

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ENVIRONMENTAL CONCEPT PLAN
3	STORMWATER MANAGEMENT DRAINAGE AREA MAP

SOILS LEGEND			
SOIL	NAME	CLASS	K <sub>w</sub> VALUE
RuB	Russett and Beltsville soils, 2 to 5 percent slopes	C	0.24
UcB	Urban land-Chillum-Beltsville complex, 0 to 5 percent slopes	C	0.37

STORMWATER MANAGEMENT PRACTICES						
LOT NO.	PERMEABLE CONCRETE (A-2) Y/N, NUMBER	DISCONNECTION OF ROOF/POLE RUNOFF (N-1) Y/N, NUMBER	DISCONNECTION OF NON-ROOF/POLE RUNOFF (N-2) Y/N, NUMBER	INFILTRATION BERMS (M-4) Y/N, NUMBER	DRY WELLS (W-5) Y/N, NUMBER	MICRO-BIORETENTION (M-6) Y/N, NUMBER
1	NO	NO	NO	NO	NO	YES, ONE (1)

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESDV REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARKS
SITE	364 (STORAGE)	366 (STORAGE)	MICRO-BIORETENTION (M-6)
TOTAL	364	366	

### OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

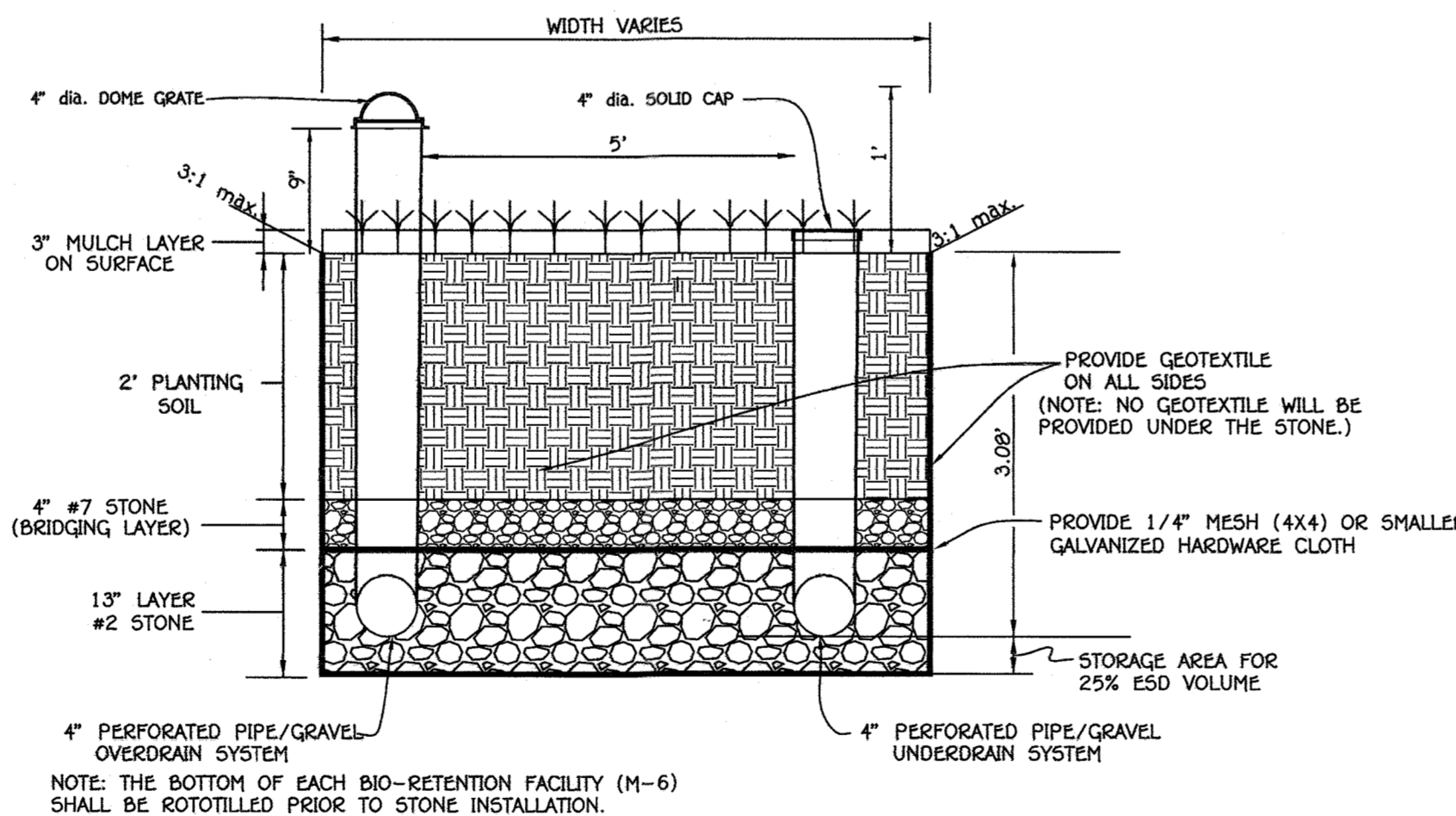
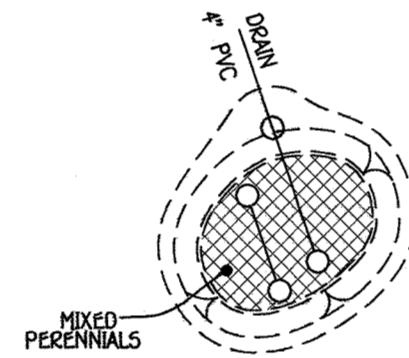
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE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

