

# ROBINSON OVERLOOK

## COLUMBIA, MD. 21045

### PARCEL 86

### SITE DEVELOPMENT PLAN

#### 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 UTILITIES AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
  - MISS UTILITY: 1-800-257-7777
  - VERIZON: 1-800-743-0033
  - BUREAU OF UTILITIES: 410-313-4994
  - AT&T: 1-800-252-1133
  - B.G.&E. (CONSTRUCTION SERVICES): 410-637-1113
  - B.G.&E. (EMERGENCY): 410-685-0123
  - STATE HIGHWAY ADMINISTRATION: 410-531-3533
  - COLUMBIA PIPELINE CO.: 410-785-1390
- SITE ANALYSIS:
  - AREA OF PARCEL: 3.83 AC.
  - AREA OF PLAN SUBMISSION: 3.83 AC.
  - PRESERVE FOR: RESIDENTIAL APARTMENTS
  - USE OF STRUCTURE: RESIDENTIAL APARTMENTS
  - TOTAL ON-SITE PARKING LOT, SIDEWALK AND BUILDING COVERAGE: 66,819 SF (1.53 AC. OR 39.8% OF GROSS AREA)
  - AREA OF LANDSCAPE ISLAND: 1,396 SF (0.03 AC. OR 0.78% OF GROSS AREA)
  - LIMIT OF DISTURBED AREA: 140,782 SF (3.23 AC.)
  - CUT: 9,739 CY FILL: 10,743 CY
  - FLOOR SPACE PER BUILDING:
    - BUILDING 1, 4 & 5 (TYPE I):
      - 1ST FLOOR = 3,883 S.F./BUILDING
      - 2ND FLOOR = 3,641 S.F./BUILDING
      - 3RD FLOOR = 2,693 S.F./BUILDING
      - 4TH FLOOR = 764 S.F./BUILDING
      - TOTAL FLOOR AREA FOR TYPE I BUILDING = 10,981 S.F. X 3 BUILDINGS = 32,943 S.F.
    - BUILDING 2 (TYPE II):
      - 1ST FLOOR = 4,101 S.F.
      - 2ND FLOOR = 3,731 S.F.
      - 3RD FLOOR = 2,693 S.F.
      - 4TH FLOOR = 764 S.F.
      - TOTAL FLOOR AREA FOR TYPE II BUILDING = 11,289 S.F.
    - BUILDING 3 (TYPE IA):
      - 1ST FLOOR = 3,977 S.F.
      - 2ND FLOOR = 3,641 S.F.
      - 3RD FLOOR = 2,693 S.F.
      - TOTAL FLOOR AREA FOR TYPE IA BUILDING = 10,975 S.F.
- PROJECT BACKGROUND:
  - LOCATION: COLUMBIA, MD.; TAX MAP 35, BLOCK 22, PARCEL 86
  - ZONING: POR
  - SUBDIVISION: N/A
  - SECTION/AREA: N/A
  - SITE AREA: 3.83 AC.
  - DPZ REFERENCES: BA-04-027C&V, SDP-06-102 (VOIDED), PLAT 19441-19442, F-07-092, WP-16-040, WP-17-004, ECP-15-046, BA-14-016, IS-078, BA-14-016, WP-16-040, BA-04-027C&V, ECP-19-005, SDP-15-078, BA-19-011, WP-20-025, 41-5087-P, F-20-001 (PLAT 25315-25316)
- 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, PAVEMENT, UTILITIES OR OTHER PUBLIC PROPERTY WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, AND THE U.S.A. STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL VERIFY ALL 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 CONSTRUCTION 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:
  - A. THE 61-1 SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
  - B. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
  - C. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUMUTCD).
  - D. ALL SIGN POSTS USED FOR TRAFFIC CONTROL ON THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL PERFORATED SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
- SOIL COMPOSITION 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.
- THE PROPERTY LINES SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PERFORMED BY H. VOGEL ENGINEERING, INC., DATED MAY 2005.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD TOPOGRAPHICAL SURVEY WITH TWO FOOT CONTOUR INTERVALS PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH 2015, JULY 2005, AND SITE DEVELOPMENT PLAN SDP-06-102.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- ALL PAVING TO BE MINIMUM HOWARD COUNTY STANDARD DETAIL P-2 UNLESS OTHERWISE NOTED. (SEE DETAILS, SHEET 3). THE GEOTECHNICAL ENGINEER TO CONFORM SECTION PRIOR TO CONSTRUCTION.
- ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED (SEE DETAIL ON SHEET 3).
- CONTRACTOR TO PROVIDE FOR CONSTRUCTING RAMP AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
- 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.
- PUBLIC WATER AND SEWER LINES THROUGH CONTRACT 34-414-D WHICH HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS. THIS PROPERTY IS LOCATED IN THE PATAPSCO DRAINAGE AREA.
- STORMWATER MANAGEMENT PROVIDED BY AN EXISTING UNDERGROUND DETENTION FACILITY (SDP-06-102), BIORETENTION FACILITIES (6-8), PERVIOUS PAVING (2-2) SWM FACILITIES TO BE PRIVATELY OWNED AND MAINTAINED.
- ALL EXTERIOR LIGHTING TO CONFORM TO SECTION 13.4 OF THE HOWARD COUNTY ZONING REGULATIONS. ALL LIGHTING SHALL BE DIRECTED DOWNWARD AND AWAY FROM THE ADJACENT PROPERTY. LIGHT TRESPASS ONTO A PROPERTY IN THE R-ED OR NT ZONING DISTRICT SHALL BE LIMITED TO 0.1 FOOT CANDLES.
- GEOTECHNICAL REPORT PREPARED BY H. VOGEL ENGINEERING, INC. ON FEBRUARY 11, 2018.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- TRAFFIC IMPACT STUDY BY TRAFFIC CONCEPTS INC. DATED SUBMITTED DECEMBER 2018, APPROVED 3/6/2019.
- ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS "C", AS REQUIRED BY AASHTO-180.
- BUILDING TO HAVE INSIDE WATER METER SETTING.
- THE FOREST CONSERVATION OBLIGATIONS WERE PREVIOUSLY FULFILLED BY THE RETENTION OF 0.57 ACRES OF FOREST, BY THE REFORESTATION OF 0.46 ACRES OF FOREST, AND BY A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF \$22,215.80 FOR THE REMAINING 0.88 ACRES OF FOREST ACQUIRED (SDP-06-102, BALTIMORE KOREAN SEVENTH DAY ADVENTIST CHURCH). FINANCIAL SURETY FOR THE REQUIRED REFORESTATION IN THE AMOUNT OF \$10,184.00 WILL BE POSTED AS PART OF THE DEVELOPERS AGREEMENT UNDER THIS SITE DEVELOPMENT PLAN. THE REQUIRED RETENTION AND REFORESTATION WILL BE ADDRESSED WITH THIS SDP-19-005. A NEW DEVELOPERS AGREEMENT WILL BE PREPARED AND SUPERSEDE ALL PREVIOUS DA'S FOR THIS SITE.
- THERE IS NO NET LOSS OF FCE. ANY REQUIRED RE-PLANTING OR RE-LOCATIONS WILL BE ACCOMPLISHED ON SITE.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S), OR OTHER REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- THERE ARE NO WETLAND OR FLOODPLAINS ON SITE. THERE IS 0.07 ACRES OF 15% STEEP SLOPES AND 1.16 ACRES OF 25% STEEP SLOPES OR GREATER ON SITE.
- THE SUBJECT PROPERTY IS ZONED POR PER THE 10/6/2013 COMPREHENSIVE ZONING PLAN.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- THE EXISTING 3 - 2.9 FT. HIGH TIERED RETAINING WALLS ARE NOT CONSIDERED STRUCTURES (SDP-06-102).
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES 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.
- THERE ARE NO SPECIMEN OR CHAMPION TREES WITHIN THE LOD.
- THE SUBJECT SITE WAS PARTIALLY CONSTRUCTED IN ACCORDANCE WITH THE APPROVED SITE DEVELOPMENT PLAN (REFERENCE VOIDED SDP-06-102) AND THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. PREVIOUSLY APPROVED WITH SDP-06-102, AT THE SAME LOCATION SHOWN ON THIS PLAN.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPERS AGREEMENT WITH THIS PLAN, IN THE AMOUNT OF \$13,350.00 FOR THE REQUIRED 24 SHADE TREES, 41 EVERGREEN TREES.
- FINANCIAL SURETY FOR THE REQUIRED STREET TREE PLANTING FOR THIS PROJECT HAS BEEN POSTED AS PART OF THE DEVELOPERS AGREEMENT WITH THIS PLAN, IN THE AMOUNT OF \$4,500.00 FOR THE REQUIRED 15 SHADE TREES. THE PUBLIC SURETY WILL BE INCLUDED IN THE DED'S COST ESTIMATE.
- HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN (SDP) DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PERMIT PLANS FOR CERTAIN FACILITIES TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS SDP WILL REQUIRE REVIEW AND APPROVAL BY THE HEALTH DEPARTMENT. SUCH FACILITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, THOSE WHICH HAVE SWIMMING POOLS, OR THAT SELL PREPARED OR PACKAGED FOODS, OR THAT MAY HAVE EQUIPMENT THAT EMITS RADIATION.
- ALL PROPOSED BUILDINGS WILL HAVE AN INSIDE METER SETTING. THE BUILDINGS WILL ALSO HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEMS.
- A COMMUNITY MEETING WAS HELD FOR THIS PROJECT AT HAWTHORN CENTER, 6175 SUNNY SPRING, COLUMBIA, MD 21044 AT 6:00PM ON NOVEMBER 7, 2019.
- THIS PROJECT IS NOT LOCATED ON A SCENIC ROAD.
- THERE ARE NO HISTORIC STRUCTURES ON THIS PROPERTY. THIS PROPERTY IS NOT LOCATED WITHIN A HISTORIC DISTRICT.
- THERE ARE NO CEMETERIES LOCATED ON THIS PROPERTY.
- REF. AA-19-011 (APPROVED 9-12-19) REDUCE THE 75-FOOT STRUCTURE AND USE SETBACK REQUIREMENT FROM A RESIDENTIAL DISTRICT TO 68 FEET FOR BUILDING 2 AND 60.0 FEET FOR BUILDING 3. ALSO, TO REDUCE THE 30-FOOT RIGHT-OF-WAY STRUCTURE AND USE SETBACK TO 26.2 FEET FOR BUILDING 4. THE SIDEWALKS ARE EXEMPT FROM BULK REGULATIONS. THEY MAY EXCEED THE SETBACK AND NOT REQUIRE AN ADMINISTRATIVE ADJUSTMENT.
- REF. WP-20-025 ALTERNATIVE COMPLIANCE (AS APPROVED 9/25/19 FOR SECTION 16.156(G)(2)). THE DEPARTMENT OF PLANNING AND ZONING ALTERNATIVE COMPLIANCE TO SECTION 16.116(G)(1) WHICH PROHIBITS GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, NEW STRUCTURES, AND PAVING ON LANDS WITH 39.83% OF GROSS AREA STEEP SLOPES (OVER 10 VERTICAL FEET) WITH A CONTIGUOUS AREA OF 20,000 SQUARE FEET OR MORE WAS APPROVED BY THE HOWARD COUNTY PLANNING BOARD ON JANUARY 9TH, 2020.
- IN ACCORDANCE WITH SECTION 128.1-2 (HOUSING COMMISSION HOUSING DEVELOPMENT) THIS PLAN WAS APPROVED BY THE HOWARD COUNTY PLANNING BOARD ON JANUARY 9TH, 2020.
- GRADING, REMOVAL OF VEGETATIVE COVER, NEW STRUCTURES AND/OR PAVING IS NOT PERMITTED WITHIN THE RETAINING WALL BUFFER AREA.

APPROVED BY PLANNING BOARD OF HOWARD COUNTY

PB approved 1/1/20 D&O signed 1/1/20

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 2/4/20

DATE: 2/4/20

DATE: 2/4/20

DATE: 2/4/20

#### SITE DATA/SITE ANALYSIS

LOCATION: COLUMBIA, MD.; TAX MAP 35, BLOCK 22, PARCEL 86

5TH ELECTION DISTRICT

PRESENT ZONING: POR

PARCEL AREA: 3.83 AC.

DPZ REFERENCES: SDP-06-102, SDP-15-078, F-07-092 (PLAT 19441-19442), ECP-19-005, BA-14-016, WP-16-040, WP-17-004, BA-04-027C&V, ECP-19-005, BA-19-011, WP-20-025, 41-5087-P, F-20-001 (PLAT 25315-25316)

USE OF STRUCTURES: FOUR - TEN UNIT BUILDINGS

ONE - 8 UNIT BUILDING WITH COMMUNITY SPACE

TOTAL PARKING LOT, SIDEWALK AND BUILDING COVERAGE: 66,819 SF (1.53 AC.)

AREA OF LANDSCAPE ISLAND: 1,396 SF (0.03 AC. OR 0.78% OF GROSS AREA)

LIMIT OF DISTURBED AREA: 140,782 SF (3.23 AC.)

WETLANDS ON SITE: 0.00 AC.

WETLAND BUFFERS ON SITE: 0.00 AC.

STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.

AREA OF ONE-SITE 100-YEAR FLOODPLAIN: 0.00 AC.

AREA OF EXISTING FOREST ON SITE: 0.61 AC.

AREA OF STEEP SLOPES (15% OR GREATER): 0.07 AC.

AREA OF STEEP SLOPES (25% OR GREATER): 1.16 AC.

AREA OF ERODIBLE SOILS: 0.0 AC.

AREA MANAGED BY EDV (THIS PLAN): 2.51 AC.

IMPERVIOUS AREA: 1.53 AC.

"GREEN" AREA: 1.62 AC.

MHU = 10% OF TOTAL 48 DWELLING UNITS = 4.8 UNITS (5 PROPOSED)

UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS): 2 UNITS (PROVIDED IN TYPE IA BLDGS)

RECREATION OPEN SPACE REQUIRED: (400 S.F. PER UNIT): 400 S.F. x 48 = 19,200 S.F.

RECREATION AMENITIES PROVIDED:

- AMENITY RECREATION AREA #1 (PICNIC AREA) = 2,000 S.F.
- TOT LOT/ PLAY GROUND EQ. = 2,000 S.F.
- AMENITY RECREATION AREA #2 = 600 S.F.
- UNIT BUINE - 8 UNIT BUILDING WITH COMMUNITY SPACE = 6,140 S.F.
- AMENITY RECREATION AREA #3 = 2,000 S.F.
- 4 - 5' BENCHES (4 x 200 S.F.) = 800 S.F.
- COMMUNITY CENTER (IN BUILDING #2) (1380/10)=138x48 = 6,624 S.F.

TOTAL RECREATION OPEN SPACE PROVIDED: = 20,164 S.F.

OPEN SPACE REQUIRED: 25% OF GROSS AREA FOR PASSIVE, REC AND/OR OPEN SPACE IN PROXIMITY TO THE RESIDENTIAL UNITS.

OPEN SPACE REQUIRED: (25% OF GROSS AREA): 3.83 AC x 25% = 41,818 S.F. OR 0.96 AC.

OPEN SPACE #1 = 25,206 S.F. (0.58 AC.)

OPEN SPACE #2 = 9,994 S.F. (0.23 AC.)

OPEN SPACE #3 = 5,991 S.F. (0.14 AC.)

OPEN SPACE #4 = 2,683 S.F. (0.06 AC.)

TOTAL OPEN SPACE PROVIDED = 43,844 S.F. (1.01 AC.)

LOCATION MAP

SCALE: 1"=50'

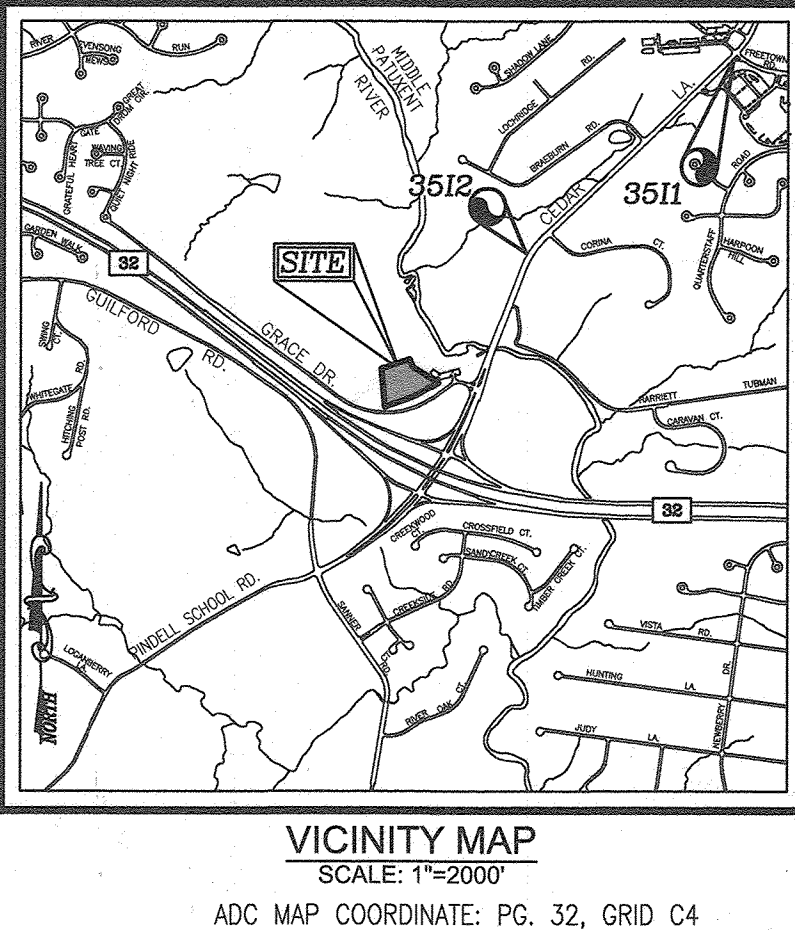
GRAPHIC SCALE 1"=50'

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 351  
N 557,110.367 E 1,344,883.647 ELEV. 400.068

HOWARD COUNTY BENCHMARK 3512  
N 555,100.814 E 1,342,733.092 ELEV. 329.743

- #### LEGEND
- Existing Contour
  - Proposed Contour
  - Existing Spot Elevation
  - Proposed Spot Elevation
  - Direction of Flow
  - Existing Trees to Remain
  - Lights (Private)
  - Street Lights (Howard County)
  - Concrete
  - Passive Open Space
  - Ex. Forest Conservation Esmt. (Retestation)
  - Prop. Forest Conservation Esmt. (Retestation) (PLAT 25315-25316)
  - Forest Conservation Esmt. (Retestation)
  - Proposed Forest Conservation Abandoned Area (PLAT 25315-25316)



#### SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 17
EXISTING CONDITIONS PLAN	2 OF 17
SITE LAYOUT PLAN	3 OF 17
SITE DETAILS	4 OF 17
SOILS MAP, SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN	5 OF 17
SEDIMENT AND EROSION CONTROL NOTES AND DETAILS	6 OF 17
STORM DRAIN AND STORMWATER MANAGEMENT DRAINAGE AREA MAP	7 OF 17
UTILITY PROFILES	8 OF 17
UTILITY PROFILES	9 OF 17
UTILITY PROFILES	10 OF 17
PAVEMENT AND BORING LOCATION PLAN	11 OF 17
STORMWATER MANAGEMENT DETAILS	12 OF 17
LANDSCAPE AND FOREST CONSERVATION PLAN AND DETAILS	13 OF 17
SLOPE, SLOPE, PAVEMENT MARKINGS, ROAD SECTIONS, AND FOREST CONSERVATION NOTES AND DETAILS	14 OF 17
PHOTOMETRIC PLANS	15 OF 17
RETAINING WALL PLANS	16 OF 17
RETAINING WALL PLANS	17 OF 17

#### ADDRESS CHART

UNIT/BUILDING	STREET ADDRESS
1	7418 GRACE DRIVE
2	7416 GRACE DRIVE
3	7414 GRACE DRIVE
4	7412 GRACE DRIVE
5	7410 GRACE DRIVE

#### PARKING TABULATION

REQUIREMENT DESCRIPTION	REQUIRED	PROVIDED
APARTMENTS - 48 UNITS @ 2.3 SPACES/UNIT:	111 SPACES	84 SPACES
ELECTRICAL CHARGING STATION (1:25)		3 SPACES
TOTAL SPACES		87 SPACES

\* PARKING REDUCTION APPROVED BY THE DIRECTOR'S OFFICE ON OCTOBER 24, 2019

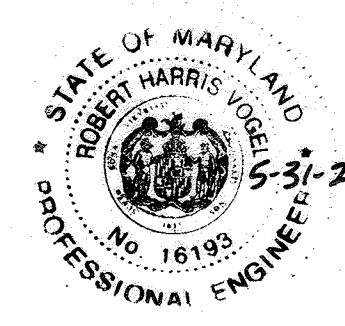
NOTE: THE PROPERTY'S MANAGEMENT COMPANY IS RESPONSIBLE FOR THE REGULATION AND MONITORING OF ON-SITE PARKING AND MUST THEMSELVES (NOT THE COUNTY) ADDRESS ANY PARKING INADEQUACIES.

#### MODERATE INCOME HOUSING UNITS (MIHU) ALLOCATION EXEMPTIONS TRACKING

TOTAL NUMBER OF LOTS/UNITS PROPOSED	48 UNITS
NUMBER OF MIHU PROVIDED	5 UNITS (10% OF 48 UNITS)
NUMBER OF MIHU PROVIDED ON-SITE (EXEMPT FROM APFO ALLOCATIONS)	5 UNITS
NUMBER OF APFO ALLOCATIONS REQUIRED (REMAINING LOTS/UNITS)	43
MIHU FEE-IN-LIEU (INDICATE LOT/UNIT NUMBERS)	N/A

**OWNER/DEVELOPER**

ROBINSON OVERLOOK LIMITED PARTNERSHIP  
500 S. FRONT STREET, 10TH FLOOR  
COLUMBIA, OH 43215  
(614) 396-3200



AS-BUILT CERTIFICATION FOR P&WM

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

DATE: 5-31-23

P.E. # 16193

NO AS-BUILT INFORMATION ON THIS SHEET

#### ADDRESS CHART

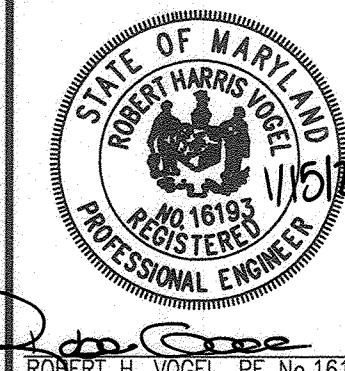
LOT/PARCEL#	STREET ADDRESS
86	7410 GRACE DRIVE

#### PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	PARCEL NUMBER
N/A	N/A	86

DEED REF.	GRID	ZONE	TAX/ZONE	ELECT. DIST.	CENSUS TR.
15412/00410	22	POR	35	5TH	6055.01

WATER CODE: E24 SEWER CODE: 6580000



**ROBERT H. VOGEL ENGINEERING, INC.**

ENGINEERS • SURVEYORS • PLANNERS

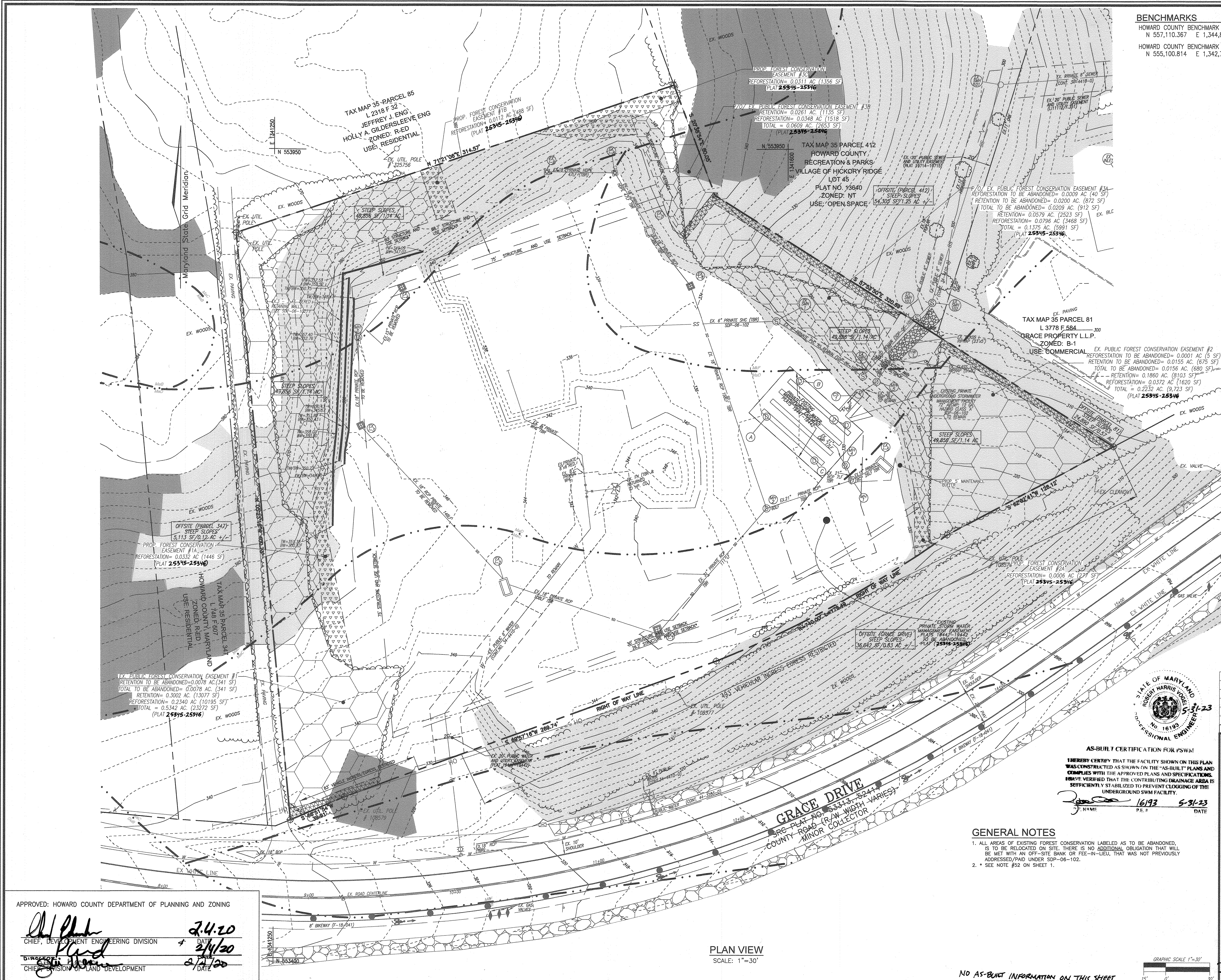
3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LRC/RHV  
DRAWN BY: LRC  
CHECKED BY: RHY  
DATE: NOV 2019  
SCALE: AS SHOWN  
W.O. NO.: 04-08

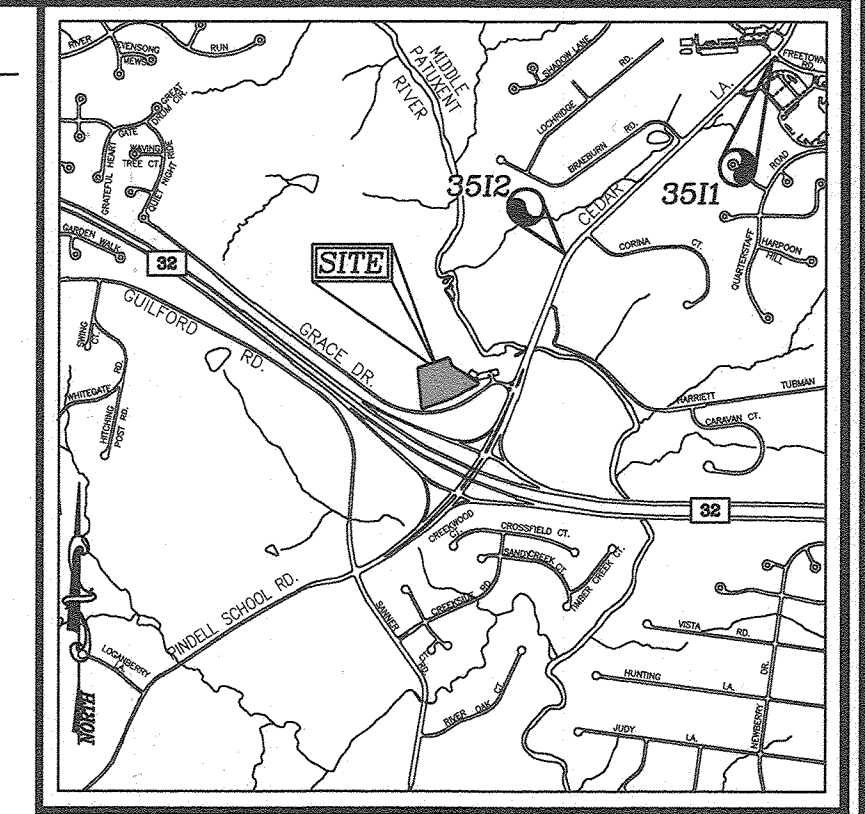
1 SHEET OF 17

AS-BUILT, SEPTEMBER 2021





**BENCHMARKS**  
 HOWARD COUNTY BENCHMARK 3511  
 N 557,110.367 E 1,344,893.647 ELEV. 400.068  
 HOWARD COUNTY BENCHMARK 3512  
 N 555,100.814 E 1,342,733.092 ELEV. 329.743

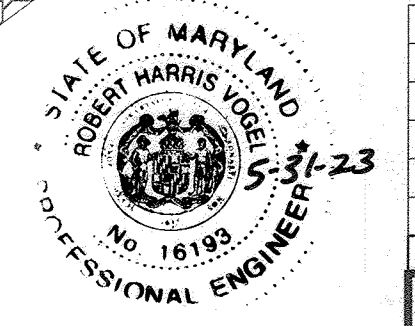


**VICINITY MAP**  
 SCALE: 1"=2000'  
 ADC MAP COORDINATE: PG. 32, GRID C4

**LEGEND**

	EXISTING CONTOUR
	EXISTING CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING STORM DRAIN
	EXISTING STORM DRAIN M.H.
	EXISTING FIBER OPTIC
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	EXISTING TREE LINE
	STEEP SLOPES
	MOD. STEEP SLOPES
	EX. FOREST CONSERVATION ESMT. (RETENTION)
	PROP. FOREST CONSERVATION ESMT. (REFORESTATION)
	FOREST CONSERVATION ESMT. (REFORESTATION)
	FOREST CONSERVATION ESMT. ABANDONED

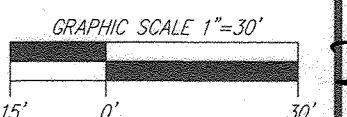
**OWNER/DEVELOPER**  
 ROBINSON OVERLOOK LIMITED PARTNERSHIP  
 500 S. FRONT STREET, 10TH FLOOR  
 COLUMBUS, OH 43215  
 (614) 396-3200



**AS-BUILT CERTIFICATION FOR PSWM**  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.  
 J. NAME: [Signature] P.E.# 16193 DATE: 5-31-23

**GENERAL NOTES**  
 1. ALL AREAS OF EXISTING FOREST CONSERVATION LABELED AS TO BE ABANDONED, IS TO BE RELOCATED ON SITE. THERE IS NO ADDITIONAL OBLIGATION THAT WILL BE MET WITH AN OFF-SITE BANK OR TREE-IN-LIEU, THAT WAS NOT PREVIOUSLY ADDRESSED/PAID UNDER SDP-06-102.  
 2. \* SEE NOTE #52 ON SHEET 1.

