

**COORDINATE TABLE**

POINT	NORTH	EAST
212	583215.7636	1359599.1606
204	583275.3812	1359627.1533
444	583315.3644	1359102.6210
451	583685.0003	1359082.1167

**SHEET INDEX**

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PRELIMINARY EQUIVALENT SKETCH PLAN AND LANDSCAPE PLAN
3	SCHEMATIC GRADING AND SEDIMENT CONTROL PLAN
4	STORMWATER MANAGEMENT - DRAINAGE AREA MAP & SOILS MAP
5	STORMWATER MANAGEMENT - DISCONNECTION PLAN
6	STORMWATER MANAGEMENT - RAINGARDEN ENLARGED PLANS & DETAILS
7	SIMPLIFIED FOREST STAND DELINEATION PRELIMINARY FOREST CONSERVATION PLAN

# PRELIMINARY EQUIVALENT SKETCH PLAN KALYNIUK PROPERTY

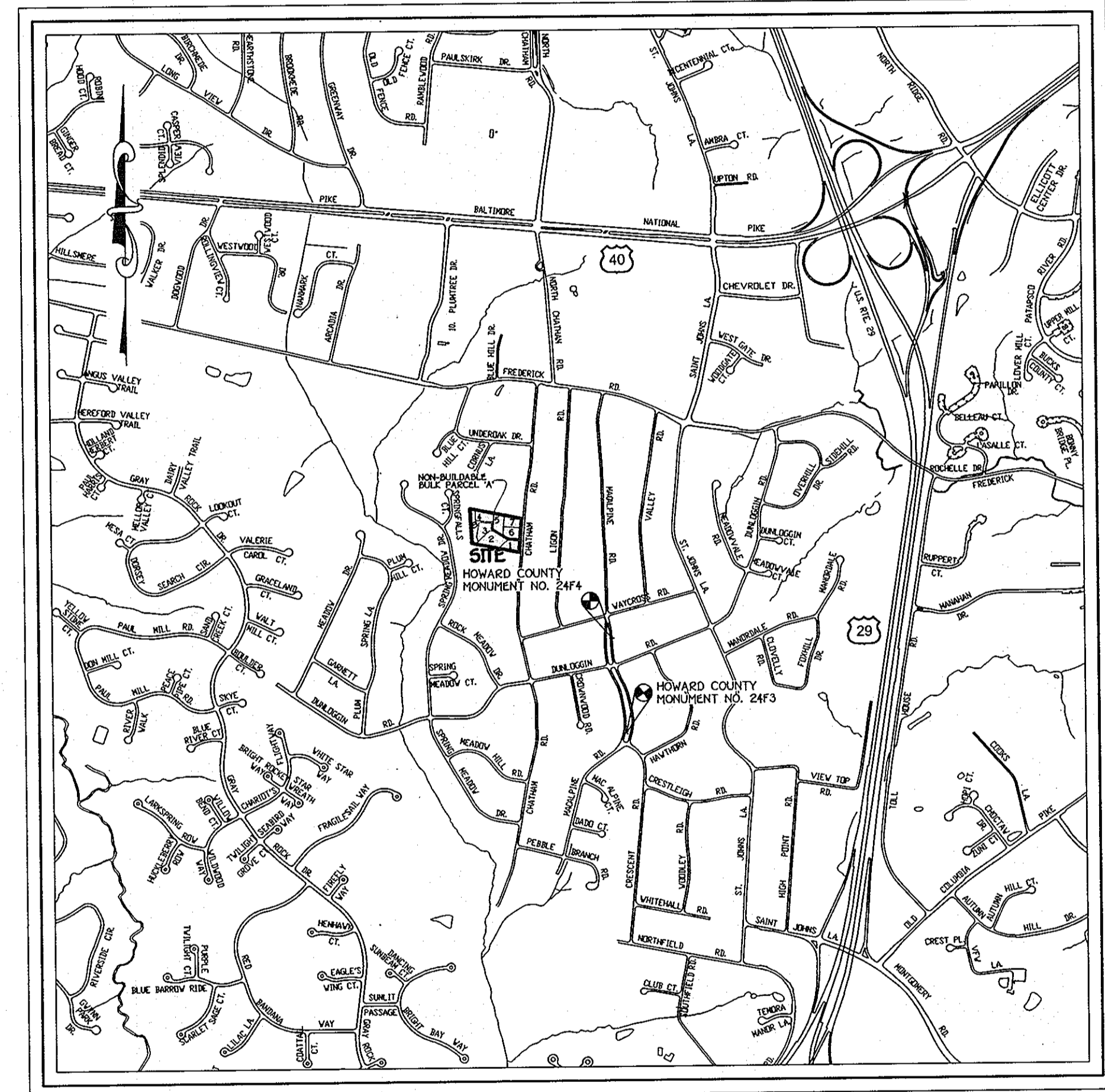
## LOTS 1 THRU 7, OPEN SPACE LOT 8 AND NON-BUILDABLE BULK PARCEL 'A'

**ZONING: R-20**

**TAX MAP NO. 24 GRID No. 10 PARCEL No. 412 AND 413**

**MINIMUM LOTS SIZE CHART**

LOT No.	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
2	36,105 SQ.FT.	264 SQ.FT.	36,369 SQ.FT.
3	20,080 SQ.FT.	622 SQ.FT.	20,702 SQ.FT.
4	20,087 SQ.FT.	782 SQ.FT.	20,869 SQ.FT.
5	20,060 SQ.FT.	381 SQ.FT.	20,441 SQ.FT.



**VICINITY MAP**  
SCALE: 1" = 1200'

## SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**LEGEND**

SYMBOL	DESCRIPTION
---440---	EXISTING CONTOUR 2' INTERVAL
---450---	EXISTING CONTOUR 10' INTERVAL
---440---	PROPOSED CONTOUR 2' INTERVAL
---450---	PROPOSED CONTOUR 10' INTERVAL
+434.50	SPOT ELEVATION
-SF	SILT FENCE
-SSF	SUPER SILT FENCE
FF	FIRST FLOOR ELEVATION
BE	BASEMENT ELEVATION
L.O.D.	LIMIT OF DISTURBANCE
(Tree Symbol)	PROPOSED STREET TREE
(Hatched Box)	15-25% SLOPE
(Cross-hatched Box)	25% AND GREATER SLOPE

**GENERAL NOTES**

- THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 2004 ZONING REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS OR PARCELS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.
- THE SUBJECT PROPERTY IS ZONED R-20 PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER THE "COMP LITE" ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/06.
- a. GROSS AREA OF TRACT = 4.37 AC.  
b. AREA OF 2% OR GREATER SLOPES = 0.49 AC.  
c. NET AREA OF TRACT = 3.88 AC.
- SITE AREA TABULATION  
a. TOTAL AREA OF BUILDABLE LOTS = 3.64 AC.  
b. TOTAL AREA OF OPEN SPACE = 0.69 AC.  
c. TOTAL AREA OF NON-BUILDABLE BULK PARCELS = 0.04 AC.  
d. ROAD WIDENING = 0.00 AC.  
e. TOTAL SITE AREA = 4.37 AC.
- NUMBER OF LOTS PROPOSED:  
a. BUILDABLE = 7; 6 PROPOSED AND 1 EX. DWELLING TO REMAIN.  
b. OPEN SPACE = 1  
c. NON-BUILDABLE BULK PARCELS = 1  
d. TOTAL LOTS/PARCELS PROVIDED = 9
- PUBLIC WATER AND SEWER SHALL BE UTILIZED WITHIN THIS DEVELOPMENT.
- SOILS INFORMATION TAKEN FROM SOIL MAP NO. 16, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY, 1960 ISSUE.
- BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED SEPTEMBER 28, 2005.
- TOPOGRAPHIC CONTOURS BASED ON FIELD RUN SURVEY BY FISHER COLLINS AND CARTER INC DATED OCTOBER 3, 2005.
- AREA OF STEEP SLOPES (2% OR GREATER) LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.16(B), IS 0.49 ACRES.
- STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE CRITERIA CONTAINED IN THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II, CHAPTER 5 "STORMWATER CREDITS FOR INNOVATIVE SITE PLANNING: KEY AND KEY WELLS PROVIDED AND MAINTAINED BY UTILIZING THE CREDITS FOUND IN SECTION 5.2 "DISCONNECTION OF ROOFTOP RUNOFF CREDIT", SECTION 5.3 "DISCONNECTION OF NON-ROOFTOP RUNOFF CREDIT" ALONG WITH THE CRITERIA FOUND IN APPENDIX C.2 SECTION C.2.1 "RETENTION SYSTEM". CREDIT WAS NOT REQUIRED BECAUSE THE 1 YEAR STORM IS LESS THAN THE 2.0 CFS MANDATED BY THE APPROPRIATE MANUAL.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY HARS GROUP, DATED AUGUST 2006.
- THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED SEPTEMBER 6, 2006.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD R/W LINE, AND NOT THE PIPESTEM LOT DRIVEWAY.
- THE EXISTING DWELLING LOCATED ON LOT 2 IS TO REMAIN. DWELLING IS A TWO STORY FRAME.
- NO CEMETERIES EXIST WITHIN THIS SUBDIVISION.
- 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. 4024 & 4024A WERE USED FOR THIS PROJECT. HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON HOWARD COUNTY GEODETIC CONTROL STATIONS:  
HOWARD COUNTY MONUMENT NO. 24F3 N 581,299.8436 ELEV. = 365.408  
E 1,360,713.7292  
HOWARD COUNTY MONUMENT NO. 24F4 N 582,288.8659 ELEV. = 306.187  
E 1,360,570.9683
- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.12(2) OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING A FEE-IN-LIEU PAYMENT OF \$10,454.40 (0.32 AC. x 43,560 \$/A.F.I. x \$10.75/\$471).
- LANDSCAPING AND STREET TREES FOR THIS SUBDIVISION WILL BE PROVIDED ON THE FINAL PLANS IN ACCORDANCE WITH SECTION 16.124 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THERE IS NO FLOODPLAIN ON THIS SITE.
- NO NOISE STUDY IS REQUIRED FOR THIS PROJECT PER HOWARD COUNTY DESIGN MANUAL, VOL. III, SECTION 5.2.9.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:  
a) WIDTH - 12 FEET 06 FEET SERVING MORE THAN ONE RESIDENCE  
b) SURFACE - SIX (6) INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING  
c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 FOOT TURNING RADIUS  
d) STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (25T) LOADING  
e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE  
f) STRUCTURE CLEARANCES - MINIMUM 12 FEET  
g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE
- ON JULY 16, 2007, THE DIRECTOR OF PLANNING AND ZONING APPROVED WAIVER PETITION WF-07-018, WHICH WAS A REQUEST FOR A WAIVER FROM SEVERAL SECTIONS OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, OF THOSE SECTIONS: THE PLANNING DIRECTOR APPROVED A WAIVER OF:  
a) SECTION 16.16(B)(1) - THE REQUIREMENT THAT OPEN SPACE LOTS HAVE A MINIMUM OF 40 FEET OF FRONTAGE ON A PUBLIC ROAD.  
b) 16.133(A)(4) - THE REQUIREMENT THAT THE DEVELOPER PROVIDE STORMWATER MANAGEMENT OF OFF-SITE RUNOFF TO AN ACCEPTABLE OUTLET.  
c) 16.133(C)(1) - THE REQUIREMENT THAT THE DEVELOPER PROVIDE STORMWATER MANAGEMENT FACILITIES THROUGH AND BETWEEN THE PROPOSED SUBDIVISION AND AN ACCEPTABLE OUTLET, AND;  
THE PLANNING DIRECTOR DENIED THE DECISION TO WAIVE:  
a) SECTION 16.133(A)(3) - THE REQUIREMENT THAT THE DEVELOPER MAKE ROAD IMPROVEMENTS TO HALF THE ULTIMATE PAVEMENT WIDTH.  
b) SECTION 16.133(C)(2) - THE REQUIREMENT THAT THE DEVELOPER CONSTRUCT SIDEWALKS ALONG THE PROJECT FRONTAGE, AND.  
THE PLANNING DIRECTOR DEFERRED UNTIL FINAL PLAN APPLICATION:  
a) SECTION 16.133(A)(2) - THE REQUIREMENT THAT THE DEVELOPER PROVIDE ADEQUATE STREET LIGHTING.
- OPEN SPACE LOT 8 OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION.
- NON-BUILDABLE BULK PARCEL 'A' WILL BE CONVEYED TO ADJOINING TAX MAP #24, PARCEL #411 AT FINAL PLAT RECORDATION.

