

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: 1-800-743-0033
 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

- ANALYSIS:
 - TOTAL PROJECT AREA: 2.198 AC. PARCEL 365 (PARCEL K-4)
 - PRESENT ZONING: B-2
 - USE OF STRUCTURE: AUTOMOBILE SALES AND SERVICE
 - TOTAL BUILDING COVERAGE (FOOTPRINT AREA): 13,952 SF (0.32 AC. OR 14.66 % OF GROSS AREA)
 - SERVICE CENTER AREA: 8,812 SF
 - PARTS AREA: 1,200 SF
 - SALES/SHOWROOM AREA: 3,940 SF
 - PAVED PARKING LOT/AREA ON SITE: 62,034 SF (1.42 AC. OR 64.79 % OF GROSS AREA)
 - AREA OF LANDSCAPE ISLAND: 3,939 SF (0.09 AC. OR 4.14 % OF GROSS AREA)
 - LIMIT OF DISTURBED AREA: 2.26 AC
 - CUR: 1127 CY. FILL: 6163 CY

- PROJECT BACKGROUND:
 - LOCATION: CLARKSVILLE, MD.; TAX MAP 34, BLOCK 06, PARCEL K-4.
 - ZONING: B-2
 - SUBDIVISION: HOLWECK SUBDIVISION
 - SECTION/AREA: N/A
 - SITE AREA: 2.198 AC.
 - DEED/PLAT REFERENCES: L.9929/F.90, L.14177/F.86, PLAT 11181, PLAT 14864, PLAT 16013.
 - DPZ REFERENCES: F-94-38, F-98-144, F-99-205; SP-93-14, WP-93-90, ZB-947M, F-01-29; F-03-202; WP-03-41; SDP-03-093; BA-14-040V, F-4-059

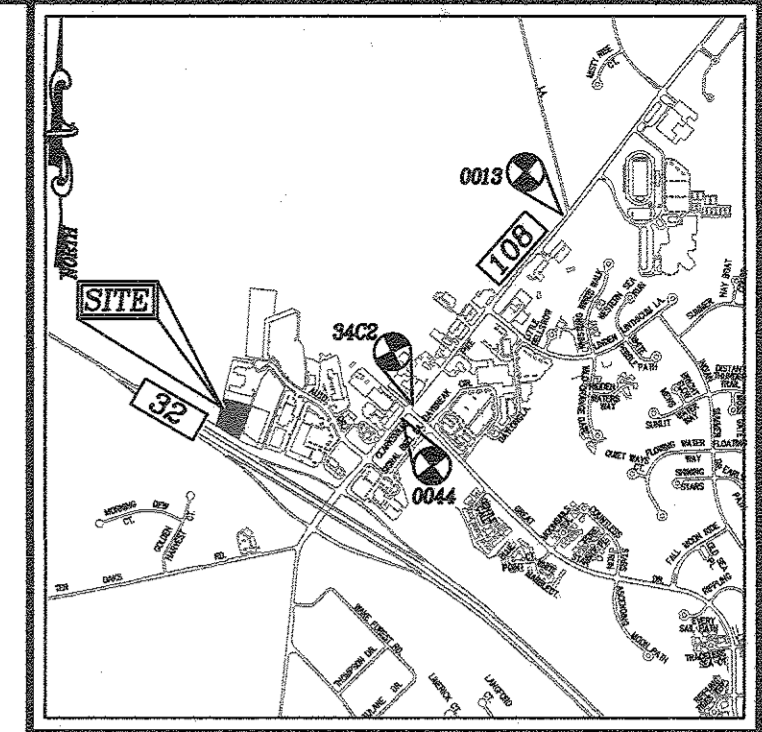
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSMA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS 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 3500 P.S.I.
- 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.
- 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 34C2 (UPDATED 0044), AND 0013.
- THE PROPERTY LINES SHOWN HEREON IS BASED ON A FIELD-RUN BOUNDARY SURVEY PERFORMED BY MARKS-VOGEL ASSOCIATES, INC. PERFORMED ON OR ABOUT MARCH 1993.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM A FIELD RUN SURVEY WITH TWO FOOT CONTOUR INTERVALS WAS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JANUARY 9, 2012.
- THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION. ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL P-2 PAVING UNLESS OTHERWISE NOTED (SEE DETAIL 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.
- CONTRACTOR RESPONSIBLE FOR CONSTRUCTING ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
- PUBLIC WATER AVAILABLE THROUGH 39-3942-D. PUBLIC SEWER AVAILABLE THROUGH 39-3942-D.
- TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, DATED FEBRUARY 20, 2014; APPROVED 10/16/14.
- THE SUBJECT PROPERTY IS ZONED B-2 IN ACCORDANCE WITH THE 10/06/13 COMPREHENSIVE ZONING PLAN.
- THERE ARE NO WETLANDS, STREAMS, THIR BUFFERS, STEEP SLOPES, 100-YEAR FLOODPLAIN, OR FOREST CONSERVATION EASEMENTS LOCATED ON SITE.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3500 P.S.I.
- ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS "C", AS REQUIRED BY ASHTO-180.
- THE PROPOSED BUILDING TO HAVE ROOF LEADERS WHICH EMPTY INTO STORM DRAIN SYSTEM.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND 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 \$9,300 FOR THE REQUIRED 18 SHADE TREES, AND 26 EVERGREEN TREES.
- FOREST CONSERVATION REQUIREMENTS FOR PARCEL K-4 ARE PROVIDED IN CONJUNCTION WITH F-01-029. THE REQUIREMENT WAS FULFILLED WITH THE PURCHASE OF 5.28 ACRES OF AFForestation CREDIT AT THE WINKLER FOREST MITIGATION BANK.
- THERE ARE NO SPECIMEN OR CHAMPION TREES WITHIN THE LOT.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- EXISTING AUTO DRIVE IS CLASSIFIED AS A LOCAL ROAD AND EXISTING NEW CAR DRIVE IS CLASSIFIED AS PRIVATE ROAD.
- 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.
- THE PROPOSED BUILDING WILL HAVE AN INSIDE METER 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'-5' IN HEIGHT AND NO MORE THAN 6' LATERSL FROM THE DOOR. THE KNOX BOX LOCATION IS SHOWN ON THESE PLANS. THE KNOX BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (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. NFPA-113.1.4
- 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 IN RED AND STENCILED TO IDENTIFY THE ROAD AS A FIRE LANE.
- STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), 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 134.0 OF THE HOWARD COUNTY ZONING REGULATIONS.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- TRASH COLLECTION AND RECYCLABLES TO BE PRIVATE.
- SIGNAGE SHALL BE PROVIDED ON THE BUILDING IDENTIFYING THE BUILDING ADDRESS.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS PROVIDED FOR THIS PROJECT BY THE EXISTING UNDERGROUND PIPE FACILITY (CPV) PROVIDED UNDER SDP-03-093, AND BY THE PROPOSED CONTECH STORMFILTER WALL (WQ), ALL CONSTRUCTION ON PARCELS K-2, K-3, AND K-4 MUST BE COMPLETED BY MAY 4, 2017 IN ORDER TO MAINTAIN GRANDFATHERING.
- A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON APRIL 28, 2014 FOR THIS PROJECT.
- THIS PLAN IS SUBJECT TO BA-14-040V; APPROVED APRIL 13, 2015; TO REDUCE THE STRUCTURE AND USE SETBACK FROM A PUBLIC STREET RIGHT-OF-WAY FROM 30 FEET TO 9.5 FEET FOR A RETAINING WALL IN A B-2 ZONING DISTRICT. APPROVAL GRANTED PROVIDED, HOWEVER, THAT:
 - A. THE VARIANCE SHALL APPLY ONLY TO THE USE AND STRUCTURES AS DESCRIBED IN THE PETITION AS DICTATED ON THE VARIANCE PLAN AND NOT TO ANY OTHER ACTIVITIES, USES, STRUCTURES, OR ADDITIONS ON THE PROPERTY.
 - B. THE PETITIONER SHALL OBTAIN ALL REQUIRED PERMITS.

SITE DEVELOPMENT PLAN

COLEMAN FIAT NEW CAR SALES

HOLWECK SUBDIVISION PARCEL 'K-4' PARCEL 365 (L. 08594 / F. 00473) PLAT NO. 16013, 23587

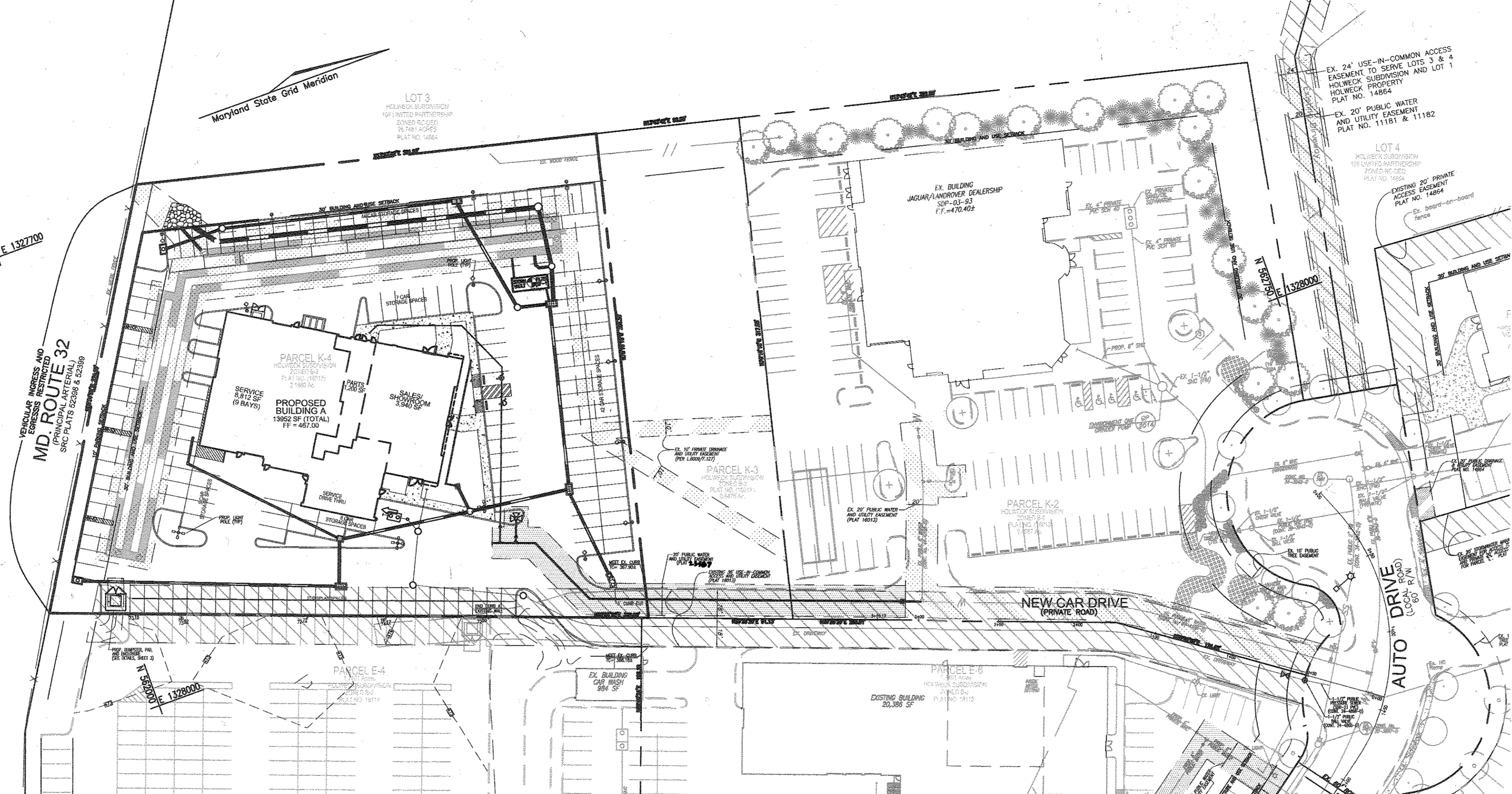
BENCHMARKS
 HOWARD COUNTY BENCHMARK 34C2 (DESTROYED)
 N 562,321.798 E 1,329,750.722
 HOWARD COUNTY BENCHMARK 0044 (CONC. MON.)
 N 562,176.47 E 1,329,641.87 ELEV. 485.25
 HOWARD COUNTY BENCHMARK 0013 (CONC. MON.)
 N 562,185.95 E 1,313,309.72 ELEV. 484.67



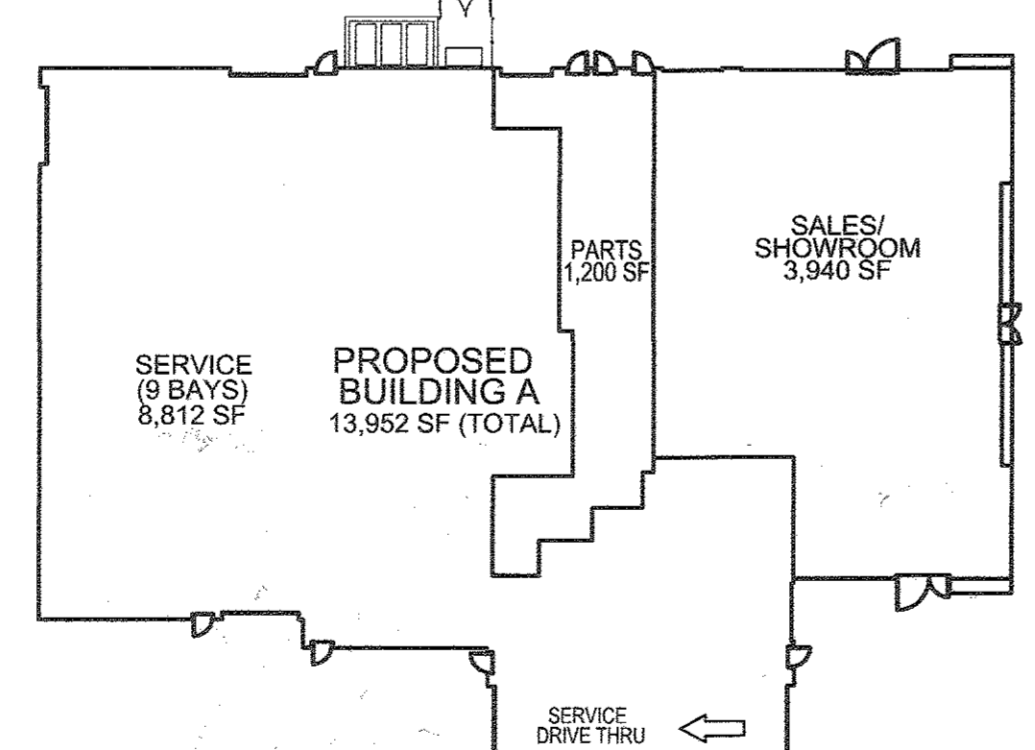
VICINITY MAP
 SCALE: 1"=2,000'
 ADC MAP COORDINATE: PG. 4933 / K-7

LEGEND

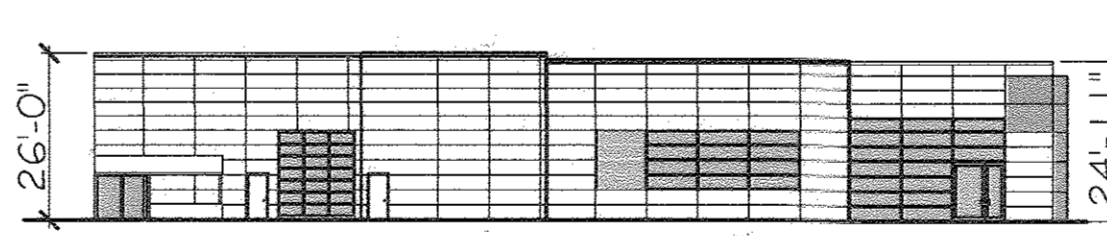
RIGHT-OF-WAY LINE	---
PROPERTY LINE	---
ADJACENT PROPERTY LINE	---
EXISTING CURB AND GUTTER	---
PROPOSED CURB AND GUTTER	---
EXISTING LIGHT POLE WITH CONCRETE BASE	⊙
EXISTING MAILBOX	⊙
EXISTING SIGN	⊙
EXISTING SANITARY MANHOLE	⊙
EXISTING SANITARY LINE	SS
EXISTING CLEANOUT	⊙
EXISTING FIRE HYDRANT	⊙
EXISTING WATER LINE	W
PROPOSED STORM DRAIN	---
PROPOSED STORM DRAIN INLET	---
EXISTING FENCE	---
PROPOSED SIDEWALK	---
EXISTING TREE LINE	---
PROPOSED TREE LINE	---
EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #5696	---
EX. 20' WATER & UTILITY EASEMENT PLAT #16013	---
PROP. 20' PUBLIC WATER & UTILITY EASEMENT PLAT #23587	---



LOCATION MAP
 SCALE: 1"=100'



PROPOSED BUILDING FOOTPRINT
 NOT TO SCALE



PROPOSED BUILDING ELEVATION
 NOT TO SCALE

AS-BUILT CERTIFICATION FOR PSUM
 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 UNDERGROUND SWM FACILITY.
 P.E. NO: 16193
 DATE: 3/16/18



NO AS-BUILT INFORMATION ON THIS SHEET

ADDRESS CHART					
LOT/PARCEL #	STREET ADDRESS				
LOT K-4 / PARCEL 365	12520 NEW CAR DRIVE				
PERMIT INFORMATION CHART					
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL NUMBER			
HOLWECK SUBDIVISION	N/A	K-4			
PLAT OR L/F	GRID NO.	ZONING	TAX MAP NO.	ELECT. DIST.	CENSUS TR.
E-4, L.9929/F.90	6	B-2	34	5TH	6051.01
E-6, L.14177/F.86					
PLAT 19013, PLAT 23587					
WATER CODE: J07	SEWER CODE: 6653500				

PHASE 1 - TEMP SALES TRAILER:
 FOR TEMP SALES TRAILER PLAN AND PAVING, SEE SHEET 12.

PARKING TABULATION (FOR PHASE 1 TEMP SALES TRAILER)

REQUIRE	REQUIRED
TEMP SALES TRAILER: 750 SF @ 2 SPACE/1000 SF	2 SPACES
AUTOMOTIVE DISPLAY: (27x9x18=4,374 SF) @ 1 SPACE/1000 SF	5 SPACES
TOTAL SPACES REQUIRED:	7 SPACES
TOTAL SPACES PROVIDED:	28 SPACES (INCLUDES 2 HC SPACES)
	214 CAR STORAGE SPACES
	27 DISPLAY SPACES

PARKING TABULATION

REQUIRE	REQUIRED
BUILDING A: 13,952 SF	
SALES/SHOWROOM/PARTS/OFFICE: 5,140 SF @ 2 SPACE/1000 SF	11 SPACES
SERVICE BAYS: 9 BAY AUTOMOBILE SERVICE AREA @ 3 SPACES/SERVICE BAY	27 SPACES
AUTOMOTIVE DISPLAY: (27x9x18=4,374 SF) @ 1 SPACE/1000 SF	5 SPACES
TOTAL SPACES REQUIRED:	43 SPACES
TOTAL SPACES PROVIDED:	44 SPACES (INCLUDES 2 HC SPACES)
	106 CAR STORAGE SPACES
	27 DISPLAY SPACES

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edmister 1-29-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kate Schindler 2-11-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William J. Zeff 2-11-16
 DIRECTOR DATE

SHEET INDEX

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TEMPORARY SALES TRAILER - PHASE I	12 OF 12

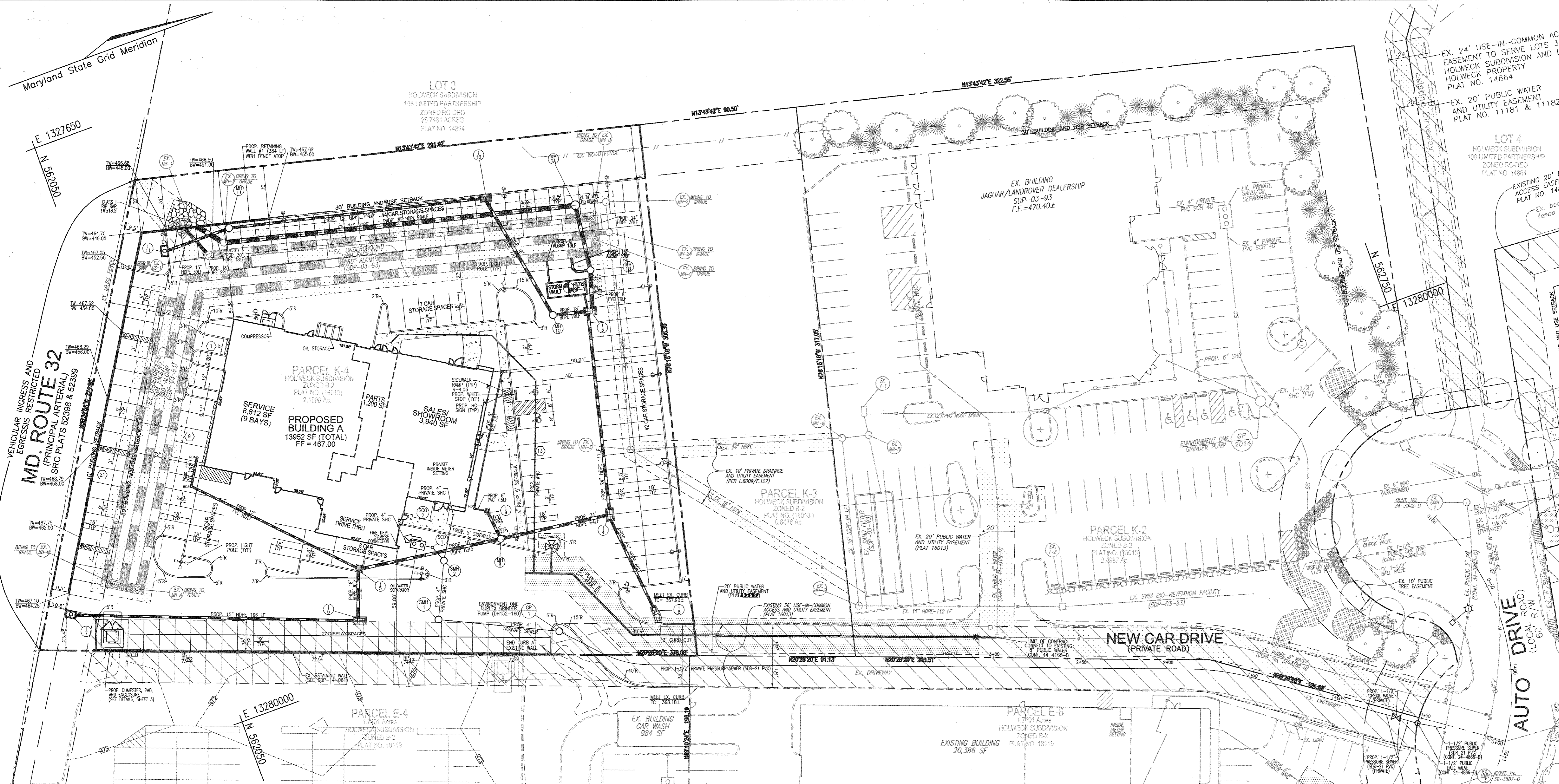
OWNER/DEVELOPER
 1318 COMPANY LLC
 10400 AUTO PARK AVE
 BETHESDA, MD 20817-1006
 C/O: JIM COLEMAN
 301-469-6600

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 FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16193 EXPIRATION DATE: 03-27-2018

DESIGN BY: DZE
 DRAWN BY: DZE/KG/MR
 CHECKED BY: RHV
 DATE: OCTOBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 13-10

1 SHEET OF 12



LEGEND:

---	EXISTING CURB AND GUTTER
---	PROPOSED CURB AND GUTTER
---	EXISTING LIGHT POLE WITH CONCRETE BASE
---	EXISTING MAILBOX
---	EXISTING SIGN
---	EXISTING SANITARY MANHOLE
---	EXISTING SANITARY LINE
---	EXISTING CLEANOUT
---	EXISTING FIRE HYDRANT
---	EXISTING WATER LINE
---	PROPOSED STORM DRAIN
---	PROPOSED STORM DRAIN INLET
---	EXISTING FENCE
---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	PROPOSED SIDEWALK
---	EXISTING TREELINE
---	PROPOSED TREELINE
---	EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #5696
---	EX. 20' WATER & UTILITY EASEMENT PLAT #16013
---	PROP. 20' PUBLIC WATER & UTILITY EASEMENT PLAT # 13287
---	PROP. MICRO RETENTION AREA (M-R)
---	PROP. PERVIOUS PAVEMENT (A-2)

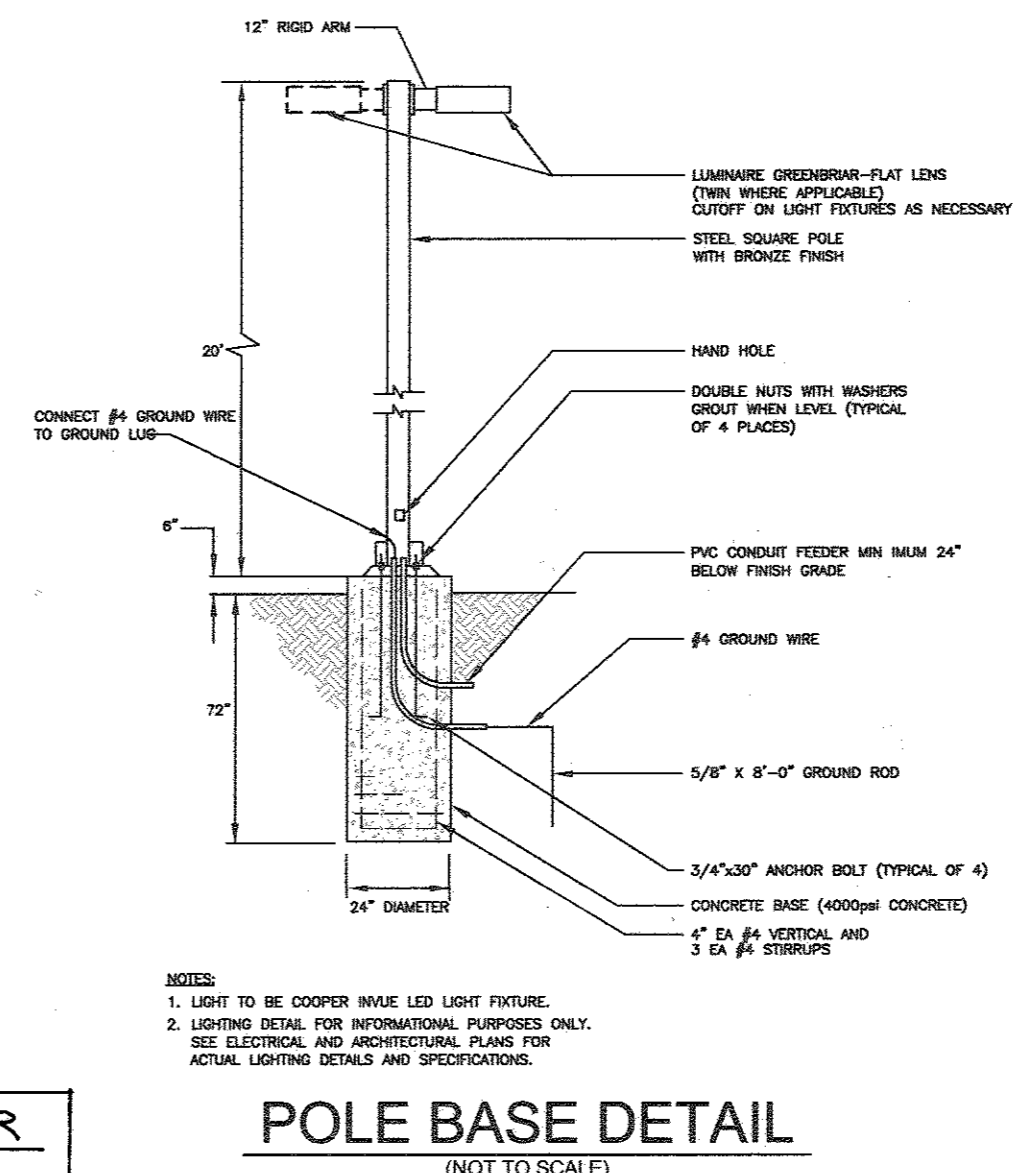
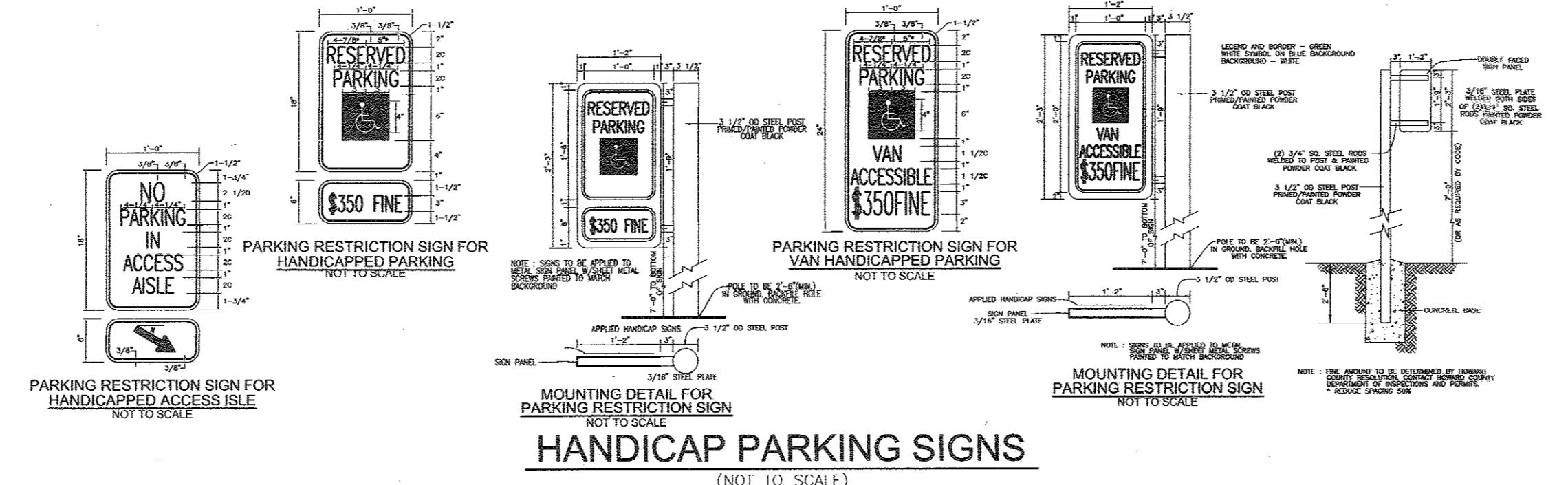
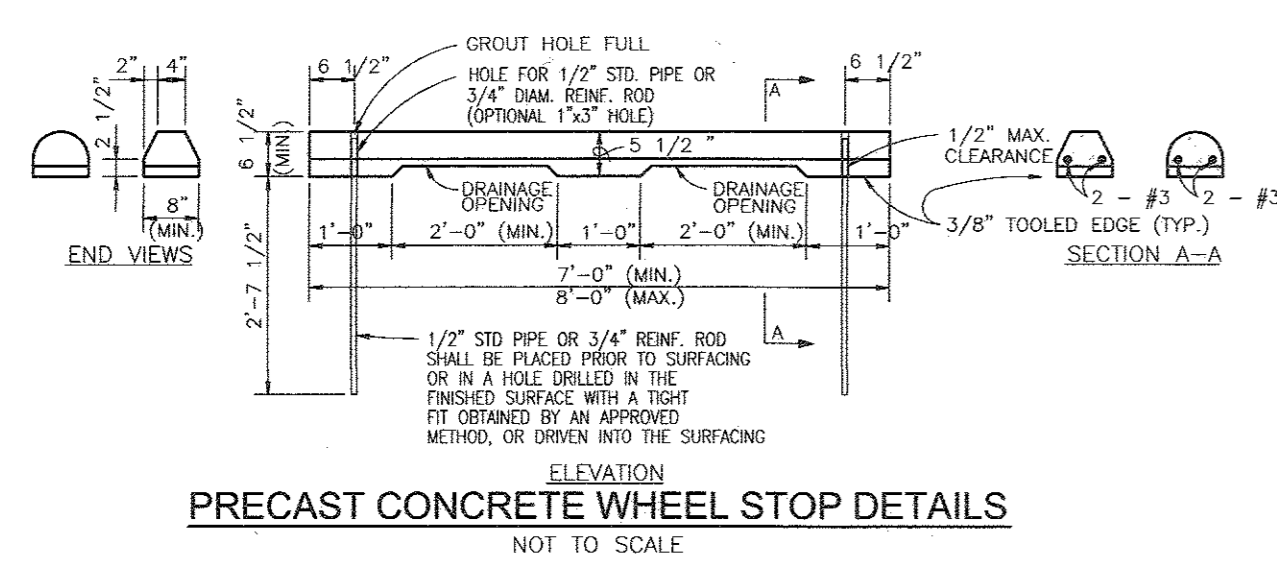
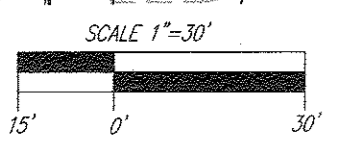
AS-BUILT CERTIFICATION FOR PSWM
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLAN AND COMPARES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREAS SUPPLEMENTED TO PREVENT CLOGGING OF THE UNDERGROUND STORM FACILITY.
 PE NO. 16193
 DATE: 3/6/18



NO AS-BUILT INFORMATION ON THIS SHEET

OWNER/DEVELOPER
 1318 COMPANY LLC
 10400 AUTO PARK AVE
 BETHESDA, MD 20817-1006
 C/O: JIM COLEMAN
 301-469-6600

LAYOUT PLAN VIEW
 SCALE: 1"=30'



PHASE 1 - TEMP SALES TRAILER
 FOR TEMP. SALES TRAILER PLAN AND PAVING, SEE SHEET 12.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edman 1-29-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Walter J. Smith 2-11-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Walter J. Smith 2-11-16
 DIRECTOR DATE

1	REVISE PLAN TO SHOW TEMP SALES TRAILER (PHASE 1)	11/30/16
NO.	REVISION	DATE

SITE DEVELOPMENT PLAN

LAYOUT PLAN (ULTIMATE)
COLEMAN FIAT NEW CAR SALES
 HOLWECK SUBDIVISION PARCEL K-4
 12620 NEW CAR DRIVE
 PARCEL 366 (L. 08504 / F. 00473)
 PLAT 16013 & PLAT _____

TAX MAP 34 BLOCK 06 5TH ELECTION DISTRICT ZONED: B-2 LOT: PARCEL K-4 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

PROFESSIONAL CERTIFICATE

DESIGN BY: DZE
 DRAWN BY: DZE/KG/MR
 CHECKED BY: RHW
 DATE: OCTOBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 13-10

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

2 OF 12

GEOTECHNICAL ANALYSES AND EVALUATIONS:

BUILDING FOUNDATIONS:
Based on the boring results, existing/possible fill was encountered in all borings below the surface materials and extending to depths of up to approximately 12 ft below existing grades. The existing/possible fill encountered in the borings generally consisted of medium to very stiff cohesive soils or medium dense granular soils and appears to be suitable to directly support foundations and new fill. The existing/possible fill should be thoroughly profiled prior to foundation or slab construction and prior to placement of any additional fill to verify the suitability of the existing/possible fill. The existing/possible fill should be thoroughly profiled prior to foundation or slab construction and prior to placement of any additional fill to verify the suitability of the existing/possible fill. The existing/possible fill should be thoroughly profiled prior to foundation or slab construction and prior to placement of any additional fill to verify the suitability of the existing/possible fill. The existing/possible fill should be thoroughly profiled prior to foundation or slab construction and prior to placement of any additional fill to verify the suitability of the existing/possible fill.

