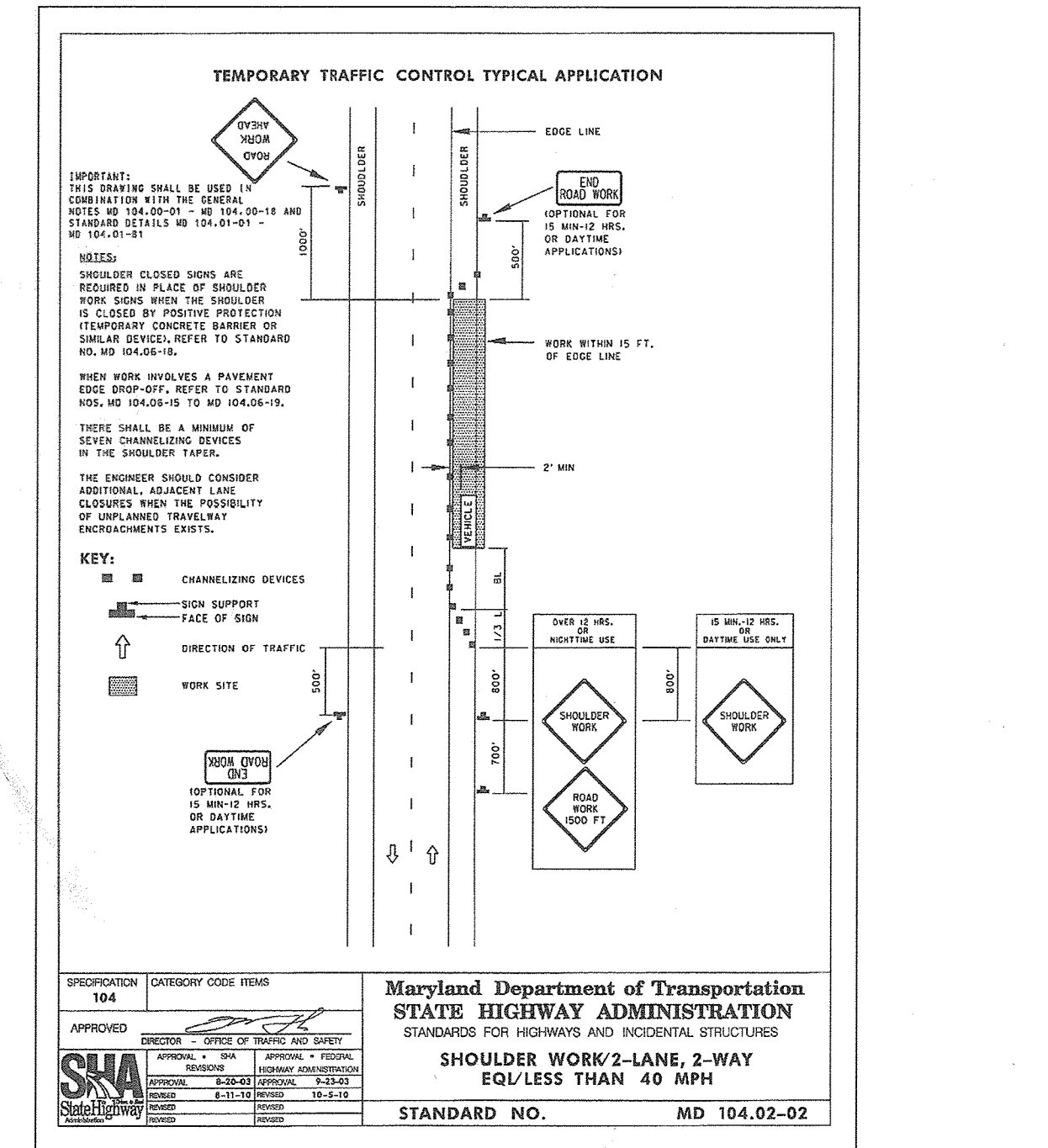


| SHEET INDEX | |
|-------------|---|
| NO. | DESCRIPTION |
| 1 | COVER SHEET |
| 2 | EXISTING CONDITIONS AND SOILS MAP |
| 3 | OVERALL LAYOUT PLAN AND DETAILS |
| 4 | OVERALL LAYOUT PLAN AND DETAILS |
| 5 | GRADING, SEDIMENT AND EROSION CONTROL PLAN |
| 6 | GRADING, SEDIMENT AND EROSION CONTROL PLAN |
| 7 | SEDIMENT CONTROL NOTES AND DETAILS |
| 8 | STORM DRAIN DRAINAGE AREA MAP AND DOWNSPOUT MANIFOLD LAYOUT |
| 9 | STORM DRAIN DRAINAGE AREA MAP |
| 10 | STORM DRAIN PROFILES |
| 11 | PRIVATE WATER & SEWER HOUSE CONNECTION PROFILES |
| 12 | STORMWATER DRAINAGE AREA MAP |
| 13 | STORMWATER DRAINAGE AREA MAP AND DETAILS |
| 14 | STORMWATER MANAGEMENT DETAILS |
| 15 | FOREST CONSERVATION PLAN |
| 16 | FOREST CONSERVATION PLAN |
| 17 | PERIMETER PLANTING PLAN |
| 18 | SITE LANDSCAPING PLANS |
| 19 | SITE LANDSCAPING PLANS |
| 20 | IL & AL LANDSCAPE PLAN |
| 21 | REQUIRED LANDSCAPE CHARTS AND DETAILS |
| 22 | LANDSCAPE/HARDSCAPE DETAILS |
| 23 | RETAINING WALLS NOTES AND DETAILS |
| 24 | RETAINING WALL PLANS WALL #1 PROFILE AND LOCATION PLAN |
| 25 | RETAINING WALL PLANS WALL #1 CROSS SECTIONS |
| 26 | RETAINING WALL PLANS WALL #2 PROFILE, PLAN, AND CROSS SECTION VIEWS |
| 27 | RETAINING WALL PLANS WALL #3 PROFILE, PLAN, AND CROSS SECTION VIEWS |
| 28 | RETAINING WALL #4 PLANS, WALL #4 PROFILE, CROSS SECTION AND LOCATION PLAN |
| 29 | RETAINING WALL #4 PLANS, WALL #4 PROFILE, CROSS SECTION AND LOCATION PLAN |

PROPOSED DEVELOPMENT STANDARDS PER CEF-M ZONING (ZONING BOARD CASE NO. 1115M)

- A. Uses Permitted as a Matter of Right:**
- Age-restricted adult housing
 - Nursing homes and residential care facilities
- 3. Office (limited to not-for-profit organizations)**
- Any use normally and customarily incidental to any use permitted as a matter of right in this district.
 - Retail and service businesses which are located within and primarily serve the residents of a nursing home, residential care facility, or age-restricted adult housing, provided such businesses do not occupy more than 2% of the floor area of the building or buildings within the development.
 - Private parks, athletic fields, exercise facilities, tennis courts, basketball courts, and similar private, non-commercial recreation facilities.
 - Small wind energy system, building mounted, subject to the requirements of section 128.0.L.
 - Accessory Solar Collectors.
- C. Bulk Regulations:**
(Also see section 128.0.A., Supplementary Zoning Regulations)
- The following minimum limitations shall apply:
 - Building/use setbacks from external property line:
 - Age-Restricted Adult Housing/Residential Care Facility: 25 feet
 - Manor House (Office): 8 feet
 - Parking: 3 feet
 - Accessory Structures: 10 feet
 - Retaining Walls (3' to 4' max): 4 feet
 - Maximum height:
 - Principal Structure: 65 feet
 - Manor House: 40 feet
 - Maximum Building Length: 325 feet
However, the Director of the Department of Planning and Zoning may approve a greater length, based on a determination that the design of the building will mitigate the visual impact of the increased length.
 - Maximum Density: 30 units per net acre
 - Community Center:
At least one on-site community building or indoor community space within a principal structure shall be provided that contains a minimum of:
 - 20 square feet of floor area per dwelling unit, for the first 99 dwelling units with a minimum area of 500 square feet, and
 - 10 square feet of floor area per dwelling unit for each additional dwelling units above 99.
 - Open Space
 - Open space shall constitute at least 25% of the gross acreage used for an Age-Restricted adult development
 - The community shall include recreational and common areas for residents, including at least pathways and seating areas.
 - Moderate Income Housing Units:
At least 10% of the independent units shall be Moderate Income Housing Units.
 - Parking:
 - Nursing homes, residential care facilities and similar uses: 1 space per 2 beds
 - Manor House/Office use: 3.3/1000 SF



M.O.T. DETAIL

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

10-3-19 DATE

10-2-19 DATE

10-16-19 DATE

| SHEET INDEX | |
|-------------|----------------------------|
| NO. | DESCRIPTION |
| 30 | LIGHTING PHOTO-METRIC PLAN |
| 31 | BUILDING ELEVATIONS |

SITE DEVELOPMENT PLAN

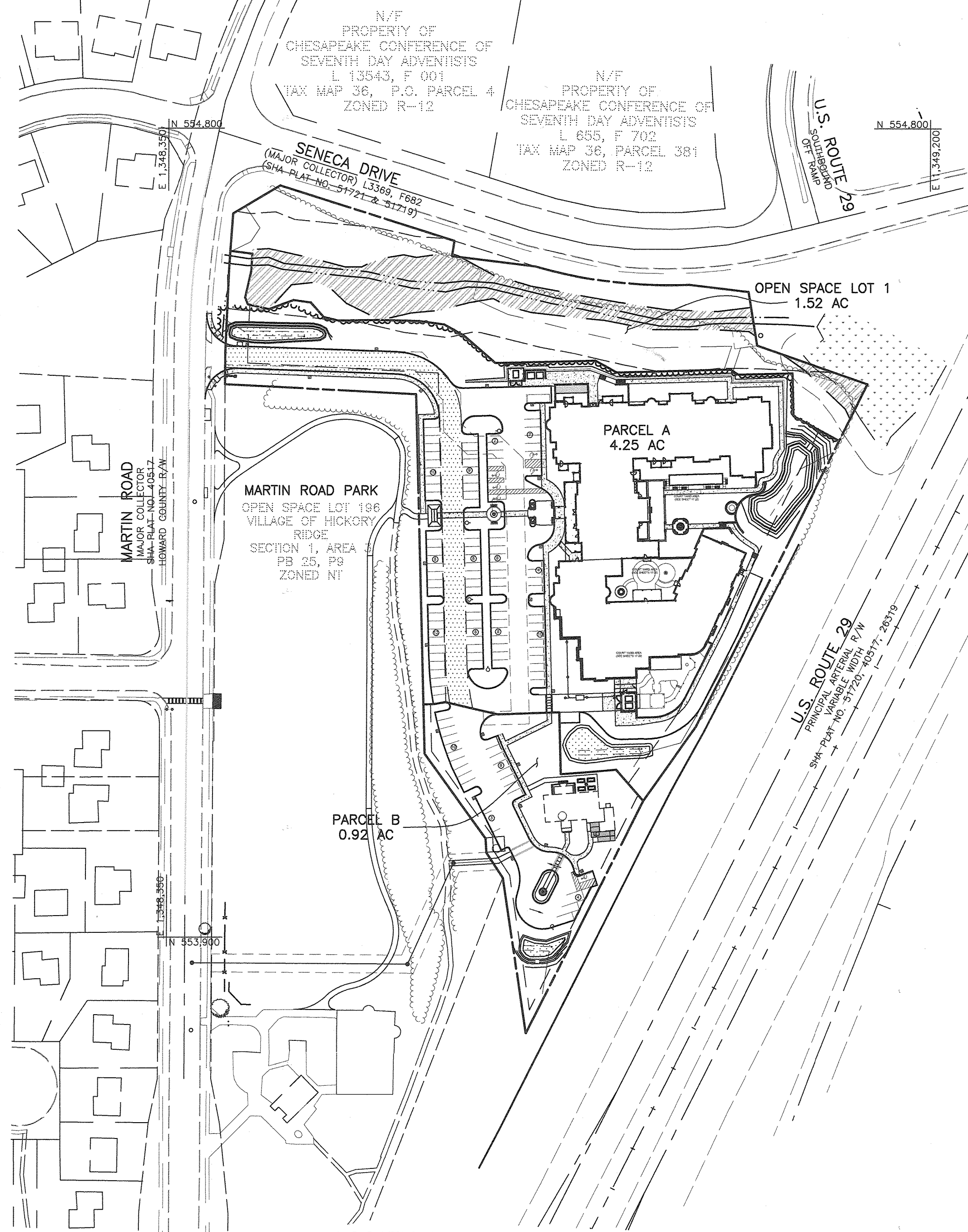
BRIGHTVIEW COLUMBIA

PARCELS A & B AND OPEN SPACE LOT 1

SENIOR LIVING DEVELOPMENT

5TH ELECTION DISTRICT

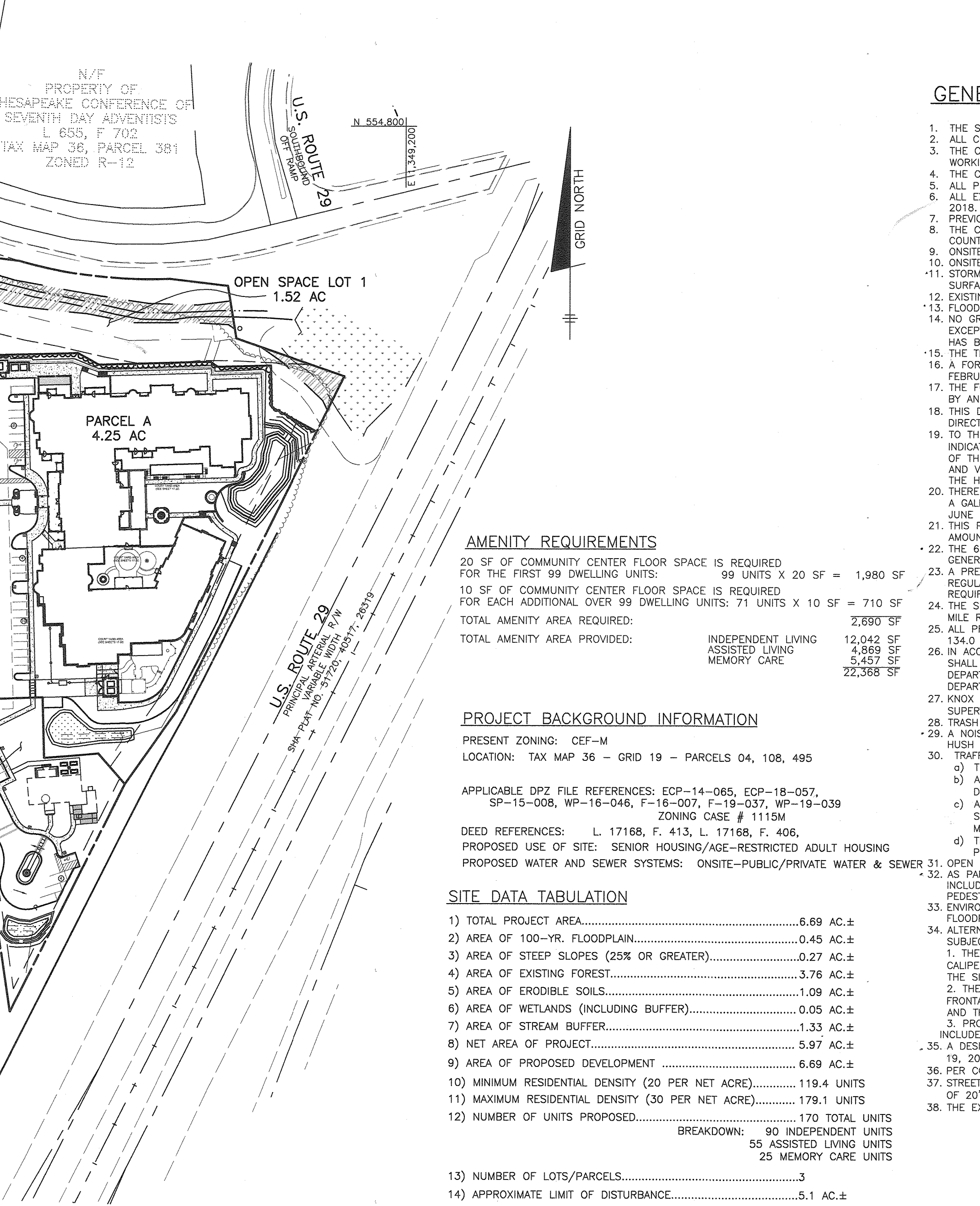
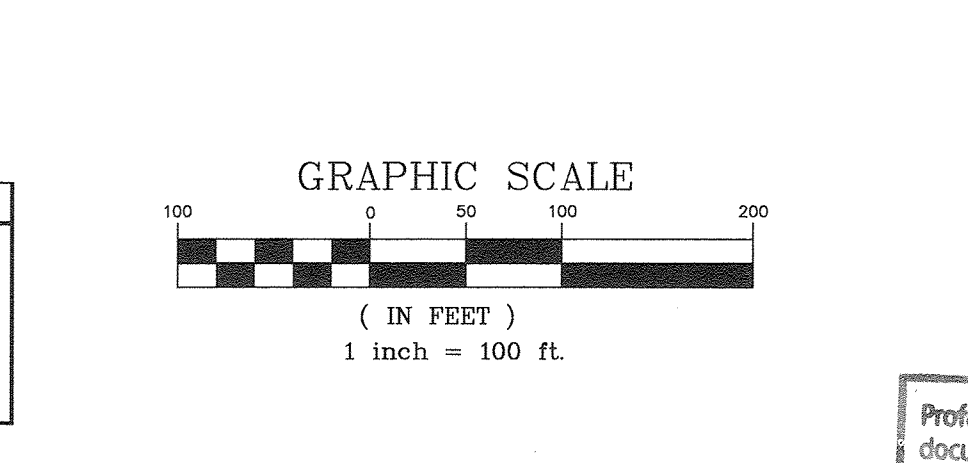
HOWARD COUNTY, MARYLAND



LOCATION MAP
SCALE: 1"=100'

PARKING TABULATION CHART

| | |
|---|-------------------|
| Brightview Building Required Parking (1 spaces/2 beds)*(196 total beds) | 98 spaces |
| Brightview Building Provided Parking | 117 spaces |
| Athol Manor House Required Parking (3.3 spaces/1000 SF office)*(1,225 sf) | 4 spaces |
| Athol Manor House Provided Parking | 7 spaces |
| Total Parking Space Provided | 124 spaces |



SITE DATA TABULATION

| | |
|---|---|
| 1) TOTAL PROJECT AREA | 6.69 AC.± |
| 2) AREA OF 100-YR. FLOODPLAIN | 0.45 AC.± |
| 3) AREA OF STEEP SLOPES (25% OR GREATER) | 0.27 AC.± |
| 4) AREA OF EXISTING FORESTS | 3.76 AC.± |
| 5) AREA OF ERODIBLE SOILS | 1.09 AC.± |
| 6) AREA OF WETLANDS (INCLUDING BUFFER) | 0.05 AC.± |
| 7) AREA OF STREAM BUFFER | 1.33 AC.± |
| 8) NET AREA OF PROJECT | 5.97 AC.± |
| 9) AREA OF PROPOSED DEVELOPMENT | 6.69 AC.± |
| 10) MINIMUM RESIDENTIAL DENSITY (20 PER NET ACRE) | 119.4 UNITS |
| 11) MAXIMUM RESIDENTIAL DENSITY (30 PER NET ACRE) | 179.1 UNITS |
| 12) NUMBER OF UNITS PROPOSED | 170 TOTAL UNITS |
| BREAKDOWN: | |
| 90 INDEPENDENT UNITS | |
| 55 ASSISTED LIVING UNITS | |
| 25 MEMORY CARE UNITS | |
| 13) NUMBER OF LOTS/PARCELS | 3 |
| 14) APPROXIMATE LIMIT OF DISTURBANCE | 5.1 AC.± |
| 15) PRESENT ZONING DESIGNATION | CEF-M |
| 16) PROPOSED USES FOR THE SITE & STRUCTURES | ASSISTED LIVING, INDEPENDENT LIVING, COMMUNITY & OFFICE |
| 17) TOTAL BUILDING FLOOR AREA | 191,036 SF |
| 18) TOTAL BUILDING COVERAGE AREA | 42,600 SF± (23%) |
| 19) REQUIRED OPEN SPACE | 1.06 ACRES (25% AGE RESTRICTED AREA) |
| 20) PROVIDED OPEN SPACE | 1.52 ACRES (35% AGE RESTRICTED AREA) |
| 21) TOTAL IMPERVIOUS AREA | 2.60 AC. ± |

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. **21443**, Expiration Date: **12-21-22**

Professional Engineer
DONALD M. MALAPAN
NO. 21443
PROFESSIONAL ENGINEER

AS-BUILT 12/28/21

ADDRESS CHART

| Building | Address |
|-------------------------|------------------|
| Senior Housing Building | 6670 Martin Road |
| Athol Manor House | 6680 Martin Road |

PERMIT INFORMATION CHART

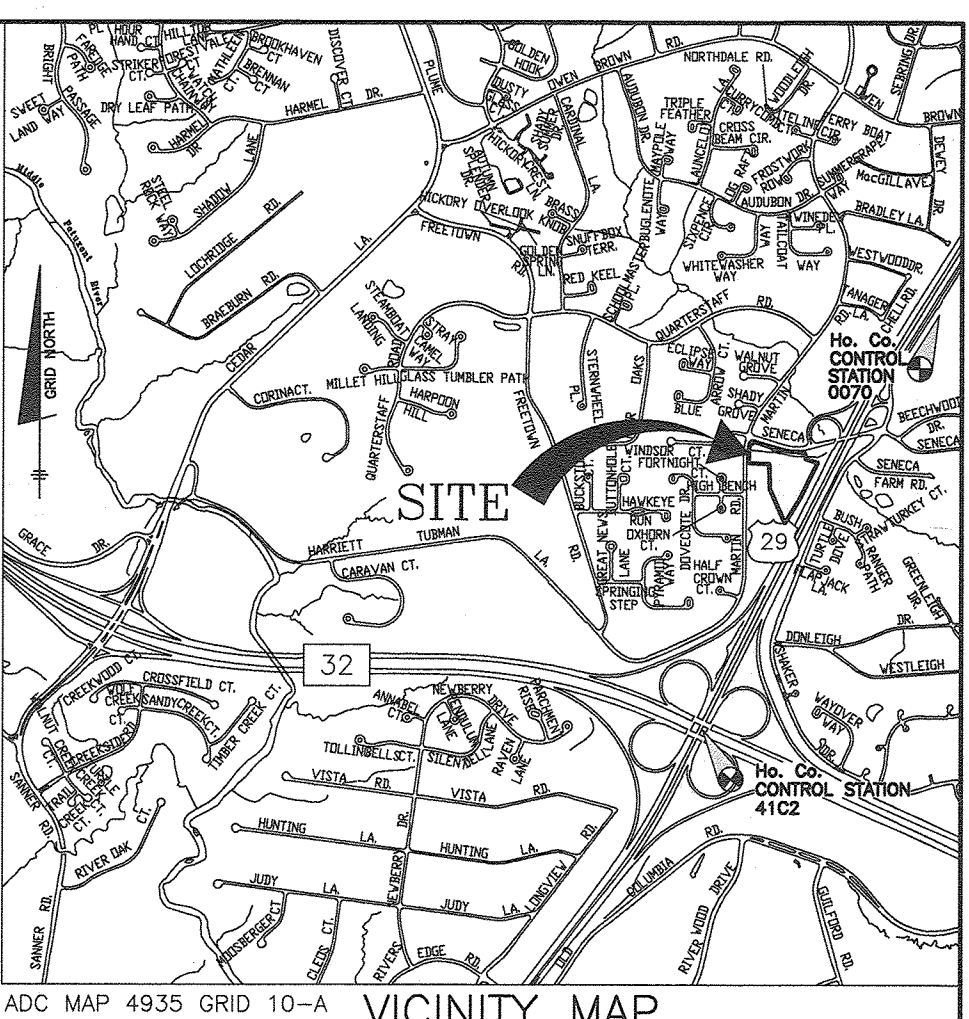
| PROJECT NAME: | BRIGHTVIEW COLUMBIA |
|-------------------|---------------------|
| SECTION/AREA: | N/A |
| LOT/PARCEL# | 1 LOT 2 PARCELS |
| PLAT No. | 25118-25120 |
| GRID No. | 19 |
| ZONE | CEF-M |
| TAX MAP | 36 |
| ELECTION DISTRICT | 5TH |
| CENSUS TRACT | 6056.02 |

GENERAL NOTES:

- THE SUBJECT PROPERTY IS ZONED CEF-M PER ZONING BOARD DECISION JUNE 4, 2018 CASE NUMBER 1115M.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- ALL EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD SURVEY WITH 2 FOOT CONTOUR INTERVALS PREPARED BY BENCHMARK ENGINEERING, INC. DATED NOVEMBER 2013 AND MAY 2018.
- PREVIOUS DPZ FILES: ECP-14-065, ECP-18-057, SP-15-008, WP-16-046, F-16-007, ZB-1115M, F-19-037, WP-19-039.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS 0070 AND 41C2 WERE USED FOR THIS PROJECT.
- ON-SITE WATER IS PUBLIC TIED TO EXISTING CONTRACT 24-0053-D, DRAINAGE AREA PATAPSCO.
- ON-SITE SEWER IS PUBLIC TIED TO EXISTING CONTRACT 24-0053-D, DRAINAGE AREA PATAPSCO.
- STORMWATER MANAGEMENT FOR THIS DEVELOPMENT WILL BE PROVIDED BY ESD PRACTICES TO INCLUDE MICRO-BIORETENTION FACILITIES, PERVIOUS PAVEMENT AS WELL AS A SURFACE SAND FILTER AND AN UNDERGROUND SAND FILTER. THE ECP FOR THIS DEVELOPMENT WAS APPROVED ON 8/23/2018; REFERENCE ECP-18-057.
- EXISTING UTILITIES LOCATIONS ARE BASED ON FIELD LOCATIONS, AND AS-BUILT DRAWINGS.
- FLOODPLAIN SHOWN HEREON BASED ON HOWARD COUNTY DFRM. ELEVATIONS ARE APPROXIMATE.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE STREAMS, OR THEIR REQUIRED BUFFERS AND FLOODPLAIN EXCEPT AS DEEMED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING PER SECTION 16.116(c), AS OF LETTER DATED FEBRUARY 11, 2019 THE PROPOSED DISTURBANCE HAS BEEN APPROVED BY THE DIRECTOR OF PLANNING AND ZONING.
- NO TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE LEINHART TRAFFIC CONSULTING, INC. DATED JUNE 20, 2018.
- A FOREST STAND DELINEATION FIELD STUDY AND WETLANDS DELINEATION WAS PERFORMED BY MICHAEL J. KLEBASO (QUALIFIED PROFESSIONAL UNDER COMAR 08.19.06.01) DATED FEBRUARY 2014 AND APPROVED UNDER F-16-007.
- THE FOREST CONSERVATION OBLIGATIONS FOR THIS SITE SHALL BE MET BY THE ON-SITE RETENTION IN THE AMOUNT OF 0.40 ACRES. THE REMAINING 2.30 ACRES WILL BE PROVIDED BY AN OFF-SITE BANK LOCATED ON THE CATAL CREEK FOREST MITIGATION PROJECT (SDP-14-031).
- THIS DEVELOPMENT WAS PRESENTED TO THE DESIGN ADVISORY PANEL (DAP) DATED SEPTEMBER 27, 2017. REFERENCE #17-10. THE RECOMMENDATIONS WERE ACCEPTED BY THE DIRECTOR DATED NOVEMBER 10, 2017.
- TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES LOCATED IN THE DEVELOPMENT AREA. THE HOWARD COUNTY HISTORIC PRESERVATION DOCUMENTS (HC-037) INDICATED THE PRESENCES OF GRAVES WITHIN OR NEAR THE SITE BUT THE LOCATION AND/OR IF THE SITES STILL EXIST ARE NOT CLEAR. BASED ON FIELD SURVEYED TOPOGRAPHY OF THE PROPERTY AND SITE VISIT, NO CEMETERY OR GRAVE STONES WERE OBSERVED. HOWARD COUNTY CEMETERY PRESERVATION ADVISORY BOARD HAS REVIEWED THE CASE AND VISITED THE SITE. THE GRAVE SITES SPECIFIC LOCATION WAS UNABLE TO BE DETERMINED. IF GRAVE SITES ARE DISCOVERED DURING CONSTRUCTION PER SECTION 16.1305 OF THE HOWARD COUNTY ZONING ORDINANCE WORK IN THAT AREA SHALL BE SUSPENDED UNTIL A DETERMINATION CAN BE MADE BY DPZ AS TO HOW TO ADDRESS THE SITE.
- THERE IS AN EXISTING HISTORIC HOUSE, THE ATHOL MANOR, THAT SHALL REMAIN AND BE INTEGRATED WITH THIS PROJECT. THE HOUSE WILL BE RE-PURPOSED AS MEETING SPACE, A GALLERY AND OFFICES TO BE OWNED/MAINTAINED BY A PRIVATE NON-PROFIT ENTITY. THIS DEVELOPMENT WAS PRESENTED TO THE HISTORIC PRESERVATION COMMISSION DATED JUNE 7, 2018. REFERENCE 18-31.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL/FINANCIAL SURETY IN THE AMOUNT OF \$34,650.00 FOR 72 SHADE TREES, 75 EVERGREEN/ORNAMENTAL TREES AND 80 SHRUBS HAS BEEN POSTED WITH THE DEVELOPER'S AGREEMENT.
- THE ESDBA NOISE LEVEL ESTABLISHED BY HOWARD COUNTY ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
- A PRE-SUBMISSION MEETING FOR THIS PROJECT WAS HELD ON SEPTEMBER 25, 2017 IN ACCORDANCE WITH SECTION 16.128 AND 16.147(b)(1) OF THE SUBDIVISION REGULATIONS FOR THE DEVELOPMENT CONCEPT PLAN AS PART OF THE ZONING. IT WAS DETERMINED BY THE DIRECTOR OF PLANNING AND ZONING THAT ANOTHER MEETING IS NOT REQUIRED FOR THE SITE DEVELOPMENT PLAN.
- THE SUBJECT PARCEL IS NOT LOCATED WITHIN THE BOUNDARIES OF THE 1998 BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT (BWI), AIRPORT NOISE ZONE AS WELL AS THE FOUR MILE RADIUS OF BWI AIRPORT. THEREFORE, NO APPROVAL FROM THE MARYLAND AVIATION ADMINISTRATION IS REQUIRED.
- ALL PROPOSED EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS IN ACCORDANCE WITH SECTION 13.4.0 OF THE HOWARD COUNTY ZONING REGULATIONS.
- IN ACCORDANCE WITH SECTION 127.0.2.C, OF THE ZONING REGULATIONS, AT LEAST 10% OF THE DWELLING UNITS SHALL BE MODERATE INCOME HOUSING UNITS. THE DEVELOPER SHALL PAY A FEE-IN-LIEU ON NINETY (90) INDEPENDENT LIVING UNITS AS AN ALTERNATIVE COMPLIANCE FOR PROVIDING MIHUS. THIS FEE IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF THE BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICATION. A MIHU AGREEMENT WITH THE HOUSING DEPARTMENT (COMMISSION) IS REQUIRED AND SHALL BE RECORDED IN THE LAND RECORDS.
- NO SIGN SHALL BE PLACED ON THE FRONT OF ALL BUILDINGS NO MORE THAN 6' TO THE RIGHT OF THE MAIN ENTRANCE AT A HEIGHT OF 4'-5". IT SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE SYSTEM).
- TRASH PICK-UP FOR THIS DEVELOPMENT WILL BE PRIVATE.
- A NOISE STUDY WAS PREPARED BY HUSH ACOUSTICS LLC AND SUBMITTED AS PART OF THIS SITE DEVELOPMENT PLAN. UNMITIGATED AND MITIGATED NOISE CONTOUR PROVIDED BY HUSH ACOUSTICS, LLC. NOISE MITIGATION IS PROVIDED BY THE PROPOSED BUILDING AND RETAINING WALLS.
- TRAFFIC CONTROL DEVICES:
 - THE R1-1 ("STOP") SIGNS FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
 - ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"(MMDUTCD).
 - ANY SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED (QUICK PUNCH), SQUARE TUBE POST (1 1/2" GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED SQUARE TUBE SLEEVE (1 1/2" GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
 - THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
- OPEN SPACE LOT 1 IS TO BE OWNED AND MAINTAINED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS.
- AS PART OF ZB-1115M APPROVED ON MARCH 18, 2018 TO SATISFY THE CEF-M ZONING REQUIREMENTS FOR COMMUNITY ENHANCEMENT IMPROVEMENTS TO MARTIN ROAD PARK INCLUDING 6 NEW PARK BENCHES AND REDESIGNED PATHWAY FROM MARTIN ROAD TO THE BRIGHTVIEW DEVELOPMENT WITH ASSOCIATED LANDSCAPING ARE PROPOSED. ADDITIONALLY, PEDESTRIAN CROSSINGS ALONG MARTIN ROAD AND EXTERIOR AND INTERIOR IMPROVEMENTS TO THE EXISTING ATHOL MANOR ARE PROPOSED.
- ENVIRONMENTAL FEATURES LOCATED WITHIN OPEN SPACE LOT 1 INCLUDE AN INTERMITTENT STREAM, STREAMBANK BUFFER, WETLANDS, WETLAND BUFFER, AND A 100 YEAR FLOODPLAIN.
- ALTERNATIVE COMPLIANCE PETITION WP-19-039 TO SECTIONS 16.1205.(g)(7) AND 16.120(c)(1) OF THE HOWARD COUNTY SUBDIVISION REGULATION WAS ON DECEMBER 18, 2018 SUBJECT TO THE FOLLOWING:
 - THE REMOVAL OF THE TWO (2) SPECIMEN TREES (BLACK CHERRY) WILL REQUIRE MITIGATION WITH THE PLANTING OF 2:1 REPLACEMENT TREES (4 TOTAL) WITH A MINIMUM 3" CALIPER NATIVE PLANT SPECIES AS PART OF THIS SUBDIVISION'S LANDSCAPE PLAN. SURETY FOR THE FOUR SHADE TREES WILL BE INCORPORATED INTO THE LANDSCAPE SURETY WITH THE SITE DEVELOPMENT PLAN.
 - THE PARCEL FOR WHERE THE EXISTING ATHOL MANOR HOUSE (TO BE USED AS AN ART GALLERY, MEETING SPACE AND OFFICES) MAY BE CREATED WITHOUT PUBLIC ROAD FRONTAGE, PROVIDED THAT A 24' WIDE (MINIMUM) USE-IN-COMMON ACCESS EASEMENT IS ESTABLISHED AND RECORDED BETWEEN THE OWNER OF THE BRIGHTVIEW COLUMBIA PARCEL AND THE ATHOL MANOR PARCEL.
 - PROVIDE A NOTE ON THE FINAL SUBDIVISION PLAT AND SITE DEVELOPMENT PLAN REGARDING THIS ALTERNATIVE COMPLIANCE PETITION APPROVAL. THIS NOTE SHALL INCLUDE THE REGULATION SECTIONS PETITIONED, THE DATE OF THE ALTERNATIVE COMPLIANCE APPROVAL, AND THE CONDITIONS OF APPROVAL.
- A DESIGN MANUAL WALKER TO VOLUME III, SECTION 2.5.5, TABLE 2.07, WHICH REQUIRES 500' BETWEEN INTERSECTIONS ON A MAJOR COLLECTOR HAS BEEN APPROVED ON NOVEMBER 19, 2018 TO REDUCE THE SPACING TO 252' BASED ON ACCESS CONSTRAINTS TO THE PROPERTY.
- PER COUNCIL BILL 76-2018 4 ELECTRIC VEHICLE CHARGING STATIONS ARE REQUIRED FOR THIS SITE BASED ON 1/25 INDEPENDENT LIVING UNITS.
- STREET LIGHT PLACEMENT AND TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- THE EXISTING WELL AND SEPTIC SYSTEM HAS BEEN PROPERLY ABANDONED BY A CERTIFIED WELL/SEPTIC CONTRACTOR PER THE BUREAU OF ENVIRONMENTAL HEALTH REQUIREMENTS.

BENCH MARKS

| | |
|---|---------------|
| HO. CO. #0070 (NAD '83) | ELEV. 406.357 |
| STANDARD DISC ON CONCRETE MONUMENT | |
| E OF RTE 29, NORTH OF SENECA DRIVE BRIDGE | |
| N 556041.785 | E 1350374.642 |
| HO. CO. #41C2 (NAD '83) | ELEV. 395.193 |
| STANDARD DISC ON CONCRETE MONUMENT | |
| ISLE RTE 32 100' EAST OF RTE 29 NBL | |
| N 551616.419 | E 1348104.192 |



BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-6644

WWW.BEI-CVLENGINEERING.COM

OWNER:
LEGACY INVESTMENTS LLC
2077 SOMERVILLE ROAD
SUITE 206
ANNAPOLIS, MARYLAND 21401
410-266-5100

DEVELOPER/CONTRACT PURCHASER:
BRIGHTVIEW COLUMBIA, LLC
218 NORTH CHARLES STREET
SUITE 220
BALTIMORE, MARYLAND 21201
410-965-0595

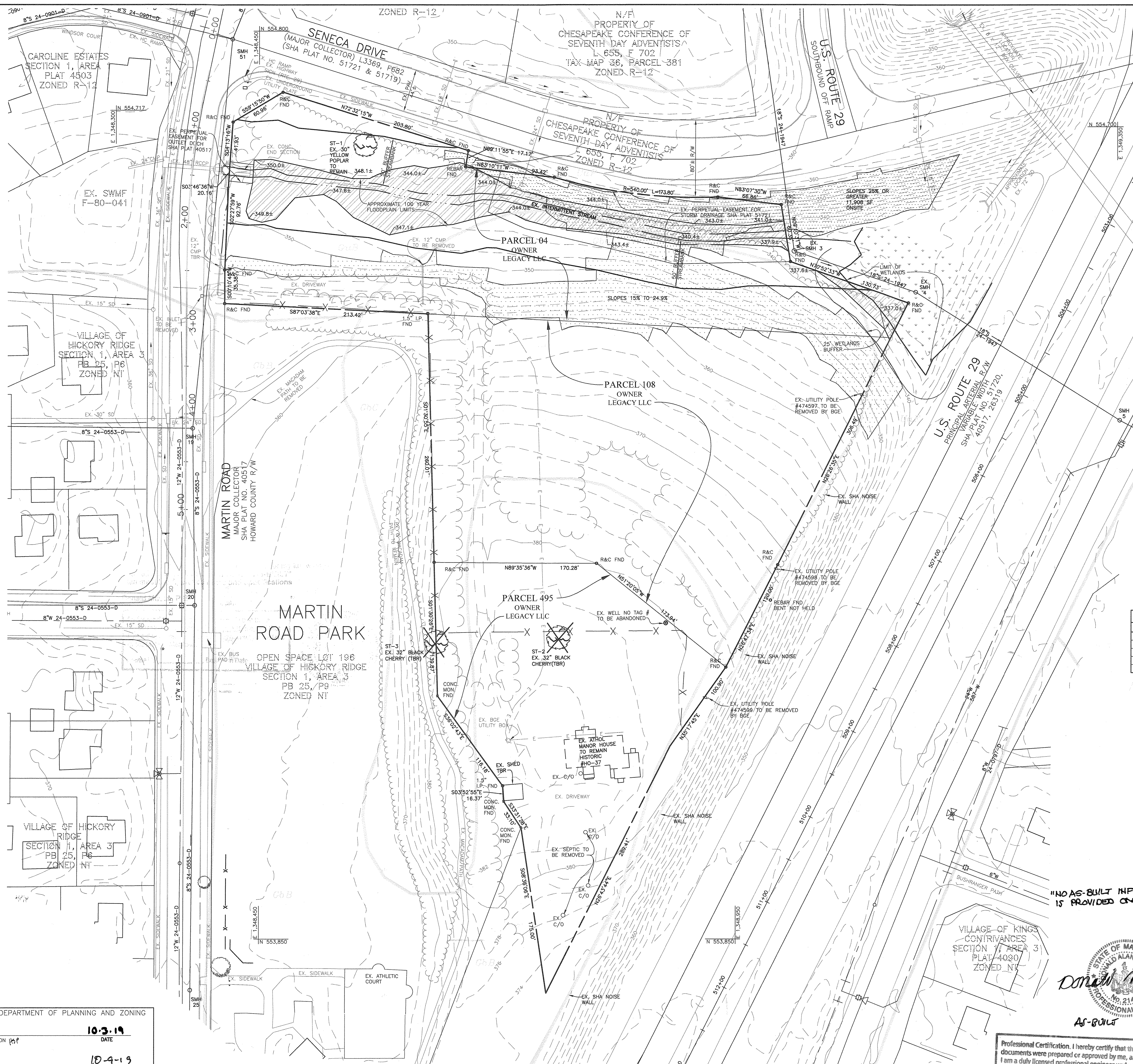
SITE DEVELOPMENT PLAN COVER SHEET

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
ZONED: CEF-M
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

DATE: SEPTEMBER 2019
SCALE: AS SHOWN
SHEET 1 OF 31

BEI PROJECT NO. 2567
DESIGN: JCO DRAFT: MP

AS-BUILT SDP-19-032

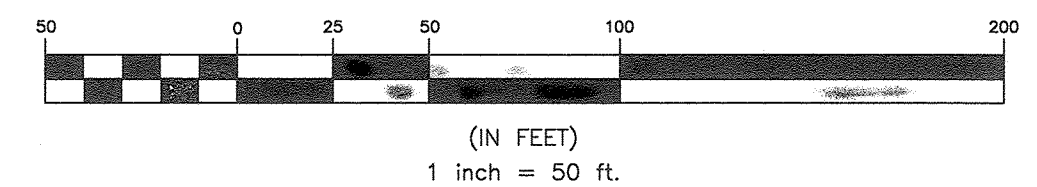


LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- EXISTING STREAM
- EXISTING STREAMBANK BUFFER
- APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
- EXISTING STRUCTURE
- 100 YEAR FLOODPLAIN
- LIMIT OF WETLANDS
- SLOPES 15% TO 24.9%
- SLOPES 25% OR GREATER
- SOILS DELINEATION SOILS BOUNDARY
- EXISTING FENCE TO BE REMOVED
- EXISTING SPECIMEN TREE
- EXISTING SPECIMEN TREE TO BE REMOVED
- EXISTING ELECTRIC

| SOILS LEGEND | | | |
|--------------|--|---------|-------|
| SYMBOL | NAME/DESCRIPTION | K VALUE | GROUP |
| GbB | GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES | 0.20 | B |
| GbC | GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES | 0.20 | B |
| GfB | GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES | 0.20 | B |
| **GuB | GLEVILLE-URBAN-UDORTHEMIS COMPLEX, 0 TO 8 PERCENT SLOPES | 0.37 | C |
| UgP | UDORTHEMIS HIGHWAY, 0 TO 85 PERCENT SLOPES | - | D |

BASED ON USDA NRCS WEB SOIL NATIONAL COOPERATIVE SOIL SURVEY. SEE HOWARD COUNTY SOIL SURVEY MAP NO. 18
 ** HIGHLY ERODIBLE SOILS: SOILS WITH A K VALUE GREATER THAN 0.35 WITH SLOPES 5% OR GREATER OR SLOPES 15% OR GREATER.



| NO. | DATE | REVISION |
|-----|------|----------|
| | | |
| | | |

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 • ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the State of Maryland. License No. 21443, Expiration Date: 6-30-2021.

4-13-19

| | |
|--|---|
| <p>OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100</p> | <p>BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1</p> |
| <p>DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595</p> | <p>TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND</p> |
| <p>SITE DEVELOPMENT PLAN EXISTING CONDITIONS PLAN</p> | |
| <p>DESIGN: JCO DRAFT: MP</p> | <p>DATE: SEPTEMBER 2019 SHEET PROJECT NO. 2567 SCALE: AS SHOWN SHEET 2 OF 31</p> |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edelman 10-3-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Ventura 10-4-19
 CHIEF, DIVISION OF LAND DEVELOPMENT

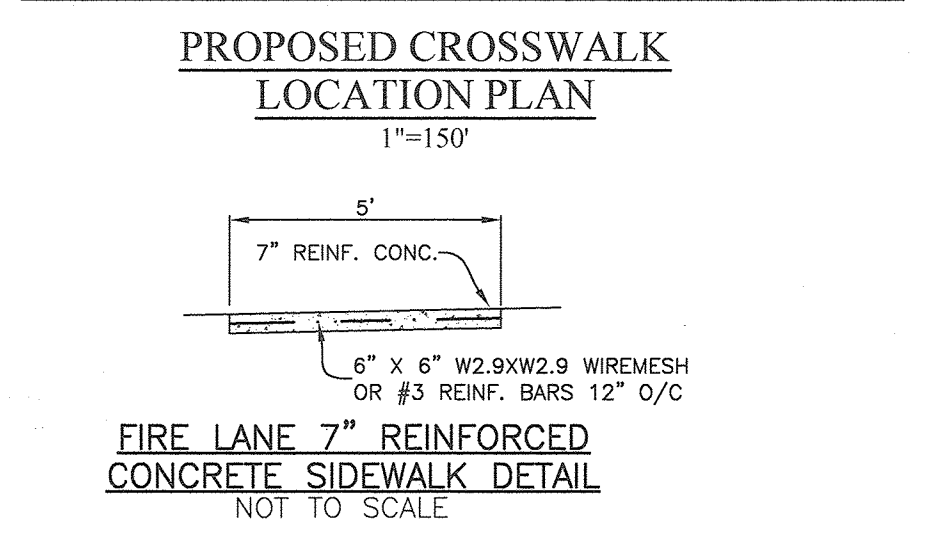
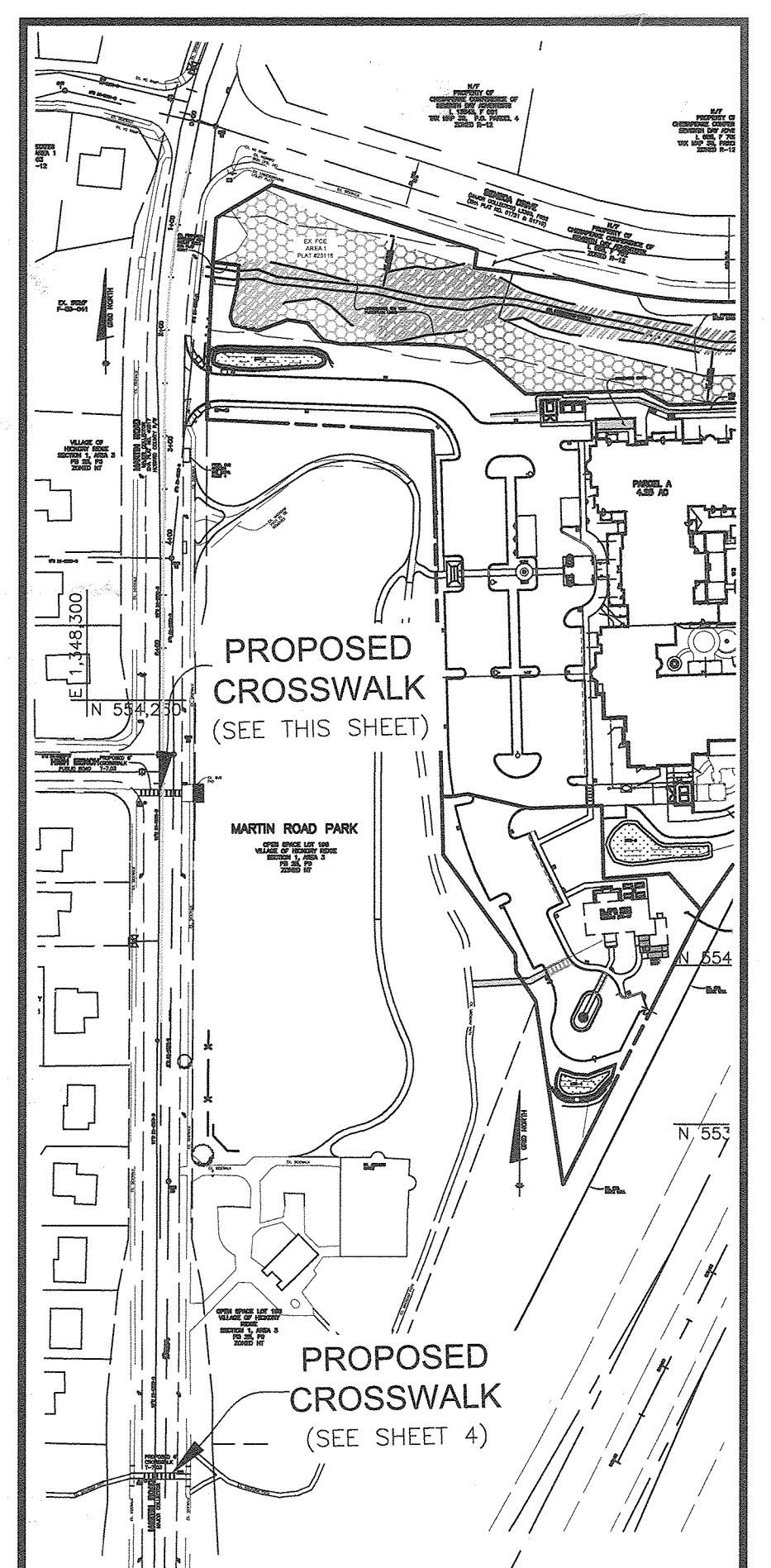
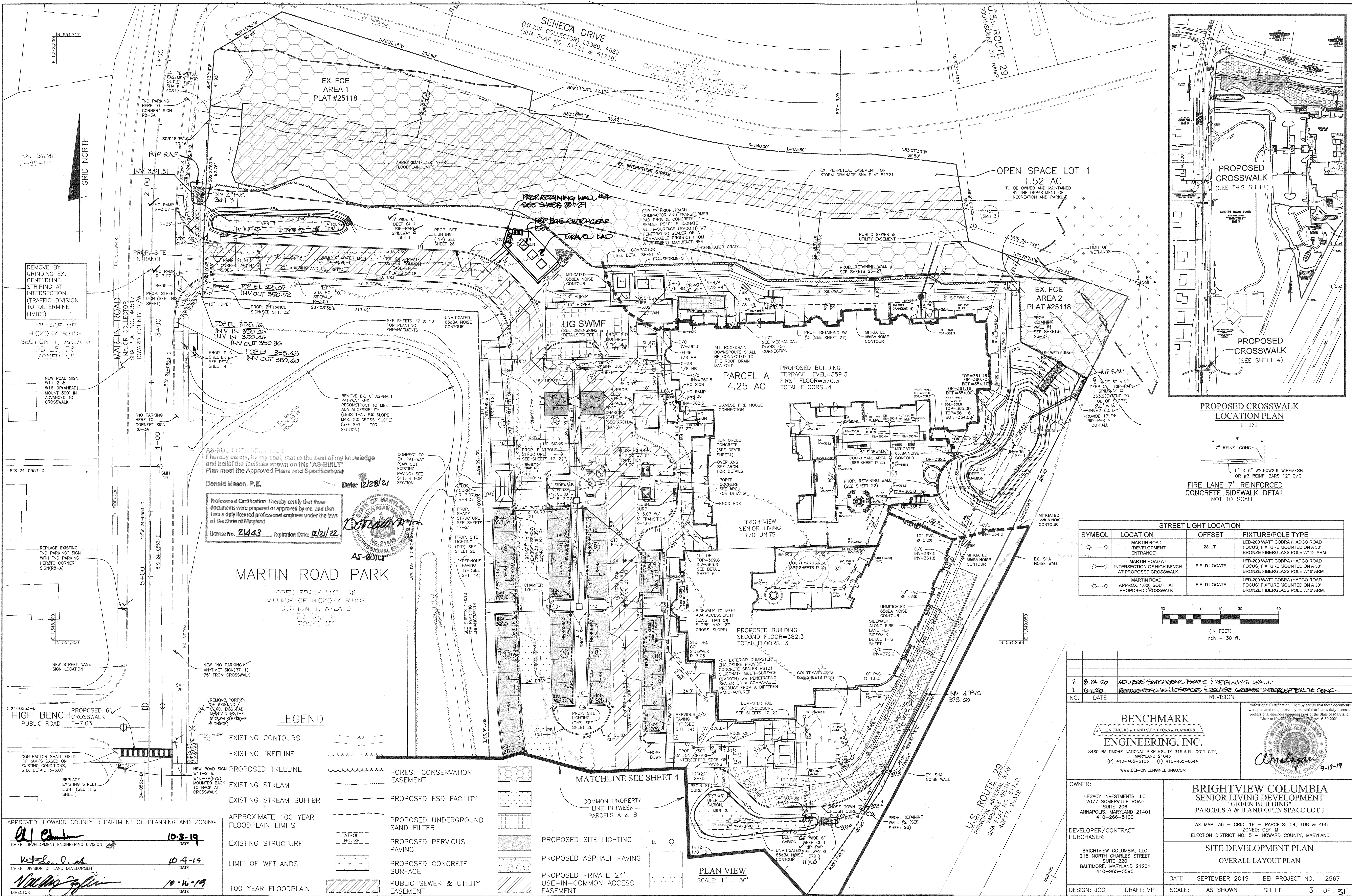
N. Williams 10-16-19
 DIRECTOR

LOCATION MAP
 SCALE: 1"=50'

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-31-22

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

AS-BUILT 12/26/21



REMOVE BY GRINDING EX. CENTERLINE STRIPING AT INTERSECTION (TRAFFIC DIVISION TO DETERMINE LIMITS)

VILLAGE OF HICKORY RIDGE SECTION 1, AREA 3 PB 25, P6 ZONED N1

REPLACE EXISTING "NO PARKING" SIGN WITH "NO PARKING HERE TO CORNER" SIGN (R-3A)

PROPOSED 6' HIGH BENCH CROSSWALK PUBLIC ROAD T-7.03

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 10-3-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

[Signature] 10-9-19
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

[Signature] 10-16-19
 DIRECTOR
 DATE

I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.

Date: 12/29/21

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 Expiration Date: 12/21/22



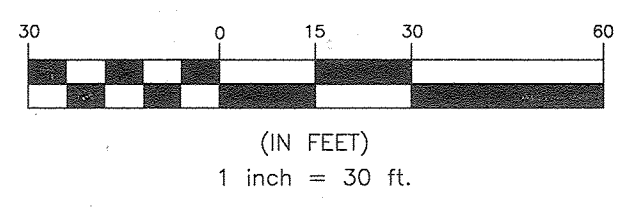
MARTIN ROAD PARK

OPEN SPACE LOT 186
 VILLAGE OF HICKORY RIDGE
 SECTION 1, AREA 3
 PB 25, P6
 ZONED N1

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- EXISTING STREAM BUFFER
- APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
- EXISTING STRUCTURE
- LIMIT OF WETLANDS
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- PROPOSED ESD FACILITY
- PROPOSED UNDERGROUND SAND FILTER
- PROPOSED PERVIOUS PAVING
- PROPOSED CONCRETE SURFACE
- PUBLIC SEWER & UTILITY EASEMENT
- PROPOSED SITE LIGHTING
- PROPOSED ASPHALT PAVING
- PROPOSED PRIVATE 24' USE-IN-COMMON ACCESS EASEMENT

| STREET LIGHT LOCATION | | | |
|-----------------------|---|--------------|--|
| SYMBOL | LOCATION | OFFSET | FIXTURE/POLE TYPE |
| | MARTIN ROAD (DEVELOPMENT ENTRANCE) | 28' LT. | LED-200 WATT COBRA (HADO ROAD FOCUS) FIXTURE MOUNTED ON A 30' BRONZE FIBERGLASS POLE W/ 12' ARM. |
| | MARTIN ROAD AT INTERSECTION OF HIGH BENCH AT PROPOSED CROSSWALK | FIELD LOCATE | LED-200 WATT COBRA (HADO ROAD FOCUS) FIXTURE MOUNTED ON A 30' BRONZE FIBERGLASS POLE W/ 6' ARM. |
| | MARTIN ROAD APPROX. 1,000' SOUTH AT PROPOSED CROSSWALK | FIELD LOCATE | LED-200 WATT COBRA (HADO ROAD FOCUS) FIXTURE MOUNTED ON A 30' BRONZE FIBERGLASS POLE W/ 6' ARM. |



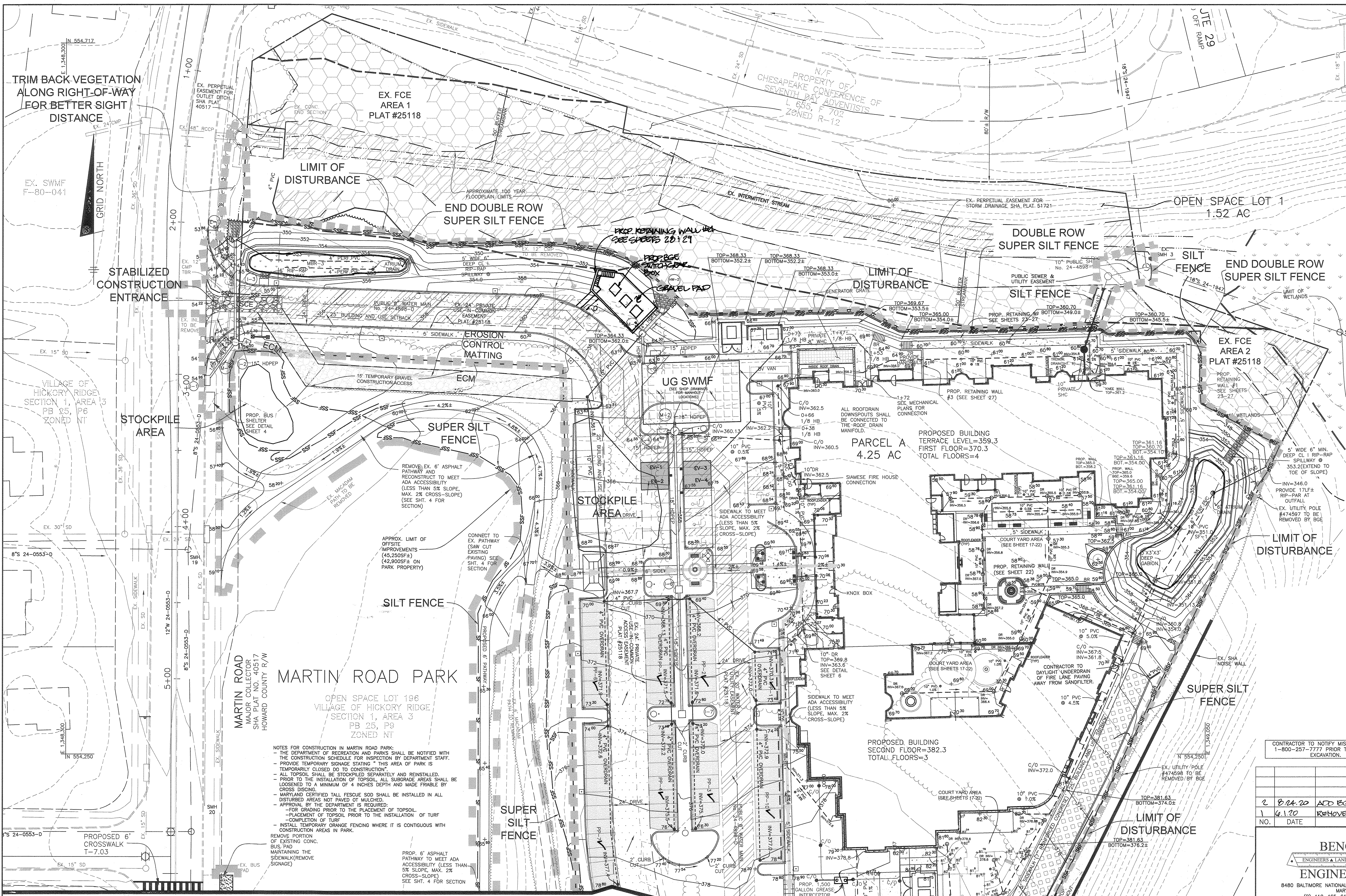
| | | |
|-----|---------|---|
| NO. | DATE | REVISION |
| 2 | 8-24-20 | ADD BEE SMITH CAR BOXES & RETAINING WALL |
| 1 | 6-1-20 | REMOVE CONC. IN HOUSING & REUSE GRAVEL INTERCEPTOR TO CONC. |

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BENCHMARKENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 22339. Expiration Date: 6-30-2021.

