

GENERAL NOTES

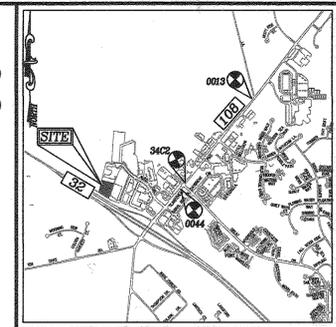
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- 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
 - VEPCON: 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
- SITE 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
 - CUT: 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: L9929/F90, L14177/F86, PLAT 11181, PLAT 14864, PLAT 16013.
 - DPZ REFERENCES: F-94-38; F-98-144; F-99-205; SP-93-14; WP-93-90; ZB-1008M; F-01-29; F-03-202; WP-03-41; SDP-03-093; BA-14-040V, F-16-059
- 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 MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
- 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 AUGUST 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 39-3842-D. PUBLIC SEWER AVAILABLE THROUGH 39-3842-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, THEIR 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 3,500 P.S.I.
- ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS "C" AS REQUIRED BY ASCHTO-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 FULLFILLED 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.
- ALL 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' Laterally 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 ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
- LANDSCAPING NOT PERMITTED WITHIN 7'-1/2' OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. NFPA-1 13.1.4.
- 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 THE 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 (CP-V) PROVIDED UNDER SDP-03-093, AND BY THE PROPOSED CONTECH STORMFILTER VAULT (WFV). ALL CONSTRUCTION ON PARCELS K-2, K-3, AND K-4 MUST BE COMPLETED BY MAY 4, 2017 IN ORDER TO MAINTAIN GRANDATHERING.
- A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON APRIL 29, 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 PICTURED 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.
- AS PART OF PHASE 1, A TEMPORARY AUTOMOBILE SALES TRAILER SHALL REMAIN ON PARCEL K-4 FOR LESS THAN ONE YEAR; AFTER THE ONE YEAR PERIOD, PHASE 2 SHALL COMMENCE WITH THE CONSTRUCTION OF THE PERMANENT 13,952 SQUARE FOOT SALES AND SERVICE AUTOMOBILE DEALERSHIP BUILDING.

SITE DEVELOPMENT PLAN

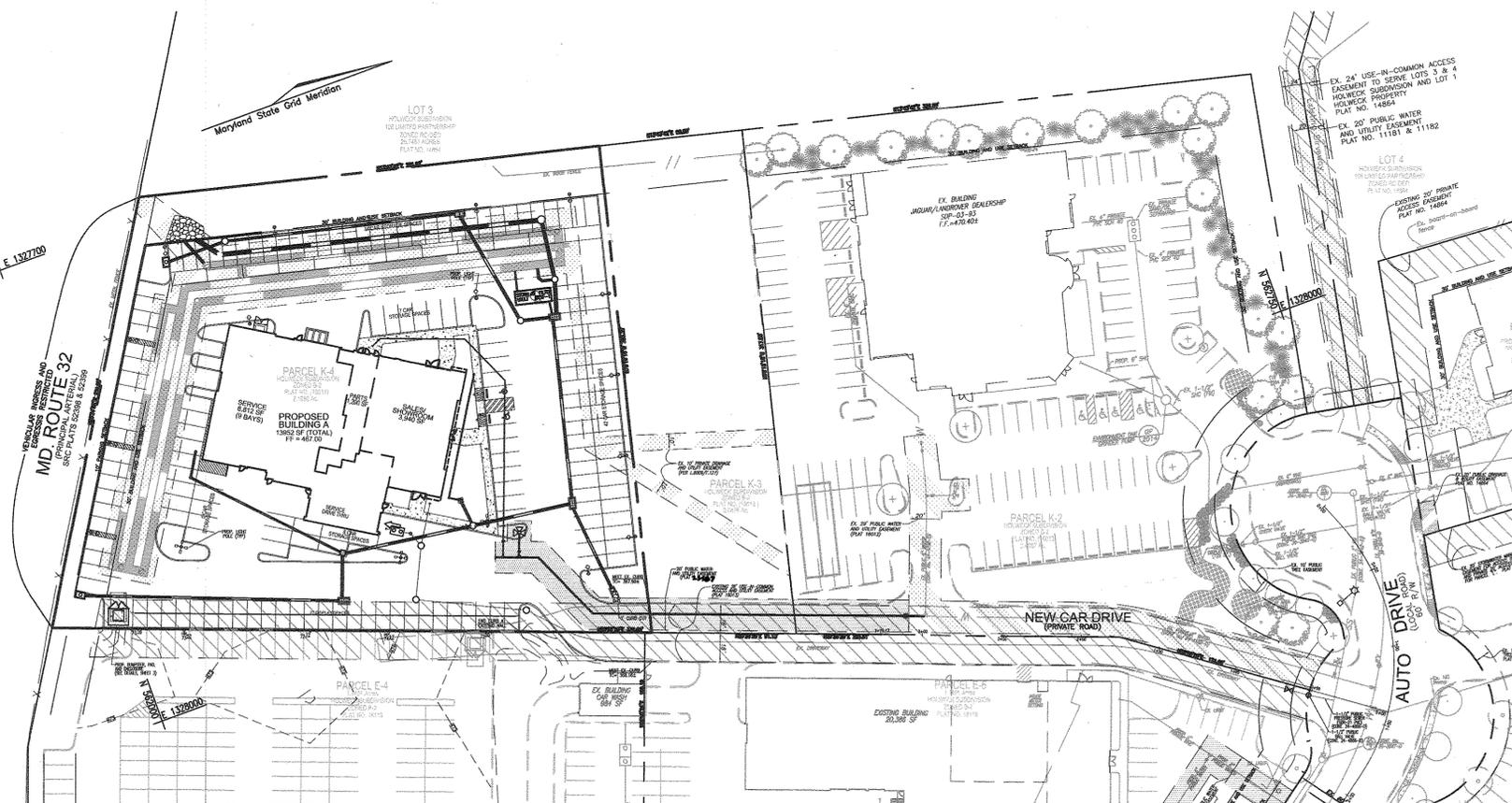
COLEMAN FIAT NEW CAR SALES

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

BENCHMARKS
 HOWARD COUNTY BENCHMARK 34C2 (DESTROYED)
 N 562321.798 E 1329750.722
 HOWARD COUNTY BENCHMARK 0044 (CONC. MON.)
 N 562176.47 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

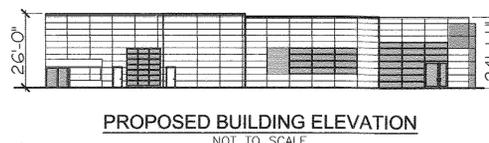
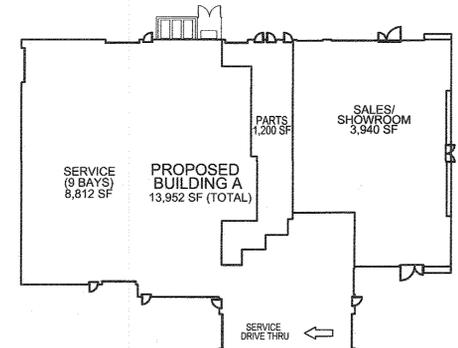
RIGHT-OF-WAY LINE	---
PROPERTY LINE	---
ADJACENT PROPERTY LINE	---
EXISTING CURB AND GUTTER	---
PROPOSED CURB AND GUTTER	---
EXISTING LIGHT POLE WITH CONCRETE BASE	⊙
EXISTING MAILBOX	⊙
EXISTING SIGN	⊙
EXISTING SANITARY MANHOLE	⊙
EXISTING SANITARY LINE	---
EXISTING CLEANOUT	⊙
EXISTING FIRE HYDRANT	⊙
EXISTING WATER LINE	---
PROPOSED STORM DRAIN	---
PROPOSED STORM DRAIN INLET	⊙
EXISTING FENCE	---
PROPOSED SIDEWALK	---
EXISTING TREELINE	---
PROPOSED TREELINE	---
EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #6690	---
EX. 20' WATER & UTILITY EASEMENT PLAT #16013	---
PROP. 20' PUBLIC WATER & UTILITY EASEMENT PLAT #13597	---

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 12
SITE LAYOUT PLAN	2 OF 12
SITE NOTES AND DETAILS; UTILITY PROFILES	3 OF 12
GRADING, SEDIMENT AND EROSION CONTROL PLAN; SOILS MAP	4 OF 12
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	5 OF 12
DRAINAGE AREA MAPS AND STORM DRAIN PROFILES	6 OF 12
STORMWATER MANAGEMENT NOTES AND DETAILS	7 OF 12
LANDSCAPE PLAN	8 OF 12
RETAINING WALL	9 OF 12
RETAINING WALL	10 OF 12
RETAINING WALL	11 OF 12
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

LOCATION MAP
 SCALE: 1"=100'



PROPOSED BUILDING FOOTPRINT
 NOT TO SCALE

PROPOSED BUILDING ELEVATION
 NOT TO SCALE

PARKING TABULATION

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

PARKING TABULATION (FOR PHASE 1 TEMP SALES TRAILER)

REQUIRED	REQUIRE
TEMP SALES TRAILER: 750 SF @ 2 SPACE/1000 SF	2 SPACES
AUTOMOBILE 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

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

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: L9929/F90 E-8: L14177/F86 PLAT 16013, 23587	6	B-2	34	5TH	6051.01

WATER CODE: J07 SEWER CODE: 6653500

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
 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 06-27-2018

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

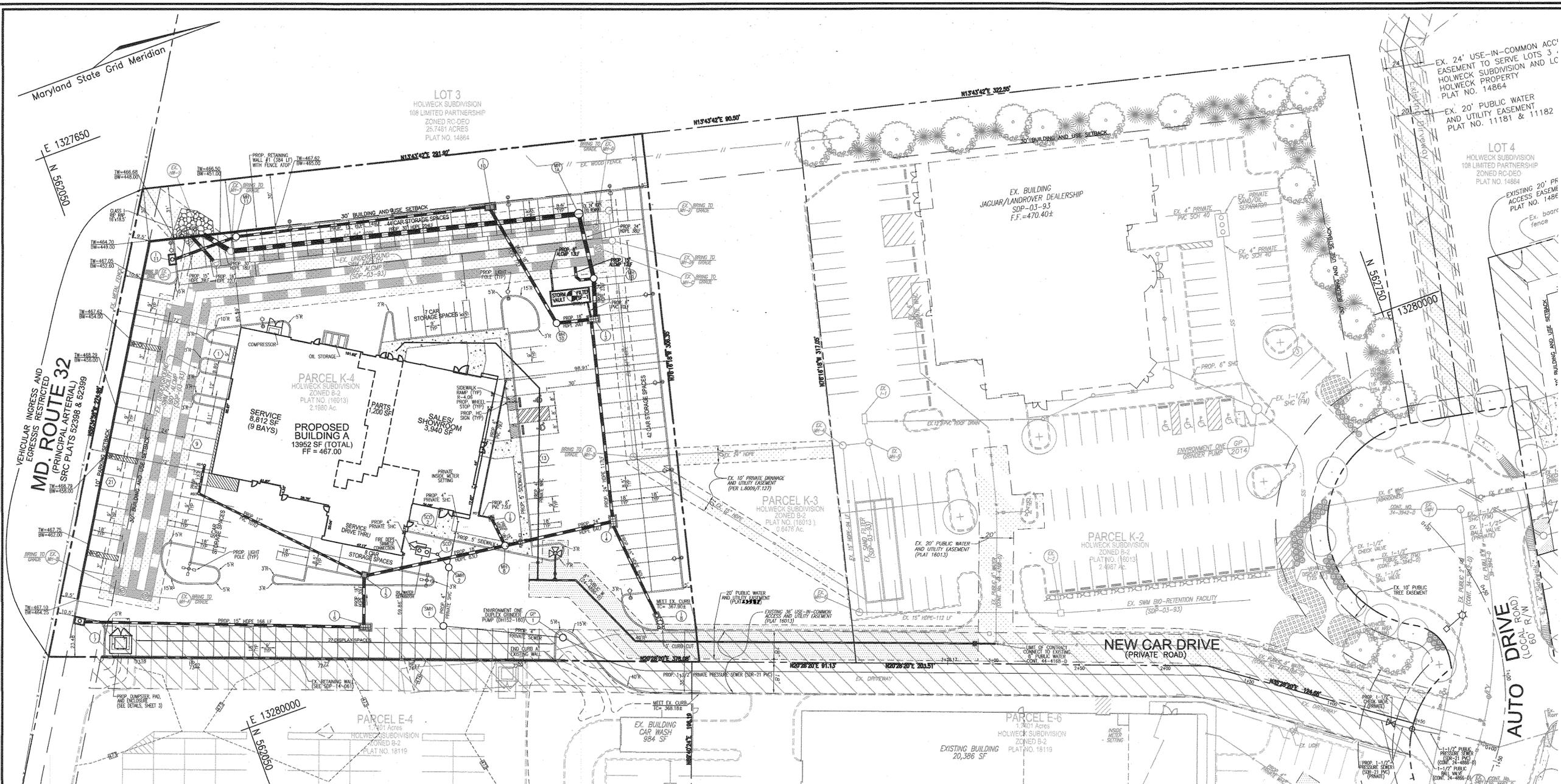
1 SHEET OF 12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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

