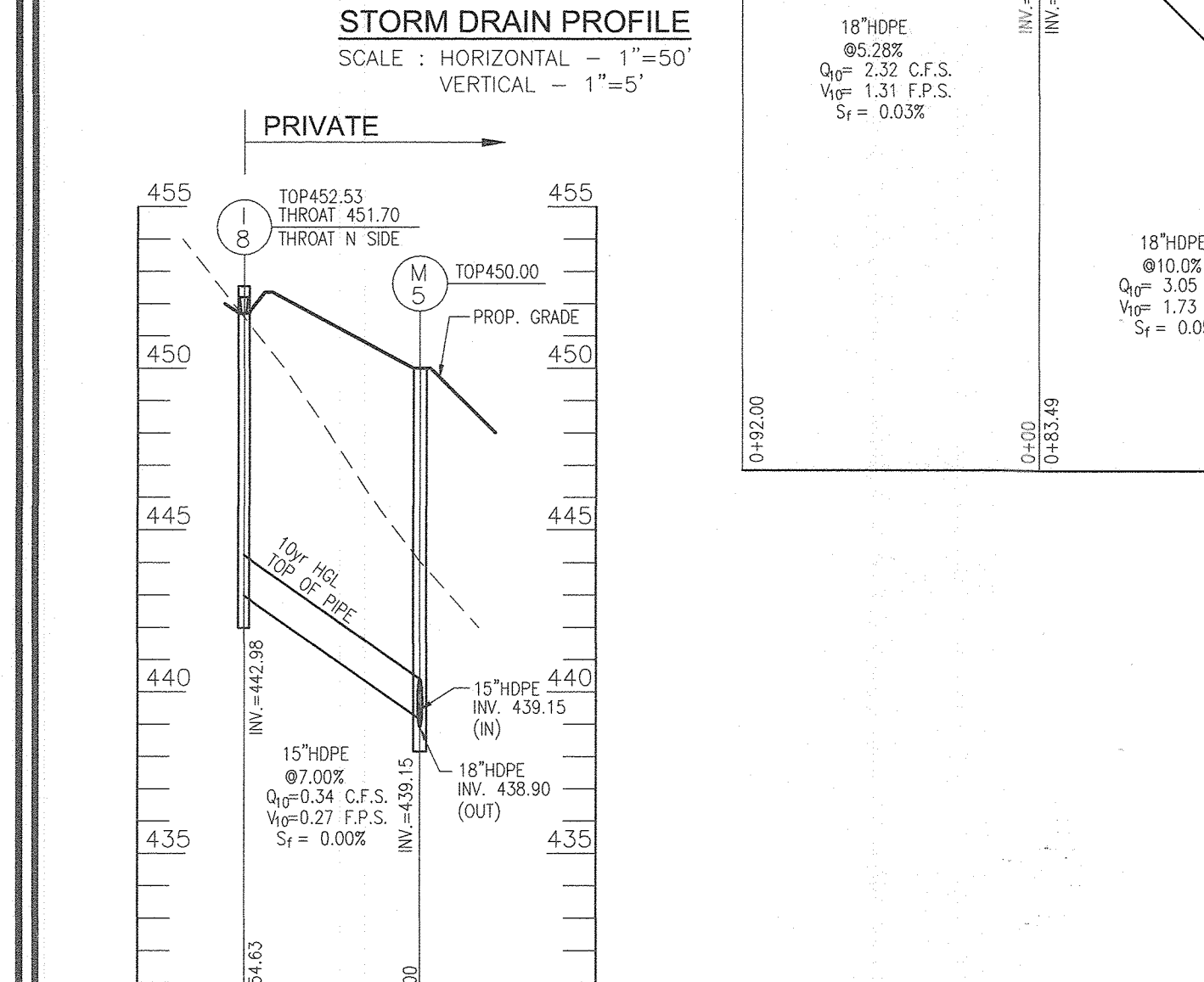
PIPE SCHEDULE

SIZE	PUBLIC/PRIVATE	CLASS	LENGTH
18"	PUBLIC	HDPE	140
18"	PUBLIC	RCP	198
15"	PRIVATE	HDPE	481
18"	PRIVATE	HDPE	825
18"	PRIVATE	RCP	57

STRUCTURE SCHEDULE

STR #	TYPE	INV. IN	INV. OUT	TOP ELEV	DETAIL	LOCATION	REMARKS
L-1	A-10	411.85	411.75	421.73	D-4-03	N 573514.33 E 1374192.89	(1) PRIVATE
L-2	A-10	412.70	412.60	421.40	D-4-03	N 573581.38 E 1374224.41	(1) PUBLIC
L-3	D INLET	413.45	413.35	422.83	D-4-10	N 573580.21 E 1374222.31	(1) PRIVATE
L-4	YARD INLET	415.16	415.11	413.93	D-4-10	N 573629.52 E 1374148.87	(1) PRIVATE
L-5	D INLET	427.80 (2)	423.48	430.83	D-4-10	N 573687.23 E 1374591.31	(1) PRIVATE
L-6	D INLET	432.59	432.48	442.83	D-4-10	N 573755.39 E 1374020.58	(1) PRIVATE
L-7	D INLET	434.45	434.35	444.15	D-4-10	N 573741.57 E 1373991.90	(1) PRIVATE
L-8	D INLET	---	442.98	462.83	D-4-10	N 573889.67 E 1373980.85	(1) PRIVATE
L-9	D INLET	---	430.93	445.00	D-4-10	N 573786.24 E 1373896.27	(1) PRIVATE
L-10	D INLET	428.64	429.39	434.33	D-4-10	N 573747.47 E 1374157.80	(1) PRIVATE
L-11	S INLET	---	436.08	443.83	D-4-24	N 573815.83 E 1374098.01	(1) PRIVATE
L-12	D INLET	413.88	413.43	422.83	D-4-10	N 573462.73 E 1374298.49	(1) PRIVATE
L-13	D INLET	414.28	414.28	421.83	D-4-10	N 573418.15 E 1374338.79	(1) PRIVATE
L-14	D INLET	416.74	411.85	424.83	D-4-10	N 573541.28 E 1374034.19	(1) PUBLIC
L-15	D INLET	425.84	425.89	432.83	D-4-10	N 573817.94 E 1373952.88	(1) PRIVATE
L-16	D INLET	---	432.28	440.33	D-4-10	N 573678.76 E 1373896.59	(1) PRIVATE
L-17	D INLET	---	415.58	422.83	D-4-10	N 573800.83 E 1374117.89	(1) PRIVATE
L-18	D INLET	419.52	419.27	424.03	D-4-10	N 573599.16 E 1374326.07	(1) PRIVATE
L-19	D INLET	---	421.07	428.33	D-4-10	N 573656.52 E 1374277.08	(1) PRIVATE
L-20	S COMB INLET	---	412.43	417.80	D-4-28	N 573288.83 E 1374478.23	(1) PRIVATE
ES-2	18" HDPE	---	416.00	419.50	HDPE	N 573505.33 E 1374414.87	(2) PRIVATE
ES-3	15" HDPE	---	410.00	411.25	HDPE	N 573281.14 E 1374625.98	(2) PRIVATE
EW-2	18" TYPE A	---	398.80	401.80	D-5-11	N 573488.44 E 1374142.95	(2) PRIVATE
M-1	48" MANHOLE	402.34	398.84	405.80	G-5-12	N 573479.95 E 1374121.28	(1) PRIVATE
M-2	48" MANHOLE	410.71 (2)	403.84	423.40	G-5-12	N 573519.30 E 1374103.00	(1) PUBLIC
M-3	48" MANHOLE	411.00	410.00	422.74	G-5-12	N 573528.08 E 1374120.21	(1) PUBLIC
M-4	48" MANHOLE	413.18	413.08	421.82	G-5-12	N 573813.96 E 1374205.33	(1) PUBLIC
M-5	48" MANHOLE	439.15 (2)	438.90	450.00	G-5-12	N 573815.35 E 1373925.10	(1) PRIVATE
M-6	48" MANHOLE	413.04	412.84	420.00	G-5-12	N 573438.53 E 1374289.59	(1) PRIVATE
M-7	48" MANHOLE	411.18	411.08	423.87	G-5-12	N 573508.03 E 1374070.39	(1) PUBLIC

(1) Coordinate for Proposed Structure = Centerline of Structure
(2) Coordinate for End Section = Centerline of Pipe @ Downstream Face



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE

[Signature] 8/10/21
 CHIEF, DIVISION OF LAND DEVELOPMENT B DATE

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

NO. 1 REVISE TO ADD ENTRANCE FEATURE 9-21-23
 REVISION DATE

REVISED FINAL ROAD CONSTRUCTION PLAN
STORMDRAIN PROFILES
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONE: R-20
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
 +
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7656 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE
 DESIGN BY: RHY
 DRAWN BY: VETG
 CHECKED BY: RHY
 DATE: MAY 2021
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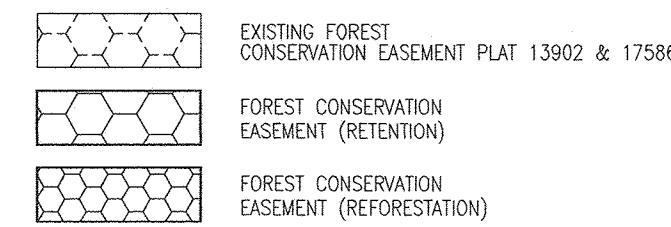
14 SHEET OF 34

ROBERT H. VOGEL, PE No. 16193

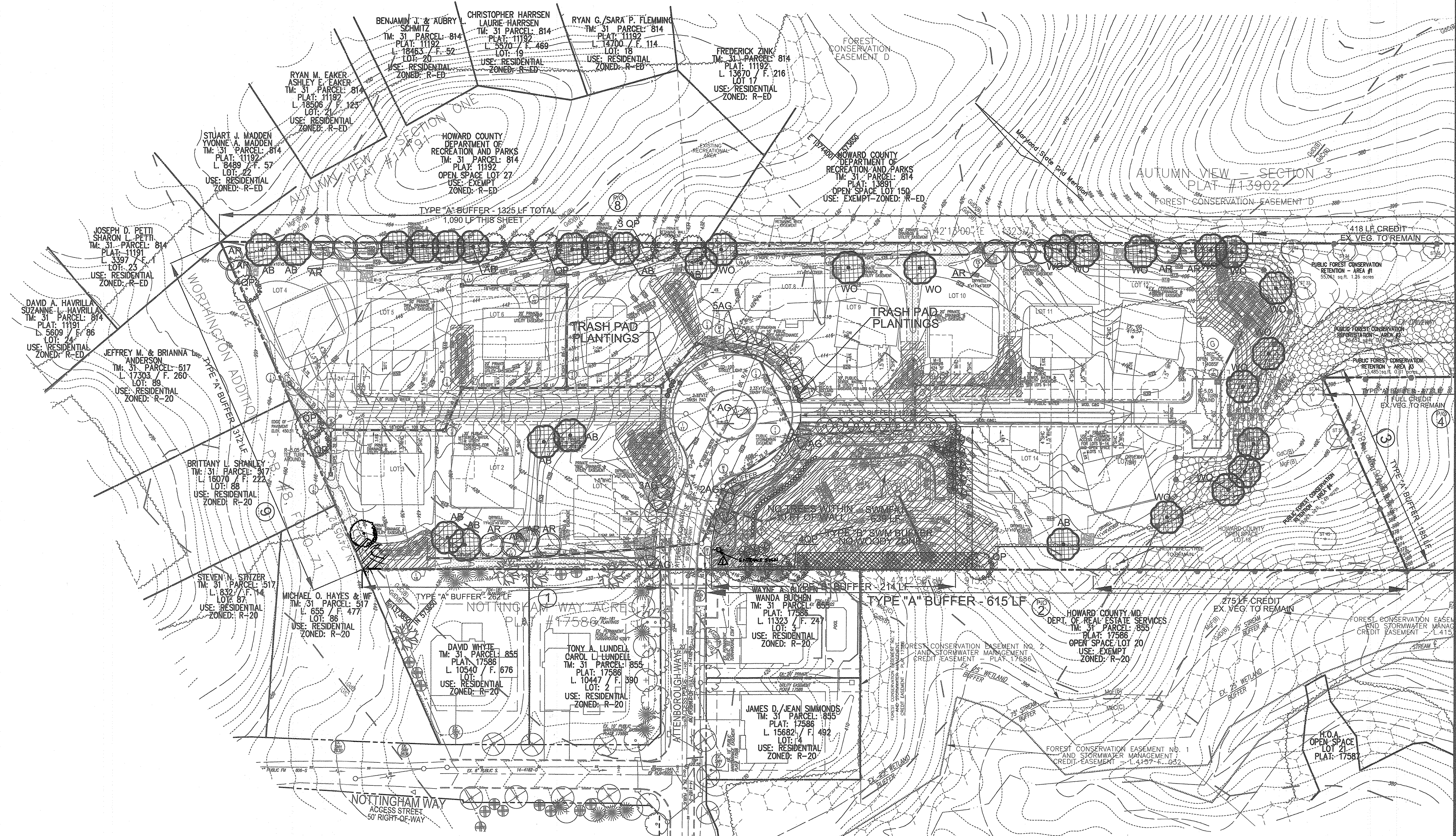
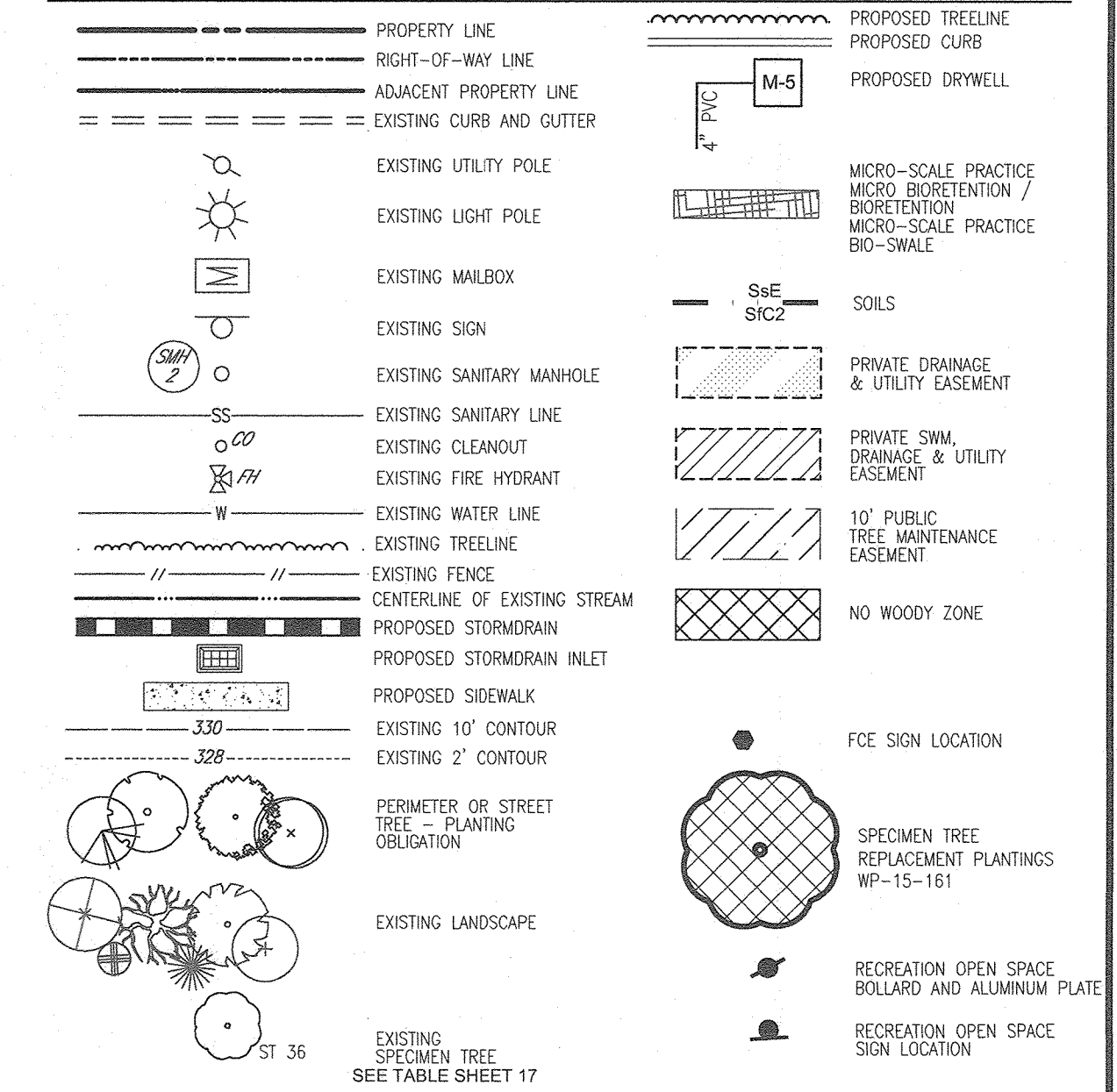
NOTE:

1. IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
1) THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
2) THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.
3) A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

FOREST CONSERVATION LEGEND:



LEGEND:



MATCHLINE - SEE SHEET 16

- NOTES:**
1. REFER TO SHEET 16 FOR LANDSCAPE SCHEDULE 'A', STREET TREE REQUIREMENTS AND LANDSCAPING NOTES AND DETAILS.
 2. REFER TO SHEET 17 & 18 FOR FOREST CONSERVATION COMPUTATIONS, PLANTING NOTES AND DETAILS.
 3. REFER TO SHEET 17 FOR SPECIMEN TREE DATA.

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELlicott CITY, MD 21043
(410) 480-0023

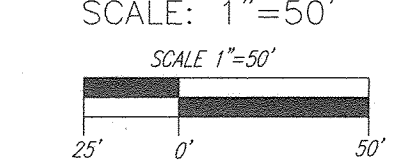
DEVELOPER
TRINITY HOMES MARYLAND, LLC
3675 PARK AVE., SUITE 301
ELlicott CITY, MD 21043
(410) 480-0023

SOILS LEGEND

SYMBOL NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	CRIP SLOPE PERCENT
Cc COLORED AND HABITABLE SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.55	YES
GcC CLAUDE-LEGRE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.28	NO
GcB CLAUDE-LEGRE COMPLEX, 15 TO 20 PERCENT SLOPES, STONY	A	NO	0.28	YES
GcD CLAUDE-LEGRE COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	0.32	NO
GcC CLAUDE-LEGRE COMPLEX, 8 TO 15 PERCENT SLOPES	C	NO	0.49	YES
Mp MANDER-BANKERTOWN SANDY LOAMS, 25 TO 35 PERCENT SLOPES, ROCKY	M	NO	0.24	YES
MdC MOUNT LUCAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	0.37	YES

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

LANDSCAPE PLAN



NOTE
THIS PLAN SHOULD NOT BE USED FOR PROJECT GRADING

RECREATION OPEN SPACE TABULATION:

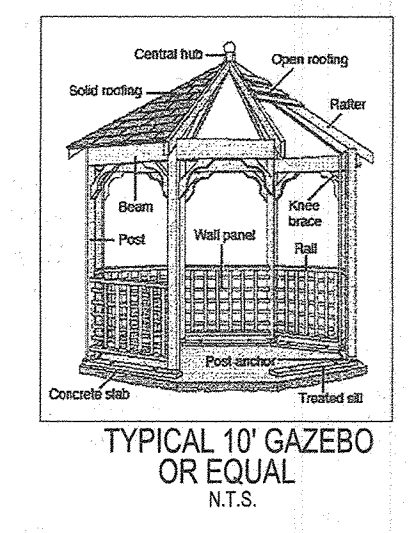
TOTAL RECREATION OPEN SPACE REQUIRED:
R-20 - SINGLE FAMILY HOMES SFD
= 200 SF/UNIT X 14 UNITS = 2,800 SF

TOTAL RECREATION OPEN SPACE TO BE PROVIDED:
LAND AREAS:
1. P/O OPEN SPACE 17 - 1,400 SF +/-
PLUS AMENITIES: SEE BELOW

REQUIREMENT SHALL BE MET IN COMBINATION WITH THE JUNE 2012 POLICY REGARDING THE ALLOWANCE OF A MAXIMUM 50% CREDIT FOR RECREATIONAL OPEN SPACE AMENITIES IN LIEU OF LAND AREA.

- AMENITIES INCLUDE:
GAZEBO = 1,400 SF CREDIT (MAX. 50%)

TOTAL RECREATION OPEN SPACE (INCLUDING CREDIT) = 2,800 SF



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 07/29/2021
MK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 8-10-21
9/19/21

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 9/19/21

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Michael Plan
SIGNATURE OF DEVELOPER
DATE: 5.25.21

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
LANDSCAPE PLAN
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
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TAX MAP: 31 GRID: 9
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HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
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PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: VETG
CHECKED BY: RHV
DATE: MAY 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15193, EXPIRATION DATE: 09-27-2022

15 SHEET OF 34

MATCHLINE - SEE SHEET 15

GENERAL NOTES

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$24,000 SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT:
 - PERIMETER PLANTINGS IN THE AMOUNT OF \$8,700 FOR THE REQUIRED 29 SHADE TREES.
 - STORMWATER MANAGEMENT AREA PERIMETER PLANTINGS IN THE AMOUNT OF \$6,300 FOR THE REQUIRED 13 SHADE TREES (\$3,900) AND 16 EVERGREENS (\$2,400).
 - REPLACEMENT SPECIMEN TREE PLANTINGS IN THE AMOUNT OF \$9,000 FOR THE REQUIRED 30 SHADE TREES.
- PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(a)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY (\$3,900) SHALL BE POSTED AS PART OF THE DPW COST ESTIMATE FOR THE REQUIRED 13 STREET TREES.
 - TRASH PAD SURETY (\$300) SHALL BE COLLECTED WITH THE DEPARTMENT OF PUBLIC WORKS COST ESTIMATE IN THE AMOUNT OF \$300 FOR THE REQUIRED 10 SHRUBS.

STREET TREE CALCULATIONS			
STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
ATTENBOROUGH WAY	481/40	13	13
TOTAL		13	13

PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(a)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL.

- STREET TREE NOTES:**
- WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS 6 FEET OR GREATER, TREES SHALL BE LOCATED WITHIN THE RIGHT OF WAY AND SHALL BE CENTERED BETWEEN THE CURB AND THE SIDEWALK.
 - WHEN THE DISTANCE BETWEEN THE CURB AND THE SIDEWALK IS LESS THAN 6 FEET, AND WHERE TREES ARE PLANTED CLOSER THAN 3 FEET TO THE SIDEWALK, A BIOLOGIC ROOT INHIBITOR BARRIER OR PHYSICAL CROWNROOT BARRIER SHALL BE REQUIRED.
 - WHEN THE DISTANCE BETWEEN THE CURB AND THE SIDEWALK IS LESS THAN 6 FEET, TREES MAY BE PLANTED 3 FEET FROM THE SIDEWALK IN THE DIRECTION AWAY FROM THE ROAD. A 10 FOOT WIDE TREE MAINTENANCE EASEMENT SHALL BE REQUIRED IF THE RIGHT OF WAY IS LIMITED.
 - TREES SHALL BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB AND BE LOCATED WITH CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES. STREET TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A DRAIN INLET STRUCTURE, 5 FEET OF AN OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.

STREET TREE - PLANTING SCHEDULE					
KEY	QUAN.	SYMBOL	BOTANICAL NAME	SIZE	REM.
AG	13		ACER RUBRUM 'AUTUMN FLAME' AUTUMN FLAME RED MAPLE	2 1/2"-3" CAL.	B & B

PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(a)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY (\$3,900) SHALL BE POSTED AS PART OF THE DPW COST ESTIMATE FOR THE REQUIRED 13 STREET TREES.

NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN APPENDIX B & C OF THE HOWARD COUNTY LANDSCAPE MANUAL.

LEGEND:

FOREST CONSERVATION LEGEND:

LANDSCAPE NOTES

- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
- THE OWNER, TENANT AND/OR OTHER AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.
- SURETY FOR THE PROPOSED LANDSCAPING SHALL BE BASED ON THE NUMBER OF PLANTINGS REQUIRED.

TRASH PAD LANDSCAPING

SYMBOL	QTY.	DESCRIPTION	SIZE	REMARKS
	10	TAXUS MEDIA 'HICKSHI' HICKS YEW	2.5'-3' HGT	B & B

FINANCIAL SURETY (\$300) SHALL BE POSTED AS PART OF THE DPW COST ESTIMATE FOR THE REQUIRED 10 SHRUBS.

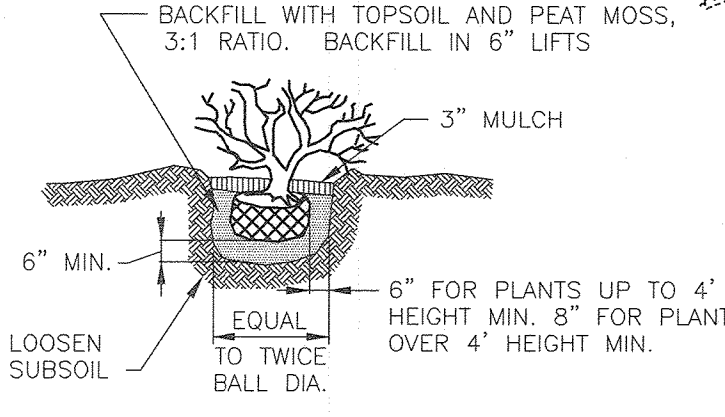
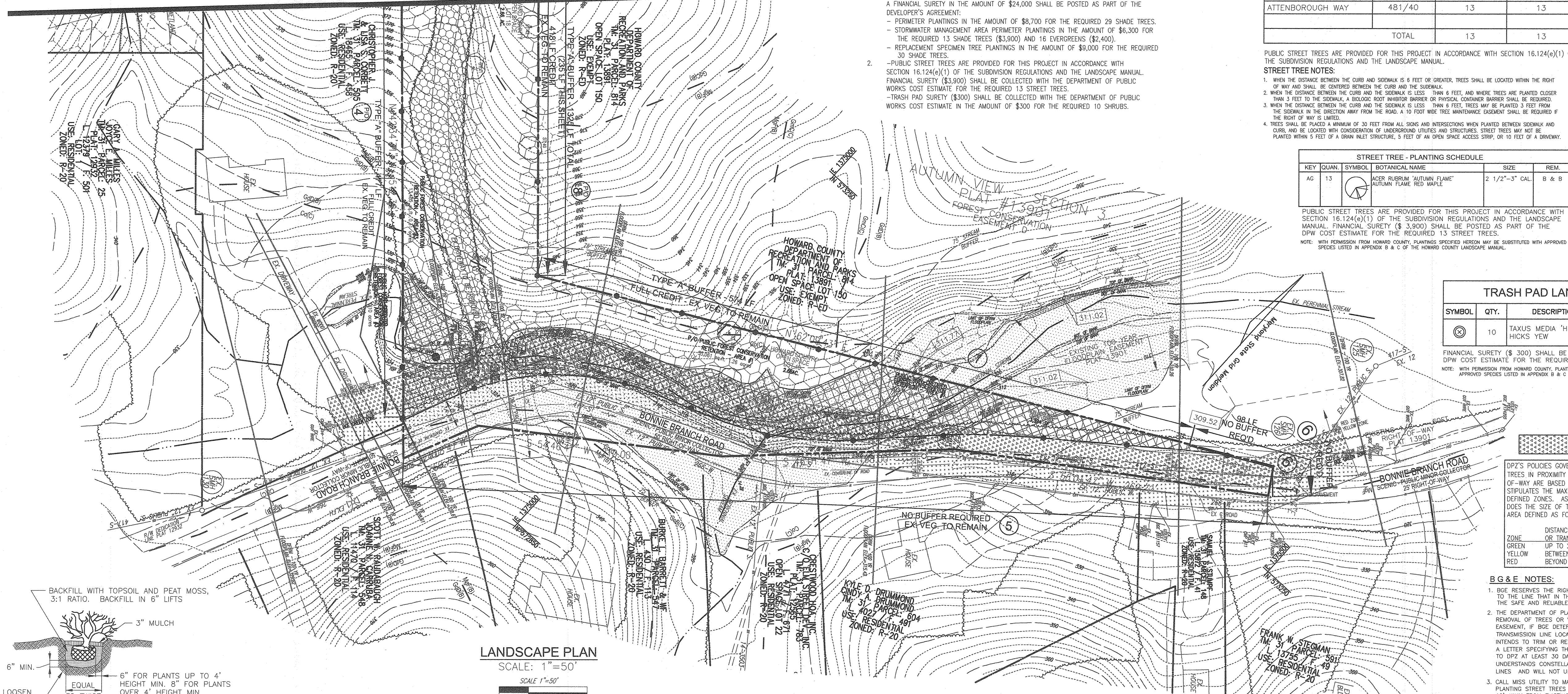
NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN APPENDIX B & C OF THE HOWARD COUNTY LANDSCAPE MANUAL.

BGE ZONE

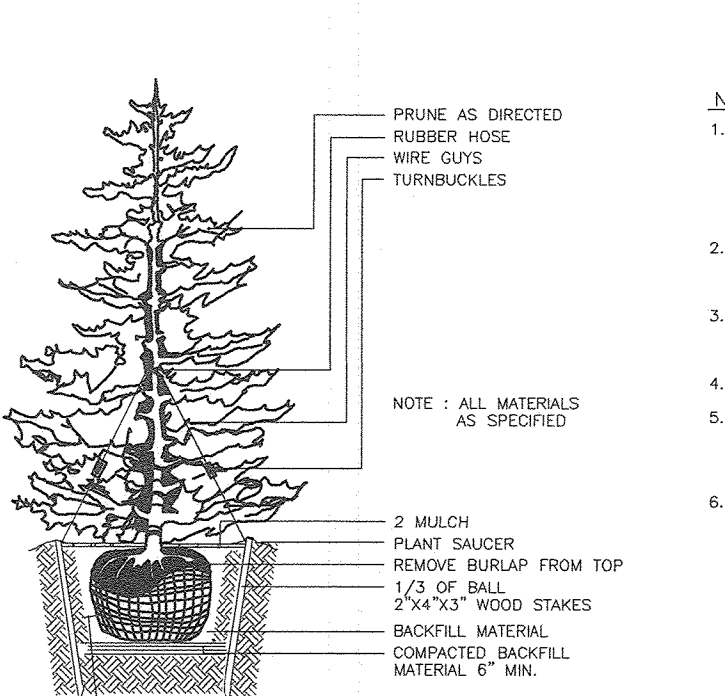
ZONE	DISTANCE FROM THE BGE POWER LINE OR TRANSMISSION RIGHT-OF-WAY	MAXIMUM HEIGHT OF VEGETATION
GREEN	UP TO 20 FEET	25 FEET
YELLOW	BETWEEN 20 FEET AND 45 FEET	40 FEET
RED	BEYOND 45 FEET	ABOVE 40 FEET

B & E NOTES:

- BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DETERMINED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
- THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OR A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. IF BGE INTENDS TO TRIM OR REMOVE TREES WITHIN A FOREST CONSERVATION EASEMENT, A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERSTANDING THE WORK. DPZ UNDERSTANDS CONSTITUTIONAL ENERGY'S NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLY WITHHOLD PERMISSION.
- CALL MISS UTILITY TO MARK UP THE LOCATION OF EXISTING GAS LINE BEFORE PLANTING STREET TREES ALONG BONNIE BRANCH ROAD & PLANT STREET TREES 10' AWAY FROM EXISTING GASLINE AS REQUIRED.

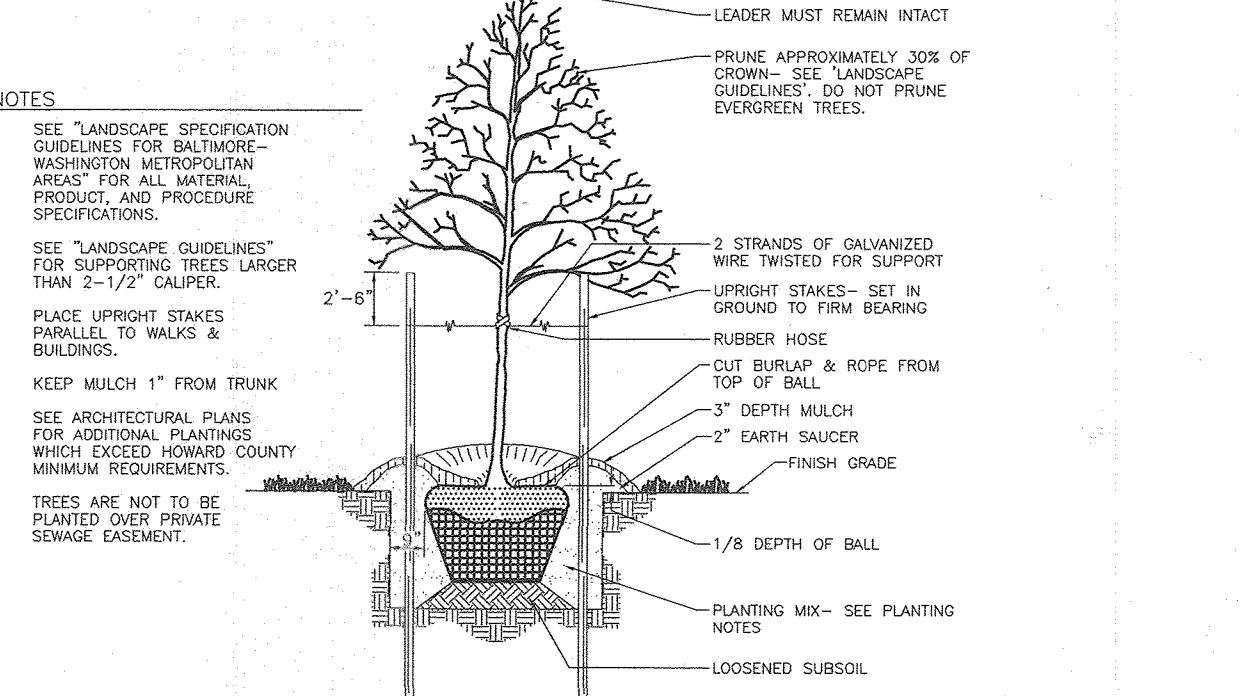


SHRUB PLANTING DETAIL
NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

LANDSCAPE PLAN
SCALE: 1"=50'



TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER
NOT TO SCALE

SPECIMEN TREE - REPLACEMENT CALCULATIONS

NO. TO BE REMOVED	NO. REPLACEMENT REQUIRED	NO. PROVIDED
30	30	30

REFER TO WP 15-161 - 3" CALIPER NATIVE SHADE TREES REQUIRED

SPECIMEN TREE REPLACEMENT - PLANTING SCHEDULE

SYM	KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
	WO	15	QUERCUS PHAEOLIS WILLOW OAK	3" CAL. MIN.	B & B
	AB	15	PLATANUS X ACERIFOLIA 'BLOODGOOD' BLOODGOOD LONDON PLANE	3" CAL. MIN.	B & B

NOTE:
-REPLACEMENT TREES REQUIRED PER THE APPROVED REMOVAL OF 30 SPECIMEN TREES REFER TO WP-15-161.
-THE TOTAL SURETY OF \$9,000 FOR THE SPECIMEN TREE REPLACEMENT SHALL BE POSTED WITH THE DEVELOPER AGREEMENT WITH THIS PLAN.

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES									TOTAL
	1	2(1)	3	4	5	6	7	8	9	
PERIMETER FRONTAGE DESIGNATION	A	A	A	A	A	A	A	A	A	
LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	262	615	185	477	717	98	574	1,325	312	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	YES(1) ¹	YES(2)	YES(3)	NO	NO	YES(4)	YES(5)	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED	262	340	0	0	0	0	807	312	30	
SHRUBS	130	130	130	130	0	0	130	130	130	30
EVERGREEN TREES										
NUMBER OF PLANTS PROVIDED										
SHRUBS	4	5	0	0	0	0	15	5	28	
EVERGREEN TREES										
OTHER TREES (2-1 SUBSTITUTION)										
SHRUBS (10-1 SUBSTITUTION)										
EX-SPECIMEN TREES TO REMAIN										
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED										

- CREDIT 275 LF EX VEGETATION / FOREST RETENTION TO REMAIN
- CREDIT 1 SHADE SPEC TREE #1 TO REMAIN
- CREDIT 185 LF FOREST RETENTION TO REMAIN
- CREDIT 477 LF FOREST RETENTION TO REMAIN
- CREDIT 415 LF FOREST RETENTION TO REMAIN

PERIMETER LANDSCAPE EDGE LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
OP	15	QUERCUS PALUSTRIS PIN OAK	2 1/2"-3" CAL.	B & B
AR	14	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2 1/2"-3" CAL.	B & B

NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN APPENDIX B & C OF THE HOWARD COUNTY LANDSCAPE MANUAL.

LANDSCAPE SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

NOTES:

- REFER TO SHEET 17 & 18 FOR FOREST CONSERVATION COMPUTATIONS, PLANTING NOTES AND DETAILS.
- REFER TO SHEET 17 FOR SPECIMEN TREE DATA.

SCHEDULE 'D' - TYPE 'B' BUFFER
STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	839 LF (SWMP #)	TOTAL
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO	
CREDIT FOR OTHER LANDSCAPING (NO, YES AND NO)	NO	
NUMBER OF TREES REQUIRED		
SHADE TREES	1:50 15	13
EVERGREEN TREES	1:40 16	16
NUMBER OF TREES PROVIDED		
SHADE TREES	10	10
EVERGREEN TREES	16	16
SHRUBS	30	30

(1) DUE TO LIMITED SPACE, UTILITY EASEMENTS AND RETAINING WALLS, SHRUBS PROVIDED.
N.O.A. SHALL MAINTAIN AND REPLACE AS REQUIRED.
10 SHRUBS PER 1 SHADE *3 x 10 = 30 SHRUBS

STORMWATER MANAGEMENT PLANTING LANDSCAPE SCHEDULE

KEY	QUAN.	SYMB	BOTANICAL NAME	SIZE	REM.
SHADE					
LS (1)	10		GINKGO BILOBA 'AUTUMN GOLD' AUTUMN GOLD GINKGO	2 1/2"-3" CAL.	B & B
EVERGREEN					
PS	16		THUJA OCCIDENTALIS 'PYRAMIDALIS' EMERALD GREEN PYRAMIDAL ARBORVITAE	5'-6" HL.	B & B
SHRUB					
NB	30		MYRTICA PENNSYLVANICA NORTHERN DOGWOOD	2'-2 1/2" HT.	B & B

NOTE: WITH PERMISSION FROM HOWARD COUNTY, PLANTINGS SPECIFIED HEREON MAY BE SUBSTITUTED WITH APPROVED SPECIES LISTED IN APPENDIX B & C OF THE HOWARD COUNTY LANDSCAPE MANUAL.

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	EROSION RISK
Co	COGOURUS AND HARBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.55	YES
CoS	GLAUSTONE-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.29	NO
CoD	GLAUSTONE-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28	NO
CiC	GLAUSTONE-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	0.32	NO
ChC	CLEMENS SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	0.40	YES
MW	MANOR-BANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	0.24	YES
McC	MOUNT LUCAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	0.37	YES

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 15 PERCENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 07/29/2021
 MK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8.10.21
 NY

CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/11/21

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Michael Pan
 SIGNATURE OF DEVELOPER
 DATE: 8.25.21

NOTE:

- IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
 - THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
 - THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.
 - A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

OWNER
 HAMPTON HILLS, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

REVISED FINAL ROAD CONSTRUCTION PLAN
LANDSCAPE PLAN
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONED: R-20
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7656 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

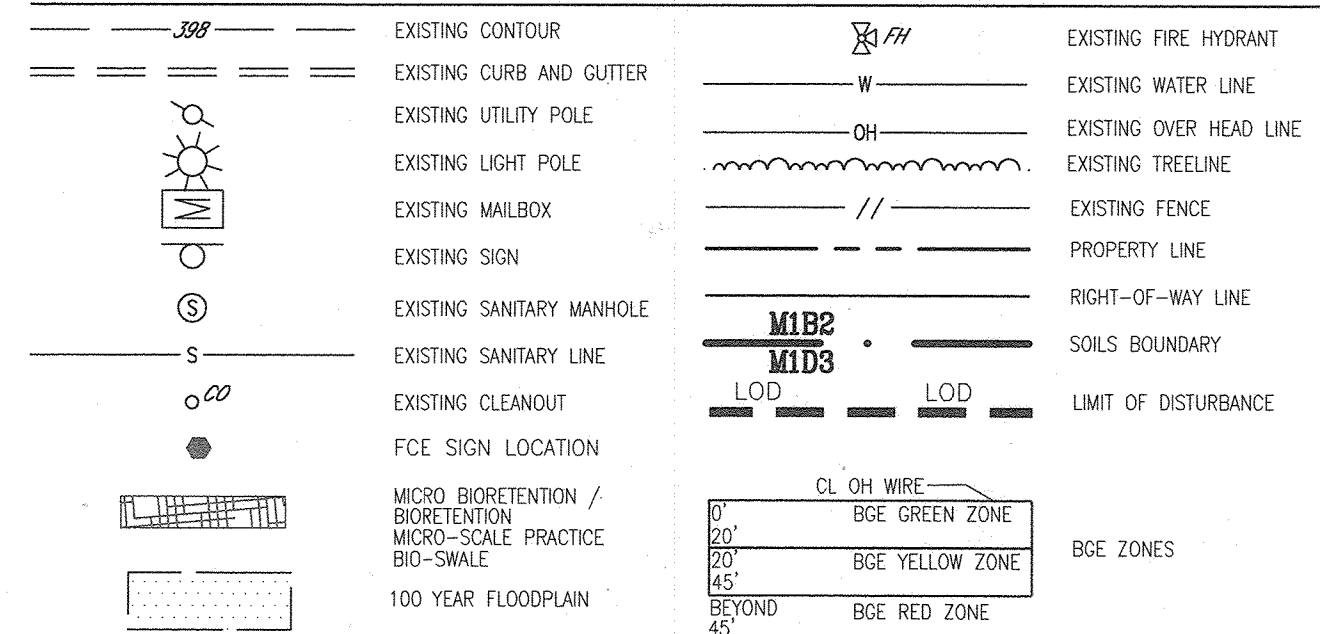
DESIGN BY: RHY
 DRAWN BY: VETO
 CHECKED BY: RHY
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

1. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16163 EXPIRATION DATE: 09-27-2022

16 SHEET OF 34

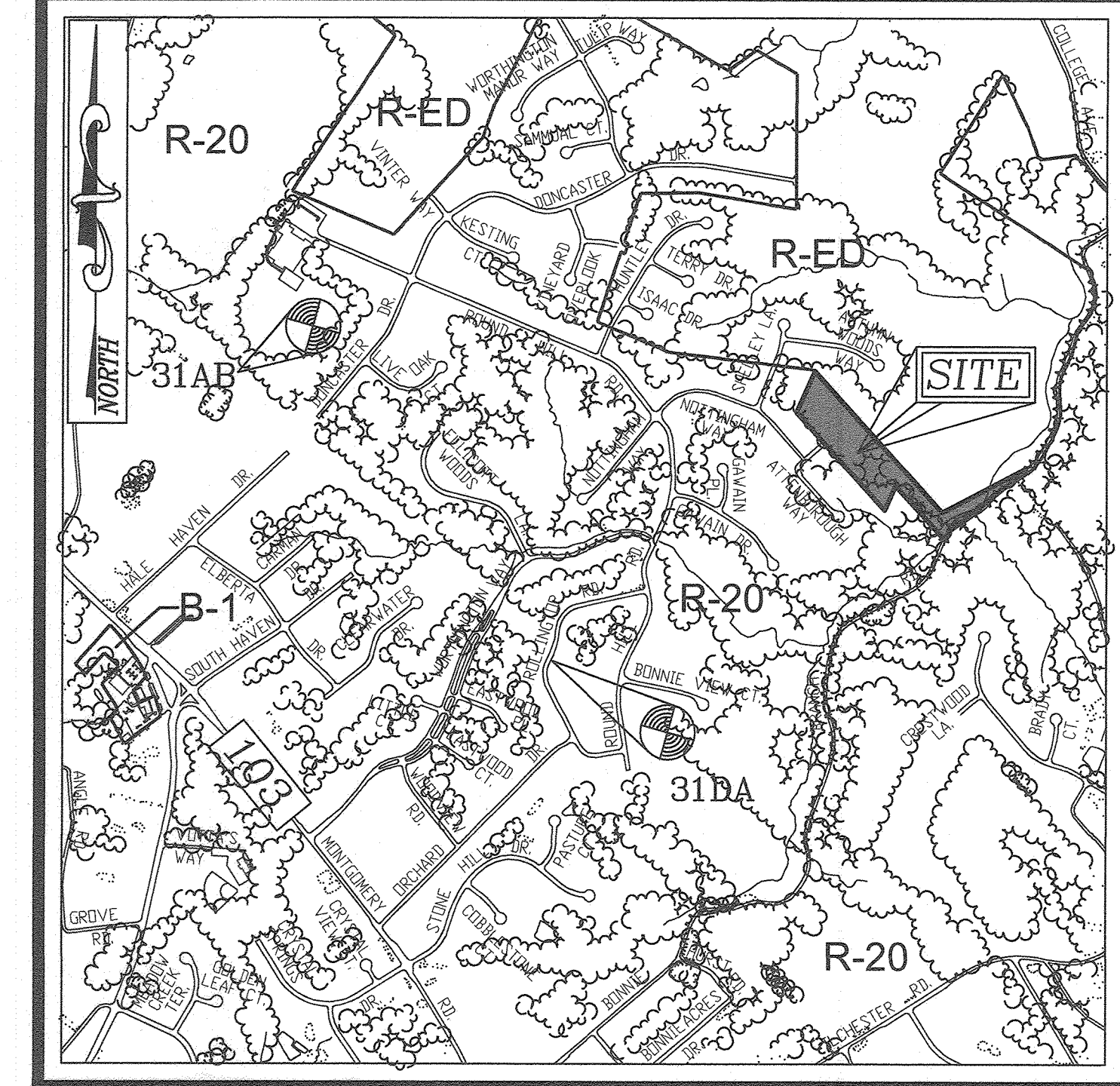
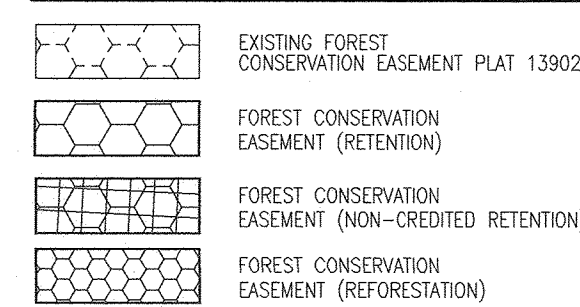
NO.	SIZE (IN. DBH/FEET RADII)	CRZ	COMMON NAME	CONDITION	COMMENTS
ST 1	30.5"	45.75'	TULIP POPLAR	FAIR-GOOD HEALTH, LIMITED CROWN	TO REMAIN
ST 2	30.5"	45.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 3	32.5"	48.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 4	31.5"	47.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 5	32"	48'	TULIP POPLAR	FAIR-LIMB DIEBACK	TO BE REMOVED
ST 6	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 7	30.5"	45.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 8	34"	51'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 9	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 10	47"	70.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 11	31.5"	47.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 12	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 13	31"	46.5'	TULIP POPLAR	POOR-TRUNK ROT NOTED	TO BE REMOVED
ST 14	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 15	34"	51'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 16	32"	48'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 17	31.5"	47.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 18	32.5"	48.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 19	39"	58.5'	TULIP POPLAR	POOR-TRUNK ROT NOTED	TO BE REMOVED
ST 20	43"	64.5'	TULIP POPLAR	VERY POOR-SEVERE TRUNK ROT	TO BE REMOVED
ST 21	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 22	41.5"	62.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 23	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 24	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 25	37"	55.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 26	35"	52.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 27	35"	52.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 28	37"	55.5'	TULIP POPLAR	GOOD CONDITION	TO BE REMOVED
ST 29	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 30	30"	45'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 31	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED
ST 32	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN
ST 33	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN
ST 34	34"	51'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN
ST 35	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN
ST 36	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN
ST 37	32"	48'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN
ST 38	31.5"	47.25'	AMERICAN BEECH		TO REMAIN
ST 39	37"	55.5'	AMERICAN BEECH	POOR CONDITION, TRUNK CAVITY AND ROT	TO REMAIN
ST 40	38"	57"	WHITE OAK		TO REMAIN
ST 41	30"	45'	TULIP POPLAR		TO REMAIN
ST 42	36"	54"	TULIP POPLAR		TO REMAIN
ST 43	31"	46.5'	TULIP POPLAR		TO REMAIN
ST 44	30"	45'	TULIP POPLAR		TO REMAIN