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



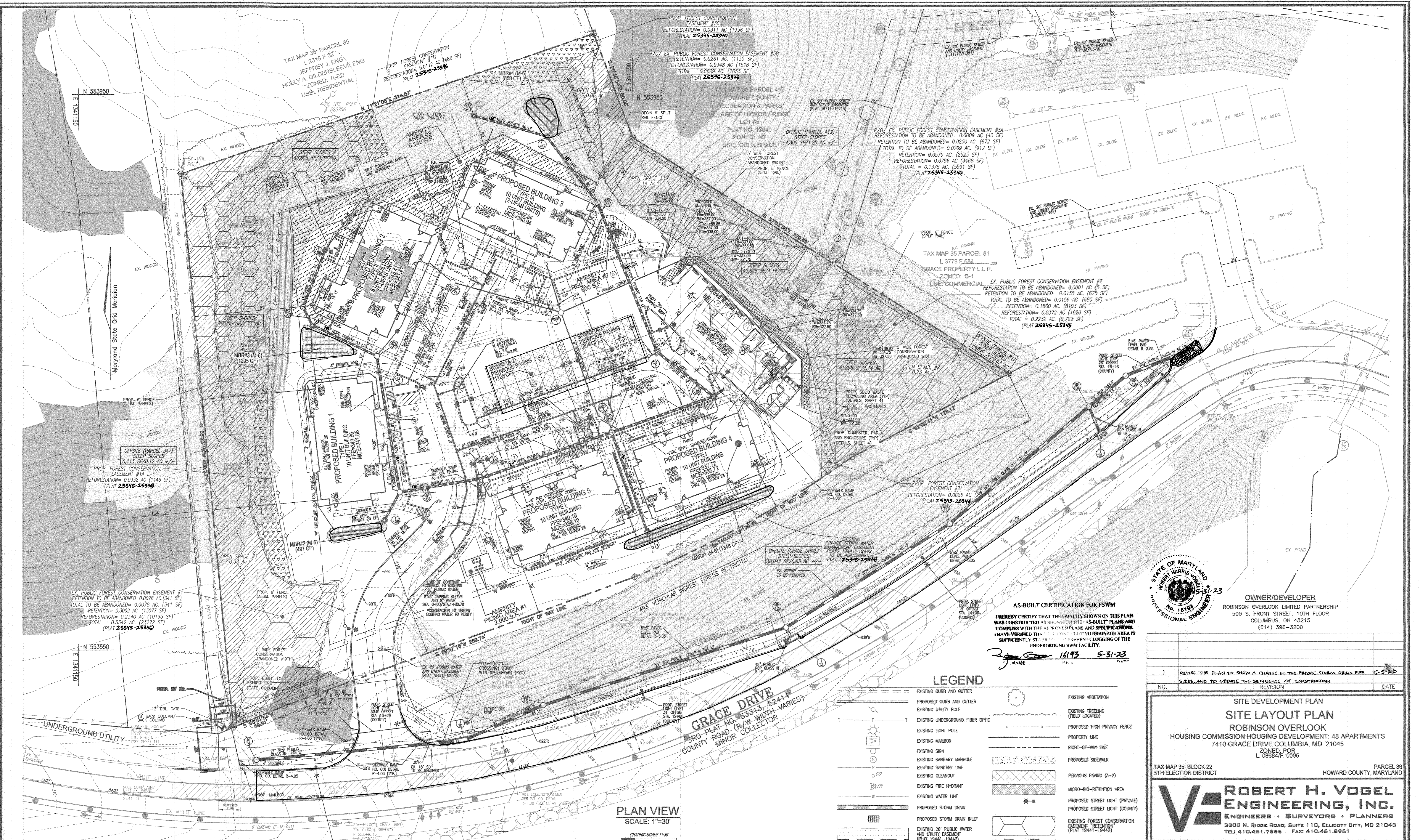
NO AS-BUILT INFORMATION ON THIS SHEET

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 2.4.20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 2/4/20  
 CHIEF, DIVISION OF LAND DEVELOPMENT

NO.	REVISION	DATE
<b>SITE DEVELOPMENT PLAN</b>		
<b>EXISTING CONDITIONS PLAN</b>		
<b>ROBINSON OVERLOOK</b>		
HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS		
7410 GRACE DRIVE COLUMBIA, MD. 21045		
ZONED: PC-1		
L. 08884/F. 0005		
TAX MAP 35 BLOCK 22	PARCEL 86	
5TH ELECTION DISTRICT	HOWARD COUNTY, MARYLAND	
<b>ROBERT H. VOGEL ENGINEERING, INC.</b>		
ENGINEERS • SURVEYORS • PLANNERS		
3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043		
TEL: 410.461.7666 FAX: 410.461.8961		
<b>PROFESSIONAL CERTIFICATE</b>		
DESIGN BY: LRC/RHV	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2025.	
DRAWN BY: LRC		
CHECKED BY: RHV		
DATE: NOV 2019		
SCALE: AS SHOWN		
W.O. NO.: 04-06		
2 SHEET OF 17		

AS-BUILT, SEPTEMBER 2021  
 SDP-19-055





PLAN VIEW  
SCALE: 1"=30'

STORMWATER MANAGEMENT  
FACILITY PRIVATELY OWNED  
AND MAINTAINED

- NOTE:
1. ALL STREET LIGHTS WILL BE LED-200 COBRA FIXTURE MOUNTED AT 30' ON BRONZE FIBERGLASS POLE USING 6" ARM.
  2. THE FRONTAGE IMPROVEMENTS ALONG GRACE DRIVE SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL R-1.08, SEE DETAIL SHEET 4.
  3. SEE NOTE #52 ON SHEET 1.
  4. ALL AREAS OF EXISTING FOREST CONSERVATION LABELED AS TO BE ABANDONED, IS TO BE RELOCATED ON SITE. THERE IS NO ADDITIONAL OBLIGATION THAT WILL BE MET WITH AN OFF-SITE BANK OR FEE-IN-LIEU, THAT WAS NOT PREVIOUSLY ADDRESSED/PAID UNDER SDP-06-102.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 7.4.20  
DATE

CHIEF DEVELOPMENT ENGINEERING DIVISION

*[Signature]* 2/4/20  
DATE

CHIEF DIVISION OF LAND DEVELOPMENT

*[Signature]* 2/4/20  
DATE

DIRECTOR

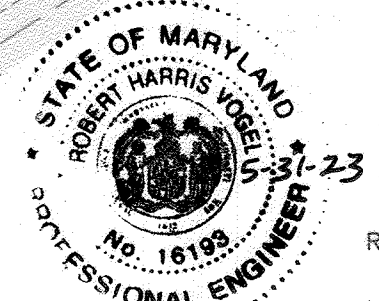
LEGEND

EXISTING CURB AND GUTTER	EXISTING VEGETATION
PROPOSED CURB AND GUTTER	EXISTING TREELINE (FIELD LOCATED)
EXISTING UTILITY POLE	PROPOSED HIGH PRIVACY FENCE
EXISTING UNDERGROUND FIBER OPTIC	PROPERTY LINE
EXISTING LIGHT POLE	RIGHT-OF-WAY LINE
EXISTING MAILBOX	PROPOSED SIDEWALK
EXISTING SIGN	PERVIOUS PAVING (A-2)
EXISTING SANITARY MANHOLE	MICRO-BIO-RETENTION AREA
EXISTING SANITARY LINE	PROPOSED STREET LIGHT (PRIVATE)
EXISTING CLEANOUT	PROPOSED STREET LIGHT (COUNTY)
EXISTING FIRE HYDRANT	EXISTING FOREST CONSERVATION EASEMENT "RETENTION"
EXISTING WATER LINE	(PLAT 19441-19442)
PROPOSED STORM DRAIN	EXISTING FOREST CONSERVATION EASEMENT "REFORESTATION"
PROPOSED STORM DRAIN INLET	(PLAT 19441-19442)
EXISTING 20" PUBLIC WATER AND UTILITY EASEMENT (PLAT 19441-19442)	EXISTING FOREST CONSERVATION EASEMENT "RETENTION"
PROPOSED PUBLIC WATER AND UTILITY EASEMENT (PLAT 25345-25346)	(PLAT 19441-19442)
PROPOSED MILL AND OVERLAY	PROPOSED FOREST CONSERVATION EASEMENT "REFORESTATION"
PROPOSED OPEN SPACE	(PLAT 25345-25346)
PROPOSED FOREST CONSERVATION ABANDONED AREA (PLAT 25345-25346)	PROPOSED RETAINING WALL
BORING	TRAFFIC DELINEATOR POST FOR BIKE PATH AND ACCESSIBLE ROUTE PER (P-19-04)

AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND SPECIFICATIONS WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENT TO SUPPORT THE CURRENT CLOSING OF THE UNDERGROUND SWM FACILITY.

*[Signature]* 10/19/23 5-31-23  
NAME PL. DATE



OWNER/DEVELOPER  
ROBINSON OVERLOOK LIMITED PARTNERSHIP  
500 S. FRONT STREET, 10TH FLOOR  
COLUMBUS, OH 43215  
(614) 396-3200

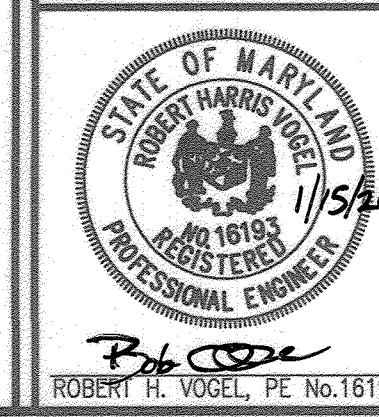
NO.	REVISION	DATE
1	REVISE THE PLAN TO SHOW A CHANGE IN THE PRIVATE STORM DRAIN PIPE SIZES, AND TO UPDATE THE SEQUENCE OF CONSTRUCTION	5-31-23

SITE DEVELOPMENT PLAN  
SITE LAYOUT PLAN  
ROBINSON OVERLOOK  
HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
7410 GRACE DRIVE COLUMBIA, MD. 21045  
ZONED: POR  
L. 08684F. 0005

TAX MAP 35 BLOCK 22  
5TH ELECTION DISTRICT

PARCEL 86  
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
TELE 410.461.7666 FAX: 410.461.8961



PROFESSIONAL CERTIFICATE

DESIGN BY: LRC/RHV  
DRAWN BY: LRC  
CHECKED BY: RHV  
DATE: NOV. 2019  
SCALE: AS SHOWN  
W.O. NO.: 04-06

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2020

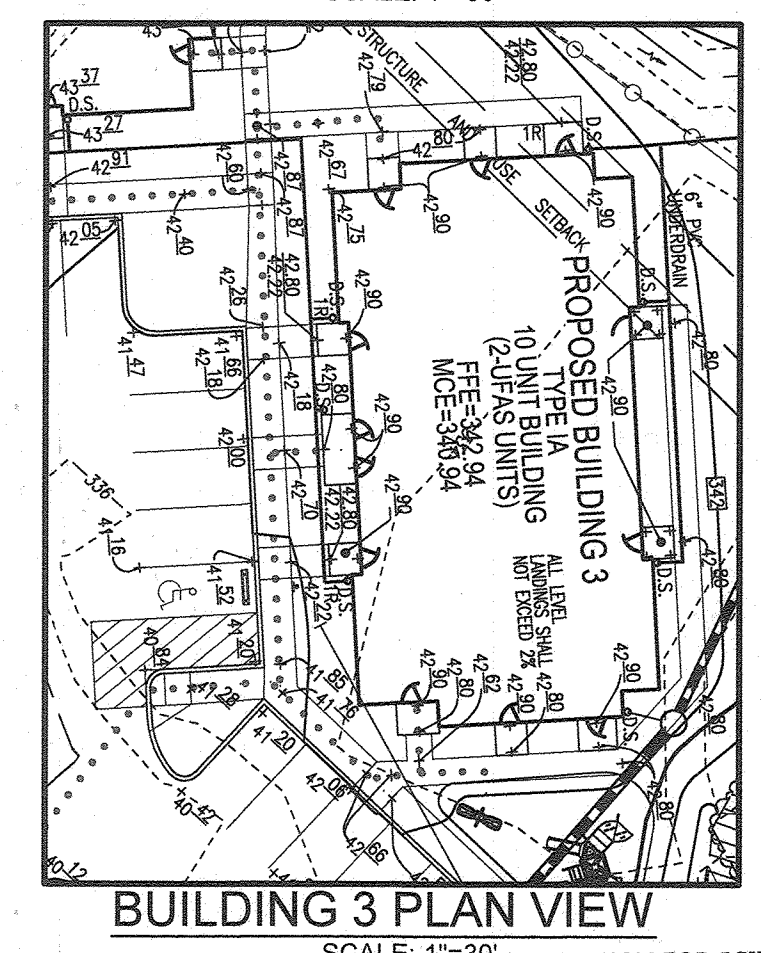
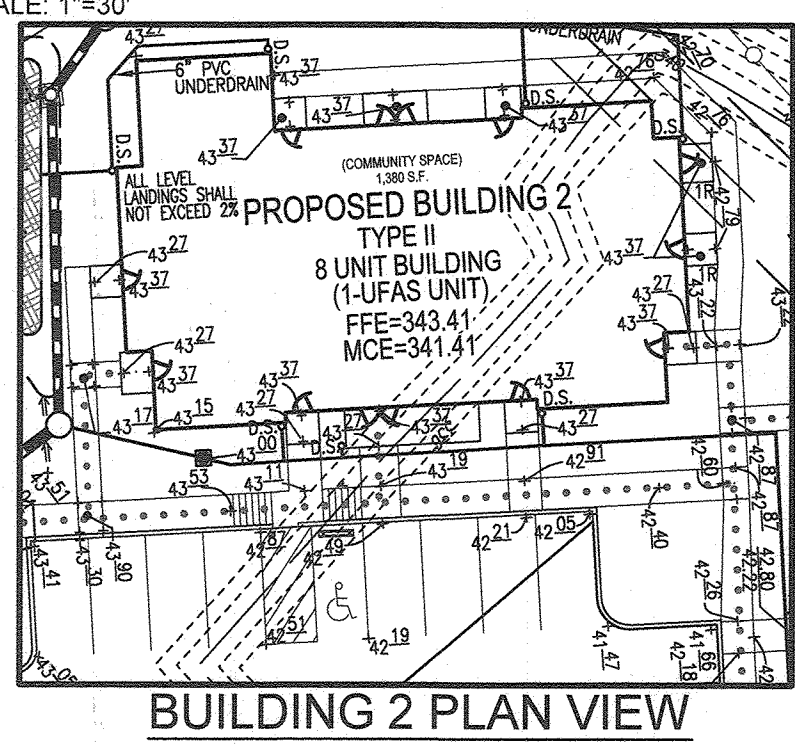
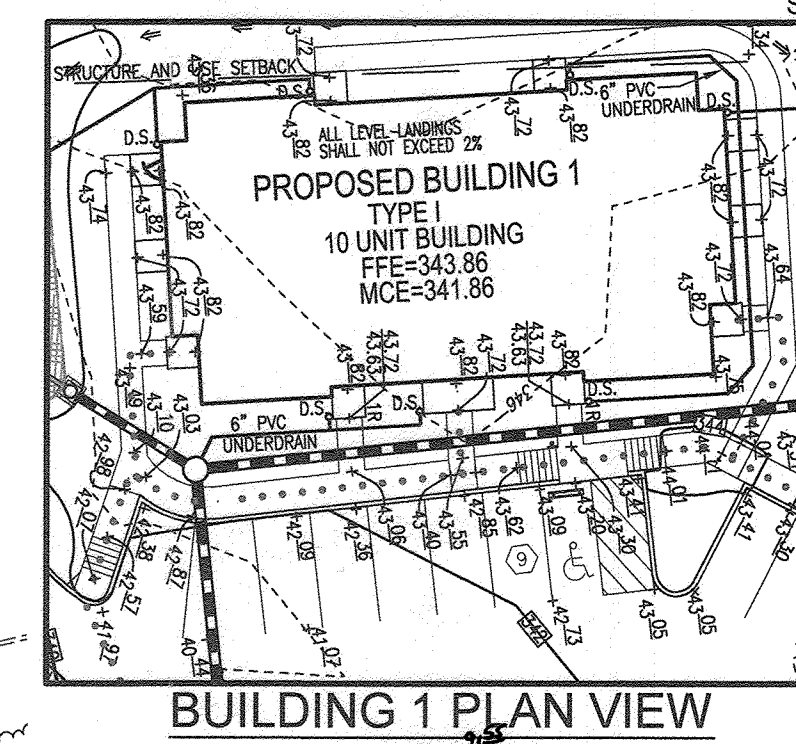
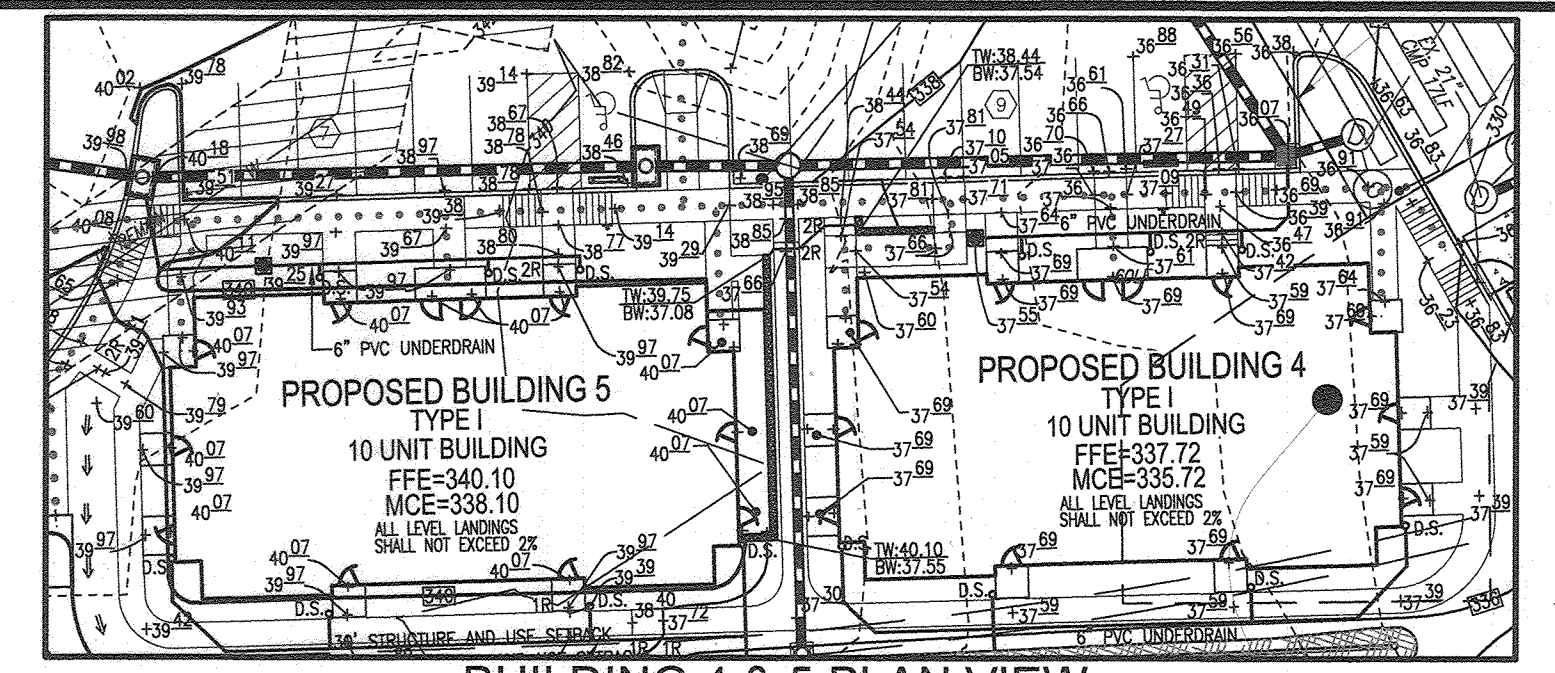
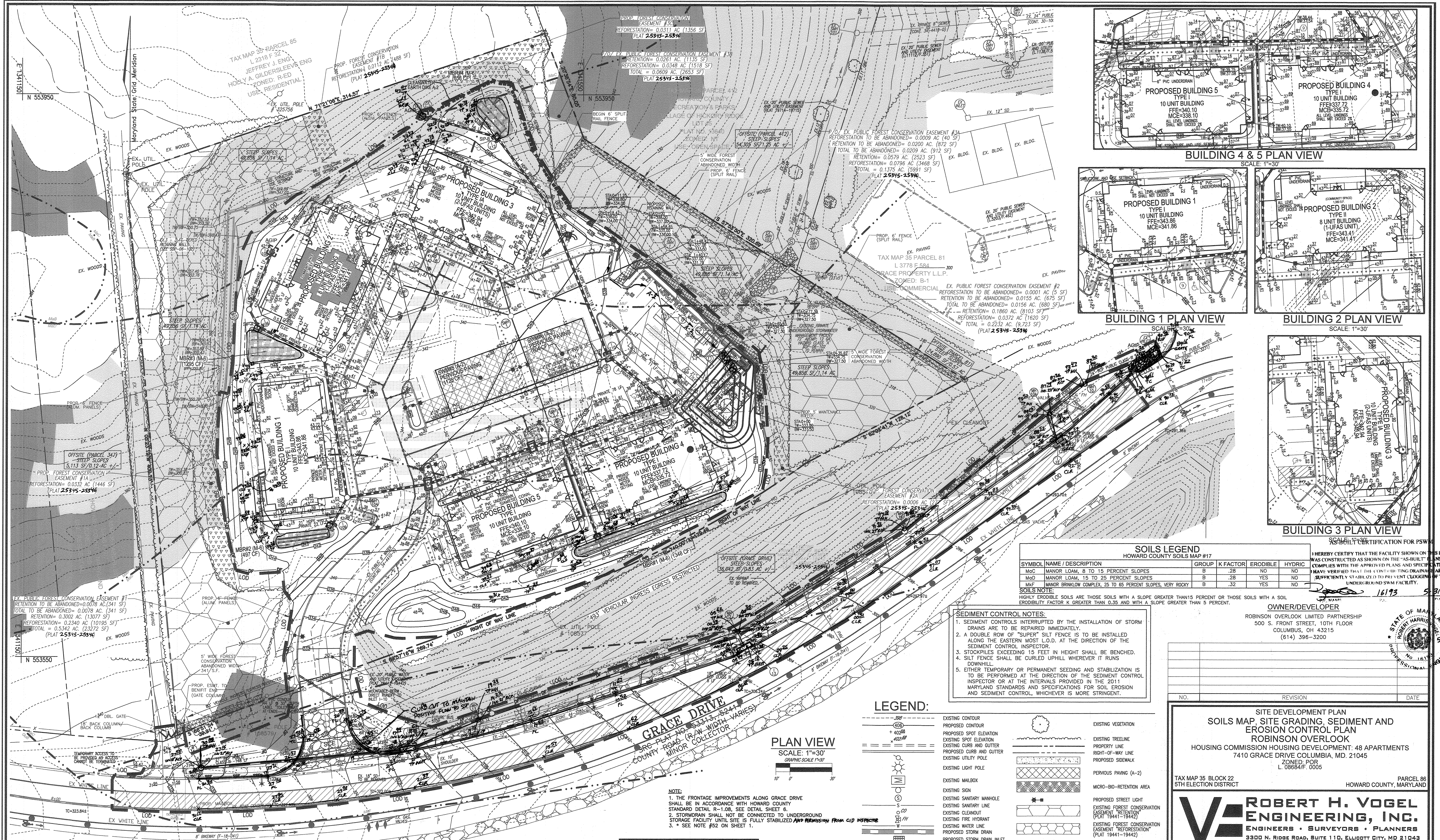
3 SHEET OF 17

AS-BUILT, SEPTEMBER 2021









**SOILS LEGEND**  
HOWARD COUNTY SOILS MAP #17

SYMBOL	NAME / DESCRIPTION	GROUP	K FACTOR	ERODIBLE	HYDRIC
MGC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO	NO
MGD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	.28	YES	NO
MKF	MANOR BRINKLOW COMPLEX, 25 TO 65 PERCENT SLOPES, VERY ROCKY	B	.32	YES	NO

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

**LEGEND:**

EXISTING CONTOUR	EXISTING VEGETATION
PROPOSED CONTOUR	EXISTING TREELINE
PROPOSED SPOT ELEVATION	PROPERTY LINE
EXISTING SPOT ELEVATION	RIGHT-OF-WAY LINE
EXISTING CURB AND GUTTER	PROPOSED SIDEWALK
EXISTING UTILITY POLE	PERVIOUS PAVING (A-2)
EXISTING LIGHT POLE	MICRO-BIO-RETENTION AREA
EXISTING MAILBOX	PROPOSED STREET LIGHT
EXISTING SIGN	EXISTING FOREST CONSERVATION EASEMENT "RETENTION" (PLAT 19441-19442)
EXISTING SANITARY MANHOLE	EXISTING FOREST CONSERVATION EASEMENT "REFORESTATION" (PLAT 19441-19442)
EXISTING SANITARY LINE	STEEP SLOPE (4:20)
EXISTING CLEANOUT	SILT FENCE
EXISTING FIRE HYDRANT	SUPER SILT FENCE
EXISTING WATER LINE	DIVERSION FENCE
PROPOSED STORM DRAIN	LIMIT OF DISTURBANCE
PROPOSED STORM DRAIN INLET	CURB INLET PROTECTION
EXISTING 20" PUBLIC WATER AND UTILITY EASEMENT (PLAT 19441-19442)	AT GRADE INLET PROTECTION
PROPOSED PUBLIC WATER AND UTILITY EASEMENT (PLAT 25315-25316)	STABILIZED CONSTRUCTION ENTRANCE
SOILS BOUNDARY	
PROPOSED WIDENING AREA	
PROPOSED RETAINING WALL	
EXISTING PUBLIC WATER AND UTILITY EASEMENT TO BE REMOVED	
PROPOSED ACCESSIBLE ROUTE	

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

**NOTE:**  
1. THE FRONTAGE IMPROVEMENTS ALONG GRACE DRIVE SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL R-108. SEE DETAIL SHEET 8.  
2. STORMDRAIN SHALL NOT BE CONNECTED TO UNDERGROUND STORAGE FACILITY UNTIL SITE IS FULLY STABILIZED AND PERMITS FROM CIP INSPECTOR.  
3. SEE NOTE #62 ON SHEET 1.

**STORMWATER MANAGEMENT FACILITY PRIVATELY OWNED AND MAINTAINED**

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 2/4/20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 2/4/20  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 [Signature] 2/4/20  
 DIRECTOR

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] 1/16/2020  
 SIGNATURE OF DEVELOPER

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] 1/15/2020  
 SIGNATURE OF ENGINEER

STATE OF MARYLAND  
 ROBERT H. VOGEL  
 PROFESSIONAL ENGINEER  
 16193  
 5-31-23

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**SOILS MAP, SITE GRADING, SEDIMENT AND EROSION CONTROL PLAN**  
**ROBINSON OVERLOOK**  
 HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
 7410 GRACE DRIVE COLUMBIA, MD. 21045  
 ZONING: R-1  
 L. 08854/F. 0005

TAX MAP 35 BLOCK 22  
 5TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 PARCEL 88

**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110, ELIGGETT CITY, MD 21043  
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LRC/RHV  
 DRAWN BY: LRC  
 CHECKED BY: RHV  
 DATE: NOV 2019  
 SCALE: AS SHOWN  
 W.O. NO.: 04-06

PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 09-27-2020.

