

GENERAL NOTES

- Subject Property Zoned R-20 Per 2/02/04 Comprehensive Zoning Plan And Comp Lite Zoning Regulations Effective 7/29/06.
- Coordinates Based On NAD 83, Maryland Coordinate System As Projected By Howard County Geodetic Control Stations No. 31A3 And No. 31D4.
Station No. 31A3 North 573,217.9149 East 1,368,237.7247
Station No. 31D4 North 571,700.7034 East 1,369,606.3509
- This Plan Is Based On Field Run Monumented Boundary Survey Performed On Or About January, 2012, By Fisher, Collins & Carter, Inc.
- B.S.L. Denotes Building Restriction Line.
 - o Denotes Iron Pin Set With Cap "F.C.C. 106".
 - o Denotes Iron Pipe Or Iron Bar Found.
 - o Denotes Angular Change In Bearing Or Boundary Or Rights-Of-Way.
 - o Denotes Concrete Monument Set With Cap "F.C.C. 106".
 - o Denotes Concrete Monument Or Stone Found.
- For Flag Or Pipestem Lots, Refuse Collection, Snow Removal And Road Maintenance Are Provided To The Junction Of The Flag Or Pipestem And Road Right-Of-Way Line And Not Onto The Pipestem 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, Maximum 10% 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) Maintenance - Sufficient To Ensure All Weather Use.
- All Lot Areas Are More Or Less (+).
- Distances Shown Are Based On Surface Measurement And Not Reduced To Nad '83 Grid Measurement.
- Stormwater management requirements for Lots 1 thru 5 will be met using environmental site design to the maximum extent possible in accordance with the Maryland stormwater design Manual, Volumes I & II, effective in May of 2010. The proposed practices will be located on the individual lots as follows:
 - Lot 1: Micro-bioretenion (M-6) and drywells (M-5) for the proposed house and a bio-swale (M-6) for the proposed driveway.
 - Lot 2: Non-roof-top disconnection (N-2) for the proposed driveway. The existing house will remain for which swale is not required.
 - Lot 3: Drywells (M-5) for the proposed house and non-roof-top disconnection (N-2) for the proposed driveway.
 - Lot 4: Roof-top disconnection (N-1) and drywells (M-5) for the proposed house and non-roof-top disconnection (N-2) for the proposed driveway.
 - Lot 5: Roof-top disconnection (N-1) and drywells (M-5) for the proposed house and non-roof-top disconnection (N-2) for the proposed driveway.
- These practices shall be privately owned and maintained in accordance with individual declarations of covenants.
- The Traffic Study for this project was prepared by Mars Group, Dated September, 2012 and approved October 31st, 2012.
- No Cemeteries Exist On This Site Based On A Visual Site Visit And Based On A Examination Of The Howard County Cemetery Inventory Map And No Historic Structures Sites Or Features Exist. The Forest Conservation Requirements Of Section 16.1200 Of The Howard County Code And Forest Conservation Act For This Subdivision Will Be Fulfilled By Providing A Fee-In-Lieu Payment Of \$19,000.00 Based On 0.60 Acres x \$3,166.67 Per Acre x \$2.75/ Sq. Ft.
- Landscaping For Lots 1, 3, 4 And 5 On File With This Plan Is Provided In Accordance With A Certified Landscape Plan. In Accordance With Section 16.124 of the Howard County Code and The Landscape Manual a Landscape Surety in the amount of \$14,250.00 is Bonded With The Water & Sewer Developer's Agreement.
 - Lot 1: Surety (4 Shade Tree @ \$300/shade Tree) & (17 Ever Green @ \$150/ever Green Tree) = \$3,750.00
 - Lot 2: Surety (5 Shade Tree @ \$300/shade Tree) = \$1,500.00
 - Lot 3: Surety (7 shade Tree @ \$300/shade Tree) = \$2,100.00
 - Lot 4: Surety (2 Shade Tree @ \$300/shade Tree) & (6 Ever Greens @ \$150/ever Green Tree) = \$1,500.00
 - Lot 5: Surety (15 Shade Tree @ \$300/shade Tree) & (18 Ever Greens @ \$150/ever Green Tree) = \$5,400.00
- Water And Sewer Service To These Lots Will Be Granted Under The Provisions Of Section 16.122B Of The Howard County Code.
- Public Water And Sewage Allocations Will Be Granted At Time Of Issuance Of The Building Permit If Capacity Is Available At That Time.
- Approval Of A Site Development Plan Is Required For The Development Of All Residential Lots Within This Subdivision Prior To Issuance Of Any Grading Or Building Permits For New House Construction In Accordance With Section 16.1200 Of The Subdivision And Land Development Regulations.
- Property Subject To Department Of Planning And Zoning File Nos. ECP-12-052 And WP-12-156.
- This Property Is Located Within The Metropolitan District And Will Be Served By Public Water And Sewer under contract.
- There Is An Existing Dwelling/Structure(s) Located On Lot 2 To Remain. No New Buildings, Extensions Or Additions To The Existing Dwelling(s) Are To Be Constructed At A Distance Less Than The Zoning Regulation Requirements.
- A Letter Of Findings Dated March 20, 2012 For The Forest Stand Delineation And Wetland Delineation For This Project Was Prepared By Eco-Science Professionals.
- This Plan Is In Compliance With The Amended Fifth Edition Of The Subdivision And Land Development Regulations Per Council Bill #5-2003 And The Zoning Regulations As Amended By Council Bill 79-2003. 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 Petition Application, Or Building/Grading Permit And Per The Comp-Lite Zoning Regulations Dated July 28, 2006.
- Plan Subject To WP-12-156 Which The Planning Director On June 27, 2012 Approved A Waiver From Section 16.1205(a)(7) To Allow Removal Of The Three (3) Trees 30" In Diameter Or Larger. The Planning Director Also Approved A Request To Waive Section 16.1205(b)(1)(c) To Allow Pipestem Lots To Be Credited On Both Sides Of A Frontage Lot In The Same Subdivision. Finally, The Planning Director Approved A Request To Waive Section 16.145 To Allow Submission Of A Final Subdivision Plan Without First Submitting A Sketch Plan Or Preliminary Equivalent Sketch Plan, Subject To The Following Conditions:
 - 1) Removal Of The Three (3) Specimen Trees Will Require Replacement Mitigation At A Ratio Of Two (2) Larger Caliper Trees (At Least Four (4) Inches dbh) For Each Specimen Tree Removed. The Mitigation Planting Can Be Provided As Part Of The Required Perimeter Landscaping For This Project. You Must Submit A Supplemental Plan With Your Final Subdivision Plan For This Property That Shows How You Plan To Address This Alternative Landscape Mitigation.
 - 2) Submission Of A Final Plan Application, Including A Final Subdivision Plat And A Supplemental Plan.
 - 3) The Proposed Driveway To Serve New Lot 1 Shall Comply With Section 16.1205(b)(4) Of The Howard County Subdivision Regulations And Can Be Located At Least 10 Feet From The Project Boundary At All Points To Provide Adequate Room For Perimeter Landscaping. The Applicant Must Provide A Landscaping Buffer Along The Entire Project Boundary Line Between The Driveway And The Adjoining Existing Property, Parcel 351, Lot 25, With A Single Row Of Land Cypress Trees, Or An Equivalent Species, At A Spacing Of 15 Feet On Center (Total Of 15 Trees).
- The 36" Private Use-In-Common Driveway Maintenance Agreements For Lot 1 thru 5, The 36" Private Use-In-Common Driveway Maintenance Agreements For Lots 2 thru 5 & The 20" Private Use-In-Common Driveway Maintenance Agreement For Lot 1 Have Been Recorded In The Howard County Land Records Office Simultaneously With The Recording Of This Subdivision Plat.
- Open Space Requirements By A Fee-In-Lieu Payment Of \$6,000.00.
- This Development Is Designed To Be In Accordance With Section 16.127-Residential Infill Development -Of 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 Houses.
- Noise Study Is Not Required For This Project Per Howard County Design Manual, Volume III, Section 5.2.(f).
- A Community Meeting Was Conducted On January 4, 2012 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.
- All construction shall be in accordance with the latest standards and specifications of Howard County.
- 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 the start of work.
- The contractor shall notify "miss utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- Traffic control devices, markings and signing shall be in accordance with the latest edition of the manual of traffic control devices (muctd). All street and regulatory signs shall be in place prior to the placement of any asphalt.
- The existing topography is taken from field run survey with contour intervals prepared by Fisher, Collins and Carter, Inc. Dated Feb. 15, 2012 and supplemented with Howard County GIS information.
- Existing utilities shown are based on available construction drawings.
- A private range of address sign shall be fabricated and installed by Howard County Bureau of Highways at the developers/owners expense. Contact Howard County Traffic Division at 410-313-2430-for details and cost estimate.
- All sign posts used for traffic control signs installed in the County right-of-way shall be mounted on a 2" galvanized steel, perforated, square tube post (14 gauge) inserted into a 2-1/2" galvanized steel, perforated, square tube sleeve (12 gauge) - 3' long. A galvanized steel pole cap shall be mounted on top of each post.
- There is no Floodplain on this site.
- There are no wetlands on this site.
- There are no disturbances to environmental features as there are no environmental features located on this property.
- Street light placement and type of fixtures and poles shall be in accordance with the Howard County Design Manual, Volume III, Section 5.5.A. A minimum of 20 feet shall be maintained between any street light and any tree.

SUPPLEMENTAL PLAN CLEARWATER CROSSING LOTS 1 THRU 5 & NON-BUILDABLE PARCELS 'A' & 'B' 4925 MONTGOMERY ROAD TAX MAP No. 0031 GRID No. 0008 PARCEL NO. 0593 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SUPPLEMENTAL PLAN
3	STORMWATER MANAGEMENT PROFILES, NOTES & DETAILS
4	SEDIMENT & EROSION CONTROL PLAN
5	SEDIMENT & EROSION CONTROL NOTES & DETAILS
6	LANDSCAPING PLAN
7	LANDSCAPING NOTES, DETAILS & CHARTS
8	DRAINAGE AREA MAP

ADDRESS CHART	
PARCEL NUMBER	STREET ADDRESS
0593	4925 MONTGOMERY ROAD

* EXISTING HOUSE TO REMAIN; SEE CHART BELOW FOR NEW ADDRESS

STREET LIGHT CHART			
STREET NAME	NORTHING	EASTING	FIXTURE/POLE TYPE
CLEARWATER DRIVE	571,698.19	1,370,558.37	100-WATT H.P.S. COLONIAL POST TOP MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE

LOT NUMBER	ADDRESS	DISCONNECTION OF ROOFTOP RUN-OFF N-1 (NUMBER)	DISCONNECTION OF NON-ROOFTOP RUN-OFF N-2 (Y/N)	DRY WELLS M-5 (NUMBER)	MICRO-BIO-RETENTION M-6 (NUMBER)	SWALES M-8 (NUMBER)
1	4953 CLEARWATER DRIVE	N/A	N/A	2	1	1
2*	4957 CLEARWATER DRIVE	N/A	Y	N/A	N/A	N/A
3	4954 CLEARWATER DRIVE	N/A	Y	6	N/A	N/A
4	4950 CLEARWATER DRIVE	4	Y	4	N/A	N/A
5	4962 CLEARWATER DRIVE	4	Y	4	N/A	N/A

* EXISTING HOUSE TO REMAIN

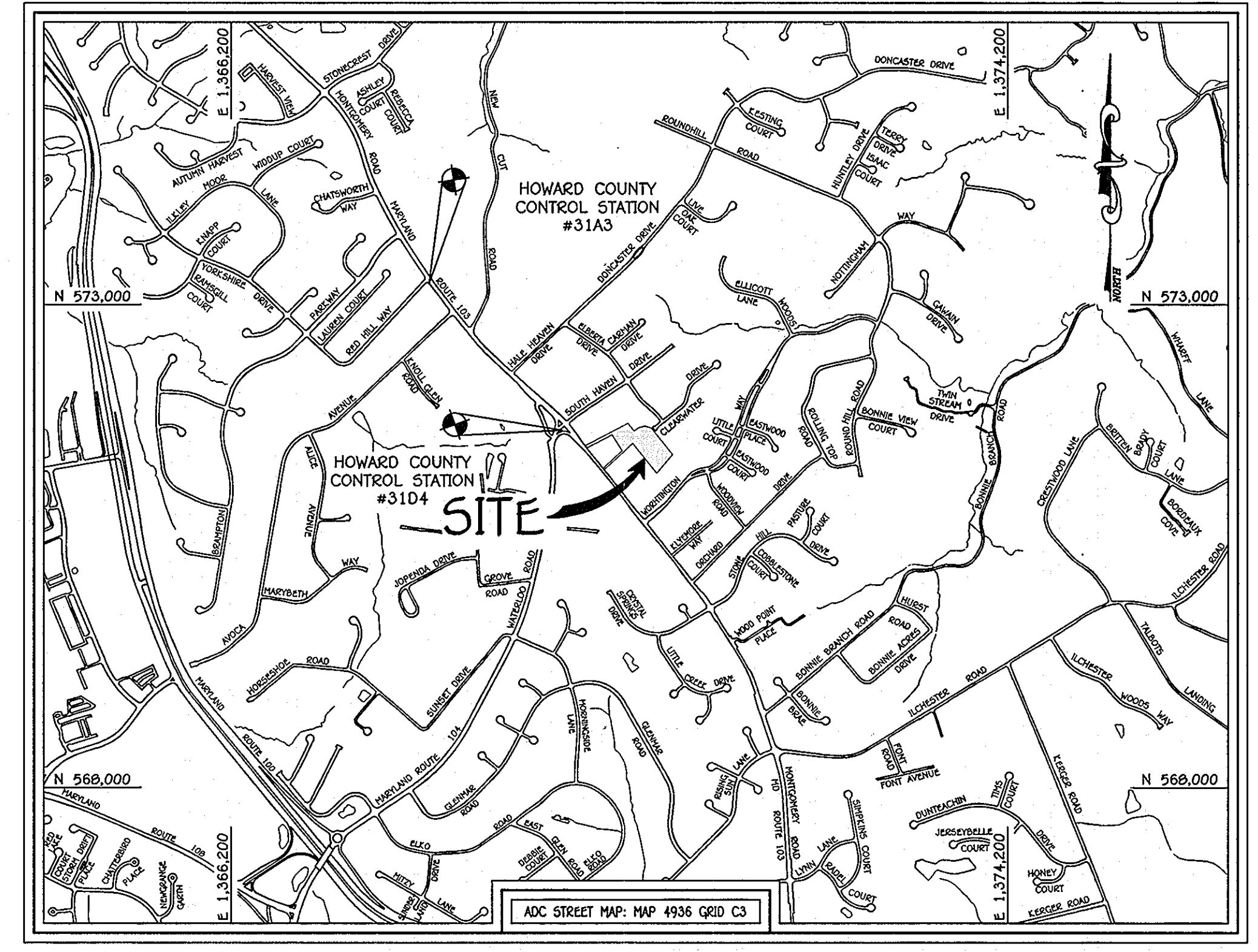
SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF THIS SUBMISSION = 3,765540 AC.±
- B. LIMIT OF DISTURBED AREA =
 - L.O.D. ASSOCIATED WITH THE BUILDING SITE: 107,362 SqFt. or 2.46 Ac±
 - L.O.D. ASSOCIATED WITH THE REMOVAL OF EXISTING DRIVEWAY: 6,557 SqFt. or 0.15 Ac±
 - TOTAL L.O.D. = 113,919 or 2.61 Ac±
- C. PRESENT ZONING DESIGNATION = R-20 (PER 2/04/2004 COMPREHENSIVE ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS DATED 7/28/2006)
- D. PROPOSED USE: RESIDENTIAL
- K. BUILDING COVERAGE OF SITE: 14.15%
- L. PREVIOUS HOWARD COUNTY FILES: ECP-12-052 & WP-12-156
- M. TOTAL AREA OF FLOODPLAIN LOCATED ON SITE: 0.00 AC±
- N. TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.00 AC±
- O. TOTAL AREA OF SLOPES IN EXCESS OF 25% = 0.00 AC±
- P. NET TRACT AREA = 3,765540 AC.±
- (TOTAL SITE AREA - FLOODPLAIN - STEEP SLOPES AREA)
- Q. TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0 AC±
- R. TOTAL AREA OF FOREST = 0 AC±
- S. TOTAL GREEN OPEN AREA = 3.09 AC±
- T. TOTAL IMPERVIOUS AREA = 0.68 AC±
- U. TOTAL AREA OF SEVERELY ERODIBLE SOILS = 0.014 AC.±