LEGEND:



EASEMENT	RETENTION		REFORESTATION	TOTAL
	CREDITED	NON-CREDITED		
FCE#1	0.8 AC	0.5 AC	0 AC	1.3 AC
FCE#2	0 AC	0 AC	0.6 AC	0.6 AC
FCE#3	0.2 AC	0.1 AC	0 AC	0.3 AC
FCE#4	0.5 AC	0 AC	0 AC	0.5 AC
TOTAL	1.5 AC	0.6 AC	0.6 AC	2.7 AC

FOREST CONSERVATION LEGEND:



VICINITY MAP
SCALE: 1"=1,000'
ADC MAP COORDINATE: MAP 28, GRID 5C

PUBLIC FOREST CONSERVATION EASEMENT #1 - NON-CREDITED RETENTION
20,531 SF/0.5 AC

GENERAL NOTES

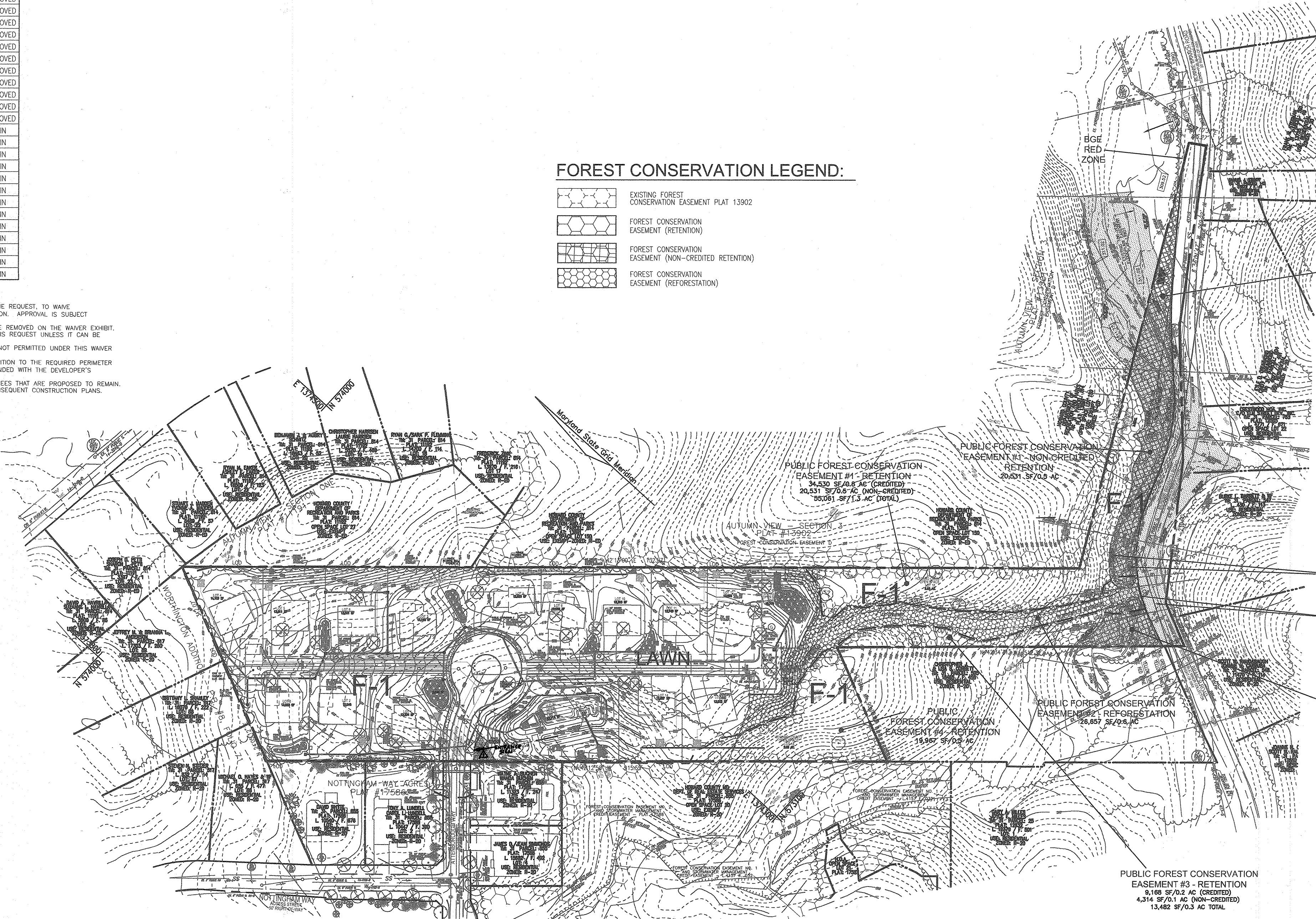
WATERSHED NAME: PATAPSCO RIVER LOWER NORTH BRANCH
WATERSHED NUMBER: 2130906

- A. GROSS SITE AREA: 8.47 AC.
- B. NET SITE AREA: 7.62 AC.
- C. AREA OF 100-YEAR FLOODPLAIN: 0.85 AC. DFIRM
- D. AREA OF WETLANDS AND BUFFERS(ONSITE): 0.00 AC.
- E. AREA OF STREAM AND BUFFERS(ONSITE): 0.54 AC.
- F. AREA OF > 25% STEEP SLOPES: 1.43 AC.
- G. EXISTING FOREST: 6.94 AC.
- F. ZONED: R-20 RESIDENTIAL
- H. EXISTING USE: RESIDENTIAL

1. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITAT WERE OBSERVED ON THE PROPERTY
2. SURROUNDING LAND USE PRIMARILY MEDIUM/HIGH DENSITY RESIDENTIAL DEVELOPMENT AND FOREST
3. APPROXIMATELY 5.0 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SUBJECT PROPERTY.
4. ALL STREAMS ON THE PROPERTY ARE PART OF A USE1 WATERSHED. THE STREAM CHANNEL IS PERENNIAL AND WILL REQUIRE A 75 FOOT BUFFER.
5. A NON-CRITICAL 100 YEAR FLOODPLAIN IS PRESENT ON THE SUBJECT PROPERTY. THE APPROXIMATE FLOODPLAIN COMMON TO BONNIE BRANCH IS SHOWN HEREON PER THE HOWARD COUNTY - DIGITAL FLOOD INSURANCE RATE MAP (DFIRM).
6. THERE ARE STEEP SLOPES (15-24.99 AND 25% OR GREATER) ON THE SUBJECT PROPERTY
7. THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES ON THIS PROPERTY.
8. THERE ARE SPECIMEN TREES ON THE PROPERTY. THERE ARE NO KNOWN TREES THAT ARE STATE CHAMPION TREES AND OR TREES 75% OF THE SIZE OF THE STATE CHAMPION TREE ON THE PROPERTY.

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023



OVERALL FOREST CONSERVATION PLAN
SCALE: 1"=100'

Key	Community Type	Acraage (gross)	Dominant Vegetation	General Condition	Priority Acraage
F1	Poplar	6.94 AC.	Liriodendron tulipifera, Quercus alba, Fagus grandifolia, Acer rubrum, Acer negundo, Acer platanoides	Good	1.0 +/- buffers slopes

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	CRZ SLOPE (PERCENT)
Cs	CLAYTON AND HAYWOOD SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.55	YES
Cs2	CLAYTON-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.28	NO
Cs3	CLAYTON-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28	YES
Cs4	CLAYTON-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28	NO
Cs5	CLAYTON-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	C	NO	0.49	YES
Cs6	CLAYTON-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	C	NO	0.49	NO
Msf	MANOR-BANNERSTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	0.24	YES
Msc	MOUNT LUCAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	0.37	YES

NOTE:
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

NOTE
THIS PLAN SHOULD NOT BE USED FOR PROJECT GRADING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS
DATE: 07/29/2021

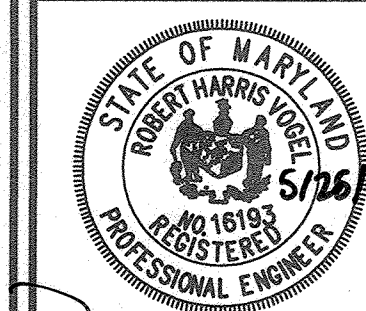
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 8-10-21

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 8/10/21

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5004 Glen Arm, Maryland 21057 Telephone (410) 832-2400 Fax (410) 832-2408

MD DNR Qualified Professional
USACOE Wetland Delimitation
Certification # WDCP93MD061004482
John P. Canoles



DESIGN BY: RHV
DRAWN BY: VETG
CHECKED BY: RHV
DATE: MAY 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED R-20

NET TRACT AREA:

A. TOTAL TRACT AREA 8.5 AC.

B. AREA WITHIN 100 YEAR FLOODPLAIN 0.9 AC.

C. AREA TO REMAIN IN AGRICULTURAL PRESERVATION 0.0 AC.

D. NET TRACT AREA 7.6 AC.

LAND USE CATEGORY

INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY. ZONED R-20

ARA MDR IDA HDR MPD CIA

0 0 0 0 1 0 0

E. AFFOREST THRESHOLD 15% x 7.6 = 1.1 AC

F. CONSERVATION THRESHOLD 20% x 7.6 = 1.5 AC

EXISTING FOREST COVER:

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 6.1 AC (6.9 - 0.85FP)

H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 5.0 AC

I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 4.6 AC

BREAK EVEN POINT:

(2 X I) + F = BREAK EVEN POINT (0 AC)

J. FOREST RETENTION ABOVE THRESHOLD W/ NO MITIGATION = 2.4 AC

K. CLEARING PERMITTED WITHOUT MITIGATION = 3.7 AC

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED = 4.6 AC

M. TOTAL AREA OF FOREST TO BE RETAINED = 1.5 AC - CREDITED RETENTION FOREST CON. EASEMENT

PLANTING REQUIREMENTS:

N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X 25) = 1.2 AC

P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 0.0 AC

Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F) = 0.0 AC

R. TOTAL REFORESTATION REQUIRED (N+P-Q) = 1.2 AC

S. TOTAL AFFORESTATION REQUIRED = 0.0 AC

T. TOTAL PLANTING REQUIREMENT (REFORESTATION) = 1.2 AC

FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL A PORTION OF THE REQUIREMENTS OF SECTION 16.109 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

THE REQUIRED FOREST CONSERVATION SHALL MEET THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

-THE REQUIRED FOREST CONSERVATION WILL BE PROVIDED PARTIALLY WITHIN OPEN SPACE LOT 18 AND BY A PURCHASE IN AN OFFSITE FOREST BANK.

TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY:

A. 2.1 ACRES OF ONSITE RETENTION (NO SURETY BOND) CREDITED = 1.5 ACRES

B. 0.6 ACRES OF ONSITE REFORESTATION

C. THE PURCHASE OF THE EQUIVALENT OF 0.6 ACRES OF REFORESTATION CREDIT IN "THE ESTATES AT RIVER HILL FOREST BANK" - F-18-064.

FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = \$ 13,068 (0.6 AC OR 26,136 SF @ \$0.50/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.

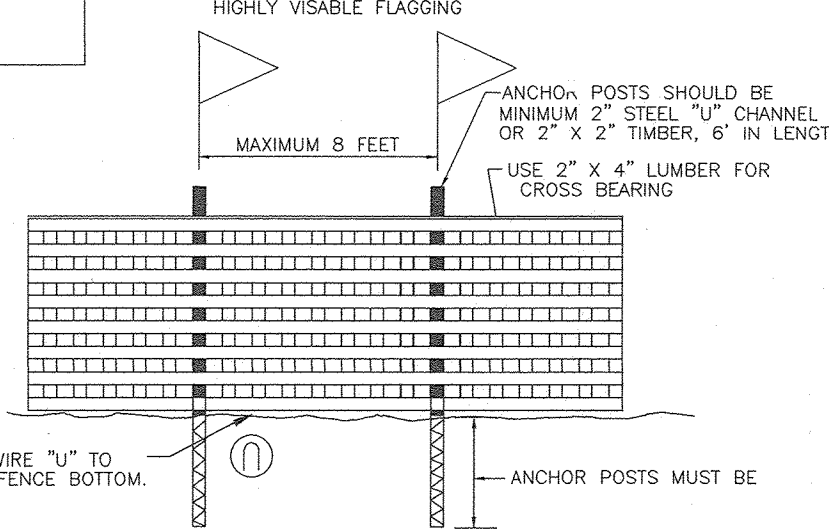
FOREST STAND DELINEATION PREPARED BY:

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 832-2480 Fax (410) 832-2488

MD DNR Qualified Professional USACOE Wetland Delineator Certification # WD093MD06100442
John P. Canoles

WATERSHED NAME: PATAPSCO RIVER LOWER NORTH BRANCH
WATERSHED NUMBER: 2130906

- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITAT WERE OBSERVED ON THE PROPERTY
- SURROUNDING LAND USE PRIMARILY MEDIUM/HIGH DENSITY RESIDENTIAL DEVELOPMENT AND FOREST
- APPROXIMATELY 5.0 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SUBJECT PROPERTY.
- ALL STREAMS ON THE PROPERTY ARE PART OF A USE1 WATERSHED: THE STREAM CHANNEL IS PERENNIAL AND WILL REQUIRE A 75 FOOT BUFFER.
- A NON-CRITICAL 100 YEAR FLOODPLAIN IS PRESENT ON THE SUBJECT PROPERTY. THE APPROXIMATE FLOODPLAIN COMMON TO BONNIE BRANCH IS SHOWN HEREON PER THE HOWARD COUNTY - DIGITAL FLOOD INSURANCE RATE MAP (DFIRM).
- THERE ARE STEEP SLOPES (15-24.99 AND 25% OR GREATER) ON THE SUBJECT PROPERTY
- THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES ON THIS PROPERTY.
- THERE ARE SPECIMEN TREES ON THE PROPERTY. THERE ARE NO KNOWN TREES THAT ARE STATE CHAMPION TREES AND OR TREES 75% OF THE SIZE OF THE STATE CHAMPION TREE ON THE PROPERTY.



- NOTES:
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOF DAMAGE SHOULD BE AVOIDED.
- BLAZE ORANGE PLASTIC MESH**
TYPICAL TREE PROTECTION FENCE DETAIL

SEQUENCE OF CONSTRUCTION FOREST CONSERVATION

- PRECONSTRUCTION MEETING / SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
- STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
- INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
- PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
- TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

FOREST RETENTION AREAS AND NOTES

- THERE ARE NO WETLANDS OR WETLAND BUFFERS LOCATED ONSITE.
- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
- FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
- CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO DOWNWATER MANAGEMENT FACILITIES. RETAIN SEDIMENT WITHIN CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

PRE-CONSTRUCTION PHASE

- FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
- FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
- A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNING TREES SHALL BE REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE

- NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
- NO EQUIPMENT SHALL BE OPERATED INSIDE THE TREE RETENTION AREA INCLUDING TREE CAREVIGS.
- IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION PHASE

- AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
- FENCE REPAIR AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
- DO NOT REMOVE SIGNS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS

07/29/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

08-10-21

CHIEF, DIVISION OF LAND DEVELOPMENT

08/12/21

REFORESTATION AND AFFORESTATION PLANTING PLANS

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED IN THE SOIL SURVEY ON TYPICAL VEGETATION FOR THE SOIL TYPE ON THE PLANTING SITE. SPECIES SELECTION WAS ALSO BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

REFORESTATION AND AFFORESTATION WILL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF WHIPS AND BRANCHED TRANSPLANTS. CONTAINER GROWN STOCK IS RECOMMENDED BUT BAREROOT STOCK MAY BE USED TO HELP CONTROL REFORESTATION COSTS. IF BAREROOT STOCK IS USED THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PRIOR TO PLANTING THE PROPOSED FOREST CONSERVATION EASEMENTS ALL MULTIFLORA ROSE IN THE PLANTING AREA SHALL BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD BE RETAINED WHEREVER POSSIBLE. HERBICIDES TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

B. PLANTING AND SOIL SPECIFICATIONS

PLANT MATERIAL WILL BE INSTALLED IN ACCORDANCE WITH THE PLANTING DETAIL AND PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN.

AMENDMENTS TO EXISTING SOIL WILL BE IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. SOIL DISTURBANCE WILL BE LIMITED TO INDIVIDUAL PLANTING LOCATIONS.

C. MAINTENANCE OF PLANTINGS

FOR INFORMATION REGARDING MAINTENANCE OF THE REFORESTATION AND AFFORESTATION PLANTINGS, SEE SECTION VIII B.

D. GUARANTEE REQUIREMENTS

A 90 PERCENT SURVIVAL RATE OF THE REFORESTATION AND AFFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

E. SECURITY FOR REFORESTATION AND AFFORESTATION

SECTION 16-1209 OF THE HOWARD COUNTY FOREST CONSERVATION ACT REQUIRES THAT A DEVELOPER SHALL POST A SECURITY (BOND, LETTER OF CREDIT, ETC.) WITH THE COUNTY TO INSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF ITS ROOTS MAY BE FOUND. THE MAJORITY OF ROOTS RESPONSIBLE FOR WATER AND NUTRIENT UPTAKE ARE LOCATED JUST BELOW THE SOIL SURFACE. TEMPORARY FENCING SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

EXISTING FOREST LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY INSPECTOR. THE PURPOSE OF THE MEETING WILL BE TO VERIFY THAT ALL SEDIMENT CONTROL IS IN ORDER, AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPIILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT WILL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT. CLEANING OF EQUIPMENT WILL BE LIMITED TO AREA WITHIN THE LOD OF THE PROPOSED HOMESITES. WASTEWATER RESULTING FROM EQUIPMENT CLEANING WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE ENACTED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.

- BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION.
- INSTALL ALL SIGNAGE AND SEDIMENT CONTROL DEVICES.
 - HOLD PRE-CONSTRUCTION MEETING BETWEEN DEVELOPER, CONTRACTOR AND COUNTY INSPECTOR.
 - BUILD ACCESS ROADS, INSTALL UTILITIES, AND CONSTRUCT HOME. STABILIZE ALL DISTURBED AREAS ACCORDINGLY.
 - BEGIN MULTIFLORA ROSE REMOVAL, AS NEEDED. INSTALL PERMANENT PROTECTIVE SIGNAGE FOR EASEMENTS AND INITIATE PLANTINGS IN ACCORDANCE WITH FOREST CONSERVATION PLAN. PLANTINGS WILL BE COMPLETED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.
 - REMOVE SEDIMENT CONTROL.
 - HOLD POST-CONSTRUCTION MEETING WITH COUNTY INSPECTORS TO ASSURE COMPLIANCE WITH FCP. SUBMIT CERTIFICATION OF INSTALLATION.
 - MONITOR AND MAINTAIN PLANTINGS FOR 2 YEARS.

E. CONSTRUCTION MONITORING

GEO-TECHNOLOGY ASSOCIATES, INC. OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO ENSURE THAT ALL ACTIVITIES ARE IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.

F. POST-CONSTRUCTION MEETING

UPON COMPLETION OF CONSTRUCTION, GEO-TECHNOLOGY ASSOCIATES, INC. OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL NOTIFY THE COUNTY THAT CONSTRUCTION HAS BEEN COMPLETED AND ARRANGE FOR A POST-CONSTRUCTION MEETING TO REVIEW THE PROJECT SITE. THE MEETING WILL ALLOW THE COUNTY INSPECTOR TO VERIFY THAT REFORESTATION / AFFORESTATION PLANTINGS HAVE BEEN INSTALLED.

POST-CONSTRUCTION MANAGEMENT PLAN

HOWARD COUNTY REQUIRES A TWO YEAR POST-CONSTRUCTION MANAGEMENT PLAN BE PREPARED AS PART OF THE FOREST CONSERVATION PLAN. THE PLAN GOES INTO EFFECT UPON ACCEPTANCE OF THE CONSTRUCTION CERTIFICATION OF COMPLETION BY THE COUNTY. GEO-TECHNOLOGY ASSOCIATES, INC. OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THE POST-CONSTRUCTION MANAGEMENT PLAN.

THE FOLLOWING ITEMS WILL BE INCORPORATED INTO THE PLAN:

A. FENCING AND SIGNAGE

PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/REFORESTATION/AFFORESTATION AREA SHALL BE MAINTAINED.

B. GENERAL SITE INSPECTIONS/MAINTENANCE OF PLANTINGS

SITE INSPECTIONS WILL BE PERFORMED A MINIMUM OF THREE TIMES DURING THE GROWING SEASON. THE PURPOSE OF THE INSPECTIONS WILL BE TO ASSESS THE HEALTH OF THE REFORESTATION/AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE.

IN ADDITION, MAINTENANCE OF THE REFORESTATION/AFFORESTATION PLANTINGS WILL INVOLVE THE FOLLOWING STEPS:

- WATERING - ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, MORE OR LESS FREQUENTLY DEPENDING ON WEATHER CONDITIONS. DURING THE SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
- REMOVAL OF INVASIVE EXOTICS AND NOXIOUS WEEDS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
- IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES, TREATMENT WITH APPROPRIATE AGENT.
- PRUNING OF DEAD BRANCHES.
- AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.

C. EDUCATION

THE DEVELOPER WILL PROVIDE APPROPRIATE MATERIALS TO PROPERTY OWNERS INFORMING THEM OF THE LOCATION AND PURPOSE OF THE REFORESTATION/AFFORESTATION AREA. MATERIALS MAY INCLUDE SITE PLANS AND INFORMATION EXPLAINING THE INTENT OF THE FOREST CONSERVATION PLAN.

AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, GEO-TECHNOLOGY ASSOCIATES, INC. OR ANOTHER QUALIFIED PROFESSIONAL WILL SUBMIT TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM CERTIFICATION THAT ALL RETENTION/REFORESTATION/AFFORESTATION REQUIREMENTS HAVE BEEN MET. UPON ACCEPTANCE OF THIS CERTIFICATION, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE DEVELOPER'S BOND.

REFORESTATION AREA

EXISTING DRIVEWAY NOTE:

AS REQUESTED BY HOWARD COUNTY, EXISTING GRAVEL DRIVEWAY SHALL BE REMOVED. REMOVE GRAVEL SCARIFY SUBGRADE, ADD 12" TOPSOIL AND GRADE AS A BROAD, SHALLOW ELIPTICAL SWALE CENTERED WITHIN THE CENTER OF THE PREVIOUS ROAD-BED.

SPECIAL PLANTING NOTES

LARGER PLANTING HOLES WITH SCARIFIED BOTTOMS SHALL BE UTILIZED WITHIN THE REFORESTATION AREA.

PLANTING NOTES:

- PLANTING UNITS DEFINED BY THE SPACING REQUIREMENTS ESTABLISHED IN THE FCA MANUAL. ONE PLANT UNIT IS DEFINED AS 1" CALIPER TREE.

THIS PROJECT REQUIRES 200 - 1" CALIPER TREES PER ACRE.

PLANTING/SOIL SPECIFICATIONS

- INSTALLATION OF BAREROOT/PLUG PLANT STOCK SHALL TAKE PLACE BETWEEN MARCH 15 - APRIL 20; B&B/CONTAINER STOCK MARCH 15 -MAY 30 OR SEPTEMBER 15 - NOVEMBER 15.
- PLANTING OF B&B STOCK IS NOT RECOMMENDED.
- DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL PLANTS INSTALLED.
- BAREROOT PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. ROOTS SHALL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART PINE FINES OR EQUIVALENT.
- FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS, FOR WOODY PLANTS. HERBACEOUS PLANT SHALL BE FERTILIZED WITH OSMOCOTE 8-6-12.
- PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
- THE CONTRACTOR SHALL REMOVE ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION FROM THE SITE.

SEQUENCE OF CONSTRUCTION

- SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE.
- PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND THE PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
- UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS SHOWN.
- PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

- MAINTENANCE OF PLANTINGS SHALL LAST FOR A PERIOD OF TWO YEARS.
- PLANTINGS MUST RECEIVE 2 GALLONS OF WATER, EITHER THROUGH PRECIPITATION OR WATERING, WEEKLY DURING THE 1ST GROWING SEASON, AS NEEDED. DURING SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
- INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED, AS REQUIRED, FROM PLANTING AREAS MECHANICALLY AND/OR WITH LIMITED HERBICIDE. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
- PLANTS SHALL BE EXAMINED A MINIMUM TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
- DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

- A 90 PERCENT SURVIVAL RATE OF THE REFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

EDUCATION OF NEW OCCUPANTS

- THE DEVELOPER SHALL PROVIDE EDUCATIONAL INFORMATION TO ALL PROPERTY OWNERS WITHIN THE NEW DEVELOPMENT/HOME ABOUT THE PROPER USE OF FOREST CONSERVATION AREAS.

FINAL INSPECTION AND RELEASE OF OBLIGATIONS

- AT THE END OF THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD THE DEVELOPER SHALL SUBMIT A CERTIFICATION TO THE COUNTY THAT ALL FOREST CONSERVATION AREAS HAVE REMAINED INTACT OR HAVE BEEN RESTORED TO APPROPRIATE CONDITION, THAT THE STIPULATED SURVIVAL RATES HAVE BEEN ACHIEVED, AND THAT ANY PERMANENT PROTECTION MEASURES REQUIRED BY THE PLAN ARE IN PLACE. UPON REVIEW AND ACCEPTANCE, THE COUNTY WILL INFORM THE DEVELOPER OF THEIR RELEASE THE DEVELOPMENT OF FUTURE OBLIGATIONS RELATED TO THE FOREST CONSERVATION ACT.

REFORESTATION PLANTING SCHEDULE
FOREST CONSERVATION EASEMENT 2
0.6 ACRES

EASEMENT #2: 0.6 AC. (REFORESTATION) @ 200 TREES/AC. = 120 TREES	QTY.	BOTANICAL NAME	SIZE	SPACING
27	LIRIODENDRON TULIPIFERA TULIP POPLAR	1" CAL.	15' x 15'	
27	ULMUS AMERICANA "LIBERTAS" AMERICAN ELM "LIBERTY"	1" CAL.	15' x 15'	
27	PLATANUS OCCIDENTALIS AMERICAN SYCAMORE	1" CAL.	15' x 15'	
27	NYSSA SYLVATICA BLUE WAXWOOD	1" CAL.	15' x 15'	
8*	CARPINUS CAROLINIANA AMERICAN HORNBEAM	1" CAL.	15' x 15'	
4**	CERCIS CANADENSIS EASTERN REDBUD	1" CAL.	15' x 15'	

REFER TO SHEET 16 FOR BGE ZONES AT BONNIE BRANCH ROAD
* PLANT IN BGE YELLOW ZONE ALONG BONNIE BRANCH ROAD
** PLANT IN BGE GREEN ZONE @ BONNIE BRANCH ROAD R/W LINE
WITH PERMISSION FROM HOWARD COUNTY, PLANTING SCHEDULE HEREON MAY BE SUBSTITUTED WITH APPROVED LANDSCAPE PLAN PER PARTS 8 & 9 OF THE HOWARD COUNTY LANDSCAPE MANUAL AND WITH BGE GREEN & YELLOW ZONE COMPLIANT SPECIES

OWNER
HAMPTON HILLS, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION TO ADD ENTRANCE FEATURE	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
FOREST CONSERVATION
NOTES & DETAILS
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L 11433 / F 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLCOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022.

DESIGN BY: RHV
DRAWN BY: VETG
CHECKED BY: RHV
DATE: MAY 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

18 SHEET OF 34

Typical Forest Tree Distribution Patterns

Undisturbed Soil

Disturbed Soil

Planting on Edge

Container Grows and B&B Planting Techniques

Aggregate Distribution Drift

Mixing Transplanted Stock

Planting Distribution Patterns

FIGURE 21A

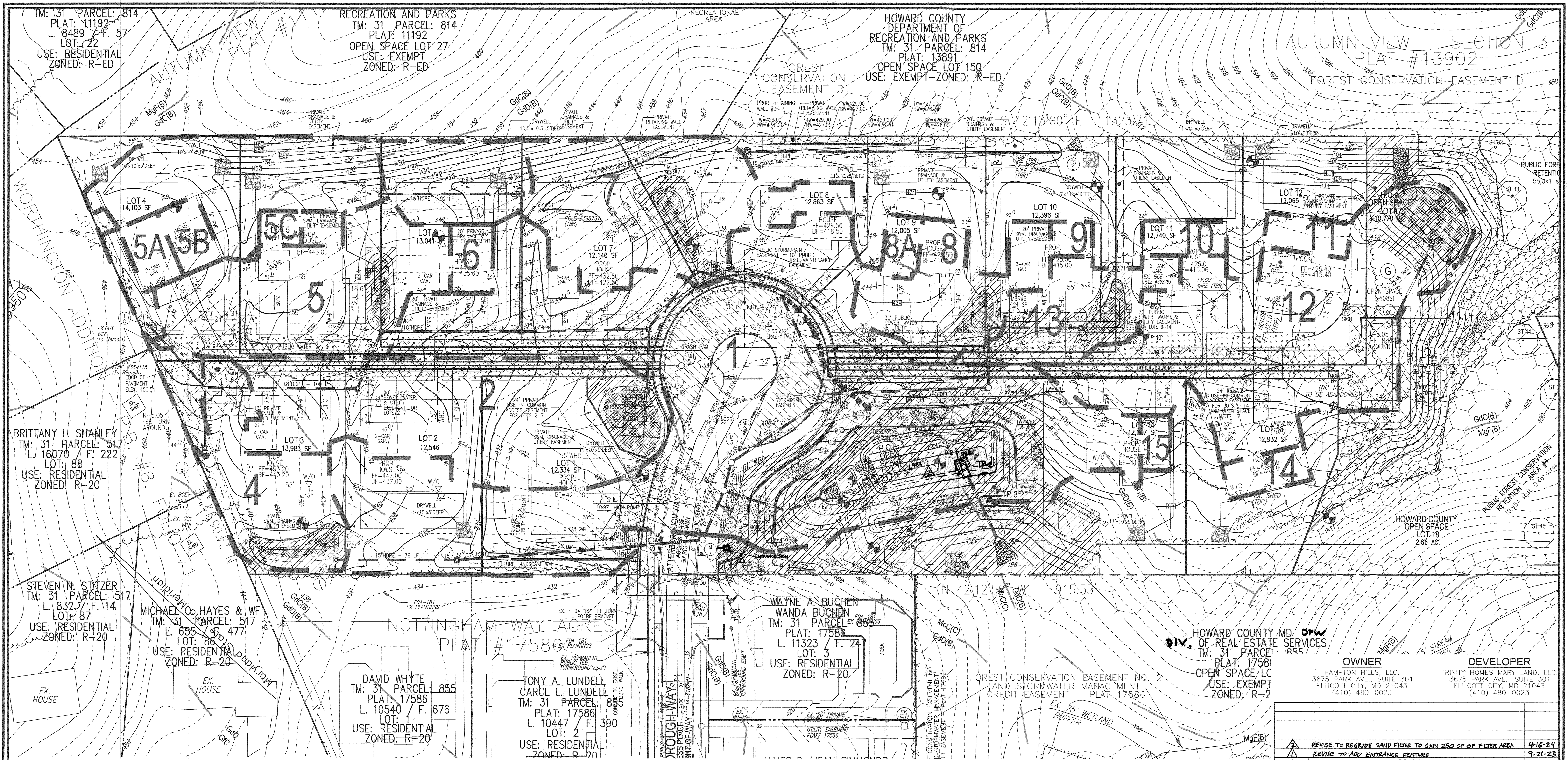
FIGURE 21B

FIGURE 21C

FIGURE 21D

FIGURE 21E

FIGURE 21F



NOTE
 DRIVEWAY SLOPES, FLOOR ELEVATIONS, SPOT ELEVATIONS AND OVER-LOT GRADING WILL BE RE-EVALUATED DURING THE PREPARATION OF THE FUTURE SITE DEVELOPMENT PLAN.

LOTS 1, 4-6 AND 9-13 HAVE DRY WELLS ON THEM TO MEET ESD PRACTICES. OPERATION AND MAINTENANCE SCHEDULES HAVE BEEN RECORDED WITH THE HOMEOWNERS ASSOCIATION DOCUMENTATION. FAILURE TO INSTALL OR MAINTAIN THESE FACILITIES MAY RESULT IN THE LOSS OF STORMWATER MANAGEMENT APPROVAL.

NOTE
 REFER TO SHEET 20-21 FOR ESDv SWM DETAILS AND NOTES

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 07/29/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8/10/21

CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/19/21

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	CRITICAL SOIL EROSION
CS	COORSOS AND HARBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.55	YES
GC	GLASTONING-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	0.28	NO
Gd	GLASTONING-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	0.28	NO
GR	GLASTONING-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	0.52	NO
SGC	GREENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	0.49	YES
Md	MANOR-BANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	0.24	YES
MdC	MANOR-BANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, STONY	C/D	NO	0.37	YES

NOTE
 HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

Stormwater Management Information

Lot/Parcel Number	Facility Name & Number	Practice Type (Quantity)	Public	Private	HOA Maintains	Misc.
Open Space Lot 15	MBR 1	M-6 MICRO-BIORETENTION	NO	YES	YES	Owned & Maintained by H.O.A.
Open Space Lot 16	SWM#1	F-1 SAND FILTER	NO	YES	YES	Owned & Maintained by H.O.A.
Open Space Lot 17	MBR 4	M-6 MICRO-BIORETENTION	NO	YES	YES	Owned & Maintained by H.O.A.

ESDv SWM DRAINAGE AREA MAP
 SCALE: 1"=30'

NOTE
 THIS PLAN SHOULD NOT BE USED FOR PROJECT GRADING

ONLOT STORMWATER MANAGEMENT PRACTICES

LOT #/ADDRESS	SWM PRACTICE
1 ATTENBOROUGH WAY	DRYWELL (M-5)
2 ATTENBOROUGH WAY	DRYWELL (M-5)
3 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6)
4 ATTENBOROUGH WAY	DRYWELL (M-5)
5 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6) DRYWELL (M-5)
6 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6) DRYWELL (M-5)
7 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6)
8 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6)
9 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6) DRYWELL (M-5)
10 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6) DRYWELL (M-5)
11 ATTENBOROUGH WAY	MICRO-BIORETENTION (M-6) DRYWELL (M-5)
12 ATTENBOROUGH WAY	DRYWELL (M-5)
13 ATTENBOROUGH WAY	DRYWELL (M-5)
14 ATTENBOROUGH WAY	DRYWELL (M-5)

LEGEND:

PROPERTY LINE	PROPOSED TREELINE
RIGHT-OF-WAY LINE	EXISTING 10' CONTOUR
ADJACENT PROPERTY LINE	EXISTING 2' CONTOUR
EXISTING CURB AND GUTTER	SOILS
EXISTING EDGE OF PAVING	PROPOSED 10' CONTOUR
EXISTING METLAND BUFFER	PROPOSED 2' CONTOUR
EXISTING STREAM BUFFER	PROPOSED SPOT ELEVATION
EXISTING STREAM	DRAINAGE AREA DIVIDE
EXISTING UTILITY POLE	ESD DRAINAGE AREA DESIGNATION
EXISTING LIGHT POLE	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
EXISTING MAILBOX	PROPOSED DRY WELL (M-5)
EXISTING SIGN	TEST PIT
EXISTING SANITARY MANHOLE	SOIL BORING
EXISTING SANITARY LINE	OVERFLOW PATH
EXISTING CLEANOUT	AREA OF FLOODING
EXISTING FIRE HYDRANT	
EXISTING WATER LINE	
EXISTING TREELINE	
EXISTING WOOD FENCE	
EXISTING METAL FENCE	

NO.	REVISION	DATE
1	REVISE TO REGRADE SAND FILTER TO GAIN 250 SF OF FILTER AREA	4-16-24
2	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
ESDv SWM DRAINAGE AREA MAP
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BOANNE BRANCH ROAD
 ELLICOTT CITY, MD 21043

VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18193

DESIGN BY: RHY
 DRAWN BY: VETG
 CHECKED BY: RHY
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

19 SHEET OF 34

APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. MATERIAL SPECIFICATIONS
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR QUANTIFIED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVIDE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 * SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
 * ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (30% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
 * CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 2%
 * PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G. LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILE TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL WHEN POSSIBLE. USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LONGER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE AVOIDED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO RESTRUCTURE THE SOIL PROFILE THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REMOVE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY POUNDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

DURING THE BIORETENTION FACILITY, PLACE SOIL IN LOTS 12" TO 16" DEEP. DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. PLANT INSTALLATION
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGRUE SEED SHOULD BE BROADCAST INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGRUE PLOWS SHALL BE PLANTED FOLLOWING THE NON-CROSS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS, DEERFEATS, OR AT A MINIMUM, IMPRIES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 * PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F756, TYPE PS 28, OR AASHTO M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
 * PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH 1/4" (NO. 4) OR 1/2" (NO. 10) GALVANIZED HARDWARE CLOTH.
 * GRAVEL - THE GRAVEL LAYER (NO. 57 STONE, PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 * THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 * A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
 * A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

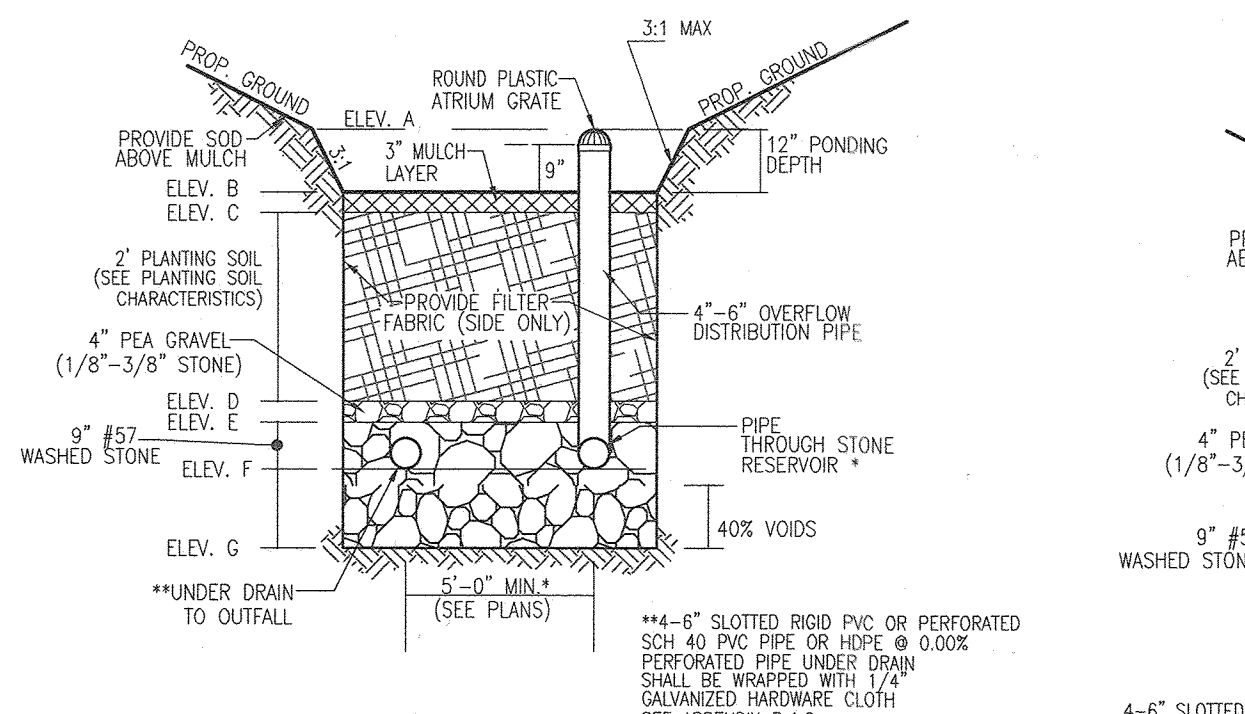
7. MISCELLANEOUS
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Material	Specification	Size	Notes
Planting soil [2" to 4" deep]	see Appendix A, Table A.4	n/a	plantings are site-specific
Organic content	Min. 10% by dry weight (ASTM D 2974)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Mulch	2" PLANTING SOIL (SEE PLANTING SOIL CHARACTERISTICS)	n/a	aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D448	NO. 8 OR NO. 9 (1/8" TO 3/8")	aged 6 months, minimum; no pine or wood chips
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	n/a	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE	
Underdrain piping	F 756, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes, not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACT Code 530.80.9, vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Gypstone (AASHTO #10) are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALES (M-8), ENHANCED FILTERS (M-9) AND BIORETENTION (E-6)

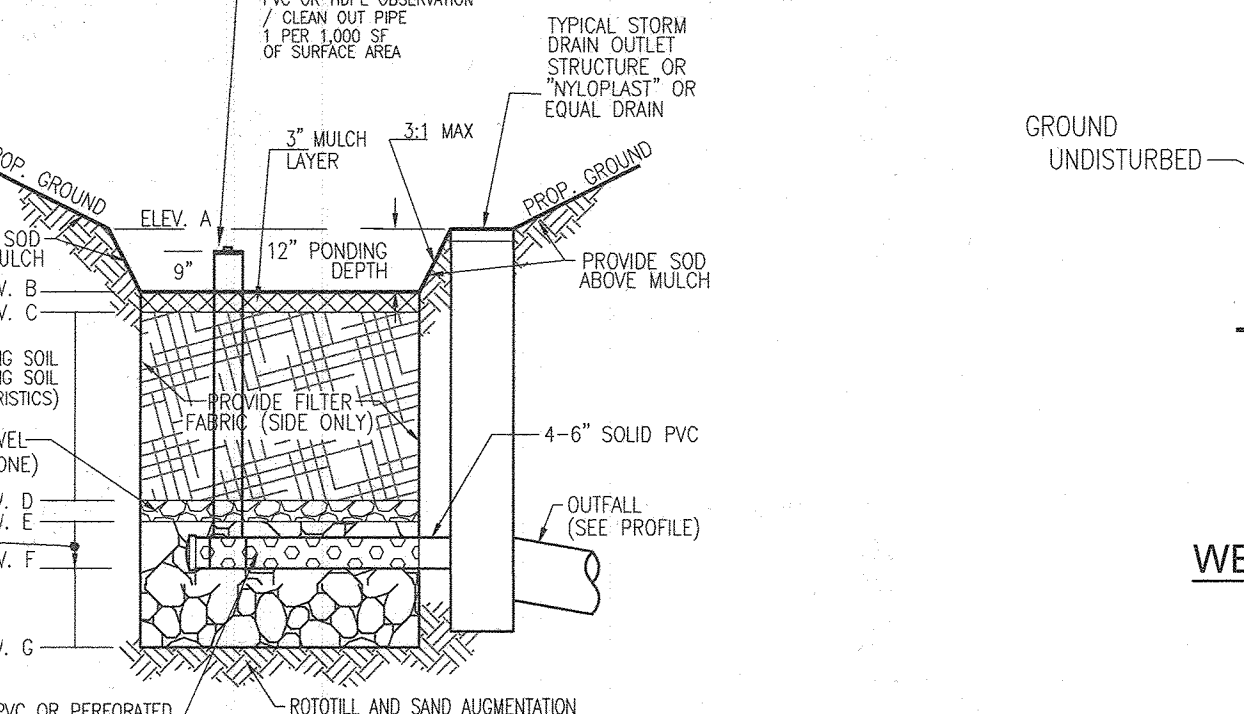
1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.



