# SITE DEVELOPMENT PLAN CEDAR LANE WATER PUMPING STATION

CEDAR ACRES BLOCK'B', LOT 1

LIBER 17223 FOLIO 117 **ASBUILT** 

- I. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF
- 2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE
- 3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT I-800-257-7777 AT LEAST 48 HOURS
- PRIOR TO ANY EXCAVATION WORK BEING DONE.

4. PROJECT BACKGROUND

ZONING: ELECTION DISTRICT PARCEL

PLAT BOOK 4, NO.II

- 5. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, BUREAU OF UTILITIES AT (410) 313-4900 AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ANY EXCAVATION WORK.
- 6. PROPOSED USE: GOVERNMENT STRUCTURE PUBLIC UTILITY
- 7. ALL PLAN DIMENSIONS ARE TO FACE OF BUILDING UNLESS OTHERWISE NOTED. DIMENSIONS ARE MEASURED PERPENDICULAR OR RADIALLY BETWEEN ITEMS UNLESS OTHERWISE NOTED.
- 8. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH TWO FOOT CONTOUR INTERVALS PREPARED BY KCI TECHNOLOGIES DATED DECEMBER 2017.
- 9. COORDINATES AND BEARINGS ARE BASED UPON THE '83 MD STATE COORDINATE SYSTEM (NAD '83) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 35II AND 35FI.
- II. WATER AND SEWER SERVICE IS PUBLIC PER CONTRACT No. 44-5036.
- 12. ALL ON-SITE STORM DRAIN SYSTEMS ARE PRIVATE
- 13. STORMWATER MANAGEMENT, SATISFYING ENVIRONMENTAL SITE DESIGN (ESD) CRITERIA, PROPOSED BY THESE PLANS INCLUDES I MICRO BIO-RETENTION (M-6) FACILITIES. THIS STORMWATER MANAGEMENT PRACTICE WILL BE MAINTAINED BY HOWARD COUNTY.
- 14. EXISTING UTILITIES ARE BASED ON PLANS, AND INFORMATION RECEIVED BY KCI TECHNOLOGIES.
- 15. THERE ARE NO KNOWN CEMETERIES, GRAVE SITES OR HISTORIC STRUCTURES LOCATED ON THE SUBJECT PROPERTY
- THERE ARE NO SCENIC ROADS WITHIN OR ADJACENT TO THE SUBJECT PROPERTY. 17. THERE ARE NO FLOODPLAINS OR WETLANDS WITHIN THE SUBJECT PROPERTY
- 18. ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS AWAY FROM ALL ADJOINING RESIDENTIAL USE AREAS AND PUBLIC ROADS IN ACCORDANCE WITH SECTION 134.0 OF THE HOWARD COUNTY ZONING REGULATIONS.
- 19. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING SHALL NOT BE REQUIRED DUE TO GOVERNMENT OWNERSHIP OF THE PROJECT, THE LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE
- 20. SETBACK REQUIREMENTS DO NOT APPLY TO WALLS AND FENCES WHICH SERVE AS ENTRANCE FEATURES FOR A SUBDIVISION OR DEVELOPMENT IN ALL ZONING DISTRICTS PROVIDED THE ENTRANCE FEATURE DOES NOT EXCEED & FEET IN HEIGHT AND DOES NOT
- NTERFERE WITH SIGHT DISTANCE ALONG PUBLIC ROADS IN ACCORDANCE WITH SECTION 128.0 OF THE ZONING REGULATIONS. · 21. THERE IS A LOWER LEVEL BASEMENT SPACE IN THE BUILDING.
- 22. APPROVAL OF THIS SITE DEVELOPMENT PLAN (SDP-18-046) DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED
- 23. IN ACCORDANCE WITH SECTION 128.0 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. PORCHES, OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK
- 24. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S), OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- 25. FOREST CONSERVATION FOR THIS SITE IS BEING PROVIDED VIA A FEE-IN-LIEU IN THE AMOUNT OF \$5,733.75 FOR 7,645 SQ. FT.
- 26. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- 27. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED. STEEL, PERFORATED, SQUARE TUBE POST (14 GAUAGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUAGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- 28. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

GLWGUTSCHICK LITTLE &WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS

3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK

BURTONSVILLE, MARYLAND 20866

TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

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©GLW 2017

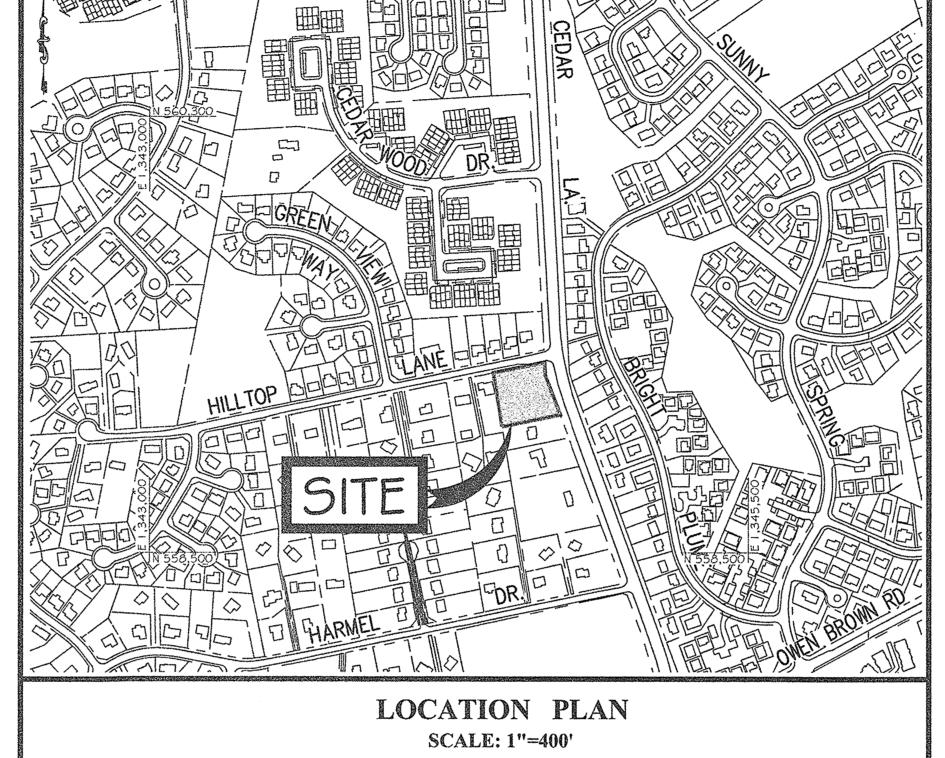
29. THE COMMUNITY MEETING FOR THIS PROJECT WAS HELD AT SWANSFIELD ELEMENTARY SCHOOL AT TPM ON JANUARY 25, 2018.

Date

8-2-18

7.24.18

REVISION



- I COVER SHEET
- 2 EXISTING CONDITIONS PLAN ● 3 - SITE DEVELOPMENT PLAN
- 4 SITE PLAN DETAILS
- 5 UTILITY PROFILES ● 6 - STORMWATER MANAGEMENT PLAN
- 7 LANDSCAPE PLAN 8 - LANDSCAPE DETAILS
- 9 SEDIMENT CONTROL PLAN
- 10 SEDIMENT CONTROL DETAILS II - SEDIMENT CONTROL NOTES
- 12 DRAINAGE AREA MAP

# SITE ANALYSIS DATA

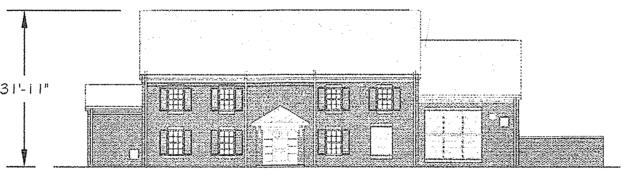
- I. ZONING: RESIDENTIAL SINGLE FAMILY (R20)
- 2. LEGAL DESCRIPTION: LOT I, BLK 'B' CEDAR ACRES, PLAT BK 4, NO. I
- 3. GROSS AREA OF LOT I = 1.17 AC. DEED REFERENCE: L: 17223 F: OOI17
- 4. LIMIT OF DISTURBED AREA = 1.21 AC.
- 5. PROPOSED USE: GOVERNMENT STRUCTURE: PUBLIC UTILITY
- REQUIRED PARKING PARKING PROVIDED HANDICAP PARKING REQUIRED .. HANDICAP SPACES PROVIDED ..
- 7. OWNER: HOWARD COUNTY MD
- 8. APPLICANT: HOWARD COUNTY MD 3430 COURT HOUSE DR ELLICOTT CITY, MD 21043

C. FROM PUBLIC STREET R/W:

## 9 70NING STANDARDS: R-20 70NE

b. REAR

ZUNING STANDARDS: K-20 ZUNE		
	ALLOWED / PERMITTED	PROPOSED
I. BUILDING HEIGHT (SEC. 117.4.D):	34 FT.	32 FT.
2. MINIMUM LOT SIZE	20,000 SQ. FT.	1.17 AC PROVIDED
3. MINIMUM STRUCTURE SETBACK a. SIDE b. REAR c. FROM PUBLIC STREET R/W:	10 FT. 30 FT. 50 FT.	20 FT. 30 FT 75 FT.
3. MINIMUM USE SETBACK	20 FT	20 57

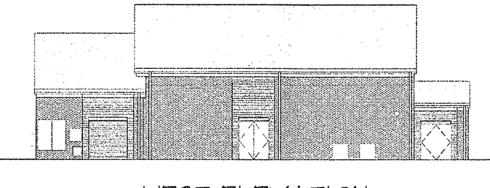


EAST ELEVATION SCALE: 1"=20'

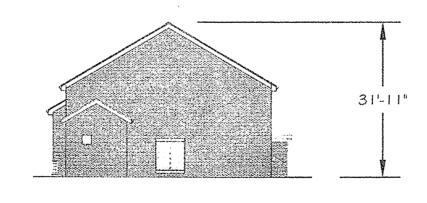


NORTH ELEVATION

BY APP'R



WEST ELEVATION SCALE: 1"=20"



SOUTH ELEVATION SCALE: 1"=20'



PREPARED FOR:

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

9250 BENDIX ROAD

COLUMBIA, MD 21045

(410) - 313 - 2040

# BUILDING ELEVATIONS

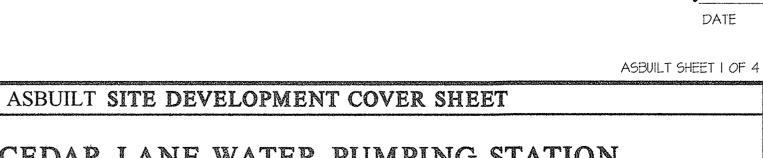
PROFESSIONAL CERTIFICATION

PREPARED OR APPROVED BY ME, AND THAT

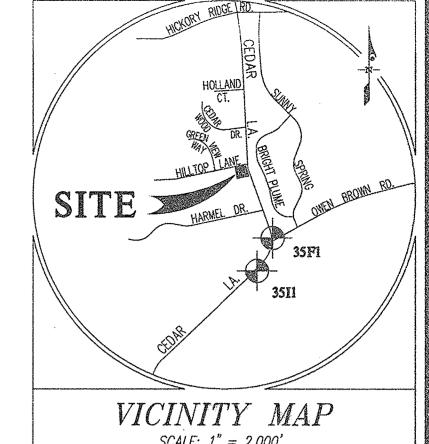
AM A DULY LICENSED PROFESSIONAL ENGINEER,

UNDER THE LAWS OF THE STATE OF MARYLAND

LICENSE NO. 17285 EXPIRATION DATE: MARCH 17,



CEDAR LANE WATER PUMPING STATION LOT I BLOCK B LECTION DISTRICT No. 05 HOWARD COUNTY, MARYLAND



SCALE: 1" = 2.000'

## BENCHMARKS

35F1 N=557,787.369 E=1.345,217.326 35I1 N=557.110.385 E=1.344.893.672

ADC MAP: 4934-J8

EX. SEWER PROP. STORM DRAIN PROP. CONTOURS EX. ELECTRIC EX. CURB & GUTTER PROP. CURB & GUTTER PROP. ELECTRIC PROP. BUILDING PROP. TRANSFORMER

> PROP. CONCRETE EX. FIBER OPTIC EX. UNDERGROUND ELECTRIC

EX. UNDERGROUND TELEPHONE EX. OVERHEAD ELECTRIC

PROP. FIRE HYDRANT EX. TELEPHONE

10%-25% SLOPE +25% SLOPE

EX. PAVING SSF PROP. SUPER SILT FENCE

--- > --- TEMP. EARTH DIKE ■ PROP. STOCKPILE AREA

PROP. STABILIZED CONST. ENTR.

