

- GENERAL NOTES**
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
 - ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
 - THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 - MISS UTILITY: 1-800-257-7777
 - VERIZON TELEPHONE COMPANY: 1-410-954-6281
 - HOWARD COUNTY BUREAU OF UTILITIES: 410-313-2366
 - AT&T CABLE LOCAL DIVISION: 1-800-393-5553
 - B.G.A.E. CO. CONTRACTOR SERVICES: 410-820-4620
 - B.G.A.E. CO. UNDERGROUND DAMAGE CONTROL: 410-877-4620
 - STATE HIGHWAY ADMINISTRATION: 410-351-5533
 - THIS FINAL PLAN IS SUBJECT TO THE FOLLOWING DPZ FILES:
 - EDP-15-034
 - THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED AUGUST 15, 2014. OFFSITE TOPOGRAPHY FROM HOWARD COUNTY GIS.
 - THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JULY 6, 2015.
 - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 - 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 START OF WORK.
 - ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. TO THE BEST OF THE OWNER'S KNOWLEDGE OR THE HOWARD COUNTY CEMETERY INVENTORY MAP, THERE ARE NO BURIAL GROUNDS, CEMETRIES LOCATED ON THE SUBJECT PROPERTY.
 - THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
 - TO THE BEST OF THE OWNER'S KNOWLEDGE OR THE HOWARD COUNTY HISTORIC SITES MAP, THERE ARE NO HISTORIC STRUCTURES LOCATED ON THE SUBJECT PROPERTY.
 - THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
 - WATER FOR THIS PROJECT WILL BE AN EXTENSION OF CONTRACT NO. 3-W
 - SEWER FOR THIS PROJECT WILL BE AN EXTENSION OF CONTRACT NO. 355-S
 - REFER TO CONTRACT 24-4946-D
 - WATER AND SEWER SERVICE WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.8 OF THE HOWARD COUNTY CODE. ALLOCATIONS WILL BE GRANTED AT THE TIME OF ISSUANCE OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
 - THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, MAJOR CRITERIA OR BUILDING AND GRADING PERMITS.
 - THE SUBJECT PROPERTY IS ZONED "R-12" IN ACCORDANCE WITH THE 10/6/2013 COMPREHENSIVE ZONING PLAN AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNTY BILL 75-2003.
 - ANY DAMAGE INCURRED TO THE EXISTING UTILITIES, DUE TO CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
 - ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
 - EXISTING UTILITIES ARE BASED ON ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
 - THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 42A AND 0080 WERE USED FOR THIS PROJECT.
 - PER ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED DURING THE FIELD REVIEW OF THE PROPERTY.
 - A "FLOODPLAIN" IS LOCATED ONSITE.
 - REFER TO THE GATEWAY VILLAGE DAM - DANGER REACH STUDY PREPARED BY ICI TECHNOLOGIES, INC. FOR MARYLAND DEPARTMENT OF THE ENVIRONMENT DIVISION DATED JULY 2012. THIS REPORT DETERMINES AN ANALYSIS OF THE "PMP" (PROBABLE MAXIMUM FLOOD) ELEVATION AS PRODUCED BY A BREACH OF THE UPSTREAM POND FACILITY PRODUCED A HIGHER FLOOD ELEVATION THAN THE 100 YEAR STORM EVENT.
 - THE PLAN UTILIZES THE "PMP" ELEVATIONS, AT THE STUDIES CROSS SECTIONS, TO PLOT A "100 YEAR FLOODPLAIN" BASED UPON FIELD TOPOGRAPHY.
 - THIS DELINEATION IS DESCRIBED AS "PUBLIC 100 YEAR FLOODPLAIN DRAINAGE AND UTILITY EASEMENT" FOR THE PROJECT.
 - NO WETLANDS ARE PRESENT ONSITE PER ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, NOV. 13, 2014.
 - NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION AREAS.
 - FOREST STAND DELINEATION PLAN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, ON NOVEMBER 13, 2014 AND FEBRUARY 17, 2015.
 - FIVE (5) SPECIMEN TREES ARE PRESENT ON THE PROJECT SITE. THIS PLAN PROPOSAL IS TO SAVE ALL SPECIMEN TREES.
 - A TOTAL OF 4 RESIDENTIAL LOTS, 1 OPEN SPACE LOT AND 1 NON-BUILDABLE BULK PARCEL IS PROPOSED UNDER THIS PLAN.
 - STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF MICRO-SCALE AND NON STRUCTURAL PRACTICES PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE: RAIN GARDEN (M-1) FACILITIES AND RAIN BARRELS (M-1) AS WELL AS NON STRUCTURAL PRACTICES: DISCONNECT OF ROOFTOP RUNOFF (N-1) AND SHEET FLOW TO CONSERVATION AREA (N-3). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
 - A NOISE STUDY IS NOT REQUIRED FOR THIS SITE.
 - A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
 - THIS PROJECT IS EXEMPT FROM AN ADEQUATE ROADS FACILITIES TEST STUDY, AS IT IS A MINOR SUBDIVISION.
 - THERE ARE NO STEEP SLOPES LOCATED ON THE SUBJECT SITE.
 - THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEEDS OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
 - FOREST CONSERVATION OBLIGATIONS FOR THIS FINAL PLAN WILL BE MET BY:
 - ONSITE RETENTION = 0.82 ACRES SURVEY REQUIRED = 0.14 ACRES = 0.68 ACRES CREDITED
 - ONSITE REFORESTATION = 0.36 ACRES
 - FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = \$ 7,810 (0.358 AC OR 15,619 SF @ \$0.50/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.
 - 3. FEE-IN-LIEU PAYMENT OF \$ 1,961 (0.06 AC OR 2,614 @ 0.75/SF) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$ 35,140 FOR THE REQUIRED 6 SHADE TREES (\$1,800), 2 ORNAMENTAL TREES (\$300), 7 EVERGREEN TREES (\$1,050), 27 SHRUBS (22 PERIMETER, 5 TRASH PAD) \$810, AND 118 LINEAR FEET OF FENCING (\$1,180) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT. FINAL REVIEW AND APPROVAL OF THIS LANGUAGE WILL BE WITH THE LANDSCAPE MANAGER.
 - UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.06 FOR THE USE-IN-COMMON DRIVEWAY ENTRANCE AT GUILFORD ROAD.
 - DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
 - SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1 1/2" MIN).
 - CLEARANCE - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT TURNING RADIUS.
 - STRUCTURES (GARAGE/DRIPEDGES) - CAPABLE OF SUPPORTING 25 TONS (10% LOADING).
 - DRAINAGE ELEMENTS-CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
 - STRUCTURE CLEARANCES-MINIMUM 12 FEET.
 - MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
 - GUILFORD ROAD IS CLASSIFIED AS A MAJOR COLLECTOR. SITE ACCESS SHALL BE VIA A USE-IN-COMMON DRIVEWAY. LOTS 1-4 WILL UTILIZE A USE-IN-COMMON DRIVEWAY. A USE-IN-COMMON MAINTENANCE AGREEMENT FOR THE SHARED DRIVEWAY SHALL BE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAN.
 - FLAG AND PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE FOR LOTS 1-4 ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
 - TRASH AND RECYCLING COLLECTION WILL BE AT GUILFORD ROAD WITHIN THE MAINTENANCE OF THE TRASH PAD AND ITS LANDSCAPING IS THE RESPONSIBILITY OF THE HOA.
 - 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 DEVELOPMENT OF ANY ASPHALT.
 - SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 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.
 - CERTIFIED TEST PITS HAVE BEEN PROVIDED TO VERIFY THE LOCATIONS OF GROUNDWATER AND/OR ROCK. OPEN TEST PITS WERE OBSERVED BY ROBERT H. VOGEL ENGINEERING ON APRIL 23, 2015.
 - IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE OPEN SPACE REQUIREMENTS FOR THIS R-12 PROJECT (7,200 SF LOT) IS 40% OF GROSS AREA (2,833 AC. GROSS AREA X 40% = 0.93 AC).
 - OPEN SPACE LOTS 5 IS 1.2739 ACRES
 - OPEN SPACE LOTS 5 IS TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
 - A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON DECEMBER 10, 2014 AT 7:00 PM AT THE EAST COLUMBIA BRANCH LIBRARY MEETING ROOM.
 - MODERATE INCOME HOUSING UNITS (MIHU) ARE REQUIRED FOR THIS PROJECT.
 - IN ACCORDANCE WITH SECTION 109.0.E OF THE 10/06/13 COMPREHENSIVE ZONING REGULATIONS, THIS SUBDIVISION IS SUBJECT TO MODERATE INCOME HOUSING UNITS. THE MIHU OBLIGATION FOR THIS DEVELOPMENT WILL BE PROVIDED BY A PROMISE OF FEE-IN-LIEU TO THE HOWARD COUNTY HOUSING DEPARTMENT FOR EACH UNIT OR PORTION OF THE UNITS REQUIRED BY THE DEVELOPMENT.
 - THE MIHU AGREEMENT WILL BE RECORDED IN THE LAND RECORDS OF HOWARD COUNTY SIMULTANEOUSLY WITH THE RECORDING OF THIS PLAN.
 - AN ENVIRONMENTAL CONCEPT PLAN (ECP-15-034) WAS APPROVED ON MARCH 12, 2015.
 - IN ACCORDANCE WITH SECTION 16.124(A)(1)(b) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE DESIGN CRITERIA OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE DESIGN OF THIS DEVELOPMENT IS COMPATIBLE WITH THE ADJOINING SINGLE FAMILY HOMES, PROVIDES ENHANCED LANDSCAPING FOR SCREENING AND PRIVACY AND PROVIDES PROTECTION OF ENVIRONMENTAL LANDS AND SPECIMEN TREES.
 - THE FOLLOWING STANDARDS (CONSTRUCTION AND TRAFFIC CONTROL) ARE REQUIRED FOR THIS PROJECT:
 - MD-104.02-02 - SHOULDER WORK/2 LANE, 2 WAY - EQ/LESS THAN 40 MPH
 - MD-104.02-10 - RIGHT LANE CLOSURE/2 LANE, 2 WAY - EQ/LESS THAN 40 MPH
 - FOR ALL STANDARDS REFERRED TO ON THIS PLAN THE CONTRACTOR MUST GO TO THE BOOK OF STANDARDS WHICH WILL HAVE THE MOST CURRENT VERSION. THE BOOK OF STANDARDS CAN BE ACCESSED AT: <http://apps.roads.maryland.gov/businesswithahq/bookofstandards/index.asp>
 - ALL ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT VERSION OF THE REFERENCED STANDARD AT THE TIME OF CONSTRUCTION.
 - DEPARTMENT OF PLANNING AND ZONING CONSIDERS THE PROPOSED DISTURBANCE TO THE STREAM BUFFER AND FLOODPLAIN TO BE NECESSARY DISTURBANCE PER SECTION 16.116(C) IN ORDER TO REMOVE THE EXISTING DRIVEWAY.
 - THE PURPOSE IN CREATING NON-BUILDABLE BULK PARCEL 'A' IS THE FEE SIMPLE TRANSFER OF THE PARCEL TO THE ADJOINING PROPERTY, TAX MAP 42, GRID 24, PARCEL 26 N/F MARION E. MOORE, KNOWN AS: 6930 CARROLL HEIGHTS AVENUE.