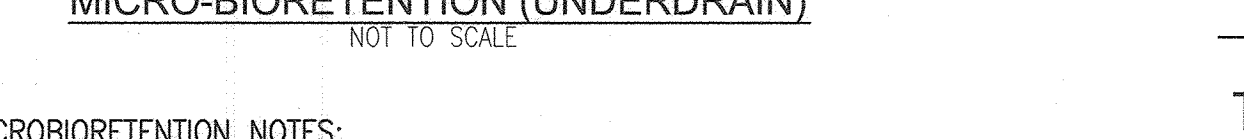
TYPICAL DETAIL MICRO-BIORETENTION (OVERFLOW)
NOT TO SCALE

MBR FACILITY #	ESD WESEL #	TOP A	TOP B	BOTTOM C	BOTTOM D	INV. PE GRAVEL E	INV. PIPE (1) F	INV. STONE G	SURFACE SF H	APPROX DIM I	DRAIN
1	422.00	421.00	420.75	418.75	418.42	417.67	416.67	1152	SEE PLAN	SD	
2	439.50	438.50	438.25	436.25	435.92	435.17	434.17	411	SEE PLAN	SD	
3	421.00	420.00	419.75	417.75	417.42	416.67	415.67	533	SEE PLAN	SD	
4	411.00	410.00	409.75	407.75	407.42	406.67	405.67	1528	SEE PLAN	NYLOPLAST	
6	442.00	441.00	440.75	438.75	438.42	437.67	436.67	483	SEE PLAN	SD	
7	422.00	421.00	420.75	418.75	418.42	417.67	416.67	492	SEE PLAN	SD	
8	421.80	420.80	420.55	418.55	418.22	417.47	416.47	424	SEE PLAN	SD	

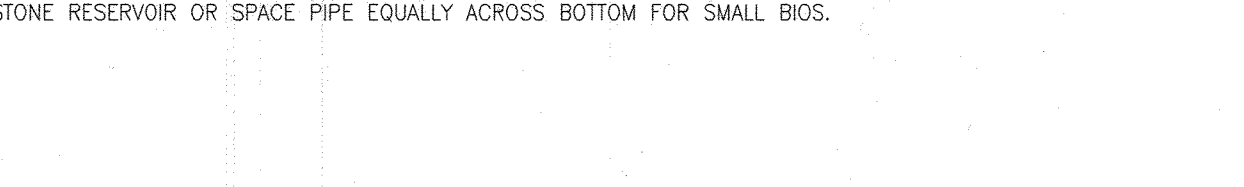
(1) UNDERDRAIN PIPE AND OVERFLOW DISTRIBUTION PIPE
 * PROVIDE 3 FEET ADDITIONAL STONE BENEATH MBR# - O.S. LOT 17 (10 YR PEAK CONTROL)
 NYLOPLAST = NYLOPLAST DRAIN OR EQUAL OUTFALL / SD = STORM DRAIN INLET



TYPICAL DETAIL MICRO-BIORETENTION (UNDERDRAIN)
NOT TO SCALE



TYPICAL SPILLWAY SECTION
NOT TO SCALE

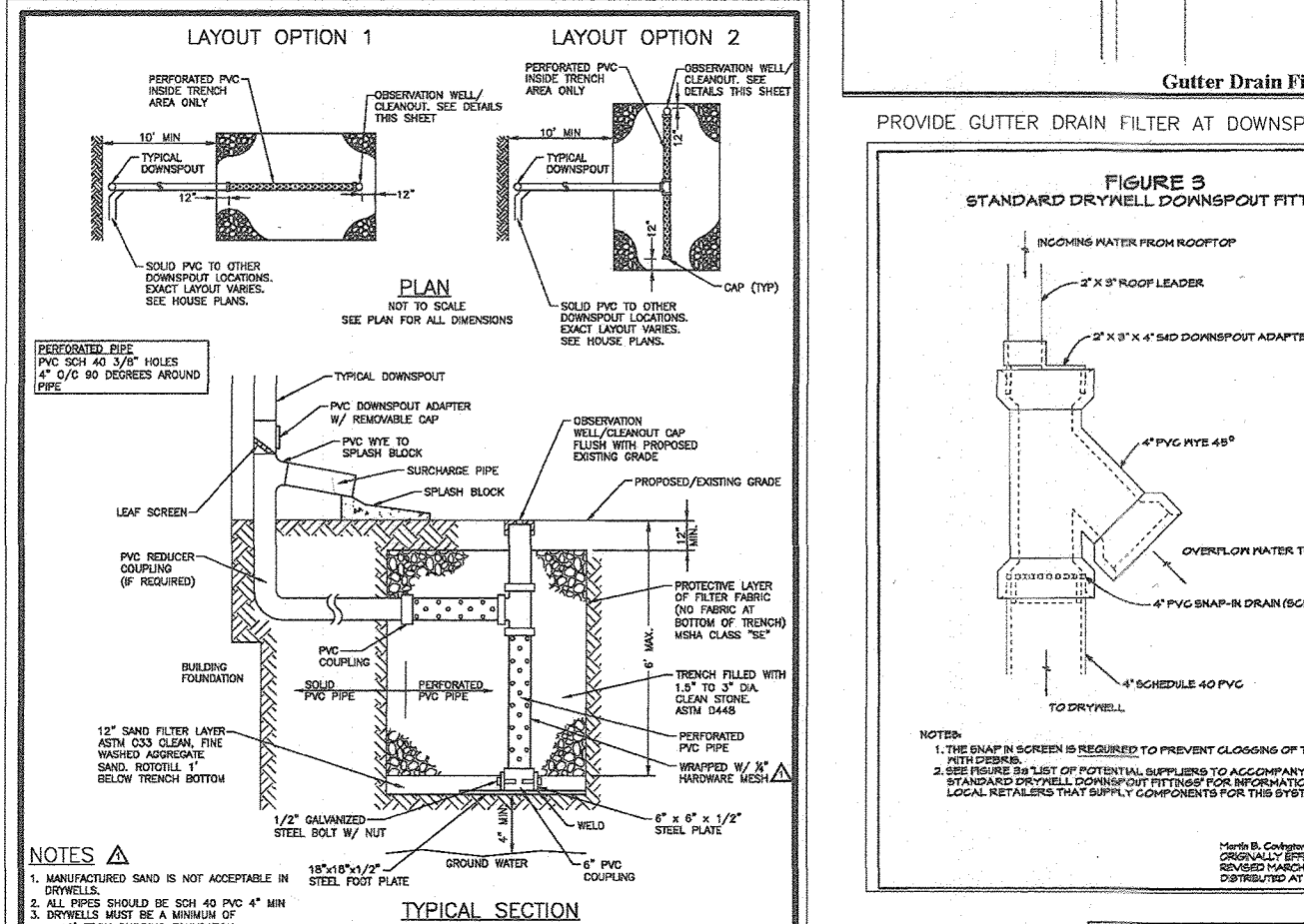


TYPICAL SPILLWAY PROFILE
NOT TO SCALE

MICROBIORETENTION NOTES:
 1. ONLY THE SIDES OF MICRO BIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICRO BIORETENTION WILL CAUSE THE MBR TO FAIL AND THEREFORE SHALL NOT BE INSTALLED.
 2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH. SEE APPENDIX B.4.C.6.
 3. PROVIDE 5' MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES (I-1), STORMWATER DRY WELLS (M-5)

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

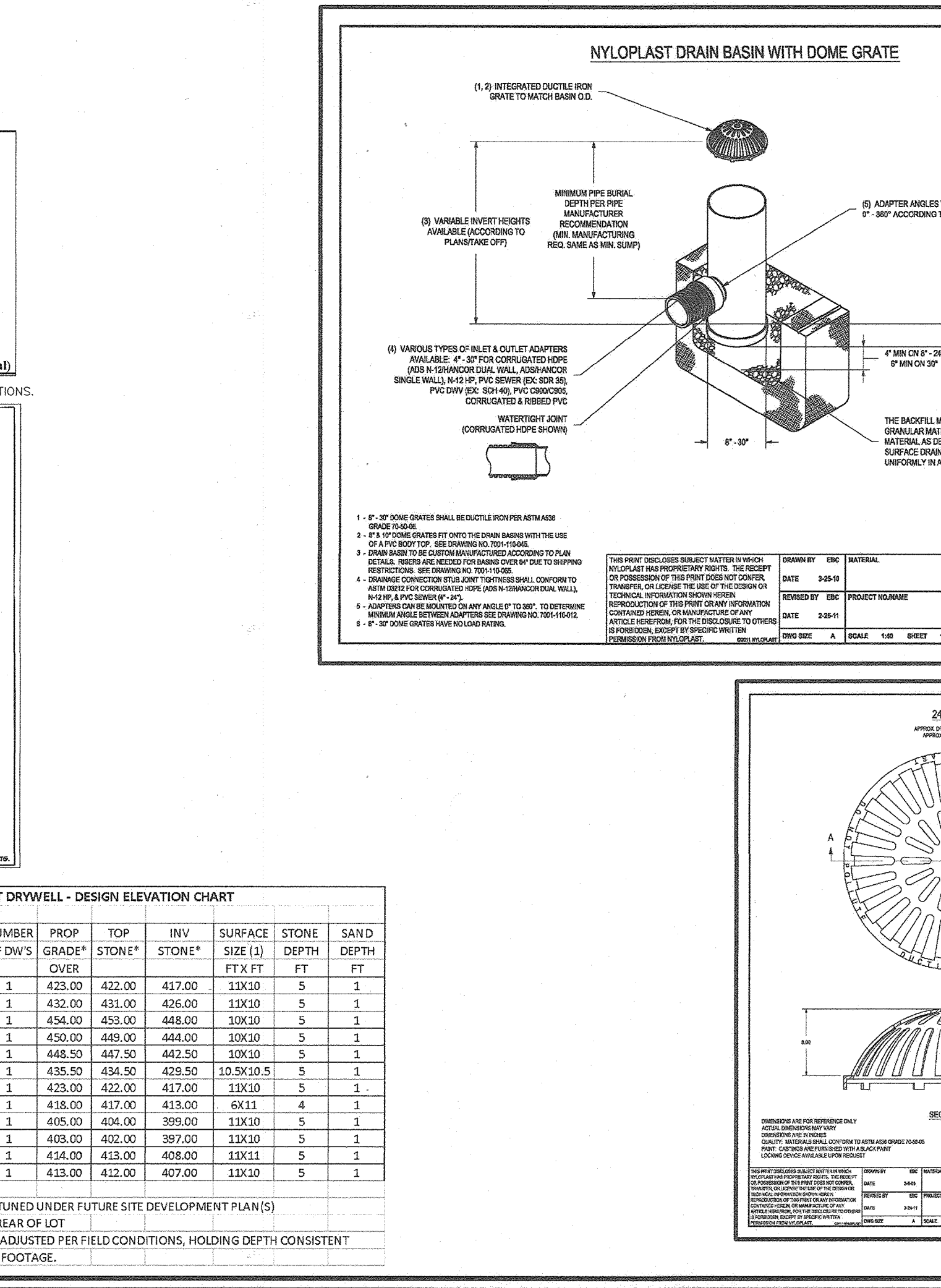


ON-LOT DRYWELL - DESIGN ELEVATION CHART

SWM DA	DW #	LOT LOCATION	NUMBER OF DW'S	PROP GRADE	TOP STONE*	INV. STONE*	SURFACE SIZE (FT X FT)	DEPTH (FT)	SAND DEPTH (FT)
1	1	F	1	423.00	422.00	417.00	11X10	5	1
1	2	R	1	432.00	431.00	426.00	11X10	5	1
5A	4	R	1	454.00	453.00	448.00	10X10	5	1
4B	4	R	1	430.00	429.00	424.00	10X10	5	1
5C	5	R	1	448.50	447.50	442.50	10X10	5	1
6	6	R	1	435.50	434.50	429.50	10.5X10.5	5	1
8A	9	R	1	423.00	422.00	417.00	11X10	5	1
9	10	R	1	418.00	417.00	413.00	6X11	4	1
10	11	R	1	405.00	404.00	399.00	11X10	5	1
11	12	R	1	409.00	408.00	397.00	11X10	5	1
14	13	R	1	414.00	413.00	408.00	11X11	5	1
15	14	R	1	413.00	412.00	407.00	11X10	5	1

* DESIGN SHALL BE FINE TUNED UNDER FUTURE SITE DEVELOPMENT PLAN(S)
 F= FRONT OF LOT R= REAR OF LOT
 (1) DRYWELL SIZE CAN BE ADJUSTED PER FIELD CONDITIONS, HOLDING DEPTH CONSISTENT AND ADJUSTING SQUARE FOOTAGE.

MICRO-BIORETENTION AREA 12 - MBR#4 NYLOPLAST DRAIN BASIN OR EQUAL



DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.6\"/>					
AREA 1	32.73	0.3445	63465	1.46	1822	4738	2916	2310	20770	0.48	0.98	STRUCTURAL - SAND FILTER
ATENBOROUGH WAY EXTENSION												2310 1733 SF FILTER
LOT 1 & LOT2	100.00	0.9500	2400	0.06	100	494	304	330	2400	0.06	0.00	MICROSCALE - DRYWELL
AREA 2 LOTS 1,2,3 & UIC DRIVE	85.39	0.3667	19944	0.44	591	1537	946	1535	6807	0.16	0.29	MICROSCALE MICRO-BIO RETENTION #1
AREA 3 LOT 3 & UIC	27.04	0.2933	7667	0.18	187	487	300	487	2073	0.05	0.13	MICROSCALE MICRO-BIO RETENTION #2
AREA 4 LOTS 4,5 & 6	56.41	0.5577	16601	0.38	773	2036	1234	1095	9364	0.21	0.17	MICROSCALE MICRO-BIO RETENTION #6
AREA 5 LOT 5	100.00	0.9500	1242.0	0.03	98	256	157	165	1242	0.03	0.00	MICROSCALE - DRYWELL
AREA 6 LOT 6	29.08	0.3117	13889	0.32	361	938	577	656	4039	0.09	0.23	MICROSCALE MICRO-BIO RETENTION #7
AREA 7 LOTS 7,8	47.06	0.4735	6917	0.16	273	710	437	565	3255	0.07	0.08	MICROSCALE MICRO-BIO RETENTION #8
AREA 8 LOTS 9 & 10	105.91	1.0032	931	0.02	78	202	125	165	986	0.02	0.00	MICROSCALE - DRYWELL
AREA 9 LOT 9	101.14	0.9602	636.0	0.01	49	128	79	79	623	0.01	0.00	MICROSCALE - DRYWELL
AREA 10 LOT 10	100.00	0.9500	1237.0	0.03	98	255	157	165	1237	0.03	0.00	MICROSCALE - DRYWELL
AREA 11 LOT 11	100.00	0.9500	1237.0	0.03	98	255	157	165	1237	0.03	0.00	MICROSCALE - DRYWELL
AREA 12 LOTS 11,12,13 & UIC DRIVE	42.41	0.4317	23913	0.55	860	2237	1376	2000	10141	0.23	0.32	MICROSCALE MICRO-BIO RETENTION #4
AREA 13 LOTS 13 & 14	45.30	0.4577	5817	0.13	222	577	355	577	2635	0.06	0.07	MICROSCALE MICRO-BIO RETENTION #3
AREA 14 LOT 14	100.00	0.9500	1237.0	0.03	98	255	157	165	1237	0.03	0.00	MICROSCALE - DRYWELL
AREA 15 LOT 15	100.00	0.9500	613.0	0.01	49	126	78	126	613	0.01	0.00	MICROSCALE - DRYWELL
TOTALS	41.1	0.4197	367126	3.84	5846	15199	9353	10586	68659	1.58	2.26	

REMAINING DEVELOPED PORTION OF THE DEVELOPED AREA CONTAINS NO IMPERVIOUS AREAS TO BE TREATED

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
ESDv STORMWATER MANAGEMENT NOTES AND DETAILS
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONE: E-20

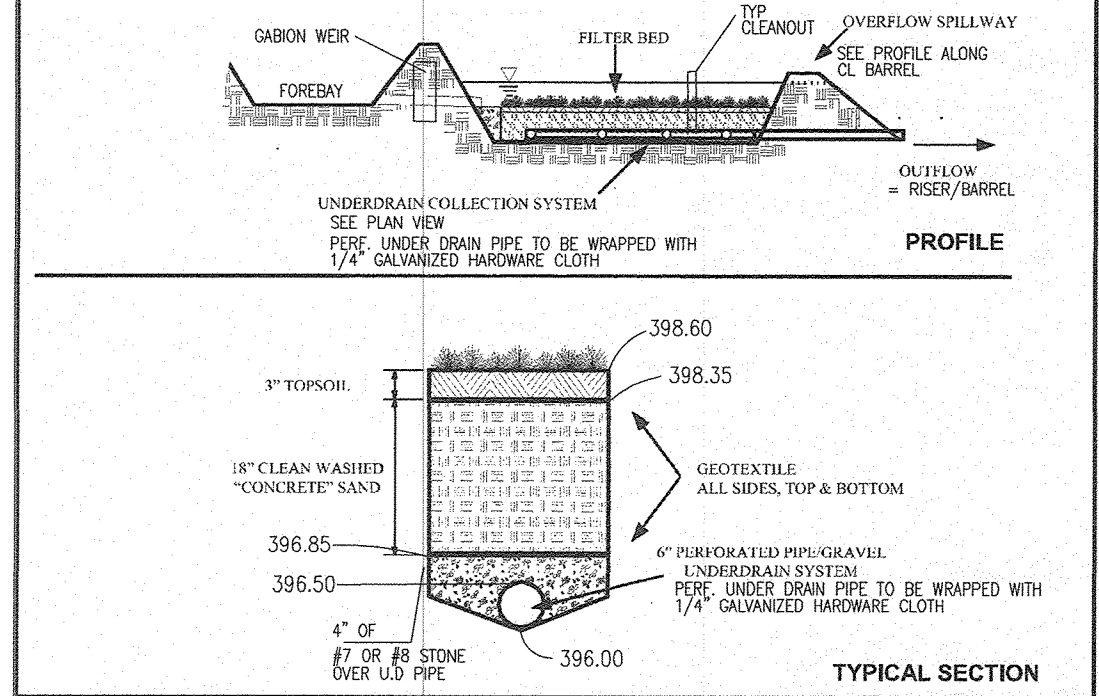
VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLCOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2022

DESIGN BY: RHV
 DRAWN BY: VETG
 CHECKED BY: RHV
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

20 SHEET OF 34

Material	Specification	Notes
sand	clean AASHTO-M-6 or ASTM-C-35 coarse sand	0.075" to 0.04" Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
peat	ash content < 15% pH range: 5.2 to 4.9 loose bulk density 0.12 to 0.15 g/cc	The material must be weed-free, hemic peat, shelled, uncompacted, uniform, and clean.
geotextile fabric (if required)	AASHTO-M-43 ASTM-D-4833 (puncture strength - 125 lb.) ASTM-D-4832 (Tensile Strength - 300 lb.)	0.075" to 0.75" Must maintain 125 gsm per sq. ft. flow rate. Note: a "pea" gravel layer may be substituted for geotextiles unless to "separate" sand filter layers.
impermeable liner (if required)	ASTM-D-4833 (thickness) ASTM-D-112 (tensile strength 1,100 lb., elongation 200%) ASTM-D-634 (Tear resistance - 150 lb/in.) ASTM-D-471 (water absorption: +8 to -2% max)	30 mil thickness Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.
underdrain piping	8" x 8" Type 28 or AASHTO-M-278	4" x 4" rigid schedule 40 PVC or SDR33 3/8" perf. @ 6" on center. 4 in. per row; minimum of 3" of gravel over pipe; not necessary underdrain pipes.
concrete (cast-in-place)	MSHA Standards and Specs. Section 902, Mix No. 3, f'c = 3500 psi, normal weight, air-entrained.	on-site testing of general-in-place concrete required: 28 day strength and slump test; all concrete design cast-in-place or pre-cast not using previously approved Slab or local standards requires design drawings sealed and approved by a professional engineer licensed in the State of Maryland.
concrete (pre-cast)	per pre-cast manufacturer	SEE ABOVE NOTE
non-ferrous steel	ASTM A-36	structural steel to be hot-dipped galvanized ASTM-A-123



SWMF #3 - MD-378 STORMWATER FACILITY
TYPICAL SAND FILTER DETAILS
SCALE: HORIZONTAL - N.T.S.

SAND FILTER - PLANTING

SAND FILTER PLANTINGS SHALL CONSIST OF A MIXTURE:
 REED CANARY GRASS - PHALARIS ARUNDINACEA
 SWITCHGRASS - PANICUM VIRGATUM
 CREEPING BENTGRASS - AGROSTIS PALUSTRIS
 OR EQUAL COMBINATION OF COOL / WARM SEASON GRASSES TOLERANT OF FREQUENT MOWING.

2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME 1
 CHAPTER 2 - SECTION 3.4.6 FILTERING MAINTENANCE CRITERIA

SURFACE SAND FILTERS (F-1) THAT HAVE A GRASS COVER SHOULD BE MOWED A MINIMUM OF 3 TIMES PER GROWING SEASON TO MAINTAIN MAXIMUM GRASS HEIGHTS LESS THAN 12 INCHES.

CONSTRUCTION OF SAND FILTER AREAS SHALL CONFORM TO THE SPECIFICATIONS OUTLINE IN APPENDIX B.3.

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USGS SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE (SF / F-1 SAND FILTER)

- FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF FUNCTIONING PROPERLY.
- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR: ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
- DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE (HOWARD COUNTY)

- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, LOW RISE STRUCTURE, SAND FILTER & PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
- SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

ON-SITE SWMF #3 - F-1 SAND FILTER

TYPE: MD-378
 HAZARD CLASS: A
 EX. DRAINAGE AREA: 5.9 AC.
 PROP. DRAINAGE AREA: 4.45 AC.
 BOTTOM ELEV.: 398.6
 LOW FLOW INVERT: 398.6
 SAND FILTER: 398.0 - 398.6 (SURFACE)
 SAND FILTER: 405.0
 TOP OF EMBANKMENT: 405.0
 EMERGENCY SPILLWAY: 403.00

01/20p (DEV): 3.0 CFS @ 400.39
 Qp10 (DEV): 6.1 CFS @ 402.35
 Qp100 (DEV): 24.0 CFS @ 402.96

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE: _____ DATE: _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED NECESSARY AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS APPROVED BY CONTRACT, EMPLOYMENT, OR MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

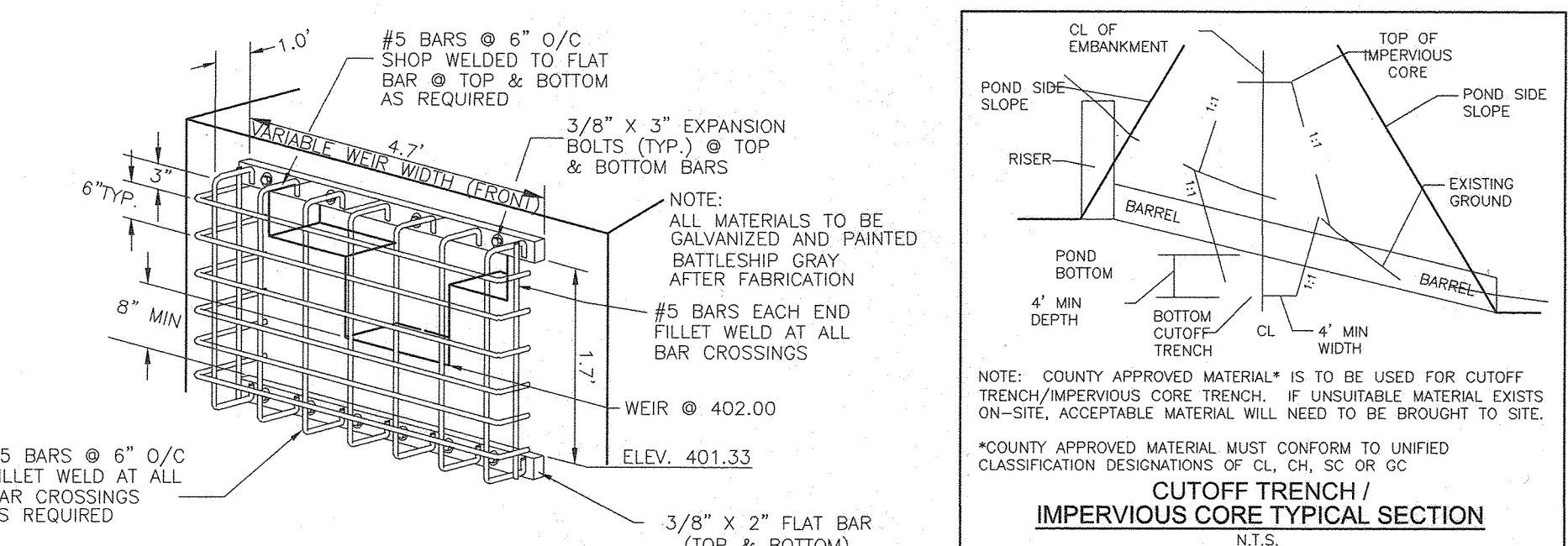
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 _____ DATE: 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 _____ DATE: 8.10.21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY

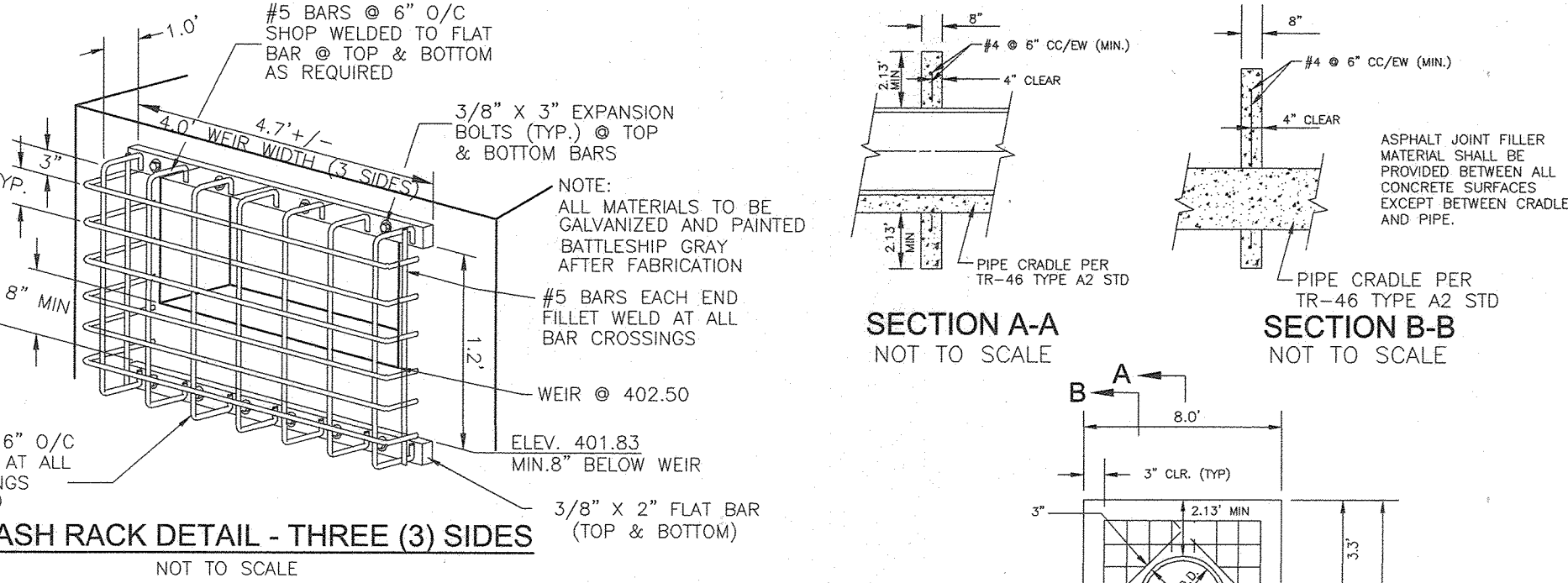
APPROVED: HOWARD COUNTY DEPARTMENT OF LAND DEVELOPMENT
 _____ DATE: 8/19/21
 CHIEF, DIVISION OF LAND DEVELOPMENT es

THIS PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, AND SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

_____ DATE: 8/19/21



TRASH RACK DETAIL - ONE (1) SIDE
NOT TO SCALE



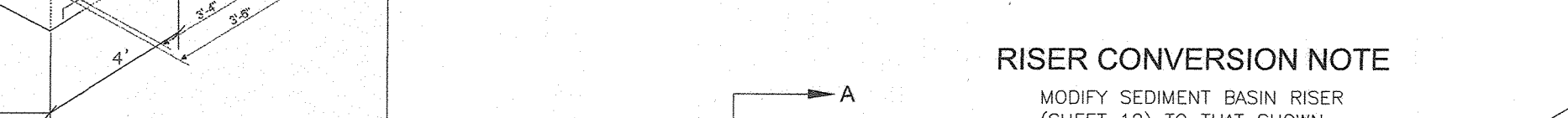
TRASH RACK DETAIL - THREE (3) SIDES
NOT TO SCALE



EXPANDED METAL TRASH RACK (NTS)
STAGE 1 - 10' LOW FLOW ORIFICE



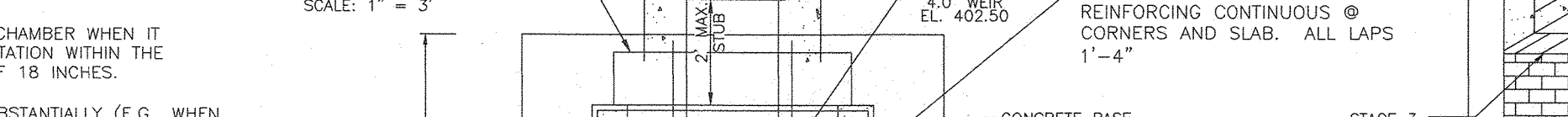
RISER CONVERSION NOTE
MODIFY SEDIMENT BASIN RISER (SHEET 12) TO THAT SHOWN HEREON FOR THE PROPOSED SAND FILTER.



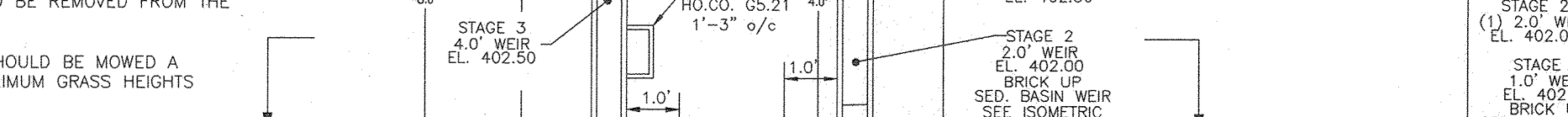
CONCRETE ANTI-SEEP COLLAR DETAIL
COLLAR CONSTRUCTED WITH SEDIMENT BASIN - SHT 12
NOT TO SCALE



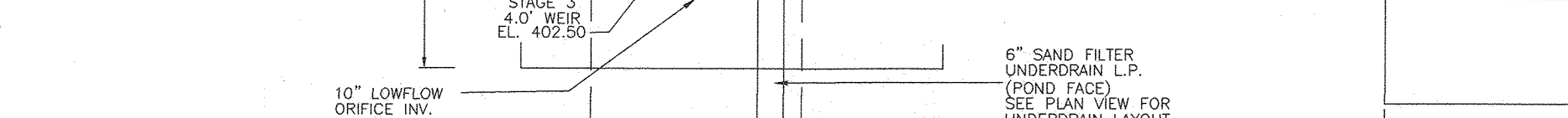
SAND FILTER CRADLE DETAIL
SCALE: HORIZONTAL - 1"=5'
VERTICAL - 1"=5'



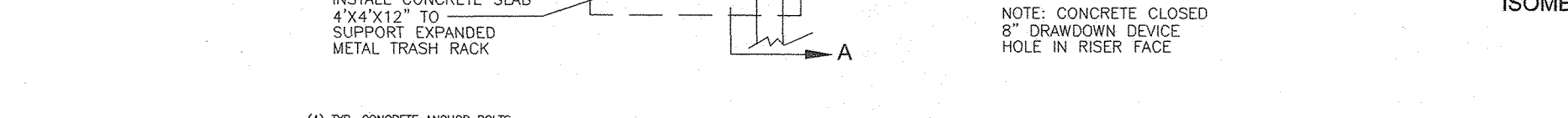
SAND FILTER GATION BASKET SURROUND
SCALE: 1" = 3'



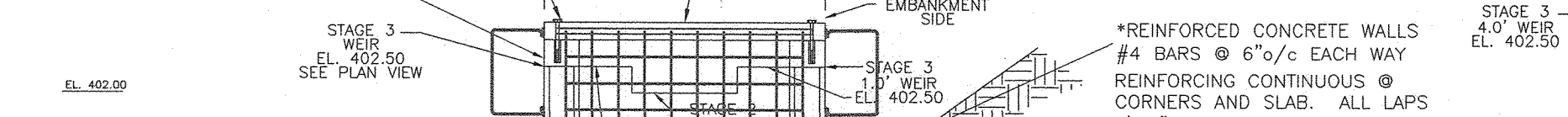
FOREBAY GATION BASKET WEIR DETAIL
SCALE: N.T.S.



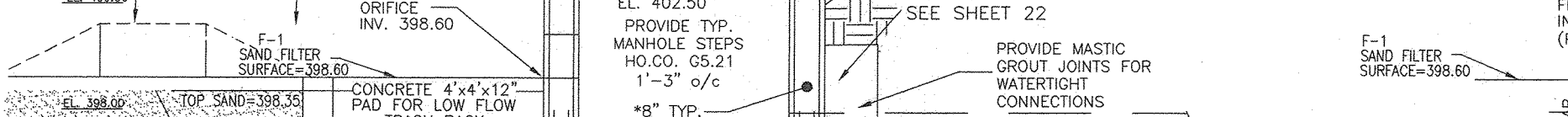
SCS TR-46 A-2 PIPE CRADLE DETAIL
SAND FILTER
CRADLE CONSTRUCTED WITH SEDIMENT BASIN - SHT 12
NOT TO SCALE



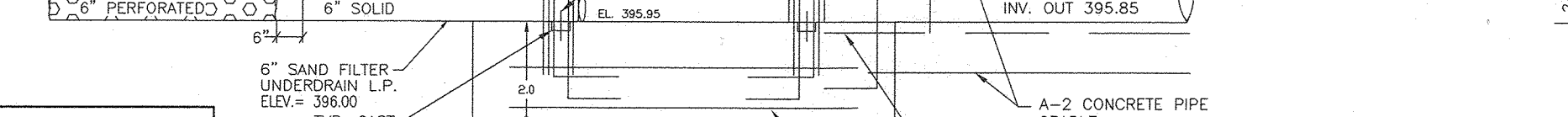
REINFORCEMENT NOTE
*STRUCTURAL ENGINEER SHALL VERIFY REINFORCEMENT SPECIFIED IS ADEQUATE FOR APPLICATION



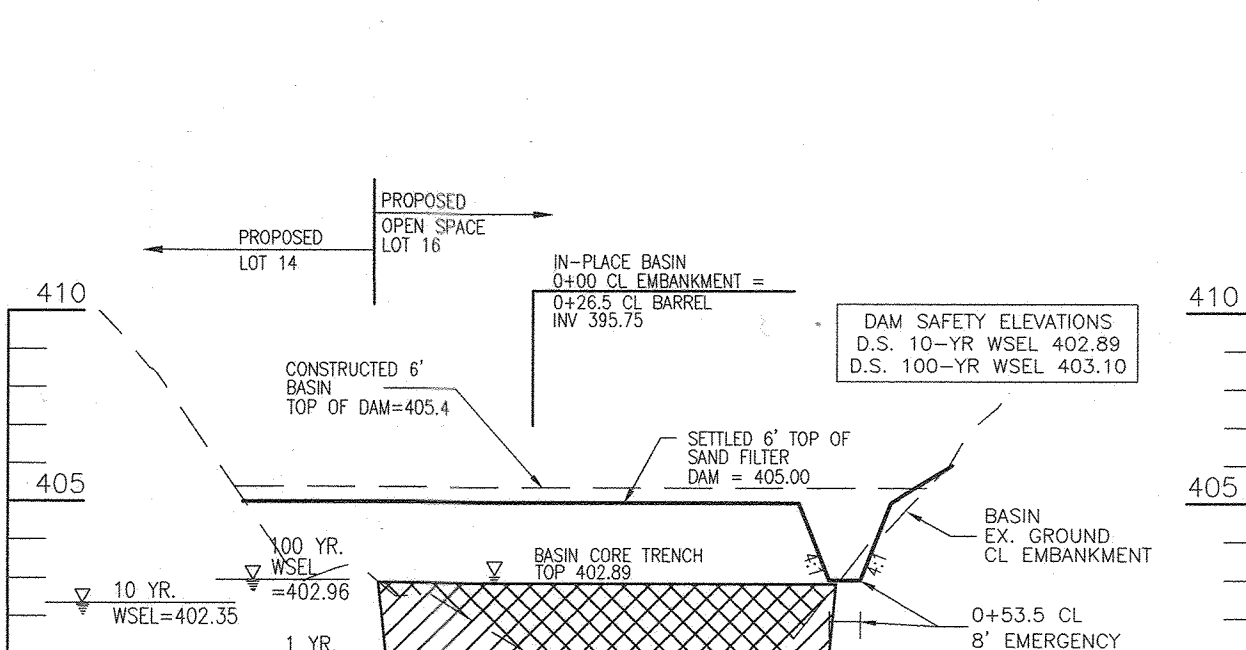
SF-1 PLAN VIEW
SCALE: 1" = 3'



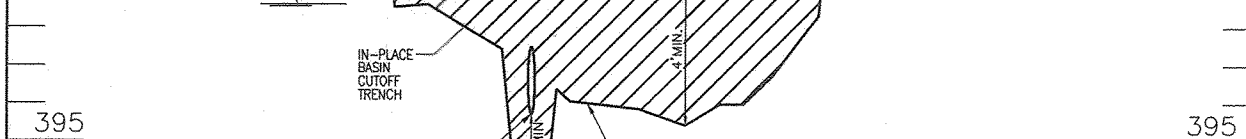
SF-1 SECTION A-A
SCALE: 1" = 3'



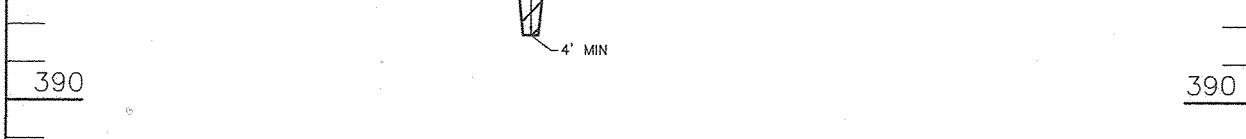
SF-1 SECTION B-B
SCALE: 1" = 3'



PROFILE ALONG CL OF SAND FILTER EMBANKMENT
SCALE: HORIZONTAL - 1"=5'
VERTICAL - 1"=5'



SAND FILTER PROFILE ALONG CL OF BARREL
SCALE: HORIZONTAL - 1"=5'
VERTICAL - 1"=5'



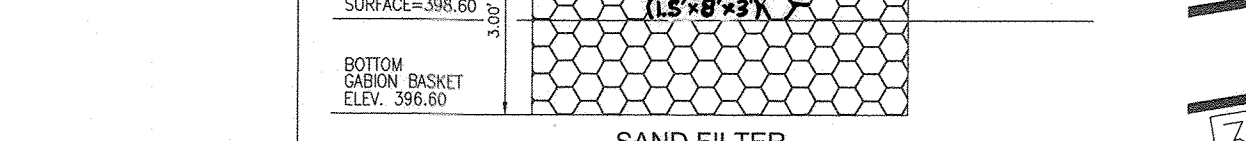
SAND FILTER GATION BASKET SURROUND
SCALE: 1" = 3'



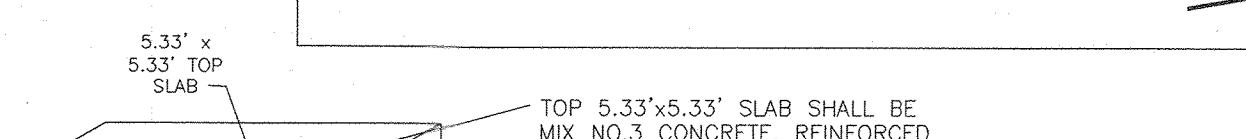
FOREBAY GATION BASKET WEIR DETAIL
SCALE: N.T.S.



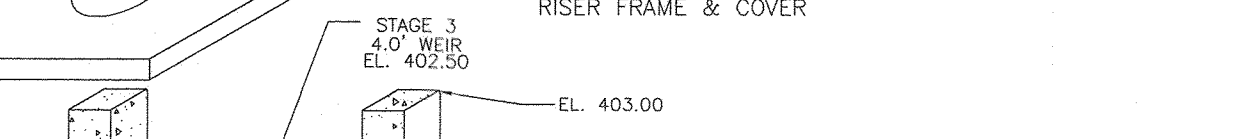
SCS TR-46 A-2 PIPE CRADLE DETAIL
SAND FILTER
CRADLE CONSTRUCTED WITH SEDIMENT BASIN - SHT 12
NOT TO SCALE



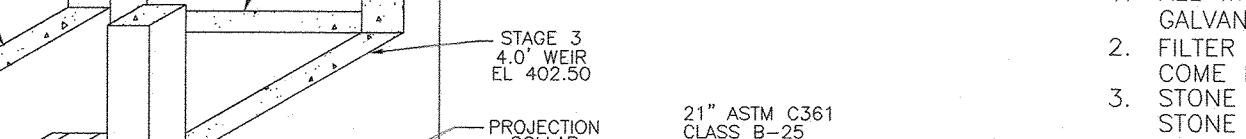
REINFORCEMENT NOTE
*STRUCTURAL ENGINEER SHALL VERIFY REINFORCEMENT SPECIFIED IS ADEQUATE FOR APPLICATION



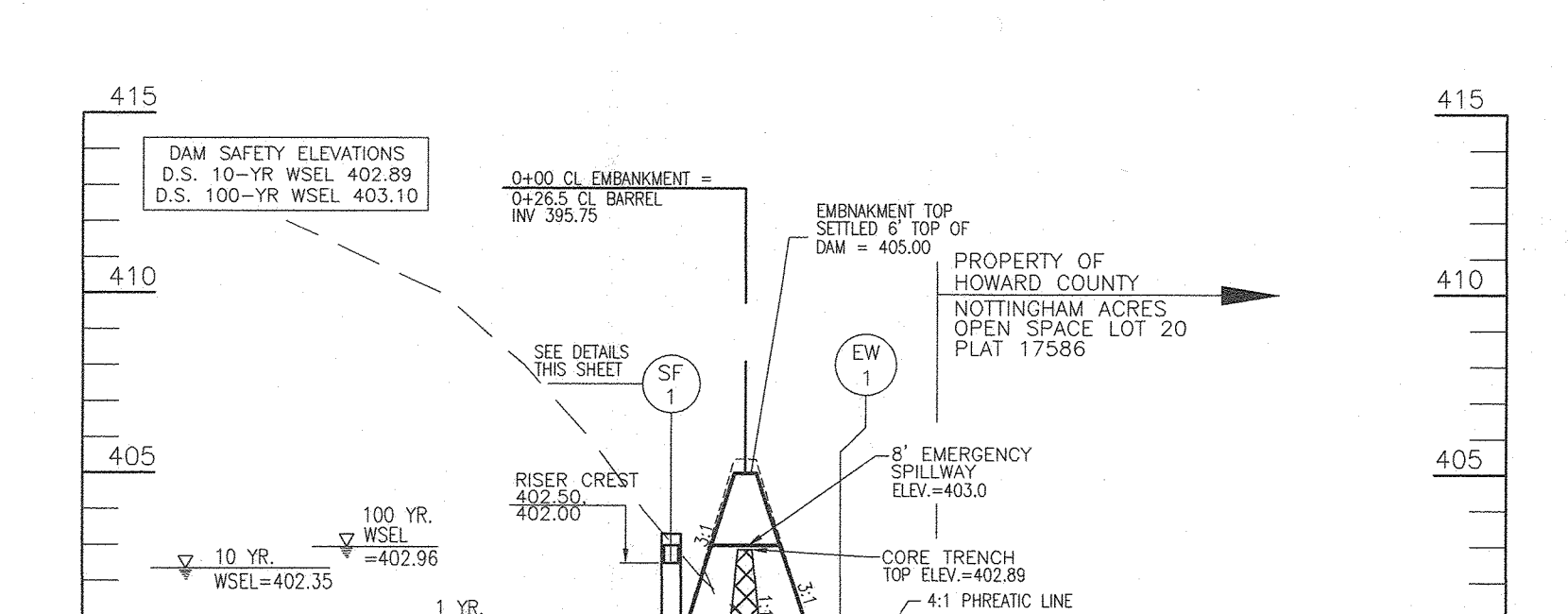
SF-1 PLAN VIEW
SCALE: 1" = 3'



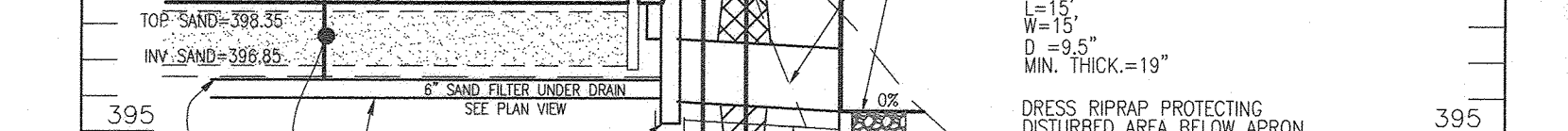
SF-1 SECTION A-A
SCALE: 1" = 3'



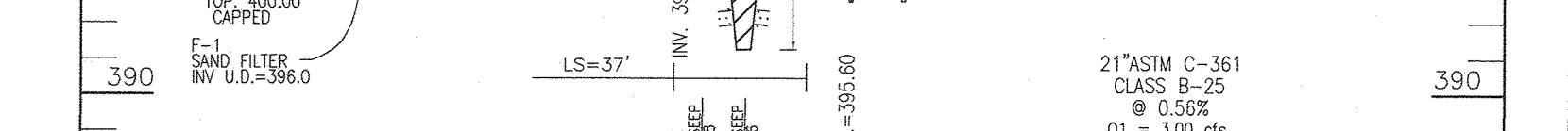
SF-1 SECTION B-B
SCALE: 1" = 3'



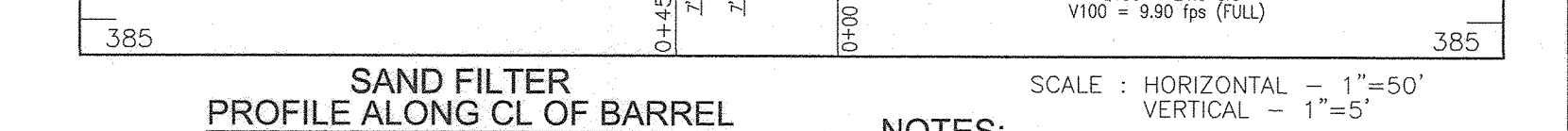
PROFILE ALONG CL OF SAND FILTER EMBANKMENT
SCALE: HORIZONTAL - 1"=5'
VERTICAL - 1"=5'



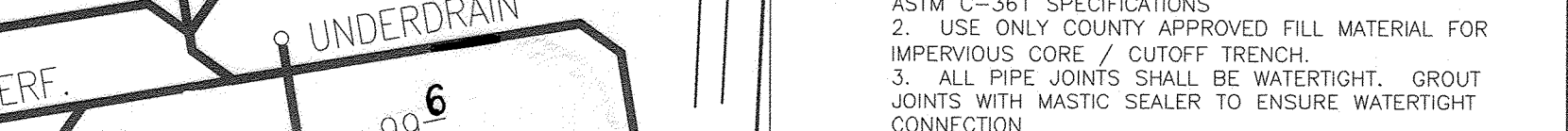
SAND FILTER PROFILE ALONG CL OF BARREL
SCALE: HORIZONTAL - 1"=5'
VERTICAL - 1"=5'



SAND FILTER GATION BASKET SURROUND
SCALE: 1" = 3'



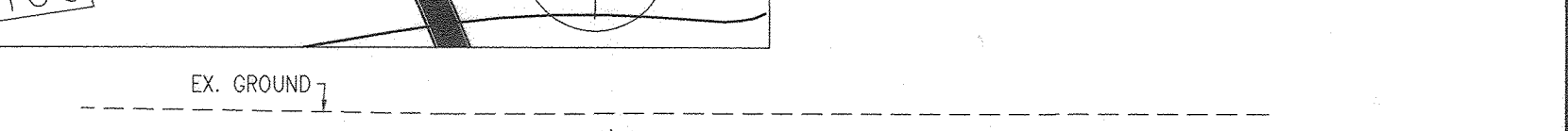
FOREBAY GATION BASKET WEIR DETAIL
SCALE: N.T.S.



