Capital Project No. F-5964

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SITE ANALYSIS DATA CHART

1. GENERAL DATA
   - A. PRESENT ZONING: R-12, RA-15
   - B. APPLICABLE DPZ FILE REFERENCES: WP 14-010, ECP 13-076, F 14-131, WP 15-070
   - C. PROPOSED USE OF SITE OR STRUCTURE: VOLUNTEER FIRE STATION
   - D. PROPOSED WATER AND SEWER SYSTEMS: PUBLIC WATER AND SEWER
   - E. WATER AND SEWER CONTRACT NOS: S-346, 14-4827D
2. AREA TABULATION:
   - A. TOTAL PARCEL AREA (GROSS AREA): 5.68 AC.
   - B. NET AREA: 5.68 AC.
   - C. AREA OF THIS PLAN SUBMISSION: (5.68 AC.)
   - D. LIMIT OF DISTURBED AREA: 4.73 AC (206,038 SF)
   - E. AREA OF 100 YEAR FLOODPLAIN: NA
   - F. AREA OF 25% & GREATER SLOPES: 0.45 AC.*
     (*These slopes do not meet parameters for regulated steep slopes.)
   - G. BUILDING COVERAGE 28,085 SF 11% OF GROSS AREA
3. OPEN SPACE: NONE REQUIRED
4. PARKING ANALYSIS

FLOOR SPACE PER FLOOR OF PROPOSED USE ON SITE:
FLOOR 1: 11,217 SF
FLOOR 2: 11,925* SF * INCLUDES 2,901 SF HALL
APPARATUS BOYS: 10,940 SF
TOTAL 34,052 SF

MAXIMUM NUMBER OF EMPLOYEES ON THE LARGEST SHIFT: 12

PARKING REQUIRED:
1 PER EMPLOYEE FOR LARGEST SHIFT = 12 SPACES
10/1000 FOR HALL 2,901 S.F. = 30 SPACES
TOTAL REQUIRED = 42 SPACES

PARKING PROVIDED:
REGULAR PARKING SPACES: = 85 SPACES
3 VAN ACCESSIBLE HC. 2 REG HC: = 5 SPACES
TOTAL PARKING SPACES PROVIDED: = 90 SPACES

STORMWATER MANAGEMENT PRACTICES

LOT/ PARCEL #	FACILITY NAME & NUMBER	PRACTICE TYPE	PUBLIC/ PRIVATE
PARCEL A	BIO RETENTION FACILITY # 1	F-6	PUBLIC
PARCEL A	MICRO BIO RETENTION FACILITY # 2	M-6	PUBLIC
PARCEL A	MICRO BIO RETENTION FACILITY # 2	M-6	PUBLIC
PARCEL A	BIO RETENTION FACILITY # 4	F-6	PUBLIC

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE OR AS SPECIFIED.
2. 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.
3. THE CONTRACTOR SHALL NOTIFY 'MISS UTILITY' AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE, AND 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.
4. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS TO VERIFY THEIR LOCATION AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF LOCATION OF UTILITIES IS OTHER THAN SHOWN.
5. APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE BASED SOLELY ON AVAILABLE RECORDS AND FIELD SURVEYS. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ANY UTILITIES WHICH MAY BE IMPACTED BY THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
6. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
7. ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED. NUMERICALLY WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALE DIMENSIONS.
8. ANY DAMAGE CAUSED BY THE CONTRACTOR, ANY SUBCONTRACTORS, OR AND VENDOR TO THE EXISTING PUBLIC RIGHT-OF-WAY, OR ANY EXISTING PAVING, CURB & GUTTER, UTILITIES, SIDEWALKS, TREES, SHRUBS, LAWNS, OR ANY OTHER EXISTING CONDITIONS (NOT INDICATED TO BE DEMOLISHED), OR ANY NEWLY INSTALLED PROPOSED IMPROVEMENT, SHALL BE REPAIRED OR REPLACED, TO OWNER'S SATISFACTION, AT CONTRACTOR'S SOLE COST AND EXPENSE.
9. ALL FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED AND VERIFIED IN ACCORDANCE WITH AASHTO T-180.
10. THE PROJECT SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
11. THE SUBJECT PROPERTY IS ZONED R-12 & RA-15 PER THE 2013 COMPREHENSIVE ZONING PLAN AND THE 02/02/04 COMP LITE ZONING AMENDMENTS.
12. PUBLIC WATER TO BE UTILIZED. (CONTRACT NO. 14-4827D, PATAPSCO WATERSHED)
13. PUBLIC SEWER IS TO BE UTILIZED. (CONTRACT NO. S-346, PATAPSCO WATERSHED)
14. ALL HYDRAULIC DATA IS FOR THE 10-YEAR STORM UNLESS OTHERWISE NOTED.
15. STORM WATER MANAGEMENT IS PROVIDED BY ENVIRONMENTAL SITE DESIGN BIORETENTION (F-6), MICRO BIORETENTION (M-6), GREEN ROOF (A-1) AND IS PUBLICLY OWNED AND MAINTAINED BY HOWARD COUNTY.
16. ELECTRIC, GAS, CABLE AND TELEPHONE LINES DESIGNED BY OTHERS.
17. THE EXISTING TOPOGRAPHY WITHIN THE LIMIT OF DISTURBANCE IS BASED ON A FIELD RUN SURVEY BY SHANABERGER AND LANE, DATED JANUARY 2013. THE COURSES AND COORDINATES SHOWN THEREON ARE BASED ON THE FOLLOWING HOWARD COUNTY MONUMENTS:

POINT	NORTHING	EASTING	ELEVATION
38A4	562977.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190

18. EXISTING WETLANDS ARE SHOWN WITH ASSOCIATED WETLAND BUFFER. WETLANDS DELINEATION WAS PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC. ON FEB 22, 2013.
19. THERE ARE NO KNOWN CEMETERIES OR BURIAL GROUNDS ON THIS SITE.
20. A FOREST STAND DELINEATION WAS PREPARED BY ECO SCIENCE PROFESSIONALS DATED FEBRUARY 22, 2013.
21. FOREST CONSERVATION: THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY PAYMENT OF A FEE-IN-LIEU IN THE AMOUNT OF $7,840.84 AND RETAINING 1.58 AC. OF FOREST.
22. THE LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND OF THE HOWARD COUNTY LANDSCAPE MANUAL. PROPOSED PLANTING CALCULATIONS CAN BE FOUND ON SHEET 35. THIS IS A COUNTY PROJECT; LANDSCAPING SURETY IS NOT REQUIRED.
23. NO 100 YEAR FLOODPLAINS OR REGULATED STEEP SLOPES EXIST ONSITE.
24. NO GRADING, REMOVAL OF VEGETATIVE COVER OF TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS, OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN, EXCEPT AS APPROVED BY HOWARD COUNTY IN WP 14-010 AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT LETTER OF AUTHORIZATION.
25. THE SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING ANALYSIS FOR THIS PROJECT IS CONTAINED IN REPORTS PREPARED BY HERBST BENSON & ASSOCIATES DATED JULY 25, 2013.
26. THE PROPOSED BUILDING WILL HAVE AN AUTOMATIC SPRINKLER SYSTEM AND AN INSIDE WATER METER.
27. SIGNAGE AT THE STREET AND ON THE BUILDING IDENTIFYING THE ADDRESS IS REQUIRED.
28. NO LANDSCAPING SHALL BE PLANTED WITHIN 7.5 FEET OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION (FDC)
29. 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.
30. ON-SITE PARKING LOT AND SIDEWALK LIGHTING SHALL BE AS SHOWN IN TABLES ON SHEETS 5 & 6. ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS ON-SITE AWAY FROM ALL ADJOINING PUBLIC ROADS IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
31. WAIVER PETITION WP-14-010 WAS APPROVED ON 10/29/13

THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING CONSIDERED YOUR REQUEST FOR A WAIVER FROM THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

AS OF THE DATE OF THIS LETTER, THE PLANNING DIRECTOR APPROVED YOUR REQUEST TO WAIVE;

SECTION 16.116 - RESTRICTING GRADING ACTIVITIES AND THE REMOVAL OF VEGETATION WITHIN WETLANDS AND STREAMS (AND ASSOCIATED BUFFERS), AS WELL AS ON STEEP SLOPES (25% OVER 10 VERTICAL FEET)

SECTION 16.117 - DESIGN IN ACCORDANCE WITH EXISTING TOPOGRAPHY AND TO MINIMIZE CLEARING

SECTION 16_1205(A) -AVOID FOREST REMOVAL IN PRIORITY RETENTION AREAS AND AVOID REMOVAL OF TREES WITH 30" OR GREATER (SPECIMEN TREES)

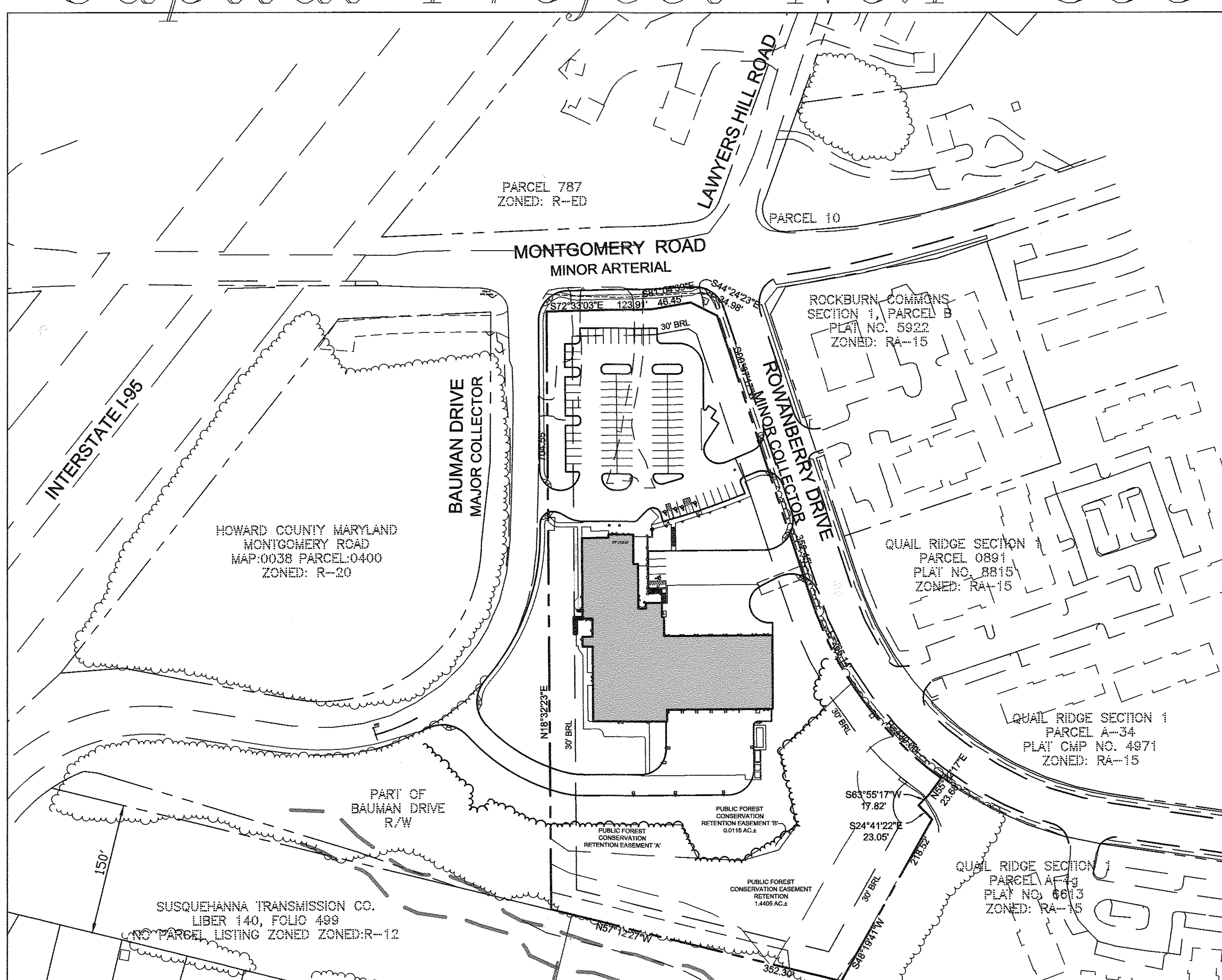
APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. OBTAIN A PERMIT FROM MDE FOR THE WETLAND AND WETLAND BUFFER IMPACTS IN CONJUNCTION WITH THE JPA SUBMITTED ON JUNE 2B,2013.
2. MAINTAIN GROUNDWATER FLOW TO THE EPHEMERAL STREAM AND REMAINING WETLANDS WITH THE INSTALLATION OF AN UNDERDRAIN TO PIPE THE GROUNDWATER THROUGH THE SITE TO MAINTAIN THE FLOW PATTERN.
3. FOR EACH OF THE SPECIMEN TREES REMOVED, 2 SHADE TREES OF THE SAME SPECIES (TULIP POPLAR) ARE TO BE PLANTED FOR A TOTAL OF 4 TREES, PLEASE SHOW THESE REPLACEMENT TREES ON THE LANDSCAPE PLAN AND INDICATE THEIR PURPOSE. SINCE TULIP POPLARS ARE NOT RECOMMENDED FOR LANDSCAPE TREES, PLEASE PLACE THESE TREES IN THE INTERIOR OF THE SITE NEAR THE SOUTHERN EXTENT OF THE LOD. IF A SAFE PLANTING AREA CANNOT BE SELECTING, PLEASE PROVIDE ANOTHER LARGE SHADE TREE SPECIES WITHIN THE RECOMMENDED PLANT LIST OF THE LANDSCAPE MANUAL.
4. SUBMISSION OF A SITE DEVELOPMENT PLAN IN COMPLIANCE WITH THE ABOVE CONDITIONS.

32. THE PROJECT IS SUBJECT TO THE HOWARD COUNTY GREEN BUILDINGS LAW SET FORTH IN TITLE 3, SUBTITLE 10 OF THE HOWARD COUNTY CODE.
33. THIS PROJECT HAS BEEN REGISTERED WITH THE USGBC AS ELKRIDGE VOLUNTEER FIRE STATION PROJECT ID 1000029999 ON FEBRUARY 5, 2013.
34. THIS SDP IS SUBJECT TO THE FEB. 5, 2013 AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE AMENDED ZONING REGULATIONS PER COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, OR AS APPROVED BY THE HOWARD COUNTY COUNCIL.
35. PARCELS 402, 403 AND A-2 WILL BE COMBINED INTO A SINGLE PARCEL AND EASEMENTS WILL BE ADDED AND SHOWN ON F-14-131, RECORDED AS PLAT 23494-23495.
36. THE CONTRACTOR SHALL USE THE APPROPRIATE DRAWING FOR A GIVEN TYPE OF SITE WORK, EVEN THOUGH ANOTHER DRAWING MIGHT SHOW THE WORK. FOR EXAMPLE, PROPOSED WALKS AND CONTOURS WILL APPEAR ON THE PLANTING PLAN, BUT THE CONTRACTOR SHALL NOT USE THAT DRAWING TO LAYOUT WALKS OR FOR GRADING. THE PLANTING PLAN SHALL BE USED ONLY FOR PLANTING (AND OTHER ISSUES EXPLICITLY RELATED TO PLANTING AND ADDRESSED BY THE PLAN). LIKEWISE, FINAL GRADING SHALL BE BASED ON THE GRADING PLAN AND NOT ON THE SEDIMENT CONTROL PLAN. BEFORE BEGINNING WORK, THE CONTRACTOR SHALL CAREFULLY REVIEW ALL SITE DEVELOPMENT PLAN DRAWINGS; IF THERE IS ANY QUESTION ABOUT WHICH DRAWING IS AN APPROPRIATE DRAWING FOR A PARTICULAR TYPE OF WORK, THE CONTRACTOR SHALL SUBMIT A REQUEST FOR INFORMATION.

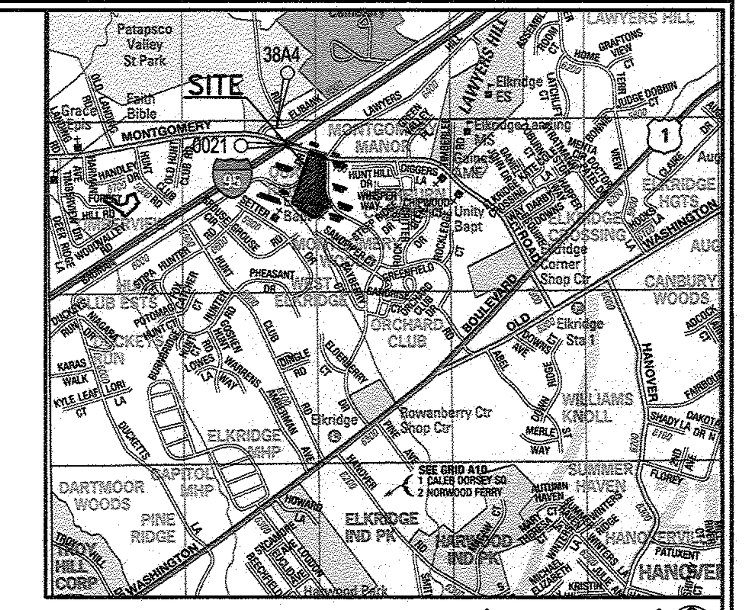
THE FINAL APPEARANCE AND AESTHETICS OF ALL SITE IMPROVEMENTS ARE ESSENTIAL AND MATERIAL PARTS OF THE CONTRACT. SITE IMPROVEMENTS THAT ARE FULLY FUNCTIONAL, BUT WHICH DEVIATE FROM THE DESIGN AND THE AESTHETIC REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS DO NOT CONSTITUTE SUBSTANTIAL COMPLETION OF THE CONTRACT. ALL SITE IMPROVEMENTS SHALL COMPLY WITH GRAPHIC REPRESENTATIONS, NOTES AND SPECIFICATIONS REGARDING VERTICAL AND HORIZONTAL ALIGNMENT, SPACING, COLOR, AND FINISHES. SPECIFIC AESTHETIC REQUIREMENTS ARE SET FORTH ON THESE PLANS AND IN THE SPECIFICATIONS REGARDING GRADING, UTILITIES, RIP-RAP, PAVEMENTS, FENCING, WALLS, AND PLANTS.

37. THIS PLAN IS SUBJECT TO CONDITIONS OF CEAJAB-OP-RMN (HOCO DPW / ELKRIDGE FIRE STATION) 2013-61172-M02 AND STATE OF MARYLAND DEPARTMENT OF THE ENVIRONMENTAL, WATER MANAGEMENT ADMINISTRATION, LETTER OF AUTHORIZATION, 13-NT-3213 / 201361172 EFFECTIVE 2/24/2014.
38. SPEED STUDY PREPARED BY TRAFFIC CONCEPTS DATED 3/8/13. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
39. A DESIGN MANUAL WAIVER TO HOWARD COUNTY DESIGN MANUAL, VOLUME III, SECTIONS 2.5.2.H INTERSECTION SIGHT DISTANCE AND SECTION 2.3.3.A. STOPPING SIGHT DISTANCE FOR THE ENTRANCE TO THE FIRE STATION WAS APPROVED 8/1/13 BY THE DIRECTOR OF PUBLIC WORKS.
40. A DESIGN MANUAL WAIVER TO HOWARD COUNTY DESIGN MANUAL VOL. 1 SECT. 5.2.1.A REQUIRING 10 YEAR AND 100 YEAR QUANTITY MANAGEMENT IN THE DEEP RUN WATERSHED WAS APPROVED BY THE DIRECTOR OF PUBLIC WORKS ON 5/29/14.
41. A DESIGN MANUAL WAIVER TO HO.CO. DESIGN MANUAL VOLUME IV STD. DETAIL R 6.09 TO REDUCE THE MINIMUM RADIUS TO 15' FROM 25' AND TO REDUCE THE MINIMUM 2 WAY WIDTH FROM 24' TO 15' WAS APPROVED BY THE DIRECTOR OF PUBLIC WORKS ON 5/29/14.
42. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOL. III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993). A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
43. THE TOWER IS CLASSIFIED AS AN OBSERVATION TOWER IN A LETTER DATED JUNE 6, 2014 FROM THE DEPARTMENT OF PLANNING AND ZONING AND IS THEREFORE EXEMPT FROM HEIGHT REQUIREMENTS.
44. IN ACCORDANCE WITH SECTION 134, LIGHTING WILL BE DIRECTED AWAY FROM PUBLIC RIGHTS OF WAY AND RESIDENTIAL LOTS.
45. ALL RECLAMATION TANKS AND OIL WATER SEPARATORS ASSOCIATED WITH VEHICLE WASHING AND SERVICING MUST BE LICENSED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
46. HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN (SDP) DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PERMIT PLANS FOR CERTAIN FACILITIES TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS SDP WILL REQUIRE REVIEW AND APPROVAL BY THE HEALTH DEPARTMENT. SUCH FACILITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, THOSE WHICH HAVE SWIMMING POOLS, OR THAT SELL PREPARED OR PACKAGED FOODS, OR THAT MAY HAVE EQUIPMENT THAT EMITS RADIATION.
47. SHOULD THE CONTRACTOR DISCOVER A WELL DURING THE DEVELOPMENT OF THIS PROPERTY, WORK IN THE VICINITY OF THE WELL IS TO CEASE IMMEDIATELY AND THE HEALTH DEPARTMENT NOTIFIED. IT IS THE OWNER'S RESPONSIBILITY THAT THE HEALTH DEPARTMENT IS NOTIFIED. A LICENSED WELL DRILLER MUST SEAL THE WELL AND THE WELL ABANDONMENT REPORT SUBMITTED TO THE HEALTH DEPARTMENT.
48. PLAT TO ELIMINATE 20' PUBLIC UTILITY EASEMENT AND INCREASE THE FOREST CONSERVATION RENTION EASEMENT RECORDED AS PLAT 23933-23934



Overall Plan 1" = 100'

SITE DEVELOPMENT PLAN
FOR
ELKRIDGE FIRE STATION
PARCEL A
HOWARD COUNTY, MARYLAND

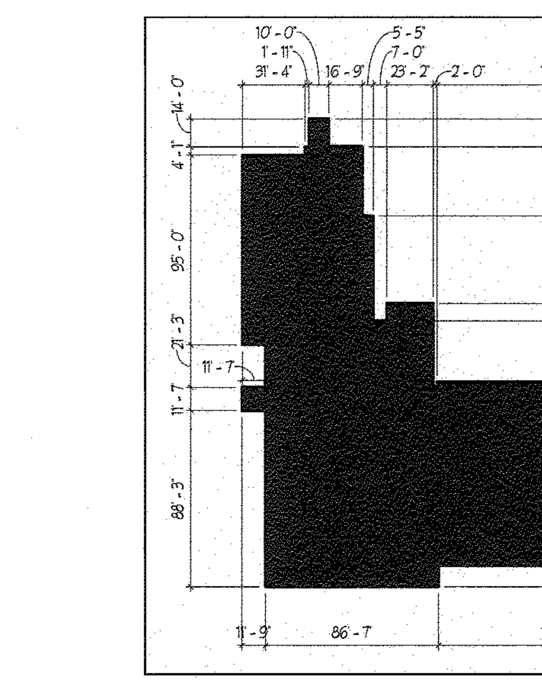


Vicinity Map - Scale: 1' = 2000'
ADC Map 4937-B7 & C7
ADC The Map People - Permitted Use # 20612205

BENCHMARK DESCRIPTIONS

The existing topography within the limit of disturbance is based on a field run survey by Shanaberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point Elevation	Northing	Easting
38A4 223.372	562977.6414	1386288.0606
0021 226.190	562745.8233	1386542.0529



BUILDING PLAN VIEW

ADDRESS CHART	
PARCEL	DESCRIPTION
402/403/A2	5700 ROWANBERRY AVENUE

GENERAL NOTES CONT.:

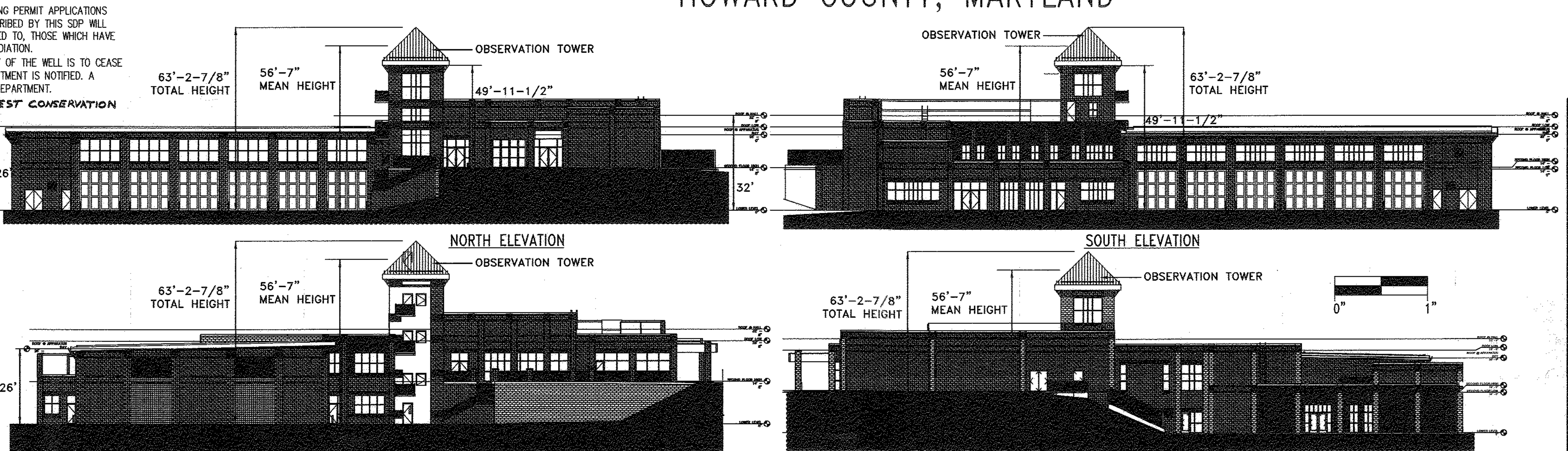
48. SHOULD THE CONTRACTOR ENCOUNTER A SEPTIC SYSTEM DURING THE DEVELOPMENT OF THE PROPERTY, WORK IN THE AREA OF THE SEPTIC SYSTEM MUST CEASE IMMEDIATELY AND THE HEALTH DEPARTMENT NOTIFIED. IT IS THE OWNERS RESPONSIBILITY THAT THE HEALTH DEPARTMENT IS NOTIFIED. A SEPTIC SYSTEM DISCOVERED UNDER THESE CIRCUMSTANCES MUST BE PUMPED DRY AND PROPERLY ABANDONED . ONLY CLEAN EARTH MATERIALS MAY BE USED TO FILL VOIDS LEFT BY ABANDONED SEPTIC SYSTEM COMPONENTS. SHOULD THE CONTRACTOR ELECT TO ABANDON A DISCOVERED SEPTIC SYSTEM, A REPORT WITH ATTACHMENTS (I.E. PHOTOGRAPHS AND COPIES OF INVOICES) MUST BE SUBMITTED TO THE HEALTH DEPARTMENT.
49. WAIVER PETITION WP-15-070: THE PLANNING DIRECTOR APPROVED THE REQUEST TO WAIVE SECTIONS 16.156(l), 16.156(m), 16.144(p) AND 16.144(q) IN ORDER TO EXTEND THE DEADLINES FOR FINALIZING THE DEED OF FOREST CONSERVATION EASEMENT AND THE SUBMISSION OF THE PLAT MYLAR ORIGINAL AND SITE DEVELOPMENT PLAN ORIGINAL.

APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS.

1. THE APPLICANT MUST EXECUTE A DEED OF FOREST CONSERVATION EASEMENT WITHIN 6 MONTHS OF THE CURRENT DEADLINE (ON OR BEFORE JULY 23, 2015).
2. THE APPLICANT MUST SUBMIT THE FINAL PLAN ORIGINAL MYLAR WITHIN 6 MONTHS OF THE CURRENT DEADLINE (ON OR BEFORE SEPTEMBER 20, 2015).
3. THE APPLICANT MUST SUBMIT THE SITE DEVELOPMENT PLAN ORIGINAL MYLAR WITHIN 10 MONTHS OF THE CURRENT DEADLINE (ON OR BEFORE OCTOBER 24, 2015).
4. PLEASE ADD A NOTE TO F-14-131 AND SDP-14-075 INDICATING THIS WAIVER PETITION, DECISION AND CONDITIONS OF APPROVAL.

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV



NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

PERMIT CHART

LOT/PARCEL	LIBER/FOLIO	PLATS
402 403 A2	14609/20 1401/512 13842/358	23933 - 23934

GRID	ZONE	TAX MAP	ELECT DIST	CENSUS TRACT
12	R-12, RA15	38	1ST	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.29.16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16
DIRECTOR — DATE 10-3-16

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS IN ACCORDANCE WITH THE MASTER PLAN OF HOWARD COUNTY

COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE 9/29/16

REVISED COVER SHEET
ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

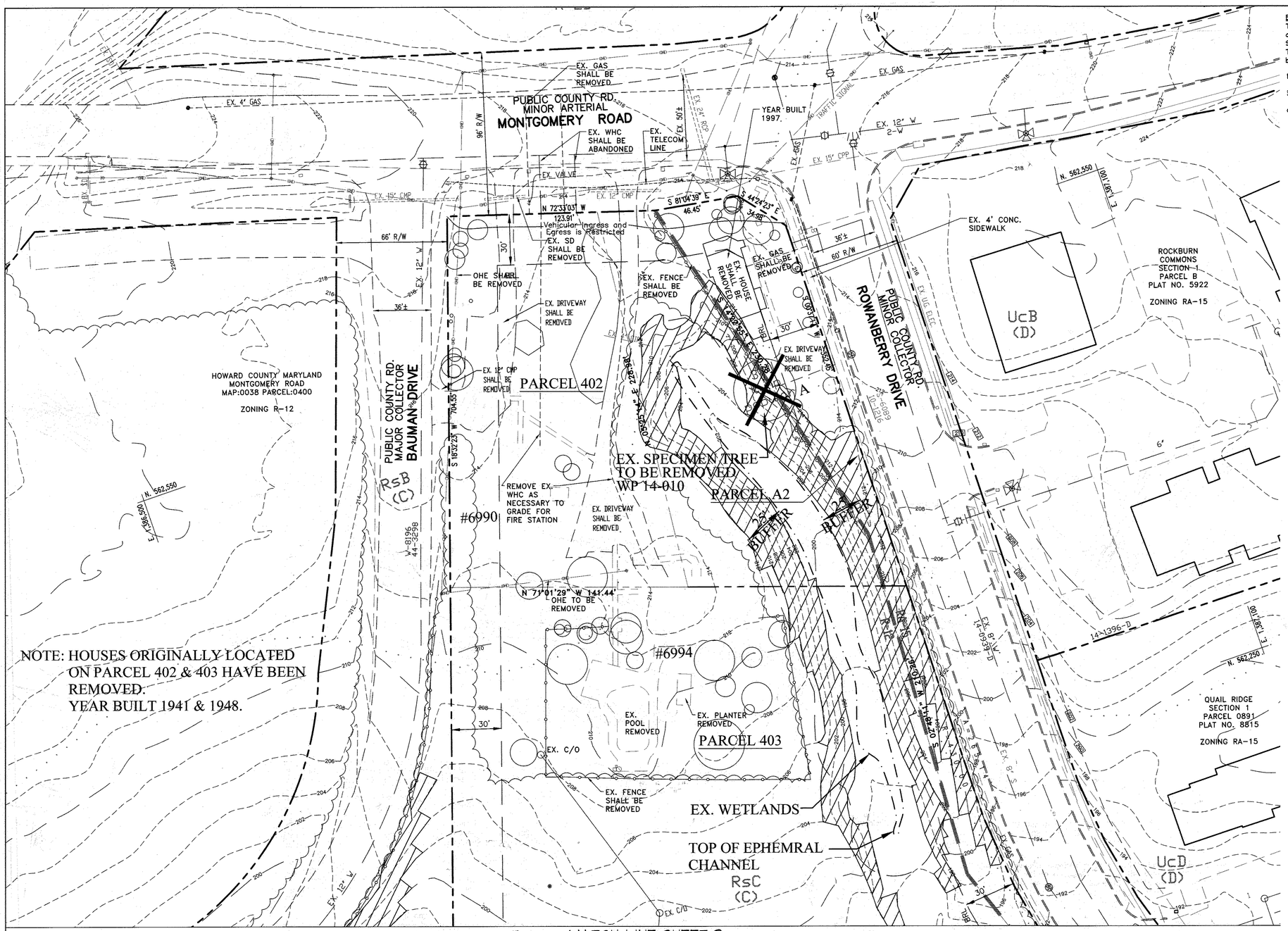
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 1 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

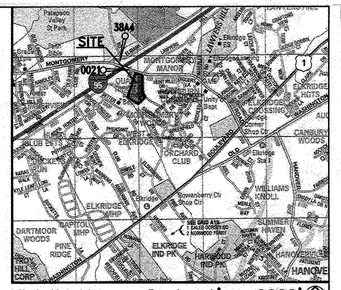
SDP-14-075



NOTE: HOUSES ORIGINALLY LOCATED ON PARCEL 402 & 403 HAVE BEEN REMOVED.
YEAR BUILT 1941 & 1948.

BENCHMARKS:
The existing topography within the limit of disturbance is based on a field run survey by Shandberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point	Northing	Easting	Elevation
38A4	562477.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190



Vicinity Map – Scale: 1' = 2000'
ADC Map 4937-B7 & C7
ADC The Map People – Permitted Use # 20612205

LEGEND

EXISTING

- Boundary
- Contour (220)
- Soils (Fa (D), RsC (C))
- Nontidal Wetlands
- 25' MDE NTW Buffer
- Treeline
- Building
- Road
- Fence
- Storm Drain (EX. 24" RCP)
- Sanitary
- Electric
- Water
- Utility Pole
- Deciduous Tree
- Steep Slopes (25+%)

No.	Description	Date
1	Delete parking spaces, access drive, service drive, relocate dumpster, gen. add traffic sig. conf. plans, red. access drive from 30' to 24', by SHA Engineering GROUP.	5/12/16

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.16.15
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 10-29-15
DIRECTOR	DATE 10-30-15

EXISTING INFORMATION AND CONDITIONS NOT GUARANTEED. VERIFY CONDITIONS AND TEST PIT EXISTING UTILITIES. The correctness and completeness of the information showing existing conditions is not guaranteed. Before beginning construction, the contractor shall perform the following tasks.

(a) At least SEVEN DAYS prior to installing sediment control measures, mark/paint all utilities, and maintain markings throughtout construction. This requirement includes marking of utilities by Miss Utility (1-800-257-7777) and the marking of on-site utilities that might not be marked by MISS Utility; the contractor shall either mark these on-site utilities himself or by subcontracting with a private utility locating firm.

(b) Verify the general accuracy of the existing conditions shown on the site drawings by visual inspection of the surface of the site and all existing structures, paving and utility appurtenances visible thereon;

(c) With regard to the structures and appurtenances observed as required per item (b) above, determine the type, size, location and elevation of all those existing utilities (including but not limited to all wells, storm drains, sanitary lines, water lines, gas lines, steam lines, electric lines, telephone lines, and communication ducts, and all manholes, inlets, clean-outs, valves, handholes, etc. related thereto) within the limits of construction in order to (i) avoid damaging or disrupting service, and (ii) to coordinate and facilitate construction of proposed utilities and other improvements. In addition to the Contractor's visual observation and the utility marking (as required above), the contractor shall schedule and complete Test Pitting of all existing utilities (for the purposes set forth above) and shall do so in a timely manner in order to allow time for analysis and redesign by Tesseract and/or other consultants, without delaying the project schedule.

(a) Immediately report to Architect and Engineer the results of steps (a), (b), and (c) which might indicate any discrepancy between actual conditions and those shown on the plan, and any potential conflicts between proposed improvements and existing condition.

Test pitting defined: For the purposes of this contract, excavation of utility trenches does not constitute test pitting. Test pitting is a separate operation completed at least seven days before utility installation is scheduled to begin. Test pitting means excavation to expose existing utilities in two situations: (i) where proposed improvements cross existing utilities (pipes, lines, structures, appurtenances) whether shown on the plan or marked by MISS UTILITY and the contractor in the field (as required above), and (ii) where proposed utilities are designed to connect to existing utilities. Test pitting includes recording the type, size, location and elevation of the exposed utilities, and emailing the record to the Architect, Tesseract and the Owner. The record may be a legible hand-written field sketch.

COORDINATE WITH ELECTRIC, GAS, & TELECOMMUNICATIONS COMPANIES. In addition to the above requirements, the contractor shall coordinate with local private utility companies where temporary disconnection, relocation or removal of utilities is required for the contractor to construct the proposed buildings and site improvements.

ABBREVIATIONS (not alphabetical):

PROP	Proposed*	DIP	Ductile iron pipe, class 54**
EX	Existing	PVC	Polyvinyl chloride pipe, schedule 40**
BIT	Bituminous	HDPE	High Density Polyethylene Pipe, smooth interior ASTM F 2648**
CONC	Concrete	CMP	Corrugated Metal Pipe, aluminized**
MH	Manhole	RCP	Reinforced concrete pipe, class IV**
SD	Storm Drain	C&G	Concrete curb & gutter
I	Inlet	SWM	Storm Water Management
C/O	Clean-out	INV	Invert Elevation
SAN	Sanitary Sewer	FF	Finished floor elevation
FH	Fire Hydrant	BF	Basement floor elevation
TC	Top of curb	BC	Bottom of curb
TS	Top of step	BS	Bottom of step
TB	Top of Boulder	BB	Bottom of Boulder
TW	Top of Wall	BW	Bottom of Wall
PC	Point of Curvature	PS	Parking space
PT	Point of Tangency	HC	Handicapped parking space
PI	Point of Intersection	TYP	Typical

*Proposed means work included in the base contract unless accompanied by the phrases "N.I.C" or "By Others."

**Unless otherwise noted on these drawings.

0' 30' 60' 90'

ENGINEER
Tesseract Sites, Inc.
401 Washington Ave.
Suite 303
Towson, MD 21202
Contact: Jeffrey Schwab
ph: 410-321-7600
fax: 410-321-7601

OWNER AND DEVELOPER
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email: mstromdahl@howardcountymd.gov

Tesseract™ TESSERACT SITES, INC
Jeffrey Schwab
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Towson, Maryland, 21204
p. 410.321.7600
f. 410.321.7601

Existing Conditions Plan
North
Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

LOT/PARCEL:		LIBER/FOLIO:	PLATS:
402 403 A2		14609/20 14101/512 13842/358	N/A
GROUP	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

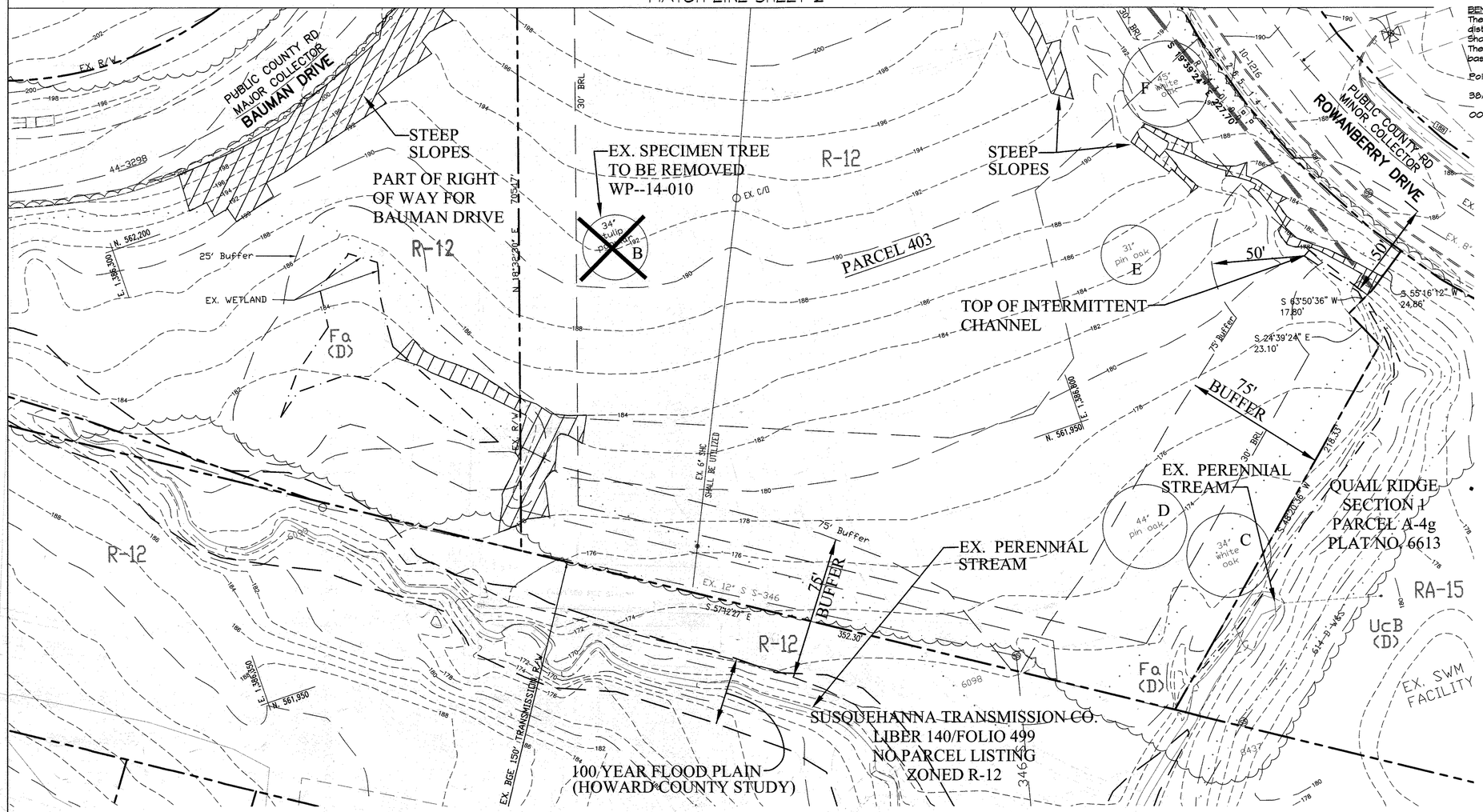
Date: 09/02/15
Proj. #: 12021
Scale: 1" = 30'

2 of 41

DESIGN: DRAWN: CHK'D:

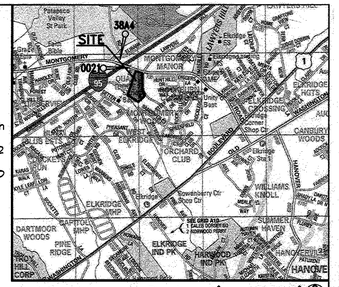
SDP 14-075

MATCH LINE SHEET 2



BENCHMARKS:
The existing topography within the limit of disturbance is based on a field run survey by Shandberger and Lane, dated January 16, 2013. The courses and coordinates shown hereon are based on the following Howard County monuments:

Point	Northing	Easting	Elevation
38A4	562977.6414	1386288.0606	223.372
0021	562745.8233	1386542.0529	226.190



Vicinity Map – Scale: 1' = 2000'
ADC Map 4937-B7 & C7
ADC The Map People – Permitted Use # 20612205

PRE-DEMOLITION PROCEDURES AND ON-SITE MEETING. Before commencing site clearing or installation of sediment control measures, the Contractor shall:
(i) Field verify the coordinates and elevations of key boundary corners and topographic features;
(ii) Field verify existing conditions, have MISS Utility and private utility locating services locate existing utilities, and confirm the status (live or abandoned) of all utilities;
(iii) As required by the sediment control plans, install tree protection and delineate the limit of disturbance (with flagging or orange safety fence);
(iv) Delineate the limits of demolition and clearing by marking pavement, curbs, walks, walls, fences, utility structures and appurtenances, trees and vegetation, and other existing improvements to be removed, and pavement to be milled;
(v) Flag any other vegetation, improvements, or obstructions that the contractor believes are necessary to remove (in whole or part) in order to facilitate construction;
(vi) Flag items to be salvaged (if any); and
(vii) After completing the requirements listed above, arrange and conduct an on-site meeting with the Architect, Engineer, and Owner to observe the delineation, flagging, stake-out and other items required above. Request the meeting at least three days in advance of the desired meeting date.

PROTECTION AND OPERATION OF EXISTING UTILITIES. Existing utilities not designated to be demolished or abandoned shall be protected from damage, and utility service to facilities occupied by Owner or others shall not be interrupted without prior written authorization of the Owner, and provision of acceptable temporary utility services. Provide a minimum 48-hours notice to the Owner and receive written notice to proceed before interrupting any utility.

PROTECTION OF EXISTING IMPROVEMENTS: Provide protections necessary to prevent damage to existing improvements. Any damage to the existing public right-of-way, or any existing paving, curb & gutter, utilities, sidewalks, trees, shrubs, lawns, or any other existing conditions (not indicated to be demolished), or any newly installed proposed improvement, shall be repaired or replaced, to owner's satisfaction, at Contractor's sole cost and expense.

TRAFFIC: Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

PROTECTION OF EXISTING VEGETATION.
Protect existing trees and other vegetation (unless clearly shown to be removed) from: (i) cutting, breaking or skinning of branches and roots; (ii) skinning or bruising of bark and (iii) damage to roots and root environment. Do not use trees for surveying purposes.

Within the dripline of trees do not permit: grading; stockpiling of earth or construction debris; storage of materials or equipment; or vehicular traffic or parking of vehicles.

Install Tree Protection Fence in areas shown on plan.

In the event a tree or shrub is damaged by construction, the Owner has the option of requiring the Contractor to employ a licensed arborist to repair damage to trees and shrubs; or af requiring the Contractor to remove the damaged plant and replace it with the same size and species. If the size of the plant cannot be matched, the Contractor shall be required to issue a credit of $150 per inch of caliper not attained by the replacement plant. (For example, a 5" caliper replacement for a 15" caliper tree would also require a $1,500 credit.) The contractor does not have the right to prune trees and shrubs merely to make construction more efficient or accessible.

LAWN MAINTENANCE. Maintain lawns (existing to remain and newly established) within the limit of disturbance and within adjacent right-of-ways throughout construction; protect lawns from excessive foot traffic; fertilize and water lawns as required to establish a thick stand of turf; provide regular mowing to keep grass between 2 1/2" to 4" high.

MILLING AND SAW CUTTING OF ASPHALT PAVEMENT. Where the surface course of asphalt to be removed abuts existing asphalt to remain, removal shall be by milling done in areas and along lines approved by the Owner. Where asphalt to be removed will abut proposed concrete, saw cutting or milling is permitted. Where removal of non-surface asphalt layers is required, mill or saw cut those layers.

REMOVAL OF CONCRETE CURB, CURB & GUTTER, AND PAVEMENTS TO NEAREST JOINT. When removal of concrete curb, curb & gutter, sidewalk, and other concrete pavement is expressly required by the drawings or is required to construct or install utilities or any other site improvement, remove the entire section of concrete to the closest expansion joint beyond the required work. The base contract shall include said removal and replacement at no additional cost to the owner.

STRIPING AND STOCKING TOPSOIL.

Strip topsoil in all areas beneath proposed buildings, structures, pavements and in all areas of cut. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass and weeds from areas before stripping.

The Contractor may elect to purchase topsoil in lieu of stripping and stockpiling topsoil (at no additional cost to the Owner), but in any case, shall stockpile and/or purchase sufficient topsoil to place topsoil on all disturbed areas not to be paved so that after fine grading there is a layer of topsoil no less than 4 inches thick.

Stockpile topsoil in storage piles in areas indicated on plans or as directed by a representative of the Owner. Construct storage piles to provide free drainage of surface water. Cover storage piles as required to prevent wind erosion.

REMOVAL WASTE FROM OWNER'S PROPERTY: Remove all demolished materials, cleared vegetation, and construction debris from the Owner's property in a lawful manner and at no additional cost to the Owner.

