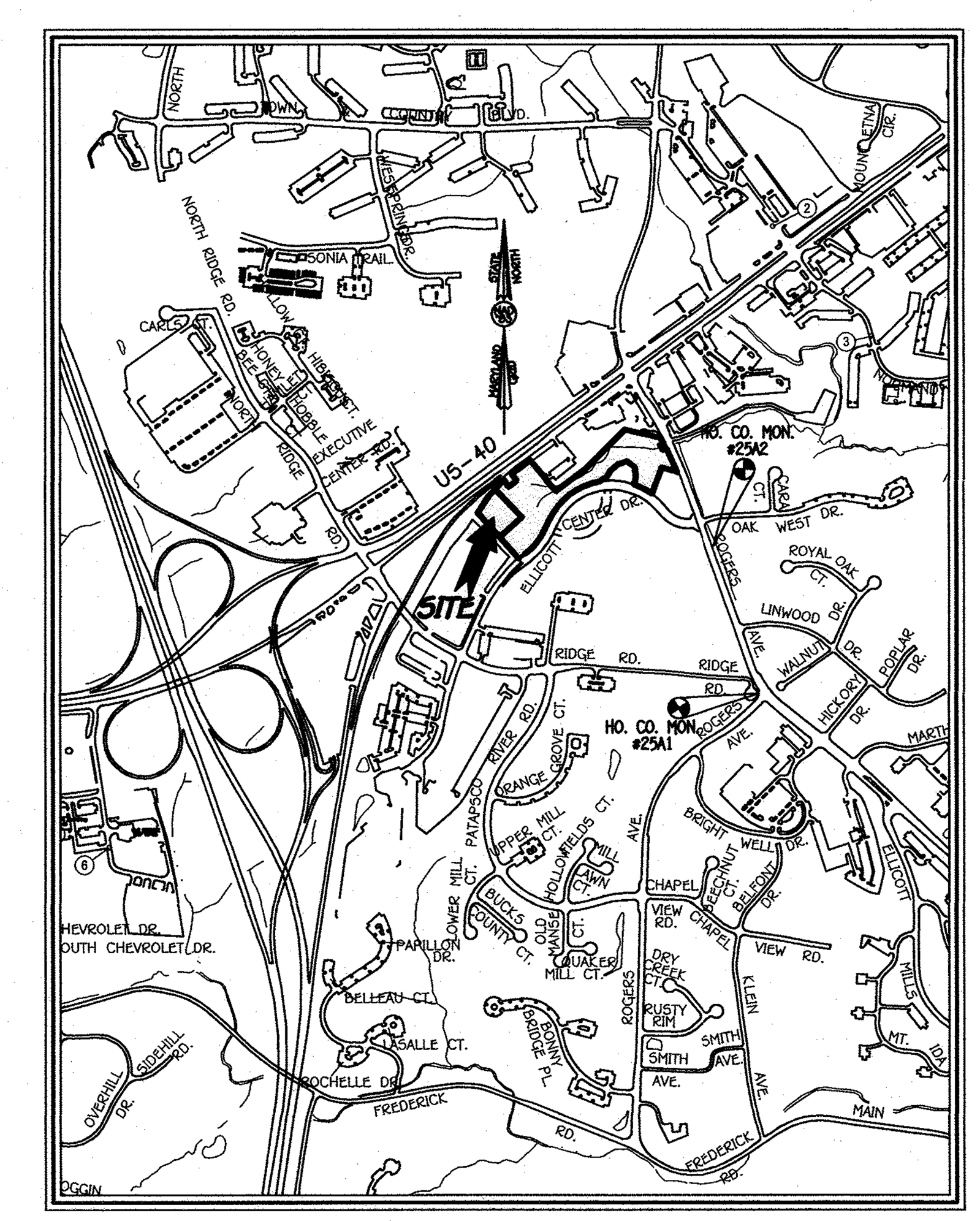
SHEET INDEX	
SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
2	DEMOLITION PLAN
3	SITE DEVELOPMENT PLAN
4	SEDIMENT AND EROSION CONTROL PLAN
5	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
6	SOILS AND STORMDRAIN DRAINAGE AREA MAP
7	LANDSCAPE PLAN
8	LANDSCAPE NOTES AND DETAILS
9	STORMDRAIN PROFILES
10	STORMWATER MANAGEMENT NOTES AND DETAILS

CAPITAL PROJECT C0317
CENTRAL FLEET
VEHICLE STORAGE LOT

PARCELS 'A' AND 'E'
ZONING: POR-MXD-6 (PLANNED OFFICE RESEARCH) DISTRICT
TAX MAP No.: 24 GRID No.: 6 PARCEL No.: 852
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
A	3354 ELLICOTT CENTER DRIVE
E	3350 ELLICOTT CENTER DRIVE



VICINITY MAP

SCALE: 1" = 1200'

ADC MAP
MAP 21 GRID A7

0' 1200' 2400' 4800'

SCALE: 1" = 1200'

GENERAL NOTES

1. THE SUBJECT PROPERTY IS POR-MXD-6 (PER 10/06/13 COMPREHENSIVE ZONING PLAN).
2. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTION DIVISION AT (410)313-1880 AT LEAST (5) FIVE WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
5. THIS PROJECT IS SUBJECT TO HOWARD COUNTY FILES: F-03-021, SDP-03-026, ECP-11-052, ZB 1093M, WP-12-087, PB CASE NO. 391, F-12-014, S-12-001, & ECP-19-044.
6. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL
   STATIONS NO. 25A1 AND NO. 25A2:
   HOWARD COUNTY MONUMENT NO. 25A1 N 586,557.503 E 1,366,847.149 ELEV. 396.349
   HOWARD COUNTY MONUMENT NO. 25A2 N 587,502.680 E 1,366,566.401 ELEV. 348.098
7. BOUNDARY IS BASED ON A FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER ON OR ABOUT MARCH, 2011.
8. CONTOURS ARE BASED ON A TOPOGRAPHIC FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS AND CARTER, ON OR ABOUT OCTOBER 23, 2018 AND SUPPLEMENTED WITH TOPOGRAPHY TAKEN FROM SDP-03-026 CREATED BY DAFT, McCUNE, WALKER INC. AND APPROVED BY HOWARD COUNTY IN JULY 2003.
9. STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. THIS PLAN PROPOSES THE USE OF ONE (1) M-6 MICRO-BIORETENTION FACILITY AND ONE (1) M-8 BIO SWALE. BOTH DEVICES WILL BE OWNED AND MAINTAINED BY HOWARD COUNTY.
10. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
11. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
12. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.FOREST CONSERVATION OBLIGATIONS HAVE BEEN PREVIOUSLY FULFILLED UNDER F-12-014.
13. A GEOTECHNICAL LETTER WAS GENERATED ON FEBRUARY 20,2019 DETAILING THE MONITORING AND TESTING SERVICES CONDUCTED FOR CONTROLLED FILL PROVIDED FROM APRIL 5 THROUGH AUGUST 24, 2012.
14. 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.
15. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENT (JUNE 1993)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
16. 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 (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
17. LIGHT TRESPASS ONTO A PROPERTY ZONED OR USED FOR RESIDENTIAL PURPOSES IS LIMITED TO 0.5 FOOT CANDLES. PARCEL 'E' IS OPEN SPACE LAND AND IS NOT BEING USED FOR RESIDENTIAL PURPOSES.
18. EXCEPT FOR SPOTLIGHTS AND LOW INTENSITY LIGHTS AS DEFINED IN SECTION 134.0. C.2. AND 134.0. C.3., OF THE HOWARD COUNTY ZONING REGULATIONS, ALL LIGHT FIXTURES SHALL BE FULLY OR PARTIALLY SHIELDED.
19. THE APFO/TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP, INC. DATED FEBRUARY 17, 2011.
20. WETLAND DELINEATION STUDY PREPARED BY DAFT-MCCUNE-WALKER, INC. AND DATED JUNE 12, 2001 AND APPROVED SEPTEMBER, 2001. WETLAND OUTLINE SHOWN ON PLAT NOS. 15867 THRU 15870.
21. FLOODPLAIN SHOWN HEREON IS BASED ON A FLOODPLAIN STUDY PREPARED BY DAFT-MCCUNE-WALKER, INC. DATED JUNE 2002; REVISED OCTOBER 2002 AND APPROVED NOVEMBER 2002. FLOODPLAIN OUTLINE SHOWN ON PLAT NOS. 15867 THRU 15870.

LEGEND	
SYMBOL	DESCRIPTION
- - - - -	EXISTING CONTOUR 2' INTERVAL
—— ——	EXISTING CONTOUR 10' INTERVAL
—410—	PROPOSED CONTOUR 10' INTERVAL
—412—	PROPOSED CONTOUR 2' INTERVAL
×362.2	SPOT ELEVATION
	SOILS
LOD	LIMIT OF DISTURBANCE
—SSF—	SUPER SILT FENCE
	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
	DRAINAGE AREA
—SB—	STREAM BUFFER
—WB—	WETLAND BUFFER
—FP—	FLOODPLAIN
	EXISTING TREELINE
	FOREST CONSERVATION EASEMENT

STORMWATER MANAGEMENT PRACTICES

AREA ID	LOCATION	DRAINAGE AREA	% IMPERVIOUS	ESDv REQUIRED CuFt.	ESDv PROVIDED CuFt.	DRY WELLS M-5 (Y/N)	MICRO BIO-RETENTION M-6 (Y/N)	BIO SWALE M-8 (Y/N)	PERMEABLE A-2 (Y/N)
M-6(1)	PARCEL 'A'	37,538	67%	3,277	3,703		Y		
M-8(1)	PARCEL 'E'	5,360	57%	450	550			Y	

SITE ANALYSIS DATA CHART

A. PRESENT ZONING DESIGNATION = POR-MXD-6.
B. TOTAL AREA OF THIS SUBMISSION = 7.263. AC.±.
C. LIMIT OF DISTURBED AREA = 1.65 Ac.±
D. PROPOSED USE: VEHICLE STORAGE
E. PREVIOUS HOWARD COUNTY FILES: F-03-021, SDP-03-026, ECP-11-052, ZB 1093M, WP-12-087, PB CASE NO. 391, F-12-014, S-12-001 & ECP-19-044
F. TOTAL AREA OF FLOODPLAIN LOCATED ON SITE 1.241 AC. (LOCATED ON PARCEL 'E' ONLY)
G. TOTAL AREA OF SLOPES IN EXCESS OF 15% TO 25% = 0.90 AC± (WITHIN L.O.D. = 0.00 Ac.±)
H. TOTAL AREA OF SLOPES IN EXCESS OF 25% = 2.34 AC± (WITHIN L.O.D. = 0.54 Ac.±)
I. NET TRACT AREA = 7.263 AC. (TOTAL SITE AREA - FLOODPLAIN - STEEP SLOPES AREA) (7.263 Ac - (1.241 Ac + 0.90 Ac)) = 5.122 AC±
J. TOTAL AREA OF WETLANDS (INCLUDING BUFFER) LOCATED ON SITE = 1.185 AC.± (LOCATED ON PARCEL 'E' ONLY)
K. TOTAL FOREST 2.782 Ac.±
L. TOTAL GREEN OPEN AREA = 6.62 Ac.±
M. TOTAL IMPERVIOUS AREA = 0.64 Ac.±
N. ERODIBLE SOILS = 4.37 Ac.± (WITHIN L.O.D. = 0.54 Ac.±)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development — 4/1/2020 Date

Chief, Development Engineering Division — 3.30.20 Date

Director - Department of Planning and Zoning — 4-3-2020 Date

PROJECT			SECTION	PARCEL NOs.	
CENTRAL FLEET			-	852	
PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

PREVIOUS HOWARD COUNTY FILES:
F-03-021, SDP-03-026, ECP-11-052, ZB 1093M, WP-12-087, PB CASE NO. 391, F-12-014, S-12-001 & ECP-19-044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND — FRANK JOHN MANALANSAN II — No. 21476 — PROFESSIONAL LAND SURVEYOR

PROFESSIONAL CERTIFICATION

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE, 7/14/21.

NAME — DATE 2/18/20

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

	REVISION	DATE
1	REVISE SWM PRACTICES CHART & SITE ANALYSIS CHART	9/9/21

TITLE SHEET

CENTRAL FLEET
CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

SDP-19-062

SOILS LEGEND

SOIL	NAME	CLASS	Kw
* BaA	Baile silt loam, 0 to 3 percent slopes	D	0.32
* GnB	Glenville-Baile, 0 to 8 percent slopes	C	0.37
MaB	Manor loam, 3 to 8 percent slopes	B	0.24
MaC	Manor loam, 8 to 15 percent slopes	B	0.24
MaD	Manor loam, 15 to 25 percent slopes	B	0.24
UuB	Urban land-Udorthents complex, 0 to 8 percent slopes	X	0.28

SOIL INFORMATION TAKEN FROM WEBSOIL SURVEY

NOTE:

* Hydric soils and/or contains hydric inclusions

LEGEND

SYMBOL	DESCRIPTION
- - - - -	EXISTING CONTOUR 2' INTERVAL
—— ——	EXISTING CONTOUR 10' INTERVAL
————	PROPOSED CONTOUR 10' INTERVAL
————	PROPOSED CONTOUR 2' INTERVAL
×362.2	SPOT ELEVATION
	SOILS
LOD	LIMIT OF DISTURBANCE
—SSF—	SUPER SILT FENCE
	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
	DRAINAGE AREA
—SB—	STREAM BUFFER
—WB—	WETLAND BUFFER
—FP—	FLOODPLAIN
—400—	PROPOSED CONTOUR 10' INTERVAL
—402—	PROPOSED CONTOUR 2' INTERVAL
	EXISTING TREELINE
	FOREST CONSERVATION EASEMENT

Existing Conditions Narrative

The site is located off of Ellicott Center Drive in the Ellicott City section of Howard County, Maryland. It is our understanding the project will involve the construction of a parking lot that will be incorporated into the adjacent County facility. The project will occur on a 7.3 +/- acre parcel shown on tax map 24 as parcel 852.

The majority of the site is forested and has been previously encumbered with a Forest Conservation Easement. The FCE includes both upland and wetland forest, forest on steep slopes and forest within stream buffers. The Forest Conservation Easement, identified on the ECP as Parcel E, 6.3 +/- acres, was established as part of the prior development approval on the site.

The portion of the site outside the FCE has been previously developed. A one acre development area, identified as Parcel A on the ECP, includes stabilized pad site with retaining walls and stormwater management facilities having been previously constructed. The pad site is vegetated with a mix of young trees and grasses. Broomsedge is the most notable herbaceous species. Woody succession is dominated by black locust. Bradford pear and Virginia pine were also noted. The locust range from 1-4" in dbh but do not create contiguous cover that would be considered forest per the FCA regulations.

No wetlands, streams, or buffer occur on Parcel A.

No forest or specimen trees occur on Parcel A.

No rare, threatened or endangered species were observed on the property.

No naturally occurring steep slopes occur on Parcel A.

No historic features or cemeteries occur on Parcel A.