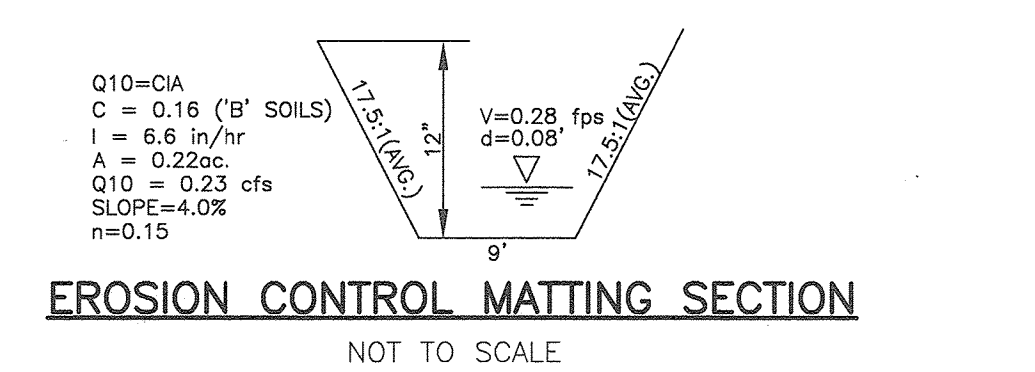
[Signature] 9-13-19
 PROFESSIONAL ENGINEER

| | | |
|--|--|---|
| OWNER: | LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100 | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1 |
| DEVELOPER/CONTRACT PURCHASER: | BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0995 | |
| TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND | SITE DEVELOPMENT PLAN OVERALL LAYOUT PLAN | |
| DATE: SEPTEMBER 2019 | BEI PROJECT NO. 2567 | |
| DESIGN: JCO | DRAFT: MP | SCALE: AS SHOWN SHEET 3 OF 31 |



LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- EXISTING STREAM BUFFER
- APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SLOPES 25% OR GREATER
- SLOPES 15% TO 24.9%
- LIMIT OF WETLANDS
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- PROPOSED ESD FACILITY
- PROPOSED UNDERGROUND SAND FILTER
- PROPOSED PERVIOUS PAVING
- PROPOSED CONCRETE SURFACE
- SUPER SILT FENCE
- EROSION CONTROL MATTING
- LIMIT OF DISTURBANCE
- PARK PROPERTY
- LIMIT OF DISTURBANCE
- ACCESSIBLE ROUTE
- 10" DRAIN CLEANOUT



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chie...
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Ver...
CHIEF, DIVISION OF LAND DEVELOPMENT

Nathan...
DIRECTOR

DATE: 10-3-19

DATE: 10-9-19

DATE: 10-16-19

DEVELOPER'S CERTIFICATE

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

Maria E. Miller 9-16-19
DATE

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

John Robertson 9/16/19
DATE

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 Expiration Date: 12/31/2021

ENGINEER'S CERTIFICATE

"I 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 REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ClM alagan 9-13-19
DATE

AS-BUILT CERTIFICATE

I hereby certify, to the best of my knowledge, that the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

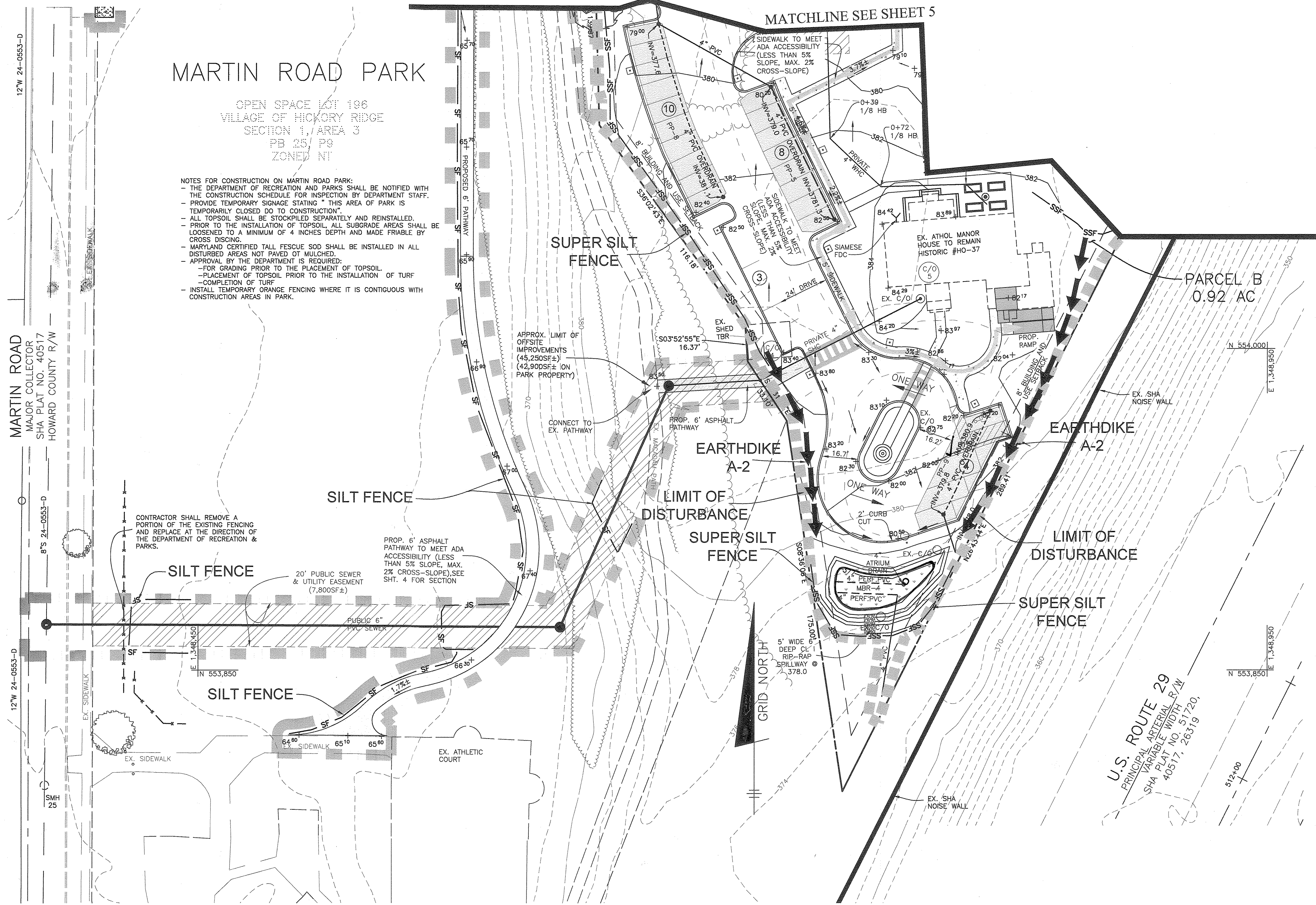
Donald Mason, P.E. Date: 12/26/21

| | | |
|---|-----------|--|
| <p>CONTRACTOR TO NOTIFY MISS UTILITY AT 1-800-257-7777 PRIOR TO ANY SITE EXCAVATION.</p> | | |
| NO. | DATE | REVISION |
| 2 | 8.24.20 | ADD EROSION CONTROL BOXES + RETAINING WALL |
| 1 | 6.1.20 | REMOVE CONC FROM HG SPACES + REPLACE GREASE INTERCEPTOR TO CONC. |
| <p>BENCHMARK ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM</p> | | |
| <p>OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVIEW ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100</p> | | |
| <p>DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595</p> | | |
| <p>BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1</p> <p>TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND</p> | | |
| <p>SITE DEVELOPMENT PLAN GRADING, SEDIMENT & EROSION CONTROL PLAN</p> | | |
| DESIGN: JCO | DRAFT: MP | DATE: SEPTEMBER 2019 |
| SCALE: AS SHOWN | | BEI PROJECT NO. 2567 |
| SHEET 5 OF 31 | | SDP-19-032 |

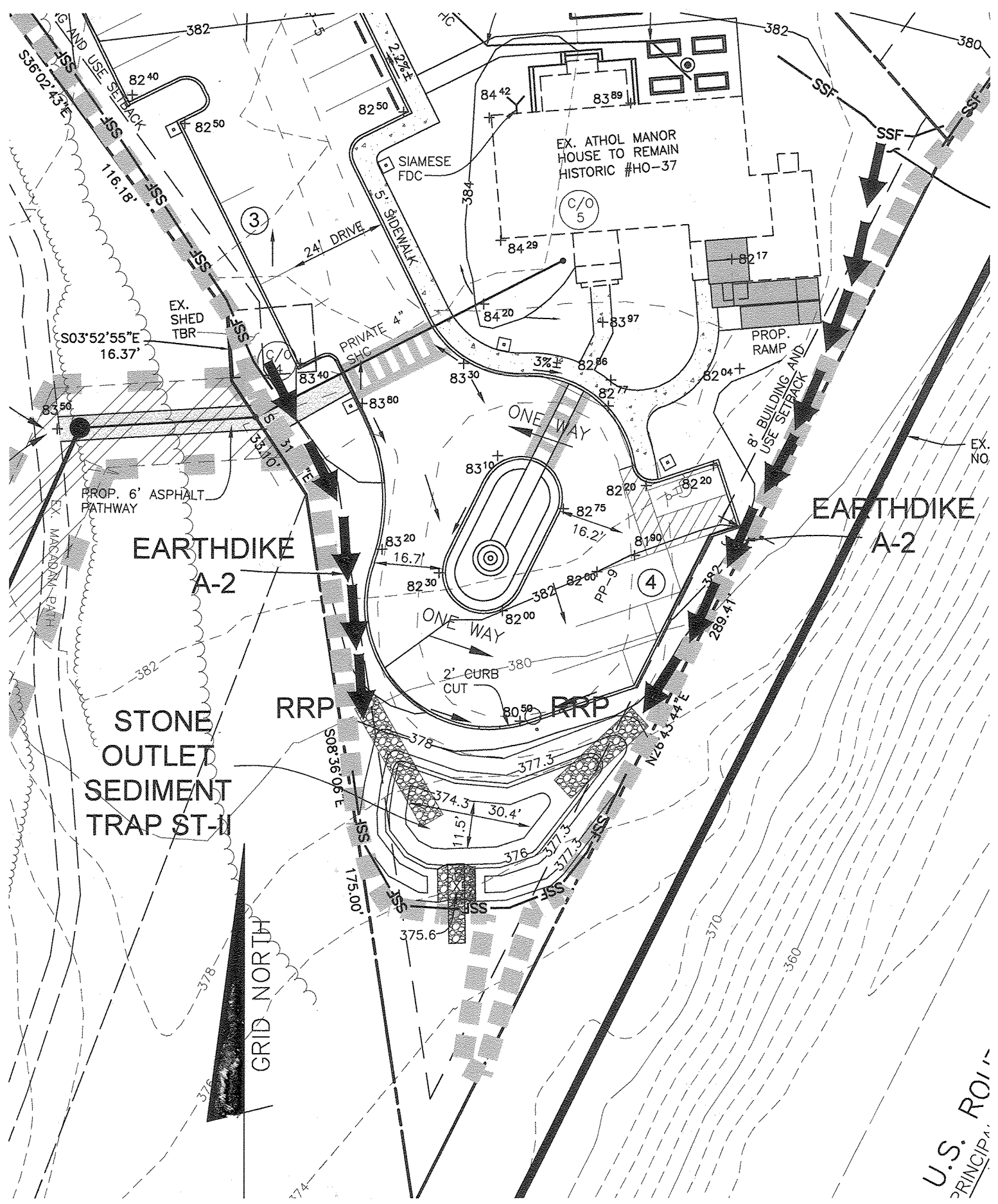
MARTIN ROAD PARK

OPEN SPACE LOT 196
VILLAGE OF HICKORY RIDGE
SECTION 1, AREA 3
PB 25, PG
ZONED NT

NOTES FOR CONSTRUCTION ON MARTIN ROAD PARK:
- THE DEPARTMENT OF RECREATION AND PARKS SHALL BE NOTIFIED WITH THE CONSTRUCTION SCHEDULE FOR INSPECTION BY DEPARTMENT STAFF.
- PROVIDE TEMPORARY SIGNAGE STATING "THIS AREA OF PARK IS TEMPORARILY CLOSED DO TO CONSTRUCTION".
- ALL TOPSOIL SHALL BE STOCKPILED SEPARATELY AND REINSTALLED.
- PRIOR TO THE INSTALLATION OF TOPSOIL, ALL SUBGRADE AREAS SHALL BE LOOSENE TO A MINIMUM OF 4 INCHES DEPTH AND MADE FRABLE BY CROSS DISCING.
- MARYLAND CERTIFIED TALL FESCUE SOD SHALL BE INSTALLED IN ALL DISTURBED AREAS NOT PAVED OR MULCHED.
- FOR GRADING PRIOR TO THE PLACEMENT OF TOPSOIL.
- PLACEMENT OF TOPSOIL PRIOR TO THE INSTALLATION OF TURF.
- INSTALL TEMPORARY ORANGE FENCING WHERE IT IS CONTIGUOUS WITH CONSTRUCTION AREAS IN PARK.



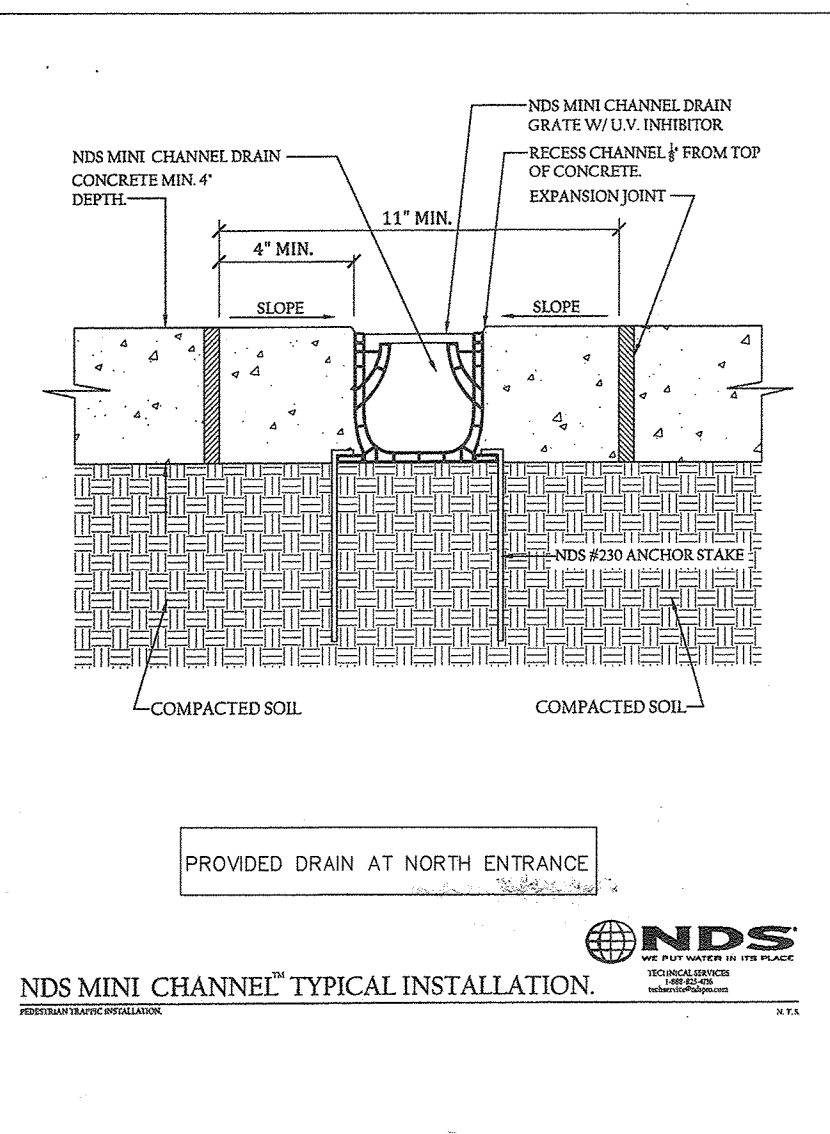
PLAN VIEW
SCALE: 1" = 30'



STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II
SCALE: 1" = 30'

| STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II | | |
|---|---------|-----------|
| DRAINAGE AREA - INITIAL | 0.40 | ACRES |
| DRAINAGE AREA - INTERIM | 0.40 | ACRES |
| DRAINAGE AREA - FINAL | 0.40 | ACRES |
| TOTAL STORAGE REQUIRED | 1,440 | CF |
| TOTAL STORAGE PROVIDED | 2,067 | CF |
| WET STORAGE REQUIRED | 720 | CF |
| WET STORAGE PROVIDED | 900 | CF |
| DRY STORAGE REQUIRED | 720 | CF |
| DRY STORAGE PROVIDED | 1,167 | CF |
| EXISTING GROUND ELEVATION AT OUTLET (WET STORAGE ELEVATION) | 375.6 | FT |
| TRAP BOTTOM ELEVATION | 374.3 | FT |
| TRAP BOTTOM DIMENSIONS | SEE PAN | FT x FT |
| WEIR LENGTH | 4 | FT |
| WEIR CREST (DRY STORAGE) ELEVATION | 376.3 | FT |
| CLEANOUT ELEVATION | 375.0 | FT |
| TOP OF EMBANKMENT ELEVATION | 377.3 | FT |
| SIDE SLOPE | 2:1 | H:V RATIO |
| EMBANKMENT TOP WIDTH | 4 | FT |
| OUTLET PROTECTION - LENGTH | 10 | FT |
| OUTLET PROTECTION - DEPTH | 19 | IN |

- ### LEGEND
- EXISTING CONTOURS
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - EXISTING STREAM
 - EXISTING STREAM BUFFER
 - APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
 - EXISTING STRUCTURE
 - PROPOSED STRUCTURE
 - SLOPES 25% OR GREATER
 - SLOPES 15% TO 24.9%
 - LIMIT OF WETLANDS
 - 100 YEAR FLOODPLAIN
 - FOREST CONSERVATION EASEMENT
 - PROPOSED ESD FACILITY
 - PROPOSED UNDERGROUND SAND FILTER
 - PROPOSED PERVIOUS PAVING
 - PROPOSED CONCRETE SURFACE
 - SUPER SILT FENCE
 - EROSION CONTROL MATTING
 - LIMIT OF DISTURBANCE
 - PARK PROPERTY
 - LIMIT OF DISTURBANCE



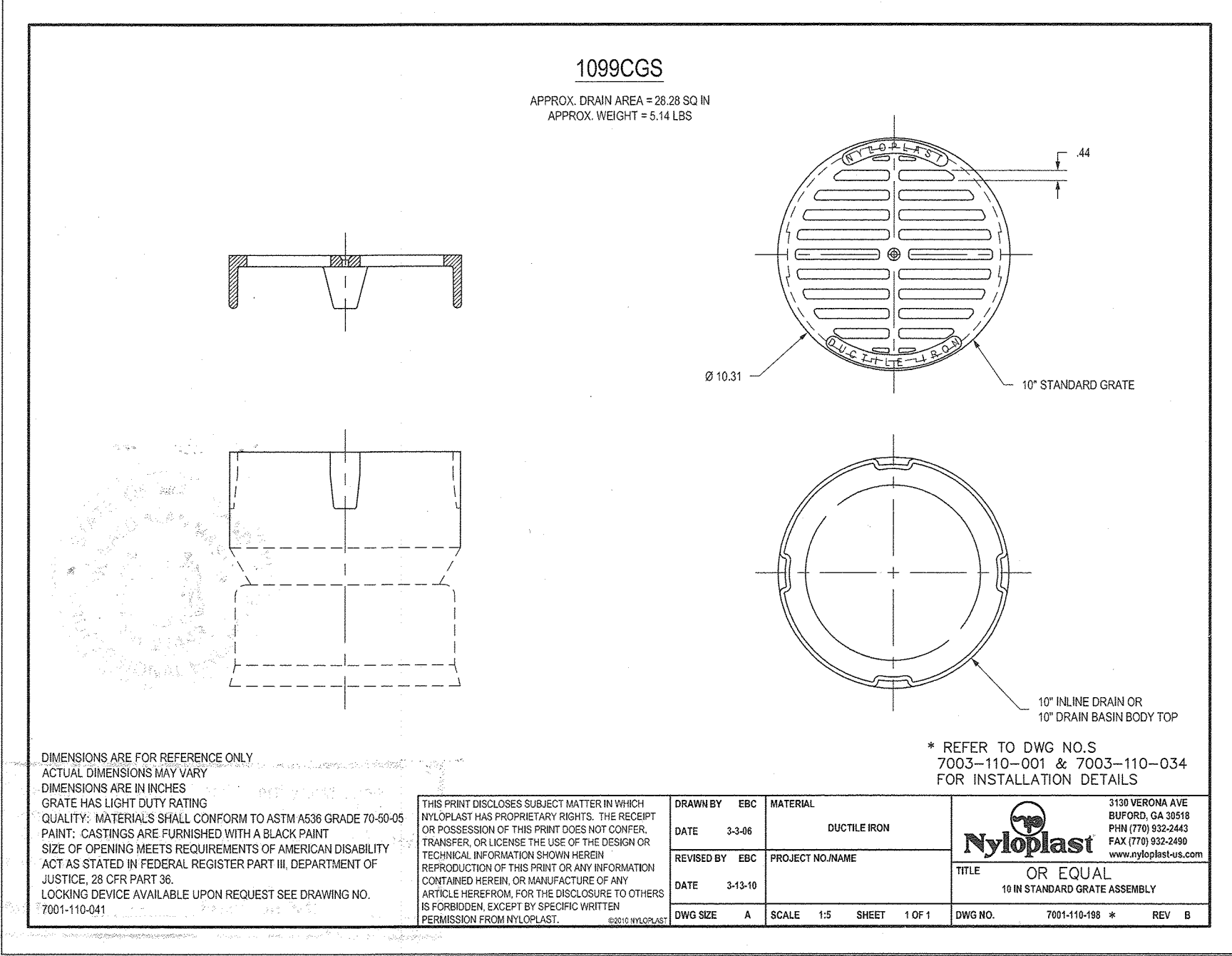
ENGINEER'S CERTIFICATE
I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Cl. Malagari 9-13-19
ENGINEER DATE

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 TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Maria E. Miller 9-16-19
DEVELOPER DATE

John K. Robertson 9/25/19
HOWARD SOIL CONSERVATION DISTRICT DATE



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date 12/21/22



AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 12/29/21

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315 • ELLICOTT CITY, MARYLAND 21043
410-465-8105 (F) 410-465-6844
WWW.BE-CIVILENGINEERING.COM

BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
ZONED: CEF-M
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN GRADING, SEDIMENT & EROSION CONTROL PLAN

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567
SCALE: AS SHOWN SHEET 6 OF 31

DESIGN: JCO DRAFT: MP

AS-BUILT SDP-19-032

| B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION | B-4 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS | B-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING |
|--|---|---|
| <p>Definition: The process of preparing the soil for vegetative stabilization.</p> <p>Purpose: To provide a suitable soil medium for vegetative growth.</p> <p>Conditions Where Practice Applies: Where vegetative stabilization is to be established.</p> <p>Soil Preparation:</p> <ol style="list-style-type: none"> Soil Preparation: <ul style="list-style-type: none"> Soil preparation consists of loosening soil to a depth of 3 to 6 inches by means of suitable equipment or construction equipment. The soil shall be loosened to a depth of 3 to 6 inches by means of suitable equipment or construction equipment. The soil shall be loosened to a depth of 3 to 6 inches by means of suitable equipment or construction equipment. | <p>Soil Preparation:</p> <ol style="list-style-type: none"> Soil Preparation: <ul style="list-style-type: none"> Soil preparation consists of loosening soil to a depth of 3 to 6 inches by means of suitable equipment or construction equipment. The soil shall be loosened to a depth of 3 to 6 inches by means of suitable equipment or construction equipment. | <p>Seeding and Mulching:</p> <ol style="list-style-type: none"> Seeding: <ul style="list-style-type: none"> Seeding shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date. |

The application of seed and mulch to establish vegetation cover. To protect disturbed soils from erosion during and after the construction. To the surface of all permanent construction areas that are not under active grading.

A. Seeding:

- Seeding:
 - Seeding shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

B. Topsoiling:

- Topsoiling:
 - Topsoiling shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

C. Soil Amendments:

- Soil Amendments:
 - Soil amendments shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

D. Mulching:

- Mulching:
 - Mulching shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

E. Temporary Seeding:

- Temporary Seeding:
 - Temporary seeding shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

F. Stabilization:

- Stabilization:
 - Stabilization shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

G. Erosion Control:

- Erosion Control:
 - Erosion control shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

H. Sedimentation:

- Sedimentation:
 - Sedimentation shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

I. Vegetation:

- Vegetation:
 - Vegetation shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

J. Maintenance:

- Maintenance:
 - Maintenance shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

K. Final Inspection:

- Final Inspection:
 - Final inspection shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

L. Certification:

- Certification:
 - Certification shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

M. Final Report:

- Final Report:
 - Final report shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

N. Final Approval:

- Final Approval:
 - Final approval shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

O. Final Sign-off:

- Final Sign-off:
 - Final sign-off shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

P. Final Completion:

- Final Completion:
 - Final completion shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

Q. Final Review:

- Final Review:
 - Final review shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

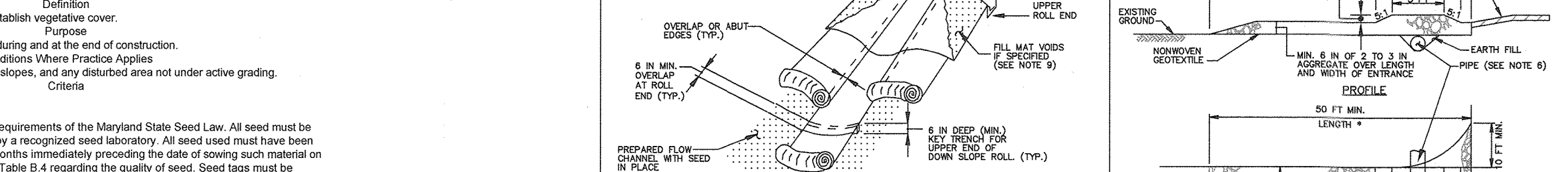
R. Final Approval:

- Final Approval:
 - Final approval shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

S. Final Sign-off:

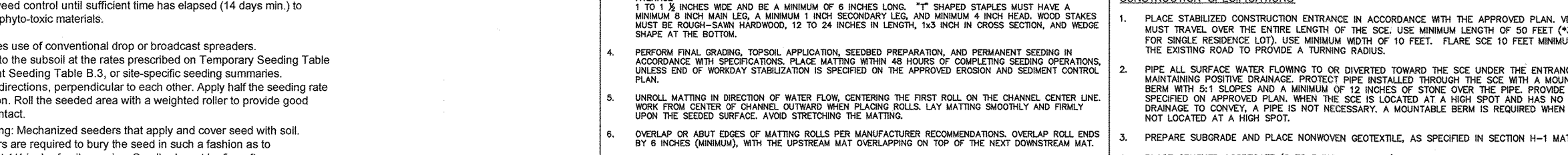
- Final Sign-off:
 - Final sign-off shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date.

| B-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION | B-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING | DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE | DETAIL E-3 SUPER SILT FENCE |
|---|---|---|---|
| <p>Definition: The process of preparing the soil for vegetative stabilization.</p> <p>Purpose: To provide a suitable soil medium for vegetative growth.</p> <p>Conditions Where Practice Applies: Where vegetative stabilization is to be established.</p> <p>Soil Preparation:</p> <ol style="list-style-type: none"> Soil Preparation: <ul style="list-style-type: none"> Soil preparation consists of loosening soil to a depth of 3 to 6 inches by means of suitable equipment or construction equipment. The soil shall be loosened to a depth of 3 to 6 inches by means of suitable equipment or construction equipment. | <p>Seeding and Mulching:</p> <ol style="list-style-type: none"> Seeding: <ul style="list-style-type: none"> Seeding shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date. | <p>Stabilized Construction Entrance:</p> <ol style="list-style-type: none"> Stabilized Construction Entrance: <ul style="list-style-type: none"> Stabilized construction entrance shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date. | <p>Super Silt Fence:</p> <ol style="list-style-type: none"> Super Silt Fence: <ul style="list-style-type: none"> Super silt fence shall be performed in accordance with the Maryland State Seed Law. All seed used must be tested within the 6 months immediately preceding the seeding date. |



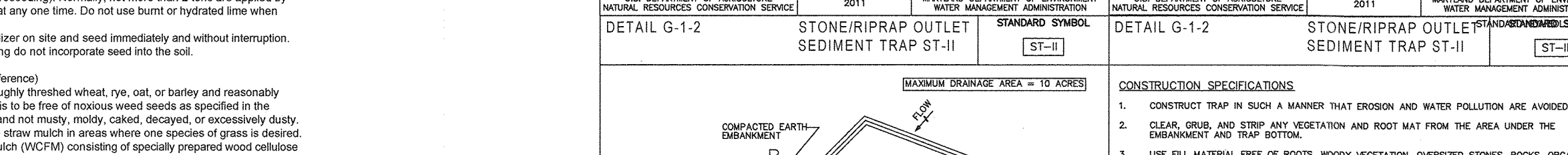
CONSTRUCTION SPECIFICATIONS:

- USE MATERIAL THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR VALUE OF THE SUBSTRATE SOIL.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC NON-DEGRADABLE FIBER WITH A MINIMUM OPENING OF 1/2 INCH AND A MINIMUM OF 100 PERCENT OPENING PER SQUARE FOOT.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC NON-DEGRADABLE FIBER WITH A MINIMUM OPENING OF 1/2 INCH AND A MINIMUM OF 100 PERCENT OPENING PER SQUARE FOOT.



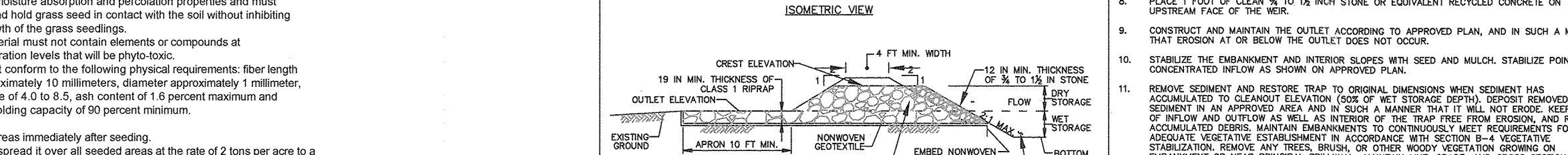
CONSTRUCTION SPECIFICATIONS:

- INSTALL 24 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.090 INCH WALL THICKNESS AND SIX FOOT LENGTHS NOT FURTHER THAN 10 FEET APART. GRADE THE TOPS OF THE MATTING AND SIX FOOT LENGTHS NOT FURTHER THAN 10 FEET APART.
- INSTALL 24 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.090 INCH WALL THICKNESS AND SIX FOOT LENGTHS NOT FURTHER THAN 10 FEET APART. GRADE THE TOPS OF THE MATTING AND SIX FOOT LENGTHS NOT FURTHER THAN 10 FEET APART.



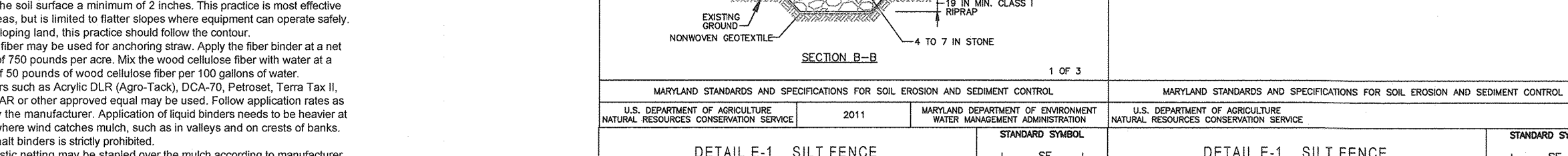
CONSTRUCTION SPECIFICATIONS:

- CONSTRUCT TRAP WITH AN INLET MANHOLE AND WATER POLLUTION ARE AVOIDED.
- CONSTRUCT TRAP WITH AN INLET MANHOLE AND WATER POLLUTION ARE AVOIDED.



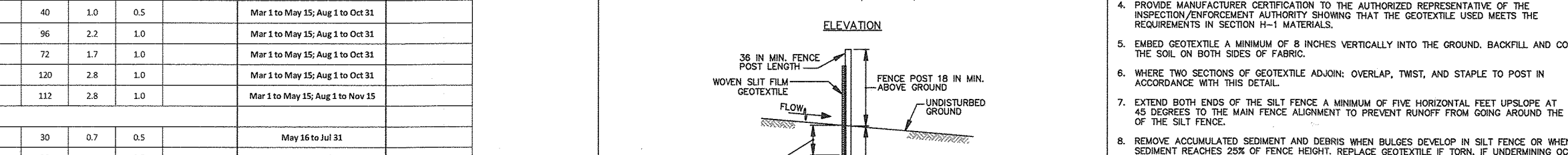
CONSTRUCTION SPECIFICATIONS:

- PREPARE THE SIBRANE FOR GEOTEXTILE OR STONE FILTER (IN TO 18 INCH MANHOLE TOP) WITH A MINIMUM DEPTH OF 18 INCHES.
- PREPARE THE SIBRANE FOR GEOTEXTILE OR STONE FILTER (IN TO 18 INCH MANHOLE TOP) WITH A MINIMUM DEPTH OF 18 INCHES.



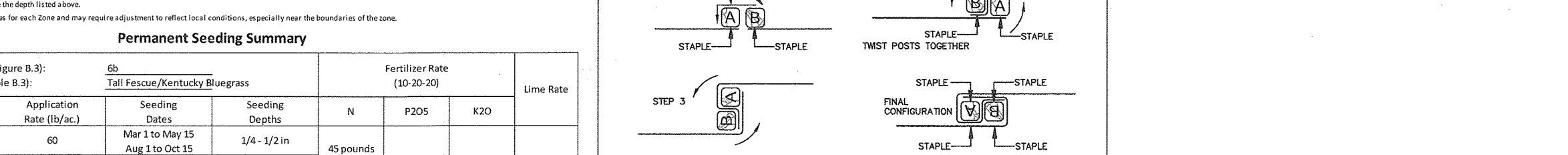
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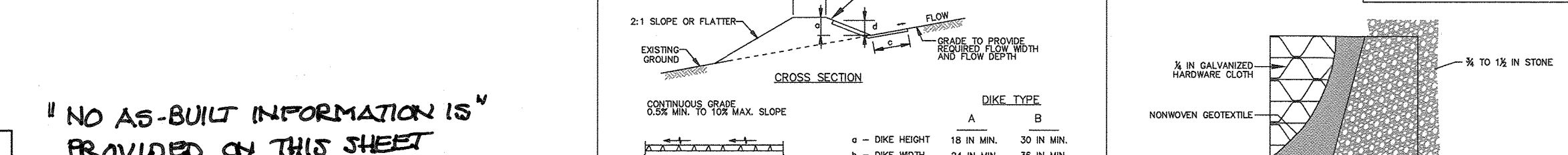
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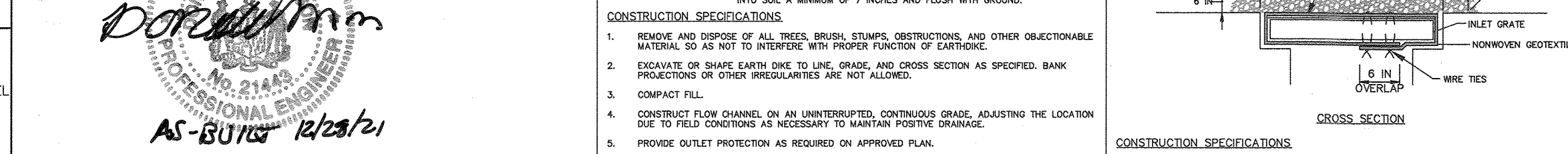
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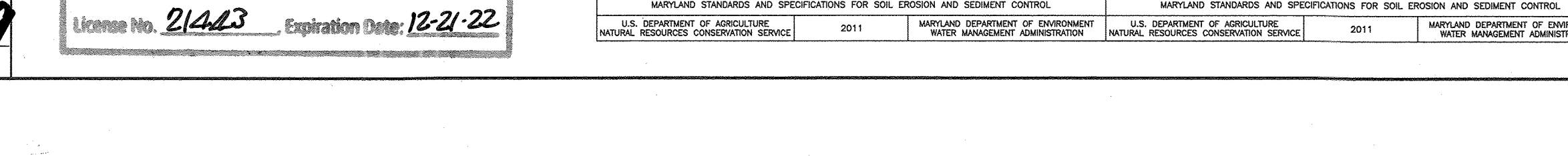
CONSTRUCTION SPECIFICATIONS:

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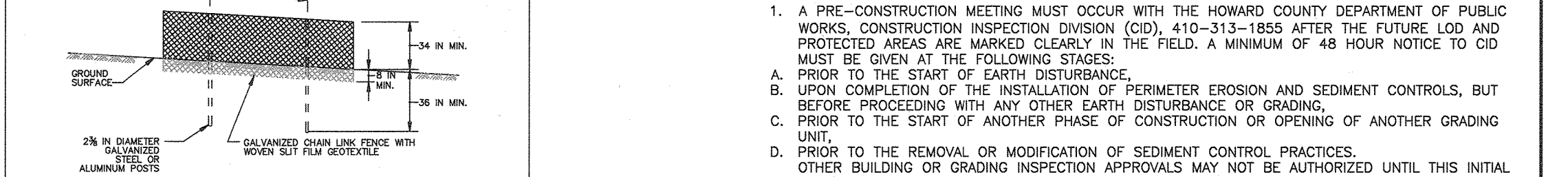


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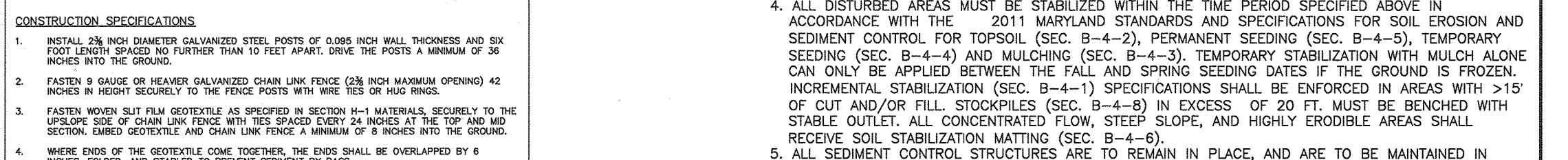


| B-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION | B-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING | DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE | DETAIL E-3 SUPER SILT FENCE |
|---|---|---|-----------------------------|
|---|---|---|-----------------------------|



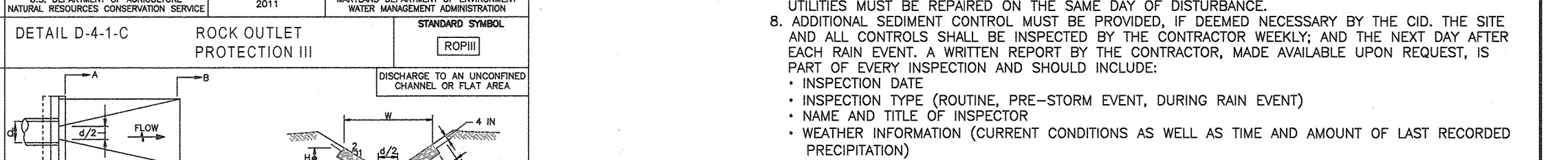
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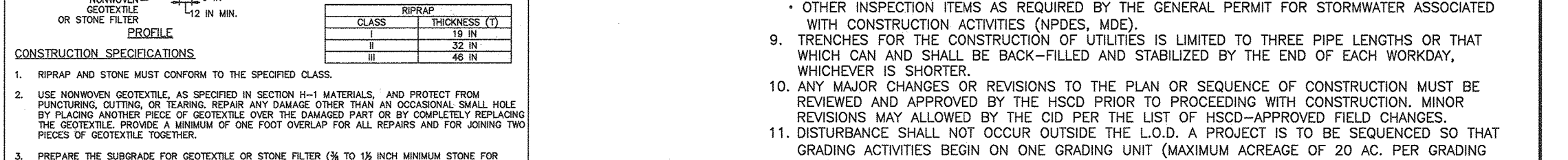
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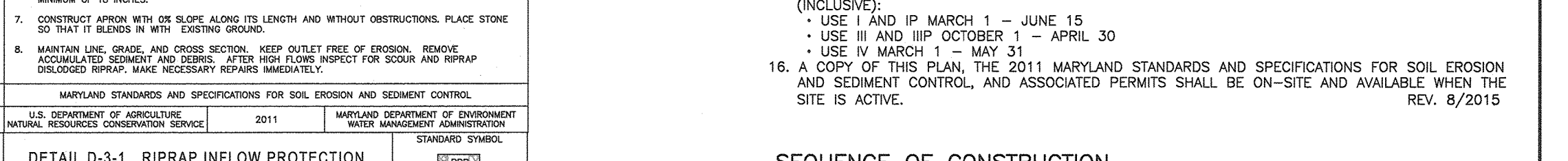
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- CONSTRUCT TRAP WITH AN INLET MANHOLE AND WATER POLLUTION ARE AVOIDED.
- CONSTRUCT TRAP WITH AN INLET MANHOLE AND WATER POLLUTION ARE AVOIDED.



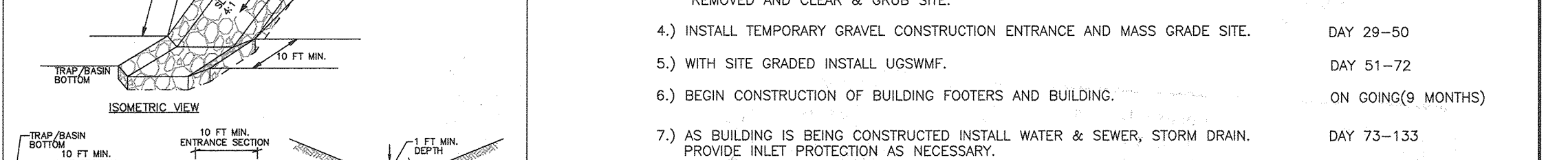
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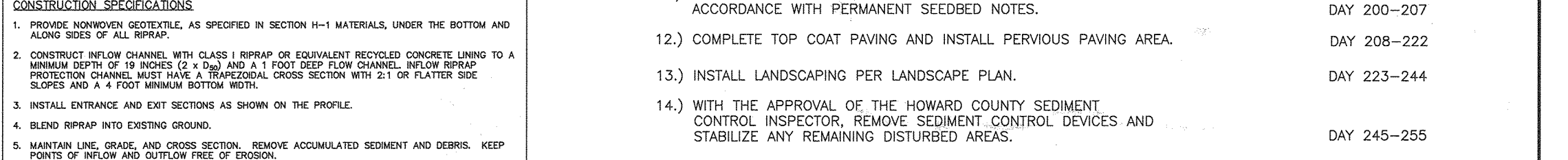
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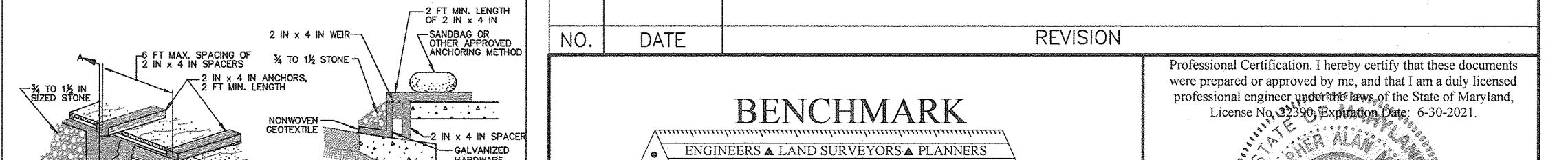
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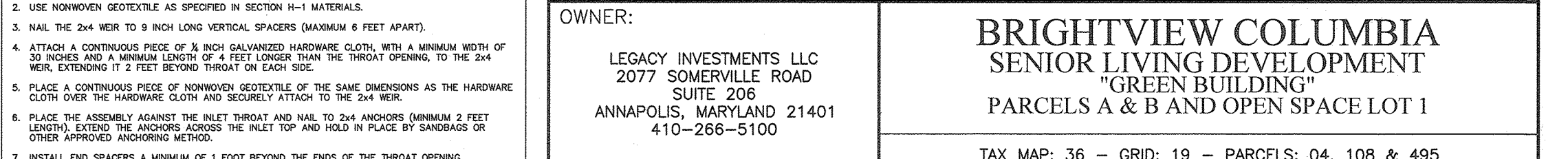
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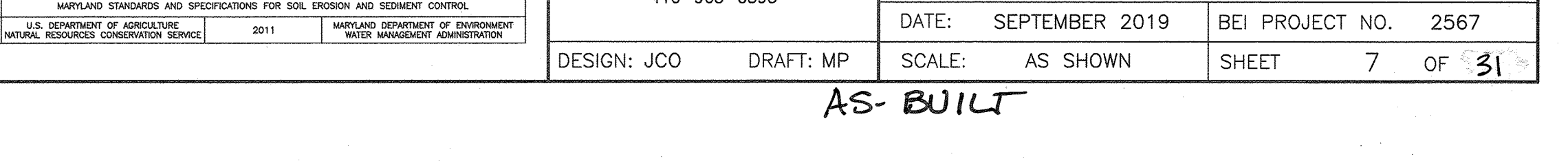


Table B-1: Temporary Seeding for Site Stabilization

| Plant Species | Seeding Rate (lb/1000 sq ft) | Seeding Depth (in) | Recommended Seeding by Plant Functionality | Soil Type | Soil Depth (in) |
|--------------------|------------------------------|--------------------|--|-----------|-----------------|
| Common Bluegrass | 40 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | Soil | 2 to 3 |
| Red Fescue | 40 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | Soil | 2 to 3 |
| Kentucky Bluegrass | 40 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | Soil | 2 to 3 |
| White Clover | 12 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | Soil | 2 to 3 |
| Red Clover | 12 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | Soil | 2 to 3 |
| Wormwood | 20 | 0.5 | Mar 15 to May 15; Aug 1 to Oct 31 | Soil | 2 to 3 |

Table B-2: Permanent Seeding Summary

| No. | Species | Application Rate (lb/1000 sq ft) | Seeding Depth (in) | Seeding Time | Fertilizer Rate (lb/1000 sq ft) | Soil Type | Soil Depth (in) |
|-----|--------------------|----------------------------------|--------------------|-----------------------------------|---------------------------------|-----------|-----------------|
| 1 | Common Bluegrass | 40 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | 45/00/0 | Soil | 2 to 3 |
| 2 | Red Fescue | 40 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | 45/00/0 | Soil | 2 to 3 |
| 3 | Kentucky Bluegrass | 40 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | 45/00/0 | Soil | 2 to 3 |
| 4 | White Clover | 12 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | 45/00/0 | Soil | 2 to 3 |
| 5 | Red Clover | 12 | 1.0 | Mar 15 to May 15; Aug 1 to Oct 31 | 45/00/0 | Soil | 2 to 3 |
| 6 | Wormwood | 20 | 0.5 | Mar 15 to May 15; Aug 1 to Oct 31 | 45/00/0 | Soil | 2 to 3 |

The stockpile areas must be continuously maintained 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, berms must be provided in accordance with Section B-3 Land Grading.

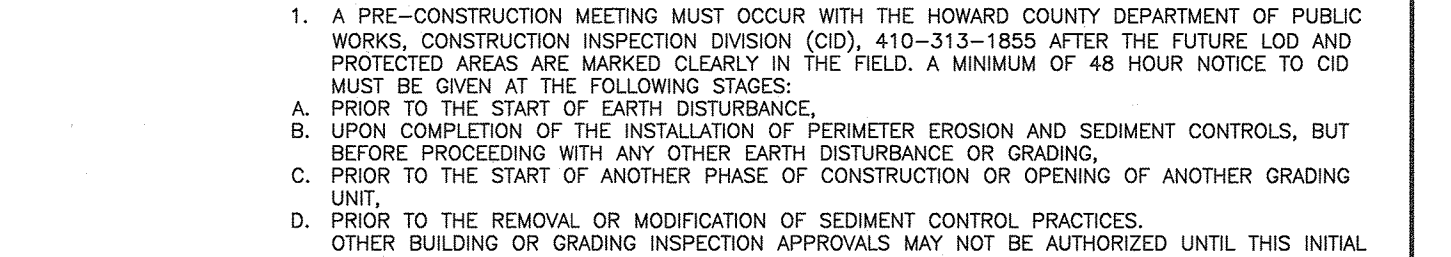
"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

ENGINEER'S CERTIFICATE
I 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 FIELD INSPECTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

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

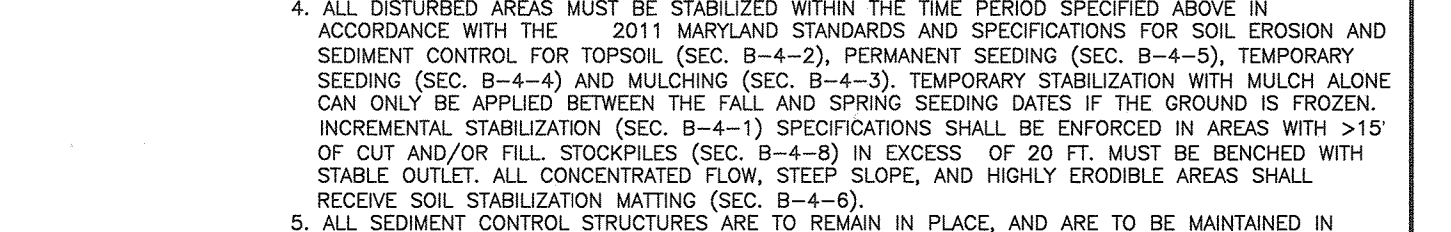
Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21423, Expiration Date: 12-21-22

| B-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION | B-4 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING | DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE | DETAIL E-3 SUPER SILT FENCE |
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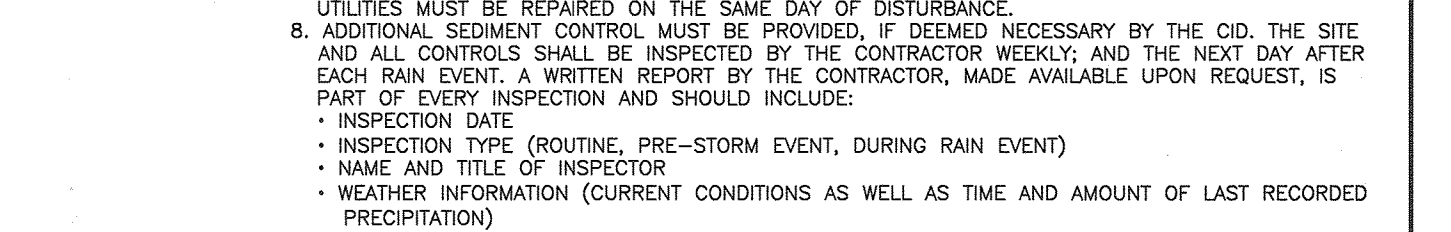
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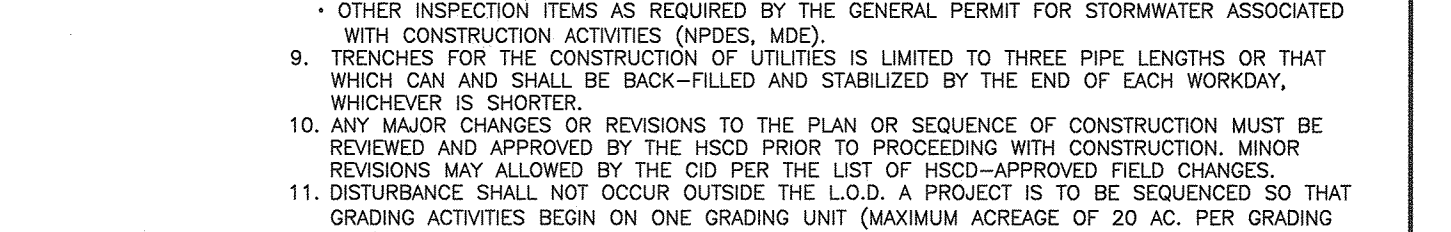
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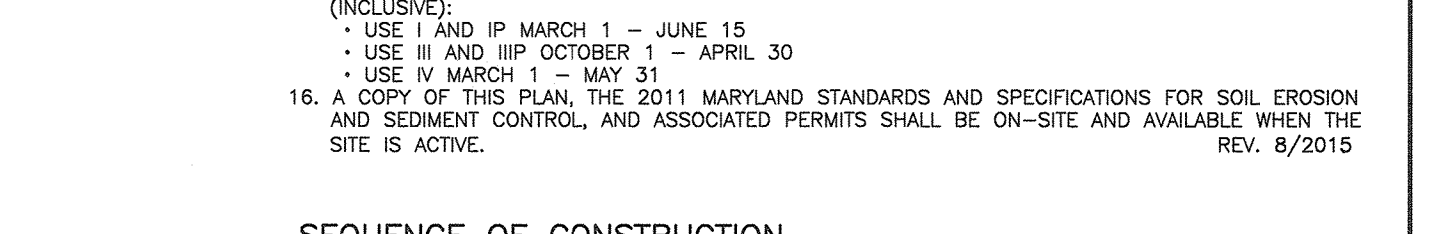
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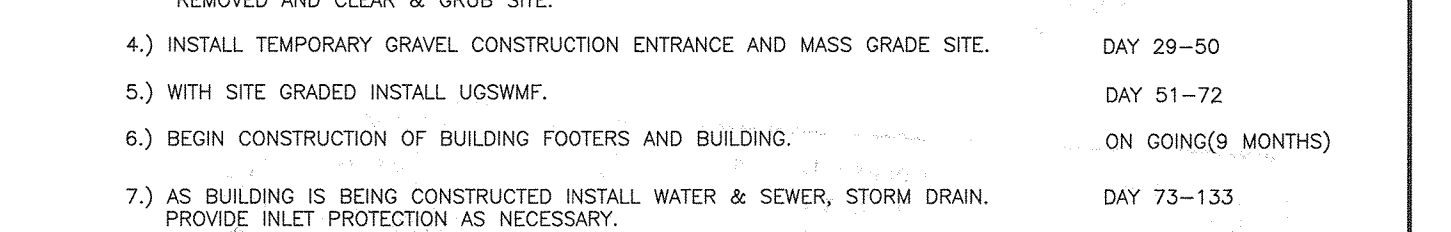
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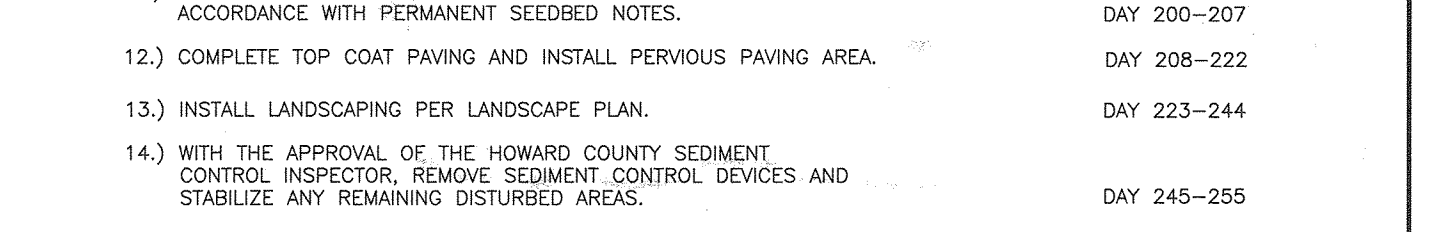
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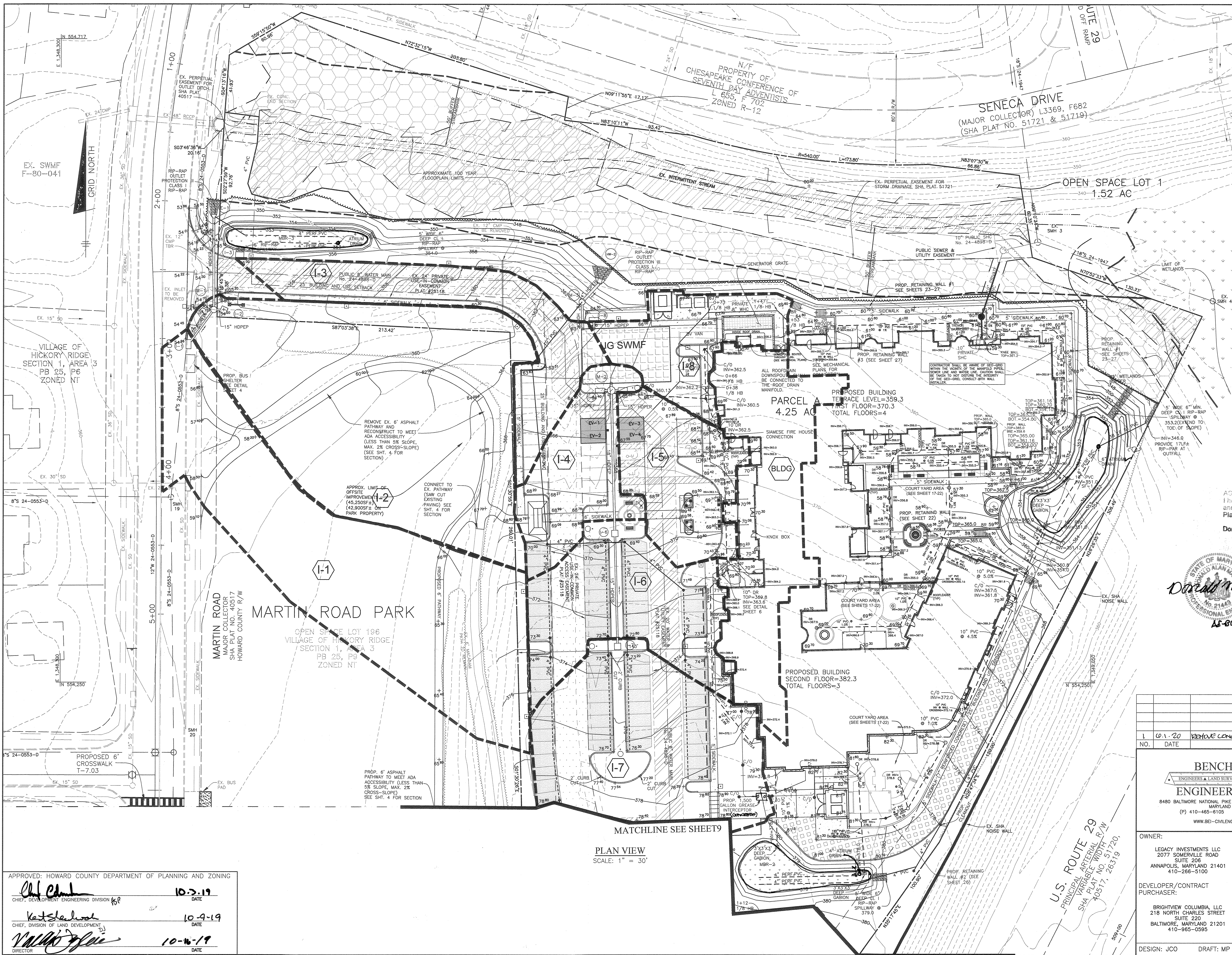
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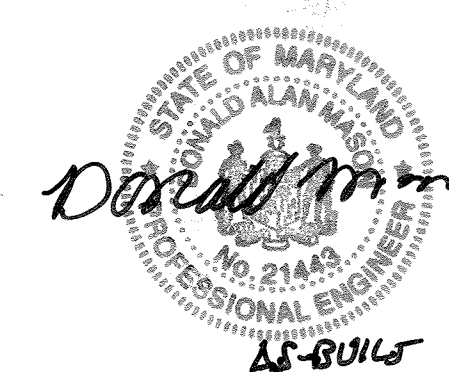
LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- EXISTING STREAM BUFFER
- APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
- EXISTING STRUCTURE
- LIMIT OF WETLANDS
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- PROPOSED ESD FACILITY
- PROPOSED UNDERGROUND SAND FILTER
- STORM DRAIN DRAINAGE DIVIDE
- PROPOSED MANIFOLD PIPE (10" PVC)
- PROPOSED MANIFOLD 10" DRAIN (SEE DETAIL SHEET 6)
- PROPOSED MANIFOLD CLEANOUT

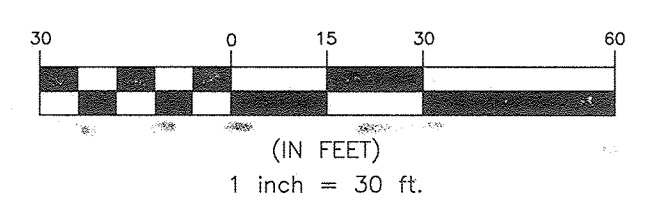
AS-BUILT CERTIFICATION
 I hereby certify, to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.

Date: 12/20/21



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12/31/22



| NO. | DATE | REVISION |
|-----|---------|---|
| 1 | 10-3-20 | REMOVE CONC. IN HC SPACES. REMOVE GREASE INTERCEPTOR TO CONC. |

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BEI-CVLENGINEERING.COM

OWNER:
 LEGACY INVESTMENTS LLC
 2077 SOMERVILLE ROAD
 SUITE 206
 ANNAPOLIS, MARYLAND 21401
 410-266-5100

DEVELOPER/CONTRACTOR:
 BRIGHTVIEW COLUMBIA, LLC
 218 NORTH CHARLES STREET
 SUITE 220
 BALTIMORE, MARYLAND 21201
 410-965-0595

DESIGN: JCO DRAFT: MP

BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING"
 PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
 ZONED: CEF-M
 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN STORM DRAIN DRAINAGE AREA MAP AND DOWNSPOUT MANIFOLD LAYOUT

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567
 SCALE: AS SHOWN SHEET 8 OF 31

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 10-3-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

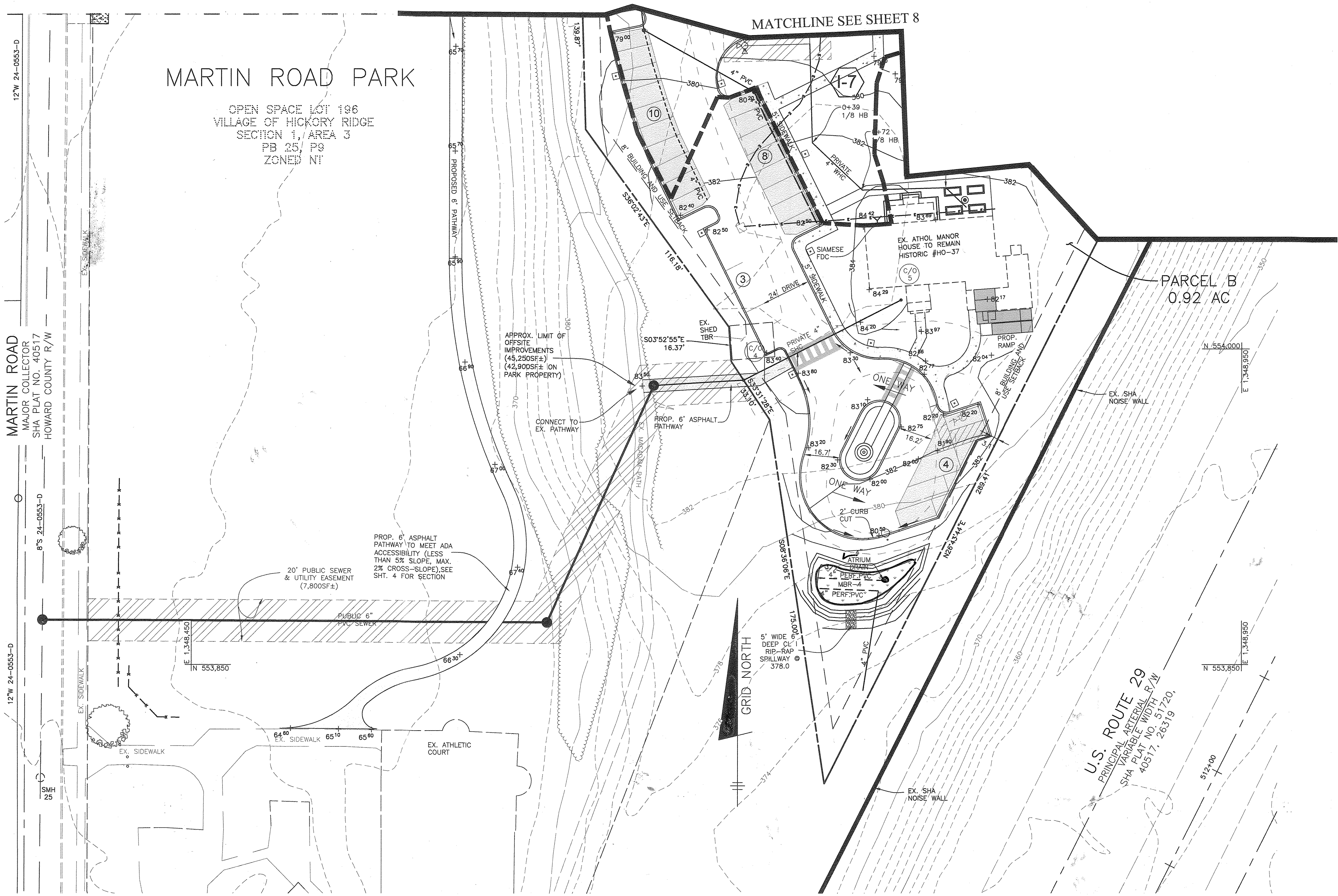
Katsela 10-9-19
 CHIEF, DIVISION OF LAND DEVELOPMENT

Walt 10-10-19
 DIRECTOR

PLAN VIEW
 SCALE: 1" = 30'

MATCHLINE SEE SHEET 9

U.S. ROUTE 29
 PRINCIPAL ARTERIAL R/W
 SHA PLAT NO. 51720, 40517, 26319



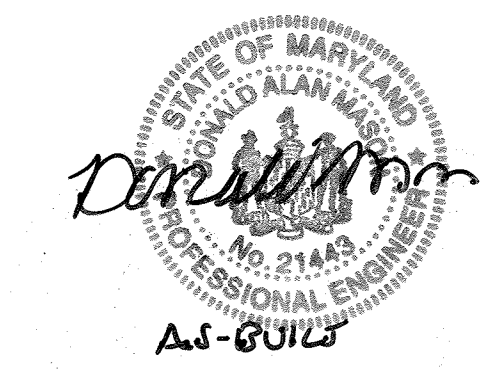
LEGEND

- EXISTING CONTOURS
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- PROPOSED MANIFOLD 10" DRAIN (SEE DETAIL SHEET 6)
- PROPOSED MANIFOLD CLEANOUT

STORM DRAINAGE AREA DATA

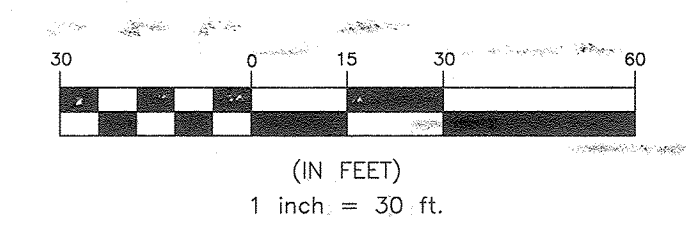
| | | |
|-------------------|------|-------------------|
| AREA = 0.66 AC | 1-1 | ZONE = CEF-M |
| "C" FACTOR = 0.24 | | IMPERVIOUS = 12% |
| AREA = 0.74 AC | 1-2 | ZONE = CEF-M |
| "C" FACTOR = 0.23 | | IMPERVIOUS = 7% |
| AREA = 0.24 AC | 1-3 | ZONE = CEF-M |
| "C" FACTOR = 0.85 | | IMPERVIOUS = 94% |
| AREA = 0.18 AC | 1-4 | ZONE = CEF-M |
| "C" FACTOR = 0.68 | | IMPERVIOUS = 74% |
| AREA = 0.18 AC | 1-5 | ZONE = CEF-M |
| "C" FACTOR = 0.8 | | IMPERVIOUS = 92% |
| AREA = 0.31 AC | 1-6 | ZONE = CEF-M |
| "C" FACTOR = 0.72 | | IMPERVIOUS = 85% |
| AREA = 0.59 AC | 1-7 | ZONE = CEF-M |
| "C" FACTOR = 0.67 | | IMPERVIOUS = 73% |
| AREA = 0.27 AC | 1-8 | ZONE = CEF-M |
| "C" FACTOR = 0.85 | | IMPERVIOUS = 98% |
| AREA = 0.44 AC | BLDG | ZONE = CEF-M |
| "C" FACTOR = 0.86 | | IMPERVIOUS = 100% |

PLAN VIEW
SCALE: 1" = 30'



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12-21-22

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Date: 12-28-21
Donald Mason, P.E.