Howard County, Maryland (MAP #27)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	K Factor Rock Free	K Factor Whole Soil
Fa	Fallsington sandy loam, 0 to 2 percent slopes	0.2	3.5%	.02	.02
RsB	Russett fine sandy loam, 2 to 5 percent slopes (Highly Erodible)	0.8	14.1%	.28	.24
RsC	Russett fine sandy loam, 5 to 10 percent slopes (Highly Erodible)	4.5	79.2%	.28	.24
UcB	Urban land-Chillum-Beltsville complex, 0 to 5 percent slopes	0.1	1.8%		
UcD	Urban land-Chillum-Beltsville complex, 5 to 15 percent slopes	0.1	1.8%		

0' 30' 60' 90'

No.	Description	Date
1	Delete parking spaces, access dr service drive, rel. dumpster, gen., add traffic signal control plans, reduce access drive from 30-24', by Still Engineering Group.	5/18/16

Revisions

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.16.15
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 10-29-15
DIRECTOR	DATE 10-30-15

ENGINEER
Tesseract Sites, Inc.
401 Washington Ave.
Suite 303
Towson, MD 21202
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ph: 410-321-7600
fax: 410-321-7601

OWNER AND DEVELOPER
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Columbia, MD 21045
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email: mstromddhl@howardcountymd.gov

Tesseract™
Jeffrey Schwab
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Towson, Maryland, 21204
TESSERACT SITES, INC
p. 410.321.7600
f. 410.321.7601

Existing Conditions Plan South
Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

LOT/PARCEL	LIBER/FOLIO	PLATS
402 403 A2	14101/512 13842/358	N/A

GRID	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT
12	R-12, RA15	38	1ST	

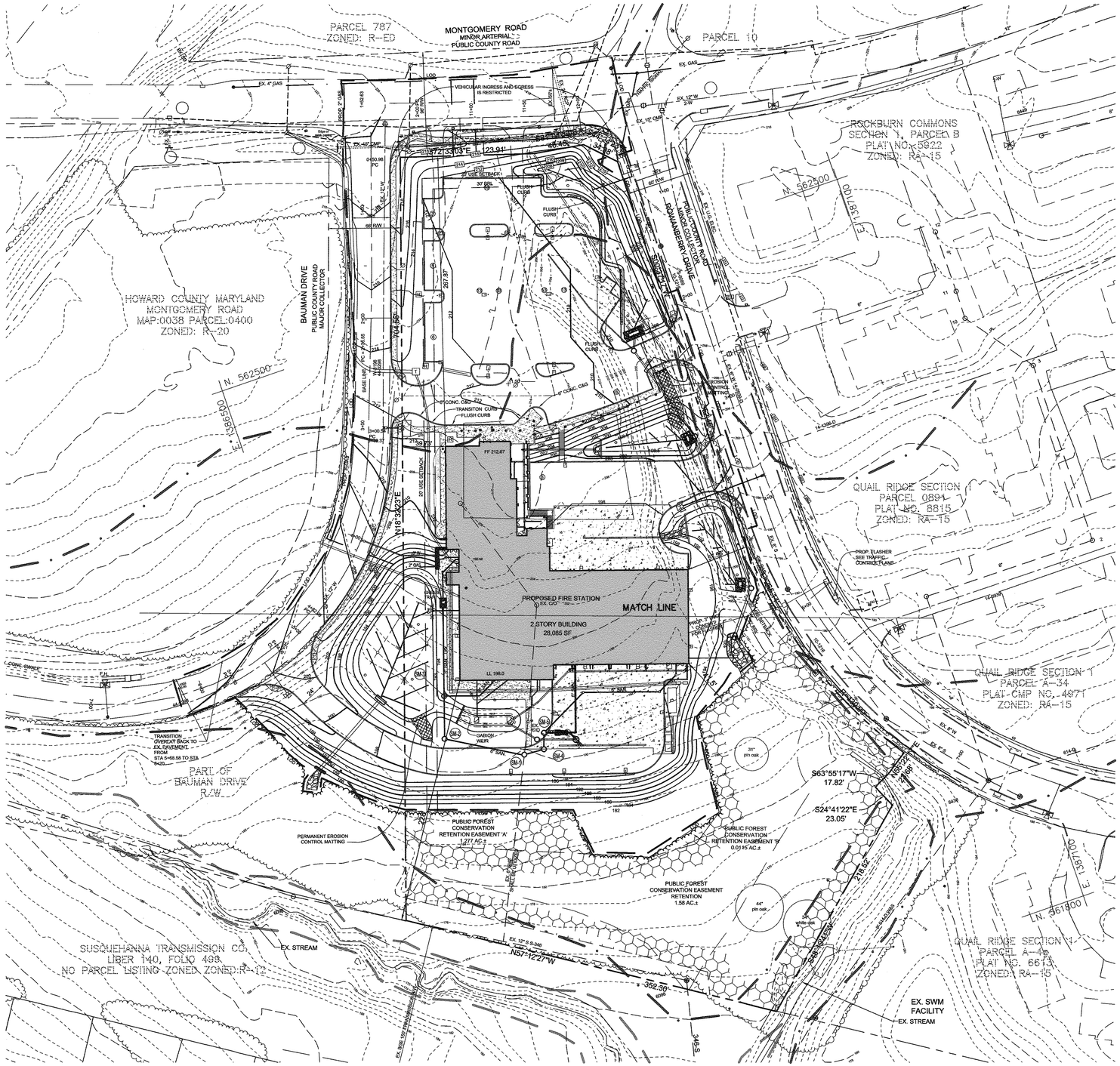
STATE OF MARYLAND JEFFREY SCHWAB 14230 REGISTERED PROFESSIONAL ENGINEER

Date: 09/02/15
Proj. #: 12021
Scale: 1" = 30'

3 of 41

DESIGN: DRAWN: CHECK:

SDP 14-075



LEGEND

EXISTING CONTOUR	382
PROPOSED CONTOUR	382
EXISTING SPOT ELEVATION	382.3
PROPOSED SPOT ELEVATION	+82.63
DIRECTION OF FLOW	
EXISTING TREELINE	
PROPOSED TREELINE	
FOREST CONSERVATION EASEMENT	
CONCRETE VEHICULAR PAVEMENT	
CONCRETE PEDESTRIAN PAVEMENT	

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-29-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER

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EMAIL: PAUL@SILLENGINEERING.COM

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PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED OVERALL SITE PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL A. SILL — No. 32025 — PROFESSIONAL ENGINEER

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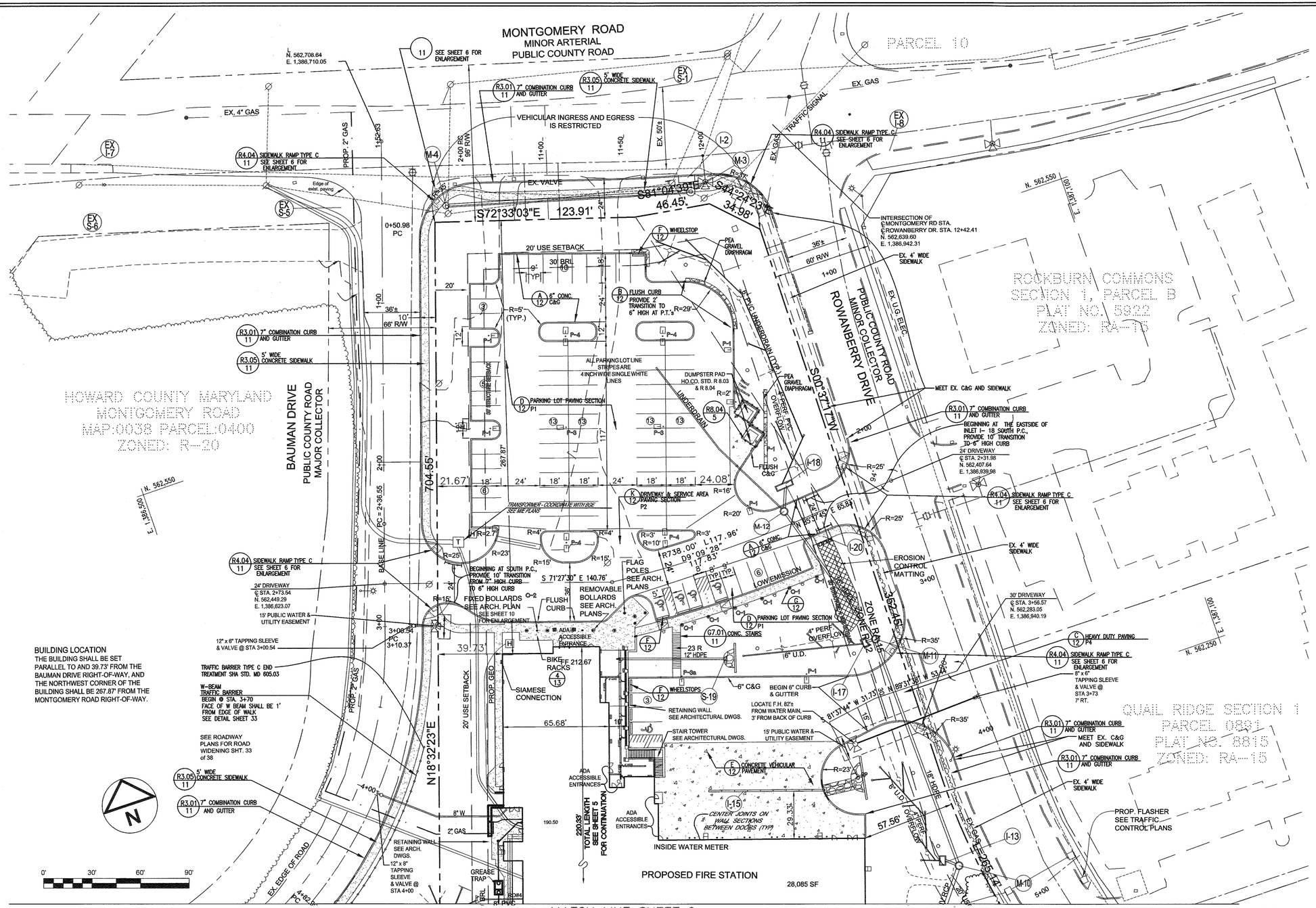
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=50'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	4 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

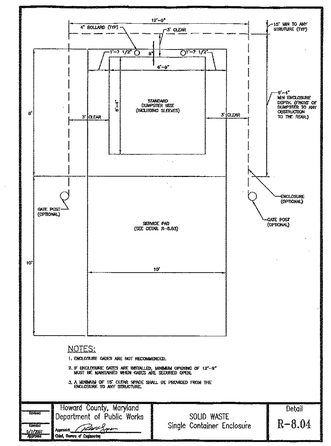
0' 50' 150' 300'

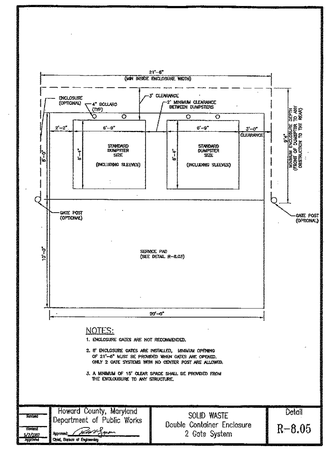
SDP-14-075



LEGEND

EXISTING CONTOUR	382
PROPOSED CONTOUR	382
EXISTING SPOT ELEVATION	382.3
PROPOSED SPOT ELEVATION	+82.63
DIRECTION OF FLOW	
EXISTING TREELINE	
PROPOSED TREELINE	
FOREST CONSERVATION EASEMENT	
CONCRETE VEHICULAR PAVEMENT	
CONCRETE PEDESTRIAN PAVEMENT	





ENGINEER

SILL ENGINEERING GROUP, LLC
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11130 DOVEDALE COURT, SUITE 200
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OFFICE: 443-325-5067
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OWNER/DEVELOPER

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HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

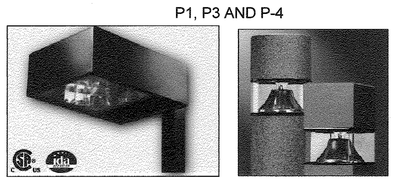
NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

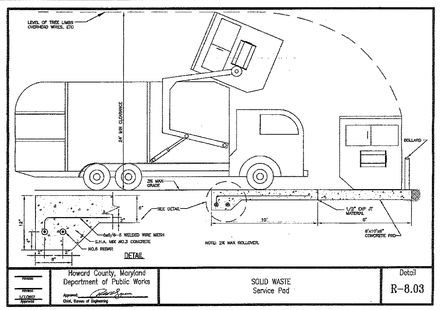
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-29-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

P1, P3 AND P-4



ONSITE LIGHTING FIXTURE SCHEDULE

TYPE	FIXTURE TYPE FUNCTION	MOUNTING	VOLTS	# WATTS	LAMPS / BALLASTS		MANUFACTURER'S CATALOG #	ALTERNATIVE MANUFACTURERS
P1	SHOEBOX LUMINAIRE, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 58%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR	POLE 16-0"	480	142	1X1000W PMH 40000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-16-40-7-AX-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P2	SHOEBOX LUMINAIRE, DARK SKY TYPE 2 OPTICS, HOUSE SHIELD, WET LOCATION, 65%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE	POLE 20'-10"	480	142	1X1000W PMH 40000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H2-F-5-DB-HS SSS-16-40-1-AX-DB ARTFORMS NEWAVE/A-510R-34"-HIGH BASE	HUBBELL GENERAL ELECTRIC
P3	SHOEBOX LUMINAIRE, DARK SKY TYPE 3 OPTICS, HOUSE SHIELD, WET LOCATION, 58%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE	POLE 16-10"	480	142	1X1000W PMH 40000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-14-40-7-AX-DB & ARM-F-10-S-DB ARTFORMS NEWAVE/A-510R-34"-HIGH BASE	HUBBELL GENERAL ELECTRIC
P3A	SHOEBOX LUMINAIRE, DARK SKY TYPE 3 OPTICS, HOUSE SHIELD, WET LOCATION, 58%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR	POLE 20-0"	480	142	1X1000W PMH 40000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-20-40-7-AX-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P4	TWO SHOEBOX LUMINAIRES, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 58%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR	POLE 16-0"	480	142	2X1000W PMH 40000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING TWO: RCS-A10-P12-H4-F-5-DB-HS SSS-16-40-7-CX-DB	HUBBELL GENERAL ELECTRIC
P4A	TWO SHOEBOX LUMINAIRES, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 58%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE	POLE 20'-10"	480	142	2X1000W PMH 40000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING TWO: RCS-A10-P12-H4-F-5-DB-HS SSS-18-40-7-CX-DB ARTFORMS NEWAVE/A-510R-34"-HIGH BASE	HUBBELL GENERAL ELECTRIC
Q1	12"DIA X 37"H TAPERED ALUMINUM BOLLARD, ROUNDED TOP, WET LOC., 32.3%TLE, TYPE 3 CUTOFF OPTICS, DARK PLATINUM COLOR.	GRADE	277	124	1X50W PMH 40000K, 70CRI 3400 LUMENS	PULSE START	COOPER LIGHTING SBR-50M-1-2-7-36-DP-LA2	
Q2	12"DIA X 37"H TAPERED ALUMINUM BOLLARD, ROUNDED TOP, WET LOC., 29.7%TLE, TYPE 5 CUTOFF OPTICS, DARK PLATINUM COLOR.	GRADE	277	124	1X50W PMH 40000K, 70CRI 3400 LUMENS	PULSE START	COOPER LIGHTING SBR-50M-1-2-7-36-DP	



REVISED SITE AND LAYOUT PLAN NORTH

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

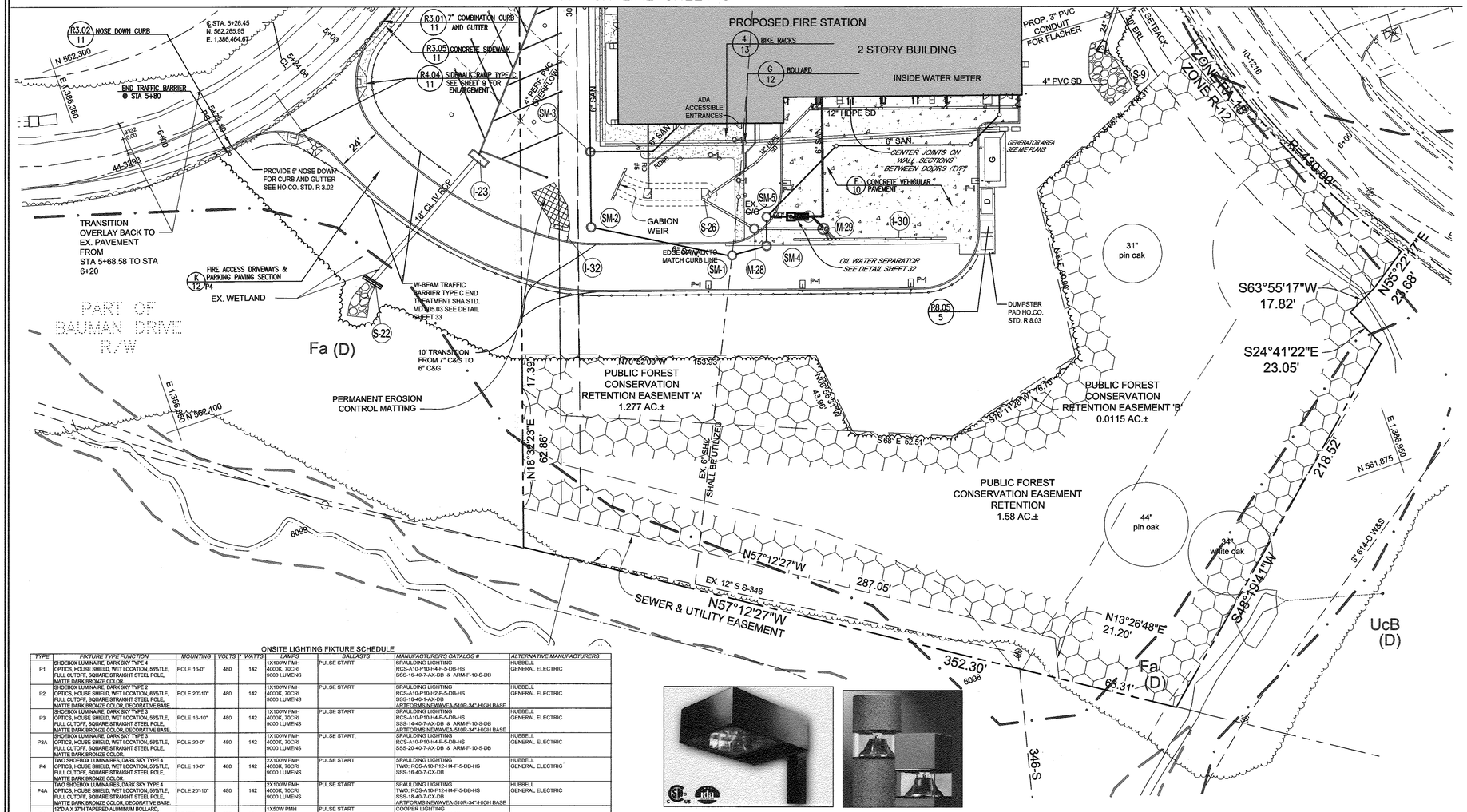
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

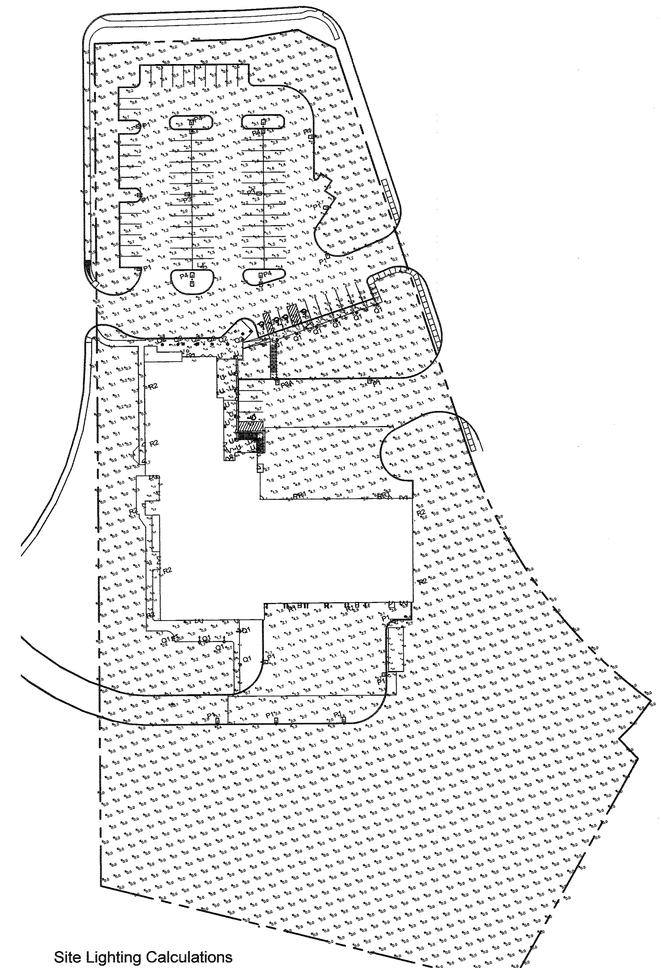
DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 5 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075

MATCH LINE SHEET 5





Site Lighting Calculations
COUNTY Light Trespass
Calculation @ 1.0 LLF

ONSITE LIGHTING FIXTURE SCHEDULE

TYPE	FIXTURE TYPE FUNCTION	MOUNTING	VOLTS	* WATTS	LAMPS	BALLASTS	MANUFACTURER'S CATALOG #	ALTERNATIVE MANUFACTURERS
P1	SHOEBOX LUMINAIRE, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 56%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR.	POLE 16-0"	480	142	1X100W PMH 4000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H-4-F-5-DB-HS SSS-16-40-7-AX-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P2	SHOEBOX LUMINAIRE, DARK SKY TYPE 2 OPTICS, HOUSE SHIELD, WET LOCATION, 65%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE.	POLE 20'-10"	480	142	1X100W PMH 4000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H2-F-5-DB-HS SSS-16-40-1-AX-DB ARTFORMS NEWAVE(A-510R-34"-HIGH BASE	HUBBELL GENERAL ELECTRIC
P3	SHOEBOX LUMINAIRE, DARK SKY TYPE 3 OPTICS, HOUSE SHIELD, WET LOCATION, 58%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE.	POLE 16-10"	480	142	1X100W PMH 4000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-14-40-7-AX-DB & ARM-F-10-S-DB ARTFORMS NEWAVE(A-510R-34"-HIGH BASE	HUBBELL GENERAL ELECTRIC
P3A	SHOEBOX LUMINAIRE, DARK SKY TYPE 3 OPTICS, HOUSE SHIELD, WET LOCATION, 58%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR.	POLE 20-0"	480	142	1X100W PMH 4000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING RCS-A10-P10-H4-F-5-DB-HS SSS-20-40-7-AX-DB & ARM-F-10-S-DB	HUBBELL GENERAL ELECTRIC
P4	TWO SHOEBOX LUMINAIRES, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 56%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR.	POLE 16-0"	480	142	2X100W PMH 4000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING TWO: RCS-A10-P12-H4-F-5-DB-HS SSS-16-40-7-CX-DB	HUBBELL GENERAL ELECTRIC
P4A	TWO SHOEBOX LUMINAIRES, DARK SKY TYPE 4 OPTICS, HOUSE SHIELD, WET LOCATION, 56%TLE, FULL CUTOFF, SQUARE STRAIGHT STEEL POLE, MATTE DARK BRONZE COLOR, DECORATIVE BASE.	POLE 20'-10"	480	142	2X100W PMH 4000K, 70CRI 9000 LUMENS	PULSE START	SPAULDING LIGHTING TWO: RCS-A10-P12-H4-F-5-DB-HS SSS-18-40-7-CX-DB ARTFORMS NEWAVE(A-510R-34"-HIGH BASE	HUBBELL GENERAL ELECTRIC
Q1	12"DIA.X 27"H TAPERED ALUMINUM BOLLARD, ROUNDED TOP, WET LOC., 32.3%TLE, TYPE 3 CUTOFF OPTICS, DARK PLATINUM COLOR.	GRADE	277	124	1X50W PMH 4000K, 70CRI 3400 LUMENS	PULSE START	COOPER LIGHTING SBR-50M-1-2-7-36-DP-LA2	
Q2	12"DIA.X 37"H TAPERED ALUMINUM BOLLARD, ROUNDED TOP, WET LOC., 29.7%TLE, TYPE 5 CUTOFF OPTICS, DARK PLATINUM COLOR.	GRADE	277	124	1X50W PMH 4000K, 70CRI 3400 LUMENS	PULSE START	COOPER LIGHTING SBR-50M-1-2-7-35-DP	

STAKE–OUT REQUIREMENTS AND AS–BUILT SURVEYS

STAKE–OUT BY LICENSED SURVEYOR. A PROFESSIONAL SURVEYOR LICENSED IN MARYLAND, WITH PROVEN CAPABILITY AND EXPERIENCE ON SIMILAR PROJECTS. SHALL STAKE–OUT ALL SEDIMENT CONTROL MEASURES, ROUGH GRADING, EXCAVATIONS, FILLS, FINISHED GRADING, BUILDINGS, STRUCTURES, GRADING, ROADS, CURBS, GUARDRAILS, HARDSCAPES, WALKS, WALLS, FENCES, AND UTILITIES (INCLUDING BUT NOT LIMITED TO: STORM DRAIN MANHOLES, INLETS, PIPES, BENDS, AND CLEAN–OUTS; SANITARY SEWER MANHOLES, CLEAN–OUTS, GRAVITY PIPES AND BENDS, AND FORCE MAINS; SEPTIC TANK LOCATIONS AND DRAIN FIELDS; WELLS; WATER METERS, WATER MAINS AND BENDS, FIRE HYDRANTS; GEOTHERMAL WELLS AND LINES; LIGHT POLES BASES; MECHANICAL EQUIPMENT; TANKS; ELECTRIC AND TELECOMMUNICATIONS LINES).

RECORD LOG AND AS–BUILT INFORMATION. MAINTAIN A LOG OF LAYOUT CONTROL WORK AND AN UPDATED SURVEY OF AS–BUILT CONDITIONS SHOWING THE SIZE, TYPE, LOCATION AND ELEVATION OF SITE IMPROVEMENTS INCLUDING BUILDING CORNERS AND SLAB ELEVATIONS, UTILITIES (INCLUDING THE SIZE, TYPE, SLOPE, AND INVERT ELEVATIONS OF PIPES), CURBS, PARKING LOT AND ROAD ELEVATIONS, WALK AND WALL ALIGNMENTS AND ELEVATIONS, AND THE LOCATION AND ELEVATION OF OTHER SITE AMENITIES AND IMPROVEMENTS. NOTIFY OWNER IMMEDIATELY WHEN DEVIATIONS FROM REQUIRED LINES AND LEVELS EXCEED ALLOWABLE TOLERANCES.

PROVIDE A COPY OF THE UPDATED AS–BUILT SURVEY EACH MONTH.

BENCHMARKS. PRESERVE AND PROTECT PERMANENT BENCHMARKS AND CONTROL POINTS DURING CONSTRUCTION OPERATIONS. TEMPORARY BENCHMARKS AND CONTROL POINTS SHALL NOT BE CUT INTO OR PERMANENTLY MARKED ON SITE IMPROVEMENTS OR TREES.

VERIFICATION OF CONDITIONS AND COMPUTATIONS. BEFORE BEGINNING STAKE–OUT COMPUTATIONS, FIELD–VERIFY THE COORDINATES AND ELEVATIONS OF KEY BOUNDARY CORNERS AND TOPOGRAPHIC FEATURES UPON WHICH THE LAYOUT OF PROPOSED IMPROVEMENTS IS BASED. COMPUTE THE LAYOUT OF ALL PROPOSED IMPROVEMENTS IN ACCORDANCE WITH THE DIMENSIONS AND GRAPHIC REPRESENTATIONS ON THE DRAWINGS. VERIFY EXISTING PAVEMENT ELEVATIONS AND CROSS SLOPE, AND COMPUTE PROPOSED ALIGNMENT AND ELEVATIONS FOR ROAD WIDENINGS AND WHERE THE PROPOSED IMPROVEMENTS TIE INTO EXISTING IMPROVEMENTS. BEFORE ON SITE CLEARING, PROVIDE A PRELIMINARY STAKEOUT OF BUILDINGS, ROADS, PARKING LOTS, AND LIMIT–OF–DISTURBANCE, AND PROVIDE THE OWNER WITH THE OPPORTUNITY TO OBSERVE THE COMPLETED PRELIMINARY STAKE–OUT BEFORE PROCEEDING WITH WORK.

"MEASURE TWICE, CUT ONCE": THROUGHOUT CONSTRUCTION, THE CONTRACTOR'S SUPERINTENDENT SHALL CONTINUALLY CHECK THE ACCURACY OF ALL STAKE–OUT, PROPOSED EXCAVATIONS, GRADING, STRUCTURES, UTILITIES, CONCRETE FORMS, STRING LINES, AND OTHER SITE IMPROVEMENTS BEFORE EACH COMPONENT OF THE WORK BEGINS.

DIMENSIONS. UNLESS OTHERWISE NOTED ON THE DRAWING, ALL DIMENSIONS SHOWN ON THE SITE DRAWINGS FOLLOW THESE CONVENTIONS:
(a) DIMENSIONS TO A BUILDING OR RETAINING WALL ARE TO THE FACE OF THE WALL;
(b) DIMENSIONS TO A CURB ARE TO THE BOTTOM FACE (NOT THE BACK) OF THE CURB;
(c) DIMENSIONS TO A FENCE ARE TO THE CENTERLINE OF THE FENCE;
(d) DIMENSIONS FOR SIDEWALKS ABUTTING A CURB ARE FROM THE BACK OF CURB TO THE BACK EDGE OF THE WALK;
(e) DIMENSIONS FOR OTHER SIDEWALKS OR OPEN PAVING SECTIONS ARE MEASURED TO THE EDGE OF PAVING;
(f) DIMENSIONS TO A MANHOLE, INLET, CLEANOUT, PIPE BEND, VALVE, FIRE HYDRANT OR OTHER UTILITY APPURTENANCE ARE TO THE CENTER OF THE STRUCTURE;
(g) DIMENSIONS FOR STEPS ARE TO THE OUTER EDGE OF THE STAIRCASE AND THE NOSE OF THE TOP OR BOTTOM STEP.

IF A DISCREPANCY IS UNDETECTED PRIOR TO FORMATION OF THE CONSTRUCTION CONTRACT, NUMERICALLY WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS FOR THE PURPOSE OF THE CONTRACT; THE CONTRACTOR SHALL NOTIFY TESSERACT OF ANY SUCH DISCREPANCY IMMEDIATELY UPON DISCOVERY AND SHALL WAIT FOR CLARIFICATION BEFORE PROCEEDING WITH CONSTRUCTION.

STORM DRAIN, SANITARY SEWER, WATER, AND UTILITIES

TEST PITTING. FOR THE PURPOSES OF THIS CONTRACT, EXCAVATION OF UTILITY TRENCHES DOES NOT CONSTITUTE TEST PITTING. SEE TEST PITTING NOTE ON SHEET.

APPEARANCE OF UTILITY STRUCTURES AN ESSENTIAL PART OF CONTRACT. THE FINISH, COLOR, LOCATION, ORIENTATION, AND ELEVATION OF UTILITY STRUCTURES AND APPURTENANCES ARE AN INTEGRAL PART OF THE DESIGN AND THE FINISHED SURFACE APPEARANCE IS AN ESSENTIAL PART OF THE CONSTRUCTION CONTRACT. FINISH AND COLOR SHALL BE AS SPECIFIED, OR IF NOT SPECIFIED AS IS CUSTOMARY BY INDUSTRY STANDARDS. VERTICAL ELEMENTS, SUCH AS FIRE HYDRANTS AND LIGHT POLES, SHALL BE PLUMB. UTILITY LOCATIONS SHALL BE AS SHOWN ON THE PLAN. THE BASE OF FIRE HYDRANTS AND LIGHT POLES BASES, AS WELL AS THE TOP OF MANHOLES AND INLETS, SHALL BE FLUSH WITH FINISHED GRADE. SQUARE OR RECTANGULAR INLETS SHALL BE SET SQUARE WITH NEARBY STRAIGHT LINES, EXACTLY AS SHOWN IN PLAN VIEW. THE FACT THAT A UTILITY IS "FUNCTIONAL" DOES NOT SATISFY THESE AESTHETIC REQUIREMENTS.

STORM DRAIN STRUCTURES ALIGNMENTS SHALL MATCH CURBS & WALKS. BEFORE THE UTILITY CONTRACTOR INSTALLS STORM DRAIN STRUCTURES, THE CONTRACTOR'S SURVEYOR SHALL SET STAKES ON BOTH SIDES OF THE CURB INLETS TO ESTABLISH FACE OF CURB AND TOP OF CURB, AND THE EDGE AND ELEVATION OF CURBS AND WALKS LOCATED WITHIN 10 FEET OF THE STRUCTURES. THE HORIZONTAL AND VERTICAL ALIGNMENT OF INLETS, INLET CURB PIECES AND MANHOLES SHALL MATCH ADJOINING CURBS AND WALKS.

DARK GRAY RIP RAP AND STONE REQUIRED. RIP RAP AND OTHER STONE THAT WILL REMAIN AS A PERMANENT SITE IMPROVEMENT SHALL BE DARK GRAY.

ADJUSTMENT FOR FINAL GRADE. ALL EXISTING AND PROPOSED UTILITY APPURTENANCES SHALL BE ADJUSTED FOR FINAL GRADE.

CLEAN OUTS. ALL CLEAN OUTS (SAN & S.D.) SHALL BE 4" FLUSH MOUNTED BRONZE TOP WITH RECESSED KEYWAY ON 4" D.I.P. PIPE SET VERTICALLY (2' MIN.. LENGTH). IF IN LAWN AREAS, CLEAN–OUTS SHALL BE SET FLUSH WITH GRADE TO PREVENT DAMAGE FROM MOWERS. THERE SHALL BE A "BOOT–TYPE" CLEAN OUT FOR ROOF DRAINS AT THE BUILDING.

COMPLIANCE WITH CODES; UTILITY CERTIFICATION. THE CONTRACTOR SHALL SUPPLY ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE PROPOSED WATER LINES, SANITARY SEWER SYSTEM, AND STORM DRAIN SYSTEM AS REQUIRED BY ALL APPLICABLE GOVERNMENTAL CODES AND MANUFACTURER'S REQUIREMENTS. THIS NOTE APPLIES WHETHER OR NOT THE PLANS SHOW EVERY FITTING, BEND, CLEAN–OUT, VALVE, BOX, VAULT, BUTTRESS, OR OTHER APPURTENANCE OR MEASURE WHICH IS REQUIRED BY GOVERNMENTAL LAWS AND REGULATIONS, OR MANUFACTURER'S REQUIREMENTS. THE CONTRACTOR SHALL EMPLOY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF MARYLAND, TO CERTIFY, ON A FORM PROVIDED BY THE OWNER, THAT ALL PROPOSED SANITARY SEWERS, WATER LINES AND STORM DRAINS SHOWN HEREIN WERE INSTALLED IN ACCORDANCE WITH THESE PLANS, AND ALL APPLICABLE BUILDING AND PLUMBING CODES.

SITE LIGHTING AND OTHER UTILITY SYSTEMS

SITE LIGHTING, ELECTRIC SERVICE, GAS OR PROPANE SERVICE, GOETHERMAL, AND TELECOMMUNICATIONS SYSTEMS, AS WELL AS CHILLED WATER AND STEAM LINES, ARE NOT DESIGNED BY SILL ENGINEERING GROUP, LLC. THE PURPOSE OF SHOWING SUCH UTILITIES ON THE CIVIL DRAWINGS IS TO COORDINATE THEIR LOCATION WITH OTHER SITE IMPROVEMENTS IN ORDER TO AVOID CONFLICTS WITH WATER LINES, SANITARY SEWERS, STORM DRAINS, ROAD AND PARKING LOT LAYOUT, WALLS, FENCES, LANDSCAPING AND OTHER IMPROVEMENTS. THE CIVIL DRAWINGS SHALL BE THE CONTROLLING SOURCE FOR THE LAYOUT OF ALL UTILITY LINES AND APPURTENANCES. THE CONTRACTOR SHALL COORDINATE THE REQUIREMENTS OF THE ELECTRICAL AND TELECOMMUNICATION DRAWINGS, AND MECHANICAL AND PLUMBING DRAWINGS, WITH THE CIVIL DRAWINGS, AND SHALL LIKEWISE COORDINATE THE LOCATION AND TIMING OF INSTALLATION OF UTILITIES THAT ARE INSTALLED BY OTHER PRIVATE UTILITY COMPANIES OR VENDORS, WHETHER OR NOT SUCH UTILITIES AREPART OF THE CONTRACT. BEFORE STAKING OUT ANY UTILITY IN A LOCATION DIFFERENT THAN IS SHOWN ON THE CIVIL DRAWINGS, SUBMIT AN RFI WITH A SKETCH SHOWING THE ALTERNATIVE ALIGNMENT FOR REVIEW AND COMMENT. UTILITIES AND UTILITY APPURTENANCES THAT ARE INSTALLED IN CONFLICT WITH THE PROPOSED LOCATION OF OTHER SITE IMPROVEMENTS (INCLUDING PARKING SPACES) SHALL BE REMOVED AND REINSTALLED IN THE CORRECT LOCATION. SITE LIGHTING SHALL BE INSTALLED AS SHOWN ON THE CIVIL DRAWINGS TO AVOID CONFLICTS WITH PARKING LOT LAYOUT AND OTHER SITE IMPROVEMENTS; LIGHTING IN THE PARKING LOT PAVEMENT SHALL BE INSTALLED AT THE INTERSECTION OF FOUR PARKING SPACES; LIGHTING LOCATED ADJACENT TO ROADS AND PARKING LOTS SHALL BE 3' FROM THE FACE OF CURBS; AND LIGHTING ALONG WALKS SHALL BE 2' FROM THE EDGE OF WALK.

ROADS, PARKING LOTS, AND PAVEMENTS

PAVEMENTS. CONCRETE AND MASONRY PAVEMENTS AND THE SURFACE COURSE OF ASPHALT PAVEMENTS SHALL *NOT* BE INSTALLED UNTIL SUCCESSFUL COMPLETION, TESTING AND APPROVAL OF THE SUBGRADE AND UNDERGROUND UTILITIES, AND COMPLETION OF ALL WORK THAT MIGHT DAMAGE THE FINISHED SURFACE OF THE PAVEMENT. FINAL PAVEMENT SURFACES SHALL BE UNIFORM IN COLOR AND FINISH, FREE OF DEFECTS, DISCOLORATION, AND PATCHES.

FENCES

Fence posts shall be plumb and the top of fence shall be a smooth line consisting of straight lines and transitions. Before digging fence post holes, each hole location shall be flagged in the field by the contractor and approved by the project landscape architect. After fence posts are installed but before they are cut and before any other fence materials are installed, the contractor shall indicate the top of fence with a string line which shall be approved by the project landscape architect.

N

0' 30' 60' 90'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-29-16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16

DIRECTOR — DATE 10-3-16

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EMAIL: PAUL@SILLENGINEERING.COM

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9250 BENDIX ROAD
COLUMBIA, MD 21045
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REVISED SITE AND LAYOUT PLAN SOUTH

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL W. SILL — No. 32025 — PROFESSIONAL ENGINEER

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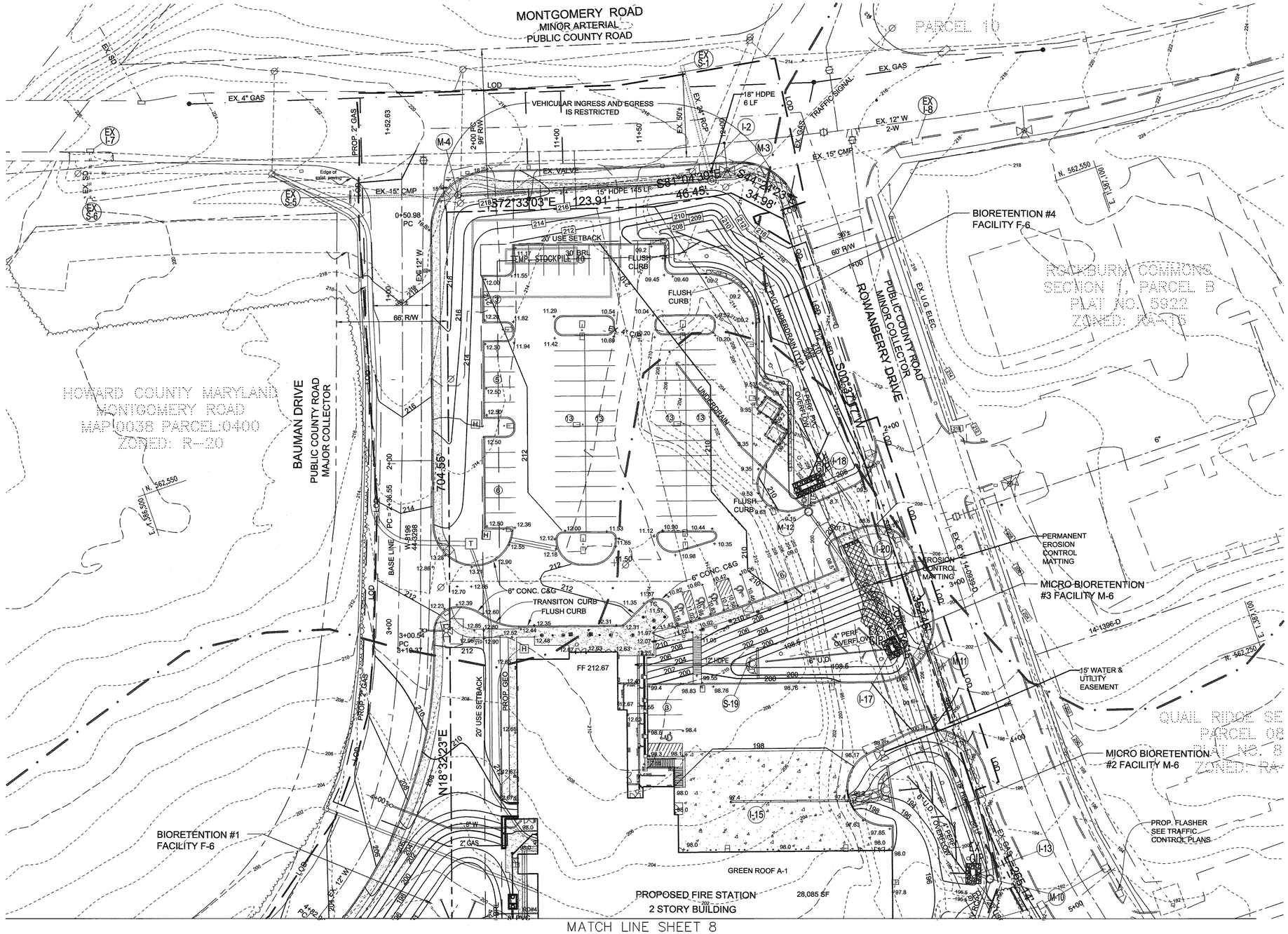
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 6 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO: 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075



LEGEND

EXISTING CONTOUR	382
PROPOSED CONTOUR	382
EXISTING SPOT ELEVATION	382.3
PROPOSED SPOT ELEVATION	+82.53
DIRECTION OF FLOW	
EXISTING TREELINE	
PROPOSED TREELINE	
WETLAND	W
WETLAND BUFFER	WB
EXISTING STORMDRAIN	
PRPOSED STORMDRAIN	12" HDPE RD
EXISTING SEWER	
PROPOSED SEWER	6" SAN. SM-4
EXISTING WATER	
PROPOSED WATER	8" W
EXISTING ELECTRIC	
UTILITY POLE	
LIGHT POLES	
FOREST CONSERVATION EASEMENT	
CONCRETE VEHICULAR PAVEMENT	
CONCRETE PEDESTRIAN PAVEMENT	

N

0' 30' 60' 90'

SEE SHEETS 9 AND 10 FOR ENLARGEMENTS AND SIDEWALK & RAMP DETAILS AND RETAINING WALL ELEVATIONS

ENGINEER	OWNER/DEVELOPER
SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTSVILLE, MARYLAND 21104 OFFICE: 443-325-5067 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM	MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-313-5757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

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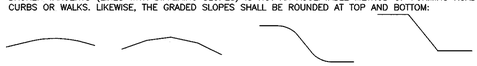
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-29-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

EARTHWORK & GRADING

EXCAVATION IS UNCLASSIFIED BUT INCLUDES PAYMENT FOR ROCK; ACHIEVING PROPOSED GRADES IS PART OF LUMP SUM. THE LUMP SUM CONTRACT PRICE INCLUDES: EXCAVATION TO REQUIRED SUBGRADE OF ALL MATERIALS, WHETHER WET OR DRY, NATURAL OR MAN-MADE, REGARDLESS OF CHARACTER EXCEPT FOR ROCK (SEE SPECIFICATIONS FOR TERMS AND CONDITIONS ALLOWING FOR PAYMENT OF ROCK REMOVAL); ALL STRIPPING AND STOCKPILING OF TOPSOIL; GRADING; HAUL-OFF OF EXCESS EARTH, TOPSOIL AND UNSUITABLE MATERIALS; ON-SITE AND OFF-SITE BORROW; PROTECTING SOILS FROM MOISTURE AND DRYING SOILS; AND PLACEMENT AND COMPACTION. ALL ASPECTS OF EARTHWORK SHALL BE COMPLETED AS NECESSARY TO ACHIEVE THE FINAL GRADES INDICATED BY THE CONTOURS AND SPOT ELEVATIONS SHOWN ON THE GRADING PLANS. **ALL EATHWORK AND WORK RELATED TO BALANCING THE SITE, PROVIDING BORROW OR MINING TO OBTAIN STRUCTURAL FILL, AND DISPOSING OF EXCESS TOPSOIL AND UNSUITABLE MATERAILS, ARE PART OF THE LUMP SUM PRICE.**

GENERAL REQUIREMENTS. GRADING SHALL ACHIEVE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND TOWARD DRAINAGE FACILITIES (INLETS, GUTTERS, SWALES, OR STORM WATER MANAGEMENT FACILITIES) OR SHEET-FLOW ACROSS PAVEMENTS AND LAWNS. GRADING SHALL BE AESTHETICALLY PLEASING WITH SMOOTH VERTICAL CURVES AND LINES. TRANSITIONS BETWEEN EXISTING AND PROPOSED PAVEMENTS SHALL BE SMOOTH AND JOINTS FLUSH. THE PROFILE SLOPE (LONGITUDINAL SLOPE) OF ROADS, CURBS, AND WALKS SHALL BE FORMED BY LINES AND PARABOLIC VERTICAL CURVES THAT TRANSITION SMOOTHLY INTO THE NEXT LINE; BROKEN TANGENTS (LINES WITH DIFFERING SLOPES) IS NOT AN ACCEPTABLE METHOD OF FORMING ROADS, CURBS OR WALKS. LIKEWISE, THE GRADED SLOPES SHALL BE ROUNDED AT TOP AND BOTTOM:



MINIMUM & MAXIMUM SLOPES ON UNPAVED AREAS. UNLESS EXPRESSLY NOTED OTHERWISE ON THE PLAN, UNPAVED AREAS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 2:1.

MINIMUM SLOPES ON PAVEMENTS: UNLESS OTHERWISE EXPRESSLY NOTED ON THE PLAN (BY ARROW WITH THE PERCENT SLOPE LABELED), ALL PROPOSED ASPHALT PAVEMENT SHALL HAVE MINIMUM SLOPE OF 1.7% AND ALL CONCRETE PAVEMENT SHALL HAVE A MINIMUM SLOPE OF 1% IN THE DIRECTION INDICATED BY PROPOSED CONTOURS.

CURB & GUTTER: THE LONGITUDINAL (PROFILE) SLOPE OF CURB AND GUTTER SHALL BE A MINIMUM OF 1.0% EXCEPT WHERE ADJOINING PAVEMENT SLOPES AWAY FROM THE CURB. THE DIRECTION OF THE CROSS SLOPE OF GUTTER PANS SHALL MATCH THE DIRECTION OF THE ADJOINING PAVEMENT.

SLOPES FOR ON-SITE WALKS AND PEDESTRIAN PAVEMENTS: ON-SITE WALKS, PATIOS, AND ALL PEDESTRIAN PAVEMENTS SHALL BE ADA ACCESSIBLE AND SHALL COMPLY WITH THE FOLLOWING MAXIMUM SLOPES: LONGITUDINAL SLOPES SHALL NOT EXCEED 5.0% AND CROSS SLOPES SHALL NOT EXCEED 2.0%.

SLOPES OF HANDICAPPED RAMPS IN PUBLIC RIGHT-OF-WAY: HANDICAPPED RAMPS IN PUBLIC RIGHT-OF-WAYS SHALL COMPLY WITH HOWARD COUNTY STANDARD DETAILS, THE LONGITUDINAL SLOPE NOT EXCEEDING 8.33% AND THE CROSS SLOPE NOT EXCEEDING 2.0%.

DRAINAGE ACROSS WALKS AND PATHS: ALL UNPAVED SURFACES ADJACENT TO THE HIGH SIDE OF THE PAVED SURFACE SHALL BE 3/4" HIGHER THAN THE PAVED SURFACE TO PREVENT WATER FROM ACCUMULATING ALONG THE EDGE OF THE PATH AND ALL UNPAVED SURFACES ALONG THE LOWER SIDE OF A PAVED SURFACE SHALL BE 3/4" LOWER THAN THE PAVED SURFACE TO PERMIT FREE DRAINAGE OFF THE PAVED SURFACE.

ELEVATION TOLERANCES: WHILE ACHIEVING THE DESIGN INTENT (AESTHETIC AND FUNCTIONAL) OF THE GRADING REQUIRED BY THE GRADING PLANS AND THESE NOTES, AND THE MAXIMUM AND MINIUM SLOPES REQUIRED ABOVE, THE GRADING TOLERANCE FOR LAWN AND OTHER UNPAVED AREAS IS 0.1' ELEVATION, FOR CURBS AND PAVEMENTS IS 0.05' ELEVATION.

REVISED GRADING PLAN NORTH

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND PAUL M. SILL No. 32025 PROFESSIONAL ENGINEER

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Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
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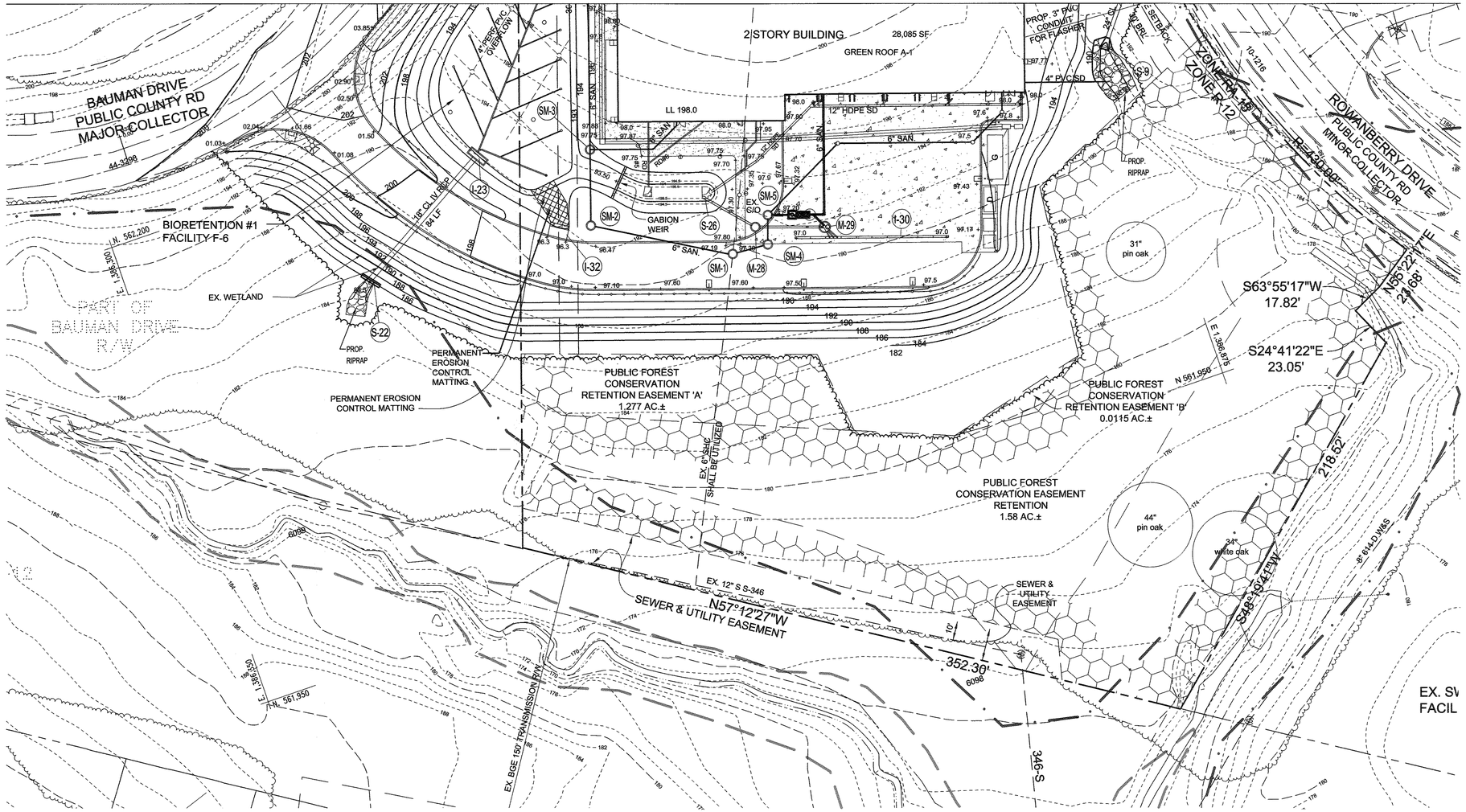
SDP-14-075

MATCH LINE SHEET 7



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREELINE
- PROPOSED TREELINE
- WETLAND
- WETLAND BUFFER
- EXISTING STORMDRAIN
- PRPOSED STORMDRAIN
- EXISTING SEWER
- PROPOSED SEWER
- EXISTING WATER
- PROPOSED WATER
- EXISTING ELECTRIC
- UTILITY POLE
- LIGHT POLES
- FOREST CONSERVATION EASEMENT
- CONCRETE VEHICULAR PAVEMENT
- CONCRETE PEDESTRIAN PAVEMENT

ENGINEER

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COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-29-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

REVISED GRADING PLAN SOUTH

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL R. SILL — No. 32025 — PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

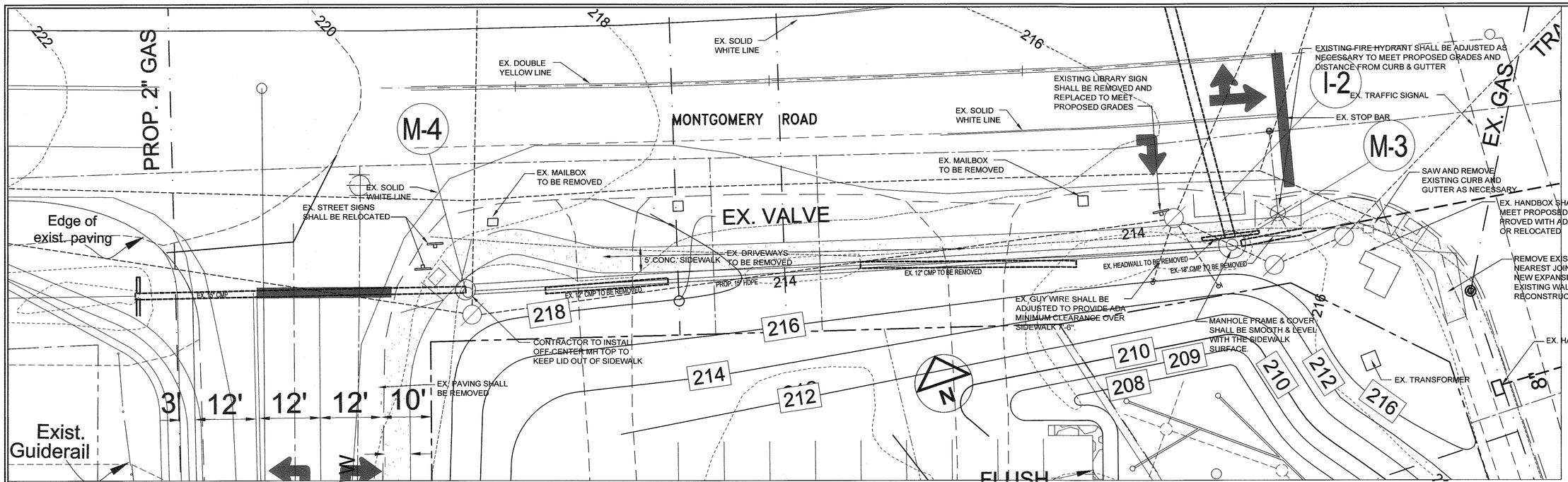
DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=30'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	8 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

N

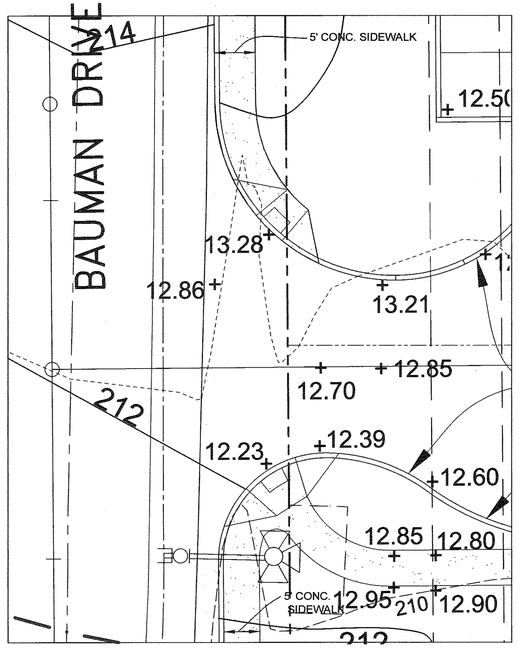
0' 30' 60' 90'

SDP-14-075



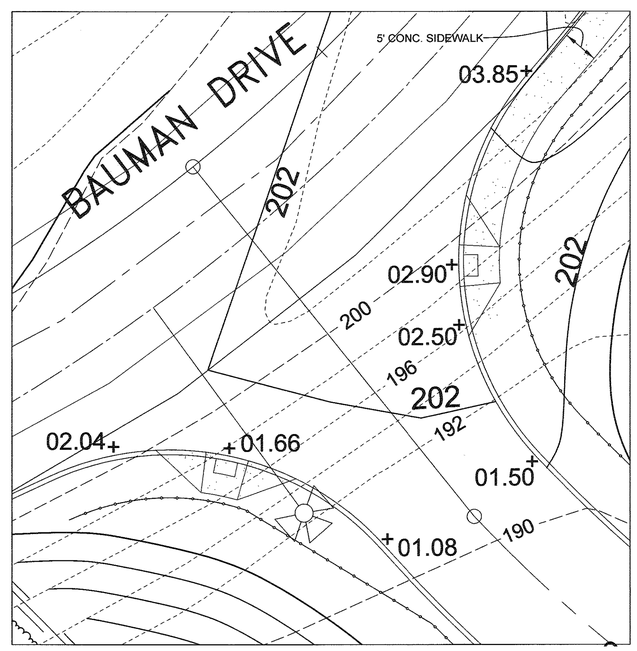
MONTGOMERY ROAD ENLARGEMENT

SCALE : 1" = 10'



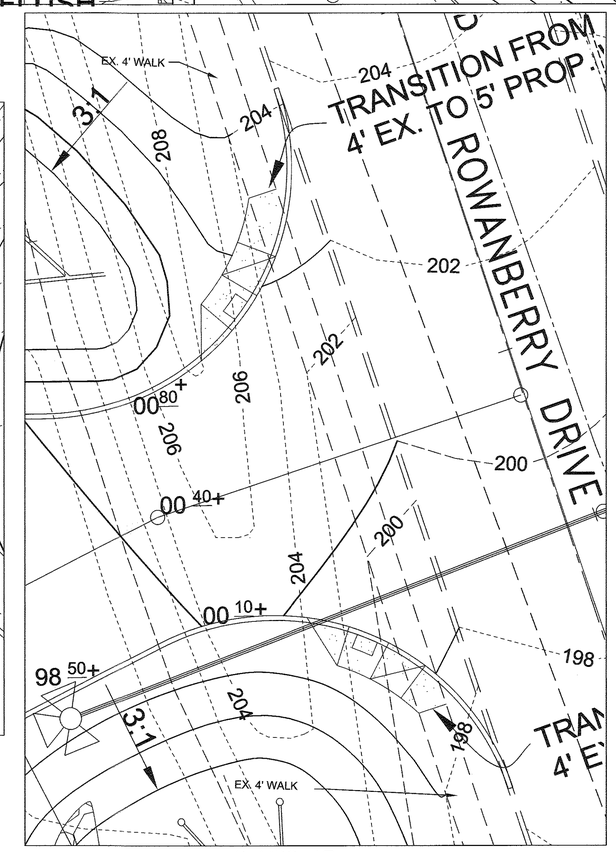
RAMPS AT UPPER DRIVEWAY ON BAUMAN DRIVE

SCALE : 1" = 10'



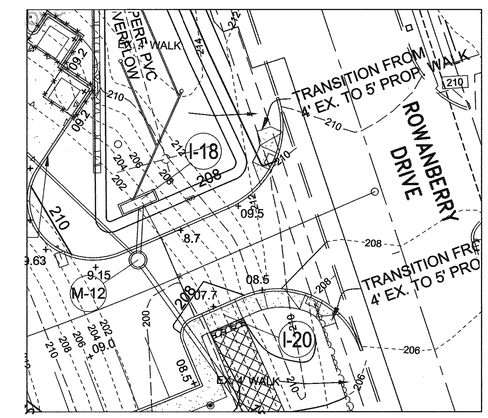
RAMPS AT LOWER DRIVEWAY ON BAUMAN DRIVE

SCALE : 1" = 10'



RAMPS AT LOWER DRIVEWAY ON ROWANBERRY DRIVE

SCALE : 1" = 10'



RAMPS AT UPPER DRIVEWAY ON ROWANBERRY DRIVE

SCALE : 1" = 20'

ENGINEER	OWNER/DEVELOPER
SILL ENGINEERING GROUP, LLC HOWARD COUNTY, MARYLAND 11130 DOVEDALE COURT, SUITE 200 MARRIOTTSVILLE, MARYLAND 21104 OFFICE: 443-325-5067 FAX: 410-696-2022 EMAIL: PAUL@SILLENGINEERING.COM	MARK STROMDAHL HOWARD COUNTY, MARYLAND 9250 BENDIX ROAD COLUMBIA, MD 21045 PHONE: 410-313-5757 EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-29-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

