

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS.
- ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES AT LEAST THE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 - MISS UTILITY: 1-800-257-7777
 - VERIUM: 800-367-2333
 - BUREAU OF UTILITIES: 410-313-4900
 - AT&T: 800-252-1133
 - B.G.A.E. (CONSTRUCTION SERVICES): 410-637-8713
 - B.G.A.E. (EMERGENCY): 410-885-0123
 - STATE HIGHWAY ADMINISTRATION: 410-795-1360
 - COLONIAL PIPELINE CO.: 410-795-1360
- 4. SITE ANALYSIS:**
 - TOTAL PROJECT AREA: 3.00 AC. PARCEL 365 (PARCEL A)
 - PRESIDENT ZONING: CE-CL1
 - USE OF STRUCTURE: TEMPORARY HOUSING FOR HOMELESS (35 UNITS)
 - TOTAL BUILDING COVERAGE (INCLUDING 636 SF OUTDOOR PATIO AREA): 12,979 SF (0.30 AC. OR 9.93% OF GROSS AREA)
 - TOTAL BUILDING AREA: 30,211 SF
 - FIRST FLOOR AREA: 12,343 SF
 - SECOND FLOOR AREA: 10,538 SF
 - THIRD FLOOR AREA: 7,330 SF
 - PAVED PARKING LOT/AREA ON SITE: 9,020 SF (0.21 AC. OR 11.92% OF GROSS AREA)
 - AREA OF LANDSCAPE ISLANDS: 482 SF (0.01 AC. OR 0.44% OF GROSS AREA)
 - WETLANDS ON SITE: 0.36 AC.
 - WETLANDS OFF-SITE: 0.85 AC.
 - STREAMS AND THEIR BUFFERS ON SITE: 0.11 AC.
 - AREA OF ONE-SIDE ONE YEAR FLOODPLAIN: 0.61 AC.
 - AREA OF EXISTING FOREST ON SITE: 3.00 AC.
 - AREA OF STEEP SLOPES (15% OR GREATER): 0.00 AC.
 - AREA OF ERODIBLE SOILS (0.9 AC. WITHIN 100')
 - AREA MANAGED BY ESDV (#THIS PLAN): 0.75 AC.
 - "GREEN" AREA: 0.51 AC.
 - "GREEN" AREA: 0.24 AC.
 - LIMIT OF DISTURBED AREA: 1.18 AC.
 - CUT: 2,292 C'
- 5. PROJECT BACKGROUND:**
 - LOCATION: LAUREL, MD; TAX MAP 47, BLOCK 12, PARCEL 59, PARCEL A
 - ZONING: CE-CL1
 - SUBDIVISION: N/A
 - SECTION/AREA: N/A
 - SITE AREA: 3.00 AC.
 - DEVELOPER REFERENCES: L:11225/F:318, L:15118/F:116, PLAT 23547
 - DPZ REFERENCES: BA-08-027V, BA-10-024V, S09-98-080, ECP-14-074, WP-15-088
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1850 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- DEVELOPMENT OF CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SUBMITTALS.
- EXISTING UTILITIES: ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS, APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
- ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS 'C' AS REQUIRED BY AASHO-180.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- DEVELOPMENT OF CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- ESTIMATES OF GARBHORK QUANTITIES PROVIDED FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY QUANTITIES AND MAKE ADJUSTMENTS AS NECESSARY.
- SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST PRIOR TO CONSTRUCTION.
- COORDINATES AND ELEVATIONS ARE BASED ON MARYLAND COORDINATE SYSTEM - NAD83(1981), AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 478 AND 4848.
- THE PROPERTY LINES SHOWN HEREON IS BASED ON A FIELD-RUN BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JUNE, 2007.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD RUN TOPOGRAPHICAL SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC. DATED JULY, 2007.
- FLOODPLAIN STUDY PROVIDED BY ROBERT H. VOGEL ENGINEERING, INC. DATED FEBRUARY 2010.
- GEOTECHNICAL REPORT PREPARED BY HILLS-CARNES ENGINEERING ASSOCIATES, INC. DATED OCTOBER 8, 2014.
- THE GEOTECHNICAL REPORT TO CONFORM PAVING SECTION PRIOR TO CONSTRUCTION. ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL R-2 PAVING UNLESS OTHERWISE NOTED (SEE DETAIL ON SHEET 3).
- ALL CURB AND GUTTER SHALL BE 15" HIGH UNLESS OTHERWISE NOTED.
- WHERE DRAINAGE FLOWS AWAY FROM CURB, CONTRACTOR TO REVERSE THE GUTTER PAN.
- ALL ELEVATIONS ARE TO FINISH/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- CONTRACTOR RESPONSIBLE FOR CONSTRUCTING ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
- PUBLIC WATER AVAILABLE THROUGH CONTRACT NO. 682-W. PUBLIC SEWER AVAILABLE THROUGH CONTRACT NO. 235-5.
- TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, DATED SEPTEMBER 28, 2014; APPROVED 12/03/14.
- THE SUBJECT PROPERTY IS NOT ZONED FOR ANY OTHER USE EXCEPT CE-CL1 PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PREPARED BY ESA, INC. DATED DECEMBER, 2007, UPDATED JULY 17, 2014. THERE ARE NO PROPOSED DISTURBANCES TO THE WETLANDS OR ASSOCIATED BUFFERS.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION AREAS AND 100 YEAR FLOODPLAIN.
- FOREST STAND DELINEATION PREPARED BY ESA, INC. DATED APRIL 2010 AND UPDATED 7/17/14.
- THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT HAS BEEN SATISFIED BY THE RETENTION OF 0.76 ACRES (BREAK EVEN POINT) OF FOREST. THIS PROPERTY ALSO RETAINS AN ADDITIONAL 0.24 ACRES WHICH HAS BEEN ABANDONED FROM THE AVANTI-HUSLUP PROPERTY, PARCELS B-1 AND B-2. THE TOTAL FOREST PRESERVATION AREA IS 1.00 ACRES. NO SURETY IS REQUIRED FOR THE ON-SITE RETENTION.
- THERE IS NO SPECIMEN TREE LOCATED ON THE SUBJECT PROPERTY.
- ALL EXISTING TREES TO BE MAINTAINED OR DESTROYED CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 18.124 OF THE HOWARD COUNTY CODE, THE LANDSCAPE MANUAL AND THE NEW TOWN ALTERNATIVE COMPLIANCE PROVISIONS OF THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF \$6,800 FOR THE REQUIRED 16 SHADE TREES AND 12 EVERGREEN TREES.
- EXISTING GUILDFORD ROAD IS CLASSIFIED AS A MAJOR COLLECTOR ROAD.
- THE PROPOSED BUILDING TO HAVE ROOF LEADERS WHICH EMPTY INTO STORM DRAIN SYSTEM.
- THE PROPOSED BUILDING WILL HAVE AN INTERIOR MEETING SETTING. THE BUILDING WILL ALSO HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4'-9" IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED THE DOOR. ITS LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
- LANDSCAPING NOT PERMITTED WITHIN 7'-1/2" OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. (FPA-1, 131.4)
- FIRE LANES SHOULD BE PROVIDED IN THIS SITE TO ALLOW EMERGENCY VEHICLE ACCESS. EITHER FIRE LANE SIGNAGE SHOULD BE INSTALLED, OR THE CURBS SHOULD BE PAINTED AND SIGNED IN RED AND CHANNELLED TO IDENTIFY THE ROAD AS A FIRE LANE.
- 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 POSTER 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.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2008), SECTION 5.5.4. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- TRASH COLLECTORS TO BE PRIVATE.
- SIGNAGE SHALL BE PROVIDED ON THE BUILDING IDENTIFYING THE BUILDING ADDRESS.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS BEING PROVIDED BY ENVIRONMENTAL SITE DESIGN UTILIZING TWO MICRO-BIORETENTION FACILITIES AND A DRY WELLS CONSISTING OF A GRAVEL INFILTRATION TRENCH (M-5) TO ACCOMMODATE THE TOTAL ESD VOLUME REQUIRED. SWM FACILITIES TO BE PRIVATELY OWNED AND MAINTAINED.
- BA-08-027V REQUESTED THE VARIANCE OF SECTION 127.2.2.c.(1) OF THE ZONING REGULATIONS TO REDUCE THE SETBACK FOR RETAINING WALLS, EXTERIOR BUILDING FOREST STAIRS AND WALKWAY FROM 20' TO A MINIMUM OF 4 FEET; SECTION 127.2.2.c.(2) OF THE ZONING REGULATIONS TO REDUCE THE SETBACK FOR PARKING SPACES AND LOADING SPACES FROM 40 FEET TO A MINIMUM OF 9 FEET ALONG MARYLAND ROUTE 32; SECTION 127.2.2.d.(2) OF THE ZONING REGULATIONS TO REDUCE THE PARKING SPACES AND DRIVE AISLES FROM 40 FEET TO 15 FEET ALONG GUILDFORD ROAD. THESE VARIANCES WERE GRANTED ON JULY 30, 2008.
- BA-10-024V REQUESTED TO REDUCE THE 20 FOOT SETBACK FROM AN EXTERNAL PUBLIC STREET RIGHT OF WAY TO A MINIMUM OF 4 FEET FOR RETAINING WALLS, EXTERIOR STAIRS AND WALKWAYS (SECTION 127.2.2.c.(1)); TO REDUCE THE 40 FOOT SETBACK FROM THE MD 32 EXTERNAL PUBLIC STREET RIGHT OF WAY TO A MINIMUM OF 9 FEET FOR PARKING SPACES AND LOADING SPACES (SECTION 127.2.2.c.(2)); AND TO REDUCE THE 40 FOOT SETBACK FROM THE GUILDFORD ROAD PUBLIC STREET RIGHT OF WAY TO 15 FEET FOR PARKING SPACES (SECTION 127.2.2.d.(2)). THESE VARIANCES WERE GRANTED 11/5/10.
- PER AN ORDER NO. AA-14-008, THE STRUCTURE AND USE SETBACK FOR A HOUSING COMMISSION HOUSING DEVELOPMENT ZONE TO AN M-2 ZONE (PARCEL 87) HAS BEEN REDUCED FROM 25' TO 20' FOR A PARKING LOT, A TRASH ENCLOSURE, AND THE STRUCTURE AND USE SETBACK HAS BEEN REDUCED FROM PUBLIC STREET RIGHT-OF-WAY FROM 30' TO 24' FOR A BUILDING (SECTION 128.4.(1)(c)).
- THIS PLAN IS SUBJECT TO WP-15-088, TO WAIVE SECTION 16.118(a)(2)(i) GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, PAVING AND NEW STRUCTURES SHALL NOT BE PERMITTED WITHIN 90 FEET OF AN INTERMITTENT STREAM BANK, AND TO WAIVE SECTION 16.120(c)(1) THAT REQUIRES A MINIMUM FRONTAGE OF 60 FEET ON AN APPROVAL PUBLIC ROAD WHICH PROVIDES ACCESS TO THE PROPERTY; APPROVED 12/04/14, SUBJECT TO THE FOLLOWING CONDITIONS:
 - A. COMPLIANCE WITH ALL SUBMISSION REVIEW COMMITTEE COMMENTS FOR S09-15-023.
 - B. THE AREAS OF DISTURBANCE WITHIN THE STREAM BUFFER MUST BE STABILIZED UPON COMPLETION OF THE CONSTRUCTION ACTIVITY.
 - C. THE WAIVER PETITION NUMBER (WP-15-088) AND ITS CONDITIONS OF APPROVAL MUST BE ADDED TO S09-15-023, F-14-130 AND ALL FUTURE PLANS.

PARKING TABULATION	REQUIRED
DAY RESOURCE CENTER (1ST FLOOR)	
2 EMPLOYEES AT ANY ONE TIME (1 SPACE/EMPLOYEE)	2 SPACES
10 VOLUNTEERS AT ANY ONE TIME (1 SPACE/EMPLOYEE)	10 SPACES
SINGLE EFFICIENCY APARTMENTS (2ND & 3RD FLOOR)	
4 EMPLOYEES AT ANY ONE TIME	4 SPACES/EMPLOYEE; 4 SPACES
35 SINGLE EFFICIENCY APARTMENTS (FORMERLY HOMELESS)	0 SPACE/APARTMENT; 0 SPACES
TOTAL SPACES REQUIRED:	16 SPACES
TOTAL SPACES PROVIDED:	18 SPACES INCLUDING 2 HANDICAP SPACES

PARKING NOTE:

- ADDITIONAL PARKING TO BE PROVIDED ON PROPERTY TO BE ACQUIRED FROM SALVATION ARMY (APPROXIMATELY 255' WEST)
- PER LETTER FROM HOWARD COUNTY HOUSING, DATED JANUARY 5, 2015, IT IS THEIR BELIEF THAT THE MAJORITY OF THE RESIDENTS OF THIS FACILITY WILL NOT OWN CARS AND THAT THERE WILL BE A VAN SERVICE PROVIDED FOR RESIDENTS THAT REQUIRE TRANSPORTATION TO AND FROM WORK.

APPROVED BY PLANNING BOARD OF HOWARD COUNTY ON
 June 4, 2015
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad... 1-12-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

... 2-22-16
 CHIEF, DIVISION OF LAND DEVELOPMENT

William J... 2-22-16
 DIRECTOR

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 12
LAYOUT SHEET	2 OF 12
SITE DETAILS	3 OF 12
GRADING, SEDIMENT AND EROSION CONTROL PLAN	4 OF 12
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	5 OF 12
STORM DRAIN DRAINAGE AREA MAP; UTILITY PROFILES	6 OF 12
STORMWATER MANAGEMENT DRAINAGE AREA MAP, NOTES AND DETAILS, SOILS MAP	7 OF 12
LANDSCAPE PLAN	8 OF 12
FOREST CONSERVATION PLAN	9 OF 12
PHOTOMETRIC PLAN	10 OF 12

SHEET INDEX CONT.
 RETAINING WALL PLAN AND DETAILS 11 OF 12
 RETAINING WALL #1 ELEVATION 12 OF 12

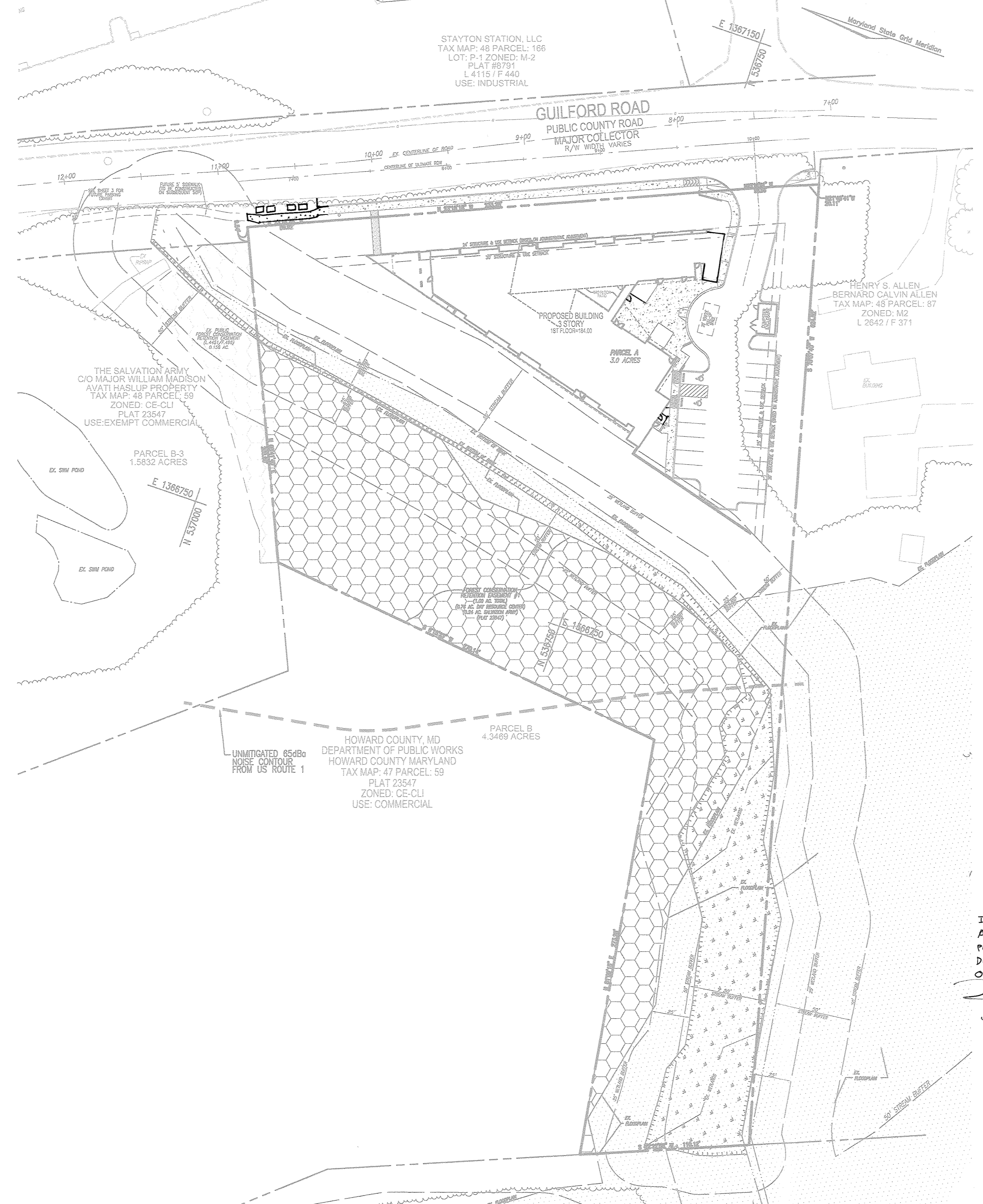
DAY RESOURCE CENTER

VOLUNTEERS OF AMERICA

10390 GUILDFORD ROAD

HOWARD COUNTY HOUSING COMMISSION

SITE DEVELOPMENT PLAN



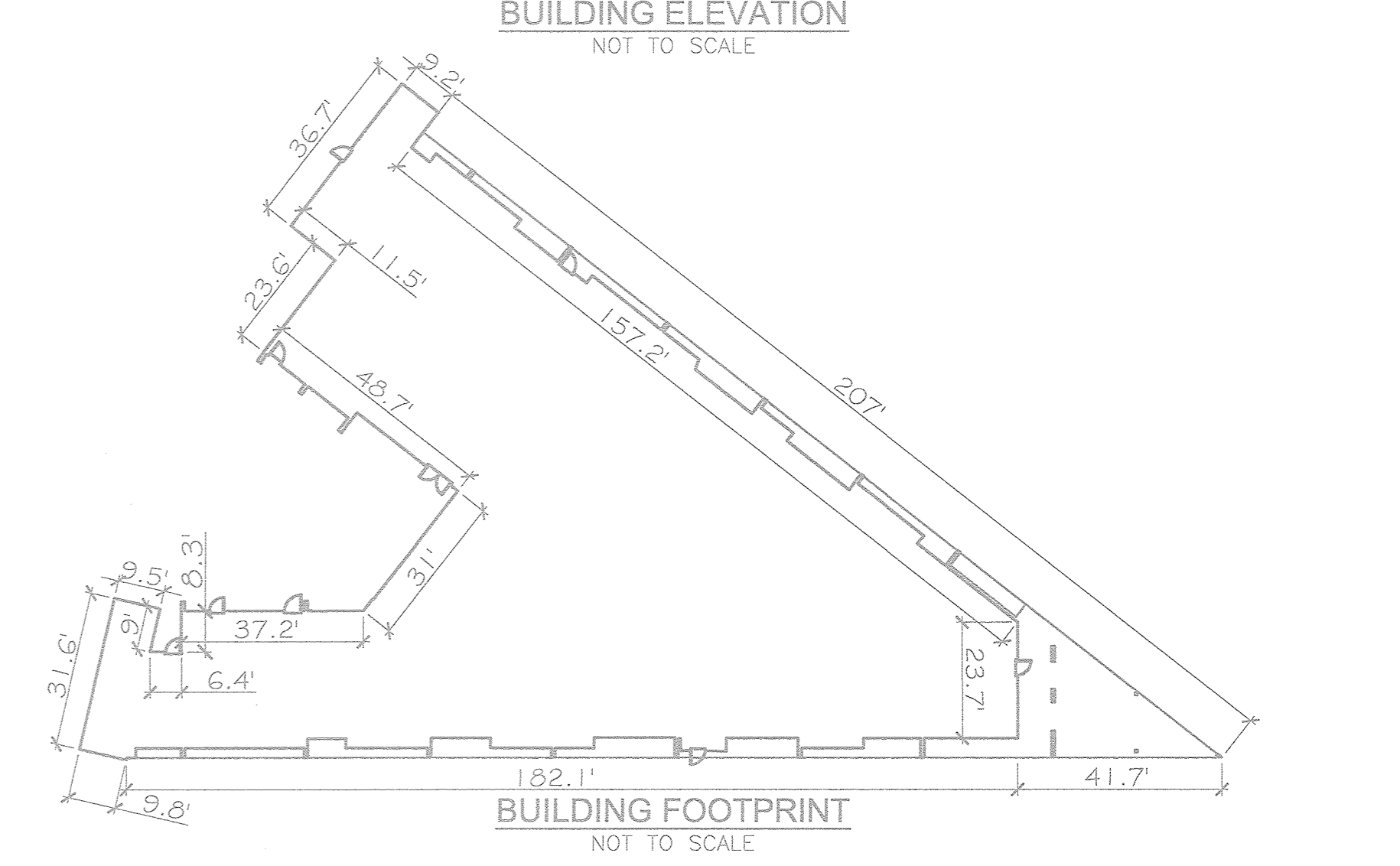
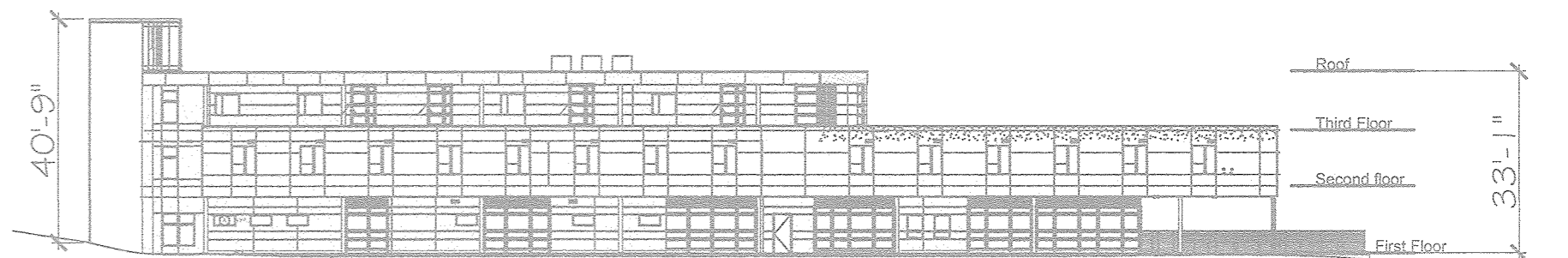
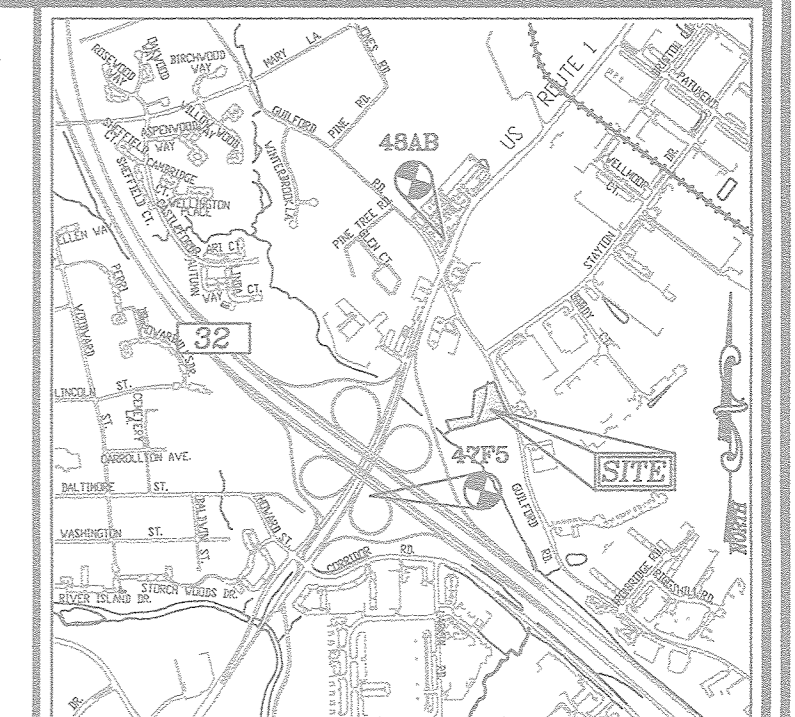
LOCATION MAP
 SCALE: 1"=50'

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREES TO REMAIN
- LIGHT POLES
- SOIL TYPE
- CONCRETE

BENCHMARKS

- HOWARD COUNTY BENCHMARK - 4775 (CONC. MONUMENT)
 N 535985.0412 E 1365553.4555 ELEV. 234.996
- HOWARD COUNTY BENCHMARK - 4848 (CONC. MONUMENT)
 N 538384.4474 E 1366415.7904 ELEV. 225.653



SCALE 1"=50'

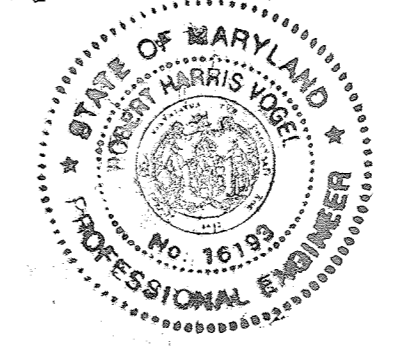
DEVELOPER	OWNER	OWNER
VOLUNTEERS OF AMERICA, INC. 1066 DUKE STREET ALEXANDRIA, VA 22314 (410) 798-4227 c/o RICK DELLA	HOWARD COUNTY, MD DEPARTMENT OF PUBLIC WORKS 3430 DURT HOUSE DR. ELLIOTT CITY, MD 043 (410) 313-4401	HOWARD COUNTY HOUSING COMMISSION 6751 COLUMBIA GATEWAY DR. 3RD FLOOR COLUMBIA, MD 21046 (410) 313-6320

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

[Signature] 16193
 P.E. NAME P.E.#

[Signature] 8/13/18
 DATE



NO AS-BUILT INFORMATION ON THIS SHEET.

ADDRESS CHART

LOT/PARCEL #	STREET ADDRESS
PARCEL 59, PARCEL D	10390 GUILDFORD ROAD

PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	LOTS/PARCEL #
DAY RESOURCE CENTER	N/A	PARCEL 59, PARCEL "A"
PLAT # OR L/F	BLOCK NO.	ZONE
L:15118/F:113	12	CAC-CL1
PLAT 23547		47
TAX MAP	ELECT. DIST.	CENSUS TR.
6TH		6089.01

WATER CODE: B-02 SEWER CODE: 4250000

NO.	REVISION	DATE
4	REVISE TO SHOW AS-BUILT CONDITIONS OF MBRM	11/30/17
3	REVISE PLAN TO SHOW STAIRS AND NEW BRIDGE DETAIL	7/10/17
2	REVISE PLAN TO REVISED SWM TO ACCOMMODATE AS-BUILT ROOF LEADER	4/2/17
1	REDUCE LENGTH OF DECELERATION LANE; REVISE BRIDGE DESIGN	3/17/17

SITE DEVELOPMENT PLAN
COVER SHEET
DAY RESOURCE CENTER
 VOLUNTEERS OF AMERICA
 10390 GUILDFORD ROAD
 HOWARD COUNTY HOUSING COMMISSION

TAX MAP 47 GRID 12
 6TH ELECTION DISTRICT

DPZ REFS: L:15118/F:116, BA-08-027V
 ZONED: CE-CL1

PARCEL 59, PARCEL A
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS

8407 MAIN STREET TEL: 410.461.7666
 ELLIOTT CITY, MD 21043 FAX: 410.461.8961

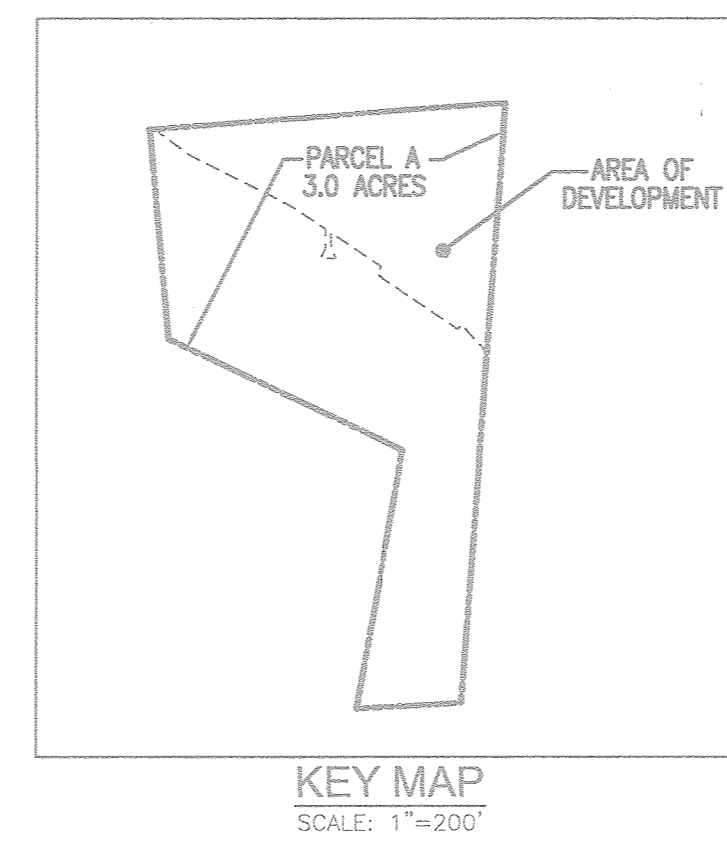
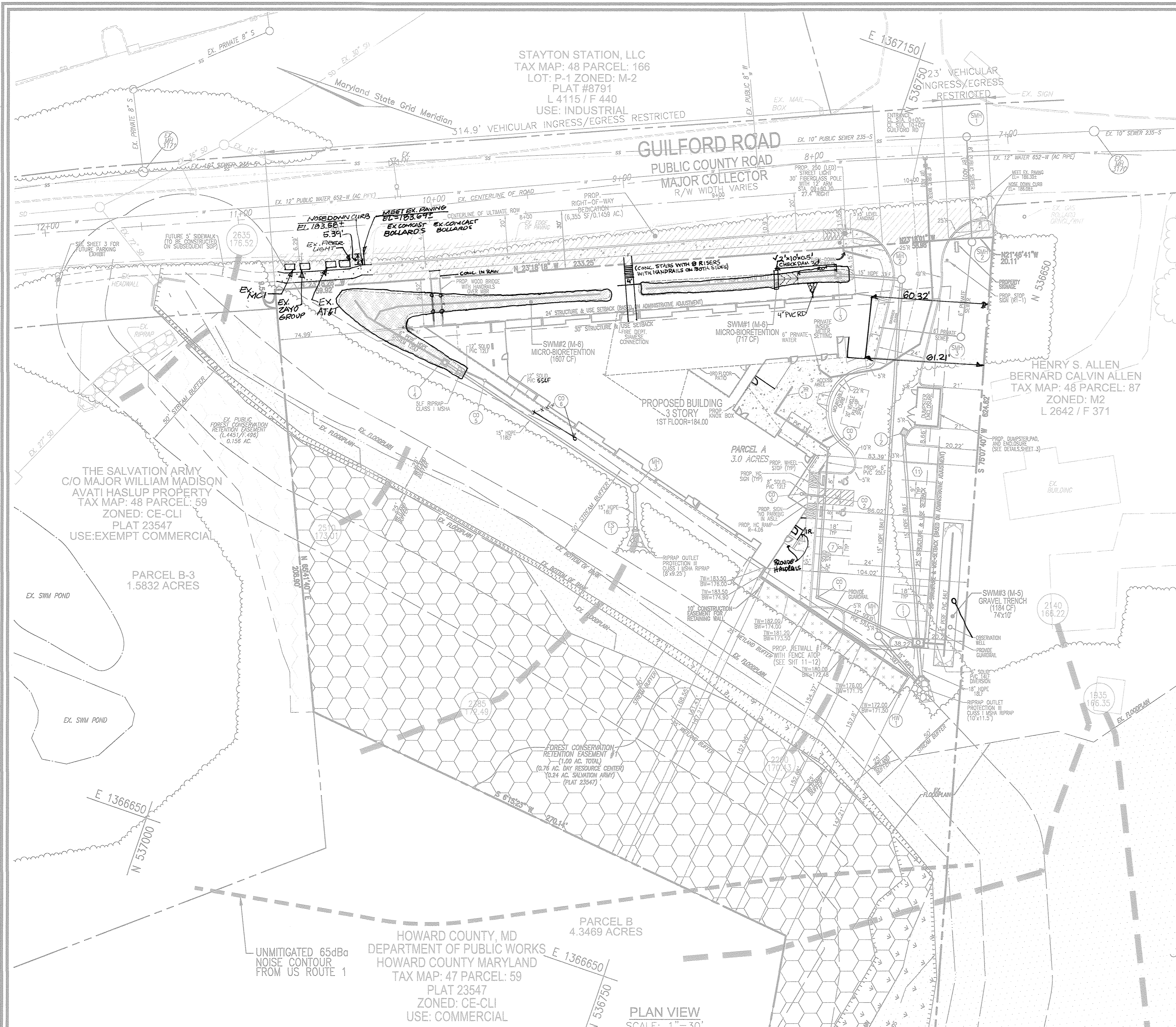
PROFESSIONAL CERTIFICATE

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. MY LICENSE NO. IS 16193. MY EXPIRATION DATE IS 08-27-2018.