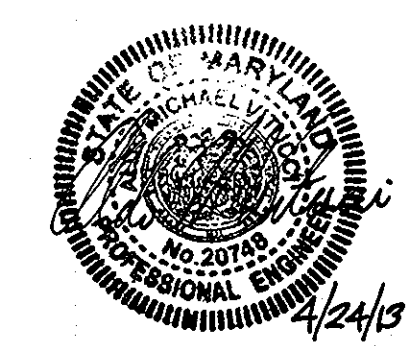
SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT DAY 1
- 2. INSTALL SEDIMENT EROSION CONTROL DEVICES AS SHOWN ON PLAN, WHICH INCLUDE SUPER SILT FENCE AND TREE PROTECTION, AS WELL AS A STONE CONSTRUCTION ENTRANCE 5 DAYS
- 3. CLEAR AND GRUB TO LIMITS OF DISTURBANCE 2 DAYS
- 4. CONSTRUCT BUILDING AND DRIVEWAY 60 DAYS
- 5. REMOVE SEDIMENT CONTROL DEVICES AS UPLAND AREAS ARE STABILIZED AND PERMISSION IS GRANTED BY E/S CONTROL INSPECTOR. 5 DAYS

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---S---S---	SILT FENCE
---SS---SS---	SUPER SILT FENCE
---	LIMIT OF DISTURBANCE
---	EXISTING FORCE LINE
---	EX. LIMIT OF TREES AND FOREST
(Symbol)	PROPOSED LANDSCAPING
(Symbol)	EXISTING TREES
(Symbol)	EXISTING GRAVEL AREA TO BE REMOVED
(Symbol)	PROPOSED PEA GRAVEL
(Symbol)	EXISTING GRAVEL
(Symbol)	EXISTING CONCRETE WALK
(Symbol)	PROPOSED CONCRETE WALK
(Symbol)	EXISTING DRIVEWAY TO BE REMOVED
(Symbol)	RECONSTRUCTION IMPERVIOUS AREA
(Symbol)	RECONSTRUCTION RECEIVING AREA
(Symbol)	DRAINAGE AREA



BENCHMARK INFORMATION	
B.M.#1 - HOWARD COUNTY CONTROL STATION #3104 - HORIZONTAL - (NAD '83) (LOCATED IN THE ISLAND AT THE INTERSECTION OF ROUTE 103; MONTGOMERY ROAD AND ROUTE 104, APPROX. 16.5' FROM THE EDGE OF CURB) N 571,700.7034 E 1,369,606.3509 ELEVATION = 494.406 - VERTICAL - (NAVD '80)	
B.M.#2 - HOWARD COUNTY CONTROL STATION #31A3 - HORIZONTAL - (NAD '83) (LOCATED ALONG ROUTE 103; MONTGOMERY ROAD, SOUTH EAST FROM RED HILL WAY, APPROX. 15.2' BEHIND THE EDGE OF PAVING) N 573,217.9149 E 1,368,237.7247 ELEVATION = 486.869 - VERTICAL - (NAVD '80)	



APPROVED: DEPARTMENT OF PLANNING AND ZONING

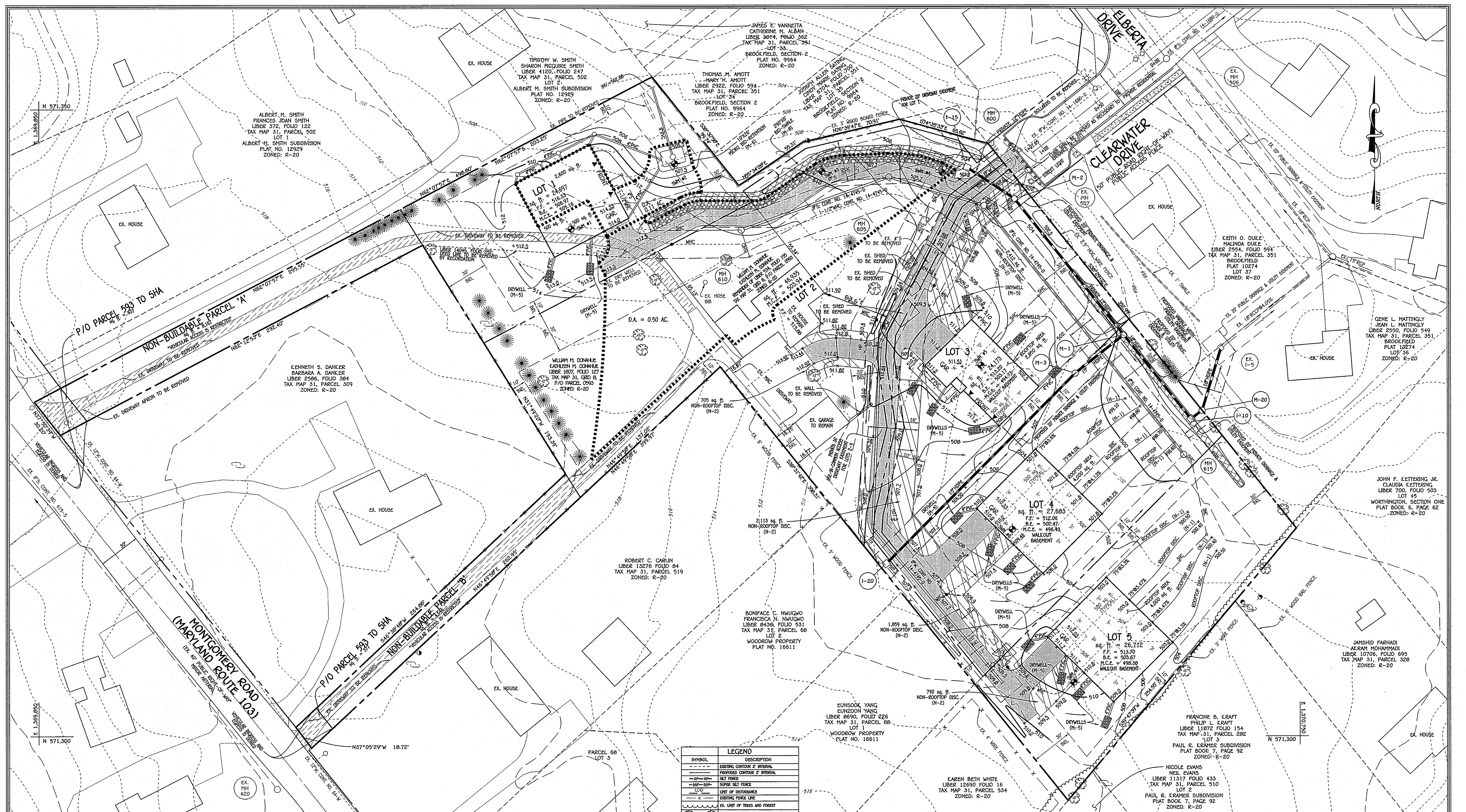
Kate DeLoach 5/3/13
Chief, Division of Land Development

Matthew 5/10/13
Chief, Development Engineering Division

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21142
(410) 461-2895

OWNER/DEVELOPER
COLUMBIA BUILDERS GROUP, LLC
B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

SUPPLEMENTAL PLAN
(TITLE SHEET)
CLEARWATER CROSSING
4925 MONTGOMERY ROAD
LOTS 1 THRU 5 &
NON-BUILDABLE PARCELS 'A' & 'B'
ZONED R-20 TAX MAP NO.: 0031 GRID NO.: 0008 PARCEL NO.: 0593
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL, 2013
SHEET 1 OF 8



NOTES: SEE SHEET 3 FOR STORMWATER MANAGEMENT PROFILES, NOTES, CHARTS & DETAILS. SEE SHEETS 4 & 5 FOR SEDIMENT CONTROL PLAN, NOTES & DETAILS. SEE SHEETS 6 & 7 FOR LANDSCAPING PLAN, NOTES & DETAILS.

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	SET FENCE
---	SUPER SALT FENCE
---	LOD
---	LIMIT OF DISTURBANCE
---	EXISTING FENCE LINE
---	EX. LIMIT OF TREES AND FOREST
---	PROPOSED LANDSCAPING
---	EXISTING TREES
---	EXISTING GRAVEL AREA TO BE REMOVED
---	PROPOSED FEA GRAVEL
---	EXISTING GRAVEL
---	EXISTING CONCRETE WALK
---	PROPOSED CONCRETE WALK
---	EXISTING DRIVEWAY TO BE REMOVED
---	DISCONNECTION RIPRAP/ROCK AREA
---	DISCONNECTION RIPRAP/ROCK AREA
---	DRAINAGE AREA

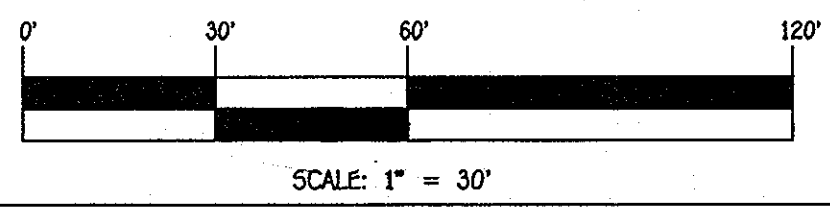
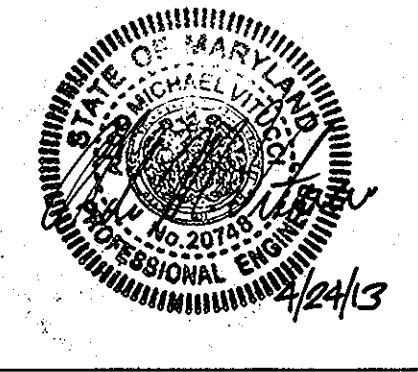
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Kyle DeLoach
Chief, Division of Land Development
5/13/13
Date

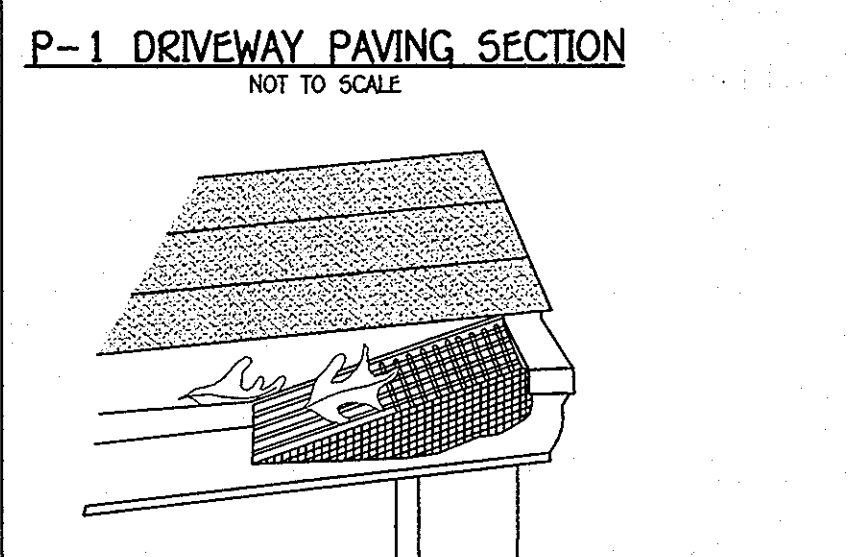
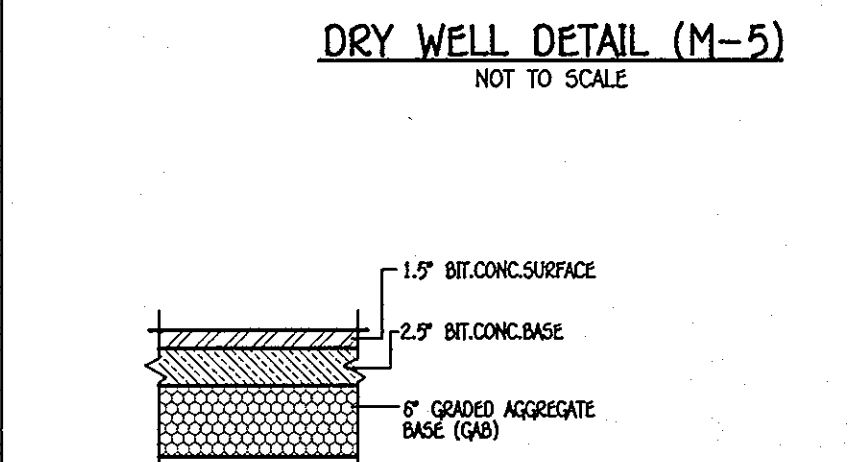
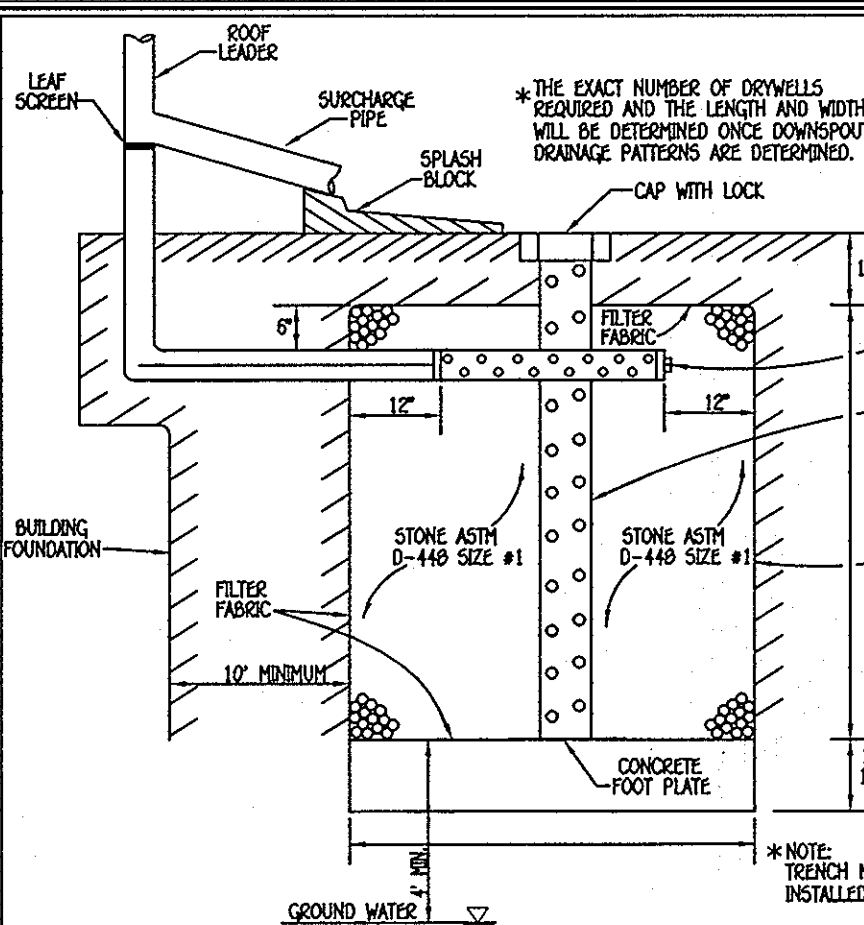
William J. ...
Chief, Development Engineering Division
5/10/13
Date

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10275 BALTIMORE NATIONAL PIKE
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OWNER/DEVELOPER
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8. JAMES GREENFIELD
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COLUMBIA, MD 21044
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SUPPLEMENTAL PLAN
(PLAN)
CLEARWATER CROSSING
4925 MONTGOMERY ROAD
LOTS 1 THRU 5 &
NON-BUILDABLE PARCELS 'A' & 'B'
ZONED R-20 TAX MAP NO. 0031 GRID NO. 0008 PARCEL NO. 0593
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: A5 SHOWN DATE: APRIL, 2013
SHEET 2 OF 8



STORMWATER MANAGEMENT NOTES

1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 HARBORLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
2. MAXIMUM CONTROLLING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 1,000 SQ. FT. OR LESS.
3. DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5% THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.
4. FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

- A. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- B. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS ONCE A PERIOD OF SEVERAL DAYS TO DISBURGE TRENCH DRAINAGE.
- C. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- D. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY-TWO (72) HOUR PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO ENSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- F. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REVISED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

DRY WELL CHART

DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	AREA OF TREATMENT PROVIDED	% L	D	W
1	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
2	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
3	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
4	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
5	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
6	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
7	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
8	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
9	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
10	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
11	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
12	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
13	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
14	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
15	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'
16	500 SQ. FT.	45.92 C.F.	57.6 C.F.	100%	8"	6' x 4'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