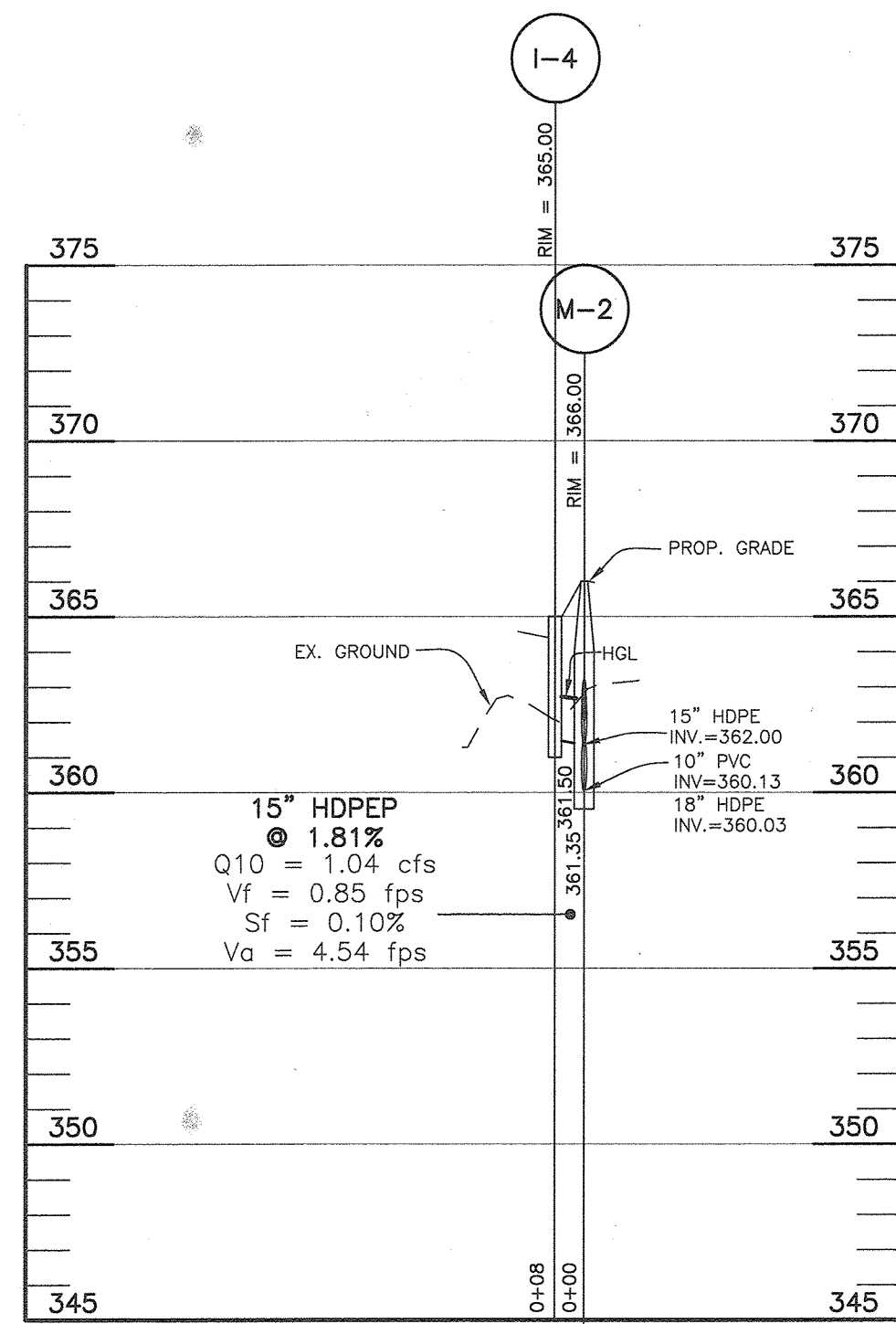
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10-3-19 DATE

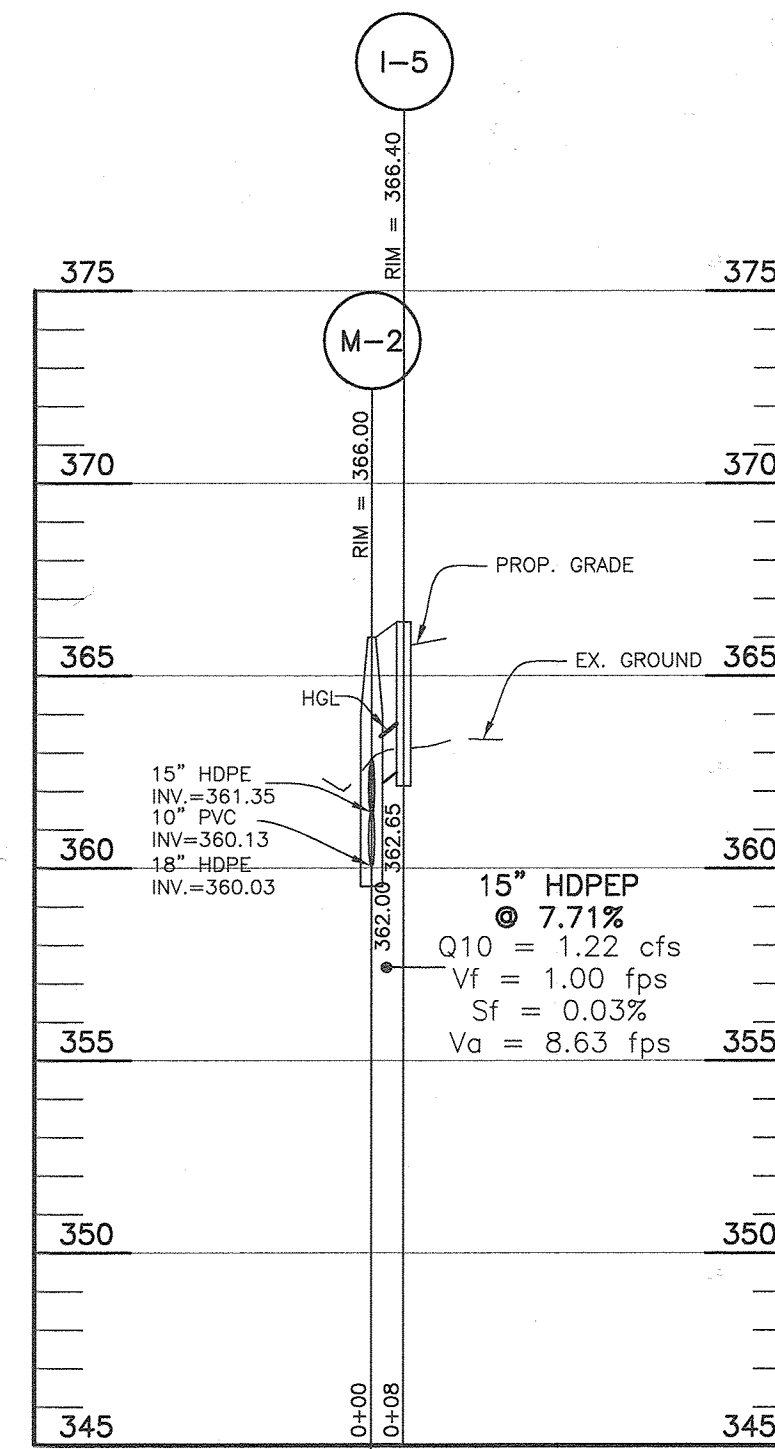
 CHIEF, DIVISION OF LAND DEVELOPMENT 10-4-19 DATE

 DIRECTOR 10-16-19 DATE

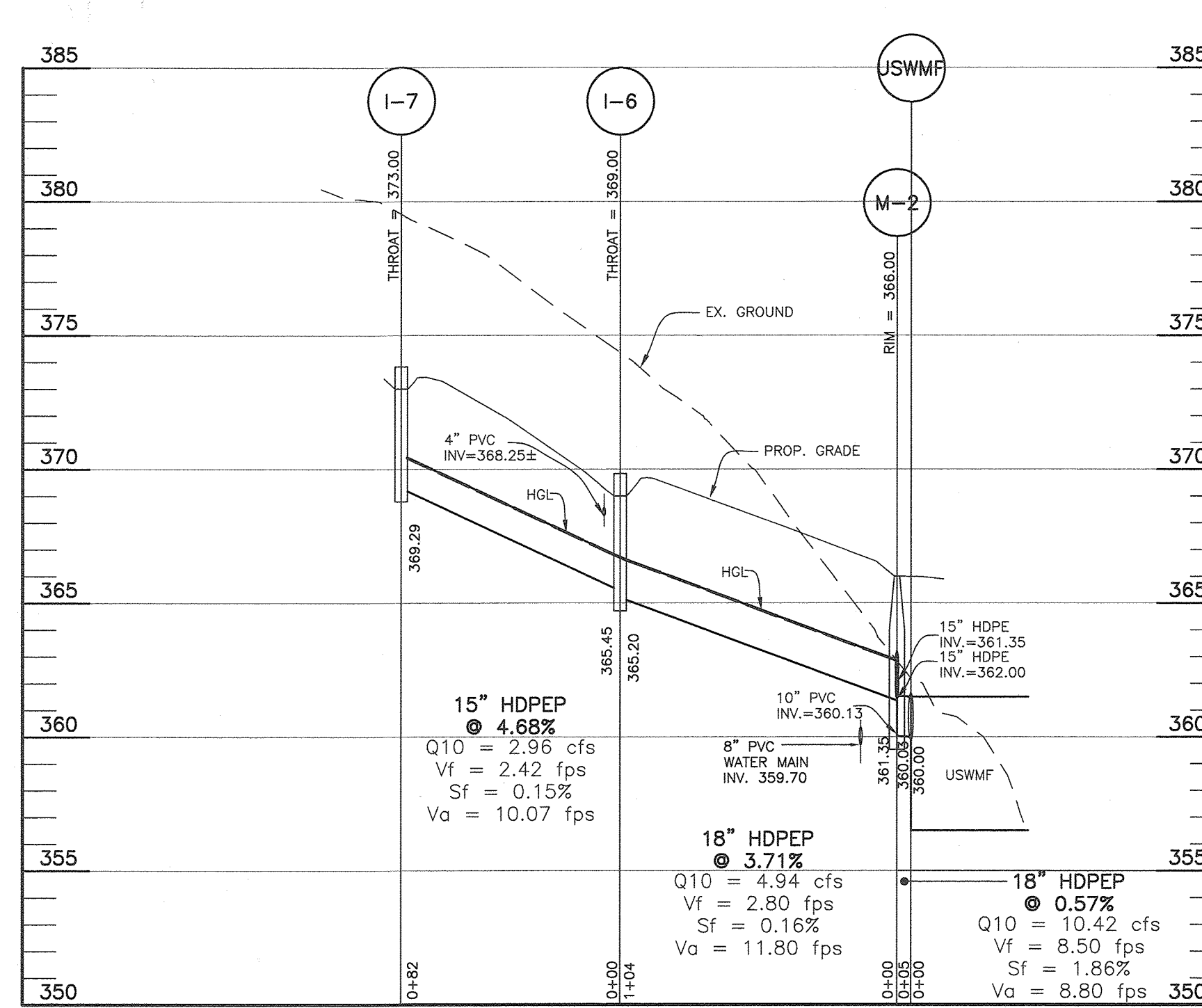
| NO. | DATE | REVISION |
|--|--|---|
| | | |
| | | |
| | | |
| BENCHMARK ENGINEERING, INC. ENGINEERS & LAND SURVEYORS & PLANNERS 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM | | Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 22390 Expiration Date: 6-30-2021 |
| OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100 | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1 TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND | DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595 |
| DESIGN: JCO | DRAFT: MP | DATE: SEPTEMBER 2019 SCALE: AS SHOWN SHEET 9 OF 31 |



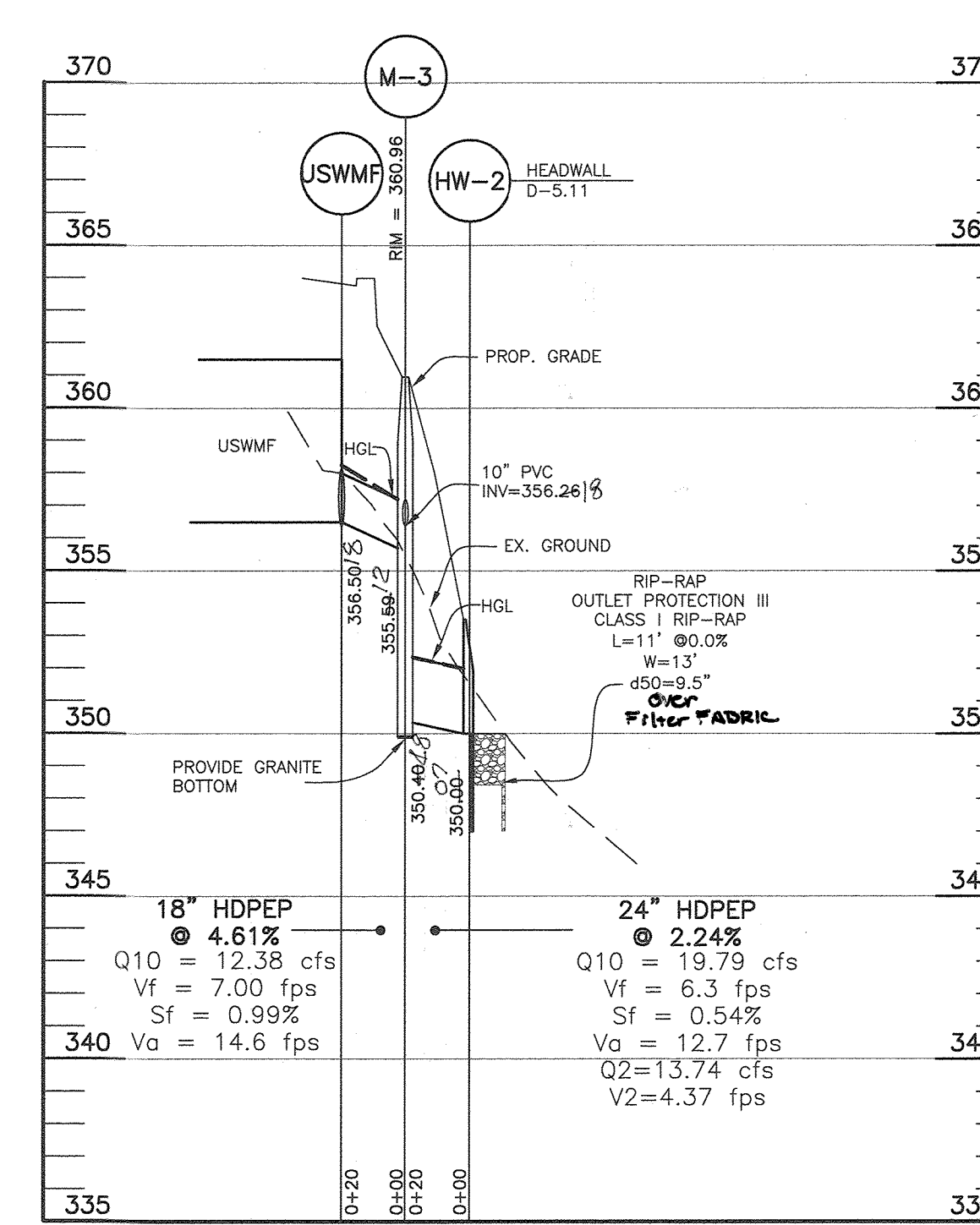
STORM DRAIN PROFILE
 SCALE: HORI.: 1"=50'
 VERT.: 1"=5'



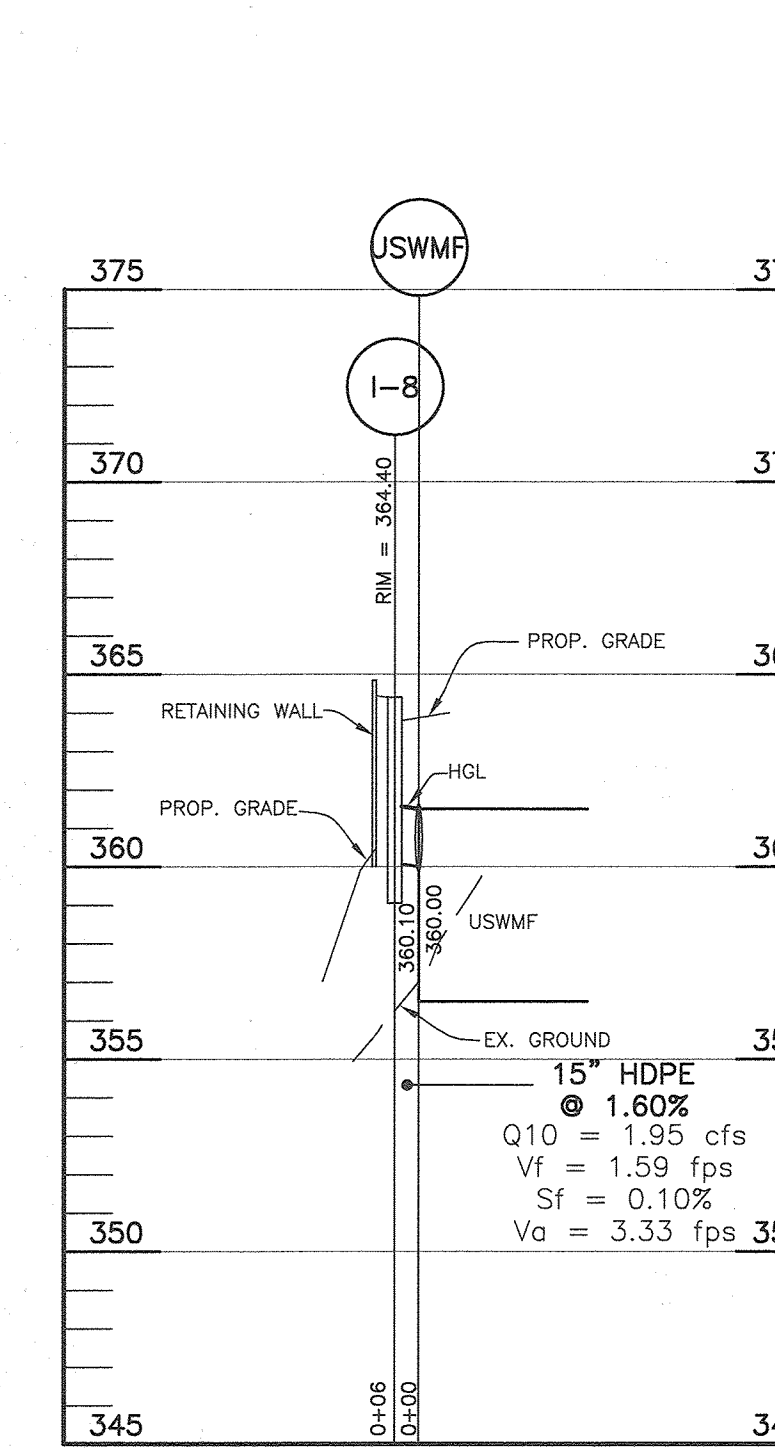
STORM DRAIN PROFILE
 SCALE: HORI.: 1"=50'
 VERT.: 1"=5'



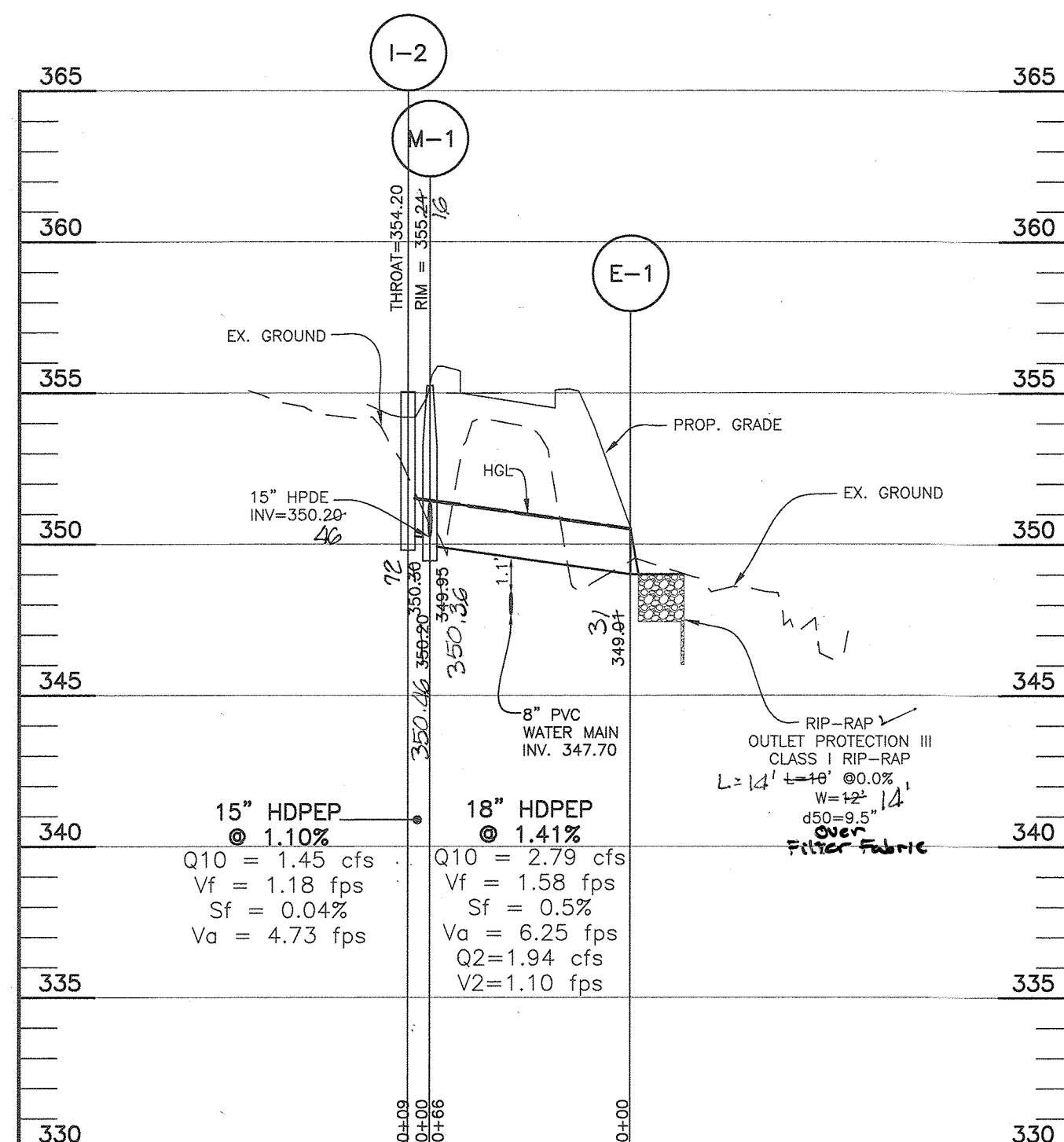
STORM DRAIN PROFILE
 SCALE: HORI.: 1"=50'
 VERT.: 1"=5'



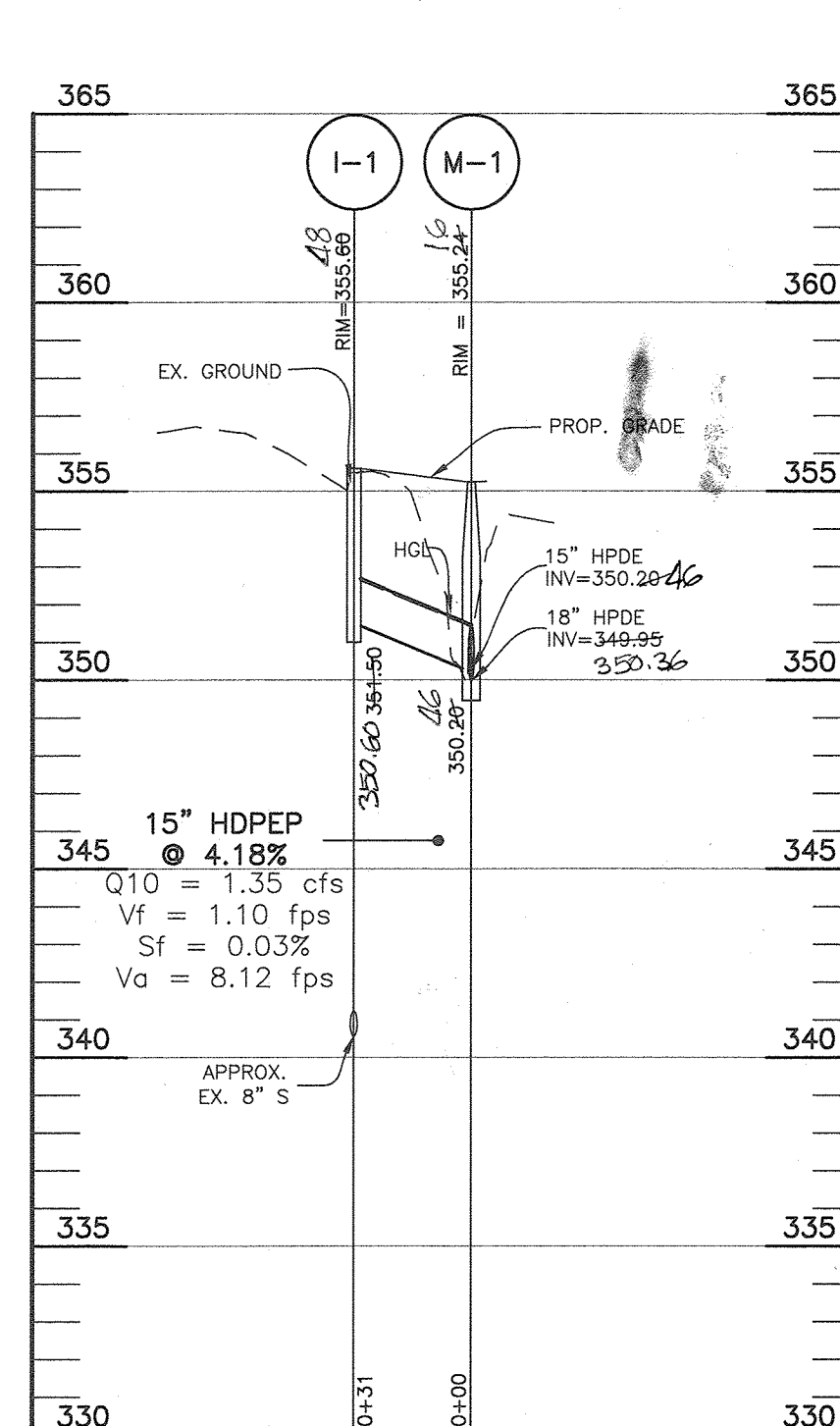
STORM DRAIN PROFILE
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STORM DRAIN PROFILE
 SCALE: HORI.: 1"=50'
 VERT.: 1"=5'



STORM DRAIN PROFILE
 SCALE: HORI.: 1"=50'
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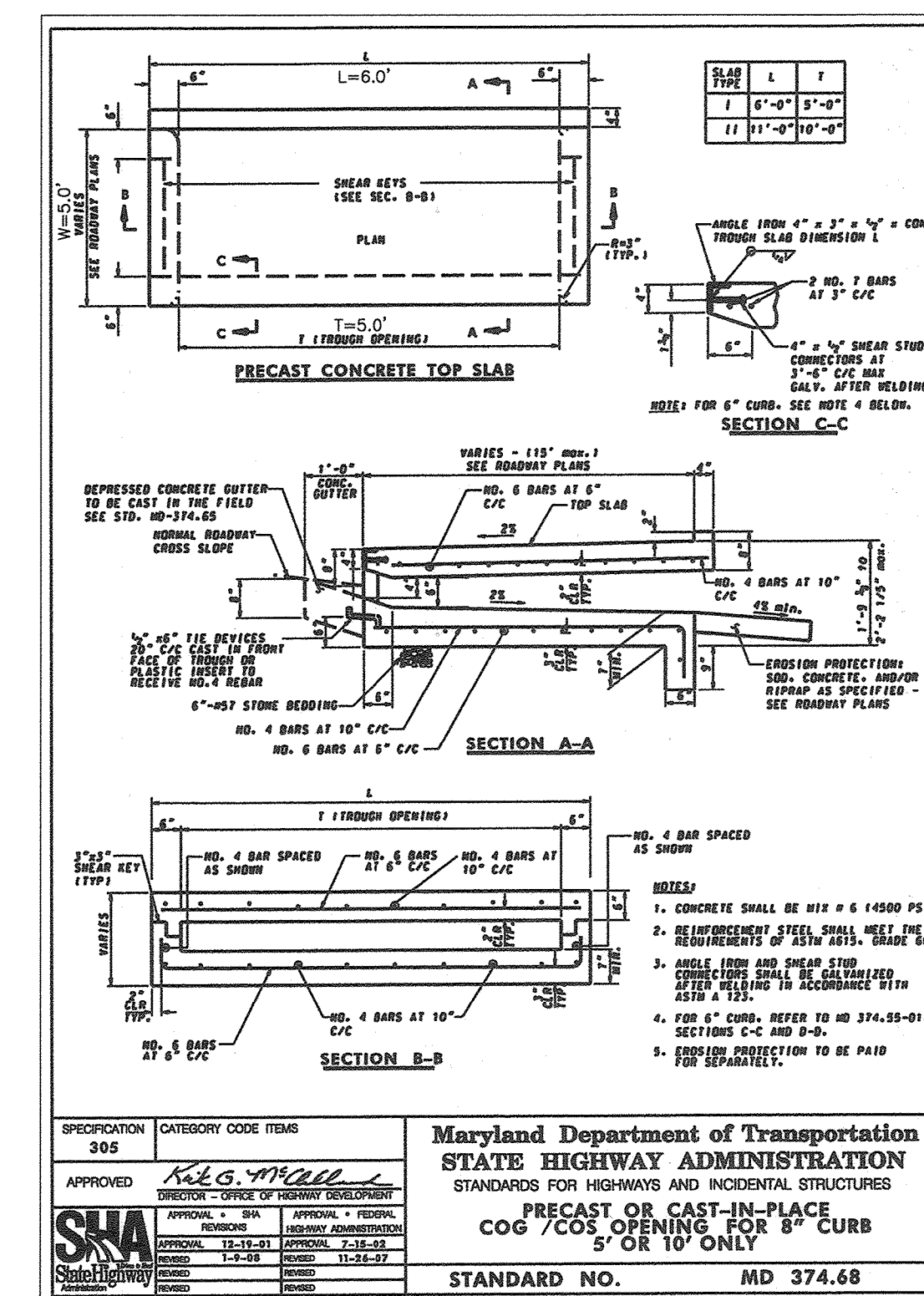


STORM DRAIN PROFILE
 SCALE: HORI.: 1"=50'
 VERT.: 1"=5'

| STORM DRAIN STRUCTURE TABLE | | | | | | |
|-----------------------------|--------------------------|-------------------------|--|-----------------------|-----------|-------------|
| NUMBER | TYPE | LOCATION | INVERT IN | INVERT OUT | TOP ELEV. | STD. DETAIL |
| I-1 | A-5 | N 554495.3 E 1348391.2 | 354.50(15") | 355.60 | 355.60 | D-4.02 |
| I-2 | TYPE 'D' OPEN ON 3 SIDES | N 554520.1 E 1348418.7 | 350.38(15") | 354.20 | 354.20 | D-4.10 |
| I-3 | 5' FLOW THRU | N 5544557.2 E 1348430.1 | 354.70 | 355.60 | 355.60 | MD 374.68 |
| I-4 | A-5 | N 554459.8 E 1348692.5 | 361.50(15") | 365.00 | 365.00 | D-4.02 |
| I-5 | A-5 | N 554460.3 E 1348709.2 | 362.65(15") | 366.40 | 366.40 | D-4.02 |
| I-6 | TYPE 'D' OPEN ON 3 SIDES | N 554358.1 E 1348703.5 | 365.45(15") | 365.20(18") | 369.00 | D-4.10 |
| I-7 | TYPE 'D' OPEN ON 3 SIDES | N 554276.2 E 1348705.7 | 369.29(15") | 373.00 | 373.00 | D-4.10 |
| I-8 | A-5 | N 554511.3 E 1348687.9 | 360.10(15") | 364.40 | 364.40 | D-4.02 |
| M-1 | 48" MH | N 554520.4 E 134811.4 | 350.28(15") 350.29(15") | 349.95(18") 350.36 | 355.24 | G-5.12 |
| M-2 | 60" MH | N 554461.9 E 1348700.7 | 361.35(15") 361.35(18") 362.00(15") 360.13(10") | 360.03(18") | 366.00 | G-5.13 |
| M-3 | 48" MH | N 554526.3 E 1348679.4 | 356.18 356.18 | 350.49(24") | 360.96 | G-5.12 |
| E-1 | 18" CONC. END SECTION | N 554586.7 E 1348411.4 | 349.01(18") | 350.51 | 350.51 | D-5.52 |
| HW-2 | 24" CONC. HEADWALL | N 554539.4 E 1348691.7 | 350.96(24") | 353.50 | 353.50 | D-5.11 |

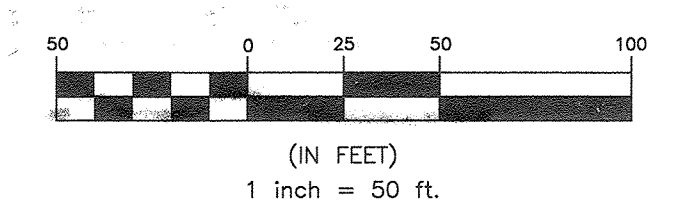
| PIPE TABLE | | |
|-----------------|--------|--|
| SIZE / MATERIAL | LENGTH | |
| 15" HDPEP | 144 LF | |
| 18" HDPEP | 192 LF | |
| 24" HDPEP | 20 LF | |

- STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE.
- STRUCTURE LOCATION FOR INLETS IS AT THE CENTER OF THE INLET TOP FACE OF CURB.
- STRUCTURE ELEVATION AND LOCATION FOR END SECTIONS IS AT THE MIDPOINT OF THE END OF PIPE BEGINNING OF END SECTION.
- STRUCTURE ELEVATIONS FOR TYPE D INLETS IS THROAT OPENING.



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12/21/22

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 12/28/21



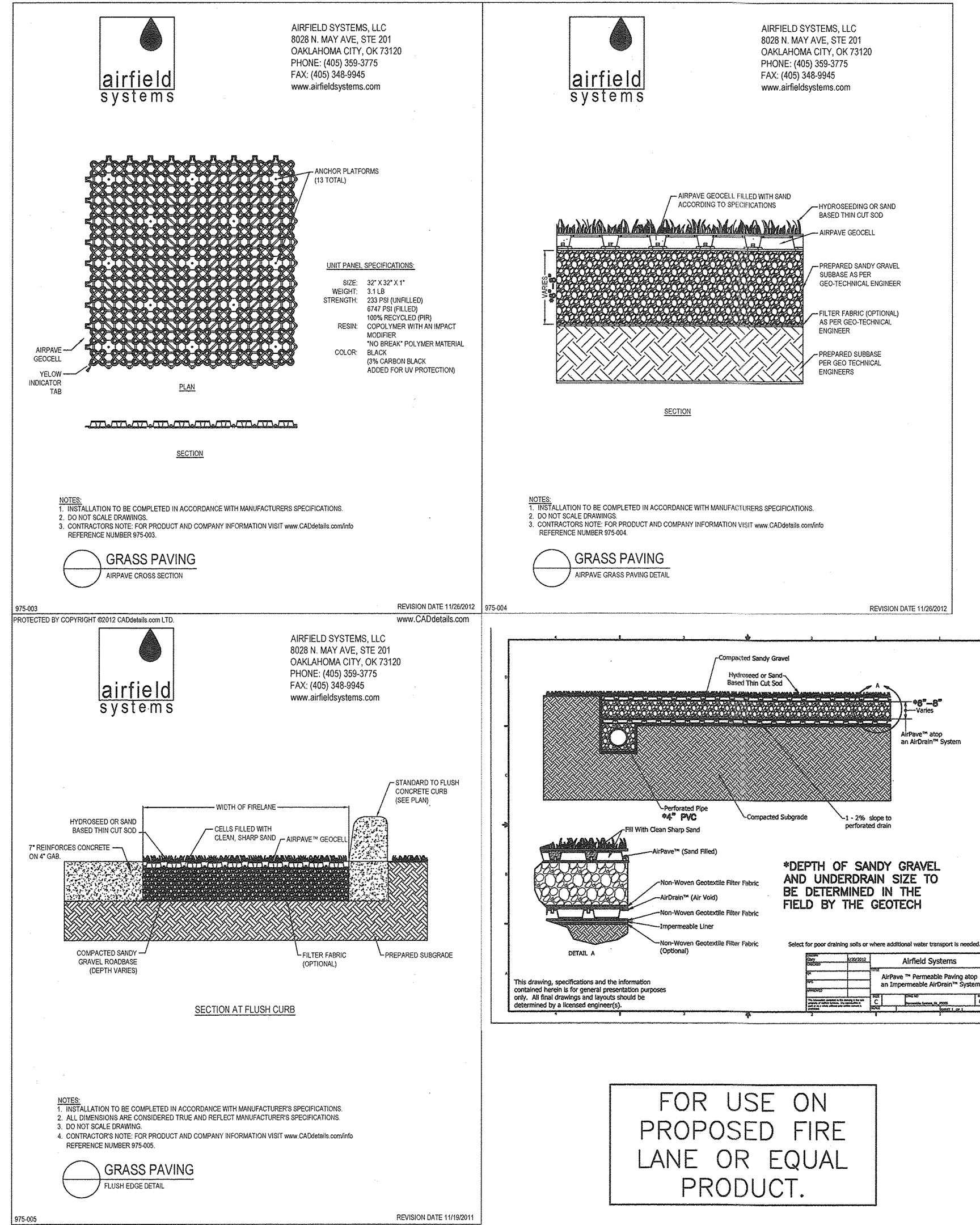
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

10-3-19
 10-9-19
 10-16-19

Maryland Department of Transportation
 STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
 PRECAST OR CAST-IN-PLACE
 COG / COS OPENING FOR 8" CURB
 5' OR 10' ONLY
 STANDARD NO. MD 374.68

| NO. | DATE | REVISION |
|---|------|--|
| <p>BENCHMARK ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6844 WWW.BEI-CVILENGINEERING.COM</p> | | |
| <p>OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100</p> | | <p>Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21390 Expiration Date: 6-30-2021</p> |
| <p>DEVELOPER/CONTRACTOR/PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595</p> | | <p>BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1 TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND</p> |
| <p>DESIGN: JCO DRAFT: MP</p> | | <p>DATE: SEPTEMBER 2019 SCALE: AS SHOWN SHEET 10 OF 31</p> |

AIRFIELD SYSTEMS FLEXIBLE POROUS PAVING DETAILS



AIRFIELD SYSTEMS FLEXIBLE POROUS PAVING SPECIFICATIONS

2.1 MANUFACTURERS

A. Accessible Manufacturer: Airfield Systems, Inc. located at 8038 N. May Ave. Suite 201, Oklahoma City, OK 73120. Tel: 405-368-3776. Website: www.airfieldsystems.com. Email: sales@airfieldsystems.com or info@airfieldsystems.com

B. Substitutes: Not permitted.

2.2 MATERIALS

A. Base Course: Ready gravel material from local sources commonly used for road base construction and conforming to the following sieve analysis and requirements:

- 100 percent passing sieve size 1 inch (25 mm)
- 80-100 percent passing sieve size 3/8 inch (9.5 mm)
- 70-85 percent passing sieve size 3/16 inch (4.75 mm)
- 50-75 percent passing sieve size #10
- 45-65 percent passing sieve size #20
- 25-35 percent passing sieve size #40
- 3-8 percent passing sieve size #200

B. For all gravel, provide material meeting minimum (M) (range from 6.5 to 7.5) to provide adequate root zone development for turf.

C. Material may be either "hot mix" or "crusher run". Crusher run material will generally require coarse, well-draining sand conforming to ASTM D 2047 or ASTM C 33 to be added to achieve (M) (30 percent by volume) to ensure long-term porosity.

D. Alternative materials such as crushed shell, limestone, or crushed lava may be used for base course only, provided they are mixed with steep sand (20 to 30 percent) to ensure long term porosity, and are brought to proper compaction. Without added sand, crushed shell and limestone will set up concrete and become impervious.

B. Porous Flexible Paving Units: AirPave Geocell Grass Paving Units

- Lightweight injection-molded copolymer polypropylene plastic units using injection molding.
- Flexibility: 100 percent post-consumer recycled copolymer polypropylene plastic units using injection molding, with minimum 3 percent carbon black added for UV protection.
- Chemical resistance: Excellent.
- UV resistance: High.
- Tensile: 1000 lbs/inch.
- Performance Properties:
 - Loading capability is equal to 235 psi empty capacity and 6,747 psi when filled with sand, over an appropriate base depth that provides adequate support for project loads.
 - Dimensions:
 - Height: 3.1784 inches by 3.1784 inches by 1.0000 inch or 7/32 inch.
 - Weight (Nominal): 3.10 lbs per square grid, 6 pounds/sq ft.

C. Paver Unit Anchors: 8 inch Chain Point Pins (CP) 899 899 Wire with 1.5 inch round attached anchor, as required by the Architect or licensed geotechnical engineer to secure units in place.

D. Sand Cover:

- Coarse, well-draining sand (washed coarse sand conforming to ASTM D 2047 or ASTM C-33).
- United States Golf Association (USGA) greens sand mix: The "Root Zone Mixtures".
- Other Soil Mixes as recommended by the manufacturer.

E. Grass: Coordinate with Section 32 02 26.13 - Blotting:

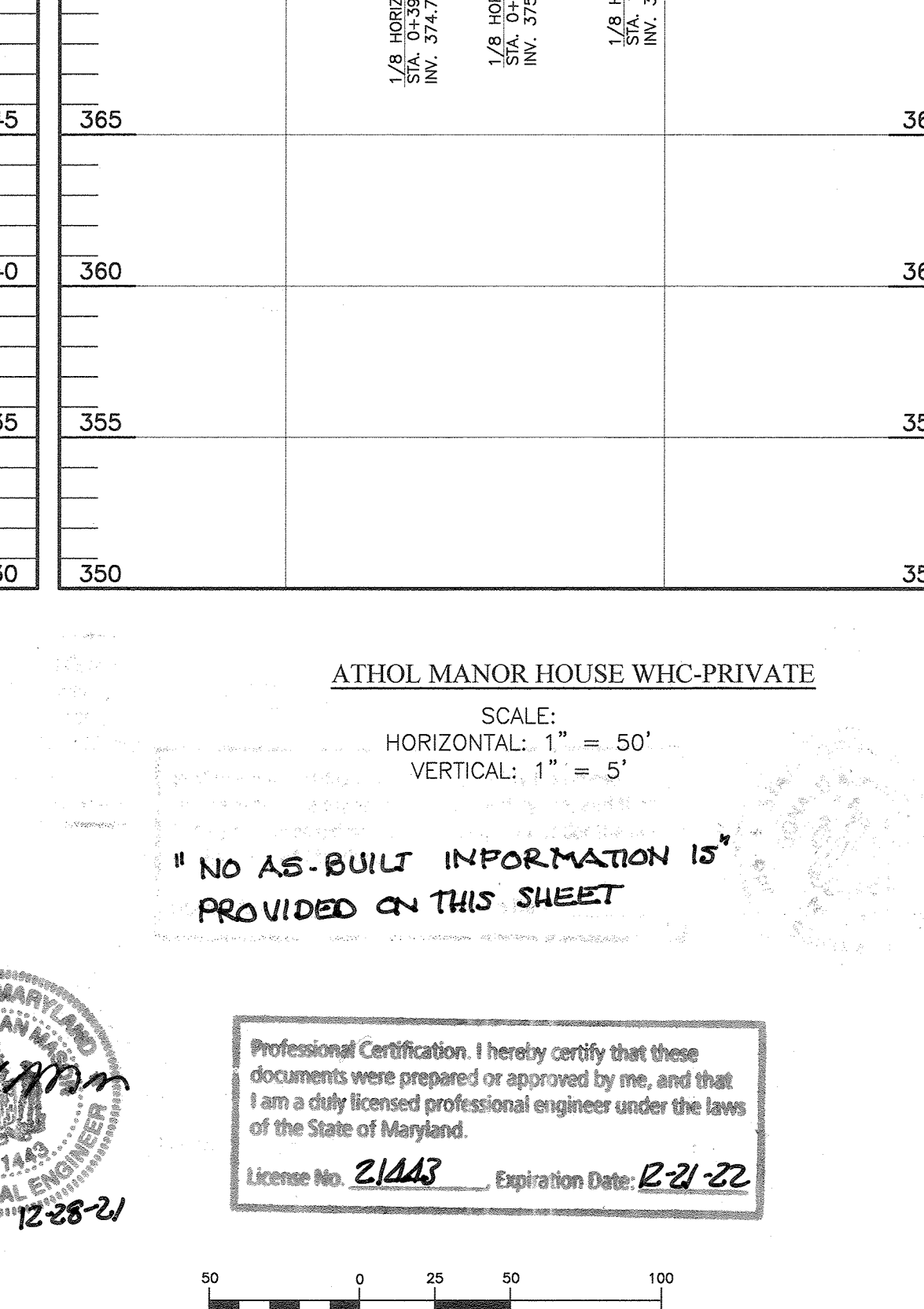
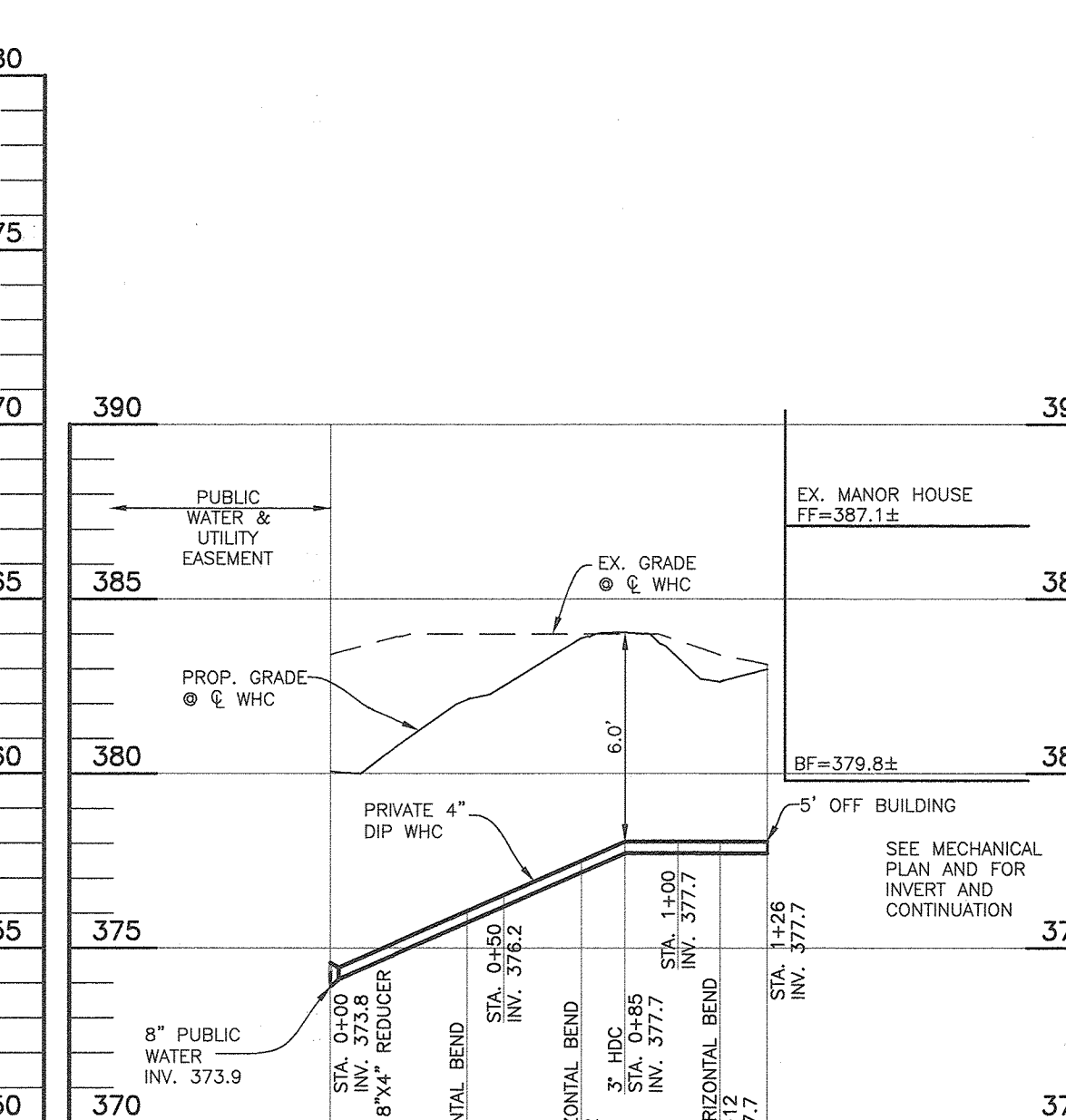
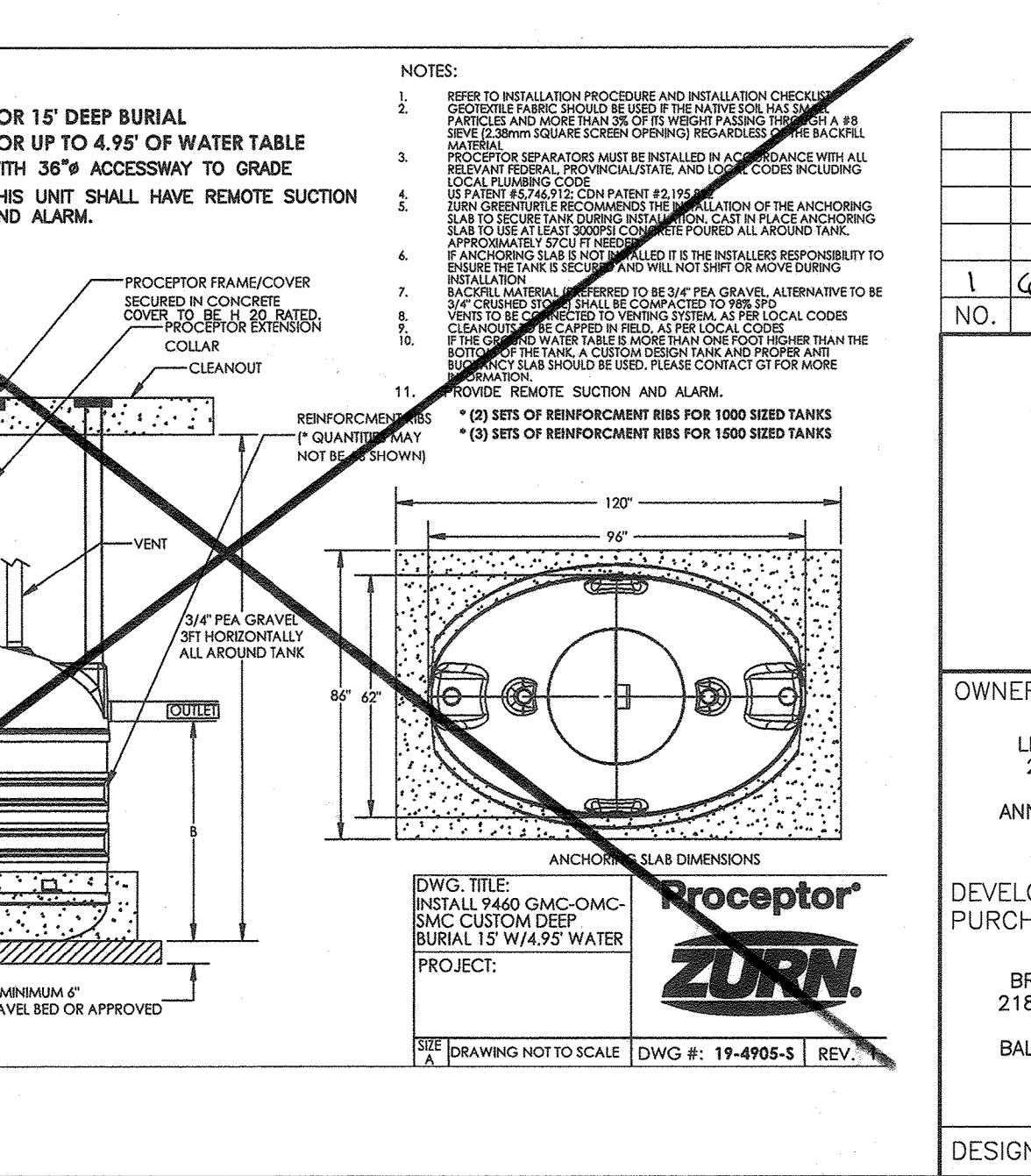
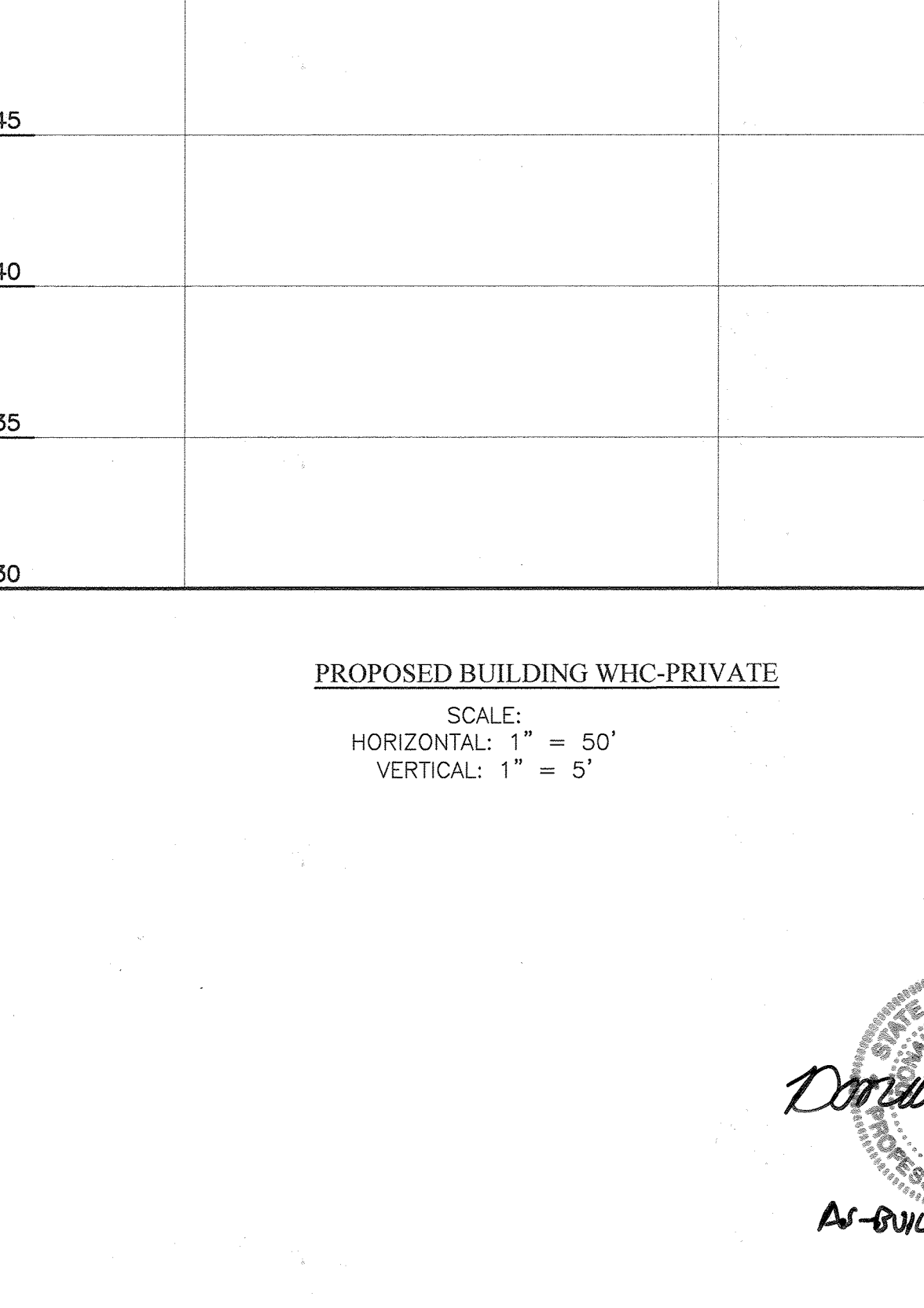
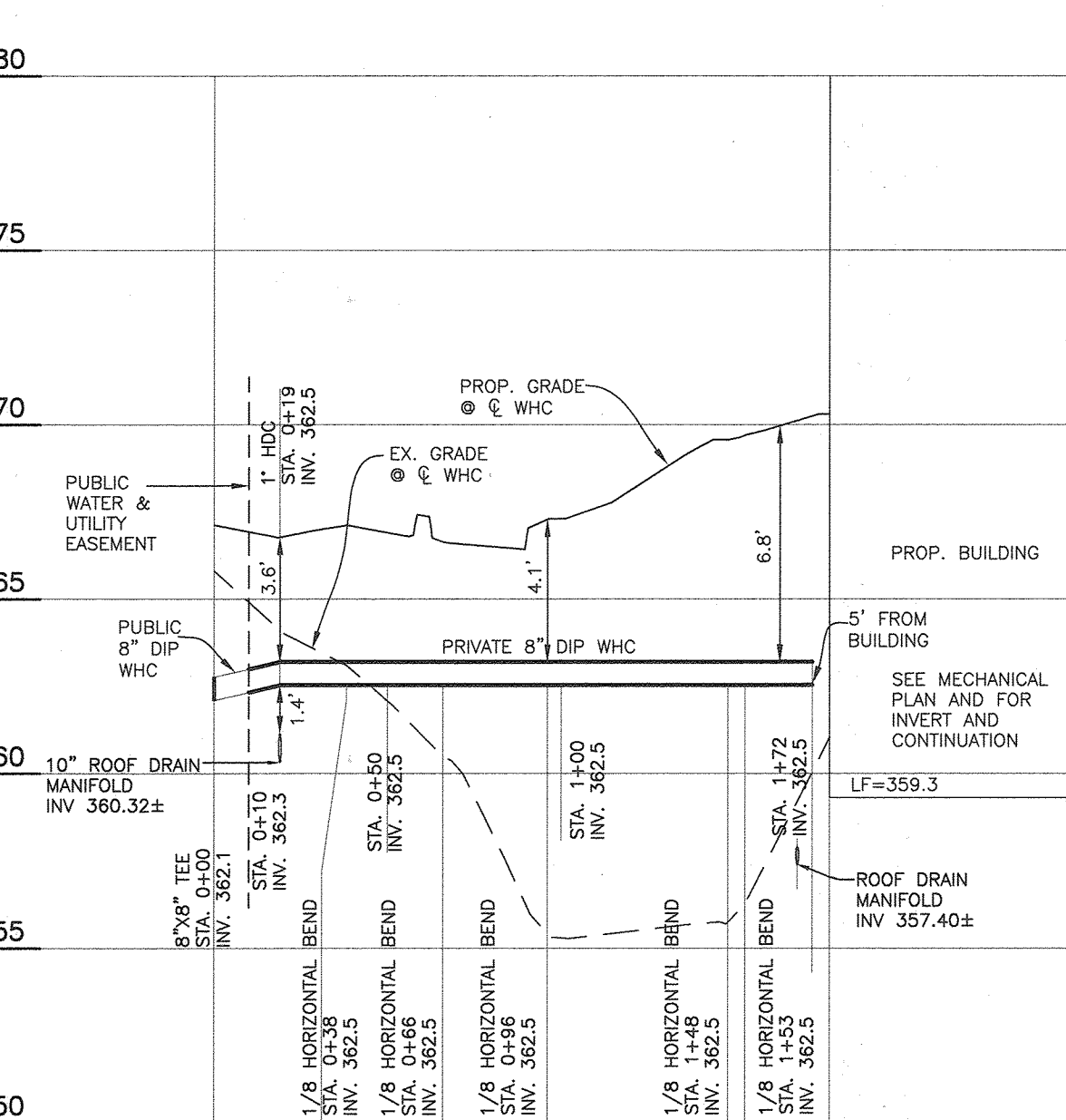
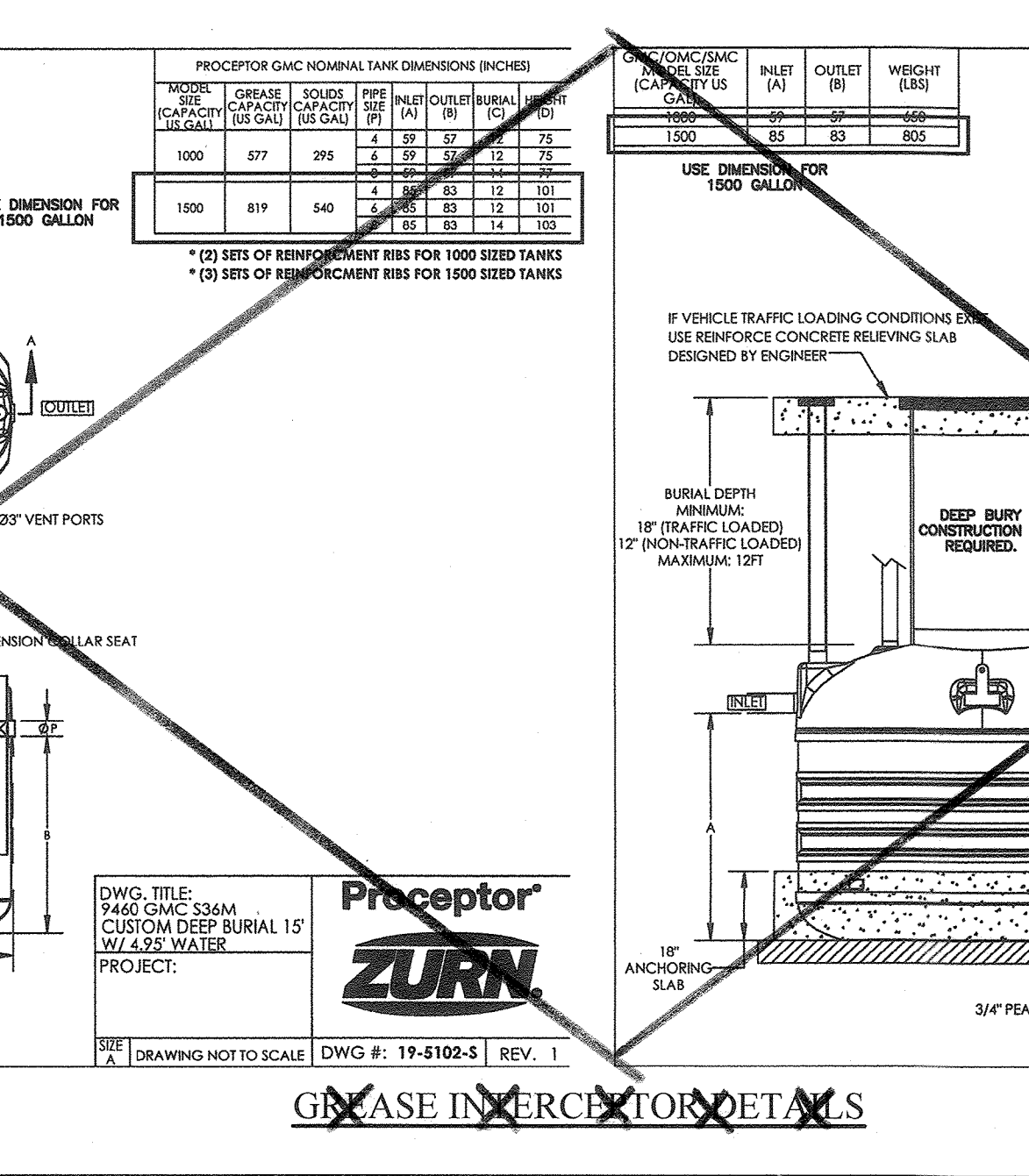
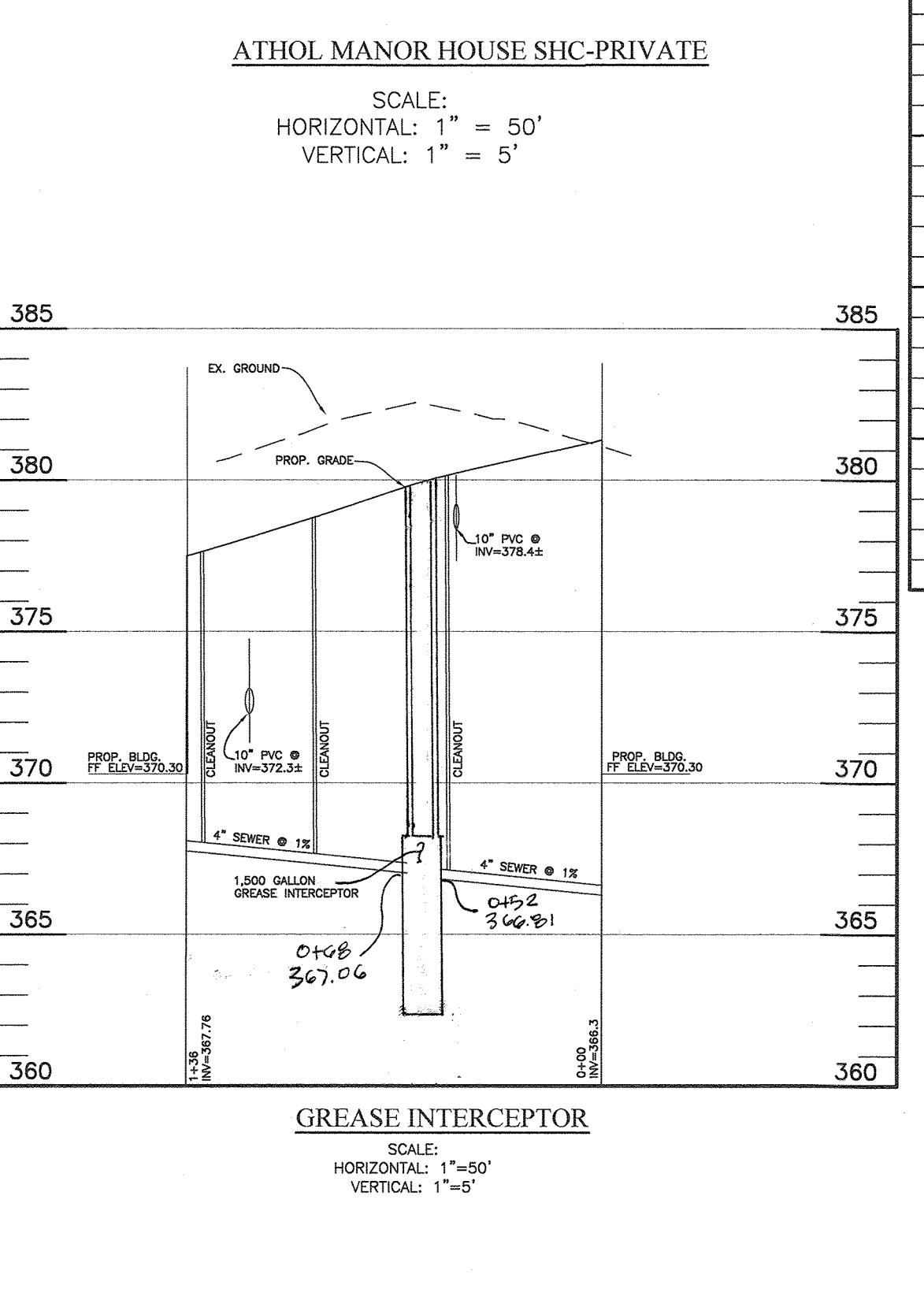
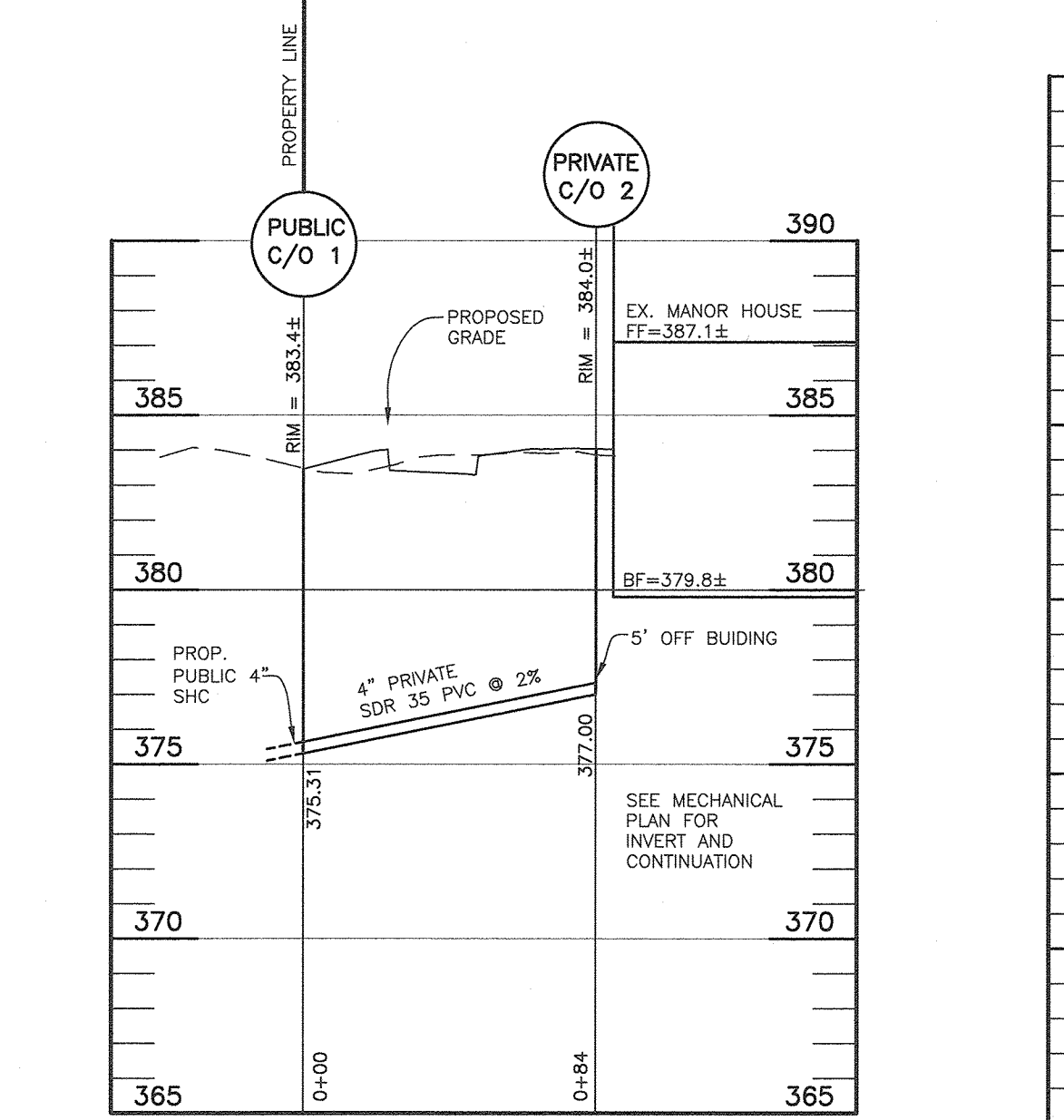
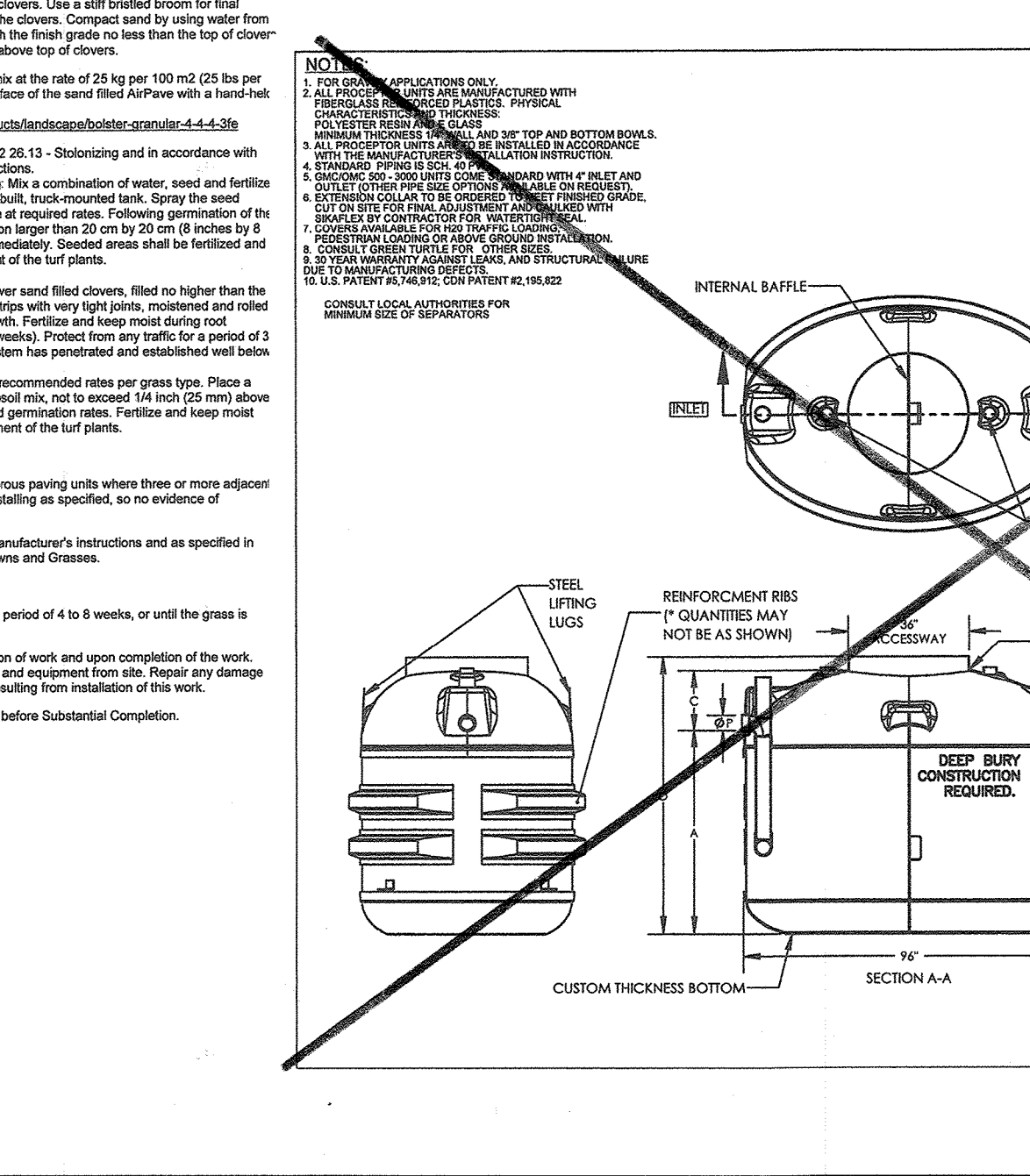
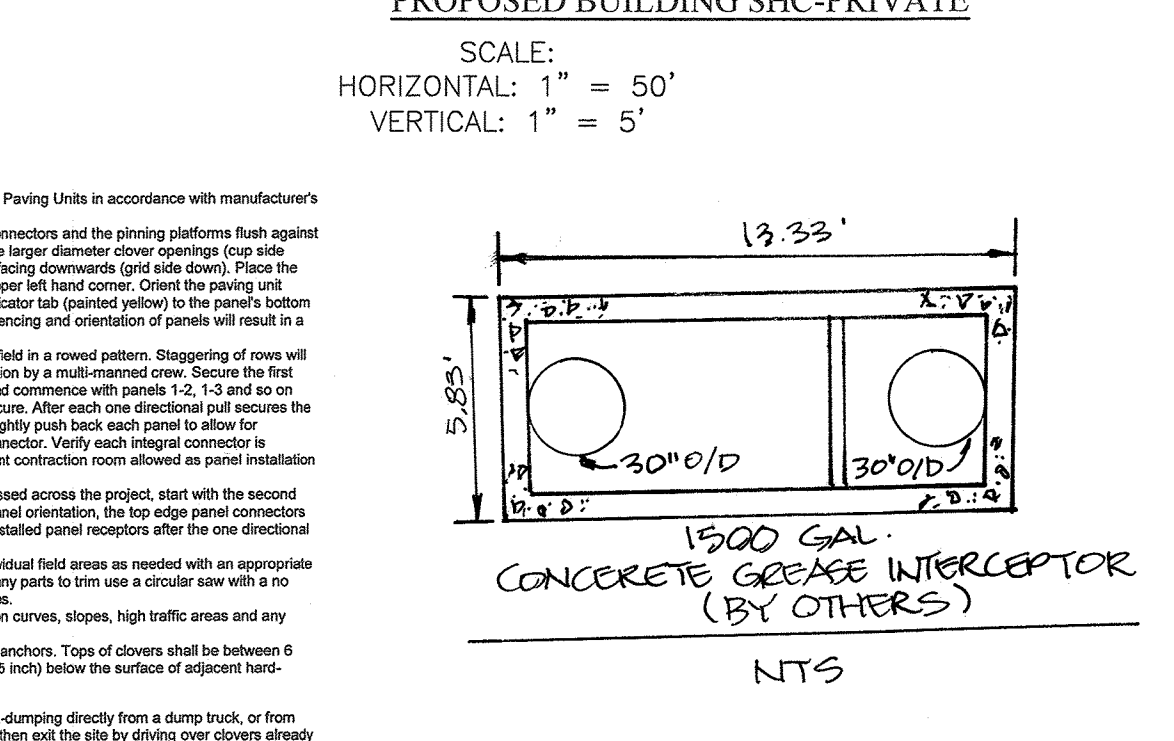
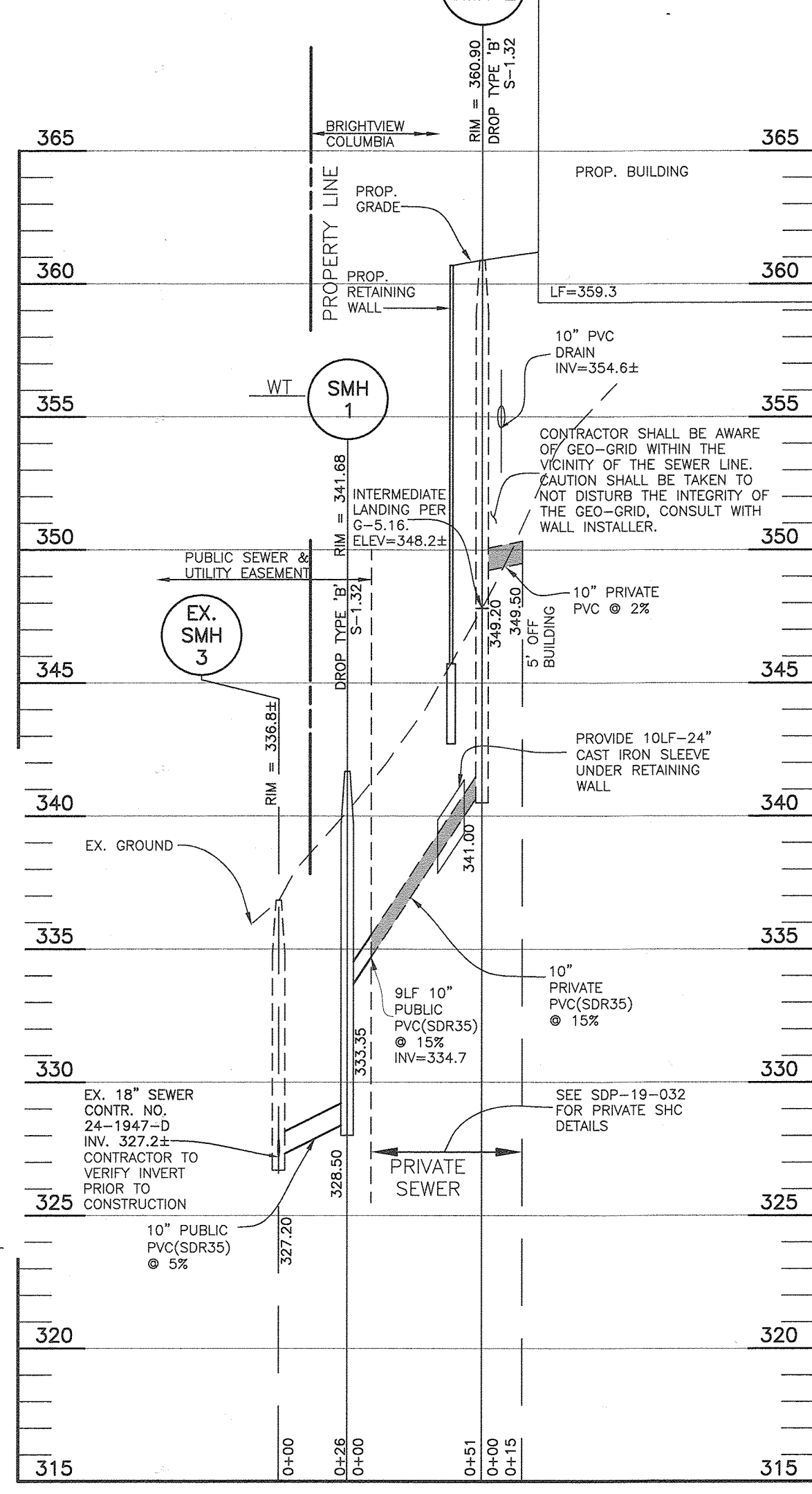
- Seeding: Sod: Use a 14 inch shallow cut roller foot from a residential lawn mower. Sod should be never seeded from from drainage, and excellent drainage. Sod should be grown in sandy soil (pH 6.0 to 7.0) with less than 15 percent clay content. Sod grown in soils of clay, silt, or high organic matter should not be used.
- Seeding: Use seed materials, of the preferred species for local environmental and practical traffic conditions, from certified sources. Seed should be planted in containers clearly labeled to show seed name, lot number, net weight, germination seed content, and certified analysis. Seed should be planted and germination Pure Use Seed types and amount shall be as shown on plans. Plugs using sand or gravel shall use type of commercial mesh materials used in hydroseeding operations. Multiple of sowing, plug needles, etc. will not be acceptable because of potential for soil compaction and erosion.
- Hydro Seeding: Approved seed mix and mulch using wood or paper cellulose types of commercial mesh materials for hydroseeding operations.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *Chad E. Johnson* 10-3-19 DATE