FOUNDATION CONSIDERATIONS:
Based on the boring results, the soils at the footing locations are anticipated to consist of approved existing/possible fill soils, firm natural soils, or new engineered fill material, placed on approved existing/possible fill or firm natural soil.
Based on our understanding of the proposed construction and the results of the subsurface explorations, the proposed building can be supported on conventional footings placed on approved existing/possible fill, firm natural soils or new fill placed on approved existing/possible fill or firm natural soils. EGS recommends that the footings for the proposed building be designed using a not allowable soil bearing pressure not to exceed 3,000 pounds per square foot (psf). The not allowable soil bearing pressure refers to the pressure that can be transmitted to the foundation bearing soils in excess of the final overburden pressure at the base of a footing.

Prior to the placement of reinforcement and concrete for new footings, the bases of the footing excavations should be observed, tested, and approved by a qualified representative of the Geotechnical Engineer to verify that soil conditions at each footing location are suitable for the design bearing pressure. If unsuitable soils are encountered at planned subgrade levels for any footing, the unsuitable soils should be undercut to suitable bearing materials. The footing can be directly supported on the competent soils at greater depths or, alternatively, the design footing bearing level can be restored through placement of lean concrete and fill materials. If the design bearing level is restored using select engineered fill, then the excavation to remove the unsuitable soils should extend at least 0.5 ft laterally beyond the bottom edge of the footing for each 1 ft of vertical undercut below the footing bearing level. The select engineered fill material should be compacted to greater density than the surrounding soils.

Settlement of the building foundations will be a function of the compressibility of the underlying subgrade soils, the actual applied loads, and other factors. Based on the anticipated maximum subgrade loads and our experience with similar projects, the anticipated maximum individual footings, designed and constructed as outlined in this report, will be less than 1 inch. Maximum settlement within the foundations is expected to be less than 0.5 inch. The maximum horizontal distance of 30 feet. We anticipate that existing footing settlements will be on the same order.

In order to reduce the possibility of foundation bearing failure and excessive settlement due to local shear or "punching" action, we recommend that continuous footings have a minimum width of 1.5 times the footing width. Foundations having a minimum lateral dimension of 2.5 feet in addition, footings should be placed on a sufficient depth to provide adequate protection against frost heave. We recommend that footings in unheated areas be placed at a minimum depth of 30 inches below finished grade. We recommend footings in heated areas be founded at a minimum depth of 18 inches below finished grade. However, if interior footings are founded at levels above 30 inches and are subjected to freezing temperatures, there is a possibility of frost heave for those footings. Therefore, the contractor should take adequate precautions to maintain temperatures above freezing around any shallow interior footings.

All continuous load-bearing wall foundations should be suitably reinforced. To provide continuity and minimize differential movements, the longitudinal reinforcement steel should be placed in a column footing situated along the walls (exterior or interior) and the foundations constructed as a continuous unit. The reinforcing steel should also be continuous through the building corners. Where top and bottom steel is included in the continuous wall foundation, a minimum footing thickness of 12 inches should be required. We recommend that wall footings that abut existing footings be dovetailed into the existing differential settlement at the interface, where the footings are constructed at the same level. Prior to placing any foundation concrete, the steel reinforcement should be examined to ensure that the bars are properly sized and positioned in accordance with the foundation plans and specifications.

GROUND-SUPPORTED FLOOR SLABS:
When floor slabs are ground-supported on subgrades prepared in accordance with the recommendations in the sections titled Subgrade Preparation and Fill Placement, it is important that the slab subgrade be firm and undisturbed. The subgrade materials should be thoroughly profiled, free of organic matter, and the concrete. Based on the test boring results and the anticipated final grades, the anticipated slab subgrade should generally consist of approved existing/possible fill, firm natural soils or new fill placed on approved existing/possible fill or firm natural soils. We recommend that the subgrade be thoroughly profiled with suitable equipment and/or probed by a qualified representative of the Geotechnical Engineer in an effort to detect unstable, or otherwise unacceptable soil conditions. Profile testing should be concentrated in those areas where any wall and utility backfill have been placed. Soils in excessively unstable areas should be undercut and replaced with new engineered fill. Recommendations for construction of engineered fill are presented in the [B] Placement section of this report.

It is recommended that ground-supported slabs be underlain by a minimum of 4 inches of CR-6 or GA 5/8 dense-grade aggregate or approved equivalents. Acceptable granular subgrade materials should have an aggregate size greater than 1.5 inches to 100 percent passing the 1 inch sieve and less than 12 percent passing the Number 20 sieve. The granular subgrade materials will provide a capillary break between the subgrade and the concrete slab, a higher modulus of subgrade reaction, and more uniform support conditions. All granular materials should be compacted, however, if the granular subgrade materials have more than 5 percent fines, those materials should be compacted to a minimum of 95 percent of the maximum dry density determined by the Standard Proctor compaction test method (ASTM D 698). For structural design purposes a modulus of subgrade reaction (k) of 100 pounds per cubic inch (pci) may be utilized. For the structural design of slabs, provided a 4-inch subbase is utilized and the subgrade has been prepared in accordance with the recommendations presented herein.

In the event there is a significant time lag between the site grading work and the fine grading of concrete slab areas prior to the placement of the subbase soils and concrete, the Geotechnical Engineer should require re-compactation of the prepared subgrade. Prior to final slab construction, the Engineer should require re-compactation and/or re-compaction to provide firm and stable conditions. Where moisture vapor seepage through concrete slab is a concern, a moisture vapor barrier, consisting of at least 5 mil polyethylene sheets, should be placed on top of the granular materials before the placement of the concrete. However, with the use of a moisture vapor barrier, special attention should be given to the surface curing of the slab in order to minimize uneven drying of the slab and any associated cracking and curling.

It is recommended that ground-supported slabs be isolated from the foundation footings so that differential movements between the footings and slab will not induce excessive bending stresses in the floor slab. Where the structural configuration prevents the use of a free floating slab, the slab should be isolated from the foundation footings and load transfer should be accomplished by the use of concrete isolation joints. Slabs must also be provided with proper control joints to minimize the effects of concrete shrinkage and settlement. The width of any shrinkage cracks that may develop near the surface of the slab, it is recommended that welded-wire mesh reinforcement be provided. The welded-wire mesh should be located the top half of the slab to be effective.

BELOW-GRADE WALLS AND SITE RETAINING WALLS:
Based upon our understanding of the proposed construction, site retaining walls are currently planned. The following recommendations are provided to guide the design of the retaining walls and below-grade building walls, if required, for lateral earth pressures. It is important that the design of the retaining walls and below-grade building walls be based on the results of the borings, it would appear that some of the soils of the site are likely suitable to remain in-place for use as backfill.
Backfill materials for below-grade walls should be placed and compacted in accordance with criteria outlined in the Earthwork section of this report. The minimum degree of compaction for backfill soils behind below-grade building walls and conventional retaining walls should be 95 percent of the Standard Proctor maximum dry density (ASTM D 698), unless otherwise approved by the Geotechnical Engineer.

It is important that below-grade building walls that generally are designed for minimal displacements at the top of the wall should not be backfilled until the walls are adequately braced by permanent structural framing. Conventional retaining walls designed for active earth pressures generally should not be braced during backfill compaction, so that the walls can yield and rotate and develop active earth pressures. For yielding walls, it generally will be best not to place slope framing, or conventional masonry or concrete walls, until backfilling operations have been completed.

Below-grade building walls and other retaining walls that are rigid and not free to rotate at the top should be designed for at-rest earth pressure conditions. Based on consideration of at-rest earth pressure conditions and typical properties for Sandy SILT (ML) or more granular soil types, it is recommended that equivalent fluid pressures on walls from retained soils be calculated as 0.9H, in units of pounds per square foot, where H is the height of the wall retaining soils in units of feet.
Walls that are flexible and free to rotate at the top can be designed for active earth pressure conditions. Based on consideration of active earth pressures and typical properties for Sandy SILT (ML) or more granular soil types, it is recommended that equivalent fluid pressures on walls from retained soils be calculated as 0.5H, in units of pounds per square foot, where H is the height of the wall retaining soils in units of feet.

The design criteria presented above for evaluation of horizontal earth pressures on retaining walls are based on the assumption of level backfill conditions and the absence of free water within the wall backfill materials. Lateral pressures induced by sloping backfills and/or by any surcharge footings adjacent to walls will also need to be considered in the wall design. In addition, suitable drainage will need to be provided to intercept and to dispose of any surface infiltration and groundwater behind walls.
Sliding resistance for retaining wall footings can be computed using a coefficient of friction of 0.36 for granular soils and 0.30 for silty and clayey soils. Additional resistance to sliding from passive earth pressure resistance also can be considered if the earth materials considered have passive resistance will remain in place on the low side of the retaining wall. Equivalent fluid pressures for passive earth pressure resistance can be computed as 250D, in units of pounds per square foot, where D is the depth of undisturbed natural soil or engineered fill that will remain in place above the base of the wall footing. Because the frictional and passive earth pressure resistances are based on limit strength conditions, appropriate factors of safety of at least 1.5 should be applied to the designs considering these resistances.

The Geotechnical Engineer can provide additional design guidance regarding these and other aspects of below-grade wall and retaining wall design upon request.
SOIL SEISMIC SITE CLASSIFICATION:
Section 1113.2.2 of ASCE 7-16 refers to Chapter 20 of ASCE 7 for seismic site classification, which is based on various criteria, one of which is the Standard Penetration Resistance, N₆₀, derived from the Standard Penetration Test Procedure (ASTM D-1586). ASCE 7 Table 20.3.3 provides correlations for Site Classes C, D, and E with various ranges of N₆₀ to be calculated for the top 100 feet of the subsurface materials at a site in accordance with procedures described in Section 20.4.2 of ASCE 7. In addition, the table presents criteria related to various soil properties for Site Classes C, D, and E. EGS has used Table 20.3.1 of ASCE 7 and the procedures outlined in Section 20.4.2 of ASCE 7 to evaluate the Site Class for this project.

Based on our review of the soil test boring results, it appears that the average N₆₀ value should be in the range of 15 to 50 blows per foot over a depth of 100 ft. This N₆₀ places the project site within the Site Classification of D, according to Table 20.3.1 of ASCE 7.

GEOTECHNICAL ANALYSES AND EVALUATIONS (CONTINUED):

PAVEMENT CONSTRUCTION:
Details regarding traffic conditions anticipated for the site were not provided. However, based on previous experience, it is EGS' opinion that two pavement sections generally should be considered for use - a light-duty pavement section for areas that will be subject primarily to automobile and light-truck traffic and a medium-duty pavement section for areas that will be subjected to some routine heavier truck traffic. In addition to normal automobile and light-truck traffic, it is our judgment that traffic conditions associated with medium-duty pavements can be represented by approximately 15,000 18-kip equivalent single-axle loads (ESALs) during an approximately 20-year service life, while traffic conditions associated with medium-duty pavements can be represented by approximately 75,000 ESALs during an approximately 20-year service life.

It is EGS' opinion that the use of the light-duty pavement section and the medium-duty pavement section most likely will be sufficient for traffic conditions likely to occur at the development. However, traffic loading conditions are an extremely important parameter with regard to pavement design. Therefore, if the traffic condition estimates provided above are considered to be inappropriate for the project, please advise EGS so that revised pavement section designs can be determined for this site.
Subgrade support conditions are the other major parameter of importance to pavement design and performance. Based on the boring results, it is anticipated that the subgrade soil conditions exposed at final subgrade levels when the project site is graded prior to pavement construction will generally consist of approved existing/possible fill, consisting of medium stiff or stiffer cohesive soils, or new fill material.

Based upon our previous experience with similar projects and site conditions, it is our judgment that the typical pavement subgrade soils such as that soils encountered at the site could exhibit a minimum California Bearing Ratio (CBR) value of 3 when compacted to at least 95 percent of the maximum dry density, as determined by the Standard Proctor test (ASTM D 698). Therefore, for pavement design a CBR value of 3 is considered. If material having a CBR value of less than 3 is encountered at the pavement subgrade and replace it with approved fill material.

The pavement sections provided in this report (for budgeting purposes) have been designed based on methodology from the American Association of State Highway and Transportation Officials' (AASHTO) 1993 Guide for Design of Pavement Structures (1993). Summarized below are the subgrade strength parameters, the traffic conditions, and other design parameters and criteria considered in these analyses.

Table with 2 columns: CBR value, Traffic for Light-Duty Pavement, Traffic for Medium-Duty Pavement, Reliability, Design Variance, Initial Serviceability, Terminal Serviceability.

Using the above-mentioned design parameters, we have estimated pavement section designs as shown in the following tables:

Table with 3 columns: Pavement Material, Compacted Material Thickness (inches), Compacted Material Thickness (inches) (75,000 ESALs).

PAVING NOTE:
CONTRACTOR TO VERIFY ALL PAVING SECTIONS WITH GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

Final determinations of pavement sections to be used of the site may not be possible until the time of construction, depending on the sequence of grading and availability of materials. When the subgrade soil conditions become exposed in the various site areas. For planning and pricing considerations, however, it is anticipated that the pavement sections shown for a CBR value of 3 should provide a reasonable estimate of the average pavement sections that will be needed for the site.

The standard-duty pavement section shown in the table above should only be considered for use in areas where traffic will consist primarily of automobiles and light trucks and where any regular use of heavy trucks will be prohibited, such as proposed parking for the project. The medium-duty pavement section shown in the table above should be considered for the main site entrances and main service roads that may experience some use of heavy trucks. The standard-duty pavement section shown in the table above should only be considered for use in areas where traffic will consist primarily of automobiles and light trucks and where any regular use of heavy trucks will be prohibited, such as proposed parking for the project. The medium-duty pavement section shown in the table above should be considered for the main site entrances and main service roads that may experience some use of heavy trucks.

It is EGS' opinion that the suggested flexible pavement section would not be suitable for the support of heavy, concentrated wheel loads. Therefore, we recommend that rigid Portland cement concrete pavement sections should be provided for any dumpster storage areas and for any unloading areas. The Portland cement concrete pavement sections should be at least 6 inches thick and should consist of air-entrained Portland cement concrete having a minimum 28-day compressive strength of 4,000 pounds per square inch (psi). The concrete should be placed on a compacted dense-graded aggregate subbase (CR-6 or GASS) should be placed beneath all rigid concrete pavement sections. The aggregate subbase should be placed beneath all rigid concrete pavement sections. The aggregate subbase should be placed beneath all rigid concrete pavement sections. The aggregate subbase should be placed beneath all rigid concrete pavement sections.

The State of Maryland is using pavement materials whose characteristics are based on the SuperPave material specifications. We have provided specifications for SuperPave materials in the tables above. Please note that it is important to specify the Compaction Level and the Binder Type for SuperPave materials.
All pavement materials and construction should be in accordance with the most current version of the Maryland Department of Transportation, State Highway Administration (SHA), and any applicable Howard County standards.

The pavement sections provided in the tables above were developed for the anticipated in-service traffic conditions only and do not provide an allowance for construction traffic. Therefore, if pavements will be constructed early during site development to accommodate construction traffic, consideration must be given to the construction of heavier pavements. The design of such pavements should be based on the anticipated construction traffic, as well as the future in-service traffic. EGS can provide additional design assistance with regard to pavements during the final geotechnical study.

STORMWATER MANAGEMENT:
Based on the provided information, we understand that one (1) stormwater management (SWM) facility, consisting of a storm water pond, is planned for the site. The design of the SWM facility, including the location, size, and depth, should be based on the results of the borings. The SWM facility should be designed to handle the maximum design storm. The design of the SWM facility should be based on the results of the borings. The SWM facility should be designed to handle the maximum design storm. The design of the SWM facility should be based on the results of the borings. The SWM facility should be designed to handle the maximum design storm.

As noted in the Water Level Observations section of this report, groundwater was not encountered during drilling operations in any borings. In addition, rock was not encountered to the depth explored in the SWM boring.
The following paragraphs detail our recommendations regarding subgrade preparation and compaction requirements.

SUBGRADE PREPARATION:
Subgrade preparation should generally include the stripping of any unsuitable surface materials from the planned structure. Subgrade preparation should include the stripping of any unsuitable surface materials from the planned structure. Subgrade preparation should include the stripping of any unsuitable surface materials from the planned structure. Subgrade preparation should include the stripping of any unsuitable surface materials from the planned structure.

FILL PLACEMENT:
Prior to construction of compacted fill, representative bulk samples (about 50 pounds) should be taken of the proposed fill soils and laboratory tests should be conducted to determine Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships for compaction. These test results will be necessary for proper control of construction for new engineered fill.

Upon achieving compacted subgrade conditions, the Contractor can place and compact engineered fill to reach final subgrade elevations. Upon achieving compacted subgrade conditions, the Contractor can place and compact engineered fill to reach final subgrade elevations. Upon achieving compacted subgrade conditions, the Contractor can place and compact engineered fill to reach final subgrade elevations. Upon achieving compacted subgrade conditions, the Contractor can place and compact engineered fill to reach final subgrade elevations.

CONSTRUCTION CONSIDERATIONS (CONTINUED):
A firm working surface for the placement of engineered fill should be established prior to construction of new fill. The moisture content of the fill soils at the time of placement should be carefully controlled to ensure that the required compaction effort can be achieved without excessive pumping or movement of the fill soils. In the event that the earthwork operations are complicated during the cooler and wetter periods of the year, delays and additional costs should be anticipated. At these times, reduction of soil moisture may not be accomplished by a combination of mechanical manipulation and the use of chemical additives, such as lime or cement, in order to lower moisture contents to levels appropriate for compaction.

As noted in the Water Level Observations section of this report, groundwater was not encountered in any of the borings during drilling. Groundwater is not anticipated to be encountered at or near footing subgrade levels; therefore, any groundwater encountered during the construction of the structure will most likely be a result of perched water trapped within the natural subgrade materials. Such perched water conditions should be readily managed by interceptor trenches and local collection systems of sumps and pumps.

All foundation excavations must be protected to prevent the disturbance of the subgrade materials and to minimize any potential loss of support capacity. Foundation concrete generally should be placed for foundations during some dry weather conditions. Foundation concrete generally should be placed for foundations during some dry weather conditions. Foundation concrete generally should be placed for foundations during some dry weather conditions. Foundation concrete generally should be placed for foundations during some dry weather conditions.

Any cuts or excavations associated with building and utility excavations may require forming or bracing, slope stabilization or other physical measures to control sloping and/or to prevent slope failures. Slope stabilization or other physical measures to control sloping and/or to prevent slope failures. Slope stabilization or other physical measures to control sloping and/or to prevent slope failures. Slope stabilization or other physical measures to control sloping and/or to prevent slope failures.

The surface soils contain some silt and fine sands and are considered erodible. The Contractor should provide and maintain good site drainage during earthwork operations to help to maintain the integrity of the surface soils. All erosion and sedimentation shall be controlled in accordance with sound engineering practice and current local requirements. Surface water should be directed away from the construction area, and the work area should be sloped at gradients of 1 to 2 percent to reduce the potential for ponding water and the subsequent saturation of the surface soils.

CONSTRUCTION CONSIDERATIONS:
The on-site soils contain silt and clay fines that will be sensitive to moisture increases and to construction disturbances. Construction activities in the presence of excessive moisture can lead to softening of the subgrade soils and loss of bearing capacity. Therefore, it will be prudent to schedule earthwork operations during the warmer and drier periods of the year. In the event spring to early fall. Measures should also be taken to limit site disturbance, especially from rubber-tired heavy construction equipment, and to provide for drainage of surface water from areas being developed.

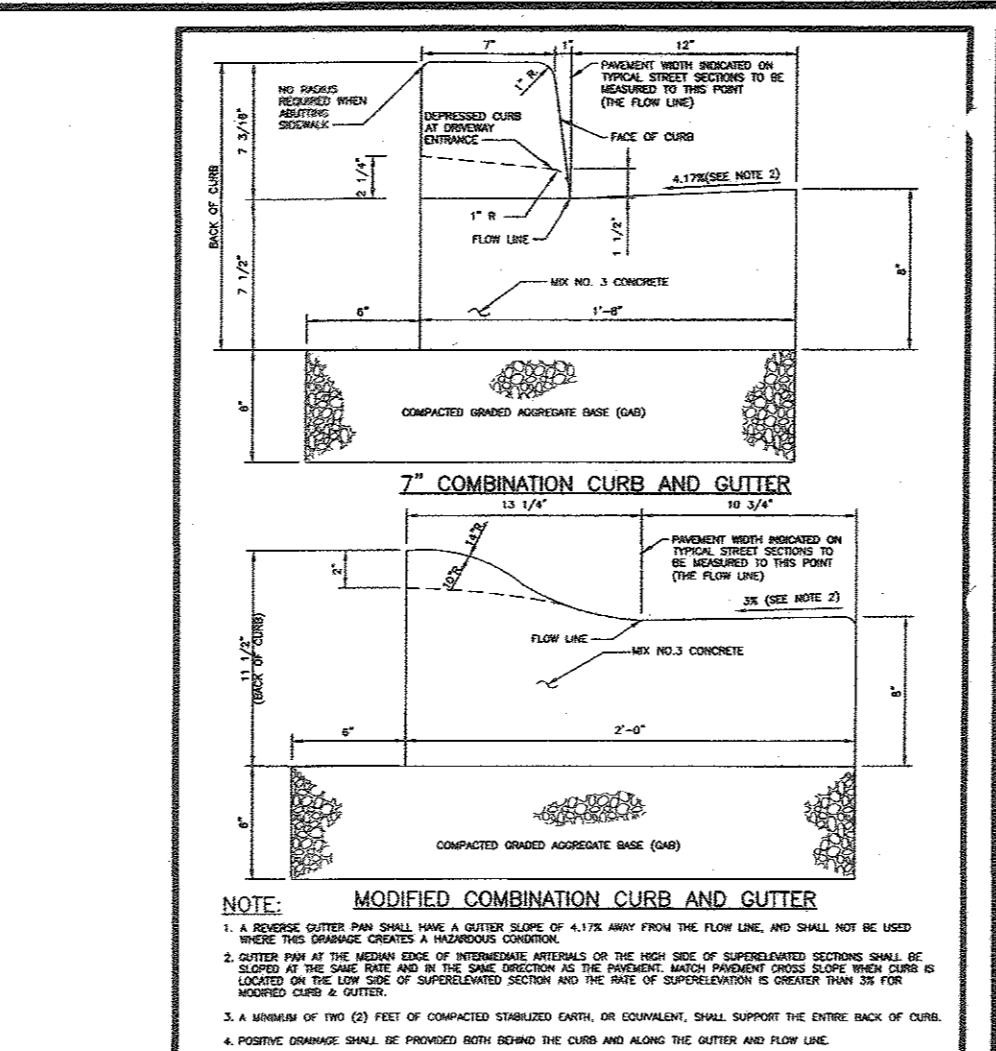


Table with 2 columns: Detail, Description. Includes R-3.01 CURB AND GUTTER 7' Modified and R-3.05 Concrete Sidewalk.

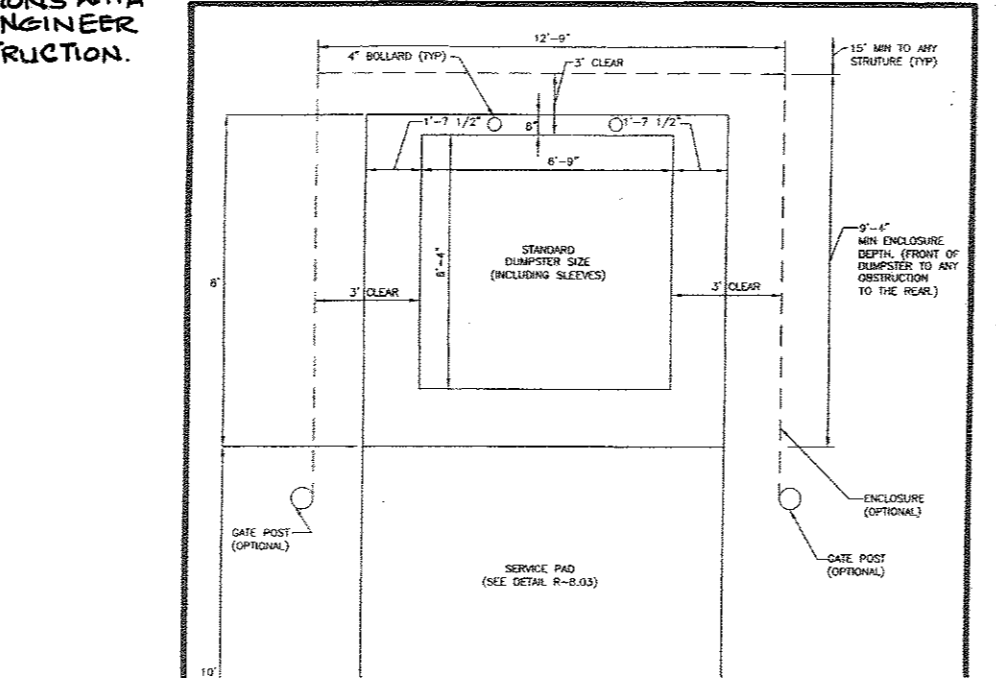


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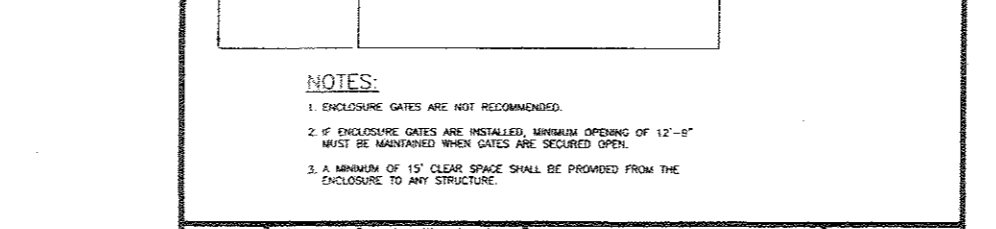


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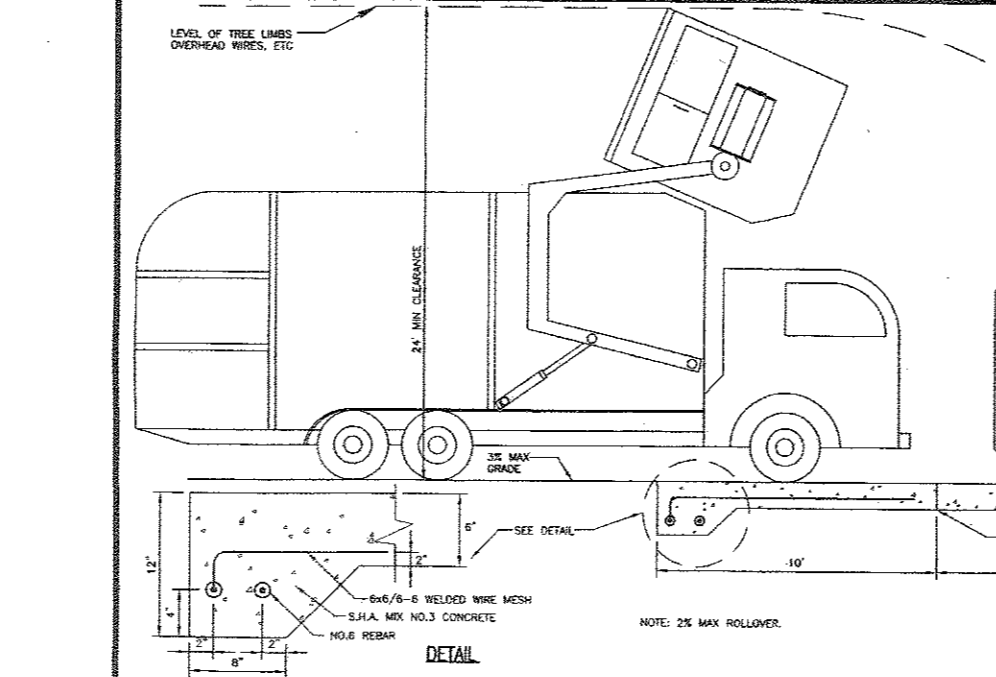