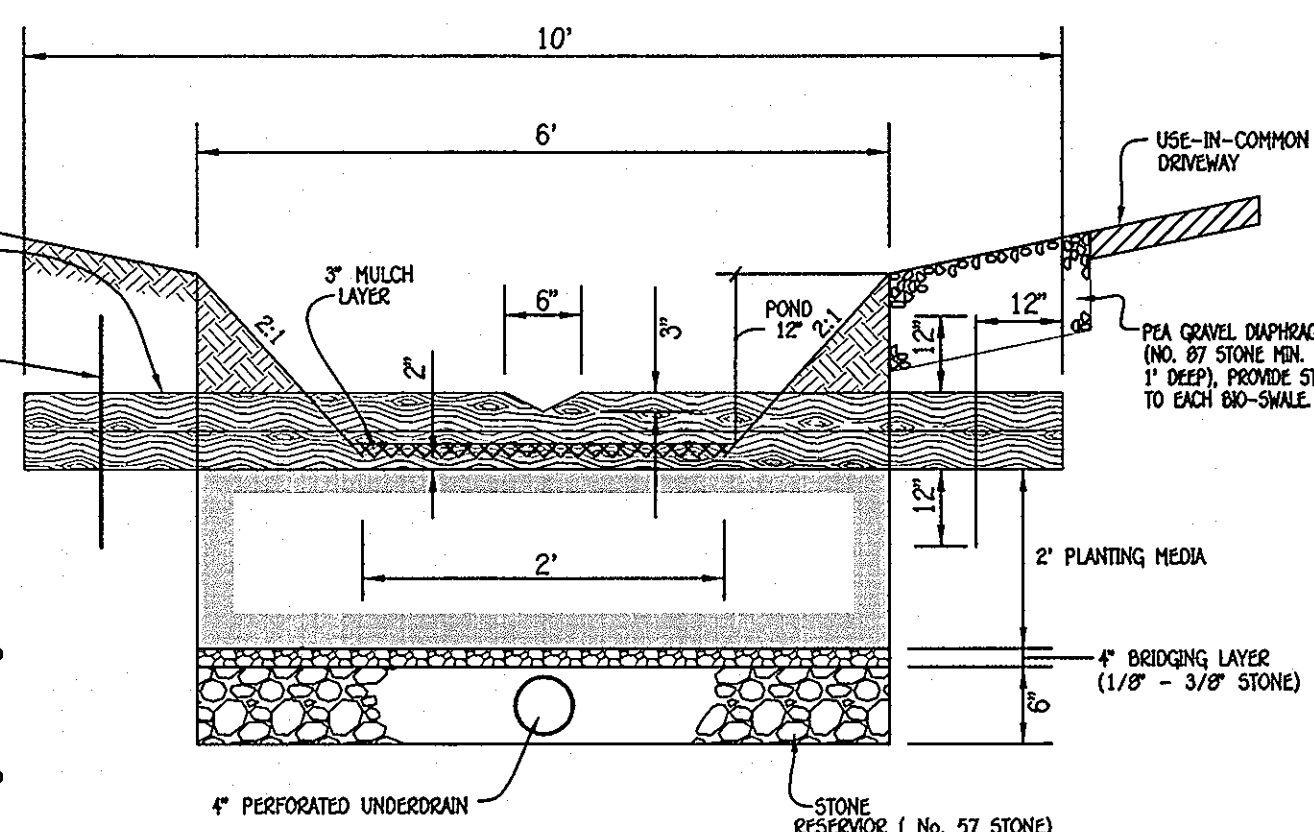
Karl D. ... 5/12/13
Chief, Division of Land Development

... 5/10/13
Chief, Development Engineering Division

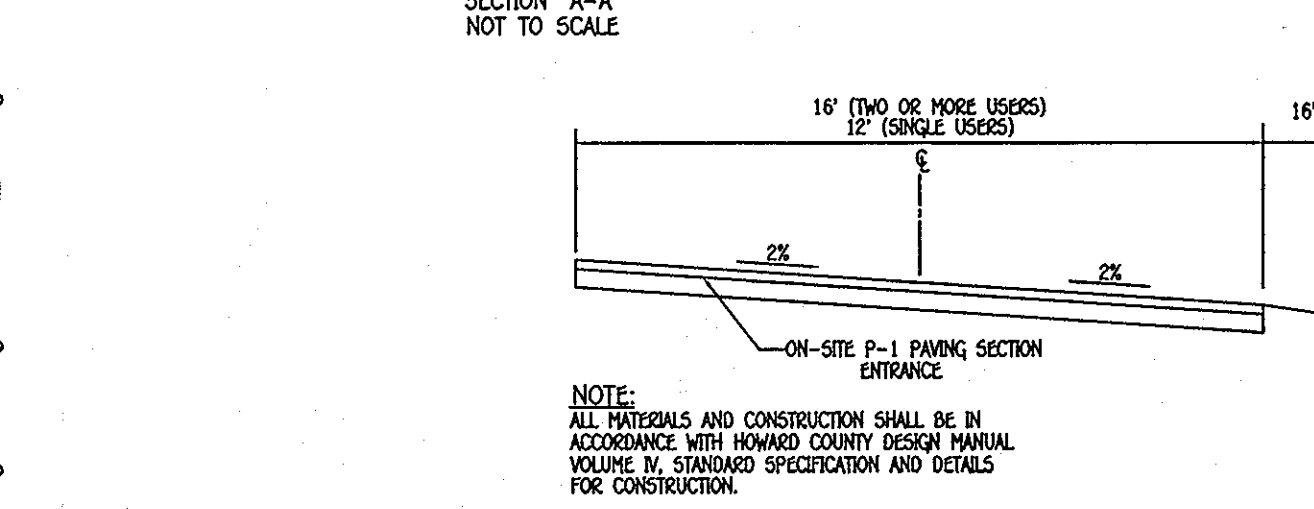
SOIL BORING SUMMARY

Soil boring excavation was performed on August 3, 2012 in the location of the proposed bio-retention facilities at the "Clearwater Crossing" site. Attendees included Mr. Brandon Rippe of Fisher Collins and Carter Inc. and Mr. Ron Tash of Columbia Builders Group.

- A. The existing elevations of Boring #1 is approximately 512.14 and the proposed elevation will be approximately 513.00. There was no rock or water encountered in the excavation. The proposed facility in this area is approximately 3.5 in depth.
- A. The existing elevations of Boring #2 is approximately 508.19 and the proposed elevation will be approximately 509.75. There was no rock or water encountered in the excavation. The proposed facility in this area is approximately 3.5 in depth.
- A. The existing elevations of Boring #3 is approximately 509.40 and the proposed elevation will be approximately 509.75. There was no rock or water encountered in the excavation. The proposed facility in this area is approximately 3.5 in depth.
- A. The existing elevations of Boring #4 is approximately 505.32 and the proposed elevation will be approximately 504.00. There was no rock or water encountered in the excavation. The proposed facility in this area is approximately 3.5 in depth.
- A. The existing elevations of Boring #5 is approximately 505.37 and the proposed elevation will be approximately 506.00. There was no rock or water encountered in the excavation. The proposed facility in this area is approximately 5.0 in depth.
- A. The existing elevations of Boring #6 is approximately 503.73 and the proposed elevation will be approximately 509.46. There was no rock or water encountered in the excavation. The proposed facility in this area is approximately 5.0 in depth.
- A. The existing elevations of Boring #7 is approximately 507.71 and the proposed elevation will be approximately 510.50. There was no rock or water encountered in the excavation. The proposed facility in this area is approximately 5.0 in depth.



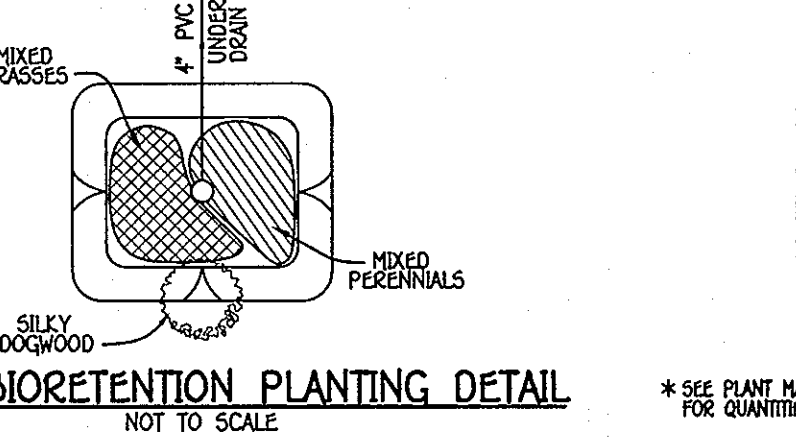
BIO-SWALE (M-B) & WOODEN CHECK DAM DETAIL



TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED, DISCONNECTION OF NONROOFTOP RUNOFF (N-2)

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTION RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE CONSTRUCTION OR DEVELOPMENT OF IMPERVIOUS AREA IN COMMERCIAL AREAS FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

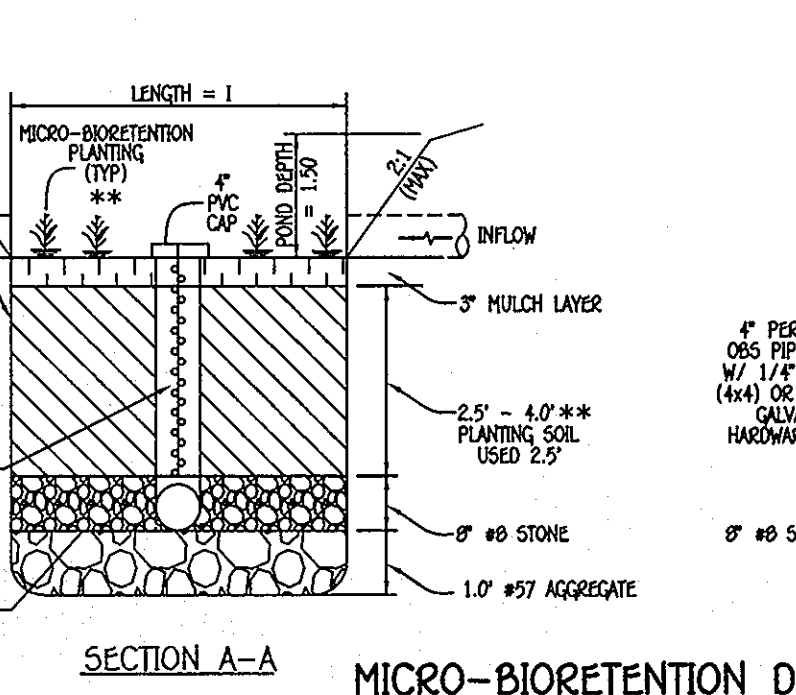
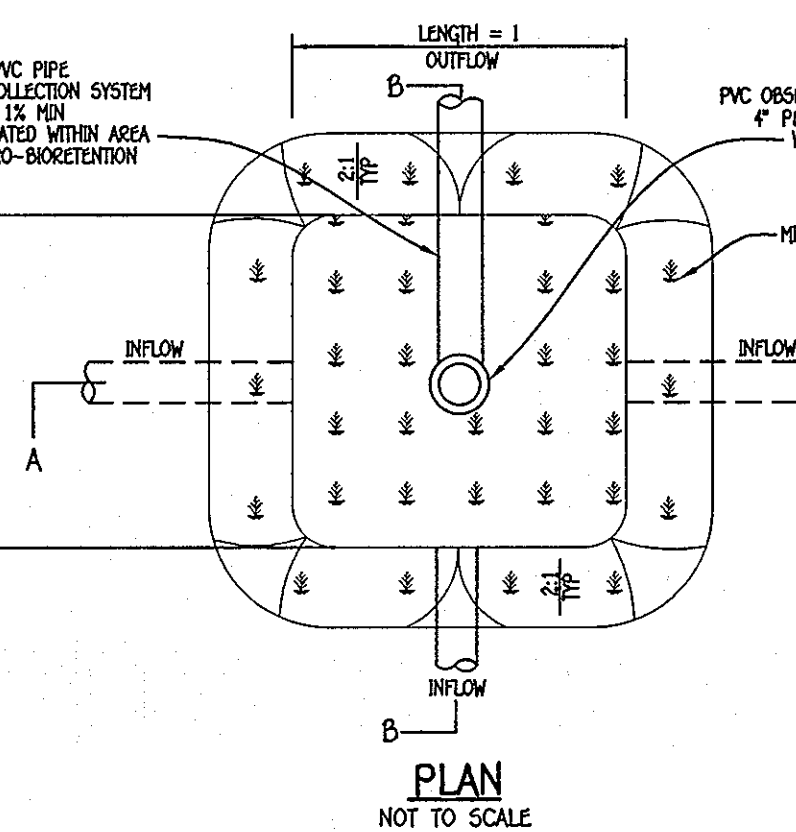


MICRO-BIORETENTION PLANT MATERIAL

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

MICRO-BIORETENTION

BIORETENTION FILTER	A	B	C	D	E	F	G	H	I	J
1	507.50	507.50	506.50	506.25	503.75	503.08	502.88	10	26	501.88



MICRO-BIORETENTION DETAIL (M-6)

STORMWATER MANAGEMENT SUMMARY CHART

AREA = 3.32 ACRES
RCN = 55
TARGET PE = 1.2"

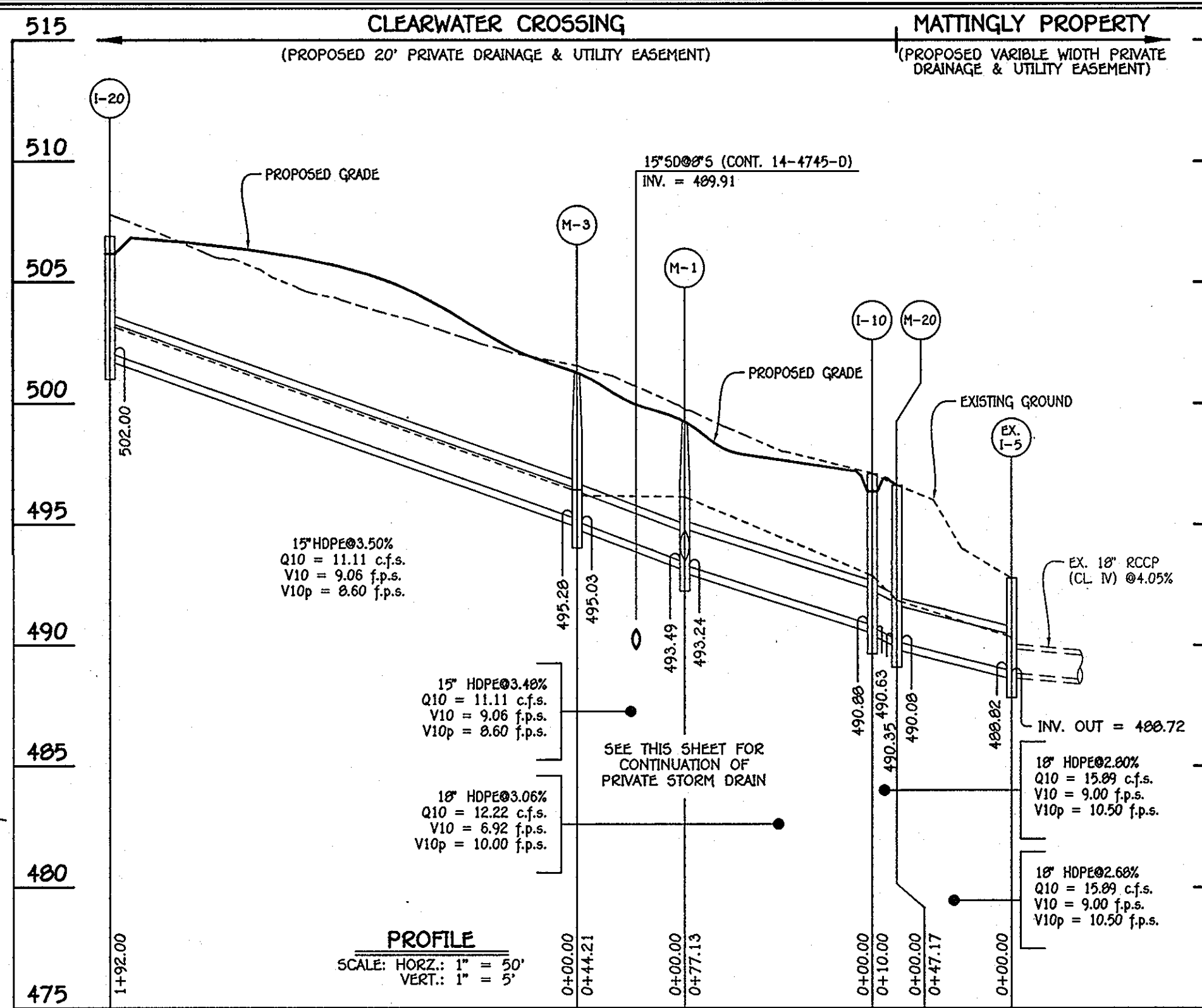
SWM SUMMARY CHART

AREA ID	E50V REQ. cu.ft.	E50V Pvd. cu.ft.	REMARKS
LOT 1	1019	1815	BIO-SWALE (M-B), MICRO-BIORETENTION (M-6) & DRYWELLS (M-5)
LOT 2	465	763	NON-ROOFTOP DISCONNECTION (N-2)
LOT 3	1165	480	DRY WELLS (M-5) & NON-ROOFTOP DISCONNECTION (N-2)
LOT 4	598	600	DRY WELLS (M-5), ROOFTOP DISCONNECTION (N-1) & NON-ROOFTOP DISCONNECTION (N-2)
LOT 5	492	494	DRY WELLS (M-5), ROOFTOP DISCONNECTION (N-1) & NON-ROOFTOP DISCONNECTION (N-2)
TOTALS	3326	3720	

CALCULATE THE PE PROVIDED AS FOLLOWS:
PE PROVIDED = $E50V \times 12 = 3720 \times 12 = 44,640 = 1.34$ vs 1.2
AS SUCH, 112% (1.34/1.2) OF THE REQUIRED E50 VOLUME HAS BEEN PROVIDED.

OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6) AND BIORETENTION SWALE (M-B)

- A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO COLLECTING 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 HARBORLAND STORMWATER DESIGN MANUAL VOLUME 8, TABLE A.6.1 AND 2.
- B. 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 WIGGERS.
- C. 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.
- D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.



15" STORM DRAIN PROFILE

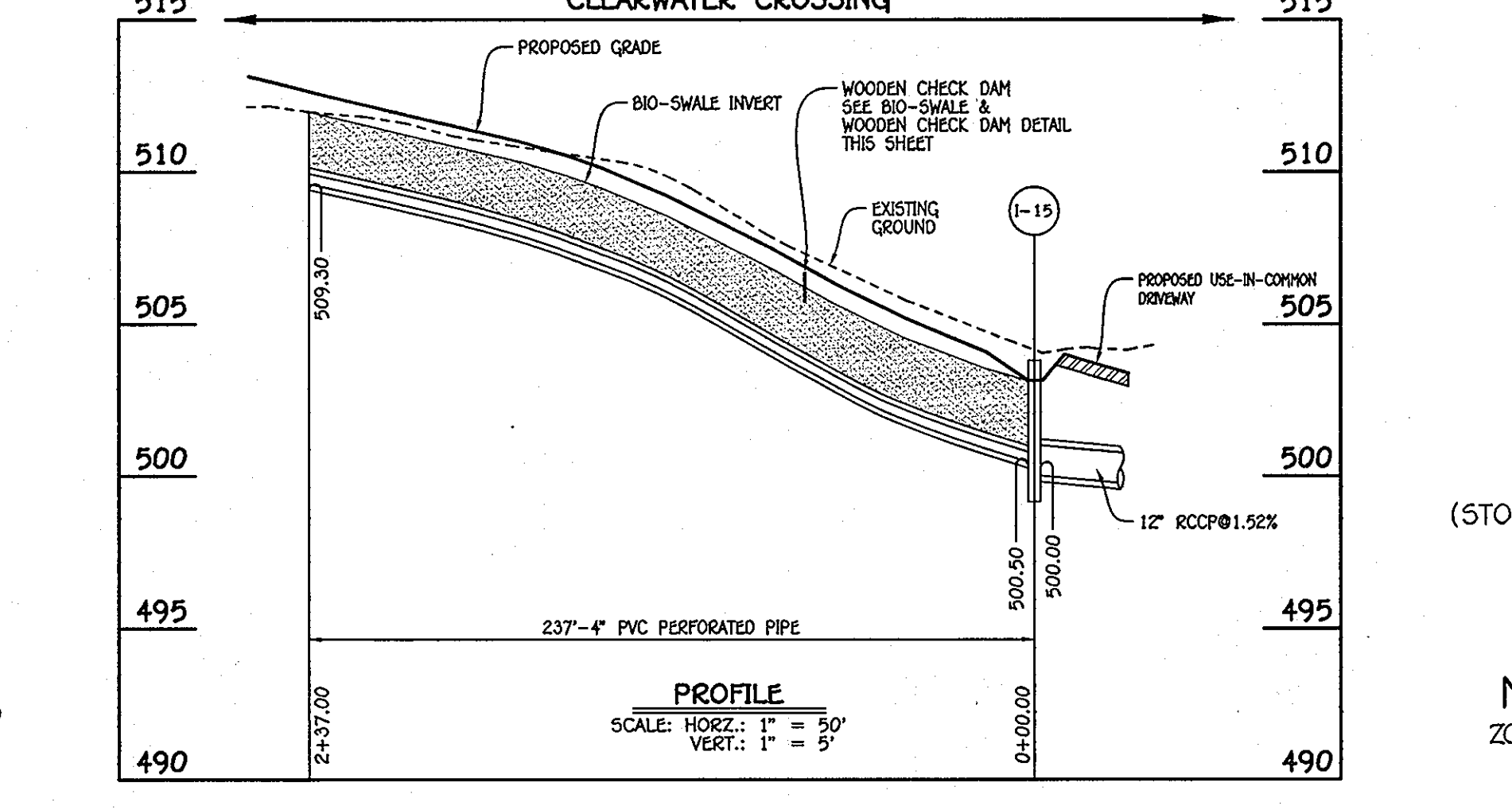
STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	TYPE	NORTHING	EASTING	REMARKS
M-20	496.60	490.35	490.08	40" PRECAST MANHOLE	571533.61	1370680.10	G 5.12
I-10	496.35	490.88	490.63	TYPE "D" INLET PRECAST (3 OPENINGS)	571548.15	1370655.92	D 4.10
I-15	503.17	-	499.60	TYPE "D" INLET PRECAST (1 OPENING)	571708.36	1370512.57	D 4.10
I-20	506.17	-	502.00	TYPE "D" INLET PRECAST (3 OPENINGS)	571423.79	1370454.81	D 4.10
M-1	495.50	493.49	493.24	40" PRECAST MANHOLE	571587.97	1370624.27	G 5.12
M-2	503.20	498.93	498.68	40" PRECAST MANHOLE	571685.83	1370546.47	G 5.12
M-3	501.30	495.28	495.03	40" PRECAST MANHOLE	571560.46	1370589.66	G 5.12

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 AT 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 (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, 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 MATERIAL
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 STRESSORS 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.5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. 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 MATERIALS SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPALS 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.



BIO-SWALE (M-B) FOR THE USE-IN-COMMON DRIVEWAY

INFILTRATION AND FILTER SYSTEM CONSTRUCTION
INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC, AND RE V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR UP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS.

WHEN PROPERLY PLANTED, VEGETATION WILL THROVE 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 AERATION 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

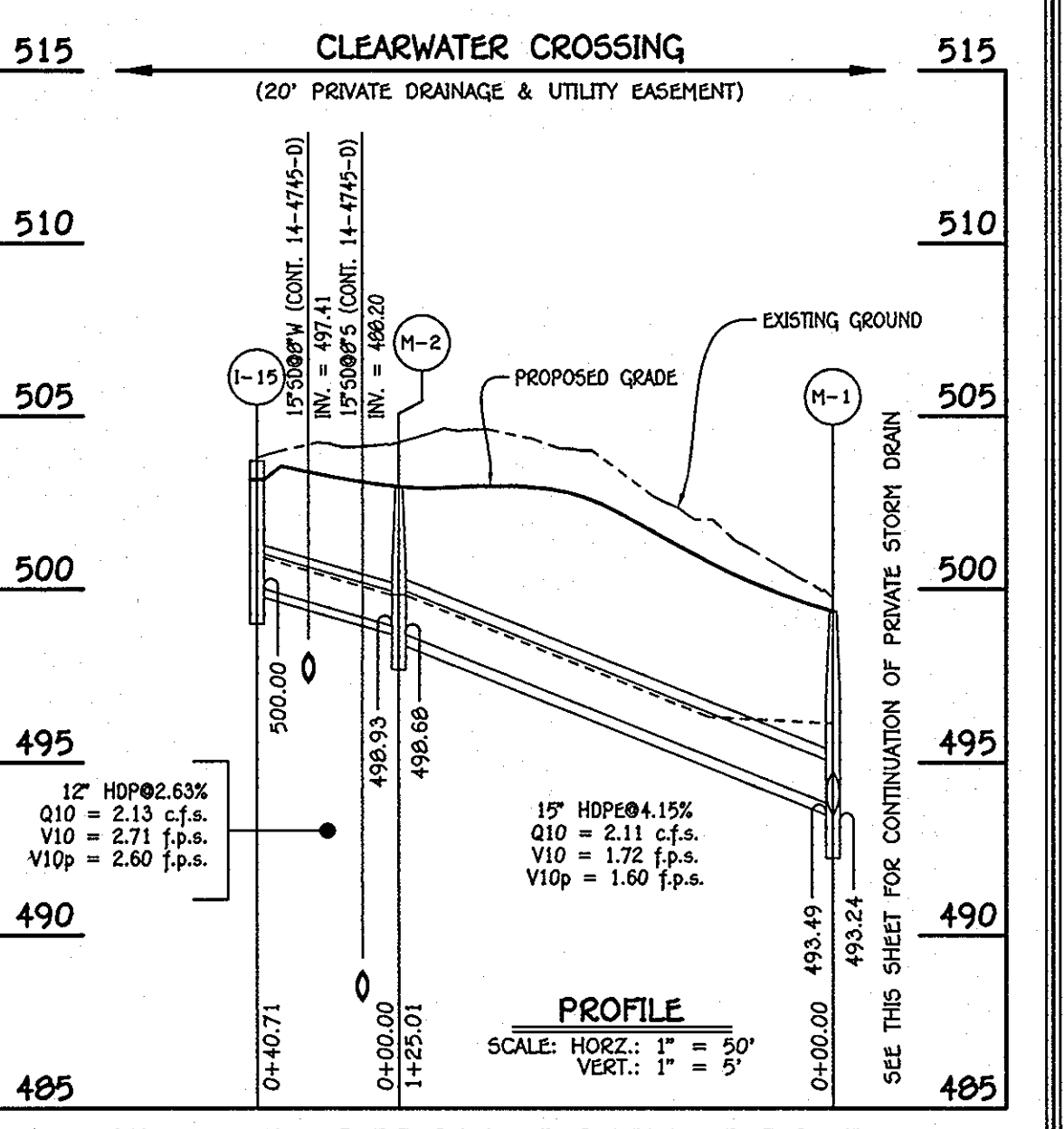
- > PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
- > DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES. SEE FIGURE A.5 AND TABLE A.4 FOR PLANTING MATERIAL GUIDANCE).
- > PLANTS KNOWN TO SEND DOWN 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 SOO.
- > TEMPORARILY 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. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED 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), 1998; ENGINEERING TECHNOLOGY INC. AND DIVERSIFIED, INC. (ET&D), 1993). SOILS SHOULD FALL WITHIN THE SH, M, SC CLASSIFICATIONS OF THE UNITED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.7"/HR) 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., BURNING GUMS, NIGHTSHADE, 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 LIFT 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)
MAGNESIUM	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	10 TO 25 %
SILT	30 TO 55 %
SAND	35 TO 60%



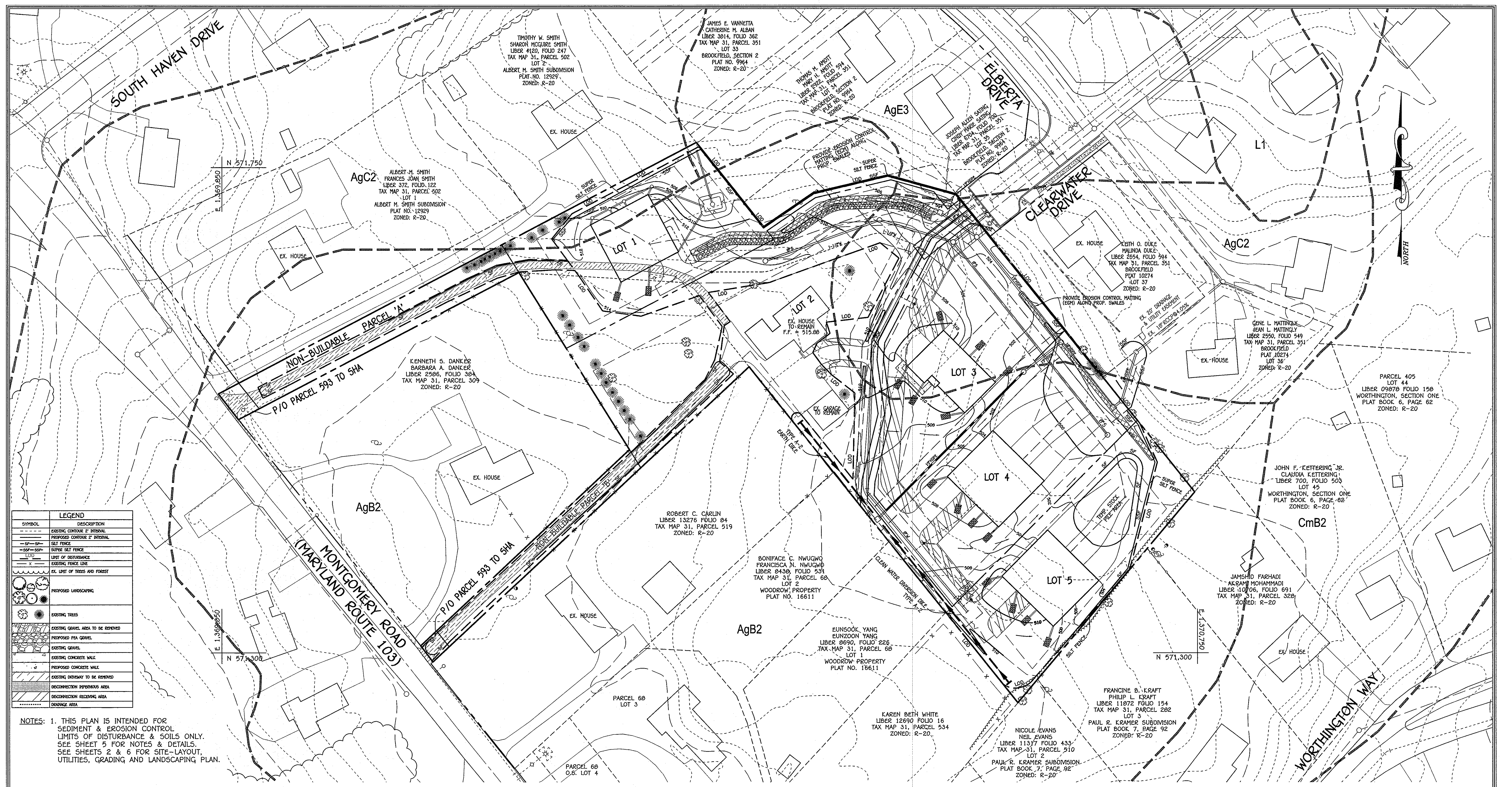
12" - 15" STORM DRAIN PROFILE

PIPE SCHEDULE

SIZE	TYPE	LENGTH
12"	12" HDPE (CL. IV)	40.71 L.F.
15"	15" HDPE (CL. IV)	361.22 L.F.
18"	18" HDPE (CL. IV)	134.30 L.F.

SUPPLEMENTAL PLAN CLEARWATER CROSSING

(STORMWATER MANAGEMENT PROFILES, NOTES, CHARTS & DETAILS)
CLEARWATER CROSSING
4925 MONTGOMERY ROAD
LOTS 1 THRU 5 &
NON-BUILDABLE PARCELS 'A' & 'B'
ZONED R-20 TAX MAP NO.: 0031 GRD NO.: 0008 PARCEL NO.: 0593
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL, 2013
SHEET 3 OF 8



SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	SILT FENCE
---	SUPER SILT FENCE
---	LIST OF OBSTACLES
---	EXISTING FENCE LINE
---	EX. LIMIT OF TREES AND FOREST
---	PROPOSED LANDSCAPING
---	EXISTING TREES
---	EXISTING GRAVEL AREA TO BE REMOVED
---	PROPOSED PFA GRAVEL
---	EXISTING GRAVEL
---	EXISTING CONCRETE WALK
---	PROPOSED CONCRETE WALK
---	EXISTING DRIVEWAY TO BE REMOVED
---	DISCONNECTION DEPENDOUS AREA
---	DISCONNECTION RECEIVING AREA
---	DRAINAGE AREA

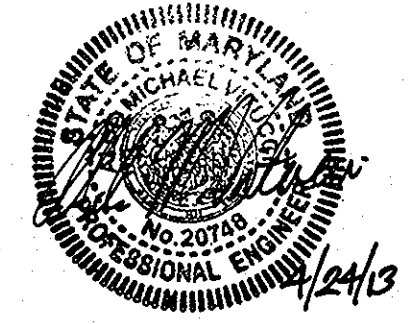
NOTES: 1. THIS PLAN IS INTENDED FOR SEDIMENT & EROSION CONTROL LIMITS OF DISTURBANCE & SOILS ONLY. SEE SHEET 5 FOR NOTES & DETAILS. SEE SHEETS 2 & 6 FOR SITE-LAYOUT, UTILITIES, GRADING AND LANDSCAPING PLAN.