Forest Conservation Act Compliance

The Forest Conservation Easements present on the property, Parcel E, were established to support the development of Parcel A. Since no new forest clearing or disturbance of specimen trees will result from the proposed project, no further FCA compliance should be required.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development — 12/2/21 Date

Chief, Development Engineering Division — 11-16-21 Date

Director - Department of Planning and Zoning — 12/2/21 Date

PROJECT			SECTION		PARCEL NOs.
CENTRAL FLEET			-		852
PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

PREVIOUS HOWARD COUNTY FILES:
F-03-021, SDP-03-026, ECP-11-052, ZB 1093M, WP-12-087, PB CASE NO. 391, F-12-014, S-12-001 & ECP-19-044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND · FRANK JOHN MANALANSAN II · No. 21476 · PROFESSIONAL LAND SURVEYOR

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NAME — DATE 10/1/21

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

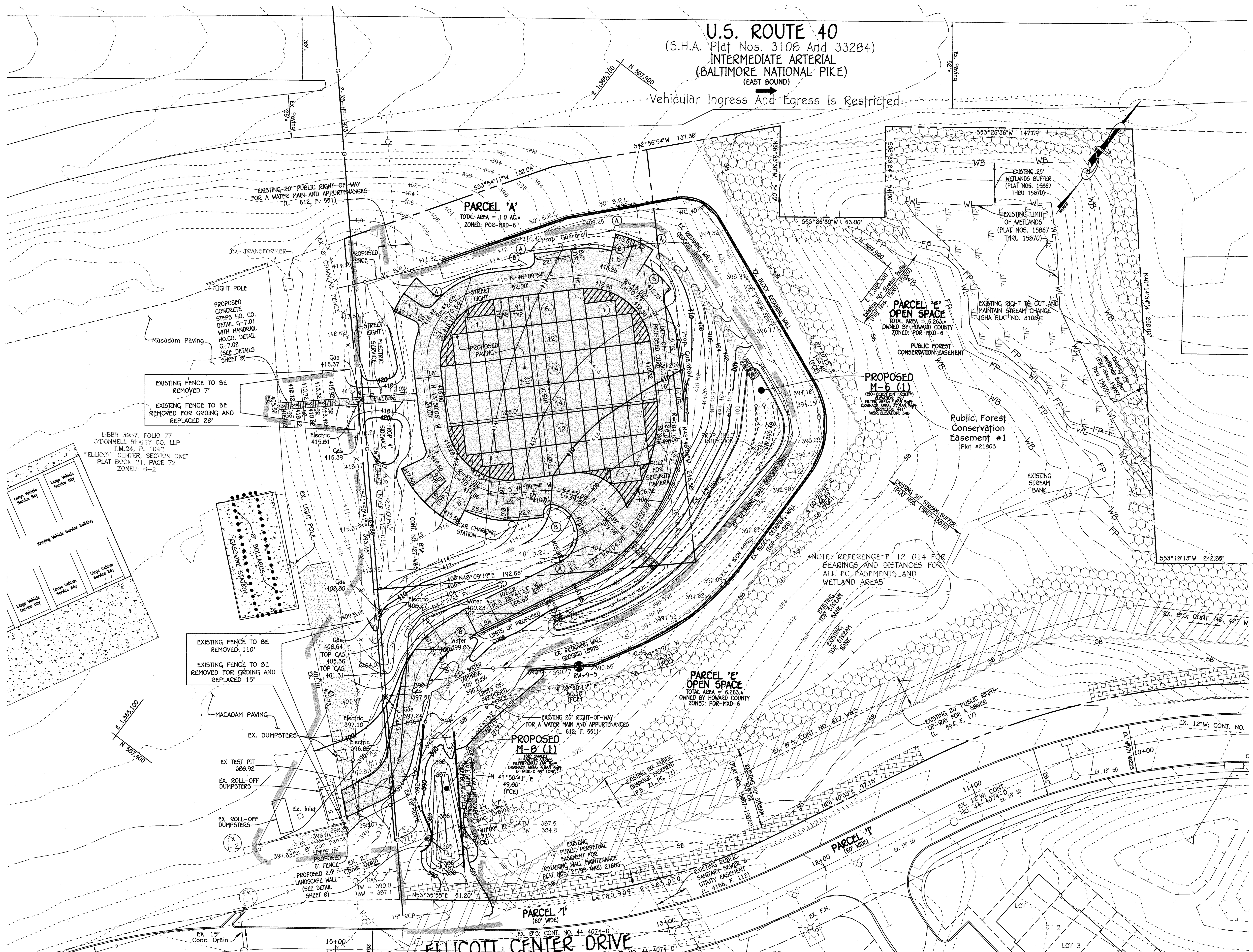
	REVISION	DATE
1	ADD EXIST. ELECTRIC, GAS & WATER SPOT SHOTS	7/2021

EXISTING CONDITIONS & DEMOLITION PLAN

CENTRAL FLEET

CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

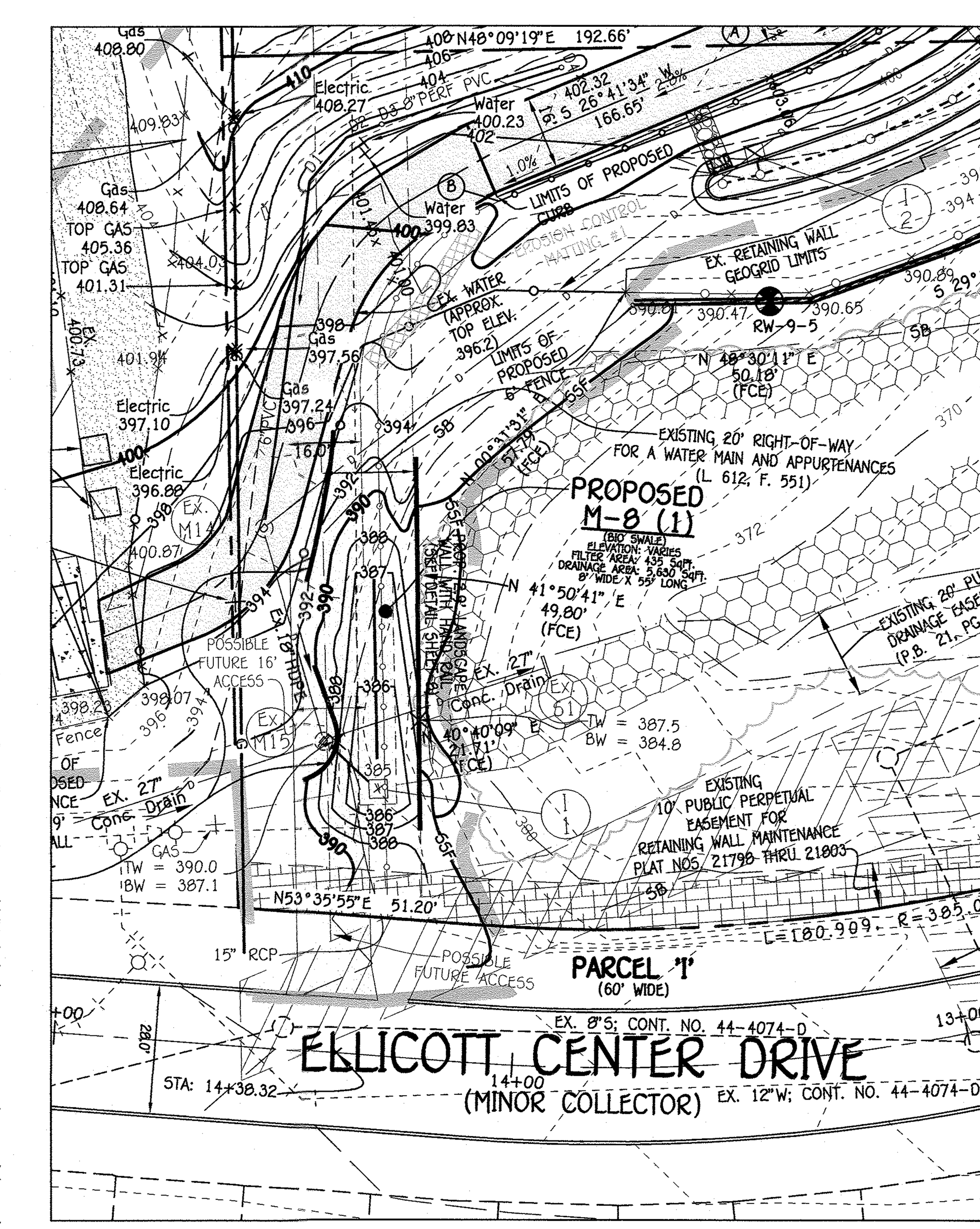
SDP-19-062



Ⓐ = GUARD RAIL END TREATMENT SHA STD. MD. 605.08

Ⓑ = GUARD RAIL END TREATMENT SHA STD. MD. 605.20

(SEE DETAILS SHEET 8)



FUTURE ENTRANCE

SCALE: 1" = 30'
(NOT PROPOSED ON THIS PLAN)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development — Date 12/2/21

Chief, Development Engineering Division — Date 11-16-21

Director - Department of Planning and Zoning — Date 12-2-21

PROJECT			SECTION		PARCEL NOs.
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STATE OF MARYLAND — FRANK JOHN MANALANSAN II — PROFESSIONAL LAND SURVEYOR — No. 21476

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NAME: Frank John Manalansan II — DATE: 10/1/21

0' 30' 60' 120'

SCALE: 1" = 30'

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

	REVISION	DATE
1	ADD EXIST. POINTS, REVISE GRADING, LOD & SWM	7/2021

SITE DEVELOPMENT PLAN

CENTRAL FLEET
CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

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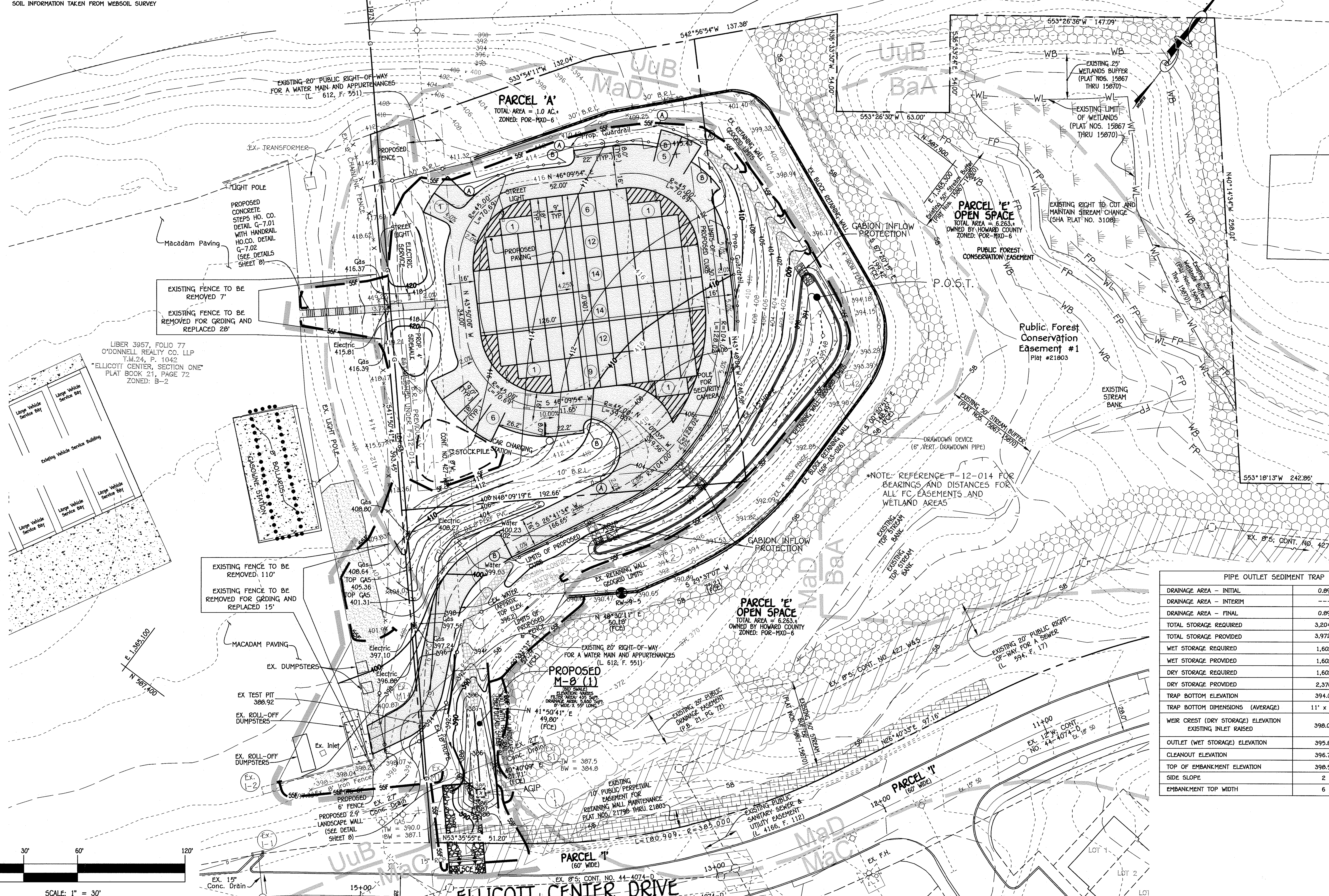
MaC	Manor loam, 8 to 15 percent slopes	B	0.24
MaD	Manor loam, 15 to 25 percent slopes	B	0.24
UuB	Urban land-Udorthents complex, 0 to 8 percent slopes	D	0.28

SOIL INFORMATION TAKEN FROM WEBSOIL SURVEY



0' 30' 60' 120'

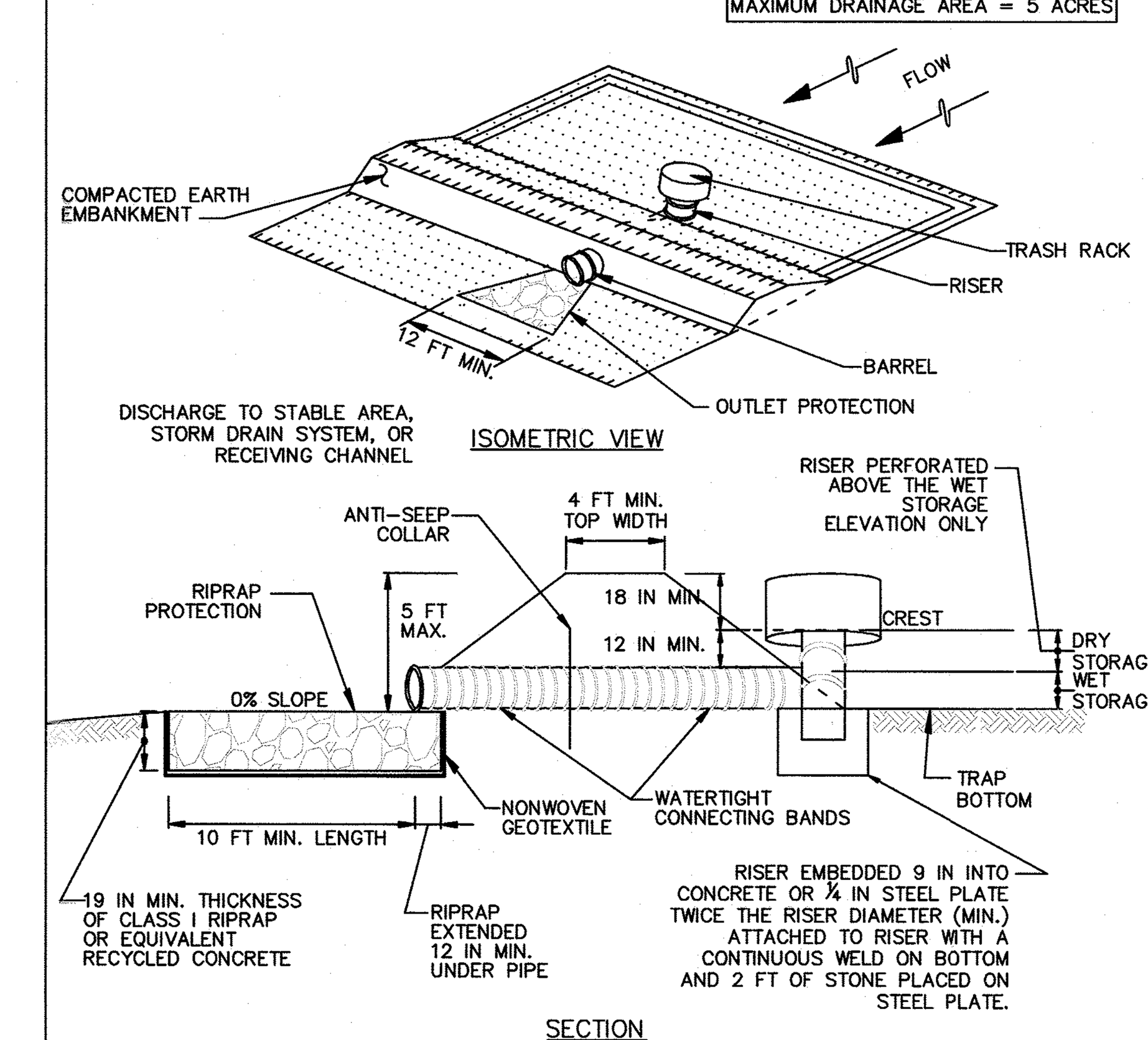
SCALE: 1" = 30'

PIPE OUTLET SEDIMENT TRAP ST-I		
DRAINAGE AREA - INITIAL	0.89	ACRES
DRAINAGE AREA - INTERIM	---	ACRES
DRAINAGE AREA - FINAL	0.89	ACRES
TOTAL STORAGE REQUIRED	3,204	CF
TOTAL STORAGE PROVIDED	3,972	CF
WET STORAGE REQUIRED	1,602	CF
WET STORAGE PROVIDED	1,602	CF
DRY STORAGE REQUIRED	1,602	CF
DRY STORAGE PROVIDED	2,370	CF
TRAP BOTTOM ELEVATION	394.00	FT
TRAP BOTTOM DIMENSIONS (AVERAGE)	11' x 96'	FT x FT
WEIR CREST (DRY STORAGE) ELEVATION EXISTING INLET RAISED	398.00	FT
OUTLET (WET STORAGE) ELEVATION	395.80	FT
CLEANOUT ELEVATION	396.70	FT
TOP OF EMBANKMENT ELEVATION	398.50	FT
SIDE SLOPE	2	H:V RATIO
EMBANKMENT TOP WIDTH	6	FT

DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL: ST-I

MAXIMUM DRAINAGE AREA = 5 ACRES



¼ INCH GALVANIZED HARDWARE CLOTH WITH NONWOVEN GEOTEXTILE SECURELY FASTENED TO PERFORATED RISER

NONWOVEN GEOTEXTILE
GALVANIZED HARDWARE CLOTH
RISER

NOTE:
REFER TO DETAIL G-2-1 – TYPICAL ANTI-SEEP COLLARS
REFER TO DETAIL G-2-2 – RISER BASE
REFER TO DETAIL G-2-3 – CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