MINIMUM LOT SIZE CHART

LOT	GROSS AREA	PIPESTEM AREA	NET AREA	MIN. LOT SIZE
1	8,137 SF	895 SF	7,242 SF	7,200 SF
2	10,855 SF	2,132 SF	8,723 SF	7,200 SF
3	9,059 SF	1,851 SF	7,208 SF	7,200 SF
4	8,760 SF	1,554 SF	7,206 SF	7,200 SF

FINAL SUPPLEMENTAL PLAN COTTAGE GROVE

LOTS 1 - 4, OPEN SPACE LOT 5
AND NON-BUILDABLE BULK PARCEL 'A'
HOWARD COUNTY, MARYLAND

**SWM PRACTICE CHART
ESD PRACTICES BY LOT**

LOT #	ADDRESS	ESD PRACTICE
#1	9910 NOEL HOPE DRIVE	(1) RAIN BARREL (M-1) (1) RAIN GARDEN (M-2)
#2	9911 NOEL HOPE DRIVE	(2) RAIN BARREL (M-1) (3) RAIN GARDEN (M-2)
#3	9915 NOEL HOPE DRIVE	DISCONNECT ROOFTOP RUNOFF (N-1), (2) RAIN BARREL (M-1)
#4	9919 NOEL HOPE DRIVE	DISCONNECT ROOFTOP RUNOFF (N-1), (2) RAIN BARREL (M-1) (2) RAIN GARDEN (M-2)

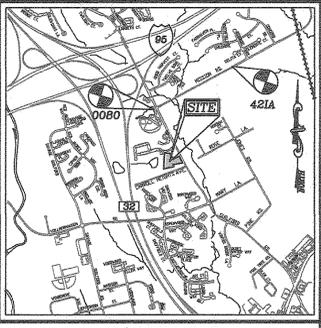
BENCHMARKS

COORDINATES BASED ON NAD 83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 0080 AND 421A.

HOWARD COUNTY BENCHMARK

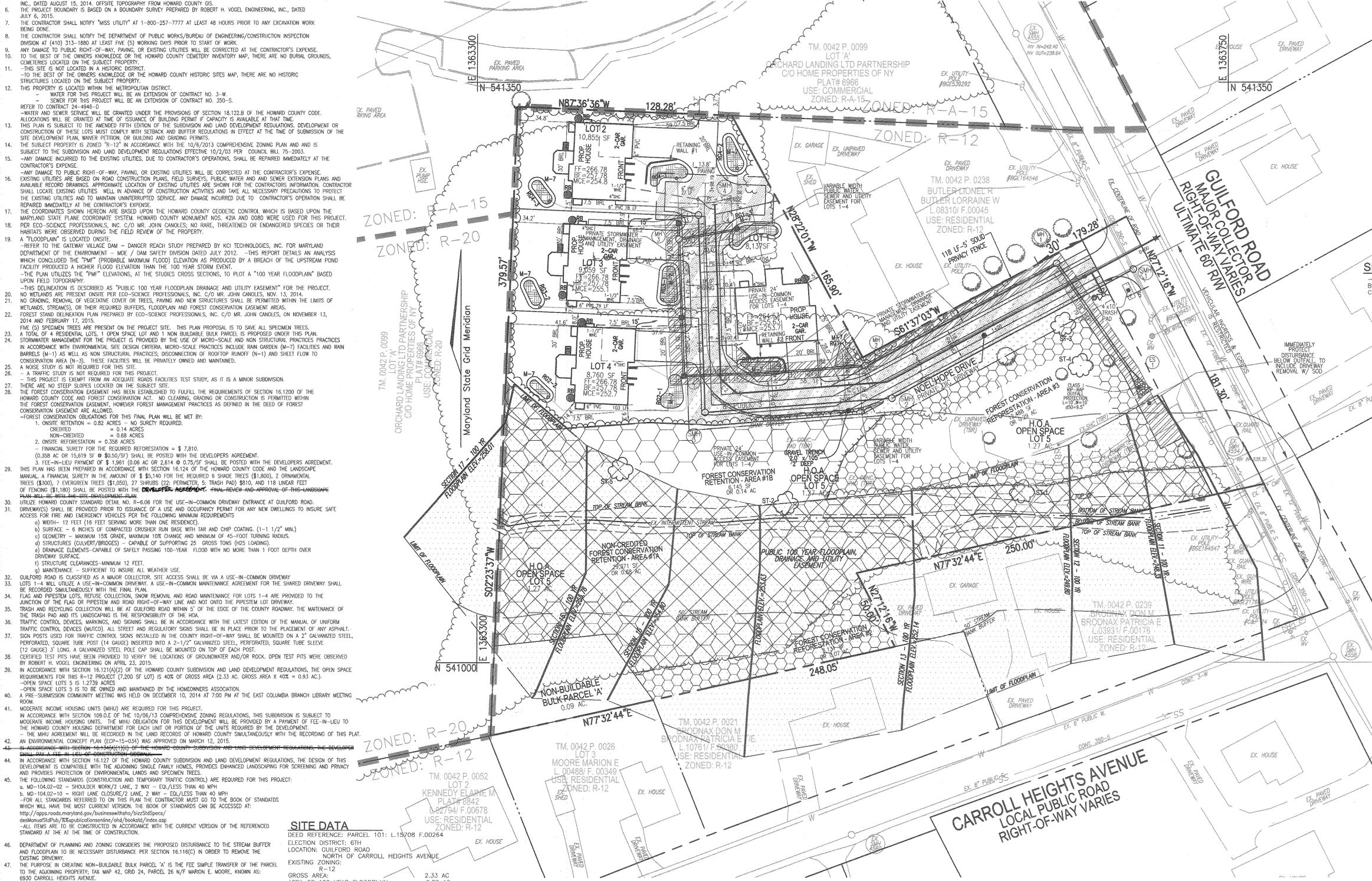
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ELEV. 282.392

421A N 543300.414 E 1364912.662
ELEV. 312.012



SHEET INDEX

DESCRIPTION	SHEET NO.
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EXISTING SERVICE CONNECTIONS

-EXISTING SERVICE CONNECTIONS SHALL BE ABANDONED AT THE MAIN PER HOWARD COUNTY VOLUME IV STANDARDS.

LEGEND

- EXISTING CURB AND GUTTER
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREES
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING TREE LINE
- ROOF TOP DISCONNECTS
- PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE AND UTILITY EASEMENT SEE NOTE 19
- 16" PRIVATE DRAINAGE AND UTILITY EASEMENT
- 24" PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4
- VARIABLE WIDTH PUBLIC UTILITY EASEMENT FOR LOTS 1-4
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)

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

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Ed Elshor 8/17/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION JR DATE

Kurt Schindler 8/18/16
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

SITE DATA

DEED REFERENCE: PARCEL 101: L15708 F.00264

ELECTION DISTRICT: 6TH

LOCATION: GUILFORD ROAD

NORTH OF CARROLL HEIGHTS AVENUE

EXISTING ZONING: R-12

GROSS AREA:	2.33 AC
AREA OF 100 YEAR FLOODPLAIN:	0.88 AC
AREA OF STEEP SLOPES:	0.00 AC
AREA OF WETLANDS & BUFFERS:	0.00 AC
NET AREA (GROSS-STEEP SLOPES & FLOODPLAIN):	1.45 AC
NUMBER OF PROPOSED RESIDENTIAL LOTS:	4 LOTS
AREA OF PROPOSED RESIDENTIAL LOTS (SFD):	0.85 AC
AREA OF ROAD RIGHT OF WAY:	0.1230 AC
AREA OF NON-BUILDABLE BULK PARCEL 'A':	0.09 AC
OPEN SPACE REQUISITE AREA:	0.93 AC
TOTAL AREA OF OPEN SPACE PROPOSED:	1.27 AC +/-
LIMIT OF DISTURBANCE:	1.20 AC

EXISTING USE OF SITE: RESIDENTIAL SFD

SINGLE FAMILY DETACHED

PROPOSED USE OF SITE: PUBLIC

PROPOSED WATER SYSTEM: PUBLIC

PROPOSED SEWER SYSTEM: PUBLIC

MINIMUM LOT AREA: 7,200 SF

NOTE:
- HOUSES MAY NOT BE BUILT USING THIS PLAN.

COVER SHEET

SCALE: 1" = 30'

CURVE TABLE

CURVE	ARC	RADIUS	TANGENT	DELTA	CHORD
C1	18.92'	45.00'	9.60'	24°09'37"	N73°39'51"W 18.78'
C2	59.58'	37.00'	38.48'	97°15'18"	S48°09'41"E 53.35'
C3	38.61'	500.00'	19.31'	4°25'26"	S00°10'41"W 38.60'

MIHU AGREEMENT

PLEASE NOTE THAT ALL NEW LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION (LOTS 1-4) 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.