DESIGN BY: RHV/DZE
 DRAWN BY: DZE/KG
 CHECKED BY: RHV

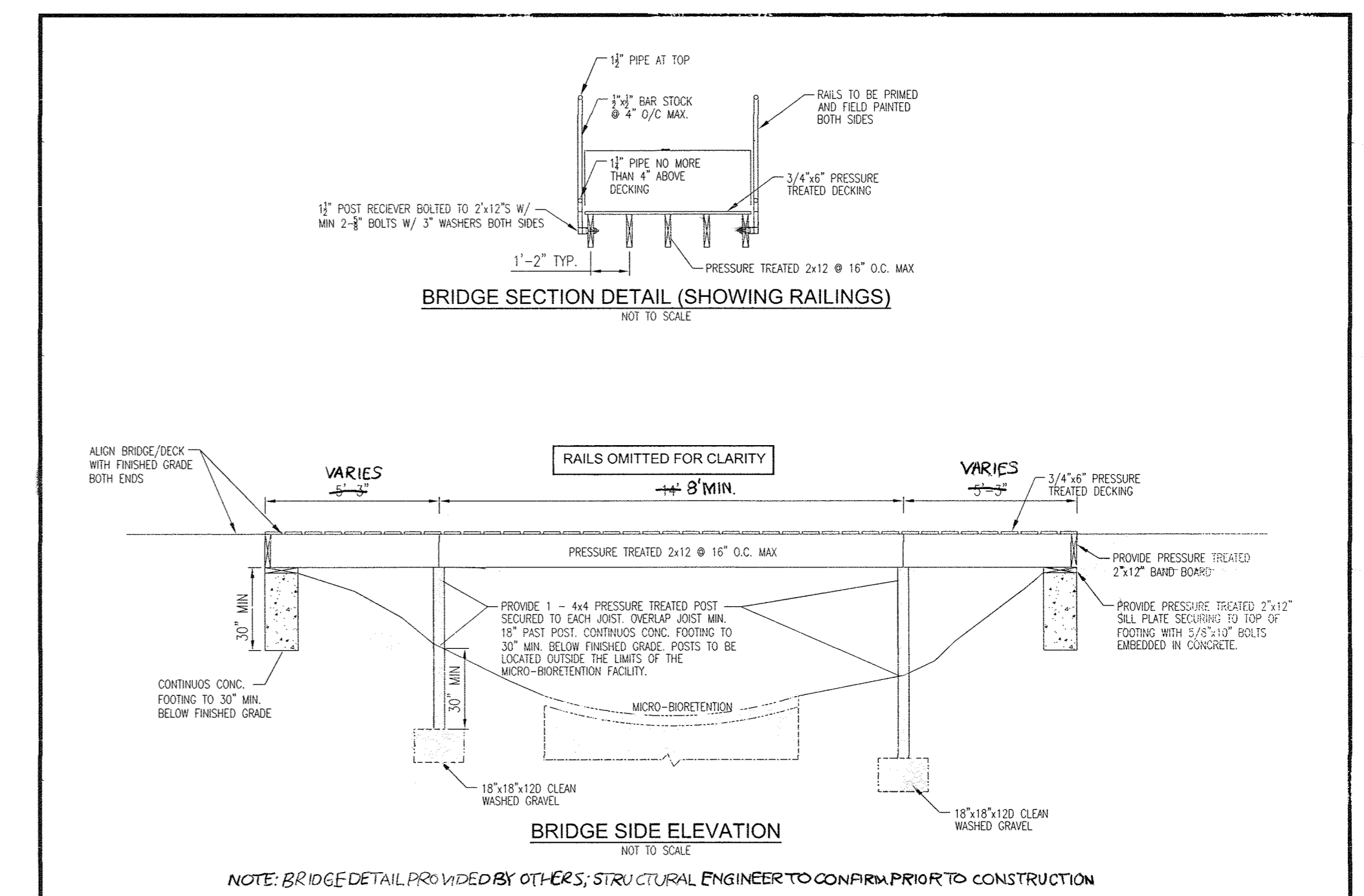
DATE: DECEMBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 06-72.01

1 SHEET OF 12



LEGEND:

	EXISTING OVERHEAD LINES		PROPOSED SIDEWALK
	EXISTING WATERLINE LINE		EXISTING CURB AND GUTTER
	EXISTING GAS LINE		PROPOSED CURB AND GUTTER
	EXISTING GUARD RAIL		EXISTING WOOD FENCE
	EXISTING MICRO FENCE		EXISTING ELECTRICAL BOX
	EXISTING WOOD FENCE		EXISTING POLE
	EXISTING ELECTRICAL BOX		EXISTING LIGHT POLE WITH CONCRETE BASE
	EXISTING POLE		EXISTING MAILBOX
	EXISTING LIGHT POLE WITH CONCRETE BASE		EXISTING SIGN
	EXISTING MAILBOX		EXISTING SANITARY MANHOLE
	EXISTING SIGN		EXISTING FIRE HYDRANT
	EXISTING SANITARY MANHOLE		PROPOSED PARKING COUNT
	EXISTING FIRE HYDRANT		PROPOSED SANITARY LINE
	PROPOSED PARKING COUNT		PROPOSED WATER LINE
	PROPOSED SANITARY LINE		ADJACENT PROPERTY LINE
	PROPOSED WATER LINE		RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE		EXISTING TREE LINE
	RIGHT-OF-WAY LINE		PROPOSED TREE LINE



AS-BUILT CERTIFICATION FOR PERMITS
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

P.E. NAME: 16193 DATE: 8/13/18



DEVELOPER
VOLUNTEERS OF AMERICA, INC.
1660 DUKE STREET
ALEXANDRIA, VA 22314
(410) 798-4269
C/O RICK DELLA

OWNER
HOWARD COUNTY HOUSING COMMISSION
10990 GUILFORD ROAD
COLUMBIA, MD 21046
(410) 313-6320

NO.	REVISION	DATE
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1	REDUCE LENGTH OF DECORATION LANE; REVISE BRIDGE DESIGN	3/11/17

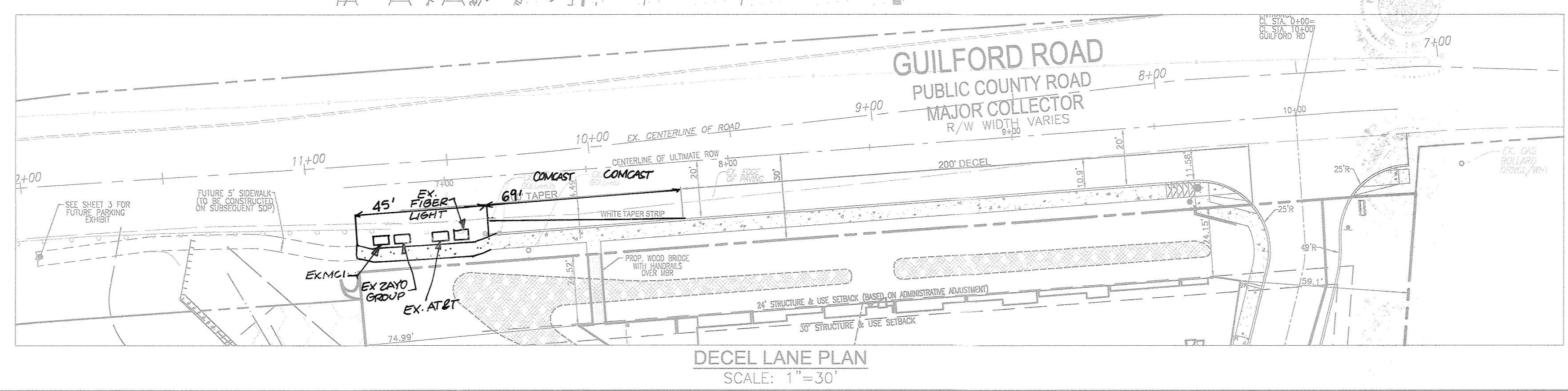
SITE DEVELOPMENT PLAN
SITE LAYOUT PLAN
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TAX MAP 47 GRID 12
6TH ELECTION DISTRICT
DPZ REFS: L 15118/F 116, BA-08-02TV
ZONED: CE-CL1
PARCEL 59, PARCEL A
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLOTT CITY, MD 21043
TEL: 410-461-7666
FAX: 410-461-1891

PROFESSIONAL CERTIFICATE
DESIGN BY: RHW/DZE
DRAWN BY: DZE/KG
CHECKED BY: RHW
DATE: DECEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 06-72.01

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAW OF THE STATE OF MARYLAND UNDER LICENSE NO. 18193 EXPIRATION DATE: 06-27-2018

2 SHEET OF 12

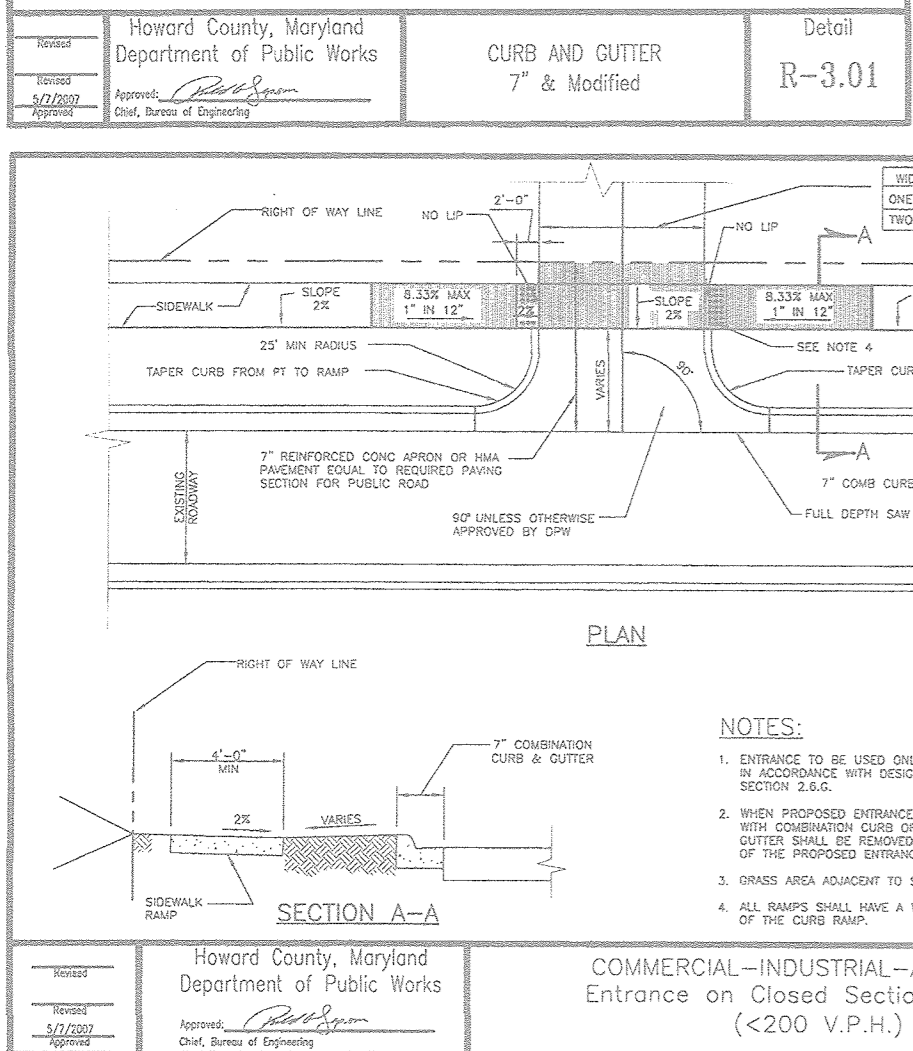
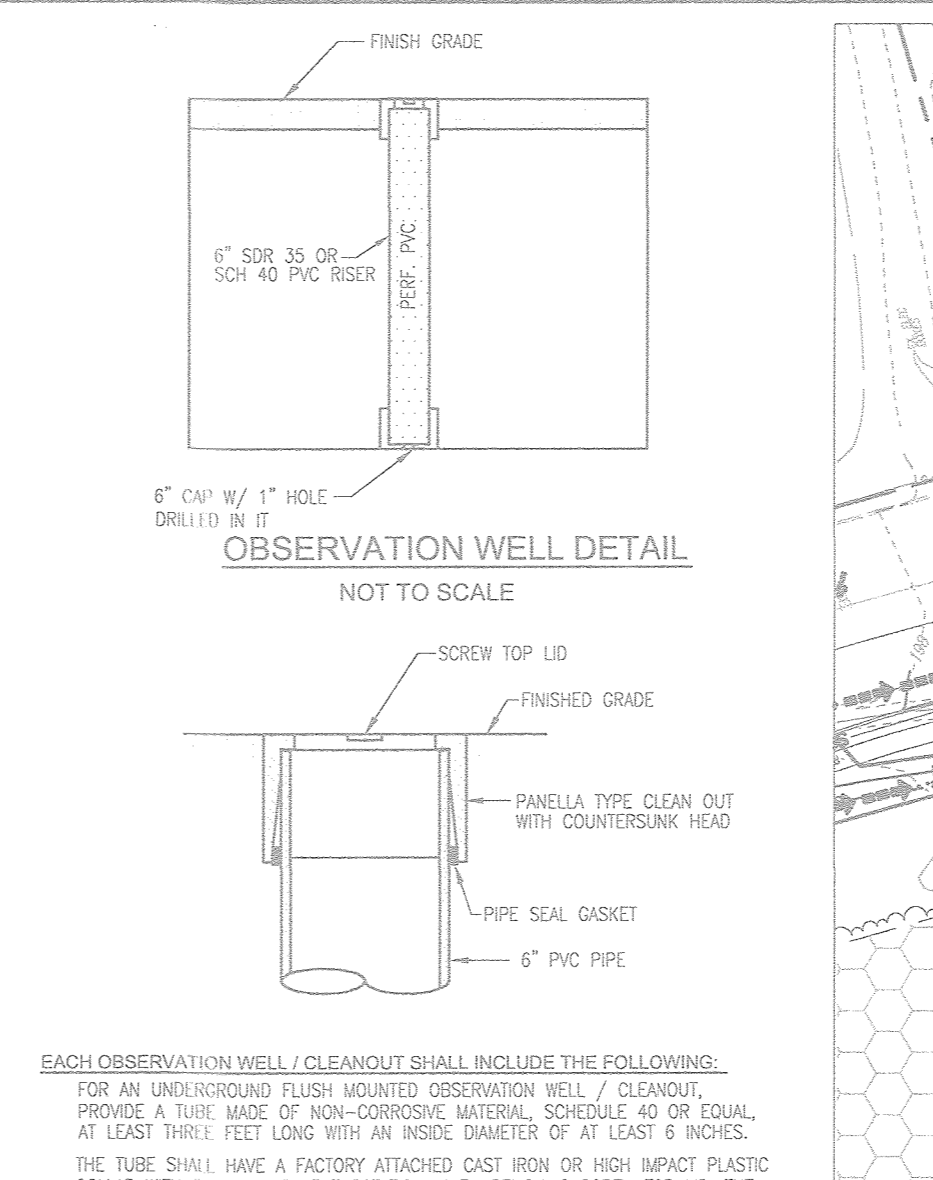
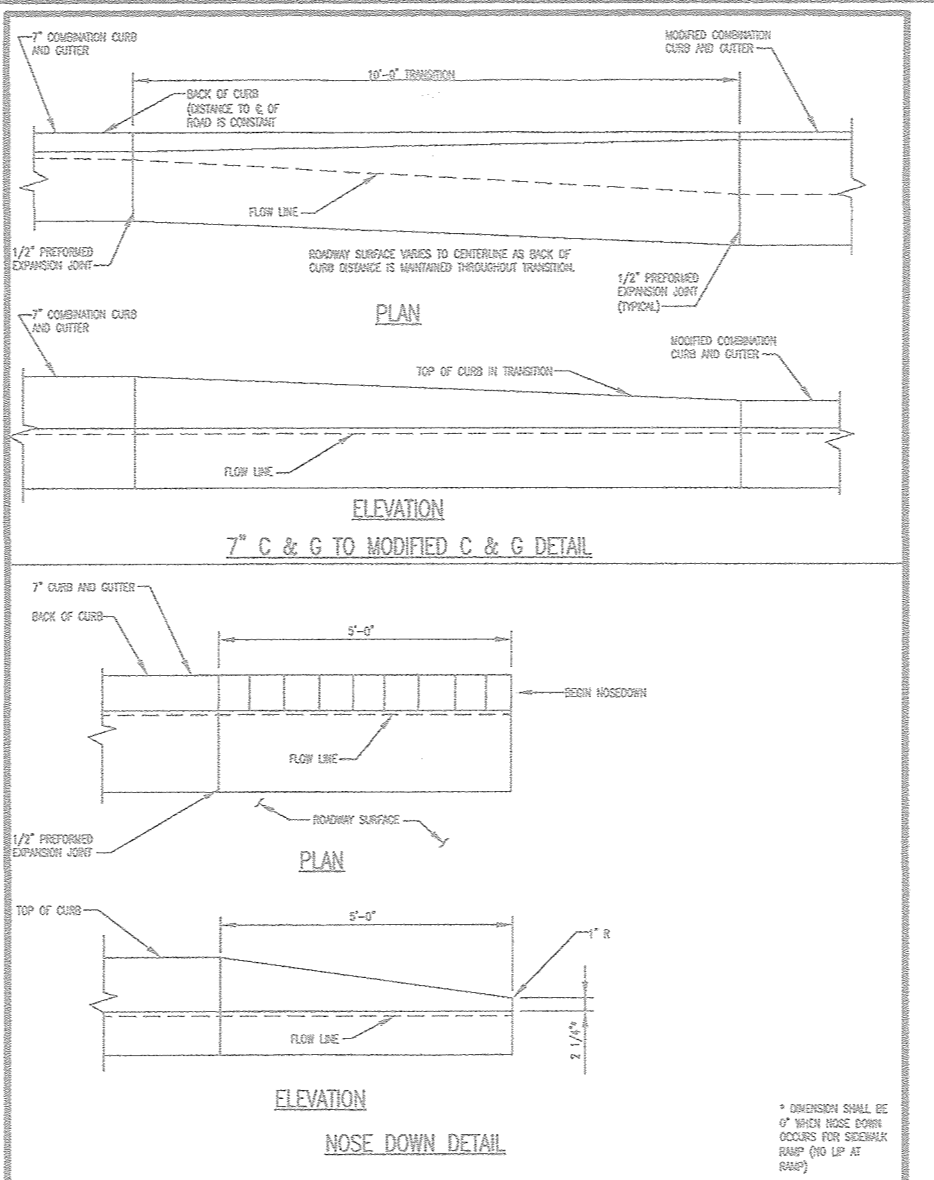
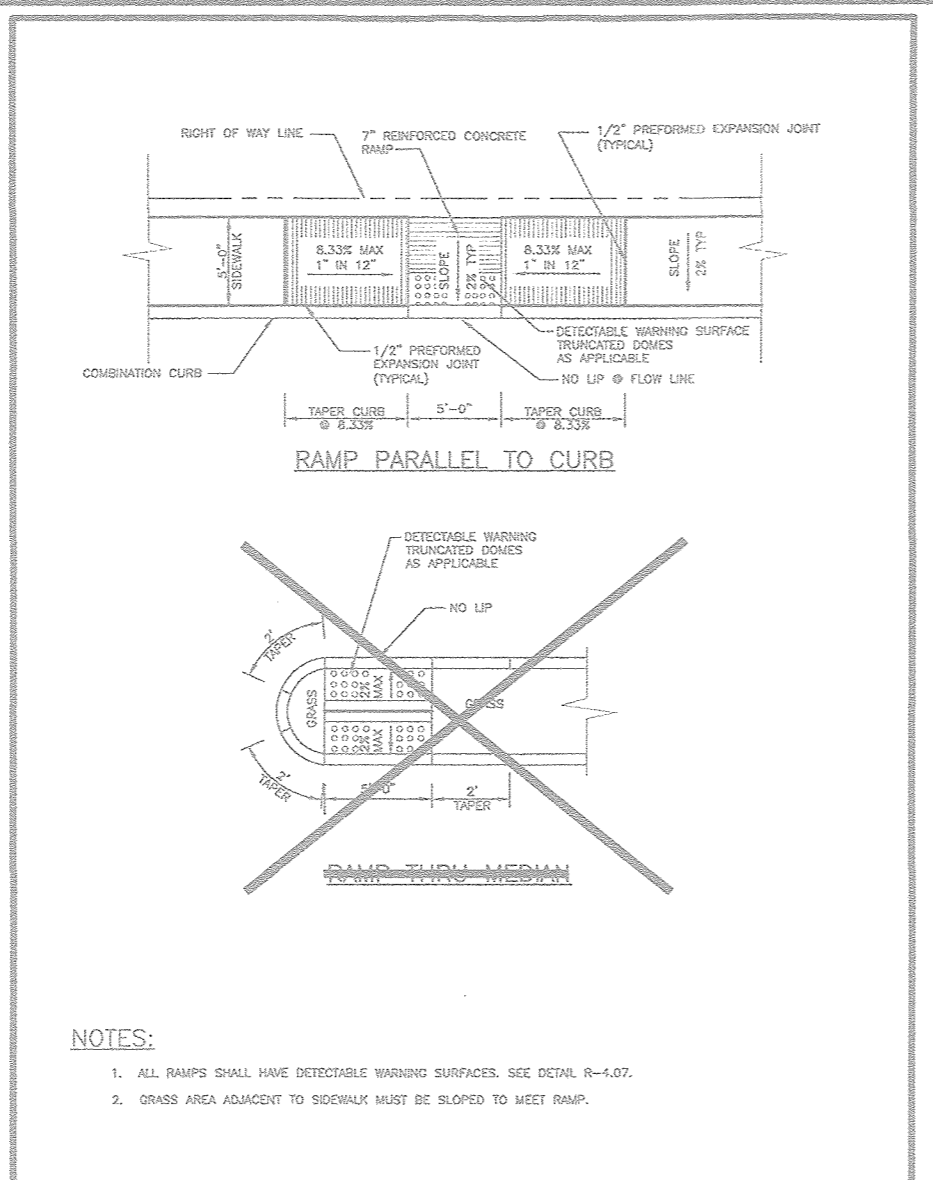
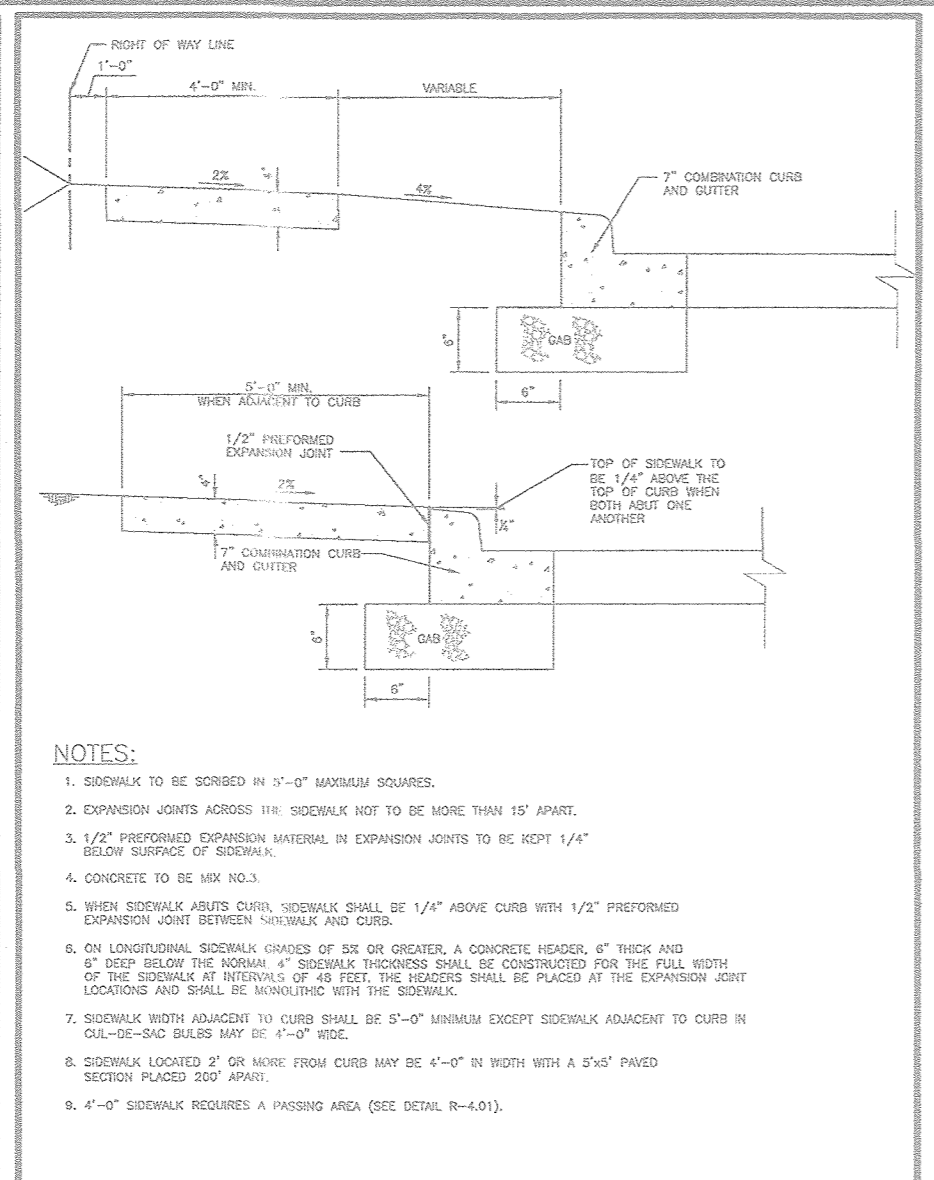
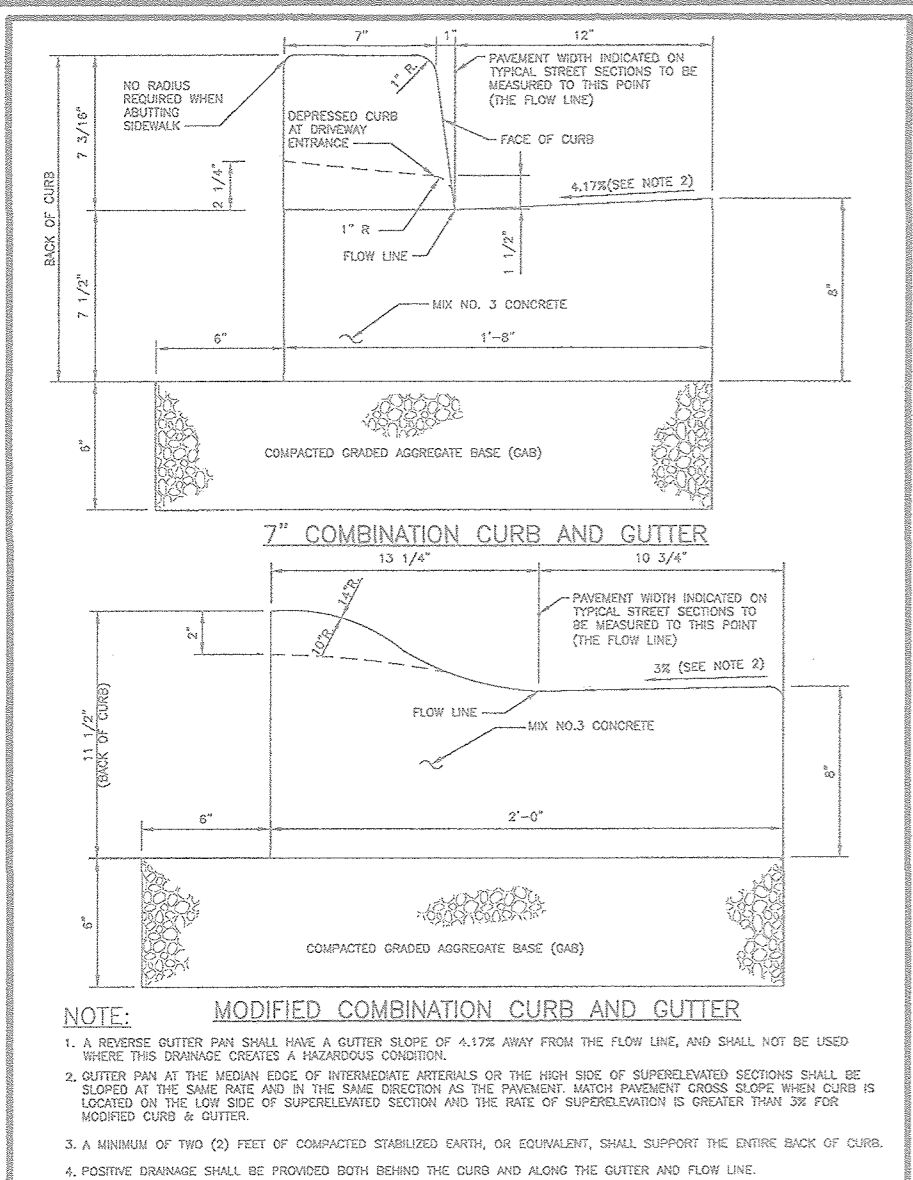


