SHEET INDEX DESCRIPTION BUILDING FOOTPRINT & ELEVATIONS SITE PLAN GRADING AND SEDIMENT CONTROL PLAN SEDIMENT & EROSION CONTROL NOTES AND DETAILS 6 SEDIMENT & EROSION CONTROL NOTES AND DETAILS AND TEMPORARY TRAFFIC CONTROL PLANS 7 LANDSCAPE PLAN 8 LANDSCAPE NOTES & DETAILS 9 STORM DRAIN DRAINAGE AREA MAP STORM DRAIN PROFILES STORMWATER MANAGEMENT NOTES, & DETAILS STORMWATER MANAGEMENT PLAN VIEWS HANDICAP DETAILS 14 PRIVATE WATER & SEWER PROFILES AND DUNKIN' DONUTS STRIPING & SIGNAGE DETAILS 15 ROADWAY DETAILS 16 RETAINING WALL PLAN VIEW RETAINING WALL PROFILE 18-19 SOIL BORING PROFILES

STREET SIGN CHART PARKING LOT 0+31 | 24' L STOP R1-1 PARKING LOT KEEP RIGHT W4-7 PARKING LOT 0+54 16' L DO NOT ENTER R5-1

DO NOT ENTER

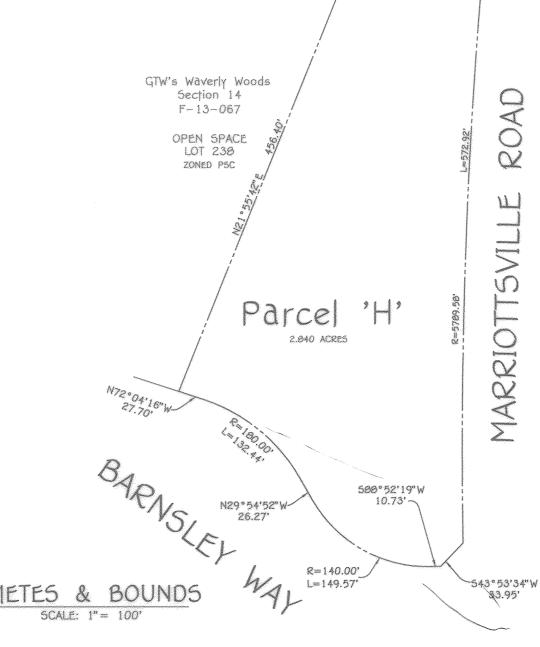
R5-1

PARKING	SPACE TABULA	TION A
COMMERCIAL	PARKING REQUIRED	PARKING PROVIDED
ETAIL: 10,900 SQ.FT. 0 6 SP. PER 1000	65.4 SPACES	€ 66 SPACES

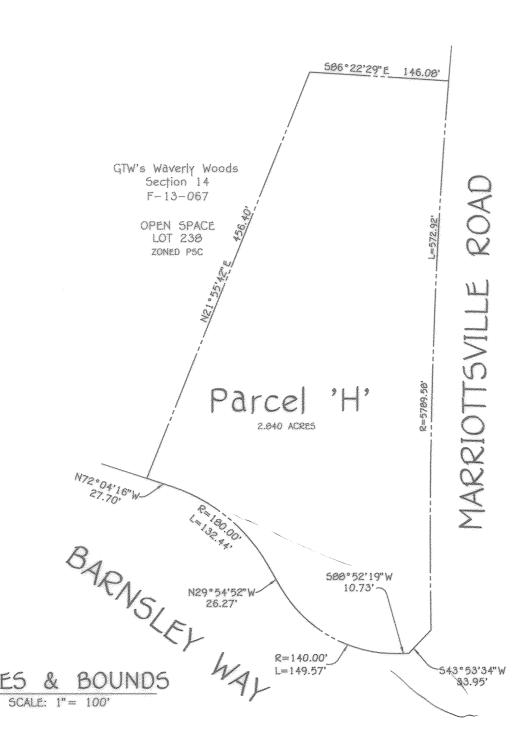
0+54 | 16' L

NOTES: 1. ALL LOADING/DELIVERIES SHALL BE CONDUCTED IN EARLY MORNING HOURS. 2. TRASH PICK-UP WILL BE CONDUCTED IN OFF HOURS AT NIGHT OR EARLY

	LEGEND
SYMBOL	DESCRIPTION
488	EXISTING CONTOUR 2' INTERVAL
	EXISTING CONTOUR 10' INTERVAL
	PROPOSED CONTOUR 2' INTERVAL
500	PROPOSED CONTOUR 10' INTERVAL
+ 62.33	SPOT ELEVATION
	PROPOSED CONCRETE WALK
	EASEMENTS
	EXISTING TREE
	PROPOSED STORM DRAINS
and, the rate with the rate was the way and the last the way of the same and the last the las	EXISTING WATER MAIN
responsabilità in communication de la communication de la communication de la communication de la communication	EXISTING SEWER MAIN
	PROPOSED SEWER MAIN
weeking appropriate FP and the second	EXISTING FLOODPLAIN
	EXISTING WETLAND BUFFER
wwwww	EXISTING TREE LINE



586°22'29"E 146.08'



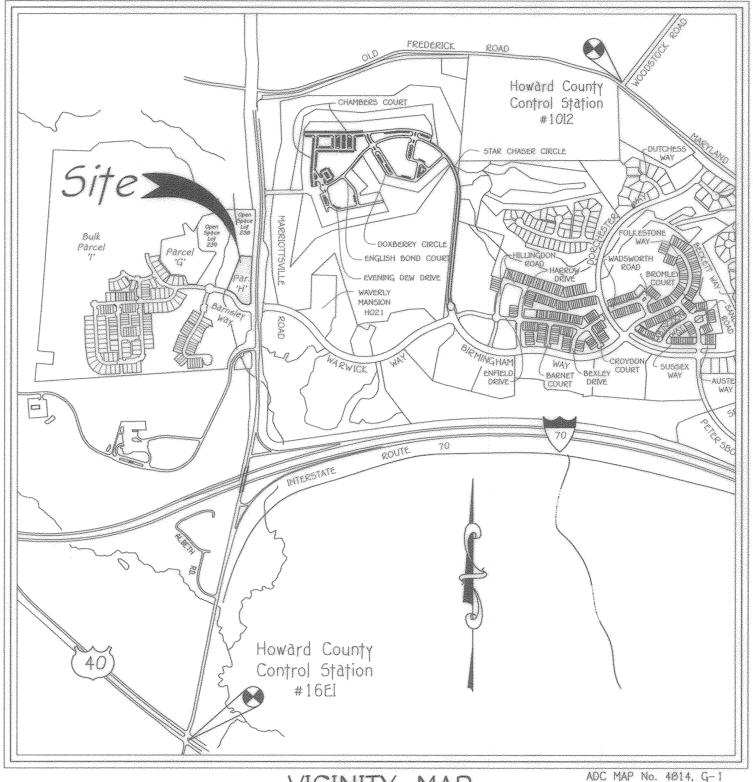
SITE DEVELOPMENT PLAN

GTW'S WAVERLY WOODS

Retail Center PARCEL 'H'

Zoned: PEC

Tax Map No. 16 Grid No. 3 & 4 P/O Parcel No. 249



Third Election District Howard County, Maryland

	STORMWA	TER MANAGEMEN	IT INFO	RMATIC	N	
Lot/Parcel No.	Facility Name & Number	Practice Type (Quantity)	Public	Privațe	HOA Maintained	Jointly Maintained (HOA & HO. CO.)
PARCEL 'H'	MICRO BIO-RETENTION ESD #2	M-6 - (2)	-	X	X	, mare seen
PARCEL H	GRASS SWALE ESD #3	M-8 - (1)		X	X	Marine States
	FILTERRA INLET & UNDERGROUND STORAGE E5D #1	F2, F3		X	X	

GENERAL NOTES

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE. 2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST (5) WORKING DAYS PRIOR TO
- 3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 4. THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 10-06-13 ZONING REGULATIONS PER COUNCIL BILL NO. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS OR PARCELS MUST COMPLY WITH SETBACKS AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT
- 5. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 1012 AND NO. 1661
- Sta. 1012N 601,060.1777, E 1,345,336.7580, Elevation 445.58 Sta. 16E1N 593,250.9322, E 1,340,192.7110, Elevation 509.92
- 6. PARCEL 'H' ZONED PEC PER 02/02/04 COMPREHENSIVE ZONING PLAN AND THE "COMP-LITE" ZONING AMENDMENTS DATED 07/28/06. 7. THIS PROJECT COMPLIES WITH SECTION 116.0.8.34 TO ALLOW THE RETAIL USES PROPOSED ON SHEET 2 WITH A MINIMUM OF 500 DWELLING UNITS.
- a. SUBDIVISION NAME: GTW's WAVERLY WOODS
 b. TAX MAP NO.: 16
 c. PARCEL Nos.: P/o No. 249
 d. ZONING: PEC
 e. ELECTION DISTRICT: THIRD
- g. GROSS AREA OF THIS SUBMISSION = 2.840 ACRES (PARCEL 'H') . NUMBER OF PARCELS: 1
- I. NUMBER OF OPEN SPACE LOTS: 0 J. GROSS BUILDING FLOOR AREA: 10,900 5Q.FT k. AREA OF PARCELS: 2.840 ACRES
- AREA OF OPEN SPACE LOTS = 0.00 ACRES
- m. AREA OF PUBLIC ROADWAY TO BE DEDICATED: 0.00 ACRES
 n. PREVIOUS FILE NUMBERS: 5-94-007, 5-06-013, ZB CASE No. 1027 M, ZB CASE No. 929 M, PB CASE No. 301, F-01-091, F-01-093, F-01-140, F-01-147, F-00-159, P-00-010, WP-95-023, F-09-057, F-09-057FC, SDP-09-037, SDP-09-039, WP-09-210, F-10-113, F-12-072, F-12-009, F-13-067, ECP-16-014. O. AREA OF EXISTING FLOODPLAIN = 0.85 AC. * (THIS SUBMISSION)
- p. AREA OF 25% OR GREATER SLOPES = 0.00 AC.* (THIS SUBMISSION) 9. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.
- 10. THE NOISE STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED MARCH, 2006 AND WAS APPROVED UNDER THE S-06-013 PLAN DATED JANUARY 17, 2008. A REVISED NOISE STUDY WAS PREPARED BY MARS GROUP DATED MAY, 2008 AND APPROVED UNDER P-08-010 ON DECEMBER 03, 2008.
- 11. EXISTING UTILITIES ARE BASED ON HOWARD COUNTY APPROVED PLANS F-09-057, CONTR. No. 24-4300-D, CONTR. No. 20-4060-D AND FIELD RUN SURVEY BY FISHER, COLLINS & CARTER, INC. ON OR ABOUT JULY, 2015. EXISTING WATER IS PUBLIC (CONTRACT No. 24-4300-D) EXISTING SEWER IS PUBLIC (CONTRACT No. 20-4060-D)
- 12. SOILS INFORMATION TAKEN FROM SOIL MAP NO. 17, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY, 1968 ISSUE. THE SOILS INVESTIGATION REPORT WAS PREPARED BY I.T.E., INC. ON JUNE 28, 1994.
- 13. BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER COLLINS AND CARTER, INC. ON OR ABOUT AUGUST 1990.
- 14. TOPOGRAPHIC CONTOURS BASED ON AERIAL SURVEY PERFORMED BY HARFORD AERIAL SURVEYS, INC. DATED NOVEMBER, 1998 AND SUPPLEMENTED WITH FIELD RUN TOPOGRAPHY PREPARED BY FISHER,
- 15. STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE 2007 MDE, CHAPTER 5 REQULATIONS AND THE LATEST HOWARD COUNTY DESIGN MANUAL, VOL. I, CHAPTER 5 ADOPTED ON OR AROUND MAY 4, 2010. RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF A STONE RESERVOIR. WATER QUALITY AND CHANNEL PROTECTION VOLUME WILL BE PROVIDED BY A MICRO BIO-RETENTION FACILITY, A FILTERRA INLET & UNDERGROUND STORAGE. OVERBANK FLOOD PROTECTION VOLUME AND EXTREME FLOOD VOLUMES ARE NOT REQUIRED FOR THIS SITE. ALL STONE RESERVOIR & STORMWATER MANAGEMENT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A. OR A COMMERCIAL ASSOCIATION. THE STREET TREES, PERFORATED UNDERDRAINS, PLANTINGS AND SWALES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE MAYERLY WOODS DEVELOPMENT CORPORATION COMMERCIAL ASSOCIATION. HOWARD COUNTY WILL ONLY MAINTAIN THE INLET STRUCTURE WITHIN THE MICRO BIO-RETENTION FACILITIES ADJACENT TO THE RIGHT-OF-WAY.
- 17. THE ORIGINAL OR BASE MODEL FLOODPLAIN STUDY FOR GTW'S WAVERLY WOODS WAS PREPARED BY MILDENBERG, BOENDER & ASSOC. DATED OCTOBER, 1994 AND WAS APPROVED UNDER S-94-007 IN OCTOBER 1994.

 A REVISED FLOODPLAIN STUDY WAS PREPARED BY FISHER, COLLINS AND CARTER, INC. DATED NOVEMBER, 2006 AND APPROVED UNDER F-07-032. A REVISED FLOODPLAIN STUDY WAS PREPARED BY
 FISHER, COLLINS AND CARTER, INC. DATED APRIL 17, 2008 THAT MODELED THE EXISTING CULVERTS FOR THE EXISTING BARNSLEY WAY STREAM CROSSING. THIS FLOODPLAIN STUDY WAS APPROVED UNDER P-08-010 ON 10/16/00. THIS FLOODPLAIN DETERMINATION IS CURRENT AND BEING USED ON THIS PROJECT AS AN EXISTING FLOODPLAIN AREA.
- 18. THE FOREST CONSERVATION OBLIGATION FOR GTW'S WAVERLY WOODS PROJECT PARCEL 'H' HAVE BEEN MET WITH THE FOLLOWING: a. AFTER THE RECORDING OF PRIOR GTW'S WAVERLY WOODS RECORD PLATS INCLUDING F-08-159, PROPERTY OF GTW JOINT VENTURE, THE REMAINING FOREST OBLIGATION IS 17.46 ACRES RETENTION (95.7 ACRES - 78.24 ACRES) AND 15.11 ACRES REFORESTATION (108.8 ACRES - 93.69 ACRES) HAS BEEN PROVIDED WITH GTW'S WAVERLY WOODS, SECTION 14 (F-09-057). b. AFTER THE RECORDATION OF THE FOREST CONSERVATION REQUIREMENT FOR SECTION 14, WE DO NOT HAVE ANY FOREST CONSERVATION REQUIREMENT OR SURETY FOR THIS PROJECT.
- 19. FOREST STAND DELINEATION PREPARED BY ENVIRONMENTAL SYSTEM ANALYSIS, INC. AND APPROVED ON NOVEMBER 30, 1995 UNDER 5-94-07
- 20. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- 21. NO CEMETERIES OR HISTORIC STRUCTURES EXIST WITHIN THIS SUBDIVISION.
- 22. 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 SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY STREET TREE
- a) THE R1-1 (STOP) SIGNS AND THE STREET NAME SIGN (SNS) ASSEMBLIES FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED. b) THE TRAFFIC CONTROL DEVICE LOCATIONS (SIGNS & PAVING MARKINGS) SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY THE HOWARD COUNTY TRAFFIC DIMISION (410-313-5752) PRIOR TO THE INSTALLATION OF ANY OF THESE TRAFFIC CONTROL DEVICES.
- (10-313-3732) PRIOR TO THE INSTALLATION OF ANY OF THESE 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" (MMMUTCD).

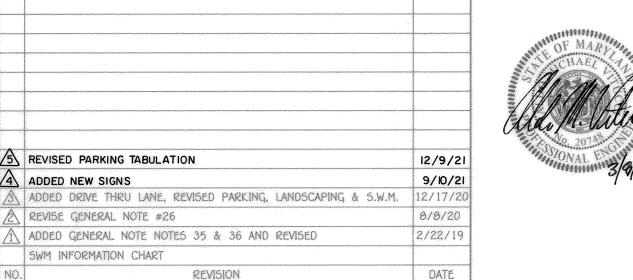
 d) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG, A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- 24. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP ON DECEMBER 21, 2016, AS PART OF THIS ECP-16-014 AND WAS APPROVED ON OCTOBER 13, 2015.
- 25. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS, THEIR REQUIRED BUFFERS, UNLESS THE ACTIVITIES ARE CONSIDERED NECESSARY OR WAIVERS ARE APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
- 26. FINANCIAL SURETY FOR THE "REQUIRED" LANDSCAPING TREES (19 SHADE, 9 EVERGREEN & 126 SHRUBS) SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$10,630.00.
- 28. A WETLANDS REPORT WAS PREPARED BY ENVIRONMENTAL SYSTEMS ANALYSIS, INC. AND APPROVED WITH 5-94-07 ON NOVEMBER 30, 1993 WHICH HAS
- BEEN RE-CERTIFIED BY ECO-SCIENCE PROFESSIONALS, INC. DATED APRIL, 2006 AND APPROVED WITH 5-06-013 ON JANUARY 17, 2008.
- 29. A PUBLIC 100 YEAR FLOOD PLAIN STUDY WAS PREPARED BY MILDENBERG-BOENDER ASSOCIATES AND APPROVED UNDER 5-94-07. A REVISION TO AT FLOODPLAIN STUDY WAS PREPARED BY FISHER, COLLINS & CARTER, INC. AND APPROVED UNDER 5-06-13 ON JANUARY 17, 2006 AND UNDER
- 30. THERE ARE NO AREAS OF STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT
- 31. THERE ARE AREAS OF WETLANDS, WETLAND BUFFERS, STREAM AND STREAM BUFFERS LOCATED ON THIS PROPERTY. 32. THE PAVEMENT MARKINGS REQUIRED (INCLUDING REMOVAL OF EXISTING IF NECESSARY) FOR THE NEW ACCESS INTERSECTION OFF BARNSLEY WAY, SHOWN ON THESE PLANS, WILL BE DETERMINED ON
- SITE BY THE TRAFFIC DIVISION (410)-313-2430. THE DEVELOPER WILL BE RESPONSIBLE FOR THE COST OF THESE CHANGES.
- 33. THIS PROJECT TO A DESIGN MANUAL WAIVER FROM VOLUME III, SECTION 3.4.A.2.b WHICH REQUIRED A 10' MAINTENANCE SETBACK FOR A RETAINING WALL, TO ALLOW NO SETBACK BELOW THE WALL. THE APPROVAL DATE OF THE WAIVER IS JUNE 21, 2017.
- 35. IN ACCORDANCE WITH AMENDMENT No. 21 OF THE WAVERLY WOODS MASTER DECLARATION (L. 15490, F. 048), THIS PROPERTY IS PART OF THE WAVERLY WOODS CROUTE AREA AND SEC TOWNS
- 36. THIS PROJECT IS SUBJECT TO WP-19-054 FOR AN ALTERNATIVE COMPLIANCE OF SECTIONS 16.119(f)(1) AND 16.119(f)(2) TO REVISE THE ACCESS RESTRICTION ON MARRIOTTSVILLE ROAD TO ACCOMMODATE A RIGHT TURN ONLY ACCESS ONTO THE SUBJECT SITE (PARCEL 'H') FROM MARRIOTTSVILLE ROAD. THE ALTERNATIVE COMPLIANCE WAS APPROVED ON JANUARY 4, 2019 SUBJECT TO THE FOLLOWING CONDITIONS:
- 1) THE REVISION TO THE VEHICULAR INGRESS AND EGRESS RESTRICTION LINE IS ONLY PERMITTED FOR THE LOCATION SPECIFIED ON THE PLAN EXHIBIT FILED WITH THIS PETITION.
- 2) A PLAT REVISION TO AMEND THE VEHICULAR INGRESS AND EGRESS RESTRICTION LINE THAT IS RECORDED ON FINAL PLAT F-10-051 MUST BE SUBMITTED TO DPZ FOR REVIEW AND APPROVAL.
- 3) A REDLINE REVISION TO THE SITE DEVELOPMENT PLAN, 50P-16-074, MUST BE SUBMITTED TO DPZ TO AMEND THE VEHICULAR INGRESS AND EGRESS RESTRICTION LINE TO SHOW THE PROPOSED ACCESS DRIVEWAY AND OTHER RELATED SITE IMPROVEMENTS RELATED TO THE DRIVEWAY. IN ADDITION, THE DETAILS RELATED TO THE PROPOSED ACCESS DRIVEWAY AT MARRIOTTSVILLE ROAD MUST BE APPROVED BY COUNTY AS PART OF THE REDLINE REVISION TO THE SDP.
- 4) THE PROPERTY OWNER/DEVELOPER WILL BE SUBJECT TO ANY REQUIREMENTS IMPOSED BY HOWARD COUNTY RELATED TO THE PROPOSED ACCESS DRIVEWAY AND THE TRAFFIC DESIGN ASSOCIATED WITH THE DRIVEWAY.
- 37. IN ACCORDANCE WITH SECTION 116.0.B.34 OF THE ZONING REGULATIONS, THE GROSS FLOOR AREA OF RETAIL USES IN THE PEC ZONE OF WAVERLY SHALL NOT EXCEED 40,000 SQUARE FEET. PRIOR TO THE SIGNATURE APPROVAL OF THIS SOP, THERE WAS A TOTAL OF 19,367 SQUARE FEET OF FLOOR SPACE REMAINING THAT IS PERMITTED TO BE USED AS RETAIL AT WAVERLY. THIS SOP PROPOSES 10,900 Sq. Ft. OF GROSS RETAIL SPACE.
- 38. DESIGN MANUAL WAIVER FOR DRIVE THRU LANE WIDTH NOTE: A WAIVER FROM THE DESIGN MANUAL, VOLUME III, APPENDIX G WHICH REQUIRES THE WIDTH OF A ONE-WAY DRIVEWAY TO BE 16' TO BE REDUCED TO 12' IN WIDTH HAS BEEN APPROVED BY HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION ON OCTOBER 7

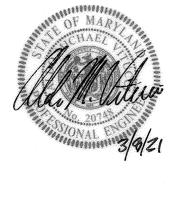
PURPOSE NOTE:

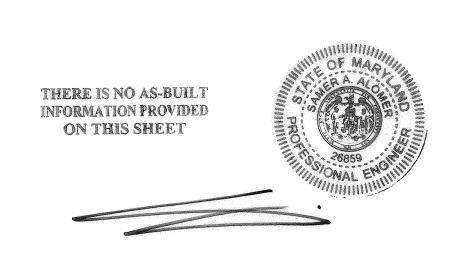
THE PURPOSE OF THIS REVISED SDP IS TO ADD A DRIVE THRU LANE AND REVISE PARKING, LANDSCAPING & STORMWATER MANAGEMENT.