1 OF 3

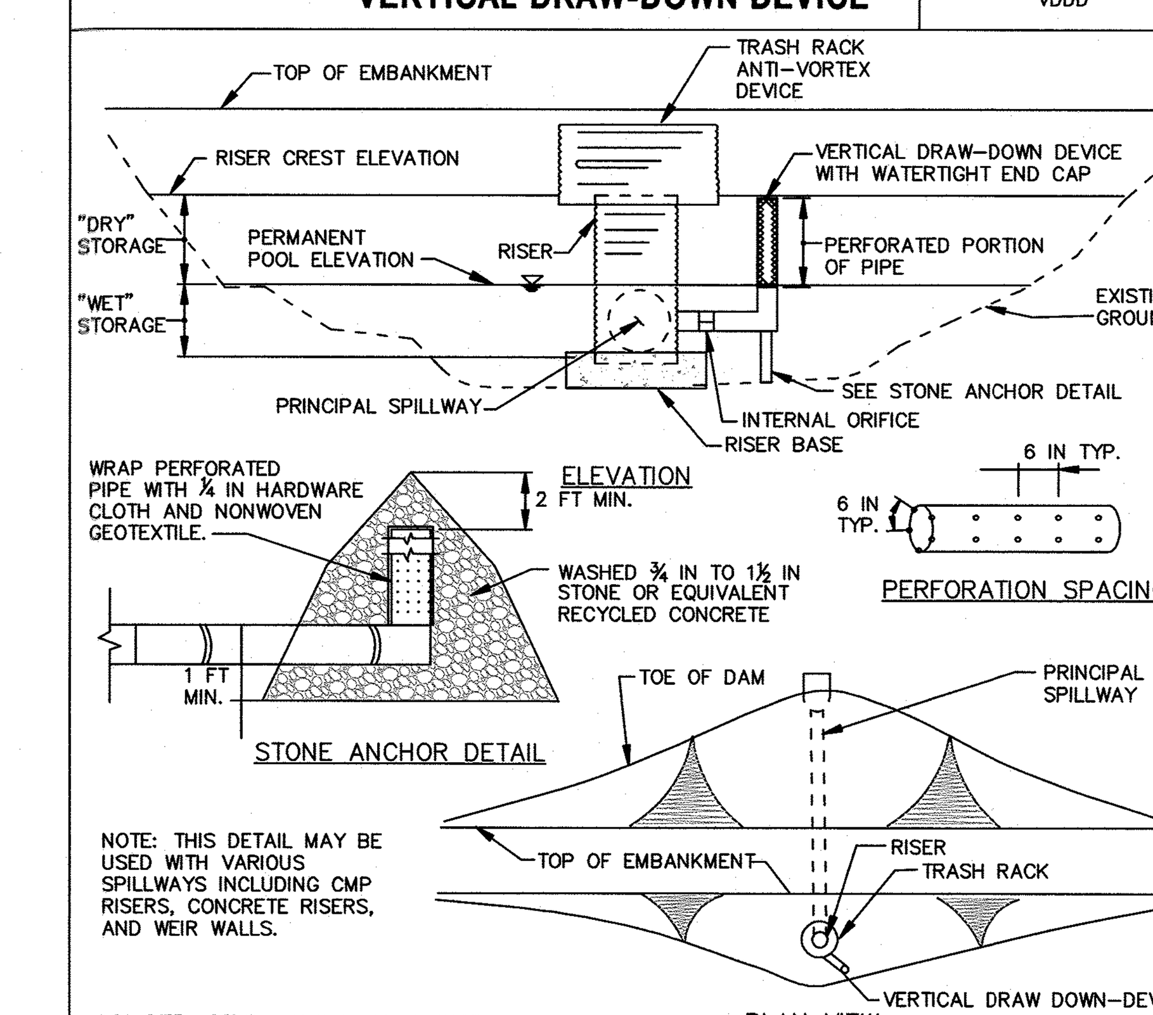
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

G.6

DETAIL G-2-7 SEDIMENT BASIN SCHEMATIC VERTICAL DRAW-DOWN DEVICE

STANDARD SYMBOL: VDDD



NOTE: THIS DETAIL MAY BE USED WITH VARIOUS SPILLWAYS INCLUDING CMP RISERS, CONCRETE RISERS, AND WEIR WALLS.

CONSTRUCTION SPECIFICATIONS

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. DO NOT EXTEND PERFORATIONS IN THE DRAW-DOWN DEVICE INTO WET STORAGE.
3. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
4. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
5. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

G.49

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] Chief, Division of Land Development JS — 12/2/21 Date

[signature] Chief, Development Engineering Division NY — 11.16.21 Date

[signature] Director – Department of Planning and Zoning — 12/2/21 Date

PROJECT			SECTION		PARCEL NOs.
CENTRAL FLEET			-		852
PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

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CENTENNIAL SQUARE OFFICE PARK – 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 – 2855

STATE OF MARYLAND — FRANK JOHN MANALANSAN II — No. 21476 — PROFESSIONAL LAND SURVEYOR

PROFESSIONAL CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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 SOIL CONSERVATION DISTRICT."

[signature] SIGNATURE OF LICENSED PROFESSIONAL FRANK JOHN MANALANSAN II — 11/3/21 DATE

BUILDER/DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 THE ENVIRONMENT 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."

[signature] SIGNATURE OF DEVELOPER — 11-03-21 DATE

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

[signature] HOWARD SOIL CONSERVATION DISTRICT — 11/03/21 DATE

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

	REVISION	DATE
1	ADD POINTS, REVISE GRADING, LOD, SSF & SWM	7/2021

SEDIMENT EROSION CONTROL PLAN

CENTRAL FLEET

CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

SDP-19-062

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION
   A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR 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 SUITABLE 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 CLAY) 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 ABOVE CONDITIONS.
   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 CONDITIONS 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 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING

1. 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 SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE 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 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 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.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
   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 CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 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 IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING 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. SOIL AMENDMENTS (FERTILIZER & LIME SPECIFICATIONS)

1. 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 PURPOSES 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 #20 MESH SIEVE.
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.
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.

DUST CONTROL

DEFINITION

CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

PURPOSE

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED 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 MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS

TEMPORARY METHODS

1. 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 THE SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
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 BEGINS TO FLOW.
5. BARRIERS - SOLID BOARD FENCES SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALE DIKES AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CONTROLLING SOIL BLOWING. CURRENTS AND SOIL BLOWING. CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN
6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

PERMANENT METHODS

1. PERMENENT 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.

SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT. (2 WEEKS)
2. NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 AT LEAST 24 HOURS BEFORE STARTING WORK.
3. REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY.
4. CLEAR AND GRUB AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS. (2 DAYS)
5. COMMENCE REMOVAL OF EXISTING FENCE NOTED ON SHEET 2 AND COMMENCE INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCE AND PERIMETER CONTROLS SHOWN ON SHEET 4. (1 WEEK)
6. COMMENCE MODIFICATION OF EXISTING INLET I-42 TO PROPOSED ELEVATION AND INSTALL ASSOCIATED INLET PROTECTION. (2 WEEK)
7. COMMENCE INSTALLATION OF PIPE OUTLET SEDIMENT TRAP SHOWN ON SHEET 4. (1 WEEK)
8. OBTAIN APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED. (1 DAY)
9. COMMENCE SITE GRADING TO PROPOSED SUB-GRADE, AND INSTALLATION OF BIO-SWALE M-8 (1) TO INTERIM CONDITION AS SHOWN ON SHEET 10.
10. COMMENCE INSTALLATION OF UTILITIES, LANDSCAPE WALLS, CLEAN WATER BYPASS (CAP INLETS) AND INSTALLATION OR MODIFICATION OF STORM DRAINS. (1 MONTH)
11. COMMENCE INSTALLATION OF PAVING BASE COURSE AND INSTALLATION OF SIDEWALK. STABILIZE ALL SURROUNDING AREAS. (3 WEEKS)
12. WITH INSPECTORS PERMISSION COMMENCE CONVERSION OF P,O,S,T, TO BIO RETENTION FACILITY, INSTALLATION OF BIO-SWALE, REMOVAL OF CLEAN WATER BYPASS INLET CAPS AND REMOVAL INLET PROTECTION. (2 WEEKS)
13. COMMENCE INSTALLATION OF GUARD RAIL AND FENCING. (2 WEEKS)
14. COMMENCE INSTALLATION OF FINAL PAVING COURSE AND INSTALLATION OF LANDSCAPING. (2 WEEK)
15. AT COMPLETION OF PAVING EFFORTS, CONTRACTOR SHALL PERMANENTLY SEED ANY DISTURBANCE. (1 DAY)
16. OBTAIN APPROVAL OF SEDIMENT CONTROL INSPECTOR PRIOR TO THE REMOVAL OF SEDIMENT CONTROLS. (3 DAYS)
17. REMOVE ANY REMAINING SEDIMENT CONTROLS AND STABILIZE ALL AREAS THAT ARE DISTURBED BY REMOVAL OF SEDIMENT CONTROLS. (2 DAYS)
18. NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE AFTER EACH RAINFALL AND ON A DAILY BASIS.

TEMPORARY SEEDING NOTES (B-4-4)

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

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.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 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.1 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.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.1):				FERTILIZER RATE (10-20-20)	LIME RATE
SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
BARLEY	96	3/1 - 5/15, 8/15 - 10/15	1"	436 LB/AC (10 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)
OATS	72		1"		
RYE	112		1"		

PERMANENT SEEDING NOTES (B-4-5)

A. SEED MIXTURES

1. GENERAL USE
   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.
   B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR 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 AGENCY. D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
2. TURFGRASS MIXTURES
   A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
   B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
      I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
      II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET, CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
      III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
      IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY 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 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

   NOTE:
   SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE
   C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A) CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B) SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)
   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 1/2 INCHES IN DIAMETER THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
   E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 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 LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6B SEED MIXTURE (FROM TABLE B.3): 8					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
8	TALL FESCUE	100	MAR. 1-MAY 15 AUG. 15-OCT. 15	1/4-1/2 IN.	45 LBS. PER ACRE (1.0 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS
   A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
   B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS TO 3/4 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT 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 WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
   D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OF 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.
2. SOD INSTALLATION
   A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
   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 ROOTS.
   C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, 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 BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING, AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.
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 1/3 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.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

A.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1).
B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1) A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, b) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
6) SITE ANALYSIS:

TOTAL AREA OF SITE	7.26 ACRES
AREA DISTURBED	1.49 ACRES
AREA TO BE ROOFED OR PAVED	0.64 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.46 ACRES
TOTAL CUT	3,466 CU.YDS.
TOTAL FILL	1,596 CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A

7) ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8) ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
9) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
10) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
11) ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
12) A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 ACRE 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 PROCEEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

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

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

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

A. SEEDING

1. SPECIFICATIONS

CRITERIA

   A. ALL SEED MUST MEET THE REQUIREMENT OF THE MARYLAND 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 RATE.
   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 THAWS.
   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.
   D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEEDCONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
   A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
   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 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
      II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
   C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
      I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P_2O_5 (PHOSPHORUS), 200 POUNDS PER ACRE; K_2O (POTASSIUM), 200 POUNDS PER ACRE.
      II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
      III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
      IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
   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 UNIFORM FIBROUS PHYSICAL STATE.
      I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOT 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 SEEDLINGS.
      IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BY PHYTO-TOXIC.
      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.
2. APPLICATION
   A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
   B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE 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 TO 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 THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE 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 4-15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

DEFINITION

A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, 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.

CRITERIA

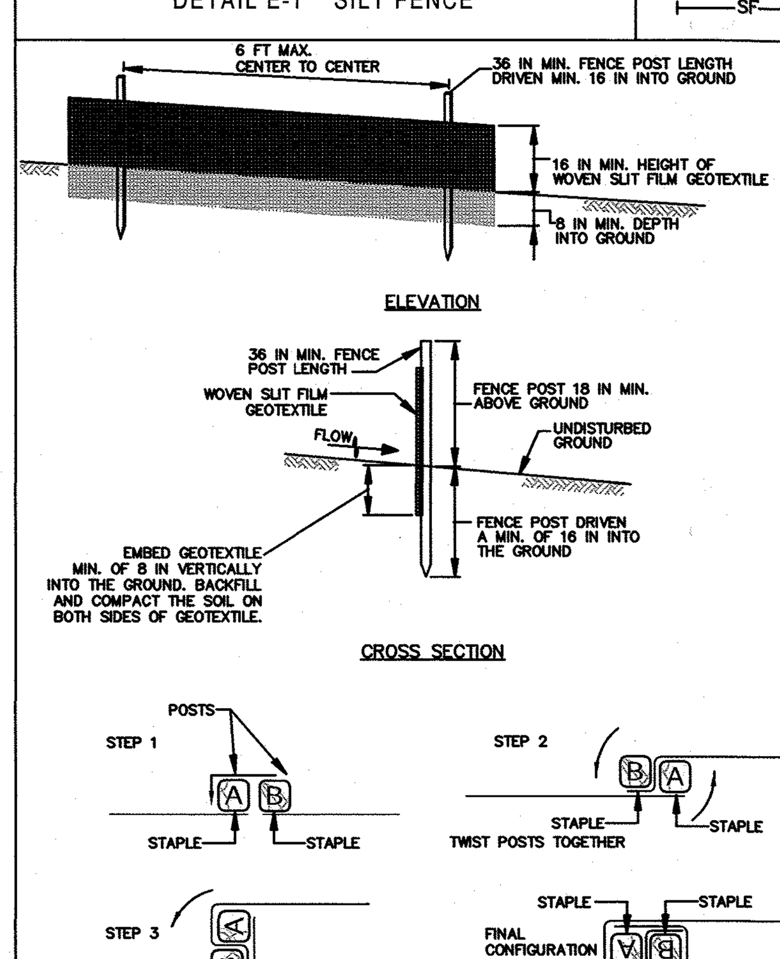
1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST 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 MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE

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 MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



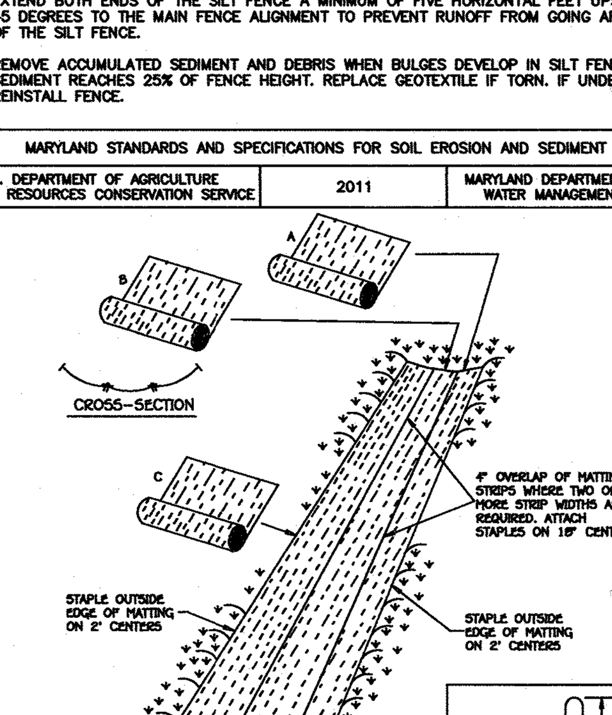
CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅟₁₆ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE 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 SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING



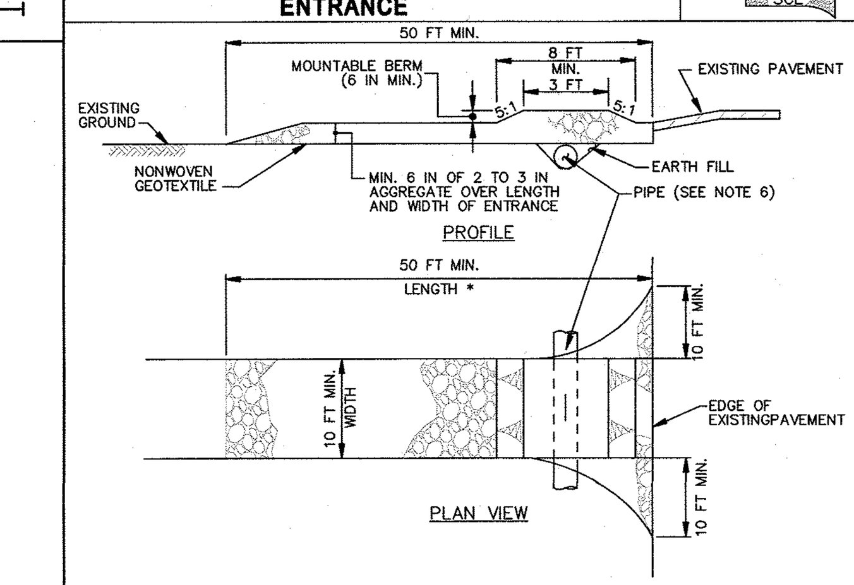
CONSTRUCTION SPECIFICATIONS

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES. NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

