FINAL ROAD CONSTRUCTION PLAN

SOMERVILLE ESTATES

LOTS 1 THRU 7, AND OPEN SPACE LOTS 8-10

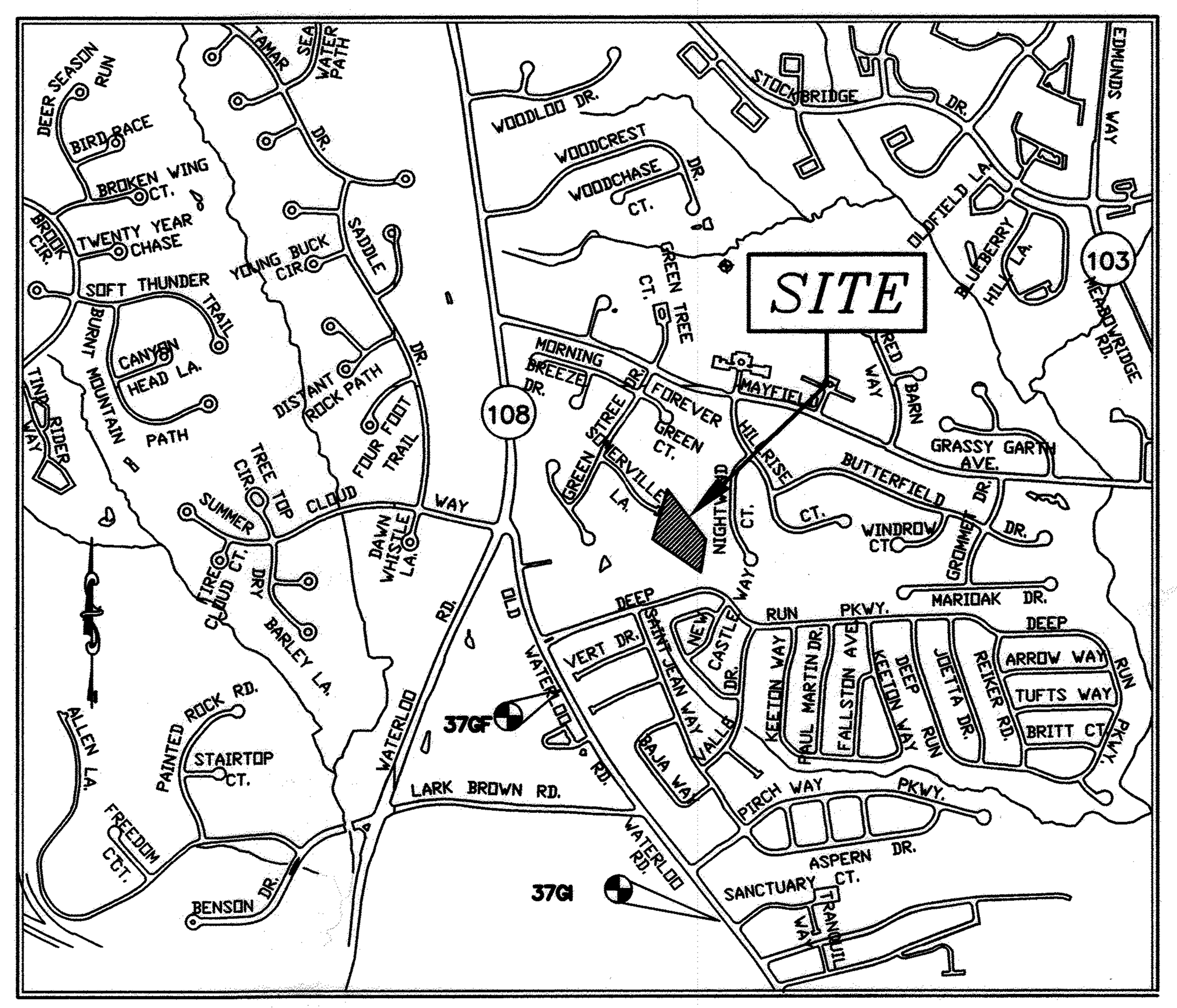
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SHEET INDEX

MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
2	6,680 SQ .FT.	344 SQ.FT.	6,336 SQ. FT.
3	6,587 SQ .FT.	555 SQ.FT.	6,032 SQ. FT.
4	7,021 SQ .FT.	762 SQ.FT.	6,259 SQ. FT.
5	7,302 SQ .FT.	709 SQ.FT.	6,593 SQ. FT.
6	8,022 SQ .FT.	370 SQ.FT.	7,652 SQ. FT.
O/S 9	5,959 SQ .FT.	338 SQ.FT.	5,621 SQ. FT.
O/S 10	12,925 SQ .FT.	911 SQ.FT.	12,014 SQ. FT.

LEGEND

LOD	LIMIT OF DISTURBANCE
	PR. STORM DRAIN PIPE
	PR. STORM DRAIN INLET
A-1	EARTH DIKE
SSF	SUPER SILT FENCE
DF	DIVERSION FENCE
A-1	TEMPORARY SWALE
▨	PROPOSED PAVEMENT



ADC MAP: 34 GRID: C-4

VICINITY MAP
SCALE: 1"=1000'

GENERAL NOTES:

1. THIS SUBJECT PROPERTY IS ZONED R-SC PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
2. THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
3. TOPOGRAPHY WITHIN 200' OF SITE BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS, PERFORMED BY MILDENBERG, BOENDER & ASSOC., INC. ON OR ABOUT FEBRUARY 2016. OTHER TOPOGRAPHY SHOWN IS BASED ON HOWARD COUNTY GIS.
4. BOUNDARY SHOWN HEREON IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT OCTOBER, 2016 BY MILDENBERG, BOENDER & ASSOC INC.
5. COORDINATES BASED ON NAD '83 (HORIZONTAL) AND NAVD '88 (VERTICAL) MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS
   STA. No. 37GI N 553,697.236 E 1,372,015.045 ELEV. 292.995
   STA. No. 37GF N 555,222.147 E 1,370,948.649 ELEV. 330.872
6. PROJECT BACKGROUND:
   ADDRESS: 8126 FOREVER GREEN CT. ELKRIDGE, MD 21075
   LOCATION: TAX MAP : 37 PARCEL: 532 GRID: 14
   ELECTION DISTRICT: FIRST
   DEED REFERENCE :17307/002
   PREVIOUS PROJECT NUMBERS: ECP-17-031, SP-17-011, WP-18-024
7. SITE AREA TABULATION
   TOTAL AREA: 1.95 AC.±
   AREA OF 100 YEAR FLOODPLAIN: 0.0 AC±
   TOTAL NET AREA: 1.95 AC±
   MINIMUM LOT SIZE PROPOSED: 6,000 S.F.
   NUMBER OF BUILDABLE LOTS: 7
   NUMBER OF OPEN SPACE LOTS: 3
   TYPE OF PROPOSED UNIT: SFD
   AREA OF BUILDABLE LOTS 1.19 AC±
   AREA OF ROAD ROW: 0.16 AC±
   AREA OF ROAD DEDICATION: 0.16 AC±
   AREA OF OPEN SPACE REQUIRED: (25%) 0.49 AC±
   AREA OF OPEN SPACE PROVIDED (CREDITED): (29.6%) 0.58 AC±
   AREA OF OPEN SPACE (NON-CREDITED): 1,255 S.F. 0.03 AC± (PIPESTEMS AREA)
   EXISTING WATER AND SEWER CONTRACT NO. 14-3588-D.
8. WATER IS PUBLIC.
9. SEWER IS PUBLIC.
10. STORMWATER MANAGEMENT IS PROVIDED BY M-6 MICRO-BIORETENTION FACILITIES IN ACCORDANCE WITH THE 2007 MARYLAND STORMWATER DESIGN MANUAL. ALL FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY SOMERVILLE HOA.
11. FOREST STAND DELINEATION WAS PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC. IN OCTOBER, 2016.
12. NO WETLAND, STREAM OR ITS BUFFERS EXIST ON-SITE.
13. NO FLOODPLAIN EXIST ON-SITE.
14. NO STEEP SLOPES EXIST ON-SITE.
15. NO HISTORIC STRUCTURES, CEMETERIES, OR GRAVE SITES EXIST ON-SITE.
16. SITE IS NOT ADJACENT TO A DESIGNATED SCENIC ROAD.
17. APFO ROAD TEST WAS PROVIDED BY TRAFFIC GROUP IN JUNE 2017 UNDER SP-17-011.
18. NOISE STUDY IS NOT REQUIRED.
19. ALL EXISTING STRUCTURES ARE TO BE REMOVED.
20. FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION WILL BE FULFILLED BY A PAYMENT OF FEE-IN-LIEU FOR 0.29 ACRES OF AFFORESTATION. FEE-IN-LIEU FOR 0.29 ACRES (12,634 SQ. FT.) OF AFFORESTATION IN THE AMOUNT OF $ 9,475.00 WILL BE POSTED WITH THIS PLAN.
21. IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL, ALL LANDSCAPING REQUIREMENTS ARE PROVIDED IN A CERTIFIED LANDSCAPE PLAN WHICH IS INCLUDED WITH THIS FINAL ROAD CONSTRUCTION PLAN SET.
22. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING (18 SHADE AND 6 EVERGREEN TREES) AND AN ADDITIONAL 4 SHADE TREES PROVIDED IN LIEU OF REMOVING 2 SPECIMEN TREES AS A CONDITION OF THE APPROVED WAIVER WP-18-024 IN THE AMOUNT OF $7,500.00 IS TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.
23. PER SECTION 16.121(a) OF THE HOWARD COUNTY SUBDIVISION AND LAND USE REGULATIONS, OPEN SPACE FOR THIS SUBDIVISION HAS BEEN PROVIDED THROUGH THE CREATION OF OPEN SPACE LOTS 8-10.
24. A PRE-SUBMISSION COMMUNITY MEETING FOR THIS PROJECT WAS HELD ON OCTOBER 18, 2016 AT 6:00PM AT THE ELKRIDGE FIRE HALL.
25. THIS DEVELOPMENT PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL 75-2003. DEVELOPMENT OR CONSTRUCTION ON LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE BUILDING / GRADING PERMIT.
26. ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MIHU FEE-IN-LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICANT.
27. THE SEPTIC SYSTEM MUST BE PROPERLY ABANDONED WITH DOCUMENTATION SENT TO THE HEALTH DEPARTMENT PRIOR TO HEALTH DEPARTMENT SIGNATURE OF THE FINAL RECORD PLAT.
28. A PRIVATE STREET NAME SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.
29. GEOTECHNICAL REPORT WAS PROVIDED BY GEOTECHNICAL ENVIRONMENTAL TESTING CONSULTANTS, INC.
30. THIS PLAN IS SUBJECT TO WP-18-024, SEEKING AN ALTERNATIVE COMPLIANCE TO SECTIONS 16.1205(a)(7) WHICH STATES THAT STATE CHAMPION TREES, TREES 75% OF THE DIAMETER OF STATE CHAMPION TREES AND TREES 30" IN DIAMETER OR LARGER SHALL BE LEFT IN AN UNDISTURBED CONDITION DURING CONSTRUCTION. THIS ALTERNATIVE COMPLIANCE WAS APPROVED ON SEPTEMBER 21, 2017, SUBJECT TO THE FOLLOWING CONDITIONS:
    1. THE APPROVAL OF THIS ALTERNATIVE COMPLIANCE REQUEST APPLIES ONLY TO THE TWO (2) SPECIMEN TREES AS SHOWN TO BE REMOVED ON THE PLAN EXHIBIT. THE REMOVAL OF ANY OTHER SPECIMEN TREE ON THE SUBJECT PROPERTY IS NOT PERMITTED UNDER THIS REQUEST UNLESS IT CAN BE SUFFICIENTLY DEMONSTRATED BY THE APPLICANT TO BE JUSTIFIED.
    2. THE DEVELOPER SHALL PLANT FOUR (4) 2 1/2 INCH MINIMUM CALIPER NATIVE SHADE TREES IN ADDITION TO THE REQUIRED PERIMETER LANDSCAPING TO MITIGATE THE REMOVAL OF THE TWO SPECIMEN TREES. INCLUDE THE ADDITIONAL TREES ON SP-17-011 AND ALL SUBSEQUENT PLANS. THESE TREES WILL BE BONDED ALONG WITH THE REQUIRED PERIMETER LANDSCAPING AS PART OF THE FINAL SUBDIVISION PLAN.
31. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
32. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT (410)313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
33. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
34. 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.
35. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

ENGINEER'S 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.

