YORIKO PROPERTIES LOTS 1 AND 2

10676 STANSFIELD ROAD
LAUREL, MD. 20723
PARCEL 88
LIBER 14949 FOLIO 0207
ZONED:R-20

ENVIRONMENTAL CONCEPT PLAN

GENERAL NOTES

1. THE TOPOGRAPHY SHOWN HEREON IS BASED ON AN A FIELD RUN TOPOGRAPHIC SURVEY WITH 2-FOOT CONTOURS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY, 2014.
2. THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY, 2014.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. 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.
5. ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
6. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO CEMETERIES OR GRAVE SITES LOCATED ON THE SUBJECT PROPERTY.
7. STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIO RETENTION (M-6) WHICH WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
8. 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, WAIVER PETITION, OR BUILDING AND GRADING PERMITS.
9. THE SUBJECT PROPERTY IS ZONED "R-20" IN ACCORDANCE WITH THE 10/6/13 COMPREHENSIVE ZONING PLAN
10. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
11. THE PROPOSED SUBDIVISION AND RELATED CONSTRUCTION WILL HAVE MINIMAL AFFECT ON EXISTING ENVIRONMENTAL FEATURES AND BUFFERS.
12. EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS 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.
13. 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. 31EA AND 31EB WERE USED FOR THIS PROJECT.
14. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THE PROPERTY.
15. THERE ARE NO 100-YR FLOODPLAIN, WETLANDS, STREAMS NOR STEEP SLOPES (25% OR GREATER) LOCATED ON SITE.
16. THE ENVIRONMENTAL RESOURCES FOR THIS SITE ARE IN ACCORDANCE WITH A REPORT PREPARED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC. DATED AUGUST 4, 2014.
17. SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
18. ENVIRONMENTAL ASSESSMENT PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED AUGUST 4, 2014.
19. A TOTAL OF 2 LOTS ARE PROPOSED UNDER THIS PLAN.
20. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S), OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
21. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.
22. THERE ARE 4 SPECIMEN TREES IDENTIFIED ON THE SUBJECT PROPERTY. ALL 4 SPECIMEN TREES WILL REMAIN.
23. THE EXISTING HOUSE ON LOT 1 IS TO REMAIN.
24. REFERENCE DPZ FILE NO. F-83-07.
25. SECTIONS 16.124 AND 16.1200 OF THE REGULATIONGS REGARDING PERIMETER LANDSCAPING AND FOREST CONSERVATION WILL BE ADDRESSED WITH REVIEW OF THE FINAL SUBDIVISION PLANS AND PLAT.
26. IN ACCORDANCE WITH HOWARD COUNTY FOREST CONSERVATION MANUAL CHAPTER 2, APPLICABILITY, THIS 2 LOT MINOR SUBDIVISION IS EXEMPT FROM FOREST CONSERVATION BECAUSE THERE IS NO FURTHER DEVELOPMENT POTENTIAL.

LEGEND

398	EXISTING CONTOUR	— — —	PROPERTY LINE
406	PROPOSED CONTOUR	— - - - —	RIGHT-OF-WAY LINE
========	EXISTING CURB AND GUTTER	— - — - —	EXISTING STREAM
☒	EXISTING MAILBOX	M1B2 / M1D3	SOILS BOUNDARY
○	EXISTING SIGN	⌒⌒⌒	EXISTING TREELINE
Ⓢ	EXISTING SANITARY MANHOLE	▬ ▭ ▬ ▭	PROPOSED STORM DRAIN
SS	EXISTING SANITARY LINE	SF	SILT FENCE
○ CO	EXISTING CLEANOUT	SSF	SUPER SILT FENCE
FH	EXISTING FIRE HYDRANT	SCE	SEDIMENT CONTROL ENTRANCE
W	EXISTING WATER LINE	LOD	LIMIT OF DISTURBED AREA
+02 68	PROPOSED SPOT ELEVATION		
⊕	EXISTING TREE		
▨	MODERATE SLOPES (15% - 24.99%)		