EROSION CONTROL MATTING
NOT TO SCALE

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

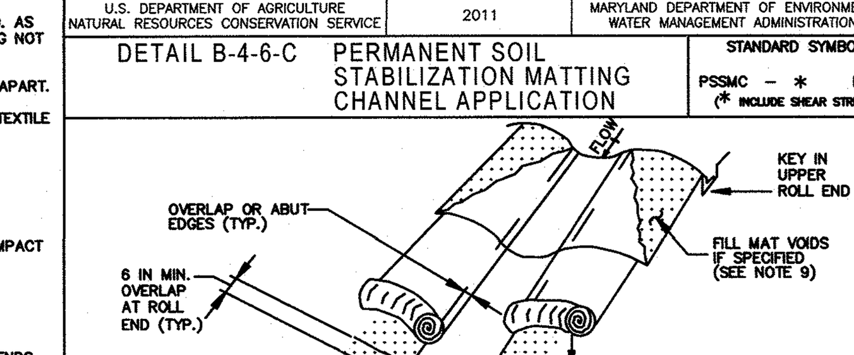
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. 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 DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSSMC - * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

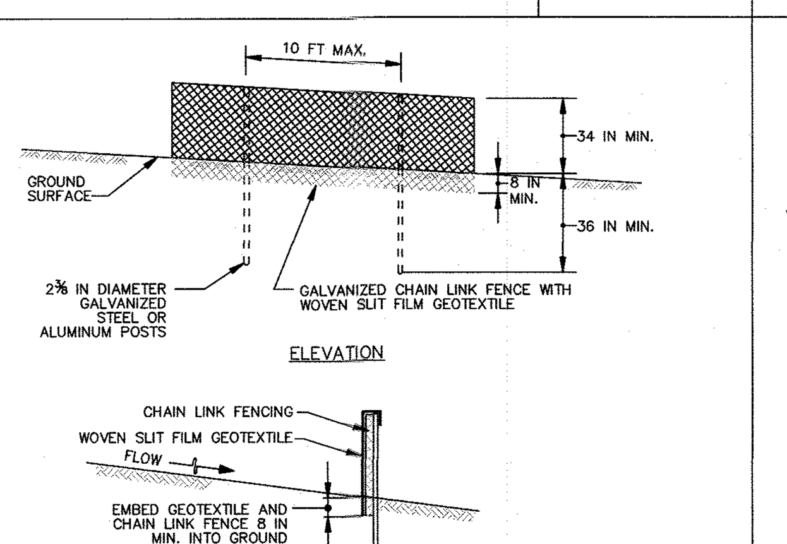
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

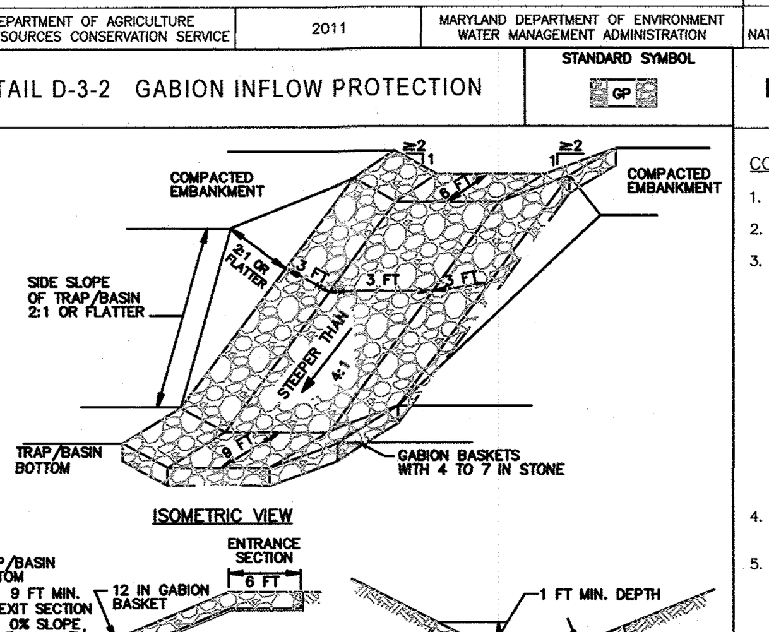
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. 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.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. 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

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL: GP



CONSTRUCTION SPECIFICATIONS

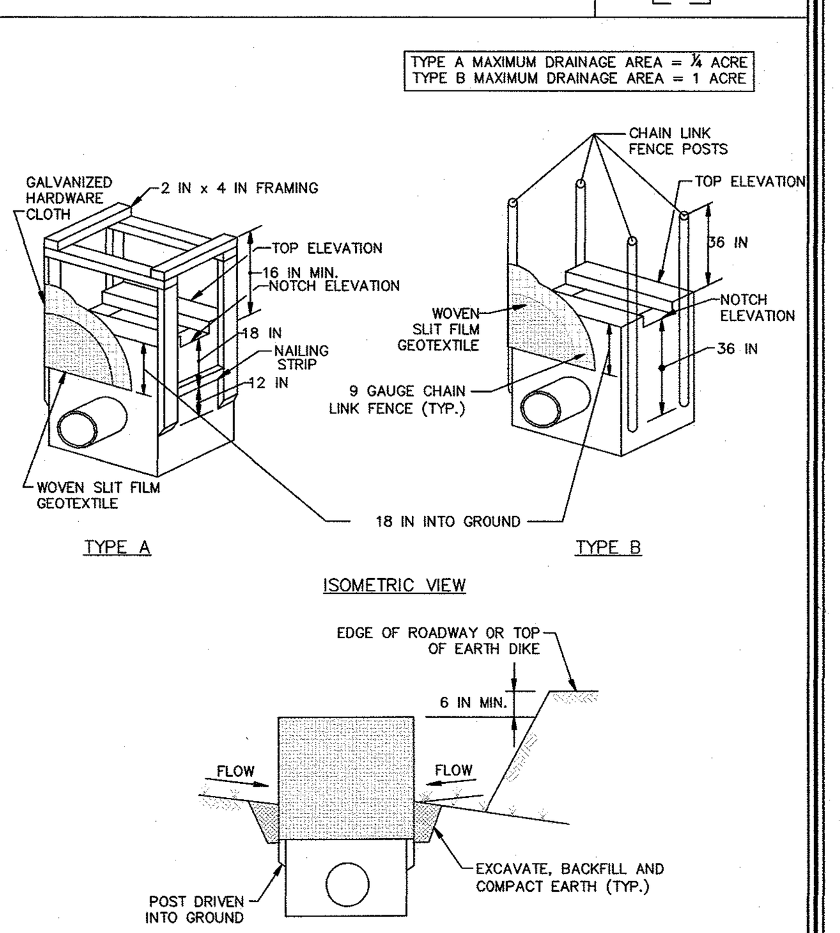
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TABLE B.1 TEMPORARY SEEDING FOR SITE STABILIZATION

PLANT SPECS	SEEDING RATE 1/		SEEDING DEPTH 2/ (INCHES)	RECOMMENDED SEEDING DATES BY PLANT HARDINESS ZONE 3/		
	LB./AC.	LB./1000 FT.²		5b AND 6a	6b	7a AND 7b
COOL-SEASON GRASSES						
ANNUAL RYEGRASS (LOLIUM PERENNE SSP. MUTIFLORUM)	40	1.0	0.5	MAR. 15 TO MAY 31; AUG. 1 TO SEPT. 30	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	FEB. 15 TO APR. 30; AUG. 15 TO NOV. 30
BARLEY (HORDEUM VULGARE)	96	2.2	1.0	MAR. 15 TO MAY 31; AUG. 1 TO SEPT. 30	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	FEB. 15 TO APR. 30; AUG. 15 TO NOV. 30
OATS (AVENA SATIVA)	72	1.7	1.0	MAR. 15 TO MAY 31; AUG. 1 TO SEPT. 30	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	FEB. 15 TO APR. 30; AUG. 15 TO NOV. 30
WHEAT (TRITICUM AESTIVUM)	120	2.8	1.0	MAR. 15 TO MAY 31; AUG. 1 TO SEPT. 30	MAR. 1 TO MAY 15; AUG. 1 TO OCT. 15	FEB. 15 TO APR. 30; AUG. 15 TO NOV. 30
CEREAL RYE (SECALE CEREALE)	112	2.8	1.0	MAR. 15 TO MAY 31; AUG. 31 TO OCT. 31	MAR. 1 TO MAY 15; AUG. 1 TO NOV. 15	FEB. 15 TO APR. 30; AUG. 15 TO DEC. 15
WARM-SEASON GRASSES						
FOXTAIL MILLET (SETARIA ITALICA)	30	0.7	0.5	JUNE 1 TO JULY 31	MAY 16 TO JULY 31	MAY 1 TO AUGUST 14
PEARL MILLET (PENNISETUM GLAUCUM)	20	0.5	0.5	JUNE 1 TO JULY 31	MAY 16 TO JULY 31	MAY 1 TO AUGUST 14

NOTES:

1. SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL-SEASON GRASSES.

   SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS AND WHEAT. FOR SMALLER-SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET). DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS. CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE.

   OATS ARE THE RECOMMENDED NURSE CROP FOR WARM-SEASON GRASSES.
2. FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.
3. THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR THE BOUNDARIES OF THE ZONE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development — Date: 4/1/2020

Chief, Development Engineering Division — Date: 3.30.20

Director - Department of Planning and Zoning — Date: 4-3-2020

PROJECT	SECTION	PARCEL NOs.
CENTRAL FLEET	-	852

PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

PREVIOUS HOWARD COUNTY FILES:
F-03-021, SDP-03-026, ECP-11-052, ZB 1093M, WP-12-087, PB CASE NO. 391, F-12-014, S-12-001 & ECP-19-044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

PROFESSIONAL CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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 SOIL CONSERVATION DISTRICT."

SIGNATURE OF LICENSED PROFESSIONAL FRANK JOHN MANALANSAN II — DATE: 2/18/20

BUILDER/DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 THE ENVIRONMENT 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."

SIGNATURE OF DEVELOPER — DATE: 2/18/20

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

HOWARD SOIL CONSERVATION DISTRICT — DATE: 3/18/20

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

REVISION	DATE

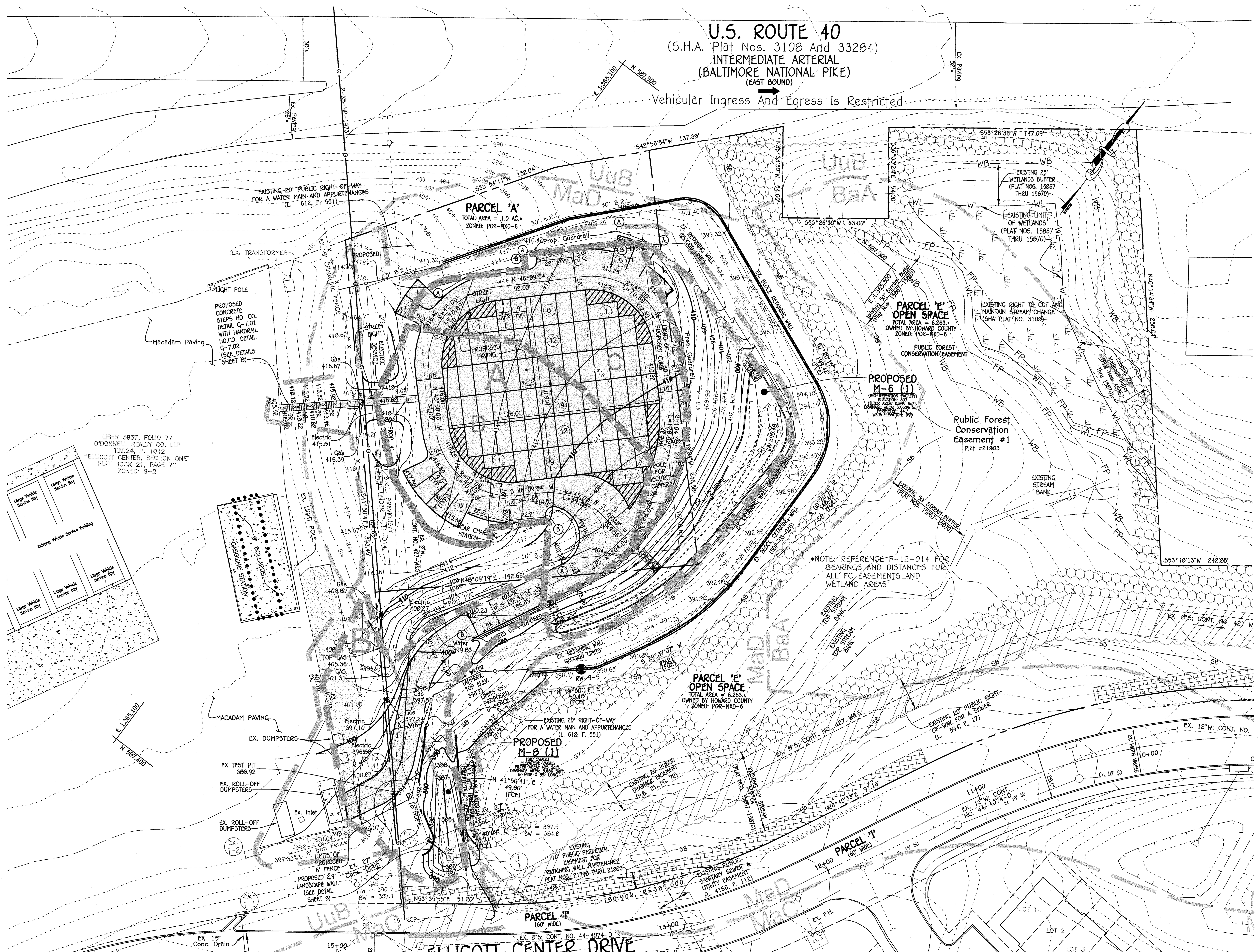
SEDIMENT EROSION CONTROL NOTES AND DETAILS

CENTRAL FLEET

CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

SHEET 5 OF 10

SDP-19-062



DRAINAGE AREA DATA				
DRAINAGE AREA	STRUCTURE NO.	AREA (AC.)	'C'	% IMP.
A	Ex. I-42 & I-2	0.86	0.67	65
B	I-1	0.23	0.36	26
C	CURB OPENING #1	0.26	0.93	98
D	CURB OPENING #2	0.37	0.81	82

SOILS LEGEND

SOIL	NAME	CLASS	Kw
* BaA	Baile silt loam, 0 to 3 percent slopes	D	0.32
MaC	Manor loam, 8 to 15 percent slopes	B	0.24
MaD	Manor loam, 15 to 25 percent slopes	B	0.24
UuB	Urban land-Udorthents complex, 0 to 8 percent slopes	X	0.28

SOIL INFORMATION TAKEN FROM WEBSOIL SURVEY

NOTE:

* Hydric soils and/or contains hydric inclusions

LEGEND

SYMBOL	DESCRIPTION
- - - - -	EXISTING CONTOUR 2' INTERVAL
— —	EXISTING CONTOUR 10' INTERVAL
———	PROPOSED CONTOUR 10' INTERVAL
———	PROPOSED CONTOUR 2' INTERVAL
×362.2	SPOT ELEVATION
	SOILS
LOD	LIMIT OF DISTURBANCE
—SSF—	SUPER SILT FENCE
	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
	DRAINAGE AREA
—SB—	STREAM BUFFER
—WB—	WETLAND BUFFER
—FP—	FLOODPLAIN
—400—	PROPOSED CONTOUR 10' INTERVAL
—402—	PROPOSED CONTOUR 2' INTERVAL
	EXISTING TREELINE
	FOREST CONSERVATION EASEMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development — Date 12/2/21

Chief, Development Engineering Division — Date 11.16.21

Director - Department of Planning and Zoning — Date 12/2/21

PROJECT			SECTION	PARCEL NOs.	
CENTRAL FLEET			-	852	
PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

PREVIOUS HOWARD COUNTY FILES:
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FISHER, COLLINS & CARTER, INC.
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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND — FRANK JOHN MANALANSAN II — No. 21476 — PROFESSIONAL LAND SURVEYOR

PROFESSIONAL CERTIFICATION

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE, 7/14/23.