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

Nathan Jafar 2-11-16
 DIRECTOR DATE

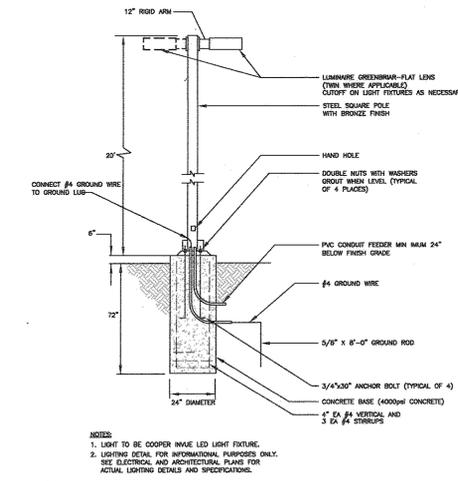
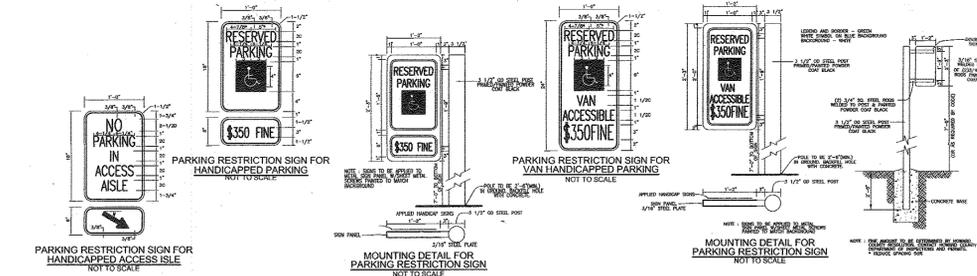
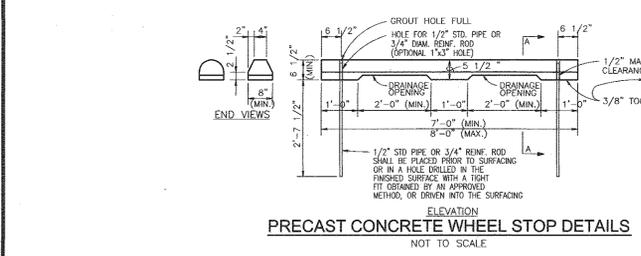


LEGEND:

---	EXISTING CURB AND GUTTER
---	PROPOSED CURB AND GUTTER
⊕	EXISTING LIGHT POLE WITH CONCRETE BASE
⊕	PROPOSED LIGHT POLE WITH CONCRETE BASE
⊕	EXISTING MAILBOX
⊕	EXISTING SIGN
⊕	EXISTING SANITARY MANHOLE
SS	EXISTING SANITARY LINE
o	EXISTING CLEANOUT
⊕	EXISTING FIRE HYDRANT
W	EXISTING WATER LINE
---	PROPOSED STORM DRAIN
---	PROPOSED STORM DRAIN W/LET
X-X	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 #18013
---	PROP. 20" PUBLIC WATER & UTILITY EASEMENT PLAT # 5557
---	PROP. MICRO BIORETENTION AREA (M-B)
---	PROP. PERVIOUS PAVEMENT (A-2)

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 Johnson 1-29-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

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

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

NO. REVISION DATE

SITE DEVELOPMENT PLAN

LAYOUT PLAN (ULTIMATE)
COLEMAN FIAT NEW CAR SALES
HOLWECK SUBDIVISION PARCEL K-4
12500 NEW CAR DRIVE
PARCEL 365 (L. 08594 / 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
ELICOTT CITY, MD 21043 TEL: 410.461.7666 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16183 EXPIRATION DATE: 09-27-2018

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

2 SHEET OF 12

ROBERT H. VOGEL, PE No. 16183

GEOTECHNICAL ANALYSES AND EVALUATIONS:

BUILDING FOUNDATIONS
Based on the boring results, existing/possible fill was encountered in all borings below the surficial materials and extended to depths of up to approximately 12 ft below existing grades. The surficial/possible fill encountered in the borings generally consisted of medium stiff to very stiff cohesive soils or medium dense granular soils and medium-duty pavement sections. The surficial/possible fill should be removed and replaced with a qualified representative of the Geotechnical Engineer in order to make final evaluations of the stability of the existing/possible fill to remain in place. If any existing/possible fill soils are found to be soft or contain excessive amounts of organics, this unsuitable fill should be removed and replaced.

FOUNDATION CONSIDERATIONS
Based on the boring results, the soils of the footing subgrades are anticipated to consist of approved existing/possible fill, 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 exploration, conventional footings placed on approved existing/possible fill or firm natural soil or new fill placed on approved existing/possible fill or firm natural soil. EGS recommends that new footings be constructed by designed utilizing a red allowable soil bearing pressure not to exceed 3,000 pounds per square foot (psf). The new 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 the 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 underlain by 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 using compacted or other approved fill material. The design footing bearing level is restored using select engineered fill, then the excavation to remove the underlain soil at least 0.5 ft laterally beyond the footing bearing level. The select engineered fill materials should be placed and compacted as discussed in greater detail later.

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 underlying subgrade soils and our experience with similar projects, the anticipated total settlements of individual footings, designed and constructed as outlined in this report, will be less than 1 inch. Maximum differential settlements within the proposed building are expected to be 3/8 inch over a horizontal distance of 30 feet. We anticipate footing settlements will be in the order of 1/8 inch.

In order to reduce the possibility of foundation bearing failure and excessive settlement due to load shear or "punching" action, we recommend that continuous footings have a minimum width of 1.5 feet and that girders column bases be placed on a minimum depth of 2.5 feet. In addition, we recommend that footings be underlain to provide adequate protection against frost heave. We recommend that footings be underlain to a minimum depth of 30 inches below finished grade. We recommend footings be founded on a minimum depth of 18 inches below finished grade. However, if interior footings are founded at levels above 30 inches and are subjected to frost heave conditions, 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 footing.

All continuous load-bearing wall foundations should be suitably reinforced. To provide continuity and minimize differential movements, the longitudinal reinforcing steel should be extended into any column footing subgrade. The wall (exterior or interior) and the foundations constructed as a continuous unit. The reinforcing steel should also be continuous through the building corners. Where the top and bottom steel are not continuous, a minimum footing thickness of 12 inches should be required. We recommend that new footings that abut existing footings be dovetailed into the existing footing to minimize differential settlement at the interface, where footings are constructed at the same level as any foundation concrete, the steel reinforcing 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
Ground floor slabs may be ground-supported on subgrades prepared in accordance with the recommendations in this report. Subgrade preparation, if it is important that the subgrade be firm and stable before the placement of the granular subgrade materials, the moisture barrier, and the concrete. Based on the test bearing 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. The subgrade should be thoroughly probed and/or probed by a qualified representative of the Geotechnical Engineer in order to detect unstable or otherwise unacceptable soil conditions. Footing settlements within these areas where any utility backfill has been placed. Soils in any excessively unstable areas should be underlain and replaced with engineered fill. Recommendations for construction of engineered fill are presented in the [] Placement section of this report.

It is recommended that ground-supported slabs be underlain by a minimum of 4 inches of GR-6 or GA 5/8 dense-graded aggregate or approved aggregate. Acceptable granular subgrade materials should have no aggregate size greater than 1 1/2 inches, 95 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 3 percent fines, those materials should be compacted to a minimum of 98 percent of the maximum dry density as determined by the Standard Proctor test method (ASTM D 698). For structural design purposes, a modulus of subgrade reaction (k) of 120 pounds per cubic inch (pci) may be utilized for the structural design of slab subgrade to be underlain 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 concrete, the Geotechnical Engineer should verify the condition of the prepared subgrade. Prior to final slab construction, the subgrade may require scarification, re-compaction to provide firm and stable conditions. Where the subgrade is prepared through concrete, the concrete should be a minimum of 2 inches thick, consisting of at least 8 mil polyethylene sheets, should be placed on top of the granular materials before the placement of the concrete. However, 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 movement between the footings and slab will not induce excessive shear and bending stresses in the floor slab. Where the foundation configuration prevents the use of a free floating slab, the slab should be designed with suitable reinforcement and load transfer devices to preclude overstressing of the slab. In addition, the slab should be designed to resist differential settlements. To minimize the effects of concrete shrinkage and differential settlements, to minimize the effects of any shrinkage cracks that may develop in 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 underlain.

BELOW-GRADE WALLS AND SITE RETAINING WALLS
Based on our understanding of the proposed construction, site retaining walls are currently planned. The following recommendations are provided to guide the general design of site retaining walls and below-grade building walls, if required, for lateral earth pressures. It is very important with regard to construction of below-grade building walls that soils within the critical zones behind the walls meet certain criteria with regard to soil type. For below-grade building walls, the critical zone can be considered as the zone between the bottom back edge of the wall footing and an imaginary line extending upward and rearward from the bottom back edge of the wall footing at a 45-degree angle.

It is recommended that all natural soils and backfill soils within the critical zones of basement walls should have USCS classifications of Sandy SILT (ML) or more granular. Any soils with USCS classifications less granular than Sandy SILT (ML) may need to be removed from the critical zones of the walls, as determined by the Geotechnical Engineer at the time of construction. Based upon the results of the borings, it is recommended that equivalent fluid pressures on walls be retained in-place for use as wall 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 98 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. Conversely, walls that are designed for active earth pressures generally should not be braced during backfill construction, so that the walls can yield and rotate and develop active earth pressures. For yielding walls, it generally will be best to place steel framing, or conventional masonry or concrete walls for the buildings, until wall 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 the retained soils be calculated as 65% 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 pressure 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 45% 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 loadings 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 can be considered, if the earth materials immediately adjacent to the resistance will remain in place on the low side of the retaining wall. Equivalent fluid pressures for passive earth pressure resistance can be computed 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 footing. Because the frictional and passive earth pressure resistance is based on limit strength conditions, appropriate factors of safety of at least 1.5 should be applied to the design considering these resistances.

The Geotechnical Engineer can provide additional design guidance regarding these and other aspects related to retaining wall design upon request.

SOIL SEISMIC SITE CLASSIFICATION
Section 1013.2.2 of the IBC 2012 refers to Chapter 20 of ASCE7 for seismic site classification. The IBC 2012 is based on various criteria, one of which is the Standard Penetration Resistance (N₆₀) derived from the Standard Penetration Test Procedure (ASTM D-1586). ASCE7 Table 20.3.1 provides correlations for Site Classes C, D, and E with various ranges of N₆₀ to be calculated for the top 10 feet of the subsurface materials at a site in accordance with procedures described in Section 20.4.2 of ASCE7. In addition, the table presents criteria related to various soil properties for Site Classes C, D, and E. EGS has used the N₆₀ test results and the procedures outlined in Section 20.4.2 of ASCE7 to evaluate the Site Class for this project site.

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 30 blows per foot over a depth of 100 ft. This N₆₀ value places the project site within the Site Classification of D, according to Table 20.3.1 of ASCE7.

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 subjected 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 light-duty pavements will 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 will likely be sufficient for traffic conditions likely to occur at the development. However, traffic loading parameters 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 as that revised pavement section designs can be determined for this site.

Subgrade preparation 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 to 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 the 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 purposes, a CBR value of 3 is considered. If material having a CBR value of less than 3 is encountered at pavement subgrade levels, it is recommended to underlain the top 12 inches of this material of 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) 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.

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

Pavement Material	Computed Traffic Thicknesses (Inches)	
	Light-Duty (15,000 ESALs)	Medium-Duty (75,000 ESALs)
Surface Course Asphalt HMA Suppgrade - 9.5 mm**	1.5	1.5
Base Course Asphalt HMA Suppgrade - 12.5 mm**	2.0	2.5
Graded Aggregate Base GAB	5.0	8.0
Total Pavement Thickness	8.5	12.0

* Comparison Level = (5) Operations
** Binder Type: PG58-22

Final determinations of pavement sections to be used at the site may not be possible until the extent of grading and the sequence of grading and paving activities are known. However, 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 heavy traffic will consist primarily of light-duty commercial and light-duty passenger vehicles. Heavy trucks will be prohibited, such as proposed parking lot areas. The medium-duty pavement section shown in the table above should be considered for use in the main site entrances and main service drives that may experience some use by heavier vehicles.

It is EGS' opinion that the suggested flexible pavement section would not be suitable for the support of heavy loads. Therefore, we recommend that rigid Portland cement concrete pavement sections should be provided for any dumpster storage areas and for any other areas where heavy loads are anticipated. The rigid pavement sections should be at least 6 inches thick and should consist of one-course Portland cement concrete having a minimum 28-day compressive strength of 4,000 pounds per square inch (psi). A minimum of 4 inches of compacted dense-graded aggregate subbase (DG-8 or GAB) should be placed beneath all rigid concrete pavements. For any dumpster storage areas, the Portland cement concrete slab area should be large enough to support the dumpster and the weight of the truck used to unload the dumpster.

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 Standard Specifications for Construction of the State of 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 conditions. Therefore, if pavements will be constructed during site development, it is recommended that consideration be given to the construction of heavier pavement sections, capable of accommodating the much heavier loads normally associated with 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 filter vault, is planned to the north of the dealership building. No specific details regarding the SWM facility were provided in this report. However, we have assumed that the facility would be within 10 ft of existing grades. Subsurface conditions within the planned SWM facility were assumed to be similar to the SWM boring extended to a depth of 15 ft below existing grade, or to EL 443.3. The details about the soil strata for the SWM boring can be seen on the soil boring log.

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 reported 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 any unsuitable surface materials from the planned structure areas. Caution should be taken when stripping unsuitable materials so as not to mix these materials with otherwise suitable subgrade soils. It is recommended that the stripping of unsuitable surface materials should extend to a minimum of 5 feet beyond building area limits where feasible. Subsequent to stripping operations, the exposed subgrade surface should be thoroughly probed by a qualified representative of the Geotechnical Engineer, if feasible, the exposed soils should be thoroughly probed by a vehicle having an axle weight of at least 10 tons, such as a fully-loaded tandem-axle dump truck. This procedure is intended to assist in identifying any localized loose or unstable material. In the event that the probing is not feasible, other construction equipment can be utilized for probing. In addition, probing and testing should be performed by a qualified representative of the Geotechnical Engineer to evaluate the exposed subgrade where probing is not feasible due to site access constraints. In the event that any unsuitable materials are identified during the probing operations, those subgrade soils should either be thoroughly identified in-place, or underlain to firm ground and replaced with controlled, compacted fill to final subgrade elevations.