**FISHER, COLLINS & CARTER, INC.**  
ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLICOTT CITY, MARYLAND 21042  
(410) 461-2855

**OWNERS**  
KALYNIUK FAMILY LLC  
3714 CHATHAM ROAD  
ELLICOTT CITY, MARYLAND 21042-5106  
(410) 465-7387

**DEVELOPER**  
LAND DESIGN & DEVELOPMENT  
5300 DORSEY HALL DR., SUITE 102  
ELLICOTT CITY, MARYLAND 21042  
(443) 367-0422

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
*Wanda M. Leight* 1/10/07  
PLANNING DIRECTOR DB DATE

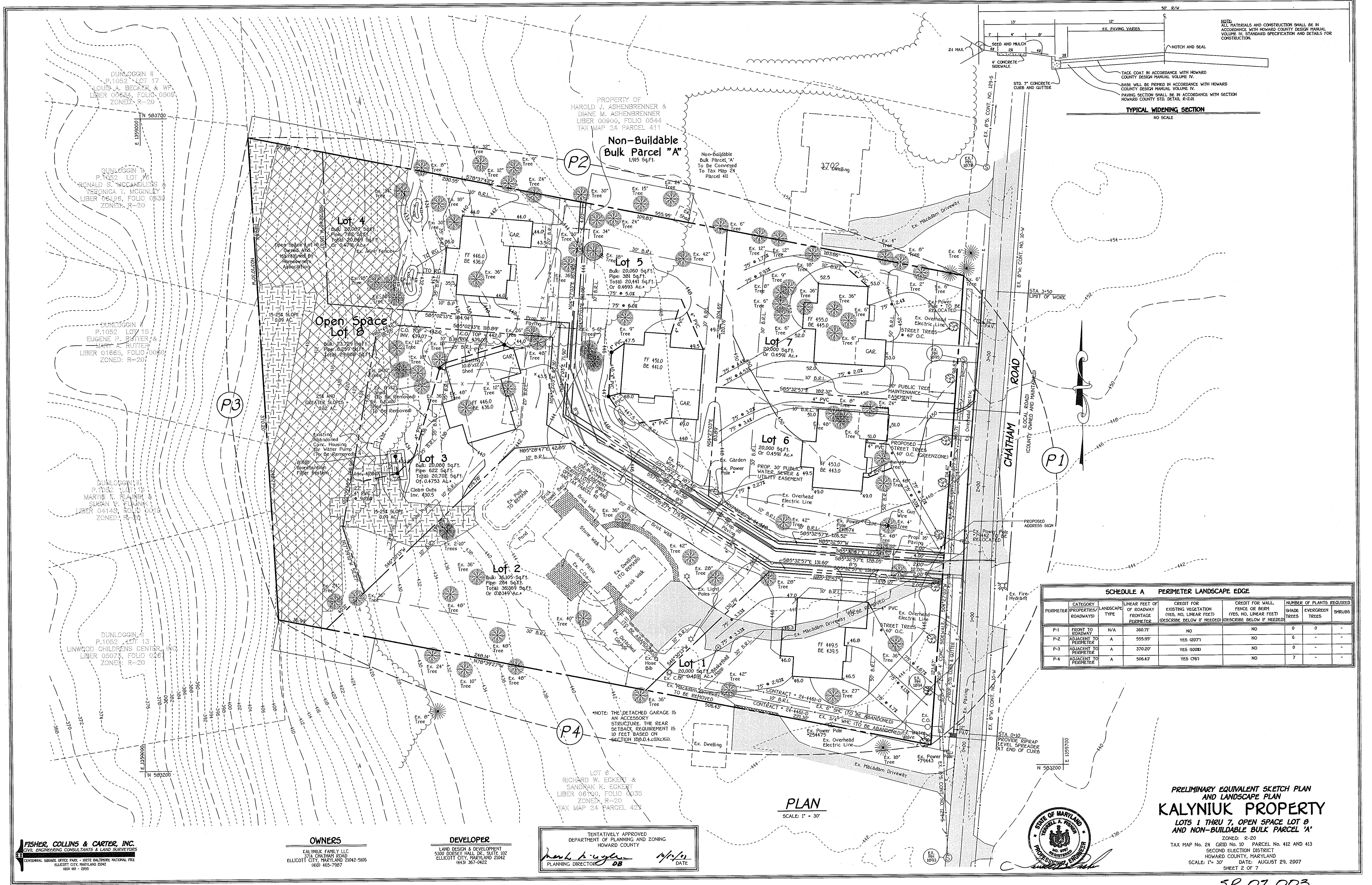
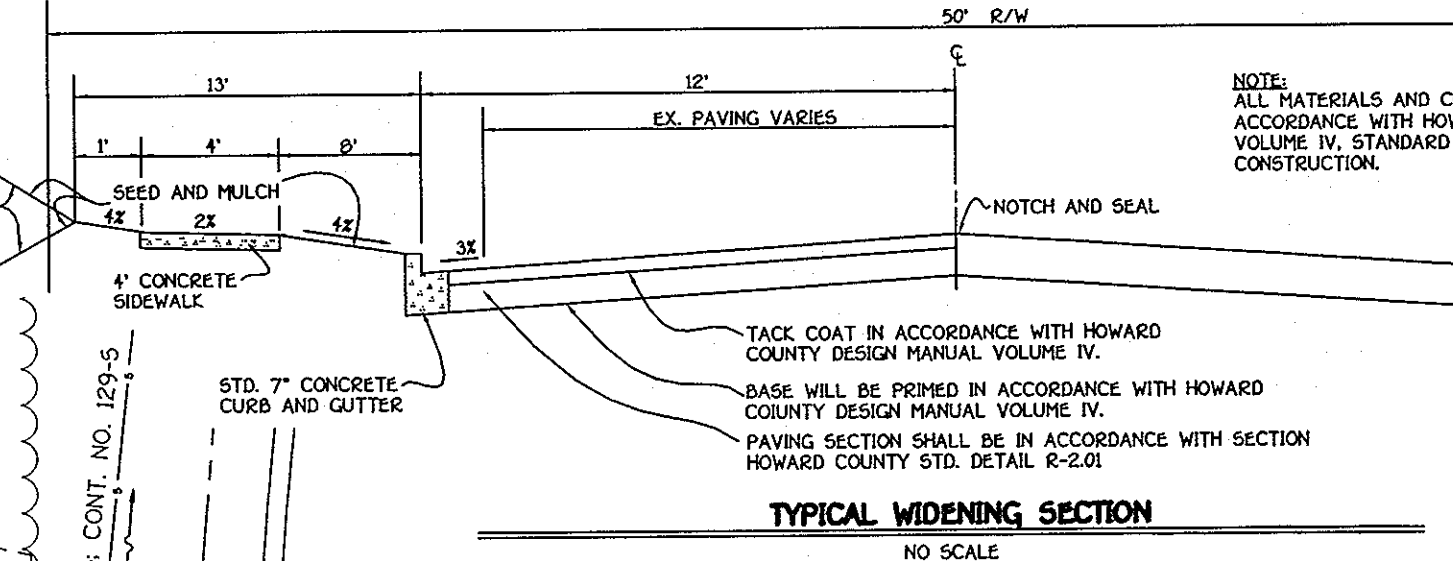


**TITLE SHEET**  
**KALYNIUK PROPERTY**  
LOTS 1 THRU 7, OPEN SPACE LOT 8  
AND NON-BUILDABLE BULK PARCEL 'A'  
ZONED: R-20  
TAX MAP No. 24 GRID No. 10 PARCEL No. 412 AND 413  
SECOND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: AUGUST 29, 2007  
SHEET 1 OF 7

SP 07-003



NOTE: ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.