REVISED PUBLIC SIDEWALKS AND RAMPS

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND PAUL E. SILL No. 32025 PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
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Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
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DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	9 of 41

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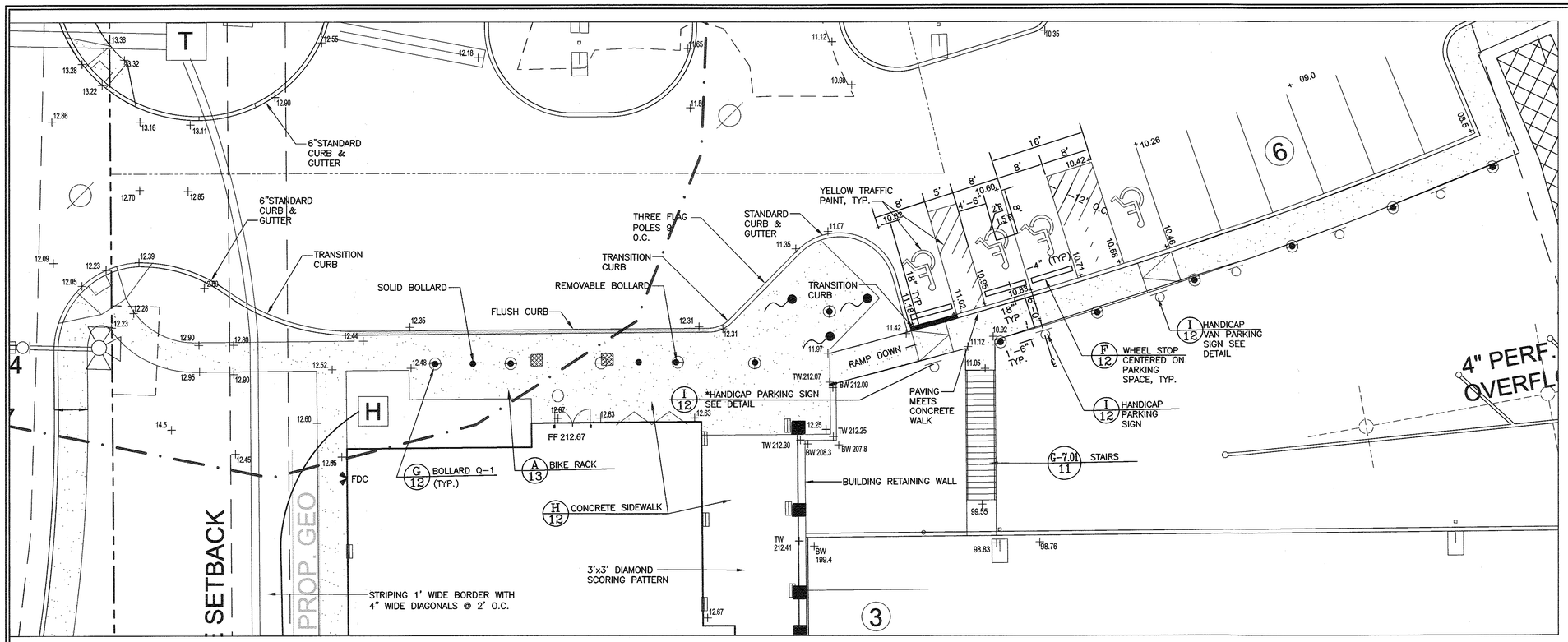
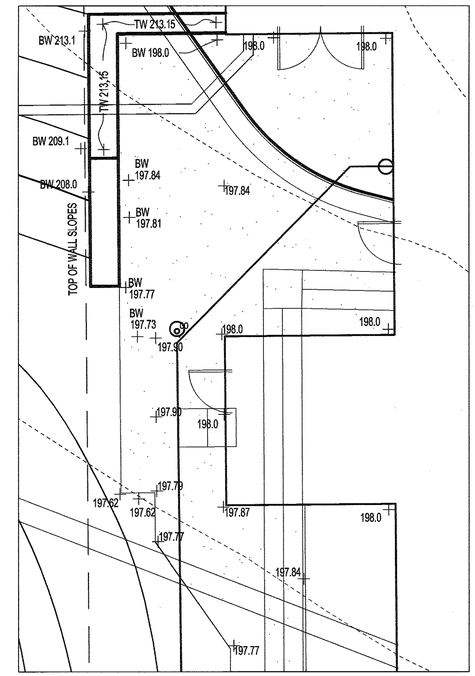


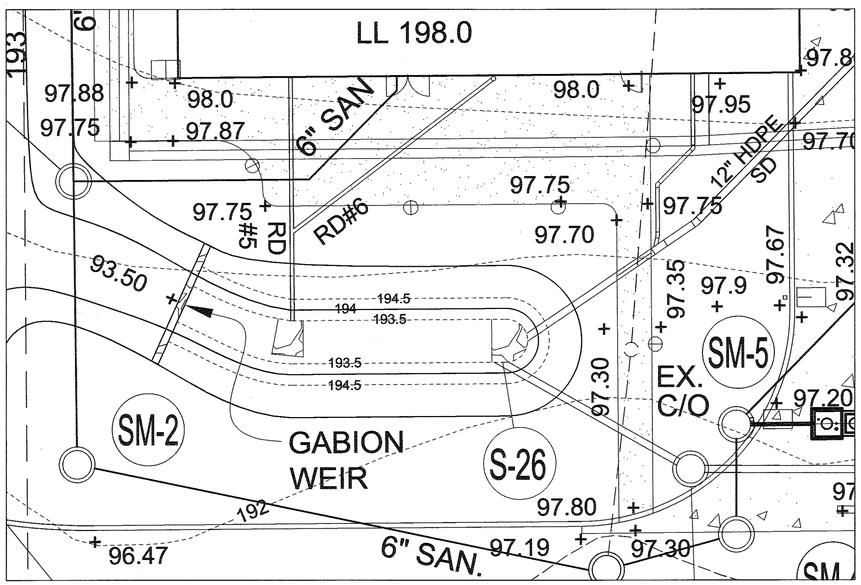
ENLARGEMENT OF FRONT ENTRANCE AND HANDICAPPED PARKING

0' 10' 20' 30'



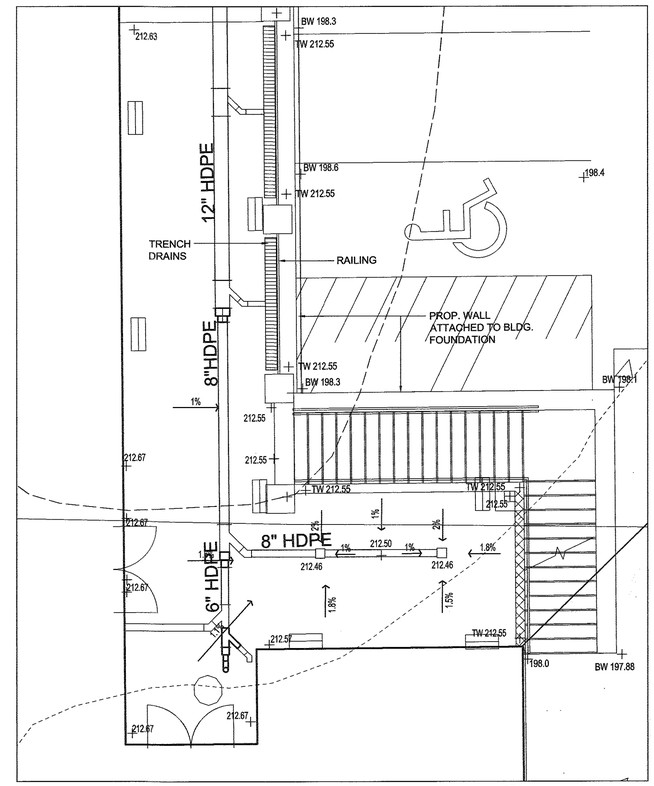
ENLARGEMENT OF WEST BASEMENT ENTRY AREA

0' 5' 10' 15'



ENLARGEMENT OF SOUTH PATIO

0' 10' 20' 30'



ENLARGEMENT OF EAST PATIO

0' 5' 10' 15'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER

SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED ENLARGEMENTS PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

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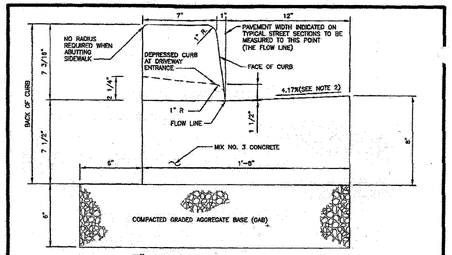
SDP-14-075

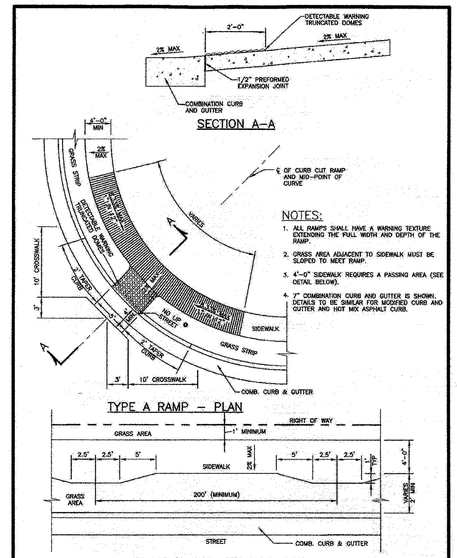


7" COMBINATION CURB AND GUTTER

NOTE:

1. A REVERSE GUTTER PAN SHALL HAVE A GUTTER SLOPE OF 4.17% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS DRAINAGE CREATES A HAZARDOUS CONDITION.
2. GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB & GUTTER.
3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.
4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

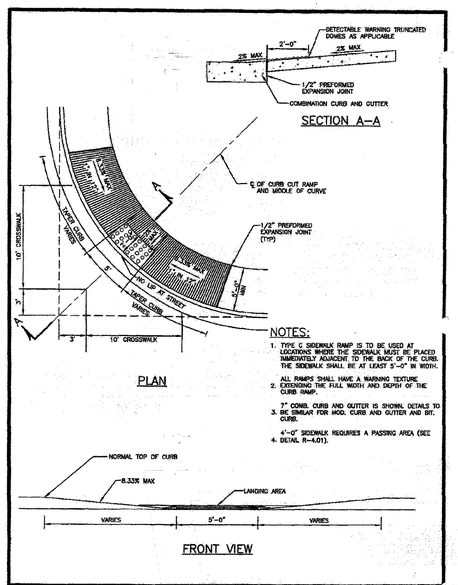
Revised / Revised / Approved	Howard County, Maryland Department of Public Works	CURB AND GUTTER 7"	Detail R-3.01



NOTES:

1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
3. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL BELOW).
4. 7" COMBINATION CURB AND GUTTER IS SHOWN. DETAILS TO BE SIMILAR FOR MODIFIED CURB AND GUTTER AND HOT MIX ASPHALT CURB.

Revised / Revised / Approved	Howard County, Maryland Department of Public Works	SIDEWALK RAMP Type A & Sidewalk Passing Area	Detail R-4.01



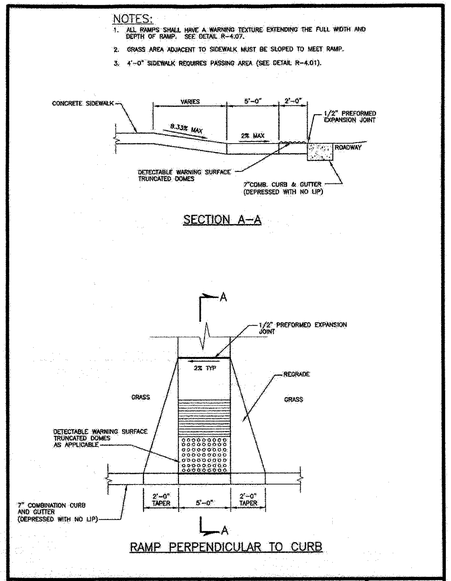
NOTES:

1. TYPE C SIDEWALK RAMP IS TO BE USED AT LOCATIONS WHERE THE SIDEWALK MUST BE PLACED IMMEDIATELY ADJACENT TO THE BACK OF THE CURB. THE SIDEWALK SHALL BE AT LEAST 5'-0" IN WIDTH.
2. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE CURB RAMP.
3. 7" COMB. CURB AND GUTTER IS SHOWN. DETAILS TO BE SIMILAR FOR MOD. CURB AND GUTTER AND BIT. CURB.
4. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

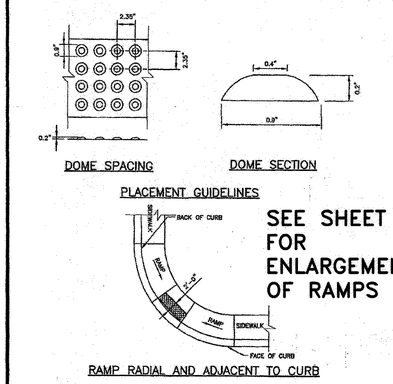
Revised / Revised / Approved	Howard County, Maryland Department of Public Works	SIDEWALK RAMP Type C	Detail R-4.04

NOTES:

1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF RAMP. SEE DETAIL R-4.07.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
3. 4'-0" SIDEWALK REQUIRES PASSING AREA (SEE DETAIL R-4.01).



Revised / Revised / Approved	Howard County, Maryland Department of Public Works	SIDEWALK RAMP Layout & Grading Perpendicular to Curb	Detail R-4.05



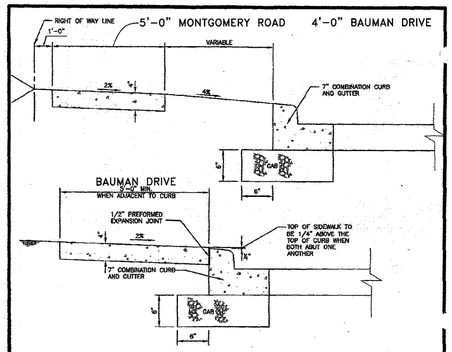
SEE SHEET 9 FOR ENLARGEMENTS OF RAMPS

NOTES:

1. THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
2. FOR SHOWED APPLICATIONS DETECTABLE WARNING SHALL BE PLACED SUCH THAT THE DOMES CLOSEST TO THE BACK OF THE CURB ARE NO LESS THAN 0.5" AND NO MORE 3.0" FROM THE BACK OF THE CURB. TRUNCATED DOME SURFACES SHALL BE FABRICATED TO PROVIDE FULL DOMES ONLY.

Revised / Revised / Approved	Howard County, Maryland Department of Public Works	SIDEWALK RAMP Detectable Warning Truncated Domes	Detail R-4.07

MONTGOMERY ROAD BAUMAN DRIVE



NOTES:

1. SIDEWALK TO BE SCORIED IN 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 15' APART.
3. 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
4. CONCRETE TO BE MIX NO.3.
5. WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
6. ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 8" THICK AND 8" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT THE EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.
7. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MINIMUM EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0" WIDE.
8. SIDEWALK LOCATED 2' OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5'x5' PAVED SECTION PLACED 200' APART.
9. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

Revised / Revised / Approved	Howard County, Maryland Department of Public Works	Concrete Sidewalk	Detail R-3.05

NOTES:

1. CONCRETE: MIX NO.2
2. CHAMFERS: 3/4"x3/4"
3. EXPOSED SURFACES: CLASS 1 SURFACE FINISH.
4. REINFORCING STEEL: A-15 WITH A-305 DEFORMATIONS.
5. ALL REINFORCING BARS SHALL BE NO.4 BARS EXCEPT NOSING BARS.
6. A, B, AND C BARS SHALL BE USED IN THE INSTALLATIONS OF SIX OR MORE STEPS.
7. NOSING BARS SHALL BE NO.2 BARS AND PLACED IN ALL STEPS, REGARDLESS OF STAIR LENGTH. MINIMUM COVER 2 INCHES.
8. UNLESS OTHERWISE NOTED, ALL TREADS SHALL BE FINISHED WITH A LIGHTLY BROOMED SURFACE. PROVIDE MAXIMUM 2% WASH AT EXTERIOR LOCATIONS.
5. FOR RAILING DETAILS, SEE G-7.02 AND G-7.03.
10. THE STAIRS SHALL BE PAID FOR ON THE UNIT PRICE BID PER CUBIC YARD FOR "MIX NO.2 CONCRETE FOR MISCELLANEOUS STRUCTURES", COMPLETE IN PLACE OR ON A LUMP SUM BID FOR EACH "CONCRETE STAIRS", COMPLETE IN PLACE.

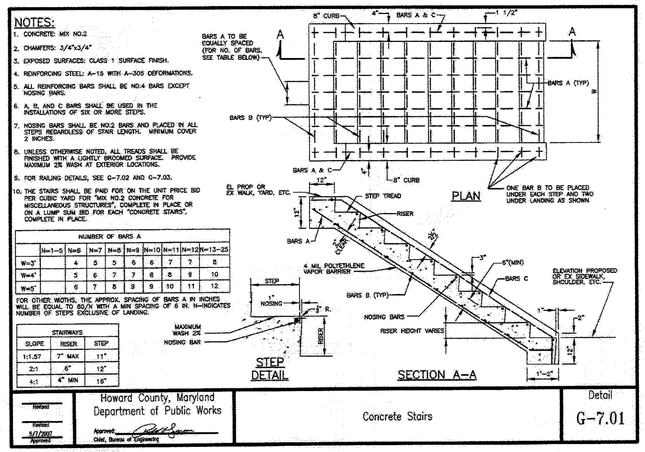
NUMBER OF BARS A

	N=1-5	N=6	N=7	N=8	N=9	N=10	N=11	N=12	N=13-25
W=3"		4	5	5	6	6	7	7	8
W=4"		5	6	7	7	8	8	9	10
W=5"		6	7	8	9	9	10	11	12

FOR OTHER WIDTHS, THE APPROX. SPACING OF BARS A IN INCHES WILL BE EQUAL TO 60/N WITH A MIN SPACING OF 6 IN. N=INDICATES NUMBER OF STEPS EXCLUSIVE OF LANDING.

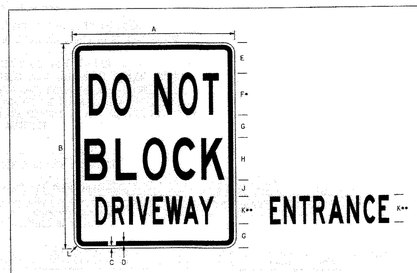
STAIRWAYS

SLOPE	RISER	STEP
1:1.57	7" MAX	11"
2:1	6"	12"
4:1	4" MIN	16"



Revised / Revised / Approved	Howard County, Maryland Department of Public Works	Concrete Stairs	Detail G-7.01

SEE ARCHITECTURAL SHEET A04.7 FOR RAILING DETAIL



* SPACING BETWEEN "DO" AND "NOT" REDUCED TO FIT
** ALTERNATE MESSAGE FOR LINE 3

SIGN SIZE	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K	L
STD	24	30	3/8	5/8	4-1/2	68*	3-1/2	6C	2-1/2	48	1-1/2

REFERENCES
MdMUTCD SECTION - 2B.45

COLORS
LEGEND - BLACK
BACKGROUND - WHITE

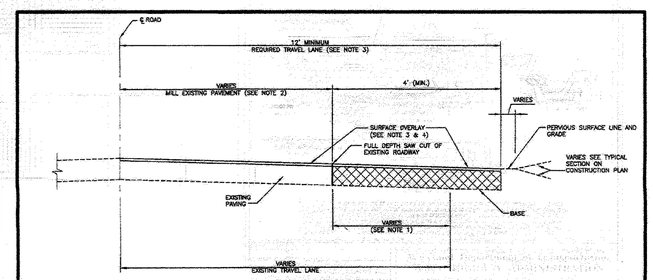
APPROVED Tom Hicks (signature on file)
DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL * SHA REVISIONS	APPROVAL * FEDERAL HIGHWAY ADMINISTRATION
APPROVAL 03/03/2009	APPROVAL
REVISED	REVISED
REVISED	REVISED
REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
MARYLAND STANDARD HIGHWAY SIGNS

DO NOT BLOCK DRIVEWAY/ENTRANCE

SIGN NUMBER R10-7(1)



NOTES:

1. WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE CONTRACTOR SHALL REMOVE A MINIMUM OF 1' FULL DEPTH OF THE EXISTING ROADWAY. IF CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4' OF WIDENING FROM FACE OF GUTTER PAN.
2. THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" (MINIMUM).
3. THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
4. RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

Revised / Revised / Approved	Howard County, Maryland Department of Public Works	Existing Roadway Widening Strip	Detail R-1.08

No.	Description	Date
1	Delete parking spaces, access dr, rel. dumpster, gen., & service dr; add traffic signal control plans; reduce access drive from 30-24'; by Sill Engineering Group.	5/18/16

Revisions

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.16.15
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 10.29.15
DIRECTOR	DATE 10.30.15

ENGINEER
Tesseract Sites, Inc.
401 Washington Ave.
Suite 303
Towson, MD 21202
Contact: Jeffrey Schwab
ph: 410-321-7600
fax: 410-321-7601

OWNER AND DEVELOPER
Mark Stromdahl
Howard County Maryland
9250 Bendix Road
Columbia, MD 21045
ph: 410-313-5757
email: MStromdahl@howardcountymd.gov

Tesseract™
TESSERACT SITES, INC
Jeffrey Schwab
401 Washington Ave. Suite 303
Towson, Maryland, 21204
p. 410.321.7600
f. 410.321.7601

Site Details

Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

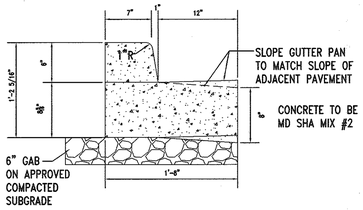
LOT/PARCEL:	LABOR/FOLIO: 14609/20	PLATS:
402 403 A2	14101/512 13842/358	N/A

GRID	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

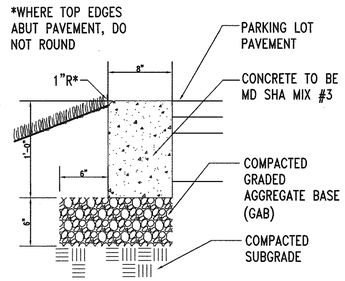
Date: 09/02/15
Proj. #: 12021
Scale: AS SHOWN

DESIGN: DRAWN: CHKD:

SDP 14-075

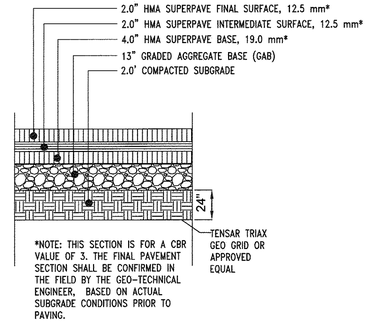


A 6" Curb and Gutter



B Curb- Flush

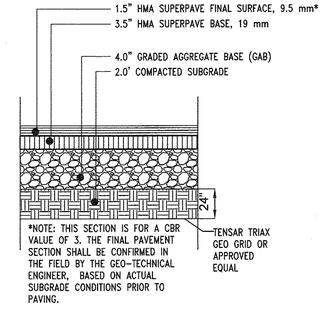
PER HOWARD COUNTY DPW DETAIL R-3.07
NOT TO SCALE



C Fire Access Driveways & Parking Paving Section (P4)

NOT TO SCALE

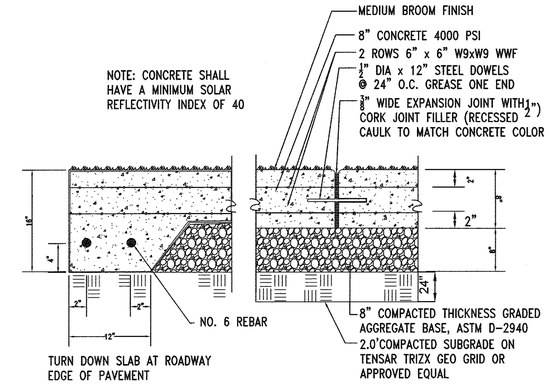
COMPACTION LEVEL 1
BINDER TYPE PG 64-22



D Parking Lot Paving Section (P1)

NOT TO SCALE

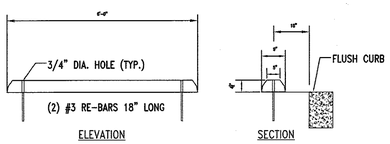
COMPACTION LEVEL 1
BINDER TYPE PG 64-22



E Concrete Vehicular Pavement

NOT TO SCALE

NOTE: REFER TO MD 572.22 DETAIL FOR DOWEL INSTALLATION, TYP.

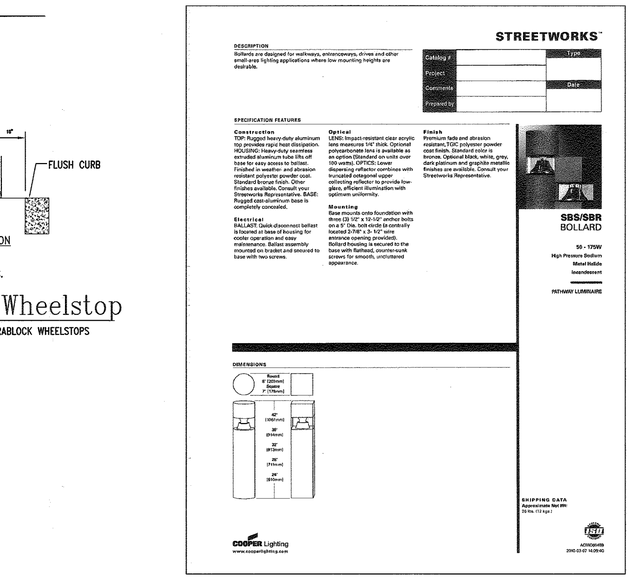


POSITION WHEELSTOPS IN CENTER OF PARKING SPACES, 18" FROM CURB (OR PAVEMENT EDGE) TO ANCHOR PINS.

F PreCast Concrete Wheelstop

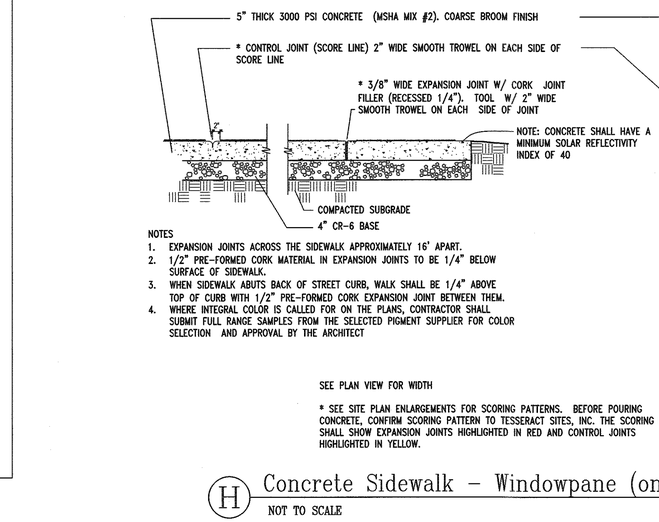
NOT TO SCALE

WHEELSTOPS SHALL BE ULTRABLOCK WHEELSTOPS OR APPROVED EQUAL.



G Bollard Q-1

NOT TO SCALE



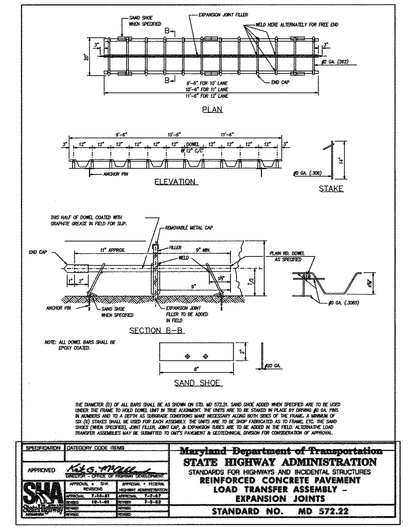
NOTES
1. EXPANSION JOINTS ACROSS THE SIDEWALK APPROXIMATELY 16' APART.
2. 1/2" PRE-FORMED CORK MATERIAL IN EXPANSION JOINTS TO BE 1/4" BELOW SURFACE OF SIDEWALK.
3. WHEN SIDEWALK ABUTS BACK OF STREET CURB, WALK SHALL BE 1/4" ABOVE TOP OF CURB WITH 1/2" PRE-FORMED CORK EXPANSION JOINT BETWEEN THEM.
4. WHERE INTEGRAL COLOR IS CALLED FOR ON THE PLANS, CONTRACTOR SHALL SUBMIT FULL RANGE SAMPLES FROM THE SELECTED PIGMENT SUPPLIER FOR COLOR SELECTION AND APPROVAL BY THE ARCHITECT

SEE PLAN VIEW FOR WIDTH

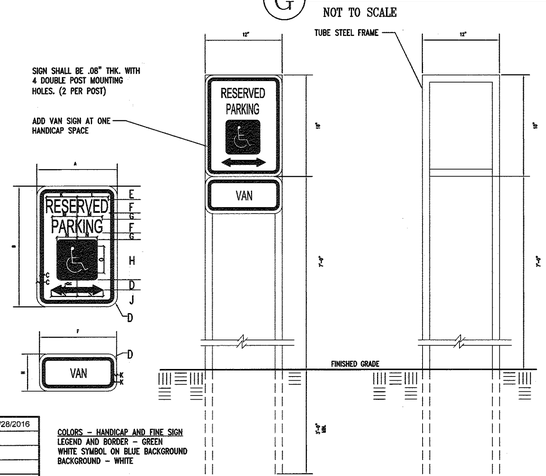
* SEE SITE PLAN ENLARGEMENTS FOR SCORING PATTERNS. BEFORE POURING CONCRETE, CONFIRM SCORING PATTERN TO TESSERACT SITES, INC. THE SCORING PLAN SHALL SHOW EXPANSION JOINTS HIGHLIGHTED IN RED AND CONTROL JOINTS HIGHLIGHTED IN YELLOW.

H Concrete Sidewalk – Windowpane (on site only)

NOT TO SCALE



CONTRACTOR SHALL INSTALL TEST PANEL OF CONCRETE PAVING AND SHALL MEASURE SRI 6 MONTHS AFTER INSTALLATION. A MINIMUM SRI OF 40 SHALL BE OBTAINED.

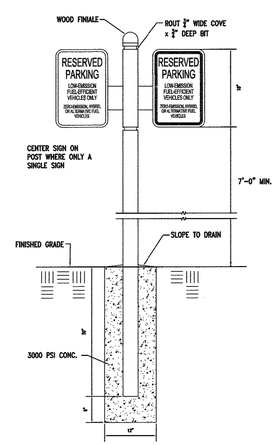


SIGN SIZE	DIMENSIONS (INCHES)																	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S
STD.	12	18	1/2	1/4	2	2	2	1	6	2 1/2	3/4	5	3/4	3	1	4	1	3/4

SIGN SHALL BE MOUNTED ON TWO 2" x 2" x 14 GA. GALVANIZED TUBE STEEL. MOUNTING POSTS SHALL BE CONNECTED WITH TWO HORIZONTAL MEMBERS 2" x 2" x 14 GA. GALVANIZED TUBE STEEL. HORIZONTAL MEMBERS TO BE SET AT TOP AND AT 18" BELOW TOP. PAINT GREEN TO MATCH COLOR OF SIGN.

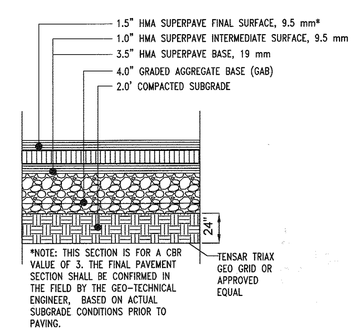
I Handicap Parking Signs

NOT TO SCALE



J Reserved Parking Signs Low Emission Vehicles

NOT TO SCALE



K Driveway Paving Section (P2)

NOT TO SCALE

COMPACTION LEVEL 1
BINDER TYPE PG 64-22

0" 1"

1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	
NO.	DESCRIPTION	DATE

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-6757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SITE DETAILS

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND PAUL A. SILL No. 32025 PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

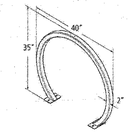
DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 12 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017.

SDP-14-075

ARC RACK

Specifications and Space Use



Product Dero Arc Rack
As manufactured by Dero Bike Racks

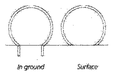
Capacity 3 Bikes

Materials 2" x 2" x 11g square tube

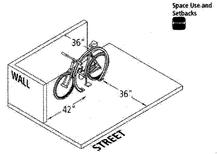
Finishes An after fabrication hot dipped galvanized finish is our standard option. 250 TGIC powder coat colors, thermoplastic coating, PVC dip, and stainless steel finishes are also available as alternate options.

Our powder coat finish assures a high level of adhesion and durability by following these steps:
1. Sandblast
2. Epoxy primer electrostatically applied
3. Final thick TGIC polyester powder coat

Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.



Installation Methods **In ground mount** is embedded into concrete base. Specify in ground mount for this option.
Foot Mount has two 3.5" x 6" x .25" feet with two anchors per foot. Specify foot mount for this option.



Space Use and Setbacks

Wall Setbacks:
For racks set parallel to a wall:
Minimum: 24"
Recommended: 36"

For racks set perpendicular to a wall:
Minimum: 28"
Recommended: 42"

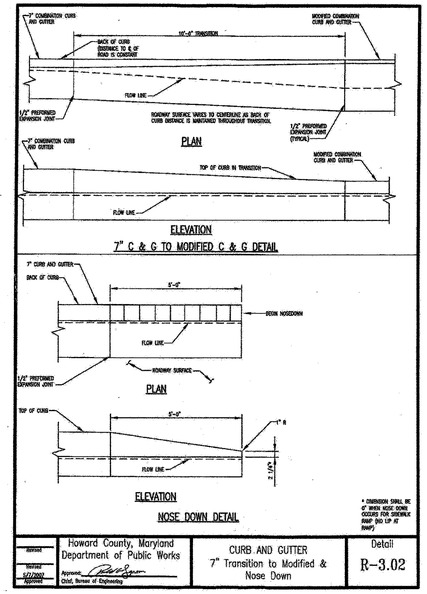
Distance Between Racks:
Minimum: 24"
Recommended: 36"

Street Setbacks:
Minimum: 24"
Recommended: 36"

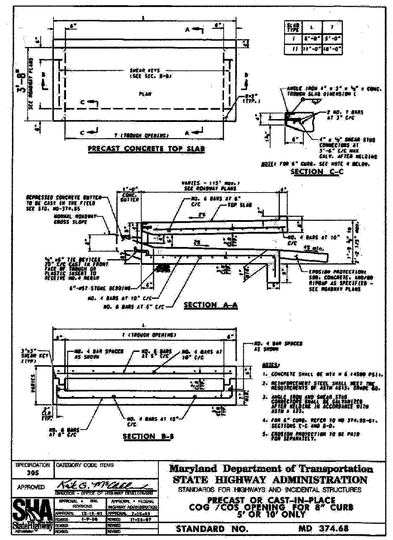
DERO

www.dero.com 1.888.997.6729

A



B



C

1	Delete parking spaces, access dr. service drive, rel. dumpster, gen. add traffic signal control plans, reduce access drive from 30-24' by Bill Engineering Group	5/18/16
No.	Description	Date
	Revisions	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

9.16.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

10-29-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

10-30-15
DIRECTOR DATE

ENGINEER
Tesseract Sites, Inc.
401 Washington Ave.
Suite 303
Towson, MD 21202
Contact: Jeffrey Schwab
ph: 410-321-7600
fax: 410-321-7601

OWNER AND DEVELOPER
Mark Stromdahl
Howard County Maryland
9250 Bendix Road
Columbia, MD 21045
ph: 410-313-5757
email: mstromdahl@howardcountymd.gov

0" 1"

Tesseract™
TESSERACT SITES, INC
Jeffrey Schwab
401 Washington Ave. Suite 303
Towson, Maryland, 21204
o. 410.321.7600
f. 410.321.7601

Site Details

Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

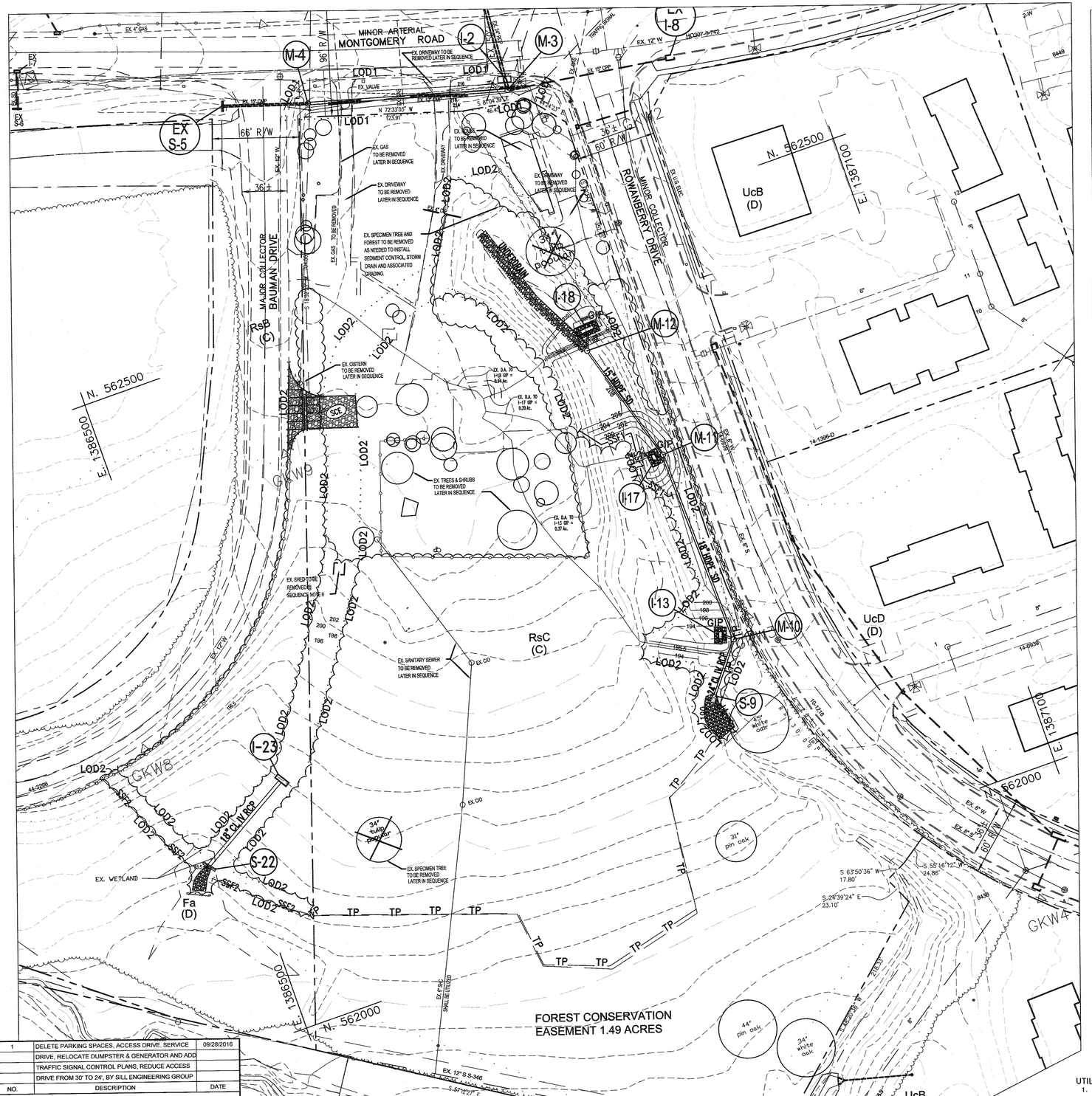
LOT/PARCEL:		LIBER/FOLIO:	PLATS:
402 403 A2		14609/20 14101/512 13942/358	N/A
GRID	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, PA15	38	1ST	

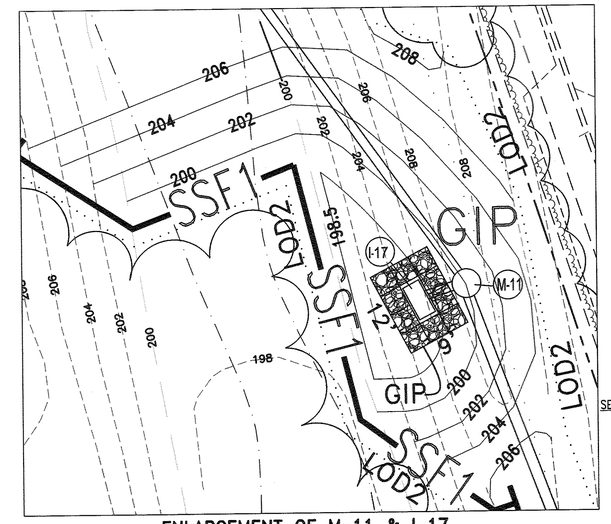
STATE OF MARYLAND
JEFFREY L. SCHWAB
No. 14230
PROFESSIONAL ENGINEER
5-18-16

Date: 09/02/15
Proj. #: 12021
Scale: AS SHOWN

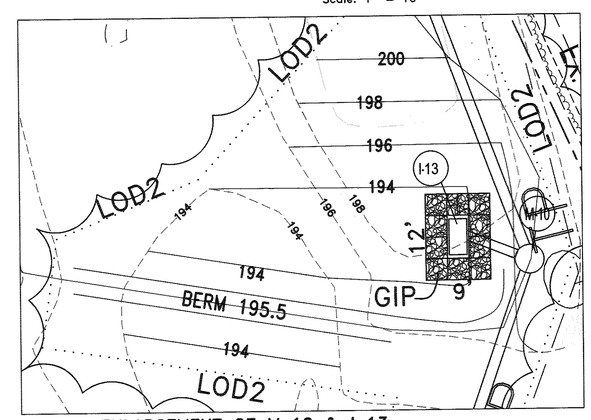
DESIGN DRAWN CHKD.

SDP 14-075

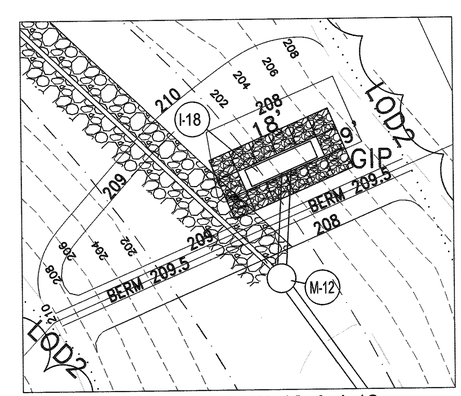




ENLARGEMENT OF M-11 & I-17
Scale: 1" = 10'



ENLARGEMENT OF M-10 & I-13
Scale: 1" = 10'



ENLARGEMENT OF M-12 & I-18
Scale: 1" = 10'

LEGEND

- Super Silt Fence —SSF—
- Tree Protection Fence —TP—
- Limit of Disturbance LOD
- Stabilized Construction Entrance w/ Mountable Berm — SCE
- Gabion Inlet Protection — GIP
- Ex. Contours
- Prop. Contour — 186
- Ex. Specimen Tree To Be Removed

SEE NOTES ON SHEET 2 FOR PRE-CONSTRUCTION REQUIREMENTS INCLUDING:

1. VERIFICATION OF EXISTING CONDITIONS;
2. MARKING UNDERGROUND UTILTIES (MISS UTILITY & PRIVATE LOCATING SERVICES);
3. COORDINATING WITH HOWARD COUNTY AND UTILITY COMPANIES TO CONFIRM THE STATUS OF EXISTING UTILITIES (ACTIVE/LIVE or ABANDONED), AND TO COORDINATE REMOVAL, AND/OR RELOCATION; AND
4. TEST PITTING & REPORTING RESULTS.

SEQUENCE OF CONSTRUCTION (Initial Clearing, SEC & Grading)

1.Obtain grading permit and joint federal state permit and request preconstruction meeting with sediment control inspector.	7 days
2. Install Tree Protection Fence.	1 day
SEC & STORM DRAIN CONSTRUCTION ALONG MONTGOMERY ROAD - L.O.D.1 3.Clear and grub for and install storm drainage M-4 through I-2 and grade to provide cover and to direct runoff from existing Montgomery Road to I-2	7 days
4. Stabilize disturbed area with seed and mulch	1 day
STORM DRAIN FROM S-9 TO M-12 & UNDERDRAIN AND PIPE OUTLET S-22 TO I-23 - LOD2 5. Clear & grub for and install SCE, SSF1, and SSF2.	3 days
6. With the approval of the sediment control inspector clear and grub remaining area within LOD2 and remove existing shed.	12 days
7. Install S-22, 18" CL IV RCP and I-23 structure in accordance with utility note; same day stabilization. * Installation necessary prior to grading Trap 1 to achieve needed volume.	5 days
8. Install storm drainage S-9 through M-12 (including inlets 13, 17, and 18 and GIP for each inlet) and underdrain in accordance with utility note; stabilize area daily.	21 days

Proceed to Sequence Sheet 15.

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.

UTILITY NOTE:

1. THE CONTRACTOR SHOULD ONLY OPEN THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY , SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

N

0' 40' 80' 120'

ENGINEER

SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
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FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED INITIAL GRADING & SEDIMENT & EROSION CONTROL PLAN
ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SCD — DATE 9/29/16

ENGINEERS CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER PAUL M. SILL, P.E. — DATE 9/29/16

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 9/29/16

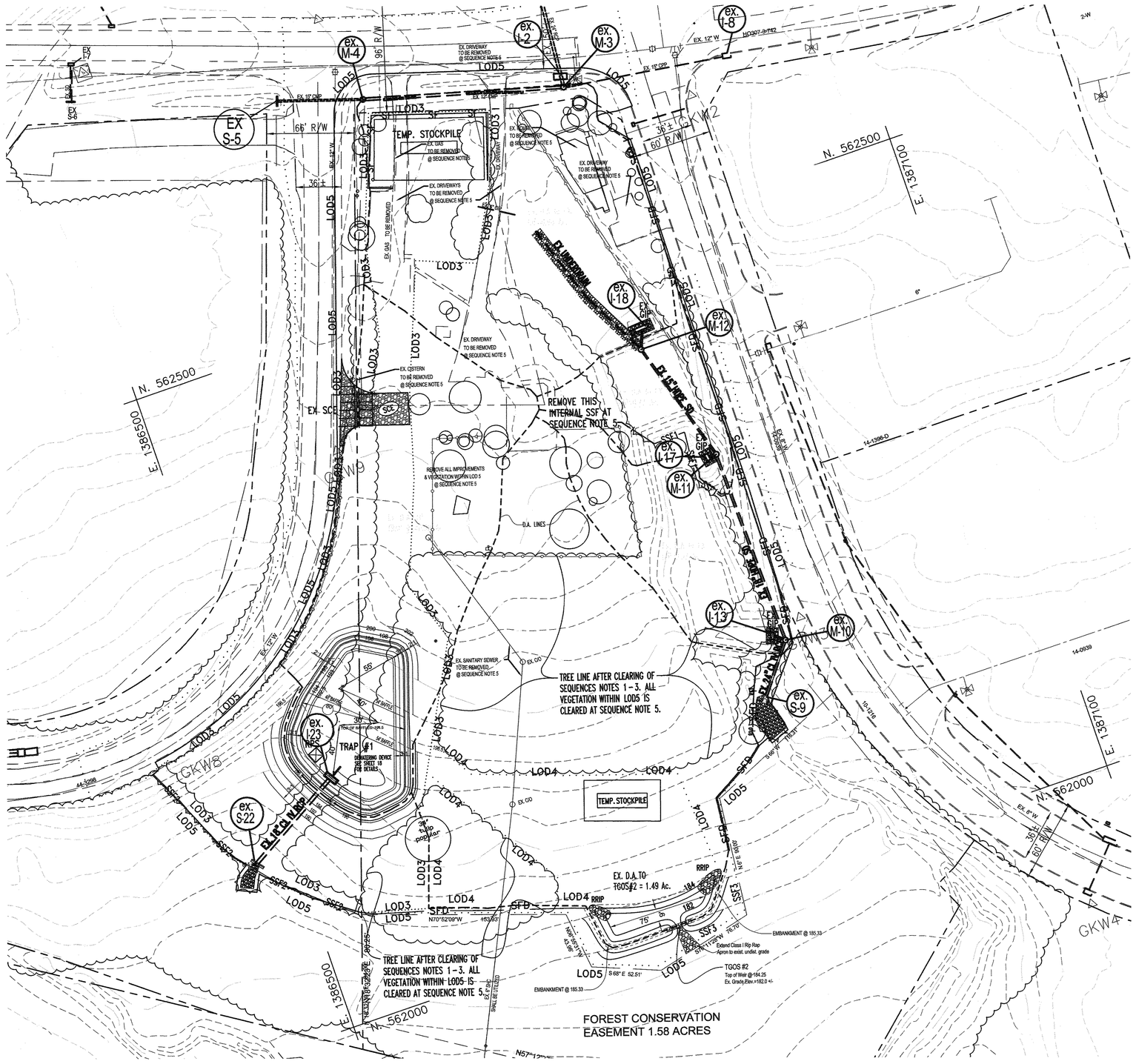
STATE OF MARYLAND PAUL M. SILL NO. 32025 PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 30, 2017

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=40'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	14 of 41

SDP-14-075



LEGEND

Super Fence Diversion	SFD
Super Silt Fence	SSF
Silt Fence	SF
Tree Protection Fence	TP
Limit of Disturbance	LOD
Stabilized Construction Entrance w/ Mountable Berm	SCE
Ex. Contours	
Prop. Contour	166
Gabion Inlet Protection	GIP
Gabion Mattress Inflow Protection	GMIP
Removable Pumping Station	RPS
Baffle	30' BAFFLE
RipRap Inflow Protection	RRIP
GABION	
DRAINAGE DIVIDE	

TRAP #1 : Modified Pipe Outlet ST-1

EXISTING DRAINAGE AREA: ACRES		0.92
INTERIM DRAINAGE AREA: ACRES		1.61
PROPOSED DRAINAGE AREA: ACRES		1.61
STORAGE REQUIRED: CUBIC FEET	CLEAN OUT	1,449
	WET	2,898
	DRY	2,898
	TOTAL	5,796
STORAGE PROVIDED: CUBIC FEET	CLEAN OUT	4,726
	WET	9,804
	DRY	7,748
	TOTAL	17,552
EXISTING GROUND ELEVATION		191.0
TOP EMBANKMENT ELEVATION		196.5
EMERGENCY SPILLWAY CREST ELEVATION		N/A
DRY STORAGE / RISER CREST ELEVATION		195.0
WET STORAGE ELEVATION		194.0
CLEANOUT ELEVATION		193.25
BOTTOM ELEVATION		192.5
TRAP DEPTH	WET	1.5
	DRY	1.0
	TOTAL	2.5
SIDE SLOPES		3:1
DESIGN HIGH WATER (10 YR WSEL)		195.27
FREEBOARD PROVIDED		1.23
BARREL DIAMETER		18" RCP
RISER DIMENSIONS RCP		10' x 2.5'
EMERGENCY SPILLWAY WIDTH		N/A
WET STORAGE ZONE		192.5-194.0
DRY STORAGE ZONE		194.0-195.0
BOTTOM DIMENSIONS (TWO SECTIONS)		155'x60' irregular
BAFFLE-ELEVATION OF TOP		194.5

TGOS # 2 : Temporary Gabion Outlet Structure#2

EXISTING DRAINAGE AREA: ACRES	1.49
INTERIM DRAINAGE AREA: ACRES	1.49
PROPOSED DRAINAGE AREA: ACRES	0.46
STORAGE REQUIRED	2,682 CF
STORAGE PROVIDED	3,158 CF
DEPTH	183.0
WEIR CREST	184.25
TOP GABION MATTRESS	185.00
LENGTH OF WEIR CREST	8'
BOTTOM ELEVATION	182.0
SIDE SLOPES	2:1
BOTTOM DIMENSIONS	75' x 9'
TOP OF EARTH BERM	185.33

SEE SHEET 14 FOR PRIOR SEQUENCE OF CONSTRUCTION

SEQUENCE OF CONSTRUCTION (Trap Construction)

SEDIMENT TRAP 1 - LOD3

1. With the approval of the sediment control inspector clear and grub area within LOD3 and install sediment trap 1, including gabion inflow protection and baffels. Stockpile cut. — 7 days

TEMPORARY GABION OUTLET STRUCTURE- TGOS # 2 - LOD4

2. With the approval of the sediment control inspector, clear & grub for and install SSF3 with LOD4 (do NOT install SFD at this time). — 3 days
3. With the approval of the sediment control inspector clear and grub the remaining area within LOD4 and install TGOS #2 including riprap inflow protection. Stockpile cut. — 7 days

SUPER FENCE DIVERSION (SFD), REMAINING CLEARING GRUBBING & DEMOLITION, ROUGH GRADING - LOD5

4. With the approval of the sediment control inspector, clear & grub for and install SFD within LOD5. — 3 days
5. With the approval of the sediment control inspector clear and grub and complete demolition of the remaining area within LOD5. Remove internal SSF west of ex. M-11. — 7 days
6. Strip & stockpile topsoil and rough grade site within LOD5. — 30 days

NOTE REGARDING LOD 5

After installation of the SCE, SSF, Trap # 1 & TGOS # 2, and SFD the perimeter sediment control measures are complete (additional SCE's will be installed later) and the site is ready clearing, grubbing, demolition and grading. LOD5 is the ultimate limit of disturbance, except for public road improvements which will be done later in the sequence of construction.

Proceed to Sequence on Sheet 16.

ENGINEER

SILL ENGINEERING GROUP, LLC
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11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
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OWNER/DEVELOPER

MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED INITIAL 2 GRADING & SEDIMENT & EROSION CONTROL PLAN ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SCD — DATE 9/29/16

ENGINEERS CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER PAUL M. SILL, P.E. — DATE 9/28/16

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 9/29/16

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.