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

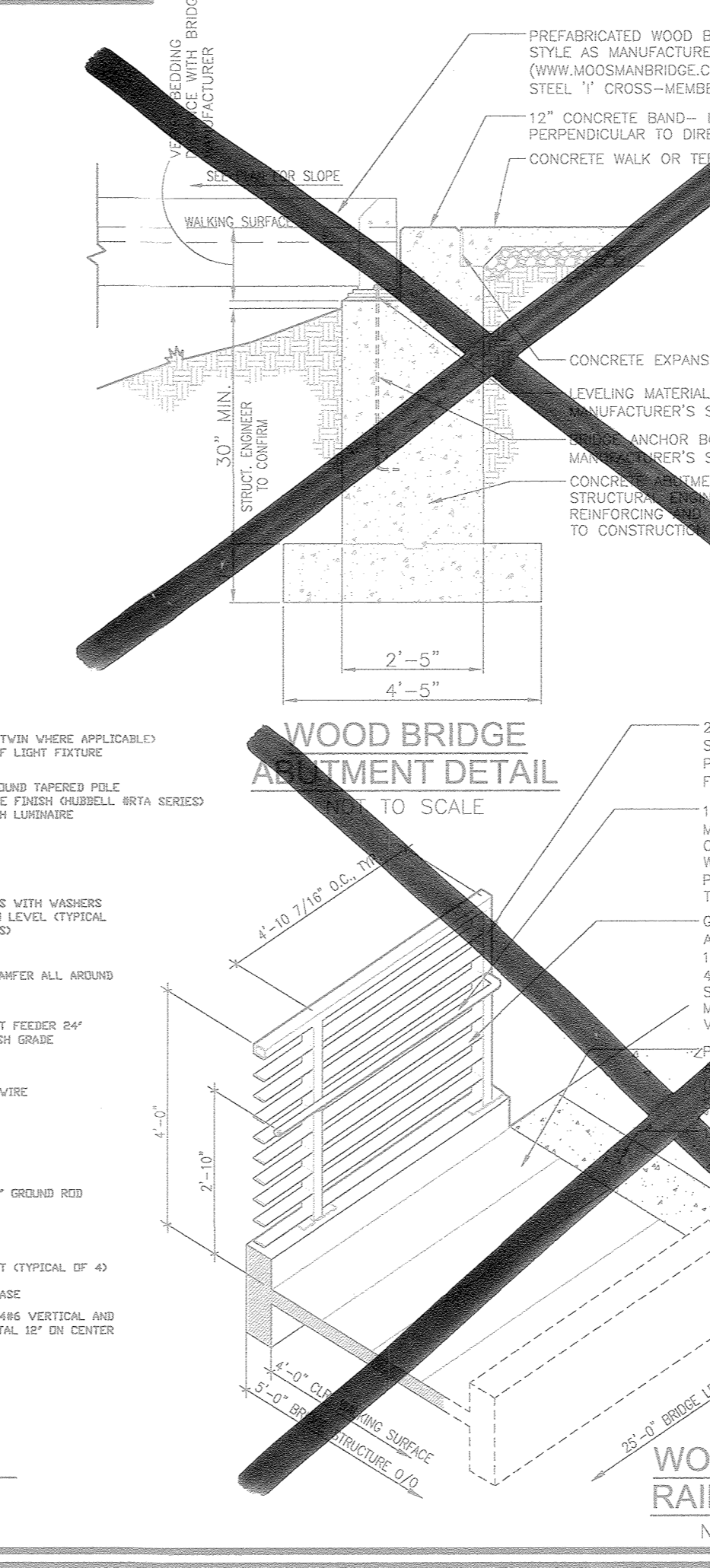
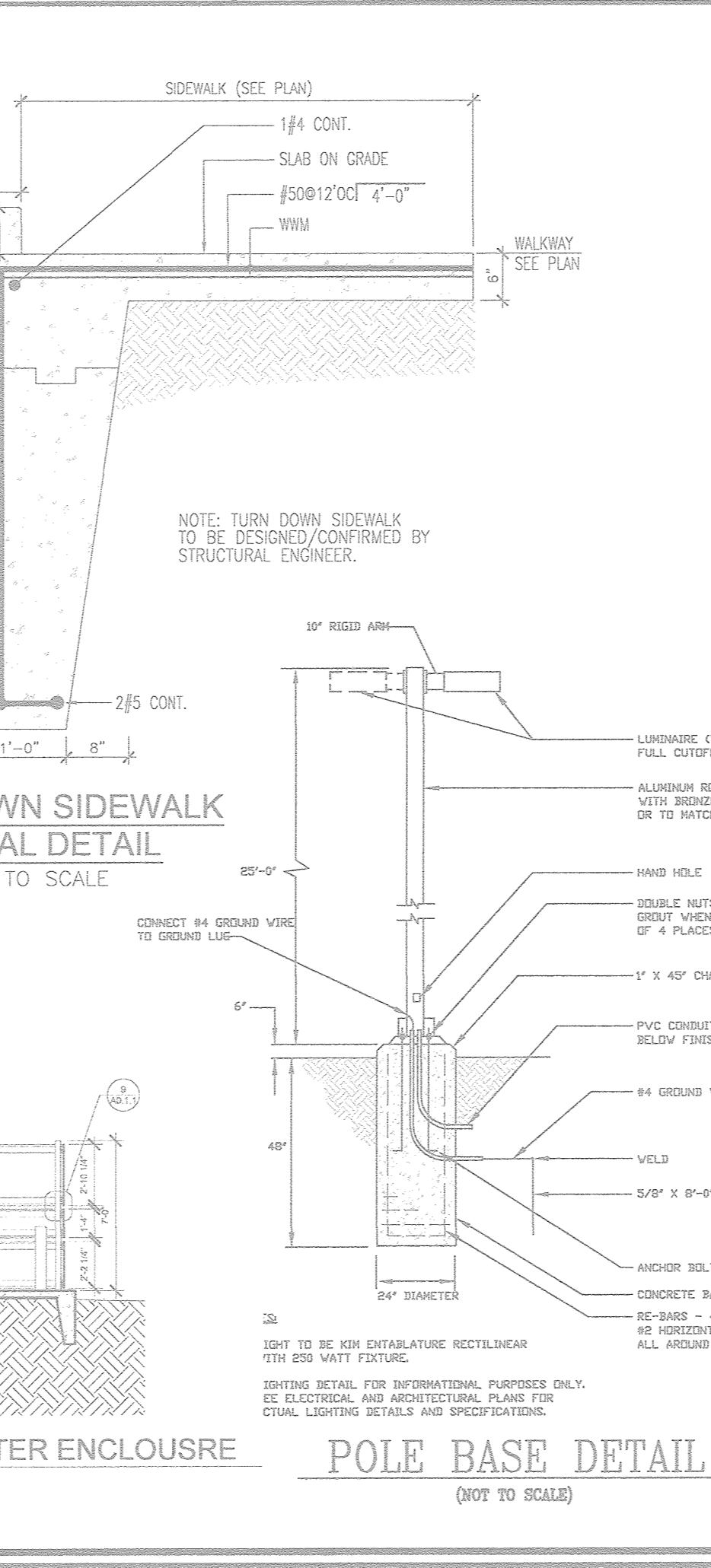
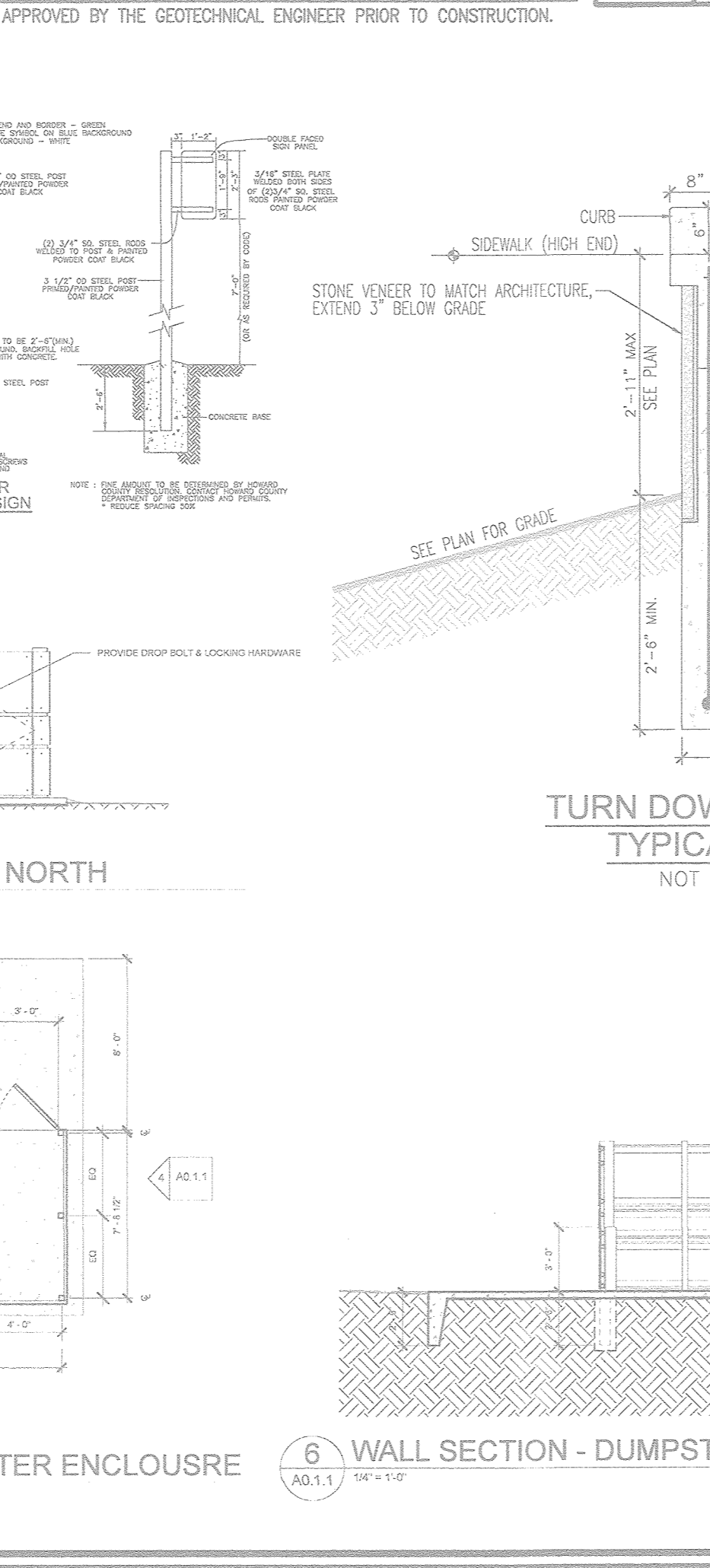
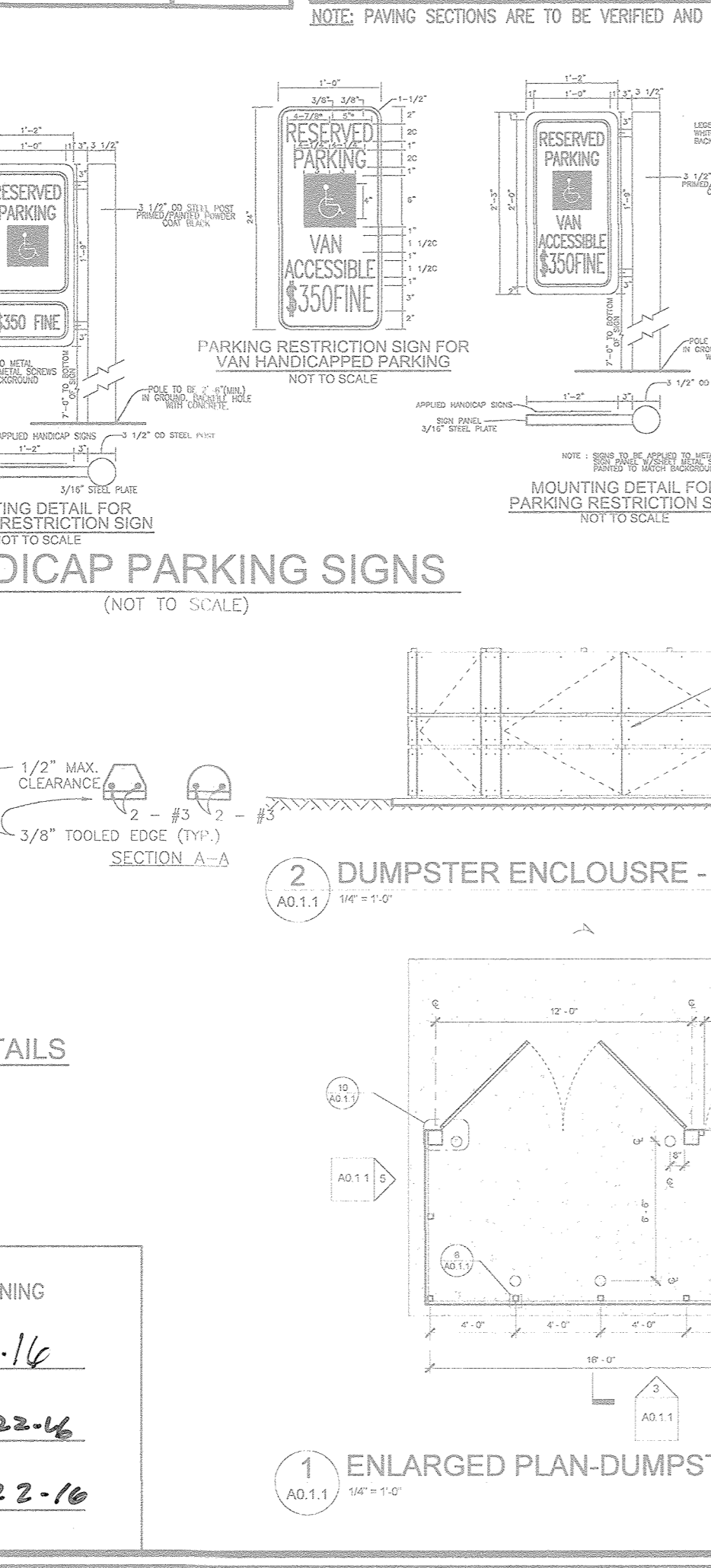
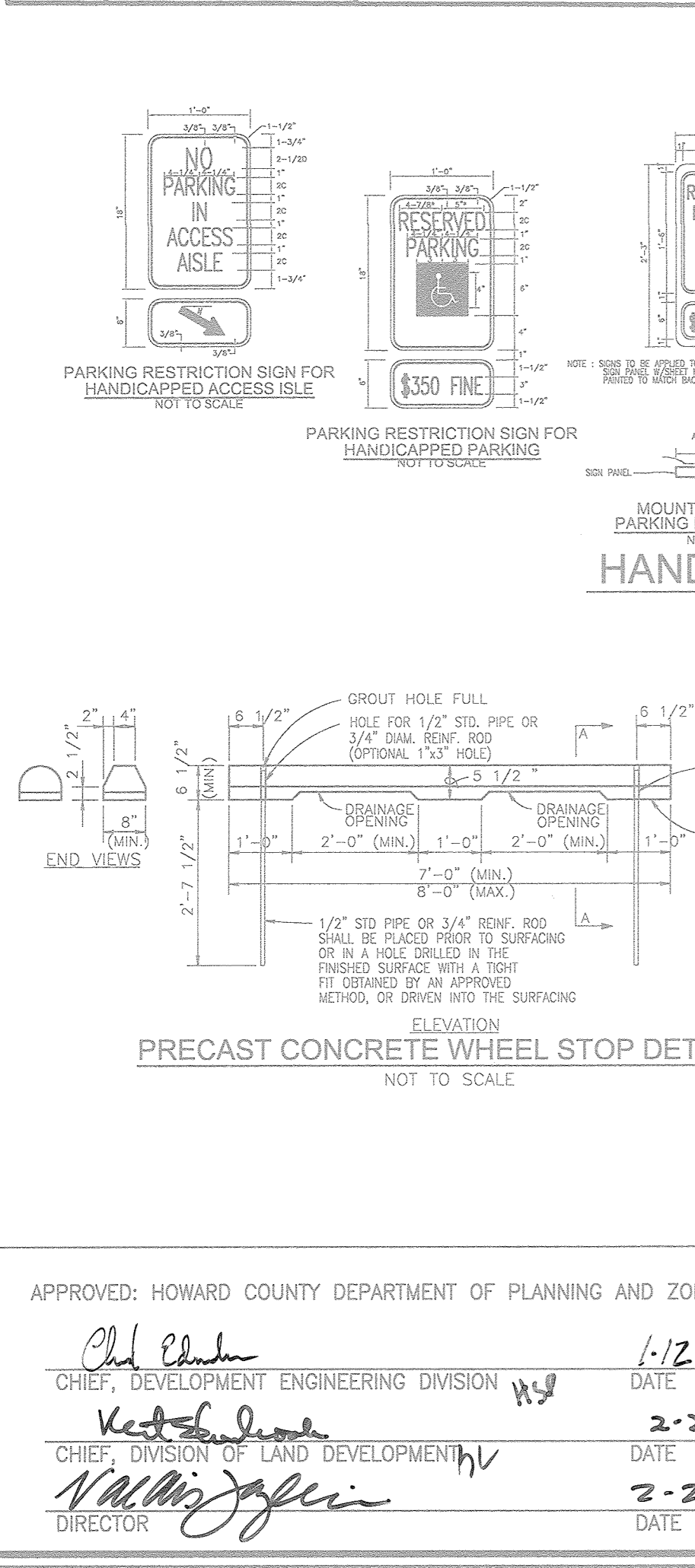
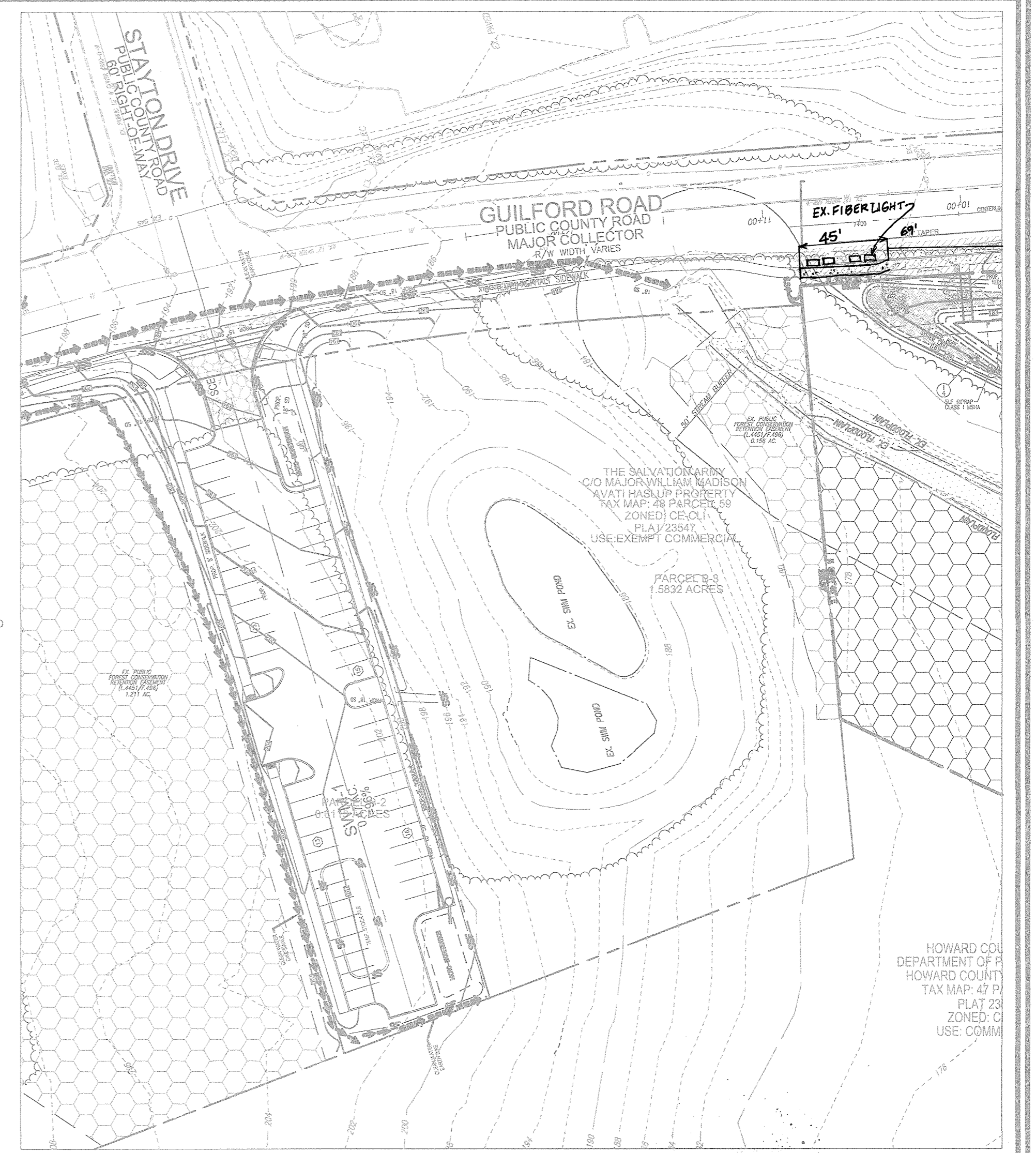
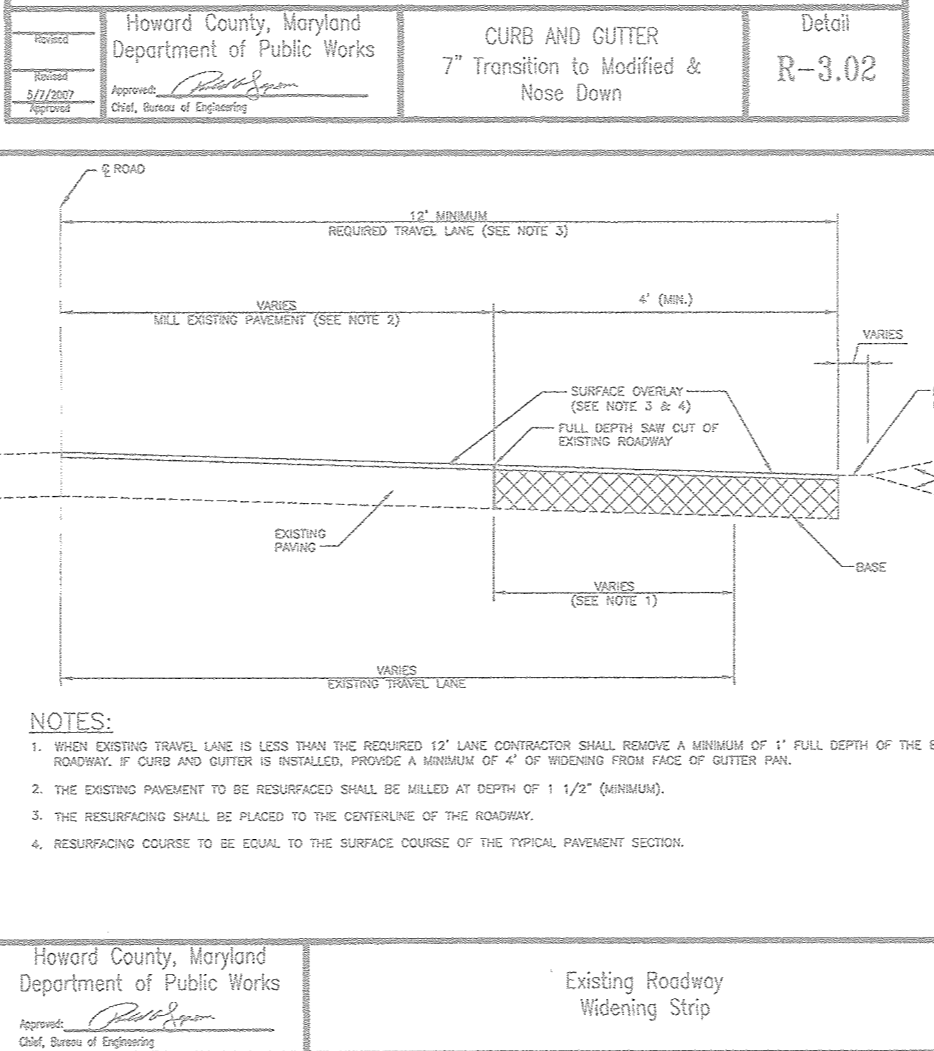
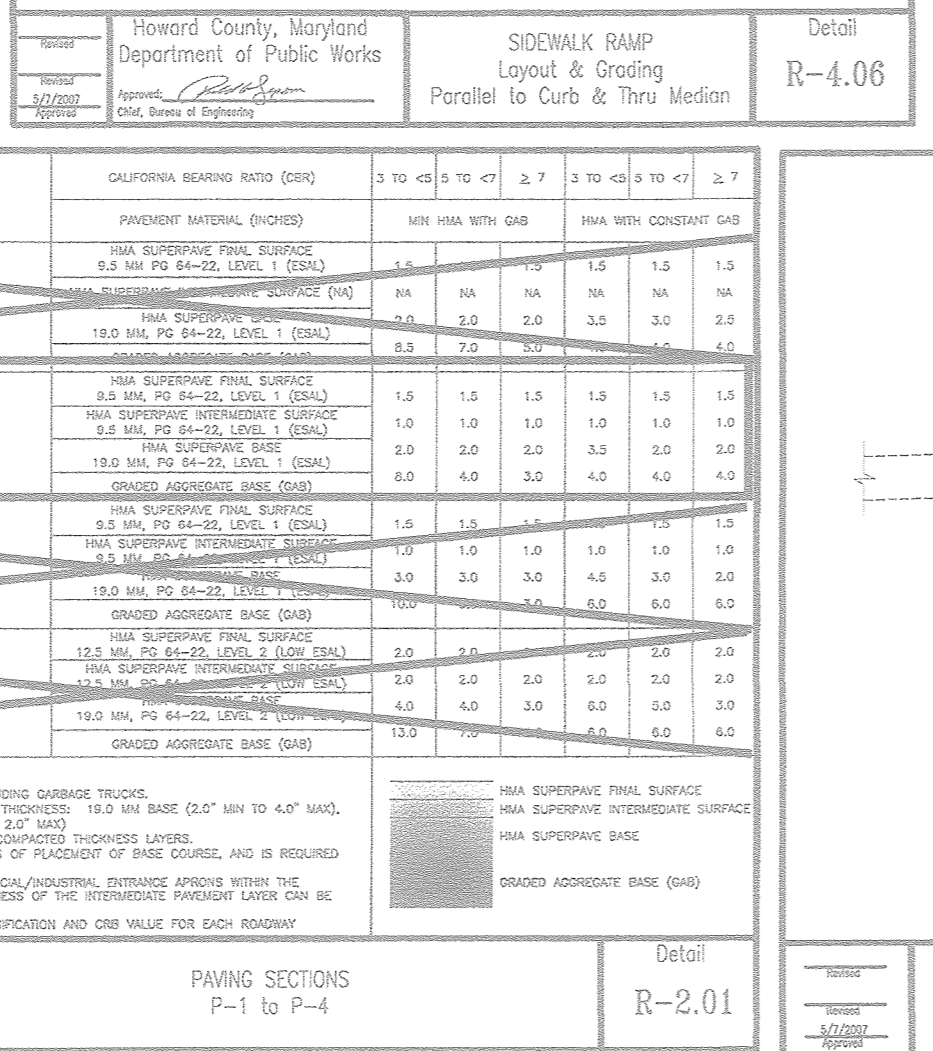
Paul Chubb
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1-12-16

Michael...
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 2-22-16

Natalie...
DIRECTOR
DATE: 2-22-16



ROAD AND STREET CLASSIFICATION	PAVEMENT MATERIALS (INCHES)	MIN WALK WITH CURB	MIN WALK WITH CONSTANT CURB
P-1	MA SUPERGRADE PAV. SURFACE 6.5\"/>		
P-2	MA SUPERGRADE PAV. SURFACE 6.5\"/>		
P-3	MA SUPERGRADE PAV. SURFACE 6.5\"/>		
P-4	MA SUPERGRADE PAV. SURFACE 6.5\"/>		



FUTURE HOWARD COUNTY PARKING EXHIBIT (NOT FOR CONSTRUCTION)
 REFERENCE CAPITAL PROJECT J-4181
 SCALE: 1"=50'

AS-BUILT CERTIFICATION FOR DWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWRM FACILITY.

DATE: 8/13/18
 DEVELOPER: VOLUNTEERS OF AMERICA, INC.
 OWNER: HOWARD COUNTY HOUSING COMMISSION

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET, BELLCOTT CITY, MD 21043

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A BELT-LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 118193. EXPIRATION DATE: 08-22-2018.

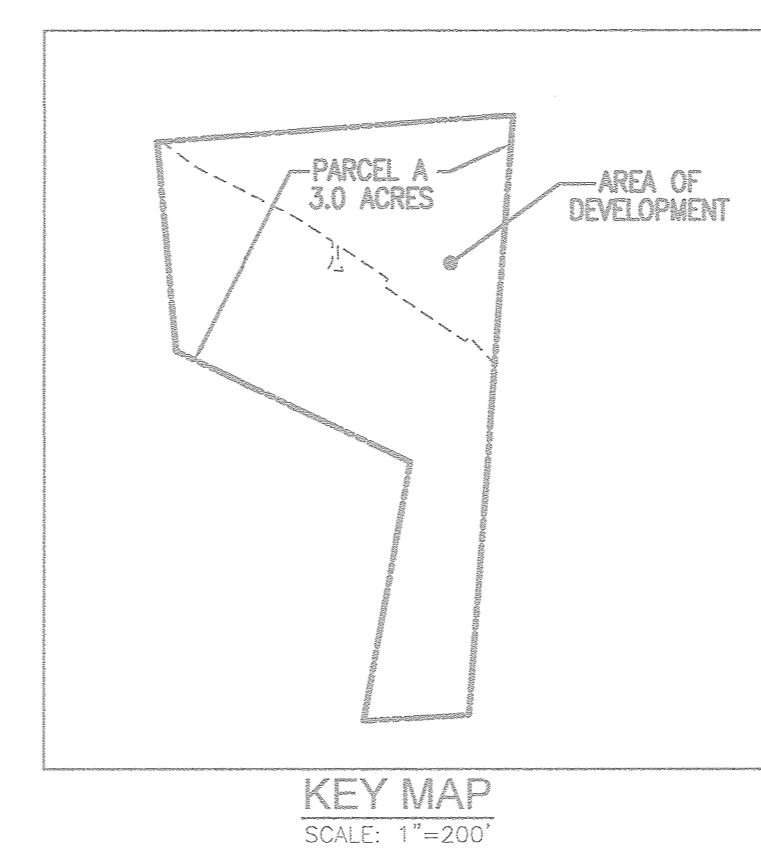
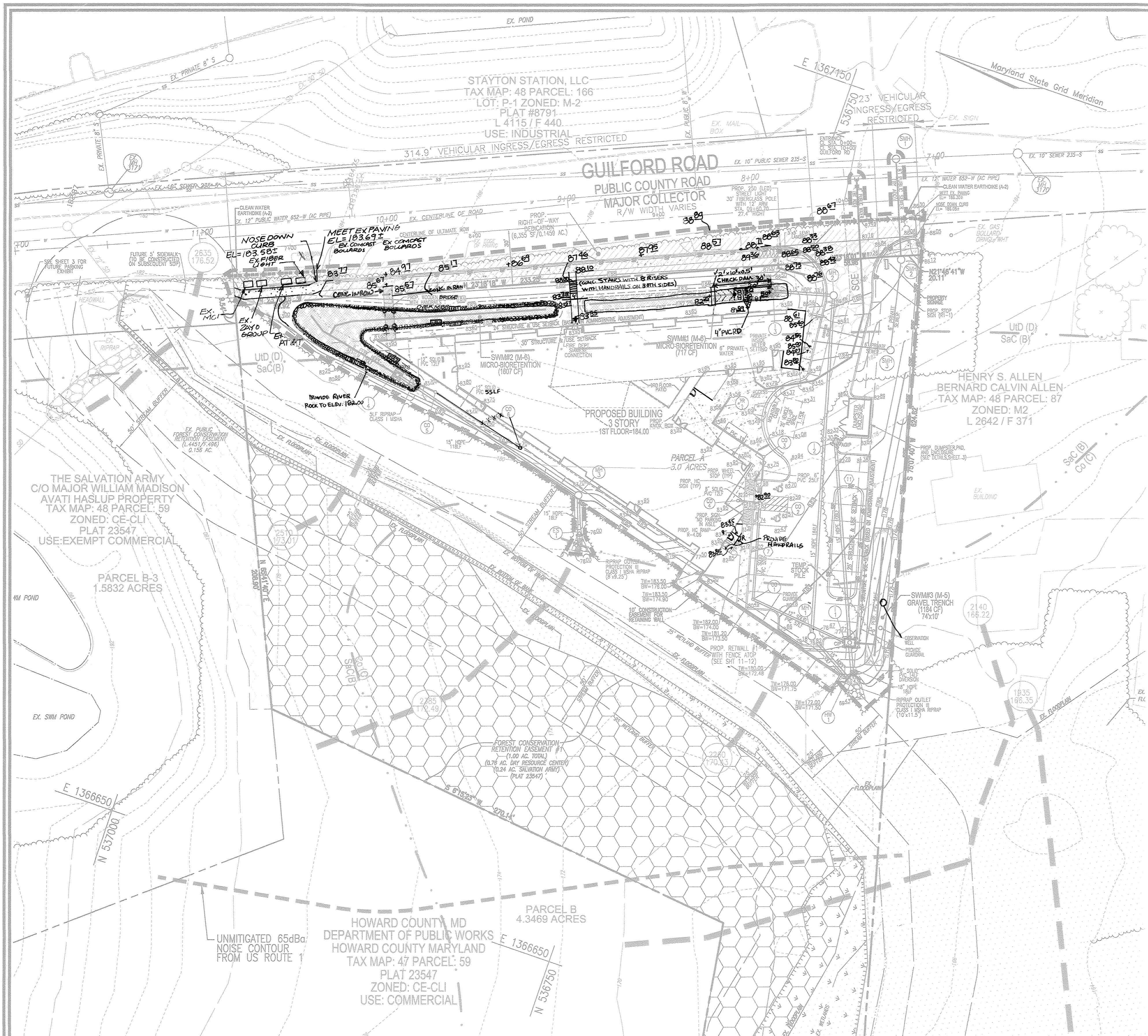
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 1-12-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Neil ... 2-22-16
 CHIEF, DIVISION OF LAND DEVELOPMENT