[illegible] 8/14/18
SIGNATURE OF ENGINEER DATE

R. JACOB HIKMAT, PE.
PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

[illegible] 08/14/18
SIGNATURE OF DEVELOPER DATE

WM. SCOTT GODSTYLEY
PRINTED NAME OF DEVELOPER

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

[illegible] 8/28/18
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[illegible] 9/13/2018
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[illegible] 9.21.18
CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE

[illegible] 9-25-18
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

P:\2004\16-015 FOREVER GREEN\DWG\ROAD PLANS.dwg

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

STATE OF MARYLAND SAMER A. ALOMER 28859 PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/03/20

[illegible] 8/14/18
R. JACOB HIKMAT P.E. DATE:

STATE OF MARYLAND R. JACOB HIKMAT No. 17942 PROFESSIONAL ENGINEER

OWNER

HARMONY BUILDERS INC.
4228 COLUMBIA RD.
ELLICOTT CITY MD, 21042
(410) 461-0833

project	date
16-015	AUG 2018
illustration	engineering
MMM	MMM
scale	approval
AS SHOWN	RJH

no.	description revisions	date

SOMERVILLE ESTATES
LOTS 1-7 AND OPEN SPACE LOTS 8-10
TAX MAP 37, GRID 14, PARCEL 532
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

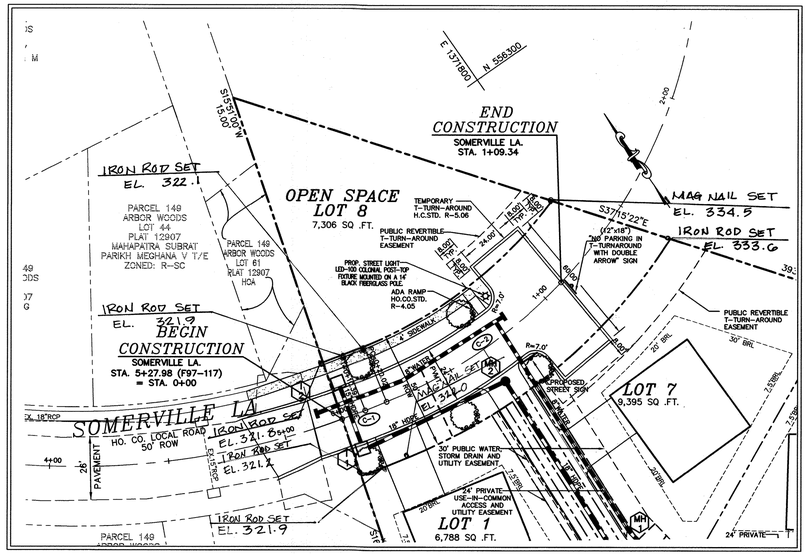
COVER SHEET

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Tel. (410) 997-0298 Fax.

F-18-070

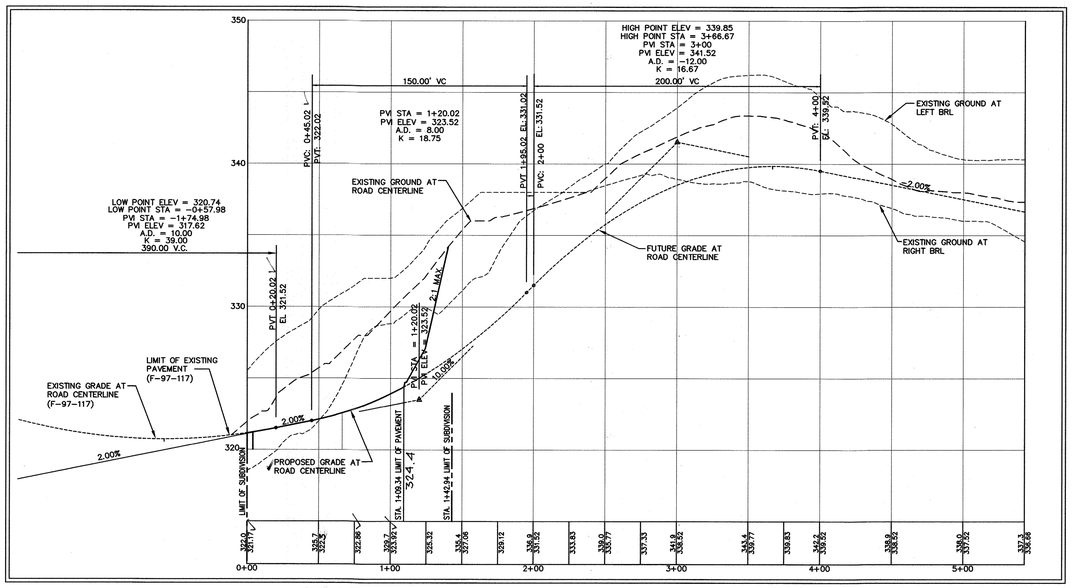
CENTERLINE CURVE TABLE

CURVE	LENGTH (FT)	RADIUS (FT)	DELTA	TANGENT (FT)	CHORD LENGTH (FT)	CHORD DIR
C-1	10.39	320.00	01°51'36"	5.19	10.39	S76°20'15"E
C-2	89.32	210.00	24°22'11"	45.35	80.65	S87°27'09"E



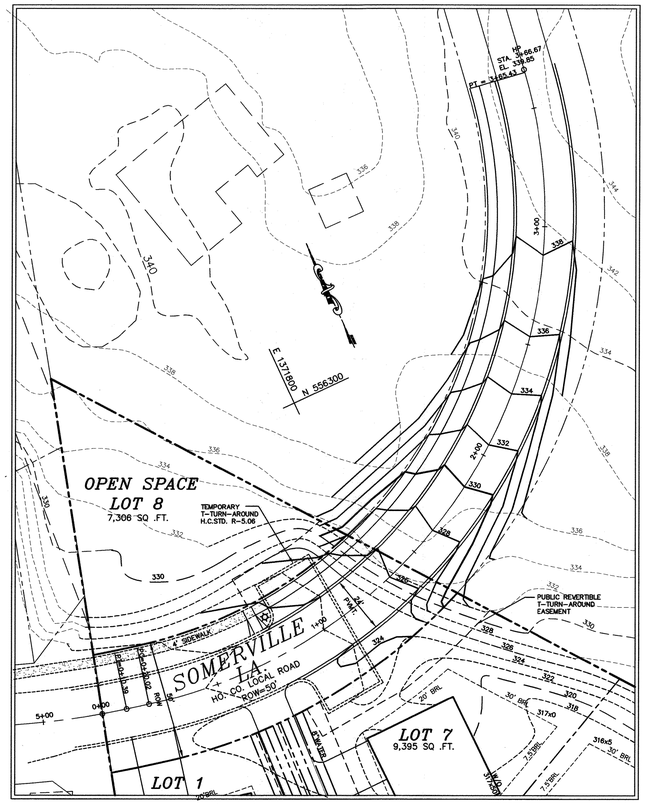
SOMERVILLE LANE EXTENSION PLAN

SCALE: 1"=30'



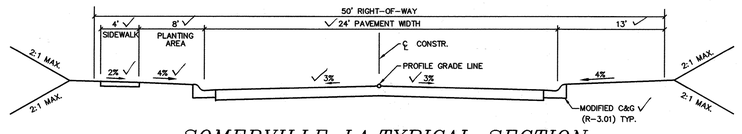
PROFILE – SOMERVILLE LANE EXTENSION

(PUBLIC – LOCAL ROAD, 30 M.P.H. DESIGN SPEED)
SCALE: 1"=50' HOR
1"=5' VER



POTENTIAL FUTURE SOMERVILLE LANE EXTENSION

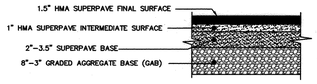
SCALE: 1"=30'



SOMERVILLE LA. TYPICAL SECTION

CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 30 MPH

HO.CO.STD.R-1.02
N.T.S.



PAVING SECTION P-2

N.T.S.

NOTE: DEPTH OF SUPERPAVE BASE AND GRADED AGGREGATE BASE DEPEND ON CBR.

OWNER
HARMONY BUILDERS INC
4228 COLUMBIA ROAD
ELLICOTT CITY, MD 21042
410-461-0833

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 9/13/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.18
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-25-18

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/03/20

R. JACOB HIKMAT P.E. — DATE: 8/14/18

STATE OF MARYLAND · R. JACOB HIKMAT · NO. 17942 · PROFESSIONAL ENGINEER

I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approved plans and specifications.

STATE OF MARYLAND · 26969 · PROFESSIONAL ENGINEER

project 16-015 | date AUG. 2018
illustration MMM | engineering MMM
scale AS SHOWN | approval RJH

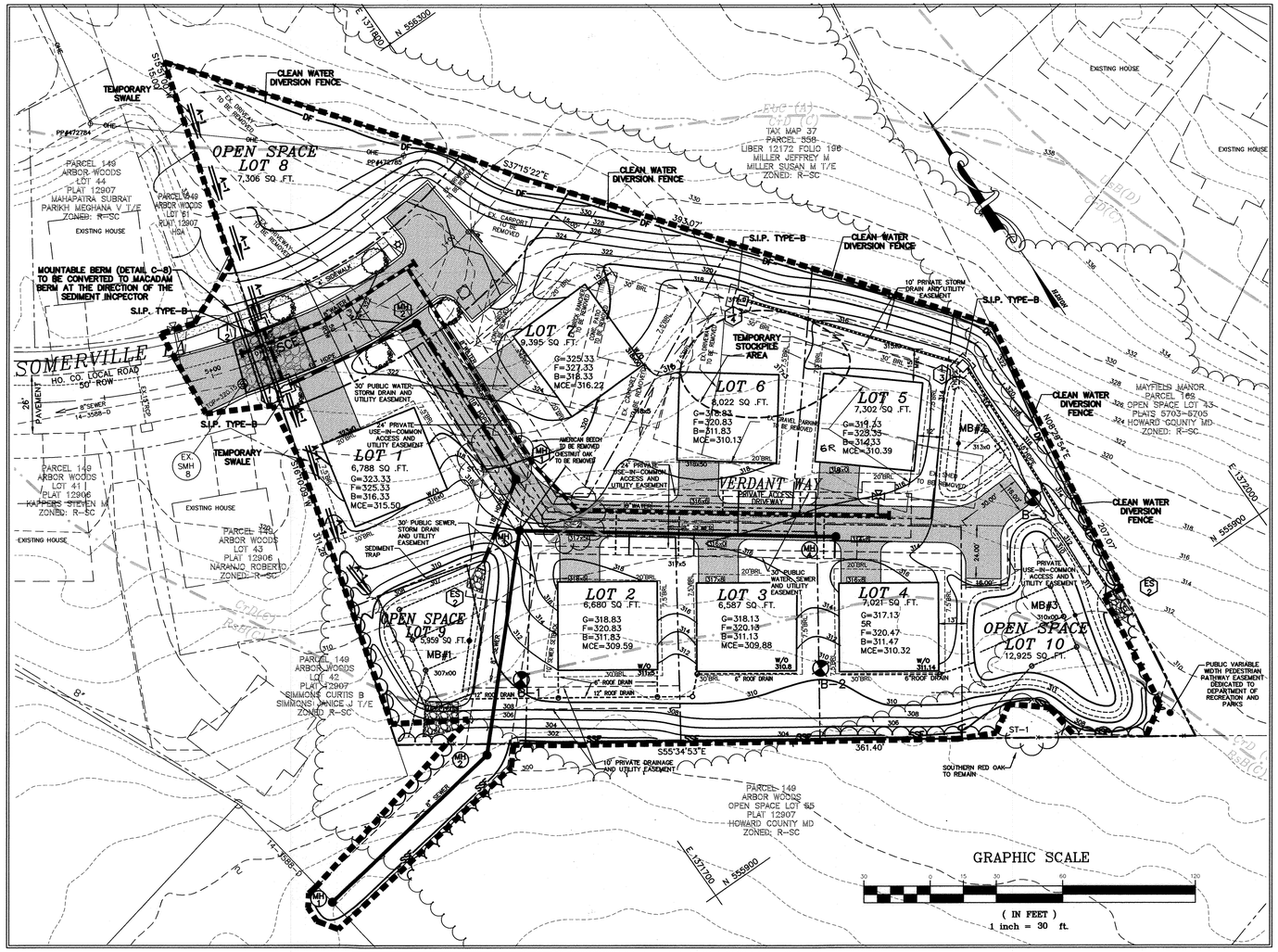
1/1/22 — AS-BUILT DATA — description — revisions — no.

SOMERVILLE ESTATES
LOTS 1-7 AND OPEN SPACE LOTS 8-10
TAX MAP 37, GRID 14, PARCEL 532
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FINAL ROAD PLAN, PROFILE AND TYPICAL SECTION

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Tel. (410) 997-0298 Fax.