STREET ADDRESS CHART Parcel No. | STREET ADDRESS Parcel 'H' 11100 Barnsley Way

FISHER, COLLINS & CARTER, INC.







Owner And Developer

Ellicott City Land Holding, Inc. 8318 Forrest Street-Suite 200 Ellicott City, Maryland 21043 (410-707-7054)

Owner And Developer

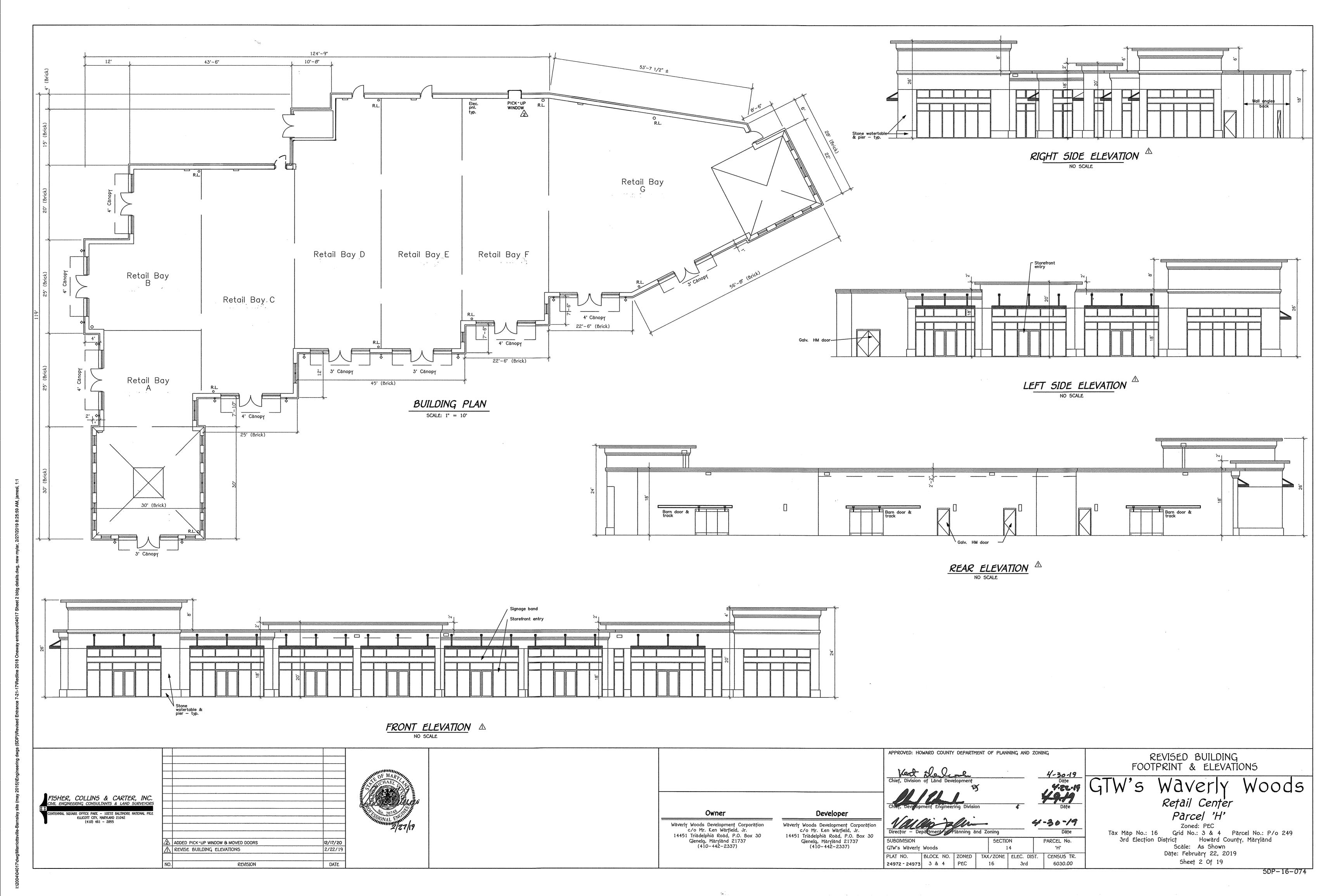
Mid-Atlantic Services, Inc. 8318 Forrest Street-Suite 200 Ellicott City, Maryland 21043 (410-707-7054)

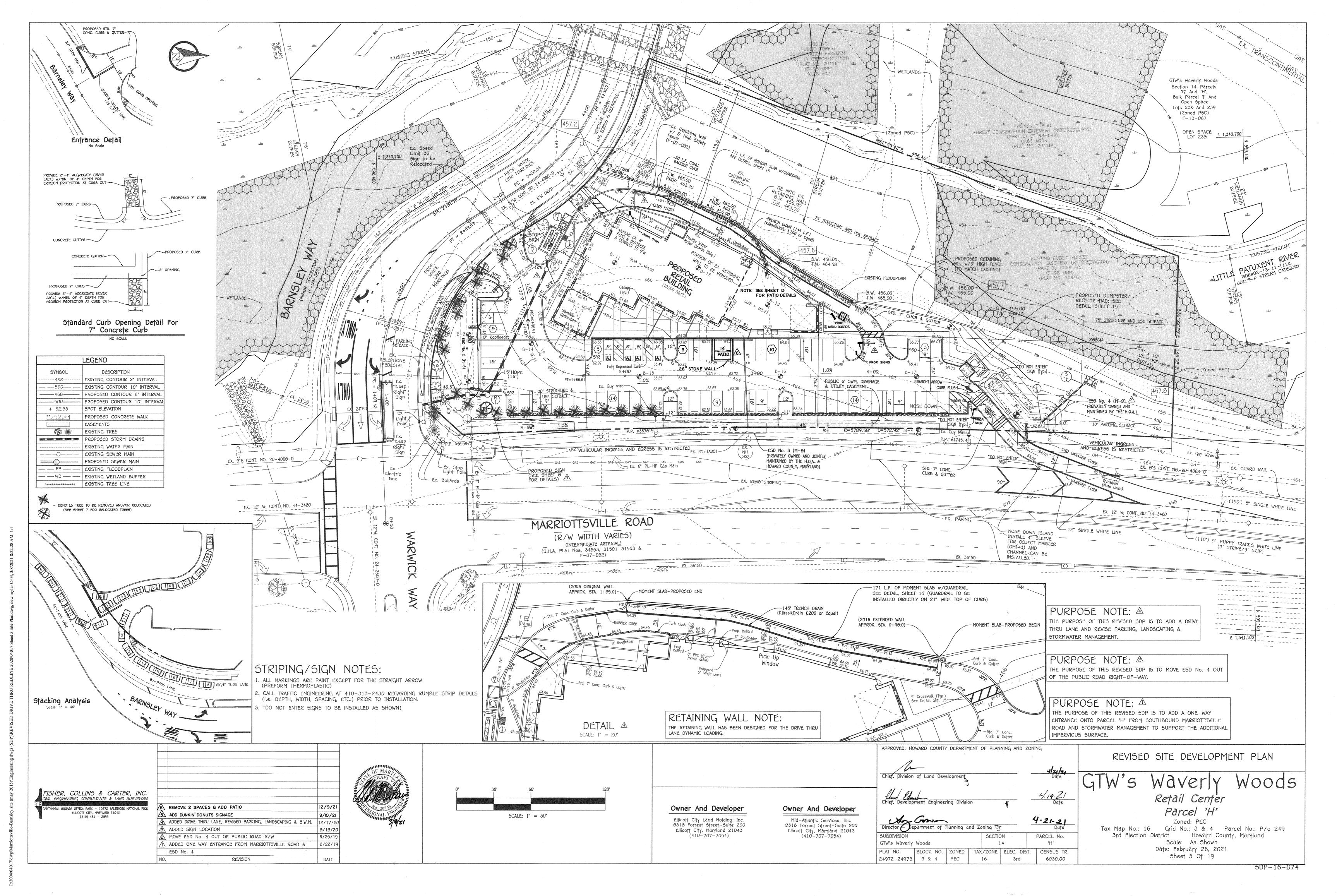
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 4/21/21 PARCEL No. GTW's Waverly Woods PLAT NO. | BLOCK NO. | ZONED | TAX/ZONE | ELEC. DIST. CENSUS TR. 24972-24973 3 & 4 PEC 6030.00

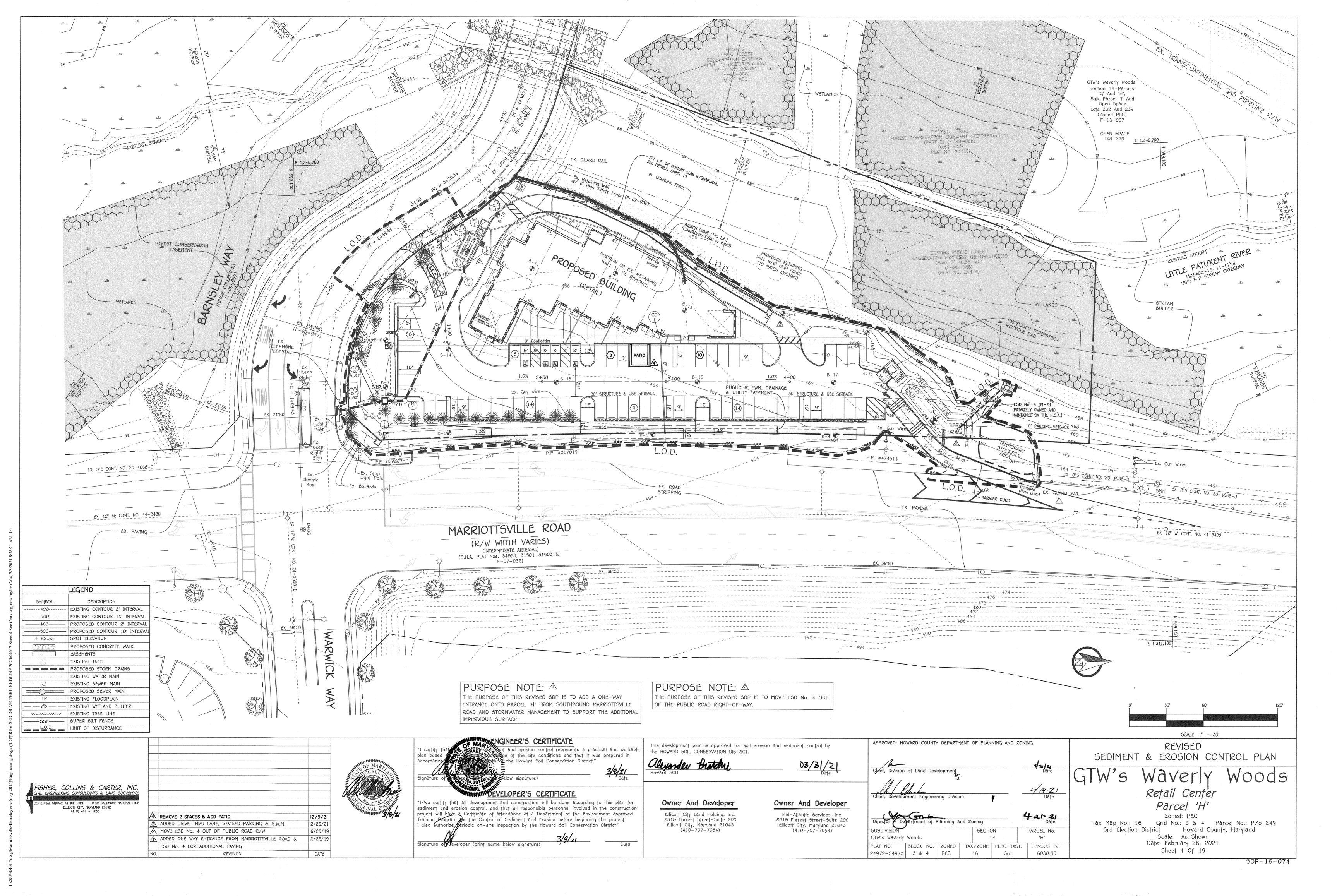
REVISED TITLE SHEET

Zoned: PEC Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249 3rd Election District Howard County, Maryland

Scale: As Shown Date: December 17, 2020 Sheet 1 Of 19







a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable Mean Permanent Stabilization

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

i. Soil pH between 6.0 and 7.0. ii. Soluble salts less than 500 parts per million (ppm).

v. Soil contains sufficient pore space to permit adequate root penetration

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable. iv. Soil contains 1.5 percent minimum organic matter by weight

b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

 The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth. b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

à. Topsoil must be à loàm, sàndy loàm, clày loàm, silt loàm, sàndy clày loàm, or loàmy sànd. Other soils mày be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

6. Topsoil Application

a. Erosion and sediment control practices must be maintained when applying topsoil.

b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 90 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

TEMPORARY SEEDING NOTES (8-4-4)

To stabilize disturbed soils with vegetation for up to 6 months.

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime

rates must be put on the plan.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding

Tomporany Souding Summany

		temporary Seedin	ig Summary		
Hardiness Zo Seed Mixture	ne (from Figure B. (from Table B.1):	3): <u>6b</u>		Fertilizer Rate (10-20-20)	Lime Rațe
Species	Application Rate (lb/ac)	Seeding Dațes	Seeding Depths		
BARLEY	96	3/1 - 5/15, 8/15 - 10/15	1"	436 b/ac	2 tons/ac
OAT5	72	3/1 - 5/15, 8/15 - 10/15	1"	(10 lb/ 1000 sf)	(90 lb/ 1000 sf)
RYE	112	3/1 - 5/15, 8/15 - 10/15	1"		

PERMANENT SEEDING NOTES (8-4-5)

A. Seed Mixtures

General Use

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure 8.3) and based on the site condition or purpose found on Table 8.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency. d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary

Turfardss Mixtures

a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides

Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a) Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15

a reliable means of consumer protection and assures a pure genetic line

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future moving of grasses will pose no

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse

Permanent Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ 0	
8	TALL FESCUE	100	Mar. 1-May 15 Aug. 1-Oct. 15	1/4-1/2 in.	45 lbs. per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN: a.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES,

b.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3

STANDARDS AND SPECIFICATIONS STOCKPILE AREA (B-4-8)

Definition

The mound or pile of soil protected by appropriately designed erosion and sediment control measures.

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

<u>Criteria</u>

HORIZONTAL TO 1 VERTICAL (3:1); AND

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and

based on a side slope ratio no steeper tha 2:1. Benching must be provided in accordance with Section B-3 Land Grading.

Runoff from the stockpile area must drain to a suitable sediment control practice. Access the stockpile area from the upgrade side. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an

earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control

practice must be used to intercept the discharge. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as

andard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to

facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3

STANDARDS AND SPECIFICATIONS

SEEDING AND MULCHING (B-4-3)

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading

Conditions Where Practice Applies

Specifications All seed must meet the requirement of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keetp inoculant as cook as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective

Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weedcontrol until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in

each direction. Roll the seeded area with weighted roller to provide good seed to soil

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. Cultipacking seeders are required to bury the seed in such a fashion as to provide at

least 1/4 inch of soil covering. Seedbed must be firm after planting. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer). i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P 0 (phosphorus), 200 pounds per acre; K O (potassium), 200 pounds per acre.

ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

iii. Mix seed and fertilizer on site and seed immediately and without interruption. iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching 1. Mulch Materials (in order of preference)

a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.

b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into uniform fibrous physical state. WCFM is to be dyed green or contain a green dye in the package that will provide an

appropriate colot to facilitate visual inspection of the uniformly spread slurry. WCFM, including dye, must contain no germination or growth inhibiting factors. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under gaitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil

without inhibiting the growth of the grass seedlings. WCFM material must not contain elements or compounds at concentration levels that will by

WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of

1.6 percent maximum and water holding capacity of 90 percent minimum.

Apply mulch to all seeded areas immediately after seeding. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.

Wood cellulose fiber used as mulch must be applied to a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water

a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard: i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch

into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry

50 pounds of wood cellulose fiber per 100 gallons of water. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is

weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of

recommendations. Netting is usually available in rolls 4-15 feet wide and 300 to 3.000

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer

SEQUENCE OF CONTSRUCTION

PROTECT EACH SWM FACILITY(1 WEEK)

1. OBTAIN GRADING PERMITS, (2 WEEKS

2. NOTIFY "MISS UTILITY" AT LEAST 40 HOURS BEFORE ANY WORK AT 1-000-257-7777. NOTIFY HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIMISION AT 410-313-1870 AT LEAST 24-HOURS BEFORE STARTING ANY WORK. (1 WEEK)

3. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE, PERIMETER SUPER SILT FENCE AS SHOWN ON THE

4. CONSTRUCT THE RETAINING WALL AT THE REAR OF THE SITE. PLACE THE BLOCK WALL BY STEPPING THE BLOCK AS SHOWN ON THE PLANS. (I WEEK)

5. GRADE SITE TO THE GRADING CONTOURS FOR THE PARKING LOT AND BUILDING PAD. (1 WEEK) AIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR BEFORE PROCI 6 INSTALL THE PROPOSED STORM DRAIN SYSTEMS INCLUDING CONNECTIONS FOR EACH OF THE SWM-ESD FACILITIES. INSTALL PUBLIC WATER MAINS AND PUBLIC/PRIVATE SEWER MAINS AS SHOWN ON THE PLANS. AS FOR THE SWM BIO-RETENTION CELLS, THE CONSTRUCTION OF THE FILTER MEDIA, STONE LAYERS, UNDERDRAIN AND PLANTINGS FOR EACH BIO-RETENTION CELL SHALL BE DELAYED UNTIL THE CONTRIBUTING DRAINAGE AREA FOR EACH FACILITY IS PERMANENTLY STABILIZED. INSTALL INLET PROTECTION TO THOSE INLETS AS INTENDED TO

7. INSTALL THE PROPOSED SEWER AND WATER MAINS IN CONJUNCTION WITH THE ABOVE STORM

0. UPON PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED, INSTALL CONCRETE

 BEGIN CONSTRUCTION OF THE RETAIL BUILDING. (4 MONTHS) ONCE THE CONTRIBUTING DRAINAGE AREA TO THE PERIMETER DEVICES IS CONSTRUCTED AND STABILIZED THE SUPER SILT FENCE CAN BE REMOVED. 10. STABILIZE ALL REMAINING DISTURBED AREAS ONSITE WITH PERMANENT SEEDING OR OPTIONAL SODDING. THE FINAL CONSTRUCTION OF THE BIO-RETENTION FACILITIES CAN BE COMPLETED WITH THE FILTER MEDIA AND PLANTINGS. (1 WEEK)

11. STANDARD NOTE: THE CONTRACTOR SHALL COORDINATE WITH THE INSPECTOR IN REGARDS TO THE REQUIREMENT THAT NO MORE THAN 20-ACRES OF "OPEN" GROUND SHALL BE DISTURBED AT ANY GIVEN TIME, IF REQUIRED. THIS PARCEL AND ASSOCIATED L.O.D. IS LESS THAN 20-ACRES IN SIZE.

12. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS.

/ REDLINE 2/22/19

50. AMEND No.5 TO INCLUDE RIGHT TURN ONLY ENTRANCE LANE FROM MARRIOTTSVILLE ROAD

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 40 hour notice to CID must be given at the following stages: a. Prior to the start of earth

b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading

c. Prior to the start of another phase of construction or opening of another grading unit, d. Prior to the removal or modification of sediment control practices Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND

SEDIMENT CONTROL, and revisions thereto. 3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15° of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. 8-4-6).

5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID

6. Site Analysis: Total Area of Site:

1.84 ___ Acres _____1.15___ Acres Area to be roofed or paved: Area to be vegetatively stabilized: 0.69 Acres Total Cut:

1640 Cu. Yds. Total Fill: N/A waste/borrow area location: ___

2.84 Acres

7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

9. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:

 Inspection date • Inspection type (routine, pre-storm event, during rain event) Name and title of inspector · Weather information (current conditions as well as time and amount of last recorded precipitation)

· Brief description of project's status (e.g., percent complete) and/or current activities Evidence of sediment discharges Identification of plan deficiencies · Identification of sediment controls that require maintenance

· Identification of missing or improperly installed sediment controls Compliance status regarding the sequence of construction and stabilization requirements Photographs

back-filled and stabilized by the end of each workday, whichever is shorter

 Monitoring/sampling Maintenance and/or corrective action performed · Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE). 9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be

10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the HCSD per the list of HSCD-approved field changes. 11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a

subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the HCSD. Unless otherwise specified and approved by the HCSD, no more than 30 acres cumulatively may be disturbed at a given time.

12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.

13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade. 14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation. 15. Stream channels must not be disturbed during the following restricted time periods

• Use I and IP March 1 - June 15 • Use III and IIIP October 1 - April 30

 Use IV March 1 - May 31 16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

FISHER. COLLINS & CARTER. INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855

ENGINEER'S CERTIFICATE certify that this plan for sediment and erosion 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 fedurements of the Howard Soil Conservation District."

DEVELOPER'S CERTIFICATE 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 Irdining Program for the Control of Sediment and Erosion before beginning the project. by the Howard Soil Conservation District."

Owner c/o Mr. Ken Warfield. Jr. 14451 Triadelphia Road, P.O. Box 30

the HOWARD SOIL CONSERVATION DISTRICT.

This development plan is approved for soil erosion and sediment control by

Developer Waverly Woods Development Corporation c/o Mr. Ken Warfield, Jr. Glenela, Maryland 21737

3-12-18 3-14-18

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

SEDIMENT & EROSION CONTROL NOTES AND DETAILS

> Retail Center Parcel

Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249 3rd Election District Howard County, Maryland Scale: As Shown Date: February 2, 2018

Sheet 5 Of 19

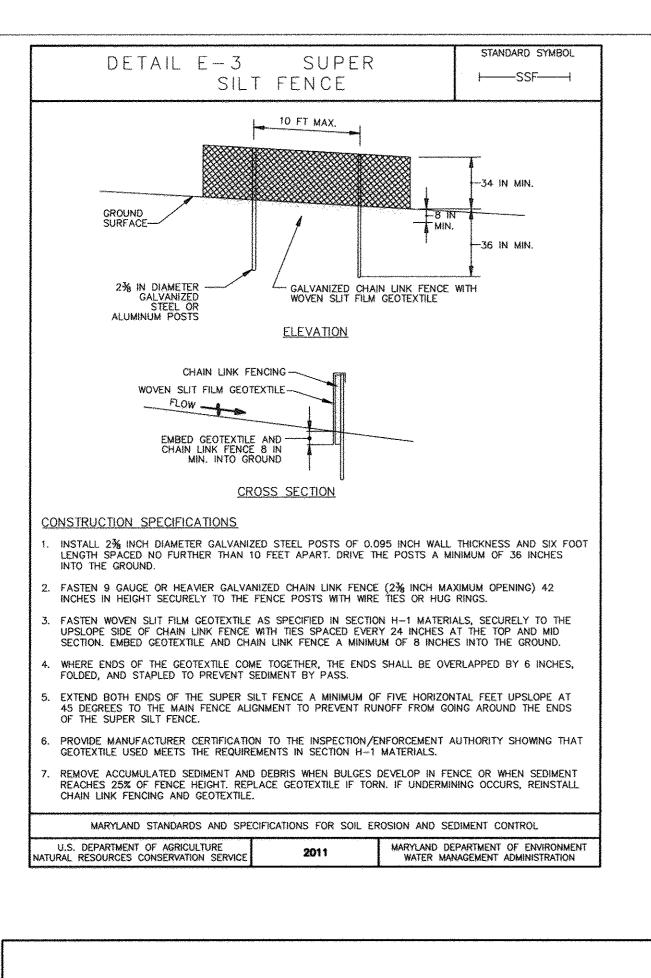
REVISE SITE ANALYSIS & SEQ. OF CONSTRUCTION NOTE No. 5 2/22/19 DATE REVISION

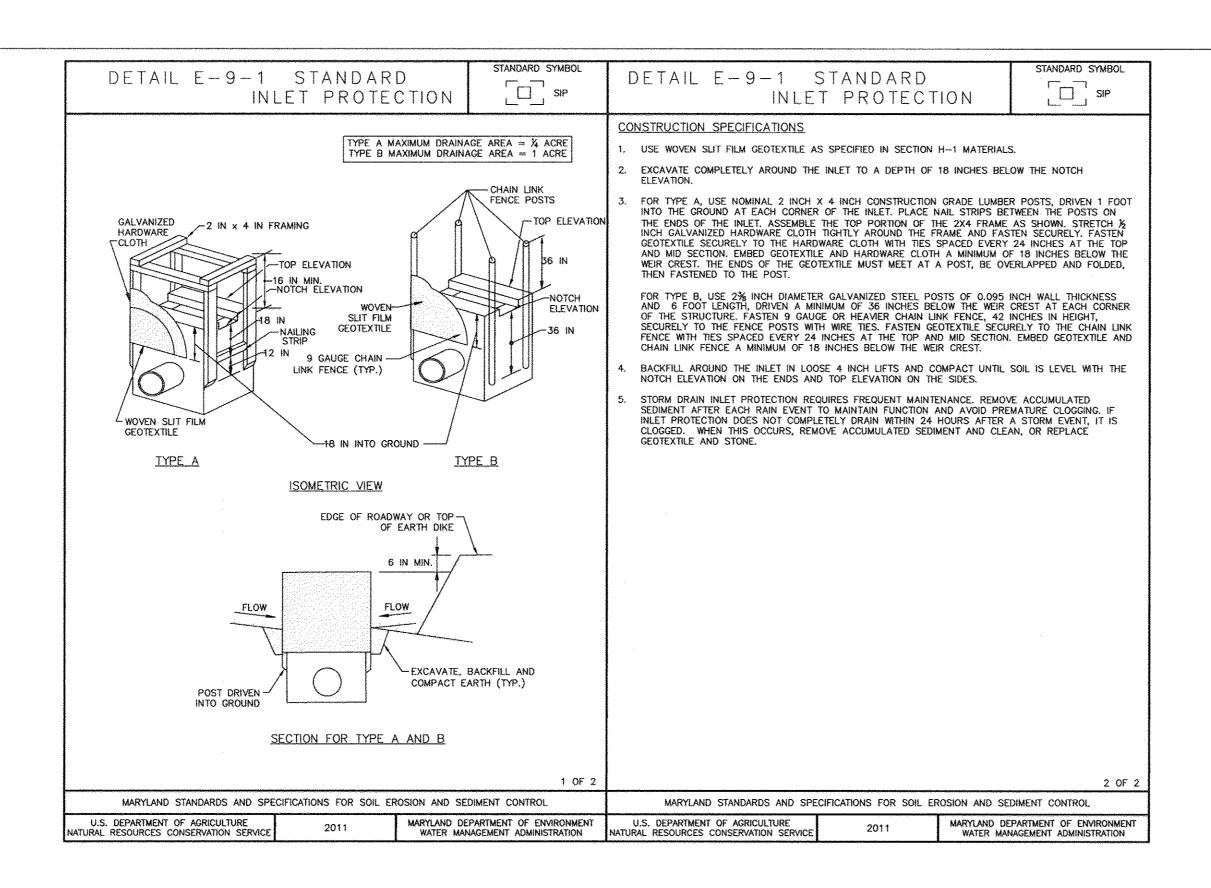
Melo /1. Vaterii ignature of Engineer (print name below signature)

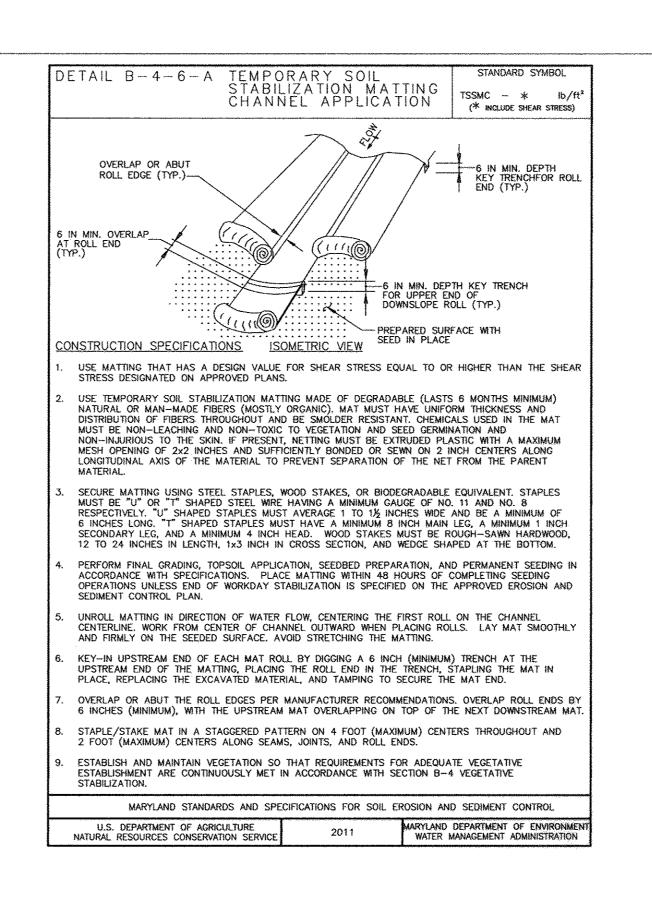
Waverly Woods Development Corporation Glenela, Maryland 21737 (410 - 442 - 2337)

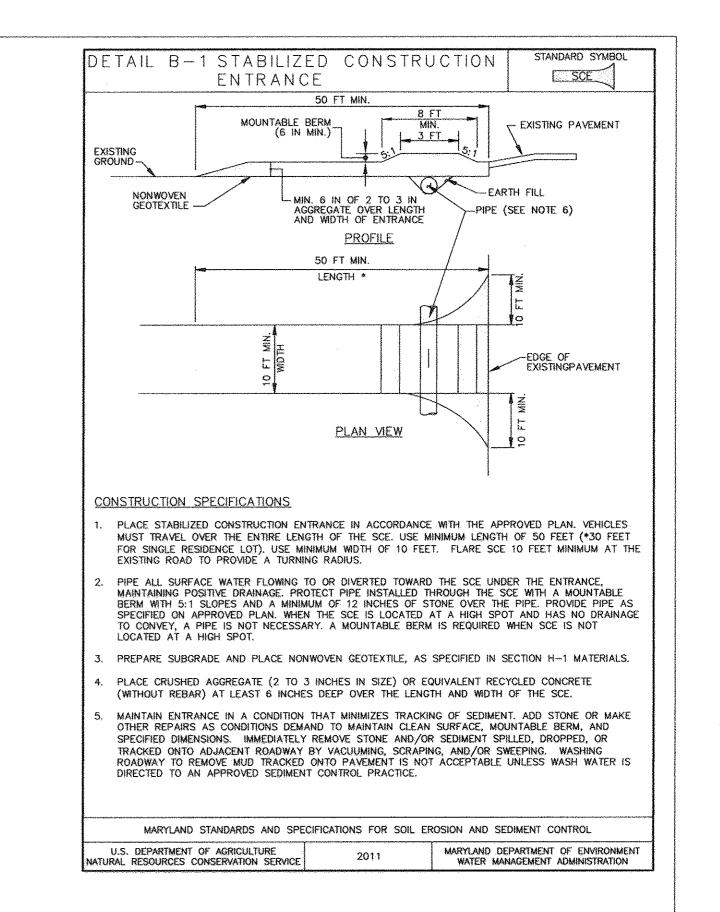
14451 Triadelphia Road, P.O. Box 30 (410-442-2337)

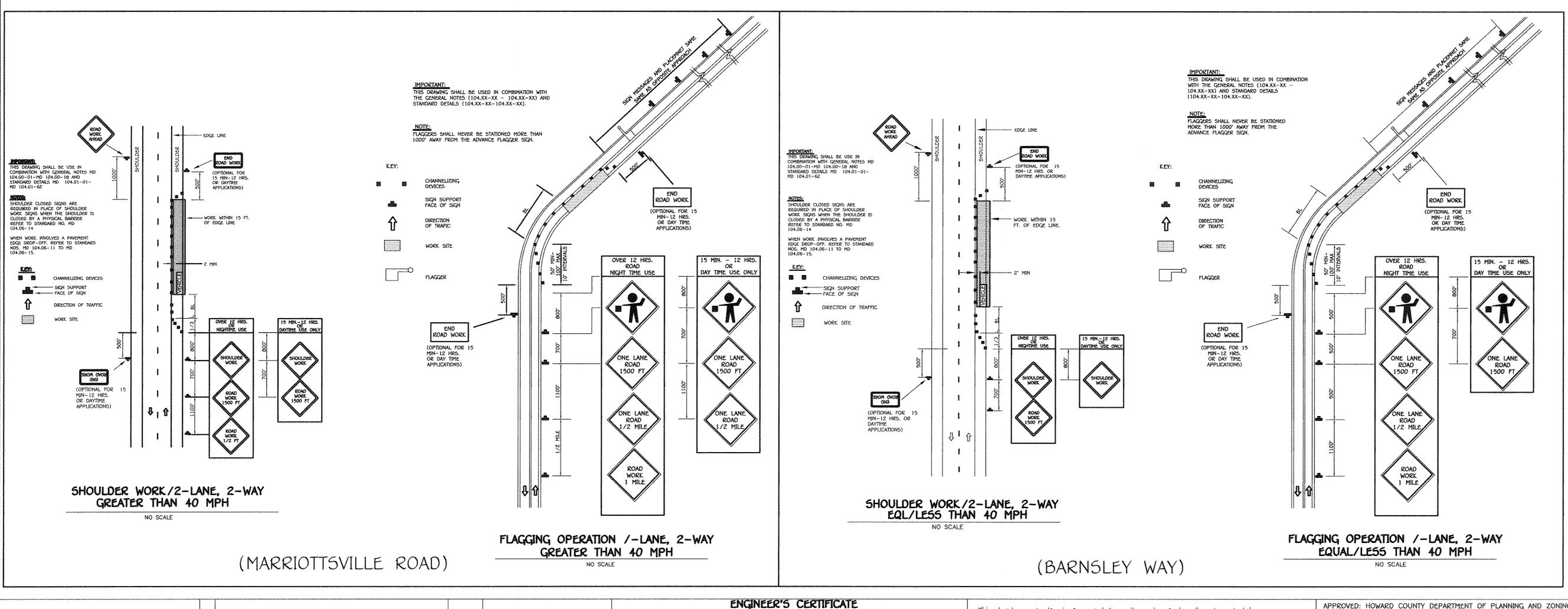
SUBDIVISION **SECTION** PARCEL No. GTW's Waverly Woods PLAT NO. BLOCK NO. | ZONED | TAX/ZONE | ELEC. DIST. CENSUS TR. 24972-24973 3 & 4 PEC 6030.00

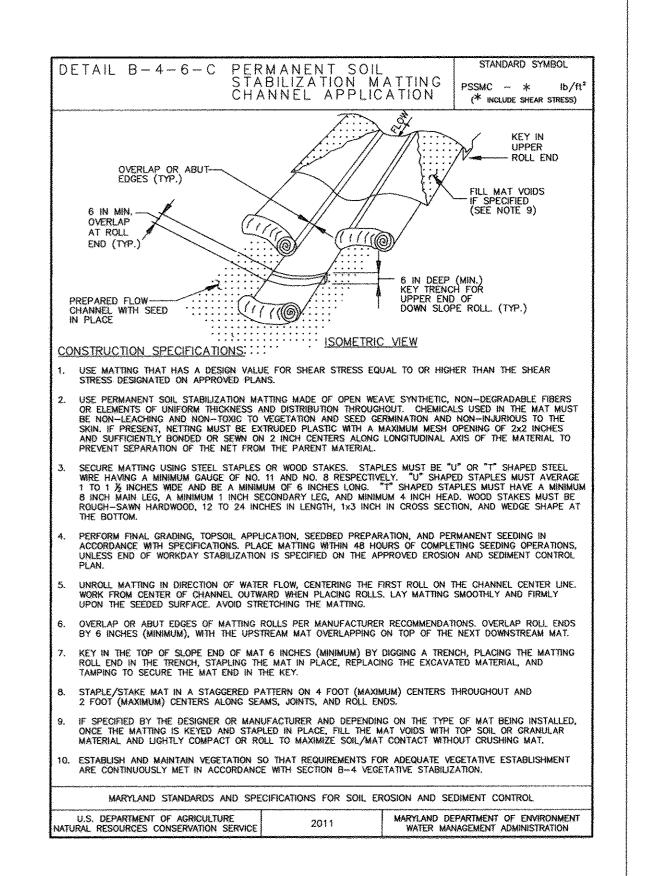


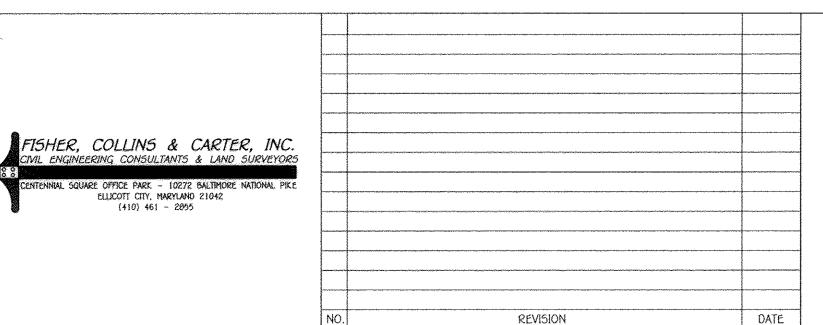


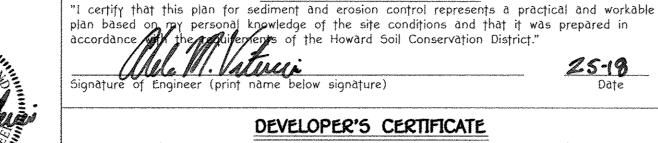




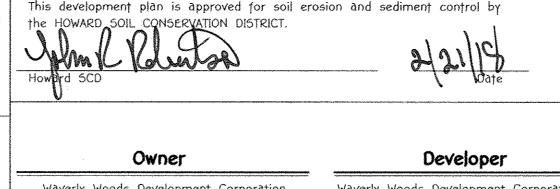








/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved param for the Control of Sediment and Erosian before beginning the project. Howard Soil Conservation District."



Waverly Woods Development Corporation Waverly Woods Development Corporation c/o Mr. Ken Warfield, Jr. c/o Mr. Ken Warfield, Jr. 14451 Triadelphia Road, P.O. Box 30 14451 Triadelphia Road, P.O. Box 30 Glenelg, Maryland 21737 Glenelg, Maryland 21737 (410-442-2337)(410-442-2337)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 3-12-18 3.5.18 3-14-18

5UBDIVISION

GTW's Waverly Woods

24548-24549 3 & 4

BLOCK NO. ZONED

PEC

PARCEL No.