Val ... 2-22-16
 DIRECTOR

1 ENLARGED PLAN-DUMPSTER ENCLOSERE
 6 WALL SECTION - DUMPSTER ENCLOSERE



LEGEND:

[Symbol]	PROPOSED CONTOUR	[Symbol]	PROPOSED SIDEWALK
[Symbol]	EXISTING CONTOUR	[Symbol]	EXISTING CURB AND GUTTER
[Symbol]	EXISTING OVERHEAD LINES	[Symbol]	PROPOSED CURB AND GUTTER
[Symbol]	EXISTING WATERLINE LINE	[Symbol]	PROPOSED WHEEL STOP
[Symbol]	EXISTING GAS LINE	[Symbol]	PROPOSED STORM DRAIN INLET
[Symbol]	EXISTING GUARD RAIL	[Symbol]	PROPOSED STORM DRAIN
[Symbol]	EXISTING METAL FENCE	[Symbol]	SILT FENCE
[Symbol]	EXISTING WOOD FENCE	[Symbol]	SUPER SILT FENCE
[Symbol]	EXISTING ELECTRICAL BOX	[Symbol]	LIMIT OF DISTURBANCE
[Symbol]	EXISTING POLE	[Symbol]	CURB INLET PROTECTION
[Symbol]	EXISTING LIGHT POLE WITH CONCRETE BASE	[Symbol]	STANDARD INLET PROTECTION
[Symbol]	EXISTING MAILBOX	[Symbol]	STABILIZED CONSTRUCTION ENTRANCE
[Symbol]	EXISTING SIGN	[Symbol]	PROP. MICRO BIOTRETION AREA (4'-6")
[Symbol]	EXISTING SANITARY MANHOLE	[Symbol]	FOREST CONSERVATION EASEMENT RETENTION
[Symbol]	EXISTING CLEANOUT	[Symbol]	10' CONSTRUCTION EASEMENT FOR RETAINING WALL
[Symbol]	EXISTING FIRE HYDRANT	[Symbol]	RIGHT OF WAY DEDICATION
[Symbol]	PROPOSED PARKING CURB		
[Symbol]	PROPOSED SANITARY LINE		
[Symbol]	PROPOSED WATER LINE		
[Symbol]	SOILS BOUNDARY		
[Symbol]	PROPERTY LINE		
[Symbol]	ADJACENT PROPERTY LINE		
[Symbol]	RIGHT-OF-WAY LINE		
[Symbol]	EXISTING TREE LINE		
[Symbol]	PROPOSED TREE LINE		

HEILUS - GARNER ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Station	Depth	Soils	Moisture	Specific Gravity	Unit Weight	Void Ratio	Porosity	Shrinkage	Swelling	Compression	Consistency	Remarks
10+00	0-12"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	
10+00	12-24"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	
10+00	24-36"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	

HEILUS - GARNER ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

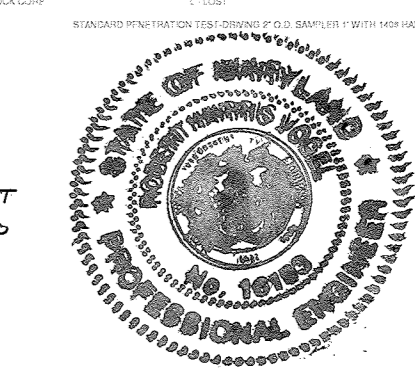
Station	Depth	Soils	Moisture	Specific Gravity	Unit Weight	Void Ratio	Porosity	Shrinkage	Swelling	Compression	Consistency	Remarks
10+00	36-48"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	
10+00	48-60"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	
10+00	60-72"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	

HEILUS - GARNER ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Station	Depth	Soils	Moisture	Specific Gravity	Unit Weight	Void Ratio	Porosity	Shrinkage	Swelling	Compression	Consistency	Remarks
10+00	72-84"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	
10+00	84-96"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	
10+00	96-108"	SI	22.0	2.65	118.0	0.65	45.0	0.00	0.00	0.00	Stiff clay	

AS-BUILT CERTIFICATION FOR SWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

PE NAME: 16193
 DATE: 8/13/18



DEVELOPER
 VOLUNTEERS OF AMERICA, INC.
 1660 DUKE STREET
 ALEXANDRIA, VA 22314
 (443) 798-4267
 C/O RICK DELLA

OWNER
 HOWARD COUNTY
 DEPARTMENT OF PUBLIC WORKS
 3430 COURT HOUSE DR
 ELLICOTT CITY, MD 21043
 (410) 313-4400

OWNER
 HOWARD COUNTY
 HOUSING COMMISSION
 10390 GUILFORD ROAD
 COLUMBIA, MD 21046
 (410) 313-6320

NO.	REVISION	DATE
4	REVISE TO SHOW AS-BUILT CONDITIONS OF MBR1	11/30/17
3	REVISE PLAN TO SHOW STAIRS AND NEW BRIDGE DETAIL	7/10/17
2	REVISE PLAN TO REVISE SWM#2 TO ACCOMMODATE AS-BUILT ROOF LEADER	4/26/17
1	REDUCE LENGTH OF DECLARATION LANE; REVISE BRIDGE DESIGN	8/13/17

SITE DEVELOPMENT PLAN
GRADING, SEDIMENT AND EROSION CONTROL PLAN
DAY RESOURCE CENTER
 VOLUNTEERS OF AMERICA
 10390 GUILFORD ROAD
 HOWARD COUNTY HOUSING COMMISSION
 DPZ REFS: L15118/F116, BA-08-02/V
 ZONED: CE-CL1
 PARCEL 59, PARCEL A
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043
 TEL: 410-461-7666 FAX: 410-461-8961

DESIGN BY: RHV/DZE
 DRAWN BY: DZE/KG
 CHECKED BY: RHV
 DATE: DECEMBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 08-72.01

PROFESSIONAL CERTIFICATE
 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. 16193, EXPIRATION DATE: 10-27-2019.

4 SHEET OF 12

SEDIMENT CONTROL NOTES:
 SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.

UNMITIGATED 65dBa NOISE CONTOUR FROM US ROUTE 1

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DIRECTOR: [Signature]
 DATE: 2-22-16
 CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature]
 DATE: 2-22-16

BY THE DEVELOPER:
 "I 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: [Signature]
 DATE: 12/21/2015

BY THE ENGINEER:
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 SIGNATURE OF ENGINEER: [Signature]
 DATE: 11/5/16

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD S.O.C. [Signature]
 DATE: 11/5/16

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. SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISCHARROWS OR CHISEL PLOWS OR RIPPERIS MOUNTED ON CONSTRUCTION EQUIPMENT, AFTER THE SOIL IS LOOSENEED, IT MUST NOT BE ROLLED OR CRANDED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR.
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. SOIL TEST IS REQUIRED FOR EVERY 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 GRANDED MATERIAL GREATER THAN 10 PERCENT SILT PLUS CLAY TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE, AN EXCEPTION: IF LOESS/CLAY WILL BE PLANTED, THEN SANDY SOIL (LESS THAN 50 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
V. SOIL CONTAINS SUFFICIENT PORE SPACES TO PERMIT ADEQUATE ROOT PENETRATION.
B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONSIDERATIONS.
C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSEND TO A DEPTH OF 3 TO 5 INCHES.
D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE REVIEW & SURVEY MEANS.
E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
F. SOILS WITH HIGH MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, HIGH LOAM, LIME STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION, LOOSEN SURFACE WITH SOIL BY DISKING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHILE MAINTAINING SLOPES. SLOPES 3:1 OR FLATTER, USE DISKING TO ROUGHEN THE SURFACE WHILE MAINTAINING SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES. DO NOT USE BURNIT OR HORIZONTAL TINE DISKS AT SLOPES TO TOP TO 3 INCHES OF SOIL. DISKED AND FRIBLED, SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

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 (V ALL PERIMETER CONTROL, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA
A. SOIL PREPARATION
I. SEEDING MIXTURE
1. SEEDING MIXTURE 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 A 6 MONTH PERIOD OF PRECEDING DATE OF SEEDING. 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 THE TYPE OF SEED AND SEEDING RATE.
2. MULCH AND INERT MATTER MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWES.
3. INCULCATANTS FOR TREATING LOANNE SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INCULCATANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE PACKAGE AND FRESH INCULCATANTS MUST BE DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INCULCATANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHREHNEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
4. SOD OR SPLOD MUST NOT BE PLACED ON SOIL. SOIL HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (1-4 DAYS MIN) TO PERMIT GROWTH OF PHYTO-TOXIC MATERIALS.
II. APPLICATION
1. 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.3.1. PERMANENT SEEDING TABLE B.3.2 ON SITES SPECIFIC SEEDING.
II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDING AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
2. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL. I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDS MUST BE FIRM AFTER PLANTING.
II. APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
3. 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; PHOSPHORUS, 100 POUNDS PER ACRE; POTASSIUM, 100 POUNDS PER ACRE.
II. LIME: LIME ONLY GRASS AND AGROBIOLOGICAL LIME (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 BURNIT OR HORIZONTAL TINE DISKS WITH HYDROSEEDING.
III. MIX SOD AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
B. MULCHING
I. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW MUST BE FREE OF NOXIOUS WEED SEEDS AND MUST BE CLEAN, DRY, UNWET, AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY.
B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM PHYSICAL STATE.
II. WCFM IS TO BE USED ONLY IN AREAS THAT CONTAIN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORM SPREAD.
III. WCFM MATERIALS MUST BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH REMAINS UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A SEEDING MIXTURE. THE MULCH MATERIAL MUST FORM A BUTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MODERATE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND CONTACT GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDS.
IV. WCFM MATERIALS MUST NOT CONTAIN GLASS OR OTHER HAZARDOUS MATERIALS THAT WILL BE PHYTO-TOXIC.
V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF 4.0 TO 5.5 MILLIMETERS, PARTICLE APPROXIMATELY 1 MILLIMETER, PARTICLE DIAMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 11.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT.
C. APPLICATOR
I. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDING AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 2 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS COVERED. WHEN USING A MULCH ANCHORING LOG, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
II. WOOD CELLULOSE FIBER MULCH IS TO 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 PARTS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
D. ANCHORING
I. 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):
1. DEPENDENT UPON THE SIZE OF THE AREA AND EROSION HAZARD:
A. IN AREAS THAT ARE NOT EROSION HAZARDOUS, ANCHORING LOGS SHOULD BE PLACED AT THE MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS DESIGN IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING SITES THIS PRACTICE SHOULD FOLLOW THE CONTROLS OF SECTION 4.2.1.
2. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A MINIMUM WEIGHT OF 250 PARTS PER ACRE WITH WATER TO ATTAIN A MIXTURE WITH WATER AT A MAXIMUM OF 50 PARTS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
2. SYNTHETIC BINDER (ANCHOR LOG (ANL), UCA-70, PERIMET).
A. TERRA TAC OR TERRA TAC OR OTHER APPROVED EQUIPMENT, FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE REPEATED AT THE EDGES OF THE MULCH PATCHES TO PREVENT TYPICAL GRASS AND MATCH-GRADE BANKS; USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
B. LIME MORTAR MAY BE USED FOR ANCHORING MULCH. APPLY MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FT LONG.

B-4.5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

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

CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 8 MONTHS OR MORE.

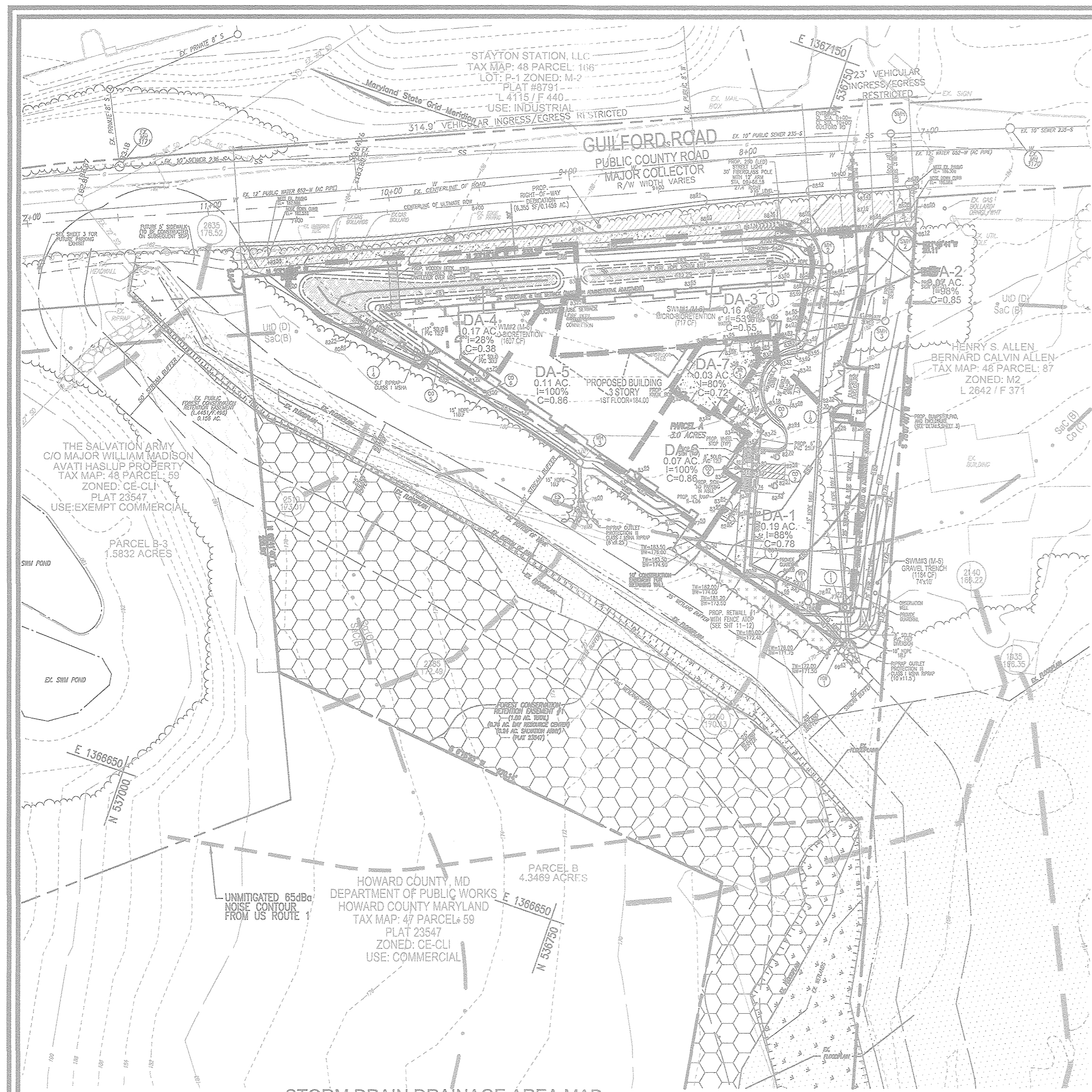
CRITERIA
I. GENERAL USES
A. SEED MIXTURES
1. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3.1 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSES FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY, THE SEEDING DATES SHOULD BE SPECIFIED FOR EACH MIXTURE.
2. 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 USE-NUMBER SPECIFICATION FOR THE DISTURBED AREA.
3. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY SOIL TESTING AGENCY.
4. BEGIN BROADCAST CONSTRUCTION. (2 WEEKS)
5. WITH INSPECTOR'S APPROVAL, BEGIN INSTALLATION OF CURB AND GUTTER AND ON-SITE BASE COURSE PAVING. (1 WEEK)
6. BEGIN BUILDING AND UTILITY CONSTRUCTION
7. COMPLETE ALL CURB & GUTTER CONSTRUCTION. (1 WEEK)
8. COMPLETE ALL BASE COURSE PAVEMENT CONSTRUCTION. (1 WEEK)
9. CONSTRUCT SURFACE COURSE PAVING AND SIDEWALKS. (1 WEEK)
10. WITH THE INSPECTOR'S APPROVAL, FINE GRAD AND STABILIZE ALL AREAS OF PARCEL INCLUDING ANY EXPOSED EARTH AREAS OUTSIDE THE LOT.
11. REMOVE ALL TRASH JUNK AND DEBRIS FROM ENTIRE PARCEL. (1 WEEK)
12. INSTALL SITE LANDSCAPING. (WEEK 15)
17. REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND DEBRIS FROM THE PARCEL.
II. SPECIAL SPECIFICATIONS
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SELECTION OF CONSTRUCTION

1. OBTAIN HOWARD COUNTY GRADING PERMIT (WEEK 1)
2. NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION. (WEEK 1)
3. CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE. (WEEK 1)
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE SEEDS. (WEEK 2)
5. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF PERMANENT SEEDING MIXTURES. (WEEK 2)
6. INSTALL ALL PERMETER CONTROLS INCLUDING SILT FENCE, SUPER SILT FENCE AND EARTH DITCHES, AS INDICATED ON PLANS. (WEEK 2)
7. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE. (WEEK 3)
8. PERFORM STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION, PROVIDE INLET PROTECTION AS SHOWN ON THESE PLANS. (4 WEEKS)
9. AFTER STORM DRAIN IS COMPLETE FINE GRAD AS REQUIRED TO PROTECT RUNOFF TO INLETS.
10. BEGIN BUILDING CONSTRUCTION. (2 WEEKS)
11. WITH INSPECTOR'S APPROVAL, BEGIN INSTALLATION OF CURB AND GUTTER AND ON-SITE BASE COURSE PAVING. (1 WEEK)
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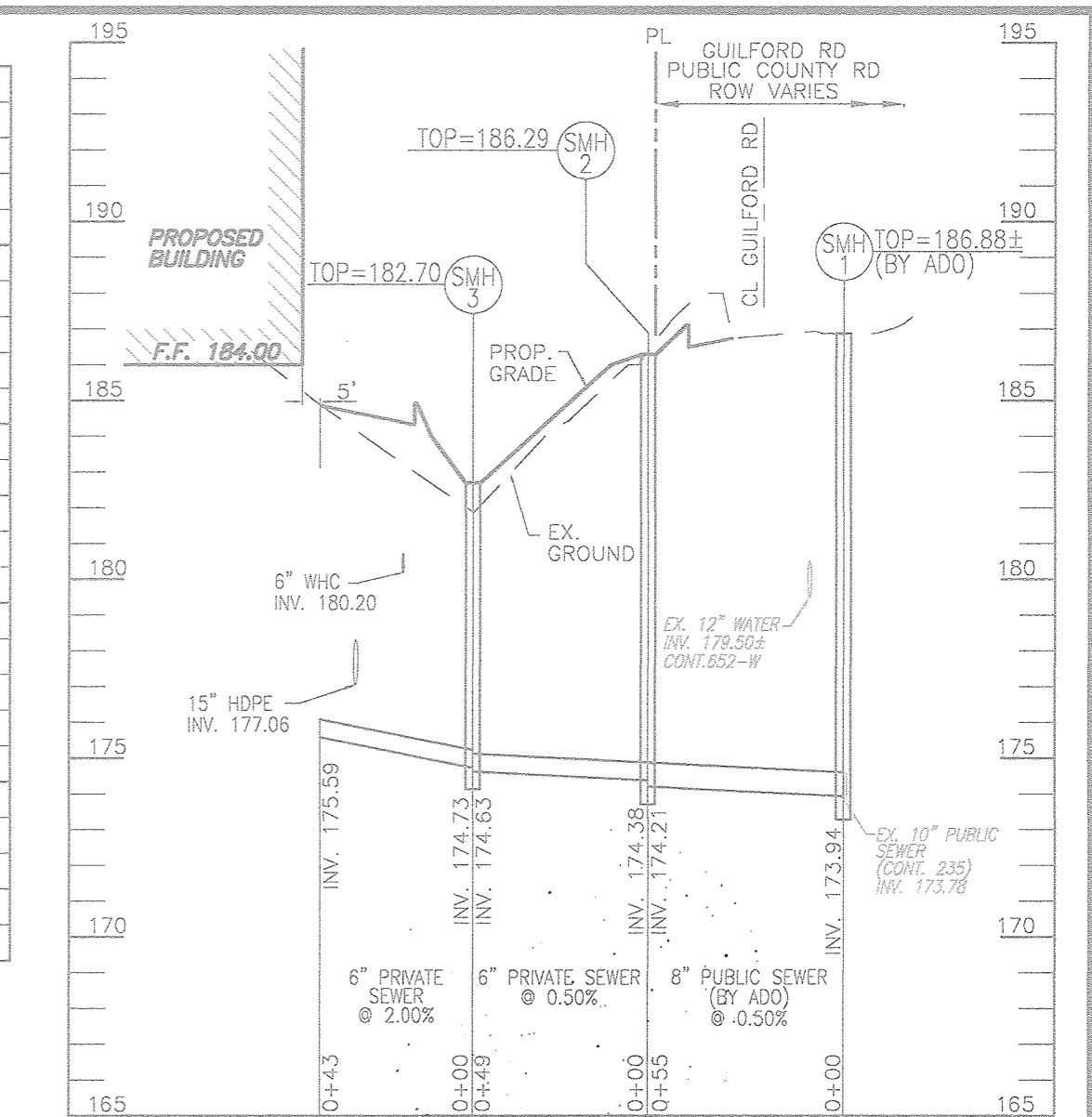
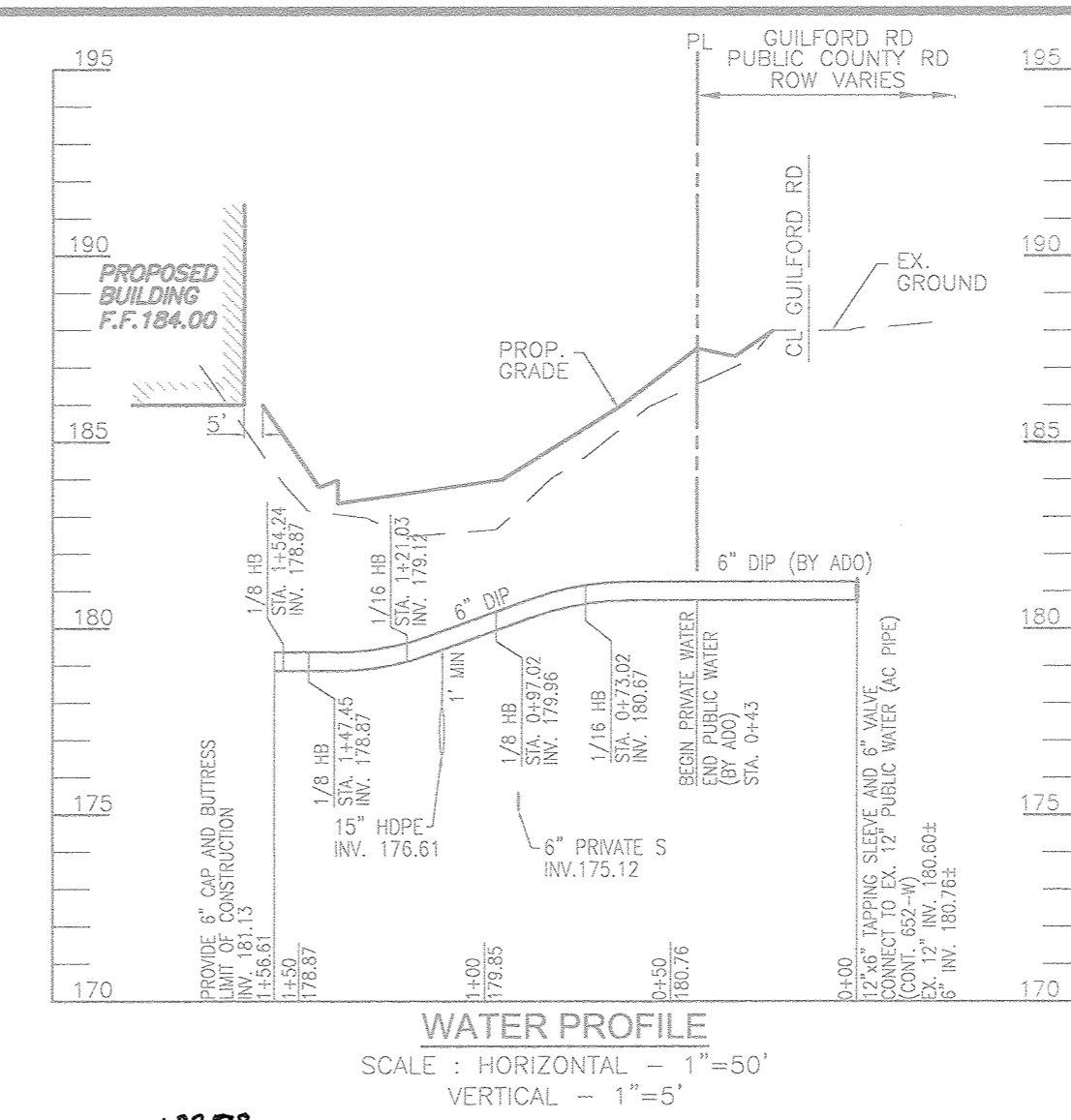
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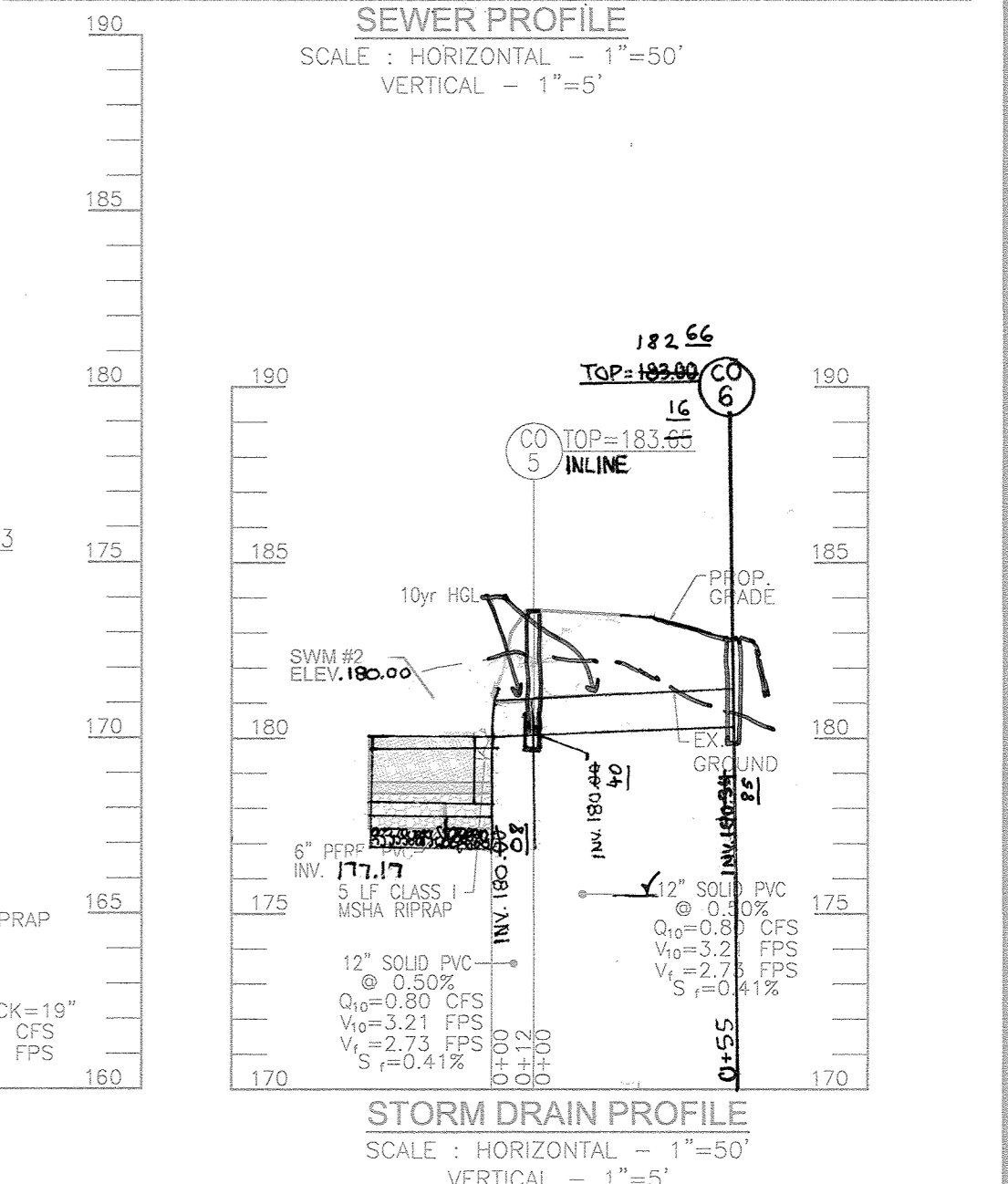
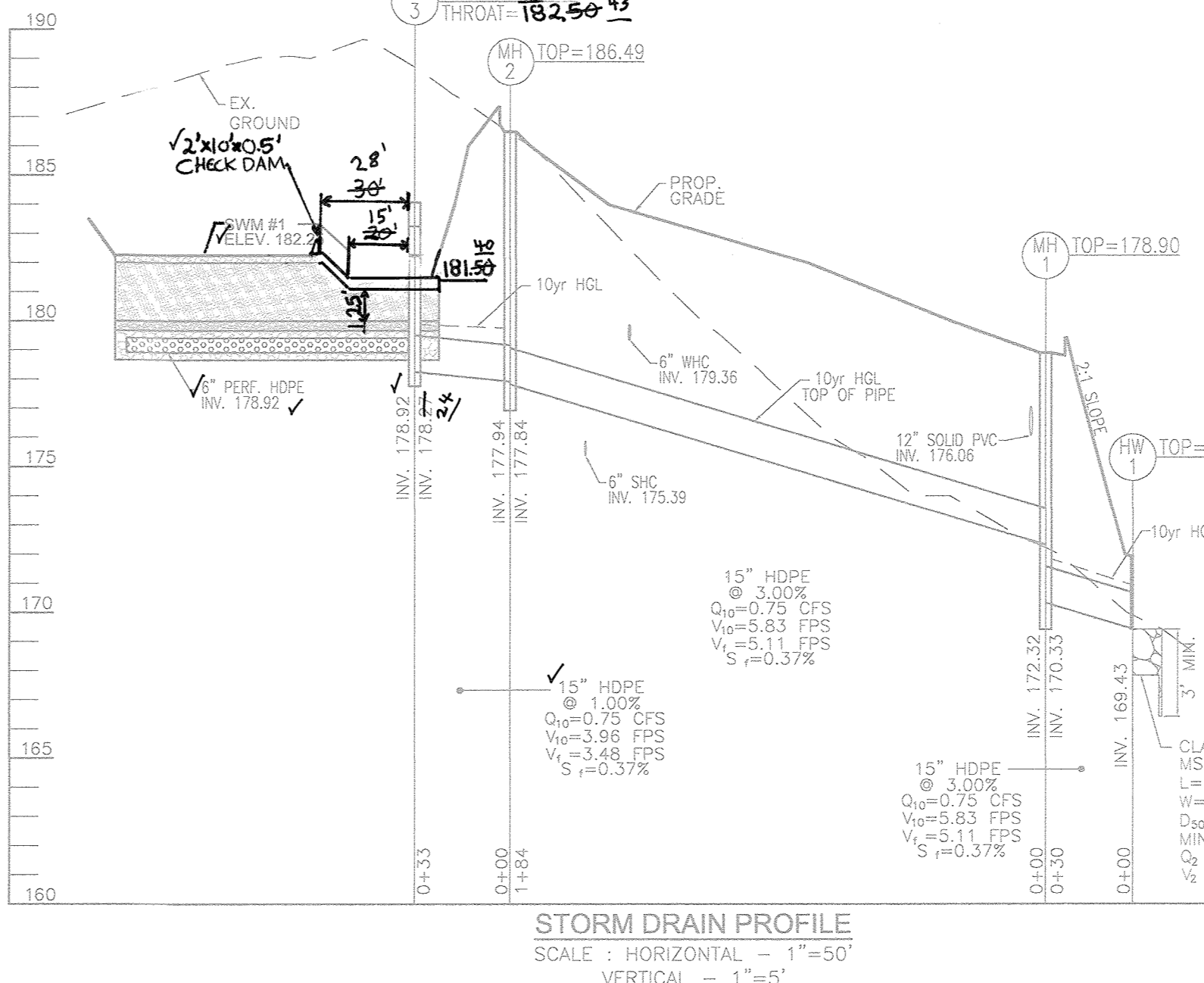
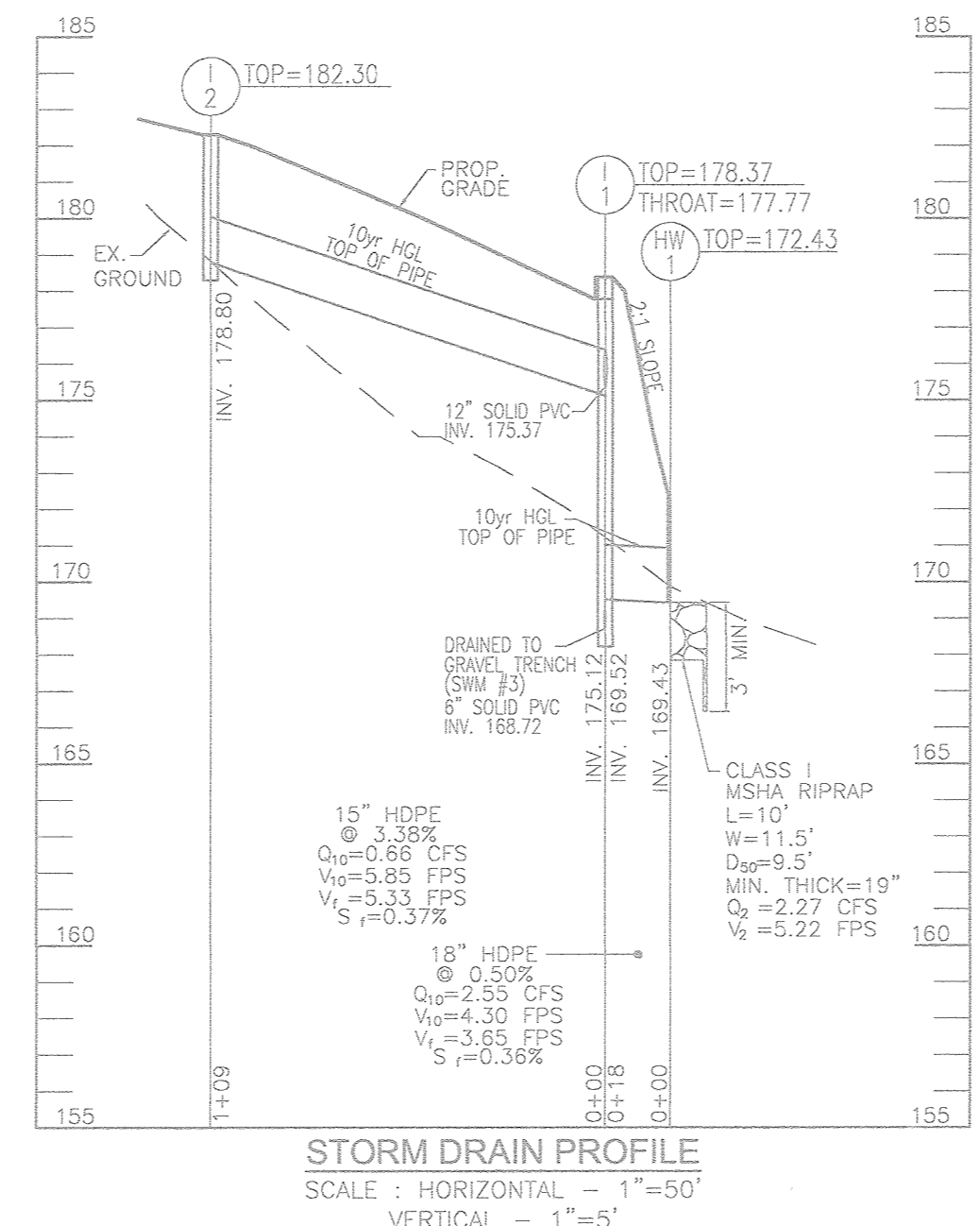
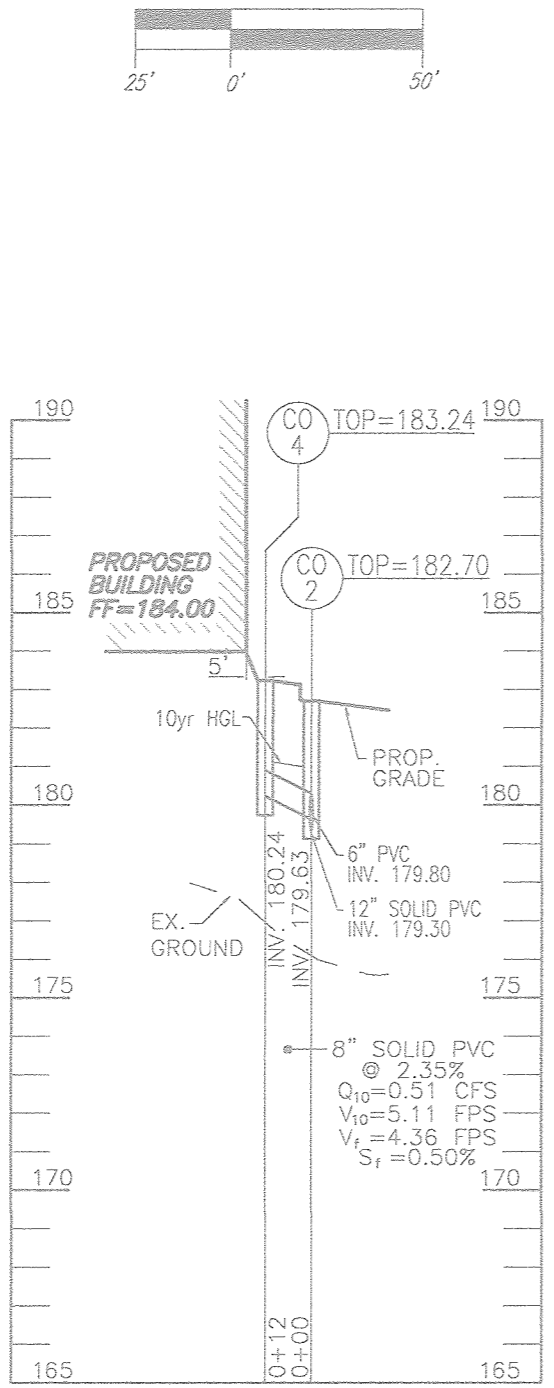
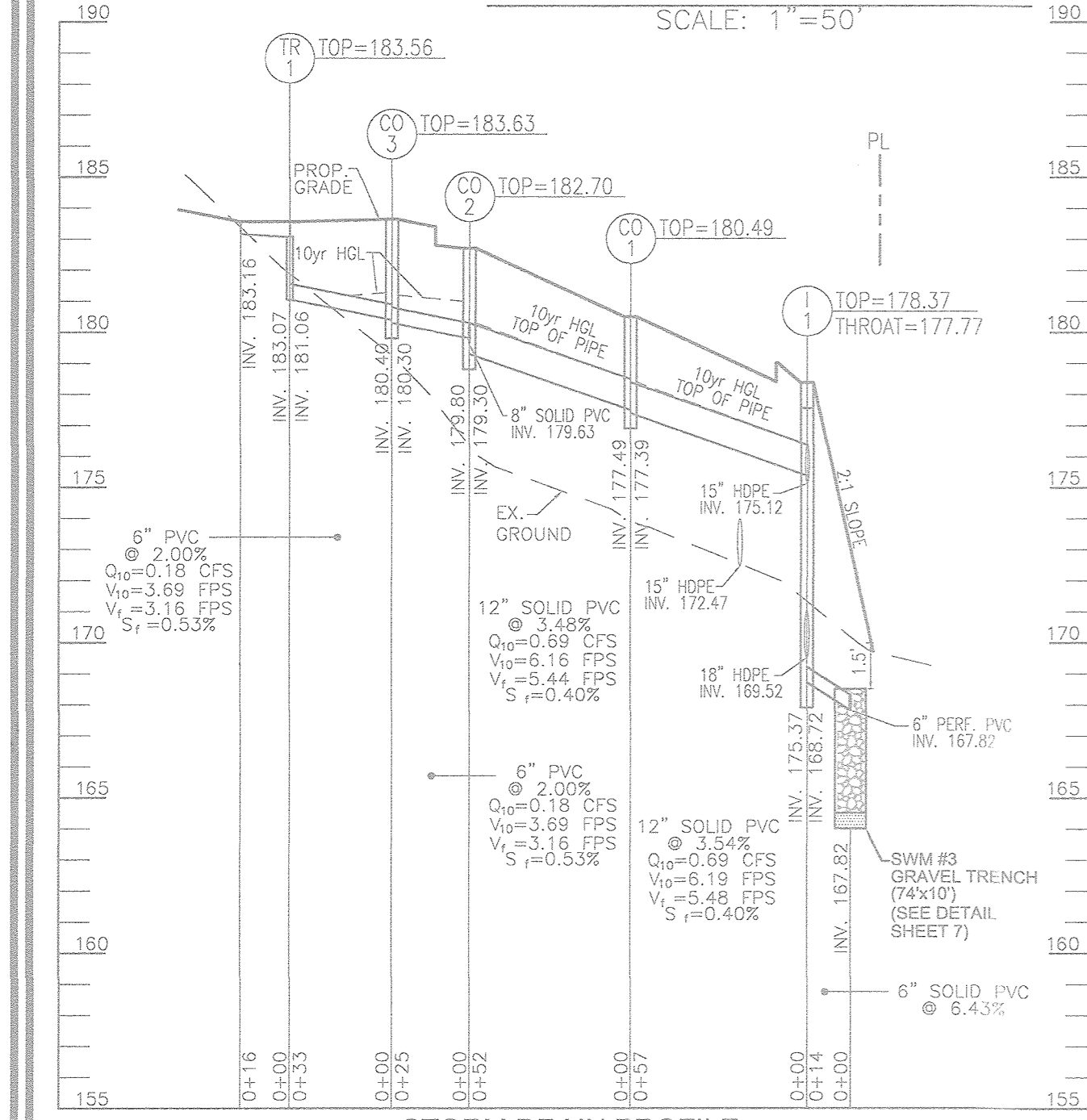