0' 40' 80' 120'

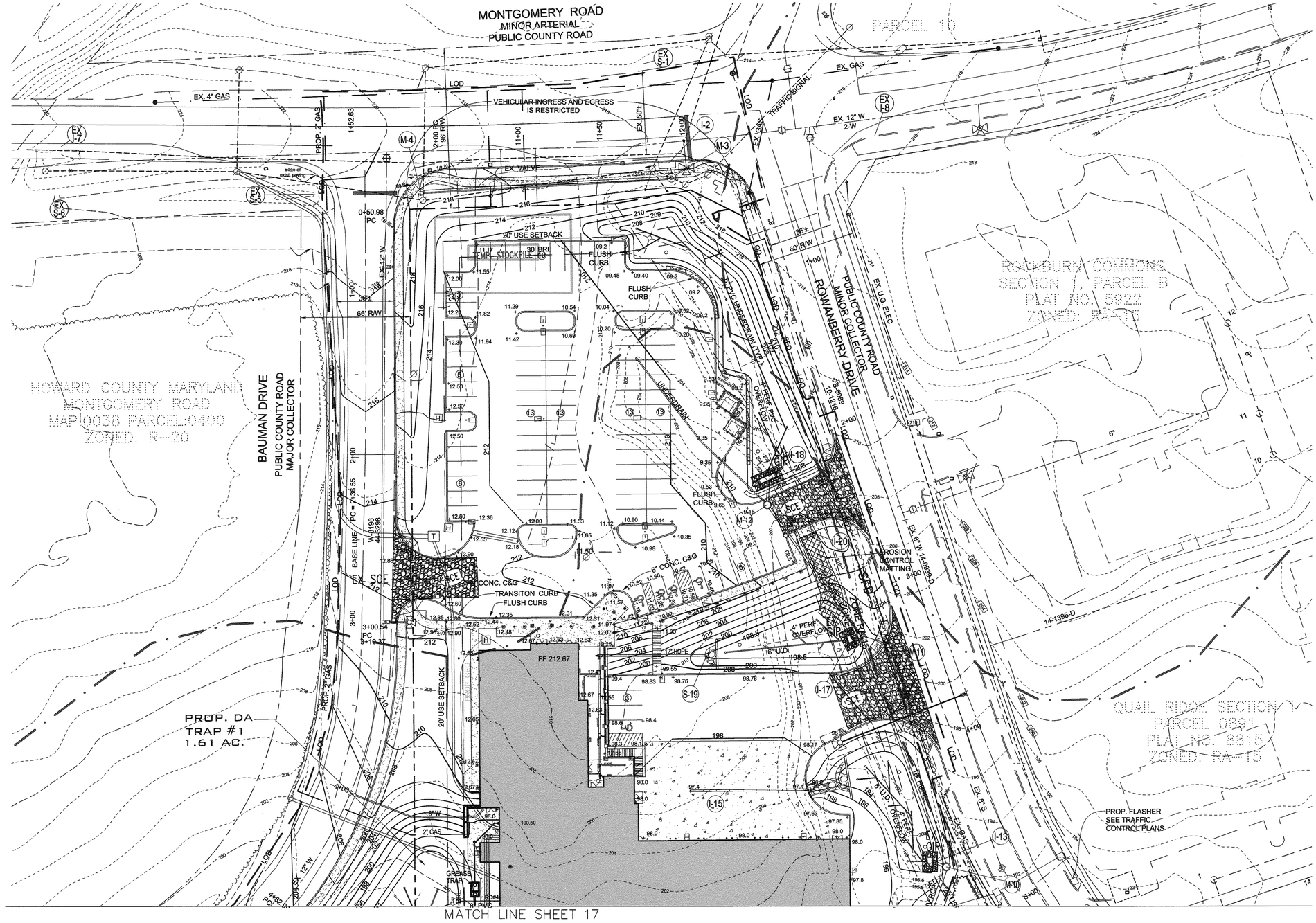
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=40'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	15 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075



LEGEND

EXISTING CONTOUR	382
PROPOSED CONTOUR	382
EXISTING SPOT ELEVATION	382.3
PROPOSED SPOT ELEVATION	+82.53
DIRECTION OF FLOW	
EXISTING TREELINE	
PROPOSED TREELINE	
LIMIT OF DISTURBANCE	LOD
CONCRETE VEHICULAR PAVEMENT	
CONCRETE PEDESTRIAN PAVEMENT	
SUPER FENCE DIVERSION	SFD
SUPER SILT FENCE	SSF
SILT FENCE	SF
TREE PROTECTION FENCE	TP
Stabilized Construction Entrance w/ Mountable Berm	SCE
GABION INLET PROTECTION	GIP
GABION MATTRESS INFLOW PROTECTION	GMIP
REMOVABLE PUMPING STATION	RPS
BAFFLE	30" BAFFLE

SEE SHEET 15 FOR PRIOR SEQUENCE OF CONSTRUCTION

SEQUENCE OF CONSTRUCTION (Building & Site Work)

1. Once site has been rough graded, excavate for foundations and construct proposed building. — 180 Days
2. Install remaining storm drainage and utilities. Brick shut slots on inlets draining bioretention/micro biotretention facilities. — 60 Days
3. Fine grade and construct paving except in the area of trap #2. Stabilize disturbed areas on Bauman Drive and Montgomery Road the same day. — 60 Days
4. Stabilize all remaining disturbed areas on site with seed and mulch. — 14 Days
5. Upon the establishment of vegetation and with the approval of the sediment erosion control inspector, construct micro bio retention facilities and bio retention facility #4 and stabilize and remove inlet protection. With permission of the sediment control inspector remove trap #1 and convert to bio retention facility #1 and stabilize. Remove temporary brick and install trash racks. — 60 Days
6. With the permission of the sediment control inspector, remove trap #2 and install SSF, place fill, and construct the remaining concrete pad. (See Trap #2 Inset) — 60 Days
7. Stabilize all remaining disturbed areas with seed and mulch. — 14 Days
8. With permission of the sediment/erosion control inspector remove remaining sediment and erosion control measures and stabilize areas disturbed by this process. — 14 Days

ENGINEER

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HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.

UTILITY NOTE

1) Contractor should open only that section of trench that can be backfilled and stabilized each day. If trench must remain open longer than one day, silt fence shall be placed below (downslope of) the trench.
2) Place all excavated material on uphill side of trench.
3) Any sediment controls disturbed by utility construction are to be repaired immediately.

Limit of Disturbance: 206,039 SF = 4.73 Ac.

0' 30' 60' 90'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
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HOWARD SCD — DATE 9/29/16

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SIGNATURE OF DEVELOPER — DATE 9/29/16

REVISED SEDIMENT & EROSION CONTROL PLAN - NORTH
ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

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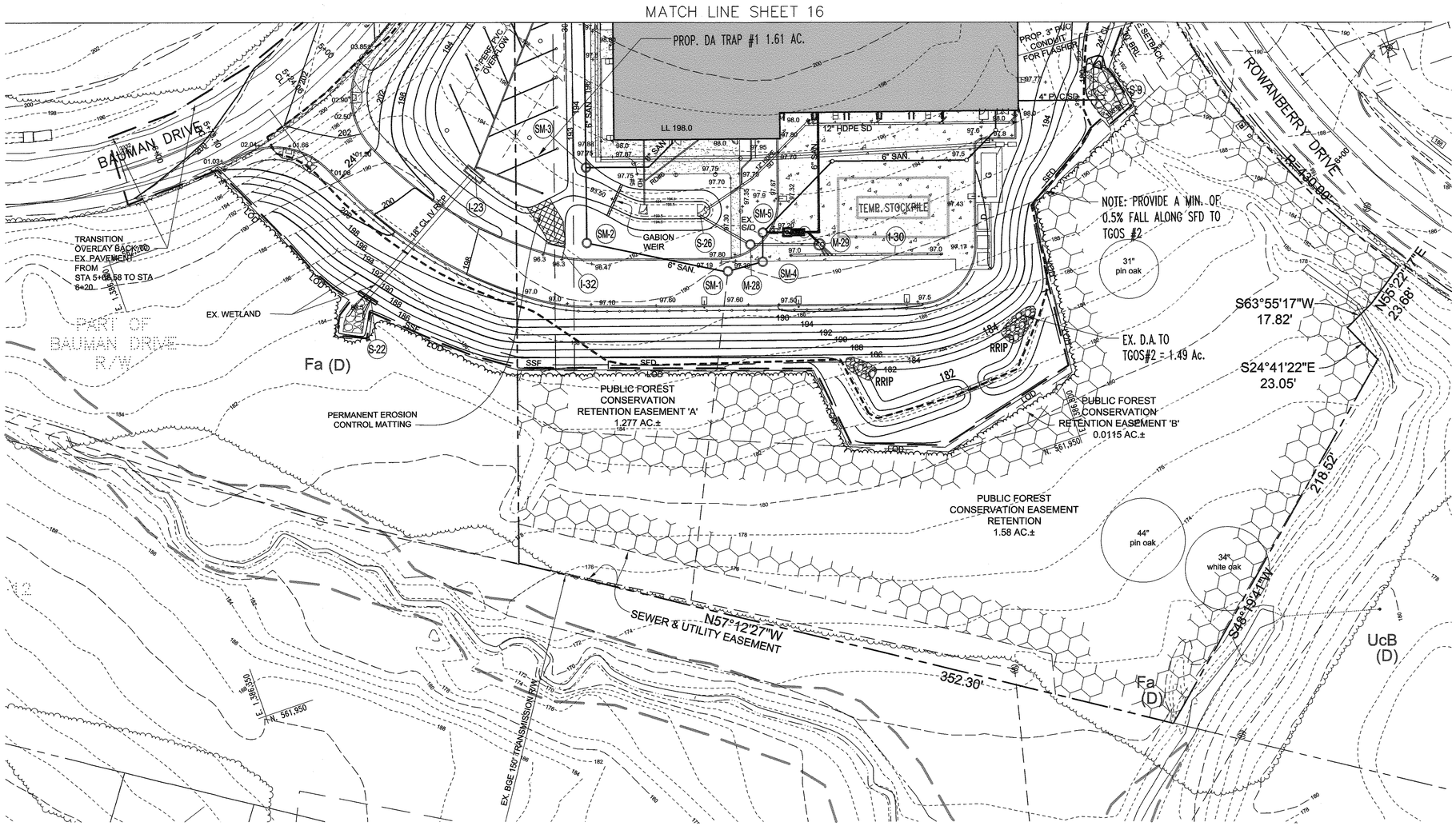
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 16 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 29, 2017

SDP-14-075



LEGEND

Super Fence Diversion	SFD
Super Silt Fence	SSF
Silt Fence	SF
Tree Protection Fence	TP
Limit of Disturbance	LOD
Stabilized Construction Entrance w/ Mountable Berm	SCE
Ex. Contours	
Prop. Contour	186
Gabion Inlet Protection	GIP
Gabion Mattress Inflow Protection	GMIP
Removable Pumping Station	RPS
Baffle	30' BAFFLE
RipRap	RRIP
Inflow Protection	
TGOS	

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REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.30.16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16

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Limit of Disturbance: 213,880 SF = 4.91 Ac.

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0' 30' 60' 90'

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REVISED SEDIMENT & EROSION CONTROL PLAN - NORTH
ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

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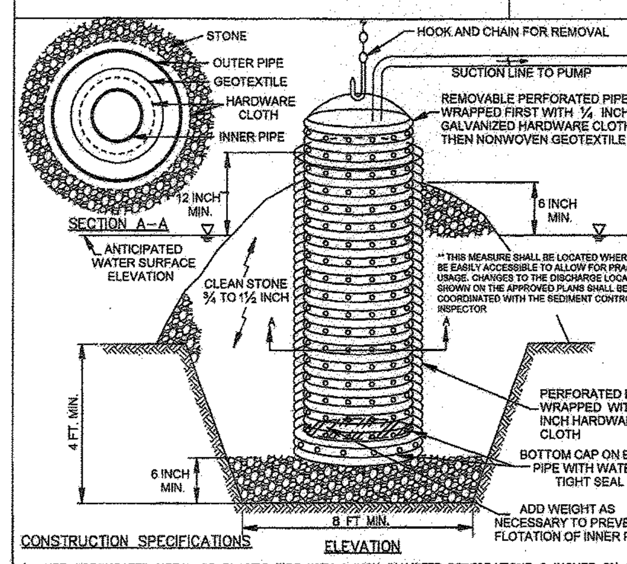
SDP-14-075

DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL RPS



CONSTRUCTION SPECIFICATIONS

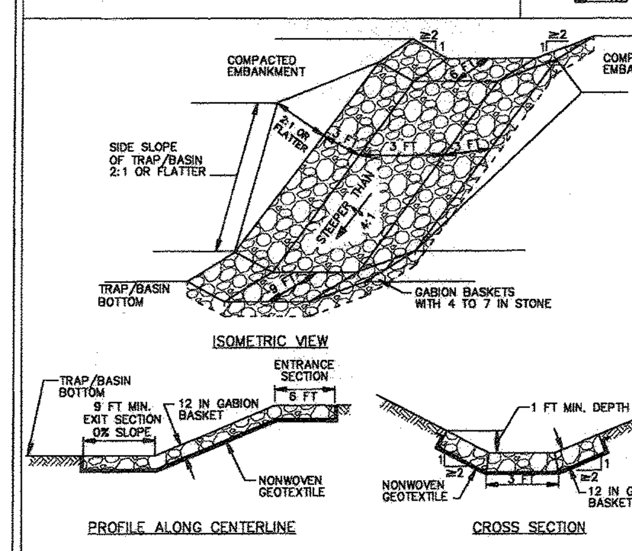
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL GP



CONSTRUCTION SPECIFICATIONS

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUCE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

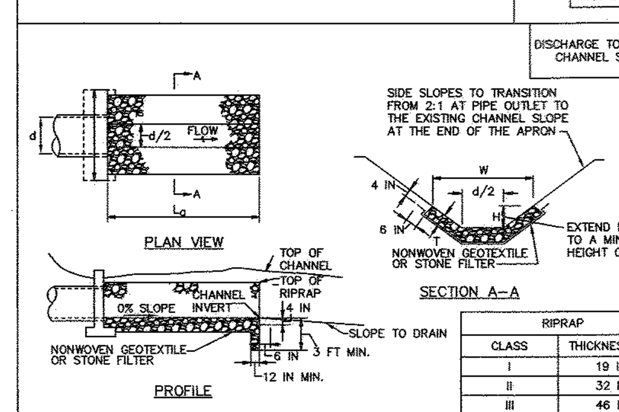
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL ROPII

DISCHARGE TO CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

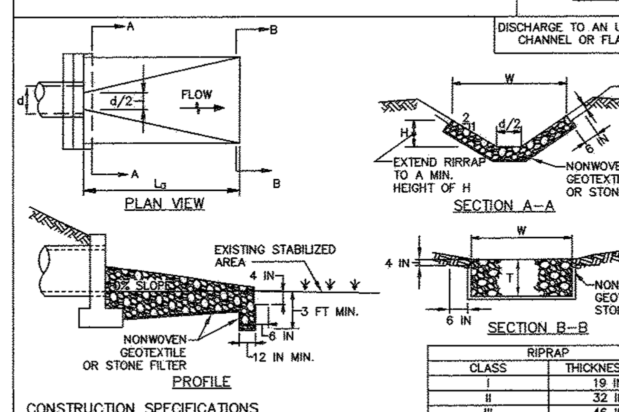
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-C ROCK OUTLET PROTECTION III

STANDARD SYMBOL ROPIII

DISCHARGE TO AN UNCONFINED CHANNEL OR FLAT AREA



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL TSOS

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
3. PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH DIAMETER HOLES 6 INCHES ON CENTER, EMBED A MINIMUM OF 4 INCHES INTO GROUND, AND EXTEND BAFFEL BOARD MINIMUM OF 12 INCHES INTO EARTH DIKE.
4. USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE WOVEN MONOFILAMENT GEOTEXTILE ON UPSTREAM FACE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
5. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H–1 MATERIALS.
6. SET WEIR CREST OF STONE 6 INCHES LOWER THAN THE TOP OF EARTH DIKE. USE MINIMUM LENGTH OF 6 FEET FOR WEIR CREST.
7. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO DRAIN. MAINTAIN LINE, GRADE, AND CROSS SECTION.
8. UPON REMOVAL OF STONE OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

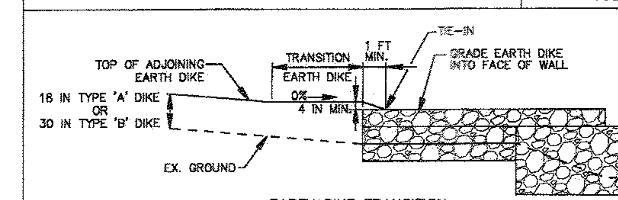
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL TGOS



NOTES:
1. PROVIDE TRANSITION LENGTH AND HEIGHT AS SPECIFIED ON PLAN. HEIGHT OF TRANSITION EARTH DIKE MUST EXCEED 4 INCH MINIMUM FREEBOARD ABOVE TOP OF GABION AND EXTEND AT THIS ELEVATION UNTIL IT INTERCEPTS THE TOP OF ADJOINING EARTH DIKE.
2. PROVIDE POSITIVE DRAINAGE ALONG EARTH DIKE TO GABION OUTLET STRUCTURE.
3. COMPACT FILL.
4. SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED ON PLAN. BANK PROJECTIONS OR IRREGULARITIES ARE NOT ALLOWED.

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
3. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H–1 MATERIALS.
4. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
5. EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9 INCHES. PROVIDE NONWOVEN GEOTEXTILE UNDER ALL GABIONS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH.
7. MAKE THE WEIR CREST OF THE GABION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT GABIONS.
8. PROVIDE A MINIMUM WEIR CREST OF 6 FEET.
9. ATTACH WOVEN MONOFILAMENT GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7 INCH STONE.
10. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12 INCHES OF THE WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
11. UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

2 OF 2

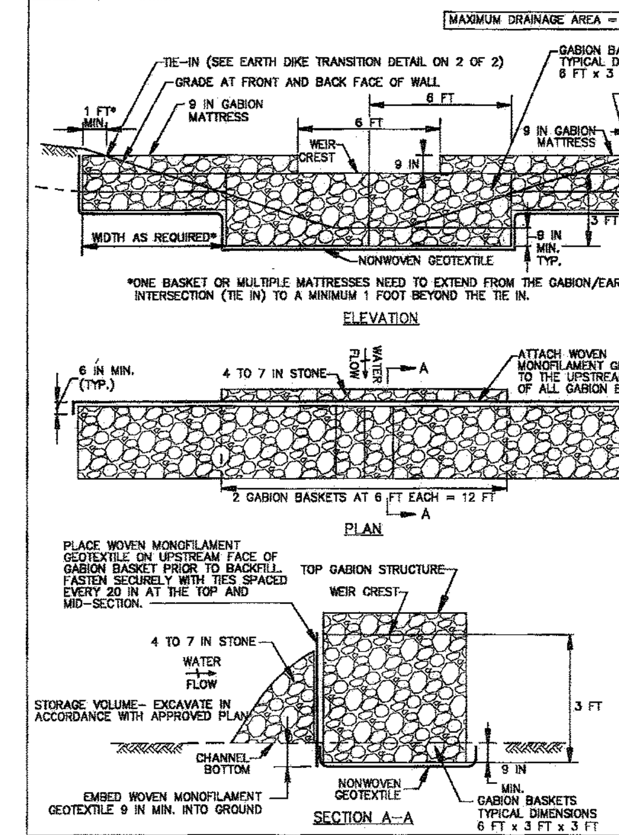
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL TGOS

MAXIMUM DRAINAGE AREA = 1½ ACRE



1 OF 2

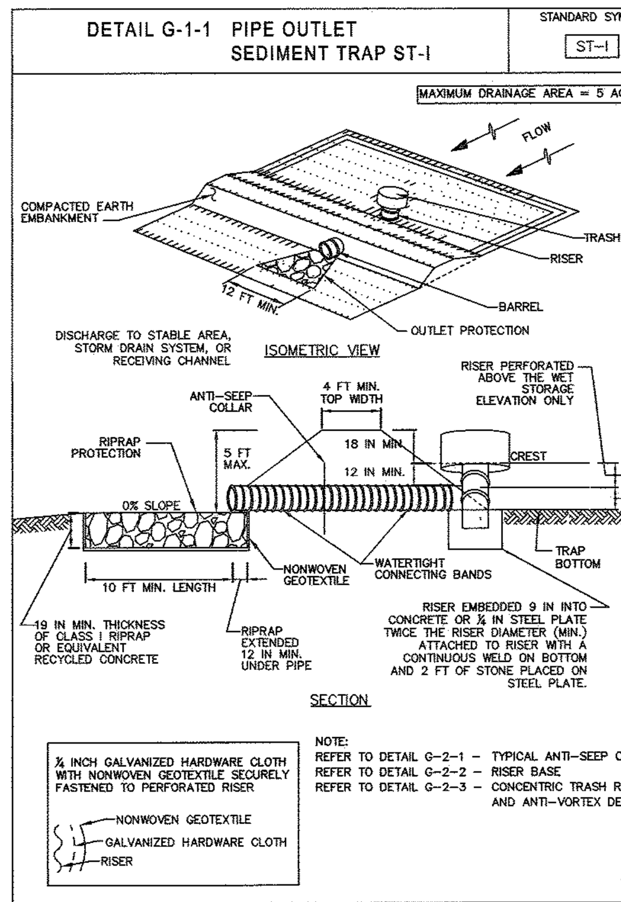
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL ST–I

MAXIMUM DRAINAGE AREA = 5 ACRES



¼ INCH GALVANIZED HARDWARE CLOTH WITH NONWOVEN GEOTEXTILE SECURELY FASTENED TO PERFORATED RISER
NONWOVEN GEOTEXTILE
GALVANIZED HARDWARE CLOTH
RISER

NOTE:
REFER TO DETAIL G–2–1 – TYPICAL ANTI–SEEP COLLARS
REFER TO DETAIL G–2–2 – RISER BASE
REFER TO DETAIL G–2–3 – CONCENTRIC TRASH RACK AND ANTI–VORTEX DEVICE

1 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL ST–I

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. PERFORATE THE RISER WITH 1 INCH DIAMETER HOLES SPACED 6 INCHES ON CENTER WITH THE LOWEST PERFORATIONS AT THE WET STORAGE ELEVATION OR PROVIDE A HORIZONTAL OR VERTICAL DRAW–DOWN DEVICE PERFORATED ACCORDING TO APPROVED PLAN. DO NOT PERFORATE THE RISER WITHIN 6 INCHES OF THE TOP OF THE HORIZONTAL BARREL.
4. SET RISER/BARREL ASSEMBLY PRIOR TO EMBANKMENT CONSTRUCTION. MAKE ALL PIPE CONNECTIONS WATERTIGHT. OFFSET RISER FROM EMBANKEMENT TO ACCOMODATE PLACEMENT OF THE TRASH RACK. ANCHOR THE RISER WITH EITHER A REINFORCED CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. MAKE CONCRETE BASES AT LEAST TWICE THE RISER DIAMETER AND 18 INCHES THICK WITH THE RISER EMBEDDED 9 INCHES.
5. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
6. HAND COMPACT IN 4 INCH LAYERS FILL MATERIAL AROUND THE PIPE SPILLWAY. PLACE A MINIMUM OF 2 FEET OF HAND COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
7. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE RISER CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
8. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
9. WRAP THE RISER WITH ¼ INCH GALVANIZED HARDWARE CLOTH THEN WRAP WITH NONWOVEN GEOTEXTILE. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE. EXTEND HARDWARE CLOTH AND GEOTEXTILE AT LEAST 6 INCHES ABOVE THE HIGHEST PERFORATIONS AND AT LEAST 6 INCHES BELOW THE LOWEST PERFORATIONS. OVERLAP, FOLD AND FASTEN WHERE ENDS OF GEOTEXTILE COME TOGETHER TO PREVENT BYPASS. REPLACE GEOTEXTILE AS NECESSARY TO PREVENT CLOGGING.
10. USE STRAPS OR CONNECTING BANDS AT THE TOP AND BOTTOM OF THE GEOTEXTILE TO HOLD THE GEOTEXTILE AND HARDWARE CLOTH IN PLACE.
11. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
12. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
13. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO THE APPROVED PLAN AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
14. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B–4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.
15. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
16. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

2 OF 3

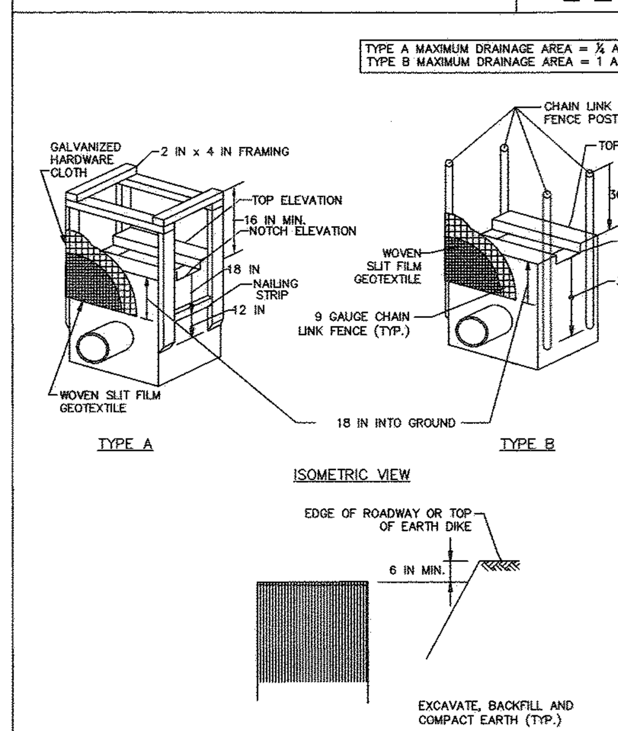
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E- 9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL SIP

TYPE A MAXIMUM DRAINAGE AREA = ¼ ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E- 9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

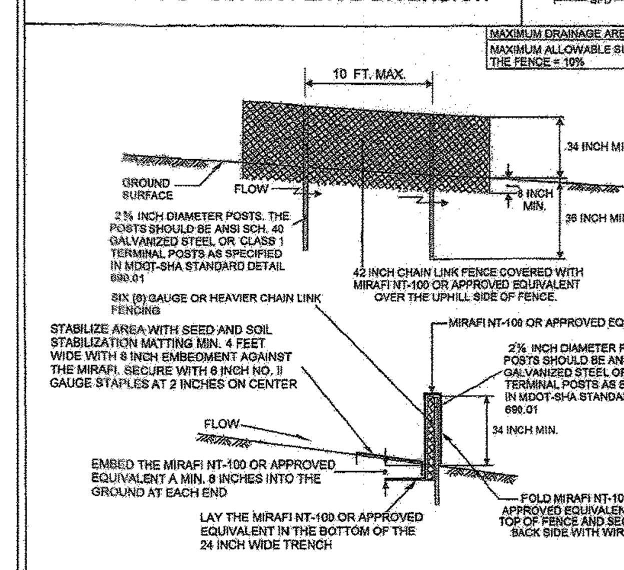
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	

DETAIL C-9 SUPER FENCE DIVERSION

STANDARD SYMBOL SFD

MAXIMUM DRAINAGE AREA = 5 ACRES
MAXIMUM ALLOWABLE SLOPE ALONG THE FENCE = 10%



CONSTRUCTION SPECIFICATIONS

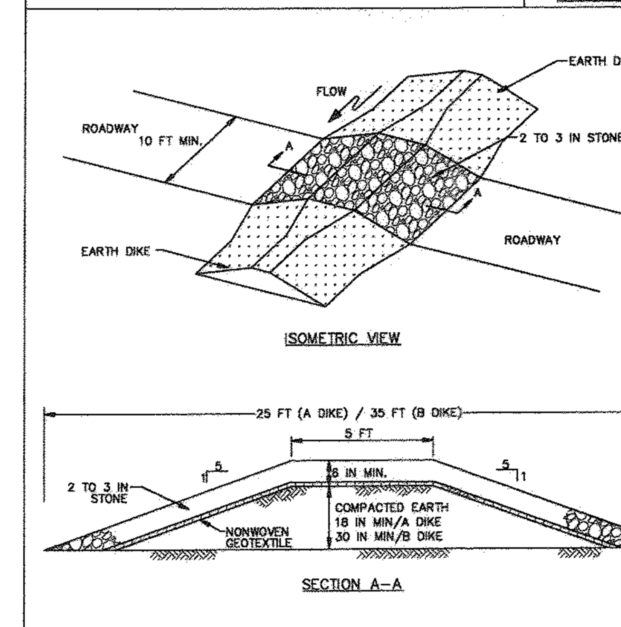
1. USE 42 INCH HIGH, 6 GAUGE OR HEAVIER CHAIN LINK FENCING. (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER, GALVANIZED STEEL POSTS. THE POSTS SHALL BE SIX FEET IN LENGTH SPACED NO FURTHER THAN TEN FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE THE MIRAFI NT-100 OR APPROVED EQUIVALENT TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, 18 INCHES BELOW THE TOP AND BELOW THE GROUND.
5. FLOW CHANNEL TO BE STABLIZED WITH SEED AND SOIL STABILIZATION MATTING A MINIMUM OF 4 FEET WIDE. EMBED THE ENDS OF THE MATTING A MINIMUM OF 8 INCHES INTO THE GROUND. THE SOIL STABILIZATION MATTING SHALL HAVE A SHEAR STRESS RATING OF 2.25 LB./FT.
6. WHEN TWO SECTIONS OF MIRAFI ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG THE FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE MIRAFI FABRIC IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MODIFIED - 2012	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL MB



CONSTRUCTION SPECIFICATIONS

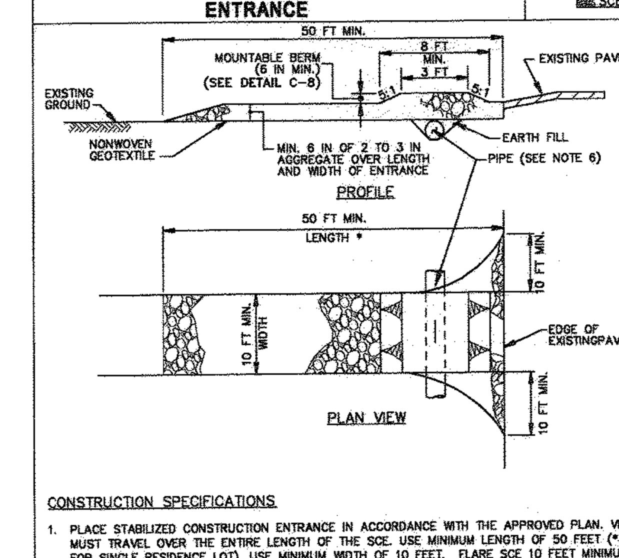
1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL SCE



CONSTRUCTION SPECIFICATIONS

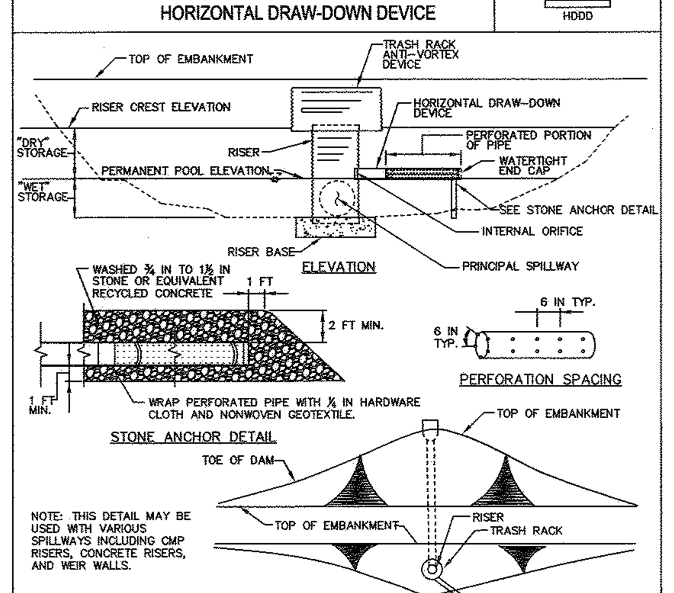
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE

STANDARD SYMBOL HDDD



NOTE: THIS DETAIL MAY BE USED WITH VARIOUS SPILLWAYS INCLUDING CMP RISERS, CONCRETE RISERS, AND WEIR WALLS.

CONSTRUCTION SPECIFICATIONS

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW–DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW–DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW–DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

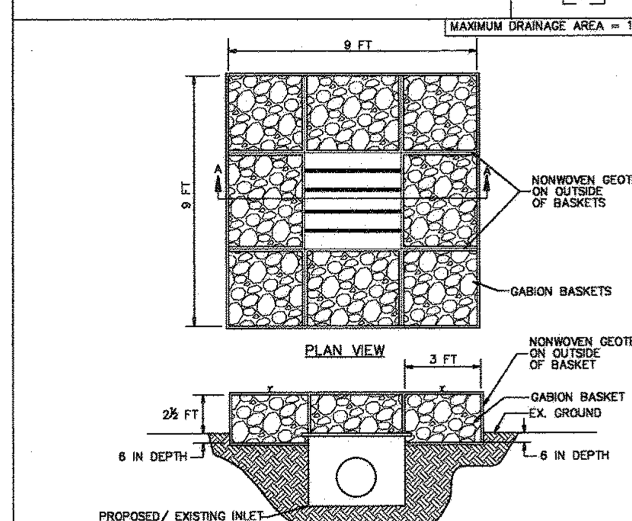
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-7 GABION INLET PROTECTION

STANDARD SYMBOL GIP

MAXIMUM DRAINAGE AREA = 1½ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
2. WRAP 3 FEET x 3 FEET GABION BASKETS (LENGTH VARIABLE) WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVERLAPPING AT THE TOP AND FASTEN THE GEOTEXTILE AT THE TOP OF THE BASKET WITH WIRE FASTENERS (HOG RINGS) AT A MAXIMUM OF 1 FOOT INTERVALS ALONG THE SEAM.
3. AVOID TEARING OR DAMAGING GEOTEXTILE.
4. ENTRENCH GABION BASKETS TO A DEPTH OF 6 INCHES.
5. PLACE AND INTERLOCK GABION BASKETS WITH NO GAPS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR MESH.
7. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

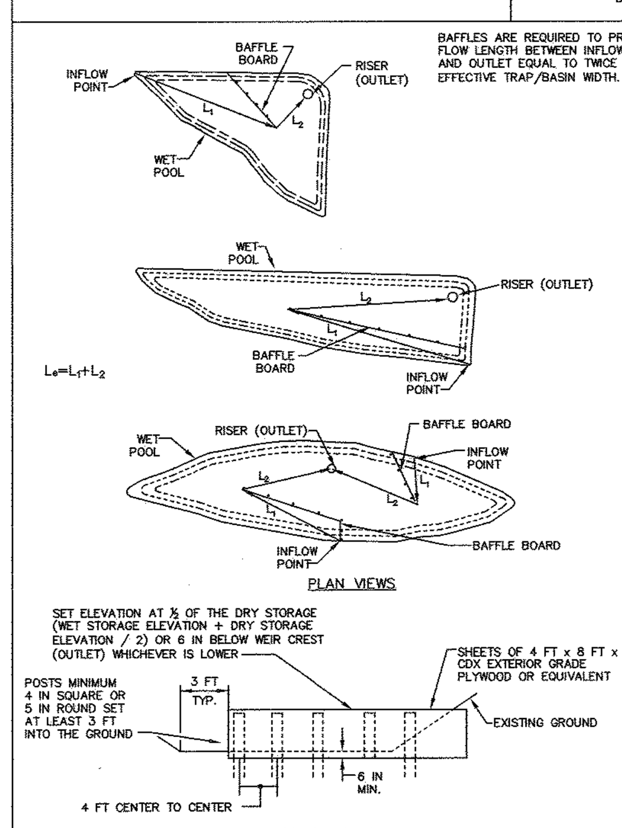
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL BB

BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.

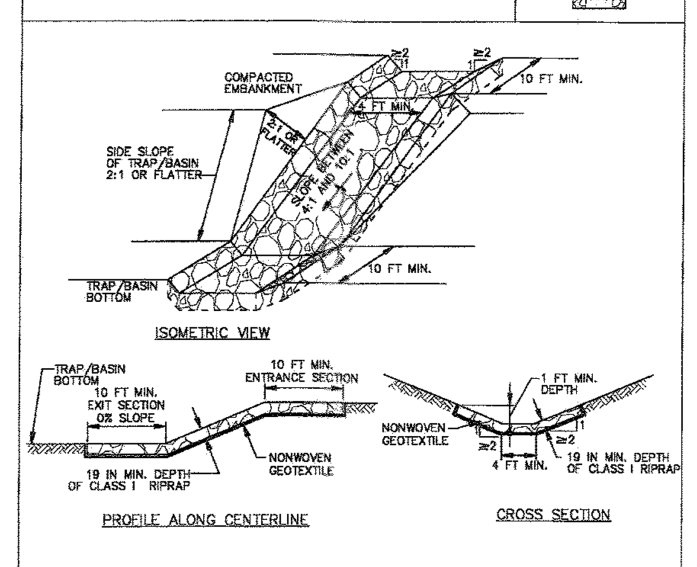


MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-3-1 RIPRAP INFLOW PROTECTION

STANDARD SYMBOL RRP



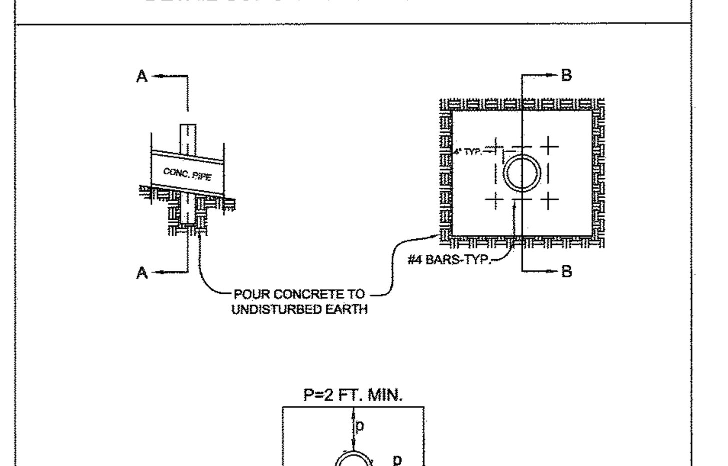
CONSTRUCTION SPECIFICATIONS

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. CONSTRUCT INFLOW CHANNEL WITH CLASS I RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 19 INCHES (2 x D_{50}) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
3. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
4. BLEND RIPRAP INTO EXISTING GROUND.
5. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL CONCRETE ANTI-SEEP COLLARS



NOTES
1. ANTI-SEEP COLLARS SHALL BE MIX NO. 3 CONCRETE
2. ANTI-SEEP COLLARS SHALL NOT BE PLACED WITHIN 2' OF A PIPE JOINTS.
3. TRENCH SHALL BE BACKFILLED IN ACCORDANCE WITH STANDARD SPECIFICATIONS.
4. SPACE ANTI-SEEP COLLARS BETWEEN 5 AND 14 TIMES THE PROJECTION OF EACH COLLAR.
5. PLACE ANTI-SEEP COLLARS WITHIN SATURATION ZONE. IN CASES WHERE SPACE LIMITS WILL NOT ALLOW THIS, PLACE AT LEAST ONE COLLAR IN THE SATURATION ZONE.
6. USE ANTI-SEEP COLLARS CONSTRUCTED OF THE SAME MATERIALS AS THE BARRELL PIPE.

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.30.16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16

DIRECTOR — DATE 10-3-16

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SCD — DATE 9/29/16

ENGINEERS CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — DATE 9/28/16
PAUL M. SILL, P.E.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 9/29/16

0" 1"

ENGINEER

SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SEDIMENT & EROSION CONTROL DETAILS
ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12 — PARCEL 402 & 403 A2
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

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Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

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SDP-14-075

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION
- USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE
- TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES
- ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION; SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING; SEEDING AND MULCHING; TEMPORARY STABILIZATION; AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY
- STABILIZATION PRACTICES 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 RUNOFF TO DOWNSTREAM AREAS.
- PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.
- VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.
- **SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.**

ADEQUATE VEGETATIVE ESTABLISHMENT
INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.
1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUNDCOVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUNDCOVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUNDCOVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

B-4-1STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

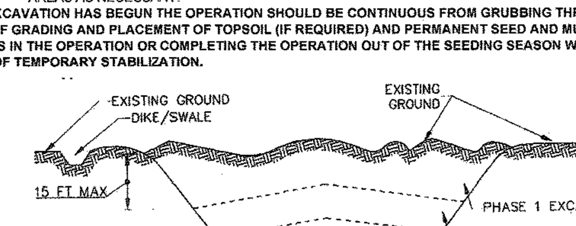
DEFINITION
- ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE
- TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES
- ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

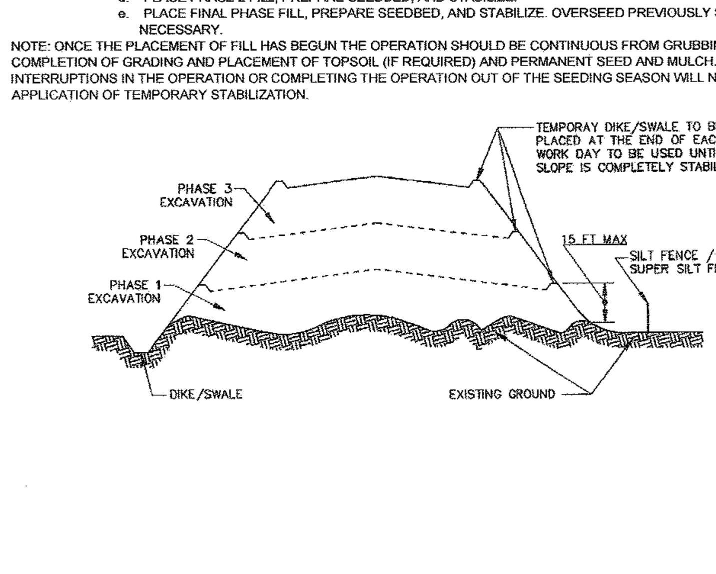
CRITERIA
A. INCREMENTAL STABILIZATION - CUT SLOPES
   1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
   2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
      a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF ROUND THE EXCAVATION.
      b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
      c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
      d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.



B. INCREMENTAL STABILIZATION - FILL SLOPES
   1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.
   2. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
   3. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
   4. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
      a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
      b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
      c. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.
      d. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
      e. PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.



B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION
- THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
- TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
- WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA
A. SOIL PREPARATION
   1. TEMPORARY STABILIZATION
      a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
      b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
      c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
   2. PERMANENT STABILIZATION
      a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
         I. SOIL PH BETWEEN 6.0 AND 7.0.
         II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
         III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
         IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
         V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
      b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
      c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
      d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
      e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING
   1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
   2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
   3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
      a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
      b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
      c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
      d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
   4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
   5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
      a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS,GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
      b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
      c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
   6. TOPSOIL APPLICATION
      a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
      b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
      c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
   1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
   2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
   3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
   4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
   5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION
- THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
- TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES
- TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA
A. SEEDING
   1. SPECIFICATIONS
      a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE
      b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE ROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
      c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
      d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
   2. APPLICATION
      a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS
         I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
         II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
      b. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH OIL.
      c. I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
         II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
      d. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
         I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
         II. 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.
         III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
         IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
   1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
      a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
      b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
         I. WCFM IS TO 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 SLURRY.
         II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
         III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
         IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
         V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
   2. APPLICATION
      a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
      b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
      c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
   3. ANCHORING
      a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
         I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS,BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND,THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
         II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
         III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
         IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE
- TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES:
- EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA
1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
a. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
b. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.

TEMPORARY SEEDING FOR SITE STABILIZATION

NO.	PLANT SPECIES	SEEDING RATE LB/AC	SEEDING RATE LB/1000 FT²	SEEDING DEPTH (INCHES)	RECOMMENDED SEEDING DATES
	COOL-SEASON GRASSES				
2	ANNUAL RYEGRASS (*LOLIUM PERENNE SSP. MULTIFLORUM*)	40	1.0	0.5	MARCH 1 TO MAY 15; AUG 1 TO OCT 15
	WARM-SEASON GRASSES				
1	FOXTAIL MILLET (*SETARIA ITALICA*)	30	0.7	0.5	MAY 16 TO JUL 31
3	PEARL MILLET (*PENNISETUM GLAUCUM*)	20	0.5	0.5	MAY 16 TO JUL 31

FERTILIZER RATE (10-20-20): 436 LB/AC (10LB/1000SF) LIME RATE: 2 TONS/AC (90LB/1000SF)

NOTES:
1. SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL-SEASON GRASSES. SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS, AND WHEAT. FOR SMALLER-SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET), DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS. CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE. OATS ARE THE RECOMMENDED NURSE CROP FOR WARM-SEASON GRASSES.
2. FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.
3. THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR THE BOUNDARIES OF THE ZONE.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

DEFINITION
- A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE
- TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

CONDITIONS WHERE PRACTICE APPLIES: 6b
- STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

CRITERIA
1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE
- THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

PERMANENT SEEDING

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	P205	K20	Lime Rate
11.	Creeping Red Fescue Chewings Fescue Kentucky Bluegrass	30 30 20	3/1 – 5/15 8/1 – 10/15	1/4"–1/2"	45 lb/ac (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

Seed Mixture (For Hardiness Zone 6b)

* FOR SEEDING DATES 5/16 – 7/31, ADD 4.0 LBS PER ACRE OF FOXTAIL OR PEARL MILLET TO SEED MIXTURE NO. 11.

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF 6 MONTHS OR MORE ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE
- TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES
- EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA
A. SEED MIXTURES
   1. GENERAL USE
      A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
      B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
      C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
      D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 ½ POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY .
   2. TURFGRASS MIXTURES
      A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
      B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
         I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE.RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
         II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE B.22 RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKy BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
         III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
         IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.
         NOTES: SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE
      C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES:
         WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
         CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
         SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)
      D.TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1½ INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
      E. SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (½ TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).
   1. GENERAL SPECIFICATIONS
      A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
      B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF ¾ INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
      C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
      D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
      E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
   2. SOD INSTALLATION
      A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
      B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
      C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
      D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.
   3. SOD MAINTENANCE
      A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
      B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
      C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN ⅓ OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1. PREFERRED -- APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 IBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 IBS/1000 SQ. FT.)
2. ACCEPTABLE -- APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 1000 IBS/ACRE 10-10-10 FERTILIZER (23 IBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING -- FOR THE PERIODS MARCH 1 -- APRIL 30, AND AUGUST 1 -- OCTOBER 15, SEED WITH 60 IBS/ACRE (1.4 IBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 -- JULY 31, SEED WITH 60 IBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 IBS/ACRE (.05 IBS/100() SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 -- FEBRUARY 28, PROTECT SITE BY:

OPTION 1 -- TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING.
OPTION 2 --USE SOD. OPTION 3 --- SEER: WITH 60 IBS/ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING -- APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 IBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE -- INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES.

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: -- LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: -- APPLY 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.).

SEEDING: -- FOR PERIODS MARCH 1 -- APRIL 30 AND FROM AUGUST 15 -- OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 IBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 -- AUGUST 14, SEED WITH 3 IBS/ACRE OF WEEPING LOVEGRASS (.07 IBS/1000 SQ. FT.). FO~ THE PERIOD NOVEMBER 16 -- FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: -- APPLY L-1/2 TO 2 TONS/ACRE (70 TO 90 IBS/1000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FT. OR HIGHER, USE 348 GAL. PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

REFER TO THE 2011 MAR4AND STANDARDS AND SPECIFICATIONS FOR SOL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

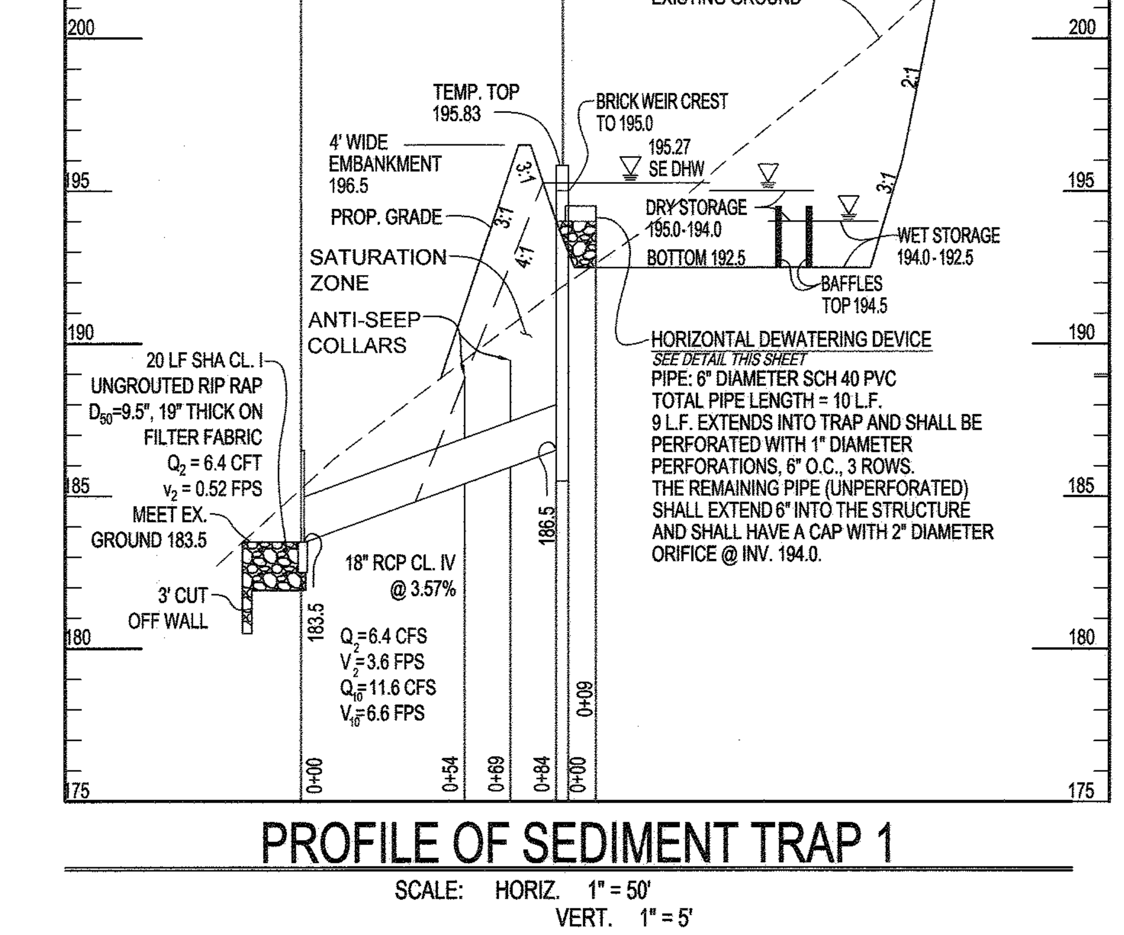
1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
   USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
   USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
   USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
6. SITE ANALYSIS:

TOTAL AREA OF SITE	5.68 ACRES
AREA DISTURBED	4.73 ACRES
AREA TO BE PAVED	2.69 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.04 ACRES
TOTAL CUT	14,700± CU. YDS.
TOTAL FILL	15,500± CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION:	UNKNOWN.

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
   - INSPECTION DATE
   - NAME AND TITLE OF INSPECTOR
   - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
   - IDENTIFICATION OF PLAN DEFICIENCIES
   - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
   - PHOTOGRAPHS
   - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
   - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
   - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
   - EVIDENCE OF SEDIMENT DISCHARGES
   - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
   - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
   - MONITORING/SAMPLING
   - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
   - USE I AND IP MARCH 1 - JUNE 15
   - USE III AND IIIP OCTOBER 1 - APRIL 30
   - USE IV MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.



PROFILE OF SEDIMENT TRAP 1

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-30-16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16

DIRECTOR — DATE 10-3-16

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SCD — DATE 9/29/16

ENGINEERS CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — DATE 9/28/16
PAUL M. SILL, P.E.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER — DATE 9/29/14

ENGINEER
SILL ENGINEERING GROUP, LLC
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FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SEDIMENT & EROSION CONTROL DETAILS
ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12 — PARCEL 402 & 403 A2
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

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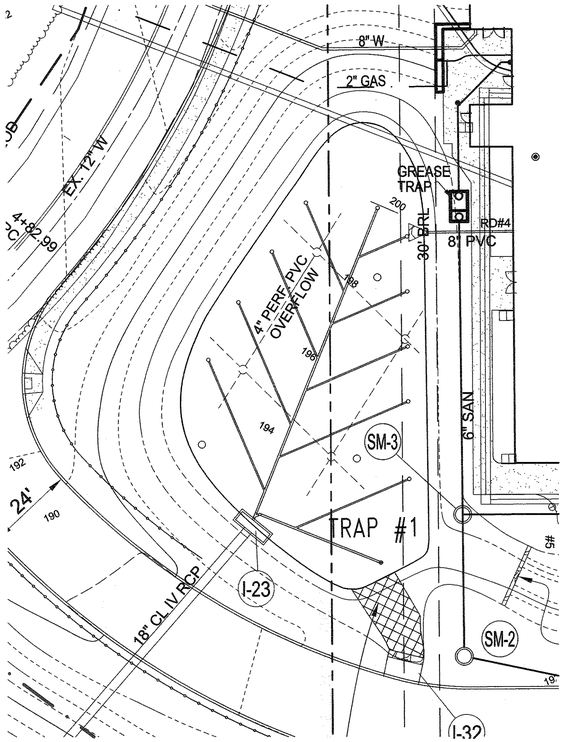
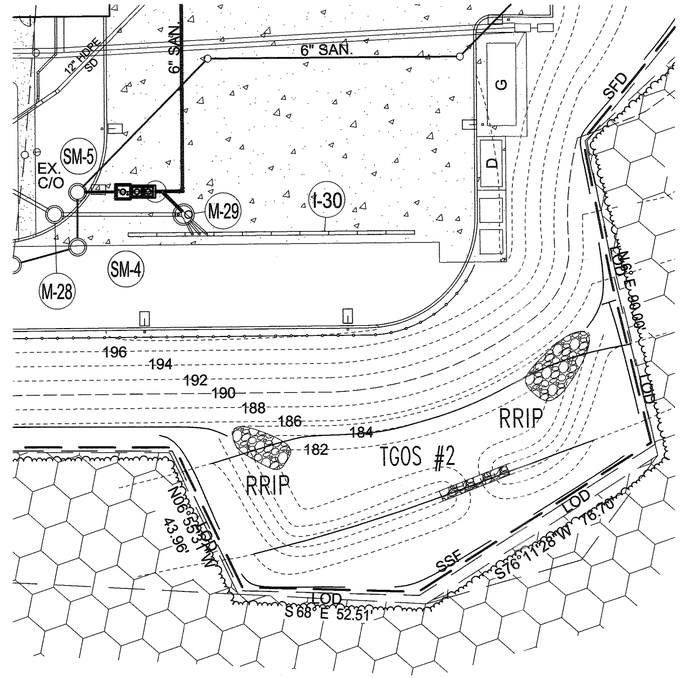
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	AS SHOWN
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	19 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017



INSET TRAP #1 CONVERSION



INSET TGOS #2 CONVERSION

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.30.16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16

DIRECTOR — DATE 10-3-16

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SCD — DATE 9/29/16

ENGINEERS CERTIFICATE

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SIGNATURE OF ENGINEER — DATE 9/29/16
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SIGNATURE OF DEVELOPER — DATE 9/29/16

NOTE: IF THE STOCKPILE SHOULD EXCEED 15 FT. IN HEIGHT, IT MUST BE BENCHED.