SOIL	NAME	CLASS
AgC2	Aurá gravelly loam, 0 to 15% slopes, moderately eroded	B
AgB2	Aurá gravelly loam, 1 to 5% slopes, moderately eroded	B
AgE3	Aurá gravelly loam, 10 to 30% slopes, severely eroded	B

APPROVED: DEPARTMENT OF PLANNING AND ZONING

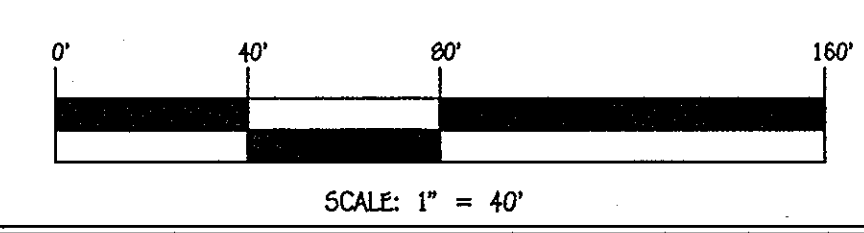
Kate DeLoach
Chief, Division of Land Development
5/13/13
Date

John DeLoach
Chief, Development Engineering Division
5/10/13
Date



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SERVICE OFFICE: 11072 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21142
(410) 461-2895

OWNER/DEVELOPER
COLUMBIA BUILDERS GROUP, LLC
B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732



SUPPLEMENTAL PLAN
(SEDIMENT & EROSION CONTROL LIMITS OF DISTURBANCE & SOILS)
CLEARWATER CROSSING
4925 MONTGOMERY ROAD
LOTS 1 THRU 5 &
NON-BUILDABLE PARCELS 'A' & 'B'
ZONED R-20 TAX MAP NO.: 0031 GRD NO.: 0008 PARCEL NO.: 0593
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL, 2013
SHEET 4 OF 8

SECTION 20: STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

USING VEGETATION AS COVER FOR BARREN SOIL TO PROTECT IT FROM FORCES THAT CAUSE EROSION.

DEFINITION
VEGETATIVE STABILIZATION SPECIFICATIONS ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUN-OFF TO DOWNSTREAM AREAS, AND IMPROVING WILDLIFE HABITAT AND VISUAL RESOURCES.

CONDITIONS WHERE PRACTICE APPLIES
THIS PRACTICE SHALL BE USED ON DENuded AREAS AS SPECIFIED ON THE PLANS AND MAY BE USED ON HIGHLY ERODIBLE OR CRITICALLY ERODING AREAS. THIS SPECIFICATION IS DIVIDED INTO TEMPORARY SEEDING TO QUICKLY ESTABLISH VEGETATIVE COVER FOR SHORT DURATION (UP TO ONE YEAR), AND PERMANENT SEEDING FOR LONG TERM VEGETATIVE COVER. EXAMPLES OF APPLICABLE AREAS FOR TEMPORARY SEEDING ARE TEMPORARY SOIL STOCKPILES, CLEARED AREAS BEING LEFT TO RECOVER AFTER CONSTRUCTION PHASES, GRASS DICES, ETC. AND FOR PERMANENT SEEDING ARE LAWNS, DRIVE, CUT AND FILL SLOPES AND OTHER AREAS AT FINAL GRADE, FORMER STOCKPILE AND STAGING AREAS, ETC.

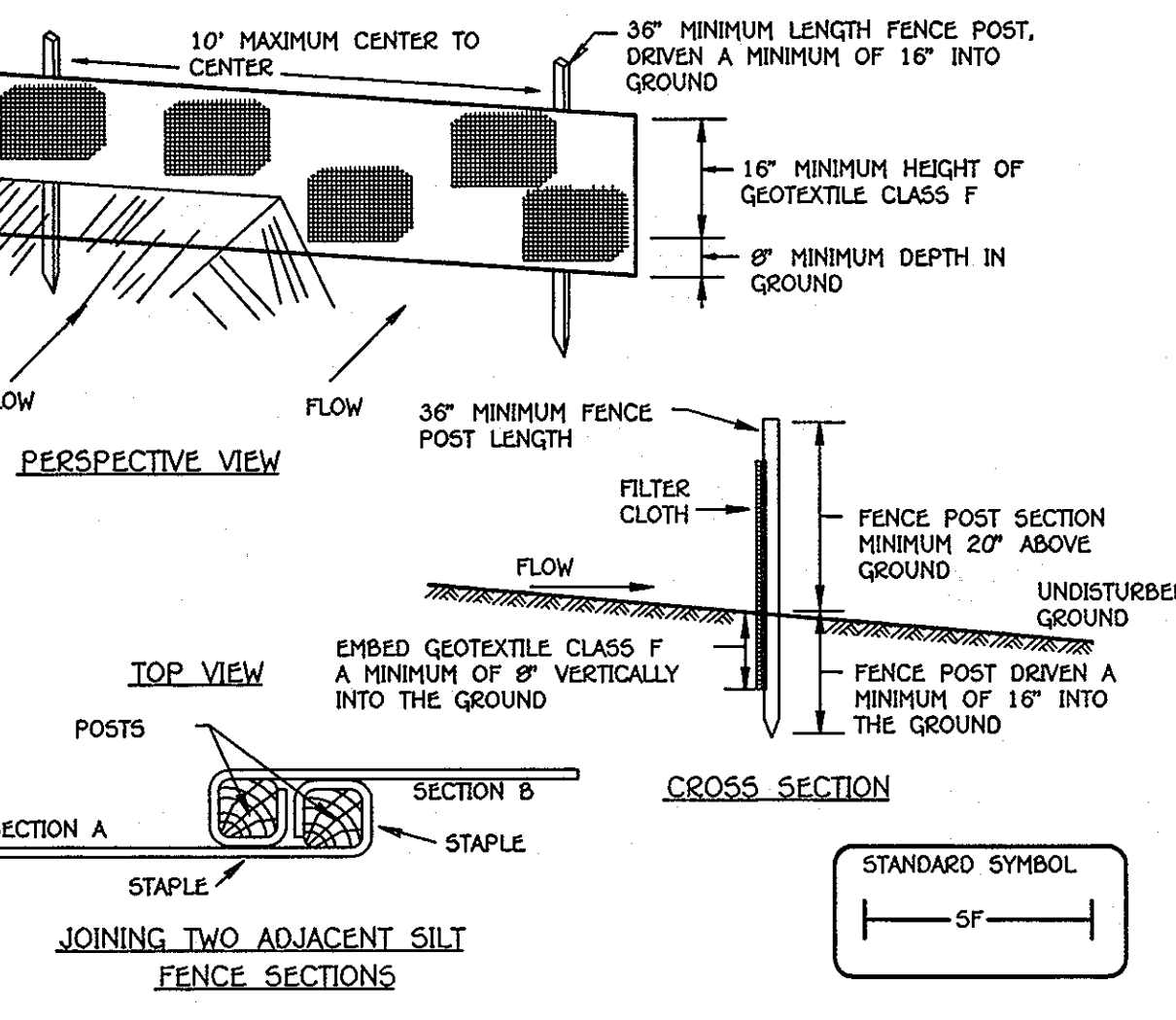
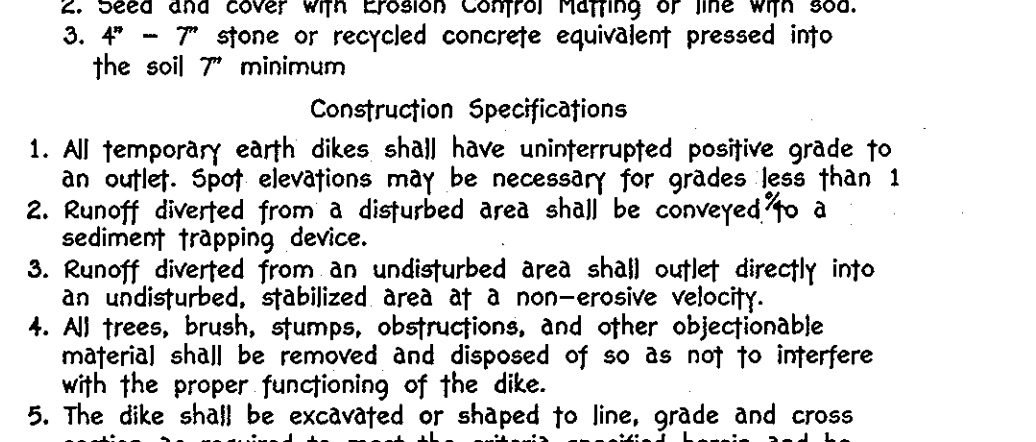
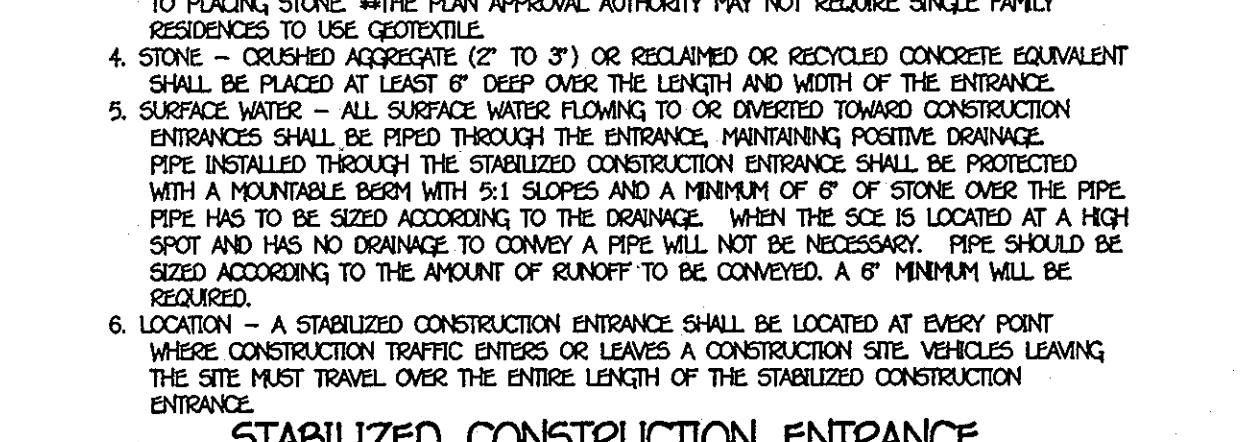
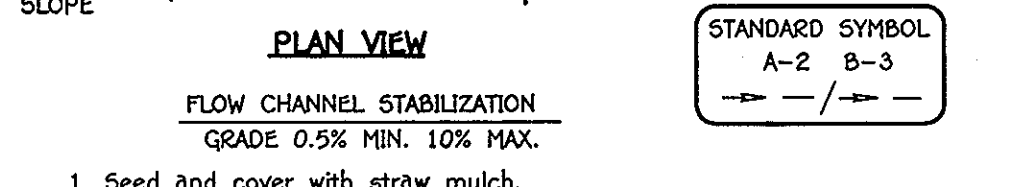
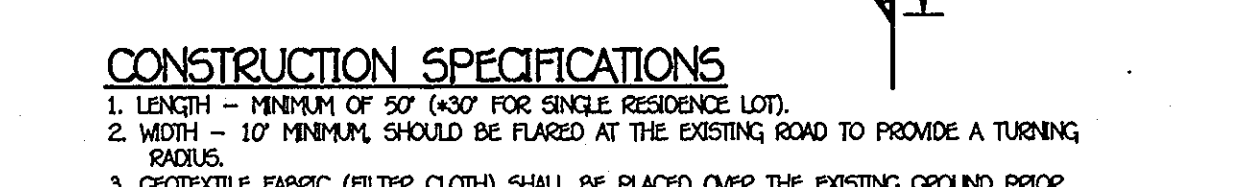
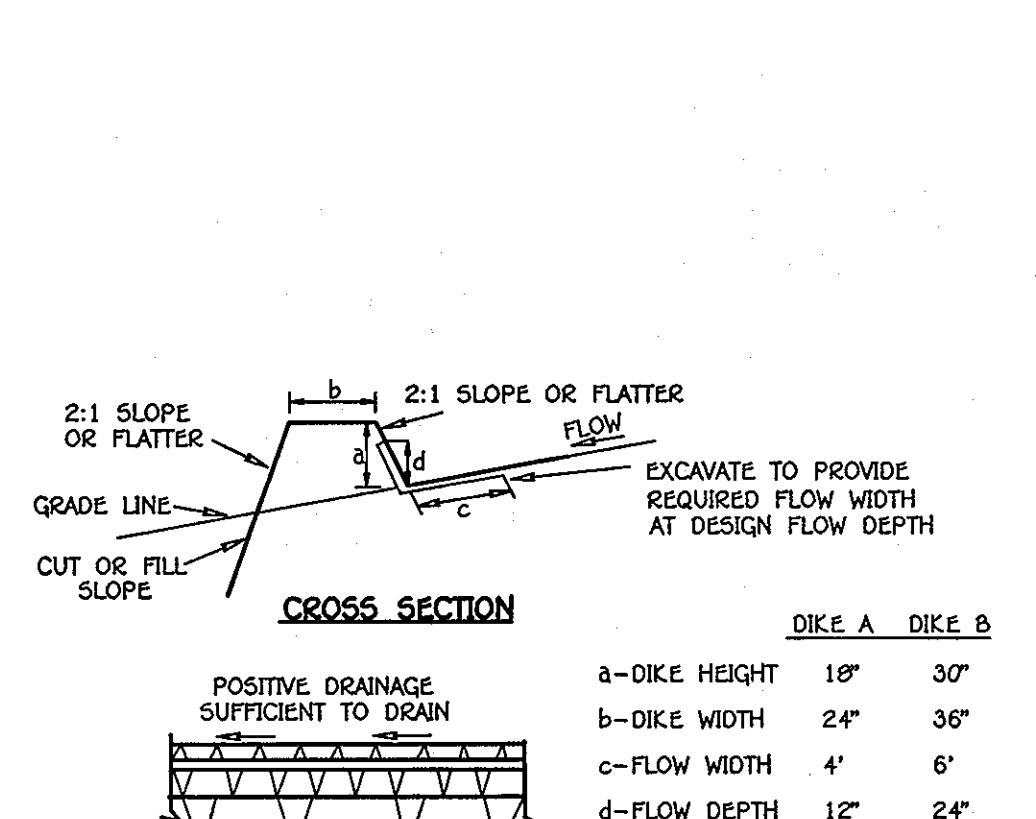
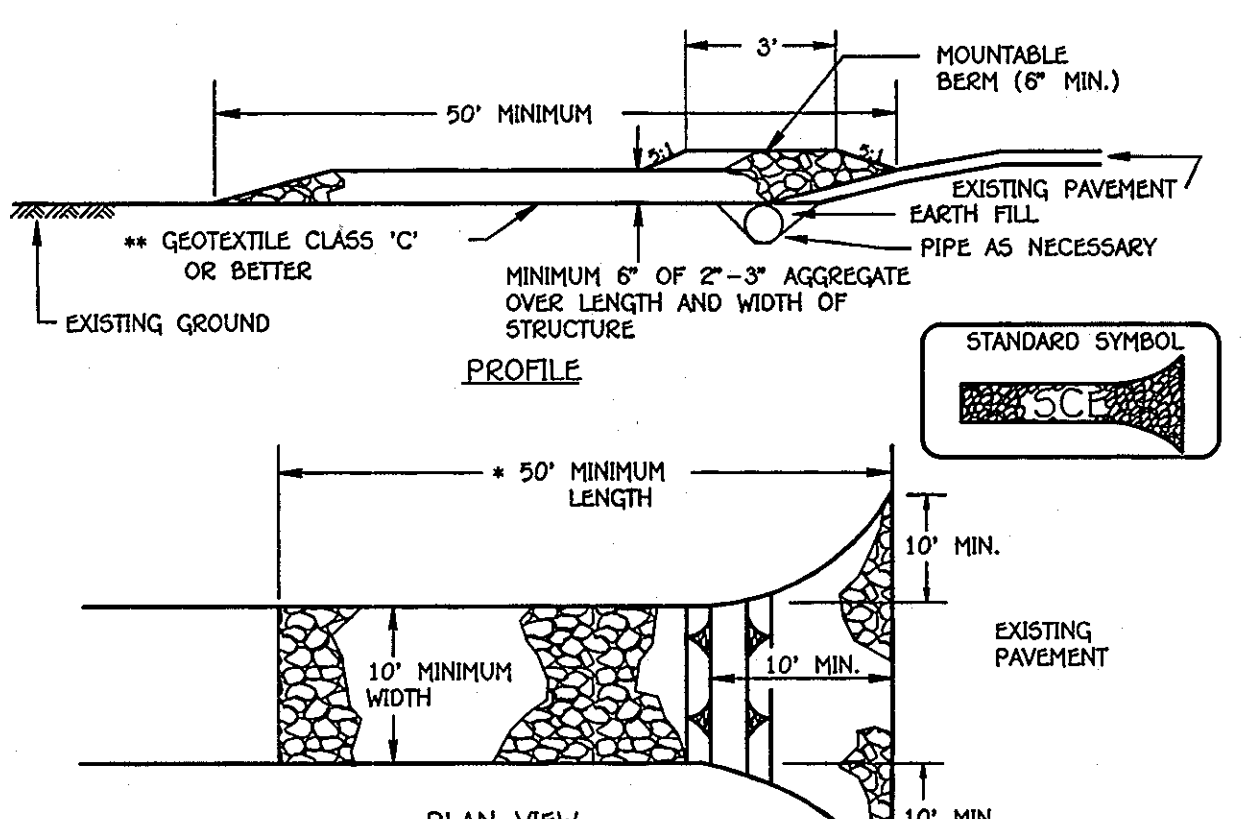
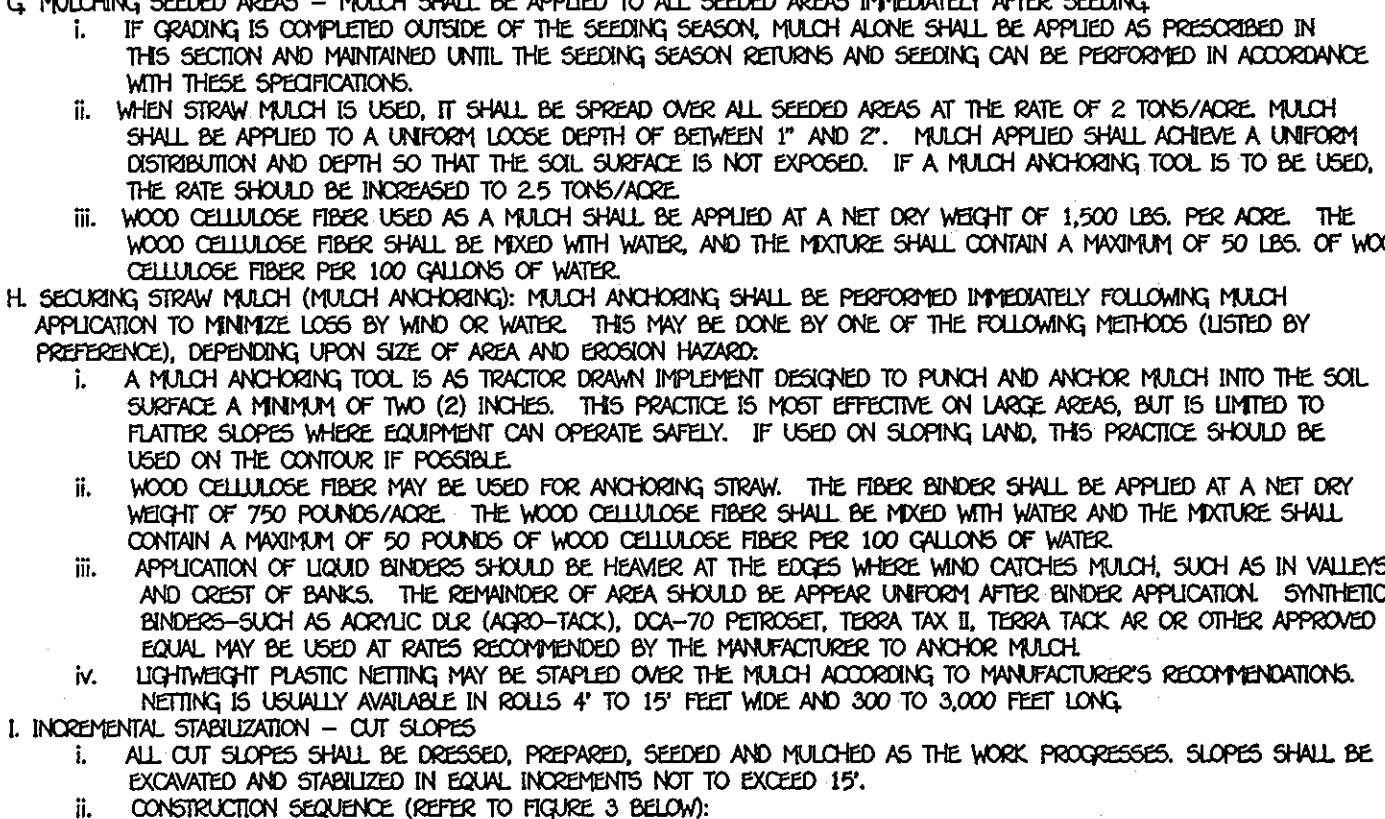
EFFECTS ON WATER QUALITY AND QUANTITY
PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPARATION, PRECIPITATION, AND GROUNDWATER RECHARGE. VEGETATION OVER TIME WILL INCREASE ORGANIC MATTER CONTENT AND INCREASE CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH. VEGETATION WILL HELP REDUCE THE MOMENTUM OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITH THE ROOT ZONE. SEDIMENT CONTROL DEVICES MUST REMAIN IN PLACE DURING GRADING, SEEDING, PREPARATION, SEEDING, MULCHING AND VEGETATIVE ESTABLISHMENT TO PREVENT LARGE QUANTITIES OF SEDIMENT AND ASSOCIATED CHEMICALS AND NUTRIENTS FROM WASHING INTO SURFACE WATERS.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- A. SITE PREPARATION**
- INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIMENSIONS, GRADE STABILIZATION STRUCTURES, BERRIES, WATERSHEDS, OR SEDIMENT CONTROL BARRIERS.
 - PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
 - SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR AN ACCREDITED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.
 - FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL BE APPLIED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADEMARK, AND WARRANT OF THE PRODUCER.
 - LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED WHICH CONTAINS AT LEAST 80% TOTAL OXIDES OF CALCIUM AND MAGNESIUM). LIMESTONE SHALL BE GRINDING TO SCREEN #20. THE MATERIAL SHALL BE AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 90-100% WILL PASS THROUGH A #20 MESH SIEVE.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- C. SEEDING PREPARATION**
- TEMPORARY SEEDING
 - SEEDING PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL FLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED WITHOUT SOIL LEFT IN THE REMOVED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - PERMANENT SEEDING
 - MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:
 - SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
 - SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
 - THE SOIL SHALL CONTAIN LESS THAN 40% CLAY, BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SEEDING LESPEDAZES IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED.
 - AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3"-5" TO PREVENT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
 - APPLY SOIL AMENDMENTS AS PER SOIL TESTS OR AS INCLUDED ON THE PLANS.
 - MAX SOIL AMENDMENTS INTO THE TOP 3"-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED AND MULCH APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING, PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1"-3" OF SOIL SHOULD BE LOOSE AND FRAGILE. SEEDING LOOSENING MAY NOT BE NECESSARY ON HEAVILY DISTURBED AREAS.