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

Upon achieving competent subgrade conditions, the Contractor can place and compact engineered fill to reach final subgrade levels. In general, any materials to be used as structural fill should consist of soil types (ASTM D 698) and CMAA and C in accordance with the Standard Proctor Compaction Test (ASTM D 698). Generally, the moisture content of the fill material should be maintained within 2 percentage points of the optimum moisture content for the fill material, as determined by ASTM D 698. Fill placed in non-structural areas should be compacted to at least 90 percent of the maximum dry density according to ASTM D 698, in order to avoid significant subsidence.

Due to the textural variations of the on-site soils, variations in moisture-density relationships should be anticipated. Such variations must be determined in the field by a qualified representative of the Geotechnical Engineer at the time of construction, so that any necessary changes to fill placement and compaction procedures can be implemented.

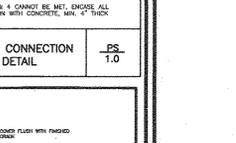
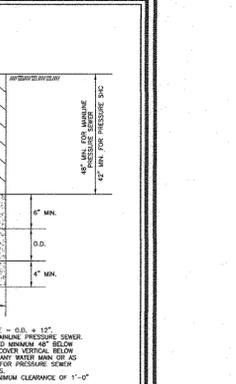
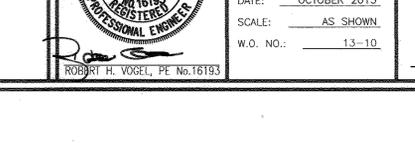
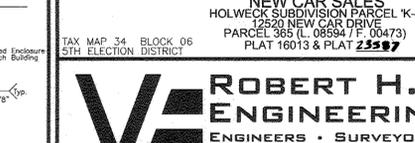
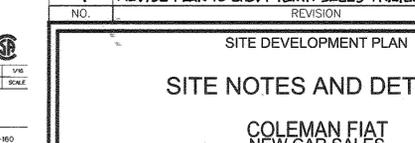
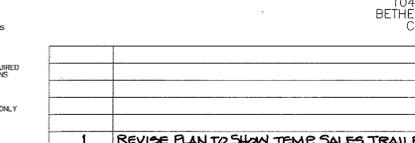
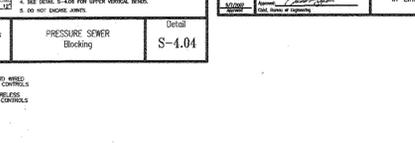
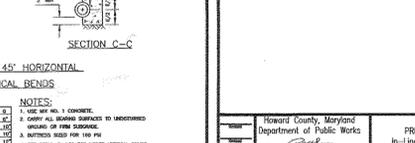
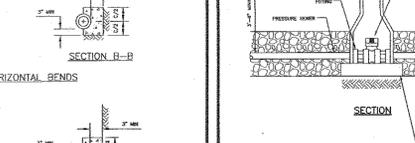
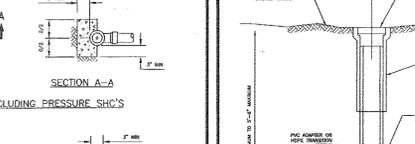
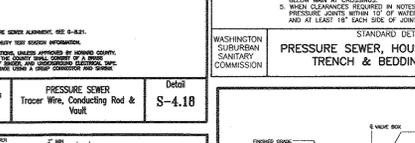
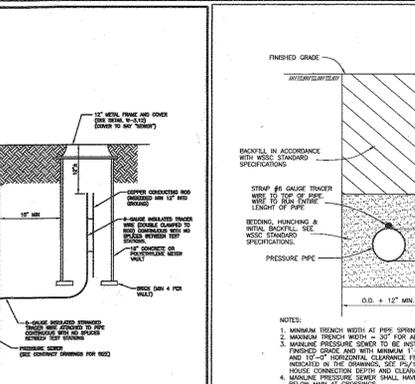
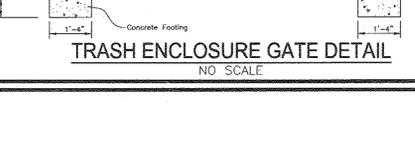
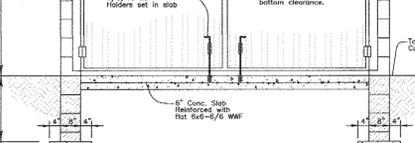
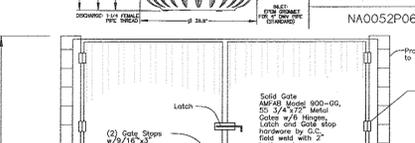
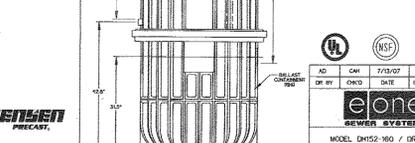
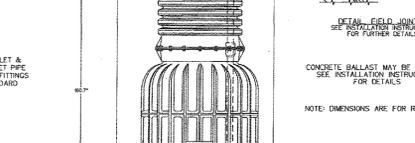
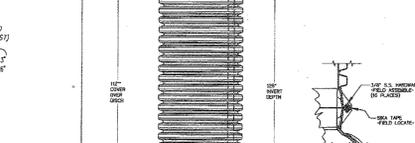
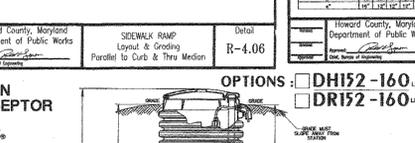
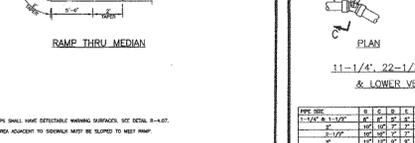
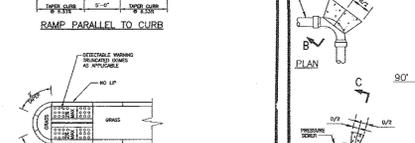
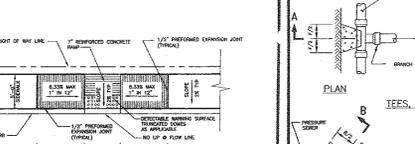
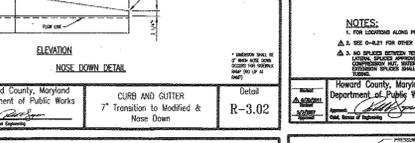
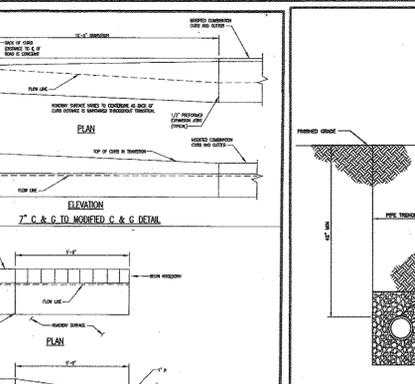
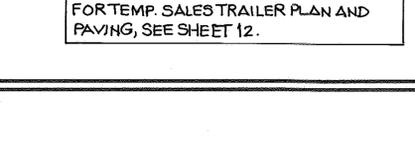
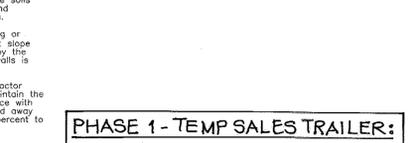
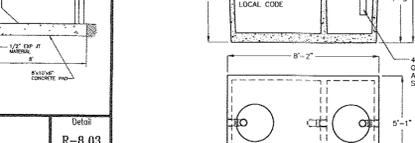
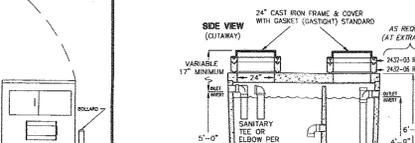
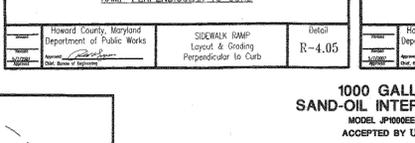
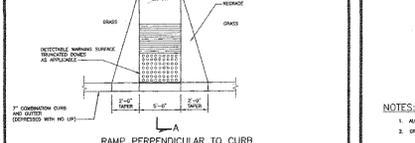
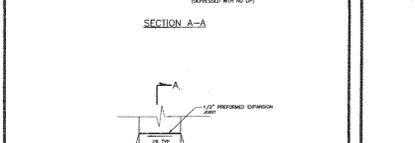
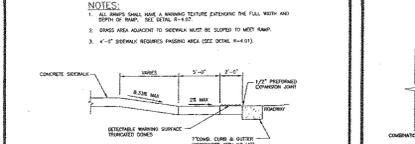
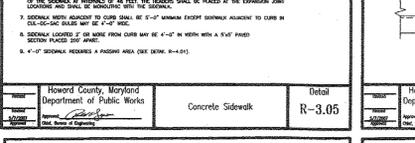
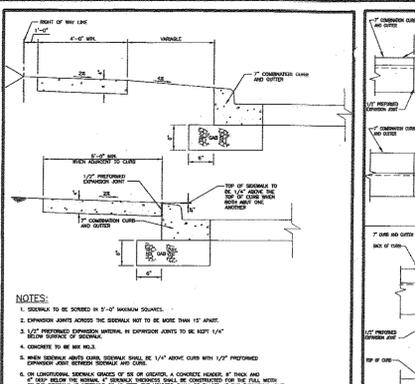
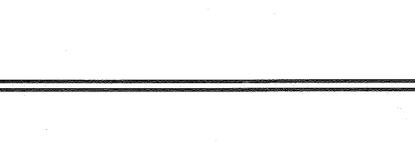
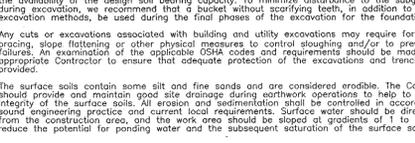
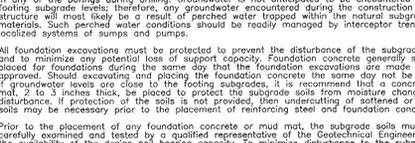
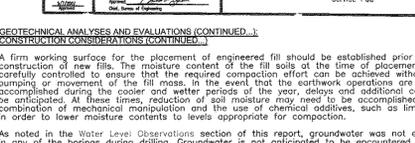
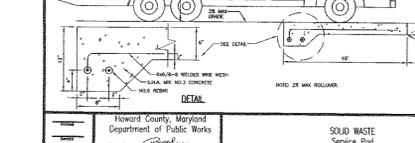
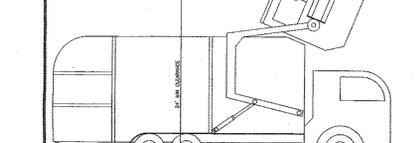
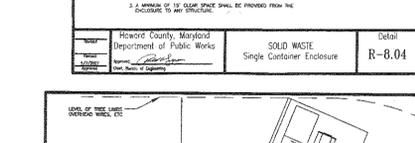
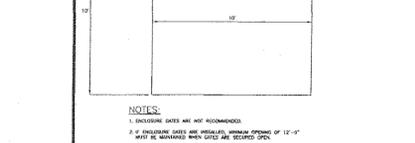
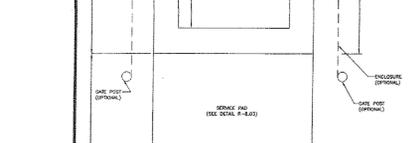
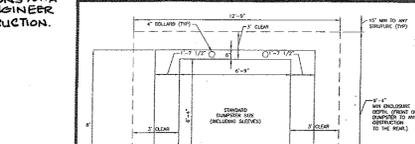
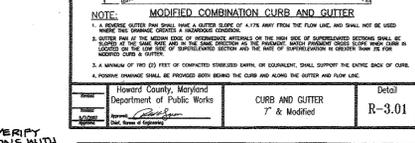
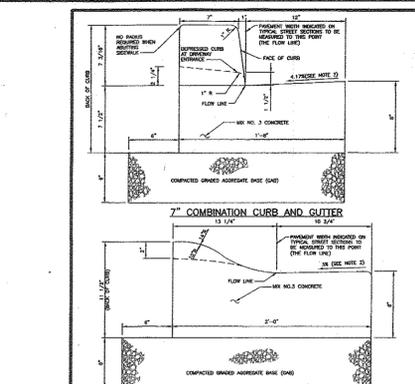
The footprint of the proposed building area should be well defined, including the limits of the fill areas at the time of placement. Borehole logs should be maintained during the construction operations. All filling operations should be observed on a full-time basis by a qualified representative of the Geotechnical Engineer to determine that minimum compaction requirements are being achieved. A minimum of one compaction test per fill should be made per 2,500 square feet of fill area, but not fewer than two tests per 10,000 square feet. The test results should be recorded and the field density tests should be clearly identified at the time of fill placement and compaction.