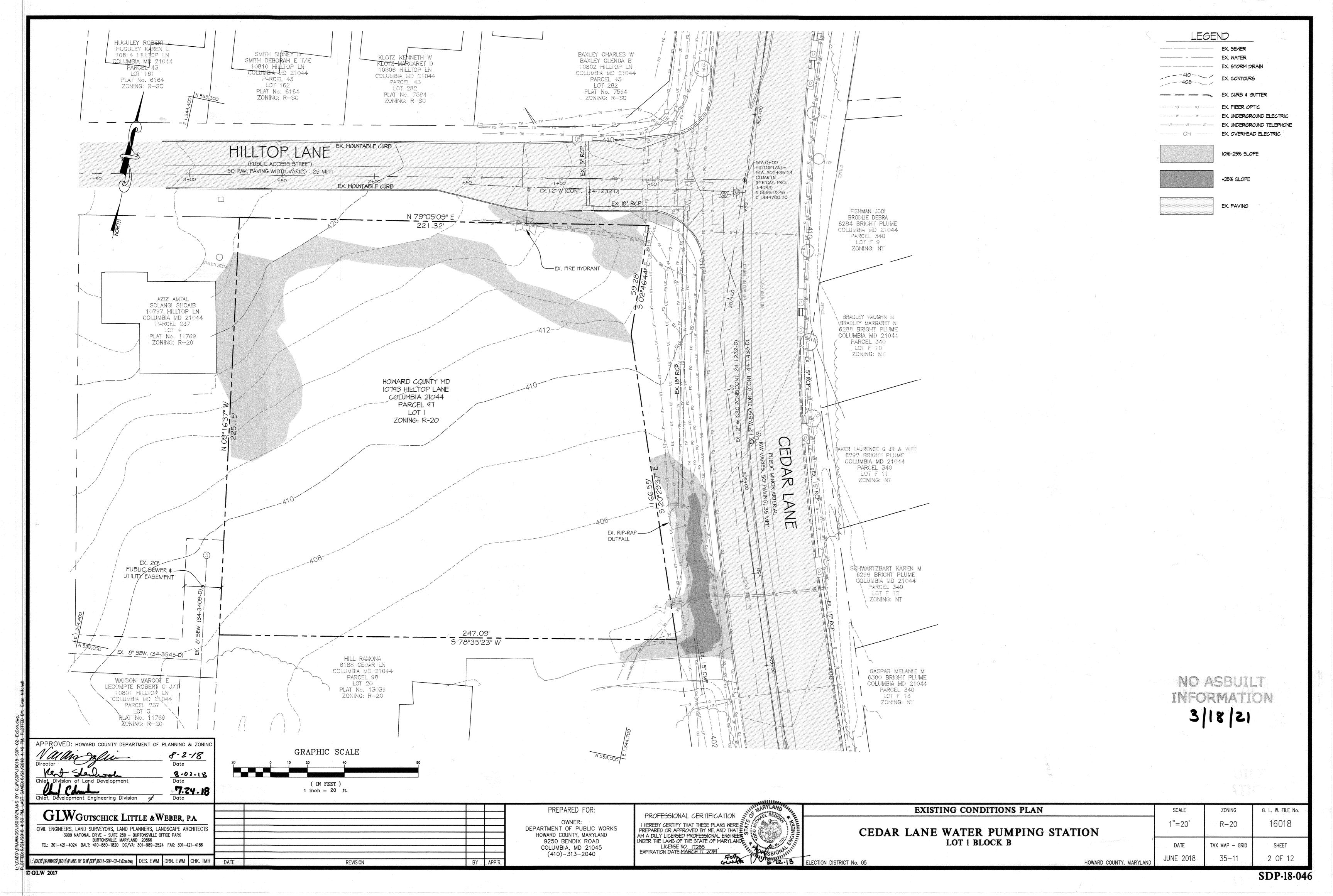
# ASBUILT PROFESSIONAL CERTIFICATION

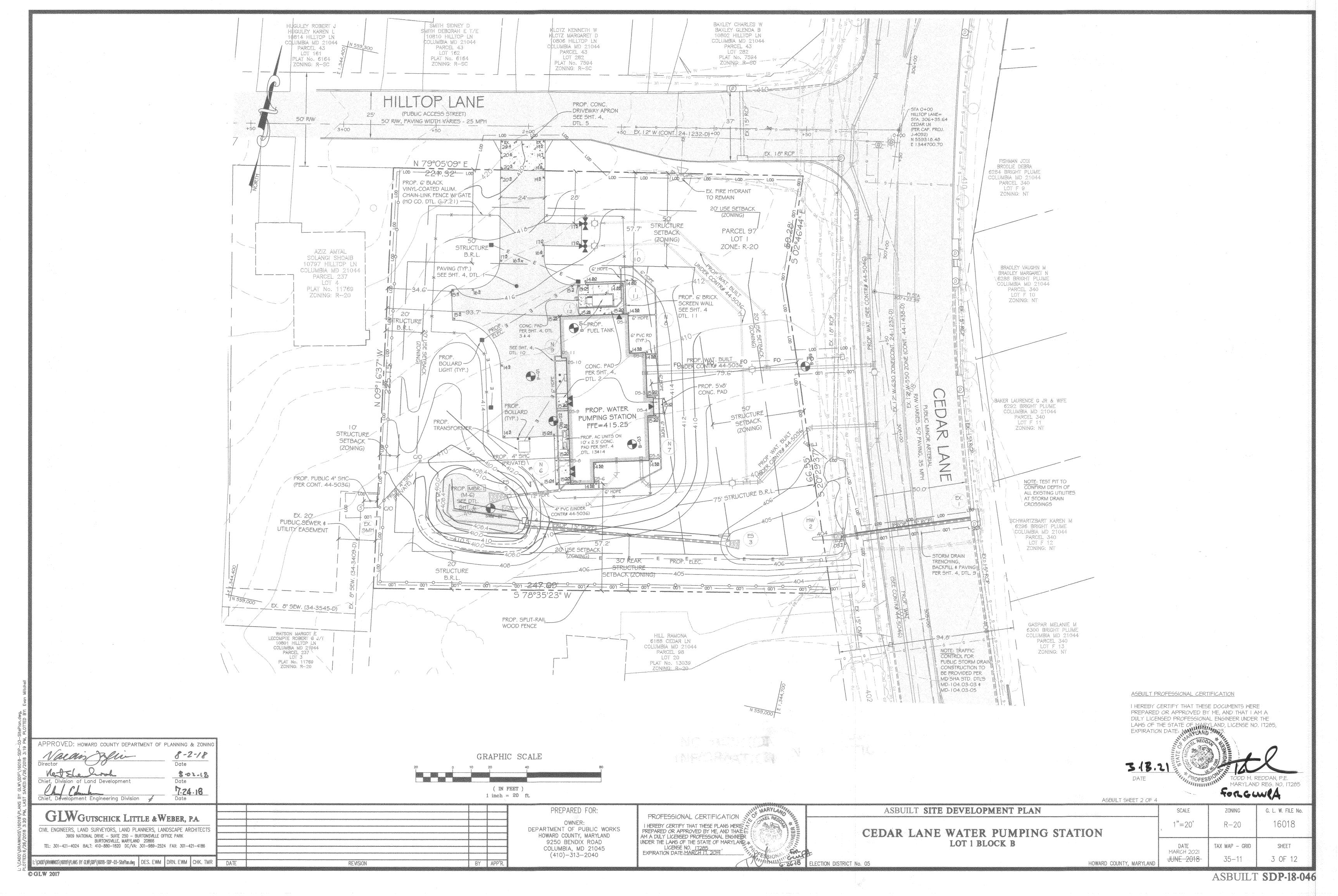
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17285 EXPIRATION DATE: MARCH 17, 2023

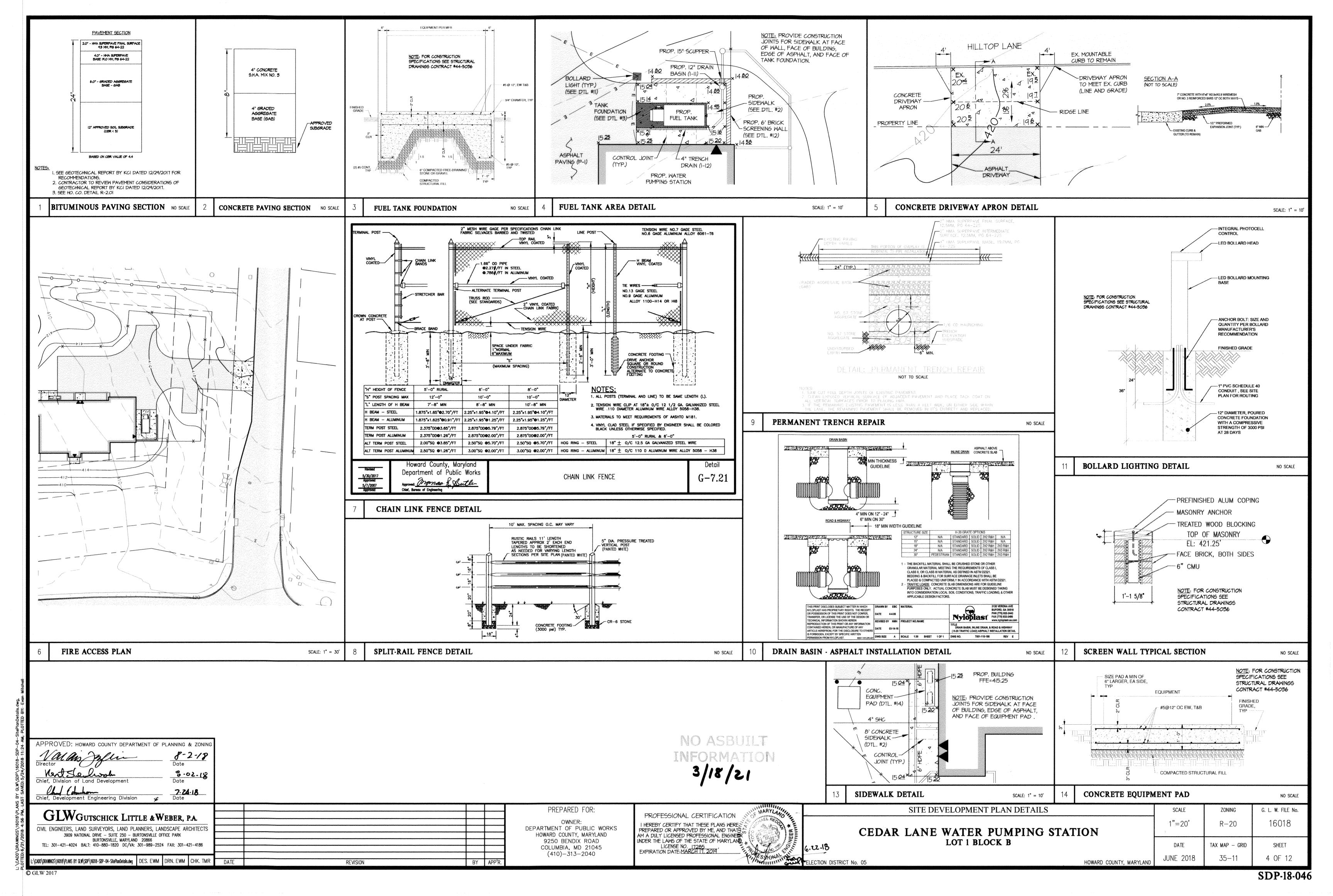
For GLUPA ZONING G. L. W. FILE No. R - 20

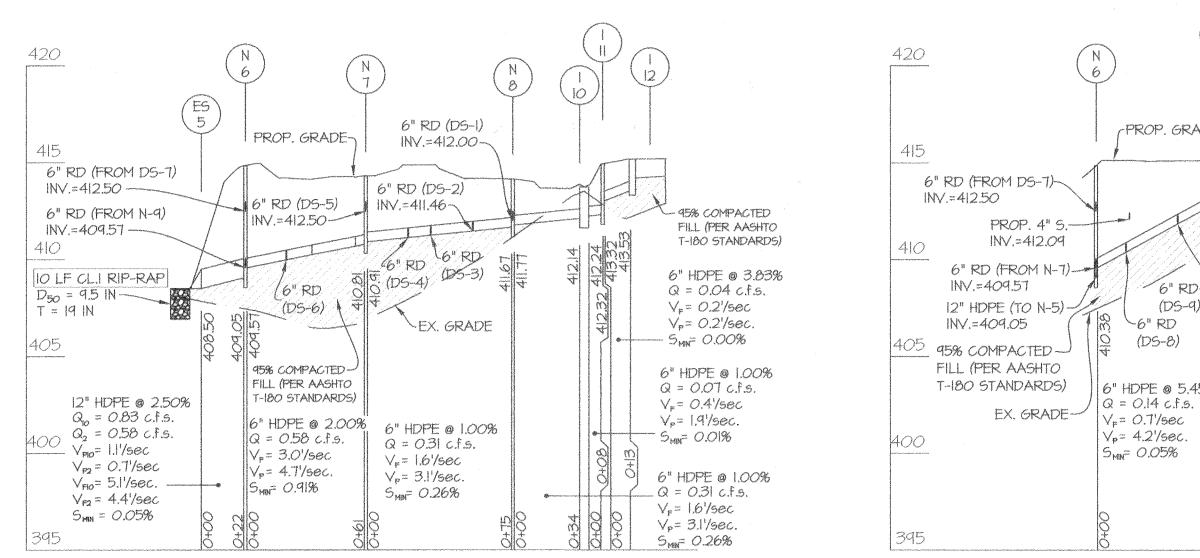
AS SHOWN TAX MAP - GRID SHEET MARCH 2021 JUNE 2018 1 OF 12 35-11