NAME — DATE 10/1/21

0' 30' 60' 120'

SCALE: 1" = 30'

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

	REVISION	DATE
1	ADD POINTS, REV. GRADING, LOD, SWM & DRAINAGE	7/2021

SOILS AND STORMDRAIN DRAINAGE AREA MAP

CENTRAL FLEET

CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

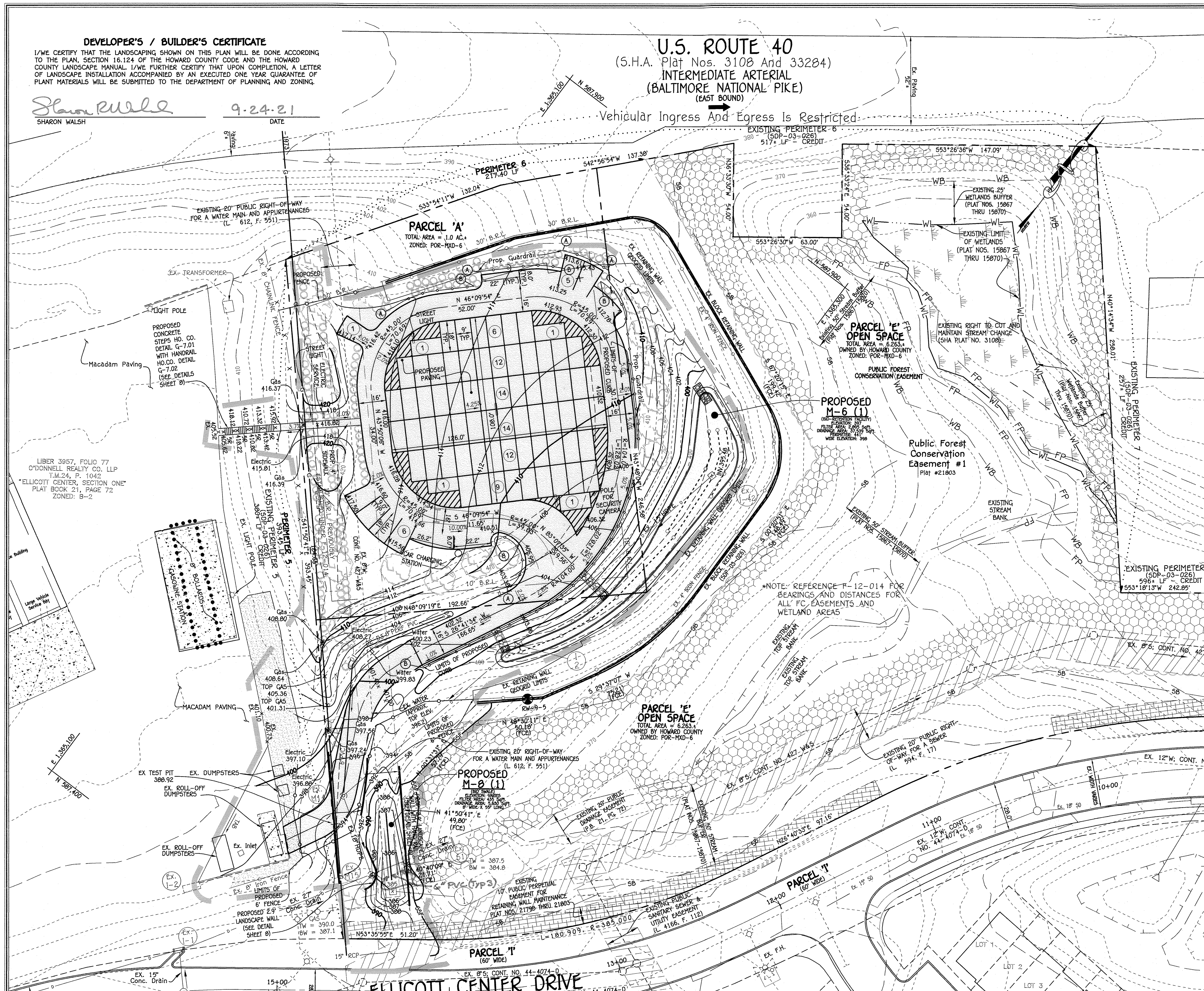
SDP-19-062

DEVELOPER'S / BUILDER'S CERTIFICATE

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

Sharon R Walsh — 9·24·21

SHARON WALSH — DATE



"At the time of plant installation, all trees listed and approved on the Landscape Plan, shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviations from the approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to the road drawing plans".

"The Owner, tenants and/or their agents shall be responsible for maintenance of the required perimeter landscaping. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All the other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced".

***NOTE:** P5 AND P6 ARE ALONG THE OUTER BOUNDARY OF PARCEL 'A' AND THEREFORE ARE THE ONLY PERIMETERS REQUIRED TO ADDRESS LANDSCAPING. THE EASTERN AND SOUTHERN BOUNDARIES OF PARCEL 'A' ARE ADJACENT TO FOREST EASEMENTS AND ARE INTERNAL TO THE ORIGINAL SUBDIVISION.

***NOTE:** THE DEPARTMENT OF PLANNING AND ZONING APPROVES THE LANDSCAPE ALTERNATIVE OF PLACING SOME OF THE REQUIRED P6 SHADE TREES AROUND THE EASTERN AND SOUTHERN BOUNDARIES OF PARCEL 'A' AS SHOWN.

PLANTING SPECIFICATIONS

PLANTS, RELATED MATERIAL, AND OPERATIONS SHALL MEET THE DETAILED DESCRIPTION AS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN.

ALL PLANT MATERIAL, UNLESS OTHERWISE SPECIFIED, SHALL BE NURSERY GROWN, UNIFORMLY BRANCHED, HAVE A VIGOROUS ROOT SYSTEM, AND SHALL CONFORM TO THE SPECIES, SIZE, ROOT AND SHAPE SHOWN ON THE PLANT LIST AND THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUN SCALD INJURIES, ABRASIONS OF THE BARK, PLANT DISEASE, INSECT PEST EGGS, BORERS AND ALL FORMS OF INSECT INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS. PLANT MATERIAL THAT IS WEAK OR WHICH HAS BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORKED LEADERS WILL NOT BE ACCEPTED. ALL PLANTS SHALL BE FRESHLY DUG; NO HEALED-IN PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

UNLESS OTHERWISE SPECIFIED, ALL GENERAL CONDITIONS, PLANTING OPERATIONS, DETAILS AND PLANTING SPECIFICATION SHALL CONFORM TO "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS", (HEREINAFTER "LANDSCAPE GUIDELINES") APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE POTOMAC CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECT, LATEST EDITION, INCLUDING ALL AGENDA.

CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THE LANDSCAPE GUIDELINES CONTRACTOR'S ATTENTION IS DIRECTED TO THE MAINTENANCE REQUIREMENTS FOUND WITHIN THE ONE YEAR SPECIFICATIONS INCLUDING WATERING AND REPLACEMENT OF SPECIFIED PLANT MATERIAL.

BID SHALL BE BASE ON ACTUAL SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE MADE FOR WORK ARISING FROM SITE CONDITIONS DIFFERING FROM THOSE INDICATED ON DRAWINGS AND SPECIFICATIONS

ALL SHRUBS SHALL BE PLANTED IN CONTINUOUS TRENCHES OR PREPARED PLANTING BEDS AND MULCHED WITH COMPOSTED HARDWOOD MULCH AS DETAILS AND SPECIFIED EXCEPT WHERE NOTED ON PLANS.

POSITIVE DRAINAGE SHALL BE MAINTAINED IN PLANTING BEDS 2 PERCENT SLOPE).

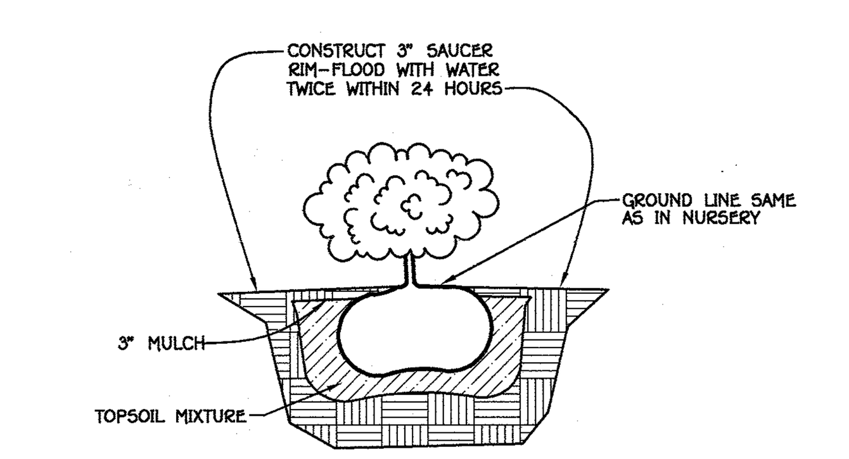
PLANTING MIX SHALL BE AS FOLLOWS: DECIDUOUS PLANTS - TWO PARTS TOPSOIL, ONE PART WELL-ROTTED COW OR HORSE MANURE. ADD 3 LBS. OF STANDARD FERTILIZER PER CUBIC YARD OF PLANTING MIX. EVERGREEN PLANTS - TWO PARTS TOPSOIL, ONE PART HUMUS OR OTHER APPROVED ORGANIC MATERIAL. ADD 3 LBS. OF EVERGREEN (ACIDIC) FERTILIZER PER CUBIC YARD OF PLANTING MIX. TOPSOIL SHALL CONFORM TO THE LANDSCAPE GUIDELINES.

WEED CONTROL: INCORPORATE A PRE-EMERGENT HERBICIDE INTO THE PLANTING BED FOLLOWING RECOMMENDED RATES ON THE LABEL. CAUTION: BE SURE TO CAREFULLY CHECK THE CHEMICAL USED TO ASSURE ITS ADAPTABILITY TO THE SPECIFIC GROUND COVER TO BE TREATED.

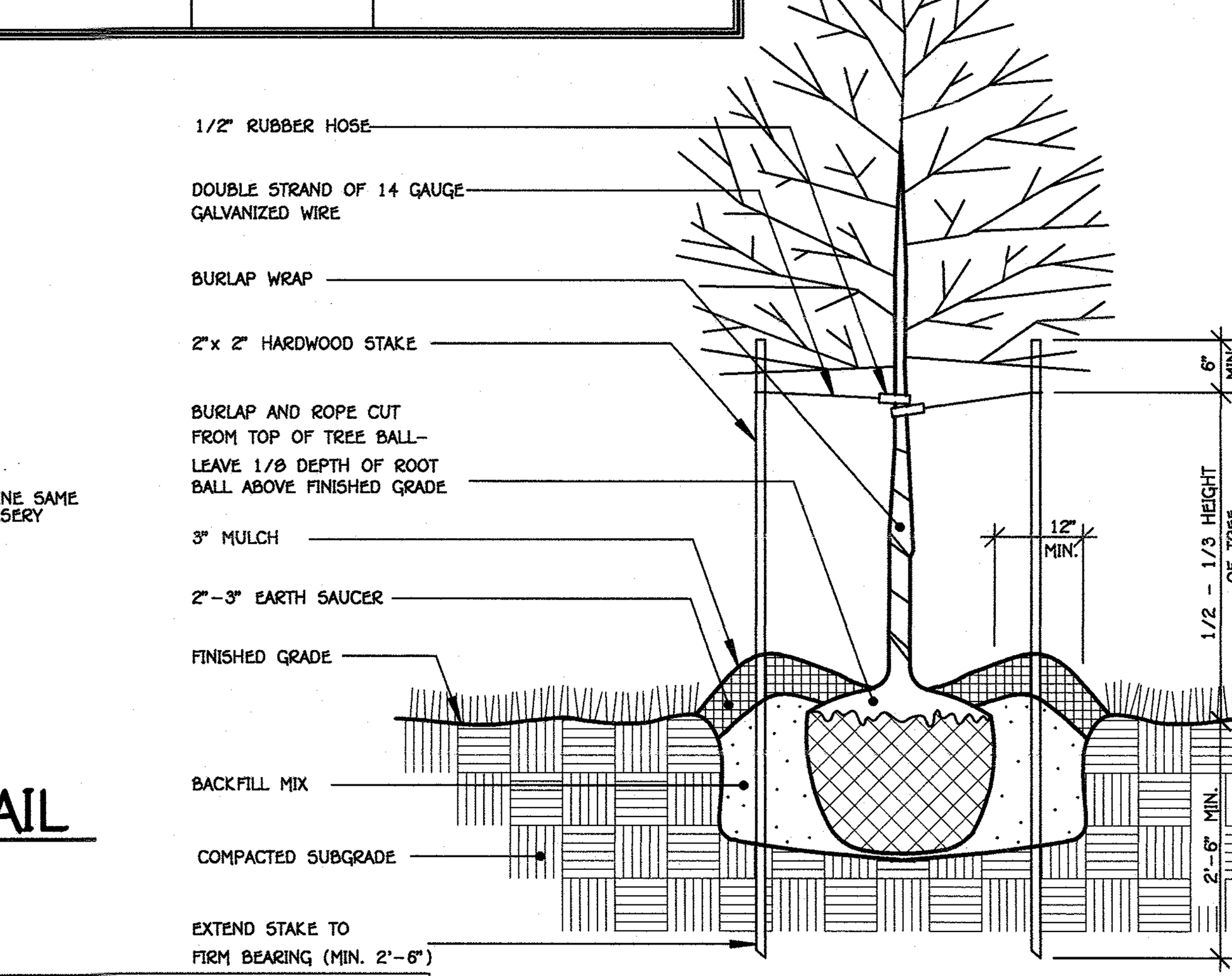
ALL AREAS WITHIN CONTRACT LIMITS DISTURBED DURING OR PRIOR TO CONSTRUCTION NOT DESIGNATED TO RECEIVE PLANTS AND MULCH SHALL BE FINE GRADED AND SEEDED.

LANDSCAPING PLANT LIST

SYMBOL	QUANTITY	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
	21	ACER RUBRUM 'OCTOBER GLORY' RED MAPLE	2 1/2"-3" CAL.	
	154	CLETHRA ALNIFOLIA SUMMERSWEET CLETHRA	2 1/2'-3' HGT.	



SHRUB PLANTING DETAIL



TREE PLANTING DETAIL

SCHEDULE A PERIMETER LANDSCAPE EDGE

PERIMETER	P5 *See Note Below	P6
CATEGORY	BUFFER - PARKING ADJACENT TO ROUTE 40	BUFFER - PARKING ADJACENT TO ROUTE 40
LANDSCAPE TYPE	E	E
LINEAR FEET OF PERIMETER	393.45'	217.40'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE IF NEEDED)	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	 10 - 99	 6 - 55
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	 10 - - 99 -	 6 - - 55 -

*A TYPE 'E' LANDSCAPE PERIMETER HAS BEEN SUBSTITUTED FOR TYPE 'C' PROVIDED ON PERIMETER 5 TO ALLOW FOR GREATER BLOCKING OF HEADLIGHTS TOWARDS ROUTE 40 (BALTIMORE NATIONAL PIKE) AND TO REDUCE THE DEPTH OF ROOTS IN THE VICINITY OF EXISTING PUBLIC CONTRACT #427 W&S

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

	NON-RESIDENTIAL PARKING LOT
NUMBER OF PARKING SPACES	87
NUMBER OF TREES REQUIRED (1:20)	5

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

(signature) 12/2/21 — for Chief, Division Of Land Development JS — DATE

(signature) 12/2/21 — Director, Department Of Planning And Zoning — Date

(signature) 11.16.21 — Chief, Development Engineering Division NY — DATE

PROJECT			SECTION	PARCEL NOs.	
CENTRAL FLEET			-	852	
PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

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FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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STATE OF MARYLAND — FRANK JOHN MANALANSAN II — No. 21476 — PROFESSIONAL LAND SURVEYOR

PROFESSIONAL CERTIFICATION

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE, 7/14/23.

Frank John Manalansan II — 9/29/21

NAME — DATE

0' 30' 60' 120'

SCALE: 1" = 30'

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

	REVISION	DATE
1	ADD EXIST. POINTS, REVISE GRADING, LOD & SWM	7/2021

LANDSCAPE PLAN

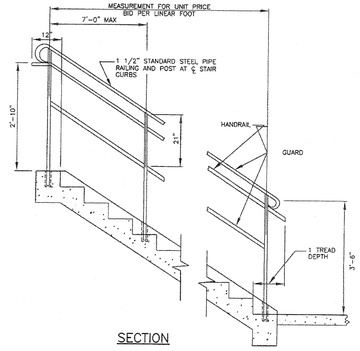
CENTRAL FLEET

CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			HMA WITH CONSTANT GAB		
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SACS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (E5AL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (E5AL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (E5AL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0

NOTES:

1. UNLESS OTHERWISE NOTED, PAINTED RAILINGS SHALL BE FURNISHED.
2. RAILING AND POSTS TO BE PAINTED SHALL CONFORM TO ASTM A120 STANDARD WEIGHT.
3. RAILING AND POSTS TO BE GALVANIZED SHALL CONFORM TO ASTM A441 SEE SPECIFICATIONS.
4. UNLESS OTHERWISE NOTED, RAILINGS SHALL BE FURNISHED FOR BOTH SIDES OF STAIRS AND ON ALL STAIRS HAVING 4 RISERS AND OVER.
5. RAILING SHALL BE ALL WELDED WITH ITS JOINTS GROUND SMOOTH AND FREE OF BURRS.
6. RAILING POSTS SHALL BE SET IN METAL SLEEVES, 6" DEEP AND FILLED WITH HOT POURED LEAD OR HOT POURED SULFUR OR AN EQUIVALENT EPOXY COMPOUND.
7. GALVANIZED RAILINGS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
8. PAINTED RAILINGS SHALL BE PAINTED IN ACCORDANCE WITH SECTION 912 OF THE SPECIFICATIONS.
9. THIS HANDRAIL IS TO BE USED ONLY AS A PROTECTION FOR PEDESTRIANS AND SHOULD NOT BE PLACED IN ANY LOCATION WHERE IT MIGHT BE SUBJECT TO VEHICULAR IMPACT. FOR VEHICULAR PROTECTION, STANDARD GUARD RAIL SHOULD BE USED.
10. THE RAILING SHALL BE PAID FOR AT THE UNIT PRICE BID PER LINEAR FOOT, MEASURED HORIZONTALLY, FOR "CONCRETE STAIRS PIPE RAILING" COMPLETE IN PLACE; OR ITS COST SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "CONCRETE STAIRS", COMPLETE IN PLACE.
11. THIS DETAIL IS APPLICABLE ONLY IN INDUSTRIAL SETTINGS WITH NO PUBLIC ACCESS. (EXAMPLE: PUMP STATIONS)

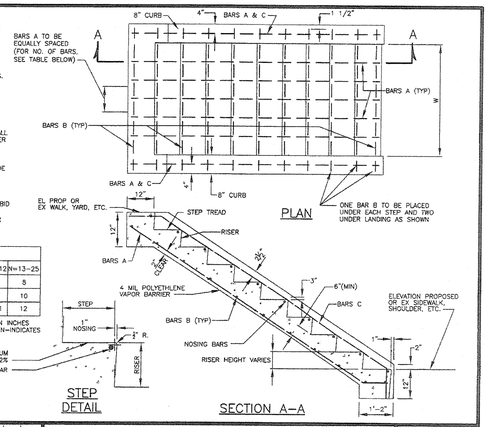


SECTION

Revised	Howard County, Maryland Department of Public Works	Concrete Stairs Pipe Railing	Detail G-7.02
Revised 5/7/2007 Approved	Approved: Chief, Bureau of Engineering		

NOTES:

1. CONCRETE MIX NO.2
2. CHAMFERS: 3/4"x3/4"
3. EXPOSED SURFACES: CLASS 1 SURFACE FINISH.
4. REINFORCING STEEL: A-15 WITH A-305 DEFORMATIONS.
5. ALL REINFORCING BARS SHALL BE NO.4 BARS EXCEPT NOSING BARS.
6. A, B, AND C BARS SHALL BE USED IN THE INSTALLATIONS OF SIX OR MORE STEPS.
7. NOSING BARS SHALL BE NO.2 BARS AND PLACED IN ALL STEPS REGARDLESS OF STAIR LENGTH. MINIMUM COVER 2 INCHES.
8. UNLESS OTHERWISE NOTED, ALL TREADS SHALL BE FINISHED WITH A LIGHTLY BROOMED SURFACE. PROVIDE MAXIMUM 2% WASH AT EXTERIOR LOCATIONS.
9. FOR RAILING DETAILS, SEE G-7.02 AND G-7.03.
10. THE STAIRS SHALL BE PAID FOR ON THE UNIT PRICE BID PER CUBIC YARD FOR "MIX NO.2 CONCRETE FOR MISCELLANEOUS STRUCTURES", COMPLETE IN PLACE OR ON A LUMP SUM BID FOR EACH "CONCRETE STAIRS", COMPLETE IN PLACE.