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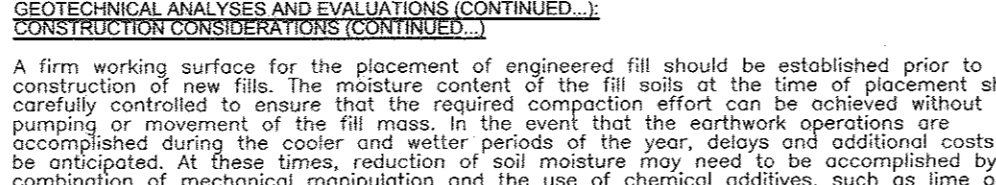


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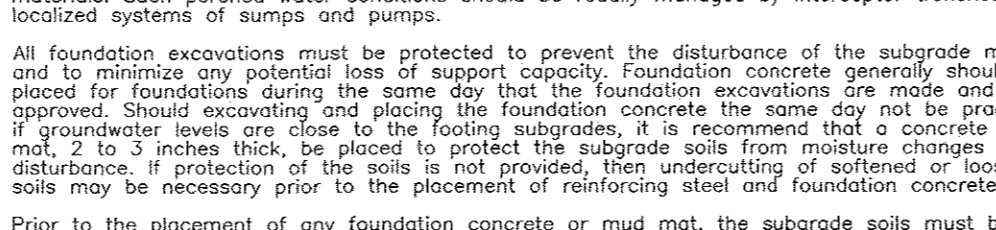


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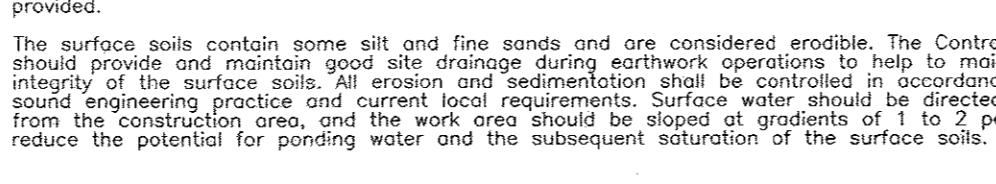


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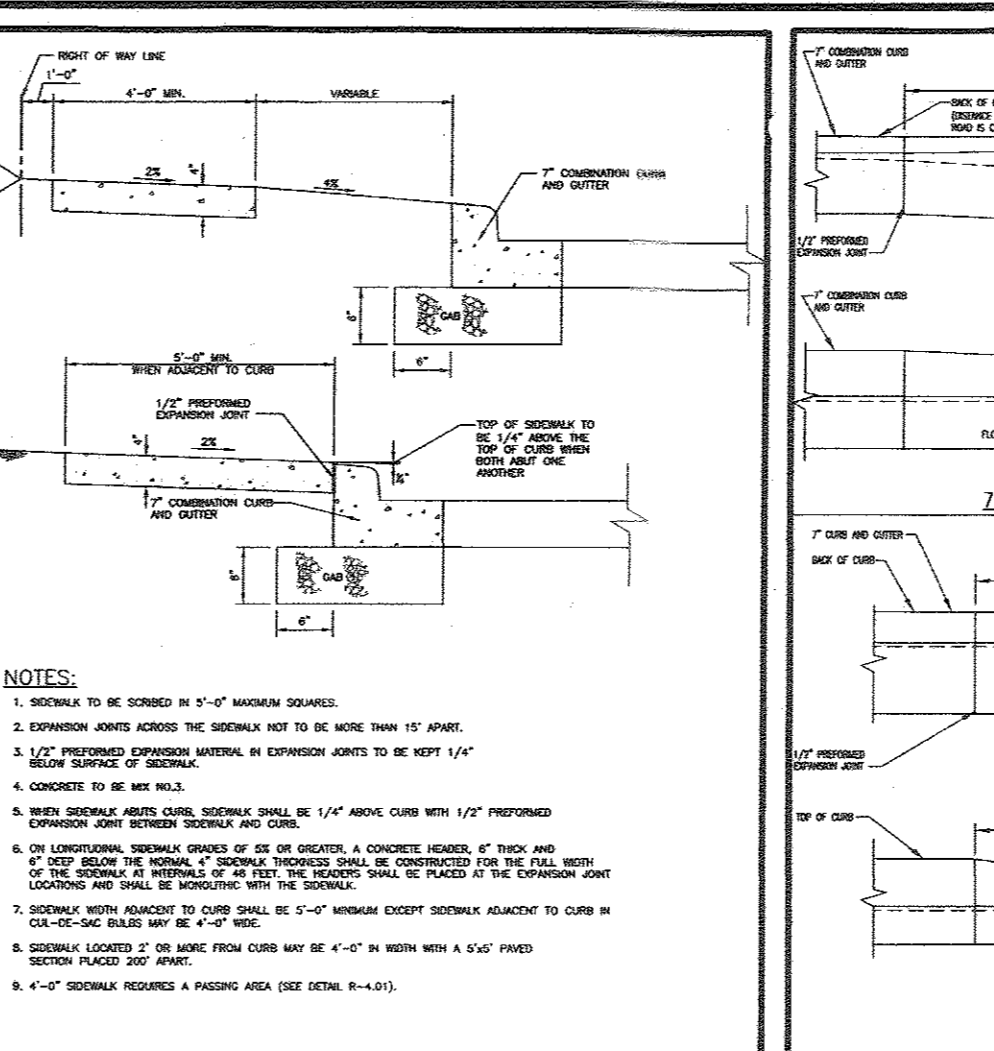


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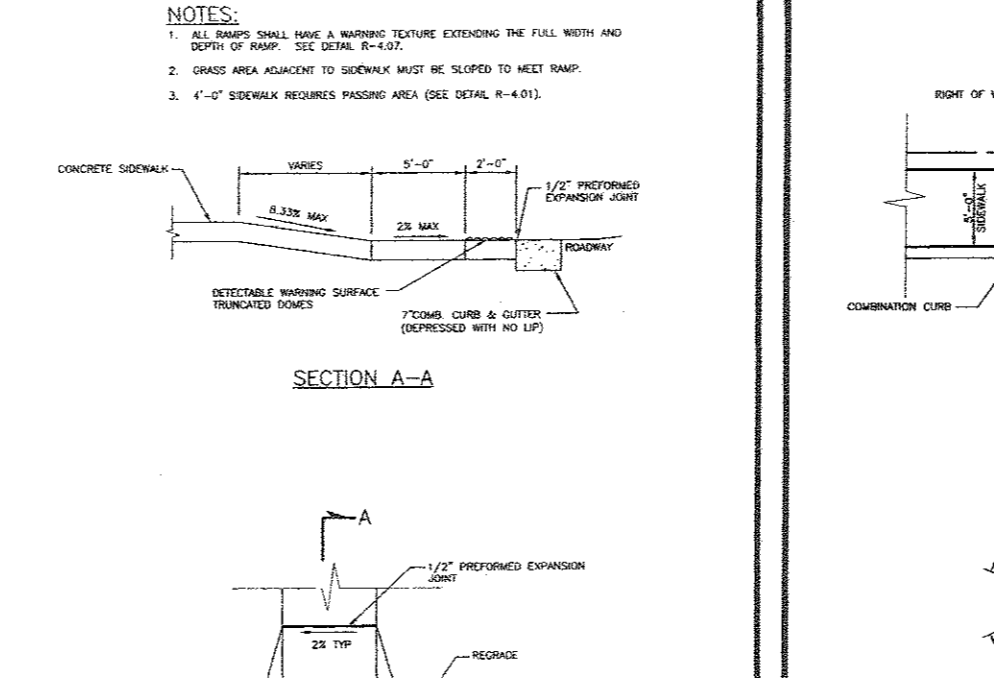


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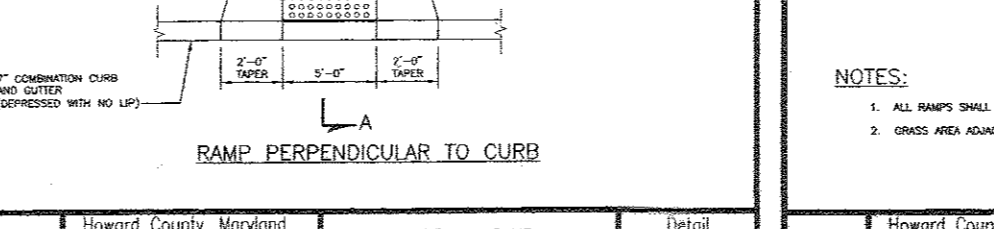


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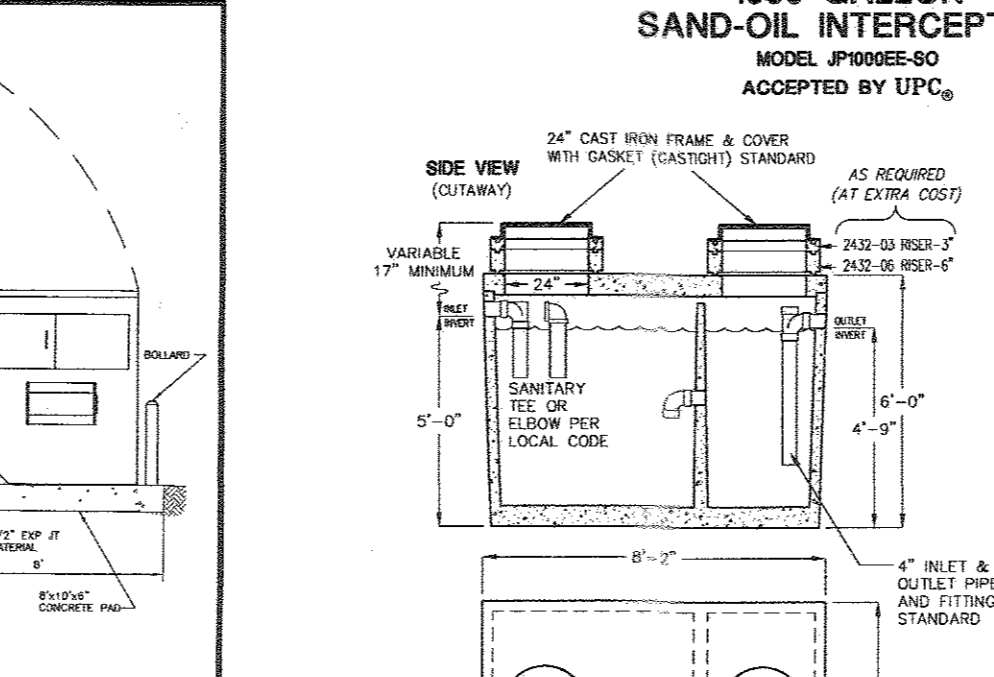


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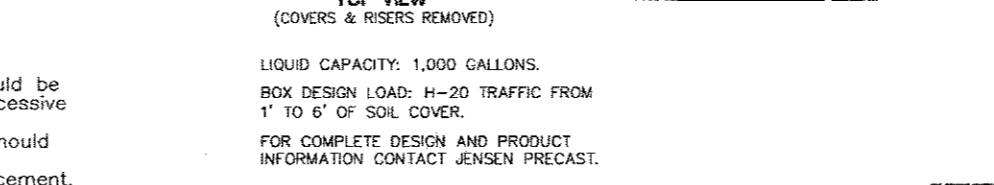


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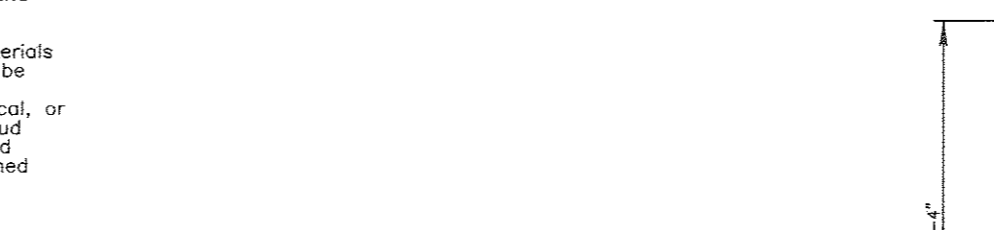


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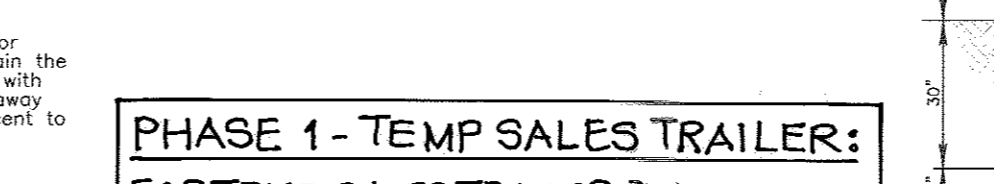


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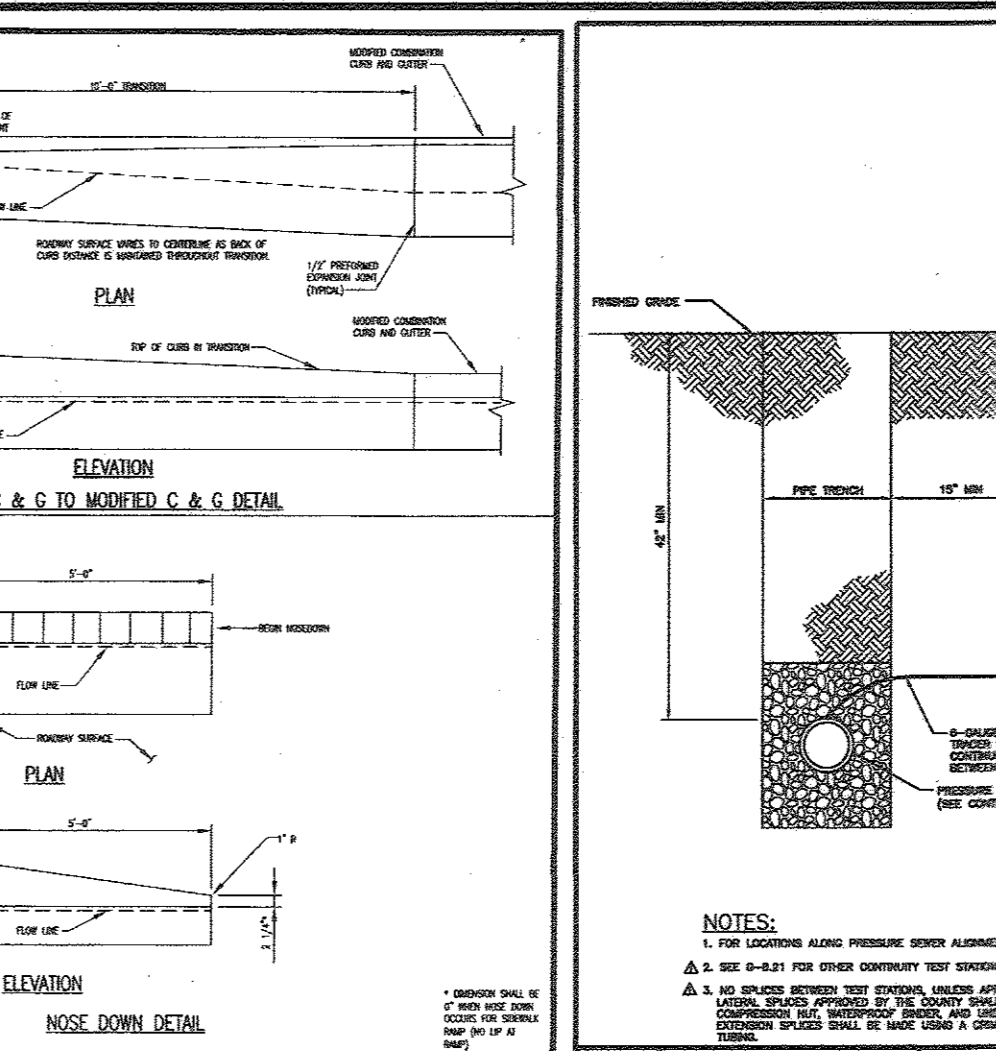


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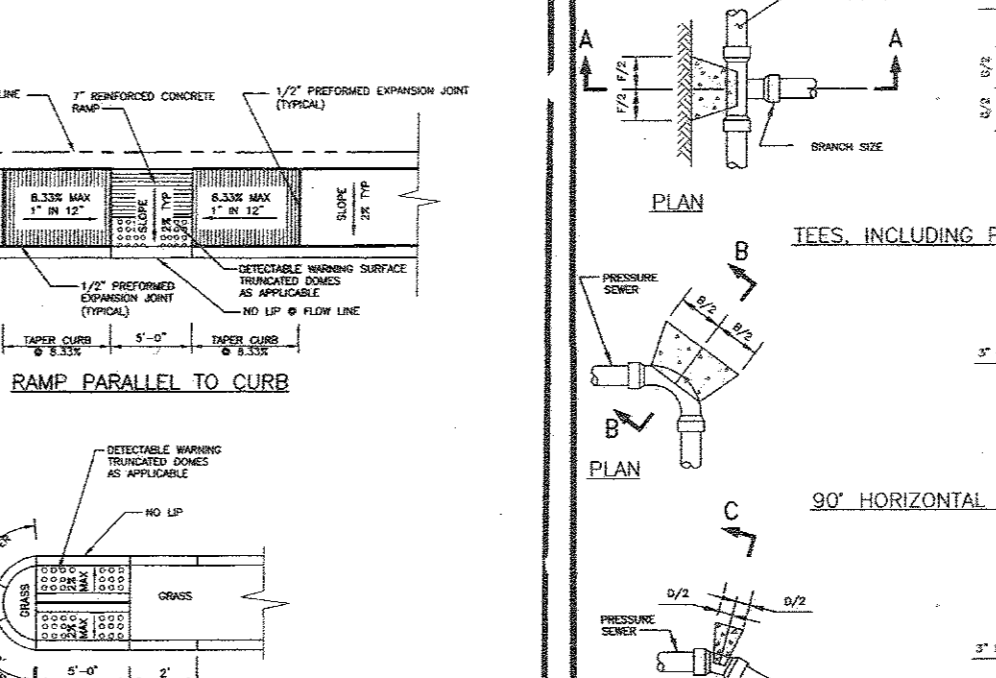


Table with 2 columns: Detail, Description. Includes PS-4.18 PRESSURE SEWER Tracer Wire, Conducting Rod & Vent.

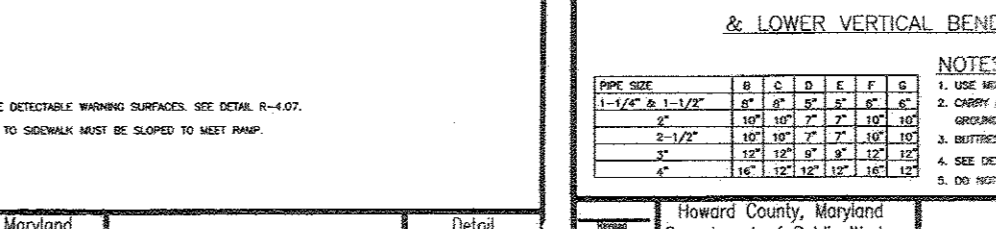


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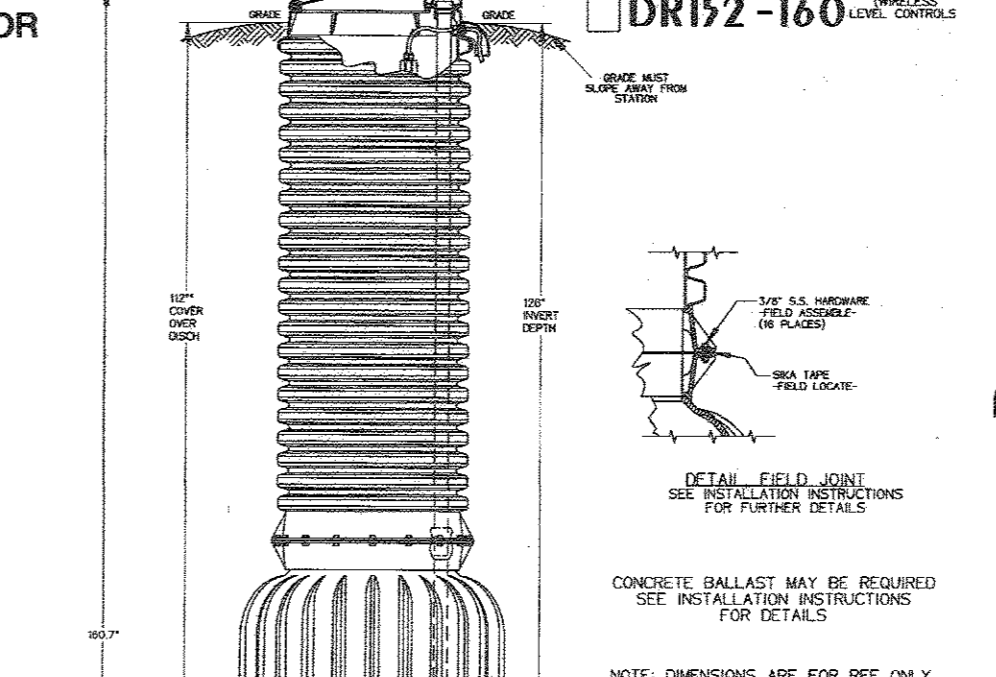


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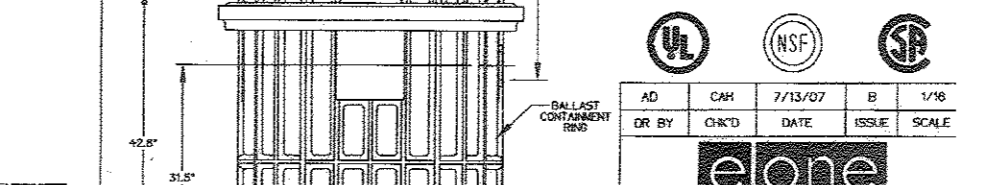


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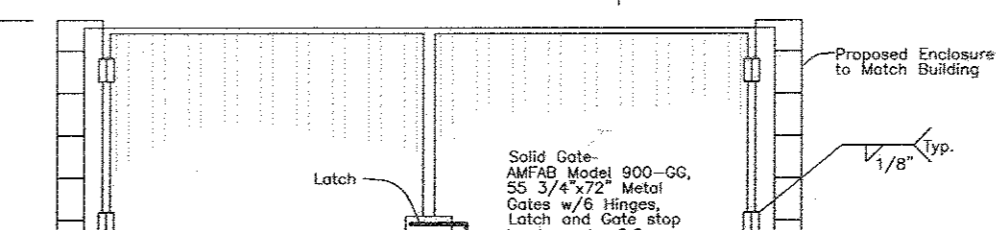


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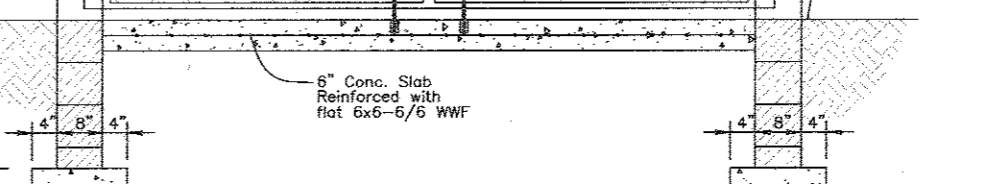


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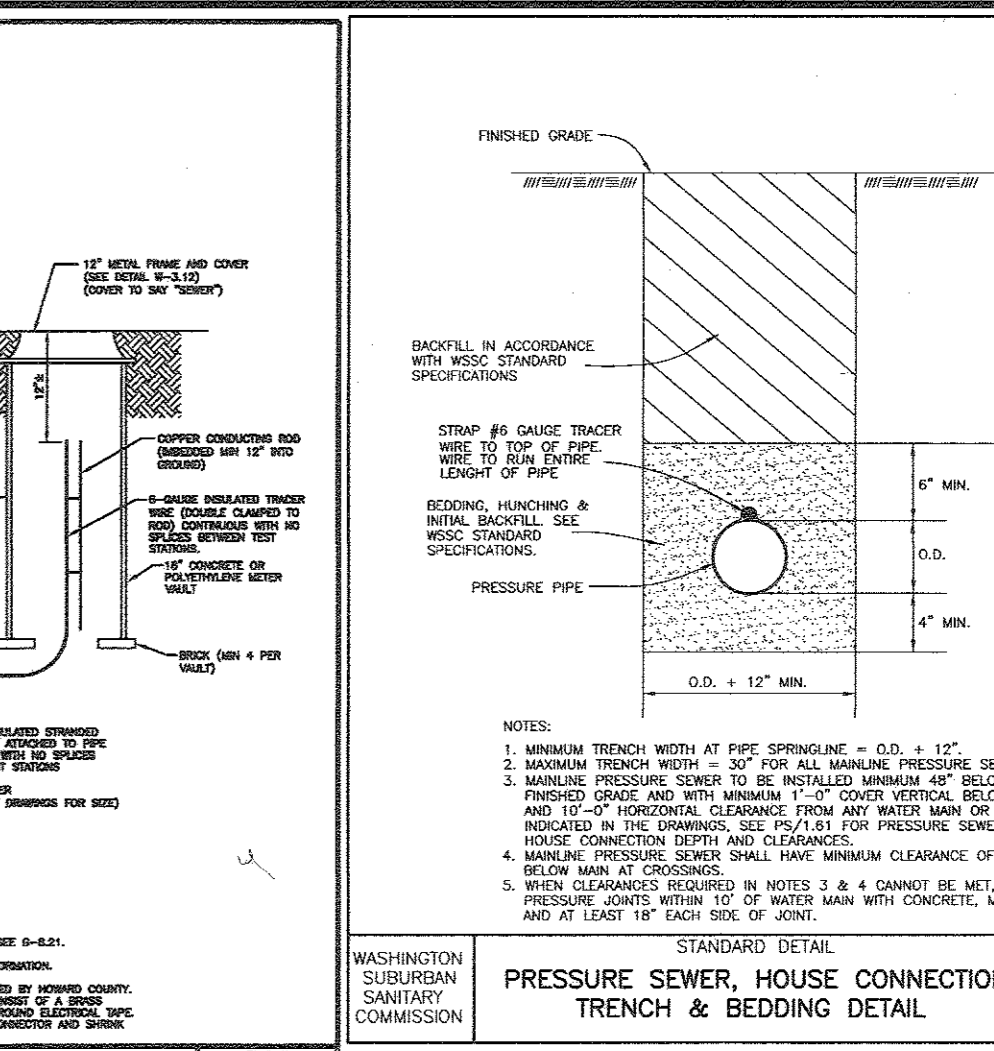


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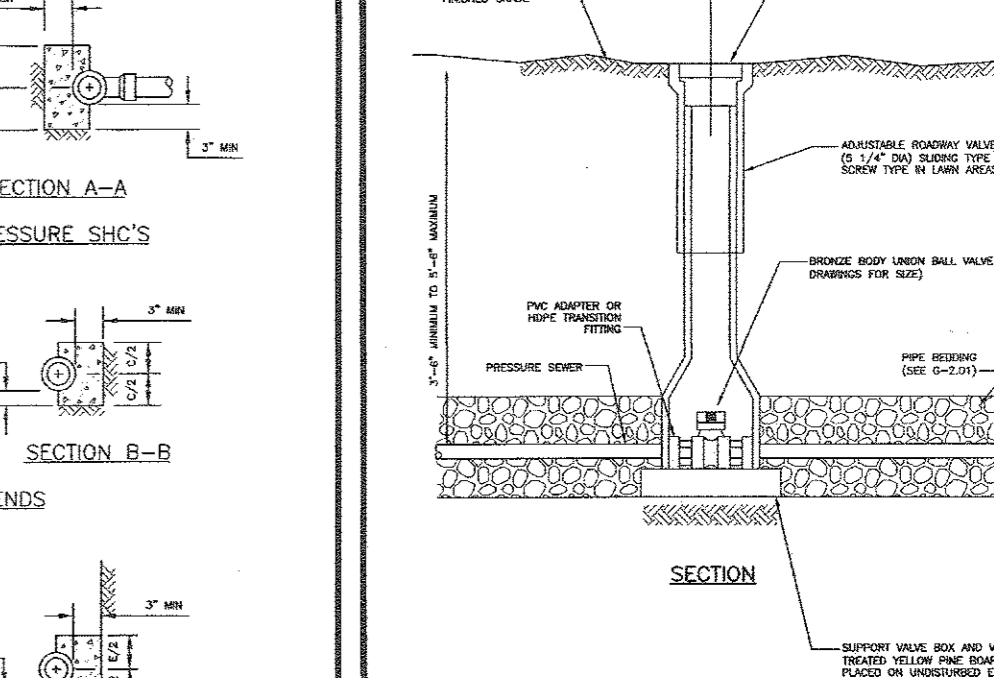


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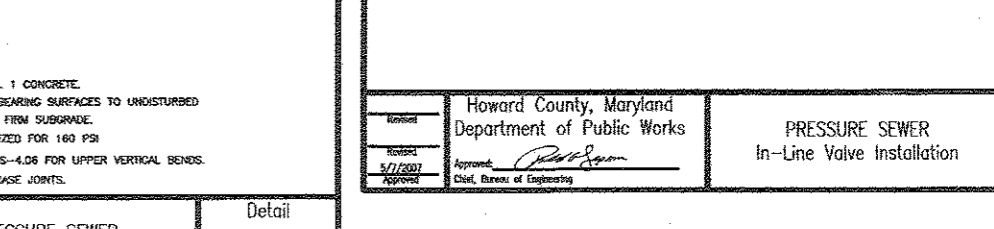


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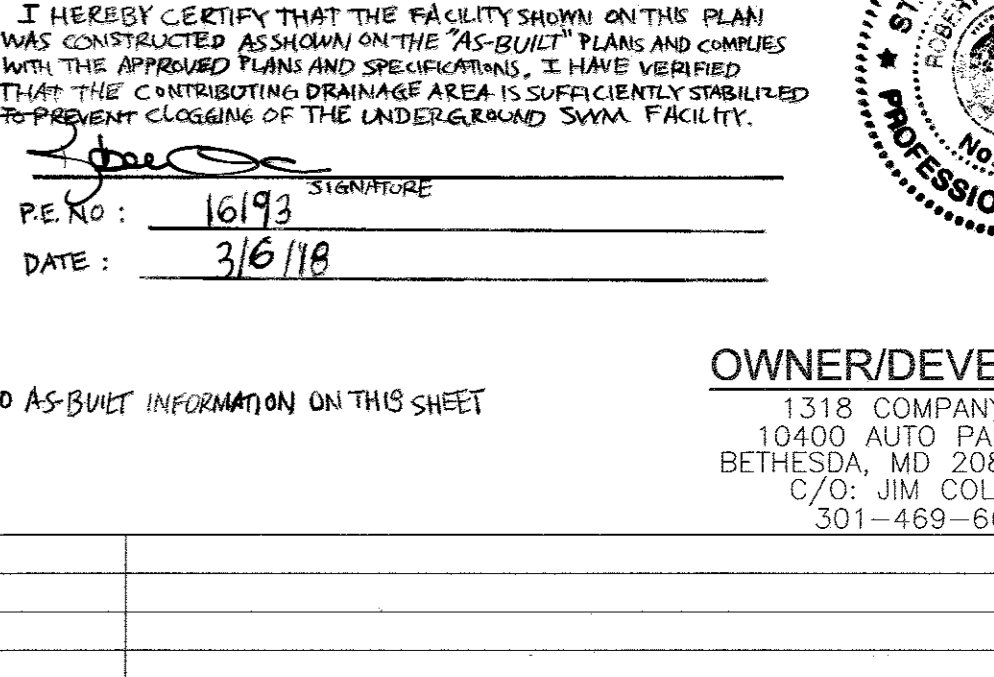