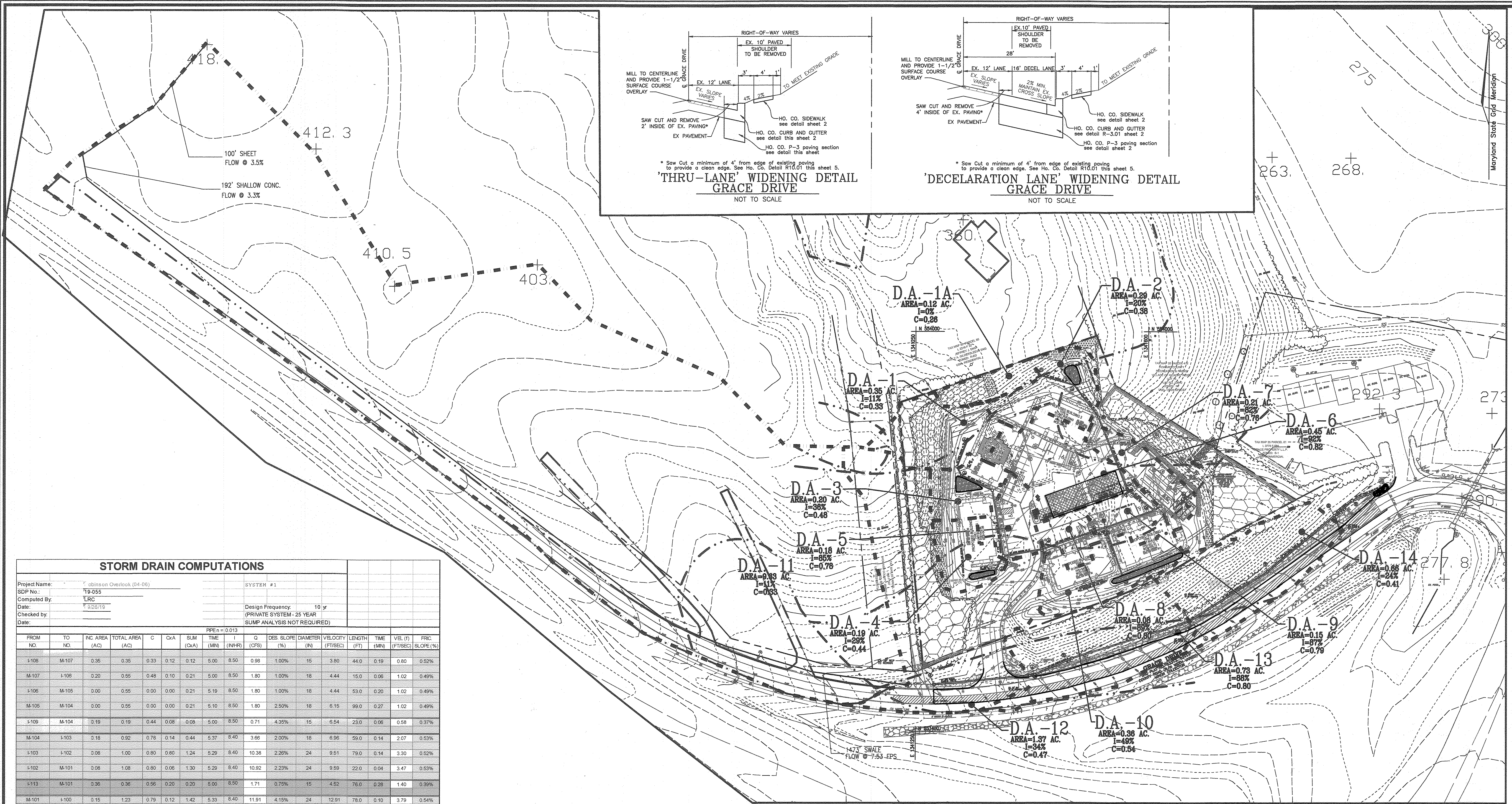
5 SHEET OF 17

AS-BUILT, SEPTEMBER 2021





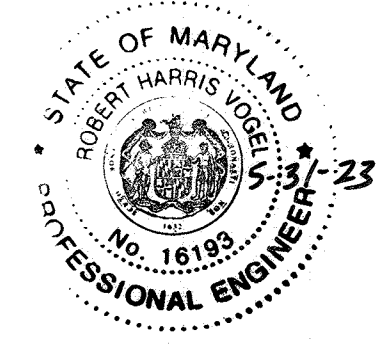




**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- SOILS BOUNDARY
- PROPOSED RETAINING WALL
- EXISTING VEGETATION
- EXISTING TREELINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PERVIOUS PAVING (A-2)
- PROPOSED STREET LIGHT
- EXISTING FOREST CONSERVATION EASEMENT 'RETENTION' (PLAT 19441-19442)
- EXISTING FOREST CONSERVATION EASEMENT 'REFORESTATION' (PLAT 19441-19442)
- TEST PITS

STORMWATER MANAGEMENT FACILITY PRIVATELY OWNED AND MAINTAINED



AS-BUILT CERTIFICATION FOR PSWM  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS ADEQUATELY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.  
 R.H. NAME: [Signature] 16193 P.E.# 5-31-23 DATE

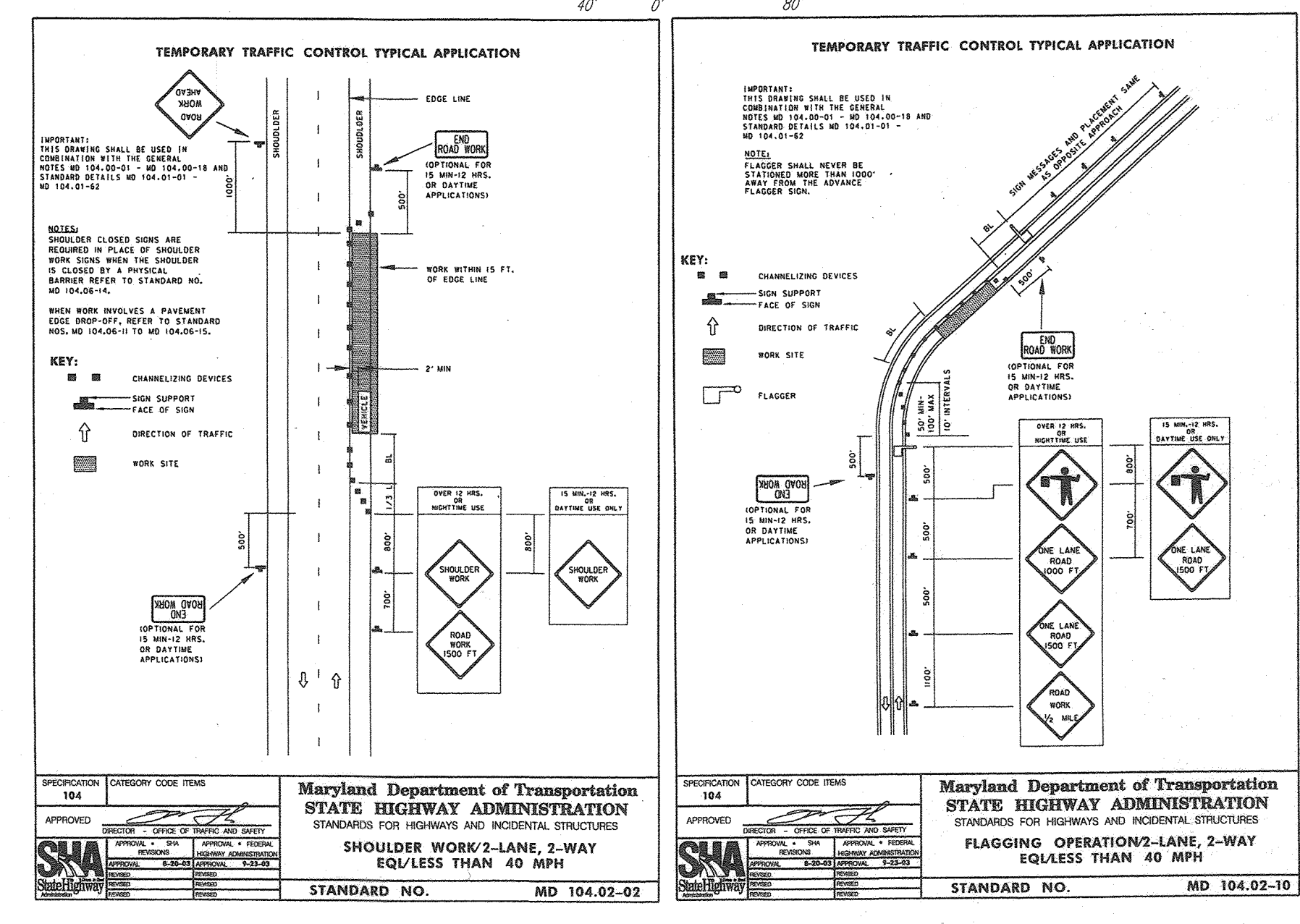
OWNER/DEVELOPER  
 ROBINSON OVERLOOK LIMITED PARTNERSHIP  
 500 S. FRONT STREET, 10TH FLOOR  
 COLUMBUS, OH 43215  
 (614) 396-3200

**STORM DRAIN COMPUTATIONS**

Project Name: Robinson Overlook (04-05) SYSTEM #1  
 SDP No.: 19-055  
 Computed By: LRC  
 Date: 1/20/20  
 Checked by: [Signature]  
 Design Frequency: 10 yr (PRIVATE SYSTEM - 25 YEAR SUMP ANALYSIS NOT REQUIRED)

FROM NO.	TO NO.	INC. AREA (AC)	TOTAL AREA (AC)	C	C <sub>EA</sub>	SUM (MN)	TIME (MIN)	Q (CFS)	DES. SLOPE (%)	DIAMETER (IN)	VELOCITY (FT/SEC)	LENGTH (FT)	TIME (MIN)	VEL. (FT)	FRC. (SLOPE %)	
M-106	M-107	0.35	0.35	0.33	0.12	0.12	5.00	8.50	0.98	1.00%	15	3.80	44.0	0.19	0.80	0.52%
M-107	L-108	0.20	0.55	0.48	0.10	0.21	5.00	8.50	1.80	1.00%	18	4.44	15.0	0.06	1.02	0.49%
M-106	M-105	0.00	0.55	0.00	0.00	0.21	5.19	8.50	1.80	1.00%	18	4.44	53.0	0.20	1.02	0.49%
M-105	M-104	0.00	0.55	0.00	0.00	0.21	5.10	8.50	1.80	2.50%	18	6.15	99.0	0.27	1.02	0.49%
M-109	M-104	0.19	0.19	0.44	0.08	0.08	5.00	8.50	0.71	4.35%	15	6.54	23.0	0.06	0.58	0.37%
M-104	L-103	0.18	0.92	0.78	0.14	0.44	5.37	8.40	3.06	2.00%	18	6.96	59.0	0.14	2.07	0.53%
L-103	L-102	0.08	1.00	0.80	0.80	1.24	5.29	8.40	10.38	2.28%	24	9.51	79.0	0.14	3.30	0.52%
L-102	M-101	0.08	1.08	0.80	0.06	1.30	5.29	8.40	10.92	2.23%	24	9.50	22.0	0.04	3.47	0.63%
M-113	M-101	0.36	0.36	0.56	0.20	0.20	6.00	8.50	1.71	0.75%	15	4.52	76.0	0.28	1.40	0.39%
M-101	L-100	0.15	1.23	0.79	0.12	1.42	5.33	8.40	11.91	4.15%	24	12.91	78.0	0.10	3.78	0.54%
EX-1-9	L-112	0.19	0.19	0.28	0.05	0.05	3.00	8.50	0.42	7.45%	15	6.75	66.0	0.14	0.34	0.38%
M-112	M-111	0.25	0.48	0.38	0.11	0.16	5.00	8.50	1.38	1.00%	18	4.61	56.0	0.20	0.77	0.35%
M-111	L-110	0.00	0.48	0.00	0.00	0.16	5.14	8.50	1.38	1.00%	18	4.61	116.0	0.42	0.77	0.35%
L-110	L-100	0.45	0.93	0.82	0.37	0.53	5.56	8.30	4.39	1.00%	18	6.42	52.0	0.13	2.40	0.40%
L-100	EX-M4-C	0.00	2.16	0.00	0.00	1.56	5.43	8.30	16.16	6.00%	24	15.30	11.0	0.01	5.14	0.59%
EX-M4-C	L-114	0.21	0.21	0.76	0.16	0.16	5.00	8.50	1.38	10.00%	15	10.62	34.0	0.05	3.31	0.38%
M-18	M-16	9.63	9.63	0.33	3.18	3.18	22.00	4.47	14.21	7.81%	21	16.39	150.0	0.15	5.91	0.01%
L-17	M-16	1.37	1.37	0.47	0.64	0.64	5.00	8.50	5.47	1.00%	18	6.00	14.0	0.04	3.10	0.003%
M-16	M-15	0.00	11.00	0.00	0.00	3.82	22.15	4.47	17.08	3.58%	21	12.84	120.0	0.16	7.10	0.01%
M-15	M-13	0.00	11.00	0.00	0.00	3.82	22.15	4.47	17.08	6.44%	21	16.04	136.0	0.14	7.10	0.01%
L-14	M-13	0.73	0.73	0.80	0.58	0.58	5.00	8.50	4.95	1.00%	18	5.86	14.0	0.04	2.81	0.002%
M-13	L-12	0.00	11.73	0.00	0.00	4.41	22.29	4.45	19.60	4.14%	24	14.06	266.0	0.32	6.24	0.01%
L-12	M-11	0.66	12.39	0.41	0.27	4.68	22.61	4.40	20.59	1.00%	24	8.16	42.0	0.09	6.96	0.01%
M-11	M-10	0.00	12.39	0.00	0.00	4.68	22.69	4.40	20.59	1.00%	24	8.16	48.0	0.10	6.56	0.01%
M-10	EX-1-NV	0.00	12.39	0.00	0.00	4.68	22.58	4.43	20.70	2.34%	24	11.51	49.0	0.07	6.59	0.01%

**STORM DRAIN DRAINAGE AREA MAP**



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 2-4-20  
 CHIEF DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 2/4/20  
 DIRECTOR OF LAND DEVELOPMENT  
 [Signature] 2/4/20  
 DIRECTOR

**SITE DEVELOPMENT PLAN**  
**STORM DRAIN DRAINAGE AREA MAP**  
 ROBINSON OVERLOOK  
 HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
 7410 GRACE DRIVE COLUMBIA, MD 21045  
 ZONED: POR  
 L 08684/F. 0005

TAX MAP 35, BLOCK 22, 5TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

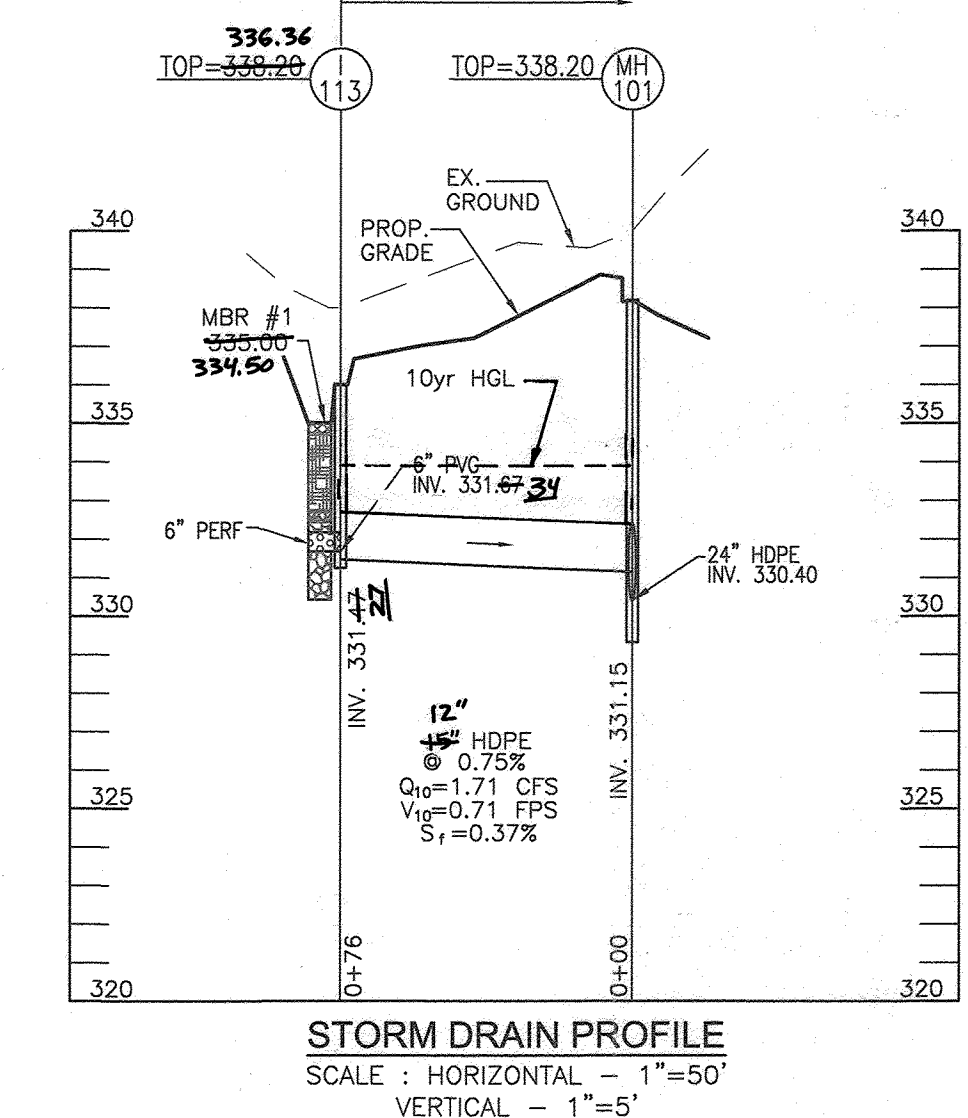
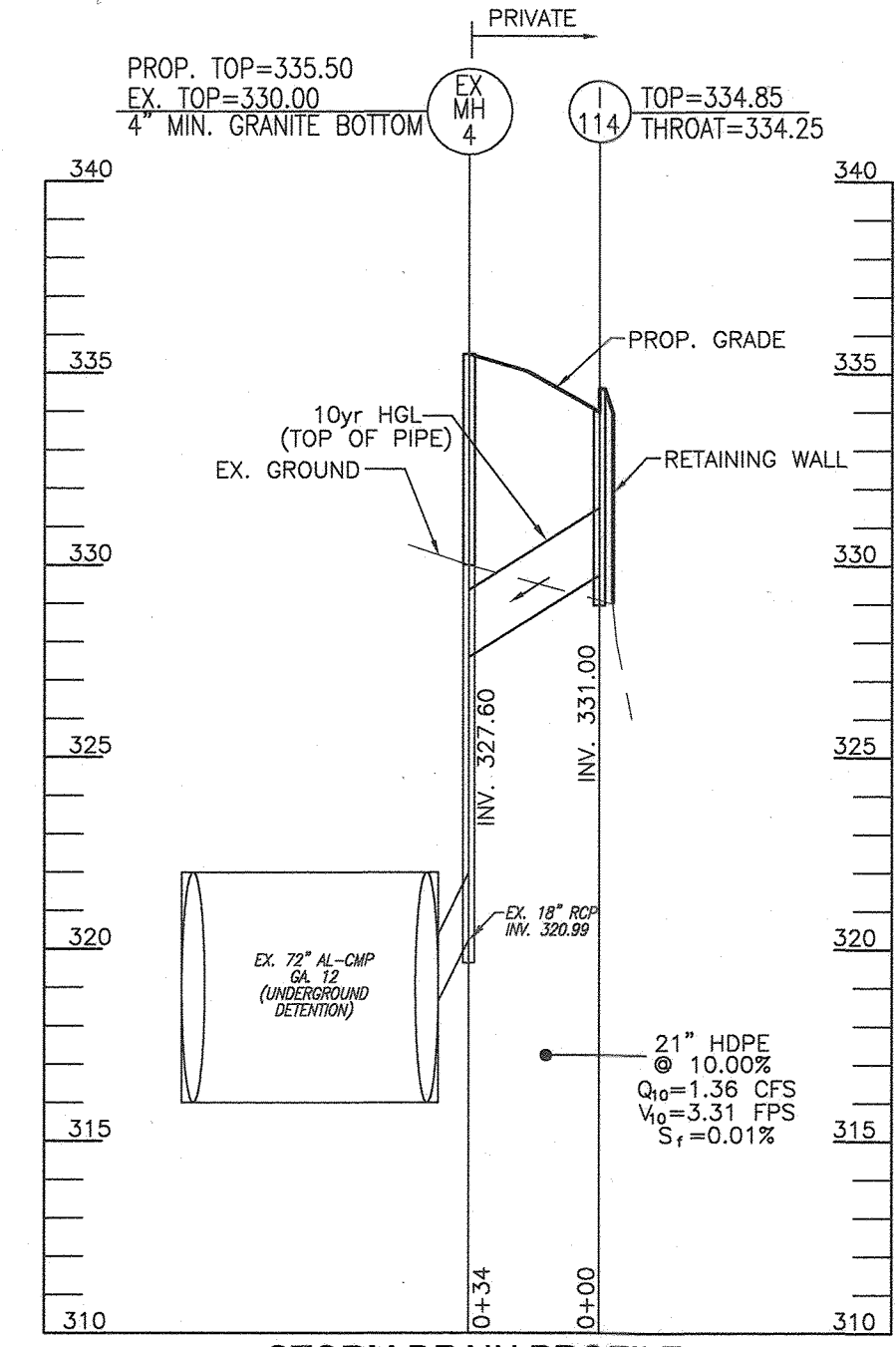
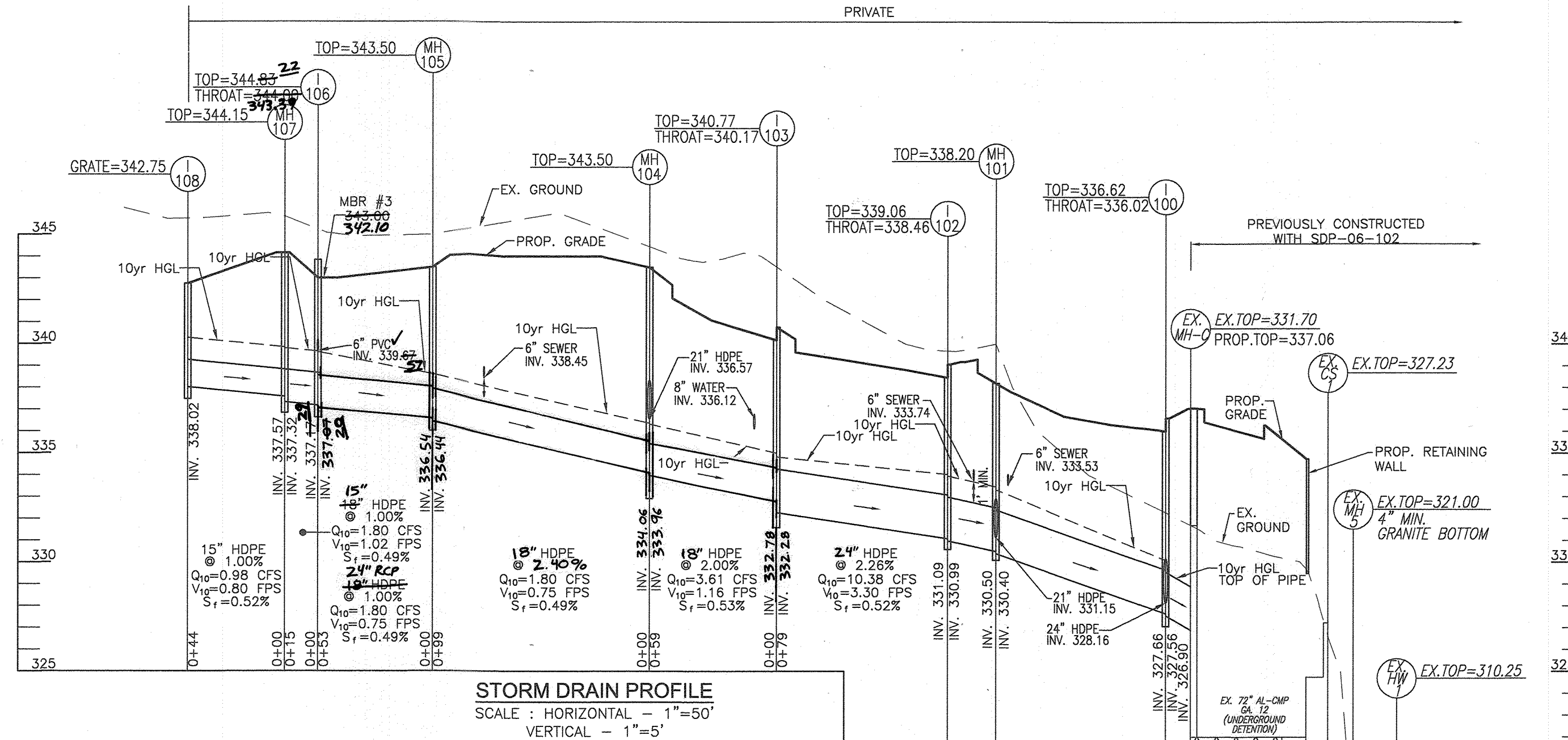
**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
 TEL: 410.461.7656 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE  
 DESIGN BY: LRC/RHV  
 DRAWN BY: LRC  
 CHECKED BY: RHV  
 DATE: NOV 2019  
 SCALE: AS SHOWN  
 W.O. NO.: 04-08

7 SHEET OF 17

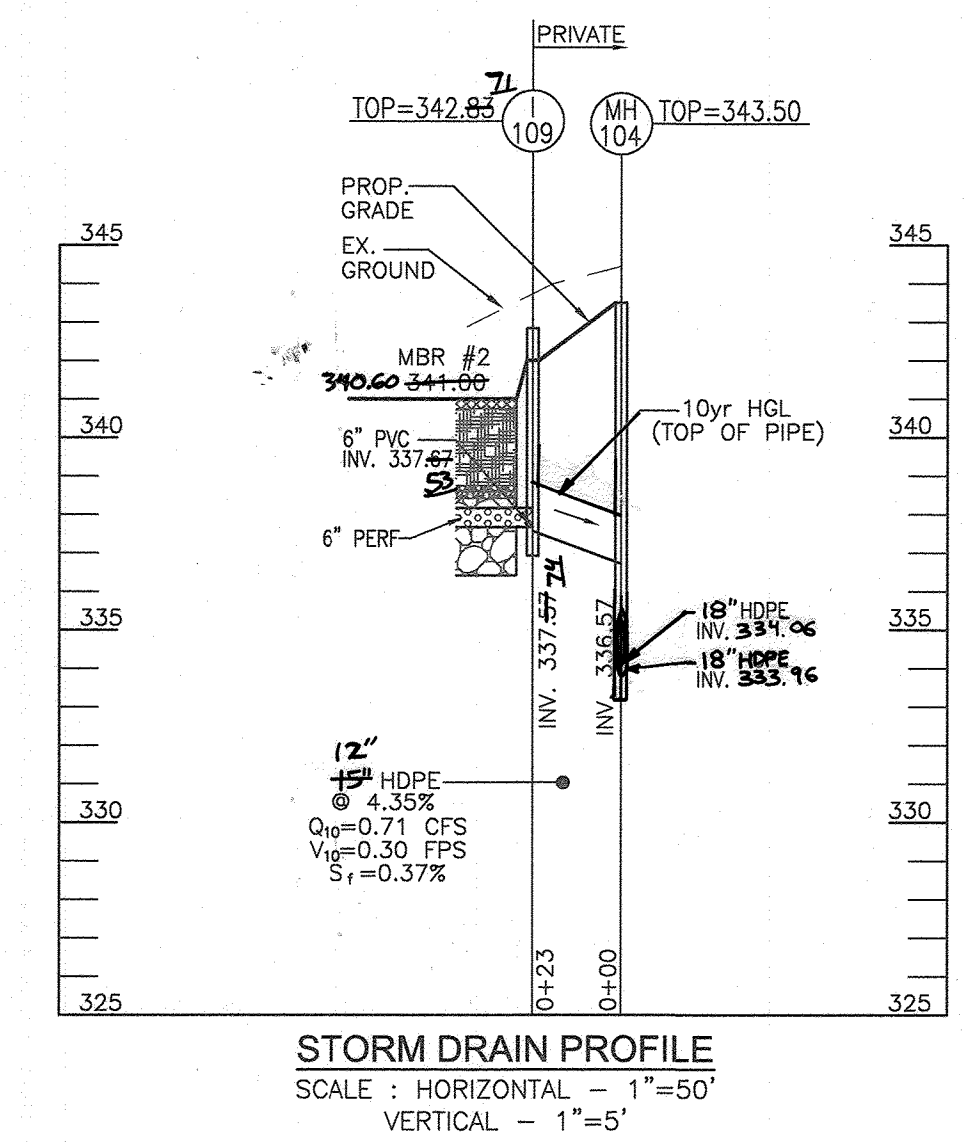
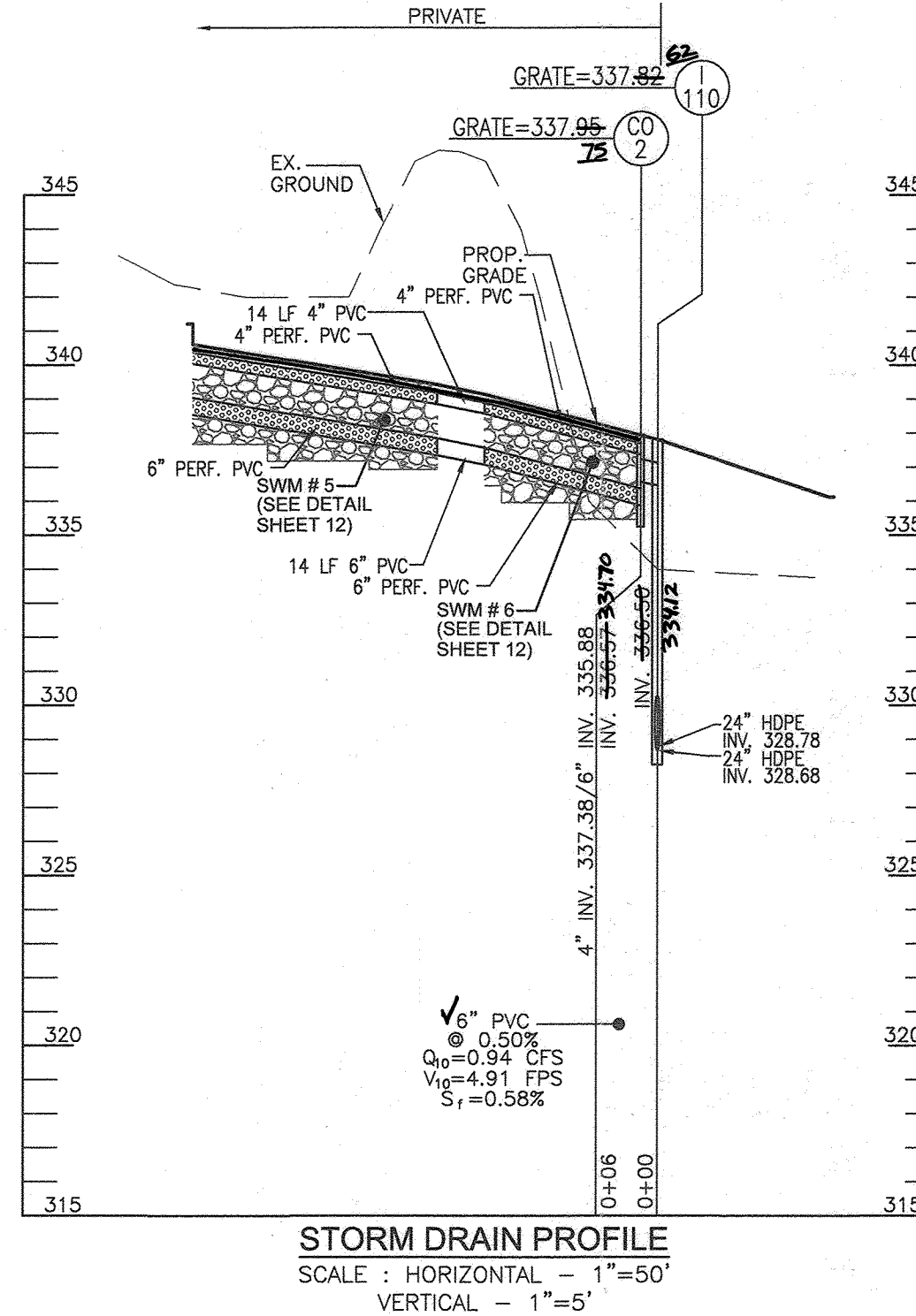
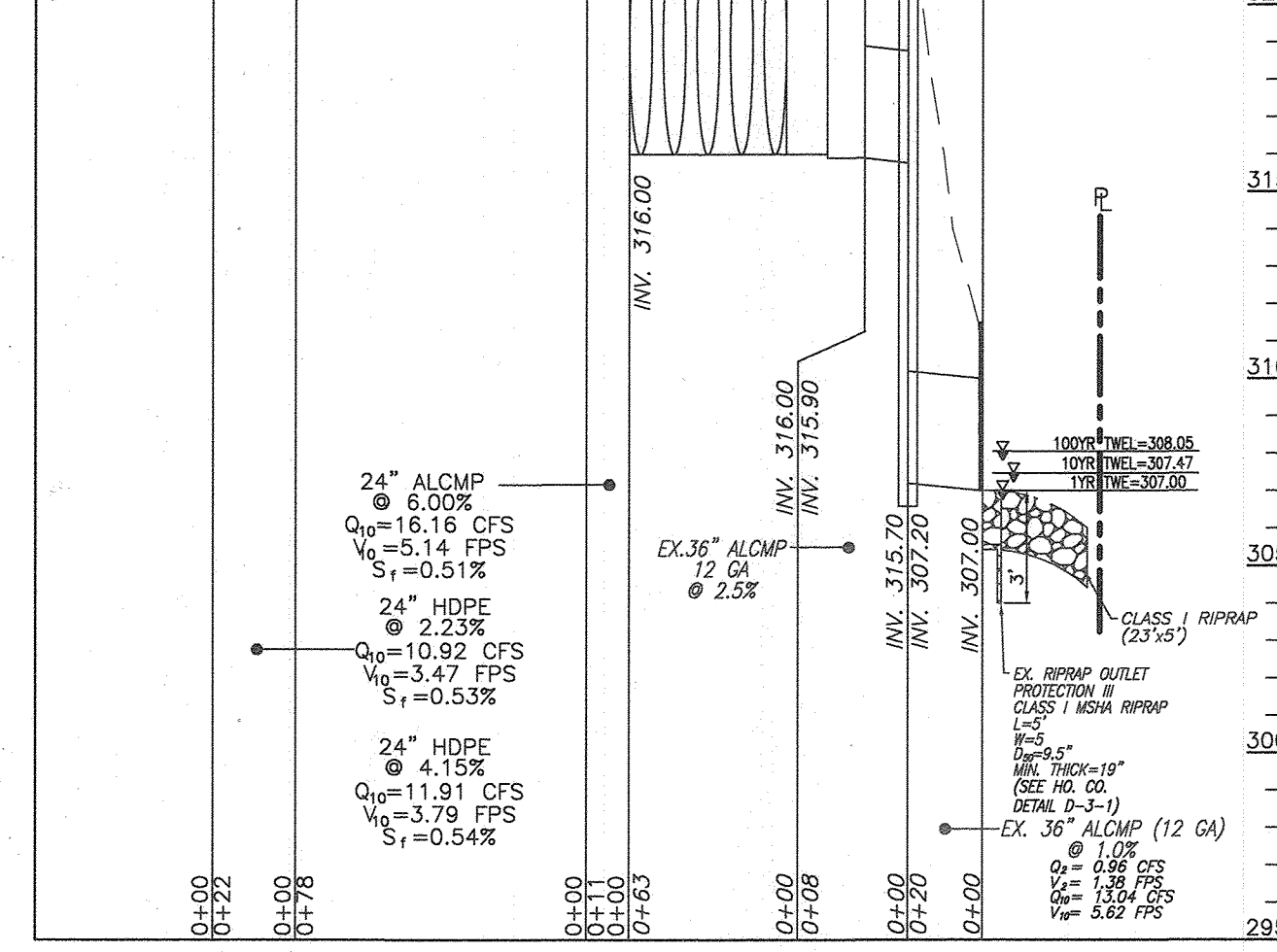
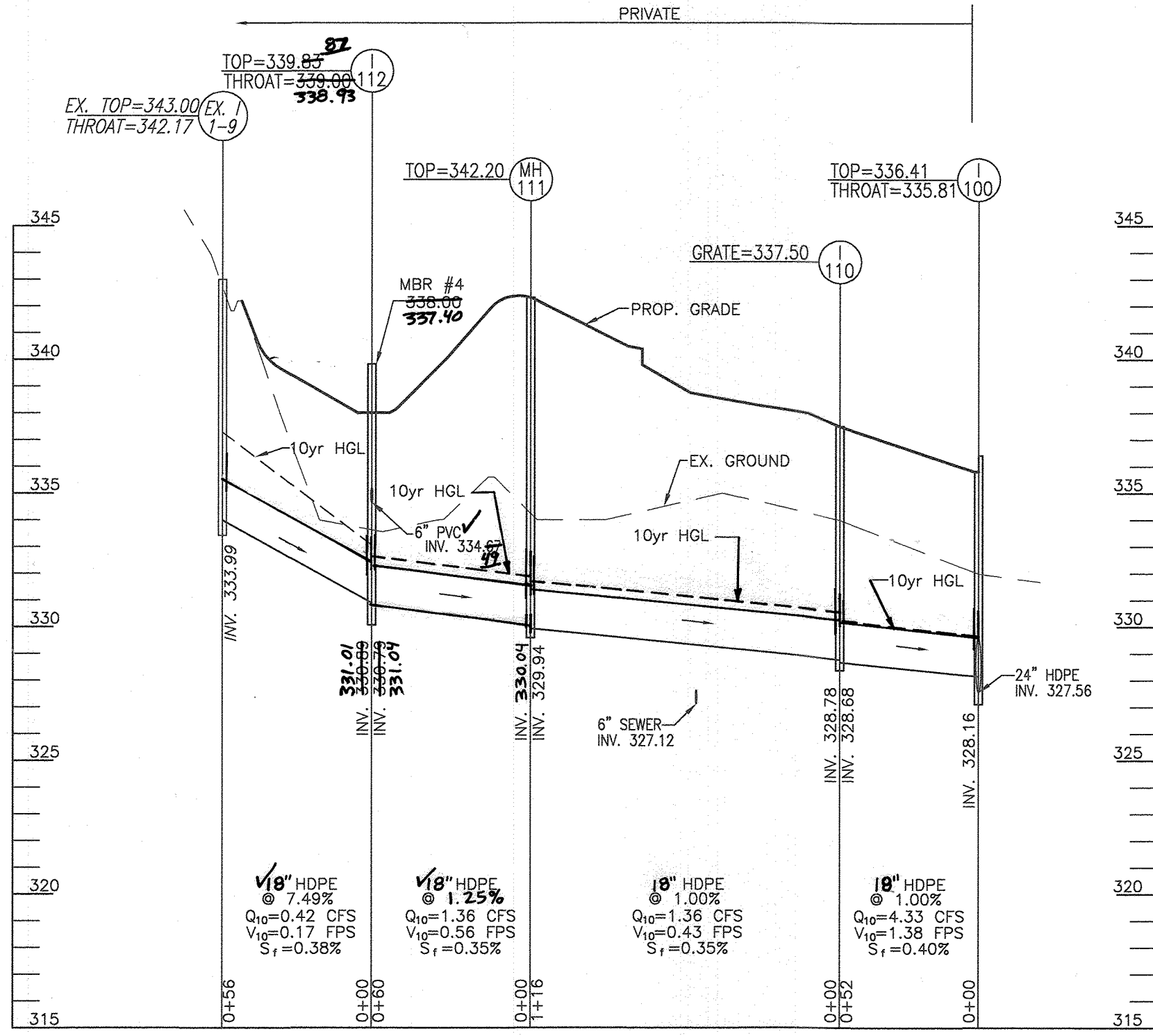
AS-BUILT, SEPTEMBER 2021





