

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SUPPLEMENTAL PLAN

STORMWATER MANAGEMENT PRACTICES				
LOT No.	ADDRESS	DRY WELLS (NUMBER)	MICRO-BIO (NUMBER)	NON-ROOFTOP DISCONNECTION (NUMBER)
1	xxxx FURNACE AVE.	0	1	0
2	5642 FURNACE AVE.	0	1	0

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESDV REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARKS
SITE	639	1,071	MICRO-BIORETENTION (M-6)
TOTAL	639	1,071	

GROSS AREA = 0.69 ACRES
 LOD = 0.46 ACRES (SITE)
 RCN = 77
 TARGET Pe = 1.2"

NOTE: CONTRACTOR TO REGRADE, SOO OR HYDROSEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.

SPRAY WITH WILT-PROOF ACCORDING TO MANUFACTURERS STANDARDS

PRUNE 1/3 LEAF AREA BUT RETAIN NATURAL FORM OF TREE

2 PIECES OF REINFORCED RUBBER HOSE
 DOUBLE #12 GALVANIZED WIRE GUYS TWISTED

3"-2" X 2" OAK STAKES, NOTCH STAKES TO HOLD WIRE

WRAP TRUNK TO SECOND TIER OF BRANCHES WITH WATERPROOF TREE WRAP, TIE AT 24" INTERVALS (EXCEPT EVERGREENS)
 REMOVE ANY COVERING FROM TOP OF ROOT CROWN

3" MULCH

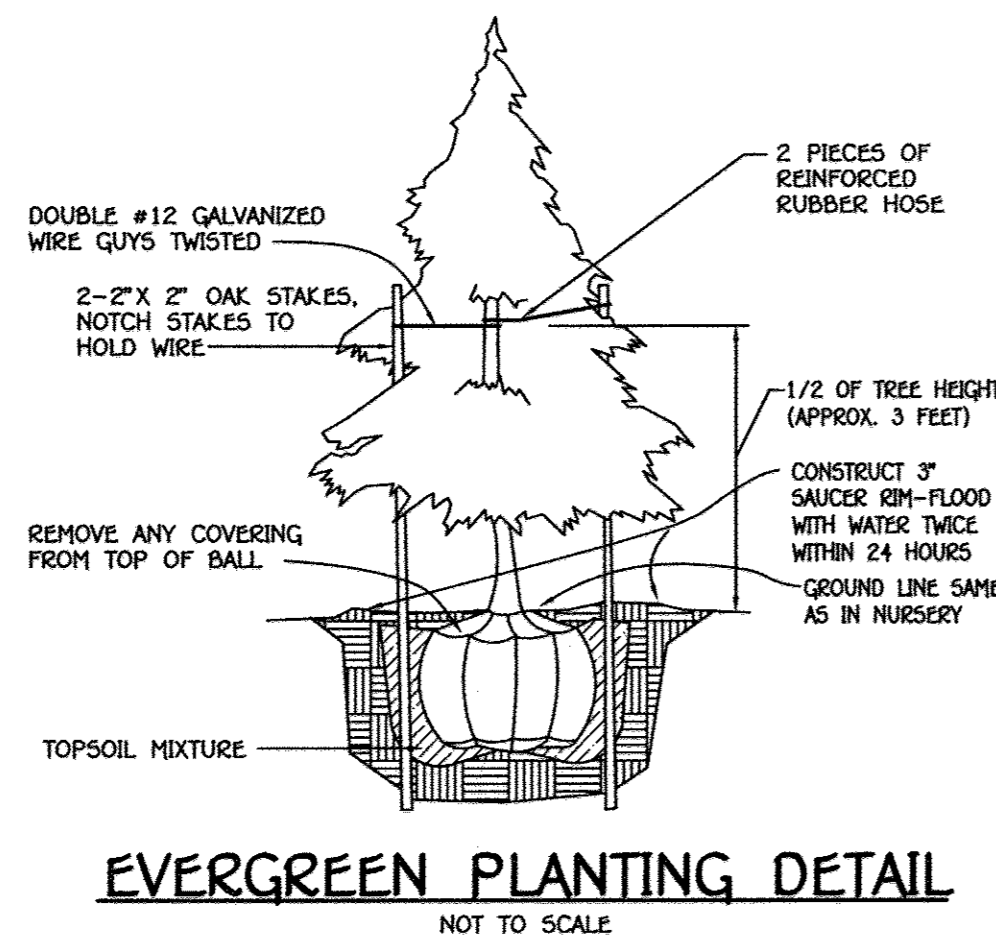
MAINTAIN GROUND LINE WITH TOP OF ROOT CROWN