0' 20' 40' 60'

ENGINEER

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OWNER/DEVELOPER

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REVISED SEDIMENT & EROSION CONTROL DETAILS

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

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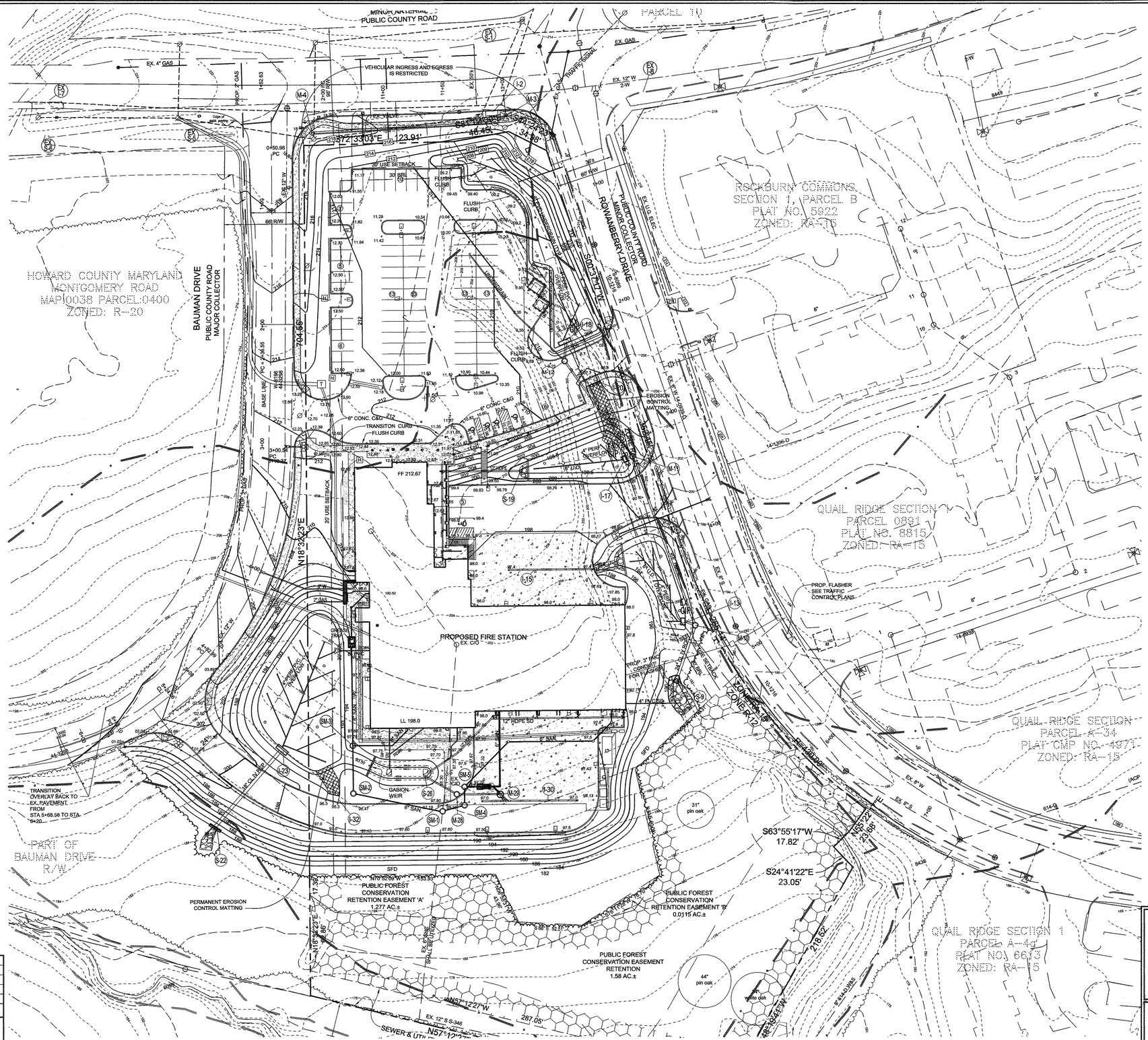
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=20'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 20 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017



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	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

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REVISED OVERALL STORMWATER MANAGEMENT PLAN
ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

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Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=30'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	21 of 41

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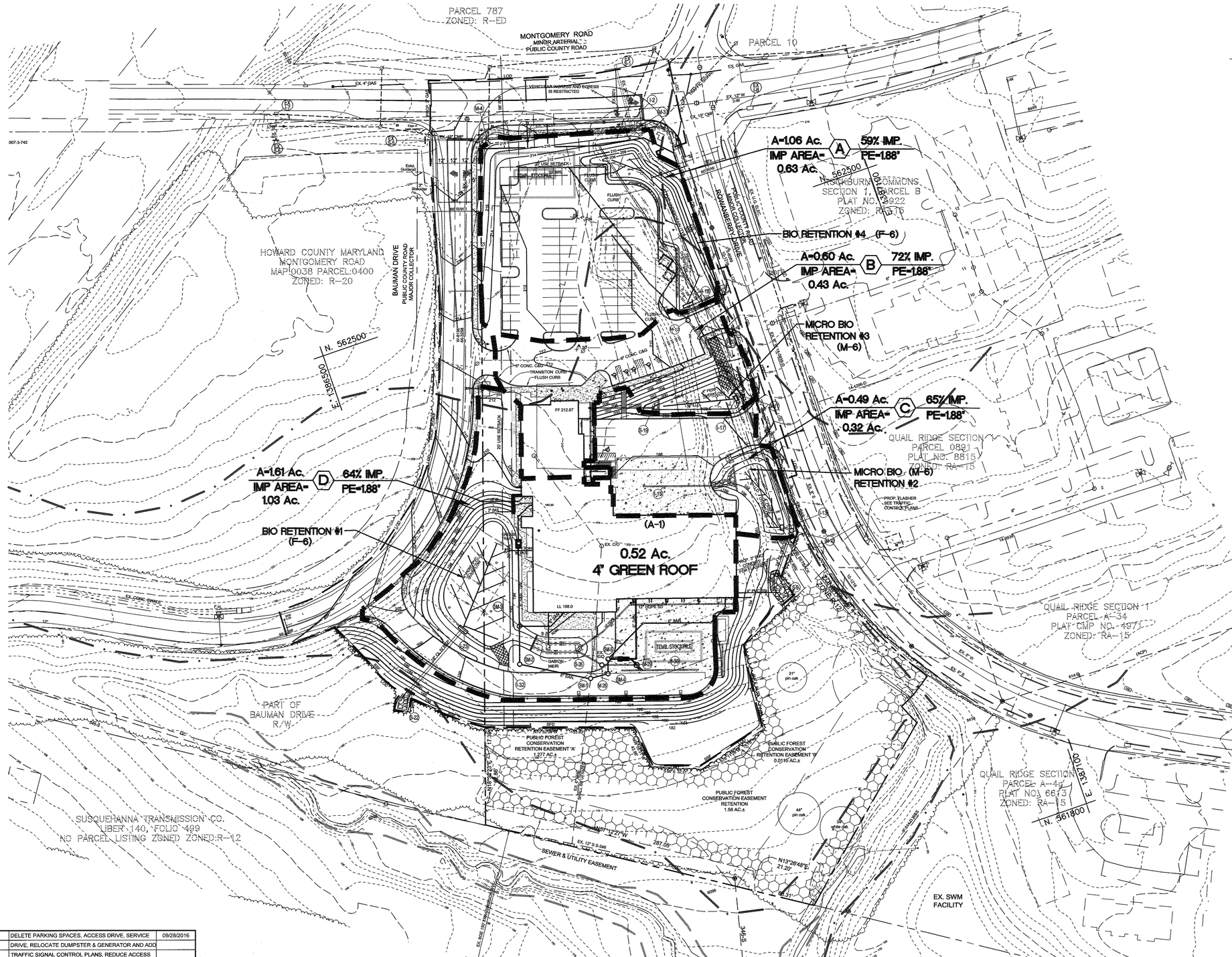
SDP-14-075



FACILITY AND DESIGN SUMMARIES

DESIGN SUMMARY

	Site LOD	Imp Area	ESDv	Temp Storage	Pe	Recharge	forebay
Req	4.73 ac	2.69 ac	18077 CF	13558 CF	1.88"	1250cf	123 cf
Prov	N/a	N/a	22332 CF	15569 CF	1.88"	1686 cf	441 cf

FACILITY SUMMARY

Facility	Pe	DA	ESD elev	Bottom elev	ESDv req	ESDv Prov	Temp Storage req	Temp Storage prov	Af req	Af prov	Rec req	Rec prov	Fore bay req	Fore bay prov
Bio Ret #1 F-6	1.88"	1.61 acs	194.0	193.0	5446 cf*	9027 cf	4085 cf	6770 cf	4538 sf	6267 sf	1250 cf	1686 cf	123 cf	441 cf
Mic Bio #2 M-6	1.88"	0.49 acs	195.0	194.0	2139 cf	2967 cf	1604 cf	2225 cf	427 sf	1900 sf	**	**	N/A	N/A
Mic Bio #3 M-6	1.88"	0.60 acs	199.5	198.5	2598 cf#	2792 cf	1949 cf	2094cf	523 sf	1576 sf	**	**	N/A	N/A
Bio Ret #4 F-6	1.88"	1.05a cs	209.0	208.0	4195 cf	5802 cf	3146 cf	4480 cf	3496 sf	3746 sf	**	**	N/A	N/A
Green Roof A-1		0.52 acs	N/a	N/a	N/a	1744 cf	N/a	N/a	N/a	N/a	**	**	N/a	N/a
Totals	1.88"	3.76 ac	N/a	N/a	14378 cf	22332 cf	12746 cf	15569 cf	N/a	N/a	1250 cf	1686 cf	123 cf	441 cf

* Adjusted from 6922 cf for green roof storage of 1476 cf
\# Adjusted from 2866 cf for green roof storage of 268 cf
** recharge provided for site in stone under facility #1

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REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER

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FAX: 410-696-2022
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OWNER/DEVELOPER

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COLUMBIA, MD 21045
PHONE: 410-313-5757
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REVISED SWM FACILITY DRAINAGE AREA MAP

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND
PAUL M. SILL
No. 32025
PROFESSIONAL ENGINEER

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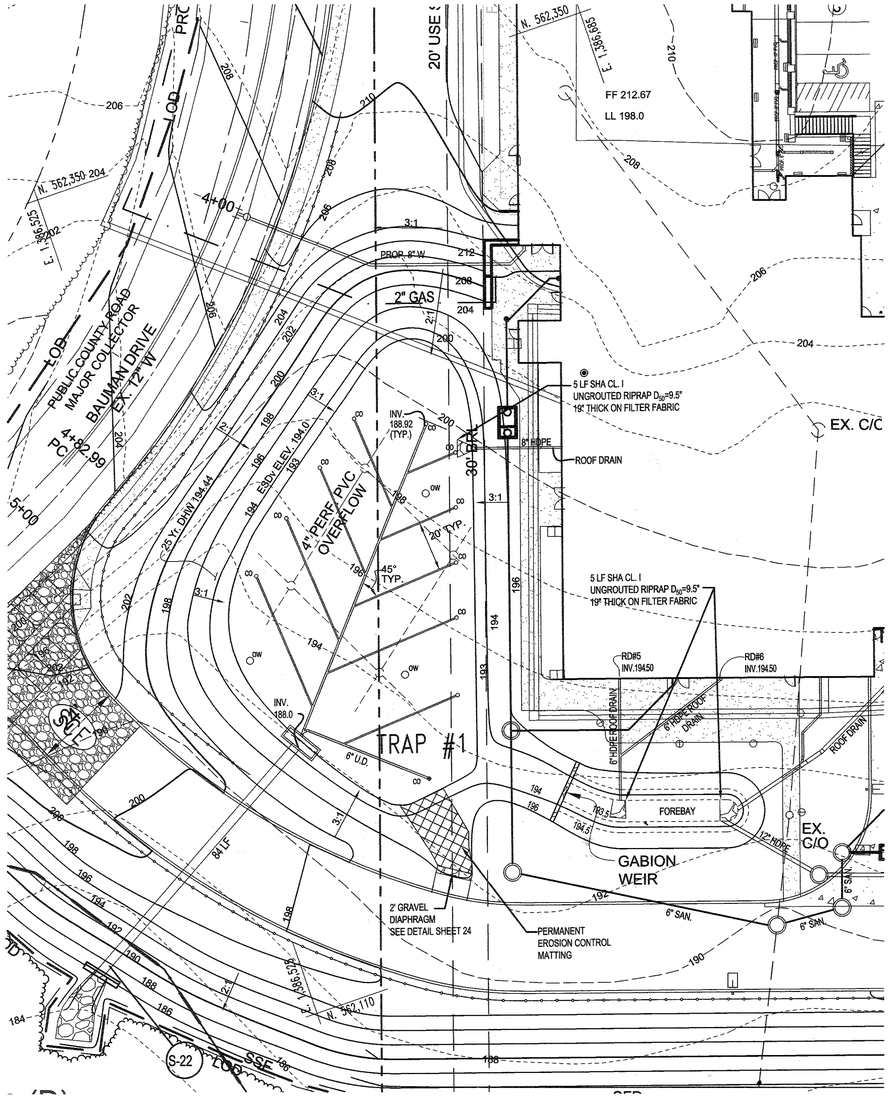
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=30'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 22 of 41

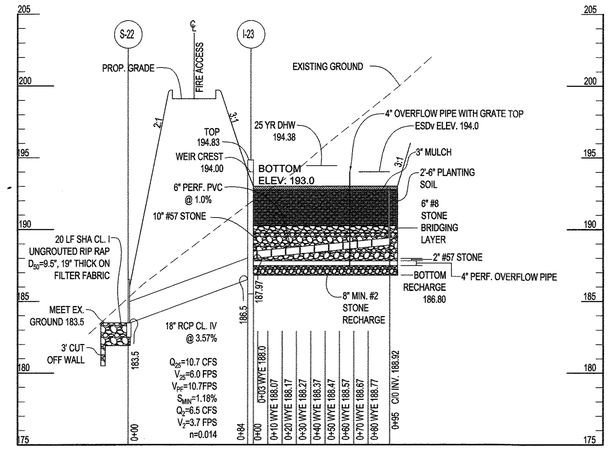
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075



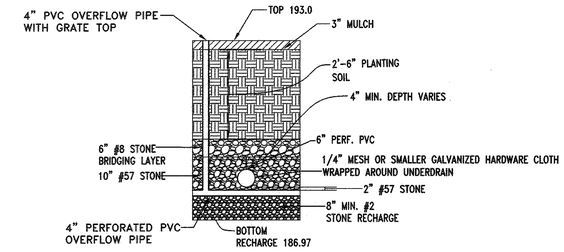
BIO RETENTION (F-6) FACILITY #1 PLAN

Scale: 1" = 20'



S-22 TO 1-23

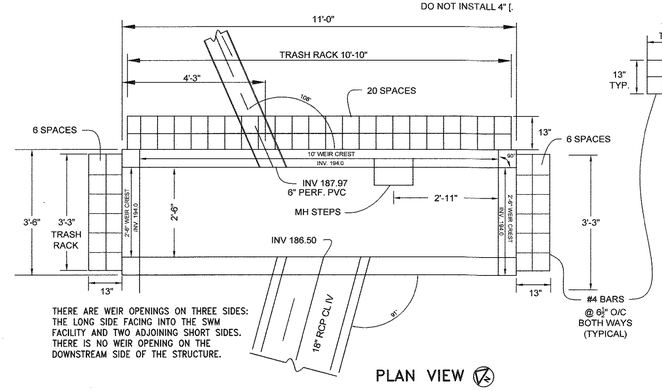
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



TYPICAL SECTION BIORETENTION #1 (F-6)

NOT TO SCALE

NOTE: FOR REINFORCING AND DETAILS NOT SHOWN SEE HO. CO. STD. S.D. 4.03. DO NOT INSTALL 4" [.



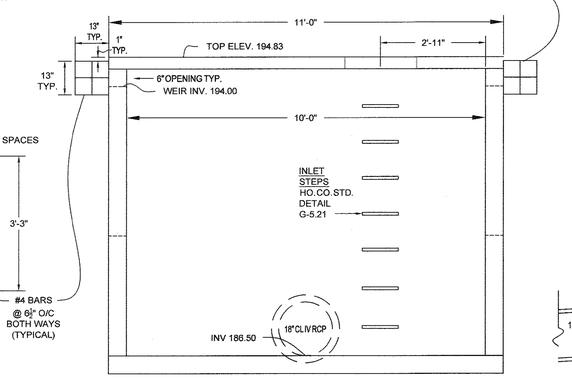
PLAN VIEW

STRUCTURE I-23 MODIFIED A-10 INLET

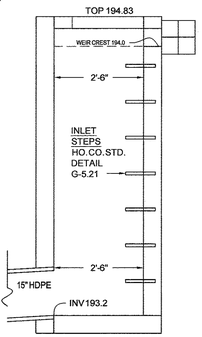
MODIFIED HOWARD COUNTY STD. DETAIL D-4.03. NOT TO SCALE

TRASH RACK

3"x3/8" THICK STEEL PLATE BOLTED TO STR. WITH 3/4" DIA. BOLTS MAX. 12" O/C MIN. 3 1/2" EMBED. (TYP.)



LONGITUDINAL SECTIONAL VIEW

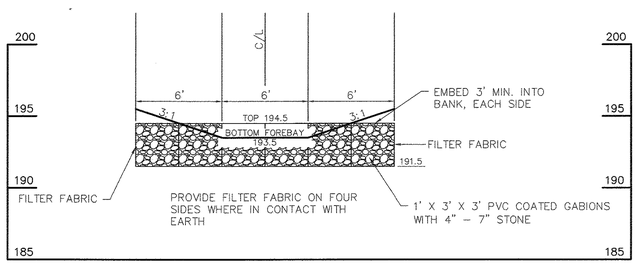


CROSS SECTIONAL VIEW

TRASH RACK NOTES

1. ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED..
2. #4 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
3. TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-25



GABION WEIR AT FOREBAY

SCALE: 1" = 5'

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REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER

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REVISED SWM FACILITY #1 PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL N. SILL — No. 32025 — PROFESSIONAL ENGINEER

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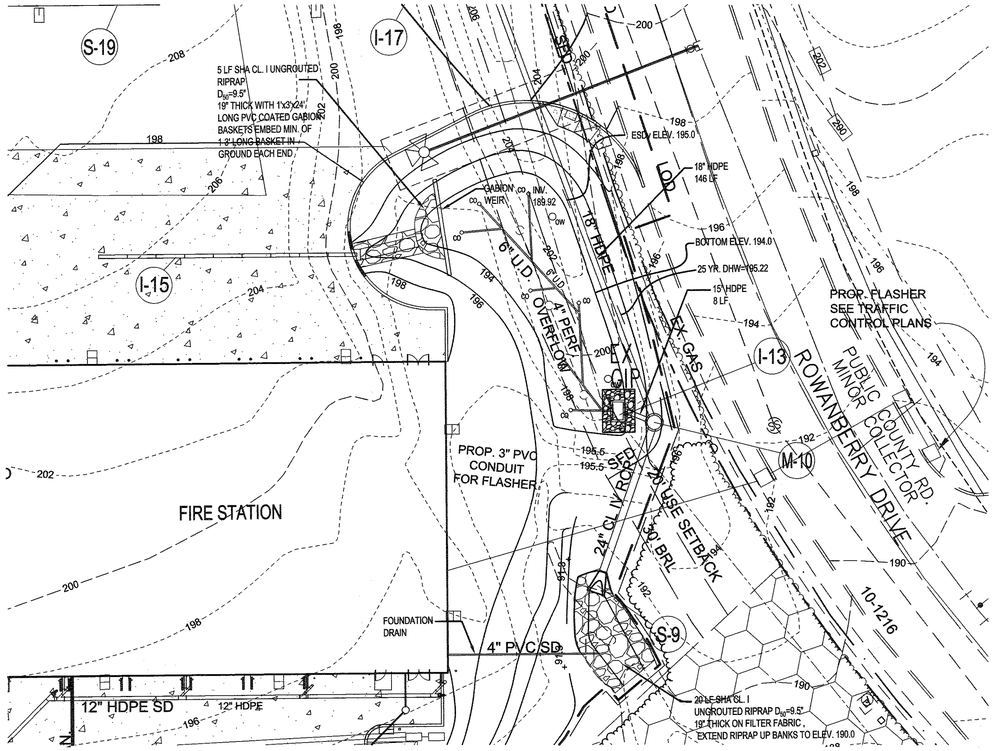
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	AS-SHOWN
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	23 of 41

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

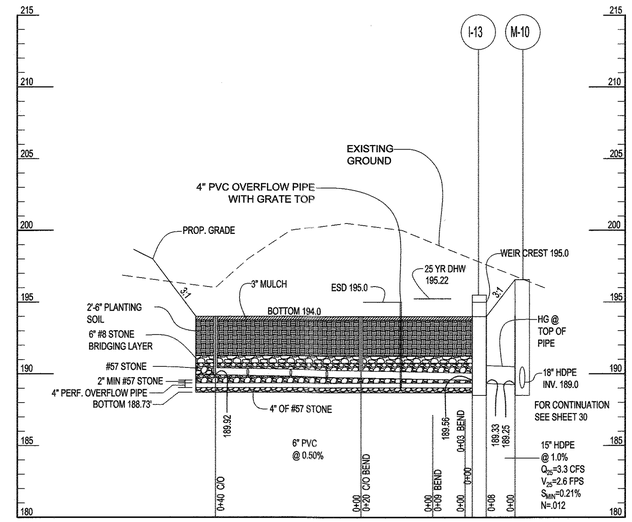
0' 20' 40' 60'

SDP-14-075



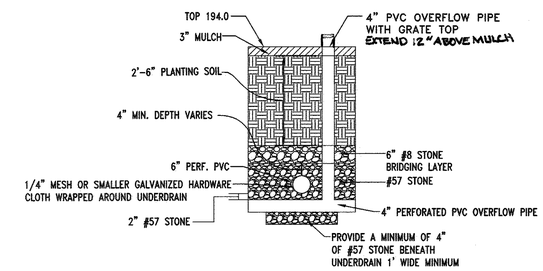
MICRO BIO RETENTION M-6
FACILITY #2 PLAN

Scale: 1" = 20'



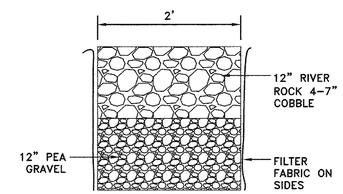
FACILITY #2 TO M-10

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



TYPICAL SECTION MICRO BIORETENTION #2
M-6

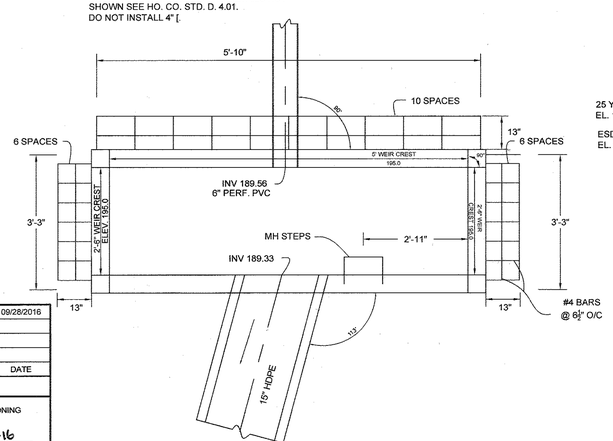
SCALE: 1" = 2'



GRAVEL DIAPHRAGM

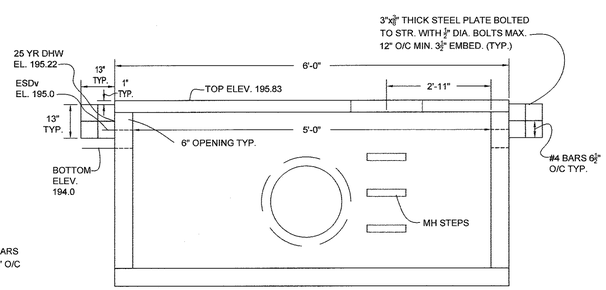
SCALE: 1" = 1'

NOTE: FOR REINFORCING AND DETAILS NOT SHOWN SEE HO. CO. STD. D. 4.01. DO NOT INSTALL 4" [.



STRUCTURE I-13 MODIFIED A-5 INLET

NOT TO SCALE



STRUCTURE I-13 MODIFIED A-5 INLET

NOT TO SCALE

TRASH RACK NOTES

1. ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED..
2. #4 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
3. TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.

NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-13

0' 20' 40' 60'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER

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OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

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EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SWM FACILITY #2 PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

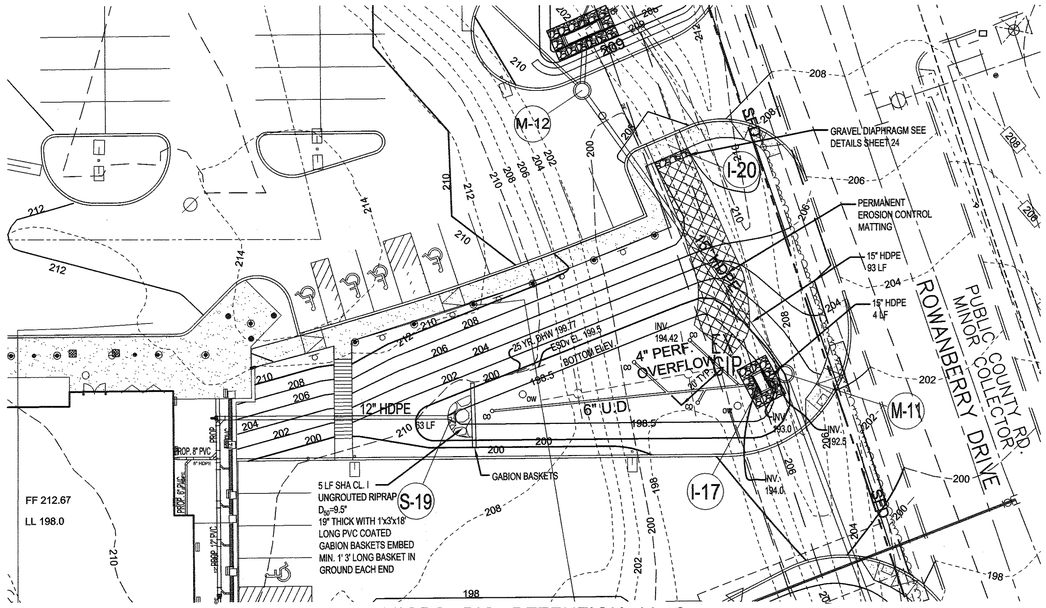
STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=20'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 24 of 41

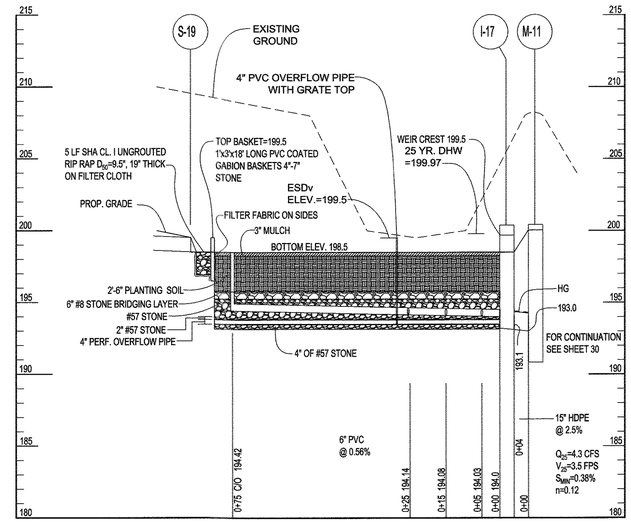
PROFESSIONAL CERTIFICATION: I HERBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075



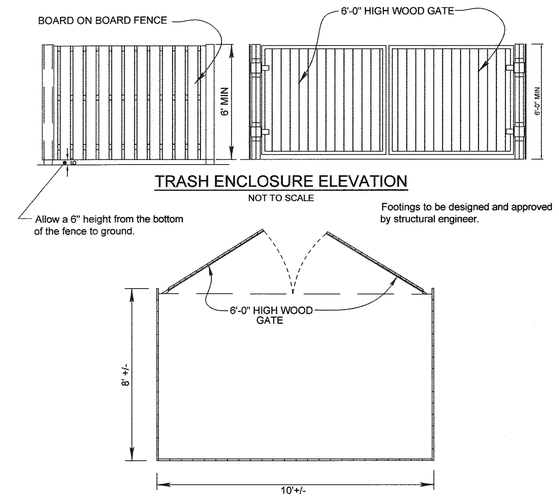
MICRO BIO RETENTION M-6
FACILITY #3 PLAN

Scale: 1" = 20'



FACILITY #3 TO M-11

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

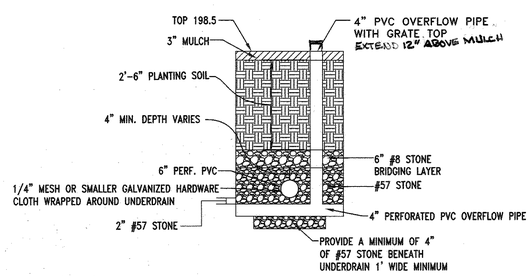


TRASH ENCLOSURE ELEVATION

NOT TO SCALE

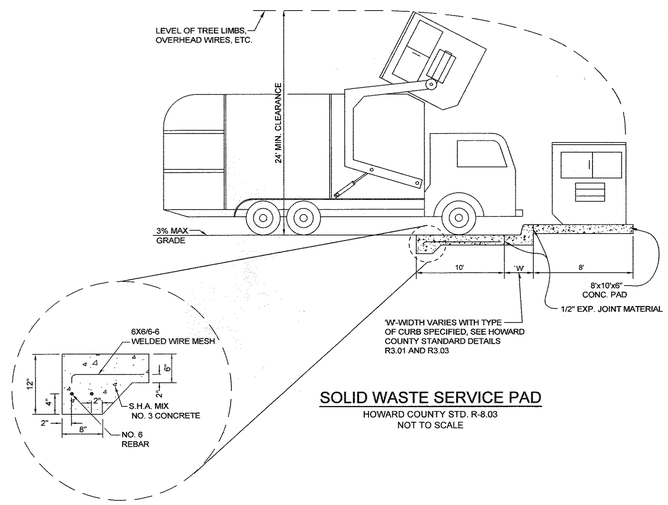
TRASH ENCLOSURE PLAN

NOT TO SCALE



TYPICAL SECTION MICRO BIORETENTION #3 M-6

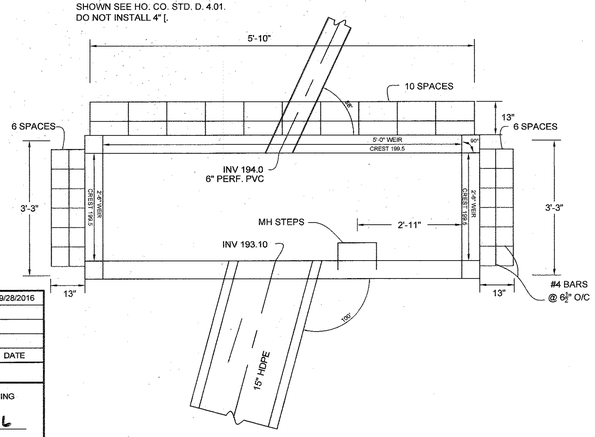
SCALE: 1" = 2'



SOLID WASTE SERVICE PAD

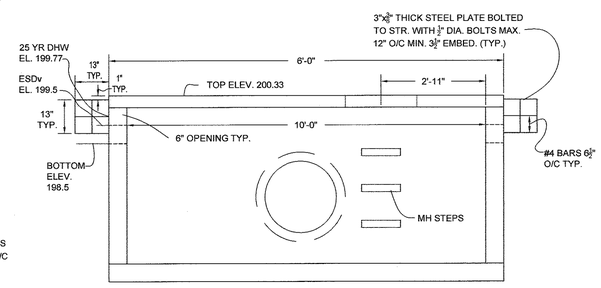
HOWARD COUNTY STD. R-8.03
NOT TO SCALE

NOTE: FOR REINFORCING AND DETAILS NOT SHOWN SEE HO. CO. STD. D. 4.01. DO NOT INSTALL 4" [.



STRUCTURE I-17 MODIFIED A-5 INLET

NOT TO SCALE



STRUCTURE I-17 MODIFIED A-5 INLET

NOT TO SCALE

TRASH RACK NOTES

1. ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED..
2. #4 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
3. TRASH RACK SHALL BE PAINTED BATTLESHIP GREY.

NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-17

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER
SILL ENGINEERING GROUP, LLC
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OWNER/DEVELOPER
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REVISED SWM FACILITY #3 PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL M. SILL — No. 32025 — PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
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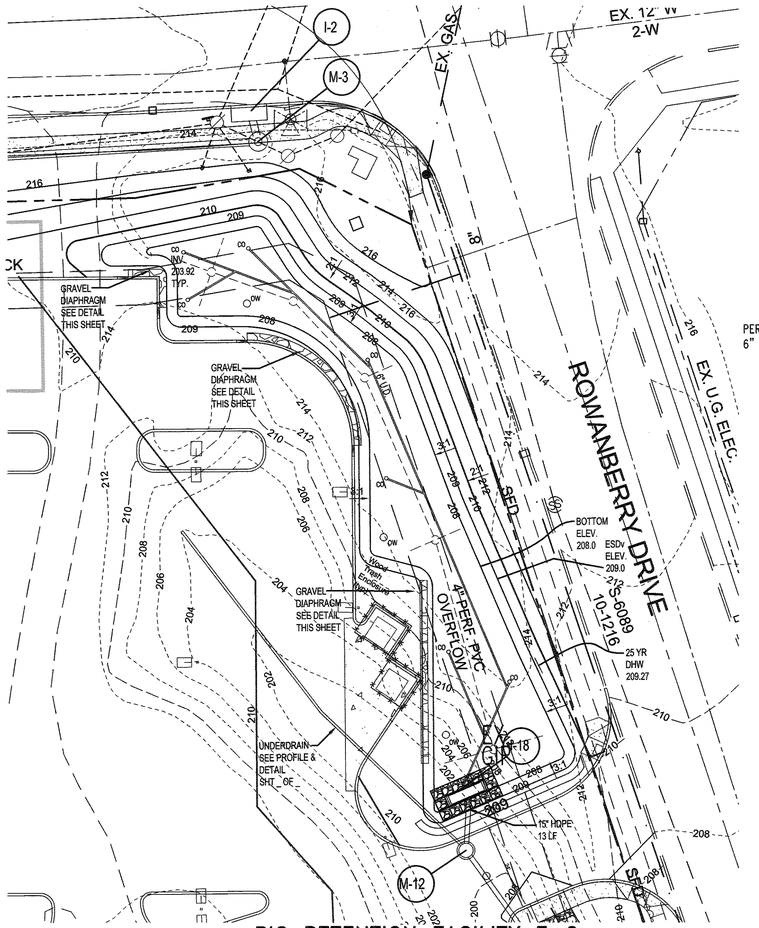
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=20'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	25 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

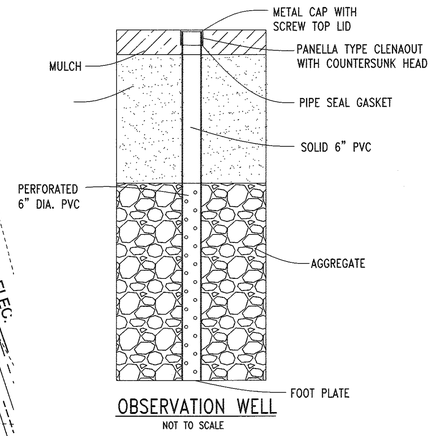
0' 20' 40' 60'

SDP-14-075



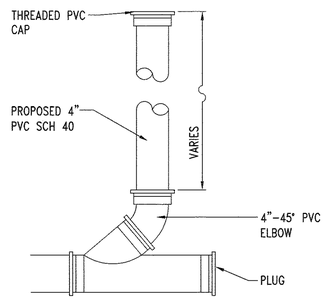
BIO RETENTION FACILITY F-6
FACILITY #4 PLAN

Scale: 1" = 20'



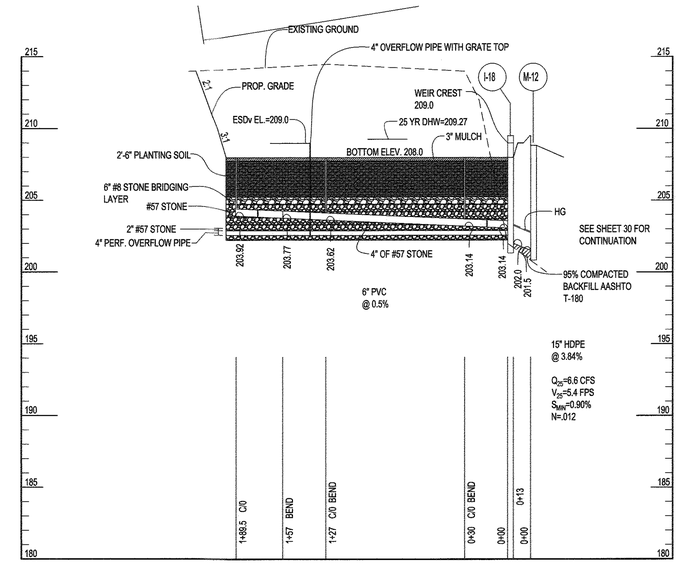
OBSERVATION WELL

NOT TO SCALE



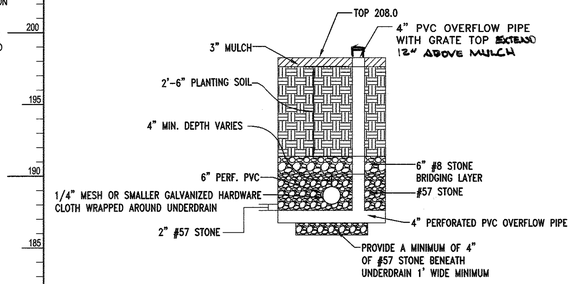
CLEANOUT DETAIL

NOT TO SCALE



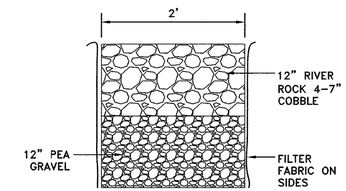
FACILITY #4 TO M-12

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



TYPICAL SECTION BIORETENTION #4 F-6

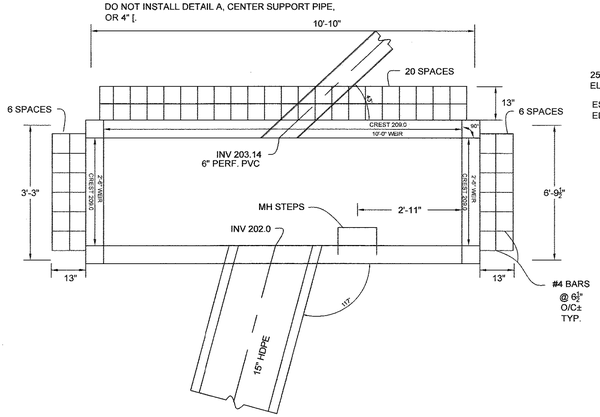
SCALE: 1" = 2'



GRAVEL DIAPHRAGM

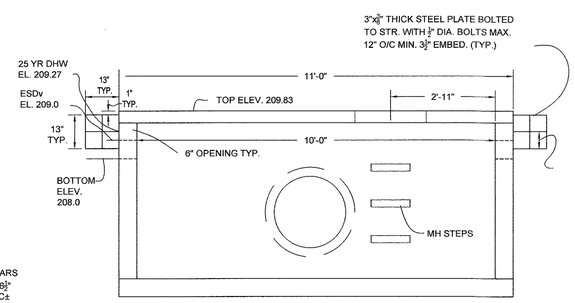
SCALE: 1" = 1'

NOTE: FOR REINFORCING AND DETAILS NOT SHOWN SEE HO. CO. STD. D. 4.03.
DO NOT INSTALL DETAIL A, CENTER SUPPORT PIPE, OR 4" [.



STRUCTURE I-18 MODIFIED A-10 INLET

NOT TO SCALE



STRUCTURE I-18 MODIFIED A-10 INLET

NOT TO SCALE

TRASH RACK NOTES

1. ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED..
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NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PRECAST INLET FOR REVIEW AND APPROVAL BY HOWARD COUNTY PRIOR TO FABRICATION OF I-18

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

ENGINEER

SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
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FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

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HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED SWM FACILITY #4 PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL J. SILL — No. 32025 — PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

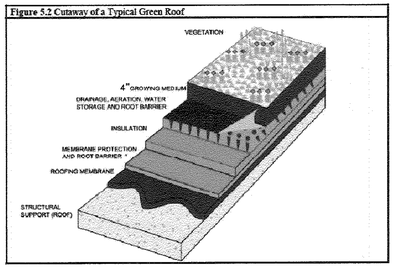
DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=20'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 26 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

➢ **Treatment:** Green roof systems shall meet the following conditions:

- *Planting media shall be non-soil engineered mixes conforming to the specifications found in Appendix B.4.* Media layers should be between two to six inches thick. Dual media systems may be applied where green roof assemblies are four inches or thicker.
- *Individual layers (e.g., root barriers, drainage mats, separation geotextiles) shall conform to the specifications found in Appendix B.4.*

Figure 5.2 Cutaway of a Typical Green Roof



➢ **Structure:**

- *The roof structure shall be capable of bearing the maximum predicted dead and live loads associated with green roof systems. Standardized media weights and procedures (e.g., ASTM E-2397-05, E-2399-05) shall be used to establish the dead load bearing capacity of the roof.*
- *Green roofs with pitches steeper than 2:12 shall include supplemental measures (e.g., slope bars, rigid stabilization panels, reinforcing mesh) to enhance stability and prevent media sliding.*

Construction Criteria:

The following items should be addressed during construction of projects with green roofs:

➢ **Waterproofing Installation:** *Measures shall be taken to prevent membrane damage during green roof installation. Any flaws, irregularities, or conditions that may cause leaks or roof damage shall be identified and repaired.* The waterproofing membrane should be visually inspected and tested for water tightness prior to installation of the planting mix.

➢ **Slope Stabilization Measures:** Where required, slope stabilization measures should be placed prior to green roof installation. In some situations, slope stabilization may be integrated into the roof structure.

➢ **Green Roof Installation:** Green roof systems should be installed according to the manufacturer's instructions. Generally, root-barrier layers, walkways, and irrigation systems should be installed first.

Inspection:

➢ *The following certifications shall be required during construction:*

- *Prior to placement of the waterproofing, drainage, and treatment materials, certification that the constructed roof meets the load bearing capacity specified on the approved plans.*
- *After its installation and prior to placement of the planting media and stock; certification regarding the water tightness of the waterproofing membrane.*

➢ *Regular inspections shall be made during the following stages of construction:*

- *During placement of the waterproofing membrane.*
- *During placement of the drainage system.*
- *During placement of the planting media.*
- *Upon installation of the plant material.*
- *Before issuing use and occupancy approvals (new construction only).*
- *During the second growing season to ensure adequate vegetation survival.*

Maintenance Criteria:

Green roofs require annual maintenance to ensure optimum performance. Typically, eighteen months are needed to establish adequate initial plant growth. Periodic irrigation may be needed during this time and basic weeding, fertilizing, and in-fill planting may be required as well. After plants are established, the roof should be inspected and light weeding performed once or twice per year.

Schedule Green Roof

The green roof system shall be operated and maintained in accordance with the recommendations of the green roof system distributor, and the information provided herein.

Weeding – At a minimum, remove unwanted plant material on an annual basis.
Replacement of Plant Material – Replace failed plant material when the affected area exceeds five percent (5%) of the planted roof area.
Irrigation – At a minimum, newly installed plant material shall be irrigated for the first growing season. Saturate the green roof at least once a week. After vegetation is established and following the first growing season, irrigation should be provided periodically during dry periods.
Fertilization – Slow release fertilizer shall be applied in the spring on an annual basis.
Drainage Inspections – Inspect downspouts and drainage channels and courses for clogs and other problems after each significant rainfall.
Inspection for Leaks – Inspect the green roof area for leaks after each significant rainfall.

B.4.A Green Roof Specifications

1. Material Specifications

Because there is significant variation in green roof assemblies and methods, providing comprehensive specifications is not feasible. Material specifications for green roofs will vary based on each roofing system and specific information should be obtained from the appropriate manufacturer or retailer. The following information and specifications, which include acceptable materials for generic applications, is not exclusive or limiting.

2. Planting Media

Planting media should be a soil-like mixture with an organic content of 15% or less. The grain size distribution is necessary for to attain proper moisture content, permeability, nutrient management and non-capillary porosity, and soil structure. Grain size guidelines vary for single and dual media green roof assemblies.

The planting media shall be tested and meet the following criteria:

- Non-Capillary Pore Space at Field Capacity, 0.333 bar (TMECC 03.01, A) — ≥ 15% (volume)
- Moisture Content at Field Capacity (TMECC 03.01, A) — ≥ 12% (volume)
- Maximum Media Water Retention (FLL) — ≥ 30% (volume)
- Alkalinity, $CaCO_3$ equivalents (MSA) — ≤ 2.5%
- Total Organic Matter by Wet Combustion (MSA) — ≤ 3–15% (dry wt.)
- pH (RCSTP) — 6.5 – 8.0
- Soluble Salts (DTPA saturated media extraction – RCSTP) — ≤ 6 mmhos/cm
- Cation Exchange Capacity (MSA) — ≥ 10 meq/100 g
- Saturated Hydraulic Conductivity (FLL):
  - Single Media Assemblies — ≥ 0.05 in/min
  - Dual Media Assemblies — ≥ 0.30 in/min
- Mineral Fraction Grain Size Distribution (ASTM D422):

	Single Media	Dual Media
Clay Fraction (2 micron)	0	0
% Passing #200 Sieve	≤ 5%	5 – 15%
% Passing # 60 Sieve	≤ 10%	10 – 25%
% Passing #18 Sieve	5 – 50%	20 – 50%
% Passing ¼ inch Sieve	20 – 70%	55 – 90%
% Passing ⅜ inch Sieve	75 – 100%	90 – 100%

3. Green Roof Layers

Root Barriers – should be thermoplastic membranes with minimum thickness of 30 mils. Membranes certified for use as root barriers are recommended. However, only FLL currently offers a recognized certification test. Many FLL-certified materials are locally available.

Granular Drainage Media – should be a non-carbonate mineral aggregate meeting the following specifications:

- Saturated Hydraulic Conductivity — ≥ 25 inches/minute
- Total Organic Matter (by wet combustion) — ≤ 1%
- Abrasion Resistance (ASTM C131-96) — ≤ 25% loss
- Soundness (ASTM C88 or T103 or T103-91) — ≤ 5% loss
- Porosity (ASTM C29) — ≥ 25%
- Alkalinity, CaCO3 equivalents (MSA) — ≤ 1%
- Grain Size Distribution (ASTM C136)
  - Percent Passing #18 Sieve — ≤1%
  - Percent Passing ½ inch Sieve — ≤ 30%
  - Percent Passing 3/8 inch Sieve — ≤ 80%

Separation Fabric – should be a lightweight, non-woven geotextile that is easily penetrated by roots while providing a durable separation between drainage and growth media layers. Separation fabrics should meet the following:

- Unit Weight (ASTM D3776) — ≤ 4.25 ounces per square yard
- Grab Tensile Strength (ASTM D4632) — ≤ 90 lbs.
- Mullen Burst Strength (ASTM D4632) — ≥ 185 lbs/inch
- Permittivity (ASTM D4491) — ≥ 2 sec-1

LEED 2009 for New Construction and Major Renovations
Project Checklist
Elkridge Volunteer Fire Department
04 17 2014

Y	?	N			
9	1	14	**Sustainable Sites**	**Possible Points:**	**26**
Y			Prereq 1	Construction Activity Pollution Prevention	
		1	Credit 1	Site Selection	1
		5	Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
		6	Credit 4.1	Alternative Transportation–Public Transportation Access	6
1			Credit 4.2	Alternative Transportation–Bicycle Storage and Changing Rooms	1
3			Credit 4.3	Alternative Transportation–Low-Emitting and Fuel-Efficient Vehicles	3
		2	Credit 4.4	Alternative Transportation–Parking Capacity	2
	1		Credit 5.1	Site Development–Protect or Restore Habitat	1
1			Credit 5.2	Site Development–Maximize Open Space	1
1			Credit 6.1	Stormwater Design–Quantity Control	1
1			Credit 6.2	Stormwater Design–Quality Control	1
1			Credit 7.1	Heat Island Effect–Non-roof	1
1			Credit 7.2	Heat Island Effect–Roof	1
1			Credit 8	Light Pollution Reduction	1
8	2		**Water Efficiency**	**Possible Points:**	**10**
Y			Prereq 1	Water Use Reduction–20% Reduction	
4			Credit 1	Water Efficient Landscaping	2 to 4
	2		Credit 2	Innovative Wastewater Technologies	2
4			Credit 3	Water Use Reduction	2 to 4
16		19	**Energy and Atmosphere**	**Possible Points:**	**35**
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
10		9	Credit 1	Optimize Energy Performance	1 to 19
		7	Credit 2	On-Site Renewable Energy	1 to 7
2			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
	3		Credit 5	Measurement and Verification	3
2			Credit 6	Green Power	2
7		7	**Materials and Resources**	**Possible Points:**	**14**
Y			Prereq 1	Storage and Collection of Recyclables	
	3		Credit 1.1	Building Reuse–Maintain Existing Walls, Floors, and Roof	1 to 3
	1		Credit 1.2	Building Reuse–Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
	2		Credit 3	Materials Reuse	1 to 2
			Materials and Resources, Continued		
2			Credit 4	Recycled Content	1 to 2
2			Credit 5	Regional Materials	1 to 2
	1		Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1
11	4		**Indoor Environmental Quality**	**Possible Points:**	**15**
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan–During Construction	1
1			Credit 3.2	Construction IAQ Management Plan–Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials–Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials–Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials–Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials–Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems–Lighting	1
	1		Credit 6.2	Controllability of Systems–Thermal Comfort	1
1			Credit 7.1	Thermal Comfort–Design	1
	1		Credit 7.2	Thermal Comfort–Verification	1
	1		Credit 8.1	Daylight and Views–Daylight	1
1			Credit 8.2	Daylight and Views–Views	1
6			**Innovation and Design Process**	**Possible Points:**	**6**
1			Credit 1.1	Innovation in Design: Green Cleaning	1
1			Credit 1.2	Innovation in Design: Green Education	1
1			Credit 1.3	Innovation in Design: Machine Room-less Elevator	1
1			Credit 1.4	Innovation in Design: Low Mercury Lamps	1
1			Credit 1.5	Innovation in Design: Air Purification System	1
1			Credit 2	LEED Accredited Professional	1
1	3		**Regional Priority Credits**	**Possible Points:**	**4**
1			Credit 1.1	Regional Priority: SW Quality Control	1
	1		Credit 1.2	Regional Priority:	1
	1		Credit 1.3	Regional Priority:	1
	1		Credit 1.4	Regional Priority:	1
58	11	51	**Total**	**Possible Points:**	**110**

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

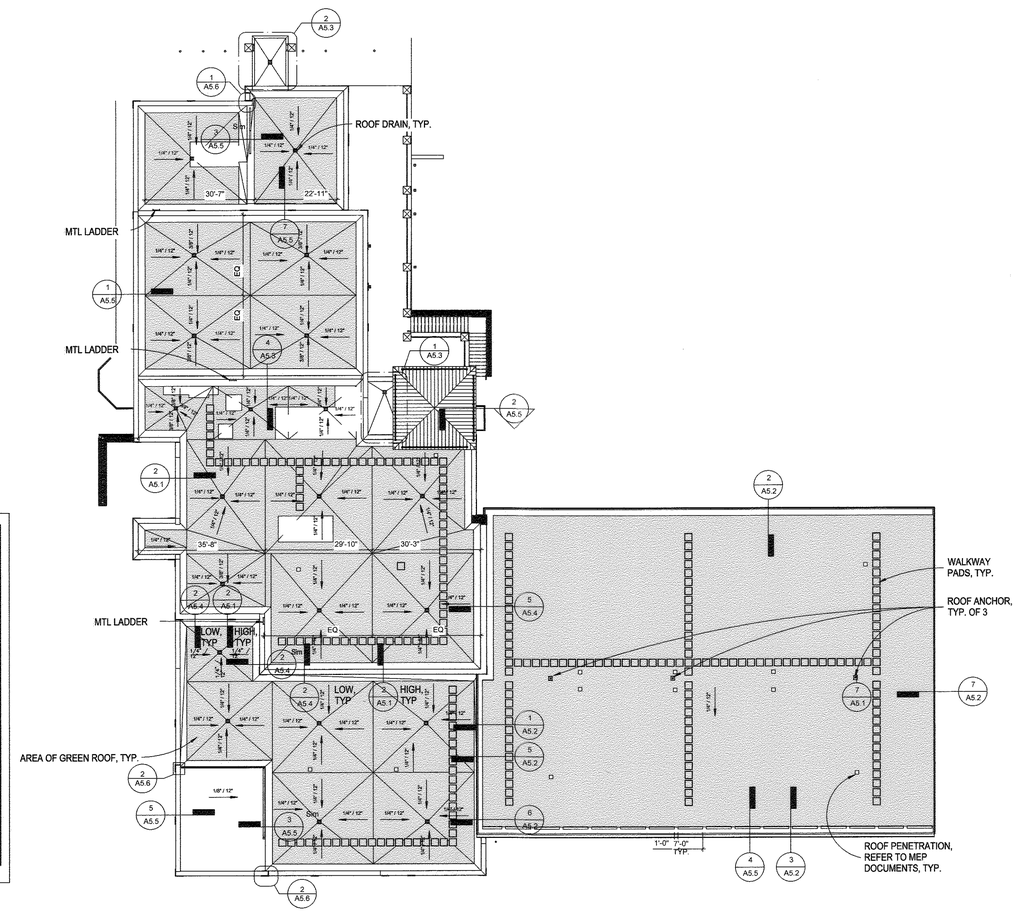
OPERATION AND MAINTENANCE SCHEDULE FOR
Green Roof (A-1)

The following Operation and Maintenance Schedule shall be implemented to the function of the Green Roof System in accordance with the recommendations of the "Green Roof System Distributor":

Weed - On an annual basis remove unwanted plant material.
Replace - Replace failed plant material when the failed plant area exceeds five percent (5%) of the roof area.
Irrigate - A newly installed roof should be irrigated during the first growing season. Saturate the Green Roof at least once a week during this first growing season. After vegetation is established, irrigation may be required periodically during dry periods.
Nutrient - The application of a slow-release fertilizer in the spring is recommended on an annual basis.
Inspect for Drainage - After each significant rainfall inspect downspouts or drainage channels/courses for clogs.
Inspect for Leaks - After each significant rainfall inspect the Green Roof for leaks.

QUAN	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	/ COND.
280		Allium schoenoprasm	Chives	quart	12" oc.
1470		Delosperma nubigenum 'Basutoland'	Delosperma	plug	6" oc±
224		Dianthus carthusianorum	Garden Pink	pint	12" oc.
2055		Festuca ovina 'Glauca'	Dwarf Blue Fescue	pint	12" oc.
4530		Sedum acre 'Aureum'	--	plug	6" oc±
7060		Sedum album 'Murale'	---	plug	6" oc±
6110		Sedum floriferum 'Wiehenstephaner Gold'	---	plug	6" oc±
3130		Sedum kamtschaticum	---	plug	6" oc±
3450		Sedum reflexum	---	plug	6" oc±
5050		Sedum spurium 'Fudaglut'	---	plug	6" oc±
4720		Sedum spurium 'Roseum'	---	plug	6"oc±

Plugs shall be a minimum 2 inches deep x 1 1/2 inches square.
Planting configuration and quantities may be adjusted to accommodate pre-planted tray modules, as necessary.
Sedum may be blended rather than planted as individual plant areas.



GREEN ROOF (A-1) PLANTING PLAN

SCALE: 1"=20'

0.52 AC GREEN ROOF, 4 INCHES THICK

COMPLETE COMMISSIONING
2921 Research Drive • Annapolis, MD 21401
415 Williams Ct, #102 • Baltimore, MD 21220
Phone: 443-221-7020 • Fax: 443-837-6979
www.completecx.com

April 17, 2014

Howard County Department of Public Works
ATTN: Mr. David Loudermilk
Engineering Specialist
9520 Bendix Road
Columbia, MD 21045

RE: Elkridge Volunteer Fire Station – Preliminary LEED Scorecard

Dear Mr. Loudermilk:

Please find the attached LEED scorecard dated 04/17/14 for the Elkridge Volunteer Fire Department project.