CONCEPT PLAN

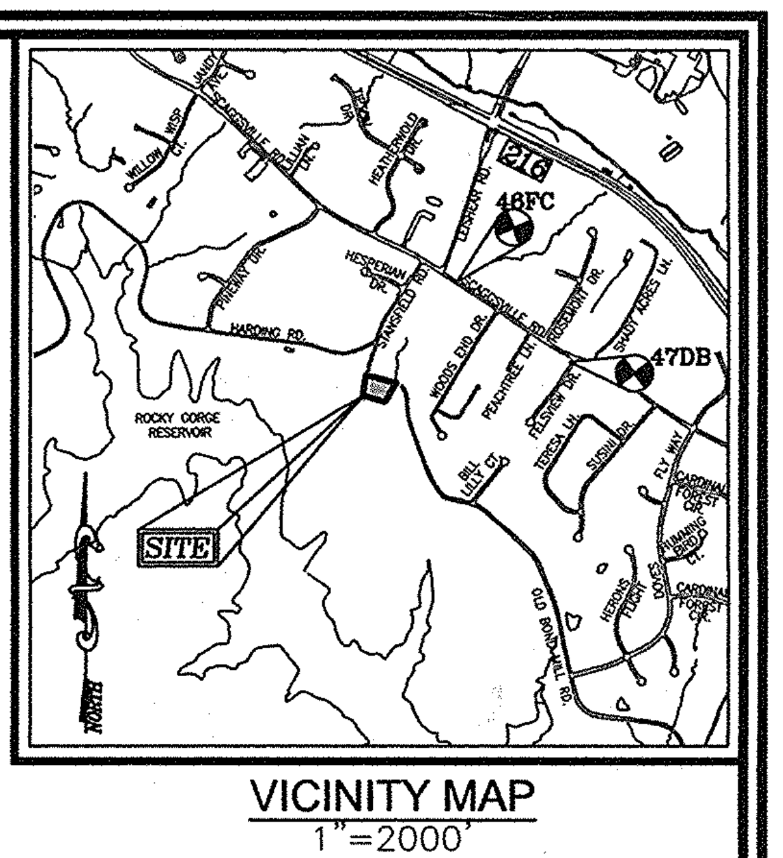
SCALE: 1" = 30'

BENCHMARKS

COORDINATES BASED ON NAD 83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 46FC, 47DB.

HOWARD COUNTY BENCHMARK

46FC	N 534316.891	E 1348131.226	ELEV. 398.50
47DB	N 535145.935	E 1346954.793	ELEV. 403.72



VICINITY MAP

1"=2000'
ADC MAP COORDINATES: 5052 J9

SITE DATA

LOCATION: LAUREL, MD
TAX MAP 46, GRID 18, PARCEL 88
6TH ELECTION DISTRICT
PRESENT ZONING: R-20
DPZ REFERENCES :
GROSS AREA OF PROJECT: 1.41 AC.
LIMIT OF DISTURBANCE: 13,905 SF OR 0.32 AC
PROPOSED USE OF SITE: SINGLE FAMILY DETACHED, RESIDENTIAL
NUMBER OF RESIDENTIAL LOTS PROPOSED: 2 LOTS
AREA OF RESIDENTIAL LOT PROPOSED: 20,000 SF
OPEN SPACE REQUIRED: 0.00 AC.
OPEN SPACE PROVIDED: 0.00 AC.
IMPERVIOUS AREA: 0.07 AC.
AREA OF LIMIT OF DISTURBANCE: 12,995.3 SF (0.298 AC.)
AREA OF STREAM/BUFFER: 0.057 AC.
AREA OF WETLANDS/BUFFER: 0.00 AC.
AREA OF STEEP SLOPES (25% OR GREATER): 0.00 AC.
AREA OF MODERATE SLOPES (15% TO 25%):0.156 AC.
AREA OF FLOOD PLAIN: 0.00 AC.
NET PROJECT AREA: 1.41 AC.
AREA OF EXISTING FOREST COVER: 0.00 AC.
AREA OF ERODIBLE SOILS: 0.00 AC.