CENSUS TR

6030.00

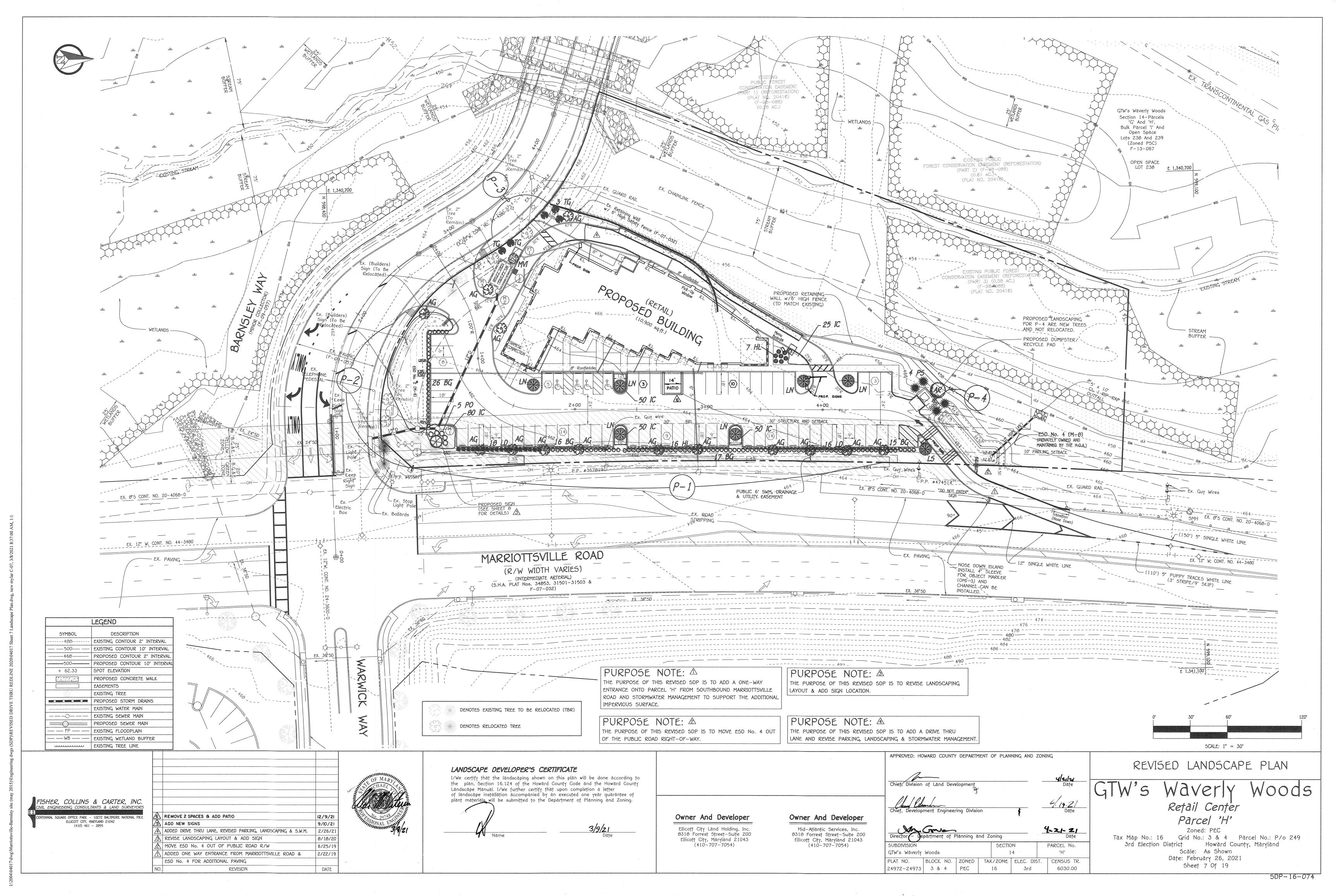
TAX/ZONE | ELEC. DIST.

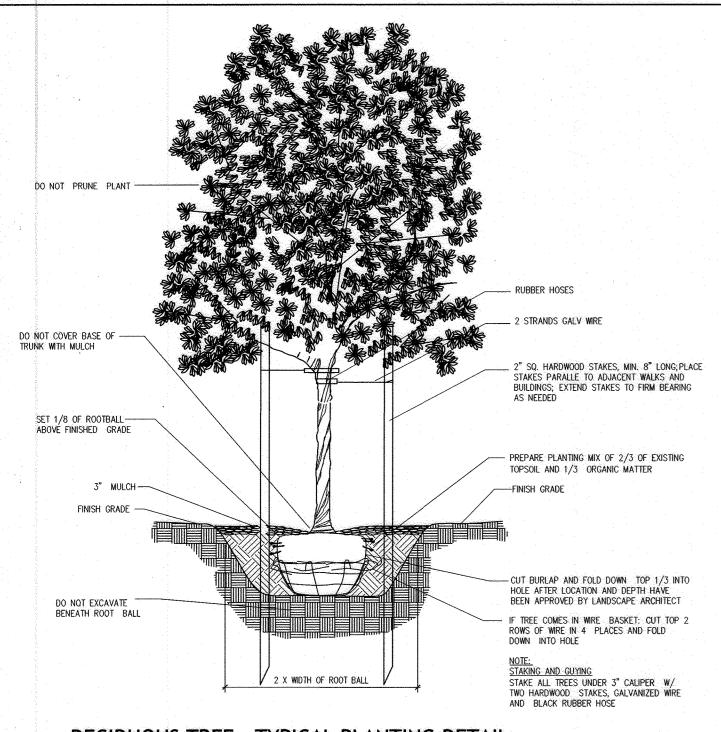
SEDIMENT & EROSION CONTROL NOTES AND DETAILS AND TEMPORARY TRAFFIC CONTROL PLANS

Retail Center

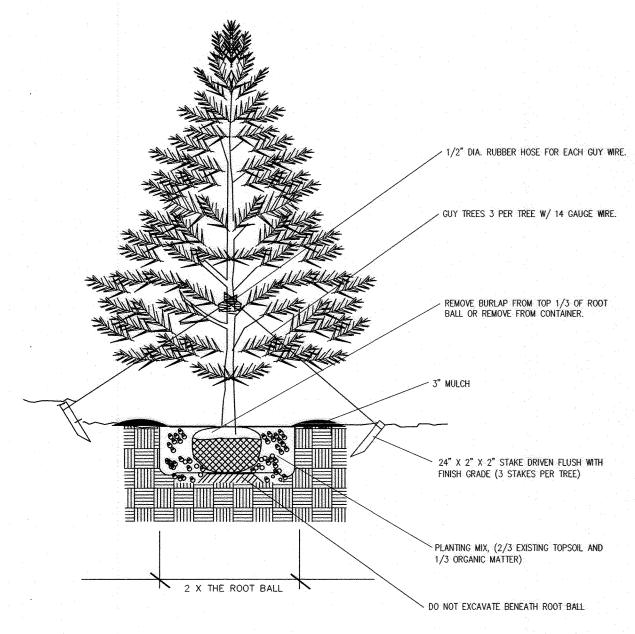
Parcel 'H' Zoned: PEC Grid No.: 3 & 4 Parcel No.: P/o 249 Tax Map No.: 16 Howard County, Maryland 3rd Election District Scale: As Shown Date: February 2, 2018

Sheet 6 Of 19

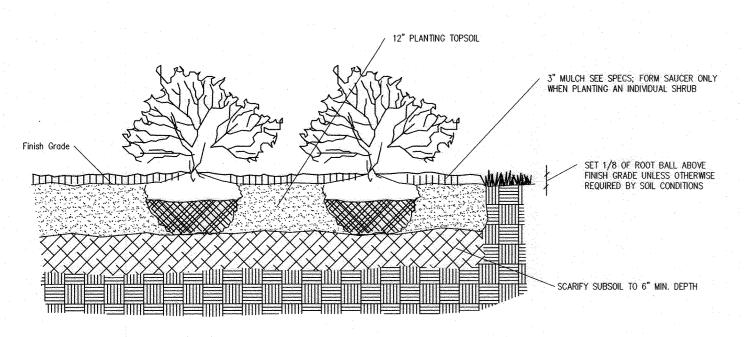




DECIDUOUS TREE - TYPICAL PLANTING DETAIL



EVERGREEN TREE - TYPICAL PLANTING DETAIL



REVISED LANDSCAPING CHARTS, SURETY & ADDED SIGN DETAILS

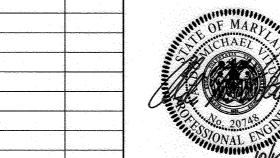
REVISION

SHRUB AND HEDGEROW - TYPICAL PLANTING DETAIL

FISHER, COLLINS & CARTER, INC.

IVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

ELLICOTT CITY, MARYLAND 21042



8/18/20 DATE

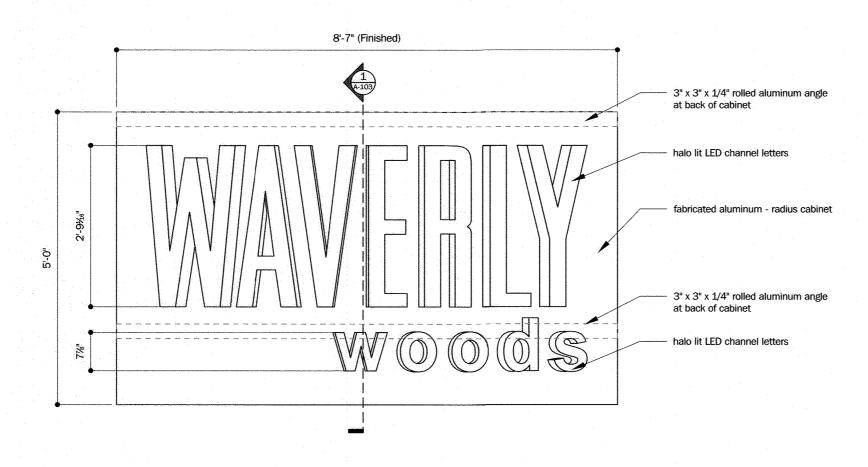
LANDSCAPE DEVELOPER'S CERTIFICATE

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 letter of landscape installation accompanied by an executed one year guarantee of

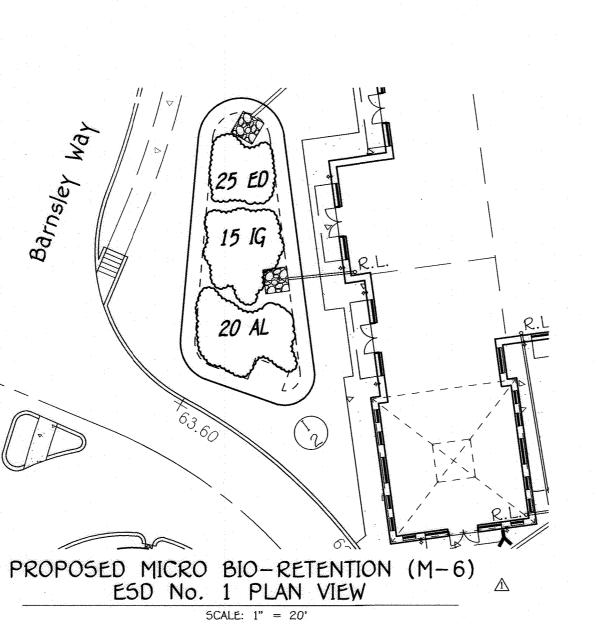


	PLAN	TING	SPE	CIFICA	TION5					
& GRUB AL	L PLANTING AR	eas as in	DICATED	ON THE DRAWII	NG5.					
TE PONTECTIO	ON FOR TOFFS	SHOURS	AND DEC	ENNIALS /COOL	NO COVERS	THAT	NOF	TO	RF	c

- 1. CLEAR 2. PROVIDE PROTECTION FOR TREES, SHRUBS, AND PERENNIALS/GROUND COVERS THAT ARE TO BE PRESERVED. 3. CONTRACTOR SHALL VERIFY THE CORRECT LOCATION OF ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO
- INSTALLATION OF ANY PLANT MATERIALS. 4. ALL PLANTING SHALL BE DONE AS PER PLANTING DETAILS AND SPECIFICATIONS.
- 5. NO CHANGES SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR LANDSCAPE ARCHITECT. 6. PRIOR TO CONSTRUCTION OF PLANTING BEDS, THE CONTRACTOR SHALL STAKE OUT PLANTING BED LINES IN THE FIELD FOR REVIEW BY THE LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT SHALL MAKE ADJUSTMENTS IN THE FIELD AS NECESSARY. ALL FINAL PLANTING BED LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT. FOR LAYOUT
- REVIEW, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF THREE DAYS IN ADVANCE. 7. INSTALL ALL REQUIRED PLANTING AND LAWN SOILS AS PER DETAILS AND SPECIFICATIONS, AND ALL SHRUBS, GROUND COVERS, AND PERENNIALS SHALL BE PLANTED IN PLANTING BEDS PREPARED AS REQUIRED BY THE DETAILS AND
- 8. MAINTAIN POSITIVE DRAINAGE OUT OF PLANTING BEDS AT A MINIMUM 2% SLOPE AND MAINTAIN POSITIVE DRAINAGE OF ALL LAWN AREAS, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OR OWNER.
- 9. ALL PLANT BEDS SHALL BE CONTAINED WITH A SPADED EDGE UNLESS OTHERWISE NOTED ON DRAWINGS. 10. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE DRAWINGS AND QUANTITIES SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE DRAWINGS SHALL APPLY. REPORT DISCREPANCIES TO THE LANDSCAPE ARCHITECT
- FOR CLARIFICATION PRIOR TO BIDDING. 11. ALL PLANTS SHALL CONFORM TO THE SIZES GIVEN IN THE PLANT LIST AND SHALL BE NURSERY GROWN IN ACCORDANCE WITH THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION.
- 12. PLANTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. PRIOR TO PLANTING, THE CONTRACTOR SHALL STAKE OUT THE LOCATIONS OF ALL PLANTS IN THE FIELD FOR REVIEW BY THE LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT SHALL MAKE ADJUSTMENTS IN THE FIELD AS NECESSARY. ALL FINAL PLANT LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT. FOR LAYOUT REVIEW, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF
- THREE DAYS IN ADVANCE. 13. ALL DISTURBED AREAS SHALL BE FINE GRADED AND SEEDED OR SODDED; SEE PLAN FOR LOCATIONS.
- 14. CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING AND MAINTAINING ALL PLANTS DURING THE WARRANTY PERIOD; REFER TO SPECIFICATIONS.



ELEVATION DETAIL A



PROPOSED MICRO BIO-RETENTION (M-6) ESD No. 2 PLAN VIEW

SCALE: 1" = 20'

				SCHEDULE	A - PERIMETER LANDSCAPI	NG 🛭	7			-		
PERIMETER	CATEGORY (PROPERTIES/ ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		of plants re evergreen trees	SHRUBS	C.U.O.F	OF PLANTS PR EVERGREEN TREES	SHRUBS	
P-1	PARKING TO	E	380.3'	NO NO	NO NO	10		95	10		98	
P-2	PARKING TO ROAD	E	125.4'	YES (2 SHADE TREES)	NO	3	0	31	1#	0	31	# CREDIT FOR 2 SHADE TREES
P-3	NON-RES. TO ROAD	В	179.7'	YES (2 SHADE TREES)	NO	4	5		8#	0		# CREDIT FOR 2 SHADE TREES
P-4	DUMPSTER	D	35'	NO	NO	1	4		1	4		
							- *					
L				-	TOTAL	*18	*9	*126	21	4	129	

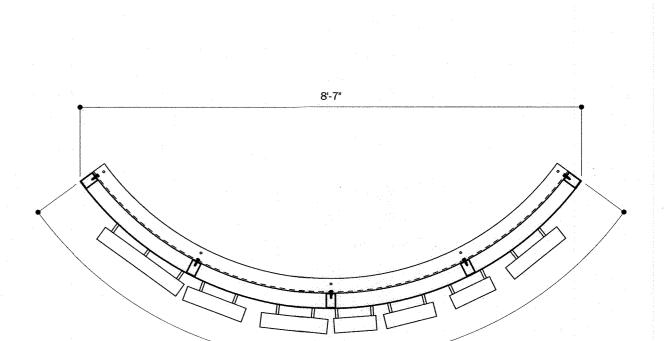
11'-1¾" (overall)

10'-0" dia.

SIGN ELEVATION A

<u> </u>											
NOTE: ALL	RELOCA	TED TREES	USED	IN TH	E "CRED	IT FOR	EXISTING	VEGETATION	" MUST	BE IN GOO	OD
HEALTH AT	TIME OF	F PLANTING	OR A	NEW	TREE SH	IALL BE	PROVIDE	D MEETING	HOWARD	COUNTY'S	MINIMU
TREE SIZE	REQUIR	EMENTS.									

^{* -} DENOTES TOTAL LANDSCAPING REQUIRED BEFORE CREDIT FOR EXISTING LANDSCAPING.



SIGN PLAN DETAIL A

QTY.	KEY	BOTANICAL NAME COMMON NAME	SIZE	CONT.	REMARK5
50	AL	Aster laevis 'Bluebird' Smooth Aster	#1	Cont.	18" O.C.
50	ED	Eupatorium D 'little Joe' Compact Joe Pye Weed	#1	Cont.	24" O.C.
40	IG	llex Glabra 'compacta' Inkberry Holly	24" ht.	Cont.	36" O.C.
-					

SCHEDULE B

NUMBER OF PARKING SPACES

NUMBER OF TREES REQUIRED

NUMBER OF TREES PROVIDED

OTHER TREES (2:1 SUBSTITUTION)

SHADE TREES

PARKING LOT INTERNAL LANDSCAPING

3.55

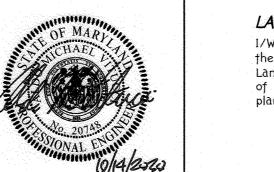
7(1DOOM)	PING PLANT		,	····	
QTY.	KEY	BOTANICAL NAME COMMON NAME	SIZE	CONT.	REMARKS
SHADE/DI	ECIDUOUS	TREES (27)			
14	AG	ACER GINNALA AMUR MAPLE	2 1/2" – 3" CAL.	В & В	
1	AR	AR ACER RUBRUM RED SUNSET 2 1/2" - 3" CAI		B & B	
7	LN	LAGERSTROEMIA 'NATCHEZ' NATCHEZ CRAPE MYRTLE (WHITE)	6'-8' HT.	В & В	MULTI-STEM
5	TG	THUJA GREEN GIANT GREEN GIANT ARBORVITAE	5'-6' HT.	В & В	
EVERGREE	N TREES	(4)	:		
4	P5	PINUS STROBUS WHITE PINE	6'-8' HT.	В&В	
SHRUBS	(136)			······································	
74	BG	BUXUS MICROPHYLLA 'WINTER GEM' WINTER GEM BOXWOOD	#3	CONT.	4' O.C.
23	HL	HYDRANGEA PANICULATA 'LITTLE LIME' LITTLE LIME HYDRANGEA	#3	CONT.	4' O.C.
34	LD	LAGERSTROEMIA 'CHERRY DAZZLE' CHERRY DAZZLE CRAPE MYRTLE	#3	CONT.	4 0.C.
5	PO	PRUNUS LAUROCERASUS OTTO LUYKEN OTTO LUYKEN CHERRY LAUREL	24"	CONT.	5' O.C.
(ADDITION	AL) GROUN	IDCOVER (255)		<u> </u>	
255	IC	IMPERATA CYLINDRICA 'RED BARON'	#1	CONT.	24" O.C.

NOTE: THE DEVELOPER IS PROVIDING 2 ADDITIONAL SHADE TREES, 10 SHRUBS & GROUNDCOVER.

CENSUS TR.

6030.00

"THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL". FINANCIAL SURETY FOR THE "REQUIRED" 10 SHADE TREES, 9 EVERGREEN TREES & 126 SHRUBS HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$10,530.00.



plant materials will be submitted to the Department of Planning and Zoning.

