

GENERAL NOTES

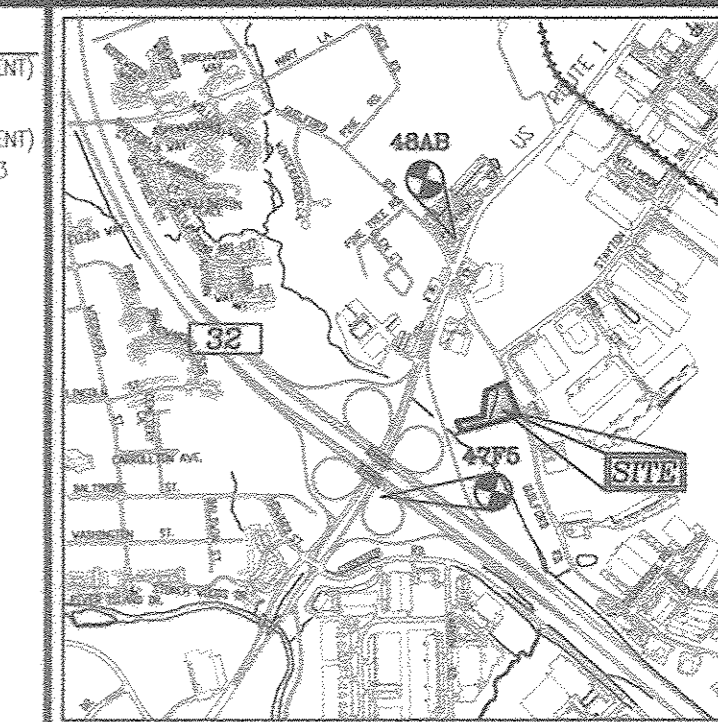
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 - MISS UTILITY: 1-800-257-7777
 - VERIZON: 1-800-743-3033
 - BUREAU OF UTILITIES: 410-313-4900
 - AT&T: 1-800-252-1133
 - B.G.&E. (CONSTRUCTION SERVICES): 410-637-8713
 - B.G.&E. (EMERGENCY): 410-685-0123
 - STATE HIGHWAY ADMINISTRATION: 410-531-5533
 - COLONIAL PIPELINE CO.: 410-795-1390
- SITE ANALYSIS:
 - TOTAL PROJECT AREA: 0.61 AC. PARCEL 95 (PARCEL B-2)
 - PRESENT ZONING: CE-CL-CR
 - USE OF STRUCTURE: N/A (NO STRUCTURES PROPOSED); 44 PROPOSED PARKING SPACES
 - TOTAL BUILDING COVERAGE: 0.00 SF (0.00 AC. OR 0% OF GROSS AREA)
 - PAVED PARKING LOT/AREA ON SITE: 18,115 SF (0.42 AC. OR 29.85% OF GROSS AREA)
 - AREA OF LANDSCAPE ISLAND: 1,328 SF (0.03 AC. OR 4.92% OF GROSS AREA)
 - WETLANDS ON SITE: 0.00 AC.
 - WETLAND BUFFERS ON SITE: 0.00 AC.
 - STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.
 - AREA OF ON-SITE 100 YEAR FLOODPLAIN: 0.00 AC.
 - AREA OF EXISTING FOREST ON SITE: 0.61 AC.
 - AREA OF STEEP SLOPES (15% OR GREATER): 0.00 AC.
 - AREA OF ERODIBLE SOILS: 0.66 AC. (WITHIN LOD)
 - AREA MANAGED BY ESDV (THIS PLAN): 0.50 AC.
 - "PREVIOUS AREA": 0.42 AC.
 - "GREEN AREA": 0.08 AC.
 - LIMIT OF DISTURBED AREA: 1.12 AC.
 - CUT: 2,715 CY. FILL: 328 CY.
- PROJECT BACKGROUND:
 - LOCATION: LAUREL, MD.; TAX MAP 48, BLOCK 12, PARCEL 95, PARCEL B-2
 - ZONING: CE-CL-CR
 - SUBDIVISION: N/A
 - SECTION/AREA: N/A
 - SITE AREA: 0.61 AC.
 - DEED/PLAT REFERENCES: BA-95-38E, F-83-41, SDP-96-098 & ZB-963R, PLAT 21417, F-09-112, F-15-015 (PLAT 23546), F-14-130 (PLAT 23547), SDP-15-023, ECP-15-048.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- EXISTING UTILITIES LOCATED FROM 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 AASHTO-180.
- TRAFFIC CONTROL DEVICES:
 - A. THE R1-1 SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
 - B. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
 - C. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - D. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED IN TO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG. THE SIGN SHALL NOT EXTEND MORE THAN TWO QUICK PUNCH HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. ALL 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 EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
- 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(1991), AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 4775 AND 4849.
- THE PROPERTY LINES SHOWN HEREON IS BASED ON A FIELD-RUN BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JULY 12, 2013.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD RUN TOPOGRAPHICAL SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC. ON AUGUST 8, 2007, AND UPDATED ON OCTOBER 2, 2014.
- ENVIRONMENTAL ANALYSIS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED 02/26/15 AND UPDATED 01/27/17.
- GEOTECHNICAL BORINGS PREPARED BY HULLIS-CARNE ENGINEERING ASSOCIATES, INC. PERFORMED ON DECEMBER 16, 2016.
- THE REVISIONS ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION. ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL P-2 PAVING UNLESS OTHERWISE NOTED. (SEE PAVING PLAN ON SHEET 2, AND SECTIONS ON SHEET 3.)
- ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED (SEE DETAIL ON SHEET 3).
- WHERE DRAINAGE FLOWS AWAY FROM CURB, CONTRACTOR TO REVERSE THE GUTTER PAN.
- ALL ELEVATIONS ARE TO FLOWLINE/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
- PUBLIC WATER AVAILABLE THROUGH CONTRACT 652-W. PUBLIC SEWER AVAILABLE THROUGH CONTRACT 24-353-D.
- TRAFFIC STUDY NOT REQUIRED FOR THIS PROJECT AS THERE IS NOT A SPECIFIC USE FOR THIS PARKING LOT. A FORMAL TRAFFIC STUDY SHALL BE PROVIDED CONCURRENT WITH THE FUTURE SDP AND DEVELOPMENT OF ADJACENT PARCEL B, WHICH WILL ULTIMATELY USE THIS PARKING LOT TO SERVE AS ENTRANCE TO THE FUTURE DEVELOPMENT.
- THE SUBJECT PROPERTY IS ZONED CE-CL-CR PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THERE ARE NO STEEP SLOPES, WETLANDS, STREAMS, AND THERE BUFFERS, FLOODPLANS, SPECIMEN OR CHAMPION TREES LOCATED ON THIS PROPERTY.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT HAS BEEN PREVIOUSLY SATISFIED UNDER SDP-96-098 WITH THE RETENTION OF 1.98 ACRES WHICH MEETS OR EXCEEDS THE BREAK-EVEN POINT OBLIGATION OF 0.99 ACRES FOR THIS SITE. PLAT 23546 (F-15-015) ABANDONED 0.61 ACRES OF THE EXISTING FOREST CONSERVATION RETENTION EASEMENT, OF WHICH 0.24 ACRES IS BEING RETAINED WITH A FOREST CONSERVATION EASEMENT ON THE DRY RESOURCE CENTER SUBDIVISION, PARCEL A (PLAT 23547; F-14-130). THE REMAINING 0.37 ACRES IS SATISFIED BY RETENTION OF 0.74 ACRES (2:1) IN THE FOREST BANK ESTABLISHED IN CONJUNCTION WITH THE GLENS AT GUILFORD (F-09-112). THE RETENTION EASEMENT IS PROVIDED ON TAX MAP 42, PARCEL 136, LOTS 8 & 9 (PLAT 21417).
- THERE ARE NO SPECIMEN TREES LOCATED ON THE SUBJECT PROPERTY.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 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 \$3,390 FOR THE REQUIRED 10 SHADE TREES AND 13 SHRUBS.
- GUILFORD ROAD IS CLASSIFIED AS A MAJOR COLLECTOR.
- 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 IN RED AND STENCILED 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 POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2005), SECTION 5.5.A. 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 1.34 OF THE HOWARD COUNTY ZONING REGULATIONS.
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS BEING PROVIDED BY ENVIRONMENTAL SITE DESIGN UTILIZING TWO MICRO-BIORETENTION FACILITIES (M-6) TO ACCOMMODATE THE TOTAL ESD VOLUME REQUIRED. SWM FACILITIES TO BE PRIVATELY OWNED AND MAINTAINED. A FEE-IN-LIEU PAYMENT FOR THE STORMWATER MANAGEMENT QUANTITY REQUIREMENTS SHALL BE PAID TO CAPITAL PROJECT #J4181 FOR THE FRONTAGE IMPROVEMENTS ALONG GUILFORD ROAD.
- FIBER OPTIC FACILITIES ARE LOCATED ON THE WEST SIDE AND PARALLEL TO GUILFORD ROAD. THE OWNER, DEVELOPER, OR CONTRACTOR TO PROVIDE VERTICAL AND HORIZONTAL LOCATION OF THE CONDUIT PRIOR TO INITIATION OF CONSTRUCTION. FIBER OPTIC RELOCATION MAY BE NECESSARY.

HOWARD COUNTY - PUBLIC PARKING LOT

HOWARD COUNTY HOUSING COMMISSION

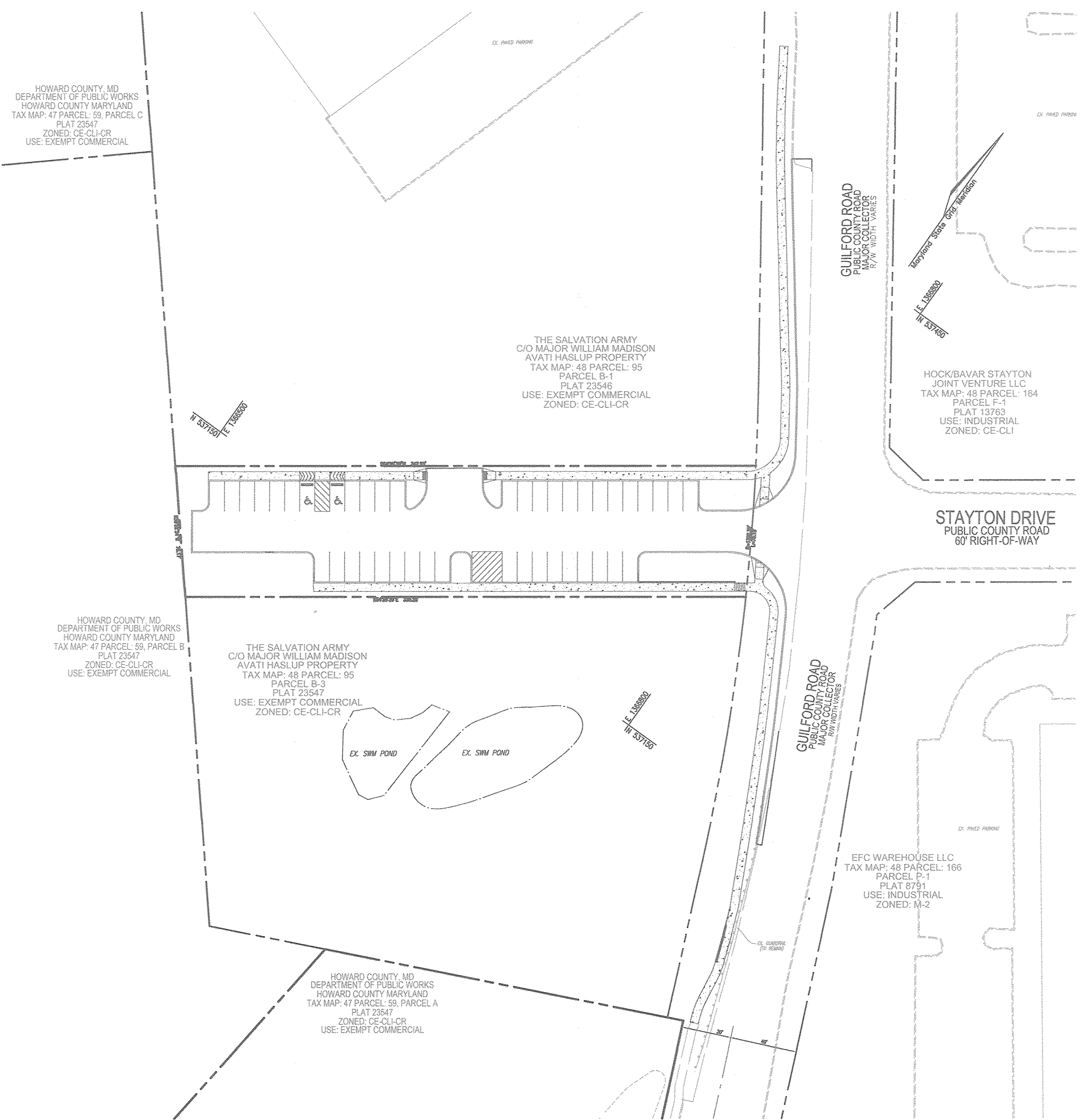
SITE DEVELOPMENT PLAN PLAN

BENCHMARKS
 HOWARD COUNTY BENCHMARK - 4775 (CONC. MONUMENT)
 N 535985.0412 E 136663.4555 ELEV. 234.996
 HOWARD COUNTY BENCHMARK - 4848 (CONC. MONUMENT)
 N 538364.4474 E 1366415.7904 ELEV. 225.853



VICINITY MAP
 SCALE: 1"=2000'
 ADC MAP COORDINATE: 20/E6

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



ADDRESS CHART	
LOT/PARCEL#	STREET ADDRESS
PARCEL 95, PARCEL B-2	10352 GUILFORD ROAD

PERMIT INFORMATION CHART		
SUBDIVISION NAME	SECTION/AREA	LOTS/PARCEL #
AVATI HASLUP PROPERTY	N/A	PARCEL 95, PARCEL B-2

PLAT # OR L/F	BLOCK NO.	ZONE	TAX MAP	ELECT. DIST.	CENSUS TR.
L16570/F.66	12	CE-CU-CR	48	6TH	6069.01
PLAT 23546					
PLAT 23547					

WATER CODE: B-02 SEWER CODE: 4250000

PARKING TABULATION
 TOTAL SPACES REQUIRED: 0 SPACES
 TOTAL SPACES PROVIDED: 43 SPACES
 INCLUDES 2 HC SPACES

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John Anderson 3-7-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Jim Williams for LKS 3/9/18
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

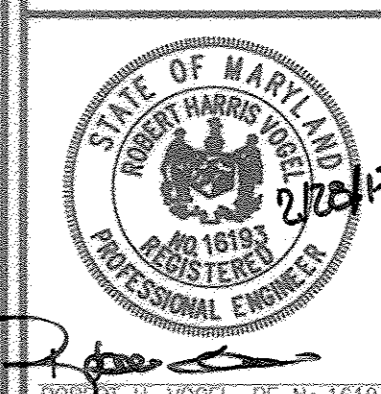
William J. Wolfe 3-7-18
 DIRECTOR DATE

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

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
COVER SHEET
HOWARD COUNTY - PUBLIC PARKING LOT
 HOWARD COUNTY HOUSING COMMISSION
 AVATI HASLUP PROPERTY, PARCEL B-2
 TAX MAP 48 GRID 12 L 16570/F.66, PLAT 23546 PARCEL 95, PARCEL B-2
 6TH ELECTION DISTRICT ZONED: CE-CL-CR HOWARD COUNTY, MARYLAND