NUMBER OF BARS A								
	N=1-5	N=6	N=7	N=8	N=9	N=10	N=11	N=12	N=13-25
W=3'		4	5	5	6	6	7	7	8
W=4'		5	6	7	7	8	8	9	10
W=5'		6	7	8	9	9	10	11	12

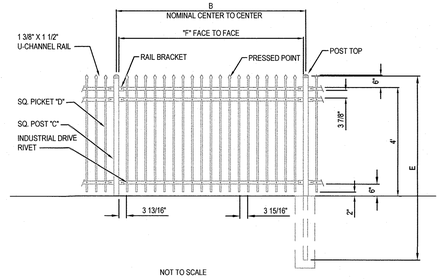
FOR OTHER WIDTHS, THE APPROX. SPACING OF BARS A IN INCHES WILL BE EQUAL TO 80/N WITH A MIN SPACING OF 6 IN. N=INDICATES NUMBER OF STEPS EXCLUSIVE OF LANDING.

STAIRWAYS		
SLOPE	RISER	STEP
1:1.57	7" MAX	11"
2:1	6"	12"
4:1	4" MIN	16"

Revised	Howard County, Maryland Department of Public Works	Concrete Stairs	Detail G-7.01
Revised 5/7/2007 Approved	Approved: Chief, Bureau of Engineering		

IRON WORLD

IRON WORLD
9390 DAVIS AVE.
HOWARD COUNTY, MD, 20723
PHONE: (301) 776-7448
TOLL FREE: 1-866-310-2747
FAX: (301) 776-7449
www.ironworldfencing.com



NOM HEIGHT (A)
3'-0"
3'-6"
4'-0"
5'-0"
6'-0"
7'-0"
8'-0"
CUSTOM HEIGHTS AVAILABLE

POST OPTION (C)
2" SQ X 14 GA
2 1/2" SQ X 12 OR 14 GA
3" SQ X 12 GA
4" SQ X 11 GA
6" SQ X 3/16" WALL

PICKET OPTION (D)	
3/4" SQ OR 1" SQ	14 GA 16 GA 18 GA

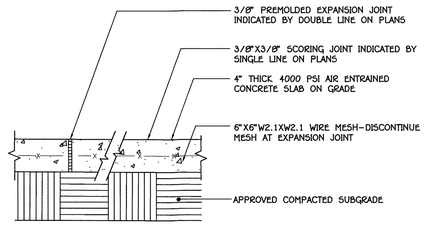
A ____ " NOM. HEIGHT
B ____ " NOM SECTION LENGTH
C ____ " POST SIZE ____ GAUGE
D ____ " PICKET SIZE ____ GAUGE
E ____ " POST LENGTH
F ____ " FACE TO FACE OF POSTS W/ STD. FLAT MOUNT BRACKET

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. SPECIFICATIONS SHOWN CAN BE CHANGED ONLY BY THE MANUFACTURER..
4. FOOTING WIDTH TO BE (4) X POST WIDTH.
5. FENCE SECTIONS USING 3/4" PICKETS WILL TOTAL 19 PICKETS PER SECTION. FENCE SECTIONS USING 1" PICKETS WILL TOTAL 18 PICKETS PER SECTION.
6. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 2812-081.

BARCELONA FENCE
3 RAIL

2812-081

www.CADdetails.com

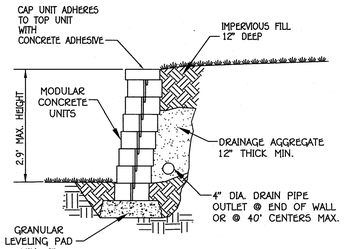


NOTE: REFER TO SITE PAVING PLAN AND FLOOR PLANS FOR LOCATIONS OF EXPANSION JOINTS AND SCORING JOINTS. WHERE NOT INDICATED, INSTALL EXPANSION JOINTS AT MAX. 15'-0" O.C. AND INSTALL SCORING JOINTS AT MAX. 5'-0" O.C.

SLOPE ACROSS SIDEWALK SHALL BE MIN. 1/8"/FT.

CONCRETE WALK DETAIL

NO SCALE



CONCRETE BLOCK LANDSCAPE WALL DETAIL

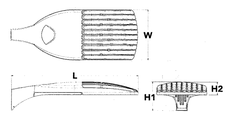
NO SCALE

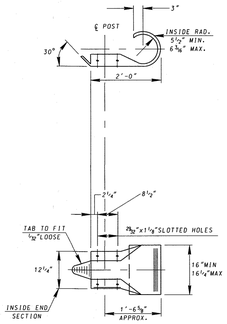
D-Series Size 1
LED Area Luminaire

d-series

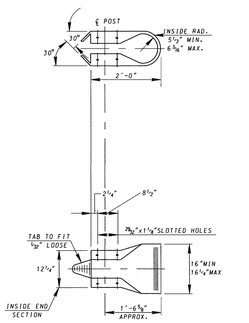
Specifications

EPA:	1.01 ft² (0.09 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height H1:	7-1/2" (19.0 cm)
Height H2:	3-1/2"
Weight (max):	27 lbs (12.3 kg)





TRAFFIC BARRIER – END SECTION

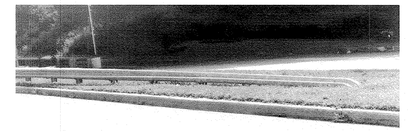


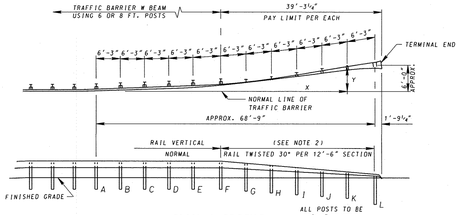
TRAFFIC BARRIER-END SECTION (FOR BARRIER ON BOTH SIDES OF SAME POST)

NOTE: THE END SECTION SHOWN IS INCIDENTAL TO THE PAY ITEMS TRAFFIC BARRIER W BEAM USING 6 FT POSTS OR TRAFFIC BARRIER W BEAM USING 8 FT POSTS.

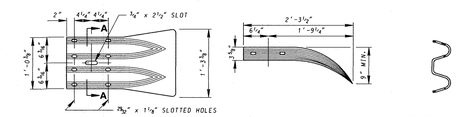
SPECIFICATION 605	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION
APPROVED: DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT		STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHA State Highway Administration	APPROVAL • SHA REVISIONS / APPROVAL • FEDERAL HIGHWAY ADMINISTRATION APPROVAL 2-27-01 / APPROVAL 2-24-82 REVISED 3-31-06 / REVISED 7-2-99 REVISED / REVISED REVISED / REVISED	TRAFFIC BARRIER W BEAM END SECTIONS STANDARD NO. MD 605.20

OR APPROVED EQUAL





PLAN & PROFILE



NOTES

1. THE USE OF THIS END TREATMENT IS LIMITED TO POSTED SPEEDS OF 40 MPH OR LESS AND ADT LESS THAN 10,000. CAN BE USED ON CURBED OR OPEN ROADWAYS.
2. USE TYPE G TRAFFIC BARRIER END TREATMENT ANCHORAGE BRACKET (SEE STD. MD 605.08-01) FROM POST G TO POST L.
3. SEE STD. MD 605.08-01 FOR X AND Y DISTANCES.
4. FOR ALTERNATE OFFSET BLOCKS SEE STD MD 605.21 NOTE 5.

TERMINAL END

SECTION A-A

NOT TO BE USED ON THE NATIONAL HIGHWAY SYSTEM (NHS)

SPECIFICATION 605	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION
APPROVED: DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT		STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHA State Highway Administration	APPROVAL • SHA REVISIONS / APPROVAL • FEDERAL HIGHWAY ADMINISTRATION APPROVAL 3-15-78 / APPROVAL 7-11-78 REVISED 4-17-06 / REVISED 4-5-06 REVISED / REVISED REVISED / REVISED	TYPE G TRAFFIC BARRIER END TREATMENT STANDARD NO. MD 605.08

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Ellicott Mills Overlook Walls — Boring No.: RW-7-1
Location: Howard County, Maryland — Job #: 11351A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: J. Hersl
Surf. Elev.: 393.85 ft — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/23/2011 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/23/2011

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	Curve 10 30 50
0	D	Brown, moist, loose to dense, micaceous silty SAND, trace rock fragments (SM)	Topsoil-1"	10"		4-4-5	9	
390	D		No groundwater encountered while drilling	18"		4-6-7	13	
5	D			18"		7-7-9	16	
385	D			18"		9-11-13	24	
10	D			18"		17-22-26	48	
380	D	Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK)		12"		8-13-50/5"	100+	100+
15		Bottom of Boring at 14.9'						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

GROUND WATER	CAVE IN DEPTH
AT COMPLETION: Dry ft.	8.0 ft.
AFTER 24 HRS.: ___ ft.	___ ft.
AFTER ___ HRS.: ___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Ellicott Mills Overlook Walls — Boring No.: RW-9-5
Location: Howard County, Maryland — Job #: 11351A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: J. Hersl
Surf. Elev.: 381.01 ft — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector:
Date Started: 12/29/2011 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/29/2011

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot N	Curve 10 30 50
0	D	Brown, moist to damp, very loose to medium dense, micaceous silty SAND to sandy SILT (SM-ML)	Topsoil-1"	10"		1-1-1	2	
380	D		No groundwater encountered while drilling	16"		2-1-2	3	
5	D			4"		6-5-6	11	
375	D	Brown to tan, moist, very dense to dense, micaceous silty SAND, some rock fragments (SM)		4"		50/5"	100+	100+
10	D			18"		18-14-19	33	
370	D			18"		27-40-26	66	66
15		Bottom of Boring at 20.0'						
365				18"		18-17-23	40	
20								
360								
25								
355								
30								
350								

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

GROUND WATER	CAVE IN DEPTH
AT COMPLETION: Dry ft.	11.0 ft.
AFTER 24 HRS.: Dry ft.	11.0 ft.
AFTER ___ HRS.: ___ ft.	___ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development JS — Date 4/1/2020
Chief, Development Engineering Division MY — Date 3.31.20
Director of Department of Planning and Zoning — Date 4-3-2020

PROJECT	SECTION	PARCEL NOs.
CENTRAL FLEET	-	852

PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

PREVIOUS HOWARD COUNTY FILES:
F-03-021, SDP-03-026, ECP-11-052, ZB 1093M, WP-12-087, PB CASE NO. 391, F-12-014, S-12-001 & ECP-19-044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND — BENJAMIN MANASSAS II — No. 21476 — PROFESSIONAL LAND SURVEYOR

PROFESSIONAL CERTIFICATION

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE, 7/14/21.

NAME — DATE 2/18/20

OWNER/DEVELOPER

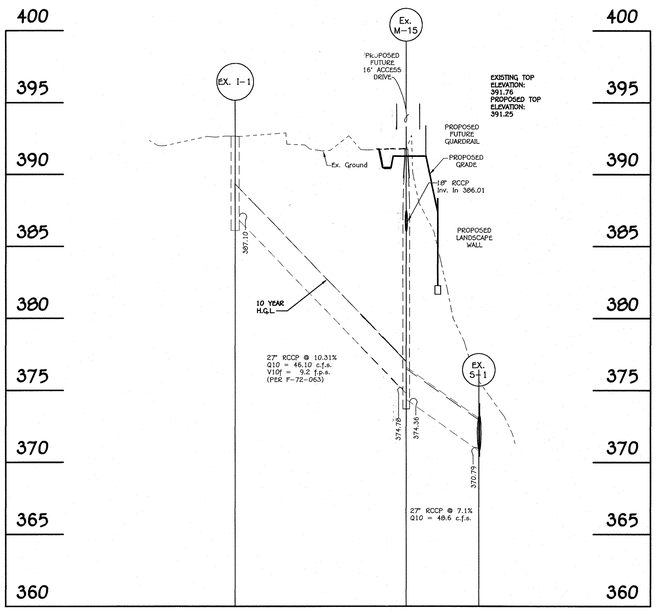
HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7540

REVISION	DATE

NOTES AND DETAILS

CENTRAL FLEET
CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020
SHEET 8 OF 10

SDP-19-062

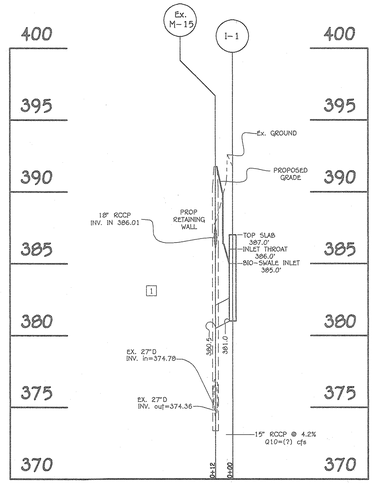


PROFILE STORM DRAIN 1
SCALE HORZ. 1" = 50'
VERT. 1" = 5'

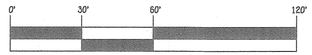
STRUCTURE SCHEDULE

STRUCTURE NO.	OWNERSHIP AND MAINTENANCE	TOP ELEVATION	INV IN	INV OUT	LOCATION	TYPE	REMARKS
** I-1	PUBLICLY OWNED AND MAINTAINED	390.43	387.35 4" PVC 376.42 27" RCCP	375.94	N 587452.48 E 1365303.61	'D' INLET	D. = 4.10
** I-2	PUBLICLY OWNED AND MAINTAINED	398.00	388.76	388.76	N 587621.72 E 1365272.42	'D' INLET	D. = 4.10

** DENOTES THROAT OPENING



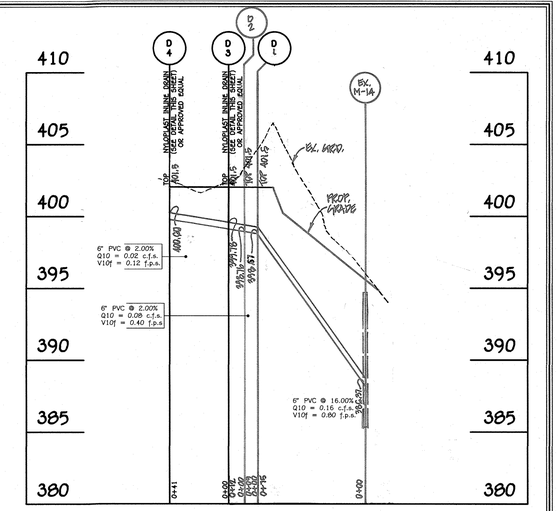
PROFILE EX.15 TO 11
SCALE HORZ. 1" = 50'
VERT. 1" = 5'



SCALE: 1" = 30'

PIPE SCHEDULE

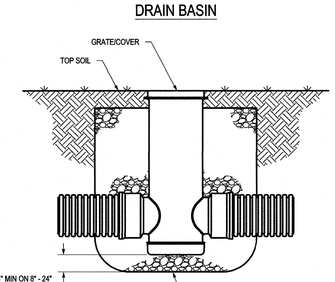
SIZE	CLASS	LENGTH
6"	PERFORATED PVC, SCH.40	294 L.F.
6"	PVC, SCH.40	150 L.F.
4"	PERFORATED PVC, SCH.40	70 L.F.