MICRO-BIORETENTION PLANT MATERIAL			
MICRO-BIO	QUANTITY	NAME	MAXIMUM SPACING (FT.)
1	25	MIXED PERENNIALS	1.5 TO 3.0 FT.

Table B.4. Materials Specifications for Micro-Bioretenion, 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 50-55% 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 2924)		
Mulch	shredded hardwood		aged 6 months, minimum
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)	ASHTO M-43	No. 57 or No. (Aggregate 3/8" to 3/4")	
Underdrain piping	F 750, Type RS 2B or ASHTO H-276	4" to 6" rigid schedule 40 PVC or 50825	Slotted or perforated pipe; 3/8" perf. @ 8" on center. 4 holes per row, minimum of 3" of gravel over pipes; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f = 3500 psi at 28 days, normal weight, air-entrained, conforming 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 site 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 350.8/89; vertical loading D1-10 or H-20; 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 Gyrstone (ASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dump" can be used for sand.

### MICRO-BIORETENTION PLANTING DETAIL



TYPICAL SECTION - BIO-RETENTION FACILITY (F-6)

### PROFESSIONAL CERTIFICATION

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



Frank Manalans II  
Date: 4/24/20

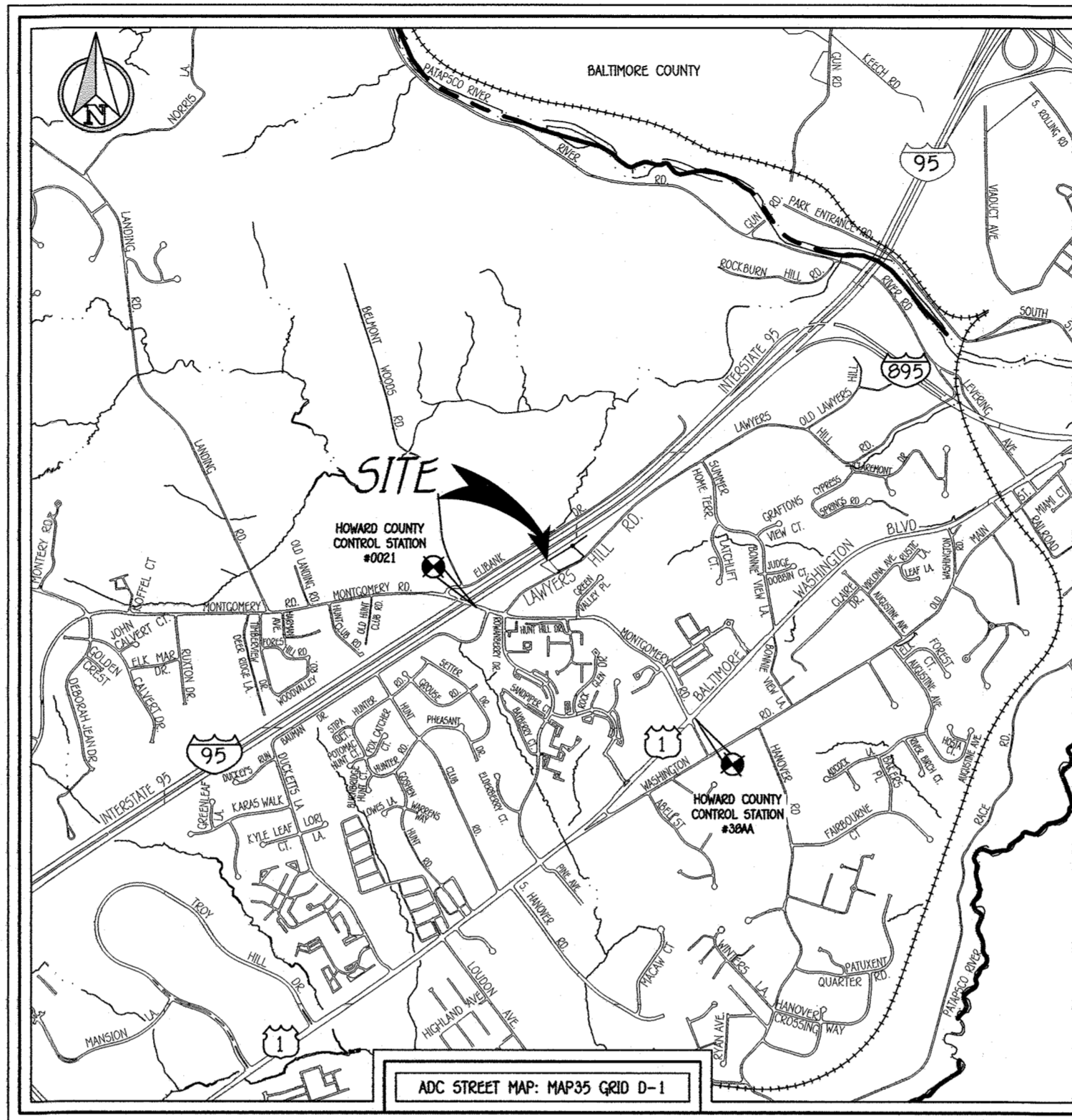
Approved: Department of Planning And Zoning

Chief, Development Engineering Division  
Date: 5.27.20  
Chief, Division Of Land Development

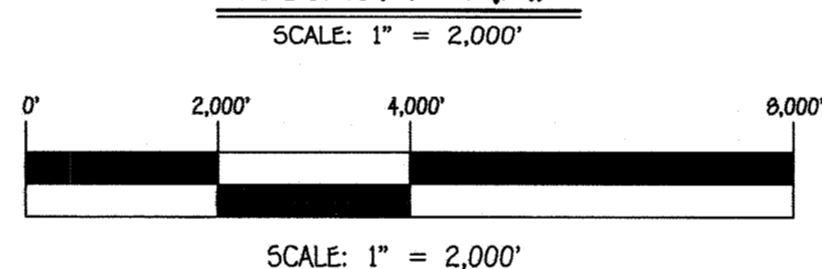
FISHER, COLLINS & CARTER, INC.  
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CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2999

# ENVIRONMENTAL CONCEPT PLAN ARRINGTON MANOR

6490 LAWYERS HILL ROAD  
TAX MAP No. 38 GRID No. 02 PARCEL NO. 18  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP



### GENERAL NOTES

- BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED JAN. 2016. TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. IN JAN. 2016 AND SUPPLEMENTED WITH HOWARD COUNTY GIS TOPOGRAPHY AT 5' CONTOUR INTERVAL INTERPOLATED FOR 2' CONTOUR INTERVAL.
- 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. 0021 AND 38AA WERE USED FOR THIS PROJECT.  
Sta. 0021 N 562,745.797 E 1,386,542.119 Elev. = 226.200  
Sta. 38AA N 561,158.815 E 1,389,726.426 Elev. = 220.036
- PREVIOUS DPZ FILE NUMBERS: N/A
- STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. NON-STRUCTURAL PRACTICES IN ACCORDANCE WITH CHAPTER 5 ARE BEING UTILIZED.
- THIS PROPERTY IS LOCATED INSIDE THE METROPOLITAN DISTRICT. LOTS TO BE SERVED PUBLIC WATER AND PUBLIC SEWERS, CONTRACT #44-6280 & 10-1216.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-ED (PER DATE 10/06/2013 COMPREHENSIVE ZONING PLAN).
- NO STEEP SLOPES, STREAMS, WETLANDS OR SPECIMEN TREES EXIST ON-SITE.
- THIS PROPERTY IS PART OF A FOREST STAND IDENTIFIED BY ECO SCIENCE PROFESSIONALS INC. AS PART OF A REPORT DATED MARCH 15, 2019.
- LANDSCAPING WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT.
- FOREST CONSERVATION REQUIREMENTS FOR THIS PROPOSED SUBDIVISION WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION ACT. IT IS ANTICIPATED THAT A FEE-IN-LIEU OF REFORESTATION WILL BE REQUESTED.
- SOIL BORINGS WERE EXCAVATED ON MAY 24TH, 2019 TO DETERMINE DEPTH TO ROCK OR WATER.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT SUBDIVISION, FOREST CONSERVATION, OR SITE DEVELOPMENT PLANS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED COMMENTS THAT MAY ALTER THE SITE DESIGN, HOUSE LOCATION, DRIVEWAY LOCATION, GRADING, TREE CLEARING, AND/OR OTHER REQUIREMENTS AS THE DEVELOPMENT PLAN PROGRESSES THROUGH THE PLAN REVIEW PROCESS IN ACCORDANCE WITH THE SUBDIVISION AND ZONING REGULATIONS AND THE FOREST CONSERVATION REQUIREMENTS.
- APPROVAL OF THIS ECP BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT PROVIDE APPROVAL OF THE SHOWN SEDIMENT CONTROLS.
- NO STRUCTURES EXIST ON THE PROPERTY.
- SOILS SHOWN HEREON ARE BASED ON THE NRCS WEBSOIL SURVEY AND HOWARD COUNTY SOIL MAP #20.
- NO HISTORICAL FEATURES OR CEMETERIES ARE ON SITE.
- THERE ARE NO SPECIMEN TREES ON THIS SITE.
- THIS SUBDIVISION IS ZONED R-ED BUT WILL BE DEVELOPED UNDER R-20 REGULATIONS ACCORDING TO SECTION 107.0.1.1.

### DESIGN NARRATIVE

#### Introduction:

This report will demonstrate how the criteria set forth in the Maryland Stormwater Design Manual, Volumes I and II (effective October 2000, revised May 2009) will be satisfied on this project. The goal of creating hydrology similar to that of 'Woods in Good Condition' will be accomplished through the use of the practices contained within Chapter 5 of said manual. The achievement of this goal will remove the requirement of providing Channel Protection Volume.

#### General Site Conditions:

The subject property is 0.43 acres and located between Lawyers Hill Road and I-95 in the Elkridge section of Howard County, Maryland. The parcel shown is parcel 18 on county tax map 38 and was previously known as SHA parcel 1. The property is approximately 0.2 miles north of the intersection of Lawyers Hill Road and Montgomery Road. The surrounding land use includes low density residential. The site is located at the western edge of the coastal plain physiographic province of Maryland, this province is somewhat similar to the piedmont, consisting of rolling hills drained by numerous small streams. The subject property is currently undeveloped. It appears that an old road or driveway may have crossed the property and numerous ornamental/invasive vines are present on the property which could suggest that the site was previously utilized for residential purposes. The site is primarily forested with a community that is dominated by tulip poplar with a mix of white oak, red oak, and red maple. The forest is well established and several mature trees are present, invasive species colonization within the community is well established. Field review has determined that no wetlands or streams are present on the site. The wetlands and streams just off site are part of the watershed of Rockburn branch within the patappoco river drainage (02-13-09).

#### I. Natural Resource Protection:

There are no wetlands, floodplain, streams or their buffers on site. The site is forested, no specimen trees or steep slopes exist on this parcel. Of the 18,599 Sq. Ft. of forest that exists on site 8,280 Sq. Ft. (45%) will remain undisturbed. The disturbed portion of the site will be graded to provide stormwater management practices for proposed impervious surfaces with a micro-bio retention pond. Required landscaping will be provided at the next plan phase. It should be noted that the forest surrounding this particular parcel is proposed to be removed by both the Wei Lu Property SDP-16-014 and the future Arrington Manor Subdivision ECP-19-047. This project proposes to address forest conservation obligations by providing a Declaration of Intent for clearing 2,000 Sqft or less of forest.