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



DESIGN BY: RHV/DZE
 DRAWN BY: DZE/KG
 CHECKED BY: RHV
 DATE: FEBRUARY 2018
 SCALE: AS SHOWN
 W.O. NO.: 06-72.03

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16193 EXPIRATION DATE 09-27-2018

1 SHEET OF 8

HOWARD COUNTY, MD
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY MARYLAND
TAX MAP: 47 PARCEL: 59, PARCEL C
PLAT 23547
ZONED: CE-CL-CR
USE: EXEMPT COMMERCIAL

HOWARD COUNTY, MD
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY MARYLAND
TAX MAP: 47 PARCEL: 59, PARCEL B
PLAT 23547
ZONED: CE-CL-CR
USE: EXEMPT COMMERCIAL

THE SALVATION ARMY
C/O MAJOR WILLIAM MADISON
AVATI HASLUP PROPERTY
TAX MAP: 48 PARCEL: 95
PARCEL B-3
PLAT 23547
USE: EXEMPT COMMERCIAL
ZONED: CE-CL-CR

HOWARD COUNTY, MD
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY MARYLAND
TAX MAP: 47 PARCEL: 59, PARCEL A
PLAT 23547
ZONED: CE-CL-CR
USE: EXEMPT COMMERCIAL

THE SALVATION ARMY
C/O MAJOR WILLIAM MADISON
AVATI HASLUP PROPERTY
TAX MAP: 48 PARCEL: 95
PARCEL B-1
PLAT 23546
USE: EXEMPT COMMERCIAL
ZONED: CE-CL-CR

HOCK/BAVAR STAYTON
JOINT VENTURE LLC
TAX MAP: 48 PARCEL: 164
PARCEL F-1
PLAT 13763
USE: INDUSTRIAL
ZONED: CE-CL-I

STAYTON DRIVE
PUBLIC COUNTY ROAD
60' RIGHT-OF-WAY
EX. PUBLIC 8' S (CONT. 234-WES)

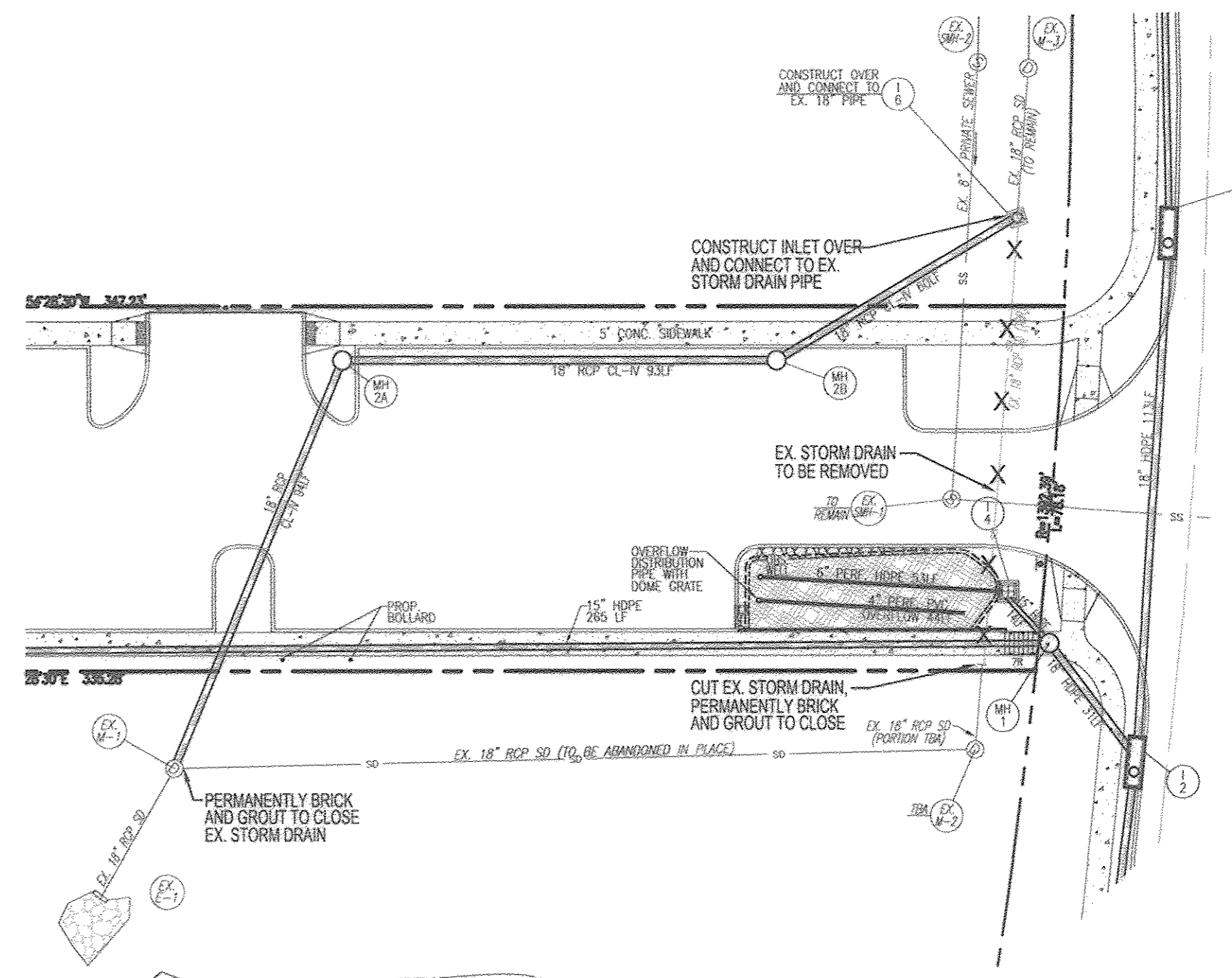
EFC WAREHOUSE LLC
TAX MAP: 48 PARCEL: 166
PARCEL P-1
PLAT 8791
USE: INDUSTRIAL
ZONED: M-2

LEGEND

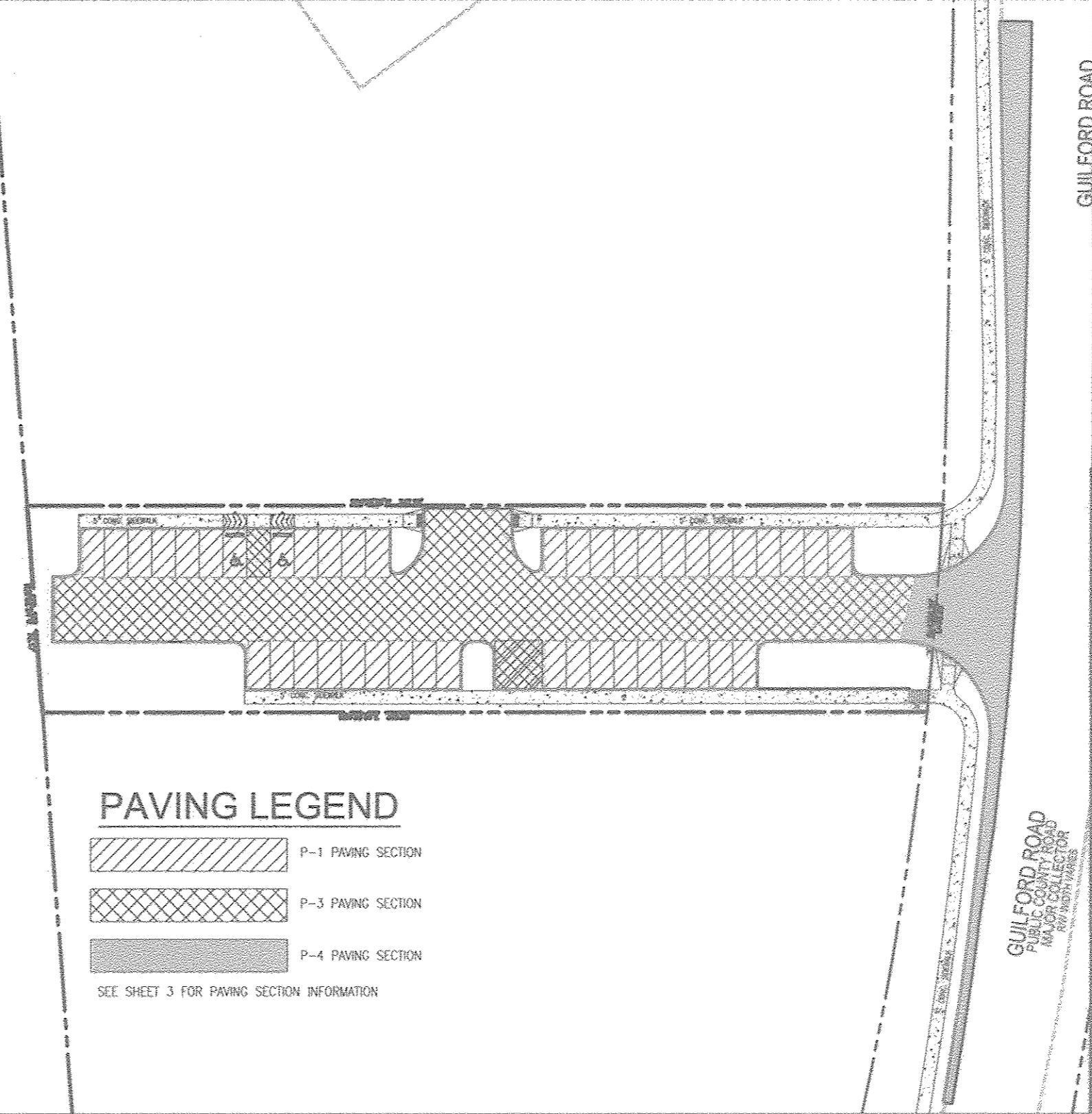
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING STORM DRAIN LINE
- EXISTING GAS LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PRIVATE ACCESS EASEMENT TO BENEFIT PARCEL 59, AND PARCEL 55
- PROPOSED SIDEWALK
- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PRIVATE ACCESS EASEMENT TO BENEFIT PARCEL 59 (PARCEL B-3)
- PROPOSED MICRO-BIORETENTION
- EXISTING FOREST CONSERVATION EASEMENT (RETENTION)
- EXISTING FLOODPLAIN
- FLOOD PLAIN SECTION/ NUMBER ELEVATION
- EXISTING STREAM BUFFER
- 20' PRIVATE SEWER AND UTILITY EASEMENT
- PROP. 10' TEMPORARY CONSTRUCTION EASEMENT
- 20' PRIVATE SEWER AND UTILITY EASEMENT
- EX. 20' PUBLIC SEWER AND UTILITY EASEMENT (L4444/7-540)

PAVING LEGEND

- P-1 PAVING SECTION
 - P-3 PAVING SECTION
 - P-4 PAVING SECTION
- SEE SHEET 3 FOR PAVING SECTION INFORMATION



EX. STORM DRAIN DEMO/ABANDONMENT PLAN
SCALE: 1"=30'



PAVING PLAN
SCALE: 1"=50'

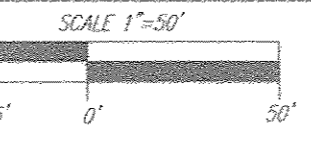
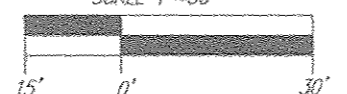
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Johnson 3-7-18
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Sue Haines 3-19-18
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William J. Ellis 3-19-18
DIRECTOR DATE

PLAN VIEW
SCALE: 1"=30'