SCHEDULE A PERIMETER LANDSCAPE EDGE								
PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED		
						SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	FRONT TO ROADWAY	N/A	380.71'	NO	NO	0	0	-
P-2	ADJACENT TO PERIMETER	A	555.95'	YES (207')	NO	6	-	-
P-3	ADJACENT TO PERIMETER	A	370.20'	YES (1000')	NO	0	-	-
P-4	ADJACENT TO PERIMETER	A	508.43'	YES (76')	NO	7	-	-

\*NOTE: THE DETACHED GARAGE IS AN ACCESSORY STRUCTURE. THE REAR SETBACK REQUIREMENT IS 10 FEET BASED ON SECTION 109-D.4.c(1)(ii).

PLAN  
SCALE: 1" = 30'

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PARK  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2255

**OWNERS**  
KALYNIUK FAMILY LLC  
3714 CHATHAM ROAD  
ELICOTT CITY, MARYLAND 21042-5006  
(410) 465-7597

**DEVELOPER**  
LAND DESIGN & DEVELOPMENT  
5300 DORSEY HALL DR., SUITE 102  
ELICOTT CITY, MARYLAND 21042  
(443) 367-0422

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
*David A. Gaylor* DB  
PLANNING DIRECTOR  
DATE: 8/1/10

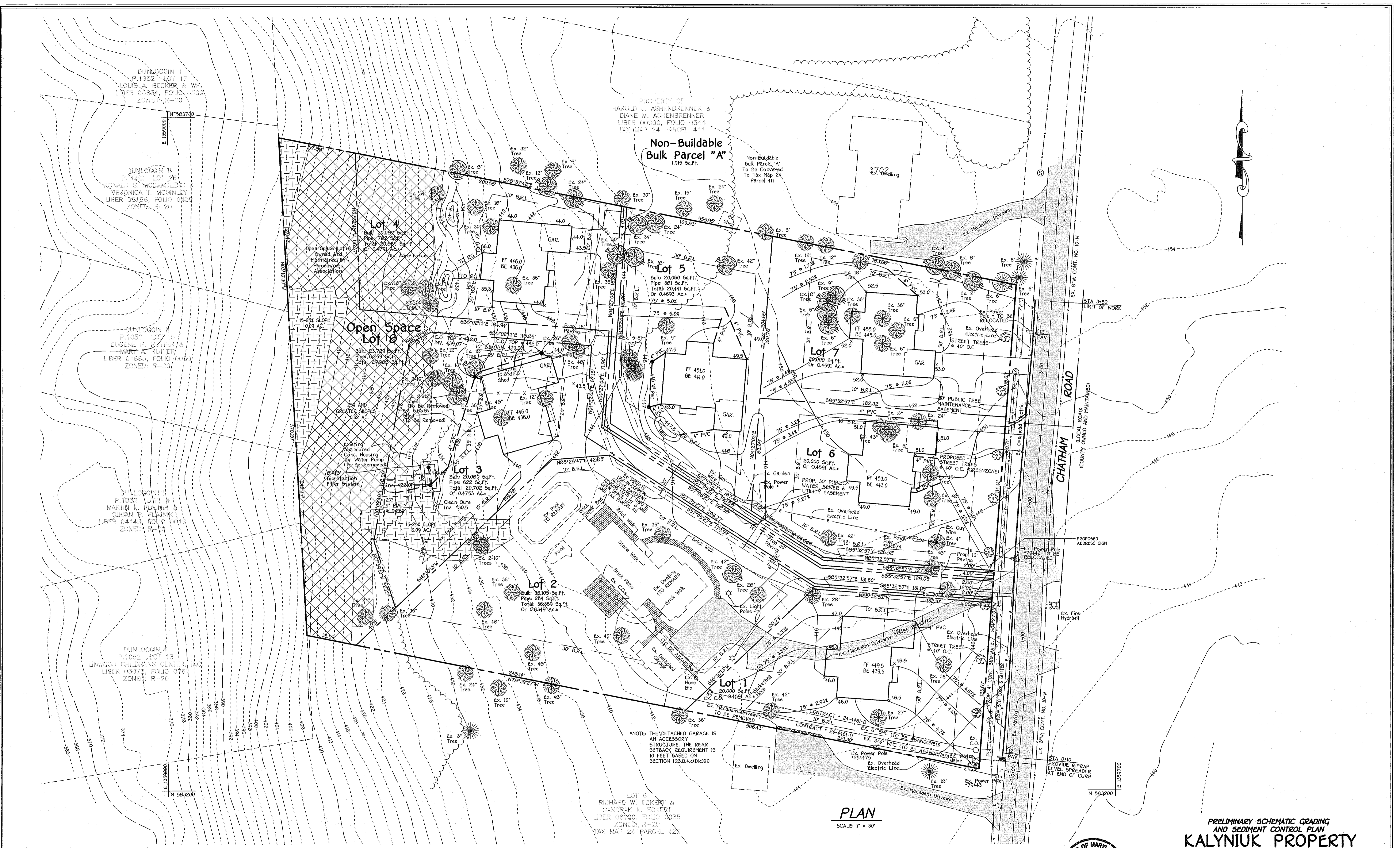


PRELIMINARY EQUIVALENT SKETCH PLAN  
AND LANDSCAPE PLAN  
**KALYNIUK PROPERTY**  
LOTS 1 THRU 7, OPEN SPACE LOT B  
AND NON-BUILDABLE BULK PARCEL 'A'  
ZONED: R-20  
TAX MAP No. 24 GRID No. 10 PARCEL No. 412 AND 413  
SECOND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: 1" = 30' DATE: AUGUST 29, 2007  
SHEET 2 OF 7

SP 07-003



039 (MWD) PRELIMINARY BASE PLAN SHEETS 2-5.dwg, 8/21/2007 11:29:49 AM



PROPERTY OF HAROLD J. ASHENBRENNER & DIANE M. ASHENBRENNER LIBER 00800, FOLIO 0544 TAX MAP 24 PARCEL 411

Non-Buildable Bulk Parcel "A" 1,915 Sq.Ft.

Open Space Lot 8

Lot 5

Lot 6

Lot 3

Lot 2

Lot 1

Lot 4

Lot 7

LOT 6 RICHARD W. ECKERT & SANDRA K. ECKERT LIBER 06100, FOLIO 0035 ZONED: R-20 TAX MAP 24 PARCEL 42X

\*NOTE: THE DETACHED GARAGE IS AN ACCESSORY STRUCTURE. THE REAR SETBACK REQUIREMENT IS 10 FEET BASED ON SECTION 100.D.4.(1)(c)(K)(i).

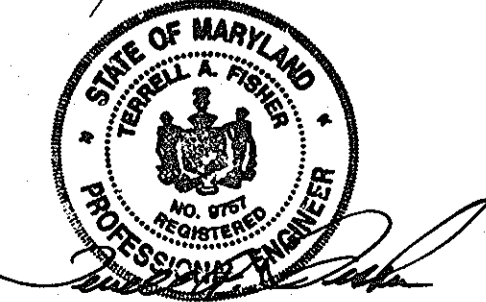
PLAN SCALE: 1" = 30'

FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

OWNERS KALYNIUK FAMILY LLC 3714 CHATHAM ROAD ELLICOTT CITY, MARYLAND 21042-5106 (410) 465-7907

DEVELOPER LAND DESIGN & DEVELOPMENT 5300 DORSEY HALL DR. SUITE 102 ELLICOTT CITY, MARYLAND 21042 (410) 357-0422

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY



PRELIMINARY SCHEMATIC GRADING AND SEDIMENT CONTROL PLAN KALYNIUK PROPERTY LOTS 1 THRU 7, OPEN SPACE LOT 8 AND NON-BUILDABLE BULK PARCEL 'A'

5P-07-003



WQV  
3.52 Ac.±  
% Imp. = 22.44%

1

Cpv  
4.21 Ac.±  
RCN = 69  
Tc = 0.28 Hrs

WQV  
0.94 Ac.±  
% Imp. = 20.0%

2

Cpv  
1.26 Ac.±  
RCN = 68  
Tc = 0.33 Hrs

SOILS LEGEND		
SOIL	NAME	CLASS
MsD	Montalto and Relay very stony silt loams, 3 to 25 percent slopes	B
NeB2	Neshaminy silt loam, 3 to 8 percent slopes, moderately eroded	B
MpB2	Montalto silt loam, 3 to 8 percent slopes, moderately eroded	B

NOTES:  
 \* Hydric soils and/or contains hydric inclusions  
 \*\* May contain hydric inclusions  
 † Generally only within 100-year floodplain areas

LEGEND

- - - - - EXISTING 2' CONTOURS
- - - - - EXISTING 10' CONTOURS
- GLB2  
MLC2 SOIL LINES AND TYPES
- LIMIT OF DRAINAGE AREA
- TIME OF CONCENTRATION PATH
- PROPOSED CONTOUR
- DESIGN POINT

SWM REQUIREMENTS SUMMARY				
Rev	VOLUME	Rev AREA	WQv	Cpv qi
SUBAREA 001	0.019 ac/ft	0.205 ac	0.074 ac/ft	1.846 cfs
SUBAREA 002	0.005 ac/ft	0.049 ac	0.018 ac/ft	0.419 cfs

PLAN  
1"=30'

TENTATIVELY APPROVED  
 DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY

*David H. Taylor* 10/1/12  
 PLANNING DIRECTOR DATE



STORMWATER MANAGEMENT  
 DRAINAGE AREA MAP  
**KALYNIUK PROPERTY**  
 LOTS 1 THRU 7, OPEN SPACE LOT 8  
 AND NON-BUILDABLE BULK PARCEL 'A'

ZONED: R-20  
 TAX MAP No. 24 GRID No. 10 PARCEL No. 412 AND 413  
 SECOND ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: AUGUST 29, 2007  
 SHEET 4 OF 7