#### II. Maintenance of Natural Flow Patterns:

Natural flow patterns will be maintained. Existing and proposed runoff flows mostly toward the northern portion of the site. Flowing to a proposed Micro-bio retention pond which will connect to a neighboring drainage system to the east and outfall to the nearby wetland and stream.

#### III. Reduction of Impervious Areas Through Better Site Design, Alternative Surfaces and Nonstructural Practices

The design of this project proposes one individual driveway for the proposed single family detached house. Non-structural practices as permitted in chapter 5, a micro-bio retention pond M-6 will be utilized.

#### IV. Integration of Erosion and Sediment Controls into Stormwater Strategy:

Super Silt Fence will be utilized to provide erosion and sediment control.

#### V. Implementation of ESD Planning Techniques and practices to the Maximum Extent Practicable (MEP)

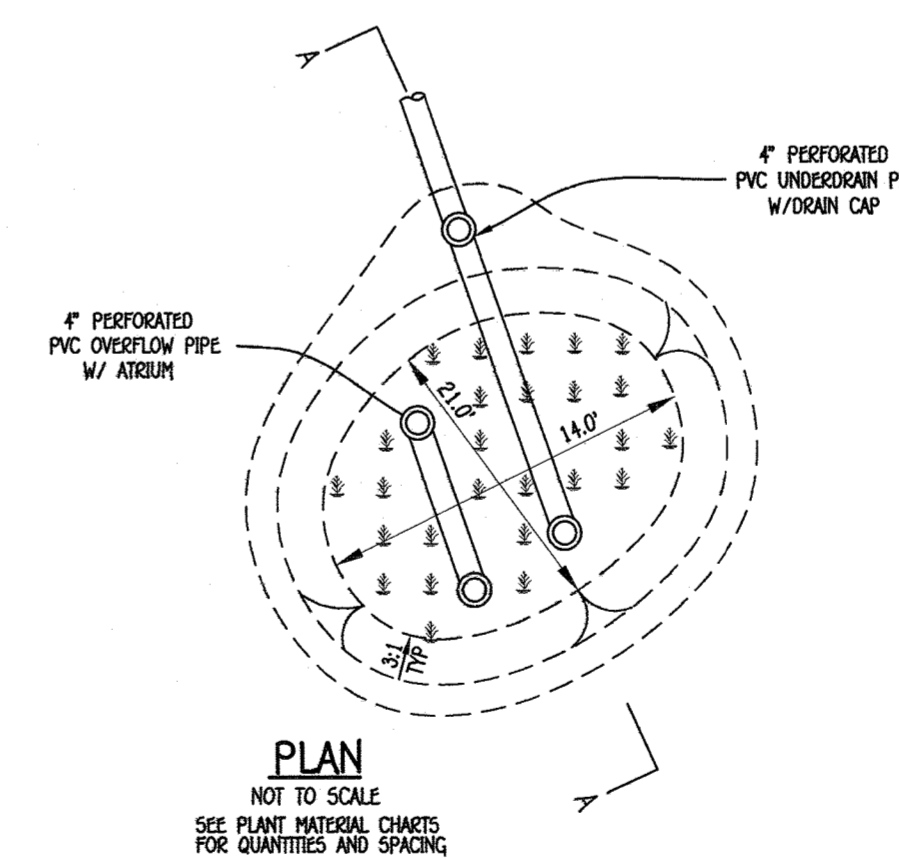
The full required ESD volume is being provided.

#### VI. Request for a Design Manual Waiver:

No waivers related to stormwater management are required.

### SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION = 0.426 AC.\*
- LIMIT OF DISTURBED AREA = 9,602 SQ.FT. OR 0.22 AC.\*
- PRESENT ZONING DESIGNATION = R-ED (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: N/A
- TOTAL AREA OF FLOODPLAIN AND THEIR BUFFERS LOCATED ON-SITE = 0.0 AC\*
- TOTAL AREA OF STEEP SLOPES:  
MODERATE STEEP SLOPES: 15%-24.9% = 0.00 AC\*  
STEEP SLOPES: 25% OR GREATER = 0.00 AC\*
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC.\* (BUFFER)
- TOTAL AREA OF STREAM (INCLUDING BUFFER) = 0.00 AC.\* (BUFFER)
- TOTAL AREA OF EXISTING FOREST = 0.422 AC\*
- TOTAL AREA OF FOREST TO BE RETAINED = (8,280 Sq.Ft.) 0.19 AC\*
- TOTAL AREA OF LOTS / BUILDABLE PARCELS = 0.426 AC\*
- TOTAL GREEN OPEN AREA = (15,279.6 sq ft.) 0.35 AC\*
- N. TOTAL PROPOSED IMPERVIOUS AREA = 0.35 AC.\*
- O. TOTAL AREA OF ERODIBLE SOILS = 0 AC.\*
- P. TOTAL AREA OF ROAD DESIGNATION = 0 AC.\*