19-15-2029

Owner And Developer

Ellicott City Land Holding, Inc. 8318 Forrest Street—Suite 200 Ellicott City, Maryland 21043 (410-707-7054)

Owner And Developer

PROPOSED SIGN (SEE THIS SHEET FOR DETAILS)

GTW's Waverly Woods

24972-24973 3 & 4 PEC

Mid-Atlantic Services, Inc. 8318 Forrest Street-Suite 200 Ellicott City, Maryland 21043 (410-707-7054)

	-	4/6/20	
Chief, Division of Land Development	F	Dațe	(
Change Change	<u> </u>	10:28:20	
Chief, Development Engineering Divis	sion	Dațe	
of Gr-		11-10/26	
Director - Department of Planning	and Zoning	Dațe	
SUBDIMISION	SECTION	PARCEL No.	1

16

BLOCK NO. ZONED | TAX/ZONE | ELEC. DIST.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

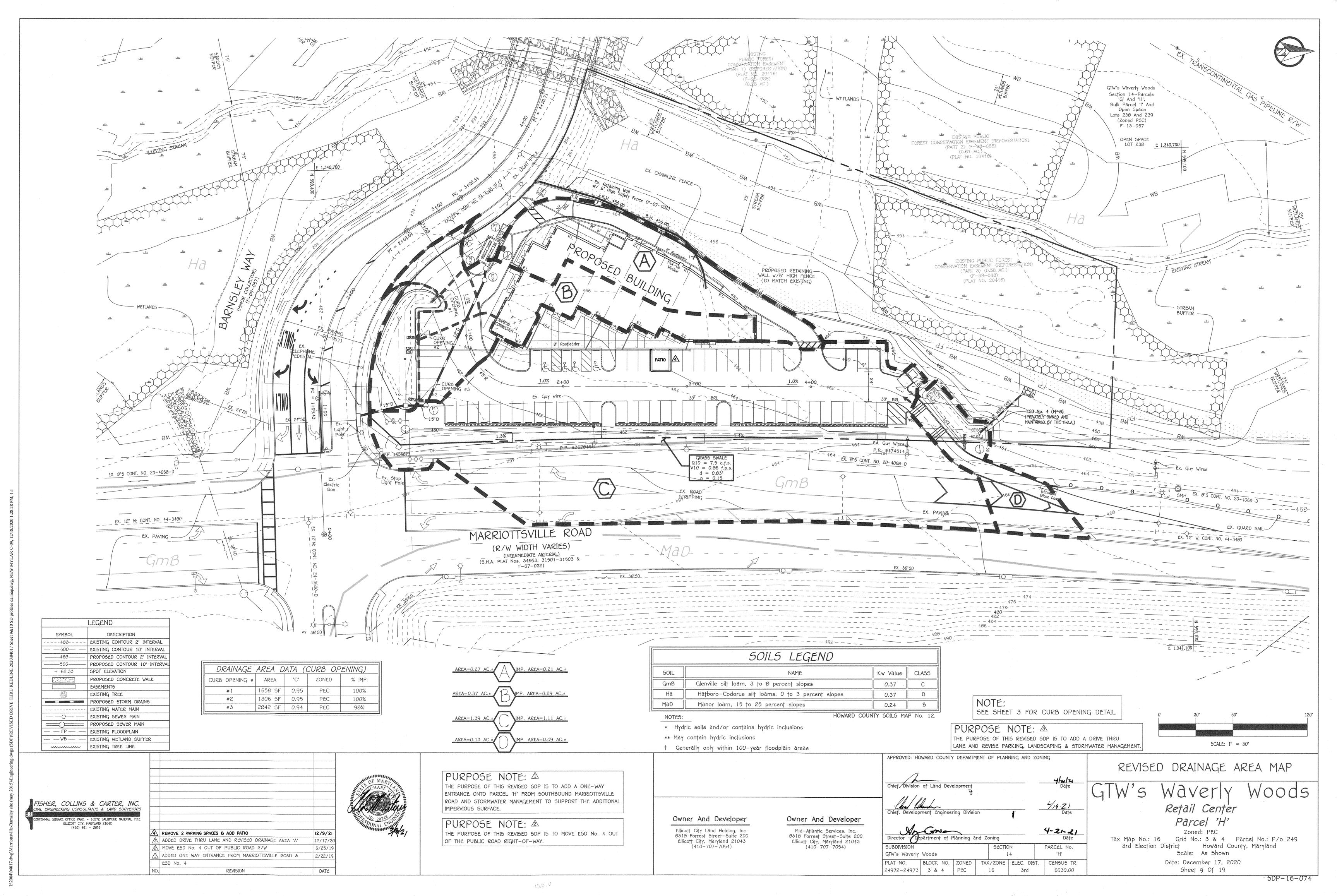
REVISED LANDSCAPE NOTES & DETAILS

Woods

Retail Center Parcel 'H'

Zoned: PEC Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249 3rd Election District Howard County, Maryland Scale: As Shown Date: April 29, 2019

Revised Date: Aug. 18, 2020 Sheet 8 Of 19

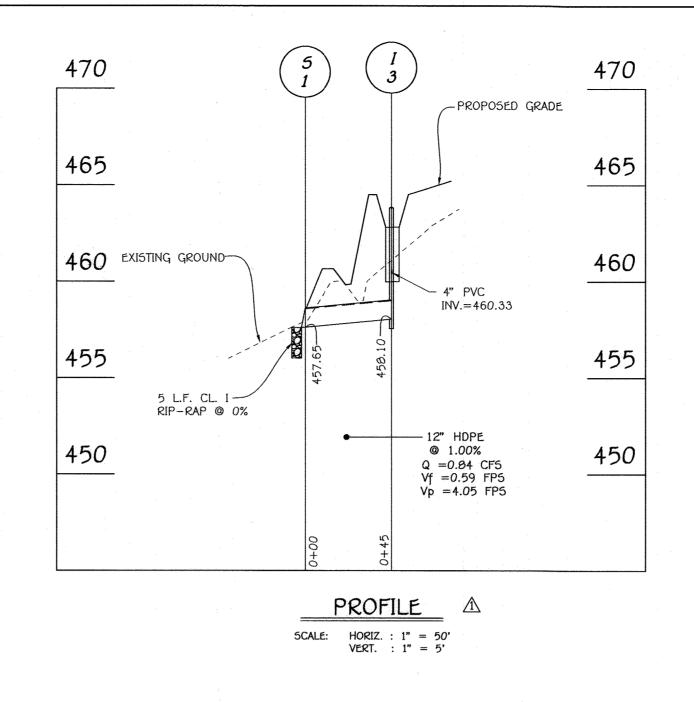


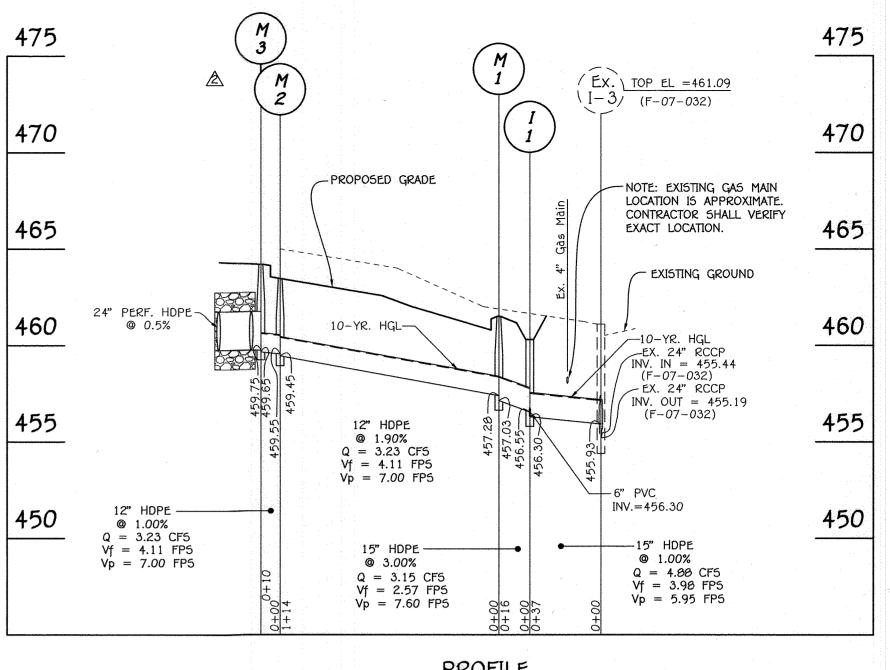
			STRU	CTURE 5	CHEDULE				
STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	LOC	CATION	ROAD STA.	OFFSET	TYPE	REMARK5
I-1	459.80	456.30 (6"), 456.55 (15")	456.30 (15")	N 598,469	E 1,340,891	T		'5' INLET	D - 4.24
I-2	* 463.40		460.80 (12")	N 598,547	E 1,340,769			TYPE '5' COMB.	D - 4.26
I-3	463.83	460.33 (4")	458.10 (12")	N 598,931	E 1,340,925			12" DRAIN BASIN	Nyloplast OR EQUAL
FT-1	464.13	461.70 (8")	460.30 (4")	N 598,555	E 1,340,753			FILTERRA	Contech OR EQUAL
M-1	461.50	457.28 (12")	457.03 (15")	N 598,485	E 1,340,891			4' DIA. MANHOLE	G - 5.12
M-3	464.20	459.75 (24")	459.65 (12")	N 598,536	E 1,340,781			4' DIA. MANHOLE	G - 5.12
5-1		457.65 (12")		N 598,966	E 1,340,895			FLARED END SECTION	Nyloplast OR EQUAL
M-2	463.45	459.55 (12")	459.45 (12")	N 598,537	E 1,340,790			4' DIA. MANHOLE	G - 5.12

* Denotes Top Of Grate

	PIPE SCHEDU	LE	
SIZE	CLA55	LENGTH	
6"	PVC, 5CH. 40 (PERFORATED)	156 L.F.	
6"	PVC, 5CH. 40 (5OLID)	156 L.F.	
8"	PVC, 5CH. 40 (50LID)	432 L.F.	
12"	HDPE	159 L.F.	$ \Lambda$
15"	HDPE	53 L.F.	
4"	PVC, 5CH. 40 (PERFORATED)	111 L.F.	$ \Lambda$

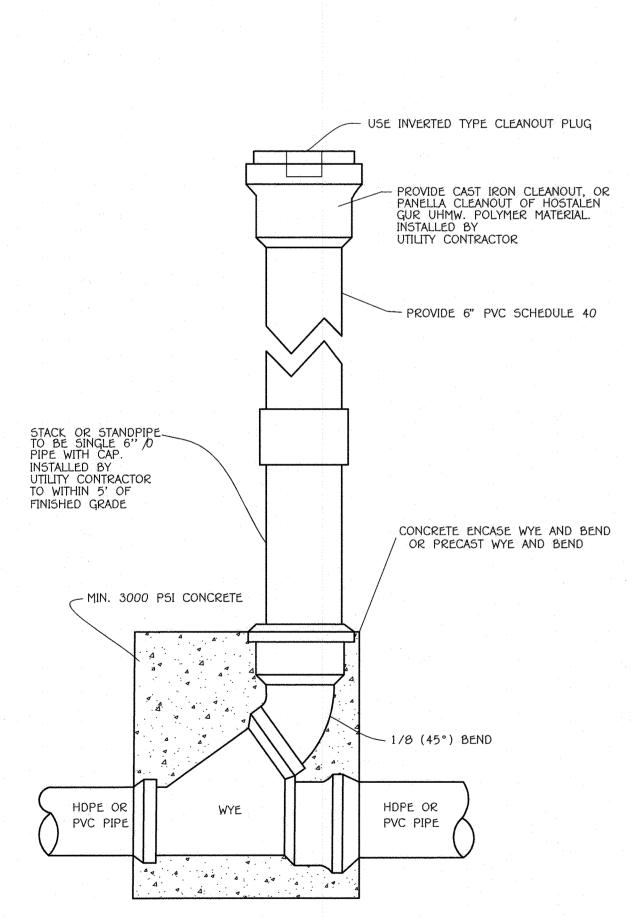






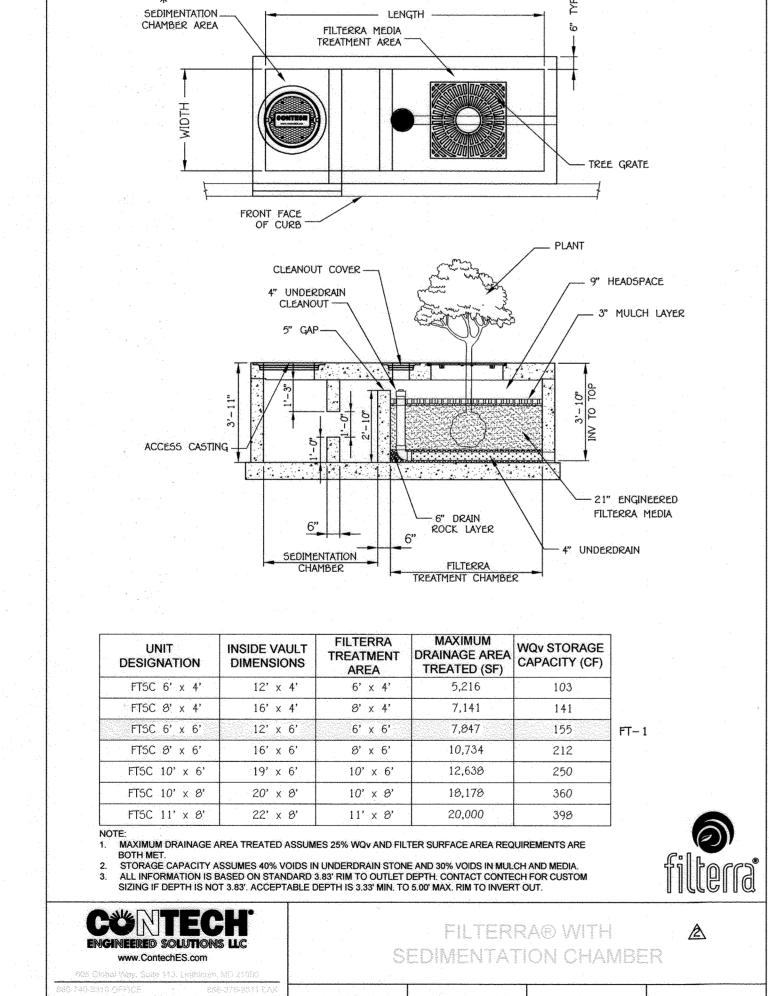
PROFILE

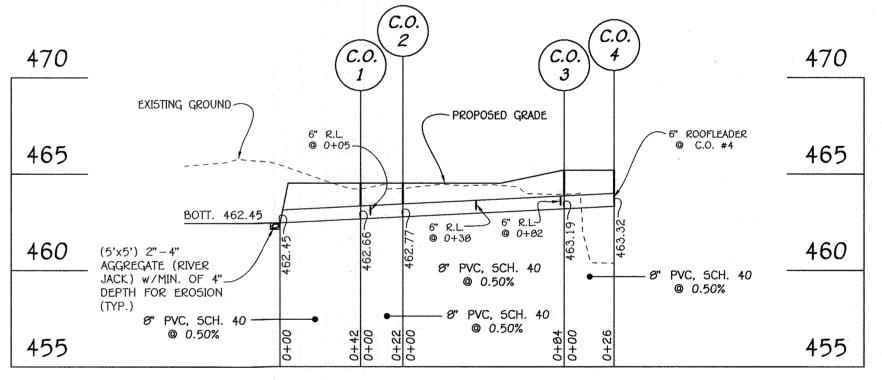
5CALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'



TYPICAL ROOFLEADER CLEAN-OUT

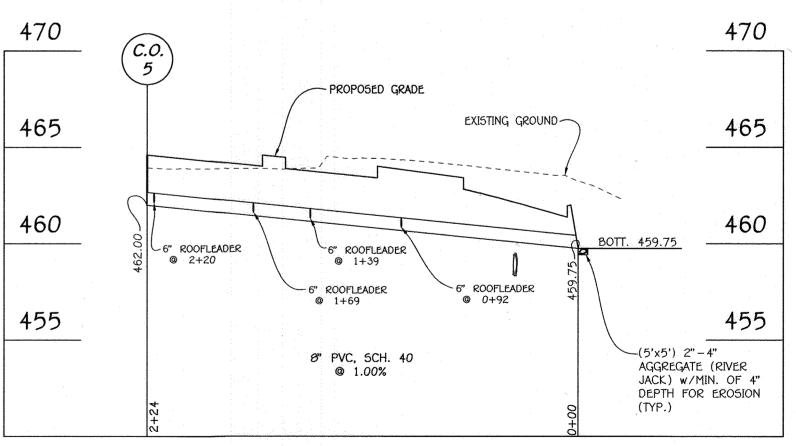
NO SCALE





PROFILE - ROOFDRAIN ALONG BACK OF BLDG.

SCALE HORZ. 1" = 50'
VERT. 1" = 5'



PROFILE - ROOFDRAIN ALONG FRONT OF BLDG.

SCALE HORZ. 1" = 50'
VERT. 1" = 5'

	<u> </u>		Autoria de la companya della companya della companya de la companya de la companya della company	A CONTRACTOR OF THE PROPERTY O
				OF MARLY.
				CHAEL
FISHER, COLLINS & CARTER, INC.				
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS				
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE				No 20748
ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2055				MAL ENGLY
				3/9/2
	A	REVISED STORM DRAIN PROFILE & ADDED FILTERRA DETAIL	12/17/20	a.
	Λ	ADDED STORM DRAIN PROFILE (I-3 TO 5-1) &	2/22/19	
		REVISED STRUCTURE SCHEDULE AND PIPE SCHEDULE		
	NO.	REVISION	DATE	

			Chief, Division of Land Developm	nent B	4/2/24 Dațe
eris concentri i i i an	Owner And Developer	Owner And Developer	Chief, Development Engineering (Division	4.14.21 Date
	Ellicott City Land Holding, Inc. 8318 Forrest Street—Suite 200 Ellicott City, Maryland 21043	Mid-Atlantic Services, Inc. 8318 Forrest Street-Suite 200 Ellicott City, Maryland 21043	Director - Department of Planni	ng and Zoning	4-21-21 Date
	(410-707-7054)	(410-707-7054)	SUBDIVISION	SECTION	PARCEL No.

REVISED

STORM DRAIN PROFILES

GTW'S Waverly Woods

Retail Center

Parcel 'H'

Zoned: PEC

Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249

Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249
3rd Election District Howard County, Maryland
5cale: As Shown
Date: December 17, 2020
Sheet 10 Of 19

iverly

24972-24973 3 & 4 PEC

PLAT NO.

3rd

'H'

CENSUS TR.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

BLOCK NO. ZONED TAX/ZONE ELEC. DIST.

16

Infiltration and Filter System Construction Specifications

permeable medium such as sand for WC), and Re v. In some instances where permeability is great, these facilities may be used for Qp as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters,

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorous and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide desthetic value and wildlife habitat making these facilities more desirable to the public

Design Constraints: Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching

the facility, thereby reducing the possibility of clogging.

> Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see figure A.5 and Table A.4 for planting material guidance). > Plants known to send down deep taproots should be avoided in systems where filter fabric is

used as part of facility design.

> Test soil conditions to determine if soil amendments are necessary. > Plants shall be located so that access is possible for structure maintenance. > Stabilize heavy flow areas with erosion control mats or sod. > Temporarily divert flows from seeded areas until vegetation is established > See Table A.5 for additional design considerations.

Bio-retention

Soil Bed Characteristics The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume [Environmental Quality Resources (EQR), 1996; Engineering Technology Inc. and Biohabitats, Inc. (ETAB), 1993]. Soils should fall within the SM, ML, SC classifications or the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutsedge, and Canada Thistle or other noxious weeds as specified under COMAR 15.08.01.05.) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are

Table A.3 Planting Soil Characteristics

Parameter	Vālue
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P205)	75 lbs. per acre, minimum
Potassium (potash -1(K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
5and	35 to 60%

Mulch Layer

TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE The mulch layer plays an important role in the performance of the bioretention system. The (ASTMF 750, TYPE PS 28 OR mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability AASHTO-M- 278) IN A GRAVEL Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the LAYER. THE PREFERRED MATERIAL mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment. IS SLOTTED 4" RIGID PIPE (e.g., PVC OR HDPE).

NOTES:

UNDERDRAIN PIPE SHALL BE 4"

PERFORATIONS SHALL BE 3/8"

DIAMETER LOCATED 6" ON CENTER

WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE

WRAPPED WITH A 1/4" (No. 4 OR 4 x 4) GALVANIZED HARDWARE

GRAVEL LAYER SHALL BE (No. 57

STONE PREFERRED) AT LEAST 3"

THE MAIN COLLECTOR PIPE SHALL

PROVIDED (ONE PER EVERY 1,000

5Q.FT.) TO PROVIDE A CLEANOUT

PORT AND MONITOR PERFORMANCE

A 4" LAYER OF PEA GRAVEL (1/8"

PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY

BE AT A MINIMUM 0.5% SLOPE.