LEGEND:

218	PROPOSED CONTOUR	PROPOSED SIDEWALK
219	EXISTING CONTOUR	EXISTING CURB AND GUTTER
220	EXISTING OVERHEAD LINES	PROPOSED CURB AND GUTTER
221	EXISTING WATERLINE LINE	PROPOSED WHEEL STOP
222	EXISTING GAS LINE	PROPOSED STORM DRAIN INLET
223	EXISTING GUARD RAIL	PROPOSED STORM DRAIN
224	EXISTING METAL FENCE	PROP. MICRO BORETATION AREA (4-6)
225	EXISTING WOOD FENCE	FOREST CONSERVATION EASEMENT RETENTION
226	EXISTING ELECTRICAL BOX	10' CONSTRUCTION EASEMENT FOR RETAINING WALL
227	EXISTING POLE	RIGHT OF WAY DEDICATION
228	EXISTING LIGHT POLE WITH CONCRETE BASE	PROPOSED DRAINAGE DIVIDE
229	EXISTING MAILBOX	
230	EXISTING SIGN	
231	EXISTING SANITARY MANHOLE	
232	EXISTING CLEANOUT	
233	EXISTING FIRE HYDRANT	
234	PROPOSED PARKING COUNT	
235	PROPOSED BORING	
236	PROPOSED SANITARY LINE	
237	PROPOSED WATER LINE	
238	SOILS BOUNDARY	
239	PROPERTY LINE	
240	ADJACENT PROPERTY LINE	
241	RIGHT-OF-WAY LINE	
242	EXISTING TREELINE	
243	PROPOSED TREELINE	



STORM DRAIN DRAINAGE AREA MAP
SCALE: 1"=50'



STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	THROAT ELEV.	INV. IN	INV. OUT	COMMENTS
I-1	TYPE "A"-5" INLET	N 536652.5 E 1366865.5	178.37	177.77	175.37	182.30	HO. CO. STD. SD-4.01
I-2	WR SINGLE INLET	N 536694.6 E 1366965.6	182.30	-	-	178.60	-
I-3	"D" INLET	N 536753.6 E 1367031.1	184.08	182.50	178.92	178.27	-
I-4	"D" INLET	N 536930.9 E 1366922.4	181.83	181.00	177.17	176.78	-
MH-1	4'-0" STANDARD PRECAST MANHOLE	N 536672.9 E 1366862.1	178.80	-	172.32	170.33	HO. CO. STD. G-5.12
MH-2	4'-0" STANDARD PRECAST MANHOLE	N 536721.9 E 1367039.7	186.49	-	177.94	177.84	HO. CO. STD. S-2.22
MH-3	4'-0" STANDARD PRECAST MANHOLE	N 536817.2 E 1366892.9	181.00	-	176.19	176.09	HO. CO. STD. S-2.22
CO-1	CLEANOUT	N 536709.5 E 1366870.7	180.49	-	177.49	177.39	HO. CO. STD. S-2.22
CO-2	CLEANOUT	N 536722.8 E 1366920.9	182.70	-	178.89	179.30	HO. CO. STD. S-2.22
CO-3	CLEANOUT	N 536729.2 E 1366945.1	183.63	-	180.40	180.30	HO. CO. STD. S-2.22
CO-4	CLEANOUT	N 536734.6 E 1366918.4	183.24	-	180.24	180.14	HO. CO. STD. S-2.22
CO-5	CLEANOUT (INLINE)	N 536908.6 E 1366920.4	183.63	-	180.06	180.06	HO. CO. STD. S-2.22
CO-6	CLEANOUT	N 536855.2 E 1366906.3	183.00	-	180.34	180.34	HO. CO. STD. S-2.22
TR-1	ACC TRENCH DRAIN (SLOPED CHANNEL)	N 53661.2 E 1366753.5	183.56	-	183.07	181.06	KLASSIKDRAIN K1-K5
ES-1	END SECTION	N 536811.5 E 1366878.2	176.00	-	-	176.00	-
HW-1	TYPE "A" HEADWALL (18" PIPE)	N 536845.5 E 1366849.8	172.43	-	-	169.43	HO. CO. STD. S-2.22
SMH-1	4'-0" STANDARD PRECAST MANHOLE	N 536713.9 E 1367120.2	186.88	-	173.94	173.78	HO. CO. STD. G-5.12
SMH-2	4'-0" STANDARD PRECAST MANHOLE	N 536693.6 E 1367099.8	186.29	-	174.38	174.21	HO. CO. STD. G-5.12
SMH-3	4'-0" STANDARD PRECAST MANHOLE	N 536683.0 E 1367021.8	182.70	-	174.73	174.63	HO. CO. STD. G-5.12

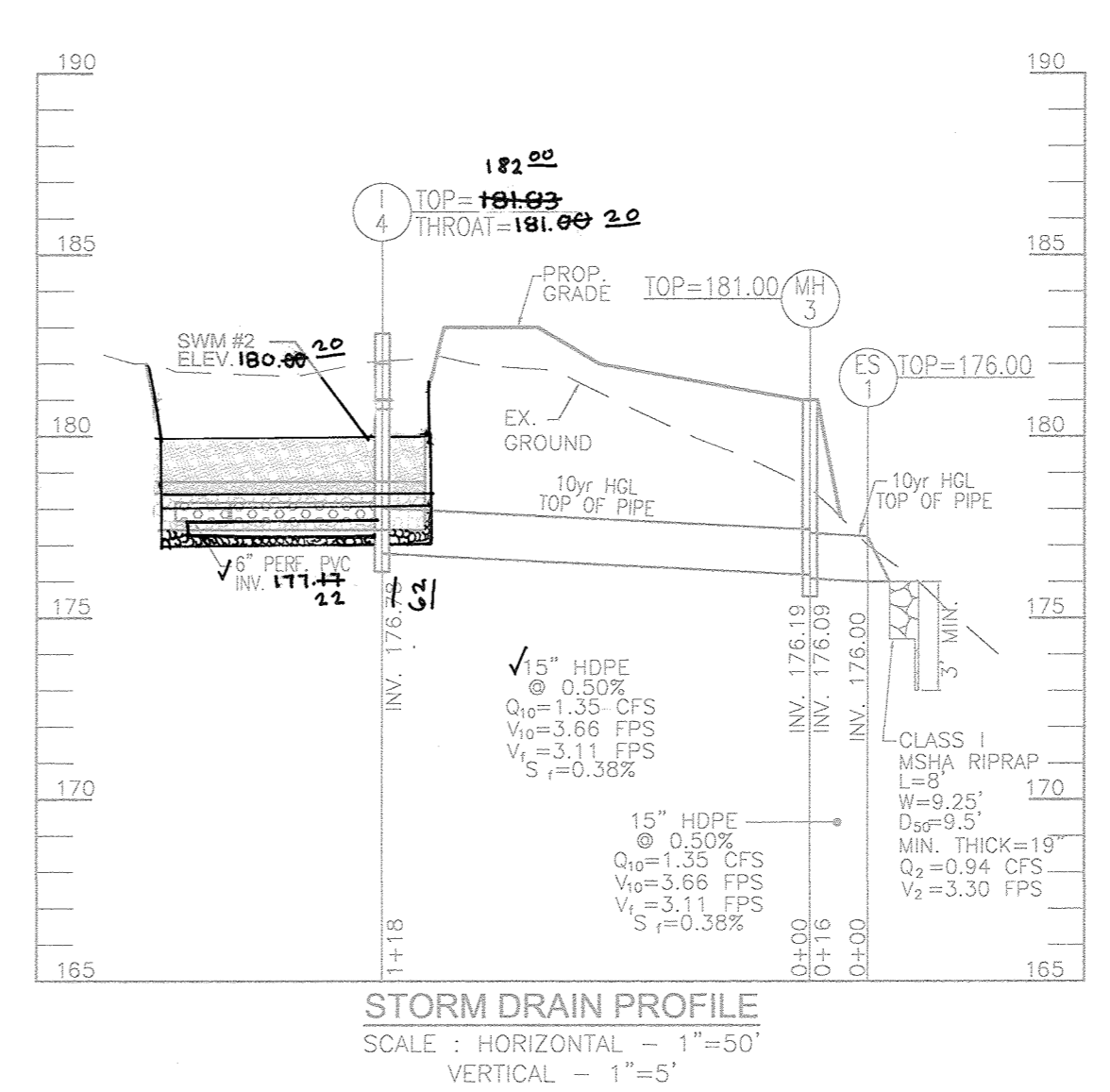
NOTE: 1. TOP ELEVATIONS ARE AT CENTER TOP OF HEADPIPE FOR TYPE "A"-5" INLET, CENTER TOP OF MANHOLE FOR TYPE "D" INLET, AND TOP OF MANHOLE COVER FOR PRECAST MANHOLES.
2. FOR TOP SLAB SLOPES SEE GRADING PLAN.
3. SEE ARCHITECTURAL PLANS FOR DOWNSPOUT AND ROOF DRAIN DETAILS.
4. ALL CUSTOM AND NON-STANDARD STRUCTURES TO BE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER.

PIPE SCHEDULE

SIZE	TYPE	LENGTH
6"	PRIVATE DIP WHC	117 LF
6"	PUBLIC DIP WATER (ADO)	43 LF
6"	PRIVATE PVC SEWER	92 LF
6"	PUBLIC PVC SEWER (ADO)	54 LF
6"	PERF. PVC (SWM)	64 LF
6"	PERF. HDPE (SWM)	201 LF
6"	SOLID PVC (SD)	72 LF
6"	SOLID PVC (SD)	12 LF
12"	SOLID PVC (SD)	176 LF
15"	HDPE (SD)	490 LF
18"	HDPE (SD)	18 LF

AS-BUILT CERTIFICATION FOR PSWM
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THIS CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOSING OF THE UNDERGROUND SEWER FACILITY.

DATE: 10/13/18
RE: #



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

1-12-16
DATE

2-22-16
DATE

2-22-16
DATE

DEVELOPER
VOLUNTEERS OF AMERICA, INC.
1600 DUKE STREET
ALEXANDRIA, VA 22314
(413) 798-4267
C/O RICK DELLA

OWNER
HOWARD COUNTY HOUSING COMMISSION
6751 COLUMBIA GATEWAY DR., 3RD FLOOR
COLUMBIA, MD 21046
(410) 313-6320

4	REVISE TO SHOW AS-BUILT CONDITIONS OF MBR1	11/30/17
2	REVISE PLAN TO REVISED SWM#2 TO ACCOMMODATE AS-BUILT ROOF LEADER	4/26/17

SITE DEVELOPMENT PLAN
STORM DRAIN DRAINAGE AREA MAP AND UTILITY PROFILES
DAY RESOURCE CENTER
VOLUNTEERS OF AMERICA
HOWARD COUNTY HOUSING COMMISSION
10300 GUILFORD ROAD
DPZ REFS: L15118F116, BA-08-027V
ZONED: CE-CLI
PARCEL 59, PARCEL A
HOWARD COUNTY, MARYLAND

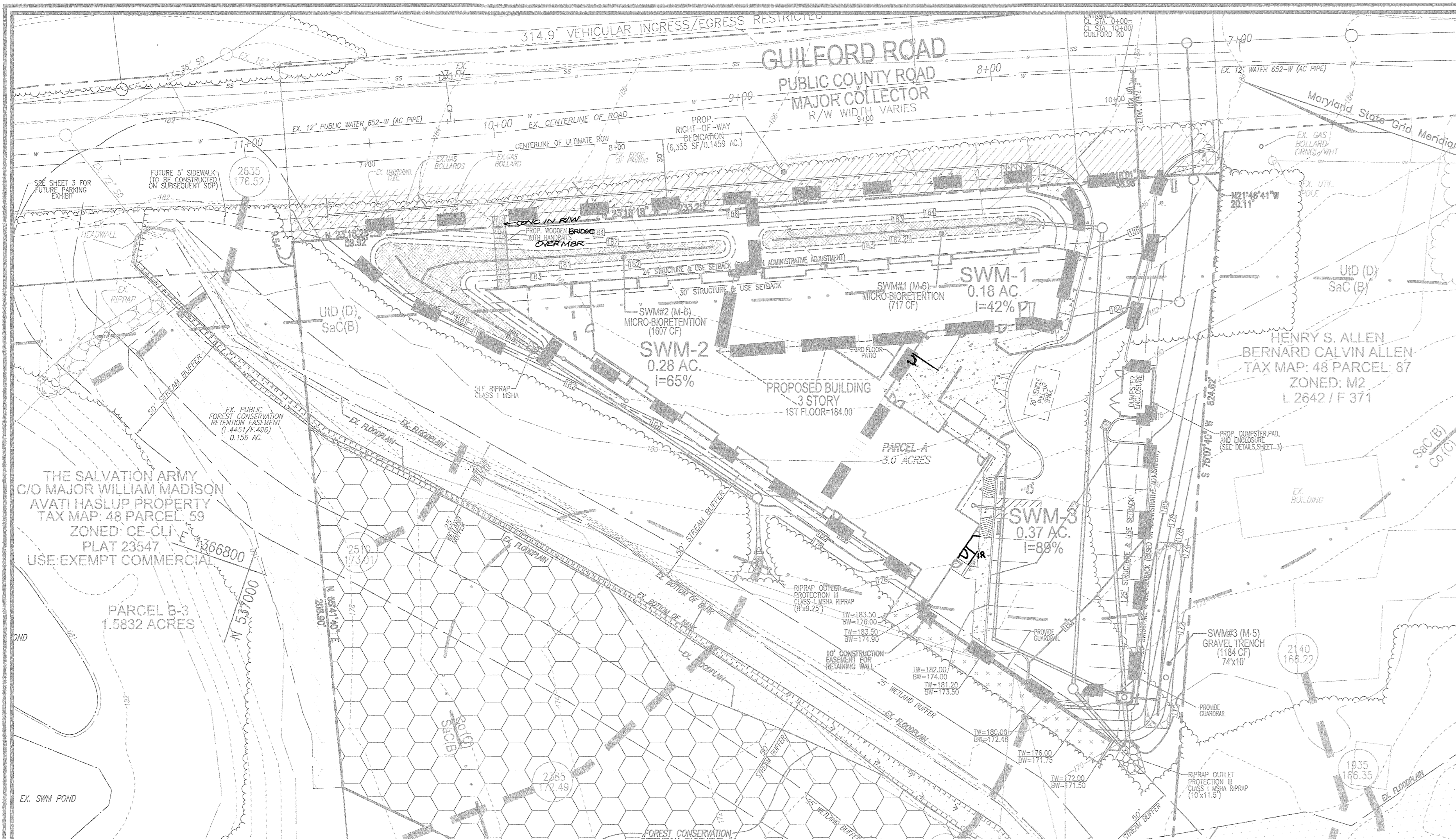
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLIOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.5961

PROFESSIONAL CERTIFICATE

DESIGN BY: RHW/DZE
DRAWN BY: DZE/KC
CHECKED BY: RHW
DATE: DECEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 05-72.01

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. 16193, EXPIRATION DATE 08-22-2018

6 SHEET OF 12



APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. MATERIAL SPECIFICATIONS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL
 THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVIDE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER WEEDS AS SPECIFIED UNDER COMAR 15.04.01.01. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 • SOIL COMPOSITION - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
 • ORGANIC CONTENT - MINIMUM ASH BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (50%-55%) AND COMPOST (50% TO 40%) OR SANDY LOAM (30%), COARSE SAND (10%), AND COMPOST (40%).
 • CLAY CONTENT - SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
 • PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
 THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STORAGE AREA. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION
 IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TIRE TYPE TRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE. COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILING OPERATIONS ARE TO RESTRUCTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS SHOULD BE APPROVED BY THE ENGINEER. RIMMERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
 ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE ORIGINAL SAND LAYER. SLURRY ANY EXPOSED WATER BEFORE RESTARTING ROTOTILLING. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS. DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SAND AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH WIDE TRACKS.

4. PLANT MATERIAL
 RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A SECTION A.2.3.

5. PLANT INSTALLATION
 COMPOST IS A BILDER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED OR CHIPPED HARDWOOD MULCH MUST BE AGED (6 TO 12 MONTHS) FOR ACCEPTANCE. THE ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST 2 TIMES 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 1" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLANTS SHALL BE PLANTED FOLLOWING THE NON-CROSS-GROUND COVER SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM MATURING CYCLING. THE PRACTICE 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 THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS
 UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 • PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G. PVC OF HDPE).
 • PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH 1/4" (NO. 4 OR 4-0) GALVANIZED HARDWARE CLOTH.
 • GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 • THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 • A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT POINT AND MONITOR PERFORMANCE OF THE FILTER.
 • A 4" LAYER OF PE# GRAVEL SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

7. MISCELLANEOUS
 THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

LEGEND:

PROPOSED CONTOUR	PROPOSED SIDEWALK
EXISTING CONTOUR	PROPOSED CURB AND GUTTER
EXISTING OVERHEAD LINES	PROPOSED CURB AND GUTTER
EXISTING WATERLINE LINES	PROPOSED WHEEL STOP
EXISTING GAS LINE	PROPOSED STORM DRAIN INLET
EXISTING GUARD RAIL	PROPOSED STORM DRAIN
EXISTING METAL FENCE	PROP. MICRO BIOTRETENTION AREA (M-6)
EXISTING WOOD FENCE	EXISTING ELECTRICAL BOX
EXISTING ELECTRICAL BOX	FOREST CONSERVATION EASEMENT RETENTION
EXISTING POLE WITH CONCRETE BASE	10' CONSTRUCTION EASEMENT FOR RETAINING WALL
EXISTING MAILBOX	RIGHT OF WAY DEDICATED
EXISTING SIGN	PROPOSED STORM DRAIN DIVIDE
EXISTING SANITARY MANHOLE	AS-BUILT CONSTRUCTION FOR PSWMA
EXISTING CLEANOUT	
EXISTING FIRE HYDRANT	
PROPOSED PARKING COURT	
PROPOSED SANITARY LINE	
PROPOSED WATER LINE	
SOILS BOUNDARY	
PROPERTY LINE	
ADJACENT PROPERTY LINE	
RIGHT-OF-WAY LINE	
EXISTING TREE LINE	
PROPOSED TREE LINE	

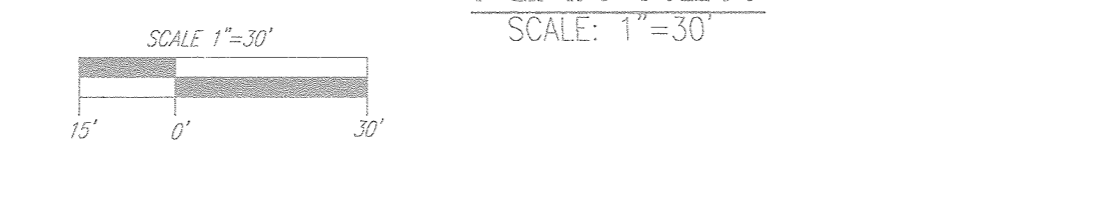
I HEREBY CERTIFY THAT THE PLANS SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE PLANS AND CONFORM WITH THE APPLICABLE STATE AND FEDERAL LAWS AND REGULATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWMM FACILITY.

15193 8/13/18
 P.E. NAME DATE

SOILS LEGEND

HOWARD COUNTY SOILS MAP #16

SYMBOL	NAME / DESCRIPTION	GROUP	ERODIBLE
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	YES
SoC	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES	D	NO
Ud	URBAN LAND-UDORTHENTS COMPLEX, 0 TO 15 PERCENT SLOPES	D	NO



OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIOTRETENTION (M-6), RAIN GARDENS (M-7), BIOTRETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

DRAINAGE AREA #	AREA TREATED (SF)	FACILITY NUMBER	PERMEABLE PAVEMENT (A-2)	LANDSCAPE INFILTRATION (A-2)	PERVIOUS SIDEWALK (M-3)	BIOTRETENTION SWALE (M-8)	MICRO BIO RETENTION (M-6)	ESDv VOLUME PROVIDED
1	6946	SWM#1	0	0	0	0	0	717
2	13105	SWM#2	0	0	0	0	1607	1607
3	15953	SWM#3	0	0	0	0	1184	1184
SUBTOTAL 1								2608
SUBTOTAL 2								1184
SUBTOTAL 3								1184
SUBTOTAL 4								4576
TOTAL AREA								36004 SF
TOTAL ESDv PROVIDED:								3508

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL, PRUNING, ACCEPTABLE REPLACEMENT PLANT MATERIAL, IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.

2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.

3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES (M-5)

DA	% IMPERV	Rv	DA	ESDv REQ	MINIMUM VOLUME	MAXIMUM VOLUME PROVIDED*
1	47	0.48	0.16	497	276	718
2	60	0.59	0.30	1158	644	1673
3	89	0.85	0.37	2040	1133	2947
TOTAL ESDv BY SUBAREA:				3,695		3,509

* Provided Volume is less than ESDv Require because Bio-retention utilized in subareas 1 and 2 at the rate of 75%.

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.