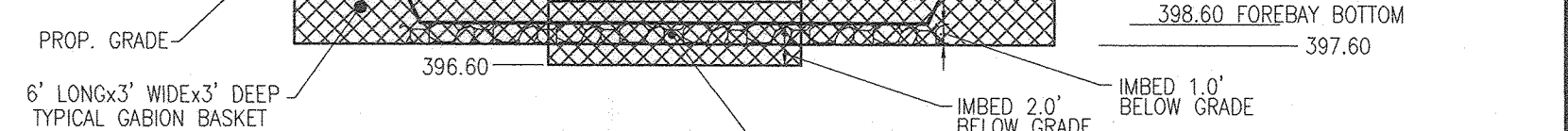
SCS TR-46 A-2 PIPE CRADLE DETAIL
SAND FILTER
CRADLE CONSTRUCTED WITH SEDIMENT BASIN - SHT 12
NOT TO SCALE



REINFORCEMENT NOTE
*STRUCTURAL ENGINEER SHALL VERIFY REINFORCEMENT SPECIFIED IS ADEQUATE FOR APPLICATION



SF-1 PLAN VIEW
SCALE: 1" = 3'



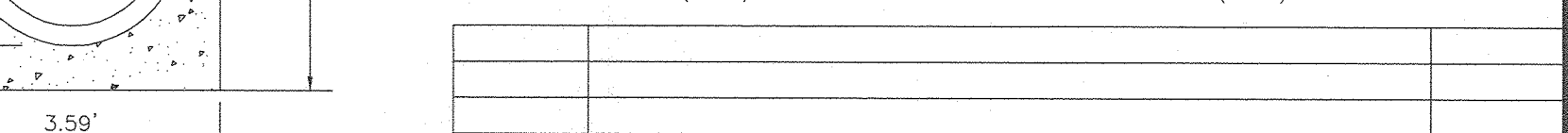
SF-1 SECTION A-A
SCALE: 1" = 3'



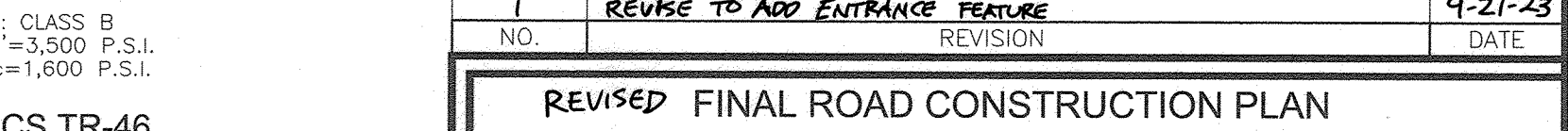
SF-1 SECTION B-B
SCALE: 1" = 3'



PROFILE ALONG CL OF SAND FILTER EMBANKMENT
SCALE: HORIZONTAL - 1"=5'
VERTICAL - 1"=5'



SAND FILTER PROFILE ALONG CL OF BARREL
SCALE: HORIZONTAL - 1"=5'
VERTICAL - 1"=5'



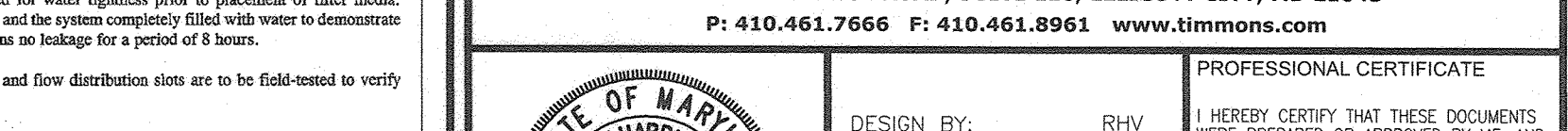
SAND FILTER GATION BASKET SURROUND
SCALE: 1" = 3'



FOREBAY GATION BASKET WEIR DETAIL
SCALE: N.T.S.



SCS TR-46 A-2 PIPE CRADLE DETAIL
SAND FILTER
CRADLE CONSTRUCTED WITH SEDIMENT BASIN - SHT 12
NOT TO SCALE



REINFORCEMENT NOTE
*STRUCTURAL ENGINEER SHALL VERIFY REINFORCEMENT SPECIFIED IS ADEQUATE FOR APPLICATION



SF-1 PLAN VIEW
SCALE: 1" = 3'



SF-1 SECTION A-A
SCALE: 1" = 3'

OWNER: HAMPTON HILLS, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER: TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE
1	REVISE TO REGRADE SAND FILTER TO GAIN 25% OF FILTER AREA	4/6/24
2	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
 SAND FILTER
 NOTES AND DETAILS
 HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

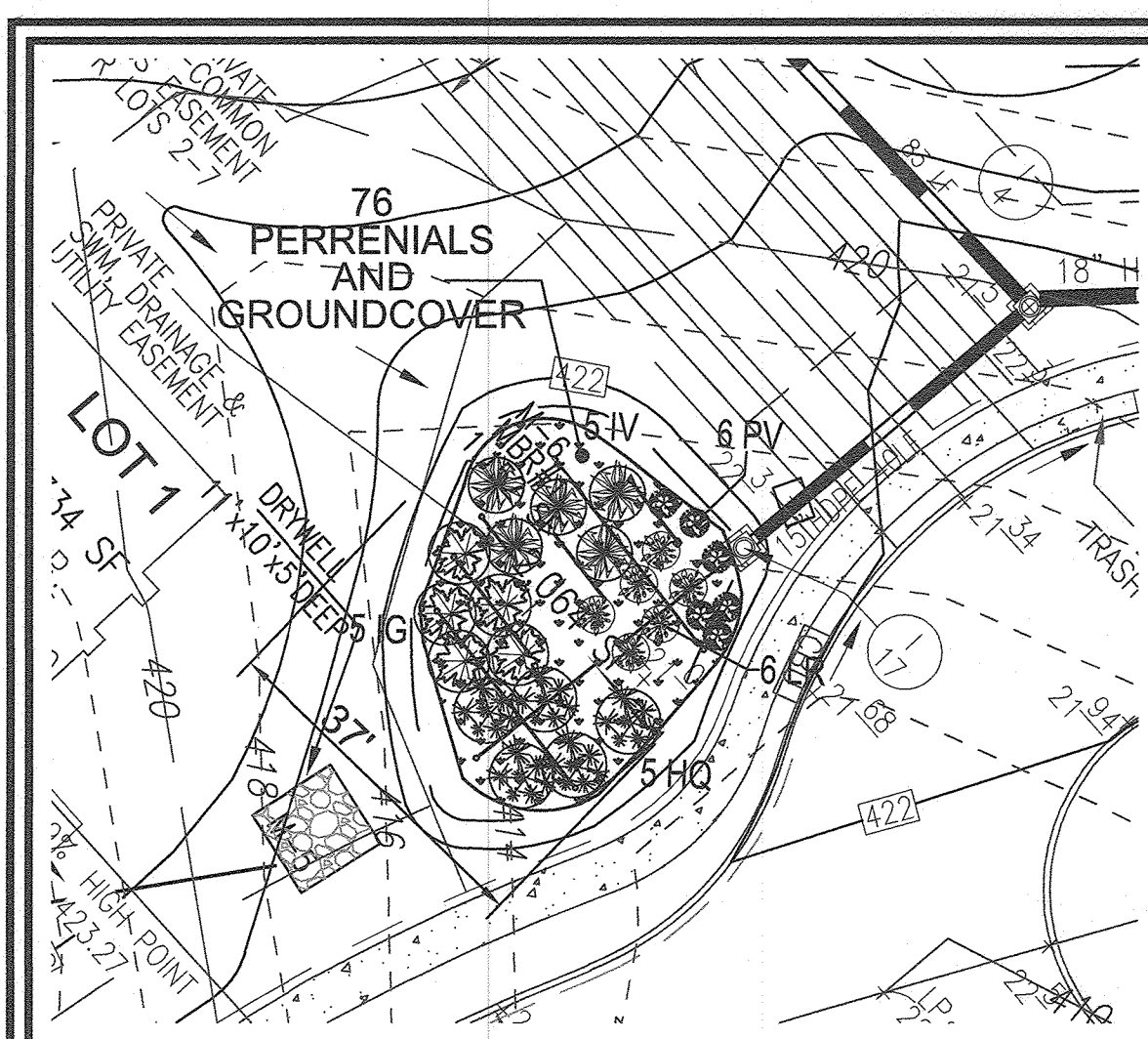
TAX MAP: 31 CRD: 9
 2ND ELECTION DISTRICT

PROFESSIONAL CERTIFICATE

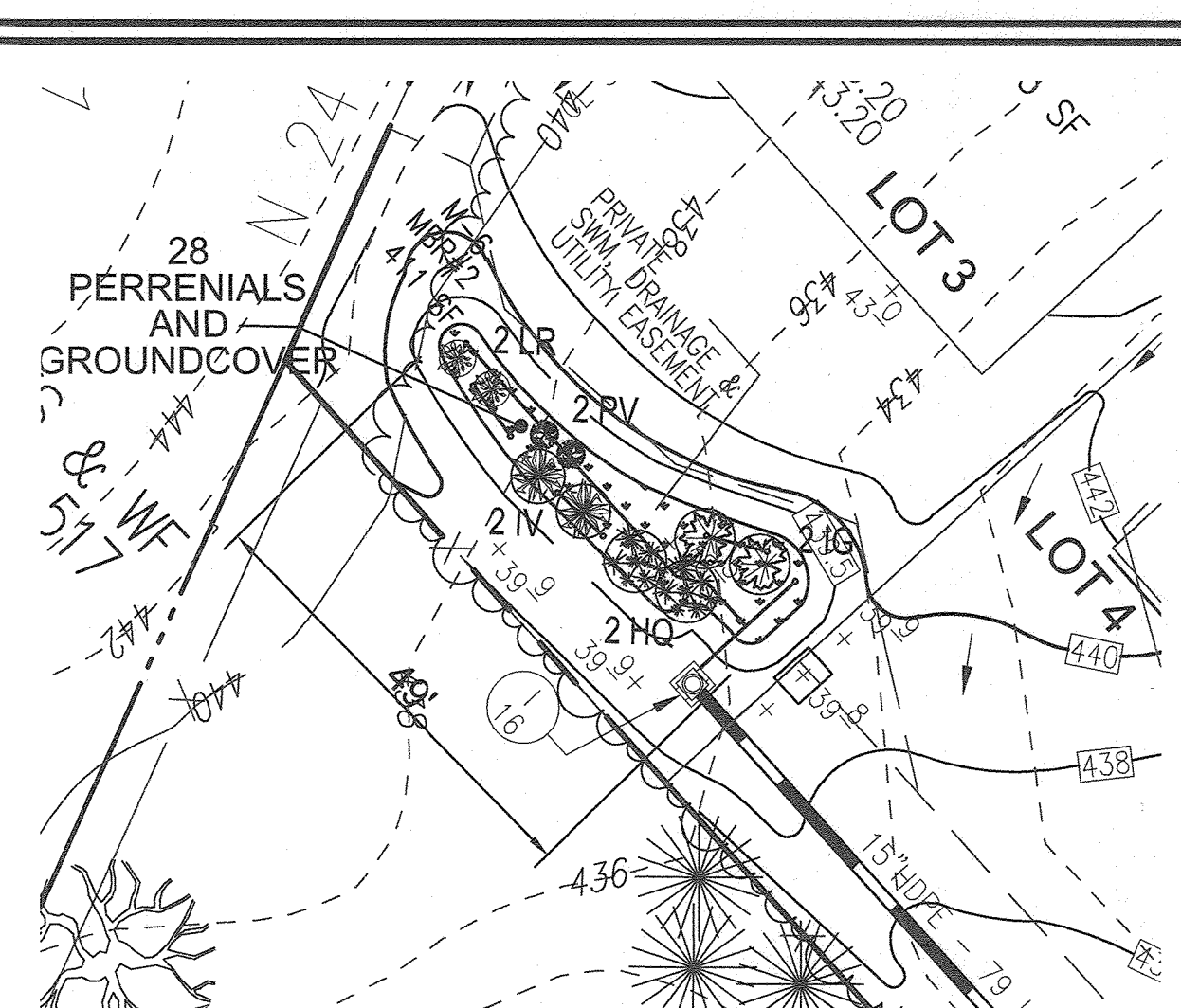
STATE OF MARYLAND
 REGISTERED PROFESSIONAL ENGINEER
 ROBERT H. VOGEL, PE No. 16193

DESIGN BY: RHV
 DRAWN BY: VETO
 CHECKED BY: RHV
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

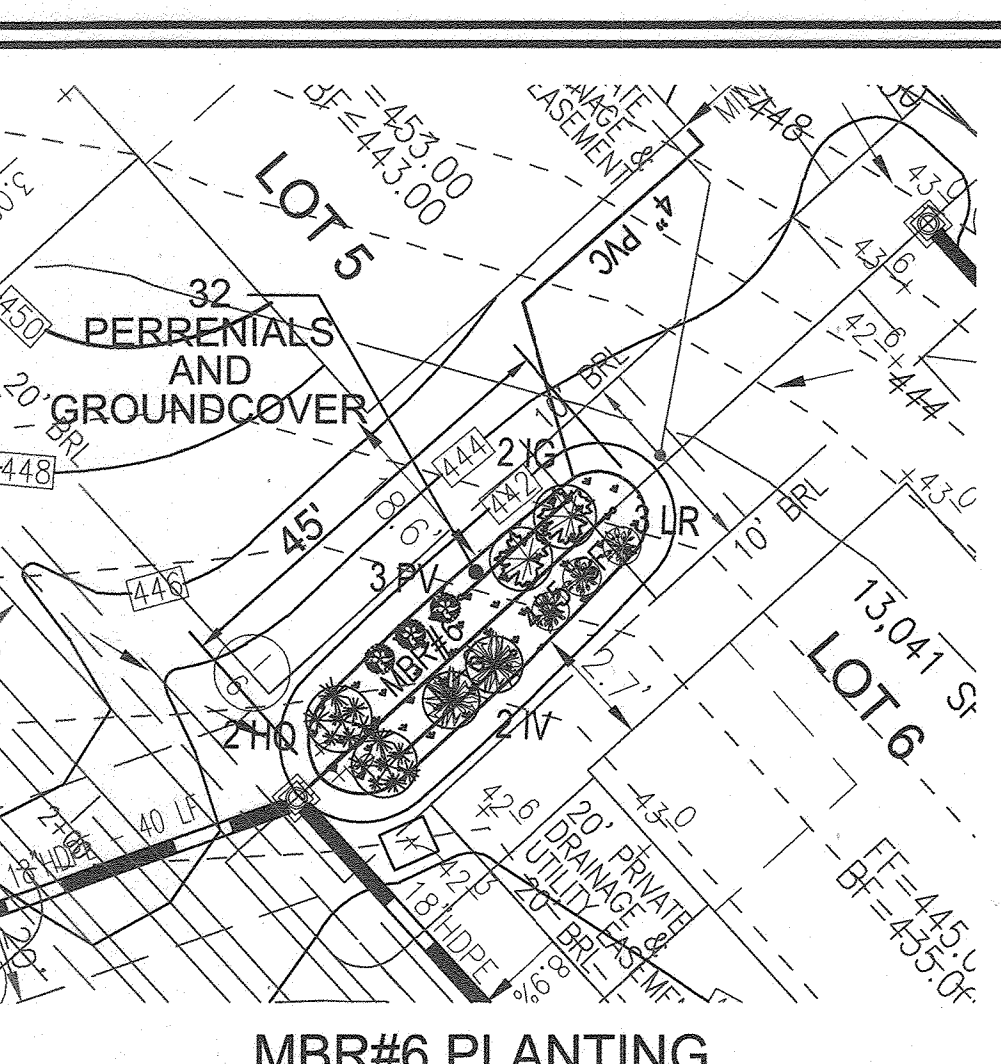
21 SHEET OF 34



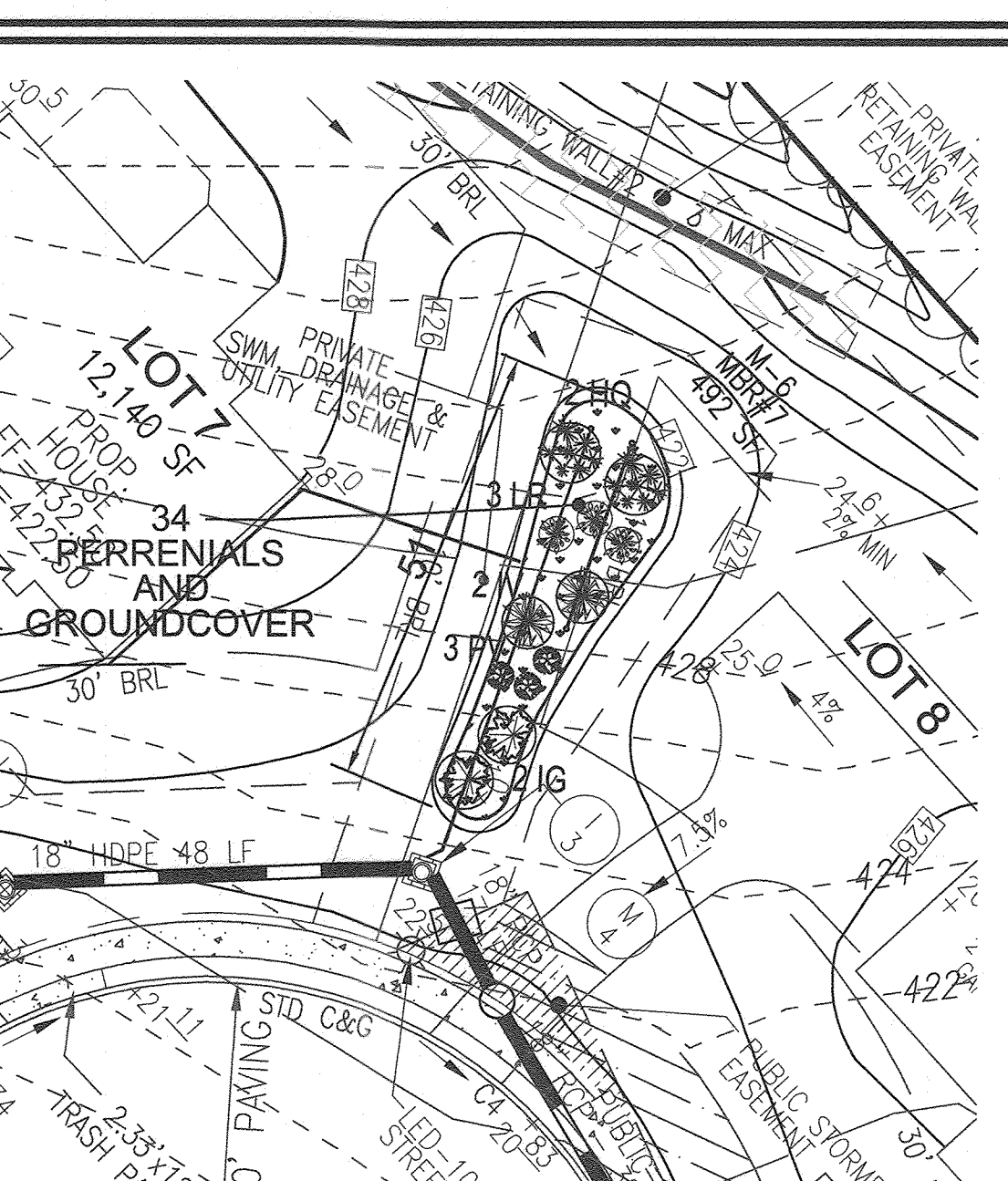
MBR#1 PLANTING
SCALE: 1"=20'



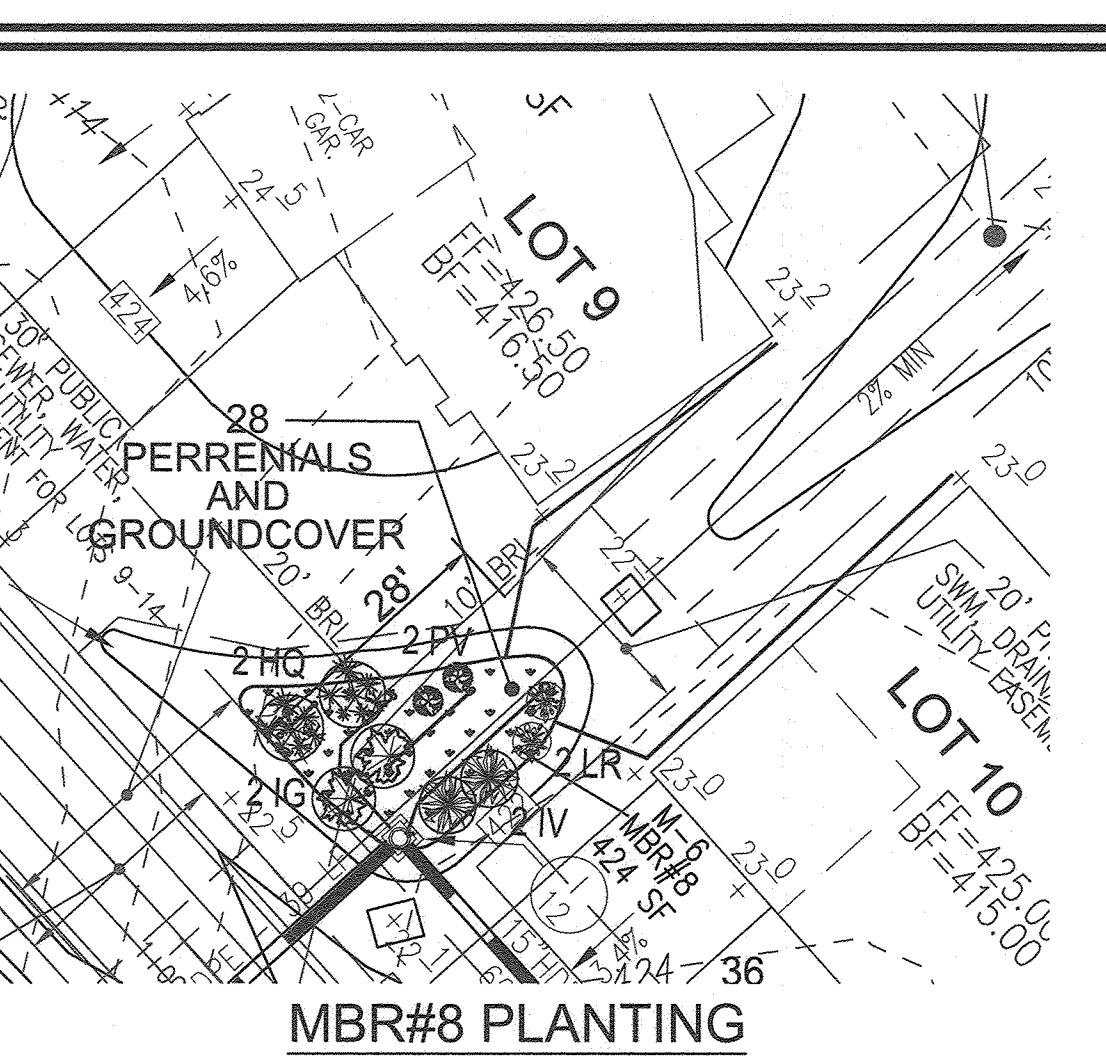
MBR#2 PLANTING
SCALE: 1"=20'



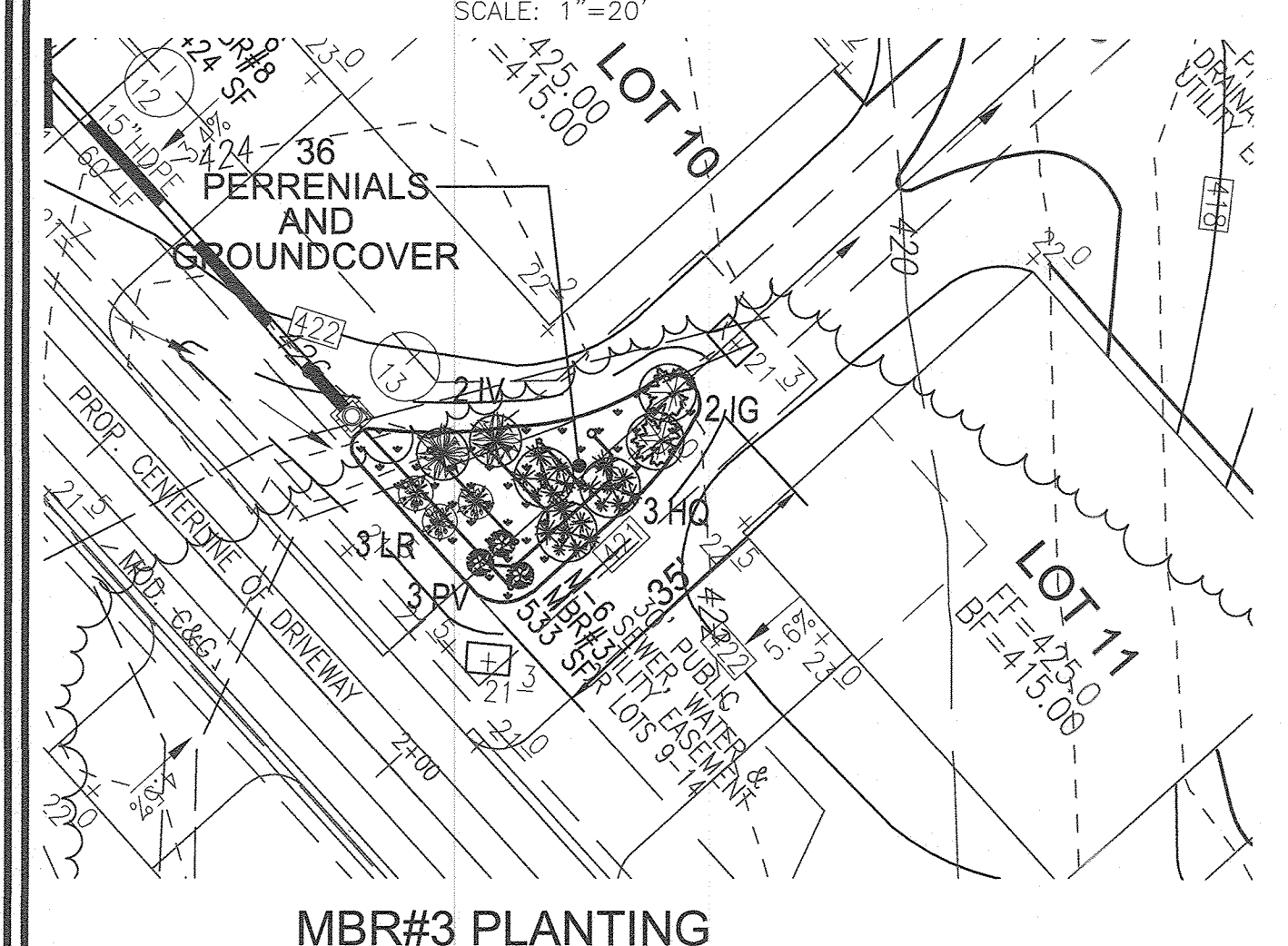
MBR#6 PLANTING
SCALE: 1"=20'



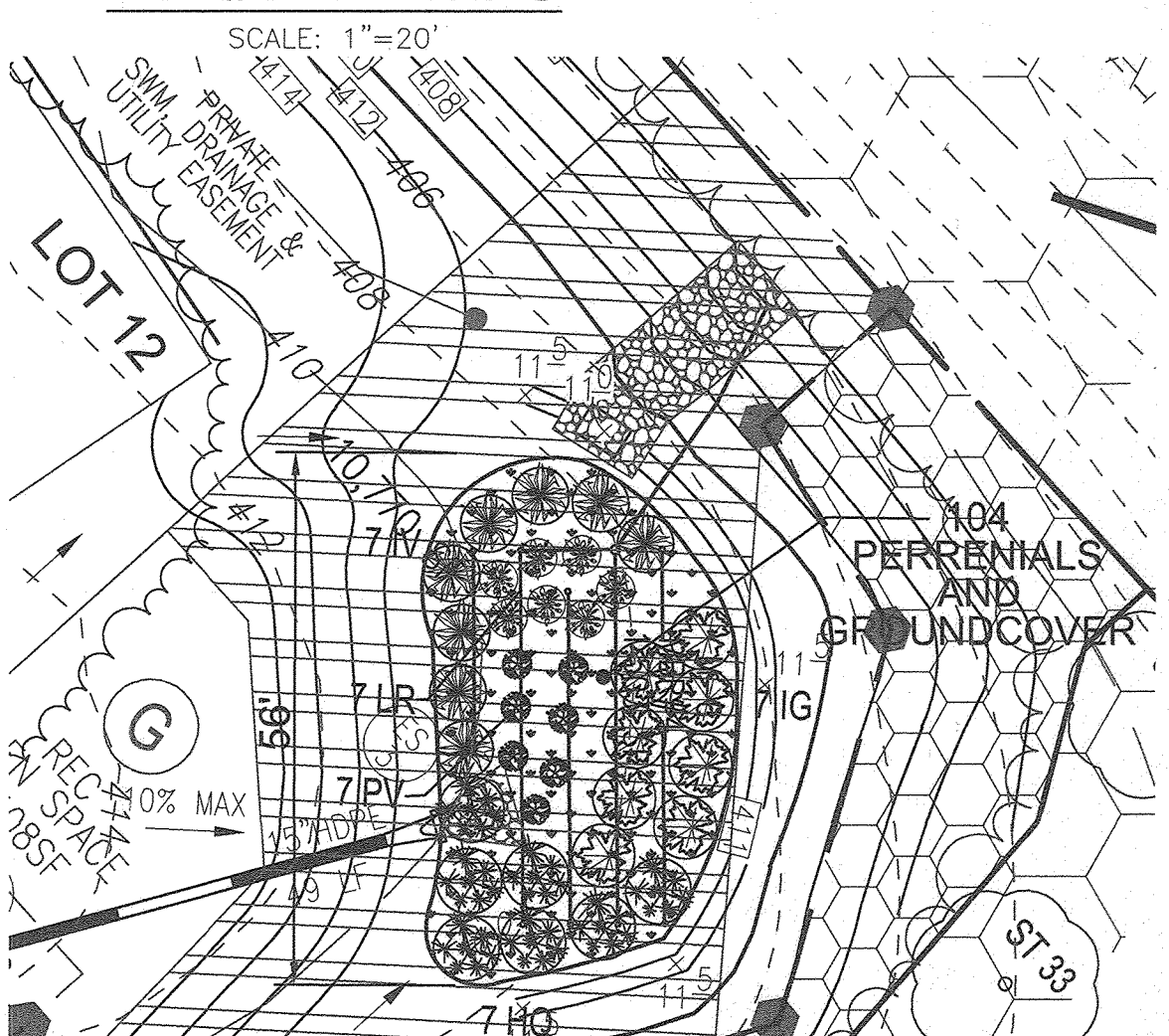
MBR#7 PLANTING
SCALE: 1"=20'



MBR#8 PLANTING
SCALE: 1"=20'



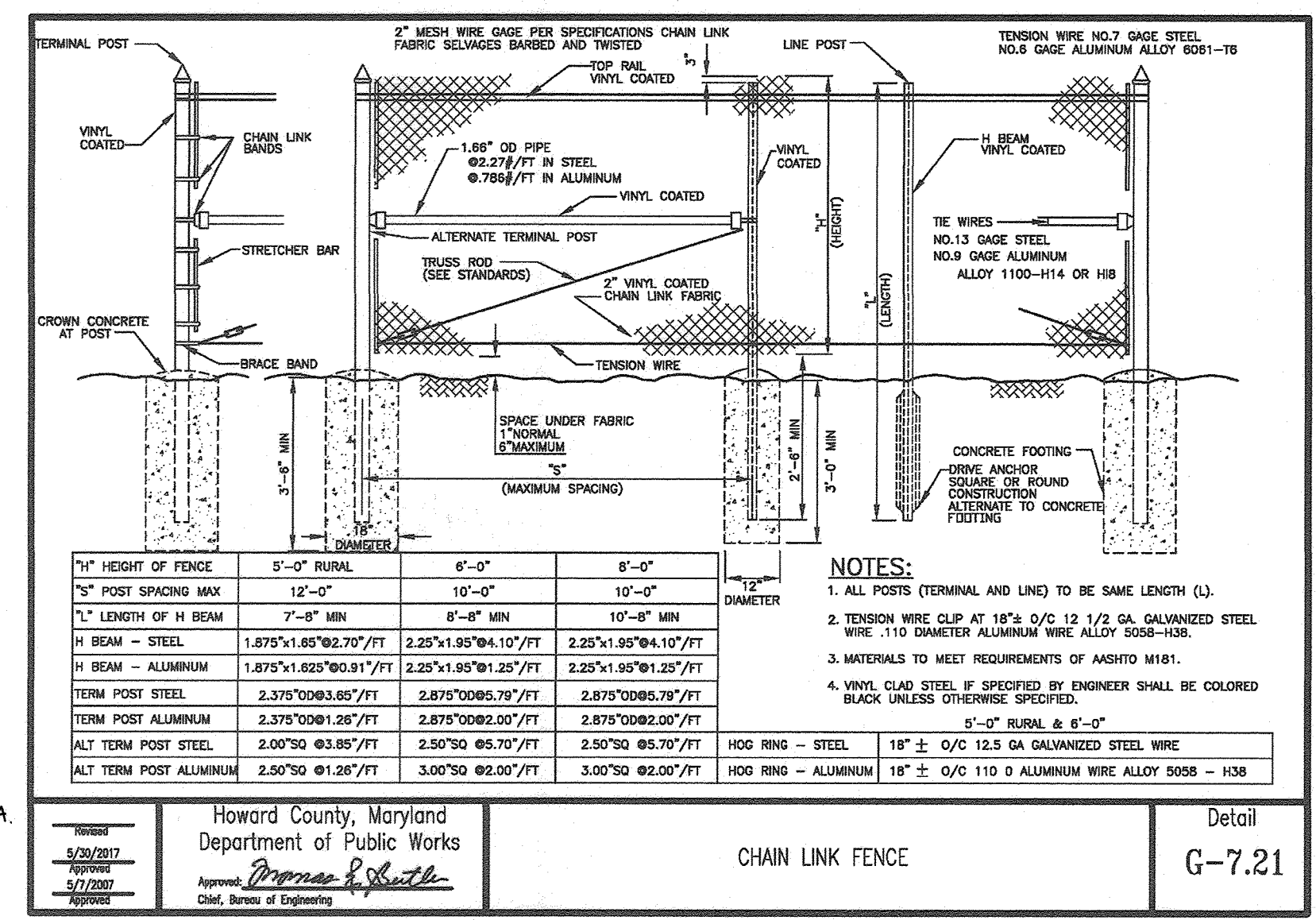
MBR#3 PLANTING
SCALE: 1"=20'



MBR#4 PLANTING
SCALE: 1"=20'

SAND FILTER - PLANTING
SAND FILTER PLANTINGS SHALL CONSIST OF A MIXTURE:
REED CANARY GRASS - PHALARIS ARUNDINACEA
SWITCHGRASS - PANICUM VIRGATUM
CREEPING BENTGRASS - AGROSTIS PALUSTRIS
OR EQUAL COMBINATION OF COOL / WARM SEASON GRASSES TOLERANT OF FREQUENT IRRIGATION
2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME 1
CHAPTER 2 - SECTION 3.4.6 FILTERING MAINTENANCE CRITERIA
SURFACE SAND FILTERS (F-1) THAT HAVE A GRASS COVER SHOULD BE MOWED A MINIMUM OF 3 TIMES PER GROWING SEASON TO MAINTAIN MAXIMUM GRASS HEIGHTS LESS THAN 12 INCHES.
CONSTRUCTION OF SAND FILTER AREAS SHALL CONFORM TO THE SPECIFICATIONS OUTLINE IN APPENDIX B.3.

SAND FILTER - PLAN VIEW
SCALE: 1"=20'



SAND FILTER RETAINING WALL FENCING

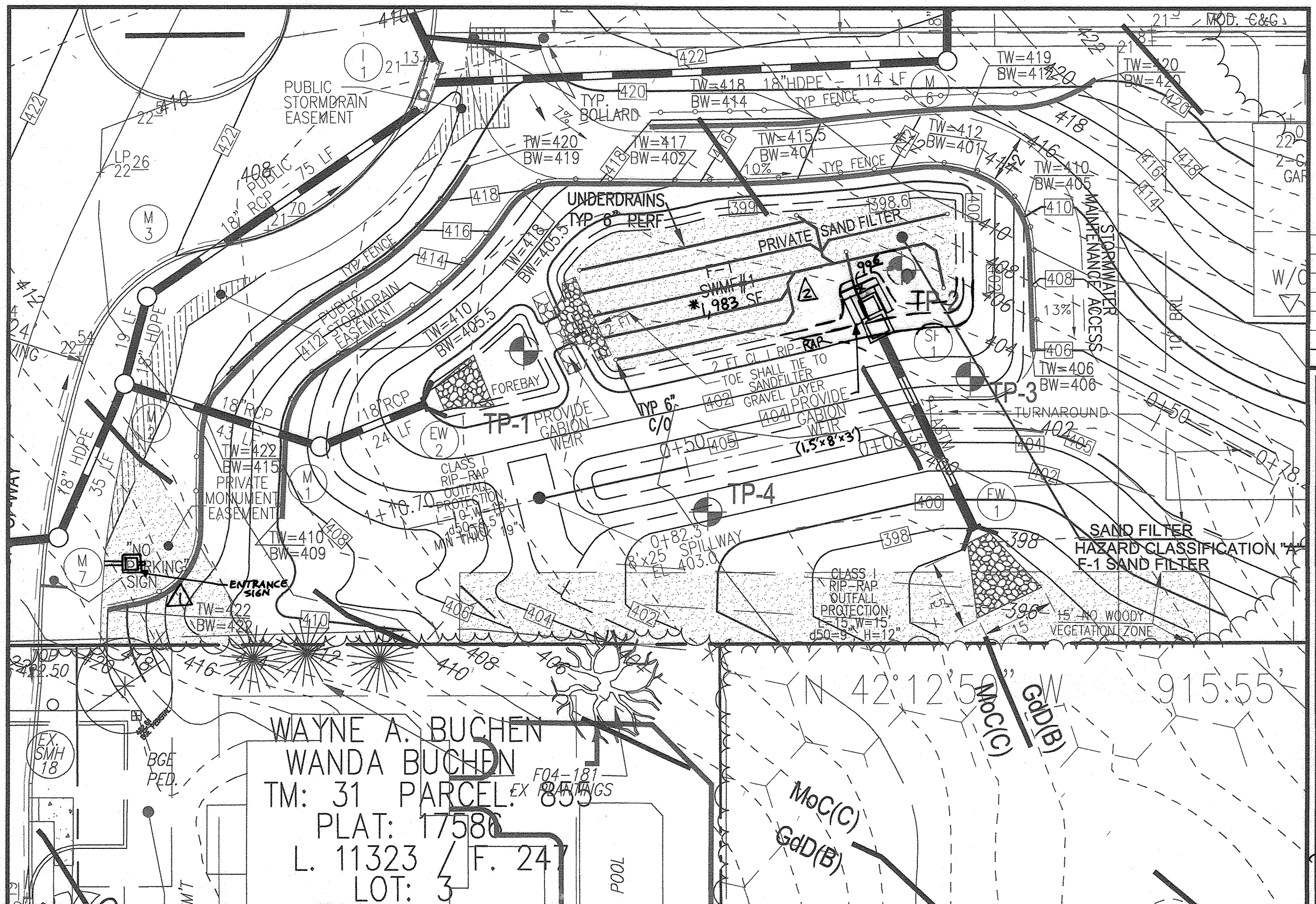
MICRO-BIORETENTION PLANTING REQUIREMENTS				PLANTINGS PROVIDED						PERENNIALS/GROUND COVER PROVIDED		
MBR #	LF	AREA	STEMS REQUIRED (0.0227)	STEMS PROVIDED	IG	IV	HQ	LR	PV	BA	AG	TOTAL
MBR #1	37	1152	27	27	5	5	5	6	6	40	40	80
MBR #2	49	411	10	10	2	2	2	2	2	14	14	28
MBR #3	35	533	13	13	2	2	3	3	3	18	18	36
MBR #4	56	1503	35	35	7	7	7	7	7	52	52	104
MBR #6	45	485	12	12	2	2	2	3	3	16	16	32
MBR #7	51	492	12	12	2	2	2	3	3	17	17	34
MBR #8	28	424	10	10	2	2	2	2	2	14	14	28
TOTALS	301	5000	85	85	22	22	23	26	26	171	171	342

BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0227 STEMS PER SQUARE FOOT).

BIORETENTION PLANTING SCHEDULE (SHRUB/ORNAMENTAL GRASSES)				
LEGEND/KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	22	ILEX GLABRA 'SHAMROCK' INKBERRY HOLLEY	1 GALLON	-
IV	22	ITEA VIRGINICA 'HENRY'S GARNETT' VIRGINIA SWEETSPICE	1 GALLON	-
HQ	23	HYDRANGEA QUERIFOLIA OAKLEAF HYDRANGEA	1 GALLON	-
LR	26	LEUCOTHEO RACEMOSA FETTERBUSH	1 GAL.	-
PV	26	PANICUM VIRGATUM SWITCHGRASS	1 GAL.	-
BIORETENTION PERENNIALS/GROUND COVER PLANTING SCHEDULE				
LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
	171	BAPTISIA AUSTRALIS FALSE INDIGO	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP
	171	ACORUS GRAMINEUS 'OGON' GOLDEN VARIEGATED SWEET FLAG	1 OT.	-

"MICRO-BIORETENTION/RAINGARDEN" PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAS SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0227 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDv SUMMARY.
- FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH



WAYNE A. BUCHEN
WANDA BUCHEN
TM: 31 PARCEL EX 8454183
PLAT: 17586
L. 11323 / F. 24
LOT: 3

Appendix A. Landscaping Outline for Stormwater BODv's - Specific Landscaping Criteria

Table A.4 Commonly Used Species for Bioretention Areas

Trees	Shrubs	Herbaceous Species
Acer rubrum	Aeruculus parviflora	Andropogon virginicus
Rubus	Botanococcus Boeckye	Bromus
Betula nigra	Cypripedium occidentale	Diapentem perpusum
Juniperus virginiana	Hamamelis virginiana	Scirpus pungens
Eastern Red Cedar	Witch Hazel	Three Square Balm
Chimaphila virginiana	Vaccinium corymbosum	Highbush Blueberry
Thuja occidentalis	Ilex glabra	Lobelia cardinalis
Black Gum	Ilex verticillata	Cardinal Flower
Diogenes virginiana	Panicum virgatum	Switchgrass
Peperomia	Dichanthium scoparium	Brooms Pailc Grass
Platanus occidentalis	Viburnum dentatum	Dichanthium scoparium
Sycamore	Astragalus	Tall Coneflower
Quercus palustris	Lindera benzoin	Scirpus cespitosus
Pisum	Spicebush	Woolgrass
Quercus phellos	Myrica pennsylvanica	Vernonia noveboracensis
Sax nigra	Black willow	New York Ironweed

- TABLE A.4 IS TAKEN FROM THE "2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II - APPENDIX A."
- CONTRACTOR SHALL BE FAMILIAR WITH APPENDIX B.4.C CONSTRUCTION SPECIFICATIONS AND TABLE B.4.1 MATERIAL SPECIFICATIONS. IN ADDITION THE "2000 MARYLAND STORMWATER DESIGN MANUAL - VOLUME II - APPENDIX A OFFERS ADDITIONAL HELPFUL INFORMATION."
- NO TREES SHALL BE PLANTED WITHIN A MICRO-BIORETENTION FACILITY. USE ONLY SHRUB OR HERBACEOUS SPECIES.
- ABOVE TABLE A.4 IS FOR INFORMATIONAL PURPOSES ONLY. LANDSCAPE CONTRACTOR SHALL INSTALL PLANTINGS SPECIFIED OR USE APPROVED EQUAL SPECIES WHICH ARE TOLERANT TO FLUCTUATING WATER LEVELS.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THIS FINAL PLAN.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE

APPROVED: [Signature] 8/19/21
 CHIEF, DIVISION OF LAND DEVELOPMENT 65 DATE

OWNER: HAMPTON HILLS, LLC. 3675 PARK AVE., SUITE 301 ELLICOTT CITY, MD 21043 (410) 480-0023

DEVELOPER: TRINITY HOMES MARYLAND, LLC. 3675 PARK AVE., SUITE 301 ELLICOTT CITY, MD 21043 (410) 480-0023

NO.	REVISION	DATE
1	REVISE TO REGRADE SAND FILTER TO GAIN 250 SF OF FILTER AREA	4-16-24
2	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN
 ESDv STORMWATER MANAGEMENT PLANTING PLAN AND NOTES & SAND FILTER DETAILS
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

VOGEL ENGINEERING
 TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: RHV
 DRAWN BY: VETG
 CHECKED BY: RHV
 DATE: MAY 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2022

ROBERT H. VOGEL, PE No. 16193

GENERAL NOTES

- CONSTRUCTION OF THE RETAINING WALLS SHOWN ON THIS PLAN SHALL BE PERFORMED UNDER THE OBSERVATION OF THE OWNERS INDEPENDENT TESTING AGENCY (ITA).
- IF THE ELEVATION, LOCATION, SURCHARGE LOADING, OR GRADING SURROUNDING THE RETAINING WALL CHANGES FROM THAT DEPICTED ON THESE PLANS, ECS SHALL BE NOTIFIED SO THAT MODIFICATIONS TO THE GEOTECHNICAL DESIGN CAN BE MADE, IF NECESSARY. NO MATERIAL SUBSTITUTIONS ARE PERMITTED.
- UTILITIES WITHIN THE REINFORCED ZONE AND UTILITIES DEEPER THAN 3 FEET WITHIN THE INFLUENCE OF THE REINFORCED ZONE SHALL BE INSTALLED SIMULTANEOUSLY WITH THE MSE WALL BACKFILL.
- UTILITIES ALONG THE TOE OF THE RETAINING WALL SHALL BE INSTALLED PRIOR TO RETAINING WALL CONSTRUCTION.