CONSTRUCT 3" SAUCER RIM-FLOOD WITH WATER TWICE WITHIN 24 HOURS

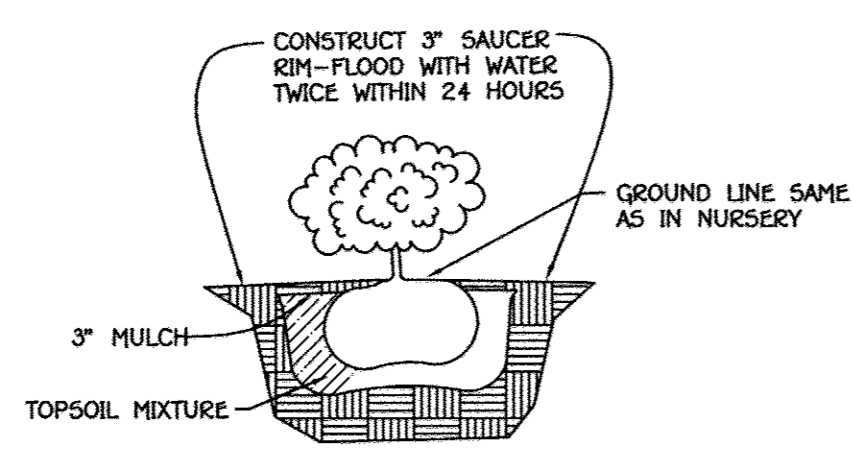
TOP SOIL MIXTURE

CONVEX BOTTOM 6" MIN. HT.