P:\2004\16-015 FOREVER GREEN\DWG\FINAL\ROAD PLANS.dwg

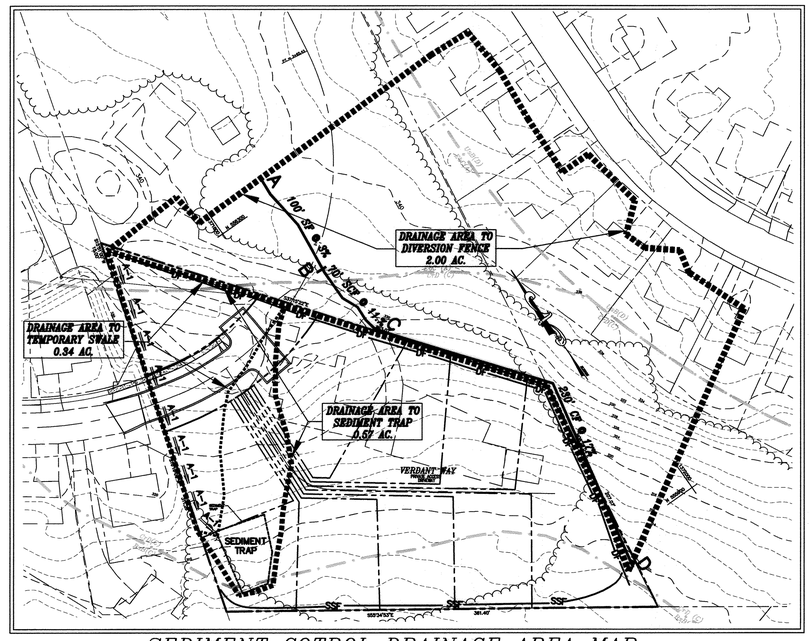


FINAL GRADING PLAN

SCALE 1"=30'

SOILS TABLE

SYMBOL	RATING	NAME	K FACTOR	MAP NO.	COMMENTS
CrD	(C)	CROOM AND EVESBORO SOILS, 10–15%	.37	19	HIGHLY ERODIBLE
EbC	(A)	EVESBORO LOAMY SAND, 2–10% SLOPES.	.17	19	
RsB	(C)	RUSSETT FINE SANDY LOAM, 2 TO 5% SLOPES	.24	19	



SEDIMENT COTROL DRAINAGE AREA MAP

SCALE: 1"–60'

TEMPORARY SWALE (A–1) DATA

DRAINAGE AREA:	0.34 AC.
C FACTOR:	0.24
TIME:	10 MIN.
I:	6.6
Q: 0.34x0.24x6.6 =	0.54 CFS
CHANNEL SLOPE:	8.5%
MANNING'S N:	0.024
HEIGHT:	1'
BOTTOM WIDTH:	4'
SIDE SLOPES:	2:1
VELOCITY:	2.5 FPS

DIVERSION FENCE (DF) DATA

DRAINAGE AREA:	2.00 AC.
C FACTOR:	0.26
TIME:	19.9 MIN.
I:	4.7
Q: 2.0x0.26x4.7 =	2.44 CFS
CHANNEL SLOPE:	17.0%
MANNING'S N:	0.075
HEIGHT:	3'
BOTTOM WIDTH:	0'
RIGHT SLOPE:	2:1
LEFT SLOPE:	5:1
VELOCITY:	3.08 FPS

NOTE:

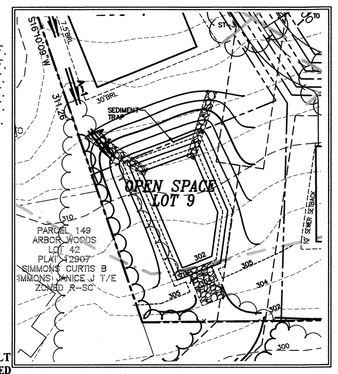
EITHER TEMPORARY OR PERMANENT SEEDING AND STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAME IN THE 2011 MARYLAND STANDARDS & SPECIFICATIONS OF SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE STRINGENT.

LEGEND

- EX. TREE LINE
- PR. TREE LINE
- SPECIMEN TREE TO BE REMOVED
- 8"SEWER — PR. 8" SEWER MAIN
- MH 2 — PR. SEWER MANHOLE
- 8"WATER — PR. 8" WATER MAIN
- PR. STORM DRAIN PIPE
- PR. STORM DRAIN INLET
- PROPOSED PAVEMENT
- LOD — LIMIT OF DISTURBANCE
- A–1 — TEMPORARY SWALE
- SSF — SUPER SILT FENCE
- DF — DIVERSION FENCE

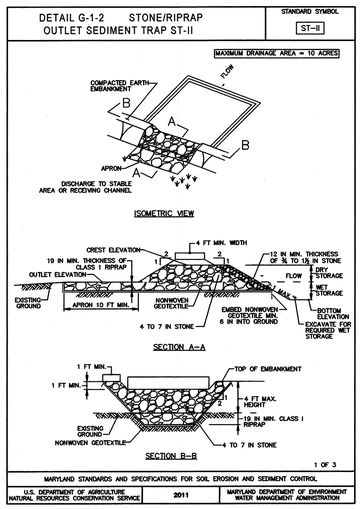
SEDIMENT TRAP (ST II) DATA

DRAINAGE AREA:	0.57 AC.
TOTAL STORAGE REQUIRED:	2,052 C.F.
TOTAL STORAGE PROVIDED:	2,350 C.F.
WET STORAGE REQUIRED:	1,026 C.F.
WET STORAGE PROVIDED:	1,035 C.F.
DRY STORAGE REQUIRED:	1,026 C.F.
DRY STORAGE PROVIDED:	1,315 C.F.
EX. GROUND ELEV. @ OUTLET:	304.0
BOTTOM ELEVATION:	302.0
BOTTOM DIMENSIONS:	22'x43'
WEIR LENGTH:	10'
WEIR CREST ELEV.:	304.0
TOP OF EMBANKMENT ELEV.:	305.0
TOP OF EMBANKMENT WIDTH:	4'
SIDE SLOPE:	2:1
OUTLET PROTECTION LENGTH:	10'
OUTLET PROTECTION DEPTH:	9"



SEDIMENT TRAP

SCALE: 1"=30'



OWNER

HARMONY BUILDERS
4228 COLUMBIA RD.
ELLICOTT CITY MD, 21042
(410) 461–0833

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

ENGINEER'S 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 ENGINEER — DATE 8/14/18

R. JACOB HIKMAT, PE.
PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON–SITE INSPECTION.

SIGNATURE OF DEVELOPER — DATE 081418

WM. SCOTT GODSTREY
PRINTED NAME OF DEVELOPER

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 8/28/18

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9/13/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.18

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-25-18

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/03/20

R. JACOB HIKMAT P.E. — DATE: 8/14/18

STATE OF MARYLAND R. JACOB HIKMAT No. 17942 PROFESSIONAL ENGINEER

P:\2004\16-015 FOREVER GREEN\DWG\16-015-ECP-1.dwg

project 16–015 | date AUG. 2018
illustration MMM | engineering MMM
scale 1"=30 | approval RJH

no.	description / revisions	date
1	REV GRADING, LOCATION & TOP ELEVATION OF ST-II	10/19/18

SOMERVILLE ESTATES

LOTS 1–7 AND OPEN SPACE LOTS 8–10
TAX MAP 37, GRID 14, PARCEL 532
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

GRADING AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350–B Grace Drive, Columbia, Maryland 21044
(410) 997–0296 Tel. (410) 997–0298 Fax.

F–18–070

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

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

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

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

CRITERIA

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION

a. 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 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 1½ 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 AND 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.

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

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

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

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

CRITERIA

A. SEEDING

1. SPECIFICATIONS

a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE 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 WEED CONTROL 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 A 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(PHOSPHOROUS), 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 A UNIFORM FIBROUS PHYSICAL STATE.
   I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
   II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
   III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
   IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE 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 AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
   a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
   I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
   II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
   III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT 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 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

(B-4-5) STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOIL WITH PERMANENT VEGETATION.

PURPOSE
TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER OF DISTURBED

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

CRITERIA

A. SEED MIXTURES

1. GENERAL USE
   A. SELECT ONE OR MORE OF THE SPIECES OF MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED IN THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY.
   B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DINES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD GUIDE, SECTION 342-CRITICAL AREA PLANTING.
   C. FOR SITES HAVING DISTURBAD AREA OVER 5 ACRES, USE AND SHOW RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
   D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FROM FERTILIZED (40-0-01) AT 3 1/2 POUNDS PER 1000 S.F. (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 DESIRE 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 OF MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLOCATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY.
   I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASRERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS SEEDING RETA: 1.5 TO 2.0 POUNDS PER 1000 S.F. 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/PERENIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY ABD WHEN TURF WILL RECEIVE MEDIUM TO INTENSUVE MANAGEMENT. CERTIFIED PERENIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDINGRATE: 2 POUNDS MIXTURE PER 1000 S.F. SHOOSE A MINIMUM OF THREE KENTUCKYBLUEGRASS CULTIVARS EITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
   III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL MIXTURE: FOR USE IN DROUGHT AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 65 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 PERCENT PER 1000 S.F. 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 TIRF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCANT AND CERTIFIES FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATES 1 1/2 TO 3 POUNDS PER 1000 S.F.
   C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURE
   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 ZONE: 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 STONE AND DEBRIS OVER 1.5 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASS WILL POSE NO DIFFICULTY.
   E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH 0.5 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 SEASON, OR ON ADVERSE SITES.

(B-4-8) STANDARDS AND SPECIFICATION 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.

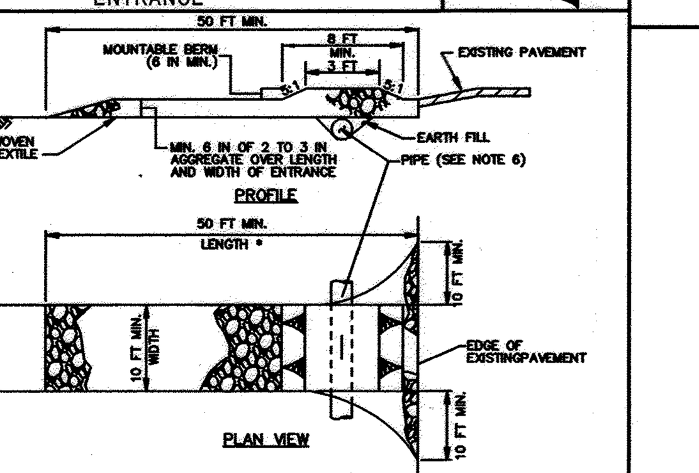
CRITERIA

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 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 DEVISE 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. STOCKPILE MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-I 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 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 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 B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



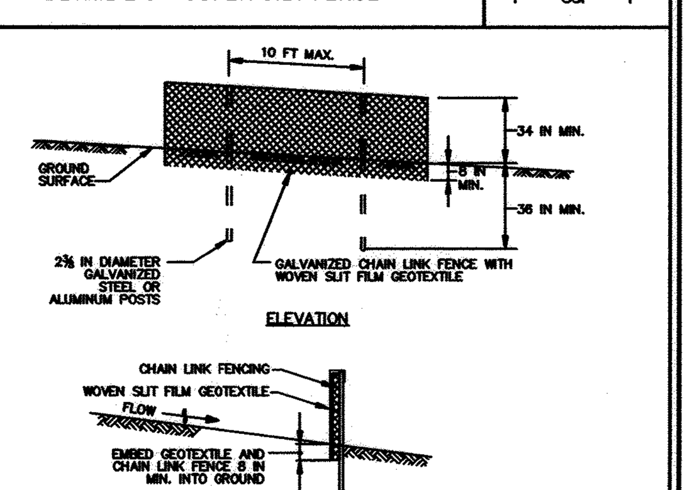
CONSTRUCTION SPECIFICATIONS

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 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.

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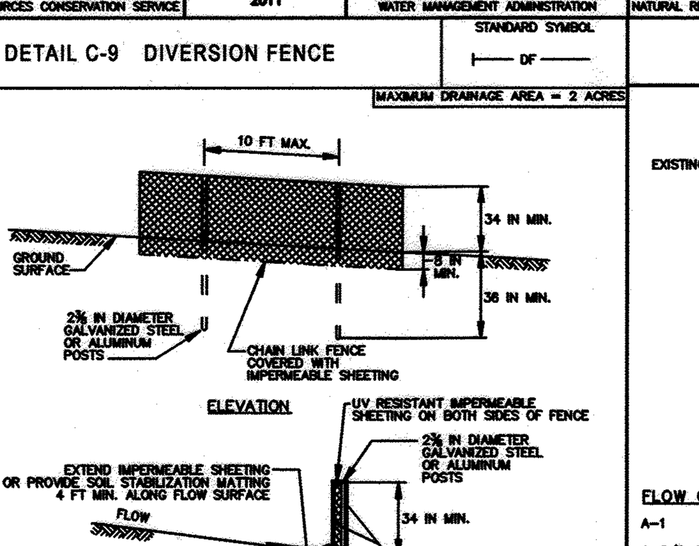
DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: DF

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

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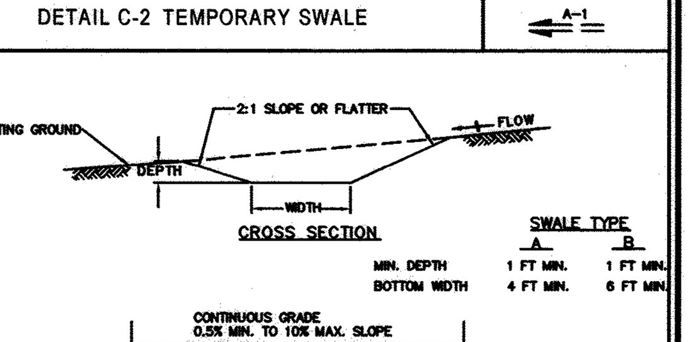
DETAIL C-2 TEMPORARY SWALE

STANDARD SYMBOL: A-1



	SWALE TYPE A	SWALE TYPE B
MIN. DEPTH	1 FT MIN.	1 FT MIN.
BOTTOM WIDTH	4 FT MIN.	6 FT MIN.