ASBUILT SDP-18-046

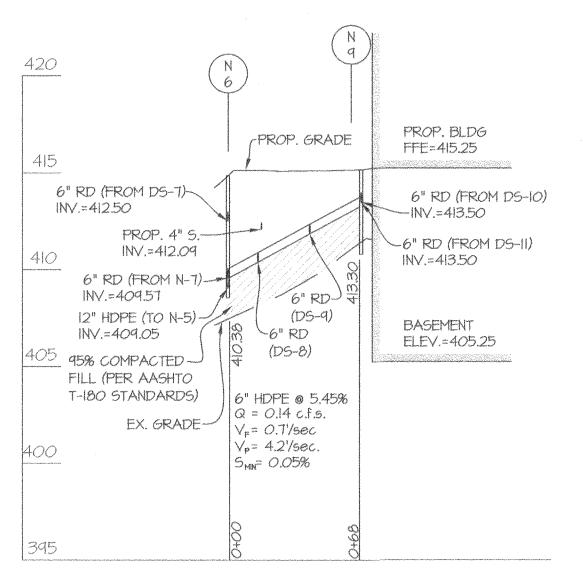




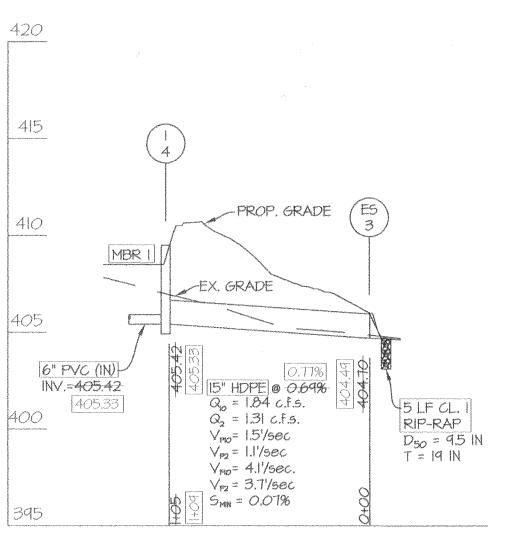




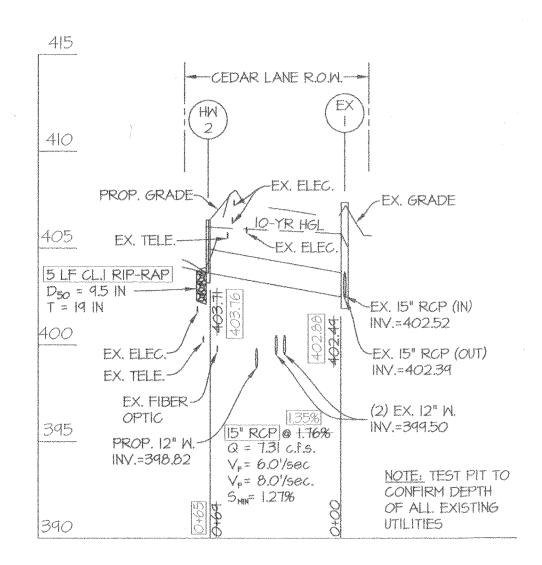
REVISION



PRIVATE ROOF DRAIN PROFILES SCALE: |"=50' (HORIZ.) |"-5' (VERT.)



PRIVATE STORM DRAIN PROFILE SCALE: I"=50' (HORIZ.) 1"-5' (VERT.)



PUBLIC STORM DRAIN PROFILE SCALE: I"=50' (HORIZ.) 1"-5' (VERT.)

ASBUILT PROFESSIONAL CERTIFICATION

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. 17285, EXPIRATION DATE: MARCH 17, 2023.



	F	PIPE SCHEDULE	
SIZE	TYPE	QUANTITY (LF)	REMARKS
6"	PVC	87	SLOTTED
6"	HDPE	323	
12"	HDPE	22	
15"	HDPE	105	
[15"]	RCP	64 65	CLASS IV
and the commence of the commen	And the second s		

HDPE INDICATES HIGH DENSITY POLYETHYLENE PIPE, SUCH AS N-12 BY ADS, OR HI-Q BY HANCOR OR AN APPROVED EQUAL. ALL RCP PIPE IS TO BE CLASS IV. TRENCH BEDDING TO BE PROVIDED PER HOWARD COUNTY DETAIL G 2.11 & G 2.12 RESPECTIVELY.

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TTF-MG	ESTIMATED	ESTIMATED AS-BUILT						
HEM	QUANTITES	QUANTITIES	TYPE	MANUFACTURER/SUPPLIER				
4" SEWER PVC SDR 35	131 LF							
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		,	14.1					

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NO.	TYPE	TYPE         TOP ELEVATION         INVERT           PROPOSED         AS-BUILT         PROPOSED         AS-BUILT				BUILT	STD. DETAIL	LOCATION	REMARKS				
		(INSIDE)	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER			
[HW-2]	HEADWALL	[15"]	405.71	405.71	[405.76]	[405.76]	403.71		[403.76]	[403.76]	HO. CO. D-5.21	SEE SHEET C-202	
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[E9-5]	HDPE END SECTION	[12"]	404.50	ogia stan one.	409.40	409,40	408.50	gamin gamin gamin	[408.40]	408.40	PER MANUFACTURER	SEE SHEET 6-202	
N-6	NYLOPLAST DRAIN BASIN	18"	414.80*	Ond 16to-46to			412.50	409.05			NYLOPLAST DRAIN	SEE SHEET C-202	SOLID GRATE
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N-8	NYLOPLAST DRAIN BASIN	12"	4 4.15*	politica, troubes «Albaro»	and the second s	Market and the control of the contro	412.00	411.67			NYLOPLAST DRAIN	SEE SHEET C-202	SOLID GRATE
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\* ELEV. = GRATE ELEV.

420	P	
415	PROP. GRADE	PROP. BLDG FFE=4 5.25
410	160	-INV=4 2.67 -6" SD X-ING INV.=4 0.48
405 PROP. PUBLIC—4" SHC (CONT. 44-5036)	EX. GRADE 65.00  45 DEG. BEND  (W C.O.)  45 DEG. BEND	BASEMENT ELEV.=405.25  - 95% COMPACTED FILL (PER AASHTO T-180 STANDARDS)
EX. INV (OUT) = 400.83	(W C.O.)	
395		
390	00+0	<u></u>

PRIVATE SEWER PROFILE SCALE: |"=50' (HORIZ.) |"-5' (VERT.)

APPROVED: HOWARD COUNTY DEPARTMENT OF P	LANNING & ZONING
Valdio Win	8-2-18
Director O	Date
Kent Seelergh	8-02-18
Chief, Division of Land Development	Date
Clark Palmin	7. 24.18
Chief, Development Engineering Division	Date

	SAN TOTAL
GLWGUTSCHICK LITTLE &WEBER, P.A.	
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITEC	TS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866	
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186	; <b>.</b>
	MERCHANIST MATERIAL PROPERTY.
:\CADD\DRAWNGS\16018\PLANS BY GLW\SDP\16018-SDP-05-SD-WS.dwg   DES. EWM   DRN. EWM   CHK. "	TMR D

© GLW 2017

PREPARED FOR:
OWNER:
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
(410)-313-2040

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 17285
EXPIRATION DATE: MARCH 17, 2019

	ASBUILT SHEET 3 OF 4.			
	ASBUILT <b>UTILITY PROFILES</b>	SCALE	ZONING	G. L. W. FILE No.
	CEDAR LANE WATER PUMPING STATION	AS SHOWN	R-20	16018
A	LOT 1 BLOCK B	DATE MARGH 2021	TAX MAP — GRID	SHEET
ELECTION DISTRICT No. (	05 HOWARD COUNTY, MARYLAND	JUNE 2018	35–11	5 OF 12

### GENERAL NOTES

I. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.I.

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 DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE 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 IO% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
- CLAY CONTENT MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%. PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED

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 STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE

PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

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 A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURE TYPE TIRES, 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 ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE, SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER, ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER, PUMP ANY PONDED 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. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 124 TO 184, 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.

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

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". SHREDDED 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. SHREDDED 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 I/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 LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS 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 DEFEATS, OR AT A MINIMUM, IMPEDES 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

- UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA: PIPE- SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28,
- OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OR
- 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 A 1/4" (NO. 4 OR 4X4)
- GRAVEL THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 34 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 1,0000 SQUARE FEET) TO
- PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER. A 44 LAYER OF PEA GRAVEL (1/84 TO 3/84 STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN, THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 244

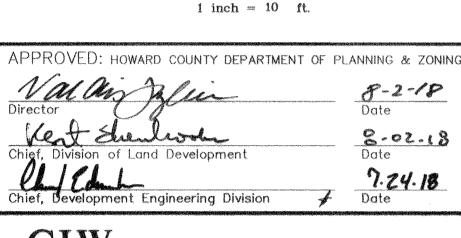
THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET

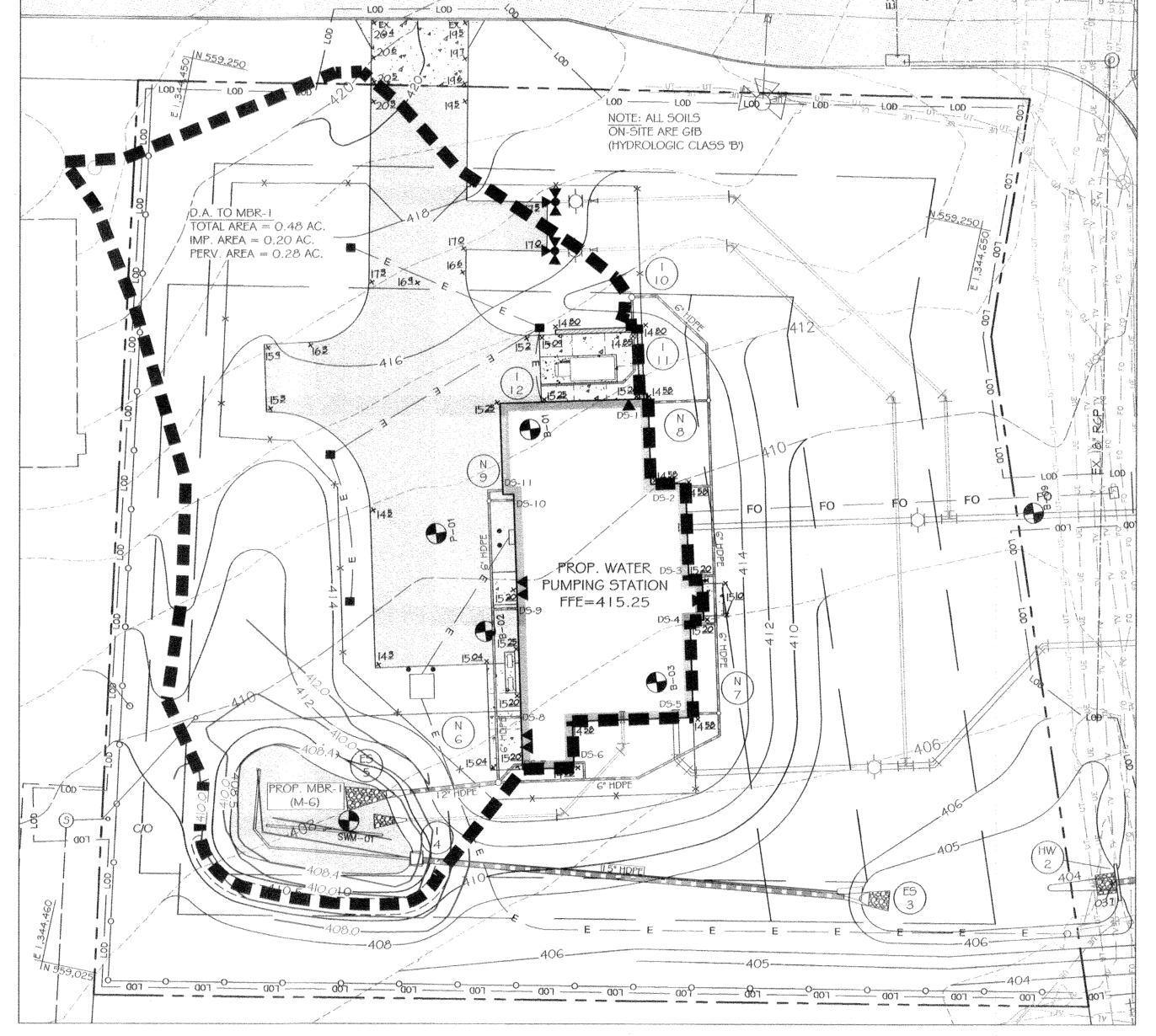
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED

# OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

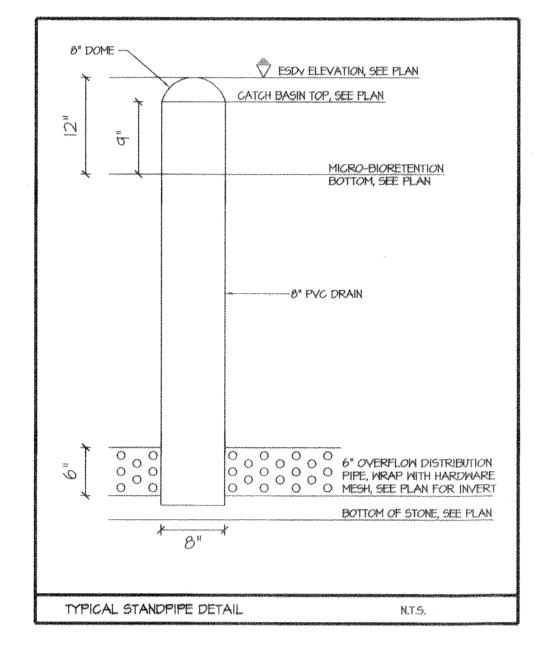
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING, PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING, ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II. TABLE A.4.I AND 2.
- THE OWNER SHALL PERFORM A PLANT INSPECTION 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
- 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.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.
- THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE UNDERDRAINS MITHIN THE BIO-RETENTION LAYERS.
- THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL STORM DRAIN PIPES AND STRUCTURES.