PARKING TABULATION:

TOTAL NUMBER OF DWELLING UNITS PROPOSED: 4

OFF-STREET PARKING SPACES REQUIRED: 2 SPACES PER UNIT = 8 SPACES

PARKING SPACES PROVIDED:

- SFD = 2 GARAGE/2 DRIVEWAY
- 2 SPACE IN GARAGE = 8 SPACES (FOR 4 UNITS)
- 2 SPACES ON DRIVEWAY = 8 SPACES (FOR 4 UNITS)

TOTAL PARKING SPACES PROVIDED: = 16 SPACES OFF-STREET

OVERFLOW / GUEST PARKING SPACES REQUIRED:

- 0.5 SPACES PER SFD UNIT X 4 = 2 SPACES
- REQUIRED TOTAL OVERFLOW PARKING SPACES PROVIDED: = 8 SPACES (DRIVEWAY) REFER TO OFF-STREET EXCESS.

**FINAL SUPPLEMENTAL PLAN
COVER SHEET AND LAYOUT PLAN
COTTAGE GROVE**

LOTS 1 - 4, OPEN SPACE LOT 5
AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42 BLOCK 24
6TH ELECTION DISTRICT

ZONED: R-12
PARCEL 101
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS

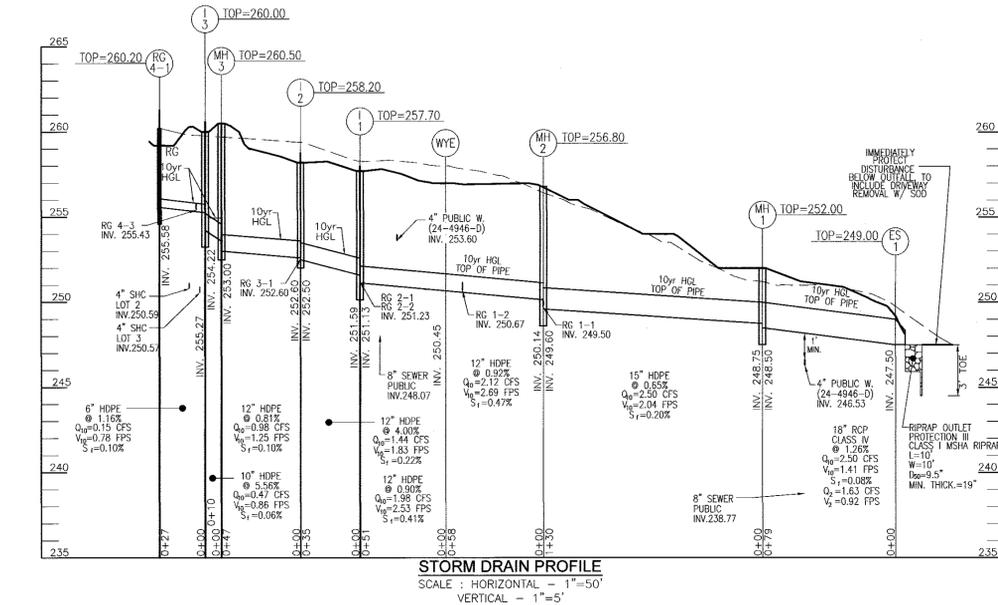
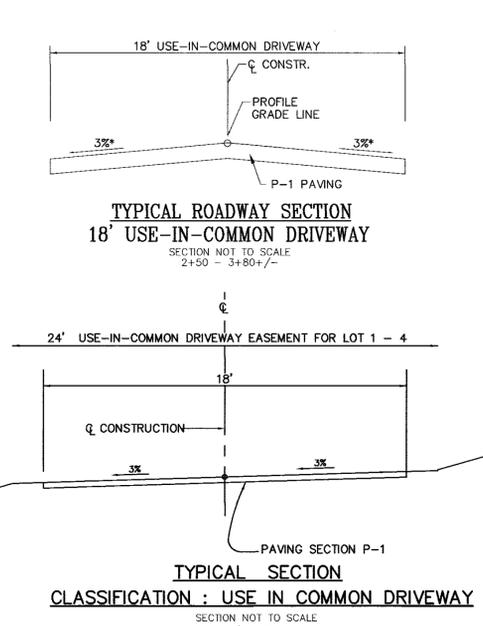
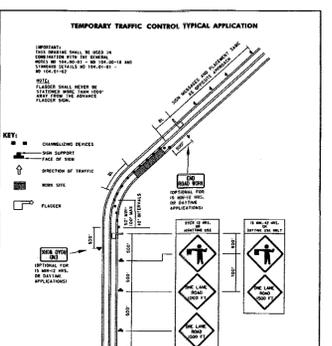
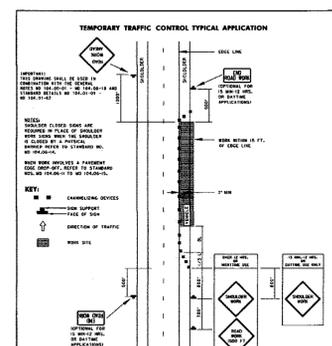
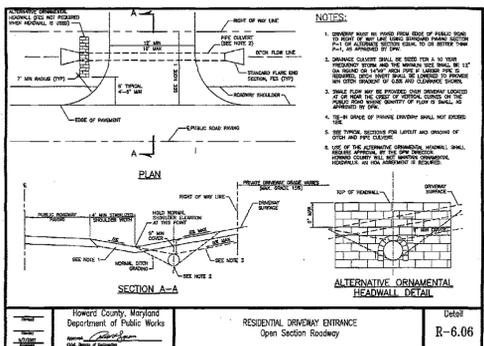
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: EDS
DRAWN BY: KG
CHECKED BY: RHW
DATE: AUGUST 2016
SCALE: AS SHOWN
W.O. NO.: 14-11

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. MY LICENSE NO. 16197 EXPIRES DATE: 09-27-2016

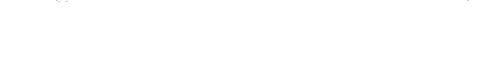
1 SHEET OF 8



SECTION	ROAD AND STREET CLASSIFICATION	ADDITIONAL BEARING INFO (GDS)	1 TO 45' TO 10' 2.7	45' TO 10' TO 10' 2.7	10' TO 45' TO 10' 2.7	45' TO 10' TO 10' 2.7
P-1	RESIDENTIAL DRIVEWAY ENTRANCE WITH NO SIDEWALK	18" MANHOLE TO 48" MANHOLE (1.00)	1.00	1.00	1.00	1.00
P-2	RESIDENTIAL DRIVEWAY ENTRANCE WITH SIDEWALK	18" MANHOLE TO 48" MANHOLE (1.00)	1.00	1.00	1.00	1.00
P-3	RESIDENTIAL DRIVEWAY ENTRANCE WITH SIDEWALK AND CURB	18" MANHOLE TO 48" MANHOLE (1.00)	1.00	1.00	1.00	1.00
P-4	RESIDENTIAL DRIVEWAY ENTRANCE WITH SIDEWALK AND CURB AND SIDEWALK	18" MANHOLE TO 48" MANHOLE (1.00)	1.00	1.00	1.00	1.00

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARD NO. MD 104.02-02
SHOULDER WORK-LANE, 2-WAY
EQUIVALENT TO 40 MPH

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARD NO. MD 104.02-10
FLAGGING OPERATIONS-LANE, 2-WAY
EQUIVALENT TO 40 MPH

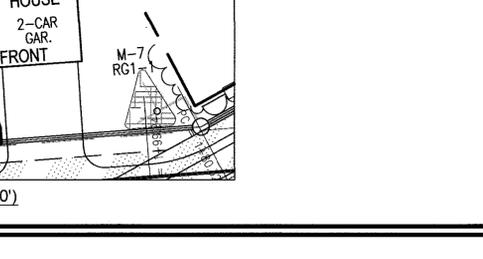
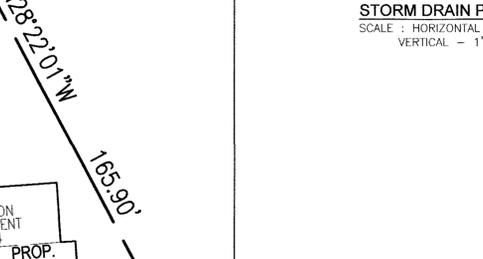
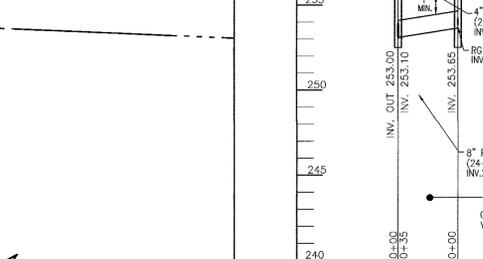
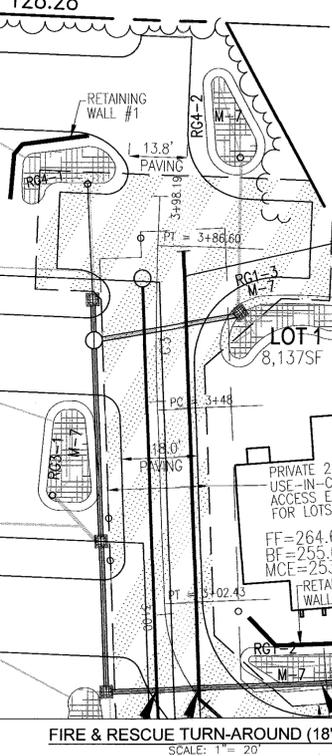
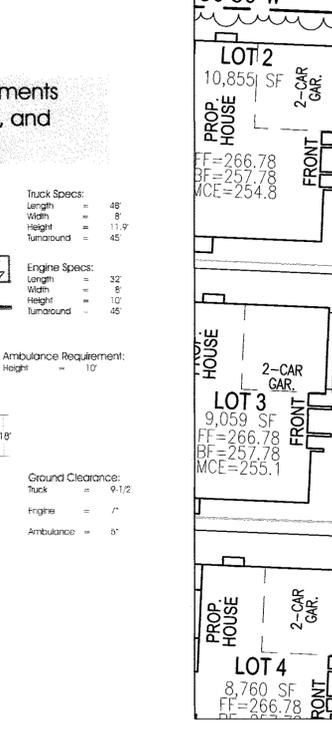
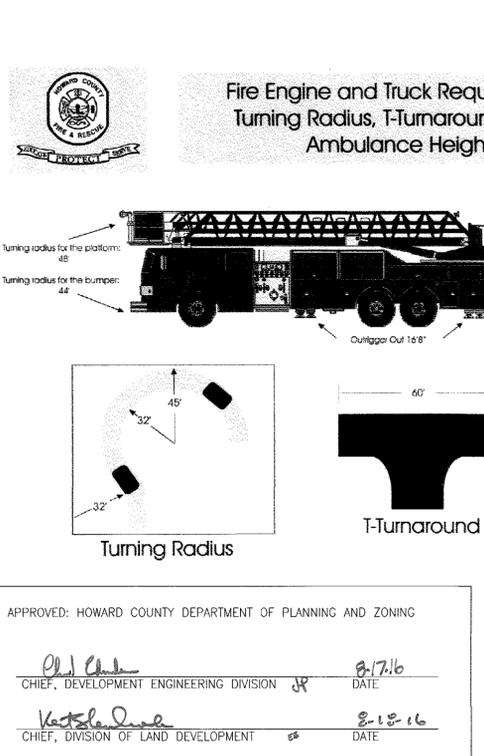