FLOW CHANNEL STABILIZATION

A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF TEMPORARY SWALE.
2. EXCAVATE OR SHAPE TEMPORARY SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. STABILIZE TEMPORARY SWALE WITHIN THREE DAYS OF INSTALLATION. STABILIZE SWALES USED FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP TEMPORARY SWALE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
7. UPON REMOVAL OF TEMPORARY SWALE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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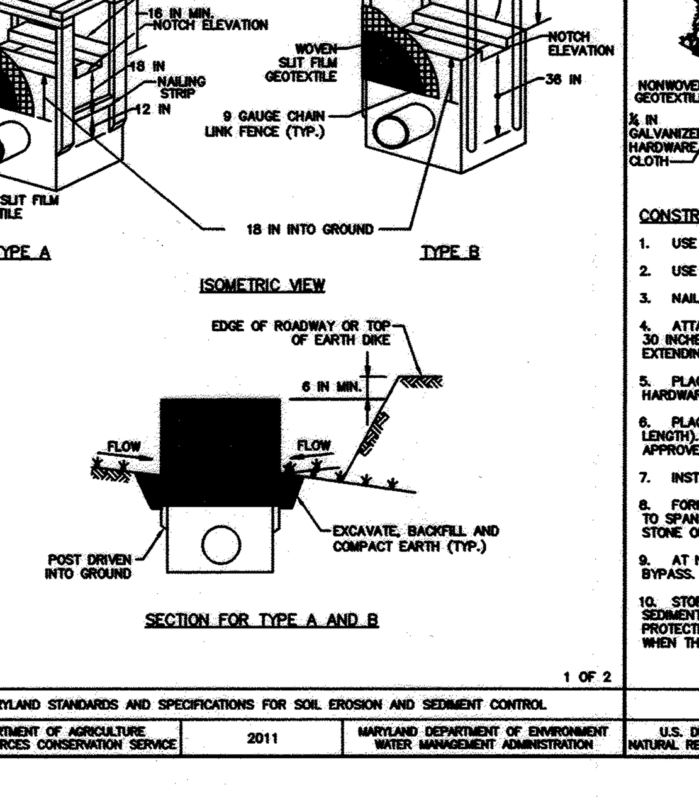
DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

TYPE A MAXIMUM DRAINAGE AREA = ¼ ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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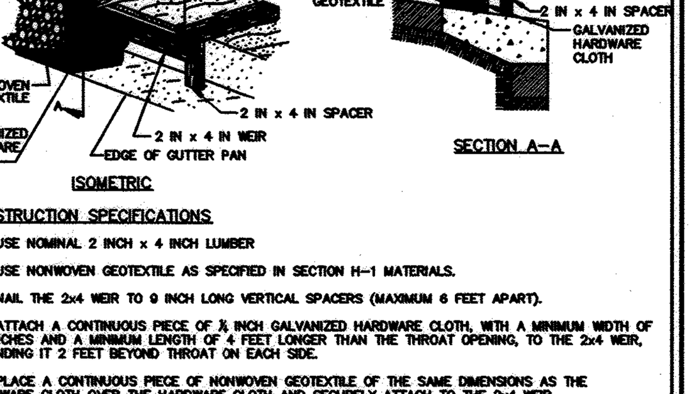
DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ½ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. 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.

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STANDARD SEDIMENT CONTROL NOTES

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

   OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
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 2011 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 IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), 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 APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODABLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
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 CID.
6. SITE ANALYSIS:
   TOTAL AREA OF SITE: 1.95 ACRES
   AREA DISTURBED: 2.03 ACRES
   AREA TO BE ROOFED OR PAVED: 0.76 ACRES
   AREA TO BE VEGETATIVE STABILIZED: 1.27 ACRES
   TOTAL CUT: 5000 CU. YDS.
   TOTAL FILL: 5000 CU. YDS.
   OFFSITE WASTE/BORROW AREA LOCATION: ____
7. ANY SEDIMENT CONTROL PRACTICE WHICH 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 CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
   - INSPECTION DATE
   - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
   - NAME AND TITLE OF INSPECTOR
   - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
   - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
   - EVIDENCE OF SEDIMENT DISCHARGES
   - IDENTIFICATION OF PLAN DEFICIENCIES
   - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
   - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
   - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
   - PHOTOGRAPHS
   - MONITORING/SAMPLING
   - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
   - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBERICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
    USE I AND IP MARCH 1 - JUNE 15
    USE III AND IIIP OCTOBER 1 - APRIL 30
    USE IV MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

ENGINEER'S 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 ENGINEER — DATE 8/14/18
R. JACOB HIKMAT, PE.
PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

SIGNATURE OF DEVELOPER — DATE 081418
WM. SCOTT GODSTREY
PRINTED NAME OF DEVELOPER

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 8/28/18

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9/13/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.18

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-25-18

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/03/20

R. JACOB HIKMAT P.E. — DATE: 8/14/18

STATE OF MARYLAND · R. JACOB HIKMAT · No. 17942 · PROFESSIONAL ENGINEER

(B-4-4) STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOIL WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE
TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURB SOIL.

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 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 FORTELIZER 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.1b, AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT (1 DAY).
2. PERFORM CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS (5 DAYS)
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT LOCATION INDICATED (1 DAY)
4. CONSTRUCT PERIMETER CONTROLS: SUPER SILT FENCES (SSF), DIVERSION FENCES (DF), AND SEDIMENT TRAP (ST-II) AS SHOWN ON PLAN (6 DAYS)
5. CONSTRUCT DIVERSION SWALE (A-1) (3 DAYS)
6. CLEAR AND GRUB SITE (2 DAYS)
7. PERFORM INITIAL GRADING (7 DAYS)
8. INSTALL MOUNTABLE BERM TO DIRECT RUNOFF TO THE TRAP AFTER THE ROAD IS CUT OUT YET PRIOR TO THE PAVING (1 DAY)
9. INSTALL STORM DRAIN SYSTEM AND INSTALL INLET PROTECTION (7 DAYS) KEEP TEMPORARY SWALE AND MOUNTABLE BERM IN PLACE TO ENSURE THAT RUNOFF REACHES THE SEDIMENT CONTROL TRAP.
10. INSTALL WATER AND SEWER SYSTEMS (14 DAYS)
11. CONSTRUCT PUBLIC ROAD AND UIC DRIVEWAY (14 DAYS)
12. AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR CONVERT EARTHEN MOUNTABLE BERM TO MACADAM BERM (1 DAY).
13. STABILIZE DISTURBED AREA (1 DAY)
14. WITH THE APPROVAL OF SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT TRAP INTO MICRO-BIORETENSION #1; REMOVE TEMPORARY SWALE, REMOVE INLET PROTECTION FROM I-1 AND REMOVE DIVERSION BERM (4 DAYS).
15. CONSTRUCT MICRO-BIORETENTION FACILITIES #2 AND 3; REMOVE INLET PROTECTION FROM I-3 AND I-4 (7 DAYS).
16. WITH THE APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE EARTH DIKES AND DIVERSION FENCES.
17. COMPLETE FINE GRADING..
18. STABILIZE ALL DISTURBED AREAS.
19. LEAVE IN PLACE THE REMAINING SEDIMENT CONTROL DEVICES (SSF FOR FUTURE CONSTRUCTION OF THE HOUSES (SDP STAGE)

OWNER

HARMONY BUILDERS INC
4228 COLUMBIA ROAD
ELLICOTT CITY, MD 21042
410-461-0833

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

TEMPORARY SEEDING FOR SITE STABILIZATION

PLANT SPECIES	SEEDING RATE LB/AC	SEEDING RATE LB/1000SF	SEEDING DEPTH (INCHES)	RECOMMENDED SEEDING DATED BY PLANT HARDINESS ZONE: 5B AND 6A	6B	7A AND 7B
COOL SEASON GRASSES						
ANNUAL RYEGRASS (LOLIUM PERENNE SSP. MULTIFLORUM)	40	1.0	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 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	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 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	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 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	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB.15 TO APR 30; AUG 15 TO NOV 30
CEREAL RYE (SECALE ITALICA)	112	2.8	0.5	MAR 15 TO MAY 31; AUG 1 TO OCT 31	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB.15 TO APR 30; AUG 15 TO DEC 15
WARM SEASON GRASSES						
FOXTAIL MILLET (SETARIA ITALICA)	30	0.7	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14
PEARL MILLET (PENNISETUM GLAUCUM)	20	0.5	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 6b
SEED MIXTURE (FROM TABLE B.3): 8

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20) N	P_2O_5	K_2O	LIME RATE
1	TALL FESCUE	100	MARCH 1-MAY 15 AUG 15-OCT 15	1/4"-1/2"	45 LBS. PER ACRE (1 LB./1000 SF)	90 LBS. PER ACRE (2 LB./1000 SF)	90 LBS. PER ACRE (2 LB./1000 SF)	2 TONS / ACRE (90 LBS / 1000 SF)

MIXTURES 1, 4-7, 9, AND 10 FROM TABLE B.3 OF THE 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MAY BE USED.

project	date
16-015	AUG. 2018
illustration	engineering
MMM	MMM
scale	approval
1"=30	RJH