GRAPHIC SCALE

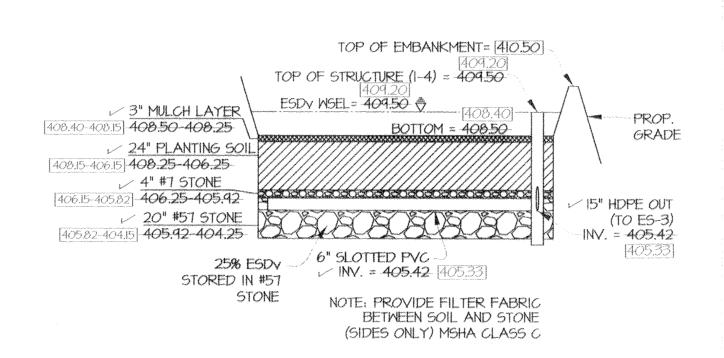




ESD DRAINAGE AREA MAP



REVISION



MICRO-BIORETENTION #1 TYPICAL SECTION SCALE: N.T.S.

ASBUILT PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME. AND THAT I AM A DULY LIGENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17285, EXPIRATION DATE: M

3.18.21

PROP. 4" SHC CLEANOUNTYP.) MBR-(M-6)6" SLOTTED PVC V TOST AND THE OVERFLOW DIST, PIPE @ -0.00% (INV. = 405.42) SYPVC (SEE WS CONTR.#44-5063). 52 LF 58 LF 6' SLOTTED PVC @ 0.00% (TYP.)

> MICRO-BIORETENTION #1 DETAIL SCALE: I" = 10'

		STOR	MMATER MANAGEMENT S	JMMARY TABLE		
FACILITY NO.	DRAINAGE AREA (S.F.)	MIN. ESD <sub>V</sub> (C.F.)	MAX. ESD <sub>V</sub> (C.F.)	ESD <sub>V</sub> PROVIDED (C.F.)	Rev PROVIDED (C.F.)	P <sub>E</sub> PROVIDED (IN.)
[MBR-I]	20802	752	1,956	<del>1,181</del> [ <u>1,41</u> 9]	<b>-245</b> - [355]	+ <b>58</b> - [[89]
वर्षेत्र व्याप्त करियाम् । स्वरं करियाम् वर्षेत्र निवासीय विद्यालयाः स्वरं विद्यालयाः स्वरं वर्षेत्र वर्षेत्र व	entifecting and photographic first than the construction of the construction of the state of the construction and the construction of the state of the state of the construction of the state of the sta		TOTAL ESDV	REQ'D. = 1,167		
				PROV. = 1,181 [1,419]		
				REQ'D. = 253		
			TOTAL Rev	<b>PROV. = 295</b> [355]		

NOTE: SEE SHEET 7 \$ 8 FOR

LANDSCAPING DETAILS

# GLWGUTSCHICK LITTLE & WEBER, P.A.

3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS \CADD\DRAMNGS\16018\PLANS BY GLW\SDP\16018-SDP-06-SWM.dwg | DES. EWM | DRN. EWM | CHK. TMR

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 (410) - 313 - 2040

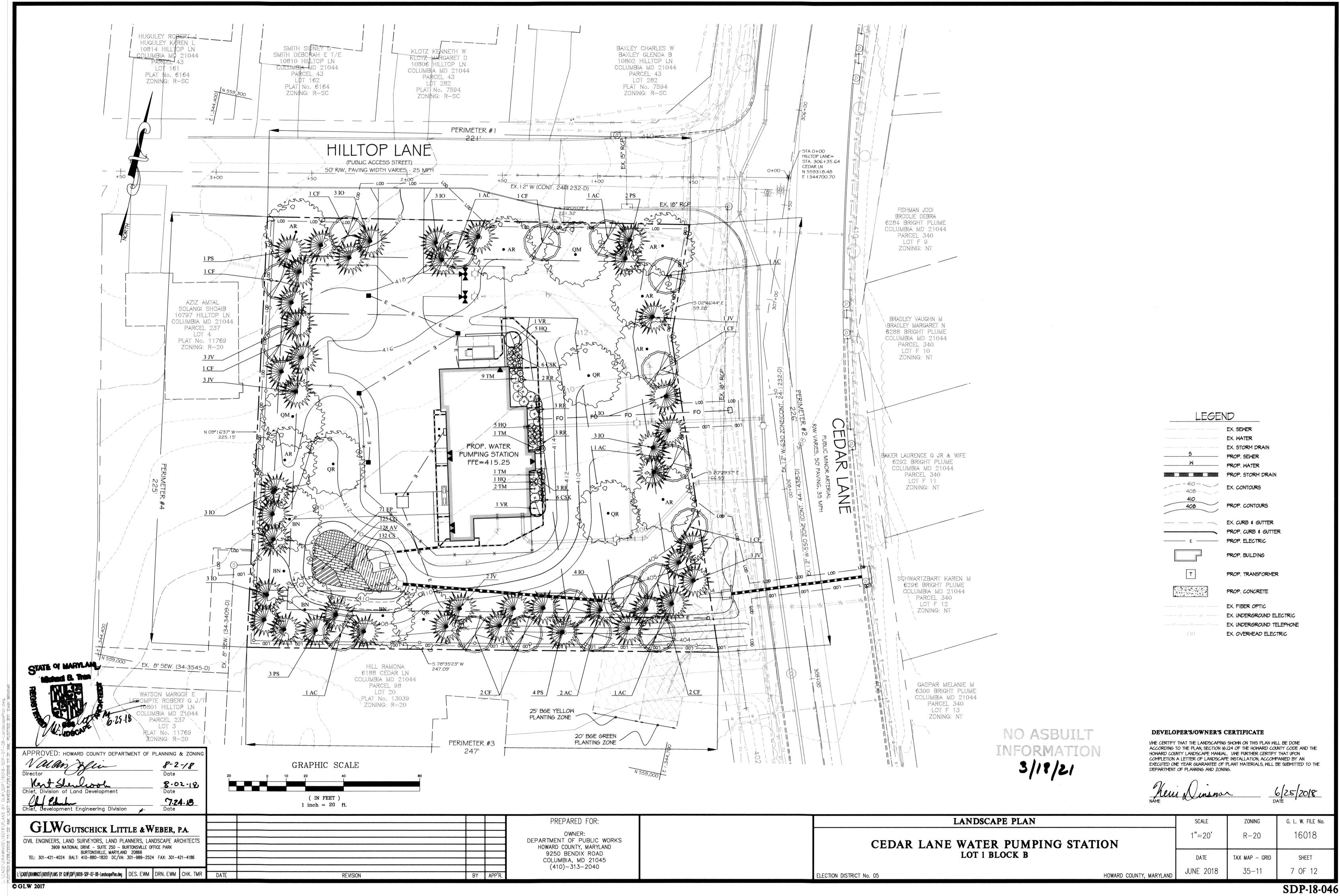
PREPARED FOR:

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THATE AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 17285 EXPIRATION DATE: MARCH 17, 2019

LECTION DISTRICT No. 05

ASBUILT STORMWATER MANAGEMENT PLAN CEDAR LANE WATER PUMPING STATION LOT I BLOCK B

ASBUILT SHEET 4 OF 4 G. L. W. FILE No. 16018 AS SHOWN TAX MAP - GRID SHEET MARCH 2021 JUNE 2018 35-11 6 OF 12 HOWARD COUNTY, MARYLAND



## LANDSCAPE NOTES

SET ROOT BALL AT OR SLIGHTLY ABOVE

REMOVED PRIOR TO PLANTING. SCARIFY

FINISH GRADE, CONTAINERS TO BE

3" MULCH - AS SPECIFIED -

PLANTING BACKFILL MIXTURE

POT-BOUND ROOTS. AFTER PLANTING, THE ENTIRE GROUND

COVER BED SHALL BE THOROUGHLY WATERED.

3 EXISTING SOIL

1/3 ORGANIC AMENDMENTS

GROUNDCOVER PLANTING DETAIL

MOUNDED EARTH

ISOLATED PLANTING

SAUCER (FOR

SITUATION)

ROOT EDGES TO STIMULATE GROWTH.

SHRUB PLANTING DETAIL

ON CENTER-VARIES SEE PLANT LIST

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE & THE HOWARD COUNTY LANDSCAPE MANUAL.
- CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST (5) FIVE DAYS BEFORE STARTING WORK. ALL GENERAL NOTES, ESPECIALLY THOSE REGARDING UTILITIES, ON SHEET No.1 SHALL APPLY.
- FIELD VERIFY UNDERGROUND UTILITY LOCATIONS AND EXISTING CONDITIONS BEFORE STARTING PLANTING WORK. CONTACT CONSTRUCTION MANAGER OR OWNER IF ANY RELOCATIONS ARE REQUIRED.
- PLANT QUANTITIES SHOWN ON THE PLANT LIST ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON THE PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN SHALL TAKE PRECEDENCE.
- ALL PLANT MATERIAL SHALL BE FULL, HEAVY, WELL FORMED, SYMMETRICAL, AND CONFORM TO THE A.A.N. SPECIFICATIONS.
- NO SUBSTITUTION SHALL BE MADE WITHOUT PRIOR APPROVAL FROM HOWARD COUNTY DPZ AND THE OWNER OR HIS REPRESENTATIVE.
- ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES BUT NOT OTHERWISE PLANTED, PAVED, OR MULCHED SHALL BE SODDED OR SEEDED IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATION. A MINIMUM OF 4" OF TOPSOIL SHALL BE PROVIDED TO ALL PLANTING AREAS.
- THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING IF HE/SHE ENCOUNTERS SOIL DRAINAGE CONDITIONS THAT MAY BE DETRIMENTAL TO THE GROWTH OF THE PLANTS.
- ALL EXPOSED EARTH WITHIN THE LIMITS OF PLANTING BEDS SHALL BE MULCHED WITH SHREDDED HARDWOOD MULCH PER THE PLANTING DETAILS.

### SPECIFICATIONS: PLANT MATERIALS AND PLANTING METHODS

- A. PLANT MATERIALS THE LANDSCAPE CONTRACTOR SHALL FURNISH AND INSTALL AND/OR DIG, BALL, BURLAP AND TRANSPLANT ALL OF THE PLANT MATERIALS CALLED FOR ON DRAWINGS AND/OR LISTED IN THE PLANT SCHEDULE.
- <u>PLANT NAMES</u>: PLANT NAMES USED IN THE PLANT SCHEDULE SHALL CONFORM WITH "AAN" STANDARDS.
- 2. <u>PLANT STANDARDS</u>:
  ALL PLANT MATERIAL SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK" LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (HERE-AFTER REFERRED TO AS AAN STANDARDS). ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL-BRANCHED AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS AND
- ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATE CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEELED-IN PLANTS NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.
- 3. PLANT MEASUREMENTS:
  ALL PLANTS SHALL CONFORM TO THE MEASUREMENTS SPECIFIED IN THE PLANT SCHEDULE.
  - A. CALIPER MEASUREMENTS SHALL BE TAKEN SIX INCHES (6") ABOVE GRADE FOR TREES UP TO FOUR-INCH (4")
  - CALIPER AND TWELVE (12") ABOVE GRADE FOR TREES GREATER THAN FOUR INCHES (4") IN CALIPER. B. MINIMUM BRANCHING HEIGHT FOR ALL SHADE TREES SHALL BE SIX FEET (6'), MAXIMUM EIGHT FEET (8').
  - C. CALIPER, HEIGHT, SPREAD AND SIZE OF BALL SHALL BE GENERALLY AS FOLLOWS: CALIPER HEIGHT SPREAD SIZE OF BALL
  - 2" 2.5" 12'-14' 5'-6' 28" DIAMETER 14'-16' 6'-8' 32" DIAMETER 14'-16' 8'-10' 36" DIAMETER 35"- 4" 16'-18' 8'-10' 40" DIAMETER 16'-17' 10'-12' 44" DIAMETER 16'-20' 10'-12' 48" DIAMETER 5" - 5.5" 18'-20' 12'-14' 52" DIAMETER

5.5"- 6"

2"X2"X8" MIN.

HARDWOOD STAKES-

ROOT COLLAR) -

FINISH GRADE -

Existing soil

I' MIN. INTO

2"x2"x8" MIN. HARDWOOD

3" APPROVED HARDWOOD

MULCH (NO MULCH AROUND ROOT COLLAR) -

CREATE 3-4" DEPTH -CONTINUOUS COMPACTED

SAUCER RIM WITH TOP

EXISTING SOIL

UNDISTURBED SOIL

FINISH GRADE -

TOPSOIL-

8.2-18

UNDISTURBED SOIL

CREATE 3-4" DEPTH .