TREE PLANTING DETAIL
 NOT TO SCALE



EVERGREEN PLANTING DETAIL
 NOT TO SCALE



SHRUB PLANTING DETAIL
 NOT TO SCALE

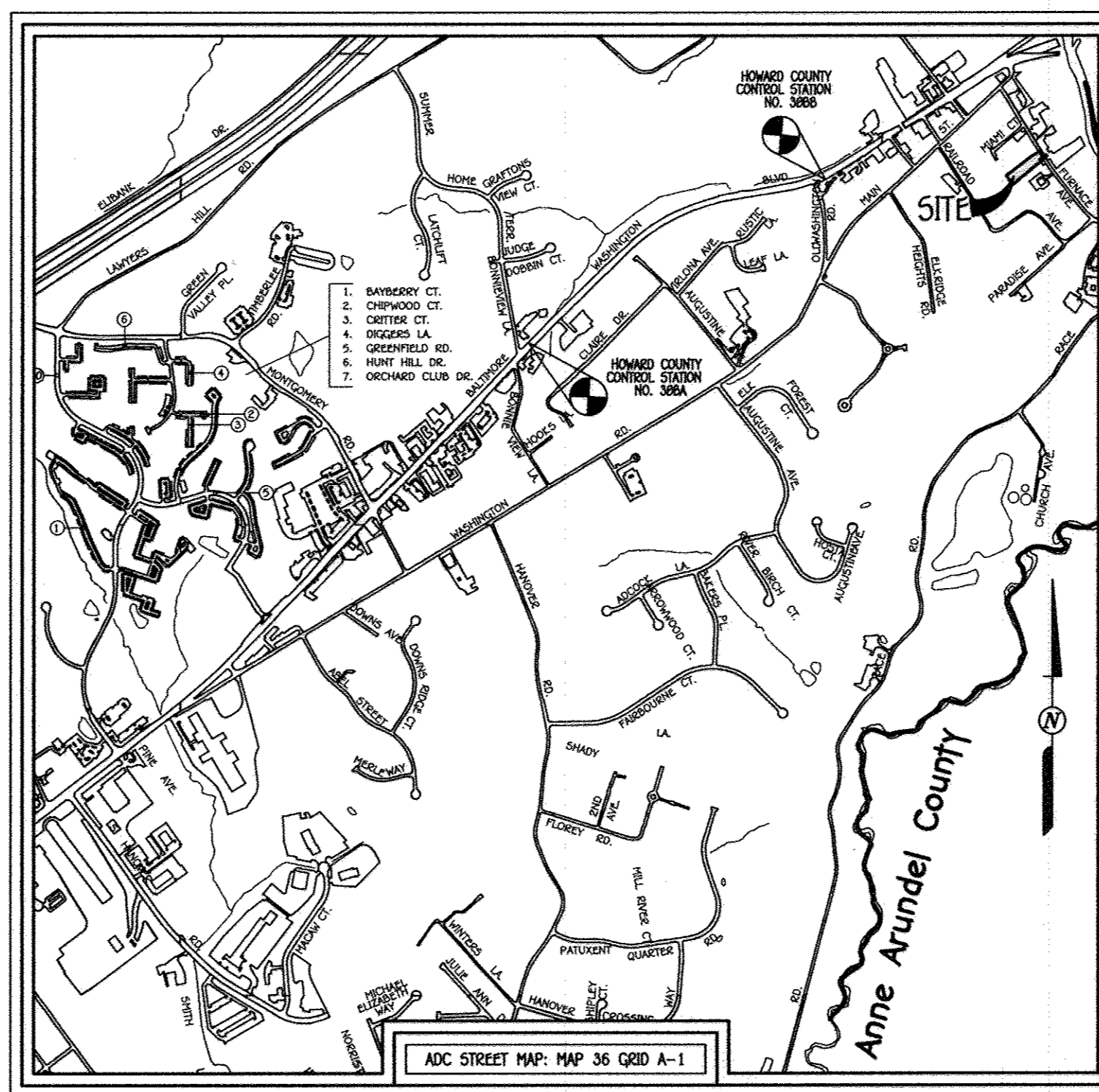
SUPPLEMENTAL PLAN KHADIJA ALI MOHAMMAD PROPERTY LOTS 1 AND 2

TAX MAP No. 38 GRID No. 04 PARCEL NO. 619
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR) (INCHES)					
		3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
P-1	PARKING BAYS: RESIDENTIAL AND NON-RESIDENTIAL PARKING DRIVE ASSESS: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	PAVEMENT MATERIAL					
		HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (ESAL)					
		HMA SUPERPAVE INTERMEDIATE SURFACE N/A					
		HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 1 (ESAL)					
		GRADED AGGREGATE BASE (GAB)					
		MIN HMA WITH GAB	HMA WITH CONSTANT GAB				
		1.5	1.5	1.5	1.5	1.5	1.5
		N/A	N/A	N/A	N/A	N/A	N/A
		2.0	2.0	2.0	3.5	3.0	2.5
		6.5	7.0	5.0	4.0	4.0	4.0

GENERAL NOTES

- Subject Property Zoned R-12 Per 10/06/13 Comprehensive Zoning Plan.
- Coordinates Based On Nad '83, Maryland Coordinate System As Projected By Howard County Geodetic Control Stations No. 380A And No. 380B.
Sta. 380A N 562,553.2950 E 1,390,967.9000 Elev. = 166.26
Sta. 380B N 564,007.6690 E 1,393,649.9900 Elev. = 63.67
- This Plan Is Based On Field Run Monumented Boundary Survey Performed On Or About February, 2017 By Fisher, Collins And Carter, Inc.
- B.R.L. Denotes Building Restriction Line
- Denotes Iron Pin Set Capped "F.C.C. 106"
- Denotes Iron Pipe Or Iron Bar Found
- Denotes Angular Change In Bearing Of Boundary Or Rights-Of-Way.
- Denotes Concrete Monument Set With Aluminum Plate "F.C.C. 106"
- Denotes Concrete Monument Or Stone Found
- All Areas Are More Or Less (+).
- Distances Shown Are Based On Surface Measurement And Not Reduced To Nad '83 Grid Measurement.
- For Flag Or Pipe Stem Lots, Refuse Collection, Snow Removal And Road Maintenance Are Provided To The Junction Of Flag Or Pipe Stem And Road Right-Of-Way Line Only And Not Onto The Flag Or Pipe Stem Lot Driveway.
- Driveways Shall Be Provided Prior To Issuance Of A Use And Occupancy Permit For Any New Dwellings To Ensure Safe Access For Fire And Emergency Vehicles Per The Following (Minimum) Requirements:
a. Width - 12 Feet (16 Feet Serving More Than One Residence);
b. Surface - Six (6") Inches Of Compacted Crusher Run Base With Tar And Chip Coating.
(1 - 1/2" Minimum);
c. Geometry - Maximum 15% Grade Change And 45-Foot Turning Radius;
d. Structures (Culverts/Bridges) - Capable Of Supporting 25 Gross Tons (H25-Loading);
e. Drainage Elements - Capable Of Safely Passing 100 Year Flood With No More Than 1 Foot Depth Over Surface;
f. Structure Clearance - Minimum 12 Feet;
g. Maintenance Sufficient To Ensure All Weather Use.
- Property Subject To Prior Department Of Planning And Zoning File No's: ECP-17-045.
- No Cemeteries Exist On The Subject Property Based On Visual Observation Or Listed In Available Howard County Cemetery Inventory Map.
- There Is An Existing Dwelling And Shed On Lot 2 To Remain. No New Buildings, Extensions Or Additions To The Existing Dwelling Are To Be Constructed At A Disturbance Less Than The Zoning Requirements.
- There Are No Fire Stairs Or Wetlands Existing On-Site. See Environmental Findings Letters Prepared By Eco-System Professionals, Inc. Dated February 17, 2017.
- Site Is Not Adjacent To A Scenic Road.
- 100 Year Floodplain, Wetlands, Stream(s) And/Or Their Buffers, Forest, And Steep Slopes Do Not Exist On-Site.
- This Subdivision Is Exempt From The Requirements Of Forest Conservation Under Section 16.1202(b)(viii) Since It Is A Subdivision With No Further Subdivision Potential.
- Water And Sewer Service To These Lots Will Be Granted Under The Provisions Of Section 10.122B Of The Howard County Code.
- Public Water And Sewer Allocation Will Be Granted At The Time Of Issuance Of The Building Permit If Capacity Is Available At That Time.
- Stormwater Management Is In Accordance With The M.D.E. Storm Water Design Manual, Volumes I & II, Revised 2009.
- Stormwater Management Is Being Provided By The Use Of Two (2) Micro-Bioretenment (M-6) To Meet And Exceed The Required ESD Volume.
- This Plan Is Subject To The Amended Fifth Edition Of The Subdivision And Land Development Regulations. Development Or Construction On These Lots Must Comply With Setback And Buffer Regulations In Effect At The Time Of Submission Of The Site Development Plan, Waiver Partition Application Or Building/Grading Permit.
- This Property Is Located Within The Metropolitan District And Is Served By Public Water And Public Sewer.
- Landscape For Lot 1 Is Provided In Accordance With Section 16.124 Of The Howard County Code And The Landscape Manual. A Landscape Surety In The Amount \$8,700.00 For Lot 1 Based On (12) Shade Trees @ \$300/Shade Tree And (32) Evergreen Trees @ \$150/Evergreen Tree And (10) Shrubs @ \$30/Shrub Will Be Completed With The SDP And Bonded With The Building/Grading Permit.
- Site Development Plan Approval By The Department Of Planning And Zoning Is Required Prior To Building Permits Being Issued For The Construction Of Residential Dwellings On These Lots.
- This Development Is Designed To Be In Accordance With Section 16.127 - Residential Infill Development Of The Subdivision And Land Development Regulations. The Developer Of This Project Shall Create Compatibility With The Existing Neighborhood Through The Use Of Enhanced Perimeter Landscaping, Berms, Fences, Similar Housing Unit Types And The Directional Orientation Of The Proposed House. The Enhanced Landscape Buffer Has Been Provided On Lots To Mitigate Views And To Address Privacy And Compatibility Concerns Expressed By The Adjacent Lot Owners At The Pre-Submission Community Meeting.
- Open Space Requirements Are Provided By A Fee-In-Lieu Payment Of \$1,500.00.
- A Community Meeting Was Conducted February 22, 2017 For The Purpose Of The Developer To Provide Information To The Community Regarding The Proposed Residential Development And To Allow The Community To Ask Questions And To Make Comments. Per Section 16.128(d) Of The Subdivision Regulations.
- The Speed Study For This Project Prepared By Mars Group Is Dated February, 2017.
- Subdivision Is Subject To Section 109.0.E. Of The Zoning Regulations. At Least 10% Of The Dwelling Units Shall Be Moderate Income Housing Units (M.I.H.U.) Or An Alternative Compliance Will Be Provided. The Developer Shall Execute A M.I.H.U. Agreement With The Department Of Housing To Indicate How The M.I.H.U. Requirement Will Be Met. The M.I.H.U. Agreement And Covenants Will Be Recorded Simultaneously With The Plat In The Land Records Office Of Howard County, Maryland. This Development Will Meet M.I.H.U. Alternative Compliance By A Payment Of A Fee-In-Lieu To The Department Of Housing For Each Required Unit.
Moderate Income Housing Unit (M.I.H.U.) Tabulation:
a. M.I.H.U. Required = (1 Lot x 10%) = 0.1 M.I.H.U.
b. M.I.H.U. Proposed = Developer Will Pursue Alternative Compliance By Paying A Fee-In-Lieu To The Howard County Housing Department For The Units Required By The Development.
c. An Executed M.I.H.U. Agreement With The Howard County Housing Department Will Be Completed And Recorded Simultaneously With The Plat.
- The 24' Private Use-In-Common Driveway Access Easement And Maintenance Agreement For The Use And Benefit Of Lots 1 And 2 Is Recorded Simultaneously With The Plat.
- No Noise Study Is Required Because The Project Does Not Fall Within The Guidelines Of Design Manual, Volume iii, Roads, Bridges, Section 5.2.F.2.
- No Historic Structures Exist Within The Limits Of This Plat Submission.
- A Traffic Study Is Not Required For This Project Since This Is A Minor Subdivision.



