| | | SHEET INDEX | | |
|-----------------------|--|---|--|--|
| SHEET NO. DESCRIPTION | | | | |
| 1 | | TITLE SHEET | | |
| 2 | | ENVIRONMENTAL CONCEPT PLAN | | |
| 3 | | PRELIMINARY SEDIMENT & EROSION CONTROL PLAN | | |

| | STORMWA | TER MAN | AGEMENT SUMMARY |
|----------|----------------------------|----------------------------|--------------------------|
| AREA ID. | E5Dv REQUIRED CU.FT. | E5Dv PROVIDED CU.FT. | REMARK5 |
| 5ITE | 705 | 85 6 | MICRO-BIORETENTION (M-6) |
| TOTAL | 705 | <i>8</i> 56 | |

SITE CONTAINS AN EXISTING HOUSE ON LOT 9 WHICH WAS NOT INCLUDED IN THESE COMPUTATIONS. COMPUTATIONS BASED ON LOD FOR NEW LOT Ø. ALL NEW IMPERVIOUS SURFACES HAVE BEEN TREATED, THEREFORE NO ADDITIONAL TREATMENT IS REQUIRED.

GROSS AREA = 1.05 ACRES LOD = 0.37 ACRES RCN = 70.1TARGET Pe = 1.6"

DESIGN NARRATIVE

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

8320 Sunset Drive is zoned R-20 and is located on Tax Map 31. Parcel No. 478 of the Howard County, Maryland Tax Map Database System. The property was previously recorded as 3A under platbook 10. page 87 in June 1966. The site has an existing house on an open lot (not forested) with some individual trees. Since this subdivision was created prior to Forest Conservation regulations, it is anticipated that a fee-in-lieu will be requested for the new lot. The proposed house will be served by public water and sewer. The existing house is current served by public water and sewer. The runoff from the lot is mostly from southeast to northwest to the rear corner of the new lot. A micro-bioretention will be utilized to treat rooftop and driveway runoff. Per the 2004 Web Soil Survey, soils on-site consists mostly of "UcB". Urban land - Chillum - Beltsville complex, type C soil, with a small amount of "UsD", Urban land - Sassafras - Beltsville complex near the existing house.

- Environmentally sensitive features such as wetlands, streams, their buffers, steep slopes, and floodplain
- Nature flow patterns will be maintained. Existing and proposed runoff flows toward the northwest portion
- III. <u>Reduction of impervious areas through better site design. Alternative surfaces and Nonstructural Practices</u>

 A single driveway is proposed to provide access to the proposed house. The design will make use of a of a Micro-Bioretention (M-6) to treat runoff from the new driveway as well as the proposed house.
- N. Integration of Erosion and Sediment Controls into Stormwater Strategy: Silt Fence and temporary check dams will be utilized to provide erosion and sediment control.
- V. Implementation of ESD Planning Techniques and practices to the Maximum Extent Practicable (MEP) The full required ESD volume is being provided by use of a Micro-Bioretention (M-6).
- VI. Request for a Design Manual Waiver:

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

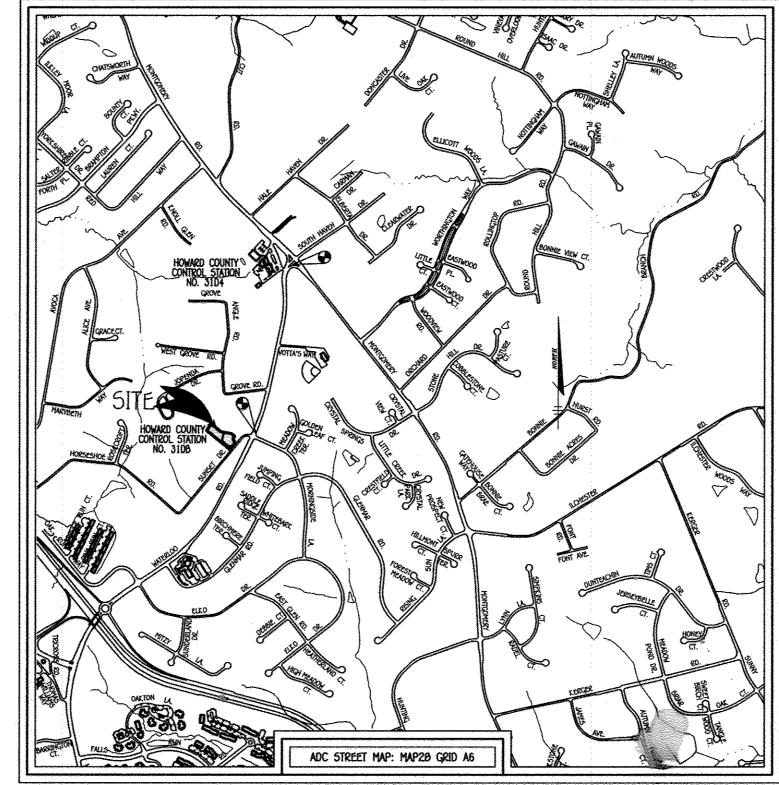
| Material | Specification | Size | Notes |
|---|--|--|---|
| Plantings | see Appendix A: Table A.4 | n/ā | plantings are site-specific |
| Planting soil [2' to 4' deep] | loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30% compost 40% | | USDA soil types loamy sand or sandy loam; clay content <5% |
| Organic Content | Min. 10% by dry weight (ASTM D 2974) | | |
| Mulch | shredded hârdwood | | aged 6 months, minimum |
| Pea gravel diaphragm | pea gravel: ASTM-D-440 | No. 8 or No. 9 (1/8" to 3/8") | |
| Curtain drain | ornamental stone: washed cobbles | stone: 2" to 5" | |
| Geofexfile | | n/a | PE Type 1 nonwoven |
| Grävel (underdräins and infiltration berms) | AASHTO M-43 | No. 57 or No. Aggregāte (3/8" to 3/4") | |
| Underdrain piping | F 750, Type P5 20 or AASHTO M-270 | 4" to 6" rigid schedule 40 PVC or 50R35 | Slotted or perforated pipe; 3/8" pert. © 6" on center. 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth |
| Poured in place concrete (if required) | MSHA Mix No. 3; f = 3500 psi àt 20 days, normal weight, dir—entraîned; reinforcing to meet ASTM—615—60 | n.ā | on-site testing of poured-in-place concrete required: 28 day strength and siump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland — design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking |
| ōànd | AASHTO-M-6 or ASTM-C-33 | 0.02" to 0.04" | Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand. |

ENVIRONMENTAL CONCEPT PLAN

SUNSET PLAINS, LOTS 8 & 9

SECOND ELECTION DISTRICT

TAX MAP No. 31 GRID No. 13 PARCEL Nos. 478 LOT No. 3A HOWARD COUNTY, MARYLAND



VICINITY MAP

| BENCH | MARK INFORMATION | | |
|--------------|--|------------------|--------------|
| B.M.# 31D4 - | HOWARD COUNTY CONTROL STATION #31DB - HOWARD 571700.701 E 1,369,606.351 ELEVATION = 494.440 - VERTICAL - (NAVD '00) | rizontal - nad ' | '6 3) |
| | HOWARD COUNTY CONTROL STATION #31DB - HO N 569503.630 E 1,369,155.134 ELEVATION = 492.343 - VERTICAL - (NAVD '00) | rizontal – (nad | '63) |

| 50IL5 LEGEND | | | | | |
|--------------|---|-------|----------|--|--|
| 501L | NAME | CLA55 | K FACTOR | | |
| UcB | URBAN LAND - CHILLUM-BELTSVILLE COMPLEX, 0 to 5 % SLOPES | С | 0.43 | | |
| UsD | URBAN LAND - SASSAFRAS-BELTSVILLE COMPLEX, 5 to 15 % SLOPES | D | | | |

| SYMBOL | DESCRIPTION | 5YMBOL | DESCRIPTION |
|--------------------|---|-------------------|----------------------------------|
| 492 | EXISTING 2' CONTOURS | -402 | PROPOSED CONTOUR |
| 490 | EXISTING 10' CONTOURS | +362.5 | SPOT ELEVATION |
| GLB2 MLC2 | SOILS LINES AND TYPE | LOO | LIMITS OF DISTURBANCE |
| ~~~~ | EXISTING TREELINE | ~~~~ | PROPOSED TREELINE |
| | 15% TO 24.9% STEEP SLOPES | | existing & proposed paving |
| | 25% AND GREATER STEEP SLOPES | O ₅₀₃₃ | BORING (PERC) TEST HOLE |
| | 100 YEAR PUBLIC FLOODPLAIN, DRAINAGE AND UTILITY EASEMENT | 5F | SILT FENCE |
| * * * | WETLAND AREA | ECM | EROSION CONTROL MATTING |
| — WB —— | 25' WETLAND BUFFER | 55F | SUPER SILT FENCE |
| — SB —— | STREAM BANK BUFFER | | STABILIZES CONSTRUCTION ENTRANCE |
| | 100 YEAR FLOODPLAIN LINE | | DRAINAGE AREA DIVIDE |
| _{्रि} 5T1 | SPECIMEN TREE | TP | TREE PROTECTION |

GENERAL NOTES

- 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
- DATED MAY, 2011. TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SUVERY PERFORMED BY RAZTEC ASSOCIATES, INC., DATED MAY, 2011. AND SUPPLEMENTED WITH HOWARD COUNTY GIS TOPOGRAPHY AT 5' CONTOUR INTERVAL INTERPOLATED FOR 2'
- 4. 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. 29GB AND 29GC WERE USED FOR THIS PROJECT.