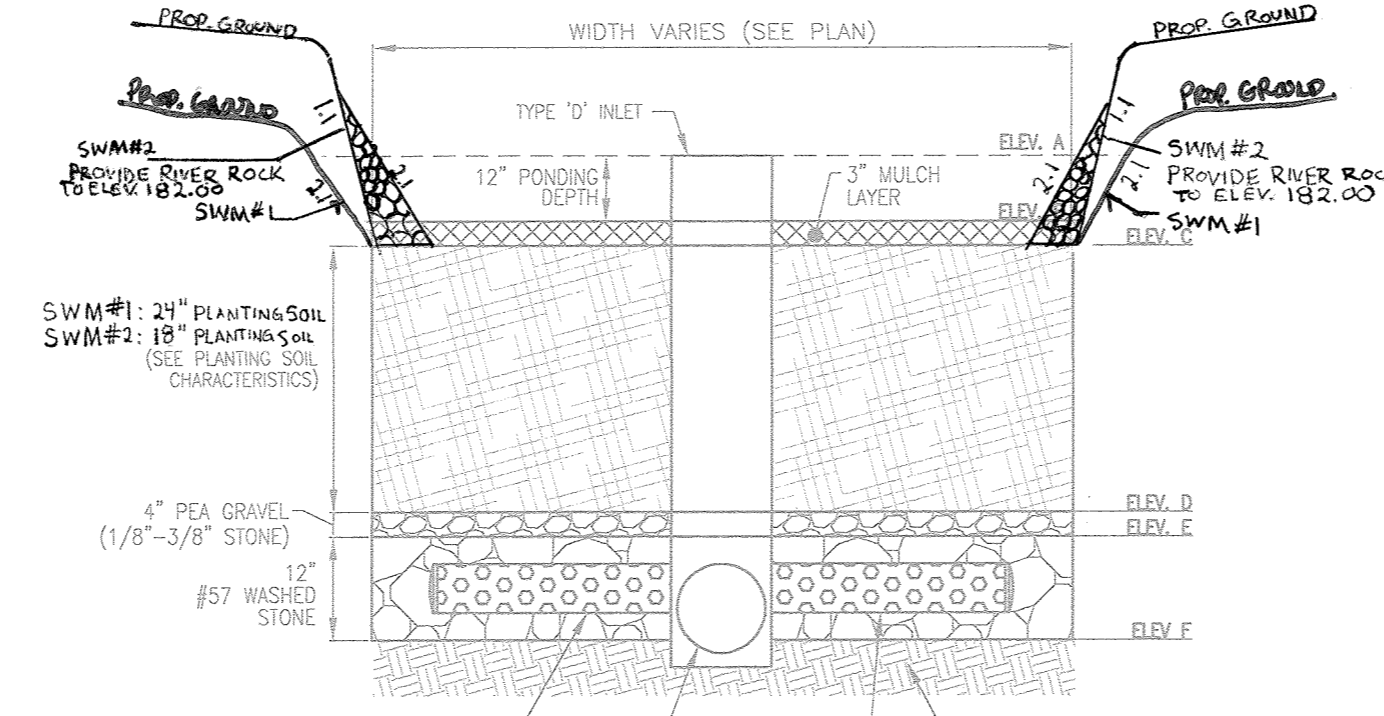
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.

3. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.

4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 48 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.

5. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.

6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

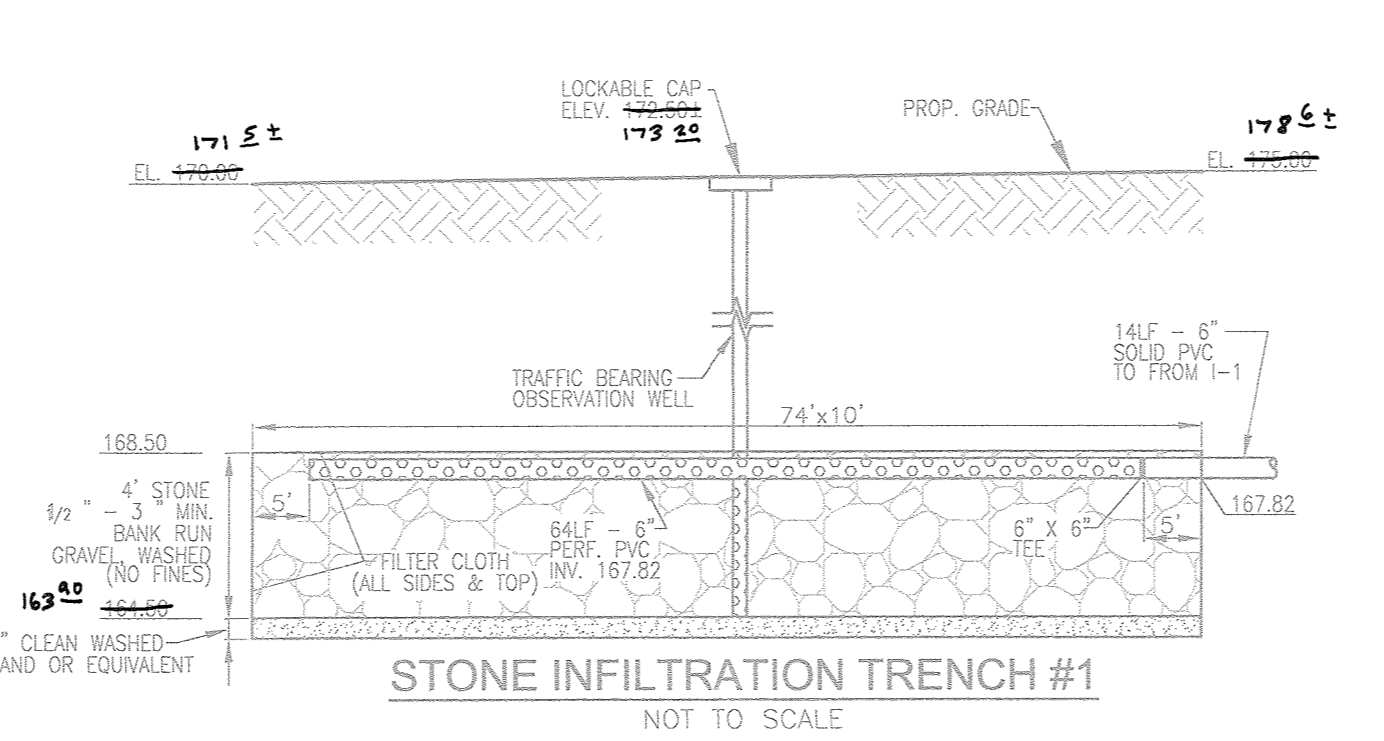


MICRO-BIOTRETENTION DATA CHART

MBR Facility	Pending Elevation	Top of Mulch	Bottom of Mulch	Bottom of Plant Mtx	Bottom of Pea Gravel	Bottom of Stone	Invert of 6" Underdrain
1	181.99	180.99	179.25	178.25	177.92	176.92	176.92
2	181.99	180.99	179.25	178.25	177.92	176.92	176.92

MICROBIOTRETENTION NOTES:

- ONLY THE SIDES OF MICROBIOTRETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIOTRETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
- WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.



APPENDIX B.2. CONSTRUCTION SPECIFICATIONS FOR INFILTRATION PRACTICES B.2.A INFILTRATION TRENCH GENERAL NOTES AND SPECIFICATIONS

AN INFILTRATION TRENCH MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE INFILTRATION TRENCH

- HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE PROPOSED LOCATION OF THE INFILTRATION TRENCH TO MINIMIZE COMPACTION OF THE SOIL.
- EXCAVATE THE INFILTRATION TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. THE SIDE WALLS OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
- A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 2.4.2, MATERIAL SPECIFICATIONS, 1984 STANDARDS AND SPECIFICATIONS FOR SOIL SEPARATION AND STABILIZATION CONTROL, M32, 1824) SHALL INTERSECT BETWEEN THE TRENCH SIDE WALLS AND BETWEEN THE STONE RESERVOIR AND GRAVEL FILTER LAYERS. A PARTIAL LIST OF NON-WOVEN FILTER FABRICS THAT MEET THE CLASS "C" CRITERIA FOLLOWS. ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
 AMCO 4552
 GEOLON N70
 WESLETT 407
 CARTRIDGE FX-80S
 MIRAFI 180-N
- IF A 6 INCH SAND FILTER LAYER IS PLACED ON THE BOTTOM OF THE INFILTRATION TRENCH, THE SAND FOR THE INFILTRATION TRENCH SHALL BE WASHED AND MEET AASHTO-M-43, SIZE NO. 9 OR NO. 10. ANY ALTERNATIVE SAND GRADEMENT MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
- THE STONE AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE GRAVEL (ROUNDED "BANK RUN" GRAVEL IS PREFERRED) FOR THE INFILTRATION TRENCH SHALL BE WASHED AND MEET ON OF THE FOLLOWING AASHTO-M-43, SIZE NO. 2 OR NO. 4.
- FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 6-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FILL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT BACKFILLING.
- CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERFERING WITH THE STONE AGGREGATE. ALL CONTAMINATED STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE.
- VOIDS MAY OCCUR BETWEEN THE FABRIC AND THE EXCAVATION SIDES SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, NATURAL SOILS SHOULD BE PLACED IN THESE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.
- VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOFT COHESIVE OR COHESIONLESS SOILS ARE DOMINANT. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPE TO MAINTAIN STABILITY.
- PVC DISTRIBUTION PIPES SHALL BE SCHEDULE 40 AND MEET ASTM-D-1785. ALL FITTINGS SHALL MEET ASTM-D-2779. PERFORATIONS SHALL BE 3/8 INCH DIAMETER. A PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE INFILTRATION TRENCH WALL. THE END OF THE PVC PIPE SHALL BE CAPPED. NOTE: PVC PIPE WITH A WALL THICKNESS CLASSIFICATION OF SDR-35 MEETING ASTM-D-3034 IS AN ACCEPTABLE SUBSTITUTE FOR THE SCHEDULE 40 PIPE.
- THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (M 278 OR F758, TYPE PS 28) WITH A CAP SET 6 INCHES ABOVE GROUND LEVEL AND IS TO BE LOCATED NEAR THE LONGITUDINAL CENTER OF THE INFILTRATION TRENCH. THE PIPE SHALL HAVE A PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING THE CAP. THE SCREW TOP LID SHALL BE A CLEANOUT WITH A LOCKING MECHANISM ON SPECIAL BOLT TO DISCOURAGE VANDALISM. THE DEPTH TO THE INVERT SHALL BE MARKED ON THE LID. THE PIPE SHALL BE PLACED VERTICALLY WITHIN THE GRAVEL PORTION OF THE INFILTRATION TRENCH AND A COP PROVIDED AT THE BOTTOM OF THE PIPE. THE BOTTOM OF THE CAP SHALL REST ON THE INFILTRATION TRENCH BOTTOM.
- CORRODED METAL DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, AND SHALL BE ALUMINIZED IN ACCORDANCE WITH AASHTO-M-274. ALUMINIZED PIPE CONTACT WITH CONCRETE SHALL BE COATED WITH AN INERT COMPOUND CAPABLE OF PREVENTING THE DELETERIOUS EFFECT OF THE ALUMINUM ON THE CONCRETE. PREFERRED DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-33. CLASS 2 AND SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE INFILTRATION TRENCH WALL. AN ALUMINIZED METAL PLATE SHALL BE WELDED TO THE END OF THE PIPE.
- IF A DISTRIBUTION STRUCTURE WITH A WET WELLIS USED, A 4-INCH DRAIN PIPE SHALL BE PROVIDED AT OPPOSITE ENDS OF THE INFILTRATION TRENCH DISTRIBUTION STRUCTURE. TWO (2) CUBIC FEET OF POROUS BACKFILL MEETING AASHTO-M-43, SIZE NO. 57 SHALL BE PROVIDED AT EACH DRAIN.
- IF A DISTRIBUTION STRUCTURE IS USED, THE MANHOLE COVER SHALL BE BOLTED TO THE FRAME.

APPENDIX B.1. MATERIALS SPECIFICATIONS FOR MICRO-BIOTRETENTION, RAIN GARDENS & LANDSCAPE INFILTRATION

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2" min depth)	loamy sand (60-65%) and coarse sand (35-40%) or sandy loam (20%), coarse sand (20%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% dry by weight (ASTM D 2974)	n/a	
Mulch	chipped hardwood	n/a	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 cobblets	stone: 2" to 5"	
Geotextile	n/a	n/a	FS Type I 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" or 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 underdrain pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth.
Poured in place concrete (if required)	MISHA Min No. 3; f'c = 3500 psi @ 28 days; nominal weight, air-entrained; reinforcing to meet ASTM-A-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 pre-approved steel or foam atteralard requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include vertical ACI Code 350.8R9; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressure) and analysis of potential cracking. #10 is not acceptable. No calcium carbide or dolomitic sand substitutes are acceptable. No "rock dust" can be used for sand.
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	

OWNER: HOWARD COUNTY, MD
 DEPARTMENT OF PUBLIC WORKS
 3430 CORTLANDT DRIVE
 ELLICOTT CITY, MD 211043
 (410) 313-4440

DEVELOPER: DEVELOPER OF AMERICA, INC.
 1600 DUKE STREET
 ALEXANDRIA, VA 22304
 (443) 798-4221
 c/o RICK DELLA

SITE DEVELOPMENT PLAN

STORMWATER MANAGEMENT DRAINAGE AREA MAP; SWM NOTES AND DETAILS; SOILS MAP

DAY RESOURCE CENTER
 VOLUNTEERS OF AMERICA
 10390 GUILFORD ROAD
 HOWARD COUNTY HOUSING COMMISSION
 DPZ REFS: L-15118/F-116, BA-08-027V
 ZONED: CE-CL1 PARCEL 59, PARCEL A HOWARD COUNTY, MARYLAND

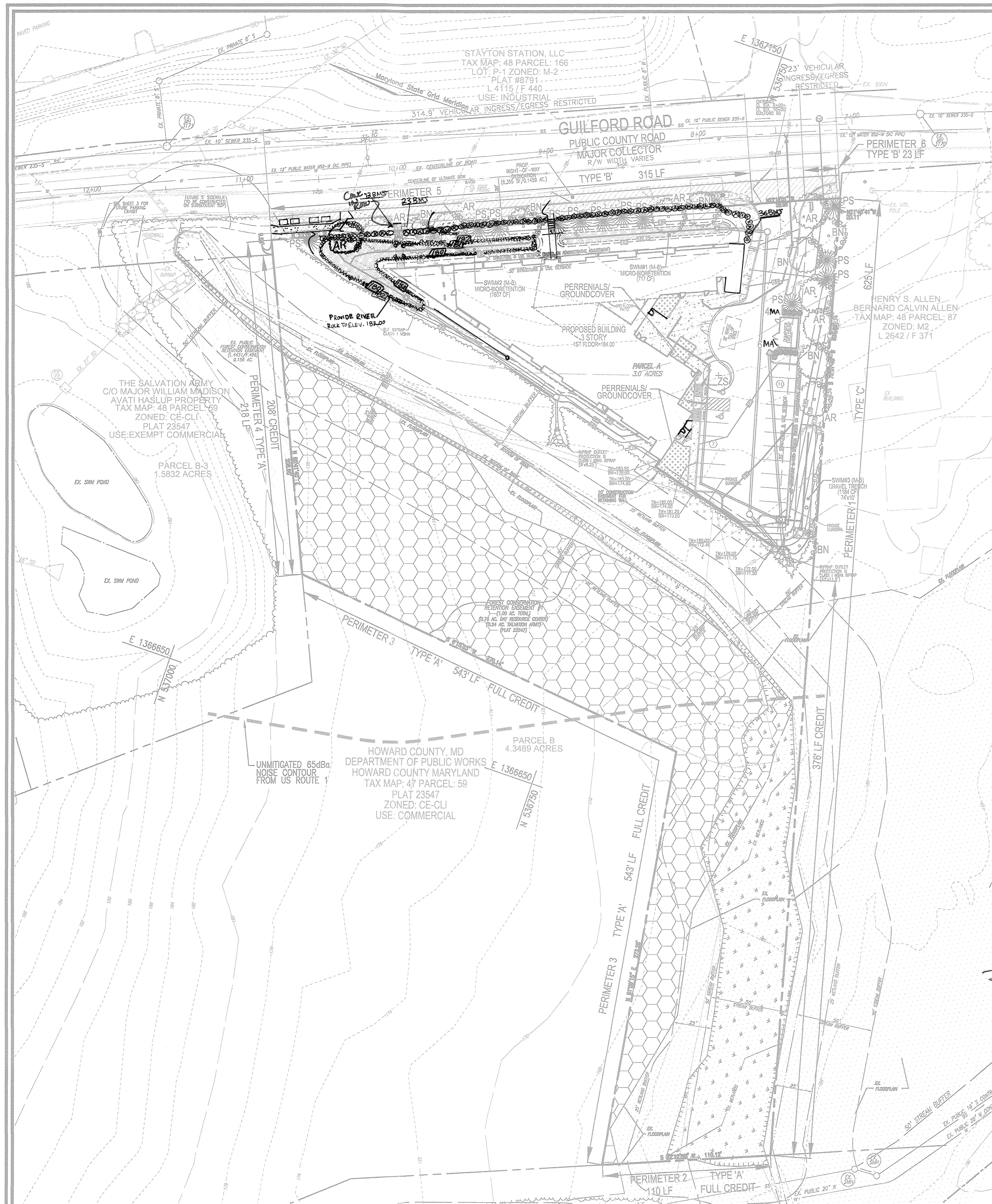
TAX MAP 47 GRID 12
 6TH ELECTION DISTRICT

ROBERT H. VOGEL ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET
 ELLICOTT CITY, MD 21043
 TEL: 410.461.7666
 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 08-27-2018

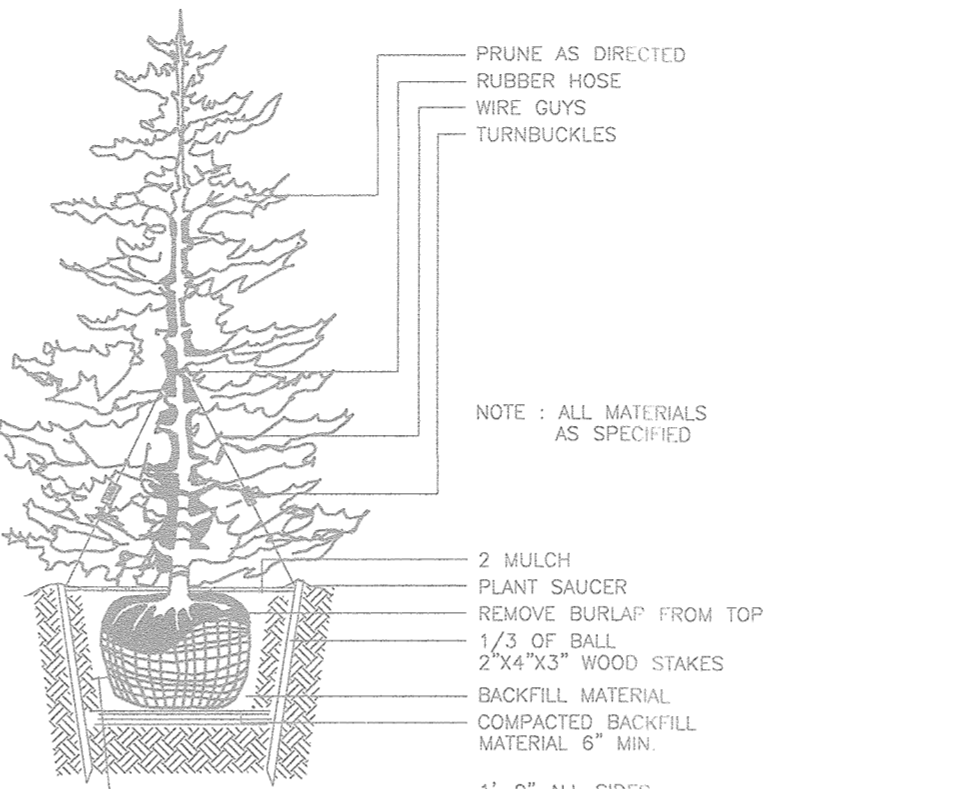
DESIGN BY: RHW/DZE
 DRAWN BY: DZE/KG
 CHECKED BY: RHW
 DATE: DECEMBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 06-72.01

7 SHEET OF 12

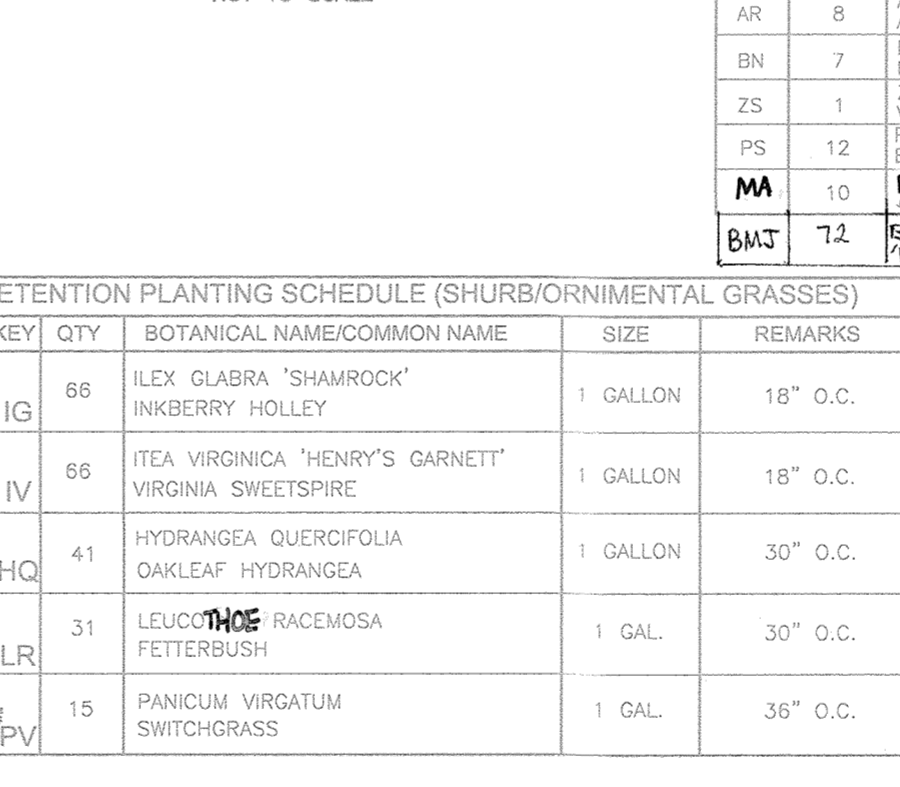


- NOTES**
- SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
 - SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
 - PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
 - KEEP MULCH 1" FROM TRUNK.
 - SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
 - TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.

TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 18.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND FORMER LANDSCAPING WILL BE CONSIDERED PER SUBMISSION.
 - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$8,600.00 FOR THE REQUIRED 16 SHADE TREES AND 12 EVERGREEN TREES.
- LANDSCAPE SCHEDULE NOTE:**
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRO PLANTING SPECIFICATIONS.
 - CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
 - FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
 - CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
 - NO SUBSTITUTION SHALL BE MADE WITHOUT PRIOR APPROVAL FROM HOWARD COUNTY DPZ AND THE OWNER OR HIS REPRESENTATIVE.
 - AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN WILL RESULT IN DENIAL IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
 - THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERRIS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIAL TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 - SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN BE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH A TREE WITH IDENTICAL SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.

LEGEND:

- PROPOSED CONTOUR
- EXISTING CONTOUR
- EXISTING OVERHEAD LINES
- EXISTING WATERLINE
- EXISTING GAS LINE
- EXISTING GUARD RAIL
- EXISTING METAL FENCE
- EXISTING ELECTRICAL BOX
- EXISTING POLE
- EXISTING LIGHT POLE WITH CONCRETE BASE
- EXISTING MANHOLE
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- PROPOSED PARKING COUNT
- PROPOSED BORING
- PROPOSED SANITARY LINE
- PROPOSED WATER LINE
- SOILS BOUNDARY
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING TREENE
- PROPOSED TREENE
- PROPOSED SIDEWALK
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- PROPOSED WHEEL STOP
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM DRAIN
- PROP. MICRO BIORETENTION AREA (M-B)
- FOREST CONSERVATION EASEMENT RETENTION
- 10' CONSTRUCTION EASEMENT FOR RETAINING WALL
- RIGHT OF WAY DEDICATION
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER AND ROWING						DUMPS/ST/CR
	1	2	3	4	5	6	
PERIMETER/FRONTAGE DESIGNATION	A	A	A	A	B	B	C
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	625'	110'	543'	218'	315'	23'	45'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	378'	YES	YES	208'	YES	No	No
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	No	No	No	No	No	No
NUMBER OF PLANTS REQUIRED	249	1:80 S	1:60 O	10'	1:50 T	1:50 O	1:40 T
SHADE TREES	180	5	1:80 O	1:60 O	1:50 T	1:50 O	1:40 T
EVERGREEN TREES	-	-	-	-	8	1	3
NUMBER OF PLANTS PROVIDED	5	0	0	0	7	1	2
SHADE TREES	5	0	0	0	7	1	2
EVERGREEN TREES	-	-	-	-	8	1	3
EX SHADE TREES	-	-	-	-	-	-	-
OTHER TREES (2:1 SUBSTITUTION)	-	-	-	-	12	-	10
SHRUBS (10:1 SUBSTITUTION)	-	-	-	-	-	-	82
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW (IF NEEDED)	-	-	-	-	-	-	-

* SUBSTITUTE 5 EVERGREEN TREES FOR 50 SHRUBS.

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
AR	8	ACER RUBRUM 'AUTUMN FLAME'	2 1/2"-3" CAL.	B & B
BN	7	BETULA NIGRA 'HERITAGE'	10'-12' HT.	B & B
ZS	1	ZELCOVIA SERRATA 'VILLAGE GREEN'	2 1/2"-3" CAL.	B & B
PS	12	PRINUS STROBUS 'EASTERN WHITE PINE'	6"-8" HT.	B & B
MA	10	MAHONIA AQUIFOLIUM 'DORSEAN'	2 1/2"-3" HT.	B & B
BM	72	BETULA NIGRA 'HERITAGE'	2'-2 1/2" HGT.	B & B

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	NUMBER OF TREES REQUIRED	NUMBER OF TREES PROVIDED
18	1	1
1	1	1
1	1	1

BIORETENTION PLANTING SCHEDULE (SHURB/ORNAMENTAL GRASSES)

LEGEND/KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	68	ILEX GLABRA 'SHAMROCK' INKBERY HOLLEY	1 GALLON	18" O.C.
IV	68	ITEA VIRGINICA 'HENRY'S GARNETT' VIRGINIA SWEETSPIRE	1 GALLON	18" O.C.
HQ	41	HYDRANGEA QUERCIFOLIA OAKLEAF HYDRANGEA	1 GALLON	30" O.C.
LR	31	LEUCODIUM RACEMOSA FEETEBUSH	1 GAL.	30" O.C.
PV	15	PANICUM VIRGATUM SWITCHGRASS	1 GAL.	36" O.C.

PERENNIALS/GROUNDCOVER PLANTING SCHEDULE

LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
217		BAPTISIA AUSTRALIS FALSE INDIGO	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR, MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT. PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP
217		ACORUS GRAMINEUS 'OGON' GOLDEN VAREGATED SWEET FLAG	1 QT.	

BIORETENTION PLANTING REQUIREMENTS

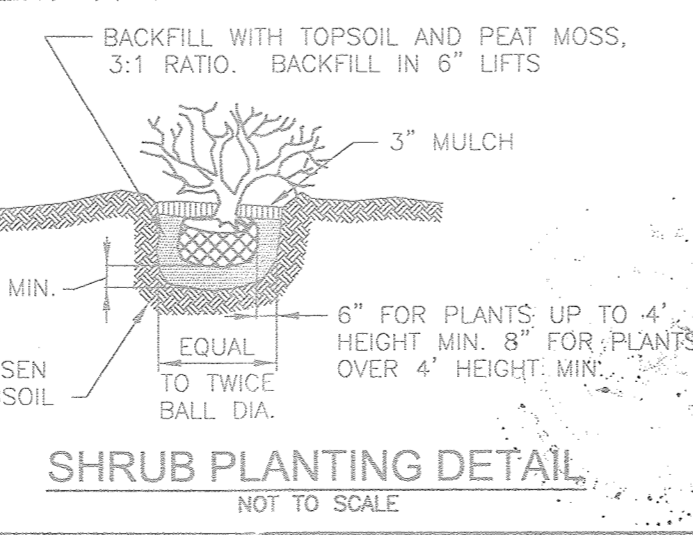
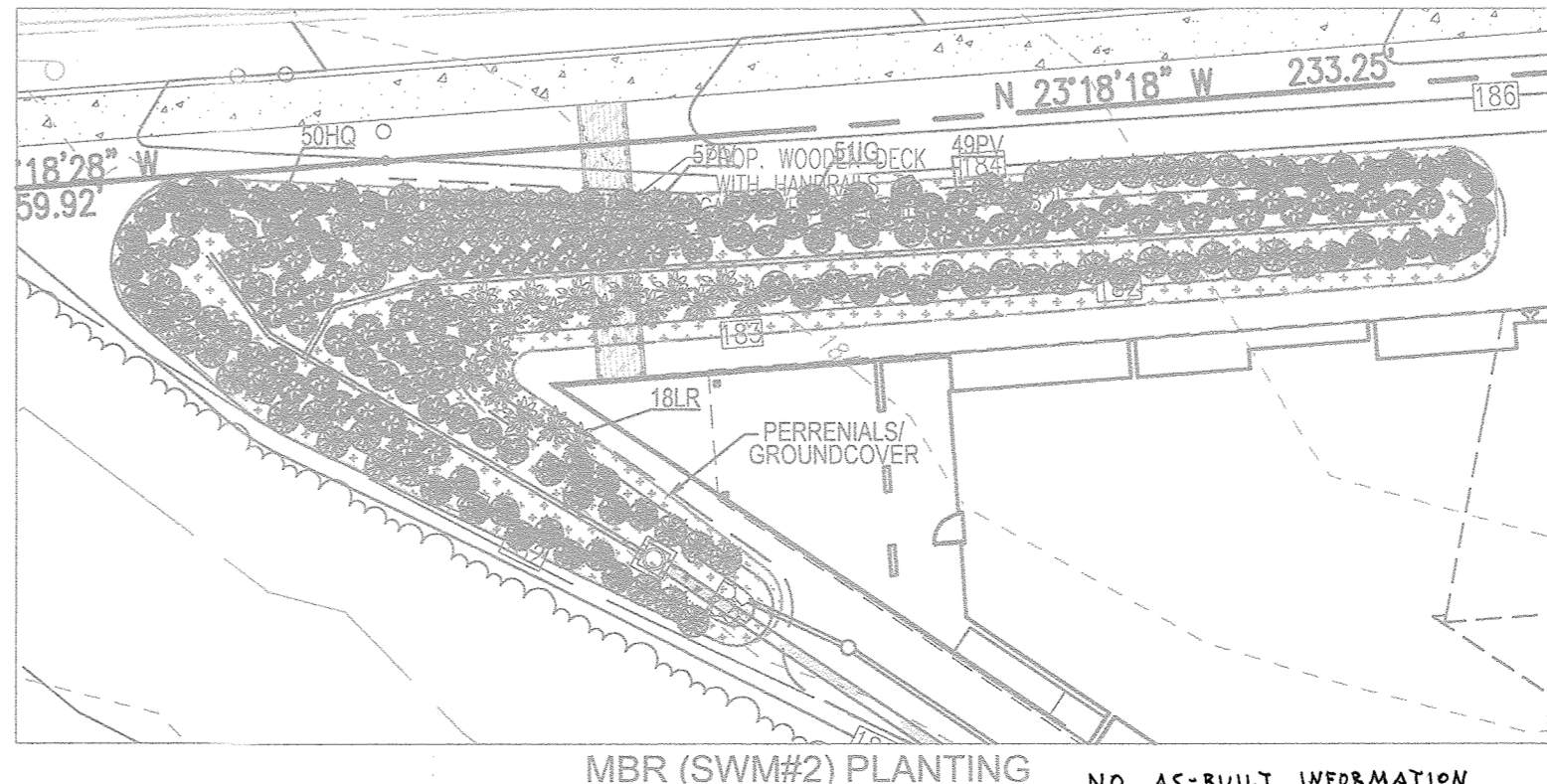
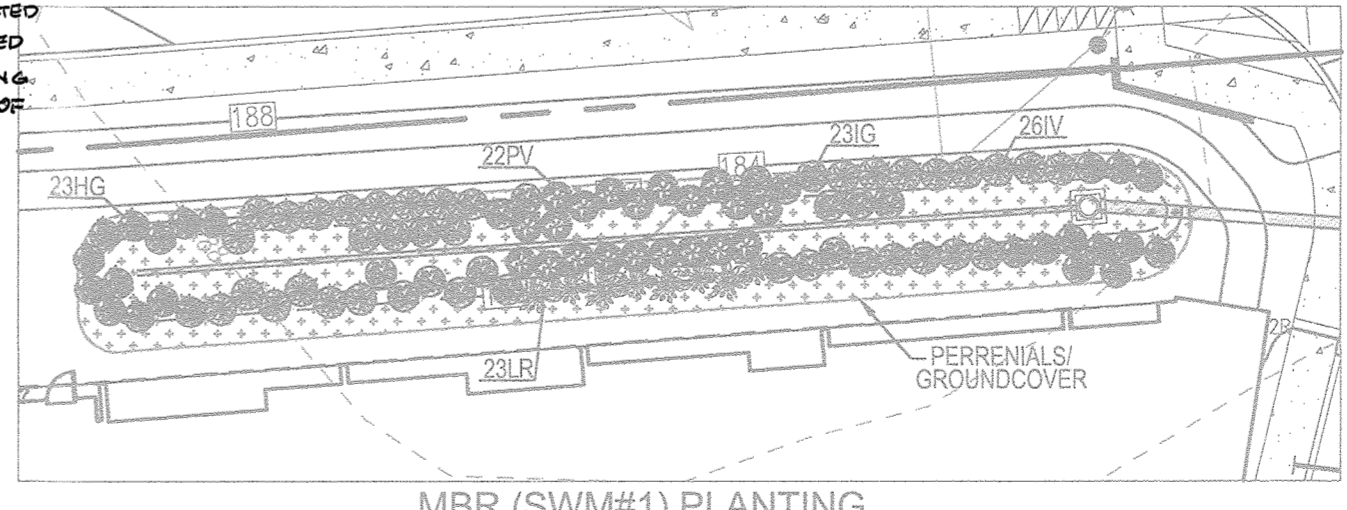
MBR AREA	STEMS REQUIRED	STEMS PROVIDED
1 717 SF	22	102
2 1,007 SF	49	225

BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED AREA (4225 STEMS PER SQ. FT.)