VICINITY MAP
 SCALE: 1" = 1200'

SCHEDULE A - PERIMETER LANDSCAPE EDGE						
PERIMETER	P-1A	P-1B	P-2	P-3	P-4	TOTAL
CATEGORY	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	FRONT TO REAR ORIENTATION	
LANDSCAPE TYPE	D	A	A	A	D	
LINEAR FEET OF PERIMETER	203 L.F.	150 L.F.	94 L.F.	138 L.F.	69 L.F.	
NUMBER OF PLANTS REQUIRED						
SHADE TREES	(203/60' = 3.4 OR 3)	(150/60' = 2.5 OR 3)	(94/60' = 1.6 OR 2)	(138/60' = 2.3 OR 2)	(69/60' = 1.15 OR 1)	11
EVERGREEN TREES	(203/10' = 20.3 OR 20)				(69/10' = 6.9 OR 7)	27
CREDIT FOR EXISTING VEGETATION						
SHADE TREES	0	0	0	0	0	0
EVERGREEN TREES	0	0	0	0	0	0
SHRUBS	0	0	0	0	0	0
NUMBER OF PLANTS PROVIDED						
SHADE TREES	3	3	2	3	1	12
EVERGREEN TREES	18	0	0	7	7	32
SHRUBS	10					10

* NOTE: NO CREDIT ALONG P-1 AND P-2, MISCELLANEOUS SHRUBS ONLY. ENHANCED PERIMETER LANDSCAPING HAS BEEN PROVIDED ALONG PERIMETER 3 TO MITIGATE VIEWS AND TO ADDRESS PRIVACY. THE 3 SHADE TREES PROPOSED ALONG WITH 7 EVERGREENS IS BEING PROVIDED TO MEET SECTION 16.127 (RESIDENTIAL INFILL DEVELOPMENT) REQUIREMENTS. BUFFER PROVIDED IS EQUIVALENT TO TYPE C BUFFER.