RETAINING WALL DESIGN PARAMETERS

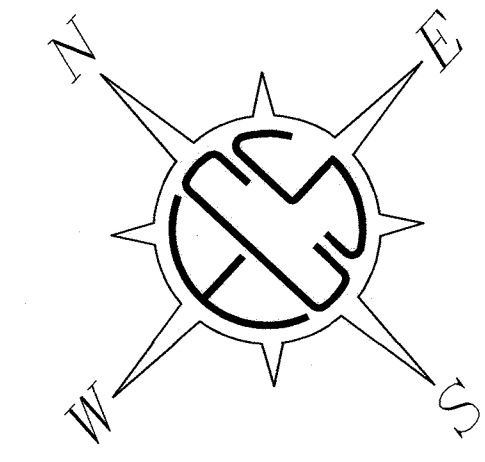
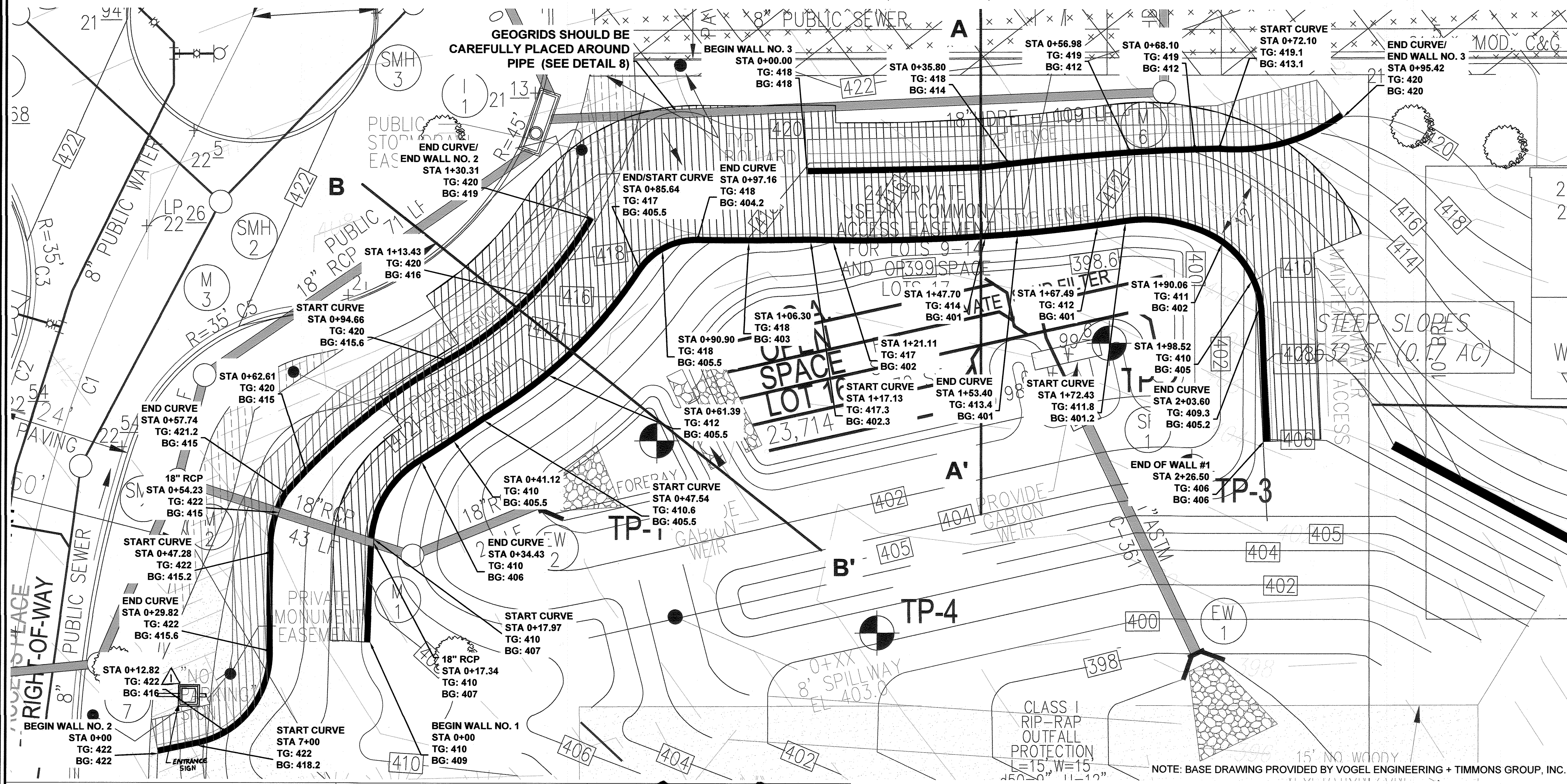
WALL GEOMETRY	8"
BACK BATTER OF FACE:	SEE WALL PROFILE
MINIMUM BLOCK EMBEDMENT:	
WALL SURCHARGE LOADS	
PEDESTRIAN LIVE LOAD (psf):	50
VEHICLE LIVE LOAD (psf):	250
MINIMUM FACTORS OF SAFETY	
F.S. AGAINST SLIDING:	1.5
F.S. AGAINST OVERTURNING:	2.0
F.S. AGAINST BEARING CAPACITY FAILURE:	2.0
F.S. AGAINST GLOBAL INSTABILITY:	1.3
F.S. AGAINST GEOGRID PULLOUT:	1.5
SOIL WITHIN REINFORCED FILL ZONE	
DENSITY (PCF):	120
PHI (DEG):	30°
COHESION (PSF):	0
SOIL WITHIN RETAINED ZONE	
DENSITY (PCF):	120
PHI (DEG):	30°
COHESION (PSF):	0
FOUNDATION SOIL	
DENSITY (PCF):	120
PHI (DEG):	30°
COHESION (PSF):	0
ALLOWABLE BEARING PRESSURE (PSF):	2,500 psf
LEVELING PAD:	GRADED AGGREGATE (TAMPED NO. 57 STONE)

GEOGRID DATA	
GEOGRID TYPE:	MIRAFI 5XT
COVERAGE OF GEOGRIDS (%):	100
CREEP REDUCTION FACTOR:	1.44
DURABILITY REDUCTION FACTOR:	1.10
INSTALLATION DAMAGE REDUCTION FACTOR:	
SAND / SILT / CLAY	1.05
GEOTEXTILE TYPE:	MIRAFI 140N OR APPROVED EQUIVALENT

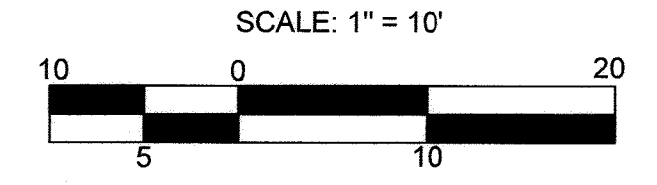
MODULAR BLOCK DATA	
MODULAR BLOCK SYSTEM:	KEYSTONE RETAINING WALL SYSTEM
BLOCK TYPE:	KEYSTONE COMPAC III UNITS AND CORRESPONDING CAP UNITS
	GRADED AGGREGATE (NO. 57 STONE)

UNIT FILL:

- NOTES**
- THE DESIGN IS BASED ON SOILS HAVING A UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF SM OR COARSER AND A FRICTION ANGLE OF 30° OR HIGHER FOR THE REINFORCED BACKFILL SOILS. REINFORCED FILL SHALL HAVE FINES CONTENT OF LESS THAN 35 PERCENT PASSING THE NO. 200 SIEVE, A LIQUID LIMIT OF LESS THAN 30 AND A PLASTICITY INDEX OF LESS THAN 10. THE OWNER'S ITA SHALL CONFIRM THE SOIL PROPERTIES AND SHEAR STRENGTH PARAMETERS SHOWN ON THESE PLANS PRIOR TO THE START OF WALL CONSTRUCTION. WHEN SHEAR STRENGTH TESTING IS DEEMED NECESSARY BY THE ITA, TRIAXIAL OR DIRECT SHEAR TESTING SHALL BE PERFORMED.
 - BLOCK AND/OR GEOGRID SUBSTITUTIONS SHALL NOT BE PERMITTED UNLESS APPROVED BY ECS.
 - REINFORCED ZONE FILL SHALL EXTEND NOT LESS THAN 5' BEYOND THE ENDS OF GEOGRID.



LEGEND:
 TG: TOP GRADE
 BG: BOTTOM GRADE
 A-A' GLOBAL STABILITY CROSS-SECTION (SEE CALCULATIONS)



OWNER: HAMPTON HILLS, LLC
 3675 PARK AVE. SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER: TRINITY HOMES MARYLAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION TO ADD ENTRANCE FEATURE	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE		9-21-23

REVISION RETAINING WALL PLAN AND PARAMETERS

HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONE: R-20
 HOWARD COUNTY, MARYLAND

ECS MID-ATLANTIC, LLC

3400 CHARWOOD ROAD, SUITE B, HANOVER, MD 20176
 P: 410.859.4300 F: 410.859.4324 www.ECSLIMITED.com

	DESIGN BY: KB	PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 01-31-2025
	DRAWN BY: KB	
	CHECKED BY: AM	
	DATE: APRIL 2021	
SCALE: AS SHOWN	W.O. NO.: 12-10	24 SHEET OF 34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: [Signature] 8/19/21
 CHIEF, DIVISION OF LAND DEVELOPMENT

OWNER/DEVELOPER CERTIFICATION:
 I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT OR MDE.

[Signature] 5-25-21
 OWNER/DEVELOPER SIGNATURE

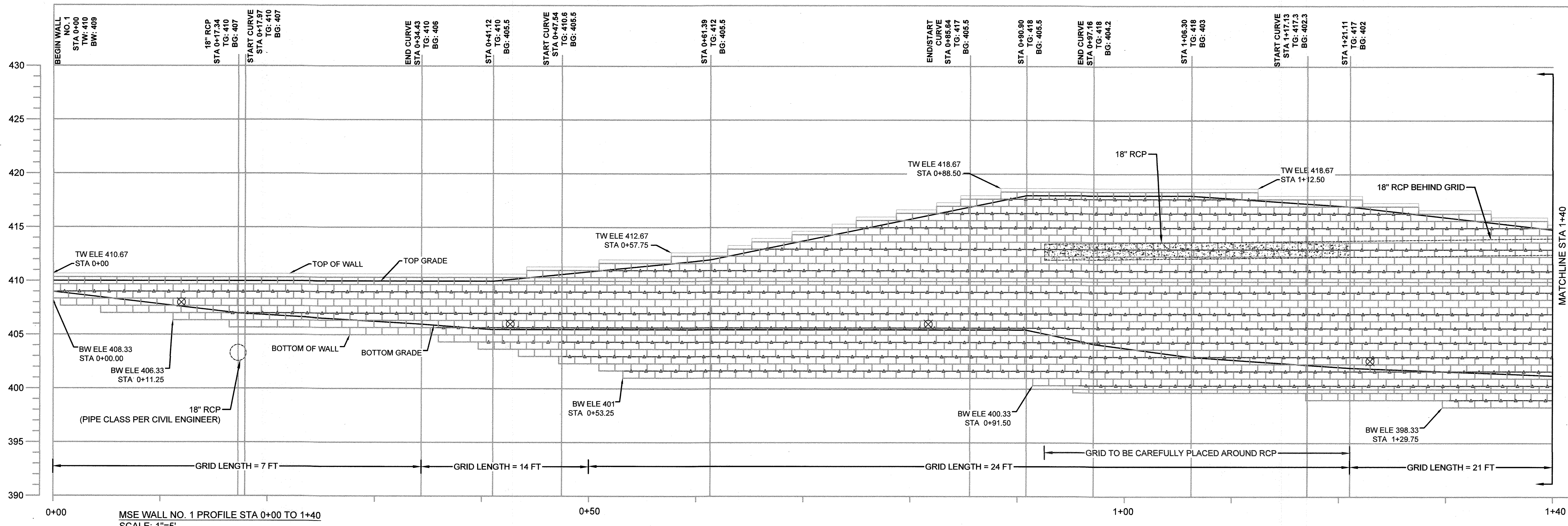
DESIGNER CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND FEASIBLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] _____
 DESIGNER'S SIGNATURE

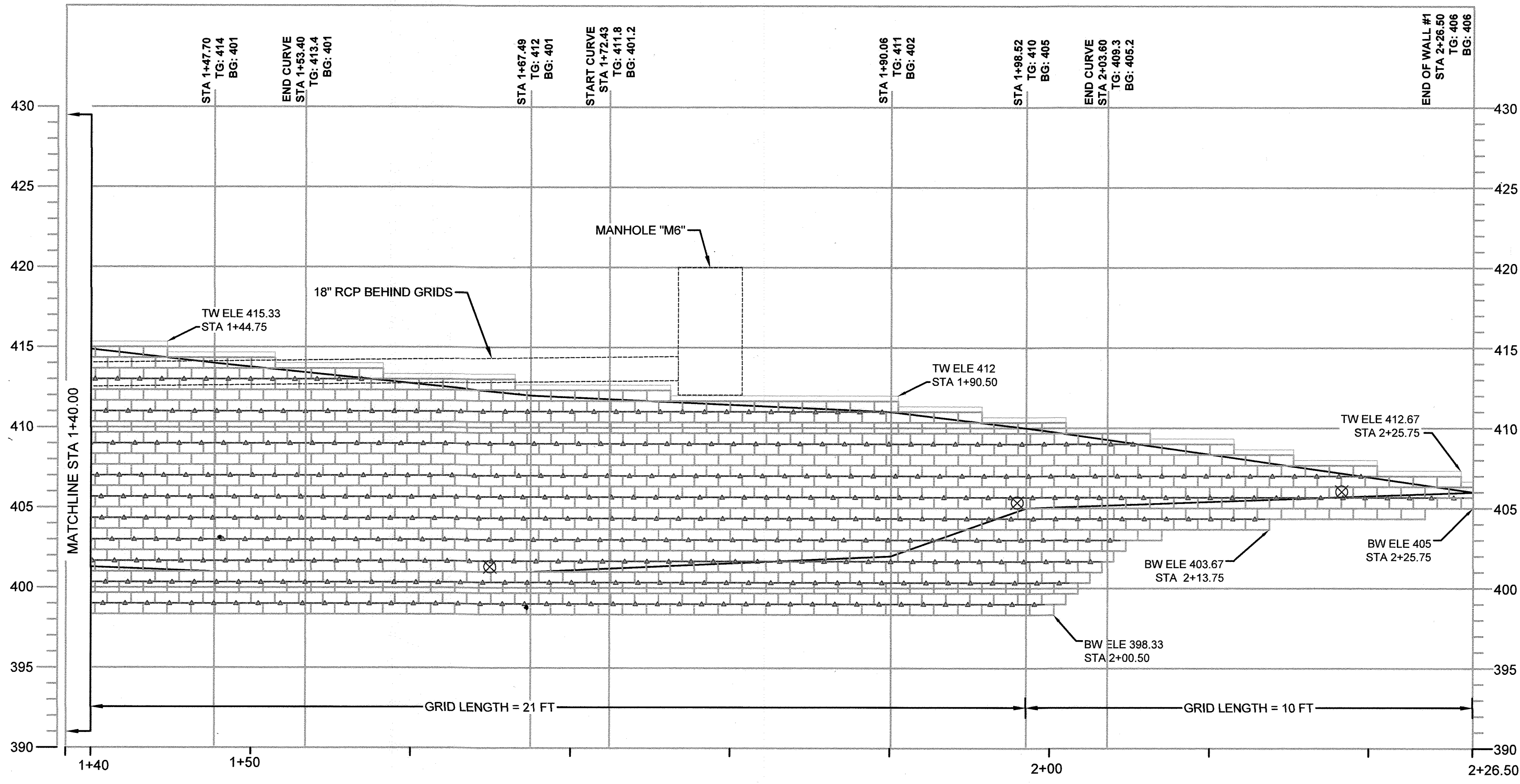
MD REGISTRATION NO. _____
 P.E., R.L.S., OR R.L.A. (if any)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] _____
 HOWARD S.C.D.



MSE WALL NO. 1 PROFILE STA 0+00 TO 1+40
SCALE: 1"=5'



MSE WALL NO. 5 PROFILE STA 1+40 TO 2+26.50
SCALE: 1"=5'

- LEGEND:**
- TW = TOP OF WALL
 - BW = BOTTOM OF WALL
 - TG = TOP GRADE
 - BG = BOTTOM GRADE
 - = MIRAFI 5XT
 - ⊗ = 4" DIA. DRAIN, 40 FT MAX SPACING
- NOTES:**
1. REFER TO MSE WALL DETAILS.
 2. GEOGRID REINFORCEMENT LENGTH MEASURED FROM FACE OF BLOCK.
 3. REINFORCED ZONE FILL SHALL EXTEND NOT LESS THAN 5' BEYOND THE ENDS OF GEOGRID.

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISOR: RETAINING WALL 1 PROFILE

HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L-11433 / F-112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

ECS MID-ATLANTIC, LLC

3400 CHARWOOD ROAD, SUITE B, HANOVER, MD 20176
P: 410.859.4300 F: 410.859.4324 www.ECSLIMITED.com

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 07/29/2021
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 8/10/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 8/19/21
CHIEF, DIVISION OF LAND DEVELOPMENT

OWNER/DEVELOPER CERTIFICATION:
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

[Signature] 5/25/21
MICHAEL FEW, member

DESIGNER CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND FEASIBLE PLAN, AND THAT I WAS PREPARED IN ADVANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] [Date]
DESIGNER'S SIGNATURE DATE
PRINTED NAME MD REGISTRATION NO. (P.E., R.L.S., OR R.L.A. License #) DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] [Date]
HOWARD S.C.D. DATE

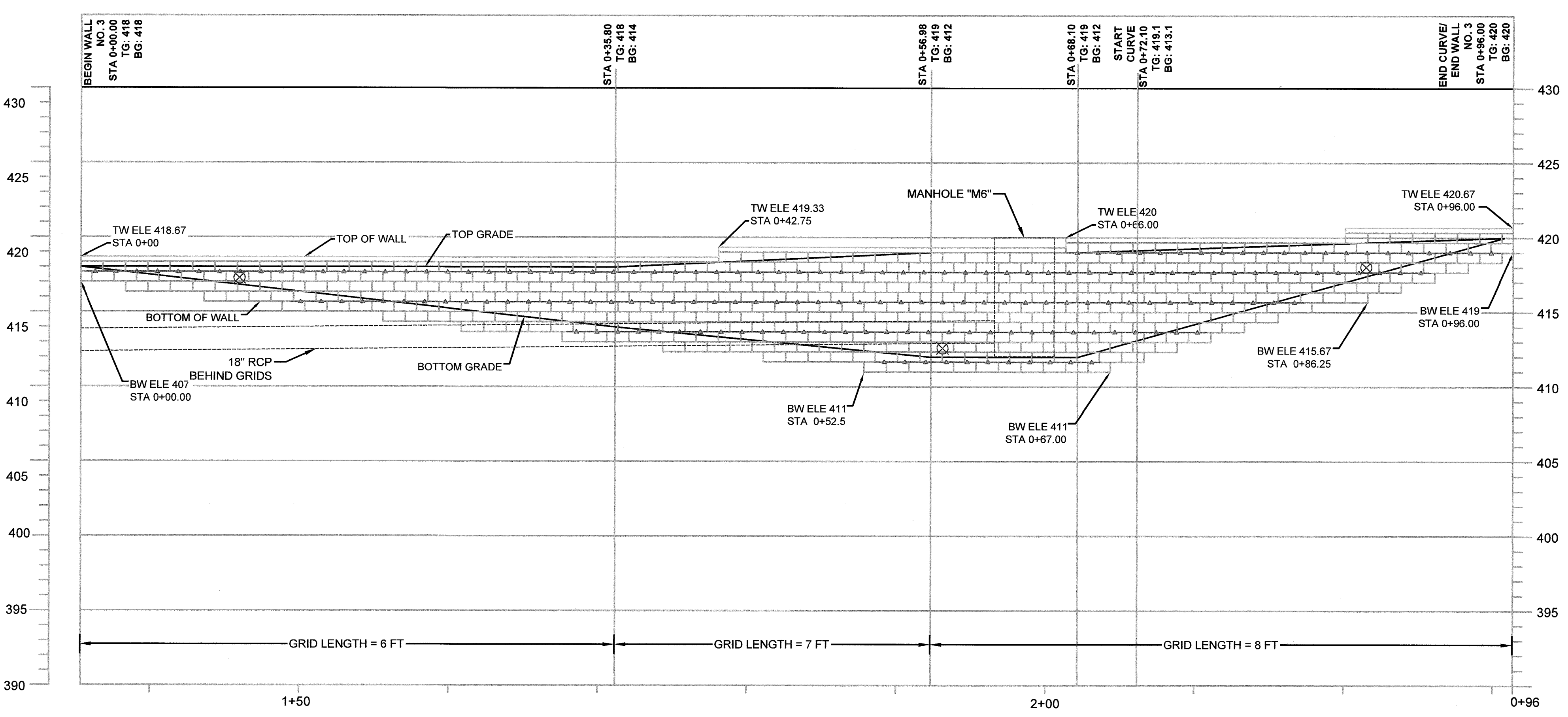
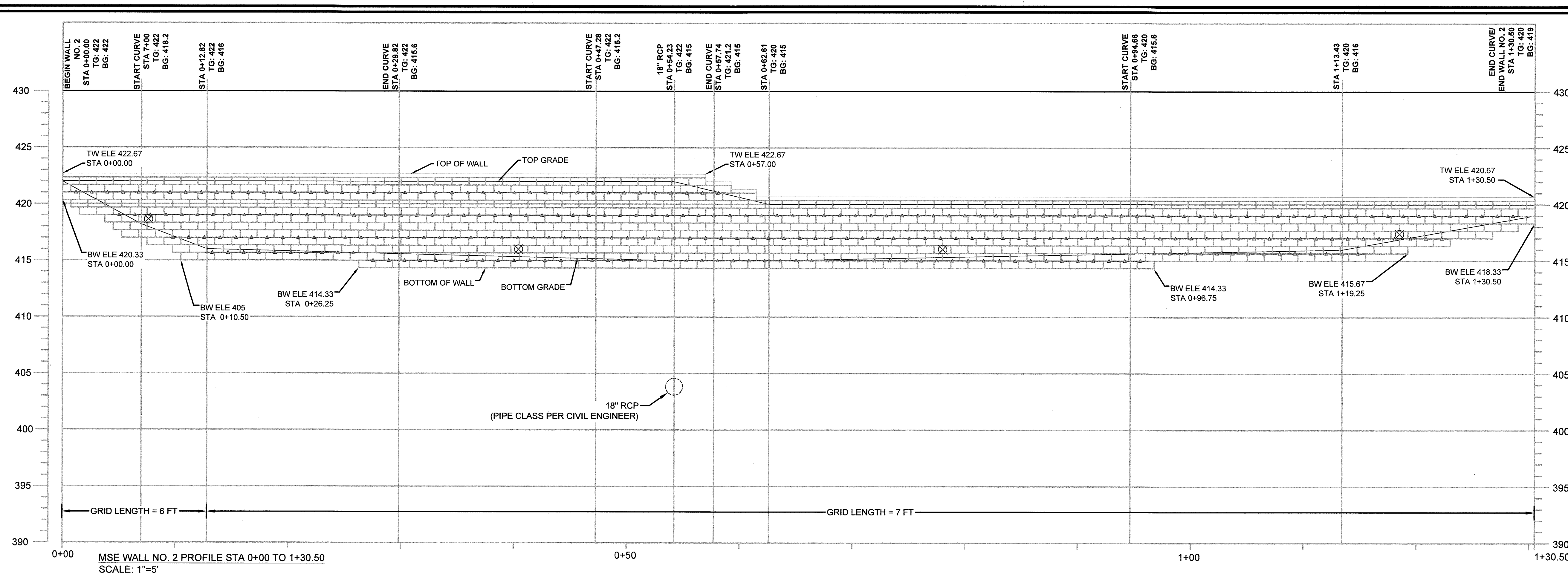
PROFESSIONAL CERTIFICATE

DESIGN BY: KB
DRAWN BY: KB
CHECKED BY: AM
DATE: APRIL 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 36622 EXPIRATION DATE 01-31-2022

ANDREW MACLEOD, P.E. No. 36622

25 OF 34



LEGEND:
 TW = TOP OF WALL
 BW = BOTTOM OF WALL
 TG = TOP GRADE
 BG = BOTTOM GRADE
 --- = MIRAFI 5XT
 ⊗ = 4" DIA. DRAIN, 40 FT MAX SPACING

NOTES:
 1. REFER TO MSE WALL DETAILS.
 2. GEOGRID REINFORCEMENT LENGTH MEASURED FROM FACE OF BLOCK.
 3. REINFORCED ZONE FILL SHALL EXTEND NOT LESS THAN 5' BEYOND THE ENDS OF GEOGRID.

OWNER
 HAMPTON HILLS, LLC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-27-23
	REVISION	DATE

REVISED RETAINING WALLS 2 AND 3 PROFILE

HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONED: R-23
 HOWARD COUNTY, MARYLAND

ECS MID-ATLANTIC, LLC

3400 CHARWOOD ROAD, SUITE B, HANOVER, MD 20176
 P: 410.859.4300 F: 410.859.4324 www.ECSLIMITED.com

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] DATE: 07/29/2021
 CHIEF, BUREAU OF HIGHWAYS MK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE: 8-10-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION WY

APPROVED: [Signature] DATE: 8/10/21
 CHIEF, DIVISION OF LAND DEVELOPMENT EB

OWNER/DEVELOPER CERTIFICATION:
 I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.
 [Signature] DATE: 8-25-21
 OWNER/DEVELOPER SIGNATURE
 Michael P. Papp, member

DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT I AM AN AS REGISTERED PROFESSIONAL ENGINEER IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS THAT IT REPRESENTS A PRACTICAL AND FEASIBLE PLAN OF CONSTRUCTION ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] DATE: _____
 DESIGNER'S SIGNATURE
 PRINTED NAME: _____
 MD REGISTRATION NO.: _____
 P.E., R.L.S., OR R.L.A. (_____) _____

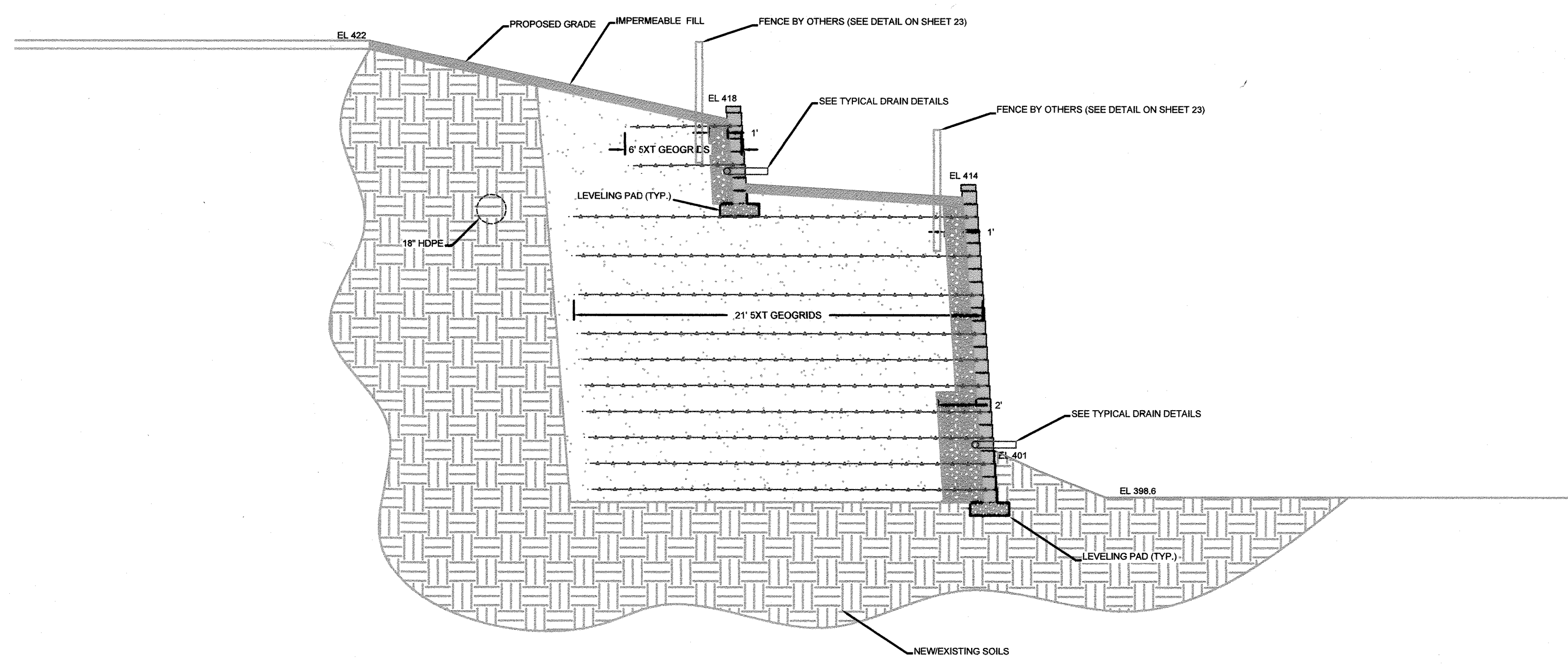
THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] DATE: _____
 HOWARD S.C.D. _____

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36822 EXPIRATION DATE: 01-31-2022

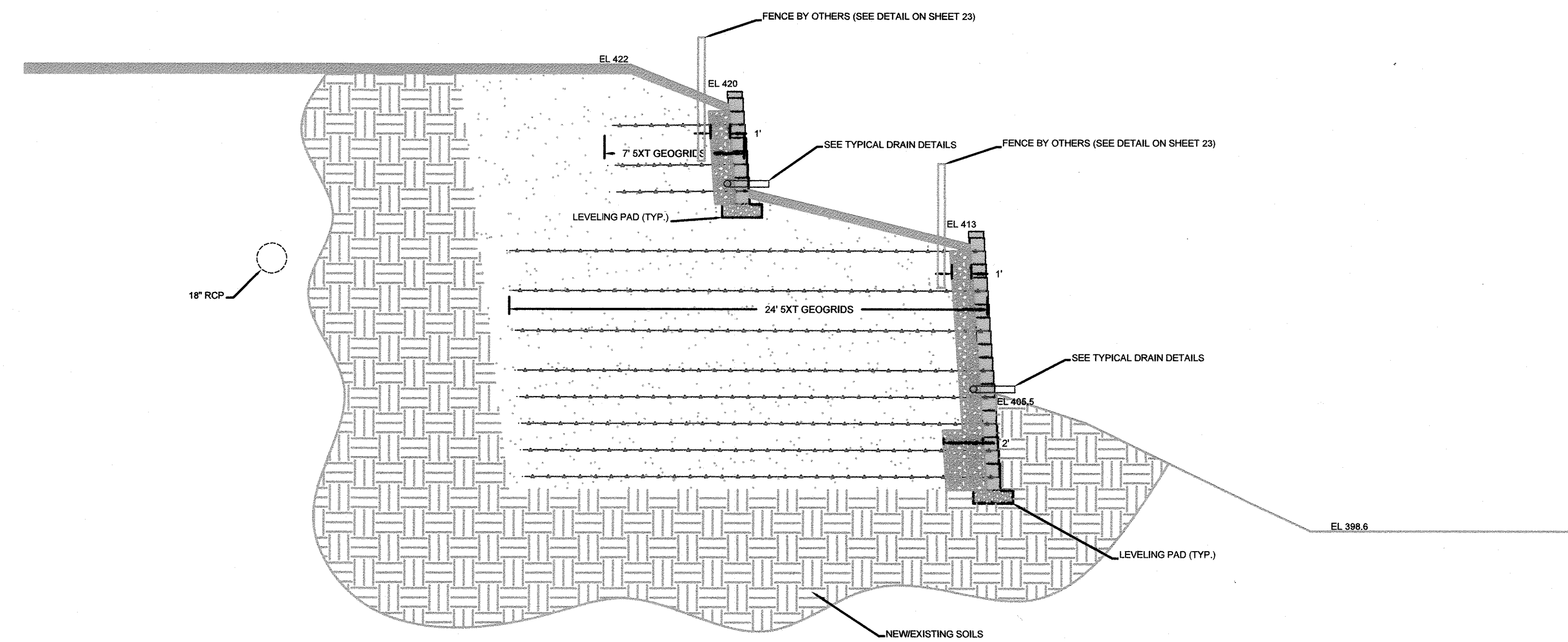
DESIGN BY: KB
 DRAWN BY: KB
 CHECKED BY: AM
 DATE: APRIL 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

26 OF 34

ANDREW MACLEOD, PE No. 36822



CROSS-SECTION A-A
SCALE: 1"=5'



CROSS-SECTION B-B
SCALE: 1"=5'

OWNER
HAMPTON HILLS, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARYLAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED RETAINING WALL CROSS-SECTIONS

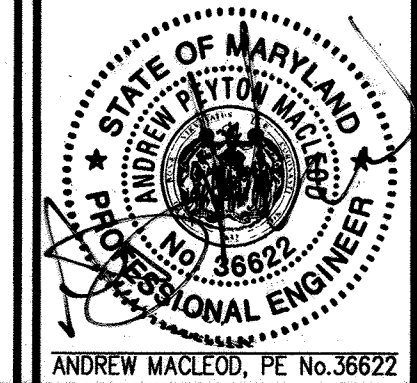
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONE: R-20
HOWARD COUNTY, MARYLAND

ECS MID-ATLANTIC, LLC

3400 CHARWOOD ROAD, SUITE B, HANOVER, MD 28176
P: 410.859.4300 F: 410.859.4324 www.ECSLIMITED.com



DESIGN BY: KB
DRAWN BY: KB
CHECKED BY: AM
DATE: APRIL 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES 06-30-2022

27 OF 34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chase
CHIEF, BUREAU OF HIGHWAYS
DATE: 07/29/2021
MK

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Michael Han
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 8.10.21

ES
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 01/19/21

OWNER/DEVELOPER CERTIFICATION:
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

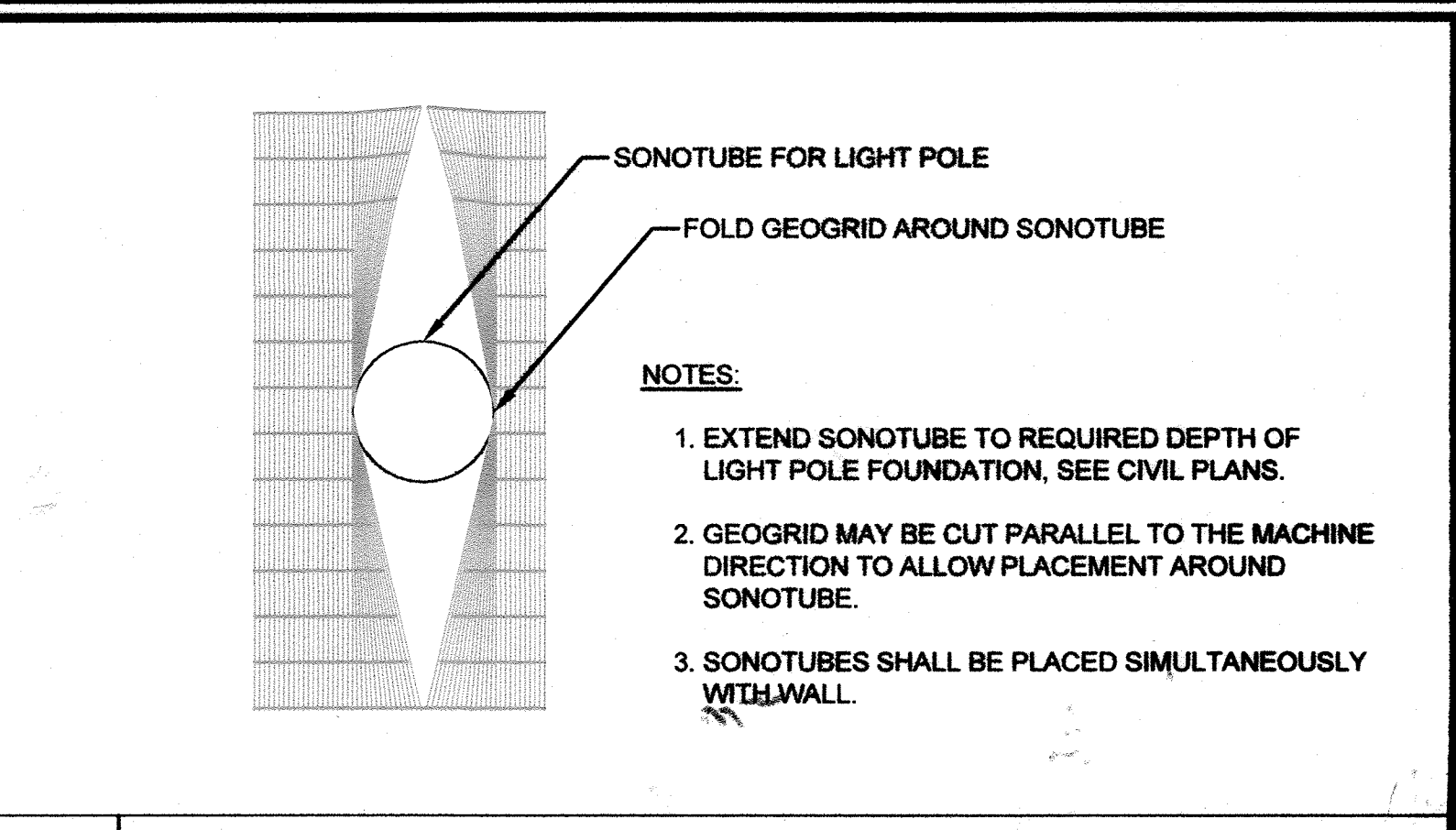
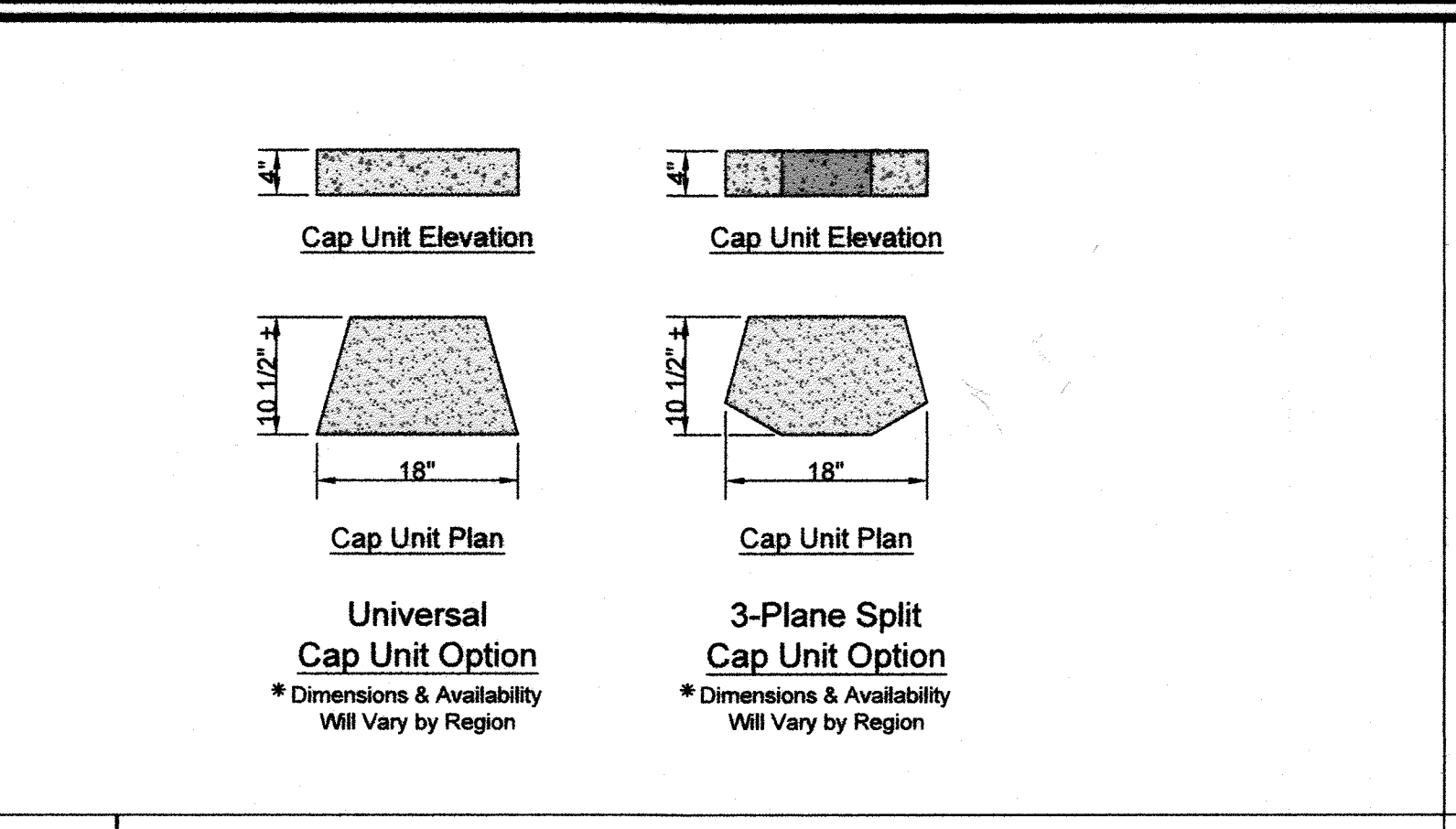
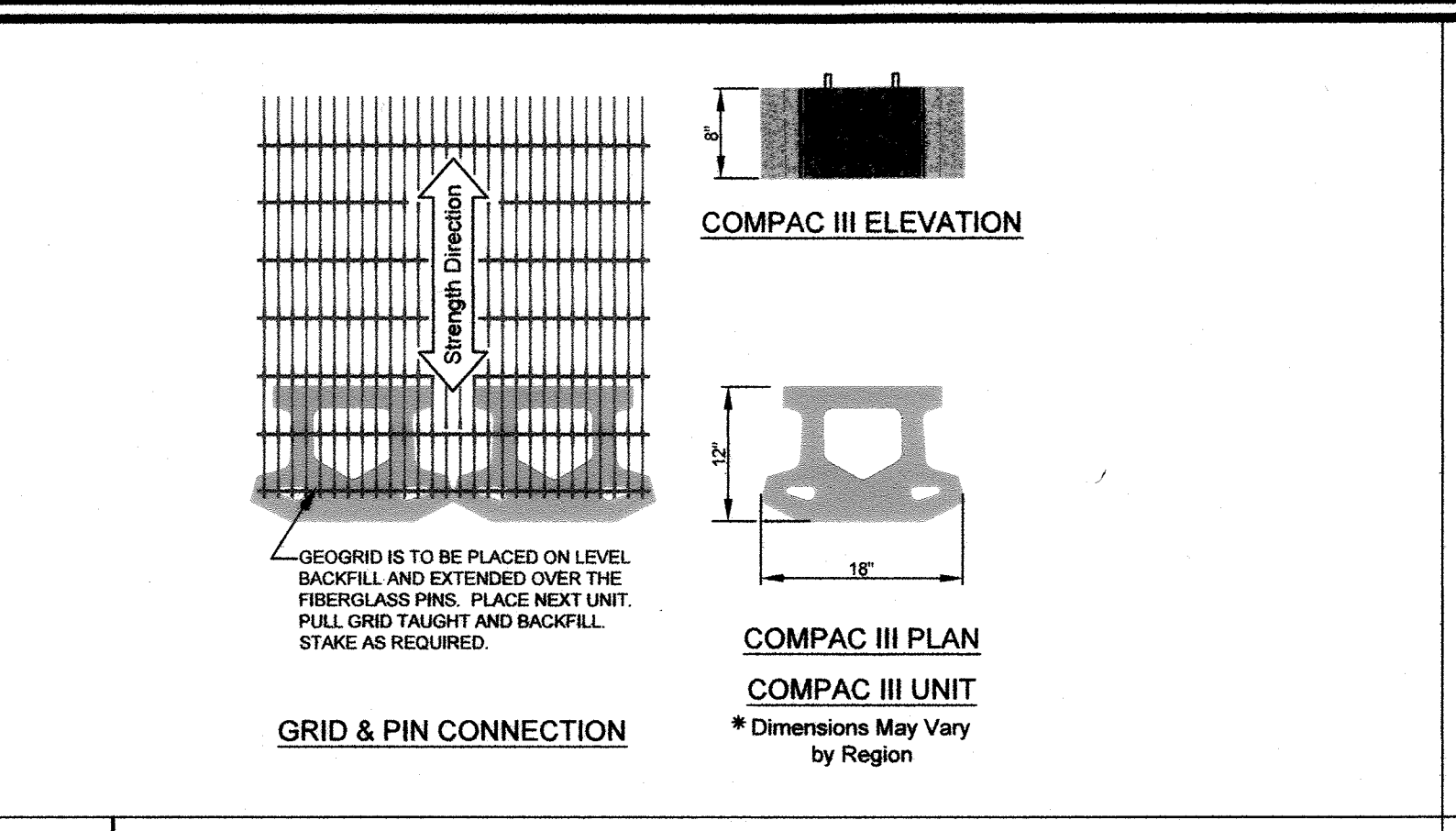
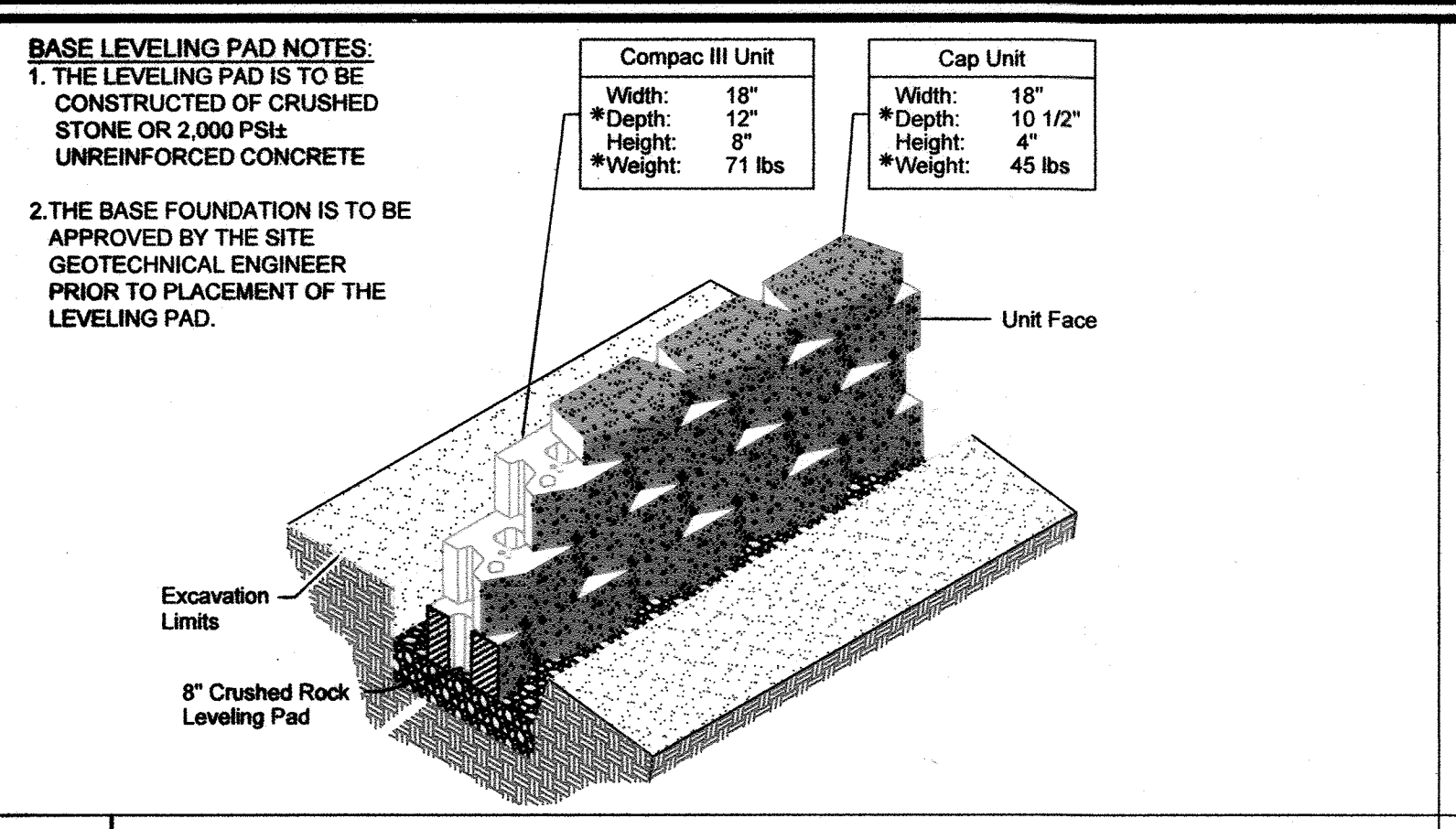
Michael Han
OWNER/DEVELOPER SIGNATURE
DATE: 5/25/21
MICHAEL HAN, member