ENVIRONMENTAL SITE DESIGN NARRATIVE

1. THE PROPERTY DOES NOT CONTAIN ANY FOREST, WETLANDS, STREAMS OR 100 YEAR FLOODPLAIN. THERE ARE NO ENVIRONMENTAL FEATURES IMPACTED AND THE CONCEPT PLAN PROVIDES FOR THE SAFE DISCHARGE OF THE TREATED RUNOFF.

2. THE SITE GENERALLY SLOPES FROM WEST TO EAST. THE PROPOSED DEVELOPMENT WILL HAVE NO CHANGE IN THE EXISTING CHARACTER OF THE EXISTING NATURAL FLOW PATTERNS.

3. THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT TO THE MAXIMUM EXTENT PRACTICABLE (MEP). THE ESD CONCEPT PROPOSES THE USE OF TWO MICRO-BIORETENTION FACILITIES (M-6). THE MBR (M-6) WILL DISCHARGE TO NATURAL GRADE AND THE PROPOSED ESD PRACTICES SHALL BE PRIVATELY OWNED AND MAINTAINED.

4. SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF PERIMETER CONTROLS (SILT FENCE AND SUPER SILT FENCE. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.

5. AS STATED IN #3 ABOVE, STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE USE OF A MICRO BIORETENTION FACILITYIES (M-6).

6. NO WAIVERS ARE ANTICIPATED TO FULFILL THIS CONCEPT.

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET , CONCEPT PLAN	1 OF 2
SWM DRAINAGE AREA MAP; NOTES AND DETAILS	2 OF 2

SCALE 1"=30'
15' 0' 30'

OWNER/DEVELOPER
HARIGAYA YORIKO
10676 STANSFIELD RD.
LAUREL, MD. 20723
(716) 510-4456

NO.	REVISION	DATE

YORIKO PROPERTIES LOTS 1 AND 2
ENVIRONMENTAL CONCEPT PLAN
COVER SHEET, CONCEPT PLAN

10676 STANSFIELD ROAD
LAUREL, MD. 20723
ZONED: R-20
L.14949/F.0207

TAX MAP 46 BLOCK 18
6TH ELECTION DISTRICT

PARCEL 88
HOWARD COUNTY, MARYLAND

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

ROBERT HARRIS VOGEL
11/13/14
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV
DRAWN BY: KG
CHECKED BY: RHV
DATE: OCTOBER 2014
SCALE: AS SHOWN
W.O. NO.: 13-40

PROFESSIONAL CERTIFICATE

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

1 SHEET OF 2

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson 11-17-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION NH DATE