The goal of the project team is silver certification which requires a total of 50 points for certification. Currently the team anticipated credit level is 58 with another possible point pending. .

We appreciate silver certification and are carrying additional credits above the 50 minimum to allow for changes in the approach. Although identified, the results are not guaranteed for the credits submitted and reduction often occurs.

If you have any questions or concerns, I can be reached at my direct line 443-221-7037.

Very truly yours,

COMPLETE COMMISSIONING, INC.

Jimmy C. Cachola, P.E., LEED A.P.
QCxP, CBCP, EBCP, NCP
Principal

Attachment: Elkridge Volunteer Fire Station LEED 2009 for NC Project Checklist 4/17/14

CC: Andy Towne – Edmeades and Stromdahl, LTD
Paul Edmeades – Edmeades and Stromdahl, LTD
Jeff Schwab – Tesseract Sites

Building Systems Commissioning & Retro-Commissioning • LEED Services • Sound & Vibration Measurement • Building Envelope Testing
IAQ Testing • Energy Modeling • Measurement & Verification Services • Thermal Imaging • Energy Audits • Testing & Balancing

ENGINEER
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11130 DOVEDALE COURT, SUITE 200
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EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

REVISED SWM GREEN ROOF

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

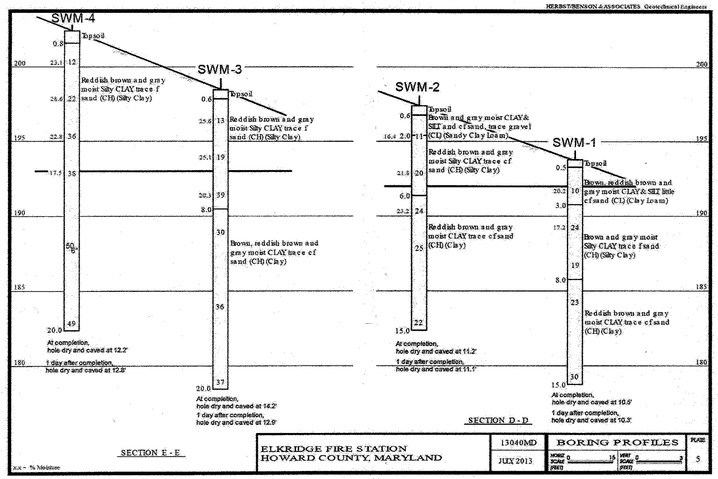
STATE OF MARYLAND — PAUL A. EDMEADES — No. 32025 — PROFESSIONAL ENGINEER

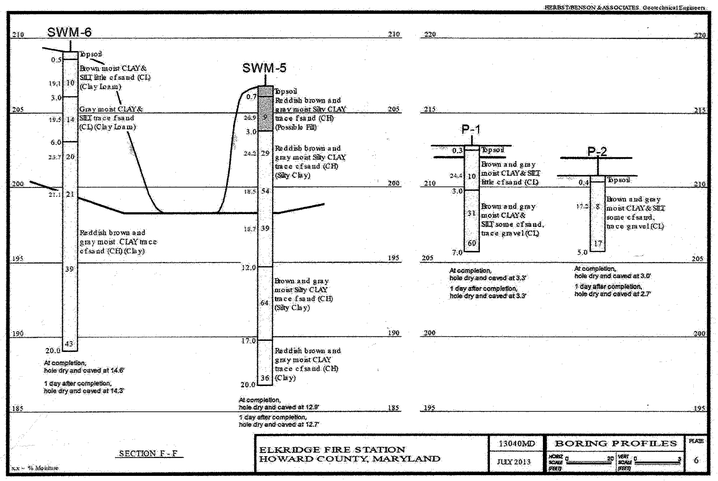
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=20'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	27 of 41

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075





No.	Description	Date
1	Delete parking spaces, access dr. service drive, rel. dumpster, gen, add traffic signal control plans reduce access dr. from 35'-24' by Sill Engineering Group	5/18/16

Revisions

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-16-15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10-29-15

DIRECTOR — DATE 10-30-15

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content <.5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28-day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local* standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350 R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM(C-33)	0.02" to 0.04"	Sand substitutions such as Diabase and Gravstone **(AASHTO)** #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

B.3.B Specifications for Bioretention & Micro Bioretention

1. Material Specifications

The allowable materials to be used in bioretention area detailed in Table B.3.2.

2. 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 bioretention area 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:

pH range	5.2 - 7.0
organic matter	1.5 - 4% (by weight)
magnesium	35lb. /ac
phosphorus (phosphate - P2O5)	75 lb. /ac
potassium (potash - K2O)	85 lb. /ac
soluble salts	not to exceed 500 ppm

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium and additional testes 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 top soil was excavated.

Since different labs calibrate their testing equipment differently, all testing results shall come from the same testing facility.

Should the pH fall out of the acceptable range, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur.

3. Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoes to remove original soil. If bioretention 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. 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 backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

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 bioretention areas can be found in Appendix A, Section A.2.3.

5. Plant Installation

Mulch should be placed to a uniform thickness of 2" to 3". Shredded hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention areas during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Root stock 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 grading 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 easily 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 defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend soil. Rototill urea fertilizer at a rate of 2 pounds per 100 square feet.

6. Underdrains

Underdrains are to be placed on a 3'-0" wide section of filter cloth. Pipe is placed next, followed by the gravel bedding. The ends of underdrain pipes are not terminating in an observation well shall be capped.

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%.

7. Miscellaneous

The bioretention facility may not be constructed until all contributing drainage area has been stabilized.

OPERATION AND MAINTENANCE SCHEDULE FOR
BIO-RETENTION AREAS & MICRO BIORETENTION
(F-6) (M-6)

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.

ENGINEER
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fax: 410-321-7601

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Tesseract
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f. 410.321.7601

SWM Notes

Elkridge Fire Station

Parcel A
"Green Building"
Howard County, Maryland

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

LOT/PARCEL:		LIBER/FOLIO:	PLATS:
402 403 A2		14609/20 14101/512 13842/358	N/A
GRID	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, PA15	38	1ST	

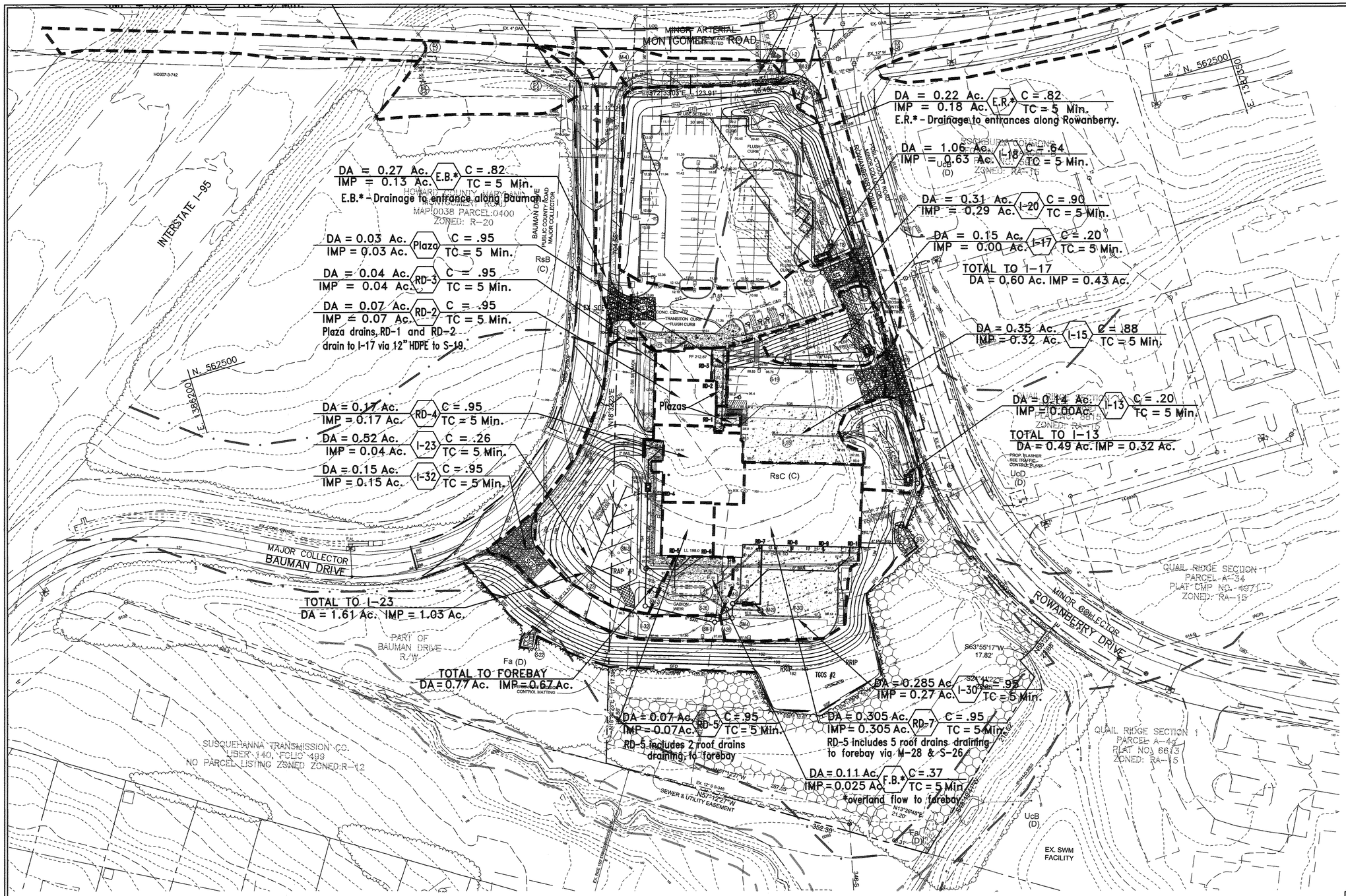
Date: 09/02/15

Proj. #: 12021

Scale: n/a

DESIGN: DRAWN: CHKD:

SDP 14-075



ENGINEER

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OWNER/DEVELOPER

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HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED STORM DRAIN DRAINAGE AREA MAP

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-30-16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16

DIRECTOR — DATE 10-3-16

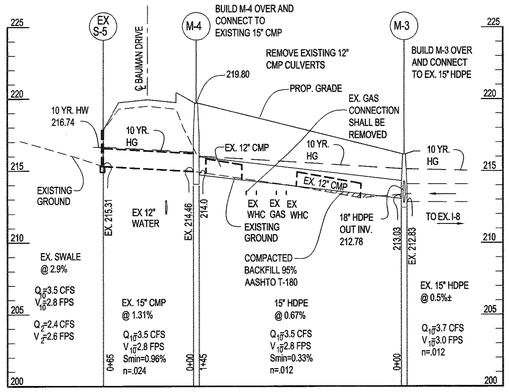
STATE OF MARYLAND — PAUL M. SILL — NO. 32025 — PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1" = 50'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 29 of 41

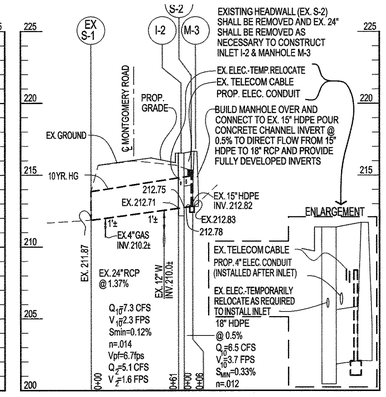
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 30, 2017

SDP-14-075



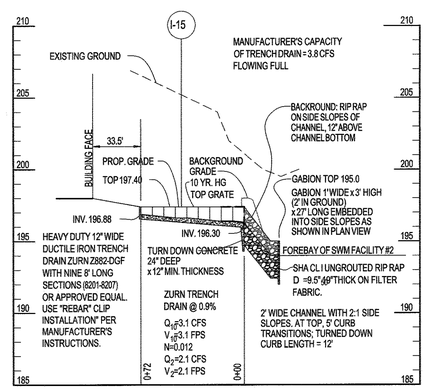
M-3 TO EX. S-5

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



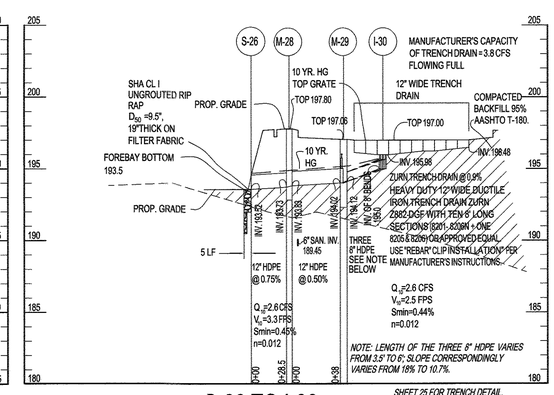
EX. S-1 TO M-3

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



I-15 INTO FOREBAY

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



SHEET 25 FOR TRENCH DETAIL.
GRAPHIC SHOWN ABOVE IS SCHEMATIC.

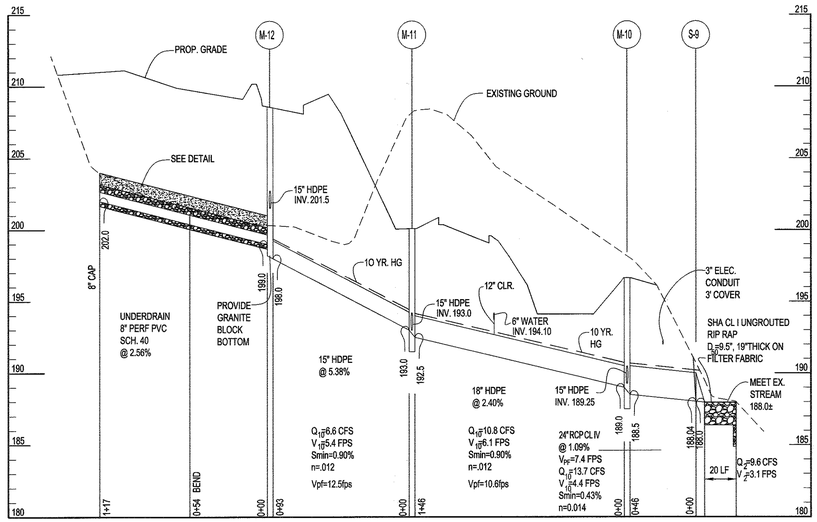
S-26 TO I-30

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

STRUCTURE SCHEDULE △

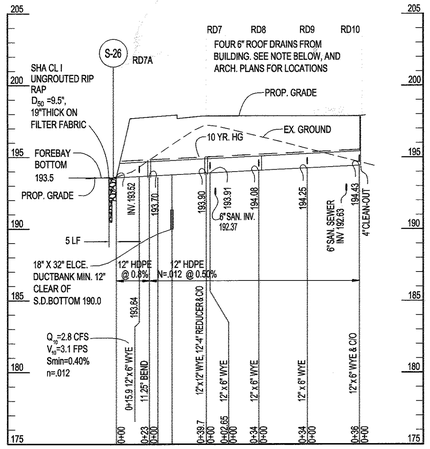
NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	LOCATION	REMARKS	
I-2	PRECAST A-5 INLET	216.50/216.42	212.75	EX. 212.71	STA. 2+90.6 MONT. RD. 26.3' RT.	HO. CO. STD. D4.01 W=3'-0"	
M-3	PRECAST SHALLOW MH	216.77	EX. 212.83 213.03	212.78	STA. 2+95 MONT. RD. 36.7' RT.	HO. CO. STD. G5.12 48" DIA.	
M-4	PRECAST SHALLOW MH	219.80	EX. 214.46	214.0	STA. 1+92.5 MONT. RD. 40.0' RT.	HO. CO. STD. G5.12 48" DIA.	
S-9	CONCRETE END SECTION	–	188.04	188.0	SEE PLAN	HO. CO. STD. D5.51 24" DIA.	
M-10	STANDARD PRECAST MH	196.50	189.0 / 189.25	188.5	SEE PLAN	HO. CO. STD. G5.12 48" DIA.	
M-11	STANDARD PRECAST MH	200.10	193.0 / 193.0	192.5	SEE PLAN	HO. CO. STD. G5.12 48" DIA.	
M-12	STANDARD PRECAST MH	208.50	199.0 / 201.5	198.0	SEE PLAN	HO. CO. STD. G5.12 48" DIA.	□
I-13	MOD. PRECAST A-5 INLET	195.83	189.56	189.33	SEE PLAN	HO. CO. STD. D4.01 W=2'-6"	#
I-15	TRENCH DRAIN	197.40	196.88	196.3	SEE PLAN	PER MANUFACTURER SEE PROFILE	
I-17	MOD. PRECAST A-5 INLET	200.33	194.0	193.0	SEE PLAN	HO. CO. STD. D4.01 W=2'-6"	#
I-18	MOD. PRECAST A-10 INLET	209.83	203.14	202.0	SEE PLAN	HO. CO. STD. D4.03 W=2'-6"	#
S-19	HDPE END SECTION	–	–	198.5	SEE PLAN	PER MANUFACTURER DIA=12"	
I-20	CURB OPENING	208.30	–	–	SEE PLAN	MSHA 374.68 10' OPENING	**
PLAZA DRAINS						SEE PROFILE & NOTES	
S-22	C ENDWALL	–	–	183.50	SEE PLAN	HO. CO. STD. GD.21 DIA=18"	
I-23	MOD. PRECAST A-10 INLET	194.83	187.97	186.50	SEE PLAN	HO. CO. STD. D4.03 W=2'-6"	#
S-26	HDPE END SECTION	–	193.52	193.5	SEE PLAN	PER MANUFACTURER DIA=12"	*
M-28	PRECAST SHALLOW MH	197.8	193.83	193.73	SEE PLAN	HO. CO. STD. G5.12 48" DIA.	
M-29	PRECAST SHALLOW MH	197.06	TRIPLE 8" 194.12	194.02 / 194.02	SEE PLAN	SEE DETAIL	
I-30	TRENCH DRAIN	197.0	–	195.98 / 195.00	SEE PLAN	PER MANUFACTURER	
I-32	CURB OPENING	196.80	–	–	SEE PLAN	MSHA 374.68 10' OPENING	**

△ INVERTS SHALL BE FULLY DEVELOPED
SEE DETAIL FOR MODIFICATIONS TO OPENINGS
□ PROVIDE GRANITE BLOCK BOTTOM – NON DEVELOPED INVERT SLOPED TO OUTLET
* PROVIDE END SECTION ON EACH 12" HDPE @ S-26
** MODIFY TO MEET 6" C&G



S-9 TO M-12 & UNDERDRAIN

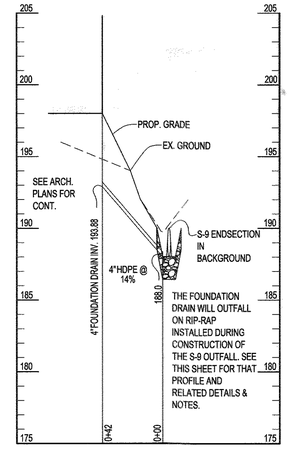
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



THIS PROFILE SHOWS THE MAIN LINE THAT COLLECTS THE 6" ROOF DRAINS, NOT THE LATERALS THEMSELVES. THE INVERT OF THE MAIN LINE IS A CONSISTENT SLOPE OF 0.5% FOR FITTINGS THAT HOLD A STEADY INVERT ELEVATION. OTHER TYPES WILL NOT FACILITATE THE DESIGNED PIPE SLOPE AND DRAINAGE, AND WILL NOT BE APPROVED.

S-26 TO S.E. BLDG. CORNER

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



FOUNDATION DRAIN

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

PIPE SCHEDULE

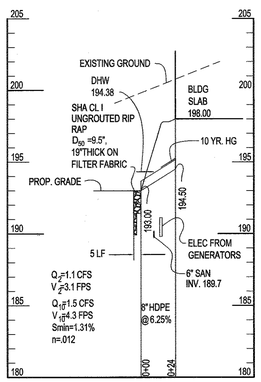
SIZE	TYPE	LF
4"	HDPE FOUNDATION	42
6"	PVC UNDERDRAIN	400
6"	HDPE	83
8"	PVC UNDERDRAIN	117
8"	HDPE	69
12"	HDPE	341
15"	HDPE	263
18"	HDPE	152
18"	RCP CL. IV	84
24"	RCP CL. IV	46

L.F. IS ROUNDED UP TO NEAREST FOOT.

THE TWO PLAZA AREA DRAIN INLETS SHALL BE 8" SQUARE CAST IRON GRATES NEENAH R-4401 PER DETAIL ON SHEET 31

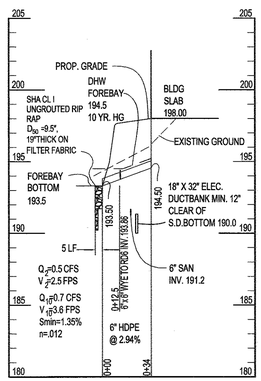
0' 50' 100' 150'

THE FIVE PLAZA TRENCH DRAINS SHALL BE NDS 9" PRO SERIES SHALLOW PROFILE AS DETAILED ON SHEET 31. EACH TRENCH DRAIN SHALL HAVE A MINIMUM OF TWO SIDE OUTLETS (EXCEPT FOR THE ONE TRENCH DRAIN LESS THAN 8' LONG). AS SHOWN BELOW, THE SIDE OUTLETS OF FOUR OF THE TRENCH DRAINS SHALL CONNECT TO A 8" PIPE SLOPED AT 2% THAT THEN CONNECTS INTO THE 12" HDPE PIPE. THE SIDE OUTLETS OF THE OTHER TRENCH DRAIN SHALL BE CONNECTED INTO A 4" PIPE CONNECTED TO A 12"x4" REDUCER. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL PIPE AND FITTINGS NECESSARY TO CONNECT TRENCH DRAINS & AREA DRAINS INTO THE STORM DRAIN SYSTEM.



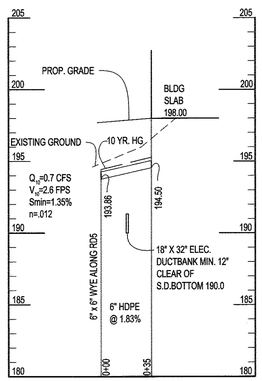
ROOF DRAIN #4 TO FACILITY #1

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



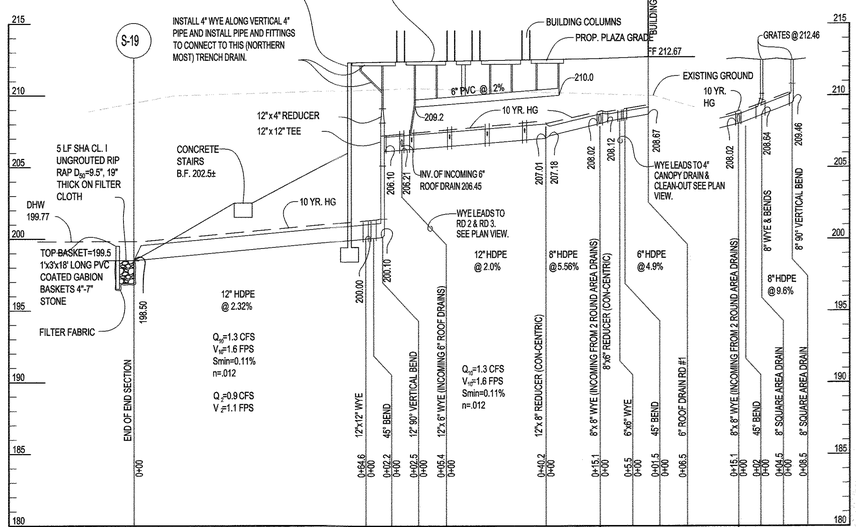
ROOF DRAIN #5 TO FOREBAY

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



ROOF DRAIN #6 TO ROOF DRAIN #5

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



PROFILE CONTINUATION SHOWING ROUND AREA DRAINS

NORTH/UPPER PLAZA DRAINS TO S-19

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	09/28/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16
DIRECTOR — DATE 10-3-16

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED STORM DRAIN PROFILES

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

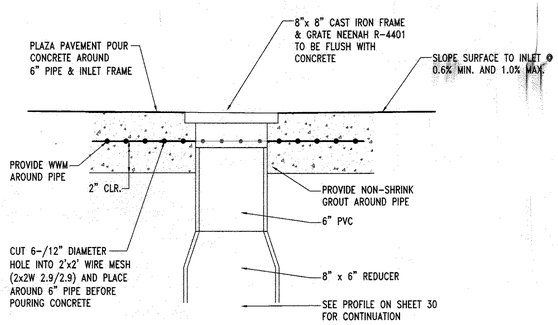
STATE OF MARYLAND — PAUL A. SILL — No. 32025 — PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1" = 50'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 30 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

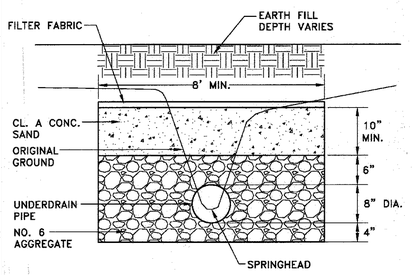
SDP-14-075



CAST IRON GRATE NEENAH R-4401

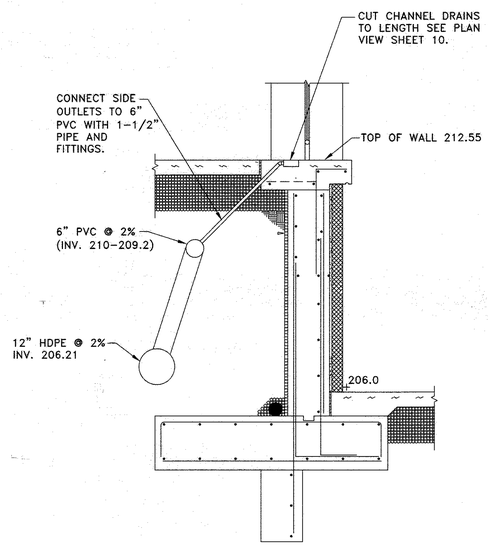
N. T. S.

PART NO.	DESCRIPTION	
814	5" X 20" CHANNEL GRATE	LIGHT GRAY
820	5" X 20" SHALLOW PROFILE CHANNEL DRAIN	" "
821	5" SHALLOW PROFILE END CAPS	" "
822	5" SHALLOW PROFILE SIDE OUTLET	" "



UNDERDRAIN DETAIL

SCALE: 1"=1'-0"



PLAZA TRENCH DRAIN

SCALE: 1" = 2'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

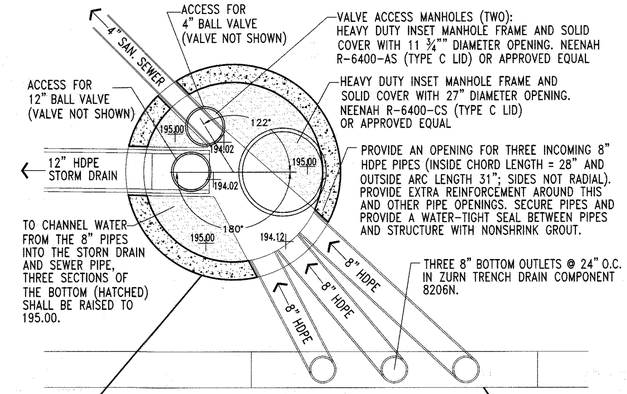
9.16.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

10-29-15
CHIEF, DIVISION OF LAND DEVELOPMENT & DATE

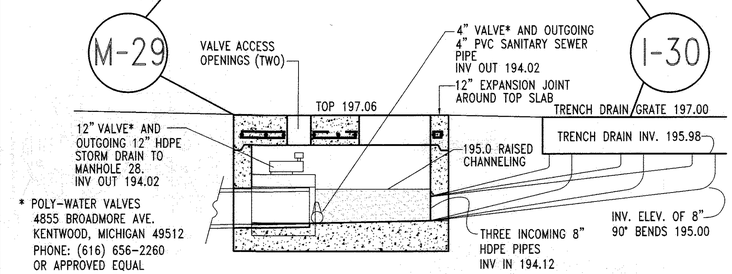
10-30-15
DIRECTOR DATE

No.	Description Revisions	Date
1	Delete parking spaces, access dr., service dr., rel dumpster, gen add traffic control plans, rad access drive from 30'-24', by Sil Engineering Group	5/18/16

COORDINATE THE LOCATION OF THE VALVE-ACCESS OPENINGS WITH PLACEMENT OF THE 12" AND 4" VALVES. THE SUBMITTAL FOR THE STRUCTURE AND THE VALVES SHALL BE A UNIFIED SUBMITTAL WITH DETAILED AND DIMENSIONED SHOP DRAWINGS DRAWN TO SCALE SHOWING, IN PLAN VIEW AND SECTIONS, THE ACTUAL VALVE MODELS AND THEIR LOCATIONS AND ELEVATIONS WITHIN THE STRUCTURE, THEIR RELATIONSHIP TO THE VALVE-ACCESS OPENING, AND THE PLANNED SEQUENCE OF CONSTRUCTION/INSTALLATION OF THE VALVES INTO THE INSTALLED MANHOLE.

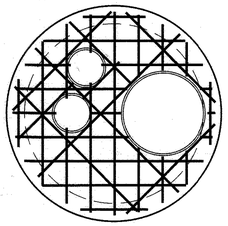


PLAN VIEW OF I-30 TO MANHOLE 29



5' INSIDE DIAMETER SHALLOW PRECAST CONCRETE MANHOLE. THE WALLS, BASE, AND RAISED CHANNELING BOTTOM SHALL BE MONOLITHIC. WALLS SHALL BE A MINIMUM OF 6" THICK AND THE BOTTOM SLAB A MINIMUM OF 8" THICK. ALL CONCRETE SHALL BE 4,500 psi. WALLS AND BASE (INCLUDING RAISED CHANNEL BOTTOM) SHALL BE REINFORCED (BARS OR WWF) WITH A MINIMUM OF 0.15 SQ.IN./FT. MINIMUM CIRCUMFERENTIAL REINFORCEMENT PER A.S.T.M. C 478. PROVIDE A 12" HIGH AND 30" WIDE OPENING TO RECEIVE THE THREE 8" PIPES. THE MANUFACTURER SHALL FORM MALE & FEMALE ENDS OF JOINTS FOR THE CONNECTION BETWEEN THE TOP SLAB AND WALLS USING THEIR OWN DESIGN; JOINTS SHALL BE SEALED BY CONTRACTOR AND MADE WATER-TIGHT USING MANUFACTURER'S RECOMMENDED ASTM OR AASHTO-APPROVED SEALANT.

SECTION OF I-30 TO MANHOLE 29



FLAT SLAB TOP. 6'-0" OUTSIDE DIAMETER x 10" THICK REINFORCED WITH #5 BARS @ 8" O.C. EACH WAY (ALL BARS SHALL BE FULL LENGTH TO SPAN THE SLAB; DO NOT JOIN CUT BARS). FOR EACH OPENING, ADD #5 BARS PLACED DIAGONALLY AROUND OPENINGS, EXTENDING THE DIAGONAL BARS THE FULL WIDTH OF THE SLAB WHERE POSSIBLE AS SHOWN IN THE "PLAN VIEW OF TOP SLAB." USE 4,500 psi CONCRETE; MEDIUM BROOM FINISH.

INSTALL ⅜" EXPANSION JOINT AND JOINT SEALANT BETWEEN THE TOP SLAB AND THE ADJOINING CONCRETE PAVEMENT.

PLAN VIEW OF TOP SLAB

STORM DRAIN MANHOLE 29

Scale: ½" = 1'-0"

UNDER NORMAL CONDITIONS, THE VALVE TO SANITARY SEWER SHALL BE SHUT AND VALVE TO THE STORM DRAIN SHALL BE OPEN.

WHEN VEHICLES ARE BEING WASHED, THE VALVE TO THE STORM DRAIN SHALL BE SHUT AND THE VALVE TO THE SANITARY SEWER SHALL BE OPENED.

WHEN WASHING IS COMPLETE, RETURN THE VALVES TO NORMAL CONDITIONS POSITIONS.

ENGINEER
Tesseract Sites, Inc.
401 Washington Ave.
Suite 303
Towson, MD 21202
Contact: Jeffrey Schwab
ph: 410-321-7600
fax: 410-321-7601

OWNER AND DEVELOPER
Mark Stromdahl
Howard County Maryland
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ph: 410-313-5751
email: MGstromdahl@howardcountymd.gov

Tesseract
Jeffrey Schwab
401 Washington Ave. Suite 303
Towson, Maryland, 21204
TESSERACT SITES, INC
p. 410.321.7600
f. 410.321.7601

Storm Drainage Details

Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

LOT/PARCEL	LIBER/FOLIO: 14609/20	PLATS:
402 403 A2	14101/512 13842/358	N/A

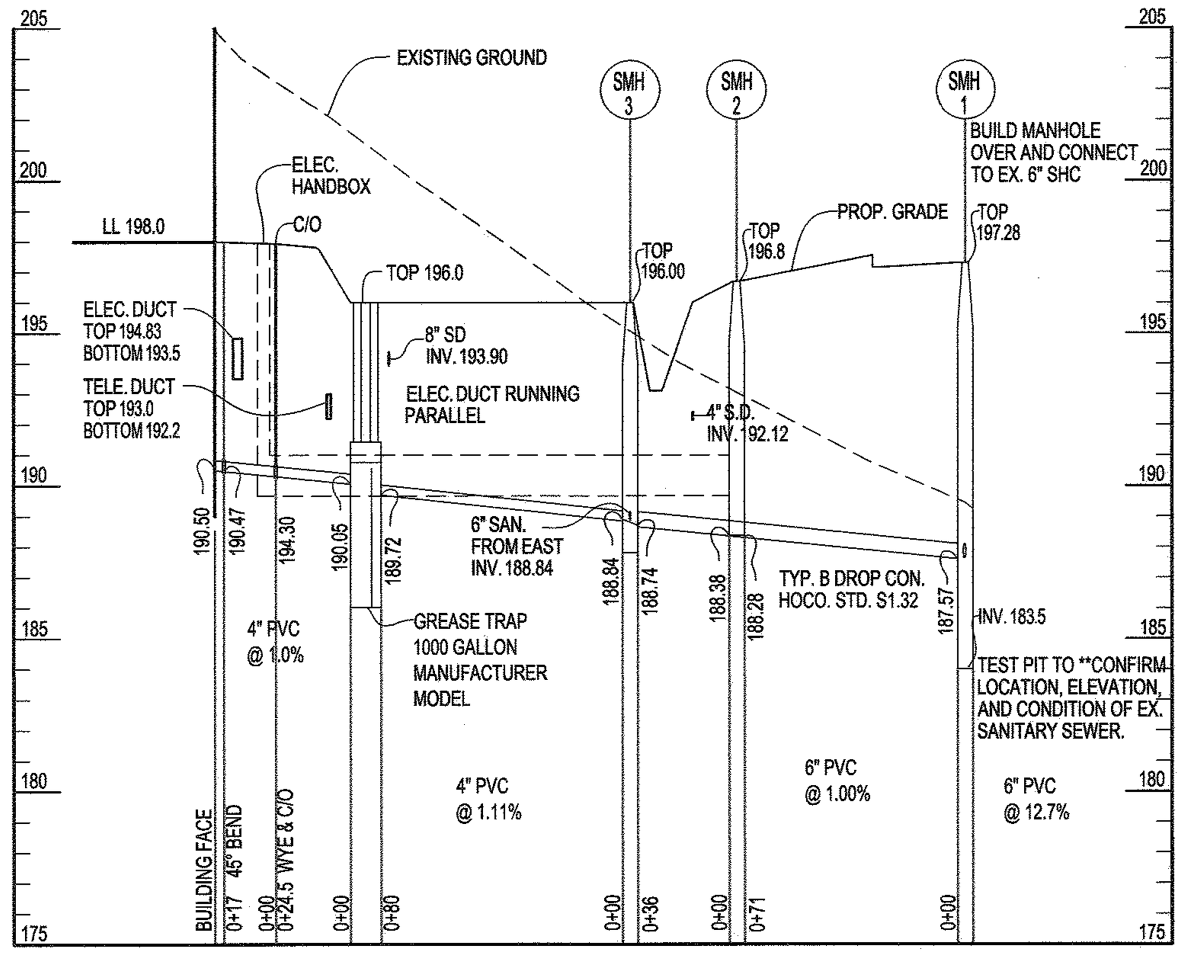
GROSS	ZONE	TAX/ZONE MAP	ELECT.DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

STATE OF MARYLAND
JEFFREY SCHWAB
No. 14230
PROFESSIONAL ENGINEER
9.23.15

Date: 09/02/15
Proj. #: 12021
Scale: AS SHOWN

DESIGN DRAWN CHKD

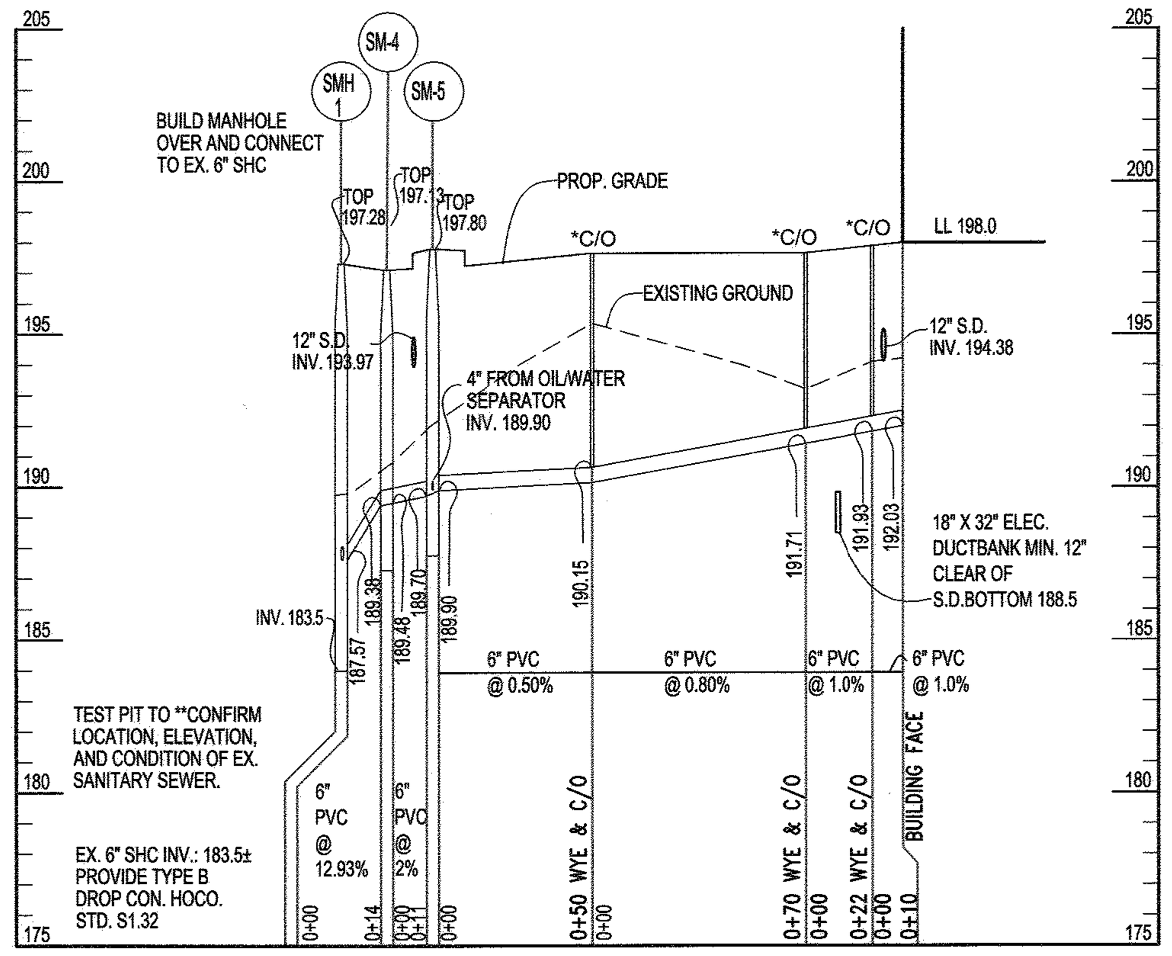
SDP 14-075



**INV. ELEV.'S IN SHALL BE 0.2' HIGHER THAN EX. INV. OUT

PROFILE OF SANITARY SEWER FROM SM1 TO SM3 TO WEST SIDE OF BLDG.

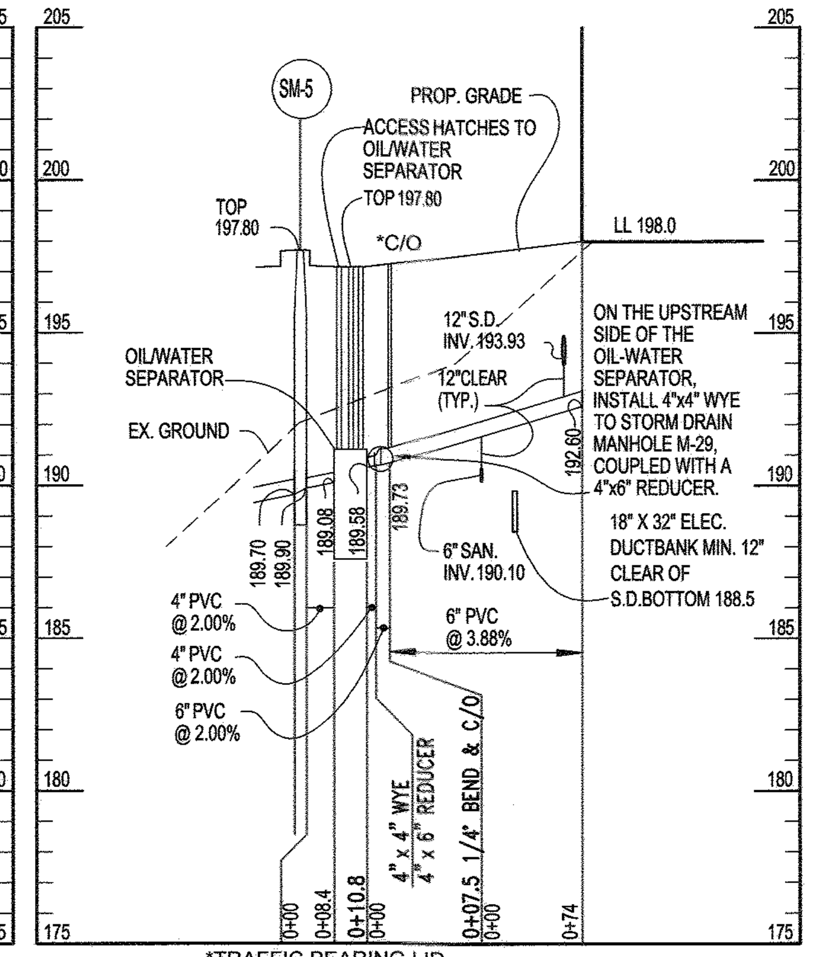
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



**INV. ELEV.'S IN SHALL BE 0.2' HIGHER THAN EX. INV. OUT
*TRAFFIC BEARING LID

PROFILE OF SANITARY SEWER FROM SM1 TO SM5, TO SOUTHEAST BLDG CORNER.

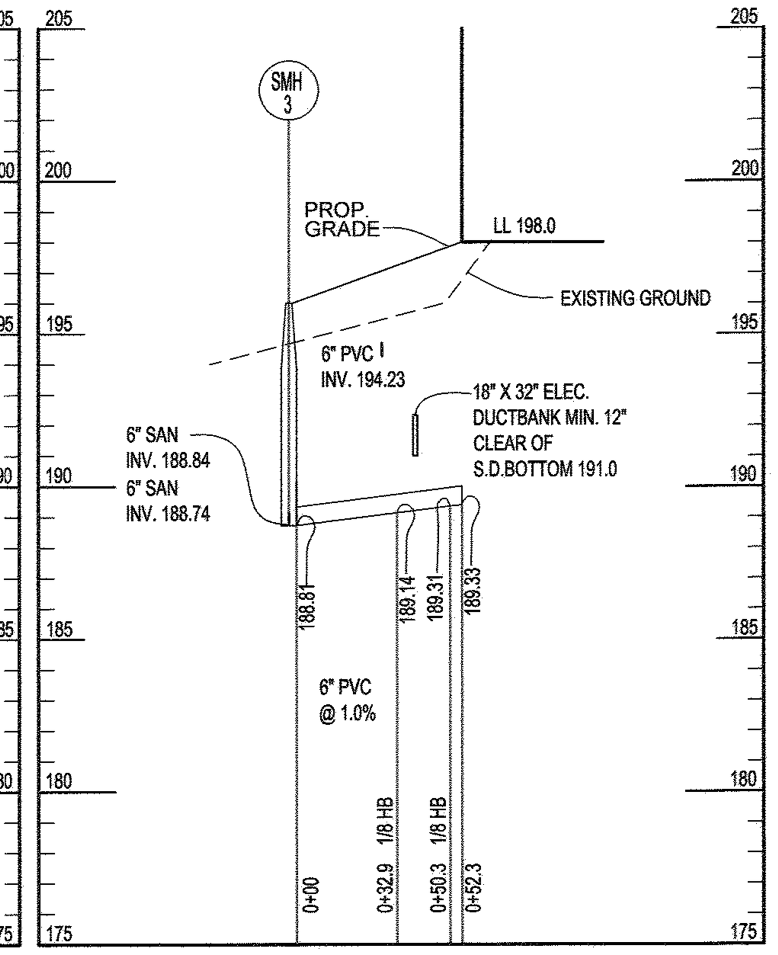
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



*TRAFFIC BEARING LID

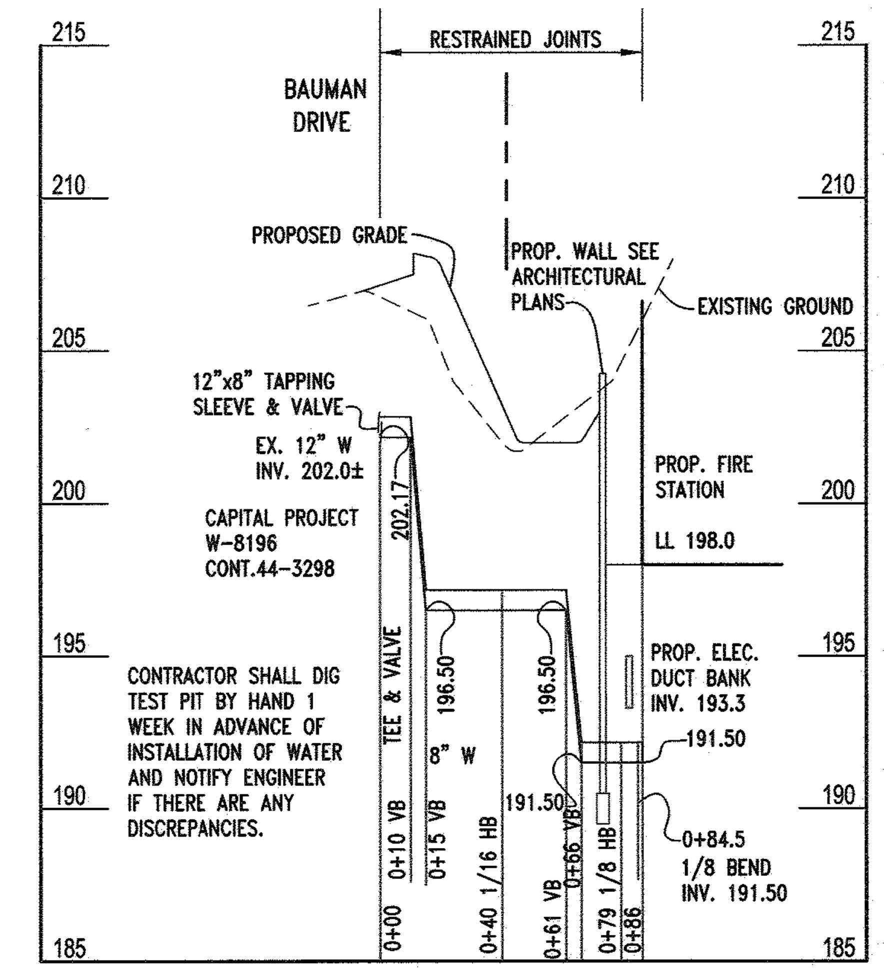
PROFILE OF SANITARY SEWER FROM SM5 TO OIL-WATER SEPARATOR TO SOUTH SIDE OF BLDG.

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



SANITARY PROFILE

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



8" WHC PROFILE

SCALE: HORIZ. 1"=50'
VERT. 1"=5'

PRIVATE ON-SITE WATER MAIN GENERAL NOTES

a. All water mains shall be C900 PVC DR-14 unless otherwise noted.

b. Tops of all water mains shall have a minimum of 3'-6" of cover unless otherwise noted.

c. Valves adjacent to tees shall be strapped to tees.

d. All pipe and fittings shall have restrained joints, typ.

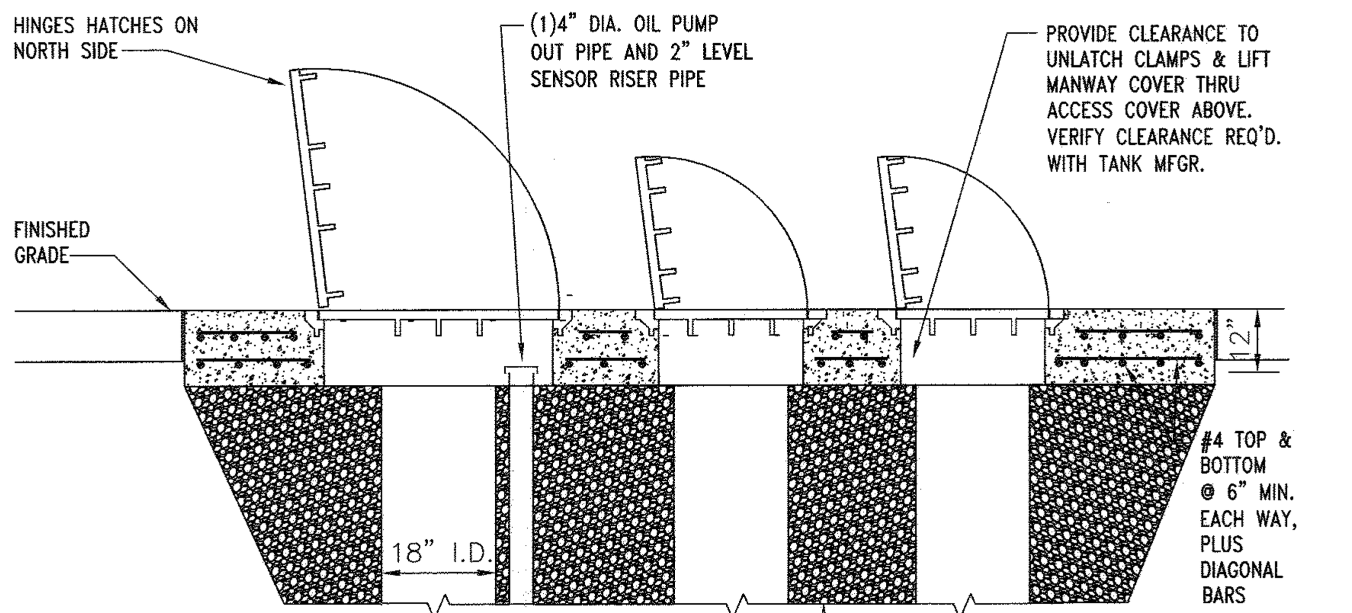
e. The Contractor shall not operate any water main valves on the existing public water system.

f. All water house connections shall be for inside meter setting unless otherwise noted on the drawings or in the specifications.

PRIVATE ON-SITE SEWER GENERAL NOTES

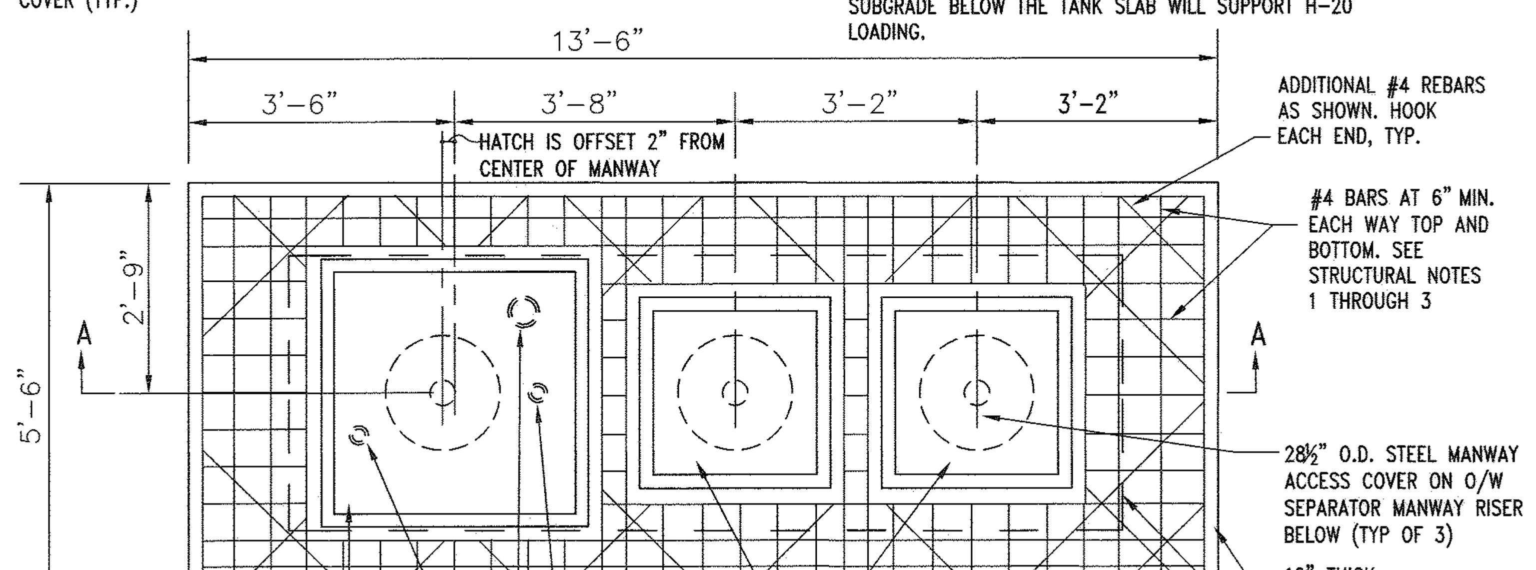
a. All sewer pipe shall be SDR 35 (ASTM D3034) P.V.C. unless otherwise noted.

b. All manholes shall be 4'-0" inside diameter unless otherwise noted.
Precast Manhole Ho. Co. Std. No. G5.12 to be used.



SECTION A-A

SCALE: 1/2"=1'-0"



TOP SLAB DETAIL - PLAN VIEW

SCALE: 1/2"=1'-0"

THE CONTRACTOR SHALL HAVE A PROFESSIONAL ENGINEER PERFORM STRUCTURAL COMPUTATIONS, AND SEAL & SIGN SHOP DRAWINGS WHICH SHALL BE SUBMITTED TO REVIEW AND APPROVAL.

INSTALL DOWELS AND EXPANSION JOINT BETWEEN THIS SLAB AND ADJOINING CONCRETE PAVEMENT IN ACCORDANCE WITH REQUIREMENTS OF DETAIL FOR VEHICULAR CONCRETE PAVEMENT.