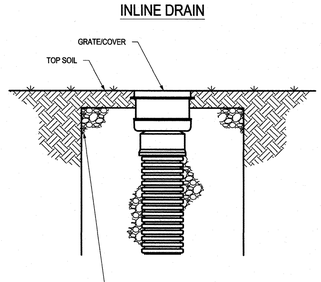
PROFILE ALIGNMENT NYLOPLAST
SCALE HORZ. 1" = 50'
VERT. 1" = 5'

NON TRAFFIC INSTALLATION

DRAIN BASIN



INLINE DRAIN

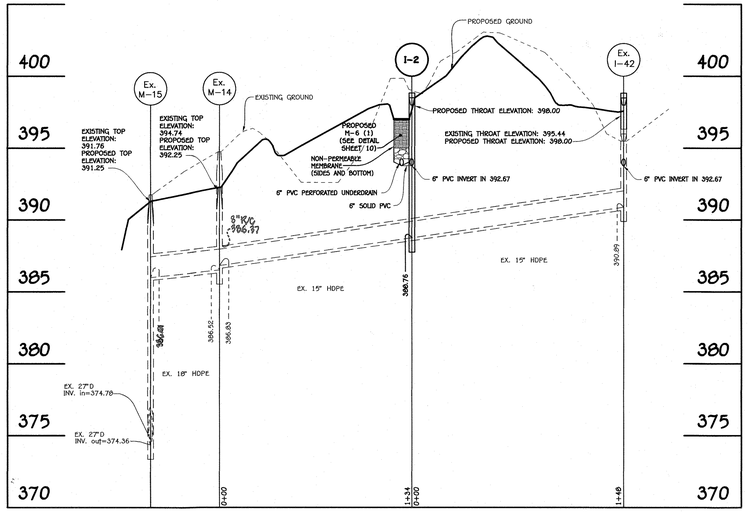


DRAWN BY	CJA	MATERIAL	
DATE	9-30-09		
REVISED BY	CCA	PROJECT NO./NAME	
DATE	12-29-11		
DWG SIZE	A	SCALE 1:25	SHEET 1 OF 1

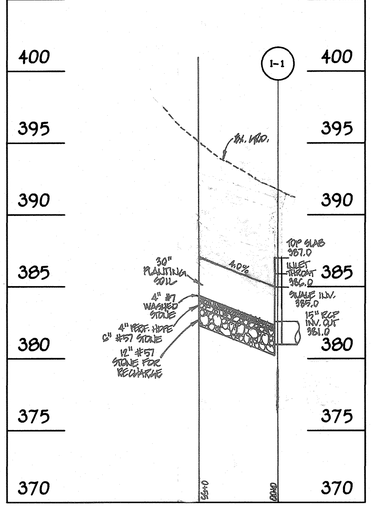
Nyloplast
3126 VERONA AVE
BUFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com

TITLE: DRAIN BASIN & INLINE DRAIN NON TRAFFIC INSTALLATION

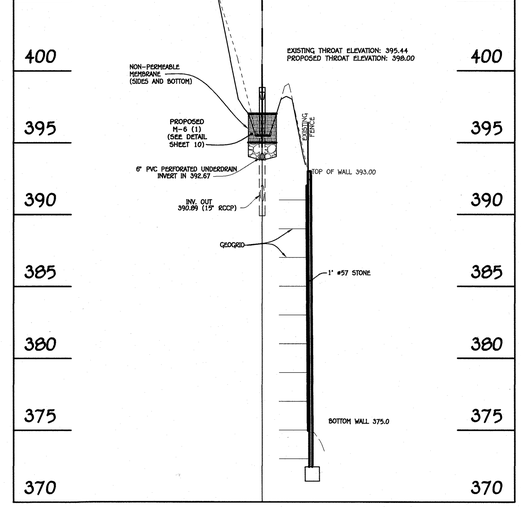
DWG NO. 7801-110-111 REV D



PROFILE
SCALE: 1"=50' HOR.
1"=5' VERT.



PROFILE BIO-SWALE
SCALE HORZ. 1" = 50'
VERT. 1" = 5'



PROFILE ALIGNMENT WALL GUARDRAIL & BIO
SCALE HORZ. 1" = 50'
VERT. 1" = 5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development — Date 4/1/2020

Chief, Development Engineering Division — Date 3-30-20

Director, Department of Planning and Zoning — Date 4-3-2020

PROJECT			SECTION		PARCEL NOs.
CENTRAL FLEET			-		852
PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

PREVIOUS HOWARD COUNTY FILES:
F-03-021, SDP-03-026, ECP-11-052, ZB 1093M, WP-12-087, PB CASE NO. 391, F-12-014, S-12-001 & ECP-19-044

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STATE OF MARYLAND — FRANK JOHN MANALANSAN II — No. 21476 — PROFESSIONAL LAND SURVEYOR

PROFESSIONAL CERTIFICATION

"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE, 7/14/21.

NAME — DATE 2/18/20

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7540

	REVISION	DATE
1	REVISE PROFILES	9/9/21

STORMDRAIN PROFILES

CENTRAL FLEET
CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6

TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020

SHEET 9 OF 10

SDP-19-062

Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for WC), and Re v. In some instances where permeability is great, these facilities may be used for Qp as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.
When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorous and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

Design Constraints:

> Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
> Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see figure A.5 and Table A.4 for planting material guidance).
> Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
> Test soil conditions to determine if soil amendments are necessary.
> Plants shall be located so that access is possible for structure maintenance.
> Stabilize heavy flow areas with erosion control mats or sod.
> Temporarily divert flows from seeded areas until vegetation is established.
> See Table A.5 for additional design considerations.

Bio-retention

Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume [Environmental Quality Resources (EQR), 1996; Engineering Technology Inc. and Biohabitats, Inc. (ETAB), 1993]. Soils should fall within the SM, ML, SC classifications or the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutsedge, and Canada Thistle or other noxious weeds as specified under COMAR 15.08.01.05.) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P205)	75 lbs. per acre, minimum
Potassium (potash -1(K20)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

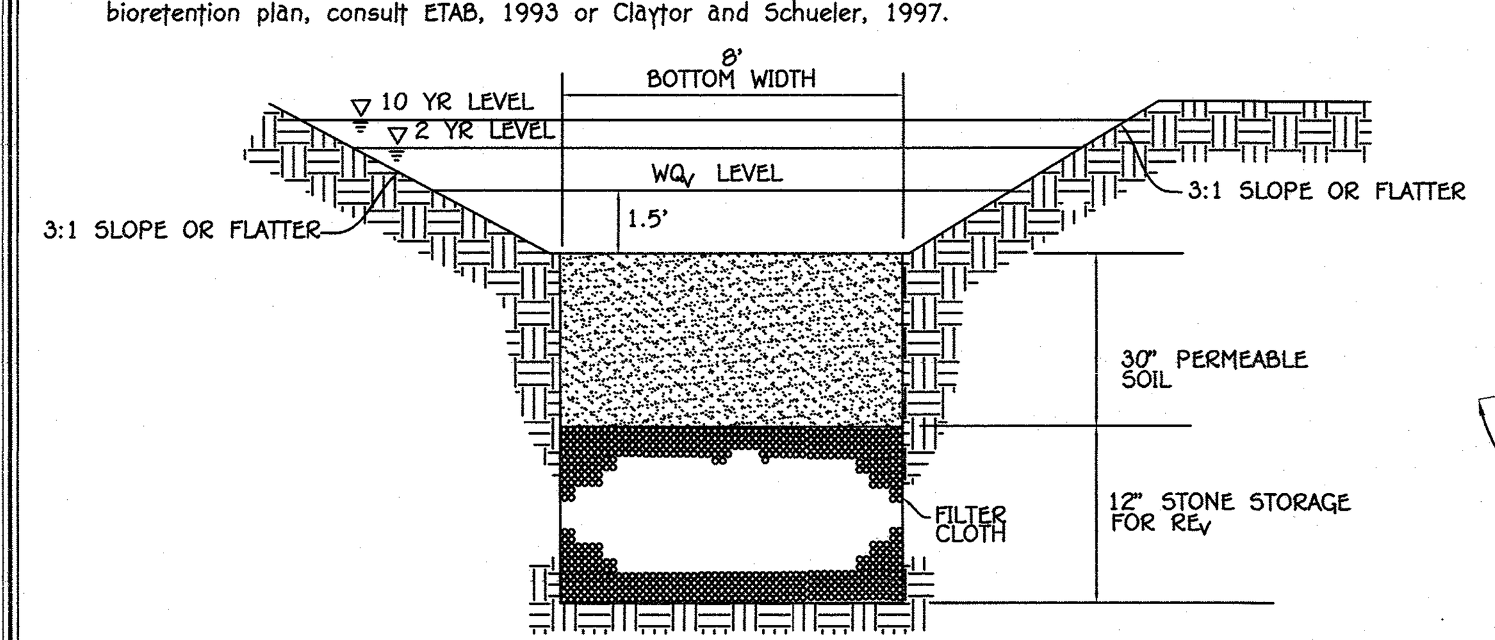
Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.
The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees,

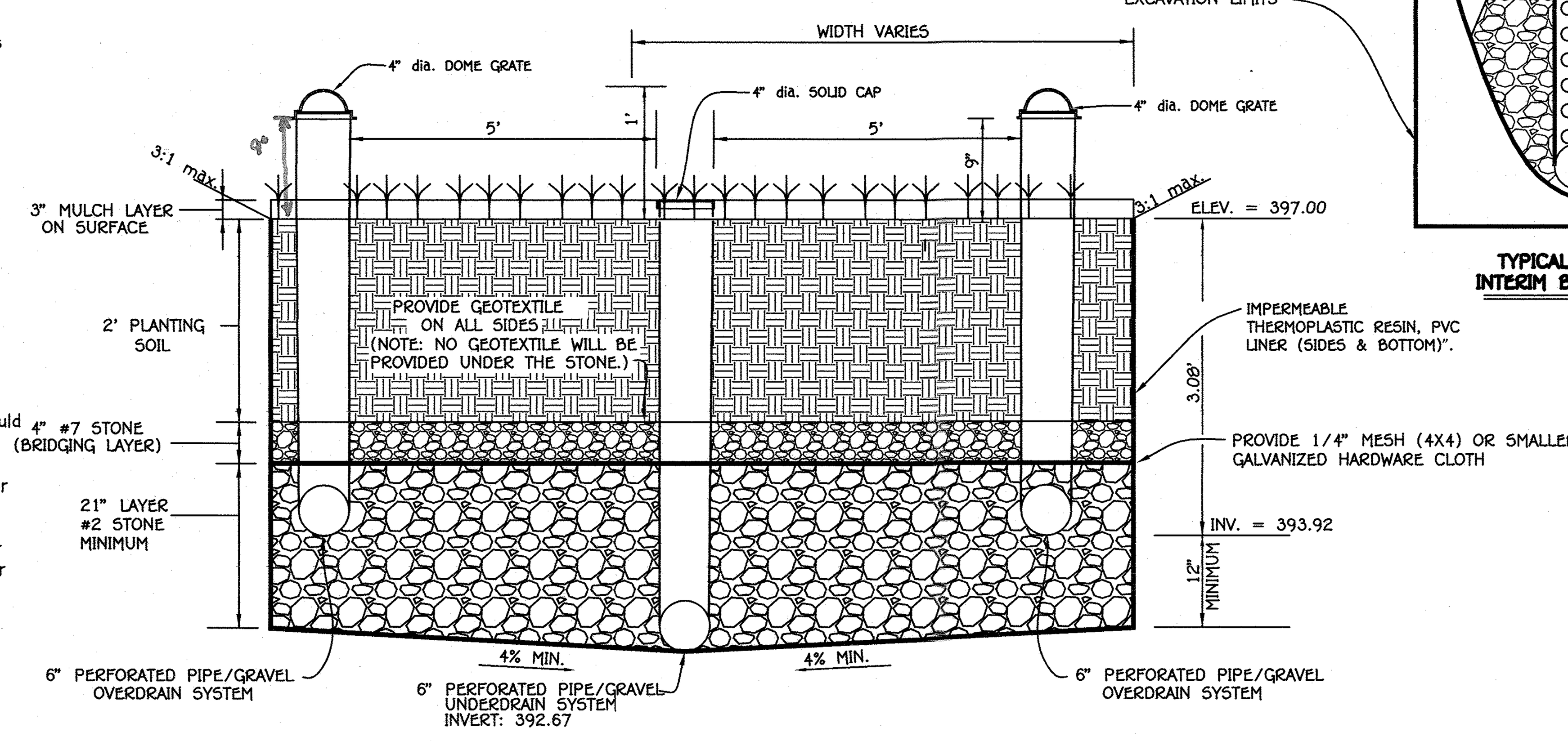
shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.
The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge
is the highest elevation and generally supports plants adapted to dryer conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ETAB, 1993 or Claytor and Schueler, 1997.



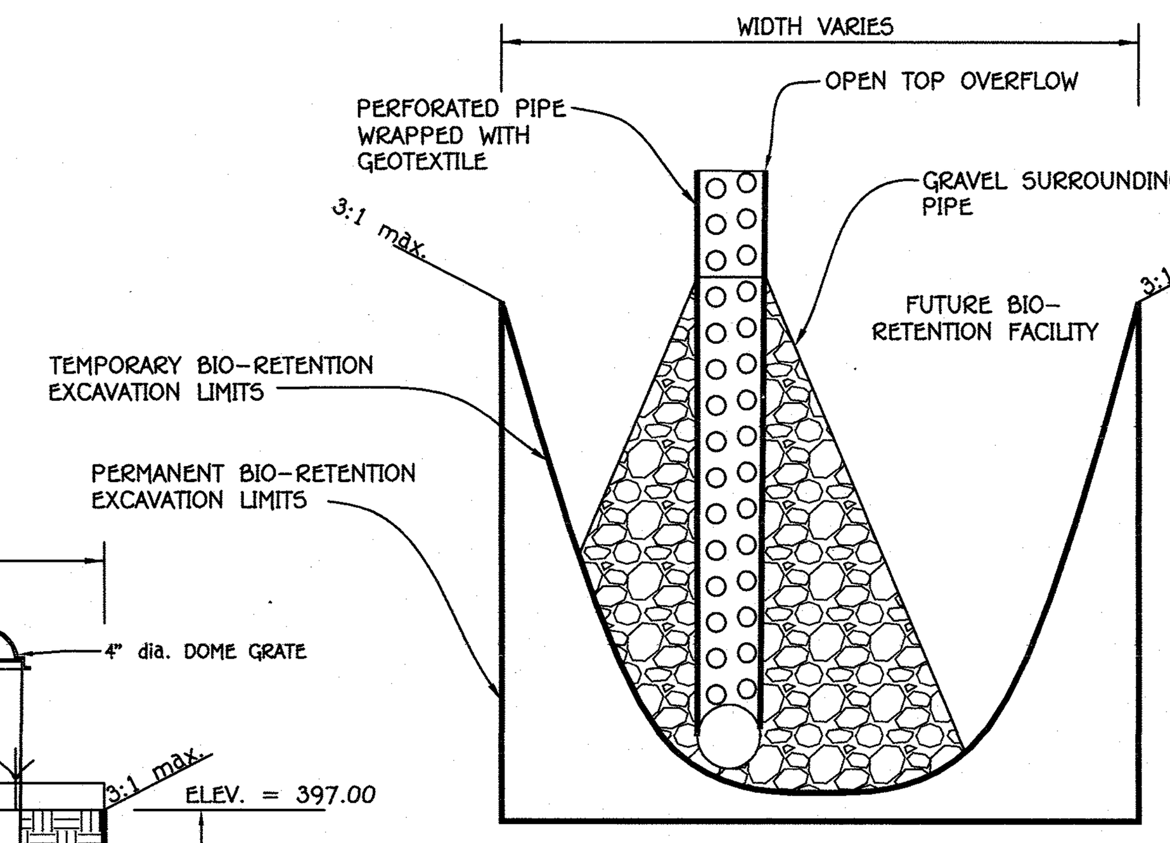
BIO SWALE CROSS SECTION
NO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-6) AND (F-6)