Kent Sheubrooks 11-18-14
CHIEF, DIVISION OF LAND DEVELOPMENT HSP DATE

ECP-15-009

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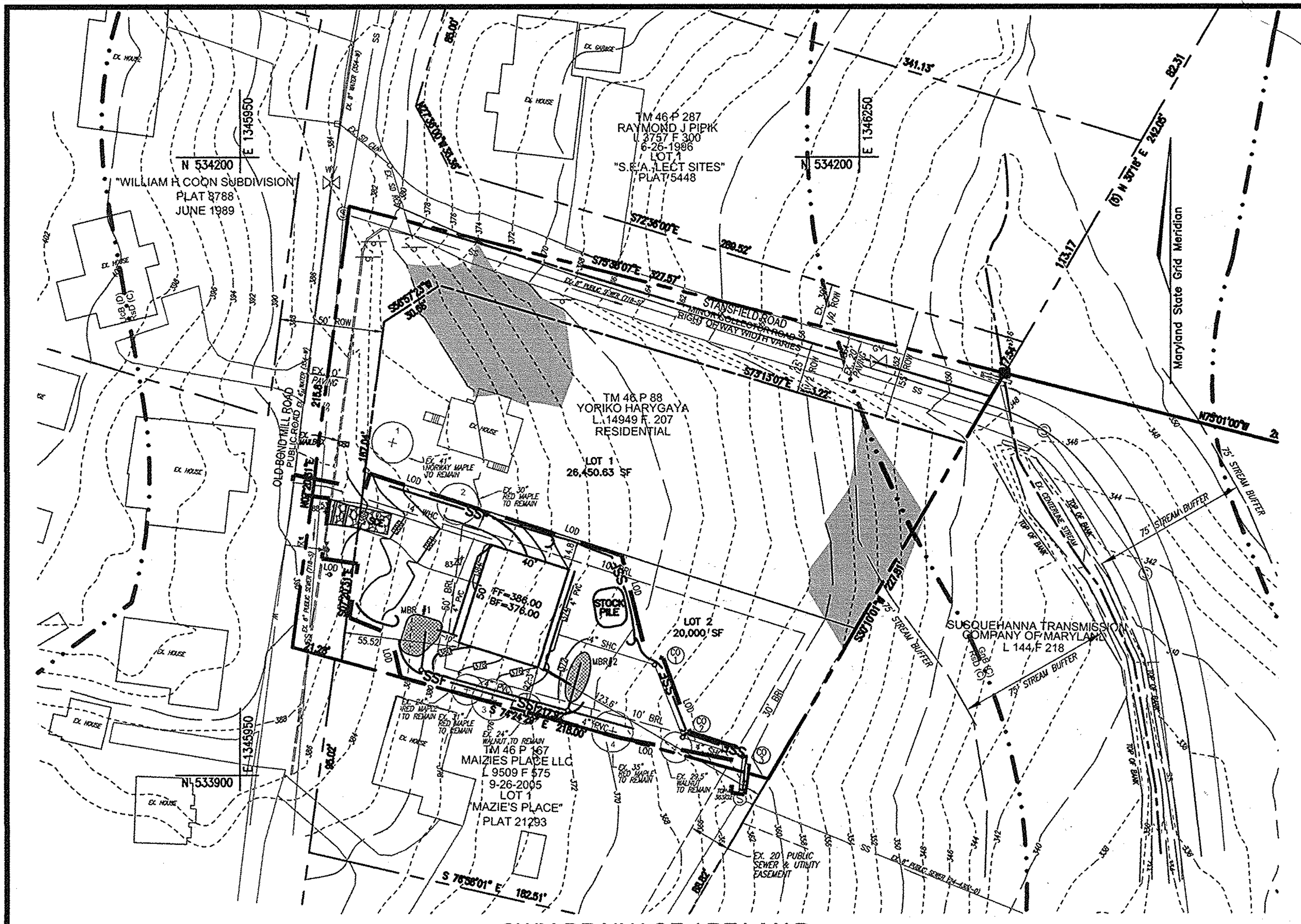


SWM DRAINAGE AREA MAP

SCALE: 1"=50'

INTRODUCTION

The purpose of this report is to address Environmental Site Design for the proposed two lot minor subdivision of the Yoriko Property. This report will address the ESDv for the new lot which will accommodate a new single family detached house. The existing house and driveway will remain on the other lot. The site is located on the south side of Stansfield Road and on the east side of Old Bond Mill Road. The site includes several individual trees but there are no areas which constitute woods and there are no wetlands located on site. There are 4 specimen trees identified and all 4 trees will remain. The environmental analysis was performed by Eco Science Professionals and the letter of findings is dated August 4, 2014. The subject property backs to the Susquehanna Transmission Company of Maryland Property which contains high tension power lines. .

Based on the current Natural Resources Conservation Service, National Cooperative Soil Survey the soils are predominately classified as Russett Fine Sandy Loam (RsD), 10-15 percent slopes and is considered Hydrologic Soil Group 'C'. The site drains to the east into the adjacent power line right-of-way. The adjacent property contains a swale in close proximity to the northeast property corner, adjacent to Stansfield Road. The slopes vary from 5% to 15% to the east and there are no steep slopes. The total gross property is 1.41 acres and is rectangular in shape. The proposed right-of-way dedications severely affect the property and the remaining area is just over 1.1 acres. Utilizing the minor subdivision criteria which permits some of the right-of-way area to be credited toward lot area will not permit a third lot. Therefore, there will not be any further subdivision potential.