3" APPROVED HARDWOOD

MULCH (NO MULCH AROUND

CONTINUOUS COMPACTED '

SAUCER RIM WITH TOP SOIL

- ALL PLANT MATERIAL SHALL GENERALLY AVERAGE THE MEDIAN FOR THE SIZE RANGES INDICATED ABOVE AS
- 4. PLANT IDENTIFICATION:

  LEGIBLE LABELS SHALL BE ATTACHED TO ALL SHADE TREES, MINOR TREES, SPECIMEN SHRUBS AND BUNDLES OR BOXES OF OTHER PLANT MATERIAL GIVING THE BOTANICAL AND COMMON NAMES, SIZE AND QUANTITY OF EACH. EACH SHIPMENT OF PLANTS SHALL BEAR CERTIFICATES OF INSPECTION AS REQUIRED BY FEDERAL, STATE AND
- 5. PLANT INSPECTION:
  THE OWNER MAY REQUEST, AT LEAST TEN (IO) DAYS PRIOR TO THE INSTALLATION OF ANY PROPOSED PLANT MATERIAL, TO INSPECT ALL PROPOSED PLANT MATERIAL AT THE SOURCE OF ORIGIN

DO NOT CUT CENTRAL LEADER,

BRANCHES BY APPROPRIATE

PRUNING METHODS.

REMOVE ANY DEAD OR DAMAGED

3/8" DIA. REINFORCED BLACK RUBBER

HOSE, INTERLOCKED, POSITION ABOVE FIRST SET OF BRANCHES TO SECURE

2 STRANDS 14-GA GALV. WIRE TWISTED

(PLASTIC TIES MAY BE USED INSTEAD

SLIGHTLY ABOVE FINISH GRADE (NO

CUT BURLAP & WIRE BASKETS FROM

TOP 1/3 OF ROOT BALL REMOVE ALL SYNTHETIC WRAPS & TWINES ENTIRELY

OF WIRE & RUBBER HOSE)

PLANTING BACKFILL MIXTURE

UNDISTURBED SOIL BELOW BALL

PITCH AWAY FROM BALL TO

PERIMETER OF PLANTING PIT.

REMOVE ONLY DEAD BRANCHES DAMAGED BRANCHES MAY BE TRIMMED USING APPROPRIATE PRUNING METHODS.

2 INTERLOCKING PLASTIC TIES TO SECURE THE TREE SO THAT IT IS

- SET TOP OF ROOT BALL AT OR

COLLAR MUST BE EXPOSED)

-PLANTING BACKFILL MIXTURE

SLIGHTLY ABOVE FINISH GRADE (ROOT

CUT BURLAP & WIRE BASKETS FROM

TOP 1/3 OF ROOT BALL REMOVE ALL

UNDISTURBED SOIL BELOW BALL

PITCH AWAY FROM BALL TO

PERIMETER OF PLANTING PIT.

SYNTHETIC WRAPS & TWINES ENTIRELY

DO NOT CUT THE LEADER.

MORE THAN 3").

SET TOP OF ROOT BALL AT OR

THE TREE SO THAT IT IS PLUMBED.

- B. <u>PLANTING METHODS:</u>
  ALL PROPOSED PLANT MATERIALS THAT MEET THE SPECIFICATIONS IN SECTION A ARE TO BE PLANTED IN ACCORDANCE WITH THE FOLLOWING METHODS DURING THE PROPER PLANTING SEASONS AS DESCRIBED IN
- PLANTING SEASONS:
  THE PLANTING OF DECIDUOUS TREES, SHRUBS AND VINES SHALL BE FROM MARCH IST TO JUNE 15TH AND FROM SEPTEMBER 15TH TO DECEMBER 15TH. PLANTING OF DECIDUOUS MATERIAL MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDING THERE IS NO FROST IN THE GROUND AND FROST-FREE TOPSOIL
- THE PLANTING OF EVERGREEN MATERIAL SHALL BE FROM MARCH 15TH TO JUNE 15TH AND FROM AUGUST 15TH TO DECEMBER 1ST. NO PLANTING SHALL BE DONE WHEN THE GROUND IS FROZEN OR EXCESSIVELY MOIST. NO FROZEN OR WET TOPSOIL SHALL BE USED AT ANY TIME.
- 2. <u>DIGGING:</u>
  ALL PLANT MATERIAL SHALL BE DUG, BALLED AND BURLAPPED (B&B) IN ACCORDANCE WITH THE "AAN STANDARDS".
- EXCAVATION OF PLANT PITS:
  THE LANDSCAPING CONTRACTOR SHALL EXCAVATE ALL PLANT PITS, VINE PITS, HEDGE TRENCHES AND SHRUB BEDS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
- A. LOCATIONS OF ALL PROPOSED PLANT MATERIAL SHALL BE STAKED AND APPROVED IN THE FIELD BY THE LANDSCAPE ARCHITECT BEFORE ANY OF THE PROPOSED PLANT MATERIAL IS INSTALLED BY THE LANDSCAPE CONTRACTOR.
- B. ALL PITS SHALL BE GENERALLY CIRCULAR IN OUTLINE, VERTICAL SIDES; DEPTH SHALL NOT BE LESS THAN 6" DEEPER THAN THE ROOT BALL, DIAMETER SHALL NOT BE LESS THAN TWO TIMES THE DIAMETER OF THE ROOT BALL AS SET FORTH IN THE FOLLOWING SCHEDULE.
- C. IF AREAS ARE DESIGNATED AS SHRUB BEDS OR HEDGE TRENCHES, THEY SHALL BE EXCAVATED TO AT LEAST 18" DEPTH MINIMUM. AREAS DESIGNATED FOR GROUND COVERS AND VINES SHALL BE
- EXCAVATED TO AT LEAST 12" IN DEPTH MINIMUM.
- D. DIAMETER AND DEPTH OF TREE PITS SHALL GENERALLY BE AS FOLLOWS: PLANT SIZE ROOT BALL PIT DIA. PIT DEPTH 2" - 25"CAL. 28" 3" - 3.5"CAL. 3.5"- 4" CAL. 72" 32" 4" - 4.5"CAL. 80" 40" 4.5"- 5" CAL. 88" 40" 5" - 5.5"CAL. 48" 96" 5.5"- 6" CAL. 52" 104"
- A 20 % COMPACTION FIGURE OF THESOIL TO BE REMOVED IS ASSUMED AND WILL BE ALLOWED IN CALCULATION OF EXTRA TOPSOIL. THE TABULATED PIT SIZES ARE FOR PURPOSES OF UNIFORM CALCULATION AND SHALL NOT OVERRIDE THE SPECIFIED DEPTHS BELOW THE BOTTOMS OF THE ROOT

- 4. <u>STAKING, GUYING AND WRAPPING:</u>
  ALL PLANT MATERIAL SHALL BE STAKED OR GUYED, AND WRAPPED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS A. STAKES, SHALL BE SOUND WOOD 2" X 2" ROUGH SAWN OAK OR SIMILAR DURABLE WOODS, OR LENGTHS, MINIMUM 7'-O" FOR MAJOR TREES AND 5'-O" MINIMUM FOR MINOR TREES.
- B. WIRE AND CABLE: WIRE SHALL BE #10 GA. GALVANIZED OR BETHANIZED ANNEALED STEEL WIRE. FOR TREES OVER 3" CALIPER, PROVIDE 5/16" TURN BUCKLES, EYE AND EYE WITH 4" TAKE-UP. FOR TREES OVER 5" CALIPER, PROVIDE 3/16", 7 STRAND CABLE CADMIUM PLATED STEEL, WITH GALVANIZED "EYE" THIMBLES OF WIRE. AND HOSE ON TREES UP TO 3" IN CALIPER.
- C. HOSE: SHALL BE NEW, 2 PLY REINFORCED RUBBER HOSE, MINIMUM I/2" I.D. "PLASTIC LOCK TIES" OR "PAUL'S TREES BRACES" MAY
- D. ALL TREES UNDER 3" IN CALIPER ARE TO BE PLANTED AND STAKED IN ACCORDANCE WITH THE ATTACHED PLANTING DETAILS.

BE USED IN PLACE OF WIRE AND HOSE ON TREES UP TO 3" IN CALIPER.

THROUGH THE END OF THE NEXT FOLLOWING "SPRING" PLANTING SEASON.

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS.

- 5. PLANT PRUNING, EDGING AND MULCHING:
  A. EACH TREE, SHRUB OR VINE SHALL BE PRUNED IN AN APPROPRIATE MANNER TO ITS PARTICULAR REQUIREMENTS, IN ACCORDANCE WITH ACCEPTED STANDARD PRACTICE. BROKEN OR BRUISED BRANCHES SHALL BE REMOVED WITH CLEAN CUTS FLUSH WITH THE ADJACENT TRUNK OR BRANCHES. ALL CUTS OVER I" IN DIAMETER SHALL BE PAINTED WITH AN APPROVED ANTISEPTIC TREE WOUND
- B. ALL TRENCHES AND SHRUB BEDS SHALL BE EDGED AND CULTIVATED TO THE LINES SHOWN ON THE DRAWING. THE AREAS AROUND ISOLATED PLANTS SHALL BE EDGED AND CULTIVATED TO THE FULL DIAMETER OF THE PIT. SOD WHICH HAS BEEN REMOVED AND STACKED SHALL BE USED TO TRIM THE EDGES OF ALL EXCAVATED AREAS TO THE NEAT LINES OF THE PLANT PIT SAUCERS, THE EDGES OF SHRUB AREAS, HEDGE TRENCHES AND VINE POCKETS.
- C. AFTER CULTIVATION, ALL PLANT MATERIALS SHALL BE MULCHED WITH A 3" LAYER OF FINE, SHREDDED PINE BARK, PEAT MOSS, OR ANOTHER APPROVED MATERIAL OVER THE ENTIRE AREA OF THE BED OR SAUCER.
- 6. <u>PLANT INSPECTION AND ACCEPTANCE</u>:
  THE DESIGN REVIEW COMMITTEE SHALL BE RESPONSIBLE FOR INSPECTING ALL PLANTING PROJECTS ON A PERIODIC BASIS TO ASSURE
- THAT ALL WORK IS PROCEEDING IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. PLANT GUARANTEE:
  ALL PLANT MATERIAL SHALL BE GUARANTEED FOR THE DURATION OF ONE FULL GROWING SEASON, AFTER FINAL INSPECTION AND
  ACCEPTANCE OF THE WORK IN THE PLANTING PROJECT. PLANTS SHALL BE ALIVE AND IN SATISFACTORY GROWING CONDITION AT THE
  END OF THE GUARANTEE PERIOD.
  - A. FOR THIS PURPOSE, THE "GROWING SEASON" SHALL BE THAT PERIOD BETWEEN THE END OF THE "SPRING" PLANTING SEASON, AND THE COMMENCEMENT OF THE "FALL" PLANTING SEASON.
  - B. GUARANTEE FOR PLANTING PERFORMED AFTER THE SPECIFIED END OF THE "SPRING" PLANTING SEASON, SHALL BE EXTENDED

ALL SODDING SHALL BE IN ACCORDANCE TO THE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" LATEST EDITION, APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE

ALL SOD SHALL BE STRONGLY ROOTED SOD, NOT LESS THAN TWO YEARS OLD AND FREE OF WEEDS AND UNDESIRABLE NATIVE GRASSES. PROVIDE ONLY SOD CAPABLE OF GROWTH DEVELOPMENT WHEN PLANTED AND IN STRIPS NOT MORE THAN 18" WIDE X 4" LONG. PROVIDE SOD COMPOSED PRINCIPALLY OF IMPROVED STRAIN KENTUCKY BLUEGRASS, SUCH AS, COLUMBIA, VICTA, OR ESCORT.

# FOREST CONSERVATION WORKSHEET

Project Name:		Cedar Lane Water Pumping Station DPZ File No.:	SDP-18-046		
1	Site	Data	Acreage		
School and Assistant Assistant	A.	Gross Site Area	1.1700		
	B.	Area within 100-yr floodplain, if any	0.0000		
	C.	Area of existing easement for major utility transmission lines, if any	0.0000		
	D.	Area of external public road (frontage) dedication, if any	0.0000		
	E.	Net Tract Area	1.1700		
	F.	Land Use Category (for R-20 zone)	Residential- Suburban		
2	Inp	ut Data	ad maken kembaga kepinan dipunan dari dan pilan upu kemin dariah ini mulaan pata za sahidan pelabayan Kalin jungkan Baran kemban pata menanan kepinan dari napaban kemin dari kumat zaman pangan dari kemin dari menanan sahida sa		
	A.	Net Tract Area	1.1700		
	B.	Reforestation Threshold (percent of net tract = 20 %)	0.2340		
	C.	Afforestation Threshold (percent of net tract = 15 %)	0.1755		
	D	Existing Forest on Net Tract Area	0.0000		
	Enter .	Forest Clearing on Net Tract Area	0.0000		
	F.	Forest Retention on Net Tract Area	0.0000		
3	Ref	orestation Calculations			
antinamentin	A.	Net tract forest clearing <b>above</b> reforestation threshold	0.0000		
	B.	Net tract forest clearing <b>below</b> reforestation threshold	0.0000		
	C.	Planting up to afforestation threshold	0.1755		
	D.	Reforestation planting required for clearing above threshold	0.0000		
	E,	Reforestation planting required for clearing <b>below</b> threshold	0.0000		
	F.	Total reforestation planting required (3C+3D+3E)	0.1755		
4	For	est Conservation Required			
	A.	Forest Retention Area (2F)	0.0000		
	B.	Forest Planting Area (3F)	0.1755		
	C.	Total minimum FCE required for retention and reforestation	0.1755		

\* FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT SHALL BE FULFILLED IN ACCORDANCE WITH SECTION 16.1200 OF THE FOREST CONSERVATION MANUAL UNDER SDP-18-046 BY THE PAYMENT OF A FEE IN LIEU @ \$0.75/SQ. FT. IN THE AMOUNT OF \$5,733.75 FOR THE 7,645 SQ. FT. OF FOREST CONSERVATION OBLIGATION.