no.	description	date
	revisions	

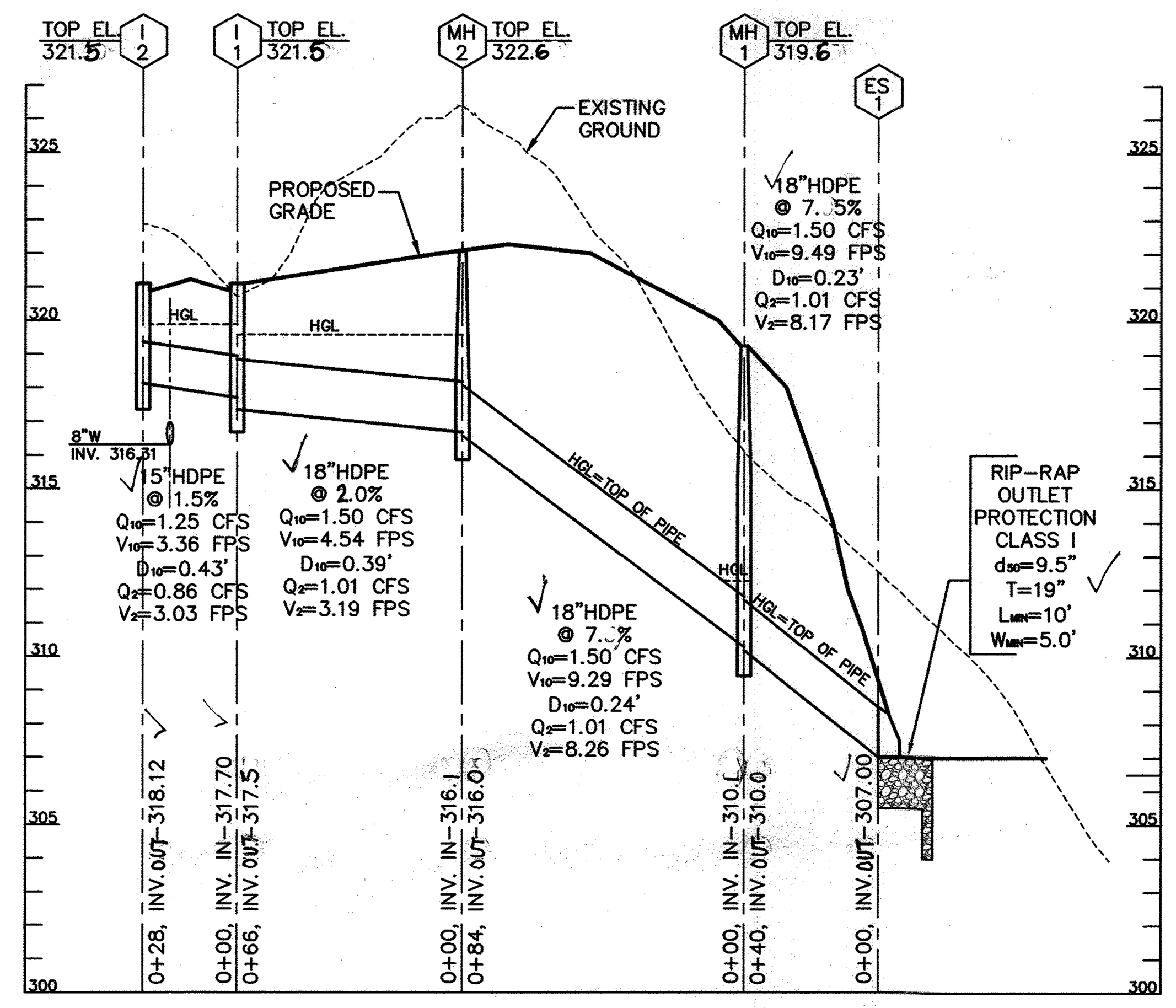
SOMERVILLE ESTATES

LOTS 1-7 AND OPEN SPACE LOTS 8-10
TAX MAP 37, GRID 14, PARCEL 532
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

SEDIMENT CONTROL NOTES AND DETAILS

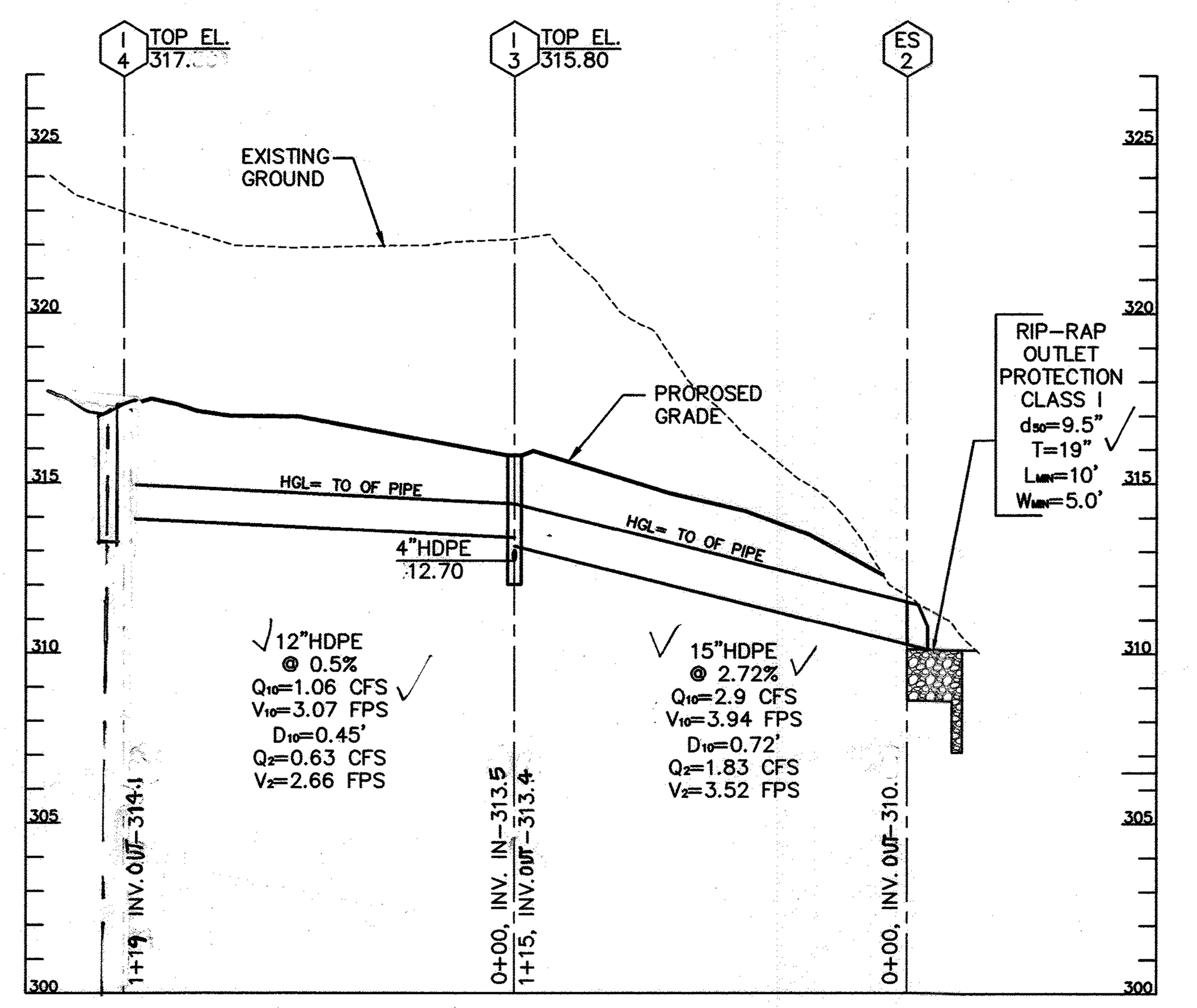
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Tel. (410) 997-0298 Fax.

P:\2004\16-015 FOREVER GREEN\DWG\ROAD PLANS.dwg



STORM DRAIN PROFILE I-2 TO ES-1

SCALE: HOR.1"=50'
VER. 1"=5'

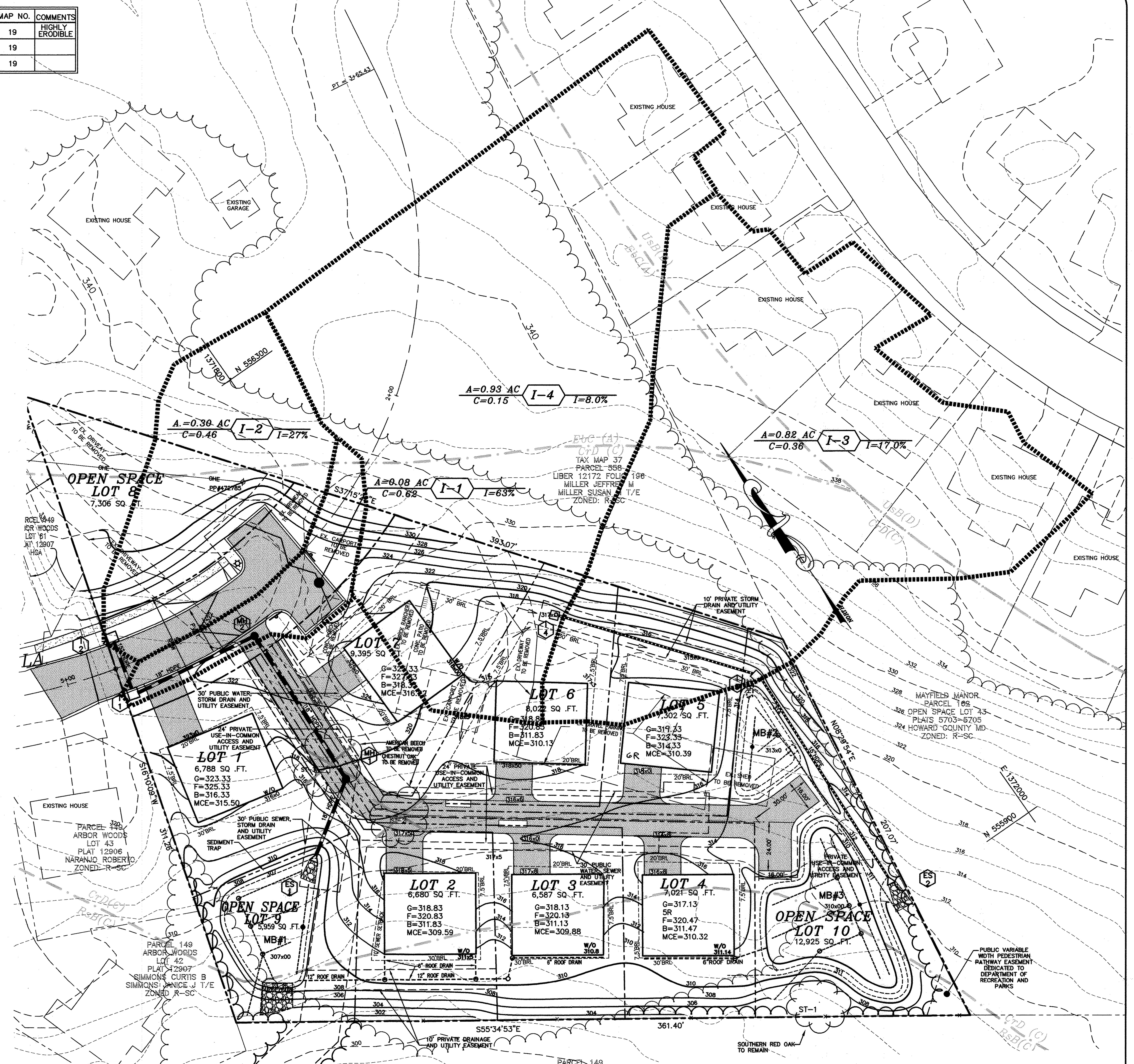


STORM DRAIN PROFILE I-3 TO ES-2

SCALE: HOR.1"=50'
VER. 1"=5'

SOILS TABLE

SYMBOL	RATING	NAME	K FACTOR	MAP NO.	COMMENTS
CrD	(C)	CROOM AND EVESBORO SOILS, 10–15%	.37	19	HIGHLY ERODIBLE
EbC	(A)	EVESBORO LOAMY SAND, 2–10% SLOPES.	.17	19	
RsB	(C)	RUSSETT FINE SANDY LOAM, 2 TO 5% SLOPES	.24	19	



STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=30'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

LEGEND

M-5	DRY-WELL (M-5)
	EX. TREE LINE
	PR. TREE LINE
	SPECIMEN TREE TO BE REMOVED
	PR. STORM DRAIN PIPE
	PR. STORM DRAIN INLET
	PROPOSED PAVEMENT
	LIMIT OF DRAINAGE AREA

ENGINEER'S 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 ENGINEER — DATE 8/14/18

R. JACOB HIKMAT, PE.
PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

SIGNATURE OF DEVELOPER — DATE 08/14/18

WM. SCOTT GODSTREY
PRINTED NAME OF DEVELOPER

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 8/28/18

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9/13/2018

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.21.18

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-25-18

OWNER

HARMONY BUILDERS
4228 COLUMBIA RD.
ELLICOTT CITY MD, 21042
(410) 461-0833

I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approved plans and specifications.

STATE OF MARYLAND — SAMER A. ALOMER — PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/03/20

R. JACOB HIKMAT P.E. — DATE: 8/14/18

STATE OF MARYLAND — R. JACOB HIKMAT — No. 17942 — PROFESSIONAL ENGINEER

STRUCTURE SCHEDULE

NO.	LOCATION*	TOP**	INV. IN	INV. OUT	COMMENTS
I–1	SOMERVILLE LANE STA. 0+04.00 OFFSET 12.43 RT.	321.5	317.70	317.5	TYPE A–5 INLET (HO. CO. STD D–4.01)
I–2	SOMERVILLE LANE STA. 0+04.00 OFFSET 12.43 LT.	321.5	–	318.1	TYPE A–5 INLET (HO. CO. STD D–4.01)
I–3	N 556,031.923 E 1,371,928.615	315.80	313.5	313.13 312.70	YARD INLET (HO. CO. STD D–4.14)
I–4	N 556,084.283 E 1,371,884.588	317.1	–	314.1	YARD INLET (HO. CO. STD D–4.14)
MH–1	N 556,106.125 E 1,371,734.027	319.6	310.1	310.0	STANDARD MH (HO. CO. STD G–5.12)
MH–2	SOMERVILLE LANE STA. 0+66.18 OFFSET 16.20 RT.	322.6	316.1	316.0	STANDARD MH (HO. CO. STD G–5.12)
ES–1	N 556,083.957 E 1,371,700.725	–	307.00	–	18" HDPE END SECTION
ES–2	N 555,927.992 E 1,371,927.118	–	310.2	–	15" HDPE END SECTION

NOTES: 1. LOCATION GIVEN TO CENTER OF THE FACE OF INLET AT TOP OF CURB FOR INLETS LOCATED WITHIN THE ROAD RIGHT-OF-WAY.
2. STATIONS FOR YARD INLETS TO CENTER OF INLET.
3. LOCATION OF END SECTION GIVEN TO THE CENTERLINE OF PIPE AT THE CONNECTION OF THE STORM DRAIN PIPE TO THE END SECTION.
4. ELEVATIONS MEASURED TO CENTER OF ALL INLETS.

PIPE SCHEDULE

PIPE SIZE	QUANTITY
12" HDPE	42 L.F.
15" HDPE	28 L.F.
18" HDPE	248 L.F.

project	date
16–015	AUG. 2018
illustration	engineering
MMM	MMM
scale	approval
AS SHOWN	RJH

no.	description	date
2	ADD AS-BUILT DATA	1/17/22
1	REV GRADING, LOCATION & TOP ELEV OF I-4, SD PROFILES	10/29/19
	revisions	

SOMERVILLE ESTATES

LOTS 1–7 AND OPEN SPACE LOTS 8–10
TAX MAP 37, GRID 14, PARCEL 532
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

SOILS, DRAINAGE AREA MAP AND STORM DRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Tel. (410) 997-0298 Fax.

F-18-070

P:\2004\16-015 FOREVER GREEN\DWG\FINAL\ROAD PLANS.dwg

SOILS TABLE

SYMBOL	RATING	NAME	K FACTOR	MAP NO.	COMMENTS
CrD	(C)	CROOM AND EVESBORO SOILS, 10–15%	.37	19	HIGHLY ERODIBLE
EbC	(A)	EVESBORO LOAMY SAND, 2–10% SLOPES.	.17	19	
RsB	(C)	RUSSETT FINE SANDY LOAM, 2 TO 5% SLOPES	.24	19	

STREET TREE CALCULATIONS

SOMERVILLE LANE - 200 / 40 = 5

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
5	○	PRUNUS SARGENTII OR EQUIVALENT	SARGENT CHERRY OR EQUIVALENT	2 1/2" – 3" CAL.