METHODOLOGY

The stormwater management system for this project is designed utilizing the Maryland Department of the Environment 2007 Environmental Site Design, Chapter 5. The overall site P_E was computed and is 1.0". Therefore stormwater management practices address water quality volume (WQv) and recharge volume (Rev). In accordance with the MDE manual and Howard County ESD Bulletin #1, 2007 MDE Treatment Train Example, Step 4, the ESD practices can address the Pe for the site impervious area and no further treatment is required for the remaining grass area (single family detached in certain situations). Therefore the ESD for this project considers treatment of the driveway and rooftops to account for Pe=1.0".

Although there is sufficient disconnect length, the existing slopes do not permit the use of rooftop and non-rooftop disconnects. There are two bio-retention facilities proposed for the development of the additional lot. MBR #1 located at the front of the house will accommodate the front half of the roof area and the majority of the driveway which will be sloped to one side. MBR #2 will accommodate the rear half of the roof. The facilities will discharge to the east in accordance with the current drainage patterns.

CONCLUSION

The proposed one lot subdivision will create one additional lot which will be approximately 20,000 square feet and will include one new house and a driveway (approximately 3,100 sf of new impervious). The impervious coverage of the proposed lot is approximately 15.5%. The existing house and driveway will be retained on the balance of the property. Due to the geometry and areas of the two lots, they are not eligible to be further subdivided. The ESDv requirement for the lots will be accommodated by two micro bioretention facilities (M-6). These practices will be privately owned and maintained.

There are no impacts proposed to environmental resources which includes four specimen trees. The natural drainage patterns have been preserved with the site drainage discharging to the east property line. There will not be any impacts to adjacent properties. There are no floodplains located within the subject property. The property is located in the Patuxent River watershed and is considered a Use I stream.

The project will be designed so that earthwork will balance within the site to the greatest extent possible. The 2011 Sediment and Erosion Control Standards will be utilized to protect existing environmental features which will predominantly achieved through the use of super silt fence and other techniques.

SITE SPECIFIC INFORMATION

PERFORMANCE STANDARDS MDE STORMWATER DESIGN MANUAL VOLUME I

#1 Site designs shall minimize the generation of stormwater and maximize pervious areas for stormwater treatment.

The proposed site design proposes one new driveway and proposed home on a relatively large lot (20,000 sf). The impervious coverage of the entire proposed lot is 15.5% and when considering the limit of disturbance only, the impervious coverage is 30%. "The criteria for sizing ESD practices are based on capturing and retaining enough rainfall so that the runoff leaving a site is reduced to a level equivalent to a wooded site in good condition as determined using United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) methods (e.g., TR-55)."

#2 Stormwater runoff generated from development and discharged directly into a jurisdictional wetland or waters of the State of Maryland shall be adequately treated.

All runoff from the subject site will be treated utilizing the Environmental Site Design practices including two micro bioretention facilities (M-6). The site does not discharge directly to a wetland or the Waters of the State of Maryland.

#3 Annual groundwater recharge rates shall be maintained by promoting infiltration through the use of structural and non-structural methods. At a minimum, the annual recharge from post development site conditions shall mimic the annual recharge from pre development site conditions.

The ESD practices proposed promote the infiltration of runoff.

#4 Water quality management shall be provided through the use of structural and/or non-structural practices.

The proposed site design will incorporate non-rooftop disconnections and rain gardens. Per Chapter 5 - Section 5.2.2 Environmental Site Design (ESD) Sizing Criteria, the proposed facilities will satisfy the WQv requirements.