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature]
DESIGNER'S SIGNATURE
DATE: _____
PRINTED NAME: _____
MD REGISTRATION NO. _____
P.E., R.L.S., or A. (circle one)

THIS DEVELOPMENT PLAN HAS BEEN APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature]
HOWARD S.C.D.
DATE: _____

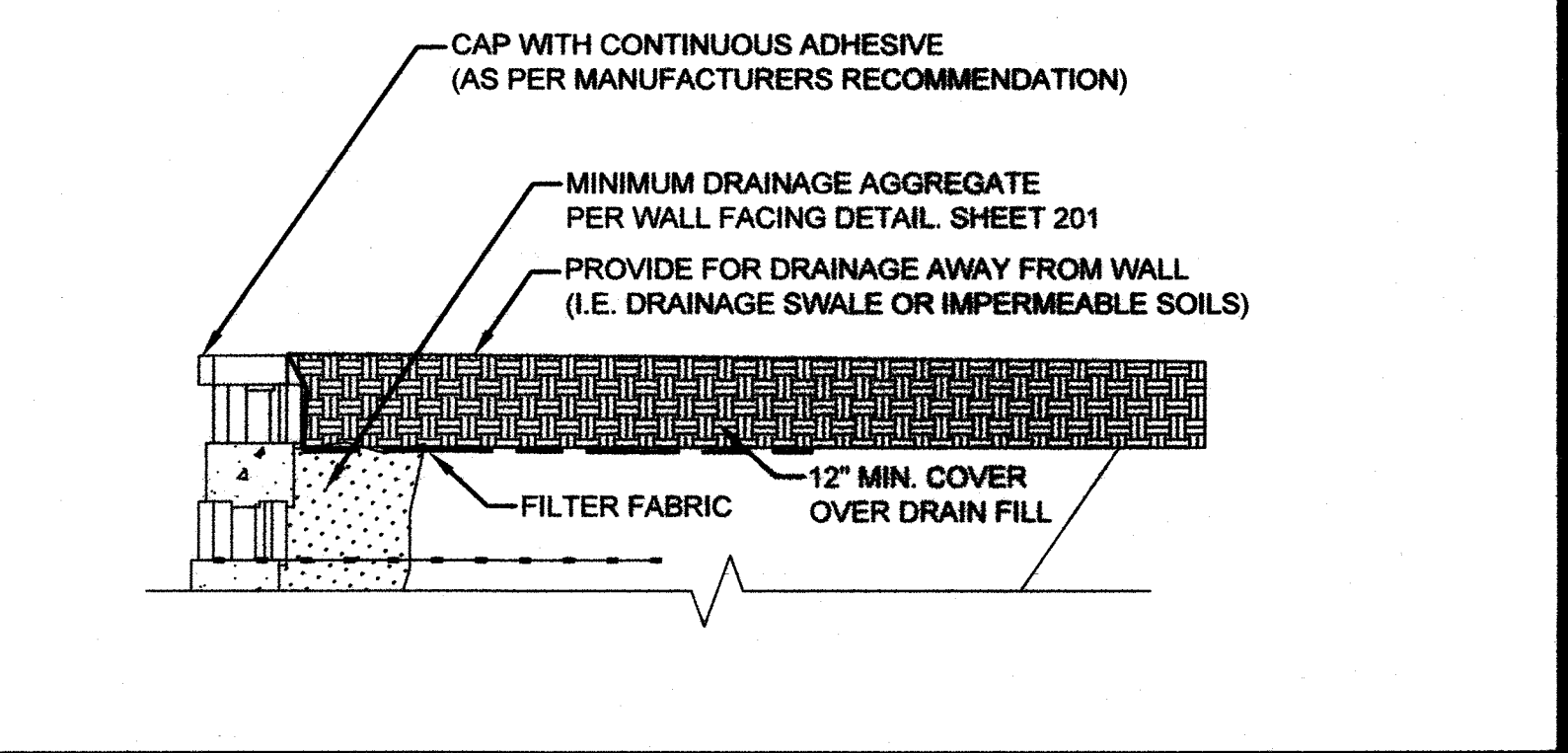
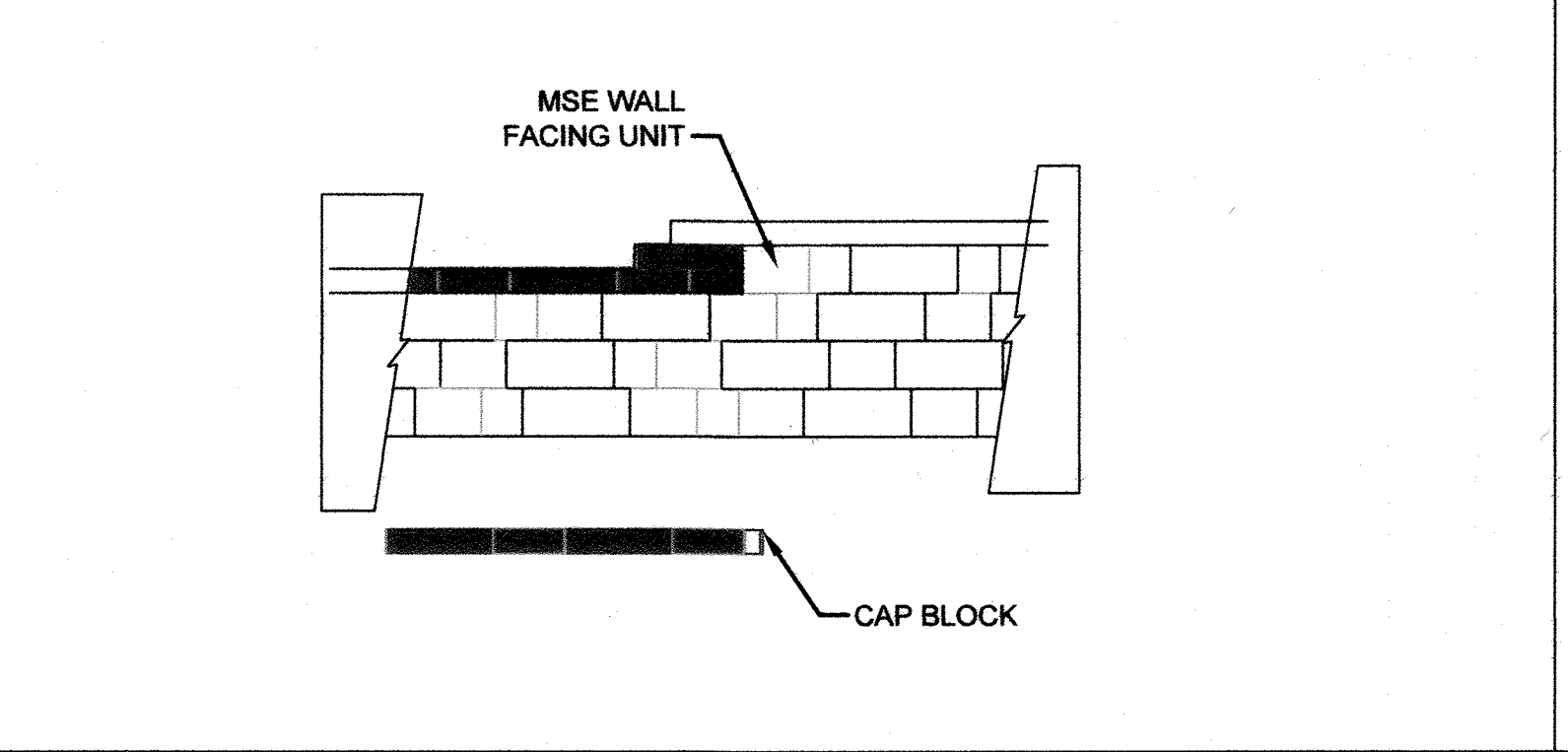
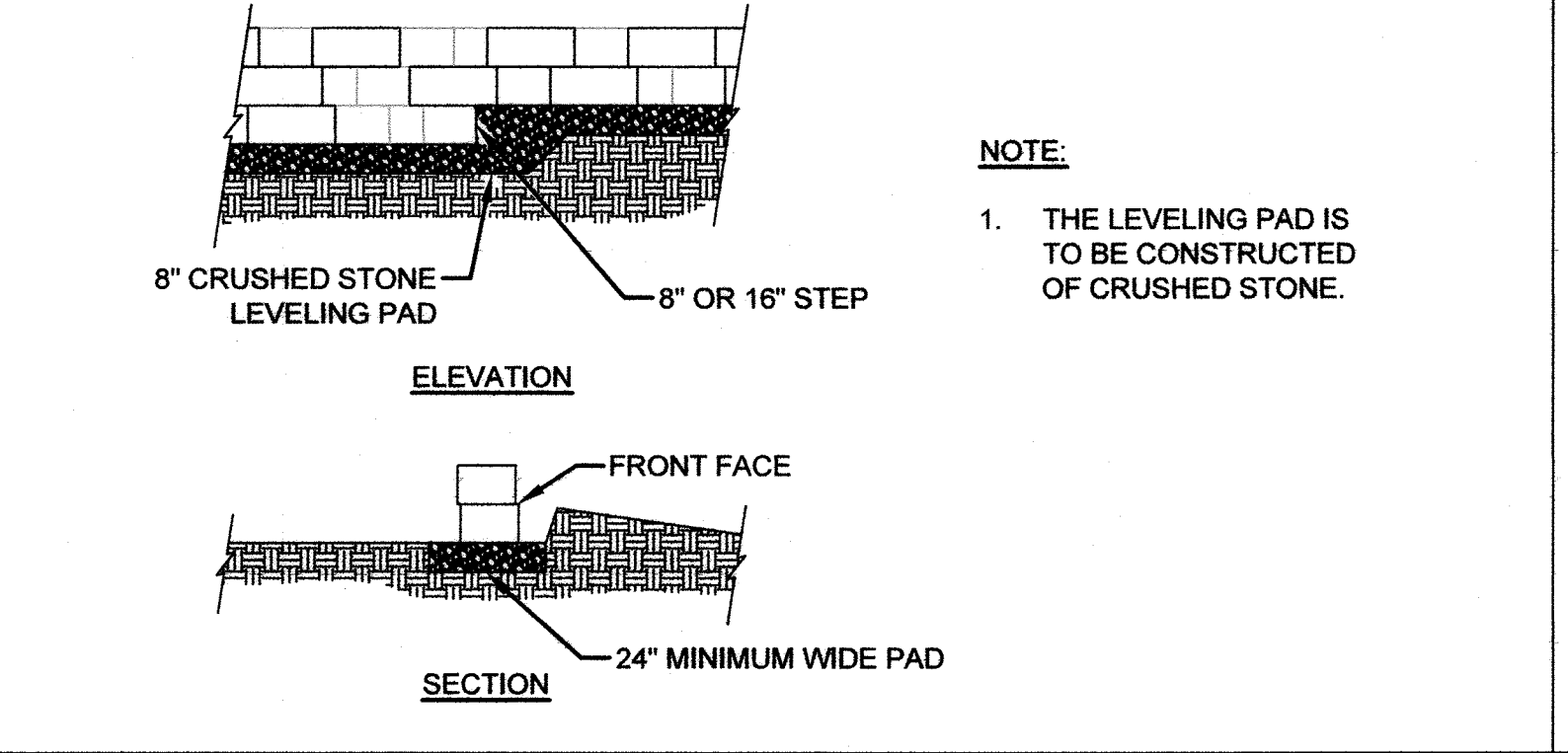
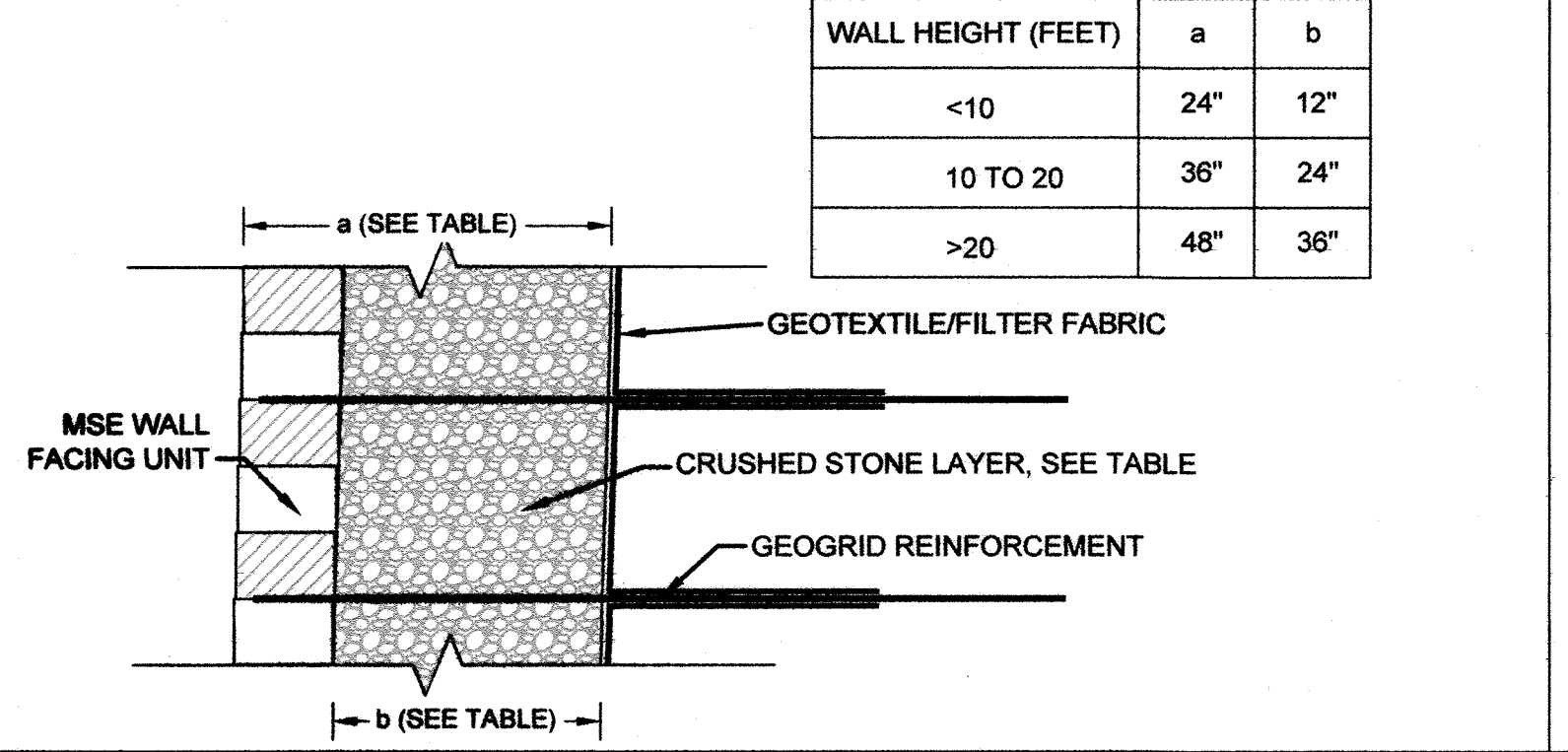


1 COMPAC III UNIT / BASE PAD ISOMETRIC SECTION VIEW NTS

2 GRID/BLOCK CONNECTION DETAIL NTS

3 CAP UNIT OPTIONS (CONTRACTOR'S CHOICE) NTS

4 LIGHTPOLE SONOTUBE PENETRATION DETAIL NTS

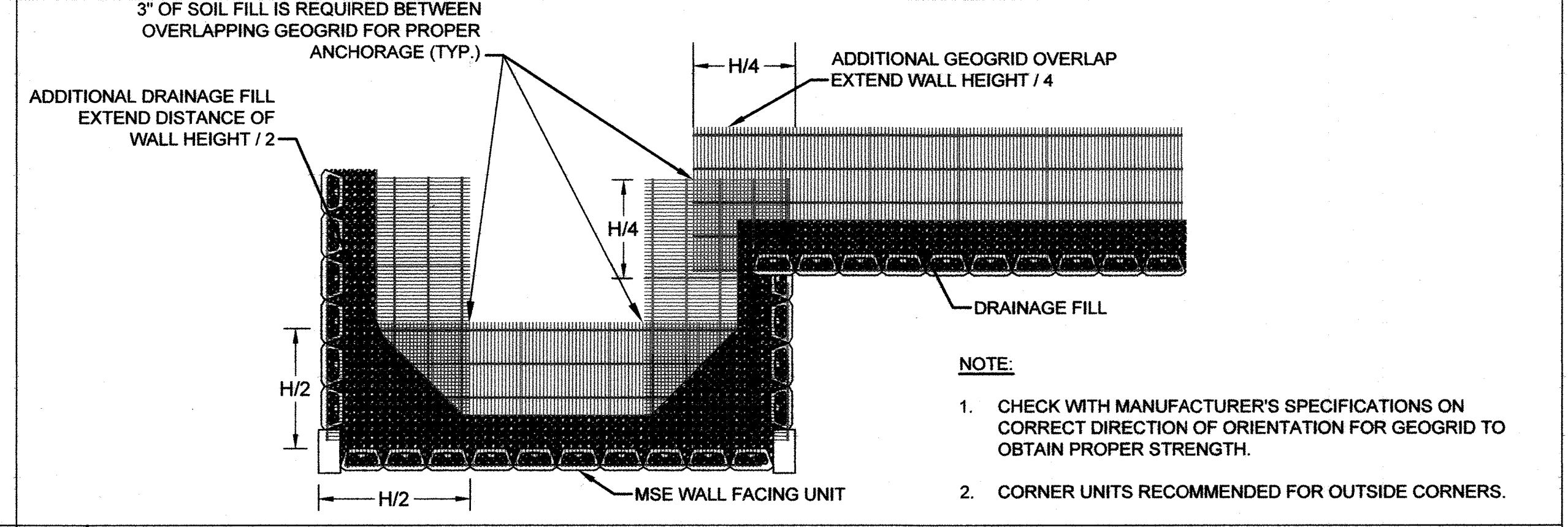
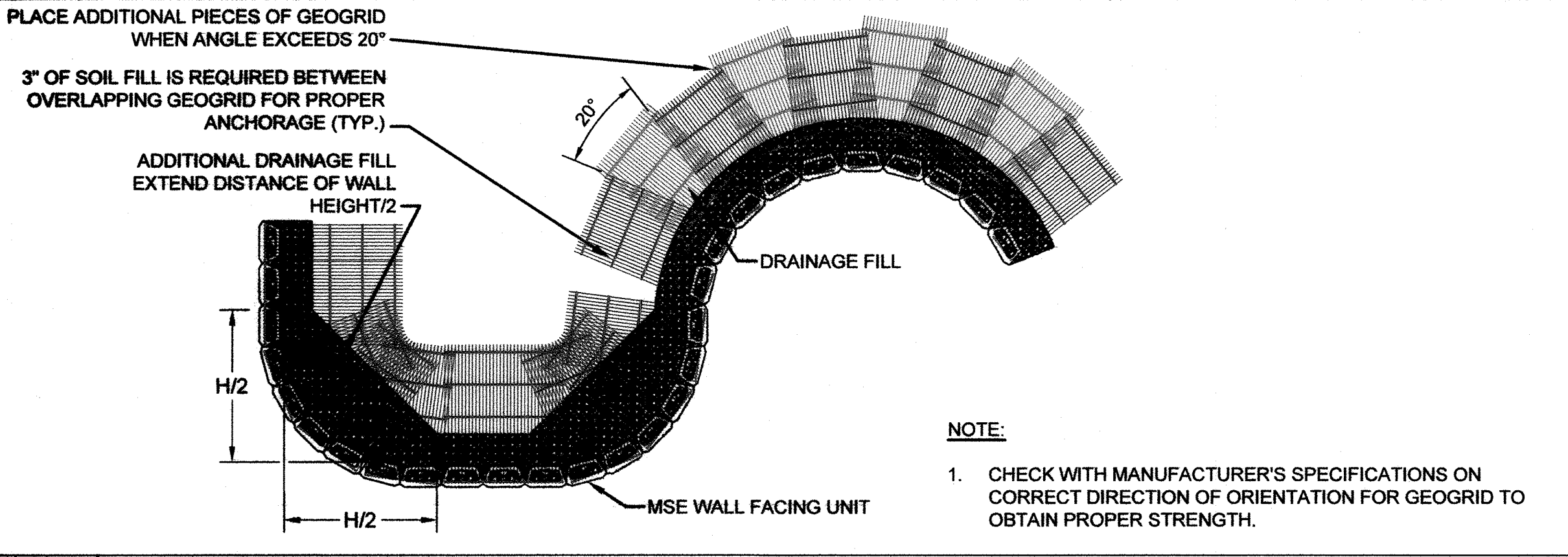


5 MSE WALL FACING DETAIL NTS

6 LEVELING PAD DETAIL NTS

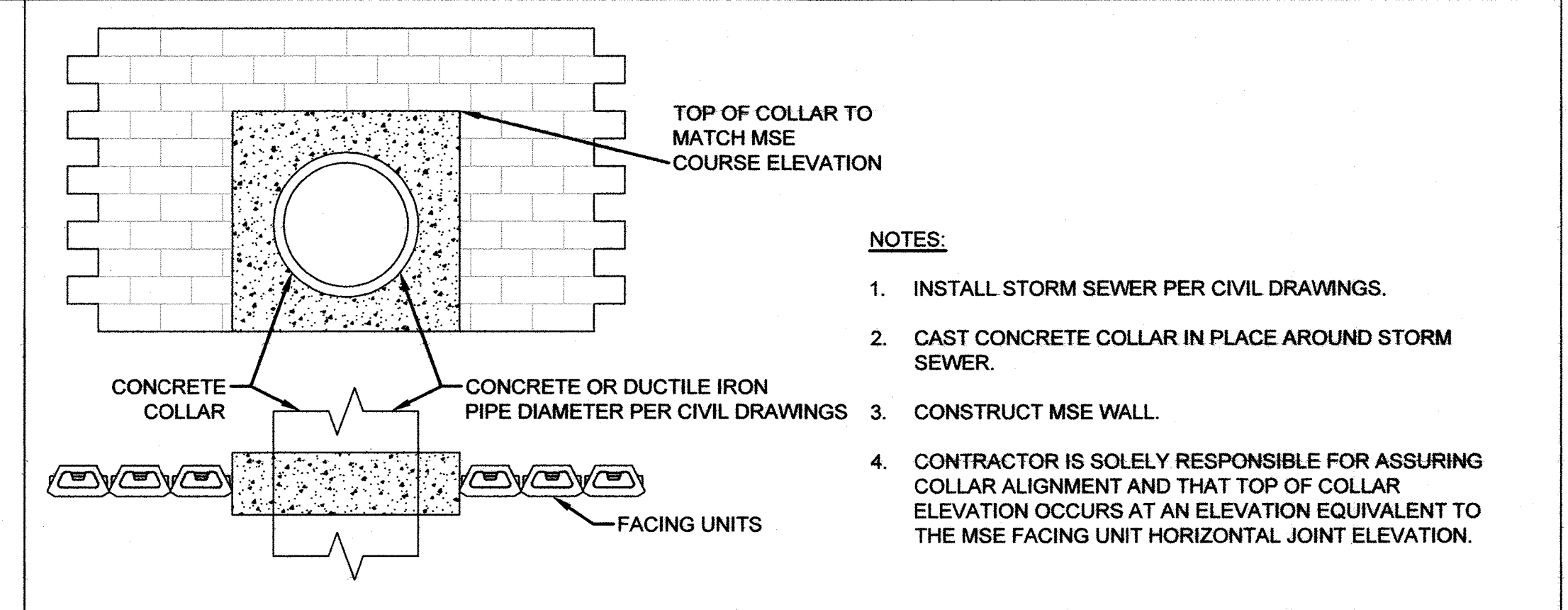
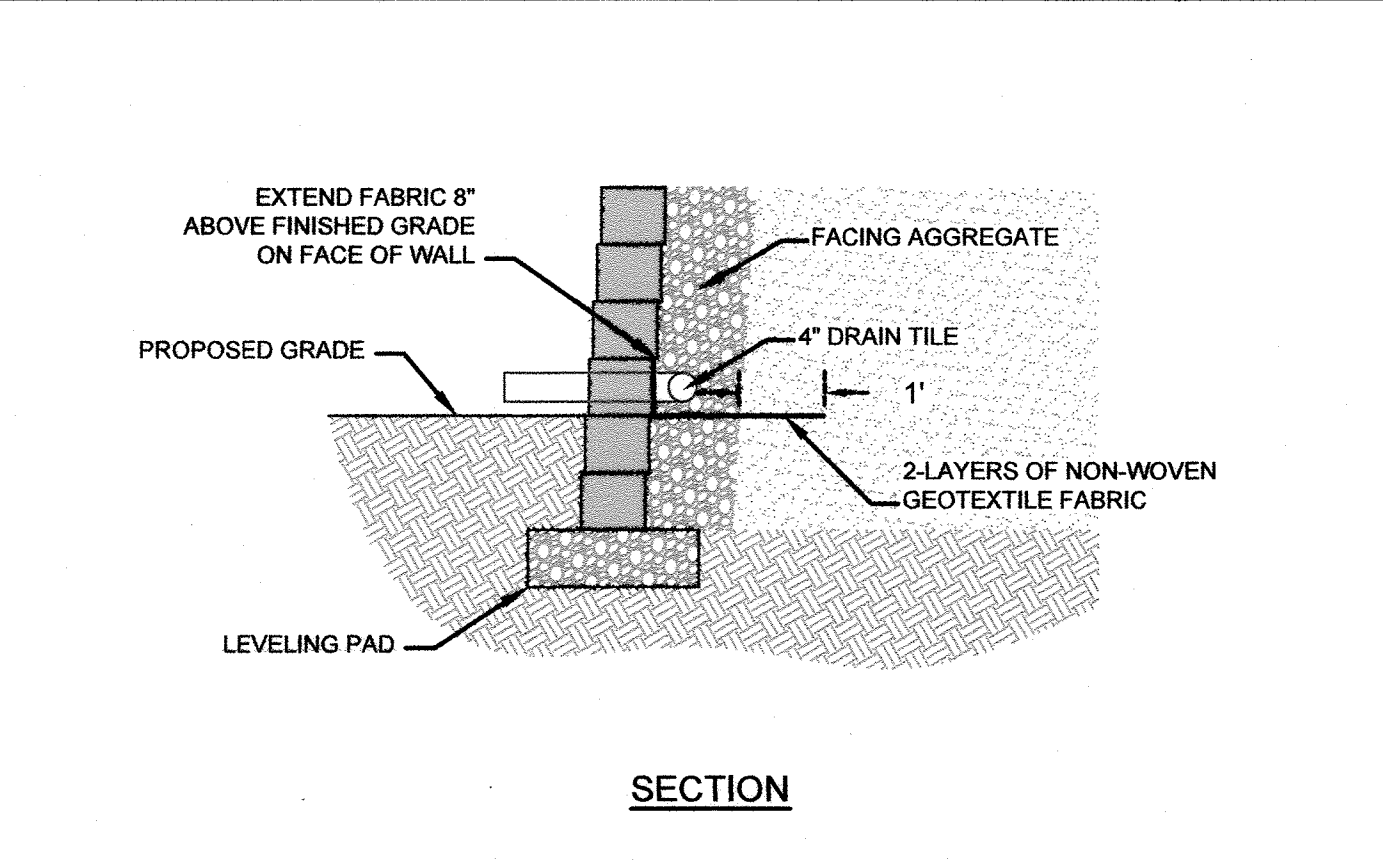
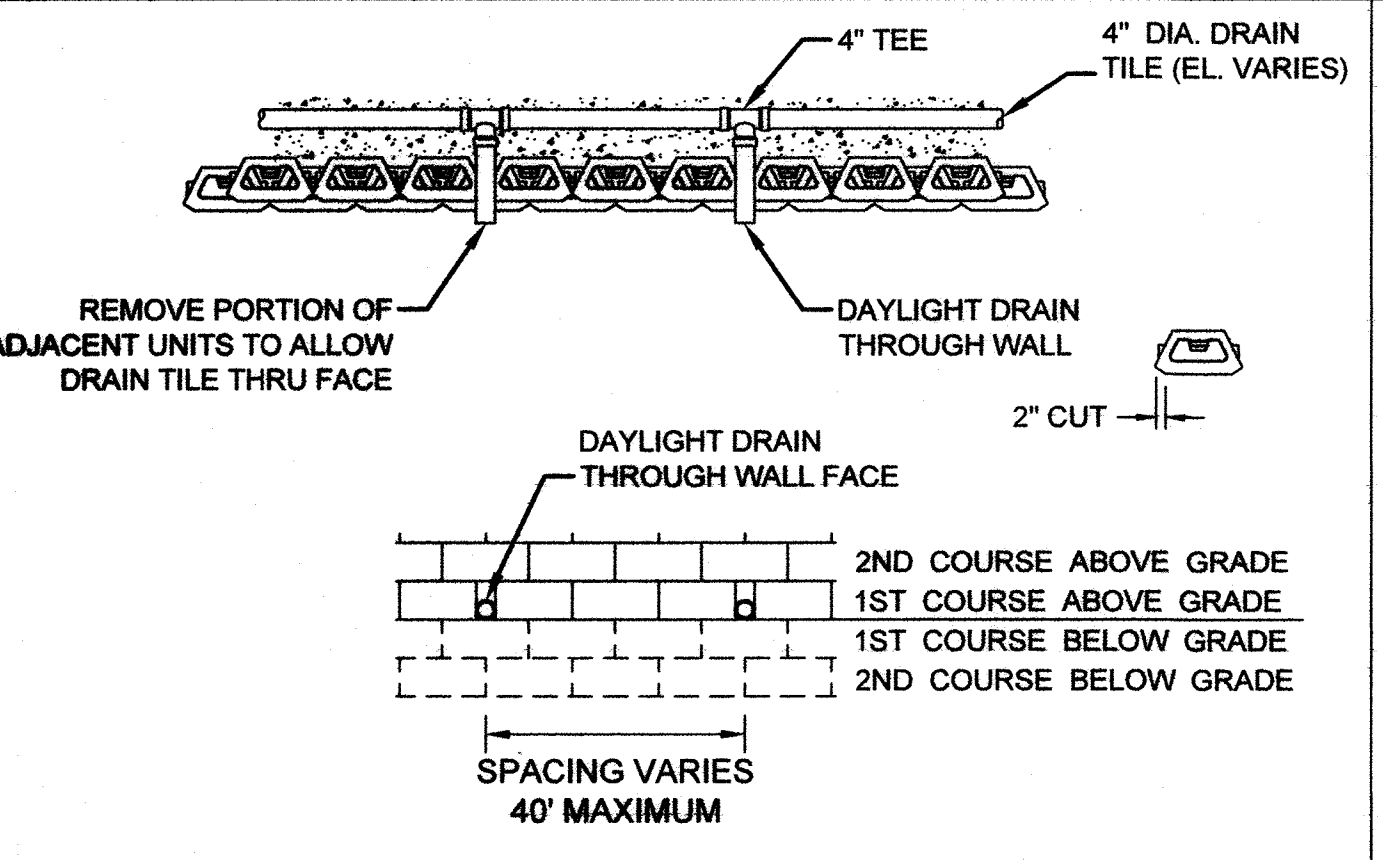
7 TOP OF WALL STEPS NTS

8 TOP OF MSE WALL DETAIL NTS



9 TYPICAL GEOGRID PLACEMENT AT CURVES NTS

10 TYPICAL GEOGRID PLACEMENT AT CORNERS NTS



11 TYPICAL DRAIN DETAIL NTS

12 TYPICAL DRAIN DETAIL NTS

13 TYPICAL PIPE PENETRATION WITH CONCRETE COLLAR DETAIL NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 07/29/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8-10-21

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/10/21

OWNER/DEVELOPER CERTIFICATION:
 I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND MDE.

Michael P. P...
 OWNER/DEVELOPER SIGNATURE
 DATE: 5-25-21

DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS THAT REPRESENTS A PRACTICAL AND FEASIBLE PLAN OF CONTROL ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Michael P. P...
 DESIGNER'S SIGNATURE
 DATE: _____

PRINTED NAME: _____
 MD REGISTRATION NO. (P.E., R.L.S., OR R.L.S. (circle one)) _____

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. _____ DATE: _____

OWNER
 HAMPTON HILLS, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

REVISIONS

NO.	REVISION	DATE
1	REVISED TO ADD ENTRANCE FEATURE	9-21-23

REVISOR: _____ DATE: _____

HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRD: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONE: R-28
 HOWARD COUNTY, MARYLAND

ECS MID-ATLANTIC, LLC

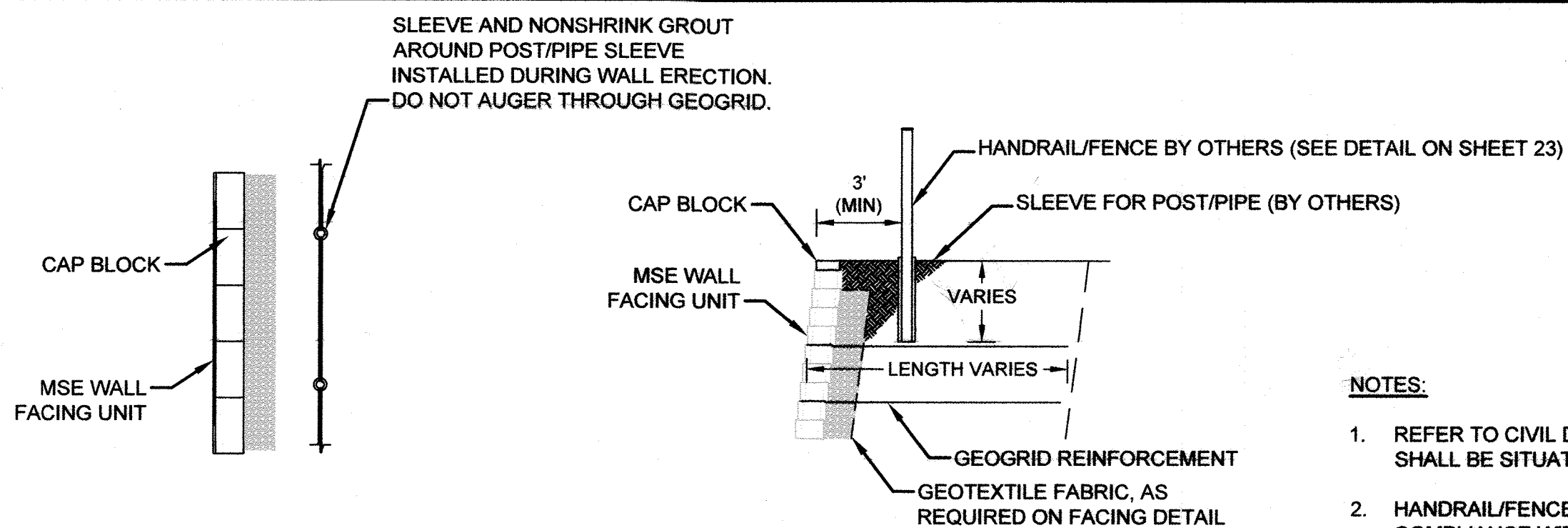
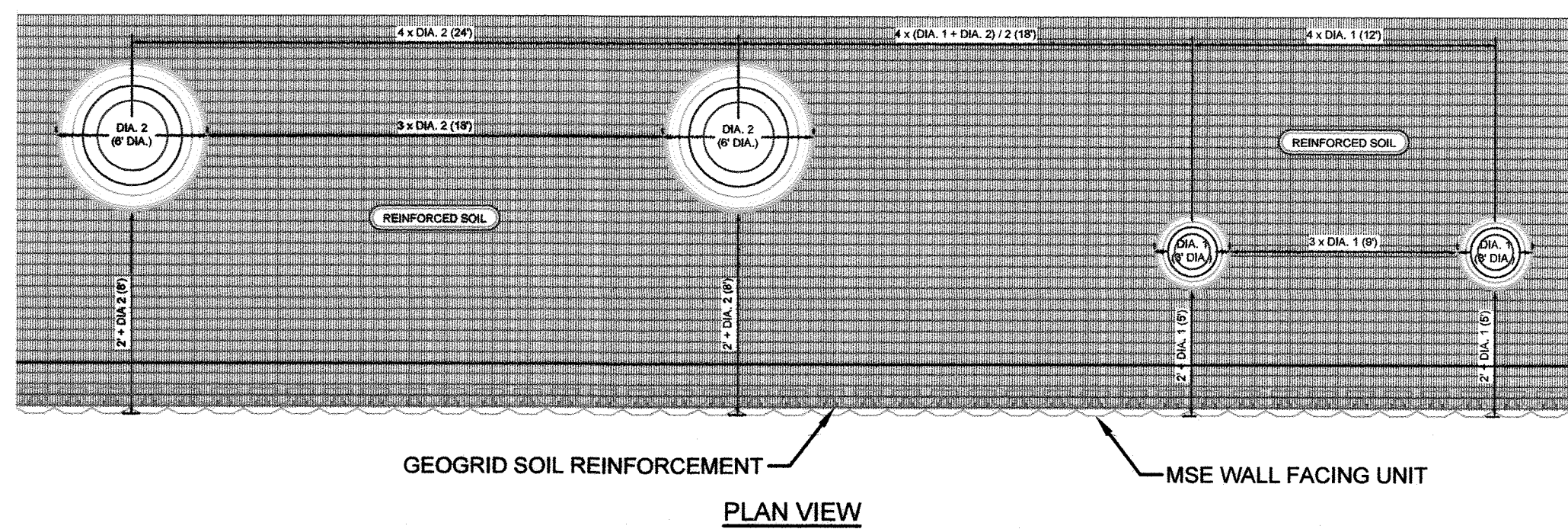
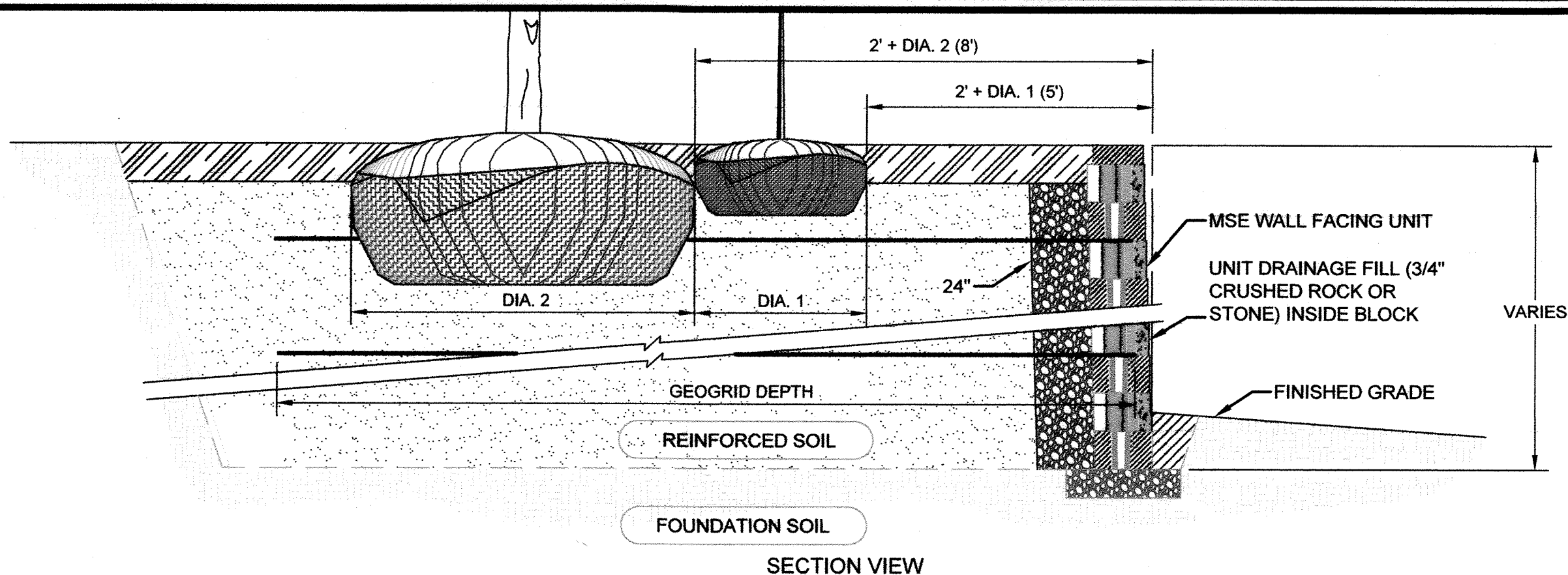
3400 CHARWOOD ROAD, SUITE B, HANOVER, MD 20176
 P: 410.859.4300 F: 410.859.4324 WWW.ECSLIMITED.COM

DESIGN BY: KB
 DRAWN BY: KB
 CHECKED BY: AM
 DATE: APRIL 2021
 SCALE: AS SHOWN
 W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 36822 EXPIRATION DATE: 01-31-2022

ANDREW MACLEOD, P.E. No. 36822

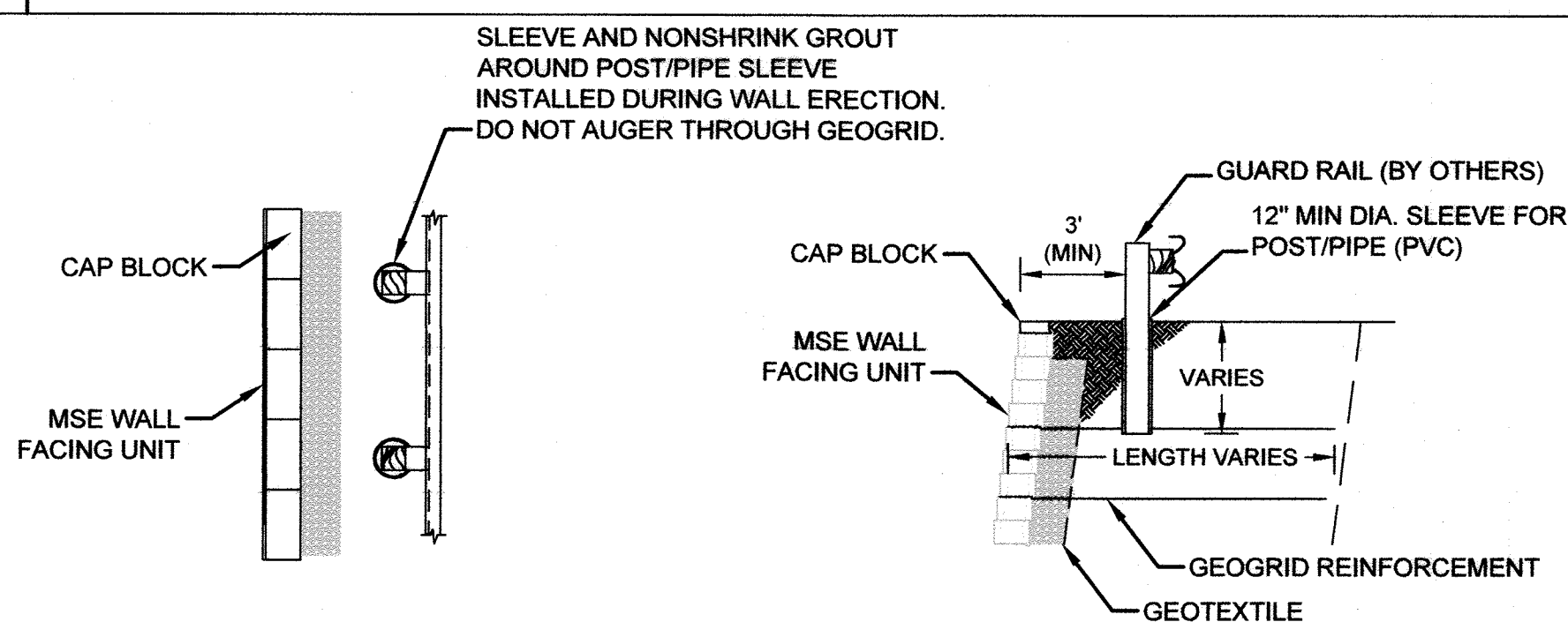
28 SHEET OF 34



NOTES:

1. REFER TO CIVIL DRAWINGS FOR DIMENSIONS. POSTS SHALL BE SITUATED TO AVOID DRAIN PIPES.
2. HANDRAIL/FENCE SHALL BE DESIGNED IN COMPLIANCE WITH CURRENT IBC REQUIREMENTS BY OTHERS.