Chief, Division of Land Development: *Walt S. Johnson* 10-9-19 DATE

Director: *N. Williams* 10-16-19 DATE



Professional Certification

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 Expiration Date: R-21-22

BENCHMARK ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043

WWW.BEI-CIVILENGINEERING.COM

OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100

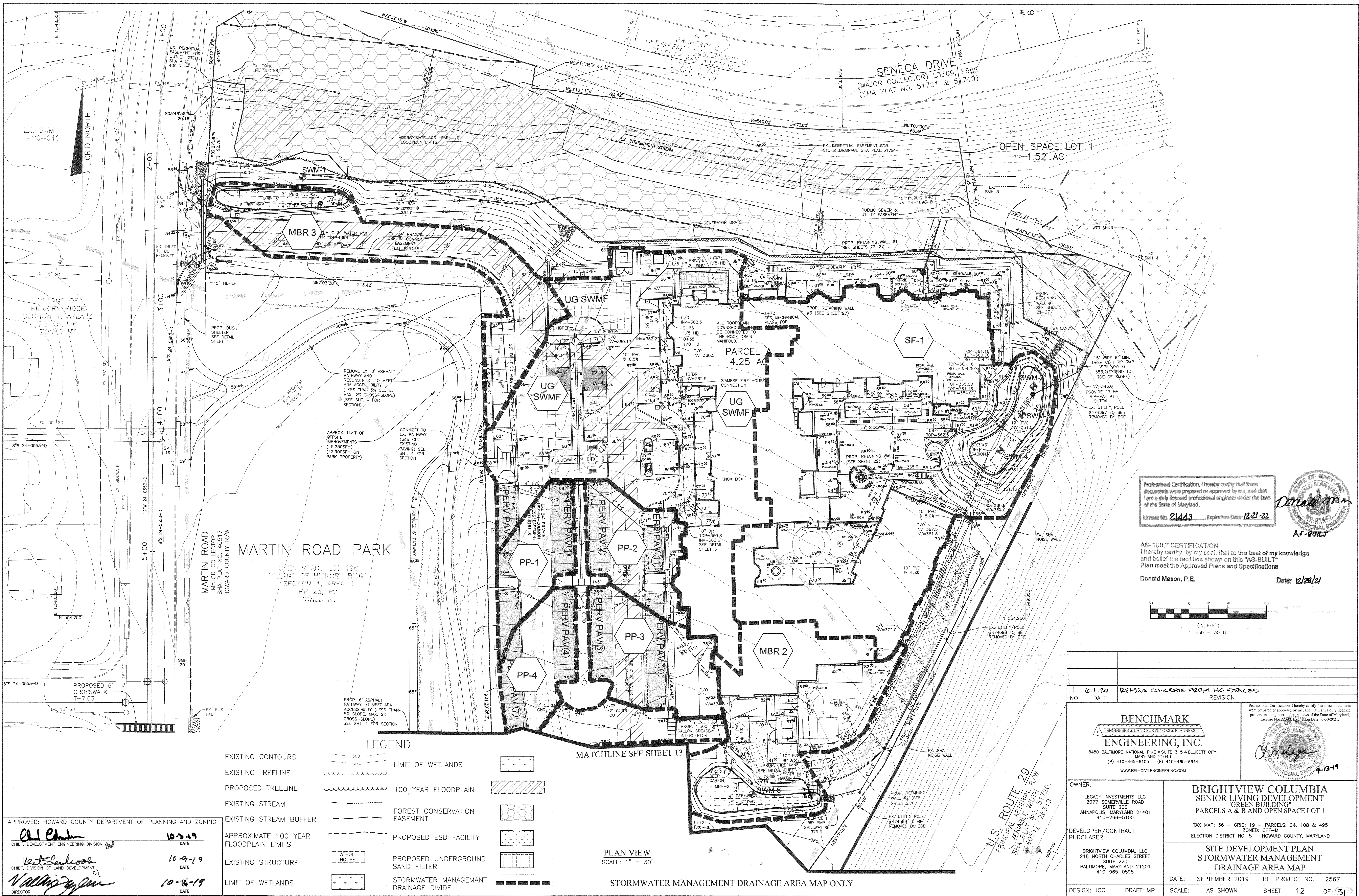
DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595

DESIGN: JCO **DRAFT:** MP

DATE: SEPTEMBER 2019 **BEI PROJECT NO.:** 2567

SHEET 11 OF 31

AS-BUILT SDP-19-032



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 10-3-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

Keith ... 10-9-19
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

Val ... 10-16-19
 DIRECTOR
 DATE

LEGEND

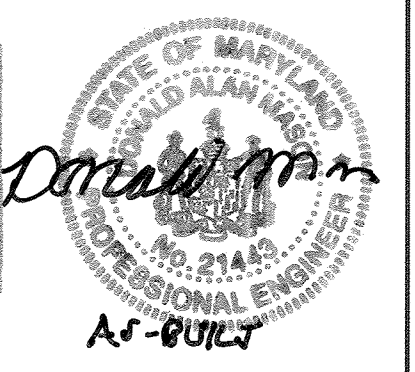
| | | | |
|--|-------------|---------------------------------------|----------|
| EXISTING CONTOURS | --- 368 --- | --- | --- |
| EXISTING TREELINE | ~~~~~ | LIMIT OF WETLANDS | [Symbol] |
| PROPOSED TREELINE | ~~~~~ | 100 YEAR FLOODPLAIN | [Symbol] |
| EXISTING STREAM | — — — | FOREST CONSERVATION EASEMENT | [Symbol] |
| EXISTING STREAM BUFFER | — — — | PROPOSED ESD FACILITY | [Symbol] |
| APPROXIMATE 100 YEAR FLOODPLAIN LIMITS | --- | PROPOSED UNDERGROUND SAND FILTER | [Symbol] |
| EXISTING STRUCTURE | [Symbol] | STORMWATER MANAGEMENT DRAINAGE DIVIDE | --- |
| LIMIT OF WETLANDS | [Symbol] | | |

MATCHLINE SEE SHEET 13

PLAN VIEW
 SCALE: 1" = 30'

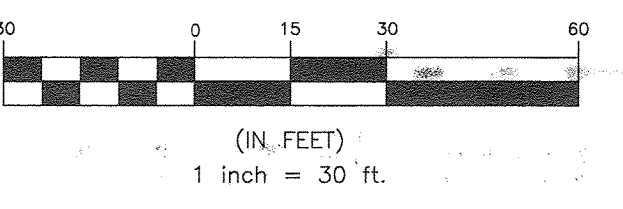
STORMWATER MANAGEMENT DRAINAGE AREA MAP ONLY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-21-22



AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 12/21/21



| NO. | DATE | REVISION |
|-----|---------|--------------------------------|
| 1 | 10-1-20 | REMOVE CONCRETE FROM HC SPACES |

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BE-CIVILENGINEERING.COM

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 LEGACY INVESTMENTS LLC
 2077 SOMERVILLE ROAD
 SUITE 206
 ANNAPOLIS, MARYLAND 21401
 410-266-5100

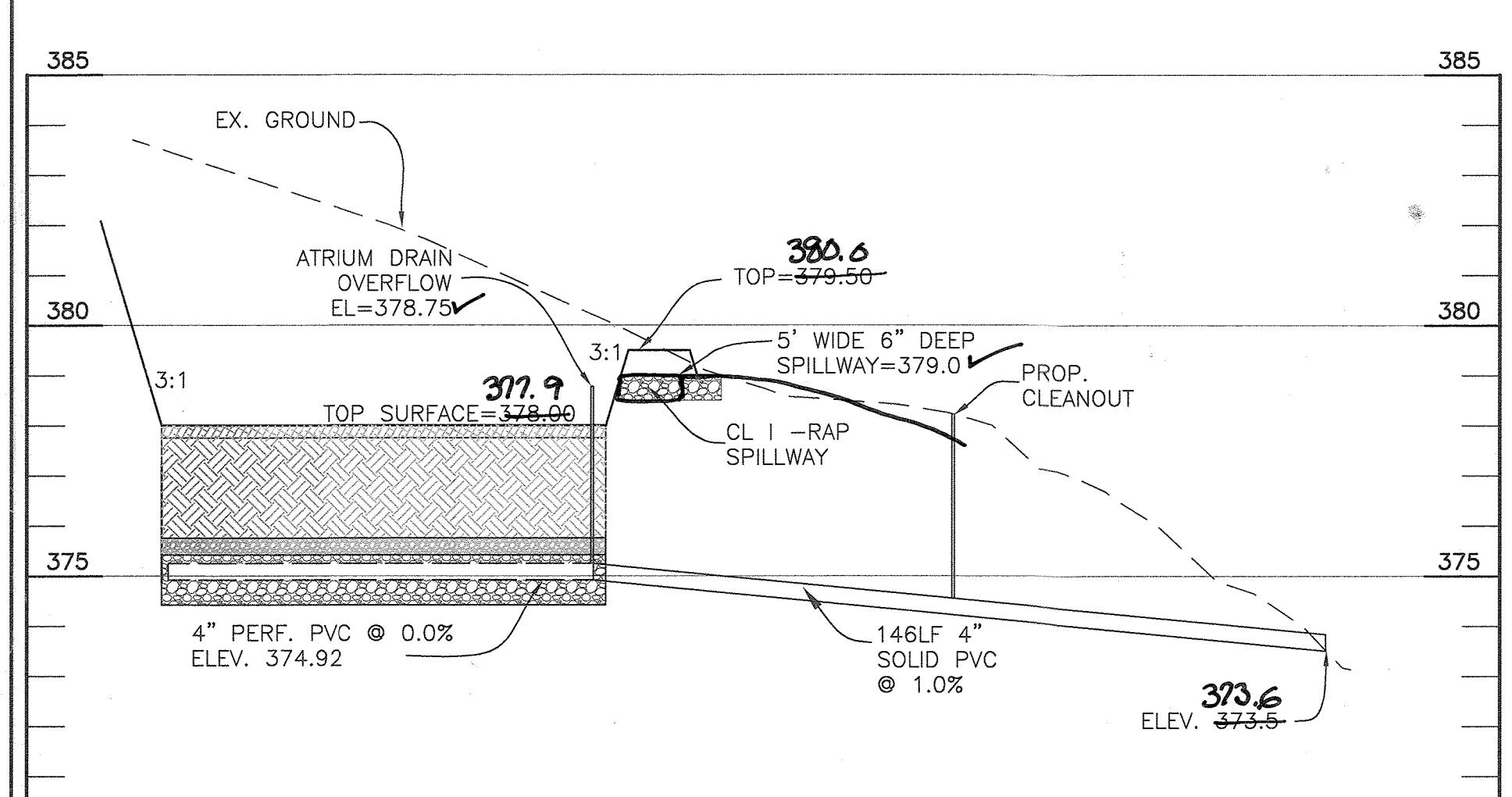
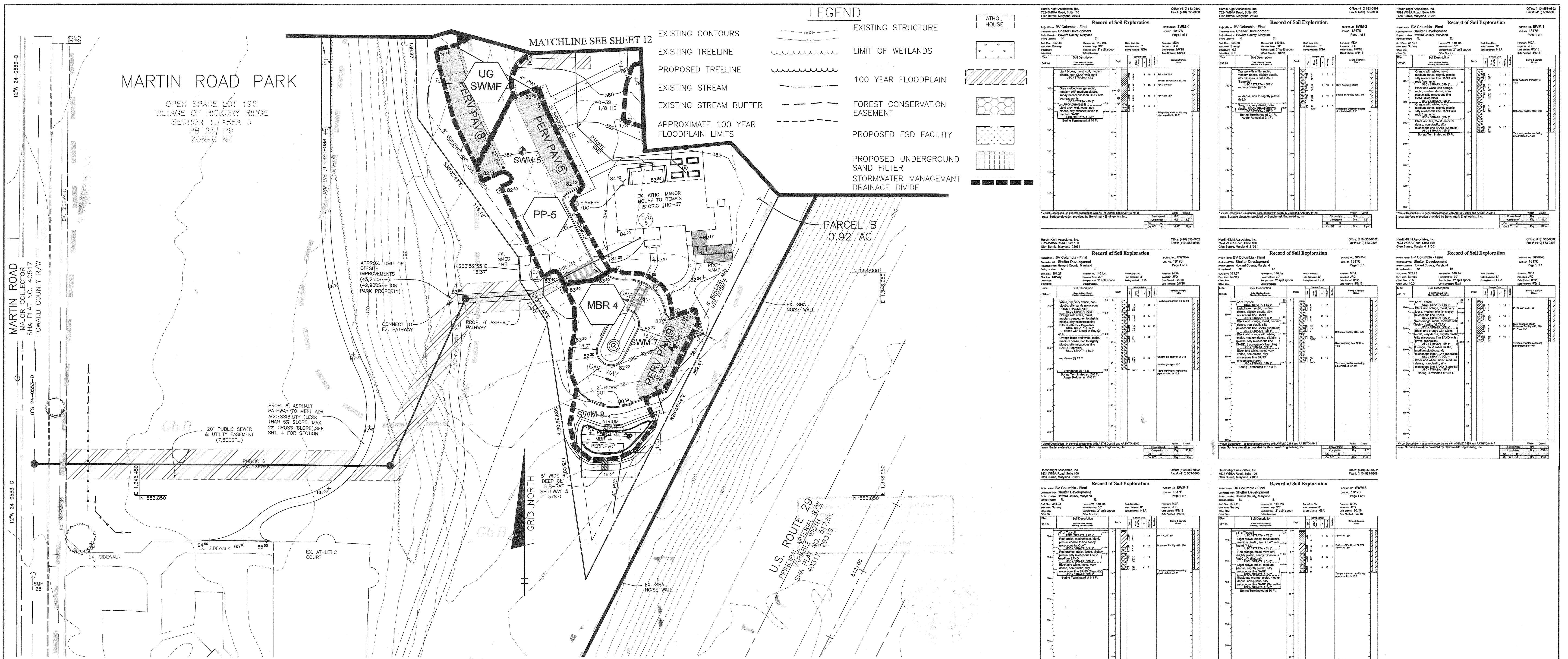
DEVELOPER/CONTRACT PURCHASER:
 BRIGHTVIEW COLUMBIA, LLC
 218 NORTH CHARLES STREET
 SUITE 220
 BALTIMORE, MARYLAND 21201
 410-965-0595

BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING"
 PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
 ZONED: CEF-M
 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN STORMWATER MANAGEMENT DRAINAGE AREA MAP

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567
 SCALE: AS SHOWN SHEET 12 OF 31



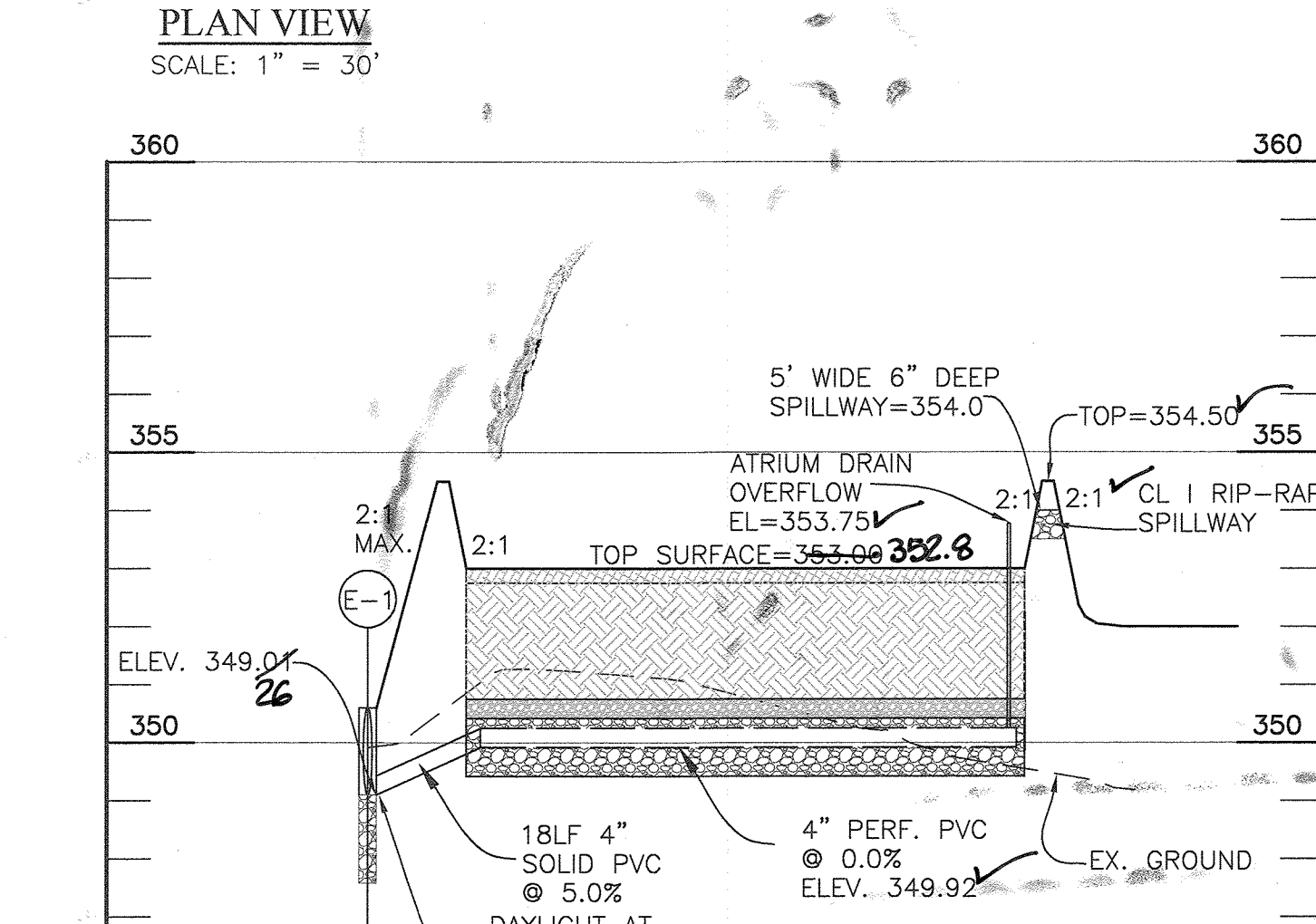
MBR-2 PROFILE
SCALE: HORI.: 1" = 30'
VERT.: 1" = 3'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

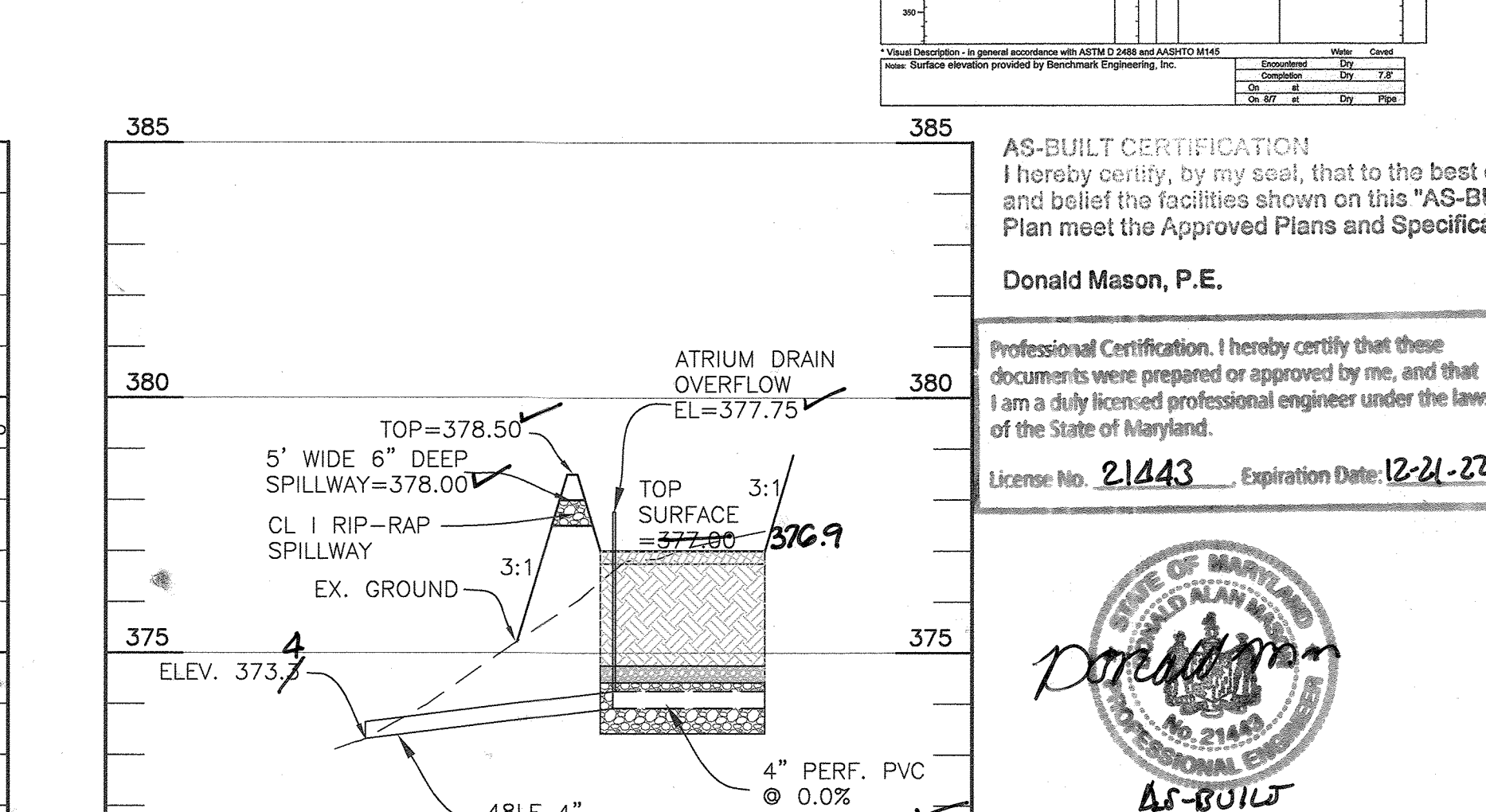
Paul Chubb 10-3-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Nat DeLoose 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT

Natalie Taylor 10-10-19
DIRECTOR



MBR-3 PROFILE
SCALE: HORI.: 1" = 30'
VERT.: 1" = 3'



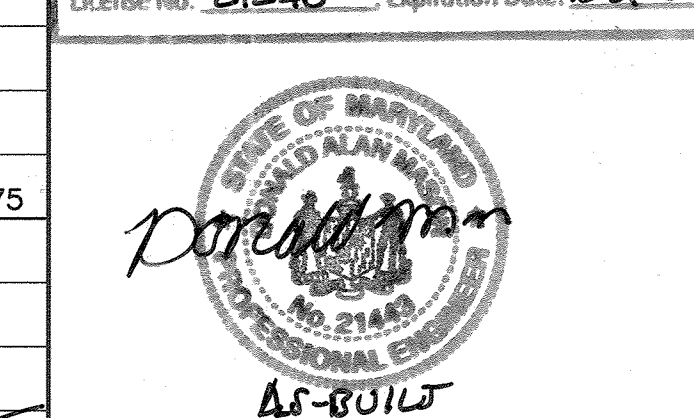
MBR-4 PROFILE
SCALE: HORI.: 1" = 30'
VERT.: 1" = 3'

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I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.
Date: 12/28/21

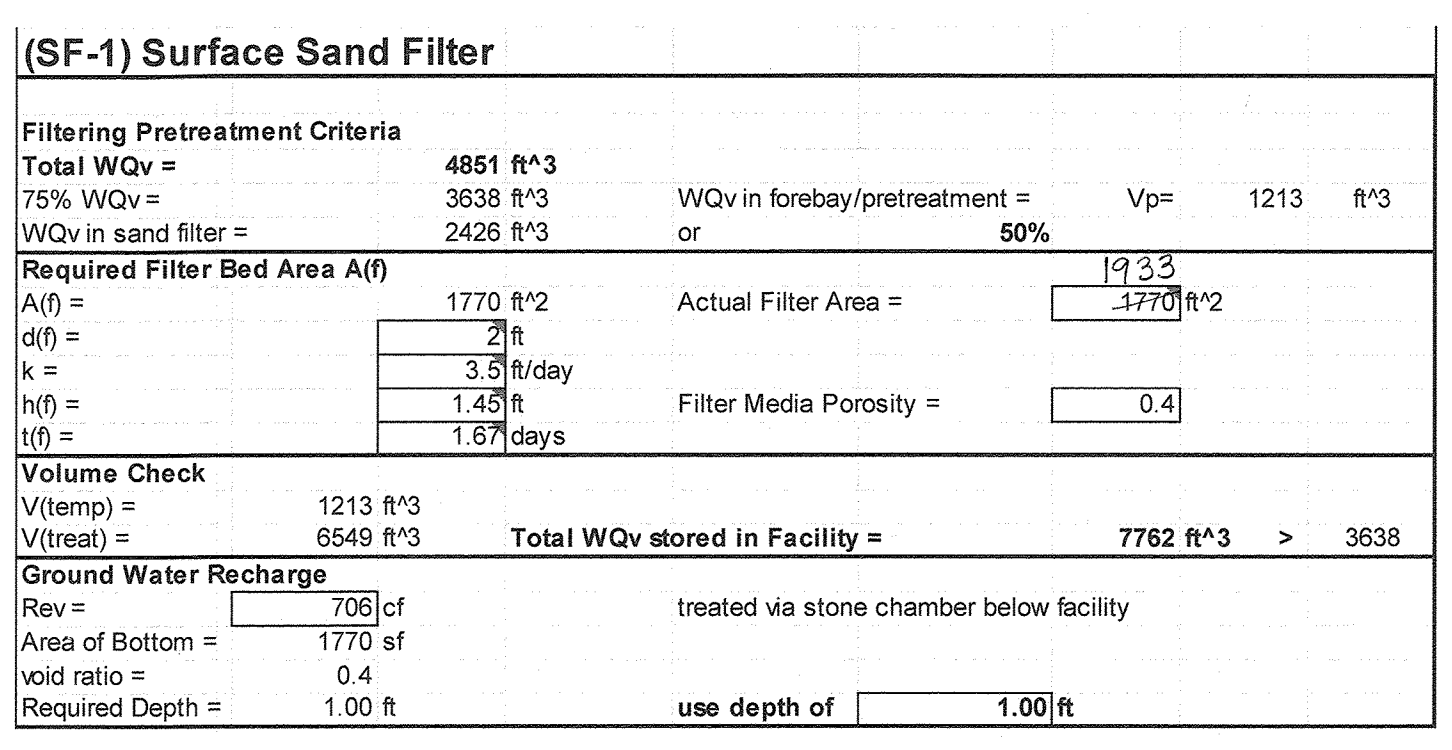
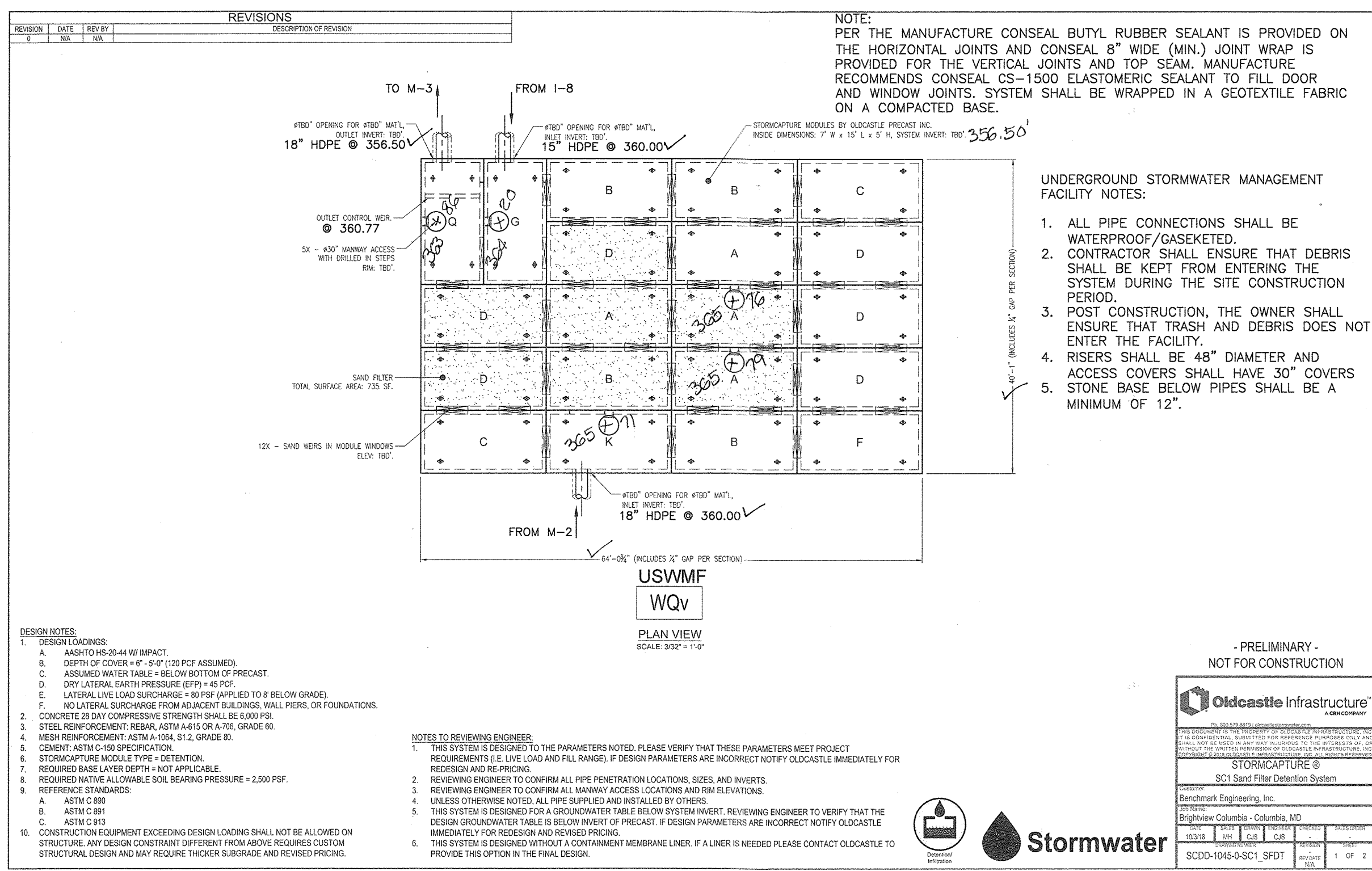
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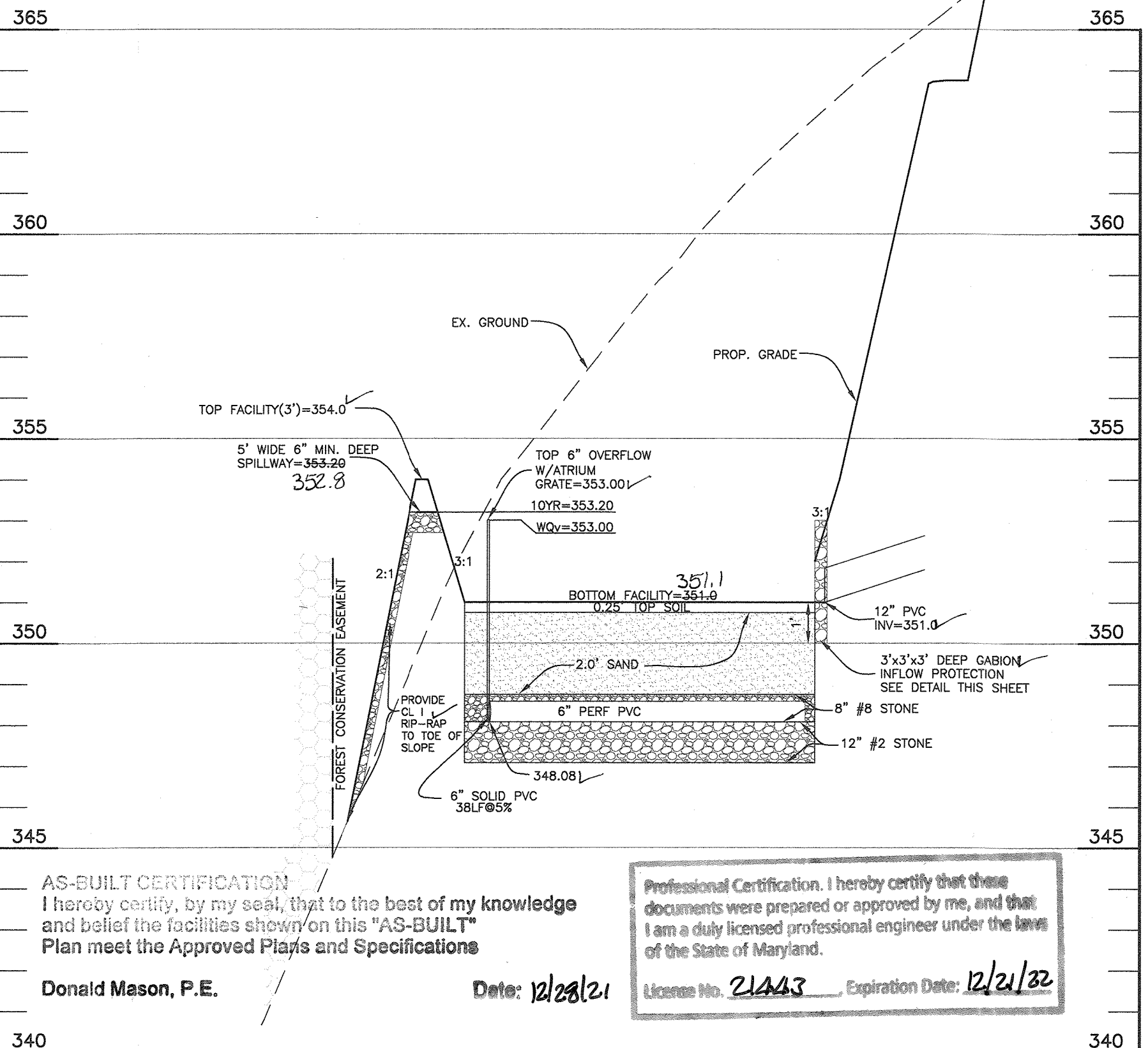
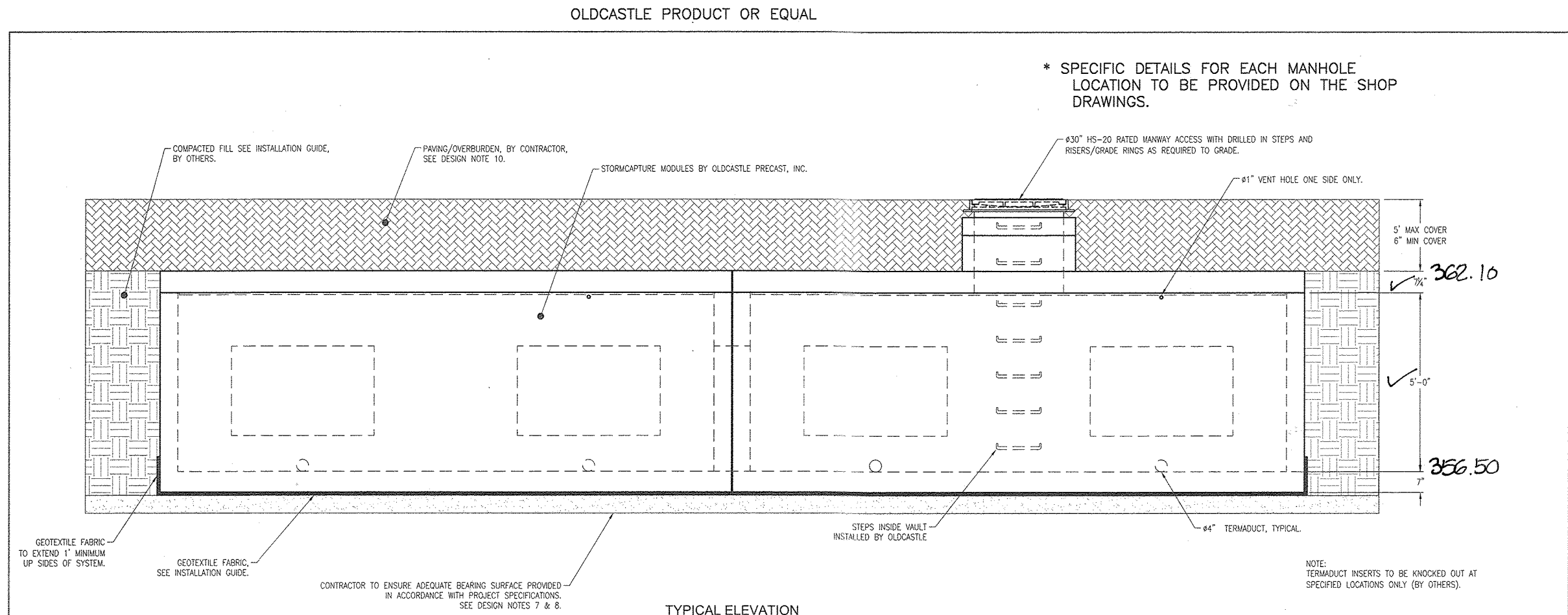
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| DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595 | TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND |
| DESIGN: JCO DRAFT: MP | SITE DEVELOPMENT PLAN STORMWATER MANAGEMENT DRAINAGE AREA MAP AND DETAILS |
| DATE: SEPTEMBER 2019 | BEI PROJECT NO. 2567 |
| SCALE: AS SHOWN | SHEET 13 OF 31 |



PREVIOUS PAVING SUMMARY TABLE

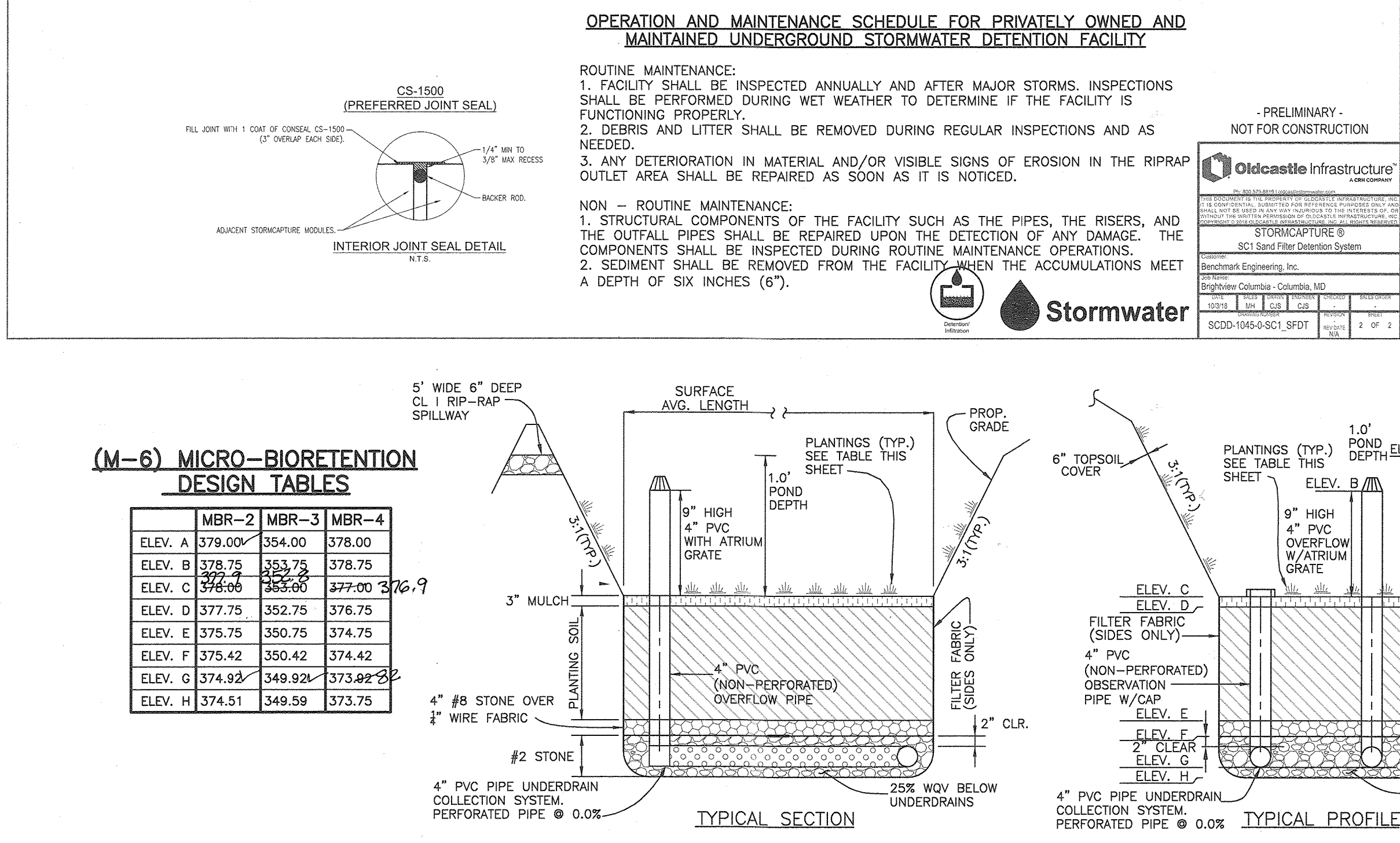
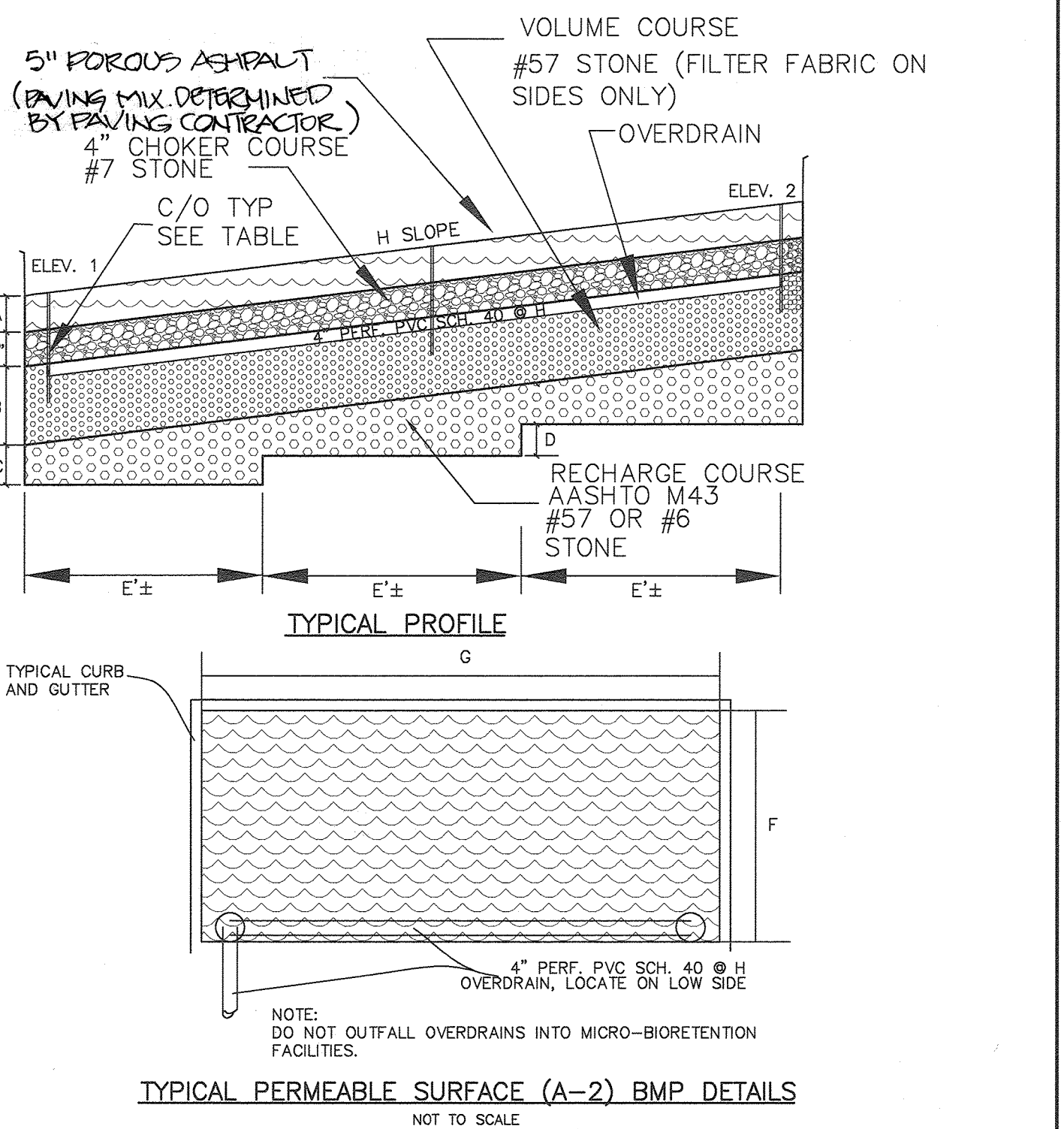
| Facility | MDE Type | Total DA | Impervious Area | Rv | AF (SF) Provided | AF Min. | Storage Depth | Stone Depth | Total | ESDv (CF) Required | Provided | Pe Treated |
|----------------------|----------|---------------|-----------------|------|------------------|-------------|---------------|-------------|------------|--------------------|----------------|----------------|
| 1 | A-2 | 4,723 | 4,723 | 0.95 | 1768 | PASS | NA | 1.5 | 673 | 673 | 1049.1 | 2.1 |
| 2 | A-2 | 5,758 | 5,758 | 0.95 | 1893 | PASS | NA | 1.5 | 821 | 821 | 1519.2 | 2.1 |
| 3 | A-2 | 7,280 | 5,289 | 0.70 | 2739 | PASS | NA | 1.5 | 769 | 769 | 1232.6 | 2.1 |
| 4 | A-2 | 4,815 | 4,815 | 0.95 | 2464 | PASS | NA | 1.5 | 686 | 686 | 1108.8 | 2.2 |
| 5 | A-2 | 5,649 | 5,649 | 0.95 | 1601 | PASS | NA | 1.5 | 805 | 805 | 720.5 | 2.0 |
| 6 | A-2 | 1,601 | 1,601 | 0.95 | 1601 | PASS | NA | 1.5 | 228 | 228 | 720.5 | 2.6 |
| 7 | A-2 | 1,974 | 1,974 | 0.95 | 1974 | PASS | NA | 1.0 | 281 | 281 | 592.2 | 2.6 |
| 8 | A-2 | 1,667 | 1,667 | 0.95 | 1667 | PASS | NA | 1.0 | 238 | 238 | 500.1 | 2.6 |
| 9 | A-2 | 980 | 980 | 0.95 | 980 | PASS | NA | 1.5 | 140 | 140 | 441.0 | 2.6 |
| 10 | A-2 | 2,122 | 2,122 | 0.95 | 2122 | PASS | NA | 1.0 | 302 | 302 | 636.6 | 2.6 |
| 11 | A-2 | 1,300 | 1,300 | 0.95 | 1300 | PASS | NA | 1.0 | 185 | 185 | 390.0 | 2.6 |
| TOTAL TREATED | | 37,869 | 35,878 | | 1300 | PASS | NA | 1.0 | 185 | 185 | 6,127.5 | 8,243.1 |

Permeable Pavement 20139



PERMEABLE SURFACE DESIGN TABLES

| PP-4 | PP-5 | PP-6 |
|--|--|--|
| ELEV. 1 373.485 ELEV. 2 376.78 | ELEV. 1 380.203 ELEV. 2 382.607 | ELEV. 1 369.827 ELEV. 2 373.122 |
| DIMENSIONS 'A' 0.42' 'B' 1.5' 'C' 0.33' 'D' 1.07' 'E' 23.3' 'F' 17' 'G' 70' | DIMENSIONS 'A' 0.42' 'B' 1.5' 'C' 0.33' 'D' 0.75' 'E' 23.3' 'F' 17' 'G' 70' | DIMENSIONS 'A' 0.42' 'B' 1.5' 'C' 0.33' 'D' 1.07' 'E' 23.3' 'F' 17' 'G' 70' |
| SLOPE 'H' 4.6% | SLOPE 'H' 3.4% | SLOPE 'H' 4.8% |
| CLEAN-OUT NUMBER SPACING 2 ±68' | CLEAN-OUT NUMBER SPACING 2 ±68' | CLEAN-OUT NUMBER SPACING 2 ±68' |



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEMS (F-1, F-4, AND F-5)

- THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
- THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
- FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
- DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- REMOVE SILT WHEN IT EXCEEDS FOUR INCHES DEEP IN THE FOREBAY.
- WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIALS SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE DISCOLORED MATERIALS AND LIQUID MUST BE FOLLOWED BY THE OWNER.
- A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH THE OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

MATERIALS & SPECIFICATIONS FOR ESD PRACTICES

| MATERIAL | SPECIFICATION | SIZE | NOTES |
|------------------------------|---|---|---|
| PLANTINGS | SEE APPENDIX A, TABLE A.4 | N/A | PLANTINGS ARE SITE SPECIFIC |
| PLANTING SOIL | LOAMY SAND (60-85% COMPOST) 35-40% OR SANDY LOAM 30% COMPOST 30% & COMPOST 30% | N/A | USDA SOIL TYPES: LOAM SAND OR SANDY LOAM; CLAY CONTENT <5% |
| ORGANIC CONTENT | MIN. 10% BY DRY WEIGHT ASTM D 2974 | N/A | AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS |
| MULCH | SHREDED HARDWOOD | N/A | FE TYPE 1 NONWOVEN 1/4" WIRE MESH |
| GEOTEXTILE (CLASS "C") | 9" HIGH #4 PVC WITH ATRIUM GRATE | N/A | FE TYPE 1 NONWOVEN 1/4" WIRE MESH |
| UNDERDRAIN GRATE | AASHTO M-43 | N/A | NO. 57 OR NO. 63 0.375 TO 0.500" 1/4" WIRE MESH |
| UNDERDRAIN PIPING | F 758, TYPE PS 28 OR AASHTO M-278 | 4" TO 6" RIGID 200-400 PVC, SDR33 OR HIPS | 3/8" PERFOR. @ 6" O/C. 4 HOLES PER ROW. MINIMUM 30 MIL THICK |
| IMPERVIOUS LINER | ASTM-D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 LB. INCH TENSILE STRENGTH 1,100 LB. INCH) ASTM-D-624 (TEAR RESISTANCE = 150 LB. INCH MASS) ASTM-D-471 (WATER ABSORPTION: +8 TO -2% (MSS)) ASTM-D-4832 (TENSILE STRENGTH 300 LB.) | N/A | 30 MIL THICK |
| REINFORCED IN PLACE CONCRETE | MIN. 4000 PSI (28 DAY) NORMAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM-615-92 | N/A | SMOOTH TEXTURE OF FORMED IN PLACE CONCRETE REQUIRED; 28 DAY STRENGTH AND SLUMP TEST, ALL CONCRETE DESIGN LOADS IN PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRE DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE WINDING AND VERTICAL LOADING (MIN. 10 OR 14-200; ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OR DETAILING CRITERIA |
| SAND | AASHTO M-6 or ASTM-C-33 | .02" TO .04" | SAND SUBSTITUTIONS SUCH AS DUNGEON AND GRAVSTONE (SHARP) ARE NOT ACCEPTABLE. NO CALCIUM SULFATE OR SOLUBLE SAND SUBSTITUTIONS ARE ACCEPTABLE. NO ROCK DUST CAN BE USED FOR SAND. |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

10-3-19

10-9-19

10-10-19

TYPICAL MICRO-BIRETENTION FACILITY (M-6)
NOT TO SCALE

ESD SUMMARY TABLE

| D.A. | MDE Type | Total DA(SF) | Impervious Area(SF) | Qe | Required | Provided | AF | 2% DA | Depth | Required | Provided | ESDv | 75% ESDv | RV | Pe |
|---------------|----------|---------------|---------------------|------|----------|----------|------|-------|-------|--------------|--------------|------|----------|----|----|
| MBR 2 | (M-6) | 16,610 | 9,071 | 1.71 | 332 | 1739 | PASS | 1.0 | 1012 | 2787 | PASS | 0.95 | 2.82 | | |
| MBR 3 | (M-6) | 13,115 | 12,852 | 1.71 | 262 | 4294 | PASS | 1.0 | 1375 | 1945 | PASS | 0.95 | 1.17 | | |
| MBR 4 | (M-6) | 4,010 | 2,400 | 1.71 | 80 | 560 | PASS | 1.0 | 266 | 1007 | PASS | 0.95 | 3.17 | | |
| Totals | | 50,935 | 41,523 | | | | | | | 4,695 | 8,481 | | | | |

*BEI SIGNATURE/SEAL IS FOR CONFIRMATION THAT THE OLDCASTLE PRECAST DESIGN MEETS THE VOLUME REQUIREMENTS FOR THE STORMWATER MANAGEMENT. CONTRACTOR SHALL OBTAIN SEALED SHOP DRAWINGS FROM OLDCASTLE PRECAST OR EQUAL BEFORE ORDERING STRUCTURES AND CONSTRUCTION COMMENCES.