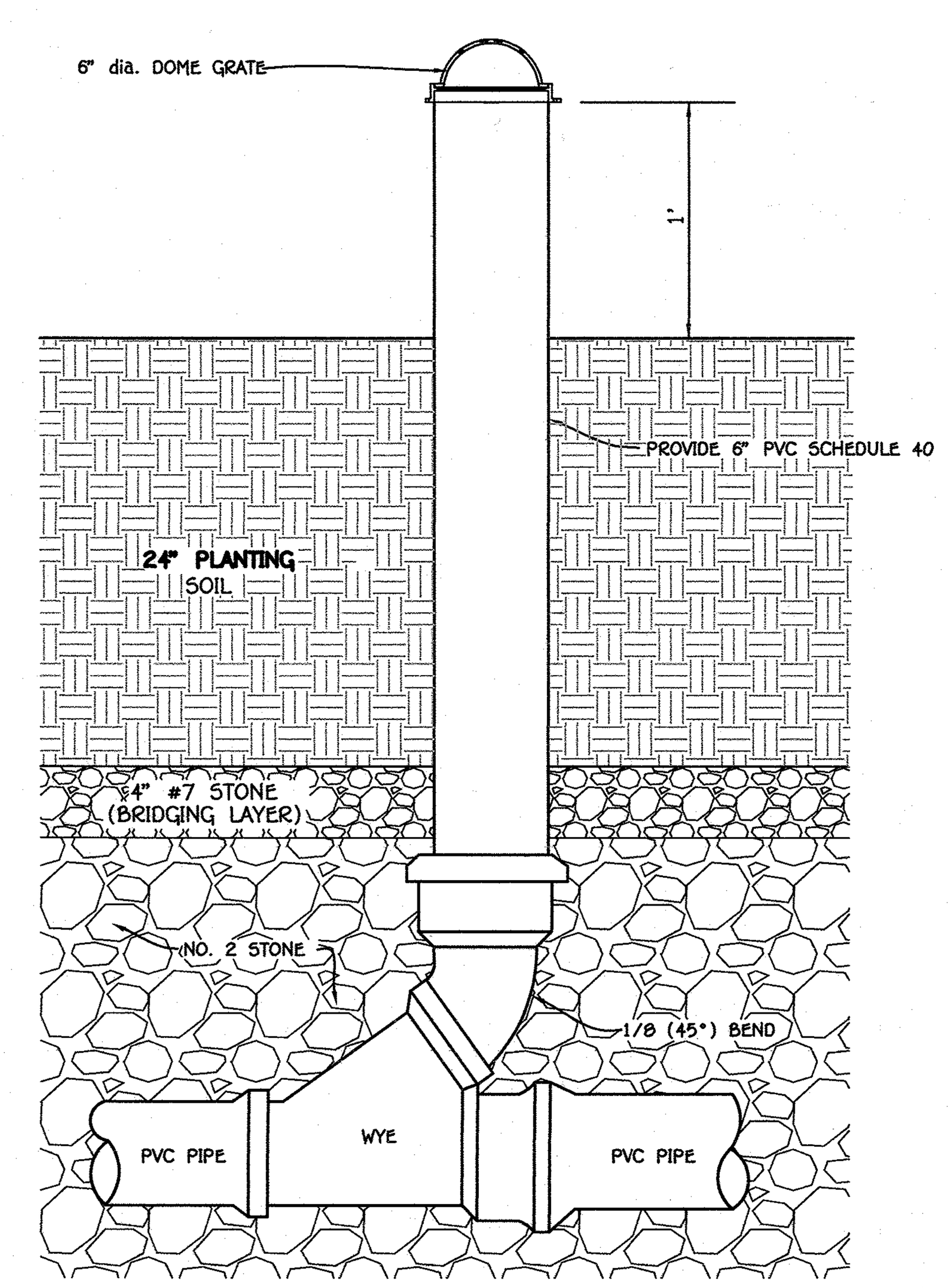
1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDER BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS. WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.



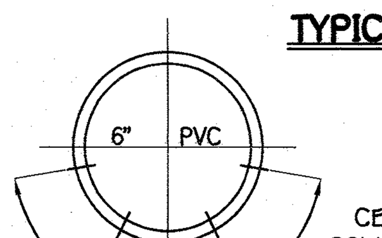
TYPICAL SECTION - BIO-RETENTION FACILITY
NO SCALE



TYPICAL SECTION - OPTIONAL INTERIM BIO-RETENTION FACILITIES
NO SCALE

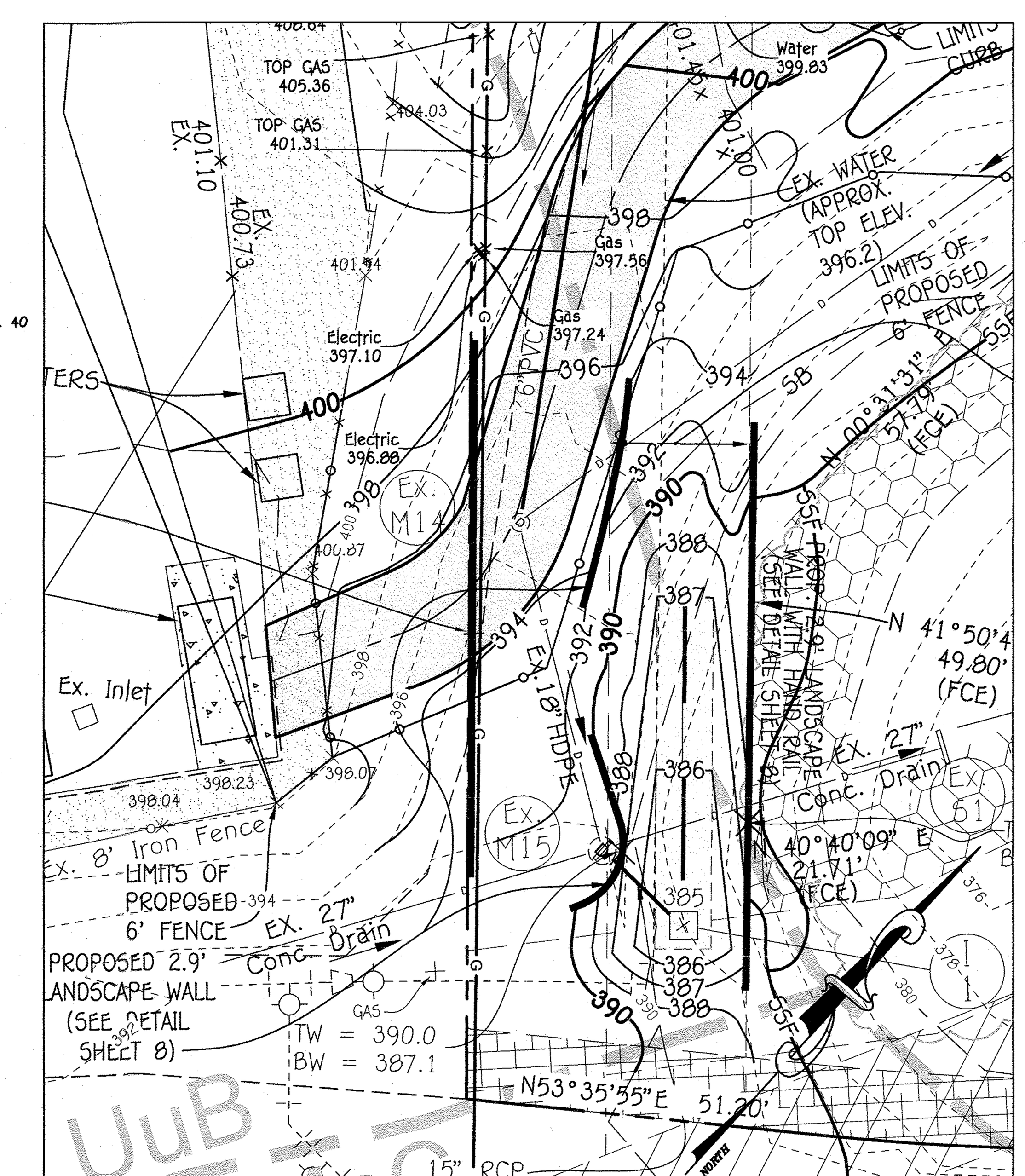


TYPICAL CLEAN-OUT DETAIL
NO SCALE



PIPE SIZE: 6"
HOLE SIZE: 3/8"
CENTER TO CENTER: 3"
ROWS OF HOLES: 2 @ 90°
2 @ 160° (+/-3°)

SCH40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE
NO SCALE



PROPOSED
M-8 (1)
SCALE: 1" = 20'
(BIO-SWALE)
ELEVATION: VARIES
FILTER AREA: 435 SqFt.
DRAINAGE AREA: 5,630 SqFt.

0' 20' 40' 80'
SCALE: 1" = 20'

B.4.C Specifications for Micro-Bioretention, Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications
The allowable materials to be used in these practices are detailed in Table B.4.1.
2. Filtering Media or Planting Soil
The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or 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 10% 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 into the soil to increase or decrease pH. There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.
3. Compaction
It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf 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 heavy equipment.

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 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material
Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation
Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3"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 1/8 th 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 area fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains
Underdrains should meet the following criteria:
Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (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 HDPE).

Perforations - If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4"(No.4 or 4x4) galvanized hardware cloth.

Gravel -The gravel layer(No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.

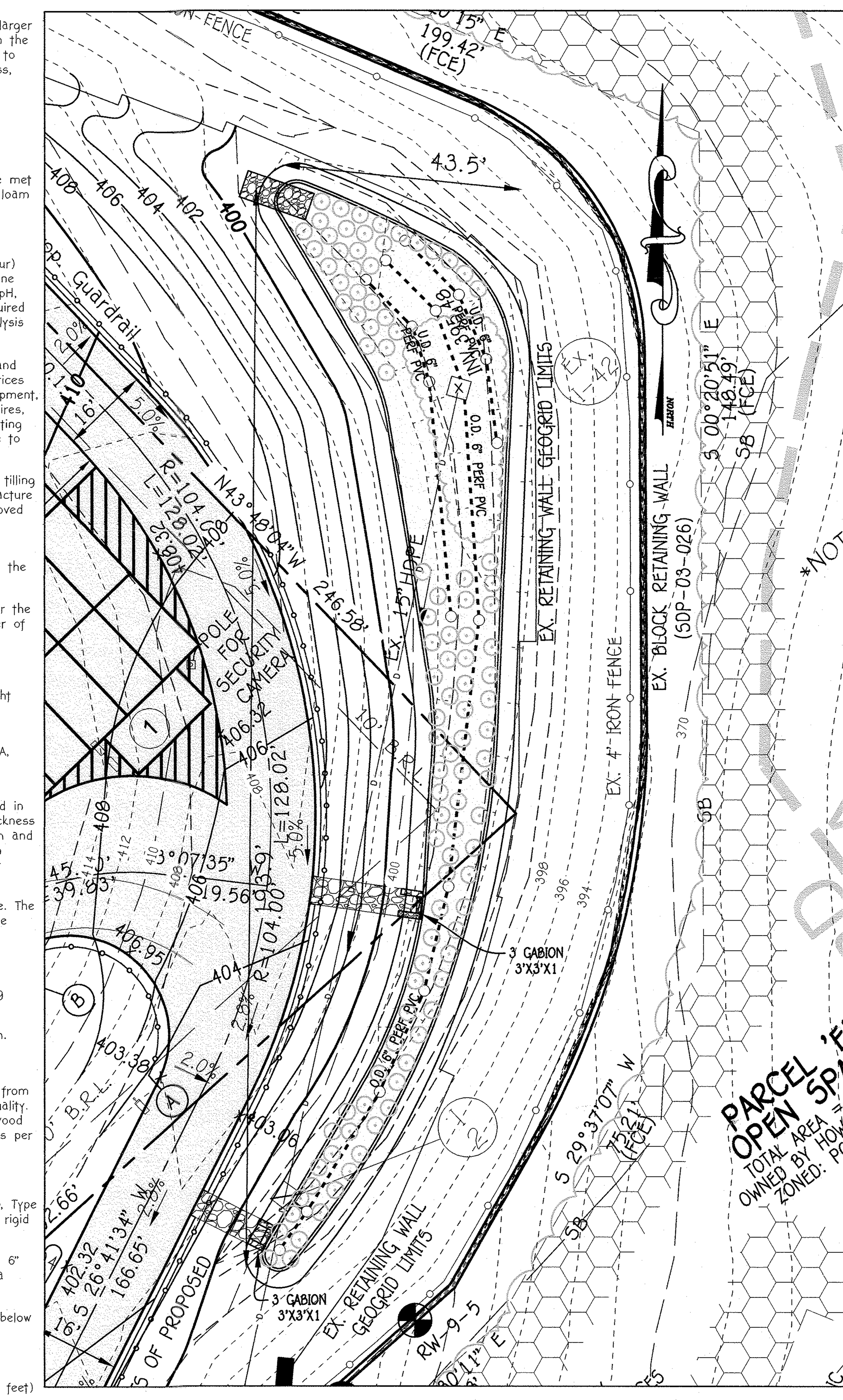
The main collector pipe shall be at a minimum 0.5% slope.

A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.

A 4" layer of pea gravel (1/4" to 3/8" 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 24".

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 of surface area).

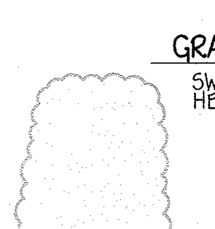
7. Miscellaneous
These practices may not be constructed until all contributing drainage area has been stabilized.



PROPOSED
M-6 (1)
SCALE: 1" = 20'
(BIO-RETENTION FACILITY)
ELEVATION: 397
FILTER AREA: 2,979 SqFt.
DRAINAGE AREA: 37,539 SqFt.
PERIMETER: 441'
WEIR ELEVATION: 398

SHRUBS
BAYBERRY
SPICEBUSH
ARROWWOOD
WINTERBERRY
INKBERRY
WITCH HAZEL
BUTTONBRUSH BUCKEYE
BOTTLEBRUSH BUCKEYE

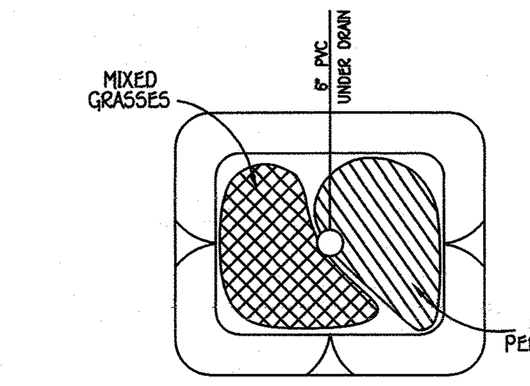
ANY OF THE SHRUBS LISTED MAY BE USED



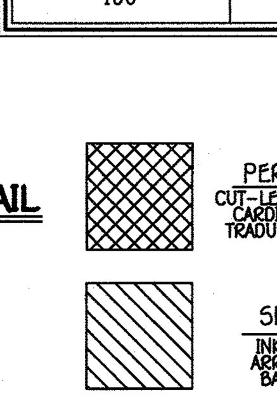
GRASS
SWITCHGRASS
HEAVY METAL SWITCHGRASS

ANY OF THE GRASS LISTED MAY BE USED

PLANT MATERIAL- BIO-RETENTION M-6 (1)		
QUANTITY	NAME	MAXIMUM SPACING (FT.)
248 (745 sq.ft.)	GRASSES	36" o.c.
106	SHRUBS	36"-40" o.c.



MICRO-BIORETENTION PLANTING DETAIL
NOT TO SCALE



MIXED PERENNIALS*
CUT-LEAF CONEFLOWER
CARDINAL FLOWER
TRADUSCANT ASTER

SHRUBS* / MIXED GRASSES*
INK BERRY / VIRGINIA SWITCHGRASS
ARROWWOOD / PENDULOUS SEDGE
BAYBERRY / LITTLE BLUESTEM

SEE PLANT MATERIAL CHARTS FOR QUANTITIES AND SPACING

NOTE:
PLANT MATERIAL MUST COVER AT LEAST 50% OF THE SURFACE AREA OF THE MICRO-BIORETENTION

STORMWATER MANAGEMENT NOTES

1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL EFFECTIVE MAY 4, 2010.
2. MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 1,000 SQ. FT. OR LESS.
3. DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5%. THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.
4. FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 12/2/21
Chief, Division of Land Development JS — Date

[signature] 11.16.21
Chief, Development Engineering Division — Date

[signature] 12/2/21
Director - Department of Planning and Zoning — Date

PROJECT		SECTION	PARCEL NOs.		
CENTRAL FLEET		-	852		
PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
21798-21803	6	POR-MXD-6	24	SECOND	6051.02

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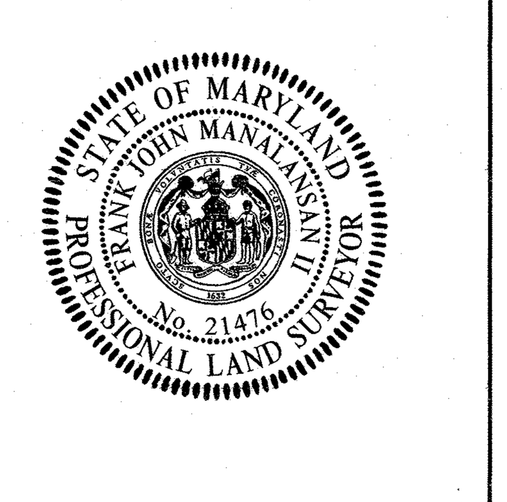

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[signature] 10/1/21
NAME — DATE

OWNER/DEVELOPER

HOWARD COUNTY
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MARYLAND 21043
ATTN: MR. RICHARD LEE
410-313-7548

	REVISION	DATE
1	ADD EXIST. POINTS, REVISE GRADING, LOD & SWM	7/2021

SWM NOTES & DETAILS

CENTRAL FLEET
CAPITAL PROJECT C0317
VEHICLE STORAGE LOT
PARCELS 'A' AND 'E'
ZONED: POR-MXD-6
TAX MAP NO.: 24 GRID NO.: 6 PARCEL NO.: 852
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: FEBRUARY, 2020
SHEET 10 OF 10

SDP-19-062