PIPE SCHEDULE - PUBLIC		
SIZE	TYPE	LENGTH
18"	RCP CLASS III	27 LF
21"	RCP CLASS III	397 LF
24"	RCP CLASS III	360 LF

PIPE SCHEDULE - PRIVATE		
SIZE	TYPE	LENGTH
4"	PERFORATED PVC	117 LF
6"	PERFORATED PVC	117 LF
6"	PVC SCH. 40	20 LF
6"	PVC SCH. 40 (SEWER)	482 LF
15"	HDPE	44 LF
18"	HDPE	15 LF
21"	HDPE	401 LF
24"	HDPE	406 LF
24"	ALCMP	11 LF



STRUCTURE SCHEDULE							
NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS	
EX-MH-C	EX. 4'-0" AL-CMP MANHOLE	N 553739 E 1341618	337.20	326.90	316.00	ADD. RISER REQ.	
I-100	TYPE 'S' INLET	N 553732 E 1341609	336.02	327.66	327.56	HO. CO. STD SD-4.24	
I-102	TYPE 'A-5' INLET, 2'-6" INSIDE WIDTH	N 553699 E 1341514	338.46	331.09	330.99	HO. CO. STD SD-4.02	
I-103	TYPE 'A-5' INLET, 2'-6" INSIDE WIDTH	N 553673 E 1341440	340.17	332.28	332.28	HO. CO. STD SD-4.02	
I-106	TYPE 'D' INLET - 4 OPENINGS (MODIF.)	N 553785 E 1341319	344.25	337.49	337.49	HO. CO. STD SD-4.10	
I-108	TYPE 'YARD' INLET	N 553838 E 1341328	342.75	338.02	HO. CO. STD. D-4.12	PRIVATE	
I-109	TYPE 'D' INLET - 4 OPENINGS (MODIF.)	N 553643 E 1341371	341.82	337.53	337.53	HO. CO. STD SD-4.10	PRIVATE
I-110	TYPE 'WR' INLET	N 553764 E 1341568	337.50	328.78	328.68	HO. CO. STD. D-4.32	PRIVATE
I-112	TYPE 'D' INLET - 4 OPENINGS (MODIF.)	N 553913 E 1341488	338.88	334.74	334.74	HO. CO. STD SD-4.10	PRIVATE
I-113	TYPE 'D' INLET - 4 OPENINGS (MODIF.)	N 553635 E 1341561	331.22	331.22	331.22	HO. CO. STD SD-4.10	PRIVATE
I-114	DOUBLE TYPE 'S' COMB. INLET	N 553757 E 1341666	334.25	331.00	HO. CO. STD SD-4.25	PRIVATE	
EX-I-9	TYPE 'D' INLET - 4 OPENINGS (MODIF.)	N 553935 E 1341434	343.00	333.99	HO. CO. STD SD-4.10	PRIVATE	
MH-101	4'-0" STANDARD PRECAST MANHOLE	N 553706 E 1341535	338.30	330.50	330.40	HO. CO. STD. G-5.12	PRIVATE
MH-104	4'-0" STANDARD PRECAST MANHOLE	N 553664 E 1341382	343.50	334.06	333.96	HO. CO. STD. G-5.12	PRIVATE
MH-105	4'-0" STANDARD PRECAST MANHOLE	N 553762 E 1341365	343.50	336.51	336.41	HO. CO. STD. G-5.12	PRIVATE
MH-107	4'-0" STANDARD PRECAST MANHOLE	N 553797 E 1341312	344.15	337.57	337.32	HO. CO. STD. G-5.12	PRIVATE
MH-111	4'-0" STANDARD PRECAST MANHOLE	N 553872 E 1341525	342.20	330.04	329.94	HO. CO. STD. G-5.12	PRIVATE
EX-MH-4	4'-0" STANDARD PRECAST MANHOLE	N 553734 E 1341639	338.20	327.60	320.99	HO. CO. STD. G-5.12 (ADD. RISER REQ.)	PRIVATE
SMH-1	STD 4' PRECAST MANHOLE	N 553793 E 1341499	340.42	332.58	329.56	HO. CO. STD. G-5.12	PRIVATE
SMH-2	STD 4' PRECAST MANHOLE	N 553823 E 1341424	342.30	333.54	333.34	HO. CO. STD. S-1.31 (TERMINAL)	PRIVATE
SMH-3	STD 4' PRECAST MANHOLE	N 553716 E 1341526	338.68	331.88	331.88	HO. CO. STD. S-1.31 (TERMINAL)	PRIVATE
CO-1	CLEAN OUT	N 553742 E 1341388	344.00	338.10	335.22	HO. CO. STD S-2.22	PRIVATE
I-10	TYPE 'A-10' INLET, 3' INSIDE WIDTH	CL STA 10+98, 28.00' LT	316.86	317.66	HO. CO. STD D-4.03	PUBLIC	
I-12	DOUBLE TYPE 'S' COMB. INLET - PARALLEL (MODIF.)	CL STA 15+87, 15.18' LT	316.86	317.66	HO. CO. STD SD-4.25	PUBLIC	
I-13	TYPE 'A-10' INLET, 2'-6" INSIDE WIDTH (MODIF.)	CL STA 13+16, 12.00' LT	316.86	317.66	HO. CO. STD D-4.03	PUBLIC	
MH-10	4'-0" STANDARD PRECAST MANHOLE	CL STA 16+25, 39.30' LT	319.56	287.40	287.40	HO. CO. STD. G-5.12	PUBLIC
MH-104	4'-0" STANDARD PRECAST MANHOLE	CL STA 15+92, 36.21' LT	319.56	287.40	287.40	HO. CO. STD. G-5.12	PUBLIC
MH-11	4'-0" STANDARD PRECAST MANHOLE	CL STA 14+61, 27.29' LT	319.56	287.40	287.40	HO. CO. STD. G-5.12	PUBLIC
MH-12	4'-0" STANDARD PRECAST MANHOLE	CL STA 13+16, 28.33' LT	305.56	300.46	300.46	HO. CO. STD. G-5.12	PUBLIC
MH-13	4'-0" STANDARD PRECAST MANHOLE	CL STA 11+25, 41.43' LT	319.56	314.46	314.46	HO. CO. STD. G-5.12	PUBLIC
MH-14	4'-0" STANDARD PRECAST MANHOLE	CL STA 9+05, 29.90' LT	330.22	327.60	327.46	HO. CO. STD. G-5.12	PUBLIC

NOTE: 1. Top elevations are at center top of headpiece for Type 'A-5', 'A-10', Type 'D' and Double Type 'S' Comb. Inlets at center top of grate for type 'S', Double Type 'S', type 'k' inlet, and top of Manhole cover for Precast Manholes.  
2. For top slab slopes see grading plan.  
3. See Architectural plans for roof drain details.  
4. All custom and non-standard structures to be designed by a qualified structural engineer.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 CHIEF DEVELOPMENT ENGINEERING DIVISION  
 DATE: 2/4/20  
 CHIEF CIVIL ENGINEER AND DEVELOPMENT  
 DATE: 2/4/20  
 DIRECTOR

OWNER/DEVELOPER  
 ROBINSON OVERLOOK LIMITED PARTNERSHIP  
 500 S. FRONT STREET, 10TH FLOOR  
 COLUMBUS, OH 43215  
 (614) 396-3200

3 REVISE THE PLAN TO RAISE THE STORM DRAIN TO GO OVER THE EXISTING WATER MAIN 10-20-20  
 1 REVISE THE PLAN TO SHOW A CHANGE IN THE PRIVATE STORM DRAIN PIPE SIZES 6-5-20  
 AND TO UPDATE THE SEQUENCE OF CONSTRUCTION

NO.	REVISION	DATE
3	REVISE THE PLAN TO RAISE THE STORM DRAIN TO GO OVER THE EXISTING WATER MAIN	10-20-20
1	REVISE THE PLAN TO SHOW A CHANGE IN THE PRIVATE STORM DRAIN PIPE SIZES AND TO UPDATE THE SEQUENCE OF CONSTRUCTION	6-5-20

SITE DEVELOPMENT PLAN  
 UTILITY PROFILES  
 ROBINSON OVERLOOK  
 HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
 7410 GRACE DRIVE COLUMBIA, MD 21045  
 ZONED: POR  
 L 08684/F: 0005

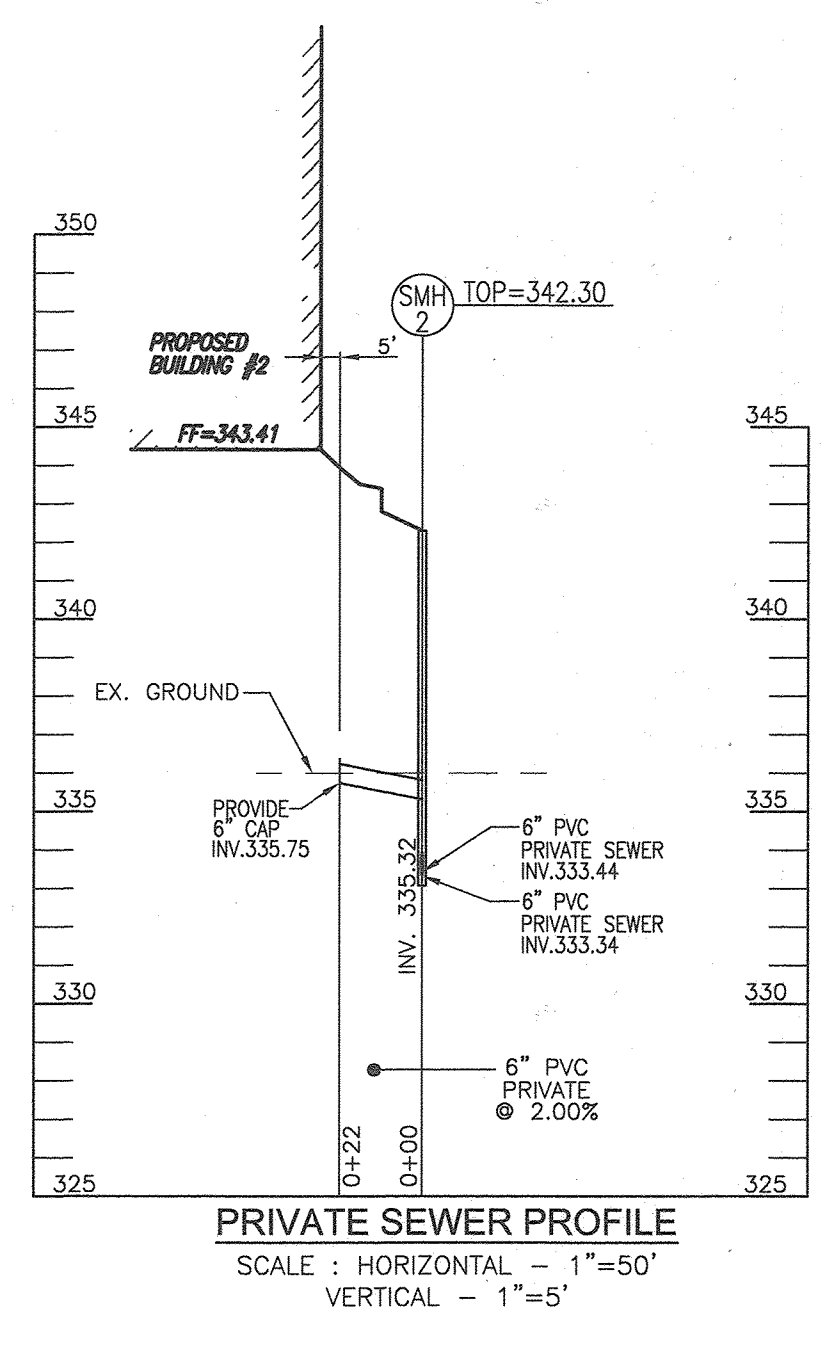
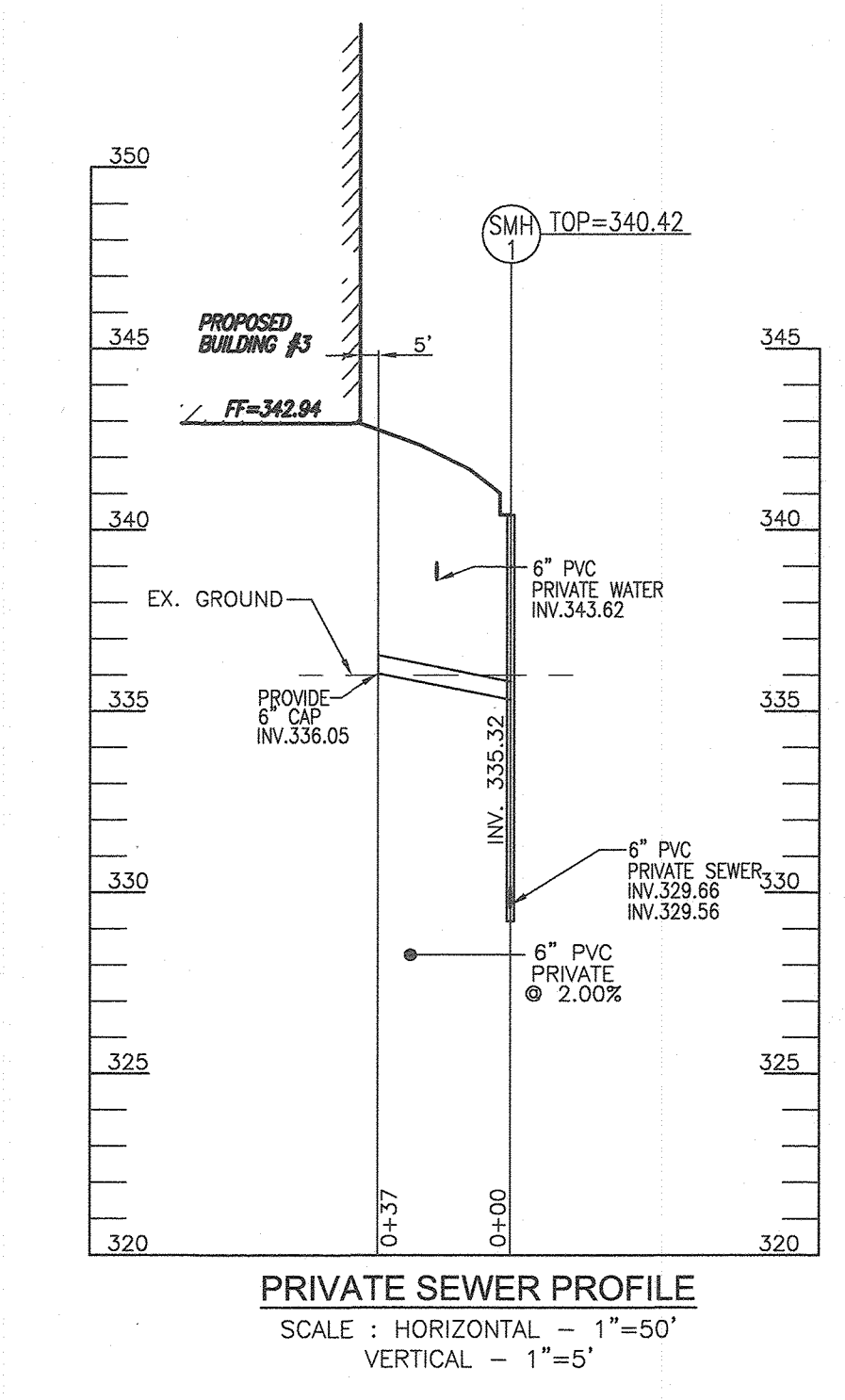
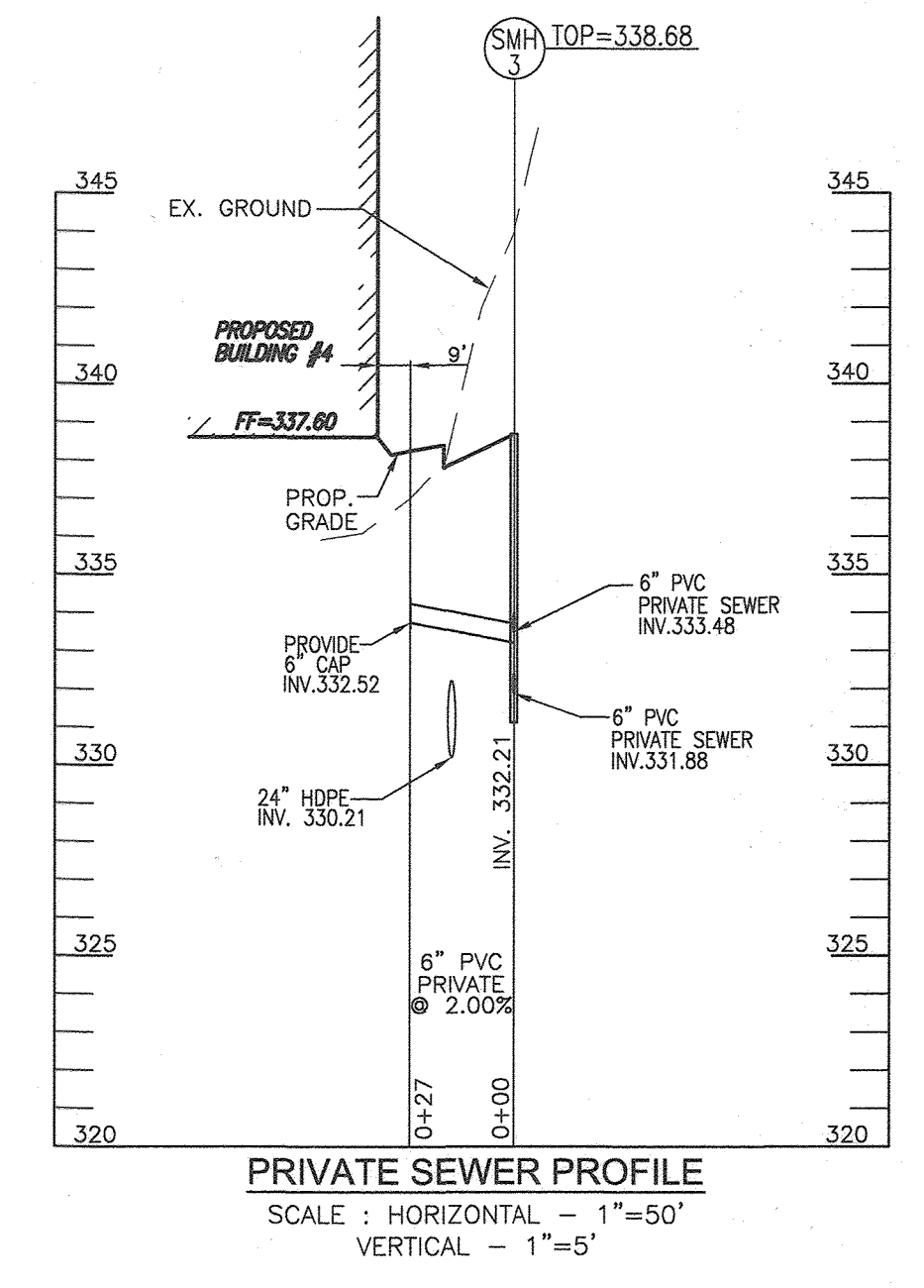
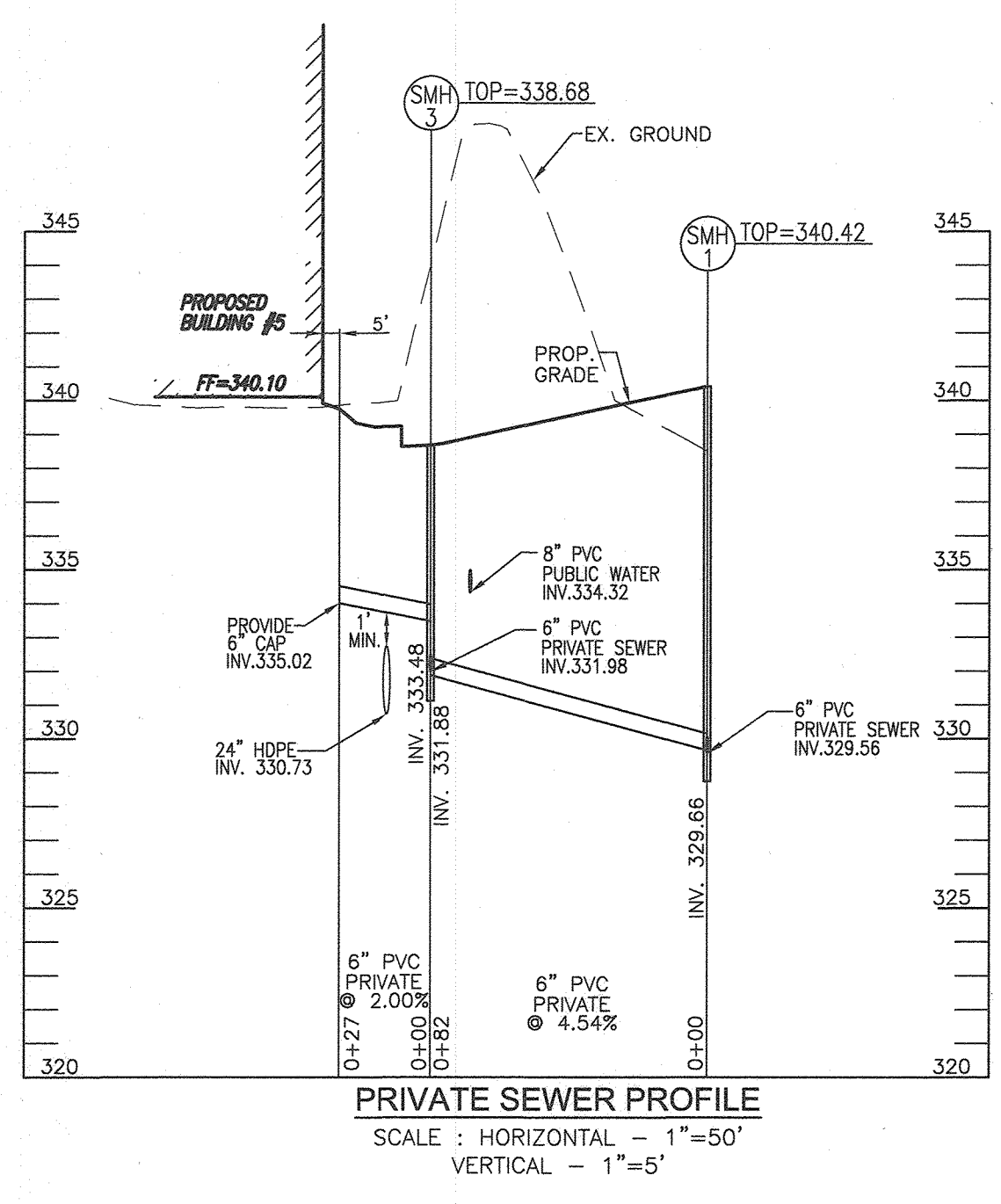
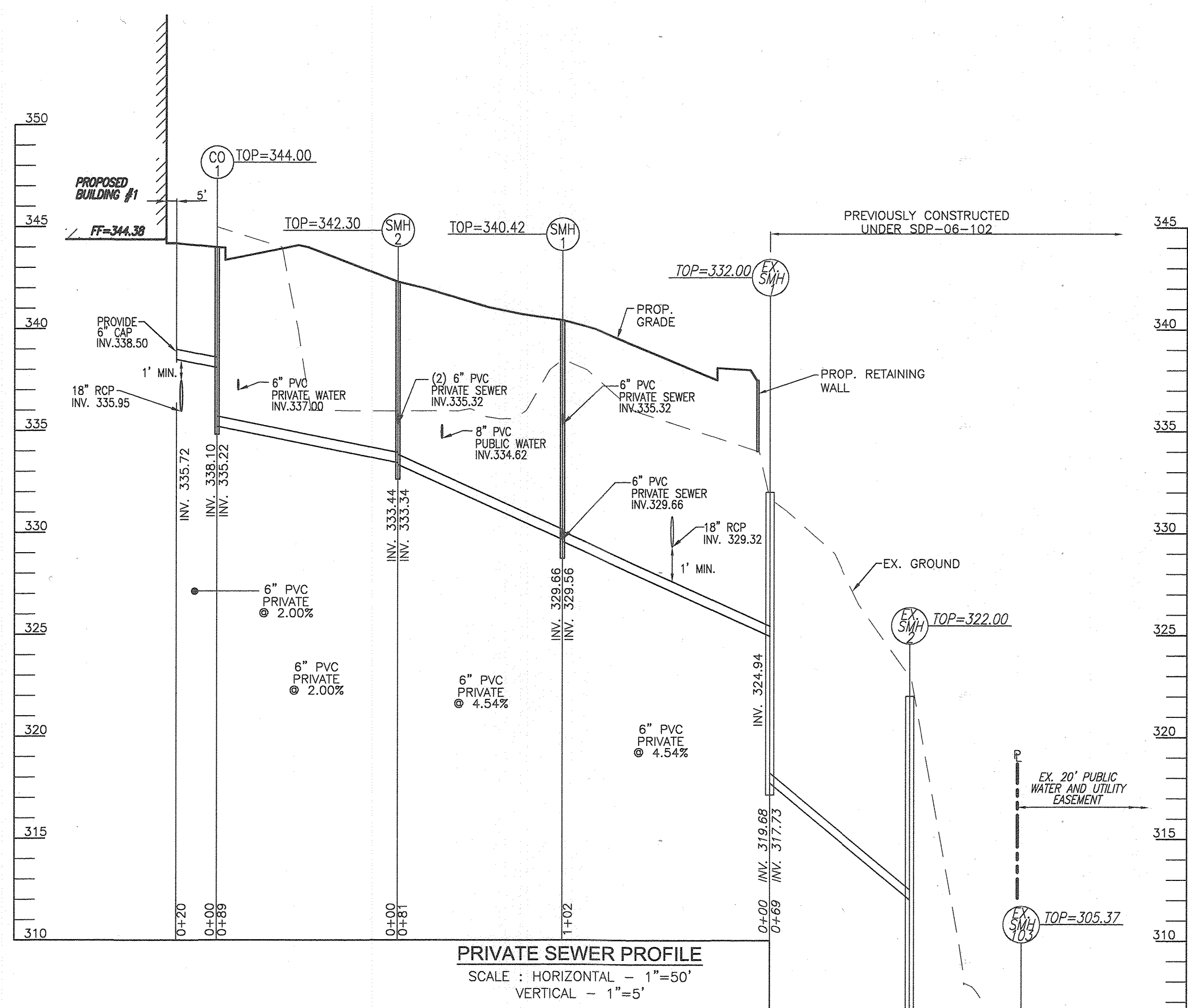
TAX MAP 35 BLOCK 22  
 5TH ELECTION DISTRICT