Truck Specs:
Length = 48'
Width = 8'
Height = 11.9'
Turnaround = 45'

Engine Specs:
Length = 32'
Width = 8'
Height = 10.7'
Turnaround = 45'

Ambulance Requirement:
Height = 10'

Ground Clearance:
Truck = 9.1/2'
Engine = 7'
Ambulance = 5'



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

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

NO.	REVISION	DATE

FINAL SUPPLEMENTAL PLAN
SITE DETAILS
AND STORM DRAIN PROFILES

COTTAGE GROVE
LOTS 1 - 4 OPEN SPACE LOT 5
AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42 BLOCK 24
6TH ELECTION DISTRICT

ZONED: R-12
PARCEL 101
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2016.

DESIGN BY: EDS.
DRAWN BY: KVC.
CHECKED BY: RHV.
DATE: AUGUST 2016.
SCALE: AS SHOWN.
W.O. NO.: 14-11

2 SHEET OF 8

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

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

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

- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS HERETO.
 - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS OR TO THE SURFACE OF ALL PERMETER CONTROL LINES, SWALES, DITCHES, PERMETER 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.
 - ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARLAND STANDARDS 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 OR LIME CAN ONLY BE APPLIED TO AREAS THAT WILL BE FULLY SPRING SEEDING IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH 1/2" OF CUT AND/OR FILL TOPSOILS (SEC. B-4-4) IN EXCESS OF 20 FT. MUST BE BENCHING WITH STABLE OUTLET, AND CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATING (SEC. B-4-6). SEDIMENT CONTROL IN REMAIN IN PLACE UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.

6. SITE ANALYSIS:

TOTAL AREA OF SITE:	2.33 ACRES
AREA DISTURBED:	1.20 ACRES
AREA TO BE REFOOD OR PAVED:	0.37 ACRES
AREA TO BE VEGETATIVELY STABILIZED:	0.83 ACRES
TOTAL CUT:	180 CU. YDS.
TOTAL FILL:	180 CU. YDS.
OFFSITE WASH/DRAINAGE AREA LOCATION:	SEE PLAN

- ESTIMATE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES BY HIS OWN SATISFACTION. TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, WITH AN APPROVED AND ACTIVE GRADING PERMIT.
 - ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
 - ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEMAND NEEDED BY THE CID. THE SITE AND ALL CONTROL STRUCTURES MUST BE MAINTAINED THROUGHOUT 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 (ROUTINE, PRE-Storm Event, DURING PLAN 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)
 - MAJOR OR CURRENT ACTIVITIES
 - EVIDENCE OF SEDIMENT DISCHARGES
 - IDENTIFICATION OF SEDIMENTATION
 - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 - COMPLYING LISTS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 - MODIFICATIONS
 - MONITORING/SAMPLING
 - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 - OTHER INSPECTION ITEMS REQUIRING A GRADING PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (PILES, MUD).

- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
 - ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE CID PRIOR TO PROCEEDING WITH CONSTRUCTION. MAJOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
 - 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 AREA 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 OF THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, MORE THAN 30 ACRES CONTIGUOUSLY MAY BE DISTURBED AT A GIVEN TIME. EXCESSIVE WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, OR OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
 - TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ON FINAL GRADE.
 - ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-COUNTOUR, AND BE ELEVATED AT 2" MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPWARD BY 2" IN INTERVALS.
 - STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUDE):
 - USE 1 AND 2: MARCH 1 - JUNE 15
 - USE 1B AND 2B: APRIL 10 - APRIL 30
 - USE 3: MARCH 1 - MAY 31
- A COPY OF THIS PLAN, THE 2011 MARLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE. REV. 8/2015

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature: *Michael J. ...* Date: 8/5/16

BY THE ENGINEER:
 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: *Robert H. Vogel* Date: 8/10/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Signature: *Clayton ...* Date: 8/17/16
 Signature: *Michelle ...* Date: 8/16/16

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

- DEFINITION**
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.
- PURPOSE**
TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED AREAS.
- CONDIIONS WHERE PRACTICE APPLIES**
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

- CRITERIA**
- A. SOIL PREPARATION
- TEMPORARY STABILIZATION
 - SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISCS, 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 RECOMMENDED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH BROAD TREADS AND OTHER EQUIPMENT TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

- B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHOULDERES, STREAM BANKS, OR DUMPS OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 4-10. CRITICAL AREAS PLANTING
- C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
- D. FOR AREAS REQUIRING APPLY AREA FORM FERTILIZER (40-0-0) AT 1/2-1 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. FERTISSURS MATURES
- A. AREAS WHERE FERTISSURS 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 MIXTURES), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THIS SUMMARY IS TO BE PLACED ON THE PLAN.
- C. KENTUCKY BLUEGRASS/FERNAL PINE FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. PROTECTION REQUIRED IN THE AREAS OF CENTRAL, MARLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS: SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOICE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- D. KENTUCKY BLUEGRASS/FERNAL PINE FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. (COVERED) PERENNIAL KYROSS CULTIVARS/ CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOICE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- E. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT. FULL SUN MIXTURE TO MEDIUM SHADE. RECOMMENDED MIXTURES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS TO 5 PERCENT. CULTIVARS MAY BE BLEND.

- K. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
- WESTERN MD. MARCH 15 TO JUNE 1, AUGUST 10 TO OCTOBER 1 (HARDNESS ZONES: SR, GA)
 - CENTRAL MD. MARCH 1 TO MAY 15, AUGUST 10 TO OCTOBER 1 (HARDNESS ZONE: BE)
 - EASTERN MD. EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 7A, 7B)
- D. TALL FESCUE 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 FINE, SEEDBED. REMOVE STONES AND DEBRIS OVER 1/4 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL PROCEED UNDISTURBED.
- E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH. WATERING OF SEEDS MUST BE CONTINUED UNTIL THE SEEDS ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN PLANTING SEASON, IN ANABOMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.
- B. SOO: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS
- A. CLASS OF FERTISSURS SOO MUST BE MARLAND STATE CERTIFIED. SOO LABELS MUST BE MADE AVAILABLE TO THE CID FOREMAN AND INSPECTOR.
- B. SOO MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GRASS AND THATCH. GROUND PADS AND TOW OR INCHES ENDS WILL NOT BE ACCEPTABLE.
- C. STANDARD SIZE SPECIFICATIONS OF SOO MUST BE STRONG THOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUPERSEDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
- D. SOO MUST NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT EXCEEDS 60% OR WHEN IT MAY ADVERSELY AFFECT ITS SURVIVAL.
- E. SOO MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOO NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
2. SOO INSTALLATION
- A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIATE THE SOO IMMEDIATELY PRIOR TO LAYING THE SOO.
- B. LAY THE FIRST ROW OF SOO 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 SOO IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT WINDS WHICH WOULD CAUSE AIR DRIVING OF THE ROWS.
- C. WHENEVER POSSIBLE, LAY SOO WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOO TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOO CONTACT EXISTS BETWEEN SOO ROWS AND THE UNDERLYING SOIL SURFACE.
- D. WATER THE SOO IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW ROW AND SOIL SURFACE BELOW THE SOO ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOO WITHIN EIGHT HOURS.
3. SOO MAINTENANCE
- A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER ONLY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOO DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- B. AFTER THE FIRST WEEK, SOO WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- C. DO NOT MOW UNTIL THE SOO 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.

PERMANENT SEEDING SUMMARY

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATE	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O	LIME RATE
1	COOL SEASON GRASS & WINTER ANNUAL OR EQUAL	T.F. 60 LB / AC K.B. 40 LB / AC	MAY 1 TO MAY 15 AUG 15 TO OCT 15	1/4"-1/2" IN.	45 LB/AC (1.8 LB PER 1000 SF)	90 LB/AC (3.6 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)

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

- DEFINITION**
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.
- PURPOSE**
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
- CONDIIONS WHERE PRACTICE APPLIES**
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

- CRITERIA**
- A. SOIL PREPARATION
- TEMPORARY STABILIZATION
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- B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHOULDERES, STREAM BANKS, OR DUMPS OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 4-10. CRITICAL AREAS PLANTING
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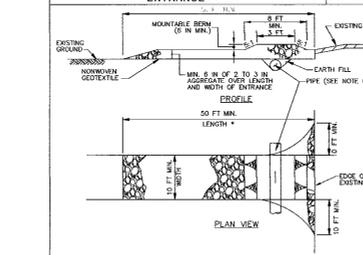
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- D. SOO MUST NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT EXCEEDS 60% OR WHEN IT MAY ADVERSELY AFFECT ITS SURVIVAL.
- E. SOO MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOO NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
2. SOO INSTALLATION
- A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIATE THE SOO IMMEDIATELY PRIOR TO LAYING THE SOO.
- B. LAY THE FIRST ROW OF SOO 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 SOO IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT WINDS WHICH WOULD CAUSE AIR DRIVING OF THE ROWS.
- C. WHENEVER POSSIBLE, LAY SOO WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOO TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOO CONTACT EXISTS BETWEEN SOO ROWS AND THE UNDERLYING SOIL SURFACE.
- D. WATER THE SOO IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW ROW AND SOIL SURFACE BELOW THE SOO ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOO WITHIN EIGHT HOURS.
3. SOO MAINTENANCE
- A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER ONLY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOO DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- B. AFTER THE FIRST WEEK, SOO WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- C. DO NOT MOW UNTIL THE SOO 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.