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

Khadija Ali Mohammad 12-20-17
 NAME DATE

LANDSCAPING PLANT LIST			
QTY.	KEY	NAME	SIZE
6	○	ACER RUBRUM 'OCTOBER GLORY' (OCTOBER RED MAPLE)	2 1/2" - 3" CALIPER FULL CROWN, B&B
6	○	PRUNUS SARGENTII (SARGENT CHERRY)	2 1/2" - 3" CALIPER FULL CROWN, B&B
32	○	ILEX 'NELLIE R. STEVENS' (NELLIE R. STEVENS HOLLY)	5'-6" HT. B&B
10	○	TAXUS x MEDIA 'HICKSII' (HICKS YEW)	2'-3" HT. CONT.

TOTAL: 12 SHADE TREES, 32 EVERGREEN TREES, 10 SHRUBS

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10775 BALDORNE NATIONAL FIC
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2895

APPROVED: DEPARTMENT OF PLANNING AND ZONING

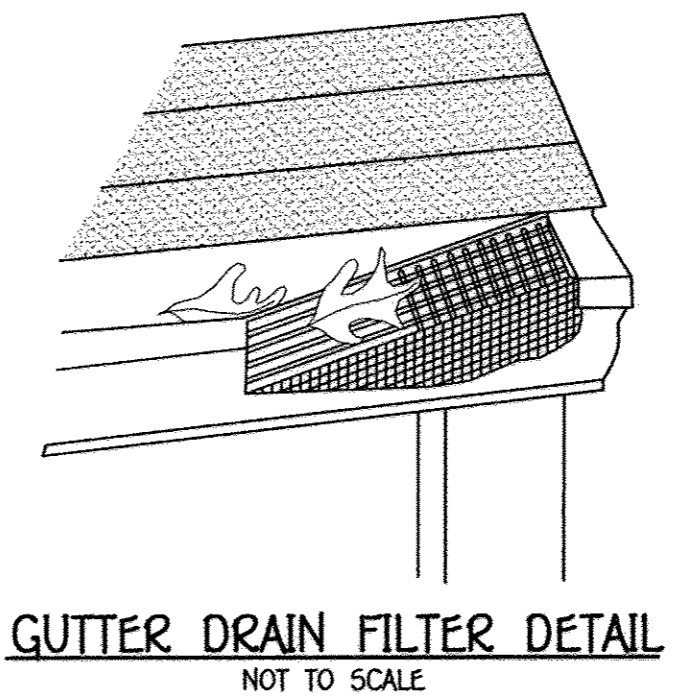
Victor Shaw 1-2-18
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chad Edmonson 1-2-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

OWNER/DEVELOPER
 RAHIM CHOUDHARY
 12719 HILLMEADE STATION DRIVE
 BOWIE, MARYLAND 20720
 301-775-9955

Table B.4. Materials Specifications for Micro-Bioretenment, Rain Gardens & Landscape Infiltration

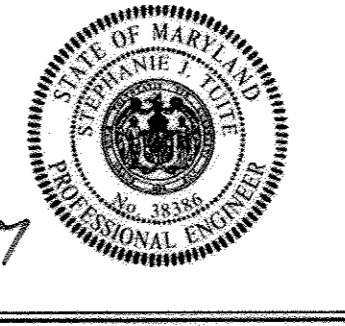
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30% compost 40%		USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum
Pea gravel dispersal	pea gravel: ASTM-D-446	No. 8 or No. 9 (1/8" to 3/8")	
Curbin drain	ornamental stone: washed cobble	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	ASHTO M-63	No. 97 or No. Aggregate (3/8" to 3/4")	
Underdrain piping	1" 750 Type PS 2B or ASHTO M-27B	4" to 6" rigid schedule 40 PVC or 50305	slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of graded over pipe; coat-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 308.8F99; vertical loading 10-10 or H-2021 allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Poured in place concrete (if required)	MSHA Mix No. 3; f = 3500 psi at 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 308.8F99; vertical loading 10-10 or H-2021 allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	ASHTO M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as diabase and Graystone (ASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



GUTTER DRAIN FILTER DETAIL
 NOT TO SCALE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38386, EXPIRATION DATE: 01/12/2018.

Amrhan Jait 12/20/17
 Signature Of Professional Engineer Date



SITE ANALYSIS DATA CHART	
A.	TOTAL AREA OF THIS SUBMISSION = 0.69 AC.*
B.	LIMIT OF DISTURBED AREA = 0.46 AC.*
C.	PRESENT ZONING DESIGNATION: R-12 (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
D.	PROPOSED USE: RESIDENTIAL
E.	PREVIOUS HOWARD COUNTY FILES: ECP-17-045
F.	TOTAL AREA OF FLOODPLAIN LOCATED ON SITE = 0.00 AC.
G.	TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.00 AC.
H.	TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC.
I.	TOTAL AREA OF EXISTING FOREST = 0.00 AC.*
J.	TOTAL GREEN OPEN SPACE = 0.51 AC.*
K.	TOTAL IMPERVIOUS AREA = 0.13 AC.*
L.	AREA OF ERODIBLE SOILS = 0.69 AC.
M.	AREA OF ROAD DEDICATION = 0.05 AC.
N.	DENSITY PERMITTED = 0.69 AC x 4 LOTS/ACRE = 2 LOTS
O.	PROPOSED NUMBER OF LOTS = 2 LOTS