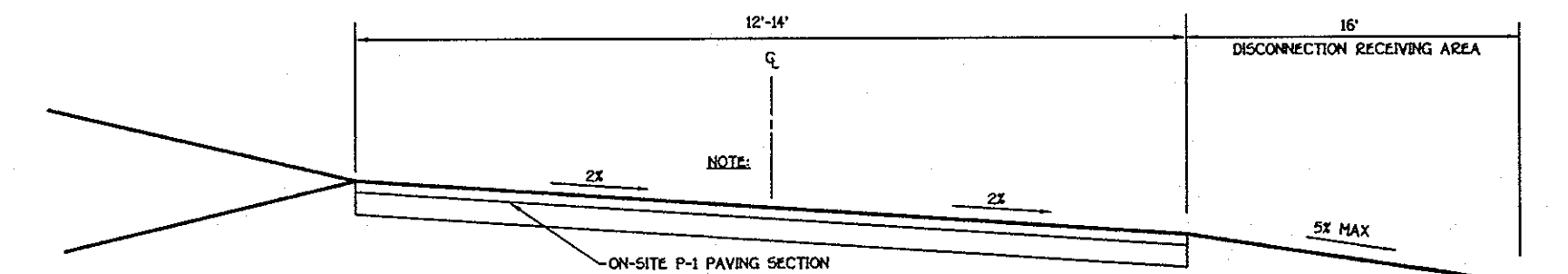
FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK • 10275 BALTIMORE NATIONAL PIKE  
 ELLSWORTH CITY, MARYLAND 21042  
 410-461-2855

APPLIED STORMWATER  
 T/A T. E. SCOTT & ASSOCIATES, INC.  
 129 COCKEYSVILLE ROAD SUITE 300  
 HEWITT VALLEY, MARYLAND 21042  
 Phone: 410-462-2611 Fax: 410-398-9792  
 www.appliedstorm.com

06/24/2007 12:09:14 PM

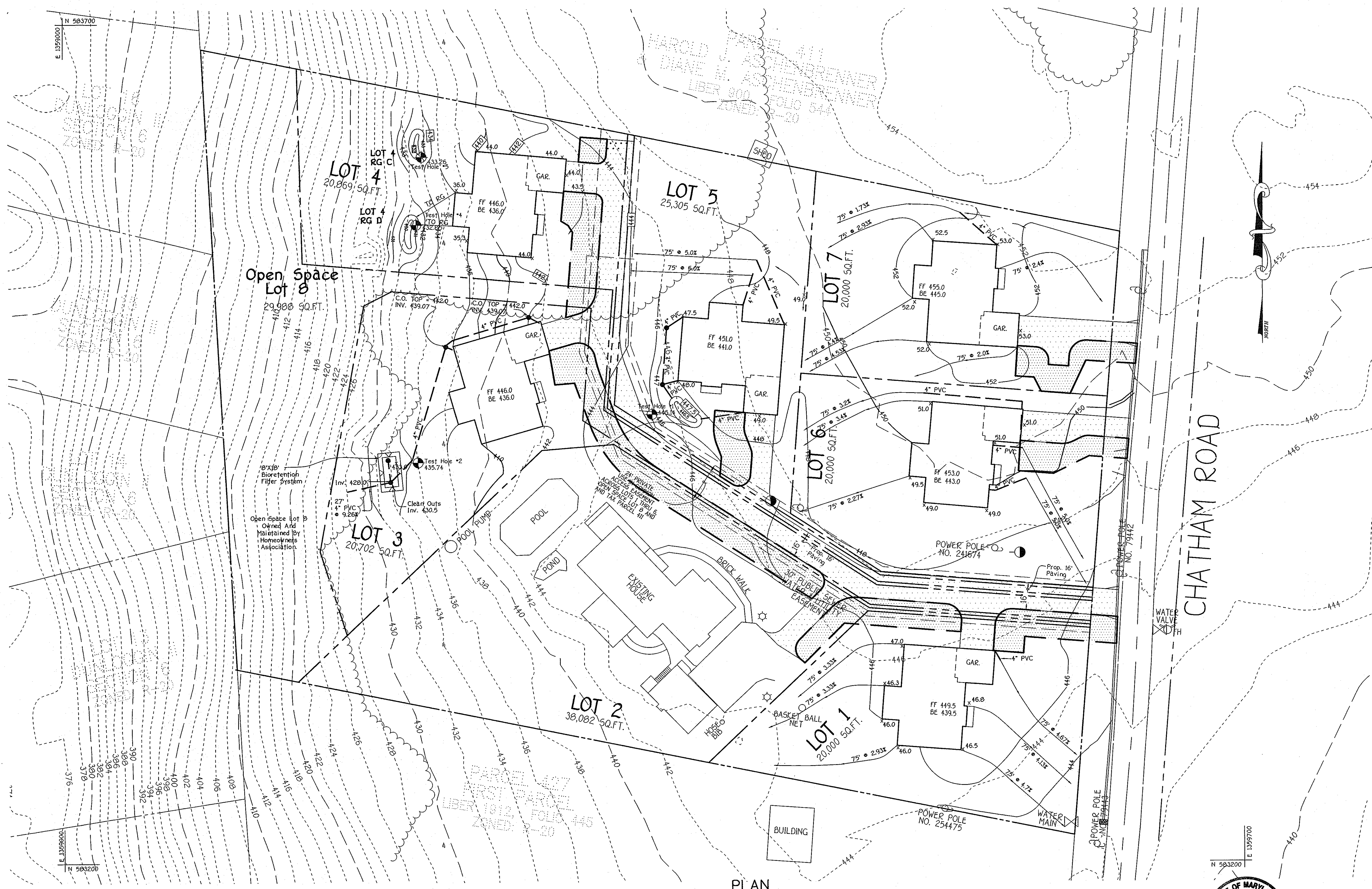
SP 07-003





ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.

TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION  
NOT TO SCALE



- LEGEND**
- - - - - EXISTING 2' CONTOURS
  - - - - - EXISTING 10' CONTOURS
  - PROPOSED CONTOUR
  - ROOF LEADER
  - ROOFTOP DISCONNECT FLOW PATH
  - 0.39 ACRES DISCONNECTED
  - DISCONNECTED IMPERVIOUS AREA
  - 0.17 ACRES DISCONNECTED
  - DISCONNECTION RECEIVING AREA
- NOTE: UNIT SIZE SHOWN REFLECT MAXIMUM BUILDING SIZE AND IS SUBJECT TO FINAL ARCHITECTURE. FINAL DOWNSPOUT LOCATIONS SUBJECT TO FINAL ARCHITECTURE.

PLAN  
1"=30'

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
*David A. Taylor*  
PLANNING DIRECTOR *DB* 8/1/07 DATE



**STORMWATER MANAGEMENT  
DISCONNECTION EXHIBIT**  
**KALYNIUK PROPERTY**  
LOTS 1 THRU 7, OPEN SPACE LOT 8  
AND NON-BUILDABLE BULK PARCEL 'A'  
ZONED: R-20  
TAX MAP No. 24 GRID No. 10 PARCEL No. 412 AND 413  
SECOND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: AUGUST 29, 2007  
SHEET 5 OF 7

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
410.461.2855

**APPLIED STORMWATER**  
TIA T. E. SCOTT & ASSOCIATES, INC.  
113 COCKEYSVILLE ROAD, SUITE 300  
ROBERTS CITY, MARYLAND 21080  
Phone: 410.454.2851  
Fax: 410.250.2016  
tia@appliedstormwater.com



**SPECIFICATIONS**

**SOIL TEXTURE AND STRUCTURE**  
Soil shall have a sandy loam, loamy sand, or loam texture per USDA textural triangle. Maximum clay content shall be 45%. Soil mixture shall be 50-50% sand, 20-30% leaf compost, and 20-30% topsoil. 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 should be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil must be free of plant or seed material of non-native, invasive species, or noxious weeds.

**SOIL TESTING**  
Planting soil for bioretention areas must be tested prior to installation for PH and organic matter. The soil should meet the following criteria (Landscape Contractors Association, 1996).  
PH Range: 5.5 - 6.5  
Organic Matter: 1.5 - 4.0%  
Sieve analysis, PH, and organic matter tests shall be performed for each bioretention area.

**SOIL PREPARATION**  
Soil preparation can be performed onsite or offsite and transported to the facility location when ready for installation. Prior to transport, the soil mix should be certified as meeting the criteria established for the soil medium and approved by the site inspector.

Soil preparation can be accomplished by thoroughly mixing soil components, amendments and additives, as needed utilizing a backhoe or front-end loader.

**SOIL PLACEMENT**  
Placement of the planting soil in the bioretention area should be after scarifying the invert area of the proposed facility and installing the underdrain and/or recharge area (if applicable), in lifts of 12 to 18 inches and lightly compacted. Minimal compaction effort can be applied to the soil by tamping with a bucket from a dozer or backhoe. Lifts are not to be compacted but are performed in order to reduce the possibility of excessive settlement. Installation of soils must be done in a manner that will ensure adequate filtration.

**SOIL COMPACTION**  
Avoid over compaction by allowing time for natural compaction and settlement. No additional manual compaction of soil is necessary. Rake soil material as needed to level out. Overfill above the proposed surface invert to accommodate natural settlement to proper grade. Depending upon the soil material, up to 20% natural compaction may occur. For facilities designed with a liner, no scarification of the invert area is required.

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoses to remove original soil. If bioretention areas are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf-type tires.

**SOIL COMPACTION (cont)**  
Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reducing infiltration rates and storage volumes 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 a Chisel Plow, Ripper, or Subsoiler. These tilling operations are to restructure 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 bioretention facility before back filling the facility and placement of underdrain. Pump any ponded water before preparing (rototilling) base.

When back filling the bioretention facility, 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.

**SOIL PRESOAK**  
In order to speed up the natural compaction process, presoaking the placed soil may be performed. Significant settlement can occur after the first presoak, and additional settlement may occur subsequent to the initial wetting. If time and construction scheduling permits, it is preferable to allow natural settlement to occur with the help of rain events to presoak the soil medium.

**MULCH**  
Areas should be mulched once trees and shrubs have been planted. Any ground cover specified as plants may be installed once mulch has been applied.