ROBERT H. VOGEL  
 ENGINEERS • SURVEYORS • PLANNERS  
 3800 N. RIDGE ROAD, SUITE 110, ELICOTT CITY, MD 21043  
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LRC/RHV  
 DRAWN BY: LRC  
 CHECKED BY: RHV  
 DATE: NOV 2019  
 SCALE: 1"=50' AS SHOWN  
 W.O. NO.: 04-06  
 8 SHEET OF 17

AS-BUILT, SEPTEMBER 2021





STATE OF MARYLAND  
ROBERT HARRIS VOGEL  
REGISTERED PROFESSIONAL ENGINEER  
NO. 16193  
5-31-23

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

16193 5-31-23  
DATE

OWNER/DEVELOPER  
ROBINSON OVERLOOK LIMITED PARTNERSHIP  
500 S. FRONT STREET, 10TH FLOOR  
COLUMBUS, OH 43215  
(614) 396-3200

SCALE 1"=50'

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**UTILITY PROFILES**  
**ROBINSON OVERLOOK**  
HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
7410 GRACE DRIVE COLUMBIA, MD. 21045  
ZONED: POR  
L'08884/F.0005

TAX MAP 35 BLOCK 22 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
TEL: 410.461.7666 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE  
DESIGN BY: LRC/RHV  
DRAWN BY: LRC  
CHECKED BY: RHV  
DATE: NOV 2019  
SCALE: 1"=50' AS SHOWN  
W.O. NO.: 04-06

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 08-27-2023

9 SHEET OF 17

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 2/4/20  
DATE: 2/4/20

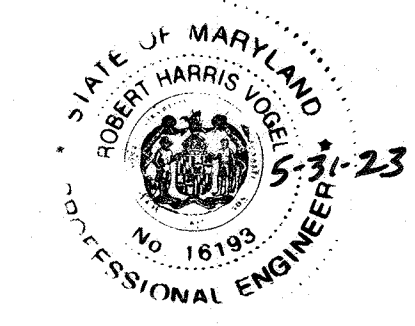
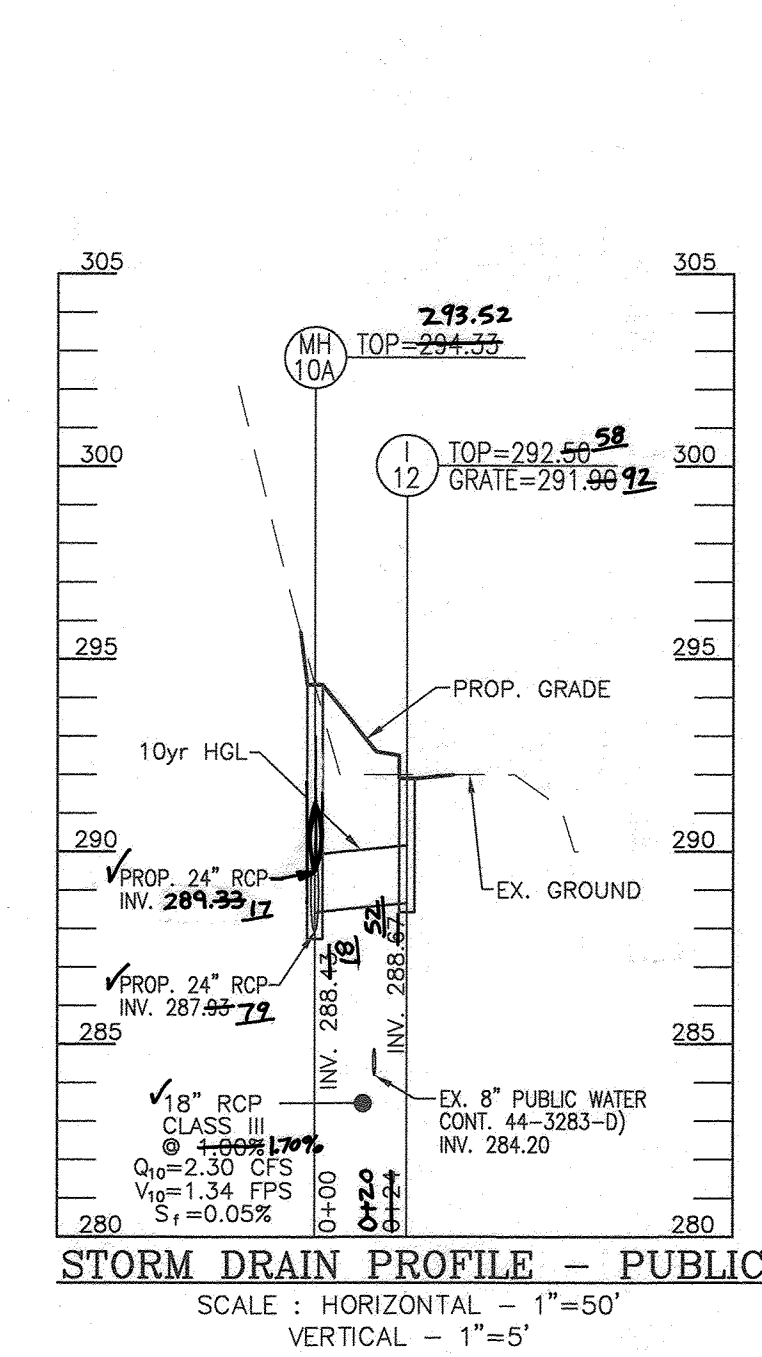
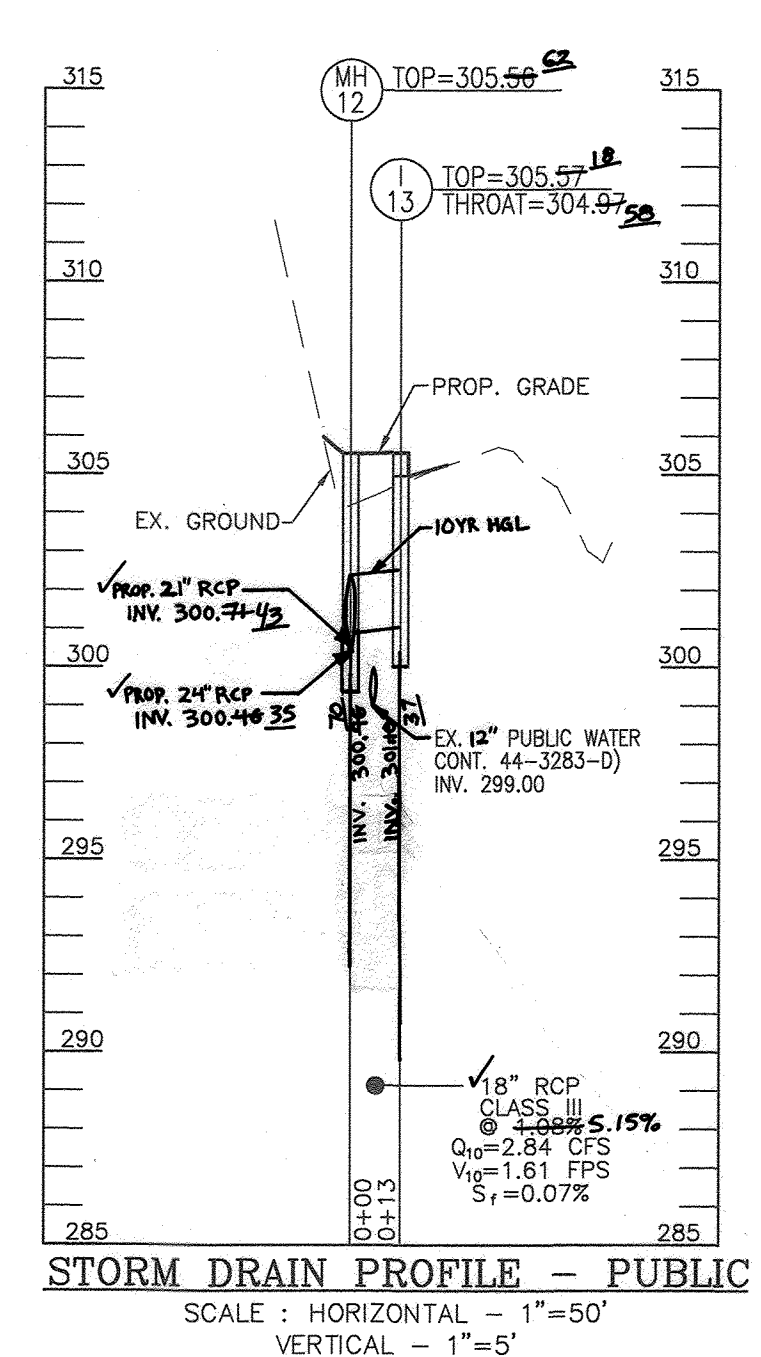
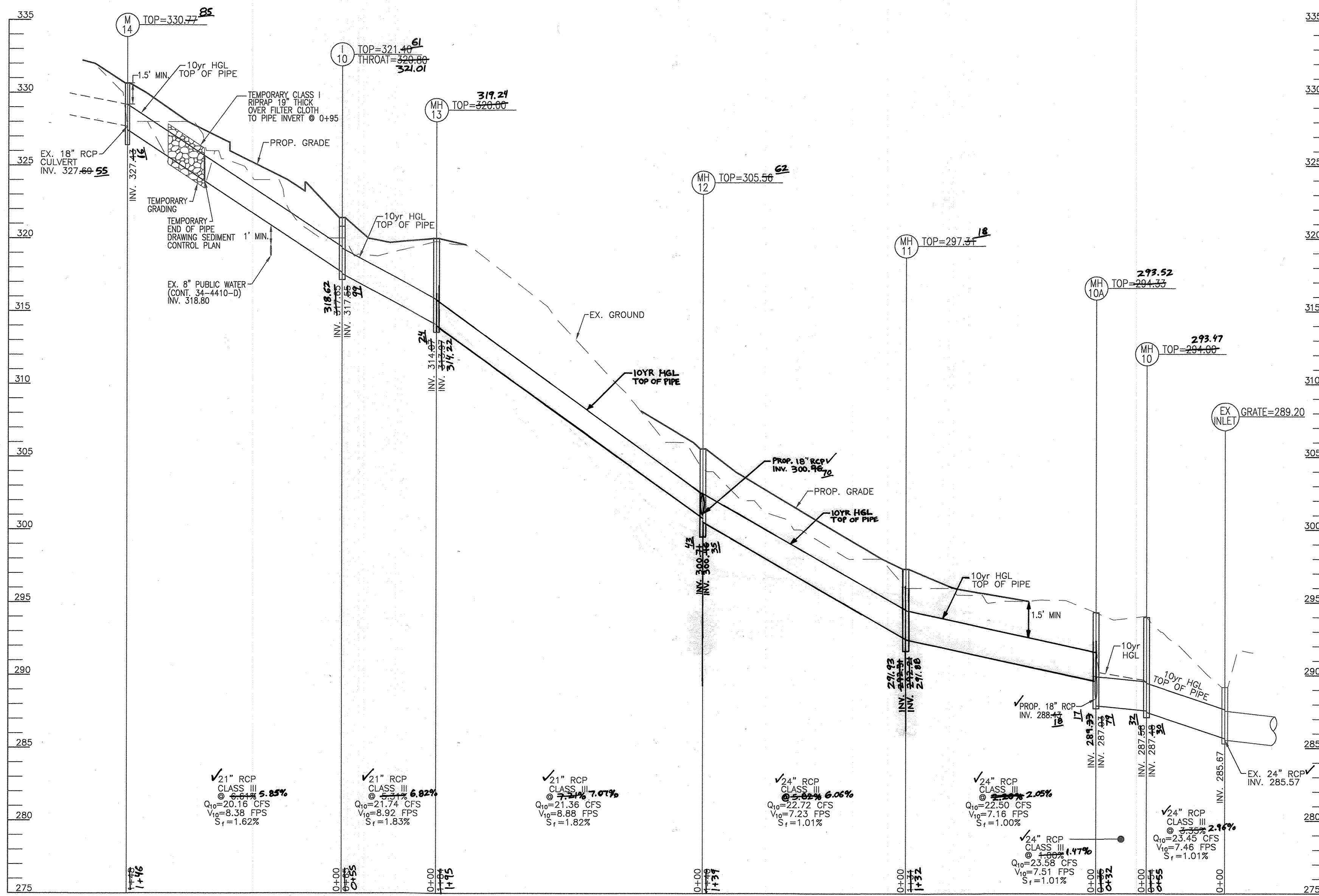
CHIEF OF DEVELOPMENT ENGINEERING DIVISION  
DATE: 2/4/20

PLANNING AND LAND DEVELOPMENT  
DATE: 2/4/20

DIRECTOR

NO AS-BUILT INFORMATION ON THIS SHEET





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

NAME: *[Signature]* 16193 5-31-23  
P.E. DATE

OWNER/DEVELOPER  
ROBINSON OVERLOOK LIMITED PARTNERSHIP  
500 S. FRONT STREET, 10TH FLOOR  
COLUMBUS, OH 43215  
(614) 396-3200

NO.	REVISION	DATE
3	REVISE THE PLAN TO RAISE THE STORM DRAIN TO GO OVER THE EXISTING WATER MAIN	10-20-20

SITE DEVELOPMENT PLAN  
**UTILITY PROFILES**  
ROBINSON OVERLOOK  
HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
7410 GRACE DRIVE COLUMBIA, MD. 21045  
ZONED: PDR  
L. 08884/F. 0005

TAX MAP 35, BLOCK 22, 5TH ELECTION DISTRICT      HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
TEL: 410.461.7666 FAX: 410.461.8961

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DEVELOPMENT ENGINEERING DIVISION  
DATE: 2/4/20  
DATE: 2/4/20  
DATE: 2/4/20  
DIRECTOR

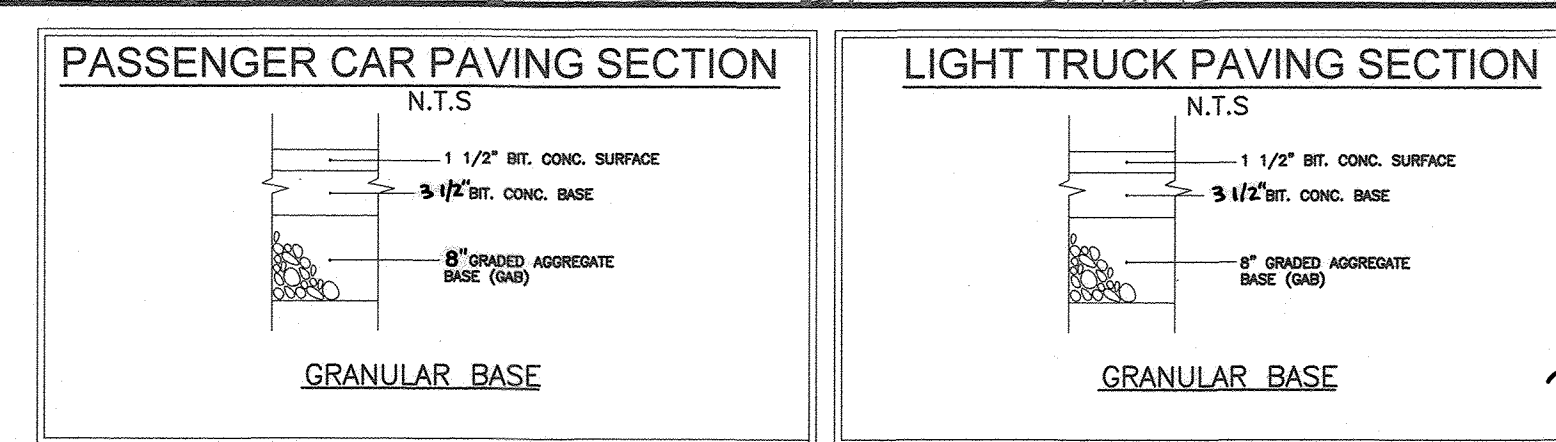
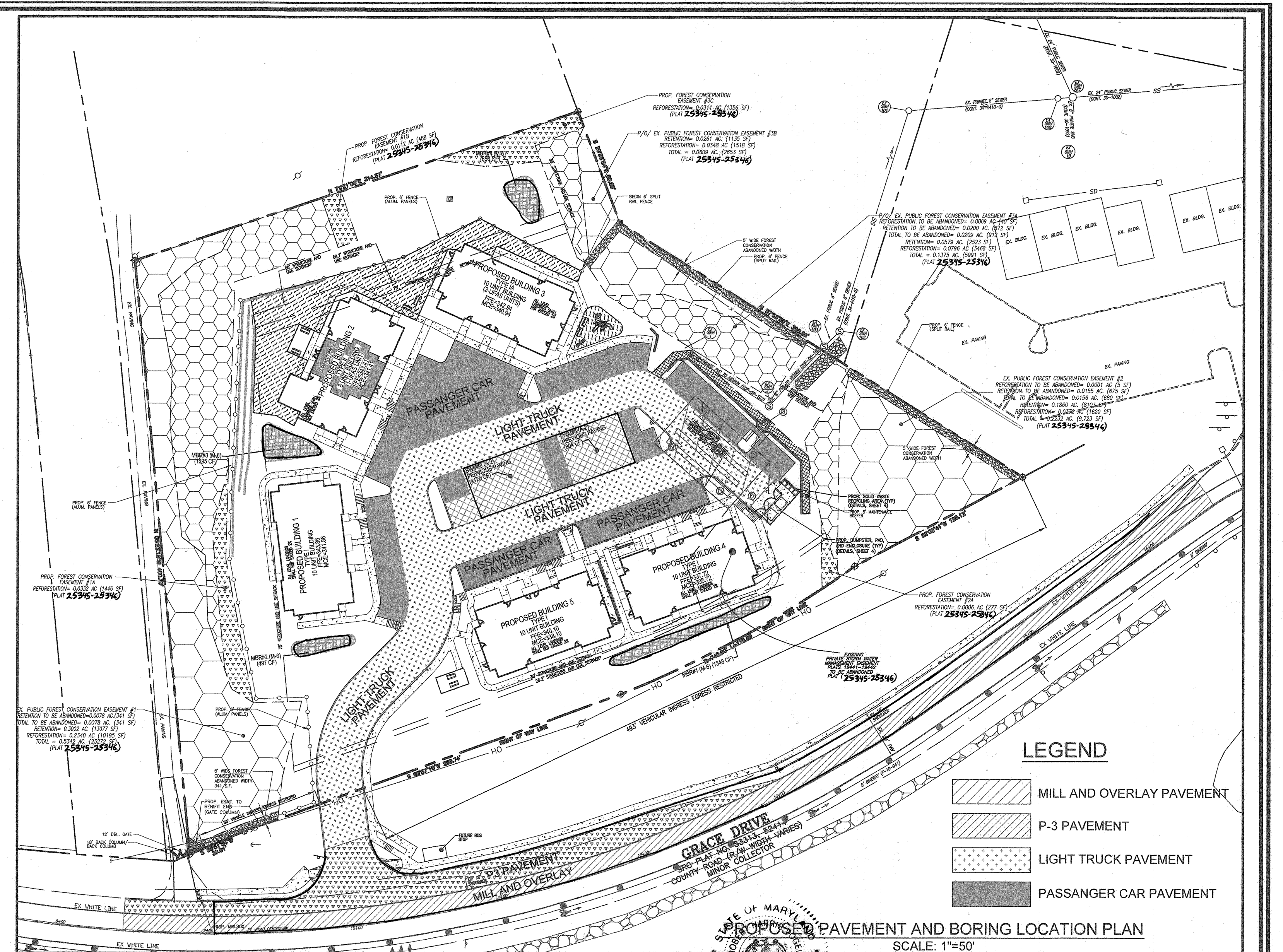
PROFESSIONAL CERTIFICATE  
DESIGN BY: LRC/RHV  
DRAWN BY: LRC  
CHECKED BY: RHV  
DATE: NOV 2019  
SCALE: AS SHOWN  
W.O. NO.: 04-06

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2020

10 SHEET OF 17



<p><b>Robinson Overlook, LP</b> HCEA Project No. 141234 Page 4</p> <p><b>Geotechnical Analysis and Recommendations</b></p> <p>Our findings indicate that the site can be developed for the proposed construction utilizing conventional foundation systems. The following recommendations have been developed on the basis of the geotechnical investigation project objectives. It is recommended that the proposed construction be designed and constructed in accordance with the recommendations of this report. If different foundation conditions are encountered during construction, HCEA should be consulted as to the recommended actions to be taken to remedy and/or prevent such conditions.</p> <p><b>Site Investigation</b></p> <p>Any existing ground conditions within the site to be investigated should be reported prior to the initiation of new construction. The geotechnical investigation should be completed in accordance with the recommendations of this report. The geotechnical investigation should be completed in accordance with the recommendations of this report. The geotechnical investigation should be completed in accordance with the recommendations of this report.</p> <p><b>Soil Classification</b></p> <p>Based on the 2012 International Building Code (IBC), Section 1613, the site has the following designations:</p> <table border="1"> <tr><td>Site Class</td><td>C</td></tr> <tr><td>S<sub>u</sub></td><td>≥ 2.0</td></tr> <tr><td>S<sub>v</sub></td><td>≥ 1.2</td></tr> <tr><td>S<sub>h</sub></td><td>≥ 2.0</td></tr> <tr><td>S<sub>l</sub></td><td>≥ 1.2</td></tr> </table>	Site Class	C	S <sub>u</sub>	≥ 2.0	S <sub>v</sub>	≥ 1.2	S <sub>h</sub>	≥ 2.0	S <sub>l</sub>	≥ 1.2	<p><b>Robinson Overlook, LP</b> HCEA Project No. 141234 Page 5</p> <p><b>Soil Selection and Placement</b></p> <p>All material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer.</p> <p><b>Foundation</b></p> <p>On the basis of the geotechnical investigation, the following foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction.</p>	<p><b>HILLS-CARROLL ENGINEERING ASSOCIATES, INC.</b> RECORD OF SOIL EXPLORATION</p> <p>Project Name: Robinson Overlook Location: Columbia, Maryland</p> <p>Date: 10/20/20 Soil Name: HCEA Soil Class: C</p> <table border="1"> <thead> <tr><th>Soil Name</th><th>Soil Class</th><th>Soil Description</th><th>Soil Color</th><th>Soil Moisture</th><th>Soil Temperature</th><th>Soil pH</th><th>Soil Specific Gravity</th><th>Soil Unit Weight</th><th>Soil Void Ratio</th><th>Soil Porosity</th><th>Soil Permeability</th><th>Soil Compression</th><th>Soil Swell</th><th>Soil Shrinkage</th><th>Soil Liquid Limit</th><th>Soil Plastic Limit</th><th>Soil Shrinkage Limit</th><th>Soil Liquid Plasticity Index</th><th>Soil Plasticity Index</th><th>Soil Unified Soil Classification</th></tr> </thead> <tbody> <tr><td>1</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>2</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>3</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>4</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> </tbody> </table>	Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification	1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	<p><b>HILLS-CARROLL ENGINEERING ASSOCIATES, INC.</b> RECORD OF SOIL EXPLORATION</p> <p>Project Name: Robinson Overlook Location: Columbia, Maryland</p> <p>Date: 10/20/20 Soil Name: HCEA Soil Class: C</p> <table border="1"> <thead> <tr><th>Soil Name</th><th>Soil Class</th><th>Soil Description</th><th>Soil Color</th><th>Soil Moisture</th><th>Soil Temperature</th><th>Soil pH</th><th>Soil Specific Gravity</th><th>Soil Unit Weight</th><th>Soil Void Ratio</th><th>Soil Porosity</th><th>Soil Permeability</th><th>Soil Compression</th><th>Soil Swell</th><th>Soil Shrinkage</th><th>Soil Liquid Limit</th><th>Soil Plastic Limit</th><th>Soil Shrinkage Limit</th><th>Soil Liquid Plasticity Index</th><th>Soil Plasticity Index</th><th>Soil Unified Soil Classification</th></tr> </thead> <tbody> <tr><td>1</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>2</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>3</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>4</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> </tbody> </table>	Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification	1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL
Site Class	C																																																																																																																																																																																																																														
S <sub>u</sub>	≥ 2.0																																																																																																																																																																																																																														
S <sub>v</sub>	≥ 1.2																																																																																																																																																																																																																														
S <sub>h</sub>	≥ 2.0																																																																																																																																																																																																																														
S <sub>l</sub>	≥ 1.2																																																																																																																																																																																																																														
Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification																																																																																																																																																																																																											
1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification																																																																																																																																																																																																											
1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
<p><b>Robinson Overlook, LP</b> HCEA Project No. 141234 Page 6</p> <p><b>Soil Selection and Placement</b></p> <p>All material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer.</p> <p><b>Foundation</b></p> <p>On the basis of the geotechnical investigation, the following foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction.</p>	<p><b>Robinson Overlook, LP</b> HCEA Project No. 141234 Page 7</p> <p><b>Soil Selection and Placement</b></p> <p>All material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer.</p> <p><b>Foundation</b></p> <p>On the basis of the geotechnical investigation, the following foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction.</p>	<p><b>HILLS-CARROLL ENGINEERING ASSOCIATES, INC.</b> RECORD OF SOIL EXPLORATION</p> <p>Project Name: Robinson Overlook Location: Columbia, Maryland</p> <p>Date: 10/20/20 Soil Name: HCEA Soil Class: C</p> <table border="1"> <thead> <tr><th>Soil Name</th><th>Soil Class</th><th>Soil Description</th><th>Soil Color</th><th>Soil Moisture</th><th>Soil Temperature</th><th>Soil pH</th><th>Soil Specific Gravity</th><th>Soil Unit Weight</th><th>Soil Void Ratio</th><th>Soil Porosity</th><th>Soil Permeability</th><th>Soil Compression</th><th>Soil Swell</th><th>Soil Shrinkage</th><th>Soil Liquid Limit</th><th>Soil Plastic Limit</th><th>Soil Shrinkage Limit</th><th>Soil Liquid Plasticity Index</th><th>Soil Plasticity Index</th><th>Soil Unified Soil Classification</th></tr> </thead> <tbody> <tr><td>1</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>2</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>3</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>4</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> </tbody> </table>	Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification	1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	<p><b>HILLS-CARROLL ENGINEERING ASSOCIATES, INC.</b> RECORD OF SOIL EXPLORATION</p> <p>Project Name: Robinson Overlook Location: Columbia, Maryland</p> <p>Date: 10/20/20 Soil Name: HCEA Soil Class: C</p> <table border="1"> <thead> <tr><th>Soil Name</th><th>Soil Class</th><th>Soil Description</th><th>Soil Color</th><th>Soil Moisture</th><th>Soil Temperature</th><th>Soil pH</th><th>Soil Specific Gravity</th><th>Soil Unit Weight</th><th>Soil Void Ratio</th><th>Soil Porosity</th><th>Soil Permeability</th><th>Soil Compression</th><th>Soil Swell</th><th>Soil Shrinkage</th><th>Soil Liquid Limit</th><th>Soil Plastic Limit</th><th>Soil Shrinkage Limit</th><th>Soil Liquid Plasticity Index</th><th>Soil Plasticity Index</th><th>Soil Unified Soil Classification</th></tr> </thead> <tbody> <tr><td>1</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>2</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>3</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>4</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> </tbody> </table>	Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification	1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL										
Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification																																																																																																																																																																																																											
1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification																																																																																																																																																																																																											
1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
<p><b>Robinson Overlook, LP</b> HCEA Project No. 141234 Page 8</p> <p><b>Soil Selection and Placement</b></p> <p>All material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer.</p> <p><b>Foundation</b></p> <p>On the basis of the geotechnical investigation, the following foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction.</p>	<p><b>Robinson Overlook, LP</b> HCEA Project No. 141234 Page 9</p> <p><b>Soil Selection and Placement</b></p> <p>All material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer. The material to be used as fill or backfill should be inspected, tested and approved by the Geotechnical Engineer.</p> <p><b>Foundation</b></p> <p>On the basis of the geotechnical investigation, the following foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction. The foundation systems are recommended for the proposed construction.</p>	<p><b>HILLS-CARROLL ENGINEERING ASSOCIATES, INC.</b> RECORD OF SOIL EXPLORATION</p> <p>Project Name: Robinson Overlook Location: Columbia, Maryland</p> <p>Date: 10/20/20 Soil Name: HCEA Soil Class: C</p> <table border="1"> <thead> <tr><th>Soil Name</th><th>Soil Class</th><th>Soil Description</th><th>Soil Color</th><th>Soil Moisture</th><th>Soil Temperature</th><th>Soil pH</th><th>Soil Specific Gravity</th><th>Soil Unit Weight</th><th>Soil Void Ratio</th><th>Soil Porosity</th><th>Soil Permeability</th><th>Soil Compression</th><th>Soil Swell</th><th>Soil Shrinkage</th><th>Soil Liquid Limit</th><th>Soil Plastic Limit</th><th>Soil Shrinkage Limit</th><th>Soil Liquid Plasticity Index</th><th>Soil Plasticity Index</th><th>Soil Unified Soil Classification</th></tr> </thead> <tbody> <tr><td>1</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>2</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>3</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>4</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> </tbody> </table>	Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification	1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	<p><b>HILLS-CARROLL ENGINEERING ASSOCIATES, INC.</b> RECORD OF SOIL EXPLORATION</p> <p>Project Name: Robinson Overlook Location: Columbia, Maryland</p> <p>Date: 10/20/20 Soil Name: HCEA Soil Class: C</p> <table border="1"> <thead> <tr><th>Soil Name</th><th>Soil Class</th><th>Soil Description</th><th>Soil Color</th><th>Soil Moisture</th><th>Soil Temperature</th><th>Soil pH</th><th>Soil Specific Gravity</th><th>Soil Unit Weight</th><th>Soil Void Ratio</th><th>Soil Porosity</th><th>Soil Permeability</th><th>Soil Compression</th><th>Soil Swell</th><th>Soil Shrinkage</th><th>Soil Liquid Limit</th><th>Soil Plastic Limit</th><th>Soil Shrinkage Limit</th><th>Soil Liquid Plasticity Index</th><th>Soil Plasticity Index</th><th>Soil Unified Soil Classification</th></tr> </thead> <tbody> <tr><td>1</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>2</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>3</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> <tr><td>4</td><td>CL</td><td>CLAY</td><td>Light Brown</td><td>20.0</td><td>60.0</td><td>7.5</td><td>2.7</td><td>110.0</td><td>0.75</td><td>75.0</td><td>1.0E-08</td><td>1.0</td><td>0.0</td><td>0.0</td><td>25.0</td><td>10.0</td><td>15.0</td><td>15.0</td><td>15.0</td><td>CL</td></tr> </tbody> </table>	Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification	1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL	4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL										
Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification																																																																																																																																																																																																											
1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
Soil Name	Soil Class	Soil Description	Soil Color	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Permeability	Soil Compression	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Plasticity Index	Soil Plasticity Index	Soil Unified Soil Classification																																																																																																																																																																																																											
1	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
2	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
3	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											
4	CL	CLAY	Light Brown	20.0	60.0	7.5	2.7	110.0	0.75	75.0	1.0E-08	1.0	0.0	0.0	25.0	10.0	15.0	15.0	15.0	CL																																																																																																																																																																																																											