TOTAL
5 STREET TREES

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:
A. Total tract area...=1.96
B. Area within 100 year floodplain ....=0.00
C. Area to remain in agricultural production.............................=0.00
D. Net tract area...=1.96

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)
Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

E. Afforestation Threshold... 15% x D =0.29
F. Conservation Threshold..20% x D =0.39

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)..........................=0.00
H. Area of forest above afforestaion threshold ....=0.00
I. Area of forest above conservation threshold ....=0.00

BREAK EVEN POINT

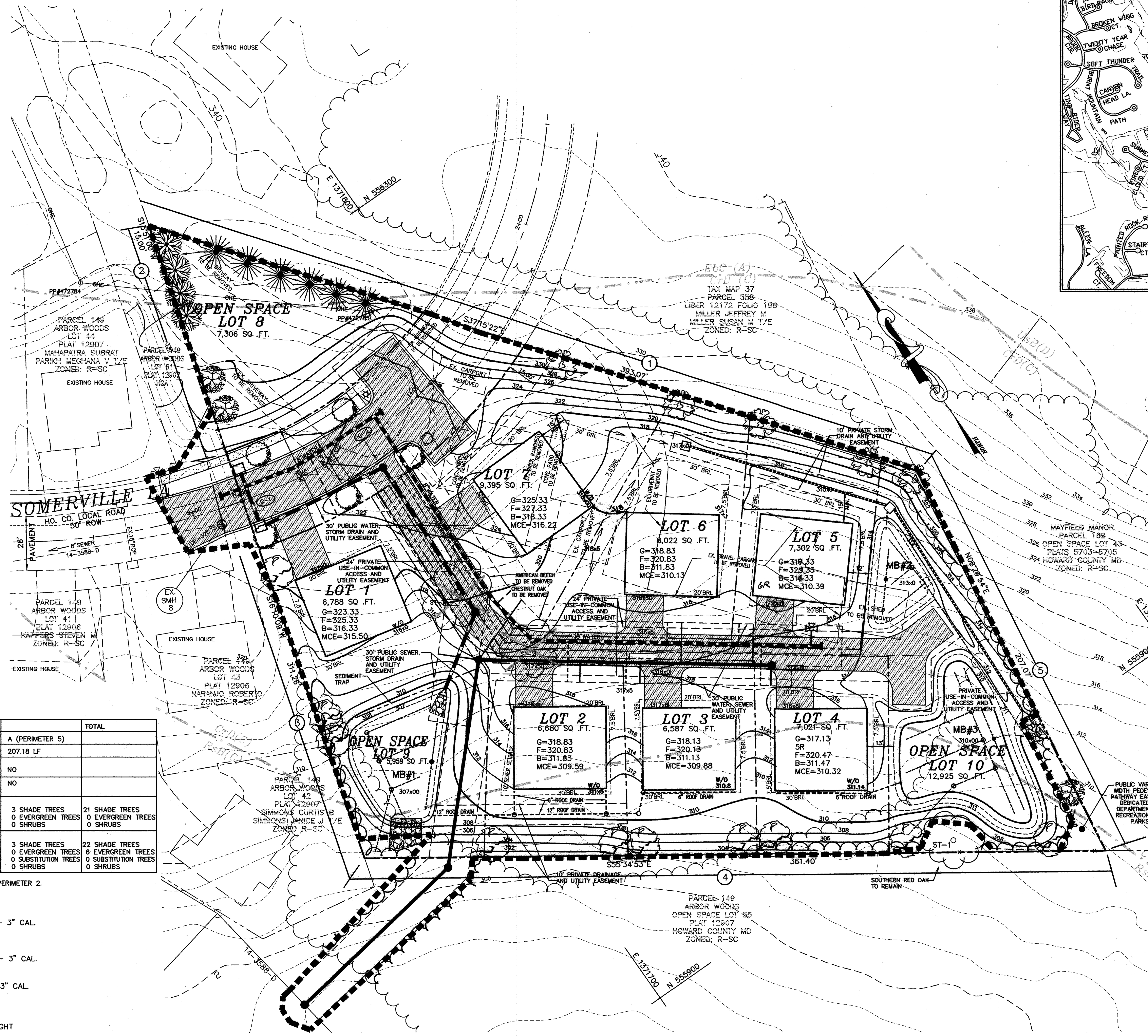
J. Forest retention above threshold with no mitigation...........=0.00
K. Clearing permitted without mitigation..................................=0.00

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared...=0.00
M. Total area of forest to be retained.......................................=0.00

PLANTING REQUIREMENTS:

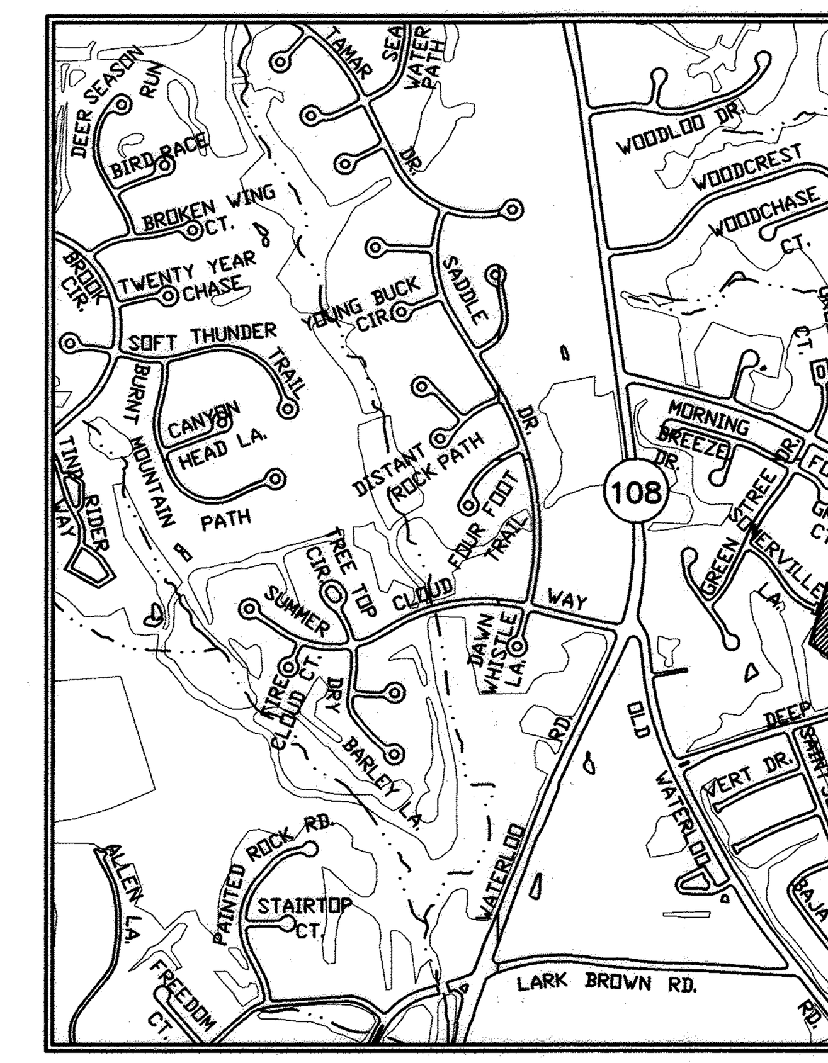
N. Reforestation for clearing above conservation threshold.....=0.00
P. Reforestation for clearing below conservation threshold.....=0.00
Q. Credit for retention above conservation threshold..............=0.00
R. Total reforestation required..=0.00
S. Total afforestation required...=0.29
T. Total reforestation and afforestation required.....................=0.29



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

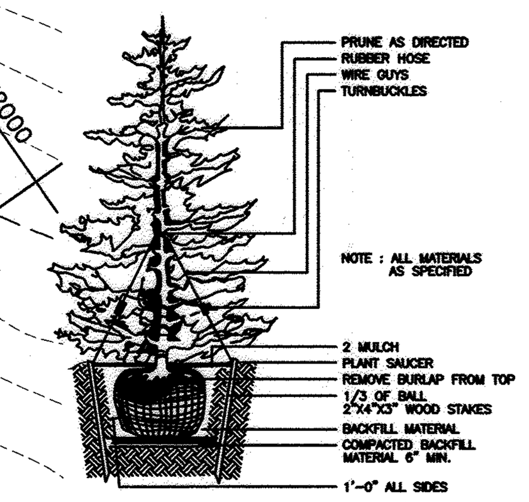


VICINITY MAP

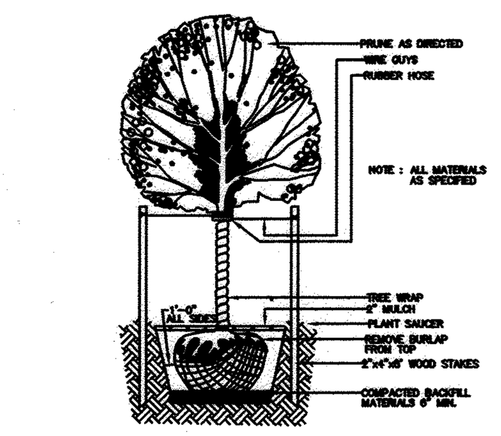
SCALE: 1"=1000'

FSD NOTES:

1. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
2. SURROUNDING LAND USE IS PRIMARILY HIGH-DENSITY RESIDENTIAL DEVELOPMENT.
3. THE SITE IS LOCATED WITHIN THE DEEP RUN SECTION OF THE PATAPSCO RIVER WATERSHED (02-13-09). THIS SECTION OF THE WATERSHED IS CLASSIFIED AS USE I. NO WETLANDS, STREAMS OR BUFFERS ARE PRESENT ON THE SITE.
4. NO HISTORIC ELEMENTS OR CEMETERIES ARE KNOWN TO OCCUR ON THE PROPERTY.
5. NO STEEP SLOPES (25% AND GREATER) ARE PRESENT ON THE SITE.
6. APPROXIMATELY 1.8 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SITE.
7. FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION WILL BE FULFILLED BY A PAYMENT OF FEE-IN-LIEU FOR 0.29 ACRES OF AFFORESTATION. FEE-IN-LIEU FOR 0.29 ACRES (12,634 SQ. FT.) OF AFFORESTATION IN THE AMOUNT OF $ 9,475.00 WILL BE POSTED WITH THIS PLAN.



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



TYPICAL DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES					TOTAL
LANDSCAPE TYPE	A (PERIMETER 1)	A (PERIMETER 2)*	A (PERIMETER 3)	A (PERIMETER 4)	A (PERIMETER 5)	
LINEAR FEET OF PERIMETER	393.94 LF	117.12 LF	159.49 LF	361.35 LF	207.18 LF	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	NO	NO	NO	NO	NO	
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	3 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	6 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	3 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	21 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION)	4 SHADE TREES 6 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS	6 SHADE TREES 0 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS	3 SHADE TREES 0 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS	6 SHADE TREES 0 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS	3 SHADE TREES 0 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS	22 SHADE TREES 6 EVERGREEN TREES 0 SUBSTITUTION TREES 0 SHRUBS

* PERIMETER 2– THE ADDITIONAL 4 SHADE TREES PROVIDED IN LIEU OF REMOVAL OF 2 SPECIMEN TREES HAVE BEEN ADDED TO PERIMETER 2.

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
5		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	RED SUNSET RED MAPLE OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	2 1/2" – 3" CAL.
10		GLEDITSIA TRIACANTHOS INERMIS 'IMPERIAL', OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	IMPERIAL THORNLESS HONEYLOCUST OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	2 1/2" – 3" CAL.
3		FAGUS GRANDIFOLIA OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	AMERCIAN BEECH OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	2 1/2" – 3" CAL.
6		THUJA PLICATA OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	GREEN GIANT OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	6'–8' HEIGHT

TOTAL
24 TREES (18 SHADE AND 6 EVERGREEN TREES)

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
4		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	RED SUNSET RED MAPLE OR EQUIVALENT AS OUTLINED IN THE HOWARD COUNTY LANDSCAPE MANUAL.	2 1/2" – 3" CAL.

TOTAL
4 TREES (4 SHADE TREES)

NOTE– AN ADDITIONAL 4 SHADE TREES HAVE BEEN PROVIDED IN LIEU OF 2 SPECIMEN TREES REMOVED.

TOTAL FOR THE PROJECT
25 SHADE TREES

SPECIMEN TREE CHART

KEY	SPECIES	SIZE (IN. DBH)	COMMENTS	COMMENTS
1	RED OAK	30.5"	FAIR CONDITION, LIMB DIEBACK NOTED.	TO REMAIN
2	CHESNUT OAK	31"	GOOD CONDITION.	TO BE REMOVED
3	BEECH	31.5"	GOOD CONDITION.	TO BE REMOVED

LEGEND

LOD	LIMIT OF DISTURBANCE
	PR. STORM DRAIN PIPE
	PR. STORM DRAIN INLET
A–1	EARTH DIKE
SSF	SUPER SILT FENCE
DF	DIVERSION FENCE
▨	PROPOSED PAVEMENT

DEVELOPER'S/OWNER'S CERTIFICATE

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

[illegible] 08/4/18
OWNER DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[illegible] 9/13/2018
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson 9.21.18
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[illegible] for KS 9-25-18
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/03/20

[illegible] 8/14/18
R. JACOB HIKMAT P.E. DATE:

STATE OF MARYLAND
R. JACOB HIKMAT
No. 17942
PROFESSIONAL ENGINEER

MD DNR QUALIFIED PROFESSIONAL

[illegible] 8/14/18
MASHID TRINGA

STATE OF MARYLAND
SAMER A. ALOMER
26859
PROFESSIONAL ENGINEER

OWNER

HARMONY BUILDERS
4228 COLUMBIA RD.
ELLICOTT CITY MD, 21042
(410) 461-0833

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

project	date
16–015	AUG. 2018
illustration	engineering
MMM	MMM
scale	approval
1"=30	RJH

no.	description	date
1	REV GRADING LOCATION & TOP ELEV OF I-4	10/29/19

revisions

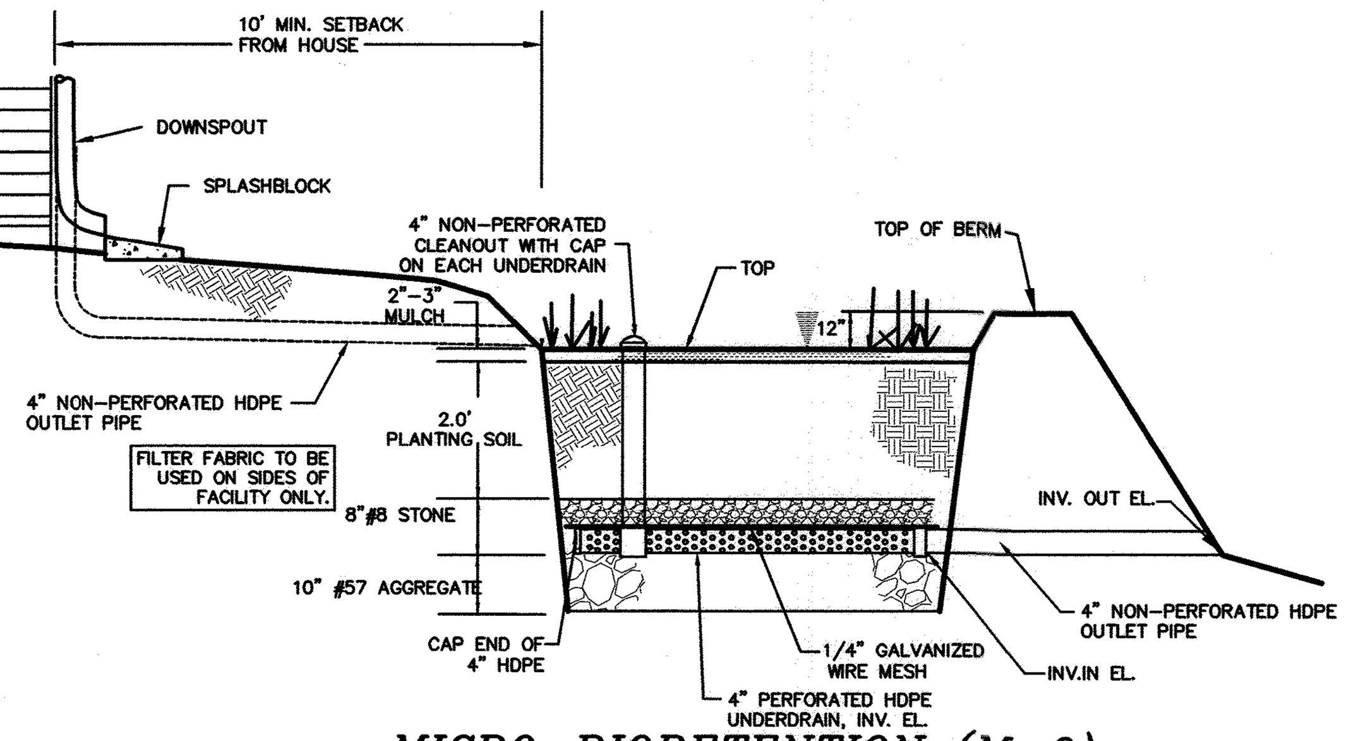
SOMERVILLE ESTATES

LOTS 1–7 AND OPEN SPACE LOTS 8–10
TAX MAP 37, GRID 14, PARCEL 532
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

LANDSCAPE AND FOREST CONSERVATION PLAN

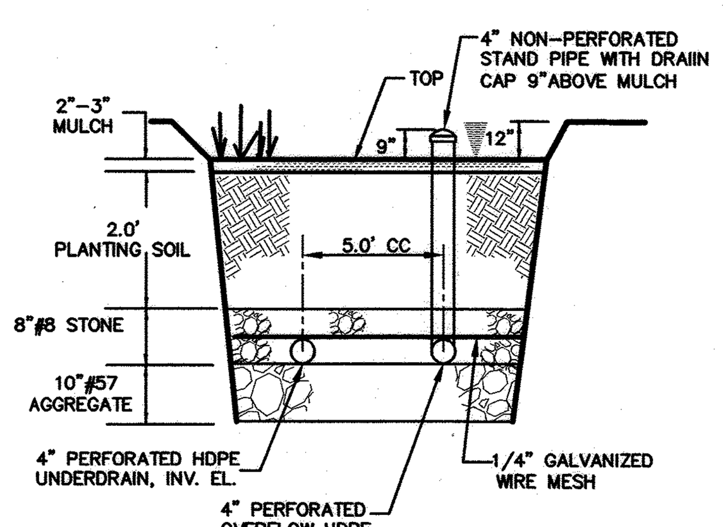
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350–B Grace Drive, Columbia, Maryland 21044
(410) 997–0296 Tel. (410) 997–0298 Fax.

P:\2004\16-015 FOREVER GREEN\DWG\ROAD PLANS.dwg



MICRO-BIORETENTION (M-6) DETAIL

NOT TO SCALE

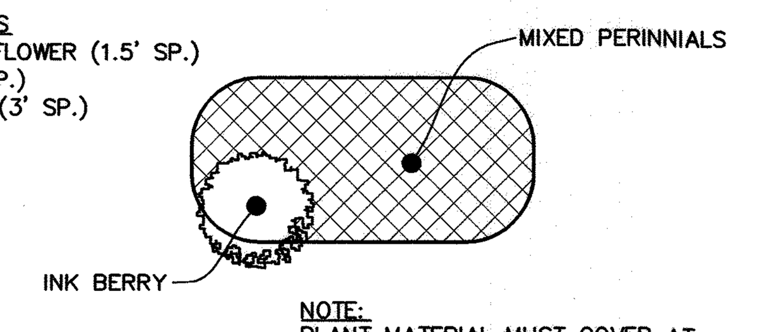


MICRO-BIORETENTION (M-6) SECTION

NOT TO SCALE

▨ MIXED PERINNIALS
CUT-LEAF CONEFLOWER (1.5' SP.)
BEEBALM (1.5' SP.)
JOW-PYE-WEED (3' SP.)

INK BERRY



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

TYP. MICRO-BIORETENTION (M-6) DETAIL

SCALE : NTS

MICRO-BIORETENTION SCHEDULE

FACILITY	TOP EL.	TOP OF BERM	INV. IN	INV. OUT	AREA AT TOP EL.
MB #1	✓307.00	✓308.00	✓304.08	303.2	2200 SF
MB #2	✓313.00	✓314.00	✓310.08	✓309.50	✓715 SF
MB #3	✓310.00	✓311.00	✓307.08	307.00	2,970 SF

SWM PRACTICES SCHEDULE

PROPOSED PRACTICES	AREA	REQUIRED ESDv	PROVIDED ESDv
MB#1	LOT 1, P/O LOT 2, 3, 7, ROW	1,526 CF	3,268 CF
MB#2	P/O LOT 5-7	418 CF	1,315 CF
MB#3	UIC D-WAY, P/O LOT 2-7	1,385 CF	4,760 CF
TOTAL		7,562 CF	9,343 CF

* BY DESIGNING ESD MEASURES FOR "WOODS IN GOOD CONDITION", WQ, Re, AND Cp REQUIREMENTS ARE MET.
* STORMWATER MANAGEMENT QUANTITY CONTROL FOR THE 10- AND 100-YEAR (Qp, Qf) STORM EVENTS ARE MET.

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

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. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.

SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

GEOTECHNICAL ENVIRONMENTAL TESTING
GE&T CONSULTANTS, INC.

P.O. Box 2071
Columbia, MD 21045-2071
Phone: (410) 381-5330
Fax: (410) 381-1064
e-mail: mounir54@yahoo.com

PRESIDENT: Mounir Adouzakhm MSCE, P.E. | CONSULTANTS: Edward De Santis Eng. C.E., P.E. • Dr. Kamal Tawfiqu Ph.D., P.E.

May 7th, 2017

Mildenberg, Boender & Associates, Inc.
7350-B Grace Drive
Columbia, Maryland 21044

Attn: Ms. Maya M. Mildenberg
Vice President

Ref: Limited Subsurface Exploration
Proposed Development
7126 Forever Green Court
Elkridge
Howard County, Maryland 21075
Tax Map 37, Grid 14, Parcel 532
GE&T Project No. G-251

Dear Ms. Mildenberg:

On May, 5th, 2017, **GE&T Consultants, Inc.** utilized a Geoprobe 7822DT to bore three (3) soil borings (B-1 through B-3) to a depth of 10 ft below existing site grades at the locations shown on the attached Borings Location Map. The purpose of the study was to evaluate the presence/absence of bedrock and local groundwater at the locations shown, within the depths explored. The number, location, and depth of the borings were determined by others and the borings were staked-out in the field by others.

No groundwater or bedrock was encountered in any of the borings to a depth of 10 ft below existing site grades during our drilling operations.

Our field observations are listed in Table 1 below:

Boring No.	Depth to Groundwater (ft)	Depth to Geoprobe Refusal (ft)
B-1	N/A	N/A
B-2	N/A	N/A
B-3	N/A	N/A

Note: All depths are below existing site grades

It should be noted that the actual level of groundwater and the amount and level of perched water should be anticipated to fluctuate through the year, depending on variations in precipitation, surface run-off, infiltration, site topography, drainage, and other factors not evident at the time of our exploration. GE&T can not be responsible for changes in groundwater conditions at the site due to seasonal variations and changes caused by other factors such as grading operations at the site. It should also be noted that soil description listed in the boring logs was based on visual classification and no laboratory testing was performed.

GE&T appreciates the opportunity to provide this geotechnical engineering service to you. Should you have any questions regarding this letter report, or require additional services, please feel free to contact our office.

Sincerely,

GE&T Consultants, Inc.

[illegible]