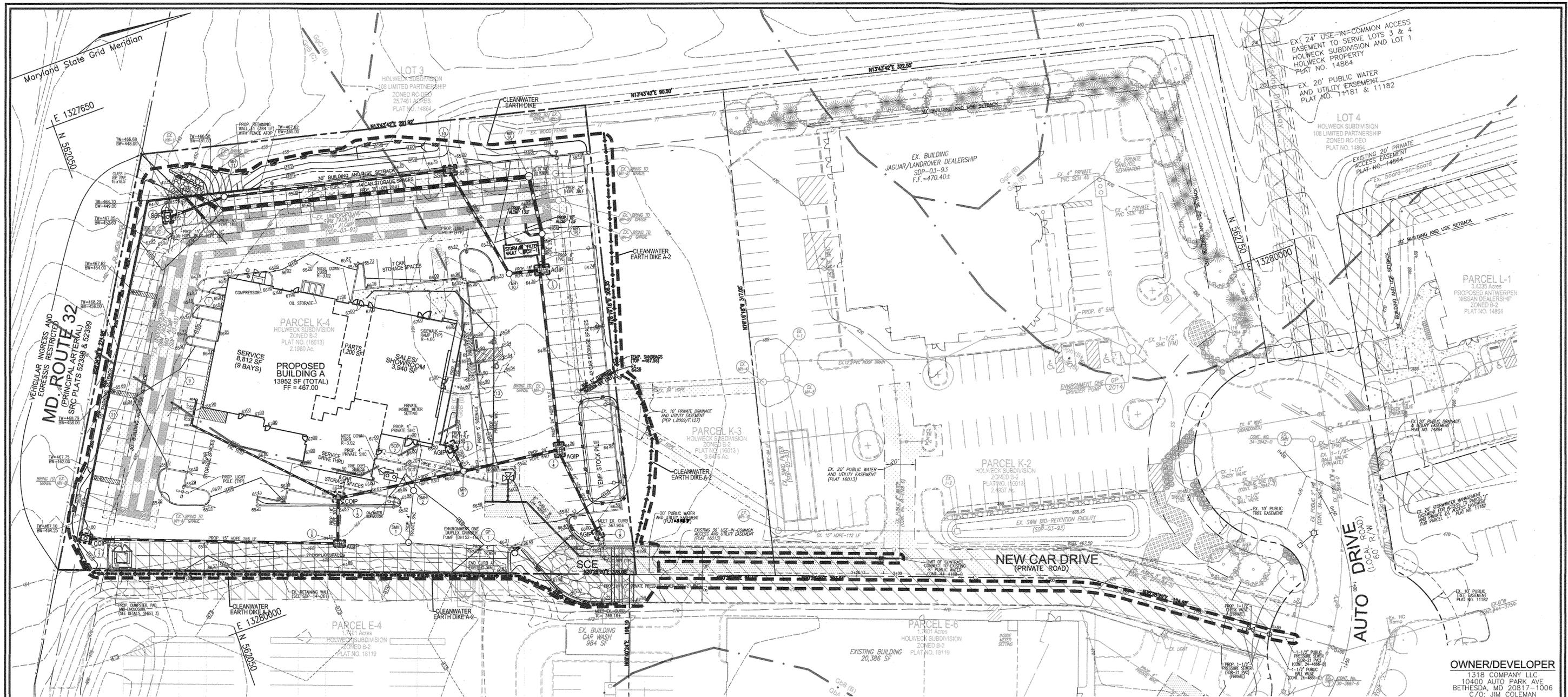
Compaction equipment suitable for the soil types being used as fill should be selected to compact the fill. Theoretically, any equipment type can be used, so long as the required density is achieved. Ideally, a steel drum roller generally will be the most efficient for compaction of granular soil types and for sealing the surface soils, while a steamroller or pneumatic-tire roller generally will be most efficient for compaction of cohesive soil types.

At the end of each work day, all fill should be graded to facilitate surface drainage of any surface precipitation, and should be protected from erosion. The Geotechnical Engineer will limit infiltration of surface water. During placement and compaction of new fill at the beginning of each workday, the Contractor should ensure that the surface soils are not disturbed and will not be formed between the new fill and the existing subgrade soils. We recommend that subgrade soils should be scarified to depths of about 4 inches prior to placement of new fill.

Fill materials should not be placed on frozen soils, frost-heaved soils, and/or excessively wet soils. All frozen, frost-heaved, or excessively wet soils should be removed prior to construction operations. Borrow fill materials should not contain frozen materials at the time of placement. All frozen, frost-heaved, or excessively wet soils should be removed or replaced with controlled, compacted fill. Moisture contents for excessively wet soils will be in the order of 100 percent or greater.

If any problems are encountered during the earthwork operations, or if site conditions deviate from those indicated by the borings, the Geotechnical Engineer should be notified immediately.





SOILS LEGEND
HOWARD COUNTY SOILS MAP #16

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	K FACTOR	ERODIBLE
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	NO	0.20	NO
GbP	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	NO	0.37	YES

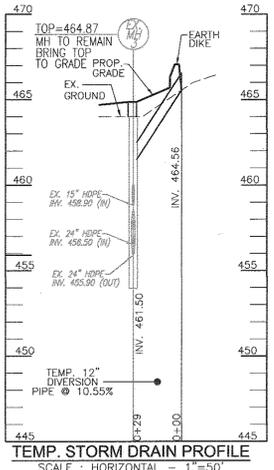
SOILS NOTE:
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

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.

PLAN VIEW
SCALE: 1"=30'

1. CONTRACTOR TO CUT HOLE IN EX. MANHOLE TO ACCOMMODATE 12" TEMP. DIVERSION PIPE.
2. WITH APPROVAL OF INSPECTOR REMOVE 12" DIAMETER AND UTILITY EASEMENT TO PROVIDE PERMANENT WORKING COVERHOLE.

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



TEMP. STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

LEGEND:

---	EXISTING CONTOUR	---	SOILS BOUNDARY
- - -	PROPOSED CONTOUR	---	PROPOSED SIDEWALK
+	PROPOSED SPOT ELEVATION	---	EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #868
o	EXISTING SPOT ELEVATION	---	EX. 20' WATER & UTILITY EASEMENT PLAT #1613
---	EXISTING CURB AND GUTTER	---	& UTILITY EASEMENT PLAT #2597
---	PROPOSED CURB AND GUTTER	---	PROP. MUD & SAND RETENTION AREA (M-5)
o	EXISTING LIGHT POLE	---	PROP. PERVIOUS PAVEMENT (A-2)
o	EXISTING MANHOLE	---	SILT FENCE
o	EXISTING SIGN	---	EARTH DIKE
o	EXISTING SANITARY MANHOLE	---	LIMIT OF DISTURBANCE
---	EXISTING SANITARY LINE	---	---
---	EXISTING CLEANOUT	---	---
o	EXISTING FIRE HYDRANT	---	---
---	EXISTING WATER LINE	---	---
---	PROPOSED STORM DRAIN	---	---
---	PROPOSED STORM DRAIN INLET	---	---
---	PROPOSED TREETRUNK	---	---
---	EXISTING TREETRUNK	---	---
---	PROPERTY LINE	---	---
---	EXISTING FENCE	---	---
---	RIGHT-OF-WAY LINE	---	---

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[Signature] 10/11/16
SIGNATURE OF DEVELOPER DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[Signature] 11/2/15
SIGNATURE OF ENGINEER DATE

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

[Signature] 11/2/15
HOWARD S.C.D. DATE

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

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

COLEMAN FIAT
NEW CAR SALES
HOLWECK SUBDIVISION PARCEL K-4
12500 NEW CAR DRIVE
PARCEL 385 (L. 08594 / P. 00473)
PLAT 16013 & PLAT 2597

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

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/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. 16183 EXPIRATION DATE: 06-27-2018

4 SHEET OF 12

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

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

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

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

- CRITERIA**
- A. SOIL PREPARATION**
1. TEMPORARY STABILIZATION
 - a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISCHARGERS OR CHISEL PLOW OR DISCS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSEND, IT MUST NOT BE ROLLED OR DRAGGED. SMOOTH ROLL LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIGGING RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED IN SECTION B-4-1.8 AND MAINTAIN UNTIL THE NEXT SEEDING.
 - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 - a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - i. SOIL PH BETWEEN 6.0 AND 7.0.
 - ii. SOLUBLE SALTS LESS THAN 500 PPM PARTS PER MILLION (PPM).
 - iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE, AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WILL BE ACCEPTABLE.
 - iv. SOIL MUST BE FREE OF ORGANIC MATTER BY WEIGHT.
 - v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - c. TOPSOIL MUST BE MAINTAINED IN A TRUCK AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSEND TO A DEPTH OF 3 INCHES.
 - d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE ROCKS, LIMESTONE AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO PROTECT THE SURFACE FROM TRACKS AND UNDESIRABLE SOIL CRUSTATION. PREPARATION, TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT. LEAVING THE SOIL IN AN INTERLOCKED CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDING LOSSENESS MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- B. TOPSOILING**
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNDESIRABLE SOIL CRUSTATION.
 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN SECTION B-4-1.8. TOPSOIL FROM AN EXISTING SITE TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SURVEY PUBLISHED BY THE STATE OF MARYLAND.
 3. TOPSOILING IS LIMITED TO AREAS OF FLATTER SLOPES WHERE:
 - a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - b. THE SOIL MATERIAL IS 5% OR SHALLOWER THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - d. THE SOIL IS 20 ACRES THAT PRELIMINARY LIMEING IS NOT FEASIBLE.
 - e. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRING SPECIAL CONSIDERATION AND DESIGN.
 4. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
 - a. TOPSOIL MUST BE LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIC OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE AUTHORITY.
 - b. TOPSOIL MUST BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5% ORGANIC MATTER. TOPSOIL MUST BE FREE OF TOXIC SUBSTANCES, FRAGMENTS, GRAVEL, STICKS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER.
 - c. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERBERIS, GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEED, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - d. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIC OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED INSTEAD OF NATURAL TOPSOIL.
 5. TOPSOIL APPLICATION
 - a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SOILING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MOISTY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY CAUSE OTHER OPERATIONS TO BE UNDESIRABLE.

- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER. LIME AND FERTILIZER SOLE SOURCE ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES ARE ALSO TO BE USED FOR CHEMICAL ANALYSIS.
 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FINE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME, OR TRADE MARK AND WARRANTY OF THE PRODUCER.
 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNED LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MANGANESE OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 90 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE. A LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

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

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

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

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR MIXED SEEDINGS LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE WATER RUNOFF UNIT FROM THE UPGRADE SIDE.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH ON STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.1.8 AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

NO.	SPECIES	APPLICATION RATE (LBS/AC)	SEEDING DATES		SEEDING DEPTHS	LIME RATE (10-20-20)	LIME RATE (1000 SF)
			START TO	END			
1	COOL SEASON PERENNIALS	40 LB / AC	MAY 15 TO	AUG 15	0.5 IN.	436 LB/AC	2 TONS/AC
2	WARM SEASON FOXTAIL OR EQUAL	30 LB / AC	MAY 16 TO	JUL 31	0.5 IN.	1000 SF	1000 SF

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

DEFINITION
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATION COVER.

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

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

- CRITERIA**
- A. SEEDING**
- a. ALL SEEDS MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBMITTED TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST BE MAINTAINED IN A TRUCK AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSEND TO A DEPTH OF 3 INCHES.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED IN SECTION B-4-1.8 AND MAINTAIN UNTIL THE NEXT SEEDING.
 - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAW.**
- C. INOCULANTS**
- a. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIALLY FOR THE SPECIES INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER, AND FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANTS AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 70 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - b. SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (15 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
- D. APPLICATION**
- a. APPLY SEEDING, THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - b. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING INSTRUCTIONS.
 - c. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - d. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN.
- E. MULCHING**
- a. MULCH MATERIALS (IN ORDER OF PREFERENCE):
 - i. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LIME, OAT, OR BARLEY AND REASONABLY BERG OR CLEAN STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAULK, DECAYED, OR EXCESSIVELY DUSTY.
 - ii. NOTE: ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - c. WCFM MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERBERIS, GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEED, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - d. WCFM INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - e. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER. UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS MATERIAL. MULCH MUST BE APPLIED TO THE SUBSOIL TO A MINIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 SQUARE FEET.
 - f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 1/2 INCH TO 3/4 INCH. FIBER MUST BE UNIFORM IN LENGTH. FIBER MUST BE 4 TO 10 B.S. ASH CONTENT OF 18 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

- F. SOIL MAINTENANCE**
- a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO PREVENT THE SOIL FROM DRYING OUT. WATER SOIL DURING THE HEAVY OF THE DAY TO PREVENT WILTING.
 - b. AFTER THE FIRST WEEK, SOIL WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
 - c. AFTER THE FIRST WEEK, SOIL WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- G. SOIL MAINTENANCE**
- a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO PREVENT THE SOIL FROM DRYING OUT. WATER SOIL DURING THE HEAVY OF THE DAY TO PREVENT WILTING.
 - b. AFTER THE FIRST WEEK, SOIL WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
 - c. AFTER THE FIRST WEEK, SOIL WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

B-4-3 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

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

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

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

- CRITERIA**
1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
 2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION 3-1.3.3.3 GRADING.
 3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
 4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
 5. CLEAR WATER RUNOFF INTO THE STOCKPILE MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
 6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE, FILL AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
 7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3:1 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4-4 TEMPORARY STABILIZATION.
 8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LEAK SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE DRAINAGE. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.
- MAINTENANCE**
- THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT WITH SECTION B-4-3.1.8. STOCKPILES ON SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET TO 21 FEET, 30 FEET OR 35 FEET, SLOPES OR 40 FEET SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3-1.3.3 GRADING.