**PROPOSED PAVEMENT AND BORING LOCATION PLAN**  
SCALE: 1"=50'

**AS-BUILT CERTIFICATION FOR PSWM**

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

**OWNER/DEVELOPER**  
ROBINSON OVERLOOK LIMITED PARTNERSHIP  
500 S. FRONT STREET, 10TH FLOOR  
COLUMBUS, OH 43215  
(614) 396-3200

**PROFESSIONAL ENGINEER**  
ROBERT H. VOGEL, PE, No. 16193  
DATE: 10/13/21



NOTE: GEOTECH TO APPROVE ALL PAVING SECTION PRIOR TO CONSTRUCTION.  
NOTE: SEE HOWARD COUNTY DETAIL R-2.01 FOR P-3 PAVEMENT SECTION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DIRECTOR

DATE: 2/4/20  
DATE: 2/4/20  
DATE: 2/4/20

2. REVISE THE PLAN TO MODIFY THE ON-SITE PAVING SECTION TO REFLECT THE REVISED GEOTECHNICAL REPORT

NO. 9-18-20  
REVISION DATE

**SITE DEVELOPMENT PLAN  
PAVEMENT AND BORING LOCATION PLAN**

ROBINSON OVERLOOK  
HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
7410 GRACE DRIVE, COLUMBIA, MD 21045  
ZONED: POC  
L 08884/F. 0005

TAX MAP 35, BLOCK 22, 5TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110, ELLIOTT CITY, MD 21043  
TEL 410.461.7666 FAXI 410.461.8961

**PROFESSIONAL CERTIFICATE**

DESIGN BY: LRC/RHV  
DRAWN BY: LRC  
CHECKED BY: RHV  
DATE: NOV 2019  
SCALE: AS SHOWN  
W.O. NO.: 04-06

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2022

11 SHEET OF 17

AS-BUILT, SEPTEMBER 2021

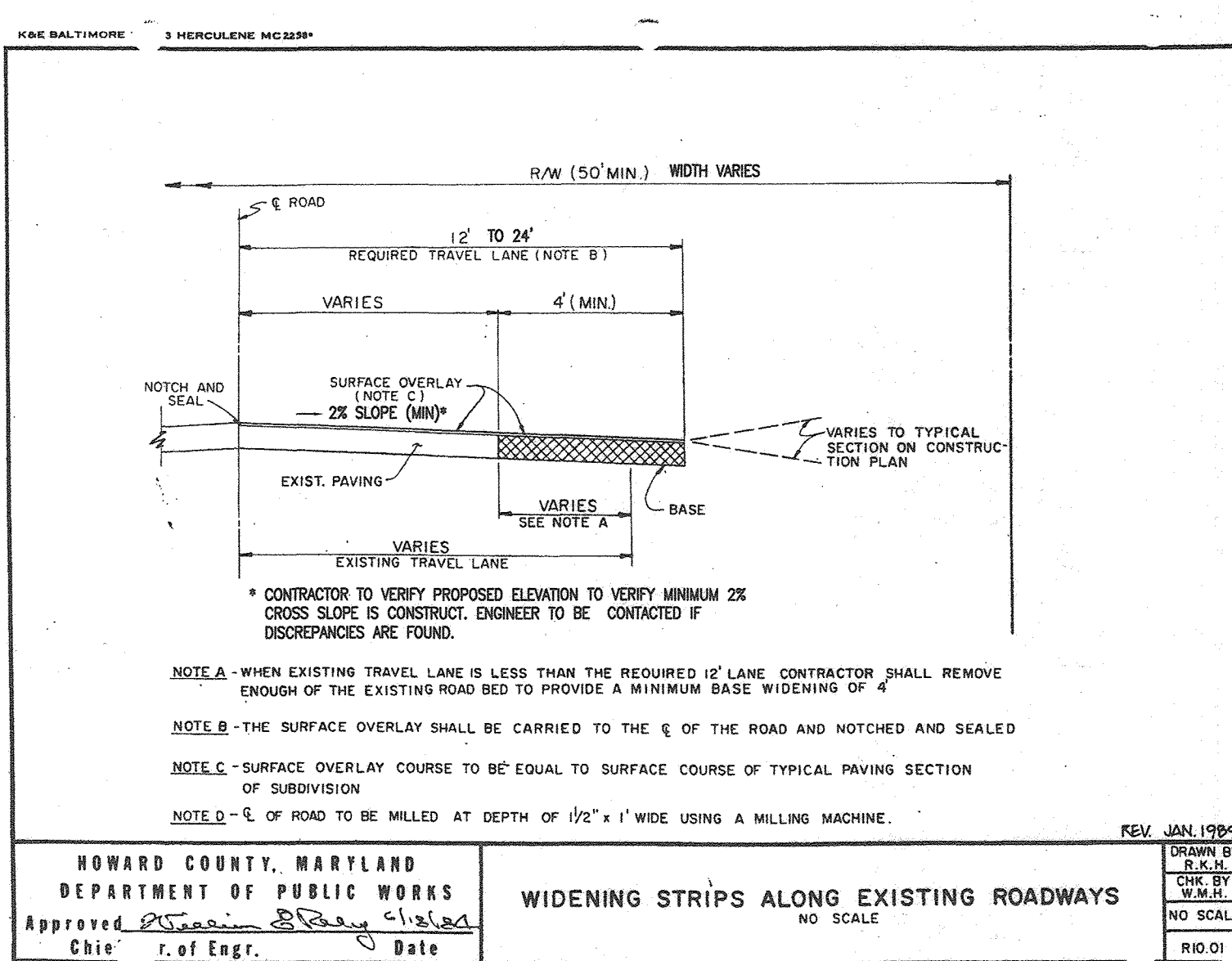
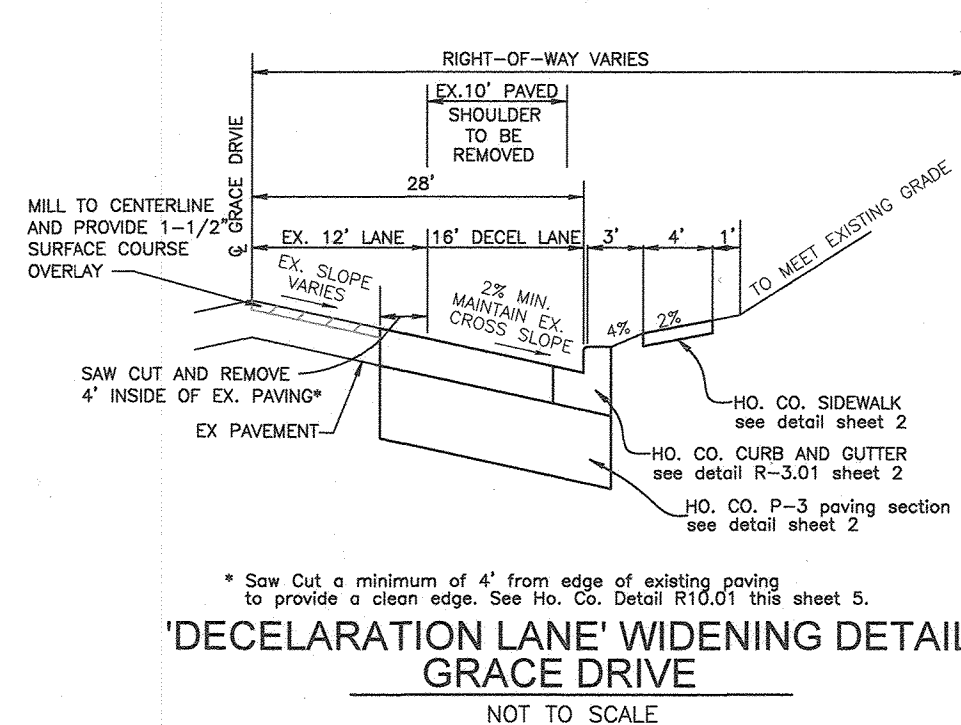
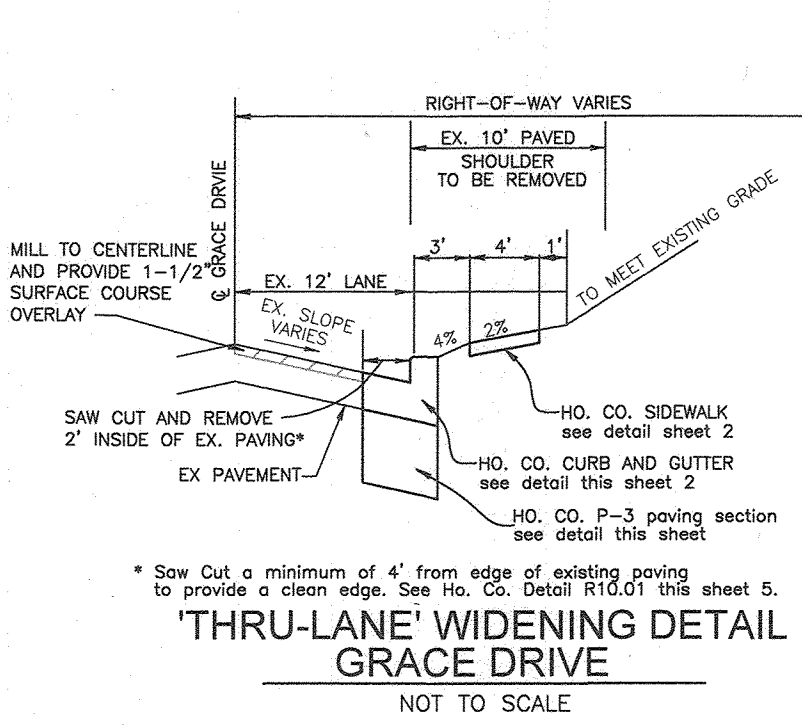


APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIOTRETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

- 1. MATERIAL SPECIFICATIONS
2. FILTERING MEDIA OR PLANTING SOIL
3. COMPACTION

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

- 1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY...
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR...
3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING...
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS...



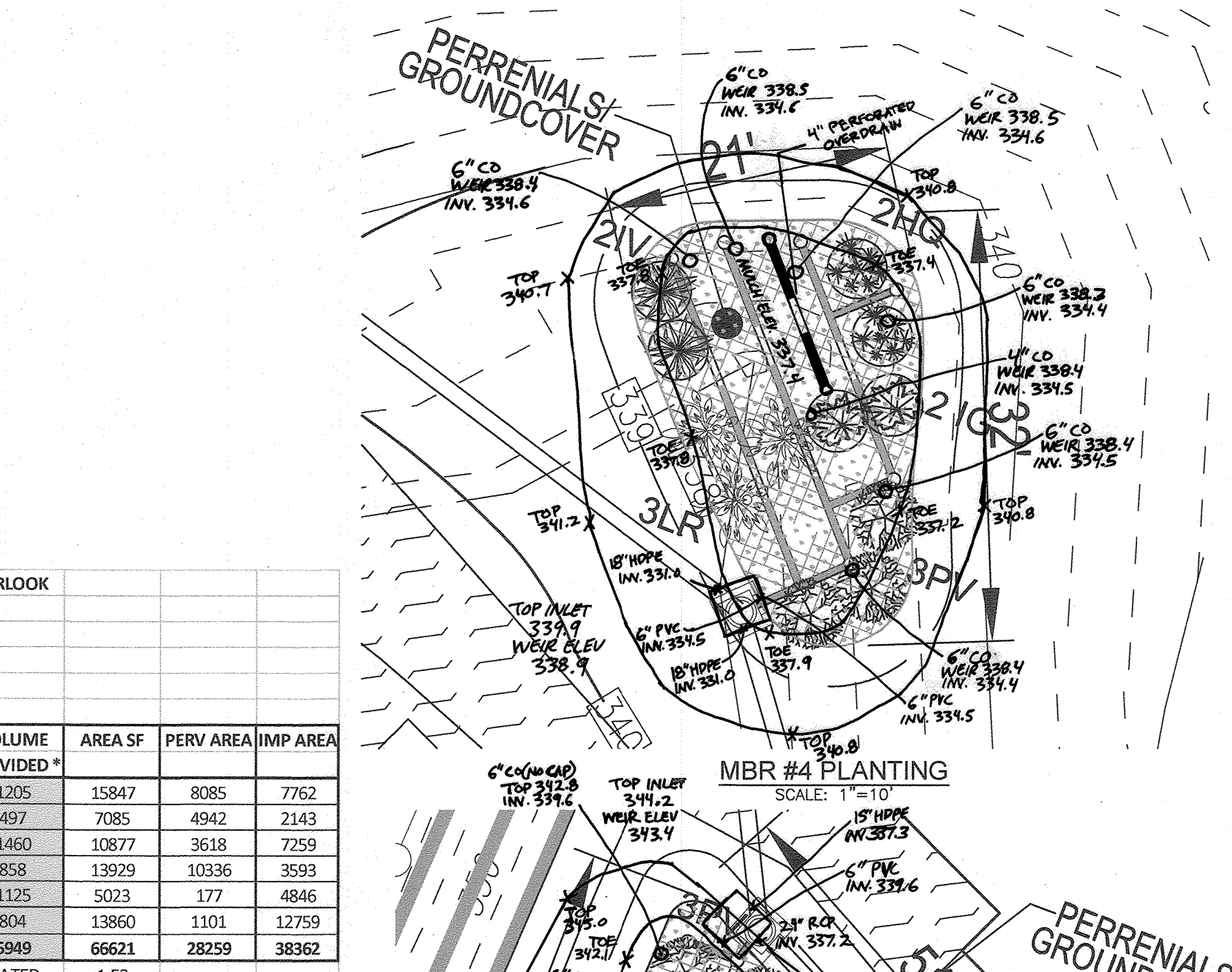
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
Approved: [Signature] Date: [Date]
Chief: [Name] Date: [Date]

- 4. PLANT MATERIAL
5. PLANT INSTALLATION
6. UNDERDRAINS

- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)
1. THE OWNER SHALL PERIODICALLY CLEAN PERMEABLE PAVEMENT...
2. THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES...
3. THE OWNER SHALL USE DECIDERS IN MODERATION...

- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES
A. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY IS PRIVATELY OWNED...
B. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED YEARLY...
C. WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED...
D. THE FACILITY SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS...
E. THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND STORMWATER MANAGEMENT FACILITY...
F. THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS...

Table with 10 columns: DA, % IMPERV, Rv, DA, ESDv, MINIMUM REQ VOLUME, MAXIMUM VOLUME, VOLUME PROVIDED\*, AREA SF, PERV AREA, IMP AREA. Includes totals for SUBAREA and TOTAL AREA TREATED.



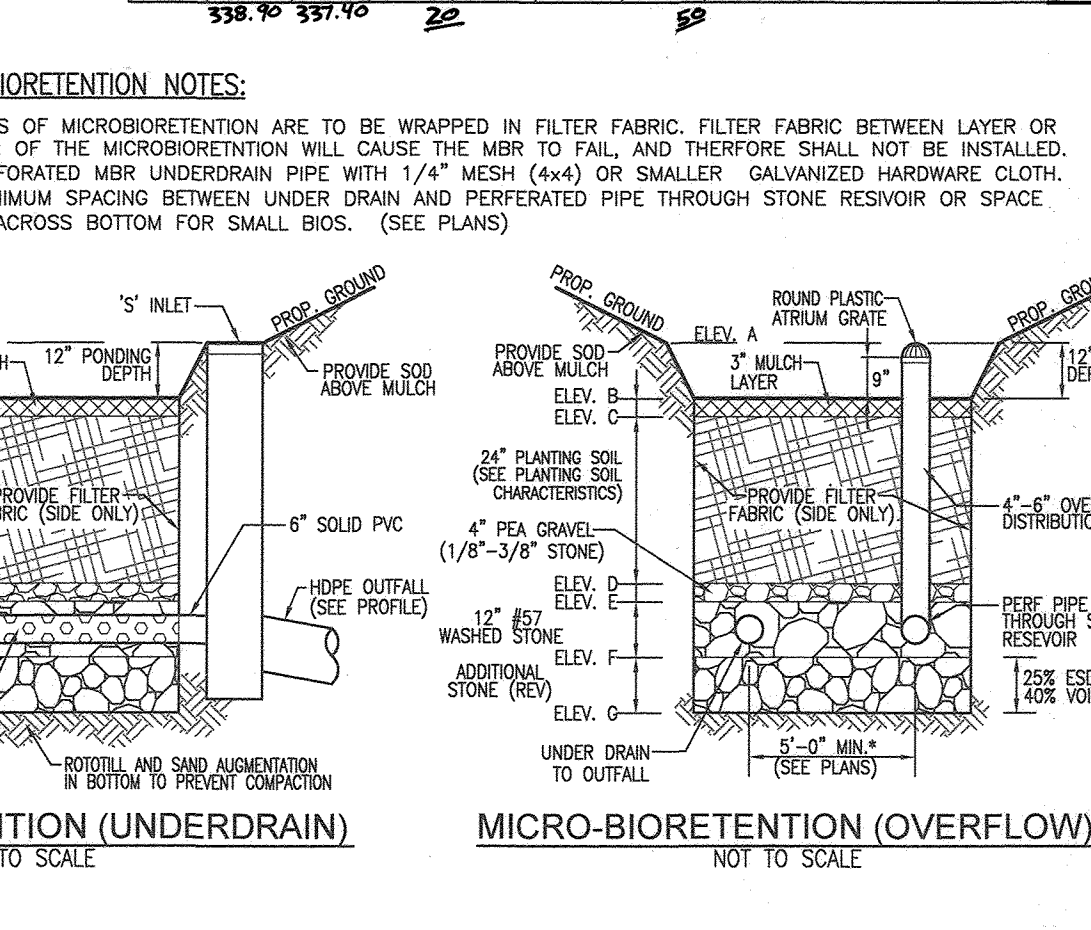
BIOTRETENTION PLANTING SCHEDULE (SHUB/ORNAMENTAL GRASSES) table with columns: LEGENDKEY, QTY, BOTANICAL NAME/COMMON NAME, SIZE, REMARKS.

PERENNIALS/GROUNDCOVER PLANTING SCHEDULE table with columns: LEGEND, QTY, BOTANICAL NAME/COMMON NAME, SIZE, REMARKS.

MICRO-BIOTRETENTION PLANTING REQUIREMENTS and PLANTINGS PROVIDED tables.

ENVIRONMENTAL SITE DESIGN PRACTICE table showing drainage area, facility, permeable pavement, etc.

MICRO-BIOTRETENTION DATA CHART table with columns: MBR NO., ELEV, etc.

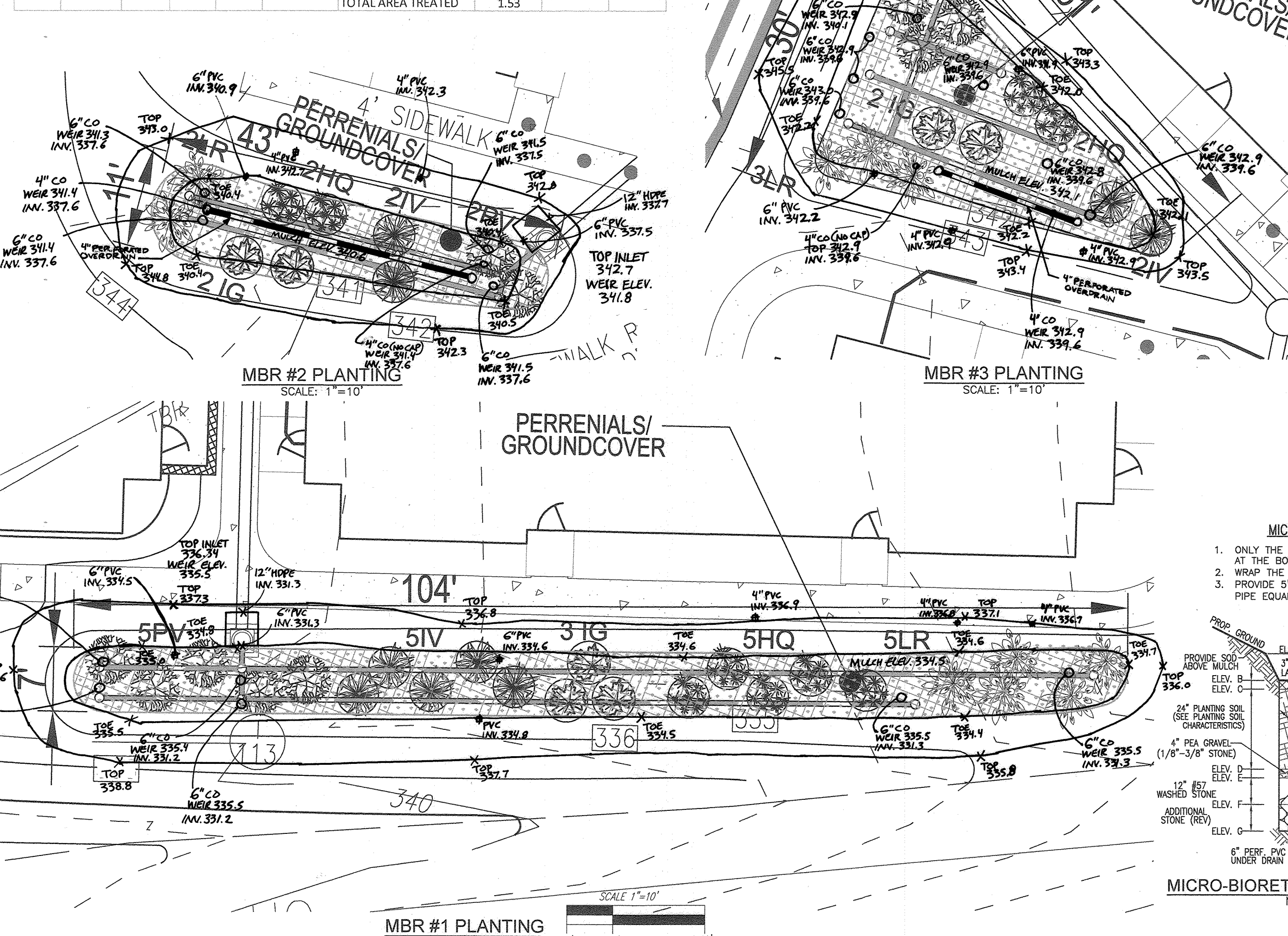


- 7. MISCELLANEOUS
B.4.B SPECIFICATIONS FOR PERMEABLE PAVEMENTS & REINFORCED TURF
1. PERVIOUS CONCRETE SPECIFICATIONS
2. PERMEABLE INTERLOCKING CONCRETE PAVEMENTS (PICP)
3. REINFORCED TURF

PROJECT: ROBINSON OVERLOOK
DESIGNER: LRC
DATE: 03/11/19
PROJECT: ROBINSON OVERLOOK
DESIGNER: LRC
DATE: 03/11/19

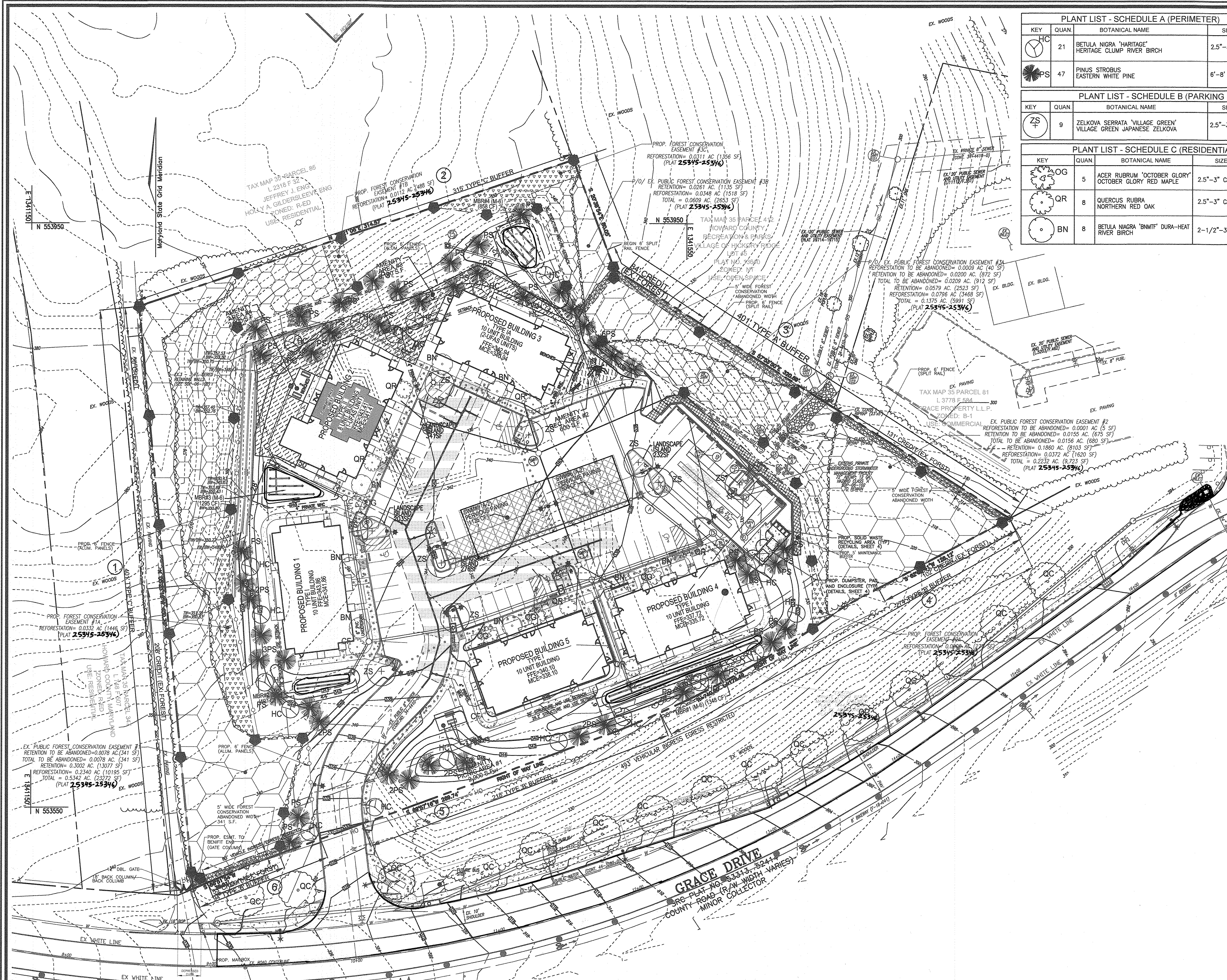
Appendix B.4 Construction Specifications for Environmental Site Design Practices
Table B.4.1 Materials Specifications for Micro-Biotretention, Rain Gardens & Landscape Infiltration
AS-BUILT CERTIFICATION FOR PSMW
STATE OF MARYLAND PROFESSIONAL ENGINEER ROBERT H. VOGEL

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
APPROVED: [Signature] DATE: 2/4/20
CHIEF DEVELOPMENT ENGINEERING DIVISION
CHIEF DIVISION OF LAND DEVELOPMENT
DIRECTOR



ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
TEL 410.461.7666 FAXI 410.461.8961
PROFESSIONAL CERTIFICATE
DESIGN BY: LRC/RHV
DRAWN BY: LRC
CHECKED BY: RHV
DATE: NOV 2019
SCALE: AS SHOWN
W.O. NO.: 04-06
12 SHEET OF 19





**PLANT LIST - SCHEDULE A (PERIMETER)**

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
HC	21	BETULA NIGRA 'HARITAGE' HERITAGE CLUMP RIVER BIRCH	2.5"-3" CAL	B & B
PS	47	PINUS STROBUS EASTERN WHITE PINE	6'-8" HGT.	B & B

**PLANT LIST - SCHEDULE B (PARKING LOT)**

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
ZS	9	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN JAPANESE ZELKOVA	2.5"-3" CAL	B & B

**PLANT LIST - SCHEDULE C (RESIDENTIAL)**

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
OG	5	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2.5"-3" CAL	B & B
QR	8	QUERCUS RUBRA NORTHERN RED OAK	2.5"-3" CAL	B & B
BN	8	BETULA NIGRA 'BMIT' DURA-HEAT RIVER BIRCH	2-1/2" 3" HGT.	B & B

**SCHEDULE A PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES					ADJACENT TO DUMPSTER	TOTAL
	1	2	3	4	5		
PERIMETER/FRONTAGE DESIGNATION	C	A	A	B	B	D	7
LINEAR FEET OF ROADWAY	401	315	401	275	218	66	45
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	YES 228**	NO	YES 215**	YES 102**	NO	YES 95**	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	1:40 4	1:40 8	1:60 3**	1:50 3	1:50 4	1:50 1	1:60 1
SHADE TREES	1:20 9	1:20 16	---	1:40 4	1:40 6	1:40 2	24
EVERGREEN TREES	---	---	---	---	---	---	41
SHRUBS	---	---	---	---	---	---	---
NUMBER OF PLANTS PROVIDED	4	8	---	3	4	1	21
SHADE TREES	4	16	---	4	6	2	47
EVERGREEN TREES	---	---	---	---	---	---	---
OTHER TREES (2:1 SUBSTITUTION)	---	---	---	---	---	---	---
SHRUBS (10:1 SUBSTITUTION)	---	---	---	---	---	---	---
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED	---	---	---	---	---	---	---

\*\* SUBSTITUTE 2 EVERGREEN TREES FOR EACH SHADE TREE  
\*\*\* EXISTING FOREST CREDIT

**SCHEDULE B PARKING LOT INTERNAL LANDSCAPING**

Number of planting spaces	87
Number of trees required	9
Number of trees provided	9
Shade Trees	9
Other Trees (2:1 Substitution)	---

**SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING**

NUMBER OF DWELLING UNITS	48
NUMBER OF TREES REQUIRED (1:3)	16
NUMBER OF TREES PROVIDED*	21

\* 1 ADDITIONAL TREE PER BUILDING IN LIEU OF 15' LANDSCAPE AREA BETWEEN BUILDING AND CURB (5' REDUCTION). LANDSCAPING ALTERNATIVE APPROVED BY DLD IN OCTOBER 2019.

**PLANT LIST - SCHEDULE D (STREET TREES)**

KEY	QUAN	BOTANICAL NAME	SIZE	CAT
OC	15	QUERCUS Coccinea SCARLET OAK	2.5"-3" CAL	B & B

**STREET TREE CALCULATIONS**

STREET NAME	LINEAR FEET	REQUIRED	PROVIDED
GRACE DRIVE (MINOR COLLECTOR)	610	15	15

**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED LIGHT POLE
- EXISTING VEGETATION
- EXISTING TREELINE
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS
- LANDSCAPE PERIMETER
- PROPOSED FOREST CONSERVATION SIGNS
- EXISTING FOREST CONSERVATION EASEMENT "RETENTION" (PLAT 19441-19442)
- EXISTING FOREST CONSERVATION EASEMENT "RESTORATION" (PLAT 19441-19442)
- PROPOSED FOREST CONSERVATION EASEMENT "RESTORATION" (PLAT 25345-25346)
- PROPOSED OPEN SPACE
- PROPOSED FOREST CONSERVATION ABANDONED AREA (PLAT 25345-25346)
- PERVIOUS PAVING (A-2)
- MICRO-BIO-RETENTION AREA
- EXISTING 20" PUBLIC WATER AND UTILITY EASEMENT (PLAT 19441-19442)
- PROPOSED PUBLIC WATER AND UTILITY EASEMENT (PLAT 25345-25346)
- PROPOSED RETAINING WALL
- EXISTING PUBLIC WATER AND UTILITY EASEMENT TO BE ABANDONED
- TEST PITS

**LANDSCAPE SCHEDULE NOTE:**

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRO PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

**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.
- THE FOREST CONSERVATION OBLIGATIONS WERE PREVIOUSLY FULFILLED BY THE RETENTION OF 0.57 ACRES OF FOREST, BY THE REFORESTATION OF 0.46 ACRES OF FOREST, AND BY A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF \$22,215.60 FOR THE REMAINING 0.66 ACRES OF FOREST REQUIRED (REFERENCE VOIDED SDP-06-102, BALTIMORE KOREAN SEVENTH DAY ADVENTIST CHURCH). FINANCIAL SURETY FOR THE REQUIRED REFORESTATION IN THE AMOUNT OF \$10,184.00 WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT UNDER THIS SITE DEVELOPMENT PLAN. THE REQUIRED RETENTION AND REFORESTATION WILL BE ADDRESSED WITH SDP-19-055. A NEW DEVELOPER'S AGREEMENT WILL BE PREPARED AND SUPERSEDE ALL PREVIOUS DA'S FOR THIS SITE.
- THERE IS NO NET LOSS OF FCE. ANY REQUIRED RE-PLANTING OR RE-LOCATING WILL BE ACCOMPLISHED ON SITE.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT WITH THIS PLAN, IN THE AMOUNT OF \$13,350.00 FOR THE REQUIRED 24 SHADE TREES AND 41 EVERGREEN TREES.
- FINANCIAL SURETY FOR THE REQUIRED STREET TREE PLANTING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT WITH THIS PLAN, IN THE AMOUNT OF \$4,500.00 FOR THE REQUIRED 15 SHADE TREES. THE SURETY FOR THE PUBLIC STREET TREES WILL BE ADDRESSED WITH THE DED'S COST ESTIMATE.
- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIAL TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- \* SEE NOTE #52 ON SHEET 1.