TITLE SHEET
 KHADIJA ALI MOHAMMAD PROPERTY
 LOTS 1 AND 2
 5642 FURNACE AVE
 ZONED R-12
 TAX MAP No. 38 GRID No. 04 PARCEL No. 619
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: NOVEMBER, 2017
 SHEET 1 OF 2 **F-18-025**

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LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING 2' CONTOURS		PROPOSED CONTOUR
	EXISTING 10' CONTOURS		SPOT ELEVATION
	SOILS LINES AND TYPE		LIMITS OF DISTURBANCE
	EXISTING TREE LINE		DRAINAGE AREA DIVIDE
	INDIVIDUAL TREES & SHRUBS		SILT FENCE
	EXISTING FENCE LINE		PERMANENT SOIL STABILIZATION MATTING
	EXISTING & PROPOSED PAVING		TREE PROTECTIVE FENCING
	H.P. HIGH POINT		TO BE REMOVED OR RELOCATED
	EXISTING STORM DRAIN EASEMENT		

MICRO-BIORETENTION PLANT MATERIAL				
MICRO-BIO 1	MICRO-BIO 2	NAME	MAXIMUM SPACING (FT.)	
45	25	MIXED PERENNIALS	1.5 TO 3.0 FT.	
2	1	SILLY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION	

MICRO-BIORETENTION					
BIO-RETENTION FILTER	A	B	C	D	E
#1	41.00	39.50	39.17	38.50	37.50
#2	37.70	36.20	35.87	35.20	34.20

Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for UCL and Ge w. In some instances where permeability is great, these facilities may be used for Qp as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorus and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

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

Bio-retention

Soil Bed Characteristics

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

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume (Environmental Quality Resources (EQR), 1996; Engineering Technology Inc. and Biohabitats, Inc. (ETAB), 1993). Soils should fall within the SM, ML, SC classifications of the United Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.97/ft) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutseed, and Canada Thistle) or other noxious weeds as specified under COMAR 15.08.01.05) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Nitrogen	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	0 to 5%
Silt	30 to 55%
Sand	35 to 60%

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

- The owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume 1, Table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

Mulch Layer

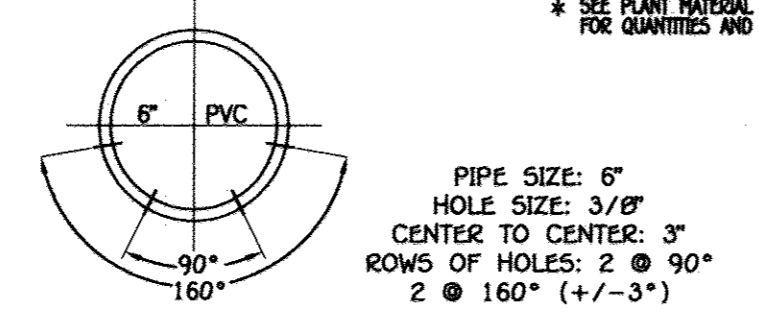
The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota of the mulch-soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (steeped or stored for at least 12 months) in color and in bound, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

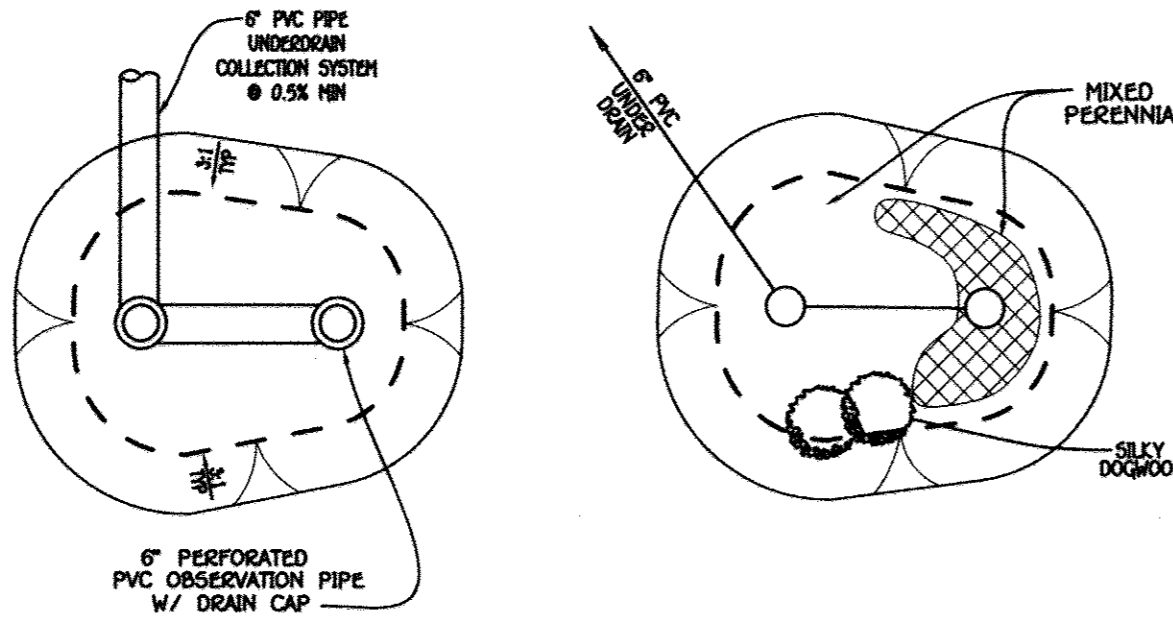
Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure.