The mulch layer shall consist of either a standard landscape fine shredded hardwood mulch (preferred) or hardwood chips. The mulch may be either aged or fresh to maximize nitrogen and metal uptake by the facility. Mulch shall be free of weed seeds, soil, roots, or any other substance not consisting of either bark or branch wood and bark. The mulch should be uniformly applied approximately 2 to 3 inches in depth. Mulch applied any deeper than three inches reduces proper oxygen and carbon dioxide cycling between the soil and the atmosphere, and keeps plant roots from making good contact with the soil.

**SAND**  
Sand shall be clean and free of deleterious materials, meeting AASHTO M-6 or ASTM C-33 with grain size of 0.02" - 0.04". MSHA C-33 sand is acceptable.

**GEOTEXTILE**  
Geotextile fabric should meet ASTM D-751 (puncture strength - 125 LB), ASTM D-1117 (ullen burst strength - 400 PSF), and ASTM D-1692 (Tensile strength - 300 LB). Fabric should have 0.005" thick E.O.S. of #80 sieve, and maintain 125 g/m<sup>2</sup> per sq. ft. flow rate.

**Structure Backfill**  
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe. Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength.

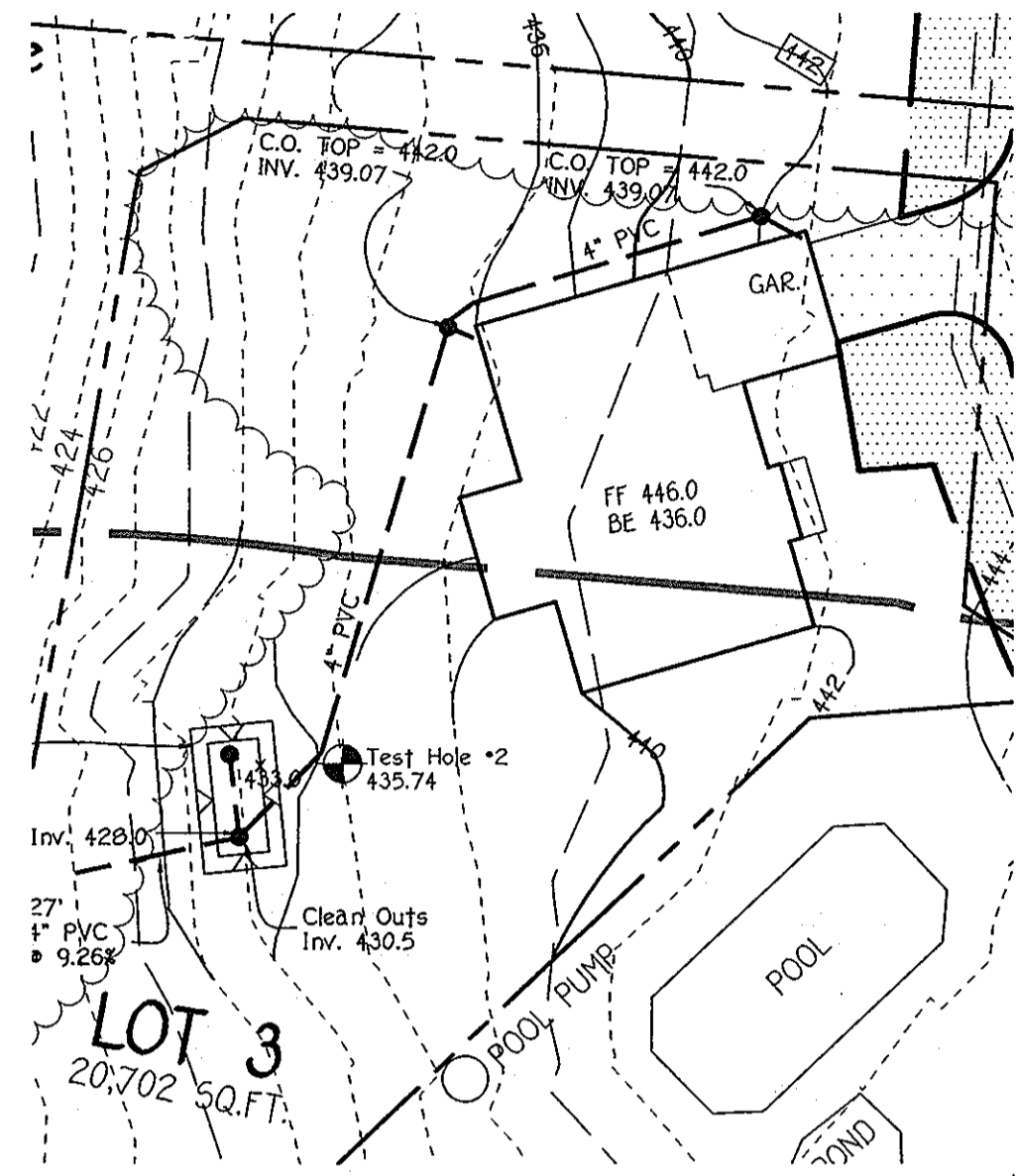
The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding) over and on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

**Plastic Pipe**  
The following criteria shall apply for plastic pipe:

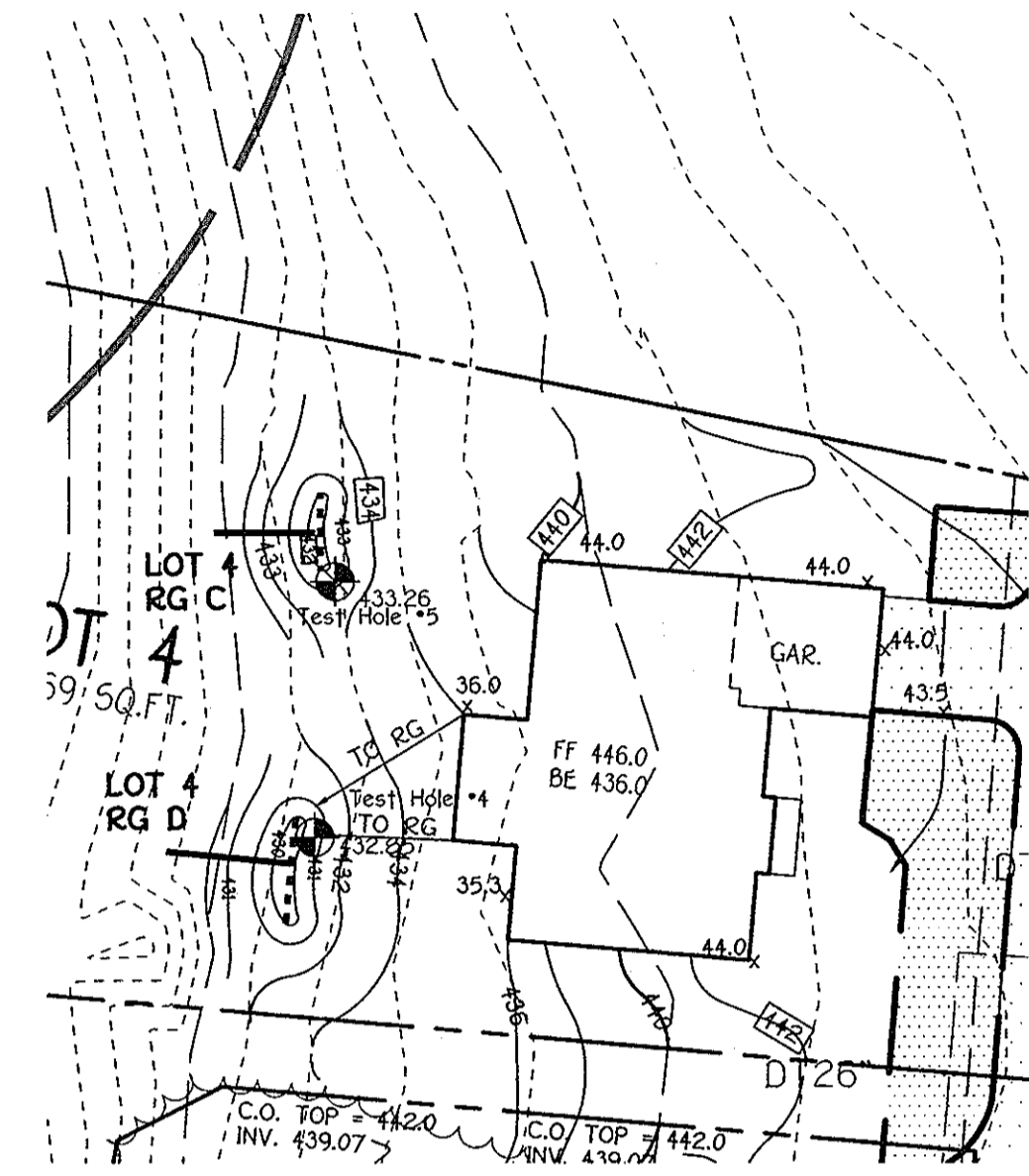
1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type 5, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type 5.
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to "Structure Backfill".