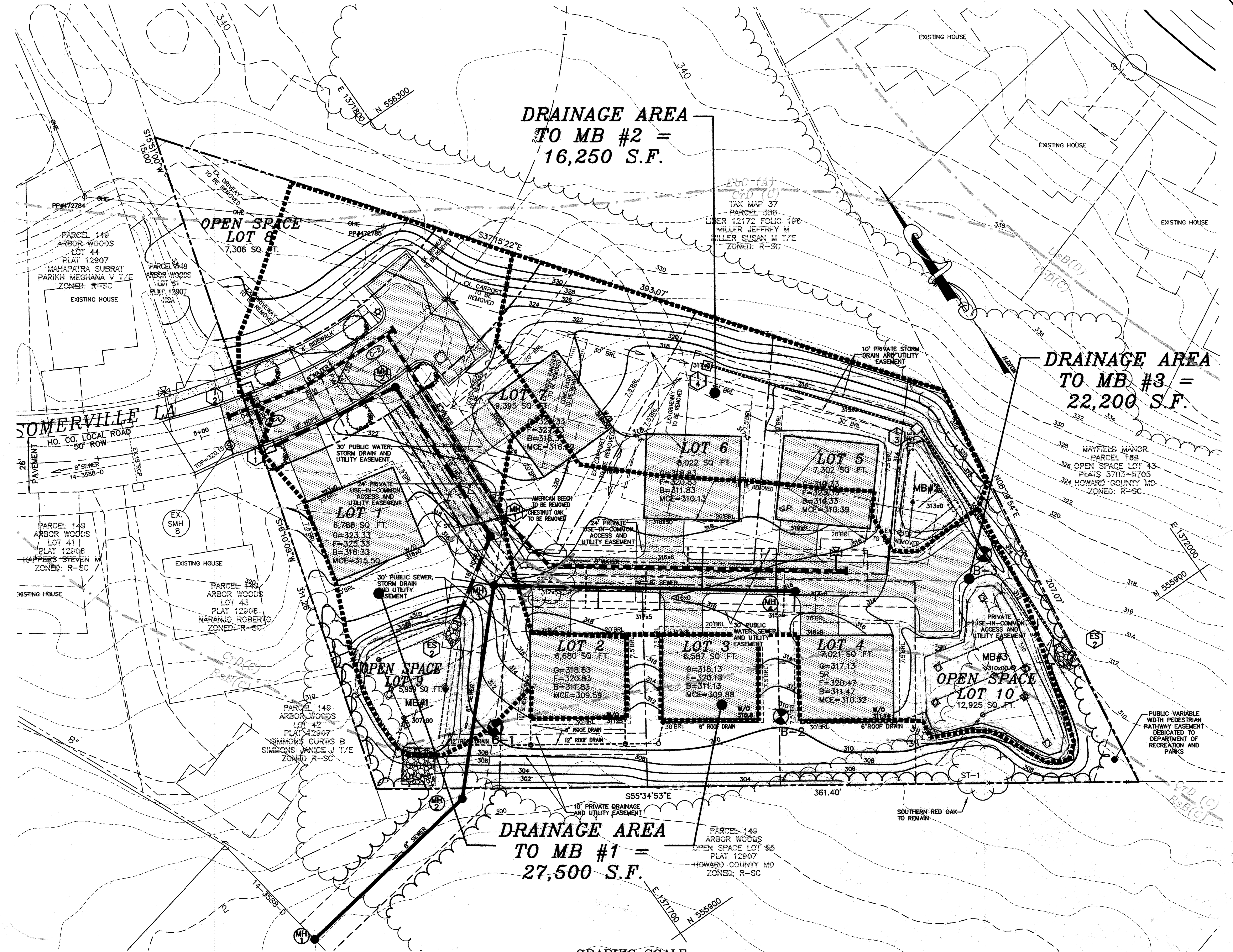
Mounir Abouzakhm, PE

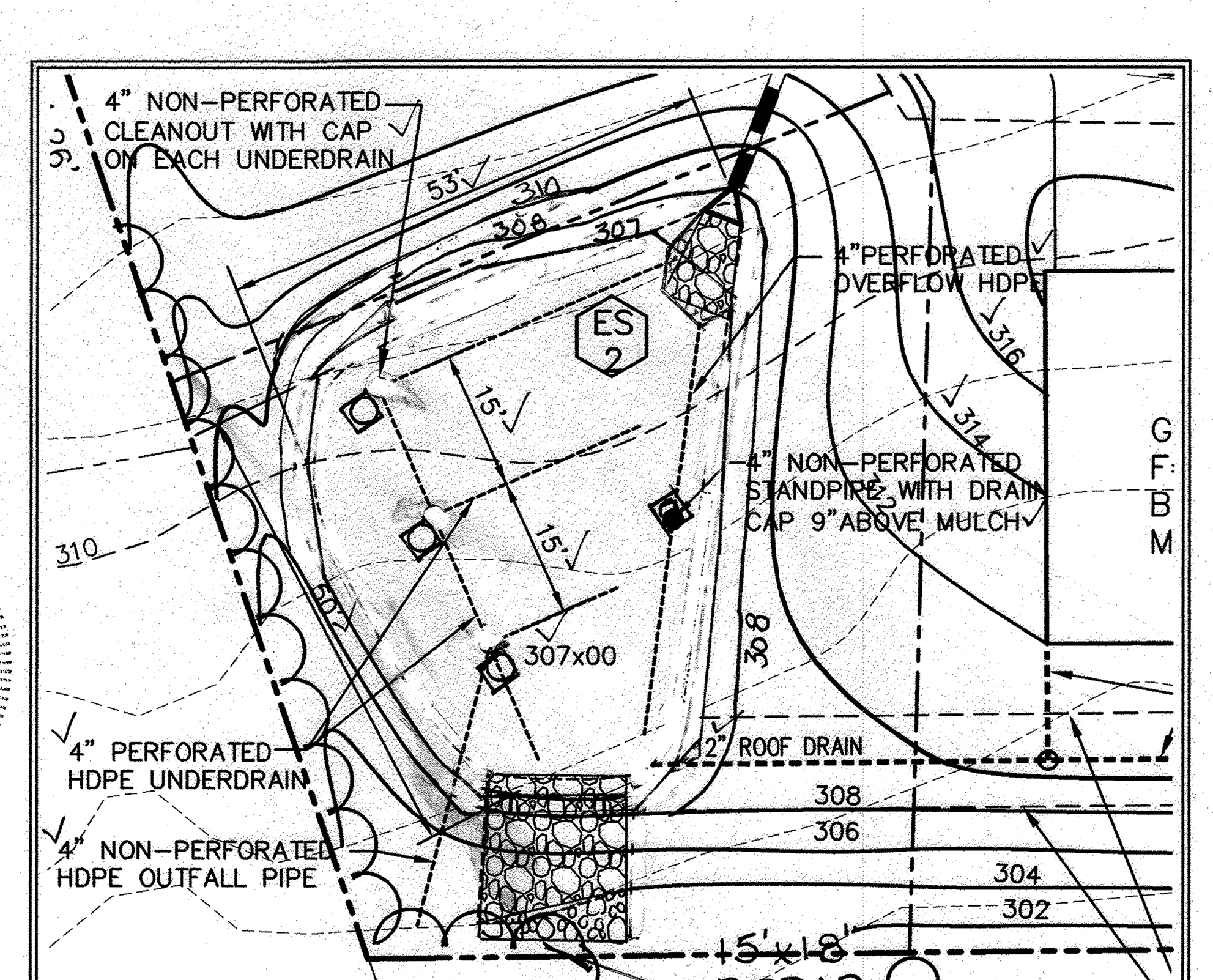
STATE OF MARYLAND MOUNIR A. ABOUZAKHM No. 19414 REGISTERED PROFESSIONAL ENGINEER

LEGEND

▪▪▪▪▪▪ DRAINAGE AREA TO MICRO-BIO. (M-6)

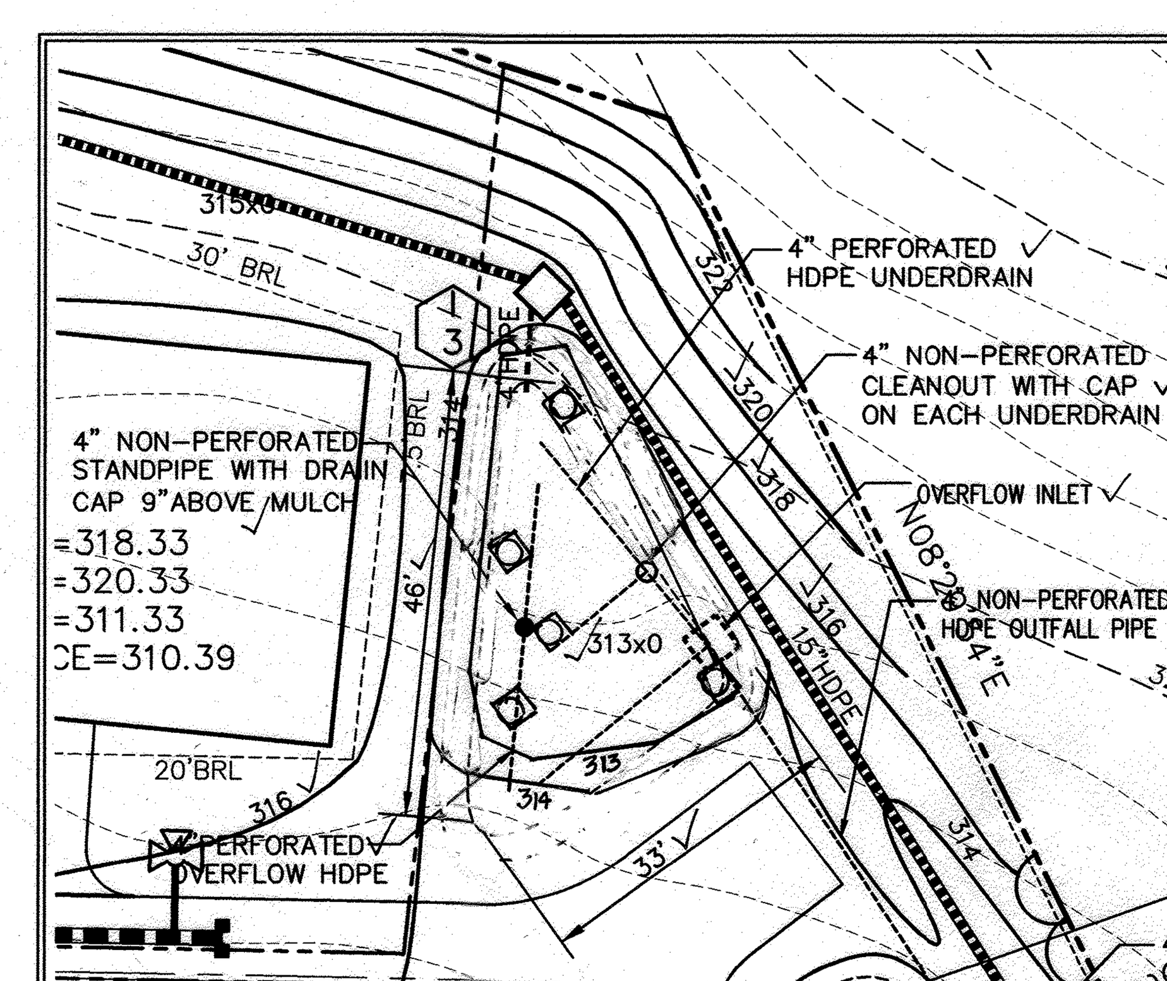
▨ AREA TREATED BY MICRO-BIO. (M-6)





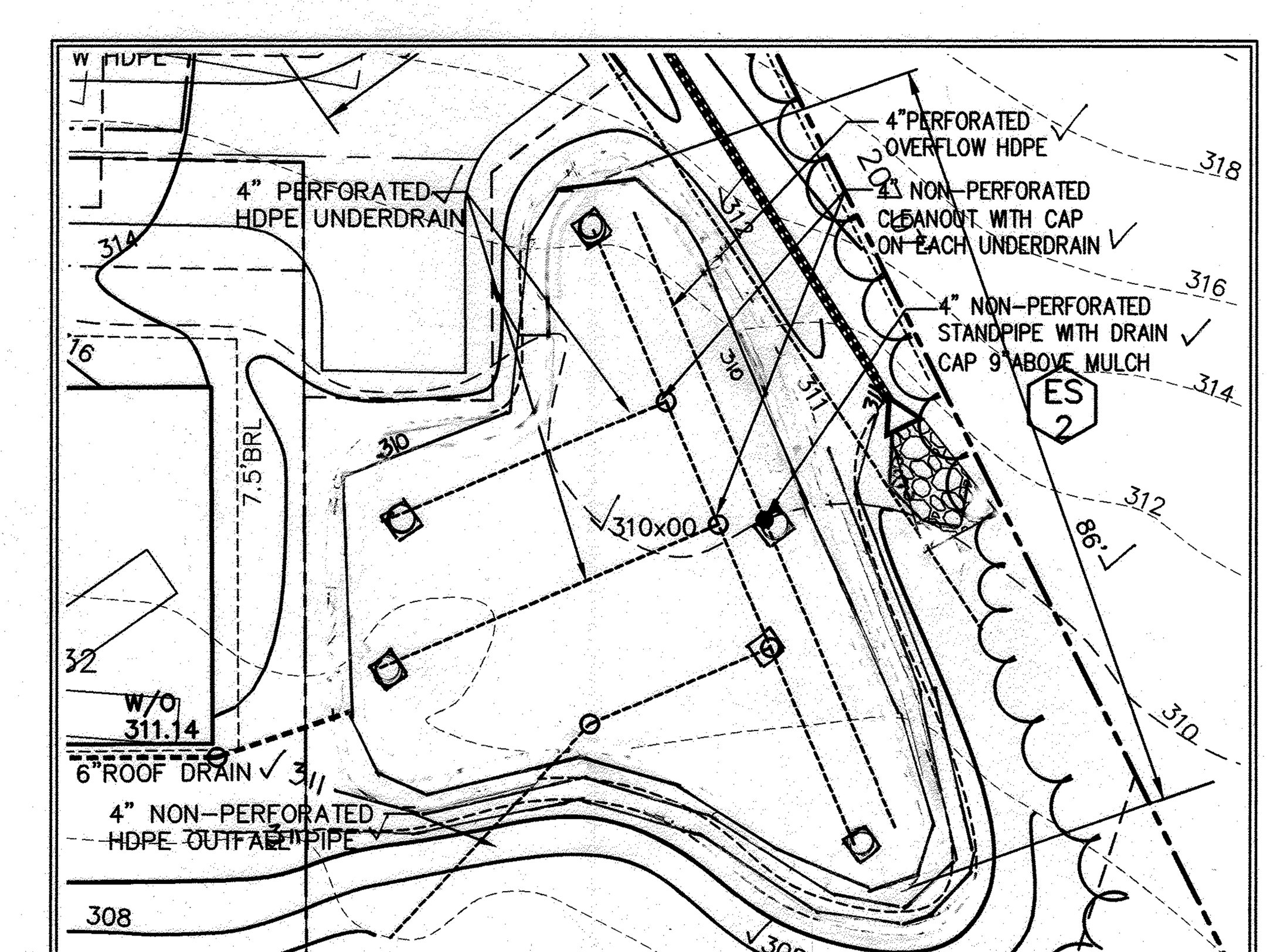
(M-6) MICRO-BIORETENTION #1 DETAIL

SCALE: 1"=20'



(M-6) MICRO-BIORETENTION #2 DETAIL

SCALE: 1"=20'



(M-6) MICRO-BIORETENTION #3 DETAIL

ENGINEER'S 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.

[illegible] — 8/14/18
SIGNATURE OF ENGINEER — DATE

R. JACOB HIKMAT, PE.
PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

[illegible] — 08/4/18
SIGNATURE OF DEVELOPER — DATE

WM. SCOTT GODSTREY
PRINTED NAME OF DEVELOPER

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

John R Robertson — 8/28/18
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[illegible] — 9/13/2018
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[illegible] — 9.21.18
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[illegible] — 9-25-18
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

OWNER

HARMONY BUILDERS
4228 COLUMBIA RD.
ELLICOTT CITY MD, 21042
(410) 461-0833

I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approved plans and specifications.

STATE OF MARYLAND SAMER A. ALOMER 26859 PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/03/20

R. JACOB HIKMAT P.E. — 8/14/18 DATE:

STATE OF MARYLAND R. JACOB HIKMAT No. 17942 PROFESSIONAL ENGINEER

project	date
16-015	AUG. 2018
illustration	engineering
MMM	MMM
scale	approval
1"=30	RJH

no.	description	date
2	ADD AS-BUILT DATA	JAN 2022
1	REV GRADING, LOCATION & TOP ELEV OF I-4	10/29/19

revisions

SOMERVILLE ESTATES

LOTS 1-7 AND OPEN SPACE LOTS 8-10
TAX MAP 37, GRID 14, PARCEL 532
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

SWM PLAN AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Tel. (410) 997-0298 Fax.

F-18-070