PERMANENT SEEDING SUMMARY

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATE	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O	LIME RATE
1	COOL SEASON GRASS & WINTER ANNUAL OR EQUAL	T.F. 60 LB / AC K.B. 40 LB / AC	MAY 1 TO MAY 15 AUG 15 TO OCT 15	1/4"-1/2" IN.	45 LB/AC (1.8 LB PER 1000 SF)	90 LB/AC (3.6 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE



- CONSTRUCTION SPECIFICATIONS**
- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SOE. USE MINIMUM LENGTH OF 30 FT (100 FEET) WITH SINGLE WHEELS AND 40 FT (120 FEET) WITH DOUBLE WHEELS. FLARE SIDE TO 15 FT MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
 - PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SOE UNDER THE ENTRANCE. MAINTAIN POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SOE WITH A MOUNTABLE BENCH WITH 2" SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SOE IS LOCATED AT A HIGH SPOT, PROVIDE A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. A MOUNTABLE BENCH IS REQUIRED WHEN THE SOE IS NOT LOCATED AT A HIGH SPOT.
 - PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
 - PLACE CURED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT READY MIXED CONCRETE (WITH LOW ENDS) TO THE TOP OF THE SOE. PROVIDE A FINISH GRADE OF 1.5 PERCENT TO 2 PERCENT.
 - MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT, AND STONE OR WHEAT STRAW COVER AS SPECIFIED ON THE APPROVED PLAN. MAINTAIN CLEAR SURFACE, MOUNTABLE BENCH, AND SPECIFIED AGGREGATE. IMMEDIATELY REMOVE STONE AND SEDIMENT SHELLED DROPPED ON THE ENTRANCE.
 - MAINTAIN LIME, GRADE, AND CROSS SECTION. KEEP OUTSIDE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. INSPECT FOR SOIL AND FERTILIZER. GLOBBED MATERIAL MUST BE NECESSARY REPAIRS IMMEDIATELY.

REPAIR

CLASS	MINIMUM THICKNESS (")
I	18 IN
II	30 IN
III	48 IN

MARLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

- DEFINITION**
TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.
- PURPOSE**
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.
- CONDIIONS WHERE PRACTICE APPLIES**
TO THE SURFACE OF ALL PERMETER CONTROL, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.
- CRITERIA**
- A. SOIL PREPARATION
- TEMPORARY STABILIZATION
 - SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISCS, 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 RECOMMENDED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH BROAD TREADS AND OTHER EQUIPMENT TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

- B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHOULDERES, STREAM BANKS, OR DUMPS OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 4-10. CRITICAL AREAS PLANTING
- C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY. SOO TESTS ARE NOT REQUIRED FOR TEMPORARY STABILIZATION.
- D. FOR AREAS REQUIRING APPLY AREA FORM FERTILIZER (40-0-0) AT 1/2-1 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

TEMPORARY SEEDING SUMMARY

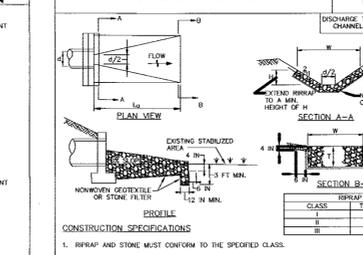
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATE	SEEDING DEPTHS	N	P ₂ O ₅	K ₂ O	LIME RATE
1	COOL SEASON GRASS & WINTER ANNUAL OR EQUAL	40 LB / AC	MAY 1 TO MAY 15 AUG 15 TO OCT 15	1/2" IN.	45 LB/AC (1.8 LB PER 1000 SF)	90 LB/AC (3.6 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)
2	WINTER ANNUAL OR EQUAL	30 LB / AC	MAY 16 TO MAY 31	1/2" IN.	45 LB/AC (1.8 LB PER 1000 SF)	90 LB/AC (3.6 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)	2 TONS/AC (80 LB PER 1000 SF)

SEQUENCE OF CONSTRUCTION

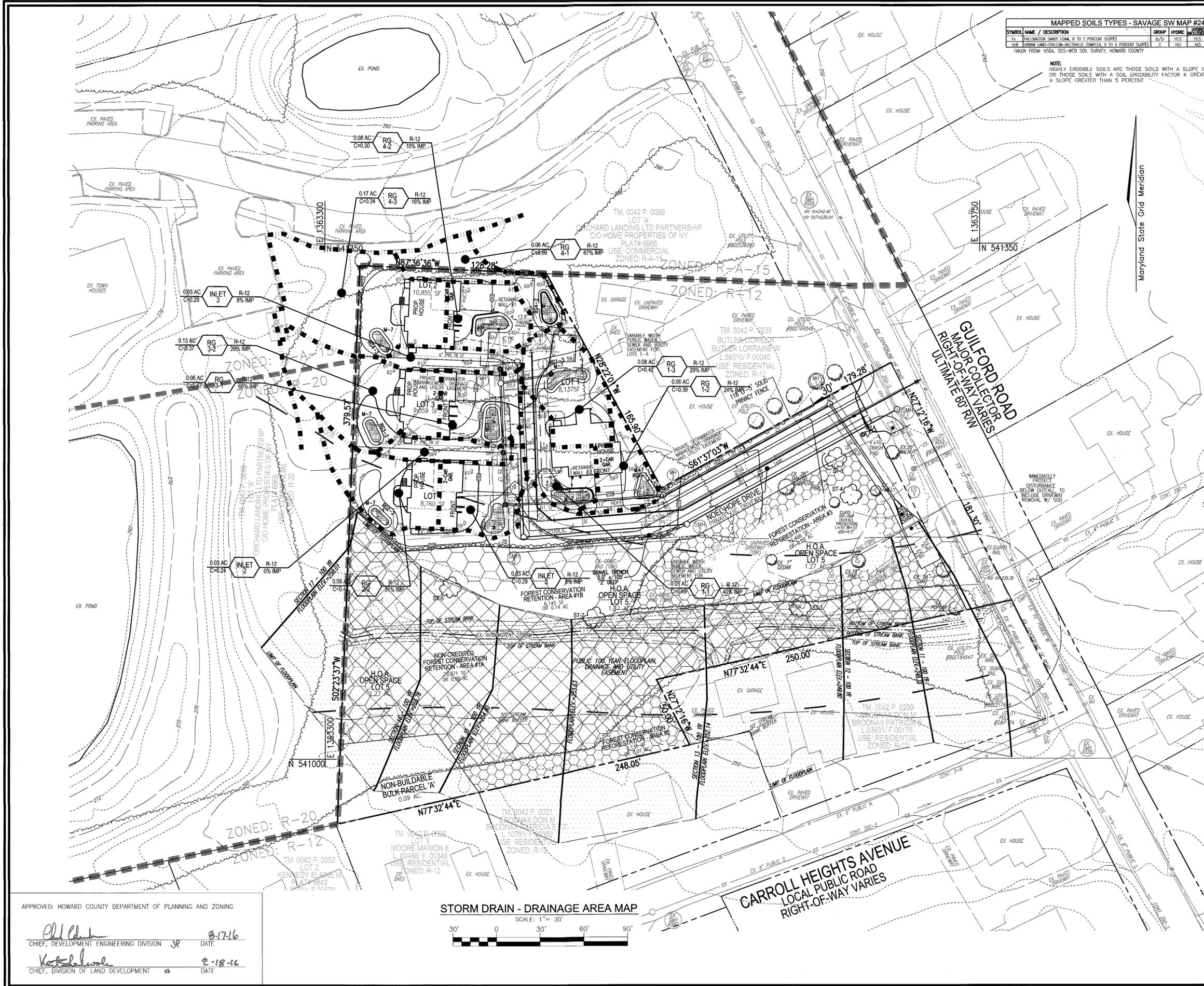
- OBTAIN GRADING PERMIT. (1 DAY)
- DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE AGENCY AUTHORITY PRIOR TO BEGINNING CONSTRUCTION. (1 DAY)
- NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. (1 DAY)
- STAKEOUT LIMITS OF DISTURBANCE. (3 DAYS)
- WORK
- INSTALL STABILIZED CONSTRUCTION ENTRANCE, AS SHOWN HEREON. (1 DAY)
- CLEAR AND GRUB ONSITE AREA FOR THE INSTALLATION OF PERMETER CONTROLS. (1 DAY)
- INSTALL PERMETER SUPER SILT FENCE AS SHOWN HEREON OR AS DIRECTED BY SEDIMENT CONTROL INSPECTOR. (1 DAY)
- WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN CONSTRUCTION OF WATER & SEWER EXTENSIONS AND THE STORM DRAIN SYSTEM ES-1 TO WH-2. STABILIZE DISTURBANCE FROM REMOVAL OF EXISTING DRIVEWAY AREA WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. IMMEDIATELY STABILIZE AREA BELOW ES-1 WITH SOO.
- UPON COMPLETION OF CONSTRUCTION, PERFORM MAINTENANCE OF THE SEDIMENT CONTROL INSPECTOR, CLEAR & GRUB SITE TO INCLUDE REMOVAL OF ANY REMAINING EXISTING DRIVEWAY AREA AND PLACE SITE TO GRADE FOR FUTURE HOME CONSTRUCTION. (3 DAYS)
- THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROLS SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. (1 DAY)
- WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, COMPLETE CONSTRUCTION OF WATER & SEWER EXTENSIONS AND STORM DRAINS FROM W-2 TO 1-3. REMOVE INLET PROTECTION ON ALL INLETS (2 WEEKS)
- INSTALL BASE PAVEMENT (4 DAYS)
- INSTALL TRASH PAD. (1 DAY)
- INSTALL LANDSCAPING (3 DAYS)
- AFTER PERMISSION HAS BEEN GIVEN BY SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING PERMETER EROSION CONTROLS AND STABILIZE THESE DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (1 WEEK)