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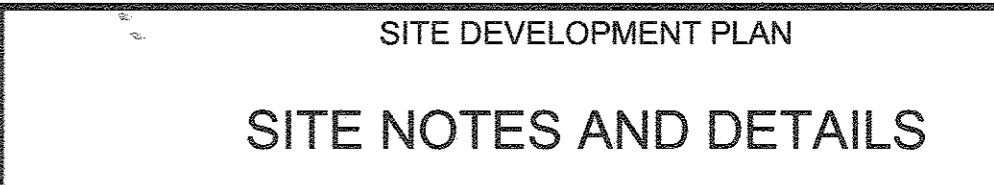


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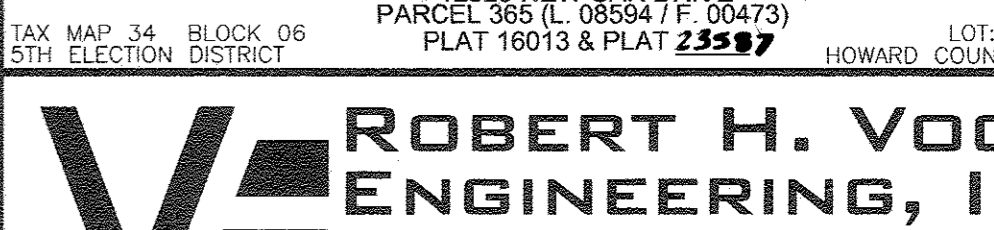


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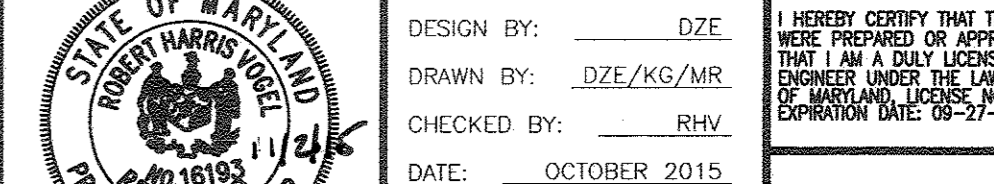
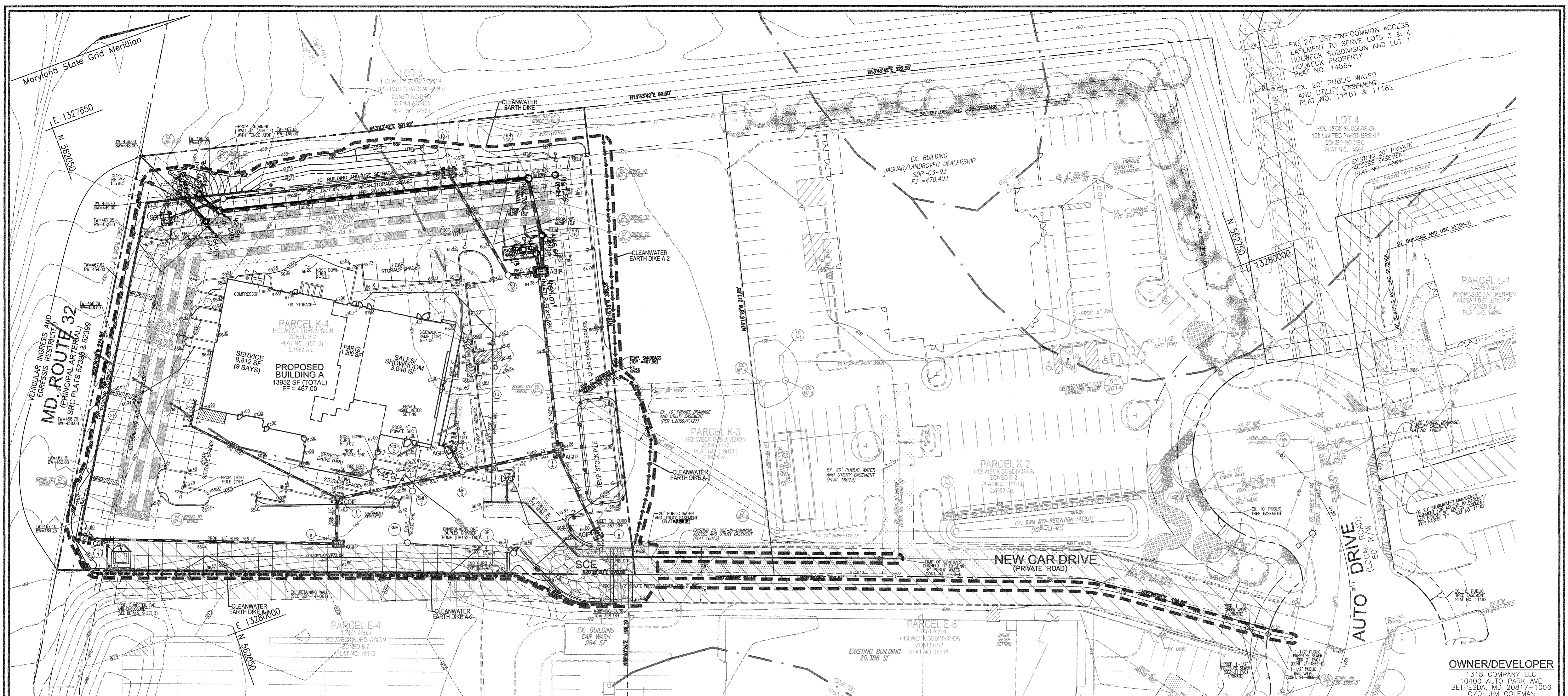


Table with 2 columns: Detail, Description. Includes PS-4.18 PRESSURE SEWER Tracer Wire, Conducting Rod & Vent.

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

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 COMPLETES 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 NO: 16193
DATE: 3/16/18
OWNER/DEVELOPER: 1318 COMPANY LLC, 10400 AUTO PARK AVE, BETHESDA, MD 20817-1006
C/O: JIM COLEMAN, 301-469-6600
SITE DEVELOPMENT PLAN
SITE NOTES AND DETAILS
COLEMAN FIAT NEW CAR SALES HOLWEC SUBDIVISION PARCEL K-4 12620 NEW CAR DRIVE, PARCEL 08A, LOT 10 (0473)
PLAT 16013 & PLAT 23597
ZONED: B-2
LOT: PARCEL K-4
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 AND APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 09-27-2018
DESIGN BY: DZE
DRAWN BY: DZE/KR/MR
CHECKED BY: RHV
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-10
3 SHEET OF 12
SDP-15-004



VEHICULAR INGRESS AND RESTRICTED EGRESS (PRINCIPAL ARTERIAL) MD ROUTE 32 (SR PLATS 52398 & 52399)

EX. 24' USE-IN-COMMON ACCESS EASEMENT TO SERVE LOTS 3 & 4 HOLWECK SUBDIVISION AND LOT 1 HOLWECK PROPERTY PLAT NO. 14864

EX. 20' PUBLIC WATER AND UTILITY EASEMENT PLAT NO. 11181 & 11182

LOT 4 HOLWECK SUBDIVISION 108 LIMITED PARTNERSHIP ZONED RC-DEG PLAT NO. 14864

EXISTING 20' PRIVATE ACCESS EASEMENT PLAT NO. 14864

PARCEL L-1 3.4235 Acres PROPOSED ANTIWERPEN NISSAN DEALERSHIP ZONED B-2 PLAT NO. 14864

OWNER/DEVELOPER
1318 COMPANY LLC
10400 AUTO PARK AVE
BETHESDA, MD 20817-1006
C/O: JIM COLEMAN
301-469-6600

SCALE 1"=30'

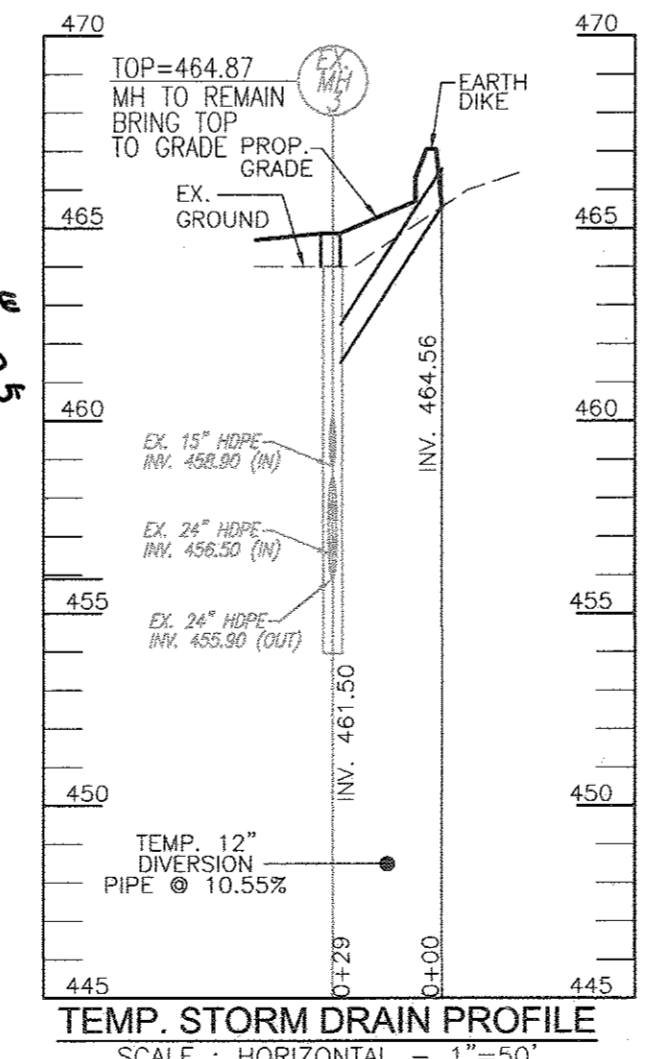
SOILS LEGEND HOWARD COUNTY SOILS MAP #16					
SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	ERODIBLE
GbP	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	NO	0.20	NO
GbB	GLENNVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	NO	0.37	YES

SOILS NOTE:
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

AS-BUILT CERTIFICATION FOR DOWN
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.

SEDIMENT CONTROL NOTE:
1. SEDIMENT CONTROL WILL BE PROVIDED FOR THE INSTALLING OF UTILITY LINE FROM THE SCE TO AUTO DRIVE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
2. SEEDING AND STABILIZATION REQUIREMENTS ARE TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR THAT THE INTERVALS REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL WHICHEVER IS MORE STRINGENT.
3. ALL AREAS OF DISTURBANCE TO BE STABILIZED IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND/OR BY THE SEDIMENT CONTROL INSPECTOR, WHICHEVER IS MORE STRINGENT.

PHASE 1 - TEMP SALES TRAILER
FOR TEMP. SALES TRAILER PLAN AND PAVING, SEE SHEET 12.



LEGEND:

--- 100 ---	EXISTING CONTOUR	--- M1B2 ---	SOILS BOUNDARY
--- 400 ---	PROPOSED CONTOUR	--- M1D3 ---	PROPOSED SIDEWALK
+ 402.88	PROPOSED SPOT ELEVATION	EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #5696	EX. 20' WATER & UTILITY EASEMENT PLAT #16013
--- 402.88 ---	EXISTING SPOT ELEVATION	EX. 20' WATER & UTILITY EASEMENT PLAT #16013	PROP. MICRO DIVERSION AREA (M-6)
---	EXISTING CURB AND GUTTER	---	PROP. PAVEMENT (A-2)
---	PROPOSED CURB AND GUTTER	---	SUPER SILT FENCE
☀	EXISTING LIGHT POLE	---	SILT FENCE
☐	EXISTING MAILBOX	---	EARTH DIKE
○	EXISTING SANITARY MANHOLE	---	LIMIT OF DISTURBANCE
○	EXISTING SANITARY LINE	---	CURB INLET PROTECTION
○	EXISTING CLEANOUT	---	AT GRADE INLET PROTECTION
○	EXISTING FIRE HYDRANT	---	STABILIZED CONSTRUCTION ENTRANCE
---	EXISTING WATER LINE	---	
---	PROPOSED STORM DRAIN	---	
---	PROPOSED STORM DRAIN INLET	---	
---	PROPOSED TREETLINE	---	
---	EXISTING TREETLINE	---	
---	PROPERTY LINE	---	
---	EXISTING FENCE	---	
---	RIGHT-OF-WAY LINE	---	

STATE OF MARYLAND
PROFESSIONAL ENGINEER
NO. 18119
APPROVED FOR HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 3/16/18

BY THE DEVELOPER:
I HEREBY 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.

DATE: 2-11-16

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.

DATE: 11/21/15

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

DATE: 11/21/15

1	REVISE PLAN TO SHOW TEMP SALES TRAILER (PHASE 0)	11/30/16
NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
GRADING, SEDIMENT AND EROSION CONTROL PLAN; SOILS MAP (ULTIMATE)

COLEMAN FIAT
NEW CAR SALES
HOLWECK SUBDIVISION PARCEL K-4
12620 NEW CAR DRIVE
PARCEL 365 (L. 08504 / F. 00473)
PLAT 16013 & PLAT 23587

ZONED: B-2
LOT: PARCEL K-4
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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

DESIGN BY: DZE
DRAWN BY: DZE/KG/MR
CHECKED BY: RHV
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-10

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. 18119, EXPIRATION DATE 08-27-2018.

4 SHEET OF 12

B-2-4 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 2. PERMANENT STABILIZATION

1. SOIL PREPARATION A. SOIL TESTS ARE REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE...

B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CRITERIA...

C. TOPSOILING 1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION...

2. TOPSOIL SALVAGE FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS...

3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXISTING/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH...

B. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH...

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS) 1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES...

2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FINE FLOWING AND SUITABLE FOR ACCURATE APPLICATION...

3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURDUM LIME)...

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

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

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

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

CRITERIA: A. SEEDING 1. SPECIFICATIONS 2. APPLICATION 3. ANCHORING

1. SPECIFICATIONS A. ALL SEEDS MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW...

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORLINES, STREAM BANKS, OR DUNES...

C. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET...

D. SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL...

2. APPLICATION A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS...

B. MULCHING 1. MULCH MATERIALS (IN ORDER OF PREFERENCE) A. STRAW...

2. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A LIQUID FIBROUS PHYSICAL STATE...

3. ANCHORING A. FIBROUS MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSSES...

B. SYNTHETIC BANDERS SUCH AS ACRYLIC DUD (AODG-TACK), DCA-70, RETROSEAL, TERRA TACK II, TERRA TACK III OR OTHER APPROVED EQUAL MAY BE USED...

4. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS...

5. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION...

6. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE LEACHATE...

7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION...

8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE LEACHATE...

9. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS...

10. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PEE LENGTHS OR THAT WHICH CAN BE BACK FILLED WITH STABILIZED END OF EACH WORKDAY, WHICHEVER IS SHORTER...

11. ALL CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PERMIT AUTHORITY PRIOR TO PROCEEDING WITH THE CONSTRUCTION...

12. A PROJECT IS TO BE CONSIDERED SO THAT GRADING ACTIVITIES BEGON ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC PER GRADING UNIT) AT A TIME...

13. ESTIMATE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES TO HIS OWN SATISFACTION...

14. TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, WITH AN APPROVED AND ACTIVE GRADING PERMIT.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION: TO RESTORE DISTURBED SOILS WITH PERMANENT VEGETATION.

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

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

CRITERIA: A. SEED MIXTURES 1. GENERAL USE 2. TURFGRASS MIXTURES

1. GENERAL USE A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE...

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORLINES, STREAM BANKS, OR DUNES...

C. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET...

D. SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL...

2. TURFGRASS MIXTURES A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LANS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES...

B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE...

C. KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE...

D. KENTUCKY BLUEGRASS/PENNSYLVANIA BLUE: FULL SUN MIXTURE; FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY...

E. KENTUCKY BLUEGRASS/FESCUE: SHADE MIXTURE; FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS...

F. TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT VERSION OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, 'TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND'...

G. WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 5B, 6A) CENTRAL MD: MARCH 10 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B) SOUTHERN MD, EASTERN SHORES: MARCH 15 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)...

H. TURFGRASS MIXTURES MUST BE DESIGNED TO SUPPORT THE TURFGRASS MIXTURE AND TO PROVIDE ADEQUATE WATER FOR PLANT GROWTH...

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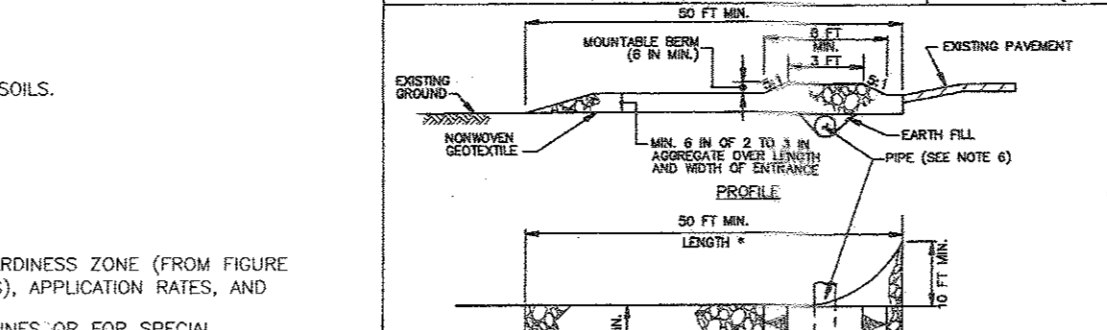
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DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE



CONSTRUCTION SPECIFICATIONS: 1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST BE KEPT OFF THE ENTRANCE AT ALL TIMES...

2. PREPARE SURFACE WITH FLEMING TO OR EQUIVALENT TURFGRASS. THE SOIL UNDER THE ENTRANCE MUST BE AT LEAST 18 INCHES DEEP...

3. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT AND SOIL ON OR OFF THE ENTRANCE. MAINTAIN ENTRANCE WITH A MINIMUM OF 18 INCHES DEEP...

4. PLACE CURBS AND APPROXIMATE TO 3 INCHES IN HEIGHT ON EQUIVALENT MATERIALS (CONCRETE OR METAL) TO PROTECT THE ENTRANCE FROM DAMAGE...

5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT AND SOIL ON OR OFF THE ENTRANCE. MAINTAIN ENTRANCE WITH A MINIMUM OF 18 INCHES DEEP...

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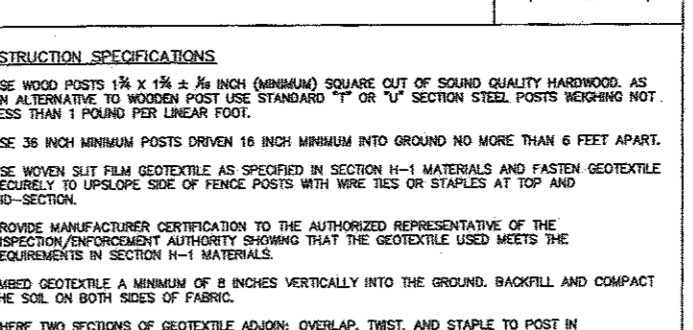
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DETAIL E-1 SILT FENCE



CONSTRUCTION SPECIFICATIONS: 1. USE 6 INCH WIDE CURB ON ONE SIDE AND 6 INCH WIDE CURB ON THE OTHER SIDE...

2. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT AND SOIL ON OR OFF THE ENTRANCE. MAINTAIN ENTRANCE WITH A MINIMUM OF 18 INCHES DEEP...

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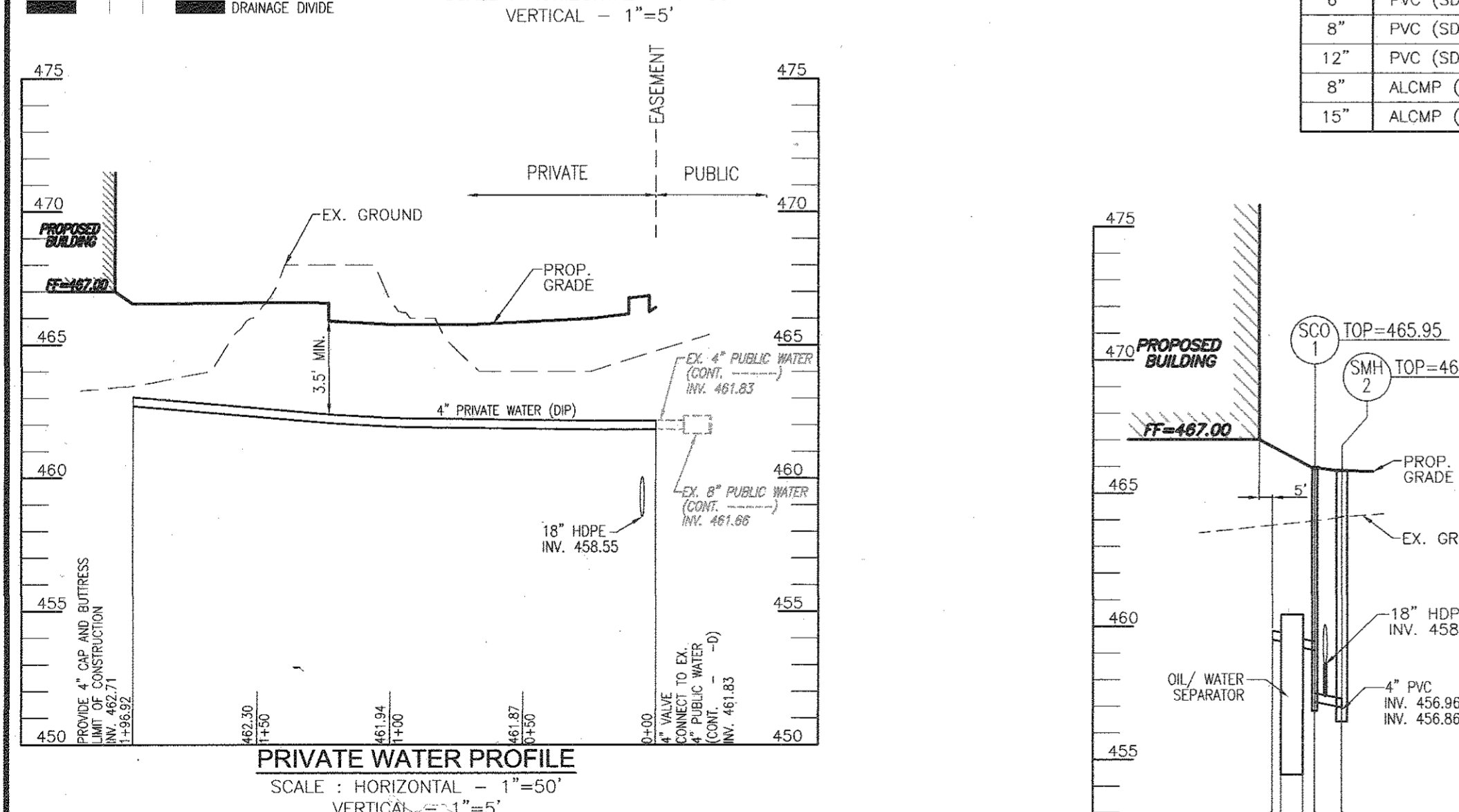
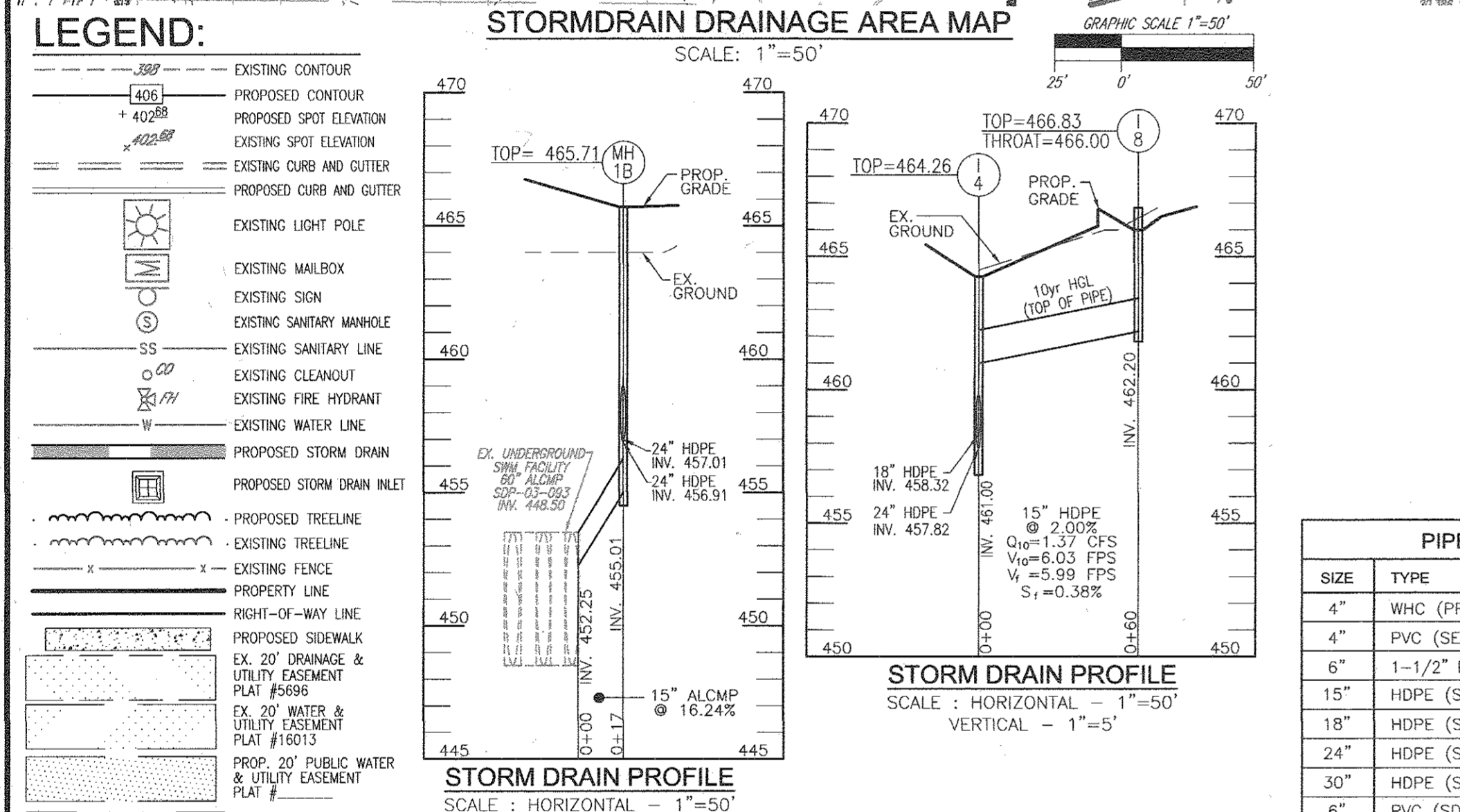
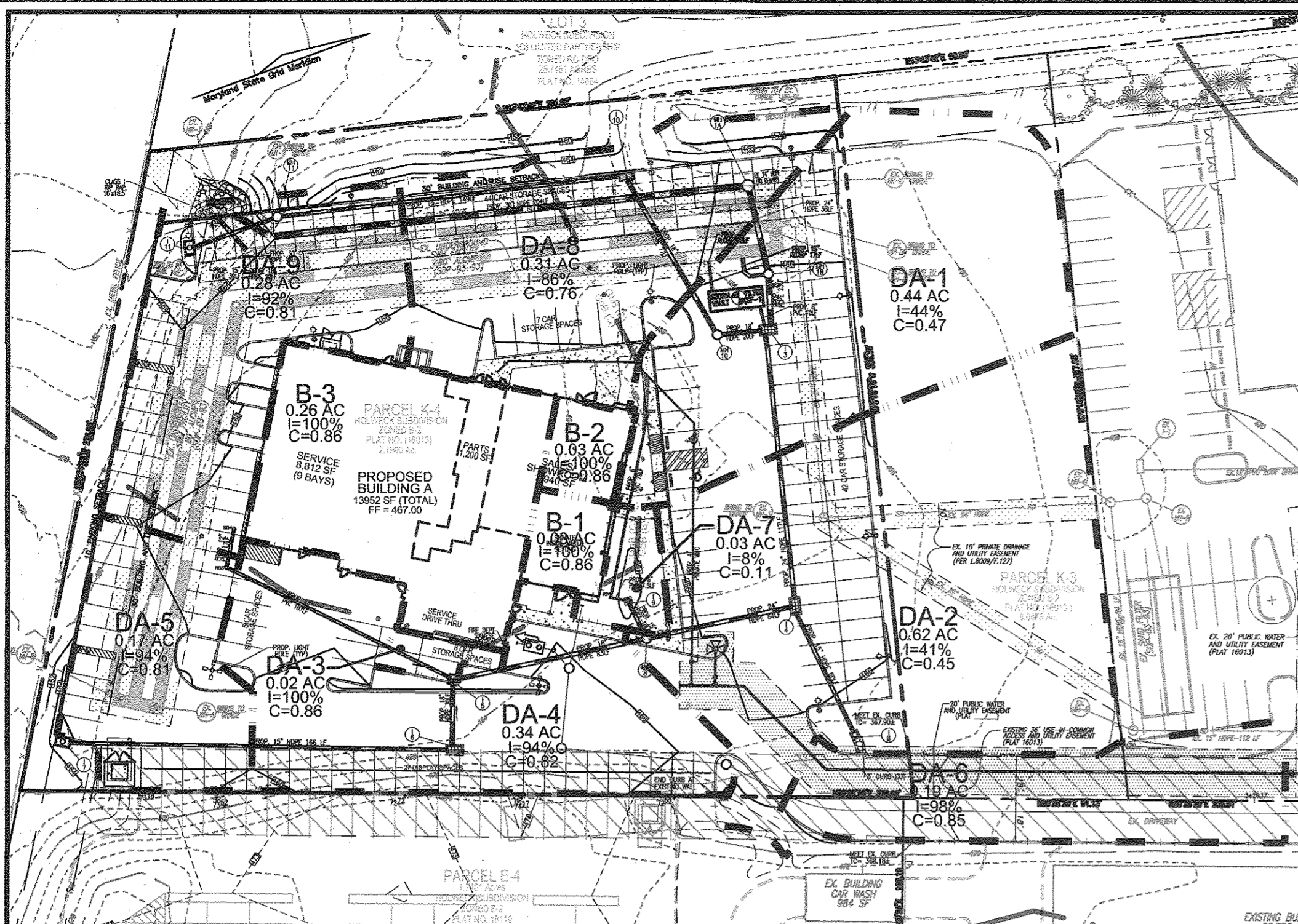
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29. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT AND SOIL ON OR OFF THE ENTRANCE. MAINTAIN ENTRANCE WITH A MINIMUM OF 1