#5 Structural BMPs used for new development shall be designed to remove 80% of the average annual post development total suspended solids load (TSS) and 40% of the average annual post development total phosphorous load (TP). It is presumed that a BMP complies with this performance standard if it is:

ii. Sized to capture the prescribed water quality volume (WQv)
iii. Designed according to the specific performance criteria outlined in the MDE manual
iv. Constructed properly, and
v. Maintained regularly

In accordance with the Environmental Site Design (ESD) Sizing Criteria, the proposed practices are assumed to provide adequate TSS and TP treatment.

Standard #5 shall be met in to the extent possible.

#6 Control of the two-year and ten-year frequency storm events is required if the local authority determines that additional stormwater management is necessary because historical flooding problems exist and downstream floodplain development and conveyance system design cannot be controlled. In addition, safe conveyance of the 100-year storm event through stormwater management practices shall be provided.

To the best of our knowledge and belief the area immediately downstream of the subject property is not subject to flooding.

#7 To protect stream channels from degradation, Cpv shall be provided by 12 to 24 hours of extended detention storage for the one-year storm event.
Per the computations herein, the MDE Stormwater Manual, ESD practices meet the current requirements.

#8 Stormwater discharges to critical areas with sensitive resources.

ESD practices are provided for all proposed disturbed areas.

#9 All BMP's shall have an enforceable operation and maintenance agreement to ensure the system functions as designed.

The maintenance schedule and requirements will be included in the Declaration of Covenants.

#10 All BMPs shall have an acceptable form of water quality pretreatment.

The BMP's address and treat WQv & Rev.

#11 Redevelopment

Not applicable.

#12 Industrial Sites

Not applicable.

#13 Hotspot development

Not applicable.

#14 Local government review & NPDES permit

The proposed facilities shall meet the requirements of the Howard County Design Manual and the "2000 Maryland Stormwater Design Manual". A Notice of Intent will be filed with the Maryland Department of the Environment.

ESDv Calculation

Property Area = 1.11 ac or 48,269 square feet (after right-of-way dedication)

Lot 1 (existing house)	28,269 square feet
Lot 2 (proposed house)	20,000 square feet
Lot 2 Impervious	3,100 square feet or 15.5%
Lot 2 Limit of Disturbance	10,200 square feet
Percent Impervious Lot 2 LOD	30%
Hydrologic Soils Group	'C'

From Table 5.3 Pe = 1.0"
MBR#1
Rv = 0.05+((I)*(0.009)) = 0.65 I=2100/3150 = 67%
ESDv = (Pc)(Rv)(A)/12 = (1.0)(0.65)(3,150)/12 = 171 cf
MBR#2
Rv = 0.95 I=100%
ESDv = (1.0)(0.95)(1000)/12 = 79 cf

(*)Reference: Howard County ESD Bulletin #1, 2007 MDE Treatment Train Example, Step 4, the ESD practices can address the Pe for the site impervious area and no further treatment required for the remaining grass area (single family detached in certain situations). Therefore the ESD for this project considers treatment of the driveway and rooftops to account for Pe=1.0".

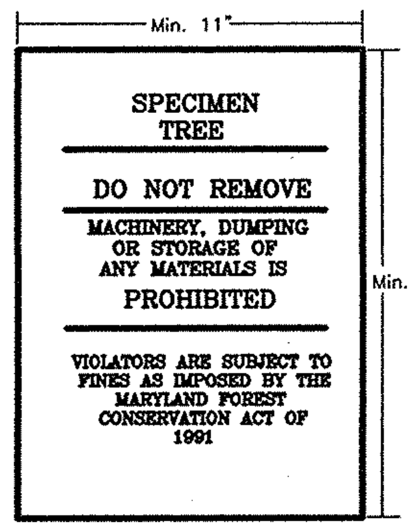
Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (**AASHTO**) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

SPECIMEN TREE CHART

KEY	SPECIES/TYPE	SIZE (IN.DBH)	CRZ (FEET RADIUS)	COMMENTS
1	NORWAY MAPLE	41	61.5	NOT NATIVE
2	RED MAPLE	30	45	GOOD
3	RED MAPLE	31	46.5	GOOD
4	RED MAPLE	35	52.5	GOOD