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BE-ENGINEERING.COM

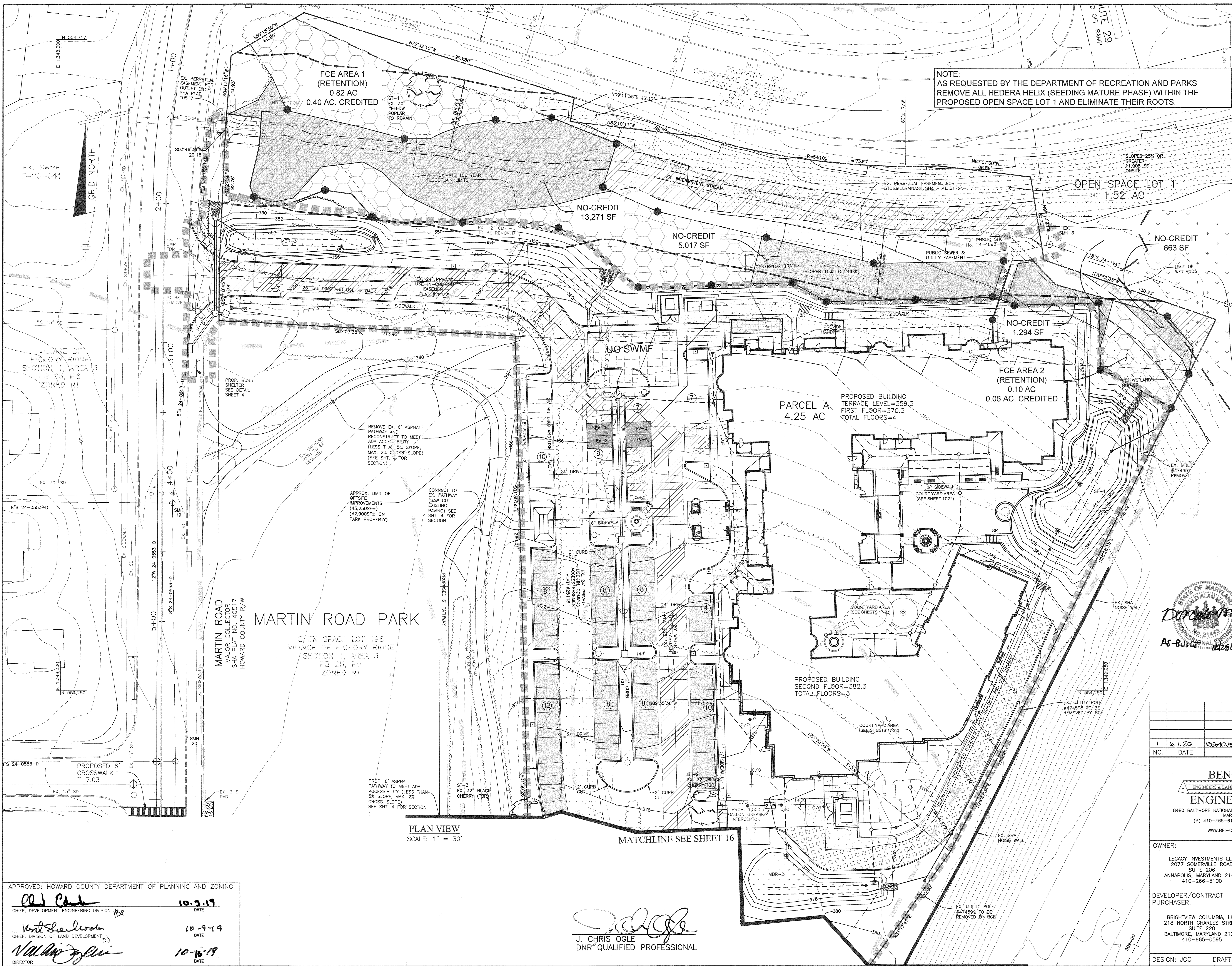
BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
ZONED: CEF-M
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN STORMWATER MANAGEMENT NOTES AND DETAILS

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567

DESIGN: JCO DRAFT: MP SCALE: AS SHOWN SHEET 14 OF 31

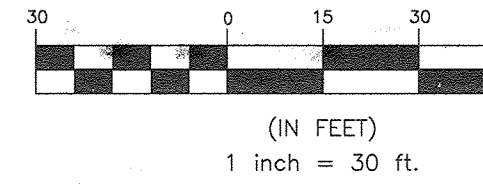


NOTE:
AS REQUESTED BY THE DEPARTMENT OF RECREATION AND PARKS
REMOVE ALL HEDERA HELIX (SEEDING MATURE PHASE) WITHIN THE
PROPOSED OPEN SPACE LOT 1 AND ELIMINATE THEIR ROOTS.

- LEGEND**
- EXISTING CONTOURS
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - EXISTING STREAM
 - EXISTING STREAM BUFFER
 - APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
 - EXISTING STRUCTURE
 - LIMIT OF WETLANDS
 - 100 YEAR FLOODPLAIN
 - FOREST CONSERVATION EASEMENT
 - LIMIT OF DISTURBANCE
 - FOREST CONSERVATION SIGNS

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21403 Expiration Date: 12-21-22



| NO. | DATE | REVISION |
|-----|-------|------------------------------|
| 1 | 01-20 | REMOVE CONCRETE IN HC SPACES |

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

OWNER: LEGACY INVESTMENTS LLC
2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100

DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC
218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595

BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
ZONED: CEF-M
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN FOREST CONSERVATION PLAN

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567
SCALE: AS SHOWN SHEET 15 OF 31

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 10-3-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION

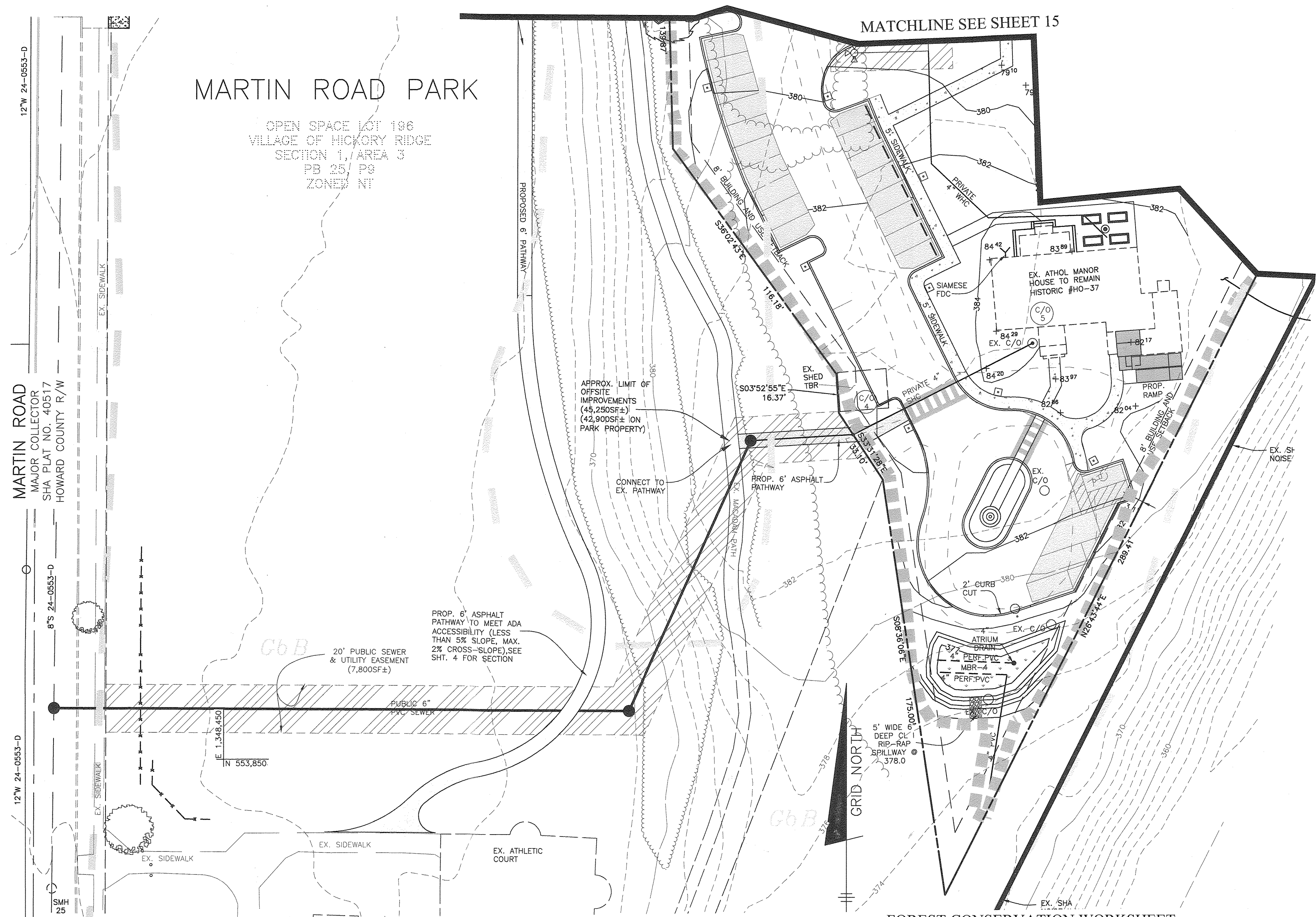
Walt Shelton 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT

Valerie J. J. J. 10-16-19
DIRECTOR

J. Chris Ogle
J. CHRIS OGLE
DNR QUALIFIED PROFESSIONAL

PLAN VIEW
SCALE: 1" = 30'

MATCHLINE SEE SHEET 16



MARTIN ROAD PARK

OPEN SPACE LOT 186
VILLAGE OF HICKORY RIDGE
SECTION 1, AREA 3
PB 25, P8
ZONED NT

MARTIN ROAD
MAJOR COLLECTOR
SHA PLAT NO. 40517
HOWARD COUNTY R/W

12°W 24'-05&1/2"-D
6°S 24'-05&1/2"-D

12°W 24'-05&1/2"-D
6°S 24'-05&1/2"-D

APPROX. LIMIT OF
OFFSITE
IMPROVEMENTS
(45,280SF±)
(42,900SF± ON
PARK PROPERTY)

PROP. 6" ASPHALT
PATHWAY TO MEET ADA
ACCESSIBILITY (LESS
THAN 5% SLOPE, MAX.
2% CROSS-SLOPE), SEE
SHT. 4 FOR SECTION
(7,800SF±)

20' PUBLIC SEWER
& UTILITY EASEMENT
(7,800SF±)

PLAN VIEW
SCALE: 1" = 30'

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- EXISTING STREAM BUFFER
- APPROXIMATE 100 YEAR FLOODPLAIN LIMITS
- EXISTING STRUCTURE
- LIMIT OF WETLANDS
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT
- LIMIT OF DISTURBANCE
- FOREST CONSERVATION SIGNS

SITE DATA TABULATION (AREA OF DEVELOPMENT)

- TOTAL AREA OF DEVELOPMENT..... 6.69 ± AC.
- AREA OF 100 YEAR FLOODPLAIN..... 0.45 ± AC.
- NET AREA OF SITE..... 6.24 ± AC.
- TOTAL FOREST ON NET AREA..... 3.76 ± AC.
- TOTAL CREDITED RETENTION AREA IN EASEMENT..... 0.40 ± AC.

| EASEMENT | CREDITED RETENTION | NON-CREDITED RETENTION | TOTAL AREA |
|----------|--------------------|------------------------|------------|
| 1 | 0.40 AC. | 0.42 AC. | 0.82 AC. |
| 2 | 0.06 AC. | 0.04 AC. | 0.10 AC. |

THE WATERSHED FOR THIS DRAINAGE AREA IS THE MIDDLE PATUXENT RIVER, DNR LISTING NUMBER 2111306.

FOR BEARINGS AND DISTANCES OF FOREST CONSERVATION BOUNDARIES SEE RECORD PLAT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10-3-19

 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10-9-19

 DIRECTOR
 DATE: 10-16-19

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:

| | |
|---|------|
| A. Total tract area..... | 6.69 |
| B. Area within 100 year floodplain..... | 0.45 |
| C. Area to remain in agricultural production..... | 0.00 |
| D. Net tract area..... | 6.24 |

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

| ARA | MDR | IDA | HDR | MPD | CIA |
|-----|-----|-----|-----|-----|-----|
| 0 | 0 | 0 | 1 | 0 | 0 |

EXISTING FOREST COVER:

| | |
|--|------|
| G. Existing forest cover (excluding floodplain)..... | 3.76 |
| H. Area of forest above afforestation threshold..... | 2.90 |
| I. Area of forest above conservation threshold..... | 2.60 |

BREAK EVEN POINT (BEP):

| | |
|---|------|
| J. Forest retention above threshold with no mitigation (BEP)..... | 1.70 |
| K. Clearing permitted without mitigation..... | 2.10 |

PROPOSED FOREST CLEARING:

| | |
|---|------|
| L. Total area of forest to be cleared..... | 3.36 |
| M. Total area of forest to be retained..... | 0.40 |

PLANTING REQUIREMENTS:

| | |
|---|------|
| N. Reforestation for clearing above conservation threshold..... | 0.70 |
| P. Reforestation for clearing below conservation threshold..... | 1.90 |
| Q. Credit for retention above conservation threshold..... | 0.00 |
| R. Total reforestation required..... | 2.30 |
| S. Total afforestation required..... | 0.00 |
| T. Total reforestation and afforestation required..... | 2.30 |

SPECIMEN TREE TABLE

| NO. | COMMON NAME | SCIENTIFIC NAME | DBH (IN.) | CONDITION RATING | CONDITION/COMMENTS | STATUS |
|-----|---------------|-------------------------|-----------|------------------|---|---------------|
| 1 | YELLOW POPLAR | LIRODENDRON TULPIPIFERA | 30 | | MINOR BROKEN LIMBS | TO REMAIN |
| 2 | BLACK CHERRY | PRUNUS SEROTINA | 32(TWIN) | | BROKEN LIMBS, TRUNK DAMAGE, SPLIT @ 2' | TO BE REMOVED |
| 3 | BLACK CHERRY | PRUNUS SEROTINA | 32 | | 3'-TRUNK SPLIT @ 5.5', ONE TRUNK DEAD, BROKEN LIMBS | TO BE REMOVED |

FOREST PROTECTION PROCEDURES - Preconstruction Phase

- The edge of the woods to be protected will be marked (staked or flagged) in the field per the limits of forest conservation easement shown in the approved site development plan prior to the start of construction activity. All areas within protective easement are to be considered "off limits" to any construction activities. The optional protective fencing shall be installed at the outside edge of forested areas and should be combined with sediment control devices when possible. The limit of the critical root zone and therefore the location of the protective devices is to be determined as follows:
 Edge of Forested Area - 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever is greater.

Critical Root Zone for the forest on this site is an average of 12 feet from the trunk of the tree. Critical root zone for the Specimen Tree is 30'.

- Construction activities expressly prohibited within the preservation areas are:
 Placing or stockpiling backfill or top soil in protected areas
 Felling trees into protected areas
 Driving construction equipment into or through protected areas
 Stacking or storing supplies of any kind
 Concrete wash-off areas
 Conducting trenching operations
 Grading beyond the limits of disturbance
 Parking vehicles or construction equipment
 Removal of roof mat or topsoil
 Siting and construction of:
 Utility lines
 Access roads
 Impervious surfaces
 Stormwater management devices
 Staging areas

- Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" (see Figure "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from dewatering operations, off-site runoff, spillage, and drainage or solutions containing materials hazardous to tree roots.

- The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, subcontractors, or licensees.

- Foot traffic shall be kept to a minimum in the protective areas.

- All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.

- The general contractor shall designate a "wash out" area onsite for concrete trucks which will not drain toward a protected area.

- A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

FOREST PROTECTION PROCEDURES - Construction Phase

- Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate. The following shall be monitored:
- Soil compaction
 - Root injury - prune and monitor; consider crown reduction
 - Limb injury - prune and monitor
 - Flooded conditions - drain and monitor; correct problem
 - Drought conditions - water and monitor; correct problem
 - Other stress signs - determine reason, correct, and monitor

FOREST PROTECTION PROCEDURES - Post Construction Phase

- The following measures shall be taken:
- Corrective measures if damages were incurred due to negligence:
 - Stress reduction
 - Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard.
 - Removal of temporary structures:
 - No burial of discarded materials will occur onsite within the conservation area.
 - No open burning within 100 feet of a wooded area.
 - All temporary forest protection structures will be removed after construction.
 - Remove temporary roads by removing stone or broadcasting mulch; pre-construction elevation should be maintained.
 - Aerate compacted soil.
 - Replant disturbed sites with trees, shrubs and/or herbaceous plants.
 - Retain signs for retention areas or specimen trees.
 - Future protection measures:
 - Howard County and the developer shall arrange for the dedication of an appropriate forest conservation easement at a later date.

FOREST PROTECTION PROCEDURES - Preconstruction Phase

- Stress Reduction and Protection of Specimen Trees Isolated from Forest Retention Areas and General Forest Retention Areas (as they may apply)
- Isolated specimen trees that are to be preserved will be examined to determine if stress reduction techniques are needed. Protective measures and their evaluation criteria are provided on this plan only if they are employed herein.
- Root Pruning Evaluation Criteria
 Will the critical root zone be affected by construction activities such as grade changes, digging for foundations and roads or utility installation?

- Design Considerations
- Prune prior to construction as shown on the plan (see Figure "Root Pruning Detail.")
 - Prune root with a clean cut using proper pruning equipment such as a vibratory knife.
 - Exact location of pruning trench should be identified, and immediately backfilled to cover exposed roots after pruning with soil removed other topsoil, peat moss, or other suitable material or with other high organic soil.
 - For trees over 15" in diameter, root pruning may be done up to one year in advance of construction.
 - Tree(s) will be monitored for signs of stress.

- Crown Reduction or Pruning Evaluation Criteria
 Has the root system been significantly reduced (>30%) or are there dead, damaged, or diseased limbs?

- Design Considerations
- Reduce only at specified times of the year:
 Flowering trees - only after flowering and before bud set
 Non-flowering trees - in late winter, early spring or mid summer
 - No more than 1/3 of the crown should be removed at one time using acceptable pruning methods (see Figure "Crown Reduction Detail")
 - Monitor for signs of stress

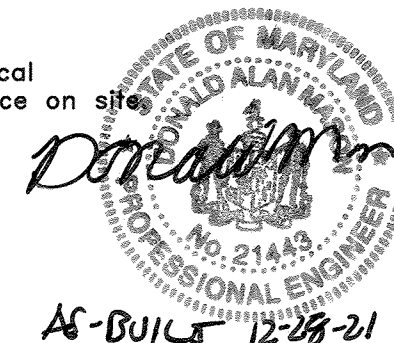
- Watering Evaluation Criteria
 Will construction activities alter the hydrology of the site? Has or will root pruning occur?

- Design Considerations
- Water only as necessary
 - Monitor for signs of stress (see Figure "Tree Planting and Maintenance Calendar")

- Fertilizing Evaluation Criteria
 Is or will be tree(s) be under stressful conditions? Has or will root pruning occur?

- Design Considerations
- Use low nitrogen and slow release fertilizers.
 - Apply in late fall or early spring (see Figure "Tree Planting and Maintenance Calendar")
 - For small trees (<3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
 - For larger trees (>3" diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
 - Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.
 - Monitor for signs of stress.

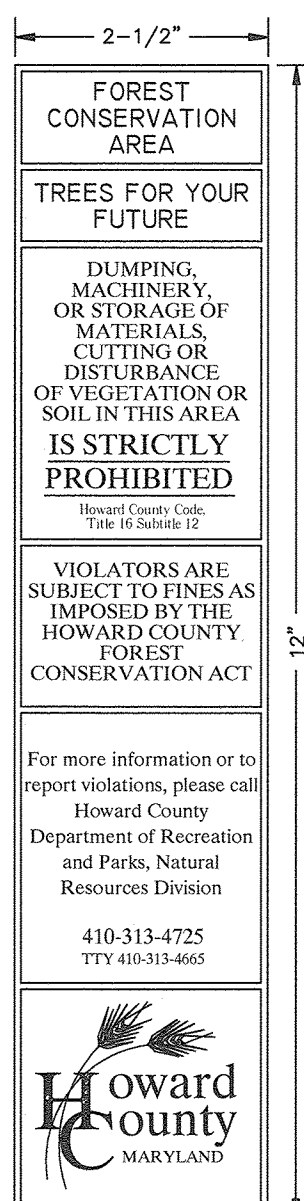
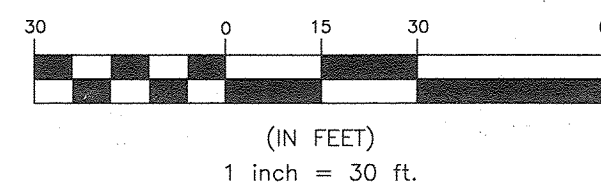
'NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET'



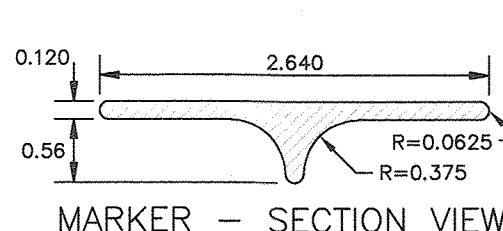
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-31-22

FOREST CONSERVATION NOTES:

- THE FOREST CONSERVATION OBLIGATIONS FOR THIS SITE SHALL BE MET BY THE ON-SITE RETENTION IN THE AMOUNT OF 0.40 ACRES. THE REMAINING 2.30 ACRES WILL BE PROVIDED BY AN OFFSITE BANK LOCATED ON THE CATTAL CREEK FOREST MITIGATION PROPERTY (SDP-14-031).
- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS AS CONTAINED IN THE DEED OF FOREST CONSERVATION EASEMENT RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MD, WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ. NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREA, ETC. SHALL OCCUR WITHIN THE FOREST CONSERVATION EASEMENT.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING ANY CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE RETENTION BOUNDARIES WHICH OCCUR WITHIN 50 FEET OF THE PROPOSED LIMITS OF DISTURBANCE THAT DOES NOT ALREADY HAVE A SUPER SILT FENCE PROPOSED.
- PERMANENT SIGNAGE SHALL BE PLACED 50'-100' APART ALONG THE BOUNDARIES OF ALL FOREST CONSERVATION EASEMENTS. THIS SIGNAGE SHALL STAY IN PERPETUITY.
- THERE IS A 100-YEAR FLOODPLAIN LOCATED ON THE PROPERTY.
- THE FOREST CONSERVATION WATERSHED FOR THIS PROJECT IS THE PATUXENT RIVER WATERSHED #02111306.
- THERE ARE NO RARE, THREATENED OR ENDANGERED SPECIES LOCATED ON THIS SITE. THERE IS A PERENNIAL STREAM ALONG THE EASTERN PROPERTY BOUNDARY. TO THE BEST OF OUR KNOWLEDGE, THERE IS ONE HISTORIC STRUCTURE LOCATED ON THIS SITE(HO-37).



MARKER DETAIL

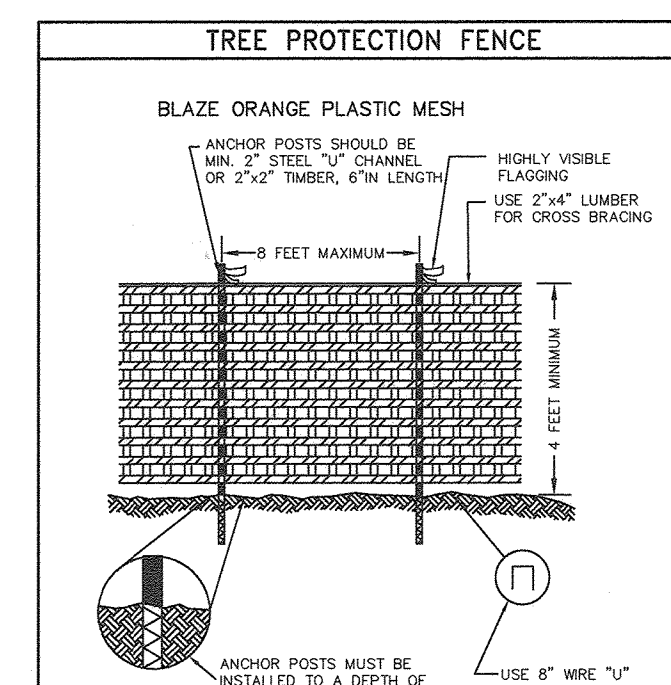


MARKER - SECTION VIEW

Material: Number 3690 Scotchpak non-reflective substrate.
 Color: Dark green text and border on beige background.

FCE CARSONITE MARKER

NOT TO SCALE



TREE PROTECTION FENCE

- NOTES:
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
 - ADD ROOT DAMAGE MESH BY PLACING ANCHOR POSTS.
 - DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION.
 - PROTECTIVE SIGNAGE IS ALSO REQUIRED.

J. CHRIS OGLE
 DNR QUALIFIED PROFESSIONAL

| NO. | DATE | REVISION |
|-----|------|----------|
| | | |
| | | |

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-8644
 WWW.BEI-CIVILENGINEERING.COM

OWNER: LEGACY INVESTMENTS LLC
 2077 SOMERVILLE ROAD SUITE 206
 ANNAPOLIS, MARYLAND 21401
 410-266-5100

DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC
 218 NORTH CHARLES STREET SUITE 223
 BALTIMORE, MARYLAND 21201
 410-965-0595

BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1

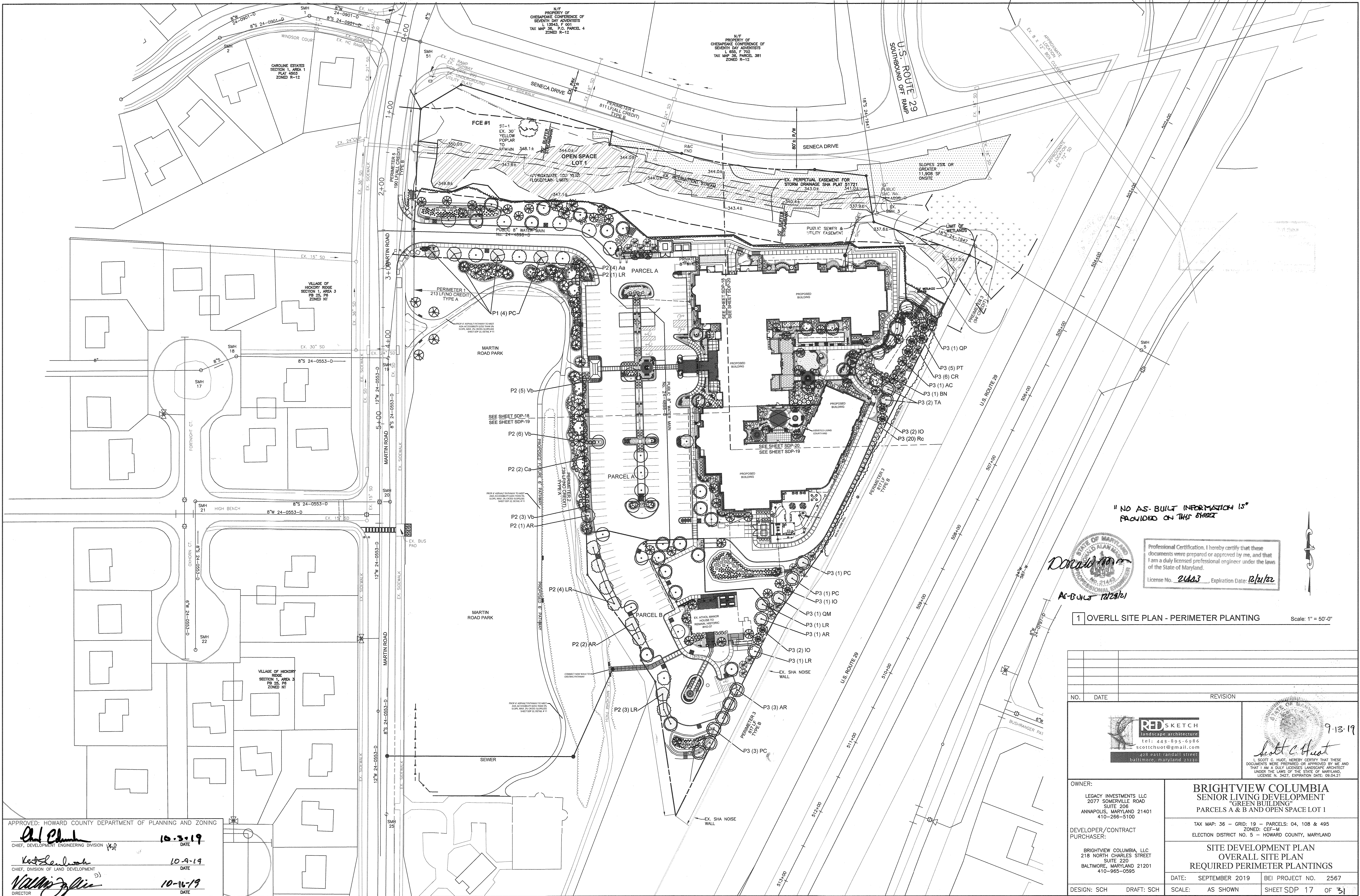
TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
 ZONED: CEF-M
 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN FOREST CONSERVATION PLAN AND DETAILS

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567
 SCALE: AS SHOWN SHEET 16 OF 31

DESIGN: JCO DRAFT: MP

AS-BUILT SDP-19-032



"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Donald M. ...
 AS-BUILT 12/28/21

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 2443, Expiration Date: 12/31/22

1 OVERLL SITE PLAN - PERIMETER PLANTING Scale: 1" = 50'-0"

| NO. | DATE | REVISION |
|-----|------|----------|
| | | |
| | | |

RED SKETCH
 landscape architecture
 tel: 443-895-6986
 scottchuoat@gmail.com
 428 east randall street
 baltimore, maryland 21230

9-13-19
 Scott C. Huot
 I, SCOTT C. HUOT, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE N. 3427, EXPIRATION DATE: 09.04.21

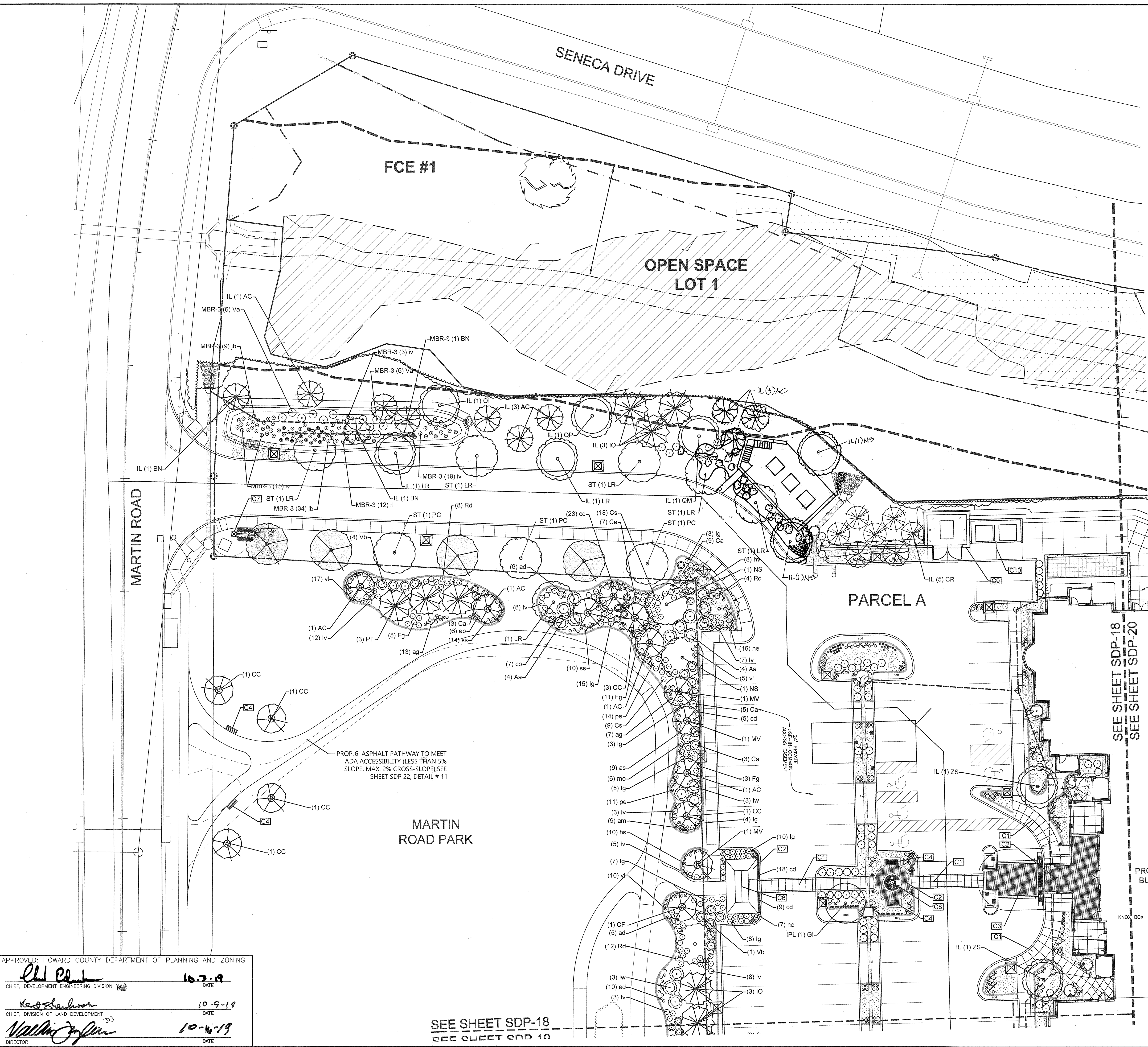
| | |
|---|--|
| OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100 | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1 |
| DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595 | TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND |
| DATE: SEPTEMBER 2019 SCALE: AS SHOWN | SITE DEVELOPMENT PLAN OVERALL SITE PLAN REQUIRED PERIMETER PLANTINGS |
| DESIGN: SCH DRAFT: SCH | BEI PROJECT NO. 2567 SHEET SDP 17 OF 31 |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Paul Plunk 10-3-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kathleen ... 10-9-19
 CHIEF, DIVISION OF LAND DEVELOPMENT

Val ... 10-16-19
 DIRECTOR



"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21047 Expiration Date: 12-21-22

3 SUPPLEMENTAL LANDSCAPE KEY

- ORNAMENTAL TREE, INSTALLED AT 8'-10' HEIGHT
- ORNAMENTAL TREE-SHRUB, INSTALLED AT 3'-4' HEIGHT
- LARGE SHRUB, INSTALLED AT 24"-30"
- SMALL SHRUB, INSTALLED AT 18"-24"
- PERENNIAL, INSTALLED AT 1 GALLON CONTAINER
- GROUNDCOVER, INSTALLED AT 4" POT
- LED POST TOP AREA LIGHT

2 CONSTRUCTION NOTES

- C1** POURED IN PLACE CONCRETE, REINFORCED, HAND TOoled CONTROL JOINTS PER THE PLAN LAYOUT
- C2** BRICK PAVERS
- C3** VEHICULAR BRICK PAVERS
- C4** VICTOR STANLEY: HOMESTEAD COLLECTION MODEL # 8, 98" LENGTH) WITH RECYCLED SLATS, SET IN CONCRETE FOOTINGS, & A POURED IN PLACE CONCRETE PAD BENEATH THE BENCH
- C5** POURED IN PLACE CONCRETE WALLS, WITH STONE VENEER TO MATCH THE BUILDING, AND COPING STONE
- C6** CUSTOM SHADE STRUCTURE INSTALLED PER MANUFACTURERS RECOMMENDATIONS. HOMESTEAD STRUCTURES; 901 Peters Road New Holland, PA 17557
CUSTOM BELVEDERE PAVILION. (877) 272-7252
- C7** STONE MONUMENT SIGN
- C8** FLAGPOLE
- C9** STONE VENEER DUMPSTER ENCLOSURE WITH GATES
- C10** TRANSFORMER ENCLOSURE, CEDAR FENCE AND GATES

1 NORTH SITE - HARDSCAPE - LANDSCAPE PLAN Scale: 1" = 20'-0"

| NO. | DATE | REVISION |
|-----|---------|--|
| 2 | 8.24.20 | ADD BENCH SW/CH/BOX & UPDATE LANDSCAPING |

RED SKETCH
landscape architecture
tel: 443-895-6986
scottchuot@gmail.com
428 east randall street
baltimore, maryland 21230

9.13.19
SCOTT C. HUOT HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE N. 3427, EXPIRATION DATE: 09.04.21

| | | | |
|---|--|--|--|
| OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100 | | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1 | |
| DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 223 BALTIMORE, MARYLAND 21201 410-965-0595 | | TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND | |
| DATE: SEPTEMBER 2019 | | BEI PROJECT NO. 2567 | |
| SCALE: AS SHOWN | | SHEET SDP 18 OF 31 | |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 10-3-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kate Schaefer 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT

Walter J. J... 10-16-19
DIRECTOR

SEE SHEET SDP-18
SEE SHEET SDP-10

SEE SHEET SDP-18
SEE SHEET SDP-19

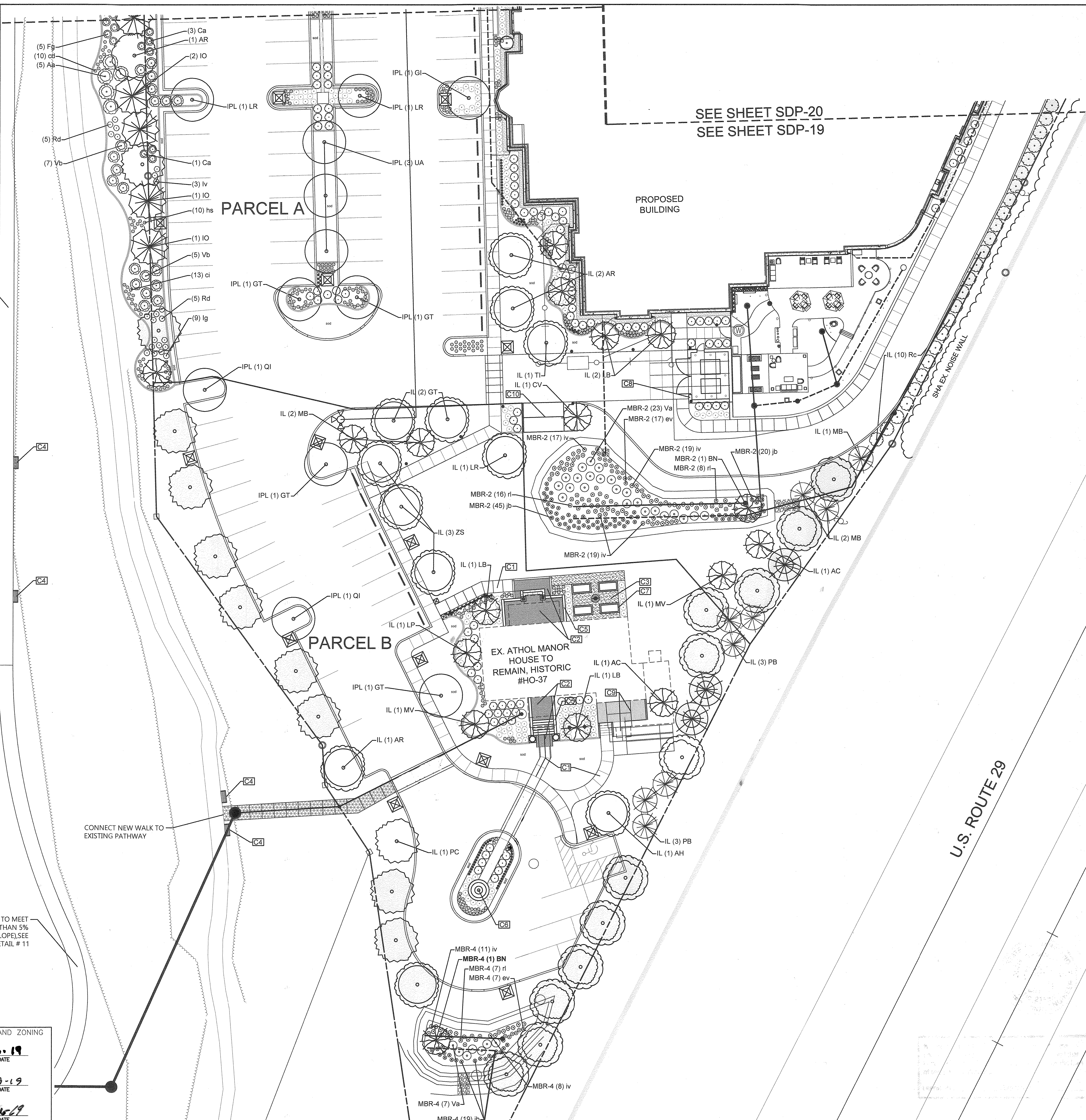
SEE SHEET SDP-20
SEE SHEET SDP-19

PROP. 6" ASPHALT PATHWAY TO MEET ADA ACCESSIBILITY (LESS THAN 5% SLOPE, MAX. 2% CROSS-SLOPE) SEE SHEET SDP 22, DETAIL # 11

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Donna M. ...
AS-BUILT 12/28/21

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12/21/22



3 SUPPLEMENTAL LANDSCAPE KEY

- ORNAMENTAL TREE, INSTALLED AT 8'-10' HEIGHT
- ORNAMENTAL TREE-SHRUB, INSTALLED AT 3'-4' HEIGHT
- LARGE SHRUB, INSTALLED AT 24"-30"
- SMALL SHRUB, INSTALLED AT 18"-24"
- PERENNIAL, INSTALLED AT 1 GALLON CONTAINER
- GROUNDCOVER, INSTALLED AT 4" POT
- LED POST TOP AREA LIGHT

2 CONSTRUCTION NOTES

- POURED IN PLACE CONCRETE, REINFORCED, HAND TOoled CONTROL JOINTS PER THE PLAN LAYOUT
- BRICK PAVERS
- CRUSHED GRANITE
- VICTOR STANLEY: HOMESTEAD COLLECTION MODEL # 8, 98" LENGTH) WITH RECYCLED SLATS, SET IN CONCRETE FOOTINGS, & A POURED IN PLACE CONCRETE PAD BENEATH THE BENCH
- POURED IN PLACE CONCRETE WALLS, WITH STONE VENEER TO MATCH THE BUILDING, AND COPING STONE
- FLAG POLE
- CEDAR RAISED PLANTERS
- STONE VENEER DUMPSTER ENCLOSURE WITH GATES AND PERGOLA STRUCTURE OVER THE TOP
- NEW DECKING, STAIRS, & ADA ACCESSIBLE RAMP
- DECORATIVE SHED

1 SOUTH SITE & ATHOL MANOR LANDSCAPE & HARDSCAPE PLAN

Scale: 1" = 20'-0"

| NO. | DATE | REVISION |
|-----|---------|---------------------------|
| 1 | 10.1.20 | REMOVE CONCRETE CROSSWALK |

REDSKETCH
landscape architecture
tel: 443-895-6986
scottchuot@gmail.com
428 east randall street
baltimore, maryland 21202

9-13-19
Scott G. Huot
I, SCOTT G. HUOT, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 3427, EXPIRATION DATE: 09.04.21

| | | | |
|---|------------|--|--------------------|
| OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100 | | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1 | |
| DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595 | | TAX MAP: 36 - GRID: 19 - PARCELS: 04, 10B & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND | |
| DATE: SEPTEMBER 2019 | | BEI PROJECT NO. 2567 | |
| DESIGN: SCH | DRAFT: SCH | SCALE: AS SHOWN | SHEET SDP 19 OF 31 |

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 10.3.19
CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature] 10.9.19
CHIEF, DIVISION OF LAND DEVELOPMENT
[Signature] 10-16-19
DIRECTOR

PROPOSED BUILDING

W/11 PLAN 2
BUFFER

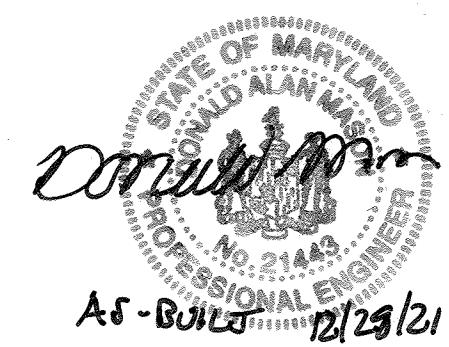
PROPOSED BUILDING

PROPOSED BUILDING

ASSISTED LIVING COURTYARD

SHA EX NOISE WALL

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21463 Expiration Date: 12-21-22

3 SUPPLEMENTAL LANDSCAPE KEY

- ORNAMENTAL TREE, INSTALLED AT 8'-10' HEIGHT
- ORNAMENTAL TREE-SHRUB, INSTALLED AT 3'-4' HEIGHT
- LARGE SHRUB, INSTALLED AT 24"-30"
- SMALL SHRUB, INSTALLED AT 18"-24"
- PERENNIAL, INSTALLED AT 1 GALLON CONTAINER
- GROUNDCOVER, INSTALLED AT 4" POT

2 CONSTRUCTION NOTES

- C1 POURED IN PLACE CONCRETE, REINFORCED, HAND TOoled CONTROL JOINTS PER THE PLAN LAYOUT
- C2 BRICK PAVERS
- C3 SITE BENCHES
- C4 POURED IN PLACE CONCRETE WALLS, WITH STONE VENEER TO MATCH THE BUILDING, AND COPING STONE
- C5 POURED IN PLACE CONCRETE STAIRS WITH S.S. HANDRAILS ON BOTH SIDES
- C6 PERGOLA STRUCTURE INSTALLED PER MANUFACTURERS RECOMMENDATIONS
- C7 LANDSCAPE FOLLY STRUCTURE INSTALLED PER MANUFACTURERS RECOMMENDATIONS
- C8 WATER FEATURE
- C9 PUTTING GREEN
- C10 POURED IN PLACE 34" RAISED CONCRETE PLANTER WITH STONE VENEER AND COPING
- C11 DECORATIVE BRONZE PIER MOUNT LIGHT FIXTURE
- C12 BOCCIE BALL COURT
- C13 DECORATIVE CMU NOISE-RETAINING WALL. SEE SHEET SDP-22 DETAIL #7. TOP OF WALL ELEVATION 365.00
- C14 DECORATIVE CMU NOISE-RETAINING WALL. SEE SHEET SDP-22 DETAIL #9. TOP OF WALL ELEVATION 365.00
- C15 DECORATIVE CMU NOISE-RETAINING WALL. SEE SHEET SDP-22 DETAIL #8. TOP OF WALL ELEVATION 365.00
- C16 STONE WALL TOP OF WALL ELEVATION 362.50
- C17 SCULPTURE
- C18 (8) 9' TALL 6" DIA. BASE TAPERED DECORATIVE POLES, WITH OVERHEAD STRING LIGHTS

1 INDEPENDENT LIVING-ASSISTED LIVING COURTYARDS LANDSCAPE & HARDSCAPE PLAN

Scale: 1" = 10'-0"

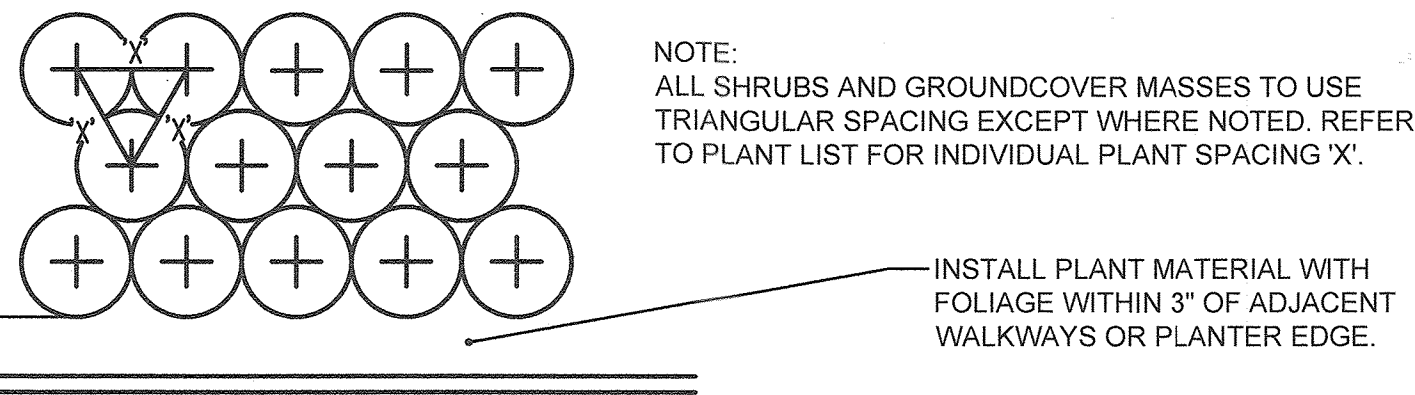
| NO. | DATE | REVISION |
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| | | |

RED SKETCH
landscape architecture
tel: 443-895-6986
scottchuot@gmail.com
428 east randall street
baltimore, maryland 21230

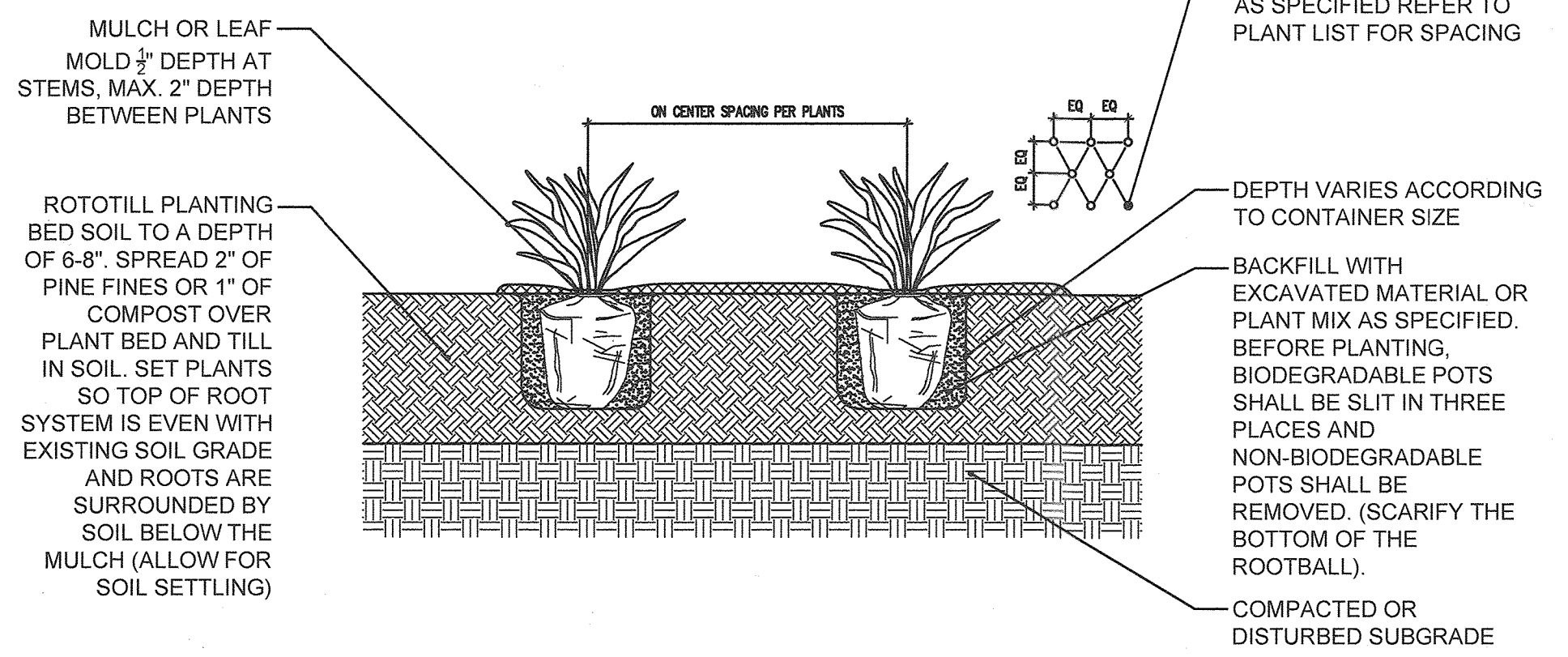
9.13.19
Scott C. Huot

| | | |
|---|--|----------------------|
| OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100 | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1 | |
| DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 223 BALTIMORE, MARYLAND 21201 410-965-0595 | TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND | |
| SITE DEVELOPMENT PLAN INDEPENDENT LIVING & ASSISTED LIVING HARDSCAPE - LANDSCAPE PLAN | | |
| DESIGN: SCH | DATE: SEPTEMBER 2019 | BEI PROJECT NO. 2567 |
| DRAFT: SCH | SCALE: AS SHOWN | SHEET SDP 20 OF 31 |

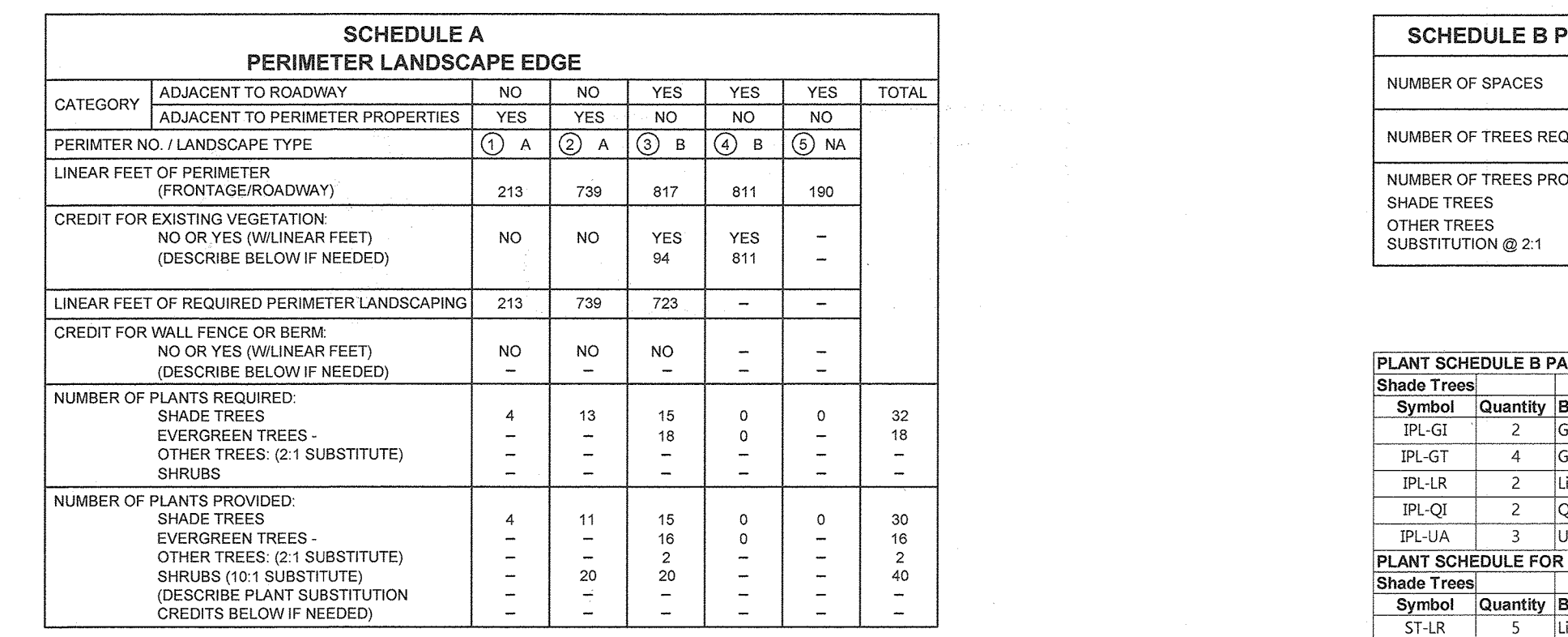
| | |
|---|----------------|
| APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING | DATE: 10-3-19 |
| | DATE: 10-9-19 |
| | DATE: 10-16-19 |



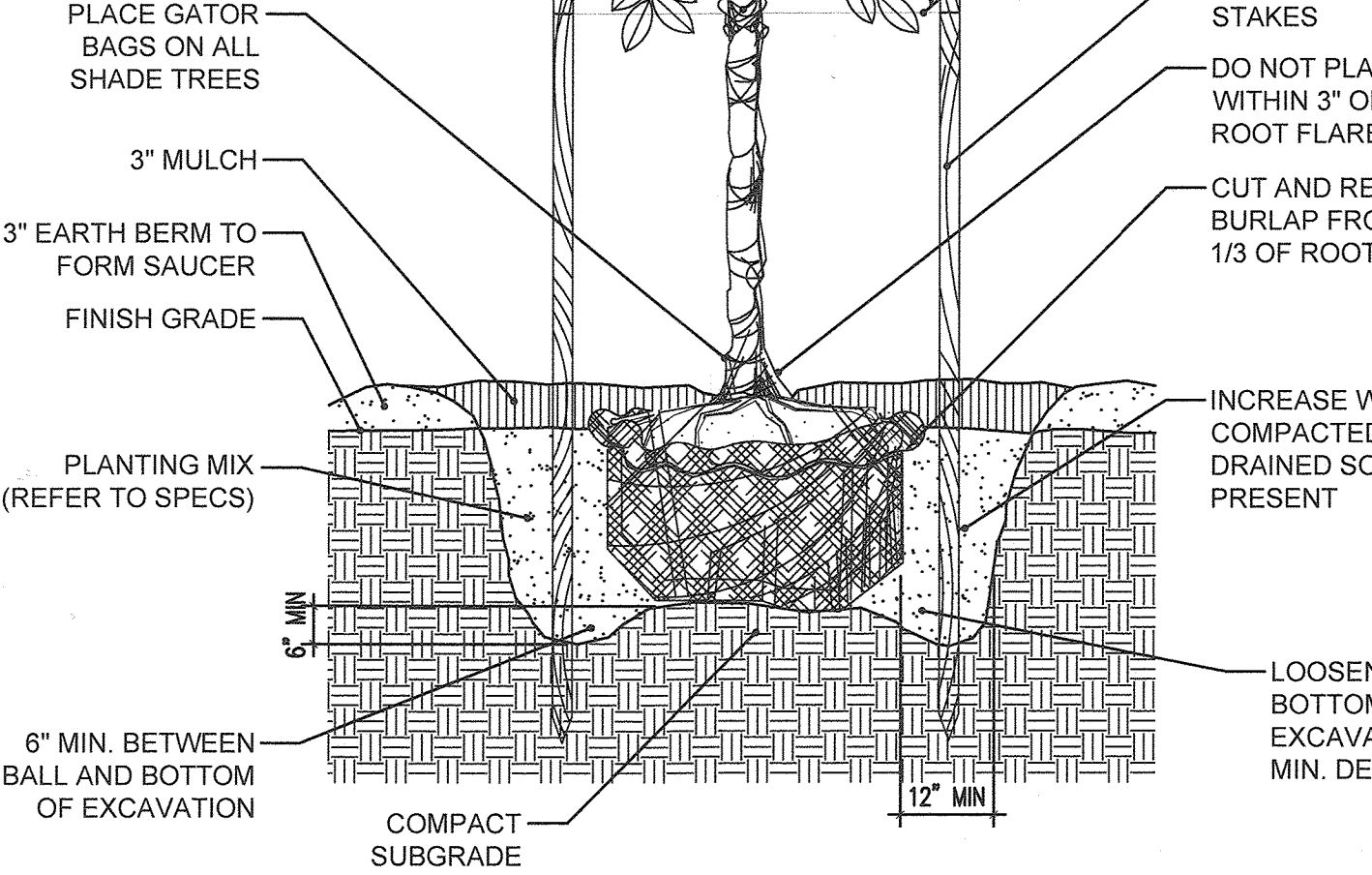
4 GROUND COVER PLANTING DETAIL SECTION
SCALE: 1/2" = 1'-0"



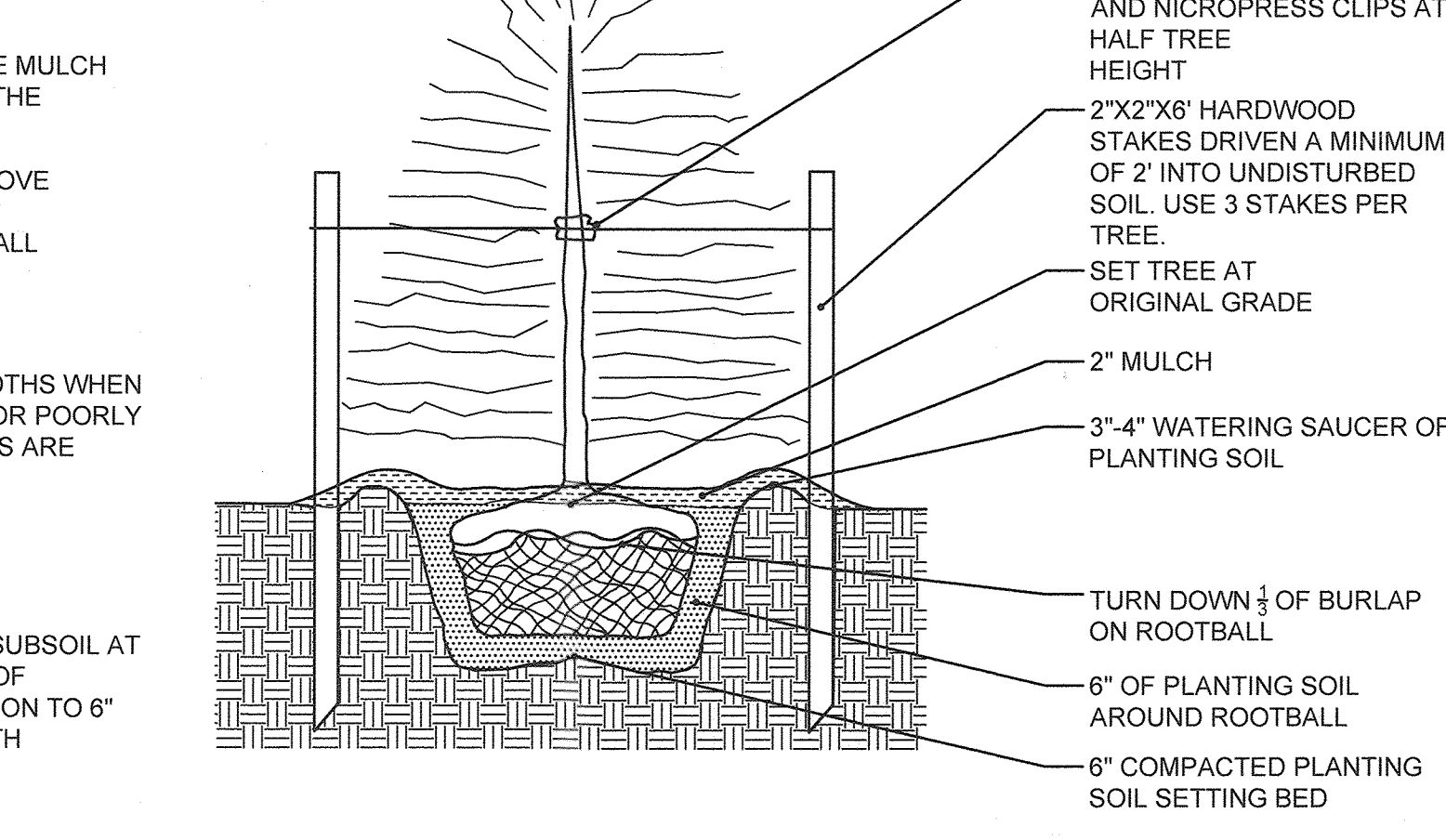
5 PERENNIAL PLANTING DETAIL SECTION
SCALE: 1/2" = 1'-0"



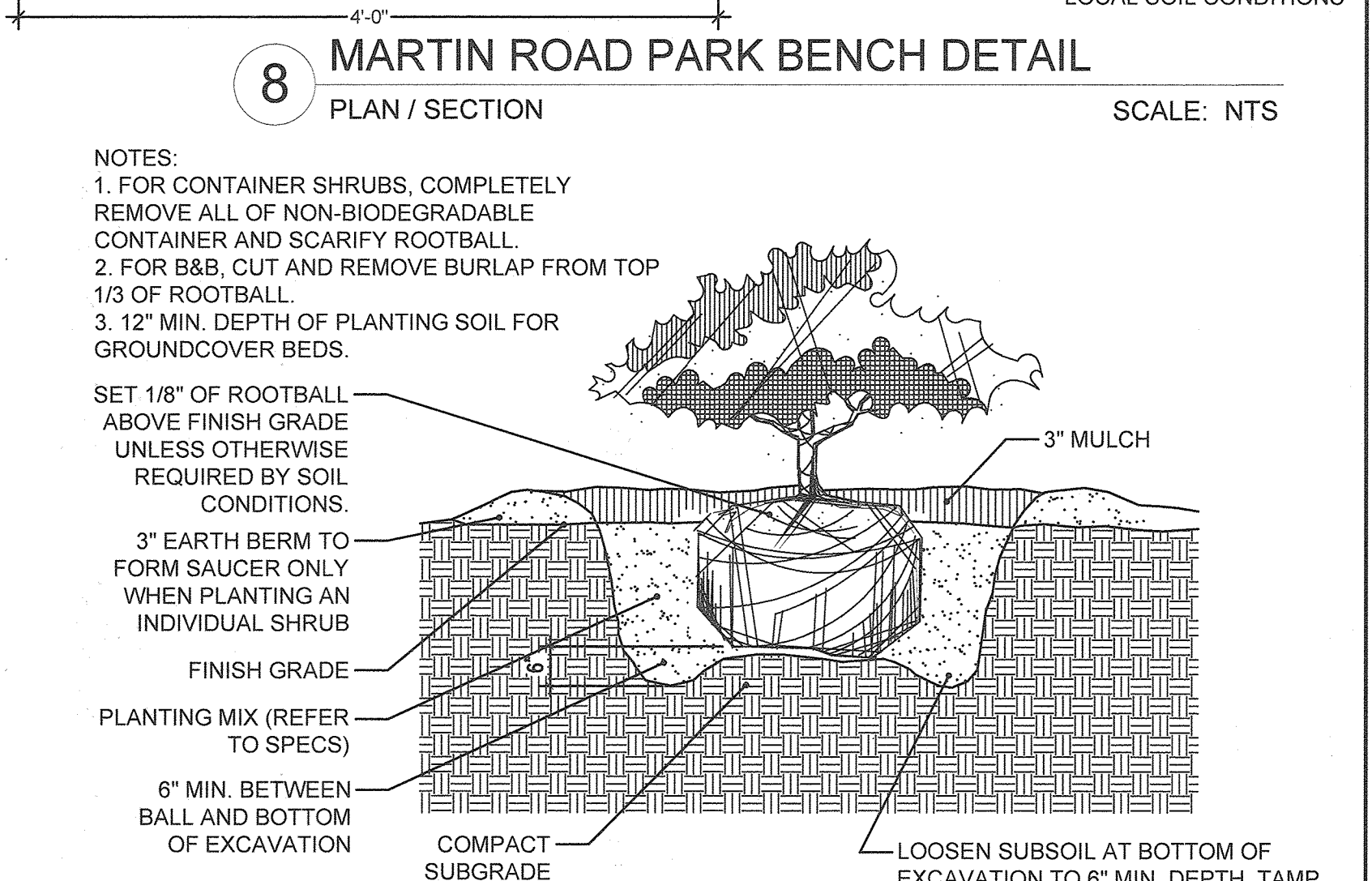
3 SHADE TREE PLANTING DETAIL SECTION
SCALE: 1/2" = 1'-0"