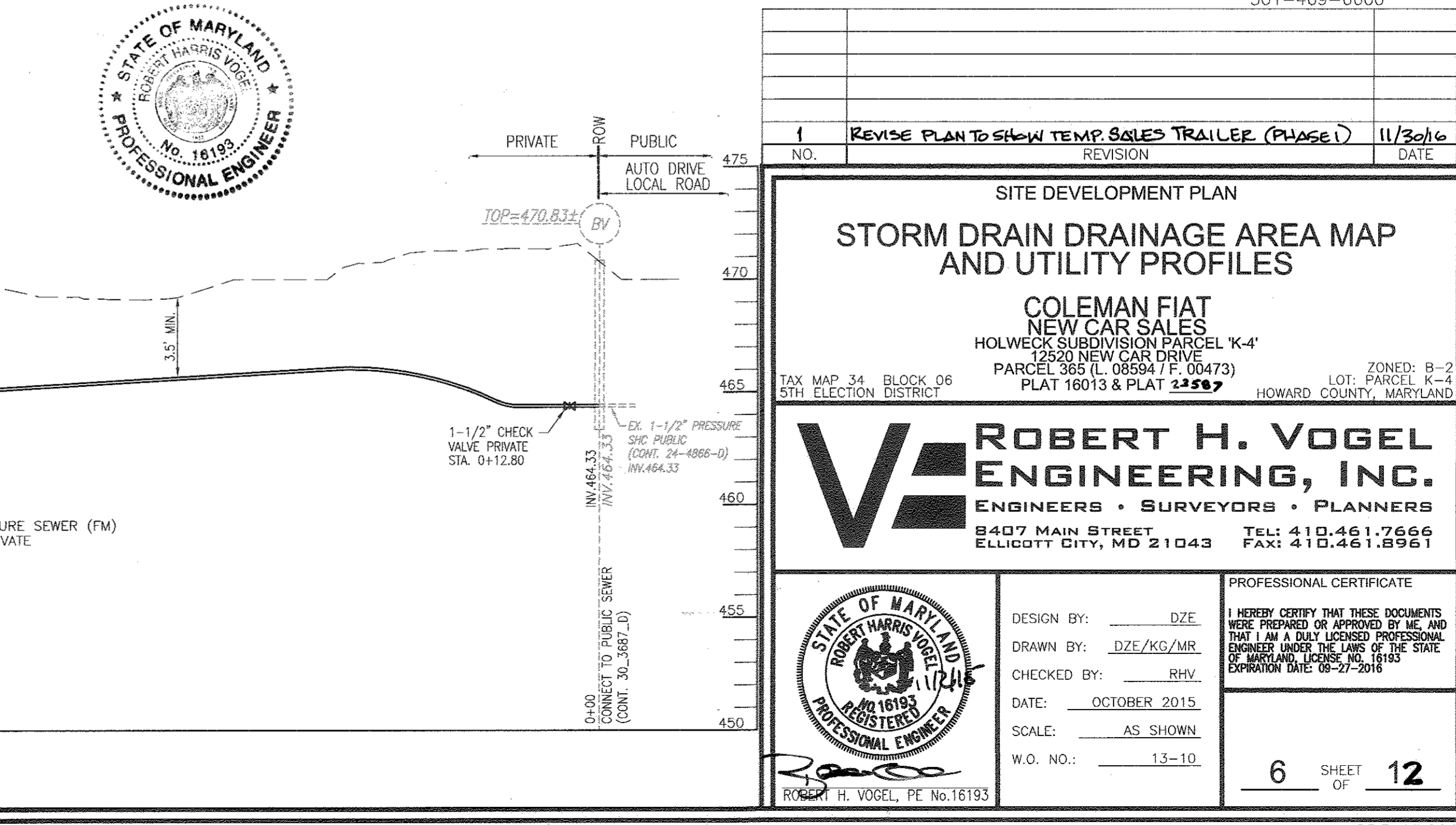
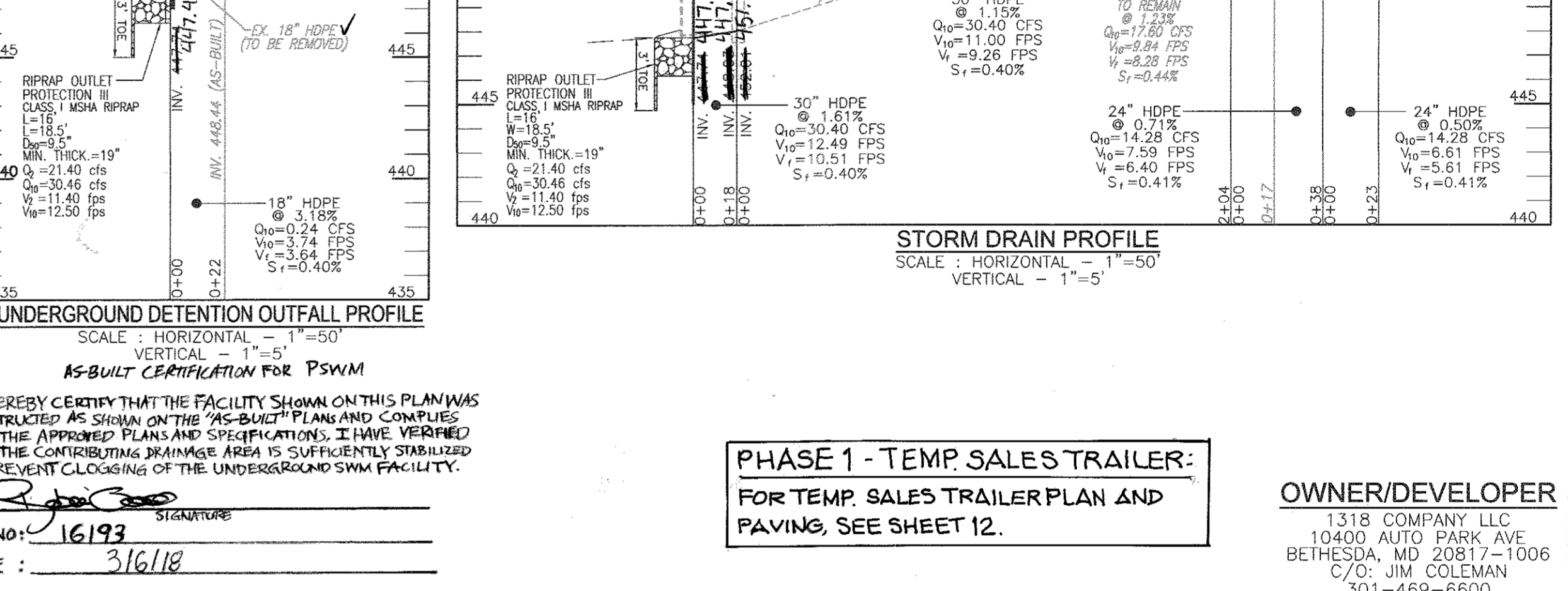
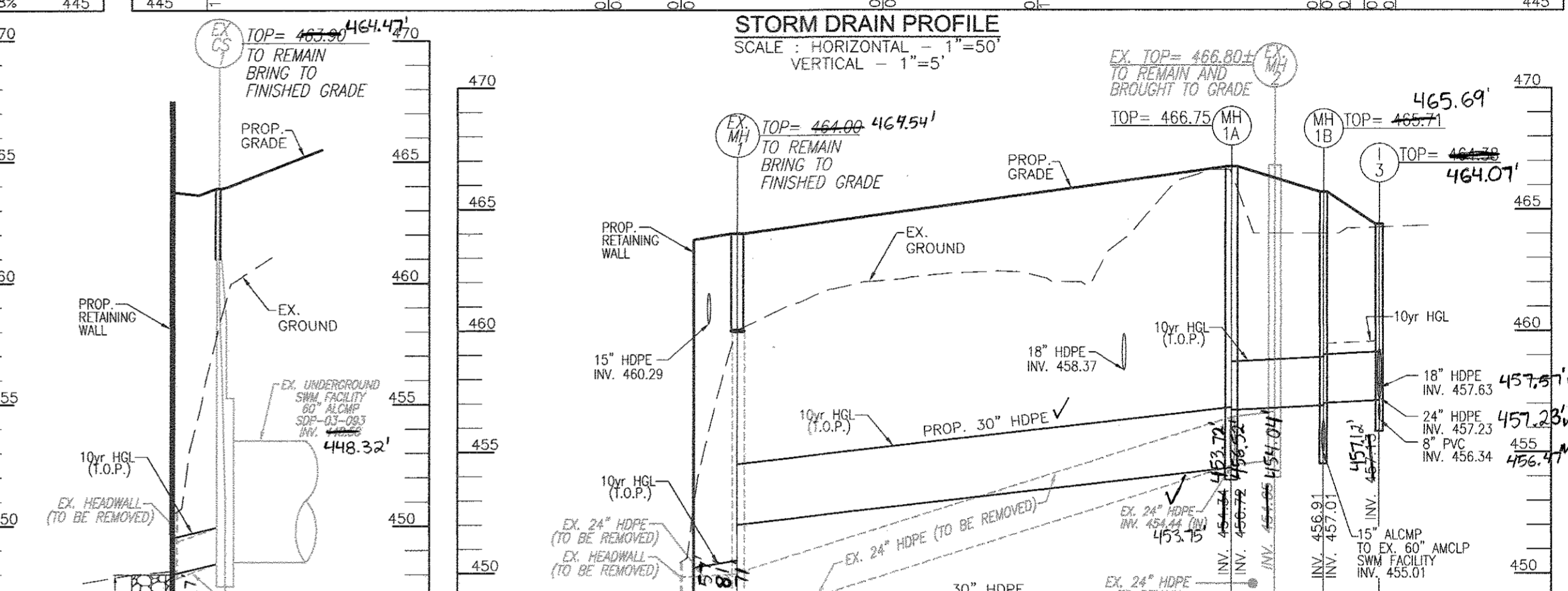
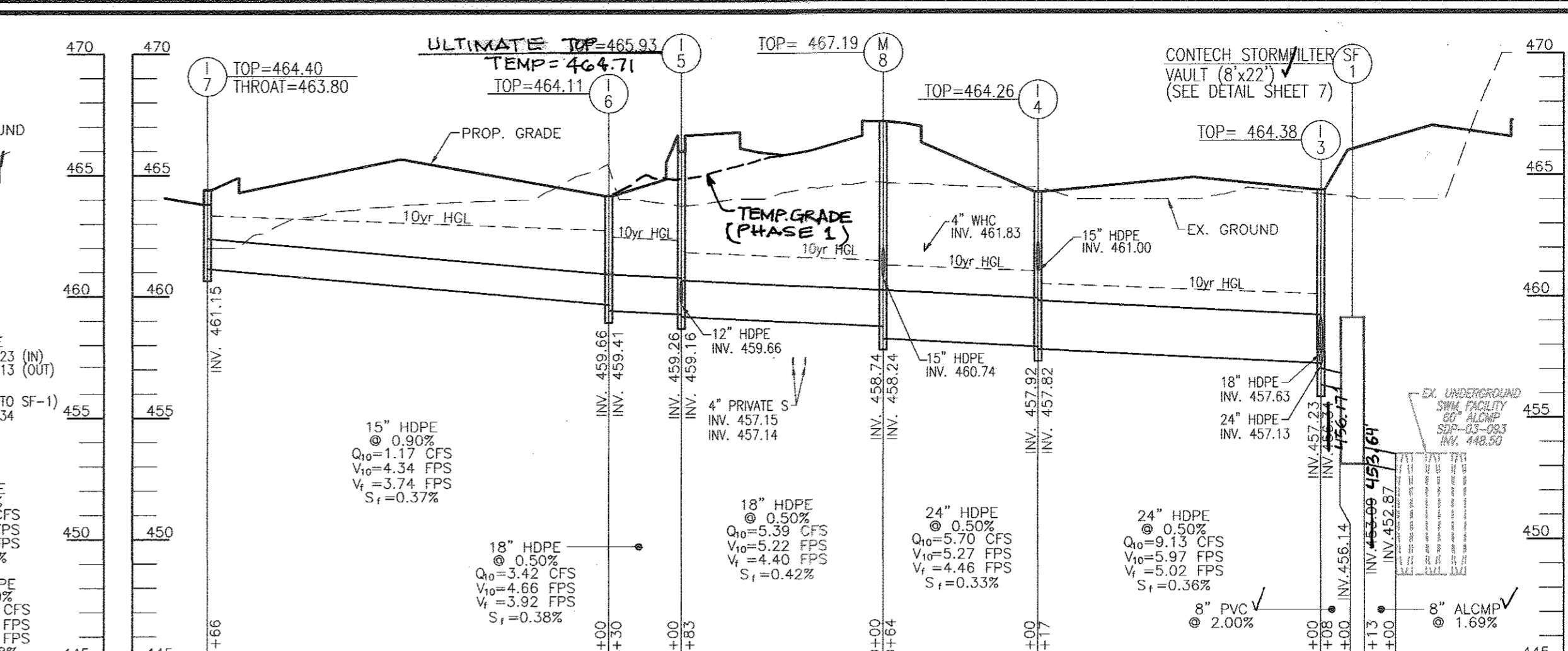
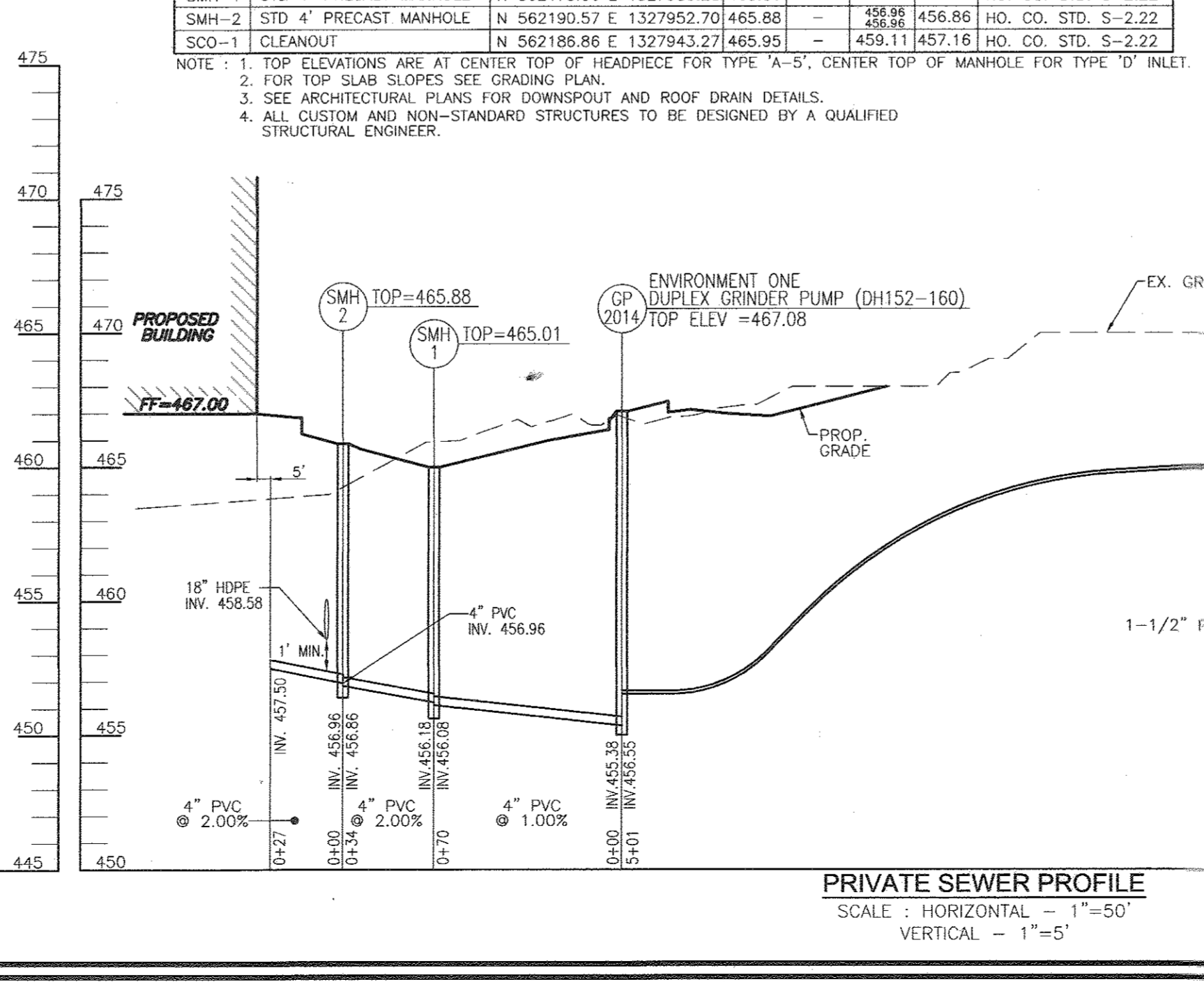
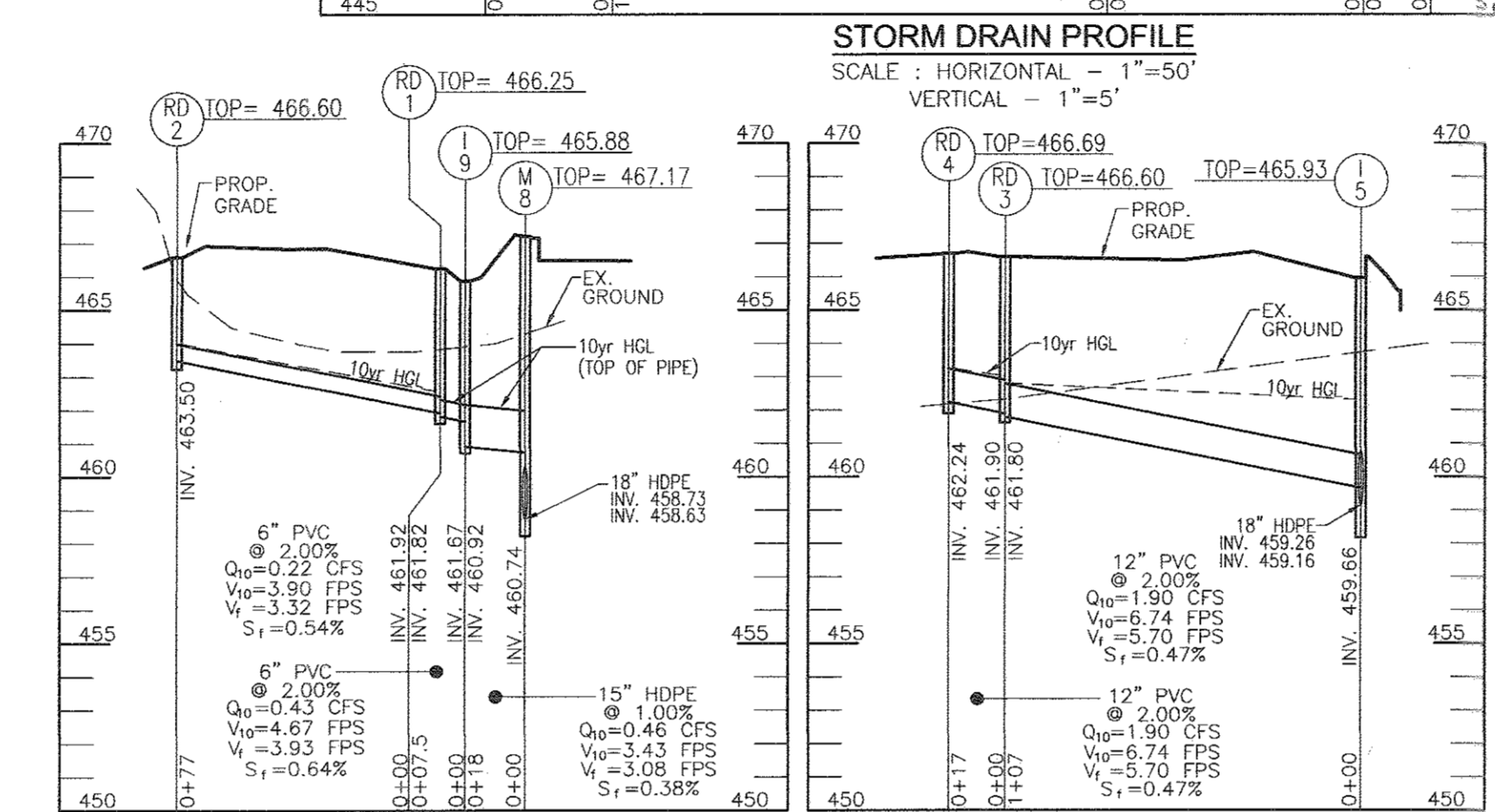
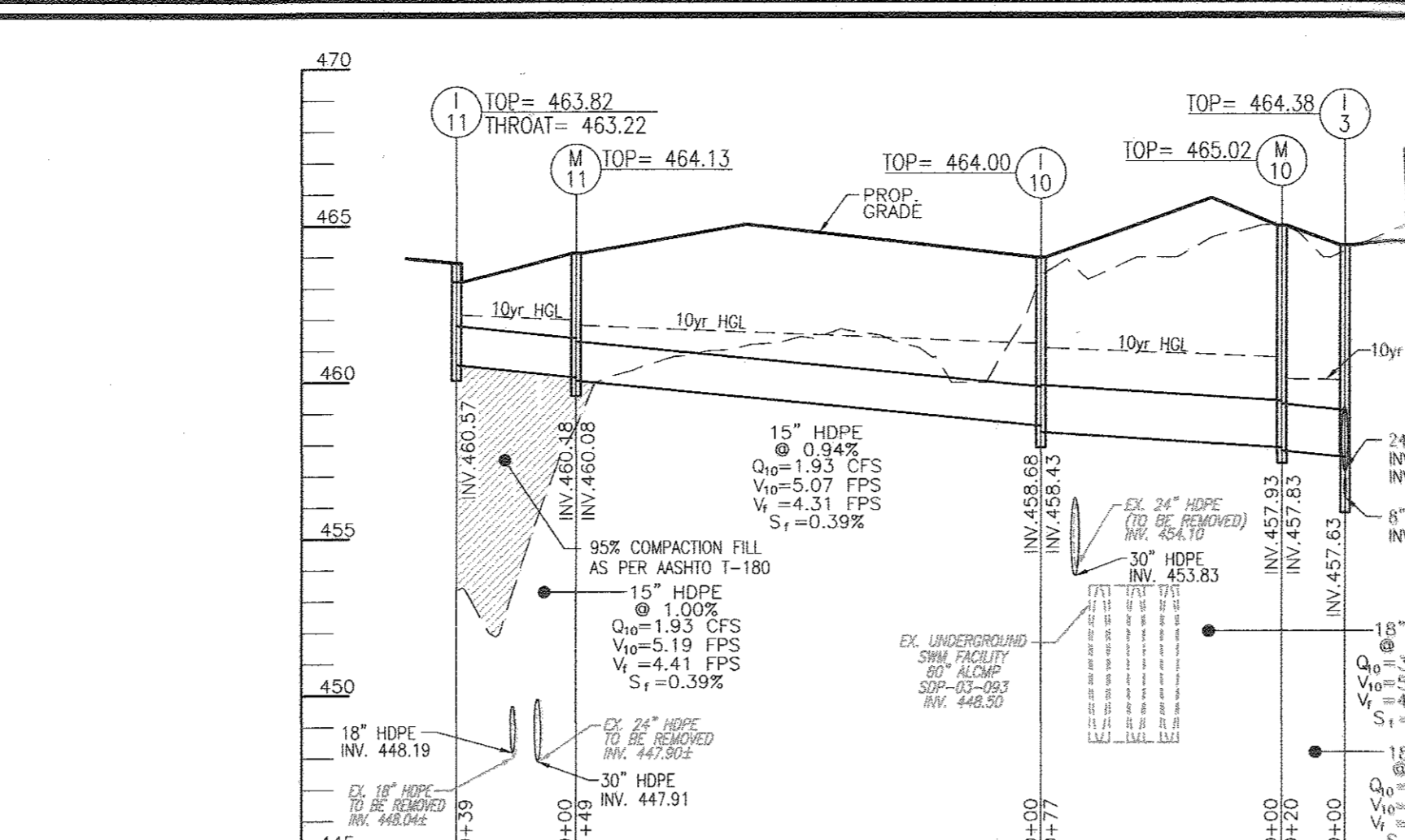


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief Development Engineering Division 1/29/16 DATE

Chief, Division of Land Development 2-11-16 DATE

Director 2-11-16 DATE

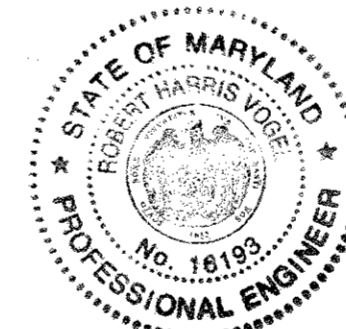


NO.	TYPE	LOCATION	TOP ELEV.	THROAT ELEV.	INV. IN.	INV. OUT.	COMMENTS
1-3	TYPE "DOUBLE-S" INLET	N 562317.05 E 1327848.81	464.38	464.38	457.33	454.34	HO. CO. STD. D-4-2.3
1-4	TYPE "DOUBLE-S" INLET	N 562289.23 E 1327960.39	464.26	464.26	457.33	454.34	HO. CO. STD. D-4-2.3
1-5	TYPE SINGLE "WR" INLET	N 562142.93 E 1327940.11	465.93	465.93	459.16	459.16	HO. CO. STD. D-4-3.7
1-6	TYPE "DOUBLE-S" INLET	N 562133.25 E 1327988.44	464.11	464.11	459.66	459.41	HO. CO. STD. D-4-2.3
1-7	TYPE "A-S" INLET	N 561978.50 E 1327908.29	464.40	463.80	461.15	461.15	HO. CO. STD. D-4-0.1
1-8	TYPE "D" INLET	N 562294.60 E 1328020.15	466.83	466.00	462.20	462.20	HO. CO. STD. D-4-1.0
1-9	YARD INLET	N 562223.56 E 1327934.45	465.88	461.67	462.30	462.30	HO. CO. STD. D-4-1.4
1-10	TYPE "DOUBLE-WR" INLET	N 562284.39 E 1327764.31	464.00	464.00	458.68	458.43	HO. CO. STD. D-4-3.5
1-11	TYPE "A-S" INLET	N 562100.11 E 1327730.95	464.13	463.22	460.57	460.57	HO. CO. STD. D-4-0.1
MH-8	STD 4" PRECAST MANHOLE	N 562225.54 E 1327952.10	467.19	467.19	458.12	458.24	HO. CO. STD. G 5.12
MH-10	STD 4" PRECAST MANHOLE	N 562297.41 E 1327841.81	465.02	465.02	457.93	457.83	HO. CO. STD. G 5.12
MH-11	STD 4" PRECAST MANHOLE	N 562139.39 E 1327731.34	464.13	464.13	460.18	460.08	HO. CO. STD. G 5.12
MH-1A	STD 5" PRECAST MANHOLE	N 562331.00 E 1327786.98	466.75	466.75	458.91	454.34	HO. CO. STD. G 5.13
MH-1B	STD 4" PRECAST MANHOLE	N 562326.42 E 1327824.94	465.71	465.71	455.91	455.91	HO. CO. STD. G 5.12
RD-1	CLEANOUT	N 562217.14 E 1327930.53	466.25	461.92	461.92	461.92	HO. CO. STD. S-2-22
RD-2	CLEANOUT	N 562258.26 E 1327863.21	466.60	463.50	463.50	463.50	HO. CO. STD. S-2-22
RD-3	CLEANOUT	N 562068.65 E 1327863.01	466.60	461.90	461.90	461.90	HO. CO. STD. S-2-22
RD-4	CLEANOUT	N 562077.31 E 1327848.84	466.69	462.24	462.24	462.24	HO. CO. STD. S-2-22
GP-1	GRINDER PUMP	N 562239.02 E 1328013.41	467.08	467.08	455.38	456.55	E ONE GRINDER PUMP SEE DETAIL ON SHEET 3
SMH-1	STD 4" PRECAST MANHOLE	N 562175.96 E 1327983.28	465.01	465.01	456.18	456.08	HO. CO. STD. S-2-22
SMH-2	STD 4" PRECAST MANHOLE	N 562190.57 E 1327952.70	465.88	465.88	458.91	456.86	HO. CO. STD. S-2-22
SCO-1	CLEANOUT	N 562186.80 E 1327943.21	465.95	465.95	459.11	457.16	HO. CO. STD. S-2-22

NOTE: 1. TOP ELEVATIONS ARE AT CENTER TOP OF HEADPIECE FOR TYPE "A-S", CENTER TOP OF MANHOLE FOR TYPE "D" INLET.
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.

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.

P.E. NO: 16193
DATE: 3/16/18



PHASE 1 - TEMP. SALES TRAILER:
FOR TEMP. SALES TRAILER PLAN AND PAVING, SEE SHEET 12.

OWNER/DEVELOPER
1318 COMPANY LLC
10400 AUTO PARK AVE
BETHESDA, MD 20817-1006
C/O: JIM COLEMAN
301-469-6600

REVISE PLAN TO SHOW TEMP. SALES TRAILER (PHASE 1) 11/30/16

SITE DEVELOPMENT PLAN
STORM DRAIN DRAINAGE AREA MAP AND UTILITY PROFILES

COLEMAN FIAT NEW CAR SALES
HOLWECK SUBDIVISION PARCEL K-4
2620 NEW CAR DRIVE
PARCEL 365 (L 0859 / F 00473)
PLAT 16013 & PLAT 23587

TAX MAP 34 BLOCK D6 5TH ELECTION DISTRICT ZONED: B-2 LOT: PARCEL K-4 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 FULLY LICENSED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18183 EXPIRATION DATE: 08-27-2018

DESIGN BY: DZE
DRAWN BY: DZE/KG/MR
CHECKED BY: RHY
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-10

6 SHEET OF 12

Important: Inspection should be performed by a person who is familiar with the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the access ports to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access ports.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to whether or not maintenance is needed.

Maintenance Decision Tree
The need for maintenance is typically based on results of the inspection. In addition, you should check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation. It may be necessary to adjust the inspection/maintenance activity schedule depending on the actual operating conditions encountered by the system.

1. Sediment loading on the vault floor. If >4" of accumulated sediment, then go to maintenance.
2. Sediment loading on top of the cartridge. If >1/4" of accumulation, then go to maintenance.
3. Submerged cartridges. If >4" of static water in the cartridge bay for more than 24 hrs after end of rain event, then go to maintenance.
4. Plugged media. If pore space between media granules is absent, then go to maintenance.
5. Bypass condition. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), then go to maintenance.
6. Hazardous material release. If hazardous material release (automotive fluids or other) is reported, then go to maintenance.
7. Pronounced scum line. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, then go to maintenance.
8. Calendar Lifecycle. If system has not been maintained for 3 years, then go to maintenance.

Assumptions:
No rainfall for 24 hours or more.
No upstream detention (at least not draining into StormFilter).
Structure is online. Outlet pipe is clear of obstruction. Construction bypass is plugged.

Maintenance
Depending on the configuration of the particular system, workers will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

- Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flow is occurring. Replacement cartridges can be delivered to the site or customers facility, CONTECH for more information.
- Warning:** In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.
1. If applicable, set up safety equipment to protect workers and pedestrians from site hazards.
 2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
 3. Open the doors (access ports) to the vault and allow the system to vent.
 4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
 5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
 6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
 7. Remove used cartridges from the vault using one of the following methods:
 - a. Replace any damaged connectors.
 8. Remove accumulated sediment from the floor of the vault and from the forebay. Use vacuum truck for highest effectiveness.
 9. Once the sediments are removed, assess the condition of the vault and the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
 10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Take care not to damage connections.
 11. Close and fasten the door.
 12. Remove safety equipment.
 13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH.

Method 1:
A. This activity will require that workers enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotation) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Important: Cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Do not damage the manifold connectors. They should remain installed in the manifold and can be capped during the maintenance activity to prevent sediments from entering the under drain manifold.

Important: Avoid damaging the cartridges during removal and installation.

Material Disposal
The accumulated sediment must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals. Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with applicable waste disposal regulations. Coordinate disposal of solids and liquids as part of your maintenance procedure. Contact the local public works department to inquire how they dispose of their street waste residuals.

Method 2:

- A. Enter the vault using appropriate confined space protocols.
- B. Unscrew the cartridge cap.
- C. Remove the cartridge hood screws (3) hood and float.
- D. At location under structure access, tip the cartridge on its side.
- E. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.
- F. Set the empty, used cartridge aside or load onto the hauling truck.
- G. Continue steps A through E until all cartridges have been removed.

Material Disposal
The accumulated sediment must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals. Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with applicable waste disposal regulations. Coordinate disposal of solids and liquids as part of your maintenance procedure. Contact the local public works department to inquire how they dispose of their street waste residuals.

StormFilter Maintenance Guidelines
Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site, and may be required in the event of a chemical spill or due to excessive sediment loading.

Maintenance Procedures
Although there are other effective maintenance options, CONTECH recommends the following two step procedure:
1. Inspection: Determine the need for maintenance.
2. Maintenance: Cartridge replacement and sediment removal.

Inspection and Maintenance Activity Timing
At least one scheduled inspection activity should take place per year with maintenance following as warranted.

First inspection should be done before the winter season. During which, the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, maintenance should be performed during periods of dry weather.