SPECIMEN TREE

DO NOT REMOVE

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED

VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

NOTE:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
3. ALL SPECIMEN TREE SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.
4. SIGN LOCATION SYMBOL = ⬣

SPECIMEN TREE SIGN

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR SPECIMEN TREE PROTECTION

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

CONSTRUCTION PHASE
1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE SPECIMEN TREE AREA.
2. NO EQUIPMENT SHALL BE OPERATED, STAGED OR STORED INSIDE THE SPECIMEN TREE AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

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

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

1. MATERIAL SPECIFICATIONS

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

2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

- SOIL COMPONENT – LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
- ORGANIC CONTEN – MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
- CLAY CONTENT – MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
- PH RANGE – SHOULD BE BETWEEN 5.5 – 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.

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

3. COMPACTION

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

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

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

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

5. PLANT INSTALLATION

COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

- PIPE – SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC 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 4x4) GALVANIZED HARDWARE CLOTH.
- GRAVEL – THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
- THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
- A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
- A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

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

7. MISCELLANEOUS

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

MAPPED SOILS TYPES

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	HYDRIC INCLUSIONS	Kw RANGE*	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
GnB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES.	C	YES		0.37	NO	YES
RsD	RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES.	C	NO		0.24	NO	NO

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY, SOIL MAP #23.

* BASED UPON ESTIMATED CUTS

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

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

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULTCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.

2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.

3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

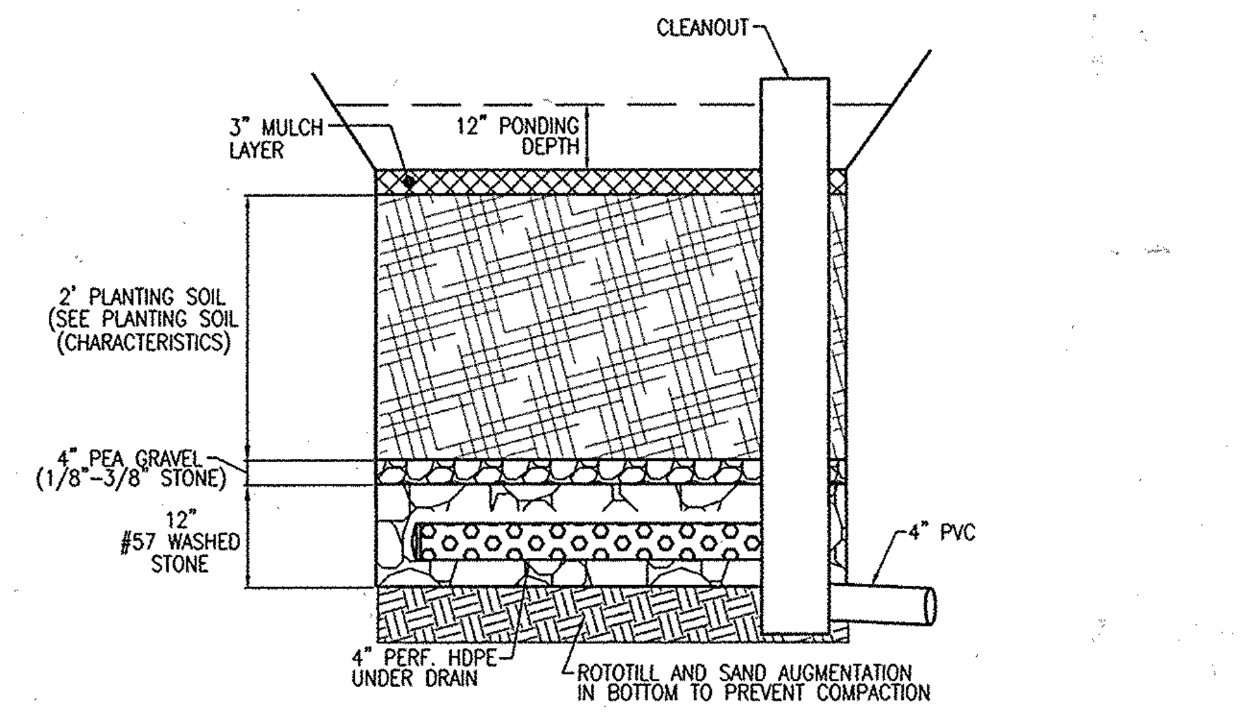
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