- D. SEED SPECIFICATIONS**
- ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED STATE LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.
 - NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.
 - INCUBATION - THE INCUBANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INCUBANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INCUBANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INCUBANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75°-80° F. CAN WEAKEN BACTERIA AND MAKE THE INCUBANT LESS EFFECTIVE.
- E. METHODS OF SEEDING**
- HYDROSEEDING - APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZERS). BROADCAST OR DROP SEEDING, OR A COMBINATION THEREOF.
 - IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES MUST NOT EXCEED THE FOLLOWING: NITROGEN - MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN P205 (PHOSPHOROUS); 500 LBS./AC. 120 (PHOSPHOROUS); 200 LBS./AC.
 - LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.
 - DRY SEEDING - THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - SEED SHOULD BE INCUBATED INTO THE SURFACE AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SPREADERS OR TABLES 265 OR 266. THE SEEDING AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - DRILL OR OUTPACKING SEEDING - MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - OUTPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDING MUST BE FIRMLY AFTER PLANTING.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

- F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)**
- STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE OR OAT STRAW, REASONABLE BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOULDY, CAULKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.
 - WOOD CELLULOSE FIBER MULCH (WCFM)
 - MULCH SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - MULCH SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD MULCH.
 - MULCH INCLUDING DYE SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - MULCH MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNLESS AGITATED AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PRECIPITATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - MULCH MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - MULCH MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 MM, DIAMETER APPROXIMATELY 1 MM, pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.
- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE OTHER SPECIES OF GRASS IS DESIRED.



CONSTRUCTION SPECIFICATIONS

- LENGTH - MINIMUM OF 50' (30' FOR SINGLE RESIDENCE LOT).
- WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
- STONE - CRUSHED AGGREGATE (2\"/>

CONSTRUCTION SPECIFICATIONS

- Seed and cover with straw mulch.
- Seed and cover with Erosion Control Matting or line with seed.
- 3\"/>

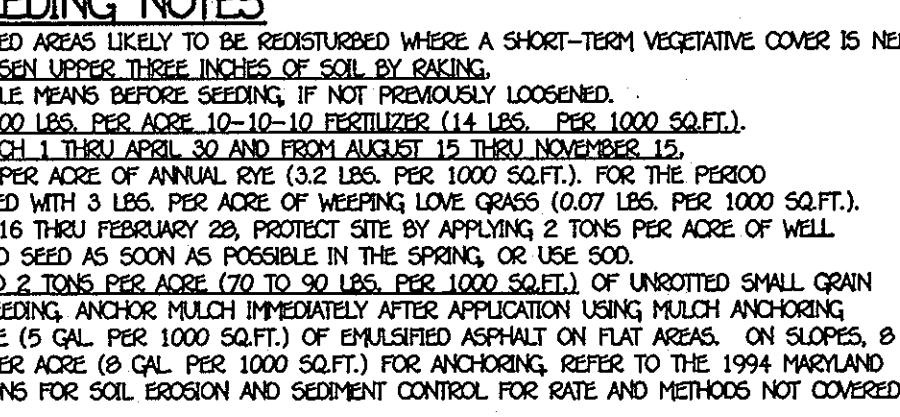
STABILIZED CONSTRUCTION ENTRANCE

ENGINEER'S CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT.

DEVELOPER'S CERTIFICATION
I HAVE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL 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 ALSO AUTHORIZE PERMIT ON-SITE INSPECTION BY THE HOWARD COUNTY CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

EARTH DIKE
NOT TO SCALE

SLOPE	FLATTER THAN 50:1	50:1 TO 10:1	10:1 TO 5:1	5:1 TO 3:1	3:1 TO 2:1	2:1 AND STEEPER
HEIGHT	UNLIMITED	125 FEET	100 FEET	60 FEET	50 FEET	40 FEET
MINIMUM LENGTH	UNLIMITED	1,000 FEET	750 FEET	500 FEET	250 FEET	150 FEET



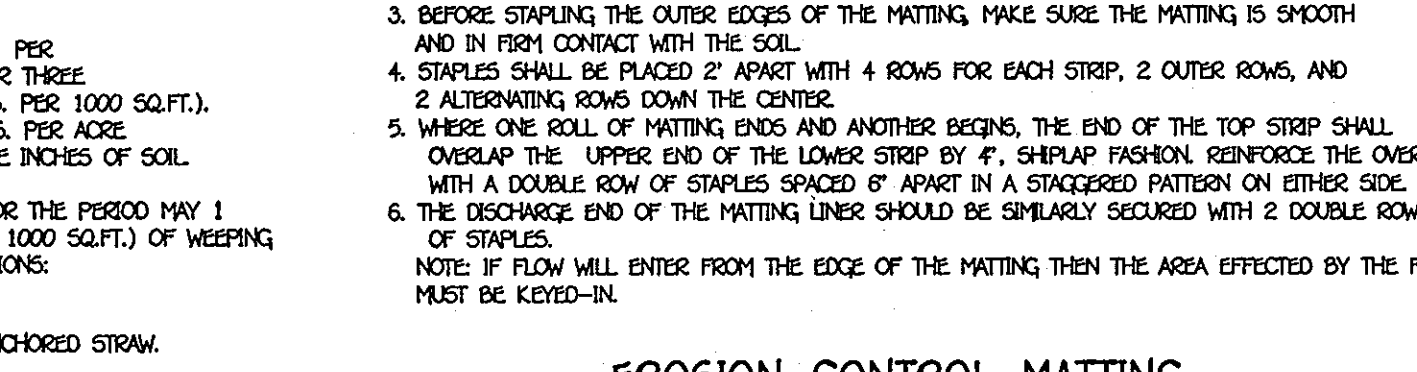
TEMPORARY SEEDING NOTES
APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RESTORED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED. SEEDING PREPARATION - LOOSEN UPPER THREE INCHES OF SOIL BY RAKING. SEEDING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNBROADCAST SMALL GRAIN MULCHING. APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNBROADCAST SMALL GRAIN MULCHING. APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNBROADCAST SMALL GRAIN MULCHING.

PERMANENT SEEDING NOTES
APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LEIVED VEGETATIVE COVER IS NEEDED. SEEDING PREPARATION - LOOSEN UPPER THREE INCHES OF SOIL BY RAKING. SEEDING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNBROADCAST SMALL GRAIN MULCHING.

CONSTRUCTION SPECIFICATIONS
1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6\"/>

CONSTRUCTION SPECIFICATIONS

SLOPE	FLATTER THAN 50:1	50:1 TO 10:1	10:1 TO 5:1	5:1 TO 3:1	3:1 TO 2:1	2:1 AND STEEPER
HEIGHT	UNLIMITED	125 FEET	100 FEET	60 FEET	50 FEET	40 FEET
MINIMUM LENGTH	UNLIMITED	1,000 FEET	750 FEET	500 FEET	250 FEET	150 FEET



EROSION CONTROL MATTING

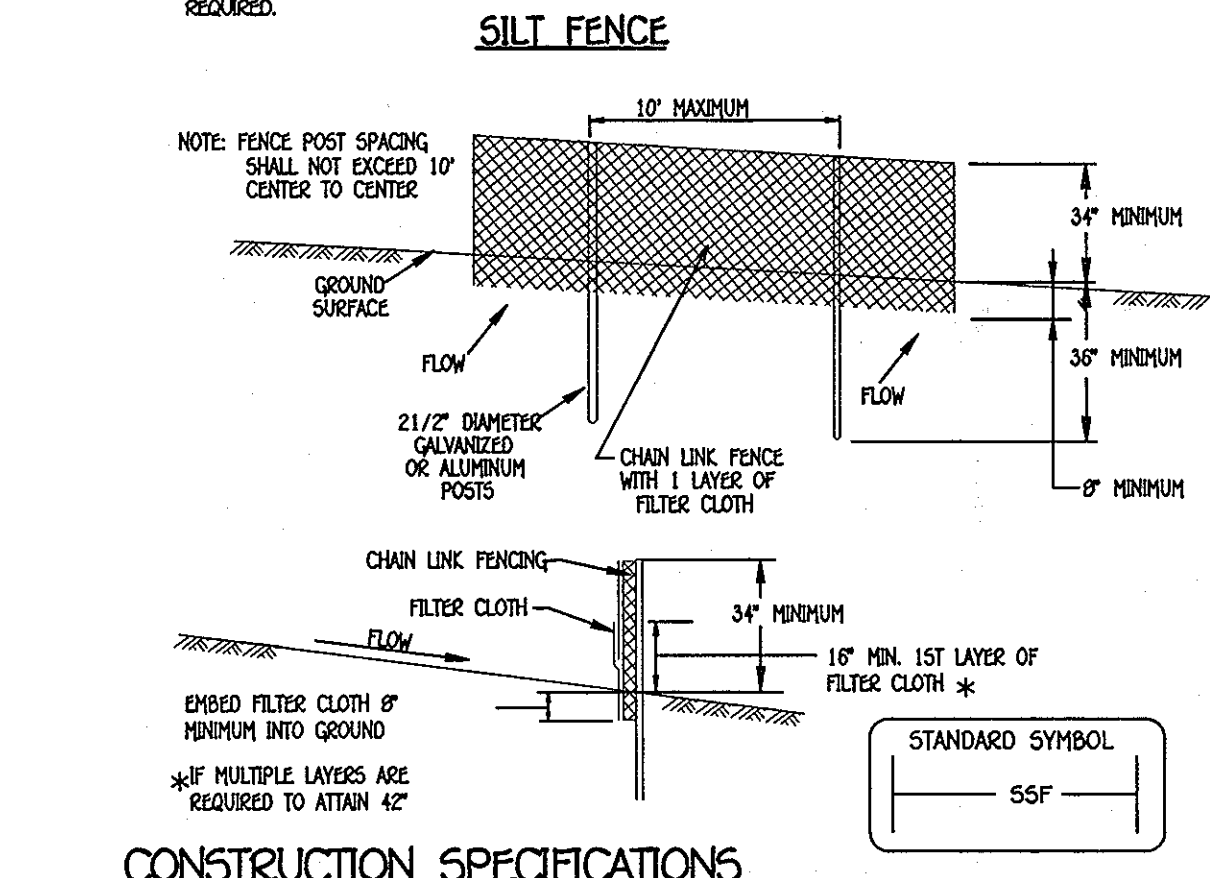
APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RESTORED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED. SEEDING PREPARATION - LOOSEN UPPER THREE INCHES OF SOIL BY RAKING. SEEDING - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNBROADCAST SMALL GRAIN MULCHING.