## PLANT SCHEDULE

KEY	aty.	BOTANICAL NAME		COMMON NAME	SIZE	CONTAINER	COMMENTS
174-1	1011.	Experience of the second of th		001110111111111		TOOTTY THE T	
SHADE	TREES	6 (17)					and makes the state of the stat
AR	7	Acer rubrum	NATIVE	Red maple	2-1/2"-3" cal., 12-14' height	B≰B	Min. Branch Height 6'
BN	4	Betula nigra	NATIVE	Clump Birch	2-1/2"-3" cal., 12-14' height	B¢B	Multistem, 3 stem min., match
QM	2	Quercus montana (Quercus prinus)	NATIVE	Chestnut Oak	2-1/2"-3" cal., 12-14' height	B¢B	Min. Branch Height 6'
QR	4	Quercus rubra	NATIVE	Northern Red Oak	2-1/2"-3" cal., 12-14' height	B <b>4</b> B	Min. Branch Height 6'
Serve system (market market)			Appropriate and the control of the c				
ORNA	MENTAL	TREES (18)	e describe entre habitat nationale entre				
AC	8	Amelanchier canadensis	NATIVE	Serviceberry	2-1/2"-3" cal., 8-10' height	B <b>4</b> B	Multistem, 3 stem min., match
CF	10	Cornus florida	NATIVE	Flowering Dogwood	2-1/2"-3" cal., 8-10' height	B4B	
EVER	FREEN T	REES (42)					
10	20	llex opaca	NATIVE	American Holly	6-8' ht.	B#B	
Ŋ	12	Juniperus virginiana	NATIVE	Eastern Red Cedar	6-8' ht.	B <b>¢</b> B	
P5	10	Pinus strobus	NATIVE	Eastern White Pine	6-8' ht.	B≰B	
SHRUB	6 (47)						
CSK	12	Cornus sericea 'Kelseyi'	NATIVE	Kelsey's Dwarf Red-Osier Dogwood	18-24"	Container	
HQ	11	Hydrangea quercifolia	NATIVE	Oakleaf Hydrangea	18-24"	Container	
RR	11	Rosa 'Radsunny'		Knock Out Rose	18-24"	Container	
TM	13	Taxus x media 'Everlow'		Everion Yen	18-24"	Container	Alternate: Densiformis Yew
VR	2	Viburnum rhytidophyllum 'Allegheny'		Leatherleaf Viburnum	4-5'	Container	
MICRO	-BIORE	TENTION (456)					
ΑV	128	Andropogon virginicus	NATIVE	Broom Sedge		l Gal.	18" on center
CS	132	Carex stricta	NATIVE	Tussock Sedge		l Gal.	18" on center
CG	125	Chelone glabra	NATIVE	White Turtlehead		l Gal.	18" on center
EP	71	Eutrochium purpureum	NATIVE	Joe Pye Weed		I Gal.	18" on center

PERIMETER LANDSCAPE EDGE PLANTING									
CATEGORY	#I - NORTH ADJACENT TO	#2 - ADJACENT TO	#3 - ADJACENT TO	#4 - ADJACENT					
	HILLTOP LANE (NORTH)	CEDAR LANE (EAST)	LOT 20 (SOUTH)	TO LOT 4 (WEST)					
LANDSCAPE EDGE TYPE	В	В	C	O					
LINEAR FEET (L.F.) OF ROADWAY FRONTAGE/PERIMETER	222 L.F.	226 L.F.	247 L.F.	226 L.F.					
NUMBER OF PLANTS REQUIRED PER LANDSCAPE EDGE TYPE:  SHADE TREES (B = 1/50 L.F.; C = 1/40 L.F.)  EVERGREEN TREES (B = 1/40 L.F.; C = 1/20 L.F.)  SHRUBS (B & C = 0 PER L.F.)	5	5	7	6					
	6	6	13	12					
	0	0	0	0					
NUMBER OF PLANTS PROVIDED: SHADE TREES EVERGREEN TREES SUBSTITUTION TREES (2 SM DECID. TREES FOR I SHADE TREE) SHRUBS (10:1 SUBSTITUTION)	3	3	3	5					
	8	8	4	12					
	4	4	8	2					
	0	0	0	<i>0</i>					

ELECTION DISTRICT No. 05

NO ASBUILT

# DEVELOPER'S/OWNER'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 LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

# GLWGUTSCHICK LITTLE & WEBER, P.A.

Chief, Development Engineering Division 🎾

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866 PLWE 2017-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

CADD/DRAWNGS/16018/PLANS BY GLW/SDP/16018-SDP-07-08-LandscapePlan.dwg | DES. EWM | DRN. EWM | CHK. TMR REVISION

NOTE: ALL SUPPORTING DEVICES (STAKES, TIES, ETC.) SHALL BE REMOVED AFTER A GROWING SEASONS.

NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER I GROWING SEASONS.

DECIDUOUS TREE PLANTING DETAIL

EVERGREEN TREE PLANTING DETAIL

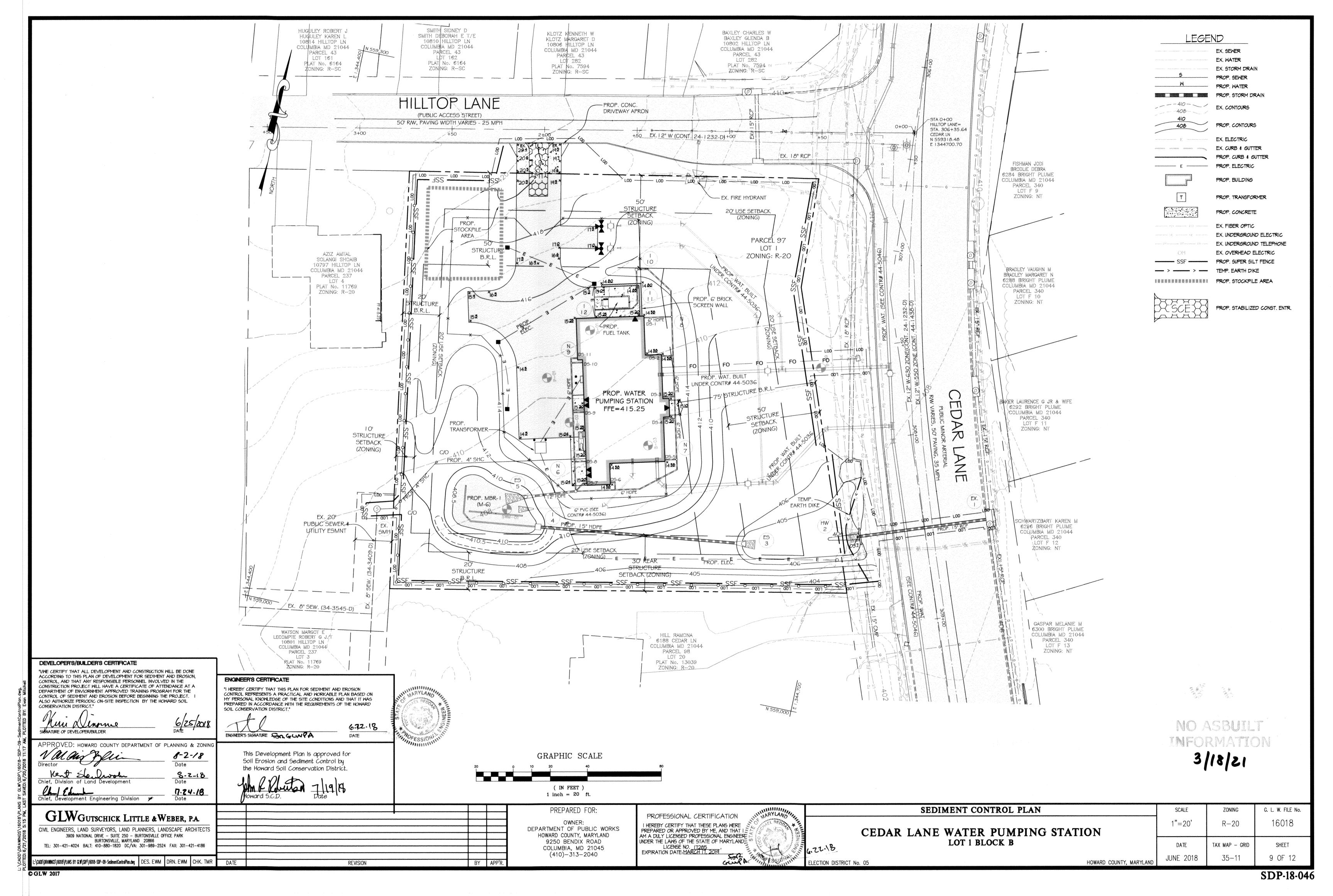
FOR PLANTING MATERIAL UP TO 3 1/2" CALIPER

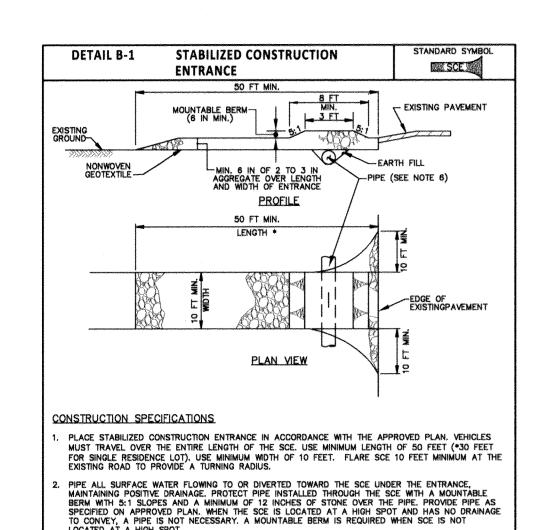
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 (410) - 313 - 2040

PREPARED FOR:

LANDSCAPE DETAILS CEDAR LANE WATER PUMPING STATION LOT 1 BLOCK B

G. L. W. FILE No. 1"=20' R - 20TAX MAP - GRID SHEET JUNE 2018 35-11 HOWARD COUNTY, MARYLAND





PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.

REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.

DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

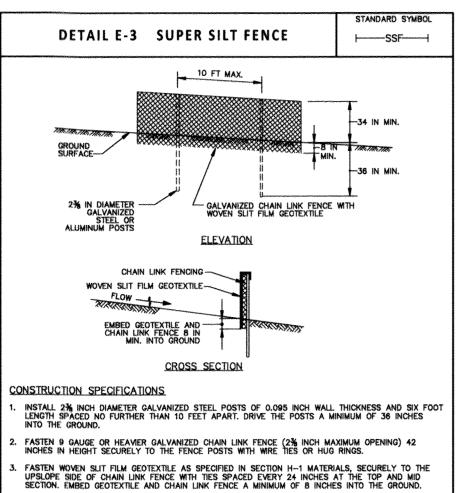
PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT

MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR

TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

2011



. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.

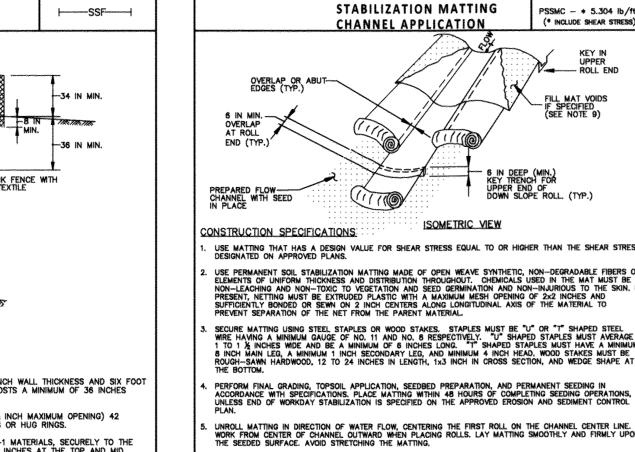
EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

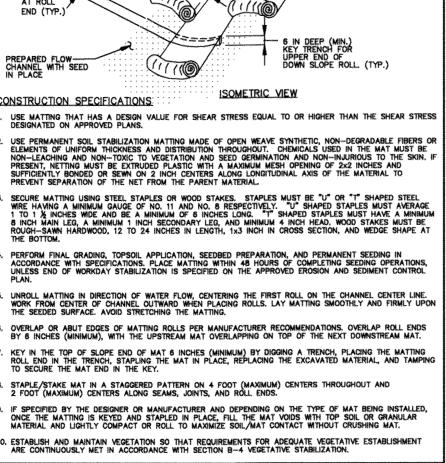
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE

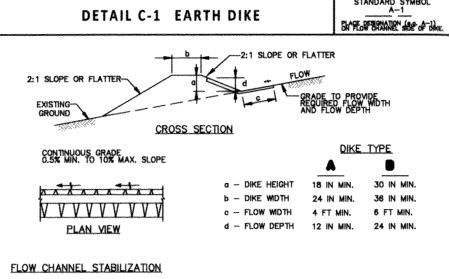


DETAIL B-4-6-C PERMANENT SOIL



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

2011



STANDARD SYMBOL

SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.) A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD. A-3/8-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.

CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.

STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.

MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011

### SEQUENCE OF CONSTRUCTION (ALL TIME FRAMES ARE APPROXIMATE)

I. OBTAIN GRADING PERMIT. (I DAY)

2. ARRANGE FOR AN ON-SITE PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. (I DAY)

INSTALL THE STONE CONSTRUCTION ENTRANCE, TEMPORARY EARTH DIKE FOR CLEAN WATER DIVERSION ASSOCIATED WITH EXISTING STORM DRAIN OUTFALL, AND PERIMETER SEDIMENT CONTROLS, (I WEEK)

4. ONCE PERMISSION HAS BEEN OBTAINED FROM THE SEDIMENT CONTROL INSPECTOR, INSTALL STORM DRAIN STRUCTURE HIM-2 AND ASSOCIATED PIPE UNDER CEDAR LANE.

REMOVE TEMPORARY EARTH DIKE ONCE HM-2, ASSOCIATED STORM DRAIN, AND THE PERMANENT BERM ALONG THE SOUTHERN PROPERTY LINE IS COMPLETE. INSTALL SUPER-SILT FENCE AT HM-2. (I DAY)

FINISH THE STORM DRAIN INSTALLATION, CONSTRUCT THE WATER, SEVER, AND OTHER UTILITIES. ROUGH GRADE MICRO-BIORETENTION FACILITY TO ALLOW POSITIVE DRAINAGE TO 1-4. DO NOT INSTALL MICRO-BIORETENTION MEDIA, SEE ITEM 10. CONSTRUCT THE BUILDING, (6-9 MONTHS)

STABILIZE DISTURBED AREAS IN ACCORDANCE WITH TEMPORARY SEEDING

8. INSTALL BASE COURSE PAVEMENT (2 WEEKS)

INSTALL SITE LANDSCAPING AND STABILIZE LOOSE SOIL. (2 WEEKS)

10. OBTAIN APPROVAL FROM SEDIMENT CONTROL INSPECTOR AND INSTALL MICRO-BIORETENTION MEDIA ONCE ITS' CONTRIBUTING DRAINAGE AREA HAS BEEN

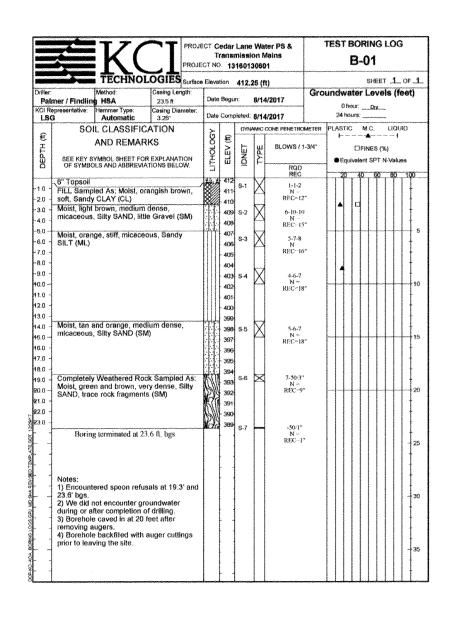
FULLY STABILIZED. (I WEEK) ONCE THE CONSTRUCTION AND STABILIZATION OF THE SITE HAS BEEN COMPLETED,

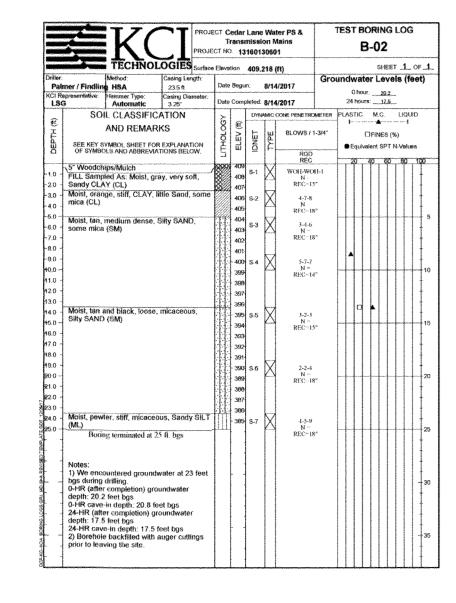
REMOVE ANY INLET PROTECTION AND FLUSH THE STORM DRAIN SYSTEM, (I WEEK) 12. AFTER OBTAINING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, AND AFTER

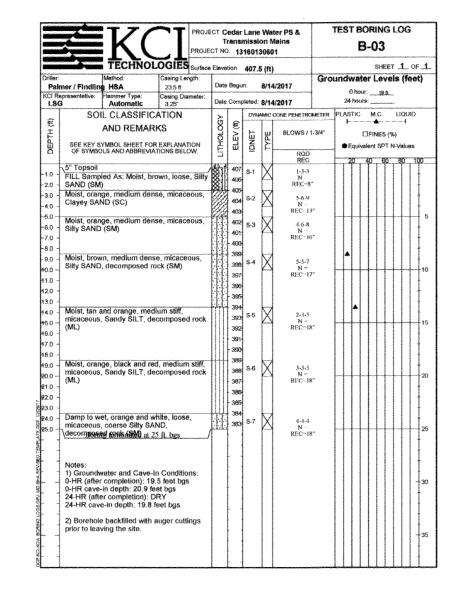
ALL CONSTRUCTION ON THE SITE HAS BEEN COMPLETED AND ALL AREAS STABILIZED, REMOVE ANY REMAINING SEDIMENT CONTROL DEVICES. (I WEEK) \*AS CONSTRUCTION IS COMPLETED AND AREAS ARE BEING STABILIZED, OBTAIN PERMISSION

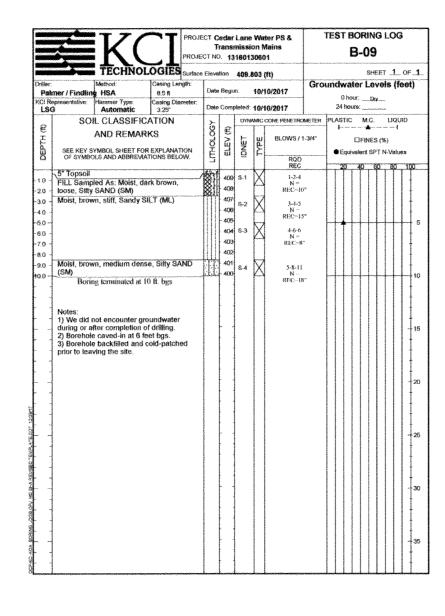
FROM THE SEDIMENT CONTROL INSPECTOR TO REMOVE SEDIMENT CONTROL DEVICES\* \*\* ITEMS 4 THROUGH II CAN BE PERFORMED CONCURRENTLY \*\*

NOTE: CONTRACTOR SHALL FULLY STABILIZE, WITHIN THE SAME WORKING DAY, ALL DISTURBED AREAS THAT DO NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE.









		TECHNO	LOGIES Surfa	Ce Fleve			~~~~	and the second second second second second		-		SH	EET	1
Orliter		Method:	Casing Length:						SHEET 1 OF Groundwater Levels (feel					
	mer / Findlin epresentative.	Hammer Type:	8 ft Casing Diameter	-	Begu			1/2017				r:p		
LS	3 Automatic 3.25			Date	Date Compl		pleted: 8/14/2014		L			6:5		
€		IL CLASSIF		5	0	CYN	T	COME PENETRO	METER	PLA		M.C.		iqui - I
		AND REMA	RKS	тногосу	8	h	ш	BLOWS /	-3/4"	***************************************	£	JFINE	\$ (%)	
DEPTH	SEE KEY SYMBOL SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS BELOW.				E	D.	ONET TYPE						PT N-V	/alue
C						490		ROD REC		-	20	40	60	30
1.0	4" Topsoil	lad Ac. Malet	brown, loose, Silt	/ <b>&amp;</b> II	413	S-1	X	1-3-2		П	П	П	П	П
-20 -	SAND, trac	e Gravel (SM)	1	′ 않:	412	}		N = REC~12						
-30 -	Moist, oran SILT (MH)	ge, very stiff, l	Sandy Elastic	Ш	410		X	6-7-10			T I		М	
40				Ш	409			N - REC=18	l <sub>ar</sub>	-				
5.0 - 5.0 -	Moist, oran	ge, medium d ited Sands (SI	ense, Silty SAND,	H	409	8-3	X	8-10-3	ı		П	П	П	П
-7.0 -	mue cemen	nea ognas joi	¥1)		407 406			N = REC=18	;~	**********	-			
-8.0					405					-				
-9.0 - 40.0 -	Some deco	emposed rock	tragements		404	S-4	X	8-11-1 N -	ı	-				
10.0 -	Borir	ng terminated a	t 10 ft. bgs		1			REC-H		П	П	П	П	П
				i						**********	-			-
										-	-			
-	Notes:										1			
	0-HR (after	completion):								***************************************				
		in depth: 6.9 f er completion)								-				
- ^		e-in depth: 6.5		To the state of th						ALC:				
-	2) Borehole	e backfilled wit	h auger cuttings	į.										
		ving the site.		en e										
				-						***************************************	OLIVE WASH		-	
-	resignage in the contract of t			***************************************	[ ]					***************************************			***************************************	
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	and the same of th			and the second						***************************************	-	Name of Street		
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	Tringeston.			eper annual property							VI-VI-VII-VII-VII-VII-VII-VII-VII-VII-V	and and		
				5	]									1 1

	E COLE			ECT Cedar Lane Water PS & Transmission Mains				SWM-01							
				ECT NO. 13160130601											
		TECHNOI	OGIES Surface	Eleva	tion	407.	80 (1	t)				8	HEET	1	OF
Driller: Method: Casing Length:			Date	Date Begun: 8/14/2017				Groundwater Levels (feet							
KCI Re	epresentative:	Hammer Type:	Casing Diameter:	Posts	Cem	-loted		1/2014		2		#:			
LSC		Automatic L CLASSIFIC	3.25°	Date	Com	·		CONE PENETRE	**ETED	-	STIC	M.(		LIQU	uD.
€		AND REMAR		8	8	Dire	T	LONG. PEIN. THE	C916-1 F-15						1167
DEPTH.				19	ELEV	CMET	TYPE	BLOWS /	-3/4"			OFIN	ES (%	)	
8		YMBOL SHEET FOR ILS AND ABBREVIA		THOLOGY	ជ	ğ	F	RQD			Equiv	alent 5	BPT N	-Valu	88
	. 7" Topsoil		gagangangang wagsanggaan kathain kathain dan bigganyda	24.2	-		+	REC		十	20	40	60	80	1
1.0 -	FILL Samp	led As: Moist, br	own, soft,		407 400	5-1	IX	I-1-2-3 N = 2		* 1	4		d	1	
3.0		n CLAY (CL) led As: Moist, lig	ht brown, loose.		405	ł	V	N = 2 REC=12 2-3-6-1			-				
40	Clayey SAI	VD, trace quartz	rock fragments		404	5 mm		N - 7 REC=1		П	1				
5.0	Moist, brow	n, medium dens	e, micaceous,		403	92	X	4-6-6-7 N = 5		+	+	+	+	+	-
6.0	Silty SAND	(SM) and light orange,	white loose to	钳	402 401		D	REC-2-		Ш	4	]		-	
7.0 - 8.0 -	medium de	nse, Sitty SAND ' - 8.0' Sandy Lo	(SM)	11	400	1 54-7		N - 6 REC=2		IT		-	-		
9.0	U.OJ : ACIGO	- o.u əanuy L0	antij		399		X	6-8-7-1 N = 6		•			televelania i		
0.0	Borin	ig terminated at 1	0 ft. bgs	EEE	398		1	REC=2:	t.	H	+	+	+	+	-
1			- AF										Total California		
					-						-	-		-	-
- 1	Notes:														
		nple collected be	tween 1-5 feet				-					***************************************	***************************************		-
1		rater and Cave-I	n Conditions:										***************************************		
. 4		completion): DF		***************************************	1		-	d execution of the second							
- 1	24-HR (after	in depth; 7,1 fee or completion): 4	feet bgs									of the second		·	-
. ]	24-HR cave	e-in depth: 7 feet	bgs			and the same	-						-		-
. 1		backfilled with	auger cuttings											-	
.	4) Infiltratio	n pipe I-1 set at	6 feet bgs in				varies and								***************************************
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DEVELOPER'S/BUILDER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION, CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIORNMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
Mari Denomoro, 6/25/2018

DATE SIGNATURE OF DEVELOPER/BUILDER APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING 8-2-18 Date 8.2-18 7.24.18 Chief, Development Engineering Division

GLWGUTSCHICK LITTLE & WEBER, P.A.

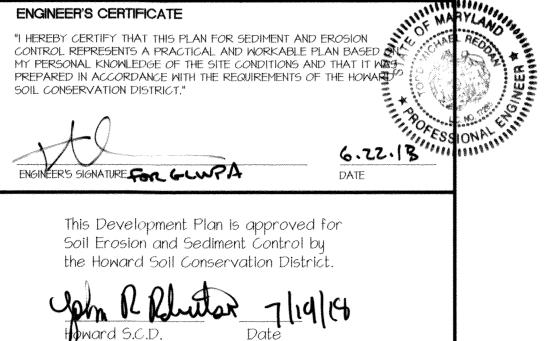
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS

3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK

BURTONSVILLE, MARYLAND 20866

TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

L:\CADD\DRANNKGS\16018\PLANS BY GLN\SDP\16018-SDP-10-SedimentControlDetails.dmg | DES. EWM | DRN. EWM | CHK. TMR |



6.22.19	3"""
DATE	
oy ct.	
*	DATE  for  py  ict.