B-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

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

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

- CRITERIA**
- A. SEED MIXTURES**
- a. GENERAL USE
 - i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FLOW ON TABLE B.2, ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
 - ii. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORTLINES, STRIP BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL FLORA - 15 TO 16.
 - iii. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
 - iv. APPLY FERTILIZER AND LIME AS PRESCRIBED IN SECTION B-4-1.8 AND MAINTAIN UNTIL THE NEXT SEEDING.
 - v. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - b. TURFGRASS MIXTURES
 - i. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
 - ii. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - iii. KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE, IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 4.0 POUNDS PER 1000 SQUARE FEET. CHOICE OF MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 20 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - iv. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE; FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHERE TURF WILL RECEIVE MEDIUM TO INTENSIVE MAINTENANCE. RECOMMENDED CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOICE OF MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 20 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - v. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE; FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT RYEGRASS 5 TO 10 PERCENT. SEEDING RATE: 2 TO 3 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - vi. SEEDING RATE IN MEDIUM TO INTENSIVE MAINTENANCE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND GO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

PERMANENT SEEDING SUMMARY

NO.	SPECIES	APPLICATION RATE (LBS/AC)	SEEDING DATES		SEEDING DEPTHS	N	P	K ₂ O	LIME RATE
			START TO	END					
1	COOL SEASON PERENNIALS	40 LB / AC	MAY 15 TO	AUG 15	0.5 IN.	436 LB/AC	90 LB/AC	10 LB/AC	2 TONS/AC
2	WARM SEASON FOXTAIL OR EQUAL	30 LB / AC	MAY 16 TO	JUL 31	0.5 IN.	1000 SF	1000 SF	1000 SF	1000 SF

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

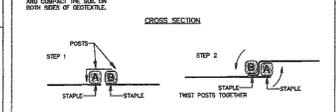
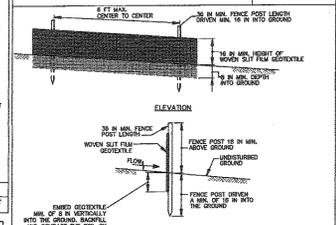
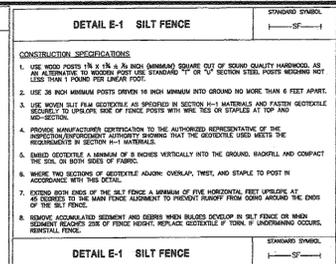
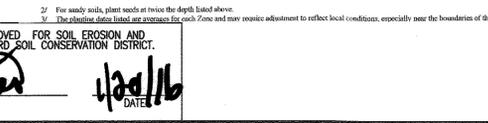
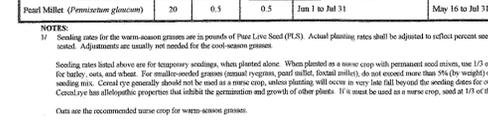
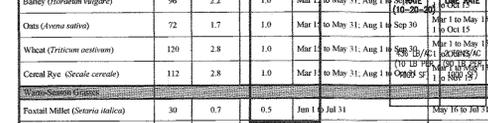
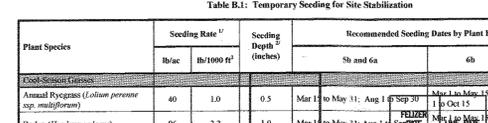
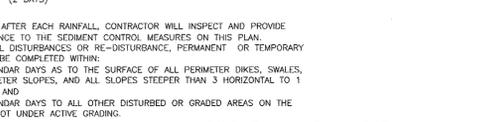
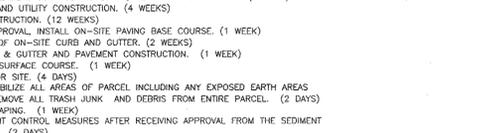
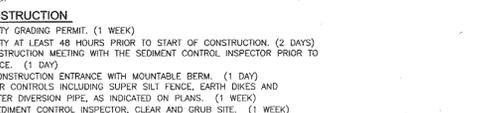
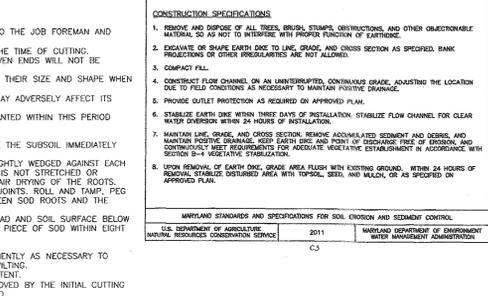
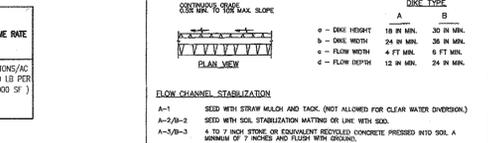
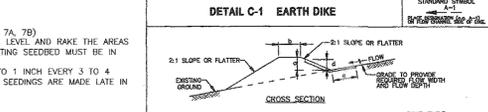
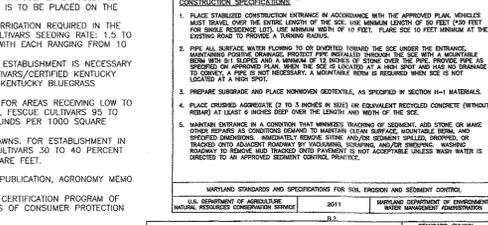
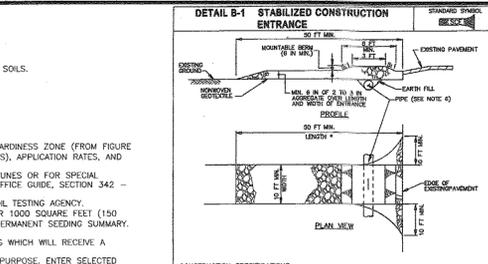
1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION TO ATTEND THE START OF CONSTRUCTION.
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - a. 3 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES AND PERMETER CLEANKWATER DIVERSION PIPES, AS INDICATED ON THE PLAN.
 - b. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRASS SITE. (1 WEEK)
 - c. BEYOND BUILDING CONSTRUCTION, (12 WEEKS)
 - d. WITH INSPECTOR'S APPROVAL, INITIAL ON-SITE PAVING BASE COURSE. (1 WEEK)
 - e. BEGIN INSTALLATION OF ON-SITE CURB AND GUTTER. (2 WEEKS)
4. COMPLETE ALL CURB & GUTTER AND PAVEMENT CONSTRUCTION. (1 WEEK)
5. INSTALL SIDEWALK FOR CURB. (4 DAYS)
6. FINE GRADE AND STABILIZE ALL AREAS OF PARCEL, INCLUDING ANY EXPOSED EARTH AREAS.
7. REMOVE ALL TRASH, JUNK AND DEBRIS FROM ENTIRE PARCEL. (2 DAYS)
8. TEMPORARY CLEANKWATER DIVERSION PIPES, AS INDICATED ON THE PLAN, SHALL BE COMPLETED WITHIN:
 - a. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERMETER DIKES, SWALES, DITCHES, PERMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND
 - b. SEVEN (7) CALENDAR DAYS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

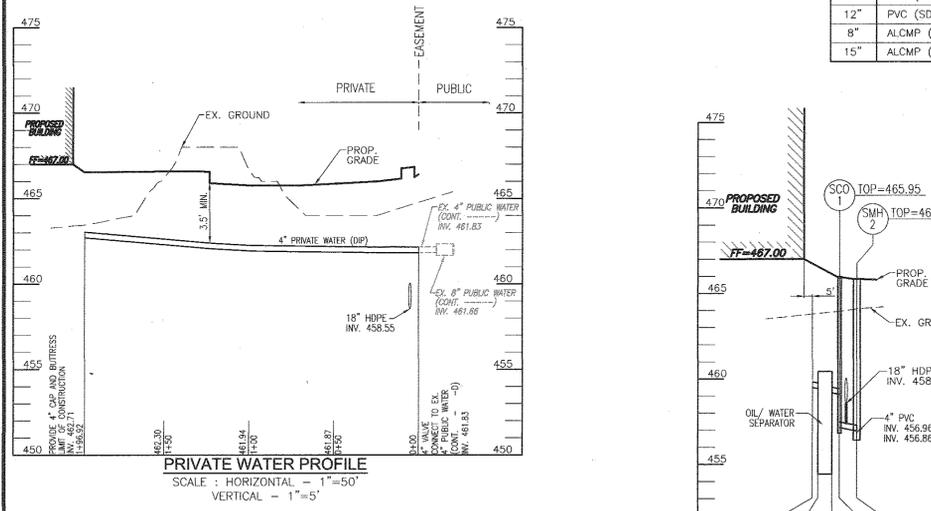
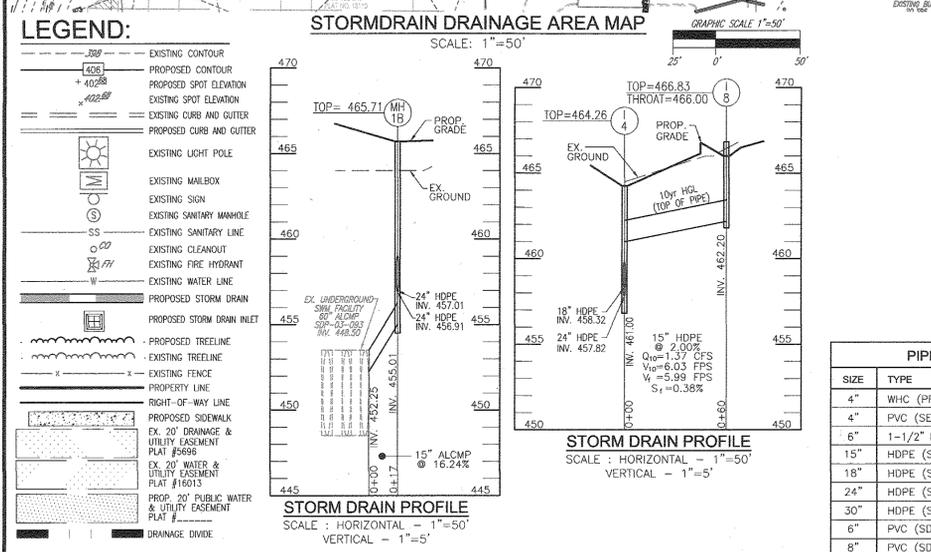
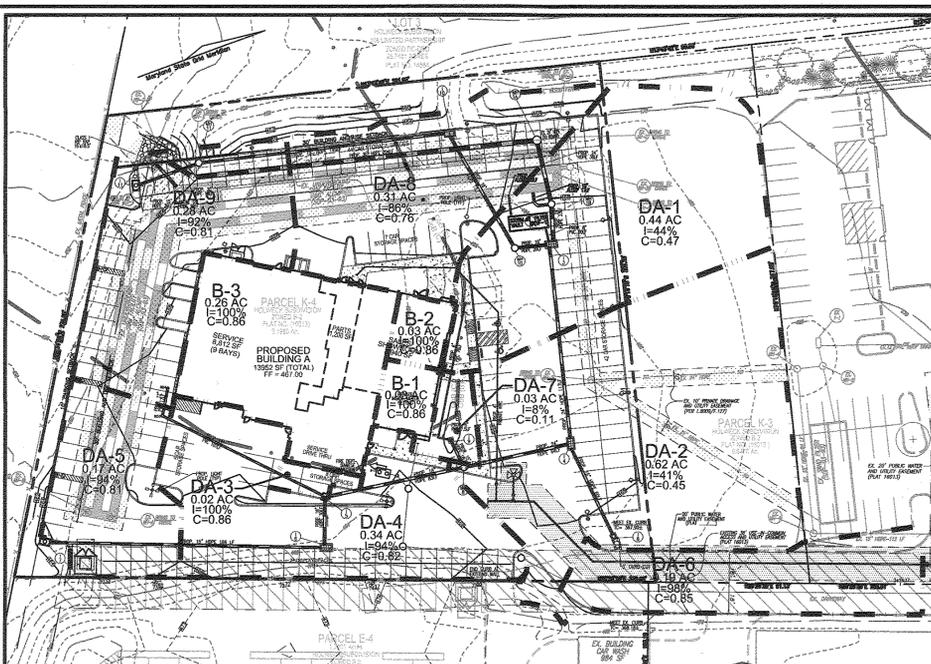
Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ¹ (lb/ac)	Seeding Depth ² (inches)	Recommended Seeding Dates by Plant Hardiness Zone ³				
			5b and 6a	6b	7a and 7b	7c	
<i>Annual Ryegrass (Lolium perenne sp. multiflorum)</i>	40	1.0	0.5	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30
<i>Barley (Hordeum vulgare)</i>	96	2.2	1.0	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30
<i>Oats (Avena sativa)</i>	72	1.7	1.0	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30
<i>Wheat (Triticum aestivum)</i>	120	2.8	1.0	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30
<i>Centil Rye (Secale cereale)</i>	112	2.8	1.0	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30
<i>Wheat-Sudangrass (Sorghum sp.)</i>	112	2.8	1.0	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30	Mar 1 to May 31; Aug 1 to Sep 30
<i>Foxtail Millet (Setaria italica)</i>	30	0.7	0.5	Jun 1 to Jul 31	May 1 to Jun 31	May 1 to Jun 31	May 1 to Jun 31
<i>Parrot Millet (Pennisetum glaucum)</i>	30	0.5	0.5	Jun 1 to Jul 31	May 1 to Jun 31	May 1 to Jun 31	May 1 to Jun 31

NOTES:

1. Seeding rates for the warm season grasses are in pounds of Live Seed (LS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as noted. Adjustments are usually not needed for the cool season grasses.
2. For sandy soils, use a seed depth of 1/2 inch. For heavy soils, use a seed depth of 1 inch.
3. For sites with a high water table, use a seed depth of 1/2 inch. For sites with a low water table, use a seed depth of 1 inch.
4. For sites with a high water table, use a seed depth of 1/2 inch. For sites with a low water table, use a seed depth of 1 inch.