A RIGID, NON PERFORATED

OBSERVATION WELL MUST BE

TO 3/8" STONE) SHALL BE

LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO

BE CONSIDERED PART OF THE

FILTER BED WHEN BED THICKNESS

THICK ABOVE AND BELOW THE

UNDERDRAIN.

OF THE FILTER.

EXCEEDS 24".

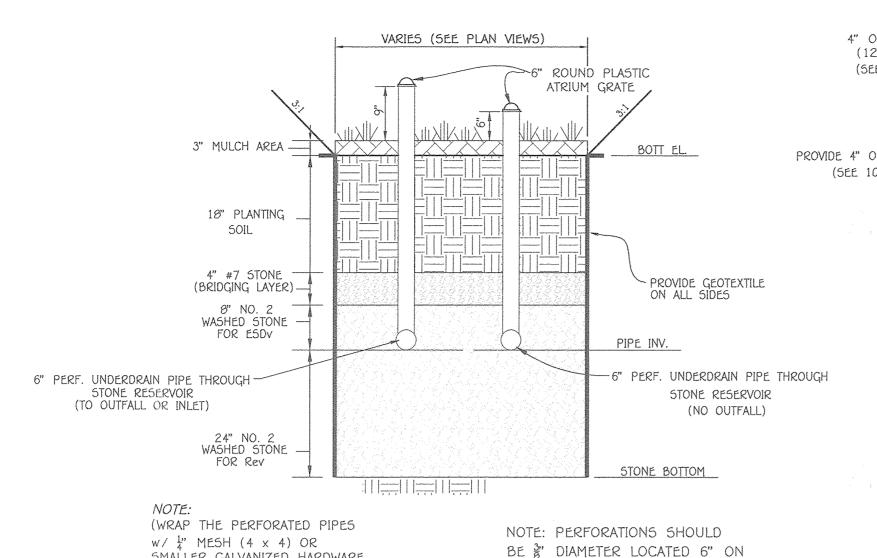
The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects. disease, drought, temperature, wind, and exposure. The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation

supports plant species adapted to standing and fluctuating water levels. The middle elevation

supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to dryer conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ETAB, 1993 or Claytor and Schueler, 1997.



MICRO BIO-RETENTION (M-6) SECTION

NO SCALE

4" UNDERDRAINIn.

SMALLER GALVANIZED HARDWARE

4" OR 6" dia. DOME GRATE (12" ABOVE FILTER BED) (SEE 10 SCALE PLAN VIEW) PROVIDE 4" OR 6" PVC 5CHEDULE 40 ---(SEE 10 SCALE PLAN VIEW) -NO. 57 STONE--1/8 (45°) BEND HOPE OR TYPICAL SWM CLEAN-OUT DETAIL

3' @ 3% 8.5' CHANNEL WIDTH ONE-WAY ENTRANCE 12' @ 2% ASPHALT-PAVEMENT CURB -FLUSH 24" PLANTING MEDIA -- GEOTEXTILE FABRIC (SIDES ONLY) BIO-SWALE PLANTING INFORMATION - 4" BRIDGING LAYER BIO-SWALE NO. QUANTITY NAME MAXIMUM SPACING (FT.) (1/8" - 3/8" STONE) Itea virginica 20 'Henry's Garnet' 36" O.C. 24"-30" ht 6" DEPTH STONE RESERVIOR Virginia Sweetspire (NO. 57 STONE) 4" PERFORATED PVC UNDERDRAIN WRAPPED IN BIO-SWALE ESD#4 (M-8) SECTION GALVANIZED WIRE MESH NO SCALE

12" DIA. DOME GRATE ASSEMBLY ADS NYLOPLAST 12" DIA. DRAIN BASIN, ADS NYLOPLAST NO SCALE

CENTER WITH A MINIMUM OF

FOUR HOLES PER ROW.

ESD No. (PRIVATELY OWNED AND MAINTAINED Top El. 463.83 10p El.464.50 10v 461.25 4' DAM @ 464.50 4" Perforated PVC (52')

OPERATION AND MAINTENANCE SCHEDULE FOR COMMERCIAL ASSOCIATION OWNED & MAINTAINED BIO-RETENTION AREAS (M-6)

1. The owner shall maintain the plant material, mulch layer and soil layer annually. maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.

owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, Treat diseased trees and shrubs and replace all deficient stakes and wires.

3. The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.

4. The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

5. The owner shall maintain all observation wells, clean-outs and perforated underdrains.

6. Filter material must be replaced when water remains on the surface of the filter bed for more than 24 hours following a 1 or 2 year storm event or more than 40 hours following a 10 year storm

PARKING LOT 2' WIDE x 1' DEEP 2. The owner shall perform a plant in the spring and in the fall each year. during the inspection, the STONE GRAVEL DIAPHRAGM

DESIGN DATA Q1 = 1.83 c.f.s. V10 = 0.90 f.p.sSlope = 1.34%

n = 0.07

DESIGN DATA Q10 = 7.50 c.f.s. V10 = 1.45 f.p.sSlope = 1.34%

n = 0.07

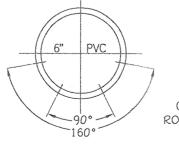
PROVIDE GEOTEXTILE ON ALL SIDES

4'@3%

GRASS SWALE CROSS SECTION (M-8)

8.0' BOTTOM WIDTH

WQ, LEVEL



PIPE SIZE: 6" HOLE SIZE: 3/8" CENTER TO CENTER: 3" ROWS OF HOLES: 2 @ 90° 2 @ 160° (+/-3°)

5CH40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE NO SCALE

B.4.C Specifications for Micro-Bioretention, Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications

The allowable materials to be used in these practices are detailed in Table 8.4.1. 2. Filtering Media or Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.00.01.05.

The planting soil shall be tested and shall meet the following criteria: Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)

Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).

Clay Content - Media shall have a clay content of less than 5%.

pH Range Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pt. There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsciler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base. When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3"Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/0 th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2"stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball. Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains Underdrains should meet the following criteria:

Pipe- Should be 4" to Ediameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type P5 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4"

Perforations-If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a INd." 4 or 4x4) galvanized hardware cloth.

Gravel -The gravel layer (No. 57 stone preferred) shall be at least thick above and below the underdrain.

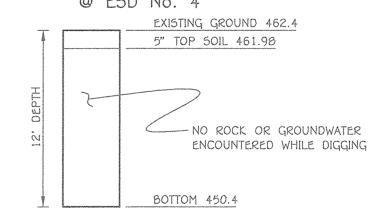
The màin collector pipe shàll be àt à minimum 0.5% slop A rigid, non-perforated observation well must be provided (one per every 1,000 square

feet) to provide a clean-out port and monitor performance of the filter. A 4" layer of pea gravel (1/4" to 3/8"stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

These practices may not be constructed until all contributing drainage area has been stabilized

50IL BORING B-14 TO SUPPORT BIO-SWALE (M-8) @ E5D No. 4



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED OPEN CHANNEL SYSTEMS GRASS SWALES AND WET SWALES. (M-8)

- 1. The open channel system shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning properly.
- The open channel shall be mowed a minimum of as needed during the growing season to maintain a maximum grass height of less than 6 inches.
- 3. Debris and litter shall be removed during regular moving operations and as needed. 4. Visible signs of erosion in the open channel system shall be repaired as soon as it is noticed.
- 5. Remove silt in the open channel system when it exceeds 25% of the original WQV.
- 6. Inspect check dams twice a year for structural integrity. Restore check dams to original condition as applicable.

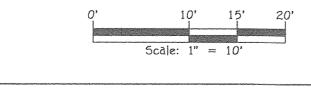
FISHER, COLLINS & CARTER, INC. NIAL SOLIARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIK ELLICOTT CITY, MARYLAND 21042 (410) 461 - 2855

MOVE ESD No. 4 OUT OF PUBLIC ROAD R/W 6/25/19 ADDED ESD No. PLAN VIEW & DETAILS 2/22/19

REVISION

DATE

(No. 2 WASHED STONE)

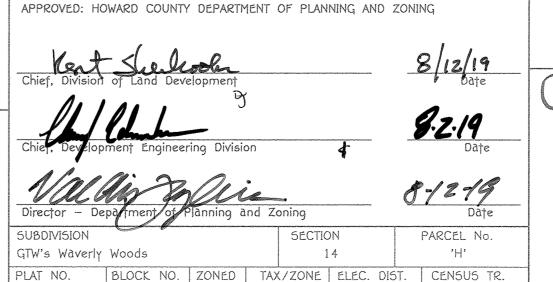


Owner And Developer

Ellicott City Land Holding, Inc. 8318 Forrest Street-Suite 200 Ellicott City, Maryland 21043 (410 - 707 - 7054)

Owner And Developer Mid-Atlantic Services, Inc.

8318 Forrest Street-Suite 200 Ellicott City, Maryland 21043 (410-707-7054)



16

6030.00

PROPOSED BIO-SWALE (M-8) A & ESD No. 4 PLAN VIEW

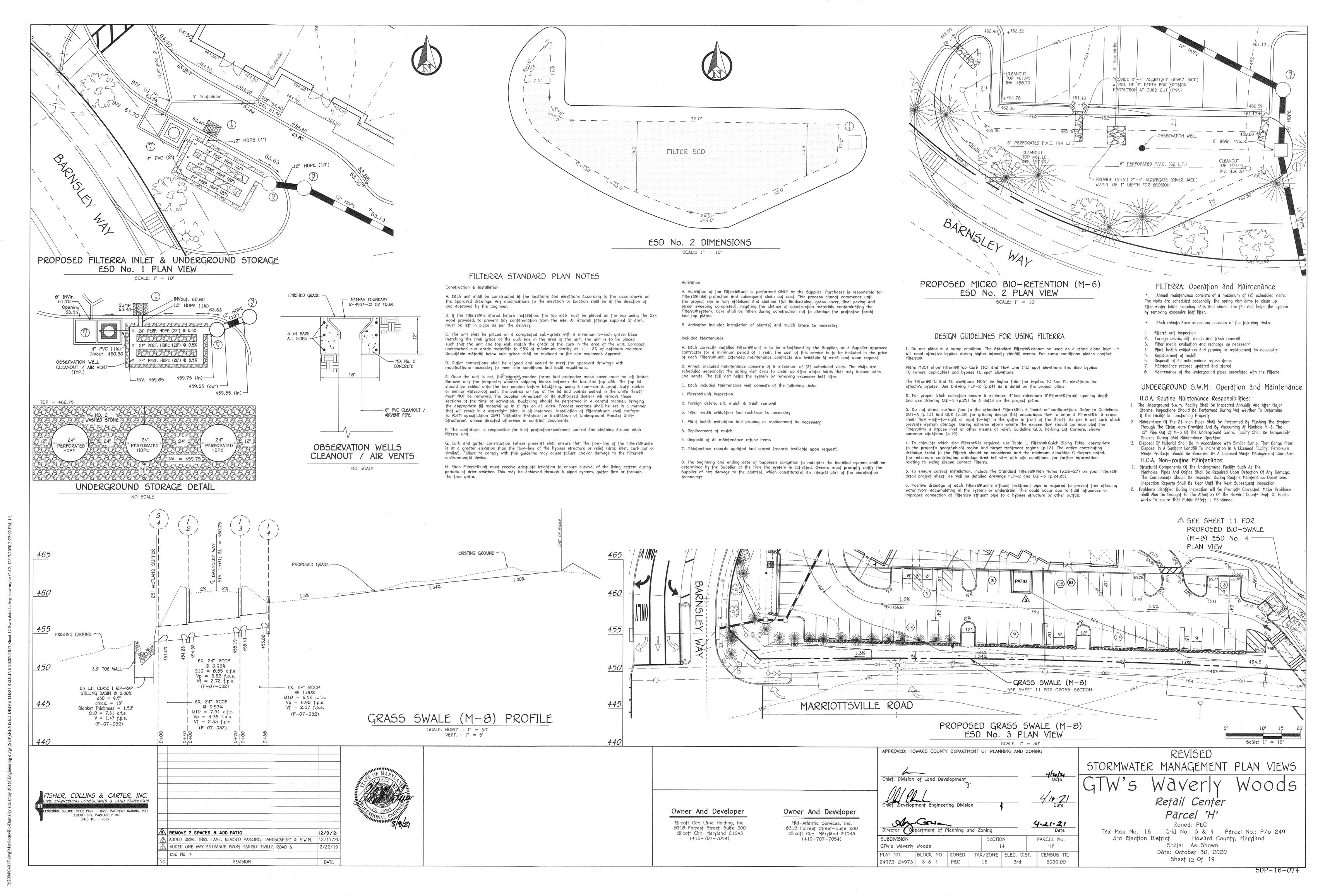
SCALE: 1" = 10'

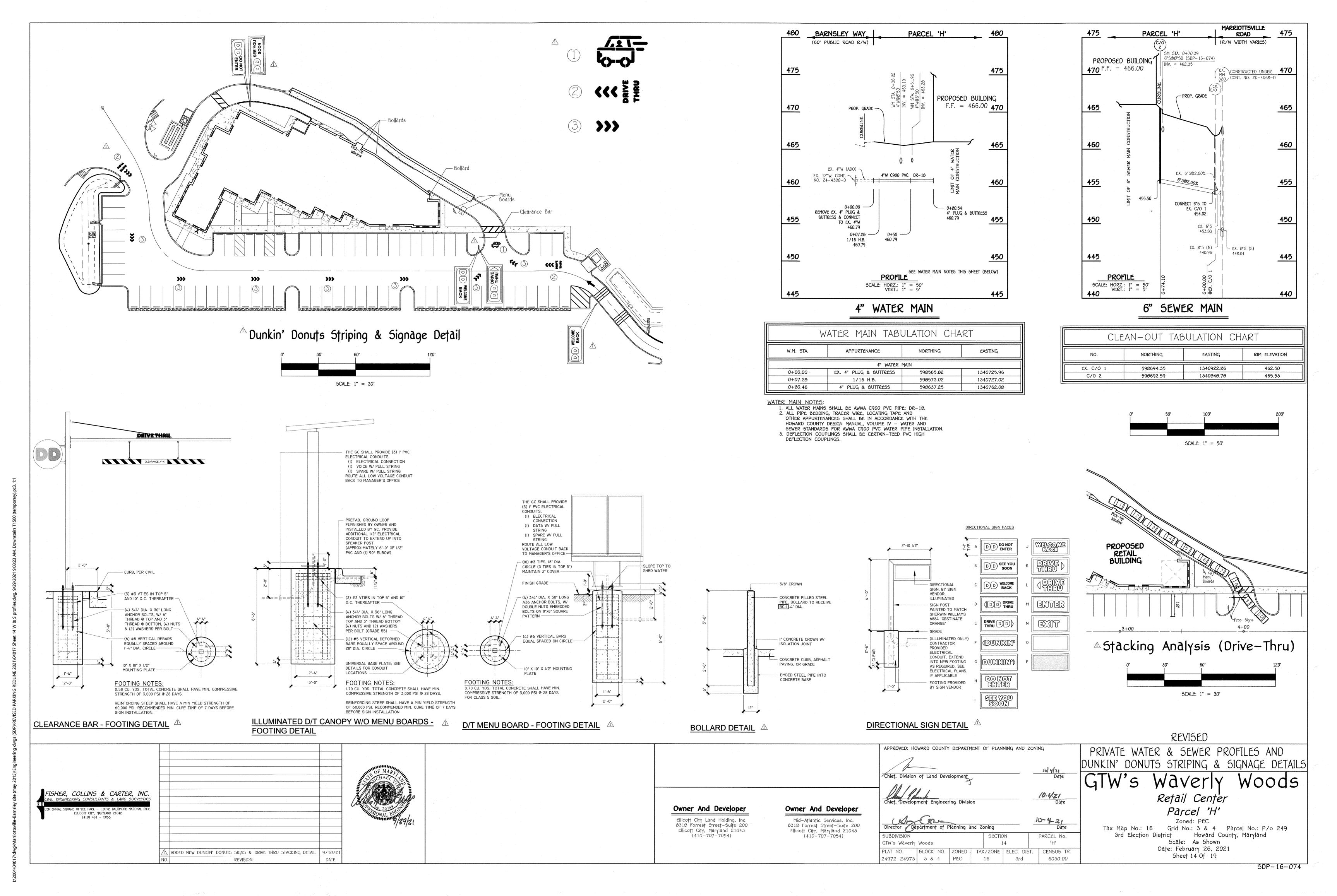
24972-24973 3 & 4 PEC

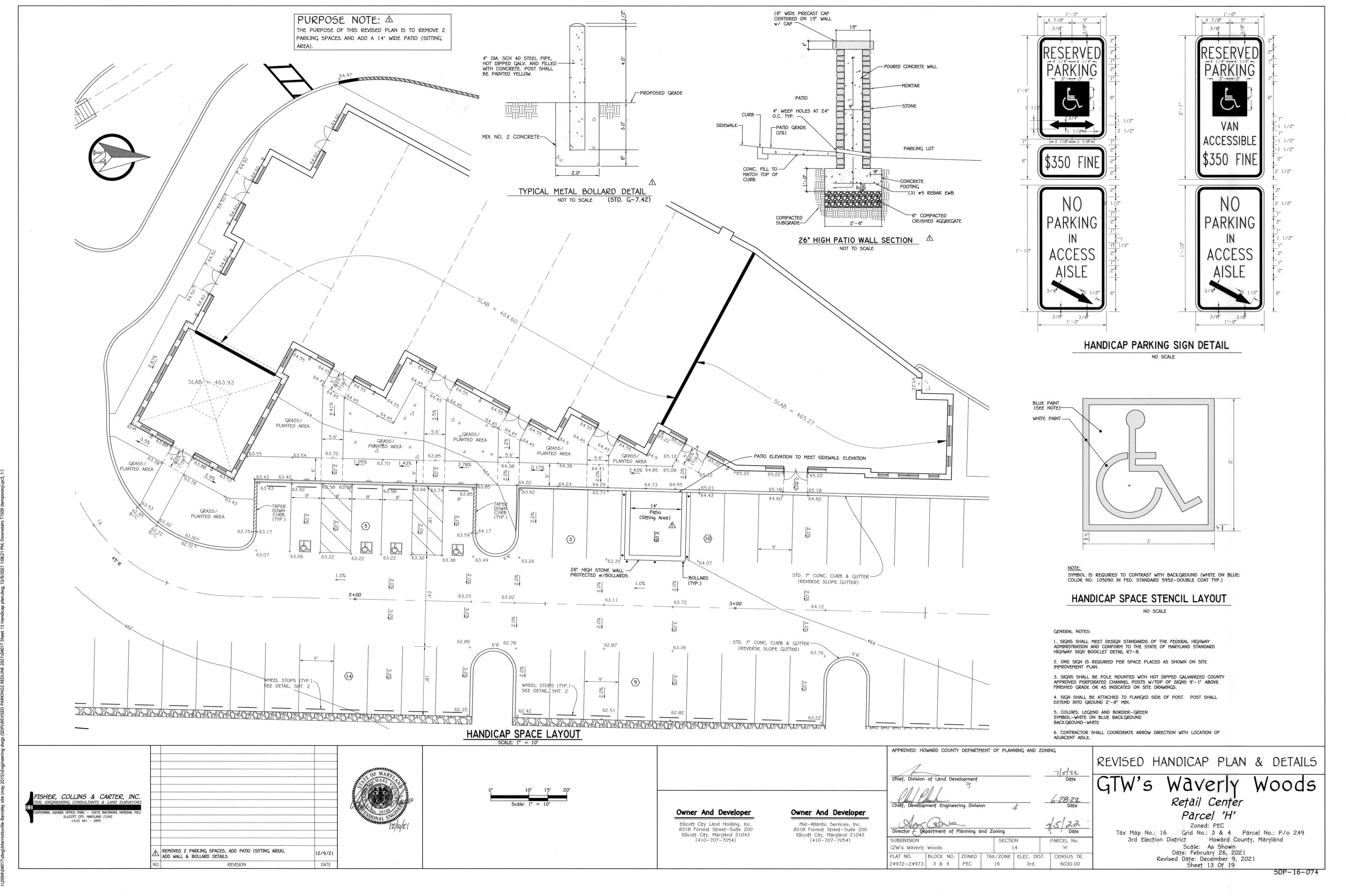
REVISED STORMWATER MANAGEMENT DETAILS Retail Center