REVISION

PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I = 0 18 V AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 17285
EXPIRATION DATE: MARCH 17, 2019

6.2.18

PREPARED FOR:

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

9250 BENDIX ROAD

COLUMBIA, MD 21045 (410) - 313 - 2040

BY APP'R.

SEDIMENT CONTROL DETAILS ·	SCALE	
CEDAR LANE WATER PUMPING STATION	NO SCALE	
LOT 1 BLOCK B	DATE	
ELECTION DISTRICT No. 05 HOWARD COUNTY, MARYLAND	JUNE 2018	

**SDP-18-046** 

G. L. W. FILE No.

16018

10 OF 12

ZONING

R - 20

TAX MAP - GRID

PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST

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) TRENCHES 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

WORKDAY, WHICHEVER IS SHORTER. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY BE ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.

DISTURBANCE SHALL NOT OCCUR OUTSIDE THE LOD. 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 HSCD, 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

TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE

ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN

STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE)

USE I AND IP MARCH I - JUNE 15 ISE III AND IIIP OCTOBER I - APRIL 30 USE IV MARCH I - MAY 31

AND AVAILABLE WHEN THE SITE IS ACTIVE.

IOTE: CONTRACTOR SHALL FULLY STABILIZE, WITHIN THE SAME WORKING DAY, ALL DISTURBED AREAS THAT DO NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE

DEVELOPER'S/BUILDER'S CERTIFICATE "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION. CONTROL. AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIORNMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL

6/25/2018 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING 8-2-12 7.24.18

STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION

TUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

o provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

CONDITIONS WHERE PRACTICE APPLIES This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth. b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish

continuing supplied of moisture and plant nutrients. c. The original soll to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the respective soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

ll. Topsoil specifications - soil to be used as topsoil must meet the following:

a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used If recommended by a agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.

b. Topsoll must be free of plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified. c. Where the subsoli is elther highly acldic or composed of eavy clays, ground limestone shall be spread at the rate if 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the

III. For sites having disturbed areas under 5 acres:

a. Place topsoll (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization -Section 1 - Vegetative Stabilization Methods and Material's

IV. For sites having disturbed areas over 5 acres

a. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soll into compliance with the following:

I. pH for topsoll shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher

2. Organic content of topsoil shall be not less than 1.5 percent by weight

3. Topsoil having soluble salt greater than 500 parts per mill shall not be used.

4. No sod or seed shall be placed on soil which has been with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of photo-toxic

Note: Topsoll substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

b. Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization -Section 1 - Vegetative Stabilization Methods and Materials.

a. When topsollling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

b. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

c. Topsoil shall be uniformly distributed in a 4'-8' layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that soliding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoilling or other operations shall be corrected in order to prevent the formation of depressions

d. Topsoil shall not be placed while the topsoil or subsoil is frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

a. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acrès shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

l. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

2. Composted sludge shall contain at least I percent nitrogen, i.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate prior to use.

3. Composted sludge shall be applied at a rate of I ton/I,000 square feet, b. Composted sludge shall be amended with a potassium fertilizer applied at a rate of 41b/1,000 square feet, and 1/3 the normal lime application rate.

A COPY OF THIS PLAN, THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL," AND ASSOCIATED PERMITS SHALL BE ON-SITE References: Guideline Specifications, Soil Preparation and Sodding. MD-VA Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

DUST CONTROL

Controlling dust blowing and movement on construction sites and roads

Purpose
To prevent blowing and movement of dust from exposes soil surfaces, reduce on and off-site damage health hazards, and improve traffic safety.

Conditions Where Practice Applies This practice is applicable to areas subject to dust blowing and movements where on and off-site damage is likely without treatment.

Specifications

Temporary Methods

l. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or tacked to prevent blowing.

2. Vegetative Cover - See standards for temporary vegetative cover.

3. Tillage - To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaces about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce

4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff

5. Barriers - Solid board fences, silt fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.

6. Calcium Chloride - Apply at rates that will keep surface moist. May need retreatment.

Permanent Methods

I. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.

2. Topsoiling - Covering with less erosive soil materials. See standards for topsoiling

3. Stone - Cover surface with crushed stone or coarse gravel.

REVISION

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

The process of preparing the soils to sustain adequate vegetative stabilization.

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies Where vegetative stabilization is to be established.

A. Soil Preparation 1. Temporary Stabilization

> a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches bu means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on 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 sultable means. 2. Permanent Stabilization

> a. 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. Soluble salts less than 500 parts per million (ppm).

III. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clau) to provide the capacity to hold a moderate amount of moisture. An exception: If lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

iv. Soil contains 1.5 percent minimum organic matter by weight.

v. Soil contains sufficient pore space to permit adequate root penetration. b. Application of amendments or topsoil is required if on-site soils do not meet the

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

e. 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 large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site onditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter: with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top I to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as se't forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the représentative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoll/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth. d. The soil is so acidic that treatment with limestone is not feasible

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

4. Areas having slopes steeper than 2:1 require special consideration and design.

a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrastina Eextured subsolls and must contain less than 5 percent bu volume o cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1% inches in diameter.

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

6. Topsoil Application

a. Erosion and sediment control practices must be maintained when applying topsoil. b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irreguläritles in the surface resulting from topsolling or other operations must be

corrected in order to prevent the formation of depressions or water pockets. c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soll Amendments (Fertilizer and Lime Specifications) I. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposés may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION

CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON

MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS

PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD

**ENGINEER'S CERTIFICATE** 

SOIL CONSERVATION DISTRICT."

BY APP'R

ENGINEER'S SIGNATURE SACCURA

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

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

The application of seed and mulch to establish vegetative cover.

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

Criteria A. Seeding

. Specifications

a. All seed must meet the requirements of the Maruland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground

c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. MILLET

chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials. 2. Application

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or

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 B.I, Permanent Seeding Table B.3, or site-specific seeding summaries. 11. Apply seed in two directions, perpendicular to each other. Apply half the seeding

rate in each direction. Roll the seeded area with a weighted roller to provide

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. I. Cultipacking seeders are required to bury the seed in such a fashion as to provide

at least 174 inch of soil covering. Seedbed must be firm after planting. i. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and

exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous), 200 pounds per acre; K20 (potassium), 200 pounds per acre ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied

1. If fertilizer is being applied at the time of seeding, the application rates should not

by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at

iii. Mix seed and fertilizer on site and seed immediately and without interruption. Iv. When hydroseeding do not incorporate seed into the soil.

any one time. Do not use burnt or hydrated lime when hydroseeding.

B. Mulching

1. Mulch Materials (in order of preference)

acod seed to soil contact.

a. Straw consisting of thoroughly threshed wheat, rye, 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, moldy, caked, decayed, 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 processed into a uniform fibrous physical state.

i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry. 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 suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. 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 soil without inhibiting the growth of the grass

Iv. WCFM material must not contain elements or compounds at concentration levels that

v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum

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 a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.

c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber 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 soil 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 may be used for anchoring straw. Apply the fiber binder at a

net dry weight of 750 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 binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II. Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at

of asphalt binders is strictly prohibited iv. 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.

the edges where wind catches mulch, such as in valleys and on crests of banks. Use

This Development Plan is approved for

Soil Erosion and Sediment Control by

the Howard Soil Conservation District

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

<u>Definition</u>
To stabilize disturbed soils with vegetation for up to 6 months.

<u>Purpose</u>

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

I. Select one or more of the species or seed mixtures listed in Table B.I for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.I plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.I.b and maintain until the next seeding season.

TEMPORARY SEEDING SUMMARY Hardiness Zone (from Figure B.3): 6b Fertilizer Seed Mixture (from Table B.I): Rate Lime Rate Seeding Application (10-20-20)Depths Species | Rate (lb/ac) Dates Mar.l to Mau 15 ANNUAL 40 lb/ac 0.5 inches Aug. 1 to Oct. 15 436 lb/ac RYEGRASS 2 tons/ac 0 lb/1000 sf)|(90 lb/1000 sf) PEARL 20 lb/ac MAY 16 to JULY 3

TEMPORARY SEEDING NOTES

0.5 inches

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed

Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened)

Soil Amendments Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).

For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushel per acre of annual rue (3.2 lbs/1000 sq.ft). For the period May I thru August 14, seed with 3 lbs per acre of weeping lovearass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after séedling. Anchor mulch' immediately after application using mulch anchoring tool or 218 gal per acré (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation.

receive a medium to high level of maintenance.

Purpose
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Exposed soils where ground cover is needed for 6 months or more.

A. Seed Mixtures I. General Use

Conditions Where Practice Applies

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting. c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for

d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ 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.

2. Turfgrass Mixtures a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will

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 management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky

three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by II. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivárs/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 squaré feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10

Bluearass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of

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

establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 to 3 pounds per 1000 square feet. Select turfgrass varieties from those listed in the most current University of Maryland Publication,

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agrīculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

(Hardiness Zones: 7a, 7b)

laté in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Agronomy Memo #17, "Turfgrass Cultivar Recommendations for Maryland"

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a) Central MD: March I to May 15, Avaust 15 to October 15 (Hardiness Zone: 6b)

Southern MD, Eastern Shore: March I to May 15, August 15 to October 15

c. Ideal Times of Seeding for Turf Grass Mixtures

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty. If soil moisture is deficient, supply new seedings with adequate water for plant growth () to 1 inch every 3 to 4

days depending on soil texture) until they are firmly established. This is especially true when seedings are made

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION con't PERMANENT SEEDING SUMMARY

Hardiness Zone (from Figure B.3): 6b Fertilizer Rate Seed Mixture (from Table B.3): #9 (Tall Fescue/Kentucky Bluegrass (10-20-20) Lime Rate Seedina Application | Seeding | Ν P<sub>2</sub>O<sub>5</sub> K<sub>2</sub>O Depths Rate (lb/ac) Dates Species 1 4 - 1 in 45 pounds 90 lb/ac 90 lb/ac 2 tons/ac \*CERTIFIED TALL FESCUE BLEND (95% BY WEIGHT: FALCON IV, Mar. I to 1 - 1 in per acre (2 lb/ (2 lb/ (90 lb/ (90 lb/ (1.0 lb/ May15. PENN 1401 & REBEL EXEDA) AND CERTIFIED KENTUCKY BLUEGRASS 6-8 LB/10,005F BLEND (5% BY WEIGHT: Aug. 15 to  $\frac{1}{4} - \frac{1}{2}$  in  $\frac{100}{1000}$  sf)  $\frac{1000}{1000}$  sf)  $\frac{1000}{1000}$  sf) COURTYARD, RAVEN & YANKEE)

\* OTHER CULTIVARS LISTED AS "PROVEN" IN THE MOST CURRENT UMD TT-77 MAY ALSO BE USED.

when suspended vertically with a firm grasp on the upper 10 percent of the section.

3. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

I. General Specifications

a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman

b. Sod must be machine cut at a uniform soil thickness of  $\frac{\pi}{2}$  inch, plus or minus  $\frac{1}{4}$  inch, at the time of cutting. Measuremen for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable. c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape

d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect

its survival. e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period

must be approved by an agronomist or soil scientist prior to its installation.

a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil

b. Lay the first row of sod 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 sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the

peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface. d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface

c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp,

below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod 3. Sod Maintenance

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.

b. After the first week, sod watering is required as necessary to maintain adequate moisture content. c. Do not mow until the sod is firmly rooted. No more than ? 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 NOTES

Seedbed Preparation Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative

Soil Amendments In lieu of soil test recommendations, use one of the following schedules

i) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square feet) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sa ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 unreaform fertilizer (9 lbs/1000 sq ft).

2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

For the periods March I thru April 30, and August I thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucký 31 Tall Fescue. For the period May I thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acré (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Apply 1-172 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Inspect all seeded areas and make needed repairs, replacements and reseedings.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies Stockpile areas are utilized when it is necessary to salvage and store soil for later use. i. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and

To provide a designated location for the temporary storage of soil that controls the potential for erosion,

sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.

3. Runoff from the stockpile area must drain to a suitable sediment control practice.

4. Access the stockpile area from the upgrade side. 5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice

8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with

Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area

nust be kept frée of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1

must be used to intercept the discharge. 7. Stockpiles must be stabilized in accordance with the 3/1 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.

cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

NO ASBUILT

SEDIMENT CONTROL NOTES SCALE G. L. W. FILE No. ZONING 16018 NO SCALE R-20CEDAR LANE WATER PUMPING STATION LOT 1 BLOCK B SHEET TAX MAP - GRID 35-11 11 OF 12

GLWGUTSCHICK LITTLE & WEBER, P.A.

Chief, Development Engineering Division

CIVIL ENGINEERS. LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK BURTONSVILLE, MARYLAND 20866 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

\CADD\DRAMMKS\16018\PLANS BY GLW\SDP\16018-SDP-10-SedimentControlDetails.dmg || DES. EWM || DRN. EWM || CHK. TMR

OWNER:

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 (410) - 313 - 2040

PREPARED FOR:

6.22.18

DATE

LICENSE NO. 17285 EXPIRATION DATE: MARCH 17, 2019

HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND,

PROFESSIONAL CERTIFICATION

ECTION DISTRICT No. 05

HOWARD COUNTY, MARYLAND

**SDP-18-046** 

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CONSERVATION DISTRICT.