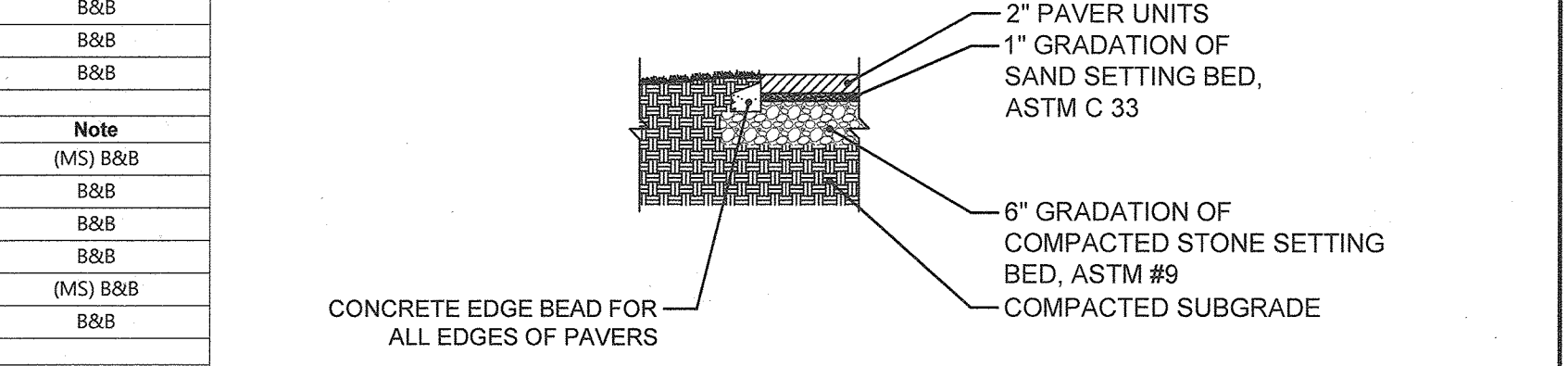
2 EVERGREEN TREE PLANTING DETAIL SECTION
SCALE: 1/2" = 1'-0"



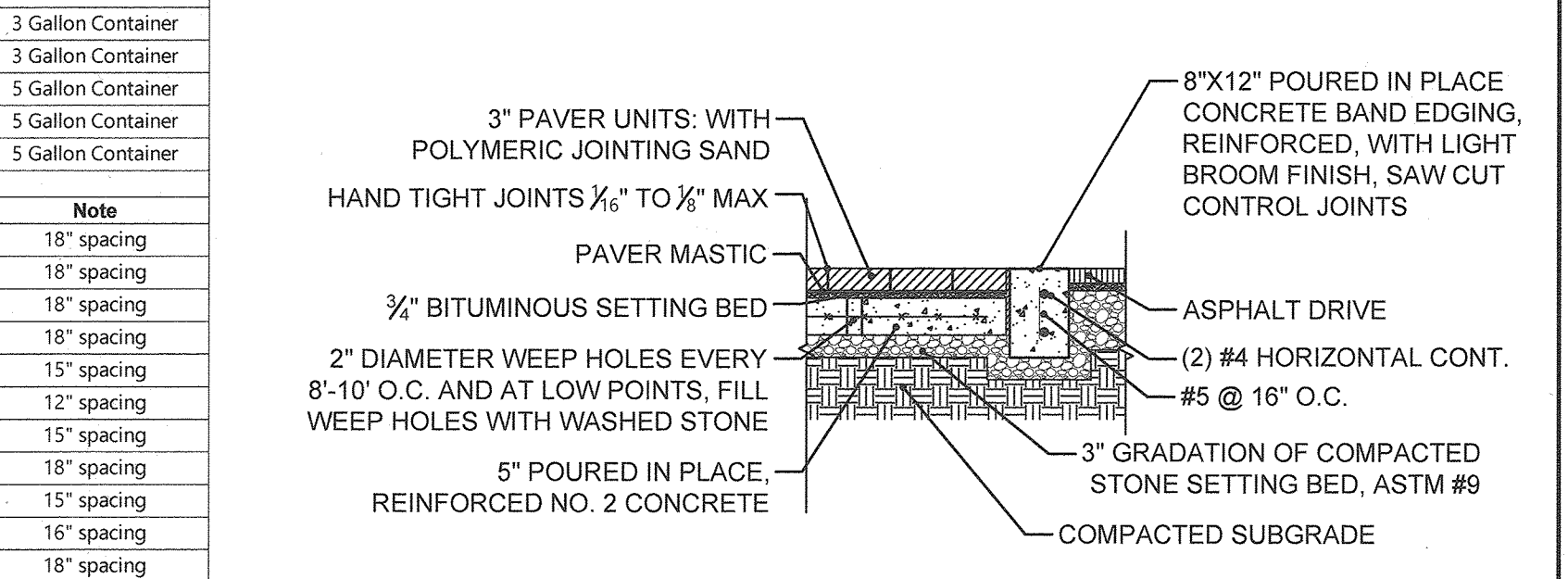
8 MARTIN ROAD PARK BENCH DETAIL PLAN / SECTION
SCALE: NTS



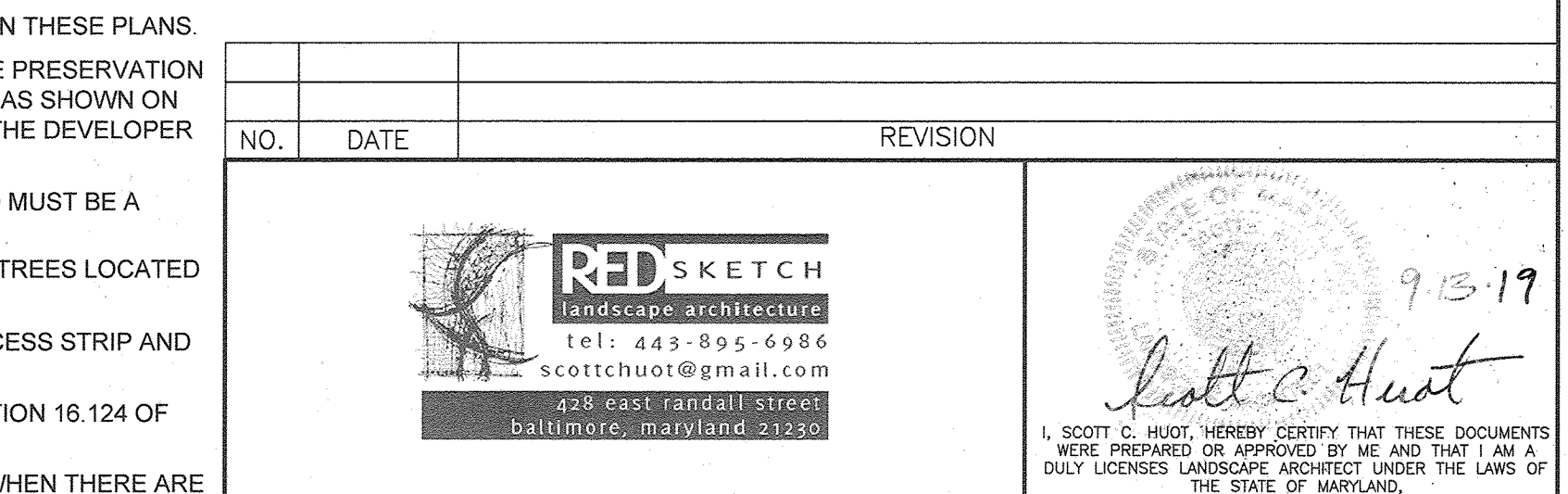
1 SHRUB PLANTING DETAIL SECTION
SCALE: 1/2" = 1'-0"



6 TYPICAL PAVERS AND EDGE DETAIL SECTION
SCALE: 1/2" = 1'-0"



7 VEHICULAR PAVER - CONCRETE BAND SECTION
SCALE: 1/2" = 1'-0"



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. **21243** Expiration Date: **12-21-22**

STATE OF MARYLAND
Professional Engineer
AS-BUILT 12/28/21
"NO AS-BUILT INFORMATION W/ PROVIDED ON THIS SHEET"

SCHEDULE A PERIMETER LANDSCAPE EDGE

| CATEGORY | ADJACENT TO ROADWAY | | ADJACENT TO PERIMETER PROPERTIES | | TOTAL |
|--|---------------------|-----|----------------------------------|---------|-------|
| | NO | YES | NO | YES | |
| PERIMETER NO. / LANDSCAPE TYPE | 0 | 1 | 0 | 1 | 2 |
| LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY) | 213 | 739 | 817 | 811 | 190 |
| CREDIT FOR EXISTING VEGETATION NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | NO | NO | YES 94 | YES 811 | - |
| LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING | 213 | 739 | 723 | - | - |
| CREDIT FOR WALL FENCE OR BERM NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | NO | NO | NO | - | - |
| NUMBER OF PLANTS REQUIRED: SHADE TREES 4, EVERGREEN TREES - OTHER TREES (2:1 SUBSTITUTE) 13, SHRUBS - | 4 | 13 | 15 | 0 | 32 |
| NUMBER OF PLANTS PROVIDED: SHADE TREES 4, EVERGREEN TREES - OTHER TREES (2:1 SUBSTITUTE) 11, SHRUBS 20 | 4 | 11 | 15 | 0 | 30 |
| CREDITS BELOW IF NEEDED | - | - | - | - | - |

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

| NUMBER OF SPACES | 124 PARKING SPACES |
|--------------------------------|--------------------|
| NUMBER OF TREES REQUIRED | 13 SHADE TREES |
| NUMBER OF TREES PROVIDED | 13 SHADE TREES |
| OTHER TREES SUBSTITUTION @ 2:1 | - |

SCHEDULE C RESIDENTIAL DEV. INTERNAL LANDSCAPING

| NUMBER OF DWELLING UNITS | 170 UNITS |
|--------------------------------|-----------|
| NUMBER OF TREES REQUIRED | 67 TREES |
| NUMBER OF TREES PROVIDED | 67 TREES |
| OTHER TREES SUBSTITUTION @ 2:1 | 40 SHRUBS |

PLANT SCHEDULE A PERIMETER LANDSCAPE EDGE FOR BY COLUMBIA

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|-----------------------------------|-------------------|----------------------|------|
| P1-PC | 4 | Platanus acerifolia 'Exclamation' | London Plane Tree | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE FOR BY COLUMBIA PARK PERIMETER 2

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---------------------------------------|-------------------------|----------------------|------|
| P2-AR | 3 | Acer rubrum 'October Glory' | October Glory Red Maple | 2'-1/2" - 3" Caliper | B&B |
| P2-LR | 8 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE FOR BY COLUMBIA PARK PERIMETER 3

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---------------------------------------|-------------------------|----------------------|------|
| P3-AR | 5 | Acer rubrum 'October Glory' | October Glory Red Maple | 2'-1/2" - 3" Caliper | B&B |
| P3-LR | 1 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE FOR BY COLUMBIA PARK PERIMETER 4

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---------------------------------------|-------------------------|----------------------|------|
| P4-AR | 1 | Acer rubrum 'October Glory' | October Glory Red Maple | 2'-1/2" - 3" Caliper | B&B |
| P4-LR | 1 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE FOR BY COLUMBIA PARK PERIMETER 5

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---------------------------------------|-------------------------|----------------------|------|
| P5-AR | 1 | Acer rubrum 'October Glory' | October Glory Red Maple | 2'-1/2" - 3" Caliper | B&B |
| P5-LR | 1 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE B PARKING LOT INTERNAL LANDSCAPING

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---|-----------------------------|----------------------|------|
| PL-GI | 2 | Ginkgo biloba 'Autumn Gold' | Autumn Gold Maidenhair Tree | 2'-1/2" - 3" Caliper | B&B |
| PL-LT | 4 | Gleditsia triacanthos inermis 'Skyline' | Skyline Honeylocust | 2'-1/2" - 3" Caliper | B&B |
| PL-LR | 2 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |
| PL-QI | 2 | Quercus imbricari | Shingle Oak | 2'-1/2" - 3" Caliper | B&B |
| PL-UA | 3 | Ulmus americana 'Valley Forge' | Valley Forge Elm | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE FOR BY COLUMBIA STREET TREE LANDSCAPING

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---------------------------------------|--------------------|----------------------|------|
| ST-LR | 5 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |
| ST-PC | 3 | Platanus Occidentalis | Sycamore | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---|-----------------------------|----------------------|------|
| IL-AR | 4 | Acer rubrum 'October Glory' | October Glory Red Maple | 2'-1/2" - 3" Caliper | B&B |
| IL-AH | 1 | Aesculus hippocastanum 'Baumannii' | Baumann's Horse Chestnut | 2'-1/2" - 3" Caliper | B&B |
| IL-GI | 2 | Ginkgo biloba 'Autumn Gold' | Autumn Gold Maidenhair Tree | 2'-1/2" - 3" Caliper | B&B |
| IL-GT | 2 | Gleditsia triacanthos inermis 'Skyline' | Skyline Honeylocust | 2'-1/2" - 3" Caliper | B&B |
| IL-LR | 4 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |
| IL-NS | 3 | Nyssa sylvatica 'Haymanned' | Red Rage Tupelo | 2'-1/2" - 3" Caliper | B&B |
| IL-PC | 1 | Platanus acerifolia 'Exclamation' | London Plane Tree | 2'-1/2" - 3" Caliper | B&B |
| IL-QI | 1 | Quercus imbricari | Shingle Oak | 2'-1/2" - 3" Caliper | B&B |
| IL-QM | 1 | Quercus muhlenbergii | Chinkapin Oak | 2'-1/2" - 3" Caliper | B&B |
| IL-QP | 3 | Quercus phellos | Willow Oak | 2'-1/2" - 3" Caliper | B&B |
| IL-TA | 1 | Taxodium distichum | Baldypress | 2'-1/2" - 3" Caliper | B&B |
| IL-TI | 1 | Tilia tomentosa | Silver Linden | 2'-1/2" - 3" Caliper | B&B |
| IL-ZS | 5 | Zelkova serrata 'Green Vase' | Green Vase Zelkova | 2'-1/2" - 3" Caliper | B&B |

PLANT SCHEDULE FOR BY COLUMBIA STREET TREE LANDSCAPING

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|-----------------------------------|-----------------------------|-------------------|-----------------|
| IL-AC | 9 | Amelanchier canadensis 'Glenform' | Rainbow Pillar Serviceberry | 8" HL | (MS) B&B |
| IL-BN | 3 | Betula Nigra | Dura Heat River Birch | 8" HL | 3 Stem (MS) B&B |
| IL-CC | 1 | Cercis canadensis 'Forest Pansy' | Forest Pansy Redbud | 2"-2-1/2" Caliper | B&B |
| IL-CF | 3 | Cornus florida 'Cherokee Brave' | Cherokee Brave Dogwood | 2"-2-1/2" Caliper | B&B |
| IL-CV | 3 | Chionanthus virginicus | White Fringe Tree | 6"-8" HL | (MS) B&B |
| IL-CR | 5 | Cryptomeria japonica 'Yoshino' | Yoshino Cryptomeria | 8"-10" HL | B&B |
| IL-IO | 7 | Ilex opaca 'Satyr Hill' | Satyr Hill American Holly | 8"-10" HL | B&B |
| IL-LB | 5 | Lagerstroemia x 'Biloxi' | Biloxi Crape Myrtle | 6"-8" HL | (MS) B&B |
| IL-LP | 2 | Lagerstroemia x 'Tuskegee Pink' | Tuskegee Crape Myrtle | 6"-8" HL | (MS) B&B |
| IL-MB | 5 | Magnolia grandiflora 'Alta' | Alta Southern Magnolia | 8"-10" HL | (MS) B&B |
| IL-MV | 7 | Magnolia virginiana | Sweetbay Magnolia | 6"-8" HL | (MS) B&B |
| IL-OK | 1 | Oxydendron arboreum | Sourwood | 2"-2-1/2" Caliper | B&B |
| IL-PB | 6 | Picea omorika 'Bruns' | Brun's Serbian Spruce | 8" HL | B&B |

Deciduous & Coniferous Shrubs

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|--|-------------------------------|---------|--------------------|
| Aa | 5 | Aronia arbutifolia 'Brilliantissima' | Brilliant Red Chokeberry | 24"-30" | 5 Gallon Container |
| Cs | 20 | Cornus stolonifera 'Farrow' | Artic Fire Red Twig Dogwood | 24"-30" | 5 Gallon Container |
| Iw | 5 | Ilex verticillata 'Spravy' | Berry Heavy Winterberry Holly | 24"-30" | 5 Gallon Container |
| Rc | 10 | Rhododendron caratwabiense 'Boursault' | Catawba Rhododendron | 24"-30" | 5 Gallon Container |

PLANT SCHEDULE FOR BY COLUMBIA PARK ENHANCEMENT

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|---------------------------------------|-------------------------|----------------------|------|
| AR | 1 | Acer rubrum 'October Glory' | October Glory Red Maple | 2'-1/2" - 3" Caliper | B&B |
| LR | 1 | Liquidambar styraciflua 'Rotundiloba' | Fruitless Sweetgum | 2'-1/2" - 3" Caliper | B&B |
| NS | 2 | Nyssa sylvatica 'Haymanned' | Red Rage Tupelo | 2'-1/2" - 3" Caliper | B&B |

Ornamental Tree & Evergreen

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|-----------------------------------|-----------------------------|----------------|----------|
| AC | 4 | Amelanchier canadensis 'Glenform' | Rainbow Pillar Serviceberry | 8" HL | (MS) B&B |
| CC | 8 | Cercis canadensis 'Forest Pansy' | Forest Pansy Redbud | 2"-2-1/2" cal. | B&B |
| CF | 1 | Cornus florida 'Cherokee Brave' | Cherokee Brave Dogwood | 2"-2-1/2" cal. | B&B |
| IO | 7 | Ilex opaca 'Satyr Hill' | Satyr Hill American Holly | 8" HL | B&B |
| MT | 3 | Magnolia virginiana | Sweetbay Magnolia | 8" HL | (MS) B&B |
| PV | 3 | Pinus taeda | Loblolly Pine | 8" HL | B&B |

Deciduous & Coniferous Shrubs

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|--------------------------------------|-------------------------------|--------------|--------------------|
| Aa | 13 | Aronia arbutifolia 'Brilliantissima' | Brilliant Red Chokeberry | 24"-30" | 5 Gallon Container |
| Cs | 27 | Cornus stolonifera 'Farrow' | Artic Fire Red Twig Dogwood | 24"-30" | 5 Gallon Container |
| Fg | 24 | Fothergilla gardenii | Dwarf Fothergilla | 18"-24" | 3 Gallon Container |
| Ig | 64 | Ilex glabra 'Chamzini' | Nordic Inkberry Holly | 18"-24" | 3 Gallon Container |
| Iv | 50 | Itea virginica 'Little Henry' | Virginia Sweetpire | 18"-24" | 3 Gallon Container |
| Iw | 6 | Ilex verticillata 'Spravy' | Berry Heavy Winterberry Holly | 24"-30" | 5 Gallon Container |
| Rd | 34 | Rhododendron pericycmenoides | Pink Azalea | 24"-30" | 5 Gallon Container |
| Vb | 17 | Viburnum opulus 'Compactum' | Compact Cranberrybush | 5 gal. cont. | 5 Gallon Container |

Groundcovers, Grasses and Perennials

| Symbol | Quantity | Botanical Name | Common Name | Size | Note |
|--------|----------|--|----------------------------------|--------------|-------------|
| ad | 15 | Aster dumosus 'Wood's Pink' | Pink Wood Aster | 1 gal. cont. | 18" spacing |
| ag | 20 | Agastache foeniculum 'Golden Jubilee' | Golden Jubilee Anise Hyssop | 1 gal. cont. | 18" spacing |
| am | 9 | Amonia hubrichtii | Thread-leaf Blue Star | 1 gal. cont. | 18" spacing |
| as | 9 | Asclepias tuberosa | Butterfly Weed | 1 gal. cont. | 18" spacing |
| cd | 65 | Carex elata 'Aurea' Bowles Golden | Gold Variegated Sedge | 1 gal. cont. | 15" spacing |
| ci | 13 | Carex plantaginifolia | Plantain-leaf Sedge | 1 gal. cont. | 12" spacing |
| co | 7 | Coreopsis grandiflora 'Early Sunrise' | Early Sunrise Tickseed | 1 gal. cont. | 15" spacing |
| ep | 6 | Echinacea x purpurea 'Evening Glow' | Coneflower | 1 gal. cont. | 18" spacing |
| hs | 20 | Heuchera x villosa 'Berry Smoothie' | Berry Smoothie Coral Bells | 1 gal. cont. | 15" spacing |
| hv | 8 | Heuchera x villosa 'Caramel' | Caramel Coral Bells | 1 gal. cont. | 16" spacing |
| mo | 6 | Monarda bradburiana | Eastern Beebalm | 1 gal. cont. | 18" spacing |
| ne | 23 | Nepeta x faassenii 'Walker's Low' | Catmint | 1 gal. cont. | 18" spacing |
| pe | 25 | Penstemon digitalis 'Husker Red' | Beard Tongue | 1 gal. cont. | 18" spacing |
| ss | 24 | Schizanthus lobatum 'Standing Ovation' | Standing Ovation Little Bluestem | 1 gal. cont. | 18" spacing |
| vi | 32 | Vernonia lettermanii 'Iron Butterfly' | Threadleaf Ironweed | 1 gal. cont. | 18" spacing |

- THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS SHOWN ON THESE PLANS.
- THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL THE INTERNAL PLANTINGS, THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION, AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BONDING FOR THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPERS AGREEMENT.
- TREES MUST BE A MINIMUM OF FOUR (4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE (5) FEET FROM ANY STORM DRAIN.
- A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
- TREES MUST BE PLANTED A MINIMUM OF FIVE (5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN (10) FEET FROM A DRIVEWAY.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
- STREET TREES SHALL BE PLANTED SIX (6) FEET BEHIND THE FACE OF THE CURB WHEN THERE ARE NO SIDEWALKS.
- ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH PLACED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
- NO TREES SHALL BE PLACED WITHIN TEN (10) FEET BEHIND A RETAINING WALL OR WITHIN A RELATED MAINTENANCE EASEMENT, WHICHEVER IS GREATER.
- THE SURETY FOR SCHEDULE A (30) PERIMETER SHADE TREES (\$9,000.00) AND (16) PERIMETER EVERGREEN TREES (\$2,400.00) AND (2) PERIMETER ORNAMENTAL TREES (\$300.00) AND (20) SHRUBS (\$800.00) IN THE AMOUNT OF (\$12,300.00). THE SURETY FOR SCHEDULE B (13) SHADE TREES (\$3,900.00) IN THE AMOUNT OF (\$3,900.00). THE SURETY FOR SCHEDULE C (29) SHADE TREES (\$8,700.00) AND (57) ORNAMENTAL & EVERGREENS (\$8,650.00) AND (40) SHRUBS (\$1,200.00) IN THE AMOUNT OF (\$18,450.00) FOR A TOTAL OF (\$34,650.00) HAS BEEN POSTED AS A LANDSCAPE BOND. THE SURETY REQUIRED (8) STREET TREES IN THE AMOUNT OF (\$2,400.00) HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
- THE MARTIN ROAD PARK ENHANCEMENT PLANTINGS WILL NOT BE INCLUDED AS PART OF THIS PROJECT'S LANDSCAPING SURETY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10-3-19
 DATE: 10-9-19
 DATE: 10-10-19

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 LANDSCAPING MANUAL. I / WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 DEVELOPER:
 DATE: 9-13-19
 SCOTT C. HUOT LICENSED LANDSCAPE ARCHITECT

MICRO BIO-RETENTION INTERNAL LANDSCAPING CHART

| SYMBOL | PLANT NAME | COMMON NAME | TYPE | 2 QUANTITY | 3 QUANTITY | 4 QUANTITY |
|--------|----------------------------------|--------------------|------------|------------|------------|------------|
| BN | Betula nigra | River Birch | tree | 2281 | 1118 | 627 |
| rl | Rudbeckia laciniata | Tall Coneflower | herbaceous | 1 | 1 | 1 |
| jb | Juncus infl exilis 'Blue Arrows' | Blue-green Rush | herbaceous | 24 | 12 | 7 |
| iv | Iris versicolor | Blue Flag Iris | herbaceous | 65 | 43 | 19 |
| ev | Elymus virginicus | Virginia Wild Rye | herbaceous | 55 | 37 | 19 |
| Va | Vaccinium atrococcum | Highbush Blueberry | shrub | 17 | 0 | 7 |
| | | | | 23 | 6 | 7 |

NO. DATE REVISION

OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100

DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

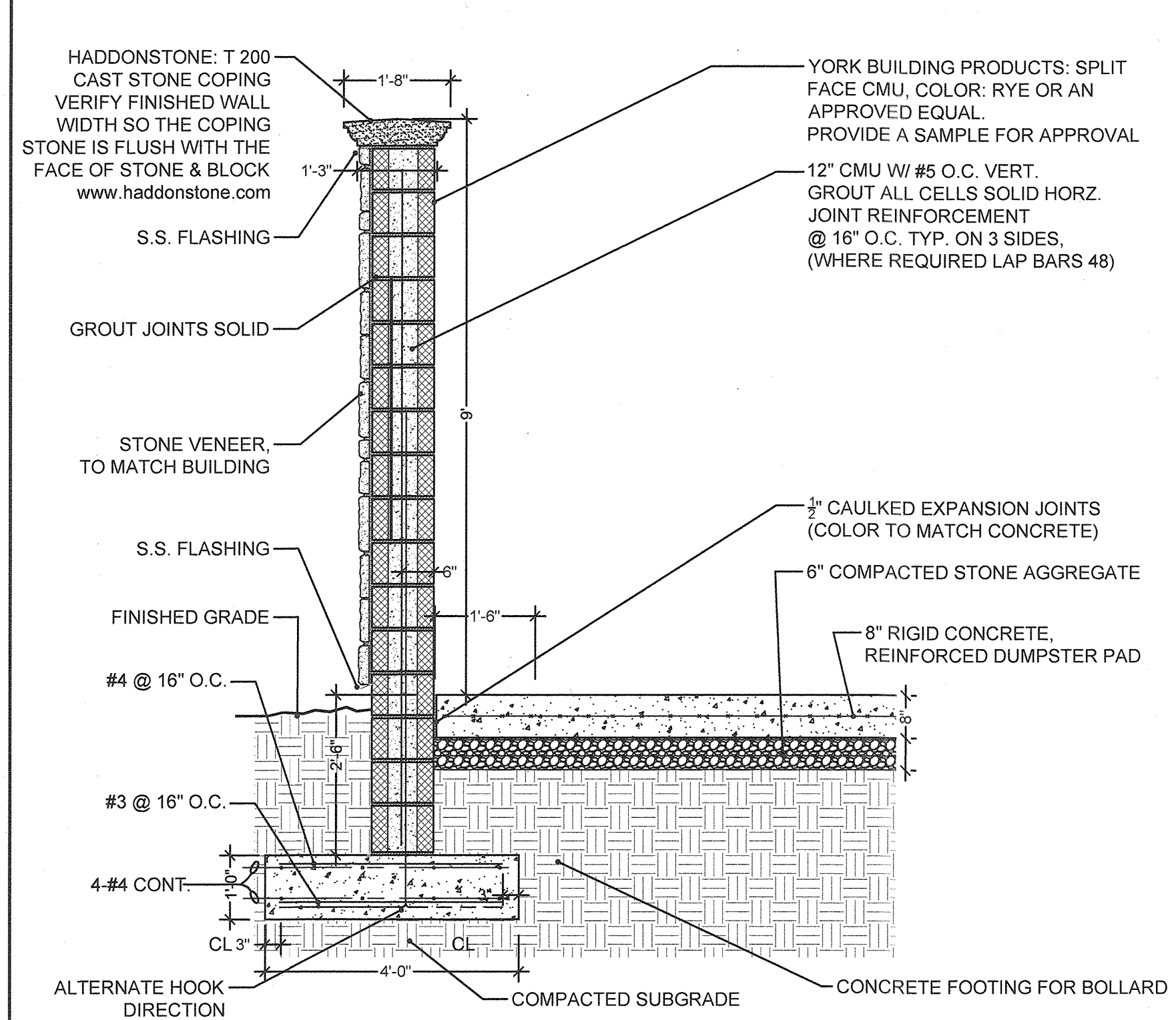
SITE DEVELOPMENT PLAN SITE DETAILS REQUIRED LANDSCAPING CHARTS

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567

DESIGN: SCH DRAFT: SCH SCALE: AS SHOWN SHEET SDP 21 OF 31

RED SKETCH landscape architecture tel: 443-895-6986 scottc@redsketch.com 428 east randall street baltimore, maryland 21230

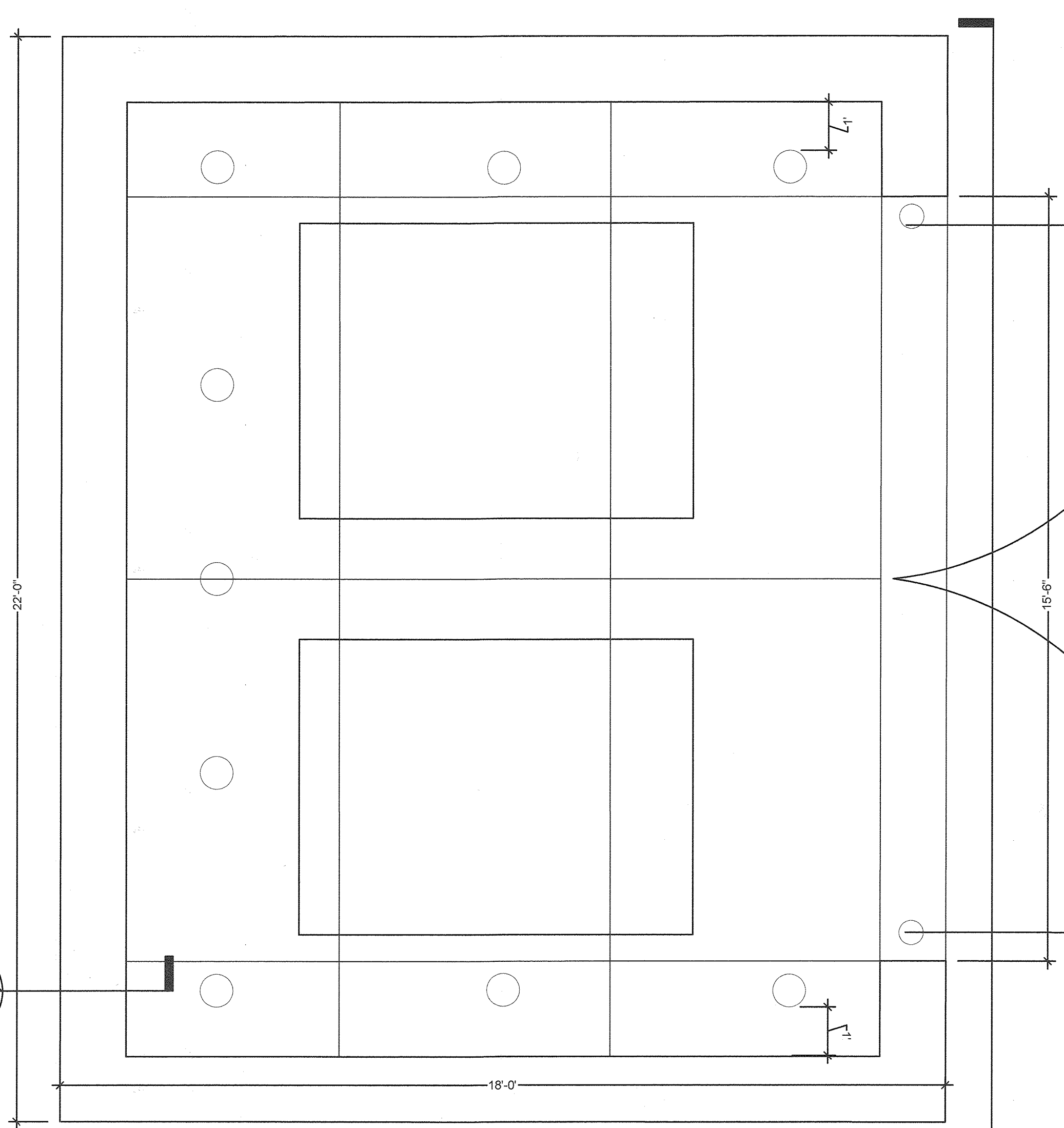
SCOTT C. HUOT, HENRY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE N. 3427, EXPIRATION DATE: 09.04.21



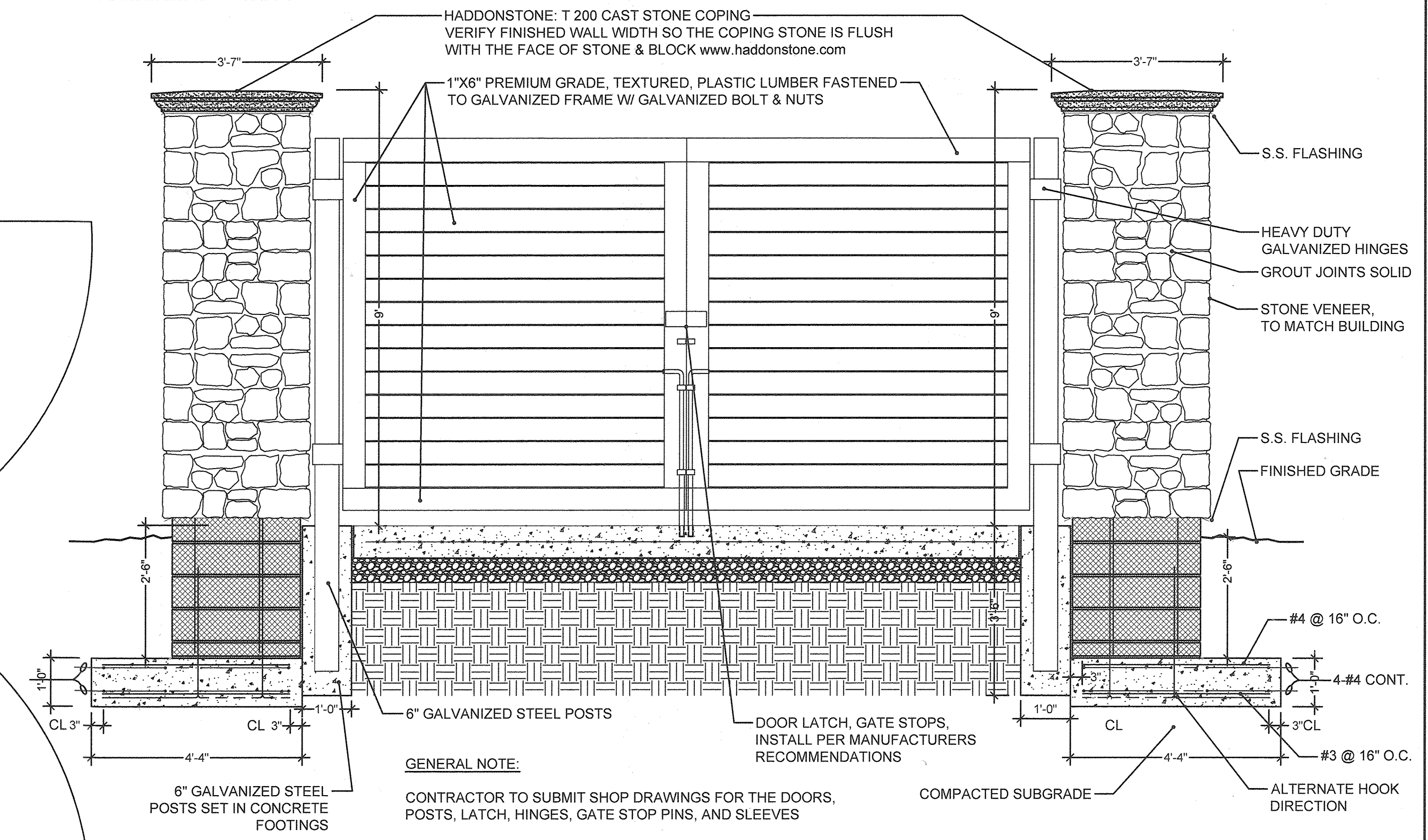
3 BOLLARD - DUMPSTER WALL DETAIL
SECTION
SCALE: 1/2" = 1'-0"

" NO AS-BUILT INFORMATION IS" PROVD IDED ON THIS SHEET

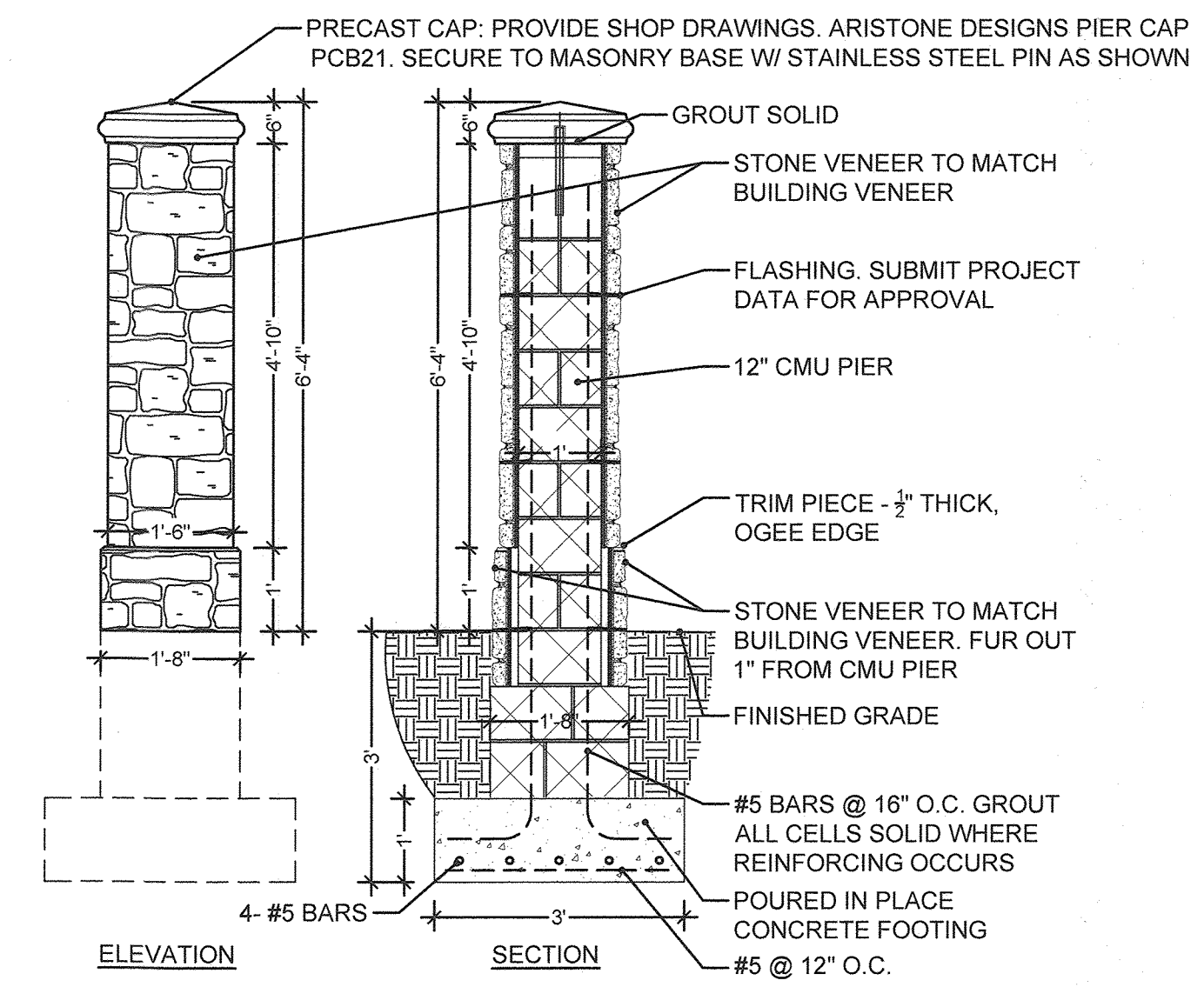
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21267 Expiration Date: 12-21-22



2 DUMPSTER ENCLOSURE
PLAN
SCALE: 1/2" = 1'-0"



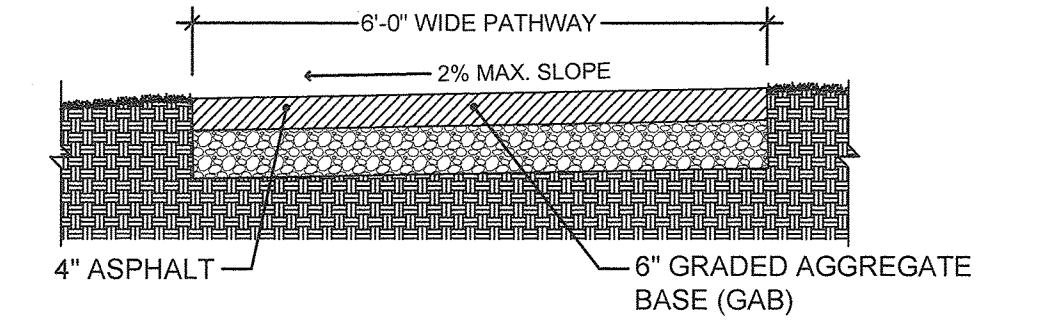
1 DUMPSTER ENCLOSURE GATES
ELEVATION
SCALE: 1/2" = 1'-0"



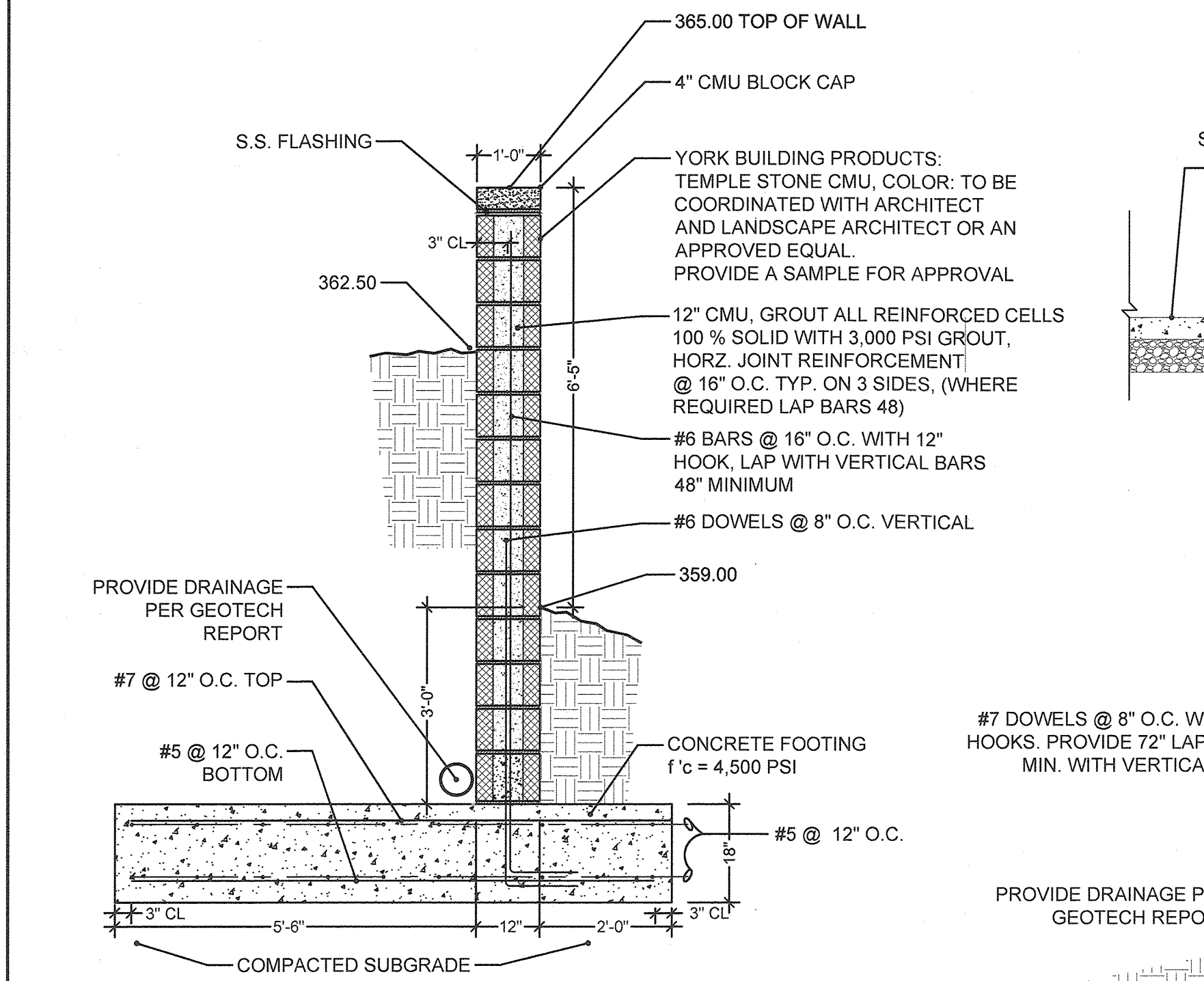
5 MONUMENT SIGN STONE PIERS
SECTION
SCALE: 1/2" = 1'-0"



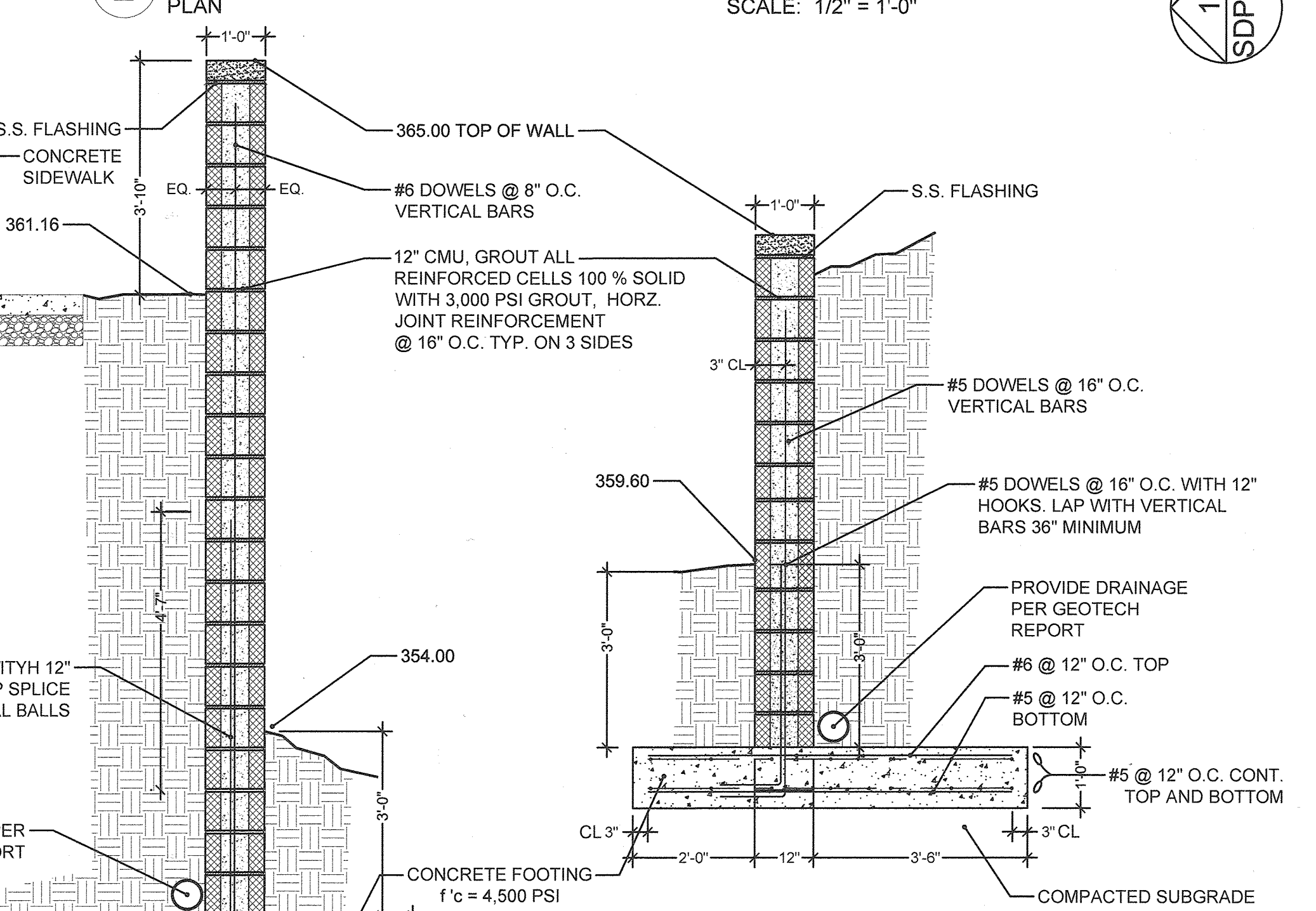
4 MONUMENT SIGN ELEVATION
ELEVATION
SCALE: 1/2" = 1'-0"



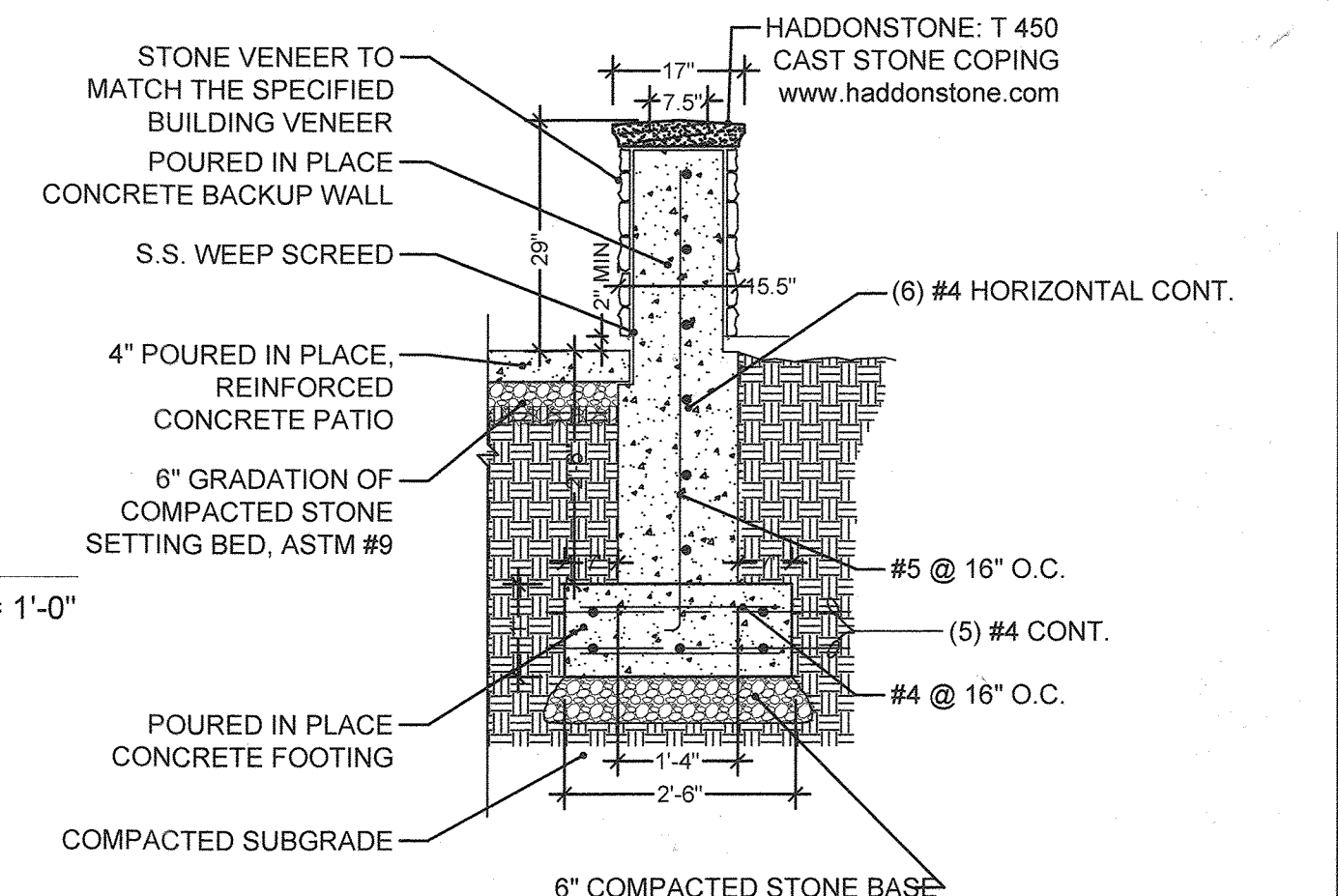
11 MARTIN ROAD PARK PATHWAY SECTION
SECTION
SCALE: 1/2" = 1'-0"



9 NOISE - RETAINING WALL
SECTION
SCALE: 1/2" = 1'-0"



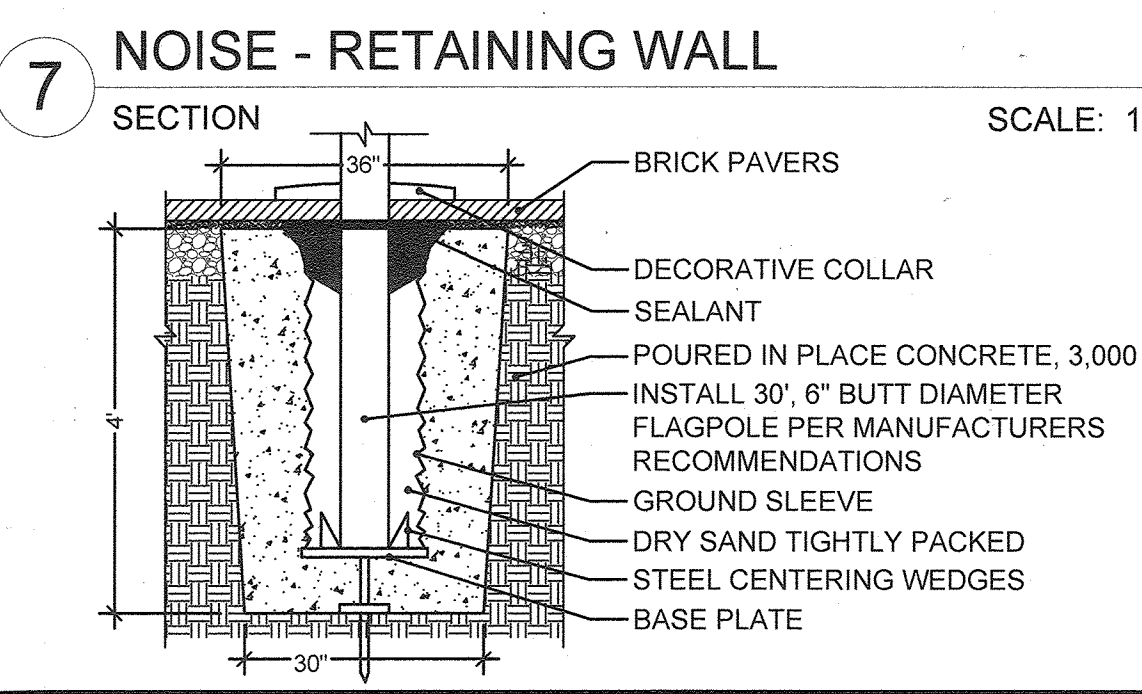
8 NOISE - RETAINING WALL
SECTION
SCALE: 1/2" = 1'-0"



6 STONE SITE WALLS
SECTION
SCALE: 1/2" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chad E. Smith 10-3-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION
Neil S. Smith 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT
N. Smith 10-16-19
DIRECTOR

10 FLAGPOLE
SECTION
SCALE: 1/2" = 1'-0"



7 NOISE - RETAINING WALL
SECTION
SCALE: 1/2" = 1'-0"

| NO. | DATE | REVISION |
|-----|------|----------|
| | | |
| | | |

OWNER:
LEGACY INVESTMENTS LLC
2077 SOMERVILLE ROAD
SUITE 206
ANNAPOLIS, MARYLAND 21401
410-266-5100

DEVELOPER/CONTRACT PURCHASER:
BRIGHTVIEW COLUMBIA, LLC
218 NORTH CHARLES STREET
SUITE 220
BALTIMORE, MARYLAND 21201
410-965-0595

BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT
"GREEN BUILDING"
PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
ZONED: CEF-M
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN
SITE CONSTRUCTION DETAILS

DATE: SEPTEMBER 2019
SCALE: AS SHOWN

DESIGN: SCH DRAFT: SCH SHEET SDP 22 OF 31

BEI PROJECT NO. 2567

SEGMENTAL RETAINING WALL SPECIFICATIONS

PART 1 - GENERAL

- 1.1 WORK INCLUDES**
- WORK INCLUDES FURNISHING AND INSTALLING SEGMENTAL RETAINING WALL UNITS, GEGRID REINFORCEMENT, WALL FILL, AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS PRODUCED BY BENCHMARK ENGINEERING, INC. AND AS SPECIFIED HEREIN. THE CONTRACTOR SHALL ALSO INCLUDE THE FURNISHING AND INSTALLING OF ALL APPURTENANT MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR CONSTRUCTION OF THE GEGRID REINFORCED SEGMENTAL RETAINING WALLS. THE GEOTECHNICAL ENGINEER'S REPORT FOR THE SITE WAS PERFORMED BY WARDEN-KIGHT ASSOCIATES, INC. AS SUMMARIZED IN THEIR REPORT DATED DECEMBER 22, 2016. PLANS ARE BASED ON THE SITE DEVELOPMENT PLANS DATED JULY 2016.
- 1.2 REFERENCE STANDARDS**
- A. ASTM C90-75 (1981 REV) - HOLLOW LOAD BEARING MASONRY UNITS.
 - B. ASTM C140-75 (1981 REV) - SAMPLING AND TESTING CONCRETE MASONRY UNITS.
 - C. ASTM C145-75 (1981 REV) - SOLID LOAD BEARING CONCRETE MASONRY UNITS.
 - D. GEOTECHNICAL RESEARCH INSTITUTE (GRI), GR-024 - DETERMINATION OF LONG TERM DESIGN STRENGTH OF GEORGRIDS.
 - E. ASTM D 638 - TEST METHOD FOR TENSILE PROPERTIES OF PLASTIC.
 - F. ASTM D 1248 - SPECIFICATION OF POLYETHYLENE PLASTICS MOLDED AND EXTRUSION MATERIALS.
 - G. ASTM D 4218 - TEST METHOD FOR CARBON BLACK CONTENT IN POLYETHYLENE COMPOUNDS BY THE MUFFLE FURNACE TECHNIQUE.
 - H. ASTM D 3034 - SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PIPE.
 - I. ASTM C 1372 - SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
- 1.3 DELIVERY, STORAGE AND HANDLING**
- A. CONTRACTOR SHALL CHECK THE MATERIALS UPON DELIVERY TO ENSURE THAT THE PROPER MATERIAL HAS BEEN RECEIVED.
 - B. CONTRACTOR SHALL PREVENT EXCESSIVE MUD, WET CEMENT, EPOXY, AND LIQUE MATERIALS WHICH MAY AFFIX THEMSELVES, FROM COMING IN CONTACT WITH THE MATERIALS.
 - C. CONTRACTOR SHALL PROTECT THE MATERIALS FROM DAMAGE. DAMAGED MATERIAL SHALL NOT BE INCORPORATED INTO THE REINFORCED RETAINING WALLS.
 - D. GEORGRIDS SHALL BE STORED ABOVE -20°F.
- 1.4 SUBMITTALS/CERTIFICATION**
- THE CONTRACTOR SHALL SUBMIT A MANUFACTURER'S CERTIFICATION, PRIOR TO THE START OF THE WORK, THAT THE RETAINING WALL SYSTEM COMPONENTS MEET THE REQUIREMENTS OF ASTM C 1372 AND OTHER REQUIREMENTS SPECIFIED HEREIN. THIS CERTIFICATION SHOULD BE PROVIDED TO THE GEOTECHNICAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO WALL CONSTRUCTION.

PART 2 - PRODUCTS

- 2.1 DEFINITIONS**
- A. GEGRID IS A HIGH DENSITY POLYETHYLENE, POLYESTER, OR POLYPROPYLENE GRID, SPECIFICALLY FABRICATED FOR USE AS A SOIL REINFORCEMENT.
 - B. CONCRETE RETAINING WALL UNITS ARE AS DETAILED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
 - C. BACKFILL IS THE SOIL WHICH IS USED AS FILL FOR THE REINFORCED SOIL MASS.
 - D. FOUNDATION SOIL IS THE IN-SITU SOIL OR CONTROLLED COMPACTED FILL PLACED BELOW THE BOTTOM OF THE RETAINING WALL AND GEGRID ZONE.
- 2.2 MATERIALS**
- THE CONTRACTOR SHALL SUBMIT MANUFACTURER'S CATALOG AND SAMPLES OF THE PROPOSED MATERIALS FOR APPROVAL BY THE PROJECT GEOTECHNICAL ENGINEER A MINIMUM OF SEVEN DAYS BEFORE THE START OF CONSTRUCTION. MATERIALS SHALL BE TRANSPORTED TO THE SITE ONLY AFTER APPROVAL OF THE PROPOSED MATERIALS BY THE PROJECT GEOTECHNICAL ENGINEER.
- A. CONCRETE UNITS**
- 1. MASONRY UNITS SHALL BE KEYSTONE COMPAC II AND STANDARD III STRAIGHT FACE UNITS AS DETAILED IN THE DRAWINGS. SUBSTITUTION OF OTHER CONCRETE UNITS MAY BE ALLOWED WITH THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.
 - 2. CONCRETE WALL UNITS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI, IN ACCORDANCE WITH ASTM C-90. THE CONCRETE SHALL HAVE ADEQUATE FRETZ/FLOW PROTECTION WITH A MAXIMUM MOISTURE ABSORPTION OF 6 PERCENT.
 - 3. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
 - 4. THE UNITS SHALL PASS 100 FREEZE/THAW CYCLES IN WATER WITH LESS THAN 1% WEIGHT LOSS IN ACCORDANCE WITH ASTM C 1372.
 - 5. EXTERIOR DIMENSIONS MAY VARY. UNITS ARE REQUIRED TO HAVE A MINIMUM OF 1.0 SQUARE FOOT OF FACE AREA EACH.
 - 6. UNITS SHALL HAVE ANGLED SIDES AND BE CAPABLE OF ATTAINING CONCAVE AND CONVEX ALIGNMENT CURVES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - 7. UNITS SHALL BE INTERLOCKED WITH NON-CORROSIVE REINFORCED FIBERGLASS PINS.
 - 8. UNITS SHALL BE INTERLOCKED AS TO PROVIDE A MINIMUM OF 1/2-INCH SETBACK PER BLOCK.
- B. LEVELING PAD**
- MATERIAL FOR LEVELING PAD/FOOTING SHALL CONSIST OF COMPACTED FREE-DRAINING COARSE AGGREGATES MEETING THE REQUIREMENTS OF ASTM #57 STONE. A COMPACTED LEVELING PAD SHALL BE A MINIMUM OF 6 INCHES THICK AND 30 INCHES WIDE IS REQUIRED FOR WALL #1 AND 6 INCHES THICK AND 24 INCHES WIDE FOR WALL #2.
- C. FIBERGLASS CONNECTING PINS**
- 1. THERMOSET ISOPHTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT RODS, A MINIMUM ONE-HALF INCH IN DIAMETER.
 - 2. PINS SHALL HAVE A MINIMUM FLEXURAL STRENGTH OF 128,000 PSI AND SHORT BEAM SHEAR OF 6,400PSI.
 - 3. FOR SUBSTITUTE CONCRETE UNITS, USE OF OTHER COMPATIBLE CONNECTOR SYSTEMS MAY BE ALLOWED WITH THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.
- D. GEGRID**
- 1. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF HIGH PERFORMANCE WOVEN POLYESTER GEORGRIDS MANUFACTURED BY TENCATE INTERNATIONAL FOR SOIL REINFORCEMENT APPLICATIONS. THE TYPE, STRENGTH AND PLACEMENT LOCATION OF THE REINFORCING GEOSYNTHETIC SHALL BE AS SHOWN ON THE PLANS. DETAILED TEST DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION AND SHALL INCLUDE TENSILE STRENGTH (ASTM D 4585 OR ASTM D 6837), CREEP (ASTM D 5262), SITE DAMAGE AND DURABILITY (GRI GG-1), PULLOUT (ASTM D 6706), AND CONNECTION (ASTM D6638) TEST DATA.
 - 2. INCLUDED WITH THE TEST DATA SHALL BE A REPORT THAT WILL SHOW THAT THE MRW1 3XT SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 3,500 POUNDS PER LINEAR FOOT (MAW). A LONG-TERM DESIGN STRENGTH OF 1,916 POUNDS PER LINEAR FOOT, IN ACCORDANCE WITH ASTM D 6837 AND A JOINT STRENGTH OF 975 POUNDS PER LINEAR FOOT (MAW) IN ACCORDANCE WITH GR-022.
 - 3. INCLUDED WITH THE TEST DATA SHALL BE A REPORT THAT WILL SHOW THAT THE MRW1 5XT SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 4,700 POUNDS PER LINEAR FOOT (MAW). A LONG-TERM DESIGN STRENGTH OF 2,575 POUNDS PER LINEAR FOOT, IN ACCORDANCE WITH ASTM D 6837 AND A JOINT STRENGTH OF 1,469 POUNDS PER LINEAR FOOT (MAW) IN ACCORDANCE WITH GR-022.
 - 4. INCLUDED WITH THE TEST DATA SHALL BE A REPORT THAT WILL SHOW THAT THE MRW1 7XT SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 5,900 POUNDS PER LINEAR FOOT (MAW). A LONG-TERM DESIGN STRENGTH OF 3,233 POUNDS PER LINEAR FOOT, IN ACCORDANCE WITH ASTM D 6837 AND A JOINT STRENGTH OF 1,936 POUNDS PER LINEAR FOOT (MAW) IN ACCORDANCE WITH GR-022.
 - 5. TYPE OF FENCING SELECTED BY THE OWNER/DEVELOPER MAY INTERFERE WITH GEGRID REINFORCEMENT. INSTALL SMOOTHIES CONCURRENTLY WITH GEGRID AND FILL PLACEMENT TO AVOID CONFLICTS OR DAMAGE TO GEGRID. OWNER SHALL SELECT FENCING PRIOR TO START OF WALL CONSTRUCTION SO WALL AND FENCE CONTRACTORS CAN COORDINATE INSTALLATION.
- E. REINFORCED ZONE**
- CONTROLLED FILL SOIL SHALL MEET THE REQUIREMENTS OF MS190 GROUP CLASSIFICATION OF A-1-4 OR MORE GRANULAR, IF ADEQUATE QUANTITIES ARE NOT AVAILABLE ON-SITE, IMPORTED BACKFILL SHALL MEET THE ABOVE REQUIREMENTS AND SHOULD BE APPROVED BY GTA.
- F. RETAINED AND STRUCTURAL FILL**
- CONTROLLED FILL SOILS TO BE PLACED OUTSIDE THE REINFORCED BACKFILL AREA AND WHERE SPECIFIED SHALL CONSIST OF ON-SITE OR BORROW SOILS MEETING THE REQUIREMENTS OF USCS SM OR MORE GRANULAR. ALL FILL MATERIALS PROPOSED TO BE PLACED BEHIND THE REINFORCED BACKFILL SHALL BE PLACED AS CONTROLLED FILL COMPACTED TO 92 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE MODIFIED PROCTOR, ASTM D-1557. SOIL-CEMENT SHALL BE PLACED A MINIMUM OF 2- FEET AROUND SM#2 AND INLET 1-8 FOR THE FULL HEIGHT OF THE REINFORCED ZONE, AND AS DETAILED IN THE DRAWINGS.
- G. UNIT FILL / DRAINAGE LAYER**
- THE UNIT FILL AND DRAINAGE LAYER SHALL CONSIST OF ASTM #57 STONE AND BE PLACED WITHIN THE BLOCK AS UNIT FILL AND BEHIND THE BLOCK AS THE DRAINAGE LAYER WITH A MINIMUM THICKNESS OF 12 INCHES AS INDICATED ON THE WALL SECTIONS.
- H. LOW-PERMEABILITY SOIL**
- LOW-PERMEABILITY SOILS TO BE PLACED AT THE TOP OF THE WALL WHERE SPECIFIED SHALL CONSIST OF SILTY OR CLAYEY SOILS MEETING THE REQUIREMENTS OF ML, CL, OR SC WITH A MINIMUM OF 30% PASSING THE #200 SEIVE.
- I. DRAINAGE PIPE**
- THE DRAINAGE PIPES SHALL BE PERFORATED HDPE OR SOLID PVC PIPE AS INDICATED ON THE DRAWINGS.
- J. FILTER FABRIC**
- FILTER FABRIC SHALL BE NON-WOVEN, POLYPROPYLENE GEOTEXTILE, 140N MANUFACTURED BY NICOLON MRW1 GROUP OR APPROVED EQUIVALENT.
- K. DRAINAGE COMPOSITE**
- THE DRAINAGE GEOCOMPOSITE SHOULD BE TENDON 700 DOUBLE SIDED MANUFACTURED BY TENAX CORPORATION, OR APPROVED EQUIVALENT. THE DRAINAGE GEOCOMPOSITE SHALL BE INSTALLED AT WALL #1 FROM STA. 4+12 TO 4+58 AT THE PROPOSED UNDERGROUND STORMWATER MANAGEMENT FACILITY AND AT CUT FACES AND BE TIED INTO THE WALL DRAINAGE SYSTEM BEHIND THE BLOCKS.