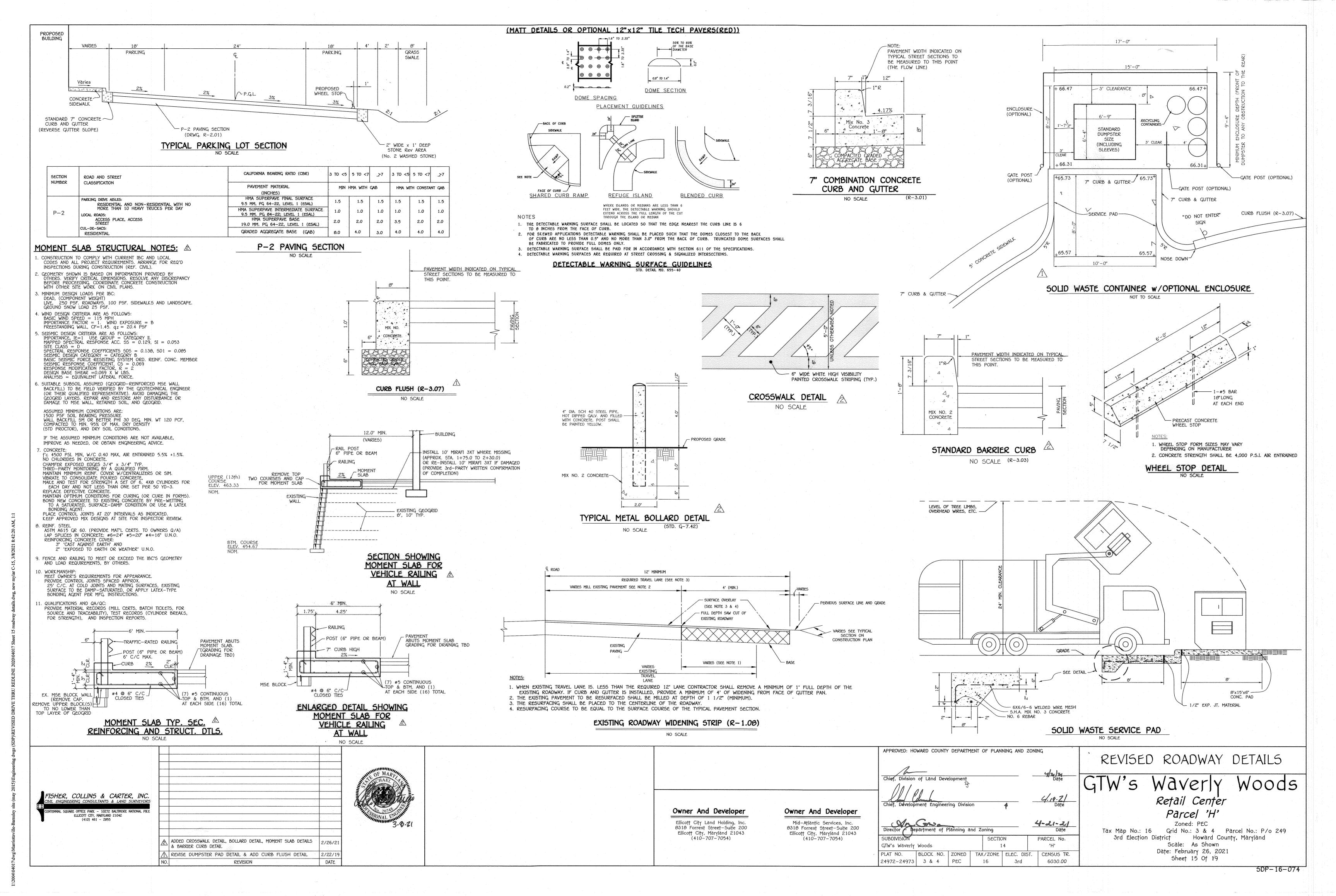
Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249 3rd Election District Howard County, Maryland Scale: As Shown Date: June 25, 2019

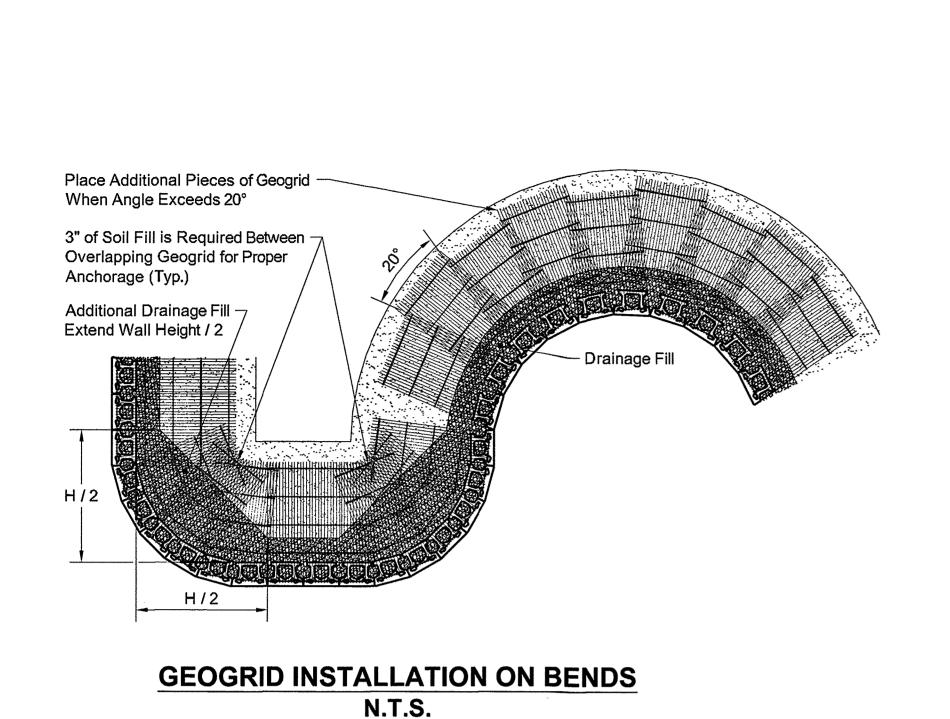
Sheet 11 Of 19











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
- 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.

REASONABLY CLOSE CONFORMITY WITH THE LINES,

GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE

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

APPROVAL OF OWNER.

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-PLANER OR FLAT CONFIGURATION. OTHER FACE

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT

FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN

UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS. EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM

- A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING. B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD
- SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS. C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH

APPROPRIATE REFERENCES: COMPRESSIVE STRENGTH = 3000 PSI MINIMUM; ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES)

FOR STANDARD WEIGHT AGGREGATES: DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16"

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
- D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY 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

2.02 SHEAR CONNECTORS

A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC 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

2.04 UNIT DRAINAGE FILL

A. UNIT DRAINAGE FILL SHALL CONSIST OF #57CRUSHED

2.05 REINFORCED BACKFILL

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

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

NO. 200 PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM

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

. 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

. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM

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

3.03 MODULAR UNIT INSTALLATION

MODULAR WALL UNIT.

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

3.04 STRUCTURAL GEOGRID INSTALLATION

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

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS

THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED 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.
- REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED. OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED
- 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 FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.
- F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.
- G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION

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.

HOWARD COUNTY NOTES:

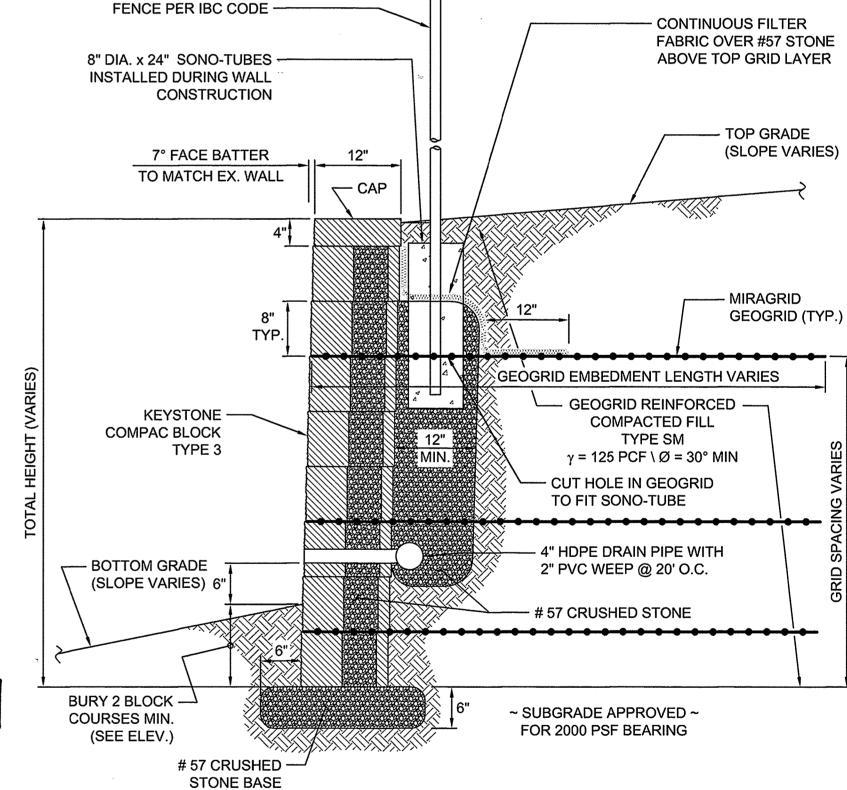
2 SEE SHEET 3 FOR DRIVE THRU LAN

1. NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.

WALL LOCATION PLAN

1" = 30'

- 2. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.
- 3. THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN, TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION, THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
- 4. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
- 5. WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
- 6. WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD COUNTY RIGHT-OF-WAY OR EASEMENT.



STA. 1+00

PROPOSED RETAINING WALL W/6' HIGH FENCE

PUBLIC 6' SWM, DRAINAGE

SEE SHEET 3 FOR REVISED DUMPSTER LOCATION .

1 AND ONE- WAY ENTRANCE FROM MARRIOTTSVILLE ROAD

NEW RETAINING WALL

CONSERVATION EASEMENT (REFORESTATIO (PARP#5) (0.58 AC.) 14

LITTLE PATUXENT RIVER

MOE #02-13-11-(1).0

RECYCLE PAD; SEE QETAIL, SHEET 15-

STRUCTURE & USE SETBACK

VEHICULAR INGRESS AND EGRESS IS RESTR

(F-98-088)

(PLAT NO. 20416)

TYPICAL WALL SECTION N.T.S.

HILLIS-CARNES **ENGINEERING ASSOCIATES**

HCEA PROJECT: 16469-B

10975 Guilford Road, Suite A Annapolis Junction, Maryland (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098 ADDED DRIVE THRU NOTE ADDED NOTE FOR ONE-WAY ENTRANCE 2/22/19

REVISION



HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME. AND THAT AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/19.

Developer Owner Waverly Woods Development Corporation

c/o Mr. Ken Warfield, Jr.

14451 Triadelphia Road, P.O. Box 30

Glenelg, Maryland 21737

(410-442-2337)

Waverly Woods Development Corporation c/o Mr. Ken Warfield, Jr. 14451 Triadelphia Road, P.O. Box 30 Glenelg, Maryland 21737 (410-442-2337)

24972-24973

3 & 4 | PEC

NOTE: THIS SHEET IS FOR RETAINING WALL INFORMATION ONLY

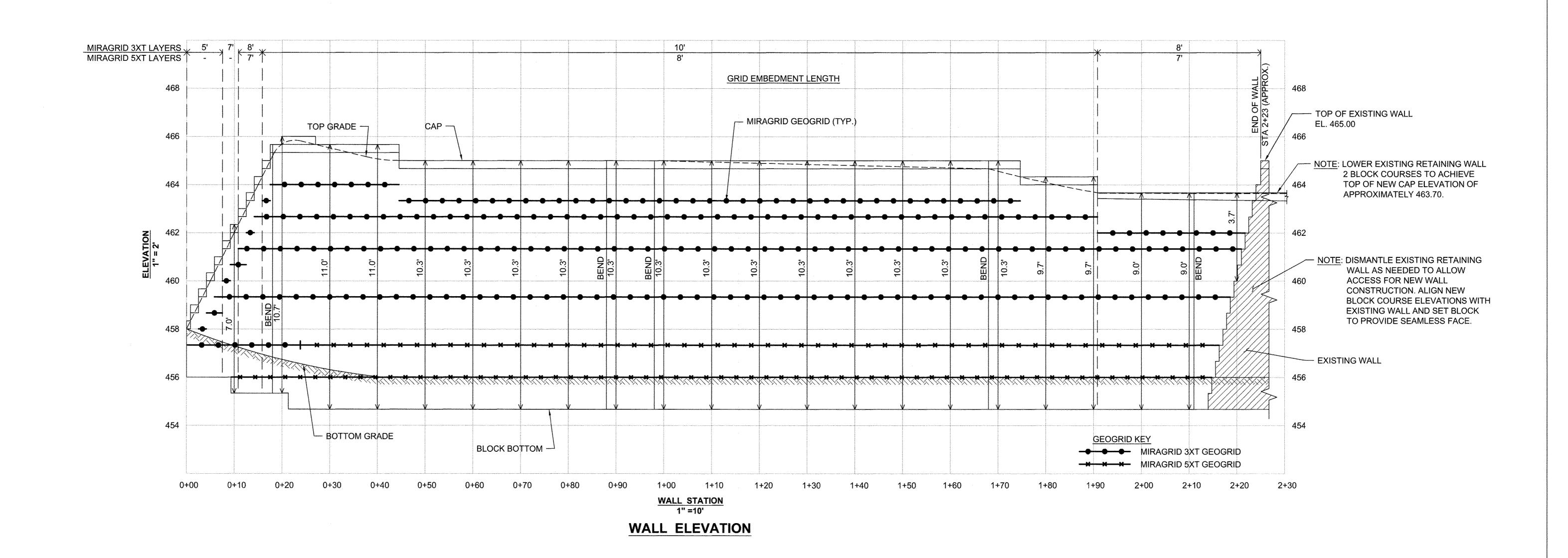
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING 3-12-18 3.5.18 3-14-18 SUBDIVISION SECTION PARCEL No. GTW's Waverly Woods PLAT NO. | BLOCK NO. | ZONED | TAX/ZONE | ELEC. DIST. | CENSUS TR

3rd

RETAINING WALL CONSTRUCTION DETAILS

Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249 3rd Election District Howard County, Maryland Scale: As Shown Date: February 2, 2018

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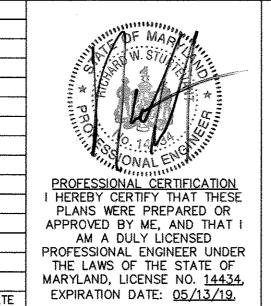


HILLIS-CARNES

ENGINEERING ASSOCIATES

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

HCEA PROJECT: 16469-B



REVISION

Owner

Waverly Woods Development Corporation
c/o Mr. Ken Warfield, Jr.
14451 Triadelphia Road, P.O. Box 30
Glenelg, Maryland 21737
(410-442-2337)

Developer

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14451 Triadelphia Road, P.O. Box 30
Glenelg, Maryland 21737
(410-442-2337)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

GTW's Waverly Woods Parcel 'H'

RETAINING WALL ELEVATION

Zoned: PEC

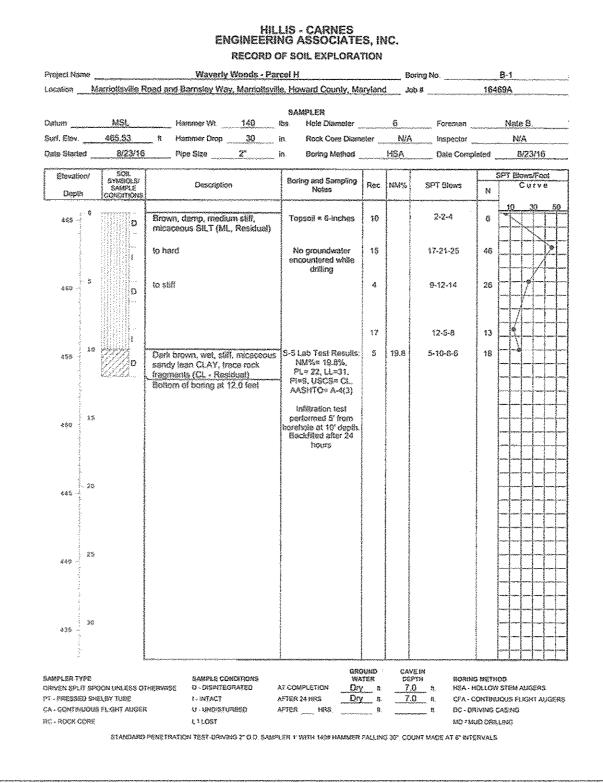
Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249

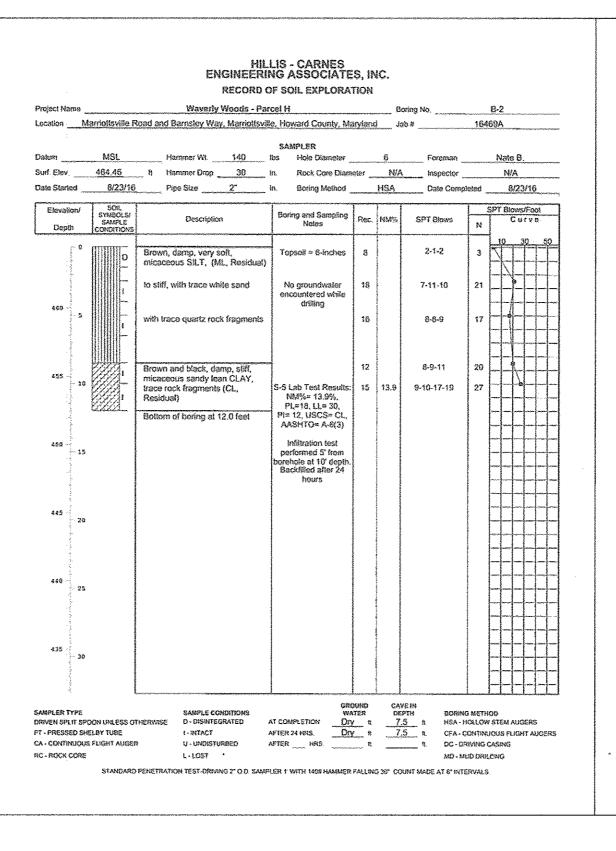
3rd Election District Howard County, Maryland