OWNER/DEVELOPER
HOWARD COUNTY, MD
DEPARTMENT OF PUBLIC WORKS
3430 COURT HOUSE DR.
ELLCOTT CITY, MD 21043
(410) 313-4401

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
SITE LAYOUT PLAN

HOWARD COUNTY - PUBLIC PARKING LOT
HOWARD COUNTY HOUSING COMMISSION
AVATI HASLUP PROPERTY, PARCEL B-2

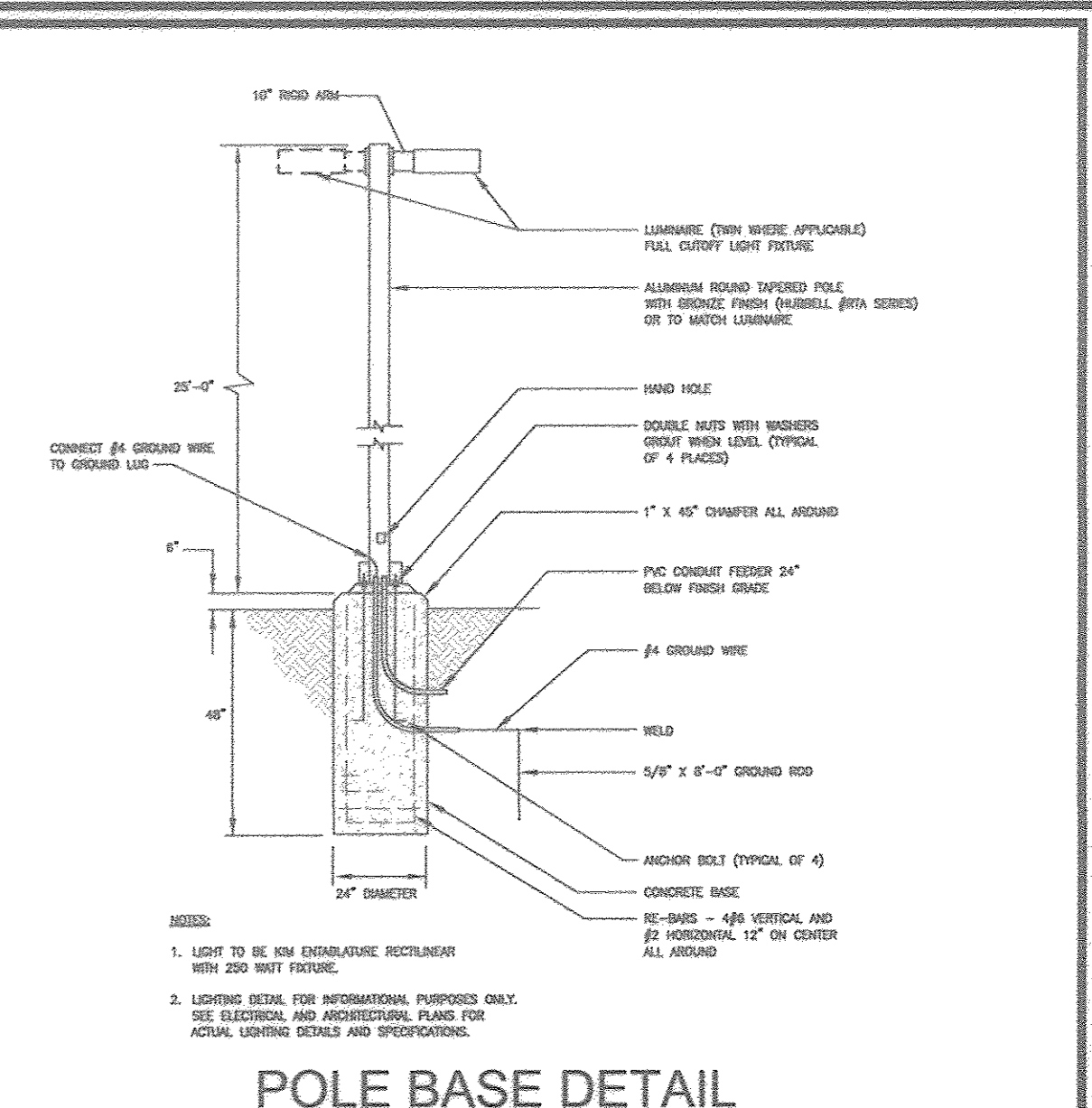
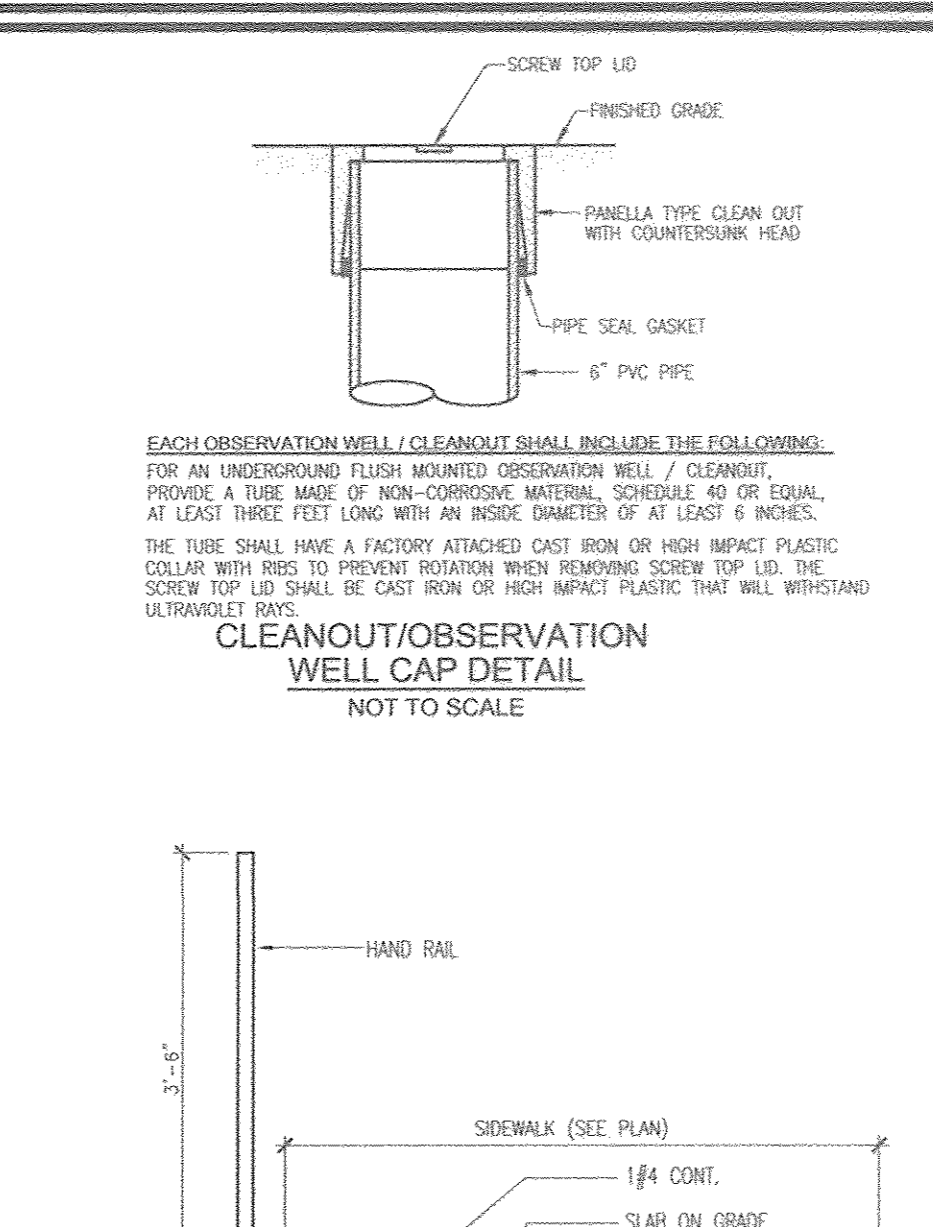
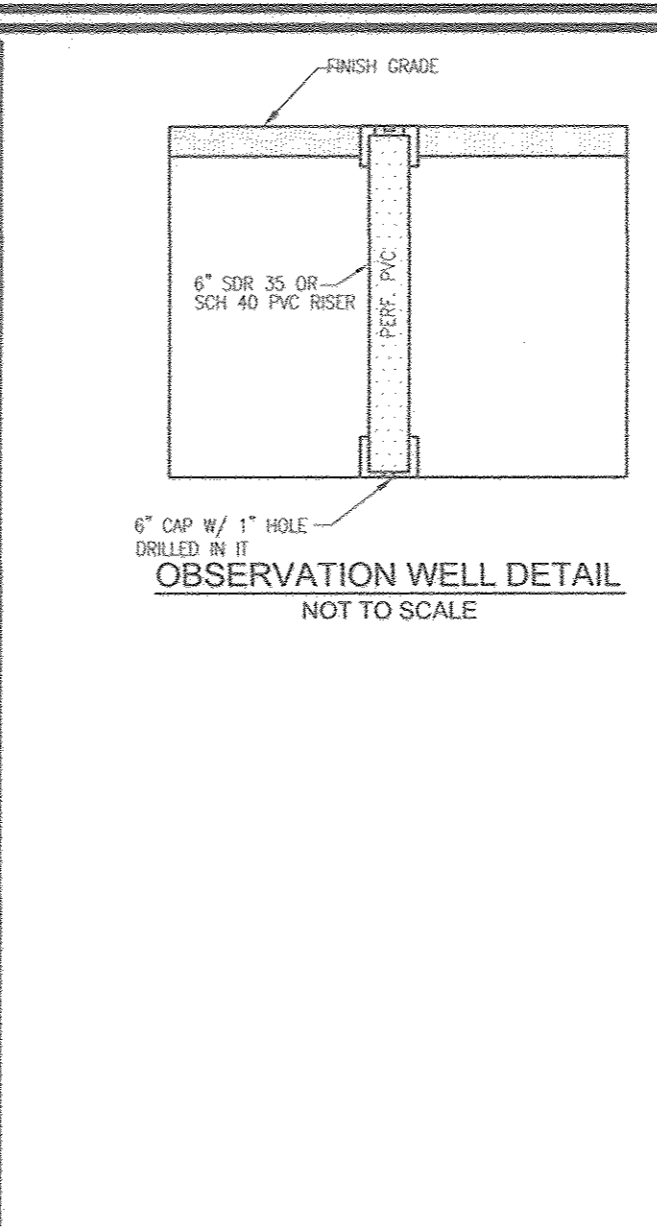
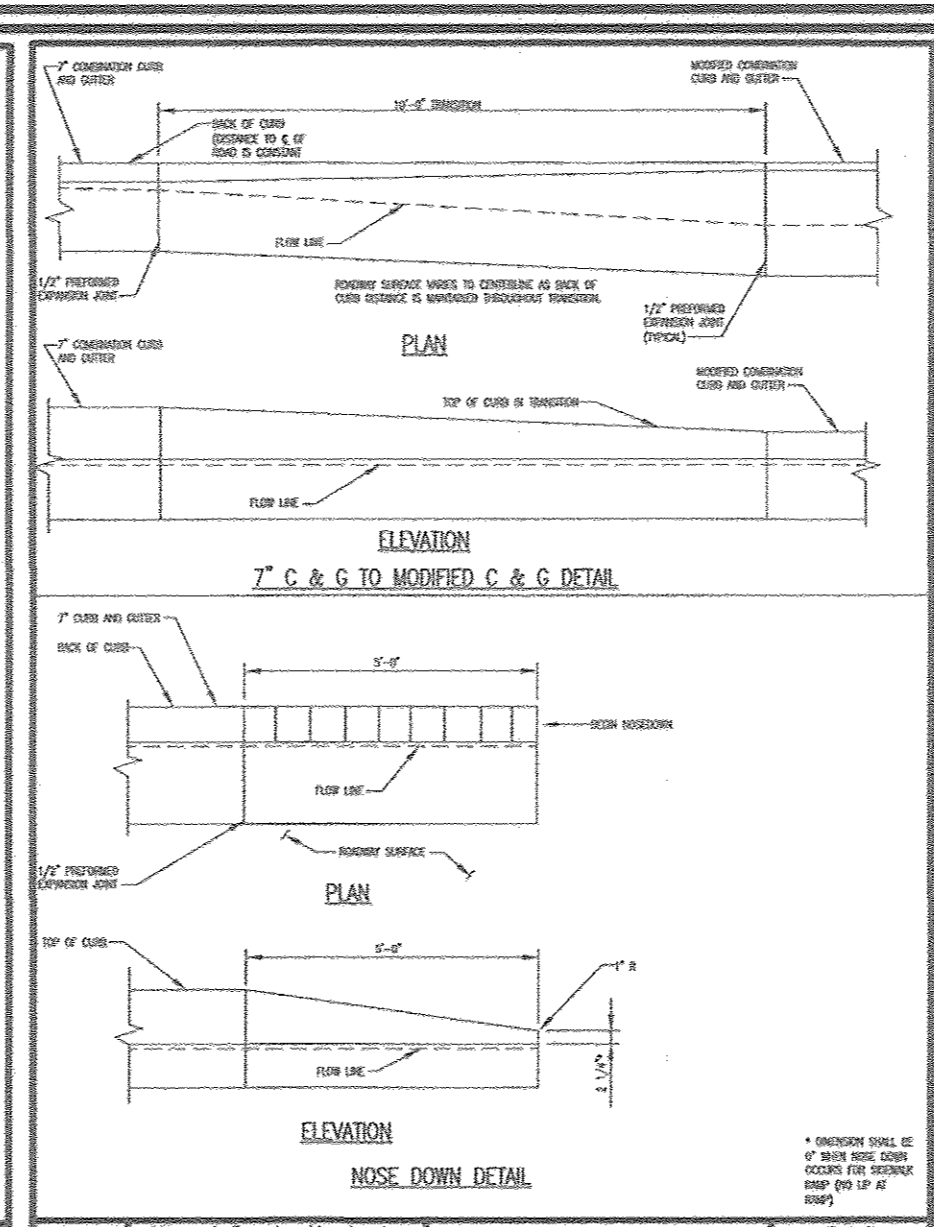
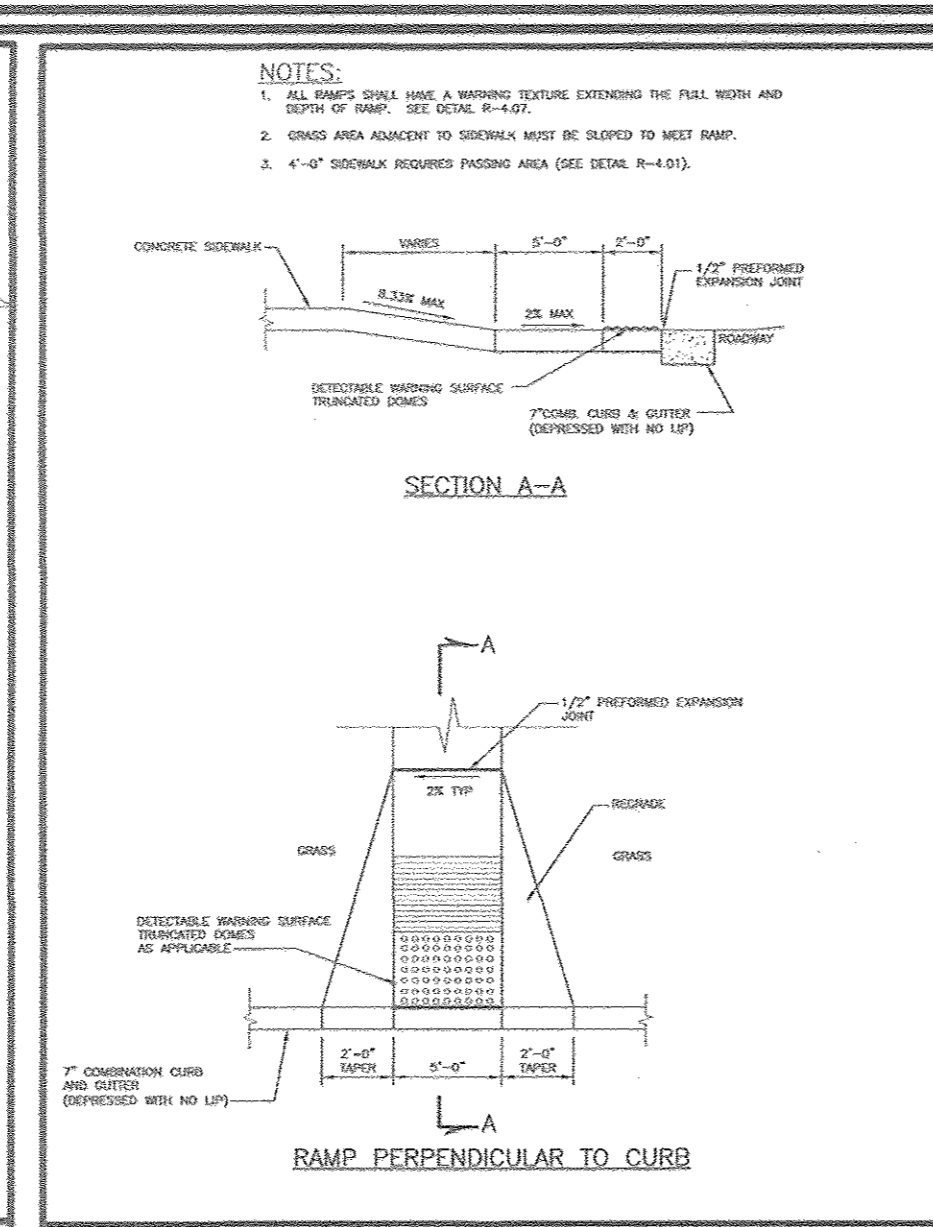
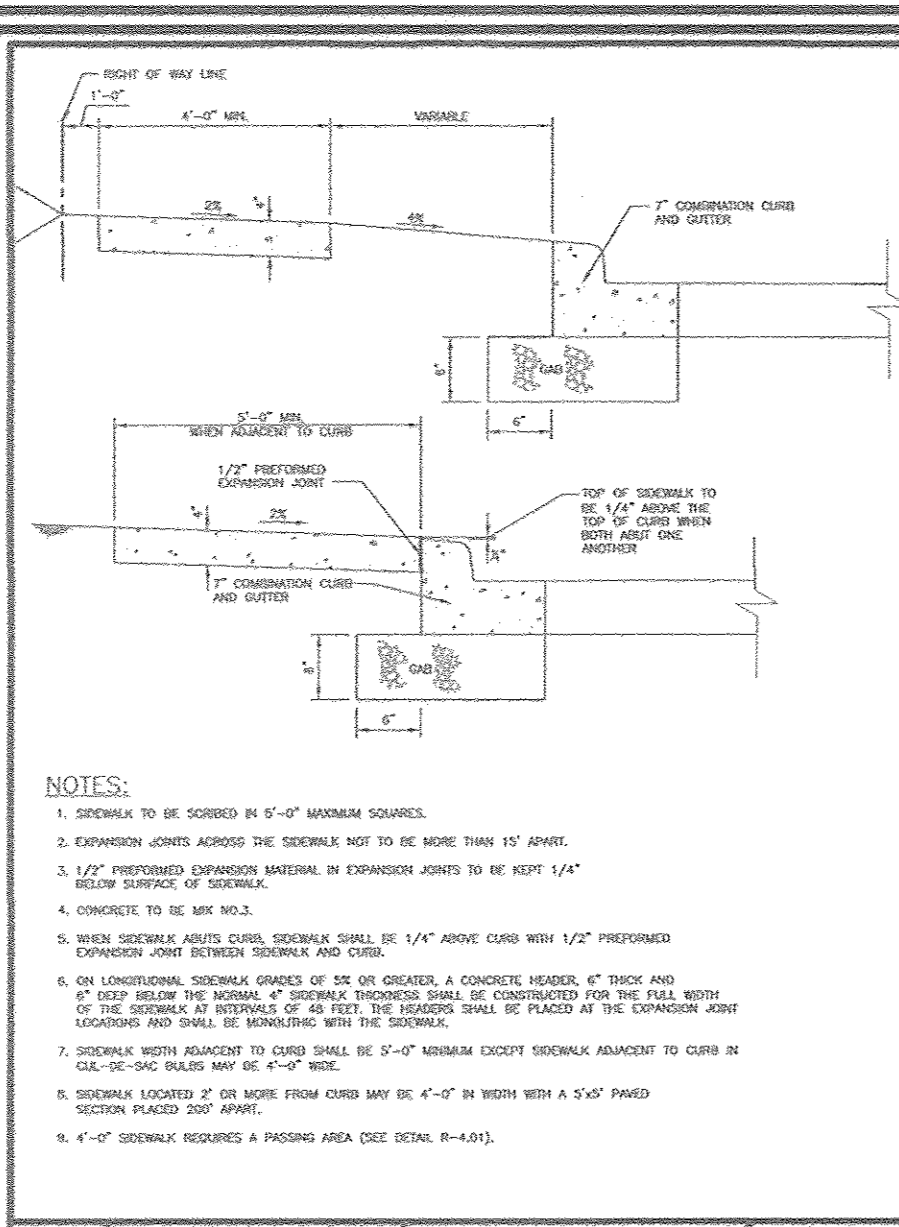
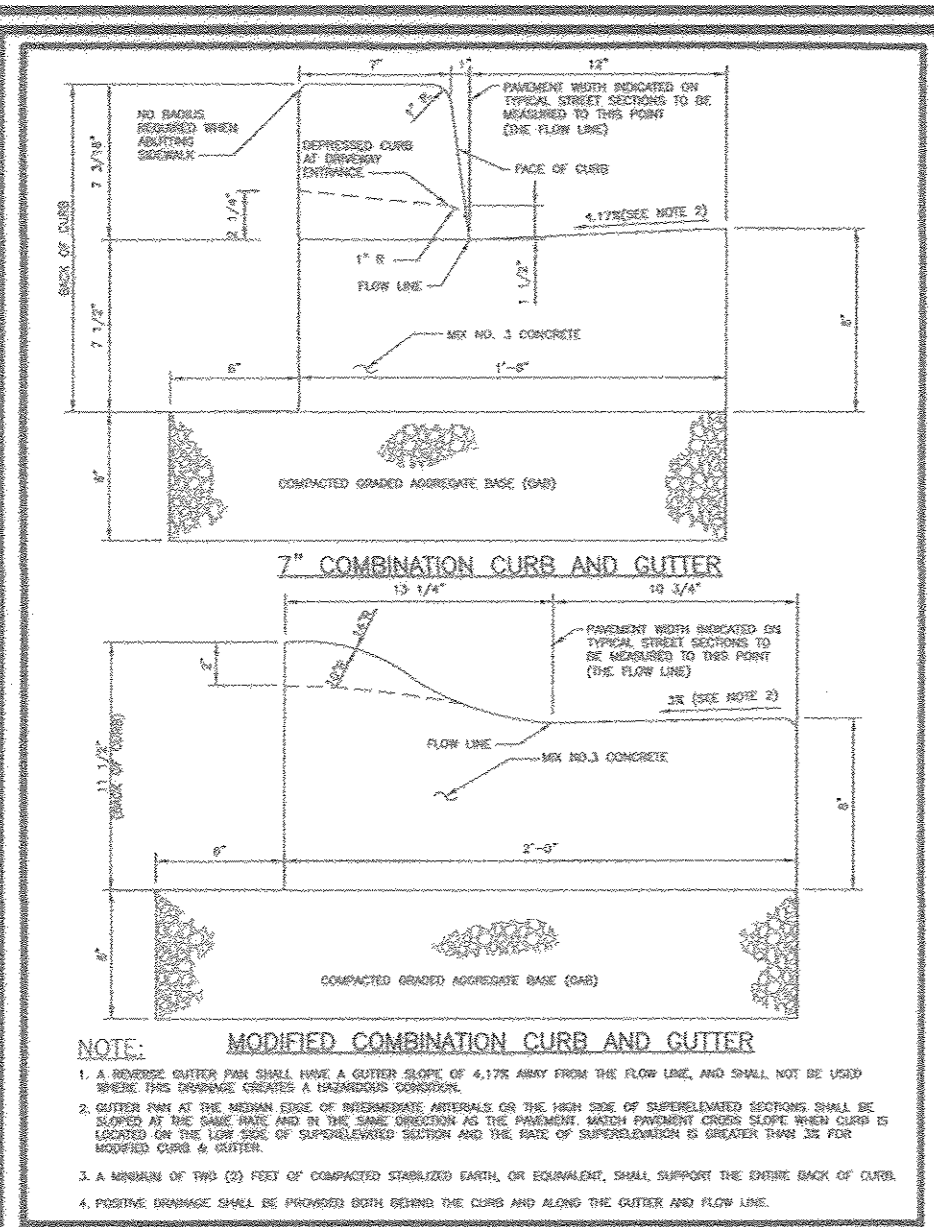
TAX MAP 48 GRID 12 L.16570/F.66, PLAT 23546 PARCEL 95, PARCEL B-2
6TH ELECTION DISTRICT ZONED: CE-CL-CR HOWARD COUNTY, MARYLAND