In addition, you should check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation. It may be necessary to adjust the inspection/maintenance activity schedule depending on the actual operating conditions encountered by the system.

Generally, inspection activities can be conducted at any time, and maintenance should occur when flows into the system are unlikely.

Maintenance Activity Frequency
Maintenance is performed on an as needed basis, based on inspection. Average maintenance lifecycle is 1-3 years. The primary factor controlling timing of maintenance of the StormFilter is sediment loading. Until appropriate timing is determined, use the following:

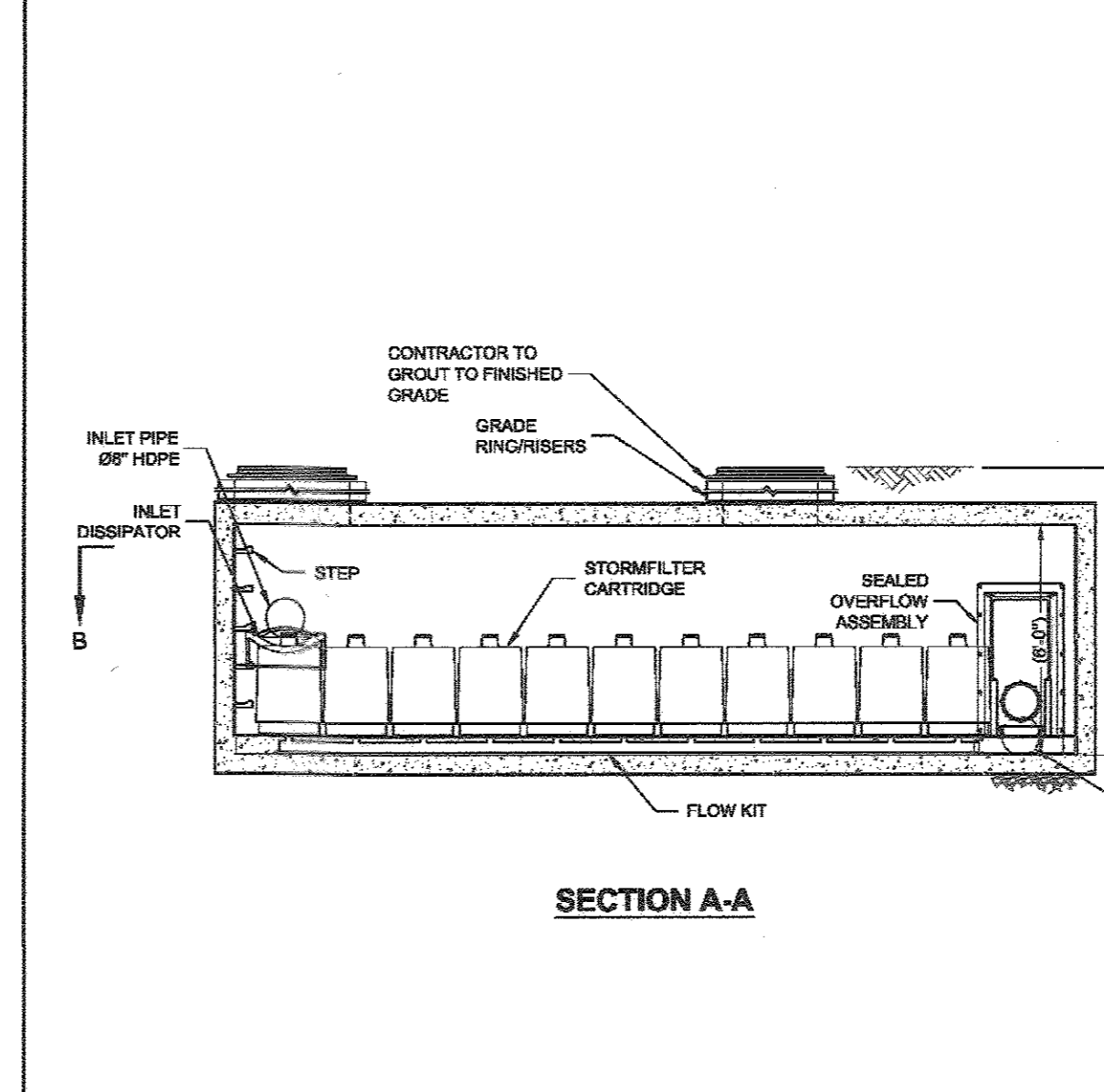
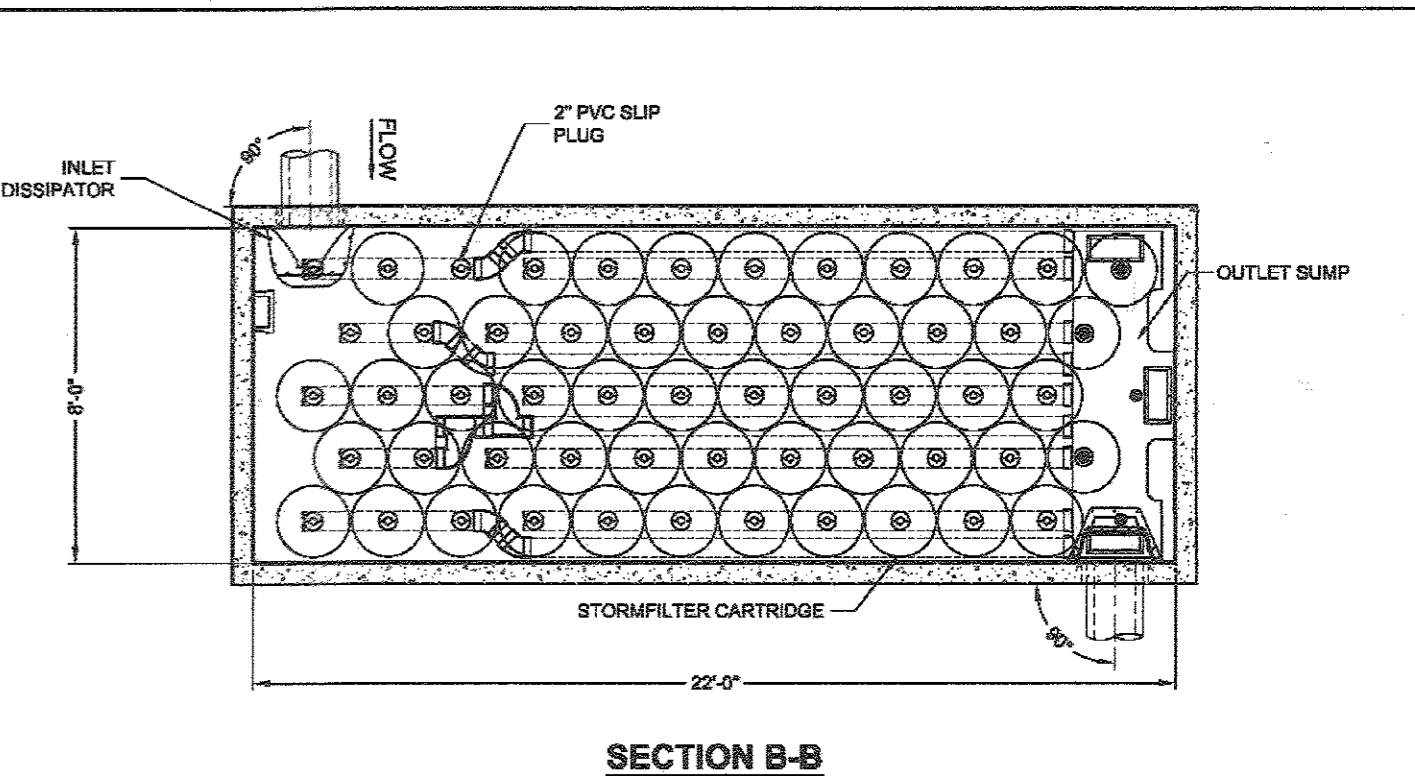
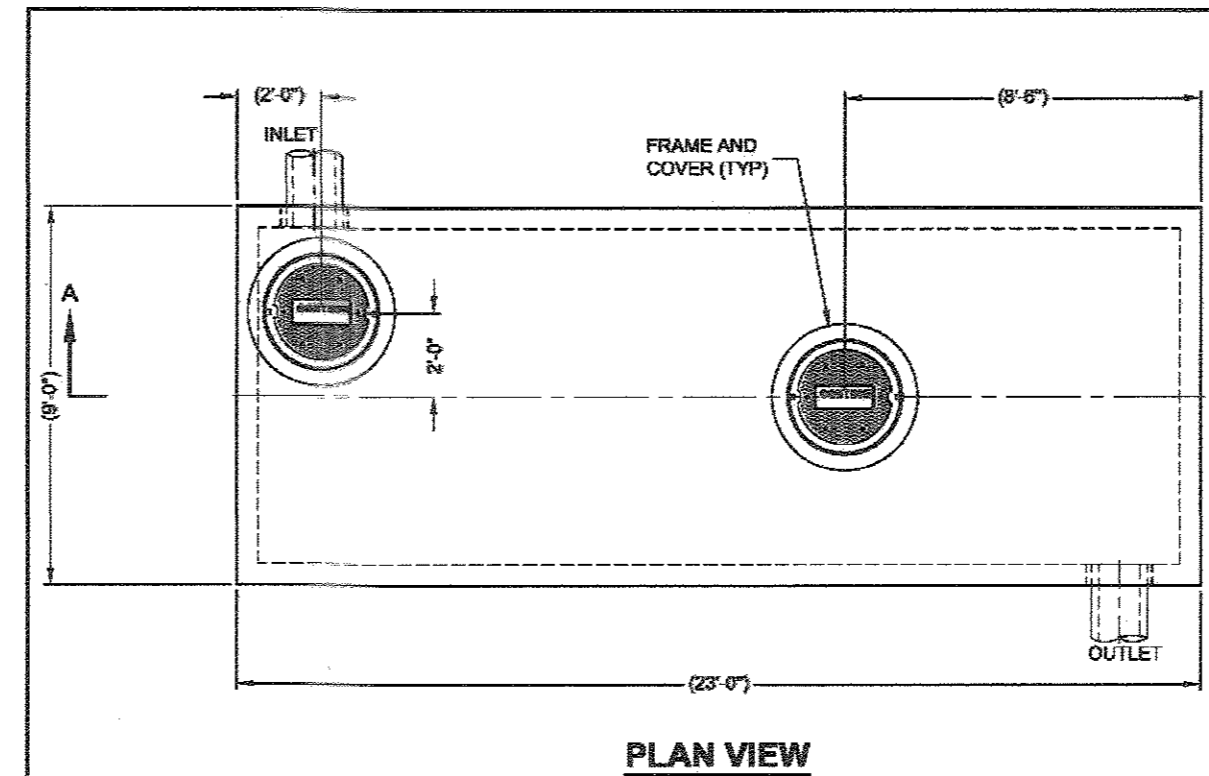
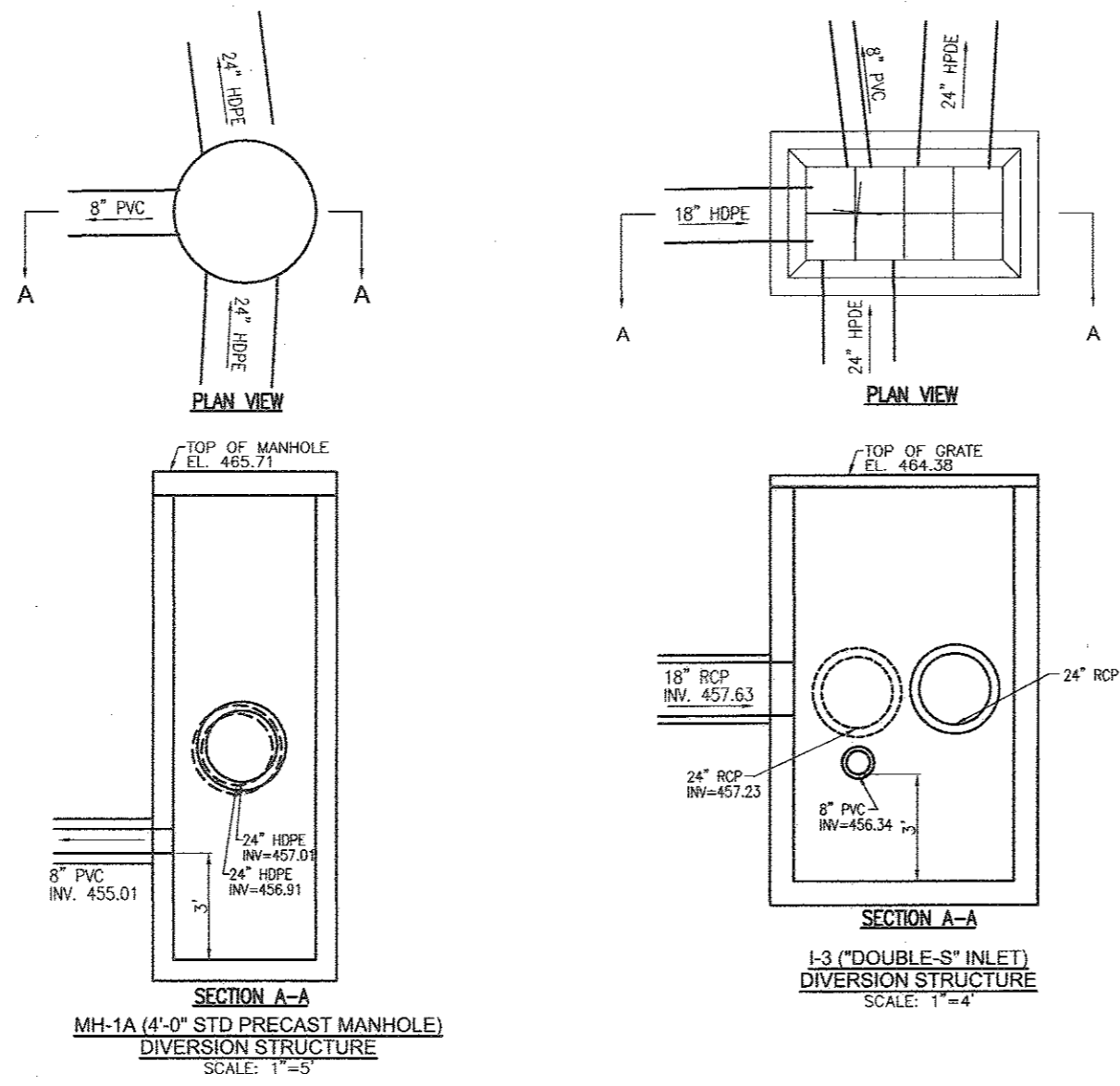
Inspection
One time per year
After major storms
Maintenance:
As needed
Per regulatory requirement
In the event of a chemical spill

Inspection Procedures
It is desirable to inspect during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.
To conduct an inspection:

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES

- A. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY IS PRIVATELY OWNED AND IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PERIODICALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.
- B. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.
- C. WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFALL IS OBSERVED, THE FACILITY SHALL BE CLEANED.
- D. THE FACILITY SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. THE OWNER SHALL CONTACT THE APPROPRIATE REGULATORY AGENCIES NOTIFYING THEM OF THE SPILL AND CLEANUP OPERATION.
- E. THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND STORMWATER MANAGEMENT FACILITY BY VACUUM TRUCK OR OTHER MANUAL MEANS. THE OWNER SHALL FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID.
- F. THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST ONCE EVERY SIX (6) MONTHS. IF OBSTRUCTIONS ARE FOUND, THE OWNER SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.



MATERIAL LIST - PROVIDED BY CONTECH:

COUNT	DESCRIPTION	INSTALLED BY
53	27" 22.5 GPM, CSF CARTRIDGE (GLD)	CONTECH
8	2" PVC SLIP PLUG	CONTECH
1	FLOW KIT	CONTECH
1	INLET DISSIPATOR	CONTECH
1	SEALED OVERFLOW ASSEMBLY	CONTECH
2	8'2" x 4' FRAME AND COVER	CONTRACTOR
1	JOINT SEALANT (BY PRECASTER)	CONTRACTOR
2	PLUGS GRADE RINGS/RISERS	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	2.65 CFS
PEAK FLOW RATE	OFFLINE CFS
RETURN PERIOD OF PEAK FLOW	NA YRS
FILTER MEDIA TYPE	CSF

PERFORMANCE SPECIFICATION
FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON-ACTIVATED, RADIAL FLOW AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 7" MINIMUM. FILTER MEDIA CONTACT SHALL BE AT LEAST 27 SECONDS. SPECIFIC FLOW RATE SHALL BE 2 GPM/SF (MAXIMUM). SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE 6 GPM/GF OF MEDIA (MAXIMUM).

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.conteches.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONSULT STRUCTURE WEIGHTS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO H200 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M596 AND BE CAST WITH THE CONCRETE LOG.

INSTALLATION NOTES
1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = T.B.D. LBS.

CONTECH
ENGINEERED SOLUTIONS LLC
www.conteches.com
12520 New Car Dr., Clarksville, Howard County, MD 21115
TEL: 410.461.7666 FAX: 410.461.8961

8' x 22' STORMFILTER - 505856-010
JIM COLEMAN FIAT
CLARKSVILLE, MD
SITE DESIGNATION: SF-1

DEPTH (FT)	DIAMETER (IN)	SOIL TYPE	REMARKS	WATER CONTENT (%)	LIQUID LIMIT (%)
0-1	8	(M) FINE CLAYEY SILT, Trace Gravel, Contains Slight Asphalt, Brown and Black, Mott. Soil			
0-2	8	(M) SILT, Contains Musc, Orange Brown, Mott. Medium Silt to Clay			
0-3	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-4	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-5	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-6	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-7	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-8	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-9	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-10	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-11	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-12	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-13	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-14	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-15	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-16	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-17	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-18	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-19	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-20	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-21	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-22	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-23	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-24	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-25	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-26	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-27	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-28	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-29	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-30	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-31	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-32	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-33	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-34	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-35	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-36	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-37	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-38	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-39	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-40	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-41	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-42	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-43	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-44	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-45	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-46	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-47	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-48	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-49	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-50	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-51	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-52	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-53	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-54	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-55	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-56	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-57	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-58	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-59	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-60	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-61	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-62	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-63	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-64	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-65	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-66	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-67	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-68	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-69	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-70	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-71	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-72	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-73	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-74	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-75	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-76	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-77	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-78	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-79	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-80	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-81	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-82	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-83	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-84	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-85	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-86	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-87	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-88	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-89	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-90	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-91	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-92	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-93	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-94	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-95	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-96	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-97	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-98	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-99	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			
0-100	8	(M) SANDY SILT, Brownish Tan, Mott. Silt			

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 SWM FACILITY.

RE: NO. 16193
DATE: 3/16/18



OWNER/DEVELOPER
1318 COMPANY LLC
1400 AUTO PARK AVE
BETHESDA, MD 20817-1006
C/O: JIM COLEMAN
301-469-6600

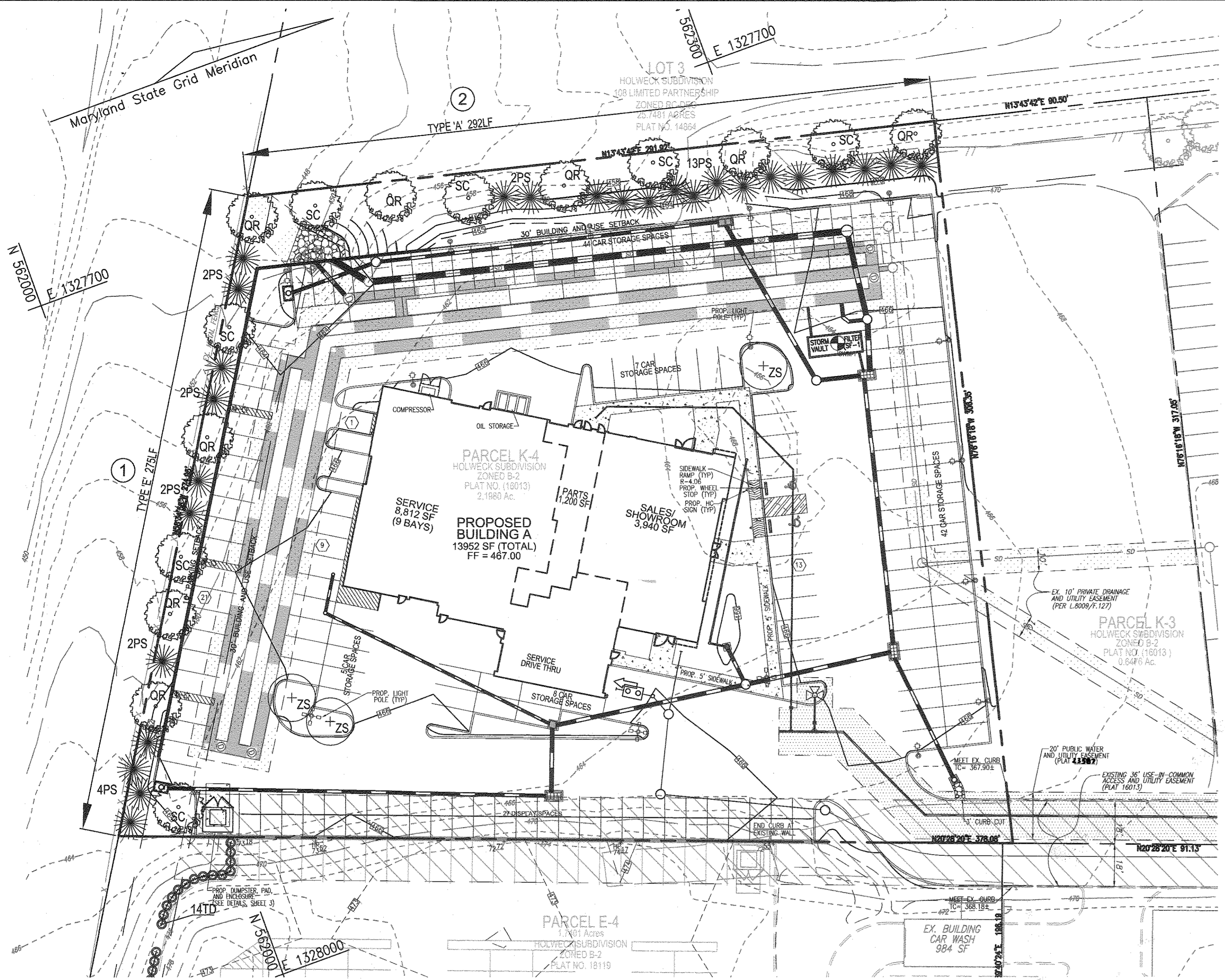
NO.	REVISION	DATE
1	REVISE PLAN TO SHOW TEMP SALES TRAILER (PHASE I)	11/30/16

SITE DEVELOPMENT PLAN
STORMWATER MANAGEMENT NOTES AND DETAILS
COLEMAN FIAT
NEW CAR SALES
HOLWECK SUBDIVISION PARCEL K-4
12520 NEW CAR DRIVE
PARCEL 305 (L 08504 / F 08473)
PLAT 16013 & PLAT 23317
ZONED: B-2
LOT: PARCEL K-4
5TH ELECTION DISTRICT
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: DZE
DRAWN BY: DZE/KC/MR
CHECKED BY: RHV
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-10

I HEREBY CERTIFY THAT THESE DOCUMENT



SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS			DUMPSTER	TOTALS
	B	C	D		
PERIMETER/FRONTAGE DESIGNATION	1	2	3		
LANDSCAPE TYPE					
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	275'	292'	31'		
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO		
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO		
NUMBER OF PLANTS REQUIRED					
SHADE TREES	1:50	6	1:40	8	15
EVERGREEN TREES	1:40	7	1:20	15	26
SHRUBS					
NUMBER OF PLANTS PROVIDED					
SHADE TREES	6	8	1	15	
EVERGREEN TREES	7	15	4	26	
EX SHADE TREES					
OTHER TREES (2:1 SUBSTITUTION)					
SHRUBS (10:1 SUBSTITUTION)					
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED					

LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
QR	8	QUERCUS RUBRA NORTHERN RED OAK	2 1/2"-3" CAL.	B & B
SC	7	PRUNUS SARGENTII SARGENT CHERRY	2 1/2"-3" CAL.	B & B
ZS	3	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2 1/2"-3" CAL.	B & B
PS	26	PINUS STROBUS EASTERN WHITE PINE	6"-8" HT.	B & B

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PROPOSED PARKING SPACES	44
NUMBER OF TREES REQUIRED (1/20 SPACES)	3
NUMBER OF TREES PROVIDED	3
SHADE TREES	3
OTHER TREES (2:1 SUBSTITUTION)	-

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- 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
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPOSED TREELINE
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #5696
- EX. 20' WATER & UTILITY EASEMENT PLAT #1613
- & UTILITY EASEMENT PLAT #3597
- PROP. MICRO BIORETENTION AREA (M-8)
- PROP. PAVEMENT (A-2)
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- LANDSCAPE PERIMETER

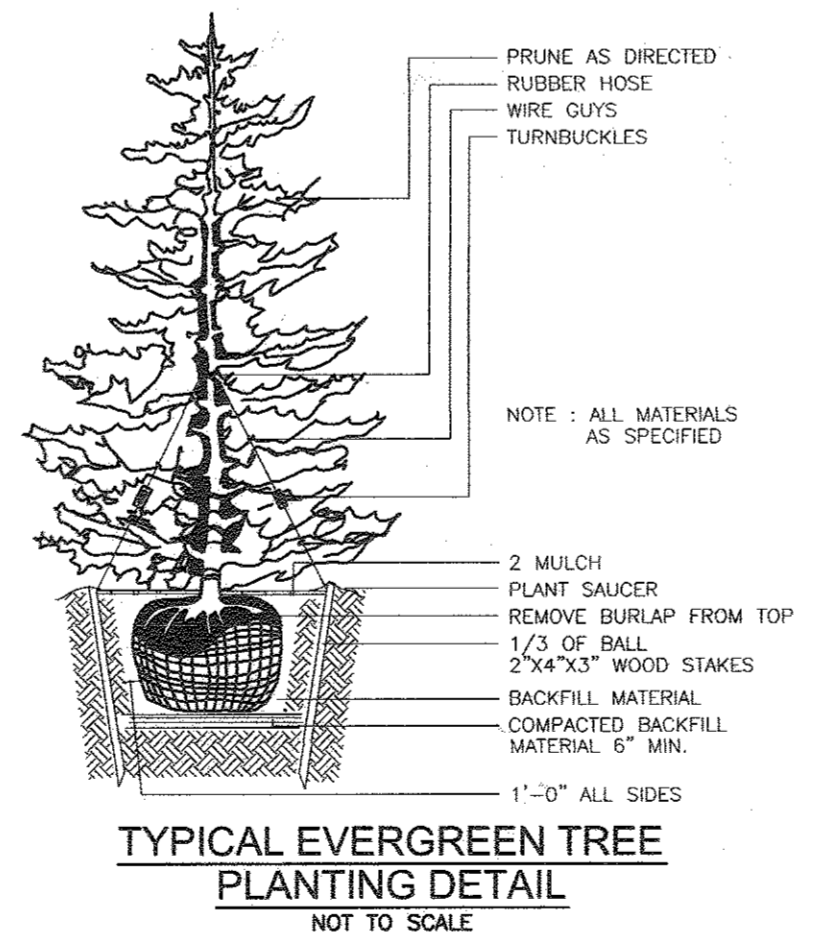
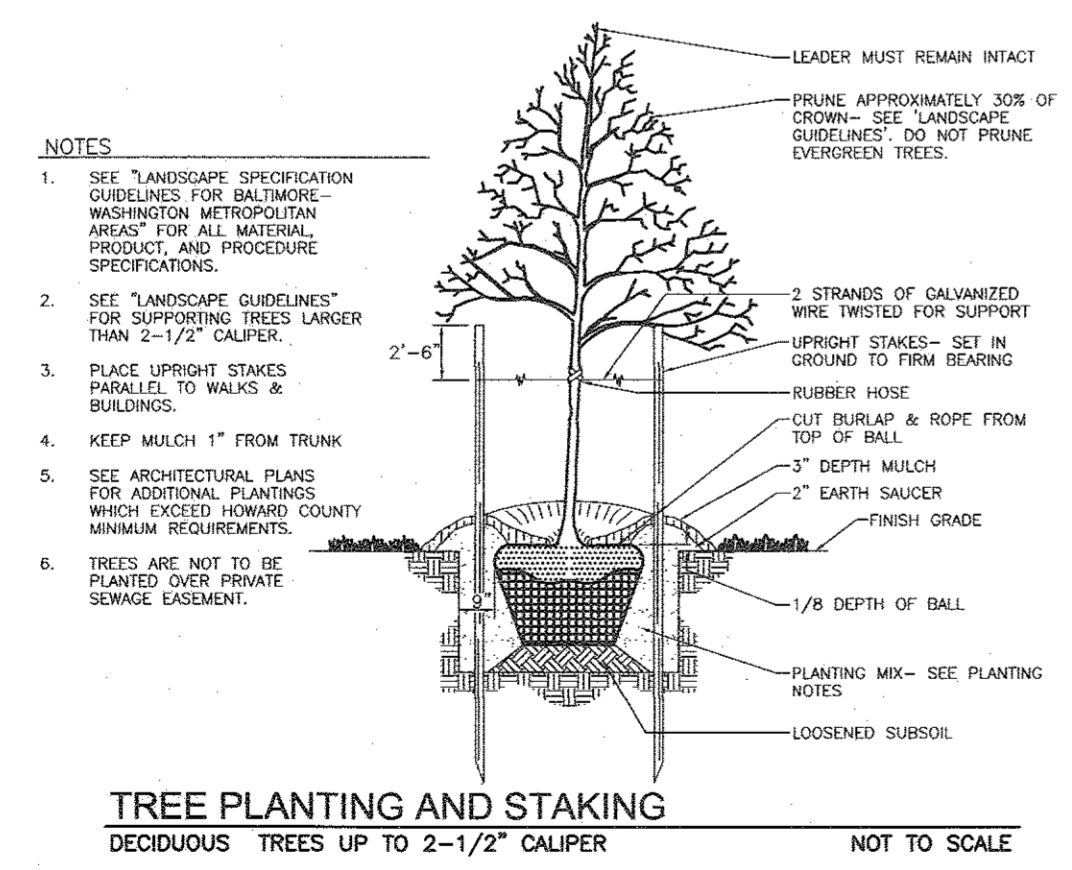
GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$9,300 FOR THE REQUIRED 18 SHADE TREES, AND 26 EVERGREEN TREES.

LANDSCAPE SCHEDULE NOTE:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANM SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD 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.

PLAN VIEW
SCALE: 1"=30'



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 SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 10/11/15
SIGNATURE: [Signature]

OWNER/DEVELOPER
1318 COMPANY LLC
10400 AUTO PARK AVE
BETHESDA, MD 20817-1006
C/O: JIM COLEMAN
301-469-6600

NO.	REVISION	DATE
1	REVISE PLAN TO SHOW TEMP. SALES TRAILER (PHASE I)	11/30/16

SITE DEVELOPMENT PLAN

LANDSCAPE PLAN (ULTIMATE)

COLEMAN FIAT NEW CAR SALES

HOLWECK SUBDIVISION PARCEL K-4
12620 NEW CAR DRIVE
PARCEL 366 (L. 08504 / F. 00473)
PLAT 16013 & PLAT 23587

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/29/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 2-11-16
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2-11-16
DIRECTOR DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A 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.