Scale: As Shown

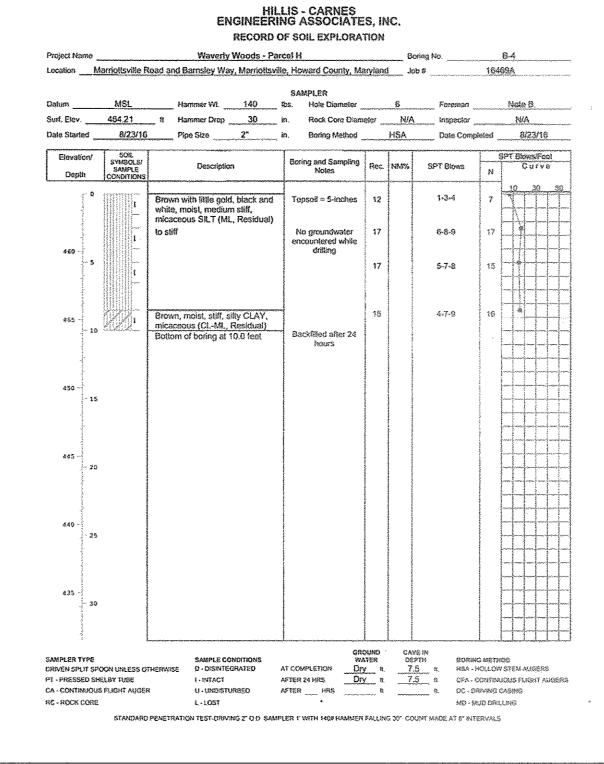
Date: February 2, 2018

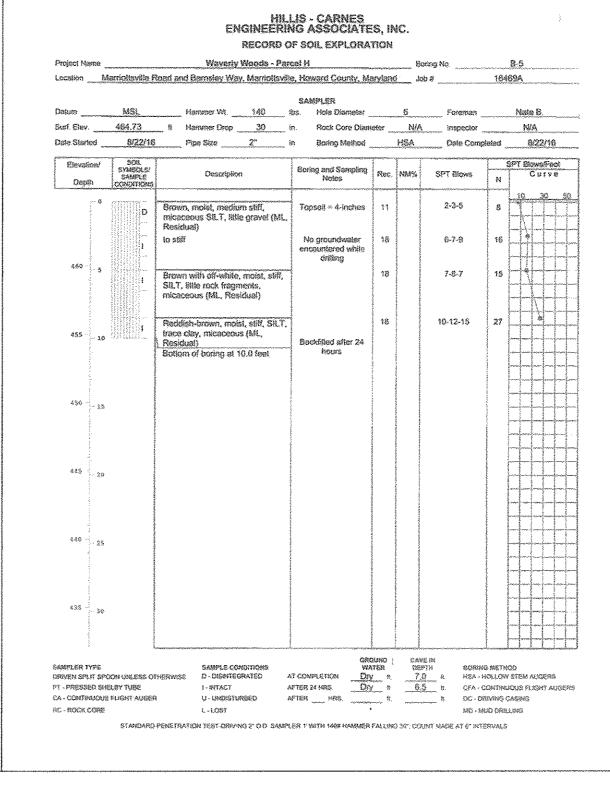
Sheet 17 Of 19





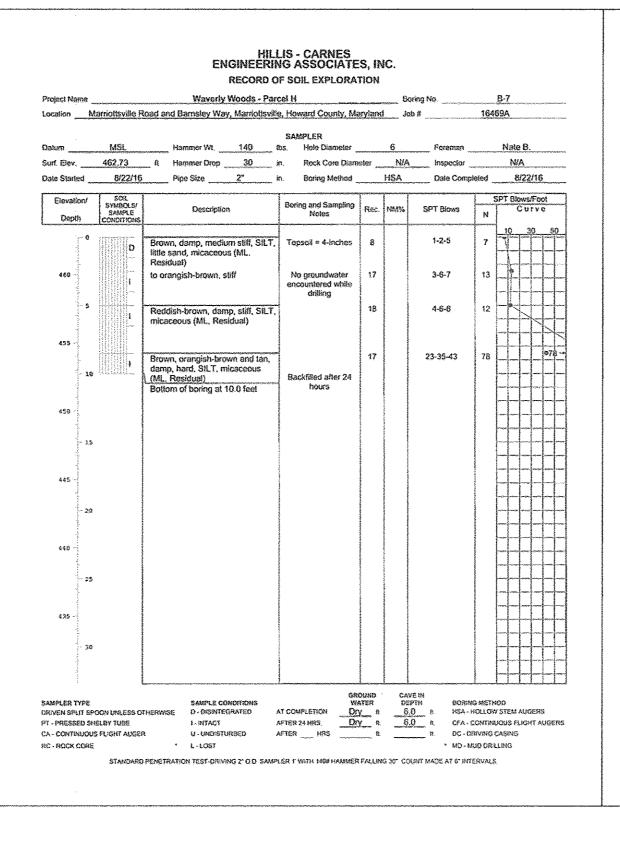
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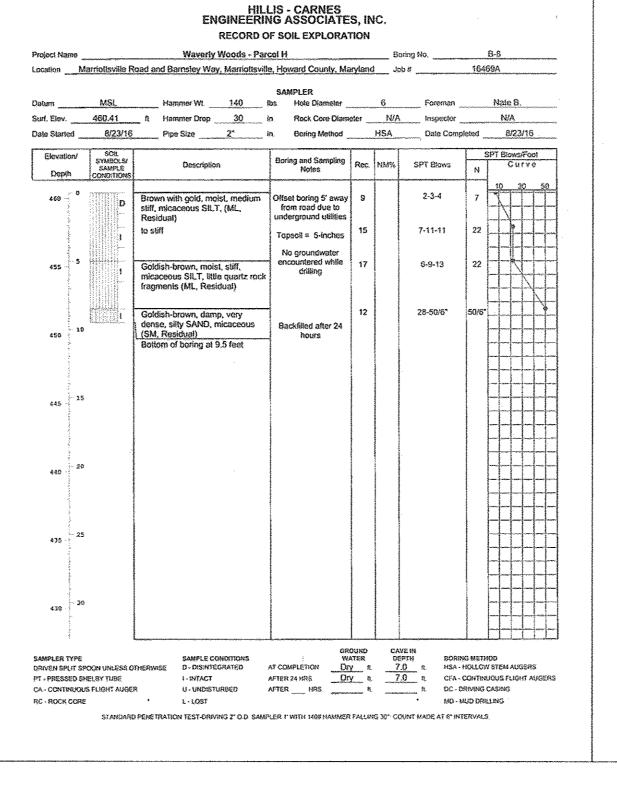


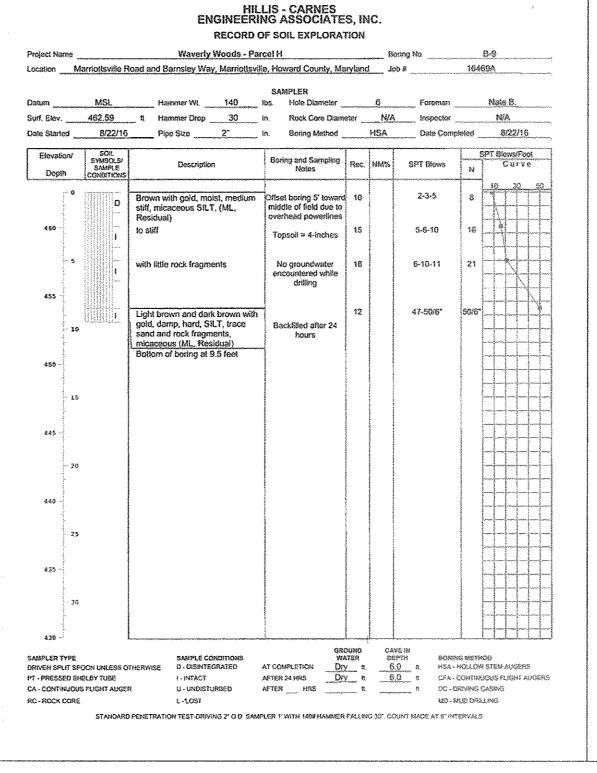


				G ASSOCIATE F SOIL EXPLORA		IC.			
Project Name		Wavesty	Noods - Parc	el H		Bo	ring No.		B-6
		ood and Barnsley Way	Habitation of the state of the			,			69A
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		_ ft Hansner Dtop							
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Elevation/ Depth	SOL BYMECLS! SAMPLE CONSTROYS	Descriptor		Boring and Sampling Notes	Rec.	NAM'S	SPT Blows	N	SPT Blows/Foot Curve
465	р	Golden-brown, damp stiff, micacegus SILT		Topsoil = 5-inches	9	rineria minimizative	2-5-6	nesses remperen Apple	10 30 TA III
er en ende essere e bereien	Application of the control of the co	mck (ragments, mica Residual) with black		No groundwater encountered while	18	Andread Andrea	7-9-9	100	
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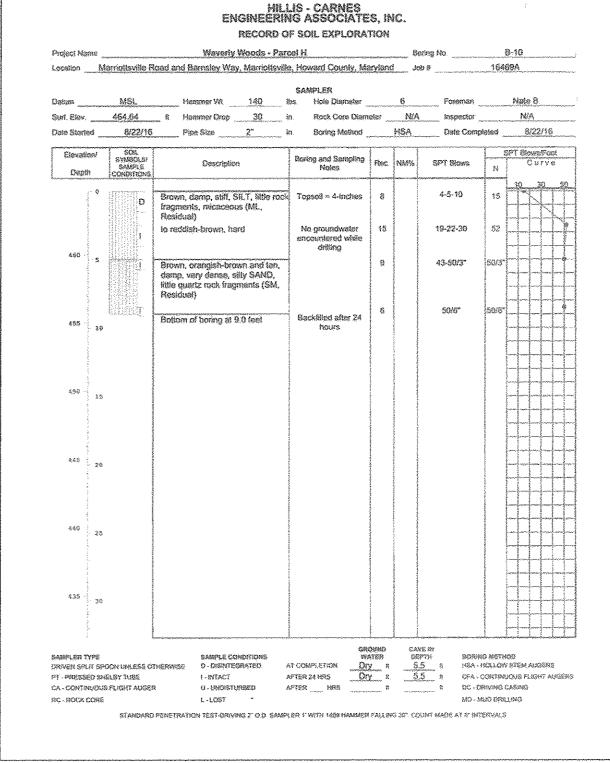
REVISION







24548-24549 3 & 4 PEC







DATE

Owner

Waverly Woods Development Corporation
c/o Mr. Ken Warfield, Jr.
14451 Triadelphia Road, P.O. Box 30

Glenelg, Maryland 21737

(410-442-2337)

Developer

Waverly Woods Development Corporation c/o Mr. Ken Warfield, Jr.

14451 Triadelphia Road, P.O. Box 30 Glenelg, Maryland 21737 (410-442-2337)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3-/2-/8

Chief, Division of Land Development

Chief, Development Engineering Division

Date

Director - Department of Planning and Zoning

SUBDIVISION

GTW's Waverly Woods

PLAT NO. BLOCK NO. ZONED TAX/ZONE ELEC. DIST. CENSUS TR.

16

3rd

6030.00

50IL BORING PROFILES

GTW's Waverly Woods

Retail Center Parcel 'H'

Zoned: PEC

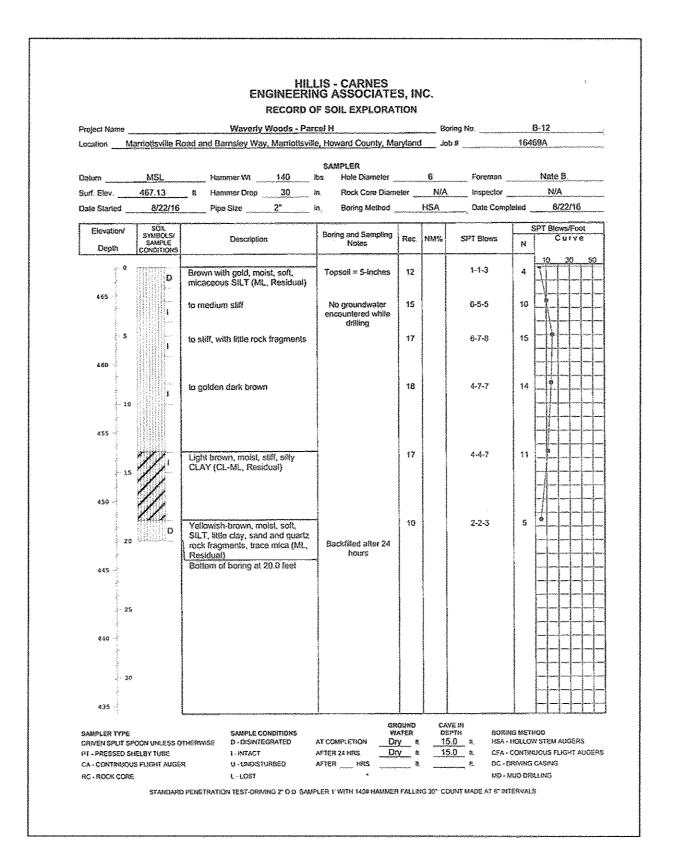
Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249

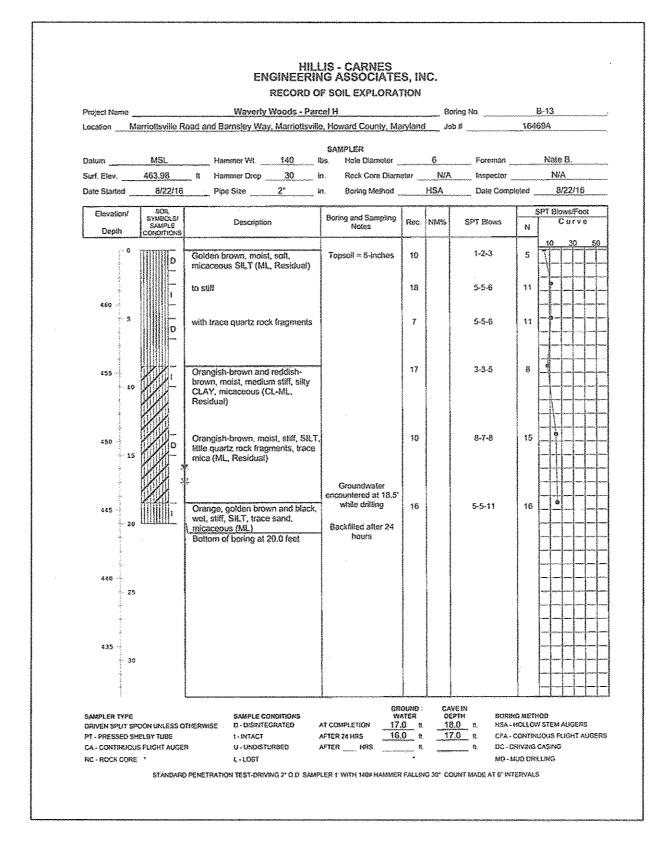
3rd Election District Howard County, Maryland

Scale: As Shown

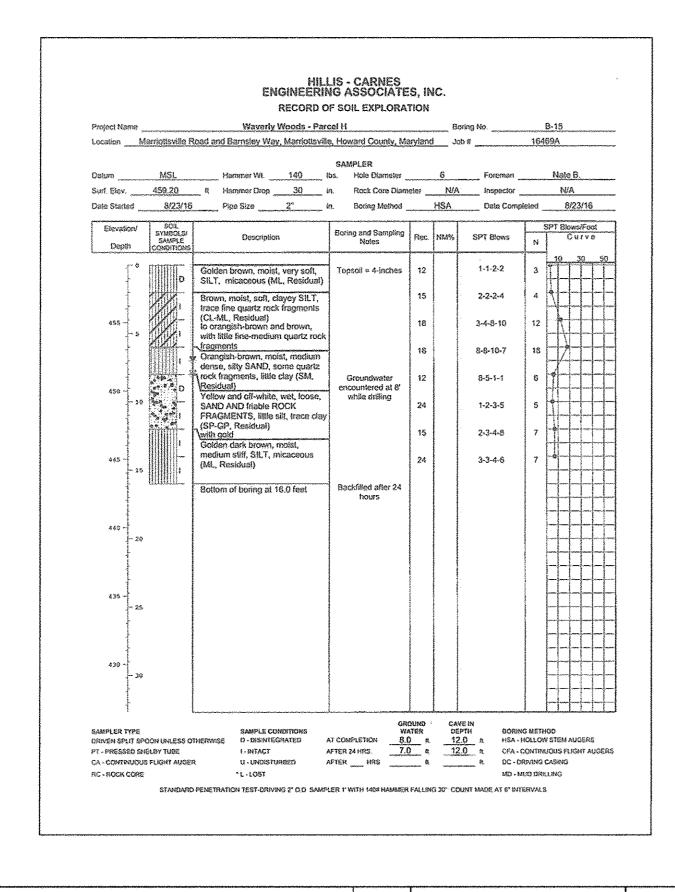
Date: February 2, 2018

Sheet 18 Of 19

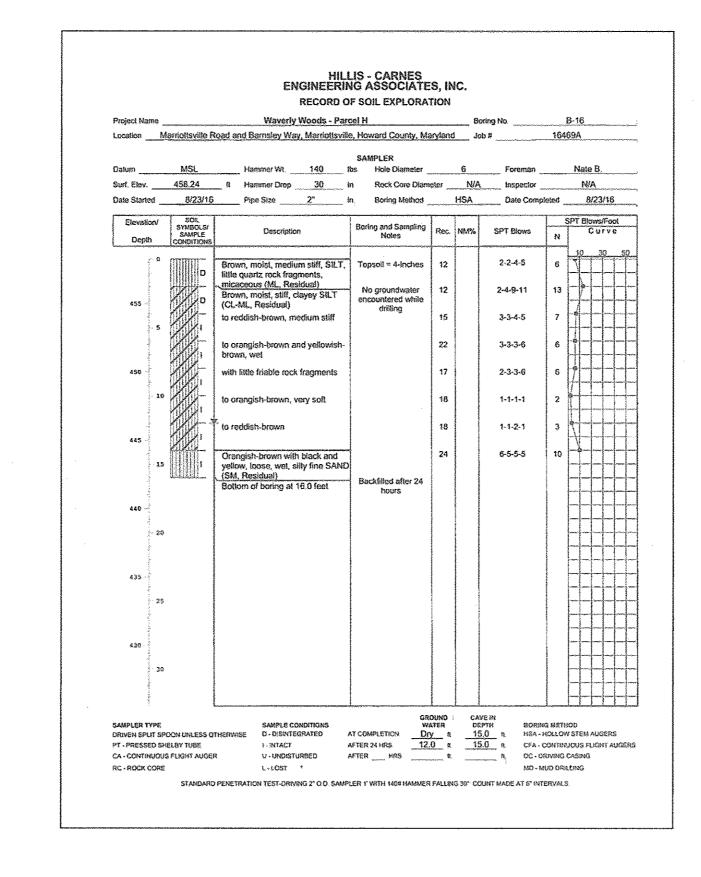


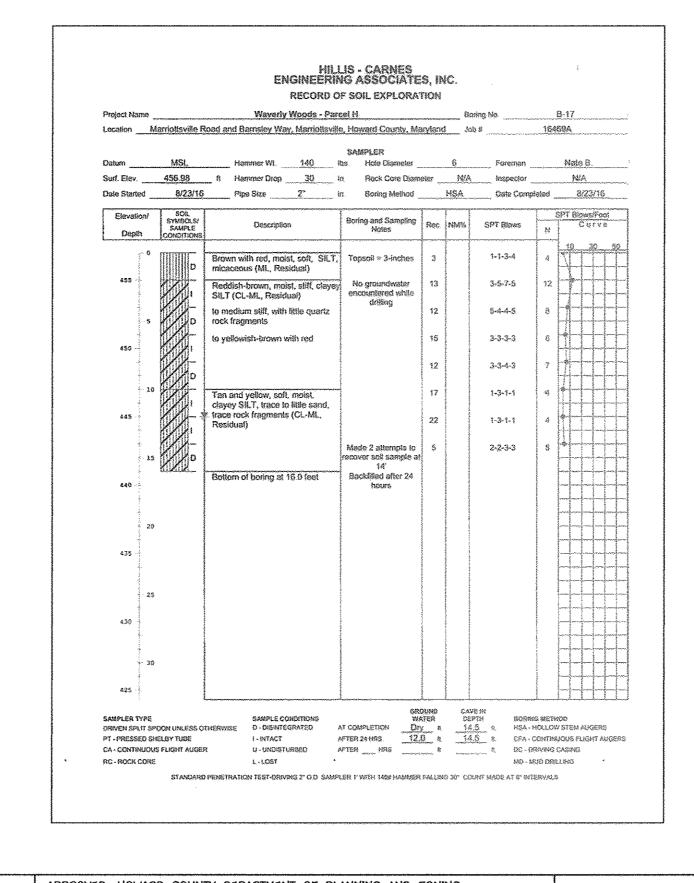


		ENGINEER	LIS - CARNES NG ASSOCIATE	s, H	IC.			•
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			SAMPLER					
		Haskes Wi. 140						
		t Hammer Orop 30						N/A
Date Started	6/22/16	Pipe Size	in. Boring Method	->010-110-10-1	MSA	Date Comp	agted .	577
Elevation/ Osoth	SCS. STRECKS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NA%	SPT Blows	N	SPT Blows/Fo Gurv
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And a		Brown, moist, soft, SILT, micaceous (SIL, Residual)	Topsoil = 5-inches		Andreas and a second	1-2-3	N/A	H
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100	/// .	and quartz rock fragments (CL- ML, Residual)	Açunarıyı	dample refules	essandarismos.		halpsakyalnily	
- Aller - Alle	///		- Love i Brailligenin F	en delengal Ott.	agrandente		And administration	
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448 - 20		noist, medium stiff, SE,T, little dev. trace mice (ML, Residual)	BackSted after 24	ingly opposite and	disperient of company		HARMINAS	
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AC-ROCK CORE	*	£ - LGST	· sa				NO ON	

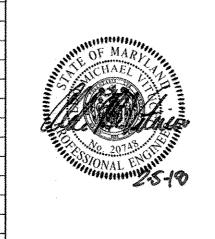


REVISION





FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2055



DATE

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Retail Center Parcel 'H'

Tax Map No.: 16 Grid No.: 3 & 4 Parcel No.: P/o 249
3rd Election District Howard County, Maryland
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Sheet 19 Of 19