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWIM FACILITY.

P.E. NAME: LC/RS P.E. # 813/18 DATE 8/13/18



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 1.12.16
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Keith ... 2-23-16
CHIEF, DIVISION OF LAND DEVELOPMENT

Volodymyr ... 2-22-16
DIRECTOR

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 18.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

RL 12/21/2015
SIGNATURE OF DEVELOPER DATE

DEVELOPER
VOLUNTEERS OF AMERICA, INC.
1660 DIXIE STREET
ALEXANDRIA, VA 22314
(443) 793-4267
C/O RICK DELLA

OWNER
HOWARD COUNTY HOUSING COMMISSION
10360 GUILFORD ROAD
COLUMBIA, MD 21046
(410) 313-6320

NO.	REVISION	DATE
3	REVISE PLAN TO SHOW STAIRS AND NEW BRIDGE DETAIL	7/10/17
2	REVISE PLAN TO REVISED SWM#2 TO ACCOMMODATE AS-BUILT ROOF LEADER	4/26/17
1	REDUCE LENGTH OF DECLARATION LANE; REVISE BRIDGE DESIGN	3/17/17

SITE DEVELOPMENT PLAN
LANDSCAPE PLAN
DAY RESOURCE CENTER
VOLUNTEERS OF AMERICA
10360 GUILFORD ROAD
HOWARD COUNTY HOUSING COMMISSION

TAX MAP 47 GRID 12 6TH ELECTION DISTRICT
DPZ REFS: L15118F.116, BA-08-027V
ZONED: CE-CL1
PARCEL 59, PARCEL A HOWARD COUNTY, MARYLAND

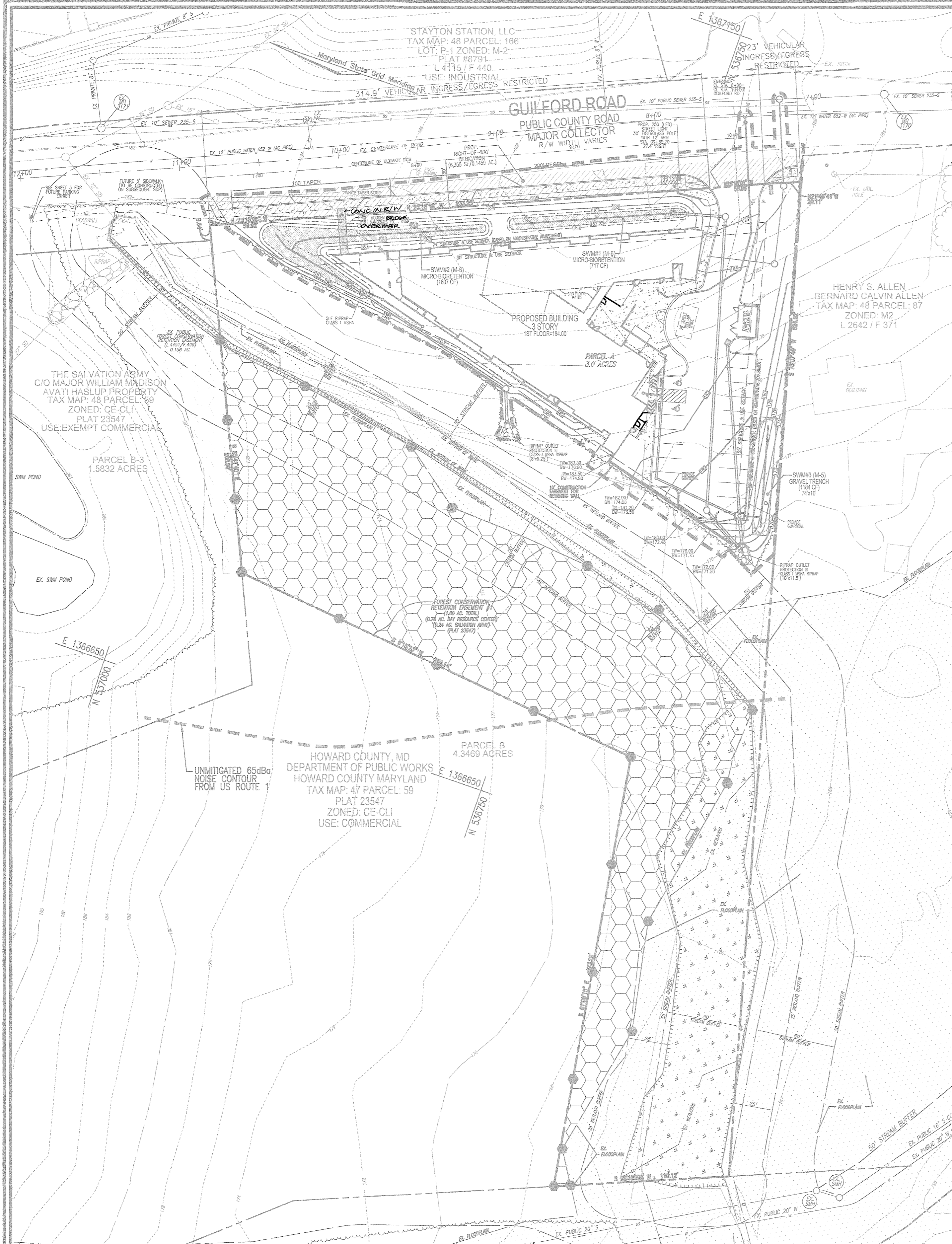
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELICOTT CITY, MD 21043
TEL: 410.481.7666
FAX: 410.481.1891

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV/DZE
DRAWN BY: DZE/KG
CHECKED BY: RHV
DATE: DECEMBER 2015
SCALE: AS SHOWN
W.O. NO.: 06-72.01

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. MY LICENSE EXPIRES ON 08-23-2018.

8 SHEET OF 12



LEGEND:

---	PROPOSED CONTOUR
---	EXISTING CONTOUR
---	EXISTING OVERHEAD LINES
---	EXISTING WATERLINE LINE
---	EXISTING GAS LINE
---	EXISTING GUARD RAIL
---	EXISTING MEDIA FENCE
---	EXISTING WOOD FENCE
---	EXISTING ELECTRICAL BOX
---	EXISTING POLE
---	EXISTING LIGHT POLE WITH CONCRETE BASE
---	EXISTING MAILBOX
---	EXISTING SIGN
---	EXISTING SANITARY MANHOLE
---	EXISTING CLEANDIT
---	EXISTING FIRE HYDRANT
---	PROPOSED PARKING COUNT
---	PROPOSED BORING
---	PROPOSED SANITARY LINE
---	PROPOSED WATER LINE
---	SOILS BOUNDARY
---	PROPERTY LINE
---	ADVANCED PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	EXISTING TREE LINE
---	PROPOSED TREE LINE
---	PROPOSED SIDEWALK
---	EXISTING CURB AND GUTTER
---	PROPOSED CURB AND GUTTER
---	PROPOSED WHEEL STOP
---	PROPOSED STORM DRAIN INLET
---	PROPOSED STORM DRAIN
---	PROP. MICRO BIORETENTION AREA (M-B)
---	FOREST CONSERVATION ESCHEMENT RETENTION
---	10' CONSTRUCTION EASEMENT FOR RETAINING WALL
---	RIGHT OF WAY DEDICATION

FOREST CONSERVATION NOTES:

- PRE-CONSTRUCTION ACTIVITIES**
- PRIOR TO THE START OF ANY CONSTRUCTION DEFINE THE LIMITS OF DISTURBANCE AND THE SOIL PROTECTION ZONE (CRITICAL ROOT AREA) FOR THE FOREST RETENTION AREAS. (SEE APPENDIX "I" OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL).
 - PRIOR TO THE START OF ANY CONSTRUCTION (INCLUDING CLEARING) ADJACENT TO THE SOIL PROTECTION ZONE, INSTALL BLAZE ORANGE FENCE.
 - INSTALL ALL FOREST CONSERVATION AREA SIGNS AS SHOWN ON THIS SDP AND/OR FCP.
 - ALL SEDIMENT CONTROL DEVICES SHALL BE IN PLACE PRIOR TO CONSTRUCTION TO PREVENT SEDIMENT FROM ENTERING THE FOREST CONSERVATION AREAS. SUPER SILT FENCE SHALL BE INSTALLED ON THE UPHILL SIDE OF ALL FOREST RETENTION AREAS, AND ALSO IF THE LOD IS WITH 50 FEET OR LESS OF RETENTION AREA.
 - FENCING, BLAZE ORANGE OR "SUPER" SILT SHALL BE CLEANED AND MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS SITUATION WARRANTS ON A REGULAR BASIS THROUGHOUT THE CONSTRUCTION PERIOD.
 - A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.
- CONSTRUCTION PHASE**
- DURING CONSTRUCTION, MONITOR ANY UNAUTHORIZED USE OF FOREST RETENTION AREAS. ANY USE OF FOREST RETENTION AREAS FOR THE FOLLOWING ACTIVITIES OR OTHER INTERUSIONS SHALL BE A VIOLATION OF THE APPROVED FOREST CONSERVATION PLAN:
 - STORAGE OF EQUIPMENT AND MATERIALS
 - DISPOSAL OF CONSTRUCTION MATERIALS
 - WASHING OF EQUIPMENT, DISPOSAL OF WASTEWATER FROM CONCRETE OPERATIONS, ETC.
 - EMPLOYEES PARKING
 - TEMPORARY STRUCTURES SUCH AS TRAILERS, SANITARY FACILITIES, ETC.
 - SOIL COMPACTION
 - ROOT ON SITE
 - FLOODED CONDITIONS
 - DROUGHT CONDITIONS
 - DURING CONSTRUCTION, INSPECT AND ENFORCE THE LIMITS OF DISTURBANCE AND REQUIRED PROTECTION MEASURES.
 - IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.
 - ANY DAMAGES TO RETAINED TREES DUE TO CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT THE DIRECTION OF THE QUALIFIED PROFESSIONAL.
 - FOREST CONSERVATION AREAS TO BE INSPECTED AND CERTIFIED FOR COMPLETION OF THE FOREST CONSERVATION PLAN REQUIREMENTS BY A QUALIFIED PROFESSIONAL.
- POST CONSTRUCTION**
- POST CONSTRUCTION ACTIVITIES TO BE PROVIDED FOR A MINIMUM OF 2 YEARS.
 - INSPECTIONS SHALL BE CARRIED OUT AT THE BEGINNING AND END OF THE GROWING SEASON TO PINPOINT ANY PROBLEMS, MONITOR SURVIVAL RATES, AND SPECIFY REMEDIAL ACTIONS NEEDED TO CORRECT EXISTING PROBLEMS.
 - POST CONSTRUCTION MANAGEMENT PROGRAMS OF FOREST CONSERVATION AREAS MUST BE ESTABLISHED AND INCLUDE MAINTENANCE OF ALL FENCES, SIGNS AND OTHER DEVICES DELINEATING FOREST CONSERVATION AREAS, AS WELL AS THE FOLLOWING OTHER MEASURES:
 - WATERING
 - ROOT PRUNING - CROWN REDUCTION OR PRUNING
 - FERTILIZATION
 - MULCHING
 - WEED CONTROL
 - CONTROL OF UNDESIRABLE COMPETING SPECIES
 - THINNING AND PRUNING TO ENCOURAGE PROPER GROWTH
 - REPAIR OF TREE DAMAGES:
 - ROOT REPAIR
 - REMOVAL OF DEAD OR DAMAGED MATERIAL/LIMBS
 - SOIL AERATION
 - REMOVAL OF DEAD OR DYING TREES POSING AN IMMEDIATE SAFETY HAZARD
 - AS PER THE SEDIMENT CONTROL PLAN, AND UNDER THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE TEMPORARY SEDIMENT CONTROL MEASURES AND FENCING. FOREST CONSERVATION SIGNS SHALL NOT BE REMOVED.
 - AN INSPECTION SHALL TAKE PLACE AT THE END OF YEAR ONE OR BEFORE THE SECOND GROWING SEASON TO EVALUATE SURVIVAL RATES AND APPROPRIATE ACTIONS TAKEN TO ACHIEVE REQUIRED SURVIVAL RATES.
 - AT THE CONCLUSION OF THE POST-CONSTRUCTION PERIOD, THE QUALIFIED PROFESSIONAL SHALL CERTIFY ALL FOREST CONSERVATION AREAS, SUPPLY SURVIVAL RATE DATA, AND VERIFY ALL PERTINENT PROTECTION MEASURES ARE IN PLACE. UPON INSPECTION BY LOCAL STATE PROJECT INSPECTOR APPROVAL, THE DEVELOPER SHALL BE RELEASED OF ALL SURETIES AND FUTURE OBLIGATIONS.
 - EDUCATION MATERIAL MUST BE PROVIDED TO OWNERS AND/OR OCCUPANTS ABOUT PROPER USE OF FOREST CONSERVATION AREAS. SUCH EDUCATION MATERIAL SHOULD INCLUDE A PLAN LOCATING ALL PROTECTED AREAS ON-SITE AND A DESCRIPTION OF PERMITTED AND PROHIBITED ACTIVITIES WITHIN OR AFFECTING SUCH AREAS.
- SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION:**
- PRE-CONSTRUCTION MEETING/SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
 - STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
 - INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY CD AND/OR DRP.
 - PROCEED WITH TREE REMOVAL AND SITE PREPARATIONS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY CD AND/OR DRP.
 - TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

AS-BUILT CERTIFICATION RE: PSWMA

I HEREBY CERTIFY THAT THE PLANTING SHOWN ON THE PLAN HAS BEEN CONSTRUCTED AS SHOWN ON THE PLAN AND COMPLETES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREAS SUFFICIENTLY STABILIZED TO PREVENT CLOSING OR THE UNDERGROUND SWIM FACILITY.

P.E. NAME: 16193 DATE: 5/13/18

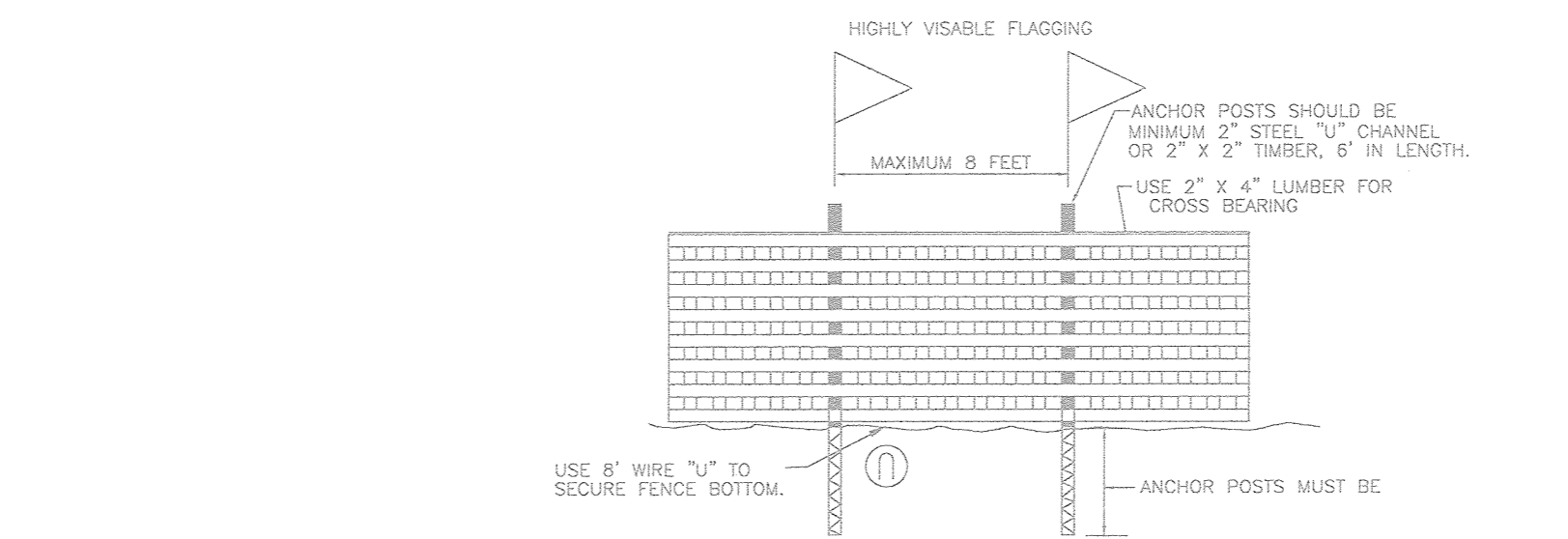
DATE: 12/21/2015

SIGNATURE OF DEVELOPER: [Signature]

Forest Stand Summary Analysis

Stand Number	Aerial Extent (Acres)	Estimated Trees per Acre	Average Diameter (D.A.)	Basal Area (BA) per Acre	Stand Formation Type	Dominant Indicator Species	Dominant Species per Acre	Dominant Species (D.A.)	Dominant % Frequency of Occurrence	Approximate Age of the Stand
P (shrub)	4.27	241.7	6.7"	123.3	Mid forest	Virginia Pine	153.9	10.6"	62.8	38.7 years (1873)
H (hardwoods)	3.33	196.0	6.3"	120.0	Mid forest	Tulip Poplar	48.2	13.4"	24.6"	33.5 years (1877)
D (disturbed)	0.42	78.0	9.3"	-	Disturbed	Green Ash	-	6.0"	18.0"	31.0 years (1979)

- A forest association is an assemblage of plants having ecologically similar requirements, and it includes one or more dominant species from which it derives a definite character. The *Tulip Poplar Forest Association* (Vegetation Map of Maryland, *The Existing Natural Forests, 1976, G.S. Brush, C. Lenk, S. Smith*) is characterized by the presence of tulip poplar in the absence of other characteristic species, elsewhere in the State. Common associated species include mixed oak (white and red), red maple, black gum, black cherry, locust, pignut hickory, sassafras, flowering dogwood, mapleleaf and arrowwood viburnum, greenbriar, poison ivy, lowbush blueberry and brambles. The entire tract is consistent with and typical of the tulip poplar association, which is the dominant forest type of the greater Baltimore/Washington area of central Maryland. First and second order streams occur on-site, which begin to develop into bottomland causing aspects of the coastal plain *Birch-Sycamore Association* to also be expressed (with a prevalence/co-dominance of red maple as a common bottomland, 'disturbance' species). These forest associations have such a strong influence on local forest composition that over ecological time, it is expected that the forest cover would continue to express the regional association, from which it resides.
- Basal area is a measurement of the cross-section of a tree in square feet at breast height. Basal area (BA) of a forest stand is the sum of the basal areas of the individual trees and is reported as BA per acre. The BA value shown in this *Forest Analysis* equates to stocking which is a general description of the density of the forest stand as compared to the desirable density for best growth and management. Stands may be described as understocked; a stand of trees so widely spaced that, even with full growth potential realized, crown closure will not occur, well stocked; the situation in which a forest stand contains trees spaced widely enough to prevent competition, yet closely enough to utilize the entire site, and overstocked; the trees are so closely spaced that they are competing for resources, resulting in less than full growth potential for individual trees. Basal area per acre values are analyzed as non-stocked = 0 to 9, poorly stocked = 10 to 59, moderately stocked = 60 to 99, fully stocked = 100 to 129, and overstocked = 130 to 160. *Forestry Handbook, K.F. Wenger, 1984, pp. 318-321*. There is a correlation between stand density and canopy closure, typically recognized as understocked, under 40% crown closure, well stocked, 40-70% crown closure, overstocked, over 70% crown closure. *Essentials of Forestry Practice, C.H. Stoddard, 1968, page 53*.
- Age dating methodology - *Valuation of Landscape Trees, Shrubs and other Plants. A Guide to the Methods and Procedures for Appraising Amenity Plants, International Society of Arboriculture, Seventh Edition, 1988, pages 33, 34*. The age of Stand 1 was determined by using red maple mean dbh.



BLAZE ORANGE PLASTIC MESH TYPICAL TREE PROTECTION FENCE DETAIL

MIN. 11"

MIN. 15"

MIN. 15"

DEVELOPER

VOLUNTEERS OF AMERICA, INC.
 1660 DUKE STREET
 ALEXANDRIA, VA 22314
 (443) 792-4267
 C/O RICK DELLA

OWNER

HOWARD COUNTY MD
 DEPARTMENT OF PUBLIC WORKS
 3430 COLLEGE HOUSE DR.
 ELLICOTT CITY, MD 21043
 (410) 313-4401

OWNER

HOWARD COUNTY HOUSING COMMISSION
 6751 COLUMBIA GATEWAY DR. 3RD FLOOR
 COLUMBIA, MD 21046
 (410) 313-6320

SIGNAGE DETAIL

NOT TO SCALE

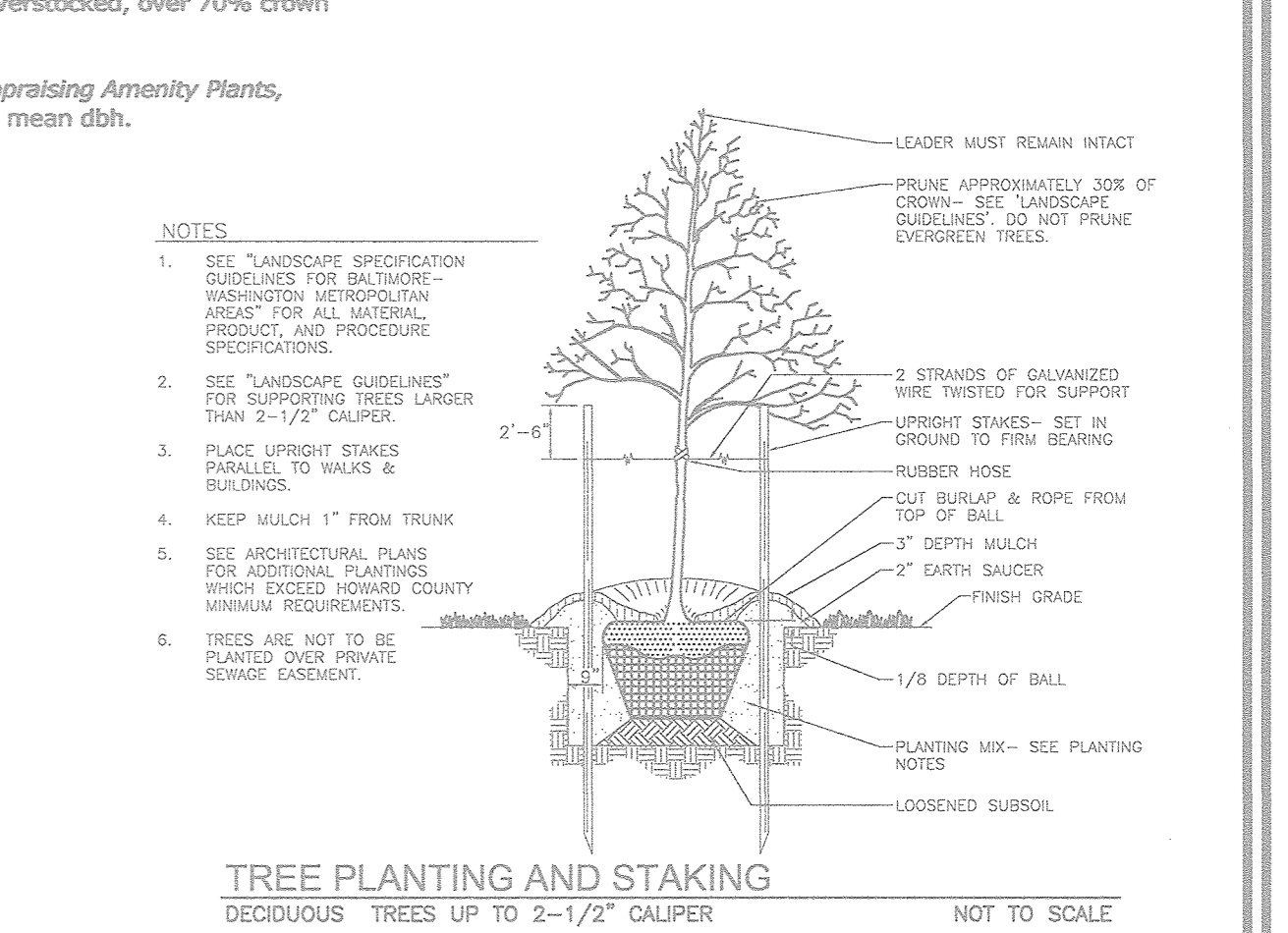
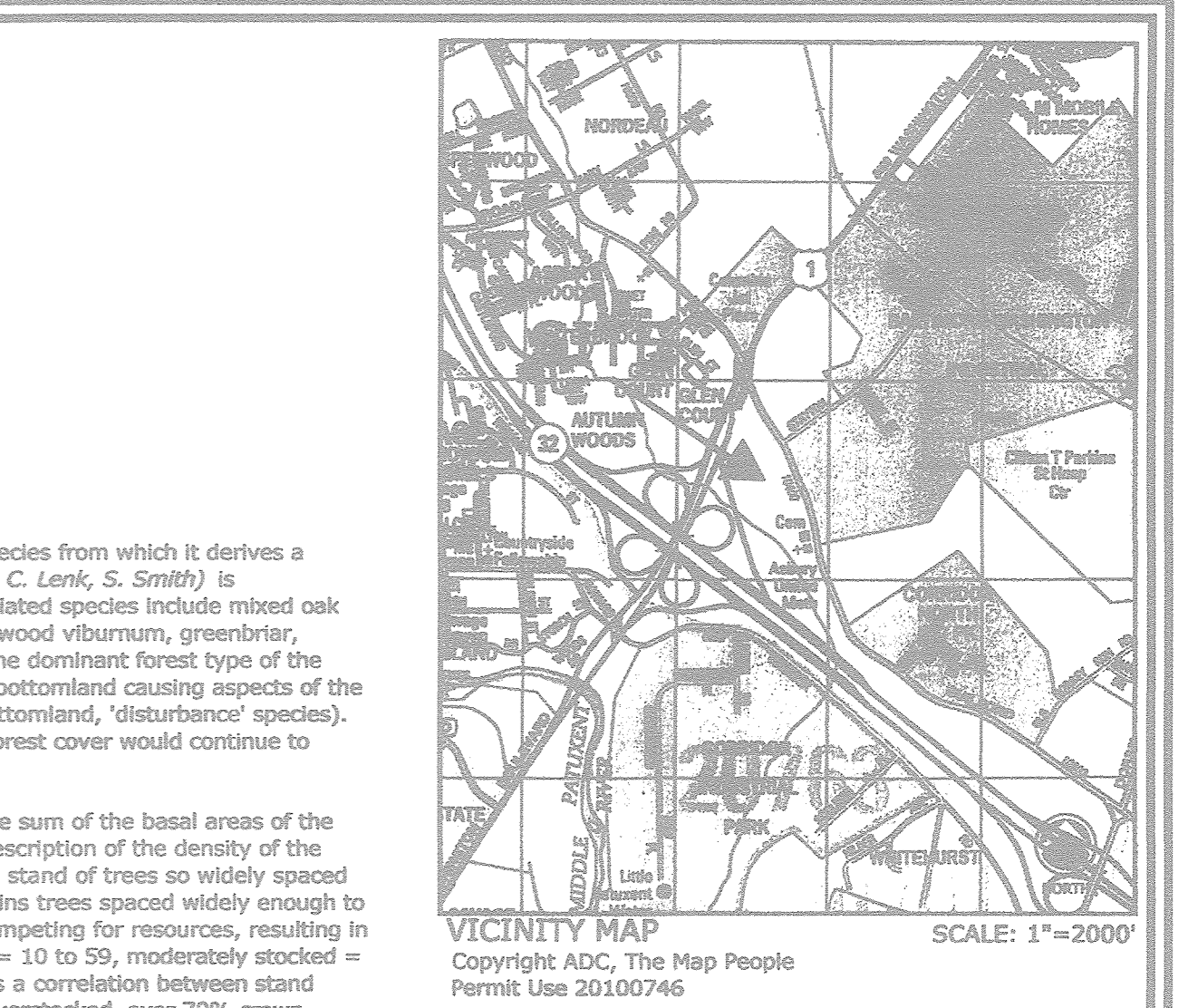
Forest Conservation Worksheet 2.2

Net Tract Area						
A. Total Tract Area						A = 3.00
B. Deductions (Floodplain)						B = 0.61
C. Net Tract Area						C = 2.39
Land Use Category						
ARA	MCR	DA	HDR	MPD	CIA	
0	0	0	0	0	1	
D. Afforestation Threshold (Net Tract Area x 15%)						D = 0.36
E. Conservation Threshold (Net Tract Area x 15%)						E = 0.36
F. Existing Forest Cover						F = 2.39
G. Area of Forest Above Conservation Threshold						G = 2.03
H. Break Even Point						H = 0.76
I. Forest Clearing Permitted Without Mitigation						I = 1.63
J. Proposed Forest Clearing						J = 1.03
K. Total Area of Forest to be Cleared						K = 1.38
L. Total Area of Forest to be Retained						L = 0.00
M. Reforestation for Clearing Above the Conservation Threshold						M = 0.00
N. Credit for Retention above the Conservation Threshold						N = 0.00
O. Total Reforestation Required						O = 0.00
P. Total Afforestation Required						P = 0.00
Q. Total Planting Requirement						Q = 0.00
R. Total Planting Requirement						R = 0.00

THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT HAS BEEN SATISFIED BY THE RETENTION OF 0.76 ACRES (BREAK EVEN POINT) OF FOREST. THIS PROPERTY ALSO RETAINS AN ADDITIONAL 0.24 ACRES WHICH HAS BEEN ABANDONED FROM THE AVANTI-HASLUP PROPERTY, PARCELS B-1 AND B-2. THE TOTAL FOREST RETENTION EASEMENT AREA IS 1.00 ACRES. NO SURETY IS REQUIRED FOR THE ON-SITE RETENTION.

NO AS-BUILT INFORMATION ON THIS SHEET.

Environmental Systems Analysis, Inc.
 Natural Resources Management
 Ecological Restoration
 162 West Street
 Annapolis, MD 21401



SITE DATA

LOCATION : LAUREL, MD.; TAX MAP 47, BLOCK 12, PARCEL 59, PARCEL D
 6TH ELECTION DISTRICT
 PRESENT ZONING : CE-CL1
 SITE AREA : 3.00 AC.
 REFERENCE: L 11225/F 318, BA-08-027V, BA-10-024V, SDP-96-098, ECP-14-074
 USE OF STRUCTURES: TEMPORARY HOUSING FOR HOMELESS
 TOTAL BUILDING COVERAGE: 14,303 SF (0.33 AC. OR 18.98% OF GROSS AREA)
 PAVED PARKING LOT AREA ON SITE: 9,029 SF (0.21 AC. OR 11.92% OF GROSS AREA)
 AREA OF LANDSCAPE ISLAND: 482 SF (0.01 AC. OR 0.64% OF GROSS AREA)
 LIMIT OF DISTURBED AREA: 1.18 AC.
 WETLANDS ON SITE: 0.36 AC.
 WETLAND BUFFERS ON SITE: 0.65 AC.
 STREAMS AND THEIR BUFFERS ON SITE: 0.11 AC.
 AREA ON-SITE: 100-YEAR FLOODPLAIN: 0.81 AC.
 AREA OF EXISTING FOREST ON SITE: 3.00 AC.
 AREA OF STEEP SLOPES (15% OR GREATER): 0.00 AC.
 AREA OF ERODIBLE SOILS: 0.09 AC. (WITHIN LOD)
 AREA MANAGED BY ESDV (*THIS PLAN): 0.75 AC.
 *IMPERVIOUS AREA : 0.51 AC.
 *GREEN AREA : 0.24 AC.