PART 3 - EXECUTION

- A. EARTHWORK**
1. THE CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. UNDER NO CIRCUMSTANCES SHOULD THE EXCAVATION LINES AND GRADES BE EXCEEDED, EXCEPT WITH OWNER'S APPROVAL. THE CONTRACTOR SHALL PROTECT THE EXCAVATION FROM SLOUGHING BY EXCAVATING TO THE APPROPRIATE GRADE FOR THE GIVEN SOIL TYPE AND COVERING THE EXCAVATED FACE WITH THE STONE DRAINAGE LAYER.
 2. THE BOTTOM OF WALL EXCAVATION SHALL BE SLOPED AT A MINIMUM GRADE OF 2% TOWARD THE WALL FACE.
 3. THE CONTRACTOR IS RESPONSIBLE FOR STABILITY OF ALL EXCAVATION AND FILL SLOPES REQUIRED TO CONSTRUCT THE WALL. PERFORM ALL EXCAVATION IN ACCORDANCE WITH THE APPLICABLE OSHA AND COUNTY STANDARDS.
 4. PRIOR TO RETAINING WALL CONSTRUCTION AND THE PLACEMENT OF FILL, ALL TOPSOIL SHALL BE STRIPPED AND REMOVED FROM THE WALL AREA.
 5. CONCURRENTLY WITH WALL CONSTRUCTION, SM#2, INLET 1-8, AND THE PRIVATE 8" WHO SHALL BE INSTALLED AND BACKFILLED WITH MATERIAL THAT MEETS THE REQUIREMENTS OF PART 2, ITEM F. THE FILL SHALL BE PREPARED, PLACED, COMPACTED, AND TESTED WITH PART 2, ITEM F.
 6. AT EACH STRUCTURE PLACED WITHIN THE REINFORCED ZONE PLACE A MINIMUM OF 2- FEET, FOR THE ENTIRE REINFORCED HEIGHT OF THE WALL OF SOIL-CEMENT AT A RATIO OF 180 LBS (2 BAGS) PER 1-CUBIC YARD OF BACKFILL. THE SOIL-CEMENTED BACKFILL SHALL BE MIXED AND COMPACTED ON THE SAME DAY.
 7. PRIOR TO WALL CONSTRUCTION ALL OTHER UTILITIES WITHIN 20 FEET OF THE REINFORCED ZONE SHALL BE INSTALLED AND BACKFILLED IN ACCORDANCE WITH PART 2, ITEM F. INSTALL THE PROPOSED SEWER FROM PUBLIC SM#1 TO PRIVATE SM#2 PRIOR TO WALL CONSTRUCTION.
 8. THE UNDERGROUND SSM FACILITY SHALL BE LINED WITH A GEOMEMBRANE TO PREVENT WATER FROM SATURATING THE RETAINING WALL BACKFILL.
 9. THE FOUNDATIONS SHALL BE LOWNED SO THAT THE FOUNDATION LOADS DO NOT INFLUENCE THE WALL REINFORCEMENT. THE BUILDING FOUNDATIONS SHALL BE INSTALLED PRIOR TO WALL CONSTRUCTION.
- B. FOUNDATION SUBGRADE PREPARATION**
1. FOUNDATION SOIL SHALL BE EXCAVATED AS REQUIRED FOR INSTALLATION OF LEVELING PAD, GEGRID, STRUCTURAL FILL, AND OTHER ELEMENTS AND AS SHOWN ON THE CONSTRUCTION DRAWINGS.
 2. THE EXPOSED SUBGRADE SHALL BE THOROUGHLY PROFFERED. THE SURFICIAL SOFT/LOOSE SOILS, AND TOPSOIL SHALL BE REMOVED TO A STABLE SUBGRADE AS DIRECTED BY GTA.
 3. ALL FILL REQUIRED TO ACHIEVE THE WALL BOTTOM ELEVATION SHALL CONSIST OF STRUCTURAL FILL THAT MEETS THE REQUIREMENTS OF PART 2, ITEM F. THE FILL SHALL BE PREPARED, PLACED, COMPACTED, AND TESTED IN ACCORDANCE WITH PART 3, ITEM F. PLACEMENT OF STRUCTURAL FILL SHALL NOT PROCEED UNTIL THE SUBGRADE HAS BEEN APPROVED BY GTA.
 4. FOUNDATION SOIL SHOULD BE EXAMINED BY GTA TO ASSURE THAT THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS ASSUMED DESIGN STRENGTH.
 5. ALLOWABLE BEARING PRESSURE FOR NATURAL AND CONTROLLED, COMPACTED STRUCTURAL FILL SHALL BE AS SPECIFIED IN PART 5, FOUNDATION SOIL.
- C. LEVELING PAD**
1. THE LEVELING PAD SHALL BE PLACED AS SHOWN ON THE CONSTRUCTION DRAWINGS WITH A MINIMUM THICKNESS OF 6 INCHES AND 30 INCHES WIDE.
 2. LEVELING PAD MATERIALS SHALL BE INSTALLED ON UNDISTURBED IN-SITU SOILS OR CONTROLLED, COMPACTED BACKFILL.
 3. LEVELING PAD SHALL BE PREPARED TO ENSURE COMPLETE CONTACT OF RETAINING WALL UNIT WITH BASE. GAPS SHALL NOT BE ALLOWED.
 4. THE LEVELING PAD SHALL BE CONSTRUCTED WITH THE MATERIALS DESCRIBED IN PART 2.
- D. UNIT INSTALLATION**
1. FIRST COURSE OF CONCRETE WALL UNITS SHALL BE PLACED ON THE LEVELING PAD. THE UNITS SHALL BE CHECKED FOR LEVEL AND ALIGNMENT. THE FIRST COURSE IS THE MOST IMPORTANT TO PROVIDE ACCURATE AND ACCEPTABLE RESULTS.
 2. ENSURE THAT UNITS ARE IN FULL CONTACT WITH BASE.
 3. UNITS ARE PLACED SIDE BY SIDE FOR FULL LENGTH OF WALL ALIGNMENT. ALIGNMENT MAY BE DONE BY MEANS OF A STRING LINE OR OFFSET FROM BASE LINE.
 4. INSTALL FIBERGLASS CONNECTING PIN.
 5. LAY UP EACH COURSE ENSURING THAT THE CONNECTING PINS ARE INSERTED THROUGH FRONT SLOT OF THE UNIT, AND INTO THE RECEIVING SLOT IN THE COURSE BELOW. REPEAT PROCEDURE TO THE EXTENT OF WALL HEIGHT.
 6. AT THE END OF EACH COURSE INSIDE THE WALL CHANGES ELEVATION UNITS SHALL BE TURNED INTO THE BACKFILL UNITS SHALL BE LAID AS TO CREATE THE MINIMUM RADIUS POSSIBLE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, A MINIMUM OF ONE UNIT SHALL BE INSTALLED INTO THE GRADE, ONLY THE FRONT FACE OF THE UNITS SHALL BE VISIBLE FROM THE SIDE OF THE WALL.
 7. CAP UNITS SHALL BE INSTALLED AND BARRIED WITH CONSTRUCTION ADHESIVE OR EPOXY CEMENT AS REQUIRED BY MANUFACTURER.
 8. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE FOR THE BACK OF THE RETAINING WALL DURING CONSTRUCTION.
- E. GEGRID INSTALLATION**
1. THE GEGRID SOIL REINFORCEMENT SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND CONNECTED TO THE CONCRETE WALL UNITS. HOOK GRID OVER THE FIBERGLASS CONNECTING PIN, PULL TAUT, AND ANCHOR BEFORE BACKFILL IS PLACED ON THE GEGRID.
 2. SLACK IN THE GEGRID AT THE WALL UNIT CONNECTIONS SHALL BE REMOVED IN A MANNER, AND TO SUCH A DEGREE, AS APPROVED BY THE ENGINEER.
 3. GEGRID SHALL BE LAID AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.
 4. CORRECT ORIENTATION (ROLL DIRECTION) OF THE GEGRID SHALL BE VERIFIED BY THE CONTRACTOR.
 5. GEGRID SHALL BE SECURED IN-PLACE WITH STAPLES, PINS, SAND BAGS, OR BACKFILL AS REQUIRED BY FILL PROPERTIES, FILL PLACEMENT PROCEDURES, OR WEATHER CONDITIONS, OR AS DIRECTED BY THE ENGINEER.
 6. OVERLAPS:
 - a. UNUSUAL GEGRID DOES NOT NEED TO BE OVERLAPPED IN THE ACROSS THE ROLL DIRECTION, EXCEPT TO CONTAIN THE FILL AT THE SLOPE FACE WHEN WRAP-AROUND FACING IS USED. UNUSUAL GRID SHOULD BE OVERLAPPED 48" IN THE ROLLED DIRECTION.
 - b. A LAYER OF SOIL A MINIMUM OF 4 INCHES IN THICKNESS SHALL BE SPREAD BETWEEN UNUSUAL GEGRID LAYERS IN THE AREA TO BE OVERLAPPED, OR AS DIRECTED.
- F. PLACEMENT OF FILL AND BACKFILL**
1. FILL MATERIALS SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS, OPTIMUM MOISTURE CONTENT, AND SHALL BE AT THE TIME OF COMPACTION, FILL MATERIALS SHALL BE WITHIN +/-2% TO +4% OF THE OPTIMUM MOISTURE CONTENT, AND SHALL BE COMPACTED TO A MINIMUM OF 92% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM SPECIFICATION D-1557, THE MODIFIED PROCTOR METHOD.
 2. BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF WRINKLES IN AND/OR MOVEMENT OF THE GEGRID. PLACE BACKFILL FROM FRONT OF GEGRID AND SPREAD TO TOP OF GEGRID.
 3. THE LIFT OF BACKFILL IMMEDIATELY BELOW A LAYER OF GEGRID SHALL BE SOARDED TO A DEPTH OF 2 INCHES IMMEDIATELY AFTER COMPLETION OF LIFT COMPACTED. THE GEGRID SHALL BE PLACED AND THE SUBSEQUENT LIFT OF SOIL PLACED AND COMPACTED THE SAME DAY AS THE UNDERLYING LIFT IS SOARDED.
 4. ONLY HAND-OPERATED COMPACTOR EQUIPMENT SHALL BE ALLOWED WITHIN 4 FEET OF THE WALL FACE.
 5. STAPLES SHALL BE PLACED FROM THE WALL OUTWARD TO ENSURE THAT THE GEGRID REMAINS TAUT.
 6. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED WITHIN THE REINFORCED ZONE BEHIND THE WALL.
 7. RUBBER-TYRED EQUIPMENT MAY PASS OVER THE GEGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHOULD BE AVOIDED.
 8. ALL FILL AND BACKFILL OPERATIONS SHALL BE OBSERVED ON A FULL-TIME BASIS BY A QUALIFIED SOIL TECHNICIAN TO DETERMINE IF MINIMUM COMPACTOR REQUIREMENTS ARE BEING MET AND THAT MATERIALS MEETING OR EXCEEDING THE SPECIFICATION REQUIREMENTS ARE USED.
 9. IN-PLACE DENSITY TESTS SHALL BE PERFORMED WITH A MINIMUM OF 1 TEST PER 2,000 SQUARE FEET OF FILL AREA FOR EACH LIFT OF FILL PLACED. THE ELEVATION AND LOCATION OF THE TESTS SHALL BE CLEARLY IDENTIFIED AT THE TIME OF FILL PLACEMENT.
 10. THE BACKFILL MATRIX MUST BE CONSTRUCTED SO THAT FINE GRAIN SOILS DO NOT TRAP WATER.
- G. DRAINAGE**
1. DRAINAGE FILL SHALL BE PLACED BEHIND THE WALL TO THE LIMITS SHOWN. THE DRAINAGE FILL SHALL BE A MINIMUM OF 12-INCHES THICK AND SHALL MEET THE REQUIREMENTS OF ASTM #57 STONE. THE DRAINAGE FILL SHALL BE WRAPPED IN FILTER FABRIC (MRW1 140N OR EQUAL) AS SHOWN ON THE DRAWINGS.
 2. POSITIVE DRAINAGE SHALL BE MAINTAINED DURING AND AFTER CONSTRUCTION. SOILS WITHIN THE REINFORCED ZONE THAT BECOME WET DURING CONSTRUCTION SHALL BE DRIED OR REMOVED.
 3. INSTALL THE PERFORATED DRAINAGE PIPES AND LATERAL DRAINAGE PIPES INCREMENTALLY ALONG WITH THE INSTALLATION OF CONCRETE UNITS AND PLACEMENT OF FILL.
 4. INSTALL BACKDRAIN GEOCOMPOSITE AT WALL #1 BETWEEN STATIONS 4+12 AND 4+58 AND TIE INTO THE 4" PERFORATED PIPE INSTALLED ALONG THE BACK OF THE RETAINING WALL BLOCKS. A SINGLE 4" SOLID PVC PIPE SHALL CONNECT THE BACKDRAIN TO THE 4" PERFORATED PIPE INSTALLED WITHIN THE DRAINAGE LAYER.
- H. FENCE**
- THE SELECTED FENCE SHALL BE INSTALLED BEHIND THE BLOCK CELLS AS SHOWN ON THE DRAWINGS AT FENCE POST HOLDER LOCATIONS IN ACCORDANCE WITH THE FENCE DESIGNER'S SPECIFICATIONS.

PART 4 - CONSTRUCTION OBSERVATION AND TESTING

- A. THE RETAINING WALLS SHOULD ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF GTA TO CONFIRM THAT THE SOIL AND MATERIALS USED DURING CONSTRUCTION MEET THE REQUIREMENTS SPECIFIED HEREIN. IF GTA IS NOT CONTRACTED TO PROVIDE CONSTRUCTION OBSERVATION AND TESTING SERVICES DURING WALL CONSTRUCTION, GTA IS RELIEVED OF ALL RESPONSIBILITY FOR THE PERFORMANCE OF THE WALLS.
- B. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALLS SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE GEOTECHNICAL ENGINEER PRIOR TO THE START OF WALL CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER (DCP) TEST ASTM SP-309.
- C. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN.

PART 5 - DESIGN PARAMETERS

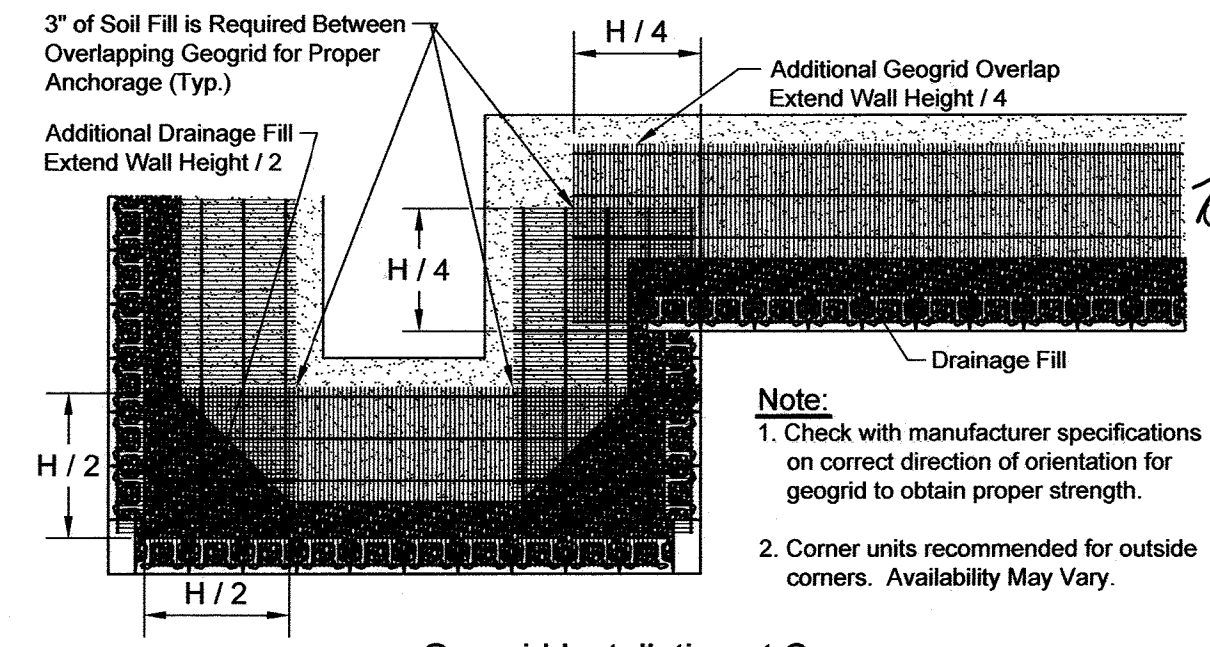
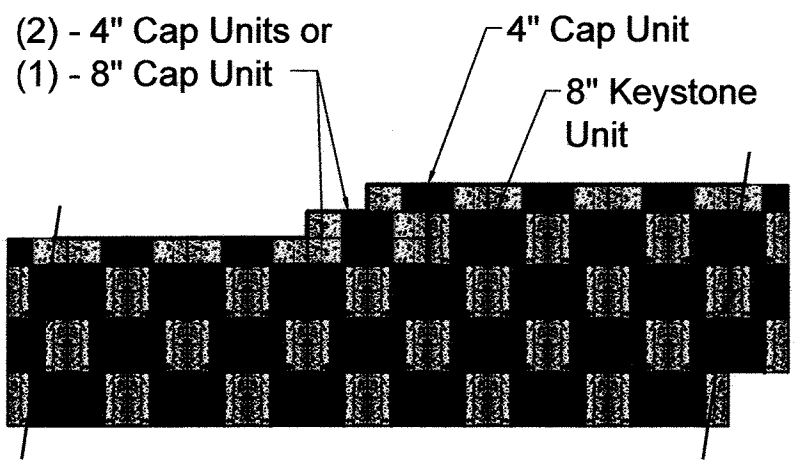
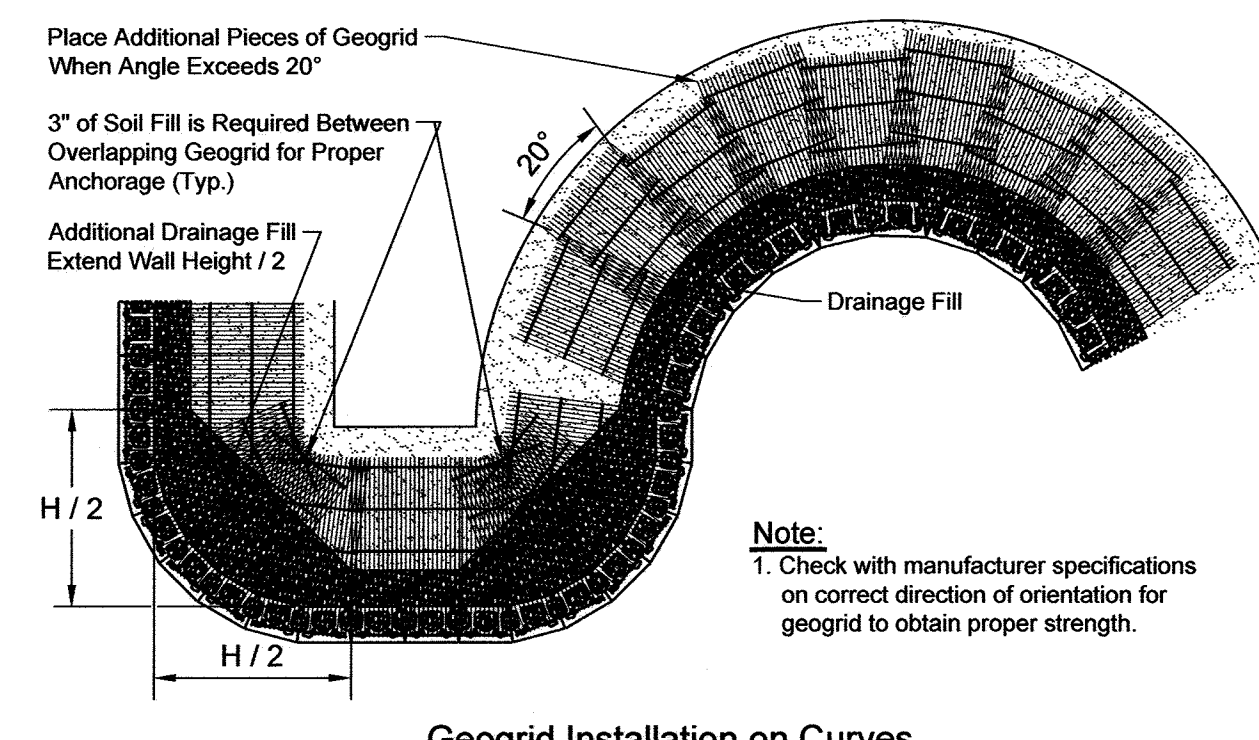
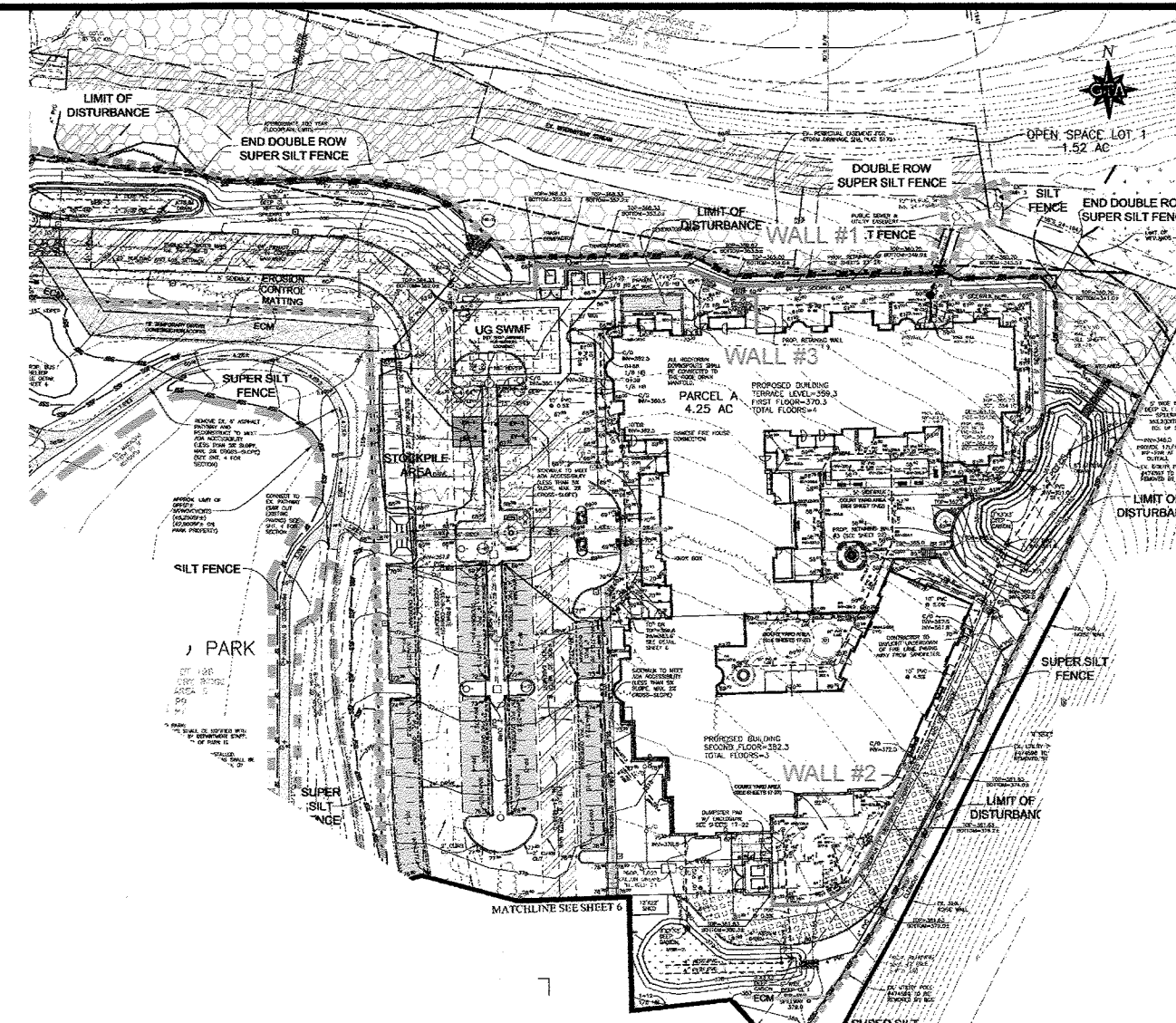
| WALL GEOMETRY | WALL #1 | WALL #2 | WALL #3 |
|--------------------------------------|------------------------------------|---------------|---------------|
| MAXIMUM EXPOSED WALL HEIGHT (FT.): | 20.4' | 7.8' | 9.2' |
| ANGLE OF FACE (DEG.): | NEAR VERTICAL | NEAR VERTICAL | NEAR VERTICAL |
| BLOCK EMBEDMENT (IN.): | VARIES | VARIES | VARIES |
| MAXIMUM BACKFILL SLOPE ANGLE (DEG.): | NO SLOPE | NO SLOPE | NO SLOPE |
| MAXIMUM TOE SLOPE ANGLE (DEG.): | 18.4° | NO SLOPE | NO SLOPE |
| REINFORCED FILL ZONE | | | |
| DENSITY OF BACKFILL (PCF): | 130 | | |
| PH (DEG.): | 32 | | |
| COHESION (PSF): | 0 | | |
| RETAINED ZONE | | | |
| DENSITY (PCF): | 130 | | |
| PH (DEG.): | 28 | | |
| COHESION (PSF): | 0 | | |
| FOUNDATION SOIL | | | |
| DENSITY (PCF): | 120 | | |
| PH (DEG.): | 26 | | |
| COHESION (PSF): | 0 | | |
| LEVELING PAD MATERIAL: | NO. 57 STONE | | |
| ALLOWABLE BEARING PRESSURE (PSF): | 2,500 | | |
| MODULAR BLOCK DATA | | | |
| KEYSTONE BLOCKS: | STANDARD AND COMPAC III UNITS | | |
| KEYSTONE CAP BLOCKS: | 4" HIGH CAP UNITS | | |
| LINE FILL: | AGGREGATE, ASTM NO. 57 | | |
| GEGRID DATA | | | |
| GEGRID TYPE: | MRW1 3XT, 5XT, AND 7XT | | |
| COVERAGE OF GEORGRIDS: | 100 | | |
| WALL/SOIL INTERACTION COEFFICIENT: | 0.8 | | |
| DIRECT SHEAR COEFFICIENT: | 0.8 | | |
| CONSTRUCTION DAMAGE BASED ON: | CRUSHED STONE | | |
| GEGRID LENGTH (FT.): | 5 FEET TO 17 FEET | | |
| GEOTEXTILE: | MRW1 140 N, OR APPROVED EQUIVALENT | | |

PART 6 - DESIGN CRITERIA

1. DESIGN PARAMETERS
 - a. MIN. F.S. FOR SLIDING: 1.5
 - b. MIN. F.S. FOR OVERTURNING: 2.0
 - c. MIN. F.S. FOR UNCERTAINTIES: 1.5
 - d. MIN. F.S. FOR GLOBAL STABILITY: 1.3
 - e. LINE LOAD: 100 PSF
2. THESE WALLS ARE LOCATED ENTIRELY ON PRIVATE PROPERTY AND IS TO BE PRIMARILY MAINTAINED BY THE PROPERTY OWNER.
3. THE STRUCTURAL DESIGN OF THE FENCE IS TO BE PERFORMED BY OTHERS PER LOCAL CODE.
4. STOCKPILES SHALL NOT BE PLACED ON TOP OF ANY RETAINING WALL WITHIN THE REINFORCED OR RETAINED ZONES AT ANY TIME. STOCKPILES SHALL NOT BE PLACED AT THE BASE OF ANY RETAINING WALL WITHIN 20 FEET OF THE WALL FACE AT ANY TIME. STOCKPILE MATERIALS INCLUDE, BUT ARE NOT LIMITED TO SOIL, SNOW, AND LANDSCAPING MATERIAL.

PART 7 - CONSTRUCTION SEQUENCE

- A. OBTAIN BUILDING PERMITS AND INSTALL SEDIMENT AND EROSION CONTROL DEVICES
- B. GRADE AREAS BELOW AND BEHIND THE WALLS
- C. INSTALL ALL UTILITIES WITHIN 20 FEET OF REINFORCED ZONE PRIOR TO WALL CONSTRUCTION
- D. CONSTRUCT LEVELING PAD
- E. CONSTRUCT WALL INCLUDING BLOCK, GEGRID, AND REINFORCED FILL
- F. INSTALL BACKDRAIN GEOCOMPOSITE BETWEEN WALL #1 STATIONS 4+12 AND 4+58 AND ALONG CUT FACES AND TIE INTO WALL DRAINAGE SYSTEM
- G. INSTALL FENCE POST BEHIND BLOCK CELLS AT FENCE POST HOLDER LOCATIONS IN ACCORDANCE WITH FENCE DESIGNER'S SPECIFICATIONS.
- H. INSTALL CAP UNITS

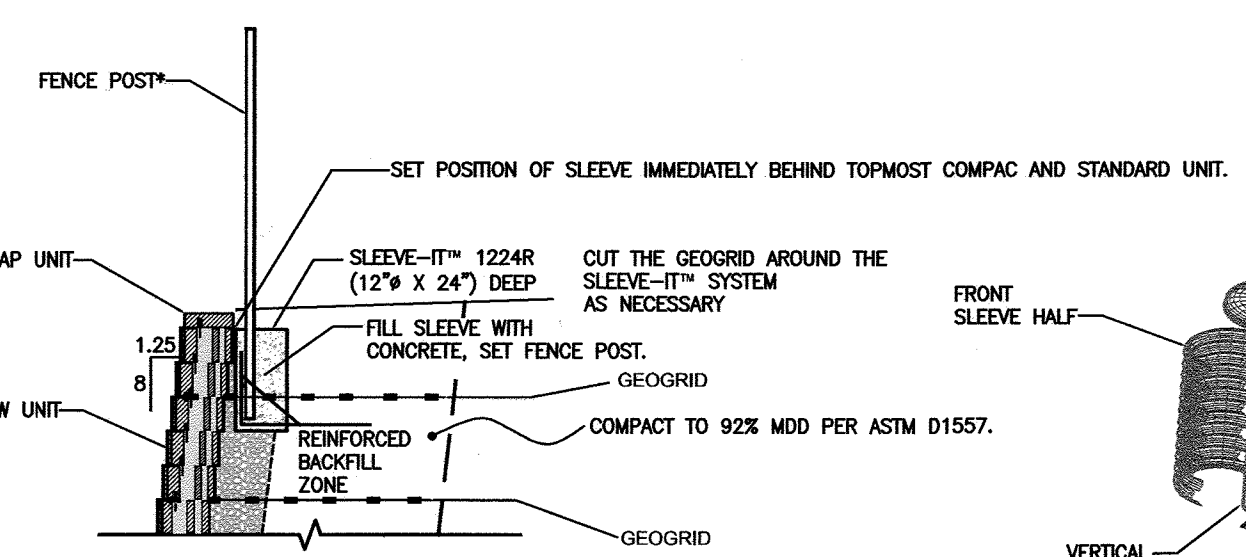
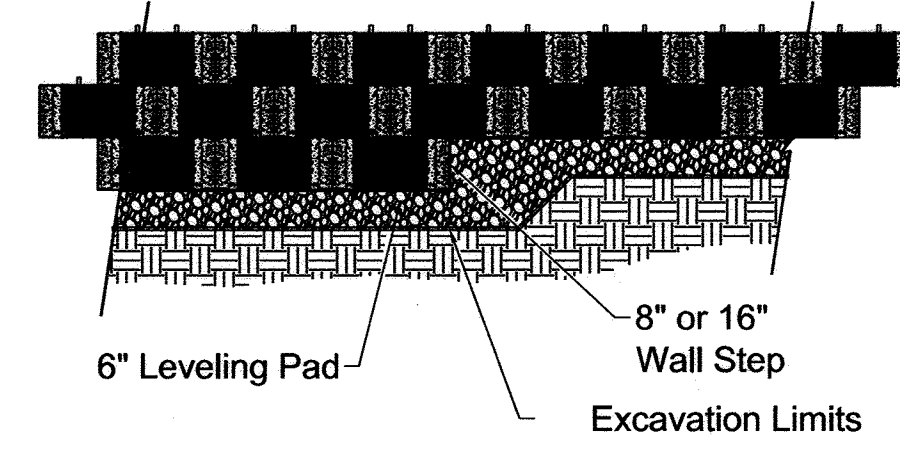
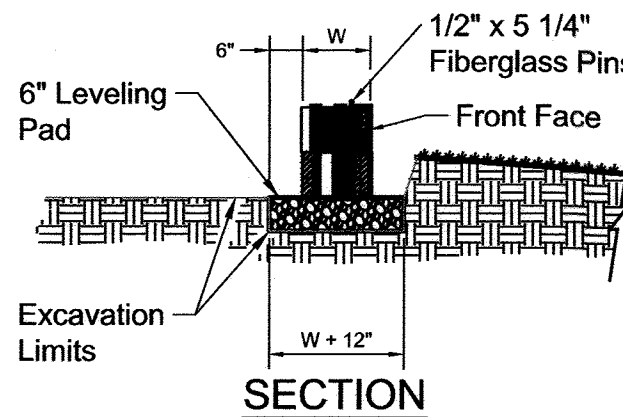


Note:
1. Secure all cap units with Keystone Keapal or equal.

Top of Wall Steps

Geogrid Installation at Corners

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



*FENCING SYSTEMS APPROVED FOR USE WITH THE SLEEVE-IT™ 1224R ARE LIMITED TO THE FOLLOWING HEIGHTS: CHAIN LINK - UP TO 8-FT, PRIVACY - UP TO 6-FT (WOODEN, PVC, METAL). POST SIZE 4"x4" MAX.

DETAIL OF FENCE POST INSTALLATION USING SLEEVE-IT™ 1224R
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Howard County 10-3-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kathleen L. L... 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT

N. Allen 10-16-19
DIRECTOR

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443, Expiration Date 12-21-22

STATE OF MARYLAND
MICHAEL J. WOOD
PROFESSIONAL ENGINEER
No. 21443
AS-60147-12/28/21

| | | |
|-----|---------|---|
| 2 | 9-03-19 | WALL #3 ADDED TO PLAN SET AND REVISED WALL #1 |
| 1 | 8-19-19 | REVISED WALLS DUE TO REALIGNMENT AND REVISED GRADING PLAN |
| NO. | DATE | REVISION |

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
410-815-9446
FAX: 410-616-4885
WWW.GTAENGS.COM

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GTA

OWNER: LEGACY INVESTMENTS LLC
2077 SOMERVILLE ROAD
SUITE 206
ANNAPOLIS, MARYLAND 21401
410-266-5100

DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC
218 NORTH CHARLES STREET
SUITE 220
BALTIMORE, MARYLAND 21201
410-965-0595

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
ZONED: GEF-M
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

RETAINING WALL PLANS
NOTES AND DETAILS

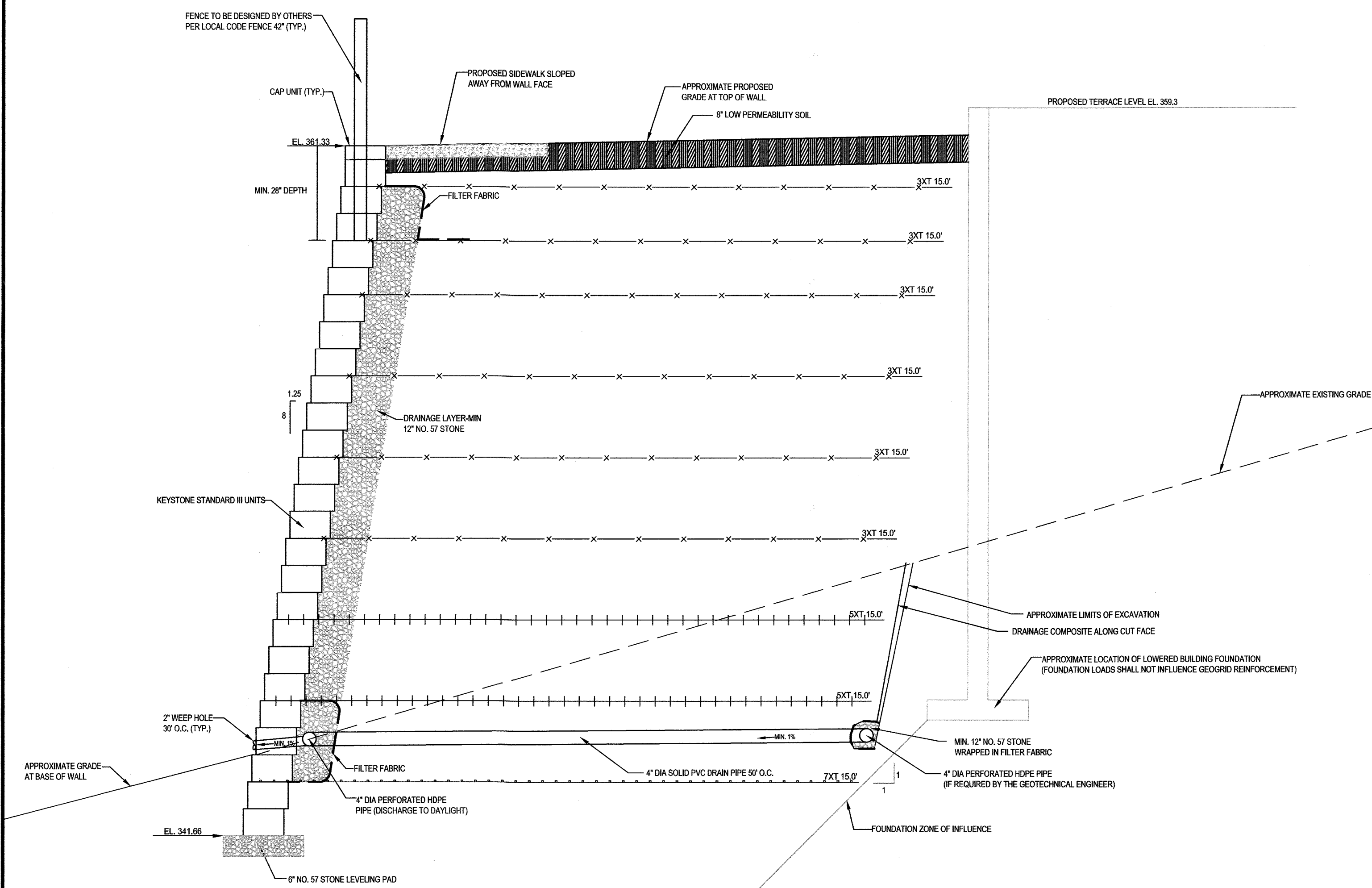
DATE: JANUARY 2019
SCALE: AS SHOWN

GTA PROJECT NO. 100778X015
SHEET 23 OF 31

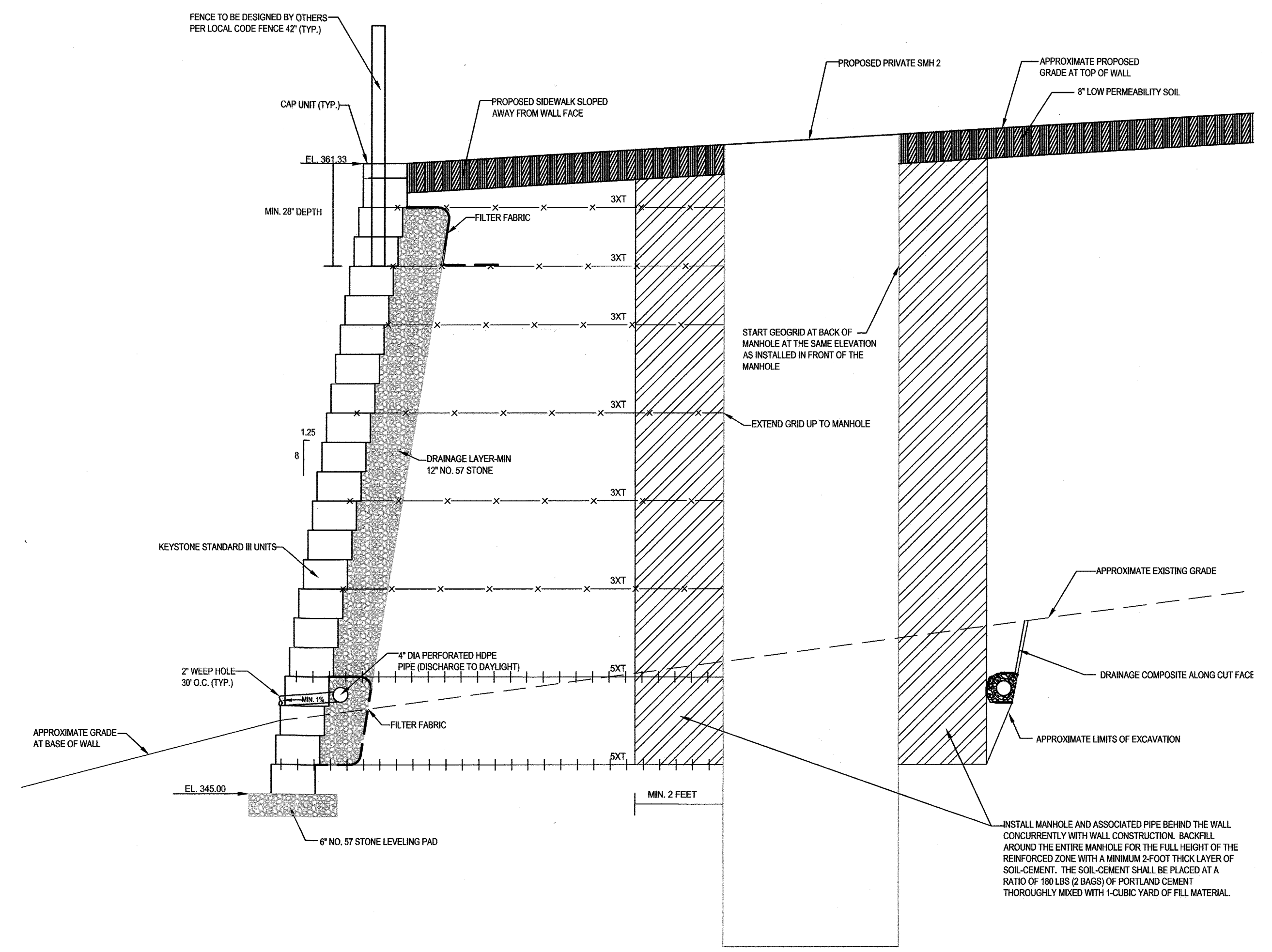
DESIGN: EBC DRAFT: TMW

AS-BUILT SDP-19-032

L:\Shaw\2020\2019\Projects\100778x015-Brighthouse Columbia\Redesign\Aug 2019\Visio CAD Files\100778x015-Retaining Wall Plans (Revised August 2019)

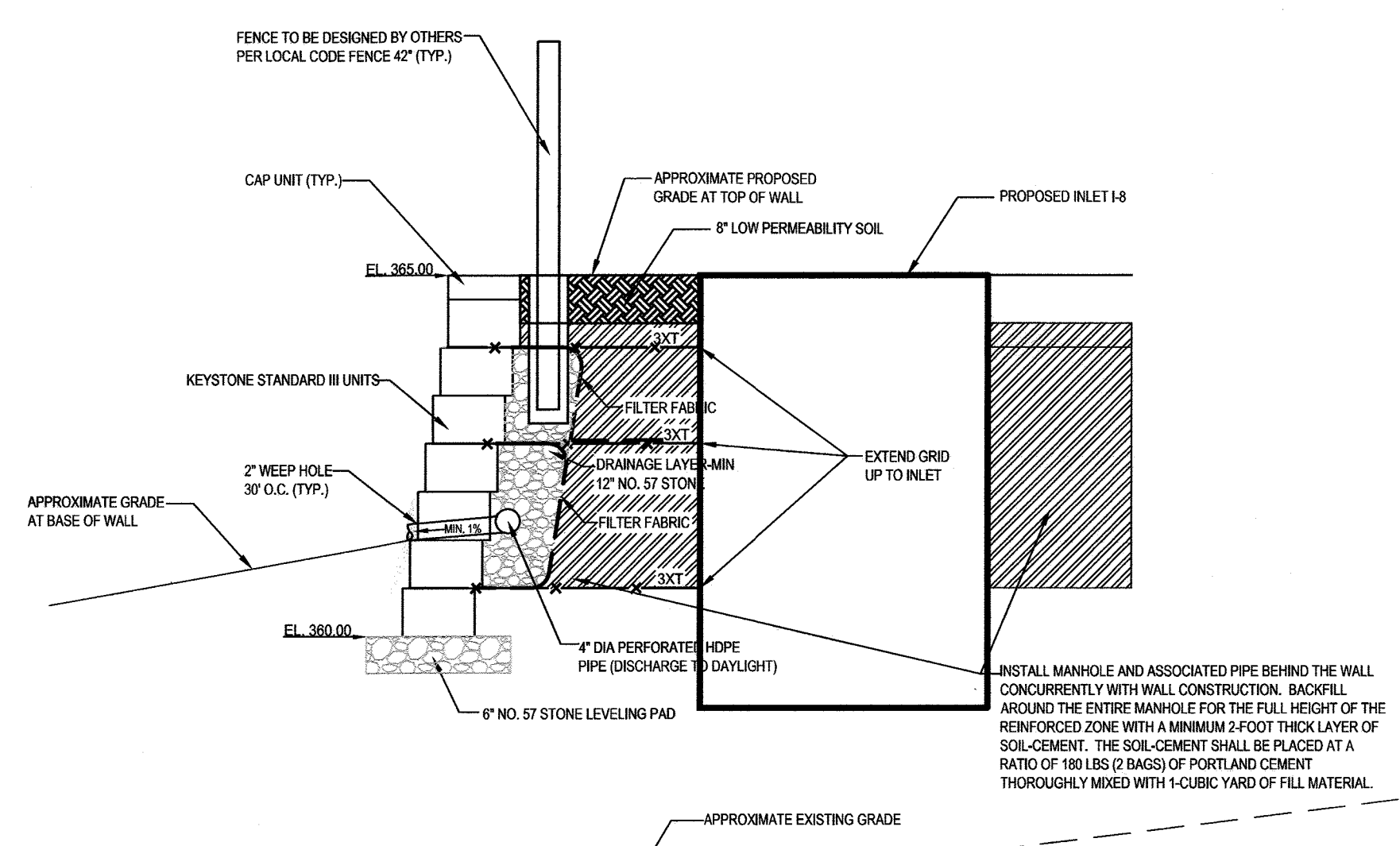


**RETAINING WALL #1 CROSS SECTION
VIEWS @ STA. 1+05**
SCALE: 1"=2'

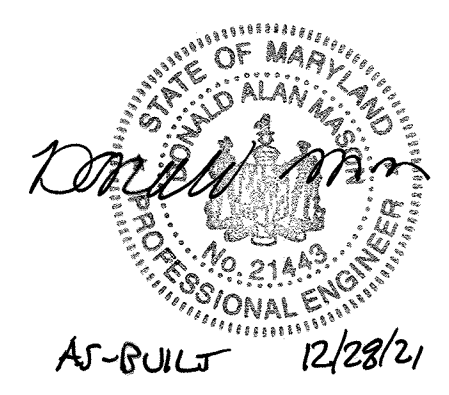


**RETAINING WALL #1 CROSS SECTION
VIEWS @ STA. 1+50**
SCALE: 1"=2'

* FOUNDATION TO BE LOWERED SO THAT IT DOES NOT INFLUENCE THE WALL REINFORCEMENT



**RETAINING WALL #1 CROSS SECTION
VIEWS @ STA. 4+55**
SCALE: 1"=2'



"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12-31-21

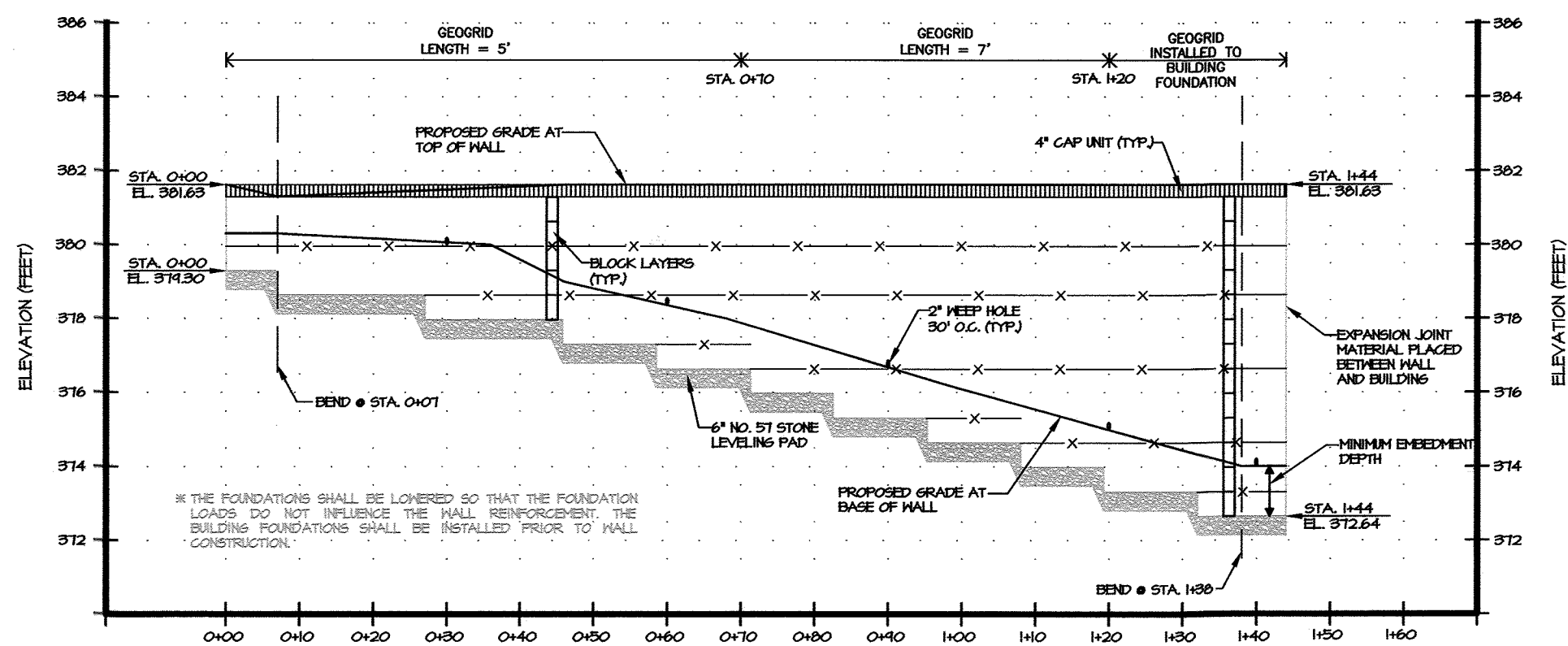
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 10-7-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature] 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT
[Signature] 10-16-19
DIRECTOR

| | | |
|-----|---------|---|
| | | |
| 2 | 9-03-19 | WALL #3 ADDED TO PLAN SET AND REVISED WALL #1 |
| 1 | 8-19-19 | REVISED WALLS DUE TO REALIGNMENT AND REVISED GRADING PLAN |
| NO. | DATE | REVISION |

GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
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| | |
|---|---|
| <p>OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100</p> | <p>BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT PARCELS A & B AND OPEN SPACE LOT 1</p> |
| <p>DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595</p> | <p>TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: GEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND</p> |
| <p>RETAINING WALL PLANS WALL #1 CROSS SECTIONS</p> | |
| <p>DESIGN: EBC DRAFT: TMW</p> | <p>DATE: JANUARY 2019 SCALE: AS SHOWN</p> |
| <p>GTA PROJECT NO. 100778X015 SHEET 25 OF 31</p> | |

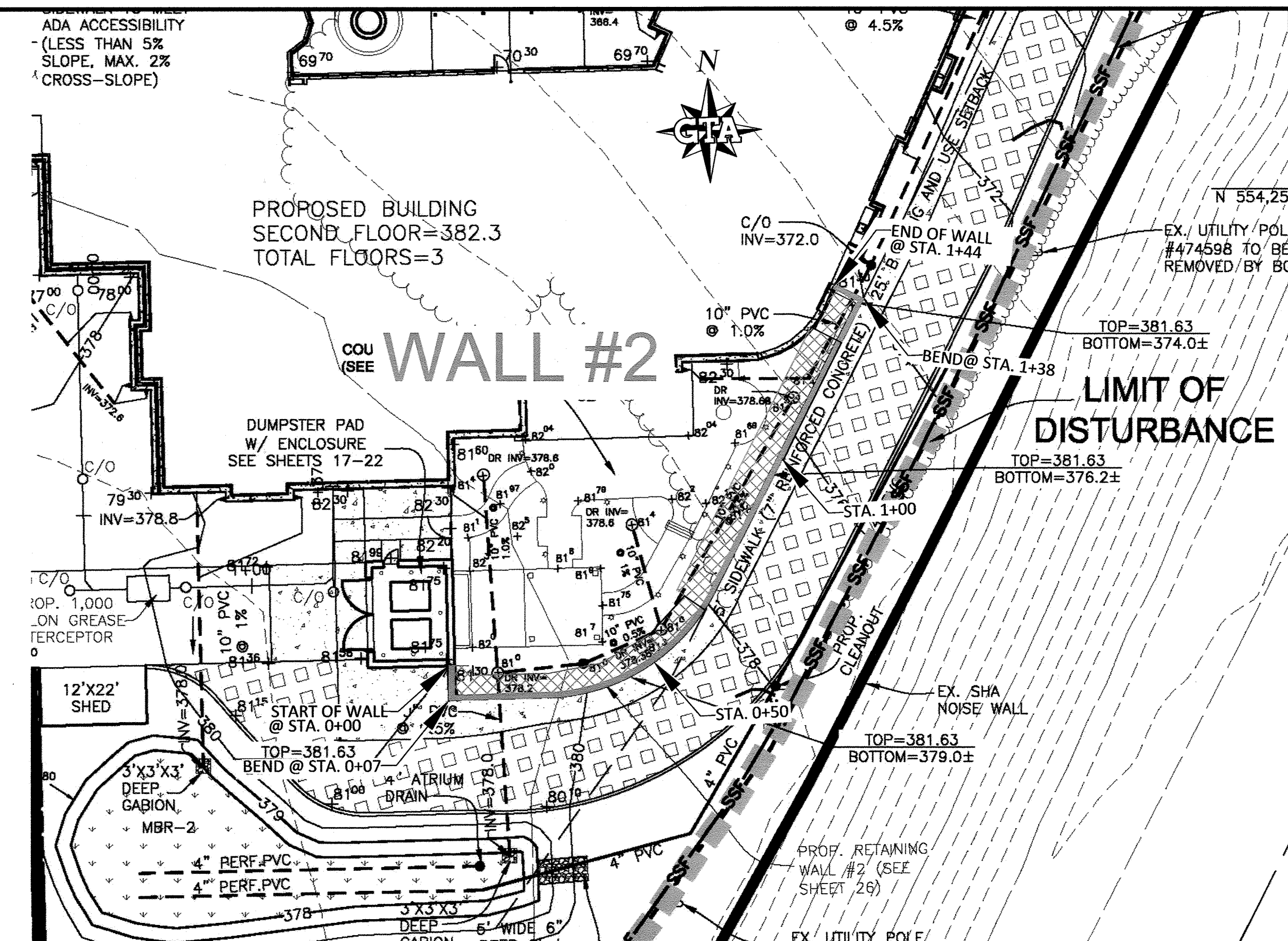
AS-BUILT SDP-19-032



RETAINING WALL #2 PROFILE

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

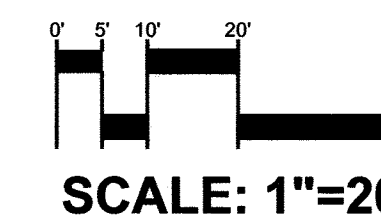
— x — x — x — MIRAFI 3XT GEOGRID



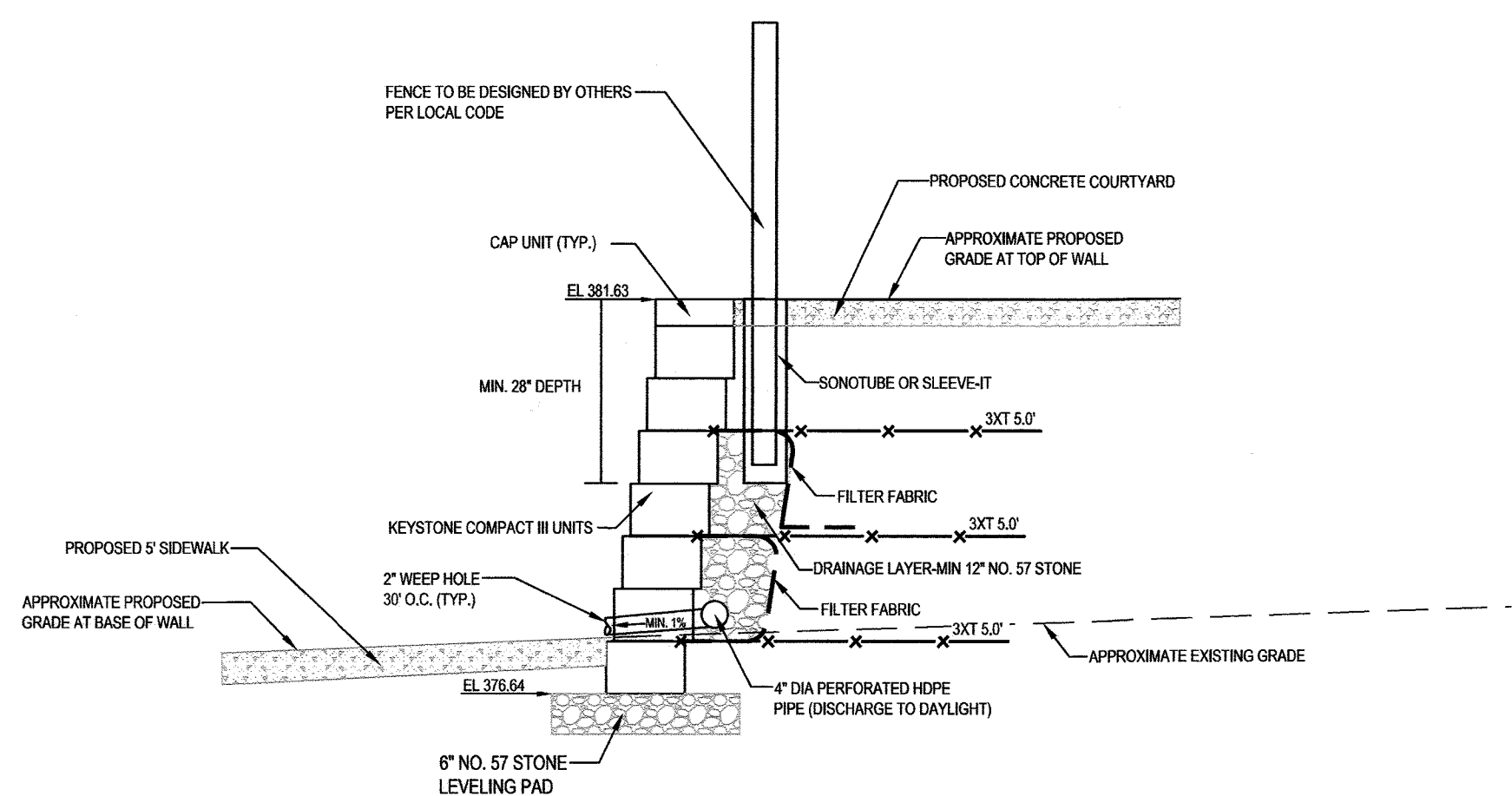
RETAINING WALL #2 LOCATION PLAN

SCALE: 1" = 20'

APPROXIMATE GRID LOCATION

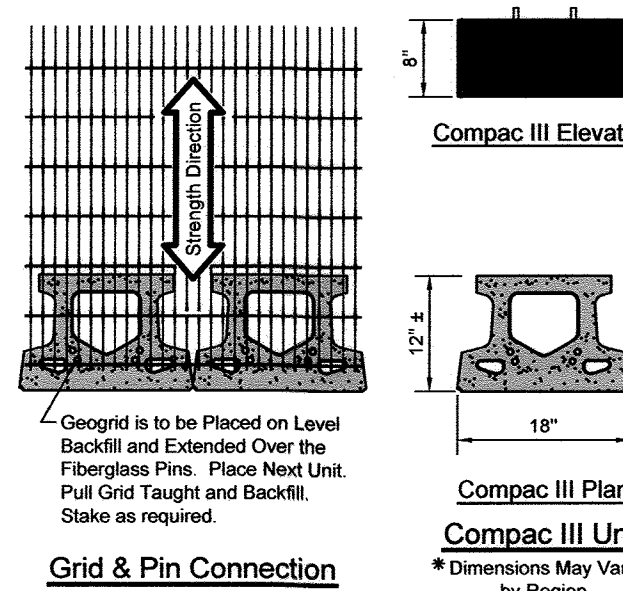


SCALE: 1"=20'



RETAINING WALL #2 CROSS SECTION VIEWS @ STA. 0+60

SCALE: 1"=2'



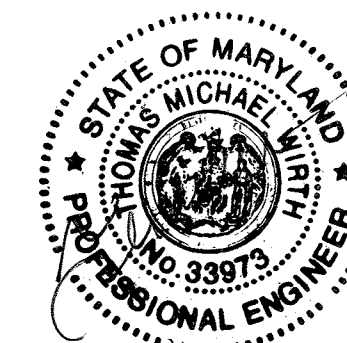
KEYSTONE COMPAC III UNITS

NOT TO SCALE

"NO A.S-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



Professional Certification, I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443, Expiration Date: 12-21-22