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ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961



DESIGN BY: RHY/DZE
DRAWN BY: DZE/KG
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 06-72.03

PROFESSIONAL CERTIFICATE
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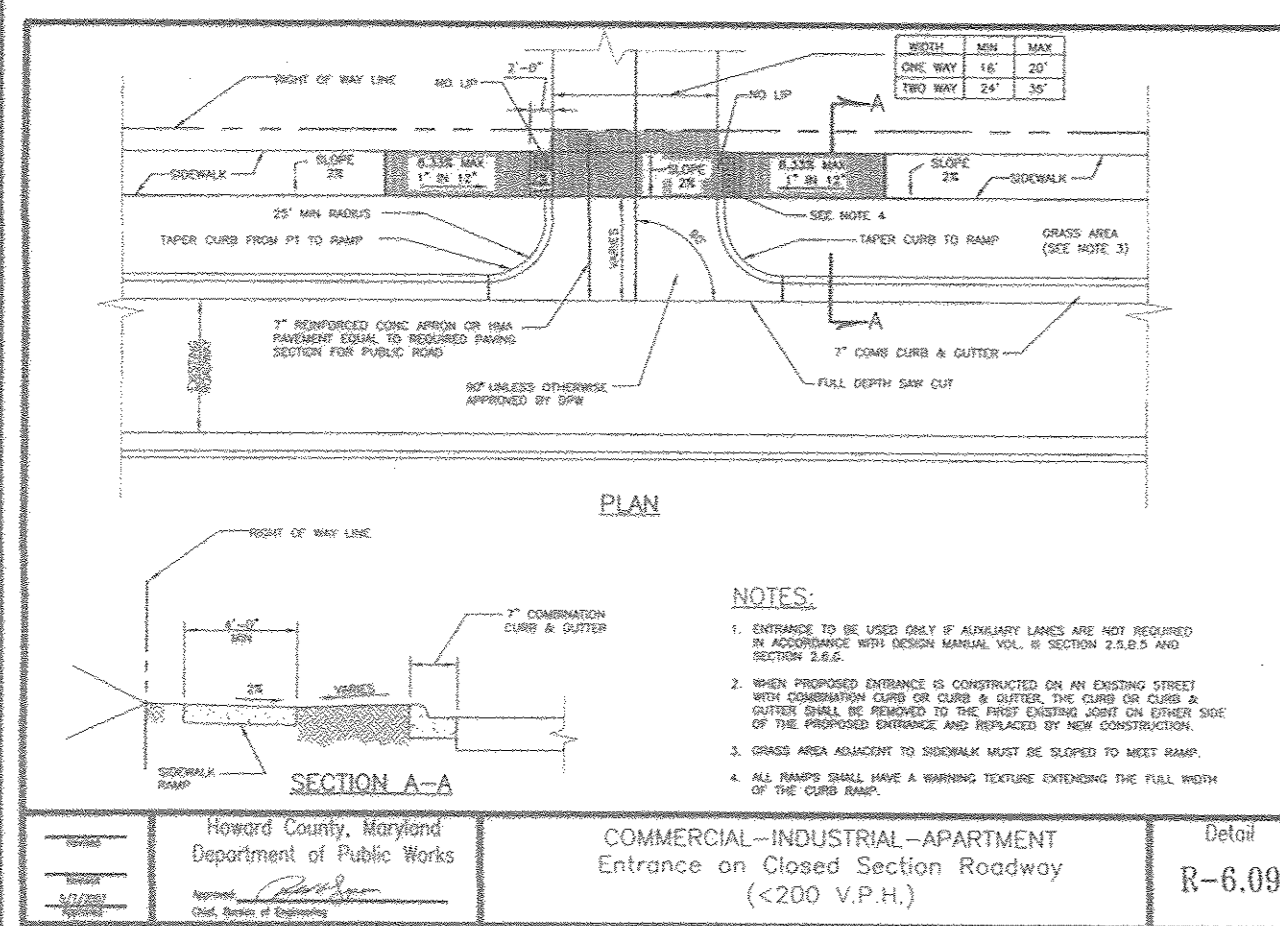