NOTE: ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION

DETAIL D-4-1-C ROCK OUTLET PROTECTION III



- CONSTRUCTION SPECIFICATIONS**
- RRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
 - USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM FUNDING, SETTING, OR TRIPPING BEFORE AND DURING OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE WITH A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINTS.
 - EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RRAP AND ENDED AT LEAST 4 INCHES AT SIDES OF RRAP.
 - CONSTRUCT RRAP OUTLET TO FULL GROUND THICKNESS IN ONE OPERATION AND IN SUCH A MANNER THAT IT WILL BE SECURELY AND UNIFORMLY SUPPORTED BY THE UNDERLYING MATERIAL. THE MANNER THAT IT WILL BE SECURELY AND UNIFORMLY SUPPORTED BY THE UNDERLYING MATERIAL. THE MANNER THAT IT WILL BE SECURELY AND UNIFORMLY SUPPORTED BY THE UNDERLYING MATERIAL.
 - WHERE NO ENTAILS IS USED, CONSTRUCT THE UPSTREAM END OF THE RRAP SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXCEED THE STONE UNDER THE OUTLET BY AT



MAPPED SOILS TYPES - SAVAGE SW MAP #24

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRO	PERCENT SAND	PERCENT SILT	PERCENT CLAY	PERCENT ORGANIC	PERCENT ROCK	PERCENT COBBLES	PERCENT GRAVEL	PERCENT STONES	PERCENT Boulders	PERCENT C&G	PERCENT W/ EROSION POTENTIAL
S-6	FALLS CHALK SANDY LOAM, 0 TO 2 PERCENT SLOPES	B/D	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
U-6	TERRAIN SANDY CHALKY LOAM, 0 TO 5 PERCENT SLOPES	C	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

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

LEGEND:

	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SPOT ELEVATION
	EXISTING SPOT ELEVATION
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	EXISTING TREES (FIELD LOCATED)
	EXISTING TREES (FIELD LOCATED)
	EXISTING TREELINE (FIELD LOCATED)
	EXISTING OVERHEAD LINE
	EXISTING RAILROAD
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	EXISTING DMF FLOODPLAIN PER GATEWAY VILLAGE DAM DANGER REACH STUDY

DRAINAGE AREA
C' FACTOR

INLET
#

ZONING
% IMPERVIOUS

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

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

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

NO.	REVISION	DATE

FINAL SUPPLEMENTAL PLAN
STORM DRAIN - DRAINAGE AREA MAP
COTTAGE GROVE
LOTS 1 - 4, OPEN SPACE LOT 5
AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42, BLOCK 24, 6TH ELECTION DISTRICT
ZONED: R-12
PARCEL 101
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

DESIGN BY: _____ EDS.
DRAWN BY: _____ KG.
CHECKED BY: _____ RHV.
DATE: _____ AUGUST 2016.
SCALE: _____ AS SHOWN.
W.O. NO.: _____ 14-11.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2016.

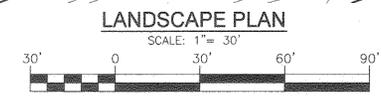
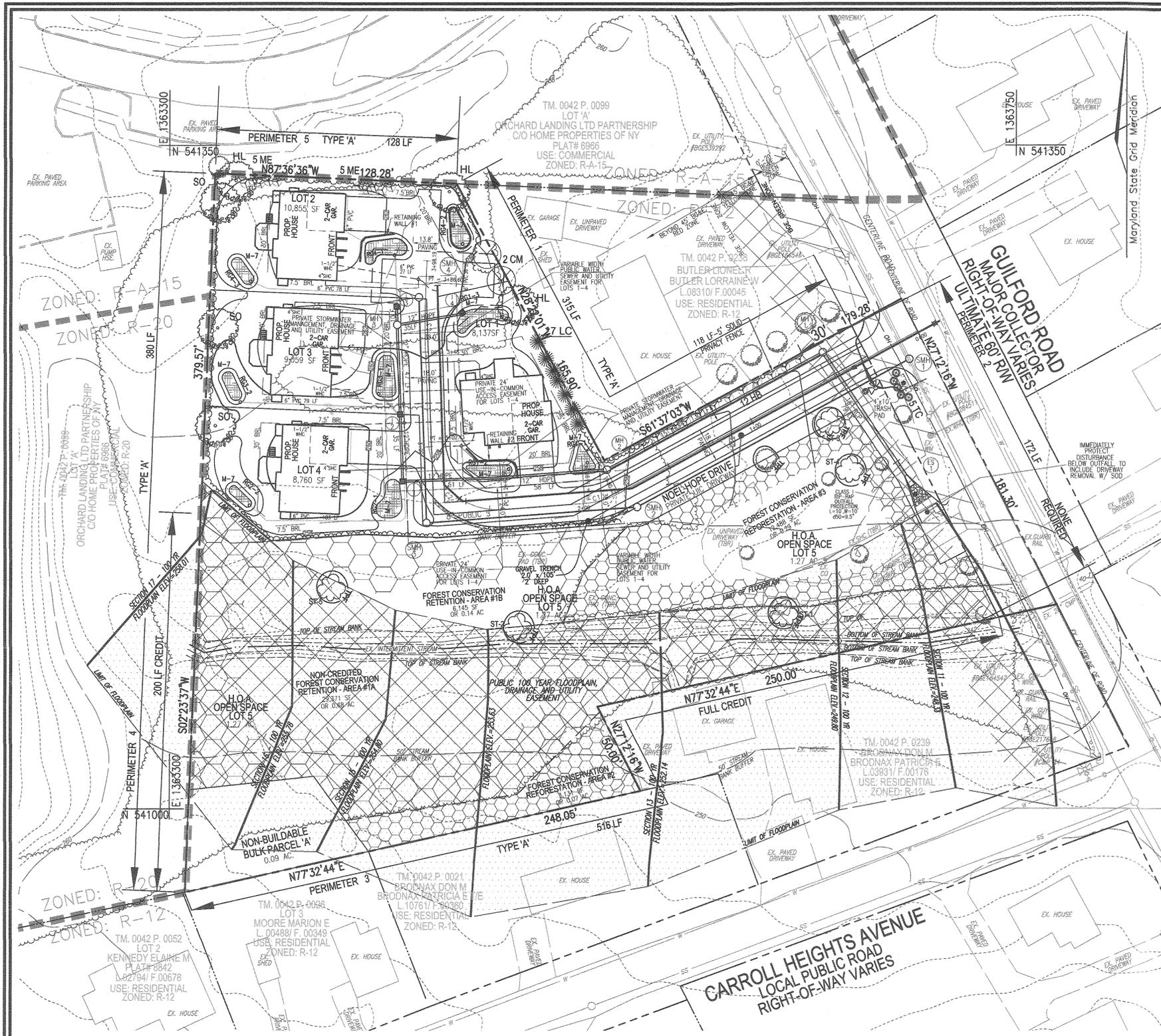
5 SHEET OF **8**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 8-17-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION JP DATE

[Signature] 8-18-16
CHIEF, DIVISION OF LAND DEVELOPMENT es DATE

STORM DRAIN - DRAINAGE AREA MAP
SCALE: 1" = 30'
30' 0 30' 60' 90'



DPZ'S POLICES GOVERNING THE PLACEMENT OF LANDSCAPING AND STREET TREES IN PROXIMITY TO BGE'S POWER LINES OR TRANSMISSION RIGHT-OF-WAY ARE BASED ON BGE'S PUBLISHED "PLANTING ZONE CONCEPT" WHICH ESTABLISHES THE MAXIMUM ALLOWABLE SIZE OF PLANT MATERIALS FOR THREE DEFINED ZONES. AS THE DISTANCE FROM BGE EQUIPMENT INCREASES, SO DOES THE SIZE OF THE ALLOWABLE PLANT MATERIALS. THESE THREE ZONES ARE DEFINED AS FOLLOWS:

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

B.G.E. NOTES:
 1. BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
 2. THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE P/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OF A TRANSMISSION LINE LOCATED WITHIN A FOREST CONSERVATION EASEMENT, A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERTAKING THE WORK. DPZ DETERMINES CONSULTATION ENGINEER'S NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLE WITHHOLD PERMISSION.
 3. CALL MISS UTILITY TO MARK UP THE LOCATION OF EXISTING GAS LINE BEFORE PLANTING STREET TREES ALONG HANOVER ROAD & PLANT STREET TREES 10' AWAY FROM EXISTING GASLINE AS REQUIRED.