**RAIN GARDEN DATA**

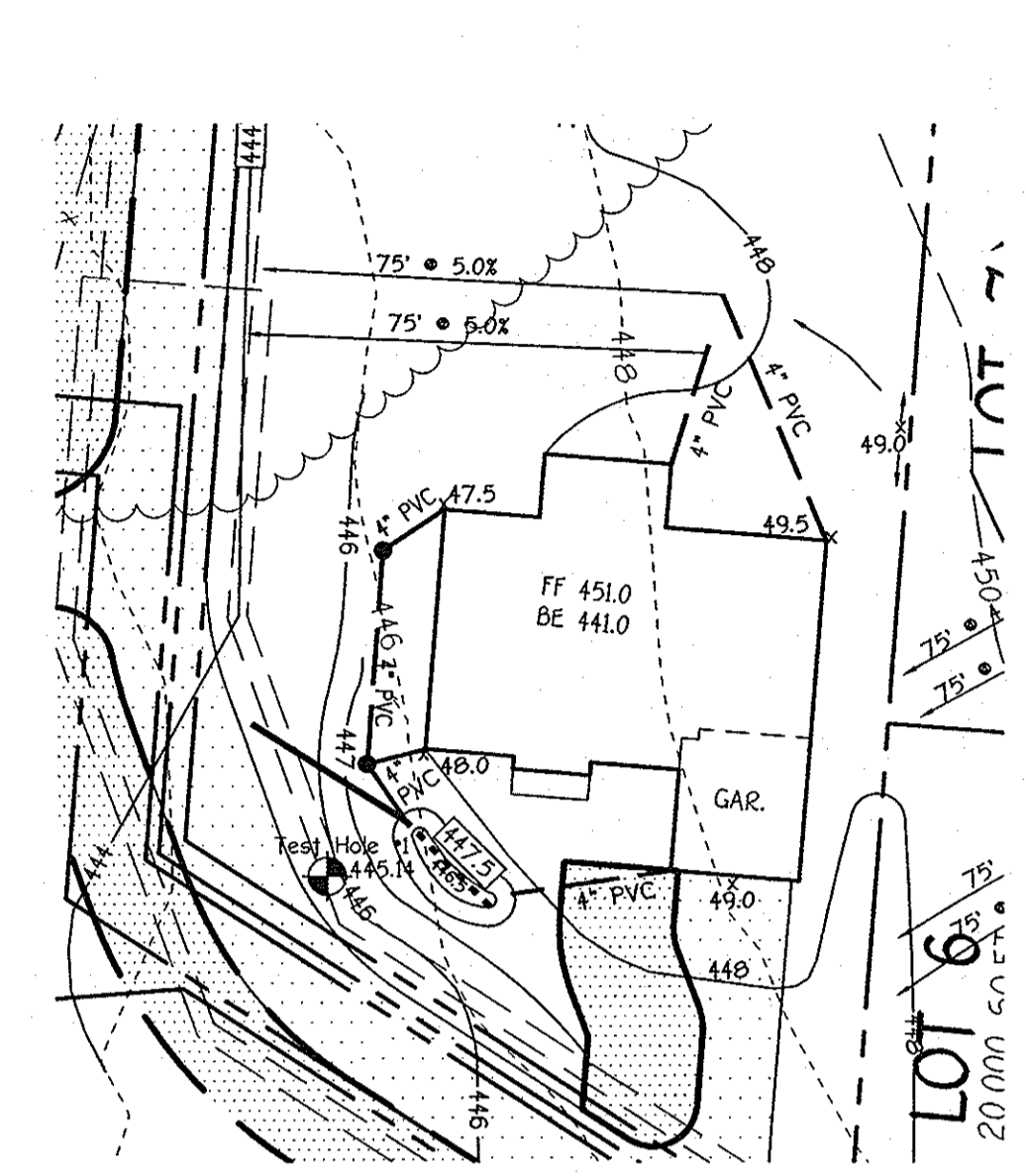
	LOT #3 RG B	LOT #4 RG C	LOT #4 RG D	LOT #5 RG E
INVERT ELEV	431.50	429.50	427.50	444.00
FILTER BED ELEV	434.00	432.00	430.00	446.50
IMPERVIOUS AREA LEADING TO RAINGARDEN	500 SF	500 SF	1000 SF	1000 SF
MINIMUM REQUIRED SURFACE AREA	25 SF	50 SF	50 SF	50 SF
FILTER BED WIDTH (ø Max)	2.5'	2.5'	3.5'	3.5'
FILTER BED LENGTH (ø Max)	12'	12'	17'	17'



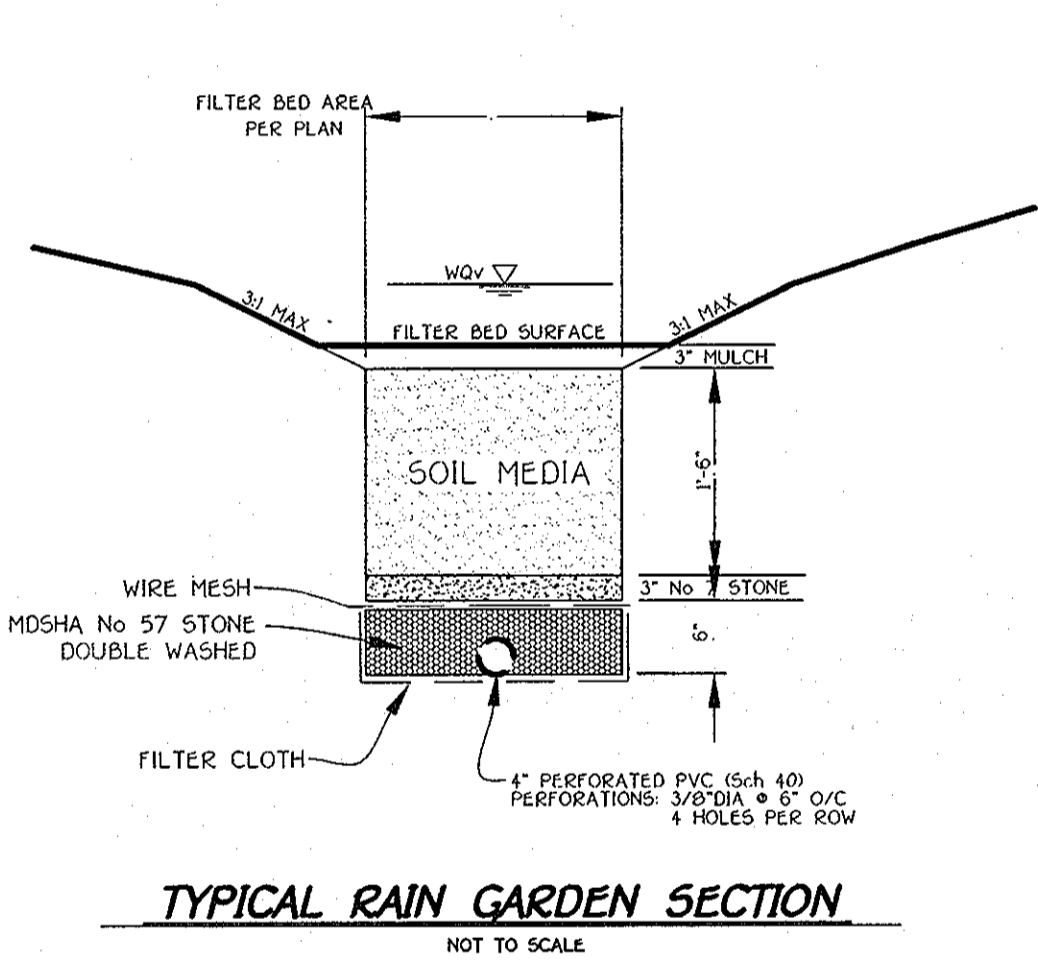
LOT #3 RAIN GARDEN PLAN  
1"=30'



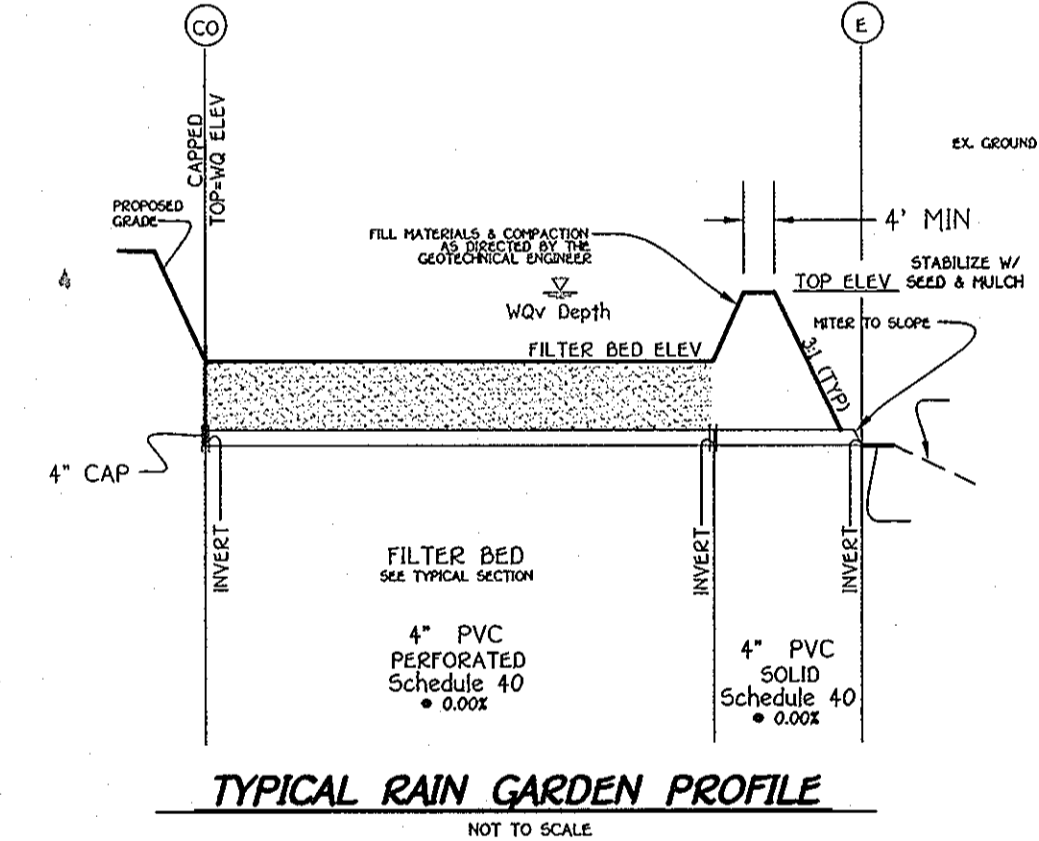
LOT #4 RAIN GARDEN PLAN  
1"=30'