[Signature] 10/29/15
SIGNATURE OF DEVELOPER DATE

NO AS-BUILT INFORMATION ON THIS SHEET

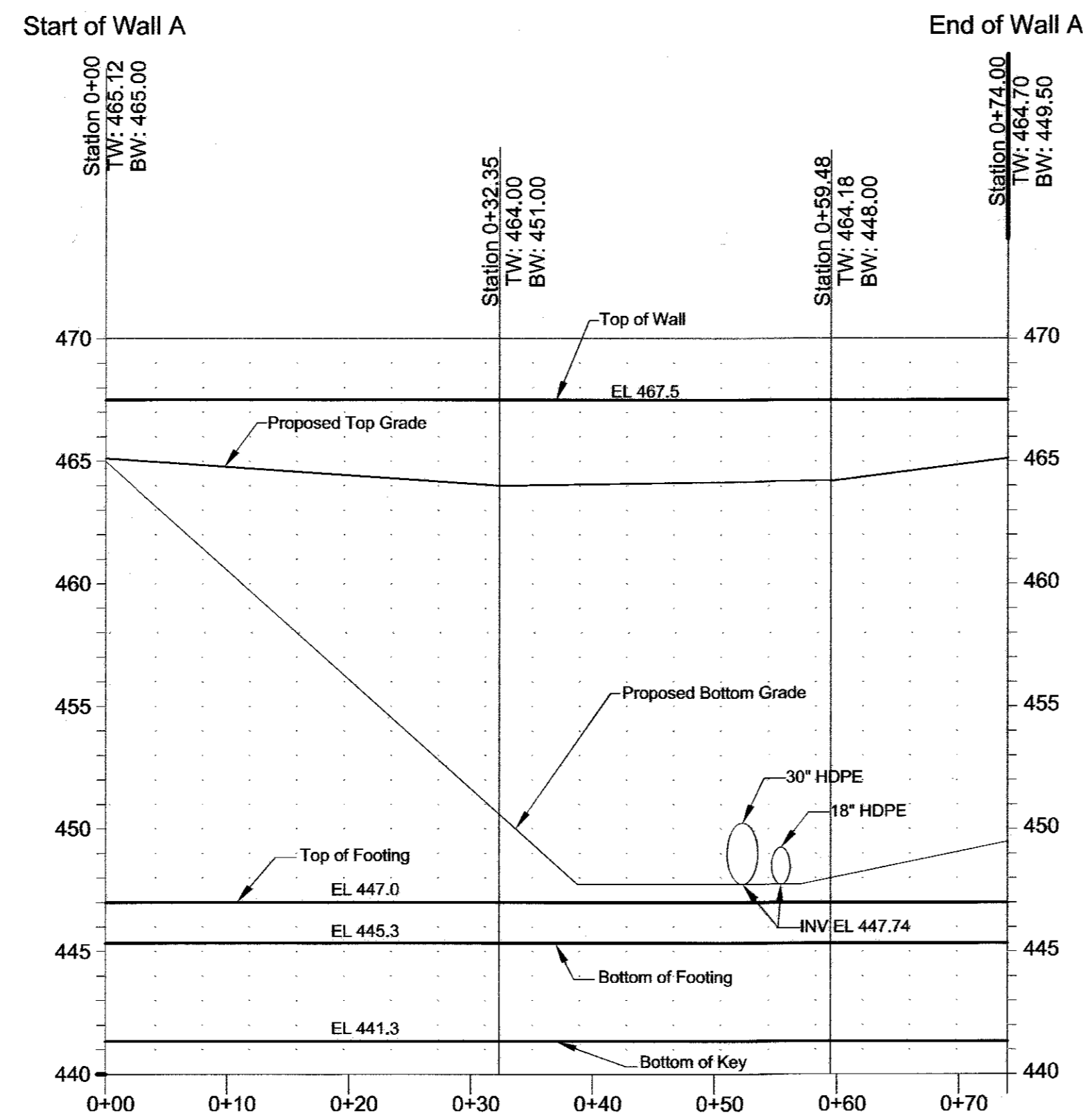
PHASE 1 - TEMP SALES TRAILER:
FOR TEMP. SALES TRAILER PLAN AND PAVING, SEE SHEET 12.

PROFESSIONAL CERTIFICATE

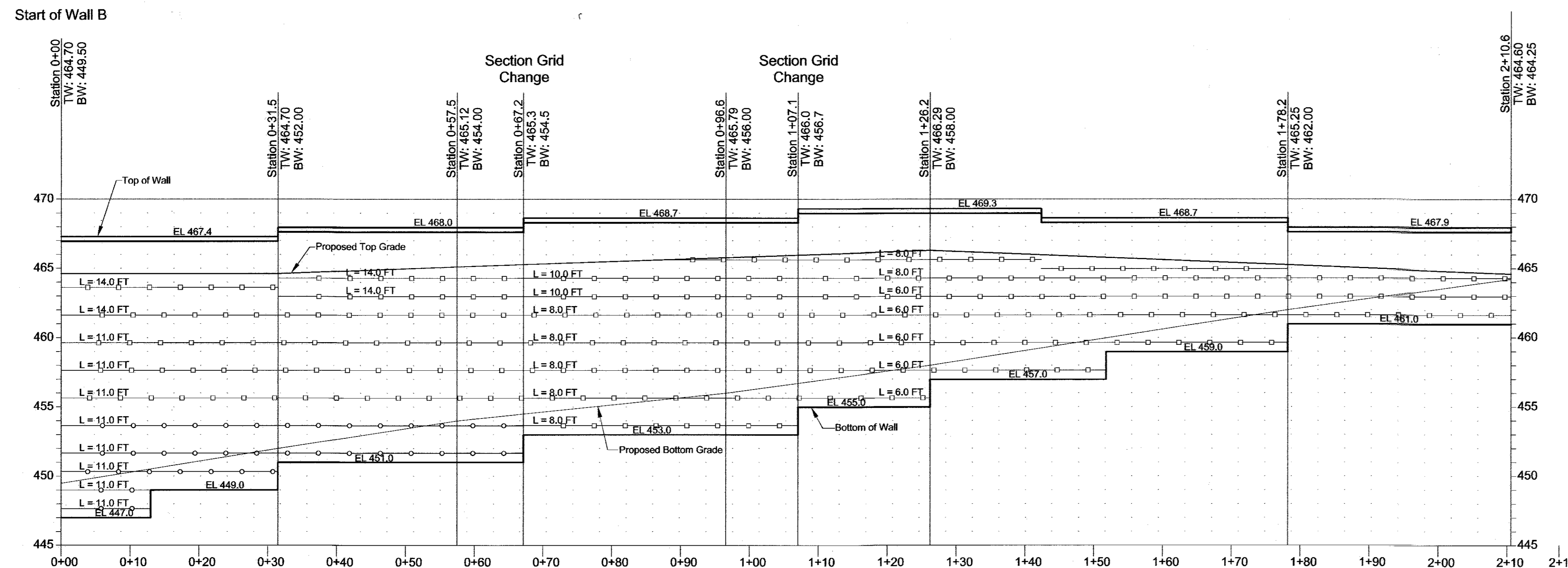
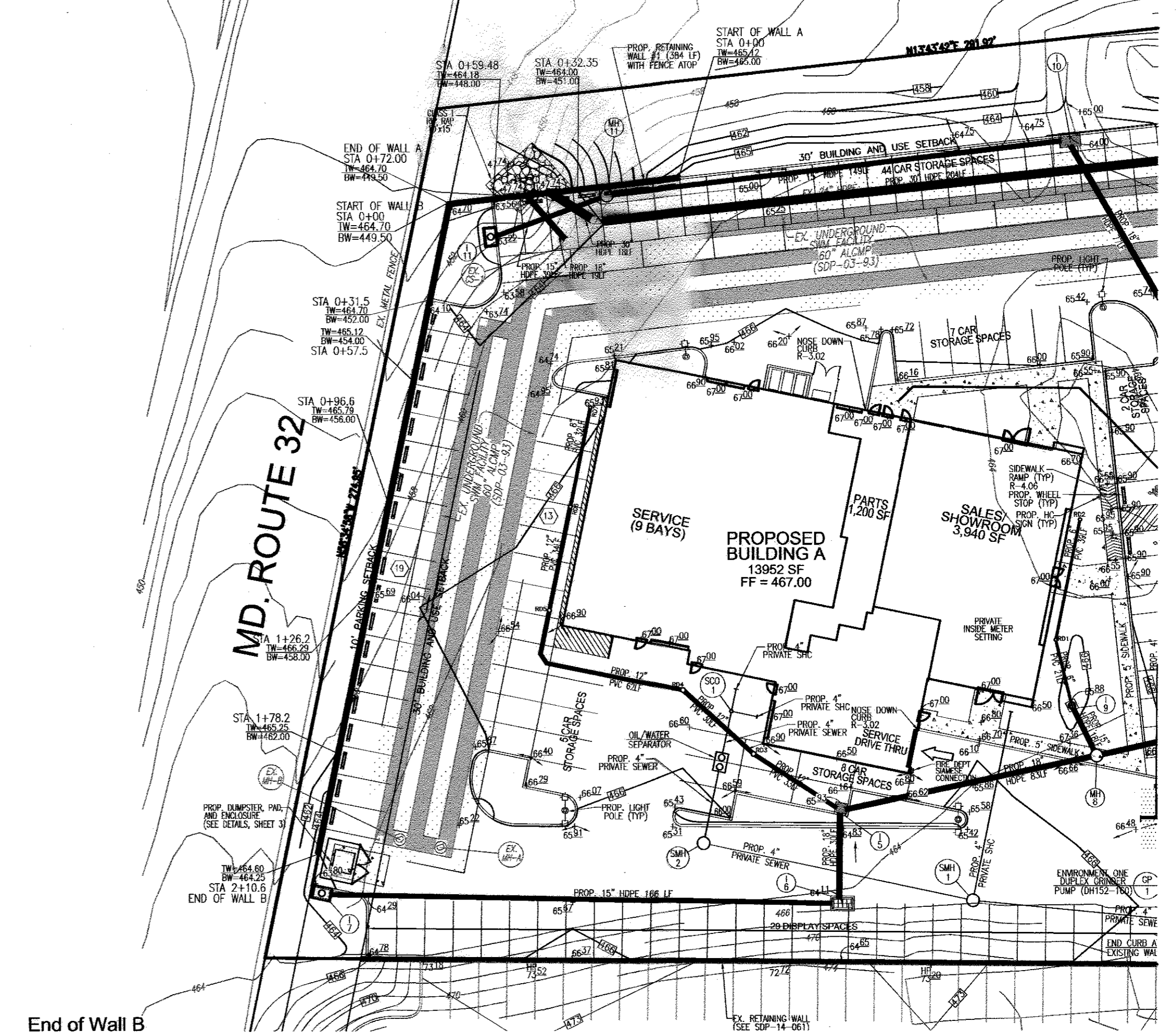
DESIGN BY: DZE
DRAWN BY: DZE/KG/MR
CHECKED BY: RHW
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.D. NO.: 13-10

1 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: 08-27-2018

8 SHEET OF 12



WALL A PROFILE
 HORIZONTAL SCALE: 1"=10'
 VERTICAL SCALE: 1"=5'



WALL B PROFILE
 HORIZONTAL SCALE: 1"=10'
 VERTICAL SCALE: 1"=5'

PLAN (BASED ON ENVIRONMENTAL PLAN)
 PROVIDED BY ROBERT H. VOGEL ENGINEERING, INC.
 SCALE: 1"=30'

AS-BUILT CERTIFICATION FOR PSWIM
 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
 CLOSING OF THE UNDERGROUND SWIM FACILITY.

DATE: 3/6/18
 P.E. NO. 16193



OWNER/DEVELOPER
 1318 COMPANY LLC
 10400 AUTO PARK AVE
 BETHESDA, MD 20817-1006
 C/O: JIM COLEMAN
 301-469-6600

NO AS-BUILT INFORMATION ON THIS SHEET

- LEGEND**
- MIRAFI 3XTC GEOGRID
 - MIRAFI 5XTC GEOGRID

NOTES
 TW: Proposed Top Grade EL
 BW: Proposed Bottom Grade EL

REVISE PLAN TO SHOW TEMP SALES TRAILER (PHASE 1) 11/30/16	
NO.	REVISION
RETAINING WALLS PLAN & PROFILE	
COLEMAN FIAT NEW CAR SALES HOLWECK SUBDIVISION PARCEL K-4 NEW CAR DRIVE PARCEL 365 (L. 08594 / F. 00473) TAX MAP 34 BLOCK 06 5TH ELECTION DISTRICT	
ECs	
1340 CHARWOOD ROAD SUITE A HANOVER, MARYLAND 21076 PHONE: (410) 859-4300 FAX: (410) 859-4324	
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. 28553	
DESIGN BY: DMA	CHECKED BY: HMA
DRAWN BY: DMA	DATE: APRIL 2015
SCALE: AS SHOWN	W.O. NO.: 02-7342
9 SHEET OF 12	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

A. J. C. H. 2-9-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Wesley D. ... 2-11-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Nalima J. ... 2-11-16
 DIRECTOR DATE

Retaining Wall Specifications and Guidelines

Part 1: General

1.01 Description

- A. Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.
- B. Work includes preparation of foundation soils, furnishing all materials, and installing all materials to the lines and grades shown on the construction drawings.

1.02 Codes and Standards

- A. "International Building Code - 2012", International Code Council, Inc.
- B. "ACI Manual of Concrete Practice - Parts 1 Through 5 - 2013"
- C. "Manual of Standard Practice - Concrete Steel Reinforcing Institute"
- D. "American Society for Testing and Materials"

1.03 Damage, Storage, and Handling

- A. The Contractor shall check the materials upon delivery to assure that the proper materials have been received.
- B. The Contractor shall properly handle and store the materials to prevent damage to the materials. Damaged materials shall not be incorporated into the wall.

1.04 Quality Assurance

- A. The Owner shall engage a qualified testing agency to provide observation and testing services as described below.
- B. Concrete Placement
 - 1. The agency shall inspect the formwork and reinforcing steel placement for compliance with the contract documents. Reinforcing steel should be inspected for correct size, quantity, and spacing.
 - 2. Fresh concrete shall be sampled in accordance with ASTM C 172, and tested for slump, air entrainment, and temperature.
 - 3. Test cylinders shall be molded in accordance with ASTM C 31. Four test cylinders shall be molded for each day's pour, or for every 50 cubic yards of concrete placed, whichever is greater.
- C. Fill Placement
 - 1. All soil fills shall be tested in accordance with ASTM D 2922.
 - 2. A minimum of one compaction test per lift should be made per 2,500 square feet of fill lift area, but not fewer than two tests per lift should be made.
 - 3. The elevations and locations of the field density tests should be clearly identified at the time of fill placement and compaction.

Part 2: Materials

2.01 Concrete

- A. Concrete shall conform to Maryland State Highway Administration Standard Specifications for Construction and Materials
- B. Concrete shall have a minimum 28-day compressive strength of 4,500 psi.
- C. Concrete shall have a slump range of 2 to 5 inches and shall be air entrained to 6% (+/- 1%) by volume.
- D. Concrete shall have a minimum density of 145 pcf and a maximum water-to-cement ratio of 0.45

2.02 Steel Reinforcement

- A. Steel reinforcing shall conform to ASTM A-615, Grade 60.
- B. Submit shop drawings of least 15 business days before date reviewed submittals will be needed. Shop drawings shall bear the contractor's stamp of approval which shall constitute that he has verified all field measurements, construction criteria, materials, and similar data, and has checked each drawing for completeness, coordination, and compliance with contract documents.

2.03 Soil Backfill

- A. Material should consist of soil classified as SM, SC, or more granular, in accordance with ASTM D 2457.
- B. Material should have no particle larger than 2.5 inches and shall contain at least 30 percent, by weight, retained on the U.S. No. 200 sieve.
- C. Materials should have a Liquid Limit less than 40, and a Plasticity Index less than 15.
- D. Material should have a minimum friction angle of 30 degrees.
- E. The Contractor should submit samples of the proposed backfill soils to the Geotechnical Engineer of Record for approval prior to their use.

2.04 Drainage Board

- A. Drainage board used behind the walls shall consist of Miradrain 9900.

Part 3: Construction

3.01 General

- A. All existing underground utilities shall be properly marked, and relocated if necessary, prior to construction.
- B. All proposed underground utilities or structures in the general wall area shall be completely installed prior to the construction of the wall.
- C. Protect all existing and/or new structures from damage by construction equipment. Immediately repair any damage that may occur.

3.02 Foundation

- A. The wall foundation shall be excavated to the grades and lines as shown on the construction drawings. Contractor should take care not to disturb foundation soils beyond the lines and grades shown.
- B. The foundation shall bear on the minimum embedment depths indicated, as measured from the final grade at the front of the wall.
- C. The foundation subgrade soils shall be tested by a qualified representative of the Geotechnical Engineer to verify the cohesivity of the design bearing pressure of 3,000 pcf.
- D. If unsuitable soils are encountered at design foundation levels, the unsuitable soils shall be removed and the over-excavated areas shall be replaced with compacted structural fill.

3.03 Steel Reinforcement

- A. All steel reinforcing shall have a minimum clear cover of 2.5 inches unless otherwise noted on the contract documents.
- B. Where applicable, splices for reinforcing steel shall be made by contact tension lap splices.
- C. Welding and field-bending of reinforcing steel is not permitted.
- D. Furnish all accessories, chairs, space bars, supports, etc. necessary to secure reinforcing.

3.04 Cast-in-Place Concrete

- A. Footing Concrete
 - 1. The vertical faces of the footing and key excavation may be used as forms for placement of foundation concrete.
 - 2. Foundation concrete, or protective mud mats, should be placed the same day that the foundation subgrade is approved.
 - 3. Provide concrete protection against freezing during placement and for 5 days thereafter.
- B. Wall Concrete
 - 1. Furnish and erect concrete forms to the lines and grades shown on the construction drawings.
 - 2. Locate construction joints as to not impair the strength of the structure, but not more than 60 feet in any direction. Provide continuous bentonite strip waterstop at all construction joints.
 - 3. Make stops in concrete pours using vertical bulkheads.
 - 4. All reinforcing shall be continuous through joints and bulkheads.
 - 5. Chamfer exposed concrete corners 3/4" by 3/4" minimum.
 - 6. Provide 4" diameter weep holes every 6 feet along the bottom of the wall and at wall ends. The weep holes should be formed in place prior to concrete placement by using PVC pipe. Weep hole locations must not interfere with steel reinforcing, and shall be no greater than 4 inches above final grade at the front of the wall.
 - 7. Where a fence is required, it is recommended that the fence posts be installed during wall concrete placement. The fence posts shall have a minimum of 24 inches of embedment into the wall, and be located along the center of the wall. Alternatively, provide 4 inch diameter by 24 inch deep post holes at the designated fence post locations along the centerline of the wall. The post holes should be formed in place prior to concrete placement by using PVC pipe.

3.05 Backfilling

- A. All soil backfill shall conform to the material requirements of section 2.03.
- B. Backfill shall be moisture conditioned to within 2 percentage points of the optimum moisture content, as determined in accordance with ASTM D-698.
- C. Backfill shall be placed in loose lifts, not exceeding 8 inches in thickness, and then compacted to at least 95 percent of the maximum dry density, as determined in accordance with ASTM D-698.
- D. Backfilling shall not occur against the wall until the wall concrete has attained at least 75 percent of the 28-day design strength, and no earlier than 3 days after placement.
- E. Where feasible, maintain equal grades on each side of the wall during backfilling to prevent overturning and lateral movements. When the grade differential at the wall exceeds 12 inches, only hand-operated compaction equipment shall be allowed.
- F. Drainage boards shall be placed against the wall, extending from the weep hole up within 12 inches of final grade at the top of the wall.

3.06 Finish

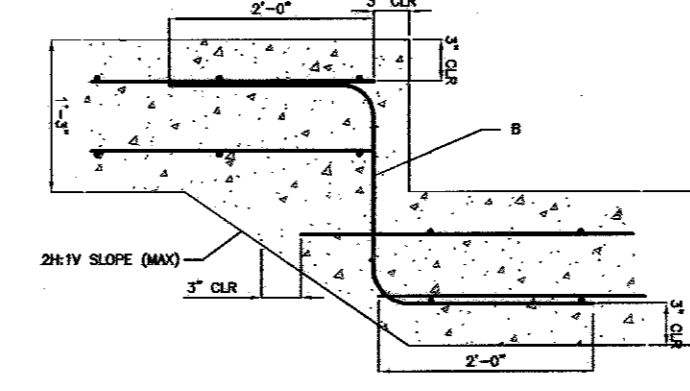
- A. Final grades of the wall shall be established by the Contractor in the field.
- B. Final grades shall be stabilized and seeded per the approved civil plans unless noted otherwise on the site grading plans.
- C. Install a 1.5 ft fence on the top of the wall. If fence posts are installed subsequent to wall construction, the fence posts shall be grouted into the PVC post holes using 3,000 psi non-shrink grout.

AS-BUILT CERTIFICATION FOR PSMM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLAN 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.

Signature: *[Signature]*
 P.E. NO.: 16193
 DATE: 3/6/18

NO AS-BUILT INFORMATION ON THIS SHEET.



FOOTING STEP
NTS



CONSTRUCTION JOINT
NTS

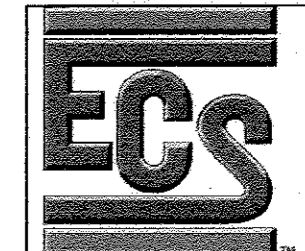


OWNER/DEVELOPER
 1318 COMPANY LLC
 10400 AUTO PARK AVE
 BETHESDA, MD 20817-1006
 C/O: JIM COLEMAN
 301-469-6600

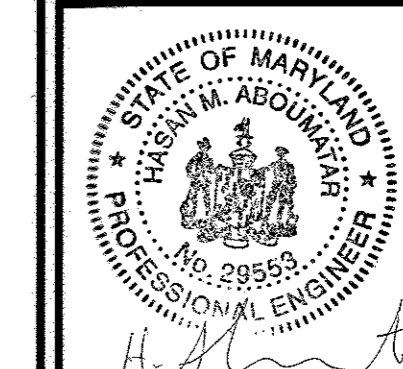
NO.	REVISION	DATE
1	REVISE PLAN TO SHOW TEMP SALES TRAILER (PHASE 1)	11/30/16

**RETAINING WALLS
CONCRETE SECTIONS & DETAILS**

**COLEMAN FIAT
NEW CAR SALES**
 HOLWECK SUBDIVISION PARCEL K-4
 12520 NEW CAR DRIVE
 PARCEL 365 (L. 08594 / F. 00473)
 TAX MAP 34 BLOCK 06 5TH ELECTION DISTRICT
 ZONED: B-2
 LOT: PARCEL K-4
 HOWARD COUNTY, MARYLAND



1340 CHARWOOD ROAD
 SUITE A
 HANOVER, MARYLAND 21076
 PHONE: (410) 859-4300
 FAX: (410) 859-4324



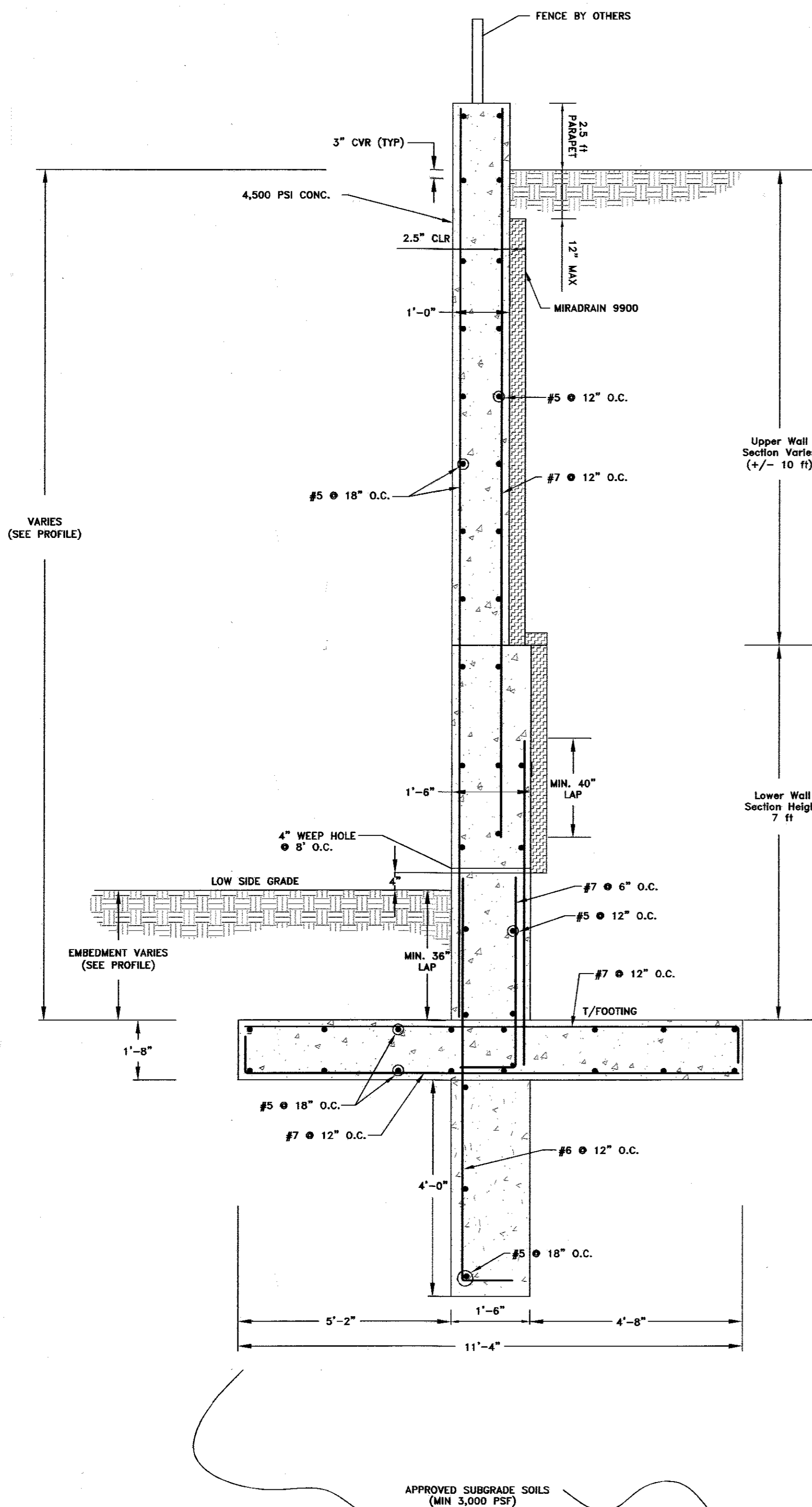
DESIGN BY: DMA
 DRAWN BY: DMA
 CHECKED BY: HMA
 DATE: APRIL 2015
 SCALE: AS SHOWN
 W.O. NO.: 02-7342

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 11138 EXPIRATION DATE: 12-31-2015

10 SHEET OF 12

AS-BUILT JANUARY 2018

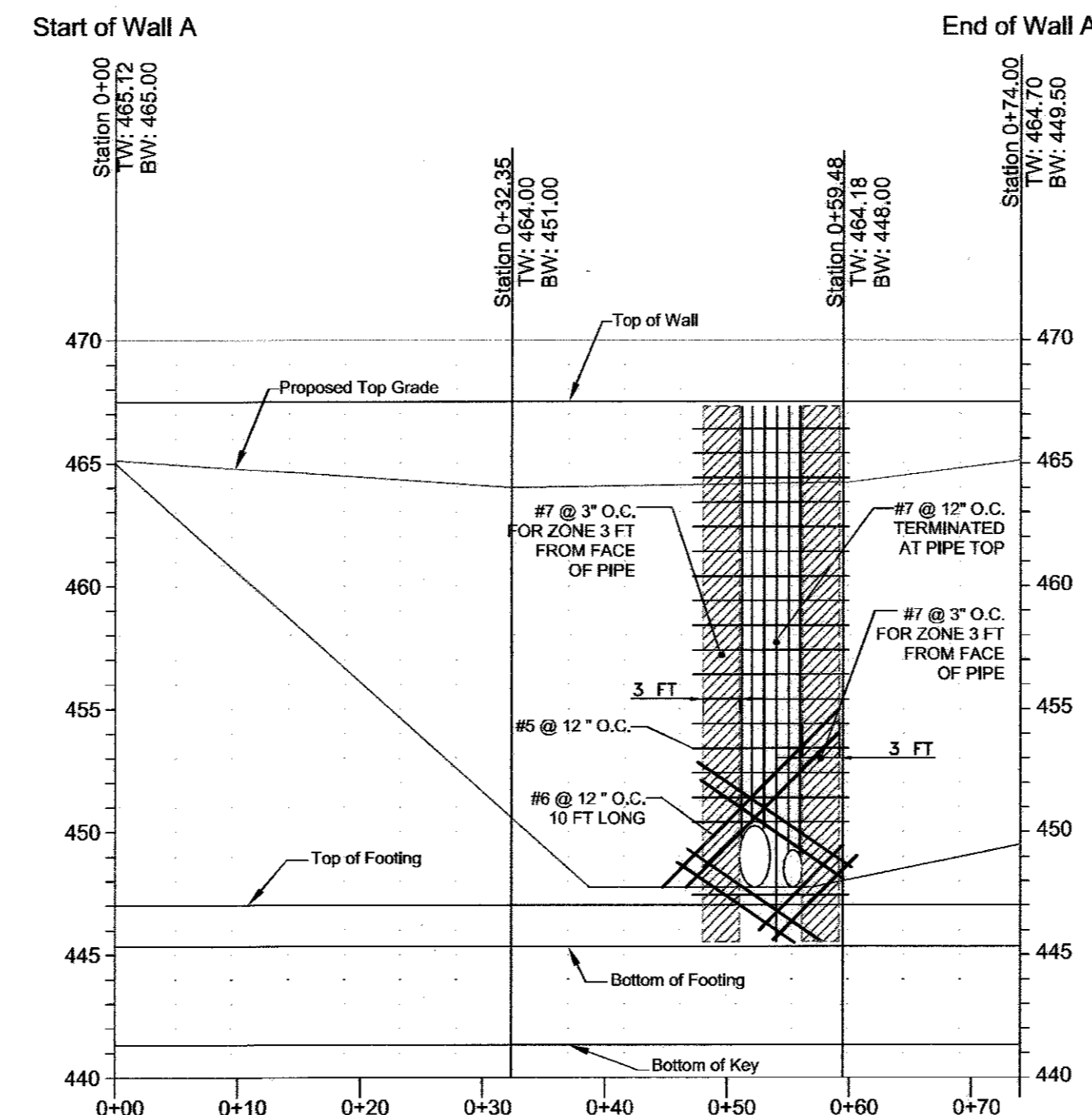
SDP-15-004



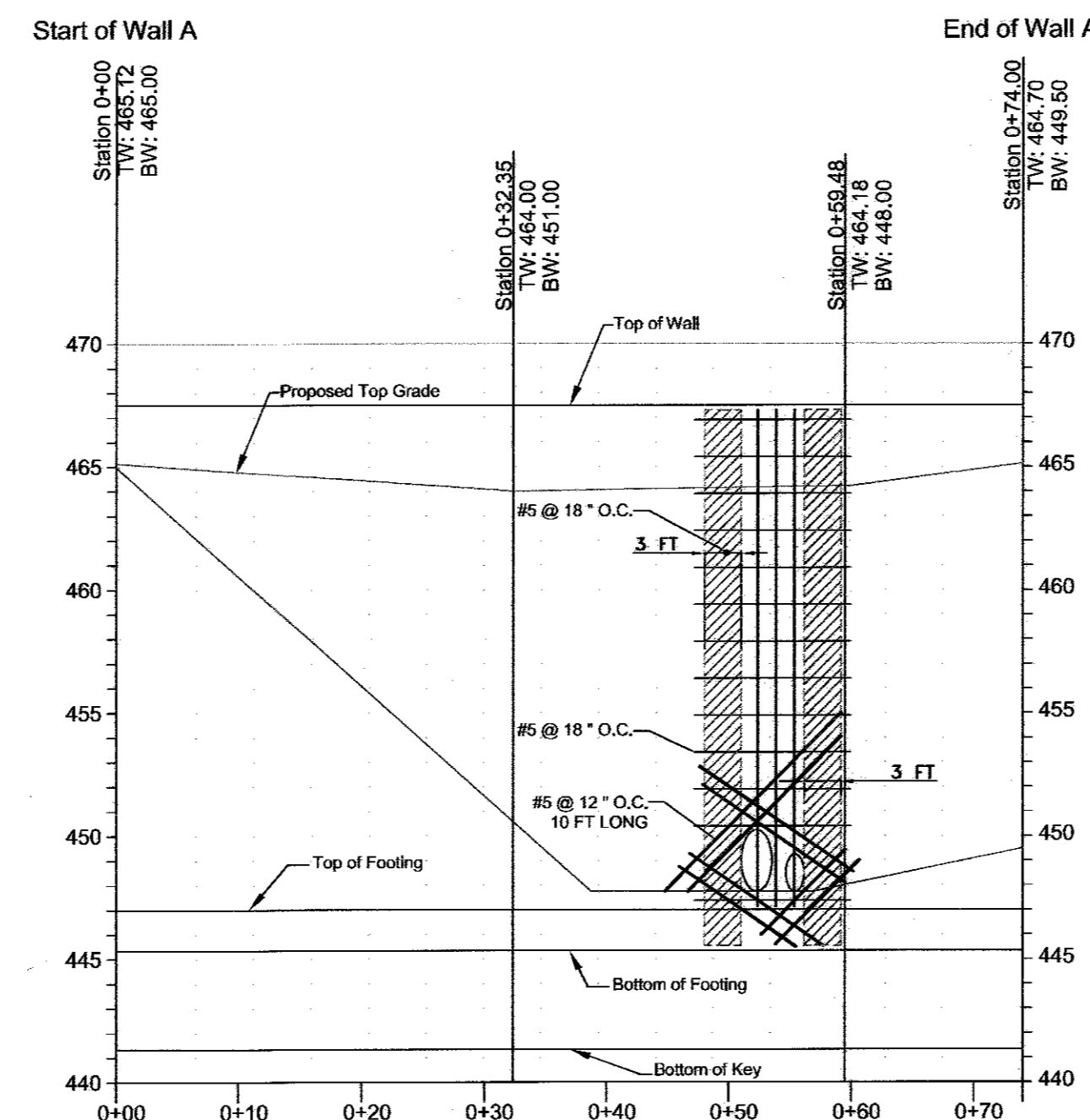
**TYPICAL SECTION - WALL A
NTS**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-9-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
[Signature] 2-11-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[Signature] 2-11-16
 DIRECTOR DATE



**TYPICAL STEM REINFORCEMENT NEAR PIPES
BACK FACE OF WALL A**



**TYPICAL STEM REINFORCEMENT NEAR PIPES
FRONT FACE OF WALL A**

RETAINING WALL SPECIFICATION GUIDELINES

PART 1: GENERAL

- 1.01 Description
- Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.
 - Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.
 - Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and reinforced backfill to the lines and grades shown on the construction drawings.
 - Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.