NOTES:

1. APPROVAL OF THIS SIMPLIFIED ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED BUILDING AND/OR GRADING PERMIT
2. REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE PERMIT STAGES; AND THEREFORE, THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN PROGRESSES THROUGH THE PERMIT PROCESS.
3. THERE IS A CLASS R2 PERENNIAL STREAM LOCATED OFF SITE NORTHEAST. A 75' STREAM BUFFER IMPACTS THE SITE AS SHOWN. A WETLAND ASSESSMENT FOUND NO WETLANDS ON SITE. THE TOPOGRAPHY DOES NOT RESULT IN ANY STEEP SLOPES. ACCORDING TO CURRENT DFIRM APPROVED BY FEMA AND HOWARD COUNTY, THERE IS NO 100YR FLOODPLAIN LOCATED ON THIS PROPERTY.

LEGEND

— — — 398 — — —	EXISTING CONTOUR
——— 406 ———	PROPOSED CONTOUR
+02 68	PROPOSED SPOT ELEVATION
═ ═ ═ ═	EXISTING CURB AND GUTTER
═══════	PROPOSED CURB AND GUTTER
M	EXISTING MAILBOX
○	EXISTING SIGN
Ⓢ	EXISTING SANITARY MANHOLE
——— SS ———	EXISTING SANITARY LINE
o CO	EXISTING CLEANOUT
FH	EXISTING FIRE HYDRANT
——— W ———	EXISTING WATER LINE
——— — ———	EXISTING STREAM
▬ ▭ ▬	PROPOSED STORM DRAIN
⊕	EXISTING TREES
——— — — ———	PROPERTY LINE
——— — — — ———	RIGHT-OF-WAY LINE
M1B2 ▬ • • ▬ M1D3	SOILS BOUNDARY
——— SF ———	SILT FENCE
——— SSF ———	SUPER SILT FENCE
▬ ▬ LOD ▬ ▬	LIMIT OF DISTURBANCE
SCE	STABILIZED CONSTRUCTION ENTRANCE



MICRO-BIORETENTION

NOT TO SCALE

1. WRAP THE PERFORATED UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.

OWNER/DEVELOPER
HARIGAYA YORIKO
10676 STANSFIELD RD.
LAUREL, MD. 20723
(716) 510-4456

NO.	REVISION	DATE

YORIKO PROPERTIES LOTS 1 AND 2
ENVIRONMENTAL CONCEPT PLAN
SWM DRAINAGE AREA MAP; NOTES AND DETAILS

10676 STANSFIELD ROAD
LAUREL, MD. 20723
ZONED: R-20
L.14949/F.0207

TAX MAP 46 BLOCK 18
6TH ELECTION DISTRICT

PARCEL 88
HOWARD COUNTY, MARYLAND

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

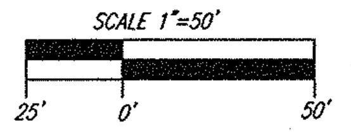
ROBERT HARRIS VOGEL No. 16193
11/3/14

ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV
DRAWN BY: KG
CHECKED BY: RHV
DATE: OCTOBER 2014
SCALE: AS SHOWN
W.O. NO.: 13-40

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

2 SHEET OF 2



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edmondson 11-17-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION NH DATE

Kent Sheubrooks 11-17-14
CHIEF, DIVISION OF LAND DEVELOPMENT ASP DATE