2 TYPICAL FENCE DETAIL (SEE ACTUAL FENCE DETAIL ON SHEET 23) NTS



NOTES:

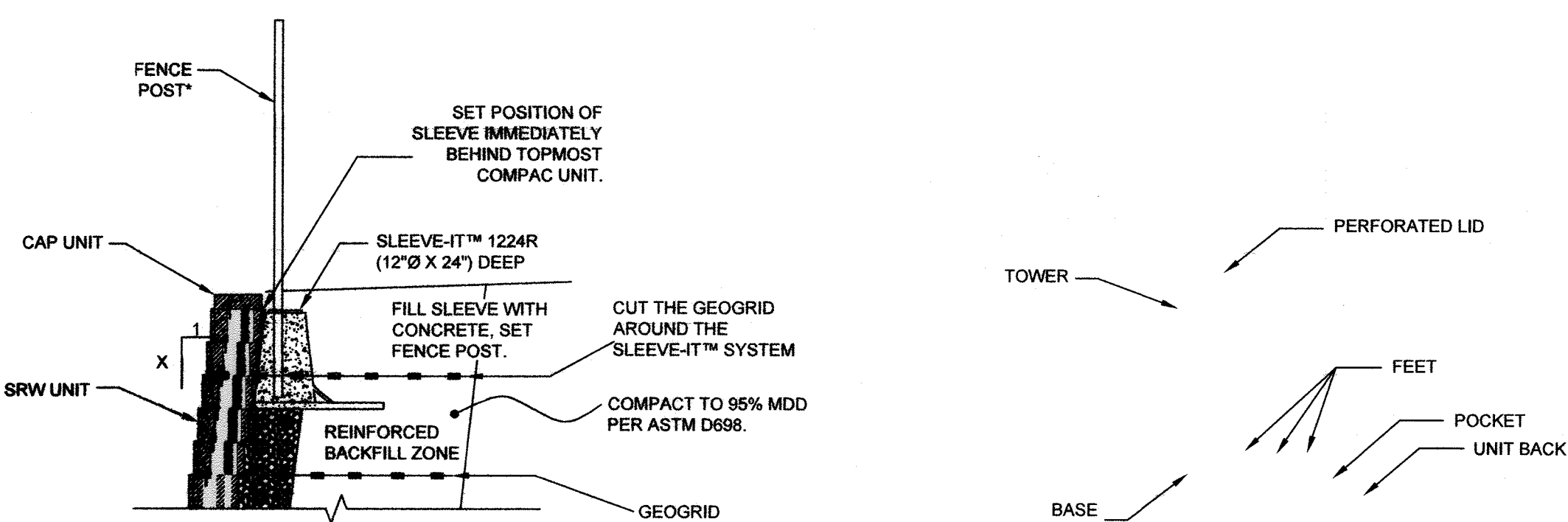
1. REFER TO CIVIL DRAWINGS FOR DIMENSIONS. POSTS SHALL BE SITUATED TO AVOID DRAIN PIPES.
2. GUARDRAIL SHALL BE DESIGNED AND INSTALLED IN COMPLIANCE WITH HOWARD COUNTY GUIDELINES. DESIGN AND INSTALLATION BY OTHERS.

3 TYPICAL GUARD RAIL DETAIL NTS

1 TYPICAL PLANTING LIMITS DETAIL NTS

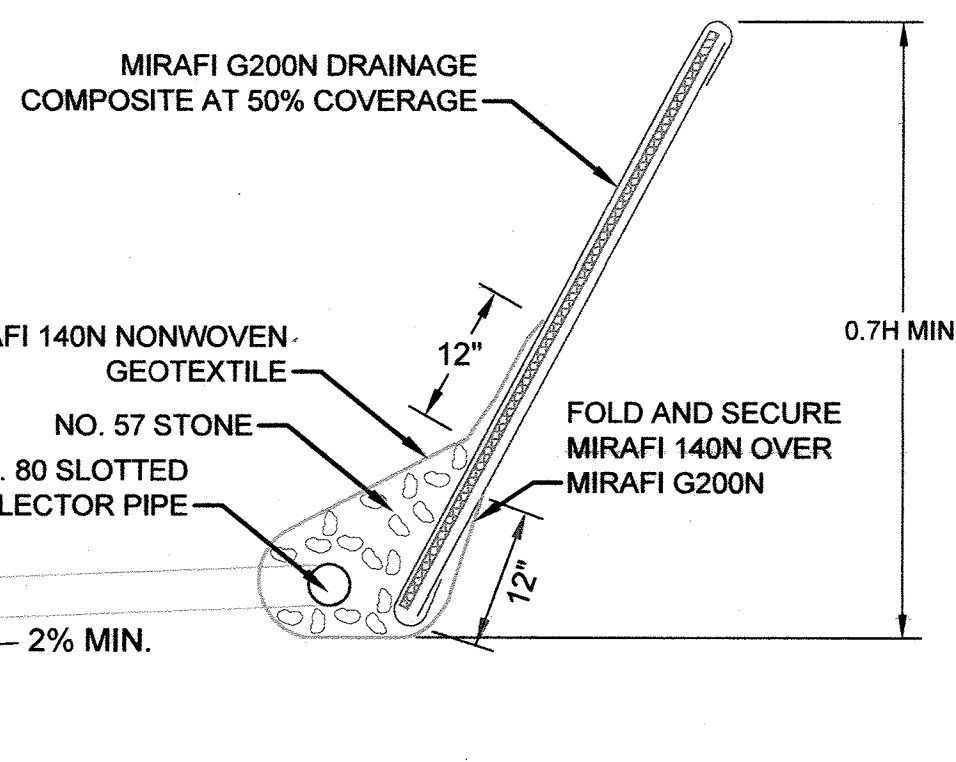
NTS

NTS



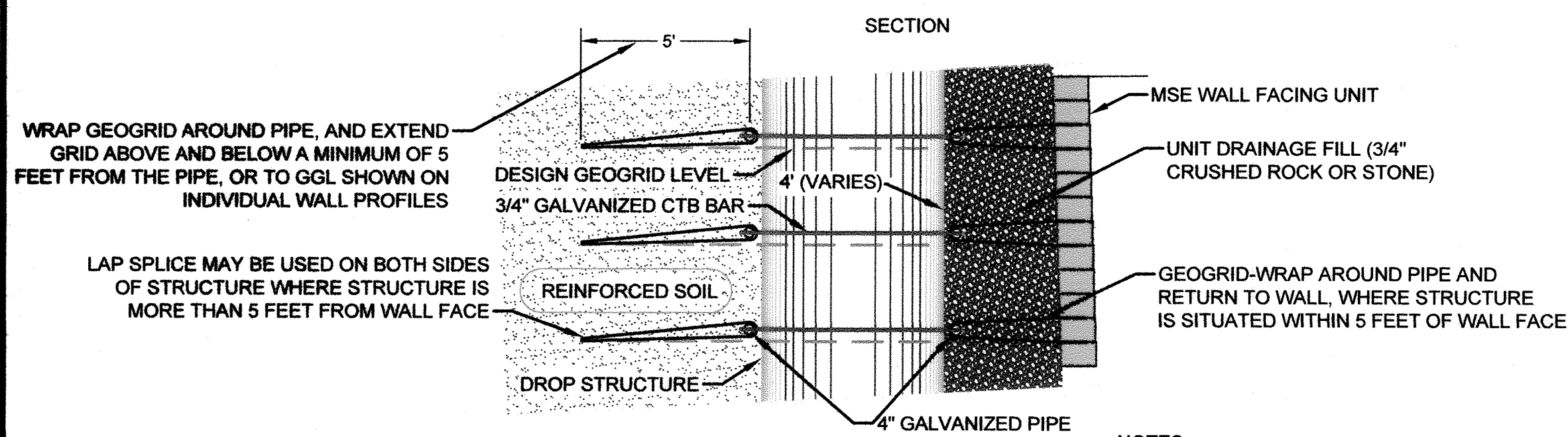
4 FENCE POST INSTALLATION USING SLEEVE-IT™ 1224R NTS

NTS



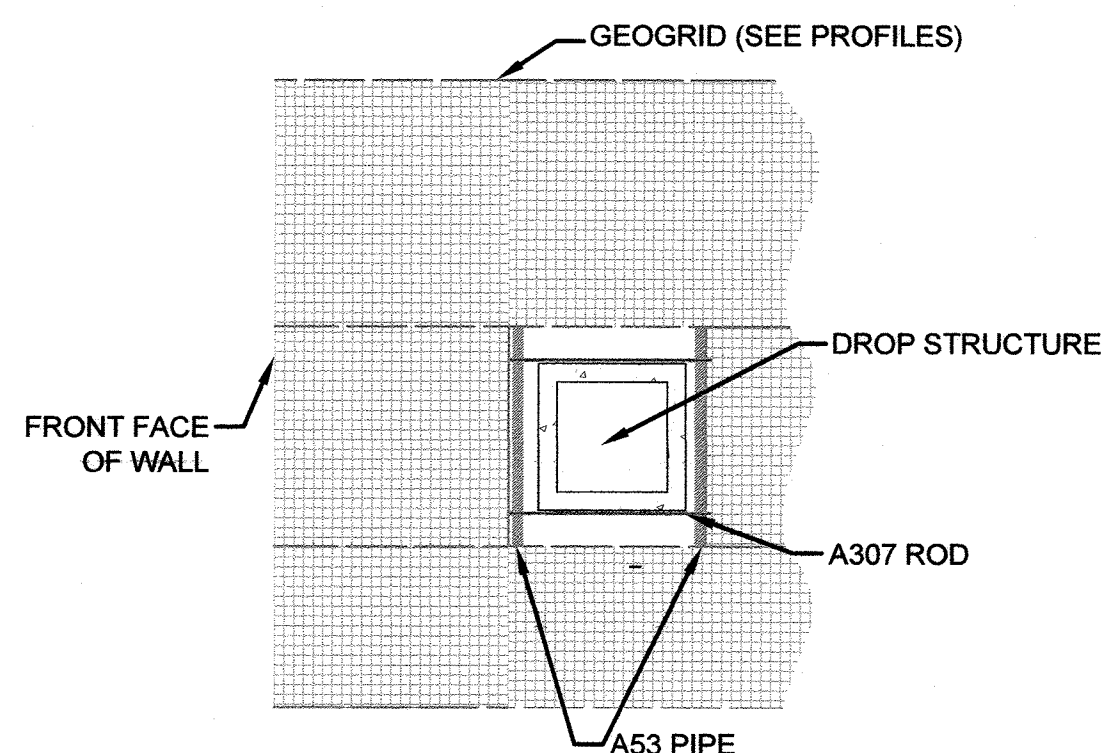
5 TYPICAL CHIMNEY DRAIN DETAIL NTS

NTS

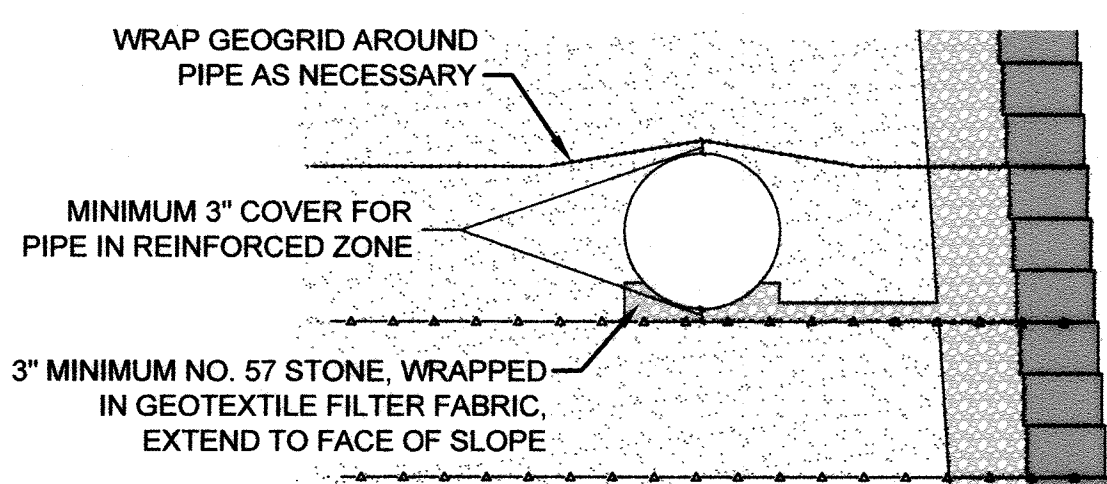


6 TYPICAL DROP STRUCTURE IN REINFORCED ZONE - SECTION VIEW NTS

NTS



7 TYPICAL DROP STRUCTURE IN REINFORCED ZONE - PLAN VIEW NTS



8 TYPICAL PIPE IN REINFORCED ZONE DETAIL NTS

NTS

OWNER: HAMPTON HILLS, LLC, 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043, (410) 480-0023

DEVELOPER: TRINITY HOMES MARY LAND, LLC, 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043, (410) 480-0023

NO.	REVISION	DATE
1	REVISED TO ADD ENTRANCE FEATURE	9-2-23
	REVISION	DATE

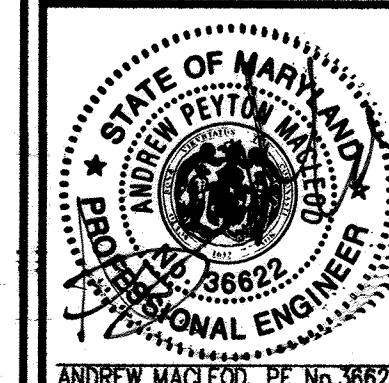
REVISOR RETAINING WALL DETAILS

HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9 2ND ELECTION DISTRICT

ECS MID-ATLANTIC, LLC

3400 CHARWOOD ROAD, SUITE B, HANOVER, MD 20176
P: 410.859.4300 F: 410.859.4324 www.ECSLIMITED.com



DESIGN BY: KB
DRAWN BY: KB
CHECKED BY: AM
DATE: APRIL 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE JURISDICTION OF THE STATE OF MARYLAND. EXPIRES 01-31-2022

29 SHEET OF 34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways
Date: 07/29/2021

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division
Date: 8-10-21
Chief, Division of Land Development
Date: 8/19/21

OWNER/DEVELOPER CERTIFICATION:
I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.
Michael Han, member
Date: 5-25-21

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND FEASIBLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Designer's Signature: [Signature]
Printed Name: [Name]
M.D. REGISTRATION NO.: [Number]
P.E., R.L.S., OR R.L.A. (G.C. 2-200)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD S.C.D. [Signature] DATE: [Date]

1.0 GENERAL

1. THE CONSTRUCTION OF THE MECHANICALLY STABILIZED EARTH (MSE) WALL SHOWN ON THESE PLANS SHALL BE MONITORED AND TESTED BY THE OWNER'S INDEPENDENT TESTING AGENCY (ITA) ON A FULL TIME BASIS TO CONFIRM THAT THE CONSTRUCTION IS IN ACCORDANCE WITH THE INTENT OF THE DESIGN.
2. UNLESS INDIVIDUALLY IDENTIFIED THE TERM WALL OR WALLS REFERS TO ANY MSE WALL SHOWN ON THESE DRAWINGS.
3. IF THE ELEVATION, LOCATION, SURCHARGE LOADING, OR GRADING SURROUNDING THE WALL CHANGES FROM THOSE DEPICTED ON THESE PLANS, ECS SHALL BE NOTIFIED SO THAT MODIFICATIONS TO THE GEOTECHNICAL DESIGN CAN BE MADE, IF NECESSARY.
4. THE FINAL GRADES SURROUNDING THE WALL SHALL NOT BE MODIFIED WITHOUT NOTIFYING THE ENGINEER. ANY MODIFICATION TO THE GRADES BELOW OR ABOVE THE WALL MAY POSE CONSIDERABLE RISK TO THE PERFORMANCE/STABILITY OF THE WALLS.
5. WHERE DISCREPANCIES ARE NOTED WITHIN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF SUCH DISCREPANCIES IN WRITING.
6. THESE PLANS SHALL NOT BE SCALED OR USED FOR LOCATION OF PAVEMENTS, STRUCTURES OR RETAINING WALLS. THE CONTRACTOR SHALL PROVIDE LAYOUT AND COORDINATION AS NEEDED BY THE WALL CONTRACTOR.
7. BLOCKS, DRAINAGE AGGREGATE, REINFORCED FILL, AND RETAINED FILL SHALL BE BROUGHT UP SIMULTANEOUSLY. NONE OF THESE ITEMS SHOULD LEAD ANOTHER BY MORE THAN ONE COURSE HEIGHT.
8. THE GEOGRID REINFORCEMENT SHALL NOT BE CUT OR AUGERED THROUGH. WHERE THE GEOGRID MUST BE CUT FOR INSTALLATION OF SHALLOW LANDSCAPING, THE GEOGRID REMOVAL MUST BE LIMITED AND PERFORMED WITH CARE.
9. UTILITIES MUST BE INSTALLED CONCURRENT WITH WALL CONSTRUCTION. GEOGRID SHALL NOT BE CUT TO FACILITATE UTILITY CONSTRUCTION. THE LOCATIONS AND ELEVATIONS OF ALL UTILITIES SHALL BE ACCURATELY LOCATED PRIOR TO AND DURING WALL CONSTRUCTION TO ENSURE THE WALL CONSTRUCTION IS IN STRICT CONFORMANCE WITH THESE DRAWINGS.

A. RESPONSIBILITY FOR CONSTRUCTION COMPLIANCE

1. THE CONTRACTOR MUST PROVIDE FOR THE CONSTRUCTION OF THE WALL IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, PLANS AND SPECIFICATIONS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR THE VERIFICATION OF LINE, GRADE AND OTHER PHYSICAL FEATURES.
2. ENSURE WALL IS ALONG THE PROPER ALIGNMENT, AND WITHIN APPROPRIATE PROPERTY BOUNDARIES, AND CONSTRUCTION EASEMENTS.
3. CONTRACTOR IS SOLELY RESPONSIBLE FOR QUALITY OF THE WORK, INSPECTION, MONITORING, AND WALL TESTING BY THE OWNER, THEIR DESIGNATED REPRESENTATIVE, OR ECS ARE SOLELY AT THE DISCRETION OF THE OWNER, AND IN NO WAY RELIEVE THE CONTRACTOR OF SOLE RESPONSIBILITY FOR MAINTAINING A QUALITY CONTROL PLAN.
4. CONTRACTOR SHALL CONTACT MISS UTILITY A MINIMUM OF THREE (3) DAYS PRIOR TO START OF WORK.
5. THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS TO CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER. DURING THE COURSE OF THE CONSTRUCTION, ALTERNATIVES TO, OR CHANGES IN, THE PLANS AND SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
6. APPROXIMATE FIELD LOCATION OF EXISTING UTILITIES, FOUNDATIONS AND OTHER STRUCTURES IDENTIFIED TO THE ENGINEER ARE SHOWN ON THESE DRAWINGS. THE ENGINEER IS NOT RESPONSIBLE FOR FIELD VERIFYING THESE LOCATIONS AND DAMAGE TO IDENTIFIED AND UNIDENTIFIED UTILITIES AND FOUNDATION. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL UTILITIES WITH IN 50 FEET BEHIND AND IN FRONT OF WALLS.
7. WALL HEIGHTS SHOWN ARE BASED ON INFORMATION AVAILABLE AT THE TIME OF DESIGN. IF THE ACTUAL WALL HEIGHTS ARE MORE THAN ONE FOOT GREATER THAN THE WALL HEIGHTS SHOWN ON THE DRAWINGS, THE WALL CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF HIS REPRESENTATIVE WHO WILL DETERMINE IF ADDITIONAL WALL MODIFICATIONS ARE REQUIRED.
8. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS, GRADES AND DIMENSIONS AT THE SITE PRIOR TO WALL CONSTRUCTION. IF THE WALL CONTRACTOR DISCOVERS ANY ERRORS, OMISSIONS OR DISCREPANCIES, HE SHALL CONTACT THE ENGINEER PRIOR TO CONTINUING WALL CONSTRUCTION. THE ENGINEER WILL THEN ISSUE THE INSTRUCTIONS AS HOW TO PROCEED.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY AND UNDER NO CIRCUMSTANCES SHALL THE ENGINEER BE RESPONSIBLE FOR CONSTRUCTION SITE SAFETY.
10. CONSTRUCTION OPERATIONS BEHIND AND IN FRONT OF PREVIOUSLY CONSTRUCTED PORTIONS FOR WALLS SHALL BE RESTRICTED TO PREVENT DAMAGE TO EXISTING WALLS. ONLY LIGHT COMPACTION EQUIPMENT SHALL BE USED WITHIN 5 FEET BEHIND WALL TO PREVENT EXCESSIVE LATERAL STRESS ON CONSTRUCTED PORTIONS OF THE WALLS.

B. CLEARING AND SUBGRADE PREPARATION

1. CLEARING AND STRIPPING LIMITS SHALL BE EXTENDED TO THE LIMITS SHOWN ON THE CIVIL DRAWINGS AND TO A MINIMUM OF 1 FOOT IN FRONT OF THE RETAINING WALLS AND 2 FEET BEHIND THE REINFORCED ZONE.
2. ALL EXISTING TOPSOIL, ROOTMAT, AND ANY OTHER SOFT OR UNSUITABLE MATERIALS SHALL BE REMOVED FROM THE CLEARING AND STRIPPING LIMITS.
3. PRIOR TO INITIATION OF RETAINING WALL CONSTRUCTION, THE STRIPPED AREA SHALL BE OBSERVED BY THE OWNER'S ITA TO DETERMINE THE EXTENT OF ANY REQUIRED REMEDIAL WORK. THESE MAY INCLUDE BUT ARE NOT LIMITED TO PROOFROLLING WITH A HEAVY RUBBER TIRE VEHICLE HAVING A SINGLE-AXLE WEIGHT OF AT LEAST 20,000 POUNDS, OR OTHER METHODS DETERMINED APPROPRIATE BY THE OWNER'S ITA. PROOFROLLING SHALL INCLUDE MULTIPLE PASSES IN PERPENDICULAR DIRECTIONS OVER THE EXPOSED SUBGRADE.
4. CONSTRUCTION PHASE DEWATERING MAY BE NECESSARY TO SATISFACTORILY COMPLETE THESE SUBGRADE PREPARATION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SATISFACTORY CONSTRUCTION PHASE DEWATERING.

C. EXCAVATION SUPPORT AND SLOPES

1. TEMPORARY SLOPES SHALL BE NO STEEPER THAN 1 1/2:1V AND PURSUANT TO OSHA.
2. THE DRAWINGS DO NOT PROVIDE A TEMPORARY EXCAVATION SUPPORT SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY EXCAVATION SUPPORT SYSTEMS REQUIRED TO CONSTRUCT THE RETAINING WALL SHOWN ON THESE DRAWINGS AND ENSURING THAT SUCH SYSTEMS ARE IN STRICT ACCORDANCE WITH CURRENT OSHA REQUIREMENTS.
3. EXCAVATIONS SHALL BE CONSTRUCTED AND BRACED IN ACCORDANCE WITH CURRENT OSHA REQUIREMENTS. EXCAVATION AND SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL NOT STOCKPILE EXCAVATED MATERIALS OR EQUIPMENT IMMEDIATELY ADJACENT TO THE EXCAVATION WALLS OR SLOPES. ALL SUCH MATERIALS SHALL BE KEPT BACK FROM THE TOP OF THE EXCAVATION A MINIMUM DISTANCE EQUAL TO THE EXCAVATION DEPTH, WHERE EQUIPMENT OR MATERIALS MUST BE PLACED IMMEDIATELY ADJACENT TO THE EXCAVATION WALLS, THE EXCAVATION WALLS SHALL BE DESIGNED FOR THE ANTICIPATED SURCHARGE LOADING, OR ADDITIONAL BRACING MUST BE PROVIDED TO SUPPORT THE ANTICIPATED SURCHARGE LOADING.

D. DEWATERING AND SITE DRAINAGE

1. THE CONTRACTOR SHALL PROVIDE SUMP PIT AND PUMPING OPERATIONS AS REQUIRED FOR DEWATERING THE RETAINING WALL AREA WHERE NEEDED.
2. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE SITE DRAINAGE DURING SITE PREPARATION, EARTHWORK OPERATION, INCLUDING PROVIDING FOR DRAINAGE OF SURFACE WATER AWAY FROM THE CONSTRUCTION AREAS, AND ENHANCEMENT OF NATURAL DRAINAGE PATHS WITHOUT INTERRUPTING ITS PATTERN.
3. ALL EROSION AND SEDIMENTATION CONTROL SHALL BE CONTROLLED IN ACCORDANCE WITH SOUND ENGINEERING PRACTICE AND CURRENT STATE, COUNTY AND MUNICIPAL REQUIREMENTS.
4. PROVIDE AND MAINTAIN POSITIVE DRAINAGE FROM BACK OF WALL AT ALL TIMES DURING CONSTRUCTION.

E. DESIGN CRITERIA

1. CONSTRUCT MSE WALL IN ACCORDANCE WITH THESE DRAWINGS.
2. THE DESIGN OF THE MSE WALL FOR THIS PROJECT CONTEMPLATES INTERNAL STABILITY, EXTERNAL STABILITY, COMPOUND AND GLOBAL STABILITY.
3. THE MSE WALL HAS BEEN DESIGNED IN GENERAL ACCORDANCE WITH NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA) RECOMMENDATIONS.
4. THE MSE WALL HAS BEEN DESIGNED FOR FACTORS OF SAFETY FOR PERMANENT LOADING CONDITIONS OF 1.5 FOR INTERNAL STABILITY, 1.5 FOR DIRECT SLIDING, 2.0 FOR OVERTURNING, AND 1.3 FOR COMPOUND AND LONG TERM GLOBAL STABILITY.
5. THE WALLS HAVE BEEN DESIGNED FOR FACTORS OF SAFETY OF 1.3 FOR TEMPORARY LOADING CONDITIONS SUCH AS SHORT TERM STORM EVENTS.
6. THE MSE WALLS ARE DESIGNED FOR PERMANENT SURCHARGE LOADING OF 250 PSF TO ACCOUNT FOR VEHICULAR LOADS. SEE WALL PARAMETER SHEETS FOR INDIVIDUAL WALL LOADINGS.
7. TEMPORARY SURCHARGE LOADS ABOVE THE WALL DURING CONSTRUCTION HAVE BEEN ANTICIPATED. IF EQUIPMENT OR MATERIAL STORAGE ABOVE THE WALL IS ANTICIPATED TO BE ABOVE 250 PSF, THE SURCHARGE LOADING SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
8. THE DESIGN REFLECTED ON THESE DRAWINGS IS INTENDED FOR THE CONSTRUCTION OF PERMANENT WALLS. AS WITH ANY REINFORCED EARTH SYSTEM, SOME LIMITED LATERAL AND VERTICAL MOVEMENT MAY OCCUR ABOVE AND BEHIND THE WALLS.
9. SOIL PARAMETERS USED IN THE DESIGN OF THE WALLS SHOULD BE VERIFIED IN THE FIELD PRIOR TO THE START OF WALL CONSTRUCTION.
10. GROUNDWATER IS NOT EXPECTED WITHIN THE EXCAVATION FOR THE WALLS. HOWEVER, WEEP DRAINS WILL BE INSTALLED AS SHOWN ON THESE DRAWINGS. IF GROUNDWATER IS ENCOUNTERED, THE DESIGN ENGINEER MUST BE NOTIFIED TO MODIFY DESIGN IF REQUIRED.

2.0 MATERIALS

1. MSE WALL FACING UNITS SHALL CONSIST OF KEYSTONE COMPAC III STRAIGHT SPLIT MASONRY UNITS. ALL RETAINING WALL FACING UNITS SHALL BE IN STRICT ACCORDANCE WITH THE LATEST SPECIFICATIONS FURNISHED BY KEYSTONE RETAINING WALL SYSTEMS, INC. MINNEAPOLIS, MINNESOTA.
2. FIBERGLASS PINS SHALL BE NYLON RESIN RODS WITH FIBERGLASS AS SUPPLIED BY KEYSTONE RETAINING WALL SYSTEMS, INC. AND SHALL BE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FURNISHED BY KEYSTONE.
3. GEOGRID REINFORCEMENT SHALL CONSIST OF MIRAFI MIRAGRID 5XT BY TENCATE. ALL GEOGRID SHALL BE IN STRICT ACCORDANCE WITH THE LATEST SPECIFICATIONS FURNISHED BY TENCATE. NO GEOGRID REINFORCEMENT SUBSTITUTIONS SHALL BE PERMITTED UNLESS APPROVED BY ECS.
4. GEOTEXTILES SHALL CONSIST OF MIRAFI 140N BY TENCATE. ALL GEOTEXTILES SHALL BE IN STRICT ACCORDANCE WITH THE LATEST SPECIFICATIONS FURNISHED BY TENCATE.
5. CRUSHED STONE SHALL CONSIST OF MDOT NO. 57 STONE CRUSHED AGGREGATE. CONTRACTOR SHALL SUBMIT A MATERIAL SOURCE AND GRADATION TO THE ENGINEER.
6. LEVELING PAD SHALL BE CONSTRUCTED OF CRUSHED STONE AS SHOWN IN THE DETAIL ON SHEET 27.
7. FILL AREAS WHERE CRUSHED STONE IS NOT REQUIRED, SHALL CONSIST OF SOILS HAVING A UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) DESIGNATION OF SM, SC, SP, SW, GM, GC, OR GV. BE FREE OF ORGANIC MATTER, COBBLES GREATER THAN 3 INCHES IN MAXIMUM DIMENSION, CONTAIN LESS THAN 35 PERCENT MATERIAL PASSING THE 200 SIEVE, OR DEBRIS, AND HAVE MAXIMUM LIQUID LIMIT AND PLASTICITY INDEX OF 30 AND 10, RESPECTIVELY. FURTHERMORE, THE REINFORCED AND RETAINED FILL ZONES SHALL CONSIST OF MATERIALS THAT MEET OR EXCEED THE REQUIREMENTS OF THE DESIGN PARAMETERS. THE OWNER'S ITA SHALL CONFIRM THE SOIL PROPERTIES AND SHEAR STRENGTH PARAMETERS SHOWN ON THESE PLANS PRIOR TO THE START OF WALL CONSTRUCTION. WHEN SHEAR STRENGTH TESTING IS DEEMED NECESSARY BY THE ITA, TRIAXIAL OR DIRECT SHEAR TESTING SHALL BE PERFORMED. CONTRACTOR SHALL SUBMIT MATERIAL SOURCES, GRADATIONS AND SHEAR STRENGTH TEST RESULTS TO THE ENGINEER.
8. UNACCEPTABLE FILL MATERIAL INCLUDE TOPSOIL, ORGANIC MATERIALS (OH, OL), PLASTIC SILTS AND CLAYS (CL, CH, ML AND MH), AND SOILS NOT MEETING THE CRITERIA OF THE PREVIOUS PARAGRAPH.
9. ON SITE SOILS MAY BE USED AS FILL MATERIALS IN THE RETAINED FILL ZONE PROVIDED THE MATERIALS MEET REQUIREMENTS OF THESE SPECIFICATIONS.
10. DRAINAGE PIPES SHALL CONSIST OF 4" CORRUGATED HDPE PIPE.
11. ALL MATERIALS SHALL BE STORED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

3.0 FOUNDATIONS

1. THE MSE WALL FOUNDATION SUBGRADE SOILS SHALL BE PREPARED IN ACCORDANCE WITH THE CLEARING AND SUBGRADE PREPARATION SECTION OF THESE SPECIFICATIONS.
2. THE BEARING CAPACITY OF THE SUBGRADE SUPPORTING MSE WALLS, INCLUDING MASONRY BLOCKS AND REINFORCED FILL ZONE, SHALL BE VERIFIED TO BE EQUAL TO OR GREATER THAN VALUES SHOWN ON THESE DRAWINGS AT THE TIME OF CONSTRUCTION BY THE OWNER'S ITA AT A MINIMUM FREQUENCY OF 25 FEET ON CENTER.
3. THE REQUIRED EMBEDMENT DEPTH FOR EACH SECTION OF WALL IS SPECIFIED ON THE DETAILS AND WALL PROFILE.
4. FOUNDATIONS SUBGRADE SOILS NOT MEETING THE MINIMUM BEARING REQUIREMENTS SHALL BE IMPROVED AS DIRECTED IN THE FIELD BY THE ENGINEER.

4.0 COMPACTIVE EFFORT AND FILL PLACEMENT

1. NO. 57 STONE - TAMP AND COMPACT WITH A SMOOTH PLATE WALK-BEHIND VIBRATORY PLATE COMPACTOR.
2. REINFORCED FILL ZONE - THIS ZONE SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-698 STANDARD PROCTOR METHOD, TO NOT LESS THAN 5 FEET BEYOND THE ENDS OF THE GEOGRID. WHERE REINFORCED FILL CONSISTS OF CRUSHED STONE, THE CRUSHED STONE SHALL BE COMPACTED WITH A SMOOTH PLATE WALK BEHIND VIBRATORY PLATE COMPACTOR OR SMOOTH DRUM VIBRATORY ROLLER.
3. RETAINED FILL ZONE - THIS ZONE SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-698 STANDARD PROCTOR METHOD.
4. FILL MATERIALS SHALL NOT BE PLACED WHEN WET, FROZEN OR FROST HEAVED SOILS. ALL SUCH SOILS SHALL BE REMOVED PRIOR TO CONTINUATION OF FILL OPERATIONS.
5. FILL MATERIALS SHALL NOT CONTAIN FROZEN MATERIALS AT THE TIME OF PLACEMENT. ALL SUCH MATERIALS SHALL BE REMOVED PRIOR TO CONTINUATION OF FILL OPERATIONS.
6. FILL SOILS SHOULD BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS.
7. AT THE TIME OF COMPACTION, FILL SOILS SHALL BE WITHIN 3 PERCENT OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH THE STANDARD PROCTOR METHOD.
8. ALL FILL AND BACKFILL OPERATIONS SHALL BE OBSERVED ON A FULL-TIME BASIS BY THE OWNER'S ITA TO DETERMINE IF MINIMUM PLACEMENT AND COMPACTION REQUIREMENTS ARE BEING MET AND THAT MATERIALS MEETING OR EXCEEDING THE SPECIFICATION REQUIREMENTS ARE USED.

9. IN-PLACE DENSITY TESTS SHALL BE PERFORMED WITH A MINIMUM OF 1 TEST PER 2500 SQUARE FEET OF SOIL FILL AREA OR EACH LIFT OF FILL PLACE. THE ELEVATION AND LOCATION OF THE TESTS SHOULD BE CLEARLY IDENTIFIED AT THE TIME OF FILL PLACEMENT.
10. GRANULAR SOILS (UNIFIED SOIL CLASSIFICATION SM, SC OR COARSER) SHALL BE COMPACTED WITH VIBRATORY COMPACTION EQUIPMENT.
11. CARE SHOULD BE EXERCISED REGARDING THE USE OF RELATIVELY HEAVY MACHINERY CLOSE TO THE WALL. LIGHTER HAND OPERATED COMPACTION WITHIN 5 FEET OF THE WALL.
12. THE FILL AREA SHALL BE GRADED AT THE END OF EACH DAY TO FACILITATE THE POSITIVE DRAINAGE OF SURFACE WATER ASSOCIATED WITH PRECIPITATION AWAY FROM IT.

5.0 CONSTRUCTION SEQUENCE

A. GENERAL

1. CONTRACTOR WILL COORDINATE AND SEQUENCE WORK IN SUCH A MANNER AS TO MINIMIZE DISTURBANCE OF PREVIOUSLY CONSTRUCTED WALLS.
2. FINISH GRADE IN ACCORDANCE WITH THE CIVIL AND LANDSCAPE DRAWINGS.

B. CONSTRUCTION SEQUENCE - MECHANICALLY STABILIZED EARTH WALL

STEP 1 - EXCAVATION AND LEVELING PAD

a. WALL LAYOUT AND GENERAL EXCAVATION

1. SURVEY STAKE WALL LOCATION AND GENERAL EXCAVATION LIMITS FOR WALL CONSTRUCTION.
2. PERFORM GENERAL EXCAVATION FOR WALL AS REQUIRED.

b. LEVELING PAD CONSTRUCTION

1. STAKE WALL LOCATION FOR LEVELING PAD EXCAVATION.
2. EXCAVATE TRENCH TO CREATE THE MINIMUM LEVELING PAD THICKNESS AND TO THE MINIMUM WIDTH SHOWN.
3. PLACE, LEVEL AND COMPACT LEVELING PAD MATERIAL FOR RETAINING WALL UNITS.

STEP 2 - INSTALLING FIRST COURSE OF BLOCK UNITS

a. SETTING FIRST COURSE OF BLOCK UNITS

1. CHECK LEVELING PAD ELEVATIONS AND SMOOTH LEVELING PAD SURFACE.
2. STAKE AND STRING LINE THE WALL LOCATION PAYING CLOSE ATTENTION TO EXACT LOCATION OF CURVES, CORNERS, AND VERTICAL AND HORIZONTAL STEPS. STRING LINE MUST BE ALONG THE MOLDED FACE (BACK) OF THE BLOCK UNIT, AND NOT ALONG THE BROKEN BLOCK FINISH SURFACE.
3. INSTALL FIRST COURSE OF BLOCKS, CHECKING LEVEL AS PLACED.

b. BACKFILLING FIRST COURSE OF BLOCK UNITS

1. RECHECK WALL LOCATION.
2. USE NO. 57 STONE TO FILL ANY OPENINGS IN AND BETWEEN BLOCK UNITS AS REQUIRED.
3. CAREFULLY PLACE FACING AGGREGATE BEHIND AND UP TO THE HEIGHT OF THE BLOCK UNIT.
4. PLACE AND COMPACT THE REINFORCED FILL SOIL.
5. PLACE AND COMPACT FILL SOILS IN FRONT OF BLOCK UNIT.
6. PLACE AND COMPACT RETAINED FILL SOILS.

STEP 3 - PLACEMENT AND BACKFILLING OF BLOCK UNITS WITHOUT GEOGRID REINFORCEMENT

a. INSTALLING SUCCESSIVE COURSE OF BLOCK UNITS

1. ENSURE THAT DRAINAGE AGGREGATE IS LEVEL WITH, OR SLIGHTLY BELOW TOP OF BLOCK UNIT BELOW.
2. THOROUGHLY CLEAN DEBRIS AND AGGREGATE OFF OF TOP OF BLOCK UNITS.
3. INSTALL CONNECTING SHEAR PINS.
4. PLACE NEXT COURSE OF BLOCK AND PUSH UNITS FORWARD AS FAR AS POSSIBLE TO ENGAGE SHEAR PINS AND TO ESTABLISH PROPER SETBACK CONSISTENT WITH SETBACK SHOWN ON THE DETAILS AND IN ACCORDANCE WITH MANUFACTURER'S

b. FILL PLACEMENT AND COMPACTION

1. RECHECK WALL LOCATION.
2. USE NO. 57 STONE TO FILL ANY OPENINGS IN AND BETWEEN BLOCK UNITS AS REQUIRED.
3. CAREFULLY PLACE FACING AGGREGATE BEHIND AND UP TO THE HEIGHT OF THE BLOCK UNIT.
4. PLACE GEOTEXTILE AS SHOWN.
5. PLACE AND COMPACT THE REINFORCED FILL SOIL.
6. PLACE AND COMPACT FILL SOILS IN FRONT OF BLOCK UNIT TO ELEVATIONS SHOWN ON THE DRAWINGS.
7. PLACE AND COMPACT RETAINED FILL SOILS.

STEP 4 - PLACEMENT AND BACKFILLING OF BLOCK UNITS WITH GEOGRID REINFORCEMENT CONNECTION

a. INSTALLING SUCCESSIVE COURSE OF BLOCK UNITS

1. ENSURE THAT NO. 57 STONE IS LEVEL WITH OR SLIGHTLY BELOW TOP OF BLOCK UNIT BELOW.
2. THOROUGHLY CLEAN DEBRIS AND NO. 57 STONE OFF OF TOP OF BLOCK UNITS.
3. CUT GEOGRID TO DESIGN LENGTH SHOWN ON PLANS AND INSTALL WITH MACHINE STRENGTH DIRECTION PERPENDICULAR TO THE WALL FACE. PLACE GEOGRID TO FACE OF BLOCKS AS SHOWN ON DETAILS.
4. PLACE NEXT COURSE OF BLOCK ON GEOGRID AND PUSH UNITS FORWARD TO ENGAGE SHEAR PINS AND TO ESTABLISH PROPER SETBACK CONSISTENT WITH SETBACK SHOWN ON DETAILS AND IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

b. FILL PLACEMENT AND COMPACTION

1. PULL GEOGRID TIGHT USING UNIFORM TENSION SO THAT THERE ARE NO WRINKLES IN THE GEOGRID. HOLD OR STAKE IN PLACE TO MAINTAIN TENSION THROUGHOUT FILL PLACEMENT PROCESS.
2. PLACE NO. 57 STONE IN AND BETWEEN BLOCK UNITS AS REQUIRED.
3. CAREFULLY PLACE FACING AGGREGATE BEHIND AND UP TO THE HEIGHT OF THE BLOCK UNIT.
4. PLACE AND COMPACT REINFORCED FILL STONE BEHIND WALL WORKING FROM THE WALL BACK TOWARDS THE FREE END OF THE GEOGRID.
5. PLACE AND COMPACT RETAINED FILL SOILS.

NOTE: CONTINUE CONSTRUCTION OF THE WALL TO FULL HEIGHT USING STEPS 3 AND 4.

STEP 5 - CAPPING AND GRADING

1. INSTALL CAP/CAPPING UNIT AND SECURE IN PLACE PER MANUFACTURER'S RECOMMENDATIONS.
2. PLACE AND COMPACT FINAL BACKFILL.
3. ROUGH GRADE FOR POSITIVE DRAINAGE AWAY FROM THE WALL FACE.
4. FINAL GRADING AND RESTORATION PER CIVIL DRAWINGS.

HOWARD COUNTY NOTES

1. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.
2. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
3. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ONSITE SOILS TECHNICIAN. EACH EIGHT (8) INCH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF THE CONSTRUCTION.

OWNER
HAMPTON HILLS, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION TO ADD ENTRANCE FEATURE	REVISION	DATE
1			9-21-23

REVISED RETAINING WALL SPECIFICATIONS

HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

ECS MID-ATLANTIC, LLC
3400 CHARWOOD ROAD, SUITE 5, HANOVER, MD 20176
P: 410.859.4300 F: 410.859.4324 www.ECSLIMITED.com

DESIGN BY: KB
DRAWN BY: KB
CHECKED BY: AM
DATE: APRIL 2021
SCALE: AS SHOWN
W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A QUALIFIED LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 8622, EXPIRATION DATE 01-31-2025

30 SHEET OF 34

ANDREW MACLEOD, PE No. 36822

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James 07/29/2021
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Michael Peay 8.10.21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 8/10/21 DATE

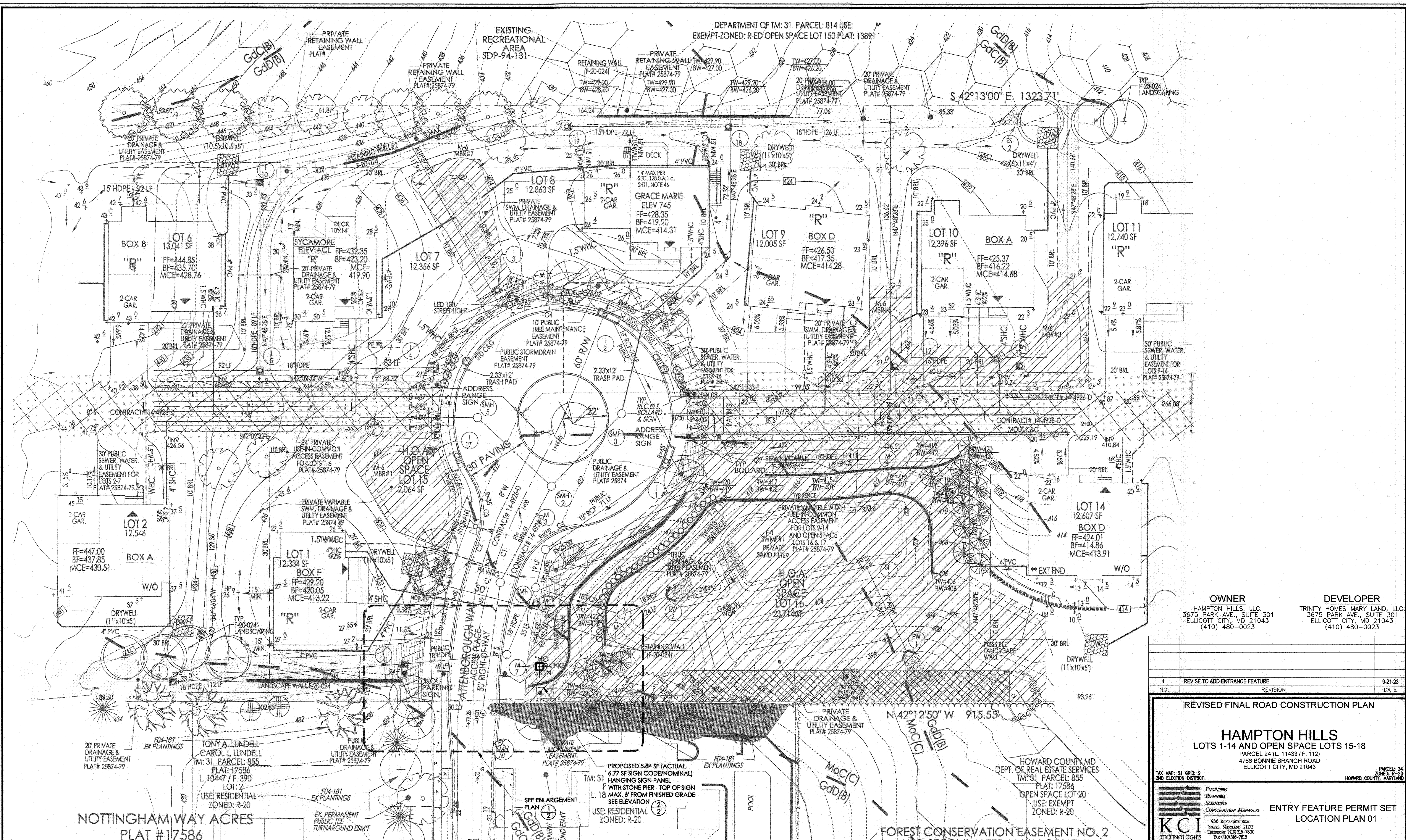
OWNER/DEVELOPER CERTIFICATION:
I, THE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT, AND/OR MDE.