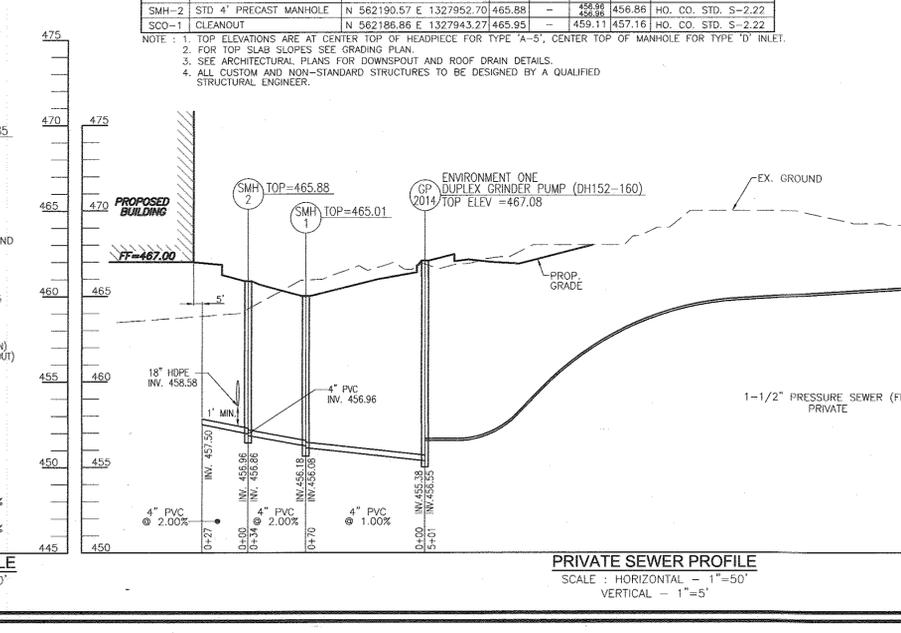
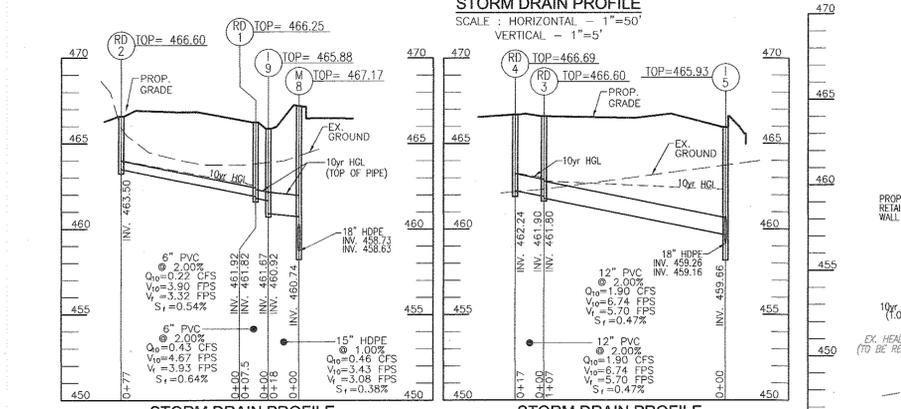
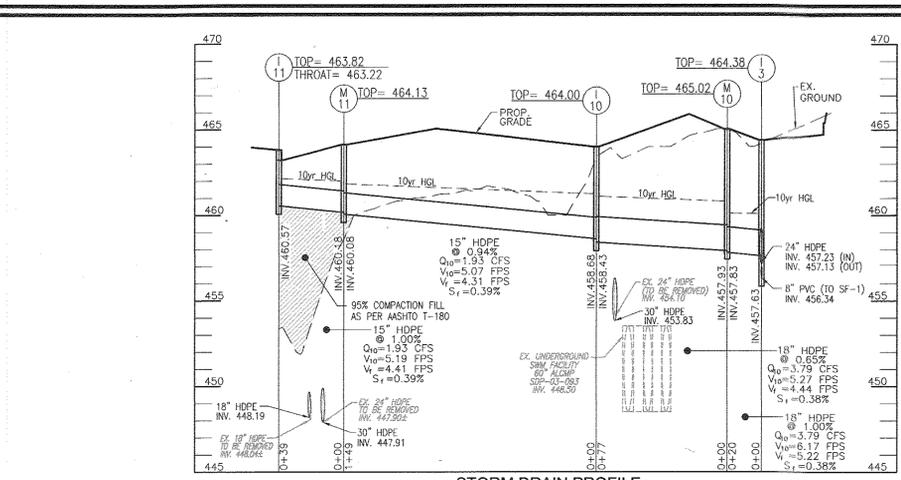


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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

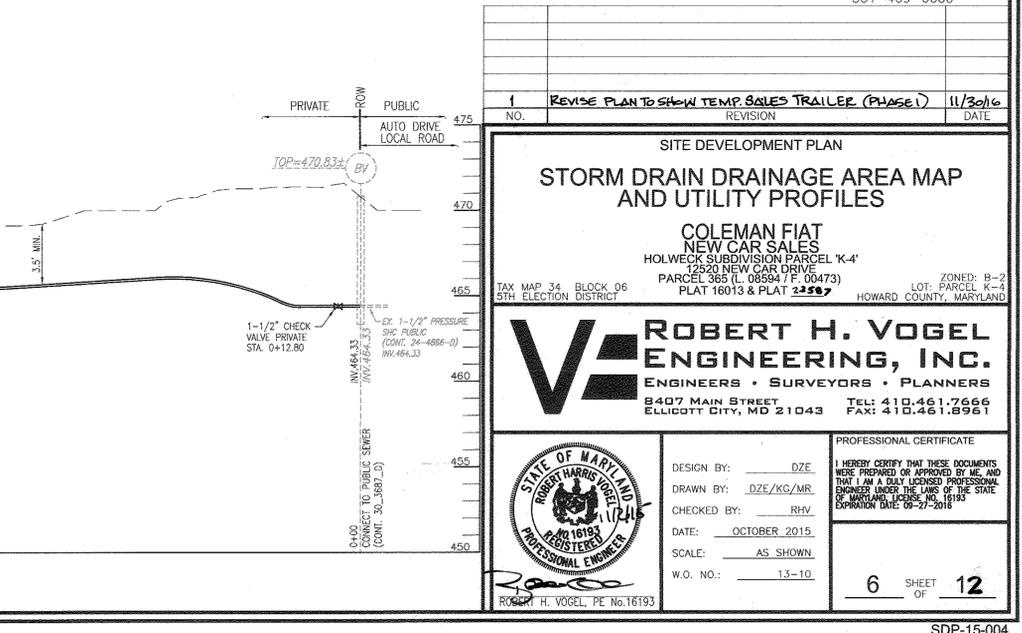
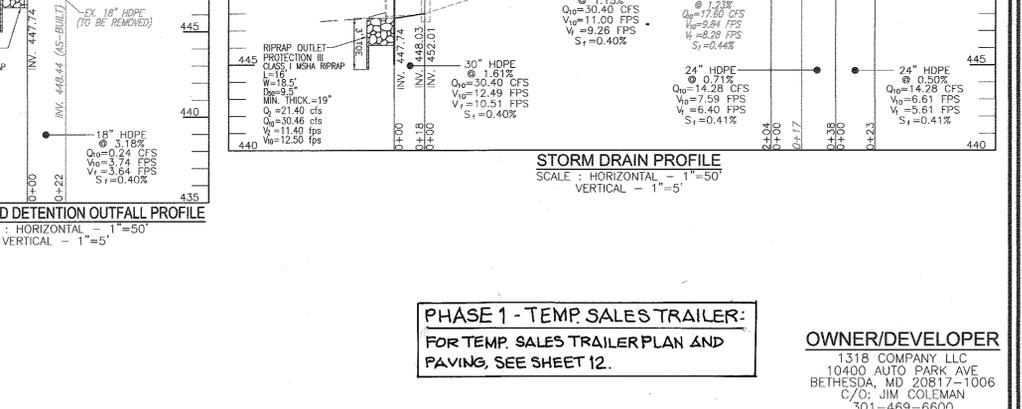
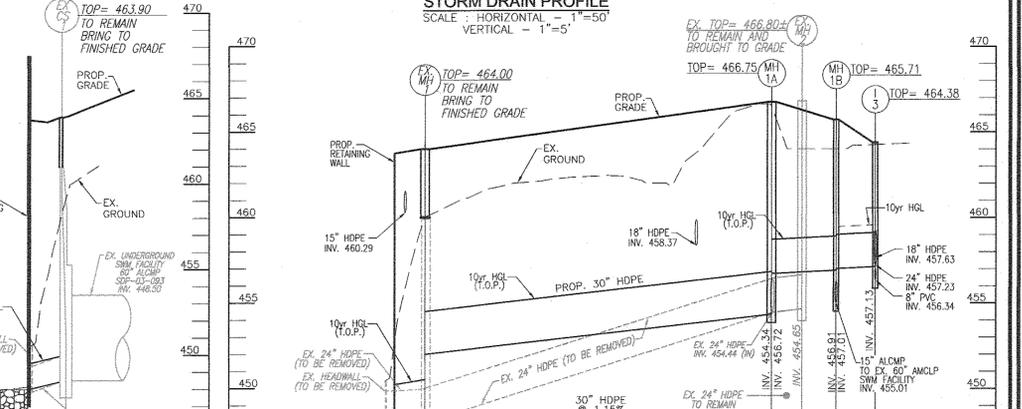
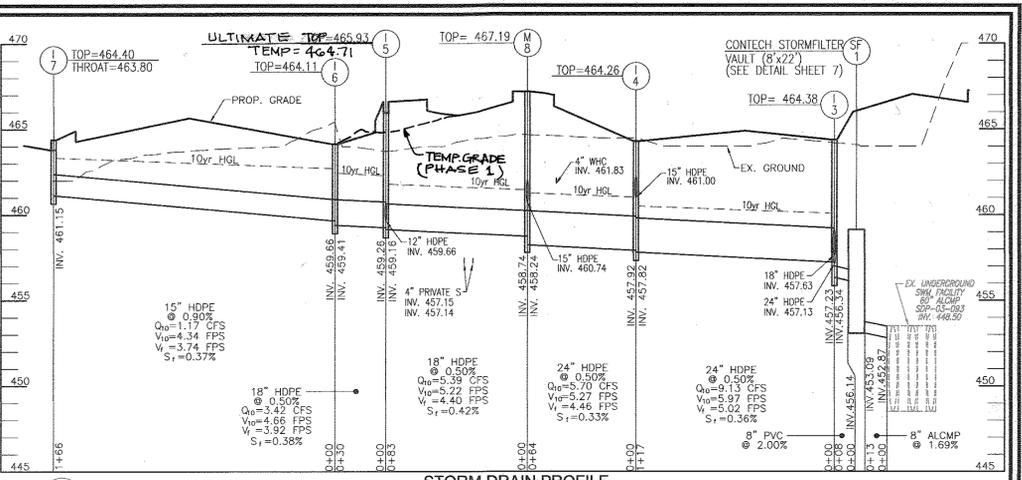
[Signature] 2-11-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 2-11-16
 DIRECTOR DATE



NO.	TYPE	LOCATION	TOP ELEV.	THROAT ELEV.	INV. IN	INV. OUT	COMMENTS
I-3	TYPE "DOUBLE-S" INLET	N 562317.05 E 1327846.61	464.38	463.22	457.43	455.34	HO. CO. STD. D-4.23
I-4	TYPE "DOUBLE-S" INLET	N 562289.23 E 1327960.39	464.26	463.22	457.82	455.82	HO. CO. STD. D-4.23
I-5	TYPE SINGLE "WR" INLET	N 562142.93 E 1327940.11	465.93	463.22	459.26	457.14	HO. CO. STD. D-4.37
I-6	TYPE "DOUBLE-S" INLET	N 562133.25 E 1327968.44	464.11	463.22	459.66	459.41	HO. CO. STD. D-4.23
I-7	TYPE "A-S" INLET	N 561978.50 E 1327908.29	464.40	463.80	461.15	461.15	HO. CO. STD. D-4.01
I-8	TYPE "D" INLET	N 562294.60 E 1328020.15	466.83	466.00	462.20	460.00	HO. CO. STD. D-4.10
I-9	YARD INLET	N 562235.56 E 1327934.43	465.88	461.67	462.30	460.00	HO. CO. STD. D-4.14
I-10	TYPE DOUBLE "WR" INLET	N 562294.39 E 1327784.31	464.00	463.22	458.68	458.43	HO. CO. STD. D-4.35
I-11	TYPE "A-S" INLET	N 562100.11 E 1327730.95	464.13	463.22	460.57	460.00	HO. CO. STD. D-4.01
MH-8	STD. 4' PRECAST MANHOLE	N 562225.54 E 1327952.10	467.19	463.12	458.24	458.00	HO. CO. STD. G. 5.12
MH-10	STD. 4' PRECAST MANHOLE	N 562297.41 E 1327841.81	465.02	457.93	457.83	457.83	HO. CO. STD. G. 5.12
MH-11	STD. 4' PRECAST MANHOLE	N 562139.39 E 1327731.34	464.13	460.18	460.08	460.00	HO. CO. STD. G. 5.12
MH-1A	STD. 5' PRECAST MANHOLE	N 562331.00 E 1327786.98	466.75	463.91	454.34	454.00	HO. CO. STD. G. 5.13
MH-1B	STD. 4' PRECAST MANHOLE	N 562326.42 E 1327824.94	465.71	457.01	453.01	453.00	HO. CO. STD. G. 5.12
RD-1	CLEANOUT	N 562217.14 E 1327930.53	466.25	461.92	461.82	461.82	HO. CO. STD. S-2.22
RD-2	CLEANOUT	N 562258.26 E 1327863.21	466.60	463.50	461.80	461.80	HO. CO. STD. S-2.22
RD-3	CLEANOUT	N 562068.65 E 1327863.01	466.60	461.90	461.80	461.80	HO. CO. STD. S-2.22
RD-4	CLEANOUT	N 562077.31 E 1327848.84	466.69	462.24	461.80	461.80	HO. CO. STD. S-2.22
GP-1	GRINDER PUMP	N 562239.02 E 1328013.41	467.08	455.38	456.55	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	456.18	456.08	456.08	HO. CO. STD. S-2.22
SMH-2	STD. 4' PRECAST MANHOLE	N 562190.57 E 1327952.70	465.88	456.38	456.86	456.86	HO. CO. STD. S-2.22
SCO-1	CLEANOUT	N 562186.86 E 1327943.27	465.95	459.11	457.16	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.