**STORMWATER MANAGEMENT FACILITY PRIVATELY OWNED AND MAINTAINED**

**OWNER/DEVELOPER**  
ROBINSON OVERLOOK LIMITED PARTNERSHIP  
500 S. FRONT STREET, 10TH FLOOR  
COLUMBUS, OH 43215  
(614) 396-3200



**AS-BUILT CERTIFICATION FOR PSWM**

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

DATE: 5-31-23  
P.E. NAME: [Signature]  
P.E. # 16193

NOTE: ALL MATERIALS AS SPECIFIED

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

- LEADER MUST REMAIN INTACT
- PRUNE APPROXIMATELY 30% OF CROWN - SEE "LANDSCAPE SPECIFICATIONS"
- 2 STRANDS OF GALVANIZED WIRE TWISTED FOR SUPPORT
- UPRIGHT STAKES - SET IN GROUND TO FIRM BEARING
- RUBBER HOSE
- CUT BURLAP & ROPE FROM TOP OF BALL
- 3" DEPTH MULCH
- 2" EARTH SAUCER
- FINISH GRADE
- 1/8" DEPTH OF BALL
- PLANTING MIX - SEE PLANTING NOTES
- LOOSENE SUBSOIL

**TYPICAL EVERGREEN TREE PLANTING DETAIL**  
NOT TO SCALE

- 2 MULCH
- PLANT SAUCER
- REMOVE BURLAP FROM TOP
- 1/3 OF BALL
- 2"x4"x3" WOOD STAKES
- BACKFILL MATERIAL
- COMPACTED BACKFILL MATERIAL 6" MIN.
- 1"-0" ALL SIDES
- LOOSEN SUBSOIL
- 6" MIN. EQUAL TO TWICE BALL DIA.
- 3" MULCH
- BACKFILL WITH TOPSOIL AND PEAT MOSS, 3:1 RATIO. BACKFILL IN 6" LIFTS
- 6" MIN. EQUAL TO TWICE BALL DIA.
- 6" FOR PLANTS UP TO 4'
- HEIGHT MIN. 8" FOR PLANTS OVER 4' HEIGHT MIN.

**SHRUB PLANTING DETAIL**  
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 2/4/20  
DATE: 2/4/20  
DATE: 2/4/20

**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.

DATE: 1/4/2020

**SITE DEVELOPMENT PLAN**

**LANDSCAPE PLAN AND DETAILS**  
ROBINSON OVERLOOK  
HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
7410 GRACE DRIVE COLUMBIA, MD. 21045  
ZONED: POR  
L 08684-F 0005

TAX MAP 35 BLOCK 22 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110, ELLIOTT CITY, MD 21043  
TEL 410.461.7666 FAXI 410.461.8961

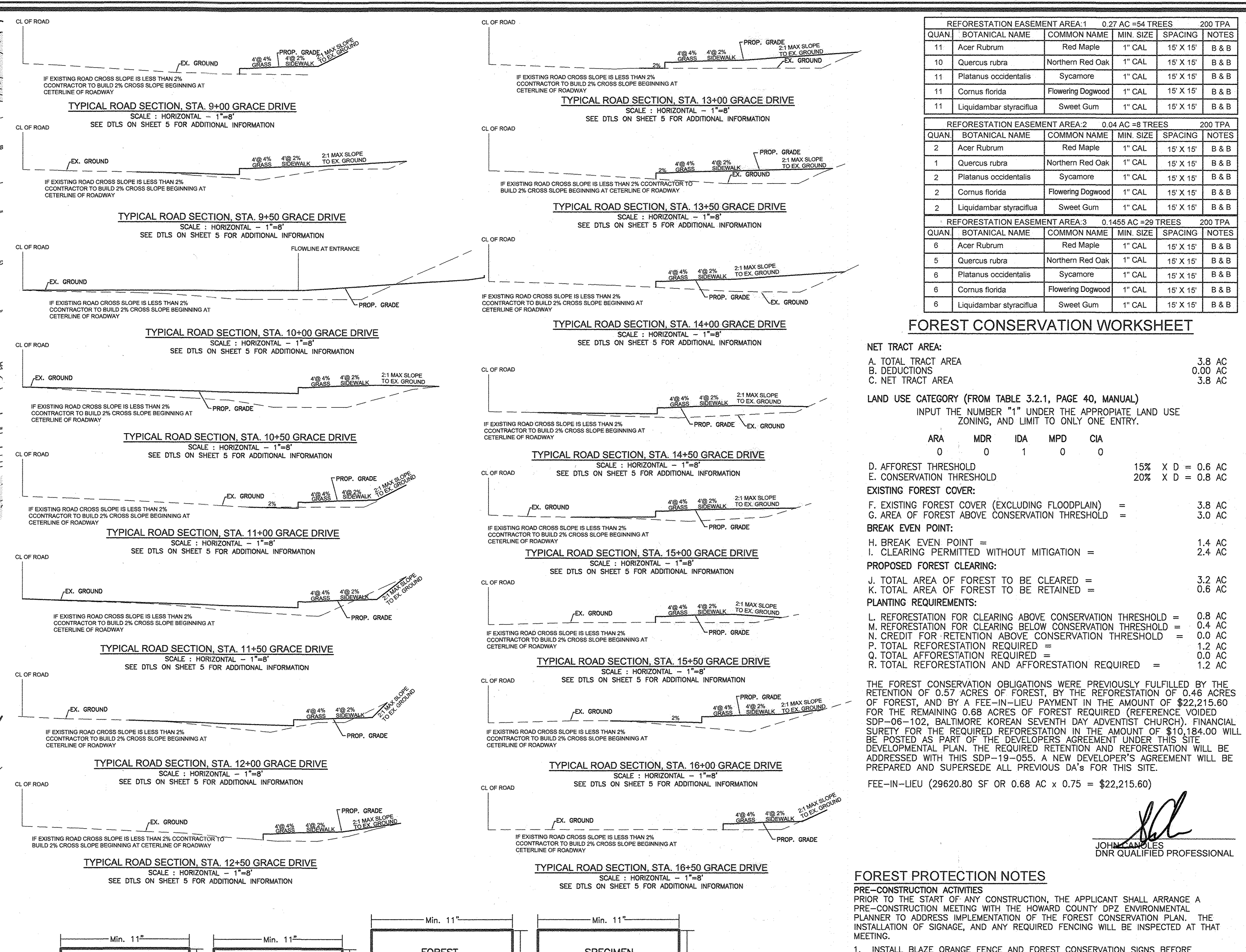
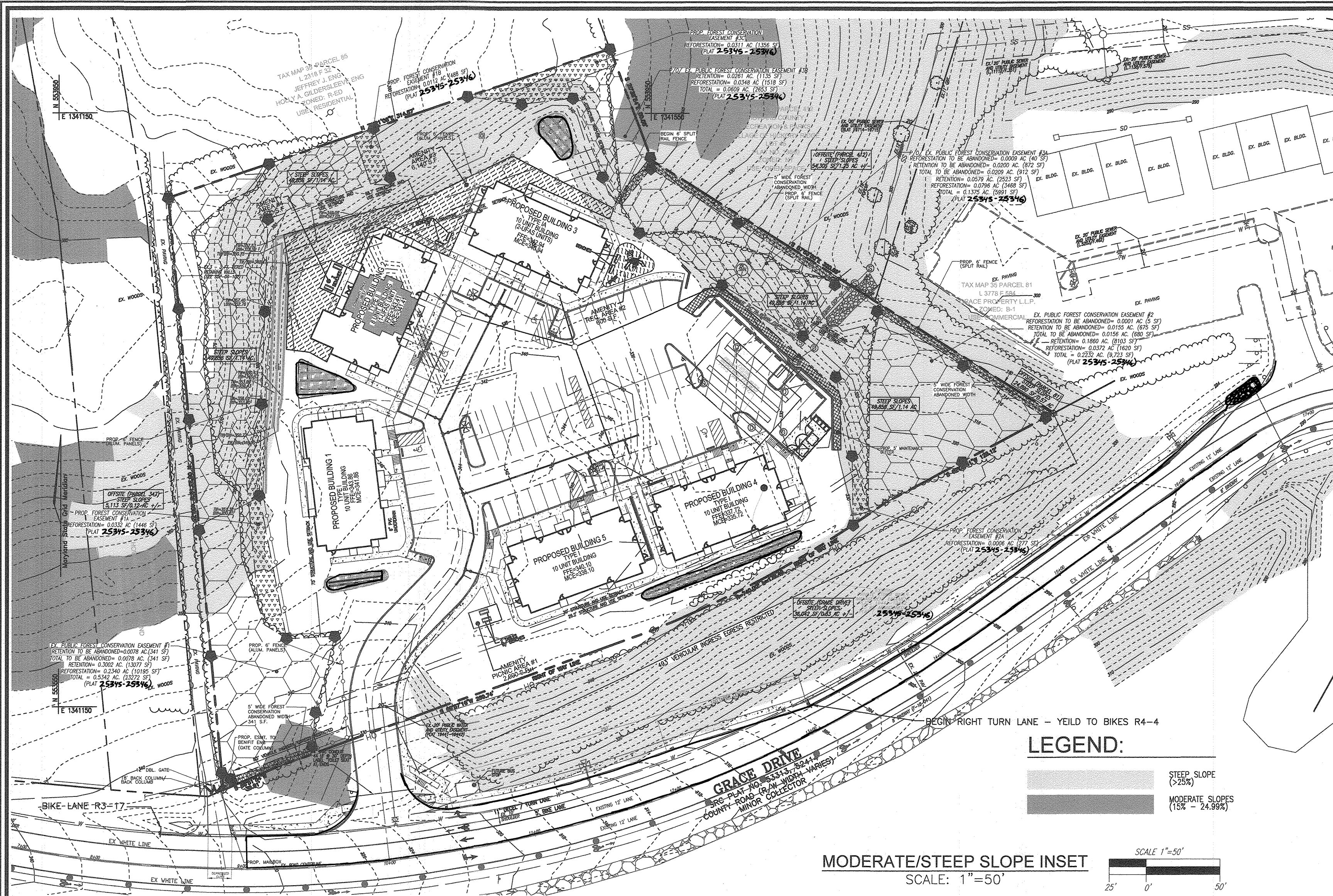
DESIGN BY: LRC/RHV  
DRAWN BY: LRC  
CHECKED BY: RHV  
DATE: NOV 2019  
SCALE: AS SHOWN  
W.O. NO.: 04-06

PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALY LICENSED PROFESSIONAL ENGINEER OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 05-27-2020

13 SHEET OF 17

SDP-19-055  
**AS-BUILT, SEPTEMBER 2021**





REFORESTATION EASEMENT AREA 1 0.27 AC #4 TREES 200 TPA					
QUAN	BOTANICAL NAME	COMMON NAME	MIN SIZE	SPACING	NOTES
11	Acer rubrum	Red Maple	1" GAL	15' X 15'	B & B
10	Quercus rubra	Northern Red Oak	1" GAL	15' X 15'	B & B
11	Platanus occidentalis	Sycamore	1" GAL	15' X 15'	B & B
11	Cornus florida	Flowering Dogwood	1" GAL	15' X 15'	B & B
11	Liquidambar styraciflua	Sweet Gum	1" GAL	15' X 15'	B & B

REFORESTATION EASEMENT AREA 2 0.04 AC #8 TREES 200 TPA					
QUAN	BOTANICAL NAME	COMMON NAME	MIN SIZE	SPACING	NOTES
2	Acer rubrum	Red Maple	1" GAL	15' X 15'	B & B
1	Quercus rubra	Northern Red Oak	1" GAL	15' X 15'	B & B
2	Platanus occidentalis	Sycamore	1" GAL	15' X 15'	B & B
2	Cornus florida	Flowering Dogwood	1" GAL	15' X 15'	B & B
2	Liquidambar styraciflua	Sweet Gum	1" GAL	15' X 15'	B & B

### FOREST CONSERVATION WORKSHEET

NET TRACT AREA:  
 A. TOTAL TRACT AREA = 3.8 AC  
 B. DEDUCTIONS = 0.00 AC  
 C. NET TRACT AREA = 3.8 AC

LAND USE CATEGORY (FROM TABLE 3.2.1, PAGE 40, MANUAL)  
 INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY.

ARA	MDR	IDA	MPO	DA	OIA
0	0	1	0	0	0

D. AFFOREST THRESHOLD = 15% X D = 0.6 AC  
 E. CONSERVATION THRESHOLD = 20% X D = 0.8 AC

EXISTING FOREST COVER:  
 F. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 3.8 AC  
 G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 3.0 AC

BREAK EVEN POINT:  
 H. BREAK EVEN POINT = 1.4 AC  
 I. CLEARING PERMITTED WITHOUT MITIGATION = 2.4 AC

PROPOSED FOREST CLEARING:  
 J. TOTAL AREA OF FOREST TO BE CLEARED = 3.2 AC  
 K. TOTAL AREA OF FOREST TO BE RETAINED = 0.6 AC

PLANTING REQUIREMENTS:  
 L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD = 0.8 AC  
 M. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 0.4 AC  
 N. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.0 AC  
 O. TOTAL REFORESTATION REQUIRED = 1.2 AC  
 P. TOTAL AFFORESTATION REQUIRED = 0.0 AC  
 Q. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 1.2 AC

THE FOREST CONSERVATION OBLIGATIONS WERE PREVIOUSLY FULFILLED BY THE RETENTION OF 0.57 ACRES OF FOREST, BY THE REFORESTATION OF 0.48 ACRES OF FOREST, AND BY A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF \$22,215.60 FOR THE REMAINING 0.88 ACRES OF FOREST REQUIRED (REFERENCE VOIDED SDP-06-102, BALTIMORE KOREAN SEVENTH DAY ADVENTIST CHURCH, FINANCIAL SURETY FOR THE REQUIRED REFORESTATION IN THE AMOUNT OF \$10,184.00 WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT UNDER THIS SITE DEVELOPMENT PLAN. THE REQUIRED RETENTION AND REFORESTATION WILL BE ADDRESSED WITH THIS SDP-19-055. A NEW DEVELOPER'S AGREEMENT WILL BE PREPARED AND SUPERSEDES ALL PREVIOUS DA'S FOR THIS SITE.  
 FEE-IN-LIEU (29620.80 SF OR 0.68 AC x 0.75 = \$22,215.60)

### FOREST PROTECTION NOTES

PRE-CONSTRUCTION ACTIVITIES  
 PRIOR TO THE START OF ANY CONSTRUCTION, THE APPLICANT SHALL ARRANGE A PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY DPZ ENVIRONMENTAL PLANNER TO ADDRESS IMPLEMENTATION OF THE FOREST CONSERVATION PLAN, THE INSTALLATION OF SIGNAGE, AND ANY REQUIRED FENCING WILL BE INSPECTED AT THAT MEETING.

- INSTALL BLAZE ORANGE FENCE AND FOREST CONSERVATION SIGNS BEFORE CONSTRUCTION BEGINS.
- FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.

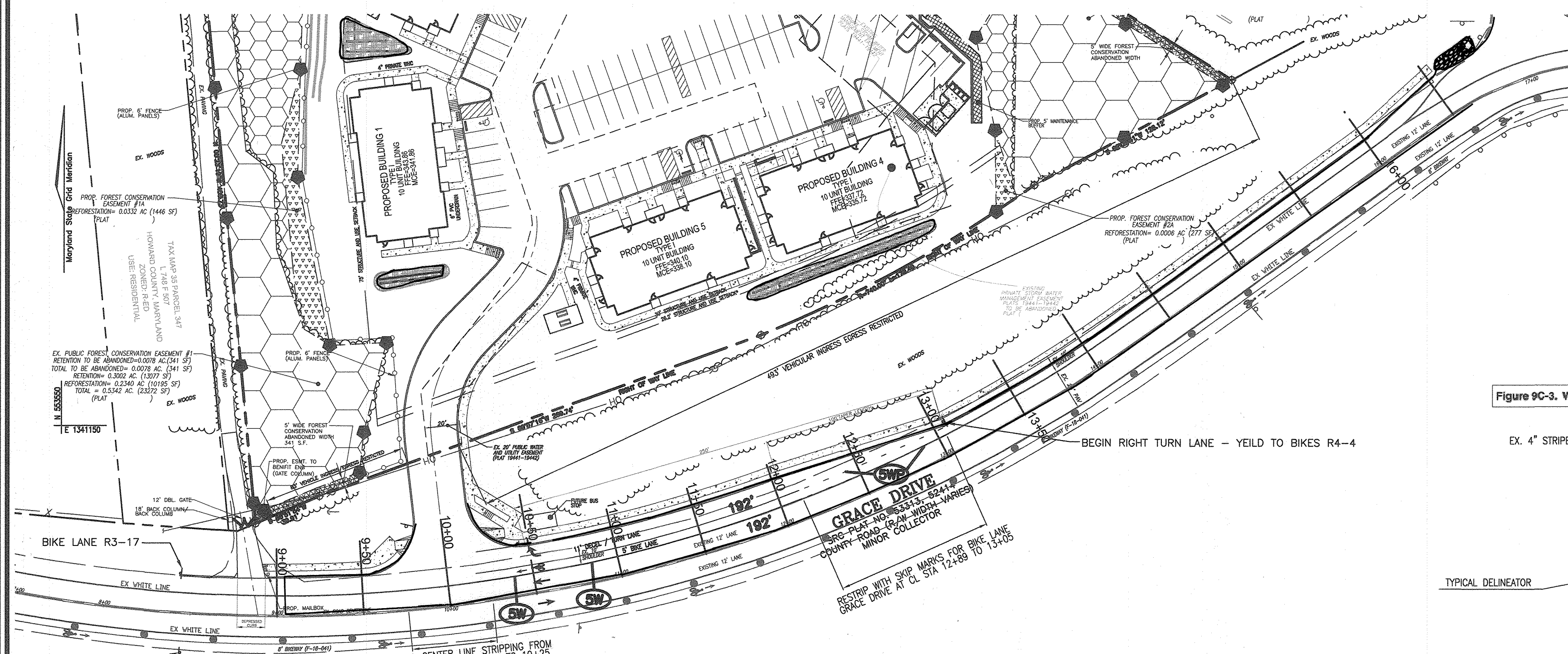
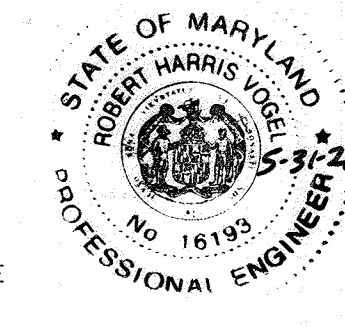
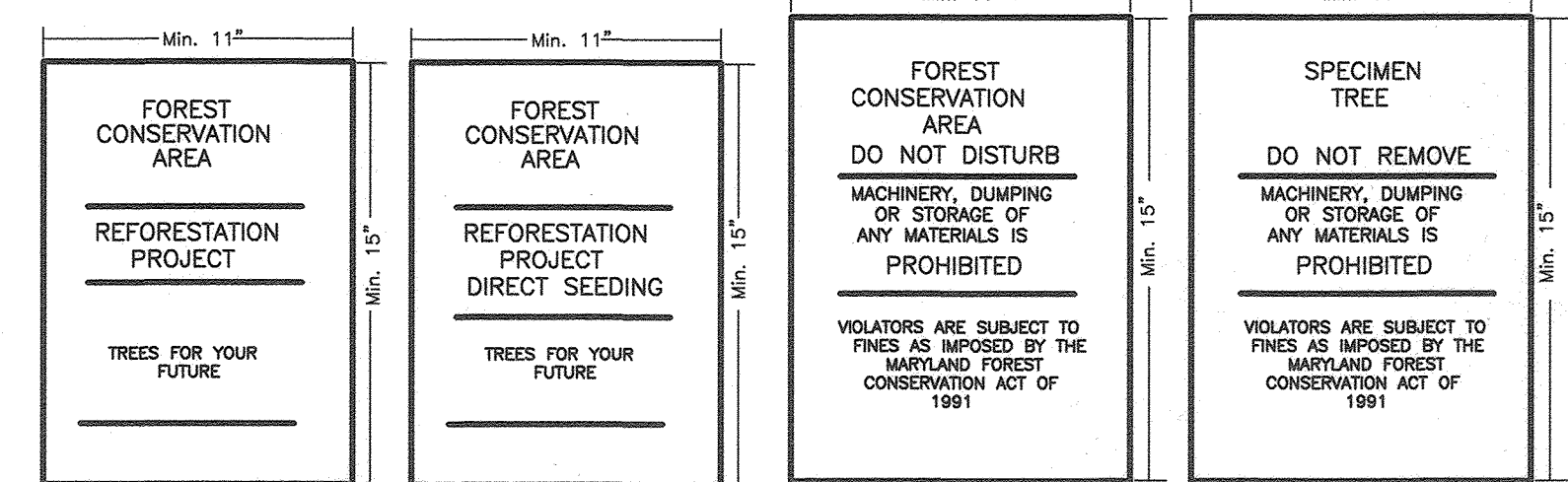
CONSTRUCTION PHASE

- NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE AFFORESTATION AREA.
- NO EQUIPMENT SHALL BE OPERATED INSIDE THE AFFORESTATION AREA INCLUDING TREE CANOPIES.
- IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERING AS NEEDED.

POST-CONSTRUCTION ACTIVITIES

- THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
- FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
- FOLLOWING CONSTRUCTION, THE APPLICANT SHALL ARRANGE A POST-CONSTRUCTION MEETING WITH THE HOWARD COUNTY DPZ ENVIRONMENTAL PLANNER TO ADDRESS COMPLIANCE WITH THE FOREST CONSERVATION PLAN. DO NOT REMOVE SIGNS.

OWNER/DEVELOPER  
 ROBINSON OVERLOOK LIMITED PARTNERSHIP  
 500 S. FRONT STREET, 10TH FLOOR  
 COLUMBUS, OH 43215  
 (614) 396-3200



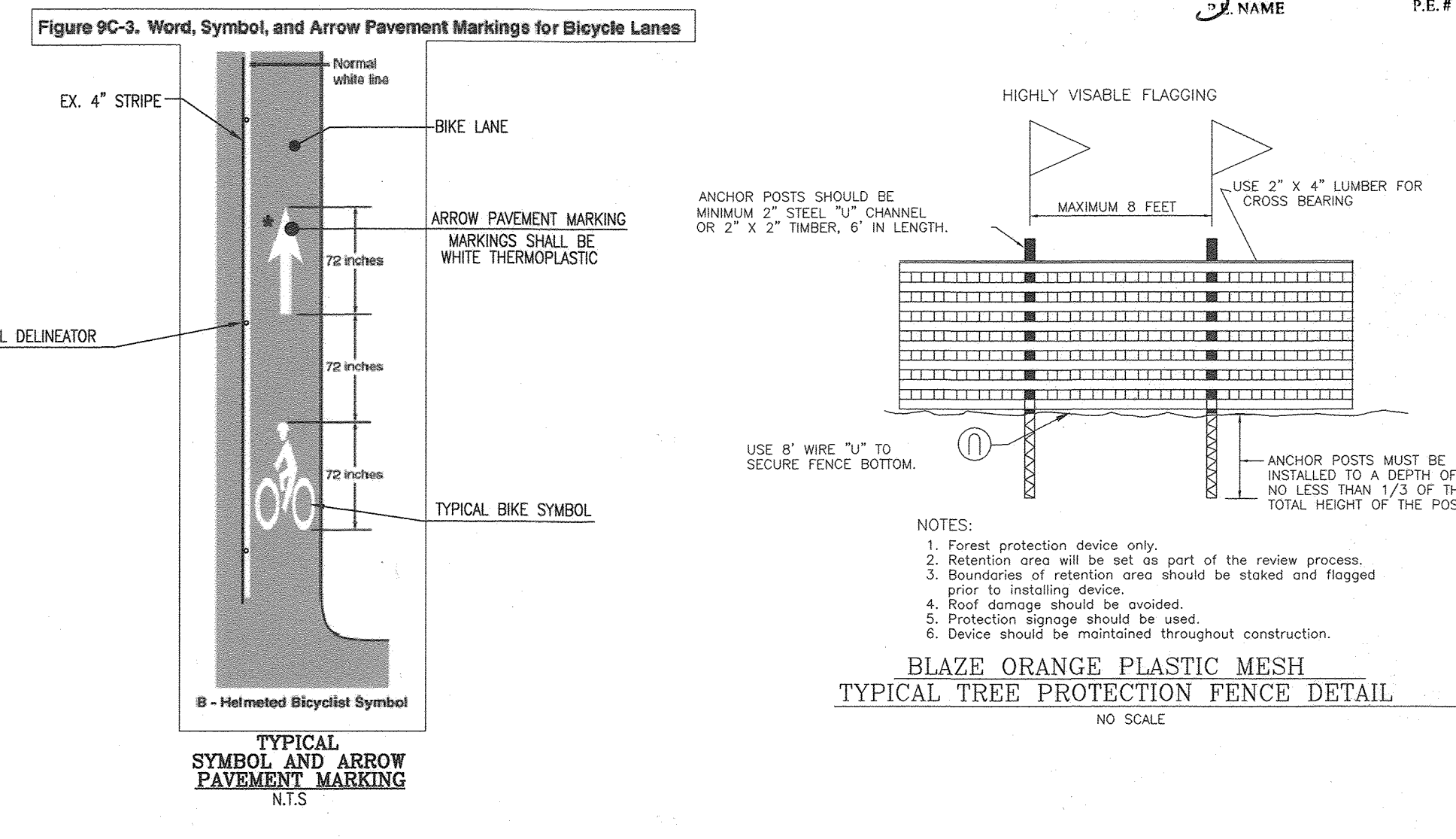
CROSS SECTION & PAVEMENT MARKING  
 SCALE: 1"=50'

### THERMOPLASTIC PAVEMENT MARKING LEGEND

(SW)	5" WHITE SOLID LINE
(SWP)	5" WHITE DOTTED LINE (3" LINE, 9" SPACE)

### PAVEMENT MARKING NOTES:

- ALL PAVEMENT MARKINGS NOT DETAILED ARE EXISTING AND SHALL REMAIN.
- REMOVE EX. CENTER LINE STRIPING BY GRINDING FROM GRACE DRIVE AT STA 9+75 TO 10+25.



APPROVED, HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 2/4/20

*[Signature]*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 2/4/20

*[Signature]*  
 DIRECTOR  
 DATE: 2/4/20

SITE DEVELOPMENT PLAN  
 SLOPE INSETS, PAVEMENT MARKINGS, ROAD SECTION,  
 AND FOREST CONSERVATION NOTES AND DETAILS  
 ROBINSON OVERLOOK  
 HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
 7410 GRACE DRIVE COLUMBIA, MD. 21045  
 ZONED: PFR  
 L 08684/F 0005

TAX MAP 35 BLOCK 22 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND PARCEL 86

**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666 FAX: 410.461.8961

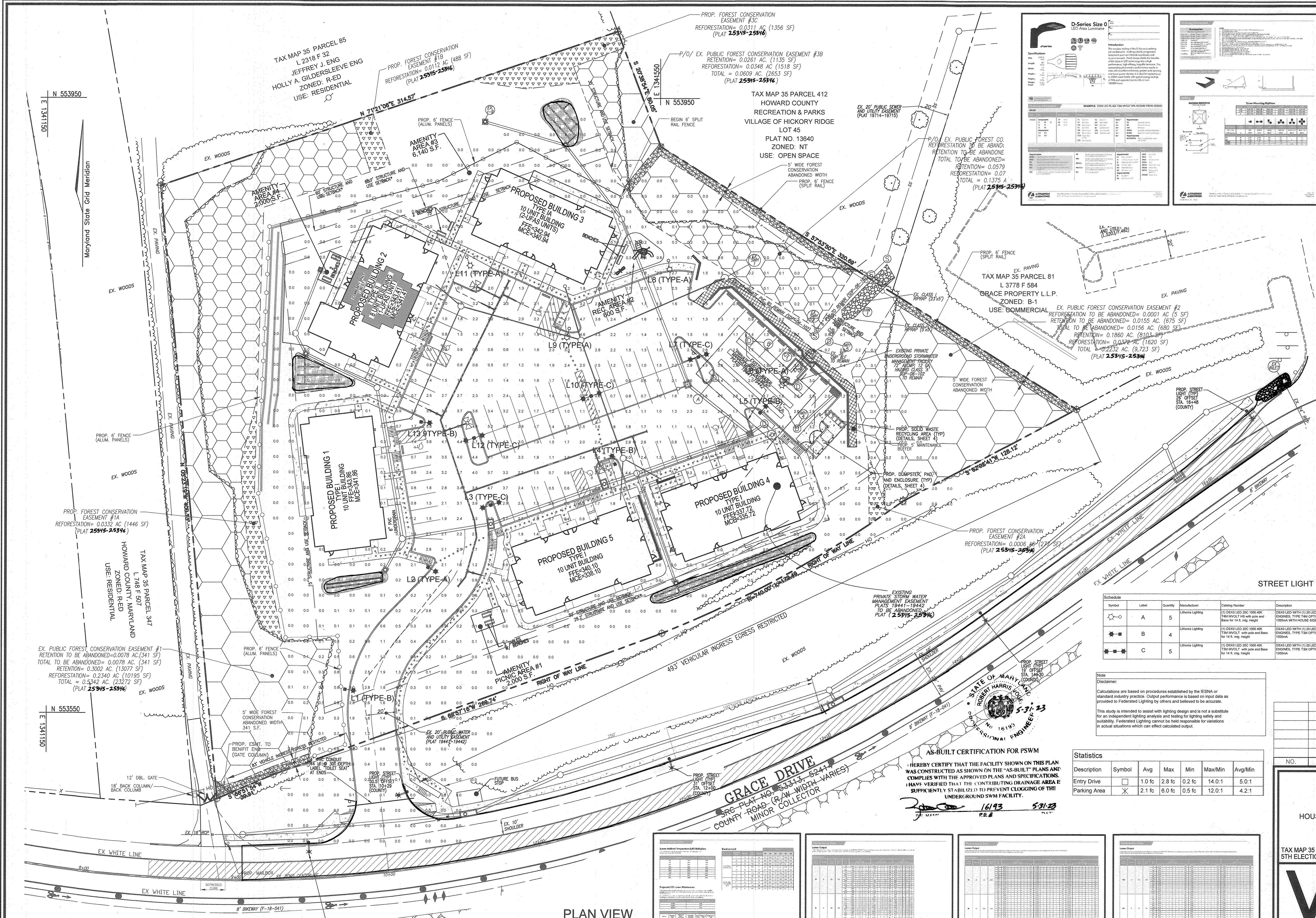
DESIGN BY: LRC/RHV  
 DRAWN BY: LRC  
 CHECKED BY: RHV  
 DATE: NOV 2019  
 SCALE: AS SHOWN  
 W.O. NO.: 04-08

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 EXPIRES DATE 08-27-2020

14 SHEET OF 17

AS-BUILT, SEPTEMBER 2021





**D-Series Size 0 LED Area Luminaire**

**Legend:**

- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- EXISTING VEGETATION
- EXISTING TREELINE (FIELD LOCATED)
- PROPOSED HIGH PRIVACY FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PROPOSED COUNTY STREET LIGHT
- PROPOSED PRIVATE STREET LIGHT - TYPE A
- PROPOSED PRIVATE STREET LIGHT - TYPE B
- PROPOSED PRIVATE STREET LIGHT - TYPE C
- EXISTING FOREST CONSERVATION EASEMENT "RETENTION" (PLAT 19441-19442)
- EXISTING FOREST CONSERVATION EASEMENT "REFORESTATION" (PLAT 19441-19442)
- PROPOSED RETAINING WALL

**LEGEND:**

**NOTE**

1. EXCEPT FOR SPOTLIGHTS AND LOW INTENSITY LIGHTS AS DEFINED IN SECTION 134.0.0.2 AND 134.0.0.3, OF THE HOWARD COUNTY ZONING REGULATIONS, ALL LIGHT FIXTURES SHALL BE FULLY OR PARTIALLY SHIELDED.