Howard County, Maryland Department of Public Works	CURB AND GUTTER 7' & Modified	Detail R-3.01
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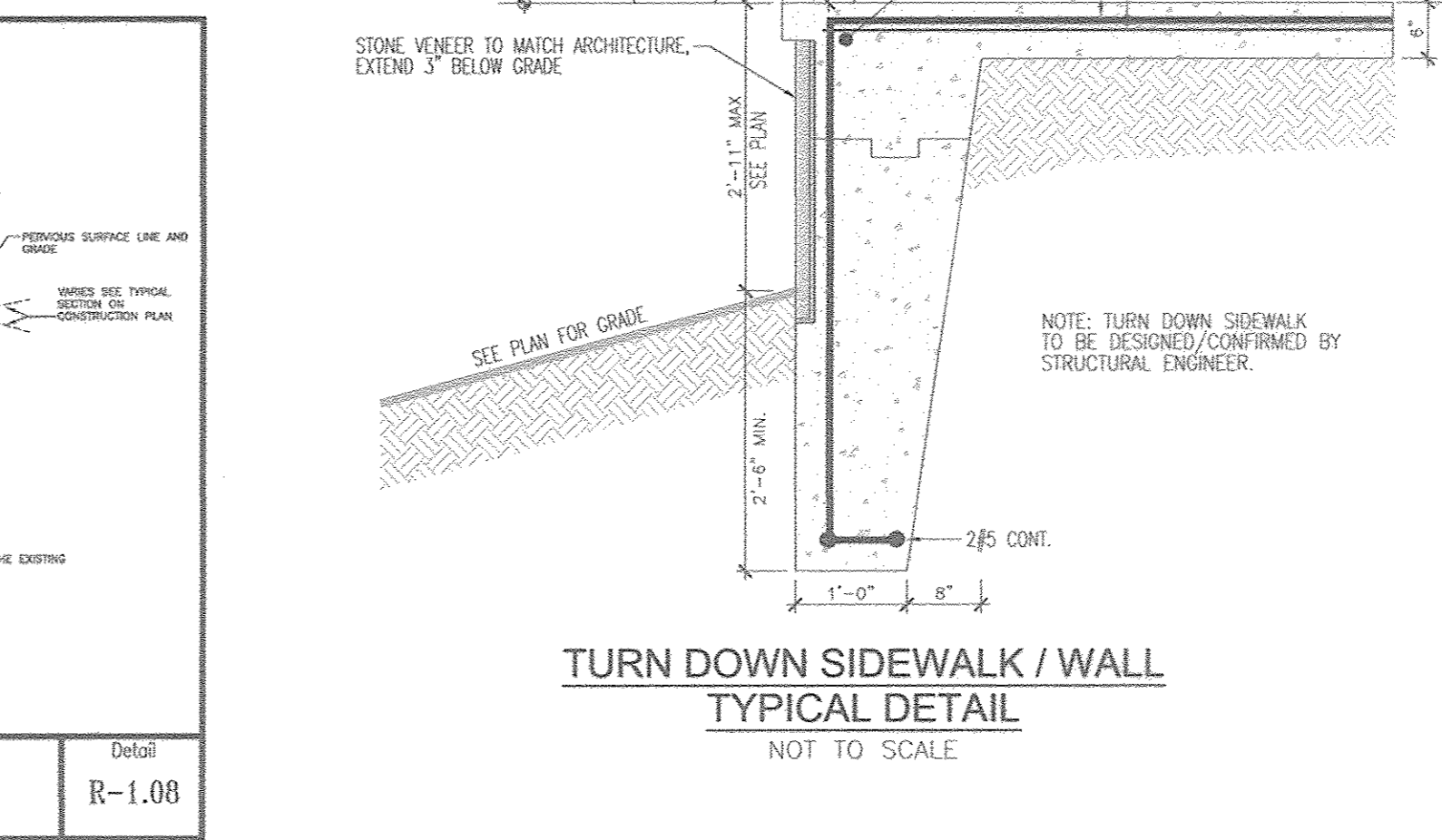
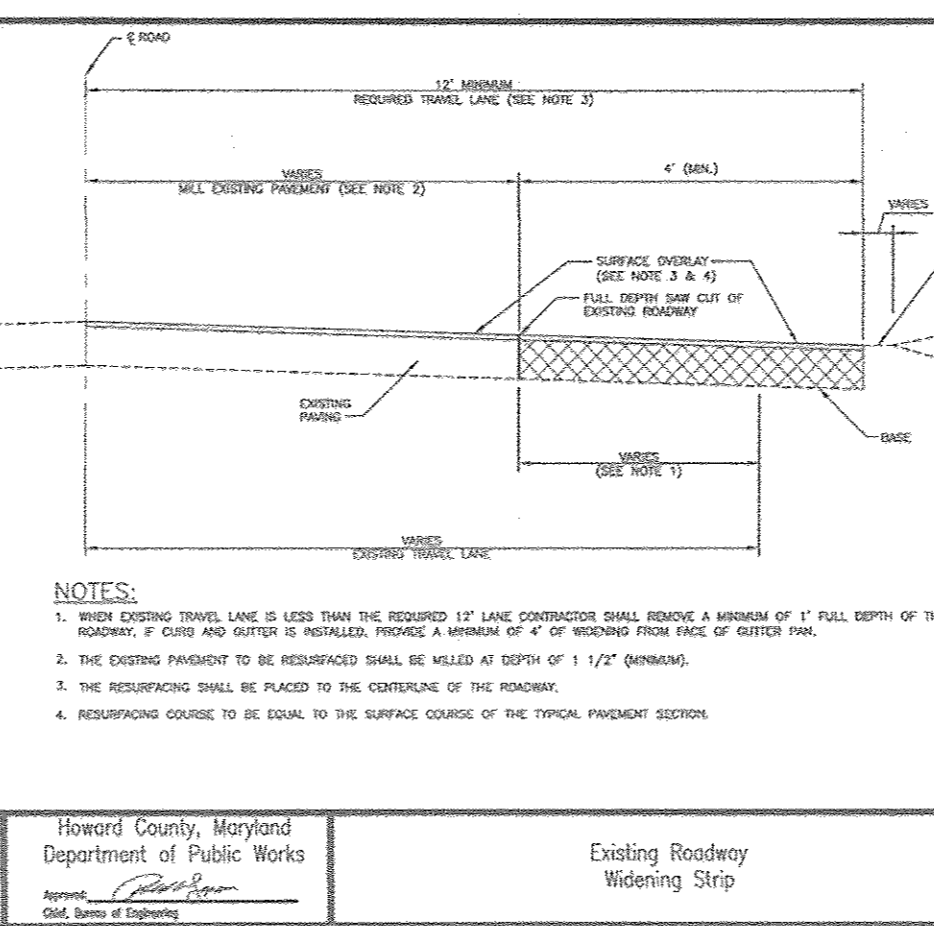
Howard County, Maryland Department of Public Works	Concrete Sidewalk	Detail R-3.05
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Howard County, Maryland Department of Public Works	SIDEWALK RAMP Layout & Grading Perpendicular to Curb	Detail R-4.05
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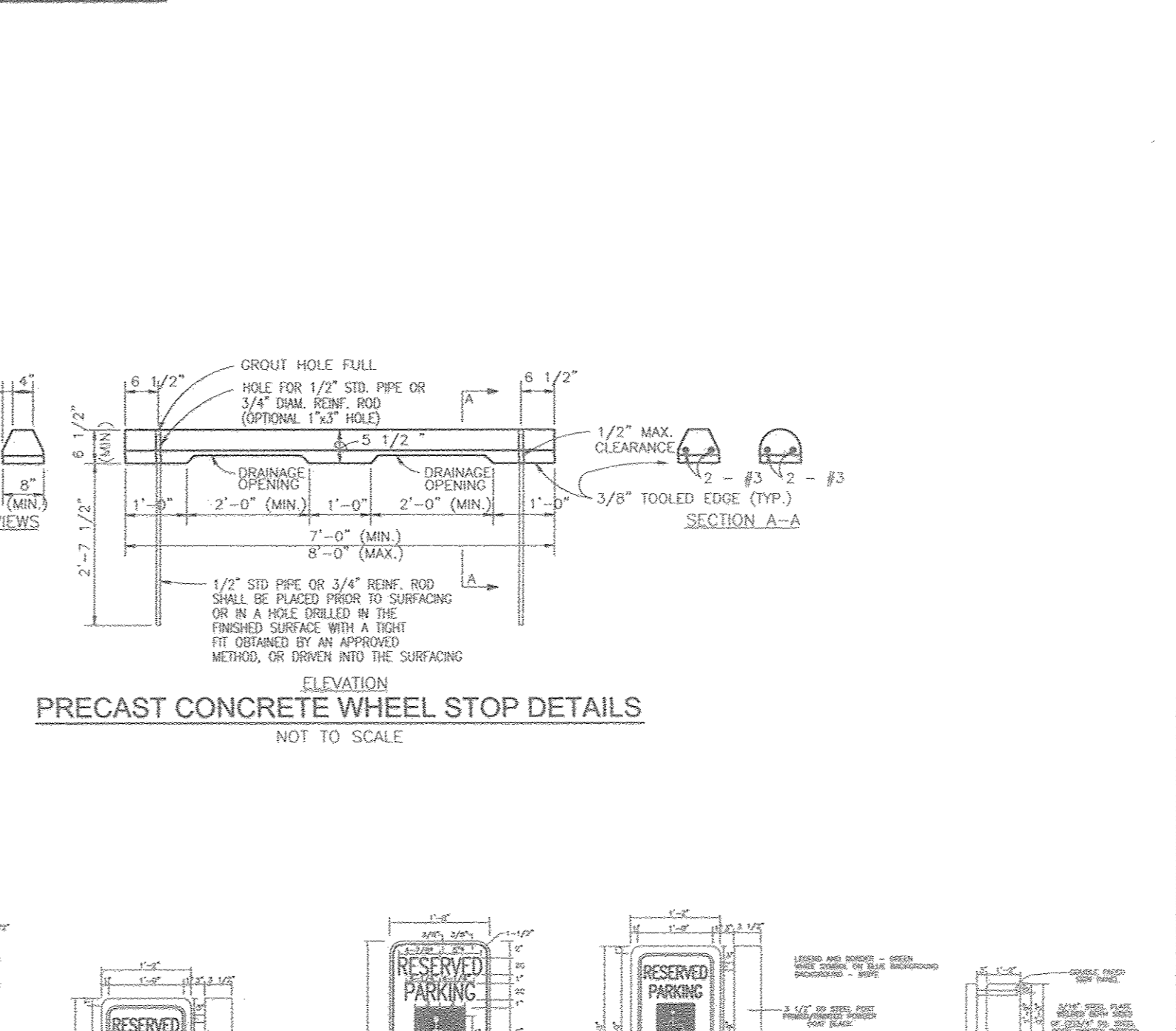
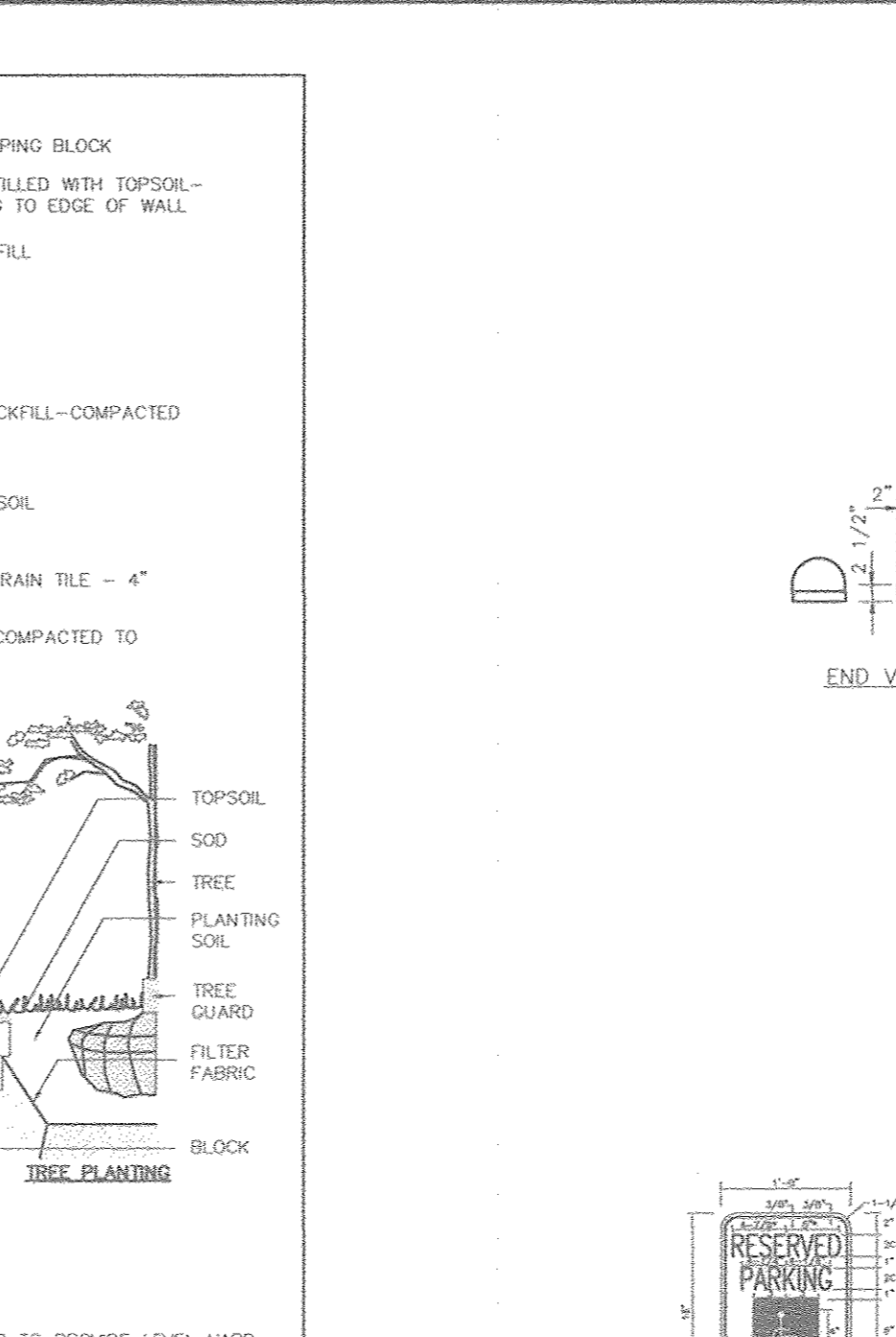
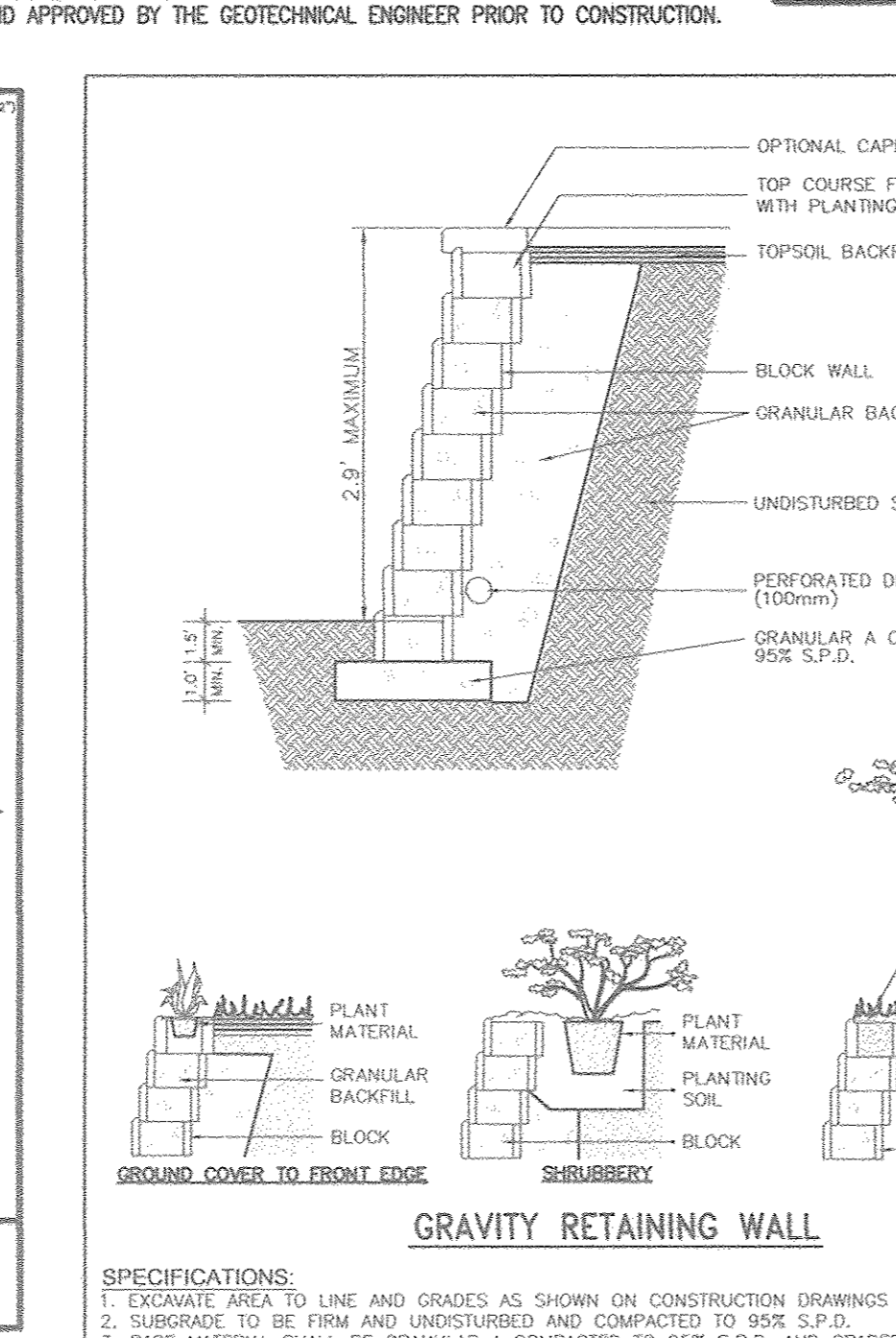
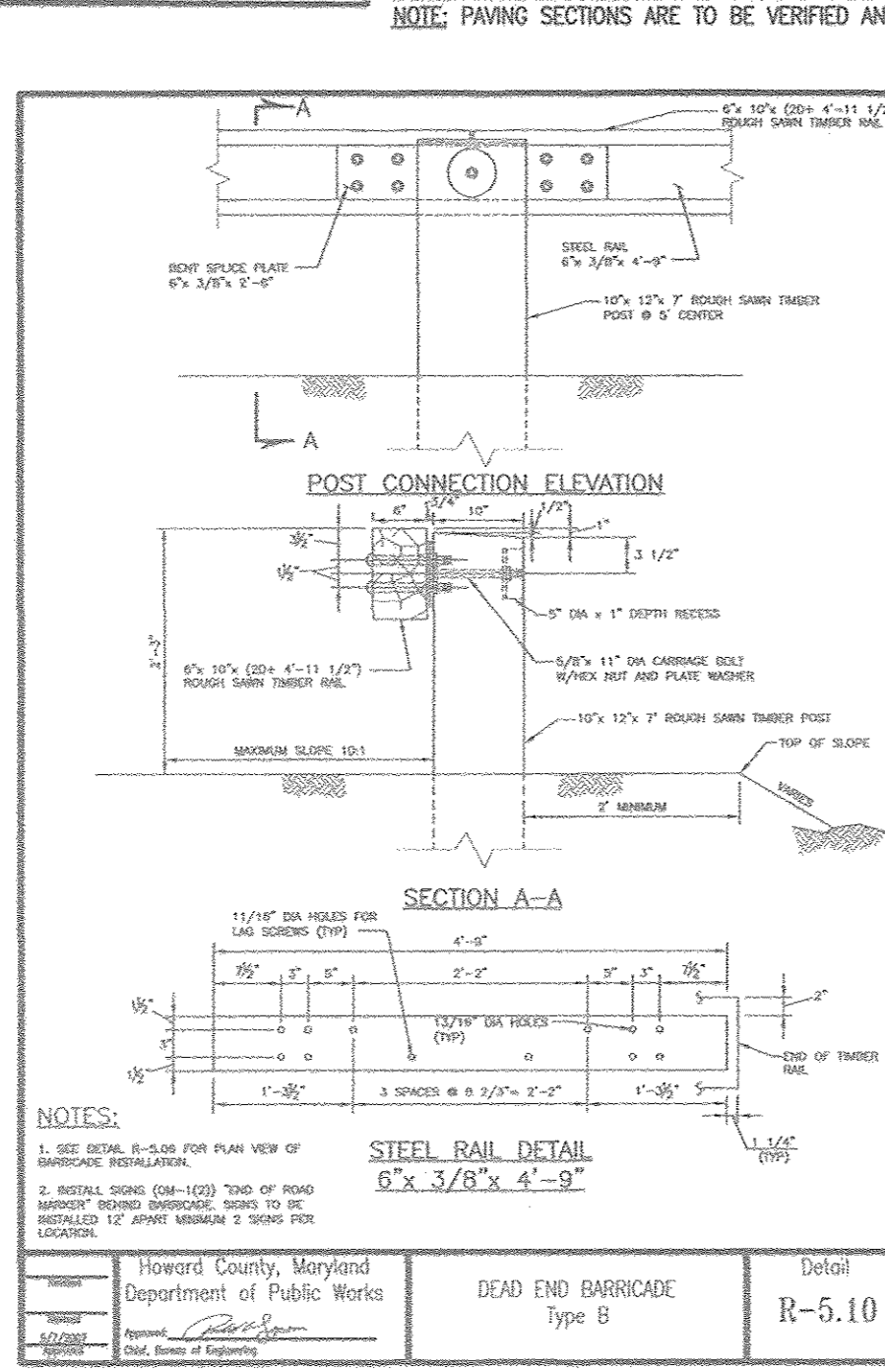
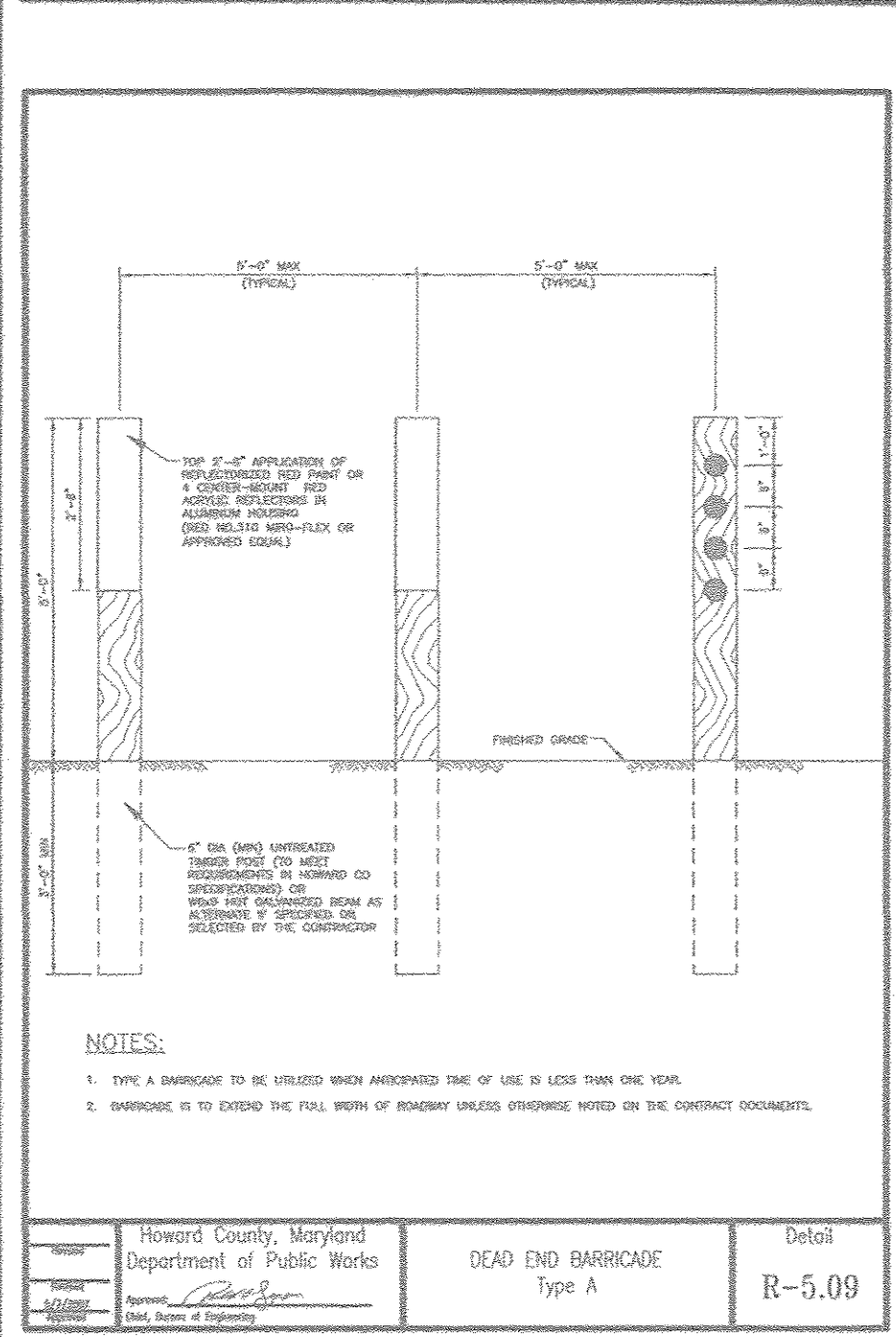
Howard County, Maryland Department of Public Works	CURB AND GUTTER Transition to Modified & Nose Down	Detail R-3.02
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SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	1 TO 4	4 TO 7	7 TO 15	15 TO 30	30 TO 45	45 TO 75	75 TO 100
P-1	RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 FEET TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-2	RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 FEET TRUCKS PER DAY	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-3	RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 FEET TRUCKS PER DAY	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
P-4	RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 FEET TRUCKS PER DAY	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0