Michael Peay, member 5.25.21
OWNER/DEVELOPER SIGNATURE DATE
PRINTED NAME & TITLE

DESIGN CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL, FEASIBLE, AND DEFENSIBLE DESIGN, AND THAT I WAS LICENSED AND THAT IT WAS DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Michael Peay DATE
DESIGNER'S SIGNATURE DATE
PRINTED NAME NO. REGISTRATION NO. P.E., R.L.S., OR L.S. (circle one) HOWARD S.C.D. DATE

THIS DEVELOPMENT IS IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.



OWNER
 HAMPTON HILLS, LLC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN

HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

KCI TECHNOLOGIES
 ENGINEERS
 PLANNERS
 SCIENTISTS
 CONSTRUCTION MANAGERS

ENTRY FEATURE PERMIT SET
 LOCATION PLAN 01

936 ROCKHURST ROAD
 SMITHS, MARYLAND 21152
 TELEPHONE: (410) 305-7800
 FAX: (410) 305-7805

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 511 EXPIRATION DATE: 03-24-2024

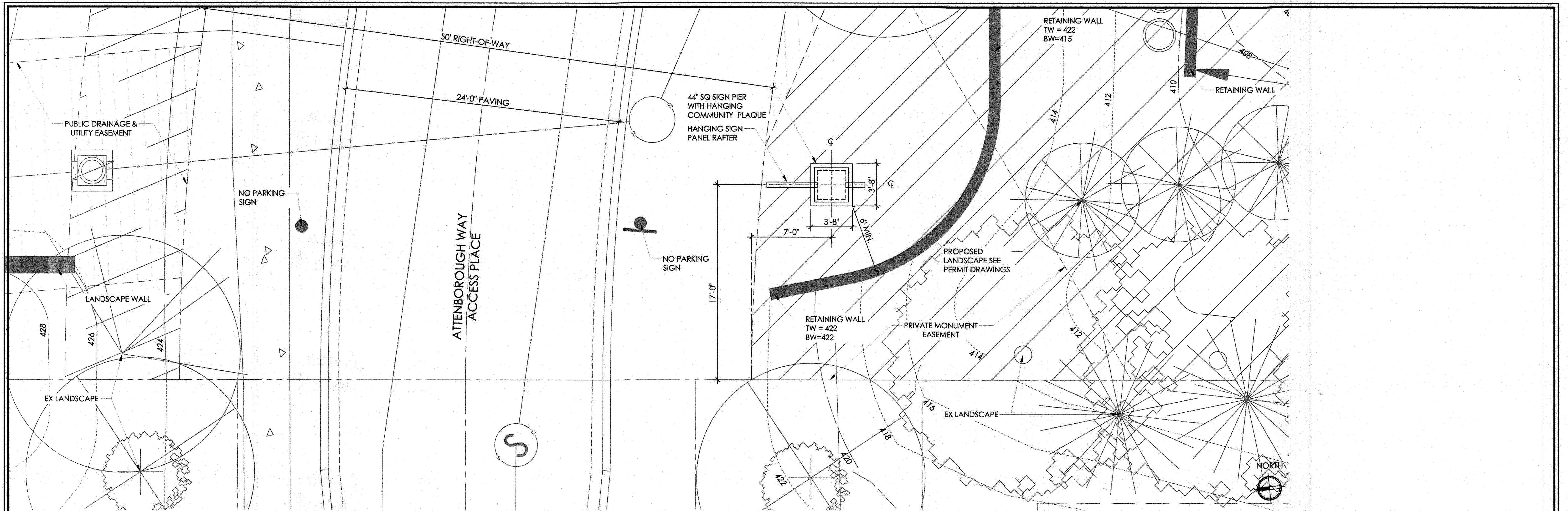
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 DRAWN BY: KCL
 CHECKED BY: RHL
 DATE: JULY 2023
 SCALE: AS SHOWN
 W.O. NO.: 12-10

31 SHEET OF 34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS MK 12/04/2023 DATE

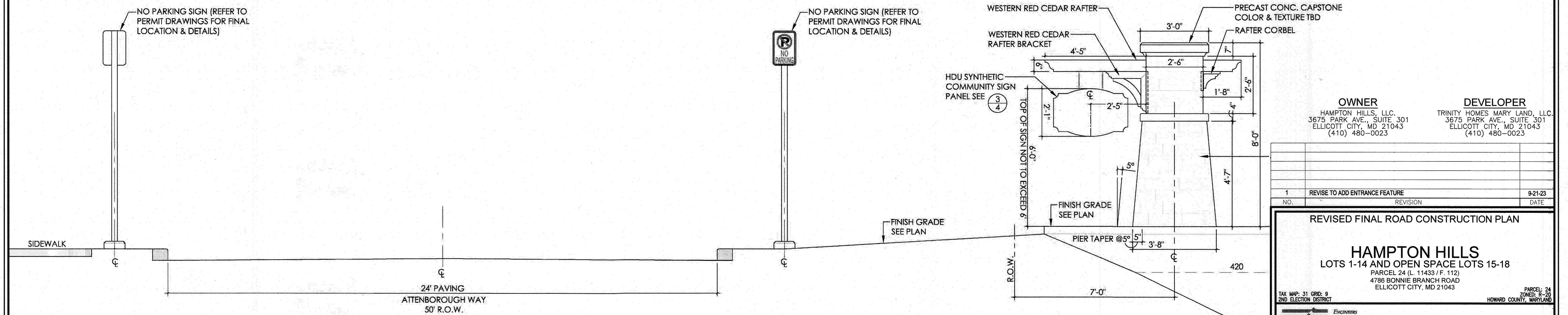
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY 12-12-23 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT EB 12/19/23 DATE

11.01.2023



1 COMMUNITY ENTRANCE SIGN PIER ENLARGEMENT
PLAN

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



2 COMMUNITY ENTRANCE SIGN PIER FROM ATTENBOROUGH WAY
ELEVATION

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Jane 12/04/2023
 CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John 12-02-23
 CHIEF, DEVELOPMENT ENGINEERING DIVISION WJ DATE

CHIEF, DIVISION OF LAND DEVELOPMENT ES 12/19/23 DATE

OWNER
 HAMPTON HILLS, LLC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC.
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN

HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4788 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONED: R-20
 HOWARD COUNTY, MARYLAND

ENGINEERS
 PLANNERS
 SCIENTISTS
 CONSTRUCTION MANAGERS

KCI
 TECHNOLOGIES

935 BROADWAY ROAD
 SUITE 200
 SILVER SPRING, MARYLAND 21152
 TELEPHONE: (410) 315-7800
 FAX: (410) 315-7818

ENTRY FEATURE PERMIT SET
 DETAILS 02

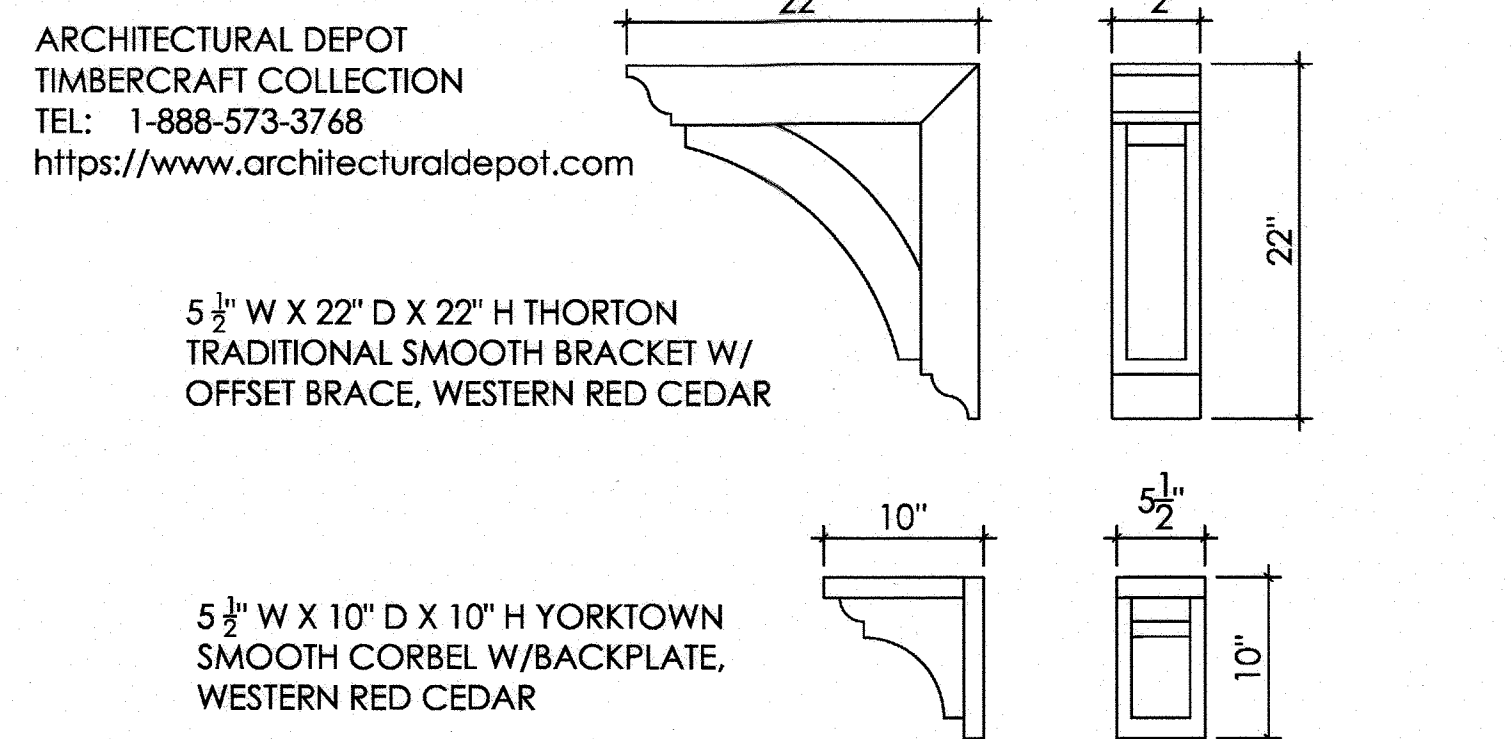
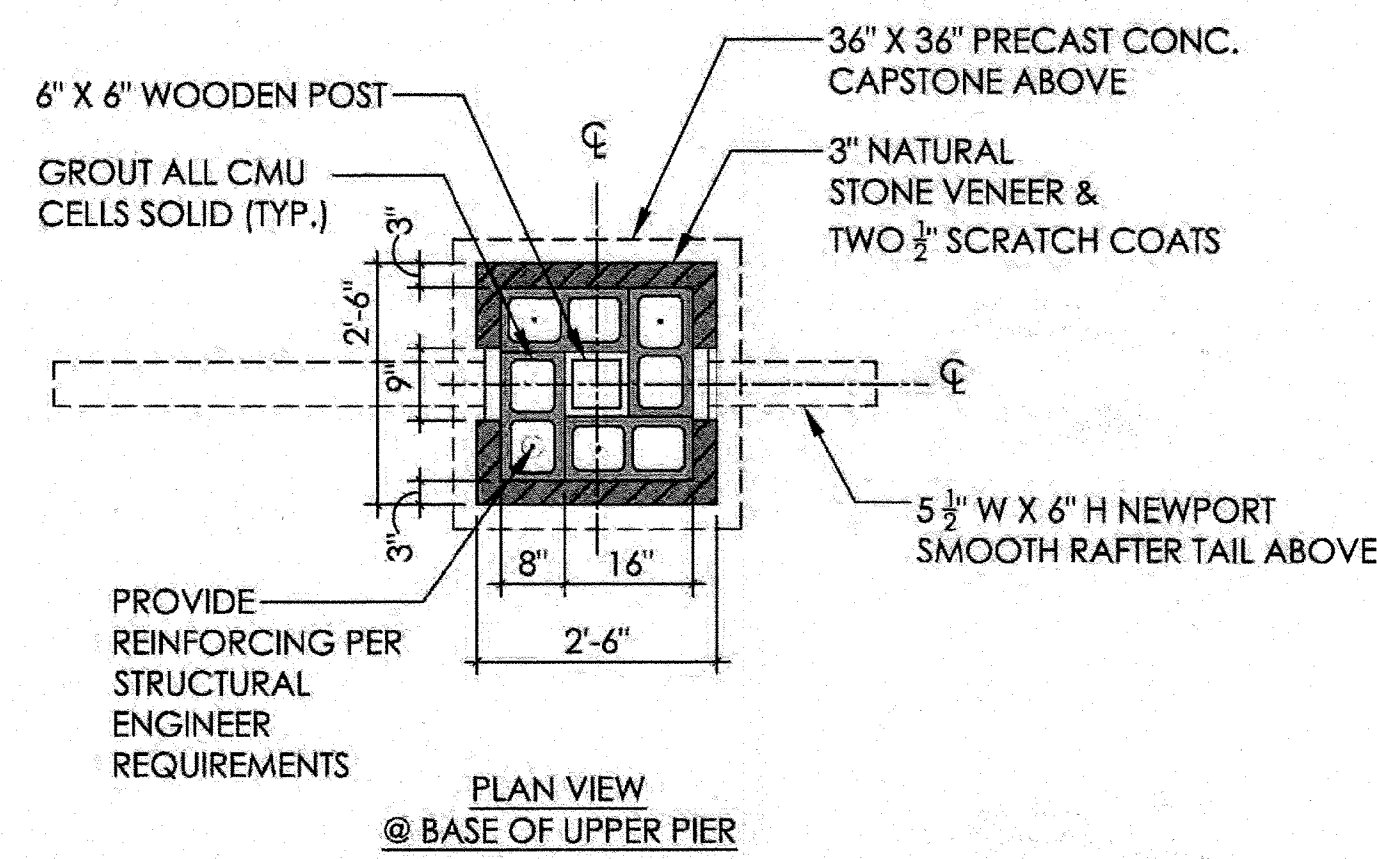
PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 051 EXPIRATION DATE: 03-24-2024

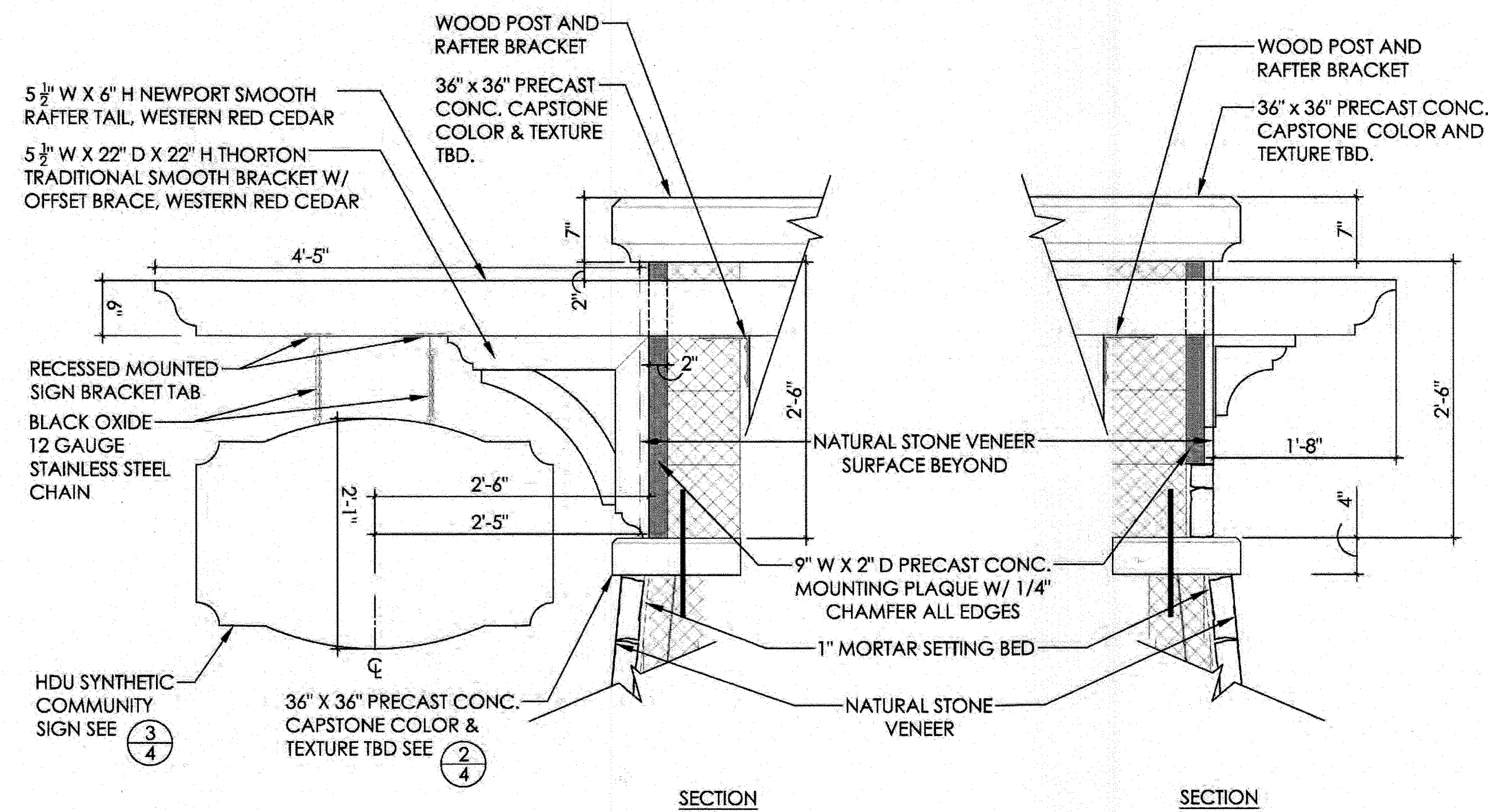
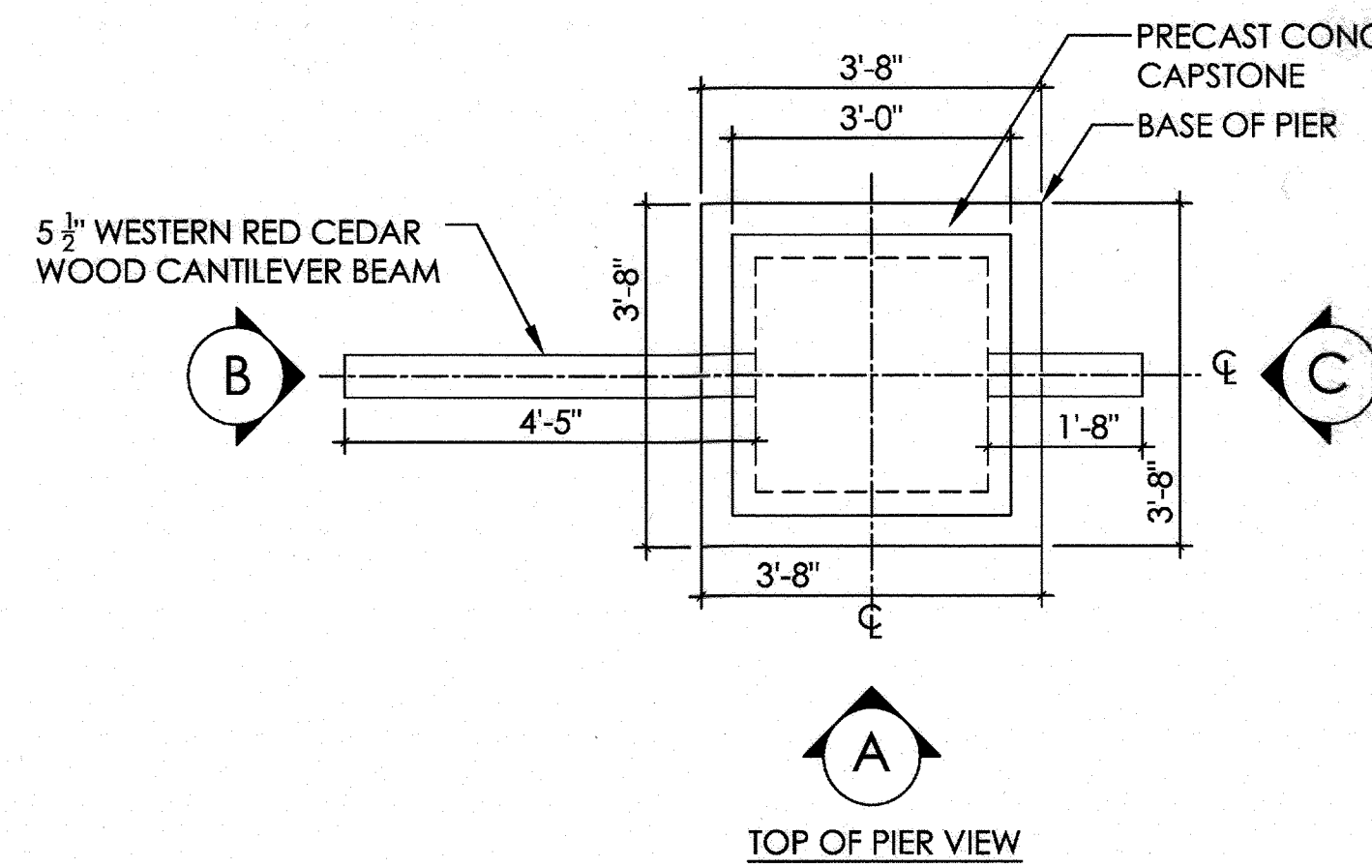
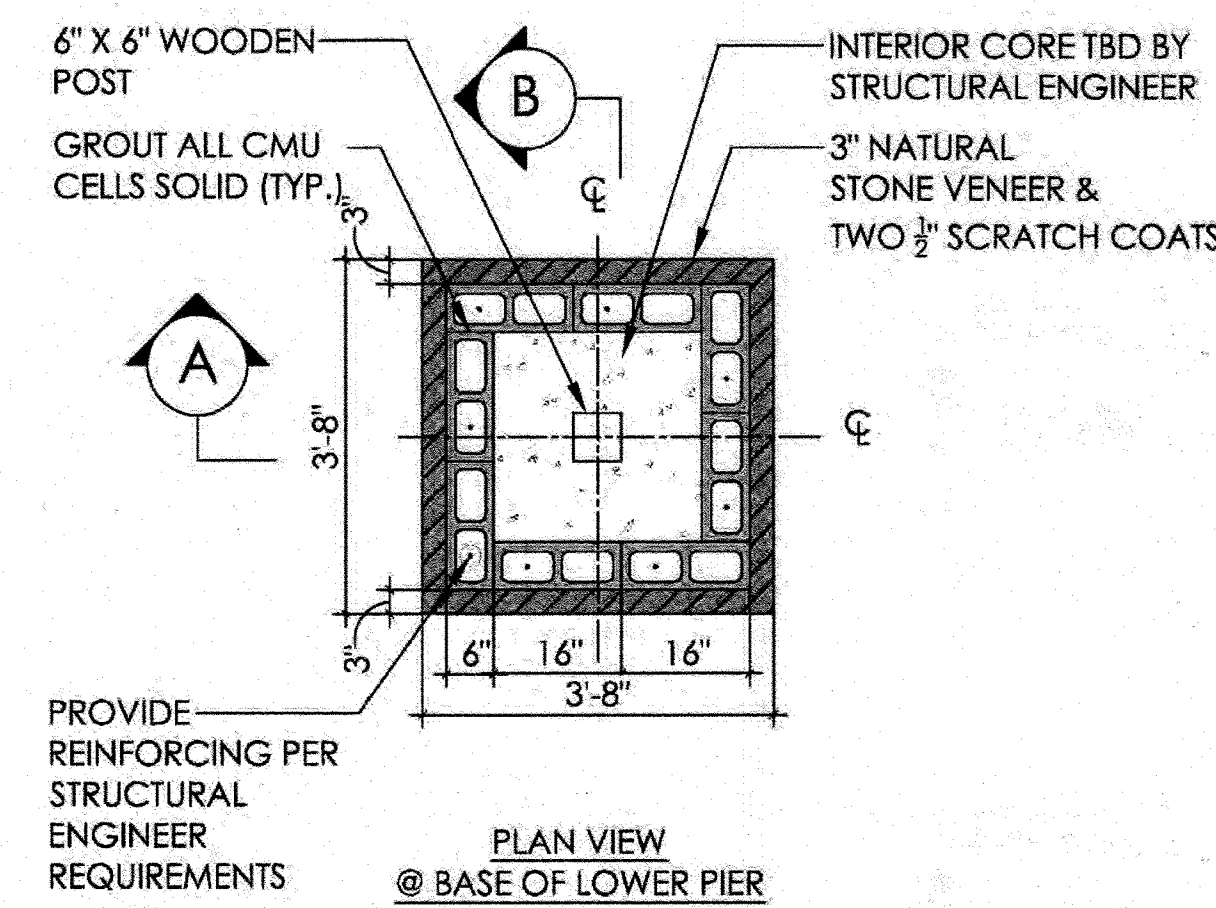
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 DRAWN BY: KCL
 CHECKED BY: RH
 DATE: JULY 2023
 SCALE: AS SHOWN
 W.O. NO.: 12-10

11.01.2023

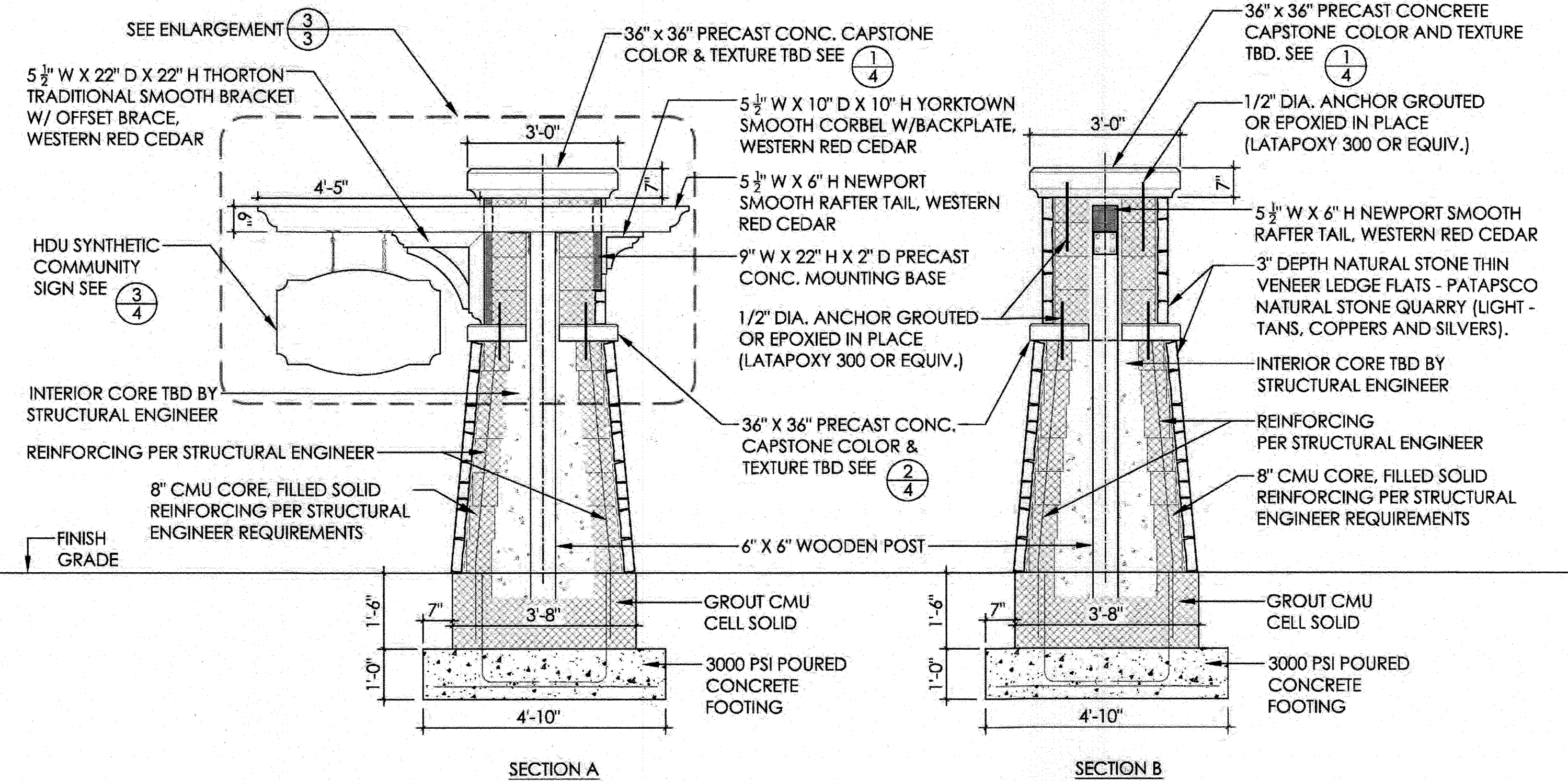
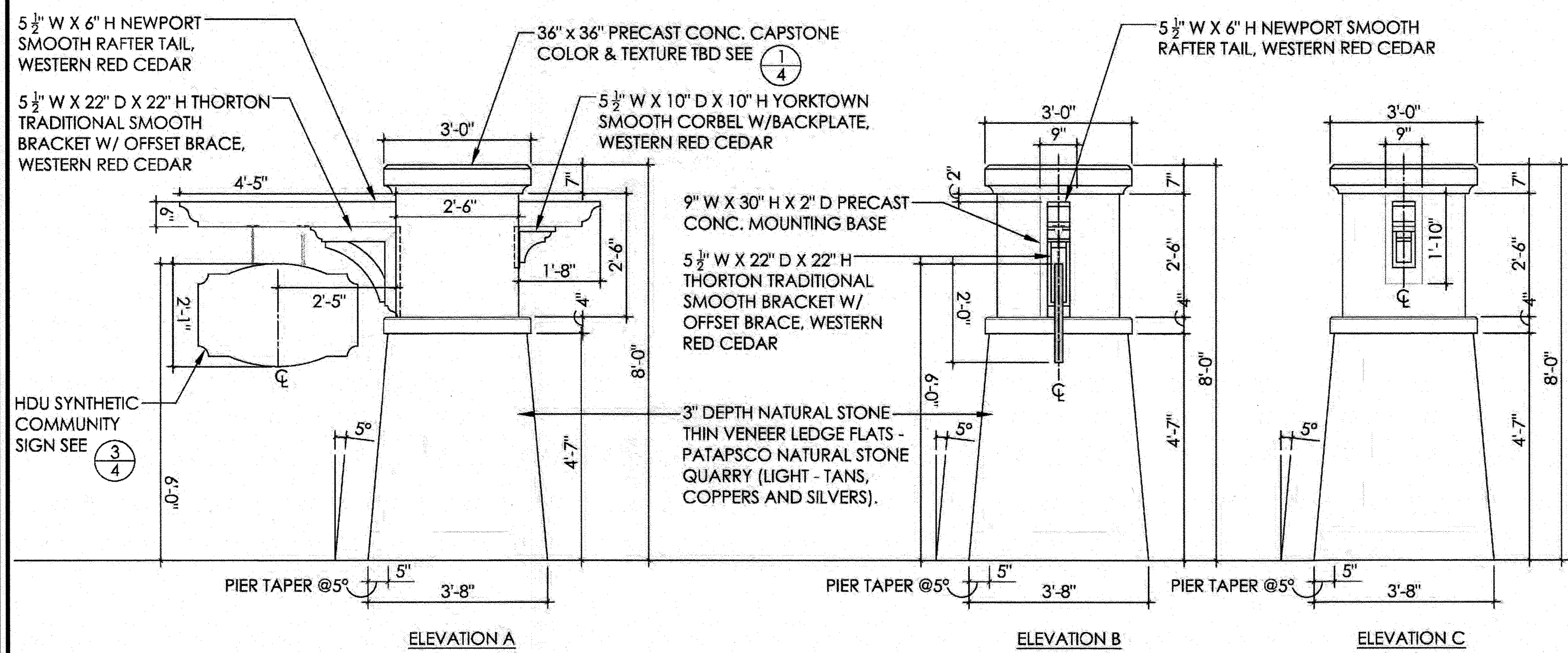
32 SHEET OF 34



2 SIGN RAFTER BRACKET AND CORBEL
ELEVATION / SECTION VIEW SCALE: 1" = 1'-0"



3 PIER AND HANGING SIGN PANEL ENLARGEMENT
ELEVATION / SECTION VIEW SCALE: 1" = 1'-0"



4 SIGN PIER SECTION SCALE: 1/2" = 1'-0"

1 SIGN PIER ELEVATION / PLAN VIEW SCALE: 1/2" = 1'-0"

NOTE:
1. CONTRACTOR SHALL ADJUST CMU BASE AND STONE VENEER AS NECESSARY SO AS NOT TO EXPOSE CMU CORE.
2. CONTRACTOR TO PROVIDE ELECTRICAL CONDUIT AS COORDINATED WITH OWNER FOR POTENTIAL SIGN UPLIGHTING. ANY PROPOSED UPLIGHTING SHALL NOT IMPEDE DRIVER'S VISION FROM ONCOMING TRAFFIC.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK 12/04/2023 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION WY 12-12-23 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT EB 12/19/23 DATE

OWNER

HAMPTON HILLS, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

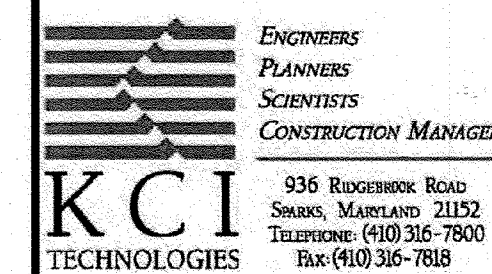
DEVELOPER

TRINITY HOMES MARY LAND, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

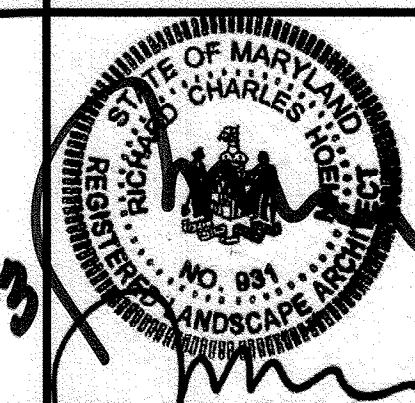
REVISED FINAL ROAD CONSTRUCTION PLAN

HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043



ENTRY FEATURE PERMIT SET
DETAILS 03

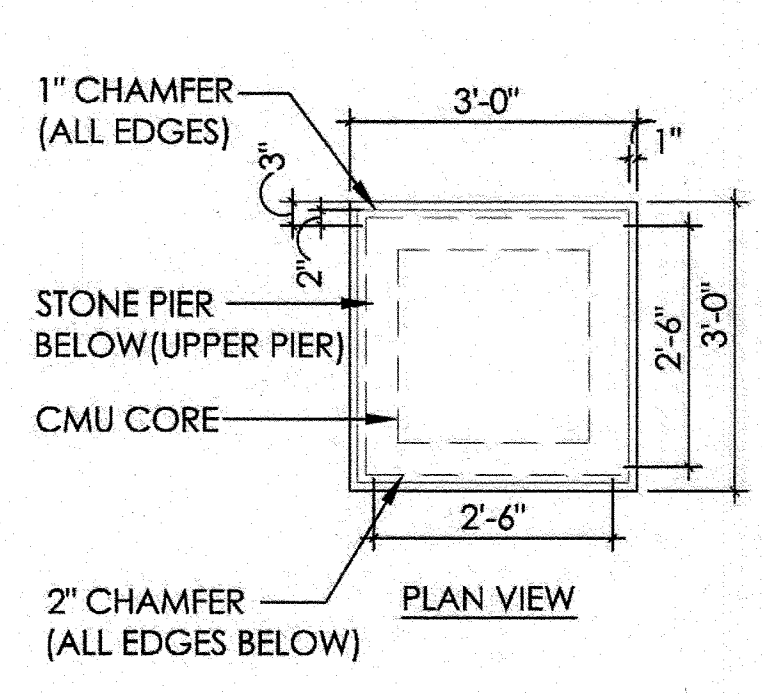
11.01.2023



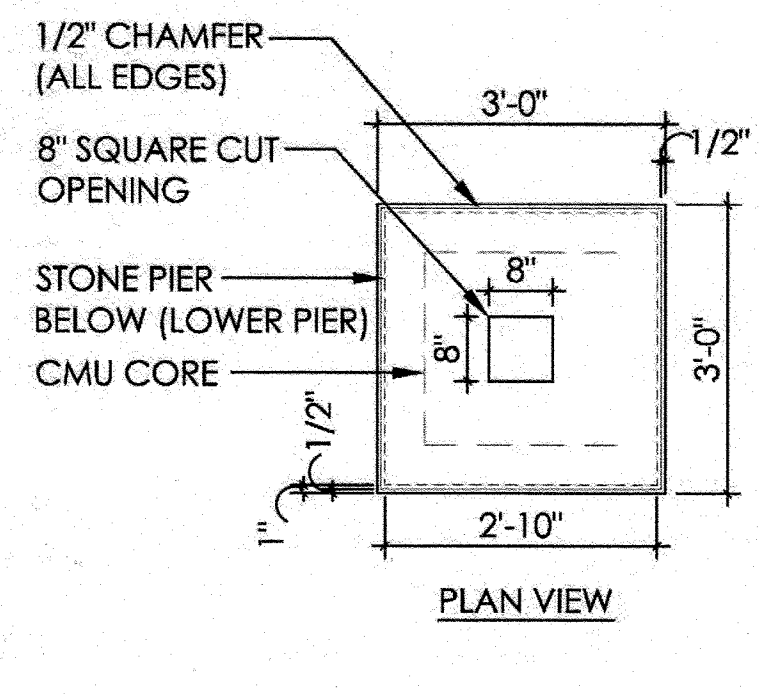
DESIGN BY: WK/RHL
DRAWN BY: KCL
CHECKED BY: RHL
DATE: JULY 2023
SCALE: AS SHOWN
W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 631 EXPIRATION DATE: 03-24-2024

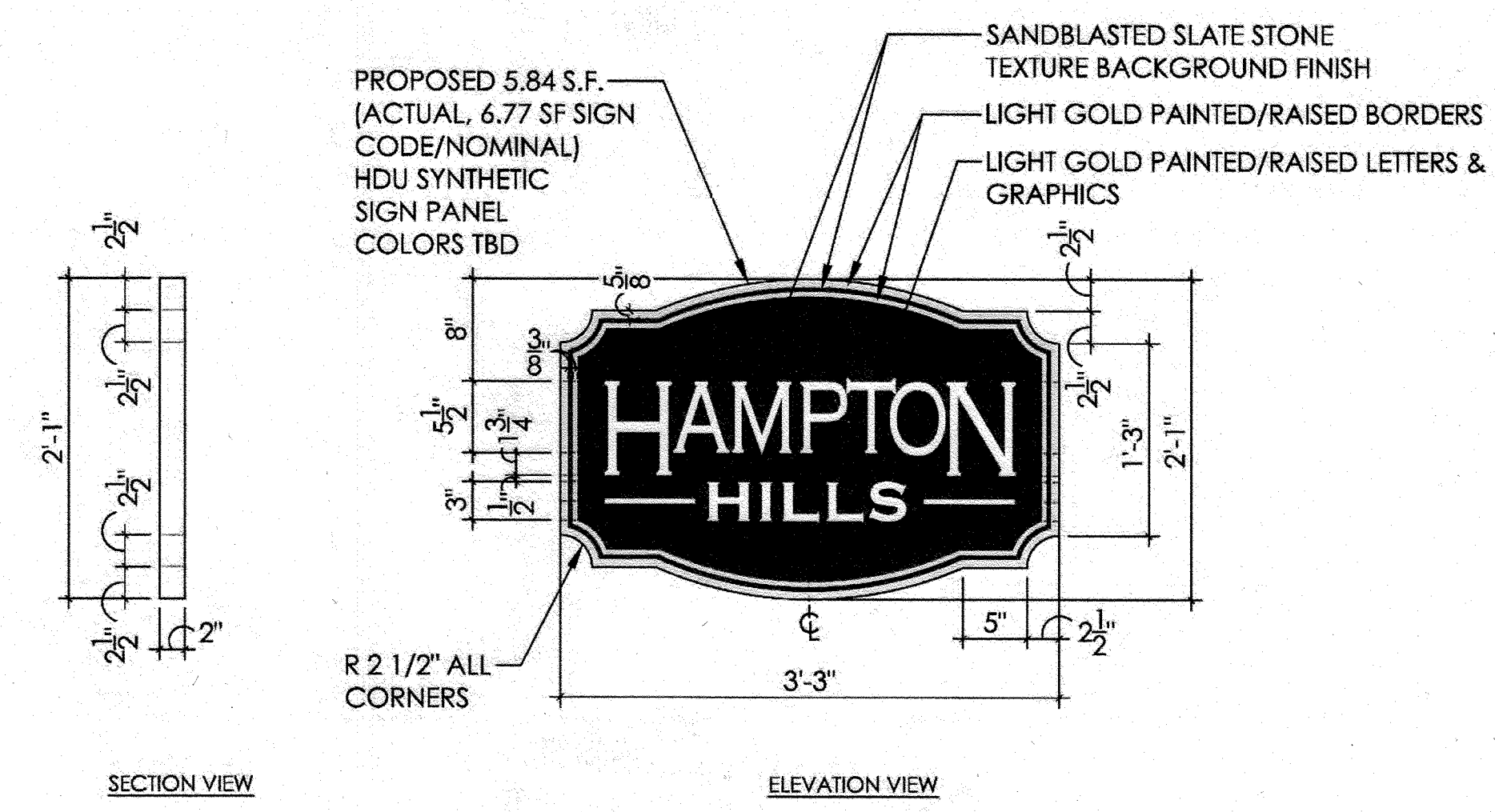
33 SHEET OF 34



1 36" PIER
PRECAST CONC. CAPSTONE
PLAN / ELEVATION VIEW SCALE: 1/2" = 1'-0"

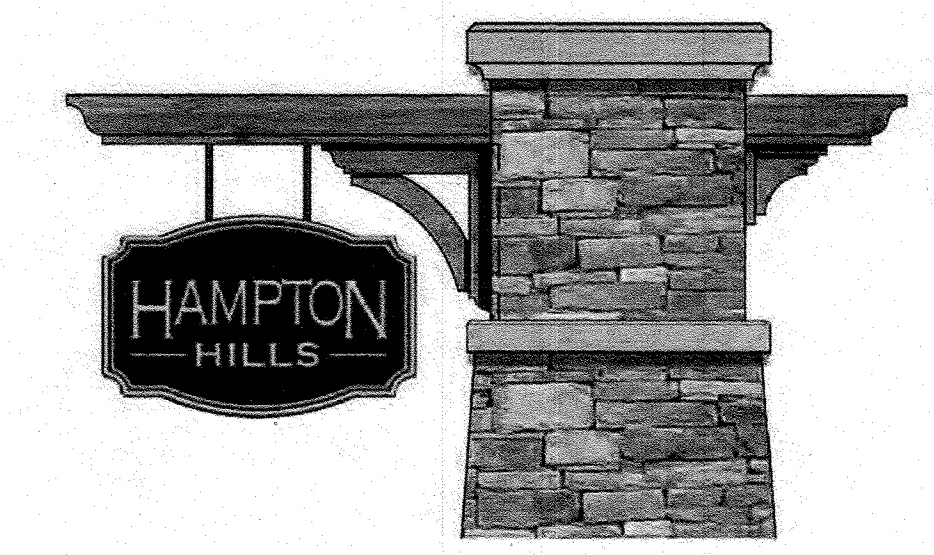


2 SIGN WALL
PRECAST CONC. CAPSTONE TRIM
PLAN / ELEVATION VIEW SCALE: 1/2" = 1'-0"



3 SIGN PANEL
SECTION / ELEVATION VIEW SCALE: 1" = 1'-0"

- NOTE:
- SUBMIT LETTER LOGO, LAYOUT, COLOR AND TEXTURE PROOF TO LANDSCAPE ARCHITECT FOR REVIEW & APPROVAL PRIOR TO FABRICATION OF SIGN PANEL.
 - SIGN FRAME, LETTERING AND GRAPHICS TO BE RAISED WITH RECESSED SANDBLASTED SLATE STONE TEXTURE BACKGROUND FINISH.
 - SHOP DRAWINGS TO BE PROVIDED BY MANUFACTURER FOR APPROVAL. COMMUNITY NAME IN 'COPPERPLATE GOTHIC' - FONT HEIGHT, WIDTH FACTOR AND TRACKING/SPACING AS SHOWN.



4 COMMUNITY ENTRANCE SIGN & PIER ILLUSTRATIVE
ELEVATION SCALE: N.T.S.

OWNER
HAMPTON HILLS, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC.
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE
1	REVISE TO ADD ENTRANCE FEATURE	9-21-23

REVISED FINAL ROAD CONSTRUCTION PLAN

HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI
TECHNOLOGIES

936 ROCKHURST ROAD
SHELTON, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

**ENTRY FEATURE PERMIT SET
DETAILS 04**

DESIGN BY: WK/RH.
DRAWN BY: KCL
CHECKED BY: RH.
DATE: JULY 2023.
SCALE: AS SHOWN.
W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 851 EXPIRATION DATE: 03-24-2024

11.01.2023

34 SHEET OF 34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS MK 12/04/2023 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION 12.12.23 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT EB 12/19/23 DATE