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

NO.	REVISION	DATE
1	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
 12500 NEW CAR DRIVE
 PARCEL 365 (L. 08594 / F. 00473)
 PLAT 16013 & PLAT 22567

TAX MAP 34 BLOCK 06 5TH ELECTION DISTRICT

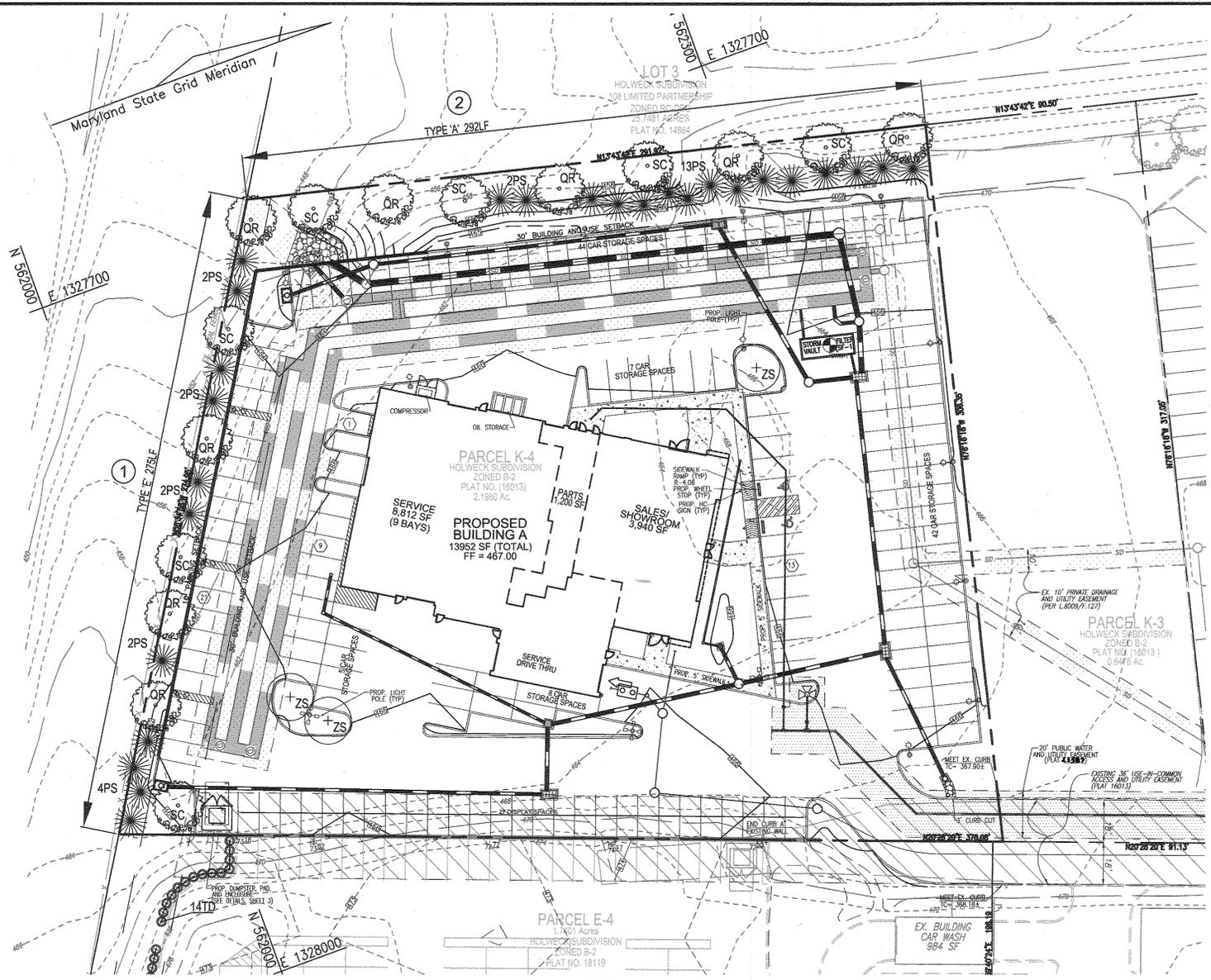
ZONED: R-2
 LOT: PARCEL 365
 HOWARD COUNTY, MARYLAND

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

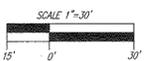
PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRES ON 07-27-2018

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

6 SHEET OF 12

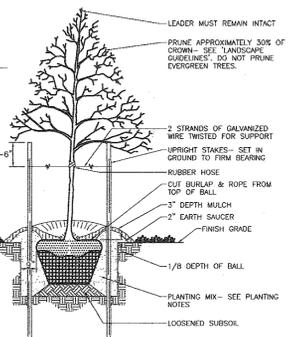


PLAN VIEW
SCALE: 1"=30'

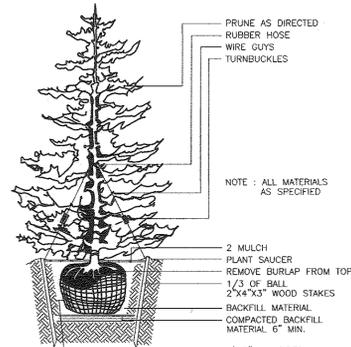


NOTES

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



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



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

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

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING LIGHT POLE
- PROPOSED LIGHT POLE
- EXISTING MAILBOX
- PROPOSED MAILBOX
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- EXISTING SANITARY LINE
- PROPOSED SANITARY LINE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPOSED TREE LINE
- EXISTING TREE LINE
- EXISTING FENCE
- PROPOSED FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED SIDEWALK
- EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #6596
- EX. 20' WATER & UTILITY EASEMENT PLAT #16113
- & UTILITY EASEMENT PLAT #33587
- PROP. MICRO PERMEATION AREA (M-6)
- PROP. PERVIOUS 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 AAN 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.

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

SITE DEVELOPMENT PLAN

LANDSCAPE PLAN (ULTIMATE)
COLEMAN FIAT
NEW CAR SALES
HOLWECK SUBDIVISION PARCEL 'K-4'
12520 NEW CAR DRIVE
PARCEL 365 (L. 08594 / F. 00473)
PLAT 16013 & PLAT 23587

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
ELIGOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961



PROFESSIONAL CERTIFICATE
DESIGN BY: DZE
DRAWN BY: DZE/KG/MR
CHECKED BY: RHV
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 DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 09-27-2018.

8 SHEET OF 12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 1-29-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

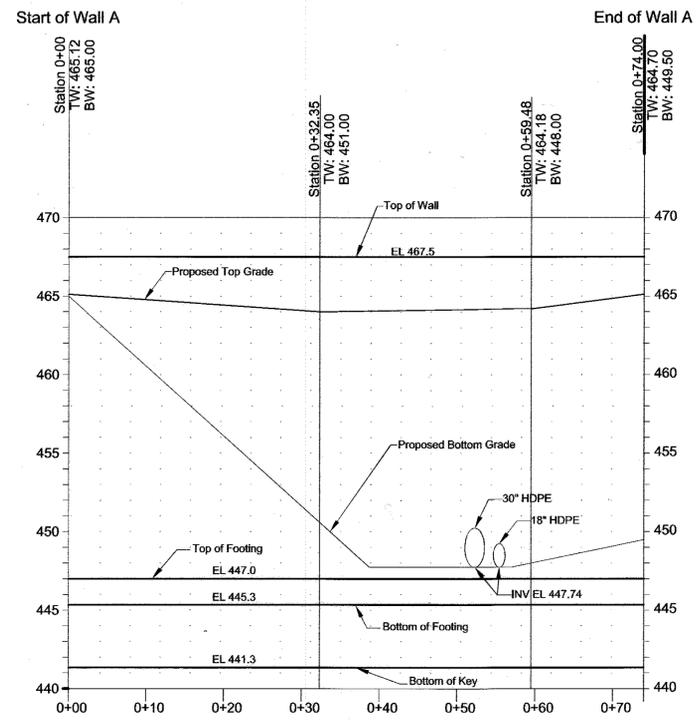
William ... 2-11-16
DIRECTOR DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

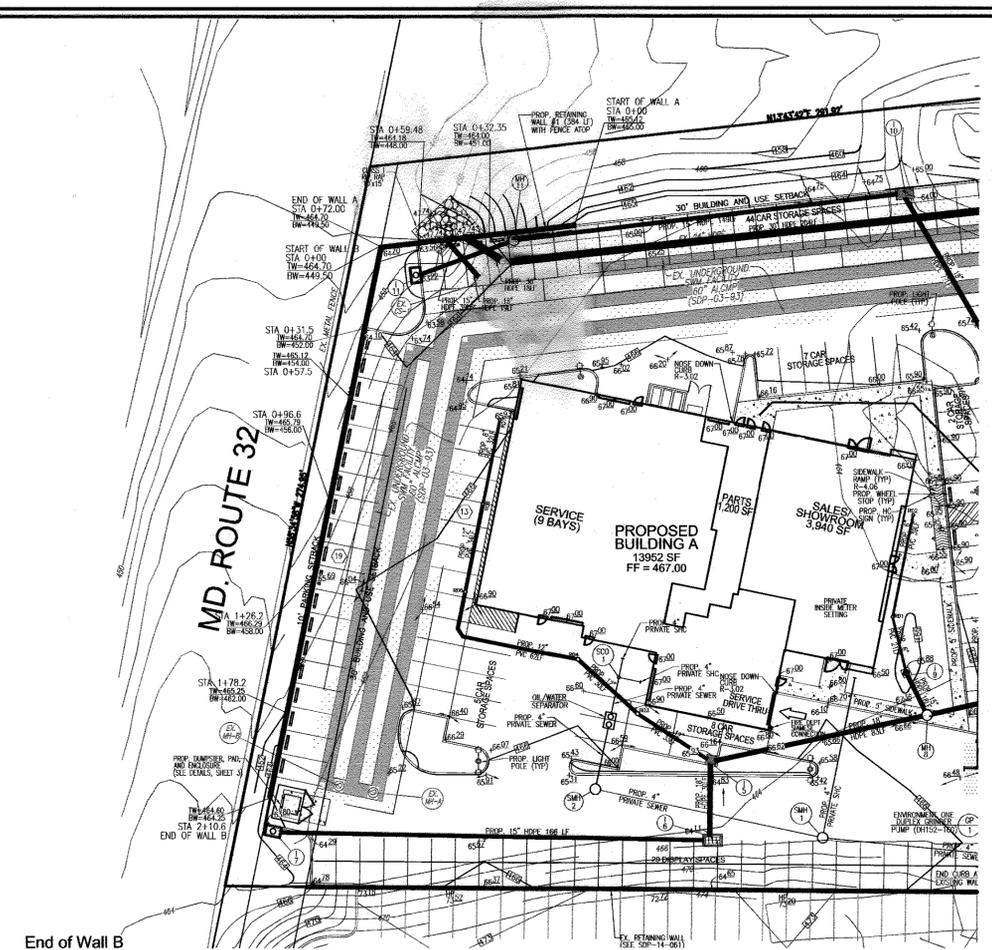
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

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

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

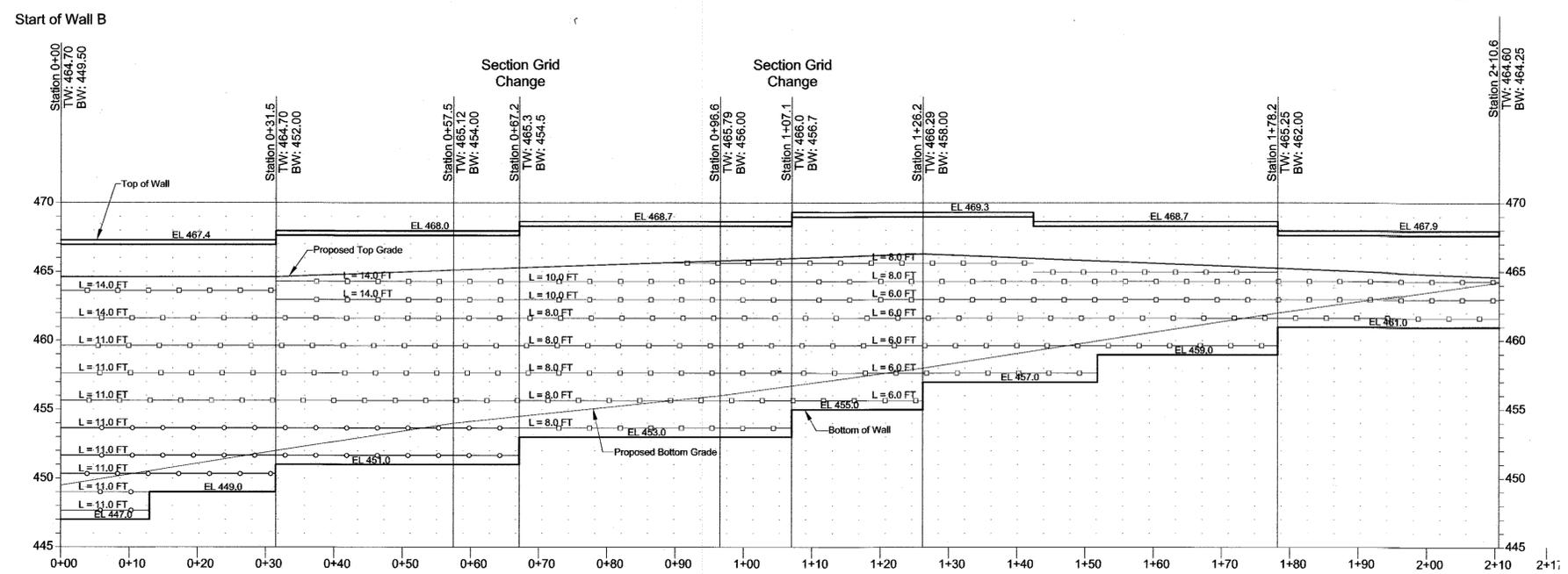


WALL A PROFILE
 HORIZONTAL SCALE: 1"=10'
 VERTICAL SCALE: 1"=5'