Howard County, Maryland Department of Public Works	Curb Flush	Detail R-3.07
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OWNER/DEVELOPER
 HOWARD COUNTY, MD
 DEPARTMENT OF PUBLIC WORKS
 3430 COURT HOUSE DR.
 ELLICOTT CITY, MD 21043
 (410) 313-4401

SITE DEVELOPMENT PLAN
SITE DETAILS

HOWARD COUNTY - PUBLIC PARKING LOT
 HOWARD COUNTY HOUSING COMMISSION
 AVATI HASLUP PROPERTY, PARCEL B-2
 L.16570/F.66, PLAT 23546
 ZONED: CE-C1-CR
 PARCEL 95, PARCEL B-2
 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

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. 16183

DESIGN BY: RHV/DZE
 DRAWN BY: DZE/KC
 CHECKED BY: RHV
 DATE: FEBRUARY 2018
 SCALE: AS SHOWN
 W.O. NO.: 06-22.03

3 SHEET OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

David Johnson
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 3-7-18

John Johnson
 CHIEF DIVISION OF LAND DEVELOPMENT
 DATE: 3/9/18

David Johnson
 DIRECTOR
 DATE: 3-7-18

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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 DATE: 3-7-18

John Johnson
 CHIEF DIVISION OF LAND DEVELOPMENT
 DATE: 3/9/18

David Johnson
 DIRECTOR
 DATE: 3-7-18



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING STORM DRAIN LINE
- EXISTING GAS LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PRIVATE ACCESS EASEMENT TO BENEFIT PARCEL 59 (PARCEL B-3)
- PROPOSED SIDEWALK
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED STORM DRAIN DRAIN BILET
- FLOOD PLAIN SECTION/NUMBER ELEVATION
- EXISTING STREAM BUFFER
- PRIVATE ACCESS EASEMENT TO BENEFIT PARCEL 59 (PARCEL B-3)
- PROPOSED MICRO-BIORETENTION
- EXISTING FOREST CONSERVATION EASEMENT (RETENTION)
- EXISTING FLOODPLAIN
- 20' PRIVATE SEWER AND UTILITY EASEMENT
- PROP. 10' TEMPORARY CONSTRUCTION EASEMENT
- 20' PRIVATE SEWER AND UTILITY EASEMENT
- EX. 20' PUBLIC SEWER AND UTILITY EASEMENT (L. 4447.1-14)
- SILT FENCE
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- CURB INLET PROTECTION
- STANDARD INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- M1B2
- M1D3
- SOILS BOUNDARY

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

NO. _____ REVISION _____ DATE _____

SITE DEVELOPMENT PLAN
GRADING, SEDIMENT AND EROSION CONTROL PLAN

HOWARD COUNTY - PUBLIC PARKING LOT
 HOWARD COUNTY HOUSING COMMISSION
 AVATI HASLUP PROPERTY, PARCEL B-2
 TAX MAP 48 GRID 12 PARCEL 164 PLAT 23546 PARCEL B-2
 6TH ELECTION DISTRICT L.1657D/F 66 PLAT 23546 HOWARD COUNTY, MARYLAND
 ZONED: CE-CL-CR

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

PROFESSIONAL CERTIFICATE

DESIGN BY: RHW/DZE
 DRAWN BY: DZE/KG
 CHECKED BY: RHW
 DATE: FEBRUARY 2018
 SCALE: AS SHOWN
 W.O. NO.: 06-72.03

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. 11633 EXPIRATION DATE 09-27-2018

4 SHEET OF 8

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Project Name: Guilford Road Parkview Pavement Location: Laurel, MD Job #: 18718A

Date: 12/15/2016

Depth	Soil Description	Moisture (%)	Specific Gravity	Wet Density (pcf)	Wet Unit Weight (pcf)	Wet Density (pcf)	Wet Unit Weight (pcf)
0-12"	Brown, silty, medium sand, clayey, sandy, with organic (SM)	12.5	2.65	118.5	118.5	118.5	118.5
12-18"	Light gray, silty, medium sand, clayey, sandy, with organic (SM)	12.5	2.65	118.5	118.5	118.5	118.5
18-24"	Light gray, silty, medium sand, clayey, sandy, with organic (SM)	12.5	2.65	118.5	118.5	118.5	118.5
24-30"	Light gray, silty, medium sand, clayey, sandy, with organic (SM)	12.5	2.65	118.5	118.5	118.5	118.5

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

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24-30"	Light gray, silty, medium sand, clayey, sandy, with organic (SM)	12.5	2.65	118.5	118.5	118.5	118.5

SEDIMENT CONTROL NOTES:

- SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
- A DOUBLE ROW OF "SUPER" SILT FENCE IS TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.
- SILT FENCE SHALL BE CURLED UPHILL WHEREVER IT RUNS DOWNHILL.
- EITHER TEMPORARY OR PERMANENT SEEDING AND STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS PROVIDED IN THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE STRINGENT.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Project Name: Guilford Road Parkview Pavement Location: Laurel, MD Job #: 18718A

Date: 12/15/2016

Depth	Soil Description	Moisture (%)	Specific Gravity	Wet Density (pcf)	Wet Unit Weight (pcf)	Wet Density (pcf)	Wet Unit Weight (pcf)
0-12"	Dark and moist, medium sand, silty, clayey, sandy, with organic (SM)	22.7	2.65	122.7	122.7	122.7	122.7
12-18"	Dark and moist, medium sand, silty, clayey, sandy, with organic (SM)	22.7	2.65	122.7	122.7	122.7	122.7
18-24"	Dark and moist, medium sand, silty, clayey, sandy, with organic (SM)	22.7	2.65	122.7	122.7	122.7	122.7
24-30"	Dark and moist, medium sand, silty, clayey, sandy, with organic (SM)	22.7	2.65	122.7	122.7	122.7	122.7

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 3-7-18
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

David Thomas 3/9/18
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William J. Miller 3/19/18
 DIRECTOR DATE

OWNER/DEVELOPER CERTIFICATION:

I HEREBY CERTIFY THAT ANY GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED GRADING AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT CONTROL TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-WAY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

James M. Irwin 2/26/18
 OWNER/DEVELOPER SIGNATURE DATE

James M. Irwin 2/26/18
 PRINTED NAME & TITLE DATE

DESIGN CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert H. Vogel 2/27/18
 DESIGNER'S SIGNATURE DATE