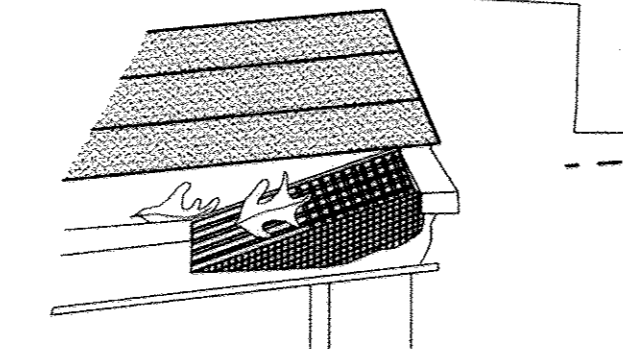
The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.3). The lowest elevation supports plant species adapted to saturated or flooded conditions. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principles described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ETAB, 1993 or Clayton and Schueler, 1997.



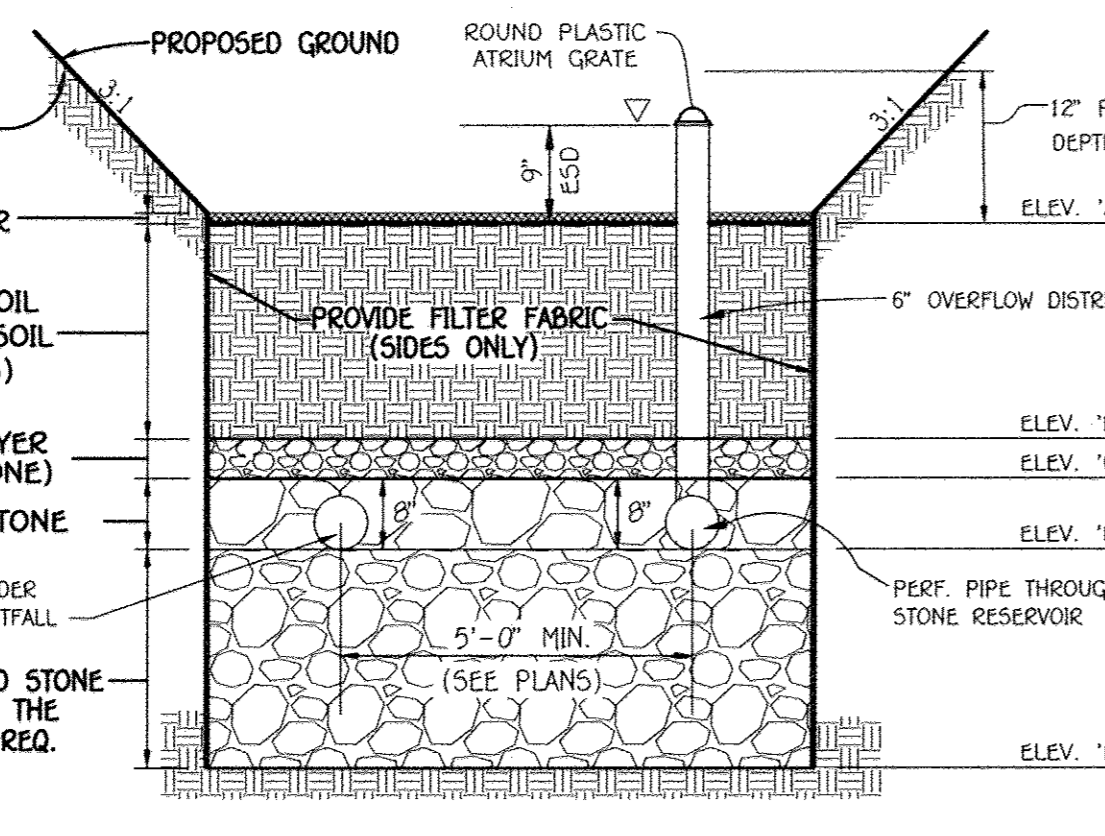
SCH 40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE
NO SCALE