STRUCTURAL NOTES:

1. CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH 28 DAYS STRENGTH OF 4000 PSI.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60.
3. ALL STEEL REINFORCEMENT SHALL BE #4 BARS.

GENERAL SPECIFICATIONS

NO. REQ'D: (1)
CAPACITY: 550 GALLON
TYPE: UL-HTC, HIGHGUARD, DOUBLE WALL, "G" SERIES
MATERIAL: MILD CARBON STEEL
FLOW RATE: 55 GPM

GAUGE:	INNER	OUTER
SHELL-	7 GA.	10 GA.
HEADS-	7 GA.	10 GA.

SURFACE PREP:
SSPC NO.6 BLAST ALL EXTERIOR SURFACES
SSPC NO.10 BLAST ALL INTERIOR SURFACES

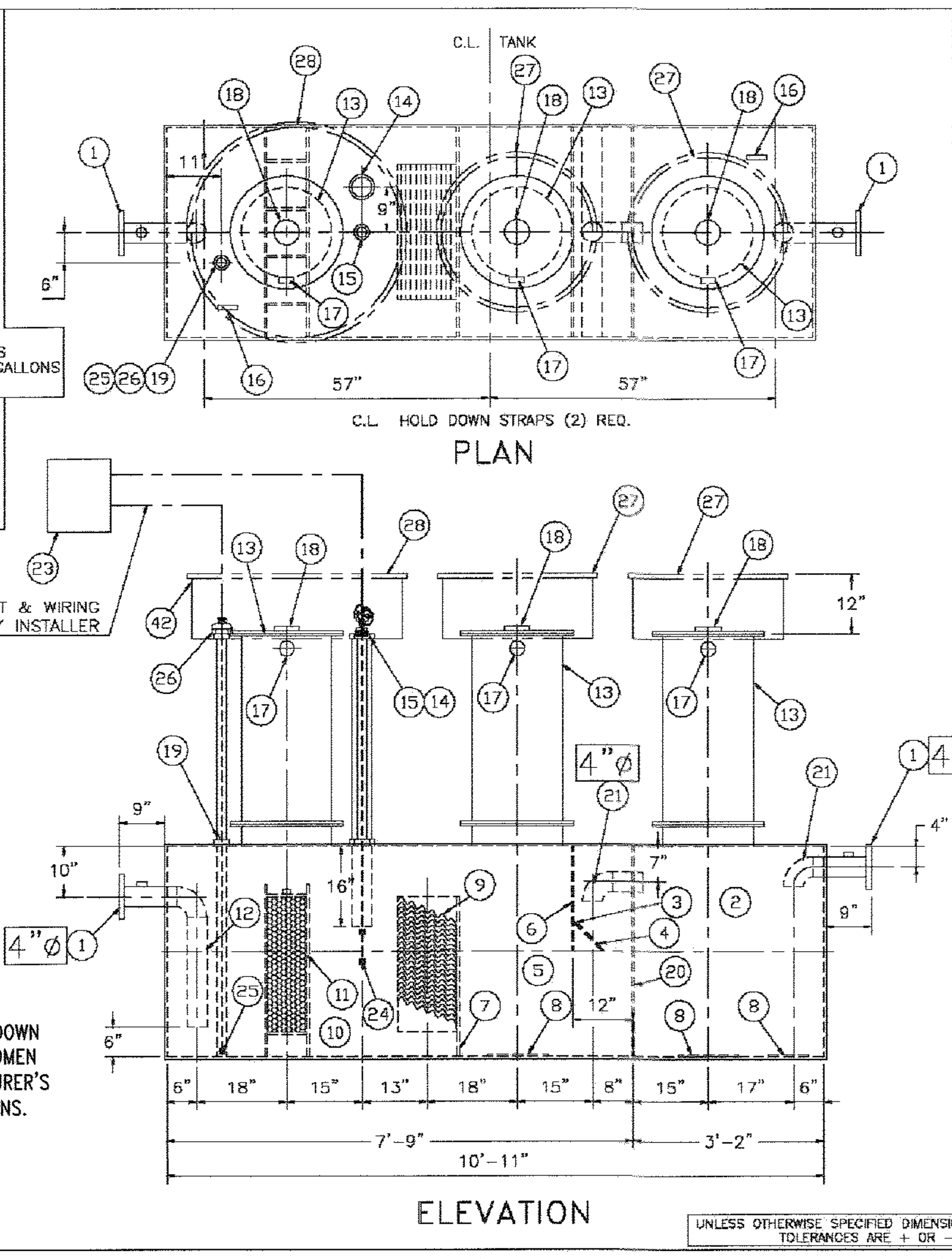
COATING:	MATERIAL	THICKNESS
EXTERIOR-	HIGHGUARD	(75 MILS)
INTERIOR-	POLYURETHANE	(12-15 MILS)

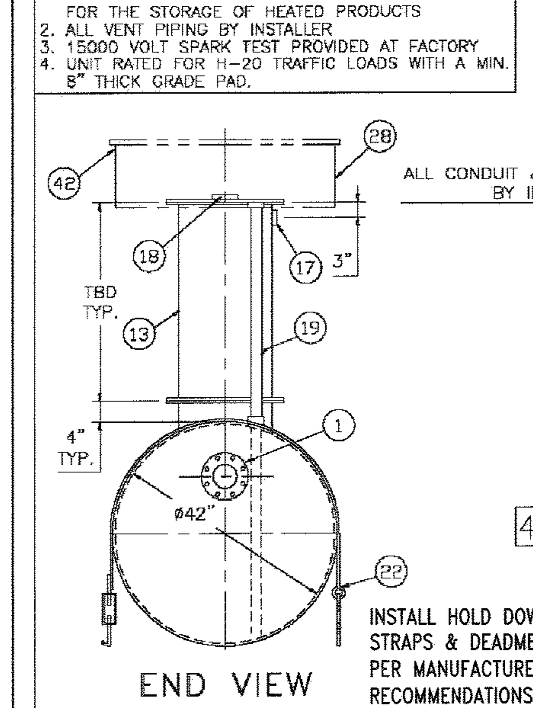
CONSTRUCTION : LAP FIT & WELD ALL EXTERIOR SEAMS
OPERATING PRESSURE : ATMOSPHERIC

HI OIL LEVEL @ 20% TANK CAPACITY : 85 GALLONS
HI-HI OIL LEVEL @ 43% TANK CAPACITY : 183 GALLONS
MAX. EMERGENCY SPILL @ 80% TANK CAPACITY : 341 GALLONS
APPROVED LABELS : U.L. 2215

NOTES

1. POLYURETHANE HIGHGUARD TANK IS NOT APPROVED FOR THE STORAGE OF HEATED PRODUCTS
2. ALL VENT PIPING BY INSTALLER
3. 15000 VOLT SPARK TEST PROVIDED AT FACTORY
4. UNIT RATED FOR H-20 TRAFFIC LOADS WITH A MIN. 8" THICK GRADE PAD.



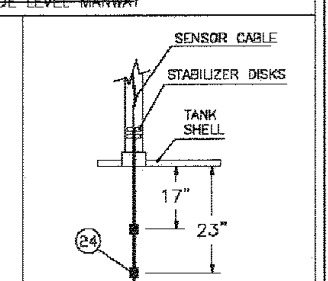


INSTALL HOLD DOWN STRAPS & DEADMEN PER MANUFACTURER'S RECOMMENDATIONS.

NOTE :
ALL RIGHTS RESERVED. THIS DRAWING OR ANY PART THEREOF MUST NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF HIGHLAND TANK.
HIGHLAND TANK SHALL BE RESPONSIBLE ONLY FOR ITEMS INDICATED ON THIS FABRICATION DRAWING UNLESS OTHERWISE NOTED. CUSTOMER IS RESPONSIBLE FOR VERIFYING CORRECTNESS OF SIZE / LOCATION OF FITTINGS , ACCESSORIES & COATINGS SHOWN ON THIS DRAWING

PROVIDED EQUIPMENT

1. 150# R.F.S.O. FLANGE W/ 2" NPT FOR VENT
2. SLUDGE CHAMBER
3. VELOCITY HEAD DIFFUSION BAFFLE
4. WEAR PLATE
5. SEDIMENT CHAMBER
6. UNDERFLOW BAFFLE (REMOVABLE)
7. SLUDGE BAFFLE
8. STRIKER PLATES
9. PARALLEL CORRUGATED PLATE COALESCER. CORELLA PVC PLATES (27" X 27" X 12") (3" PLATE SPACING)
10. OIL/WATER SEPARATOR CHAMBER
11. PETROSCREEN COALESCER MATERIAL INSTALLED W/ PULL ROD SHIPPED LOOSE (27" X 27" X 8")
12. STEEL OUTLET DOWNCOMER
13. 18"ø MANWAY WITH BOLT-ON EXTENSION SHIPPED LOOSE
14. 4"ø FTG. FOR OIL PUMP-OUT W/ INTERNAL PVC PIPE INSTALLED AND RISER PIPE SHIPPED LOOSE
15. 2"ø FTG. FOR LEVEL SENSOR W/ RISER PIPE SHIPPED LOOSE
16. LIFTING LUG
17. 2"ø FTG. FOR VENT TYP. BOTH MANWAYS
18. 4"ø FTG. FOR GAUGE WITH PLUG TYP. BOTH MANWAYS
19. 2"ø FTG. FOR LEAK DETECTION W/ RISER PIPE SHIPPED LOOSE
20. 7 GA. BULKHEAD
21. STEEL INTERNAL ELBOW PIPING
22. POLYESTER HOLD DOWN STRAPS W/ GALVANIZED TURNBUCKLE, WIRE ROPE AND CLAMPS
23. CC-NEMA 4X A2-LD CONTROL PANEL (1PH-60HZ-120V)
24. HTSF (2) FLOAT OIL INTERFACE SENSOR W/ 40' OF CABLE
25. HTLP 1.5 LIQUID ONLY LEAK SENSOR W/ 40' OF CABLE
26. HTSC-2C PVC CAP FOR LEAK SENSOR
27. ~~GLM 30 H-20 RATED GRADE LEVEL MANWAY~~
28. ~~GLM 42 H-20 RATED GRADE LEVEL MANWAY~~



INTERFACE SENSOR FLOAT POSITION
HTSF 2B-**E-**E/23

REVISIONS

Highland Tank

U.S. Patent #4,722,800 #6,605,224 Canadian Patent # 1,296,263 # 2,989,065

550 GALLON OIL WATER SEPARATOR
UL-HTC,HIGHGUARD,DOUBLE WALL,"G" SERIES

CUSTOMER: ~~TANKS DIRECT~~

PROJECT: ~~SAVAGE FIRE STATION~~ ~~BALDWIN MECHANICAL~~ ~~SAVAGE, MD.~~

QUOTE NO: ~~306379~~ CHK'D BY:

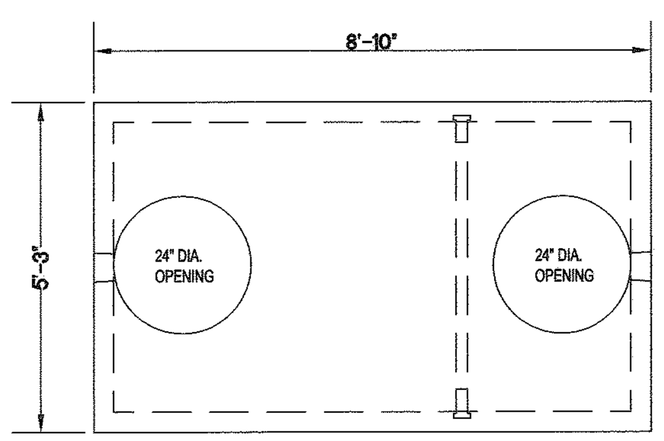
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE + OR - 1"

SCALE:	DATE:	DWG. BY:	DWG. NO.:
~~1/2"=1'-0"~~	~~09-24-2012~~	NED	~~81190~~

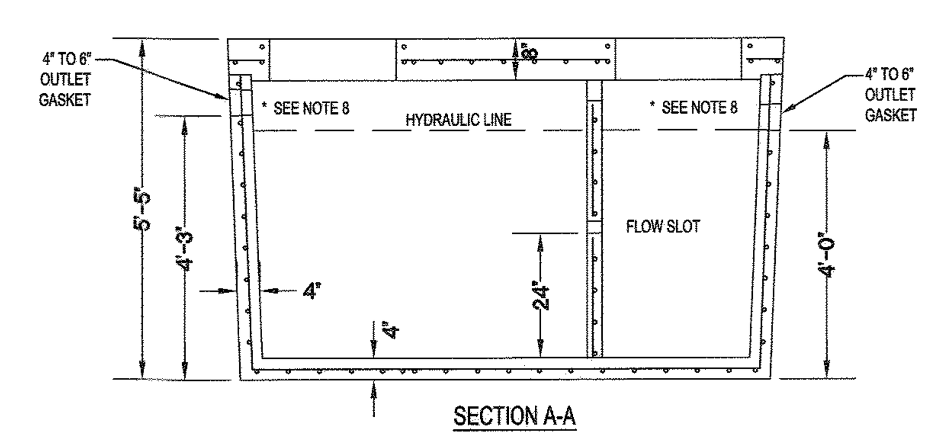
OIL/WATER SEPARATOR

DESIGN DATA & GENERAL NOTES

1. CONCRETE STRENGTH fc=4,500 p.s.i. @ 28 DAYS. DENSITY=150 pcf
2. CEMENT - PORTLAND TYPE I/II PER ASTM C 150-92.
3. ADMIXTURES & PLASTIC TAPERS PER ASTM C 260-86 & C 454-32.
4. REINFORCING PER ASTM A185, MIN. 1-1/2" COVER.
5. TOP SLAB SEALED WITH BUTYL ROPE MASTICS.
6. MAXIMUM 6'-0" OF EARTH COVER OVER TOP SLAB.
7. 4" WALLS & BASE, 8" TOP SLAB.
8. DEPENDING ON USE OF TANK, INLET & OUTLET BAFFLE MAY BE REQUIRED BY CODE.



PLAN VIEW



SECTION A-A

1,000 GALLON TANK
HEAVY-TRAFFIC RELATED - H20

GREASE TRAP

0' 50' 100' 150'

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16
DIRECTOR — DATE 10-3-16

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

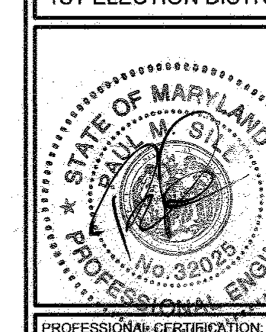
REVISED SANITARY DETAILS & PROFILES

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

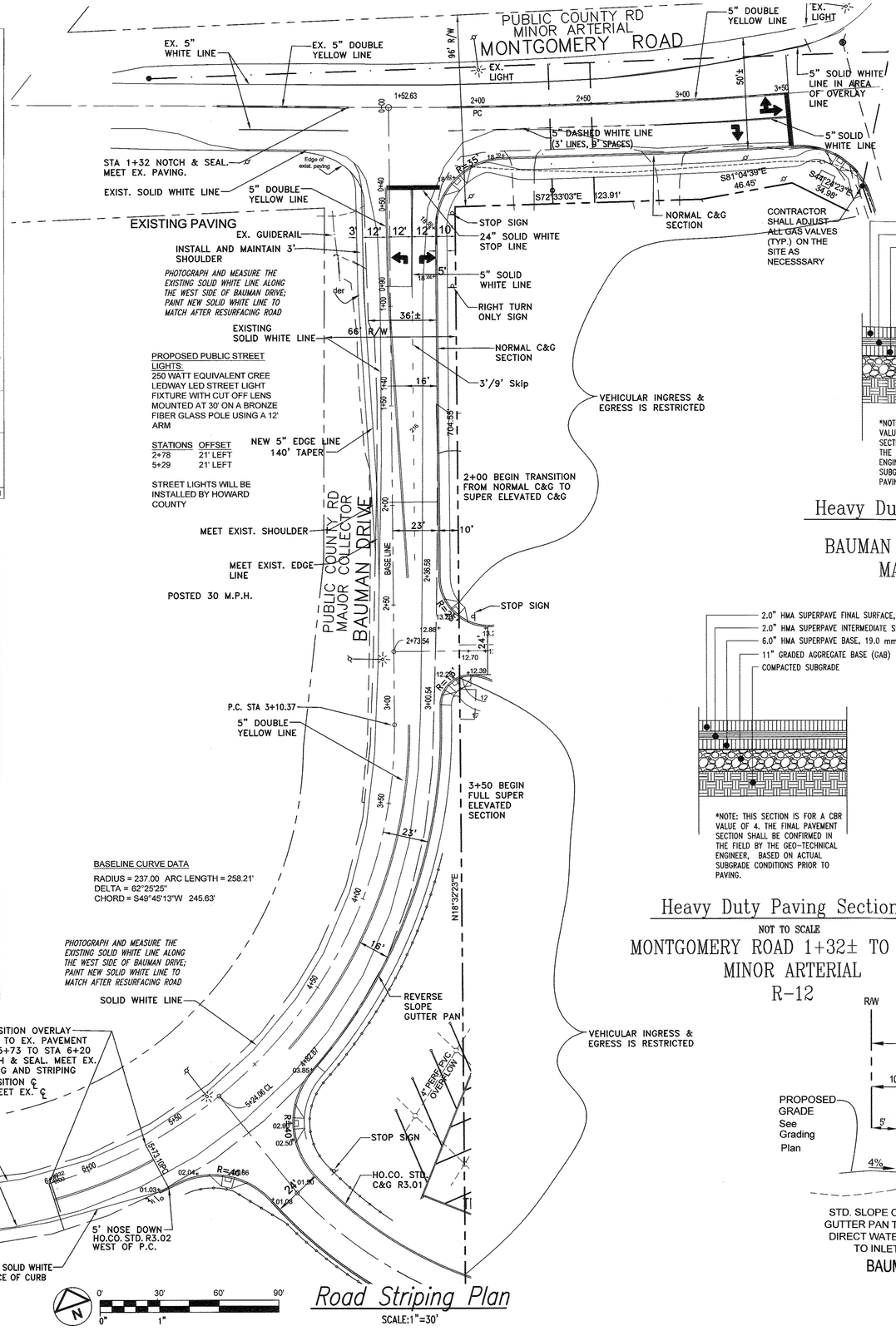
PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND



SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

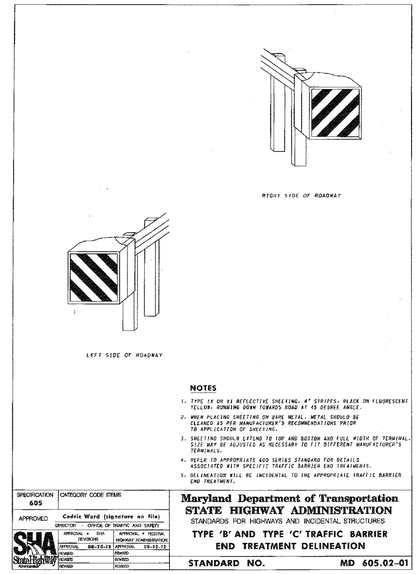
DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: AS SHOWN
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 32 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017



Road Striping Plan

SCALE:1"=30'

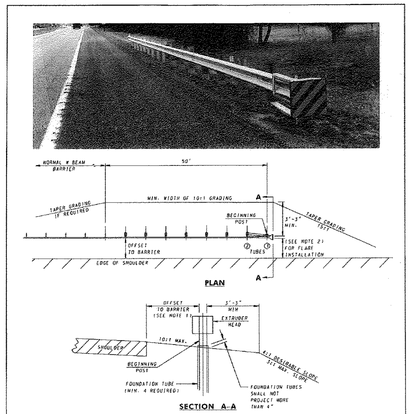


NOTES

1. TYPE IX OR XI REFLECTIVE SHEETING. 4" STRIPES, BLACK ON FLUORESCENT YELLOW, RUNNING DOWN TOWARDS ROAD AT 45 DEGREES ANGLE.
2. WHEN PLACING SHEETING ON BARE METAL, METAL SHOULD BE CLEANED AS PER MANUFACTURER'S RECOMMENDATIONS PRIOR TO APPLICATION OF SHEETING.
3. SHEETING SHOULD LAPPING TO TOP AND BOTTOM AND FULL WIDTH OF TERMINAL. SIZE MAY BE ADJUSTED AS NECESSARY TO FIT DIFFERENT MANUFACTURER'S TERMINALS.
4. REFER TO APPROPRIATE 600 SERIES STANDARD FOR DETAILS ASSOCIATED WITH SPECIFIC TRAFFIC BARRIER END TREATMENTS.
5. DELINEATION WILL BE INCIDENTAL TO THE APPROPRIATE TRAFFIC BARRIER END TREATMENT.

SPECIFICATION 605	CATEGORY CODE ITEMS
APPROVED	Cedric Ward (signature on file) DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TYPE 'B' AND TYPE 'C' TRAFFIC BARRIER END TREATMENT DELINEATION
STANDARD NO. MD 605.02-01



NOTES APPLICABLE TO ALL TYPE C TERMINALS

1. 6:1 MAX GRADING IS ALLOWABLE WHEN THE BARRIER IS LOCATED 12 FT. OR MORE FROM THE OUTSIDE EDGE OF SHOULDER.
2. WHEN THE TRAFFIC BARRIER POST IS PLACED LESS THAN 4' FROM THE EDGE OF SHOULDER/PAVEMENT THE END TREATMENT SHALL BE PLACED AT A RATE OF 50:1
3. GRADING SHALL BE AS SHOWN ABOVE.
4. SYSTEM MUST BE INSTALLED AT 30 INCHES.
5. END TREATMENT DELINEATION SHALL BE PLACED IN ACCORDANCE WITH STD. MD 605.02-01.

SPECIFICATION 605	CATEGORY CODE ITEMS
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

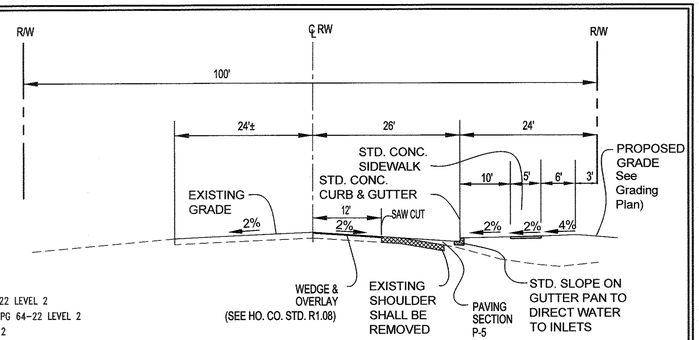
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TYPE C TRAFFIC BARRIER END TREATMENT
STANDARD NO. MD 605.03

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

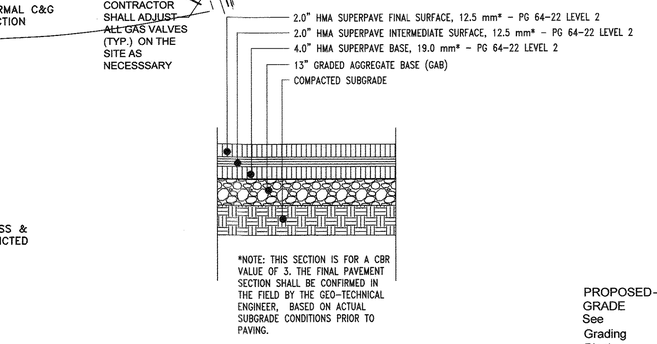
REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.30.16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16
DIRECTOR — DATE 10-3-16



MONTGOMERY ROAD - TYPICAL SECTION 'A'
FROM STA 1+32± TO 3+65±
MINOR ARTERIAL
ZONED R-12
DESIGN SPEED 40 MPH

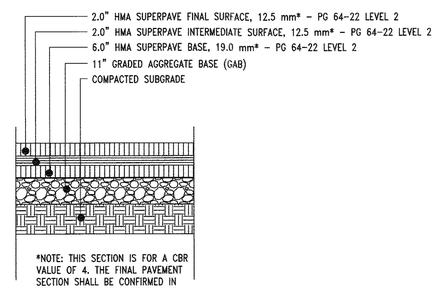


*NOTE: THIS SECTION IS FOR A CBR VALUE OF 3. THE FINAL PAVEMENT SECTION SHALL BE CONFIRMED IN THE FIELD BY THE GEO-TECHNICAL ENGINEER, BASED ON ACTUAL SUBGRADE CONDITIONS PRIOR TO PAVING.

Heavy Duty Paving Section (P4)

NOT TO SCALE

BAUMAN DRIVE 0+00 TO 6+00
MAJOR COLLECTOR
R-12

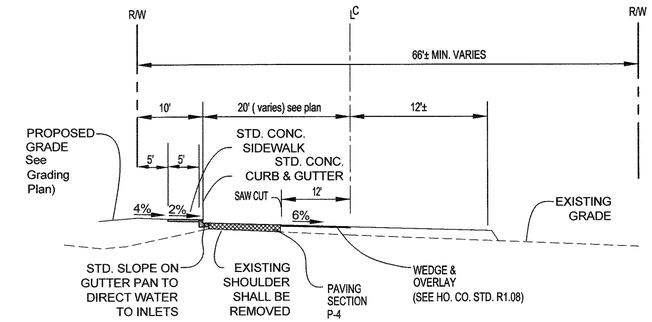


*NOTE: THIS SECTION IS FOR A CBR VALUE OF 4. THE FINAL PAVEMENT SECTION SHALL BE CONFIRMED IN THE FIELD BY THE GEO-TECHNICAL ENGINEER, BASED ON ACTUAL SUBGRADE CONDITIONS PRIOR TO PAVING.

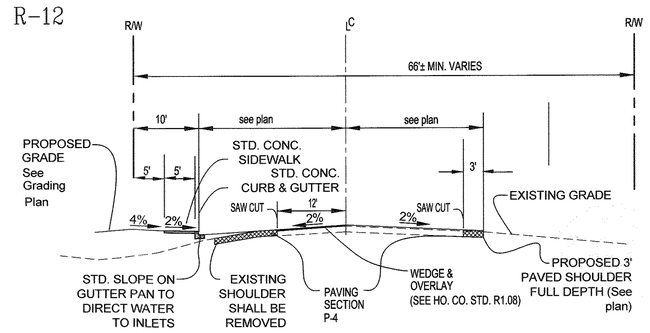
Heavy Duty Paving Section (P5)

NOT TO SCALE

MONTGOMERY ROAD 1+32± TO 3+65±
MINOR ARTERIAL
R-12



BAUMAN DRIVE - TYPICAL SECTION 'B'
FROM STA 2+00 TO 6+20 *
MAJOR COLLECTOR
ZONED R-12
DESIGN SPEED 40 MPH
* TRANSITION CROSS SLOPE STATION 2+00 FROM NORMAL CROWN TO FULL SUPER ELEVATION @ STA. 3+50 RATE 0.00053 ft/ft



BAUMAN DRIVE - TYPICAL SECTION 'A'
FROM STA 0+00 TO 2+00
MAJOR COLLECTOR
ZONED R-12
DESIGN SPEED 40 MPH

ENGINEER
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REVISED SITE AND LAYOUT PLAN NORTH

ELKRIDGE FIRE STATION
PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL A. SILL — No. 32025 — PROFESSIONAL ENGINEER

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Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	JS
DRAWN BY:	AEA
CHECKED BY:	PS
SCALE:	1"=30'
DATE:	SEPTEMBER 28, 2016
PROJECT #:	16-020
SHEET #:	33 of 41

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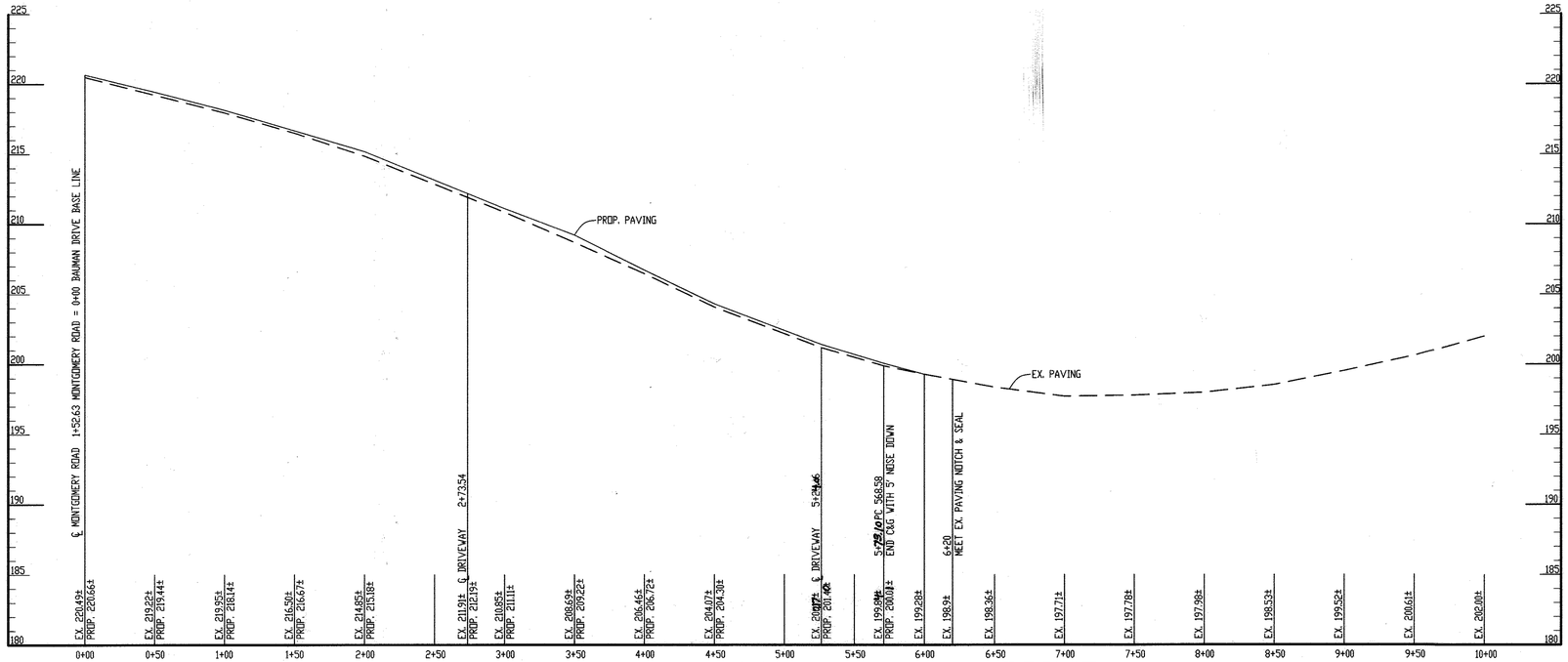
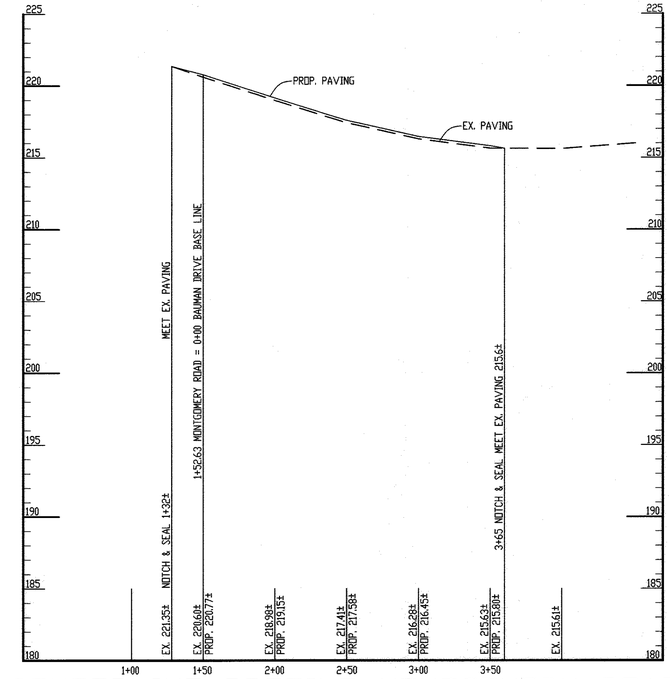
SDP-14-075



CENTERLINE PROFILE BAUMAN DRIVE

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

MAJOR COLLECTOR
ZONED R-12
DESIGN SPEED 40 MPH



CENTERLINE PROFILE MONTGOMERY ROAD

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

MINOR ARTERIAL
ZONED R-12
DESIGN SPEED 40 MPH

OWNER/DEVELOPER
Mark Stromdahl
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9250 Bendix Rd.
Columbia, MD 21045
Phone: 410-313-5757
Email: mstrom@howardcountymd.gov

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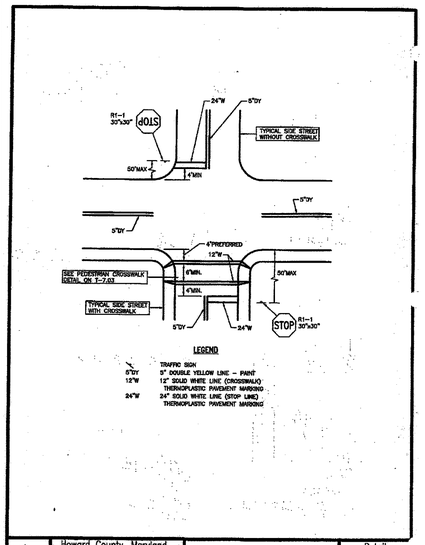
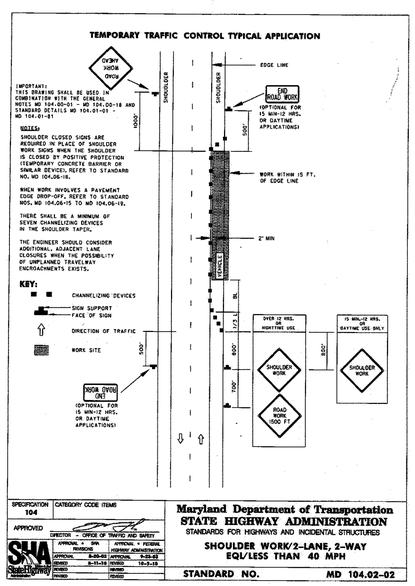
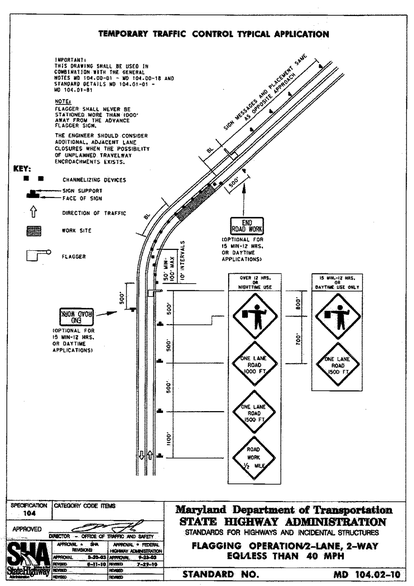
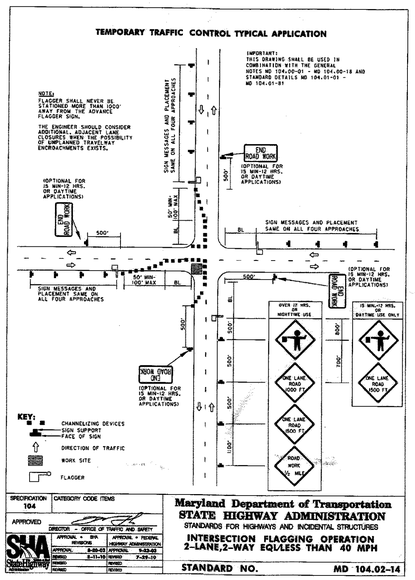
Marriottsville, MD 21104
Office: 443-325-5067
Fax: 410-696-2022
Email: paul@sillengineering.com

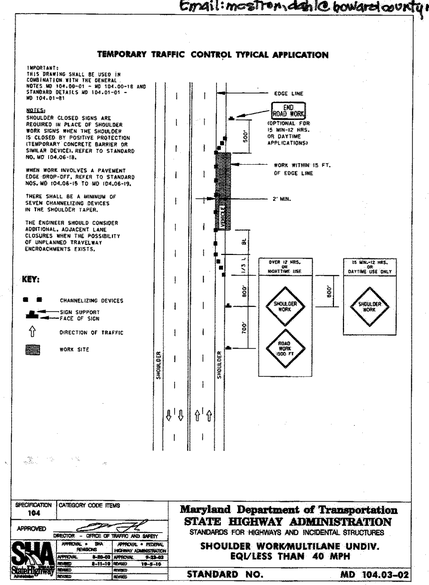


REVISED	Howard County, Maryland Department of Public Works	Typical Intersection Signing And Marking Layout	Detail T-7.01
REVISED 5/7/2007	Approved: Chief, Bureau of Engineering		









APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chad Edwards — CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-16-15 DATE
Kathleen Onody — CHIEF, DIVISION OF LAND DEVELOPMENT	10-29-15 DATE
William Mackey Jr. — DIRECTOR	10-30-15 DATE

No.	Description	Date
1	Delete parking spaces, access dr, service dr, rel. dumpster gen, add traffic signal control plans, reduce access drive from 30'-24' by Sill Engineering Group	5/18/16

REVISIONS

Tesseract™
Jeffrey Schwab
TESSERACT SITES, INC
401 Washington Ave. Suite 303
Towson, Maryland, 21204
P. 410.321.7600
F. 410.321.7601

Road Widening Details

Elkridge Fire Station
Parcel A
"Green Building"
Howard County, Maryland

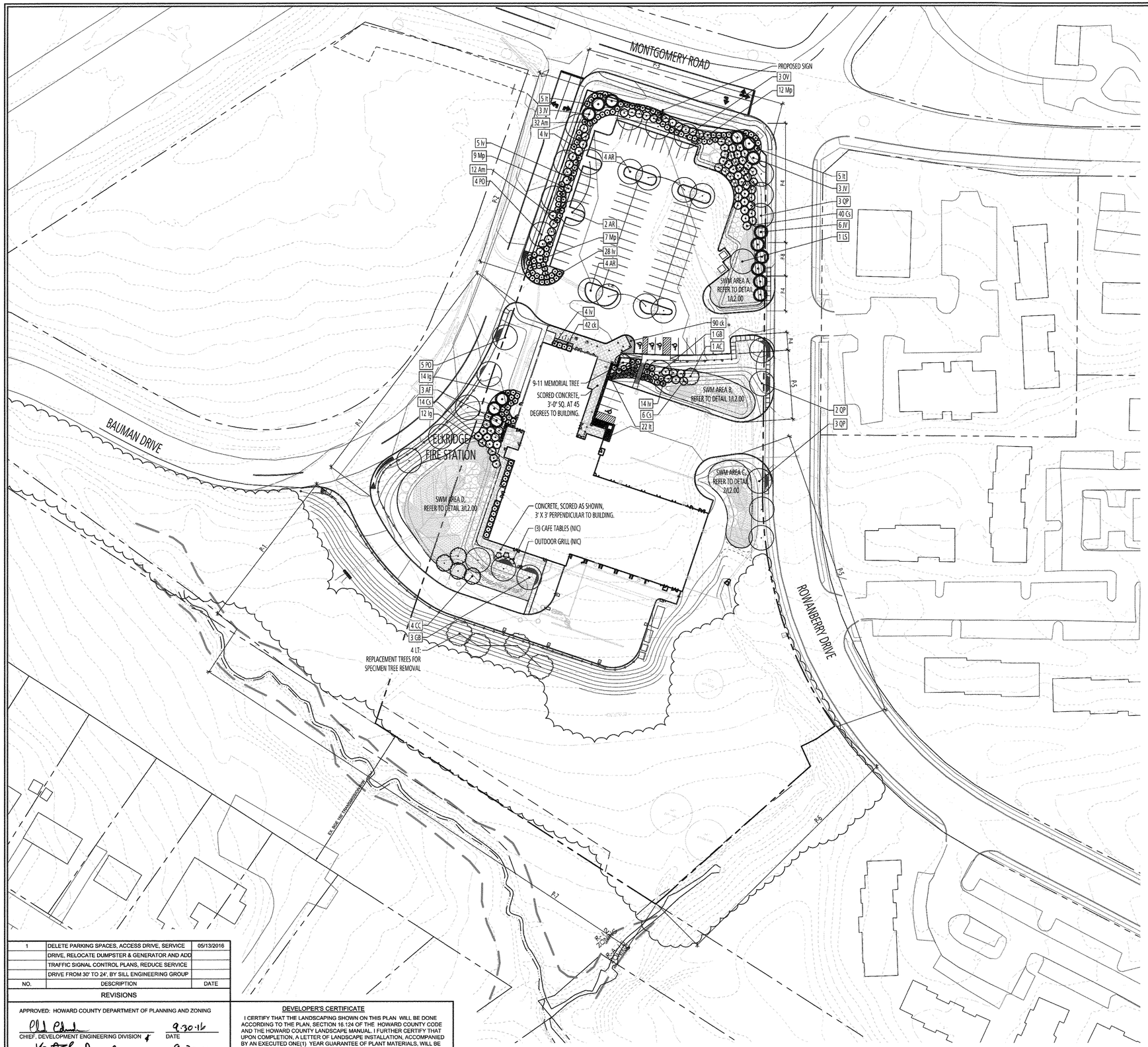
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 14230, Expiration Date: 12/09/16.

LOT/PARCEL:		LIBER/FOLIO:	PLAT#:
402 403 A2		14609/20 14101/512 13842/358	N/A
GRID	ZONE	TAX/ZONE MAP	ELECT. DISTRICT	CENSUS TRACT:
12	R-12, RA15	38	1ST	

Date: 09/02/15
Proj. #: 12021
Scale: 1" = 30'

DESIGN | DRAWN | CHKD

SDP 14-075



PLANTING CALCULATIONS

SCHEDULE A - Perimeter Landscape Edge									
Perimeter	1	2	3	4	5	6	7	8	TOTAL
Landscape Type	B	E	E	E	B	B	B	D	
Linear Feet to Roadway Frontage/Perimter	435	215	210	200	365	280	350	25	
Credit for Existing Vegetation	Yes 135	No	No	No	Yes 198	Yes 280	Yes 350	No	
Credit for Wall, Fence, or Berm	No	No	No	No	No	No	No	No	
Linear Feet after Credits	300	215	210	200	167	0	0	25	
Number of Plants Required									
Shade Trees	6	5	5	5	3	0	0	1	26
Evergreen Trees	8	0	0	0	4	0	0	3	15
Shrubs	0	54	53	50	0	0	0	0	156
Number of Plants Provided									
Shade Trees	8	6	3	3	5	0	0	1	26
Evergreen Trees	3	0	6	3	0	0	0	3	15
Shrubs	0	65	54	40	0	0	0	0	159

SCHEDULE B - Parking Lot Internal Landscaping	
Number of Parking Spaces	79
Number of Trees Required	4
Number of Tress Provided	8

NOTE: THESE SCHEDULES DO NOT INCLUDE PLANTINGS WITHIN STORMWATER MANAGEMENT FACILITIES, SPECIMEN TREE MITIGATION, AND BUILDING PERIMETER PLANTING. FOR TOTAL PLANT QUANTITIES, REFER TO 1/L3.00

PLANT SCHEDULE

Symbol	Quantity	Botanical Name	Common Name	Size	Note
MAJOR TREES					
AR	10	Acer rubrum 'Red Sunset'	Red Sunset Maple	2.5" Cal.	B&B
GB	4	Ginkgo biloba 'Autumn Gold'	Ginko	2.5" Cal.	B&B / Male Only
LS	1	Liquidambar styraciflua 'Rotundiloba'	Rotundiloba Sweetgum	2.5" Cal.	B&B
LT	4	Liriodendron tulipifera	Tulip Poplar	2.5" Cal.	B&B
OV	3	Ostrya virginiana	Eastern Hophornbeam	2" Cal.	B&B
PO	9	Platanus occidentalis	American Sycamore	2.5" Cal.	B&B
QP	8	Quercus phellos	Willow Oak	2.5" Cal.	B&B
MINOR TREES					
AC	1	Amelanchier canadensis	Shadblow Serviceberry	8' Ht.	B&B / 3-5 Stems
CC	4	Cercis canadensis	Eastern Redbud	8' Ht.	B&B / 3-5 Stems
EVERGREEN TREES					
AF	3	Picea pungens	Blue Spruce	8' Ht.	B&B
JV	12	Juniperus virginiana 'Burkii'	Eastern Red Cedar	8' Ht.	B&B
SHRUBS					
Am	44	Aronia melanocarpa	Black Chokeberry	36" Ht.	B&B/CG
Cs	60	Cornus sericea 'Baileyi'	Red Twig Dogwood	36" Ht.	B&B/CG
Ig	26	Ilex glabra 'Shamrock'	Shamrock Inkberry	24" Ht.	B&B/CG
It	32	Itea virginica 'Henrys Garnet'	Virginia Sweetspire	24" Ht.	B&B/CG
Iv	55	Ilex verticillata 'Winter Red'	Winter Red Winterberry	36" Ht.	B&B/CG
Mp	28	Myrica pennsylvanica 'Morton'	Northern Bayberry	36" Ht.	B&B/CG
PERENNIALS AND GRASSES					
Symbol	Quantity	Botanical Name	Common Name	Size	Note
ck	132	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	1 Qt.	15" OC

GENERAL NOTES

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH 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 SUREYY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.

2. THE OWNER, TENANTS, AND OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

3. REFER TO 1/L3.00 FOR MASTER PLANT SCHEDULE.

4. NO SURETY IS REQUIRED BECAUSE THIS IS A COUNTY OWNED PROJECT.

5. THIS PROJECT INCLUDES SPECIMEN TREE MITIGATION OF 2:1. TWO TULIP POPLARS (LIRIODENDRON TULIPIFERA) ARE TO BE REMOVED AND REPLACED WITH FOUR TREES OF THE SAME SPECIES.

LEGEND:

- SPECIMEN TREE - TO REMAIN
- MAJOR TREE
- SPECIMEN TREE REPLACEMENT
- MINOR TREE
- EVERGREEN TREE
- SHRUBS
- PERENNIALS AND ORNAMENTAL GRASSES
- PLANTING BED LIMITS
- SCORED CONCRETE

ENGINEER

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L1.00 - REVISED LANDSCAPE PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	05/13/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

DEVELOPER'S CERTIFICATE

I 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 FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER — DATE 9/29/16

1 LANDSCAPE PLAN
PLAN

SCALE: 1"=50'-0"

0' 50' 100' 150'

FLOURA TEETER
landscape architects
800 North Charles St. Ste. 300
Baltimore, Maryland 21201
Phone: 410.528.8395
Fax: 410.528.8425

STATE OF MARYLAND — PAUL J. SILL — No. 32025 — PROFESSIONAL ENGINEER

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11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	ZMB
DRAWN BY:	ZMB
CHECKED BY:	JAF
SCALE:	1" = 50'-0"
DATE:	MAY 25, 2016
PROJECT #:	16-020
SHEET #:	35 of 41

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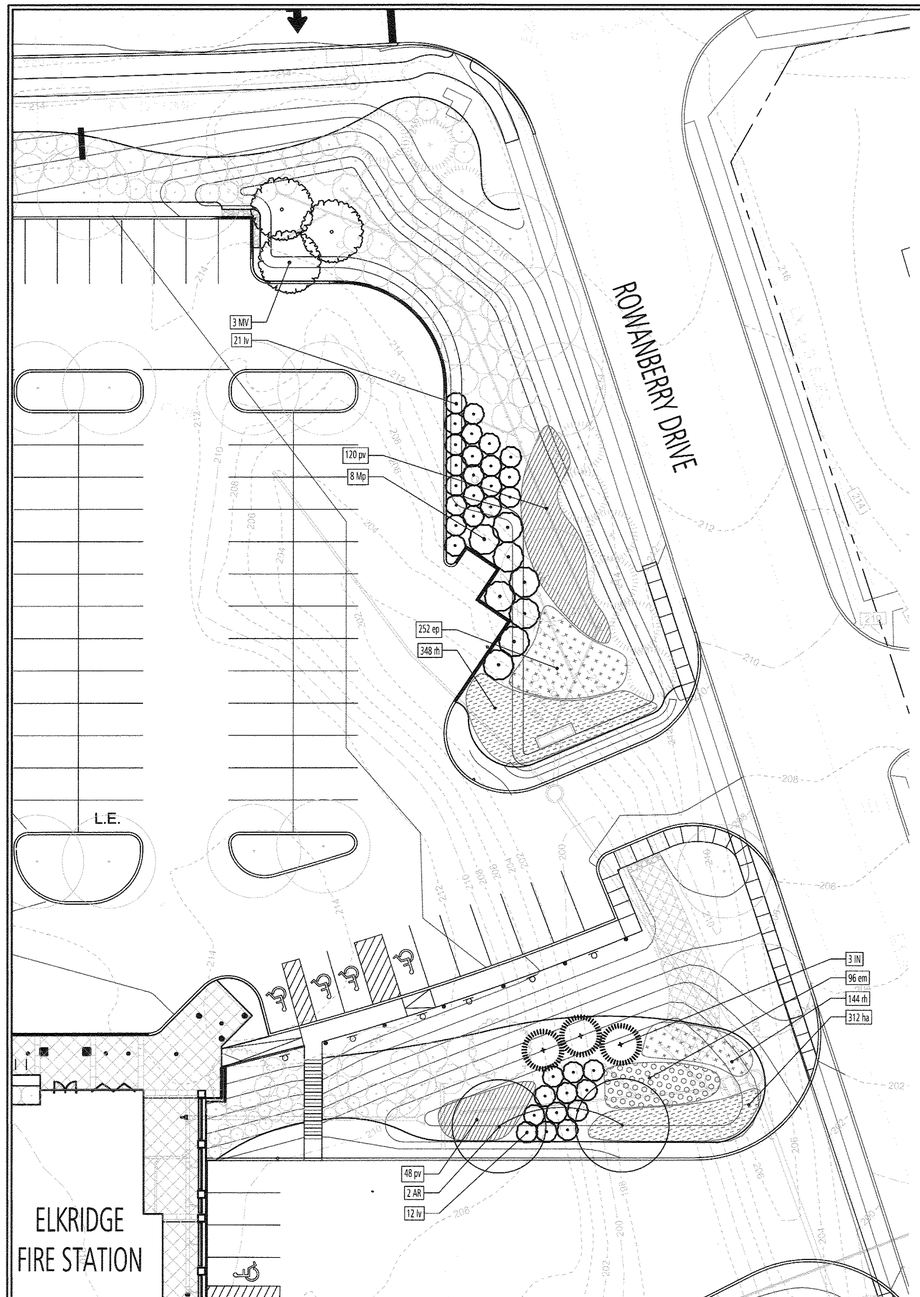
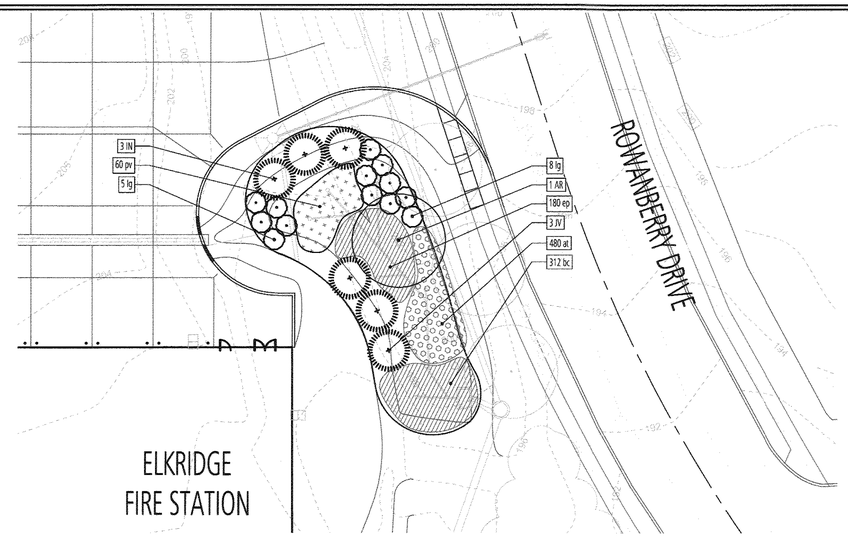
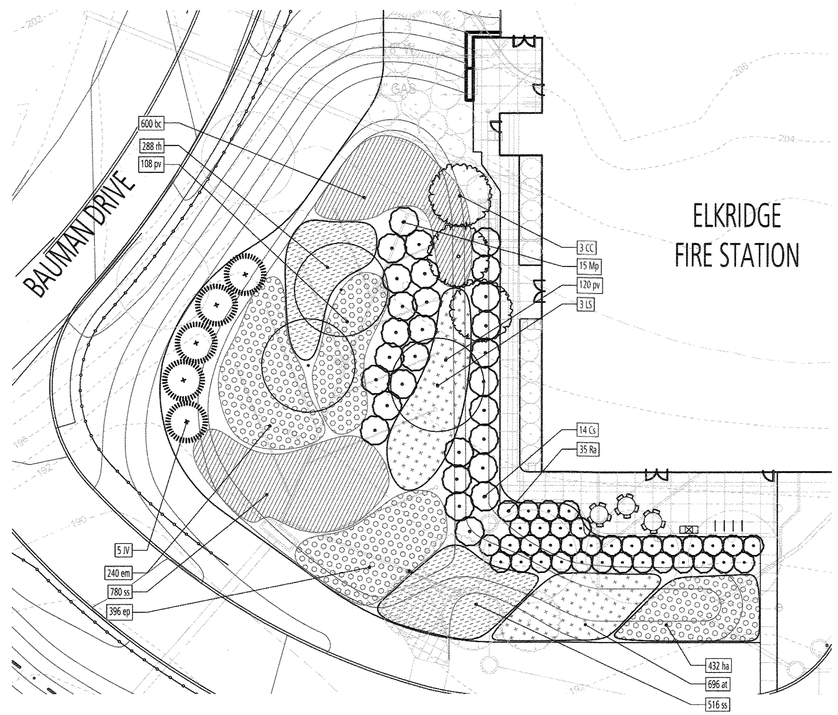


1 SWM AREAS A AND B
PLAN
SCALE: 1"=20'-0"



2 SWM AREA C
PLAN
SCALE: 1"=20'-0"

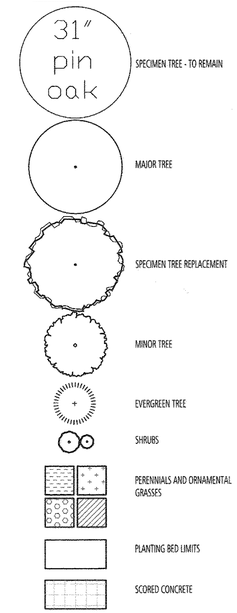


3 SWM AREA D
PLAN
SCALE: 1"=20'-0"

SWM PLANT SCHEDULE:

Symbol	Quantity	Botanical Name	Common Name	Size	Note
MAJOR TREES					
AR	3	Acer rubrum 'Red Sunset'	Red Sunset Maple	2.5" Cal.	B&B
LS	3	Liquidambar styraciflua 'Rotundiloba'	Rotundiloba Sweetgum	2.5" Cal.	B&B
MINOR TREES					
CC	3	Cercis canadensis	Eastern Redbud	8' Ht.	B&B / 3-5 Stems
MV	3	Magnolia virginiana	Sweetbay Magnolia	8' Ht.	B&B / 3-5 Stems
EVERGREEN TREES					
IN	6	Ilex x 'Nellie R. Stevens'	Nellie Stevens Holly	8' Ht.	B&B
JV	8	Juniperus virginiana 'Burkii'	Eastern Red Cedar	8' Ht.	B&B
SHRUBS					
Cs	14	Cornus sericea 'Baileyi'	Red Twig Dogwood	36" Ht.	B&B/CG
Ig	13	Ilex glabra 'Shamrock'	Shamrock Inkberry	24" Ht.	B&B/CG
Iv	33	Ilex verticillata 'Winter Red'	Winter Red Winterberry	36" Ht.	B&B/CG
Mp	23	Myrica pennsylvanica 'Morton'	Northern Bayberry	36" Ht.	B&B/CG
Ra	35	Rhus aromatica 'Gro Low'	Fragrant Sumac	24" Ht.	B&B/CG
PERENNIALS AND GRASSES					
at	1176	Asclepias tuberosa	Butterfly Weed	1 Qt.	12" OC
bc	912	Bouteloua curtipendula	Sideoats Grama	1 Qt.	15" OC
em	336	Eupatorium dubium 'Little Joe'	Joe Pye Weed	1 Qt.	24" OC
ep	828	Echinacea purpurea	Purple Coneflower	1 Qt.	18" OC
ha	744	Heuchera americana 'Dale's Strain'	American Alumroot	1 Qt.	15" OC
pv	456	Panicum virgatum 'Cape Breeze'	Switchgrass	1 Qt.	30" OC
rh	780	Rudbeckia fulgida var. fulgida	Black-eye Susan	1 Qt.	18" OC
ss	1296	Schizachyrium scoparium 'Standing Ovation'	Little Bluestem	1 Qt.	15" OC

LEGEND:



GENERAL NOTES:

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH 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.