SPECIMEN TREE CHART

Key	Species	Size (in dbh)	CRZ (feet radius)	Comments
1	Sweet Gum	37	55.5	Good condition, in floodplain
2	Red oak	36.5	54.75	fair, storm damage in crown
3	Pin oak	30	45	good
4	Pin oak	31	46.5	good
5	Oak sp.	38	54	good condition, in floodplain

LANDSCAPE NOTES

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

GENERAL NOTE:

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
 A FINANCIAL SURETY IN THE AMOUNT OF \$ 5,140 FOR THE REQUIRED 8 SHADE TREES (\$1,800), 2 ORNAMENTAL TREES (\$300), 7 EVERGREEN TREES (\$1,000), 27 SHRUBS (\$22), PERIMETER, 5, TRASH PAD \$810, AND 118 LINEAR FEET OF FENCING (\$1,180) SHALL BE POSTED WITH THE DEVELOPER. **AGREEMENT, FINAL REVIEW AND APPROVAL OF THIS LANDSCAPE PLAN WILL BE WITH THE SITE DEVELOPMENT PLAN.**

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS					TOTAL
	P-1	P-2	P-3	P-4	P-5	
LANDSCAPE TYPE	515	172	516	380	128	
LINEAR FEET OF ROADWAY FRONTAGE PERIMETER						
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	No	Yes	200 LF	No	
CREDIT FOR EX. WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	YES-FENCE 118 LF (0)	No	No	No	No	
NUMBER OF PLANTS REQUIRED	197 LF	N/A	160 0	180 LF	160 2	8 7
SHADE TREES	160 3			160 3		7
EVERGREEN TREES	1:10 12					12
SHRUBS						
CREDIT FOR EX. INDIVIDUAL TREES TO REMAIN		N/A				
EVERGREEN TREES TO REMAIN						
NUMBER OF PLANTS PROVIDED	2	N/A		3	1	6
SHADE TREES	2					7
EVERGREEN TREES						2
ORNAMENTAL TREES	12(1)					10 22

PERIMETER LANDSCAPE SCHEDULE - REQUIRED PLANTING

SYM	KEY	QUAN	BOTANICAL NAME	SIZE	CAT
	SHADE				
HL	3	GLADIOLIA TRIACANTHOS	IMPERIAL HONEY LOCUST	2 1/2"-3" CAL.	B & B
SO	3	QUERCUS COCCINEA	SCARLET OAK	2 1/2"-3" CAL.	B & B
	EVERGREENS				
LC	7	CUPRESSOCYPARIS LEYLANDI	LEYLAND CYPRESS	5-6' HT.	B & B
	ORNAMENTAL				
CM	2	LAGERSTROMIA INDICA	(BGE COMPLIANT)	6-8' HT.	B & B
	SHRUBS				
ME	10	ELIOMYXUS HAUSTORHODICUS	'MANHATTAN'	2 1/2"-3" HT.	B & B
HB	12	NANDINA DOMESTICA	HEAVENLY BAMBOO	2 1/2"-3" HT.	B & B

TRASH PAD LANDSCAPING

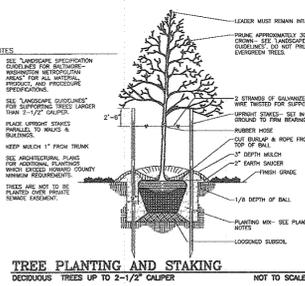
SYMBOL	QTY.	DESCRIPTION	SIZE	REMARKS
⊙	5	TAXUS CUSPIDATA 'NANA'	18"-24" SPREAD	B & B
		DWARF JAPANESE YEW		

LANDSCAPE SCHEDULE NOTE:

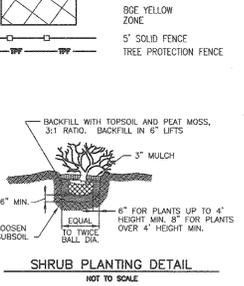
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANS SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRO PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL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



TYPICAL EVERGREEN TREE PLANTING DETAIL



TREE PLANTING AND STAKING



SHRUB PLANTING DETAIL

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING SANITARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN INLET
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING OVERHEAD LINE
- EXISTING GAULDRAIL
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- EXISTING PMF FLOODPLAIN PER GATEWAY VILLAGE DAM DANGER REACH STUDY
- PROPOSED SHADE TREE
- PROPOSED SHRUBS
- LANDSCAPE PERIMETER
- VARIABLE WIDTH PUBLIC WATER, SEWER AND UTILITY EASEMENT FOR LOTS 1-4
- PROPOSED 10' PRIVATE DRAINAGE AND UTILITY EASEMENT
- PROPOSED 10' PRIVATE DRAINAGE AND UTILITY EASEMENT
- BGE GREEN ZONE
- BGE YELLOW ZONE
- 5' SOLID FENCE TREE PROTECTION FENCE

OWNER
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DEVELOPER
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NO.	REVISION	DATE

FINAL SUPPLEMENTAL PLAN
LANDSCAPE PLAN
COTTAGE GROVE
 LOTS 1-4, OPEN SPACE LOT 5
 AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42 BLOCK 24
 6TH ELECTION DISTRICT

ZONED: R-12
 PARCEL 101
 HOWARD COUNTY, MARYLAND

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 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 07-27-2016

DESIGN BY: EDS
 DRAWN BY: KG
 CHECKED BY: RHY
 DATE: AUGUST 2016
 SCALE: AS SHOWN
 W.O. NO.: 14-11

6 SHEET OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

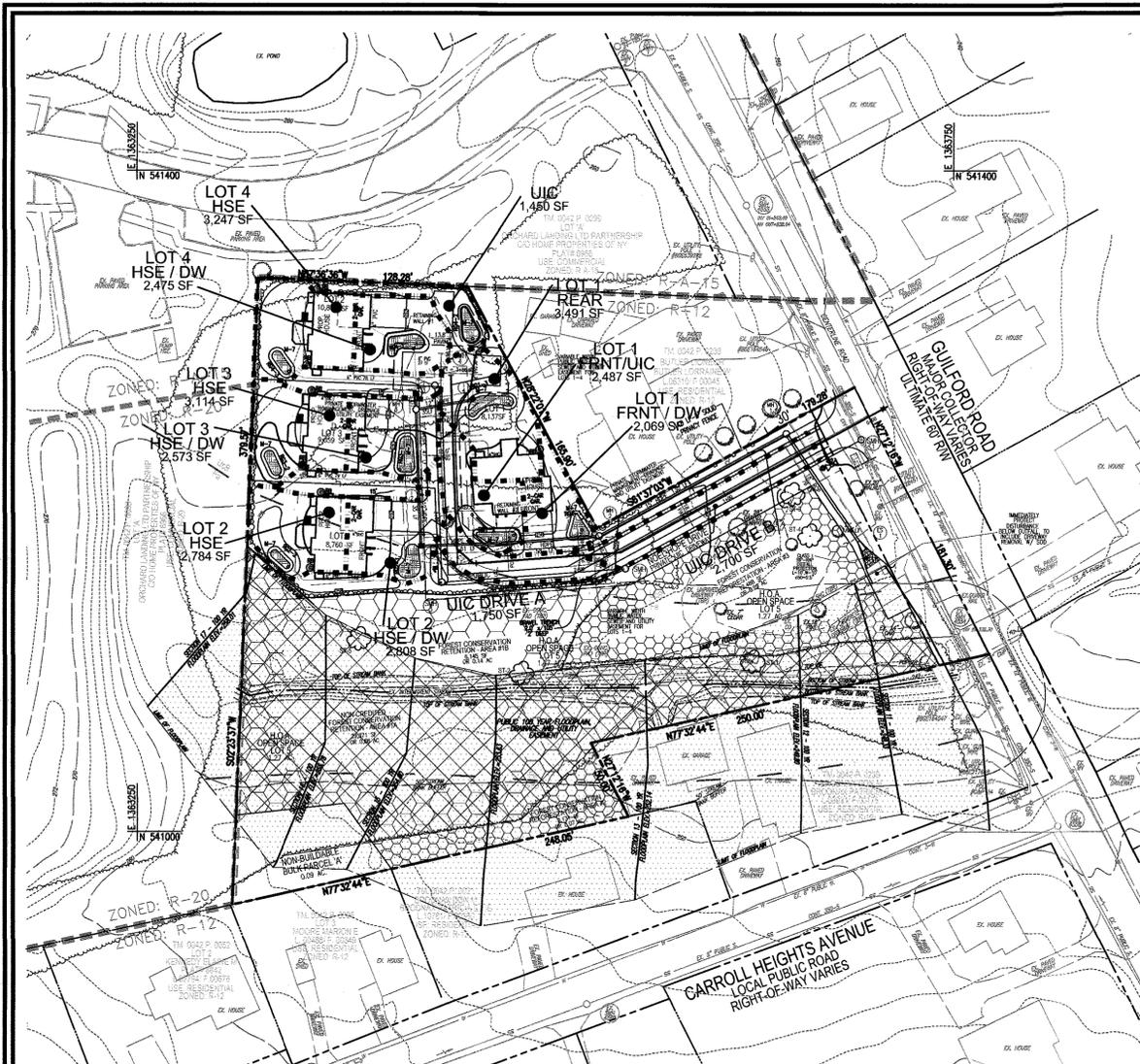
Chief
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8/17/16

Michael
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/18/16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

Michael
 SIGNATURE OF DEVELOPER
 DATE: 8/5/16



COTTAGE GROVE - FINAL ESDv COMPUTATIONS

SITE AREA: 1.09 AC 47480 SF
 TARGET Pe: 1.60 IN
 SITE IMPERVIOUS: 33.79 PERCENT
 SITE Rv: 0.3541
 SITE ESDv: 2.242 CF +/-

Rv=0.05+0.009X1
 V min=1.0' rainfall (1.0x0.95x4)/12
 Vmax=1yr rainfall=2.6' (2.6x0.95x4)/12