MICRO-BIORETENTION / BIORETENTION									
BIORETENTION FILTER	A	B	C	D	E	F	G	H	I
LOT 1	206.0	205.0	203.25	203.0	202.33	201.33	206.0	206.5	203.02

### TITLE SHEET ARRINGTON MANOR

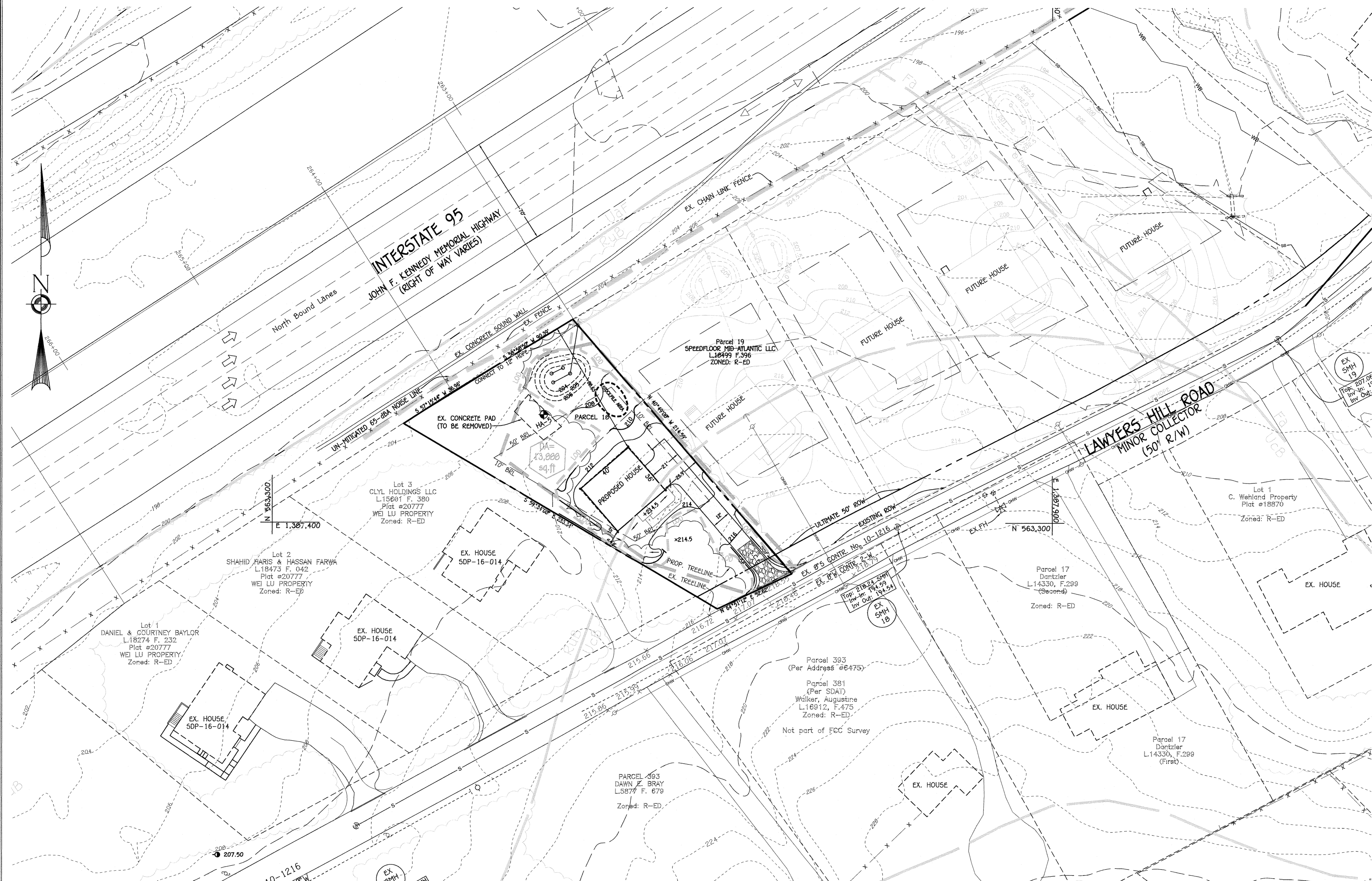
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SCALE: A5 SHOWN DATE: SEPT., 2019  
SHEET 1 OF 3