CONSTRUCTION SPECIFICATIONS

- FENCE POSTS SHALL BE A MINIMUM OF 36\"/>

SILT FENCE DESIGN CRITERIA

SLOPE	FLATTER THAN 50:1	50:1 TO 10:1	10:1 TO 5:1	5:1 TO 3:1	3:1 TO 2:1	2:1 AND STEEPER
HEIGHT	UNLIMITED	125 FEET	100 FEET	60 FEET	50 FEET	40 FEET
MINIMUM LENGTH	UNLIMITED	1,000 FEET	750 FEET	500 FEET	250 FEET	150 FEET



CONSTRUCTION SPECIFICATIONS

- FENCING SHALL BE 42\"/>

SUPER SILT FENCE

SLOPE	FLATTER THAN 50:1	50:1 TO 10:1	10:1 TO 5:1	5:1 TO 3:1	3:1 TO 2:1	2:1 AND STEEPER
HEIGHT	UNLIMITED	125 FEET	100 FEET	60 FEET	50 FEET	40 FEET
MINIMUM LENGTH	UNLIMITED	1,000 FEET	750 FEET	500 FEET	250 FEET	150 FEET

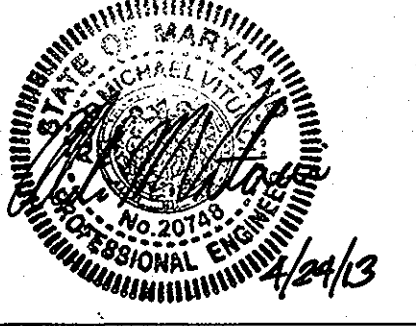
SUPPLEMENTAL PLAN

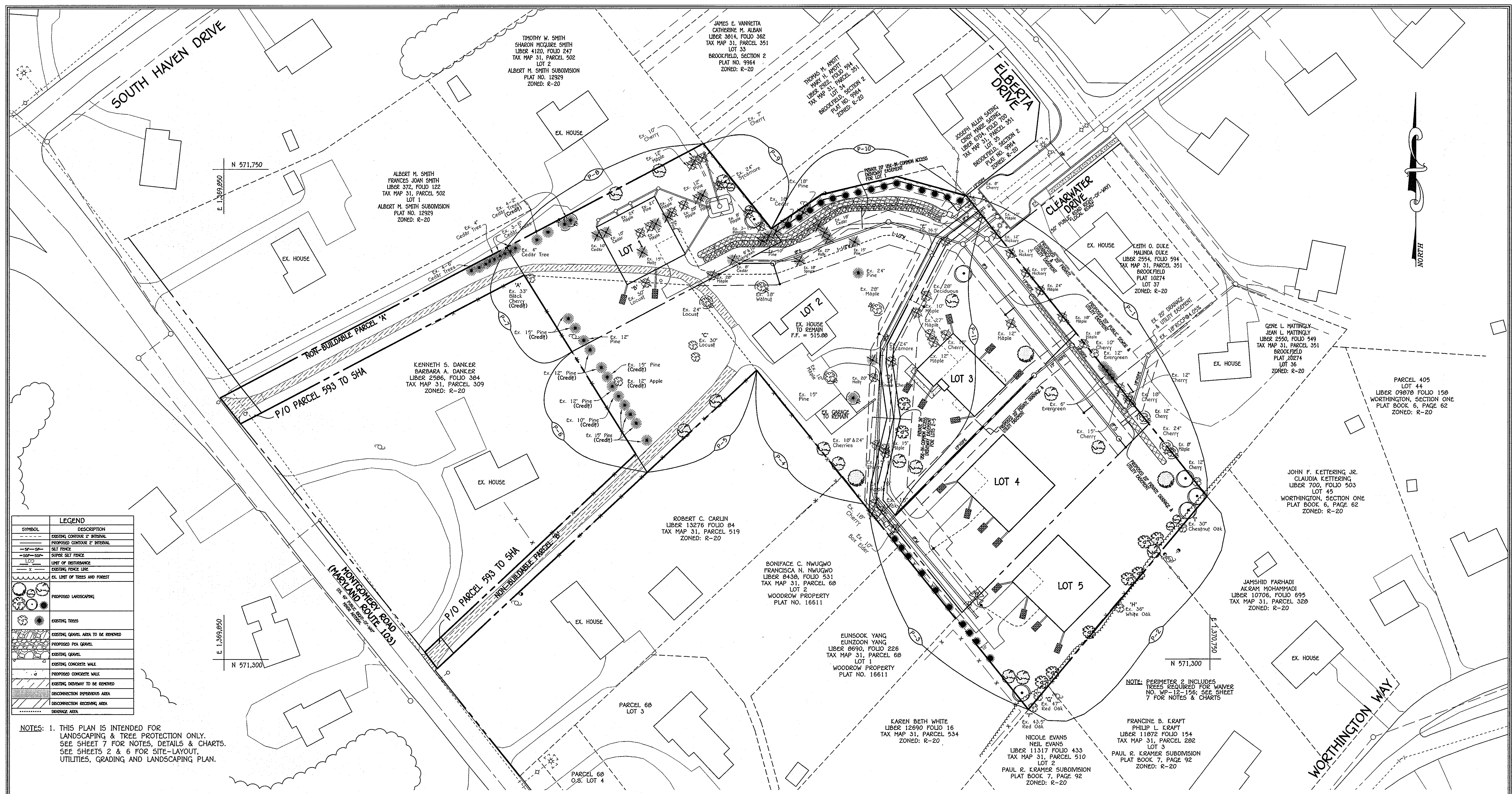
(SEDIMENT & EROSION CONTROL NOTES & DETAILS)
CLEARWATER CROSSING
4925 MONTGOMERY ROAD
LOTS 1 THRU 5 &
NON-BUILDABLE PARCELS 'A' & 'B'
ZONED R-20 TAX MAP NO. 0031 QRD NO. 0008 PARCEL NO. 0593
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL, 2013
SHEET 5 OF 8

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Ketrel
Chief, Division of Land Development 5/13/13
[Signature]
Chief, Development Engineering Division 5/10/13

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 16722 BALTIMORE NATIONAL PkE
ELLSWORTH CITY, MARYLAND 21116
(410) 461-2255

OWNER/DEVELOPER
COLUMBIA BUILDERS GROUP, LLC
JAMES GREENE, JR.
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-924-4732

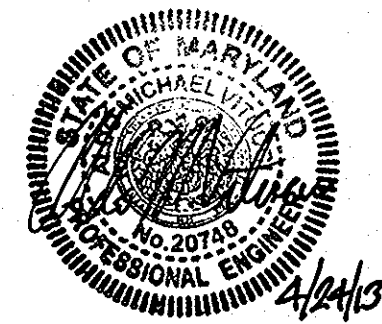




LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	SELT FENCE
---	SUPER SELT FENCE
---	LIMIT OF DISTURBANCE
---	EXISTING FENCE LINE
---	EX. LIMIT OF TREES AND FOREST
---	PROPOSED LANDSCAPING
---	EXISTING TREES
---	EXISTING GRAVEL AREA TO BE REMOVED
---	PROPOSED PEA GRAVEL
---	EXISTING GRAVEL
---	EXISTING CONCRETE WALK
---	PROPOSED CONCRETE WALK
---	EXISTING DRIVEWAY TO BE REMOVED
---	DISCONNECTION IMPERVIOUS AREA
---	DISCONNECTION RECEIVING AREA
---	DEBRIS AREA

NOTES: 1. THIS PLAN IS INTENDED FOR LANDSCAPING & TREE PROTECTION ONLY. SEE SHEET 7 FOR NOTES, DETAILS & CHARTS. SEE SHEETS 2 & 6 FOR SITE-LAYOUT, UTILITIES, GRADING AND LANDSCAPING PLAN.

NOTE: PERIMETER 2 INCLUDES TREES REQUIRED FOR WAIVER NO. WP-12-158; SEE SHEET 7 FOR NOTES & CHARTS

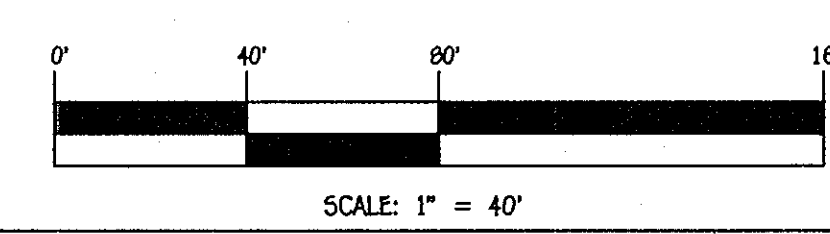


APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 Chief, Development Engineering Division

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

OWNER/DEVELOPER
 COLUMBIA BUILDERS GROUP, LLC
 B. JAMES GREENFIELD
 6420 AUTUMN SKY WAY
 COLUMBIA, MD 21044
 443-324-4732

LANDSCAPE DEVELOPER'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.



SUPPLEMENTAL PLAN
 (LANDSCAPING PLAN)
CLEARWATER CROSSING
 4925 MONTGOMERY ROAD
 LOTS 1 THRU 5 &
 NON-BUILDABLE PARCELS 'A' & 'B'
 ZONED R-20 TAX MAP NO.: 0031 GRID NO.: 0008 PARCEL NO.: 0593
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL, 2013
 SHEET 6 OF 8

LANDSCAPE PLAN GENERAL NOTES

- A. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE & LANDSCAPE MANUAL.
- B. ALTERNATIVE LANDSCAPING HAS BEEN PROVIDED ALONG PERIMETER NO.3 TO ESTABLISH AN ADDITIONAL SCREEN FOR THE PROPOSED RESIDENTIAL UNITS.
- C. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE WATER & SEWER DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$14,250.00 (33 SHADE TREES @ 300.00/TREE) AND (29 EVERGREEN TREES @ 150.00/TREE).
- D. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.

SCHEDULE A - PERIMETER LANDSCAPE EDGE

PERIMETER CATEGORY	P-1 ADJACENT TO PERIMETER PROPERTIES	P-2 ADJACENT TO PERIMETER PROPERTIES	P-3 ADJACENT TO PERIMETER PROPERTIES	P-4 ADJACENT TO PERIMETER PROPERTIES	P-5 ADJACENT TO PERIMETER PROPERTIES	P-6 ADJACENT TO PERIMETER PROPERTIES	P-7 ADJACENT TO PERIMETER PROPERTIES	P-8 ADJACENT TO PERIMETER PROPERTIES	P-9 ADJACENT TO PERIMETER PROPERTIES	P-10 ADJACENT TO PERIMETER PROPERTIES	P-11 ADJACENT TO PERIMETER PROPERTIES
LINEAR FEET OF PERIMETER	392.99 L.F.	254.55 L.F.	233.54 L.F.	164.77 L.F.	137.02 L.F.	110.57 L.F.	113.05 L.F.	203.25 L.F.	99.74 L.F.	191.84 L.F.	306.68 L.F.
NUMBER OF PLANTS REQUIRED	(392.99' / 60' = 5.88) = 6	(254.55' / 60' = 4.24) = 5	(233.54' / 50' = 4.67) = 5 (233.54' / 40' = 5.84) = 6	(233.54' / 60' = 2.75) = 3	(137.02' / 60' = 2.28) = 2	(233.54' / 50' = 4.67) = 5	(113.05' / 60' = 1.88) = 2	(203.25' / 60' = 3.22) = 4	(99.74' / 50' = 1.99) = 2 (99.74' / 40' = 2.49) = 2	(191.84' / 60' = 3.20) = 4	(306.68' / 60' = 5.11) = 5
SHADE TREES	6	5	5	3	2	2	2	4	2	4	5
EVERGREEN TREES	0	0	6	0	0	0	0	0	0	0	0
CREDIT FOR WALL, FENCE OR BERM	0	0	0	0	0	0	0	0	0	0	0
CREDIT FOR EXISTING VEGETATION	0	0	0	0	0	10	3	0	0	0	0
SHADE TREES	0	0	0	0	1	0	0	2	0	0	0
EVERGREEN TREES	0	0	0	0	0	9	2	0	0	0	0
NUMBER OF PLANTS PROVIDED	(6 REQUIRED - 0 CREDIT) = 6	(5 REQUIRED - 0 CREDIT) = 5	(11 REQUIRED - 0 CREDIT) = 11	(3 REQUIRED - 0 CREDIT) = 3	(2 REQUIRED - 0 CREDIT) = 2	(2 REQUIRED - 10 CREDIT) = 0	(2 REQUIRED - 2 CREDIT) = 0	(4 REQUIRED - 2 CREDIT) = 2	(4 REQUIRED - 0 CREDIT) = 4	(4 REQUIRED - 0 CREDIT) = 4	(5 REQUIRED - 0 CREDIT) = 5
SHADE TREES	6	4	3	3	2	0	0	0	2	0	0
EVERGREEN TREES	0	2	10	0	0	0	0	0	0	0	0
REPLACEMENT SPECIMEN TREES	0	0	6	0	0	0	0	0	0	0	0
ENHANCED PERIMETER	0	0	0	0	0	0	0	0	0	0	0
TOTAL NUMBER OF TREES PROVIDED	6	12	13	3	2	0	0	0	2	0	0

PLANTING SPECIFICATIONS

PLANTS, RELATED MATERIAL, AND OPERATIONS SHALL MEET THE DETAILED DESCRIPTION AS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN. ALL PLANT MATERIAL UNLESS OTHERWISE SPECIFIED, SHALL BE NURSERY GROWN, UNIFORMLY BRANCHED, HAVE A VIGOROUS ROOT SYSTEM, AND SHALL CONFORM TO THE SPECIES, SIZE, ROOT AND SHAPE SHOWN ON THE PLANT LIST AND THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUN SCALD INJURIES, ARBORESCENTS OF THE BARK, PLANT DISSEAS, INSECT PESTS, SORES AND ALL FORMS OF INSECT INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS. PLANT MATERIAL THAT IS WEAK OR WHICH HAS BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORKED LEADERS WILL NOT BE ACCEPTED. ALL PLANTS SHALL BE FRESHLY DUG, NO HEADED-IN PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

UNLESS OTHERWISE SPECIFIED, ALL GENERAL CONDITIONS, PLANTING OPERATIONS, DETAILS AND PLANTING SPECIFICATION SHALL CONFORM TO "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS," (HEREINAFTER "LANDSCAPE GUIDELINES") APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE POTOMAC CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECT, LATEST EDITION, INCLUDING ALL AGENDA.

CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THE LANDSCAPE GUIDELINES. CONTRACTOR'S ATTENTION IS DIRECTED TO THE MAINTENANCE REQUIREMENTS FOUND WITHIN THE ONE YEAR SPECIFICATIONS INCLUDING WATERING AND REPLACEMENT OF SPECIFIED PLANT MATERIAL.

CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTILITY COMPANIES, UTILITY CONTRACTORS AND "MISS UTILITY" A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK. CONTRACTOR MAY MAKE MINOR ADJUSTMENTS IN SPACING AND LOCATION OF PLANT MATERIAL TO AVOID CONFLICTS WITH UTILITIES. DAMAGE TO EXISTING STRUCTURE AND UTILITIES SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.

PROTECTION OF EXISTING VEGETATION TO REMAIN SHALL BE PROVIDED IN ACCORDANCE WITH THE APPROVED FOREST CONSERVATION PLAN.

CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL MATERIAL IN THE PROPER PLANTING SEASON FOR EACH PLANT TYPE. ALL PLANTING IS TO BE COMPLETED WITHIN THE GROWING SEASON OF COMPLETION OF SITE CONSTRUCTION.

BID SHALL BE BASED ON ACTUAL SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE MADE FOR WORK ARISING FROM SITE CONDITIONS DIFFERING FROM THOSE INDICATED ON DRAWINGS AND SPECIFICATIONS. PLANT QUANTITIES ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN TAKE PRECEDENCE.

ALL SHRUBS SHALL BE PLANTED IN CONTINUOUS TRENCHES OR PREPARED PLANTING BEDS AND MULCHED WITH COMPOSTED HARDWOOD MULCH AS DETAILS AND SPECIFIED EXCEPT WHERE NOTED ON PLANS. POSITIVE DRAINAGE SHALL BE MAINTAINED IN PLANTING BEDS (2 PERCENT SLOPE).

PLANTING MIX SHALL BE AS FOLLOWS: DECIDUOUS PLANTS - TWO PARTS TOPSOIL, ONE PART WELL-ROTTED COW OR HORSE MANURE, ADD 3 LBS. OF STANDARD FERTILIZER PER CUBIC YARD OF PLANTING MIX. EVERGREEN PLANTS - TWO PARTS TOPSOIL, ONE PART HUMUS OR OTHER APPROVED ORGANIC MATERIAL, ADD 3 LBS. OF EVERGREEN (ACIDIC) FERTILIZER PER CUBIC YARD OF PLANTING MIX. TOPSOIL SHALL CONFORM TO THE LANDSCAPE GUIDELINES.

WEED CONTROL: INCORPORATE A PRE-EMERGENT HERBICIDE INTO THE PLANTING BED FOLLOWING RECOMMENDED RATES ON THE LABEL. CAUTION: BE SURE TO CAREFULLY CHECK THE CHEMICAL USED TO ASSURE ITS ADAPTABILITY TO THE SPECIFIC GROUND COVER TO BE TREATED.

ALL AREAS WITHIN CONTRACT LIMITS DISTURBED DURING OR PRIOR TO CONSTRUCTION NOT DESIGNATED TO RECEIVE PLANTS AND MULCH SHALL BE FINE GRADED AND SEEDDED.