Robert H. Vogel 2/27/18
 PRINTED NAME DATE

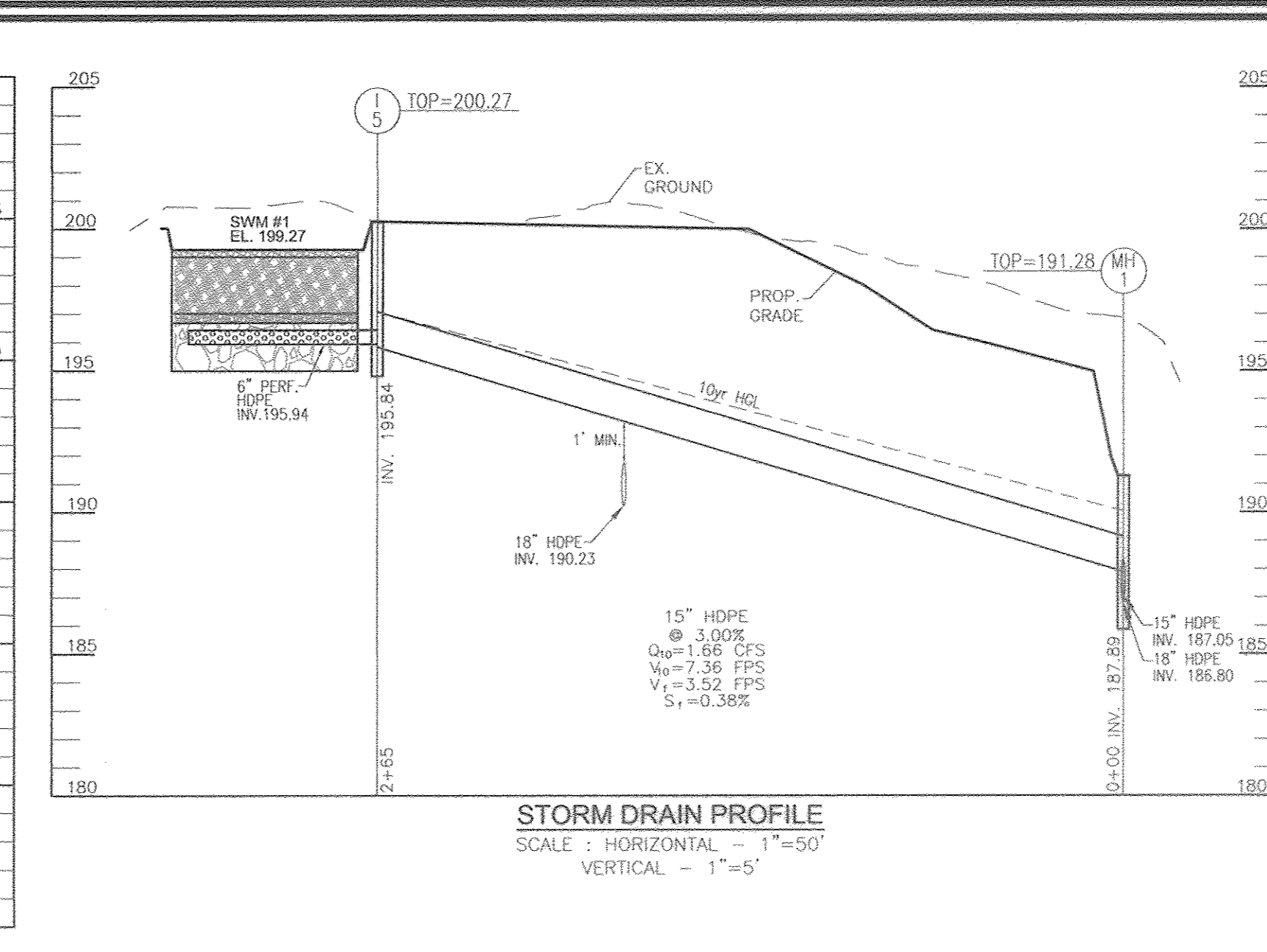
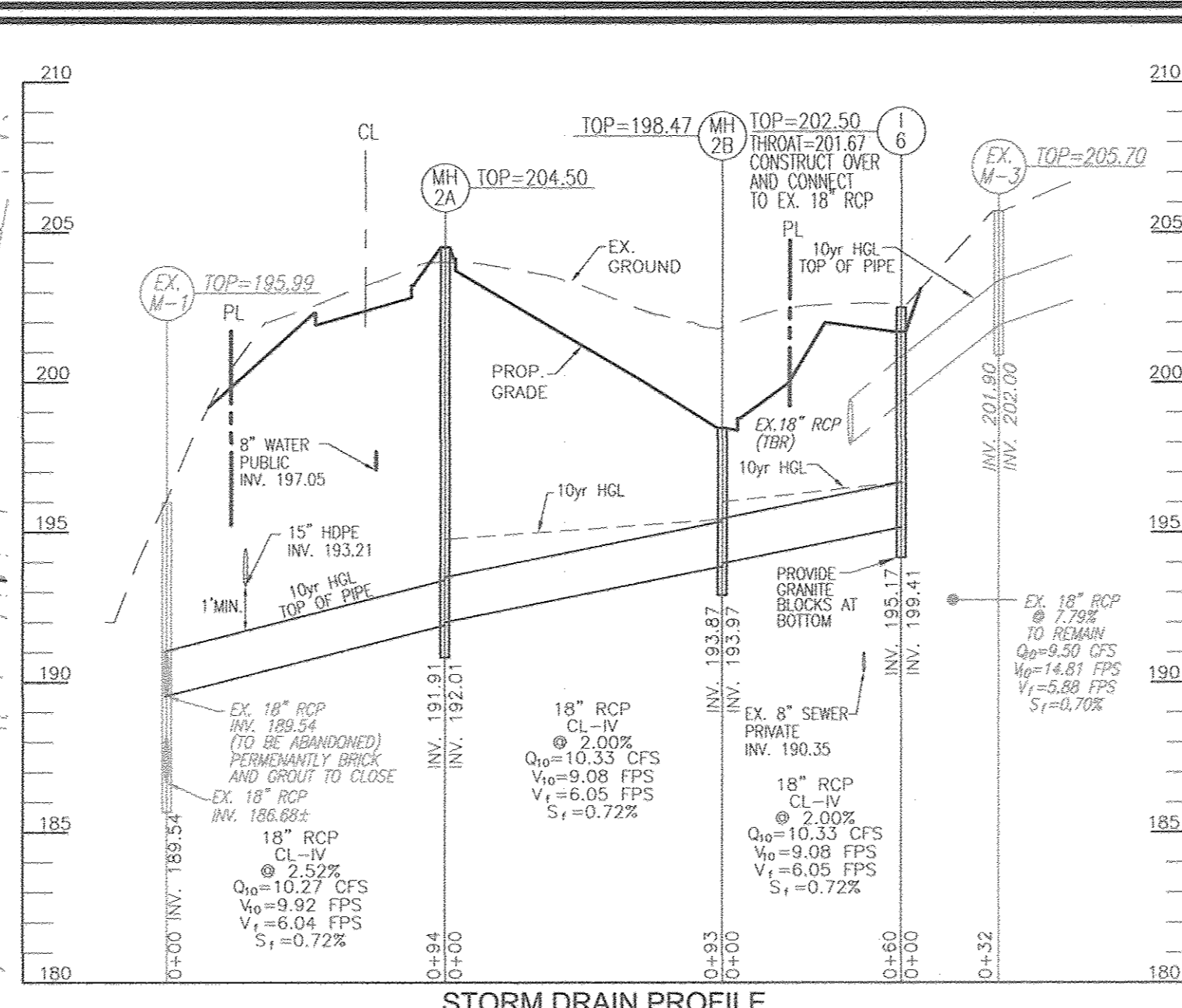
MD REGISTRATION NO. 16193
 (E.S.) R.L.S., OR R.L.A. (Circle one)

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

John C. Robinson 3/16/18
 HOWARD S.C.D. DATE

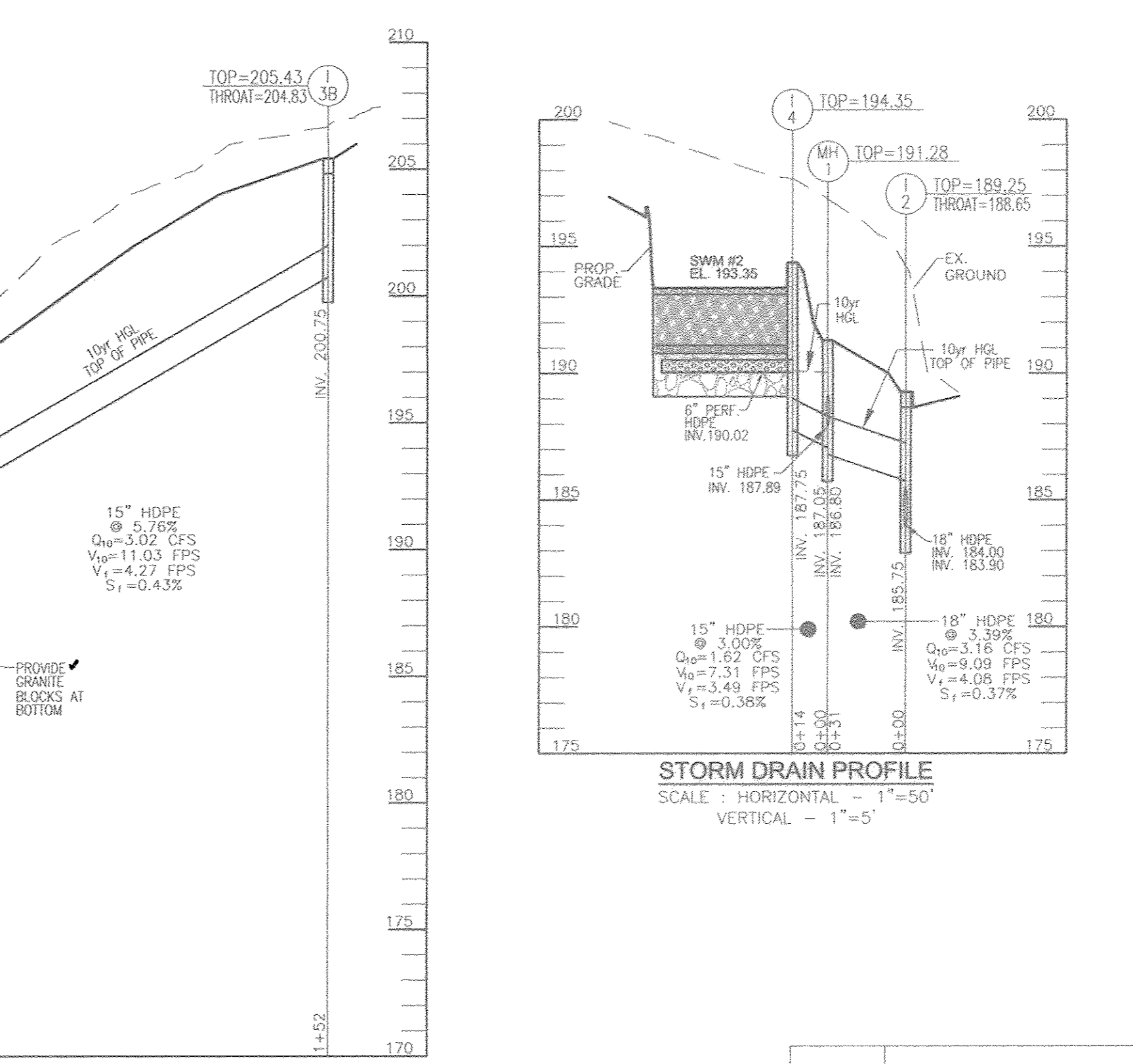
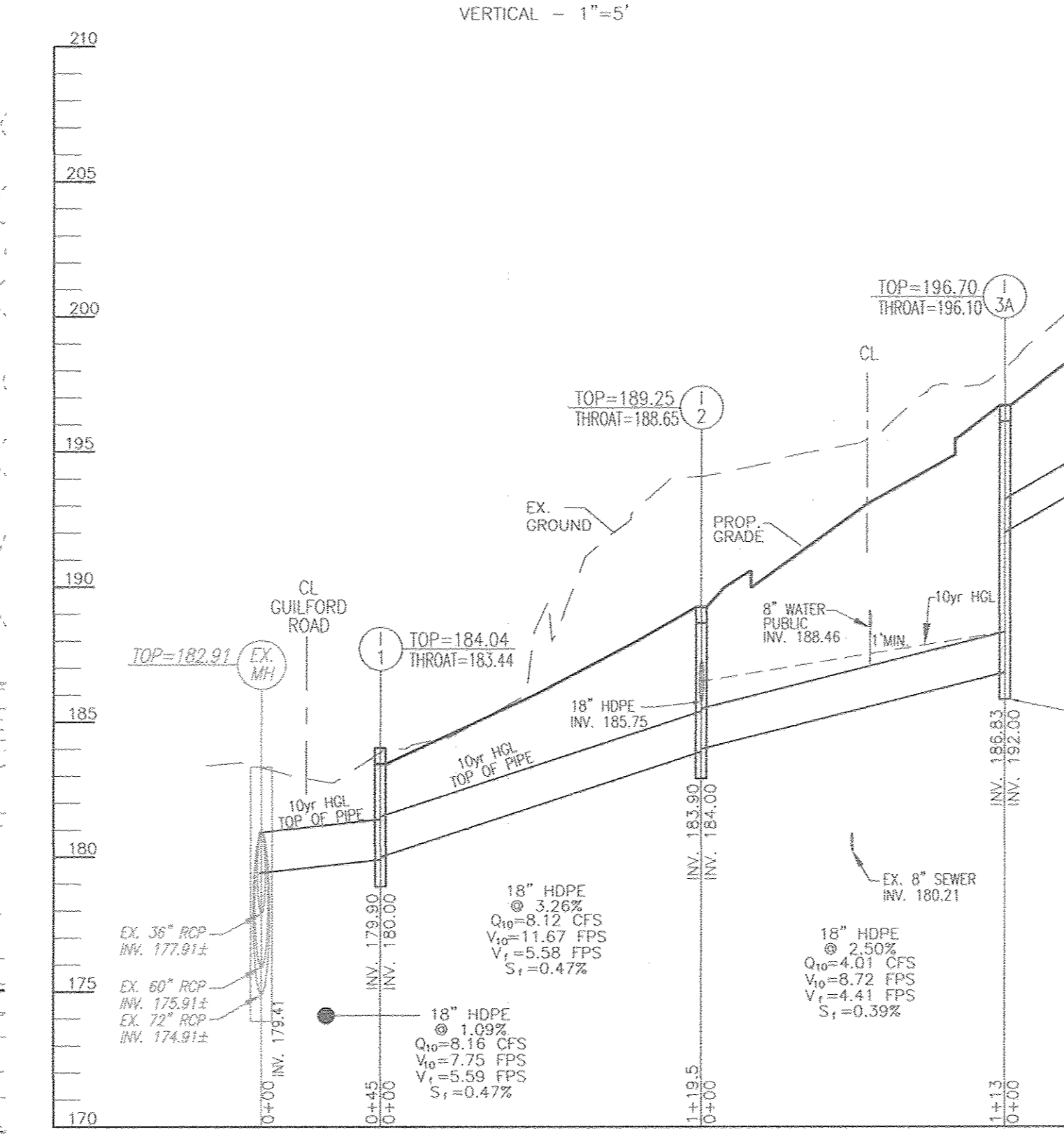
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 SCALE: 1"=30'

SCALE 1"=30'
 15' 0' 30'

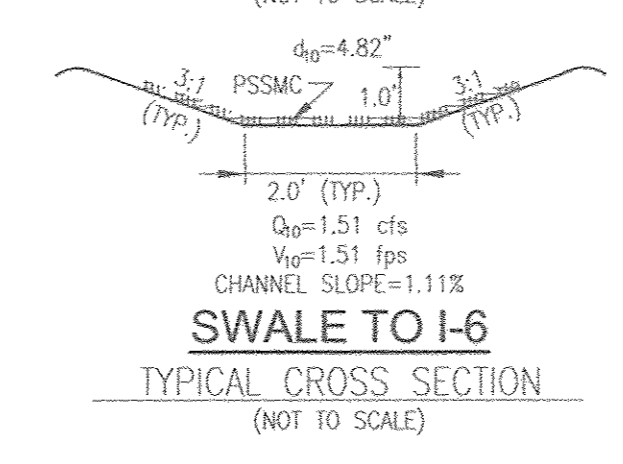
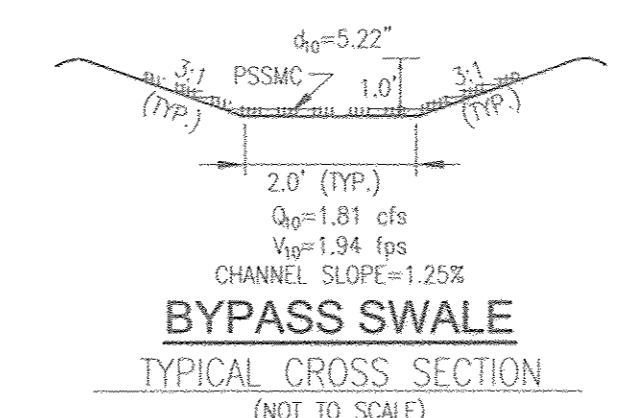


LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING STORM DRAIN LINE
- EXISTING GAS LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PRIVATE ACCESS EASEMENT TO BENEFIT PARCELS 52 AND PARCEL 95
- PROPOSED SIDEWALK
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PRIVATE ACCESS EASEMENT TO BENEFIT PARCEL 52 (PARCEL B-3)
- EXISTING FOREST CONSERVATION EASEMENT (RETENTION)
- EXISTING STREAM BUFFER
- 20' PRIVATE SEWER AND UTILITY EASEMENT
- PROP. 10' TEMPORARY CONSTRUCTION EASEMENT
- 20' PRIVATE SEWER AND UTILITY EASEMENT
- EX. 20' PUBLIC SEWER AND UTILITY EASEMENT (L-4447-1-140)
- PROPOSED DRAINAGE DIVIDE
- M1B2
- M1D3
- SOILS BOUNDARY



OWNER/DEVELOPER
HOWARD COUNTY, MD
DEPARTMENT OF PUBLIC WORKS
3430 COURT HOUSE DR.
ELlicott CITY, MD 21043
(410) 313-4401



STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.	THROAT ELEV.	INV. IN	INV. OUT	COMMENTS
I-1	"A"-5" INLET	N 537143.7 E 1366897.9	184.04	183.44	180.00	179.90	HO. CO. STD SD-4.01
I-2	"A"-10" INLET	N 537249.1 E 1366841.5	189.25	188.65	185.00	183.90	HO. CO. STD SD-4.03
I-3A	"A"-10" INLET	N 537345.3 E 1366781.4	196.70	196.10	192.00	186.83	HO. CO. STD SD-4.03
I-3B	"COG"-15" INLET	N 537467.7 E 1366690.6	205.43	204.83	-	200.75	MD 374.31
I-4	"S" INLET	N 537262.9 E 1366798.1	194.35	-	190.02	187.75	HO. CO. STD SD-4.22
I-5	"YARD" INLET	N 537103.4 E 1366596.7	200.27	-	195.94	195.84	HO. CO. STD SD-4.14
I-6	"D" INLET	N 537329.0 E 1366753.0	202.50	201.67	199.41	195.17	HO. CO. STD SD-4.10 CONSTRUCT OVER AND CONNECT TO EX. 18" RCP
EX. MH-1	EX. 4'-0" MANHOLE	N 537128.2 E 1366674.2	195.99	-	188.54	186.68	EX. MANHOLE
EX. MH-3	EX. 4'-0" MANHOLE	N 537358.4 E 1366736.5	205.70	-	202.00	201.90	EX. MANHOLE
EX. MH	EX. 98" DIAM. MANHOLE	N 537126.2 E 1366939.7	182.91	-	174.89	174.91	EX. MANHOLE
MH-1	4'-0" STANDARD PRECAST MANHOLE	N 537259.1 E 1366811.7	191.28	-	187.80	186.80	HO. CO. STD. G-5-12
MH-2A	4'-0" STANDARD PRECAST MANHOLE	N 537220.0 E 1366652.8	204.50	-	192.01	191.91	HO. CO. STD. G-5-12
MH-2B	4'-0" STANDARD PRECAST MANHOLE	N 537274.2 E 1366728.7	198.47	-	193.97	193.87	HO. CO. STD. G-5-12

NOTE: 1. TOP ELEVATIONS ARE AT CENTER TOP OF HEADPIECE FOR TYPE "A"-5" AND "A"-10", CENTER TOP OF MANHOLE FOR TYPE "D" INLET, TOP OF GRATE FOR "S" AND "YARD" INLETS, AND TOP OF MANHOLE COVER FOR PRECAST MANHOLES.
2. FOR TOP SLAB SLOPES SEE GRADING PLAN.