**D-Series Size 0 LED Area Luminaire**

**Specifications**

EPK: 0.8 ft  
 Length: 24"  
 Width: 13"  
 Height: 7"  
 Weight: 16 lbs (max)

**STREET LIGHT TABLE (PRIVATE)**

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Footcandle	Light Loss Factor	Footcandle
A	Private Street Light	5	Lithonia Lighting	(1) D500 LED 200 1000 40K 120W/100V, 14 ft max pole and base for 14 ft. max height	D500 LED WITH (1) 20 LED LIGHT SOURCE, TYPE T8A OPTIC, 4000K @ 1000MA WITH HOUSE SIDE SHIELD	LED	1	6849	0.9	7167
B	Private Street Light	4	Lithonia Lighting	(1) D500 LED 200 1000 40K 120W/100V, 14 ft max pole and base for 14 ft. max height	D500 LED WITH (1) 20 LED LIGHT SOURCE, TYPE T8A OPTIC, 4000K @ 1000MA	LED	1	6849	0.9	72
C	Private Street Light	5	Lithonia Lighting	(1) D500 LED 200 1000 40K 120W/100V, 14 ft max pole and base for 14 ft. max height	D500 LED WITH (1) 20 LED LIGHT SOURCE, TYPE T8A OPTIC, 4000K @ 1000MA	LED	1	6849	0.9	144

**OWNER/DEVELOPER**  
 ROBINSON OVERLOOK LIMITED PARTNERSHIP  
 500 S. FRONT STREET, 10TH FLOOR  
 COLUMBUS, OH 43215  
 (614) 396-3200

**AS-BUILT CERTIFICATION FOR PWSM**

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

16/13  
 5/31/23  
 P.E.

**Statistics**

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Entry Drive	□	1.0 ft	2.8 ft	0.2 ft	14.0:1	5.0:1
Parking Area	×	2.1 ft	6.0 ft	0.5 ft	12.0:1	4.2:1

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 7/4/20  
 DATE: 7/4/20  
 DATE: 7/4/20

**STREET LIGHT TABLE (COUNTY)**

STREET NAME	STA.	OFFSET	FIXTURE TYPE
GRACE DRIVE	9+50	24' (LT)	250 LED Cobalthead Fixture (Pendant) on a 30' bronze fiberglass pole with 12 ft. arm
GRACE DRIVE	10+29	50.5' (RT)	250 LED Cobalthead Fixture (Pendant) on a 30' bronze fiberglass pole with 12 ft. arm
GRACE DRIVE	10+40	32' (LT)	250 LED Cobalthead Fixture (Pendant) on a 30' bronze fiberglass pole with 12 ft. arm
GRACE DRIVE	14+00	14' (LT)	250 LED Cobalthead Fixture (Pendant) on a 30' bronze fiberglass pole with 12 ft. arm
GRACE DRIVE	16+48	26' (LT)	250 LED Cobalthead Fixture (Pendant) on a 30' bronze fiberglass pole with 12 ft. arm

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

**STATE OF MARYLAND**  
**ROBERT H. VOGEL, INC.**  
**REGISTERED PROFESSIONAL ENGINEER**  
 No. 16193

**SITE DEVELOPMENT PLAN**  
**PHOTOMETRIC PLAN EXHIBIT**  
**ROBINSON OVERLOOK**  
 HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
 7410 GRACE DRIVE, COLUMBIA, MD. 21045  
 ZONED: POC  
 L. 08884/F. 0005

TAX MAP 35 BLOCK 22  
 5TH ELECTION DISTRICT

PARCEL 88  
 HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110, ELLIOTT CITY, MD 21043  
 TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: LRC/RHV  
 DRAWN BY: LRC  
 CHECKED BY: RHV  
 DATE: NOV 2019  
 SCALE: AS SHOWN  
 W.O. NO.: 04-06

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: 08-27-2020

15 SHEET OF 17

AS BUILT, SEPTEMBER 2021



**SPECIFICATIONS  
MODULAR CONCRETE BLOCK RETAINING WALL**

**PART 1: GENERAL**

**1.01 DESCRIPTION**

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

**1.02 DELIVERY, STORAGE AND HANDLING**

- A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

**PART 2: PRODUCTS**

**2.01 MODULAR CONCRETE RETAINING WALL UNITS**

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

- B. BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.
- C. EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

- B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
- C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH APPROPRIATE REFERENCES:  
COMPRESSIVE STRENGTH = 3000 PSI MINIMUM.  
ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;  
DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16" UNIT HEIGHT - TOP AND BOTTOM PLANES; UNIT SIZE - 8" (H) x 18" (W) x 12" (D) MINIMUM.

UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES;  
INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE, AT 2 PSI NORMAL FORCE;  
GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM

D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTION REQUIREMENTS:  
VERTICAL SETBACK = 1/8" PER COURSE (NEAR VERTICAL) OR 1" PER COURSE PER THE DESIGN. ALIGNMENT AND GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM;  
MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH.

**2.02 SHEAR CONNECTORS**

A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN-PROTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO + 100 DEGREES F. B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

**2.03 BASE LEVELING PAD MATERIAL**

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

**2.04 UNIT DRAINAGE FILL**

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

**2.05 REINFORCED BACKFILL**

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

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

PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM D-4318

B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

**2.06 GEOGRID SOIL REINFORCEMENT**

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE

MANUFACTURED FROM HIGH TENACITY POLYESTER YARN.

**2.07 DRAINAGE PIPE**

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

**PART 3 EXECUTION**

**3.01 EXCAVATION**

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

**3.02 BASE LEVELING PAD**

A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.  
B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

**3.03 MODULAR UNIT INSTALLATION**

A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.  
B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.  
C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.  
D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.  
E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED THREE COURSES.

**3.04 STRUCTURAL GEOGRID INSTALLATION**

A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.  
B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.  
C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE DESIGN SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.  
D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS

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

**3.05 REINFORCED BACKFILL PLACEMENT**

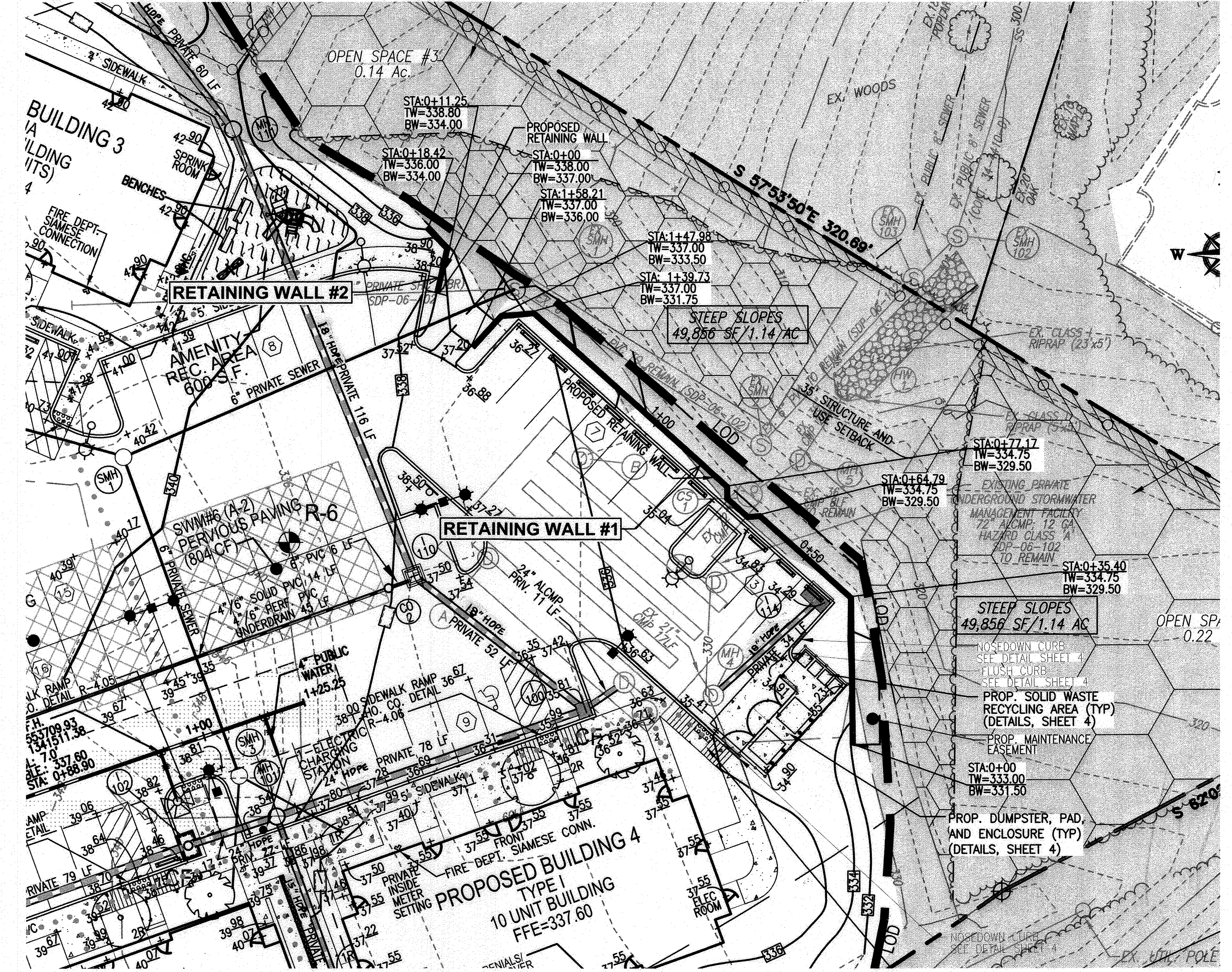
A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.  
B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 8 INCHES WHERE HAND COMPACTION IS USED, OR 8-10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.  
C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.  
D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.  
E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM LIFT THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.  
F. RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.  
G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

**3.06 CAP INSTALLATION**

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

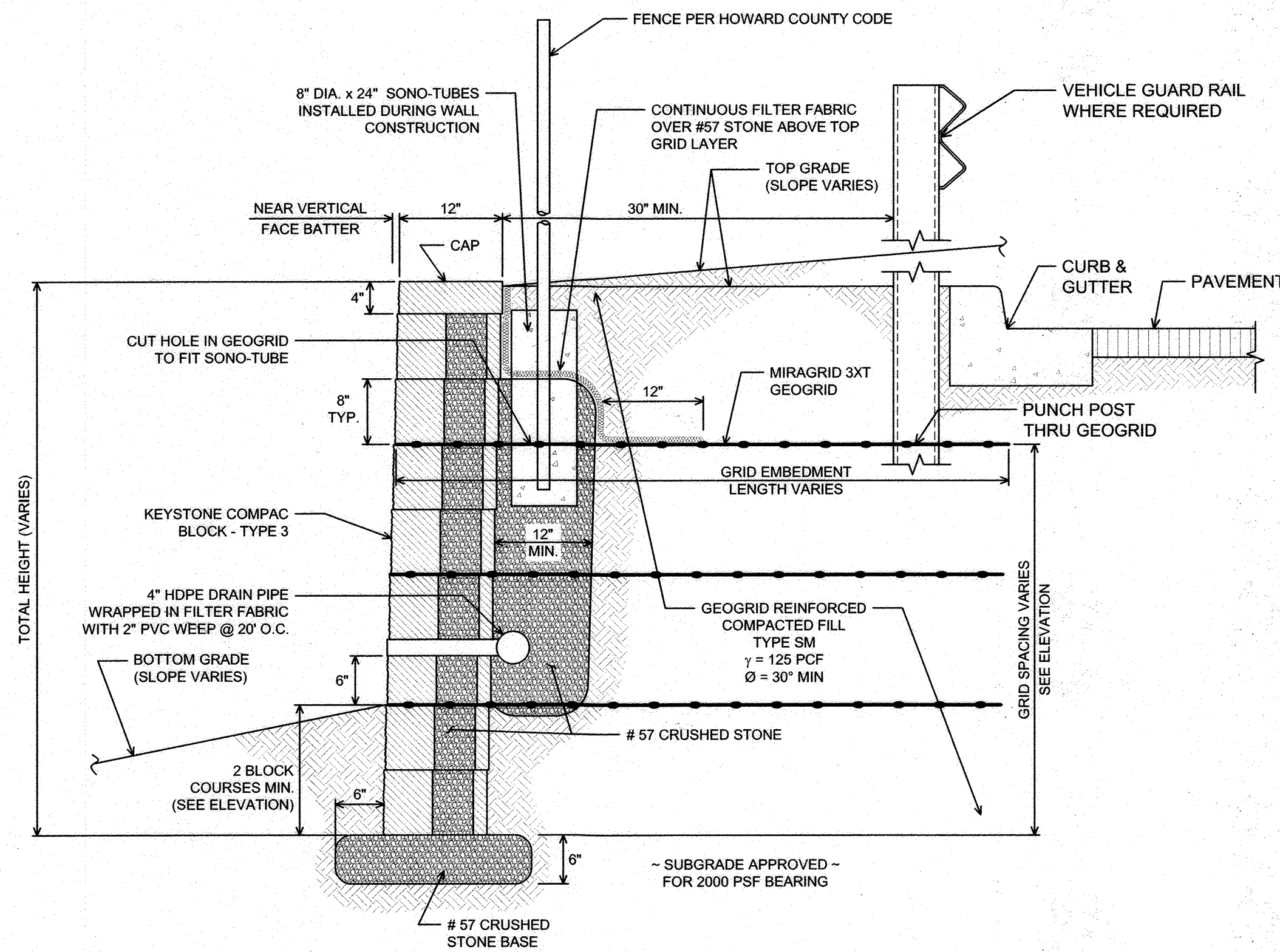
**3.07 FIELD QUALITY CONTROL**

A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.  
B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.



**WALL LOCATION PLAN  
1" = 20'**

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



**TYPICAL WALL SECTION  
N.T.S.**

AS-BUILT CERTIFICATION FOR PSWM  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.  
DATE: 5-31-23  
PROFESSIONAL ENGINEER

NO AS-BUILT INFORMATION ON THIS SHEET

**OWNER/DEVELOPER**  
WODA GROUP, LLC  
500 S. FROST STREET, 10TH FLOOR  
COLUMBUS, OH 43215  
(410) 721-7939

NO.	REVISION	DATE
1	REVISE THE PLAN TO SHOW A CHANGE IN THE PRIVATE STORM DRAIN PIPE SIZES AND TO UPDATE THE SEQUENCE OF CONSTRUCTION	6-5-20

**RETAINING WALL PLAN AND DETAILS**  
**ROBINSON DEVELOPMENT**  
HOUSING COMMISSION HOUSING DEVELOPMENT; 48 APARTMENTS  
7410 GRACE DRIVE COLUMBIA, MD. 21045  
ZONED: POR  
L. 08684/F. 0005  
TAX MAP 35 BLOCK 22  
5TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES  
ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, MD  
Phone: (410) 880-4788 Fax: (410) 880-4098



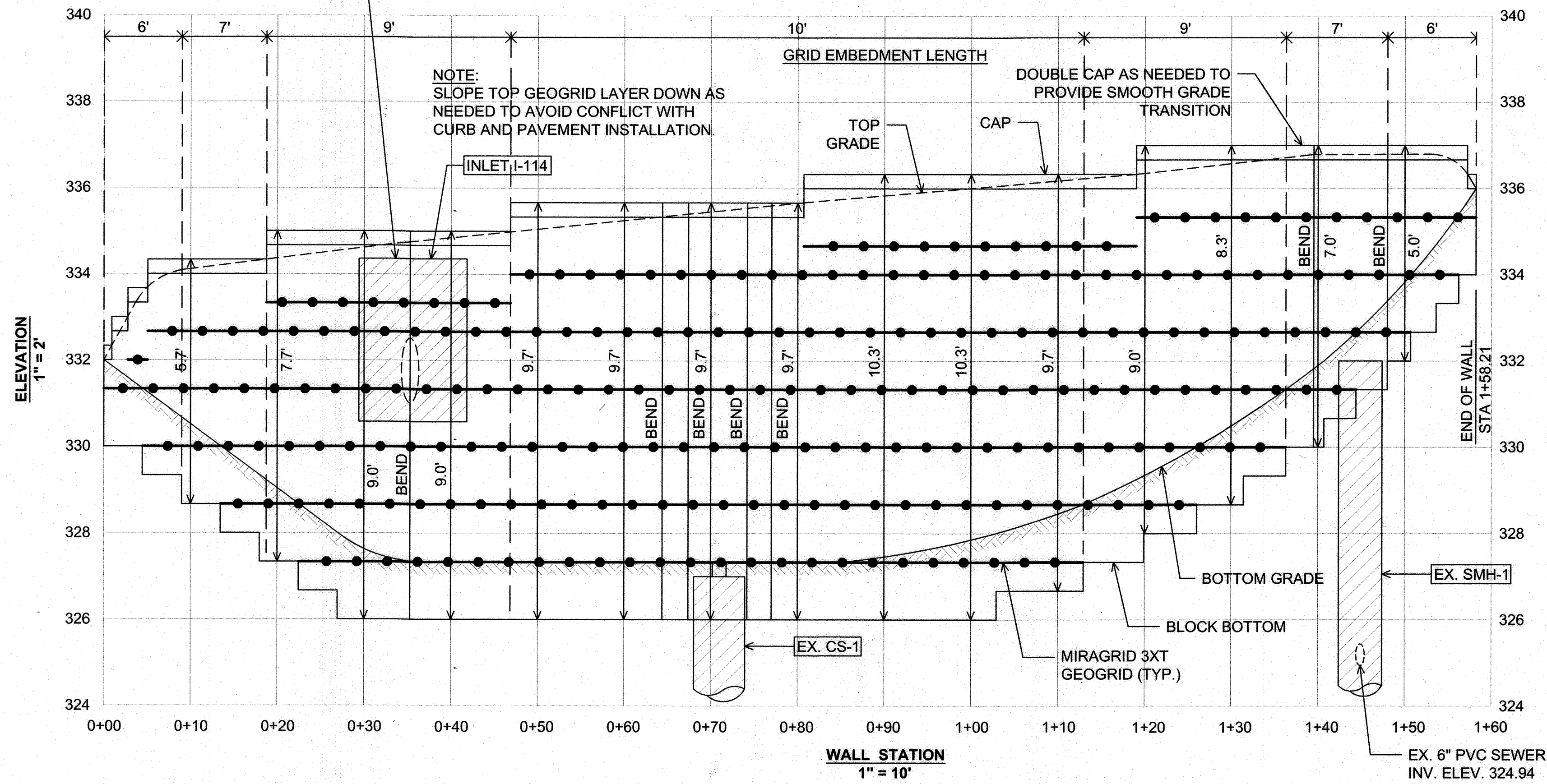
PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12012, EXPIRATION DATE: 06/16/20  
DESIGN BY: AM  
DRAWN BY: RWS  
CHECKED BY: RWS  
DATE: SEPTEMBER, 2019  
SCALE: AS SHOWN  
HCEA NO.: 19149A

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
DATE: 2-4-20  
DATE: 2/4/20  
DATE: 2/4/20



INSTALL INLET BOX I-114 AND ASSOCIATED PIPE DURING WALL CONSTRUCTION. BACKFILL AROUND ENTIRE PERIMETER OF INLET BOX FOR FULL BOX HEIGHT WITH A 2 FT. THICK WRAP OF COMPACTED SOIL-CEMENT CONSISTING OF A RATIO OF 180 LBS. (2 BAGS) PORTLAND CEMENT THOROUGHLY MIXED WITH 1 CU. YD. OF TYPE SM SOIL AT 3% OVER OPTIMUM MOISTURE. TRIM FULL LENGTH GEOGRIDS AT FACE OF INLET BOX AND EMBED IN SOIL-CEMENT WITHIN 1 HOUR OF MIXING.

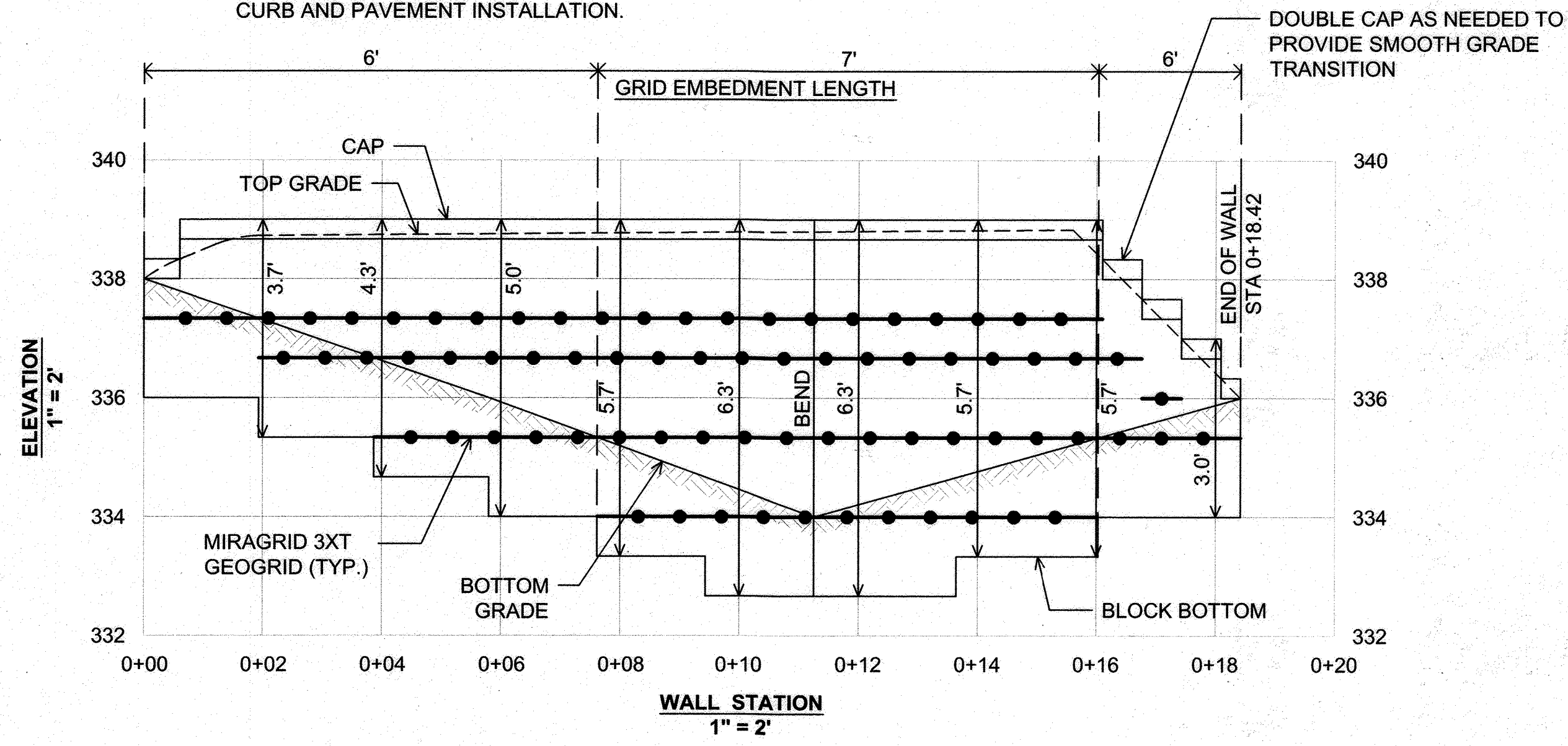
NOTE: FIELD CONFIRM REQUIRED TOP AND BOTTOM WALL FINISHED GRADES AND ADJUST WALL BLOCK ACCORDINGLY.



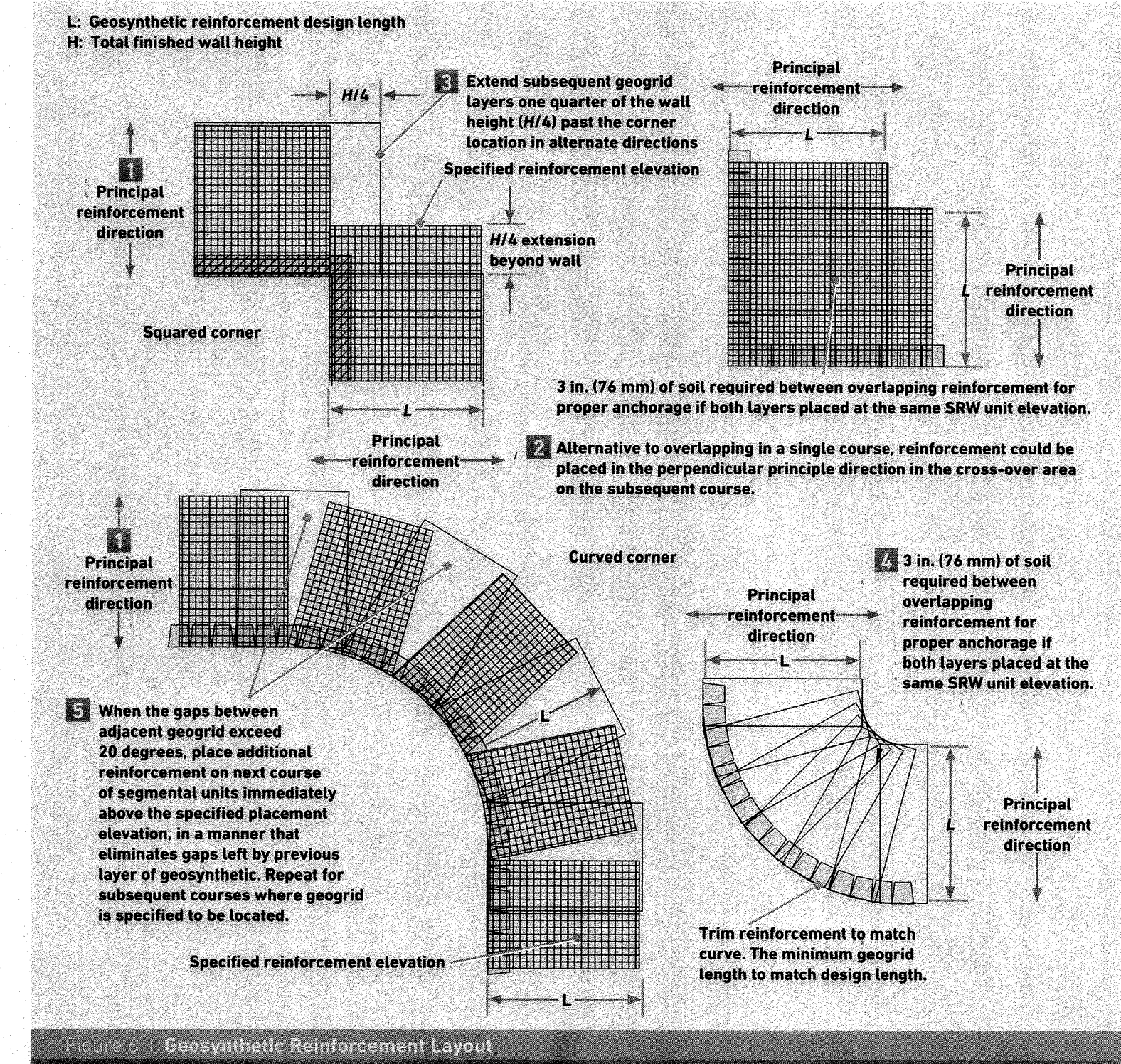
WALL #1 ELEVATION

EX. 72" CMP INV. ELEV. 316.0

NOTE: SLOPE TOP GEOGRID LAYER DOWN AS NEEDED TO AVOID CONFLICT WITH CURB AND PAVEMENT INSTALLATION.



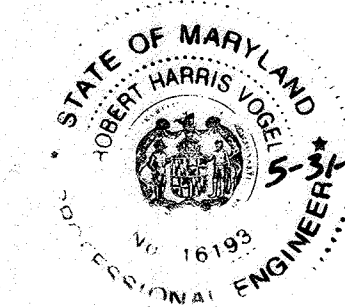
WALL #2 ELEVATION



- 1 Typical commercial geogrid is strong in the roll direction and placed perpendicular to the wall facing.
- 2 Stagger geogrid layers on alternate sides, weaving layers to avoid overlap.
- 3 Extend geogrid layer into the corner from one side equal to 25% of the total wall height.
- 4 Where geogrid tails overlap naturally, place 3 in. (76 mm) of rock or soil between the overlapping layers.
- 5 When geogrid fans apart, place a secondary, equal length layer of geogrid on the next course above to span the gap.

AS-BUILT CERTIFICATION FOR pSWM

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



16193 5-31-23  
REVISION DATE

NO AS-BUILT INFORMATION ON THIS SHEET

OWNER/DEVELOPER

WODA GROUP, LLC  
500 S. FROST STREET, 10TH FLOOR  
COLUMBUS, OH 43215  
(410) 721-7939

NO.	REVISION	DATE

RETAINING WALL ELEVATION

ROBINSON OVERLOOK  
HOUSING COMMISSION HOUSING DEVELOPMENT: 48 APARTMENTS  
7410 GRACE DRIVE COLUMBIA, MD. 21045  
ZONED: POR L. 08684/F. 0005 PARCEL 86  
TAX MAP 35 BLOCK 22 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, MD  
Phone: (410) 880-4788 Fax: (410) 880-4096



DESIGN BY: AM  
DRAWN BY: RWS  
CHECKED BY: RWS  
DATE: SEPTEMBER, 2019  
SCALE: AS SHOWN  
HCEA NO.: 19148A

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. 12012, EXPIRATION DATE: 06/16/20

17 SHEET OF 17

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 2-4-20  
CHIEF DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 2/4/20  
CHIEF DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 2/4/20  
DIRECTOR DATE