USE-IN-COMMON DRIVEWAY	DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.6' VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	REMARKS
		100.00	0.9500	2700	0.06	214	556	342	214	2700	0.06	0.00	NON ROOFTOP DISCONNECT / SHEETFLOW TO CONSERVATION AREA (N-3)
		100.00	0.9500	1750	0.04	139	360	222	237	1750	0.04	0.00	SHEETFLOW TO CONSERVATION AREA (N-3) 111 75 WIDTH + Pe = 0.8"
		17.79	0.2101	1450	0.03	25	66	41	189	258	0.01	0.03	LEVEL SPREADER (N-3) 126 GRAVEL TRENCH ALONG U-I-DESK 2 105 2 TRENCH MICROSCALE RAIN GARDEN (M-7) 189 142 SF RAIN GARDEN RG 4-2
		50.13	0.5012	3491	0.08	146	379	233	235	1750	0.04	0.04	MICROSCALE RAIN GARDEN (M-7) 255 176 SF RAIN GARDEN RG 1-3 MICROSCALE RAIN GARDEN (M-7) 130 97.5 SF RAIN GARDEN RG 1-1 MICROSCALE RAIN GARDEN (M-7) 175 131 SF RAIN GARDEN RG 1-2
		46.24	0.4622	2487	0.06	97	251	155	130	1150	0.03	0.03	LOT 1 REAR HSE LOT 1 UIC DRIVEWAY
		42.27	0.4304	2070	0.05	74	193	119	175	875	0.02	0.03	LOT 1 HSE/DRIVEWAY
		64.46	0.6301	2808	0.06	147	383	236	250	1810	0.04	0.02	LOT 4 HSE / DRIVE
		38.25	0.3943	2784	0.06	91	238	146	175	1065	0.02	0.04	LOT 4 REAR HSE
		68.79	0.6691	2573	0.06	143	373	230	252	1770	0.04	0.02	LOT 3 HSE / DRIVE
		36.29	0.3766	3114	0.07	98	254	156	176	1130	0.03	0.05	LOT 3 REAR HSE
		70.71	0.6864	2475	0.06	142	368	227	130	1750	0.04	0.02	LOT 2 HSE / DRIVE
		35.60	0.3704	3247	0.07	100	261	160	176	1156	0.03	0.05	LOT 2 REAR HSE
PROJECT TOTALS		55.5	0.5491	30949	0.71	1416	3682	2266	2338	17164	0.39	0.32	

MAPPED SOILS TYPES - SAVAGE SW MAP #24

SYMBOL NAME / DESCRIPTION	GROUP	HDRIC	HYDRIC	PERCENT		
ES	FULLINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	D	YES	0.02	NO	
USB	URBAN LAND-CHILMUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	NO	NO	0.37	NO

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



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

N-1. DISCONNECTION OF ROOFTOP RUNOFF (N-1)

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING THE CONSTRUCTION OF PROJECTS WITH PLANNED ROOFTOP DISCONNECTIONS:

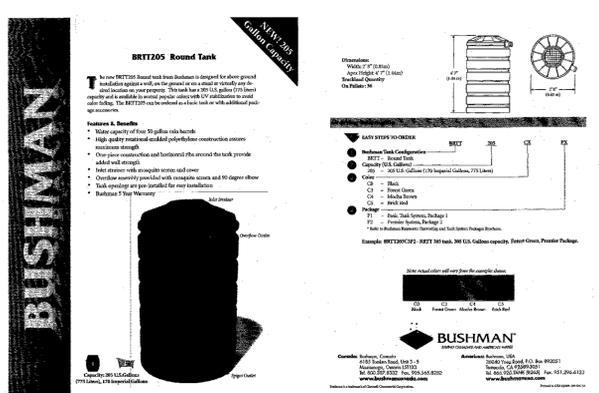
- EROSION AND SEDIMENT CONTROL: EROSION AND SEDIMENT CONTROL PRACTICES (E.G., SEDIMENT TRAPS) SHALL NOT BE LOCATED IN VEGETATED AREAS RECEIVING DISCONNECTED RUNOFF.
- SITE DISTURBANCE: CONSTRUCTION VEHICLES AND EQUIPMENT SHOULD AVOID AREAS RECEIVING DISCONNECTED RUNOFF TO MINIMIZE DISTURBANCE AND COMPACTION. SHOULD AREAS RECEIVING DISCONNECTED RUNOFF BECOME COMPACTED, SCAMERING THE SURFACE OR ROTOTILLING THE SOIL TO A DEPTH OF FOUR TO SIX INCHES SHALL BE PERFORMED TO ENSURE PERMEABILITY. ADDITIONALLY, AMENDMENTS MAY BE NEEDED FOR TIGHT, CLAYEY SOILS.

INSPECTION:

A FINAL INSPECTION SHALL BE CONDUCTED BEFORE USE AND OCCUPANCY APPROVAL TO ENSURE THAT SIZING FOR TREATMENT AREAS HAS BEEN MET AND PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

MAINTENANCE CRITERIA:

MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION (E.G., BY PLANTING TREES OR SHRUBS ALONG THE PERIMETER). IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John Chish 8-17-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION JR DATE

W. J. ... 8-18-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

BUSHMAN BRT205 (205 GALLON) RAIN HARVESTING SYSTEM OR EQUIVALENT RAIN BARREL DETAIL

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED RAINWATER HARVESTING (M-1) NOT TO SCALE

- THE OWNER SHALL EMPTY BARRELS ON A MONTHLY BASIS AND CLEAN BARREL WITH A HOSE.
- THE OWNER SHALL VERIFY INTACTNESS OF LEAF SCREENS, GUTTERS, DOWNSPOUTS, SPIGOTS, AND MOSQUITO SCREENS, AND CLEAN AND REMOVE ANY DEBRIS.
- THE OWNER SHALL REPLACE DAMAGED COMPONENTS AS NEEDED.
- THE OWNER SHALL ALLOW THE BARREL TO DRAIN BY BOTTOM SPIGOT DURING THE WINTER SEASON.

TYPICAL RAIN BARREL DESIGN

205 GAL GAL/DAFT = 27.41 CUFT

500 SF X 0.05" = 27.41 CUFT

RAIN GARDEN FACILITY - DESIGN ELEVATION CHART

MBR FACILITY #	ESD WSEL A	TOP MULCH B	BOTTOM PLANT SOIL C	INV STONE D	SURFACE AREA SF	APPROX DIM
RG1-1	256.20	255.20	252.95	251.62	98	SEE PLAN
RG1-2	256.80	255.80	253.55	252.22	132	SEE PLAN
RG1-3	259.00	258.00	255.75	254.42	180	SEE PLAN
RG2-1	257.70	256.70	254.45	253.12	190	SEE PLAN
RG2-2	257.40	256.40	254.15	252.82	90	SEE PLAN
RG3-1	259.20	258.20	255.95	254.62	190	SEE PLAN
RG3-2	259.30	258.30	256.05	254.72	91	SEE PLAN
RG4-1	260.20	259.20	256.95	255.62	147	SEE PLAN
RG4-2	260.40	259.40	257.65	256.32	185	SEE PLAN
RG4-3	261.10	260.10	257.85	256.52	91	SEE PLAN

OPERATION AND MAINTENANCE SCHEDULE FOR RAINGARDENS (M-7)

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

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.

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.

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

Material	Specification	Notes
Planting	See Appendix A, Table A.4.1	Planting as site specific.
Planting soil (2' to 4' deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (50%) & compost (50%)	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)	
Mulch	Pin gravel diaphragm	6" or 8" OR NO. 9 (18" TO 36")
Curtain drain	ornamental stone: washed cobble	stone: 2" to 5"
Geotextile	AASHTO M-40	NO. 57 OR NO. 6 (18" TO 36")
Gravel (underdrain and infiltration berm)	AASHTO M-40	NO. 57 OR NO. 6 (18" TO 36")
Underdrain piping	7.5" Type PS 28 or AASHTO M-278	4" or 6" rigid schedule 40 PVC or SDR35
Precast in place concrete (if required)	MESH No. 3, 1" - 3300 psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM A618-60	Slotted or perforated pipe; 3/8" perf @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; not necessary underdrain pipes. Perforated pipes shall be wrapped with 1/2 inch geotextile fabric.
Soil	AASHTO M-6 or ASTM C-33	0.075" to 0.08"

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

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 SUBSTITUTES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMPOST 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%-40%) OR SANDY LOAM (30%), COMPOST (30%), AND COMPOST (40%).
 * CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 15%.
 * PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.

THE SOIL SHALL BE AT LEAST ONE SOIL TEST PER PRACTICE. 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 IMPROVED, 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 HEES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WEE TRACK OR MARSH TRACK EQUIPMENT OR LIGHT EQUIPMENT WITH TIRE 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 THROUGH THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS SCISSOR PLOW, BEEPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO RESTRUCTURE THE SOIL PROFILE THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSIDE 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 PAVED 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 SHALL BE USED TO MAINTAIN THE PERIMETER OF THE SOIL TO SURVEY. SOILS TO BE USED SHOULD BE 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.2.3.

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

ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED 3/4 INCH OF THE BALL IS ABOVE FINISH 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. THESE 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.

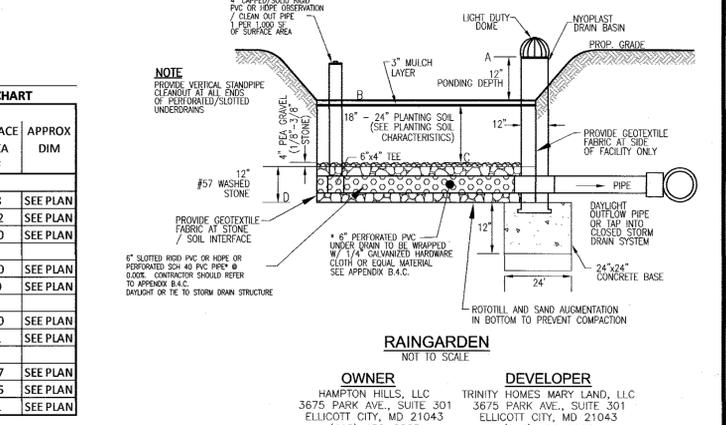
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

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. ADDED FERTILIZERS BEYOND 40 LBS PER 1000 SQUARE FEET OF SOIL CAN ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS
 UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 * PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F758, TYPE PS 28, OR AASHTO M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
 * PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4-4) GALVANIZED HARDWARE CLOTH.
 * GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 * 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 (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

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

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



OWNER: HAMPTON HILLS, LLC
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DEVELOPER: TRINITY HOMES MARY LAND, LLC
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 ELLICOTT CITY, MD 21043
 (410) 480-0023

FINAL SUPPLEMENTAL PLAN SWM DRAINAGE AREA MAP, NOTES & DETAILS COTTAGE GROVE LOTS 1-4, OPEN SPACE LOT 5 AND NON-BUILDABLE BULK PARCEL 'A'

TAX MAP 42, BLOCK 24, 6TH ELECTION DISTRICT

ZONED: R-12
 PARCEL 101
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.

ENGINEERS • SURVEYORS • PLANNERS

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