### OWNER/DEVELOPER

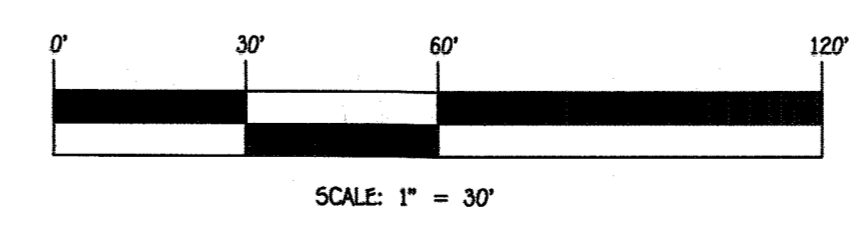
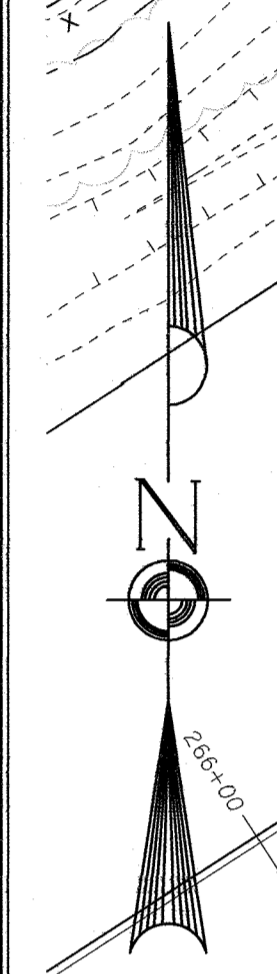
SPEEDFLOOR MID-ATLANTIC LLC  
C/O TIMOTHY HARMAN  
7116 JOHN CALVERT CT.  
ELKDRIDGE, MARYLAND 21075  
443-506-6180



SOILS LEGEND			
SOIL	NAME	CLASS	KW VALUE
RuB	Russett and Beltsville soils, 2 to 5 percent slopes	C	
UcB	Urban land-Chillum-Beltsville complex, 0 to 5 percent slopes	C	



LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
x 448.5	SPOT ELEVATION
18" 50	EXISTING STORM DRAIN
12" 5000	PROPOSED STORM DRAIN PIPE
EX. F.H.	EXISTING WATER LINE
EX. S.W.	EXISTING SEWER LINE
PROPOSED S.W.	PROPOSED SEWER
PROPOSED W.	PROPOSED WATER
EX. C.L.	EXISTING CABLE LINE
EX. G.L.	EXISTING GAS LINE
EX. O.W.	EXISTING OVERHEAD WIRE
PROPOSED P.V.	PROPOSED PAVING/PATH
LD	LIMIT OF DISTURBANCE
SSF	SUPER SILT FENCE
SF	SILT FENCE
PMSP	PERMANENT SOIL STABILIZATION MATTING
---	EXISTING TREE LINE
---	PROPOSED TREE LINE
---	FUTURE TREE LINE (ECP-19-047)
---	DRAINAGE AREA
S, B, U	SOIL LINES AND TYPES
---	MICRO-BID RETENTION FACILITY (M-6)
---	STABILIZED CONSTRUCTION ENTRANCE



Approved: Department Of Planning And Zoning  
 Chief, Development Engineering Division  
 Chief, Division Of Land Development