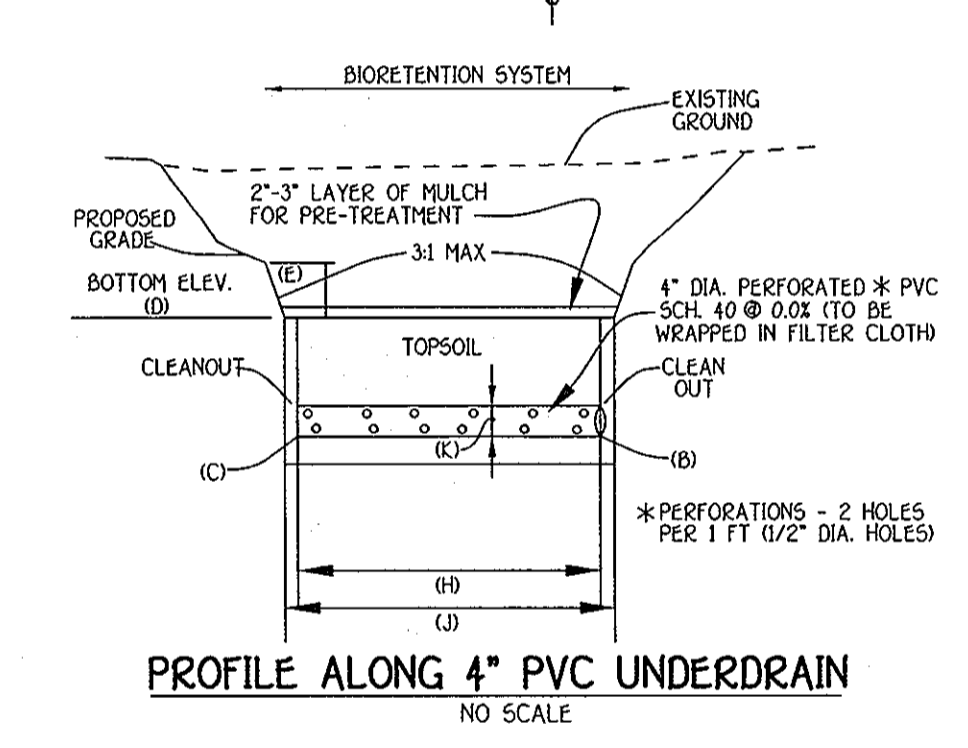
LOT #5 RAIN GARDEN PLAN  
1"=30'



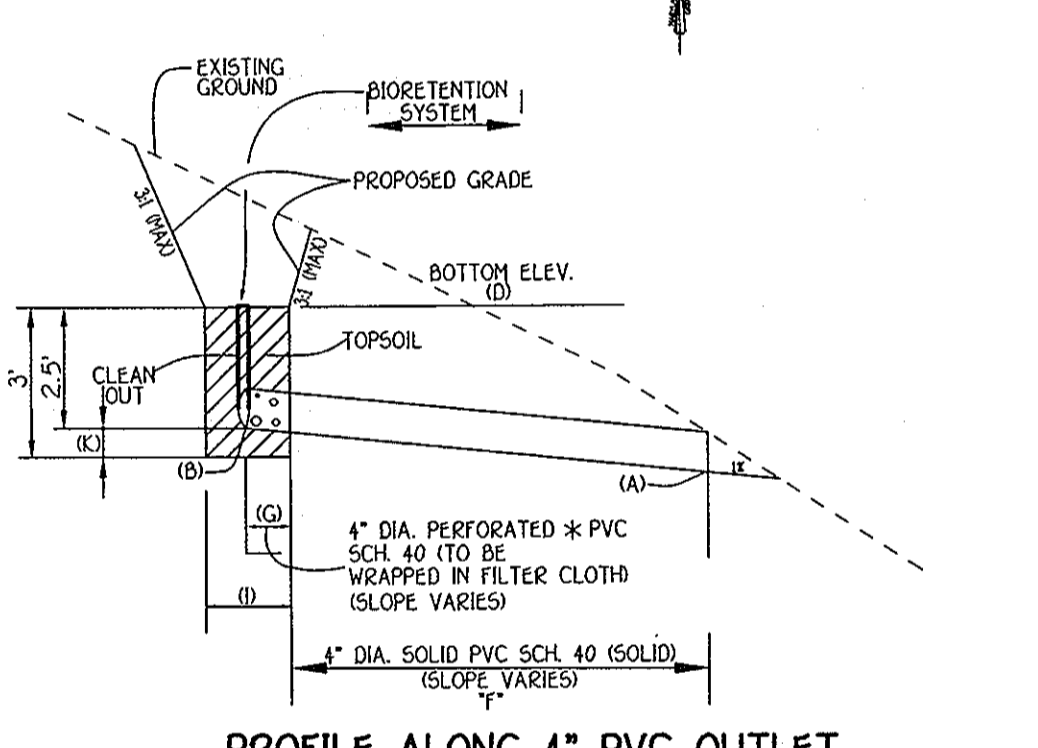
TYPICAL RAIN GARDEN SECTION  
NOT TO SCALE



TYPICAL RAIN GARDEN PROFILE  
NOT TO SCALE



PROFILE ALONG 4" PVC UNDERDRAIN  
NO SCALE



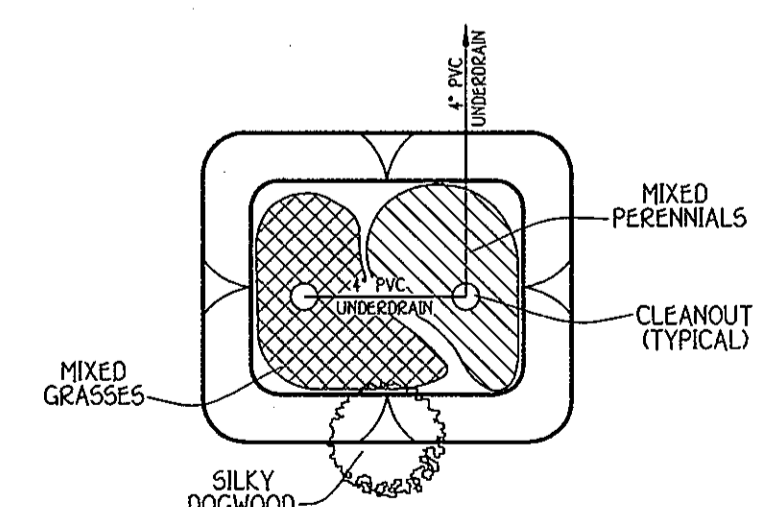
PROFILE ALONG 4" PVC OUTLET  
NO SCALE

- MIXED PERENNIALS: CUT-LEAF CONIFLOWER, CARDINAL FLOWER, TRANSPARENT ASTER
- MIXED GRASSES: TURFED FOXTAIL, SWITCH GRASS
- SILKY DOGWOOD

NOTES:  
1. PLANT MATERIAL MUST COVER AT LEAST 50% OF THE SURFACE AREA OF THE RAINGARDEN.

QUANTITY	NAME	MAXIMUM SPACING (FT.)
45	MIXED PERENNIALS	1 FT.
45	MIXED GRASSES	1 FT.
1	SILKY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION

BIORETENTION FILTER	A	B	C	D	E	F	G	H	I	J	K
1	428.0	430.5	430.5	433.0	434.0	27'	6.0'	12'	8'	18'	0.24'



BIORETENTION FILTER PLANTING DETAIL  
NOT TO SCALE

**PRIVATE BIORETENTION FILTER OPERATION & MAINTENANCE SCHEDULE**

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.
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.

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BIORETENTION FACILITIES**

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. Maintenance will also address dead material and pruning.
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, minimum once a month and after heavy storm events.

**ENGINEER'S CERTIFICATE**  
"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion."  
*Signature of Engineer* 9/21/07 Date

**DEVELOPER'S CERTIFICATE**  
"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans, And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."  
*Signature of Developer* 9/25/07 Date

**AS-BUILT CERTIFICATION**  
I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.  
Signature \_\_\_\_\_ P.E. No. \_\_\_\_\_ Date: \_\_\_\_\_

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
*Signature* 9/18/07  
PLANNING DIRECTOR DATE

**FISHER, COLLINS & CARTER, INC.**  
CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21116  
410-461-2955

**APPLIED STORMWATER**  
TIA T. E. SCOTT & ASSOCIATES, INC.  
128 COOPERVILLE ROAD, SUITE 300  
MOUNTAIN VIEW, MARYLAND 21096  
410-438-2051  
www.appliedstorm.com



**STORMWATER MANAGEMENT RAIN GARDEN ENLARGED PLANS AND DETAILS**  
**KALYNIUK PROPERTY**  
LOTS 1 THRU 7, OPEN SPACE LOT 8 AND NON-BUILDABLE BULK PARCEL 'A'  
ZONED: R-20  
TAX MAP No. 24 GRID No. 10 PARCEL No. 412 AND 413  
SECOND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
DATE: AUGUST 29, 2007  
SCALE: 1"= 30'  
SHEET 6 OF 7

SP 07 003



**PFCP NOTES:**

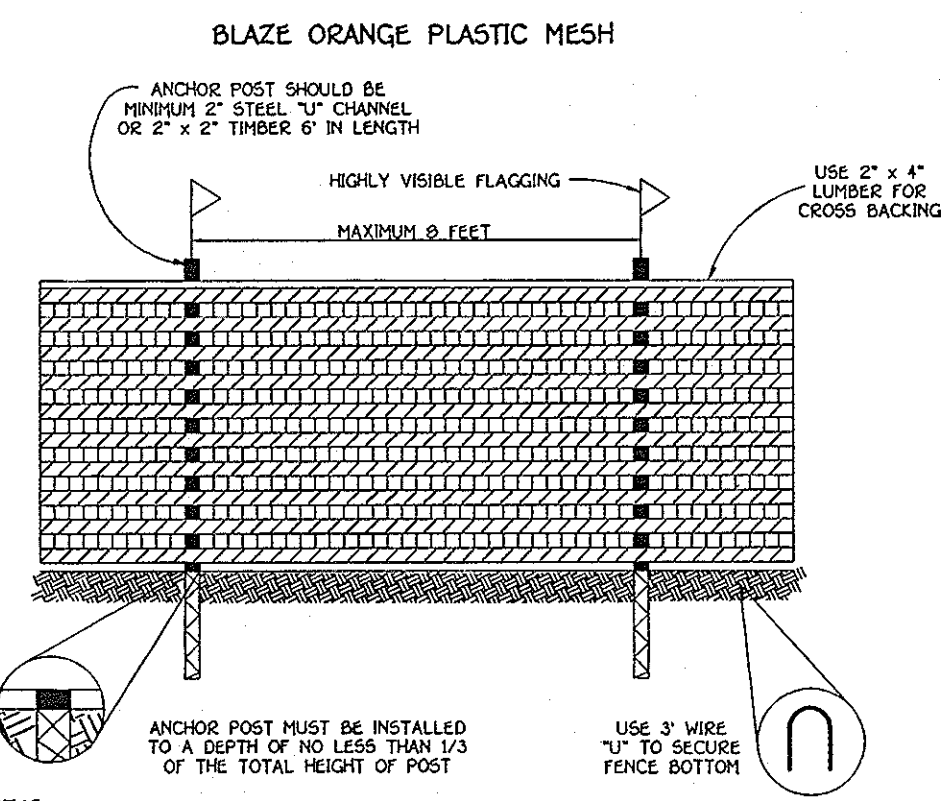
- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
- Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
- Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
- There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
- No stockpiles, parking areas, equipment clearing areas, etc. shall occur within areas designated as Forest Conservation Easements.
- Temporary fencing shall be used to protect the specimen trees during construction. Fencing shall be installed along limits of disturbance occurring within 60 feet of the specimen trees to be retained. Permanent signage will be posted at 50-100 foot intervals along all FCE limits.
- The Forest Conservation Act requirements for this project has been calculated to be 0.32 acre. This obligation will be met through payment into the County's fee-in-lieu program. Fee-In-Lieu = \$10,454.40 (0.32 Ac x \$32,670.00/Sq.Ft.).