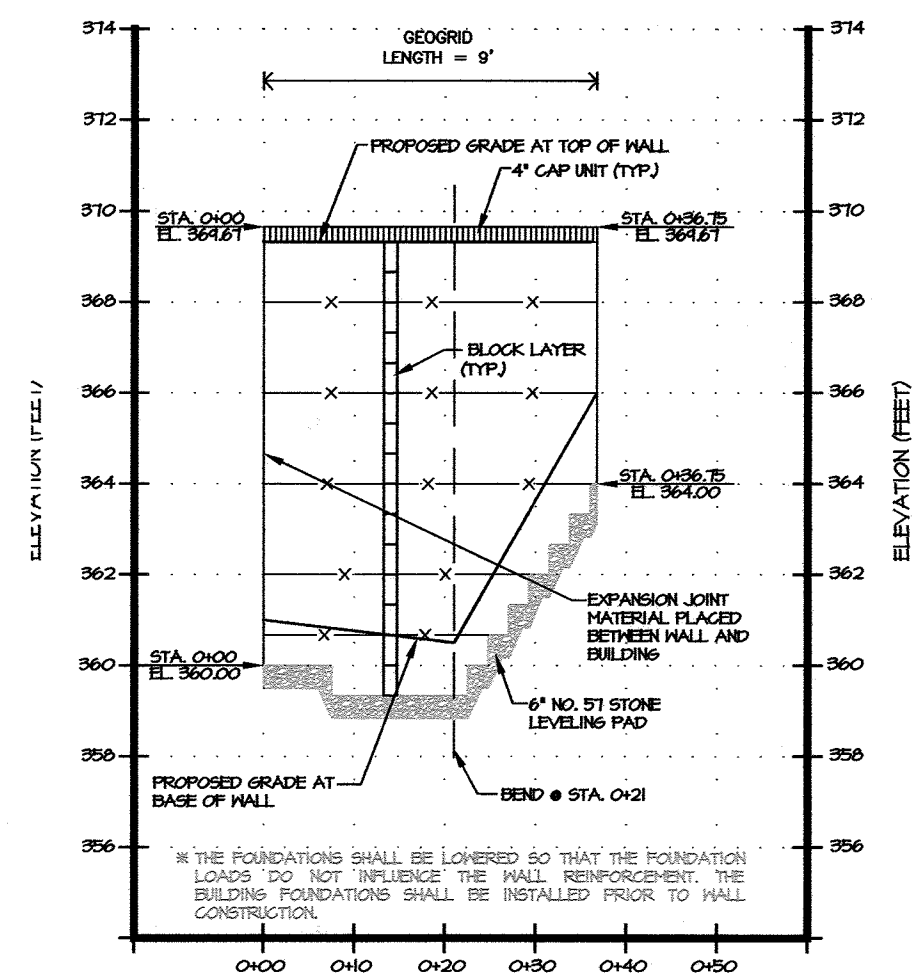


| | | | |
|--|------|--|---|
| 2 | | 9-03-19 | WALL #3 ADDED TO PLAN SET AND REVISED WALL #1 |
| 1 | | 8-19-19 | REVISED WALLS DUE TO REALIGNMENT AND REVISED GRADING PLAN |
| NO. | DATE | REVISION | |
| GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3445-A BOX HILL CORPORATE CENTER DRIVE ABINGDON, MARYLAND 21008 410-515-8446 FAX: 410-515-4895 WWW.GTAENG.COM <small>© 2019 GEO-TECHNOLOGY ASSOCIATES, INC.</small> | | | |
| OWNER: | | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT PARCELS A & B AND OPEN SPACE LOT 1 TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND | |
| DEVELOPER/CONTRACT PURCHASER: | | BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595 | |
| DATE: | | JANUARY 2019 | GTA PROJECT NO. 100778X015 |
| DESIGN: | | EBC | SHEET 26 OF 31 |
| DRAFT: | | TMW | |
| SCALE: | | AS SHOWN | |

A.S-BUILT

SDP-19-032

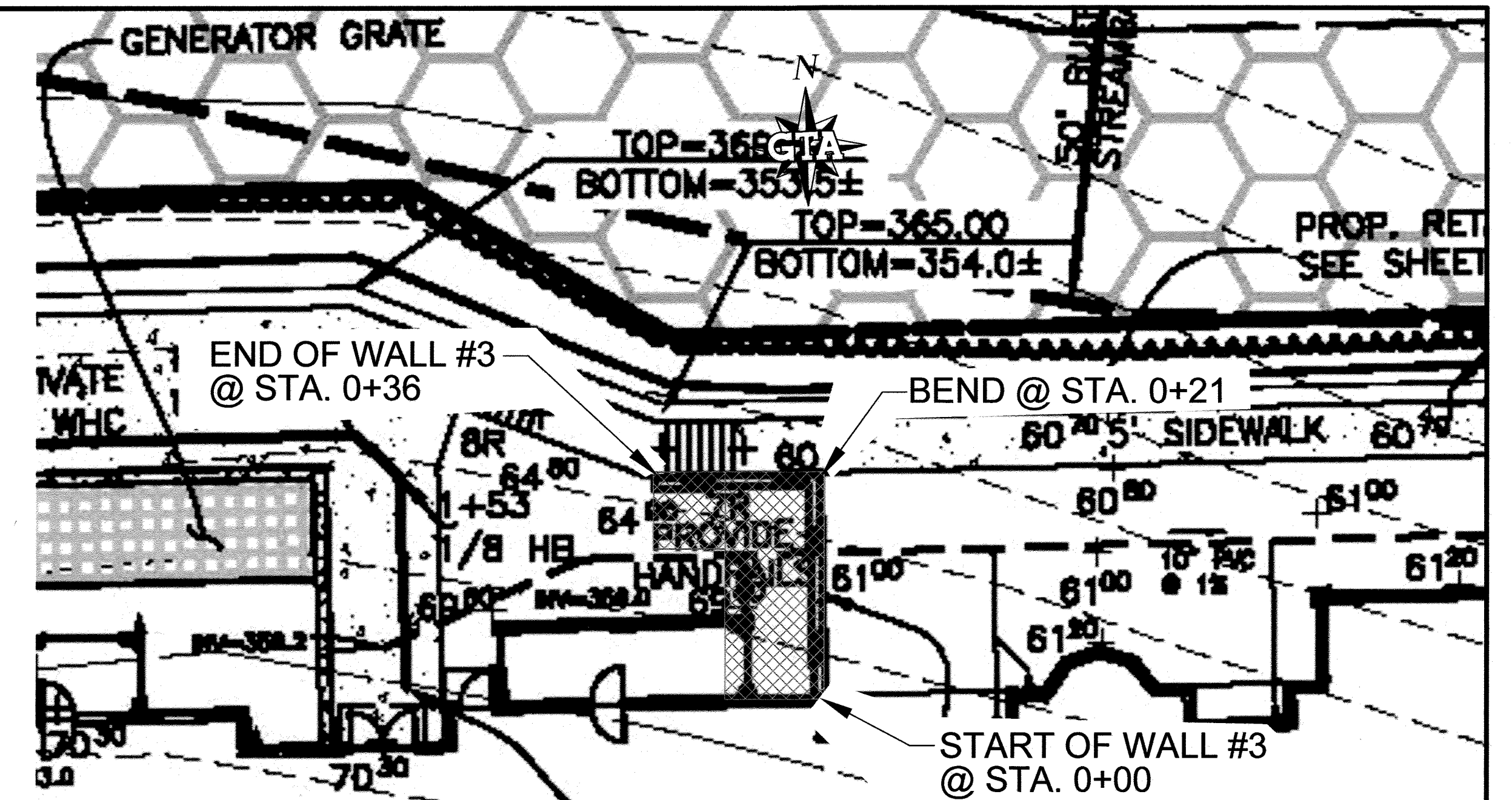
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10-3-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10-9-19
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10-16-19
 DIRECTOR



RETAINING WALL #3 PROFILE

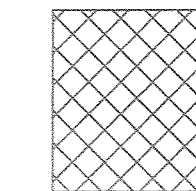
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

— x — x — x — MIRAFI 3XT GEOGRID



RETAINING WALL #3 LOCATION PLAN

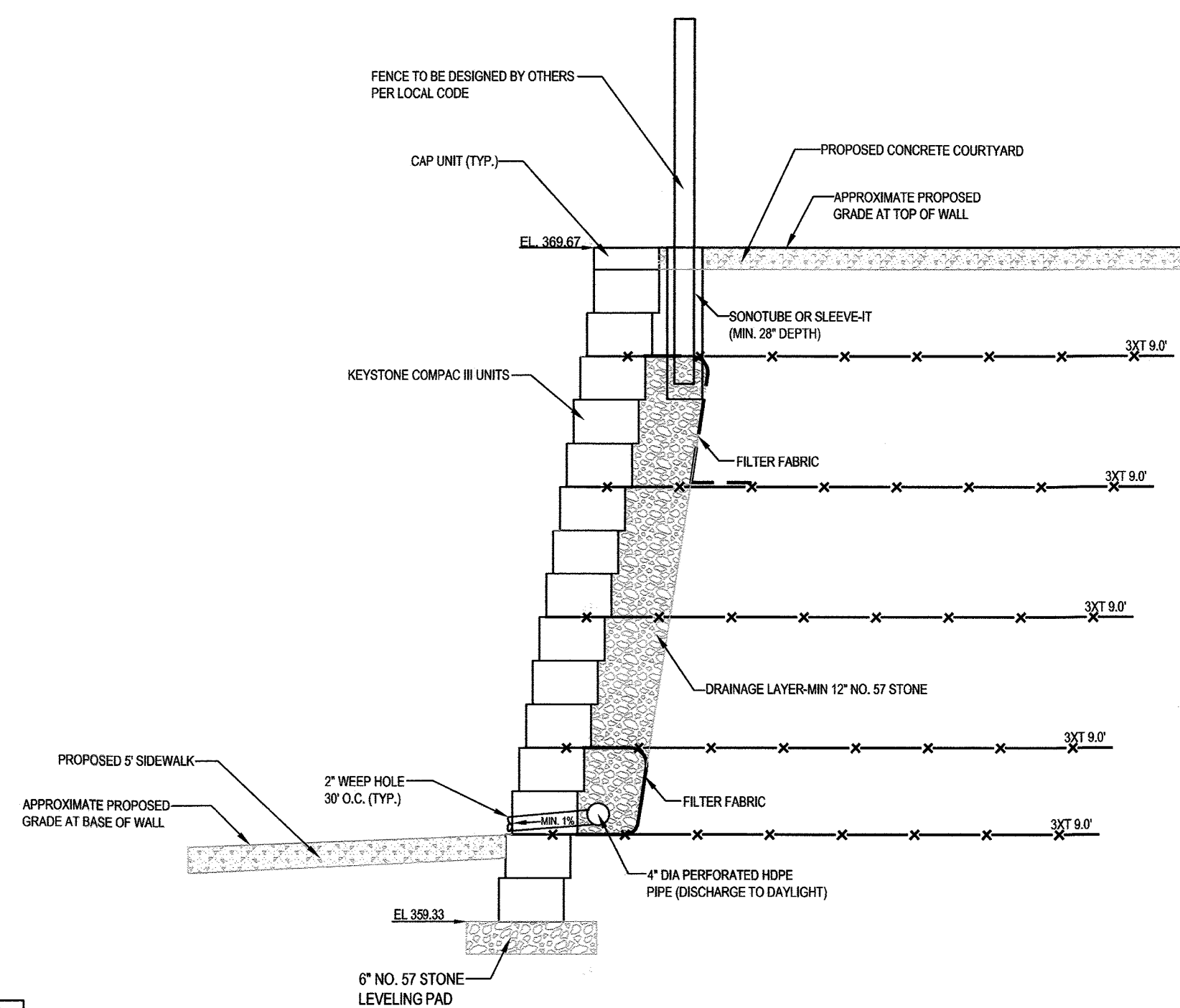
SCALE: 1" = 10'



APPROXIMATE GRID LOCATION

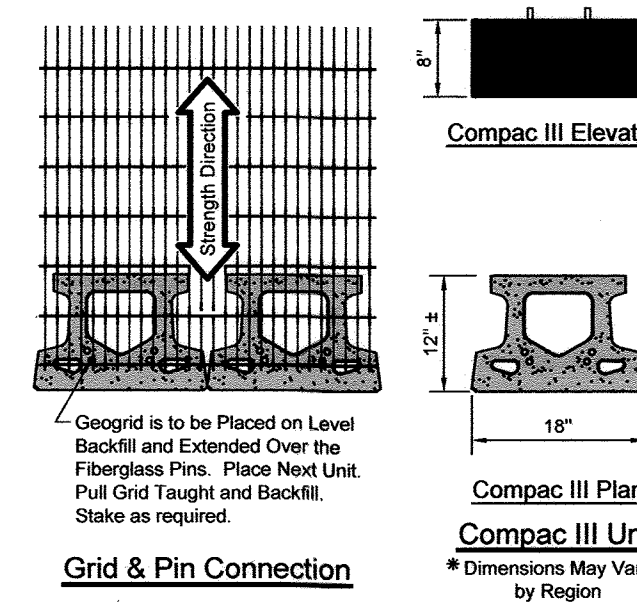


SCALE: 1"=10'



**RETAINING WALL #3 CROSS SECTION
VIEWS @ STA. 0+10**

SCALE: 1"=2'



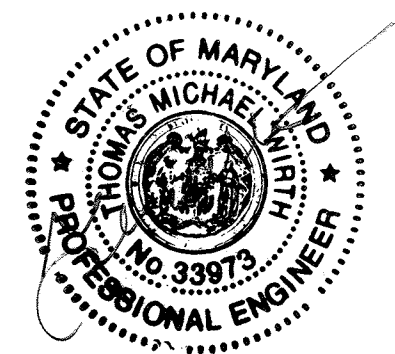
KEYSTONE COMPAC III UNITS

NOT TO SCALE

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



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License No. 21443, Expiration Date: 12-21-22



| | | |
|--|------------|--|
| 2 | 9-03-19 | WALL #3 ADDED TO PLAN SET AND REVISED WALL #1 |
| 1 | 8-19-19 | REVISED WALLS DUE TO REALIGNMENT AND REVISED GRADING PLAN |
| NO. | DATE | REVISION |
| GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3445-A BOX HILL CORPORATE CENTER DRIVE ABINGDON, MARYLAND 21009 410-515-9446 FAX: 410-515-4885 WWW.GTAENG.COM <small>© 2019 GEO-TECHNOLOGY ASSOCIATES, INC.</small> | | |
| OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100 | | BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT PARCELS A & B AND OPEN SPACE LOT 1 TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND |
| DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595 | | |
| RETAINING WALL PLANS WALL #3 PROFILE, PLAN, AND CROSS SECTION VIEWS | | |
| DESIGN: EBC | DRAFT: TMW | DATE: JANUARY 2019 |
| SCALE: AS SHOWN | | GTA PROJECT NO. 100778X015 |
| SHEET: 27 OF 31 | | |

I:\Share\GEO\2019\Projects\100778\15_Engineer\Columbiana\Grading\Aug 2019\Views CAD Files\100778\015-Retaining Wall Plans (Revised August 2019)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

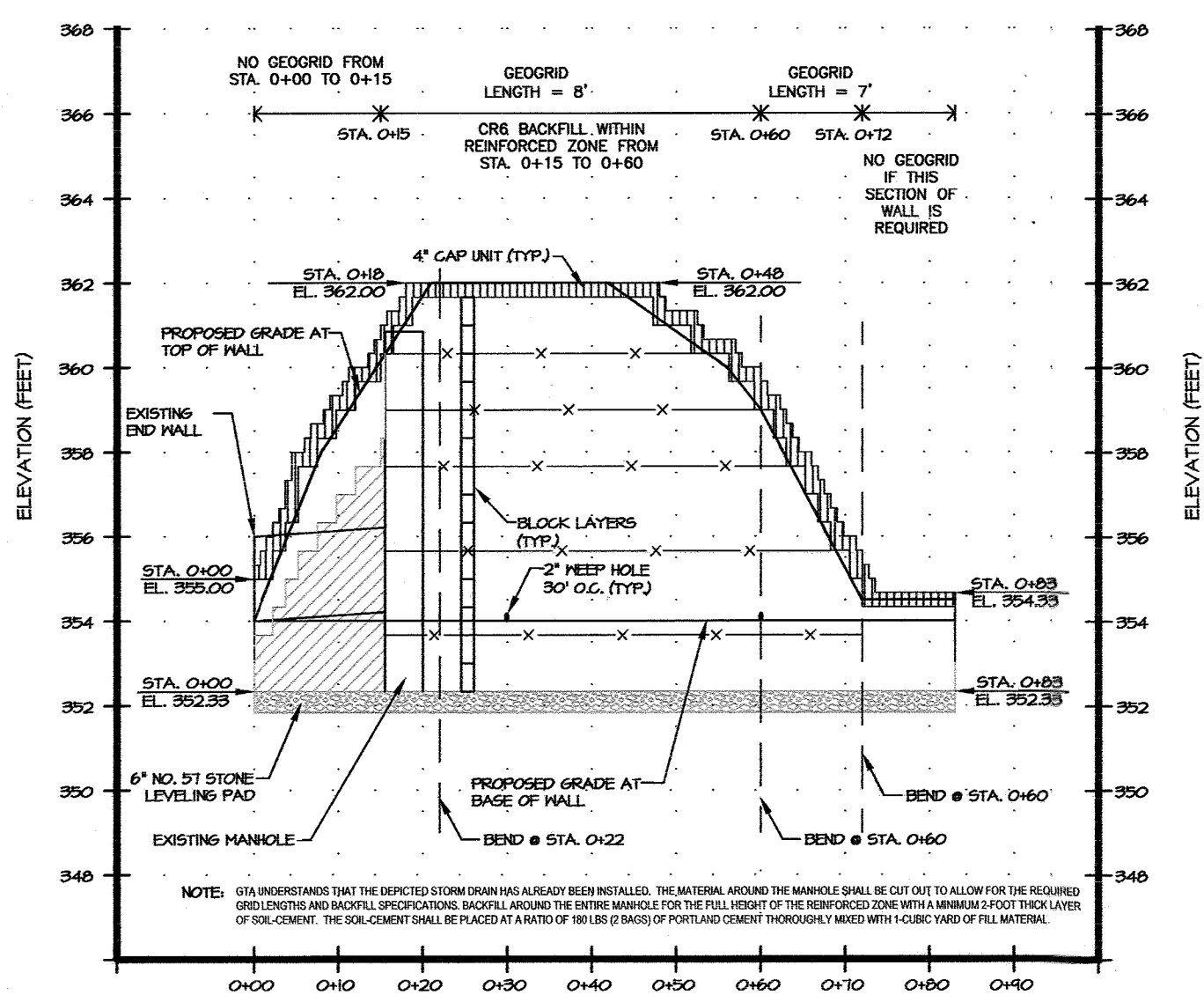
Chad [Signature] 10-7-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kate [Signature] 10-9-19
 CHIEF, DIVISION OF LAND DEVELOPMENT

Val [Signature] 10-16-19
 DIRECTOR

AS-BUILT

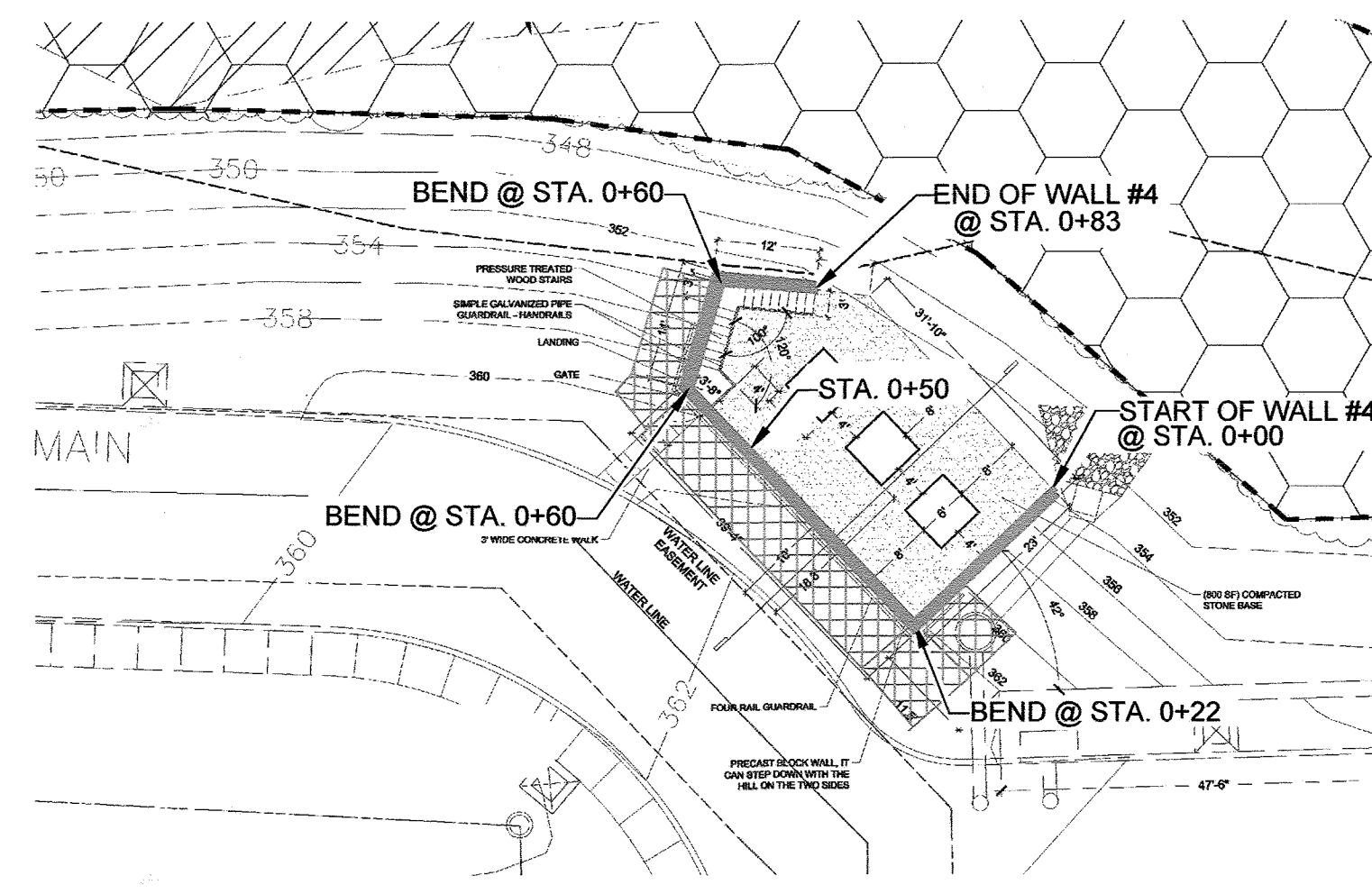
SDP-19-032



RETAINING WALL #4 PROFILE

SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

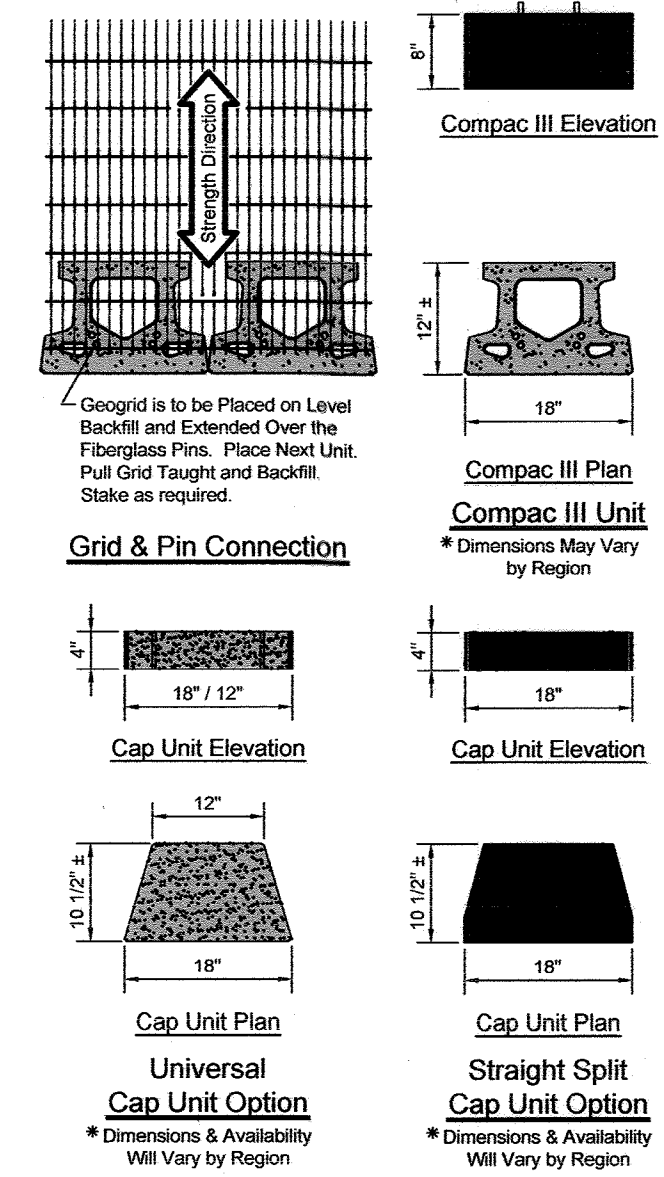
MIRAFI 3XT GEOGRID
DOUBLE STACKED KEYSTONE STANDARD III UNITS



RETAINING WALL #4 LOCATION PLAN

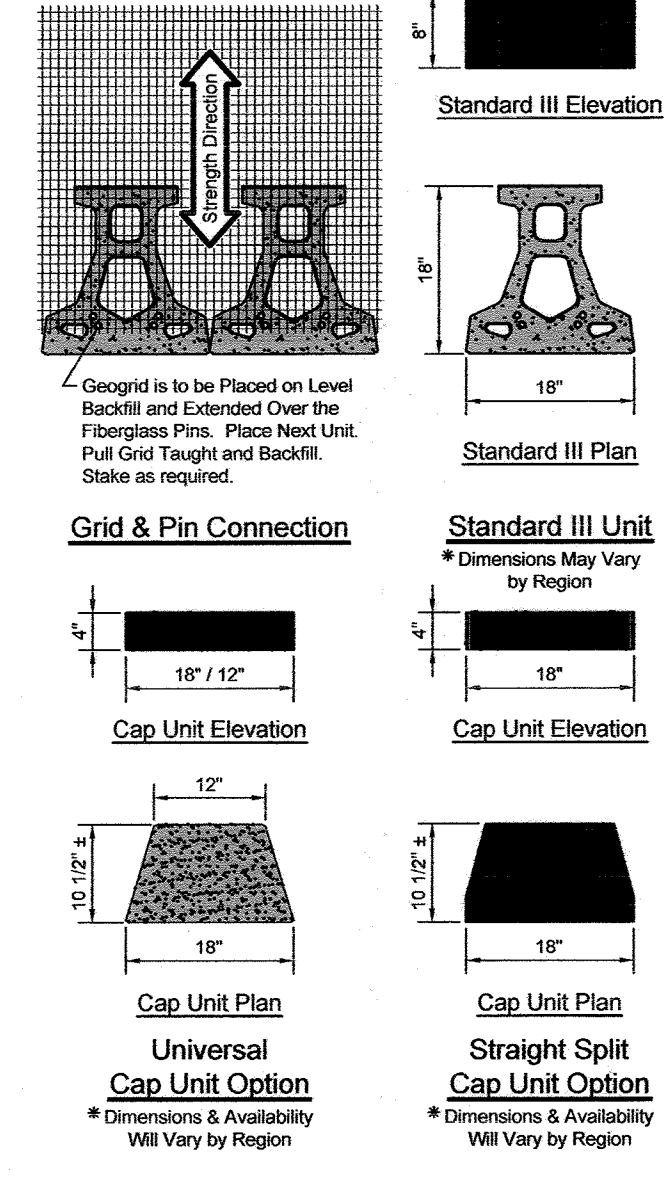
SCALE: 1" = 20'

APPROXIMATE REINFORCED ZONE



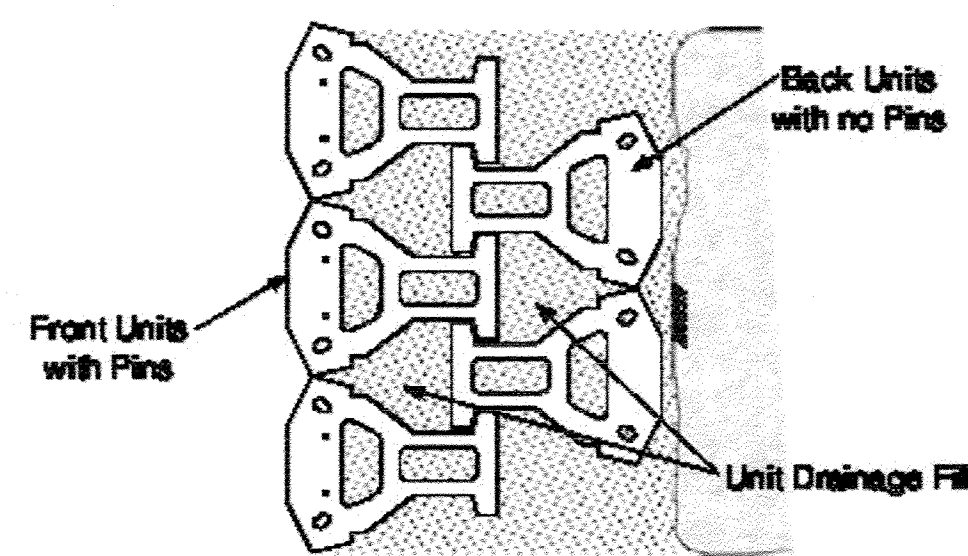
KEYSTONE KEYSTONE COMPAC III UNITS

NOT TO SCALE



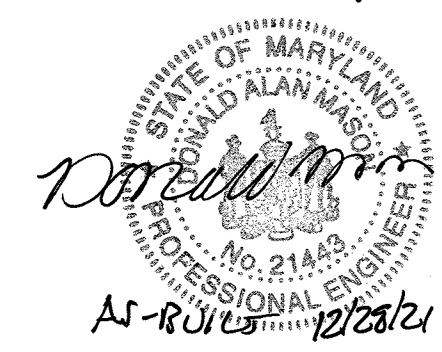
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NOT TO SCALE

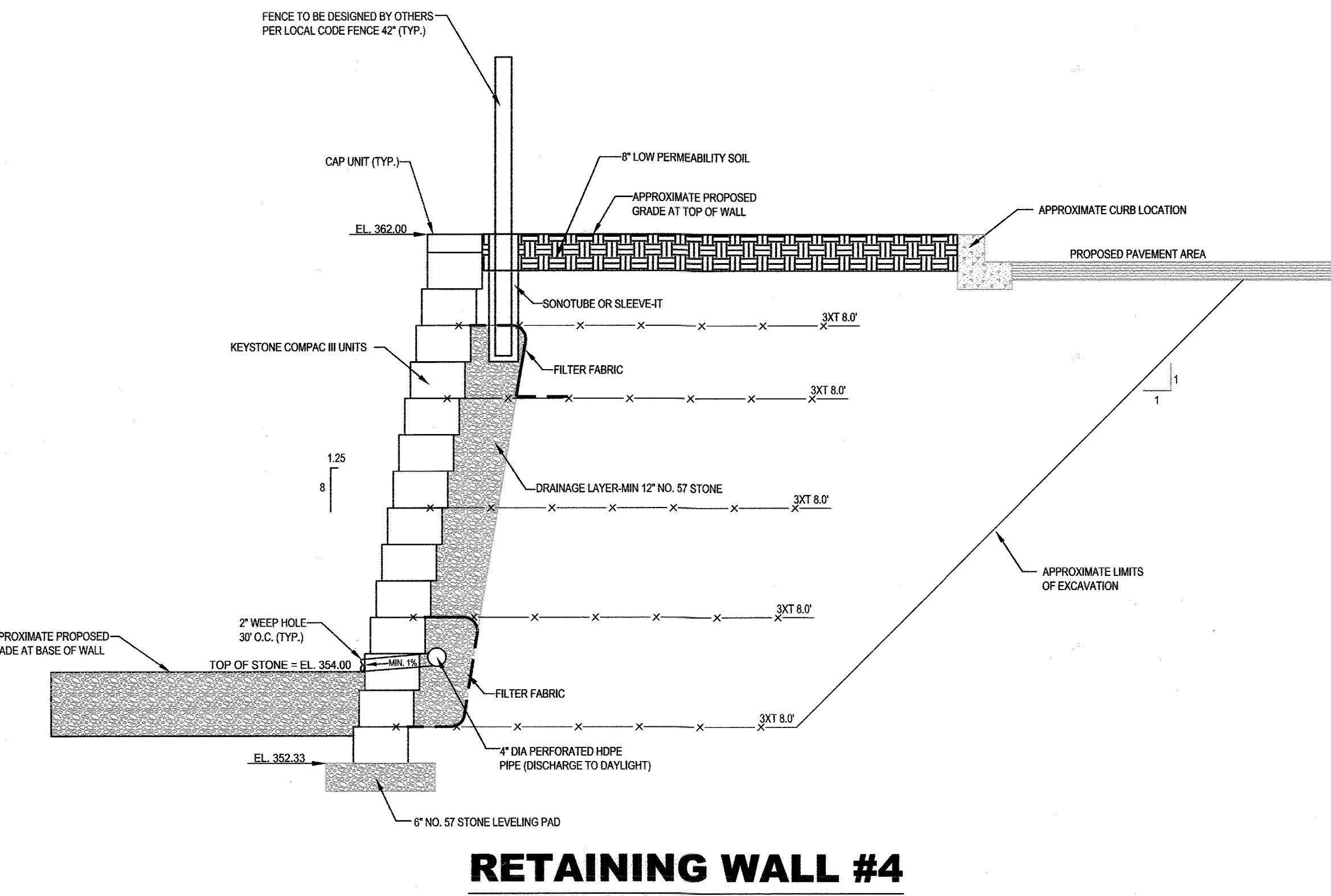


Typical Detail

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

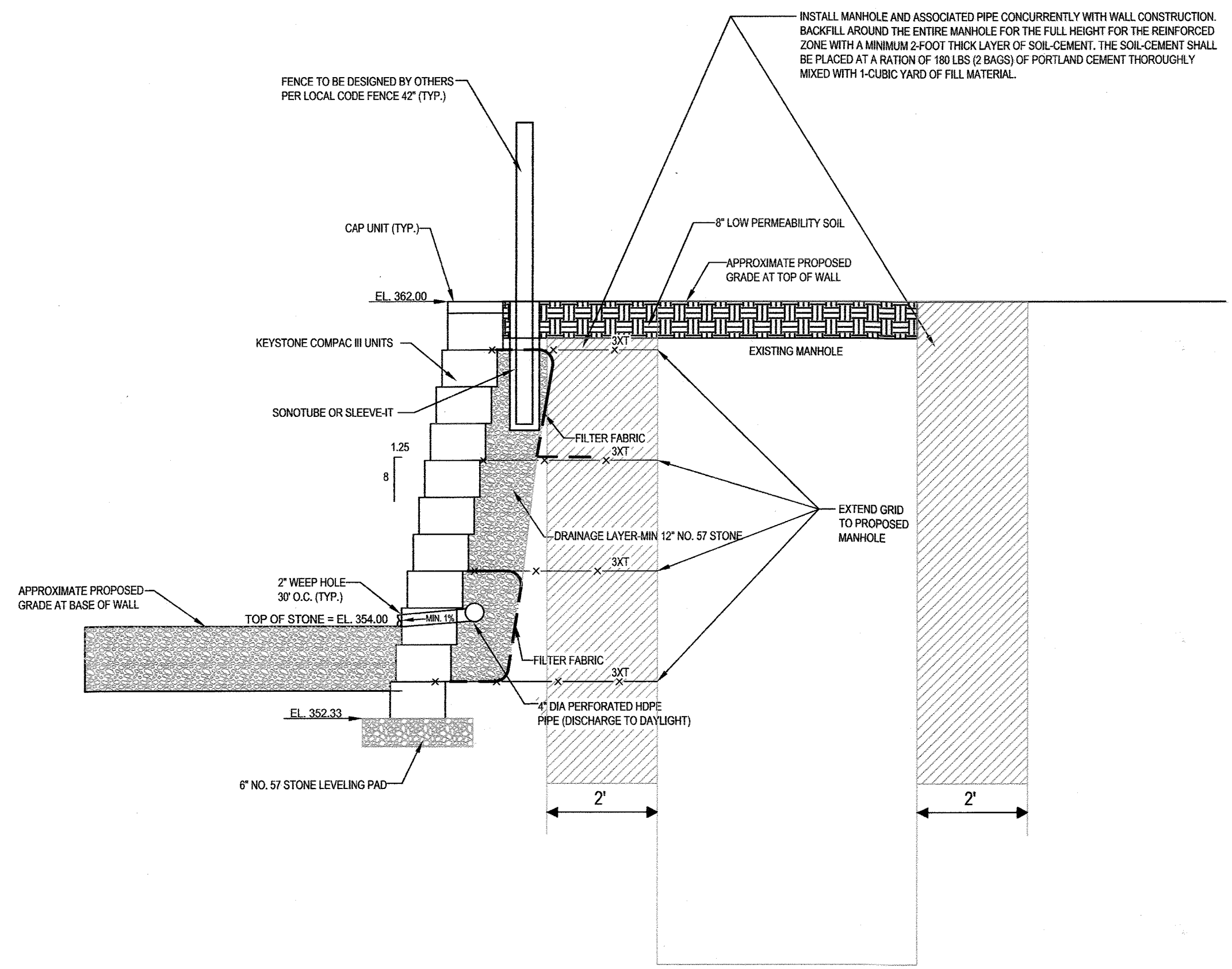


Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21445 Expiration Date: 12-21-22



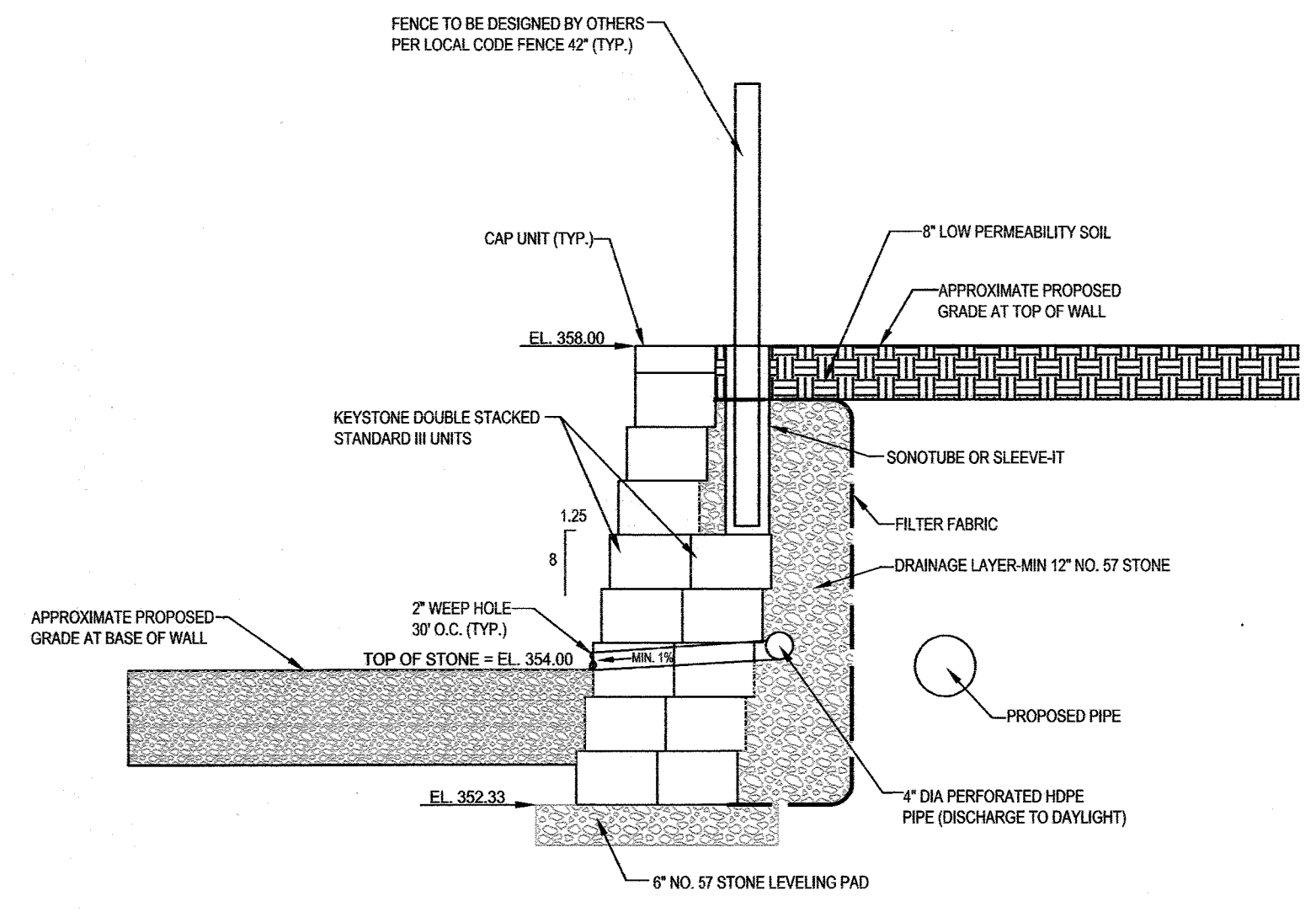
RETAINING WALL #4 CROSS SECTION VIEW @ STA. 0+30

SCALE: 1"=2'



RETAINING WALL #4 CROSS SECTION VIEW @ STA. 0+18

SCALE: 1"=2'



RETAINING WALL #4 CROSS SECTION VIEW @ STA. 0+10

SCALE: 1"=2'
THIS SHEET TO BE ADDED TO SDP-19-032

| NO. | DATE | REVISION |
|-----|------------|------------------------------|
| 2 | 2020-07-29 | REVISED PLANS |
| 1 | 2020-07-28 | REVISED WALL #4 GRID LENGTHS |

GEO-TECHNOLOGY ASSOCIATES, INC.
 GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
 3445-A BOX HILL CORPORATE CENTER DRIVE
 ABINGDON, MARYLAND 21409
 410-515-9446
 FAX: 410-515-4895
 WWW.GTAENG.COM
 © 2018 GEO-TECHNOLOGY ASSOCIATES, INC.

OWNER:
 LEGACY INVESTMENTS LLC
 2077 SOMERVILLE ROAD
 SUITE 206
 ANNAPOLIS, MARYLAND 21401
 410-266-5100

DEVELOPER/CONTRACT PURCHASER:
 BRIGHTVIEW COLUMBIA, LLC
 218 NORTH CHARLES STREET
 SUITE 220
 BALTIMORE, MARYLAND 21201
 410-965-0595

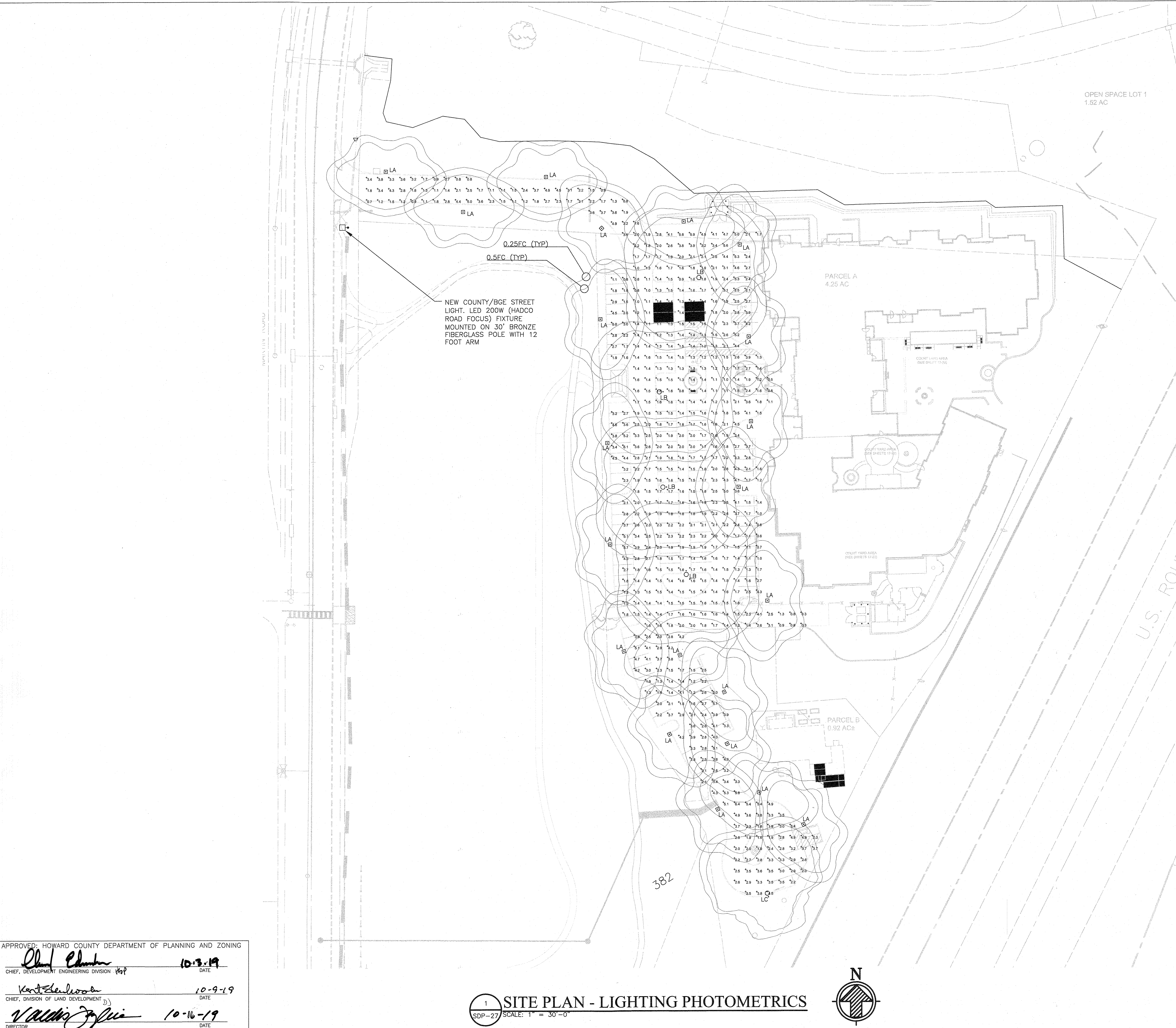
BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT PARCELS A & B AND OPEN SPACE LOT 1 (REVISED SITE DEVELOPMENT PLAN)
 TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
 ZONED: CEF-M
 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

RETAINING WALL #4 PLANS WALL #4 PROFILE, CROSS SECTION, AND LOCATION PLAN

DATE: JULY 24, 2020
 DESIGN: EBC
 DRAFT: TMW
 SCALE: AS SHOWN
 SHEET: 29 OF 31

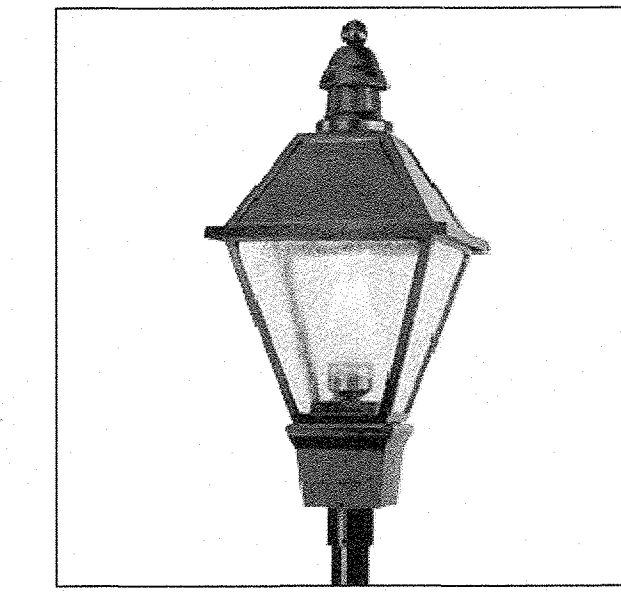
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 9/16/20
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 9/23/20
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 9-27-20
 DIRECTOR



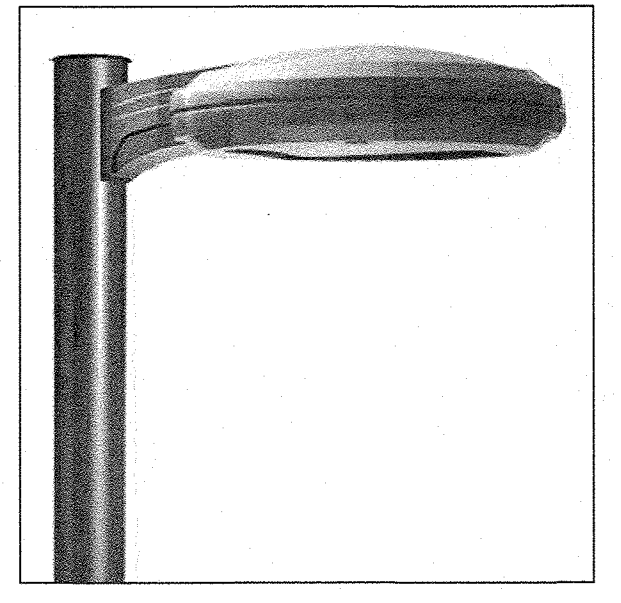


| Symbol | Label | QTY | Catalog Number | Description | Lamp | Number Lamps | Lumens per Fixture | LLF | Wattage |
|--------|-------|-----|--|--|------|--------------|--------------------|------|---------|
| □ | LA | 21 | STERNBERG LIGHTING 1843LED-841R45T3-MDL03-SV1 | 1843 Carson City Series Lantern, Roof Mounted LED Module, Flat Diffuse Acrylic Lens, Type 3, Post Top 1 Per Pole, 14' Round Pole | LED | 1 | 9655 | 0.85 | 118.2 |
| ○ | LB | 4 | LITHONIA LIGHTING MR2 LED-60C700-40K-TFM-4VOLT | Omero LED Area Light, Full Cut-Off, 25" Dia., 60 LED Module, Molded Acrylic Lenses, Type 5M, 1 Per Pole, Arm Mounted, 20' Round Pole | LED | 1 | 15774 | 0.85 | 132 |
| ○ | LC | 1 | LITHONIA LIGHTING MR2 LED-60C700-40K-TFM-4VOLT | Omero LED Area Light, Full Cut-Off, 25" Dia., 60 LED Module, Molded Acrylic Lenses, Forward Throw, 1 Per Pole, Arm Mounted, 20' Round Pole | LED | 1 | 15892 | 0.85 | 132 |

| LIGHTING STATISTICS (fc = Footcandle) | | | | | | |
|---------------------------------------|--------|--------|--------|--------|---------|---------|
| Description | Symbol | Avg | Max | Min | Max/Min | Avg/Min |
| PARKING | + | 2.3 fc | 6.4 fc | 0.3 fc | 21.3:1 | 7.7:1 |



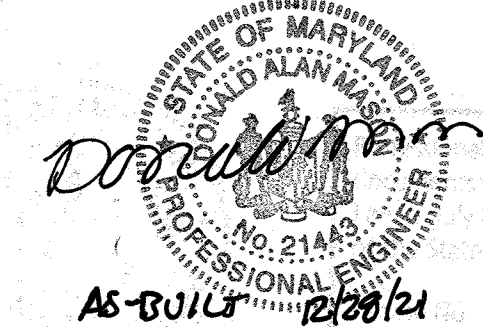
TYPE LA



TYPE LB AND LC

NOTE: IN ACCORDANCE WITH SECTION 134.0 C. OF THE ZONING REGULATIONS, ANY LIGHTING TO ILLUMINATE OFF-STREET PARKING AREAS SHALL BE SO ARRANGED AS TO DIRECT LIGHT DOWN, TOWARDS THE PARKING AREA, AND AWAY FROM ADJOINING LOT IN RESIDENTIAL DISTRICTS AND ANY PUBLIC STREET RIGHT-OF-WAY. IN ACCORDANCE WITH SECTION 134.0 D. OF THE ZONING REGULATION, LIGHT TRESPASS ONTO ANY OTHER PROPERTY ZONED OR USED FOR RESIDENTIAL PURPOSES SHALL BE LIMITED TO 0.1 FOOT CANDLES.

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Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12-21-22

| NO. | DATE | REVISION |
|-----|------|----------|
| | | |

MM CENTURY
ENGINEERING
CONSULTING ENGINEERS - PLANNERS
10710 GILROY ROAD
HUNT VALLEY, MD 21031
Phone: 443-589-2400 Fax: 443-589-2401



OWNER:
LEGACY INVESTMENTS LLC
2077 SOMERVILLE ROAD
SUITE 206
ANNAPOLIS, MARYLAND 21401
410-266-5100

DEVELOPER/CONTRACT PURCHASER:
BRIGHTVIEW COLUMBIA, LLC
218 NORTH CHARLES STREET
SUITE 220
BALTIMORE, MARYLAND 21201
410-965-0595

BRIGHTVIEW COLUMBIA
SENIOR LIVING DEVELOPMENT
"GREEN BUILDING"
PARCELS A & B AND OPEN SPACE LOT 1

TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495
ZONED: CEF-M
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN
LIGHTING PHOTOMETRICS

DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567
DESIGN: JCO DRAFT: MP SCALE: AS SHOWN SHEET 30 OF 31

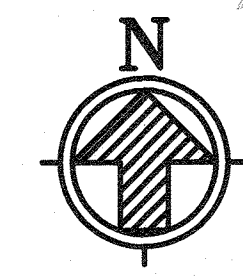
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

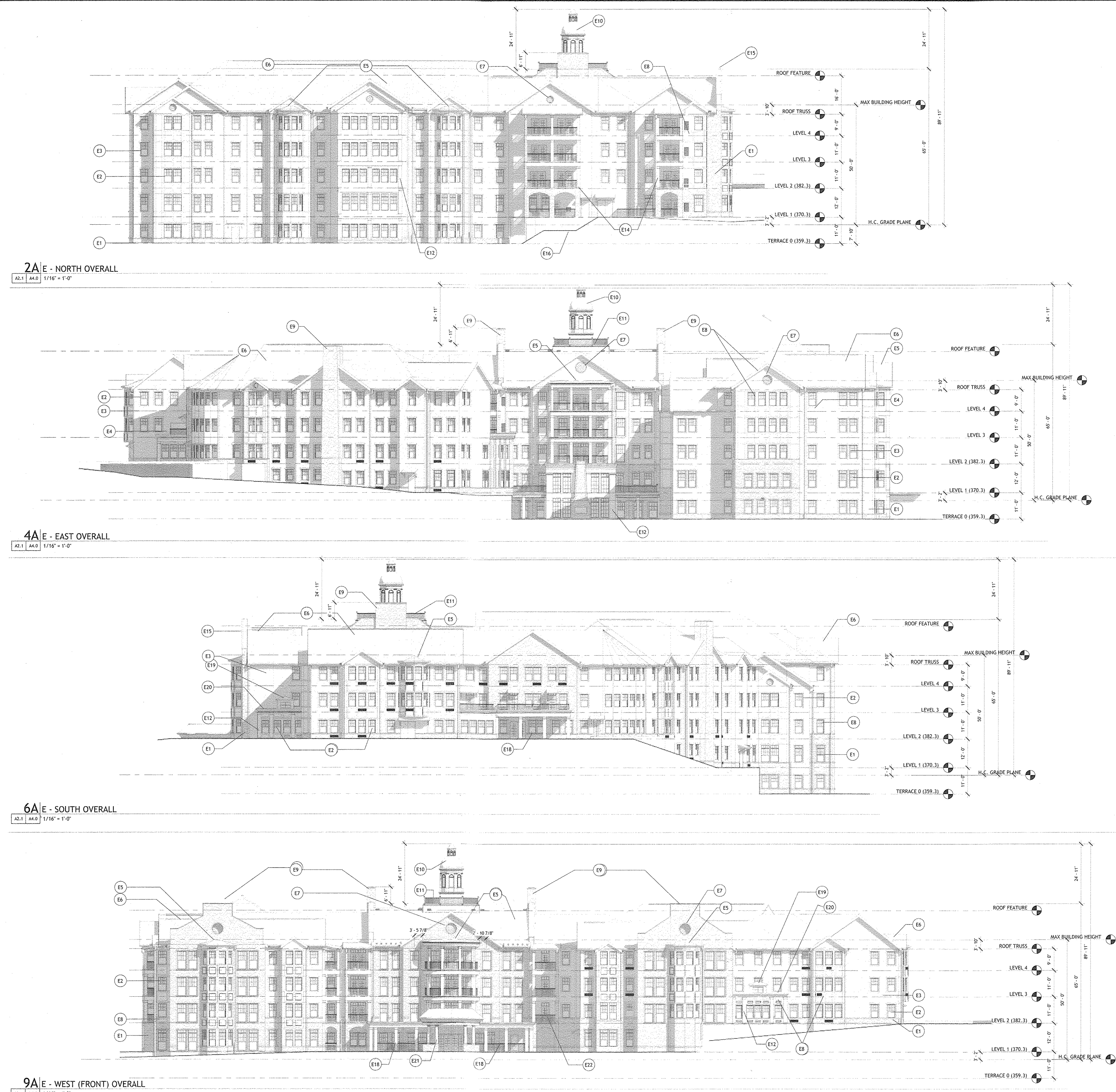
Donald A. Mearns 10-3-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Karl Anderson 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT

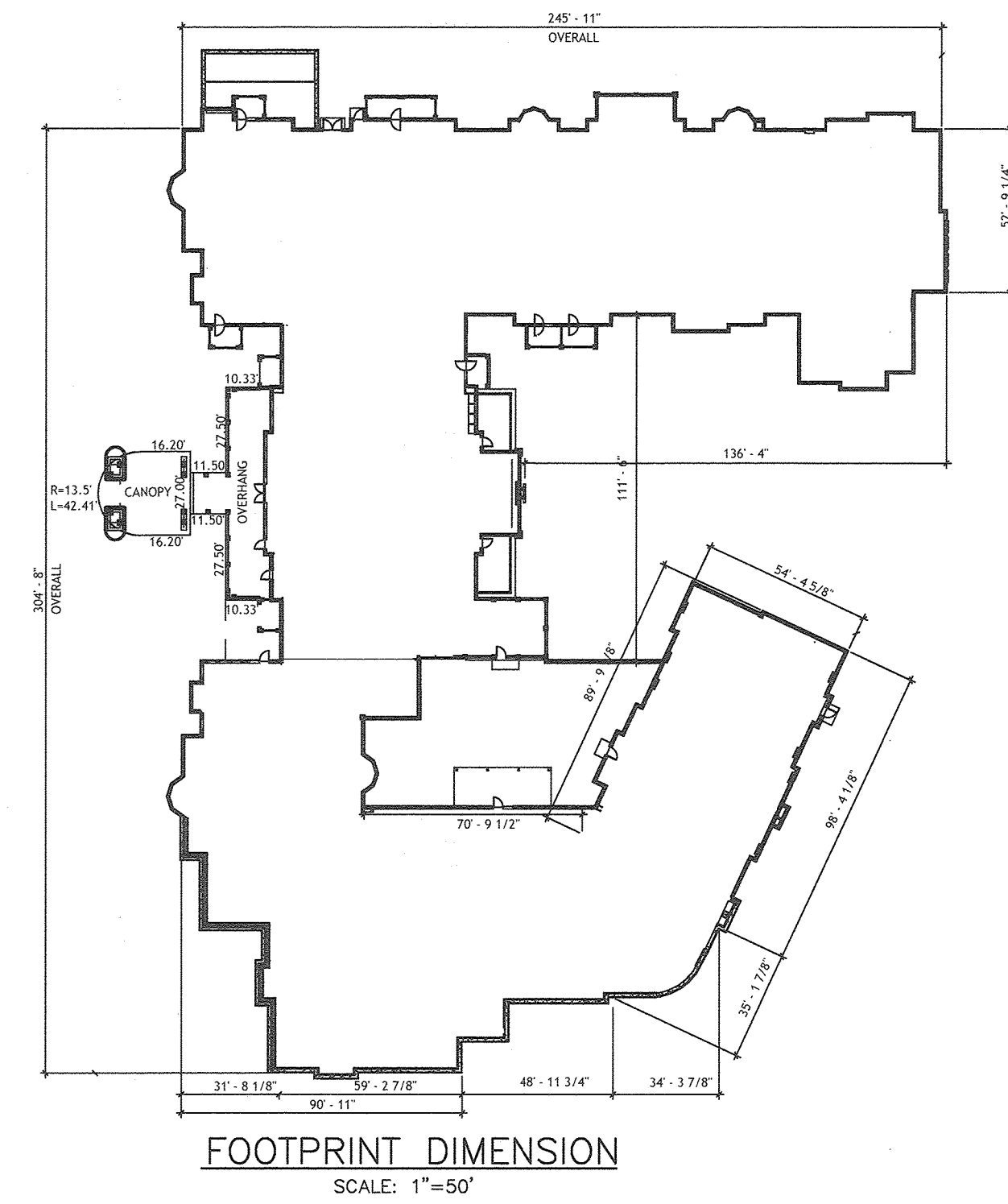
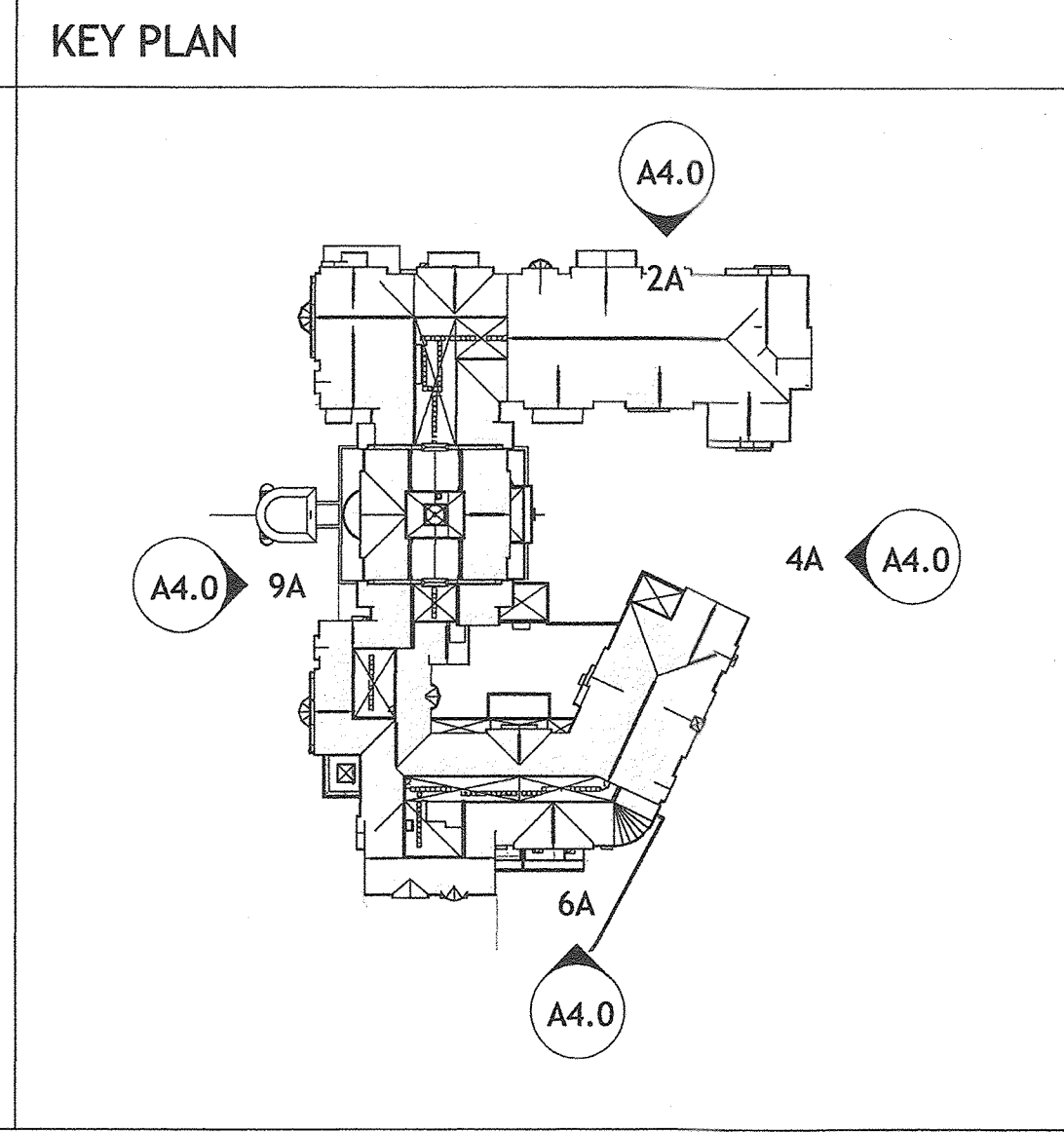
Valerie J. Jylia 10-16-19
DIRECTOR

1 SITE PLAN - LIGHTING PHOTOMETRICS
SCALE: 1" = 30'-0"





ELEVATION VIEWS
SCALE: 1" = 30'



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 10-3-19
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 10-9-19
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 10-16-19
DIRECTOR

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License No. 21443 Expiration Date 12-21-22

AS-BUILTS 12/28/21

| NO. | DATE | REVISION |
|-----|------|----------|
| | | |
| | | |
| | | |

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-8644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 22891 Expiration Date 6-30-2021

[Signature] 9-13-19

| | |
|---|---|
| <p>OWNER: LEGACY INVESTMENTS LLC 2077 SOMERVILLE ROAD SUITE 206 ANNAPOLIS, MARYLAND 21401 410-266-5100</p> | <p>BRIGHTVIEW COLUMBIA SENIOR LIVING DEVELOPMENT "GREEN BUILDING" PARCELS A & B AND OPEN SPACE LOT 1</p> |
| <p>DEVELOPER/CONTRACT PURCHASER: BRIGHTVIEW COLUMBIA, LLC 218 NORTH CHARLES STREET SUITE 220 BALTIMORE, MARYLAND 21201 410-965-0595</p> | <p>TAX MAP: 36 - GRID: 19 - PARCELS: 04, 108 & 495 ZONED: CEF-M ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND</p> |
| <p>DESIGN: JCO DRAFT: MP</p> | <p>DATE: SEPTEMBER 2019 BEI PROJECT NO. 2567 SCALE: AS SHOWN SHEET 31 OF 31</p> |