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

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



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

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

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

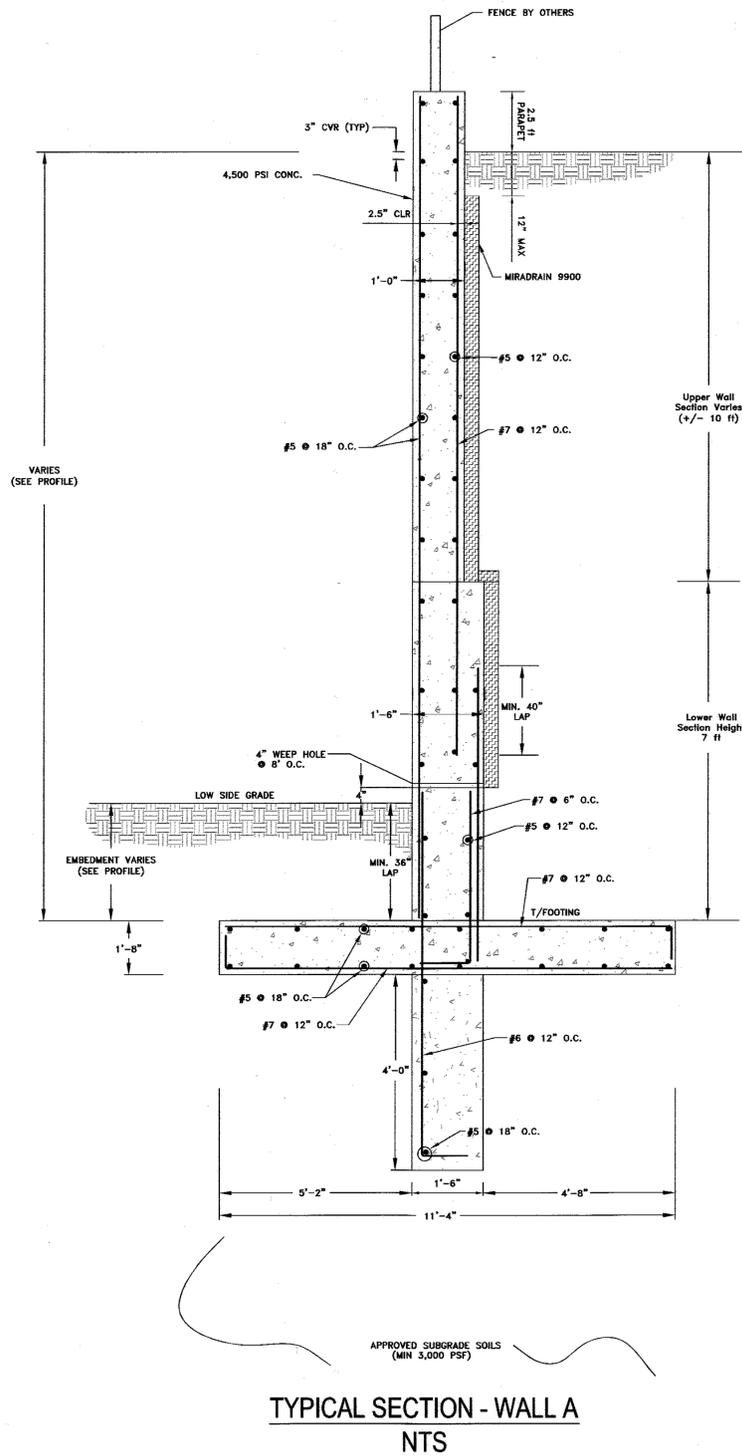
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 2-9-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

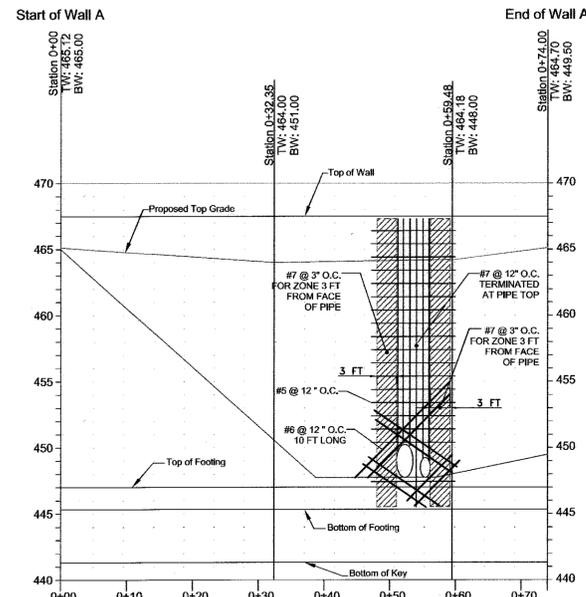
[Signature] 2-11-16
 DIRECTOR DATE

REVISE PLAN TO SHOW TEMP SALES TRAILER (PHASE 1) 11/30/16		
NO.	REVISION	DATE
RETAINING WALLS PLAN & PROFILE COLEMAN FIAT NEW CAR SALES HOLWECK SUBDIVISION PARCEL K-4 2530 NEW CAR DRIVE PARCEL 365 (L 08594 / F 00473) PLAT NO. 16013 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		
		PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A duly LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE 12-31-2015
DESIGN BY: DMA DRAWN BY: DMA CHECKED BY: HMA DATE: APRIL 2015 SCALE: AS SHOWN W.O. NO.: 02-7342	9 SHEET OF 12	

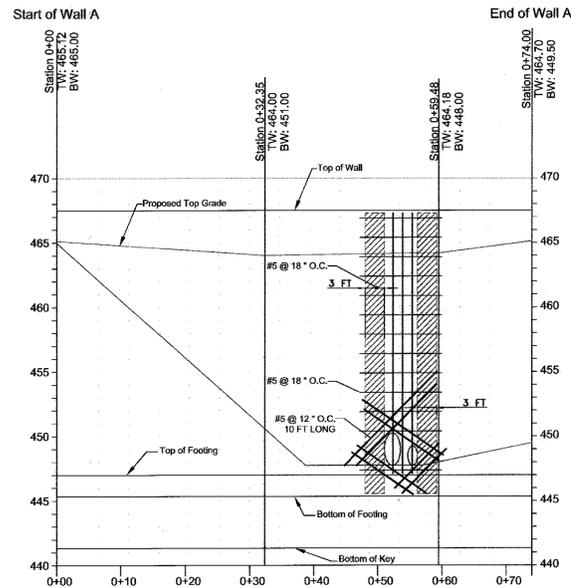


TYPICAL SECTION - WALL A
NTS

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 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 at 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 on SM, SC, or more granular, in accordance with ASTM D 2487.
- 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 availability 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, spacers, supports, etc. necessary to secure reinforcing.

3.04 Cast-in-Place Concrete

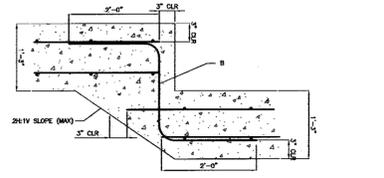
- A. Forming Concrete
 - 1. The vertical faces of the footing and key excavation may be used as forms for placement of foundation concrete.
 - 2. Foundation concrete, or protective mud mats, should be placed the same day that the foundation subgrade is approved.
 - 3. Provide concrete protection against 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 courses using vertical bulkheads.
 - 4. All reinforcing shall be continuous through joints and bulkheads.
 - 5. Charrier exposed concrete corners 3/4" by 3/4" minimum.
 - 6. Provide 4" diameter weep holes every 8 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.



FOOTING STEP
NTS



CONSTRUCTION JOINT
NTS

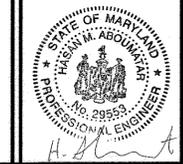
OWNER/DEVELOPER
 1318 COMPANY LLC
 10400 AUTO PARK AVE
 BETHESDA, MD 20817-1006
 C/O: JIM COLEMAN
 301-469-6600

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
 2520 NEW CAR DRIVE
 PARCEL 365 (L 06504 / F 00473)
 PLAT NO. 16013
 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



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
 EXPIRATION DATE: 12-31-2015
 DESIGN BY: DMA
 DRAWN BY: DMA
 CHECKED BY: HMA
 DATE: APRIL 2015
 SCALE: AS SHOWN
 W.O. NO.: 02-7342
 10 SHEET OF 12

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

- | | |
|---------------|--|
| A. ASTM C 90 | Load Bearing Concrete Masonry Units. |
| B. ASTM C 140 | Sampling and Testing Concrete Masonry Units. |
| C. ASTM D 448 | Sizes of Aggregate for Road and Bridge Construction. |
| D. 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 off 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 thermo-set 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 KapSeal™. 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 S/B) 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 5% passing the No. 50 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.
- 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 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, rootstock and other soft or unstable materials shall, at a minimum, be removed from the footprint of the retained soil mass.
- If groundwater is encountered during the excavation of the backlogs, a backlogs 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 the 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 laying the grid back to 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 shall be level. To attain the geogrid, backfill shall be placed over the geogrid from 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

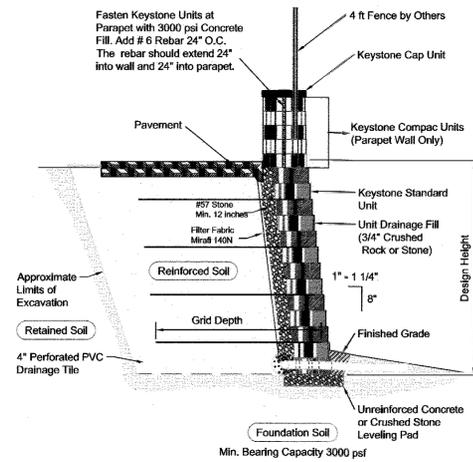
- Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined 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 soils 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 over 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 suitability of the fill material must 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 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 KapSeal™. Apply adhesive to top surface of lower unit and place cap unit atop adhesive.
- Place Cap Units over projecting pins from the units below. Pull forward to setback position.
- Backfill and compact to finished grade.

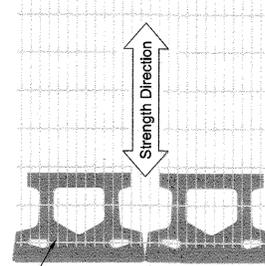
DESIGN PARAMETERS

Characteristics:	Configuration:	Soil Parameters:	Minimum Friction Angle	Minimum Unit Weight (pcf)
Maximum Exposed Wall Height / Minimum Allowable Bearing Pressure (psf):	10'-6" / 3,000	Reinforced fill (16, 18, or more granular)	30	120
Backslope Angle:	Varies (10H:1V maximum)	Retained soils	28	120
Toe Slope Angle:	Varies (10H:1V maximum)	Foundation soils	28	120
Wall Embedment:	Varies (12 inches minimum) (See Profile)			



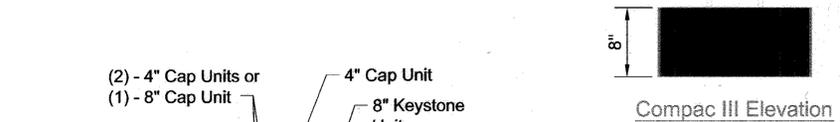
PARAPET & WALL IN SETBACK POSITION

SCALE: NTS



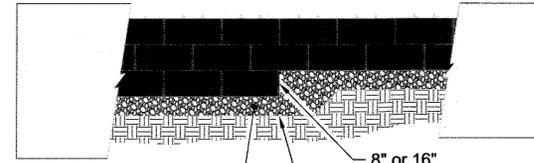
Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taut and Backfill. Stake as required.

Grid & Pin Connection



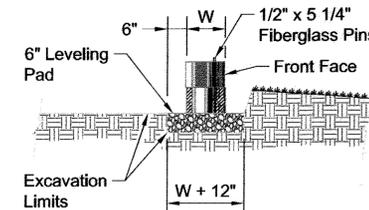
Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps



Elevation

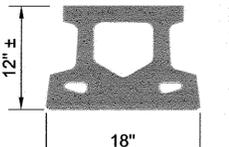
Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



Leveling Pad Detail

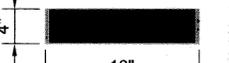
Excavation Limits

Compac III Plan

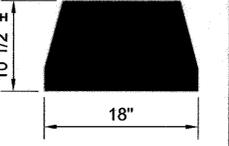


Compac III Unit

* Dimensions May Vary by Region



Cap Unit Elevation



Cap Unit Plan

Straight Split Cap Unit Option

* Dimensions & Availability Will Vary by Region

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 PLANS TO SHOW TEMP SALES TRAILER (PHASE I)	11/30/16

RETAINING WALLS SEGMENTAL WALL SECTIONS & DETAILS

COLEMAN FIAT NEW CAR SALES
HOLWECK SUBDIVISION PARCEL K-4
2530 NEW CAR DRIVE
PARCEL 365 (L 08594 / F. 00473)
TAX MAP 34 BLOCK 06 5TH ELECTION DISTRICT
LOT: PARCEL ZONED: B-2
HOWARD COUNTY, MARYLAND

ECS
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 THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12-31-2018

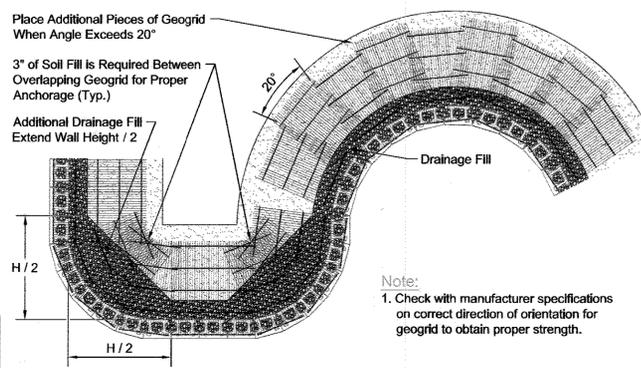
11 SHEET OF 12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

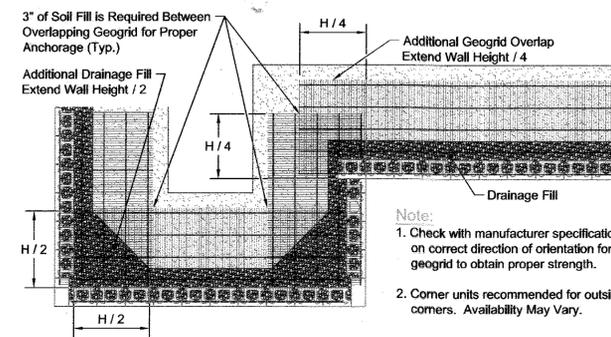
[Signature] 2-9-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

[Signature] 2-11-10
DIRECTOR DATE



Geogrid Installation on Curves



Geogrid Installation at Corners

Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.