- NOTES:**
- THE FIFTEEN (15) EVERGREEN TREES ALONG PERIMETER 8 ARE REQUIRED BASED ON CONDITIONAL APPROVAL OF WP-12-156 TO BUFFER THE PROPOSED LOT 1 DRIVEWAY FROM THE ADJOINING SATAN PROPERTY.
 - AS PER REMOVAL OF THE THREE (3) EXISTING SPECIMEN TREES; SIX (6) NEW SHADE TREES HAVE BEEN PROVIDED WITHIN LANDSCAPE PERIMETER 2.

B.4.C Specifications for Micro-Bioretenion, Rain Gardens, Landscape Infiltration & Infiltration Berms

- Material Specifications**
The allowable materials to be used in these practices are detailed in Table B.4.1.
- 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-bioretenion 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 Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% 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 into the soil to increase or decrease pH.

FOREST CONSERVATION WORKSHEET
Version 1.0

Project: Donahue Property
Date: March 20, 2012

NET TRACT AREA	Acres
A. Total tract area	3.8
B. Area within 100 Year Floodplain	0
C. Area to remain in agricultural production	0
D. Net Tract Area	3.8

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)
ARA MOR DA HDR MFD CIA

E. Afforestation Threshold (percentage)	0.15	0.6
F. Conservation Threshold (percentage)	0.2	0.8

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)	0
H. Area of forest above afforestation threshold	0
I. Area of forest above conservation threshold	0

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation	NA
Break-Even Point	NA
K. Clearing permitted without mitigation	NA

PROPOSED FOREST CLEARING

L. Total area of forest to be Cleared or Retained Outside FCE	0
M. Total area of forest to be Retained in FCE	0

PLANTING REQUIREMENTS

N. Reforestation for clearing above Conservation Threshold	0
P. Reforestation for clearing below Conservation Threshold	0
Q. Credit for retention above conservation threshold	0
R. Total reforestation required	0
S. Total afforestation required	0.6
T. Total reforestation and afforestation required	0.6

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.

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoses to remove original soil. If practices

B.4.5 Supp. 1 excavated using a 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 a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Subsurface methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any 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-bioretenion 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.

Stockpiles 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, defecats, 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 (ASTM F 758, Type PS 28, or ASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
Perforations - If perforated pipe is used, perforations should be 1/2" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/2" (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 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).
A 4" layer of pea gravel (1/2" to 3/4" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The 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 established.

SPECIMEN TREE CHART

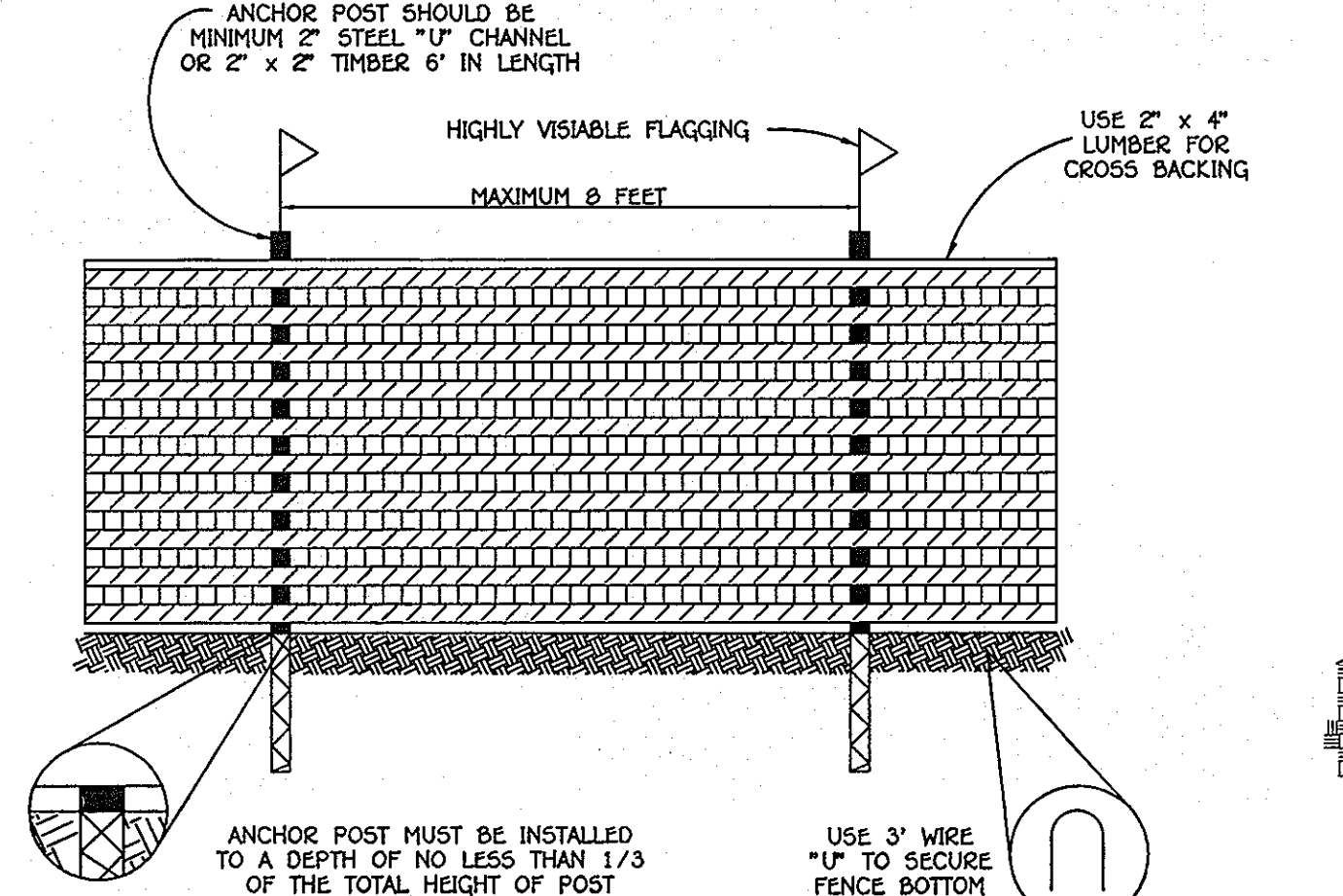
KEY	SPECIES, SIZE (Inches dbh)	COMMENTS	COMMENTS
A	PRUNUS SEROTINA, 3"	FAIR CONDITION, SOME LIMB DIEBACK	TO REMAIN
B	ROBINA PSEUDO-ACACIA, 30"	FAIR CONDITION, LIMB DIEBACK NOTED	TO BE REMOVED
C	ROBINA PSEUDO-ACACIA, 30"	FAIR CONDITION, LIMB DIEBACK OBSERVED	TO REMAIN
D	CHINESE CHESTNUT	NOT NATIVE SPECIES	TO BE REMOVED
E	ACER PLATANOIDES, 36.5"	NOT NATIVE SPECIES	TO BE REMOVED
F	QUERCUS RUBRA, 43.5"	FAIR CONDITION, SOME IMPACT BY POWER LINE TOWERING	TO REMAIN
G	QUERCUS RUBRA, 47"	GOOD CONDITION	TO REMAIN
H	QUERCUS ALBA, 30+"	FENCE DID NOT ALLOW ACCURATE MEASUREMENT OF dbh	TO REMAIN
I	QUERCUS PRINUS, 30"	GOOD CONDITION	TO REMAIN

LANDSCAPING PLANT LIST

QTY.	KEY	NAME	SIZE
15		ACER RUBRUM / OCTOBER GLORY / OCTOBER RED MAPLE	2-1/2" - 3" OL
4		CORNUS FLORIDA / WHITE FLOWERING DOGWOOD	1-1/2" - 2" OL
3		QUERCUS PHELLOS / WILLOW OAK	2-1/2" - 3" OL
6		ULMUS AMERICANA PRINCIPAL / PRINCETON AMERICAN ELM	2-1/2" - 3" OL
25		CUPRESSOCYPARIS LEYLANDI / LEYLAND CYPRESS	5' - 8" HT
3		QUERCUS PALUSTRIS / PIN OAK	2-1/2" - 3" OL
6		QUERCUS PALUSTRIS / PIN OAK	4" OL

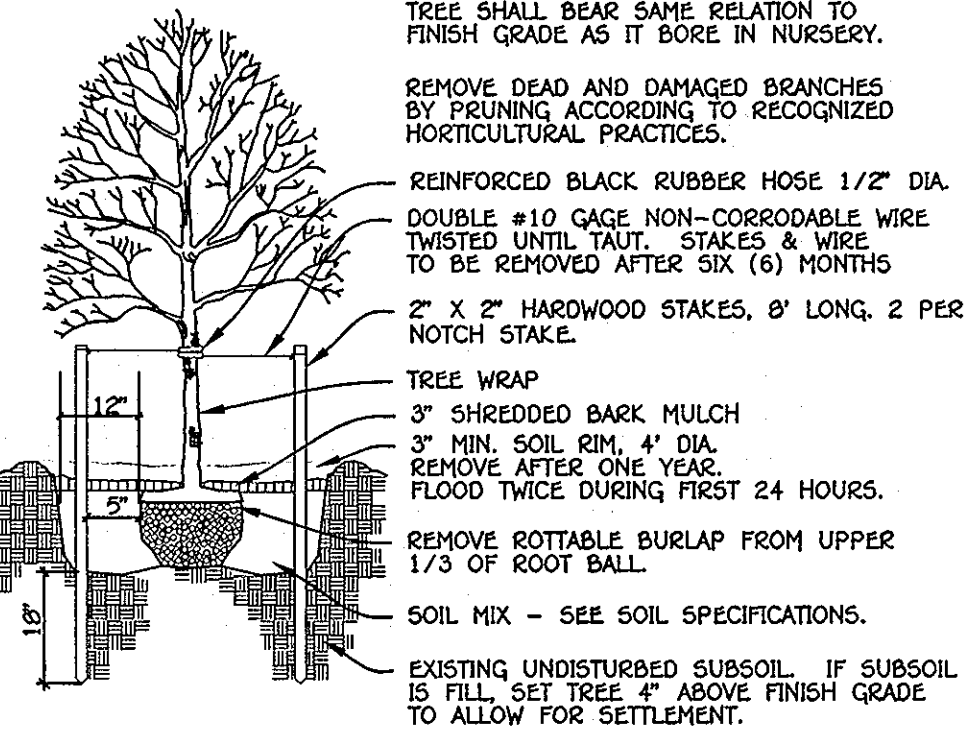


BLAZE ORANGE PLASTIC MESH



- NOTES:**
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOT DAMAGE SHOULD BE AVOIDED.
 - PROTECTIVE SIGNAGE MAY ALSO BE USED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL
NOT TO SCALE



- NOTES:**
- PLANT SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE IN THE NURSERY.
 - BACKFILL AND COMPACT SOIL MIX UNTIL HOLE IS HALF FILLED AND WATER. COMPLETE BACKFILLING AND COMPENSATE FOR SETTLING.

TREE PLANTING DETAIL
NO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Kathleen 5/13/13
Chief, Division of Land Development

[Signature] 5/10/13
Chief, Development Engineering Division



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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(410) 461 - 2995

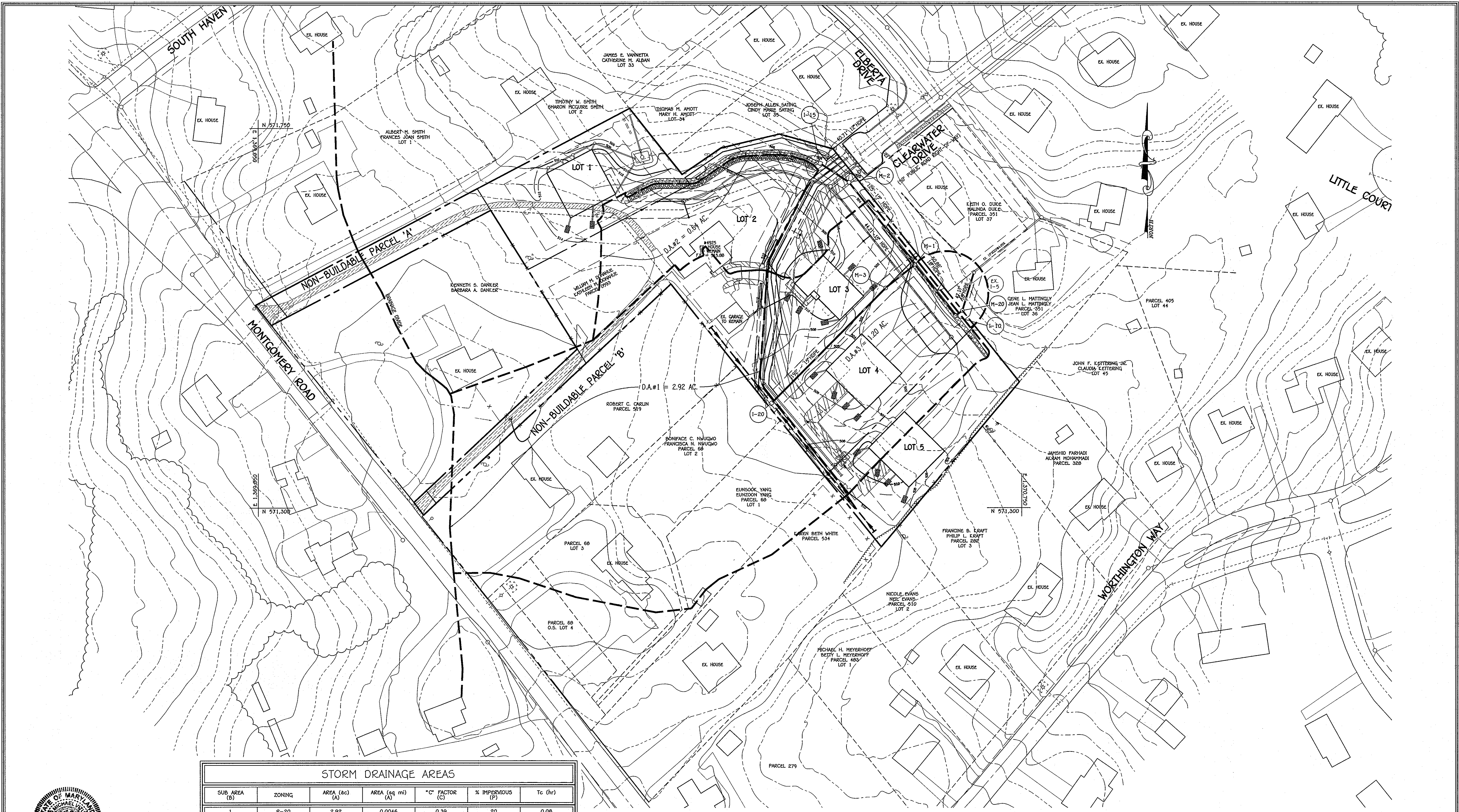
OWNER/DEVELOPER
COLUMBIA BUILDERS GROUP, LLC
B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-3244-4732

LANDSCAPE DEVELOPER'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.

[Signature] 4/24/13
DATE

SUPPLEMENTAL PLAN
(LANDSCAPE NOTES & DETAILS)
CLEARWATER CROSSING
4925 MONTGOMERY ROAD
LOTS 1 THRU 5 &
NON-BUILDABLE PARCELS 'A' & 'B'
ZONED R-20 TAX MAP NO.: 0031 GRID NO.: 0008 PARCEL NO.: 0593
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL, 2013
SHEET 7 OF 8

F:\2011\1040\dwg\F-13-021\1040-3001_F-13-021_Supplemental Plan_Sheet B - DA Map Storm.dwg, Drainage Area Map, 4/24/2013 10:43 PM



STORM DRAINAGE AREAS						
SUB AREA (B)	ZONING	AREA (ac)	AREA (sq mi)	"C" FACTOR (C)	% IMPERVIOUS (P)	Tc (hr)
1	R-20	2.92	0.0046	0.39	20	0.08
2	R-20	0.64	0.0010	0.39	20	0.08
3	R-20	1.20	0.0019	0.39	20	0.08
4	R-20	0.10	0.0002	0.39	20	0.08



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Keith Paulson
Chief, Division of Land Development
Date: 5/13/13

John P. ...
Chief, Development Engineering Division
Date: 5/10/13

FISHER, COLLINS & CARTER, INC.
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ELLSWORTH CITY, MARYLAND 21042
(410) 461-2255

OWNER/DEVELOPER
COLUMBIA BUILDERS GROUP, LLC
B. JAMES GREENFIELD
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
443-324-4732

SUPPLEMENTAL PLAN
(DRAINAGE AREA MAP)
CLEARWATER CROSSING
4925 MONTGOMERY ROAD
LOTS 1 THRU 5 &
NON-BUILDABLE PARCELS 'A' & 'B'
ZONED R-20 TAX MAP NO.: 0031 GRID NO.: 0008 PARCEL NO.: 0593
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: A5 SHOWN DATE: APRIL, 2013
SHEET 8 OF 8