SITE DEVELOPMENT PLAN

FOREST CONSERVATION PLAN

DAY RESOURCE CENTER

VOLUNTEERS OF AMERICA
 10380 FORD ROAD
 HOWARD COUNTY HOUSING COMMISSION
 DPZ REFS: L15118F, 116, BA-08-027V
 PARCEL 59, PARCEL A
 6TH ELECTION DISTRICT
 ZONED: CE-CL1
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.

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DESIGN BY: RHW/DZE
 DRAWN BY: DZE/KC
 CHECKED BY: SP
 DATE: DECEMBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 06-72.01

STEPHANIE PRUETT
 NO. 3703

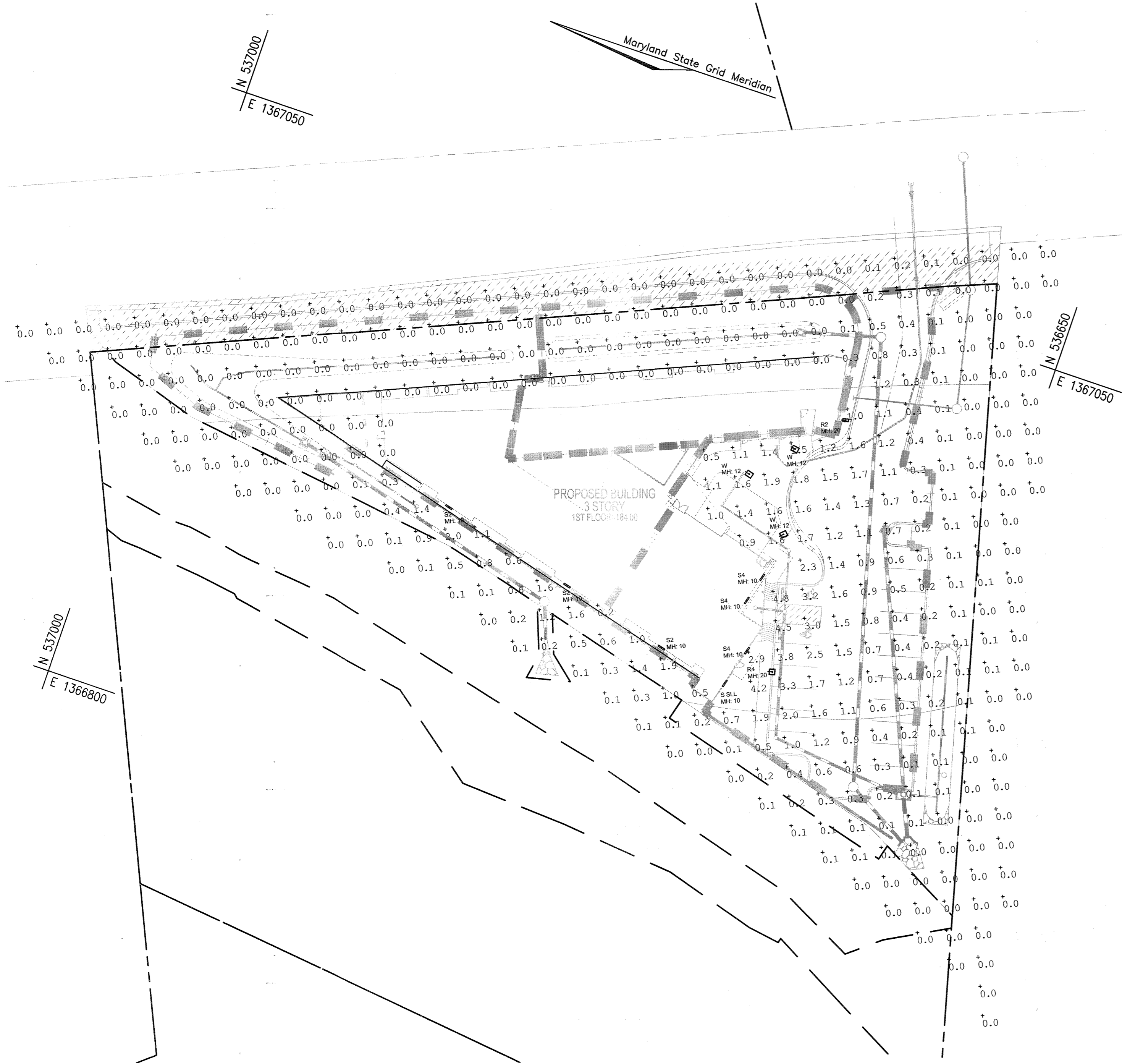
9 SHEET OF 12

SDP-15-023

AS-BUILT- MAY, 2018

Luminaire Schedule		Description	Catalog	Lum. Lumens	Lum. Watts
R2	SPAULDING LIGHTING	LED EXTERIOR POLE LIGHT, TYPE 2 WIDE DISTRIBUTION, 20 FOOT POLE	CL1-x-30L-1-3K-2-BC	3221	69.3
R4	SPAULDING LIGHTING	LED EXTERIOR POLE LIGHT, TYPE 4 FORWARD THROW, 20 FOOT POLE	CL1-30L-4K-4-BC	4882	70.9
S SLL	COOPER LIGHTING - McGRAW-EDISON	LED EXTERIOR WALLPACK, LEFT CUTOFF	IST-B01-LED-E1-SLL	1932	27
S2	COOPER LIGHTING - McGRAW-EDISON	LED EXTERIOR WALLPACK, TYPE 2 WIDE DISTRIBUTION	IST-B01-LED-E1-BL2	2177	27
S4	COOPER LIGHTING - McGRAW-EDISON	LED EXTERIOR WALLPACK, FORWARD THROW	IST-B01-LED-E1-BL4	2115	27
W	SPAULDING LIGHTING	LED EXTERIOR PEDESTRIAN POLE, 12 FOOT POLE	CL1S-A-16LU-3K-5W	2726	39.81

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Avg/Min
Entire_Site	Illuminance	Fc	0.36	4.8	0.0	N.A.
Parking Area	Illuminance	Fc	1.25	4.8	0.1	12.50



TYPE R2, R4

CIMARRON LED

DESCRIPTION

INSTALLATION

ORDERING INFORMATION

AS-BUILT CERTIFICATION FOR TYPE R2, R4

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPLICABLE PLANNING SPECIFICATIONS. I HAVE REVIEWED THAT THE CONTROLLING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND DRAIN FACILITY.

PR. NAME: [Signature] P.E. # 16193 DATE 8/12/18

TYPE S SLL, S2, S4

McGRAW-EDISON

DESCRIPTION

INSTALLATION

ORDERING INFORMATION

TYPE W

CIMARRON LED CL1S

DESCRIPTION

INSTALLATION

ORDERING INFORMATION

SITE POLE - 20' FOR TYPE R2,R4
12' FOR TYPE W

SSA SERIES POLES

DESCRIPTION

INSTALLATION

ORDERING INFORMATION

BASE DETAIL

1 LIGHTING SITE PLAN
E.O.0.1 1"= 30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Plummer
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 1-12-16

Vicki L. O'Connell
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE 2-22-16

Nancy J. Griffin
DIRECTOR
DATE 2-22-16

DEVELOPER
VOLUNTEERS OF AMERICA, INC.
1660 DUKE STREET
ALEXANDRIA, VA 22304
(443) 798-4267
C/O RICK DELLA

OWNER
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(410) 313-4400

OWNER
HOWARD COUNTY HOUSING COMMISSION
6751 COLUMBIA GATEWAY DR., 3RD FLOOR
COLUMBIA, MD 21046
(410) 313-6320

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
LIGHTING SITE PLAN
DAY RESOURCE CENTER
VOLUNTEERS OF AMERICA
10390 GUILFORD ROAD
HOWARD COUNTY HOUSING COMMISSION
DPZ REF'S: L 11225 / F 318, BA-08-027V PARCEL 59, PARCEL D
6TH ELECTION DISTRICT ZONED: CE-CL1 HOWARD COUNTY, MARYLAND

aspire engineering

PROFESSIONAL CERTIFICATE

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. 06-12.

DESIGN BY: CB
DRAWN BY: CB
CHECKED BY: CB/JS
DATE: OCTOBER 2014
SCALE: AS SHOWN
W.O. NO.: 06-72.01

10 SHEET OF 12

NO AS-BUILT INFORMATION ON THIS SHEET

SPECIFICATIONS
MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 DESCRIPTION

- A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.
- B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL, AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO + 100 DEGREES F. B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

2.03 BASE LEVELING PAD MATERIAL
A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.04 UNIT DRAINAGE FILL
A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE

2.05 REINFORCED BACKFILL
A. REINFORCED BACKFILL SHALL TYPE SM, BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIETVE SIZE	PERCENT PASSING
2 INCH	100-75
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM D-4318.
B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

2.06 GEOGRID SOIL REINFORCEMENT
A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENSACITY POLYESTER YARN.

2.07 DRAINAGE PIPE
A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-1248.

PART 3 EXECUTION
3.01 EXCAVATION
A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE EXCAVATION PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

3.02 BASE LEVELING PAD
A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.

B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 MODULAR UNIT INSTALLATION
A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.

PART 2: PRODUCTS

2.01 MODULAR CONCRETE RETAINING WALL UNITS
A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:
FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.
FACE FINISH - SCULPTURED ROCK FACE IN ANGULAR TRI-PLANNER OR FLAT CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.

EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH APPROPRIATE REFERENCES:
COMPRESSIVE STRENGTH = 3000 PSI MINIMUM;
ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;

DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16" X 1/8" (W) X 1/8" (D) MINIMUM;

UNIT WEIGHT - 100 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES;

INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE

GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM

D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTION REQUIREMENTS: (IF APPLICABLE)
VERTICAL SETBACK = 1/8" PER COURSE (NEAR VERTICAL) OR 1" PER COURSE PER THE DESIGN; ALIGNMENT AND GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM;

MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH.

2.02 SHEAR CONNECTORS (IF APPLICABLE)
A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN-PROTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO

E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED THREE COURSES.

3.04 STRUCTURAL GEOGRID INSTALLATION
A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT
A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.

B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D998. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.

D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.

E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

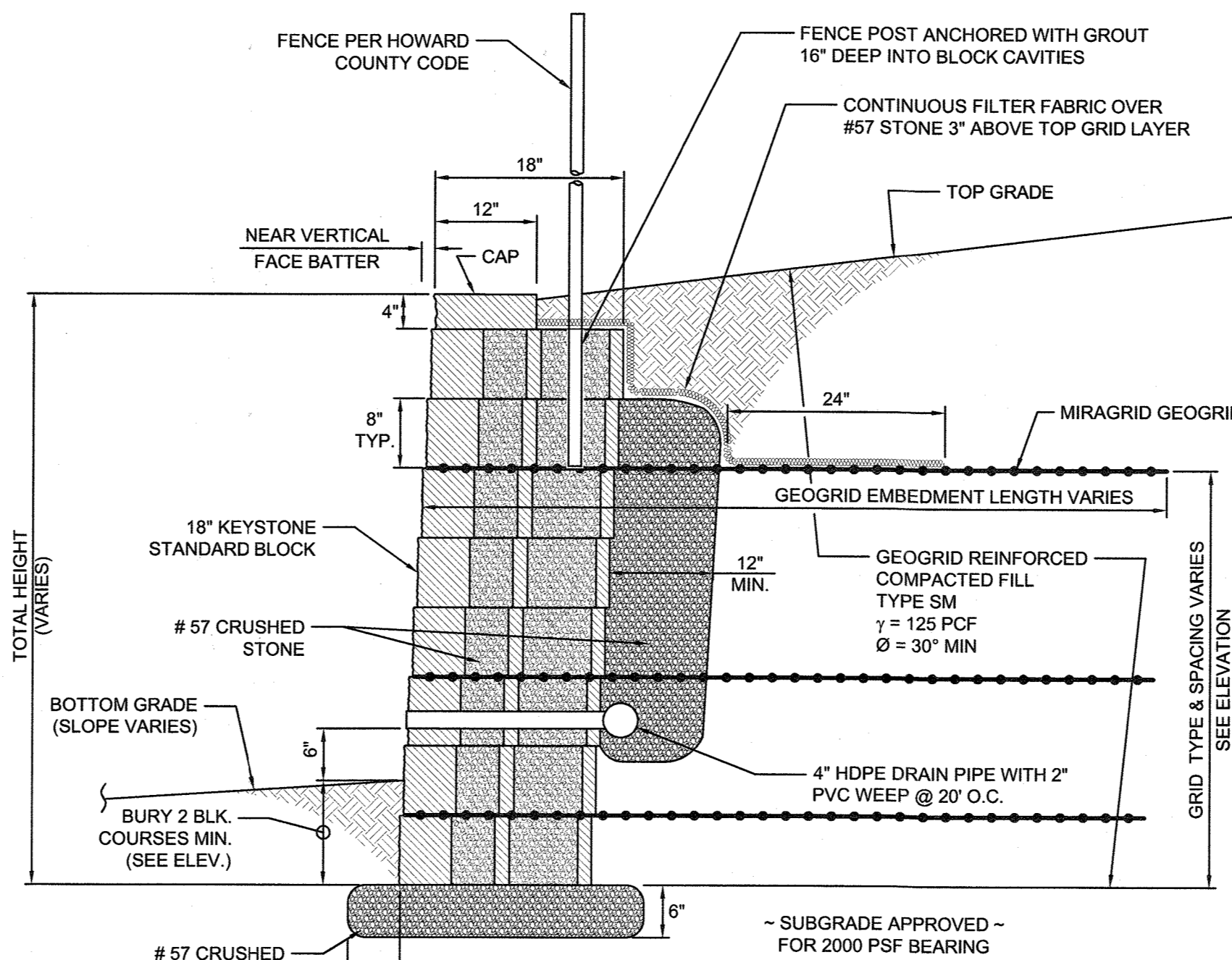
F. RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

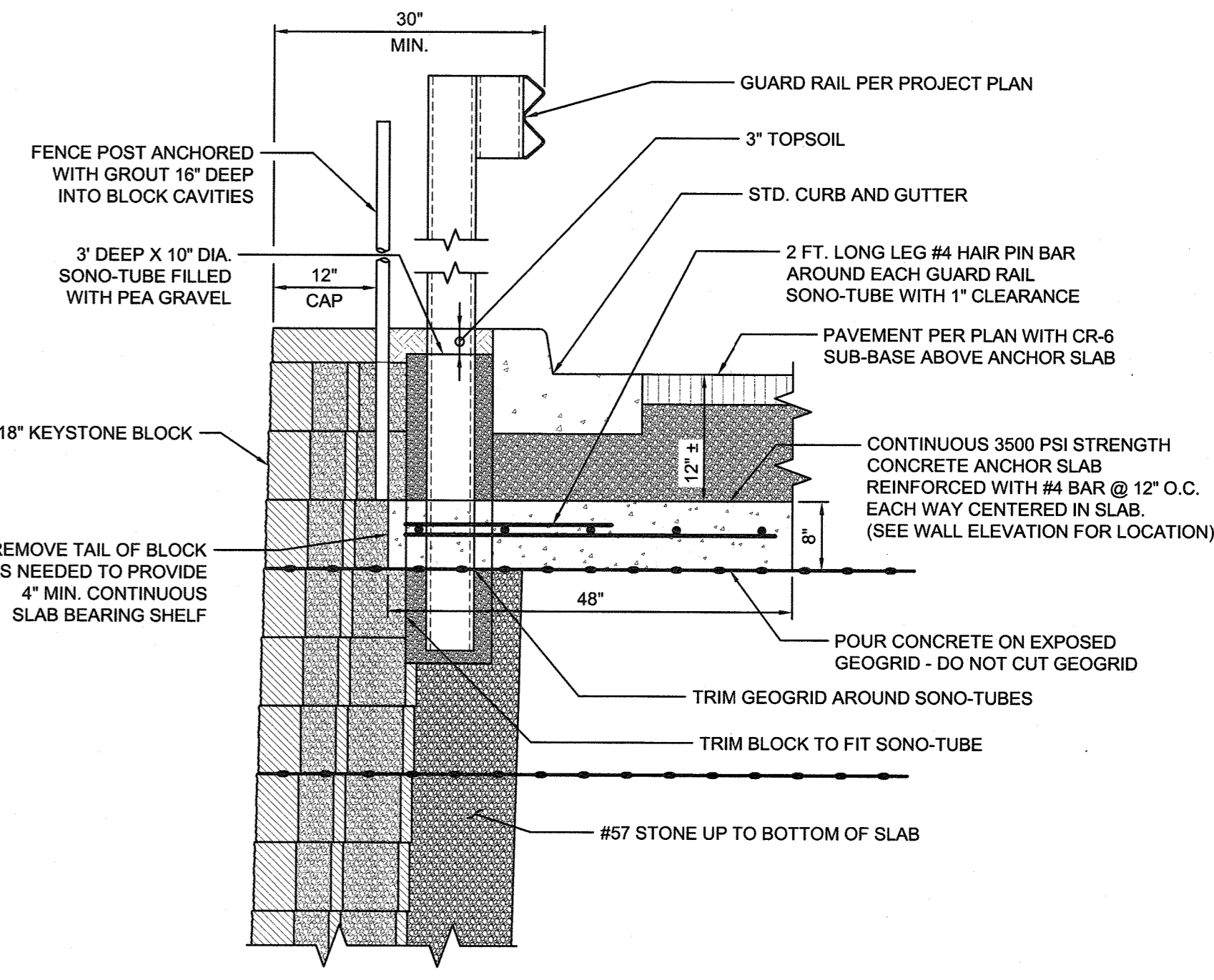
3.06 CAP INSTALLATION
A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL
A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.

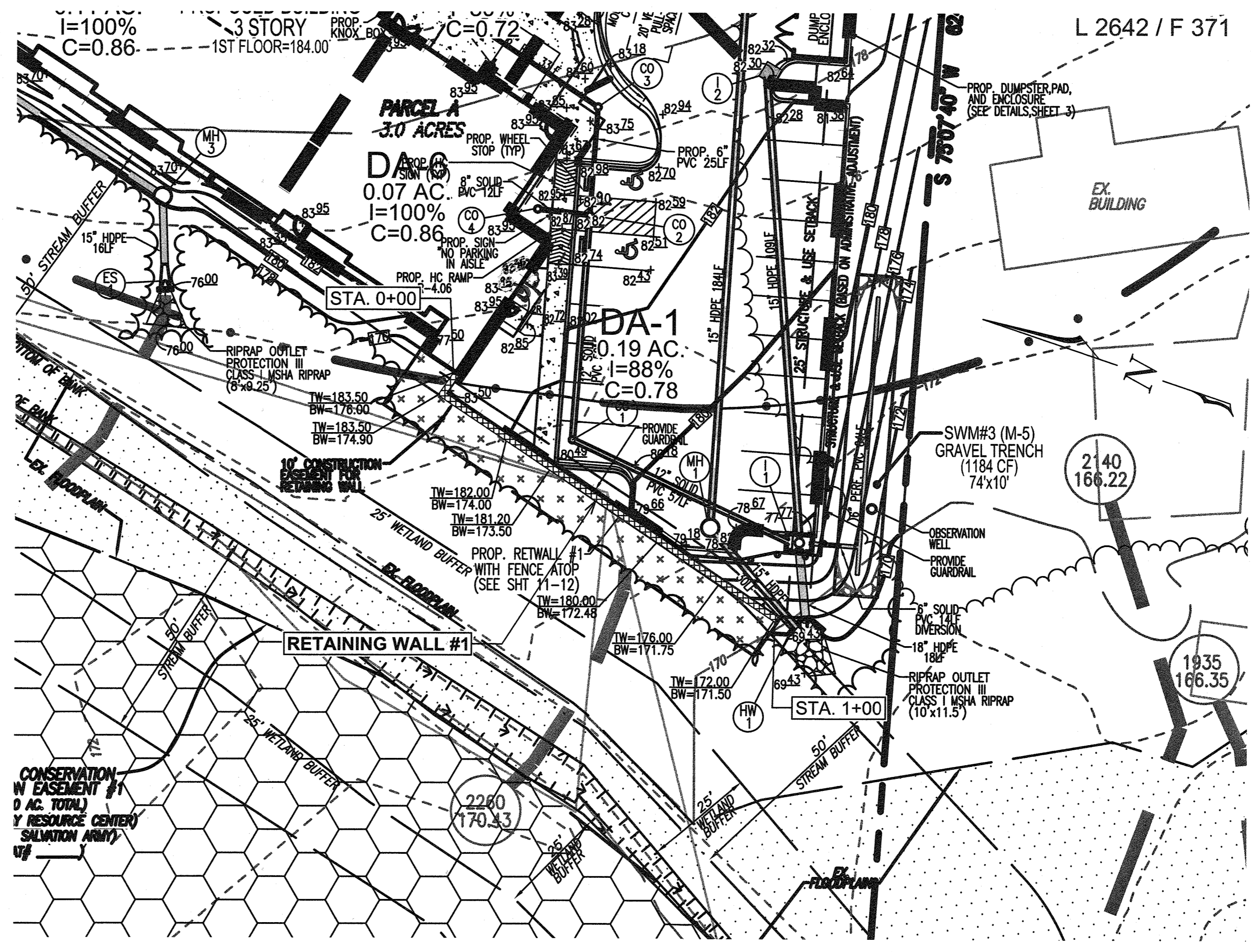
B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.



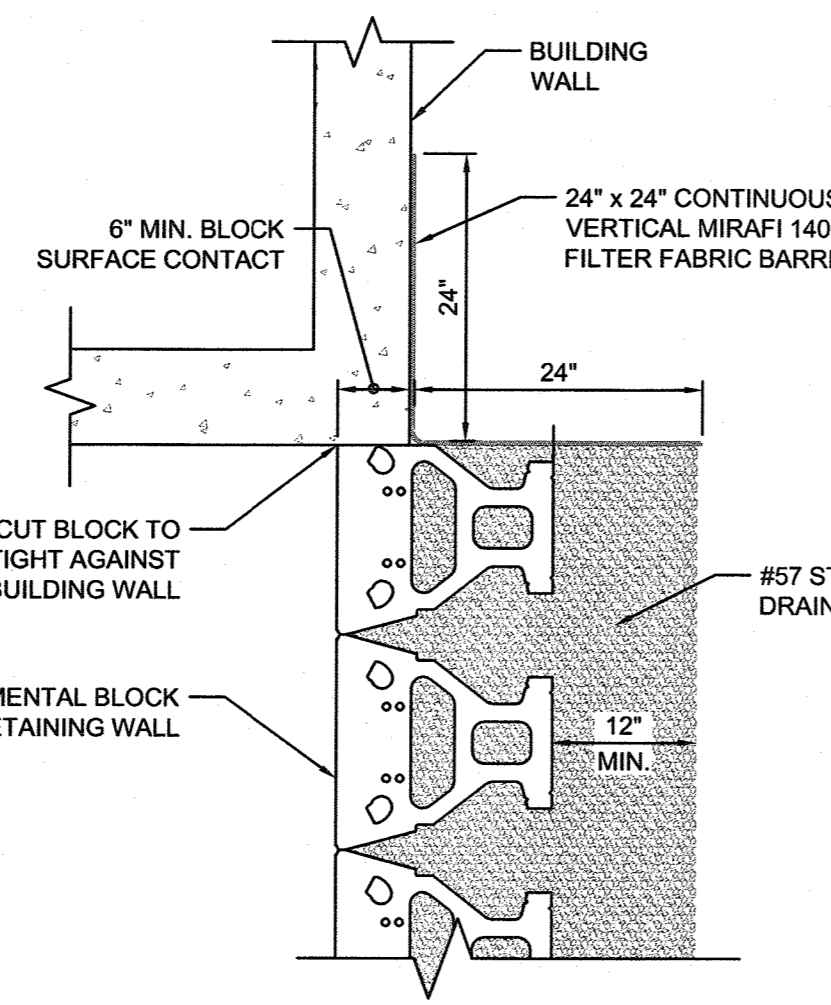
TYPICAL WALL SECTION
N.T.S.



TYPICAL ANCHOR SLAB DETAIL
N.T.S.



WALL LOCATION PLAN
1" = 20'

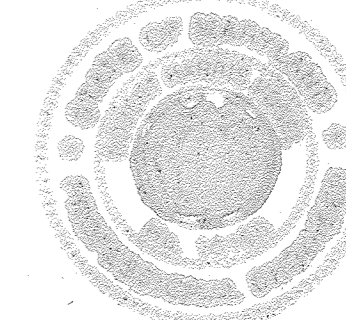


PLAN VIEW AT WALL STA. 0+00
N.T.S.

HOWARD COUNTY NOTES:

1. NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
2. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.
3. THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
4. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
5. WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
6. WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD COUNTY RIGHT-OF-WAY OR EASEMENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1-12-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 [Signature] 2-22-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 [Signature] 2-22-16
 DIRECTOR DATE



AS-BUILT CERTIFICATE FOR RECORD
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOSING OF THE LANDSCAPE DRAINAGE FACILITY.
 [Signature] 16193 8/13/16
 P.E. NAME DATE

DEVELOPER
 VOLUNTEERS OF AMERICA, INC.
 1860 DUKE STREET
 ALEXANDRIA, VA 22314
 (410) 798-4269
 C/O RICK DELLA

OWNER
 HOWARD COUNTY HOUSING COMMISSION
 6751 COLUMBIA GATEWAY DR., 3RD FLOOR
 COLUMBIA, MD 21046
 (410) 313-6320

NO.	REVISION	DATE

RETAINING WALL PLAN AND CONSTRUCTION DETAILS
DAY RESOURCE CENTER
 VOLUNTEERS OF AMERICA
 10390 GUILFORD ROAD
 HOWARD COUNTY HOUSING COMMISSION
 DPZ REF: L-15118/F-116, BA-08-027V
 ZONED: CE-C1

TAX MAP 47 GRID 12 6TH ELECTION DISTRICT PARCEL 59, PARCEL A HOWARD COUNTY, MARYLAND

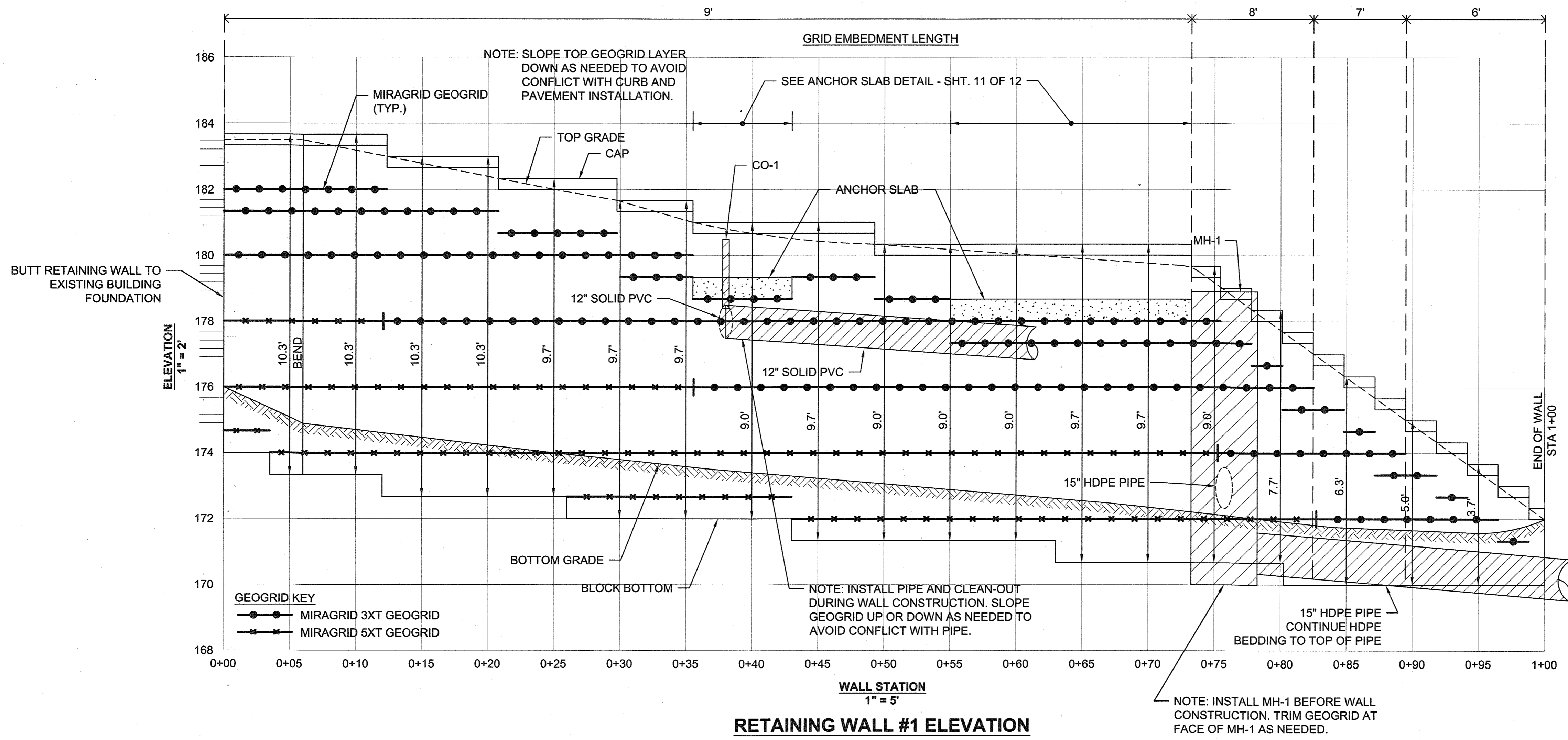
HILLIS-CARNES ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

DESIGN BY: HM
 DRAWN BY: HM
 CHECKED BY: RWS
 DATE: JANUARY 2016
 SCALE: AS SHOWN
 HCEA NO.: 15552-A

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 EXPIRATION DATE: 02/13/17

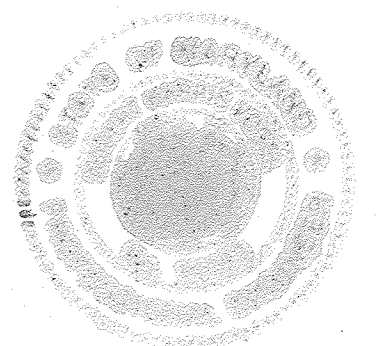
11 SHEET OF 12

AS-BUILT-MAY, 2018 SDP-15-023



AS-BUILT ELEVATION FOR PIPING
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONSTRUCTED DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT COLLAPSE OF THE UNDERGROUND SWM FACILITY.

16193 01/13/16
P.E. NAME P.E. # DATE



DEVELOPER
VOLUNTEERS OF AMERICA, INC.
1660 DUKE STREET
ALEXANDRIA, VA 22314
(410) 798-4269
C/O RICK DELLA

OWNER
HOWARD COUNTY HOUSING COMMISSION
6751 COLUMBIA GATEWAY DR., 3RD FLOOR
COLUMBIA, MD 21046
(410) 313-6320

NO.	REVISION	DATE

RETAINING WALL #1 ELEVATION

DAY RESOURCE CENTER
VOLUNTEERS OF AMERICA
10390 GUILFORD ROAD
HOWARD COUNTY HOUSING COMMISSION
DPZ REF'S: L 15118/F 116, BA-08-027V
ZONED: CE-CL1

TAX MAP 47 GRID 12
6TH ELECTION DISTRICT

PARCEL 59, PARCEL A
HOWARD COUNTY, MARYLAND

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chi Pardon 1-12-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

V. J. DeLoach 2-22-16
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Valerie J. J. J. 2-22-16
DIRECTOR DATE

AS-BUILT - MAY, 2018

SDP-15-023