2. THE OWNER, TENANTS, AND OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

3. REFER TO 1/L3.00 FOR MASTER PLANT SCHEDULE AND PLANTING SCHEDULE.

4. NO SURETY IS REQUIRED BECAUSE THIS IS A COUNTY OWNED PROJECT.

5. THIS PROJECT INCLUDES SPECIMEN TREE MITIGATION OF 2:1. TWO TULIP POPLARS (LIRIODENDRON TULIPIFERA) ARE TO BE REMOVED AND REPLACED WITH FOUR TREES OF THE SAME SPECIES.

ENGINEER

SILL ENGINEERING GROUP, LLC
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11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
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OWNER/DEVELOPER

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9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	05/13/2016

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

DEVELOPER'S CERTIFICATE

I 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 FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE(1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER — DATE 9/29/16

0' 20' 40' 60'

FLOURA TEETER
landscape architects
800 North Charles St. Ste. 300
Baltimore, Maryland 21201
Phone: 410.528.8395
Fax: 410.528.8425

L2.00 - REVISED STORMWATER MANAGEMENT PLANTING PLANS

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — PAUL A. SILL — No. 32025 — PROFESSIONAL ENGINEER

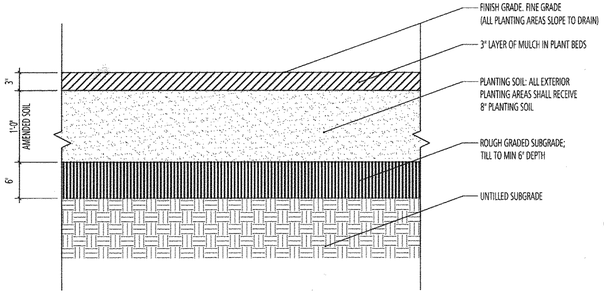
SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	ZMB
DRAWN BY:	ZMB
CHECKED BY:	JAF
SCALE:	1" = 20'-0"
DATE:	MAY 25, 2016
PROJECT #:	16-020
SHEET #:	36 of 41

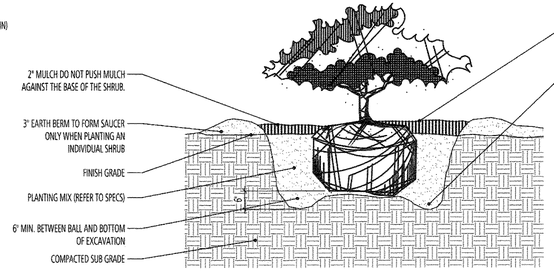
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075

PLANTING BED AND SOD AREA PREPARATION NOTES:
1. ROTOTILL SUBGRADE TO A DEPTH OF 6 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND ORGANIC MATERIALS.
2. PLACE PLANTING SOIL ON TOP OF TILLED SUBGRADE IN 7"-8" LIFTS TO DEPTH REQUIRED.
3. COMPACT EACH LIFT PER GENERAL NOTES.
4. FINE GRADE FINISHED PLANTING BED AREA PRIOR TO MULCHING.
5. PLANT AS PER DETAILS AND GENERAL NOTES.
6. FERTILIZE AS REQUIRED. SEE GENERAL NOTES.
7. PROTECT PREPARED PLANTING BEDS AND SODDED AREAS FROM SUBSEQUENT CONSTRUCTION ACTIVITY.

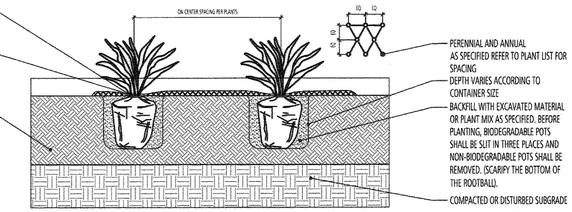


1 PLANTING BED PREPARATION DETAIL — d-planting bed prep.dwg
SECTION — SCALE: 1"=1'-0"

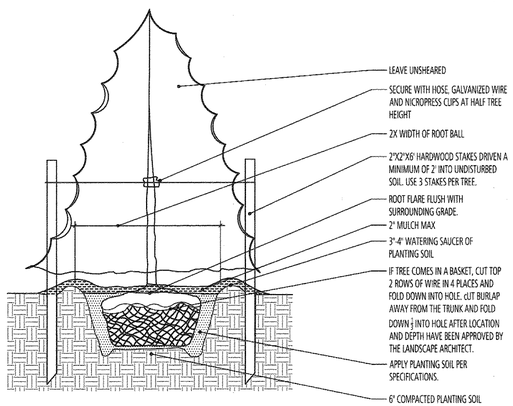


NOTES:
1. FOR CONTAINER SHRUBS, COMPLETELY REMOVE ALL OF NON-BIODEGRADABLE CONTAINER AND SCARIFY ROOTBALL.
2. FOR B&B, CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOTBALL.
3. 12" MIN. DEPTH OF PLANTING SOIL FOR GROUNDCOVER BEDS.
4. SHRUBS IN PLANTING BEDS SHOULD BE CONTINUALLY MULCHED WITHIN A BED WITH CLEAN SPADED EDGE.
5. IN SHRUB BEDS, PLANTING SOIL SHALL BE CONTINUOUS.

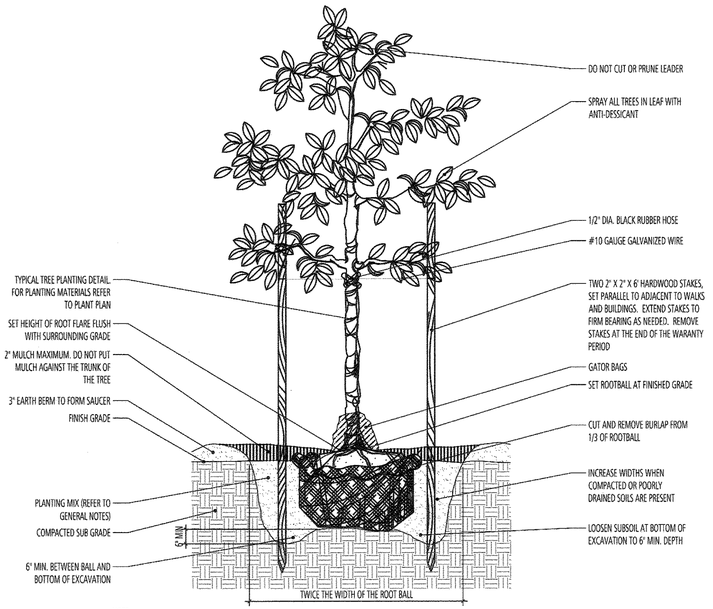
2 SHRUB PLANTING DETAIL — d-shrub_planting.dwg
SECTION — SCALE: 1/2" = 1'-0"



3 PERENNIAL PLANTING DETAIL — d-grndcover_planting.dwg
SECTION — SCALE: 1/2" = 1'-0"

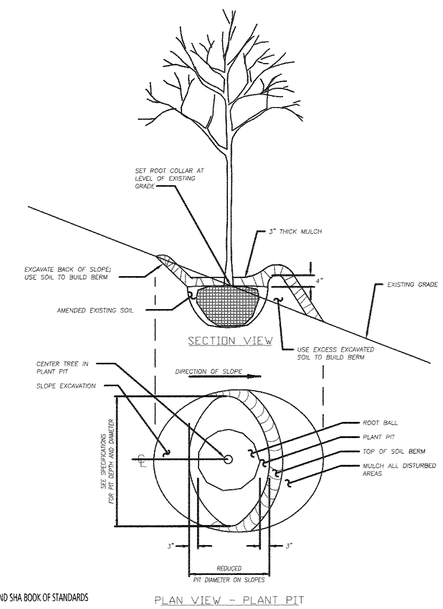


4 EVERGREEN TREE PLANTING DETAIL — d-ever-tree.dwg
SECTION — SCALE: 1/2" = 1'-0"



NOTE:
1. REMOVE ANY BROKEN OR DAMAGED BRANCHES WITH CLEAN CUTS.
2. ALL TREES GREATER THAN 3" CALIPER SHOULD BE GUYED, RATHER THAN STAKED.
3. IF TREE CINES IN A BASKET, CUT TOP TWO ROWS OF WIRE IN FOUR PLACES AND FOLD DOWN INTO HOLE. CUT BURLAP AWAY FROM THE TRUNK AND FOLD DOWN INTO HOLE AFTER LOCATION AND DEPTH HAVE BEEN APPROVED BY THE LANDSCAPE ARCHITECT.

5 TREE PLANTING DETAIL — d-tree_planting.dwg
SECTION — SCALE: 1/2" = 1'-0"



SOURCE: MARYLAND SHA BOOK OF STANDARDS

6 PLANTING TREES ON SLOPES FROM 3:1 TO 2:1
PLAN/SECTION — N.T.S.

GENERAL PLANTING NOTES:

1. ALL PLANT MATERIAL SHALL CONFORM TO THE SIZES GIVEN IN THE PLANT SCHEDULE AND SHALL BE NURSERY GROWN IN ACCORDANCE WITH THE "AMERICAN STANDARDS FOR NURSERY STOCK, ANSI260.1-2004" LATEST EDITION PREPARED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, 230 SOUTHERN BUILDING, WASHINGTON, D.C. 20005.

2. CONTRACTOR MUST VERIFY THE CORRECT LOCATION OF ANY EXISTING UTILITIES WHICH ARE UNDERGROUND, PRIOR TO PLANT INSTALLATION. THE CONTRACTOR SHALL CALL MISS UTILITY (1-800-257-7777) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND REQUIREMENTS FOR CONSTRUCTION.

3. ALL PLANT BEDS SHALL BE MULCHED WITH A MINIMUM OF 2" AND A MAXIMUM OF 3" LAYER OF MULCH WITHIN TWO DAYS AFTER PLANTING. THIS SHALL BE SHREDDED HARDWOOD BARK, AND SHALL COVER ENTIRELY THE PLANTING BED.

4. ALL PLANTS SHALL BE GUARANTEED TO REMAIN ALIVE AND HEALTHY FOR A PERIOD OF TWO FULL YEARS AFTER INITIAL ACCEPTANCE. ANY REPLACEMENT PLANTS, REQUIREMENTS, ETC. AND METHOD OF PLACING SHALL COMPLY WITH THE REQUIREMENTS SPECIFIED HEREIN, WITHIN THE SPECIFICATIONS, AND ON THE DRAWINGS.

5. EXISTING SOIL IN PLANTING BED AREAS SHALL BE AMENDED TO A MINIMUM DEPTH OF 12" AND SOIL MIX IN ALL PLANTING BEDS SHALL BE ONE THIRD EXISTING SOIL, ONE THIRD FURNISHED SOIL, AND ONE THIRD ORGANIC MATERIAL SUCH AS LEAFGRO. SEE DETAIL FOR TREE PITS.

6. PLANT MATERIAL AVAILABILITY MAY VARY AT THE TIME OF CONSTRUCTION. ANY SUBSTITUTIONS ARE TO BE OF EQUIVALENT TYPE AND SIZE (OR LARGER), AND MUST BE APPROVED BY LANDSCAPE ARCHITECT BEFORE INSTALLATION.

7. WHERE THE CONDITION EXISTS THAT THE BALLED AND BURLAPPED TREES ARE DELIVERED IN WIRE BASKETS, THE WIRE BASKETS SHALL BE CUT DOWN THE SIDE OF EACH MESH AND PEELED AWAY FROM THE ROOTBALL OR REMOVED ENTIRELY. NO PORTION OF THE WIRE BASKET SHALL REMAIN INTACT AROUND THE SIDES OF THE ROOTBALL OR EXTEND ABOVE FINISHED GRADE.

8. ANY DAMAGE TO THE EXISTING UTILITIES, BUILDINGS, PAVING, CURBS, WALLS, VEGETATION AND ANY OTHER EXISTING FEATURES NOT DESIGNATED FOR REMOVAL ON THESE PLANS, SHALL BE REPAIRED TO PREVIOUS CONDITION OR REPLACED BY THE CONTRACTOR AT THE HIS OR HER EXPENSE. ALL AREAS DISTURBED DURING CONSTRUCTION ARE TO BE SEEDED PER THE PLANS AND SPECIFICATION UNLESS OTHERWISE NOTED.

9. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH 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.

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11. REFER TO 1/L3.00 FOR MASTER PLANT SCHEDULE AND PLANTING SCHEDULE.

12. NO SURETY IS REQUIRED BECAUSE THIS IS A COUNTY OWNED PROJECT.

13. THIS PROJECT INCLUDES SPECIMEN TREE MITIGATION OF 2:1. TWO TULIP POPLARS (LIRIODENDRON TUULIPIFERA) ARE TO BE REMOVED AND REPLACED WITH FOUR TREES OF THE SAME SPECIES.

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE	05/13/2016
	DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE	
	DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-30-16
DIRECTOR — DATE 10-3-16

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DEVELOPER — DATE 9/29/16

ENGINEER
SILL ENGINEERING GROUP, LLC
HOWARD COUNTY, MARYLAND
11130 DOVEDALE COURT, SUITE 200
MARRIOTTSVILLE, MARYLAND 21104
OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

L3.00 - REVISED LANDSCAPE NOTES AND DETAILS

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

FLOURA TEETER
landscape architects
800 North Charles St. Ste. 300
Baltimore, Maryland 21201
Phone: 410.528.8395
Fax: 410.528.8425

STATE OF MARYLAND — PAUL D. SILL — No. 32025 — PROFESSIONAL ENGINEER

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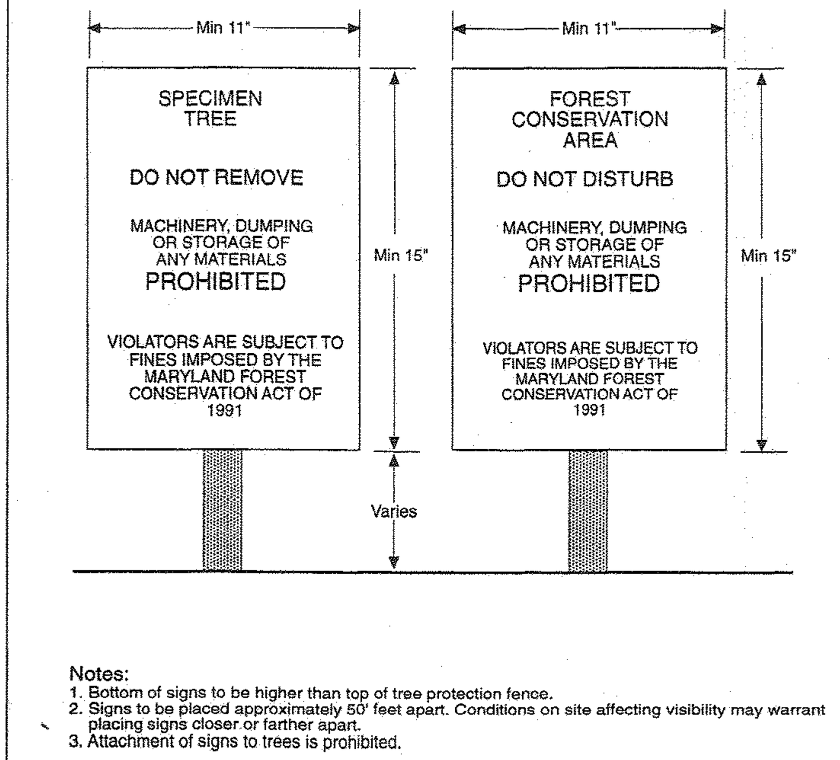
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY:	ZMB
DRAWN BY:	ZMB
CHECKED BY:	JAF
SCALE:	AS NOTED
DATE:	MAY 25, 2016
PROJECT #:	16-020
SHEET #:	37 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

SDP-14-075



Notes:
1. Bottom of signs to be higher than top of tree protection fence.
2. Signs to be placed approximately 50' feet apart. Conditions on site affecting visibility may warrant placing signs closer or farther apart.
3. Attachment of signs to trees is prohibited.

Source: Adapted from Forest Conservation Manual, 1991

Construction Signs — Figure C-4

100 YEAR FLOODPLAIN NOTE

1. No mapped 100 year floodplains are present on the project site.

HISTORIC STRUCTURE NOTES

1. No known historic structures are present on the project site.

RARE, THREATENED AND ENDANGERED SPECIES NOTE

1. No rare, threatened, or endangered species were observed on the project site.

Forest Stand Descriptions

Key	Community Type	Acreage	Dominant Vegetation	General Condition	Priority 1 Acreage
F1	Mixed oak-pine-poplar	4.30 ac. ±	Pinus virginiana, Liriodendron tulipifera, Quercus alba, Quercus falcata, Acer rubrum, Nyssa sylvatica, Acer rubrum, Fagus grandifolia, Viburnum dentatum, Vaccinium angustifolium	Fair	4.30 ac. ± structure wetland/buffer

Key	Species Name	Size	Cond.
A	Tulip poplar	37"	Fair *
B	Tulip poplar	34"	Fair *
C	White oak	34"	Good
D	Pin oak	44"	V. Poor
E	Pin oak	31"	F. Good
F	White oak	45"	Fair

* TREES REMOVED BY WP 14-010

SOILS NOTES

1. Soils onsite include:

   Fa - Fallsington sandy loam, 0-2% slopes
   RsB - Russett fine sandy loam, 2-5% slopes
   RsC - Russett fine sandy loam, 5-10% slopes
   UcB - Urban land-Chillum-Beltsville complex, 0-5% slopes
   UcD - Urban land-Chillum-Beltsville complex, 5-15% slopes

2. Fallsington soils are identified as hydric soils.

WATERSHED NOTE

1. The site drains to an unnamed tributary to Deep Run. Deep Run and its tributaries are classified as Use I - Water Contact Recreation - by the Maryland Department of the Environment (MDE). Deep Run is located in Sub-Basin 02-13-09 - Patapsco River Area.

Sequence of Construction

1. Pre-construction meeting shall be held between developer, contractor, and County inspector.
2. Sediment control shall be installed in accordance with general construction plan for site. Temporary protective fencing and forest conservation signage shall be installed as per forest conservation plan.
3. Site shall be graded, access road and infrastructure installed, and building constructed. Disturbed areas shall be stabilized. Permanent signage in poor condition shall be replaced
4. Post construction meeting shall be held with County inspector to ensure compliance with development plan. Sediment control and temporary protective fencing shall be removed upon stabilization of site and completion of construction activities.
5. Certification of forest retention paperwork shall be submitted to the County.

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE ACCESS DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	09/28/2016

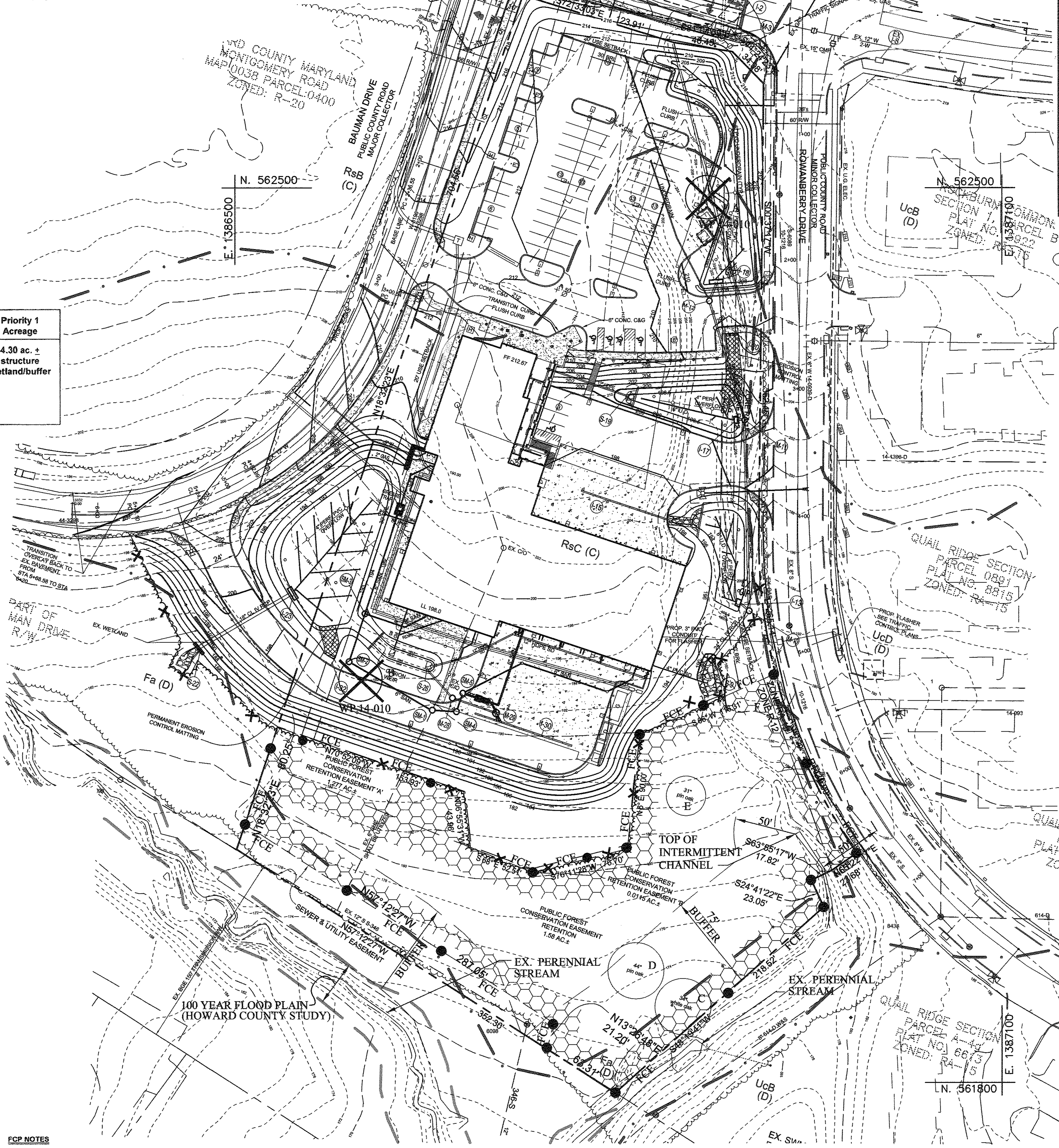
REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 9-30-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 10-3-16
DIRECTOR — DATE

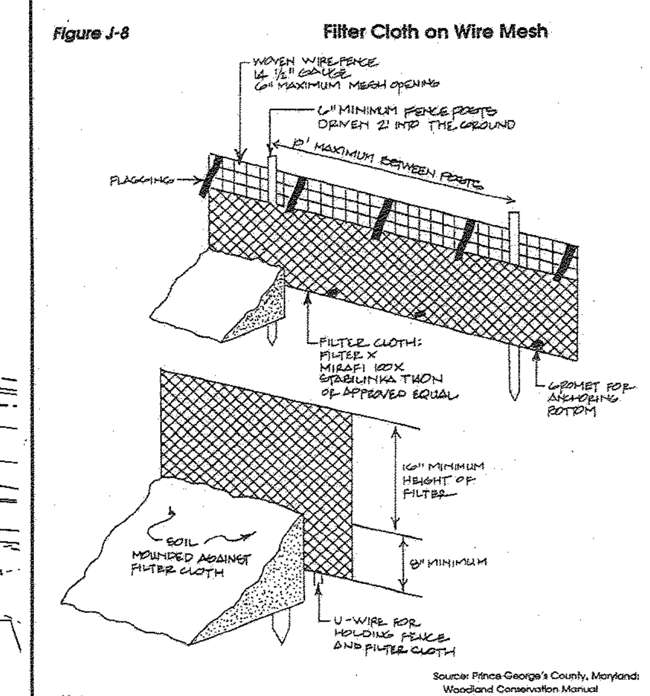


FCP NOTES

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County and which restrict the disturbance and use of these areas.
2. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement except as permitted by Howard County.
3. No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
4. Permanent signage shall be placed 100' apart along the boundaries of all areas included in Forest Conservation Easements.

This detail is for flagging pattern only.

Figure J-8 **Filter Cloth on Wire Mesh**



Source: Prince George's County, Maryland: Woodland Conservation Manual

Notes:
1. Combination sediment control and protective device
2. Retention area will be set as part of the review process
3. Boundaries of Retention Area should be staked prior to installing protective device
4. Root damage should be avoided
5. Mound soil only within the limits of disturbance
6. Protective signage is also recommended
7. All standard maintenance for sediment control devices apply to these details

LEGEND

EXISTING
- Boundary
- Contours
- Tree Lines
- Buildings
- Road Edge
- Steep Slopes ≥ 25%
- Specimen Tree
- Specimen Tree To Be Removed
- Wetland
- Wetland Buffer
- Forest Limits

PROPOSED
- Forest Limits
- Forest Conservation Easement — FCE
- Temporary Protective Fencing

GROSS TRACT AREA - 5.70 ACRES
NET TRACT AREA - 5.70 ACRES
LAND USE - INSTITUTIONAL

FOREST CLEARING

EXISTING FOREST - 4.30 ACRES
FOREST TO BE CLEARED - 2.72 ACRES
FOREST RETAINED IN FCE - 1.58 ACRES

REFORESTATION NOTE:

1. THE DEVELOPER PROPOSES TO PAY A FEE - IN - LIEU INTO THE HOWARD COUNTY FOREST CONSERVATION FUND IN THE AMOUNT OF $7,840.80 TO MEET THE 0.24 ACRE REFORESTATION OBLIGATION FOR THE PROJECT.
2. THE DEVELOPER WILL HAVE MET THE FOREST CONSERVATION OBLIGATION FOR THE PROPERTY UPON PAYMENT OF THE FEE TO HOWARD COUNTY AND RETENTION OF REMAINING 1.58 ACRES OF ONSITE FOREST IN A FOREST CONSERVATION EASEMENT.

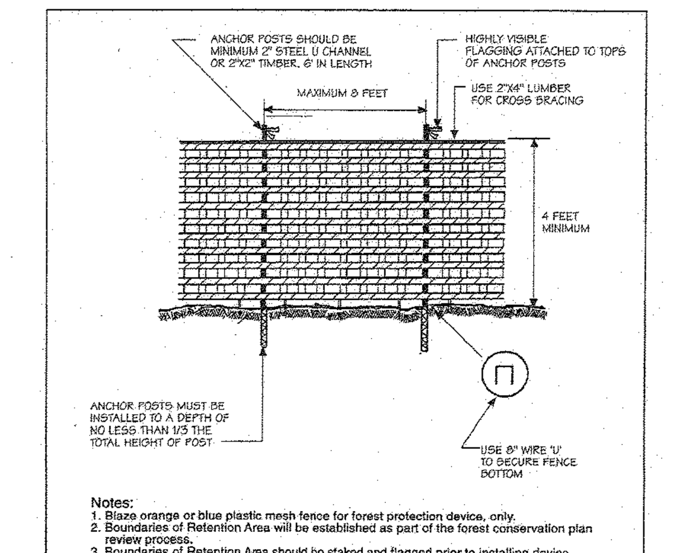
SEDIMENT CONTROL NOTE:

1. SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH THE GRADING PLAN FOR THE SITE..

FOREST CONSERVATION WORKSHEET
Version 1.0

Project: Elkridge Fire Station
Date: April 18, 2014 Revised May 13, 2016

NET TRACT AREA	Acres
A. Total tract area	5.70
B. Area within 100 Year Floodplain	
C. Area of lot previously developed	0.00
D. Net Tract Area	5.70
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual) ARA MDR IDA HDR MPD CIA Institutional X	
E. Afforestation Threshold (15%)	0.86
F. Conservation Threshold (20%)	1.14
EXISTING FOREST COVER:	
G. Existing forest cover (excluding floodplain)	4.30
H. Area of forest above afforestation threshold	3.44
I. Area of forest above conservation threshold	3.16
BREAK EVEN POINT:	
J. Forest retention above threshold with no mitigation	0.63
Break-Even Point	1.77
K. Clearing permitted without mitigation	2.53
PROPOSED FOREST CLEARING	
L. Total area of forest to be Cleared or Retained Outside FCE	2.72
M. Total area of forest to be Retained in FCE	1.58
PLANTING REQUIREMENTS	
N. Reforestation for clearing above Conservation Threshold	0.68
P. Reforestation for clearing below Conservation Threshold	NA
Q. Credit for retention above conservation threshold	0.44
R. Total reforestation required	0.24
S. Total afforestation required	0.00
T. Total reforestation and afforestation required	0.24



Notes:
1. Blaze orange or blue plastic mesh fence for forest protection device, only.
2. Boundaries of Retention Area will be established as part of the forest conservation plan review process.
3. Boundaries of Retention Area should be staked and flagged prior to installing device.
4. Avoid damage to critical root zone. Do not damage or sever large roots when installing posts.
5. Protection signs are required, See Figure C-4.
6. Device should be maintained throughout construction.

Source: Adapted from Prince George's County, Maryland: Woodland Conservation Manual and Forest Conservation Manual, 1991

Plastic Mesh Tree Protection Fence — Figure C-5

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 832-2480 Fax (410) 832-2488

OPTION 5: ON-SITE/OFF-SITE PLANTING AND RETENTION	FOREST CONSERVATION DATA SUMMARY		
File Number: SDP 14-075	Project/Subdivision Name: ELKRIDGE VOLUNTEER FIRE		
Net Tract Area (Net tract area under review): 5.7 Ac	Area of Floodplain: unforested 0, forested 0, total 0	Existing Forest (Forest in net tract area minus floodplain): 4.3 Ac	Cleared Forest (All forest cleared including floodplain): 2.72 Ac
Retained Forest (Retained forest minus floodplain): onsite 1.58 Ac, offsite 0, total 1.58 Ac	Planted Forest: onsite 0, offsite 0, total 0	Long Term Protection (Total amount of forest planed into LTP): 0	Surety Amount Posted (Total amount of surety posted): 0.00
In-Lieu Fees Amount Collected: $7840.80	Forested Stream Buffers: Linear Length 0, Acreage 0	Planted Stream Buffers: Linear Length 0, Acreage 0	

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0310006A
[signature]
Henry A. Leskinen

ENGINEER
SILL ENGINEERING GROUP, LLC
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OWNER/DEVELOPER
MARK STROMDAHL
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9250 BENDIX ROAD
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REVISED FOREST CONSERVATION PLAN

ELKRIDGE FIRE STATION

PARCEL A
"GREEN BUILDING"

TAX MAP 38 GRID 12 — PARCEL 402 & 403 A2
1ST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
11130 Dovedale Court, Suite 200
Marriottsville, Maryland 21104
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JS
DRAWN BY: AEA
CHECKED BY: PS
SCALE: 1"=50'
DATE: SEPTEMBER 28, 2016
PROJECT #: 16-020
SHEET #: 38 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME , AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2017

NEMA PHASING

PHASING NOTES:
1.) PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY.
2.) PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.

EXISTING VIDEO DETECTION CAMERAS

A,B

EXISTING TRAFFIC SIGNAL HEADS

1–9
R Y G
12"

EXISTING SIGN

14
NO TURN ON RED
R10–11b
24" x 24"

PROPOSED L.E.D. TRAFFIC SIGNAL HEADS

10,11
Y
12"

PROPOSED SIGNS

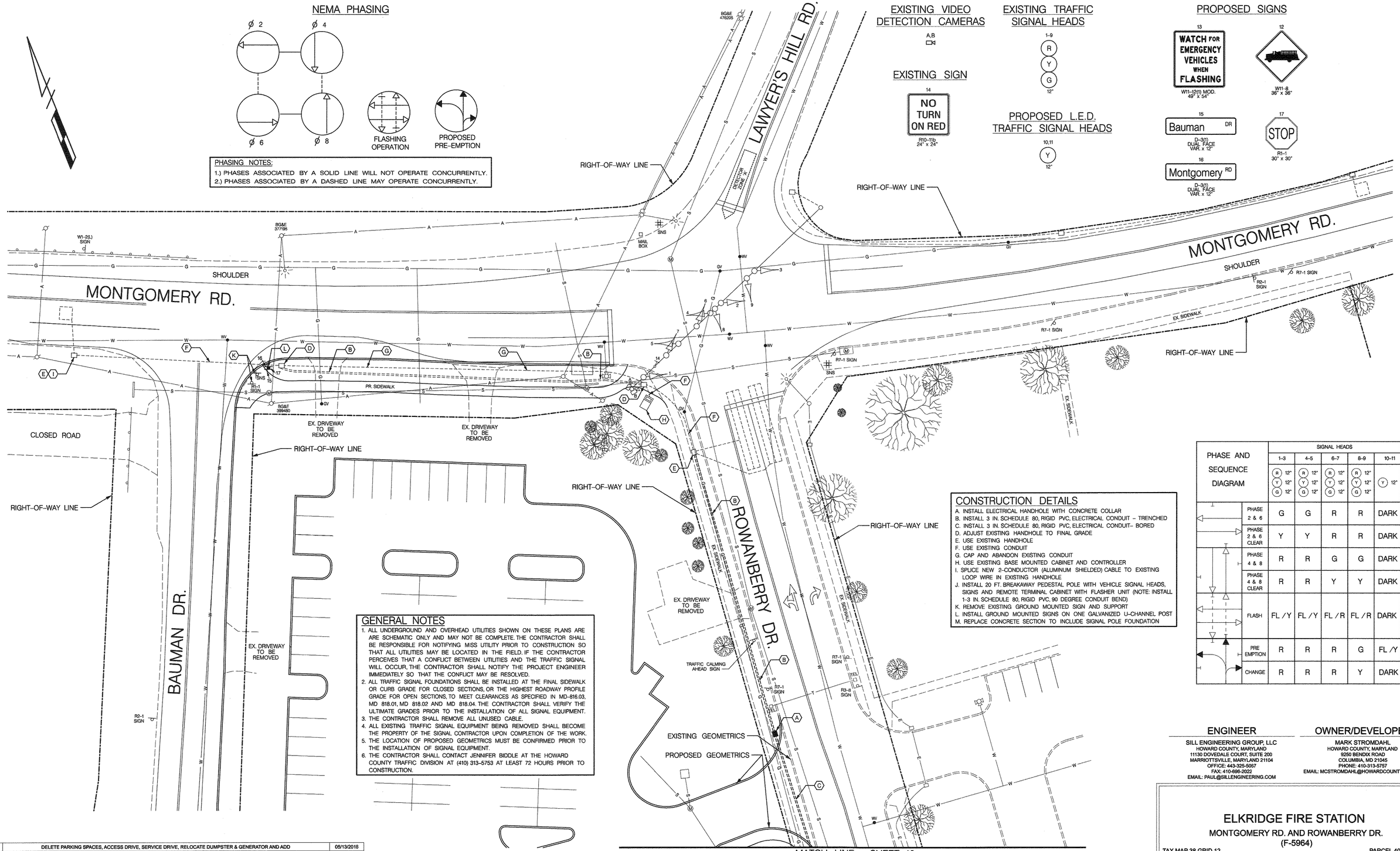
13
WATCH FOR EMERGENCY VEHICLES WHEN FLASHING
W11–12(1) MOD.
49" x 54"

12
W11–8
36" x 36"

15
Bauman DR
D–3(1)
DUAL FACE
VAR. x 12"

17
STOP
R1–1
30" x 30"

16
Montgomery RD
D–3(1)
DUAL FACE
VAR. x 12"



CONSTRUCTION DETAILS

A. INSTALL ELECTRICAL HANDHOLE WITH CONCRETE COLLAR
B. INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT – TRENCHED
C. INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT– BORED
D. ADJUST EXISTING HANDHOLE TO FINAL GRADE
E. USE EXISTING HANDHOLE
F. USE EXISTING CONDUIT
G. CAP AND ABANDON EXISTING CONDUIT
H. USE EXISTING BASE MOUNTED CABINET AND CONTROLLER
I. SPLICE NEW 2–CONDUCTOR (ALUMINUM SHIELDED) CABLE TO EXISTING LOOP WIRE IN EXISTING HANDHOLE
J. INSTALL 20 FT. BREAKAWAY PEDESTAL POLE WITH VEHICLE SIGNAL HEADS, SIGNS AND REMOTE TERMINAL CABINET WITH FLASHER UNIT (NOTE: INSTALL 1–3 IN. SCHEDULE 80, RIGID PVC, 90 DEGREE CONDUIT BEND)
K. REMOVE EXISTING GROUND MOUNTED SIGN AND SUPPORT
L. INSTALL GROUND MOUNTED SIGNS ON ONE GALVANIZED U–CHANNEL POST
M. REPLACE CONCRETE SECTION TO INCLUDE SIGNAL POLE FOUNDATION

GENERAL NOTES

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2. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, OR THE HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD–816.03, MD 818.01, MD 818.02 AND MD 818.04. THE CONTRACTOR SHALL VERIFY THE ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
3. THE CONTRACTOR SHALL REMOVE ALL UNUSED CABLE.
4. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT BEING REMOVED SHALL BECOME THE PROPERTY OF THE SIGNAL CONTRACTOR UPON COMPLETION OF THE WORK.
5. THE LOCATION OF PROPOSED GEOMETRICS MUST BE CONFIRMED PRIOR TO THE INSTALLATION OF SIGNAL EQUIPMENT.
6. THE CONTRACTOR SHALL CONTACT JENNIFER BIDDLE AT THE HOWARD COUNTY TRAFFIC DIVISION AT (410) 313–5753 AT LEAST 72 HOURS PRIOR TO CONSTRUCTION.

PHASE AND SEQUENCE DIAGRAM

	SIGNAL HEADS 1–3	4–5	6–7	8–9	10–11
	R 12" Y 12" G 12"	R 12" Y 12" G 12"	R 12" Y 12" G 12"	R 12" Y 12" G 12"	Y 12"
PHASE 2 & 6	G	G	R	R	DARK
PHASE 2 & 6 CLEAR	Y	Y	R	R	DARK
PHASE 4 & 8	R	R	G	G	DARK
PHASE 4 & 8 CLEAR	R	R	Y	Y	DARK
FLASH	FL / Y	FL / Y	FL / R	FL / R	DARK
PRE EMPTION	R	R	R	G	FL / Y
CHANGE	R	R	R	Y	DARK

ENGINEER

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ELKRIDGE FIRE STATION

MONTGOMERY RD. AND ROWANBERRY DR.
(F-5964)

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

5/26/2016
STATE OF MARYLAND JAMES KYLE BOWND No. 42413 PROFESSIONAL ENGINEER

TRAFFIC CONCEPTS, INC.
7525 Connelley Drive
Suite B
Hanover, MD 21076
(410) 760–2911
FAX: (410) 760–2915
EMAIL: TRAFFIC@TRAFFIC–CONCEPTS.COM

DESIGN BY: A.M.R.
DRAWN BY: A.M.R.
CHECKED BY: J.K.S.
SCALE: 1" = 20'
DATE: MAY 26, 2016
PROJECT #: 16-020
SHEET #: 39 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42413, EXPIRATION DATE: JUNE 6, 2018

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	05/13/2016

REVISIONS

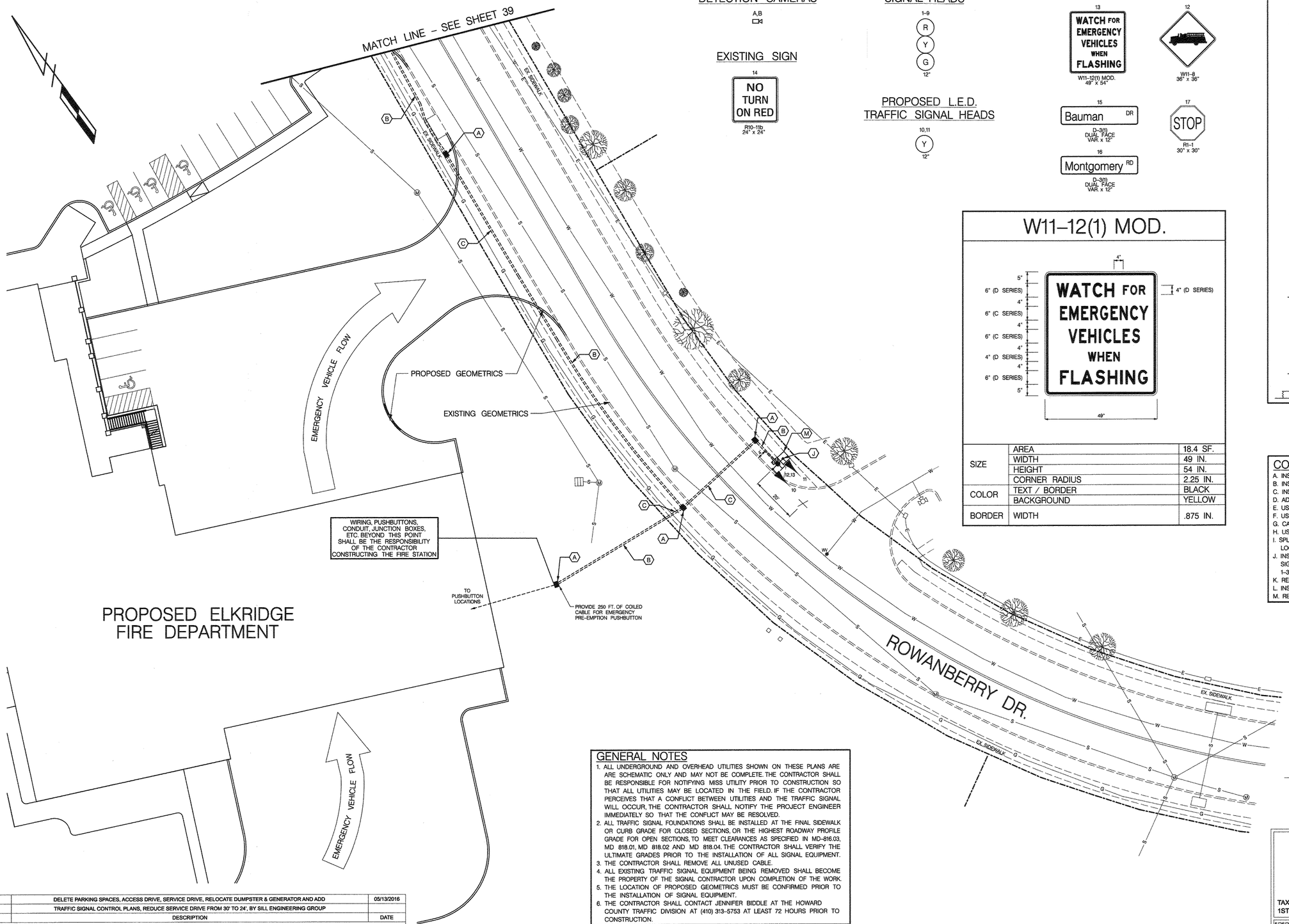
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR OF PUBLIC WORKS	DATE 9/29/16
CHIEF, BUREAU OF UTILITIES	DATE 9/29/16
CHIEF, BUREAU OF HIGHWAYS, TRAFFIC DIVISION	DATE 9/29/2016

SDP-14-075



EXISTING VIDEO DETECTION CAMERAS

A,B

EXISTING SIGN

14 — NO TURN ON RED — R10-11b. 24" x 24"

EXISTING TRAFFIC SIGNAL HEADS

1–9: R, Y, G — 12"

PROPOSED L.E.D. TRAFFIC SIGNAL HEADS

10,11: Y — 12"

PROPOSED SIGNS

13 — WATCH FOR EMERGENCY VEHICLES WHEN FLASHING — W11–12(1) MOD. 49" x 54"

12 — W11–8 36" x 36"

15 — Bauman DR — D–3(1) DUAL FACE VAR. x 12"

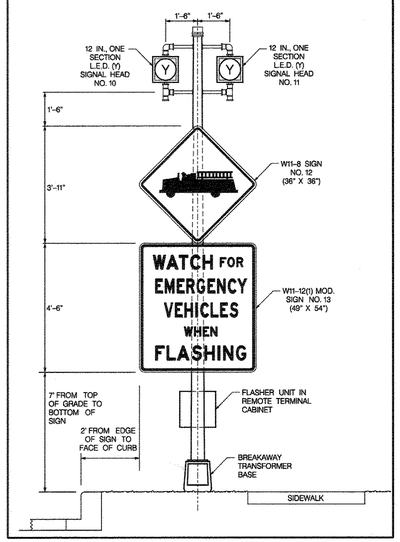
17 — STOP — R1–1 30" x 30"

16 — Montgomery RD — D–3(1) DUAL FACE VAR. x 12"

W11–12(1) MOD.

SIZE	AREA	18.4 SF.
	WIDTH	49 IN.
	HEIGHT	54 IN.
	CORNER RADIUS	2.25 IN.
COLOR	TEXT / BORDER	BLACK
	BACKGROUND	YELLOW
BORDER	WIDTH	.875 IN.

HAZARD IDENTIFICATION BEACON DETAIL



CONSTRUCTION DETAILS

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B. INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT – TRENCHED
C. INSTALL 3 IN. SCHEDULE 80, RIGID PVC, ELECTRICAL CONDUIT– BORED
D. ADJUST EXISTING HANDHOLE TO FINAL GRADE
E. USE EXISTING HANDHOLE
F. USE EXISTING CONDUIT
G. CAP AND ABANDON EXISTING CONDUIT
H. USE EXISTING BASE MOUNTED CABINET AND CONTROLLER
I. SPLICE NEW 2–CONDUCTOR (ALUMINUM SHIELDED) CABLE TO EXISTING LOOP WIRE IN EXISTING HANDHOLE
J. INSTALL 20 FT. BREAKAWAY PEDESTAL POLE WITH VEHICLE SIGNAL HEADS, SIGNS AND REMOTE TERMINAL CABINET WITH FLASHER UNIT (NOTE: INSTALL 1–3 IN. SCHEDULE 80, RIGID PVC, 90 DEGREE CONDUIT BEND)
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REVISIONS

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	05/13/2016
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.30.16
CHIEF, DIVISION OF LAND DEVELOPMENT AN	DATE 9-30-16
DIRECTOR	DATE 10-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR OF PUBLIC WORKS	DATE 9/29/16
CHIEF, BUREAU OF UTILITIES	DATE 9/29/16
CHIEF, BUREAU OF HIGHWAYS, TRAFFIC DIVISION	DATE 9/29/2016

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OFFICE: 443-325-5067
FAX: 410-696-2022
EMAIL: PAUL@SILLENGINEERING.COM

OWNER/DEVELOPER

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HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MD 21045
PHONE: 410-313-5757
EMAIL: MCSTROMDAHL@HOWARDCOUNTYMD.GOV

ELKRIDGE FIRE STATION

MONTGOMERY RD. AND ROWANBERRY DR.
(F-5964)

TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

5/26/2016
STATE OF MARYLAND — JAMES KYLE BOWID — No. 42413 — PROFESSIONAL ENGINEER

TRAFFIC CONCEPTS, INC.
7525 Connelley Drive
Suite B
Hanover, MD 21076
(410) 760–2911
FAX: (410) 760–2915
EMAIL: TRAFFIC@TRAFFIC–CONCEPTS.COM

DESIGN BY:	A.M.R.
DRAWN BY:	A.M.R.
CHECKED BY:	J.K.S.
SCALE:	1" = 20'
DATE:	MAY 26, 2016
PROJECT #:	16-020
SHEET #:	40 of 41

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42413, EXPIRATION DATE: JUNE 6, 2018

SDP-14-075

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE INSTALLATION OF A NORTHBOUND ROWANBERRY DR. EMERGENCY PRE-EMPTION PHASE AND A HAZARD IDENTIFICATION BEACON (H.I.B.) FOR THE PROPOSED ELKRIDGE FIRE DEPARTMENT. THE STATION WILL BE LOCATED IN THE SOUTH-WEST CORNER OF THE INTERSECTION OF MONTGOMERY ROAD AND ROWANBERRY DR./LAWYER'S HILL RD. IN HOWARD COUNTY. MONTGOMERY RD. IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION CURRENTLY OPERATES IN A NEMA FOUR-PHASE, FULLY-ACTUATED MODE. THIS OPERATION WILL NOT CHANGE EXCEPT FOR THE INSTALLATION OF THE NEW PRE-EMPTION PHASE.

CONTROLLER REQUIREMENTS

THE PROPOSED H.I.B. WILL REQUIRE A REMOTE TERMINAL CABINET WITH A FLASHER UNIT.

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE FURNISHED BY HOWARD COUNTY AND INSTALLED BY THE CONTRACTOR

QUANTITY	DESCRIPTION
NONE	

EQUIPMENT LIST "B"

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY CONTRACTOR. ALL EQUIPMENT SHALL HAVE CATALOG CUTS SUBMITTED TO HOWARD COUNTY FOR APPROVAL PRIOR TO INSTALLATION.

QUANTITY	DESCRIPTION
LS	MAINTENANCE OF TRAFFIC
1 CY	TEST PIT EXCAVATION
1 EA	REMOTE TERMINAL CABINET - POLE MOUNT
16 SF	5 IN. CONCRETE SIDEWALK
2 EA	12 IN. L.E.D. SIGNAL HEAD SECTION
1 CY	CONCRETE FOUNDATION FOR SIGNAL
1 EA	20 FT. BREAKAWAY PEDESTAL POLE
5 EA	ELECTRICAL HANDHOLE WITH CONCRETE COLLAR
2 EA	ADJUST EXISTING HANDHOLE TO GRADE
540 LF	3 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - TRENCHED
220 LF	3 IN. SCHEDULE 80 RIGID PVC ELECTRICAL CONDUIT - BORED
320 LF	ELECTRICAL CABLE 2 - CONDUCTOR (ALUMINUM SHIELDED)
875 LF	ELECTRICAL CABLE 3 - CONDUCTOR (NO. 14 A.W.G.)
625 LF	ELECTRICAL CABLE 5 - CONDUCTOR (NO. 14 A.W.G.)
730 LF	STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
2 EA	3/4 IN. X 10 FT. GROUND ROD
1 EA	W11-8 (36" X 36") SIGN - POLE MOUNT
1 EA	W11-12(1) MOD. (49" X 54") SIGN - POLE MOUNT
2 EA	D-3(1) (VAR. X 12") DUAL FACE SIGN - GROUND MOUNT
1 EA	R1-1 (30" X 30") SIGN - GROUND MOUNT
20 LF	GALVANIZED STEEL SUPPORT FOR GROUND MOUNTED SIGN
3 EA	REMOVE EXISTING SIGN - GROUND MOUNT

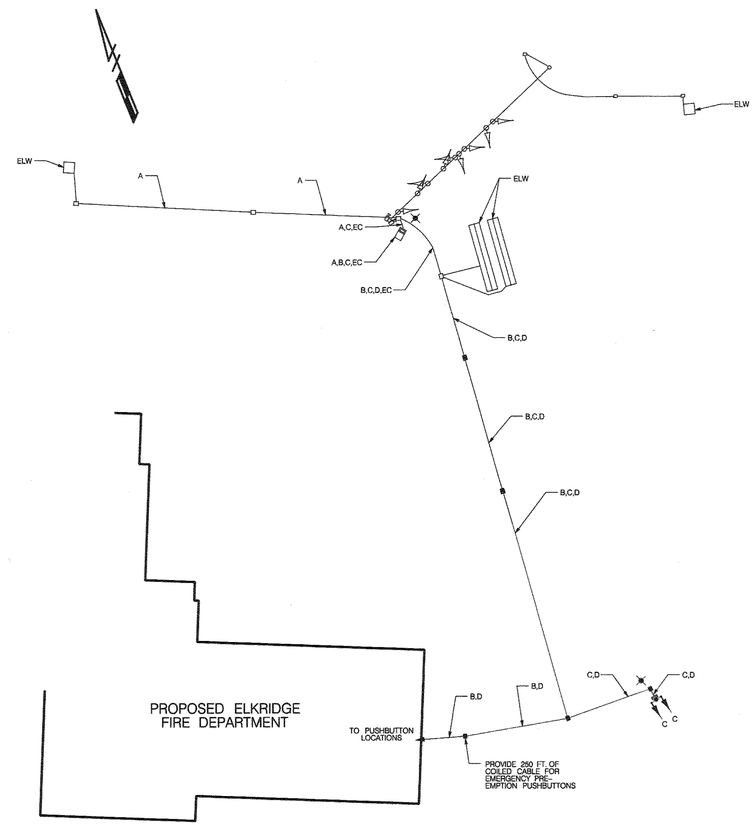
EQUIPMENT LIST "C"

C. EXISTING EQUIPMENT TO BE REMOVED BY THE CONTRACTOR AND DELIVERED TO HOWARD COUNTY. THE CONTRACTOR SHALL NOTIFY THE COUNTY AT LEAST THREE DAYS IN ADVANCE OF DELIVERY.

QUANTITY	DESCRIPTION
NONE	

ALL SIGNAL EQUIPMENT TO BE REMOVED AND NOT RETURNED TO THE SHA SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

WIRING DIAGRAM



WIRING KEY

A	2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.) ALUMINUM SHIELDED
B	3-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
C	5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)
D	STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
ELW	EXISTING LOOP WIRE (NO. 14 A.W.G.)
EC	EXISTING CABLE
✕	GROUND ROD

NO.	DESCRIPTION	DATE
1	DELETE PARKING SPACES, ACCESS DRIVE, SERVICE DRIVE, RELOCATE DUMPSTER & GENERATOR AND ADD	05/13/2016
	TRAFFIC SIGNAL CONTROL PLANS, REDUCE SERVICE DRIVE FROM 30' TO 24', BY SILL ENGINEERING GROUP	

REVISIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-30-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-30-16
DIRECTOR	DATE 10-3-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

DIRECTOR OF PUBLIC WORKS	DATE 9/29/16
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ELKRIDGE FIRE STATION

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TAX MAP 38 GRID 12
1ST ELECTION DISTRICT

PARCEL 402 & 403 A2
HOWARD COUNTY, MARYLAND

5/26/2016

STATE OF MARYLAND — JAMES KYLE BOWND — No. 42413 — PROFESSIONAL ENGINEER

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DESIGN BY:	A.M.R.
DRAWN BY:	A.M.R.
CHECKED BY:	J.K.S.
SCALE:	1" = 20'
DATE:	MAY 26, 2016
PROJECT #:	16-020
SHEET #:	41 of 41

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SDP-14-075