 5. PREVIOUS DPZ FILE NUMBERS: F-15-024; WP-16-045.

 6. STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009.
- NON-STRUCTURAL PRACTICES IN ACCORDANCE WITH CHAPTER 5 ARE BEING UTILIZED.

 7. THIS PROPERTY IS LOCATED INSIDE THE METROPOLITAN DISTRICT. LOTS TO BE SERVED PUBLIC WATER AND PUBLIC SEWER. CONNECTIONS TO CONTRACT #34-4805-D WILL BE PROVIDED BY ADD PRIOR TO BUILDING PERMIT. LOCATIONS OF EXISTING WHC AND
- SHC SHOWN ARE APPROXIMATE. 8. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE 9. THE SUBJECT PROPERTY IS ZONED R-20 (PER DATE 10/06/2013 COMPREHENSIVE ZONING PLAN.
- 10. NO CEMETERIES OR HISTORIC STRUCTURES EXIST ON-SITE.
- 11. NO STEEP SLOPES, 100 YEAR FLOODPLAIN, STREAM(S), STREAM BUFFERS, WETLAND(S), WETLAND BUFFER(S), AND FOREST STAND DELINEATION EXIST ON-SITE.
- 12. NO WETLANDS OR FOREST STANDS EXIST PER ENVIRONMENTAL FINDINGS LETTER PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. ON
- 13. LANDSCAPING WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT, TREES SHOWN ARE EXISTING.

 14. FOREST CONSERVATION REQUIREMENT WILL BE ADDRESSED AT FINAL PLAN STAGE. IT IS ASSUMED A FEE-IN-LIEU WILL BE PAID.

 15. SOILS SHOWN HEREON BASED ON THE NRCS WEBSOIL SURVEY AND SOILS MAP NUMBER 19.
- 16. ONE SOIL BORING WILL BE REQUIRED FOR THIS PROJECT. A SOIL BORING WILL BE EXCAVATED WITHIN 50 FEET OF THE
- 17. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIMISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS

SITE ANALYSIS DATA CHART

- TAL AREA OF THIS SUBMISSION = 1.05 AC.+.
 UMIT OF DISTURBED AREA = 0.37 AC.+
- PRESENT ZONING DESIGNATION = R-20 (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL SINGLE FAMILY DETACHED. PREVIOUS HOWARD COUNTY FILES: F-15-024; WP-16-045.
- TOTAL AREA OF FLOODPLAIN LOCATED ON SITE = 0.00 AC
- TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.00 AC TOTAL AREA OF WETLANDS = 0.00 AC.
- TOTAL AREA OF STREAM = 0.00 AC. TOTAL AREA OF EXISTING FOREST = 0.00 AC
- TOTAL AREA OF FOREST TO BE RETAINED = 0.00 AC
- TOTAL GREEN OPEN AREA = 0.85 AC+ TOTAL IMPERVIOUS AREA = 0.20 AC+
- N. TOTAL AREA OF ERODIBLE SOILS = 1.05 AC.+

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING TITLE SHEET 11-02-17

11:13:17

LOT NO.

8 & 9

CENSUS TR.

602302

ELEC. DIST.

SECOND

Chief, Development Engineering Division

PB / PG BLOCK NO. ZONE TAX/ZONE

R-20

SUNSET PLAINS

10/87

SUNSET PLAINS

LOTS 8 AND 9

ZONING: R-20

TAX MAP No. 31 GRID No. 13 PARCEL No. 478 LOT No. 3A SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: SEPTEMBER, 2015

ECP-15-015

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| FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS | | | | |
| CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS | | | | |
| CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE | | | | |
| ELLICOTT CITY, MARYLAND 21042 | | | | |
| (410) 461 - 2055 | | | | |
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| | NO. | REVISION | DATE | X |
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PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER

OWNER/DEVELOPER VIRGIL & IDOLINE LOUGH 8336 SUNSET DRIVE ELLICOTT CITY, MARYLAND 21043 410-440-2308