1.02 Reference Standards

- ASTM C 90 - Load Bearing Concrete Masonry Units.
- ASTM C 140 - Sampling and Testing Concrete Masonry Units.
- ASTM D 448 - Sizes of Aggregate for Road and Bridge Construction.
- ASTM D 698 - Laboratory Compaction Characteristics using Standard Effort.

1.03 Delivery, Storage and Handling

- Contractor shall check the materials upon delivery to assure that proper materials have been received.
- Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may affix themselves) from coming in contact with the materials.
- Contractor shall protect the materials from damage and exposure to sunlight. Damaged materials shall not be incorporated into the retaining wall structure and backfill.

1.04 Quality Assurance

- Owner will be responsible for soil testing and construction observations for quality control during earthwork and retaining wall construction operations.

PART 2: MATERIALS

2.01 Definitions

- Modular Wall Units - KEYSTONE modular concrete facing and corner units, machine made from portland cement, water, and mineral aggregates.
- Structural Geogrid - a structural geogrid formed by a regular network of integrity connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.
- Unit Fill/Drainage Aggregate - drainage aggregate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.
- Reinforced Backfill - Compacted soil which is within the reinforced soil volume as shown on the plans.
- Excavation Face - The interface between the reinforced backfill and the retained fill. During construction, measures shall be taken to avoid developing a shear plane at this interface.
- Retained Backfill - On-site material located behind the reinforced zone of soil.

2.02 Concrete Units

- Concrete segmental units shall conform to the requirements of NCMA TEK 2-4 and have a minimum 28-day compression strength of 4,000 psi. The units shall also pass 150 freeze thaw cycles in water with less than 1% weight loss for samples tested in accordance with ASTM C-1262.
- Wall Face Units for general wall construction shall be KEYSTONE Compac III Units. Sculptured face or straight (flat) face may be used.
- Top of Wall Cap Units shall be KEYSTONE Cap Units with fiberglass connecting pins.
- KEYSTONE Compac III Units shall be tan in color, based on manufacturer's availability.

2.03 Fiberglass Connecting Pins

- Connecting pins shall be 1/2" diameter thermoset isophthalic polyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.

2.04 Construction Adhesive

- Construction adhesive for top of wall cap blocks shall be KEYSTONE KapSealTM. Material shall conform to ASTM 2339 and shall be supplied by the block unit supplier.

2.06 Soil Fill Materials

- Base Leveling and Pad Material**
 - Material shall consist of crushed stone (GA 5/8) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSHA No. 57 Stone or pea gravel is not permitted.
- Unit Fill/Drainage Aggregate**
 - Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1/2" to 3/4" and no more than 10% passing the No. 30 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSHA No. 57 stone may be used.
- Reinforced Backfill**
 - Material shall consist of soil classified as SM or more granular soils per USCS with minimum soil parameters as indicated under design parameters. The backfill material shall contain no particles greater than 2.5 inches in diameter. The backfill material shall contain at least 30 percent by weight retained on the US Standard No. 200 sieve. Other backfill materials may be approved by the Geotechnical Engineer.
- Impervious Soil**
 - Material may be imported or site excavated soils exhibiting a USCS designation of a lean clay (CL) or clayey sand (SC). The material shall contain no less than 40 percent by weight passing the US Standard No. 200 sieve and exhibit a plasticity index no less than 4 and no greater than 20. Other materials may be approved by the Geotechnical Engineer.

2.07 Sample Submittal

- The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pad material, reinforced backfill) to the Geotechnical Engineer for approval.
- Soil must meet or exceed the friction angle specified in design parameters.

2.08 Structural Geogrid

- The geogrid identified for the retaining wall consists of the following: Mirafi 3XTC and Mirafi 5XTC.
- The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

2.08 Geotextile

- A non-woven geotextile shall be utilized as shown on the plans to provide a filter between the unit fill/drainage aggregate and the reinforced backfill.
- The geotextile shall consist of a Mirafi 140N.
- Where geogrids are located, the geotextile shall be placed as illustrated on the plans. At junctions and ends, the geotextile shall be overlapped at least 12 inches. The geotextile shall be placed so that intimate contact is made between the geotextile and the backfill material.
- Ripped or otherwise damaged material shall not be used. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

PART 3: INSTALLATION

3.01 Excavation

- Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb embankment and foundation materials beyond lines shown.
- All existing topsoil, rootmat and other soft or unstable materials shall, at a minimum, be removed from the footings of the retained soil mass.
- If groundwater is encountered during the excavation of the backslope, a backslope drainage system shall be utilized. The system shall tie into the internal wall drainage system to provide adequate release of any water which accumulates behind the reinforced zone.

3.02 Foundation Preparation

- Foundation shall be excavated as required for leveling pad dimensions shown on the construction drawings, or as directed by the Geotechnical Engineer.
- The required bearing pressure beneath the footing of the wall must be verified in the field by a Geotechnical Engineer.
- Unsuitable soils shall be removed and replaced with approved material.
- Over-excavated areas shall be backfilled with approved, compacted backfill material or as approved by the Geotechnical Engineer.

3.03 Base Leveling Pad

- Leveling pad materials shall be placed upon an approved foundation as shown on the construction drawings to a minimum thickness of 6 inches.
- Aggregate material shall be compacted to provide a dense, level surface on which to place the first course of modular units. Compaction shall be to at least 95% of the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D 698). Leveling pad shall be prepared and leveled to ensure complete contact of retaining wall unit with base.

3.04 Unit Installation

- The first course of concrete modular units shall be carefully placed on the base leveling pad. Each unit shall be checked for level (in both directions) and alignment.
- Install fiberglass connecting pins and fill all voids in and around the modular units with unit fill material. Tamp or rod unit fill to ensure that all voids are completely filled.
- Sweep excess material from top of units and install the next course. Ensure that the units of each course are completely filled, backfilled and compacted prior to proceeding to next course.
- Place each subsequent course, ensuring that pins protrude into adjoining courses a minimum of 1 inch. Two pins are required per unit. Pull each unit forward to obtain the desired offset (as noted on the plans), away from the fill zone, locking against the pins in the previous course and backfill as the course is completed.
- Repeat procedure to the extent of wall height. Wall construction shall not exceed 2 courses in height before reinforced backfill is placed.
- Follow wall erection and unit fill placement closely with any other backfilling required. Compaction of all soils shall be to 95% of maximum dry density as determined in accordance with ASTM D 698.
- As appropriate where the wall changes elevation, units can be stepped with the grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.

3.05 Geogrid Installation

- The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations and orientation as shown on the construction drawings or as directed by the Geotechnical Engineer.
- Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.
- The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and tamping the grid into the fill side.
- A filtering, non-woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.
- The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material. The fill surface against the geogrid shall be level. To tension the geogrid, backfill shall be placed over the geogrid immediately behind the wall to the back end of the geogrid.
- No geogrid overlaps will be allowed in any length of geogrid perpendicular to the wall face except at corners or angled locations. The geogrid shall overlap rather than provide no coverage. A minimum of 4 inches of soil cover is required between overlapping layers of geogrid.

3.06 Drainage Installation

- Provide 4-inch weep holes every 8 feet along the wall.

3.07 Fill Placement

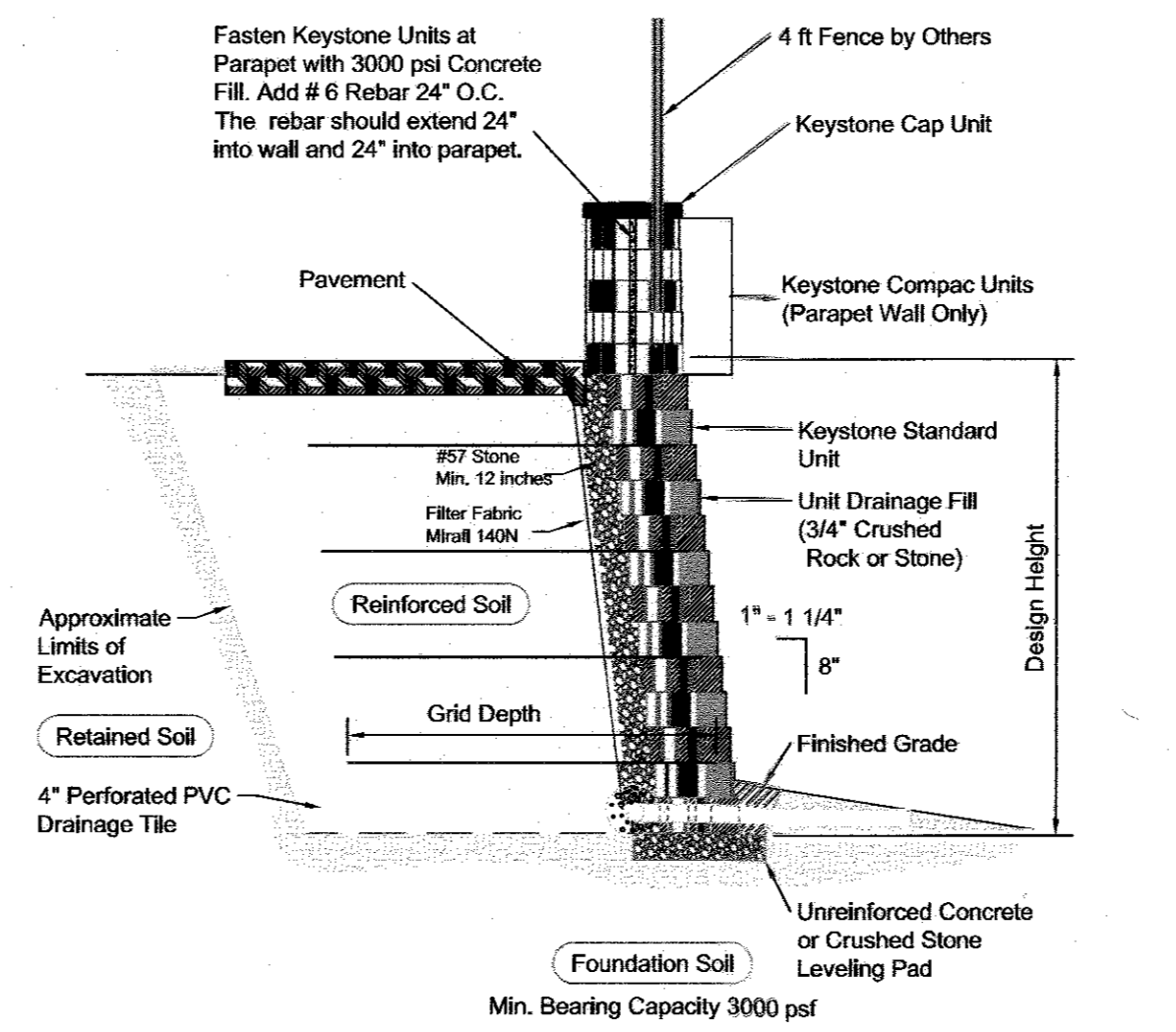
- Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.
- Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack or loss of pretension of the geogrid. Backfill shall be placed in horizontal layers. The excavation face shall be stepped or notched to provide compaction of backfill on a level surface and to increase the interlock between the retained soil and the reinforced backfill.
- Only hand-operated compaction equipment shall be allowed within 5 feet of the back surface of the KEYSTONE or equivalent units.
- Backfill shall be placed from immediately behind the wall towards the excavation face/retained soils and compacted to the specifications presented herein with appropriate compaction equipment.
- Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles shall not be permitted overtop the geogrid.
- Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph). Avoid sudden braking and sharp turning.
- The stability of the fill material shall be confirmed by a Geotechnical Engineer.
- The upper 8 inches of wall backfill shall consist of impervious soil, compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined in accordance with ASTM D 698.

3.08 Cap Installation

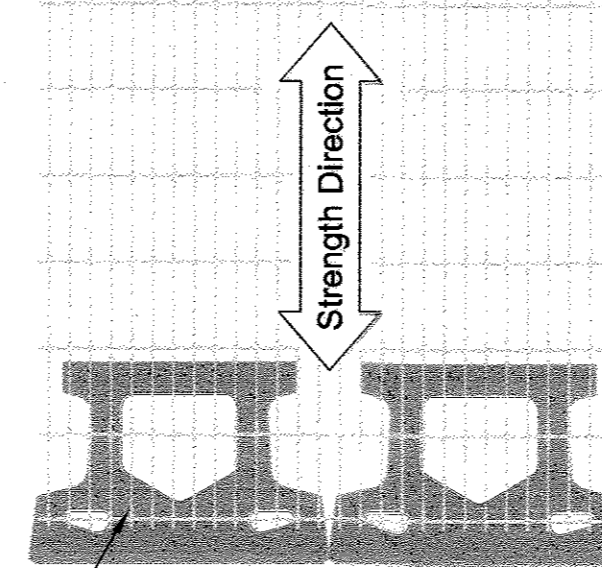
- Provide permanent mechanical connection to wall units with KEYSTONE KapSealTM. Apply adhesive to top surface of lower unit and place cap unit stop adhesive.
- Place Cap Units over projecting pins from the units below. Pull forward to setback position.
- Backfill and compact to finished grade.

DESIGN PARAMETERS

Characteristics:	Soil Parameters:	Minimum Friction Angle	Minimum Unit Weight (pcf)
Configuration:	Battered face wall (4 DEG.)		
Maximum Exposed Wall Height / Minimum Allowable Bearing Pressure (psf):	10'-6" / 3,000		
Backslope Angle:	Reinforced fill (SW, SC, or more granular)	30	120
Toe Slope Angle:	Retained soils	28	120
Wall Embedment:	Foundation soils	28	120



PARAPET & WALL IN SETBACK POSITION
SCALE: NTS



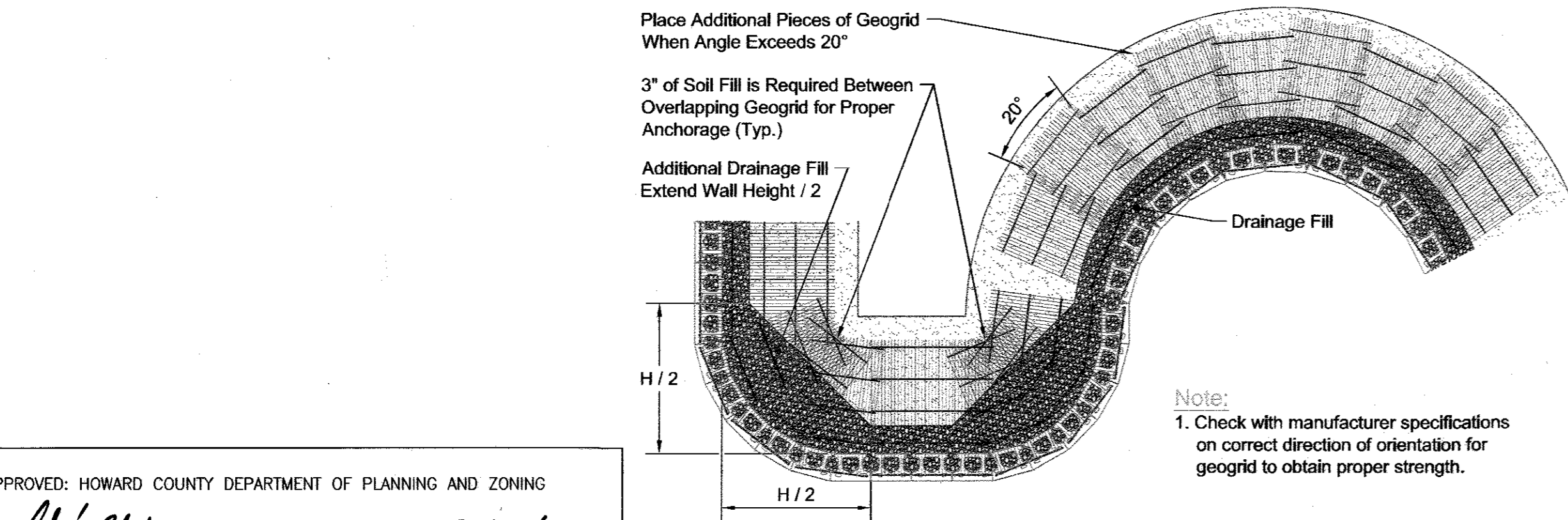
Grid & Pin Connection



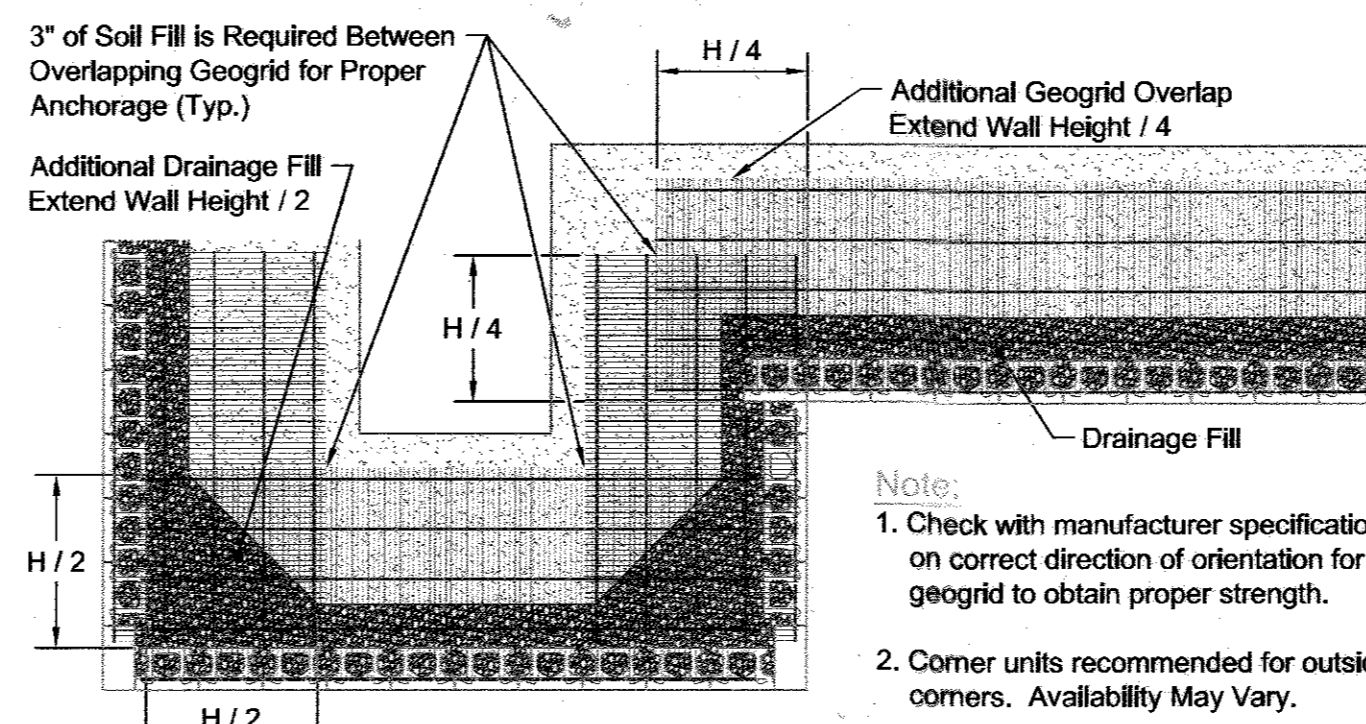
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

AS-BUILT CERTIFICATION FOR PSWM
P.E. NO.: 16193 SIGNATURE
DATE: 3/6/18

NO AS-BUILT INFORMATION ON THIS SHEET



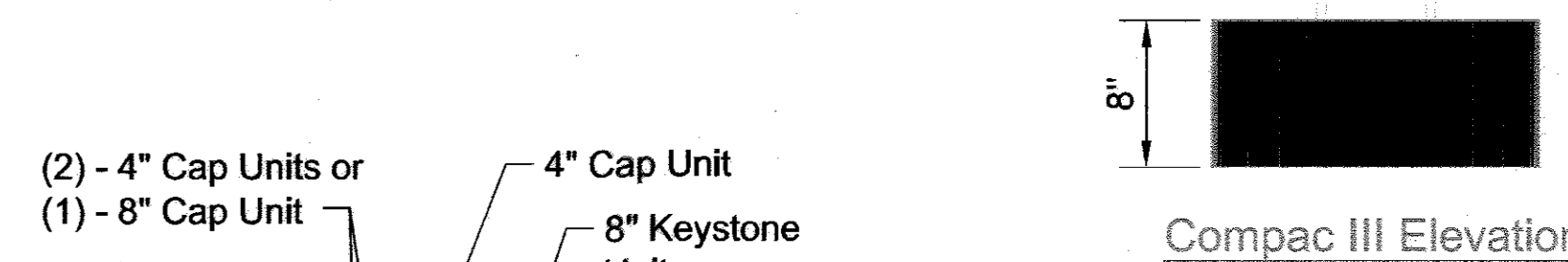
Geogrid Installation on Curves



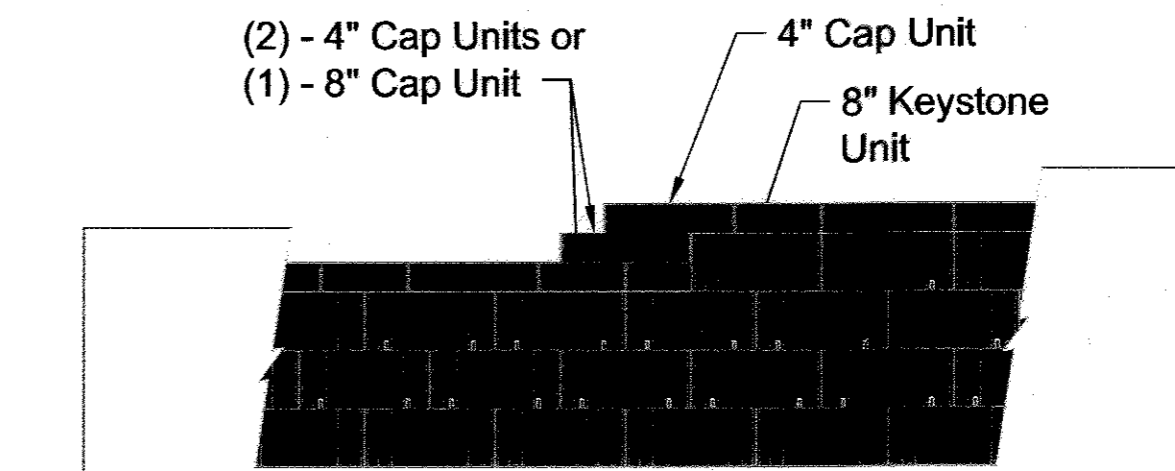
Geogrid Installation at Corners

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: 2-9-16
Chief, Division of Land Development: 2-11-16
Director: 2-11-16

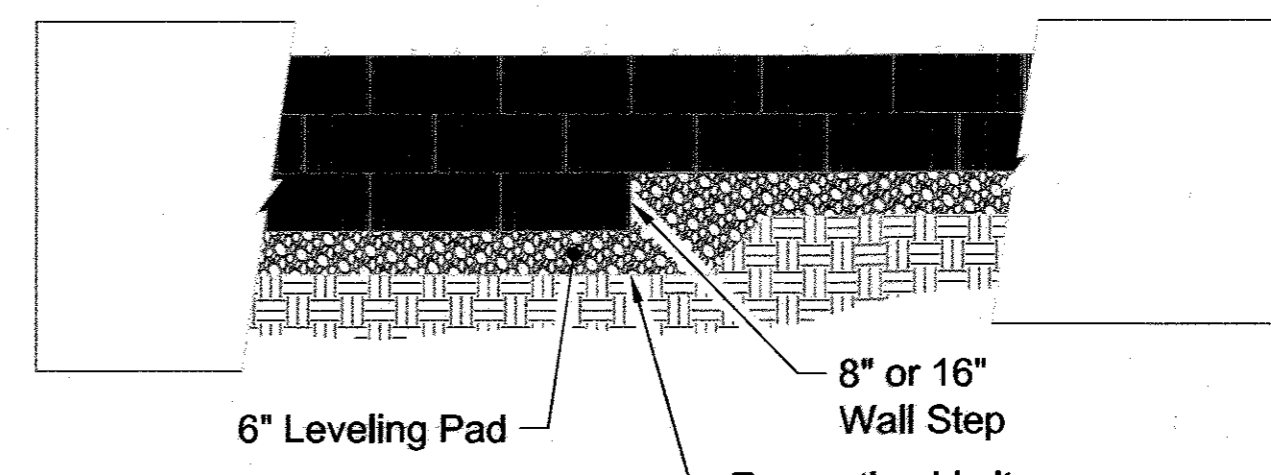


Compac III Elevation



Note:
1. Secure all cap units with Keystone Kapseal or equal.

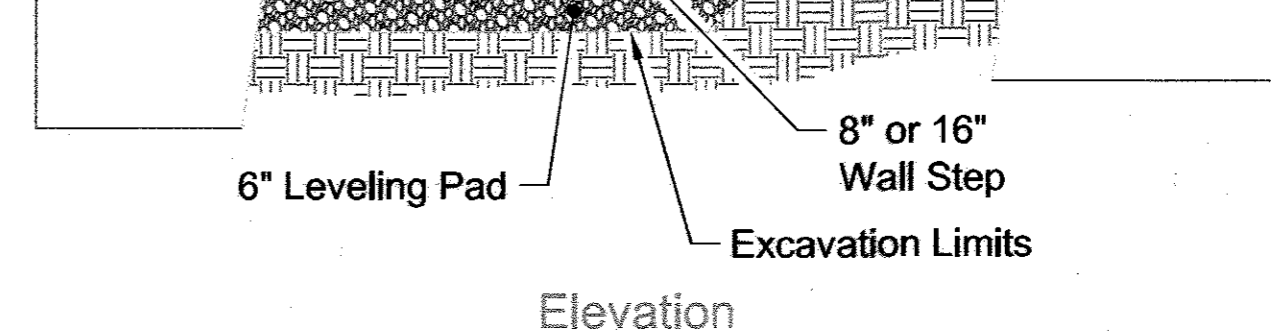
Top of Wall Steps



Compac III Plan

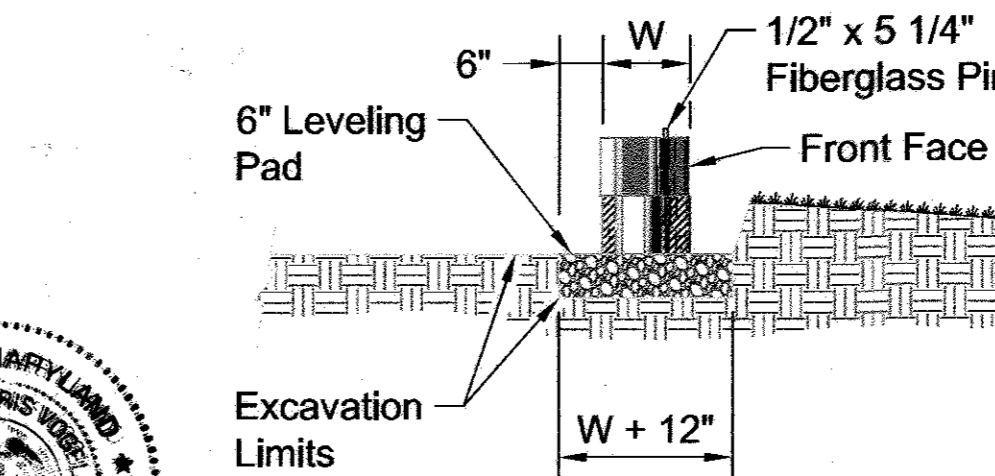
Compac III Unit

* Dimensions May Vary by Region



Cap Unit Elevation

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



Leveling Pad Detail

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 SWM FACILITY.

AS-BUILT CERTIFICATION FOR PSWM
P.E. NO.: 16193 SIGNATURE
DATE: 3/6/18

NO AS-BUILT INFORMATION ON THIS SHEET

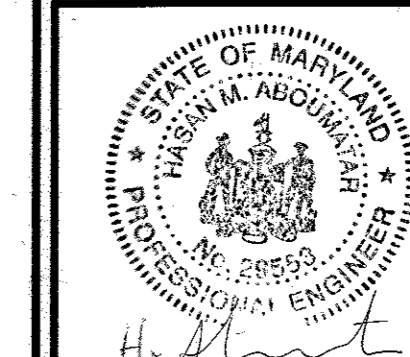
NO.	REVISION	DATE
1	REVISE PLAN TO SHOW TEMP SALES TRAILER (PHASE I)	11/30/16

RETAINING WALLS SEGMENTAL WALL SECTIONS & DETAILS

OWNER/DEVELOPER
3178 COMPANY LLC
10400 AUTO PARK AVE
BETHESDA, MD 20817-1006
C/O: JIM COLEMAN
301-469-6800

TAX MAP 34, BLOCK 06, 5TH ELECTION DISTRICT
PARCEL 365 (L. 08594 / F. 00473)
PLAT NO. 16013
ZONED: B-2
LOT: PARCEL 365
HOWARD COUNTY, MARYLAND

DESIGN BY: DMA
DRAWN BY: DMA
CHECKED BY: HMA
DATE: APRIL 2015
SCALE: AS SHOWN
W.O. NO.: 02-7342



PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND, LICENSE NO. 18121, EXPIRATION DATE 12-31-2015

11 SHEET OF 12