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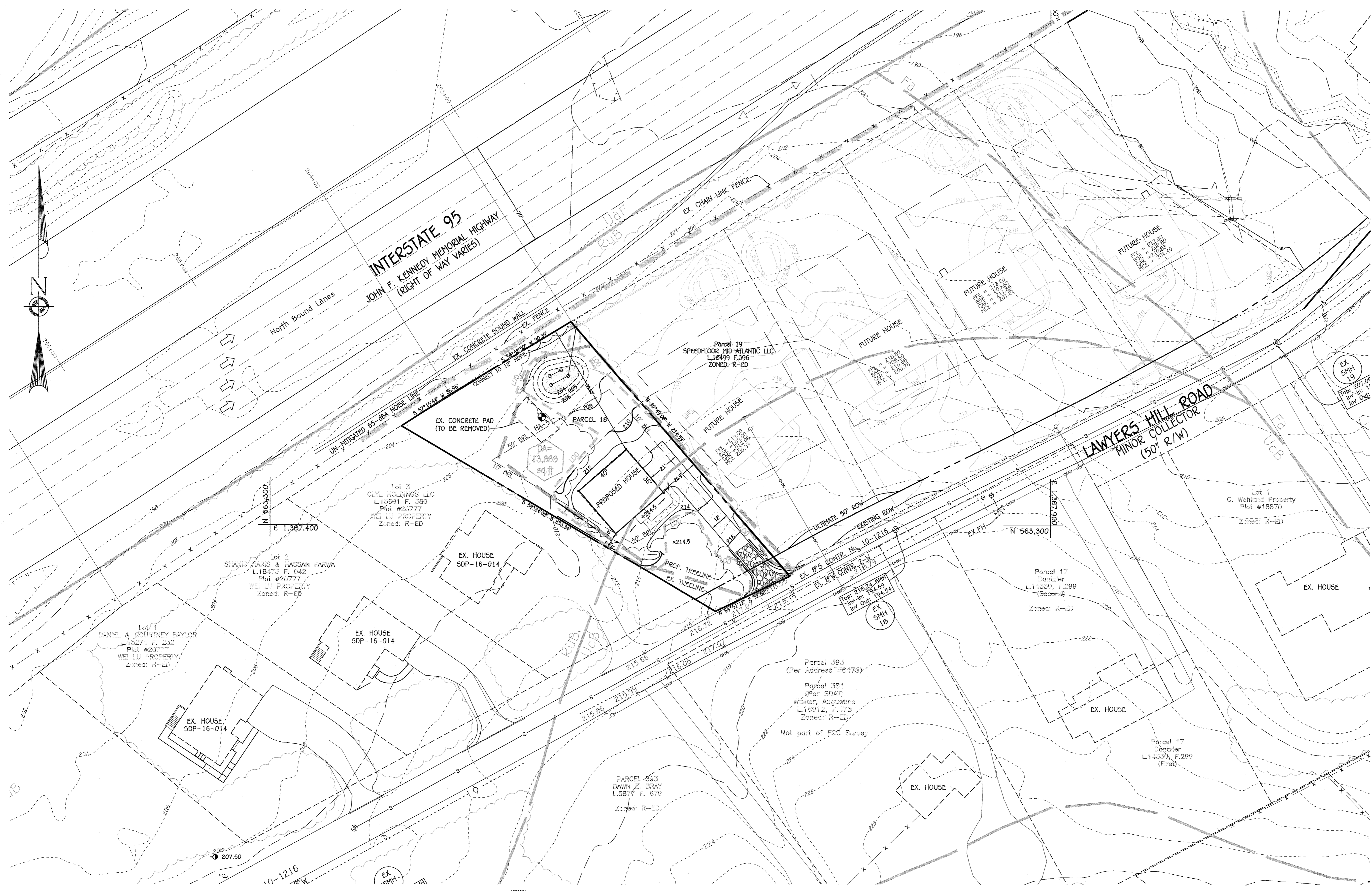
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**ENVIRONMENTAL CONCEPT PLAN**  
**ARRINGTON MANOR**  
 L18499 F. 00396  
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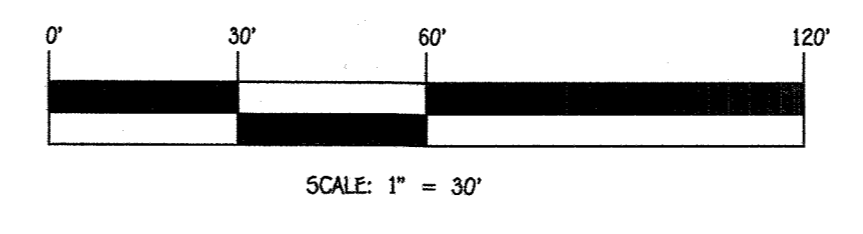


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