PIPE SCHEDULE

SIZE	TYPE	LENGTH
4"	PERF. PVC (SWM)	105 LF
6"	PERF. HDPE (SWM)	121 LF
6"	SOLID HDPE (SWM)	6 LF
15"	HDPE (SD)	431 LF
18"	HDPE (SD)	308.5 LF
18"	RCP CL-IV (SD)	247 LF

SITE DEVELOPMENT PLAN
STORM DRAIN DRAINAGE AREA MAP AND UTILITY PROFILES

HOWARD COUNTY - PUBLIC PARKING LOT
HOWARD COUNTY HOUSING COMMISSION
AVATI HASLUP PROPERTY, PARCEL B-2

TAX MAP 48 GRID 12
L 16570F.66, PLAT 2354E
6TH ELECTION DISTRICT
ZONED: CE-CL-OR
PARCEL 95, PARCEL B-2
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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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 09-27-2018.

DESIGN BY: RHY/DZE
DRAWN BY: DZE/KG
CHECKED BY: RHY
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.D. NO.: 06-72.03

6 SHEET OF 8

PLAT 23547
 ONED: CE-CL-CR
 EXEMPT COMMERCIAL



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

1. MATERIAL SPECIFICATIONS
 THE ALLOWABLE MATERIALS 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 DAMPED WITH 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 BETTERMAN GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 * SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
 * ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-60%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%).
 * CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
 * PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE ADDED TO THE SOIL TO INCREASE OR DECREASE PH.
 THERE SHALL BE AT LEAST ONE SOIL TEST PER PRACTICE. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

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 TUB TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
 COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE AND REDUCE THE SUBSTRATE ZONE. THESE OPERATIONS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
 ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONOED WATER BEFORE PREPARING (ROTOTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPORT SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

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

5. PLANT INSTALLATION
 COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE. 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 SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
 GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING OF THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS, DEFOLIANTS, 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 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 4" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
 * GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 * THE MAN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 * RIGID, NON-PERFORATED OBSERVATION WELLS MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
 * A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES. IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 2".
 * THE MAN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5% OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

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

Appendix B.4. Construction Specifications for Environmental Site Design Practices

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

Material	Specification	Size	Notes
Planting soil	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2' to 4' deep)	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobble	stone: 2" to 5"	
Geotextile		n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGRREGATE (1/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; not necessary undermost pipe. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth.
Concrete in place concrete (if required)	MSHA Min No. 3; 1" - 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-61-60	n/a	on-site testing of poured-in-place concrete required: 28-day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 318.9.9.9; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil mass); and analysis of potential cracking. Sand substitutions such as Dolomite and Gypsumstone (AASHTO #10) are not acceptable. No calcium carbonate or dolomite sand substitutions are acceptable. No "rock dust" can be used for sand.
Sand	AASHTO M-6 or ASTM-C-33	0.075 to 0.04"	

MBR Facility	Ponding Depth (ft)	Ponding Elevation (ft)	Top of Mulch Elevation (ft)	Bottom of Mulch Elevation (ft)	Bottom of Plant Elevation (ft)	Bottom of Pea Gravel Elevation (ft)	Depth of Stone (ft)	Size of Stone (ft)	Invert of Underdrain (ft)	Bottom of Stone Elevation (ft)
#1	1.00	200.27	199.27	199.02	197.02	196.69	1.70	0.50	196.94	194.99
#2	1.00	194.35	193.35	193.10	191.10	190.77	1.70	0.50	191.02	189.07

ENVIRONMENTAL SITE DESIGN PRACTICE

DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	PERMISSIBLE PAVEMENT	STONE UNDER PERM	LANDSCAPE INFILTRATION	PERFORATED	BIO MICRO	STONE UNDER MBR	ESDv VOLUME
SWM-1	11,436	SWM1	0	0	0	0	0	0	1,320
		SUBTOTAL 1	0	0	0	0	0	0	1,320
SWM-3	10,537	SWM2	0	0	0	0	0	0	789
		SUBTOTAL 1	0	0	0	0	0	0	986
GUILFORD RD SWM	0	SWM3	0	0	0	0	0	0	0
		SUBTOTAL 1	0	0	0	0	0	0	0
TOTALS:									2,927

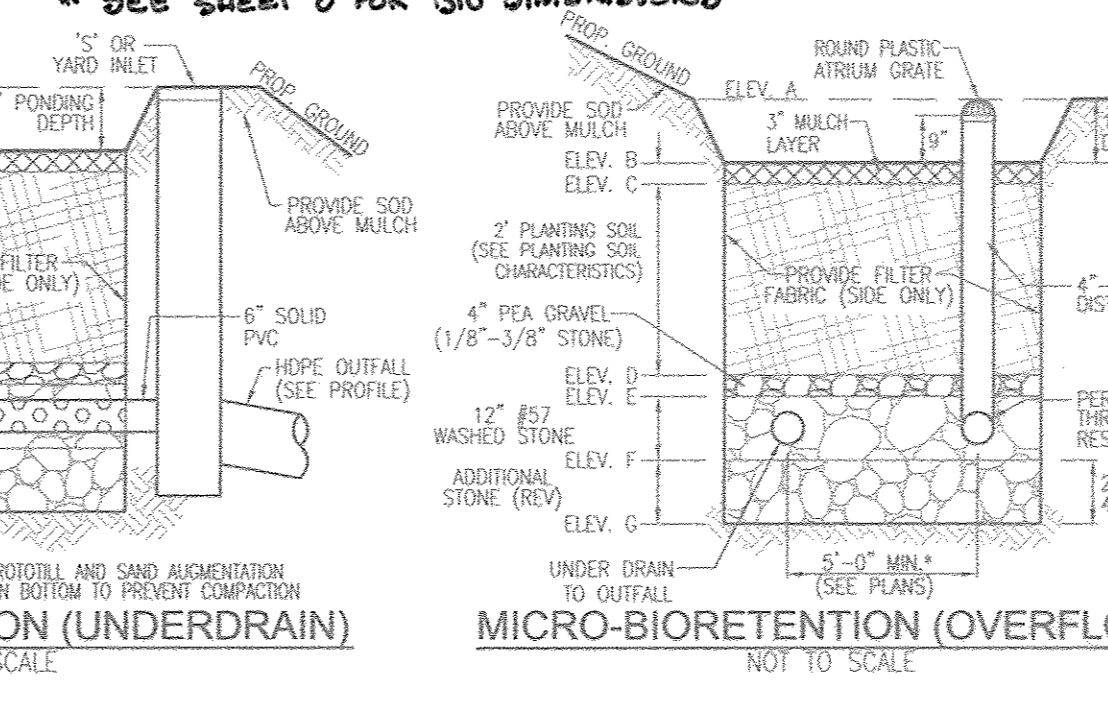
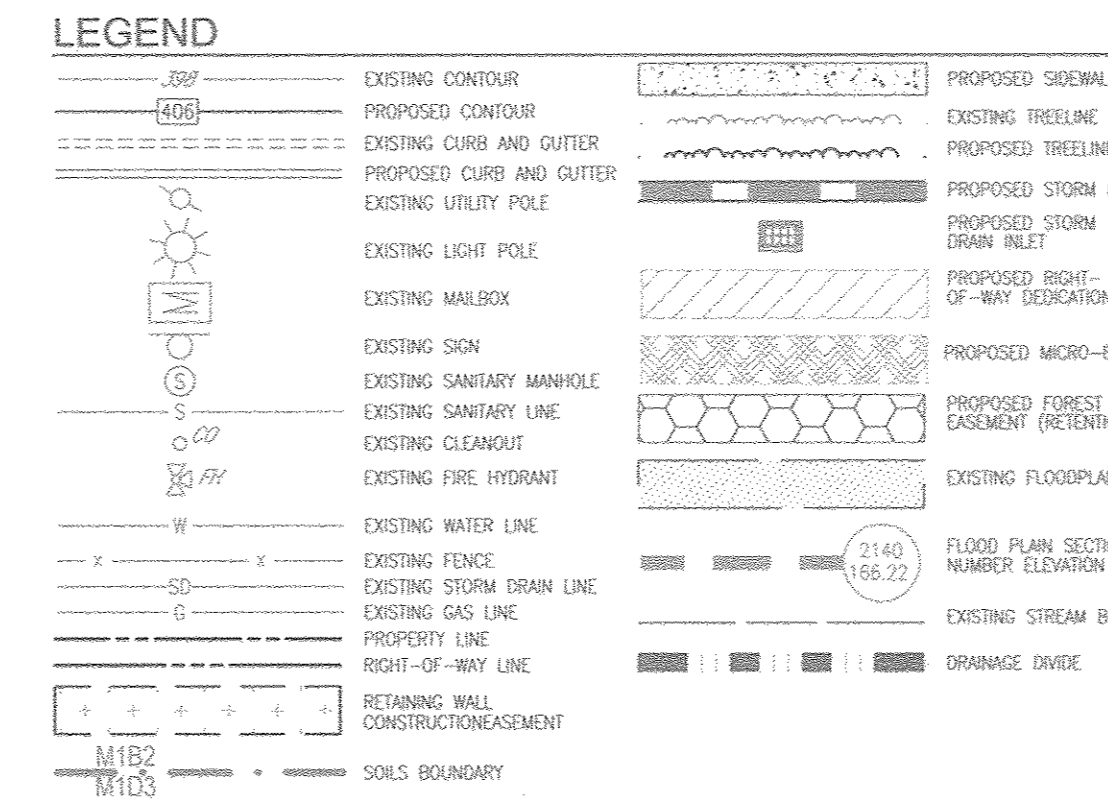
TOTAL AREA 21,973 SF
 0.50 AC
 A Fee-in-lieu payment for stormwater management quantity requirements shall be paid to Capital Project 8J4181 for frontage improvements along Guilford Road.

TOTAL ON-SITE ESDv PROVIDED (cf): 2,927

Target On-Site ESDv = 2,923 cf.
 $P_e = 1.80 \text{ in.}$
 $ESDv = (P_e \times Rv \times A) / 12$
 $Rv = 0.05 + 0.009xI$
 $V \text{ min} = 1.0" \text{ rainfall} \quad (1.0 \times Rv \times A) / 12$
 $V \text{ max} = 1\text{yr rainfall} = 2.6" \quad (2.6 \times Rv \times A) / 12$

DA	% IMPERV	Rv	DA	ESDv REQ	MINIMUM VOLUME	MAXIMUM VOLUME	TOTAL VOL PROVIDED	SWM PRACTICE	SURFACE AREA	STORAGE DEPTH (FT)	MBR VOLUME	STONE DEPTH BELOW MBR	STONE VOLUME	AREA SF	PERV AREA	IMP AREA
SWM-1	82	0.79	0.26	1,359	753	1,958	1,775	MICRO-BIORETENTION	1,216	1.00	1,520	0.70	255	11,436	2,028	9,408
SWM-2	85	0.81	0.24	1,288	714	1,856	1,152	MICRO-BIORETENTION	789	1.00	986	0.70	166	10,537	1,606	8,931
GUILFORD RD	47	0.47	0.38	1,179	1,179	1,179	1,179	MICRO-BIORETENTION	0	0.00	0	0.00	0	16,615	8,827	7,788
TOTAL ESDv BY SUBAREA*									0.50	2,647	2,927	2,506.25	421	21,973	3,634	18,338
														0.50	0.08	0.42

*Totals do not include area for Guilford Road SWM



PLAN VIEW
 SCALE: 1"=30'

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

- 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 1, TABLE A.4.1 AND 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 DEFUNCT STAKES AND WIRES.
- 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.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

SOILS LEGEND
 HOWARD COUNTY SOILS MAP #25

SYMBOL / NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
AwB ALLOWAY SILT LOAM, 2-5 PERCENT SLOPES	D	.43	YES
SgC SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES	B	.24	NO
UdD URBAN LAND-UDORTHENTS COMPLEX, 0 TO 15 PERCENT SLOPES	D	-	NO

- MICRO BIO RETENTION NOTES:**
- ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION 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.
 - PROVIDE 5" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3-7-18
 DATE

3/9/18
 DATE

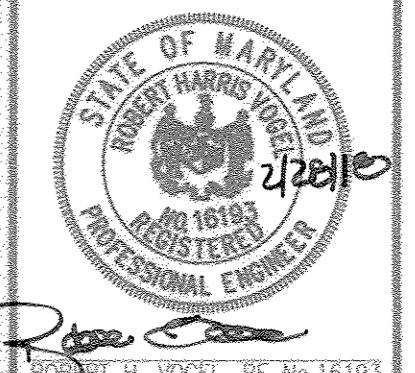
3/18/18
 DATE

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

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
STORMWATER MANAGEMENT DRAINAGE AREA MAP; SWM DETAILS
HOWARD COUNTY - PUBLIC PARKING LOT
 HOWARD COUNTY HOUSING COMMISSION
 AVATI HASLUP PROPERTY, PARCEL B-2
 L 16570/F.66, PLAT 23546
 ZONED: CE-CL-CR
 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



PROFESSIONAL CERTIFICATE

DESIGN BY: RHV/DZE
 DRAWN BY: DZE/KG
 CHECKED BY: RHV
 DATE: FEBRUARY 2018
 SCALE: AS SHOWN
 W.O. NO.: 06-72.03

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: 08-27-2018.

7 SHEET OF 8