MICRO-BIO-RETENTION PLANTING DETAIL
NOT TO SCALE

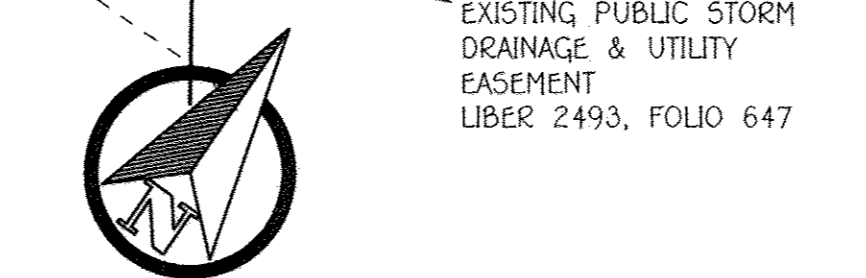
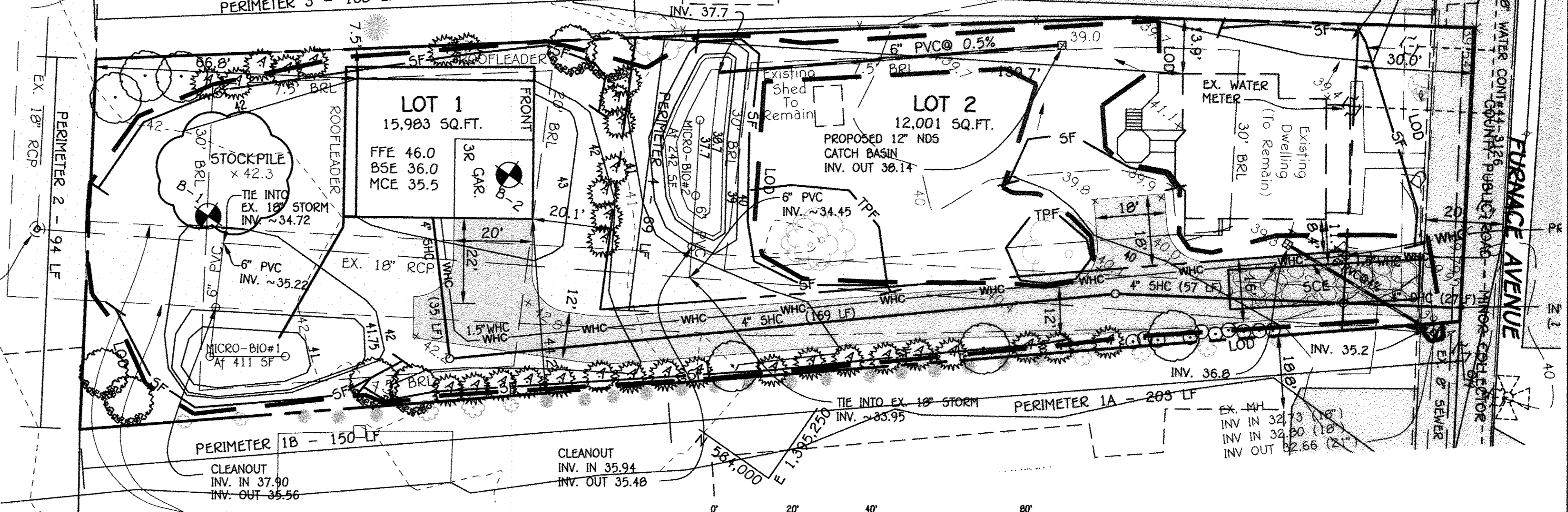
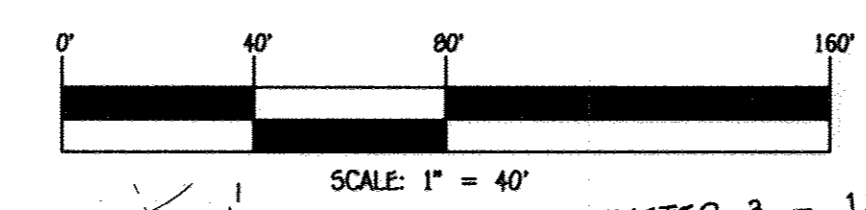


GUTTER DRAIN FILTER DETAIL
NOT TO SCALE



MICRO-BIO-RETENTION SECTION WITH 6" OVERFLOW DISTRIBUTION PIPE
NO SCALE

SOILS LEGEND			
SOIL	NAME	CLASS	K FACTOR
UsB	Urban Land-Sasandfrée-Beltville Complex, 0 to 5 percent slope	D	0.37
Soil Map Number: 2D (Relay, Nw)			



GRADING & SEDIMENT CONTROL PLAN

SCALE: 1"=20'

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36386, EXPIRATION DATE: 01/12/2018.

Signature Date: 12/21/17

Signature of Professional Engineer Date



SUPPLEMENTAL PLAN

KHADIJA ALI MOHAMMAD PROPERTY

LOTS 1 AND 2
5642 FURNACE AVE
ZONED R-12
TAX MAP No. 38 GRID No. 04 PARCEL No. 619
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: NOVEMBER, 2017
SHEET 2 OF 2

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Signature DATE: 1-2-18
CHIEF, DIVISION OF LAND DEVELOPMENT

Signature DATE: 1-2-18
CHIEF, DEVELOPMENT ENGINEERING DIVISION

OWNER/DEVELOPER

RAHIM CHOUDHARY
12719 HILLMEADE STATION DRIVE
BOWIE, MARYLAND 20720
301-775-9955