**FOREST CONSERVATION WORKSHEET**  
Version 1.0

NET TRACT AREA	Acres
A. Total tract area	4.4
B. Area within 100 Year Floodplain	0
C. Area to remain in agricultural production	9
D. Net Tract Area	3.5
<b>LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)</b>	
ARA MDR IDA HDR MPD CIA	
E. Afforestation Threshold (percentage)	0.5
F. Conservation Threshold (percentage)	0.7
<b>EXISTING FOREST COVER:</b>	
G. Existing forest cover (excluding floodplain)	0.8
H. Area of forest above afforestation threshold	0.3
I. Area of forest above conservation threshold	0.1
<b>BREAK EVEN POINT:</b>	
J. Forest retention above threshold with no mitigation	0.02
K. Clearing permitted without mitigation	0.72
<b>PROPOSED FOREST CLEARING</b>	
L. Total area of forest to be Cleared or Retained Outside FCE	0.26
M. Total area of forest to be Retained in FCE	0.54
<b>PLANTING REQUIREMENTS</b>	
N. Reforestation for clearing above Conservation Threshold	0.025
P. Reforestation for clearing below Conservation Threshold	0.3225
Q. Credit for retention above conservation threshold	0
R. Total reforestation required	0.3225
S. Total afforestation required	0
T. Total reforestation and afforestation required	0.3225

**PFCP LEGEND**

SYMBOL	DESCRIPTION
---448---	EXISTING CONTOUR 2' INTERVAL
---450---	EXISTING CONTOUR 10' INTERVAL
---448---	PROPOSED CONTOUR 2' INTERVAL
---450---	PROPOSED CONTOUR 10' INTERVAL
---	EXISTING FOREST LIMIT
H	EXISTING SPECIMEN TREE AND TEMPORARY PROTECTIVE FENCING



**TREE PROTECTION DETAIL**  
NOT TO SCALE

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BOLDINGWAY NATIONAL PIKE  
ELLICOTT CITY, MARYLAND 21114  
(410) 461-2855

**OWNERS**  
KALYNIUK FAMILY LLC  
3714 CHATHAM ROAD  
ELLICOTT CITY, MARYLAND 21114  
(410) 465-7987

**DEVELOPER**  
LAND DESIGN & DEVELOPMENT  
5300 DORSEY HALL DR., SUITE 102  
ELLICOTT CITY, MARYLAND 21114  
(410) 357-0422

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
*Richard W. Eckert*  
PLANNING DIRECTOR  
10/10/13  
DATE

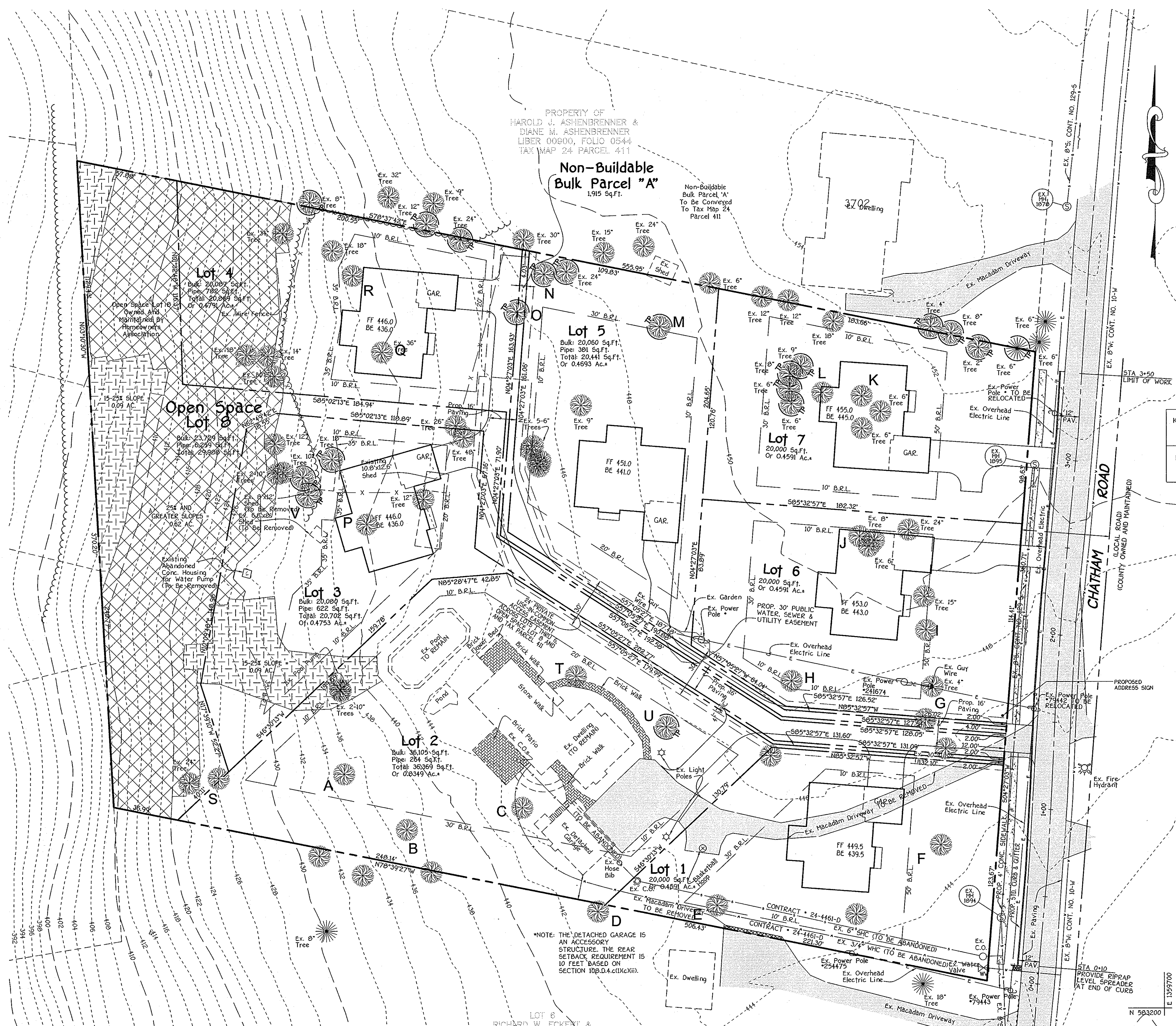
**PLAN**  
SCALE: 1" = 30'

**Eco-Science Professionals, Inc.**  
CONSULTING ECOLOGISTS

MD DNR Qualified Professional  
USACOE Wetland Delineator  
Certification # WDCP93M006100448  
*John P. Canoles*  
JOHN P. CANOLES



**SIMPLIFIED FOREST STAND DELINEATION  
PRELIMINARY FOREST CONSERVATION PLAN  
KALYNIUK PROPERTY**  
LOTS 1 THRU 7, OPEN SPACE LOT 8  
AND NON-BUILDABLE BULK PARCEL 'A'  
ZONED: R-20  
TAX MAP NO. 24, GRID NO. 10 - PARCEL NO. 412 AND 413  
SECOND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: 1" = 30' DATE: AUGUST 29, 2007  
SHEET 7 OF 7



**Forest Stand Data**

Key	Community Type	Acreege	Dominant Vegetation	General Condition	Priority
F1	Mixed successional	0.8	Acer rubrum, Fraxinus americana, Alnus incana, Prunus serotina, Carya glabra, Lindora benzoin	Fair	0.8± slopes

- FSD NOTES:**
- No rare, threatened or endangered species were observed on the property.
  - Surrounding land use is primarily medium density residential.
  - Since no forest clearing is proposed a Simplified Forest Stand Delineation has been prepared.
  - No wetlands, streams or buffer are present on subject property.

**Specimen Tree Data**

Key	Species, size (dbh)	Comments	To Be Retained/Cleared
A	Catalpa, 48"	poor condition, limb dieback, poor shape	Retained
B	White Oak, 48"		Retained
C	Silver Maple, 40"	fair, poor structure and dieback	Retained
D	Chestnut Oak, 36"		Retained
E	White Oak, 37"		Retained
F	White Oak, 37"		Cleared
G	Tulip Poplar, 42"		Cleared
H	White Oak, 44"		Cleared
I	Tulip Poplar, 48"		Cleared
J	Red Oak, 48"	fair, limited spread	Cleared
K	Black Gum, 36"		Cleared
L	Black Gum, 37"		Cleared
M	White Oak, 36"	very good condition	Retained
N	White Oak, 30"		Cleared
O	White Oak, 30"	fair condition, poor spread	Cleared
P	White Oak, 48"		Cleared
Q	White Oak, 31"		Cleared
R	White Oak, 30"		Cleared
S	White Oak, 36"		Retained
T	White Oak, 36"		Retained
U	White Oak, 38"		Retained
V	White Oak, 36"		Retained